

Parametric Analysis of Solar Thermal System

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Abstract— The Solar thermal training system is project on solar water heating system. Here heating of water with help of solar in Any Season can be obtained. Here in the season of rainy days also heated water can be obtained with the help of ordinary lights which was most annoying problem. Also the velocity of air also can be varied and temperature up to 60 degree can be achieved. Two types of heaters are available Thermosyphon and Forced convection. The experimental system of heat loss of all-glass evacuated solar collector tubes is firstly designed and constructed, which uses electric heater as thermal resource. The invalidation tube has the biggest heat loss that increases linearly with the tube temperature. The thermal performance of the thermosyphon solar water heater was analyzed to show its applicability in a tropical climate using data of cloudy, sunny and hazy days. Also, an analysis of the temperature storage characteristics of a novel fiber reinforced plastic storage tank was undertaken. The inlet and outlet positions were determined using the recommendation of Simon and Wenxian the optional position for the inlet/outlet was around the very top/bottom of the tank. The obtained results showed that the coupled tank substantially retained and delivered the stored hot water during off sunshine hours with minimal losses, and stratification occurred in the tank as a result. In view of the thermal performance, materials can be efficiently employed in the design of solar hot water storage tanks.

Key words: Solar Heating System, Flat Plate Collector, Overall Heat Loss Coefficient (UL), Heat Removal Factor (FR), Collector Time Constant

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