World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:8, No:11, 2014

Experimental Performance and Numerical Simulation of Double Glass Wall

Authors : Thana Ananacha

Abstract : This paper reports the numerical and experimental performances of Double Glass Wall are investigated. Two configurations were considered namely, the Double Clear Glass Wall (DCGW) and the Double Translucent Glass Wall (DTGW). The coupled governing equations as well as boundary conditions are solved using the finite element method (FEM) via COMSOLTM Multiphysics. Temperature profiles and flow field of the DCGW and DTGW are reported and discussed. Different constant heat fluxes were considered namely 400 and 800 W.m-2 the corresponding initial condition temperatures were to 30.5 and 38.5 ºC respectively. The results show that the simulation results are in agreement with the experimental data. Conclusively, the model considered in this study could reasonable be used simulate the thermal and ventilation performance of the DCGW and DTGW configurations.

Keywords : thermal simulation, Double Glass Wall, velocity field, finite element method (FEM)
Conference Title : ICSAUD 2014 : International Conference on Sustainable Architecture and Urban Design
Conference Location : Kyoto, Japan
Conference Dates : November 13-14, 2014

Open Science Index, Civil and Architectural Engineering Vol:8, No:11, 2014 publications.waset.org/abstracts/10639/pdf