

Evalam Architectural 2016



EVALAM – TECHNOLOGY CHANGES FRAMEWORK LAMINATED EVOLUTION

PVB

Also known as **Butiral Polyvinyl** was developed by **DuPont** in **1938** for the automotive industry, and then move to the building industry. For more that 90 years it has been a reference product, but today it is a mature and stagnant product in terms of quality development, unable to evolve and solve their limitations.



EVA - ETHYLENE-VINIL ACETATE

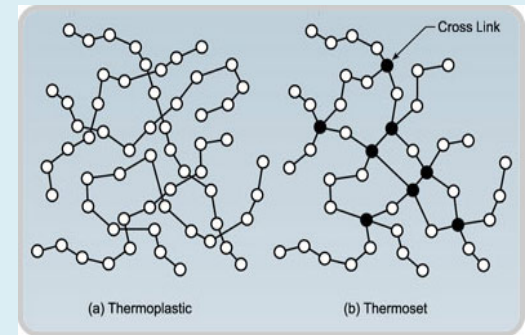
Also known as EVA was developed by NASA for the aerospace race, to solve energy autonomy in its satellites. It's a today product in expansion and continuous development; it has no known roof as it guarantees adhesion, filtering and stability of its mechanical and thermal properties



EVALAM – TECHNOLOGY CHANGES FRAMEWORK

TERMOSETTING / CROSS-LINKING / ADHESION

EVA is a thermosetting material , opposite the PVB q is a thermoplastic . **This advantage means** that the curing process transforms individual polymer chains in a crosslinked (**cross-linking**) tridimensional structure which gives the final laminated product **endless strength and durability**.



Making Evalam the best option for architectural applications valid to those that are seeking **guarantees of stability against potential delamination and ensuring product durability in any condition**



EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

HIGHLIGHTS

- 1) TRANSPARENCY
- 2) CROSSLINK
- 3) EXPOSED EDGE
- 4) UV FILTERING
- 5) ADHESION
- 6) SOUNDPROOFING
- 7) SECURITY FOR PERSONS



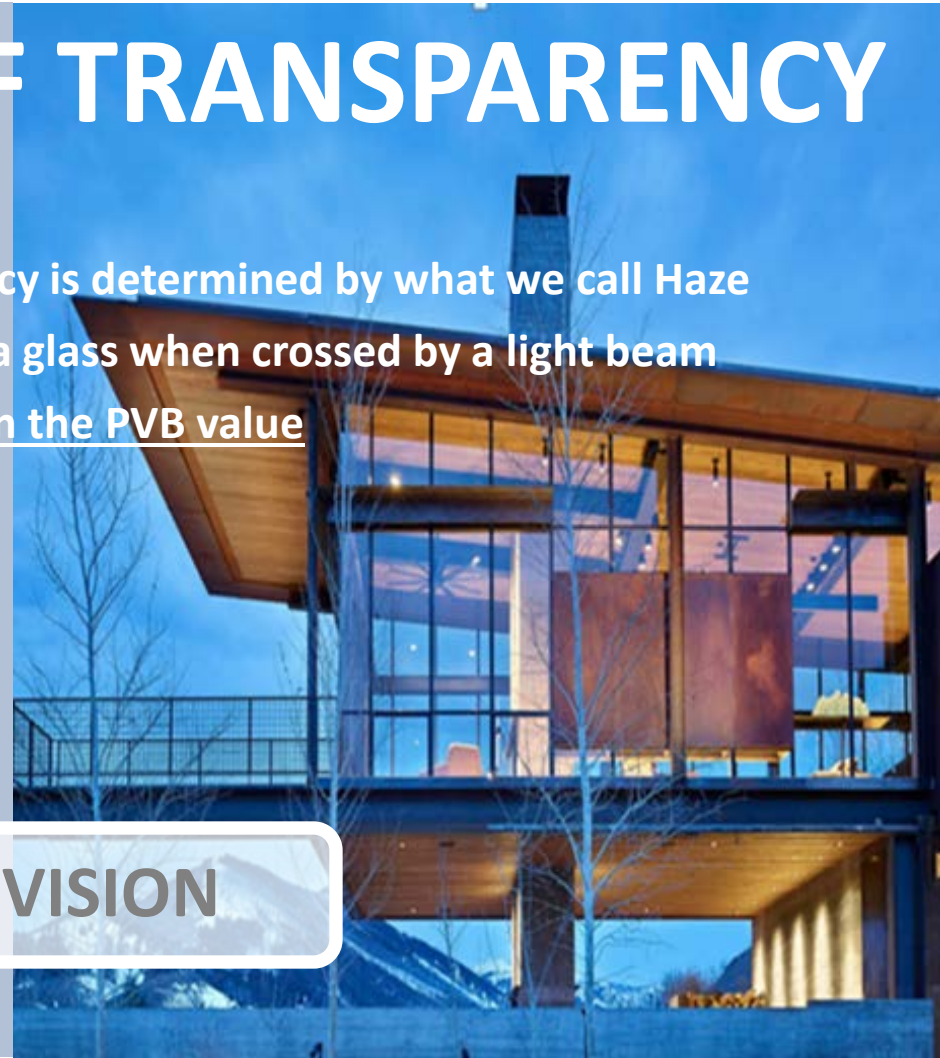
EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

