



SBD Lab

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Dataset for Thermal Performance Assessment of One-Bedroom (F2) Reference Dwelling in Burkina Faso

Version 1.0



N'Guero, Sjoerd Moustapha; messan, adamah; Attia, Shady, 2026, "Dataset for Thermal Performance Assessment of One-Bedroom (F2) Reference Dwelling in Burkina Faso", <https://doi.org/10.7910/DVN/BZBGJK>, Harvard Dataverse, V1, UNF:6:wgYxXdUvPwLr0BN2+9Crhw== [fileUNF]

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This dataset supports the study of passive envelope strategies for naturally ventilated housing in hot semi-arid West Africa. The reference building is a compact, single-story F2 (T2) dwelling in Ouagadougou, Burkina Faso, comprising two principal rooms, a 9.36 m² bedroom and a 13.68 m² living room, together with a shower room and an adjoining 8.82 m² terrace. The dataset contains one year of hourly indoor air-temperature measurements collected in the occupied dwelling, together with the calibrated single-zone DesignBuilder/EnergyPlus model developed from these measurements and the weather files used for the simulations. It includes 90 annual simulations combining six wall systems and five roof systems across three locations representing the BSh, BWh, and Aw Köppen-Geiger climate types, as well as a night-ventilation variant of the best-performing configuration and the models used for sensitivity analysis. Hourly operative temperature is provided for every simulation case, along with Python scripts for calculating the ASHRAE Guideline 14 calibration metrics, ASHRAE 55 adaptive thermal discomfort hours, and the figures reported in the associated study. Material properties, scenario definitions, and sensitivity-analysis sampling ranges are supplied as machine-readable tables, enabling the reported results to be independently reproduced and the reference dwelling to be reused for further building-performance and passive-cooling studies in West African climates. (2026-09-08)

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Subject

Engineering

Keyword

reference dwelling, thermal comfort, building performance simulation, EnergyPlus, Sahelian climate

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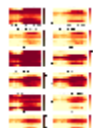
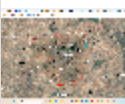


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