Modelling diversity in building occupant behaviour: a novel statistical approach

We propose an advanced modelling framework to predict the scope and effects of behavioural diversity regarding building occupant actions on window openings, shading devices and lighting. We develop a statistical approach based on generalised linear mixed models to account for the longitudinal nature of observations on occupants, and to provide a coherent method to capture observed variability amongst occupant/room pairings through built-in probabilistic terms describing occupant diversity in a tractable manner within building energy simulation. The contribution of the proposed method is demonstrated using collected behavioural data from three long-term monitoring campaigns (an office building in Switzerland and residential units in Germany and Denmark).

General information
Publication status: Published
Organisations: Department of Civil Engineering, Section for Indoor Climate and Building Physics, Gartenmann Engineering SA, RWTH Aachen University
Contributors: Haldi, F., Calì, D., Andersen, R. K., Wesseling, M., Müller, D.
Pages: 527-544
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Journal of Building Performance Simulation
Volume: 10
Issue number: 5-6
ISSN (Print): 1940-1493
Ratings:
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.2 SJR 0.957 SNIP 1.15
Web of Science (2017): Impact factor 2.603
Web of Science (2017): Indexed yes
Original language: English
Keywords: Windows, Electrical lighting, Building simulation, Occupant behaviour, Shading devices
DOIs:
10.1080/19401493.2016.1269245
Source: FindIt
Source ID: 2350333396
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review