

Armoured One's tactical security glass is Shooter Attack certified and can be made with options such as fire rated, insulated units, various levels of bullet resistance, etc. This type of glass is an excellent option for new construction or remodel projects where installers can use recommended standard size vision kits and drop our tactical security glass right into place. Armoured One glass has been developed by active shooter experts and is designed to slow down or deter an attacker who is trying to gain entry through the glass with force or a gun.

GLASS TYPES

AOTSG516	5/16" Shooter Attack Certified Glass
AOTSG616	3/8" Shooter Attack Certified Glass
AOTSG816	1/2" Shooter Attack Certified Glass
AOTSG1216	3/4" Shooter Attack Certified Glass
AOTSG1616	1" Shooter Attack Certified Glass
AOTSG1-IGU	1" Insulated Shooter Attack Certified Glass
AOTSG516FR-20	20 Minute Fire Rated Shooter Attack Certified Glass
AOTSG1016FR-45	45 Minute Fire Rated Shooter Attack Certified Glass
AOTSG616FR-90	90 Minute Fire Rated Shooter Attack Certified Glass
AOTSG1616FR-60	60 Minute Fire Rated Shooter Attack Certified Glass
AOTSG2216FR-90	90 Minute Fire Rated Shooter Attack Certified Glass
AOTSG3616FR-120	120 Minute Fire Rated Shooter Attack Certified Glass



BOMB BLAST & EXPLOSIVE PROTECTION

Bomb blast or explosions can cause glass shards to become lethal objects. Armoured One's Tactical Security Glass is bomb blast and explosive resistant, reducing the amount of flying glass.

GSA LEVEL 2 | ASTM F1642 | ISO 16934



SAFETY GLAZING & GLASS BREAKAGE

Armoured One's Tactical Security Glass reduces the amount of injury due to human contact from broken glass. Our film meets safety glazing codes to reduce the risk of pieces injuring people.

ANSI Z97.1 | 16 CFR CPSC 1201



WIND DEBRIS (WHEN APPLICABLE)

Armoured One's Tactical Security Glass is wind debris resistant. Our film has passed tests for small missile projectiles that simulate wind debris that could hit glass during strong winds, such as hurricanes.

ASTM E330 - TAS 201, 202, 203 - FLORIDA BUILDING CODE (DADE COUNTY SMALL MISSILE TEST) - HURRICANE



FIRE RATED (WHEN APPLICABLE)

Tested in accordance with NFPA 80, NFPA 252, UL 9, UL 10B, and UL 10C. AOTSG516FR is not a barrier to radiant heat and does not carry the ASTM E-119 or the UL 263 certifications.

**ASTM E84 CLASS A
FIRE RATED UL LISTED UP TO 120 MINUTES**



FORCED ENTRY & BURGLARY RESISTANT

Attackers target glass for easier access into a building. Armoured One's Tactical Security Glass is designed to slow down any attacker from being able to gain entry by withstanding multiple hits.

UL972 BURGLARY GLAZING MATERIAL | EN356 P4A



SHOOTER ATTACK CERTIFIED

Armoured One Tactical Security Glass has been tested to Filti Testing & Development's Shooter Attack certification (FTD-SA). This test method is the standard for simulating an active shooter attack. Test method was observed by UL.

FTD-SA LISTED UP TO LEVEL 19 (OBSERVED BY UL)





SHOOTER ATTACK CERTIFIED 23MIL FILM



In the US there is an active shooter incident that happens every day and when your building needs to go into lockdown, it is important to have glass that is designed to slow down or deter an attacker from gaining entry with a gun. If you have glass that you're not planning on replacing, then our shooter attack and bomb resistant security film is a great option. It's the first film to be Shooter Attack certified, which means it is designed for bullets to go through, but will still hold the glass together for a much longer time frame than typical safety film. Armoured One's security film was designed by active shooter experts and is military/police grade.

Installation of our 23MIL film is applied on the most inside surface of your existing glass and anchored to your existing framing. Our films are much thicker and utilize a patented adhesive technology that allows us to achieve the strength that other films cannot.

