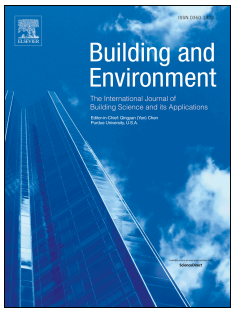
Accepted Manuscript



Thermophysiological models and their applications: A review

Katarina Katić, Rongling Li, Wim Zeiler

PII: S0360-1323(16)30238-4

DOI: 10.1016/j.buildenv.2016.06.031

Reference: BAE 4546

To appear in: *Building and Environment*

Received Date: 21 March 2016

Revised Date: 24 June 2016

Accepted Date: 25 June 2016

Please cite this article as: Katić K, Li R, Zeiler W, Thermophysiological models and their applications: A review, *Building and Environment* (2016), doi: 10.1016/j.buildenv.2016.06.031.

Thermophysiological models and their applications: A review

Katarina Katić* , Rongling Li, Wim Zeiler

Eindhoven University of Technology, Department of the Built Environment, The Netherlands

De Zaale , PO Box 513, 5600 MB Eindhoven,The Netherlands

***Corresponding author:** Katarina Katic; e-mail: k.katic@tue.nl ; Tel: +31-40-247-2039

Abstract

The human body's heat exchange and its interaction with the surrounding environment has in the past years been the research focus of a number of disciplines. As a result, a number of human thermoregulation models have been developed since the first was developed in 1970. The aim of this paper is to conduct a review existing thermophysiological models for the whole body and isolated body segments. The course of the development from simple to more complex models is shown, and most recognized thermal models such as Fiala, Berkeley Comfort Model, Tanabe, and ThermoSem model are concisely described. Furthermore, possible applications of the models in various research disciplines are introduced. In the built environment, the developed models are used as part of the methodology for modelling thermal comfort in buildings.

Keywords: thermophysiological model, human thermoregulation, isolated body segments, thermal comfort

Contents