

Protection For People And Property



Bullet-resistant LEXGARD® laminates are composite sheets that can withstand multi-shot assault, absorbing the total impact energy without dangerous spalling. LEXGARD laminates combine abrasion-resistant MARGARD® II surfaces with UV-coating technology to enhance the total life of the sheet. Depending on the application, LEXGARD laminates can be used alone or in component air gap systems utilizing laminated glass in combination with LEXGARD laminates.

Appropriately matched to specific levels of threat, LEXGARD laminates and component systems provide transparent ballistic protection. They are widely used in retail, financial, corporate and government buildings, as well as in correctional facilities. With their unique multi-layer construction, LEXGARD laminates can withstand both physical attack and gunfire from weapons ranging from 9mm Hand Guns to 7.62mm NATO High-Power Rifles.

While no material or system can indefinitely withstand repeated assault by guns, sledgehammers, blow torches or other weapons, the exceptional performance of LEXGARD laminates gives you the time you need to protect your people and take appropriate action.

Today's security threats go beyond physical and ballistic attack. Detonated blasts are a new and violent risk for some establishments. Provided that the building structure and sash system design are consistent with the security requirements, the inherent impact strength of LEXGARD laminates can provide protection against many of the overpressures and fragments associated with explosions.

LEXGARD Laminates – Proven Products, Documented Performance.

- **UL-listed bullet-resisting** – can absorb full ballistic impact without penetration. Will not pulverize or spall into sharp, dangerous shards.
- **Warranty** – warranted against abrasion, yellowing, coating failure and structural delamination.*
- **Multi-shot capability** – can stop even close-grouped shots, maximizing full vision.
- **High impact, stress-free lamination** – will not spider, crack or white-out on impact, providing vision after ballistic or physical attack. Eliminates costly replacement of broken glass.
- **Abrasion-resistant surface** – easy to maintain while enhancing long-term appearance. Even graffiti is easily removed.
- **Lightweight, easily fabricated** – the lightest weight/highest performing, bullet-resistant product available – requires no added support to walls or counters.
- **Easy to install** – can be cut to complex shapes for transaction ports, speaker holes, etc.
- **Major model building code approved** – ICBO, BOCA and SBCCI listed as CC1 flame reading (MP 750 is listed CC2).
- **Installed in applications for over 20 years** – a proven product with documented performance.

* Details of limited warranty available upon request.

INTRUSION/DETENTION

Forcible entry by hand-held tools or weapons other than guns or explosives. An understanding of the use and destructive potential of the “weapons” is engineered into every LEXGARD laminate product.



BALLISTICS

Attack by handguns and rifles of various power. Considerations of caliber and bullet velocity are factored into the multi-ply composition and construction of LEXGARD laminates.

	Product	ID	Product Description	Actual Gauge (in.)	Weight (lbs./sq.Ft.)	Test Ratings
 Low		LEXAN MR Sheet 1-Ply	1/2" Monolithic Sheet offering UV resistance and exceptional abrasion resistance	.500 ±5%	3.12	- ASTM F1233-93 Class II, (Step 5) - HPW-TP-0500.00 Level I
		PL 250 2-Ply	1/8" LEXAN Prismatic Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.265 ±5%	1.5	- ASTM F1233-93 Class II, (Step 5) - HPW-TP-0500.00 Level II (Step 7) - UL 972
 Medium		PL 375 2-Ply	3/16" LEXAN Prismatic Sheet LR Bonding Interlayer 3/16" LEXAN MR Sheet	.390 ±5%	2.2	- ASTM F1233-93 Class III, (Step 8) - HPW-TP-0500.00 Level A-II, (Step 10)
		MPC 375 2-Ply	3/16" LEXAN MR Sheet LR Bonding Interlayer 3/16" LEXAN MR Sheet	.390 ±5%	2.4	- ASTM F1233-93 Class III, (Step 9) - HPW-TP-0500.00 Level A-II, (Step 10)
 High		PAG 500 3-Ply	1/8" LEXAN Protect-A-Glaze Sheet LR Bonding Interlayer 1/4" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.530 ±5%	3.2	- ASTM F1233-93 Class III, (Step 15) - HPW-TP-0500.00 Level A-II, (Step 10)
		PL 500 3-Ply	1/8" LEXAN Prismatic Sheet LR Bonding Interlayer 1/4" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.530 ±5%	3.2	- ASTM F1233-93 Class III, (Step 10) - HPW-TP-0500.00 Level A-II, (Step 14)
		MPC 500 3-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/4" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.530	3.3	- ASTM F1233-93 Class III, (Step 15) - HPW-TP-0500.00 Level A-II, (Step 14)

