

CFD Analysis of Passive Cooling Building by Using Solar Chimney for Mild or Warm Climates

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Abstract : This research presents the design and analysis of solar air-conditioning systems particularly solar chimney which is a passive strategy for natural ventilation, and demonstrates the structures of these systems' using Computational Fluid Dynamic (CFD) and finally compares the results with several examples, which have been studied experimentally and carried out previously. In order to improve the performance of solar chimney system, highly efficient sub-system components are considered for the design. The general purpose of the research is to understand how efficiently solar chimney systems generate cooling, and is to improve the efficient of such systems for integration with existing and future domestic buildings.

Keywords : active and passive solar technologies, solar cooling system, solar chimney, natural ventilation, cavity depth, CFD models for solar chimney

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