

عنوان مقاله:

Analyzing the Performance of Wind Deflectors to Collect Rainwater in Buildings and its Effect on Internal Ventilation and Cooling System

محل انتشار:

اولین کنفرانس بین المللی طراحی در مهندسی عمران، معماری و شهرسازی (سال: 1402)

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خلاصه مقاله:

Wind deflectors are one of the historical elements of Iranian architecture, which are considered an important innovation in native architecture. These elements, which are designed with a climate approach, are known as a static cooling system and provide air conditioning using renewable wind energy. This research was conducted with the aim of investigating hot and dry climate windbreaks and Yazd city was selected as a case study city. Yazd wind deflectors have been seen with different forms and this research shows that their shape features play an important role in their performance. Badgir is one of the historical elements of Iranian architecture, which is an important innovation in the native architecture of hot and dry and hot and humid regions of Iran. These elements are designed with a climate approach. They are known as a static cooling system and provide air conditioning using renewable wind energy. This green energy not only provides a good outdoor ecological quality but also a comfortable and hygienic indoor climate. The proposed innovative solution is to use zero electricity wind catchers for indoor ventilation and cooling system at the same time while collecting rainwater. This study introduces a two-functional wind catcher that provides cool air and water simultaneously. Results showed that water could be used in no-potable usages such as toilet flushing and irrigation of plants.

کلمات کلیدی:

.Wind deflectors, architecture, building, energy consumption, ventilation, interior

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