EuroPHit

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Outlines for training modules for designer

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Passive House Institute
Darmstadt, Germany

Co-funded by the Intelligent Energy Europe Programme of the European Union

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The EuroPHit Project

EuroPHit

With the EnerPHit Standard as the goal and Passive House principles as the basis, EuroPHit applies knowledge on deep energy retrofits to the oft-overlooked yet critical area of step-by-step refurbishments

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Step by step towards the goal…
Training modules for designers

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How to set correctly up an overall refurbishmant plan?

EnerPHit + RES

EnerPHit Certified Retrofit Passive House Institute

retrofit

- High efficiency retrofit principles

step

- Concepts for step-by-step refurbishment approaches

by

- How to design connection details of different retrofit stages?

step

- How to avoid humidity problems?

Building stock

- How and when to include implement RES ?

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Workshop modules

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Passive house designer

Day 1	Passive House Principles 1.1 Basics of Passive Houses and EnerPHit 1.2 Design boundaries: Climate/Shading/Usage 1.3 Sustainability principles and RES potential	EnerPHit: High efficiency retrofits 5.1 High efficiency components for retrofits 5.2 Internal insulation 5.3 EnerPHit retrofits	Day 5
Day 2	Opake Building Envelope / construction 2.1 Thermal insulation / Thermal bridges 2.2 Airtightness 2.3 Enter building envelope into the PHPP	Practical implementation / Quality assurance 6.1 Quality assurance design and construction 6.2 Airtightness test and ventilation setup 6.3 Economic efficiency and LCA	Day 6
Day 3	Windows 3.1 Window glazing and window frames 3.2 Window Installation 3.3 Enter Windows/Shading into the PHPP	Step by step refurbishments 7.1 sbs retrofits and refurbishment plans 7.2 Special connection details and products 7.3 Enter refurbishment steps into the PHPP	Day 7
Day 4	Mechanical services 4.1 Controlled ventilation with heat recovery 4.2 Heat and cooling supply, DHW 4.3 Enter technical equipment into te PHPP	Optional: Workshop (by course providers) 8.1 Questions 8.2 Repetition 8.3 Excercises	Day 8

Optional: Final Examination Certified Passive House Designer (coordinated with PHI examination dates)

Certified Passive House Designer
(All Certified Passive House Designers are listed on http://www.passivhausplaner.eu)

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Implementation of energy, step by step

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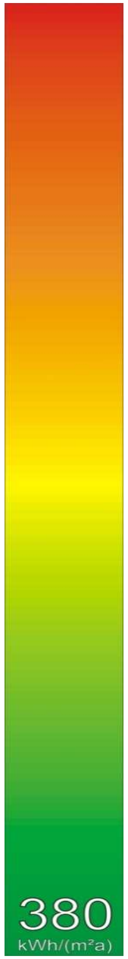

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Service life and replacement times of building components*

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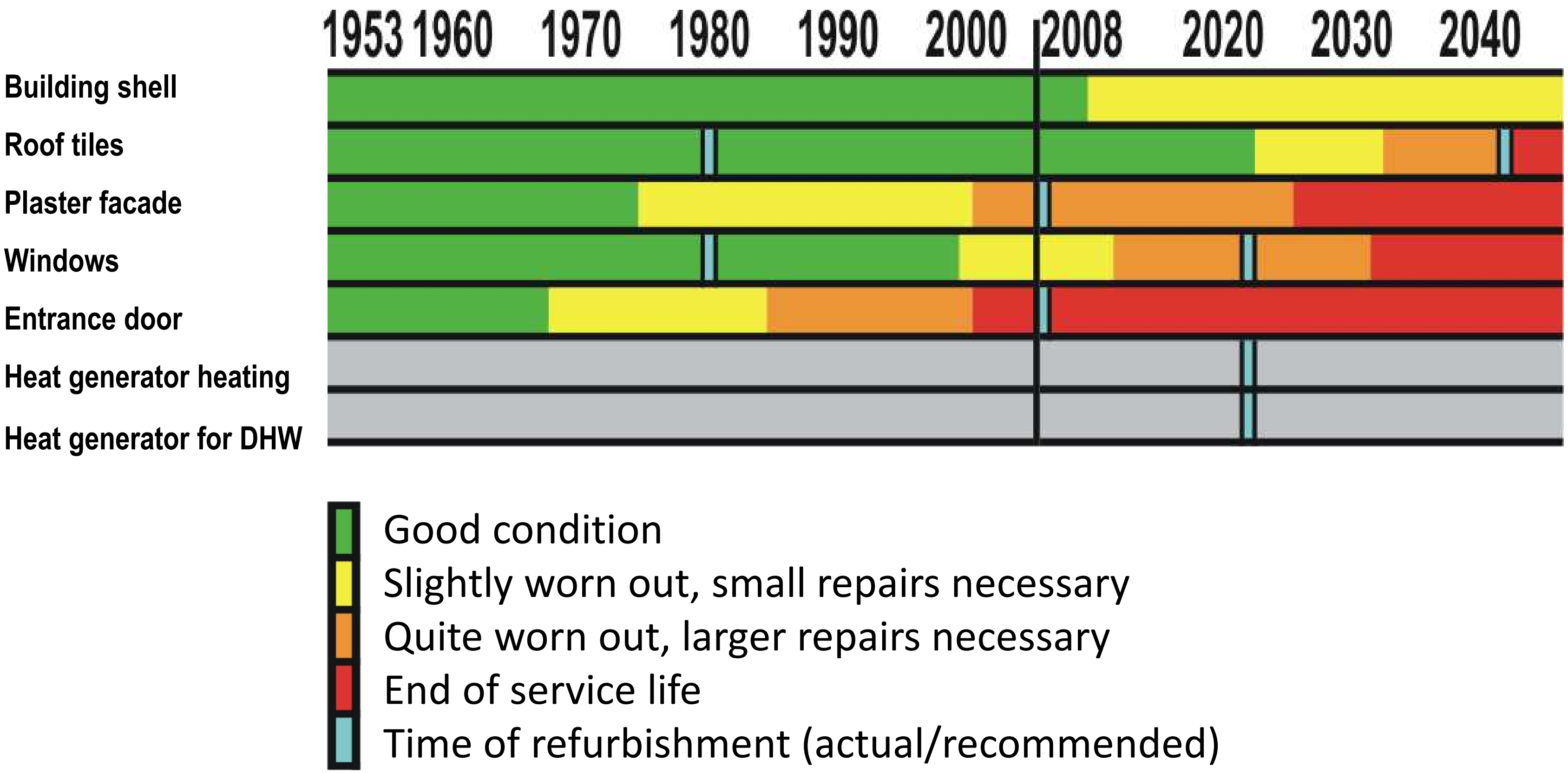

*based on: “Aging characteristics of building components and maintenance costs”, Professor P. Meyer

