

ELECTRICAL INSTALLATION
OF AN OFFICE BLOCK

Project report submitted by
DIONYSIOU MARIOS

in part satisfaction of the award of
Diploma of Technician Engineer in
Electrical Engineering
of the
Higher Technical Institute, Cyprus

Project Supervisor : Mr. Ch. Chrysafiades
Lecturer in Electrical
Engineering , H.T.I.

Type of Project : Individual

June 1989.



S U M M A R Y

This project deals with the design of the electrical installation of an office block consisting of Basement, Ground floor and typical three floors.

Prior to the design illumination calculations were carried out. The cost of electrical installation for the building has been estimated, including labour.

The drawings indicating the position of control switches and arrangements of the final circuits were made as well as the single line diagram.

C O N T E N T S

CHAPTER 1 - ILLUMINATION

INTRODUCTION	1
DEFINITIONS	3
LIGHT LOSS FACTOR	4
GLARE	5
STROBOSCOPIC EFFECT	5
INVERSE SQUARE LAW OF ILLUMINATION	
SPACING OF FITTINGS	6
SELECTION OF LUMINAIRE	8
DESIGN PROCEDURE	8
ACTUAL DESIGN	9
THE ILLUMINATION RESULTS	

CHAPTER 2 - EARTHING

INTRODUCTION	12
TYPES OF EARTHING SYSTEMS	
TT SYSTEM	14
EARTH FAULT LOOP IMPEDANCE	
BONDING	16
METHODS OF EARTHING	17
RESIDUAL CURRENT DEVICES	18

CHAPTER 3 - TESTING

GENERAL	19
VISUAL INSPECTION	
CONTINUITY OF RING CIRCUIT	20
INSULATION RESISTANCE	

CHAPTER 4 - ELECTRICAL DESIGN

INTRODUCTION	24
CHARACTERISTICS OF SUPPLY	
DESIGN PROCEDURE	25
ACTUAL DESIGN OF SOCKET OUTLET	28
RESULTS OF SOCKET OUTLET CIRCUITS	33
ACTUAL DESIGN OF LIGHTING CIRCUIT	34
RESULTS OF LIGHTING CIRCUITS	37
MOTOR CIRCUITS	39
RESULTS OF MOTOR CIRCUITS	44
SUPPLY CABLES	45
RESULTS OF SUPPLY CABLES	48
BALANCING THE PHASES	49

CHAPTER 5 - COSTING

INTRODUCTION	51
METHOD OF COSTING	52
RESULTS OF COSTING	52
CONCLUSIONS	54
APPENDICES	