

AFTER Konferenz

Darmstadt, 28. August 2013



BuildTog 1.0 Das Passivhaus der Europaklasse

Kostenoptimierung durch europäische Kooperation

Sozialer Wohnungsbau im Fokus der Stadtwirtschaft | Darmstadt | 14.02.2013



green age one
URBAN.VISIONÄR.EUROPÄISCH.



EURHONET European Housing Network



Eurhonet
Energy



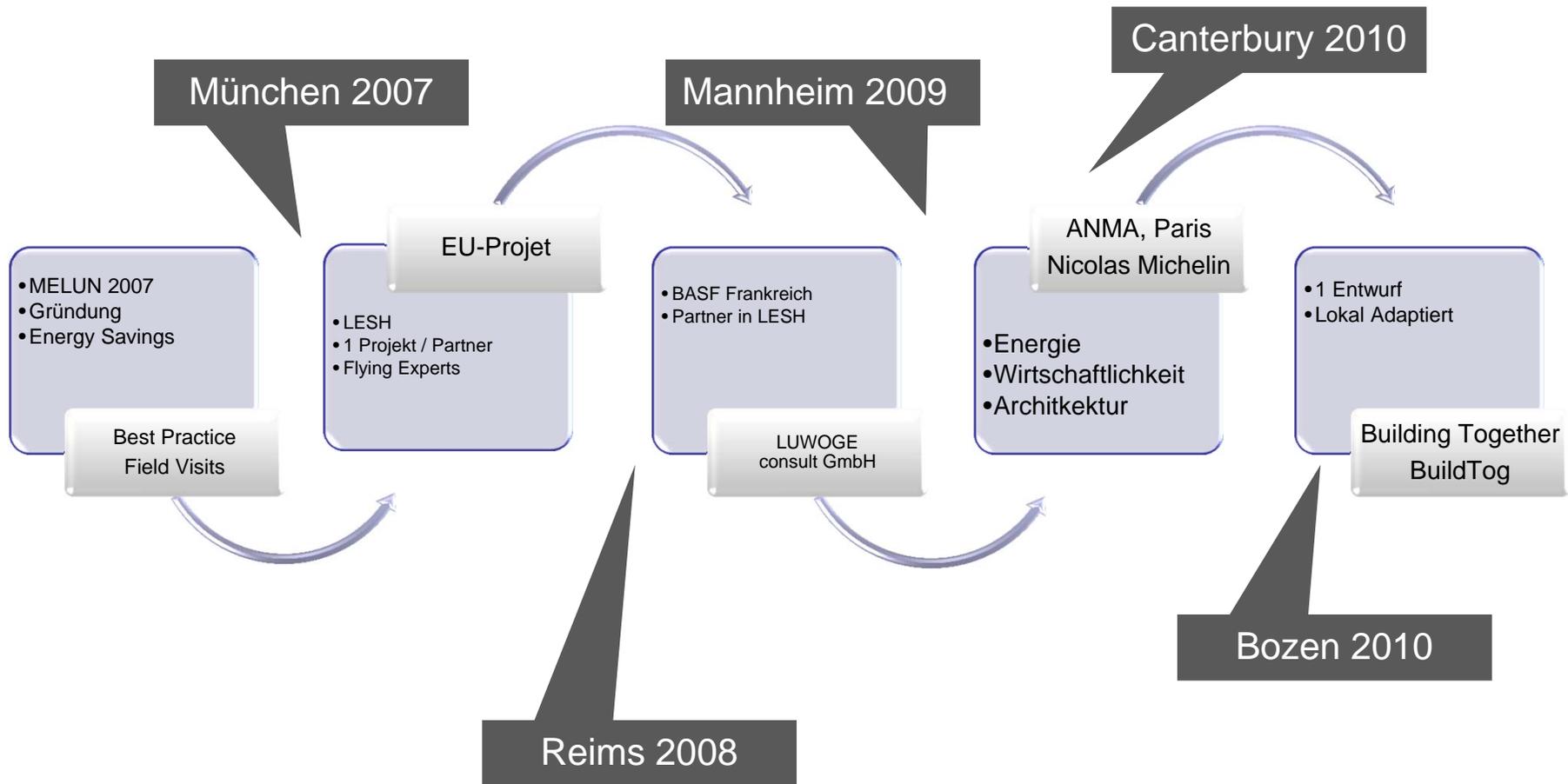
- 5 - Nationen
- 28 Wohnungsunternehmen
- 500.000 – Wohnungen



Innovative und energieeffiziente Wohnraumkonzepte für eine nachhaltige Reduzierung der Energieverbräuche und der CO₂-Emissionen im Kontext der Wirtschaftlichkeit und bezahlbarem Wohnraum!