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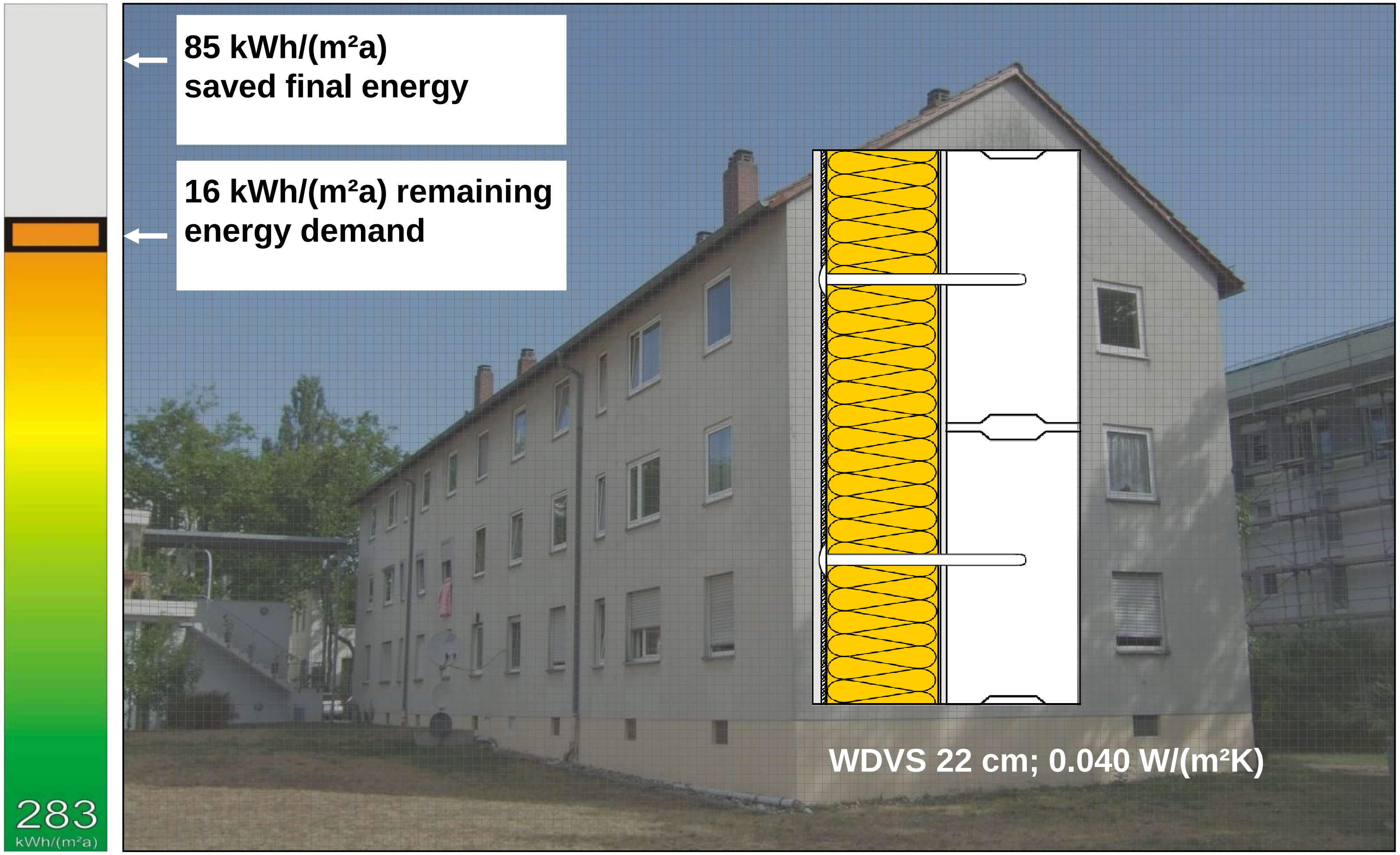
Measures: Facade insulation using EIFS

EuroPHit



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Measures: insulation apron

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Measures: insulation of the top floor ceiling

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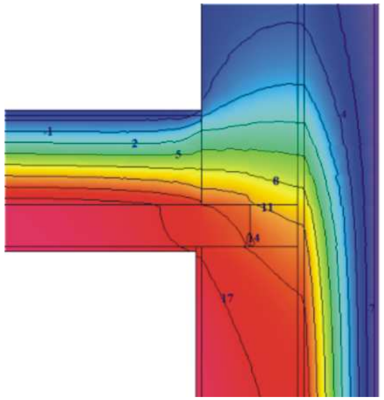
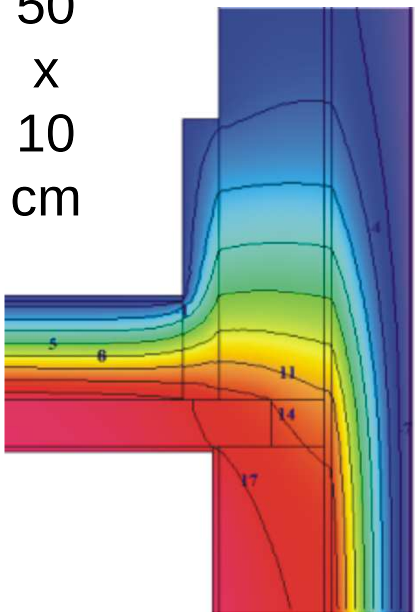
Thermal bridge
Gable wall



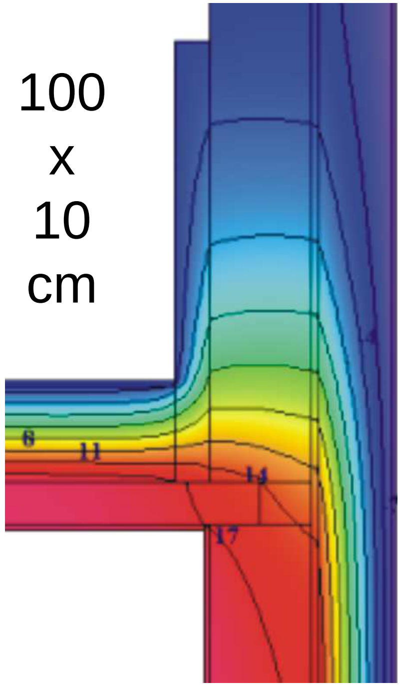
Ψ = 0.127 W/(mK)

50 x 10 cm



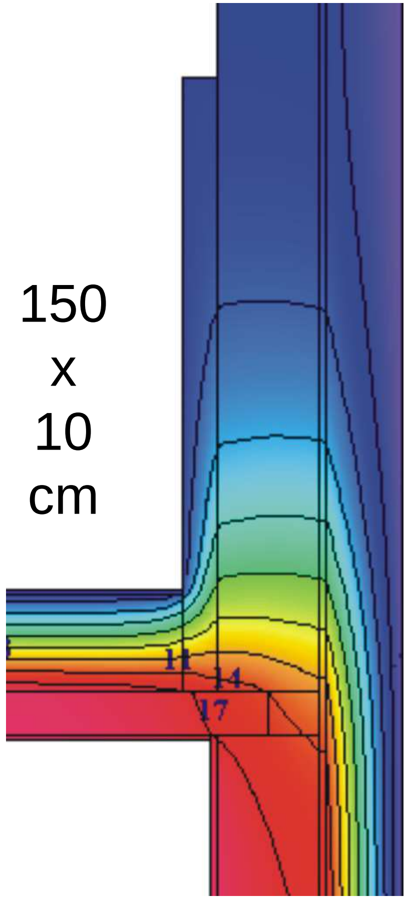
Ψ = 0.064 W/(mK)

100 x 10 cm



Ψ = 0.055 W/(mK)

150 x 10 cm



Ψ = 0.055 W/(mK)

