

EuroPHit

Specific requirements for the financing of single retrofit steps

Jan Steiger / Passive House Institute





Step-by-step retrofit in high efficiency standard

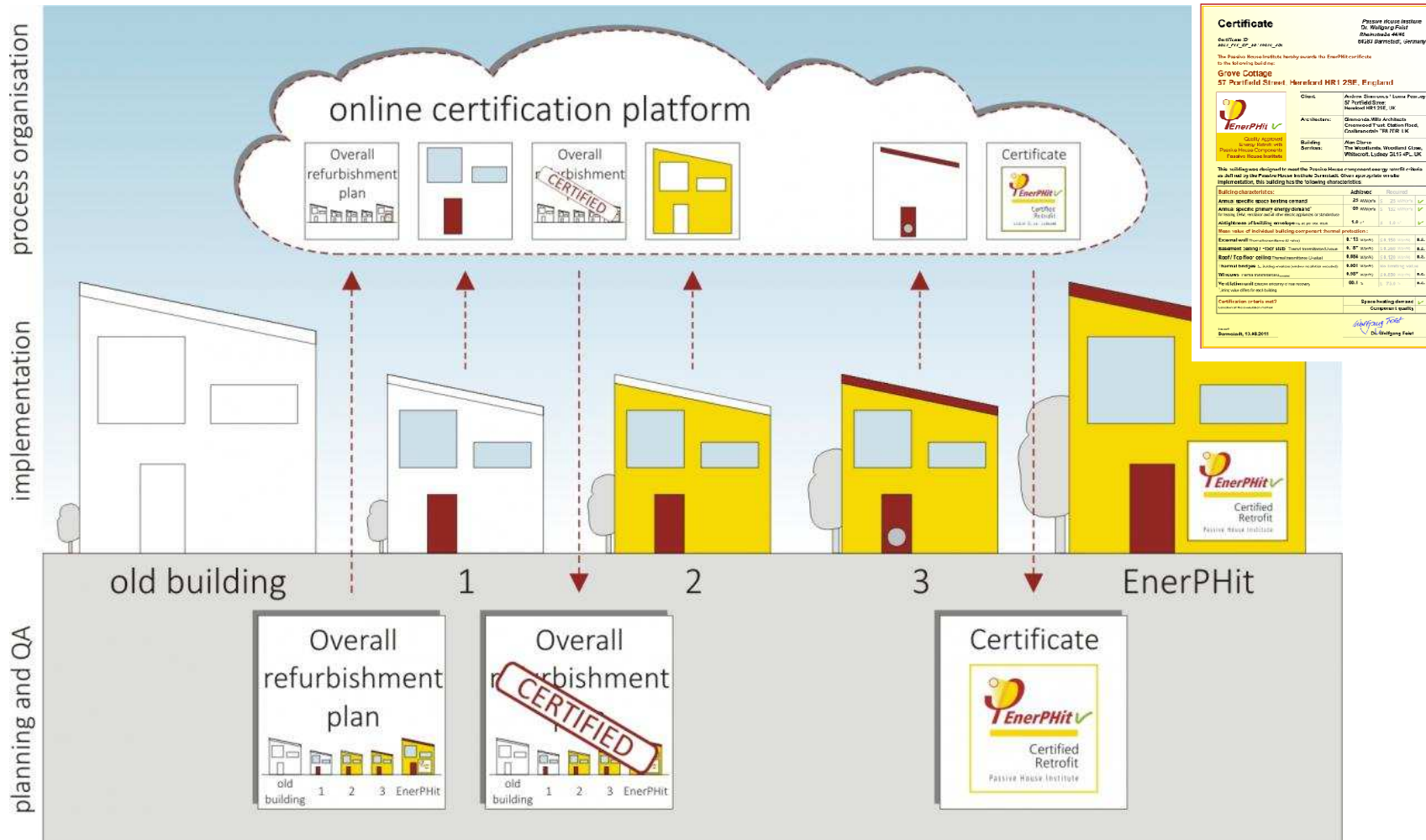


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Certification criteria and scheme

