Insulgard™

SECURITY PRODUCTS

BULLET • BLAST • WIND & IMPACT • FORCED ENTRY

Architectural security solutions built to resist ballistic, blast, wind and impact, and forced entry threats.

Insulgard™ Security Products provides consulting, manufacturing and installation for architectural security systems built to resist ballistic, blast, forced entry, and wind and impact threats. With the ability to take projects from concept through finished product, Insulgard adds expertise and value every step of the way. We are competitive on projects ranging from a single location, to a nationwide chain, to government and military applications.

The Insulgard portfolio includes a vast array of products and systems, including: counterlines, glazing materials, windows, doors, framing systems, transaction windows, and document and package passers. These products and systems are commonly found in banks, convenience stores, commercial and government offices, and retail establishments.

Insulgard products are rated for levels of protection through engineering and testing in laboratory conditions to meet standards set by Underwriters Laboratories (UL), Federal Emergency Management Agency (FEMA), Government Services Administration (GSA), National Institute of Justice (NIJ) and other industry-standard organizations and agencies.

SERVICES

Insulgard is a value-added partner for architects and contractors needing security/threat solutions that blend into their environment. As the project moves into construction, Insulgard can provide off-the-shelf or custom fabrication.

With one of the largest installation networks in the industry, we are able to serve customers across the nation. Insulgard has a solid reputation for ease of installation, prep work and attention to detail.

Insulgard Security Products is a business of SABIC Polymershapes LLC.

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COUNTERLINE SYSTEMS

Insulgard™ Security Products offers counterline systems, often referred to as bandit barriers, providing physical protection and theft deterrence in multiple markets and applications. With natural voice transmission and custom engineering to meet a variety of security levels, our systems provide a physical barrier while promoting a customer-friendly atmosphere.

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COUNTERLINE SYSTEMS

Insulgard™ Security Products counterline systems offer excellent aesthetics and voice transmission characteristics. Fabricated using UL 752 Level 1-3 materials, these systems are delivered ready for installation. Installation services are also available.

Arched Counterline Window

Baffle Counterline Window

Square Top Counterline Window

Horizontal Baffle Counterline Window

OPERABLE SYSTEMS

Insulgard™ Security Products also offers horizontal and vertical sliding systems with operable windows. These interior systems easily adjust allowing the customer to determine the level of security desired while providing a clear transaction area when windows are in the open position. Fabricated using UL 752 Level 1-3 materials, these systems are delivered ready for installation. Installation services are also available.

Horizontal Sliding System

Vertical Sliding System

BULLET RESISTANT

Insulgard™ Security Products has developed a comprehensive state-of-the-art product line to help protect against ballistic assault. The bullet resistant products and systems are designed and tested to meet UL 752/NIJ 0108.01 standards. The architectural security products include glazing material, framing and door systems, counterline systems, transaction windows, opaque armor and related accessories.

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BULLET RESISTANT

DOORS

Complete door systems for various ballistic applications.

	PRODUCT	FEATURES	COMPONENT RATING*
	44/350 Architectural Aluminum Door System	• Accepts glazing 3/4" to 1 3/8" • Full or half vision glazing • Available in narrow or medium stile • Anodized or painted finishes • Single or pair of doors • Accepts a variety of hardware	UL 752 Level 1-3; Blast GSA, Unified Facilities Criteria (UFC)
	HP500 Architectural Aluminum Door System	• Accepts glazing 1 1/4" to 2 1/16" • Medium stile • Heavy duty continuous hinge • Anodized or painted finishes • Full vision glazing • Fabricated and shipped complete with hardware	UL 752 Level 8; Blast GSA, UFC
	LC Door System	• Wood core construction • Heavy duty continuous hinge • Plastic laminate or wood veneer finish • Door and frame shipped assembled and prepped for hardware • Wide range of sizes available • Optional view window	UL 752 Level 1-3
	Polymer Door System	• Transparent with full or half vision glazing • Heavy duty continuous hinge • Door and frame shipped assembled and prepped for hardware • Wide range of sizes available	UL 752 Level 1-3
	Hollow Metal Door System	• Door and frame constructed of 16 gauge steel • Continuous heavy duty hinge • Complete hardware outfitting • Optional view window • Variety of frame types available • New construction or retrofit applications	UL 752 Level 1-8; Blast GSA, UFC
44/350 Architectural Aluminum Sliding Door System		• Available as bi-parting, bi-passing, or single sliding • Accepts various glazing materials from 3/4" to 1 3/8" • Available in narrow or medium stile • Full or half vision glazing • Manual or automatic with operator • Anodized or painted finishes • Complete line of hardware options • Safety breakaway option available	UL 752 Level 1-3; Blast GSA, UFC

ARCHITECTURAL ALUMINUM FRAMING

Complete framing systems for various ballistic applications.

	PRODUCT	FEATURES	COMPONENT RATING*
	44/250 Architectural Aluminum Sash System	• 1 1/2" x 2 1/2" profile • Accepts various glazing materials from 3/4" to 1 3/8" • Anodized or painted finishes • Completely fabricated and shipped knocked down and ready for installation • Can be used in new or retrofit construction	UL 752 Level 1-3
	44/300 Architectural Aluminum Framing System	• 2" x 3" profile • Accepts glazing up to 1" • Anodized or painted finishes • Completely factory assembled and glazed • Miami Dade County NOA-09-0610.07	UL 752 Level 1-3; Blast GSA, UFC
	44/450 Architectural Aluminum Framing System	• 2 1/2" x 4 1/2" profile • Accepts various glazing materials from 3/4" to 1 3/8" • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	UL 752 Level 1-3; Blast GSA, UFC
	44/600 Architectural Aluminum Framing System	• 2 1/2" x 6" profile • Accepts various glazing materials from 3/4" to 1 3/8" • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	UL 752 Level 1-3; Blast GSA, UFC
	TH600 Architectural Aluminum Framing System	• 2 1/2" x 6" profile • Accepts various glazing materials from 1 1/4" to 2 1/16" • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	UL 752 Level 4, 5 & 8; Blast GSA, UFC; FEMA 361-2008
	Backglazed Window System	• Hinged for ease of cleaning • Anodized or painted finishes • Key locking system available • New or retrofit applications • Interior only	UL 752 Level 1-3

GLAZING MATERIAL

Glazing materials for a variety of bullet resisting applications. The products include glass, polycarbonate, and acrylic make-ups.

