



# DEFENDER SERIES BW7600

## BLAST RESISTANT CONCEALED VENT WINDOW

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### NOTE

THE INSTALLATION DETAILS FOUND IN THIS PACKAGE ARE GENERIC AND ARE FOR REPRESENTATION ONLY WITH THE INTENT OF GIVING THE INSTALLATION TEAM A VISUAL REPRESENTATION AS TO HOW THE ASSEMBLIES TYPICALLY INSTALL. THE SHOP SUBMISSION DRAWINGS AND DETAILS ARE THE GOVERNING DOCUMENTS AND AS SUCH THIS PACKAGE IS TO BE USED ONLY AS A RESOURCE

FOLLOW SEALANT MANUFACTURERS' RECOMMENDATIONS FOR USE AND APPLICATION OF ALL STRUCTURAL SILICONE SEALANT AND WEATHER SEAL SILICONE SEALANT.

CUSTOMER/PROJECT QUALITY ASSURANCE PROCEDURES ARE SEPARATE DOCUMENTS AND ARE TO BE FOLLOWED IN CONJUNCTION WITH THIS MANUAL.

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# HANDLING, STORAGE, AND PROTECTION OF ALUMINUM

The following precautions are recommended to protect the material against damage. Following these precautions will help ensure early acceptance of your products and workmanship.

**A. HANDLE CAREFULLY.**

All aluminum materials at job site must be stored in a safe place, well removed from possible damage by other trades. Cardboard wrapped or paper interleaved materials must be kept dry.

**B. CHECK ARRIVING MATERIALS.**

Check for quantity counts and keep records of where various materials are stored.

**C. KEEP MATERIALS AWAY FROM WATER, MUD, AND SPRAY.**

Prevent cement, plaster or other materials from damaging the finish.

**D. PROTECT THE MATERIALS AFTER ERECTION.**

Protect erected frame with polyethylene or canvas splatter screen. Cement, plaster, terrazzo, other alkaline solutions, and acid based materials used to clean masonry are harmful to the finish. ***If any of these materials come in contact with the aluminum, IMMEDIATELY remove with water and mild soap.***

The rapidly changing technology within the architectural aluminum products industry demands that U.S. Aluminum reserve the right to revise, discontinue or change any product line, specification or electronic media without prior written notice.

**NOTE:** Dimensions in parentheses ( ) are millimeters unless otherwise noted.

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# GENERAL INSTALLATION NOTES

### RECOMMENDED GUIDELINES FOR ALL INSTALLATIONS:

- 1. REVIEW CONTRACT DOCUMENTS.** Check shop drawings, installation instructions, architectural drawings, and shipping lists to become thoroughly familiar with the project. The shop drawings take precedence and include specific details for the project. Note any field verified notes on the shop drawings prior to installing. The installation instructions are of a general nature and cover most conditions.
- 2. INSTALLATION.** All materials are to be installed plumb, level, and true.
- 3. INSTALLER QUALIFICATION.** The **Series 7600** window system is intended for fabrication, assembly, sealing, installation and glazing by professionals with appropriate knowledge and experience of the system(s) and their incorporation into various building conditions.
- 4. BENCH MARKS.** All work should start from bench marks and/or column lines as established by the architectural drawings and the general contractor with guaranteed accuracy. Working from these datum points and lines determine:
  - a) The plane of the wall in reference to offset lines provided on each floor.
  - b) The finish floor lines in reference to bench marks on the outer building columns.
  - c) Mullion spacing from both ends of masonry opening to prevent dimensional build-up of daylight opening.
- 5. FIELD WELDING.** All field welding must be adequately shielded to avoid any splatter on glass or aluminum. Results will be unsightly and/or structurally unsound. Advise general contractor and other trades accordingly. All field welds of steel anchors must receive touch-up paint (zinc chromate) to avoid rust.
- 6. SURROUNDING CONDITIONS.** Make certain that construction which will receive your materials is in accordance with the contract documents. If not, notify the general contractor in writing and resolve differences before proceeding with work.
- 7. ISOLATION OF ALUMINUM.** Aluminum to be placed in direct contact with uncured masonry or incompatible materials should be isolated with a heavy coat of bituminous paint. For steel reinforcement primer, use manufacturer's standard corrosion resistant primer, meeting or exceeding Sherwin Williams Kem Kromik<sup>®</sup> and ASTM D5894, 1008 Corrosion Resistance.
- 8. SEALANTS.** The fabrication and installation of a structural silicone-glazed (SSG) or wet glazed system requires more technical knowledge and experience than is required for a conventional pressure-glazed or dry glazed system. The glazing contractor should take all steps as outlined and required by the structural silicone sealant manufacturer, glass fabricator, framing manufacturer, and the project professional engineer of record as well as follow local building code requirements and industry best practices to ensure the proper installation and safe performance of the SSG system.

