

6500 Series Arctic Curtain Wall System



Oldcastle BuildingEnvelope

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6500 Series Arctic Curtain Wall Punch Press Fabrication GUIDELINE MANUAL

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 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 structural silicone sealant and weather seal silicone sealant.

Note: Customer/Project quality assurance procedures are separate documents and are to be followed in conjunction with this manual.

Fabrication, Installation Instruction & Glazing are product specific.
FOR GUIDANCE ONLY!



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6500 Series Arctic Curtain Wall System

GENERAL INFORMATION

Product Use

The 6500 Series Arctic Curtain Wall System is intended for fabrication, assembly, sealing, installation and glazing by professionals with appropriate knowledge and experience of the system and their incorporation into various building conditions.

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.

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GENERAL INFORMATION

Product Use

The air and water performance of the 6500 Series Arctic Curtain Wall System is directly related to the completeness and integrity of the installation process both the seal installed at the shear blocks and the glazing gasket installed at the interior side of the glass. All pressure plates must also be installed properly. To insure top performance for this system, particular attention should be given the following procedures:

1. Surfaces to be sealed should be cleaned with isopropyl alcohol and dried as recommended by sealant manufacturer to remove all dirt and cutting oils. Sealant at shear blocks should be a minimum $\frac{3}{16}$ " diameter nominal placed around the top, face and bottom of the shear block without gaps in the sealant at backpan application and at the face at vision application. Exposed surfaces should be cleaned after installing the horizontal. Inspect joint for complete sealant contact, especially where the horizontal meets the face of the vertical member. Repair joint as required.
2. The interior glazing gasket should be installed so as to avoid stretching, buckles or tears. For recommended shrinkage allowance please refer to **page 7**. Corners must be cut square, sealed and butted together. To avoid damage to gasket and corner joints during glazing, glass should be level and straight during installation

Variations on the details shown are inevitable and are not the responsibility of Oldcastle BuildingEnvelope® when drawn by others. Oldcastle BuildingEnvelope® strongly encourages its customers to use its Engineering department for calculations and shop drawings.

For Structural Silicone Glazing (SSG) applications, the stress on the silicone should not exceed 20 PSI. Consult sealant manufacturer for specific applications to ensure proper loading on silicone joint. Alternate spacer gaskets are available to accommodate larger sealant contact widths. Consult your nearest Oldcastle BuildingEnvelope® facility for assistance.

Consult glass manufacturer for correct setting block location and length for glass sizes in excess of 40 sq.ft.

BUILDING CODES

Oldcastle BuildingEnvelope® does not control the application nor selection of its product configurations, sealant, or glazing materials, and assumes no responsibility thereof. It is the responsibility of the owner, architect, and installer to make these selections in strict compliance with applicable laws and building codes.

Protection and Storage

Handle all material carefully. Do not drop from the truck. Stack with adequate separation so the material will not rub together. Store material off the ground, protecting against the elements and other construction hazards by using a well ventilated covering. Remove material from package if wet or located in damp area. For further guidelines consult AAMA publication 'Care and Handling of Architectural Aluminum From Shop to Site.'

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GENERAL INFORMATION

Check Material

Check glass dimensions for overall size as well as thickness. Oldcastle BuildingEnvelope® cannot be held responsible for gaskets that are not water tight due to extreme glass tolerance. The 6500 Series Arctic Curtain Wall System is designed to accommodate glass or panels 1" in thickness. (+/- $\frac{1}{32}$ ")

Check all material upon arrival at job site for quality and determine any shipping damage.

Check shop drawings, installation manual, architectural drawings and shipping lists to become familiar with the project. The shop drawings take precedence and include specific details for the project. The installation manual is of a general nature and cover the most common conditions. Due to varying job conditions all sealant used must be approved by sealant manufacturer to insure it will perform per the conditions shown on the instructions and shop drawings. The sealant must be compatible with all surfaces in which adhesion is required, including other sealant surfaces. Use primers where directed by sealant manufacturer. Properly store sealant at the recommended temperatures and check sealant for remainder of shelf life before using.

Field Conditions

All material to be installed must be plumb, level and true. Aluminum to be placed in direct contact with masonry or incompatible material should be isolated with a heavy coat of zinc chromate, bituminous paint or non-metallic material.

After sealant is set and a representative amount of the wall has been 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.

Cleaning Materials

Cement, plaster terrazzo, alkaline and acid based materials used to clean masonry are very harmful to finishes of all curtain wall material. Any residue should be removed with water and mild soap immediately or permanent staining will occur. A spot test is recommended before any cleaning agent is used. Refer to the Architectural Finish Guide in the detail catalog.

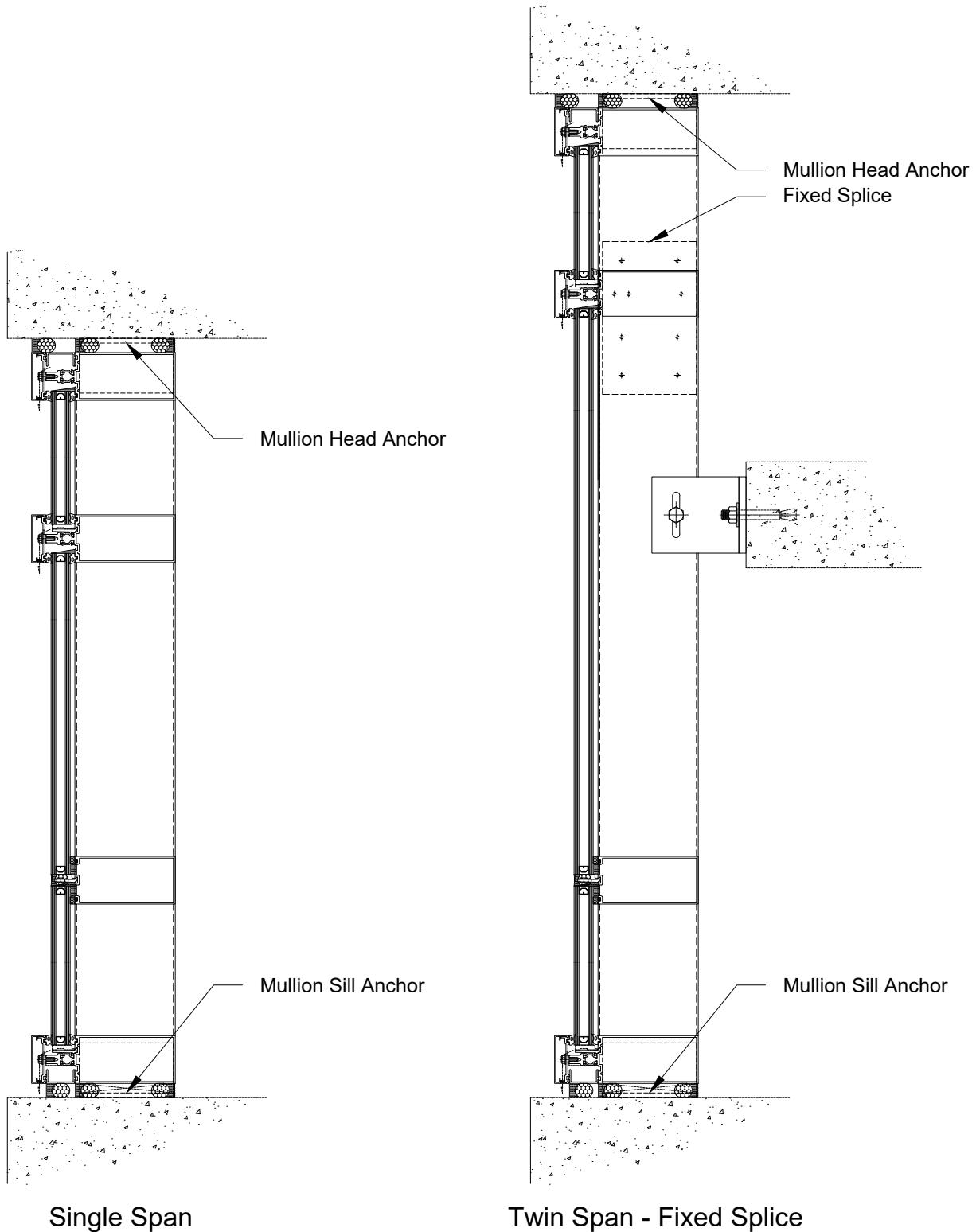
Perimeter Joints

Perimeter joints are normally shown at nominal size. Actual dimensions may vary due to perimeter conditions and/or differences in metal temperature between the time of fabrication and the time of installation. For example, a 12 foot unrestrained length of aluminum can expand or contract $\frac{3}{32}$ " over a temperature change of 50°F. Any movement potential should be accounted for at the time of the installation.