Energy Savings European Housing Network





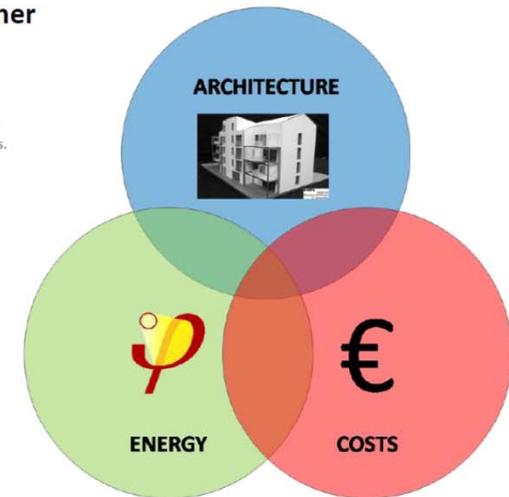
BuildTog Building Together

= BUILDing TOGether

Our companies have the same goals

To build, on a **large scale, high energy performance** buildings at a **reasonable price**, with **similar technical and architectural** approaches in our different countries.

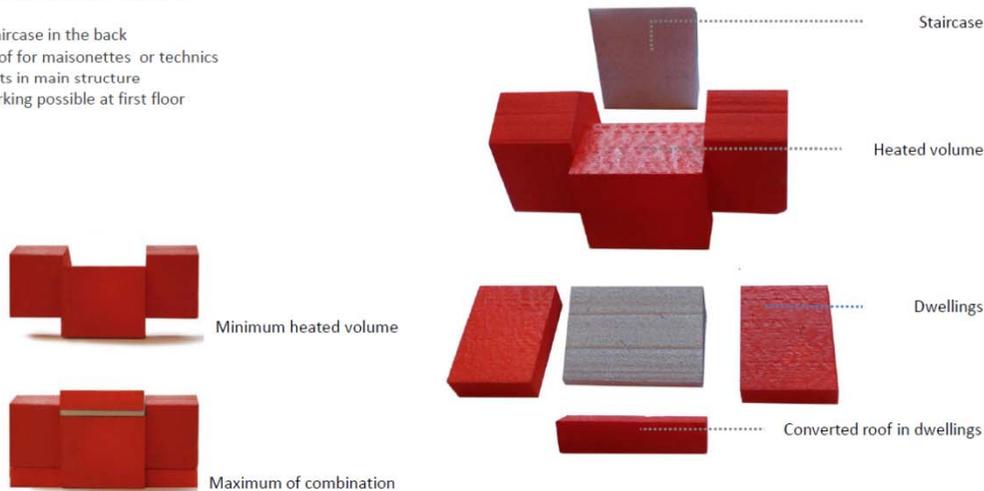
Then, why not to build a building on a common basis and compare concretely our different approaches to achieve the same goal?



MODELS

VARIOUS HEATING VOLUMES

Staircase in the back
 Roof for maisonettes or technics
 Flats in main structure
 Parking possible at first floor



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOGÉ consult GmbH



ANMA
 Agence
 Nicolas Michel
 & Associates



BASF
 The Chemical Company



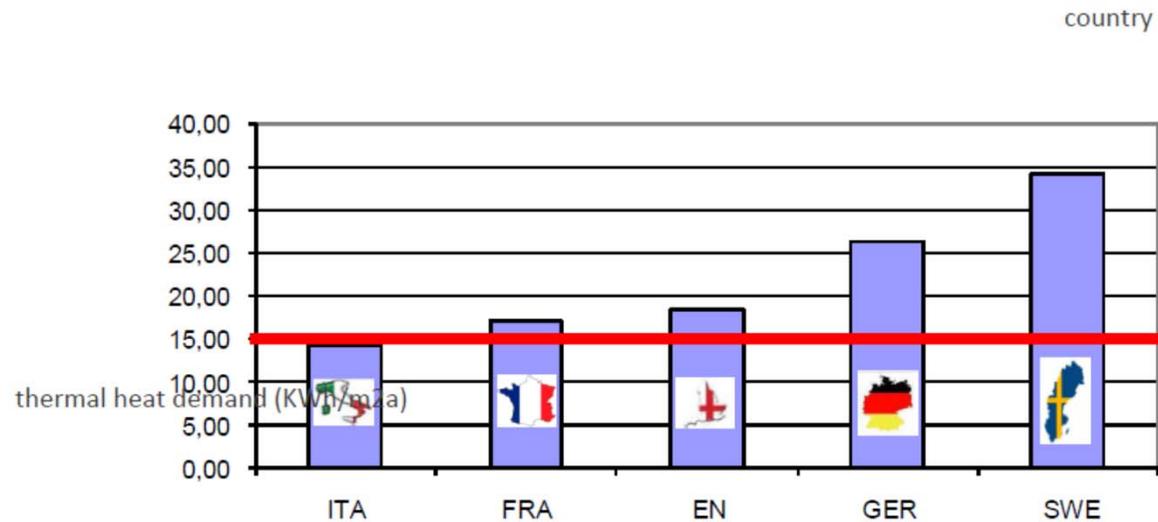


Passivhaus im europäischem Vergleich

THERMAL HEAT DEMAND

ENERGETIC STANDARD OF AVERAGED CONSTRUCTION COMPONENTS

Compacity	0,7
Orientation	South
Insulation	20 cm
U-value window	0,8 W/m ² K
Percentage of windows	27%
G-value glazing	0,5
Heat recovery	75%
Airtightness	0,6/h



