

HIGHER TECHNICAL INSTITUTE

MECHANICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF A SOLAR HEATING SYSTEM
FOR A SWIMMING POOL

M/956

SHADI ALHALABI

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SUMMARY

The objective of this diploma project is to design a solar heating system for a swimming pool located in Nicosia, to achieve this and design it successfully;

The following steps should be made:

1. To make the appropriate calculations of the heat requirement for the water heating of the swimming pool.
2. To give detail description of all the parameters affecting the Solar system, also describe the methods that are currently used for the collection and distribution of low-temperature solar energy.
3. Design an appropriate solar system to satisfy the heat requirement of the swimming pool.
4. To determine the optimum area of the solar collector, pipe sizing, and other equipment that are involved, including all necessary instrument and controls.
5. To prepare detailed drawings and diagrammatic layout showing the system layout and components.
6. Conduct a cost-estimation.

General Introduction

It is interesting that our society has been skilful in locating and learning to exploit a variety of energy recourse.

But we have much less skilful in predicting the social and environmental implication of our energy use patterns.

As we enter the petroleum age earlier this century it was not foreseen what affect the massive use of petroleum in any country, nor was effect of the economy foreseen of having to relay on other nation for a fuel supplies.

Further more, when a nuclear power came on our scene it had been expected to be safe and inexpensive. I have been surprise that nuclear generating plants proved neither safe nor inexpensive to maintain.

Even thought we know the type of energy use now days it harms the environment, tears up the landscape, rises the temperature of our atmosphere and result in release of countless tons of pollution is still present type of energy. Any way, like it or not we will soon have to turn from petroleum as our recourse to other recourse we can relay on it to fulfil our energy needs, number of options will be suggested for our future recourse which is:

1. Coal
2. Oil shale and tar sands
3. Nuclear energy
4. Fusion energy
5. Renewable recourse

Actually, all the options above except the renewable recourse depend on fuel and mineral deposit that again can be depleted. But the last option can be used as long as the solar system in our plant exists. Solar energy is one of the most notable recourses

it has been much in the news and widely discussed in recent years, for allowing the sun to be one of our major sources for our daily needs.

The sun is not complicated recourse; it is within the ability of most of us to design a variety of system to our homes.

◆ I think if we believe in the promise and importance of solar energy, so it is our problem to learn more about this source and to spread it in whatever way we can to make the solar society a reality.