LIGHTING INSTALLATION WITH ENHANCEMENT IN ILLUMINATION EFFECTIVENESS

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ABSTRACT

This project presents the design of efficient lighting systems. This project will give several advantages to designers in their design to achieve an optimal illumination of lighting. The main objective of this project is to propose an efficient lighting design. This project was focusing on lighting design; due to lighting contribute the highest amount of electricity usage in a building. This project will help people to reduce the electricity usage that consumed by the lighting. The level of illumination attained must conform to the Illuminating Engineering Society (IES) Code or Jabatan Kerja Raya (JKR) Standards. The IES Code will be used in this project. The program developed is for the illumination design system for classroom, examination hall or office workspaces. The designer is required to fulfill the required information such as room's dimension, colour of ceiling and colour of wall. As a result, this program will automatically calculate the information needed by the designer such as room index, utilization factor, maintenance factor, number of luminaries needed, voltage drop and total saving cost. The determination of saving cost is based on comparison between the old (present) and new (suggestion) lighting designs. Thus, from this program it can help users to minimize their electricity usage according to lighting design in a building. Moreover, users are able to determine the minimum lamps used in certain room or area without reducing the quality of lighting at that place.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Lighting design is a tedious technical process. It is the process of integrating light into the fabric of architecture. Regardless of the space to be lighted up (such as an office or a classroom) and regardless of the light sources available for use, the same process is always same. The discipline of planned lighting management requires taking action to ensure that the lighting system consistently provides the most effective illumination at the lowest operating and maintenance cost.

Previously, lighting design is a complicated process where the designer needs to calculate the number of luminaries and check a variety of tables, table of illumination level and lamp data in order to fulfill the lighting calculation sheet. Observing the issue at hand, there are ways to overcome this problem. With that in mind, this thesis intends to embark on a research for a more systematic way, which may assist the designer to overcome the conventional practice, which is manually handled.

This project purposely was carrying out to help people to have an efficient lighting design in the building. Efficient lighting design means reducing the number of luminaries or lamps in a building while maintaining or improving the brightness (illumination) level in that building. By having an efficient lighting design, it can help people in order to minimize their liability costs.