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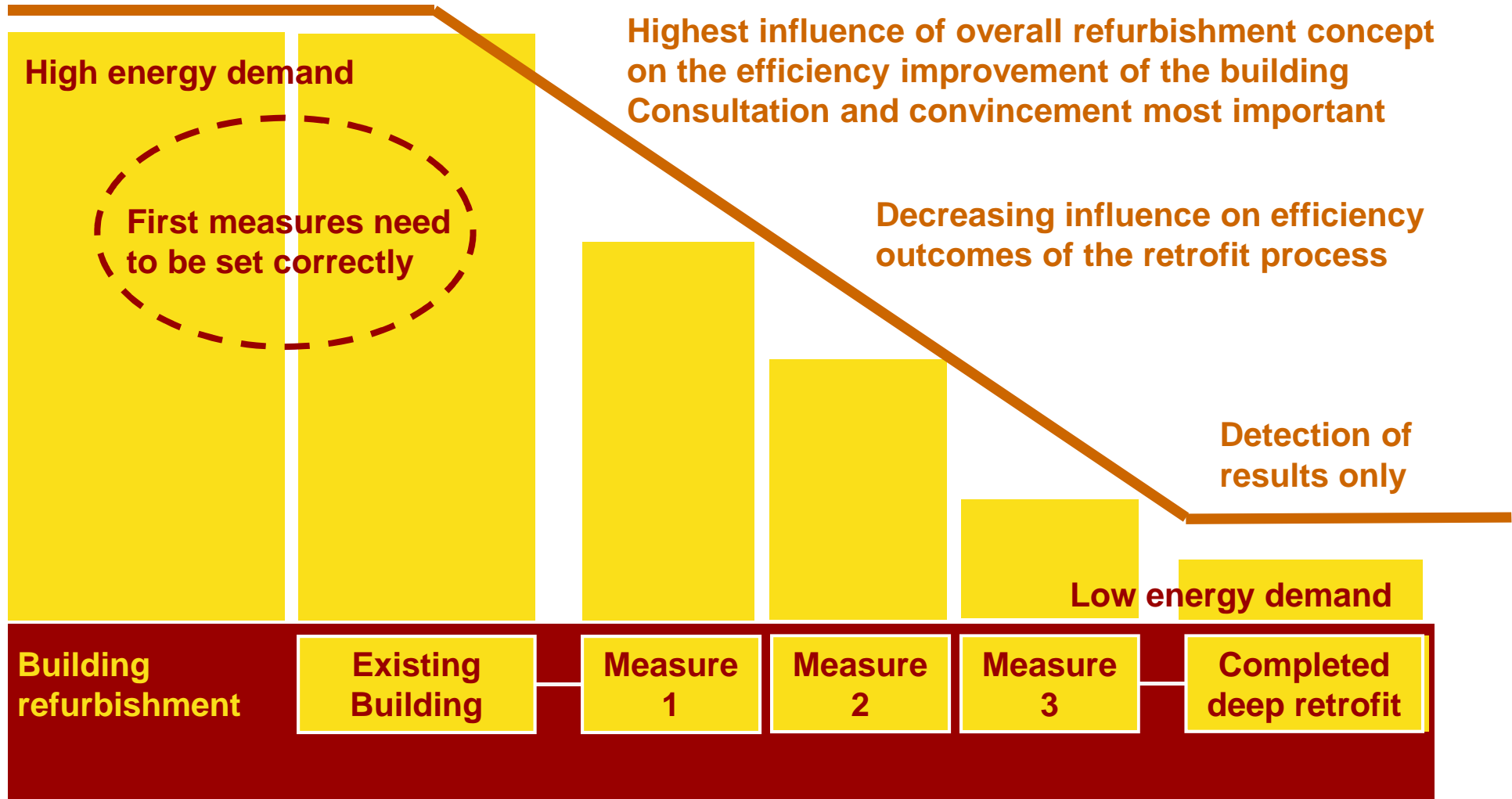


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Focus for step-by-step financing

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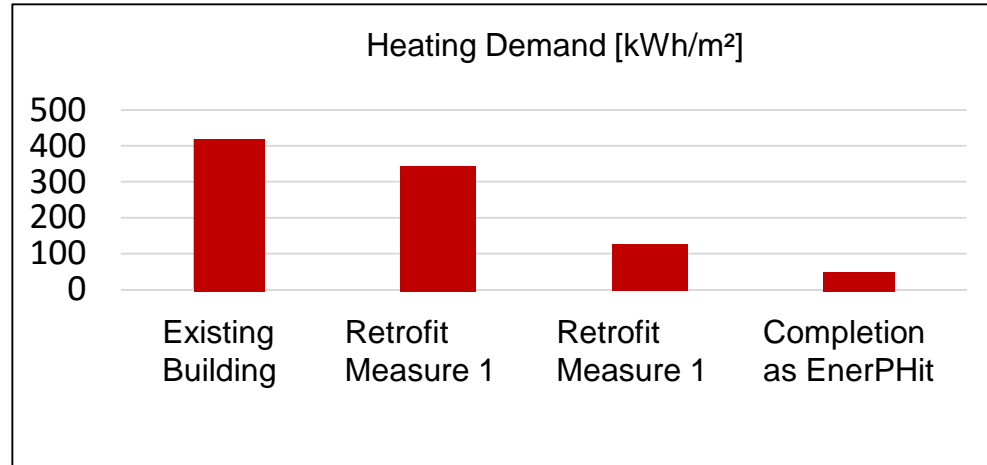


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Energy balance calculation tool

EuroPHit



Das Energiebilanzierungs- und Planungstool

für effiziente Gebäude und Modernisierungen



Variantenberechnung

Passivhaus mit PHPP Version 9.1

Passivhaus-Reihenendhaus / Klima: PHPP-Standard / EBF: 156 m² / Heizen: 61,7 kWh/(m²a) / Übertemperatur: 0,1 % / PER: 13,1 kWh/(m²a)

