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# Control Strategy of Solar Thermal Cooling System under the Indonesia Climate

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**Abstract :** Solar thermal cooling system was installed on Mechanical Research Center (MRC) Building that is located in Universitas Indonesia, Depok, Indonesia. It is the first cooling system in Indonesia that utilizes solar energy as energy input combined with natural gas; therefore, the control system must be appropriated with the climates. In order to stabilize the cooling capacity and also to maximize the use of solar energy, the system applies some controllers. Constant flow rate and on/off controller are applied for the hot water, chilled water and cooling water pumps. The hot water circulated by pump when the solar radiation is over than 400W/m<sup>2</sup>, and the chilled water is continually circulated by pump and its temperature is kept constant 7 °C by absorption chiller. The cooling water is also continually circulated until the outlet temperature of cooling tower below than 27 <sup>o</sup>C. Furthermore, the three-way valve is used to control the hot water for generate vapor on absorption chiller. The system performance using that control system is shown in this study results.

**Keywords :** absorption chiller, control system, solar cooling, solar energy
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