



VKR HOLDING – INVESTING IN DAYLIGHT, FRESH AIR AND A BETTER ENVIRONMENT

# InnoBYG 29.09.11

## Indeklima, dagslys og Solhuset

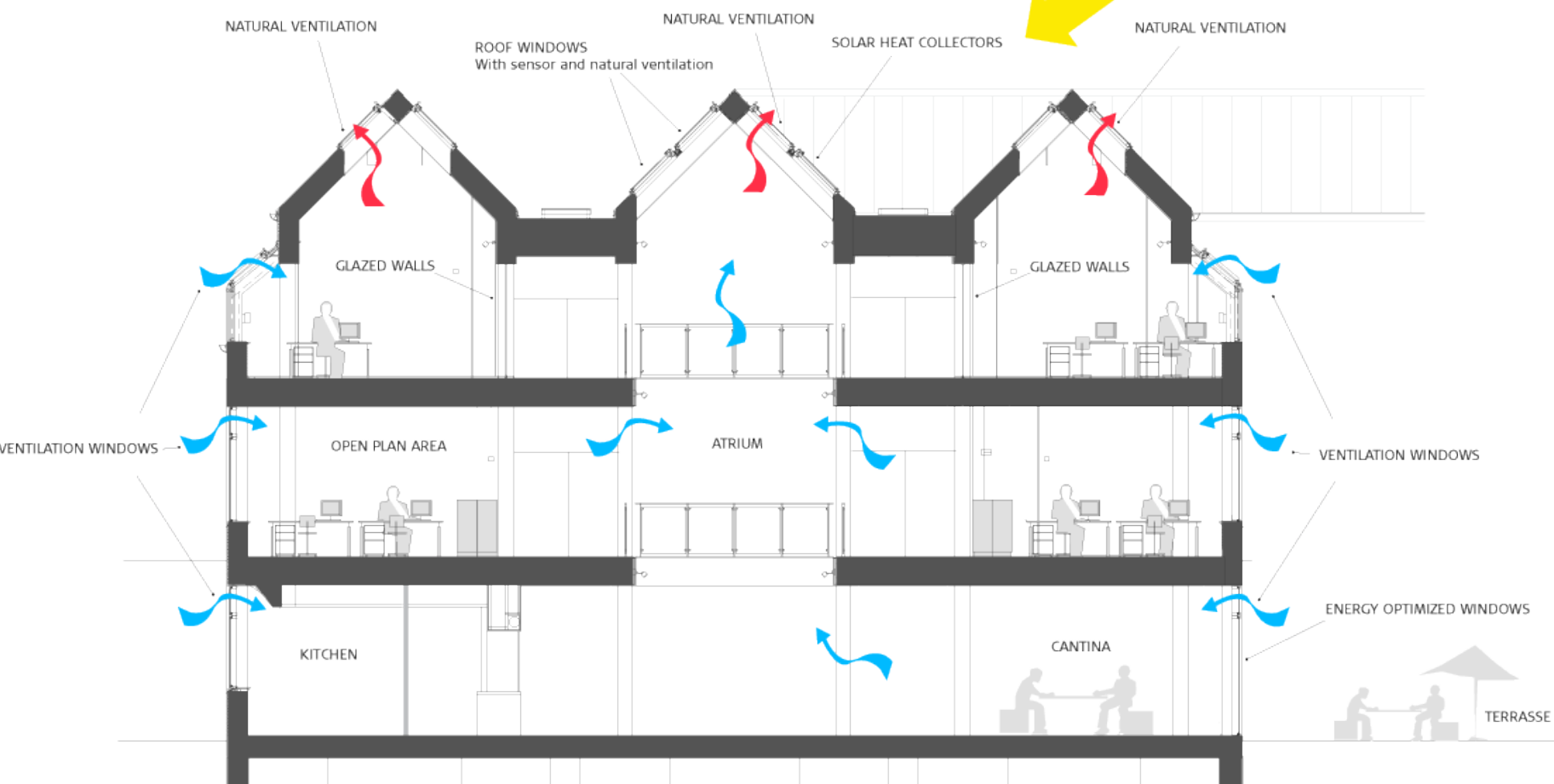
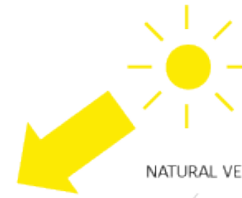
# Active House – a vision

## Buildings that give more than they take

Ellen Kathrine Hansen, Architect MAA, VKR Holding A/S

A scenic photograph of a sunset over a large body of water. The sky is filled with dark, heavy clouds in the upper half, from which bright sunbeams (crepuscular rays) stream down towards the horizon. The lower half of the sky is a vibrant orange and yellow, reflecting on the calm water surface. A dark silhouette of a forested shoreline is visible on the horizon.