The glazing contractor for each project needs to ensure compliance with each step, including, but not limited to, design reviews, formal adhesion testing, formal compatibility testing, project specification compliance, validating procedures, field testing, and quality control validation of installed product and surrounding conditions.

Testing of component materials for use in a SSG or wet glazed system is mandatory to fulfill project specifications and warranty requirements and must be submitted by the glazing contractor to the structural silicone manufacturer. All materials that comprise the structural silicone joint, such as the framing system (with the job-specific finish) and job-specific glass must be tested by the structural silicone manufacturer for compatibility and adhesion. All other accessory materials in contact with the structural silicone, such as setting blocks, spacers, gaskets, sweeps, air seals and expansion joints, must also be submitted to the silicone sealant manufacturer for compatibility testing.

To ensure that nothing has changed in formulation or chemistry since the initial tests, subsequent testing during periodic time frames of the project is to be conducted to confirm continued acceptance of the material for use on the project.

To ensure the structural performance and integrity of the insulating glass unit (IGU), the glazing contractor must submit the project shop drawings to the glass fabricator to obtain approval for use of their product(s) in any 2, 3 or 4-sided SSG applications.

Quality control procedures for field glazing are to be increased beyond those required for shop glazing. Job conditions will normally have dust, dirt, and other construction debris on the surfaces where structural silicone is to be applied. Great care should be exercised in cleaning and preparing these surfaces for silicone application. The recommendations of the silicone sealant manufacturer are to be strictly enforced and followed. The fabrication and installation of the SSG system and its components, whether shop or field glazed, should be governed by a quality control program, and all steps, procedures, and test reports should be documented throughout the project.

Prior to installation of any SSG system, refer to industry documents (e.g., AAMA Curtain Wall Design Guide Manual, ASTM C1401-14, and AAMA SSGDG-17) for detailed instructions and recommendations.

THE GLAZING CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ENSURING COMPLIANCE WITH THE ABOVE, AND ASSUMES FULL LIABILITY FOR ANY ISSUES ARISING FROM NONCOMPLIANCE.

# GENERAL INSTALLATION NOTES CONT.

### RECOMMENDED GUIDELINES FOR ALL INSTALLATIONS:

9. **FASTENING.** Within the body of these instructions "fastening" means any method of securing one part to another or to adjacent materials. Only those fasteners used within the system are specified in these instructions. Due to the varying perimeter conditions and performance requirements, perimeter and anchor fasteners are not specified in these instructions. For perimeter and anchor fasteners refer to the shop drawings or consult with the fastener supplier.
10. **BUILDING CODES.** Due to the diversity in state/provincial, local, and federal laws and codes that govern the design and application of architectural products, it is the responsibility of the individual, architect, owner, and installer to assure that products selected for use on projects comply with all the applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware and assumes no responsibility thereof.
11. **EXPANSION JOINTS.** Expansion joints and perimeter seals shown in these instructions and in the shop drawings are shown at normal size. Actual dimensions may vary due to perimeter conditions and/or difference in metal temperature between the time of fabrication and the time of installation. Gaps between expansion members should be based on temperature at time of installation.
12. **GLAZING PRACTICES.** The air and water performance of the **Series 7600** window system is directly related to the completeness and integrity of the installation process, including but not limited to the assembly seals of the framing joinery, the installed glazing gaskets, and the alignment of the framing joinery glazing plane. Before glazing, verify the glazing pocket width and glazing infill thickness, as both must be in tolerance to assure adequate edge pressure and to achieve the desired air and water performance levels. (In general, framing systems utilizing 1" insulating glass are designed to accommodate a thickness variance of +/- 1/32"). Note: Excessive pressure can cause glass breakage and/or IGU failure. Consult the glass manufacturer for their recommended edge pressure per lineal inch.
  - To achieve the designed and tested air and water performance, best practices include:
  - Glazing gaskets should be cut 1/4" longer per foot, and lay flat, preferably for 24 hours
  - Gaskets should be cut as single monolithic pieces and "crowded" during their installation to avoid corner gaps caused by post-installation relaxation
  - The interior glazing gasket should be installed so as to avoid stretching, buckles, or tears
  - Corners must be cut square, and at a slight angle when required to conform to the bevel on the intersecting gasket; sealed and butted together.
  - Gasket corner joinery must also be crowded, and sealant applied onto the gasket contact frame surface and into gasket reglet raceway where applicable.
  - Gasket corner seals are to be done just prior to installing glass, while the sealant is still wet and uncured, and ensure exterior gaskets are installed so as to place the glass into it's final in service condition and allow the sealant to conform to optimum configuration. Note: If the sealant cures prior to glazing, the cured sealant could create excessive edge pressure onto the glass and has the potential to cause glass breakage.
  - The glass must be checked for squareness, size dimension, and thickness along the edges paying attention to any variances from center edge to corner edge
  - Check the placement of the installed glass and verify there is proper edge bite into the pocket, and proper edge clearance from framing elements

