عنوان مقاله:

Investigation of local skin temperature and thermal sensation under confluent jets ventilation using thermographic images

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خلاصه مقاله:

The purpose of new and hybrid ventilation approaches is to provide better conditions such as occupants' pleasure modification, indoor air quality, air pollutants reduction, productivity enhancement, and energy minimization. Confluent jet ventilation is a hybrid ventilation strategy to overcome the limitations of mixing and displacement ventilation. This paper aims to investigate the occupants' local skin temperature and thermal sensation under confluent jets ventilation. In this empirical study, ۲۸ male and female college subjects participated and two different inlet air temperatures of ۱۶ and ۳۲ were considered. The local sensations of the head and hands were extracted by questionnaires at specific times, and thermography cameras were utilized to capture thermal images. The local temperature of the forehead and fingers were obtained from the thermographic images. The results indicate that females are more sensitive to environmental changes. For instance, by reducing inlet temperature from ۳۲ to ۱۶ , the forehead/fingers of females and males dropped by about ۱.۳/۱.۵ and ۰.۵/۰.۳ , respectively. For males, the temperature change of the forehead was greater than of their fingers, whereas for females, the trend was reversed. This was attributed to females wearing hijab and having more clothing insulation on their heads. The local thermal sensations of males' and females' heads/hands also changed about ۱.۳/۰.۸ and ۰.۶/۰.۹ units respectively, reflecting the different thermal sensitivities of different segments for .males and females

کلمات کلیدی:

Confluent Jets, Skin Temperature, Thermal Sensation, Thermographic Imaging