**Daylight, fresh air and better environment**





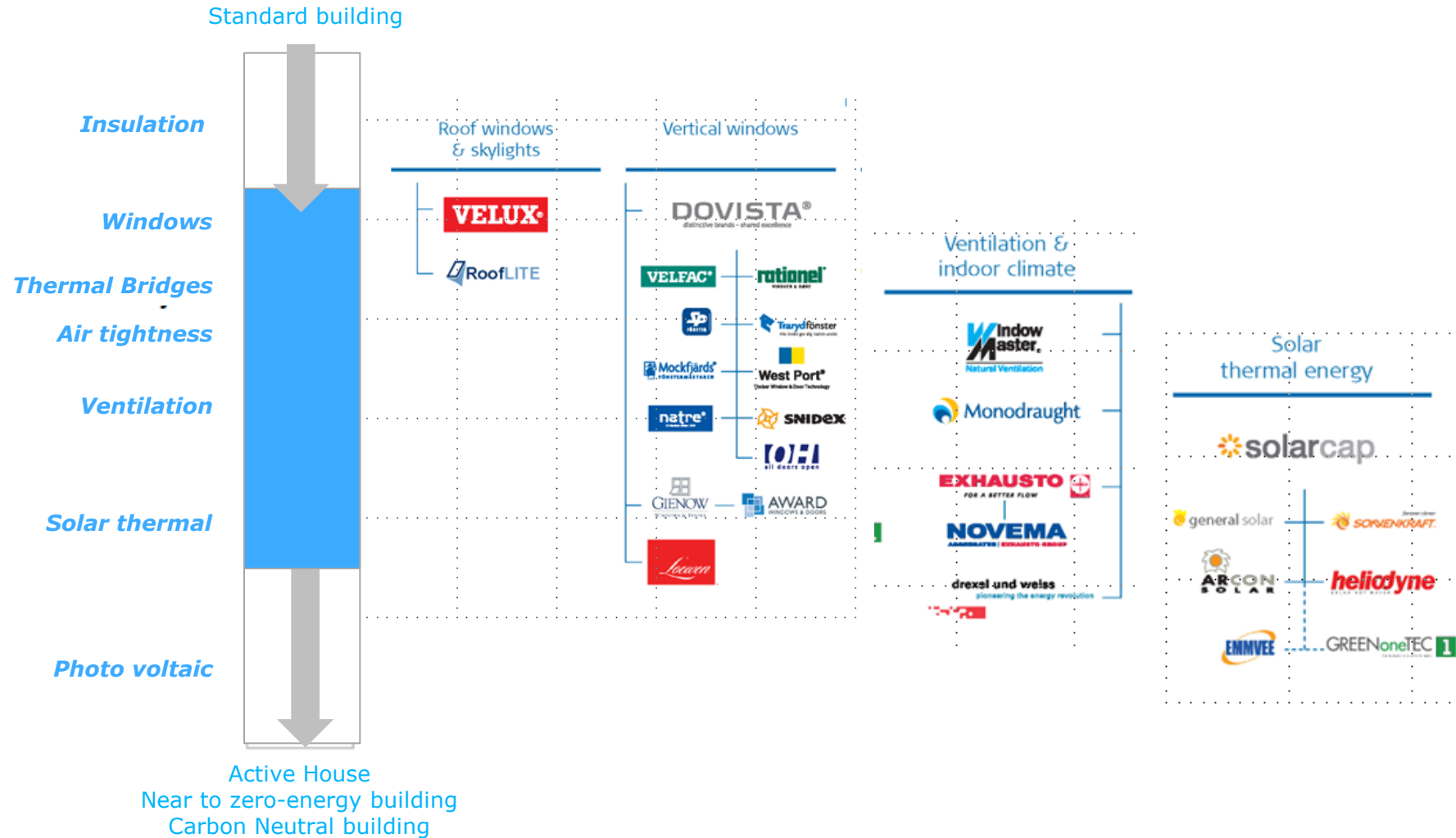








# VKR Group solutions to reduce energy use in buildings





# Active House – a vision of buildings that give more than they take

## Energy

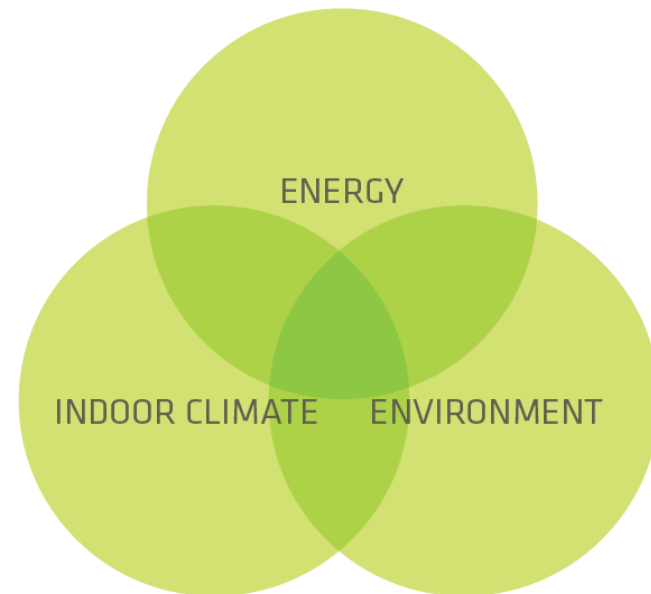
Contributes positively to the energy balance of the building