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOGÉ consult GmbH



ANMA
Agence
Nicolle Micheljeun
& Associates



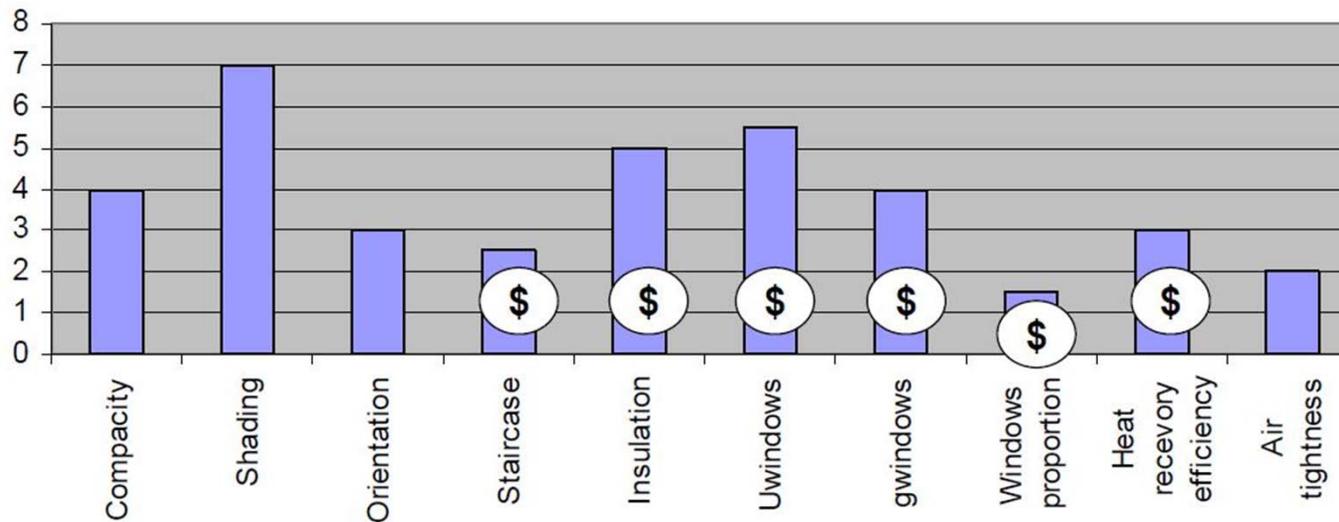
BASF
The Chemical Company





Optimierungsfelder

Energiebedarf für Heizung (kWh/m².a)



