

Moreno-Vacca Sebastian
Architect

Manager own architects practice **A 2 M**
Professor at University of Architecture **ULB**
President of Belgian Passivhaus Platform **P M P**

**What does
passivhaus
do to
architecture**

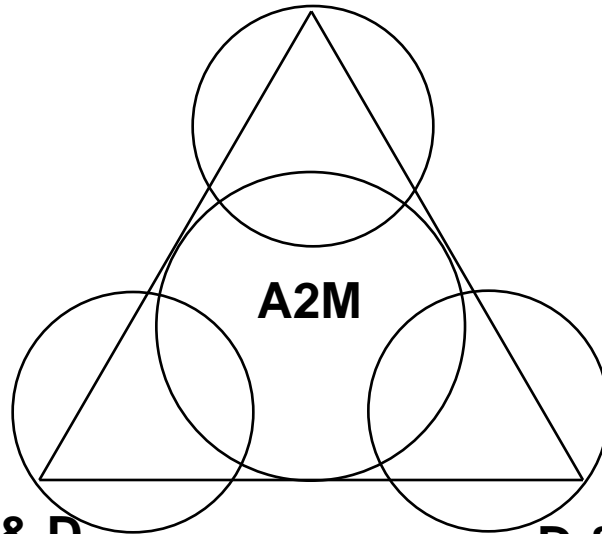


to start...

what does passivhaus...

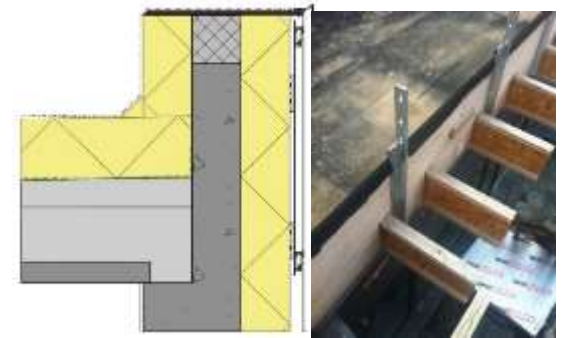
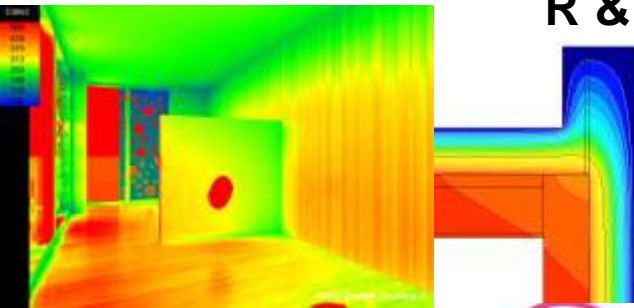


