

This section includes AMBICO Bullet Resistant Steel Window Frame assemblies. These items are designed to be fixed-in place and shall be inoperable. This section relies on both the Canadian Steel Door Manufacturers Association (CSDMA.org) as well as on the Hollow Metal Manufacturers Association (NAAMM.org) industry standards. This section includes proprietary, descriptive and performance type specification requirements. Edit to avoid conflicting requirements.

Part 1 General

1.1 SECTION INCLUDES

This article includes a summary of the content of this section which will not be included in other sections. This article is NOT intended to be used as a trade or other form of jurisdictional content.

- .1 Bullet-resistant steel window frames. Items shall be fixed-in-place and shall be designed to be inoperable.
- .2 Glazed lite bullet resistant steel frames.
- .3 Factory supplied and installed glass and glazing.

1.2 RELATED SECTIONS

This article references other specification sections that inter-rely on this section. This listing should include those sections that describe subjects or products that affect this section directly.

- .1 Section [_____ - _____]: Masonry mortar fill of metal frames.
- .2 Section 07 92 00 - Joint Sealing: Caulking between window frame assemblies and adjacent construction.
- .3 Section 09 91 15 - Painting: Field painting of window frames.

1.3 REFERENCES

Edit this article after editing the rest of this section. List reference standards below that are included within the text of this section, when edited for a project specification. Delete references that do not apply to this project.

- .1 ASTM A36/A36M-05 - Standard Specification for Carbon Structural Steel.
- .2 ASTM A653/A653M-06 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .3 ASTM A1011/A1011M-07 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- .4 ULC 752-11 - Standard for Bullet Resisting Equipment.
- .5 AWS D1.1/D1.1M:2006, Structural Welding Code - Steel.
- .6 Canadian Steel Door Manufacturers Association (CSDMA), Selection and Usage Guide for Steel Doors and Frames, 1990.

- .7 HMMA 840-99 - Installation and Storage of Hollow Metal Doors and Frames.

1.4 PERFORMANCE REQUIREMENTS.

Include this article if all windows should meet the same ballistic requirement; otherwise, specify individual performance for window types in Part 2 or in a schedule. AMBICO windows can be manufactured to meet the bullet resistant requirement of handguns as well as high powered rifles- Underwriters' Levels One through Eight.

- .1 Ballistic Resistance: Conform to UL 752, Level [1] [8] [].

1.5 Submittals

- .1 Section [01 33 00]: Submission procedures.
- .2 Product Data: Provide product data on bullet resistant steel window frame construction.
- .3 Shop Drawings: Indicate bullet resistant steel window frame elevations, internal reinforcement, anchor types.
- .4 Samples: Submit manufacturer's frame finish samples, as well as manufacturer's frame corner sample.
- .5 Test Data:
 - .1 Submit independent test data from a recognized licensed laboratory indicating compliance with the bullet-resistance requirements.

1.6 QUALITY ASSURANCE

- .1 Perform Work to requirements of [CSDMA (Canadian Steel Door Manufacturers Association)] [HMMA (Hollow Metal Manufacturers Association)] standards.
- .2 Manufacturer: Minimum 5 years documented experience manufacturing bullet resistant, steel window frame assemblies.
- .3 Pre-installation Meeting: Convene a pre-installation meeting [2] [____] weeks before start of installation of window frame assemblies. Require attendance of parties directly affecting work of this section, including contractor, architect, installer, and manufacturer's representative. Review installation and coordination with other work.

1.7 DELIVERY, STORAGE AND PROTECTION

- .1 Section [01 61 00]: Transport, handle, store, and protect products.
- .2 Comply with HMMA 840.
- .3 Remove window frames from wrappings or coverings upon receipt on site and inspect for damage.
- .4 Store in vertical position, spaced with blocking to permit air circulation between components.
- .5 Store materials out of water and covered to protect from damage.

- .6 Clean and touch up scratches or disfigurement of frames caused by shipping or handling with zinc-rich primer.

1.8 WARRANTY

- .1 Manufacturer's Limited Warranty: Five (5) years from date of supply, covering material and workmanship.

Part 2 Products

2.1 MANUFACTURERS

List the manufacturers acceptable for this project. Edit the subsequent descriptive specifications of Part 2, to identify project requirements and to eliminate any conflict with specified manufacturer's products.