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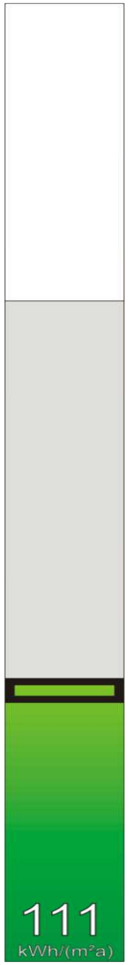
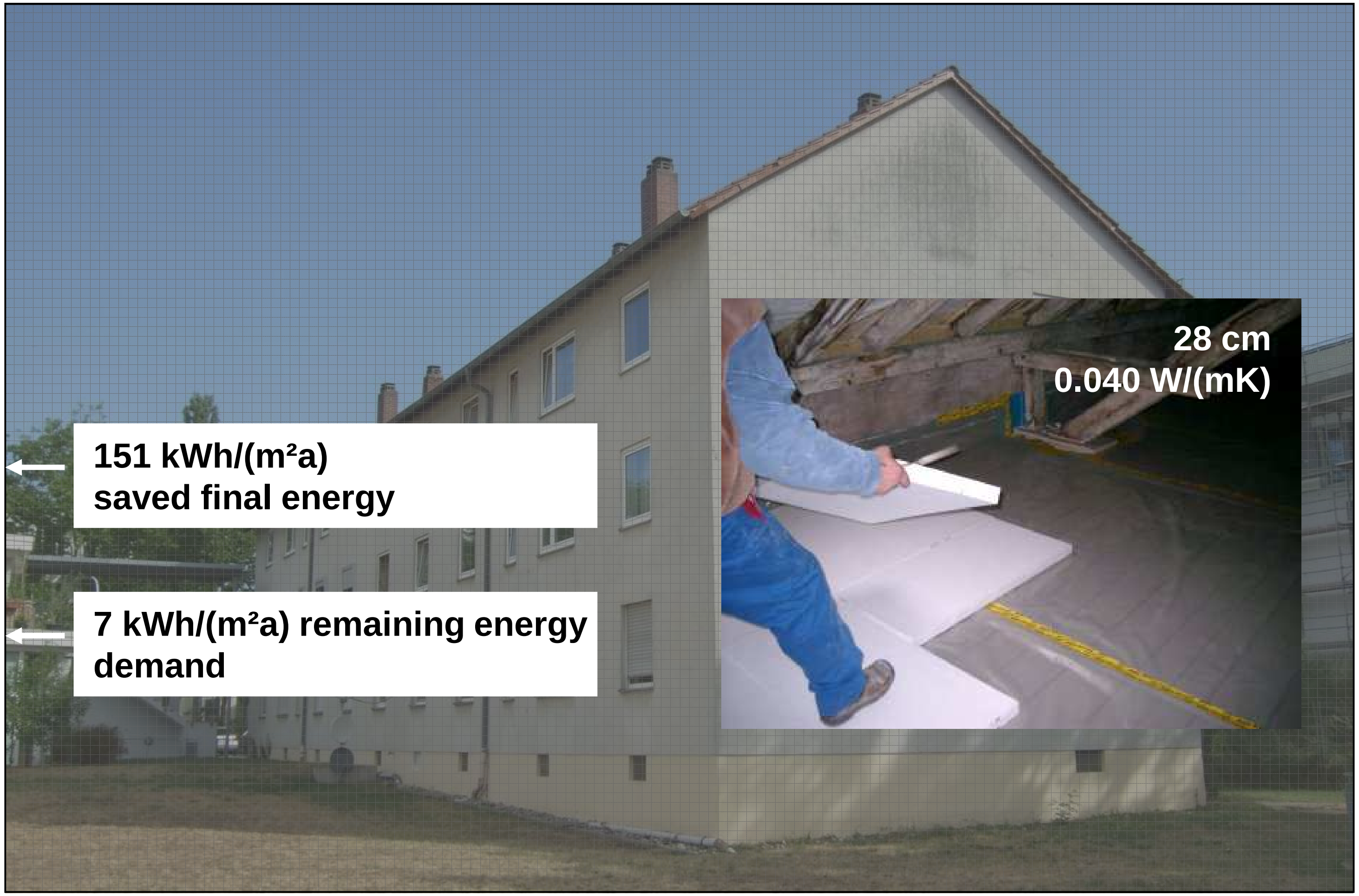
Measures: insulation of the top floor ceiling





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New window – summarised
Before + intermediate state

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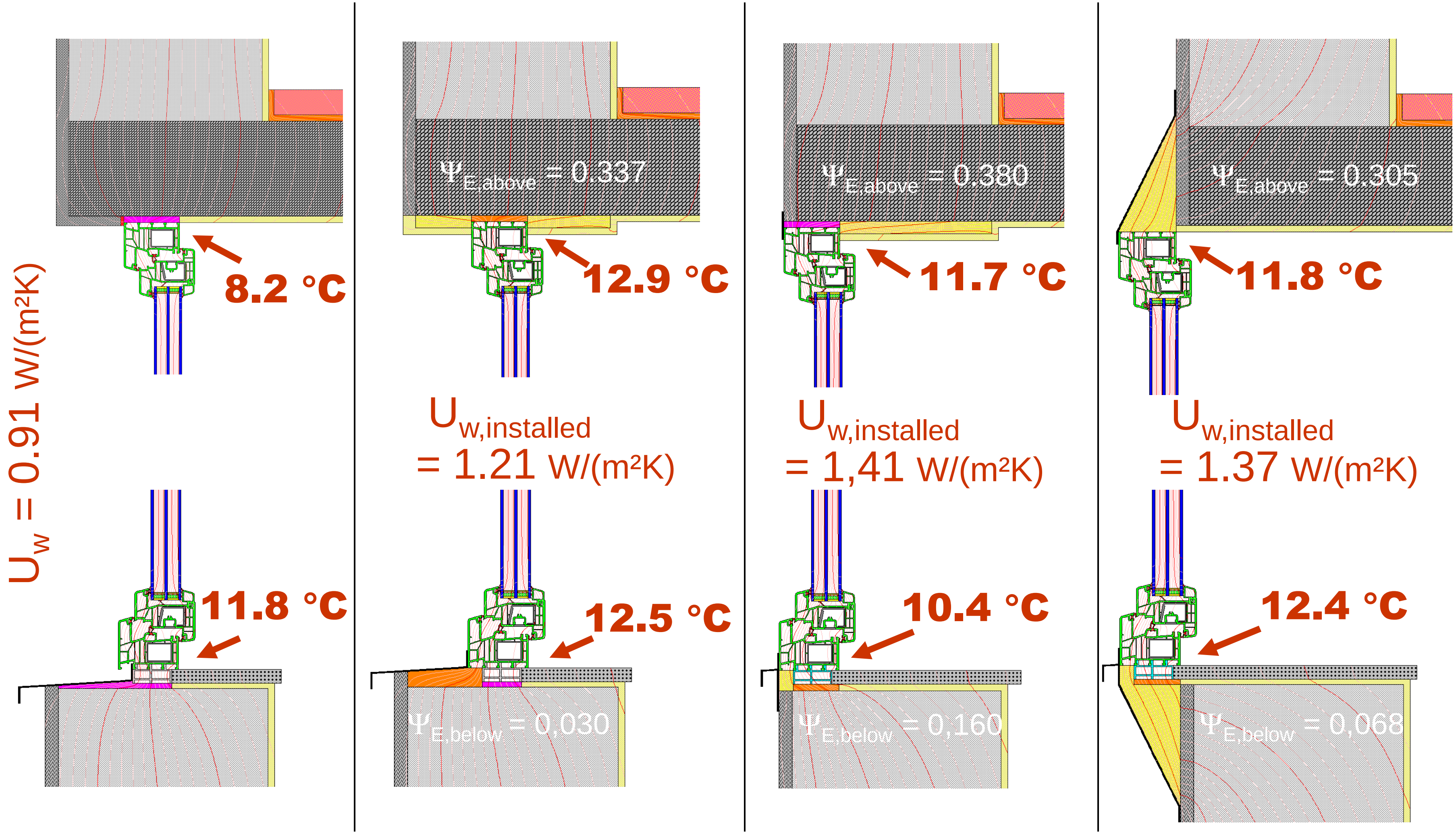