MATERIAL: Lexgard® Laminate

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
MP750	0.750	4.6	UL 752 Level 1
HP875	0.860	5.4	UL 752 Level 2; Blast GSA, UFC
MP1000	1.030	6.4	UL 752 Level 2; H.P. White HPW-TP-0500.02 Forced Entry Level 4; ASTM F1233 Class 5; Blast GSA, UFC
SP1250	1.240	7.7	UL 752 Level 3; H.P. White HPW-TP-0500.02 Forced Entry Level 5; ASTM F1233 Class 5; ASTM F1915 Grade 1; Blast GSA, UFC
RS1250	1.250	7.7	UL 752 Level 6

MATERIAL: Acrylic Sheet

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
MP 1.25 (abrasion resistant coating optional)	1.250	7.7	UL 752 Level 1
HP 1.25 (abrasion resistant coating optional)	1.378	8.5	UL 752 Level 2
SP 1.25 (abrasion resistant coating standard)	1.250	7.7	UL 752 Level 3

Note: Blast GSA, UFC ratings indicated on glazing material are based on structural analysis of the framing and glazing material as a system.

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GLAZING MATERIAL (CONT.)

MATERIAL: Glass-Clad Polycarbonate

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
BALULN21	0.860	9	UL 752 Level 1
BALULN23	0.960	10.34	UL 752 Level 2
BALULN25	0.980	11.3	UL 752 Level 3; Blast GSA, UFC
BALULN25 IGU	1.716	14.57	UL 752 Level 3; Blast GSA, UFC
BALULN31	1.210	12.8	UL 752 Level 4; Blast GSA, UFC
BALULN31 IGU	1.950	16.07	UL 752 Level 4; Blast GSA, UFC
BALULN32	1.280	14.4	UL 752 Level 5; Blast GSA, UFC
BALULN32 IGU	2.010	17.67	UL 752 Level 5; Blast GSA, UFC
BALULN50	1.930	22.22	UL 752 Level 7
BALULN55	2.076	23.3	UL 752 Level 8
BALPCL55	2.308	27	NIJ Level 4
TOR-GARD® 40	1.610	16	UL 752 Level 4; FEMA 361-2008

Note: Blast GSA, UFC ratings indicated on glazing material are based on structural analysis of the framing and glazing material as a system.

TRANSACTION WINDOWS

Transaction windows with natural voice transmission for various applications including secure passage of currency and documents. Windows are offered in a variety of material options, sizes and ballistic levels.

	PRODUCT	FEATURES	COMPONENT RATING*
	AVT Transaction Window	• Extruded aluminum voice rails • Interior or exterior applications • Stainless steel or solid surface deal tray • High pressure laminate, stainless steel, or solid surface base • Assembled and ready for installation • Deep base optional	UL 752 Level 1-3
	SV Transaction Window	• Vertical stainless steel armored voice rails • Interior or exterior applications • Stainless steel or solid surface deal tray • High pressure laminate, stainless steel, or solid surface base • Assembled and ready for installation	UL 752 Level 1-3
	SVT Transaction Window	• Offers same features as SV Transaction Window with a stainless steel 3-sided voice rail frame	UL 752 Level 1-3
	SVPT Transaction Window	• Offers same features as SV Transaction Window with a package passer included	UL 752 Level 1-3
	NCV Window	• Non-contact visitation window • Stainless steel armored voice rails • Stainless steel base • Prohibits passing of contraband	UL 752 Level 1-3
	SLH Transaction Window	• Manual horizontal slide operation with locking hardware • Custom fabricated to meet application requirements • Anodized or painted finishes • Delivered complete and ready for installation • Framed unit available	UL 752 Level 1-3
	SLV Transaction Window	• Manual vertical lift operation with locking hardware • Custom fabricated to meet application requirements • Anodized or painted finishes • Delivered complete and ready for installation	UL 752 Level 1-3

Insulgard™ Security Products

PACKAGE PASSERS/DRAWERS

Package passers and drawers with interlocking mechanisms provide secure passage of various materials. The units are offered in various sizes and ballistic levels.

	PRODUCT	FEATURES	COMPONENT RATING*
	PE Package Passer	• Designed to pass items up to 12” x 14” x 15” (width x height x depth) • Black laminate base is standard • Fabricated from UL listed ballistic transparent material • Delivered assembled and ready for installation • Automatic door closers • Mechanically interlocking doors	UL 752 Level 1-3
	Large Package Passer	• Designed to pass items up to 24” x 22” x 26” (width x height x depth) • Mechanically interlocking vertical lifting doors • Fabricated from UL listed ballistic transparent material • Completely fabricated with minimal field assembly required	UL 752 Level 1-3
	Bulk Passer	• Designed to handle large parcels up to 33” x 83” x 32” (width x height x depth) • Fabricated from UL listed ballistic material • Completely fabricated with minimal field assembly required • Mechanically interlocking doors	UL 752 Level 1-3
	Steel Package Passer	• Steel box construction • Adjustable flange allows installation in walls to 12” thick • Mechanically interlocking doors • Delivered assembled and ready for installation • Doors lined with ballistic material • Exterior keyed latch included • Optional view window	UL 752 Level 1-3
	Rotary Package Passer	• Exterior or interior use • Brushed stainless steel finish • Fabricated from UL listed ballistic material • Delivered assembled and ready for installation • Operated from secure side of barrier	UL 752 Level 1
	Turnstile Package Passer	• Available in 24” x 18” or 24” x 24” sizes • Delivered assembled and ready for installation • Fabricated from UL listed ballistic transparent material	UL 752 Level 1-3
	Shuresafe® Security Drawer	• Internal speaker included • Removable deal tray for passing larger objects • Interior or exterior applications • Optional intercom	UL 752 Level 3

CURRENCY / PASS THRU TRAYS

Currency / Pass Thru trays for secure exchanges.