R & B

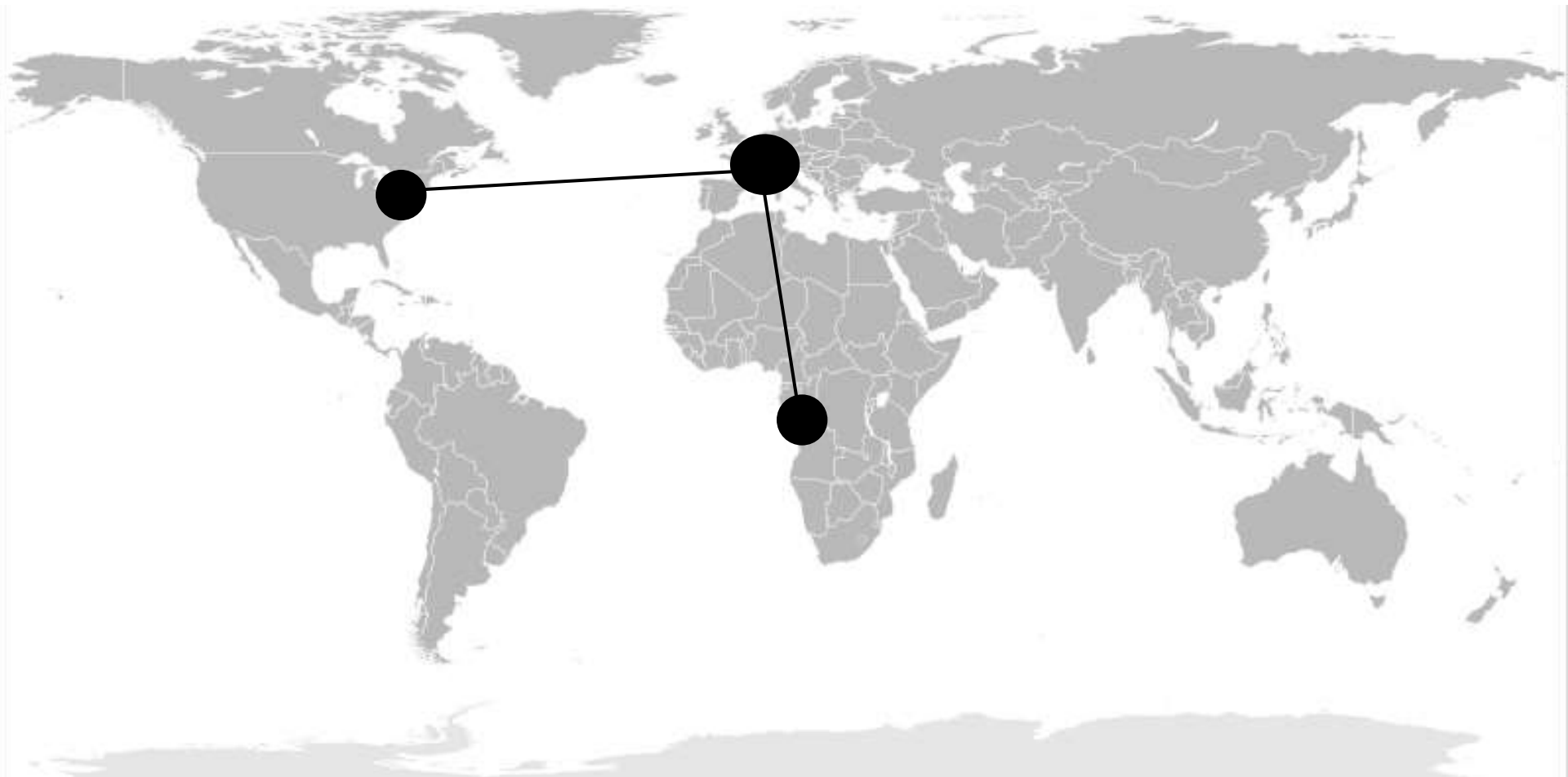


R & D

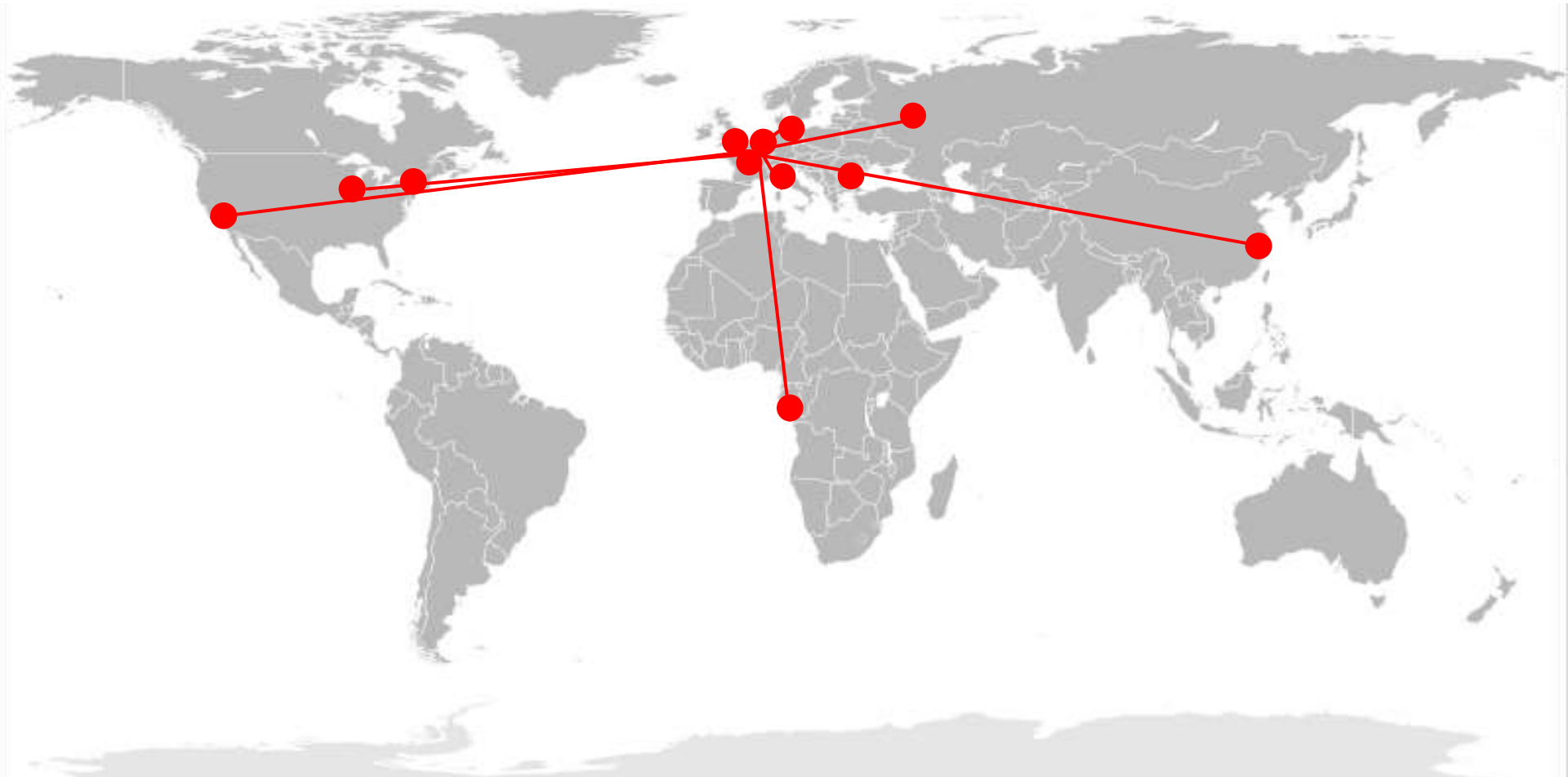
D & B



we build



we share

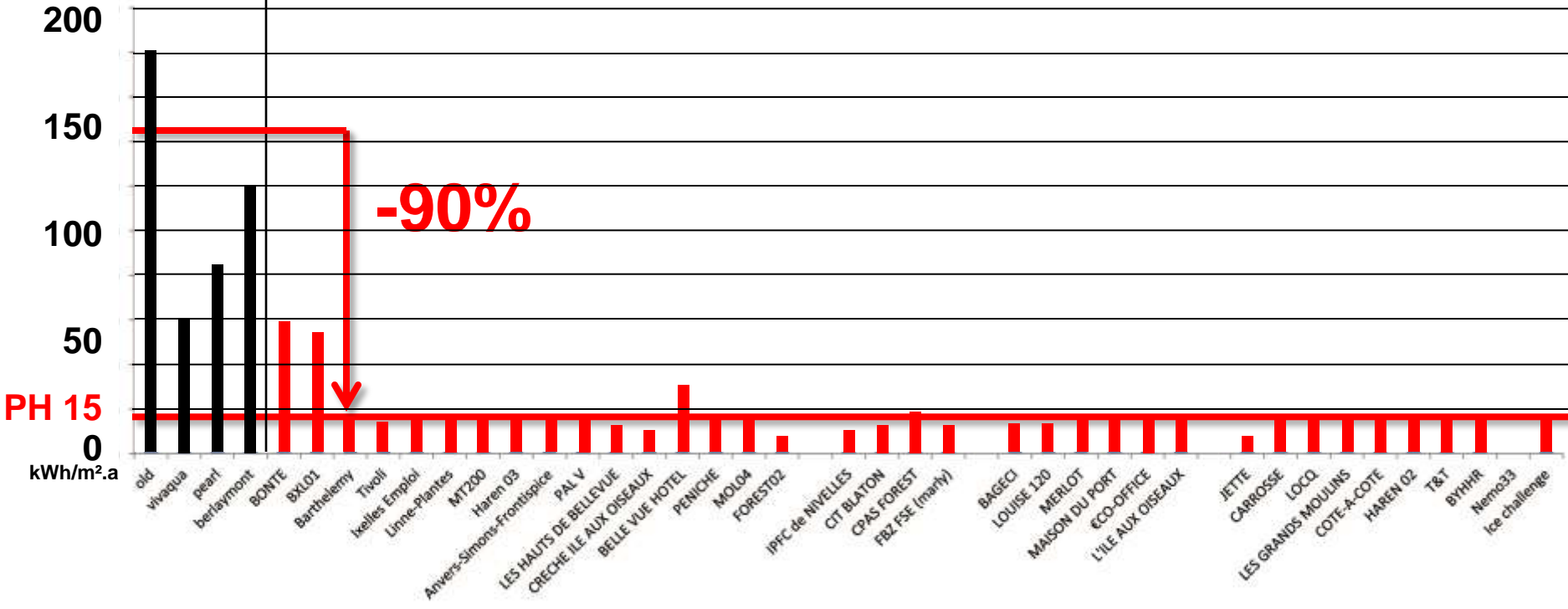


we share



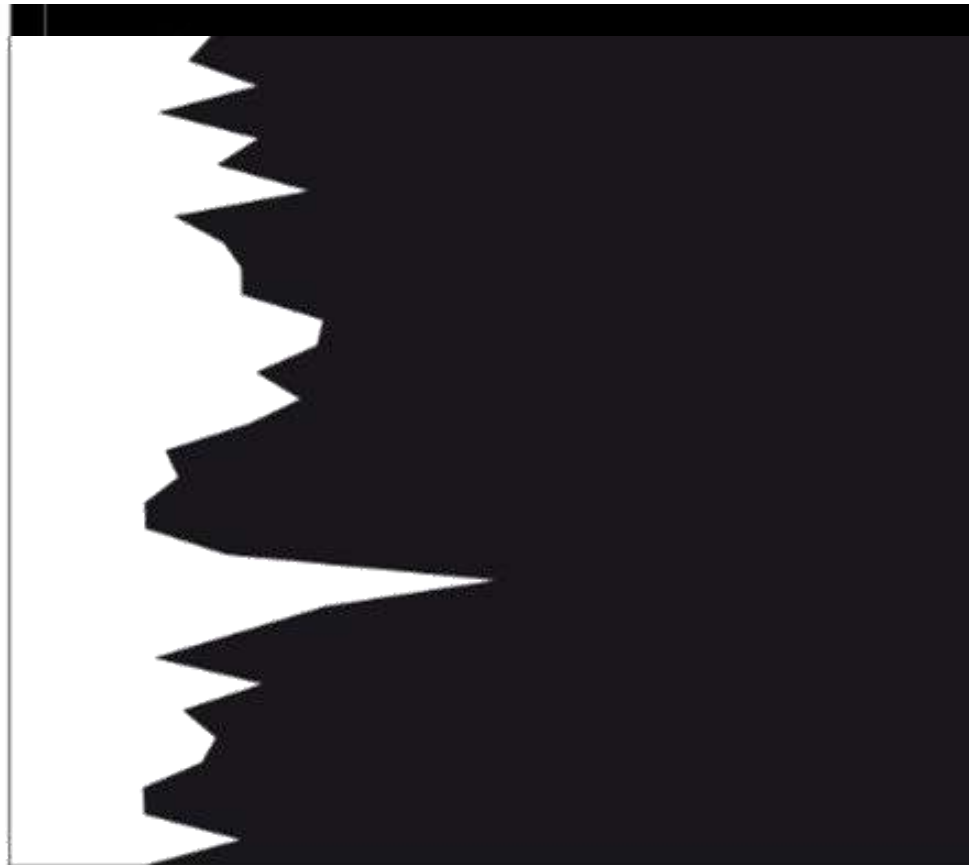
Some
Benchmark
Buildings
Before 2006

A2M
projects



Gross surface m² / Liters of coffee

projet
 LINNE-PLANTES
 HAREN 03
 ANVERS-SIMONS
 PAL V
 LES HAUTS DE BELLEVUE
 CRECHE ILE AUX OISEAUX
 BELLE VUE HOTEL
 PENICHE
 MOL04
 FOREST02
 IPAM
 IPFC DE NIVELLES
 CIT BLATON
 CPAS FOREST
 FBZ FSE (marly)
 BONTE