## Indoor Climate

Creates a healthier and more comfortable life for the occupants

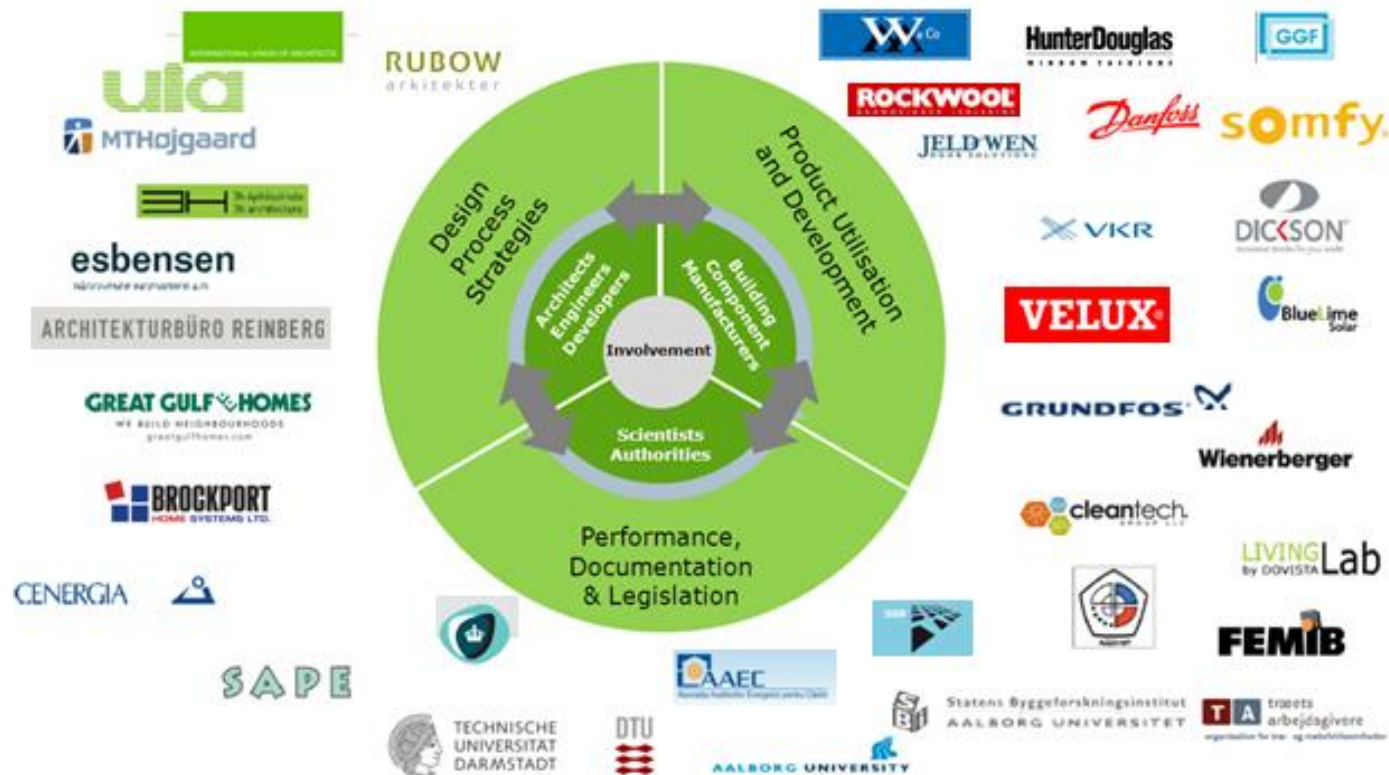
## Environment

Has a positive impact on the environment

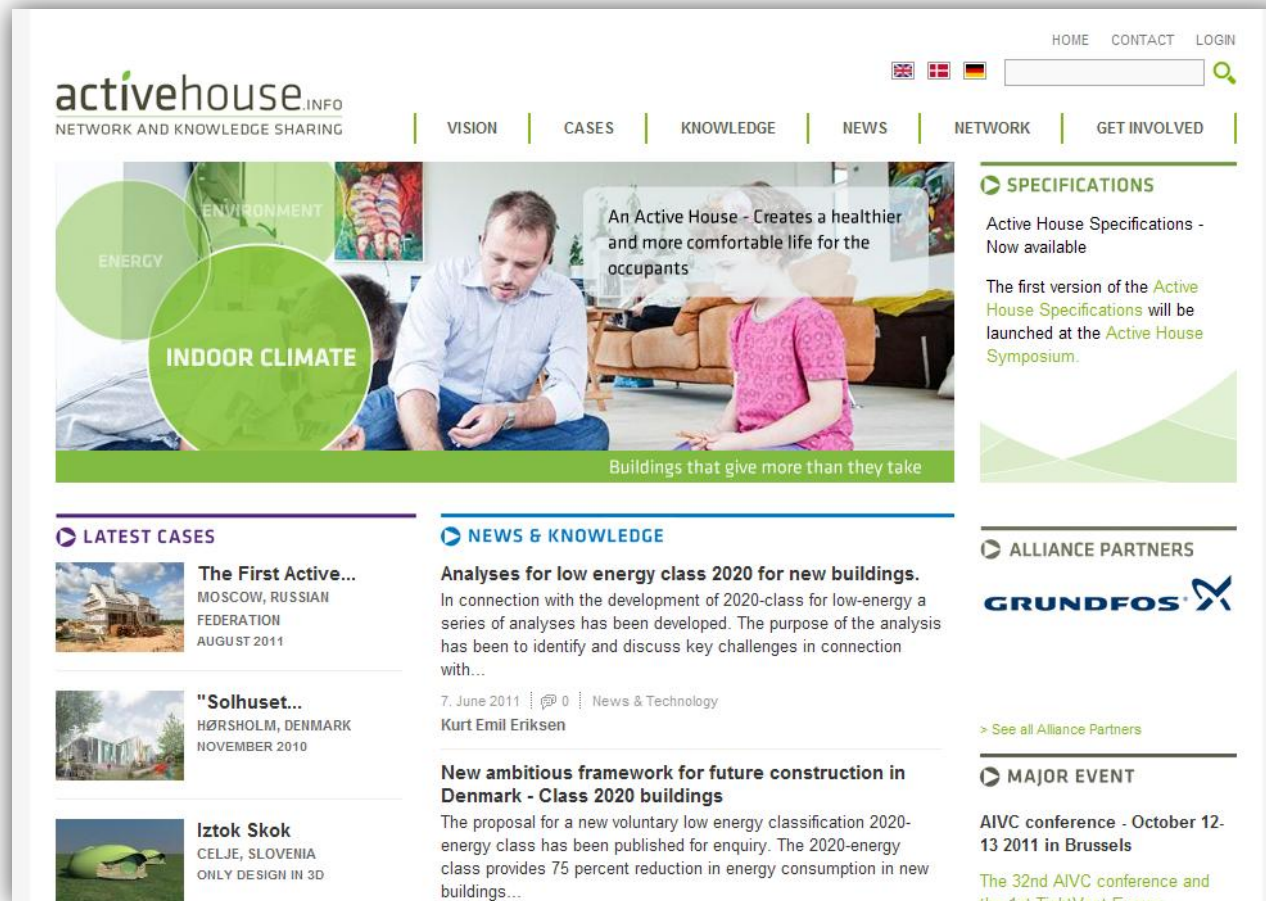


# Active House Alliance

-partners April 2011



# Active House Homepage



The screenshot shows the Active House homepage with the following layout:

- Header:** "activehouse<sup>INFO</sup> NETWORK AND KNOWLEDGE SHARING". Navigation links: HOME, CONTACT, LOGIN. Language flags for UK, DK, DE. Search bar.
- Main Menu:** VISION | CASES | KNOWLEDGE | NEWS | NETWORK | GET INVOLVED
- Hero Section:**
  - Left: Three overlapping green circles labeled "ENERGY", "ENVIRONMENT", and "INDOOR CLIMATE".
  - Center: A man and a child sitting on the floor in a living room. Text: "An Active House - Creates a healthier and more comfortable life for the occupants".
  - Bottom: "Buildings that give more than they take"
- Specifications:**
  - Section: "SPECIFICATIONS"
  - Text: "Active House Specifications - Now available"
  - Text: "The first version of the Active House Specifications will be launched at the Active House Symposium."
- Latest Cases:**
  - Section: "LATEST CASES"
  - Item 1: "The First Active..." MOSCOW, RUSSIAN FEDERATION, AUGUST 2011. Image of a modern house.
  - Item 2: "'Solhuset..." HØRSHOLM, DENMARK, NOVEMBER 2010. Image of a modern house.
  - Item 3: "Iztok Skok" CELJE, SLOVENIA, ONLY DESIGN IN 3D. Image of a green tent-like structure.
- News & Knowledge:**
  - Section: "NEWS & KNOWLEDGE"
  - Item 1: "Analyses for low energy class 2020 for new buildings." In connection with the development of 2020-class for low-energy a series of analyses has been developed. The purpose of the analysis has been to identify and discuss key challenges in connection with... Date: 7. June 2011. Author: Kurt Emil Eriksen.
  - Item 2: "New ambitious framework for future construction in Denmark - Class 2020 buildings" The proposal for a new voluntary low energy classification 2020-energy class has been published for enquiry. The 2020-energy class provides 75 percent reduction in energy consumption in new buildings...
- Alliance Partners:**
  - Section: "ALLIANCE PARTNERS"
  - Logo: GRUNDFOS
  - Text: "> See all Alliance Partners"
- Major Event:**
  - Section: "MAJOR EVENT"
  - Text: "AIVC conference - October 12-13 2011 in Brussels"
  - Text: "The 32nd AIVC conference and the 1st TightVent Europe"

# VKR Demo projects From vision to reality

8 experiments  
in 5 countries



British Project  
Opening Q4 2010  
Builder: VELLUX



Home for life  
Opening on 20 April 2009  
Builder: VELFAC in cooperation with VELLUX



Green Lighthouse  
Opening 20 October 2009  
Builder: VELLUX in cooperation with VELFAC



