

5/

ELECTRICAL INSTALLATION
OF A JUNIOR RANK ACCOMMODATION

Project Report Submitted by
SAVVAS TSANGARIDES
in part satisfaction of the award
of Diploma of Technician Engineer in
Electrical Engineering of the
Higher Technical Institute Cyprus.

Project Supervisor: Mr. J. Demetriou
Lecturer in Electrical
Engineering, HTI.

External Assessor: Mr N. Christou
Electrical Engineer

Type of Project: Individual
Group

June 1989.



A B S T R A C T

This project is a design of the electrical installation of a Junior Rank Accommodation complex. This complex has not been completed yet, and is located in Ayios Nikolaos , Dhekelia District.

The objectives of this project are:

- (a) To design the complete electrical installation of the J.R.A.
- (b) To study the illumination engineering work involved and determine the lighting load accordingly.
- (c) To provide all necessary diagrams schedule of materials and costing including labour.

In carrying out the design the I.E.E. (15th edition) were taken into account.

In calculating the illumination levels the I.E.S. recommendations were taken into account.

C O N T E N T S

Page

ABSTRACT

INTRODUCTION

NOTATION AND ABBREVIATIONS

CHAPTER 1 : ILLUMINATION

1.1 INTRODUCTION	1
1.2 ILLUMINATION LEVELS	1
1.3 DEFINITIONS	1
1.4 LAMPS	3
1.5 GLARE	4
1.6 STROBOSCOPIC EFFECT	4
1.7 SPACING OF FITTINGS	5
1.8 DESIGN PROCEDURE	6
1.9 ACTUAL DESIGN	7

CHAPTER 2 : EQUIPMENT AND PROTECTION

2.1 MAIN SWITCHGEAR	21
2.2 ISOLATION AND SWITCHING	21
2.3 DISTRIBUTION	22
2.4 OVERLOAD PROTECTION	23
2.5 S/C PROTECTION	23
2.6 ELECTRIC SHOCK CONSIDERATIONS	24
2.7 THERMAL CONSTRAINS	25

CHAPTER 3 : ELECTRICAL DESIGN

3.1 LIGHTING DESIGN	26
3.2 SOCKET DESIGN	31
3.3 COOKER DESIGN	35
3.4 DISTRIBUTION BOARD	39

CHAPTER 4 : MAIN CABLES CALCULATION 42

CHAPTER 5 : BALANCING OF PHASES 48

CHAPTER 6 : FAULT LEVEL CALCULATIONS 49

CHAPTER 7 : EARTHING

7.1 INTRODUCTION 51
7.2 I.E.E AND E.A.C 51
7.3 E.F.L.I 52
7.4 T.T SYSTEM OF SUPPLY 53

CHAPTER 8 : INSPECTION AND TESTING

8.1 INTRODUCTION 54
8.2 VISUAL INSPECTION 54
8.3 TESTING 55

CHAPTER 9 : COST ANALYSIS 58