**SECTION 08 56 53**

**TSS BULLET RESISTANT FRAMING SYSTEM - BL2.5**

(**Specifier Note**: The purpose of this guide specification is to assist the Specifier in correctly specifying bullet resistant aluminum framing assemblies with their installation as security windows.

The Specifier must edit this guide specification to fit the needs of each specific project. References have been made within the text of the specification to MasterFormat section numbers and titles. The Specifier must coordinate these numbers and titles with sections included for the specific project.

Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Brackets have been used to indicate when a selection is required. Contact a TSS representative for further assistance with appropriate product selections.)

**PART 1 - GENERAL**

* + - 1. SECTION INCLUDES
				1. Bullet resistant BL2.5 aluminum ballistic channel.

* + - 1. REFERENCES
				1. Underwriters Laboratory UL 752-Standard for Bullet Resisting Equipment.
				2. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass.
				3. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
				4. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.3 ACTION SUBMITTALS

* + - * 1. Refer to Section[01 33 00 Submittal Procedures] [Insert section number and title].
				2. Product Data: For each type of framing [and glass] including manufacturer recommended installation instructions.
				3. Shop Drawings: Include plans, elevations, sections, details, attachment to other work.
				4. Samples: For each exposed finish.

1.4 INFORMATION SUBMITTALS

* + - * 1. Product Test Reports: Indicating compliance with requirements
				2. Warranty: Sample of finish warranty

1.5 CLOSEOUT SUBMITTALS

* + - * 1. Refer to Section [01 78 00 Closeout Submittals] [Insert section number and title].
				2. Maintenance data.

1.6 DELIVERY, STORAGE AND HANDLING

##### Refer to Section [01 60 00 Product Requirements] [Insert section number and title].

* + - * 1. Deliver materials to the project site with the manufacturer’s UL Listed Labels intact and legible. Handle the materials with care to prevent damage. Store materials inside and under cover, stack flat and off floor. Project conditions (temperature, humidity, and ventilation) shall be within the maximum limit recommendations provided by manufacturer. Do not install products stored in conditions outside manufacturer’s recommended limits.

1.7 WARRANTY

(**Specifier Note**: The 5 year finish warranty applies to the Class I anodic finishes and the 10 year applies to the 70% PVDF coating finish.)

##### Workmanship Warranty: All materials shall be warranted against defects for a period of[1] year for the date of receipt at the project site. Provide certificates of manufacturer’s standard limited warranty with closeout documents.

* + - * 1. Finish Warranty: Manufacturer’s warranty against deterioration of factory finishes for the period of [5] [10] years from the date of Substantial Completion.

(**Specifier Note**: Product information is proprietary to TSS If additional products are required for competitive procurement, contact TSS for assistance in listing competitive products that may be available.)

**PART 2 - PRODUCTS**

2.1 MANUFACTURED UNITS

* + - * 1. Basis of Design:

Subject to compliance with requirements, provide products by the following:

Total Security Solutions, Inc., 935 Garden Lane, Fowlerville, MI 48836, 866 734-6277. Attn: Sales Department, sales@tssbulletproof.com. Web: [www.tssbulletproof.com](http://www.tssbulletproof.com).

Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with [Section 01 25 00 Substitution Procedures] [Insert section number and title].

* + - * 1. Design Performance:

Total Security Solutions Bullet Resistant Aluminum Sash TSS-BL2.5 Ballistic Channel.

Head and sill shall be one piece extrusions with no integral weep system at the sill.

Jambs shall be two piece extrusions with removable faces to allow for re-glazing.

All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members.

Glazing must not be removable from the threat side of the sash.

Provide to dimension heights and widths indicated on the Drawings.

System shall be designed to defeat ballistic assaults from a .44 magnum handgun in accordance with UL 752, Level 3.

* + - * 1. Field alterations to the construction of the assembly fabricated under the acceptable standards are not allowed unless approved in writing by the manufacturer and the Architect.
				2. Standard manufacturing tolerances +/- 1/16" shall be maintained.
				3. Materials shall meet or exceed UL 752 requirements.

2.2 PERFORMANCE CRITERIA

(**Specifier Note**: DELETE Ballistic and Blast resistance requirements that are not project specific.)

A. Ballistic Resistant:

Level [**1**] [**2**] [**3**] in accordance with UL 752 – Testing for Ballistic Resistance for the complete assembly including framing, glazing and panels.

