SECTION 08 88 53

SECURITY GLAZING

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* Impact Security LLC; retrofit door and window protection for forced entry and ballistic attack.
This section is based on the products of Impact Security LLC, which is located at:600 Kirk Rd., Suite 100Marietta, GA 30060Toll Free Tel: 888-689-5502Fax: 678-547-3138Email: [request info (info@defenselite.com)](https://arcat.com/rfi?action=email&company=Impact%252BSecurity%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08880dfl)%253A%2520&coid=52521&spec=08880dfl&rep=&fax=678-547-3138)
Web: <https://www.defenselite.com>
 [ [Click Here](https://arcat.com/company/impact-security-llc-52521) ] for additional information.
DefenseLite is a patented security glazing system manufactured by Impact Security, LLC. This retrofit security shield is designed to mount onto the existing glazing, creating unmatched forced entry protection. DefenseLite transforms windows and doors into impenetrable openings that are 250 times stronger than glass alone. DefenseLite is NOT an applied security film, but rather a heavy gauge architectural grade polycarbonate and extruded framing system designed to keep intruders out. The surface of the polycarbonate is specialty coated to protect against scratching, graffiti and other factors that may result in the degradation of the UV resistant material.
As the bullet-resistant version of DefenseLite, BulletShield is independently tested to provide UL 752 ballistic ratings, preventing breach against 9MM, .44 Magnum and other aggressive attacks. BulletShield can be installed over your existing glass from the interior or exterior depending on existing conditions. With certified dealers and installation teams in every major city, specifiers can be confident of the ease of access anywhere in the United States.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Safety and security glazing for doors, windows, and aluminum framed storefront.
		2. Personal protective shields (PPS).
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Division 08 - Openings.
		2. Section 08 50 00 - Windows (08 50 00) - Windows.
		3. Section 08 53 00 - Plastic Windows (08 56 00) - Special Function Windows.
		4. Section 08 53 13 - Vinyl Windows (08 56 53) - Security Windows.
		5. Section 08 83 13 - Mirrored Glass Glazing (08 80 00) - Glazing.
		6. Section 08 88 56 - Ballistics-Resistant Glazing (08 88 56) - Ballistics-Resistant Glazing.
		7. Section 08 83 13 - Mirrored Glass Glazing (08 81 00) - Glass Glazing.
		8. Section 08 87 13 - Solar Control Film (08 87 23) - Safety and Security Film Systems.
		9. Section 08 88 56 - Ballistic Resistant Glazing (08 88 53) - Security Glazing.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
			2. ASTM C509 - Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
			3. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
			4. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
			5. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
			6. ASTM D732 - Standard Test Method for Shear Strength of Plastics by Punch Tool.
			7. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
			8. ASTM D1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
			9. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
			10. ASTM E283 - Standard Test Method for Rate and Air Leakage Through Exterior Windows, Curtain Walls, and Doors.
			11. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Door by Uniform Static Air Pressure Difference.
			12. ASTM F1233 - Standard Test Method for Security Glazing Materials and Systems.
		2. American Architectural Manufacturers Association (AAMA):
			1. AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.
			2. AAMA 607.1 -
			3. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum"
			4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
		3. American National Standards Institute (ANSI):
			1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
		4. Consumer Products Safety Council (CPSC):
			1. CPSC 16 CRF 1201 - Safety Standards for Glazing Materials.
		5. Florida Building Code (FBC):
			1. HVHZ - High Velocity Hurricane Zone Classification.
			2. Miami-Dade County.
		6. H.P. White Laboratory, Inc. (HPW):
			1. HPW-TP-0500.03 - Test Procedure for Transparent Materials for Use in Forced Entry or Containment Barriers.
		7. ICC Evaluation Services (ICC-ES):
			1. ICC-ES Evaluation Report ESR-2728.
		8. US Department of Defense (DoD):
			1. DoD, Unified Facilities Criteria (UFC) 4-010-01 - DoD Minimum Antiterrorism Standards.
		9. US Department of Justice, National Institute of Justice (NIJ):
			1. NIJ 0108.01 - Ballistic Resistant Protective Materials.
		10. US State Department
			1. SD-STD-01.01 - Certification Standard - Forced entry and Ballistic Resistance or Structural Systems.
		11. Underwriters Laboratories (UL):
			1. UL 752 - Bullet Resisting Equipment.
			2. UL 94 - Flammability.
			3. UL 972 - Burglary Resisting Glazing Material.
			4. UL 746C - Suitability for Outdoor Use.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
		2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company certified by Impact Security, LLC for installation of DefenseLite Products.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	4. WARRANTY