VELLUX House  
Opening Q2 2010  
Builder: VELLUX



Haus der Zukunft (House of the Future)  
Opening 17 September 2009  
Builder: SONNENKRAFT



French Project  
Opening Q4 2010  
Builder: VELLUX

Solar Aktivhaus (Solar Active House)  
Opening 2 October 2009  
Builder: SONNENKRAFT



Sun Light House  
Opening Q2 2010  
Builder: VELLUX



***"One experiment is worth more than a thousand expert views"***

*Founder of the VKR Group, Villum Kann Rasmussen*



# Knowledge sharing -as part of the Active House homepage



My account | MIMA Management Group | About MIMA | Log out

## Monitoring Interviews Measuring Analyses (MIMA) 8 ACTIVE HOUSES

DOCUMENTS VISUALS PUBLICATIONS

### PROJECTS



**Carbonlight Homes**  
KETTING, UNITED KINGDOM  
PHASE3



**Green Lighthouse**  
COPENHAGEN, DENMARK  
PHASE3



**Haus der Zukunft**  
REGENSBURG, GERMANY  
PHASE2



**Home for Life**  
LYSTRUP, DENMARK  
PHASE3



**Licht Aktivhaus**  
HAMBURG, GERMANY  
PHASE3



**Maison air et Lumiere**  
PARIS, FRANCE  
PHASE1



**Solar Aktivhaus**  
KRAIG, AUSTRIA  
PHASE3



**Suntighthouse**  
PRESSBAUM, AUSTRIA  
PHASE2

**CREATE** new content here

### STREAM

#### Interior

12/04/2011 - 12:32 | by editor

Interior of home for life



#### Occupant's reflections, November 2010

12/04/2011 - 12:31 | by editor

Occupant's notes from their experiences with living in Home for Life.

[BFL-OccupantsNotes-201011-GGHO.docx](#)



#### Test af muploader

MAISON AIR ET LUMIERE 26/04/2011 - 12:52 | by admin



#### Month report, February 2011

HAUS DER ZUKUNFT 18/04/2011 - 09:37 | by editor

Quantitative month measurement report on energy, indoor climate and weather.

[HDZ-MR-201102-GGHO-20110302.pdf](#)

### MEMBER LOGIN

Username or e-mail\*  Password\*

[Request new password](#)

[Sign in using one of these accounts:](#)



### THE MIMA PORTAL

This website collects and distributes information about energy efficient houses around the world. Some documents are open to the public and some are only for MIMA members or groups.

[> Read more about MIMA](#)

### SCIENTIFIC EVENTS



**Test event**  
16/04/2011 - 15:48  
CONFERENCE



**My event test  
numero duo**  
20/04/2011 - 15:51  
JOURNAL

[> See all upcoming events](#)

### SHOUTS



**Mit shout om GL**  
04/05/2011 - 15:49  
GREEN LIGHTHOUSE



**Aktivhaus link på  
www**  
14/04/2011 - 09:49  
SOLAR AKTIVHAUS

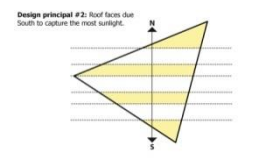
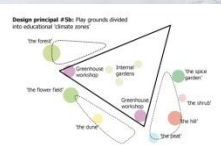
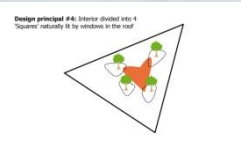
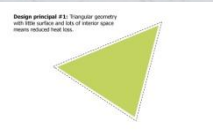
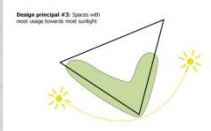


# Solhuset



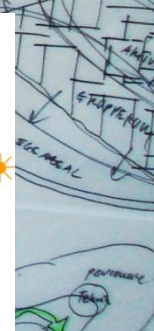
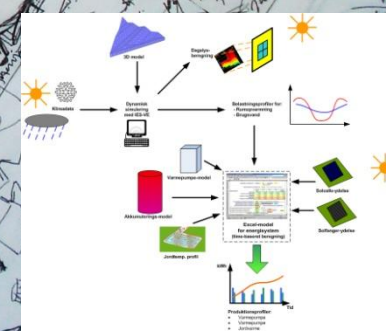
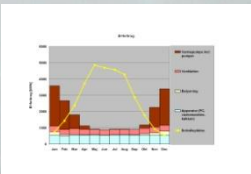
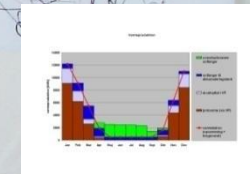
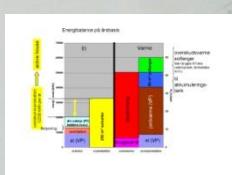
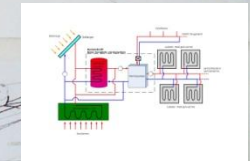
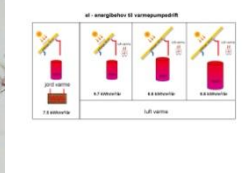
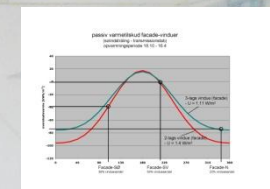
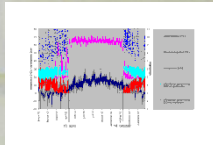
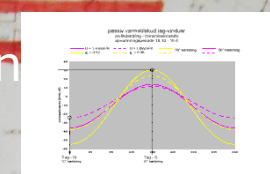
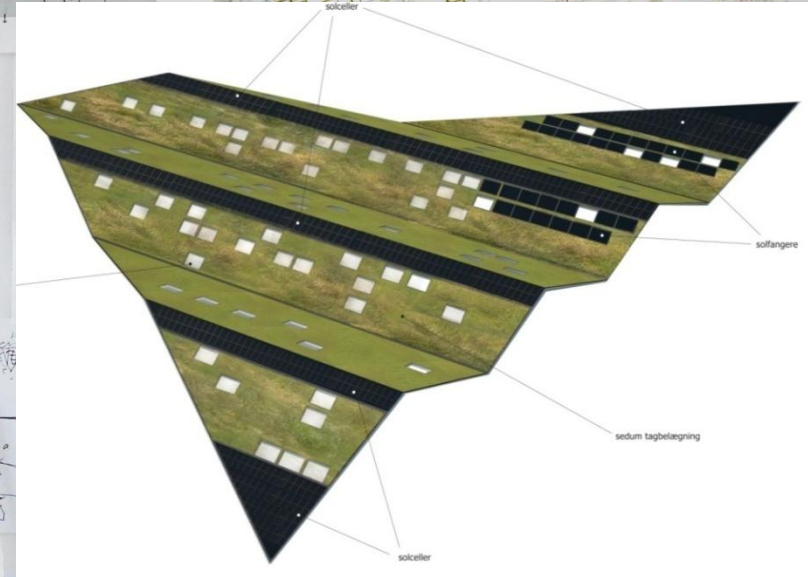
Danmarks mest klimavenlig børneinstitution - Lions Active House