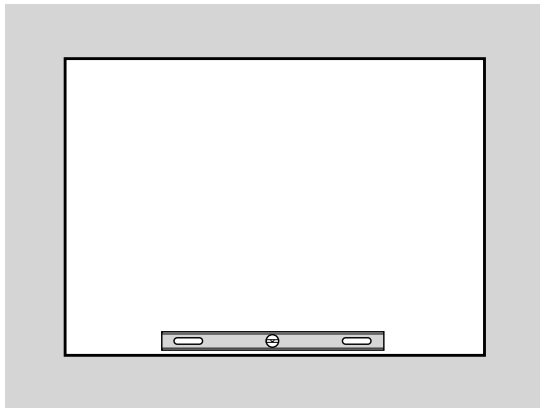
After sealant has set and a representative amount of the wall has been installed and glazed (250 square feet or more) run a water hose test in accordance with AAMA 501.2 specifications to check installation. On large projects the hose test should be repeated during the glazing operation. Consult and follow NGA's GANA Manual and FGMA Glazing Manual for proper glazing technique and procedure.

13. **COORDINATION WITH OTHER TRADES.** Coordinate with the general contractor any sequence with other trades which offset curtain wall installation (i.e. fire proofing, back-up walls, partitions, ceilings, mechanical ducts, converters, etc.).
14. **CARE AND MAINTENANCE.** Final cleaning of exposed aluminum surfaces should be done in accordance with AAMA 609.1 for anodized aluminum and 610.1 for painted aluminum.

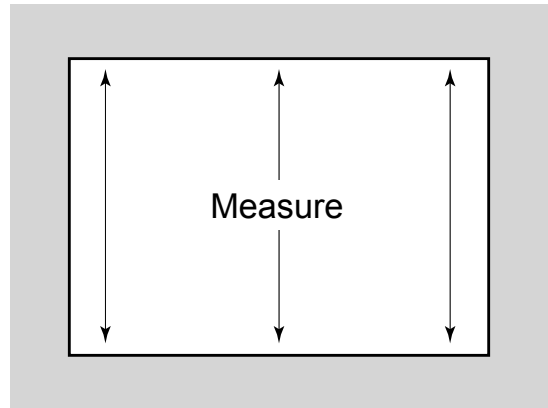
# SITE PREPARATION

## BEFORE INSTALLATION

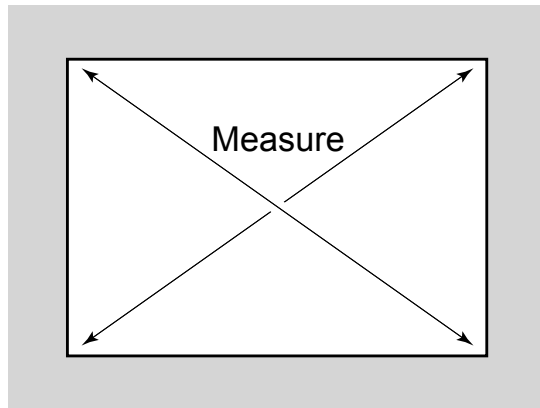
1. Review and measure the opening.
2. Verify rough window opening size 1/2" (12.7) clearance in both width and height to the window. Verify framing is plumb, straight, and true around window opening. Measure opening at each end and at center vertically and horizontally. Make corrections to openings as required. Measure opening diagonally to check squareness. Chip concrete high points to flush and rounded corners to square.