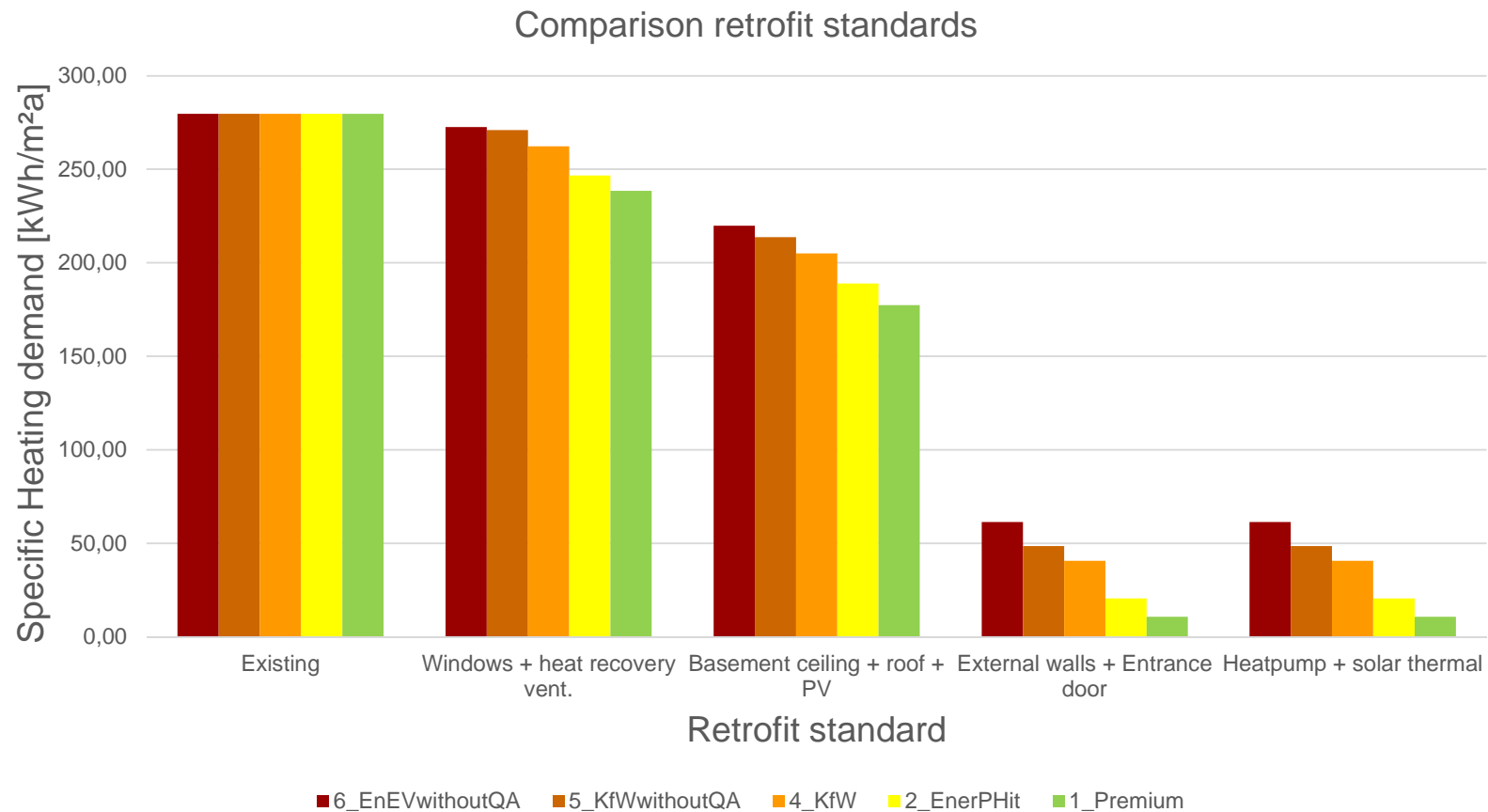
		aktiv				
		3	1	2	3	4
		3 Passivhaus mit WP	Bestand	Schlechter Wärmeschutz	Mässiger Wärmeschutz	Passivhaus mit WP + Solarthermie
aktive Variante wählen >>						
Ergebnisse	Einheit	3	1	2	3	4
Heizwärmebedarf	kWh/(m²a)	61,7	418,8	107,1	61,7	11,6
Heizlast	W/m²	36,3	175,1	62,1	36,3	9,5
Kühl- + Entfeuchtungsbedarf	kWh/(m²a)					
Kühllast	W/m²					
Übertemperaturhäufigkeit (> 25 °C)	%	0,1	2,9	1,6	0,1	1,0
PER-Bedarf	kWh/(m²a)	13,1	1131,0	255,9	13,1	33,3
Passivhaus Classic?	ja / nein	nein	nein	nein	nein	nein
Endenergie						
Heizleistung Wärmeerzeuger	kW	8,7	30,3	12,7	8,7	4,5



