HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING COURSE DIPLOMA PROJECT

PLANNING OF THE TELEPHONE DISTRIBUTION IN A HOUSING COMPLEX

E/879

BY

SIAMAROU ANDREAS

1993

ALGM

HIGHER TECHNICAL

ABSTRACT

This project deals with the telephone distribution in a hotel.

CHAPTER 1 - deals with the external distribution network. General information about the relevant CYTA regulations and practices used is given.

CHAPTER 2 - deals with the internal distribution network. It gives a brief explanation of the terms used by CYTA and refers to the relevant regulations.

CHAPTER 3 -

deals with the different types of earthing arrangements employed by CYTA.

- CHAPTER 4 deals with the private communication systems. It describes the various types available their installation, operation and facilities offered.
- CHAPTER 5 deals with the work on site. It gives an overview how the manual work should be performed in the internal network.
 - CHAPTER 6 deals with the terminal equipment, how it is supplied, installed, connected and maintained.
- CHAPTER 7 deals with the actual design. It explains how this particular design is implemented.
- CHAPTER 8 deals with the estimate of work. It give analytical description of the materials used, their price and quantity as well as the total cost.

CHAPTER 9 - refers to the end results and conclusions drawn from the actual design of the project study.

n series de la construcción de la c La construcción de la construcción d La construcción de la construcción d

n Berne and a state of the second Second state of the second state

CONTENTS

Acknowledgments

Symbols

Abstract

Introduction

CHAPTER	1		EXTERNAL DISTRIBUTION NETWORK	
		1.1	Introduction	1
		1.2	External line plant	2
		1.3	The Cabinet and Pillar system	2
		1.4	Basic Principles for the Smooth	
n 1999 - Santa Maria, santa sa			operation of a Telephone Exchange	4
		1.5	Interference from power lines on	
			telephone lines	5
		1.6	Joint Pits - Manholes	6
		1.7	Ducts	7
			1.7.1 Rigid PVC plastic pipes	7
			1.7.2 Polythene Ducts	8
		1.8	Plastic Conduits	8
		1.9	Poles-Overhead Network	8
		1.10	Main types of cables	9
			1.10.1 Polyethylene Twin Cables (PET)	9
			1.10.2 Polyethylene Twin Unit cables	
1997 - 1992 - 1992 - 1993 - 1993 - 1995 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 - 1996 -			(PEUT)	11
		1.11	Polythene insulated cables	12
CHAPTER	2		INTERNAL DISTRIBUTION NETWORK	
		2.1	Definitions of the terms used	14
		2.2	Basic principles governing the internal	
al la Manana ana sa sa sa			Telecommunication network	18
		2.3	Installation of Access cable	22
		2.4	Installation of the conduit network	25
			2.4.1 Conduits and conduit sizes	27
		2.5	Installation of the distribution cases	28
		2.6	Installation of telephone lines	32

		2.6.1 Separation from electrical	
		circuits	33
	2.7	Positioning of telephone sets	34
	2.8	Fault repair and changes in the internal	
		telecommunication network	35
CHAPTER 3		EARTHING	
	3.1	Protection Earth	36
	3.2	Protection from lightning surges	36
	3.3	Operational Earth	37
	3.4	Special Earth for EPABXS	38
CHAPTER 4	-	PRIVATE COMMUNICATION SYSTEMS	
	4.1	Private manual branch exchange	40
	4.2	Private automatic branch exchange	40
	4.3	Type of EPABXS	42
		4.3.1 Electronic private automatic	
		branch exchange	44
	4.4	Key systems	44
		4.4.1 General contractions	44
		4.4.2 Description of units	45
		4.4.3 Internal Communication	45
		4.4.4 External communication	45
		4.4.5 Restrictions	46
		4.4.6 Available systems	46
		4.4.7 Installation	47
	4.8	Telephone system T16	48
		4.8.1 General	48
		4.8.2 Features offered	48
		4.8.3 Installation of T16	50
CHAPTER 5		WORK ON SITE	
	5.1	General	52
	5.2	Delivery and storage	52
	5.3	Central equipment	52
	5.4	Surface wiring	53
	5.5	Wiring	53

CHAPTER 6 -

CHAPTER '

TERMINAL EQUIPMENTS

6.1 Definition

- 6.2 Supply of terminal equipment
- 6.3 Installation and connection of Telephone Terminal Equipment 56

56

56

57

- 6.4 Maintenance of telephone terminal equipment
- 6.5 Connection of secondary telephone equipment with main telephone connections 58

7 –	DESIGN OF THE INTERNAL WIRING FOR					
	A TELEPHONE NETWORK					
7.1	Complete design submitted by CYTA	59				
7.2	Preliminary considerations	59				
7.3	Procedure to be followed to plan an					
	internal wiring	60				
	7.3.1 Particular notes about the design	61				
	7.3.2 Conduit schematic consideration	61				
7.4	Selection of the conduit size	62				
7.5	Information obtained from the conduit					
	and wiring diagrams					
	7.5.1 Information obtained from the					
	list of connections	62				
7.6	Actual design of external line plant	62				
77	Selection of size of joint-nits	63				

- 7.8 Selection of conduit for the underground cable
 7.8.1 Conduit diameters for access cable 63
- CHAPTER 8 -

ESTIMATE OF WORK

CHAPTER 9 - CONCLUSIONS

APPENDICES DRAWINGS REFERENCES