2.3 FABRICATIONS

* + - * 1. Aluminum sections to be manufactured in accordance with ASTM B209, Extruded aluminum alloy 6063 T5 Anodized to match the existing décor and be free of sharp edges or burrs when in place.
				2. Glazing Channel: U-Channel specifically designed for securing transparencies tightly in place. Angles and stops are only acceptable for top attachment. All exposed aluminum edges shall be clean cut and have no burrs. Exposed corners shall be rounded and sanded.
				3. Tolerances: All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members

(**Specifier Note**: SELECT the project specific finish from the following.)

2.4 FRAME FINISH

* + - * 1. Factory-applied finish:

[**Clear Anodic Finish - Satin**]: Architectural Class I, clear coating AA-M10C22A41 Mechanical Finish Chemical Finish: etched, medium matte; 0.70 mils minimum complying with AAMA 611 "Voluntary Specification for Anodized Architectural Aluminum"

[**Color Anodic Finish**]: Architectural Class I, color coating AA-M10C22A42/A44 Mechanical Finish Chemical Finish: etched, medium matte; 0.70 mils minimum complying with AAMA 611 "Voluntary Specification for Anodized Architectural Aluminum".

Color: Dark Bronze.

[Custom paint color \_\_\_\_\_\_\_\_\_\_\_].

The bottom of the glazing to be capped with corresponding material on the frame.

* 1. GLAZING

A. Glazing shall be as shown on the drawings or as specified separately in [08 88 53 Security Glazing] [Insert section number and title].

**Specifier Note**: SELECT glazing based on threat level and architect’s preferences from the following options. Remove glazing levels not used. **NOTE**: Recommended width not to exceed 36” and height not to exceed 48”.

Bullet Resistant Level 1
3/4" LP 750 Laminated

 3/4" All Poly 750
3/4" GCP 750 Glass Clad
1 1/4" Uncoated Acrylic
1 1/4" AR Coated Acrylic

Bullet Resistant Level 2
1" LP 1000 Laminated

 1" All Poly 1000
1 3/8” Uncoated Acrylic
1 3/8" AR Coated Acrylic
1.05” TSS-002 L/S Glass Clad

Bullet Resistant Level 3
1 1/4" LP 1250 Laminated
1 1/4" All Poly 1250

 1 1/4” TSS-003 L/S Glass Clad

* + - * 1. Acrylic: All acrylic pieces shall meet or exceed UL 752 testing for ballistic integrity. All edges of acrylic shall be filed, sanded after cutting to remove rough edges and then polished until “water clear” transparent. All through holes for fasteners shall be 3/8” in diameter and be drilled clean. Chipped edges at through-hole exit points are not acceptable. All acrylic pieces shall be supported in the proper glazing channel designed for this purpose (see aluminum, Section D).
				2. Glazing gaskets:

Interior: Closed cell neoprene.

Exterior: Solid neoprene.

2.6 ACCESSORIES

* + - * 1. Anchors: Fully concealed manufacturer recommended.
				2. Mounting plates and connecting clips shall be fabricated from 1/8” thick clear polycarbonate.

**PART 3 - EXECUTION**

3.1 PREPARATION

* + - * 1. Prior to beginning installation, verify that all supports have been installed as required by the Contract Documents and architectural drawings, and Shop Drawings have been approved.
				2. Notify Architect of any unsatisfactory preparation that is responsibility of others.
				3. Clean and prepare all surfaces per manufacturers recommendations as required for achieving the best results for the substrate under the project conditions.
				4. Verify field dimensions of openings prior to fabrication of framing.
				5. Coordinate structural requirements to ensure proper attachment and support.
				6. Do not begin installation of material until all unsatisfactory conditions have been resolved and approved by Architect.

3.2 INSTALLATION

* + - * 1. Do not begin installation until openings have been verified and surfaces properly prepared in accordance with Drawings.
				2. Install in accordance with manufacturer’s instructions and UL 752. Set all equipment plumb.
				3. All products shall be installed per installation instructions provided by manufacturer.
				4. Security window units shall arrive on site completely pre-fabricated to field dimensions approved by Shop Drawings.
				5. Install framing and secure to structure in accordance with manufacturer's recommendations and approved shop drawings.
				6. Provide required support and securely fasten and set windows plumb, square, and level without twist or bow.
				7. Apply sealant in accordance with window and sealant manufacturer's recommendations as indicated in installation instructions.
				8. Remove excess sealant and leave exposed surfaces clean and smooth

3.3 PROTECTION

* + - * 1. Clean and protect windows from damage during ongoing construction operations. If damage occurs, remove and replace as required to provide windows in their original, undamaged condition.
				2. Inspection and Cleaning: Verify installation is complete and complies with manufacturer’s requirements.
				3. Provide final cleaning of product and accessories, removing excess sealant, labels and protective covers.
				4. Touch-up, repair or replace damaged products prior to Substantial Completion.

**END OF SECTION**