

# Accepted Manuscript

Experimental and numerical study of the effects of acoustic sound absorbers on the cooling performance of Thermally Active Building Systems

L. Marcos Domínguez, Ongun B. Kazanci, Nils Rage, Bjarne W. Olesen



PII: S0360-1323(17)30068-9

DOI: [10.1016/j.buildenv.2017.02.009](https://doi.org/10.1016/j.buildenv.2017.02.009)

Reference: BAE 4815

To appear in: *Building and Environment*

Received Date: 16 November 2016

Revised Date: 8 February 2017

Accepted Date: 13 February 2017

Please cite this article as: Domínguez LM, Kazanci OB, Rage N, Olesen BW, Experimental and numerical study of the effects of acoustic sound absorbers on the cooling performance of Thermally Active Building Systems, *Building and Environment* (2017), doi: 10.1016/j.buildenv.2017.02.009.

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 and Numerical Study of the Effects of Acoustic Sound Absorbers on the Cooling Performance of Thermally Active Building Systems**

L. Marcos Domínguez\*, Ongun B. Kazanci, Nils Rage, Bjarne W. Olesen

International Centre for Indoor Environment and Energy – ICIEE, Department of Civil Engineering,  
Technical University of Denmark, Nils Koppels Allé, Building 402, 2800 Kgs. Lyngby, Denmark

\* Corresponding author. E-mail address: marcosdomin@outlook.com

## **Abstract**

Free-hanging horizontal and vertical sound absorbers are commonly used in buildings for room acoustic control; however, when these sound absorbers are used in combination with Thermally Active Building Systems, they will decrease the cooling performance of Thermally Active Building Systems and this will affect the thermal indoor environment in that space. Therefore, it is crucial to be able to quantify and model these effects in the design phase.

This study quantifies experimentally the effects of horizontal and vertical free-hanging sound absorbers on the cooling performance of Thermally Active Building Systems and on the thermal indoor environment. The experiments were carried out in a climate chamber configured as a two-person office room. Different ceiling coverage ratios were tested. In addition, a commercially available dynamic building simulation software was

Download English Version:

<https://daneshyari.com/en/article/4917382>

Download Persian Version:

<https://daneshyari.com/article/4917382>

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