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Indoor Air Quality Measurement with the Installation of a Rooftop Turbine Ventilator

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ABSTRACT

The present paper presents a numerical analysis of the difference in comfort level inside a room of a residential building when roof top turbine ventilator is installed. This analysis simulates various comfort factors which includes the indoor air movement, room temperature, Predicted Mean Vote (PMV) and Predicted Percentage of Dissatisfied (PPD). Various test cases of ventilator exhaust rate were examined. The results showed that general comfort satisfying international standards in building can be achieved. This study also presents a qualitative and quantitative study of indoor air temperature and overall indoor air flow pattern. A promising conclusion that can be drawn from this study is that wind driven ventilators can play an important role in the design of a cost effective and energy efficient ventilation system inside a building.

KEYWORDS

Indoor Air Quality; Rooftop Turbine Ventilator; Computational Analysis

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