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New window – summarised
Before + final state with exterior insulation

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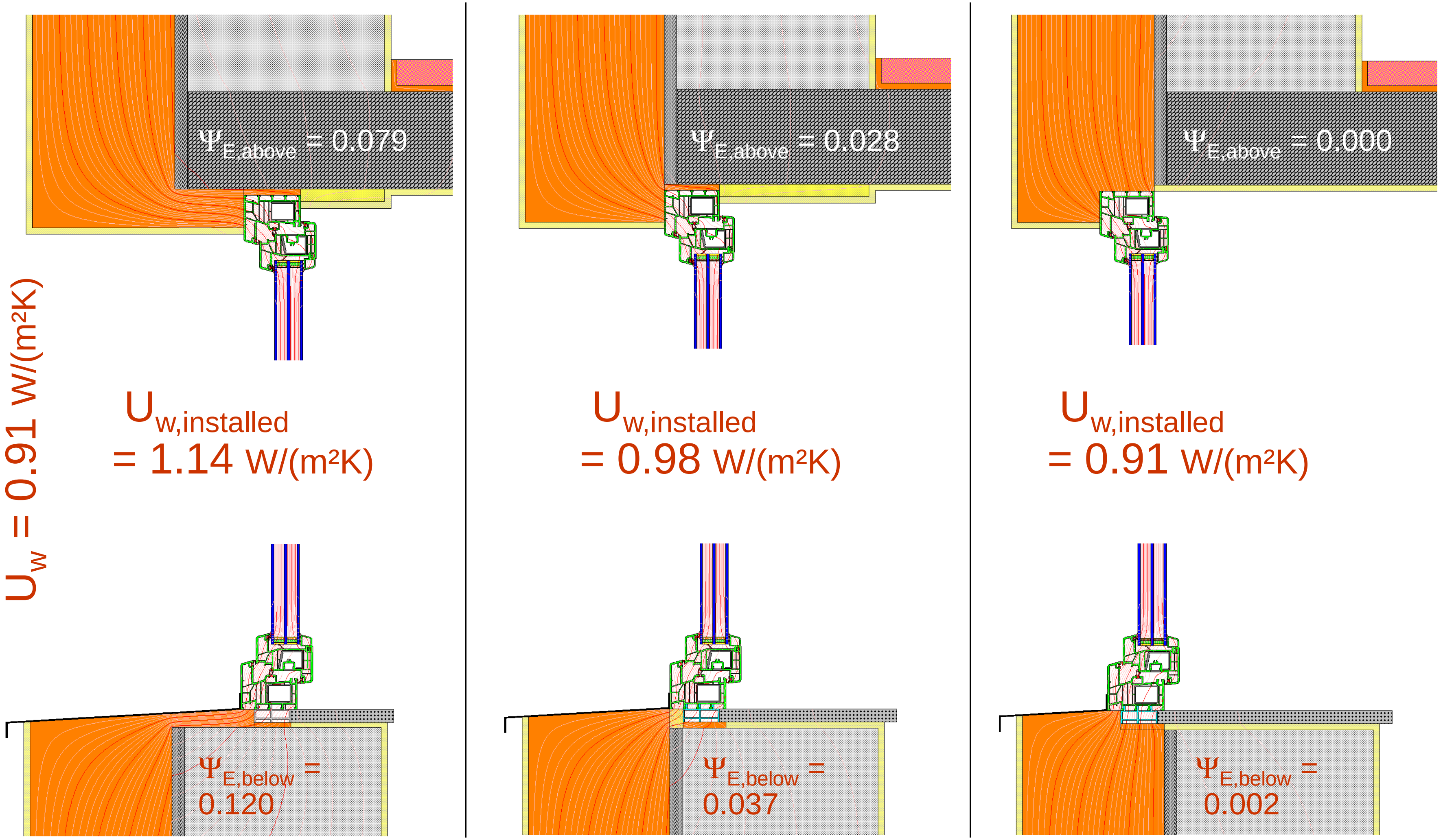

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Measures: window replacement

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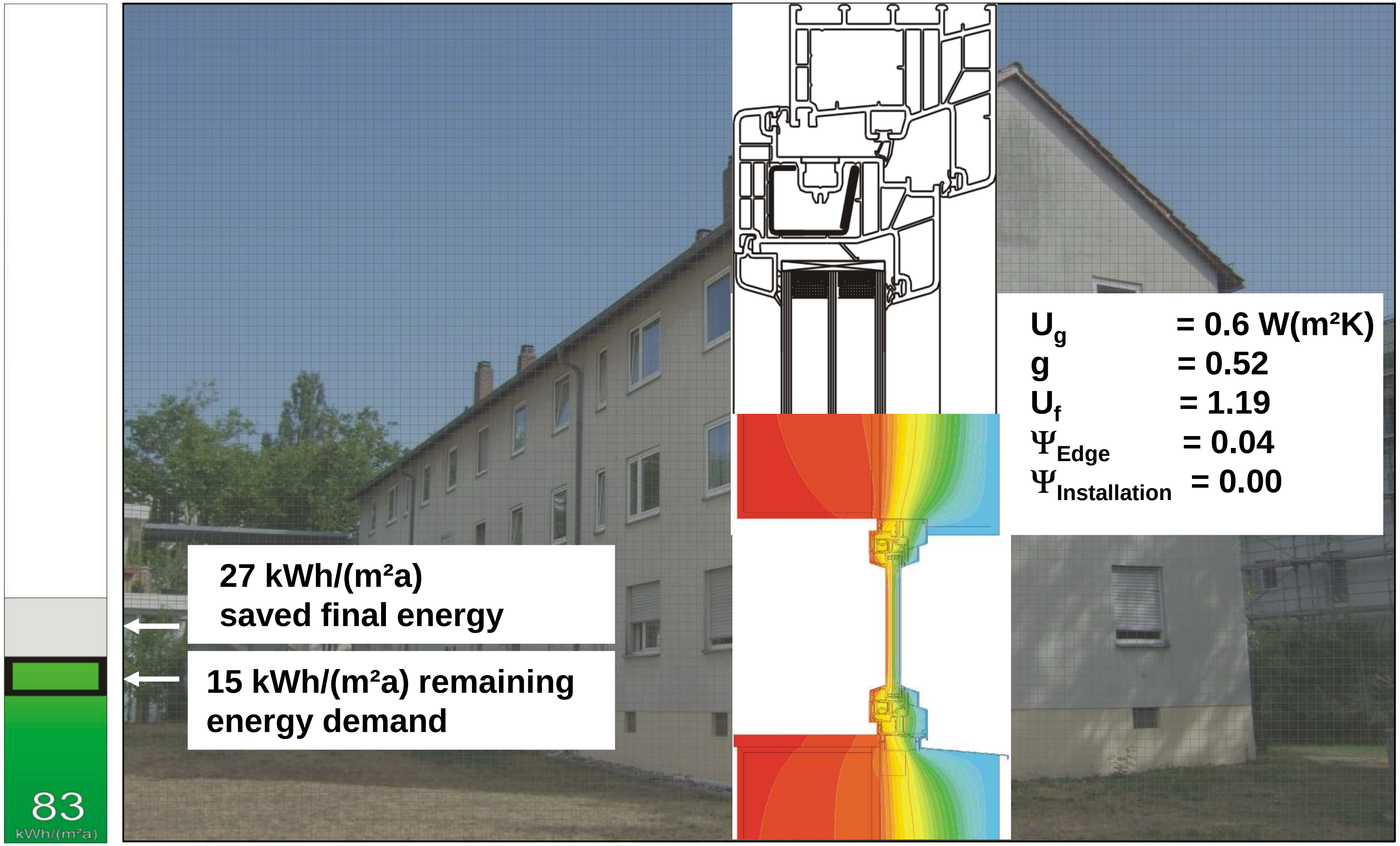