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOG E consult GmbH



ANMA
Nicola Michelini
& Associates



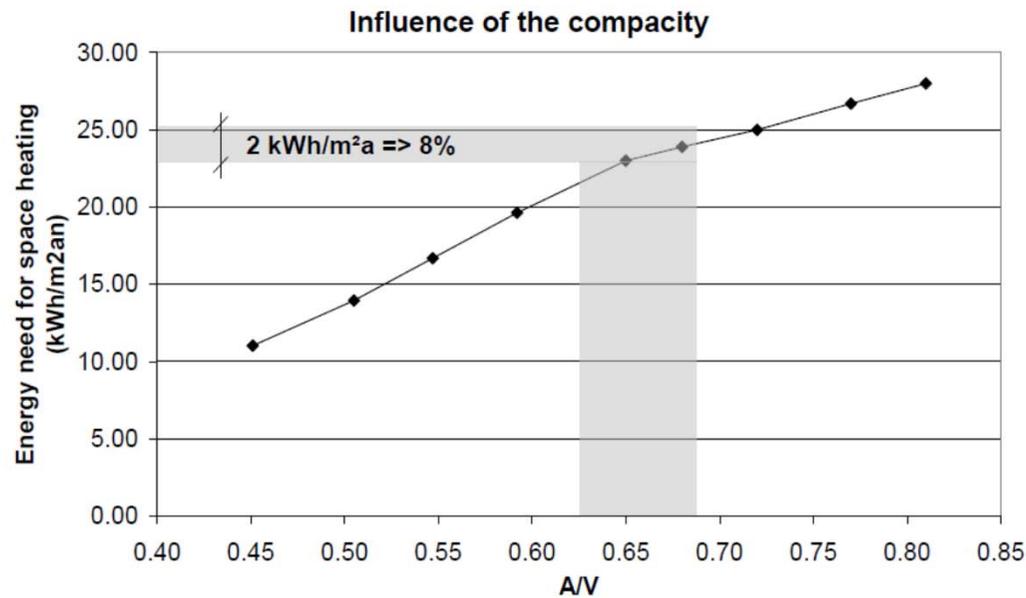
BASF
The Chemical Company



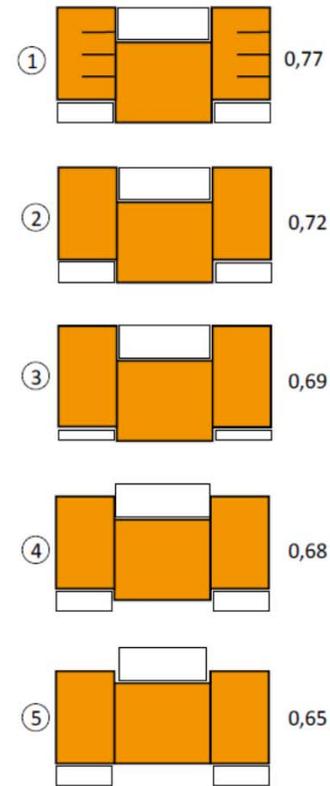


Kompaktheitsgrad im Vergleich

EXAMPLE COMPACITY



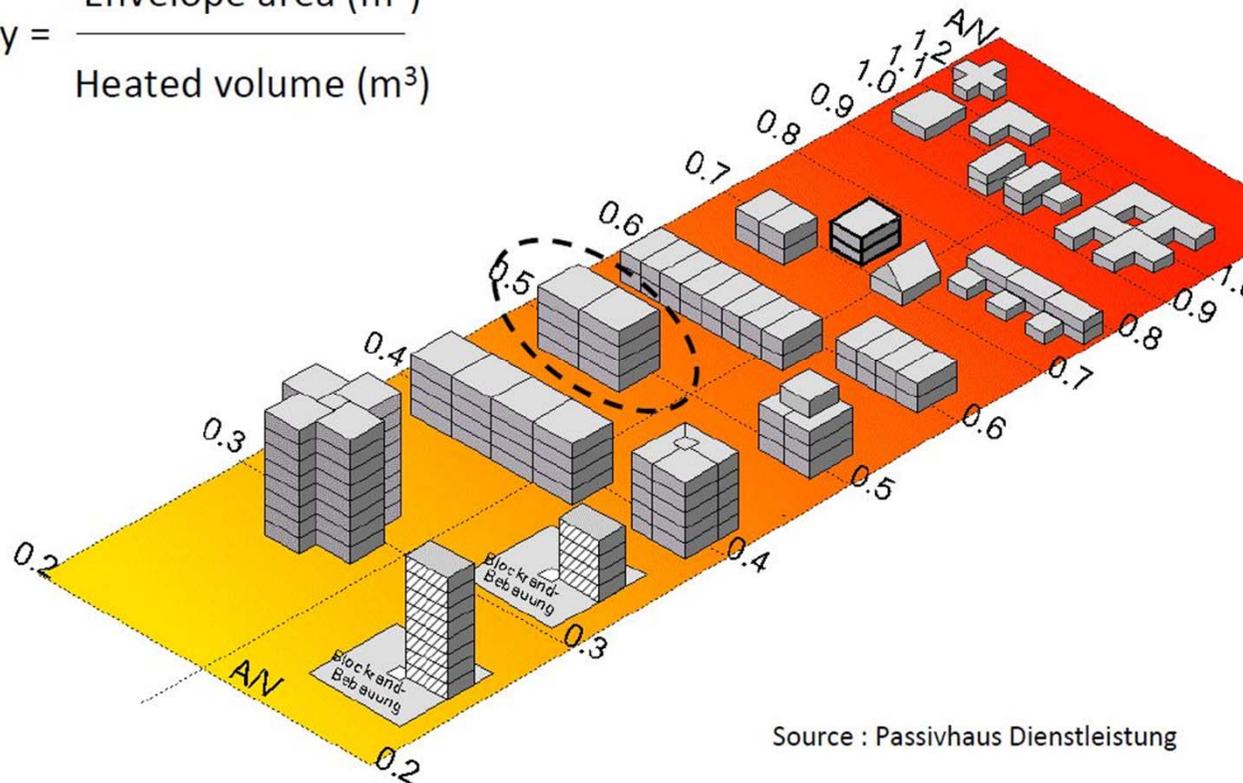
Potential optimisation : 8%
Cost : non (negative)





Optimierungsfelder

$$\text{Compacity} = \frac{\text{Envelope area (m}^2\text{)}}{\text{Heated volume (m}^3\text{)}}$$



