STUDY OF THE EFFECT OF GLAZING ON EFFICIENCY IN A SOLAR FLAT PLATE COLLECTOR

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Abstract - Solar energy can be transformed into useful form of energy as thermal energy. One of the most efficient methods is to harvesting the solar heat energy using solar flat plate collectors. Solar collector absorbs the solar energy by heating water from the atmospheric temperature. The heated water can be used for various domestic as well as industrial applications. The efficiency of the solar collector depends on many parameters such as wind velocity, number of glass covers, space between absorber plate to the glass cover and overall top loss heat transfer coefficient. In the present work, experiments were conducted to reduce the overall top loss heat transfer coefficient and improve the collector efficiency. A double glaze system was introduced and optimized the space between the absorber plate to glass cover (1) and glass cover (2)were considered to analysis the overall top loss heat transfer coefficient. The single and double glazing solar flat plate collectors were fabricated with same dimensions. The experiments were carried out between 10.00 AM to 4.00 PM and the result shows that the efficiency of double glazing is higher compared to single glazing system with same solar intensity. The higher efficiency has obtained because of the overall top loss heat transfer coefficient was reduced in double glazing system.

Keywords - Solar collector; double glazing system, single glazing system, collector efficiency