QUB/e – BUILDING PERFORMANCE EVALUATION BY SG

J. MEULEMANS (SGR PARIS)

BeBo webinar – October 21, 2021

MOTIVATIONS

- Carbon reduction targets compromised by the **‘performance gap’**.

- Energy efficient buildings can be delivered through **quality control measures**.

- Need of **suitable testing methodologies** to demonstrate performance and establish confidence.

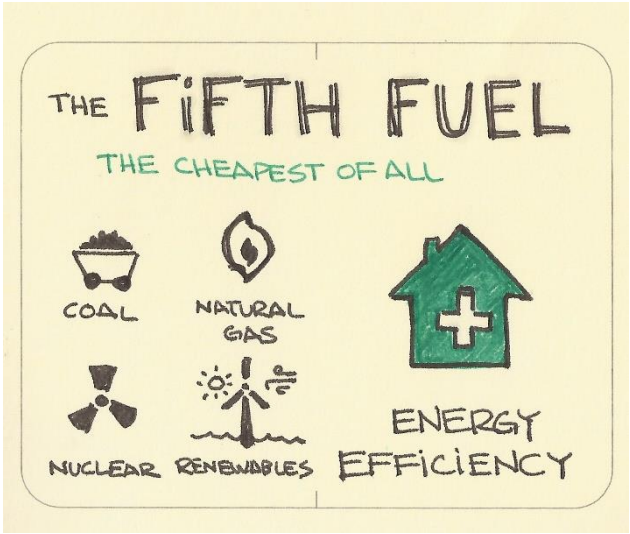
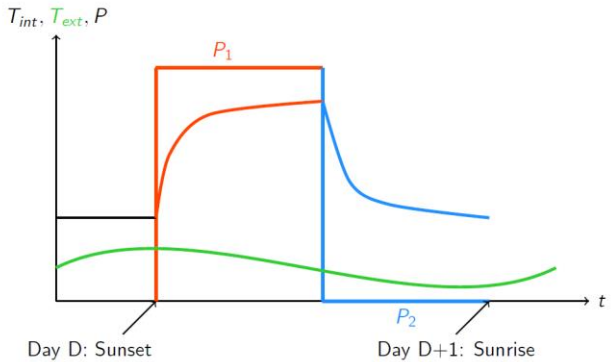


Image: Sketchplanations

QUB/e METHOD

- A dynamic *in situ* **measurement method** to simultaneously estimate both the **HTC** and the ***U*-values** in a single night (no occupancy)
- A distinctive advantage of the QUB/e method is the time required to carry out a measurement
- Method thoroughly tested and validated in the field in Europe

