

GLASS PERFORMANCE DAYS 2025

# VACUUM INSULATED GLASS

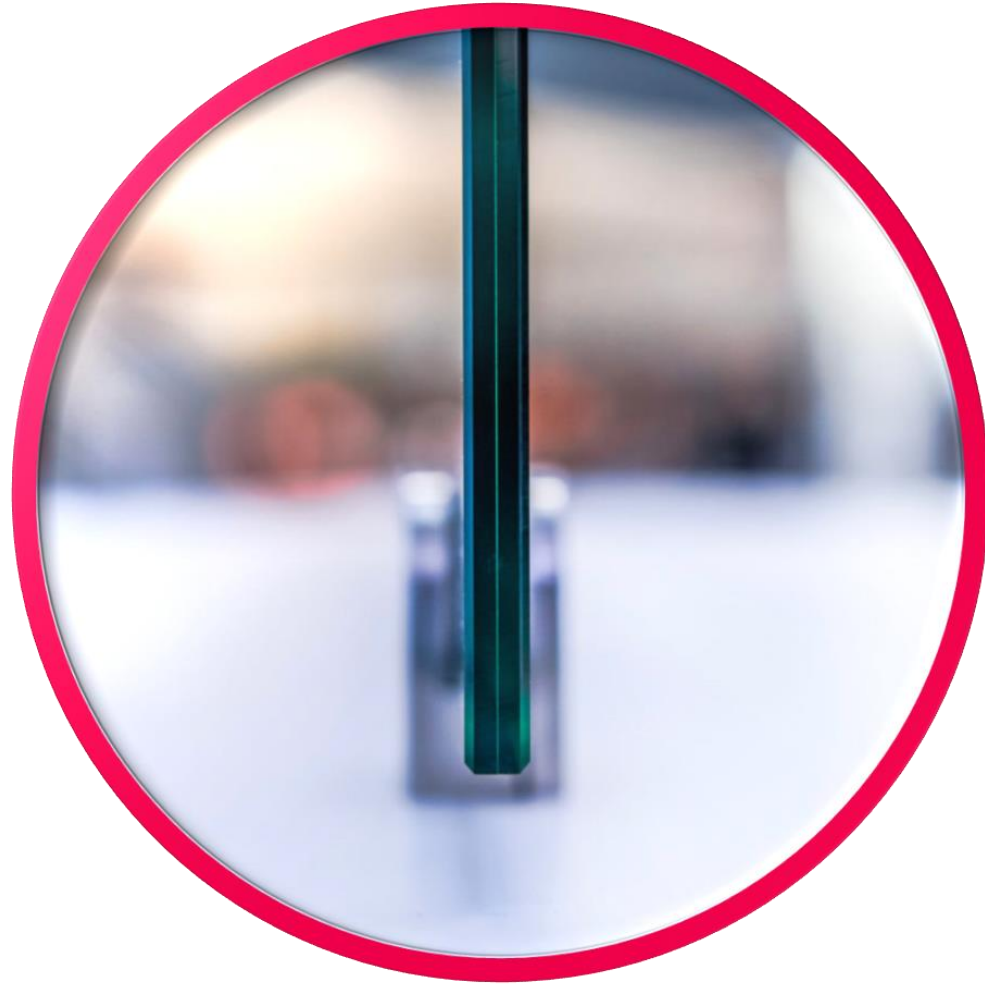
## DESIGN, APPLICATIONS & CERTIFICATIONS