Source : Passivhaus Dienstleistung

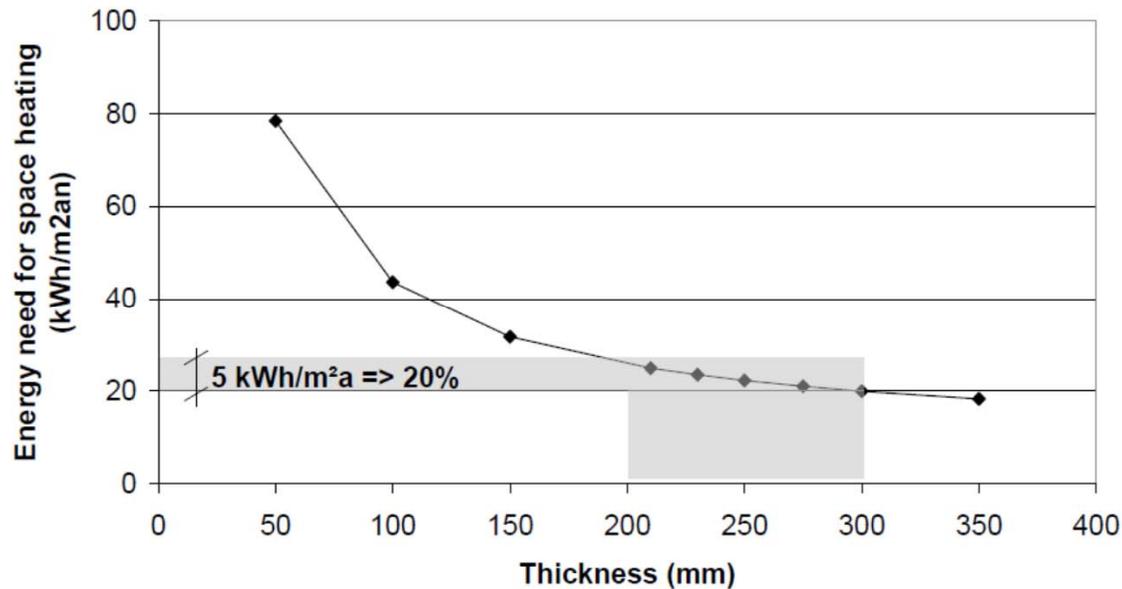


bauverein AG
darmstadt

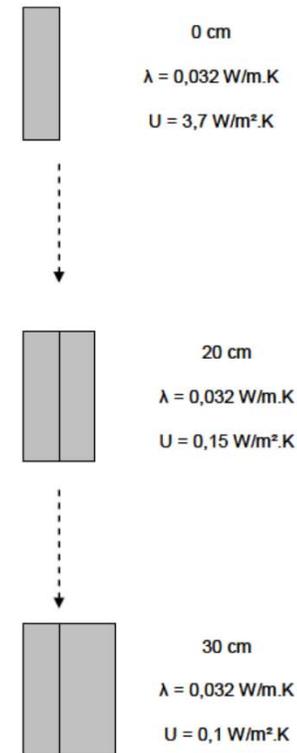
Wärmedämmung im Vergleich

EXAMPLE INSULATION

Insulation (walls, roof, floor)



Potential optimisation : 20 %
Cost: Yes
Attention : Thermal Bridges



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOGÉ consult GmbH



ANMA
Nicola Micheli
& Associates



BASF
The Chemical Company

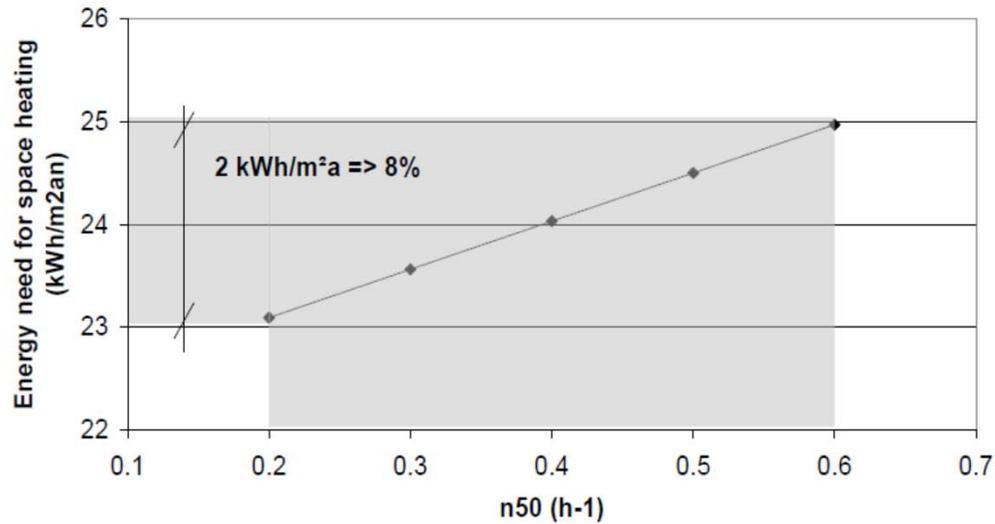
green age one
URBAN.VISIONÄR.EUROPÄISCH.



