



# UNBREAKABLE.

## **UNBREAKABLE GLASS SOLUTIONS** **FOR SECURE AND VANDAL-PROOF PROPERTIES**

WINDOWS • DOORS • BALLISTIC PROTECTION • EXPLOSION PROTECTION • ROOFING • BALUSTRADES • MIRRORS

Secured by Design





**UNBREAKABLE GLASS SOLUTIONS**







# YOU CAN CHALLENGE OUR IDEAS AS WELL AS OUR PRODUCTS.

## UNBREAKABLE. FROM DRAWING BOARD TO INSTALLATION.

Hammerglass offers complete systems involving customised glass solutions and fixings for newbuilds, as well as glass replacement with unbreakable panels. Actually, it is only fantasy that sets the limits of what we can do. In our own design department the conditions are created for new and exciting solutions. Feel free to challenge us!

### TESTED AND CERTIFIED PRODUCTS WITH WARRANTIES

Hammerglass® is a durable polycarbonate sheet, 300 times stronger than glass – and virtually unbreakable.

Hammerglass® cannot be compared to standard polycarbonate (PC). The surface coating is resistant to most chemicals and provides 99.96% UV protection which prevents Hammerglass panes from clouding or becoming discoloured over time.

Hammerglass® does not contribute to the spreading of flames in the event of fire.

### ADVANTAGES WITH HAMMERGLASS

- 300 times stronger than glass - No glass breakage
- Half the weight of regular glass
- Clear view of the surroundings
- Minimal maintenance - Simple graffiti removal
- Higher gloss index than regular glass helps to ensure that dirt and dust can be washed off by the rain
- Ready-made solutions for fixing and installation
- Estimated service life >40 years
- Hammerglass® can be recycled
- Hammerglass® supplies tested and certified products with warranties

## SINGLE GLAZING







# SIMPLE & HIGHLY EFFECTIVE.

Hammerglass Single offers increased protection against burglary and vandalism for all types of property, everything from individual shops and shopping centres to public premises. The system is certified as offering protection up to Security Class P8B in accordance with EN 356, which is the level of protection that insurance companies require for particularly high-risk premises. The lightweight panels can be cut to any shape, thus providing great flexibility. As the system is based on replacement glazing in existing window frames, the solution is well-suited to older-type linked sashes and listed buildings.



**INSULATE**







# INSULATING WITH SECURITY RATING.

Hammerglass Insulate is an insulating glass system consisting of double or triple glazing with any type of glass serving as the inner pane. The system can be integrated into the existing fenestration where its low weight and high security rating offer considerable benefits. In addition to its anti-theft and anti-vandal qualities, Hammerglass Insulate also possesses excellent noise reduction characteristics, a low U-value and solar protection capability together with heat reduction. Hammerglass Insulate is suitable for commercial properties as well as ordinary houses. The system can also be configured for personal protection and is certified as providing protection up to Security Class P8B according to EN 356.









# THE INVISIBLE SHUTTER.

Because we know that grilles and roller shutters are easily circumvented by ingenious criminals, Hammerglass offer the invisible shutter – Hammerglass Add-On. Add-On consists of a Hammerglass panel in a steel profile, which can be mounted both internally and externally to existing fixed or openable windows and door sections. The system provides effective protection against burglars. The Add-On profile in cold-rolled steel protects and reinforces existing wooden frames and significantly hampers attempted break-ins. Add-On is certified as providing protection up to Security Class P8B, and recommended by insurance companies as an alternative to anti-theft grilles and roller-shutters.



## BALUSTRADES







# DURABLE, SAFE AND LIGHTWEIGHT.

Hammerglass' combination of transparency and security makes our balustrade solutions an attractive alternative on terraces, balconies and stairs. Furthermore, the replacement of old balcony fronts in plate with Hammerglass makes for a safer environment, and the change also provides a genuine facelift for the property. The Hammerglass panels are supplied as clear or opalescent but may also be ordered in other colours where larger projects are involved. Hammerglass offers splinter-free, unclimbable lightweight solutions which satisfy the child-safety requirement specifying no openings larger than 100 mm.









# AVOID 7 YEARS BAD LUCK.

Unbreakable mirrors in Hammerglass reduce the costs caused by damage or vandalism, and increase personal safety in those environments where they are installed.