CLEMENT LEMOINE - FINEO BY AGC GLASS EUROPE

# AGENDA

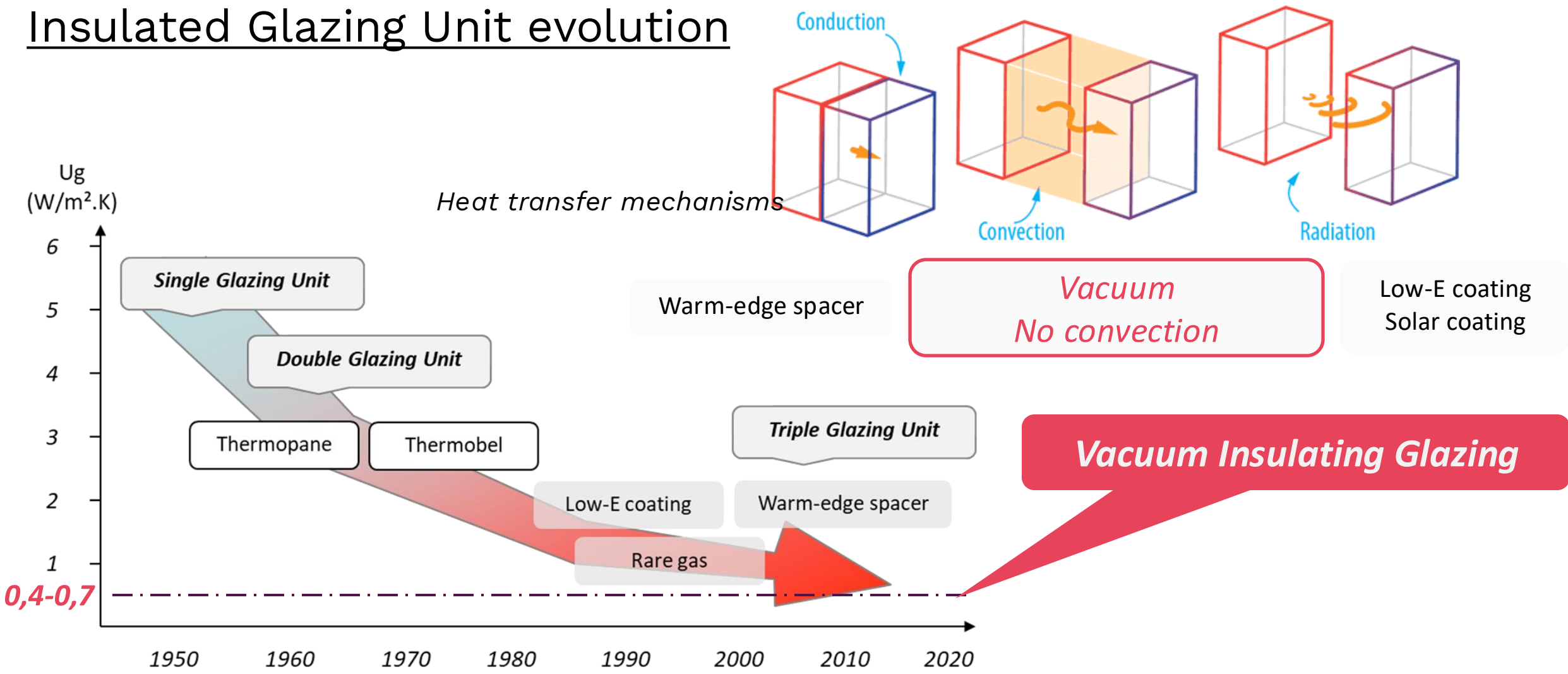
1. Introduction to Vacuum Insulated Glass (VIG) Technology
2. Design and Installation Requirements
3. Showcase of Project Examples
4. Overview of the Certification Framework
5. Key Takeaways and Conclusion

