



The All India Glass Manufacturers' Federation

in partnership with:



Workshop on “Future of Security Glasses”





Terrorism and attacks are commonplace today...

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It is critical we comprehensively protect our constructions from intentional attacks

Terrorism, Criminal Activity And Malicious Behavior



LIFE



PROPERTY



COUNTRY

PREVENTION

PROTECTION



Intelligence services



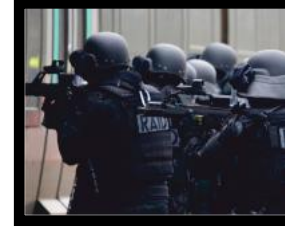
Police, security & other forces



Monitoring (CCTVs, drones, etc.)



Resilient & protective structures



Counter actions by security forces



Security Glass

Security glass is engineered to protect people and critical infrastructure from ballistic threats and forced entry. Commonly called bullet-resistant glass, it represents a critical component of modern security infrastructure.

What is Bullet Resistant Glass?



- **Multi-Layer Construction**

Engineered transparent material with multiple layers designed to absorb and dissipate impact energy

- **High Impact resistance**

Specifically designed to resist bullets and high-impact forces from various threat levels

- **Optical Clarity**

Maintains transparency while providing protection, ensuring visibility and aesthetic appeal

- **Multi-Hit Resistance**

Capable of withstanding multiple impacts depending on protection level and threat classification



Bullet resistant glass are offered in varying thickness according to end user demand. Generally its start from 22mm to 90mm thickness . Main end users of bullet resistance glass are financial services industry, automotive industry ,construction industry and others (inclusive of marine industry, aerospace industry, etc.

