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ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

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DESIGN OF ELECTRICAL SERVICES
OF A HOTEL

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**DESIGN OF THE ELECTRICAL SERVICES
OF A HOTEL**

BY

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To

MY DEAR PARENTS

*For all their help they offered me
throughout the years at the H.T.I. and especially throughout this project*

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CONTENTS

| | |
|---|----|
| AKNOWLEDGEMENTS | 3 |
| CONTENTS | 4 |
| ABSTRACT | 6 |
| SYMBOLS AND ABBREVIATIONS | 7 |
| INTRODUCTION | 8 |
| | |
| <u>CHAPTER 1</u> | |
| <i>ILLUMINATION</i> | |
| 1.1 Introduction | 11 |
| 1.2 Electric Lamps | 11 |
| 1.3 Units and Definitions | 11 |
| 1.4 Methods of Illumination Calculations | 13 |
| 1.5 Actual Design | 14 |
| 1.6 Results of Illumination Design | 17 |
| | |
| <u>CHAPTER 2</u> | |
| <i>LIGHTING AND POWER REQUIREMENTS</i> | |
| 2.1 Objects and Effects | 21 |
| 2.2 Fundamental Requirements for Safety | 21 |
| 2.3 Design Procedure | 21 |
| 2.4 Actual Design Procedure | 23 |
| 2.5 High Power Circuits | 31 |
| 2.6 External Lighting | 38 |
| 2.7 Supply Cables Calculation | 39 |
| 2.8 Fault Level Calculations | 39 |
| | |
| <u>CHAPTER 3</u> | |
| <i>SAFETY AND EARTHING</i> | |
| 3.1 General | 60 |
| 3.2 Situations where special Precautions are needed | 60 |
| 3.3 Definitions | 61 |
| 3.4 Protection for Safety | 62 |
| | |
| <u>CHAPTER 4</u> | |
| <i>INSPECTION AND TESTING</i> | |
| 4.1 Introduction | 64 |
| 4.2 Visual Inspection | 64 |
| 4.3 Testing | 64 |
| 4.4 Certification | 69 |

CHAPTER 5

TELEPHONE DISTRIBUTION SYSTEM

| | |
|--|----|
| 5.1 Definitions | 70 |
| 5.2 Conduits and Conduits sizes | 71 |
| 5.3 Installation of the Distribution Cases | 71 |
| 5.4 Installation of Telephone Lines | 72 |
| 5.5 Type of EPABX's | 73 |
| 5.6 Earthing | 73 |

CHAPTER 6

FIRE ALARM SYSTEM

| | |
|--------------------------------|----|
| 6.1 GENERAL | 79 |
| 6.2 Types of fire Alarms | 79 |
| 6.3 Actual Design Calculations | 82 |

ABSTRACT

This Project deals with the design of the Electrical Services of a Hotel.

The Electrical Services are the Lighting, Power, and Telecommunication Installation.

This work has been divided into chapters as follows:

CHAPTER 1 This chapter deals with the Illumination design in accordance with CIBS code we can find the level of Illumination of the various areas.

CHAPTER 2 This chapter deals with the Power and Lighting circuits in accordance with IEE Regulations as currently amended and the local EAC conditions of supply.

CHAPTER 3 This chapter deals with the Safety and Earthing.

CHAPTER 4 This chapter deals with the Inspection and Testing.

CHAPTER 5 This chapter deals with the Telephone Distribution design of the Hotel in accordance with CYTA requirements.

CHAPTER 6 This chapter deals with the Fire Alarm system of the Hotel.

The necessary pictures, catalogues and information are given in the appendices.

The drawings of the Electrical Installation of the Hotel are also included.

SYMBOLS AND ABBREVIATIONS

| | |
|------|---|
| MDB | Main Distribution Board |
| DB | Distribution Board |
| AC | Alternate Current |
| DC | Direct Current |
| MDC | Main Distribution Case |
| DC | Distribution Case |
| BS | British Standards |
| IEE | Institution of Electrical Engineers |
| EAC | Electricity Authority of Cyprus |
| MCB | Miniature Circuit Breaker |
| MCCB | Mounded Case Circuit Breaker |
| RCCD | Residual Current Circuit Breaker |
| TP&N | Three Phase and Neutral |
| PVC | Polyvinyl Chloride |
| CPC | Circuit Protection Conductor |
| CSA | Cross Sectional Area |
| SWA | Steel Wire Armoured |
| EFLI | Earth Fault Loop Impedance |
| MF | Maintenance Factor |
| RI | Room Index |
| PF | Power Factor |
| CCT | Circuit |
| VD | Voltage Drop |
| h | Efficiency |
| HP | Horse Power |
| FCU | Fan Coil Unit |
| CIBS | Chartered Institute of Building Services |
| Y2L1 | Lighting Circuit L1 Supplied by Distribution Board Y2in the Basement |
| S/O | Socket Outlet |

INTRODUCTION

This Project deals with the design of the Electrical Services of a Hotel, situated in Limassol.

It consists of the Basement, the Ground floor, the Mezzanine, the Typical floor and the Roof

The whole installation is carried out in accordance to the following requirements:

1. The 16th edition of the IEE wiring Regulations and additional local Regulations.
2. EAC Conditions of supply.
3. CIBS code of Interior lighting.
4. Interior lighting design.
5. CYTA Regulations.

ASSUMPTIONS

1. Supply Voltage: 415V rms 50Hz TT Earthing system.
2. Wiring Method: PVC conduit (method 3).
3. Cables: a. PVC copper single core
b. PVC /SNA/PVC
4. Earth conduit carries one circuit only, so grouping factor $C_g=1$
5. Ambient Temperature is assumed to be 30° C, so ambient temperature factor $C_a=1$
6. Thermal Insulation Factor $C_i=1$
7. Overcurrent protective device : BS3871 Type1 MCB
8. External Earth Fault Loop Impedance = 0.5Ω
9. Height of each floor = 3m
10. Height of DB's from floor = 1.5m
11. Height of switches from floor = 1.5m
12. Height of socket outlets from floor = 1.5m