

Wind Catchers and Sustainable Architecture in the Arab World

Abstract

Ventilation is considered as one of the most important aspects in a successful architectural design. Distinguished designers dedicate a considerable part of the design process to develop this important aspect in their building design.

The research presents a comparative analysis of the mechanical ventilation system that is in one of my suggested projects in Aleppo (Syria), and the wind catcher system and the soil cooling properties.

The design concept is based on suction of outdoor air through vertical wind catchers positioned on top of the buildings adjacently to staircases and directed to the North West. The imported air is directed into underground horizontal ducts where heat exchange takes place between the hot air in the ducts and the cooler soil, thus cooling the air and increasing the humidity level which ultimately

results in colder air in the ducts. The hot air is then repelled into the courtyard or the outdoor. The research concludes the advantages and disadvantages of both systems from environmental, economical, urban and social perspectives.

Keywords: Wind catchers- natural ventilation- Air humidity- conditioning

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