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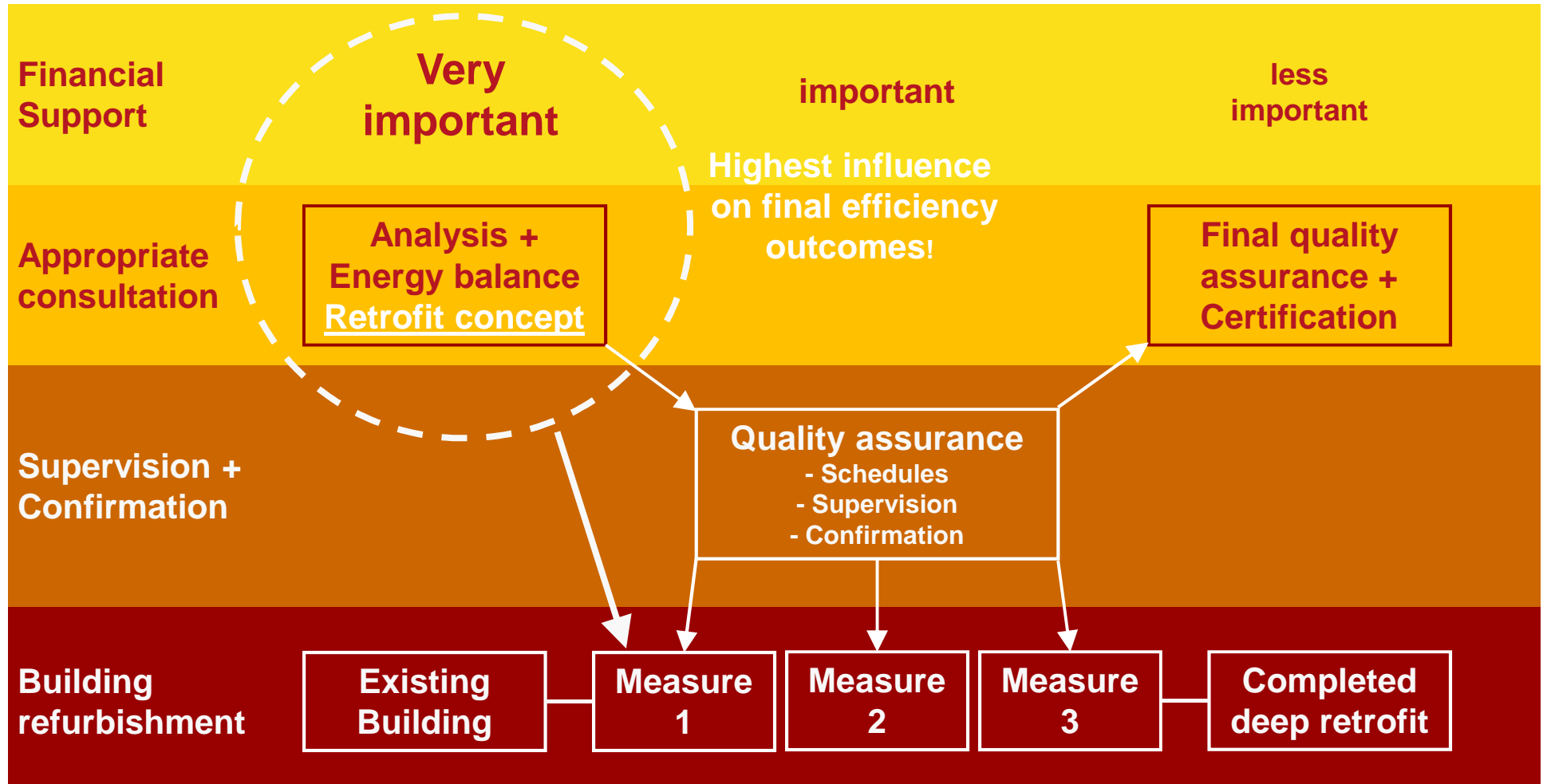


Comparison of different standards for a step-by-step retrofit



Financial focus on initial consultation

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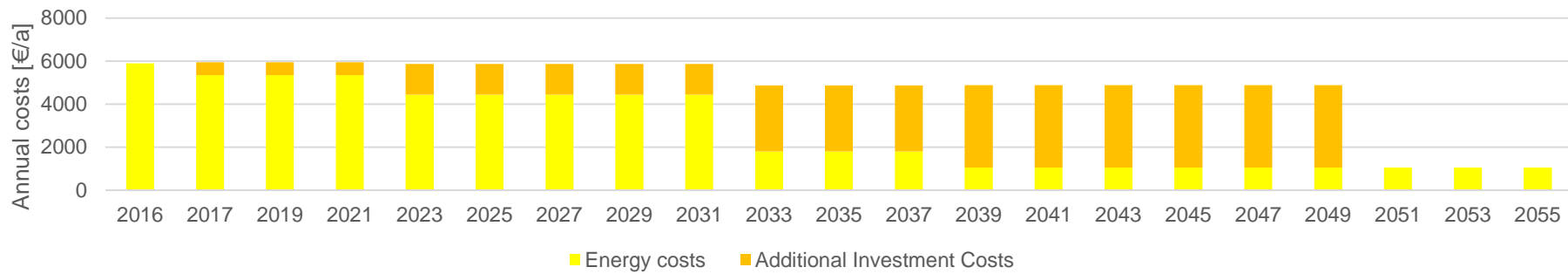