	PRODUCT	FEATURES
	Counter Top Deal Tray	• No counter cut-out required • Brushed stainless steel finish • Standard widths of 12”, 14”, or 16” x 2” high x 8” deep • Custom sizes available
	Counter Recessed Deal Tray	• Installed flush with countertop • Brushed stainless steel or solid surface finish • Standard widths of 12”, 14”, or 16” x 1 1/2” high x 8” deep • Custom sizes available
	Counter Recessed with Bullet Trap Deal Tray	• Offers same features as the Counter Recessed Deal Tray including bullet traps made of UL 752 Level 1-3 ballistic material

FIBERGLASS OPAQUE ARMOR

Insulgard™ Security Products FG Series fiberglass-reinforced structural polyester laminate exhibits unique bullet resisting characteristics. The FG Series fiberglass structural armor is designed to meet various opaque ballistic requirements and is available in both stock sheets (3'x8' or 4'x8') and custom sizes.

MATERIAL: Fiberglass Bullet Resisting Opaque Armor

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
FG-100	0.250	2.9	UL 752 Level 1
FG-200	0.375	4.1	UL 752 Level 2; NIJ Type II
FG-300	0.500	5.3	UL 752 Level 3; NIJ Type IIIA
FG-400	1.188	13.7	UL 752 Level 4
FG-500	1.375	14.9	UL 752 Level 5
FG-600	0.375	4.1	UL 752 Level 6
FG-700	1.063	12.1	UL 752 Level 7
FG-800	1.438	15.5	UL 752 Level 8; NIJ Type III

ACCESSORIES

Accessory components are provided to compliment the various systems.

	PRODUCT	FEATURES
	Overhead Louvers	• Allows air flow – does not restrict heating and cooling systems • Provides physical attack resistance above counterline barrier systems • Fabricated ready for installation • Hardware included • Available between 6" and 36" in height
	Backer Plate Speak-Thru	• Round, square, or rectangular options • Made of transparent ballistic material • Excellent sound transmission • Acrylic spacers and hardware included
	Stainless Steel Round Speak-Thru	• Available as interior or exterior model • Adjustable to fit various glazing thicknesses • Requires 5-inch diameter hole • UL 752 Level 3 or non-rated unit available

TESTING/PERFORMANCE

Insulgard™ products are rated for levels of protection through testing in laboratory conditions.

Ratings of Bullet Resisting Materials as Identified by UL 752 (December 21, 2006)

RATING	AMMUNITION	GRAIN	(g)	MINIMUM VELOCITY (fps)	MINIMUM VELOCITY (mps)	NO. OF SHOTS
Level 1	9mm full metal copper jacket with lead core	124	8.0	1175	358	3
Level 2	.357 magnum jacketed lead soft point	158	10.2	1250	381	3
Level 3	.44 magnum lead semi-wadcutter gas checked	240	15.6	1350	411	3
Level 4	.30 caliber rifle lead core soft point	180	11.7	2540	774	1
Level 5	7.62mm rifle lead core full metal copper jacket, military ball	150	9.7	2750	838	1
Level 6	9mm full metal copper jacket with lead core	124	8.0	1400	427	5
Level 7	5.56mm rifle full metal copper jacket with lead core	55	3.56	3080	939	5
Level 8	7.62mm rifle lead core full metal copper jacket, military ball	150	9.7	2750	838	5
Supplementary Shotgun	12-gauge rifled lead slug and 12-gauge 00 lead buckshot (12 pellets)	437 650	28.3 42	1585 1200	483 366	3

Note: Maximum velocity is 110 percent of the minimum velocity.

TESTING/PERFORMANCE (CONT.)

Ratings of Bullet Resisting Materials as Identified by
National Institute of Justice (NIJ) 0108.01 (September 1985)

RATING	AMMUNITION	GRAIN	(g)	VELOCITY (m/s)	VELOCITY (fps)	NO. OF SHOTS
Level I	.22 long rifle high velocity lead	40	2.6	320±12	1050±40	5
Level I	.38 special round nose lead	158	10.2	259±15	850±50	5
Level IIA	357 mag. jacketed soft point	158	10.2	381±15	1250±50	5
Level IIA	9mm full metal jacket	124	8.0	332±12	1090±40	5
Level II	357 mag. jacketed soft point	158	10.2	425±15	1395±50	5
Level II	9mm full metal copper jacket	124	8.0	358±12	1175±40	5
Level IIIA	.44 mag. lead semi-wadcutter gas checked	240	15.55	426±15	1400±50	5
Level IIIA	9mm full metal jacket	124	8.0	426±15	1400±50	5
Level III	7.62mm (308 Winchester) full metal jacket	150	9.7	838±15	2750±50	5
Level IV	.30-06 armor piercing	166	10.8	868±15	2850±50	1

BLAST RESISTANT

Insulgard™ Security Products has developed a comprehensive state-of-the-art product line for applications seeking protection from blast/bomb events in conjunction with ballistic assault. Our systems are custom engineered to achieve a variety of security levels with architectural appeal. The architectural security products include glazing material, framing and door systems.

Insulgard™
SECURITY PRODUCTS

BLAST RESISTANT

GLAZING MATERIAL

Glazing materials for a variety of blast/bomb applications. These products include various glass and polycarbonate make-ups.

MATERIAL: Blast Resisting Glazing Systems

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
BALULN25	0.980	11.3	Blast GSA, UFC; UL 752 Level 3
BALULN25 IGU	1.716	14.57	Blast GSA, UFC; UL 752 Level 3
BALULN31	1.210	12.8	Blast GSA, UFC; UL 752 Level 4
BALULN31 IGU	1.950	16.07	Blast GSA, UFC; UL 752 Level 4
BALULN32	1.280	14.4	Blast GSA, UFC; UL 752 Level 5
BALULN32 IGU	2.010	17.67	Blast GSA, UFC; UL 752 Level 5
NBRBLST-4	1.260	6.45	Blast GSA, UFC
NBRBLST-10	1.390	7.9	Blast GSA, UFC
HP875	0.860	5.4	Blast GSA, UFC; UL 752 Level 2
MP1000	1.030	6.4	Blast GSA, UFC; H.P. White HPW-TP-0500.02 Forced Entry Level 4; UL 752 Level 2; ASTM F1233 Class 5
SP1250	1.240	7.7	Blast GSA, UFC; H.P. White HPW-TP-0500.02 Forced Entry Level 3; UL 752 Level 3; ASTM F1915 Security Grade 1; ASTM F1233 Class 5

Note: Blast GSA, UFC ratings indicated on glazing material are based on structural analysis of the framing and glazing material as a system.

FRAMING SYSTEMS

Complete framing systems for various blast/bomb applications.

