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Author: Jingdong Liu, Yuying Sun, Wei Wang, Jiahe Zhu

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ACCEPTED MANUSCRIPT

Performance evaluation of air source heat pump under

unnecessary defrosting phenomena for nine typical cities in

China

Jingdong Liu, Yuying Sun, Wei Wang^{*}, Jiahe Zhu

Department of Building Environment and Facility Engineering, College of

Architecture and Civil Engineering, Beijing University of Technology, No.100 Pingleyuan Road, Chaoyang District, Beijing 100124, China

Highlights

- The characteristics of ASHP under unnecessary defrosting phenomena were studied.
- Energy loss for two kinds of unnecessary defrosting phenomena was quantified.
- A method was proposed to predict times of unnecessary defrosting operations.
- Performance loss of unnecessary defrosting was evaluated for typical cities in China.
- It indicates unnecessary defrosting processes should not been ignored.

^{*} Corresponding author. Tel.: +86 010 67393373; fax: +86 010 67393373 E-mail address: mrwangwei@bjut.edu.cn (W. Wang)

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