# Designprocessen Integreret design



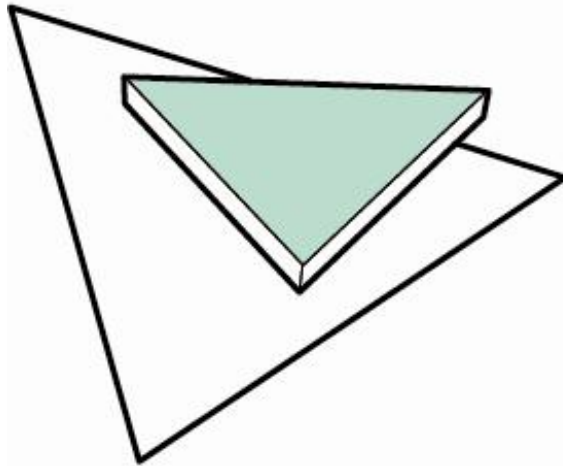
CCO

Parameter	Value	Unit
Area	1000	m²
Volume	1000	m³
Height	10	m
Width	10	m
Depth	10	m
Weight	1000	kg
Cost	1000	€
Energy	1000	kWh
Water	1000	m³
Time	1000	h
Temperature	1000	°C
Humidity	1000	%
Pressure	1000	Pa
Speed	1000	m/s
Acceleration	1000	m/s²
Frequency	1000	Hz
Wavelength	1000	m
Energy density	1000	J/m³
Power density	1000	W/m³
Force density	1000	N/m³
Stress density	1000	Pa/m³
Strain density	1000	1/m³
Temperature density	1000	°C/m³
Humidity density	1000	%/m³
Pressure density	1000	Pa/m³
Speed density	1000	m/s/m³
Acceleration density	1000	m/s²/m³
Frequency density	1000	Hz/m³
Wavelength density	1000	m/m³
Energy density	1000	J/m³
Power density	1000	W/m³
Force density	1000	N/m³
Stress density	1000	Pa/m³
Strain density	1000	1/m³
Temperature density	1000	°C/m³
Humidity density	1000	%/m³
Pressure density	1000	Pa/m³
Speed density	1000	m/s/m³
Acceleration density	1000	m/s²/m³
Frequency density	1000	Hz/m³
Wavelength density	1000	m/m³





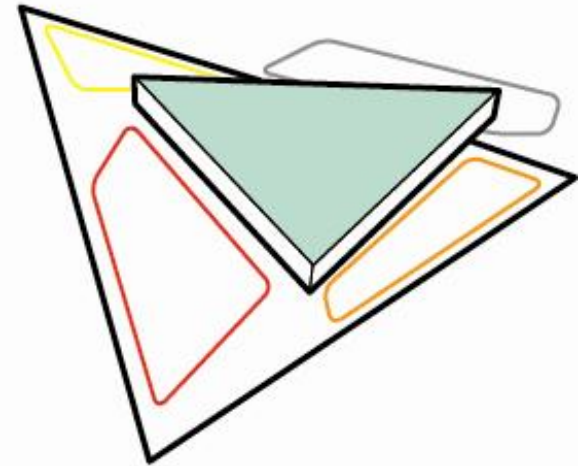
Placering:



trekantet grund  
trekantet volumen



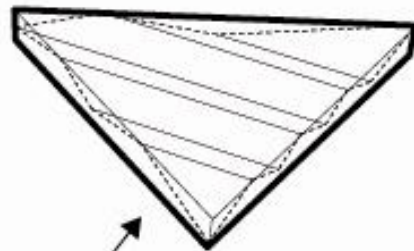
kompakt volumen  
Lille overflade - stort areal



bygningen opdeler grunden i zoner

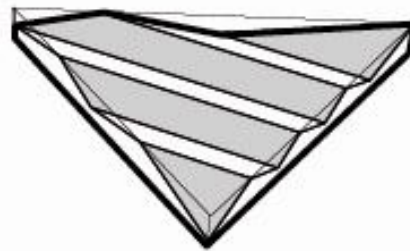


Orientering:

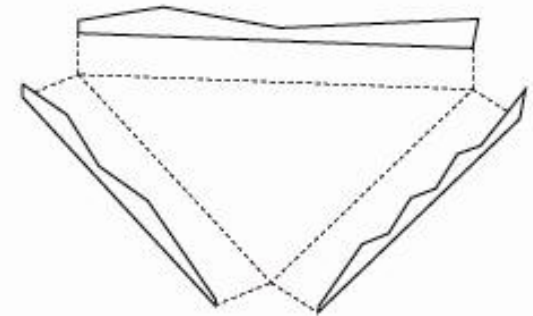


SYD

taget orienteres  
vinkelret mod syd



optimeret til solceller,  
solfangere og ovenlys

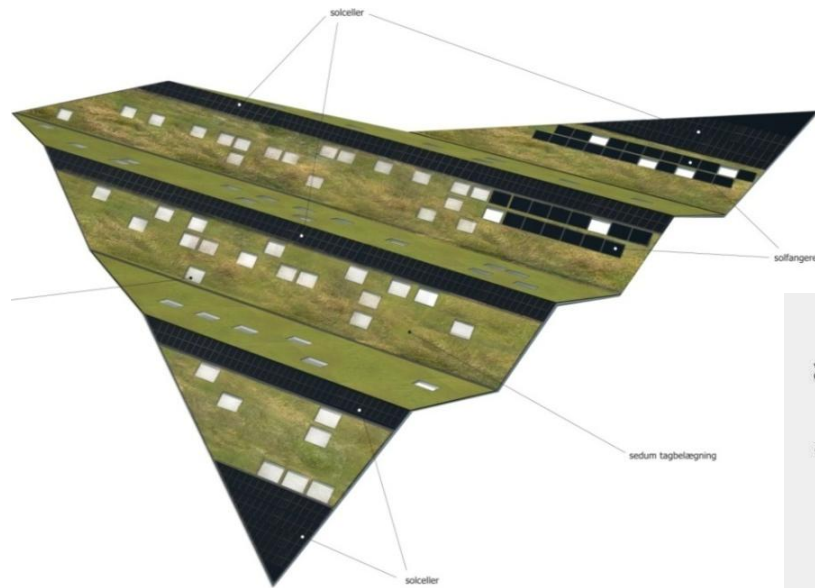


et varieret facade  
udtryk skabes.