	PRODUCT	FEATURES	COMPONENT RATING*
	44/300 Architectural Aluminum Framing System	• 2” x 3” profile • Accepts glazing up to 1” • Anodized or painted finishes • Miami Dade County NOA-09-0610.07 • Completely factory assembled and glazed	Blast GSA, UFC; UL 752 Level 1-3
	44/450 Architectural Aluminum Framing System	• 2 1/2” x 4 1/2” profile • Accepts various glazing materials from 3/4” to 1 3/8” • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	Blast GSA, UFC; UL 752 Level 1-3
	44/600 Architectural Aluminum Framing System	• 2 1/2” x 6” profile • Anodized or painted finishes • Accepts various glazing materials from 3/4” to 1 3/8” • Completely fabricated and shipped assembled when applicable • Designed for conventional installation and glazing methods • Designed for new construction or retrofit applications	Blast GSA, UFC; UL 752 Level 1-3
	TH600 Architectural Aluminum Framing System	• 2 1/2” x 6” profile • Accepts various glazing materials from 1 1/4” to 2 1/16” • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	Blast GSA, UFC; UL 752 Level 4, 5, & 8; FEMA 361-2008

DOORS

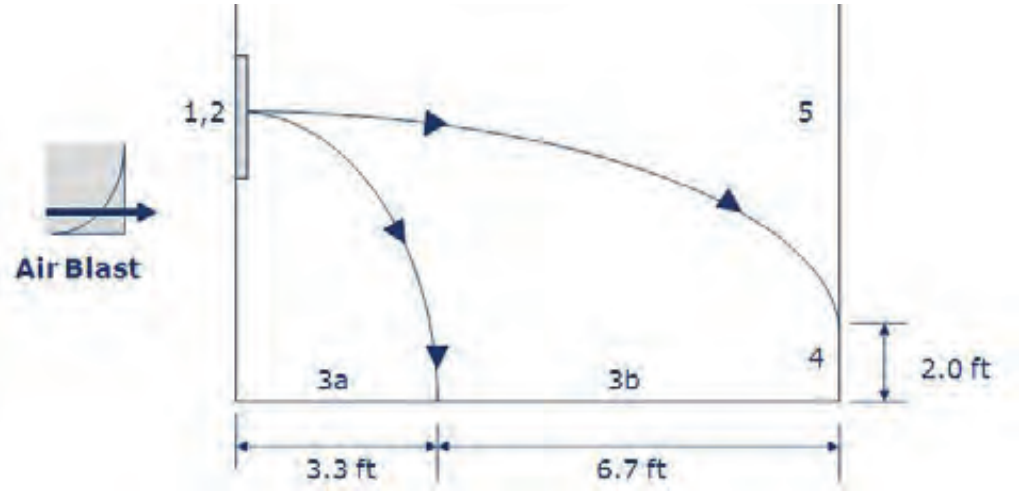
Complete door systems for various blast/bomb applications.

	PRODUCT	FEATURES	COMPONENT RATING*
	44/350 Architectural Aluminum Door System	• Accepts glazing 3/4” to 1 3/8” • Full or half vision glazing • Available in narrow or medium stile • Anodized or painted finishes • Single or pair of doors • Accepts a variety of hardware	Blast GSA, UFC; UL 752 Level 1-3
	HP500 Architectural Aluminum Door System	• Accepts glazing 1 1/4” to 2 1/16” • Medium stile • Heavy duty continuous hinge • Anodized or painted finishes • Full vision glazing • Fabricated and shipped complete with hardware	Blast GSA,UFC; UL 752 Level 8
	Hollow Metal Door System	• Door and frame constructed of 16 gauge steel • Continuous heavy duty hinge • Complete hardware outfitting • Optional view window • Variety of frame types available • New construction or retrofit applications	Blast GSA, UFC; UL 752 Level 1-8
	44/350 Architectural Aluminum Sliding Door System	• Available as bi-parting or single sliding • Accepts various glazing materials from 3/4” to 1 3/8” • Available in narrow or medium stile • Full or half vision glazing • Manual or automatic with operator • Anodized or painted finishes • Complete line of hardware options • Safety breakaway option available	Blast GSA, UFC; UL 752 Level 1-3

Insulgard™ Security Products

TESTING/PERFORMANCE

GSA Test Protocol GSA-TS01-2003
(Janurary 1, 2003)



PERFORMANCE CONDITION	GLAZING SYSTEM RESPONSE	HAZARD	PROTECTION CLASSIFICATION
1	Glazing does not break. No visible damage to glazing or frame.	None	Safe
2	Glazing cracks but is retained by the frame. Dusting or very small fragments near sill or on floor acceptable.	None	Very High
3a	Glazing cracks. Fragments enter space and land on floor no further than 3.3 ft. from the window.	Very Low	High
3b	Glazing cracks. Fragments enter space and land on floor no further than 10 ft. from the window.	Low	High
4	Glazing cracks. Fragments enter space and land on floor and impact a vertical witness panel at a distance of no more than 10 ft. from the window at a height no greater than 2 ft. above the floor.	Medium	Medium
5	Glazing cracks and window system fails catastrophically. Fragments enter space impacting a vertical witness panel at a distance of no more than 10 ft. from the window at a height greater than 2 ft. above the floor.	High	Low

UFC 4-010-01 (February 9, 2012)