GREAT VALUES OF TRANSPARENCY

In laminated glass the optical or transparency is determined by what we call Haze
'Haze' is a luminous reflection produced in a glass when crossed by a light beam
Haze of EVALAM VISUAL is much better than the PVB value

	EVALAM	PVB	OTROS
HAZE	0.02	0.13	> 0.4

EVALAM VISUAL ABSOLUTE VISION



EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

CROSSLINK

Thanks to a crosslink over 87%

Durability & Stability

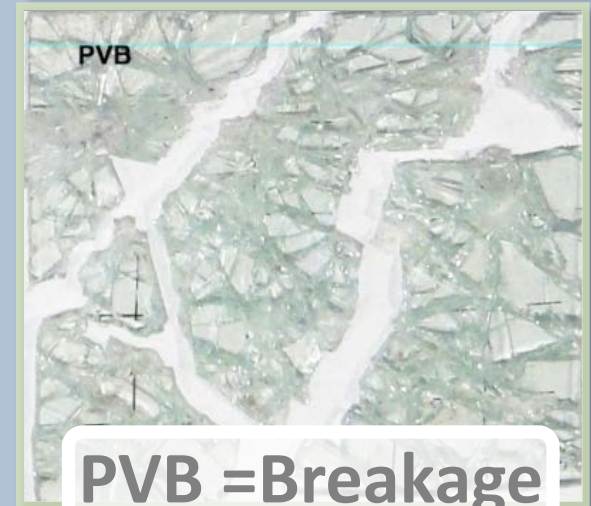
Evalam Visual is a stable material both mechanical and thermally which **gives a durability and stability higher than any thermoplastic.**



This is easily demonstrated when we submit a thermoplastic such as PVB to a **humidity test** after having broken the glass, the inner layer will tear apart losing cohesion which indicates **its vulnerability to time.**



EVALAM=Cohesion



PVB =Breakage

Evalam – TECHNOLOGY CHANGES FRAMEWORK ADVANTAGES

EXPOSED EDGE

Better resistance in exposed edge and higher transparency

Evalam has been developed for a **strong resistance to humidity** especially in exposed edge & adverse weather conditions

Evalam GREATER ADHESION

This can be seen when we endorse EVALAM and PVB to a **destructive moisture test**:

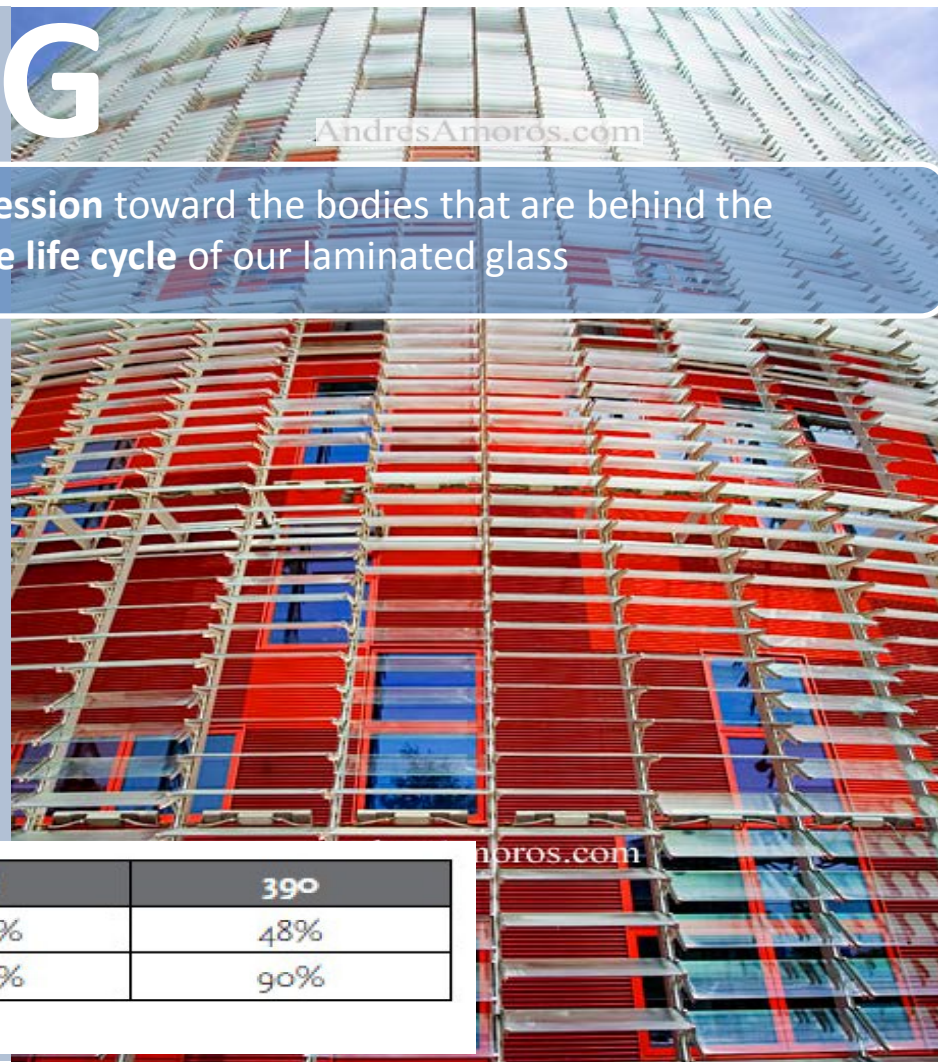
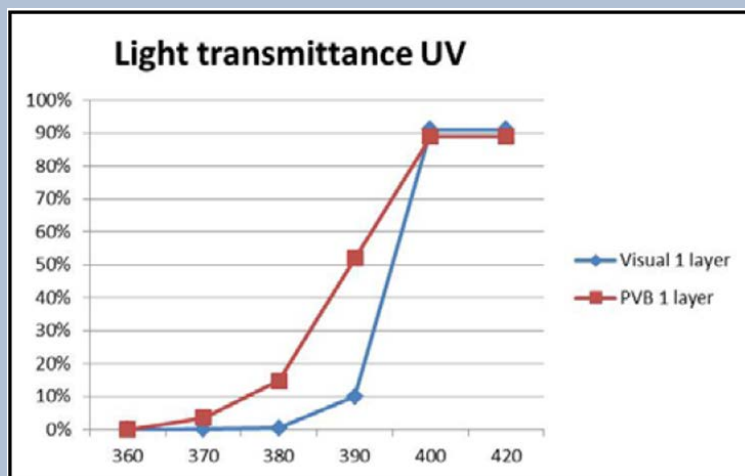
- After 8 hours the **PVB starts to suffer defects** more than 2.5cm from the edge
- **Evalam** after 20 hours, remains unchanged and in perfect condition



EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

UV FILTERING

El UV filtering determina en l'EVA una menys agressió cap als cossos que hi ha darrere el vidre laminat i especialment un augment de la vida útil del nostre vidre laminat



	370	380	390
PVB 1 Layer	96,40%	85,20%	48%
Visual 1 Layer	99,80%	99,50%	90%

* El valor del haz dependerà del programa utilitzat

EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

ADHESION

EVALAM greater adhesion than PVB

The adhesion factor of EVALAM VISUAL provides a **lower rate of delamination** in front of PVB

	EVALAM VISUAL	PVB	OTROS
ADHESIÓN	140N	60N	70N

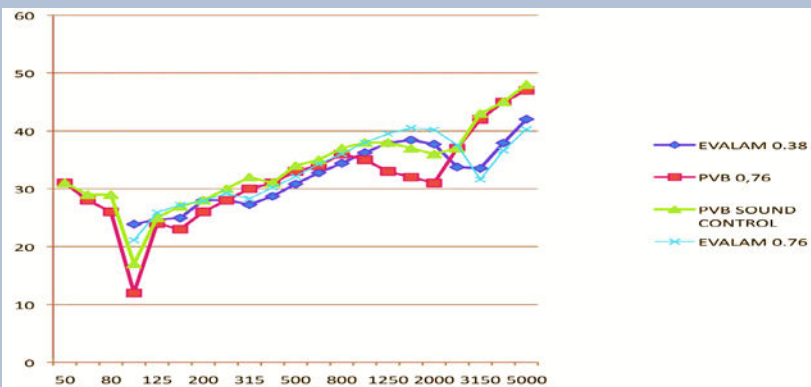


EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTATGES

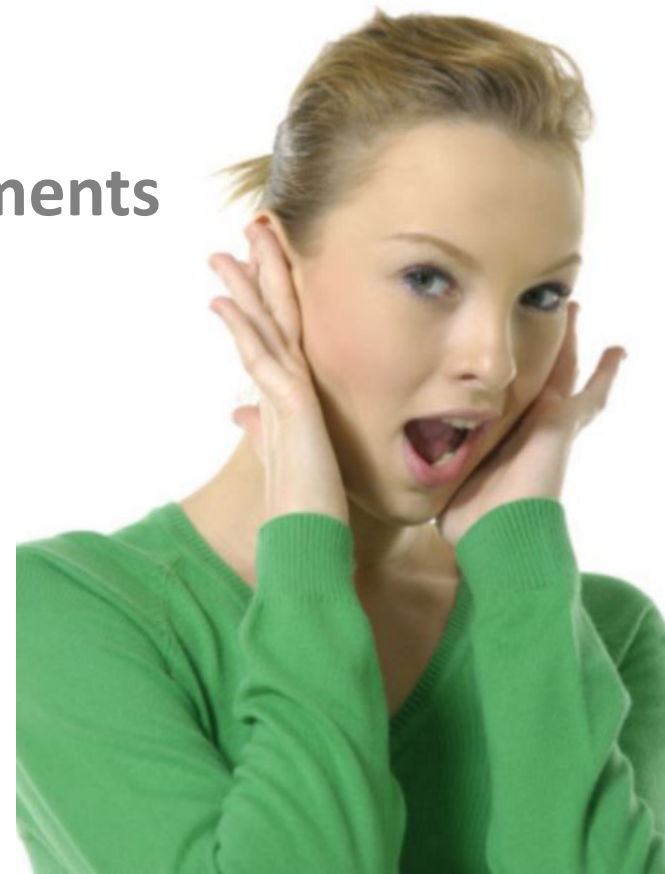
ACUSTIC INSULATION

HIGHER SOUNDPROOFING than STANDARD PVB
Best performance in special applications

Excellent product for noisy environments



Frecuencia	4+4 (Evalam 0.38mm)	4+4.2 (0.76mm de PVB)	4+4.2 (0.76mm de PVB sound Control)	4+4 (Evalam 0.76mm)
RW (dB)	34	34	37	36
C=	0	0	-1	-1
Ctr=	-2	0	-3	-3



