

# BLAST MITIGATION

## Specifications

## Blast Resistant Curtain Wall

• Series BW3250

### SECTION 08 44 13 ALUMINUM CURTAIN WALL SYSTEMS

#### I. GENERAL DESCRIPTION

Work Included: Furnish all necessary materials, labor, and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein. *(Specifier Note: It is suggested that related items such as aluminum entrance doors, glass, and sealants be included whenever possible).*

Work Not Included: Structural support of the framing system, interior closures and trim. *(Specifier list other exclusions).*  
Related Work Specified Elsewhere: *(Specifier list).*

#### QUALITY ASSURANCE

Drawings and specifications are based on the Series BW3250 Curtain Wall System 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 independent test laboratory must be made available upon request.

#### PERFORMANCE REQUIREMENTS

**Air Infiltration:** shall be tested in accordance with ASTM E 283. Infiltration shall not exceed .06 CFM per square foot (.0003m<sup>3</sup>/sm<sup>2</sup>) fixed area when tested at 6.24 psf (300 Pa).

**Water Infiltration:** shall be tested in accordance with ASTM E 331. No water penetration at test pressure of 15 psf (718 Pa).

**Structural Performance:** shall be tested in accordance with ASTM E 330 and based on:

- Maximum deflection of L/175 of the span
- Allowable stress with a safety factor of 1.65

The system shall perform to this criteria under a 1 psi pressure load.

**Thermal Performance:** Series BW3250 shall be tested in accordance with AAMA 1503, and NFRC-100.

**Testing Procedures:** ASTM 283, E 331, and E 330 - Laboratory performance testing. AAMA 503-08 - Newly Installed Curtain Walls. AAMA 511-08 - Installed Curtain Walls after six months.

**Blast Mitigation:** System shall meet or exceed the following requirements of the UFC 4-010-01, "DoD Minimum Anti-terrorism Standard for Buildings."

**Section B-3.1 Standard 10:** Windows, Skylights, and Glazed Doors. To minimize hazards from flying glass fragments, apply the provisions for glazing and window, skylight, and glazed door frames below for all new and existing inhabited buildings covered by these standards. Glazing and frames must work as a system to ensure that their hazard mitigation is effective. These provisions apply even if the minimum standoff distances are met. The specific requirements below provided conventional standoff distances are met, will result in windows, skylights, and glazed doors that comply with this standard for windows provided their visual glazing openings do not exceed 32 square feet (3 m<sup>2</sup>)

**Section B-3.1.1 Glazing:** Insulated glass units, use 1/4" (6) laminated glass inner pane as a minimum.

#### Section B-3.1.2.1 Frame Member

**Design:** Steel members may be designed using ultimate yield stresses and aluminum members may be designed based on a 0.2% offset yield strength. Equivalent static design loads for the window, skylight, and door members shall be 1 lb per in<sup>2</sup> (7 kilopascals) applied to the surface of the glazing and frame. Deformations shall not exceed 1/60 of the unsupported member lengths.

#### Section B-3.1.2.2 Glazing Frame Bite:

The glazing shall have a minimum frame bite of 11/16" (17.5) for structurally glazed systems and 1" (25) for window systems that are not structurally glazed.

#### Section B-3.1.2.2 Connection Design:

Equivalent static design loads for connections of the window, skylight, or door frame to the surrounding walls or roof, hardware and associated connections, and glazing stop connections shall be 10.8 lbs per in<sup>2</sup> (75 kilopascals) for glazing panels with a vision area less than or equal to 10.8 ft<sup>2</sup> (1.0 m<sup>2</sup>) and 4.4 lbs per in<sup>2</sup> (30 kilopascals) for glazing panels with a vision area greater than 10.8 ft<sup>2</sup> (1.0 m<sup>2</sup>) but less than or equal to 32 ft<sup>2</sup> (3.0 m<sup>2</sup>). Loads shall be applied to the surface of the glazing and frame. Connections and hardware may be designed based on ultimate strength for steel and 0.2% offset yield strength for aluminum.

#### Section B-3.3 Standard 12 Exterior

**Doors:** For all new and existing buildings covered by these standards, ensure that all exterior doors into inhabited areas open outwards. By doing so, the doors will seat into the door frames in response to an explosive blast, increasing the likelihood that the doors will not enter the buildings as hazardous debris. Alternatively, position doors such that they will not be propelled into rooms if they fail in response to a blast or provide other means to ensure they do not become hazards to building occupants.

#### Glazing and Glazing Systems

**Subjected to Airblast Loadings:** System shall be tested in accordance with ASTM F 1642.

#### II. PRODUCTS MATERIALS

Extrusions shall be 6063-T6 alloy and temper (ASTM B221 alloy T6 temper). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be E.P.D.M. elastomeric extrusions.

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#### 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).

#### FABRICATION

All mullions and horizontals shall have flexible (PVC) thermal break material located on exterior side of glass plane. Exterior glazing seal gasket shall be

secured by extruded aluminum pressure plates fastened to main grid members. Provisions shall be made at all sealed horizontals to weep moisture accumulation to the exterior. A cover shall be snapped over pressure plate to show only a sharp, uninterrupted exterior profile.

Framing members shall provide for straight-in glazing on all sides, with through sightlines and no projecting stops or face joints. Vertical and horizontal framing members shall have a nominal width of 2-1/2" (63.5). Overall depth of system shall be (Specify). System shall provide for two piece horizontal framing so that all fasteners at intersection of horizontal and vertical members will be concealed. There shall be no exposed fasteners at perimeter sections.

#### III. EXECUTION INSTALLATION

All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb, and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure shall be sealed in order to secure a watertight installation.

#### PROTECTION AND CLEANING

After installation the General Contractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement or other contaminants. The General Contractor shall be responsible for final cleaning.



Project: Orlando Immigration Center, Orlando, FL