

ELECTRICAL AND MECHANICAL DESIGN ESTIMATION
FOR 3 STAR HOTEL INFRASTRUCTURE

by

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Report submitted in partial fulfillment
of the requirements for the degree
of Bachelor of Engineering (Electrical Systems Engineering)



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DECLARATION SHEET

I hereby declare that my Final Year Project Thesis is the result of my research work under supervision of Mr Anayet Karim . All literature sources used for the writing of this thesis have been adequately referenced.

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APPROVAL AND DECLARATION SHEET

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MENGENALPASTI SERTA MENGANGGAR REKABENTUK ELEKTRIKAL & MEKANIKAL UNTUK INFRASTRUKTUR HOTEL 3 BINTANG

ABSTRAK

Projek ini membincangkan tentang kerja-kerja menganggar dan mengenalpasti rekabentuk Elektrikal & Mekanikal (M&E) untuk hotel 3 bintang, Hotel Putra Palace, Perlis. Projek ini banyak mengutamakan kerja-kerja yang berdasarkan ekperimental pengumpulan data. Pemerhatian di tapak kerja adalah hal penting yang utama untuk mendapatkan semua maklumat dan data yang berkaitan dengan kerja Elektrikal & Mekanikal (M&E) di Hotel Putra Palace, Perlis. Lukisan yang menggunakan AutoCAD juga penting untuk projek ini terutamanya yang membabitkan gambar rajah pelan, gambar rajah litar skema dan gambar rajah pelan pendawaian supaya memudahkan kerja merujuk pada struktur bangunan. Projek tahun akhir ini (FYP) akan mendedahkan diri kepada kerja yang berorientasikan amal praktikal dan idea untuk menyelesaikan pekerjaan. Penekanan yang diberikan untuk mencari konsep rekabentuk untuk indeks bilik, pemilihan kabel, papan pengagihan, pemutus litar, rekabentuk pencawang, bas bar 'ducting' dan semua yang pemilihan yang berkaitan unsur-unsur Elektrikal & Mekanikal (M&E).

ELECTRICAL AND MECHANICAL DESIGN ESTIMATION FOR POWER 3 STAR HOTEL INFRASTRUCTURE

ABSTRACT

This project discusses about Electrical & Mechanical (M&E) Design Estimation for 3 Star Hotel, Putra Palace Hotel, Perlis. This project mainly to search for experimental work based on data collection and design estimation for Electrical and Mechanical (M&E) work. The observation work on sites is the main important thing in order to get all information and data related to M&E work in Putra Palace Hotel, Perlis. An AutoCAD drawing is also important for this project especially drawing of site plan schematic wiring diagram, electrical layout diagram, layout plan with referent to easily recognize building and structure. This Final Years Project (FYP) will get practical field oriented hands on idea to complete the work. The emphasis given to find the design concept for room index, cable selection, distribution board, substation estimation, bus bar ducting and all Electrical & Mechanical (M&E) elements selection.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	i
APPROVAL AND DECLARATION	ii
ABSTRAK	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	xi
LIST OF FIGURES	xiii
LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE	xv
CHAPTER 1 INTRODUCTION	
1.1 Introduction	1
1.2 Aims & Objective	2
1.3 Problem Statement/Gap	2
1.4 Scope of the Project	3
1.5 Project Overview	4
1.6 Outline of the Project	5
CHAPTER 2 LITERATURE REVIEW	
2.1 Introduction	6
2.2 Goal of System Design	7
2.3 Interior Lighting	9
2.3.1 Maintenance Factor	10
2.3.2 Co-Efficient of Utilization (CU)	10
2.3.3 Room Index	11
	vi

2.3.4	The utilization factor (UF)	11
2.3.5	Fluorescent Lampr	12
	2.3.5.1 A Fluorescent Overview	12
	2.3.5.2 List of Components	14
	2.3.5.3 Connection Diagram	15
2.3.6	Ballast Effect	15
2.4	Introduction of Air Conditioner Estimation	16
2.4.1	Air Conditioning Estimation	17
2.4.2	Cooling Capacity	17
2.4.3	Heat Load	18
2.4.4	Heat Load Calculation	18
	2.4.4.1 Floor Area of Room	18
	2.4.4.2 Window Size and Position	18
	2.4.4.3 Occupants	19
	2.4.4.4 Equipment	19
	2.4.4.5 Lighting	19
	2.4.4.6 Total Cooling required	20
	2.4.4.7 Number of Air Conditioner units required	20
	2.4.4.8 The Horse Power Estimation	20
	2.4.4.9 The Circuit & Cycle Diagram	21
	2.4.4.10 Air Conditioner Component Parts	21
	2.4.4.11 Air Conditioner Block Diagram	22
2.5	Distribution Board	23
	2.5.1 Selecting a Distribution Scheme	23
	2.5.2 Final Circuit	24
	2.5.2.1 Definition of a Final Circuit	24
	2.5.2.2 Socket Outlet	24
	2.5.2.3 IEE Regulation for Final Circuit	24
	2.5.2.4 Final Circuit Distribution	25
	2.5.3 Main Component Distribution Board	26