EVALAM – TECHNOLOGY CHANGES FRAMEWORK ADVANTAGES IMPACT RESISTANCE

SECURITY FOR PERSONS

Maximum safety certification to people

With only 0.76mm temper glass

1B1 = 4T 4T.2



DROP BALL TEST					
Glass type	Thickness (mm)	Layers (0.38 mm)	EVALAM VISUAL	PVB	
FLOAT laminated	4+4	2	P1A*	P1A-P2A	
		1	P1A*	P1A	
	5+5	2	P1A-P2A*	P1A-P2A	
		1	P1A	P1A	
		6+6	2	P1A-P2A*	P2A
			1	P1A	P1A
Tempered laminated	4+4	2	P1A*	P1A	
	6+6	2	P2A*	P2A	
	8+8	2	P2A*	P2A	

* Samples made with K=3

PENDULUM				
Glass type	Thickness (mm)	Layers (0.38 mm)	EVALAM VISUAL	PVB
Laminated	4+4	1	2B2	2B2
	4+4	2	2B2	1B1
	5+5	1	2B2	2B2
	5+5	2	2B2	1B1
	6+6	1	2B2	2B2
	6+6	2	2B2	1B1
	6+6	4	1B1	1B1
	8+8	2	1B1	1B1
	Tempered laminated	4+4	2	1B1
5+5		2	1B1	1B1
6+6		2	1B1	1B1
6+6		2	1B1	1B1

EVALAM CRYSTAL NEW PRODUCT

EVALAM CRYSTAL

High Transparency EVA Interlayer for
Architectural and Interior Design Projects with
Exposed Edges

- Balustrades
- Furniture
- Stairs

THE CHOICE IS CLEAR



TECHNICAL CHARACTERISTICS

EVALAM VISUAL

Crosslink %	87
Tensile Strength (Mpa)	11Mpa
Hardness A (Shore)	77
Adhesion Strength (Ncm)	>140
Light Transmittance (%) 1 Layer	91
Light Transmittance (%) 3 Layers	88.5
Haze (%) 1 Layer	0.05
Haze (%) 3 Layers	0.1
UV blocked rate (%) 370nm 1 Layer	100
Temperature UNE-EN 12543-4:1998	SATISFACTORY
Humidity UNE-EN 12543-4:1988	SATISFACTORY
Radiation test UNE-EN 12543-4:1988	SATISFACTORY
Boiling Test 100°C 2h	SATISFACTORY
Resistance UNE-EN 356:2001	P1A:55.2

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Boiling Test 100°C 2h	SATISFACTORY
Resistance UNE-EN 356:2001	P1A:55.2

PVB

Haze (%) 1 Layer	0,13
Adhesion Strength (Ncm)	60
Light Transmittance (%) 1 Layer	89

La norma UNE-EN 12543 engloba Temperatura, Radiación y Humedad

PVB

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Adhesion Strength (Ncm)	60
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La norma UNE-EN 12543 engloba Temperatura, Radiación y Humedad

