

## Accepted Manuscript

Title: Indoor air quality and thermal comfort optimization in classrooms developing an automatic system for windows opening and closing.

Authors: Francesca Stazi, Federica Naspi, Giulia Ulpiani, Costanzo Di Perna



PII: S0378-7788(17)30059-2  
DOI: <http://dx.doi.org/doi:10.1016/j.enbuild.2017.01.017>  
Reference: ENB 7291

To appear in: *ENB*

Received date: 13-6-2016  
Revised date: 15-11-2016  
Accepted date: 7-1-2017

Please cite this article as: Francesca Stazi, Federica Naspi, Giulia Ulpiani, Costanzo Di Perna, Indoor air quality and thermal comfort optimization in classrooms developing an automatic system for windows opening and closing., Energy and Buildings <http://dx.doi.org/10.1016/j.enbuild.2017.01.017>

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.

**Title**

*Indoor air quality and thermal comfort optimization in classrooms developing an automatic system for windows opening and closing.*

**Author names and affiliations:**

Francesca Stazi<sup>a</sup>, Federica Naspi<sup>b</sup>, Giulia Ulpiani<sup>c</sup>, Costanzo Di Perna<sup>d</sup>

<sup>a</sup> Dipartimento di Scienze, Ingegneria della Materia, dell' Ambiente e Urbanistica (SIMAU), Facoltà di Ingegneria, Università Politecnica delle Marche, Via Brezze Bianche, 60131 Ancona, Italy.  
[f.stazi@univpm.it](mailto:f.stazi@univpm.it)

<sup>b</sup> Dipartimento di Ingegneria Civile, Edile e Architettura (DICEA), Facoltà di Ingegneria, Università Politecnica delle Marche, Via Brezze Bianche, 60131 Ancona, Italy. [f.naspi@staff.univpm.it](mailto:f.naspi@staff.univpm.it)

<sup>c</sup> Dipartimento di Ingegneria Industriale e Scienze Matematiche (DIISM), Facoltà di Ingegneria, Università Politecnica delle Marche, Via Brezze Bianche, 60131 Ancona, Italy.  
[g.ulpiani@pm.univpm.it](mailto:g.ulpiani@pm.univpm.it)

<sup>d</sup> Dipartimento di Ingegneria Industriale e Scienze Matematiche (DIISM), Facoltà di Ingegneria, Università Politecnica delle Marche, Via Brezze Bianche, 60131 Ancona, Italy.  
[c.diperna@univpm.it](mailto:c.diperna@univpm.it)

**Highlights**

- Environmental parameters triggering users' actions on windows were assessed
- An automatic system for windows opening was developed to achieve IEQ in a classroom
- The system was driven by an adjusted version of Humphreys' adaptive algorithm
- The algorithm was adapted including CO<sub>2</sub> concentration and reducing the dead band
- The system guarantees low CO<sub>2</sub> levels, thermal comfort and users' satisfaction

Download English Version:

<https://daneshyari.com/en/article/4919360>

Download Persian Version:

<https://daneshyari.com/article/4919360>

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