BLAST MITIGATION

Specifications

Blast Resistant Single Hung, Fixed, and Sliding Windows

- Defender Series BW8000
- Defender Series BW8100
- Defender Series BW8200

SECTION 08 51 13 ALUMINUM WINDOWS

QUALITY ASSURANCE

Drawings and specifications are based on Series BW8000 Single Hung, BW8100 Fixed, or BW8200 Horizontal Sliding *(Specify)* CW60 Blast Resistant Thermal 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 47-1/4" x 59" (1200 x 1500) for Series BW8000 and BW8100, 59"x 47-1/4" (1500 x 1200) for Series BW8200. Unit shall consist of a single hung, fixed or horizontal sliding 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 90 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 for Series BW8100 and BW8200. Not less than 50 for Series BW8000.
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) for Series BW8000 and BW8200 Windows shall have a range between 0.35 to 0.56 BTU/hr/ft^2/°F and Series BW8100 Windows shall have a range between 0.33 to 0.56 BTU/hr/ft^2/°F.
7. AAMA CW60 Rating Testing Procedures -
   - AAMA/WDMA/CSA 101/I.S.2/ A440-0.8 - 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.

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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.

PART 2 PRODUCTS

2.01 Materials

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

B. Hardware
   1. Series BW8000 and BW8200 Windows have spring loaded self-locking latches as supplied by U.S. Aluminum.

C. Weatherstrip
   1. For Series BW8000 and BW8200 Windows weatherstrip shall be fin seal or equal. For Series BW8100 Windows all weatherstrip shall be E.P.D.M.

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, extrusions or vent extrusions shall have a minimum wall thickness of .062 (1.57)
   2. Depth of frame 4-1/2" (114.3) for 1-1/32" (26) glazing.

B. Frame - Frame components shall be mechanically fastened.

C. Ventilator (Series BW8000 and BW8200)
   1. All vent extrusions shall be notched .

D. Screens (Series BW8000 and BW8200)
   1. Screen frames shall have springs locking the screen in place.
   2. Screen mesh shall be aluminum or fiberglass. (if applicable)

E. Glazing - All units shall be either shop or field glazed.

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.