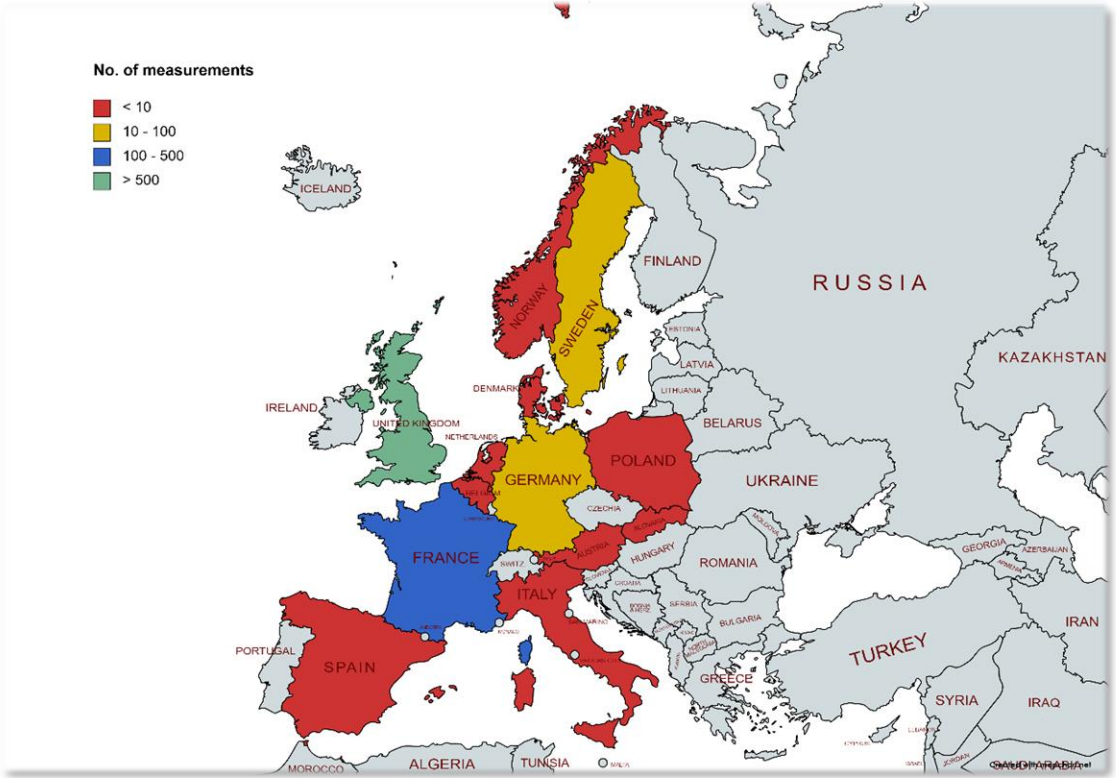


FIELD TESTING IN EUROPE

Key figures

- 1000+ measurements
- 150+ buildings
- 40% new build

New build construction	% of tested buildings
Masonry	75
Concrete	10
Wood	15



MAIN COLLABORATIONS AND PARTNERSHIPS

TRANSVERSAL R&D CENTERS BY SAINT-GOBAIN

Department for Business, Energy & Industrial Strategy

LEEDS BECKETT UNIVERSITY

University of Salford MANCHESTER

University of Nottingham UK | CHINA | MALAYSIA

BeBo

Stockholms stad

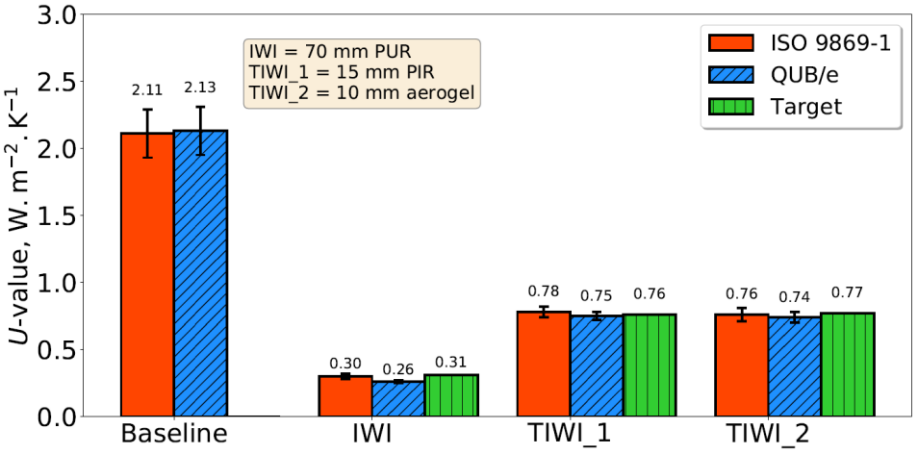
Fraunhofer IBP

International Energy Agency

European Commission

UK − RETROFIT − SINGLE-FAMILY HOUSE

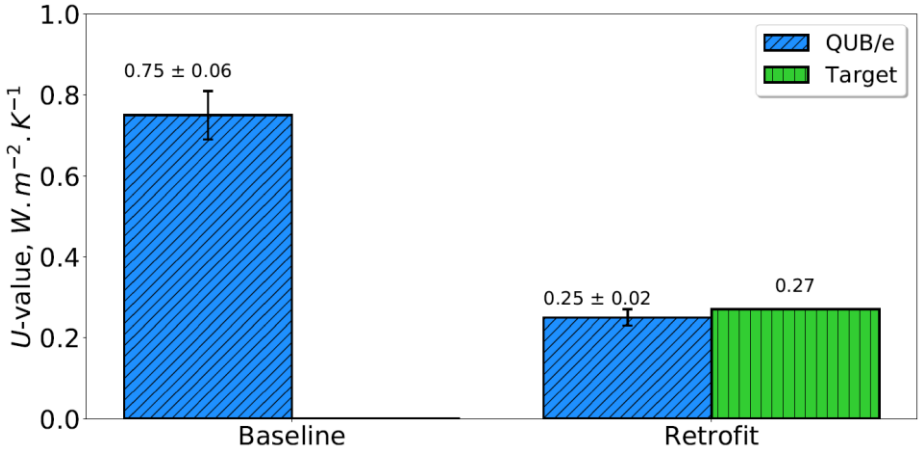
- A circa 1900s solid wall mid-terrace house
- Evaluation of thin IWI (TIWI) systems
- Cross-comparison with CH and HFM (ISO 9869-1)
- No performance gap after the different retrofits



Meulemans et al. (Beyond 2020)

SWEDEN − RETROFIT − MULTI-FAMILY HOUSING

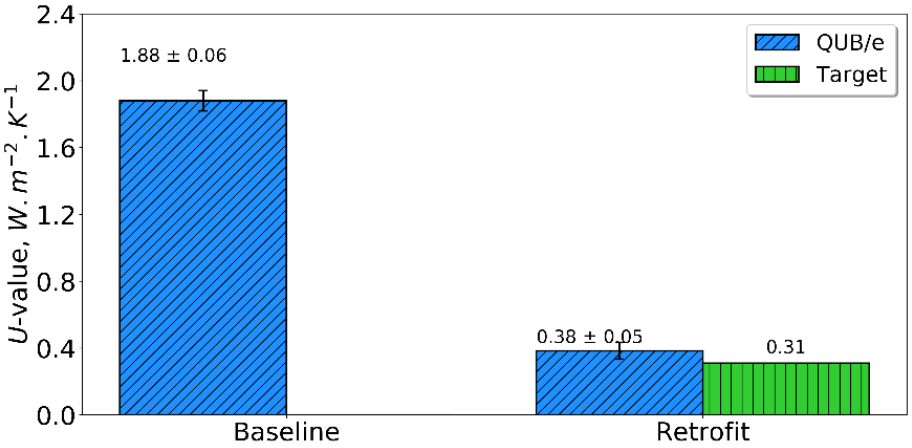
- A circa 1960s MFH in Stockholm area
- Full refurbishment within a EU H2020 project
- Cross-comparison with HFM (ISO 9869-1)
- No performance gap after the retrofit



Meulemans (Cold Climate 2018, CISBAT 2019, Beyond 2020)

SWEDEN − RETROFIT − MULTI-FAMILY HOUSING

- A circa 1930s MFH in Malmö
- Renovation of the courtyard façade
