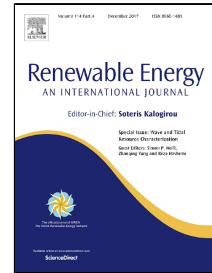


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Experimental Validation of An Analytical Model for Performance Estimation of Natural Convection Solar Air Heating Collectors



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**HIGHLIGHTS**

- Literature review highlighted a lack in works concerning thermal evaluations of solar air heaters coupled to real buildings.
- The thermal performance of an air heating collector working by natural convection coupled to a building prototype is experimentally evaluated.
- A new correlation to estimate the air velocity and the air mass flow by natural convection is obtained.
- A new methodology and empiric correlation to estimate the inner convective heat transfer coefficients by natural convection are presented.
- An analytical model of thermal evaluation of solar air heaters by natural convection is experimentally validated.

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