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INSTALLATION TYPES

The following wall sections represent common types of installations for this product. Refer to approved shop drawings for specifics regarding splicing and anchoring of frame.



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SYSTEM OVERVIEW

Unless otherwise noted, the details shown in these instructions are based on 5- $\frac{1}{4}$ " system for 1" glazing. Alternate depths are also available. See the Oldcastle BuildingEnvelope® sale representative for additional information. Structural silicone glazed mullion is referred to as "SSG mullion".

1.1 Shop drawings are to indicate ROUGH OPENING (R.O.) to determine FRAME WIDTH and FRAME HEIGHT dimensions. Allow $\frac{1}{2}$ " minimum clearance for shelf angle at head & sill, shimming and caulking around perimeter of frame.

1.2 Cut material to size as follow:

Vertical mullion	FRAME HEIGHT
Vertical pressure plate	FRAME HEIGHT
Vertical corner adaptor	FRAME HEIGHT
Vertical face cover	FRAME HEIGHT
Intermediate horizontal mullion	DLO
Horizontal pressure plate	DLO - $\frac{1}{4}$ "
Horizontal face cover	DLO - $\frac{1}{16}$ "
Thermal break	mullion size
Vertical gaskets	DLO + 1" + allowance*
Horizontal gaskets	DLO + allowance*

* Glazing gaskets should be cut $\frac{1}{4}$ " longer per foot. Set aside and lay flat until ready to glaze.

QUICK REFERENCE GUIDE

*All pressure plate stock lengths are to be pre-punched at 9" O.C. for pressure plate application fasteners (Ø 0.266" - H Drill) prior cutting to size.

*Locate pressure plate screws at max. 9" O.C. & min. 1- $\frac{1}{2}$ " from ends (punch additional hole if required).

*Torque pressure plate screws to 90 in/lbs.

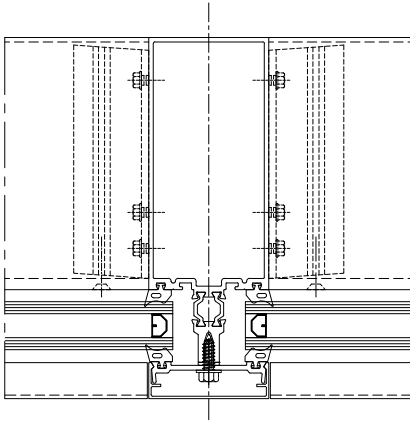
*Captured system glass size is DLO + 1"

*SSG system glass size is DLO + 1 $\frac{7}{8}$ "

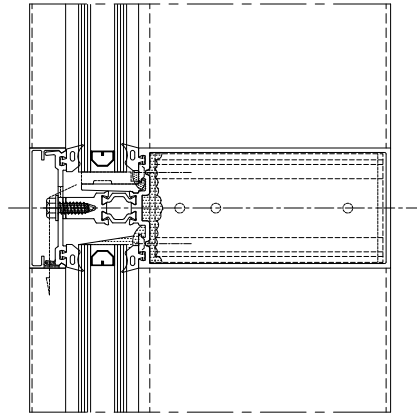
6500 Series Arctic Curtain Wall System

SYSTEM CONFIGURATIONS

6500 Series Arctic Captured System (5 $\frac{1}{4}$ " B.S.)

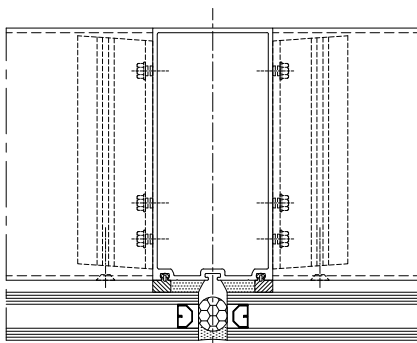


Typical Vertical Mullion

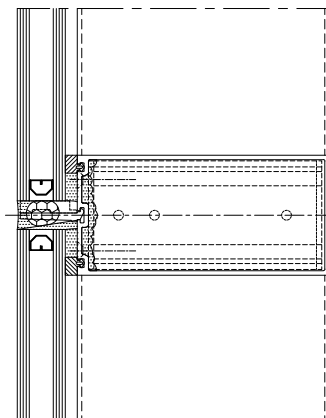


Typical Horizontal Mullion

6500 Series Arctic SSG System (5 $\frac{1}{4}$ " B.S.)

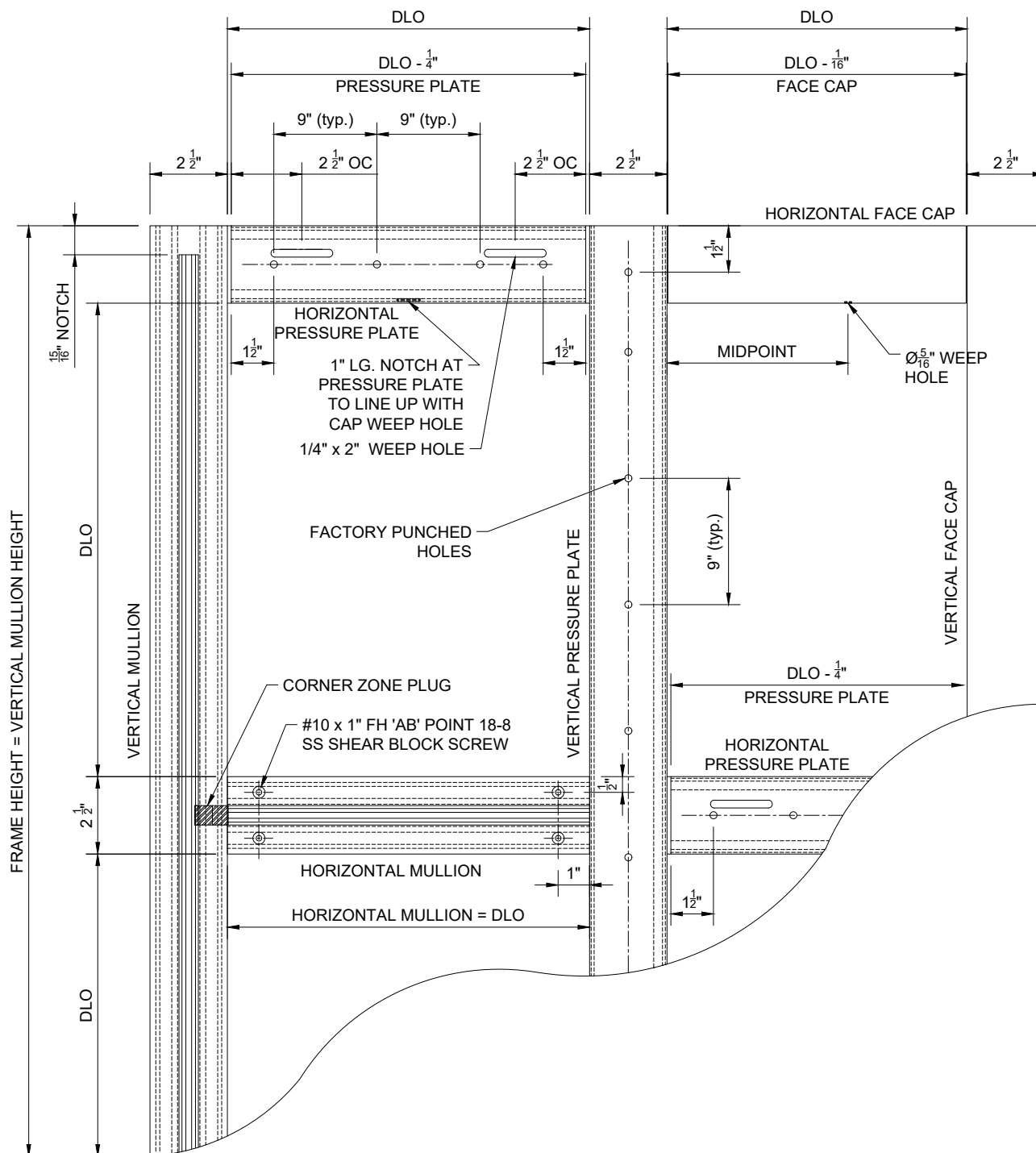


Typical Vertical Mullion



Typical Horizontal Mullion

FABRICATION SAMPLE



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FRAME FABRICATION

- 1.3 All vertical mullions to have nose & struts notched as shown in **Fig. 1** at the top and bottom. This is to provide option for continues pocket filler, continuity of an airseal silicone membrane and/or shelf anchoring. For the F/T anchoring (subject to the project requirements), anodized aluminum plate 'End Cap' is to be used by the installer to insure continuity of backer rod and seal. (**Fig. 2**)