Bullet Resistant Glass Standards



- IS 18518 : 2023
- EN 1063
- NIJ 0108.01
- STANAG 4569



Types of Bullet Resistant Glass

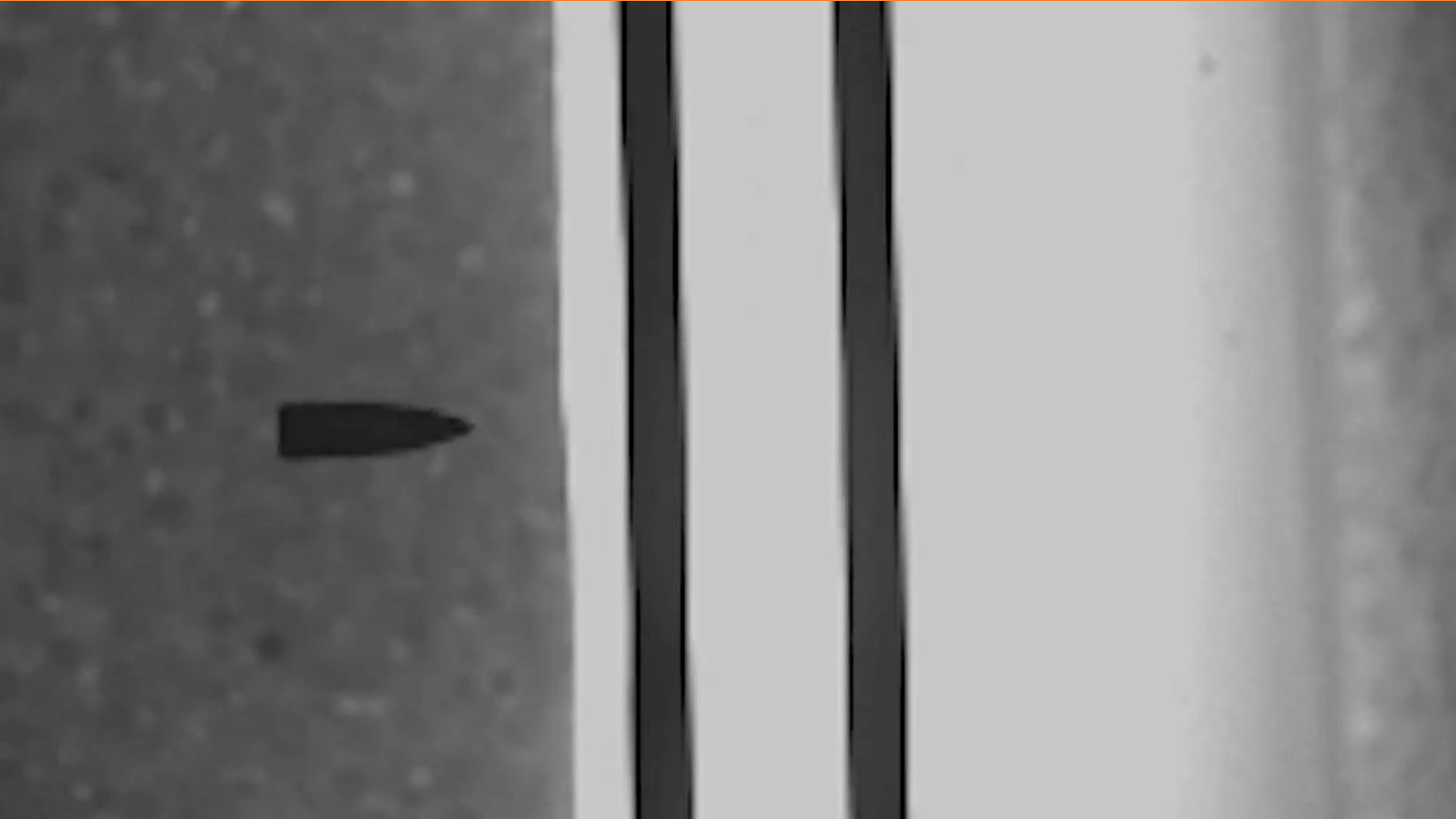


- **Laminated Glass**

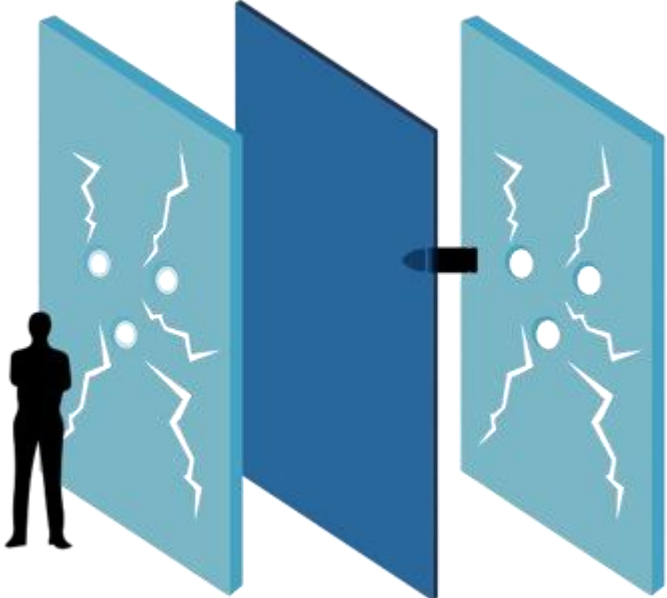
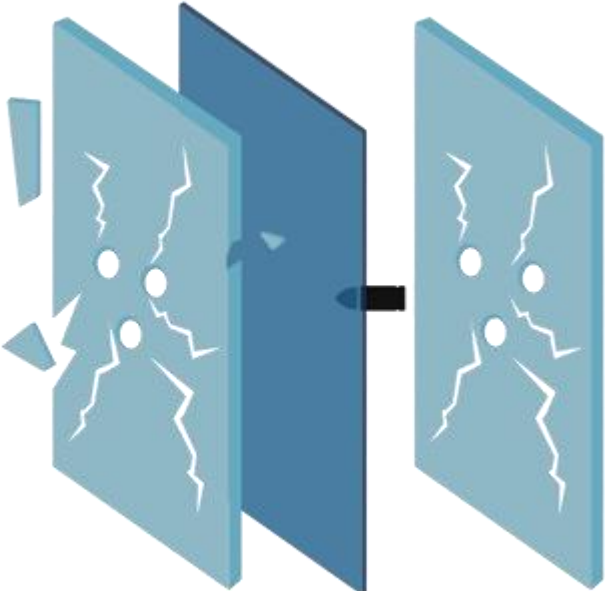
Multiple layers bonded with PVB or Sentry interlayers. Most common type for commercial applications with excellent optical clarity.

