

Effect of Collector Aspect Ratio on the Thermal Performance of Wavy Finned Absorber Solar Air Heater

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Abstract : A theoretical investigation on the effect of collector aspect ratio on the thermal performance of wavy finned absorber solar air heaters has been performed. For the constant collector area, the various performance parameters have been calculated for plane and wavy finned solar air heaters. It has been found that the performance of wavy finned solar air heater improved with the increase in the collector aspect ratio. The performance of wavy finned solar air heater has been found 30 percent higher than those of plane solar air heater. The obtained results for wavy fin solar air heaters are compared with the available experimental data of most common type solar air heaters.

Keywords : wavy fin, aspect ratio, solar air heater, thermal efficiency, collector efficiency factor, temperature rise

Conference Title : ICSREE 2016 : International Conference on Sustainable and Renewable Energy Engineering

Conference Location : Montreal, Canada

Conference Dates : May 16-17, 2016