FORCEFRONT
BLAST IMPACT RESISTANT
MONUMENTAL DOORS AND CURTAINWALL

Fabrication & Installation Instructions

(NOTE: THIS DOCUMENT IS INTENDED TO BE SUPPLEMENTAL TO
BLAST TEST REPORT AND ASSOCIATED DRAWINGS.)
Table of Contents

GENERAL CONSTRUCTION NOTES ....................................................................................................................3
EXTRUDED ALUMINUM PARTS ..........................................................................................................................4
PARTS, FASTENERS & ACCESSORIES ................................................................................................................5
FRAME FABRICATION .......................................................................................................................................7
    Step #1: Determine frame size ..................................................................................................................7
    Determine frame width ..........................................................................................................................7
    Determine frame height .......................................................................................................................8
    Step #2: Cut Vertical Mullions to Size ......................................................................................................8
    Step #3: Cut Horizontal Mullions to Size ..................................................................................................8
INSTALLATION OVERVIEW ................................................................................................................................9
FRAME INSTALLATION ....................................................................................................................................10
    Illustration 1 - Verticals ............................................................................................................................10
    Illustration 2 - Horizontals ......................................................................................................................11
    Illustration 3 - Monumental Doors Sub-Frame Installation .......................................................................12
    Illustration 4 - Monumental Doors - Threshold/Sill Installation ............................................................13
CURTAINWALL FRAME FABRICATION & INSTALLATION .................................................................................14
    Step #1: Seal and Secure Frame clips to Vertical Mullions .....................................................................14
    Step #2: Attach Frame Clips to Vertical Mullions ....................................................................................14
GLAZING INSTALLATION ................................................................................................................................16
    Step #1: Cut and install the interior gaskets ...........................................................................................16
    Step #2: Install the glass ........................................................................................................................17
    Step #3: Cut and install the exterior gaskets ............................................................................................17
    Step #4: Seal perimeter of installation ..................................................................................................17
GENERAL CONSTRUCTION NOTES

1. These instructions cover typical product application, fabrication, installation and standard conditions and are general in nature. They provide useful guidelines, but the final application drawings may include additional details specific to this project. Any conflict or discrepancies must be clarified prior to execution.

2. Materials stored at the job site must be kept in a safe place protected from possible damage by other trades. Stack with adequate separation so materials will not rub together, and store off the ground. Cardboard or paper wrapped materials must be kept dry. Check arriving materials for quantity and keep record of where various materials are stored.

3. All field welding must be done in accordance with AISC guidelines. All aluminum and glass should be shielded from field welding to avoid damage from weld splatter. Results will be unsightly and may be structurally unsound. Advise general contractor and other trades accordingly.

4. Coordinate protection of installed work with general contractor and/or other trades.

5. Coordinate sequence of other trades which affect framing installation with the general contractor (e.g. fire proofing, back up walls, partitions, ceilings, mechanical ducts, HVAC, etc.).

6. General contractor should furnish and guarantee bench marks, offset lines and opening dimensions. These items should be checked for accuracy before proceeding with erection. Make certain that all adjacent substrate construction is in accordance with the contract documents and/or approved shop drawings. If not, notify the general contractor in writing before proceeding with installation because this could constitute acceptance of adjacent substrate construction by others.

7. Isolate all aluminum to be placed directly in contact with masonry or other incompatible materials with a heavy coat of zinc chromate or bituminous paint.

8. Sealant selection is the responsibility of the erector, installer and/or glazing contractor and must be approved by the sealant manufacturer with regard to application and compatibility for its intended use. All sealants must be used in strict accordance with the manufacturer’s instructions and applied only by trained personnel to surfaces that have been properly prepared.

9. Sealant must be compatible with all materials with which they have contact, including other sealant surfaces. Consult sealant manufacturer for recommendations relative to shelf life, compatibility, cleaning of substrate, priming, tooling adhesion, etc.

10. This product requires clearances at head, sill and jambs to allow for thermal expansion and contraction. Refer to final distribution drawings for joint sizes. Joints smaller than ¼” may be subject to failure. Consult your sealant supplier.

11. Cleaning of exposed aluminum surfaces should be done per AAMA recommendations.
## EXTRUDED ALUMINUM PARTS

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FRAME FABRICATION

Step #1: Determine Frame Size

Determine width

Check that the opening is square and plumb at both ends. Units must be installed in a true rectangle.

- Measure the width of the masonry opening at the top, middle and bottom.
- Select the smallest dimension measured. To determine the frame width to be used, subtract a minimum of 3/4” from the smallest measured width, to allow a minimum of 3/8” at each jamb for shimming and caulking. Allow a larger clearance if necessary to accommodate building tolerances, an out-of-square opening, and/or anticipated thermal expansion within the unit.
Determine height

- Measure the height of the masonry opening in several places along the entire length of the opening.
- To determine the frame height to be used, select the smallest dimension measured and subtract 1 1/8” to allow a minimum of 5/8” at sill and ½” at head for shimming and caulking. Allow a larger clearance if necessary to accommodate building tolerances, an out-of-square opening, and/or anticipated thermal expansion within the unit.

**Step #2: Cut Vertical Mullions to Size**
- Verticals should be the frame height found in Step #1 above (rough opening height minus clearances).
- As shown in the elevation overview, vertical framing members run through.

**Step #3: Cut Horizontal Mullions to Size**
- Cut horizontal framing members to the daylight opening (the distance between verticals).
- For easier installation, cut horizontal glazing beads 1/32” shorter than the horizontal framing member.
INSTALLATION OVERVIEW

There is one distinct method for assembling the Blast Curtainwall and Monumental Doors; Shear Block Assembly.