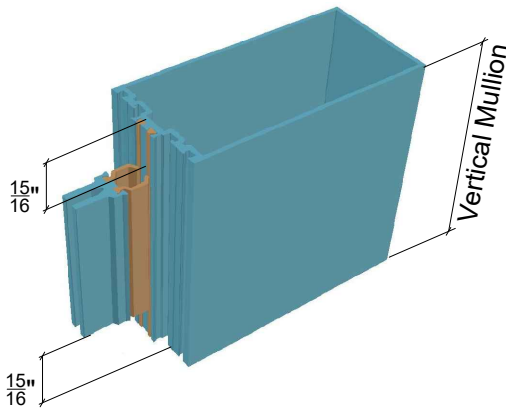


Fig. 1 (Notch struts & mullion extension $15\frac{1}{16}$ ")

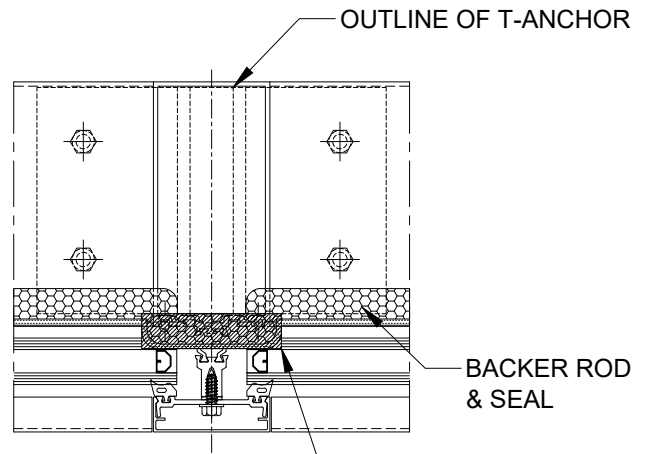


Fig. 2 (Backer rod & seal continuity diagram - plan view)

3" x $\frac{3}{4}$ " x $\frac{1}{16}$ " ANODIZED ALUM. PLATE (END CAP) SILICONED TO THE TOP OF MULLION

- 1.4 Locate the center line of horizontal member and attach the shear block using #10 x 5/8" Hex self drilling screws. Please see 'SHEAR BLOCK PREP' on **page 11-16 (2.1)**. Install shear blocks as shown in **Fig 4** on **page 10** and seal the screw 10 x 1" FH screw heads with silicone.

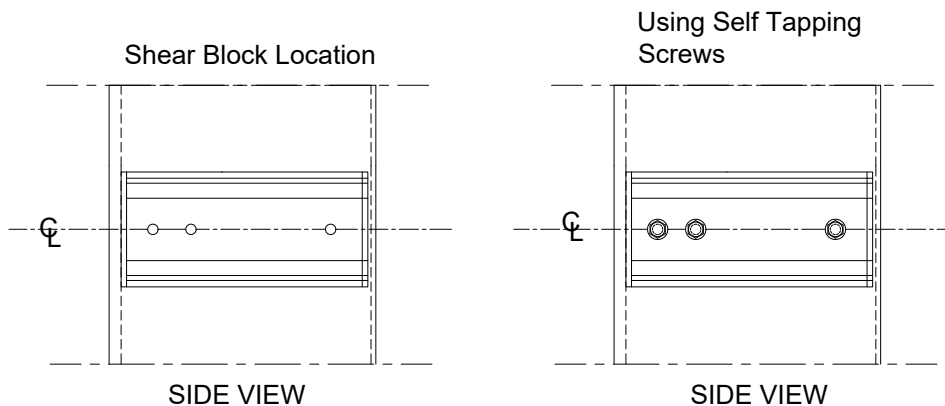


Fig. 3 (Shear block Assembly)

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FRAME FABRICATION

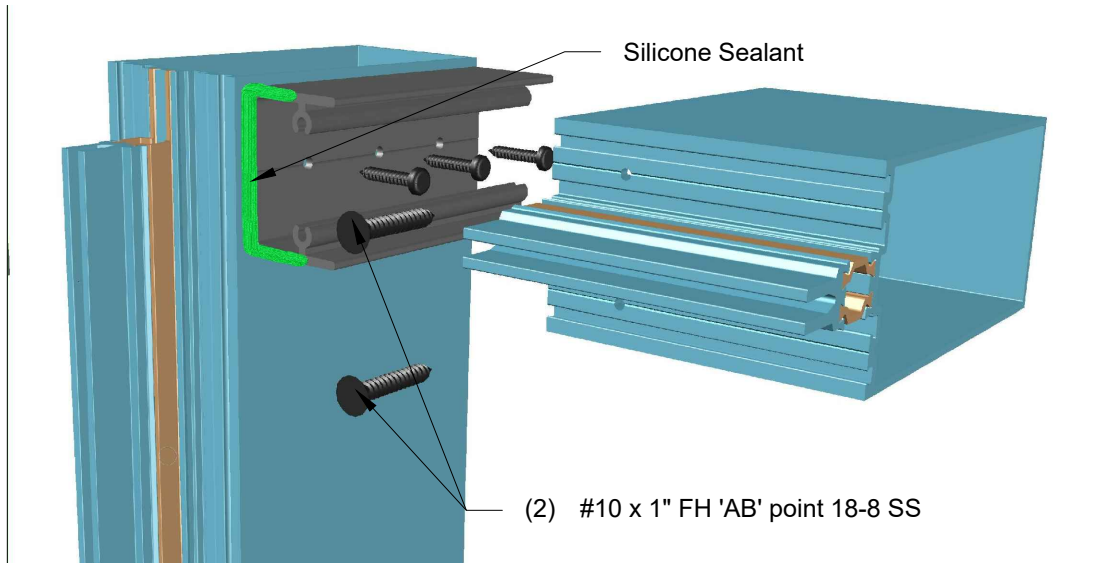


Fig. 4 (Shear block assembly)

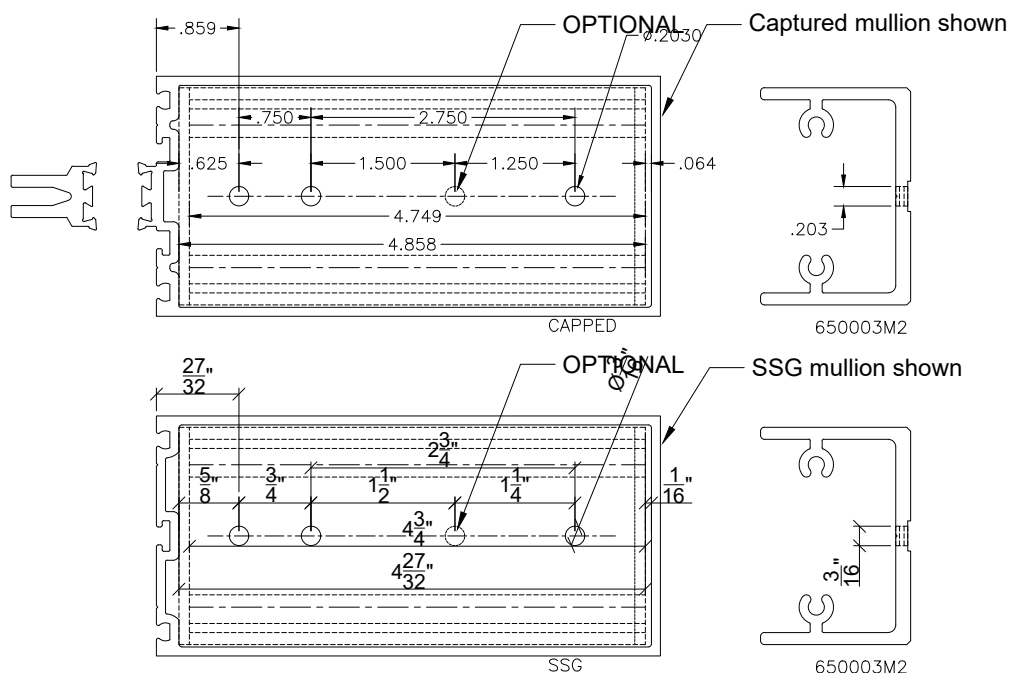
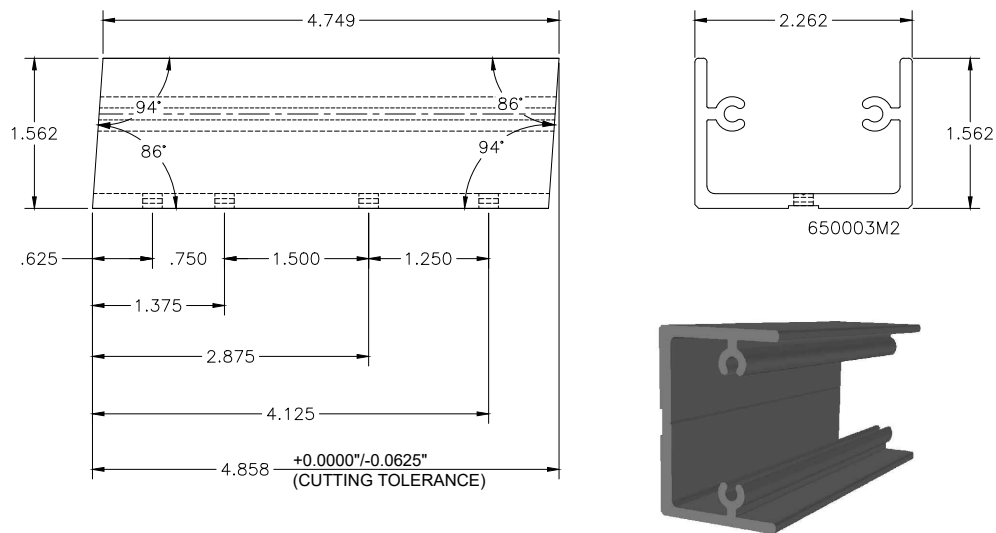
- 1.5 Silicone end caps to top and bottom of a jamb and intermediate vertical mullions. End caps can be also secured with #10 x $\frac{1}{2}$ " drive screw.
- 1.6 Drill $\frac{5}{16}$ " weep holes at $\frac{1}{4}$ points in the horizontal pressure plate and (1) $\frac{5}{16}$ " weep holes at the bottom of each horizontal face cover at centerline of DLO. For SSG application, face cover typically run across mullions, so there will be multiple holes in each horizontal face cover.
- 1.7 All pressure plate holes installation holes are typically at 9" O.C. Once pressure plate is cut to size, to insure proper pressure on the glazing, 0.266" additional holes may need to be drilled at the each end ($1\frac{1}{2}$ " max.) as required.
- 1.8 Install gaskets to all vertical and horizontal mullions and vertical and horizontal pressure plate following details of the approved shop drawings. The gasket cut length is outlined in **1.2 page 6**.
- 1.9 Install thermal break to all vertical and horizontal mullions. The thermal break cut length is also outlined in **1.2 page 6**.