 BAGECI
 LOUISE 120
 MARLOT
 MAISON DU PORT
 €CO-OFFICE
 L'ILE AUX OISEAUX
 BXL01
 JETTE
 CARROSSE
 LOCQ
 LES GRAND MOULINS
 COTE-A-COTE
 HAREN 02
 T&T
 BYHHR
 NEMO33
 ICE CHALLENGE



Design & build: BE/NL/LUX embassy
Cost= 10,5 M€ passivehouse & BREEAM excellent
3 others = 13 M€ until ... 21 M€ for ... low energy !



Apartments, design & build
Cost= 2,5 M€ passivehouse + ZERO energy



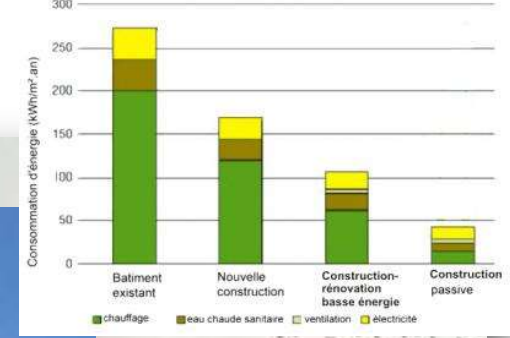
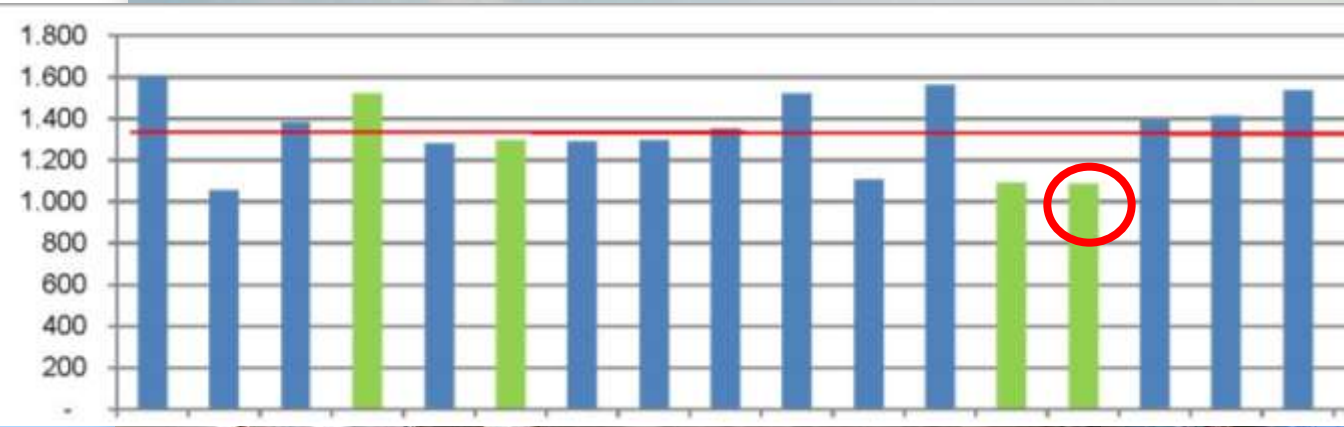
Brewery renovation > hotel
170 rooms, 650 p
0,44 Vol/h-1