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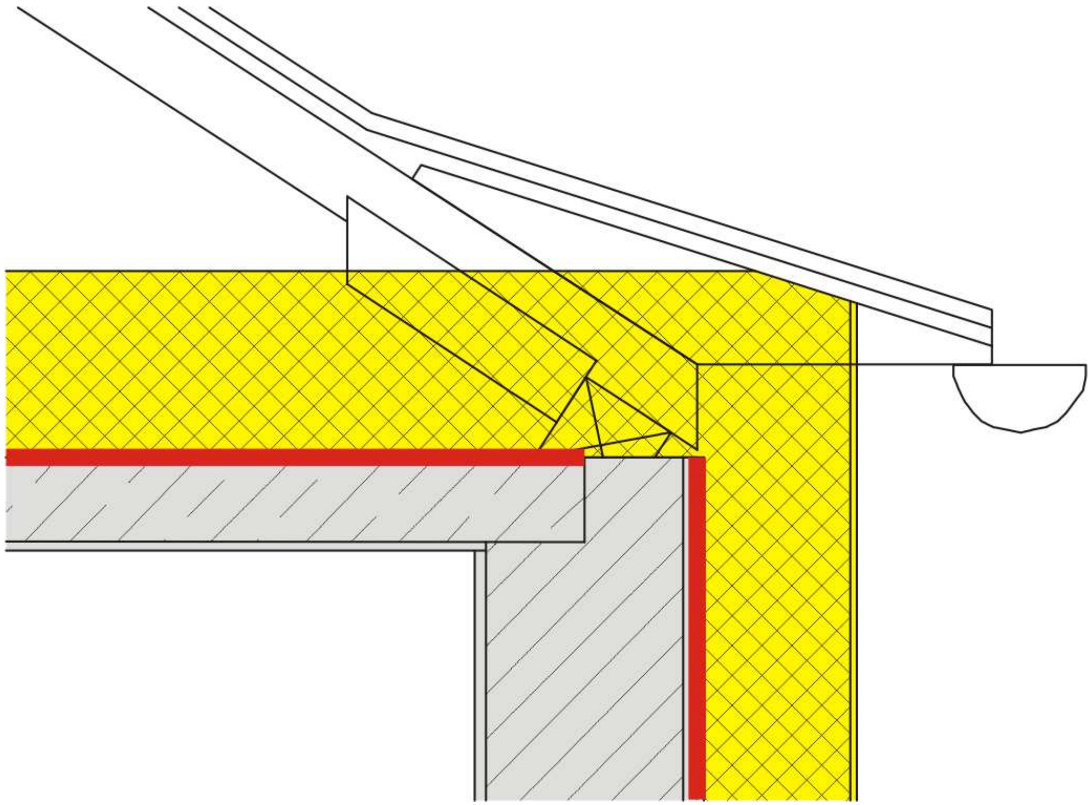
Measures: airtightness



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Measures: airtightness testing

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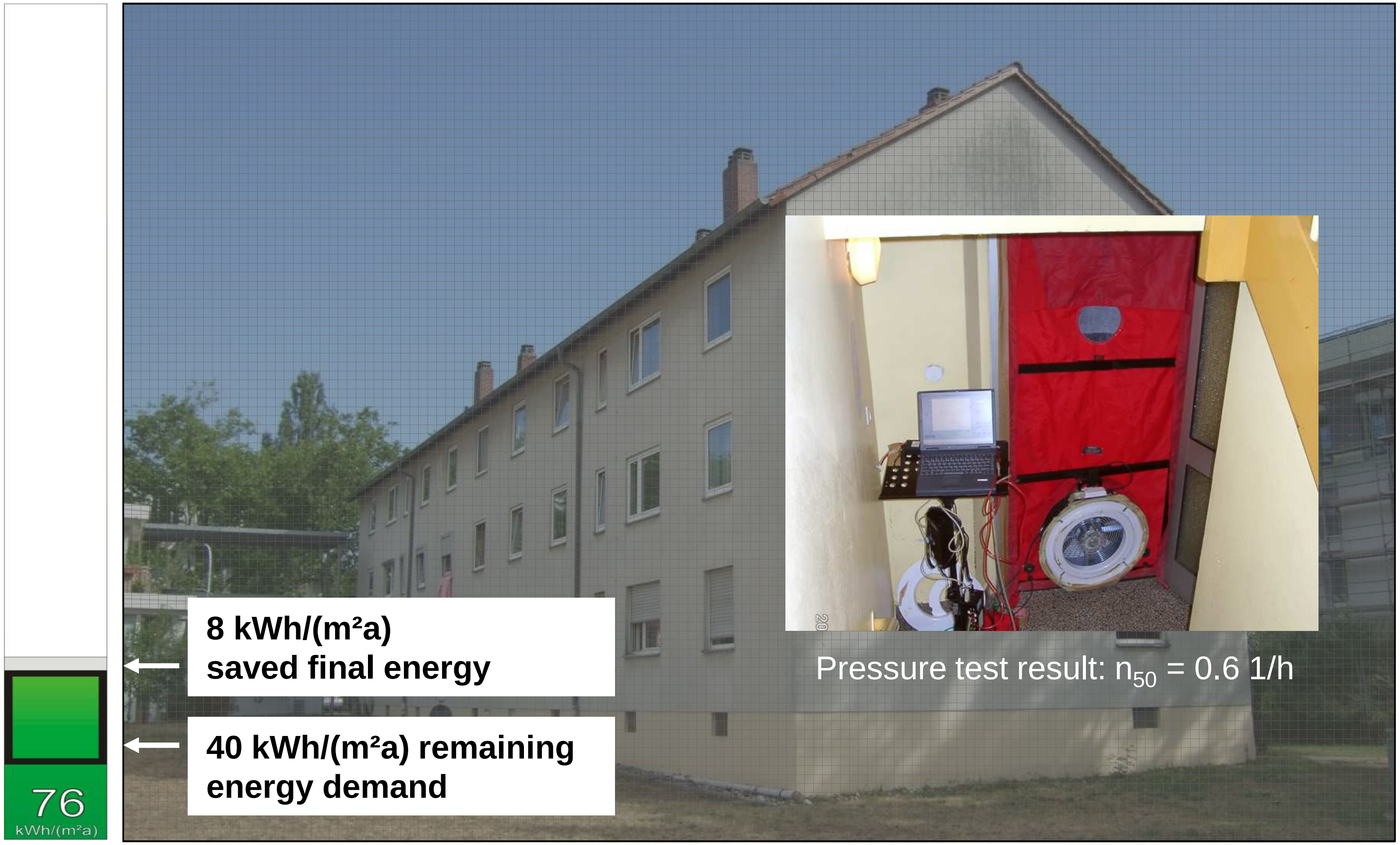