Levels of Protection – New and Existing Buildings

LEVELS OF PROTECTION	POTENTIAL BUILDING DAMAGE/PERFORMANCE[2]	POTENTIAL DOOR & GLAZING HAZARDS[3,4]	POTENTIAL INJURY
Below AT standards (Antiterrorism) standards[1]	Severe damage. Progressive collapse likely. Space in and around damaged area will be unusable.	Doors and windows fail catastrophically and result in lethal hazards. *(High hazard rating)*	Majority of personnel in collapse region suffer fatalities. Potential fatalities in areas outside of collapsed area likely.
Very Low	Heavy damage – Onset of structural collapse, but progressive collapse is unlikely. Space in and around damaged area will be unusable.	• Glazing will fracture, come out of frame, and is likely to be propelled into the building, with potential to cause serious injuries. *(Low hazard rating)* • Doors will be severely deformed but will not become a flying debris hazard. *(Category IV)*	Majority of personnel in damaged area suffer serious injuries with a potential for fatalities. Personnel in areas outside damaged area will experience moderate injuries.
Low	Moderate damage – Building damage will not be economically repairable. Progressive collapse will not occur. Space in and around damaged area will be unusable.	• Glazing will fracture, potentially come out of the frame, but at reduced velocity, does not present a significant injury hazard. *(Very low hazard rating)* • Doors will experience non-catastrophic failure, but will have permanent deformation and will be inoperable. *(Category III)*	Majority of personnel in damaged area suffer minor to moderate injuries with the potential for a few serious injuries, but fatalities are unlikely. Personnel in areas outside damaged areas will potentially experience minor to moderate injuries.
Medium[5]	Minor damage – Building damage will be economically repairable. Space in and around damaged area can be used and will be fully functional after cleanup and repairs.	• Glazing will fracture, remain in the frame and results in a minimal hazard consisting of glass dust and slivers. *(Minimal hazard rating)* • Doors will be operable but will have permanent deformation. *(Category II)*	Personnel in damaged area potentially suffer minor to moderate injuries, but fatalities are unlikely. Personnel in areas outside damaged areas will potentially experience superficial injuries.
High[5]	Minimal damage. No permanent deformations. The facility will be immediately operable.	• Glazing will not break. (No hazard rating) • Doors will remain intact and show no permanent deformation. *(Category 1)*	Only superficial injuries are likely.

TESTING/PERFORMANCE (CONT.)

Standoff Distances for New and Existing Buildings

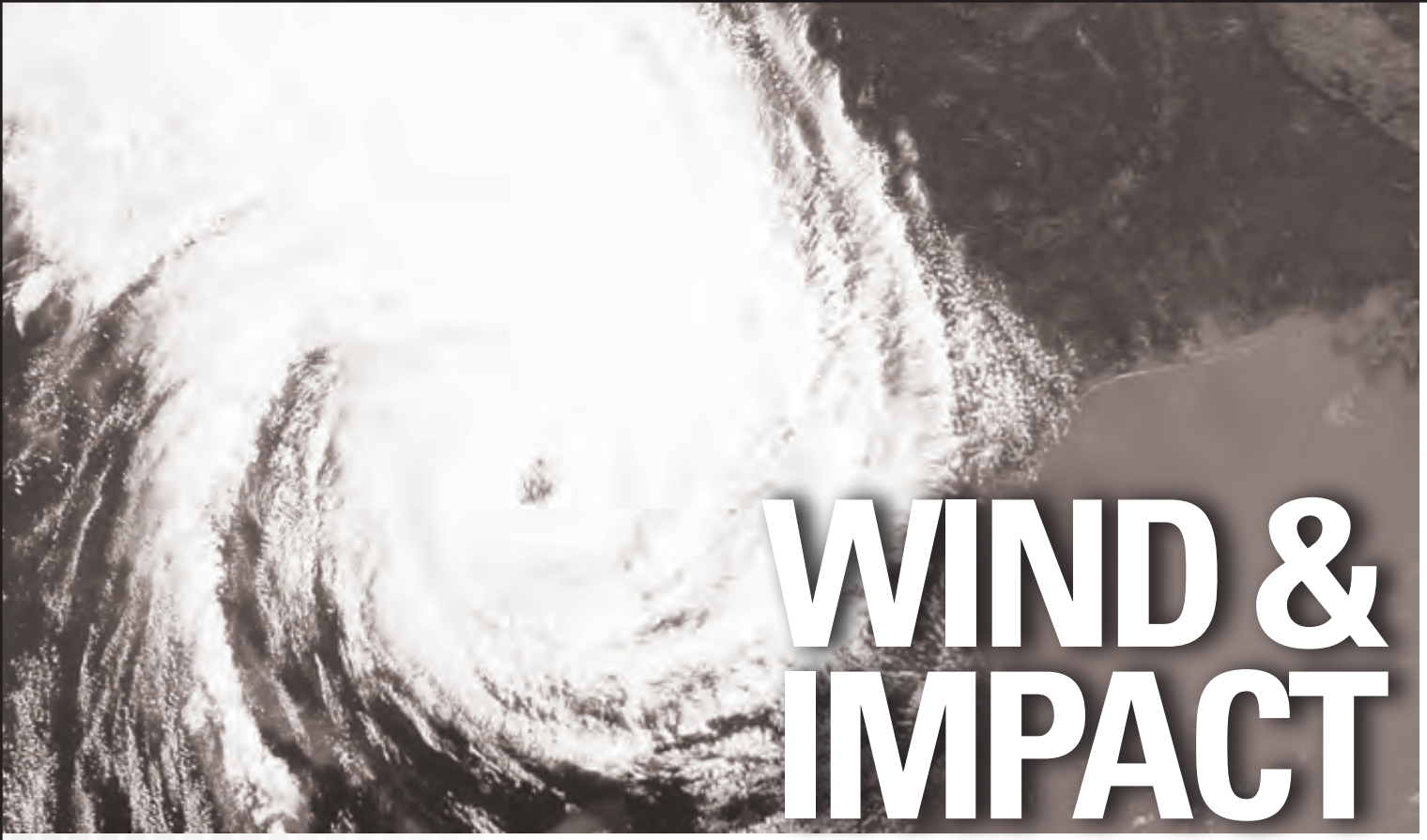
LOCATION	BUILDING CATEGORY	STANDOFF DISTANCES		
		Applicable Level of Protection	Minimum Standoff Distance [1]	Applicable Explosive Weight [2]
Controlled Perimeter or Parking and Roadways without a Controlled Perimeter	Billeting and High Occupancy Family Housing	Low	18 ft (5.5m)	I
	Primary Gathering Building	Low	18 ft (5.5m)	I
	Inhabited Building	Very Low	18 ft (5.5m)	I
Parking and Roadways within a Controlled Perimeter	Billeting and High Occupancy Family Housing	Low	12 ft (3.6m)	II
	Primary Gathering Building	Low	12 ft (3.6m)	II
	Inhabited Building	Very Low	12 ft (3.6m)	II
Trash Containers	Billeting and High Occupancy Family Housing	Low	12 ft (3.6m)	II
	Primary Gathering Building	Low	12 ft (3.6m)	II
	Inhabited Building	Very Low	12 ft (3.6m)	II

Levels of Protection – New and Existing Buildings

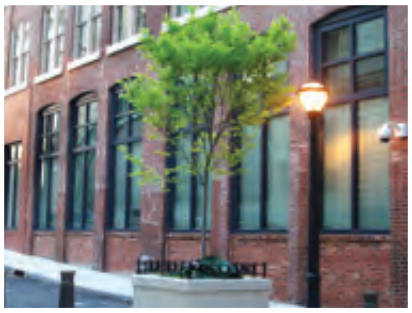
1. This is not a level of protection and should never be a design goal. It only defines a realm of more severe structural response, and may provide useful information in some cases.
2. For damage / performance descriptions for primary, secondary, and non-structural members, refer to PDC Technical report 06-08.
3. Glazing hazard levels are from ASTM F 1642.
4. Door hazard levels are from ASTM F 2257.
5. Beyond minimum standards.

