

PERFORMANCE TESTING OF THERMAL WALLS

Project Report Submitted by

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INTRODUCTION

When we use the word energy we think mainly of something abstract and technical, which is only for engineers and scientists. If we take a little time to think about it, we see that the history of Man was and is still a story of the struggle to obtain increasing amounts of energy. All the materials achievements of Man were, in reality, new forms of energy supply and use. From time immemorial Man has needed energy to justify being able to work with a lesser application of strength and to create more comfort for himself.

The high demand of energy causes the problem of energy crisis, which is very important and difficult to be solved. According to national statistics, by the middle of the 21st century the main and the most economic resources now being used, which are the fossil fuel resources, and are non renewable they will have been completely used up. So the man is tried to search a new forms of energy resources, and the one that offers solution to this problem was the solar energy.

Solar energy is easily available and free of charge. The possibility to use solar energy for a lot and different applications is now feasible because all the equipment required are available.

One of the use of solar energy is for space heating. Solar space heating is not varied widely use, but is at the experimental station. There are many methods of passive solar space heating. One of them is the thermal storage wall or masonry wall.

A thermal storage wall consists of the wall itself, constructed of masonry, and the glazing over its outer surface. The glazing on the otuer surface transmits solar

radiation, which is absorbed by, and heats, the wall surface. The large mass of the wall serves to store the solar energy. Heat conducts slowly through a wall and then is transferred to the adjacent room by radiation and convection from the room-side surface.

Such a system is constructed at H.T.I. and an experimental study on the performance of a system was made, in order to deal with the possibility of applying the solar energy to heat a building with the aid of a thermal wall system.

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