\*\* NOTE TO SPECIFIER \*\* an extended warranty is available. Contact manufacturer for more detail.

* + 1. Manufacturer's Warranty: Manufacturer's two (2) year standard limited warranty for parts and labor when installed by manufacturer certified installer.
			1. Polycarbonate Shield Warranty: Seven (7) years.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Impact Security LLC, which is located at:600 Kirk Rd., Suite 100Marietta, GA 30060Toll Free Tel: 888-689-5502Fax: 678-547-3138Email: [request info (info@defenselite.com)](https://arcat.com/rfi?action=email&company=Impact%252BSecurity%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08880dfl)%253A%2520&coid=52521&spec=08880dfl&rep=&fax=678-547-3138);Web: <https://www.defenselite.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* Delete performance standards not required.

* + 1. Ballistics-Resistance Performance: Provide units identical to those tested for compliance with the following requirements:
			1. Listed and labeled as bullet resisting according to UL 752.
			2. Tested for ballistics resistance according to UL 752, ASTM F1233, HPW-TP-0500.03, or NIJ STD-0108.01, by a testing agency acceptable to authorities that have jurisdiction.
			3. Certified as complying with SD-STD-01.01, by US State Department, for ballistics resistance when tested by a qualified testing agency.
		2. Forced-Entry-Resistance Performance: Provide units identical to those tested for compliance with requirements indicated, and as follows:
			1. Tested for forced entry resistance according to HPW-TP-0500.03 or ASTM F 1233 by a testing agency acceptable to authorities that have jurisdiction.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. For Federal Government Work: Certified as complying with SD-STD-01.01 by US State Department, for forced entry resistance when tested by a qualified testing agency.

\*\* NOTE TO SPECIFIER \*\* Delete air infiltration option not required.

* + 1. Air Infiltration for Fixed Windows: Not more than 0.010 cfm/ft. (0.015 L/s per m) of crack length at an inward test pressure of 1.56 lbs/sq ft (75 Pa) when tested according to ASTM E283.
		2. Air Infiltration for Fixed Windows: Not more than 0.060 cfm/ft. (0.093 L/s per m) of crack length at an inward test pressure of 1.56 lbs/sq ft (75 Pa) when tested according to ASTM E283.

\*\* NOTE TO SPECIFIER \*\* Delete water penetration options not required.

* + 1. Water Penetration: No water penetration as defined in test method at an inward test pressure of 1.56 lbf/sq ft (75 Pa) when tested according to ASTM E331.
		2. Water Penetration: No water penetration as defined in test method at an inward test pressure of 2.86 lbf/sq ft (137 Pa) when tested according to ASTM E331.
		3. Water Penetration: No water penetration as defined in test method at an inward test pressure of 6.24 lbf/sq ft (300 Pa) when tested according to ASTM E331.
	1. SAFETY AND SECURITY GLAZING SYSTEMS

\*\* NOTE TO SPECIFIER \*\* Delete basis of design product options not required.

* + 1. Basis of Design: DefenseLite as manufactured by Impact Security, LLC. A lightweight thermoformable sheet, security shield. Polished surface, UV stabilized, transparent, high impact strength, dimensional stability, high temperature resistance, and high clarity.
			1. Patented, professionally installed system.
			2. Performance Requirements:
				1. Standards Compliance:

ANSI Z97.1.

CPSC 16 CFR 1201, Category I and Category II.

Florida Building Code, HVHZ Classified.

Miami-Dade County NOA 15-1014.01.

ICC-ES Evaluation Report ESR-2728.

