

LAMINATED SAFETY GLASS

AGC

GLASS UNLIMITED

— STRATOBEL® - STRATOPHONE®

AGC Glass Europe,

A EUROPEAN FLAT GLASS LEADER

AGC Glass Europe (formerly Glaverbel) produces, processes and sells flat glass for the construction industry (exterior glazing and interior decorative glass), for the automotive sector and for specialised industries. Based in Brussels, Belgium, it is the European branch of AGC Glass, the world's leading producer of flat glass.

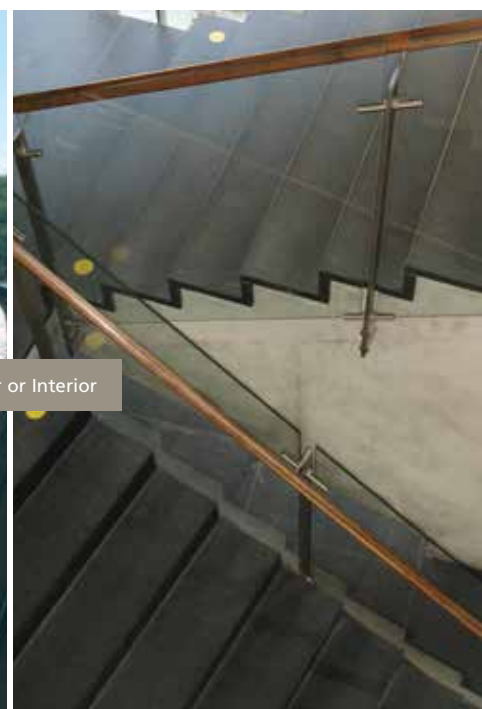
Ever keen to diversify its range, AGC Glass Europe offers a range of laminated glass that meet all safety levels, in line with the assembly used and prevailing standards. Other functions are also available: enhanced acoustics, thermal insulation, solar control and design.

PRINCIPLE OF LAMINATED GLASS

Laminated glass consists of an assembly of two or more sheets of glass and one or more PVB (polyvinyl butyral) interlayers. If the glass is broken, most of the fragments remain stuck to the interlayer (in other words, the glazing stays in place).

The laminated assembly provides the glass product's mechanical strength. Depending on the structure in question (number of glass sheets and interlayers), the assembly also ensures varying levels of safety and insulation. Laminated glass can be used in monolithic or insulating glazing.

Example of fragmentation of laminated glass



Exterior or Interior

MULTIPLE FUNCTIONS

The assembly of panes and interlayers encourages multiple applications.

By combining products from AGC Glass Europe's vast range, it is possible to combine safety with other functions in a single glass product.

The availability, possible thicknesses and size of laminated glazings will vary by market. For further details, please contact your AGC representative or visit www.yourglass.com.

Installation instructions as well as precautions to be taken when storing, handling, processing and cleaning laminated glazings are available in a range of technical guides available at www.yourglass.com.



Acoustics

Stratophone, acoustic insulation



Safety & Security

Injury/Break-in,
Theft/Firearm/Explosion



LOW-E

Thermal insulation



Sun

Solar control



Design

Clear, Color, White



Complex transformations



On the ground, on the roof



PROTECTION FROM ULTRAVIOLET RADIATION



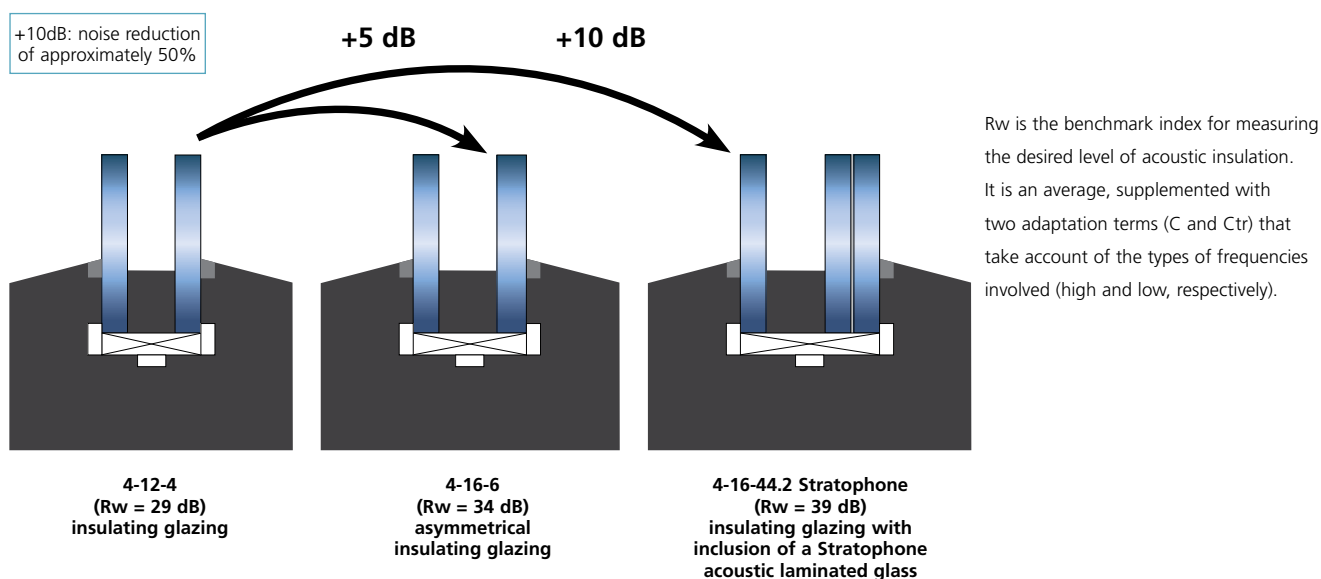
Discolouration can be caused by a number of factors: heat, moisture level, infrared light, blue light, artificial lighting, the quality of the materials and pigments used, and UV radiation. Stratobel and Stratophone laminated glass provide extremely high levels of protection against UV radiation (over 99% of UV radiation is blocked when two 0.38-mm PVB interlayers are used).



STRATOPHONE, SILENCE IS GOLDEN

Some laminated glazings guarantee a high-level acoustic performance while providing mechanical performance equivalent to normal PVB in terms of safety. By including at least one acoustic PVB interlayer, Stratophone significantly reduces noise, providing a quiet atmosphere day and night.

In the example below you can compare the acoustic performance of three kinds of structures. From a conventional insulating glazing to an insulating glazing with Stratophone, a few millimetres is all it takes to achieve high-quality acoustic comfort. For instance, improving a building's acoustic insulation by 10dB yields a 50% noise reduction.



GLASS PVB



SAFETY & SECURITY

STRATOBEL, THE GLASS SHIELD

It is the composition of the laminated glass that determines the level of safety provided. Safety standards define the testing methods that make it possible to classify glass for various applications.

AGC's range of laminated glass meets all prevailing safety levels and standards (for full details, consult our Pocket Values).



PROTECTION FROM INJURIES AND FALLS

These products are classified according to standard EN 12600:

"Glass in Building, Pendulum test, Impact test method and classification"



ANTI-BANDIT

These products are classified according to standard EN 356 :

"Glass in Building, Security glass, Testing and classification of resistance against manual attack"



RESISTANT TO BULLET ATTACK

These products are classified according to standard EN 1063 :

"Glass in Building, Security glass, Testing and classification of resistance against bullet attack"



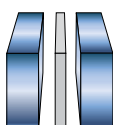
PROTECTION AGAINST EXPLOSION

These products are classified according to standard EN 13541:

"Glass in building, Security glass, Testing and classification of resistance against explosion pressure"

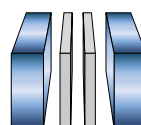
The technical information detailing the content of these standards is available at www.yourglass.com.

Protection from injuries



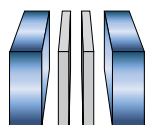
- For preventing cuts and injuries due to accidental impact
- 2 sheets of glass - at least 1 PVB interlayer
- Class: 2B2-1B1

Protection from falling



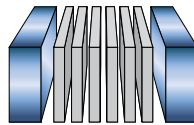
- For preventing individuals from falling through glass even when the glass is accidentally broken
- 2 sheets of glass - at least 2 PVB interlayers
- Class: 1B1

Basic protection



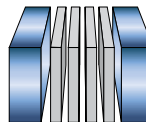
- Vandalism
- 2 sheets of glass - at least 2 PVB interlayers
- Class: P1A-P2A

Enhanced protection



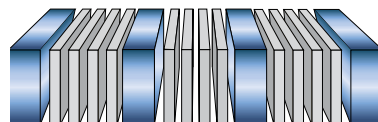
- Withstands premeditated attacks by attackers who have limited time to operate (deters break-ins and theft)
- 2 sheets of glass - at least 6 PVB interlayers
- Class: P5A

Medium protection



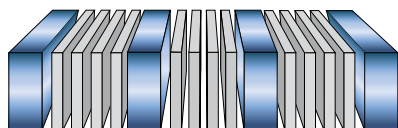
- Small-scale manual attack
- 2 sheets of glass - at least 4 PVB interlayers
- Class: P3A-P4A

Very high level of protection



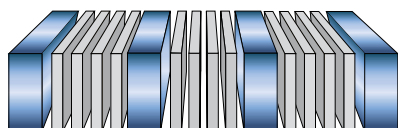
- In case of repeated, premeditated manual attack by attackers who have significant resources at their disposal
- Laminated glass
- Class: P6B-P7B-P8B
- Available in an XThin PC version (one or more sheets of glass may be replaced by one or more polycarbonate sheets): ultra-thin and ultra-light, whilst still guaranteeing the same levels of performance

Protection for individuals from armed attack



- Able to withstand bullet attack
- Laminated or multi-laminated assembly
- Class determined according to type of weapon and ammunition
- Available in a Thin version (one or more sheets of glass may be chemically toughened): thinner and lighter, whilst still guaranteeing the same levels of performance
- Available in an XThin PC version (one or more sheets of glass may be replaced by one or more polycarbonate sheets): ultra-thin and ultra-light, whilst still guaranteeing the same levels of performance

Protection against explosion



- Explosion-resistant
- Laminated or multilaminated assembly
- Class: ER1 to ER4 depending on the intensity of the explosion
- Available in an XThin PC version (one or more sheets of glass may be replaced by one or more polycarbonate sheets): ultra-thin and ultra-light, whilst still guaranteeing the same levels of performance





THERMAL INSULATION & SOLAR CONTROL (STRATOBEL LOW-E) (STRATOBEL SUN)

STRATOBEL, A SOLUTION FOR ALL CLIMATES

AGC Glass Europe is a leader in low-emissivity and solar control coatings. The different types of coated glazings are available in laminated assemblies: Stratobel Low-E and Stratobel Sun. The AGC range features multiple solutions depending on the look, performance and processing required.

STRATOBEL LOW-E FOR THERMAL INSULATION

Laminated coated glass products reduce the heat loss coefficient, keeping more heat inside the building.

STRATOBEL SUN FOR SOLAR CONTROL

The laminated coated glass products in this range absorb and reflect a part of the sun's heat and light. Depending on the look required, certain products are either reflective (Stopsol, ipasol bright) or neutral (Sunergy, Stopray, ipasol).





DESIGN

STRATOBEL AND DESIGN

Glass is ubiquitous in contemporary architecture and design.

Stratobel laminated glass offers many creative options, specifically in terms of colour, light and texture.

Depending on the technique selected, the appearance will be transparent, coloured or translucent/opaque. It may even include original design elements.

TRANSPARENCY – STRATOBEL CLEAR

The glass products in the Stratobel Clear range are suitable for all processing options used in the construction industry. The transparency offered by Stratobel Clear is highly prized by contemporary architectural designers.

The Stratobel Clear range is available in these 3 substrates :

- Planibel Clear.
- Planibel Clearvision: since it is extra-clear, it has a neutral appearance that is ideal for use in decorative applications.
- Planibel Linea Azzura: its blue reflection gives it an original touch that makes it stand out from its rivals.

The PVB is always clear.



COLOURS – STRATOBEL COLOR

Stratobel Color encourages the expression of subtle nuances in the most flamboyant architectural and interior design projects.

The coloured appearance is achieved by the glass and PVB used.

- Type of glass: clear or coloured Float Planibel, Matelux on clear or coloured glass.
- AGC is well-known for its range of blue tinted glass that inspires architects and designers in both the construction industry and interior fit out trade.
- PVB: clear or coloured in the various ranges.



INTIMATE VISUAL COMFORT – STRATOBEL WHITE

Walls and partitions made of Stratobel let in light while keeping out prying eyes. The simple white provides an atmosphere of undisturbed calm.

This kind of comfort can be created with:

- Stratobel White PVB: assembly with PVB Mat (Mat 80, Mat 65, Opaque 07), whose light transmission performance provides an ascending level of privacy. Planibel Clearvision enhances the white sheen.
- Stratobel White Matelux: assembly with clear or matt glass (Matelux on Clear, Clearvision or Antislip).

DESIGN – STRATOBEL EVA CREATION

Stratobel EVA Creation can incorporate decorative materials or materials offering a particular function into laminated glass. To give clients maximum flexibility, Stratobel EVA Creation is available in the following ranges: Graphic (comprising a fabric printed with a design of your choice), Cloudy (comprising a non-woven white polyester grid), Inoxia (comprising a perforated stainless-steel sheet), Irisia (comprising a bronze metallic mesh) and Artlite (screen-printed with a design on the films).

Please contact us for information on availability and technical recommendations.
You can also visit www.yourglass.com.



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