عنوان مقاله:

Assessment of different turbulence models for predicting varied parameters of fluid flow in naturally double skin façade

محل انتشار:

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خلاصه مقاله:

Double-skin façade (DSF) widely utilized in commercial buildings with Venetian blinds is the inseparable part of the modern building in hot summer and cold winter areas. Nevertheless, economical and practical methods for modeling ventilation in naturally ventilated DSF withVenetian blinds on the basis of computational fluid dynamics (CFD) have not been diametrically developed yet. The DSF system used in this investigation is equipped with Venetian blinds and facades that absorb and reflect the incident solar radiation and transfer thedirect solar heat gain into the building. In this study, a number of turbulence models have been employed so as to find the best model which predict various parameters in DSF. Comparing the simulation results with the experimental data in the literature, a good agreement was achieved. Hence, it can be used as a reliable tool to analyze the ventilation in the double skin facade with a Venetian blind. Results demonstrate that a turbulence model referred to as k-ε RNG has better agreement compared with other turbulence models.

کلمات کلیدی:

Double-skin façade (DSF), Naturally ventilation, CFD, Turbulent flow modeling