POSSIBLE APPLICATIONS



INTERACTIVE GLASS

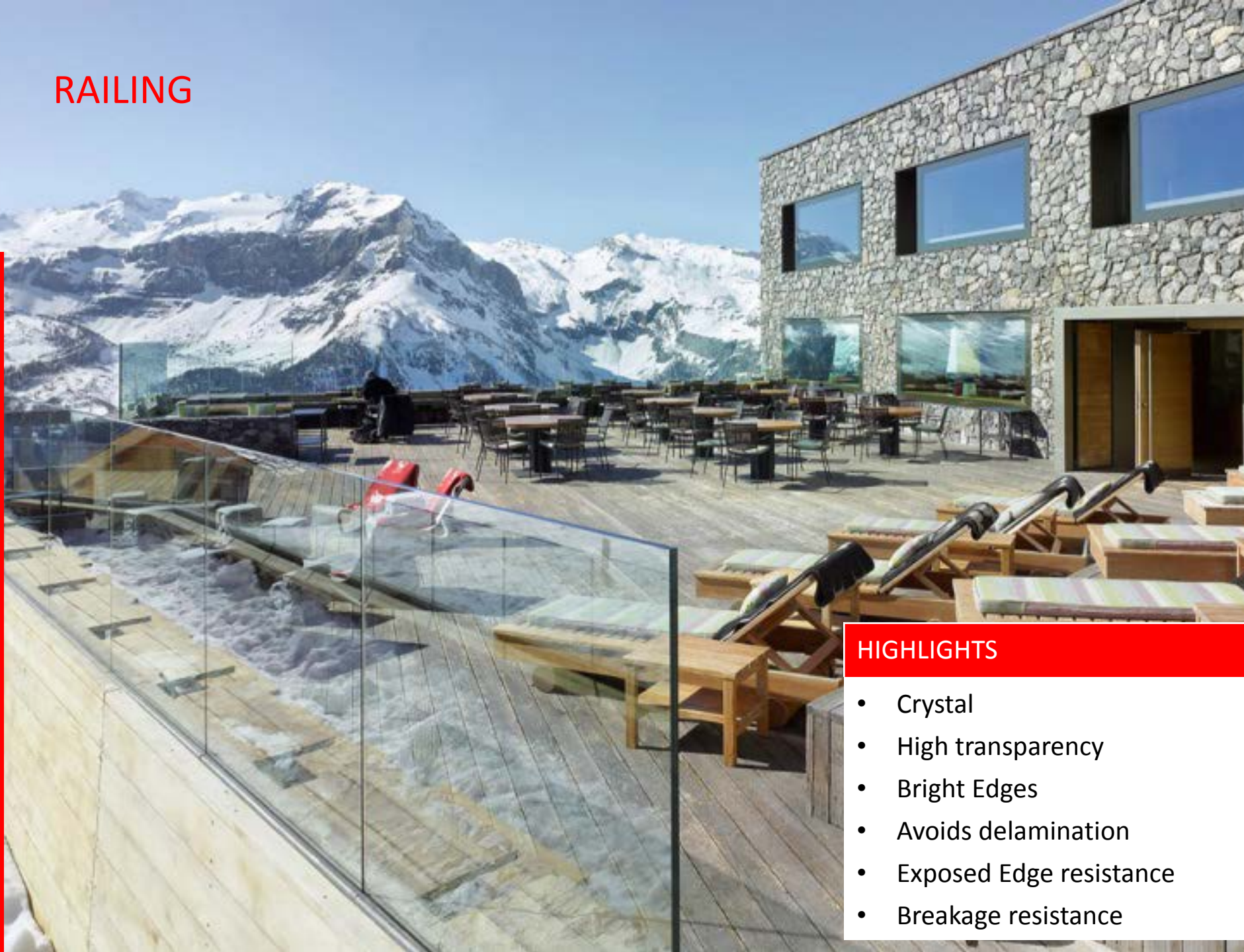
Evalam



HIGHLIGHTS

- Evalam CRYSTAL
- Applications: Restaurants, hotels, apartments, public information points, Bus stops, underground, etc.)
- Exposed Edge resistance

RAILING

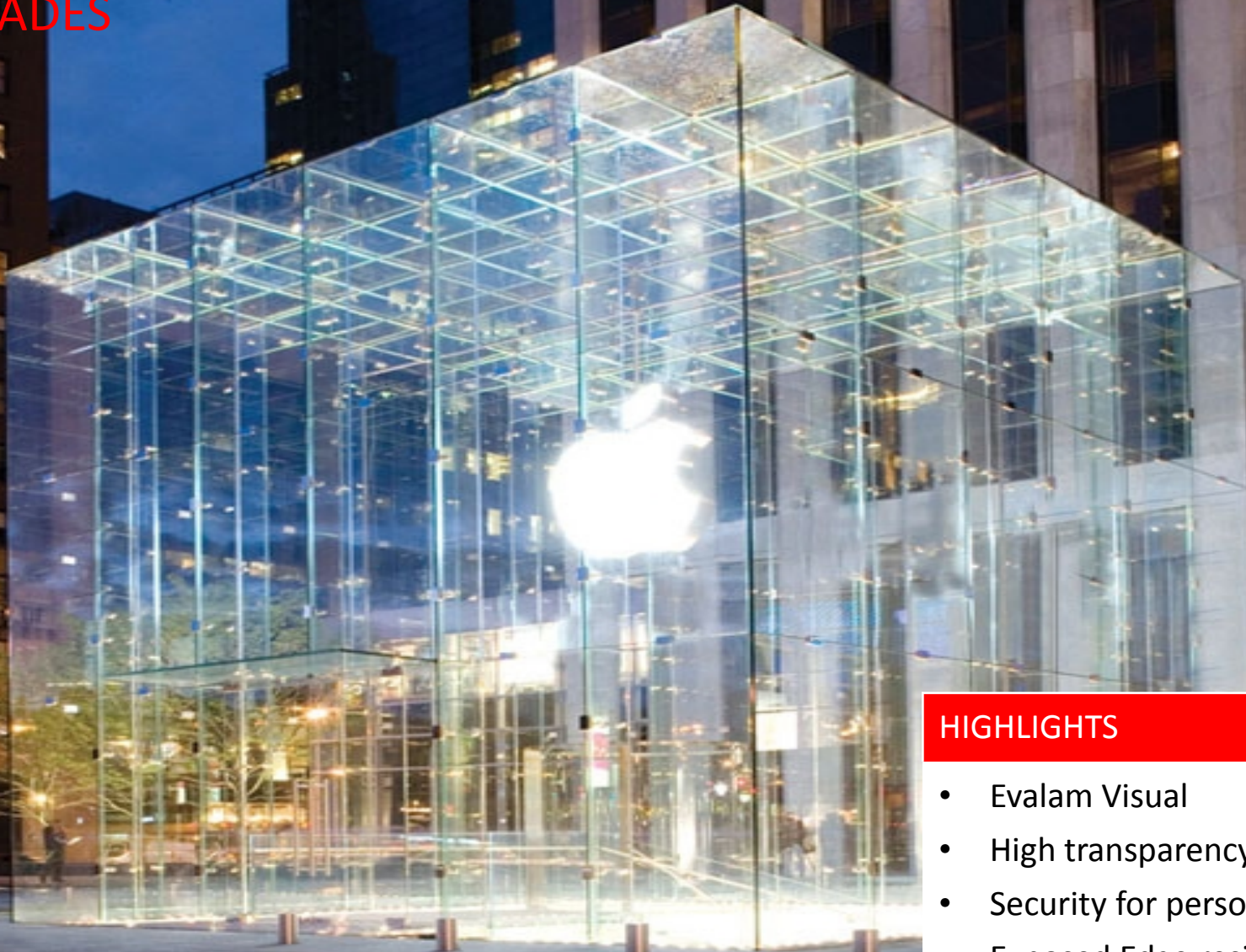


HIGHLIGHTS

- Crystal
- High transparency
- Bright Edges
- Avoids delamination
- Exposed Edge resistance
- Breakage resistance