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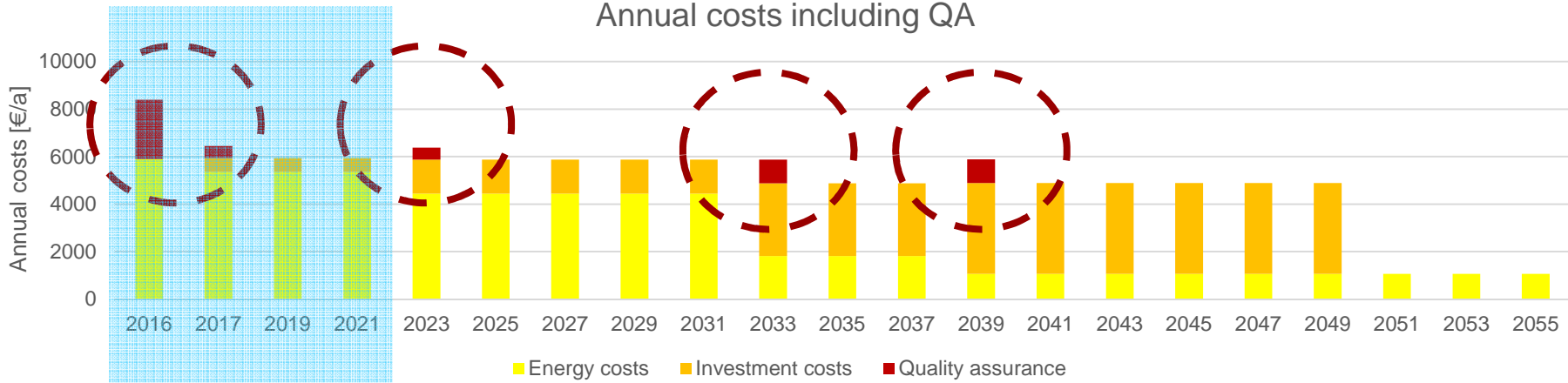


Costs for planning + QA

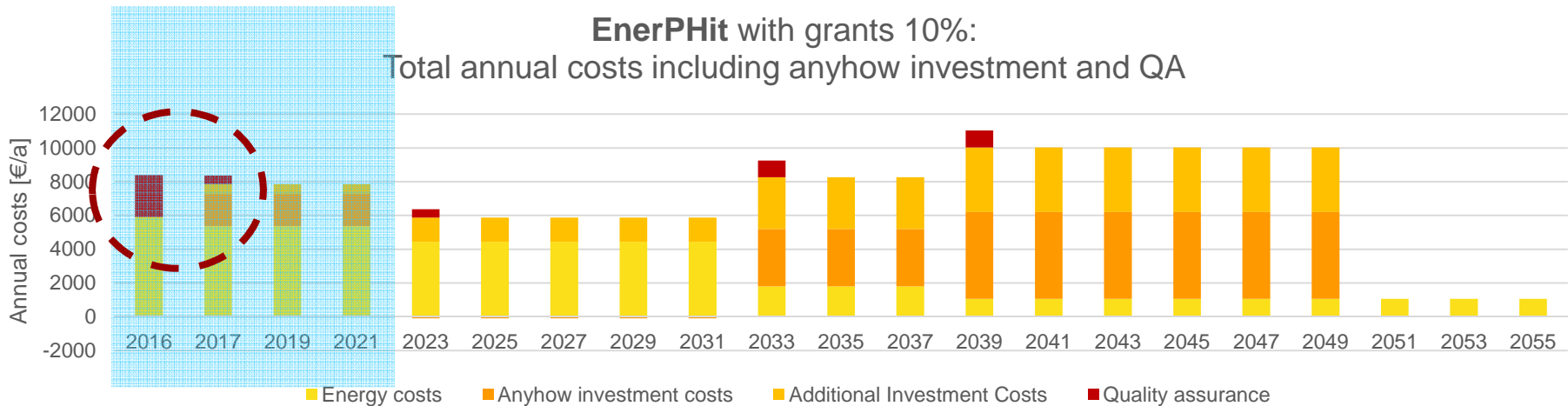
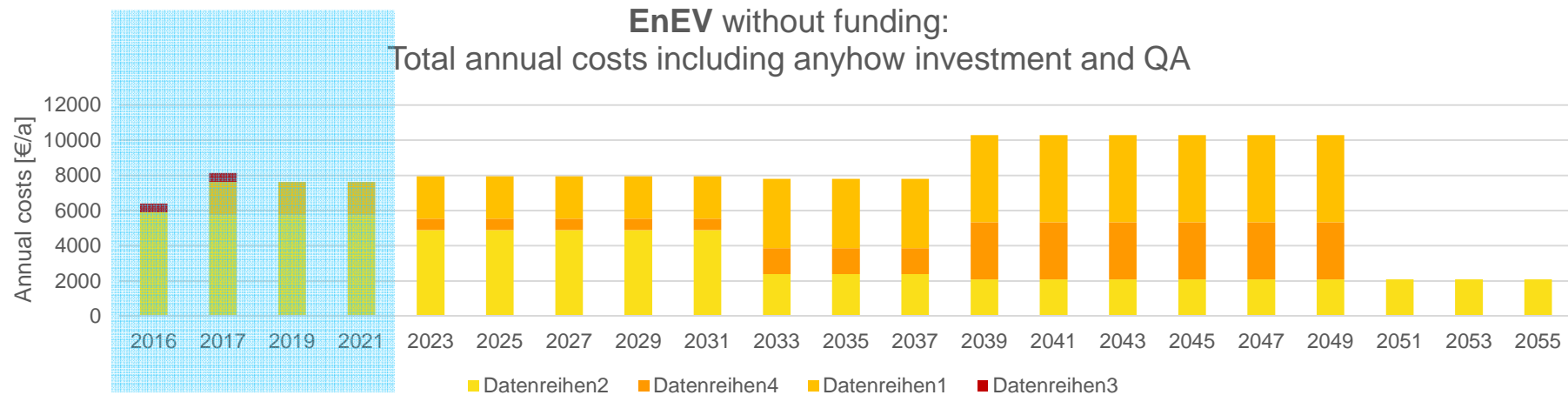
EnerPHit with grants 10%:
Annual costs excluding QA