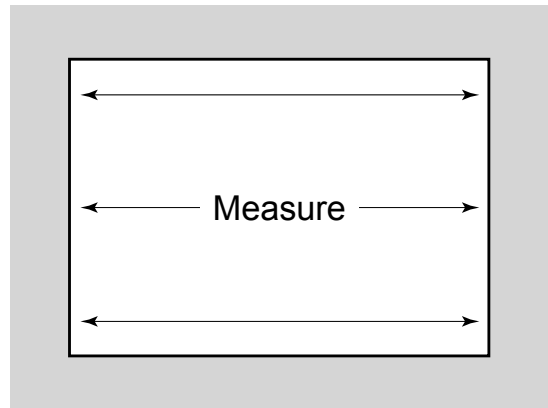
LEVEL



VERTICAL DIMENSION



SQUARE



HORIZONTAL DIMENSION

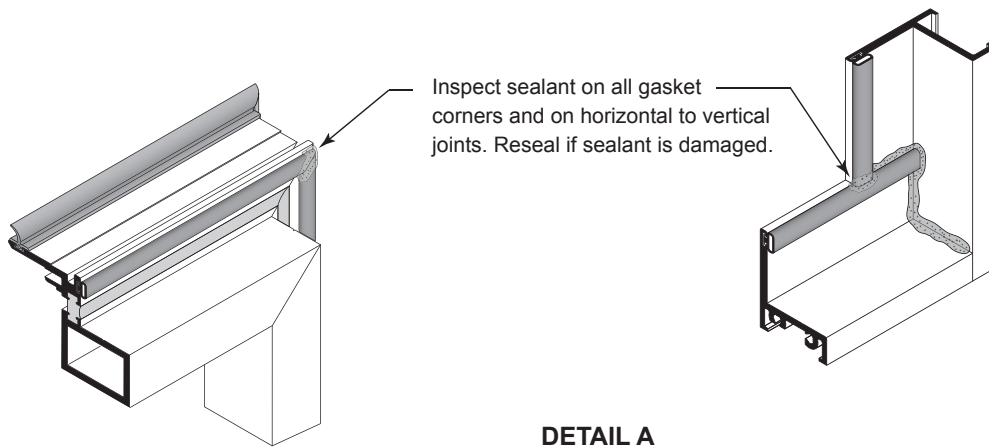
# INSTALLATION INSTRUCTIONS

These instructions cover installation and glazing of project-out awning windows into storefront, window wall and curtain wall systems. This system is designed to be used with the following window series; BR604, BR606, BT601 Storefront or BW3250 Curtain Wall. The Series BW7600 Blast Resistant Concealed Vent is a minimal sightline window offering a **DoD 1 psi Blast Resistance Capability**. Standard hardware included, reinforced with corner keys, and crimped at all corners. When closed, the vent is sealed to the frame with bulb gaskets, ensuring an airtight seal.

Net window dimensions are daylight opening minus 1/4" (6.3) vertically and horizontally. Window units are fabricated and assembled at the factory. Windows may be shop or field glazed.

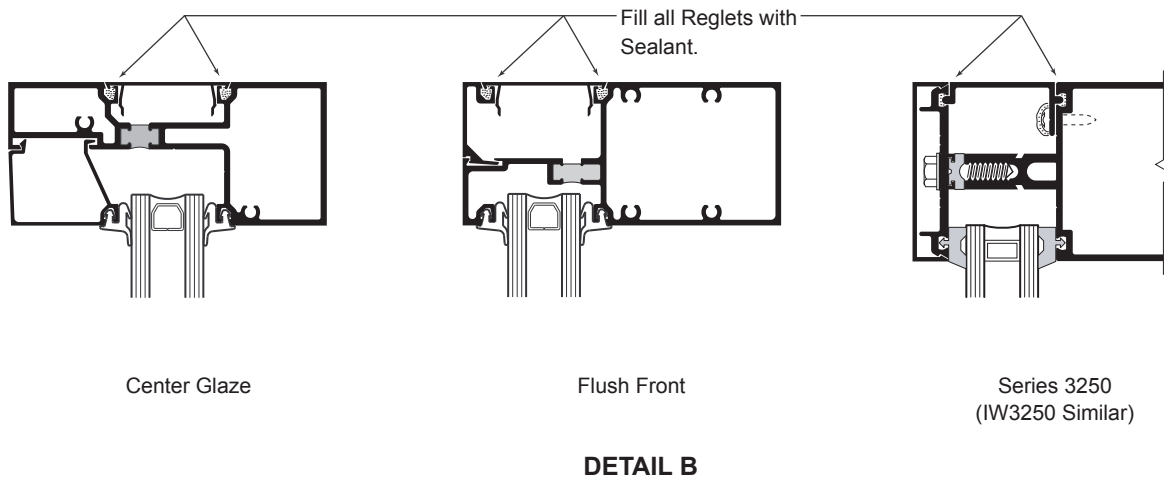
## FRAME FABRICATION

1. Visually inspect all Bulb Gasket corners to assure no damage has occurred during shipment. **See DETAIL A.** If required, apply sealant to damaged areas, leaving vent open for proper drying.



