

# BLAST MITIGATION

## Specifications

### SECTION 08 51 13 ALUMINUM WINDOWS

#### QUALITY ASSURANCE

Drawings and specifications are based on the Series BW7600 Blast Resistant Concealed Vent Thermal CW100 Windows as manufactured by U.S. Aluminum. Whenever substitute products are to be considered, supporting technical literature, samples, drawings, and performance data must be submitted 10 days prior to bid in order to make a valid comparison of the products involved. Test reports certified by an AAMA independent test laboratory must be made available upon request.

#### PART 1 GENERAL

##### 1.01 Work Included

A. Furnish and install aluminum architectural windows complete with hardware and related components as shown on drawings and specified in this section.

*Specify glass and glazing in this section if window assemblies are to be glazed by the window manufacturer. If glazing is to be done by a different contractor, glass and glazing should be specified in Section 08 80 00.*

B. 1-1/32" (26) Thick Glass and Glazing

1. All units shall be factory glazed.
- OR
1. Reference Section 08 80 00 for Glass and Glazing.

*List work and materials related to this section but specified in other sections.*

##### 1.02 Related Work

Section 08 40 00 - Entrances and Storefronts  
Section 08 44 00 - Glazed Curtain Walls  
Section 08 50 00 - Windows

##### 1.03 Testing and Performance Requirements

A. Test Units

1. Air, water, and structural test unit shall conform to requirements set forth in ANSI/AAMA/NWWDA 101 I.S. 2-97 and AAMA 910-93 or CSA A440.
2. Thermal test unit sizes shall be 36" x 60" (914 x 1524). Unit shall consist of a casement, fixed or projected window.
- B. Test Procedures and Performances
  1. Windows shall conform to all AAMA/ANSI/NWWDA-101 I.S. 2-97 and AAMA 910-93 or CSA A440 requirements for the window type referenced in 1.01.B. In addition, the following specific performance requirements shall be met.

##### 2. Air Infiltration Test:

With ventilators closed and locked, test unit in accordance with ASTM E 283-91 at a static air pressure difference of 6.24 psf. Air infiltration shall not exceed .30 cfm per foot of crack.

##### 3. Water Resistance Test:

With ventilators closed and locked, test unit in accordance with ASTM E 331-96/ASTM E 547 at a static air pressure difference of 12 psf. There shall be no uncontrolled water leakage.

##### 4. Uniform Load Deflection Test:

With ventilators closed and locked, test unit in accordance with ASTM E 330-97 at a static air pressure difference of 112.5 psf positive and negative pressure. No member shall deflect over L/175 of its span.

##### 5. Condensation Resistance Test (CRF):

With ventilators closed and locked, test unit in accordance with AAMA 1503. Condensation Resistance Factor (CRF) shall not be less than 49.

##### 6. Thermal Transmittance Test (Conductive U-Value):

With ventilators closed and locked, test unit in accordance with NFRC 100 and AAMA 1503. Conductive thermal transmittance (U-Value) shall have a range between 0.35 to 0.56 BTU/hr/ft<sup>2</sup>/°F.

7. AAMA CW100 Rating Testing Procedures - AAMA/WDMA/CSA 101/I.S.2/A440-8 - Laboratory Performance Testing.  
AAMA 503-08 - Newly Installed Fenestration Products.  
AAMA 511-08 - Installed Fenestration Products After 6 Months.
8. DoD - UFC 4-010-01 (Jan 07)
  - ATFP
  - ISC Security Design Criteria for Blast Protection for Windows
  - ASTM F 1642
  - FAR 52.225-9, 11, and 12 Buy America Act

##### 1.04 Quality Assurance

- A. Provide test reports from AAMA accredited laboratories certifying the performance as specified in 1.05 or 11.15 of CSA A440.
- B. Test reports shall be accompanied by the window manufacturer's letter of certification, stating the tested window meets or exceeds the referenced criteria for the appropriate AAMA/NWWDA 101/I.S.2-97 and AAMA 910-93 or CSA A440 window type.

