**SECTION 08 5670**

**BULLET-RESISTANT ALUMINUM WINDOWS**

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by one of the following methods:

Microsoft Word 2013: Display the FILE tab on the ribbon, click OPTIONS, then DISPLAY. Select of deselect HIDDEN TEXT.

Microsoft Word 2010: Display the FILE tab on the ribbon, click OPTIONS, then on left menu click on DISPLAY. Under ALWAYS SHOW THESE select or deselect HIDDEN TEXT.

Corel WordPerfect: From the pull-down menus select VIEW, then select or deselect the HIDDEN TEXT option.

This master specification section has been prepared by ARMORTEX for use in the preparation of a project specification section covering bullet-resistant fixed aluminum window assemblies. ARMORTEX fixed aluminum window assemblies are available in Ballistic Levels 1 through 8.

The following should be noted in using this specification:

Hypertext links to specific websites are included after manufacturer names and names of organizations whose standards are referenced within the text, to assist in product selection and further research. Hypertext links are contained in parenthesis and shown in blue, e.g.:

 ([www.spexplus.net](http://www.spexplus.net))

Optional text requiring a selection by the user is enclosed within brackets, e.g.: "Section [09 0000.] [\_\_\_\_\_.]"

Items requiring user input are enclosed within brackets, e.g.: "Section [\_\_\_\_\_ - \_\_\_\_\_\_\_\_]."

Optional paragraphs are separated by an "OR" statement, e.g.:

\*\*\*\* OR \*\*\*\*

Sustainable requirements are included for projects requiring LEED certification, and are included as green text. For additional information on LEED, visit the U.S. Green Building Council website at [www.usgbc.org](http://www.usgbc.org).

For assistance on the use of the products in this section, contact ARMORTEX by calling 800-880-8306, by email at info@armortex.com, or visit their website at [www.armortex.com](http://www.armortex.com).

1. **GENERAL**
	1. SUMMARY

Edit the following paragraphs to include only those items specified in this section.

* + 1. Section Includes:
			1. Bullet-resistant fixed aluminum window assemblies.

Coordinate the following paragraphs with other sections in the project manual.

* + 1. Related Sections:
			1. Division 01: Administrative, procedural, and temporary work requirements.
	1. REFERENCES
		1. American Welding Society (AWS) ([www.aws.org](http://www.aws.org)) D1.2/D1.2M - Structural Welding Code - Aluminum.
		2. American Architectural Manufacturers Association (AAMA) ([www.aamanet.org](http://www.aamanet.org)) 611 - Voluntary Specification for Anodized Architectural Aluminum.
		3. ASTM International (ASTM) ([www.astm.org](http://www.astm.org)) B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
		4. Underwriters Laboratories (UL) [(www.ul.com](http://www.ul.com)) 752 - Bullet Resisting Equipment.
	2. SYSTEM DESCRIPTION
		1. Design Requirements: Provide window frames of “non-ricochet type" intended to permit capture and retention of attacking projectile, lessening potential of random injury or lateral penetration.
	3. SUBMITTALS

Limiting submittals to only those actually required helps to minimize liability arising from the review of submittals. Minimize submittals on smaller, less complex projects.

Include the following for submission of shop drawings, product data, and samples for the Architect's review.

* + 1. Submittals for Review:
			1. Shop Drawings: Include window profiles and sizes, type and spacing of frame anchors, reinforcement size and locations, details of joints and connections, and welding details.
			2. Product Data: Include product description for window assemblies including bullet-resistant ratings.

Include the following is a powder coated finish is desired. Edit to suit project requirements.

* + - 1. Samples: [2 x 2] [\_\_ x \_\_] inch coating samples [showing available colors.] [in specified color.]

Include the following for submission of sustainable design submittals.

* + 1. Sustainable Design Submittals:
			1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
			2. Regional Materials: Indicate cost of products harvested, extracted, recovered, or manufactured within 500 mile radius of Project site.

Include the following for submission of closeout submittals on cleaning of glazing materials.

* + 1. Closeout Submittals:
			1. Maintenance Data: Include instructions for cleaning of glazed panels.
	1. QUALITY ASSURANCE

Edit the following to suit project requirements; delete if this information is indicated on Drawings.

* + 1. Fixed Window Assemblies: Ballistic Level [1,] [2,] [3,] [4,] [5,] [6,] [7,] [8,] tested to UL 752.
	1. DELIVERY, STORAGE AND HANDLING
		1. Store window assemblies upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.
		2. Do not cover with non vented coverings that create excessive humidity.
		3. Remove wet coverings immediately.
1. **PRODUCTS**
	1. MANUFACTURERS
		1. Contract Documents are based on products by ARMORTEX, 5926 Corridor Parkway, Schertz, Texas, 800-880-8306, [www.armortex.com](http://www.armortex.com).

Edit the following to indicate whether or not substitutions will be permitted for the products in this section.

* + 1. Substitutions: [Under provisions of Division 01.] [Not permitted.]
	1. MATERIALS
		1. Aluminum Extrusions:
			1. ASTM B221, 6061-T6 alloy and temper; minimum 38.0 KSI ultimate tensile strength and minimum 35.0 KSI yield strength.

Insert percent of recycled content for steel in the following paragraph; contact ARMORTEX to verify current recycled content availability.

* + - 1. Recycled content: Minimum [\_\_] percent, with minimum [\_\_] percent classified as post consumer.
		1. Bullet-Resistant Composite: UL Listed Bullet Resistant Composite by ARMORTEX.
		2. Glazing: UL Listed [laminated glass.] [glass/polycarbonate composite.] [Glass-clad polycarbonate.] [Multi-ply polycarbonate.] [Acrylic polycarbonate composite.] [\_\_\_\_\_.]
	1. FABRICATION
		1. Frames:
			1. Fabricate from aluminum extrusions lined with bullet-resistant composite.
			2. Weld frame corners; knock-down and mechanical joints not acceptable.
			3. Frame modules capable of being joined with other frame modules to form continuous line.
			4. Replacement of glazing from secure side of window, not requiring removal of frame from opening.
		2. Welding: In accordance with AWS D1.2/D1.2M. Grind exposed welds flush and smooth.
		3. Finish work neat and free from defects.
		4. Allowable Tolerances: Plus or minus 1/16 inch for frame opening width, height, diagonal dimensions, and overall width and height (outside to outside).
	2. FINISHES

Include the following for a standard anodized finish. Edit to suit project requirements.

* + 1. Aluminum: AAMA 611, Architectural Class I anodized, [clear.] [dark bronze.]

\*\*\*\* OR \*\*\*\*

Include the following for an optional powder coated finish.

* + 1. Aluminum: Apply manufacturer’s standard polyester powder coat, sprayed and baked, [\_\_\_\_] [custom] color [to be selected from manufacturer’s full color range].
1. **EXECUTION**
	1. INSTALLATION
		1. Install window assemblies in accordance with manufacturer’s instructions and approved Shop Drawings.
		2. Set plumb, square, and level.
		3. Secure to adjacent construction using fastener type best suited to application.
		4. Field alterations to window assemblies not permitted unless approved in advance by manufacturer and Architect.
	2. ADJUSTING

Edit the following to suit project requirements.

* + 1. Touch up minor scratches and abrasions in [primer paint] [finish coat] to match factory finish.

END OF SECTION