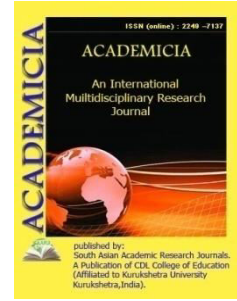




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A LOOK AT HOW SOLAR CHIMNEY INTEGRATED SYSTEMS MAY BE USED FOR ROOM HEATING AND COOLING

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ABSTRACT

In the residential sector, traditional indoor climate comfort systems account for a significant portion of energy usage. Passive design is a method of lowering building energy demand by reducing the amount of electricity used by mechanical systems. Solar chimneys are an unique passive architecture that uses solar energy to build up stack pressure as natural draught components. The installation of a solar chimney increases the efficiency of domestic space heating and cooling while also lowering greenhouse gas emissions. This article gives a summary of current developments in the field of solar chimney research. To enhance the degree of thermal comfort, the building industry has a propensity to use integrated solar chimney designs. The most frequent solar chimney-based integrated setups were summarized in this article. In addition, each system's difficult elements and suggestions were discussed. Combined energy systems based on solar chimneys have long been considered as effective green building design solutions. Each system has its own set of advantages and disadvantages, and there is no universal standard for ranking these systems in order of performance. More trials are needed to address issues that may arise in their commercial uses. More research is needed in order to create optimization methods and control systems. A desired control system reacts to residents'

demands in an unobtrusive manner, allowing them to alter a state if it is deemed thermally unpleasant, and provides quick feedback.

KEYWORDS: *Solar Chimney Earth-Air Heat Exchanger Phase Change Material (PCM) Cooling Cavity Water Spraying System Trombe Wall.*

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