FACADES

Evalam

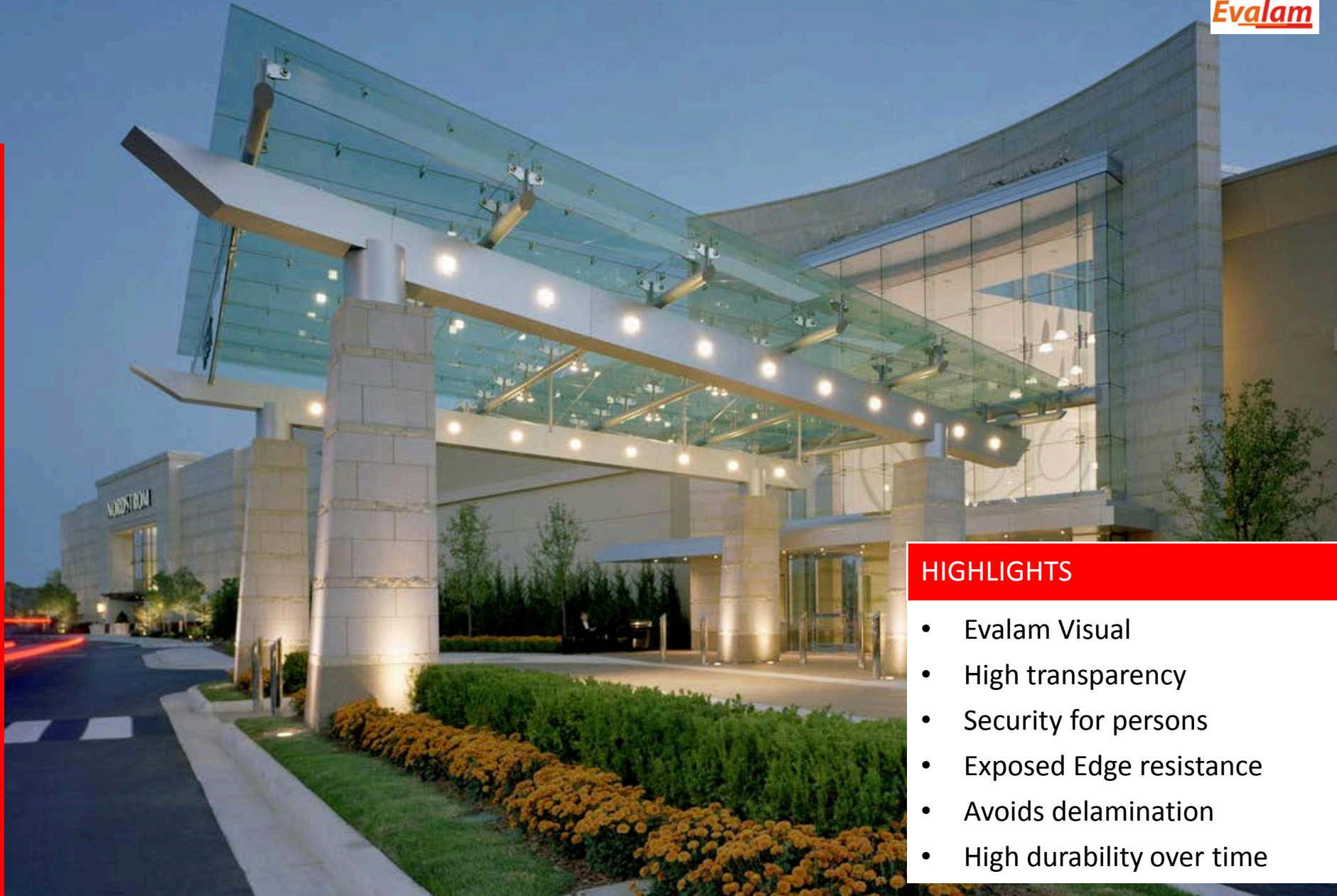


HIGHLIGHTS

- Evalam Visual
- High transparency
- Security for persons
- Exposed Edge resistance
- Breakage resistance

CANOPIES

Evalam



HIGHLIGHTS

- Evalam Visual
- High transparency
- Security for persons
- Exposed Edge resistance
- Avoids delamination
- High durability over time

OUTSTANDING PROJECTS

Evalam



HIGHLIGHTS

- Evalam + Flush film insertion
- Breakage resistance
- UV filtering
- Decorative and technological applications