Luftdichtheit im Vergleich

EXAMPLE AIRTIGHTNESS

Air thightness



Potential optimisation : 8%
 Cost: No
 Attention : Value at the end of construction

$n_{50} = 0,6$ volumes/h



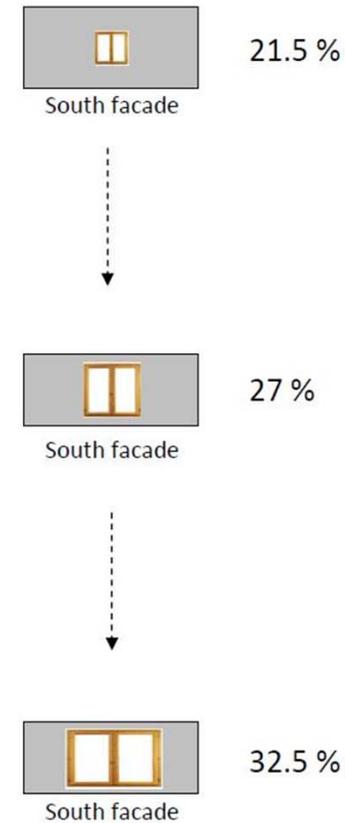
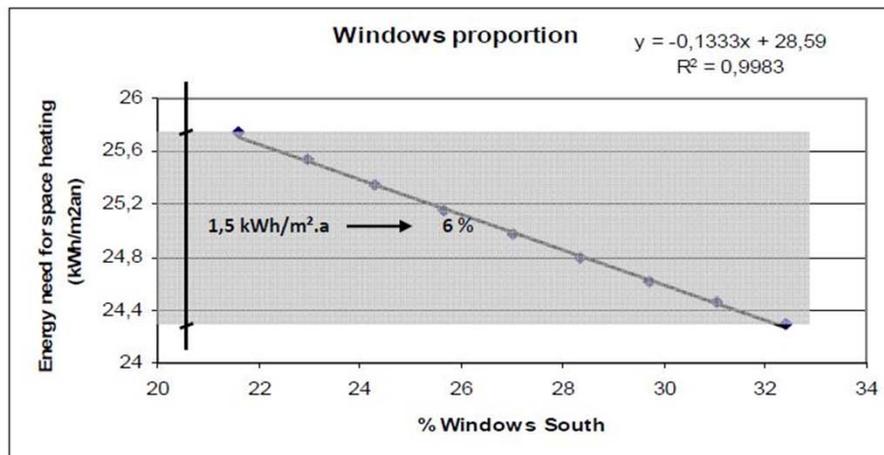
$n_{50} = 0,2$ volumes/h



bauverein AG
darmstadt

Fensterflächen

-  Compacity 0,72
-  g windows 50%
-  Heat recovery efficiency 75%
-  Insulation $U = 0,15$
-  orientation N/S
-  Air tightness $n_{50}=0,6$
-  $U_{\text{windows}} = 0,8$
-  shading 35m
-  Staircase out
-  Windows proportion ???
-  Climate GER



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOGÉ consult GmbH



ANMA
Nicola Michelini
& Associates



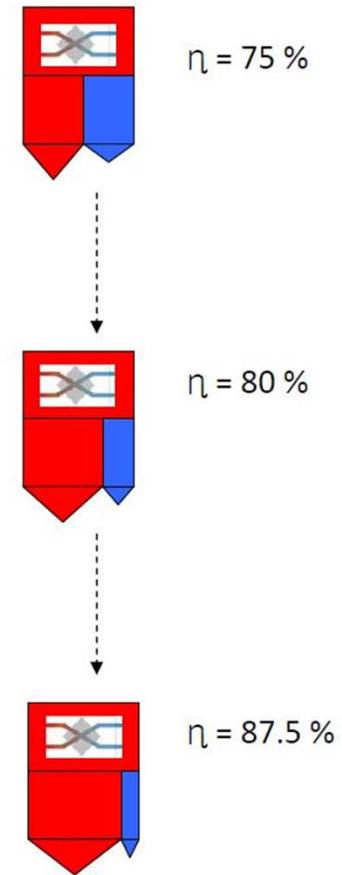
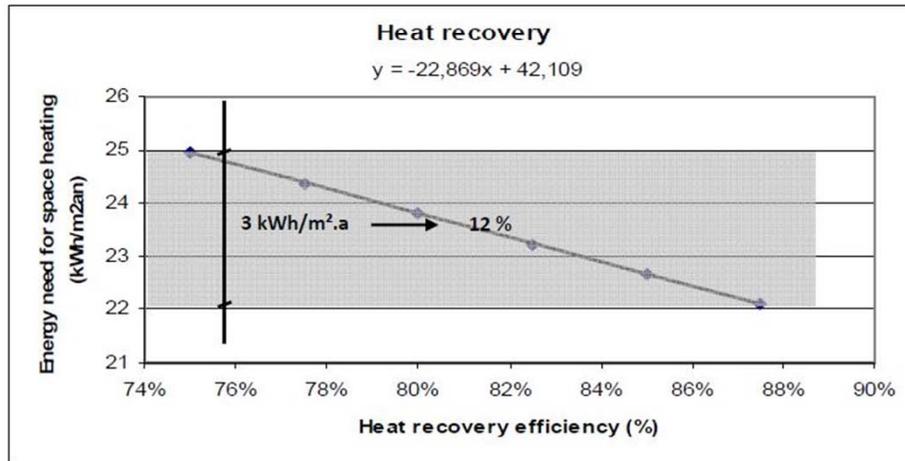
BASF
The Chemical Company





