

Abstract

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Performance of Mixed-Mode Cooling Strategies for Office Buildings in Arid Climates

Mixed-Mode ventilation is an innovative approach that maximizes the use of natural ventilation and uses supplementary mechanical cooling only when strictly required. The application of Mixed-Mode ventilation in severe arid climates; its integration with other passive cooling strategies is very challenging and has not been systematically studied. The paper will present an evaluation of the performance of different Mixed-Mode cooling strategies for a single-zone office space in four main arid cities that represent the diversity in arid climates. The results of the simulations are evaluated in terms of appropriate thermal comfort criteria and plant energy consumption. The most effective strategies are addressed for each representative arid city.