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Smart buildings: the skin as the financial key to the carbon equation

Eric Claeys ir MSc MBA, founding chairman Fassada Asia Pacific

Fassada group. Who?

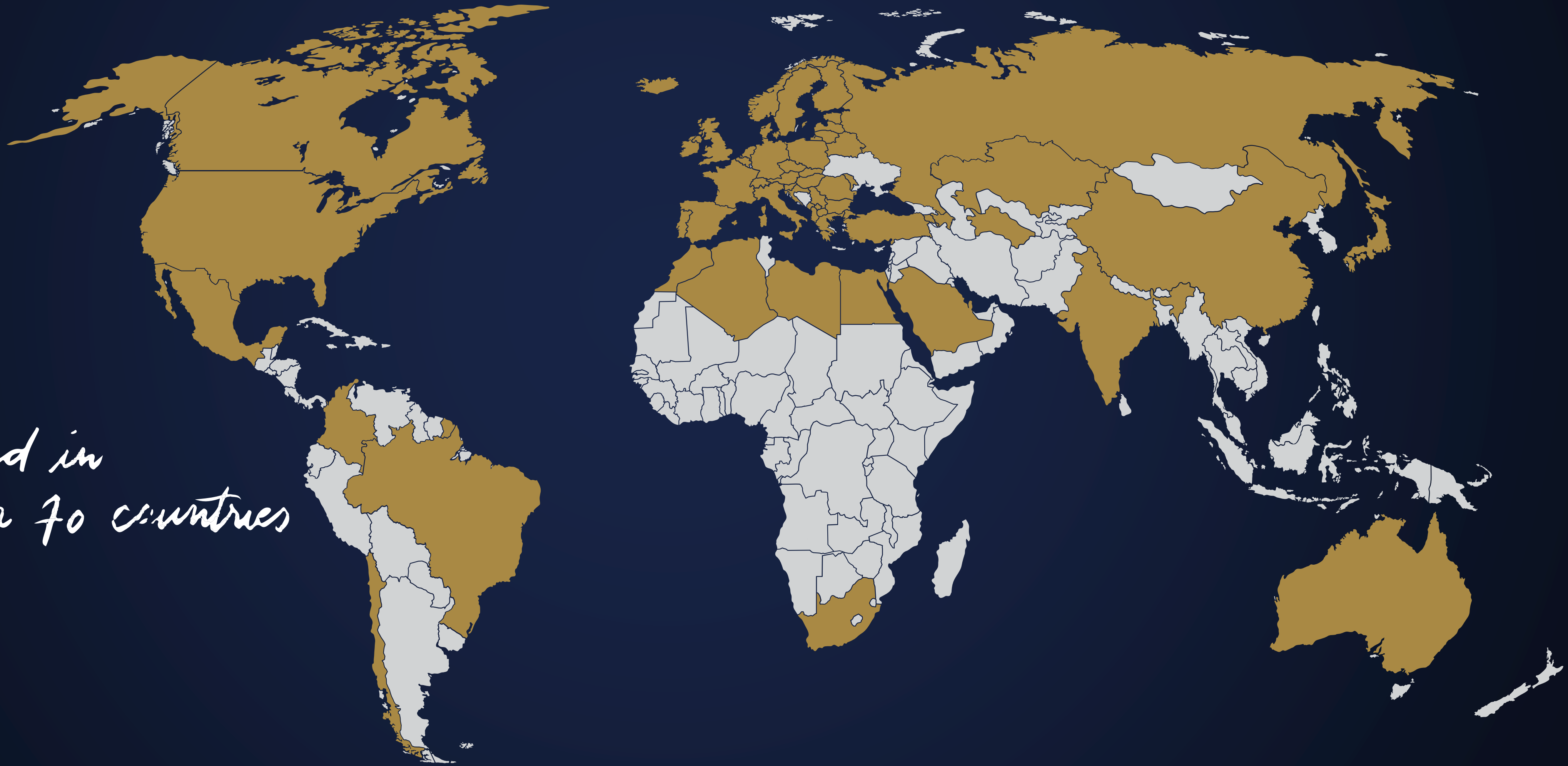
Fassada hybrid technologies®, the long-awaited disruption in the market

Eric Claeys, ir MSc MBA

Founder of the Fassada Group

fassada

Global patents



Patented in over 70 countries

At the end of the day, it's all about money

Garry Kasparov

Disruption & cost-saving efficiency goes hand in hand

Content

- Sustainability and circularity: the buzzwords of the century
- Fassada hybrid technologies ®
- Embedded versus operational carbon
- The building skin and sustainability: the 1st real key to the financial success of a real estate development
  - The facts
  - The figures
- The skin and non-circularity: the 2nd real key to the financial success of a real estate development
  - The facts
  - The figures
- Fassada smart solution: win-win for developer as well for end user/owner

Sustainability & circularity

Buzzwords of the century

Operational CO_2

The most sustainable energy is the one you don’t need

No energy = zero CO_2 exhaust

Fassada hybrid technologies ®

Stick

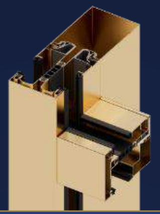
Cost
- low material cost
- Low fabrication cost

Time
- short fabrication time

Cost
- scaffoldings
- need for skilled workers

Time
- outside installation: weather
- long installation time
- epdm membranes

Technics
- replacement broken glass: cost!
- if leakage: cause?