2.5.3.1	Residual Current Circuit Breaker (RCCB) or Earth Leakage Circuit Breaker (ELCB)	26
2.5.3.2	Miniature Circuit Breaker (MCB) & Moulded Case Circuit Breaker (MCCB)	27
2.5.3.3	List of Components	28
2.6	Cable Selection and Installation	29
2.6.1	Choosing the Correct Size Cable in Wiring	29
2.6.2	Total Connected Load (TCL)	29
2.6.3	Group Diversity	30
2.6.4	Maximum Demand	31
2.6.5	Current Carrying capacity	31
2.6.6	Voltage Drop	31
2.7	Hot & Cold Water System	32
2.7.1	Hot Water System Pressurization	32
2.7.2	Notes on System Design	33
2.7.4	Suggested Design Process	34
2.7.5	Standard Type of Basin and Shower Tap	34
2.7.5.1	Basin Tap	34
2.7.5.2	Shower & Bathtub Tap	35
2.7.6	List of Components Water System	37
2.8	Fire System	37
2.8.1	Fire Protection System	37
2.8.2	Fire Fighting System	38
2.8.3	Fire Alarm Panel	39
2.8.4	List of Components in Fire System	40
2.9	PA System	41
2.9.1	PA System Design Consideration	41
2.9.2	Clean Sound	41
2.9.3	Clear Sound	41
2.9.4	Intelligible Sound	42
2.9.5	Natural Sound	42

2.9.6	Balance Sound	42
2.9.7	Evenly Dispersed Sound	43
2.9.8	Adequate Sound Level	43
2.9.9	List of Components in PA System	44
2.10	Soil Resistivity	44
2.10.1	Theory of Soil Resistivity	45
2.10.2	Common Earthing Systems	46
2.10.3	List of Components Earthing System	47

CHAPTER 3 METHODOLOGY

3.1	Introduction	48
3.2	Level one: Information Gathering Method	48
3.3	Level Two: Data Collection Method	49
3.4	Level Three: The Estimation Method	50
3.5	Level Four : Drawing Method	50
3.6	Interior Lighting Estimation Methodology	51
3.7	Air Conditioner Estimation Methodology	53
3.8	Exhaust Fan Estimation Methodology	55
3.9	Cable Selection Estimation Methodology	56
3.10	Transformer Design Estimation Methodology	57
3.11	Summary	58

CHAPTER 4 RESULTS AND DISCUSSION

4.1	Introduction	59
4.2	Interior Lighting Estimation	59
4.2.1	Interior Lighting Estimation for Suite Room	59
4.2.2	Interior Lighting Estimation for Suite, King, & Standard Room	62
4.2.3	Other Interior Lighting	62
4.3	Air Conditioner Estimation	63

4.3.1	Air Conditioner Estimation for Suite Room Area	63
4.3.2	Air Conditioner Estimation for Other Room	65
4.3.3	Exhaust Fan for Bathroom	66
4.4	Estimation of Total Load	67
4.4.1	Total Connected Load (TCL) & Maximum Demand (MD)	67
4.4.1.1	TCL and MD for Standard Room	68
4.4.1.2	TCL and MD for King Room	68
4.4.1.3	TCL and MD for Suite Room	69
4.4.1.4	TCL and MD for Passageway, Lobby and Staircase Area	70
4.5	Total Load for The Hotel	70
4.5.1	Total Load for 3 rd Floor to 10 th Floor	70
4.5.2	Total Estimation Load for The Hotel	71
4.5.3	Cable Size Selection for Wiring Circuit	72
4.6	Distribution Board Design	74
4.6.1	Fuse Rating for MCB	74
4.6.2	Size of Incoming Cable Distribution Board of Suite Room	74
4.6.3	Rating of Incoming MCCB & RCCB Distribution Board (DB) for Suite Room	75
4.6.4	Size of Incoming Cable, Rating MCCB and RCCB Distribution Board for Suite, King, Standard Room and Lobby Area	76
4.7	Bus Bar Ducting System	77
4.7.1	Rating of Bus Duct	77
4.8	Main Switchboard (MSB) Design	78
4.8.1	Rating of MCCB in Main Switchboard and Size of Outgoing Cable	78
4.8.2	Rating of MCCB in MSB for Bus Duct and Essential Switchboard	79
4.9	Standby Generator Set	80
4.10	Simple Substation Calculation	81
4.10.1	Transformer Estimation	81
4.10.2	Transformer Tail Cables	81

CHAPTER 5 CONCLUSION

5.1	Conclusion	83
5.2	Recommendation for Future Project	84

REFERENCE	85
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APPENDICES

Appendix A	Utilization Factor	88
Appendix B	Standard Lumens for Menthol / Tube Lighting	94
Appendix C	Lux Regulation (JKR Standard)	97
Appendix D	Example of Exhaust Fan (KDK Company)	99
Appendix E	Electrical Arrangement for Hotel Room	102
Appendix F	Voltage Drop & Rating of MCCB for Single Phase and Three Phase	106
Appendix G	Schematic Diagram of DB for Hotel Room	112
Appendix H	Bus Bar Ducting Rating and Example of Arrangement (LG Company)	116
Appendix I	Detail Distribution Load System for Whole Building	119
Appendix J	Air Conditioner Detail View	122
Appendix K	Architecture Drawing	127

