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Impact of street canyon typology on building's peak cooling energy demand: a parametric analysis using orthogonal experiment

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Highlights

- We integrated ENVI-met and EnergyPlus to study urban canyon's effect on cooling energy.
- We simultaneously considered street canyon geometry and roadside vegetation effect.
- Street's height-to-width ratio found to be crucial factor on peak building cooling demand.
- Roadside greenery's cooling effect interacts with the sectional geometry of street canyon.
- Urban street design recommendations to minimize the peak cooling demand were proposed.

Abstract

Urban street geometry and ways of street greening affect the microclimate in street canyons, which affects the cooling energy consumption of the surrounding buildings of the streets. This study employs microclimate simulation software ENVI-met and

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