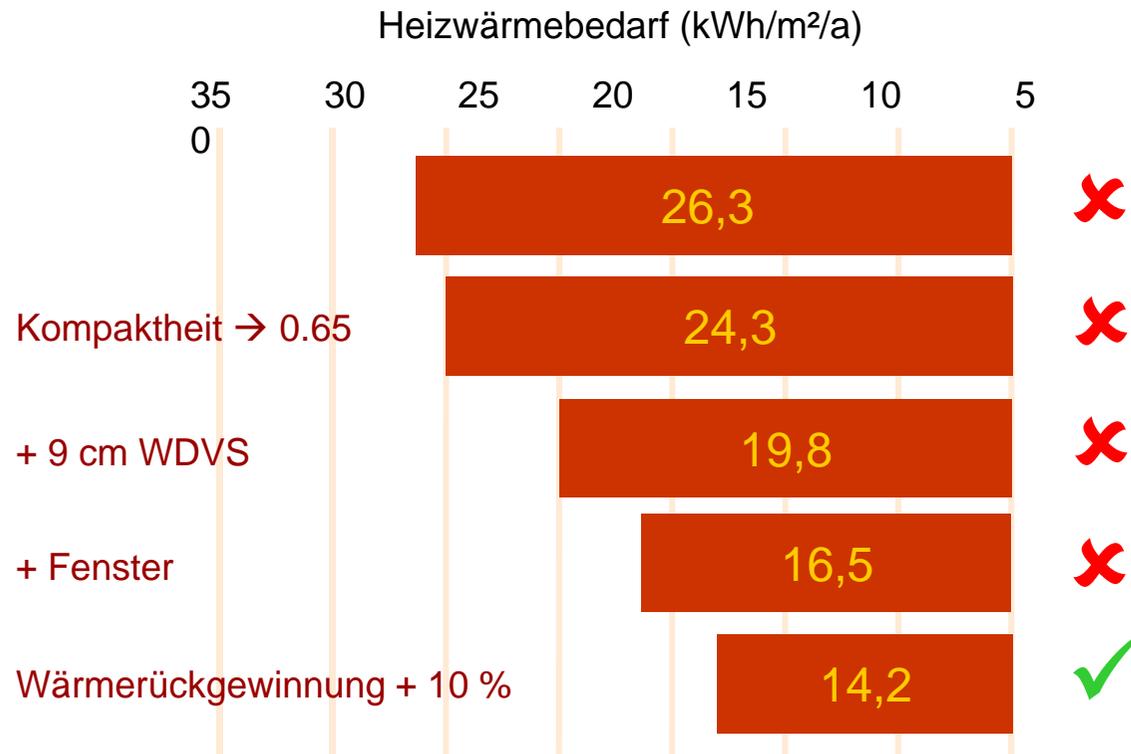
Wärmerückgewinnung

- Compacity 0,72
- g windows 50%
- Heat recovery efficiency ???
- Insulation U = 0,15
- orientation N/S
- Air tightness n₅₀=0,6
- U_{windows} U=0,8
- shading 35m
- Staircase out
- Windows proportion 27%
- Climate GER