Standoff Distances for New and Existing Buildings

1. Per UFC 4-010-01, February 9, 2012, DoD Minimum Antiterrorism Standards for Buildings, for new construction, standoff distances less than those in this column are not allowed for new buildings regardless of analysis or hardening. For existing buildings that are constructed / retrofitted to provide the required level of protection, standoffs less than those in this column are allowed, but discouraged.
2. See UFC 4-010-02, for the specified explosive weights (pounds / kg of TNT) associated with designations I and II. UFC 04-010-02 is For Official Use Only (FOUO).



WIND & IMPACT



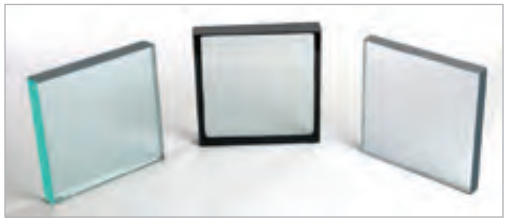
Insulgard™ Security Products is an architectural security solutions provider. We manufacture and design architectural security products and systems designed and tested to meet FEMA 361-2008, International Code Council (ICC) 500-2008, and Miami-Dade County standards.

Insulgard™
SECURITY PRODUCTS

WIND & IMPACT

GLAZING MATERIAL

Glazing materials provided for hurricane, tornado, wind and impact applications. These products include various glass and polycarbonate make-ups.



PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
TOR-GARD® NBR2	1.272	10.84	FEMA 361 - 2008
TOR-GARD® 40	1.610	16	FEMA 361 - 2008; UL 752 Level 4
TOR-GARD® NBR IG	2.008	15	FEMA 361 - 2008

FRAMING SYSTEMS

Complete framing systems for various hurricane, tornado, wind and impact applications.

	PRODUCT	FEATURES	COMPONENT RATING*
	44/300 Architectural Aluminum Framing System	• 2” x 3” profile • Accepts glazing up to 1” • Anodized or painted finishes • Miami Dade County NOA-09-0610.07 • Completely factory assembled and glazed	UL 752 Level 1-3; Blast GSA, UFC
	TH600 Architectural Aluminum Framing System	• 2 1/2” x 6” profile • Accepts various glazing materials from 1 1/4” to 2 1/16” • Anodized or painted finishes • Completely fabricated and shipped assembled when applicable • Designed for new construction or retrofit applications • Designed for conventional installation and glazing methods	FEMA 361 - 2008; UL 752 Level 4, 5 & 8; Blast GSA, UFC

DOORS

Complete door systems for various hurricane, tornado, wind and impact operational applications.

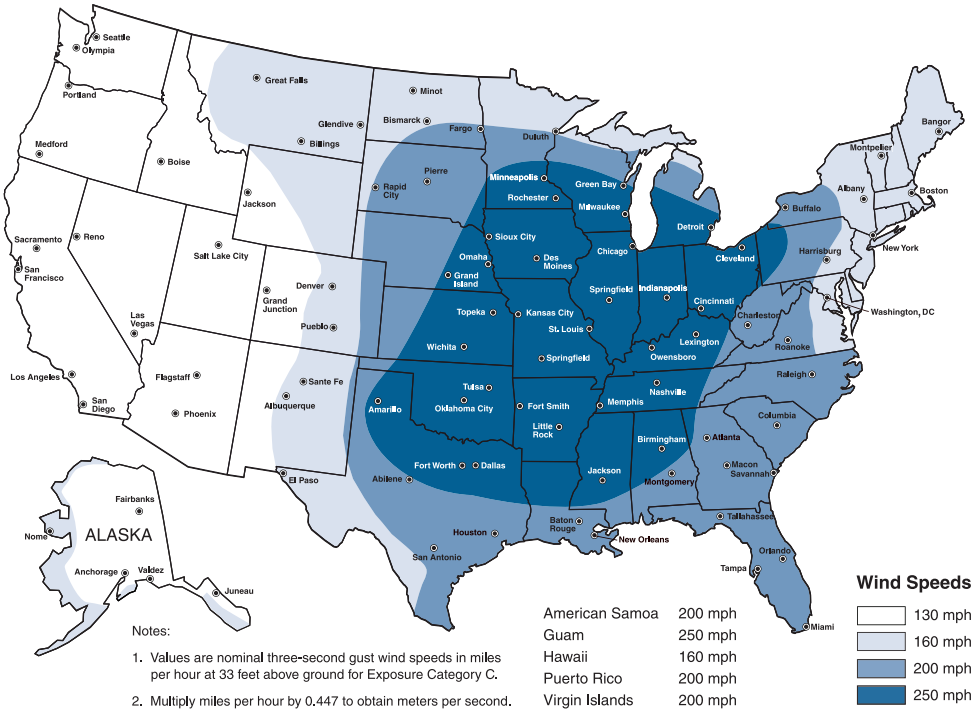
	PRODUCT	FEATURES	COMPONENT RATING*
	TH350 FEMA DOOR	• Available as a single door or pair of doors • Accepts Tor-Gard® NBR2 glazing • Full vision glazing • Medium stile • Fabricated with FEMA tested hardware • Anodized or painted finishes • Designed for conventional installation methods	FEMA 361 - 2008

TESTING/PERFORMANCE

Design and Construction Guidance for Community Safe Rooms. FEMA P-361, second edition/ August 2008. Comparison of Debris Impact Test Requirements for Tornadoes and Hurricanes