UL 94.

UL 972.

UL 746C.

\*\* NOTE TO SPECIFIER \*\* Delete light transmission options not required.

* + - * 1. Light Transmission: Clear per ASTM D1003: 86 percent.
				2. Light Transmission: I30 Gray per ASTM D1003: 50 percent.
				3. Light Transmission: K09 Bronze per ASTM D1003: 50 percent.
				4. Light Transmission: I35 Dark Gray per ASTM D1003: 18 percent.
				5. Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).
				6. Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).
				7. Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).
				8. Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).
				9. Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).
			1. Glazing: UL listed multi-ply polycarbonate.
			2. Glazing Thickness: 0.220 inches (5.59 mm)

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 80 x 120 inches () maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm)
			3. Glazing Sheet Size: As indicated on the Drawings.
			4. Frame includes "Moore Vent" condensation relief system consisting of propriety venting of the dead air space and desiccant into interior space.
		1. Basis of Design: DefenseLite Pro as manufactured by Impact Security, LLC. A lightweight thermoformable sheet, security shield. It has a polished surface, is UV stabilized, transparent. It has high impact strength, dimensional stability, high temperature resistance, and high clarity.
			1. Patented, professionally installed system.
			2. Performance Requirements:
				1. Standards Compliance:

ANSI Z97.1.

CPSC 16 CFR 1201, Category I and Category II.

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UL 94.

UL 972.

UL 746C.

\*\* NOTE TO SPECIFIER \*\* Delete light transmission options not required.

* + - * 1. Light Transmission: Clear per ASTM D1003: 86 percent.
				2. Light Transmission: I30 Gray per ASTM D1003: 50 percent.
				3. Light Transmission: K09 Bronze per ASTM D1003: 50 percent.
				4. Light Transmission: I35 Dark Gray per ASTM D1003: 18 percent.
				5. Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).
				6. Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).
				7. Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).
				8. Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).
				9. Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).
			1. Glazing: UL listed multi-ply polycarbonate.
			2. Glazing Thickness: 0.375 inches (9.53 mm)

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 80 x 120 inches (232 x 3048 mm) maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm)
			3. Glazing Sheet Size: As indicated on the Drawings.
			4. Frame includes "Moore Vent" condensation relief system consisting of propriety venting of the dead air space and desiccant into interior space.
		1. Basis of Design: DefenseLite Energy manufactured by Impact Security, LLC. Polished surface, UV stabilized, transparent security shield that reduces solar energy coming through windows and doors.
			1. Patented, professionally installed system.
			2. Performance Requirements:
				1. Reduces infrared transmission by more than 50 percent.
				2. Blocks 99 percent of UV radiation.
				3. Standards Compliance:

ANSI Z97.1.

CPSC 16 CFR 1201, Category I and Category II.

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UL 94.

UL 972.

UL 746C.

\*\* NOTE TO SPECIFIER \*\* Delete light transmission options not required.

* + - * 1. Light Transmission: Clear per ASTM D1003: 86 percent.
				2. Light Transmission: I30 Gray per ASTM D1003: 50 percent.
				3. Light Transmission: K09 Bronze per ASTM D1003: 50 percent.
				4. Light Transmission: I35 Dark Gray per ASTM D1003: 18 percent.
				5. Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).
				6. Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).
				7. Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).
				8. Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).
				9. Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).
			1. Glazing: UL listed multi-ply polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete glazing thickness option not required.

* + - 1. Glazing Thickness: 0.220 inches (5.59 mm).
			2. Glazing Thickness: 0.375 inches (9.53 mm).

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 80 x 120 inches (232 x 3048 mm) maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm).
			3. Glazing Sheet Size: As indicated on the Drawings.
		1. Basis of Design: DefenseLite Sound as manufactured by Impact Security, LLC. Polished surface, UV stabilized, transparent security shield that reduces street noise from coming through windows and doors.
			1. Patented, professionally installed system.
			2. Performance Requirements:
				1. Standards Compliance:

ANSI Z97.1.

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UL 94.

UL 972.

UL 746C.