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Ventilation in modernisations of existing buildings

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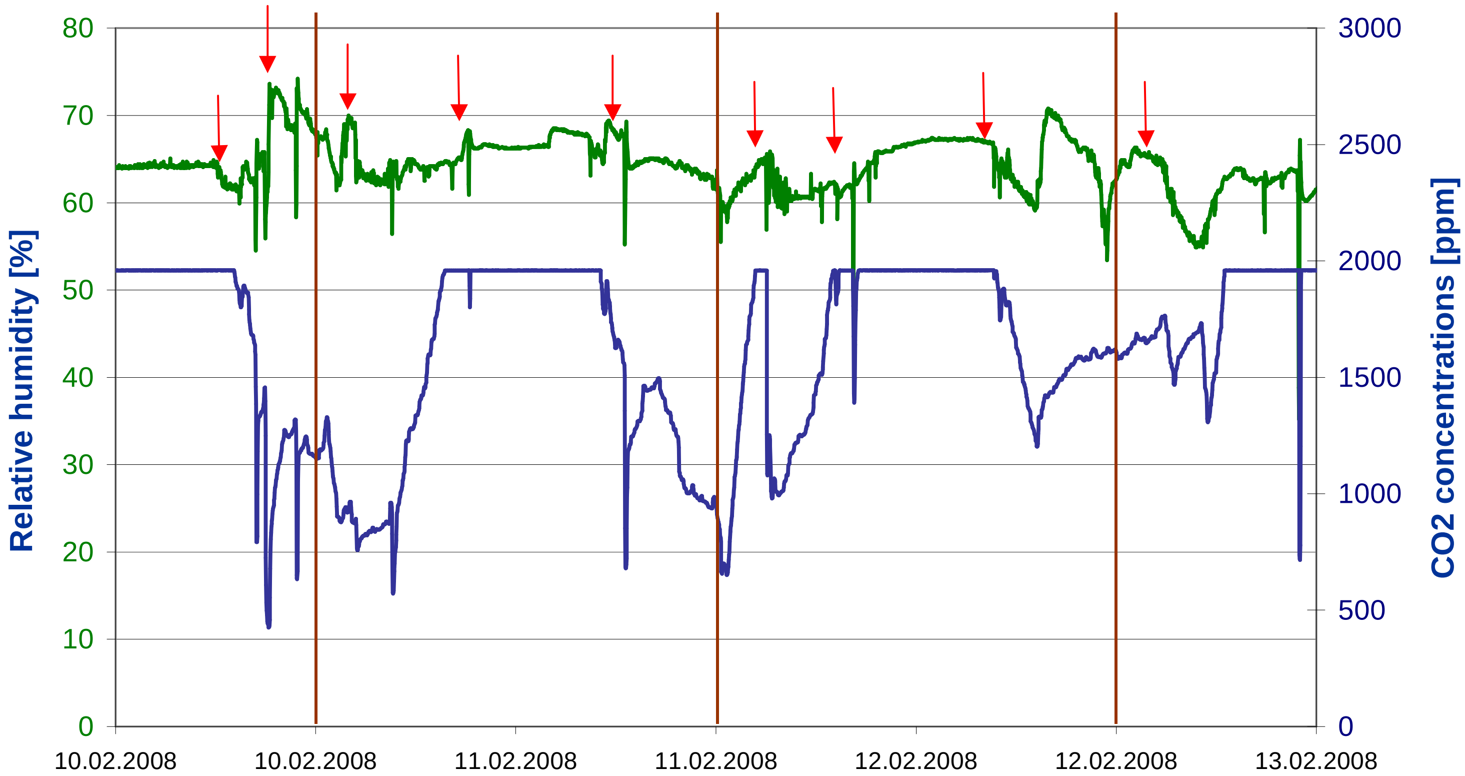
Modernisation of an existing building without a ventilation system



PH_04 moisture [%]
PH_04CO2 concentrations [ppm]

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Measures: ventilation system with heat recovery

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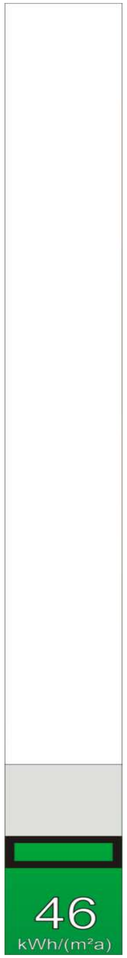