ARMOURED ONE SHOOTER ATTACK CERTIFIED 23MIL FILM WITH A 15 YEAR WARRANTY

Break Strength	640 lbs/inch	Highest rated break strength in the industry
Elongation Strength	230%	Highest rated elongation strength in the industry
Tensile Strength at Break	35,000	Highest rated tensile strength in the industry
Peel Strength	10-11 lbs/inch	Highest rated peel strength in the industry
Bomb Blast Certification	GSA Level 2 ISO 16934 ASTM F1642 Siach Gefen IDF Testing	Highest certification without breaking the glass
Forced Entry Test	UL972 EN356 P4A	Anti-burglary test method
Safety standard for architectural glazing material.	ANSI Z97.1 16CFR CPSC1201	Mandatory Building Code
Surface Burning	ASTM E84 CLASS A	Mandatory Building Code
Shooter Attack Test Method	FTD-SA-C1 (UL Observed)	Standard test method for simulating an active shooter attack



BOMB BLAST & EXPLOSIVE PROTECTION

GSA LEVEL 2 | ASTM F1642 | ISO 16934



SAFETY GLAZING & GLASS BREAKAGE

ANSI Z97.1 | 16 CFR CPSC 1201



WIND DEBRIS (WHEN APPLICABLE)

ASTM E330 | TAS 201, 202, 203 | FLORIDA BUILDING CODE (DADE COUNTY SMALL MISSILE TEST) | HURRICANE



FIRE RATED (WHEN APPLICABLE)

ASTM E84 CLASS A | FIRE RATED UL LISTED UP TO 120 MINUTES



FORCED ENTRY & BURGLARY RESISTANT

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SHOOTER ATTACK CERTIFIED

FTD-SA-LEVEL 1

OPTICAL AND SOLAR PRODUCT SPECIFICATION

No.	Parameter	Test Method	Measurement Tool	Spec	Unit	Comments
1	Haze	ASTM D 1003	Haze Gard Plus	<4	%	Film only
2	Color b	ASTM D 2244	MiniScan XE Plus	4.2	N/A	CIE-LAB D65/10 film only
3	Visible Light Transmitted	Optical and Solar performance...*	CARY 500 Scan Spectropho...**	87	%	Performance data on 1/8" clear glass***
4	Visible Light Reflected (Int)	*	**	12	%	***
5	Visible Light Reflected (Ext)	*	**	12	%	***
6	UV Block	*	**	>99	%	***
7	Total Solar Energy Reflected	*	**	11	%	***
8	Total Solar Energy Transmitted	*	**	77	%	***
9	Total Solar Energy Absorbed	*	**	12	%	***
10	Shading Coefficient	*	**	0.93	N/A	***
11	Total Solar Energy Rejected	*	**	19	%	***
12	Solar Heat Gain Coefficient	*	**	0.81	N/A	***
13	U-Value Winter	*	**	1.03	N/A	***
14	K-Value Winter	*	**	5.85	N/A	***
15	Glare Reduction	*	**	3	&	***

* Optical and Solar performance simulated using LBNL softwares (Optics and WINDOW 5.2) according NFRC methodology

** CARY 500 Scan Spectrophotometer

*** Performance data on 1/8" clear glass



ARMOURED ONE

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PARTNERED WITH



SHOOTER ATTACK CERTIFICATION

The purpose of this test is to perform a new forced entry certification that is more realistic to an active shooter scenario. Current tests use objects that are not related to such incidents, nor are they performed with a consistent amount of force.

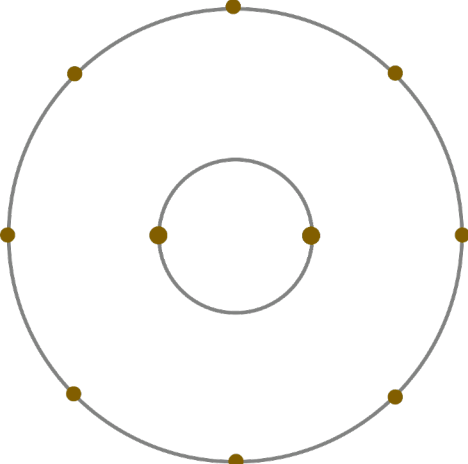
Specimen: Full Door Assembly.

Test to be performed as follows:

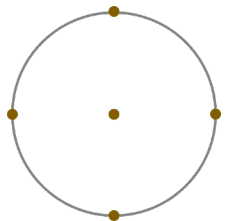
PART 1:

There will be 10 shots fired with a .223 AR15. 8 shots around an 18-inch circle and 2 shots around a 3-inch circle. The pattern will be centered to the glass. (See shooting pattern for reference).

There will also be 5 shots fired with a .223 AR15 located around the locking mechanism. 4 shots around a 5-inch circle and 1 shot in the center of the 5-inch circle. The pattern is positioned to the edge of the door near the lock. (See shooting pattern for reference).



