HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF ELECTRICAL SERVICES OF A HOTEL

POTAMITIS NEARCHOS

E. 1143

JUNE 1998

DESIGN OF THE ELECTRICAL SERVICES

OF A HOTEL

BY

POTAMITIS NEARCHOS

Project Report
Submitted to
The Department of Electrical Engineering
Of the Higher Technical Institute

Nicosia, Cyprus
In partial fulfillment of the requirements
For the Diploma of

TECHNICIAN ENGINEER

IN

ELECTRICAL ENGINEERING

June 1998

To

MY DEAR PARENTS

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

ACKNOWLEDGEMENTS

I would like to express my thanks to my project supervisor Mr. Kourtelis for his guidance and assistance given throughout the project period

My thanks also goes to all those who in anyway helped me during the project time.

POTAMITIS NEARCHOS

CONTENTS

CHAPTER 5

TELEPHONE DISTRIBUTION SYSTEM

CHAPTER 6

FIRE ALARM SYSTEM

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 ABREVIATIONS

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 Cg=1
5. Ambient Temperature is assumed to be 30° C, so ambient temperature factor Ca=1
6. Thermal Insulation Factor Ci=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