GLASS DOORS

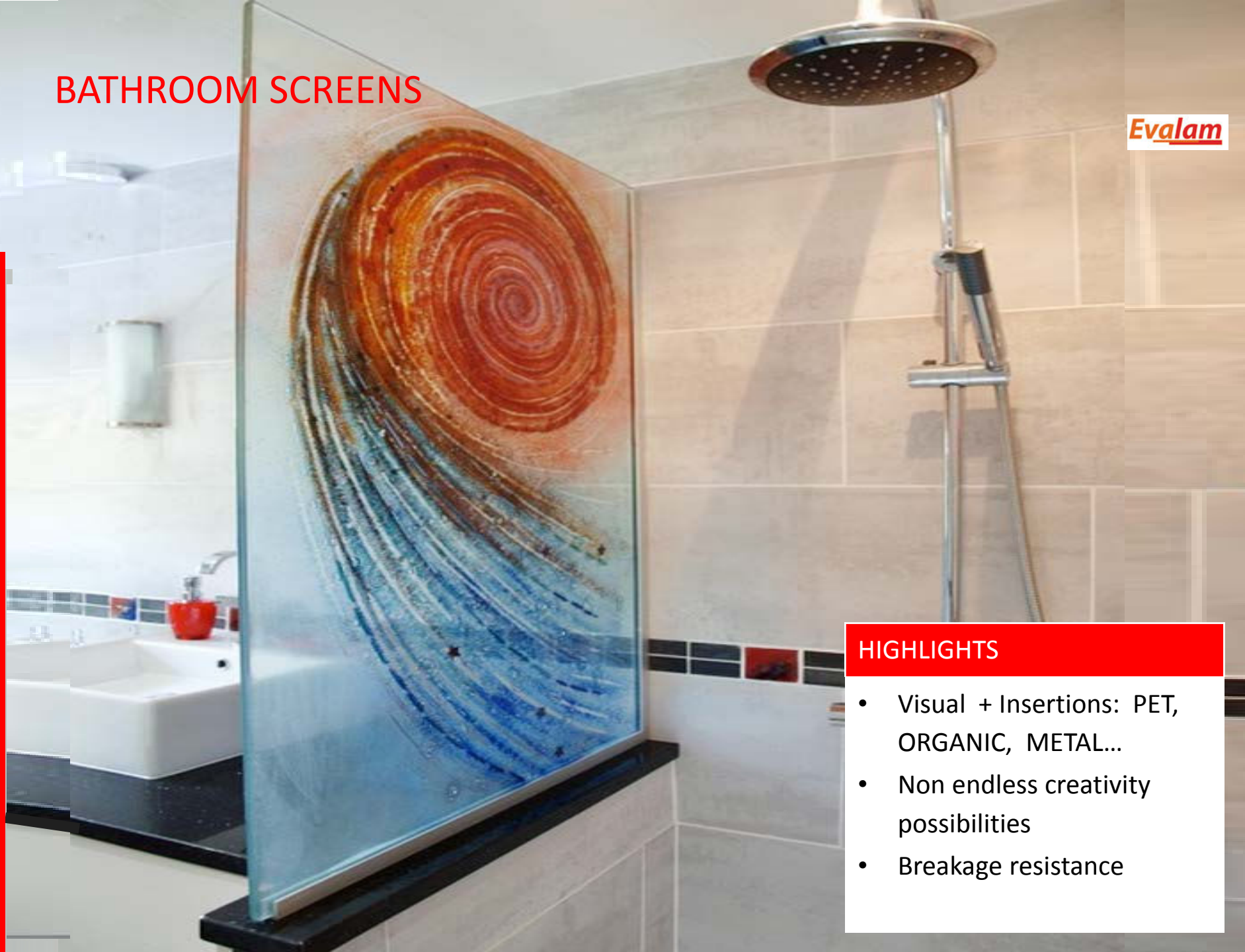


HIGHLIGHTS

- Crystal
- Acoustic isolation
- Bright Edges
- Avoids delamination
- Exposed Edge resistance
- Breakage resistance

BATHROOM SCREENS

Evalam



HIGHLIGHTS

- Visual + Insertions: PET, ORGANIC, METAL...
- Non endless creativity possibilities
- Breakage resistance

GLASS STAIRS

Evalam

HIGHLIGHTS

- Crystal
- High transparency
- Bright Edges
- Exposed Edge resistance
- Breakage resistance
- Security for persons

GLASS FLOORS

Evalam

HIGHLIGHTS

- Crystal
- Bright Edges
- Avoids delamination
- High durability over time
- Security for persons
- Exposed Edge resistance