EnerPHit with grants 10%:
Annual costs including QA



QA financing



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KfW Program 431

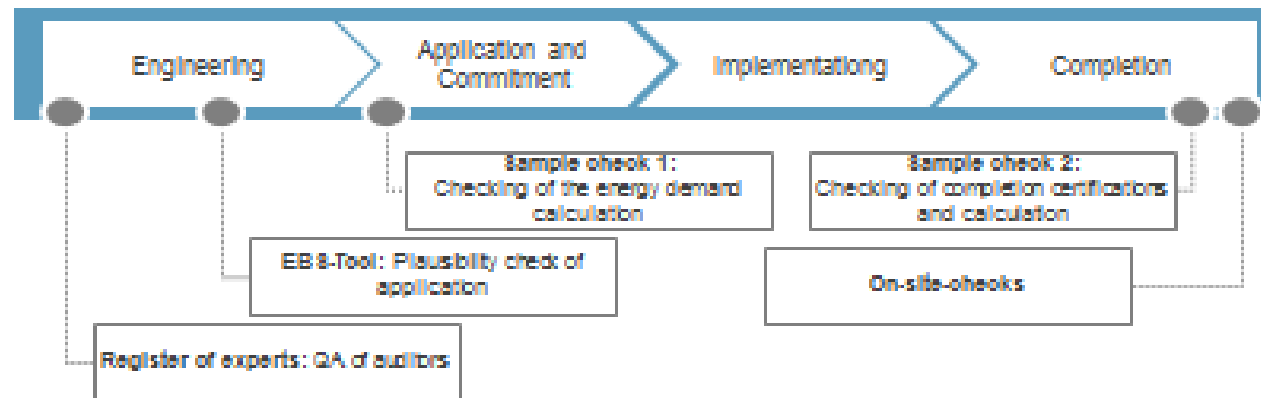
**Energieeffizient Bauen und Sanieren - Zuschuss
Baubegleitung (energy efficient construction and
retrofit – grant facility)**

**Grant provided for the energy efficient design,
supervision and certification in connection with the
building retrofit program (50% of costs up to Euro
4000,-)**



»»» Energieeffizient Bauen und Sanieren

Wichtige Elemente der Qualitätssicherung



Quality Assurance is an holistic process and a permanent challenge!

KfW



»» Accompanying Services

Grant for engineering and supervision by a registered energy auditor
durch einen sachverständigen Energieberater

Services to be financed?	Granted only in connection with the following promotional programmes:
Detailed Engineering	EE Retrofit Loan
Support in drafting Tender Docs and Tender Evaluation	EE Retrofit Grant
Supervision and Handing over	Programs by State Promotional Banks being refinanced by KfW men
Evaluation of sustainability (Green Building) ab 01.04.16	EE Construction Loans ab 01.04.16
Limits	Preconditions to be complied with by the auditor
50 % of cost	External and Independent
Up to 4.000 Euro per project	Registered with KfW/diens