\*\* NOTE TO SPECIFIER \*\* Delete light transmission options not required.

* + - * 1. Light Transmission: Clear per ASTM D1003: 86 percent.
				2. Light Transmission: I30 Gray per ASTM D1003: 50 percent.
				3. Light Transmission: K09 Bronze per ASTM D1003: 50 percent.
				4. Light Transmission: I35 Dark Gray per ASTM D1003: 18 percent.
				5. Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).
				6. Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).
				7. Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).
				8. Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).
				9. Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).
			1. Glazing: UL listed multi-ply polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete glazing thickness option not required.

* + - 1. Glazing Thickness: 0.220 inches (5.59 mm)
			2. Glazing Thickness: 0.375 inches (9.53 mm)

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 80 x 120 inches (232 x 3048 mm) maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm)
			3. Glazing Sheet Size: As indicated on the Drawings.
			4. Frame includes "Moore Vent" condensation relief system consisting of propriety venting of the dead air space and desiccant into interior space.
		1. Basis of Design: DefenseLite Storm as manufactured by Impact Security, LLC. Polished surface, UV stabilized, transparent security shield that protects buildings and homes from windstorms and impact from air-borne projectiles.
			1. Patented, professionally installed system.
			2. Performance Requirements:
				1. Standards Compliance:

ANSI Z97.1.

CPSC 16 CFR 1201, Category I and Category II.

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UL 94.

UL 972.

UL 746C.

\*\* NOTE TO SPECIFIER \*\* Delete light transmission options not required.

* + - * 1. Light Transmission: Clear per ASTM D1003: 86 percent.
				2. Light Transmission: I30 Gray per ASTM D1003: 50 percent.
				3. Light Transmission: K09 Bronze per ASTM D1003: 50 percent.
				4. Light Transmission: I35 Dark Gray per ASTM D1003: 18 percent.
				5. Tensile Strength, Yield per ASTM D638: 9000 psi (62,000 kPa).
				6. Flexural Strength per ASTM D790: 13,500 psi (93,000 kPa).
				7. Shear Strength, Yield per ASTM D732: 6000 psi (41,000 kPa).
				8. Horizontal Burn, AEB per ASTM D635: Less than 1 inch (25 mm).
				9. Ignition Temperature, Self per ASTM D1929: 1022 degrees F (550 degrees C).
			1. Glazing: UL listed multi-ply polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete glazing thickness option not required.

* + - 1. Glazing Thickness: 0.220 inches (5.59 mm)
			2. Glazing Thickness: 0.375 inches (9.53 mm)

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 80 x 120 inches (232 x 3048 mm) maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm)
			3. Glazing Sheet Size: As indicated on the Drawings.
			4. Frame includes "Moore Vent" condensation relief system consisting of propriety venting of the dead air space and desiccant into interior space.
		1. Basis of Design: BulletShield as manufactured by Impact Security, LLC. A retrofit, bullet resistant, clear security shield that installs over existing window and door glass.
			1. Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete ballistic level options not required.

* + - * 1. Ballistic Level (UL 752): Level 1.
				2. Ballistic Level (UL 752): Level 2.
				3. Ballistic Level (UL 752): Level 3.
				4. Ballistic Level (UL 752): Level 4.
				5. Ballistic Level (UL 752): Level 5.
				6. Ballistic Level (UL 752): Level 6.
				7. Ballistic Level (UL 752): Level 7.
			1. Description: Polished surface, UV stabilized, transparent security shield.
			2. Patented, professionally installed system.
			3. Glazing: UL listed multi-ply polycarbonate.

\*\* NOTE TO SPECIFIER \*\* Delete glazing thickness options not required. Glazing thickness can vary from 1/2 inch (13 mm) to 2-1/2 inch (64 mm) depending on shielding and security requirements. Please consult the manufacturer.

* + - 1. Glazing Thickness: \_\_\_\_ inches (\_\_\_\_ mm).
			2. Glazing Thickness: As indicated on the Drawings.
			3. Glazing Thickness: To be determined based on shielding and security requirements.

