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MECHANICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

ENERGY SAVING MEASURES IN RESIDENTIAL
BUILDINGS

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ENERGY SAVING MEASURES IN RESIDENTIAL BUILDING

By

Lucas Luca

Project report

submitted to

the department of mechanical engineering

of the higher technical institute

Nicosia-Cyprus

in partial fulfillment of the requirements

for the diploma of

TECHNICIAN ENGINEER

in

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Table of contents.

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Table of contents.....	II-III
Acknowledgements.....	VI
Introduction.....	V-VI
Abstract.....	VII

CHAPTER 1-ESTIMATE THE ENERGY CONSUMPTION PATTERN IN RESIDENTIAL BUILDINGS. 1

1.1 Energy consumption analysis.....	2-3
1.2 The residential sector.....	4-8

CHAPTER 2-DRAW UP TYPICAL SANKEY DIAGRAMS FOR THE ENERGY CONSUMPTION IN A CERTAIN RESIDENTIAL BUILDING.....9

2.1 Introductions.....	10
2.2 Data gathering.....	10
2.3 Electricity consumption for the year 2000.....	11-12
2.4 Calculation of energy for every household use.....	13
2.4.1 lighting.....	14
2.4.2 heating.....	15
2.4.3 cooling.....	15
2.4.4 ventilation.....	15
2.4.5 appliances.....	15
2.4.6 heat loss due to radiation, conduction, convection, condensation and air infiltration.....	16
2.5 Problems found.....	16
2.6 Sankey diagram.....	17-18

CHAPTER 3-AREAS FOR POSSIBLE ENERGY CONSERVATION..... 19

3.1 Areas of an energy-efficient house.....	20
3.2 Thermal envelope.....	21
3.3 Wall and roof assemblies.....	21-23
3.4 Insulation.....	23-24
3.5 Air/vapor retarders.....	24-25
3.6 Windows.....	26-27
3.7 Weather-stripping and caulking.....	28
3.8 Controlled ventilation.....	28-30
3.9 Heating and cooling systems.....	30-31
3.10 Energy efficient appliances.....	31-32
3.11 Advantages and disadvantages.....	32-33
3.12 Summary.....	33-34

CHAPTER 4-ENERGY CONSERVATION METHODS AND TECHNICHE.S35

4.1 Heating.....36-37
4.2 Insulation.....37-42
4.3 Using water.....42-43
4.4 Lighting.....43-44
4.5 Cooling.....44-46
4.6 Cooking.....46-48
4.7 Refrigerators and freezers.....48-49
4.8 Doing laundry.....50-51
4.9 Windows.....51-64
4.10 General.....64

CHAPTER 5-ESTIMATE THE COST REQUIRED TO ESTABLISH THE METHODS AND STRATEGIES SUGGESTED..... 65

5.1 Introduction.....66
5.2 heating.....66
5.3 Insulation.....67
5.4 Using water.....67
5.5 Lighting.....67-71
5.6 Cooling.....71
5.7 Cooking.....71-72
5.8 Refrigerator and freezer.....72
5.9 Doing laundry.....72
5.10 Windows.....72-73
5.11 Summary.....73

APPENDIXES

- APPENDIX 1-LANDSCAPING OF THE HOUSE**
- APPENDIX 2-CYPRUS ENERGY CONSUMPTION AND SOLAR ENERGY**
- APPENDIX 3-HEAT BANDITS**
- APPENDIX 4-ENERGY SAVERS**
- APPENDIX 5-HOUSE DIAGRAM**

REFERENCES

- BOOK SEARGH**
- INTERNET SEARGH**

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Lucas Louca

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INTRODUCTION

Energy consumption in Cyprus has increased dramatically the last years and these together with the growing oil product prices and the saturation of oil from the earth driven people to look for energy conservation measures and alternatives energy sources to avoid the catastrophe. Energy in Cyprus is mainly generated by oil products except from water heating. Cyprus has the advantage of plenty sunshine allowing a high share of solar energy, used for water heating in residential and other sectors of economy. The availability of renewable energies, except solar heaters, is very low and so no use of biomass, wind is foreseen on the near future.

In 1998 822517 metric tones of oil products were used to produce 3953,9 GWh of electric power, in the 2 power stations of the island, distributed to all sectors of the economy, costing the government 30,084 millions pounds. Since 1993 the increase of electricity consumption was fairly high for each considered sector of economy. In the residential sector, which we are most concerned in this study the rate of consumption, increase, from 1993 to 1998 was larger than 28%.

Now for specific in the residential sector, which represents almost the 1/3 of the total consumption,

electricity authority faces every year a greater demand, in order to satisfy the needs for:

- *Cooling*
- *Lighting*
- *Thermal uses*
- *Electronic*
- *Electrical*
- *Others*

Anticipating the conclusion of this report, it can be said, that the main problem is not to find technologies, not even to provide resources for funding the investments that are done by consumers. The main problem is to adapt an institutional framework that allows to carry out an energy policy and energy strategy for implementing energy management measures and to convince decision makers accordingly.

ABSTRACT

This project as the name implies deals with energy conservation measures in residential buildings. The objectives of this study are outlined as follows:

- To estimate the energy consumption pattern in residential buildings.
- To draw up typical sankey diagrams for the energy consumption in a certain residential building.
- To identify the areas for possible energy conservation.
- To suggest energy conservation methods and techniques.
- Estimate the cost required to establish the methods and strategies suggested.