# 1.Introduction to VIG Technology

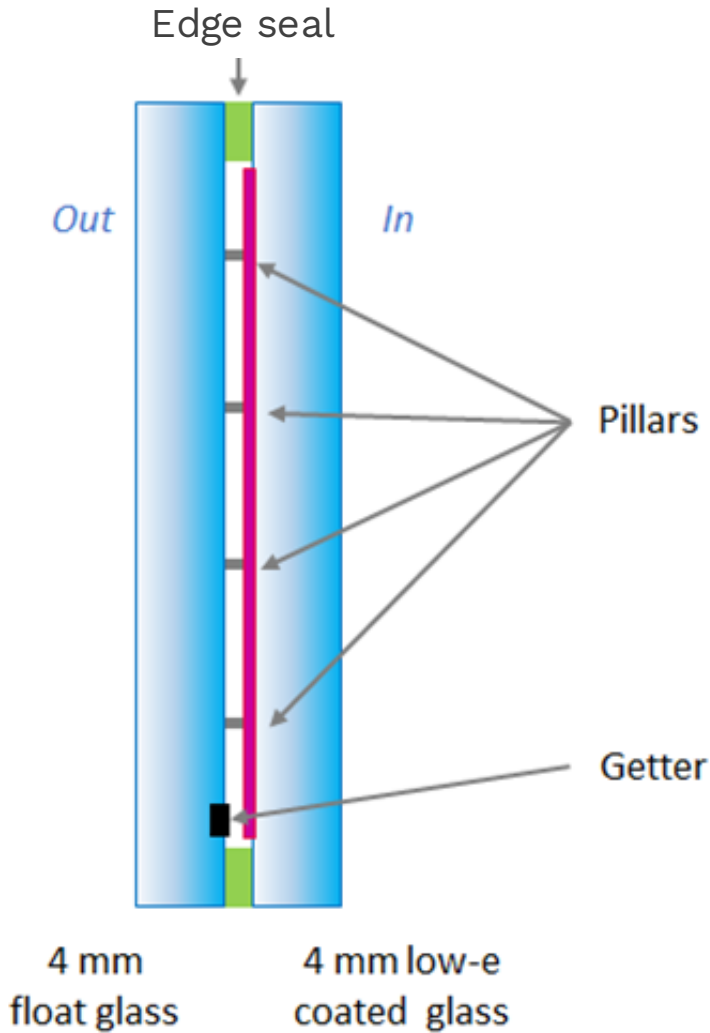


# 1.Introduction to VIG Technology

## Insulated Glazing Unit evolution



# 1.Introduction to VIG Technology



- **Thermal Insulation:** Superior energy efficiency with minimal heat transfer
  - $U_g = 0,4 - 0,7 \text{ W/m}^2\text{K}$ , depending on pillars pitch and coatings.
- **Ultra-Thin Design:** Slim profile compared to traditional double or triple glazing.
  - From 6,7 mm to 12 mm in average
- **Enhanced Acoustic Performance:** Effective noise reduction for quieter interiors.
  - $R_w = 36 \text{ dB}$
- **Durability:** Long-lasting vacuum seal and robust construction.
  - 15 to 25 years of warranty
  - 25 to 60 years of lifespan
- **Recyclability:** Fully recyclable without the need for dismantling.