	Product	ID	Product Description
 Low		MP 750 3-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/2" Acrylic Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet
		MP 875 3-Ply	3/16" LEXAN MR Sheet LR Bonding Interlayer 1/2" Acrylic Sheet LR Bonding Interlayer
 Medium		MP 1000 4-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 3/8" LEXAN Sheet LR Bonding Interlayer 3/8" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet
		SP 1250 4-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/2" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN Sheet
 High		RS 1250 4-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/2" Acrylic Sheet LR Bonding Interlayer 1/2" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet
		Air Gap Glazing Systems (1)	Laminated Glass 25" - 5" Air Gap 1" LEXGARD GC 938 Laminate

(1) Manufactured by Authorized Fabricator

STANDARDS

ASTM F1233
American Society for Testing and Materials
American Society for Testing and Materials
1916 Race Street
Philadelphia, PA 19103
215-299-5400

UL Standard 752
Bullet-Resisting Equipment
Underwriters Laboratories Incorporated
333 Pfingsten Rd.
Northbrook, IL 60062
708-272-8800

HPW-TP-0500.00
A forced entry resistance testing of glazing materials with optional ballistic-resistance testing
H.P.White Laboratory, Inc.
3114 Scarboro Rd.
Street, MD 21154
410-838-6550

German Standard
DIN 52290 Part 2: Bullet Resistance
Secretariat:
DIN
Burggrafenstrass 6
10787 Berlin
Germany

European Standard
draft prEN 356: Glass in building Security Glazing
Specification for security glazing - Testing and classification of resistance against manual attack.
Secretariat:
NBR
P.O. Box 129 Blindern
N-0314 Oslo
Norway

European Standard
draft prEN 1063
Specification for security glazing - Bullet-resistant glazing - Classification and test method.
Secretariat
NNI
P.O. Box 5059
2600 GB Delft
the Netherlands

Royal Hong Kong Police Force, Crime Prevention Bureau (Ref. DID/CPB 5/2) using Type 54 Chinese military pistol (7.62mm) and Type 51-1 solid steel, (banded ammunition (3 rounds).
Royal Hong Kong Police Force
Crime Prevention Bureau

NIJ Standard - 0108.01
Ballistic-Resistant Protective Materials
U.S. Department of Justice
633 Indiana Avenue, N.W.
Washington, DC 20531
202-307-2942

BS 5051 Part 1: 1988
Bullet-resistant glazing Part 1: Specification for glazing for interior use.
British Standards Institute
2 Park Street
London W1A 2 BS
England
01-629-9000

Australian Standard
2343-1980
Bullet-Resistant Glazing Panels for Interior Use
Standards Association of Australia



BOMB BLAST

Explosions to gain access, destroy property or harm people. While the resulting overpressures can easily shatter ordinary glazing, LEXGARD® laminates and air gap systems manufactured by authorized fabricators with LEXGARD laminates have been tested to absorb from 20 psi to as much as 57 psi, the equivalent of 4300 pounds of TNT detonated from 115 feet away.



Actual Gauge (in.)	Weight (lbs./sq.Ft.)	Test Ratings
.775 ±8%	5.1	· ASTM F1233-93 (.38 Super Automatic) · UL 752, Level 1 (9mm) · HPW-TP-0.500.00 Level B (9mm)-I
.900 ±8%	5.6	· ASTM F1233-93 (.38 Super Automatic) · UL 752, Level 1 (9mm) · HPW-TP-0500.00 Level B (9mm)-I · DIN 52290, Part 2, Class CI SF (9mm)
1.050 ±5%	6.5	· ASTM F1233-93 (.38 Super Automatic) Class V, (Step 40) · UL 752, Level 1 (9mm) · HPW-TP-0500.00 Level B (9mm)-V, (Step 50)
1.300 ±5%	8.1	· ASTM F1233-93 (.44 Mag.) Class V, (Step 41) · UL 752, Level 3 (.44 Mag.) · HPW-TP-0500.00 Level C (.44 Magnum)-V, (Step 53)
1.300 ±5%	8.1	· UL 752, Level 6 (High Velocity 9mm) · UL 752, Shotgun (12 Ga. Slug/Shot) · DIN 52290, Part 1, Class IIIC SF (.44 Magnum) · European Std., EN 1063, Class BIV · Royal H.K. Police, Type 54 (7.62mm)
(1)	(1)	· ASTM F1233-93 (Rifle 7.62mm) · UL 752, Level 5 · DIN 52290, C-V · NIJ 0108.01, 3 · BS 5051, G-3 · Aust. 2343-1980 R-1/R-2

Contact GE Plastics for Information.