\*\* NOTE TO SPECIFIER \*\* Delete glazing sheet size options not required. Custom sizes are available. Contact manufacturer for more detailed information.

* + - 1. Glazing Sheet Size: 60 x 96 inches (1524 x 2438) maximum.
			2. Glazing Sheet Size: \_\_\_\_ x \_\_\_\_ inches (\_\_\_\_ x \_\_\_\_ mm).
			3. Glazing Sheet Size: As indicated on the Drawings.
			4. Frame includes "Moore Vent" condensation relief system consisting of propriety venting of the dead air space and desiccant into interior space.
	1. FABRICATION
		1. Shields and Hardware:
			1. Fabricate security and ballistic shields from pre-determined sheet sizes as manufactured.
			2. Cut and fabricate security panels and mounting hardware to surveyed sizes.

\*\* NOTE TO SPECIFIER \*\* Delete if sacrificial layer option is not required.

* + - 1. Apply sacrificial layers at factory and prior to shipment of completed product.
		1. Finish work neat and free from defects.
		2. Tolerances: Plus, or minus 1/16 inch (1.6 mm) for frame opening width, height, diagonal dimensions, and overall width and height, outside to outside.
	1. MATERIALS
		1. Extruded Aluminum: ASTM B221, 6063 alloy.
		2. Neoprene Glazing Gaskets:
			1. Interior Glazing gaskets closed cell cellular neoprene conforming to ASTM C509 Type II Option 1 with a 40-50 Shore A Durometer.
			2. Exterior Glazing gaskets solid neoprene conforming to ASTM C864 with a 65-75 Shore A Durometer.
		3. Weatherstripping: Entrance manufacturer's standard types to suit application.
		4. Fasteners: Stainless steel or corrosion resistant steel.
		5. Glazing Sealants and Adhesives:
			1. Dow 995 or Dow 795 for exterior applications.
			2. Dow 995, Dow 795, or 3M IPA for interior applications.

\*\* NOTE TO SPECIFIER \*\* Delete article or accessory options not required.

* 1. ACCESSORY COMPONENTS
		1. Edge Banding: Available in various colors to make system virtually invisible.
		2. Aluminum Standoffs: Designed to keep protected glass from breaking.
		3. Bottom Frame: Eliminates moisture to prevent fogging.
		4. DefenseLite Super Bond: Secures the system.
		5. Sacrificial clear surface protective film.
		6. Audible impact alarm.

\*\* NOTE TO SPECIFIER \*\* Branded graphics and vinyl film products can be applied over exterior surface of DefenseLite. Consult Impact Security LLC for further details and applications under consideration.

* + 1. Branded Graphics and Vinyl Film Products: \_\_\_\_\_\_\_\_.
	1. FINISHES

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + 1. Steel Finishes:
			1. Dress tool marks and surface imperfections to smooth surfaces.
			2. Clean and chemically treat steel surfaces.
			3. Manufacturer's standard rust inhibiting gray primer paint.
			4. Manufacturer's standard polyester powder coat, sprayed and baked:
				1. PPG Duranar with resin containing 70 percent fluoropolymer; thermosetting; alternative finishes will not be acceptable, conforming to AAMA 2605.
				2. Pretreatment: Five-stage; zinc chromate conversion coating.
				3. Application: Electrostatic spray and oven bake by approved applicator.
				4. Coating quantity: Minimum one primer coat and one color coat.
				5. Dry film thickness: Minimum 1.2 mils (0.03 mm) on exposed surfaces, except inside corners and channels.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: \_\_\_\_\_.
				2. Color: To be selected by Architect from Manufacturer's full range.
				3. Color: Custom color.
		1. Stainless Steel Finish: No. 3 brushed finish.
		2. Aluminum Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required.

