



**WHEN DANGER THREATENS**





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WE PROTECT WHAT MATTERS MOST

# Practically impenetrable

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Introducing ArmorGarde™ and ArmorDefend™  
single-sourced, forced-entry-resistant glass and glazing systems

We attempt to destroy all our products to prove a point: just how indestructible they are. To ensure that each system offers the highest level of delayed forced entry, we're the only company that tests our frame, entrance and glass together against multiple attacks from bullets, bricks, wrenches, baseball bats, steel-toe boots, ball-peen hammers and sledgehammers—to name a few. No one does more to protect what you value most.

## Fully integrated systems. Strong to the core. And ready to resist.

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### GLASS

ArmorGarde™ and ArmorGarde™ Plus, our laminated glass with proprietary makeup, remain an integral part of the system after impact.

### FRAME

We design and test ArmorDefend™ and ArmorDefend™ Plus thermally broken storefronts with ArmorGarde™ glass to deliver a complete delayed-forced-entry system.

### ENTRANCE

ArmorDefend™ entrances, available in medium stile and wide stile doors with panic hardware, withstand impact and delay forced entry.

## Tougher tests. To meet a higher grade.

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To ensure resistance to forced entry, independent, certified labs test our glass and glazing systems together using industry-recognized standards—so you can have confidence in the products you specify.

### ASTM E2395 – Tests glazing and frame resistance

We use heavier, higher-velocity missiles per ASTM E1996 – the Elevated Missile Impact portion of ASTM E2395.  
ArmorDefend™ storefront: Performance Level 5 with Elevated Missile Impact Level D  
ArmorDefend™ Plus storefront: Performance Level 5 with Elevated Missile Impact up to Level E

### **ASTM F1233—Tests glazing resistance to items like ball-peen hammers, pipes and extinguishers**

Higher classes resist more challenging impacts.

ArmorGarde™ Class 1.4 HG3 (9mm handgun)

ArmorGarde™ Plus: Class 1.4 HG3 (9mm handgun)

### **5-aa1—Measures time to failure for glazing impacted by common items like bricks, bats and sledgehammers**

ArmorGarde™ 6 minutes, 43 seconds

ArmorGarde™ Plus: 13 minutes, 8 seconds (Lab technician unable to continue due to exhaustion)

## Customize your level of security.

### **ArmorDefend™ Storefront System**

Designed with our ArmorGarde™ insulating glass units

2" sightline; 4½" depth

Wet and dry glaze options

### **ArmorDefend™ Plus Storefront System**

Featuring ArmorGarde™ or ArmorGarde™ Plus insulating glass units

2½" sightline; 5" depth

Wet and dry glaze options

### **ArmorGarde™ and ArmorGarde™ Plus Glass**

Two enhanced security level options

Various tints and Low-E coatings

Laminated glass with proprietary makeup provides improved

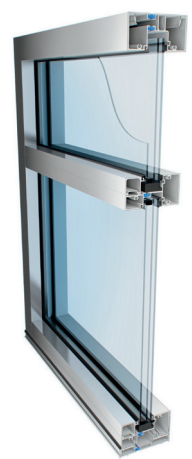
sound reduction and protection from harmful UV rays

1" or greater insulating glass units

Monolithic and insulating glass units for retrofit applications



ArmorDefend™



ArmorDefend™ Plus

## Strong enough to protect what matters most. Flexible enough to fit a variety of applications.

Education. Healthcare. Retail. Office. Just a few of the segments where owners can trust what they value to ArmorGarde™ and ArmorDefend™.



Daycares and  
Schools



Pharmacies



Luxury Brands  
and Jewelers



Wineries



Restaurants



Corporations



# When you compare our glass, there’s really no comparison.

Not only does our delayed-forced-entry security glazing exceed all testing standards, we can also provide larger sizes to let in more light and sweeping views. Plus we offer a wide range of defense including ArmorProtect™ – a ballistic-rated, forced-entry-resistant

glass-clad polycarbonate with detention-center-level protection. Layer in the fact that no other company tests both their glass and their framing system together, and we’re one intelligent choice.

