COMPOSITE BALLISTIC PANELS IN CONSTRUCTION PROJECTS

LIGHTWEIGHT PROTECTION
FOR ENHANCED SECURITY & DURABILITY

Ballistic panels are designed to be incorporated into construction projects to ensure protection against projectiles, such as bullets and explosive fragments.

What's driving their adoption?

- Low maintenance and highly flexible design
- Protection of military, civilians, and employees
- Increasing demand for lightweight materials
- Increasing defense budgets

Source: Lucintel Growth Opportunities in the Global Ballistic Composites Market 2023-2028

Composite ballistic panels offer varying levels of protection.

PROTECTION LEVELS

UL Rating	Ammunition	Velocity	No. Shots	Composite Panel	Nominal Thickness	Nominal Weight
Level 1	9mm full metal copper jacket with lead core	1175 ft/sec 358 m/sec	3	GlasArmor™ Level 1	0.256 in 6.5 mm	2.7 lb/ft² 13.2 kg/m²
Level 2	.357 magnum jacketed head soft point	1250 ft/sec 381 m/sec	3	GlasArmor™ Level 2	0.384 in 9.8 mm	4.0 lb/ft² 19.5 kg/m²
Level 3	.44 magnum lead semi-wadcutter gas checked	1350 ft/sec 411 m/sec	3	GlasArmor™ Level 3	0.500 in 12.7 mm	5.2 lb/ft² 26.4 kg/m²
				ThermoBallistic™ Level 3	0.440 in 11.2 mm	3.9 lb/ft² 19.0 kg/m²

Level 4–8: Customized solutions available, contact Avient to learn more.

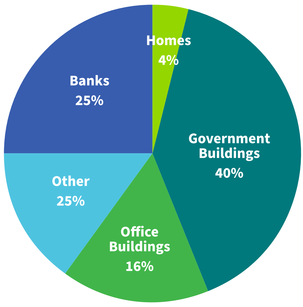
Composite ballistic panels provide several advantages, including:

HIGH STRENGTH
Ballistic composites offer a combination of **robust strength** and **lightweight properties**, making them highly effective in resisting impacts.

CUSTOM ENGINEERING
Ballistic panels can be **tailored to meet specific protection requirements**, ensuring optimal security for various applications.

CORROSION RESISTANCE
The materials used in ballistic composites are **resistant to corrosion**, ensuring long-lasting durability even in harsh environments.

Where are ballistic composite panels used?



They also play a crucial role in protecting electrical substations and power plants, as highlighted in this Glasforms Case Study.

Thermoset and Thermoplastic Panels: What's the Difference?

GlasArmor™ thermoset materials harden permanently when cured and so are best used in situations where weather and/or temperature can be a factor.

ThermoBallistic™ thermoplastic panels can be thermoformed and shaped, ideal for indoors where they offer design flexibility and easy installation.

Compare the different materials used for ballistic protection

Characteristic	GlasArmor Thermoset Panels	ThermoBallistic Thermoplastic Panels	Steel	Concrete
Performance-to-Weight	★★★	★★★★	★★★	★
Bullet Resistance – Pistols	★★★★	★★★★	★	★
Bullet Resistance – Rifles	★★★	NA[1]	★★★	★
Temperature Performance	★★★★	★★★[2]	★★★★	★★★★
UV Resistance	★★★	★★★[3]	★★★★	★★★★
Electrical Conductivity	★★★★	★★★★	★	★★★★
Flame Retardance	★★★[5]	★★[4]	★★★★	★★★★
Ease of Installation	★★★★	★★★★	★★★	★

[1] Ballistic resistance to rifle fire can be achieved by layering ThermoBallistic and GlasArmor panels – contact Avient
[2] ThermoBallistic panels made with polypropylene resin systems
[3] UV resistance is achieved using surface polymeric films
[4] Flame retardant additives can be incorporated upon request under some circumstances
[5] Fire rated for 1-hour per ASTM E-119-09c when tested in an interior wall system

Looking for more technical information? We have you covered. Download our ballistic panel solutions overview, or contact us for more information.

AVIENT™