**This building = extra cost of ...
-10 % !
90% sold in 1,5 month
At same price then classic**

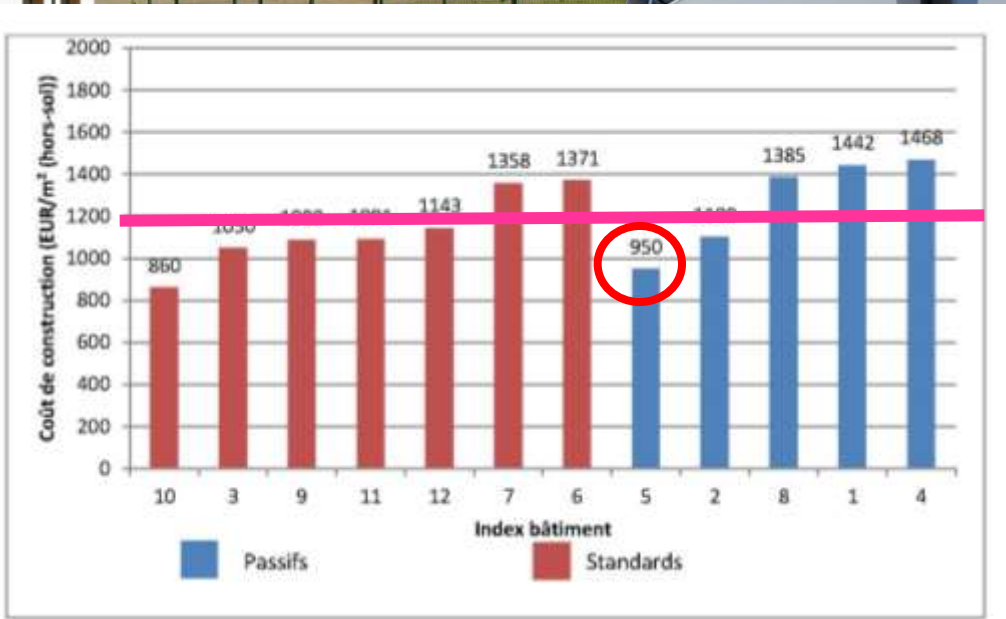


13 000 m²
This building = extra cost of ...
-10 % !



CO

30 housing = extra cost of ...
-20 % ! (1 027€/m² 808 GBP/m²)
Passivehouse + 1/3 zero energy etc



1000 €/m² (average = 1200 €/m²)

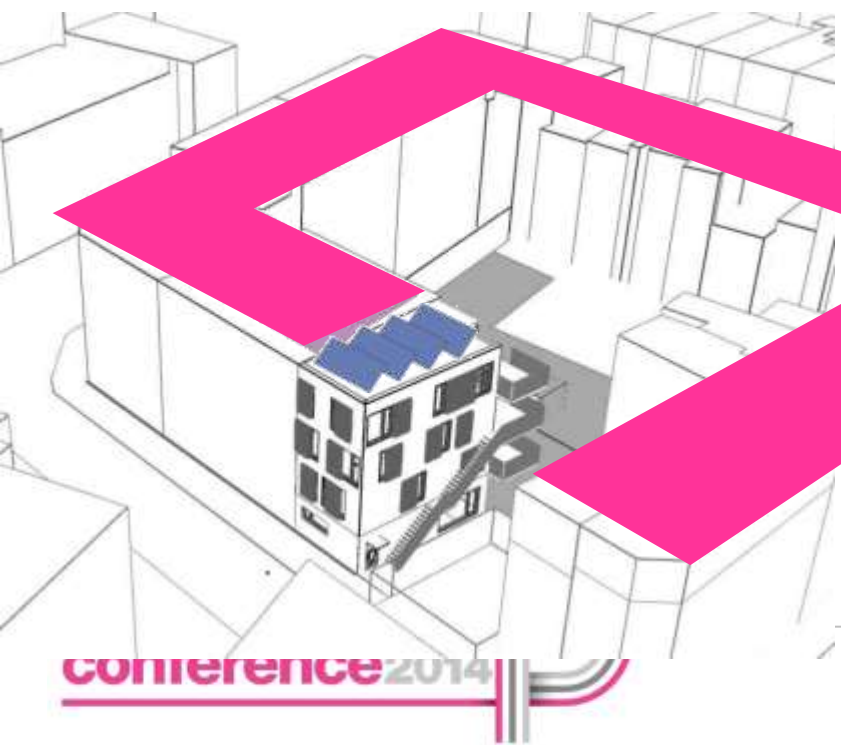
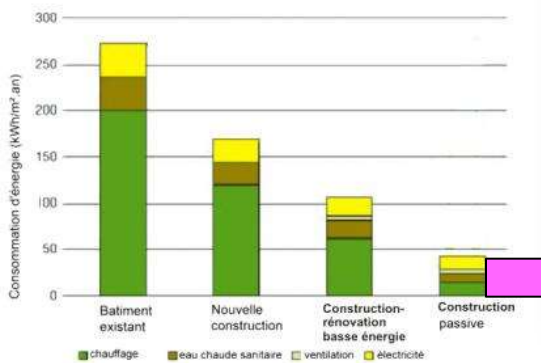


**1400 €/m² (average = 1200 €/m²)
extra cost 😊**



2600 €/m² 2050 GBP/m² (average = 1200 €/m²)
mega extra cost 😊 yes !
Passivehouse and ... complete zero energy





9 100 m²
1200 €/m² (average = 1200 €/m²)
0 extra cost
Passivehouse and ... BREEAM excellent



**1400 €/m² 1100GBP/m² (average = 1200 €/m²)
extra cost 😊
Passivehouse and ...**



**1600 €/m² 1260GBP/m² (average = 1200 €/m²)
extra cost 😊
Passivehouse and ...**







Eco neighborhood
38 000 m²




Eco neighborhood
115 housing



Architectural rendering of a modern building complex at dusk. The scene shows several tall, rectangular buildings with a mix of dark and light facades. The sky is a mix of orange and grey, suggesting sunset or sunrise. In the foreground, there are streetlights, a traffic light, and some blurred figures of people walking on a sidewalk.

European
district
Eco
neighborhood

Architectural rendering of a modern building complex during the day. The scene shows several tall, rectangular buildings with a mix of dark and light facades. The sky is a mix of blue and grey, suggesting a cloudy day. In the foreground, there are trees, a road with a white van, and a person riding a bicycle.