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SHEAR BLOCK PREP

2.1 requires Drill clear holes 13/64" (0.201") for shear block as shown bellow. Typical conditions only (3) holes for 5-1/4" system. However, under heavy load and/or project requirements, additional hole is to be used. This option is applicable to all systems. Install shear blocks as outlined on **page 9 (1.4)**.

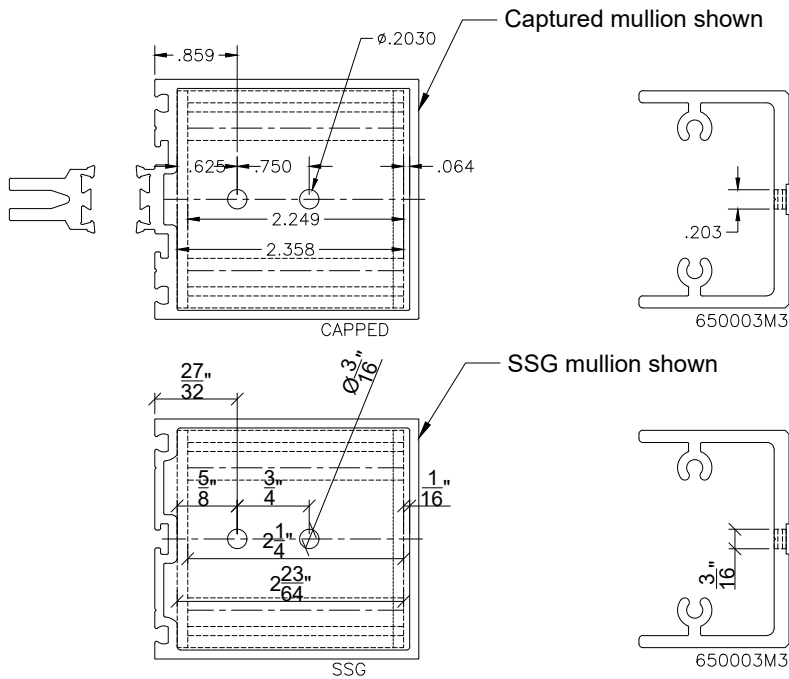
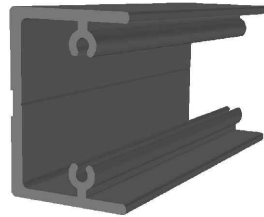
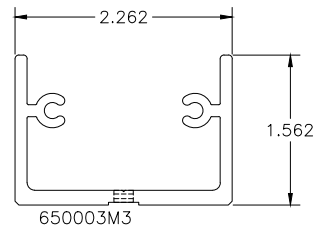
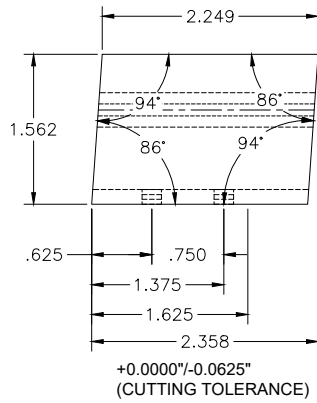
Typical 5-1/4" Backsection System



6500 Series Arctic Curtain Wall System

SHEAR BLOCK PREP

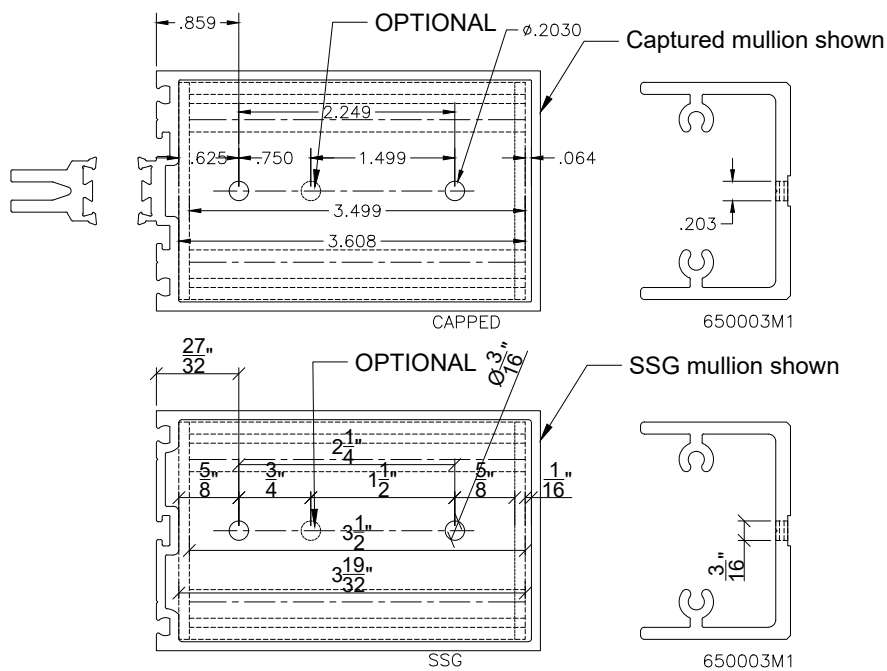
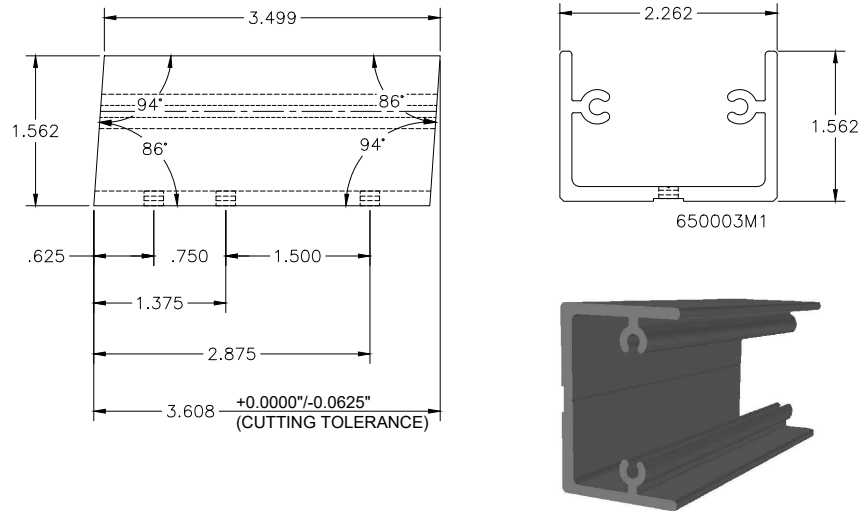
Typical 2 3/4" Backsection System



