



SBD Lab

(Liege University - (ULiege / ULg))

Harvard Dataverse > SBD Lab >

Development of a nearly zero-energy semi-detached house in Belgium

Version 1.0



Khoshroo, Marziyeh; Attia, Shady, 2025, "Development of a nearly zero-energy semi-detached house in Belgium", <https://doi.org/10.7910/DVN/GOLIDT>, Harvard Dataverse, V1

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Description

This dataset contains comprehensive monitoring data of a representative nearly zero-energy semi-detached residential building located in the Brussels-Capital Region, Belgium, within the temperate oceanic climate zone. The case study building corresponds to 22% of semi-detached housing typologies in Belgium and was monitored over four years, from 2021 to 2025. The dataset includes hourly natural gas and electricity consumption values obtained from smart meters, along with indoor environmental quality parameters—air temperature, relative humidity, and CO₂ concentration—measured using Testo 160 IAQ sensors. In addition to empirical monitoring, a calibrated building energy model developed in EnergyPlus is provided to simulate and validate annual performance under dynamic weather conditions. A detailed 3D photogrammetric model of the building, generated using Agisoft Metashape, is also included to support geometric accuracy and thermal zoning. This dataset aims to support research in residential building performance analysis, model validation, energy retrofitting strategies, and carbon emission reduction for low-carbon housing pathways in Central Europe. (2025-07-11)

Subject

Engineering

Feedback

Dataverse
Residential building, Energy monitoring, Indoor environmental quality, Smart meter, EnergyPlus,
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