

THE ELECTRICAL INSTALLATION DESIGN OF MULTI STOREY OFFICE BLOCK

This thesis is presented in partial fulfillment for the award of
Bachelor of Electrical Engineering (Hons)
UNIVERSITI TEKNOLOGI MARA



AHMAD SALEHUDIN BIN ABDULLAH SANI
2005741683
B.ENG (Hons) ELECTRICAL
Faculty of Electrical Engineering
UNIVERSITI TEKNOLOGI MARA (UiTM)
Shah Alam Selangor Darul Ehsan

ACKNOWLEDGEMENT

BISMILLAHIRAHMANIRAHIM. In the name of ALLAH S.W.T, the Most Gracious, the Ever Merciful. Praise to ALLAH S.W.T, Lord of the Universe and Peace and Prayers be upon His final Prophet Muhammad s.a.w and Messenger. I would like to take this opportunity to sincerely to express my highest appreciation to my project supervisor Ir. Amir Bin Mohd. Saad for his ideas, suggestion, advices and guidance until the completion of this project.

I would like to extend my thanks and grateful to all those who have assisted in this work through supplying the information, providing the application software and technical assistance. I express my deepest thanks to my family for their moral support and encouragement; my friends who have contribute information, suggestion, time and effort directly or indirectly in this progression of this project. Honestly I am grateful for all the support and favors, thank you and may ALLAH S.W.T bless you all.

*Ahmad Salehudin Bin Abdullah Sani
Faculty of Electrical Engineering,
Universiti Teknologi MARA (UiTM),
40450 Shah Alam,
SELANGOR DARUL EHSAN*

ABSTRACT

The main objective of this project is to design the electrical installation and all power requirements for a sixteen storey office building comprises four storey commercial building including three storey parking lot basements by using the AUTOCAD software design tools. Power requirement includes such as substation rating, distribution rating and generator set. This project applies the technique of electrical wiring installation design for high rise building. The scope of this project includes the technical specification, the layout design and designing the electrical schematic for that particular building. While completing this design, IEE Wiring Regulations and JKR Specification can be made as reference and guideline during the planning, design, implementation and construction. Furthermore this project concentrates on load demand estimation such as final load, cable size , protection system, application of drawing, final circuit, and low distribution scheme of this office building.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENT	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	viii
LIST OF TABLES	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1: INTRODUCTION	1
1.0 Introduction.....	1
1.1 Scope of Project	2
1.2 Organization of the thesis	2
CHAPTER 2: LITERATURE REVIEW	3
2.0 Introduction.....	3
2.1 Standard and Regulations	4
2.2 Type of Electricity Supply	4
2.3 Space Requirement	5
2.4 Requirements of TNB Substation	6
2.5 Main Switch Room	7
2.6 Generator Set	7
2.7 Main Switchboard.....	8
2.8 Circuit Protection	9
2.9 Rising Mains	9
2.10 Fireman’s Switch	10
2.11 Standby Generator Set	10
2.12 General Lighting and Socket Outlet Installation	11
2.13 Switching and Control of Lighting	11
2.14 Emergency Lighting.....	12
2.15 Exit Signs	13

CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

The building construction project consist of one block of sixteen storey office building comprised four storey commercial building and three parking storey parking basements. The electrical installation design of this building was according to the JKR specs and IEE wiring regulations.

Nowadays, electrical installation design in building is no longer efficient due to the lack of experience of the designer itself. Designer nowadays usually used material that does not meet the requirement of the electrical design. Due to this fact, the main objective of this project is to overcome all sort of problems in designing the electrical installation.

The requirements of IEE Regulations make it clear that circuits must be designed and the design data made readily available. Calculations of cable size are of little value unless the type of cable and its method of installation are known. At the same time, the supply that will be used either single phase or three phases, the type of earthing arrangements, and so on must be determined. Having ascertained all the necessary details the method of installation, the type of cable and protection against electrical shock and overcurrents can be determined. The maximum demand of an installation, expressed in amperes, shall be assessed.