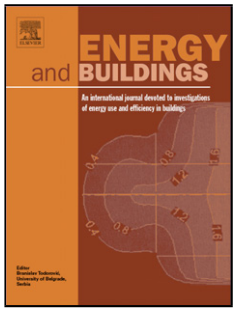

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A novel concept to measure envelope thermal transmittance and air infiltration using a combined simulation and experimental approach

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Highlights:

1. A novel method for measuring envelope U-values and air infiltration is proposed.
2. The proposed method considers building heat losses in a quasi-steady state to eliminate uncertainties caused by dynamic energy consumption resulting from occupant behavior.
3. A regression model is used to reduce computational processing time in optimization process.
4. Through calibration, simulated heat consumption matches well with measured data.