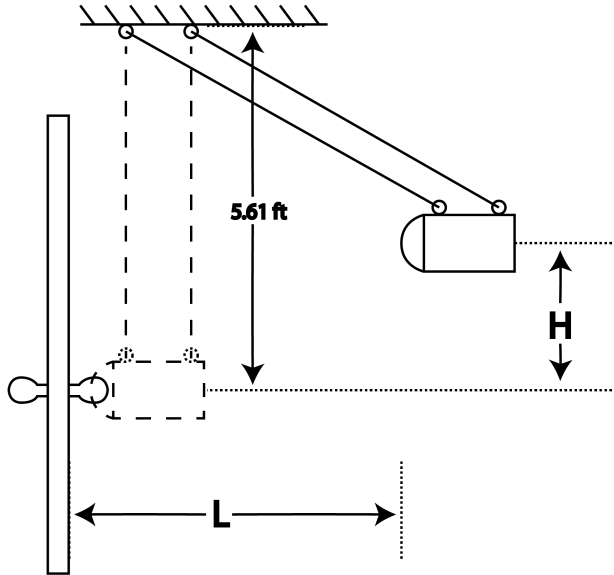
Glass Area Shooting Pattern



Lock Area Shooting Pattern

PART 2:

Once shot, the specimen will undergo a forced attack. The attack portion of the test is done using a 99.2 lb ram suspended by a system (See drawing for reference). The ram is brought to different lengths and heights to hit the glass area and the lock area with various amounts of force. (See chart below) The specimen is to be attacked at each level, by subjecting it to 2 hits before increasing the force to the next level. Failure occurs when any part of the specimen fails, allowing an intruder to gain entry.



Ram Test Setup



SHOOTER ATTACK CERTIFICATION FOR GLASS

Shooter Attack Classes with Force

Ram Weight 99.2 lbs

Class	Force J	Force Foot Pounds	Cable length (CL)	Angle	Height (Feet)	Length (Feet)	Height (Inches)	Length (Inches)	MPH at Impact
1	68	50	5.61 ft	24.51 degrees	0.51 feet	2.33 feet	6.07 inches	27.93	3.89 mph
2	101.69	75	5.61 ft	30.09 degrees	0.76 feet	2.81 feet	9.07 inches	33.75	4.76 mph
3	135.58	100	5.61 ft	34.88 degrees	1.00 feet	3.21 feet	12.09 inches	38.50	5.49 mph
4	169.48	125	5.61 ft	39.16 degrees	1.26 feet	3.54 feet	15.12 inches	42.51	6.14 mph
5	203.37	150	5.61 ft	43.08 degrees	1.51 feet	3.83 feet	18.15 inches	45.98	6.73 mph
6	237.27	175	5.61 ft	46.72 degrees	1.76 feet	4.08 feet	21.17 inches	49.01	7.26 mph
7	271.16	200	5.61 ft	50.15 degrees	2.15 feet	4.30 feet	24.18 inches	51.68	7.76 mph
8	305.06	225	5.61 ft	53.44 degrees	2.27 feet	4.51 feet	27.22 inches	54.07	8.24 mph
9	338.95	250	5.61 ft	56.58 degrees	2.52 feet	4.68 feet	30.24 inches	56.19	8.68 mph
10	372.85	275	5.61 ft	59.61 degrees	2.77 feet	4.84 feet	33.26 inches	58.07	9.10 mph
11	406.73	300	5.61 ft	62.55 degrees	3.02 feet	4.98 feet	36.29 inches	59.74	9.51 mph
12	440.64	325	5.61 ft	65.42 degrees	3.28 feet	5.10 feet	39.32 inches	61.22	9.91 mph
13	474.54	350	5.61 ft	68.22 degrees	3.53 feet	5.21 feet	42.34 inches	62.51	10.27 mph
14	508.43	375	5.61 ft	70.97 degrees	3.78 feet	5.30 feet	45.37 inches	63.64	10.63 mph
15	542.33	400	5.61 ft	73.67 degrees	4.03 feet	5.38 feet	48.39 inches	64.60	10.98 mph
16	576.22	425	5.61 ft	76.33 degrees	4.28 feet	5.45 feet	51.41 inches	65.41	11.32 mph
17	610.12	450	5.61 ft	78.97 degrees	4.54 feet	5.51 feet	54.44 inches	66.08	11.65 mph
18	644.01	475	5.61 ft	81.58 degrees	4.79 feet	5.55 feet	57.46 inches	66.59	12.00 mph
19	677.91	500	5.61 ft	84.17 degrees	5.04 feet	5.58 feet	60.48 inches	66.97	12.28 mph