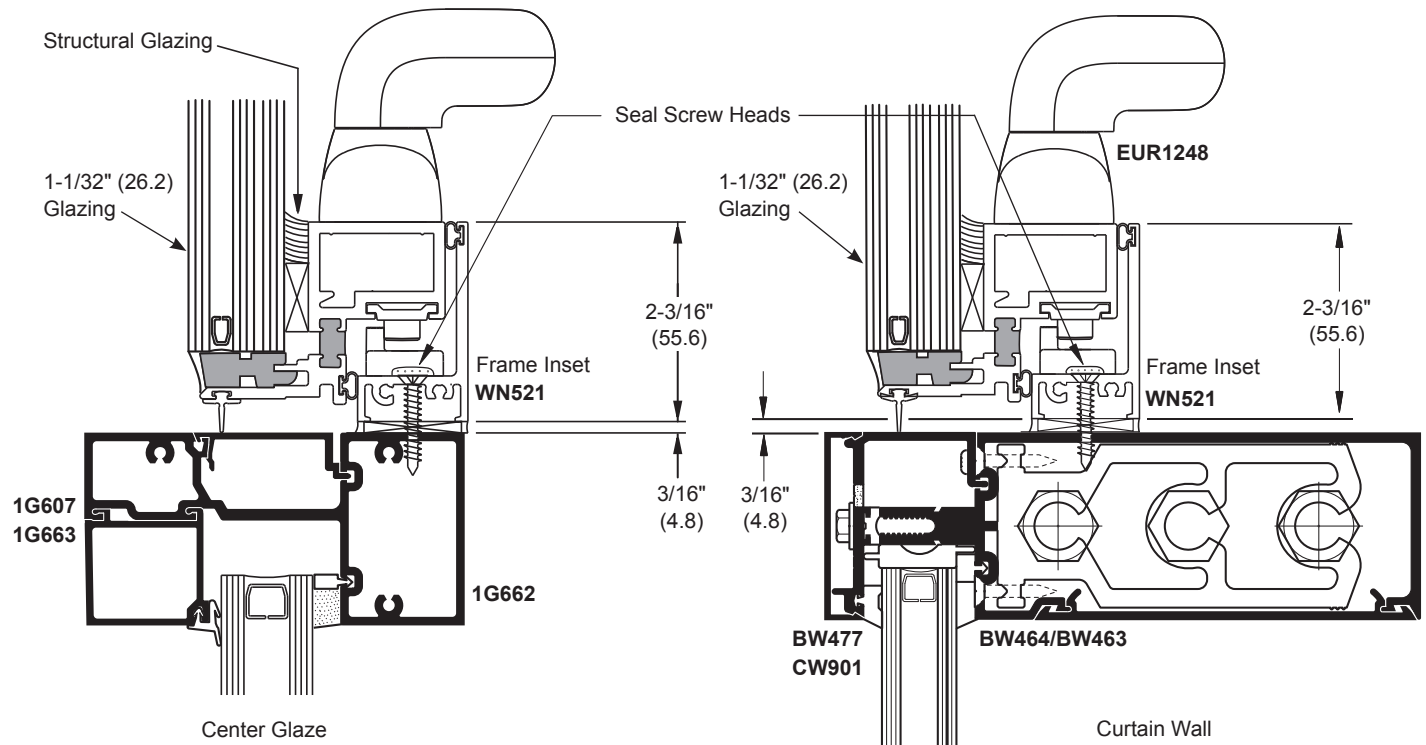
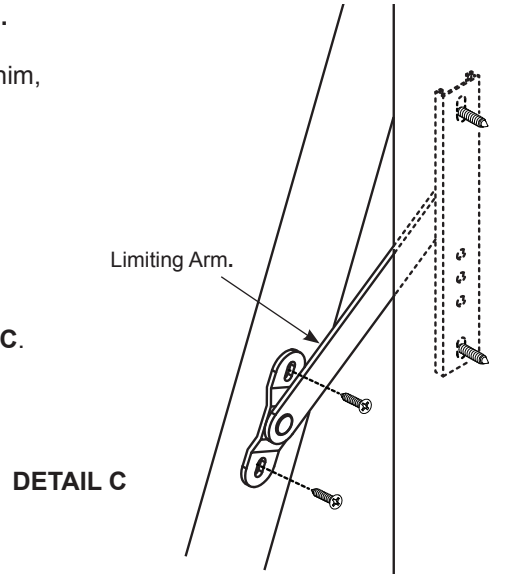
2. If necessary, remove sash from frame prior to installation by removing screws attaching hinges to sash.
3. Must apply sealant to all reglets receiving pocket fillers at window locations. **See DETAIL B.**