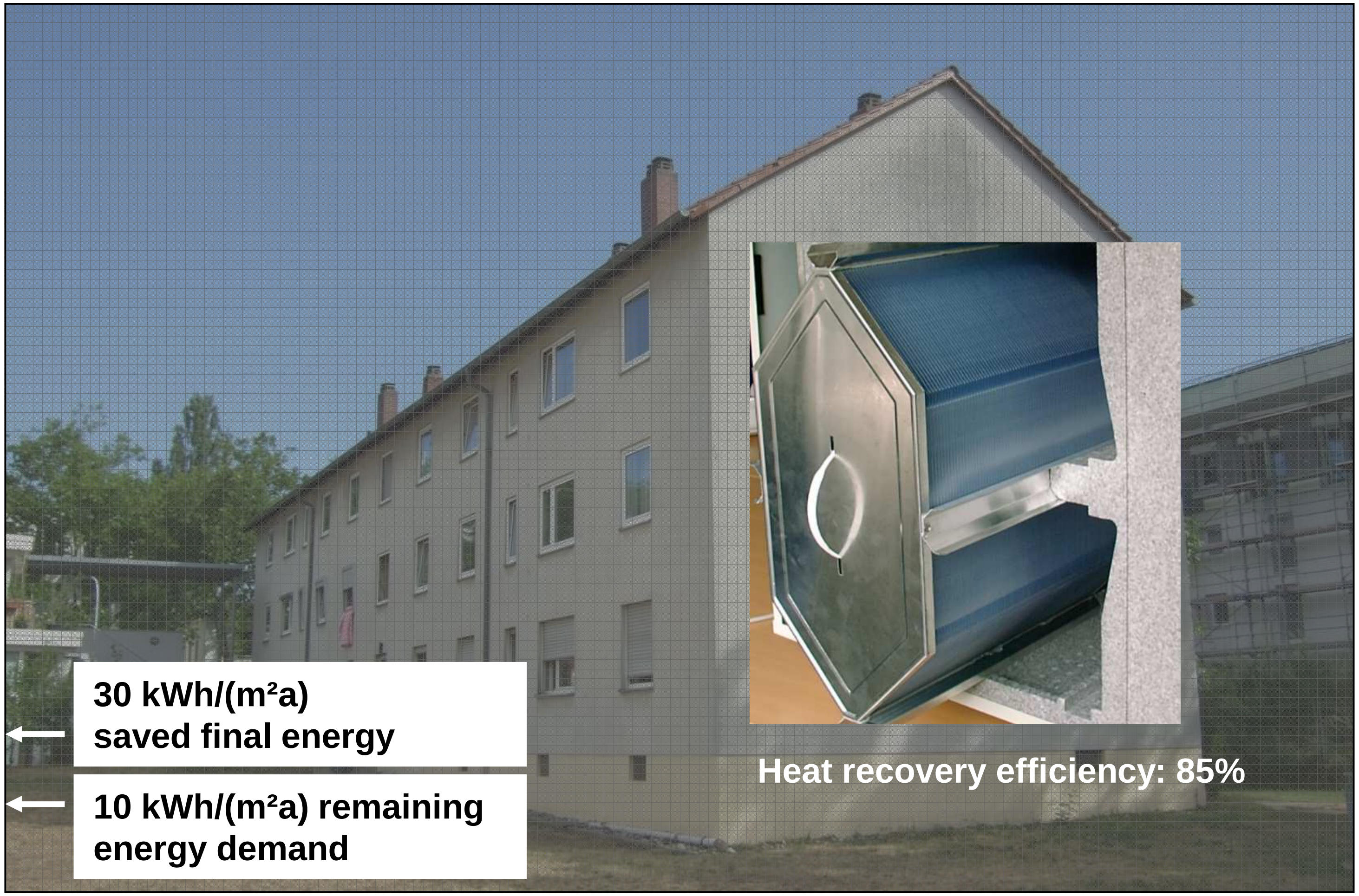

Measures: central gased-based condensing boiler

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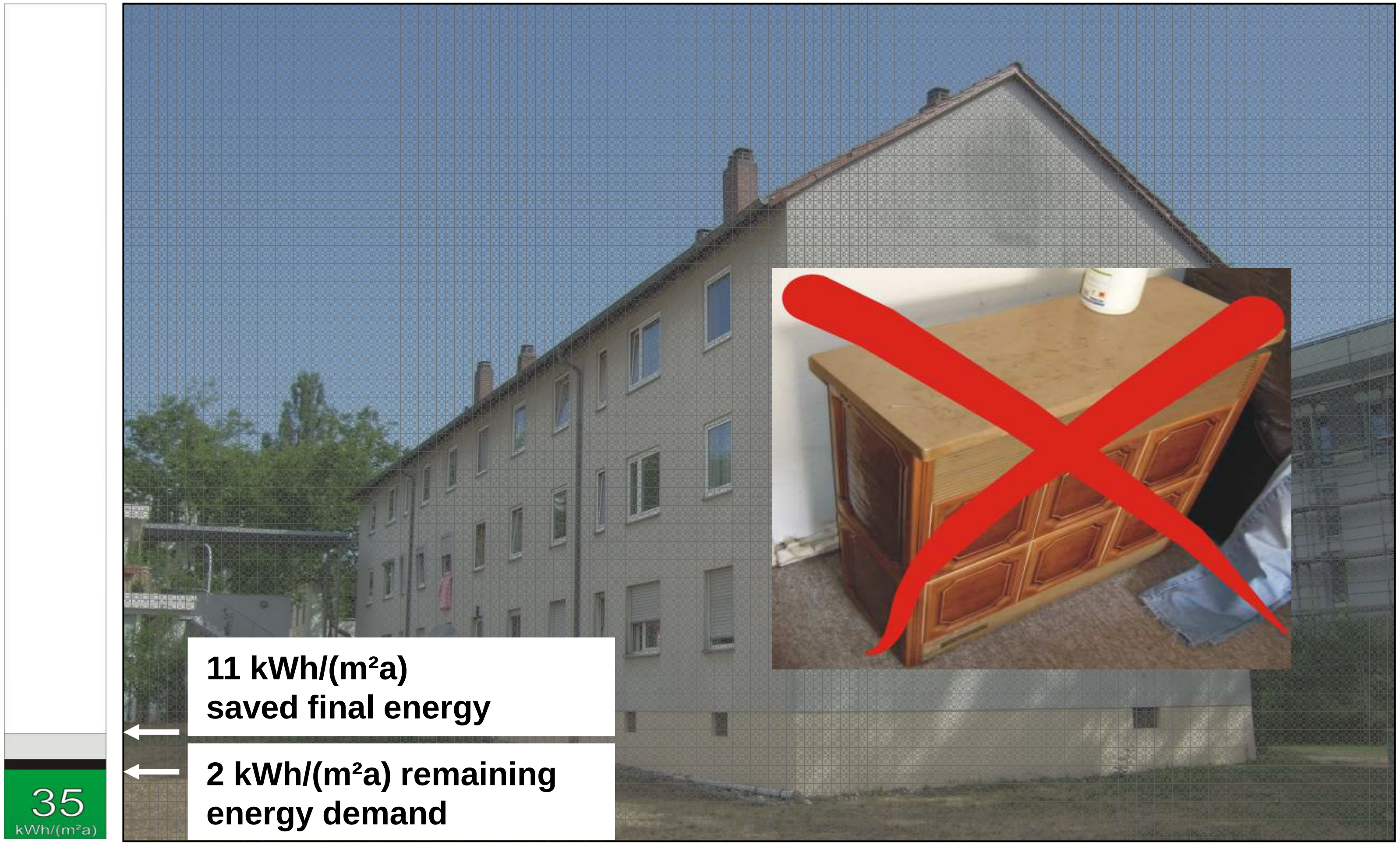

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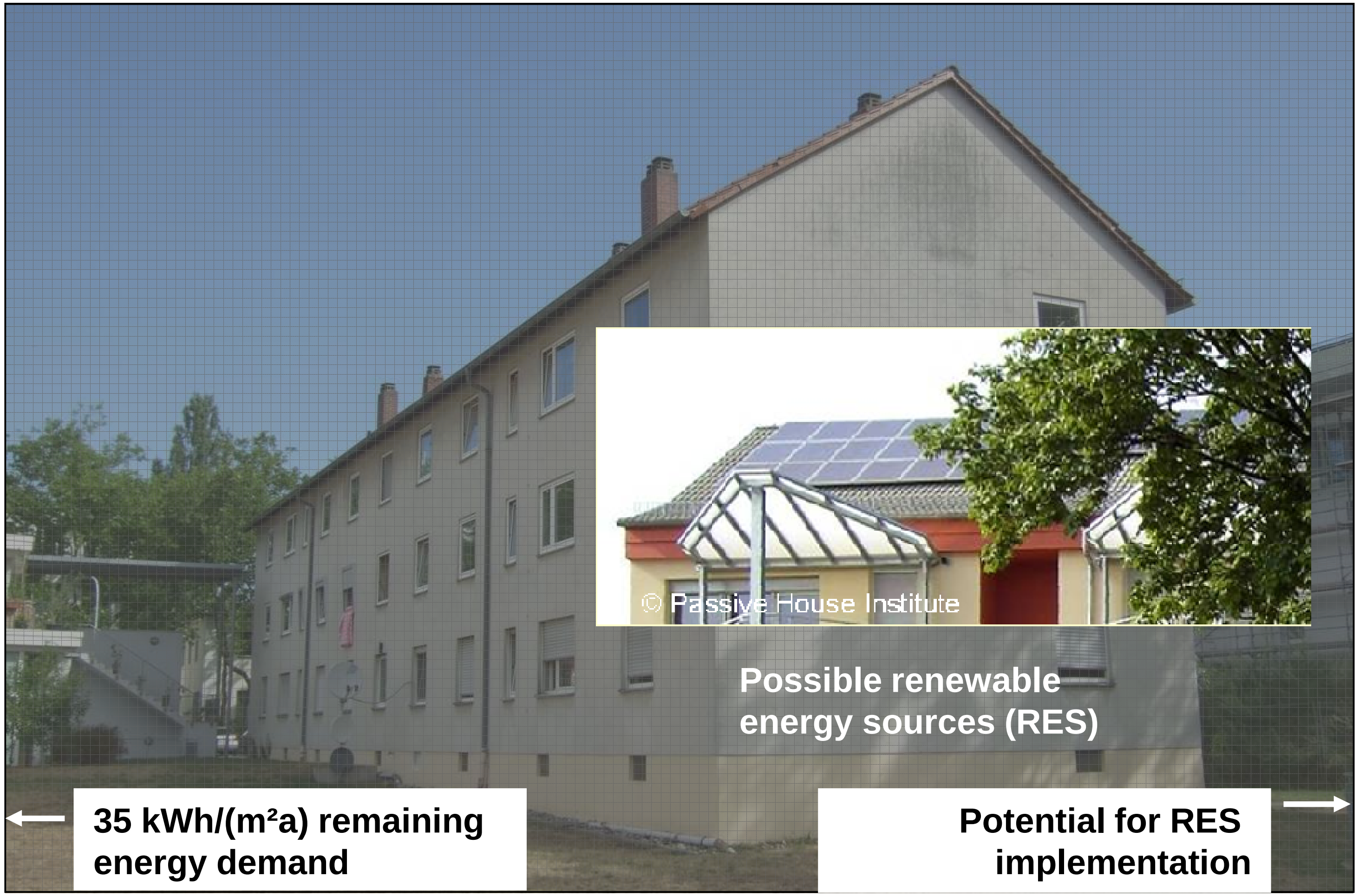
Measures: RES Implementation