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SHEAR BLOCK PREP

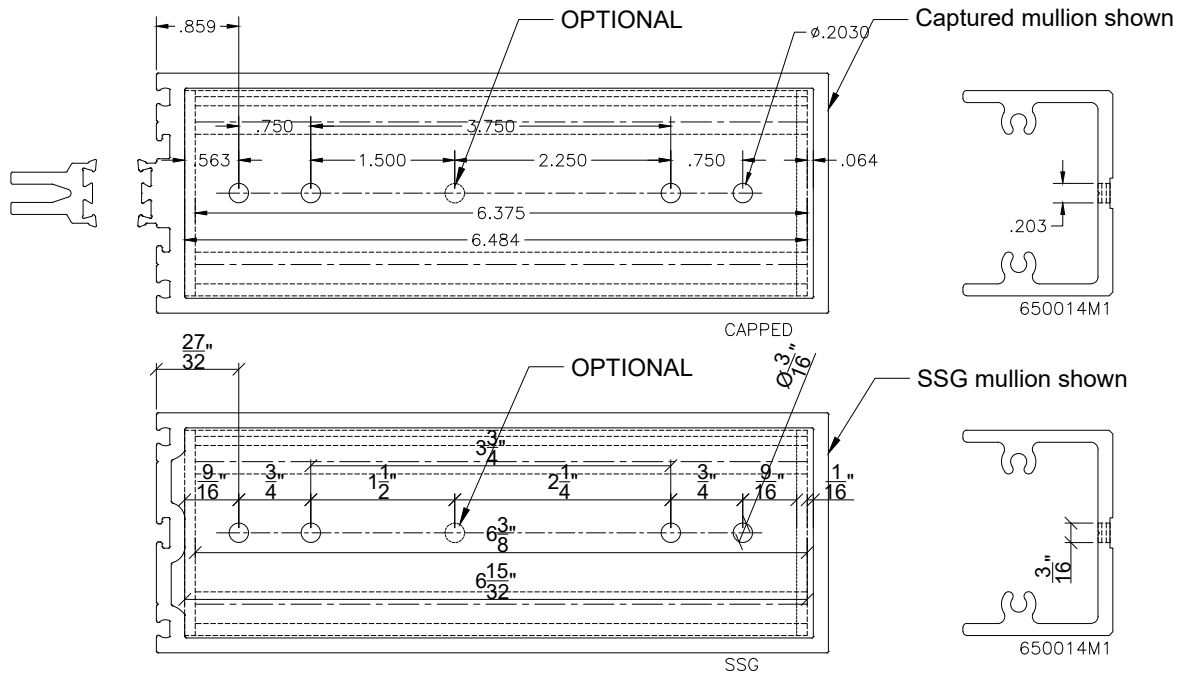
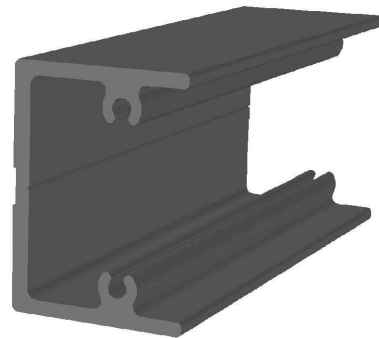
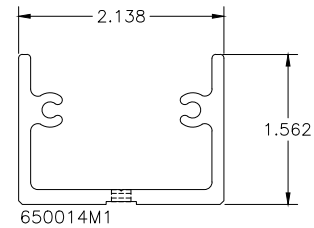
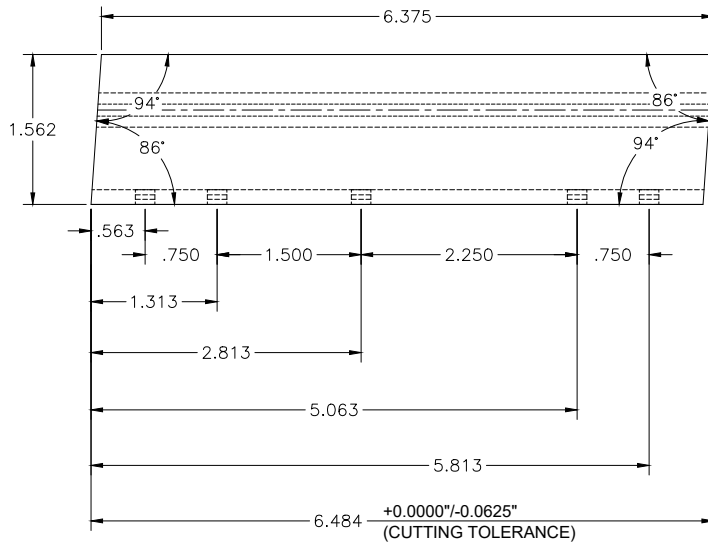
Typical 4" Backsection System



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SHEAR BLOCK PREP

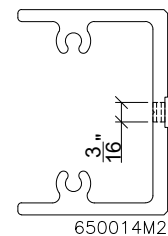
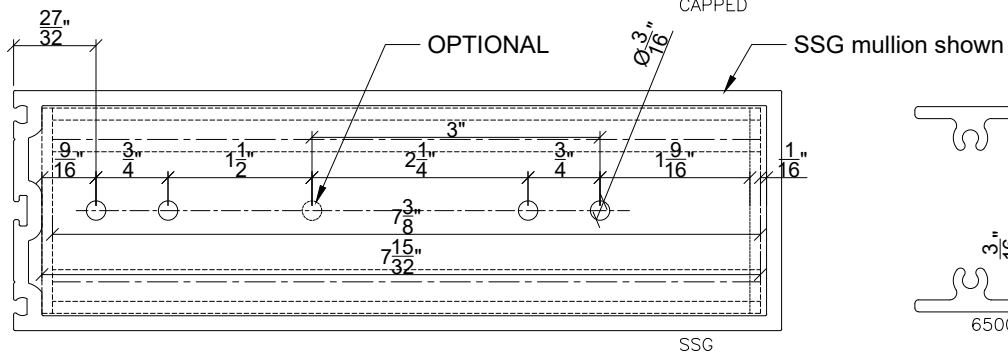
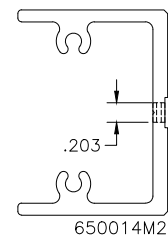
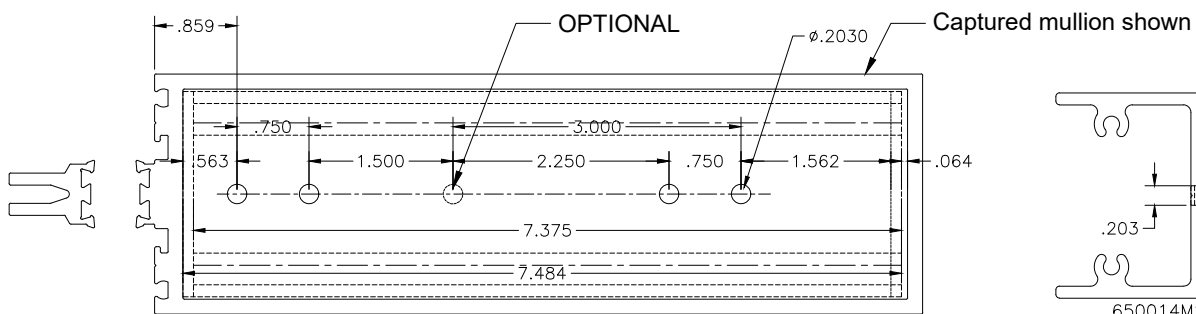
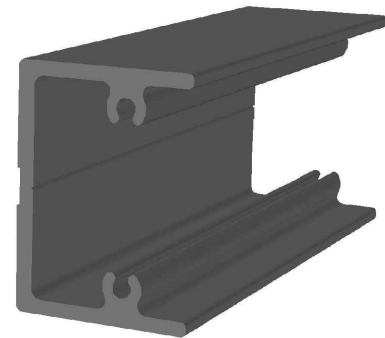
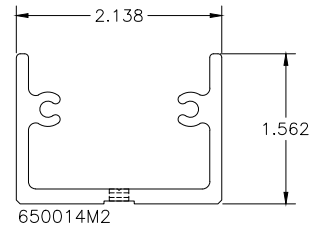
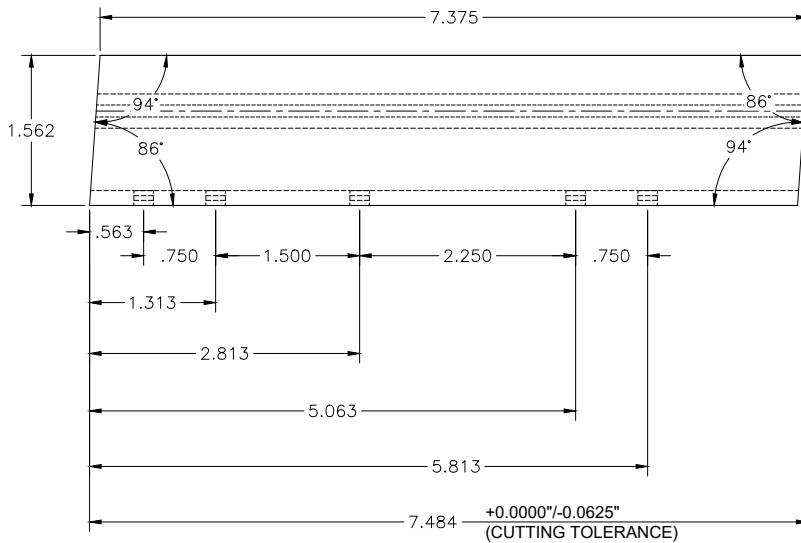
Typical 7" Backsection System