Nanotechnological surface treatment renders Hammerglass Mirrors resistant to most chemicals. When it comes to graffiti, marker tags or other soiling, most known detergents can be used to clean up without the mirrors being damaged. Hammerglass Mirror Glass is recommended among other things for public toilets, changing rooms, sports facilities, lifts and prisons and on psychiatric wards.



## BALLISTIC PROTECTION





# BULLET-PROOF PRODUCTS.

**In an ever more violent world where gunfire, terrorist attacks, vandalism and burglary are becoming part of everyday life, the need for advanced protection products is increasing. Hammerglass Ballistic Protection comprises unique, lightweight bullet-resistant solutions in the higher protection classes BR4-NS and BR6-NS (No Splinter), where laminated glass sheets are combined with a Hammerglass sheet to provide the lowest possible weight and thickness.**

With our years of experience and extensive knowledge we are actively developing personal protection means for high-risk targets within national and local authorities and industry and commerce, as well as for the private citizen. Our splinter-free solutions are extremely suitable for the protection of premises where threats may arise: Foreign embassies, national and local government offices, banks, media companies, VIP-residences, military establishments, nuclear power stations etc.

Mounting in Hammerglass stainless steel bullet-proof reinforced partitions (Security Classes FB4 and FB6, EN 1522) provides complete protection against ballistic attacks. The ballistic resistance relates to both the glass and the accompanying frame.

We can provide you complete solutions with customized ballistic steel systems for window and door applications - a comprehensive turnkey solution including confidential risk analysis and security needs assessment.

## BALLISTIC PROTECTION (EN 1063)

| Class  | Weapon        | Caliber             | Distance | Velocity | Hammerglass product   |
|--------|---------------|---------------------|----------|----------|-----------------------|
| BR1-NS | Handgun/Rifle | .22 LR              | 10 m     | 360 m/s  | HmG RABS 12 mm + 4 mm |
| BR2    | Handgun       | 9 mm x19 Parabellum | 5 m      | 400 m/s  | -                     |
| BR3    | Handgun       | .357 Magnum         | 5 m      | 430 m/s  | -                     |
| BR4-NS | Handgun       | .44 Magnum          | 5 m      | 440 m/s  | HmG BR4NS 23 mm       |
| BR5    | Rifle         | 5.56x45 mm          | 10 m     | 950 m/s  | -                     |
| BR6-NS | Rifle         | 7.62x51 mm          | 10 m     | 830 m/s  | HmG BR6NS 39 mm       |
| BR7    | Rifle         | 7.62x51 mm          | 10 m     | 820 m/s  | -                     |



## EXPLOSION PROTECTION





# PROTECTS AGAINST EXPLOSIONS.

**With the growing threat and risk of attacks and explosions in densely populated urban environments, the need for advanced security glass in windows, doors and glass partitions is also increasing. In a powerful explosion, conventional glass panes will splinter even at a great distance from the explosion, often with serious splinter injuries as a consequence. In properties located in the immediate vicinity of the explosion even splinter-free panes will be forced in, despite being made from toughened or laminated glass.**

Hammerglass Explosion Protection consists of a unique, explosion-resistant solution compatible with the façade of the building concerned, comprising a steel frame that will hold the 12 mm thin Hammerglass panes firmly in position even in a powerful explosion. In sensitive urban locations, in government buildings, embassies, banks and the like, Hammerglass offers highly effective protection which will not fragment or splinter in a blast. What is more, the whole solution is thinner, and weighs significantly less, than comparable solutions based on normal glass.

In addition to explosion protection, the system provides effective barrier protection against break-in, and installation does not cause any visible damage to existing display windows yet provides a significantly higher level of safety for in-store personnel.

We assist with the evaluation of façade requirements based on the threat level. From the basic data relating to existing windows and doors we produce a proposal for an appropriate level of protection. We can provide you complete solutions with customized steel systems for window and door applications - a comprehensive turnkey solution including confidential risk analysis and security needs assessment.

