

عنوان مقاله:

Energy and Indoor Air Quality analysis for a Displacement Ventilation System

محل انتشار:

پنجمین همایش بهینه سازی مصرف سوخت در ساختمان (سال: 1385)

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خلاصه مقاله:

For modern commercial buildings, HVAC share is around 40% of total building energy requirements. The importance of having such systems are, to provide a comfortable thermal environment and a good indoor air quality (IAQ). Such matters are commonly the concern of the airconditioning engineer who must design equipment to produce the desired conditions. The conventional mixed ventilation system provides a desired thermal comfort to occupants but lack of serve in good IAQ. The power consumption of this system is also higher than the displacement ventilation. This paper focuses on the potential energy savings in displacement ventilation systems with improved Indoor Air Quality (IAQ). In the research a comparative energy assessment was prepared for displacement ventilation system with reference to an existing mixed ventilation system. A detailed first cost analysis were presented by keeping the initial constraints at a fixed value. It was found that there is an opportunity of 42% total power savings, with a slight increase of first cost by 20% than mixed ventilation system. Finally, the underlying improvement in Indoor air quality using a displacement ventilation is highlighted.

کلمات کلیدی:

energy, displacement ventilation, mixed ventilation, Indoor air quality, Thermal comfort

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