# The roof - to harvest the solar energy and daylight

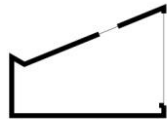




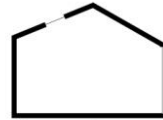
# Space

## - the roof creates diversified spaces and daylight

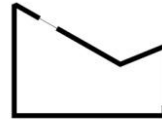
### GRUPPERUM



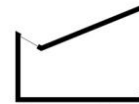
Grupperum 1



Grupperum 2



Grupperum 3



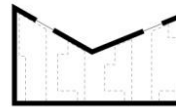
Grupperum 4



Grupperum 5

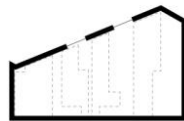


Grupperum 6

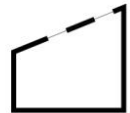


Grupperum 7

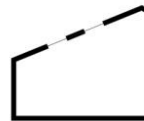
### FÆLLES



Fællesrum



Musik og Bevægelse



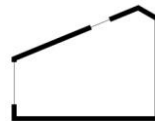
Gymnastik



Sanserum



Kreative fag 1



Kreative fag 2

### PERSONALE



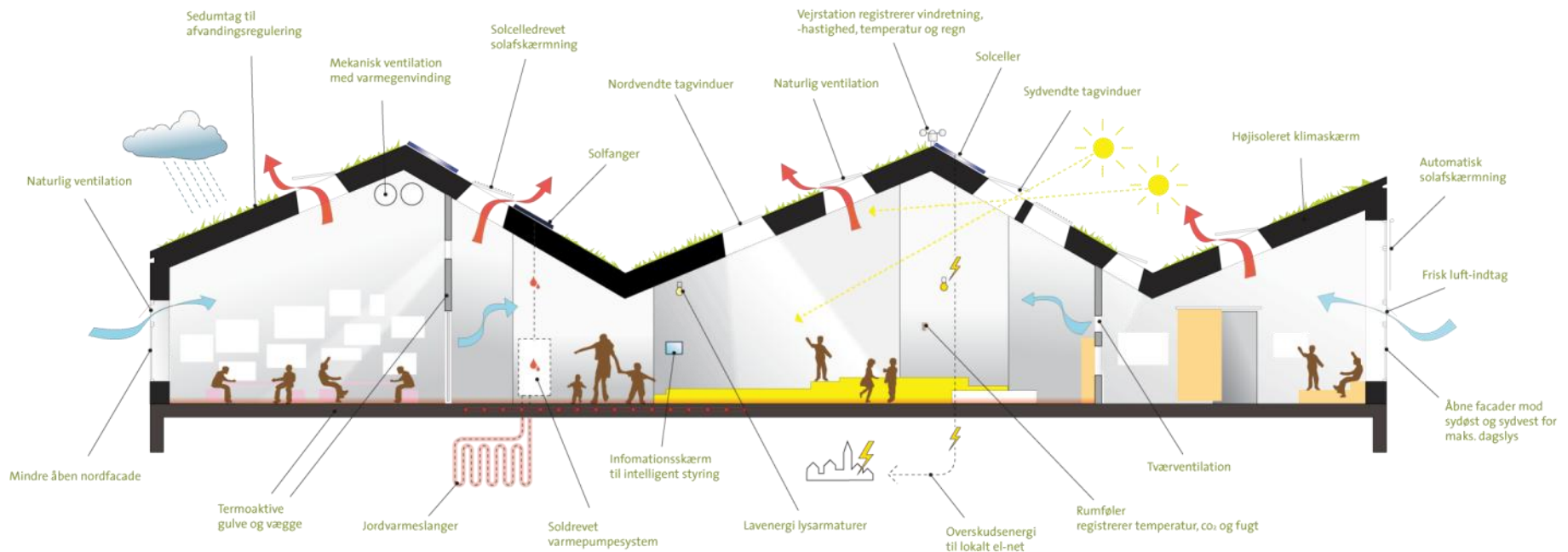
Personalerum



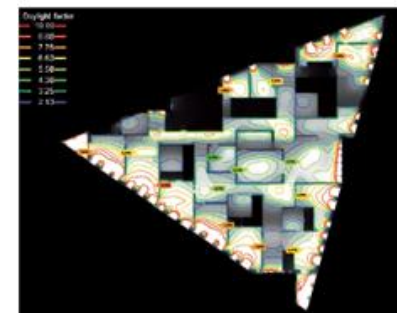
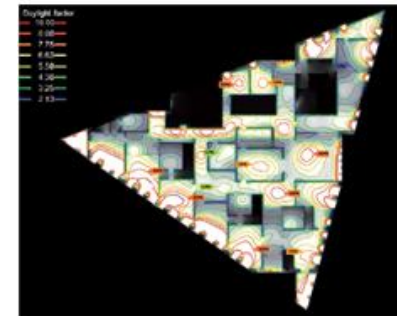
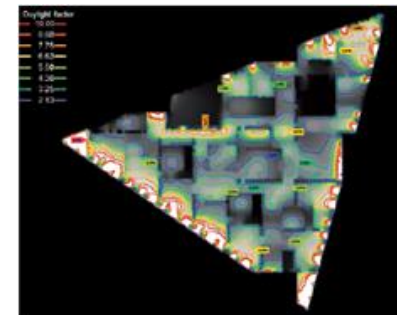
Leder og møderum 1 og 2



