

Thesis Title	Suitable Study and Mathematical Model of Low Cost Solar Collector System for Hospital
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Abstract

This research aims to optimize the solar collector system for hospital by setting control system, the control flow of water between the solar panel and hot water storage tank is controlled by a light switch, the difference temperature switch in temperature between the solar panel and the bottom temperature of the storage tank, and flow valves for regulate water flow in solar collector system. The second control system controls the flow of water use, to reduce the heat loss problem. Finally, the control system controls the heat reserve that is controlled by a switch control temperature and time. The investigations were conducted by varying the following parameters: Water mass flow rate was varied from $0.015 \text{ kg/s}\cdot\text{m}^2$, $0.03 \text{ kg/s}\cdot\text{m}^2$, $0.045 \text{ kg/s}\cdot\text{m}^2$ and $0.06 \text{ kg/s}\cdot\text{m}^2$. The difference temperature switch, in temperature between the solar panel and the bottom temperature of the storage tank, was on at different temperatures 4°C , 6°C and 8°C then was off at different temperatures 1°C , 3°C and 5°C . We found that setting, the difference temperature switch at the temperature difference between solar panel and temperatures below the hot water storage tank started working at different temperatures 4°C then stopped working at different temperatures 1°C and flow rate between the solar panels and hot water storage tank system of $0.03 \text{ kg/s}\cdot\text{m}^2$, are the optimum condition in this study.

Keywords: Optimum Condition/Setting/Solar Collector System for Hospital