## EXPLOSION PROTECTION (EN 13123/13124-2)

| Class | Charge | Distance | Pressure $P_{so}$ | Impuls $I_{so}$ | Hammerglass product |
|-------|--------|----------|-------------------|-----------------|---------------------|
| EXR1  | 3 kg   | 5 m      | 0.75 bar          | 1.05 bar/ms     | HmG 12 mm           |
| EXR2  | 3 kg   | 3 m      | 2.3 bar           | 1.65 bar/ms     | HmG 12 mm           |
| EXR3  | 12 kg  | 5,5 m    | 1.7 bar           | 2.25 bar/ms     | -                   |
| EXR4  | 12 kg  | 4 m      | 3.6 bar           | 3.00 bar/ms     | -                   |
| EXR5  | 20 kg  | 4 m      | 6.3 bar           | 4.20 bar/ms     | -                   |



**CHOOSE SECURITY LEVEL**



# THE CORRECT SECURITY LEVEL.

**What protection requirements does the property have? This is a crucial question which determines which Hammerglass solution will be best in each individual case. What is the primary threat, and is the aim to improve personal safety or to prevent and impede vandalism or burglary?**

Hammerglass offers a complete range of solutions for new build, re-glazing and add-on glazing with unbreakable glass panels. Hammerglass provides suitable protection in all environments where there is a risk of glass breakage, burglary or vandalism: In shops, shopping centres, public areas, local government property, schools, sports facilities, police stations, offices and industrial premises – but also in private houses and apartments. Our unbreakable glazing solutions include security and safety classes up to P8B (the highest security class for anti-burglar grilles/roller shutters) – as well as ballistic and explosion protection.

## What do you want to protect?

|  | Vandalism/Smash-&-Grab<br>P3A-P4A | Vandalism/Smash-&-Grab<br>P5A | Break-ins<br>P6B | Break-ins<br>P7B | Break-ins<br>P8B | Ballistic protection<br>BR1-NS<br>Handgun/Rifle .22L | Ballistic protection<br>BR4-NS<br>Handgun .357 Magnum | Ballistic protection<br>BR6-NS<br>Rifle 7.62x51 mm | Explosion<br>EXR1 | Explosion<br>EXR2 |
|--|-----------------------------------|-------------------------------|------------------|------------------|------------------|--|---|--|-------------------|-------------------|
| Hammerglass Single 4 mm                  | ✓                                 |                               |                  |                  |                  |  |   |  |                   |                   |
| Hammerglass Single 6 mm                  | ✓                                 | ✓                             | ✓                | ✓                |                  |  |   |  |                   |                   |
| Hammerglass Single 8 mm                  | ✓                                 | ✓                             | ✓                | ✓                | ✓                |  |   |  |                   |                   |
| Hammerglass Single 10 mm                 | ✓                                 | ✓                             | ✓                | ✓                | ✓                |  |   |  |                   |                   |
| Hammerglass Single 12 mm                 | ✓                                 | ✓                             | ✓                | ✓                | ✓                |  |   |  |                   |                   |
| Hammerglass Insulate 6 mm (HG06-12-4.41) | ✓                                 | ✓                             | ✓                | ✓                | ✓                |  |   |  |                   |                   |
| Hammerglass Add-On System S, F, U        | ✓                                 | ✓                             | ✓                | ✓                | ✓                |  |   |  |                   |                   |
| Hammerglass BR1NS 12+4 mm                | ✓                                 | ✓                             | ✓                | ✓                | ✓                | ✓  |   |  |                   |                   |
| Hammerglass BR4NS 23 mm                  | ✓                                 | ✓                             | ✓                | ✓                | ✓                | ✓  | ✓   |  |                   |                   |
| Hammerglass BR6NS 39 mm                  | ✓                                 | ✓                             | ✓                | ✓                | ✓                | ✓  | ✓   | ✓  |                   |                   |
| Hammerglass EXR1 12 mm                   |                                   |                               |                  |                  |                  |  |   |  | ✓                 |                   |
| Hammerglass EXR2 12 mm                   |                                   |                               |                  |                  |                  |  |   |  | ✓                 | ✓                 |



**WARRANTED & CERTIFIED**



# WARRANTED & CERTIFIED.

**All Hammerglass products undergo rigorous testing. All in order for customers to feel confident that our products are keeping what they promise - both in the short and long term. If we say it is UNBREAKABLE then so be it.**

## **Quality and certificates**

Hammerglass solutions are unique in many ways, mainly because all products sold are certified and tested. As one of the few suppliers, Hammerglass can offer generous guarantees on all its glass solutions, even on our insulating glass. At Hammerglass.com you will find a list of all certificates that apply to our products.

Hammerglass glazing solutions are produced according to a strict manufacturing process where all parts are traceable. We are ISO 9001 certified and our systematic quality assurance ensures that every product meets the quality requirements.

