A STUDY OF HEAT GAIN IN REDUCING COOLING LOAD FOR LIBRARY BUILDING IN UITM PERMATANG PAUH

SULFADLI BIN AB SALIM

(2016666024)

A thesis submitted in partial fulfillment of the requirement for the award of Bachelor Engineering (Hons) (Mechanical)

Faculty of Mechanical Engineering
Universiti Teknologi Mara (UiTM)

JULY 2020
“I declared that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree.”

Signed: ………………………
Date: ………………………

Sulfadli Bin Ab Salim
UiTM No: 2016666024
“We declared that we read this thesis and in our point of view this thesis is qualified in term of scope and quality for the purpose of awarding the Bachelor of Mechanical Engineering (Manufacturing) (Honours)”

Signed:

Date: 7th August 2020

Supervisor or Project Advisor

Norasikin Binti Hussin

Faculty of Mechanical Engineering

Universiti Teknologi MARA Cawangan Pulau Pinang (UiTMCPP)

13500 Permatang Pauh

Pulau Pinang
ACKNOWLEDGEMENT

First of all, I would like to express my sincere gratitude and appreciation to my supervisor Miss Norasikin Binti Hussin for her continue support, generous guidance, help, patient and encouragement in the duration of the thesis preparation until its completion.

Secondly, I am very grateful for my parent, Rosdiana Binti Supri and Abd Salim Bin Tangali for their continues support for me in completing my study. Their also have supported my expenses in the whole period of my study.

I would also like to thank the lecturers and staff of the Faculty of Mechanical Engineering University Teknologi MARA Cawangan Pulau Pinang who taught me fundamental and definition of the engineering world in this educational center during my eight semesters. I would like to thank Mr. Mohamad Sarih Daud, Faculty of Electrical Engineering Assistant Engineer, and Facility Department Manager UiTM Permatang Pauh for evaluating and directing me during the year.

Last but not least, I want to express my gratitude to those involved directly or indirectly as my idea is being done. I love and admire thank you for all your support and cooperation.
Buildings in Malaysia are consume more electrical energy consumption. There are many factors that drive the energy consumption and demand in commercial and non-commercial building. Heat gain from sunlight is one of factors that affect the increasing of energy consumption. In this study, library building in UiTM Cawangan Pulau Pinang, Permatang Pauh kampus is chosen. This research is to investigate how different of the building orientations and sunlight heat gain affected the energy consumption. The orientation of buildings has an important influence in the inside air temperature. Study on the influence of the building orientation on the thermal sensation has been carried out. In order to achieve objective, the literature study and walk through assessment are required to gather information that related to study. IES VE building simulation is used to determine energy consumption based on building orientation. The best orientation of a rectangular building is when it is orientate at 5° Northeast. In conclusion, to achieve a better thermal comfort and reduce sunlight heat gain, the best orientation is needed to applied for future work. This study will able to suggest on solution to reduce heat gain of building simulation.