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Thursday August 4, 2016
10:30 – 11:30 am
CPH 4333

NATURAL VENTILATION OF BUILDINGS USING A NEW DESIGN OF WIND-CATCHER TO DECREASE ENERGY CONSUMPTION IN WINDY REGIONS

Dr. Madjid Soltani, Director of the HVAC & Energy Lab
at K.N Toosi University of Technology

Wind-catchers or wind towers are passive cooling systems, which can naturally ventilate buildings without using electrical power. They can provide thermal comfort for residents when air conditioning is required in windy regions.

In this study, a new design of wind-catcher is presented. The wind-catcher has a fixed column, a rotating head, an air opening with the screen, and two windows at the end of the column. The modern wind-catcher can be installed on roof-tops to take in ambient air. The wind-catcher's head can be controlled manually or electronically in the maximum wind velocity direction. In addition, when wind velocity is low, to increase the operation of the wind-catcher, a solar chimney can be used. Natural ventilation systems that do not require electricity is a significant benefit of a wind-catcher, as it can decrease financial and environmental cost.

Biography



Dr. Madjid Soltani obtained his Ph.D. from University of Waterloo in 2012. His research expertise include: transport phenomena in different area such as energy, bioenergy and biological systems. He has been with Johns Hopkins University as postdoctoral scholar since 2013.

Dr. Soltani joined K.N. Toosi University (KNTU) of Technology in Tehran, Iran last year as an Assistant Professor. He has taught courses in Energy, Transport Phenomena, Energy Transfer in Buildings, Renewable Energy and HVAC systems. He has published more than 40 journal papers and over 60 conference papers. Currently, he is the director of the HVAC and Energy lab at KNTU and the Department of Energy of Iran.

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