## **Environment and sustainability**

We aim for a sustainable product that is both persevering and environmentally smart. As part of our work towards even more sustainable products, we are certified in accordance with ISO 14001. To be able to deliver a sustainable product is important to us and as a receipt of our efforts we have received several credentials regarding our sustainability work. Some examples are *Sunda Hus* who has graded us in class A. *Miljöbyggnad* has classified several aspects of the product as gold-standard and the *Swedish Green Building Council* has rated the product as “Exemplary”. In addition, our products are approved by the *Swedish Building Products Assessment/Byggvarubedömningen*.

In order to ensure a safe working environment, Hammerglass will in March 2020 also be certified in accordance with ISO 45001.

## **Secured By Design**

Hammerglass has been a member of *Secured By Design* for several years.

Products must be subject to rigorous testing and additionally be fully certificated by an independent, third-party certification body accredited by the *United Kingdom Accreditation Service (UKAS)* before being allowed to carry the SBD logo - this is the only way for companies to obtain police accreditation for security-related products in the UK.



# REFERENCES

If you want to know more about the reference objects in the brochure, you can find more information about location and product selection below. If you want to know even more, visit [hammerglass.com](http://hammerglass.com).



**Page 2:**  
The Royal Castle,  
Stockholm, Sweden.  
System: HmG Single 8 mm.  
Hammerglass Single as the  
middle pane of the window,  
between two linked sashes.



**Page 6:**  
Public school, Sweden.  
System: HmG Insulate.  
Unbreakable Hammerglass  
Insulate in all windows in this  
new construction.  
Security Class P8B.



**Page 10:**  
Balustrade,  
Stockholm, Sweden.  
System: HmG Single 2x6 mm,  
4-colour photographic printing.  
Photos laminated between two  
6 mm Hammerglass panes,  
and thereby protected against  
vandalism and UV-radiation.



**Page 3:**  
Housing residence,  
Stockholm, Sweden.  
System: HmG Insulate.  
Hammerglass insulated glazing  
in all apartments to ensure the  
residents feel more secure in  
their everyday life.



**Page 7:**  
Chemistry Institution,  
Oslo University, Norway.  
System: HmG Insulate, 2 panes.  
Insulate glazing units, combining  
Hammerglass with a clear  
toughened pyrolytic glass, for  
solar control, thermal insulation  
and low light reflection.



**Page 11:**  
Balustrade,  
Stockholm, Sweden.  
System: HmG Single 12 mm.  
Printed pattern as decoration  
and to prevent bird collisions.



**Page 4:**  
Listed property, Sweden.  
System: HmG Single 8 mm.  
The entire ground floor  
equipped with Hammerglass in  
new aluminium outer profiles.



**Page 8:**  
Public school,  
Sweden.  
System: HmG Insulate.  
Hammerglass Insulate with  
arched top side was mounted  
in existing sashes on the  
windows of the ground floor  
and second floor.



**Page 13:**  
Mirror in shopping centre,  
Sweden.  
System: HmG Mirror Glass.  
Unbreakable Hammerglass  
mirror mounted directly on the  
wall between the glazed tiles.



**Page 5:**  
Restaurant, Sweden.  
System: HmG Insulate.  
Hammerglass Insulate i small  
restaurant. Against break-ins.



**Page 9:**  
Beijer Electronics, Sweden.  
System: HmG Add-On.  
Exterior Hammerglass Add-On  
system with RAL-coloured  
profiles in front of all windows  
throughout the ground floor.



**Page 23:**  
Store front, Sweden.  
System: HmG Single 8 mm.  
Hammerglass Single in new  
steel profiles in the store front  
and entrance party. The panes  
are glued into the frames and  
the glazing beads fixed with  
screws.







**UNBREAKABLE.**

## INFRASTRUCTURE

TRAVEL CENTRES · NOISE REDUCTION · BUS SHELTERS · PEDESTRIAN TUNNELS · BRIDGES · ROOFING  
PROTECTIVE SHIELDS · WALL COPING · BALUSTRADES · MEDIA

## PROPERTY

WINDOWS & DOORS · BALLISTIC PROTECTION · EXPLOSION PROTECTION · ROOFING · BALUSTRADES  
SECURITY FURNISHINGS · ELECTRONICS PROTECTION · UNBREAKABLE MIRRORS

## AUTOMOTIVE

SAFETY SCREENS · EXPLOSION TESTED SCREENS · SACRIFICIAL SCREENS · SACRIFICIAL FILM  
HEAT REDUCING SCREENS · BULLET PROOF SCREENS · EMERGENCY VEHICLES



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