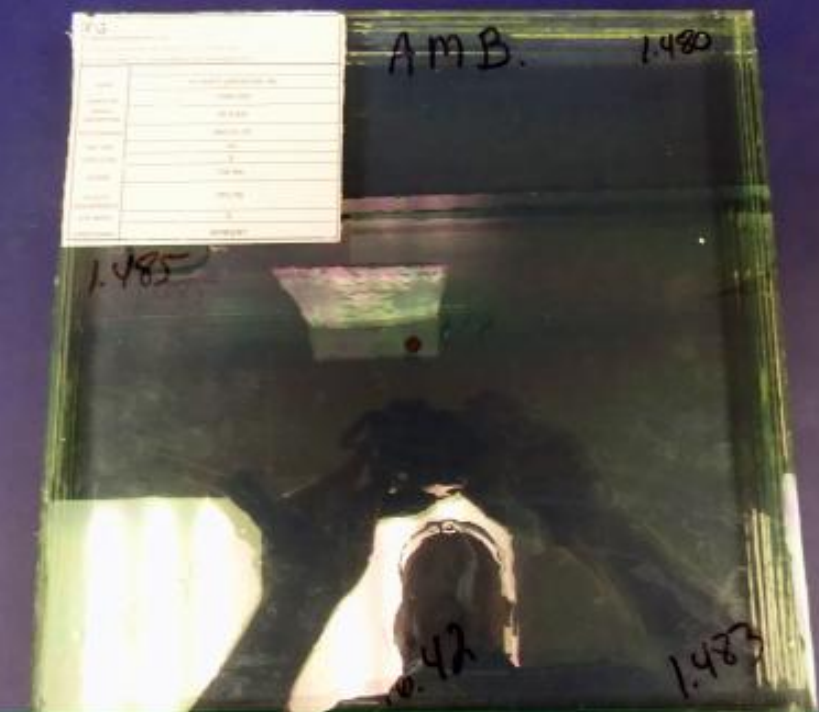
- **Glass-Clad Polycarbonate**

Combines glass hardness with polycarbonate flexibility. Used in defense and armored vehicles for maximum protection.

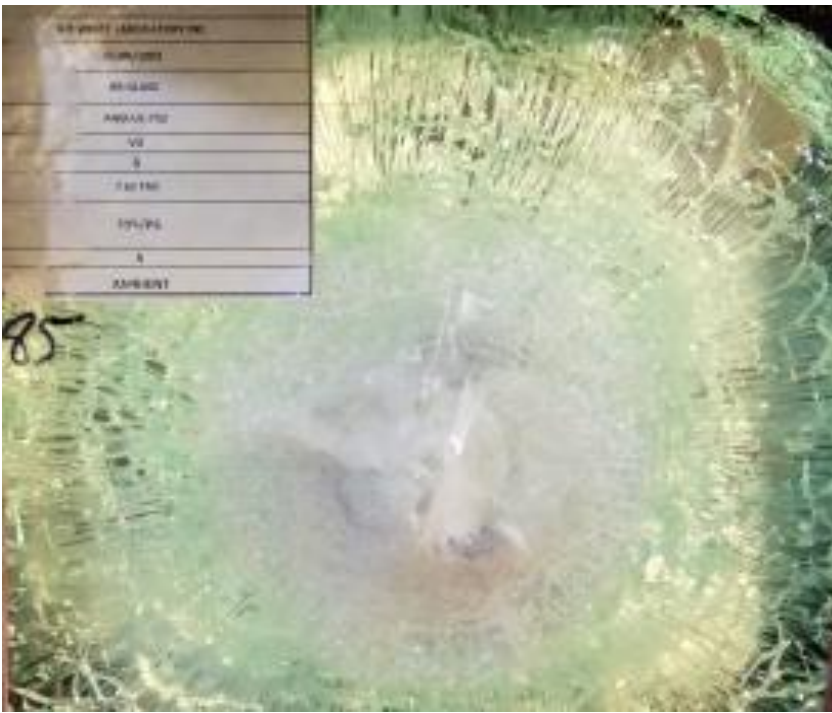


Choose Your Protection Level

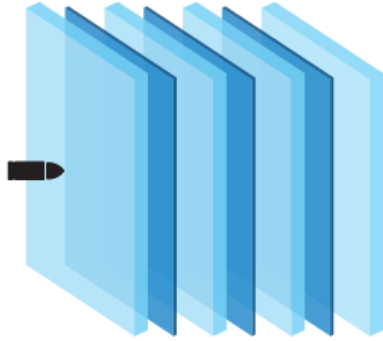




CLIENT	H.P. WHITE LABORATORY INC.
SAMPLE NO.	FGBR/1001
SAMPLE DESCRIPTION	BR GLASS
TEST STANDARD	ANSI-UL-752
TEST TYPE	VO
LEVEL/CLASS	5
CALIBER	7.62 FMI
VELOCITY	795/PS
REQUIREMENTS	5
# OF SHOTS	5
CONDITIONING	AMBIENT

