

HIGHER TECHNICAL INSTITUTE

COURSE IN MECHANICAL ENGINEERING

DIPLOMA PROJECT

DESIGN OF A LOW COST  
HOT WATER STORAGE SYSTEM

M/976

ANDREAS SYMEOU

4 JUNE 2003

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**LOW COST  
HOT WATER STORAGE SYSTEMS**

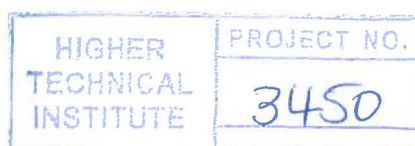
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**Project Report By : Andrea Symeou**

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In Mechanical Engineering Department of  
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I want to express my appreciation to everyone that helped me to accomplish this project

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## SUMMARY

The aim of this project is to design and construct a Low Cost Hot Water Storage System, for a single house.

The whole content of the project is divided into 5 chapters. The first 4 chapters contain the existing hot water storage systems and the theoreticals, which can design. The last chapter is containing the design, the construction and the experimental output of it. In addition to this it includes a cost analysis for the whole system.

I believe that this low cost hot water storage system is no very complicated, but it is a very intelligent idea. This due to the fact that it can work not only for houses but also for farms etc. For farm purposes you do not need an expensive storage system but a low cost one.

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

## INTRODUCTION

The purpose of a hot water storage system is to storage hot water when the outside temperature has dropped below the comfort level. By this temperature drop is very difficult for the collector to recycle hot water therefore it must be storage in a tank specially design and constructed.

The hot water storage system to be design and constructed in this project should create an excellent thermal comfort conditions at the internal use of water inside the house.

Heating water can be achieved either by a solar collector or by an electric element. In project we are going to check the way of heating water by solar collector due to the fact that is more economic and also no electricity or fuel is necessary.

During the paste thirty years, however, the development and improvement of hot water storage systems have enabled the installation of them for domestic use. Water was found to be the most efficient medium for heat transfer and yet the cheapest material (except from air); it an obvious choice for this purpose and it is in fact the material most widely used.

The distribution system will consist basically a storage tank of 100 liters to be fill of water, a second tank of 200 liters to be used as an external surface and between them polioromethane.

To conclude, apart from the fact that the system should be able to create, maintenance and also to supply full time hot water, its total cost should be kept as low as possible.