- .1 AMBICO Limited
1120 Cummings Avenue
Ottawa, Ontario, Canada K1J 7R8
Toll Free Phone 888-423-2224
Phone 613-746-4663
Toll Free Fax 800-465-8561
Fax 613-746-4721
- .2 Other Acceptable Manufacturers:
 - .1 [_____].
 - .2 [_____].
- .3 Substitutions: [Refer to Section 016000.] [Not permitted.]

2.2 MATERIALS

- .1 Sheet Steel: Galvanized steel to ASTM A653/A653M.
 - .1 Coating designation [Z275] ([G90]) for exterior bullet resistant steel window frame assemblies.
 - .2 Coating designation [ZF001] ([A01]) for interior bullet resistant steel window frame assemblies.
- .2 Reinforcement [Channel]: To CSA G40.20/G40.21, coating designation to ASTM A653/A653M, [ZF75] ([A25]).
- .3 Structural Plate: Hot rolled steel to ASTM A1011.

2.3 ACCESSORIES

AMBICO bullet resistant steel, window frame assemblies may be supplied with glazing as an integral part of the tested assembly.

- .1 Glazing Stops: Formed galvanized steel channel, [butted] [mitred] corners; prepared for countersink style [tamperproof] screws.
- .2 Glass: Type as tested to achieve bullet resistant performance ratings. Glazing to be factory supplied loose ready for site installation by others.

- .3 Primer: Rust inhibitive zinc chromate.

2.4 FABRICATION

Steel window frames and glazing are provided as an integral part of the bullet resistant, window frame assembly.

- .1 Manufacture steel window frames in accordance with [UL 752] per paragraph # 1.4.
- .2 Bullet Resistant Steel Window Frames: Fixed in-place Inoperable
 - .1 Sheet steel and metal thickness appropriate to maintain frame bullet resistant ratings.
 - .2 Frame members shall be fabricated with mitred corners.
 - .3 Factory assemble and weld frames.
 - .4 Affix permanent metal nameplates to window frame, indicating manufacturer's name, tag, model number, and performance rating.

2.5 SUPPLY OF GLAZING

- .1 Glazing shall be designed in conformance with 1.4.
- .2 Glazing shall be factory supplied and shipped loose ready for site installation by others.

2.6 FINISHES

- .1 Factory Finish: Factory applied zinc chromate primer [to be applied to all exposed surfaces] [touch-up only, where product has been welded and ground smooth].

Part 3 Execution

3.1 INSTALLATION

- .1 Install components including bullet resistant steel window frames and glazing in accordance with manufacturer's written instructions.
- .2 Install window frames to [CSDMA] [HMMA 840] standards.
- .3 Coordinate with [masonry] [gypsum board] [concrete] [_____] wall construction for anchor placement.
- .4 Set frames plumb, square, level and at correct elevation.
- .5 Allow for deflection to ensure that structural loads are not transmitted to frame.
- .6 Finish paint in accordance with Section 09 91 15.

3.2 ERECTION TOLERANCES

- .1 Section 01 73 00: Tolerances.

- .2 Installation tolerances of installed frame for squareness, alignment, twist and plumbness are to be no more than ± 1/16in (1.5mm) in compliance with HMMA 841.

3.3 FIELD QUALITY CONTROL

- .1 Provide qualified manufacturer's representative to instruct installers on the proper installation and adjustment of bullet resistant, window frame assemblies.
- .2 Provide manufacturer's representative to inspect bullet resistant window frame installation. Correct any deficient assemblies.

Include this article to identify products or installation requirements specified. If bullet resistant window frame schedules are listed on drawings or on separate schedule sheets, do not repeat statements.

.3 Bullet Resistant Steel Window Frame Assembly Schedule:

Tag	Room	Nominal Size	Thickness	Material	Glazing	Fire Rating	Bullet Rating	Comments
D-1	100	750mm x 1600mm	300 mm	GS	Supplied Loose	NFR	Level IV	
D-2	101	2'0" x 2'0"	20"	GS	Supplied Loose	NFR	Level VIII	
D-3	105	4'0"x8'0"	1 3/4 "	SS	By Others	NFR	Level III	Vertical Mullion
<ul style="list-style-type: none"> • Material types: GS = Galvanized Steel, SS = Stainless Steel • Glazing types: as per tested window assembly. Where glazing to be factory supplied, it shall be supplied loose ready for site installation by others. • Fire Label types: NFR= Non-fire rated • Bullet Resistant Ratings: Level III- .44 Magnum Level IV- 30.06 high powered rifle Level VIII-.762 military assault rifle • Note: Ratings as per UL 752-11 standard 								

END OF SECTION