	Product	ID	Product Description	Actual Gauge (in.)	Weight (lbs./sq.Ft.)	Test Ratings
 Low		MPC 500 3-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/4" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.530 ±5%	3.3	· Approx. 100 Lbs. TNT at 50 Ft. · Overpressure: 20 psi · Duration: 7 msec *1,2
 Medium		RC 750 3-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/2" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	.780 ±5%	4.9	· Approx 150 Lbs TNT at 49.5 Ft. · Overpressure: 28 psi · Duration: 7 msec *1,2
 High		MP 1000 4-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 3/8" LEXAN Sheet LR Bonding Interlayer 3/8" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	1.050 ±5%	6.5	· Approx. 4300 Lbs. TNT at 115 Ft. · Overpressure: 57 psi · Duration: 15 msec *1,2
		SP 1250 4-Ply	1/8" LEXAN MR Sheet LR Bonding Interlayer 1/2" LEXAN Sheet LR Bonding Interlayer 1/2" LEXAN Sheet LR Bonding Interlayer 1/8" LEXAN MR Sheet	1.300 ±5%	8.1	

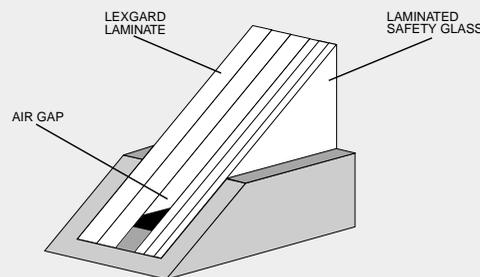
*1. **Blast Resistance Level** – These are relative levels of blast resistance among our product line for resisting *overpressures* only. No statement regarding fragmentation resistance is being made. Size of window, edge engagement and multiple-pane systems are significant variables that can enhance or detract from overall system performance.

*2. **Threat Level** – Calculated charge weight and distance numbers are based on hemispherical, ground level charges detonated in open air with no obstructions affecting the blast wave. Charge shape, land geography, buildings, and many other variables can either mitigate or strengthen blast pressures.

Multi-Layer Systems Deliver Even Greater Security

LEXGARD laminates are key components in air gap systems for both exterior and interior windows, walls and partitions. In these high-performance systems, a LEXGARD laminate is installed with an air gap behind laminated safety glass. If glass is broken, it can be easily and economically replaced while the LEXGARD laminate remains intact. Abrasion resistance and energy efficiency are additional advantages.

Bomb blasts represent the most severe level of threat, as measured by the force of over-pressures against fixed glazing. Air gap systems constructed with LEXGARD laminates can provide protection against many of the overpressures and fragments associated with explosions.



LEXAN® NU-VIEW® Scratch- and Abrasion-Resistant Laminate



Extends the life of LEXAN MR sheet and LEXGARD® laminates. Simply peel-off scratches, abrasion, and graffiti.



Patented LEXAN NU-VIEW laminate provides renewed visual clarity and appeal for LEXAN MR sheet or LEXGARD laminates.

If damaged by scratches, abrasion or graffiti, the clear and hard-coated NU-VIEW laminate can easily be peeled off and discarded without removing the window, to reveal the unblemished, underlying glazing surface. Or, you can choose to remove the window and apply a new film lamination. Either way, this affords you the benefit of considerable material cost savings by extending the life of the glazing, as well as the labor cost typically associated with removing damaged glazing.

In addition, LEXAN NU-VIEW laminate can easily be maintained without marring, hazing or yellowing.

- Patented design features high impact strength and protective scratch resistance of LEXAN HPH (interiors) or HPW (exteriors) film surface.
- Interior and exterior applications.

- Easily refurbished for longer surface life.
- Complies with major model building codes.
- CC-1 flame rated.†

The glazing surface chosen for high-traffic and graffiti-prone areas.

- School windows, hospitals and mental health facilities.
- High-security glazing for jails, prisons, convenience stores and kiosks.
- Train and bus glazing.
- Bus shelters, station windows and ticket booths.

Total Material Thickness on LEXAN MR Sheet: .128", .187", .246", .385", .510"

Total Material Thickness on LEXGARD Laminate: .260" to 1.35"

Standard Widths: 24" minimum, 48" maximum

Standard Lengths: 96" maximum

Standard Colors: Clear, Grey, Greylite, Bronze and Light Green (Clear, Bronze and Grey for LEXGARD laminates).

High-Impact Wallboard



Made available through a strategic alliance with COREGUARD® and Gold Bond® Hi-Impact Wallboard, this National Gypsum sheet product is designed for high-abuse, impact penetration areas.

High-impact wallboard combines LEXAN® polycarbonate sheet with fire-rated gypsum wallboard, to provide at least 600 ft. lbs. of impact strength plus UL 263 (ASTM-119) for one- or two-hour fire-rated wall assemblies.

- Very high-impact.
- Easy to install with traditional hand and power tools.
- Superior penetration resistance.
- Limited warranty against delamination.*

Impact and fire resistance.

- Psychiatric institutions
- Hospitals
- Correction facilities
- Schools

Standard Gypsum Wallboard Sizes: 4' x 8' and 4' x 10'

LEXAN Sheet Thicknesses: .010" - .080"

High-impact, one-piece laminated wall panels.

* Consult warranty for complete details.
† Data on file at GE Plastics Structured Products.