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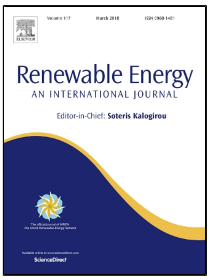

CFD simulation of cross-ventilation in buildings using rooftop wind-catchers: impact of outlet openings

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Research highlights:

- Detailed evaluation of the impact of outlet openings on cross-ventilation using wind catchers.
- Increasing the surface area of outlet openings enhances airflow rate and air change efficiency.
- A combination of one-sided wind-catcher and window is superior.
- The use of two-sided wind-catchers leads to the lowest value of air change efficiency.