Tornado Safe Room Missile Testing Requirements

GUIDANCE, CODE, OR STANDARD CRITERIA FOR THE DESIGN MISSILE	HORIZONTAL DEBRIS IMPACT TEST SPEED (MPH)	LARGE MISSILE SPECIMEN	MOMENTUM AT IMPACT (LB_F-S)$^+$	ENERGY AT IMPACT (FT-LB_F)$^+$
DOE-STD-1020-2002	25 mph 75 mph 150 mph (maximum) 100 mph (maximum)	3,000-lb auto 75-lb pipe 15-lb 2x4 15-lb 2x4	3,240 257 103 68	67,710 14,110 11,288 5,017
FEMA 320/FEMA 361	100 (maximum) 80 (minimum)	15-lb 2x4 15-lb 2x4	68 55	5,017 3,210
ICC-500 Storm Shelter Standard	100 (maximum) 80 (minimum)	15-lb 2x4 15-lb 2x4	68 55	5,017 3,210
IBC/IRC 2006, ASCE 7-05, Florida and North Carolina State Building Codes, ASTM E 1886/E 1996	N/A	None	N/A	N/A



Hurricane Safe Room Missile Testing Requirements**

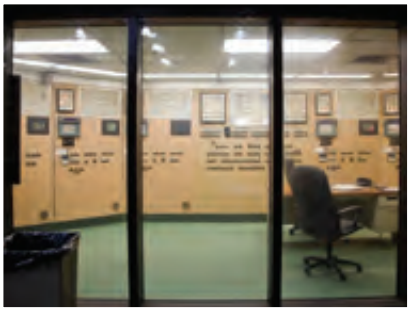
GUIDANCE, CODE, OR STANDARD CRITERIA FOR THE DESIGN MISSILE	HORIZONTAL DEBRIS IMPACT TEST SPEED (MPH)	LARGE MISSILE SPECIMEN	MOMENTUM AT IMPACT (LB_F-S)+	ENERGY AT IMPACT (FT-LB_F)+
DOE-STD-1020-2002	50	15-lb 2x4	34	1,254
FEMA 320/FEMA 361	128 (maximum) 80 (minimum)	9-lb 2x4 9-lb 2x4	53 33	4,932 1,926
ICC-500 Storm Shelter Standard	102 (maximum) 64 (minimum)	9-lb 2x4 9-lb 2x4	42 26	3,132 1,233
Florida State Emergency Shelter Program (SESP) Criteria and EOC Design Criteria	50 (EOC recommended) 55 (EHPA recommended) 34 (EHPA minimum)	15-lb 2x4 9-lb 2x4 9-lb 2x4	34 23 14	1,254 911 348
IBC/IRC 2006, ASCE 7-05, Florida and North Carolina State Building Codes, ASTM E 1886/E 1996**	55 34	9-lb 2x4 9-lb 2x4	23 14	910 348

+ lb_f-s = pounds (force) seconds and ft-lb_f = foot pounds (force)

** Hurricane missile testing requirements in these codes and standards only apply in the windborne debris regions (defined in the code/standard) and not throughout the hurricane-prone region

N/A = Not applicable

FORCED ENTRY

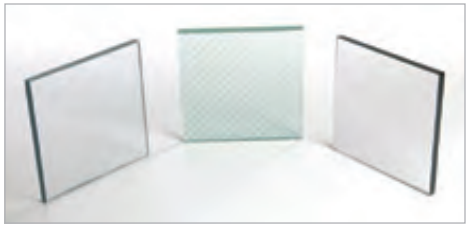


Insulgard™ Security Products is an architectural security solutions provider. We manufacture and design architectural security products and systems designed to resist forced entry.

Insulgard™
SECURITY PRODUCTS

GLAZING MATERIAL

Glazing materials for forced entry applications. These products include various glass and polycarbonate make-ups.



MATERIAL: Sure-Gard® Glass-Clad Polycarbonate

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
ICGCP716	0.468	4.4	H.P. White HPW-TP-0500.02 Forced Entry Level 1
ICGCP916	0.570	5.1	H.P. White HPW-TP-0500.02 Forced Entry Level 1; ASTM F1915 Security Grade 4
ICGCP1116	0.725	5.9	H.P. White HPW-TP-0500.02 Forced Entry Level 2
ICGCP1216	0.721	6.1	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 30 min forced entry; ASTM F1915 Security Grade 3
ICGCP1316	0.754	6.3	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 30 min forced entry
ICGCP1516	0.864	7.5	H.P. White HPW-TP-0500.02 Forced Entry Level 3; WMFL 60 min forced entry; ASTM F1915 Security Grade 2
ICGCP2416	1.230	10.1	WMFL 60 min forced entry; ASTM F1915 Security Grade 1

GLAZING MATERIAL (CONT.)

MATERIAL: Fire-Gard® Glass-Clad Polycarbonate

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
ICGCP916WW	0.820	7	H.P. White HPW-TP-0500.02 Forced Entry Level 1; UL 9 Fire Test
ICGCP916WW90	0.820	7	H.P. White HPW-TP-0500.02 Forced Entry Level 1; UL 10C Fire Test
ICGCP1216WW	0.950	9.5	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 30 min forced entry; ASTM F1915 Security Grade 3; UL 9 Fire Test
ICGCP1216WW90	0.950	9.5	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 30 min forced entry; ASTM F1915 Security Grade 3; UL 10C Fire Test
ICGCP2416WW	1.261	10.1	WMFL 60 min forced entry; ASTM F1915 Security Grade 1; UL 9 Fire Test
ICGCP2416WW90	1.261	10.1	WMFL 60 min forced entry; ASTM F1915 Security Grade 1; UL 10C Fire Test

MATERIAL: Lexgard® Laminate

PRODUCT	NOMINAL THICKNESS (inches)	WEIGHT (lbs/sq ft)	RATING
MPC375	0.370	2.3	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 30 min forced entry; ASTM F1915 Security Grade 3; ASTM F1233 Class 3
MPC500	0.500	3.1	H.P. White HPW-TP-0500.02 Forced Entry Level 2; WMFL 60 min forced entry; ASTM F1915 Security Grade 2; ASTM F1233 Class 3
RC750	0.750	4.6	H.P. White HPW-TP-0500.02 Forced Entry Level 3; WMFL 60 min forced entry; ASTM F1915 Security Grade 1; ASTM F1233 Class 4
MP1000	1.030	6.4	H.P. White HPW-TP-0500.02 Forced Entry Level 4; UL 752 Level 2; ASTM F1233 Class 5; Blast GSA; UFC
SP1250	1.240	7.7	H.P. White HPW-TP-0500.02 Forced Entry Level 5; UL 752 Level 3; ASTM F1915 Security Grade 1; ASTM F1233 Class 5; Blast GSA; UFC

Note: Blast GSA, UFC ratings indicated on glazing material are based on structural analysis of the framing and glazing material as a system.