KfW

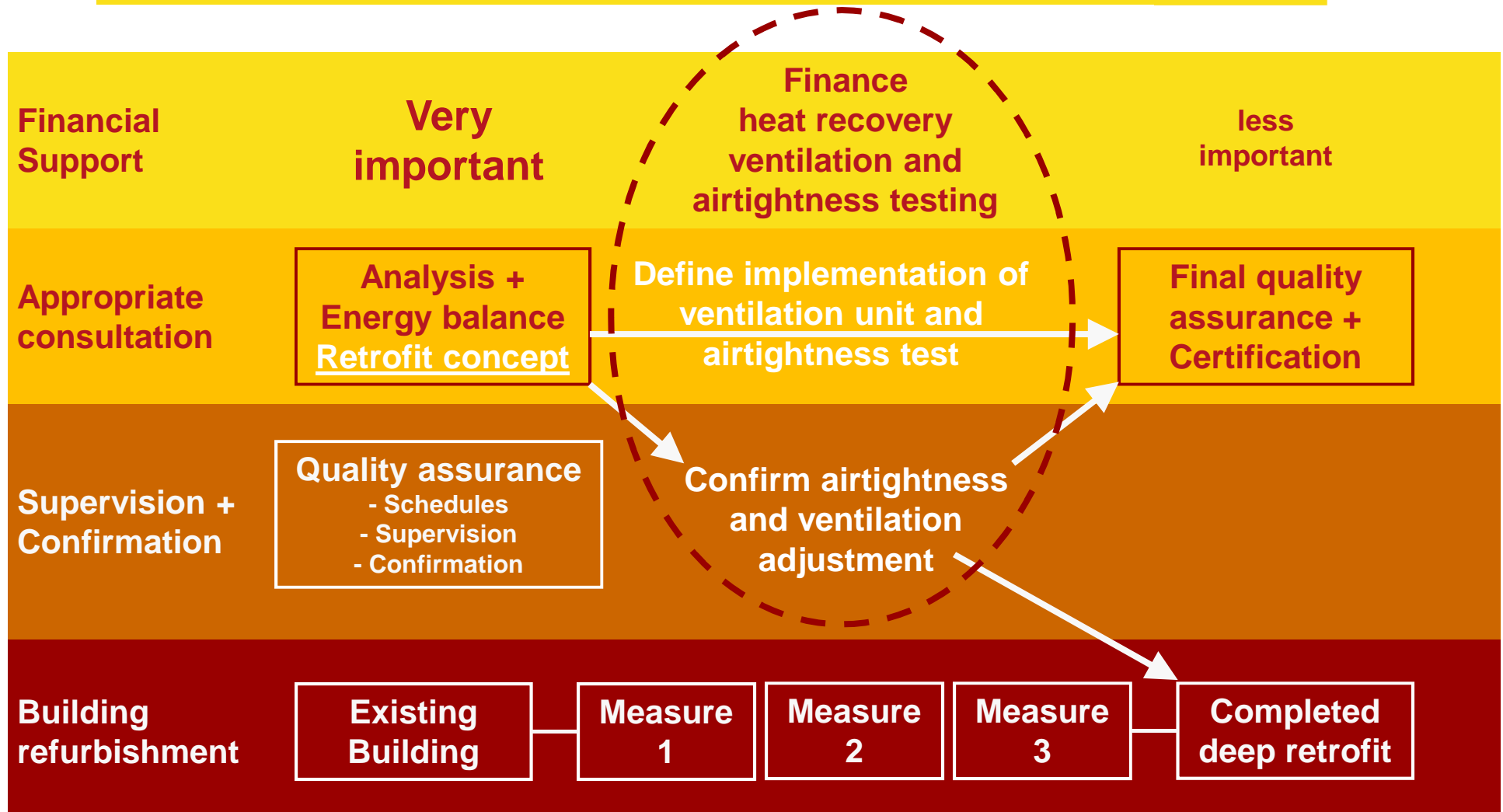


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Support unpopular measures

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KfW promotion 430

Combined measures - ventilation

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- 10% funding for single measures (fulfilling technical requirements)
- **15% funding for combined measures with ventilation:**
- Ventilation unit with heat recovery
- At least 1 component of the building envelope (windows/wall..)

1.5 Lüftungspaket

Für die Förderung von Maßnahmen im Lüftungspaket sind folgende Anforderungen zu erfüllen:

- Es wird eine Zu- und Abluftanlage mit einem Wärmeübertrager erneuert oder erstmalig installiert, die die unter 1.3 genannten Anforderungen erfüllt.
- Es wird zusätzlich mindestens eine der unter 1.1 genannten Maßnahmen an der Gebäudehülle mit den dort genannten Anforderungen umgesetzt.
- Es wird die Einhaltung der Anforderungen an die Luftdichtheit des Gebäudes nach § 6 EnEV mittels Luftdichtheitsmessung nachgewiesen. Dabei ist nachzuweisen, dass der gemessene Wert $n_{50} = 3,0 \text{ h}^{-1}$ nicht überschreitet.



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Modernisation with suitable Passive House components

EuroPHit

- Promotion of deep retrofits by the State of Hesse
- Funding for additional investment costs for deep retrofits
- For residential buildings
- For non-residential buildings
- Since 2008
- www.energieland.hessen.de



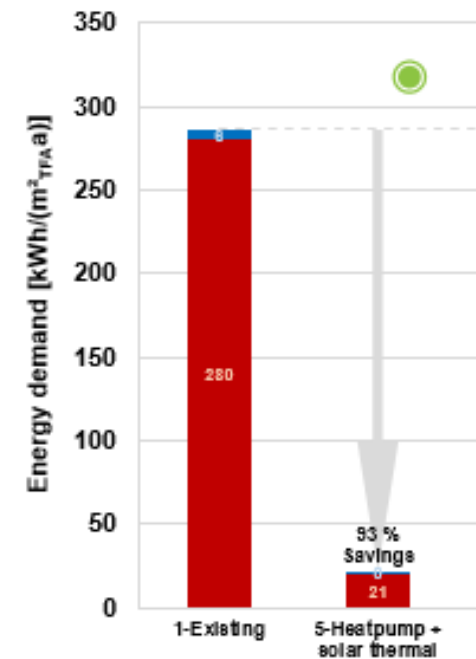
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Efficiency Requirements

EuroPHit

- Annual Heating Demand $\leq 25 \text{ kWh}/(\text{m}^2\text{a})$
- Verification e.g. with PHPP or other suitable calculation methods according to DIN EN 832
- Airtightness test result $n_{50} \leq 1/\text{h}$
- Ventilation system with heat recovery



- Exceptions (to be confirmed by the Ministry), then minimum quality requirements for components:
- External walls: $U \leq 0,15 \text{ W}/(\text{m}^2\text{K})$
- Roof or top floor ceiling: $U \leq 0,12 \text{ W}/(\text{m}^2\text{K})$
- Windows: $U_W \leq 0,8 \text{ W}/(\text{m}^2\text{K})$