A2M

European
district
165 m height
220 000 m²

renovation

and

listed

building

Offices renovation
architecte A2M



**Rénovation tour
logements sociaux
6 500 m²
Architecte A2M**



**Rénovation bureau
en 100 logements
12 500 m²
Architecte A2M**



Sky is the limit



Belgian & Netherland embassy
Kinshasa – RDC => tropical climate

A2M

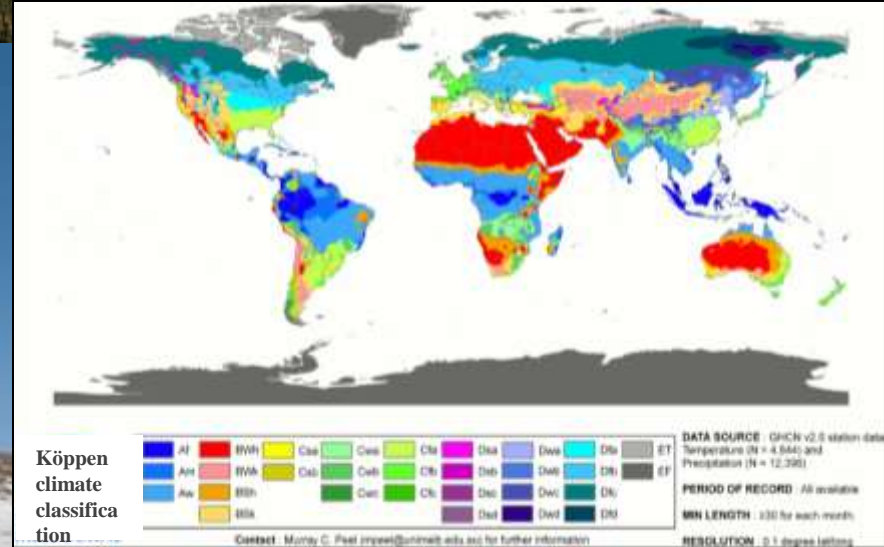


Samyn & partners
3E

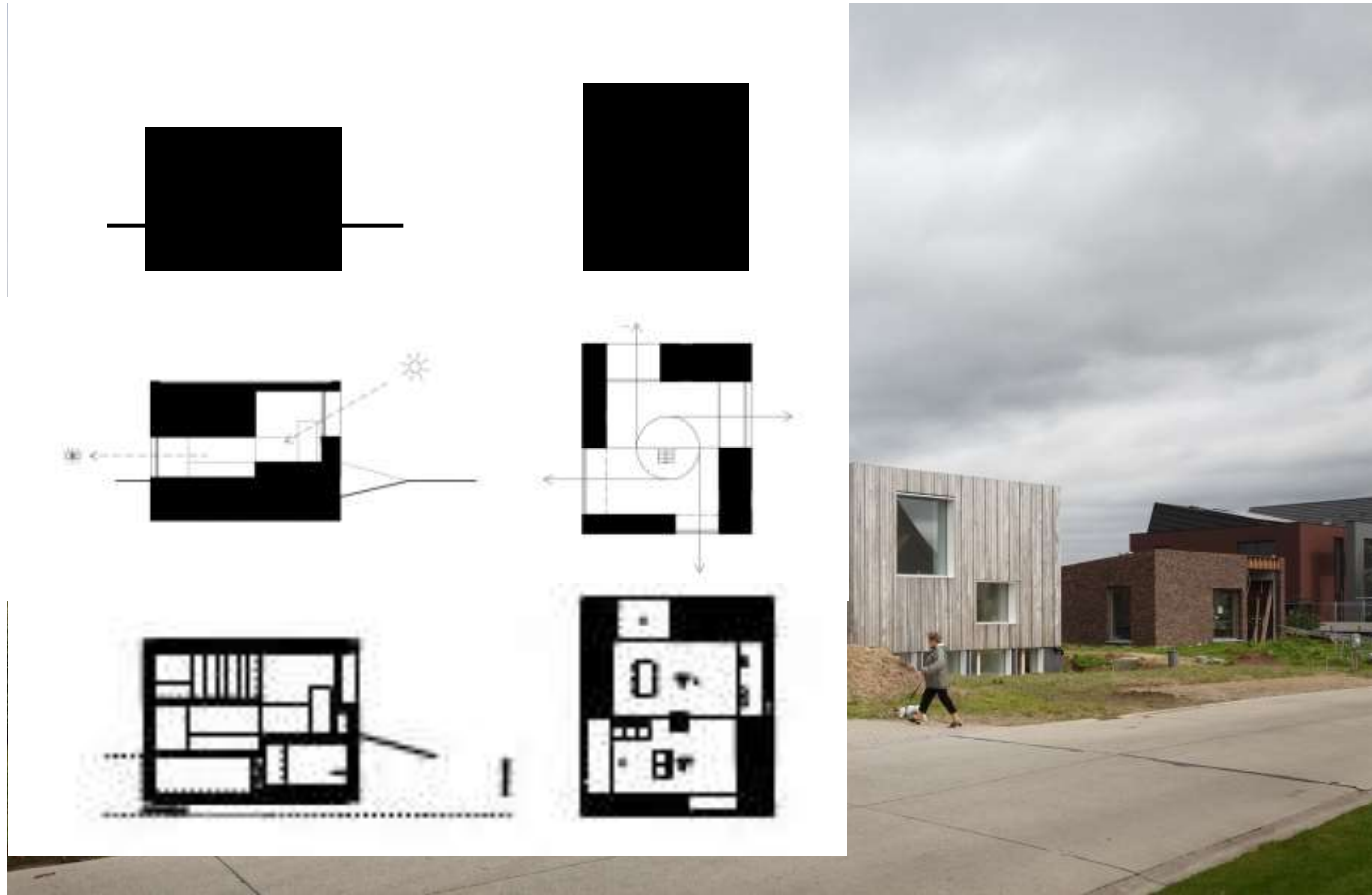
Elizabeth Polar station (BE)

Antartica **Zero emission**

The coldest place on earth => -89.2°C - 128,6 °F



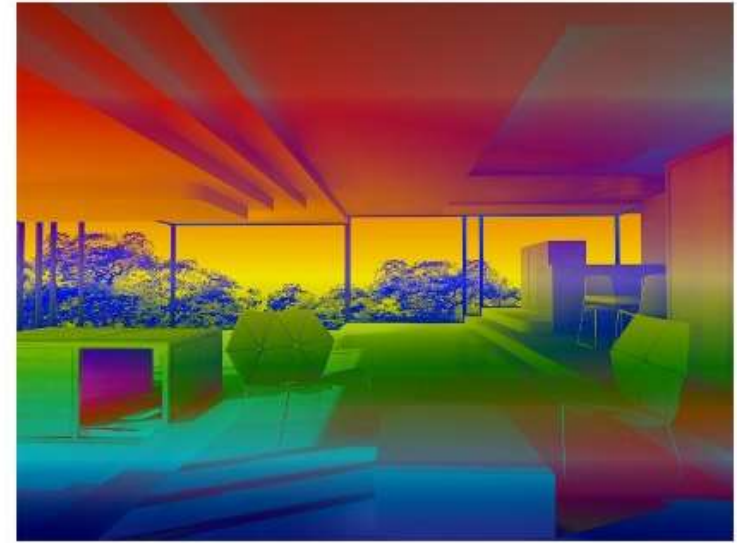
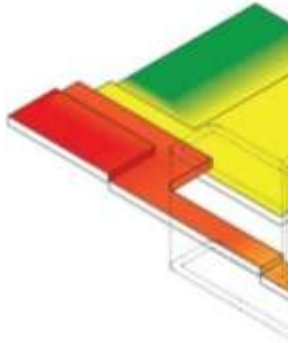
what...