##### 1.05 Submittals

- A. Contractor shall submit shop drawings, finish samples, test reports, and warranties.

##### 1.06 Warranties

- A. Total Window System
  1. The responsible contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total window installation which includes that of the windows, hardware, glass (including insulating units), glazing, anchorage and setting system, sealing, flashing, etc., as it relates to air, water, and structural adequacy as called for in the specifications and approved shop drawings.

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### Blast Resistant Concealed Vent Window • Defender Series BW7600

#### SECTION 08 51 13 ALUMINUM WINDOWS

##### PART 2 PRODUCTS

###### 2.01 Materials

###### A. Aluminum

1. Extruded aluminum shall be 6063-T5 alloy and tempered.

###### B. Hardware

1. Locking handles shall be Single Multi-Point as supplied by U.S. Aluminum.
2. Operating hardware shall be 4-bar stainless steel arms or equal.

###### C. Weatherstrip

1. All weatherstrip shall be E.P.D.M. or equal.

###### D. Thermal Barrier

1. Barrier material shall be poured-in-place two part polyurethane. To ensure that composite strength remains unaltered during thermal cycling, a mechanical bond between the aluminum and the thermal filling shall be created by mechanically abrading the extrusion thermal cavity prior to filling with the polyurethane polymer. A non-structural thermal barrier is unacceptable.
2. Specified hardware shall not bridge the thermal barrier.

###### E. Glass

1. Insulating glass shall be 1-1/32" (26) as manufactured by ( ) consisting of ( ) exterior, ( ) air spacer, and ( ) interior.

###### 2.02 Fabrication

###### A. General

1. All primary aluminum frame and vent extrusions shall have a minimum wall thickness of .125" (3.2)

2. Mechanical fasteners, welded components, and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and vent corners.

3. Depth of frame 3" (76.2) for 1-1/32" (26) glazing.

###### B. Frame - Frame components shall be mechanically fastened.

###### C. Ventilator

1. All vent extrusions shall be tubular.
2. Each corner shall be mitered, reinforced with an extruded corner key, and hydraulically crimped.
3. Each vent shall be pressure equalized utilizing two rows of E.P.D.M. weatherstripping (or equal) installed in dovetail grooves in the extrusion.
4. The vent shall present a flush appearance with the main frame when in the closed position.

###### D. Screens

1. Screen frames shall be extruded.
2. Screen mounting holes in the window frame shall be factory drilled.
3. Screen mesh shall be aluminum or fiberglass. (if applicable)

###### E. Glazing - All units shall be glazed with spacer and structural silicone.

###### F. Finish

All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum extrusions shall be given a caustic etch followed by an anodic oxide treatment to obtain... *(Specify one of the following)*

- \_\_\_\_\_ #11 Clear anodic coating
- \_\_\_\_\_ #22 Dark Bronze anodic coating
- \_\_\_\_\_ #33 Black anodic coating
- A Fluoropolymer paint coating conforming with the requirements of

AAMA 2605. Color shall be *(Specify a U.S. Aluminum standard color)*.

##### PART 3 EXECUTION

###### 3.01 Inspection

###### A. Job Conditions-

Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface, and are in accordance with approved shop drawings.

###### 3.02 Installation

A. Use only skilled tradesmen with work done in accordance with approved shop drawings and specifications.

B. Adequately anchor to maintain positions permanently when subjected to normal thermal movement, specified building movement, and specified wind loads.

C. Adjust windows for proper operation after installation.

D. Furnish and apply sealants to provide a weather tight installation at all joints and intersections and at opening perimeters.

###### 3.03 Protection and Cleaning

A. After completion of window installation, windows shall be inspected, adjusted, put into working order and left clean, free of labels, dirt, etc. Protection from this point shall be the responsibility of the general contractor.