

Библиографическое описание статьи

Название статьи

Аннотация

Ключевые слова

Numerical investigation of particle transport characteristics in an isolated room with single-sided natural ventilation

Abstract

Single-sided natural ventilation has been common in multi-family residential buildings. Current research usually presumes that the outdoor air is clean, which is not realistic under the outdoor pollution situations. In this study, the particle transport and airflow pattern in an isolated living room with the single-sided natural ventilation are numerically investigated by means of Eulerian drift-flux model combined with the Eulerian fluid method. The results indicate that larger wind speed does not necessarily achieve better ventilation effect and higher air change rate (ACH). At high wind speeds, the effect of wind direction on the room average concentration becomes more conspicuous. Small particles tend to disperse in the room more uniformly while large particles exhibit stratified distributions. The results would be useful for optimizing single-sided natural ventilation in buildings.

Keywords

single-sided ventilation particle transport Eulerian deposition

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