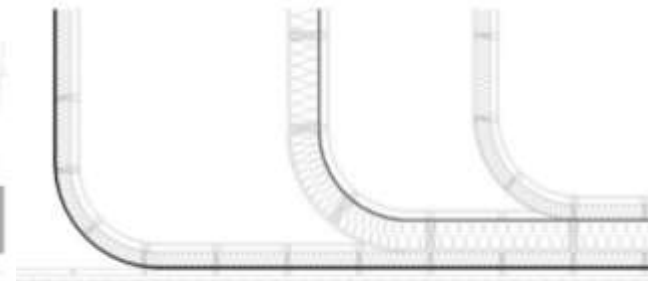
what...



Philippe Rahm architect
« convective » appt in Hambourg
A building as a convective shape

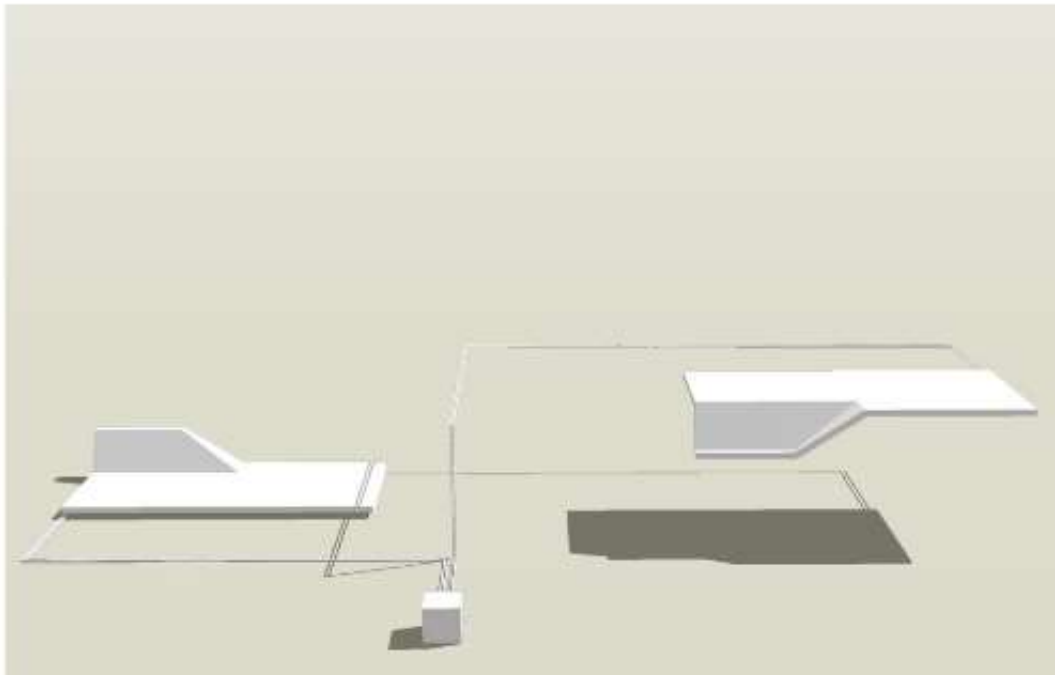


interior exterior



Philippe Rahm architect
Primary school in Neuville Thermal conductivity

Using cfd

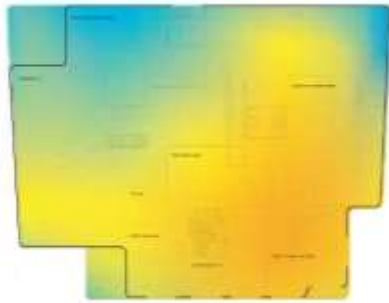


20
 16 to 18
 e living rooms
 20
 22
 18 to 20
 15 to 18
 12
 12
 12

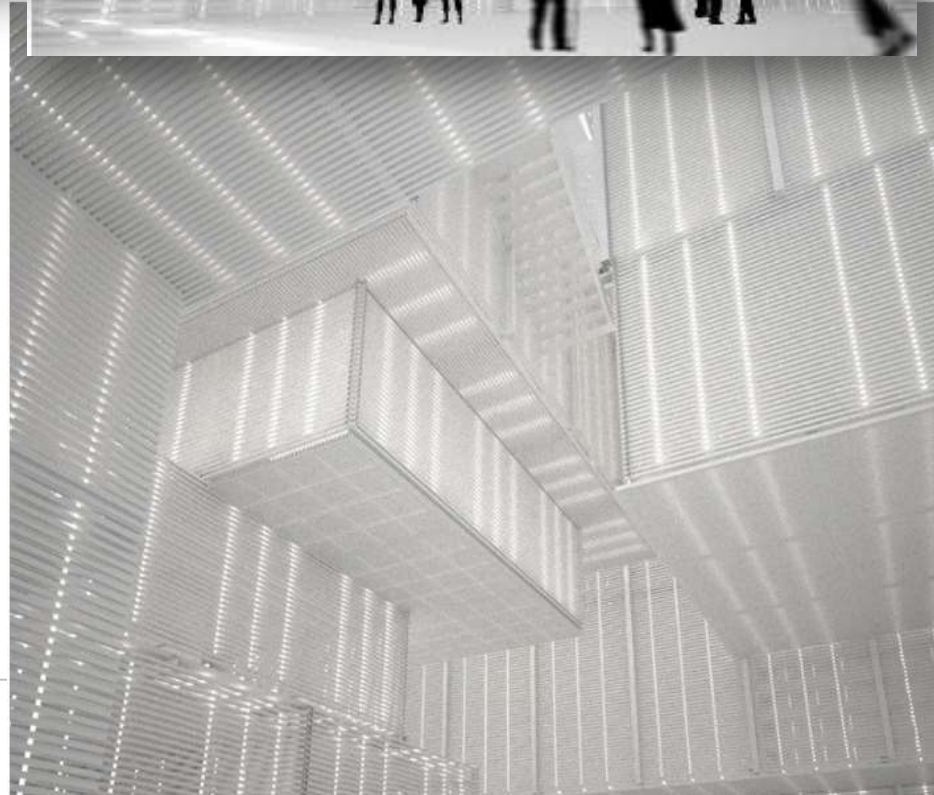




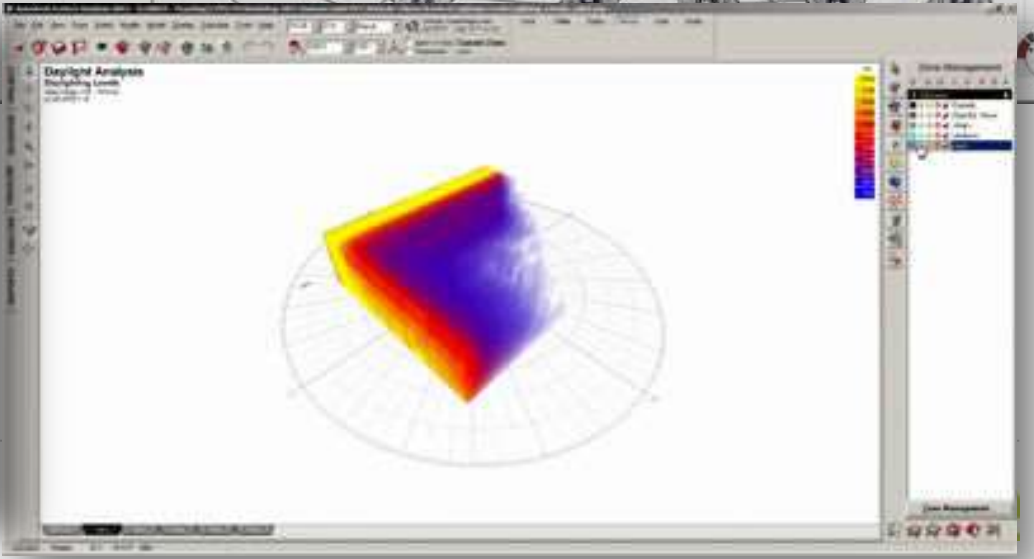