Hybrid

Combined advantages

And

- ground breaking performance
- suitable for seismic areas
- maximum design freedom for external cladding
- Suitable for smart glazing
- no EPDM membranes

Unitized

Cost
- no scaffoldings & mast climbers

Time
- fast installation on site

Maintenance
- absorption of slab deflections

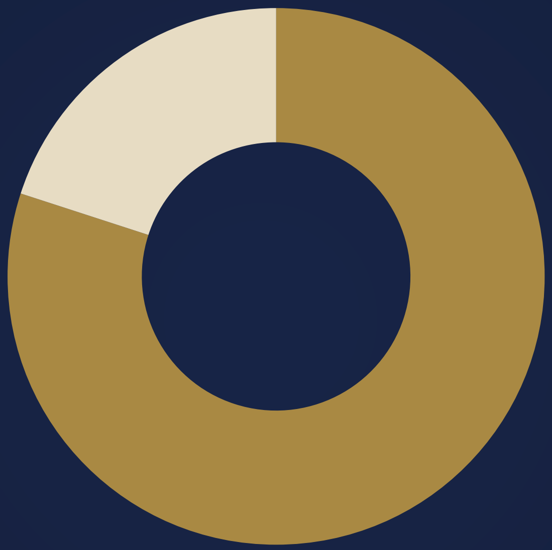
Cost
- high material costs
- astronomic transport costs
- high and long prefinance
- high storage costs

Time
- very long production time
- long lead time

Technics
- glass replacement: cost!
- if leakage: big issue!

Fassada hybrid not only combines the best of both worlds, stick and unitized, but adds a long list of further USP's

Embedded versus operational carbon



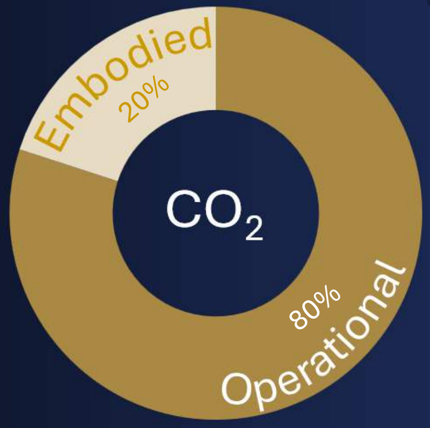
Embodied CO_2

20%

Operational CO_2

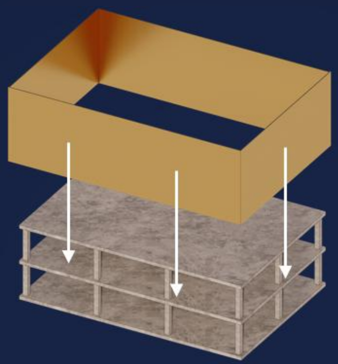
80%

The building skin & sustainability: The 1st real key to the financial success of a RE development - the facts

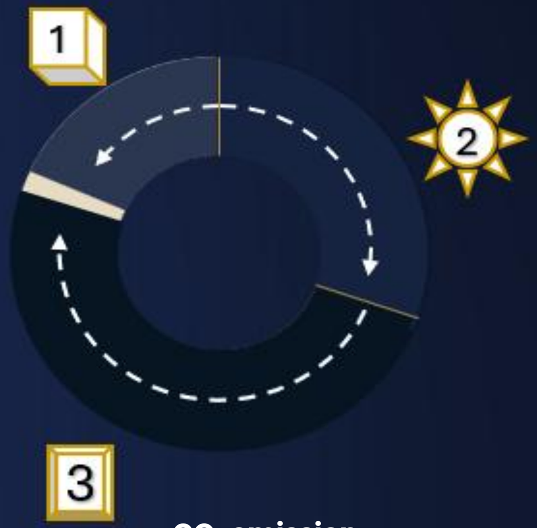


CO_2 emission
conventional building

Reduce the energy need



The façade is the physical barrier between inside & outside climate.

