

**HIGHER TECHNICAL INSTITUTE
MECHANICAL ENGINEERING COURSE**

**MECHANICAL ENGINEERING COURSE
DIPLOMA PROJECT**

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**DESIGN OF A CENTRAL HEATING AND HOT
WATER SERVICES FOR A BUILDING**

M/901

KYRIAKOS KYRILLOU

JUNE 2000

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COURSE IN MECHANICAL ENGINEERING**

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HIGHER TECHNICAL INSTITUTE	PROJECT NO. 3189
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**CENTRAL HEATING
WITH HOT WATER SERVICES**

Project Number : M/901

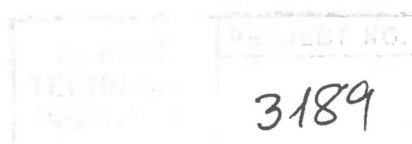
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7 JUNE 2000



DEDICATED TO
THE MEMORY OF MY
FRIEND
PANAYIOTI PANAYIOTOU

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INTRODUCTION

The purpose of a heating system is to produce and maintain comfortable conditions in the space concerned when the outside temperature has dropped below the comfort level. Obviously the lower the outside temperature, the greater is the capacity of the heating plant required and the more prolonged the severe weather, the greater the energy consumption (fuel, electricity) will be.

Calculations for heat requirements are based upon the difference between design external air temperature and design internal air temperature. The design external air temperature was obtained from records of Meteorological Service for weather conditions of Nicosia, while recommended values for design internal air temperature were taken from CIBS-GUIDE.

Space heating can be achieved either by individual heating units separately for each room (Local Heating) or by central systems with common heat source (Central Heating System).

Local heating can be achieved by appliances like stoves, open fireplaces, gas-fires, electric heaters, electric convectors, etc.

During the past thirty years, however, the development and improvement of Central Heating systems have enabled the installation of them for domestic use. In these installations fuel is converted to heat in a central plant and the heat is distributed round the building to heat-emitting devices by a heat transfer medium. Water was found to be the most efficient medium for heat transfer and yet the cheapest material (except from air); it is an obvious choice for the purpose, and it is in fact the material most widely used.

The distribution system will consist basically a boiler for the production of heat from fuel, a system of pipes holding the heating medium, leading to heat emitters in the various rooms of the building and subsequently returning to the boiler. Finally a circulating pump will be employed in the system, to be used as a motive power to force the heating medium round the circuit.

SUMMARY

The aim of this project is to design a space central heating and hot water supply system for a hospital located in Pahnna.

The whole content of the project is divided into 7 chapters. The first 4 chapters contain all the design procedure, together with the selection of the various equipment to be employed in the system.

Architectural drawings for the building have been supplied to me and ambient conditions, always referring to the whether conditions of Pahnna, the indoor and ventilation requirements being selected with precise investigation.

The next chapter contains specifications for equipment and the 6th a maintenance scheme for the major parts of the system.

The last chapter includes a cost-analysis of the whole system.

I believe that the space central heating system, together with the Hot Water Supply for a hospital as it was in my case, is complicated enough. The limited available time for the project, has made my work more difficult.

Inspite the above facts I believe that this project is not faultless and i nope in my next approach in the field of mechanical engineering, I will be more precise and sophisticated.

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