TESTING/PERFORMANCE

American Society for Testing Materials (ASTM F1233-08 TESTING SEQUENCE)

SEQUENCE:	CLASS I	CLASS II	CLASS III	CLASS IV	CLASS V
TEST IMPLEMENTS: Blunt Impacting (impacts)					
Sledge Hammer (25)	N/A	5	10, 16	19, 22, 27	30, 33, 36, 39
4" (10cm) diameter Pipe/Sledge (25)	N/A	N/A	9	18	29
Ram (10)	N/A	N/A	8	17	28
Ball Peen Hammer (10)	1	2	N/A	N/A	N/A
TEST IMPLEMENTS: Sharp Tool (impacts)					
Ripping Bar (10)	N/A	7	12	23	N/A
Chisel/Hammer (25)	N/A	N/A	13	25	35, 40
Angle Iron/Sledge (25)	N/A	N/A	15	N/A	N/A
1 1/2" (4 cm) Diameter Pipe Sledge (25)	N/A	3	N/A	N/A	N/A
Fire Axe (25)	N/A	N/A	N/A	24	32, 38
Wood Splitting Maul (25)	N/A	N/A	N/A	21	34, 41
TEST IMPLEMENTS: Thermal Stress (minutes)					
Extinguisher, CO_2 (1)	N/A	4	N/A	N/A	N/A
Propane Torch (5)	N/A	6	11	20	31
TEST IMPLEMENTS: Chemical Deterioration (amount)					
Gasoline (1/2 Pint) (1/4 Liter)	N/A	N/A	14	N/A	N/A
Acetone (1/2 pint) (1/4 Liter)	N/A	N/A	N/A	26	37
TOTAL FORCED ENTRY SEQUENCES	**1**	**7**	**16**	**27**	**41**

American Society for Testing Materials (ASTM F1915-05)

SECURITY GRADE	TOTAL TIME	SEQUENCE 1 BLUNT IMPACTOR	SEQUENCE 2 SHARP IMPACTOR	SEQUENCE 3 BLUNT IMPACTOR	TOTAL IMPACTS
1	60 minutes	150	300	150	600
2	40 minutes	100	200	100	400
3	20 minutes	50	100	50	200
4	10 minutes	25	50	25	100

HP WHITE-TP-0500.03 (Forced Entry Test Procedure) TESTING SEQUENCE

	LEVEL I	LEVEL II	LEVEL III	LEVEL IV	LEVEL V
TEST IMPLEMENTS: Blunt Impacting (impacts)					
Sledgehammer/ wedge (25)	1, 4	8, 10	18, 24, 26	29, 32, 39	42, 45, 48, 51, 54
4” diameter Pipe/ Sledge (25)	2	7	17	28	41
Ram (10)	N/A	6	16	27	40
Pinch Bar (a)					
TEST IMPLEMENTS: Thermal Stress (minutes)					
Extinguisher, CO_2 (1)	3	9	N/A	N/A	N/A
Propane Torch (5)	N/A	11	19	30	N/A
Acetylene Torch (5)	N/A	N/A	N/A	N/A	43

TESTING/PERFORMANCE (CONT.)

HP WHITE-TP-0500.03 (Forced Entry Test Procedure) TESTING SEQUENCE *cont.*

	LEVEL I	LEVEL II	LEVEL III	LEVEL IV	LEVEL V
TEST IMPLEMENTS: Sharp Tool (impacts)					
Chisel/Hammer (25)	N/A	12	21, 23	33, 36, 38	47, 52
Angle Iron/Sledge (25)	N/A	13	22	N/A	N/A
1 1/2" Diameter Pipe Sledge (25)	5	N/A	N/A	N/A	N/A
Fire Axe (25)	N/A	N/A	N/A	35	44, 50
Wood Maul (25)	N/A	15	20	31	46, 53
Compass Saw (b), Hacksaw (b)					
TEST IMPLEMENTS: Chemical Deterioration (amount)					
Gasoline (8 oz)	N/A	14	N/A	N/A	N/A
Windshield Washer (8 oz)	N/A	N/A	25	34	N/A
Acetone (8 oz)	N/A	N/A	N/A	37	49
TOTAL FORCED ENTRY SEQUENCES	**5**	**15**	**26**	**39**	**54**

(a) Pinch or ripping may be substituted for any portion of Blunt Impacting Sequence at rate of 1 minute for each 5 impacts (Test Director Option)

(b) Additional sequences of one minute intervals in conjunction with all Sharp Tool Sequences except sequences 5 and 15 (re: Test Protocol HPW-TP-0500.03 paragraphs 3.5.7 and 3.5.8)

F. Walker, McGough, Folz and Lyeria (WMFL) Test Procedure (Ballistic/Physical/Flame Attack)

ATTACK SEQUENCE SUMMARY	LEVEL I BALLISTIC AND 60 MINUTES PHYSICAL ATTACK	LEVEL II 60 MINUTES PHYSICAL ATTACK	LEVEL III 30 MINUTES PHYSICAL ATTACK
.44 Magnum, 240 Grain	25 rounds	N/A	N/A
2 lb. Claw Hammer	5 minutes	5 minutes	5 minutes
10 lb. Sledgehammer	5 minutes	5 minutes	5 minutes
Cold Chisel/Screwdriver	5 minutes	5 minutes	5 minutes
1 1/2" x 3' pipe with 2" x 2" x 3' angle iron	5 minutes	5 minutes	N/A
#8 Reinforcing Bar, 3' long	5 minutes	5 minutes	N/A
4" x 4" x 3' Long (oak) leg	5 minutes	5 minutes	N/A
Fire extinguisher (chemical dry)	5 minutes	5 minutes	5 minutes
10 lb. Sledgehammer	5 minutes	5 minutes	N/A
Clothes Hanger/Knife, Heated 10" Blade 1/4" Thick	5 minutes	5 minutes	N/A
Propane Burner, (2,200°F)	5 minutes	5 minutes	5 minutes
4 lb. Hammer	5 minutes	5 minutes	5 minutes
3" x 3' Pipe with 1" x 1" x 3' Angle Iron	5 minutes	5 minutes	N/A

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