6500 Series Arctic Curtain Wall System

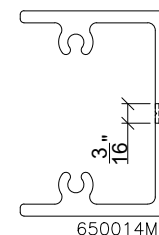
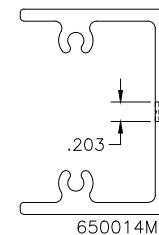
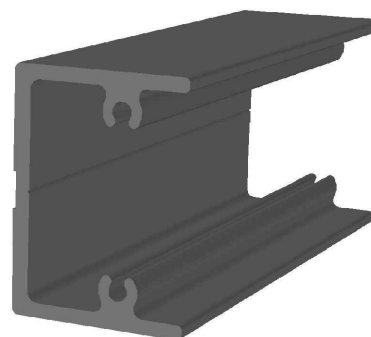
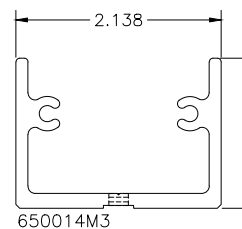
SHEAR BLOCK PREP

Typical 8" Backsection System



6500 Series Arctic Curtain Wall System

Typical 9-1/4" Backsection System



6500 Series Arctic Curtain Wall System

SYSTEM INSTALLATION

Anchor type and sizes vary per job requirements. Refer to approved shop drawings for actual conditions. Anchoring shown in this manual in the details below (**Fig. 5**) are to be used as a generic guide only.

- 3.1 Small frames can be pre-assembled provided there are at least two intermediate horizontal mullions. This can be done in the shop or on site. Refer to **page 9** 'FRAME FABRICATION' for more details. The horizontal mullion at the head and sill are to be installed once the anchor bolt(s) are secured to the structure. Refer to **3.2** below for anchor installation. Once installing the head and sill horizontal mullion, seal around shear block first. Prior to attaching FT screws, make sure sealant has been forced out of the holes in horizontal. If not, apply a liberal amount of sealant into each hole. Secure horizontals to shear block with two (2) FT screws at each end of horizontal. Check head of screws to ensure proper seal.
- 3.2 Slide T/F anchor into top and bottom of vertical mullion. The anchor legs are designed to clear the shear block fasteners. Install verticals plumb and level, ensure proper spacing out from slab or beam. Place shims under vertical mullion and anchor at sill to evenly distribute dead load from wall. Anchor top and bottom of the mullion to the structure. Do not overtight bolt(s). Horizontal mullions at top and bottom require notch to allow for fastener head clearance. Refer to **page 17** for schematic view.
- 3.3 Apply sealant to all contact surfaces on the vertical and horizontal mullions where zone plugs will be installed. Install at the end of each horizontal mullion by sliding plug down into pocket from above. Tool sealant around all sides of the zone plug in the glazing pocket to ensure a watertight seal. Refer to 'ZONE PLUG INSTALLATION' for more details (**Page 19 & 20**).

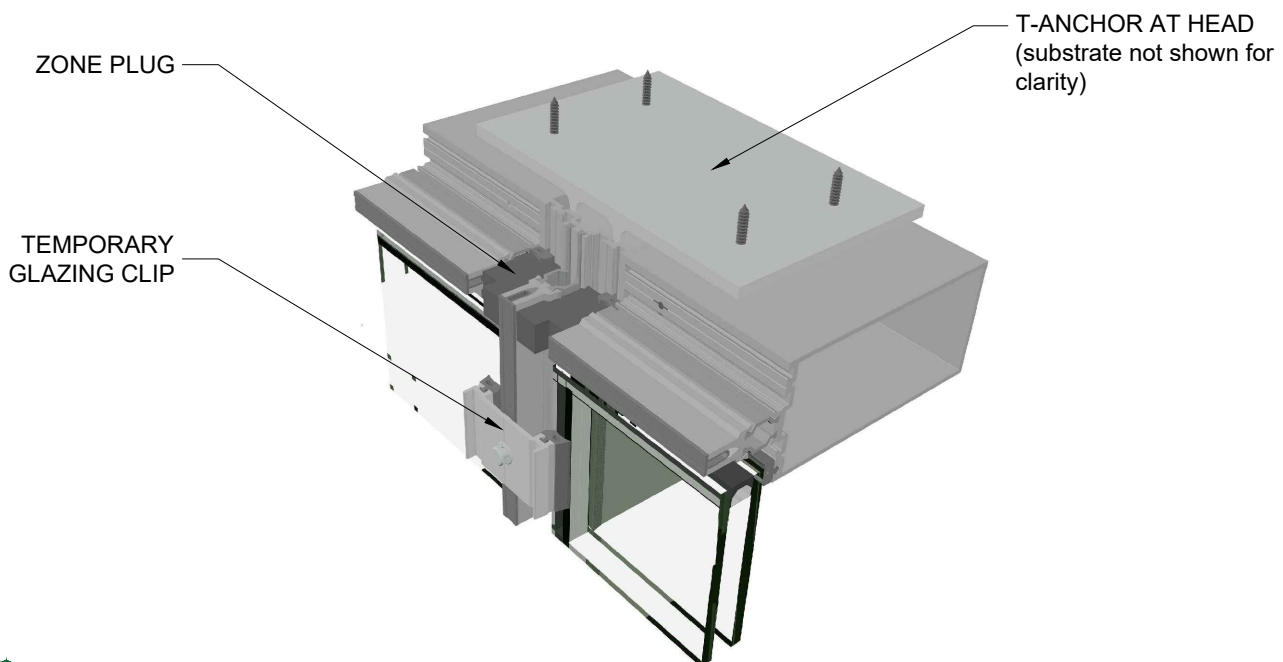


Fig. 5, (T-anchor at head)