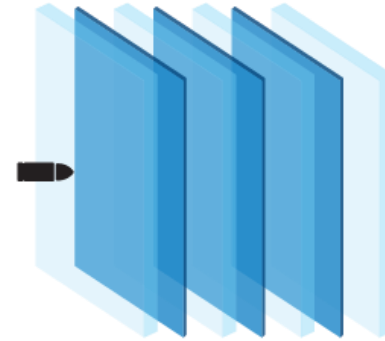


Bullet Resistant Types



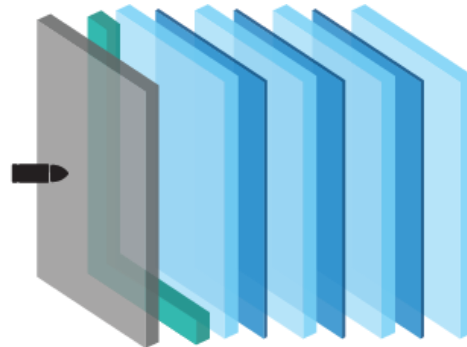
FIRST

Our starting range of bullet-resistant glasses. Made with clear glass assemblies for breakthrough performance, while staying economically viable.



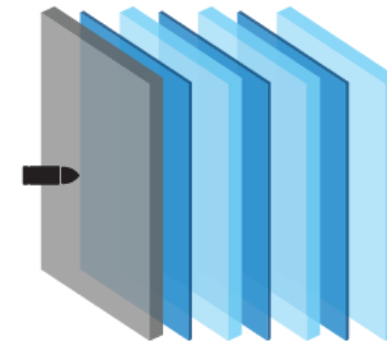
CLARITY

Add enhanced visibility and brightness to your bullet-resistance with our CLARITY range constructed with low-iron ultra clear glasses. Great choice for high-end visual appeal, specially for thicker units.



COMBI

Insulated or multi-laminated glass units for multi-tier performance-visual, acoustic, fire, impact and / or blast resistance.



TONE / SOLAR

Add thermal efficiency and aesthetic uniformity to your facade by using tinted or coated glasses products with our TONE and SOLAR range. Great choice for structural glazing and curtain wall applications.

Major Application Areas

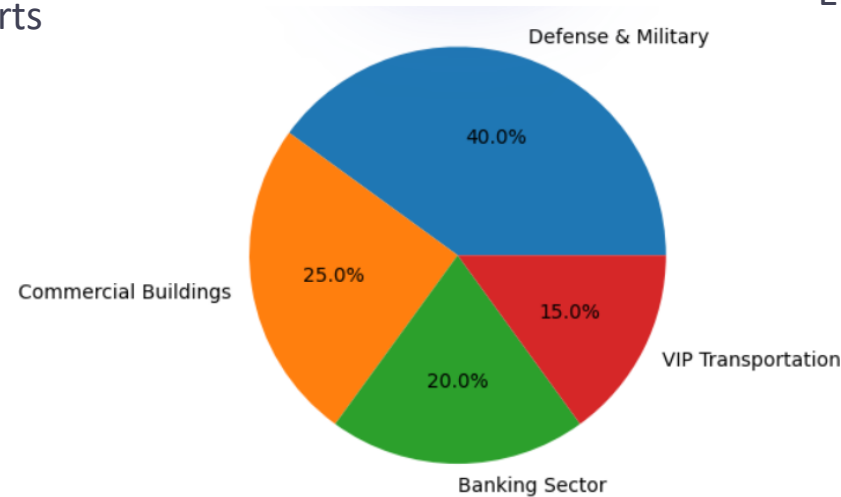


Defense & Military

Armored vehicles and personnel carriers
Military bunkers and command centers
Naval vessel windows and viewports

Commercial Buildings

Corporate headquarters and executive offices
Data centers and server rooms
Embassies and diplomatic facilities



Banking Sector

Teller counters and transaction windows
ATM enclosures and kiosk protection
Secure vault doors and access points

VIP Transportation

Armored luxury cars and limousines
Executive protection vehicles
Emergency response vehicles

Emerging Technologies & Future Trends



Next-Generation Security Glass

- AI-integrated security glass in smart buildings
- Bulletproof architectural façades in urban development
- Integration with smart surveillance systems
- Growth in luxury residential security applications
- Smart Glass Integration
Embedded sensors and monitoring systems for real-time threat detection
- Lightweight Ballistic Glass
New formulations reducing weight while maintaining or improving protection levels

Key Takeaway



- ✓ Future developments focus on stronger materials, lightweight structures, and smart security integration.
- ✓ The security glass market represents a significant growth opportunity, driven by rising security concerns, urban development, and technological innovation across multiple industries.



Thank You!