

Windcatcher as Sustainable Solution for Natural Ventilation in Hot Arid Regions: A Case Study of Saudi Arabia

Authors : Payam Nejat, Fatemeh Jomehzadeh, Muhamad Zaimi Abd. Majid, Mohd.Badrudin Yusof, Hasrul Haidar Ismail

Abstract : Currently, building energy consumption has become an international issue especially in developing countries such as Saudi Arabia. In Saudi Arabia 14% of total final energy consumption is utilized in the building sector. Due to hot arid climate, 60% of total building energy consumption in this country is associated with cooling systems. In addition in 2011, this country was one of top ten CO₂ emitting countries which illustrate the significance of renewable resources to sustaining the energy consumption. Wind as an important renewable energy can play a prominent role to supply natural ventilation inside the building and windcatcher as a traditional technique can be implemented for this purpose. In this paper the different types of windcatchers, its performance and function was reviewed. It can be concluded due high temperature and low humidity in most area of Saudi Arabia this technique can be successfully be employed and help to reduce fossil energy consumption and related CO₂ emissions.

Keywords : natural ventilation, windcatcher, wind, badgir

Conference Title : ICCCE 2015 : International Conference on Civil and Construction Engineering

Conference Location : Jeddah, Saudi Arabia

Conference Dates : January 26-27, 2015