- Baseline: U-value much higher than expected (+50%)
- Retrofit: Performance gap due to cold bridges (balconies)



Meulemans (SGR Paris 2020), Lindborg & Jonsson (SG Sweden 2021)

NORWAY – NEW BUILD – SINGLE-FAMILY HOUSE

Larvik

Design and as-built (measured) U-values in agreement (U = 0.10 W/m²-K for the external walls)

https://multicomfort.saint-gobain.com/project-gallery/larvik-norway

Stavanger – 3 houses

Design and as-built (measured) U-values in agreement (U = 0.12 W/m²-K for the external walls)

https://multicomfort.saint-gobain.com/project-gallery/stavanger-norway

SG SWEDEN – BUSINESS VALUE PROPOSITIONS

CONTACT: TOMAS PÜHRINGER

1. Sales (self-testing, SG or 3rd party/certified contractor): hand-over (compliance) test

2. Service/consulting: mapping of buildings (valuation, renovation, due diligence)

3. Solutions (e.g., SilentWall premium offer)

4. Certification schemes (e.g., BREEAM, LEED, Miljöbyggnad, etc.)

TAKE-AWAYS

1. The QUB/e method can deliver rapid, precise, and accurate measurements: engage stakeholders and secure ROI (renovation/recovery plan).

2. The QUB/e method is able to accurately quantify change in thermal transmittance / resistance following retrofit of external walls.

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