ESTIMATION OF THE ELECTRICITY ENERGY WASTED DUE TO UNNECESSARY LIGHTING, A Case Study: Block B, FSG,

UiTM SHAH ALAM

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ABSTRACT

This study investigated the amount of energy wasted due to unnecessary lighting in Block B, the Faculty of Applied Science, UiTM Shah Alam. The unnecessary lighting in this case refers to the use of artificial lighting in unoccupied classrooms and corridors during school days due to human factors as well as system failure. Human factors could be due to forgetfulness or less sensitivity of the consumers on the energy-related issues, whereas system failure is more about the inefficiency in the installation of the lighting system in the building. For example, there were cases where the artificial lightings were automatically switched on unnecessarily in the area where it was already lited on by daylighting due to the reason of using common switches. Nevertheless, this study only focus on the amount of energy that could be saved if the lighting system were used wisely by putting initiative from the occupants in handling those weaknesses. 13 classrooms and corridors at Level 3 and Level 4 of the block were observed within the period of one month in order to get an average of the amount per week. Estimation of the amount of energy involved in a year was calculated based on the weekly average obtained from the observation and monitoring activities. It was estimated that 194.31 kWh of energy could be saved per year for these area of study alone. Comparing the amount to Building Energy Index (BEI), that is equivalent to 3.075 $kWh/m^2/yr$. On the other hand, measurement of illuminance level for each classroom revealed that 78% of the classrooms do not provide visual comfort to the occupants. The illuminance level was found below the recommended value in 7 classrooms whereas 3 classrooms were too high. Excessive illuminance level can cause glare and discomfort.

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