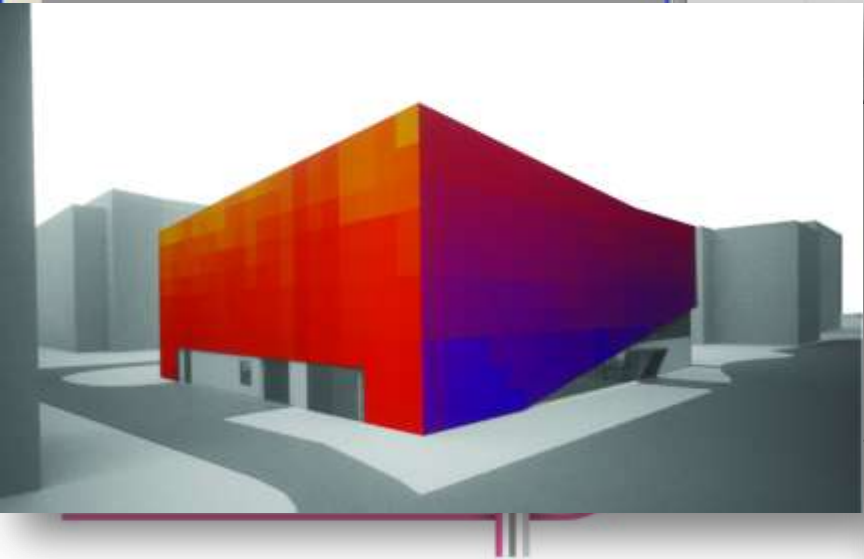
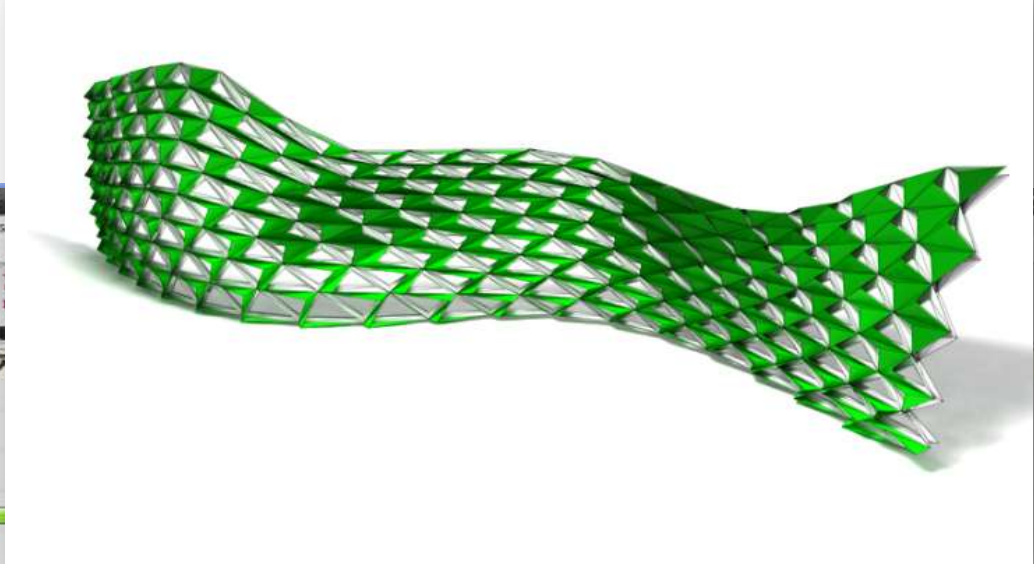
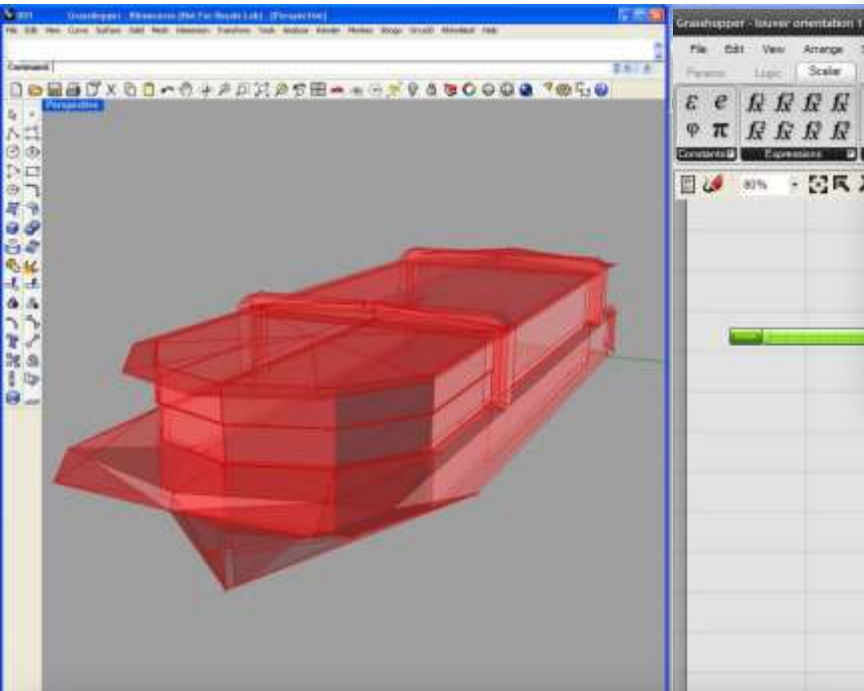
- Very slight physical activity (meeting rooms, auditorium, restaurants) 20-21°C
- Slight physical activity (showrooms, workshops, cooking) 18-20°C
- Circulation (corridors, stairwells, lobby) 17-18°C
- No regular occupation (archives) 16-17°C

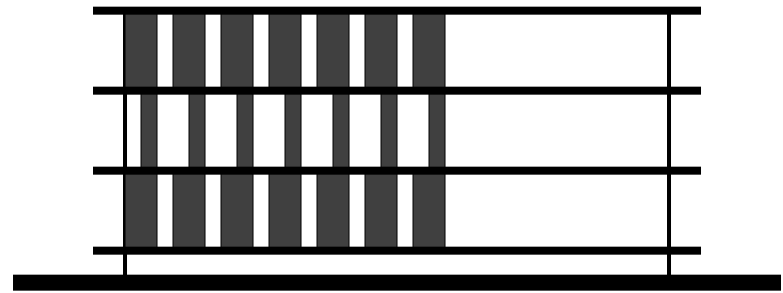


Philippe Rahm architect
Art museum Wrocław, Pologne
Space as thermodynamic tension



what...

