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DESIGN OF AN AIRCONDITIONING
SYSTEM FOR A BUILDING

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**DESIGN OF AN AIR CONDITIONING SYSTEM
FOR A BUILDING**

by

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**This project is dedicated
to my family and
especially to Maria**

LIST OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
SUMMARY	v
INTRODUCTION	vi
	PAGE
PART A	
CHAPTER 1: THERMAL TRANSMITTANCE COEFFICIENT	1
1.1 Introduction.....	1
1.1.1 Thermal resistances of materials.....	2
1.1.2 Surface resistances	2
1.1.3 Thermal conductivity.....	2
1.2 Calculations of U-values	3
1.2.1 External walls	3
1.2.2 Partition walls.....	6
1.2.3 Ground floor	9
1.2.4 External ceiling.....	10
1.2.5 Partition ceiling.....	11
1.2.6 External roofs.....	12
1.2.7 Partition concrete roof.....	14
1.2.8 Double glazing windows	14
1.3 Summary of “U-values”	15
CHAPTER 2: DESIGN CONTITIONS.....	16
2.1 Introduction.....	16
2.2 Selection of design conditions.....	16
CHAPTER 3: AIR CONDITIONING LOADS.....	17
3.1 Introduction.....	17
3.2 Cooling load	17
3.2.1 Cooling load estimation.....	17
3.2.2 Cooling and dehumidification load calculations....	18
3.3 Heating load.....	20
3.3.1 Heating load estimation.....	20
3.3.2 Heating load calculation	20
3.4 Load calculations	21
3.4.1 Introduction.....	21
3.4.2 External walls information.....	22
3.4.3 Roof information.....	22
3.4.4 Glass information	22
3.4.5 Shading information	23
3.4.6 Glass area	23
3.4.7 Other parameters	23
3.4.8 Partitions, Ceilings and floors	23
3.4.9 Infiltration	24
3.4.10 Basement elements	25

3.5 Sample of “complex space input”	25
3.6 Room loads.....	27

PART B

CHAPTER 4: AIR CONDITIONING SYSTEMS	28
4.1 Classification of air conditioning systems	28
4.2 All water systems	28
4.2.1 Single piping system	28
4.2.2 Multi piping system.....	28
4.3 All air systems	29
4.3.1 Conventional system	29
4.3.2 Variable air volume system.....	29
4.3.3 Dual duct system	30
4.3.4 Multi zone unit system	30
4.3.5 Variable volume and temperature system (V.V.T).....	30
4.4 Air water system.....	31
4.4.1 Induction unit system	31
4.4.2 Primary air fan coil system.....	31
4.5 Unitary system (direct cooling system).....	32

CHAPTER 5: SYSTEM SELECTION	33
5.1 The V.R.V system	34

CHAPTER 6: SIZING AND SELECTION OF MACHINERY AND EQUIPMENT	37
6.1 Introduction.....	37
6.2 Outdoor unit	37
6.2.1 Selection of outdoor units	37
6.3 Indoor unit.....	40
6.3.1 Selection of indoor units	40
6.4 Temperature control.....	42
6.5 Ventilation fans	43

CHAPTER 7: PIPEWORK	44
7.1 Pipe sizing - selection.....	44

PART C

CHAPTER 8: MAINTENANCE	52
8.1 Introduction.....	52
8.2 Preventive maintenance for V.R.V system	52

CHAPTER 9: COST ANALYSIS	53
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CHAPTER 10: CONCLUSSIONS	54
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3.5 Sample of “complex space input”	25
3.6 Room loads.....	27
PART B	
CHAPTER 4: AIR CONDITIONING SYSTEMS	28
4.1 Classification of air conditioning systems	28
4.2 All water systems	28
4.2.1 Single piping system	28
4.2.2 Multi piping system.....	28
4.3 All air systems	29
4.3.1 Conventional system	29
4.3.2 Variable air volume system.....	29
4.3.3 Dual duct system	30
4.3.4 Multi zone unit system	30
4.3.5 Variable volume and temperature system (V.V.T).....	30
4.4 Air water system.....	31
4.4.1 Induction unit system	31
4.4.2 Primary air fan coil system.....	31
4.5 Unitary system (direct cooling system)	32
CHAPTER 5: SYSTEM SELECTION	33
5.1 The V.R.V system	34
CHAPTER 6: SIZING AND SELECTION OF MACHINERY AND EQUIPMENT	37
6.1 Introduction	37
6.2 Outdoor unit	37
6.2.1 Selection of outdoor units	37
6.3 Indoor unit.....	40
6.3.1 Selection of indoor units	40
6.4 Temperature control	42
6.5 Ventilation fans	43
CHAPTER 7: PIPEWORK	44
7.1 Pipe sizing - selection.....	44
PART C	
CHAPTER 8: MAINTENANCE	52
8.1 Introduction	52
8.2 Preventive maintenance for V.R.V system	52
CHAPTER 9: COST ANALYSIS	53
CHAPTER 10: CONCLUSSIONS	54

SUMMARY

The aim of this project is to design an Air Conditioning System for a building. The building chosen is the E.O.K.A building in Nicosia.

Architectural drawings of the building were provided. Design conditions were supplied while ambient conditions were based on data collected from the Meteorological Services.

Energy conservation and noise level were considered as major factors in the design of the system. The thermal load of the building for heating and cooling were calculated using the "CARRIER" program.

The project is divided in three parts. Part A deals with the calculation of the cooling and heating loads. Part B deals with the selection of the system, the pipework and the selection of equipment while Part C deals with the maintenance of the system and the cost analysis.

A complete set of mechanical drawings is being provided in which the location of all air conditioning equipment including pipe sizing, controllers and ventilation fans are illustrated.

INTRODUCTION

Air conditioning has its beginning with mechanical refrigeration in the late 1900's. It was only 20 years ago that entered customer's acceptance. In the past it was considered to be a luxury item but nowadays is thought to be a necessity.

Therefore almost every building is now designed with means of controlling the indoor environment throughout the year. These means are called Air Conditioning. The science of air-conditioning may be defined as that of supplying and maintaining a desirable internal atmospheric condition.

A desirable atmospheric condition aims to the comfort of the occupants. Comfort conditions imply a specific temperature, humidity, velocity and cleanliness of air in the space, and can be achieved with a complete Air Conditioning System.

Historically air - conditioning has implied cooling or otherwise improving the indoor environment during the warm months of the year. Nowadays, air conditioning refers to year round automatic control of temperature, moisture content, cleanliness, air quality and circulation as required by occupants.

Air Conditioning Systems can be classified:

As to major function

- i. Comfort air conditioning systems.
- ii. Industrial air conditioning systems.

As to season of the year

- i. Winter air - conditioning systems.
- ii. Summer air - conditioning systems.

iii. Year - round air - conditioning systems.

As to equipment arrangement

- i. Central station systems.
- ii. Unitary or "Packaged" systems.
- iii. Combination systems.

The aim of this project is to design an Air Conditioning system for a building by taking into consideration the energy conservation and the noise level.

According to the above classifications the following system was selected:

- A comfort air - conditioning system.
- A year round air - conditioning system.
- A unitary system.

The system selected is the **V.R.V** (Variable Refrigerator Volume).