35 kWh/(m²a)



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How to implement energy efficiency in step-by-step retrofits?

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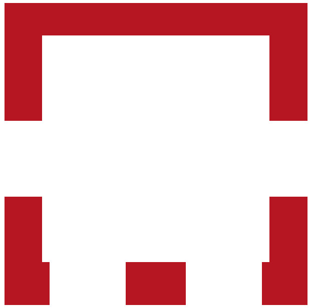
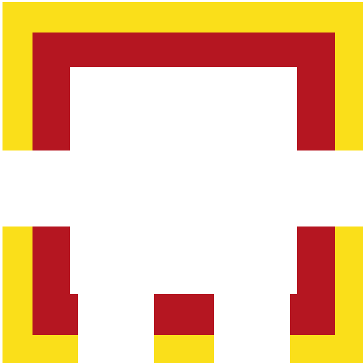
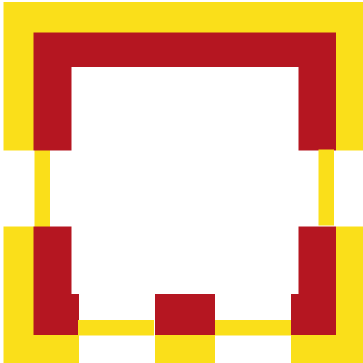
1. Components step-by-step



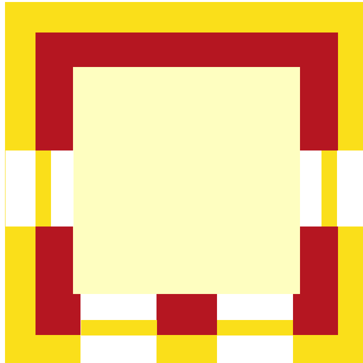
Building stock



Insulation

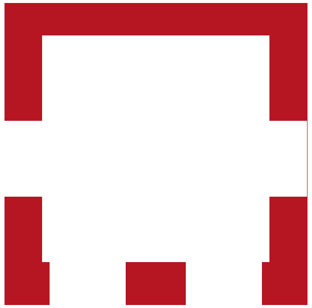


Windows, airthightness and ventilation

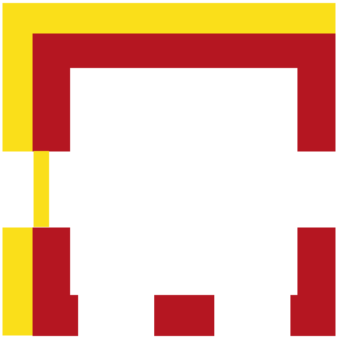


RES and heating system

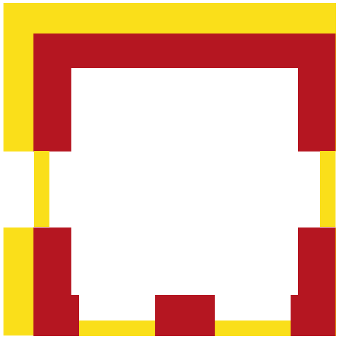
2. Facades / parts of the building step-by-step



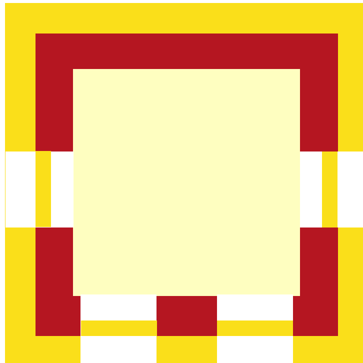
Building stock



North and west side



Other windows, airtightness and ventilation



Remaining insulation, RES and heating system

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Thank you
for your attention

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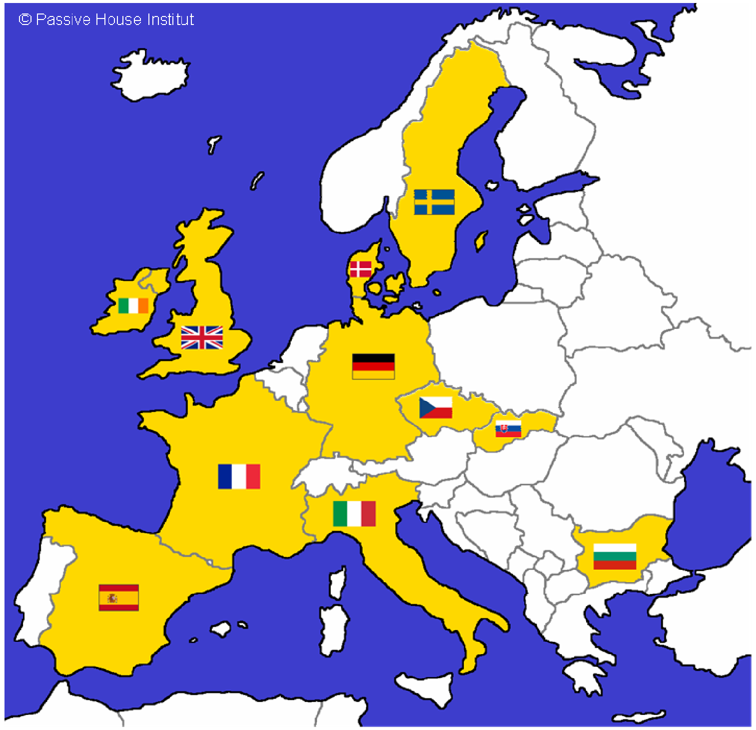

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