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SYSTEM INSTALLATION

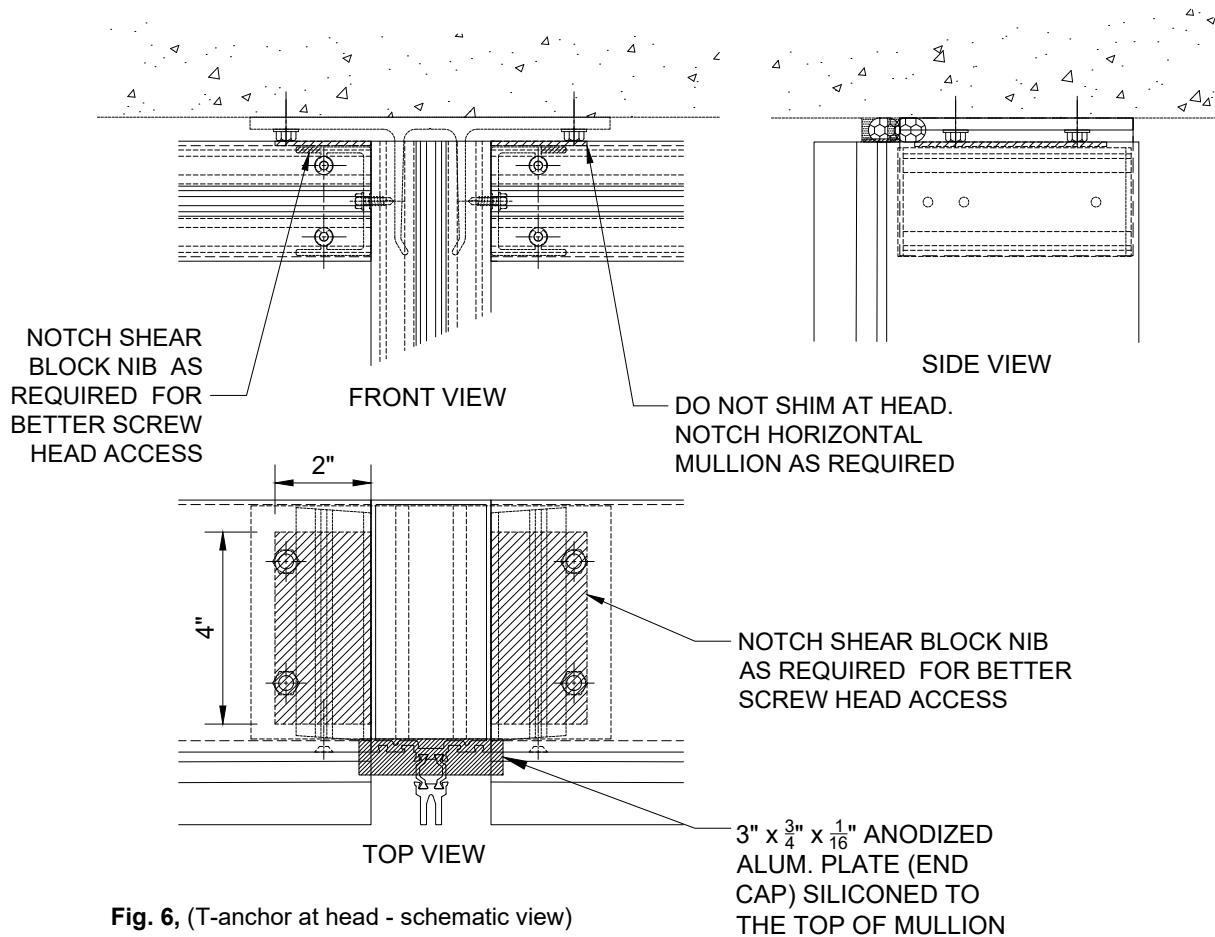


Fig. 6, (T-anchor at head - schematic view)

- 3.4 Check DLO every four bays to ensure correct spacing and prevent dimensional buildup. When framing members are installed, install PVC spacer around the perimeter of the frame (**Fig. 7**). Anodized aluminum plate is to be used at the head (as shown in **Fig. 6**), to apply the continuous perimeter air seal.

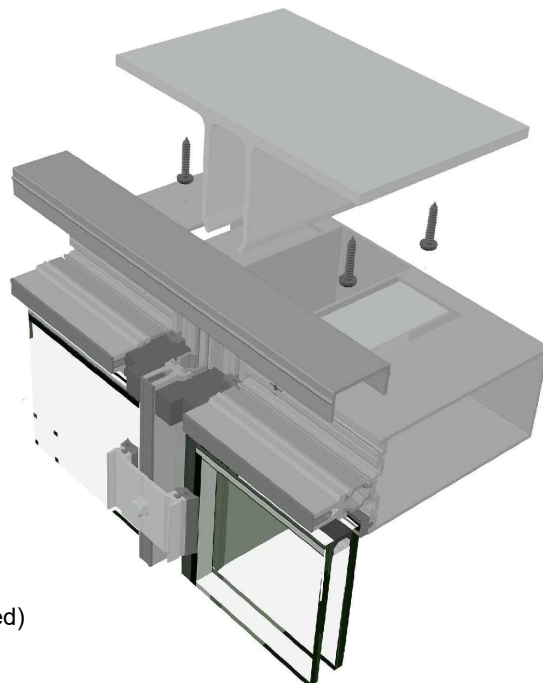


Fig. 7, (T-anchor at head - sequenced)

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SYSTEM INSTALLATION

When vertical mullion requires fixed splice sleeve, it is advised to position it at the horizontal mullion as shown in **Fig. 8** for the joint to be at the bottom of the horizontal mullion. This type of splicing does not allow for movement. Please note that presented detail below is to be used as a guide only. Refer to approved shop drawings for actual conditions, engineering is required to apply.

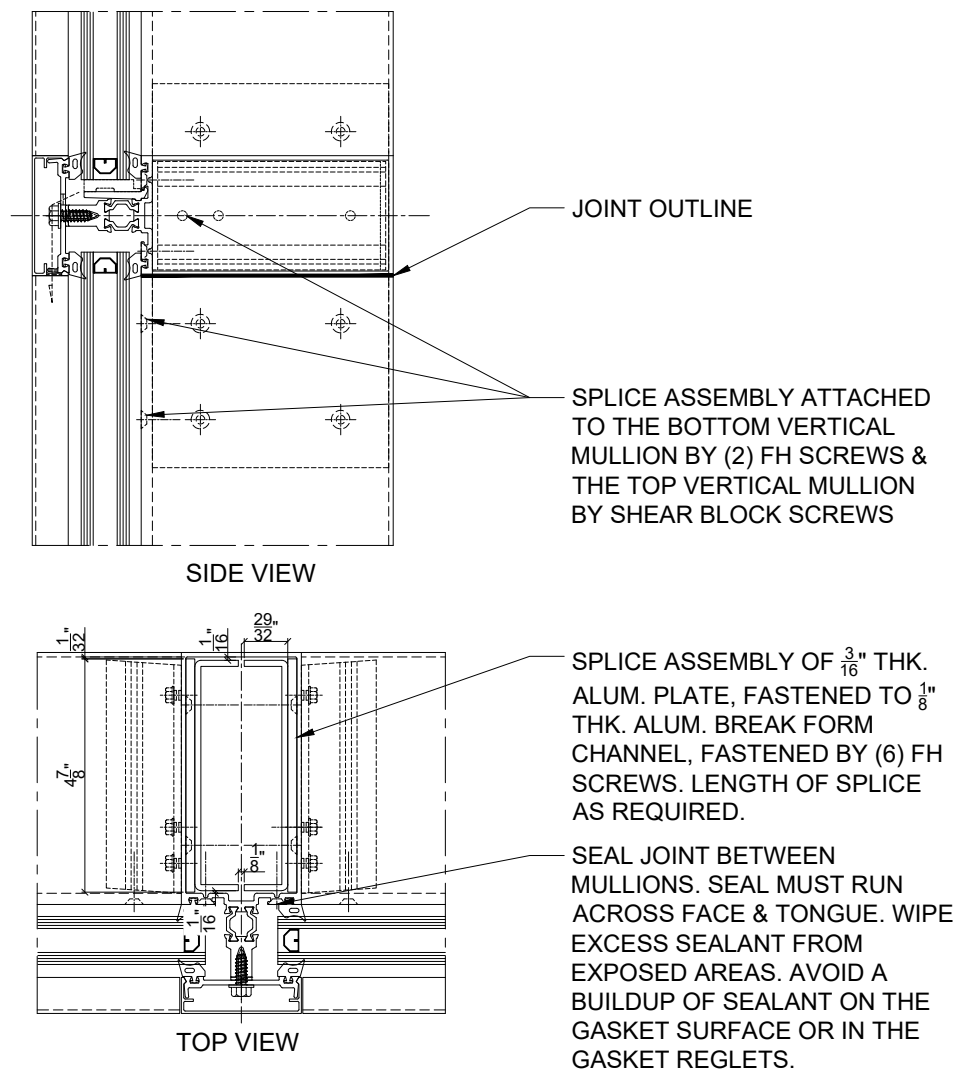


Fig. 8, (Fixed splice)

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SYSTEM INSTALLATION

When project requires reinforcing the vertical mullion, refer to approved shop drawing for placement, size and quantity of reinforcing required. Please note that presented detail in **Fig. 9.** below is to be used as a guide only and engineering is required to apply.

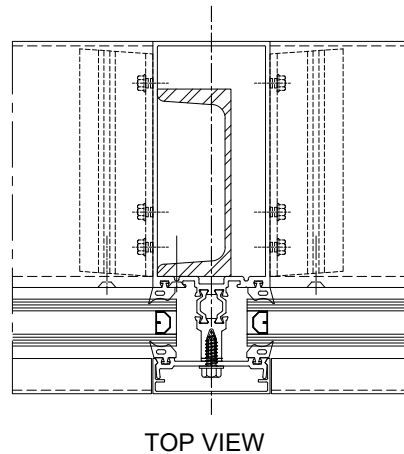


Fig. 9, (reinforcing attachment)

ZONE PLUG INSTALLATION

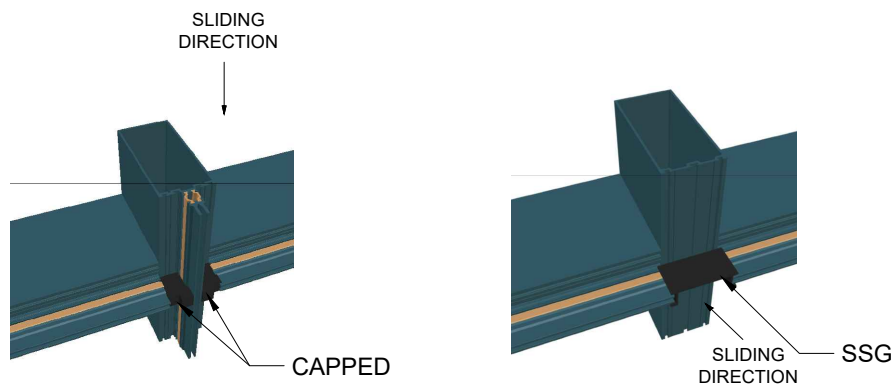


Fig. 10, (Zone plugs)

- 4.1 Apply sealant to all contact surfaces on the vertical and horizontal mullions where zone plugs will be installed. Force sealant into gasket race. Install zone plug at the end of each horizontal mullion by sliding plug down into pocket from above and from the face in SSG application as shown in **Fig.10.** Tool sealant around all sides of the zone plug (**Fig. 10**) and in the glazing pocket to ensure a watertight seal. Apply generous bead of sealant to face of zone plugs just prior to installing vertical pressure plate.