LIST OF TABLES

Table No.		Page
2.1	Typical Reflectance Values	11
2.2	Typical Reflectance Values Recommends in Offices / Command Rooms	12
2.3	List of Fluorescent Lamp Components	14
2.4	Minimum Energy Performance Standard(MEPS) for Fluorescent lamp Ballast	16
2.5	List of Air Conditioner Components	21
2.6	List of Distribution Board Components	28
2.7	Typical values of cable size available plus corresponding current rating and maximum power rating	29
2.8	Typical value for diversity factor for various customer classes	30
2.9	List of Items in Water System	37
2.10	List of Items in Fire System	40
2.11	List of Items in PA System	44
2.12	List if Items in Earthing System	47
4.1	Interior Lighting Estimation	62
4.2	Air Conditioner Estimation	65
4.3	Calculation TCL and MD for Standard Room	68
4.4	Calculation TCL and MD for King Room	68
4.5	Calculation TCL and MD for Suite Room	69
4.6	Calculation TCL and MD for Lobby Area	70
4.7	Total Load for Hotel	71
4.8	Cable Sizing for Wiring in Standard Design	72
4.9	Fuse Rating Rules for MCB Design	73
4.10	Rating MCCB and Size Incoming Cable for 3 rd Floor	75
4.11	Rating of MCCB and Size outgoing Cable for Ground, 1 st and 2 nd Floor in MSB	77
4.12	The recommend maximum planning load demands	79
4.13	Transformer Tail	80

LIST OF FIGURES

Figure No.		Page
1.1	Flow Chart of Project Overview	4
2.1	Basic of Building System	6
2.2	Diagram of Preheat Circuit Fluorescent Lamp	13
2.3	Diagram of Instant Start Circuit Fluorescent Lamp	13
2.4	Diagram of Rapid Start Circuit Fluorescent Lamp	14
2.5	Connection Diagram of Fluorescent Lamp	15
2.6	Cycle Diagram of Air Conditioner	21
2.7	Block Diagram of Air Conditioner	22
2.8	Two Pole (2P) Residual Current Circuit Breaker	27
2.9	Different Rating Type of MCB	27
2.10	Example of Single Line Diagram for DB	28
2.11	Hot & Cold Water Systems	32
2.12	Hot & Cold Water System Using Boosters Pumps	33
2.13	Single Lever Basin Tap	34
2.14	Twin Handle Basin Tap	35
2.15	Shower Tap	35
2.16	Bathtub Mixer Tap	35
2.17	Twin Handle Bathtub Mixer Tap	36
2.18	Shower & Bathtub Mixer Tap Combine	36
2.19	Smoke Detector	39
2.20	Heat Detector	40
2.21	Sprinkler	40
3.1	Information Gathering Method	49
3.2	Procedure of Interior Lighting System	52
3.3	Procedure of Total Cooling Requirement	54

3.4	Procedure of Air Conditioner Estimation	55
3.5	Procedure of Design Exhaust Fan	56
3.6	Procedure of Determine The Incoming Cable to Distribution Board	57
3.7	Procedure of Determine The Size of Transformer	58

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LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE

UniMAP	University Malaysia Perlis
TNB	Tenaga Nasional Berhad
JKR	Jabatan Kerja Rasa
IEE	Institute of Electrical Engineers
IES	Illumination Engineer Society
SIRIM	Standard and Industrial Research Institute of Malaysia
HP	Horsepower
KVA	Kilo Volt-Ampere
KW	Kilowatt
KWh	Kilowatt hours
LUX	SI Unit of Illuminance
MF	Maintenance Factor
K	Room Index
CU	Co-efficient of Utilization
UF	Utilization Factor
BTU	British Thermal Unit
F	Fahrenheit
MSB	Main Switchboard
DB	Distribution Board
CFM	Cubic Feet per Minutes
TCL	Total Connected Load
MD	Maximum Demand
HVAC	Heating, Ventilation and Air Conditioning
SPN	Single Pole Neutral
TPN	Three Pole Neutral
RCD / RCCB	Residual Current Device / Residual Current Circuit Breaker

MCB	Miniature Circuit Breaker
MCCB	Moulded Case Circuit Breaker
ELCB	Earth Leakage Circuit Breaker
DF	Diversity Factor
NRV	Non Return Valve
MWS	Main Water Service
HWS	Hot Water Service
LTHW	Low Temperature Hot Water
F & R	Flow and Return
PA	Power Amplifier
N.E.B	National Electric Board
PVC	Polyvinyl Chloride
HT	High Tension
LV	Low Voltage
Al	Aluminum
Cu	Copper

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