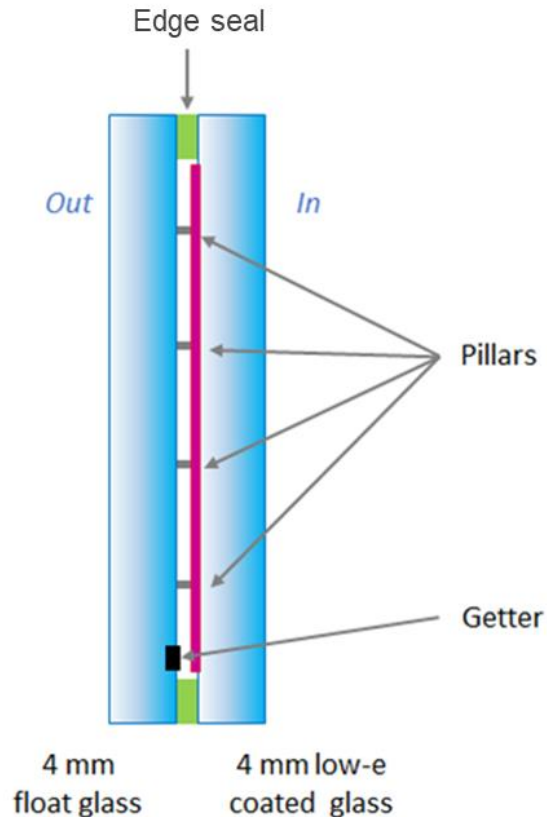


# 2.Design and Installation requirements



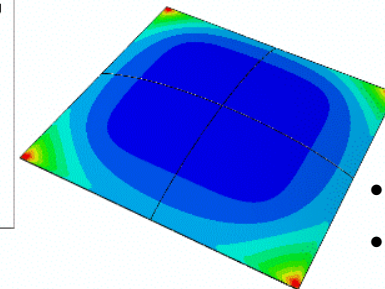
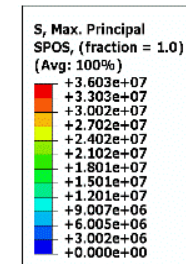
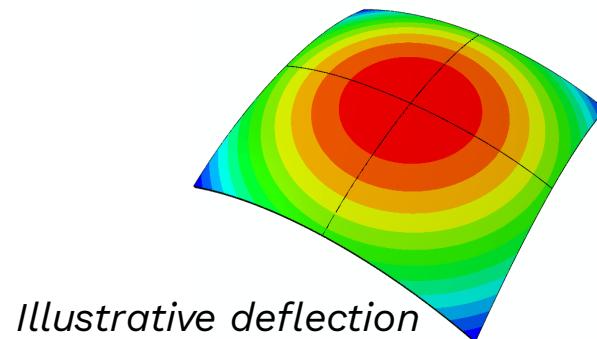
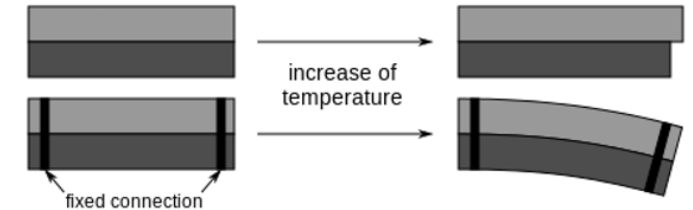
# 2.Design and Installation requirements

- When designing VIG, specific VIG loads, wrt standard IGU, are considered: pillars and thermal loads.
- Other external loads, e.g. barrier or wind loads, are similar between standard IGU and VIG.
- Contrary to standard IGU no climatic load occurs with VIG due to the absence of gas inside the cavity.



**Most critical part while designing VIG → request specific installation procedures**

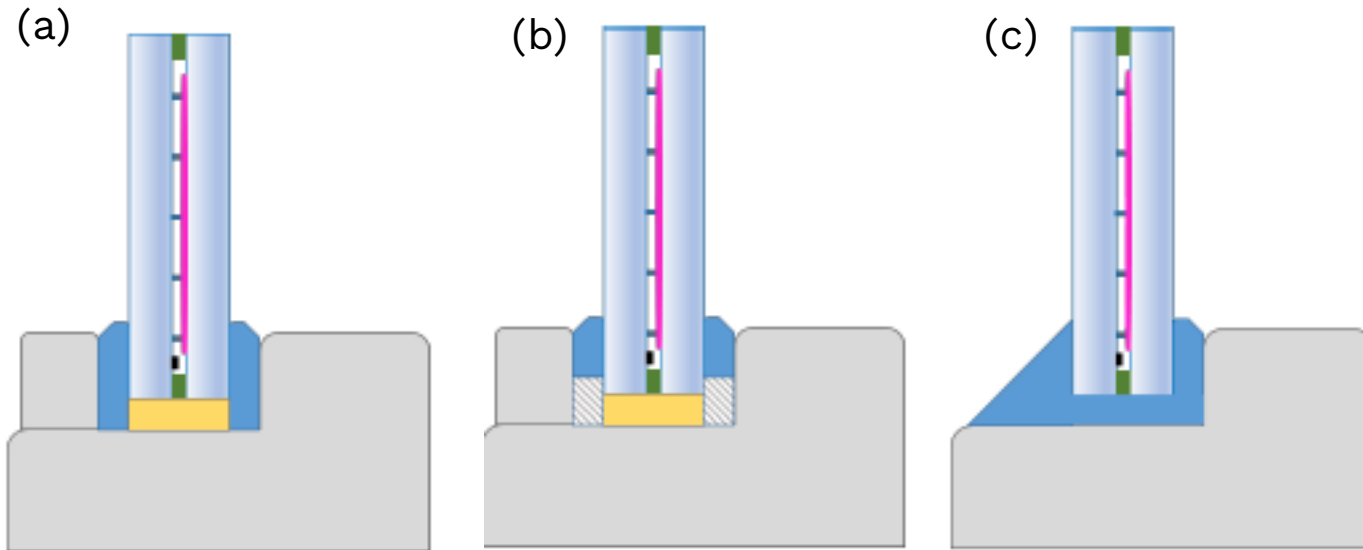
**Thermal load**



- Simply supported
- **36 MPa in the corner**

# 2.Design and Installation requirements

- Thermal load deformation and high stress at the framed VIG corner can cause glass breakage.
- To prevent this, *soft and thick enough* EPDM gaskets or putty should be used to avoid hard contact between the VIG and its frame.
- The level of softness and thickness should be discussed with the VIG supplier.



## **Installation examples with putty**

- a) Installation with putty
- b) Installation with joint sealing foam
- c) Installation with flashing putty



# 3.Showcase of projects examples



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# 3.Kanal – Brussels (BE)

## Project features

- 1 000 m<sup>2</sup> of new facade (1 m x 2 m) and 2 500 m<sup>2</sup> of restoration of existing facade(1,2 m x 1,2 m).
- Both existing and new framing made of steel.
- Used of low iron VIG 9,7 mm.
- Designed to achieve minimal thickness with highest thermal insulation.



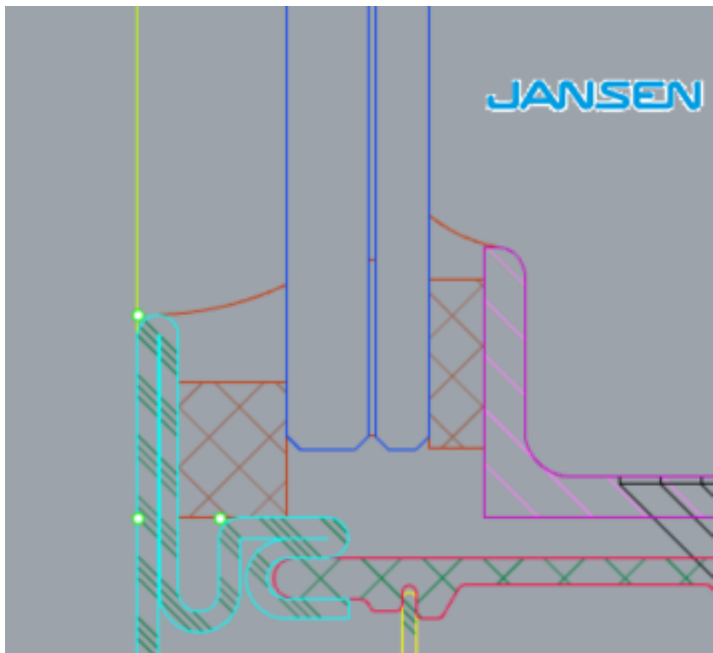
# 3.Kanal – Brussels (BE)

- For the **new** steel profile, a combination of low Young modulus PE foam and putty was used for the window installation.

 **VIG**

 **Putty**

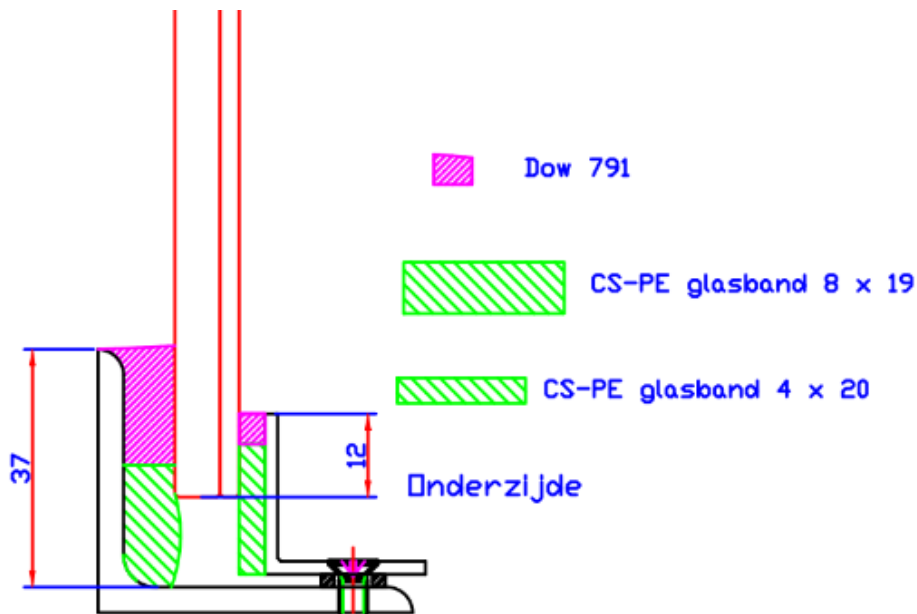
 **PE Foam**



Features	Values
Thermal glass insulation Ug	0,7 W/m²K
Thermal window insulation Uw	1,48W/m²K
Noise glass insulation Rw	36 (-2;-3) dB
Light Transmission	84%
Thickness	9,7 mm
Weight	24,3 kg/m²

# 3.Kanal – Brussels (BE)

- For the **old** steel profile, a combination of low Young modulus PE foam and putty was used for the window installation.
- The  $U_w$  is higher due to the absence of thermal bridge element in the frame.