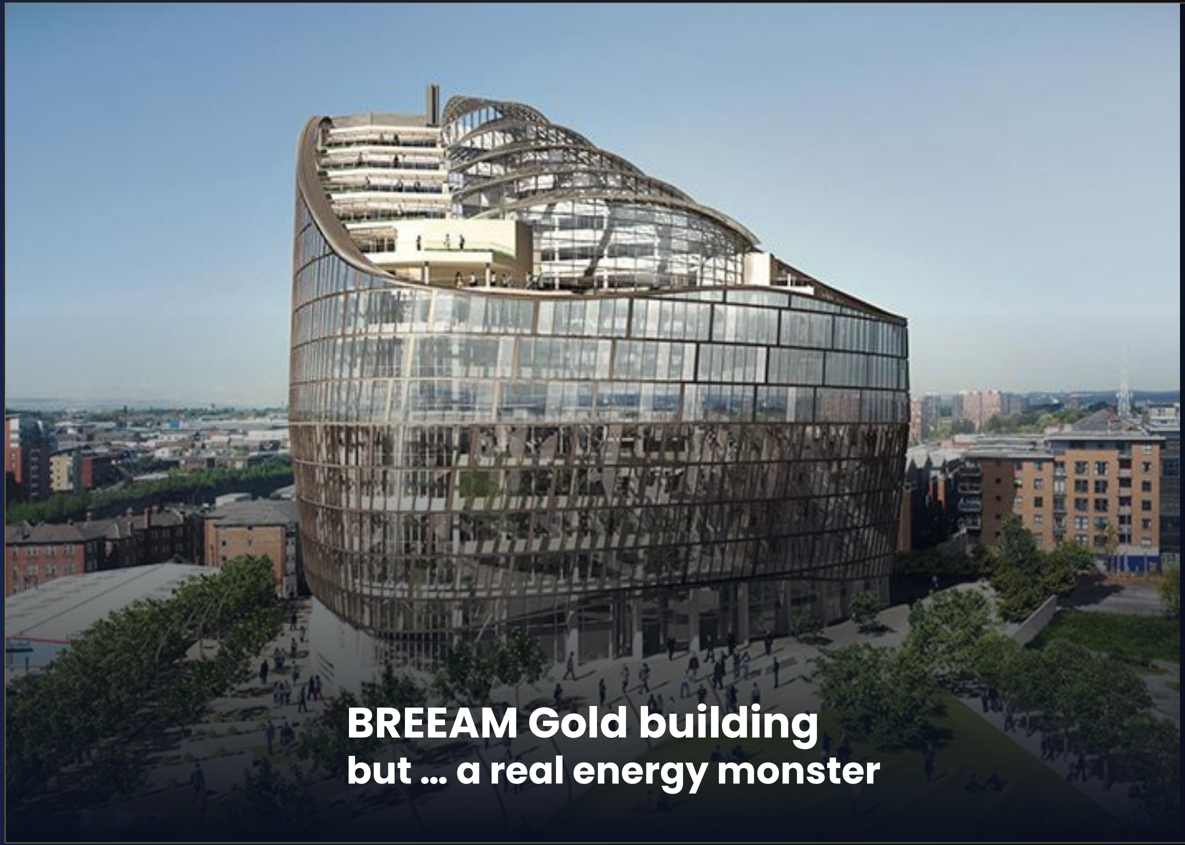


CO_2 emission
smart building

Embodied CO_2 **20%**	**2%**	1	aluminium --) steel 10x less
Operational CO_2 **80%**	**0%**	2	50% balance: by archi. PV panels
		3	30% reduction: keeping the sun out

Green products are nice, though it's a side issue here.
The real challenge is to tackle the **80% of the operational CO_2** emission … by a Fassada façade

Energy costs - Keeping the sun out, a question of interpretation...



The building skin & sustainability: 1st real key to the financial success of a RE development - the figures

all figures in the NPV (net present value), simplified model

assumptions

1	total cost of the project, RE development	100
2	partial total cost of the facade of the building (about 20% of total cost)	20
3	partial total cost of the mechanics (HVAC) of a conventional building (about 20% of total cost)	20
4	partial total cost of the mechanics (HVAC) of a conventional building with smart Fassada skin (min 25%)	15
5	total sales value traditional project(gross margin 25%)	125
6	total yearly energy costs of a conventional building (estimation of 3% project cost)	3
7	total cumulated energy costs of a conventional building over 50 years	150
8	total yearly energy costs of a Fassada smart building (estimation savings 66%))	1
9	total cumulated energy costs of a Fassada smart building over 50 years	50
10	market-based yield ROI	5%

summary assumptions

1	total margin developer conventional building (= 5) - 1))	25
2	total cost developer for Fassada smart building (= 1) -3) +4))	95
3	total invest + energy costs 50 yrs final owner conventional building	275
4	total invest + energy costs 50 yrs final owner Fassada smart building building	175