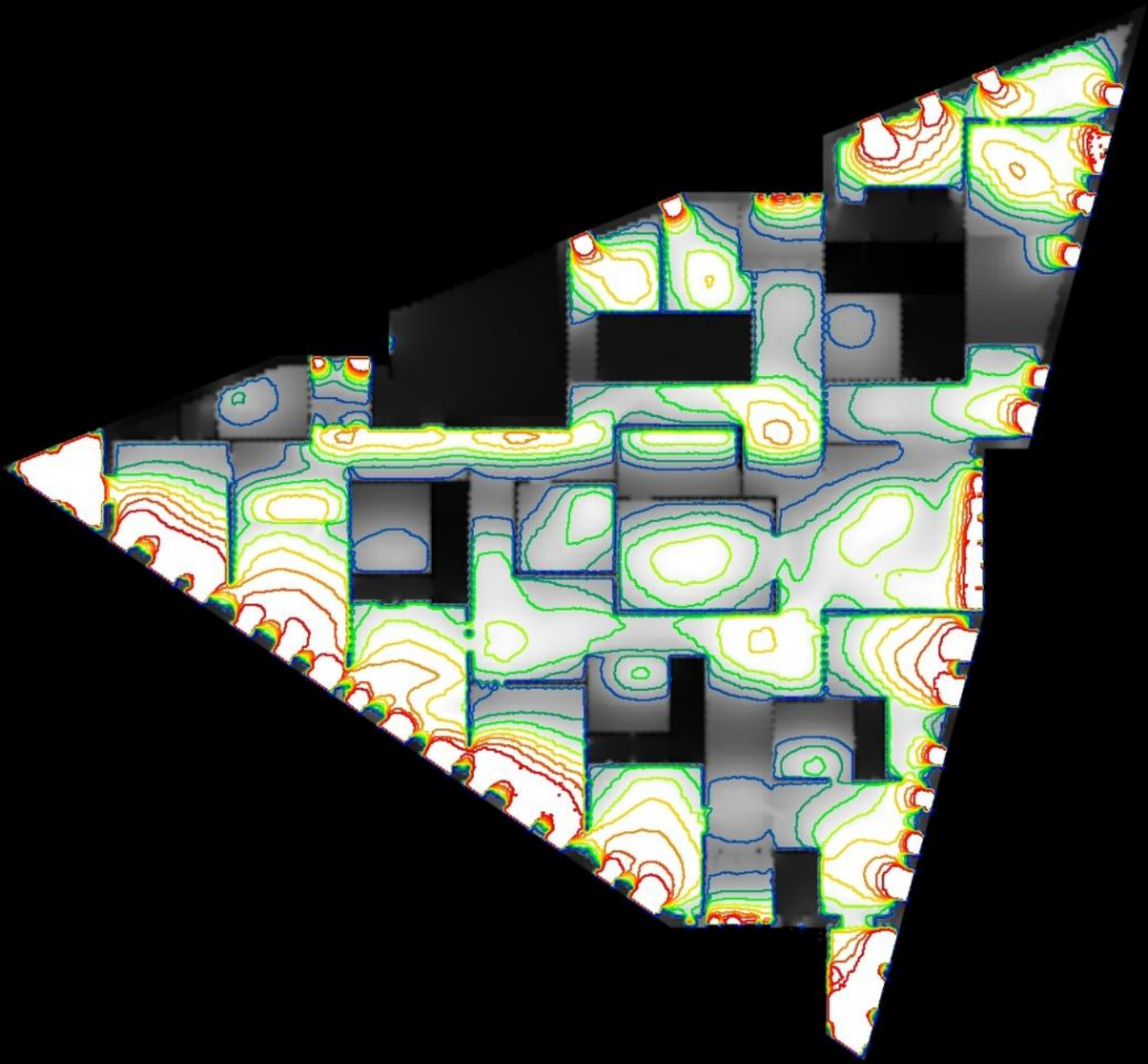
# Solhuset - integrated energy design



# Daylight - optimization through daylight visualizer

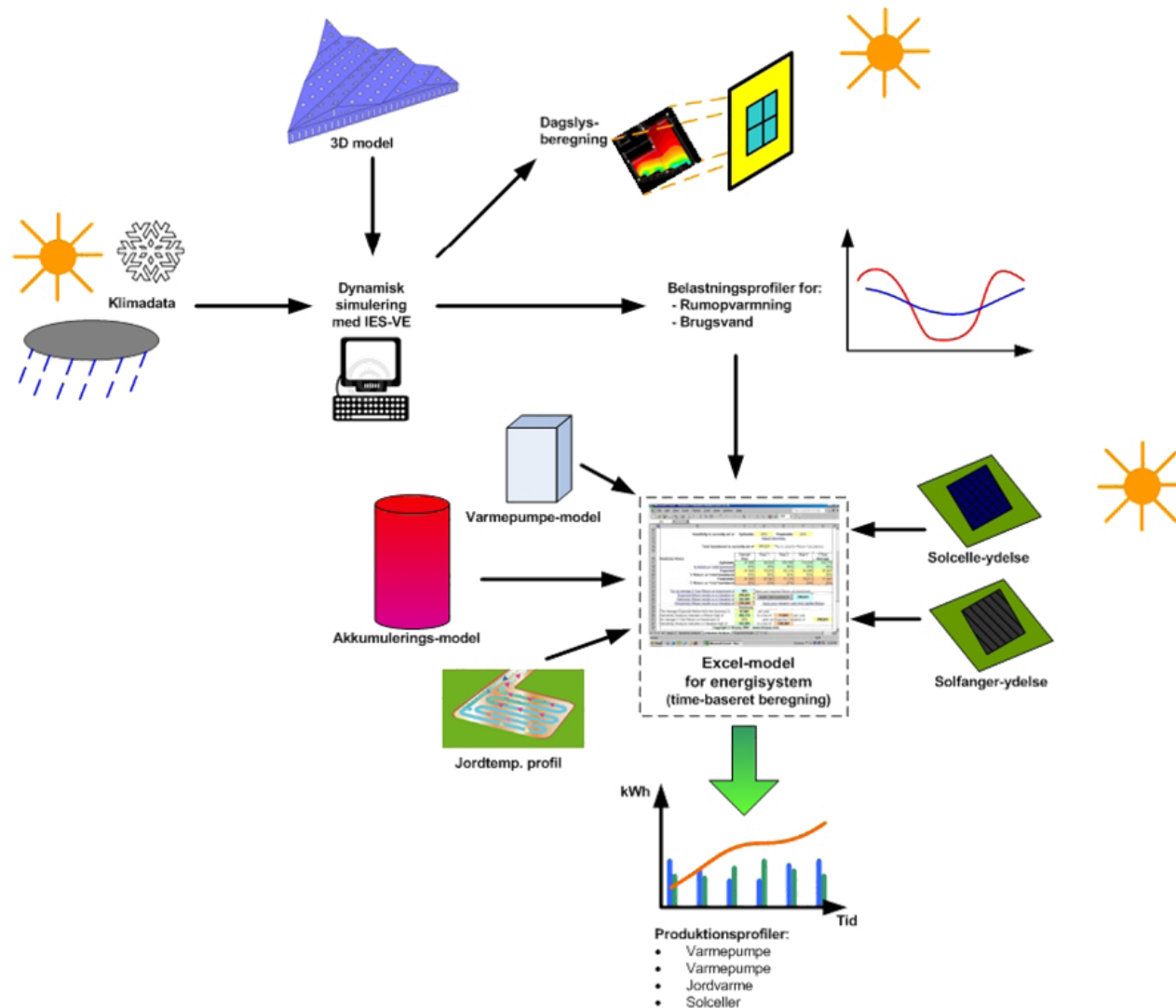


Daylight factor  
10.00  
8.88  
7.75  
6.63  
5.50  
4.38  
3.25  
2.13



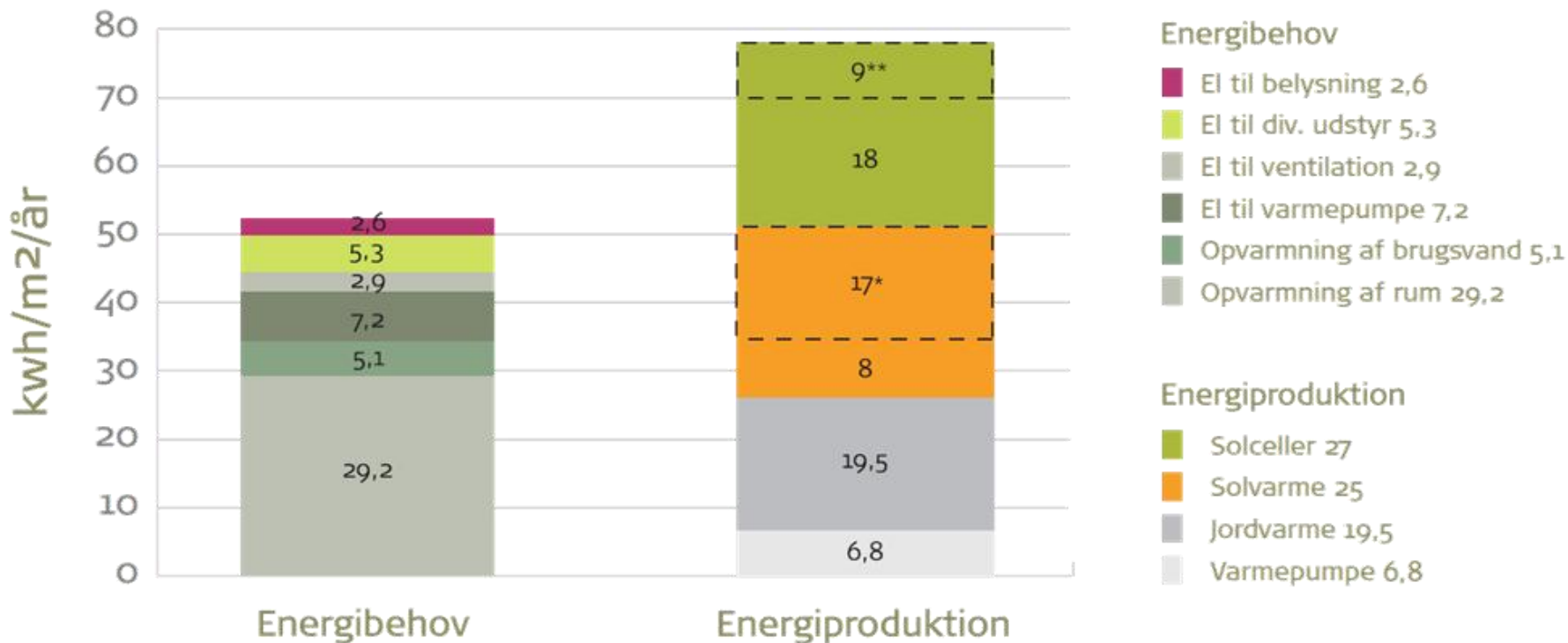


# Calculation of expected energy consumption



# Expected energy consumption and production

## Beregnet energibehov og -produktion (samlet)



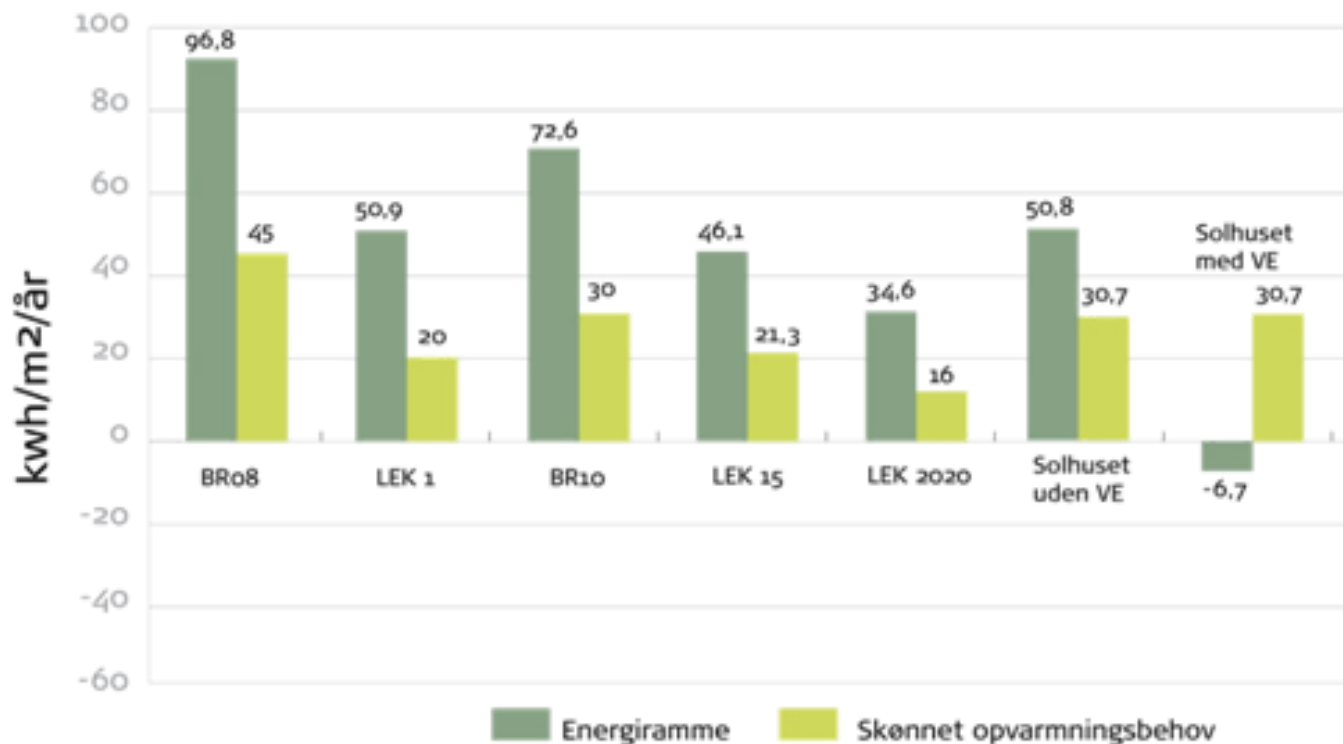
----- Overskud fra el- og varmeproduktion

\*Overskudsvarmen sendes i jorden til opbevaring eller benyttes til drift af opvaskemaskine

\*\*Overskud fra el-produktion

# Energy consumption according to Danish regulations

Energiforbrug beregnet efter bygningsreglementet



BR08: Nuværende krav - LEK 1: Lavenergi klasse 1 - BR10: Krav for 2010 - LEK 15: Krav for 2015  
LEK2020: Forventet krav for 2020 - VE: Vedvarende energi











05.10.2011

#31