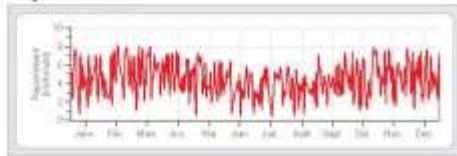




Spécificités climatiques, l'enveloppe comme interface

République Démocratique du Congo

Rayonnement



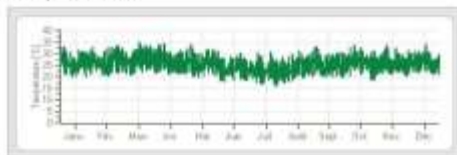
Durée d'insolation



Précipitations



Températures



Vents dominants

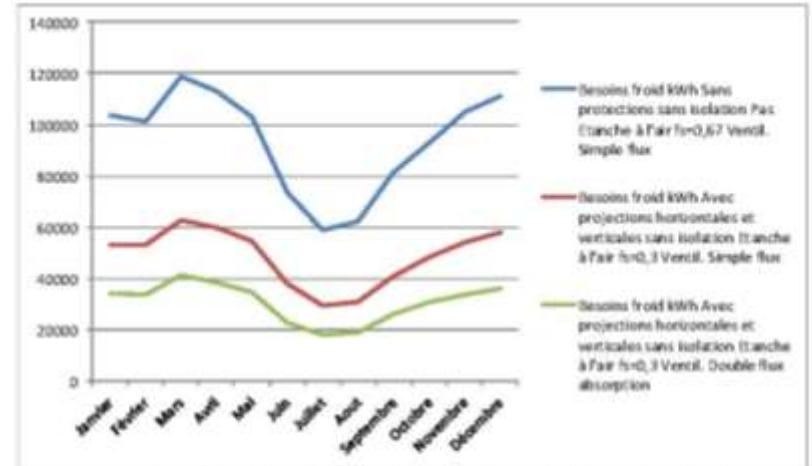
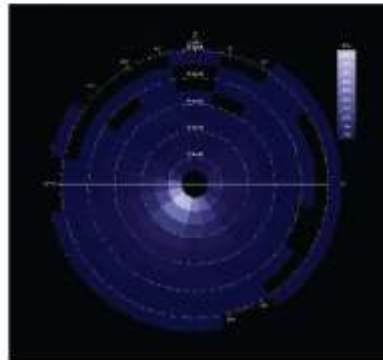


Figure 13a - Graphique représentant l'ensemble des mesures d'améliorations (mois par mois)

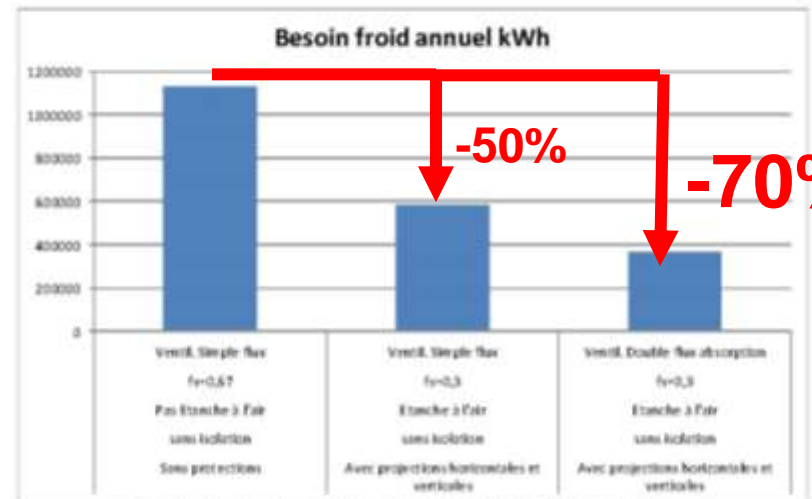
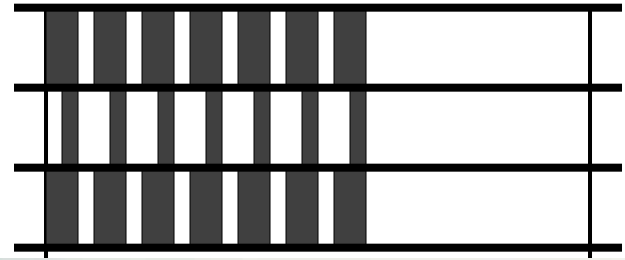
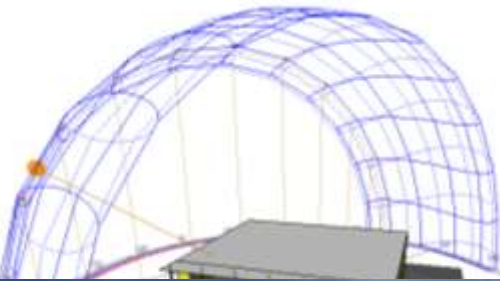
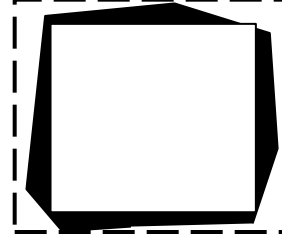
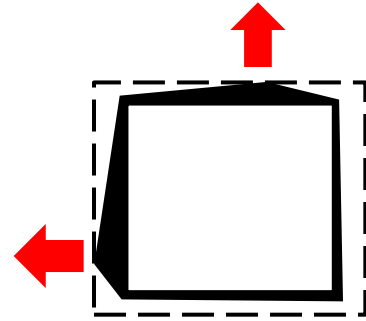
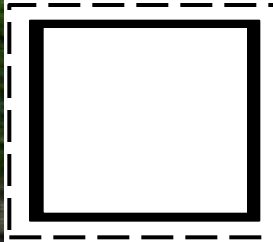


Figure 13b - Graphique représentant l'ensemble des mesures d'améliorations - bilan annuel

-50%
-70%









**I never *think* about the *future*
it comes soon enough.**

Albert Einstein



- www.a2m.be
- www.bepassive.be
- www.maisonpassive.be

**ukpassivhaus
conference 2014**