**NOTE:** Standard CW and WW profiles shown. BW series similar.



# SERIES BW7600 WINDOW

4. Determine proper frame inset in glazing system. **See DETAIL D.**
5. Set frame in daylight opening (D.L.O.) of glazing system then shim, plumb, and level.
6. Secure frame to perimeter with flat head screws, 3" (76) from corners and 12" (305) on center or as shown on approved shop drawings. When installing the frame into the opening, the two bottom limiting arms will have to be disengaged from the vent panel in order to move the panel out of the way to provide enough clearance at the head of the frame for installing screws. Remove the screws on the vent panel as shown in the **DETAIL C**. Reinstall the screws and limiting arms after the frame has been installed. Seal over perimeter fasteners. **See DETAIL D.**



**DETAIL D**

7. Apply and tool perimeter sealant around framing.

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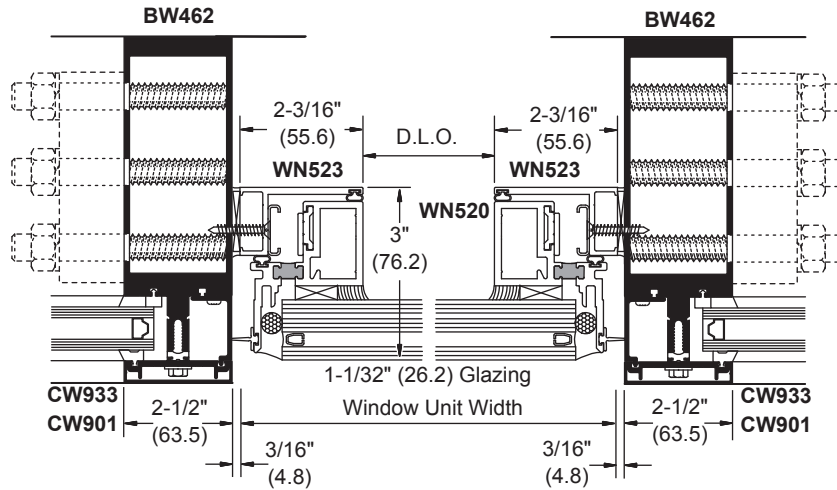
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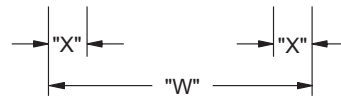
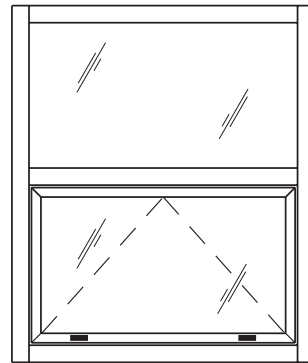
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# GLAZING



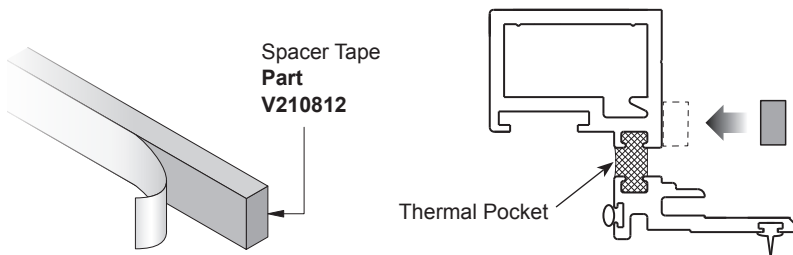
1. Clean glazing fins to remove oil residue prior to applying **Part V210812 Spacer Tape**.
2. Place Setting Blocks at 1/4 points or as instructed by approved shop drawings **See DETAIL E**.

DETAIL E

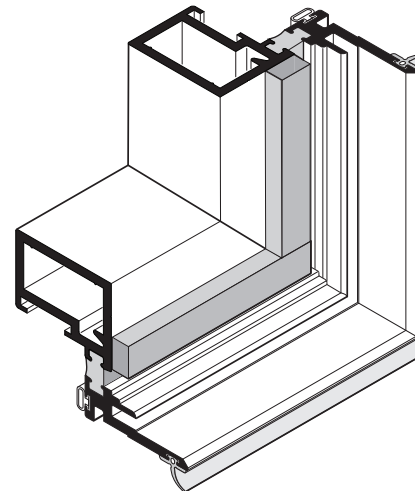


X = W/8 or 6", whichever is greater

3. Cut and peel protective backing from tape. Apply tape full length of horizontal members, along edge and above thermal pocket. Apply tape to the vertical members, abutting tightly to horizontal tape, along edge of thermal pocket. **See DETAIL F.4.**
4. Set glass into opening, pressing against spacer tape.



