

Accepted Manuscript

Title: Experimental study on the heat recovery characteristic of a heat exchanger based on a flat micro-heat pipe array for the ventilation of residential buildings

Authors: Y.H. Diao, L. Liang, Y.M. Kang, Y.H. Zhao, Z.Y. Wang, T.T. Zhu



PII: S0378-7788(16)31235-X
DOI: <http://dx.doi.org/doi:10.1016/j.enbuild.2017.07.045>
Reference: ENB 7785

To appear in: *ENB*

Received date: 18-10-2016
Revised date: 20-5-2017
Accepted date: 15-7-2017

Please cite this article as: Y.H.Diao, L.Liang, Y.M.Kang, Y.H.Zhao, Z.Y.Wang, T.T.Zhu, Experimental study on the heat recovery characteristic of a heat exchanger based on a flat micro-heat pipe array for the ventilation of residential buildings, Energy and Buildings <http://dx.doi.org/10.1016/j.enbuild.2017.07.045>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Experimental study on the heat recovery characteristic of a heat exchanger based
on a flat micro-heat pipe array for the ventilation of residential buildings

¹Y.H. Diao^{[1-2]*}, L. Liang^[1], Y.M. Kang^[1], Y.H. Zhao^[1], Z.Y. Wang^[1], T.T. Zhu^[1]

[1] *Beijing Key Laboratory of Green Built Environment and Efficient Technology,
Beijing University of Technology, Beijing 100124, China*

[2] *Beijing Advanced Innovation Center for Future Internet Technology, No. 100
Pingleyuan, Chaoyang District, Beijing 100124, China.*

Highlights

- (1) A small heat pipe heat recovery device using micro-heat pipe array which has many advantages, including lightness, compactness, efficiency.
- (2) The influences of different parameters on the heat and flow characteristics of the heat pipe heat recovery device were experimentally studied.
- (3) The experimental results show that the maximum heat recovery efficiency and COP could reach 78% and 91.9 respectively.

Abstract: Heat recovery significantly and positively affects energy conservation and prevents global warming. A small flat heat pipe heat recovery device (SFHPHRD), which applies flat micro-heat pipe array (FMHPA) with welded, serrated and staggered fin on its surface, is designed as a core heat transfer component in the heat recovery systems of residential buildings. The air volume flow ratio between fresh air and exhaust air was maintained at a value of 1 in the experiment. Under simulated winter and summer conditions, the performance of SFHPHRD under varying indoor and

*Corresponding author. Tel.: +86-10-67391608-802

E-mail address: diaoyanhua@bjut.edu.cn

Postal address: Beijing Key Laboratory of Green Built Environment and Efficient Technology, Beijing University of Technology, No. 100 Pingleyuan, Chaoyang District, Beijing 100124, China

Download English Version:

<https://daneshyari.com/en/article/4918926>

Download Persian Version:

<https://daneshyari.com/article/4918926>

[Daneshyari.com](https://daneshyari.com)