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ZONE PLUG INSTALLATION

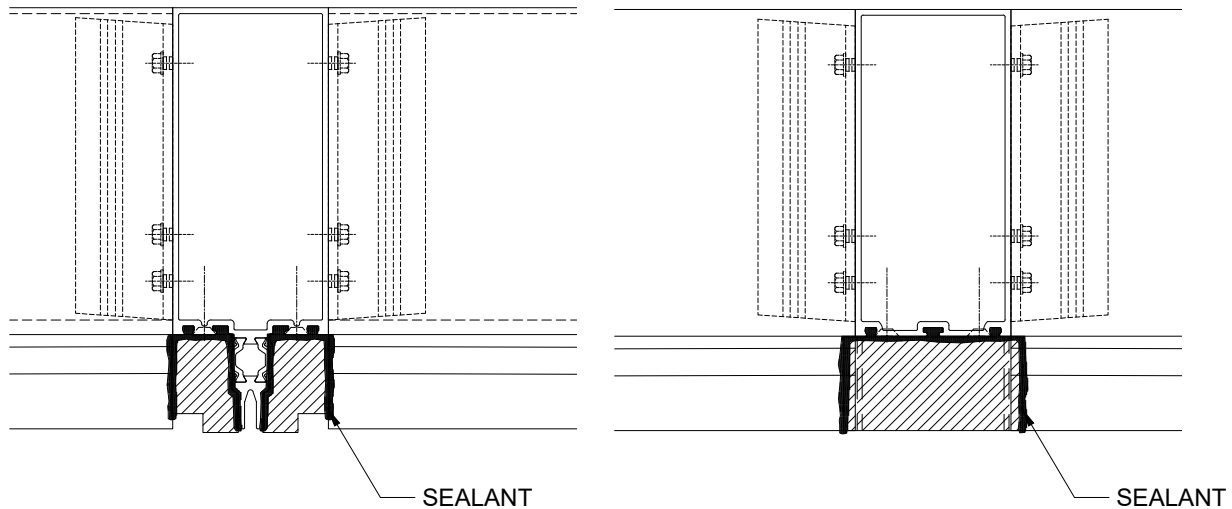


Fig. 11, (Zone plug sealing)

BACKPAN DRAINING & VENTING

Venting Instruction

- 5.1 Vent Notch Location: both vertical gaskets, 2" away from the top of the DLO.
- 5.2 Vent Notch Size: 1" long cut in the glazing (pre-set) gasket.

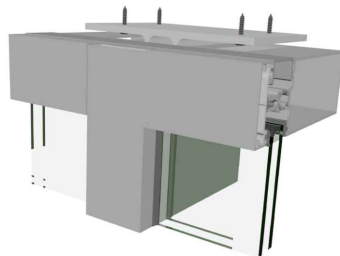
Draining Instruction

- 5.3 Drain Notch Location: Bottom pre-set gasket, 2" off of each end.
- 5.4 Drain Notch Size: 1" long cut in the glazing (pre-set) gasket.

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GLAZING

- 6.1 Position setting blocks at corner location (two per lite). Refer to approved shop drawings or dead load charts. Set glass in opening from exterior. Ensure that the glass bite is equal on all sides or as per approved shop drawing details. Be certain that glass is placed firmly against interior gasket to ensure a proper seal and to avoid binding of the glass on the setting block.
- 6.2 Install glazing temporary glazing clips at each end of the horizontals and at the center of each horizontal if the DLO is greater than 4' in length. Temporary glazing duchies are intended for short-term use only.
- 6.3 Install PVC spacer around the perimeter of the frame prior pressure plate installation. Remove glazing temporary glazing clips on the vertical mullion to install the vertical pressure plate. Pressure plate fasteners must be located $1\frac{1}{2}$ " from each end to maintain proper compression. Drill $\varnothing\frac{7}{32}$ " holes as required.
- 6.4 Remove temporary glazing clips at the horizontals, center horizontal pressure plate in the opening, leaving a $\frac{1}{8}$ " gap on each end. Make sure the weep holes are on the top side of the pressure plate. NOTE: Horizontal pressure plates and face covers run continuous over SSG mullions, not to exceed 3 lites in length.
- 6.5 After all pressure plates are installed on the frame, torque the fasteners to 90 in-lbs. Seal ends of horizontal pressure plates to the vertical pressure plate. Tool sealant into the joint.
- 6.6 Install vertical face covers first, then install the horizontal covers leaving an equal gap at each end. Make sure the weep hole is on the bottom. Face covers are to be installed by possibly using wood block to protect the cover and dead blow soft face hammer.
- 6.7 In SSG vertical application, a bridge (zone plug) is required for horizontal capped connections. Apply sealant along face of mullion as previously described in 2.3, slide bridge over horizontal tongue and apply additional sealant along horizontal and mullion.
- 6.8 It is to be noted, that thermal break will run continuous when transitioning from captured system to SSG system. No additional sealant is required at these intersections.



6500 Series Arctic Curtain Wall System

REGLAZING PROCEDURES

- 7.1 Reglazing must be done from the exterior. Carefully remove face covers surrounding the lite of the glass to be reglazed as shown in **Fig. 12**.

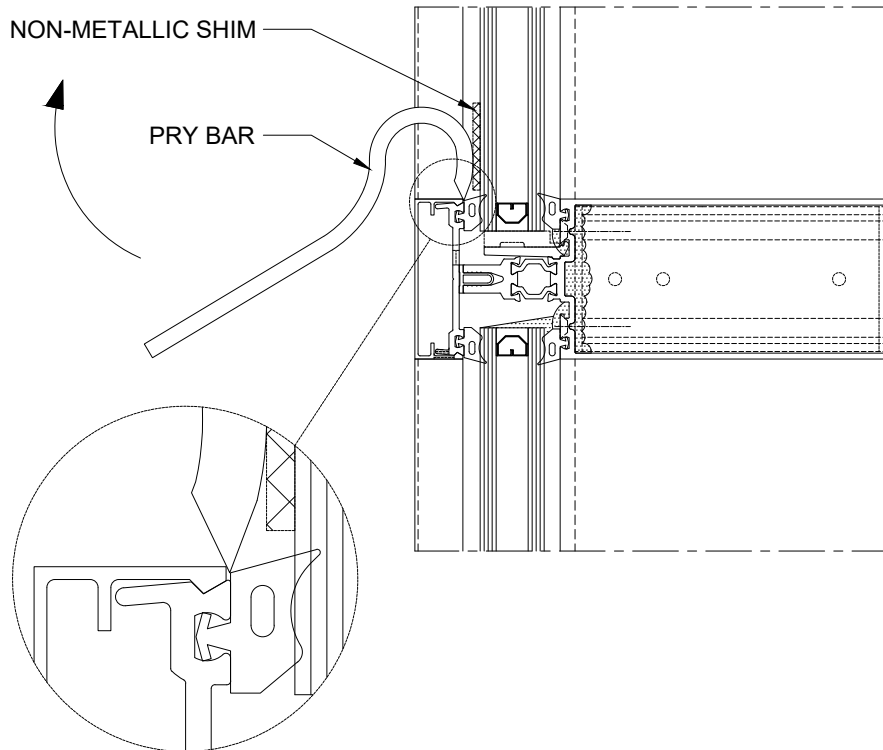


Fig. 12 (Reglazing)

- 7.2 Remove vertical and horizontal pressure plates adjacent to lite that must be replaced. Temp surrounding glass in place with temporary glazing retainers. Refer to step **6.2** on **page 21** for instructions on locating retainers.
- 7.3 Remove lite of glass and existing gaskets from opening. Clean debris and sealant from aluminum framing members and pressure plate.
- 7.4 Install new gaskets into framing and install new lite of glass. Refer to 'GLAZING' section on **page 21** for glazing instruction procedure.
- 7.5 Reinstall pressure plates, face caps and seals as already described in this manual.