* + - 1. Anodized Finish: AAMA 611, Architectural Class I anodized, clear.
			2. Anodized Finish: AAMA 611, Architectural Class I anodized, bronze.
			3. Anodized Finish: AAMA 611, Architectural Class I anodized, black.
			4. Anodized Finish: AAMA 611, Class II, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: As fabricated; Chemical Finish: Etched, Medium Matte; Anodic Coating: Architectural Class II, Clear Coating 0.40 mils (0.01 mm) minimum complying with the following:
				1. AAMA 607.1.
				2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.
			5. Powder Coat Finish: Manufacturer's standard polyester powder coat, sprayed and baked:
				1. PPG Duranar with resin containing 70 percent fluoropolymer; thermosetting; alternative finishes will not be acceptable, conforming to AAMA 2605.
				2. Pretreatment: Five-stage; zinc chromate conversion coating.
				3. Application: Electrostatic spray and oven bake by approved applicator.
				4. Coating quantity: Minimum one primer coat and one color coat.
				5. Dry film thickness: Minimum 1.2 mils (0.03 mm) on exposed surfaces, except inside corners and channels.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: \_\_\_\_\_.
				2. Color: To be selected by Architect from Manufacturer's full range.
				3. Color: Custom color.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete basis of design options not required.

* 1. PERSONAL PROTECTIVE SHIELDS (PPS).
		1. Basis of Design: DefenseLite Personal Protective Shields by Impact Security LLC.
			1. Architectural grade fixtures for interior environments requiring protection from germ spread and disease.
			2. Abrasion resistant polycarbonate: 1/4 inch ( 6 mm) thick
			3. Finished metal framing.
			4. Mechanical and adhesive mounting systems.

\*\* NOTE TO SPECIFIER \*\* Delete applications option not required.

* + - 1. Application: Permanent.
			2. Application: Semi-permanent.
			3. Size: As determined by the Architect from manufacturer's range.
		1. Basis of Design: DefenseLite Covid Barrier and Screen Privacy Cloaking by Impact Security LLC.
			1. Architectural grade fixtures for interior environments requiring protection from germ spread and disease. Incorporates cloaking technology.
			2. Abrasion resistant polycarbonate: 1/4 inch ( 6 mm) thick
			3. Finished metal framing.
			4. Mechanical and adhesive mounting systems.

\*\* NOTE TO SPECIFIER \*\* Delete applications option not required.

* + - 1. Application: Permanent.
			2. Application: Semi-permanent.
			3. Size: As determined by the Architect from manufacturer's range.
		1. Basis of Design: DefenseLite Scholastic Covid Barrier and Projection Screen by Impact Security LLC.
			1. Architectural grade fixtures for interior environments requiring protection from germ spread and disease. Incorporates projection screen technology.
			2. Abrasion resistant polycarbonate: 1/4 inch ( 6 mm) thick
			3. Finished metal framing.
			4. Mechanical and adhesive mounting systems.

\*\* NOTE TO SPECIFIER \*\* Delete applications option not required.

* + - 1. Application: Permanent.
			2. Application: Semi-permanent.
			3. Size: As determined by the Architect from manufacturer's range.
		1. Basis of Design: DefenseLite Scholastic Covid Barrier and Switchable Privacy Screen by Impact Security LLC.
			1. Architectural grade fixtures for interior environments requiring protection from germ spread and disease. Incorporates switchable technology from clear to opaque.
			2. Abrasion resistant polycarbonate: 1/4 inch ( 6 mm) thick
			3. Finished metal framing.
			4. Mechanical and adhesive mounting systems.

\*\* NOTE TO SPECIFIER \*\* Delete applications option not required.

* + - 1. Application: Permanent.
			2. Application: Semi-permanent.
			3. Size: As determined by the Architect from manufacturer's range.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
		2. Install plumb, level, square, true to line, and without warp or rack.
		3. Provide all fasteners required for installation.
		4. Anchor frames securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
		5. Joint Sealants: Install joint sealants as specified in Section 07 21 19 - Foamed-In-Place Insulation.
		6. Adjust door equipment for correct function and smooth operation. Verify water and weather tight installation as applicable.
	4. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturer's recommendations.
		2. Remove excess joint sealant in accordance with sealant manufacturer's instructions.
		3. Do not use harsh cleaning materials or methods that would damage glazing or finish.
		4. Protect installed products until completion of project.
		5. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION