On the safe side.

Infallible Security Meets Design Excellence.

VETROGARD® High-Security Glass Solutions

vetrotech
SAINT-GOBAIN

Total protection for you
Complete solutions from us

In our daily lives, we all want to feel secure. But in today's world, threats to that safety are all around us. That's why it's sensible to take extra precautions – such as installing the right type of security glass.

Government offices, transport terminals, schools, shopping centres, banks, museums, hospitals, embassies and the like all need added protection against various forms of malicious attack. Making the right choice to provide appropriate protection is a major concern. For high security environments, regulations do not always specify the required security glass solutions.

Instead, it is the responsibility of those involved in the design, specification and building management chain – architects, owners, insurers and system providers – to determine potential risks and ensure that suitable and effective levels of protection are in place.

© Olaf Rohl - Vetrotech Shooting Testing Lab
Würselen, Germany

© Fernando Guerra FG+SG - NACH
Amsterdam, The Netherlands

Three main types of risk need to be considered:

- Physical attack (planned attacks and opportunistic damage such as intrusion and theft)
- Ballistic impact (firearms of various calibres, including handguns, rifles, and shotguns)
- Explosion impact (satchel, car bombs or gas accidents).

Each attack scenario is unique, requiring evaluation of potential risks and threats for appropriate protection.

Five key questions should be asked when trying to choose the most suitable solution:

- What is to be protected?
- What is the extent of the possible and probable threats?
- What are the consequences of not providing adequate protection against the risk?
- What could be lost or damaged?
- What type and level of safety glazing is needed as additional protection assurance?

Our range of high security glasses have every eventuality covered. Vetrotech offers customized solutions for internal and external applications in a building, that conform to the highest levels of security protection, as defined by European standards (EN) for high security glass.

VETROGARD®
Attack

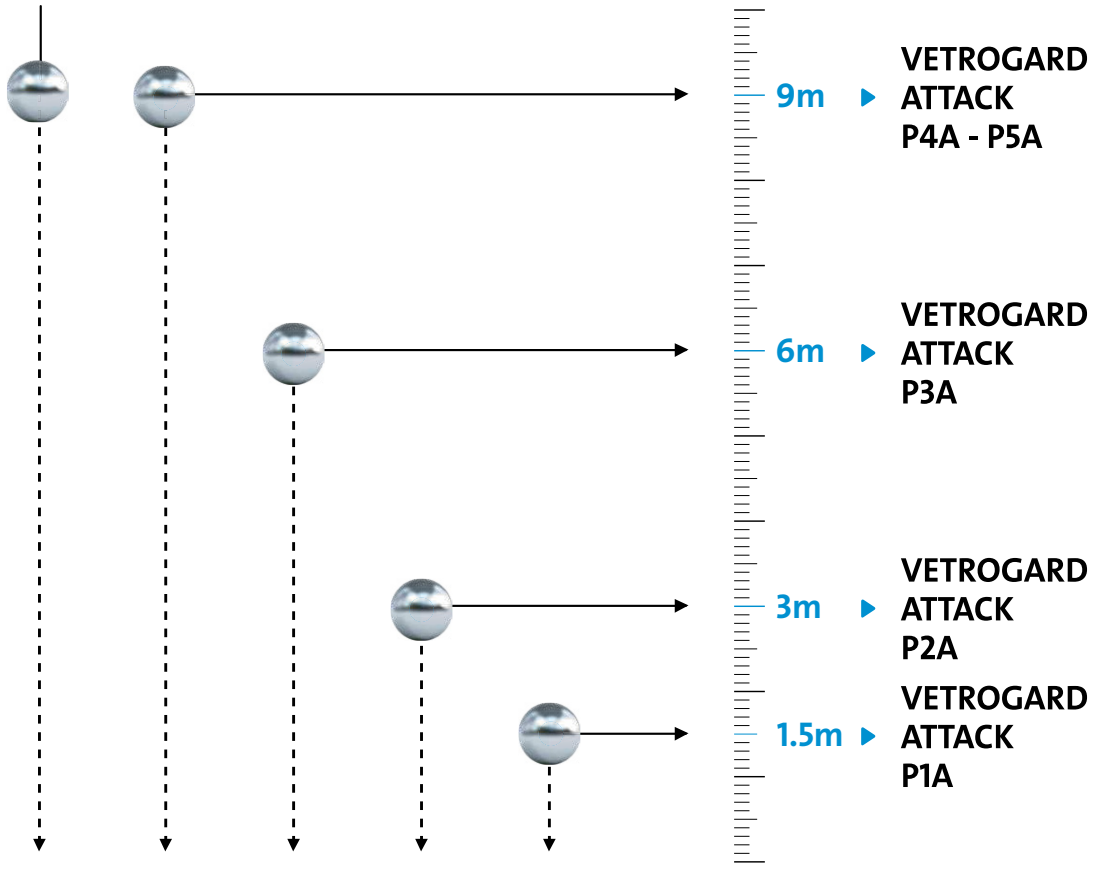
Provides protection from vandals trying to destroy property using rocks, stones and projectiles.

The ball-drop test*

A 4.1kg steel ball of 100mm diameter is 3 times dropped on the glass (3x3 balls for P5A). The glass must not allow the steel ball to penetrate through it.

Why

To verify whether the glass can withstand high-impact from heavy objects that can shatter it, as per international norms.



*When tested as per EN 356

© Peter Cook - British Embassy
Warsaw, Poland

VETROGARD®
Attack

Provides protection from intruders trying to break in using axes and hammers.

The axe test*

An axe is used to make a square opening of 400mm x 400mm on the glass. The number of hits required to make this opening is counted.

Why

To verify whether the glass can withstand high-impact from heavy objects that can shatter it, as per international norms.

No. of axe hits the glass can withstand

P6B	x 30 to 50 hits
P7B	x 51 to 70 hits
P8B	x More than 70 hits

*When tested as per EN 356

VETROGARD®
Bullet

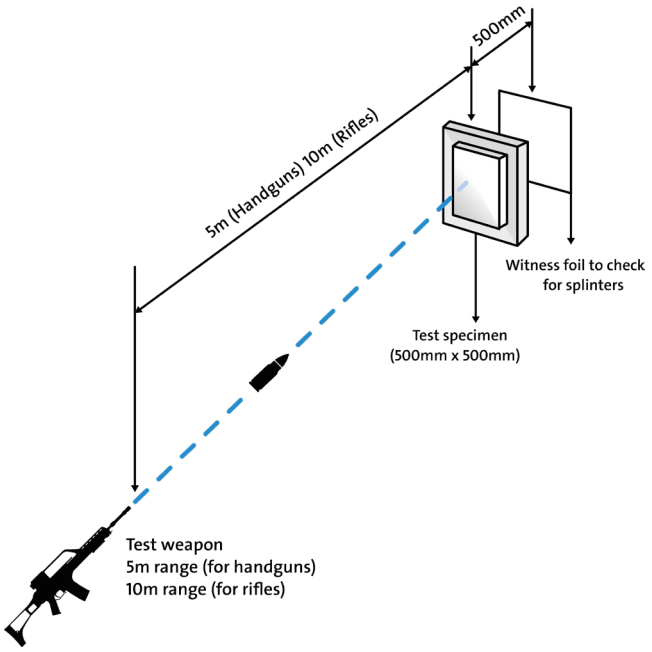
Provides protection from the bullets fired from handguns or rifles.

The ballistic test*

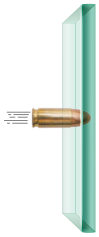
- 3 bullets are shot at the glass from a distance of 5m (for handguns) or 10m (for rifles).
- There must be no perforation of the glass by the bullet.

Why

To verify whether the glass can withstand high-impact from bullets without shattering or perforating it, as per international norms.