Features	Values
Thermal glass insulation $U_g$	0,7 W/m <sup>2</sup> K
Thermal window insulation $U_w$	1,62W/m <sup>2</sup> K
Noise glass insulation $R_w$	36 (-2;-3) dB
Light Transmission	84%
Thickness	9,7 mm
Weight	24,3 kg/m <sup>2</sup>

# 3.Targeted Market Segments in Building

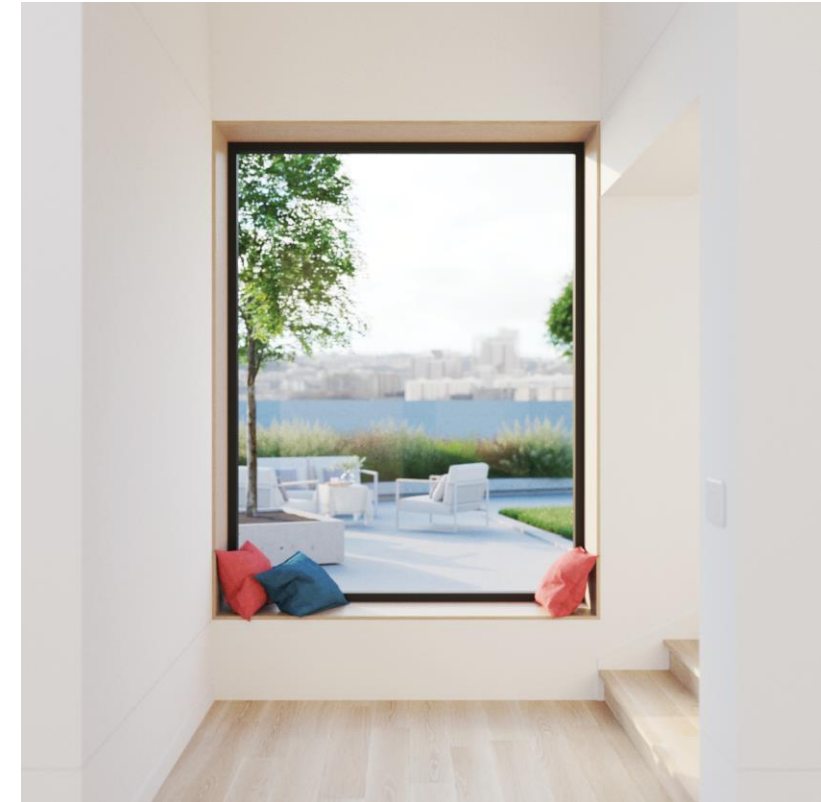
## RESTORATION



## RENOVATION



## NEW WINDOWS



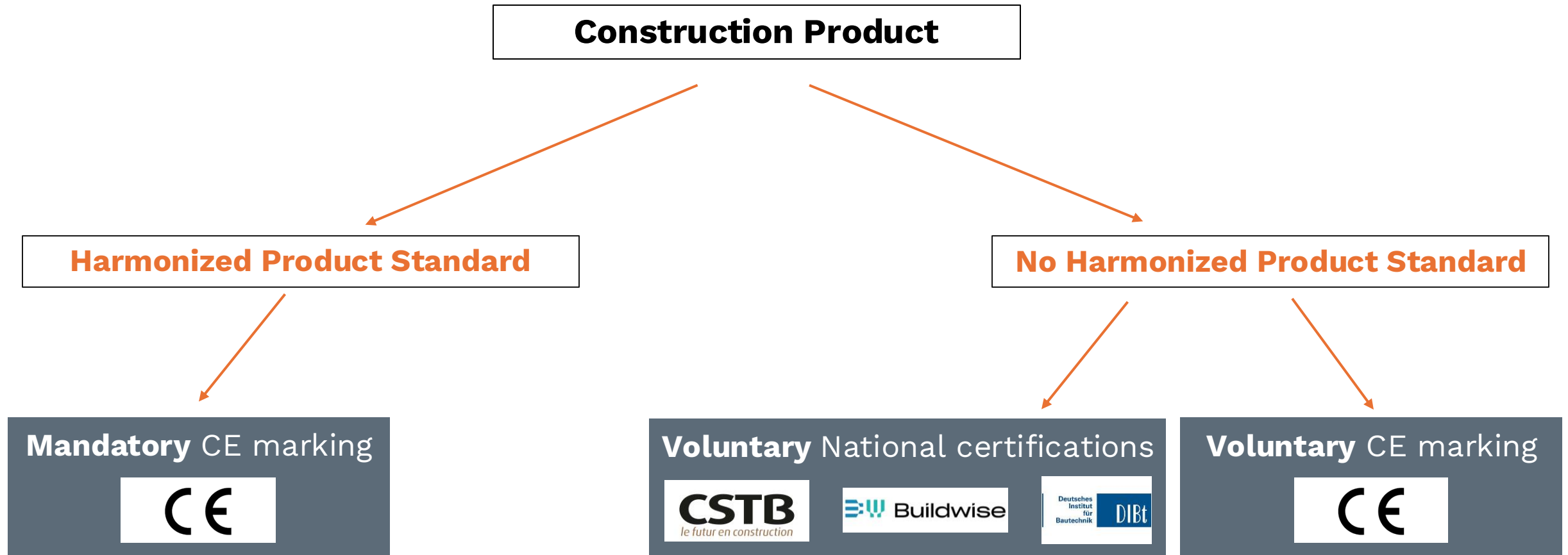


# 4. Overview of the certification framework



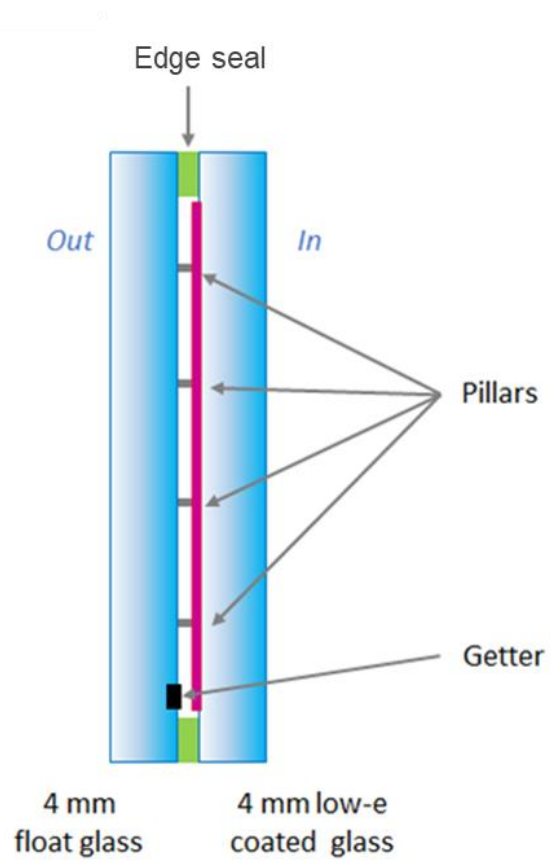
# 4. Certification framework

*« I have a new construction product, what are the obligations to sell it ? »*



# 4.Certification framework

**VIG is not covered (yet) by a harmonized product standard – only voluntary certification route for now.**



**Construction Product**

**No Harmonized Product Standard**

**Voluntary National certifications**

**Voluntary CE marking**

EAD 300021-00-0404



# 5.Key takeaways and conclusion



# 5.Key takeaways and conclusion

1. VIG offers exceptional thermal and acoustic insulation while maintaining a **slim** and **lightweight** profile.
2. Due to specific load considerations, particularly thermal loads, dedicated **installation rules** must be carefully followed to ensure optimal performance.
3. VIG is an excellent solution for the **restoration** of old buildings, allowing the preservation of existing frames, as well as for **modern facades** with contemporary framing systems.
4. Currently, **VIG certification remains voluntary**, but this is expected to change as a standardized framework is being developed.



# Thank you !

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