BuildTog Passivhaus – Variante 1



Quelle: Cunz, Thilo; What a BuildTog is? – LUWOG CONSULT GmbH



ANMA
Nicola Mischel
& Associates

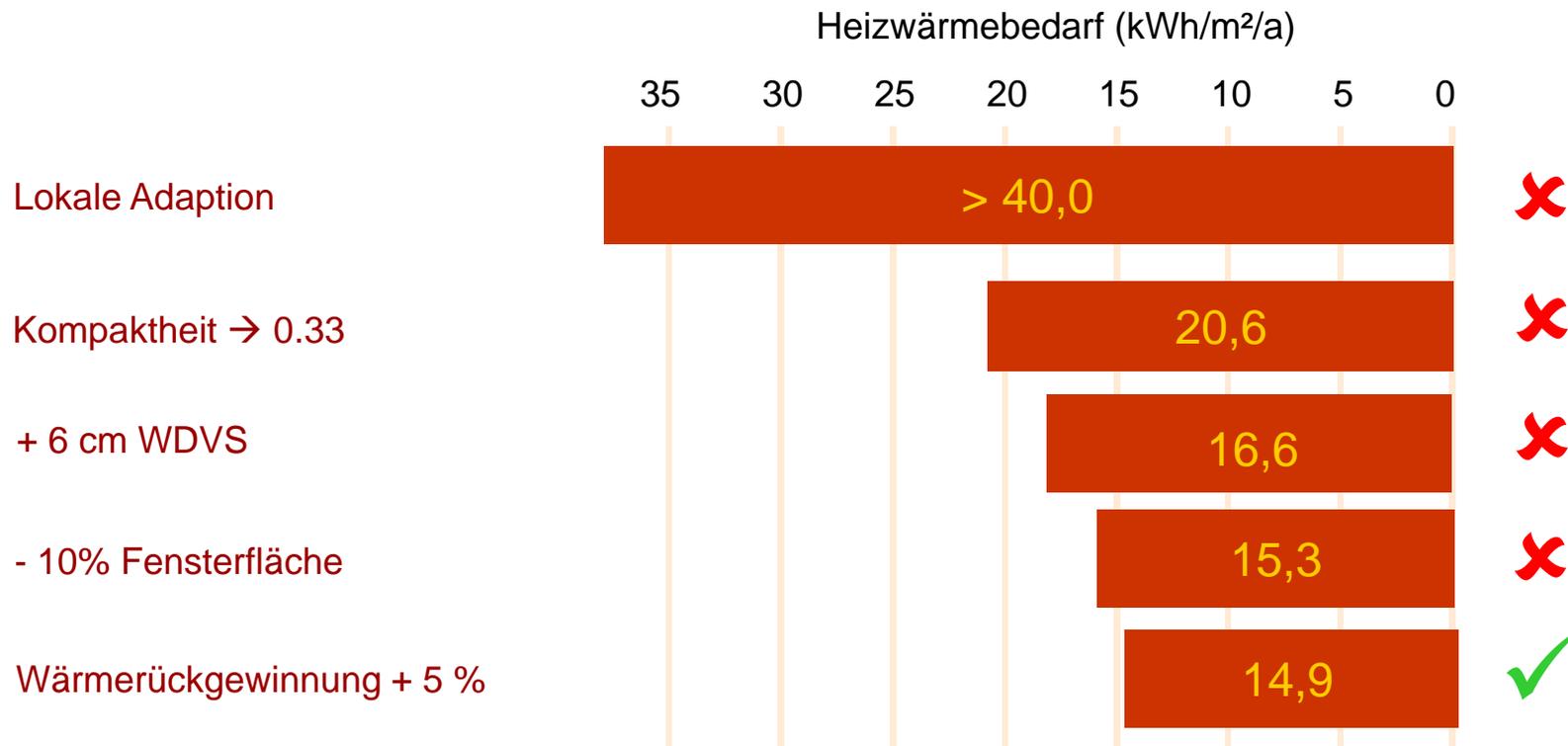


BASF
The Chemical Company





BuildTog Variante greenageone



ANMA
Agence
Nicolas Michelin
& Associates



BASF
The Chemical Company

green age one
URBAN.VISIONÄR.EUROPÄISCH.



BuildTog Perspektive





BuildTog Perspektive





bauverein AG
darmstadt

BuildTog Grundrisse



WOHNUNG 22 – 4 ZIMMER – 117,4 M²

Zimmer 1:	14,67 m ²	Abstell.:	1,20 m ²
Zimmer 2:	12,14 m ²	WC:	1,65 m ²
Zimmer 3:	12,00 m ²	Bad:	6,20 m ²
Flur/Garderobe:	18,47 m ²	Wohnen/Essen:	30,65 m ²
Küche:	9,40 m ²	Terrasse:	11,00 m ²



Passivhaus

Energieeffizienzhaus Kostenvergleich

WohnArt 3 – Passivhaus		1.616 € (KG 300-400)
Rüdesheimer – EnEV Neubau	8%	1.490 € (KG 300-400)
BuildTog – Passivhaus		1.520 € (KG 300-400)
K6 Punkt 1 – EnEV Neubau	2%	1.489 € (KG 300-400)

Die **Kostendifferenz** zwischen einem **Passivhaus** und einem **Neubau** nach der **Energieeinsparverordnung** konnte **deutlich gesenkt** werden.



Vielen Dank für Ihre Aufmerksamkeit



- Referent: Dr. Hans-Jürgen Braun,
Vorstandsvorsitzender
- E-Mail: braun@bauvereinag.de
- Telefon: (0 61 51) 28 15 - 211