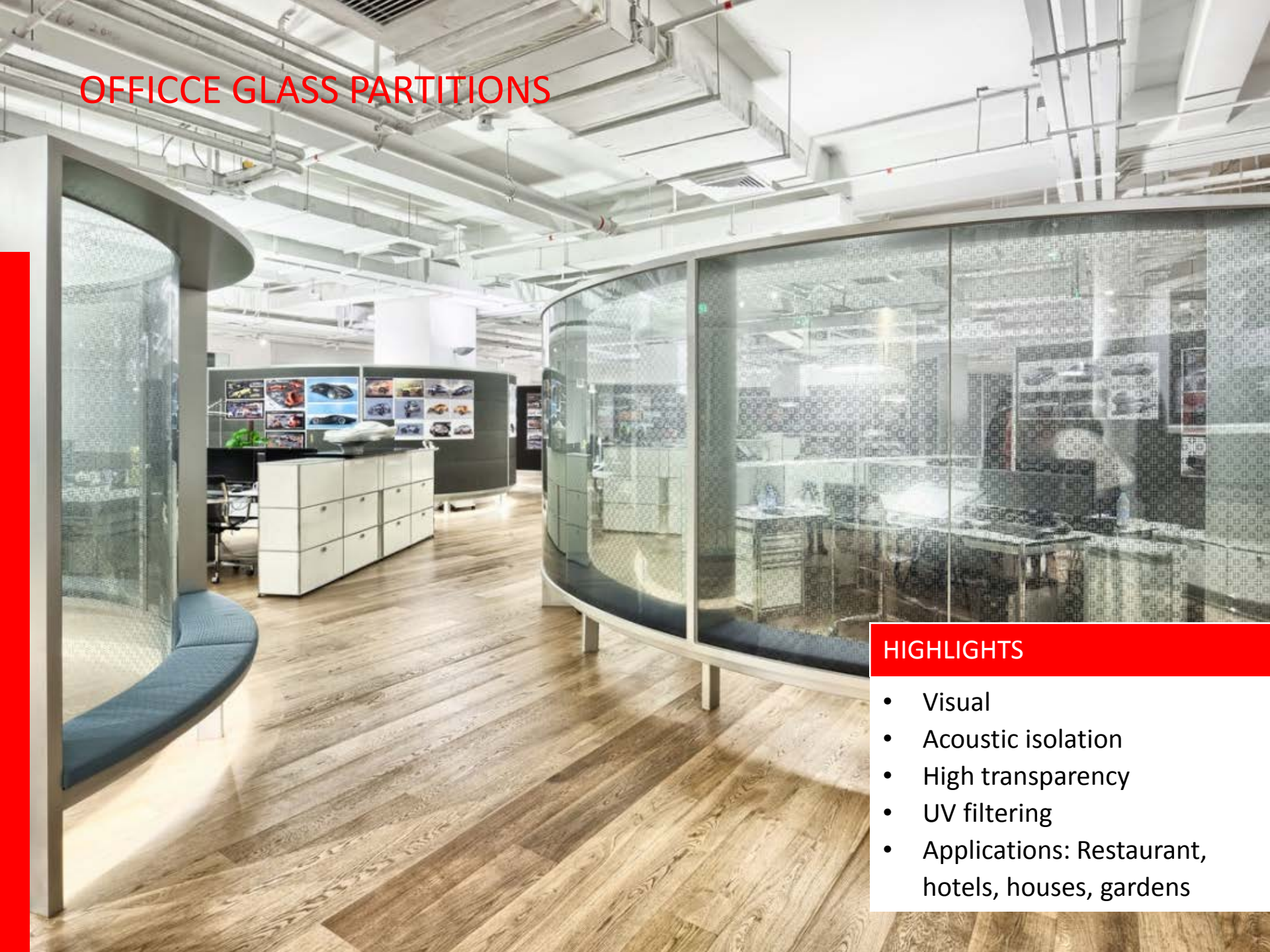
GLASS PARTITIONS

Evalam

HIGHLIGHTS

- Evalam Visual or Crystal
- Acoustic Isolation
- Breakage resistance
- Bright Edges

OFFICCE GLASS PARTITIONS



HIGHLIGHTS

- Visual
- Acoustic isolation
- High transparency
- UV filtering
- Applications: Restaurant, hotels, houses, gardens

HOUSE EXTENSIONS



HIGHLIGHTS

- Visual
- Acoustic isolation
- High transparency
- UV filtering
- Applications: Restaurant, hotels, houses, gardens

GREEN HOUSE



HIGHLIGHTS

- Evalam Crystal
- High transparency
- Low UV filtering
- High durability over time
- Security for persons

COLOR DECORATION

A photograph of a modern, multi-level atrium. The space is characterized by its white, angular architectural elements and glass railings. The railings and ceiling panels are illuminated with a vibrant pink and purple light, creating a striking color scheme. The perspective is from an upper level, looking down and across the atrium.

HIGHLIGHTS

- Color
- Non endless creativity possibilities
- Breakage resistance

FURNITURES



HIGHLIGHTS

- Evalam Visual or Crystal
- Security for persons
- Exposed Edge resistance
- High durability over time

OUTDOOR GLASS SAUNA

Evalam

HIGHLIGHTS

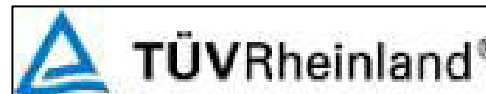
- Evalam Visual
- Applications: Restaurants, hotels, apartments
- Breakage resistance

QUALITY PROVEN TRACK RECORD IN OUR DNA

Pujol
Evalam

CERTIFICATES

- ISO 9001
- ISO 14001
- UL
- TUV: IEC 61215
- TUV: PID TEST



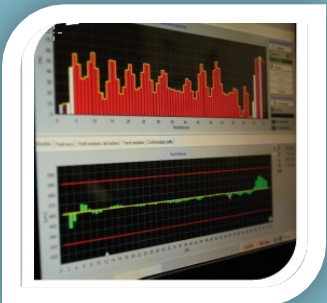
QUALITY PROVEN TRACK RECORD IN OUR DNA

EVALAM PRODUCTION'S ANALYZE

During the production process of Evalam Visual we check its thickness and any possible defect in order to make sure we deliver the best possible material thanks to the newest technologies:

THICKNESS GAUGE

To check film uniformity



WEB INSPECTION SYSTEM

Monitoring camera capable of detecting and sorting defects 1mm



QUALITY PROVEN TRACK RECORD IN OUR DNA

LABORATORY ANALYSIS PER ROLL

From every produced roll we take a sample which is sent to our laboratory to analyze values as

- U.V filtering
- adhesion
- shrinkage

We also check measures and textures



QUALITY PROVEN TRACK RECORD IN OUR DNA

TRACEABILITY FROM BEGINNING TO END

We control our products from raw material reception to final product expedition

The **serial number** provides us all the needed traceability information





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Desde 1911
No limits in glass creation



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