DETAIL F



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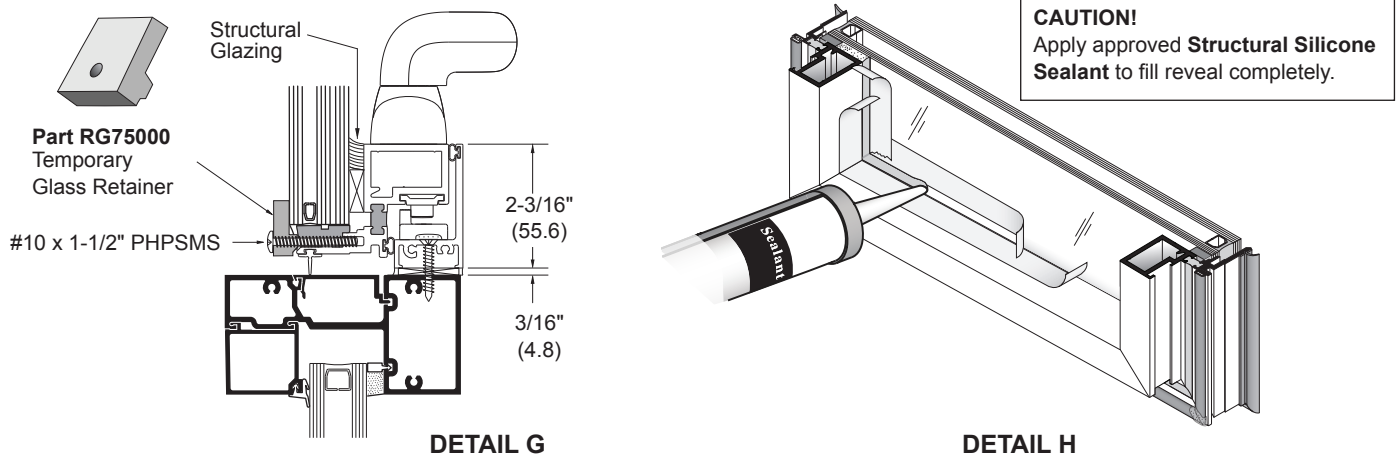
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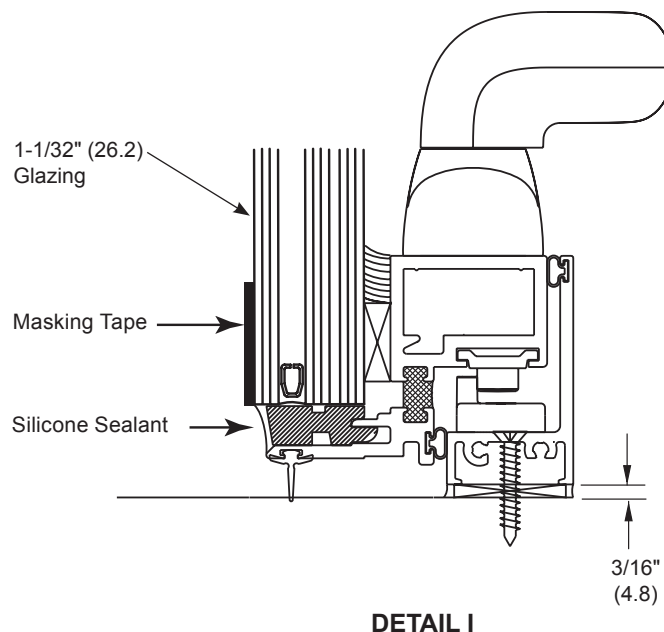
# GLAZING - CONTINUED

5. Install temporary Glass Retainer Clips using **Part RG75000** for 1" (25) glass as shown in **DETAIL G**.
6. Mask off aluminum at edge of glass pocket and mask glass 1/8" (3.2) from the edge of aluminum as shown in **DETAIL G and H**.
7. Apply Structural Silicone, tool and remove masking tape. Use caution in removing tape to avoid marring tooled Silicone. Follow sealant manufacturers recommendations for surface preparation and cure times.

**NOTE:** Go to [usalum.com](http://usalum.com) for structural glazing sealants. Refer to #7 of the general installation notes on page 7 at the beginning of this manual.