Fassada fair deal win-win solution 1/3 - 2/3 *(less than 50/50 for sustainability because certain risk of parameters)*

deal: 2/3 of savings for final owner, 1/3 for developer

project revenu developer (= 125 + (275-175)/3) 158

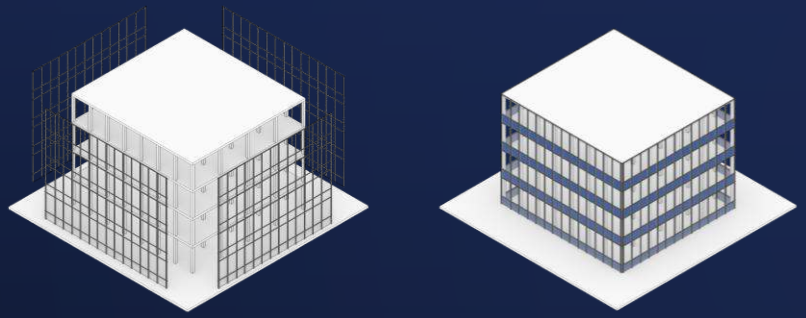
total invest final owner (= 275 - (275-175)*2/3) 208

	Conventional building	**Fassada smart building** *Fair deal win-win solution 50/50*
developer		
total cost	100	95
total margin sales	25	**63**
final owner		
total invest	275	208
total savings	0	**67**

The building skin & non-circularity: 2nd real key to the financial success of a RE development – the facts

As the façade grid is not a disposable product … the best circularity is no circularity!

New construction



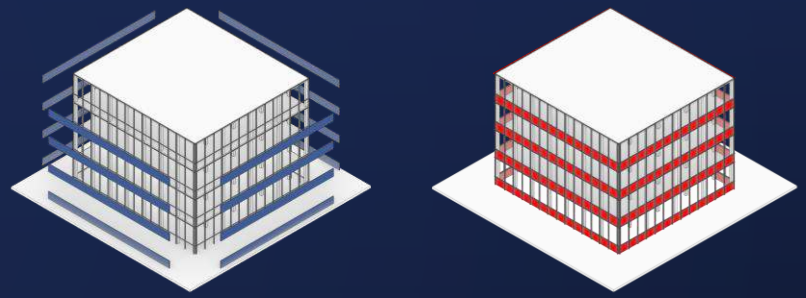
Building performance 100

Mecano primary structure
+ light weight façade

Lifecycle

10 – 15 years

Renovation



Building performance 200

Only replacing infill elements with
high-performance innovative products

Life cycle grid curtain wall 50 years

The building skin & non-circularity: 2nd real key to the financial success of a RE development - the figures

all figures in the NPV (net present value), simplified model

assumptions

1	total cost of the project, RE development		100
2	partial total cost of the facade of the building (about 20% of total cost)		20
3	total sales value (gross margin 25%)		125
4	cost to upgrade facade by replacing glazing from inside (= Fassada solution)		5
5	cost (minimal) to upgrade the building when unitized façade, including		42,5
	dismantling the existing facade	5	
	installation of the new facade	20	
	new interior finishings around the entire perimeter of the new curtain wall	5	
	financial cost: loss of rental revenu (2 yrs @ 5% on 125M€)	12,5	
6	market-based yield ROI		5%

cost of 2 energy upgrades (yr 17 andf yr 34)

Fassada hybrid solution	10
Conventional unitized curtain wall	85

total cost of building over 50 yrs for enduser

Fassada hybrid solution	135
Conventional unitized curtain wall	210
additional cost conventional	75

	Conventional building	Fassada smart building Fair deal win-win solution 50/50
developer		
total cost	100	100
revenu sales	125	162,5
total margin sales	25	**63**
final owner		
total invest 50 yrs	210	173
total savings	0	**37**

Fassada smart solution: win-win for developer as well for end user/owner

	Conventional building	Fassada smart solution		
		sustainability	circularity	total
developer				
total cost	100	95		
total margin sales	**25**			
additional margin sustainability		38		
additional margin circularity			37	
total margin sales				**100**
final owner				
total invest at start	125			
additional energy cost 50 yrs	150	50		
savings energy cost Fassada		67		
circ.:additional invest 50 yrs	85		48	
savings invest Fassada			37	
total savings	**0**			**104**

First we think,
then,
we think to last.

The final conclusion: the façade is more than just the building skin, it is the money maker

The conclusion is crystal clear.

For Fassada, sustainability and circularity are ***not burdensome, money-draining challenges***.

On the contrary

For Fassada, these key challenges are ***genuine moneymakers***

for both the developer and the final owner.

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