- Planning and works to be executed by qualified professionals
- Heating consumption to be monitored over 2 years after retrofit completion



Funding of additional investment costs EuroPHit

- Max. 50 % of the eligible additional investment costs
- Flat-rate additional investment costs of construction measures

Component	Eligible additional investment costs	Max. funding
External walls	35,00 €/m ²	17.50 €/m ²
Roofs	30,00 €/m ²	15,00 €/m ²
Top floor ceilings	12,00 €/m ²	6,00 €/m ²
Basement ceilings / Floor slabs / int. basement walls	12,00 €/m ²	6,00 €/m ²
Windows / Doors	100,00 €/m ²	50,00 €/m ²



Funding of additional effort

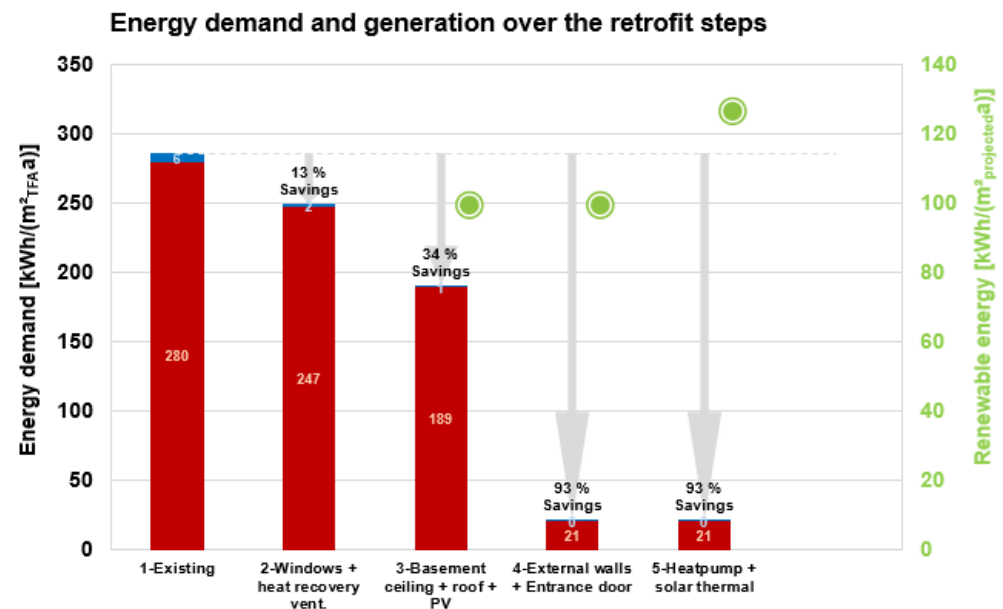
- Max. 50 % of the eligible additional investment costs
- Additional effort for implementation of technical equipment, monitoring equipment and airtightness tests, if exclusively necessary for higher efficiency

Measure	Eligible additional effort	max. funding
Ventilation system with heat recovery	Actual costs according to the quotations	50%
Erdwärmeübertrager		
Airtightness test		
Monitoring equipment		
Planning	max. 10% of the total planning costs	



Why not a promotion of step-by-step retrofits with overall retrofit plan?

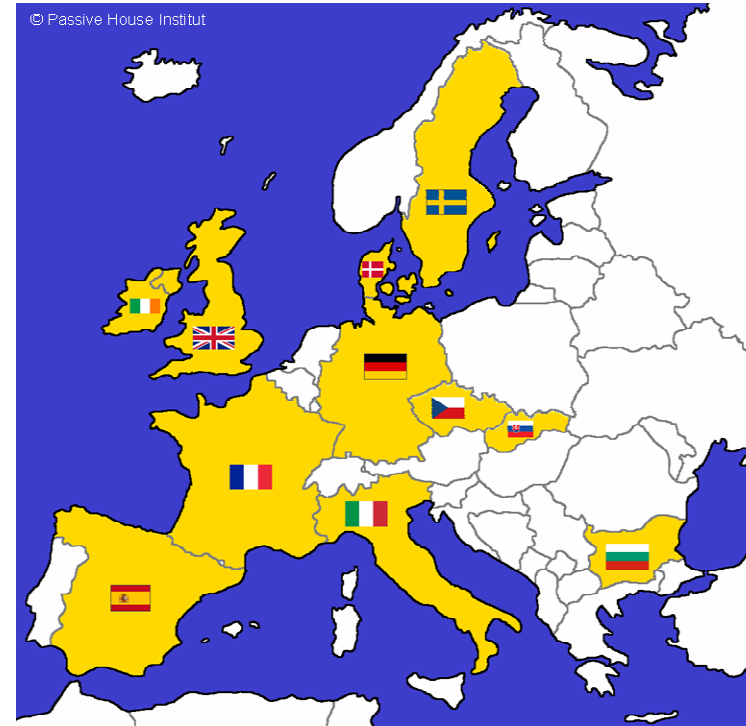
- Transparent efficiency improvements through overall retrofit plan
- Consideration of difficult component connections between retrofit steps
- Reliable prediction of energy performance after completion
- Lock-in-effects avoided



Thank you
for your attention

www.europhit.eu

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