8. Remove temporary Glass Retainer Clips and mask edges of glass.
9. Apply exterior weatherseal to glass perimeter. **See DETAIL I.** Use caution in removing tape to avoid marring tooled silicone. **Follow sealant manufacturers recommendations for surface preparation and cure times.**



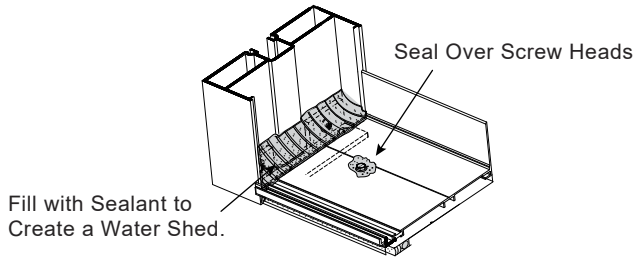
# GUIDE TO SEALANTS

**NOTE: All sealants must be tooled to ensure proper adhesion.**

## WATERPROOFING

• **Typical Weather Sealant**

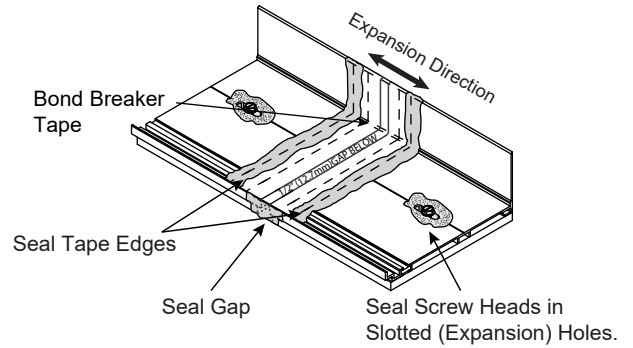
Sill to Subsill, End Dams, Screw Heads, and Threshold to Door Frame Sealing.



## EXPANSION

• **Typical Weather Sealant**

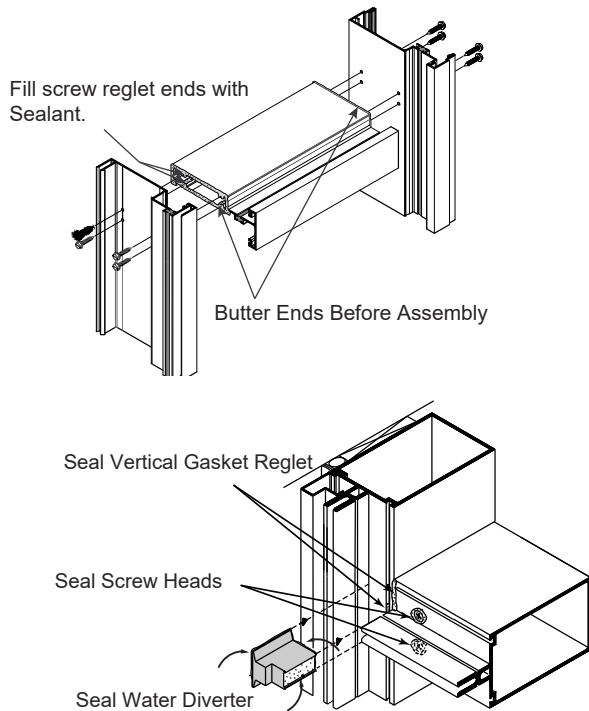
Expansion Joints.



## JOINT ADHESIVE

• **Typical Weather Sealant**

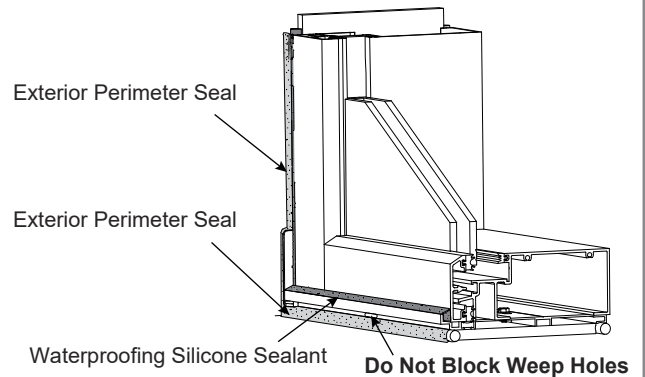
Small Joints, End Joints and Buttered Surfaces, Water Diverters, End Dams and Reglet Fills.



## PERIMETER

• **Typical Weather Sealant**

Perimeter Seals, Expansion Joints, Sill and Threshold Beds, Concrete, Wood, and Steel Openings.



## STRUCTURAL

• **ALL STRUCTURAL SEALANTS REQUIRE TESTING AND APPROVAL.**

Glass-to-Glass or Glass-to-Metal