The illustration below shows the elevation view of a typical Blast Curtainwall and Monumental Door installation. The number in the circle identifies details of the associated system component.

NOTE: See Blast Test Report & Associated Drawings for specific blast requirements.
FRAME INSTALLATION

ILLUSTRATION 1 - VERTICALS

Step One – Reinforcing Steel - Drill, tap and attach appropriate reinforcing steel using prescribed fasteners spaced as calculated and specified into vertical mullions per Blast Test Report.

Step Two - Drill, tap and but do not attach pressure plate until step four.

Step Three – Drill and attach perimeter ‘F’ anchor to perimeter substrate per Blast Test Report

Step Four – Before positioning vertical mullion, place a bead of caulk (brand spec per test report) - creating the primary seal - between the substrate and mullion. Locate vertical mullion over ‘F’ perimeter anchor as shown and over F or T anchor at top and U anchor at bottom adjacent to door and wall. F or T anchor may be used adjacent to additional curtainwall installation.

NOTE: Reinforcing Steel in Vertical Mullions – application of reinforcing steel shapes and fastener spacing are per structural engineered blast resistant calculations.

See Blast Test Report & associated drawings for applications
ILLUSTRATION 2 HORIZONTALS

Attach horizontal F perimeter channel to building substrate – fastener spacing will be specified by engineered calculations and blast test report & associated drawings.

Notch horizontal mullion, locate and attach horizontal mullions to vertical mullion shear blocks & building substrate.

Install glass with setting blocks and pressure plates; tighten pressure plate bolts to prescribed setting; fastener spacing will be specified by blast test report or engineered calculations. Apply snap cover and caulk perimeter.
ILLUSTRATION 3 – MONUMENTAL DOORS SUB-FRAME INSTALLATION

Locate & install door sub-frame to verticals & horizontal mullions.

Locate & install vertical glass pocket filler & attach with fasteners specified; attach snap cover.

Locate & snap in glass pocket filler and install internal horizontal door stop to sub-frame. Locater & attach external horizontal door stop with pile.
ILLUSTRATION 4 – MONUMENTAL DOORS – THRESHOLD/SILL INSTALLATION

Before installing threshold, lay bed of caulk for primary seal; locate & attach threshold and fasten as prescribed in test report.

Sill attached via fastener & spacing specified by blast test report & associated drawings
CURTAINWALL FRAME FABRICATION & INSTALLATION

Note: If there is an entrance, you should install entrance first, taking care to locate the entrance frame accurately within the opening.

**Step #1: Seal and Secure Frame Clips to Vertical Mullions**
- Apply sealant to shear blocks (frame clips) as shown in the illustration below, and attached to the verticals with fasteners (S139).

**Step #2: Attach Frame Clips to Vertical Mullions per Blast Test Report & associated drawings**
- F & T Anchor are used to attach frame to building opening – top & bottom
Attaching Horizontals to Frame Clips

- Apply sealant to the contact edge of horizontal, as shown below.
- Slide horizontals onto shear blocks (frame clips).
- Apply sealant to the heads of the screws which secure the horizontals to the frame clips.
- Secure horizontals to vertical on one side, and to closure pocket on the other side, using fastener (S-270).
GLAZING INSTALLATION

Glass dimensions should not exceed day light opening (D.L.O.) plus 5/8” PER SIDE. See illustration and notation below; application is per Blast Test Report & associated drawings.

Nominal Glass Dimensions

Formula:

- This formula does not take into account out-of-square openings or glass tolerances. Consult your glass manufacturer before determining final glass sizes.

- When cutting gaskets, you should add 1/16” to 1/8” per foot of daylight opening for shrinkage (an eighth of an inch per foot is approximately 1%). Open, unsealed gasket joints are a potential source of leakage, and water damage to interior finishes.

- When installing gaskets, always begin at the ends of the gasket and work toward the center.

- For pressure plate screws, a torque of 30-40 in.-lbs. should be used.
Step #1: Cut and install the interior gaskets
- Cut interior vertical gaskets to D.L.O. + 1” + shrinkage allowance (see above).
- Install the interior vertical gaskets, beginning ½” beyond the surfaces of the adjacent horizontal framing members. Apply butyl sealant to the interior vertical gaskets, where the horizontal gaskets will contact them.
- Cut the interior horizontal gaskets to D.L.O. + shrinkage allowance (see page 30). Install the interior horizontal gaskets, pressing their ends into the butyl sealant and up against the vertical gaskets.

Step #2: Install the glass
- Position the glass in the frame.
- Raise the glass off the bottom horizontal, and place a setting block (P1912) at each quarter point (2 setting blocks per light). Lower the glass onto the setting blocks.

Step #3: Cut and install the exterior gaskets
- Cut the exterior vertical gaskets to D.L.O. + 1” + shrinkage allowance (see page 30).
- Install the exterior vertical gaskets. The vertical gasket should start ½” above the surface of the upper horizontal, and should extend ½” below the surface of the lower horizontal.
- Apply butyl sealant to the vertical gaskets where the ends of the horizontal gaskets will contact them.
- Cut the exterior horizontal gaskets to D.L.O. + shrinkage allowance (see page 30).
- Install the exterior horizontal gaskets, pressing their ends into the butyl sealant and up against the vertical gaskets.

Step #4: Seal perimeter of installation
- Insert backer rod into the gap between the frame and the building substrate on top, sides, and bottom of the installation. Apply sealant to fill the void.
- Tool the sealant smooth.