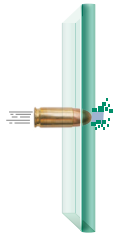


Available in two variants



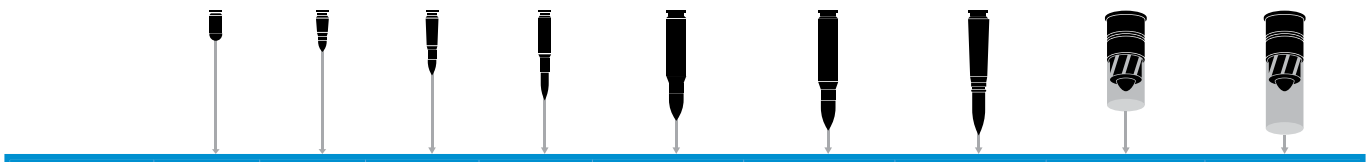
Non-Splintering (NS)

No perforation of glazing by the bullet or parts of bullet and no perforation of witness foil by glass splinters from the rear face.



Splintering (S)

No perforation of glazing by the bullet or parts of bullet but with perforation of witness foil by glass splinters from the rear face.



Level of Protection	BR 1	BR 2	BR 3	BR 4	BR 5	BR 6	BR 7	Shotgun 1 (SG1)**	Shotgun 2 (SG2)***
Type of Ammunition	0.22mm LR	9mm Luger	.357 Magnum	.44 REM Magnum	5.56mm x 45mm	7.62mm x 51mm (soft core)	7.62mm x 51mm (hard core)	12/70 (Slug)	12/70 (Slug)

*When tested as per EN 1063 **One shot *** Thress shots

VETROGARD®
Blast

Provides protection from the shockwaves and flying projectiles resulting from an explosion.

The shock tube test*

The glass is subjected to blast overpressure in this test. At the end of the test, there should not be any 'see-through' opening on the glass.

Why

To verify whether the glass can absorb the shockwaves from explosions without shattering, as per international norms.

Equivalent TNT quantity	Class	Pressure loading		Positive specific impulse	Time
	(EN 13541)	Pr (kPa)		kPa milliseconds impulse	milli-seconds
	ER 1	>50	<100	370-900	≥20
	ER 2	>100	<150	900-1500	≥20
	ER 3	>150	<200	1500-2200	≥20
	ER 4	>200	<250	2200-3200	≥20

Available in two variants

Non-Splintering (NS)

No fragmentation of the last pane rear face of the test piece.

Splintering (S)

The last pane rear face is fragmented, is broken or splinters of the glass are detached from the test piece.

*When tested as per EN 13541

A project with high security glass solutions ?

In addition to meeting regulatory requirements, our glazing systems come with independent certifications attesting to the resistance of each individual component — including the glass, frame, and environment-specific elements — in accordance with performance standards set by EN 1630 and EN 1523, ensuring the reliability of the complete solution. To help you find the right solution, the following information is Important:

1. What threat(s) are the glazing system to provide resistance against?

- ☐ Attack resistance
- ☐ Blast resistance
- ☐ Ballistic resistance
- ☐ Additionnal fire resistance required

2. What level(s) of resistance should it provide?

Attack resistance: EN 356B P6B to P8B: increased protection against attacks.

Bullet resistance: EN 1063 BR1 to BR7: protection against different weapons and calibres: rifles, automatic pistols, revolvers, and assault rifles. .SG1/SG2: specific to shotguns.

Blast resistance: EN 13541 ER1 to ER4: blast resistance increases with the amount of explosive material used in the test.

3. What level of performance is being sought?

- ☐ **S:** with glass shards on the opposite side from the impact
- ☐ **NS :** without glass shards on the opposite side from the impact

4. For what application is the system intended?

- ☐ Door
- ☐ Partition
- ☐ Window
- ☐ Facade
- ☐ Floor
- ☐ Skylight

5. Is the glass element placed indoors? Outdoors?

- ☐ Indoor
- ☐ Outdoor

6. What dimensions are being sought?

(width x height in mm)

7. In what type of frame should the glazing be integrated?

High Security glazings are tested in 3 types of frames:

- ☐ Timber
- ☐ Aluminium
- ☐ Steel

8- What is the maximum thickness being sought for the glass in its frame? (in mm)

Additional questions

9 - Should the system have additional properties?

For example, to accommodate screen printing or an integrated blind, or protection from electromagnetic radiation or have an integrated alarm?...

10- Are there thermal (W/m².K) or acoustic (dB) performance requirements?

Your contact details:

Company:

First name / Surname:

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Phone:

Mobile Phone:

E-mail:

Print

To be returned completed to your usual Vetrotech contact.

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