US VS. COMPETITORS  Glass Performance Comparison		Standard Delayed Forced Entry			Enhanced Delayed Forced Entry			Premium Delayed Forced Entry	
		ArmorGarde™	SG4™	CHILDGARD® / ACCESSGARD™	ArmorGarde™ Plus	SG5™	CHILDGARD® / ACCESSGARD™ - 2118	ArmorProtect® Plus #121000	ArmorProtect® Plus #121100
	Type	Laminate	Laminate	Laminate	Laminate	Laminate	Laminate	Glass-Clad Polycarbonate	Glass-Clad Polycarbonate
	Minimum Thickness (Nominal)	7/16"	1/4" **	5/16"	7/16"	1/4" **	9/16"	7/16"	9/16"
	Maximum Size*	96x168	72x144	72x130	96x168	48x96	60x96	60/96"	60/96"
	Pricing	\$			\$\$			\$\$\$	\$\$\$
ASTM F1233 †	Methods							NT	
Ballistics	3 shots: UR01 Universal Receiver 9mm, 124 grain	Pass ***	NT	NT	Pass ***	NT	NT	-	NT
Class 1.0 Forced Entry	Ball-Peen Hammer	Pass	Pass	Pass	Pass	Pass	Pass	-	Pass
Class 1.1 Forced Entry	Ball-Peen Hammer	Pass	Pass	Pass	Pass	Pass	Pass	-	Pass
Class 1.2 Forced Entry	1 - 1/2" Pipe/Sledge	Pass	Pass	Pass	Pass	Pass	Pass	-	Pass
Class 1.3 Forced Entry	Fire Extinguisher, CO <sub>2</sub>	Pass	Pass	Pass	Pass	Pass	Pass	-	Pass
Class 1.4 Forced Entry	Sledge Hammer	Pass	Pass	Failed	Pass	Pass	Pass	-	Pass
Class 1.5 Forced Entry	Propane Torch Flame	Failed	Failed	-	Failed	Failed	Failed	-	Pass
Class 2.0 Forced Entry	Ripping Bar	-	-	-	-	-	-	-	Pass
Class 2.1 Forced Entry	Ram	-	-	-	-	-	-	-	Pass
Class 2.2 Forced Entry	4" Diameter Pipe/Sledge	-	-	-	-	-	-	-	Pass
Class 2.3 Forced Entry	Sledge Hammer	-	-	-	-	-	-	-	Pass
Class 2.4 Forced Entry	Propane Torch Flame	-	-	-				-	Failed
								-	
Test 5 - aa1 ‡								NT	NT
Ballistic Attack ***	7.62mm, M80, military ball, 147 grain round	Pass	Pass	Pass	Pass	Pass	Pass	-	-
Concentrated Assault	20 impacts: 5 lb. brick; 10 impacts: steel toe boots	Pass	Pass	Pass	Pass	Pass	Pass	-	-
Forced Entry Part 1	2-minute attack: wood 2x4/wrench/claw hammer	Pass	Pass	Pass	Pass	Pass	Pass	-	-
Forced Entry Part 2	Minimum 3-minute attack: 3 lb. hammer/baseball bat	Pass	Pass	Pass	Pass	Pass	Pass	-	-
Forced Entry Part 3	Attack until failure: 12 lb. sledge hammer	Total Time: 6m 43s	Total Time: 6m 10s	Total Time: 10m 10s	Total Time: 13m 8s*	Total Time: 12m 10s	Total Time: 16m	-	-
HPW TP 0500.03 §		NT	NT	NT	NT	NT			
Ballistics	Puncture and Spall	-	-	-	-	-	See Note ****	Level A	Level A
Forced Entry	Level Rating	-	-	-	-	-	NT	Level I	Level I
Overall Barrier Rating							NT	A - I	A - I
ASTM F1915 †		NT	NT	NT	NT	NT	NT	NT	
	Security Grade	-	-	-	-	-	-	-	4
	Total Time	-	-	-	-	-	-	-	10m

\* Glass thickness may increase to accommodate larger-size glass and/or design pressures.

\*\*Per School Guard Glass's published literature, SG4 and SG5 are designed to replace tempered and laminated glass with thicknesses ranging from ¼" to ¾". This does not equate to the nominal thickness.

\*\*\* Bullets passed through the glazing but the glazing was not breached sufficiently to allow body passage per ASTM F1233.

\*\*\*\*CHILDGARD® - 2118 / ACCESSGARD™- 2118 were ballistics tested with a .38 special handgun, 3 shots in a 8" circle, 158 grain lead, 20 feet. Per published literature, there was spall with no penetration per HP White-TP-0500.03. No data indicated the product met the subsequent Forced-Entry Requirements of HP White-TP-0500.03 necessary to receive a Barrier Rating.

† ASTM F1233, *Standard Test Method for Security Glazing Materials and Systems*, is NOT expressed in time but class ratings; forced-entry rating is the last class passed for body passage.

‡ Test 5-aa1, *Certification Standards for Retrofitting and Reinforcing of Standard Commercial Entry Systems, Windows and Glazing*,

is a test designed to measure time delay against forced-entry attacks.

§ HP White TP 0500.03, *Test Procedure: Transparent Materials for Use in Forced-Entry or Containment Barriers*, is NOT expressed in time but level ratings.

# ASTM F1915, *Standard Test Methods for Glazing for Detention Facilities*.

+ Lab technician unable to continue due to exhaustion.

NT- not tested or no test data available

CHILDGARD and ACCESSGARD are Registered Trademarks of GLOBAL SECURITY GLAZING, A CGH COMPANY.

SG4 and SG5 are Registered Trademarks of School Guard Glass.

NOTE: All competitive test data is based on publicly available data.



**Oldcastle** BuildingEnvelope®  
A CRH COMPANY



## **POWERFULLY RESISTANT**

ArmorGarde™ and ArmorDefend™  
single-sourced, forced-entry-resistant glass and glazing systems