Oldcastle BuildingEnvelope®

TCR-250 WINDOW WALL

INSTALLATION AND GLAZING 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 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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Phone: 1-866-OLDCASTLE (653-2278)
Web: www.obe.com

TCR-250 INSTALLATION MANUAL

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Quick Reference Guide

1. Cut lengths taken from D.L.O. dimensions are measured from the inside of the mullions. Face members are slightly more narrow to provide a good joint seal. SEE PAGE 8
2. End reaction limitations: 4-1/2" System - 600 lbs without reinforcing sleeve - 875 lbs with sleeve. SEE PAGE 12
3. Outside 90 Corner options: 4-1/2" System - Head & Sill Run Thru- 6" System -Corner Mullions run thru.

GENERAL INFORMATION

PRODUCT USE

The **TCR-250** window wall 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.

Consult sealant manufacturer for review and recommendation of sealant application. Follow sealant manufacturer's recommendations and literature for proper installation.

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.

GLAZING PRACTICES

The air and water performance of the **TCR-250** wall 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:

1. Surfaces to be sealed should be cleaned with isopropyl alcohol or solvent and dried as recommended by sealant manufacturer to remove all dirt and cutting oils. Sealant at shear blocks should be a minimum 3/16" diameter nominal placed completely around the top, face and bottom of the shear block without gaps in the sealant. 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. Glazing gaskets should be cut ¼" longer per foot, and lay flat, preferably for 24 hours.
3. Gaskets should be cut as single monolithic pieces and "crowded" during their installation to avoid corner gaps caused by post-installation relaxation.
4. The interior glazing gasket should be installed so as to avoid stretching, buckles, or tears.
5. 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.
6. Gasket corner joinery must also be crowed, and sealant applied onto the gasket contact frame surface and into gasket reglet raceway where applicable.
7. 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.
8. 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.
9. Check the placement of the installed glass and verify there is proper edge bite into the pocket, and proper edge clearance from framing elements.
10. 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.

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 utilize Oldcastle BuildingEnvelope supplied calculations and shop drawings.

For Structural Silicone Glazing 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 a damp area. For further guidelines consult AAMA publication CW-10 “Care and Handling of Architectural Aluminum From Shop to Site.”

CHECK MATERIAL

Check glass dimensions for overall size as well as thickness. Oldcastle BuildingEnvelope cannot be held responsible for gaskets that are not watertight due to extreme glass tolerances The TCR-250 window wall system is designed to accommodate glass and panels measuring 1” in thickness (+/- 1/32”).

Check all material upon arrival at job site for quality and to determine any shipping damage. Using the contract documents, completely check the surrounding conditions that will receive your materials. Notify the general contractor by letter of any discrepancies before proceeding with the work. Failure to do so constitutes acceptance of work by other trades.

Check shop drawings, installation instructions, 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 instructions are of a general nature and cover the most common conditions. Due to varying job conditions all sealant used must be approved by the sealant manufacturer to ensure 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 appropriate insulation product, bituminous paint or non-metallic material.

After sealant is set and a representative amount of the wall has been glazed (250 square feet of more), run a water hose test in accordance with AAMA 501.2 specifications to check installation. On large project the hose test should be repeated during the glazing operation.

CLEANING MATERIALS

Cement, plaster terrazzo, alkaline and acid-based materials used to clean masonry is very harmful to finishes. 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.

EXPANSION JOINTS

Expansion joints and perimeter joints shown in these instructions and in the shop drawings are 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 3/32” over a temperature change of 50°F. Any movement potential should be accounted for at the time of the installation.

SUGGESTIONS FOR IMPROVING SYSTEM THERMAL PERFORMANCE

To maintain or improve your wall installation the following items should be considered.

A. Blinds or drapes prevent warm air from adequately flowing over the window surface.

B. Warm air ventilators too far from the window will not adequately wash the window with air to prevent condensation.

C. In extreme conditions the fan of the hearing system should not cycle on and off but should run continuously.

D. Some heating systems have a water injection feature that can raise humidity levels. The higher the humidity levels the more likely condensation or frost will form. Raising the temperature and reducing humidity will usually solve problem.

E. On rare occasions an extremely cold storm may cause frost to appear on the glass framing. A space heater and electric fan blowing along the plane of the window wall can reduce or eliminate this temporary condition.

FRAME CONFIGURATIONS

The frames shown below are representative of typical frame configurations that are covered in these instructions. Contact your local Oldcastle BuildingEnvelope® facility for custom configurations involving non-standard installation methods.

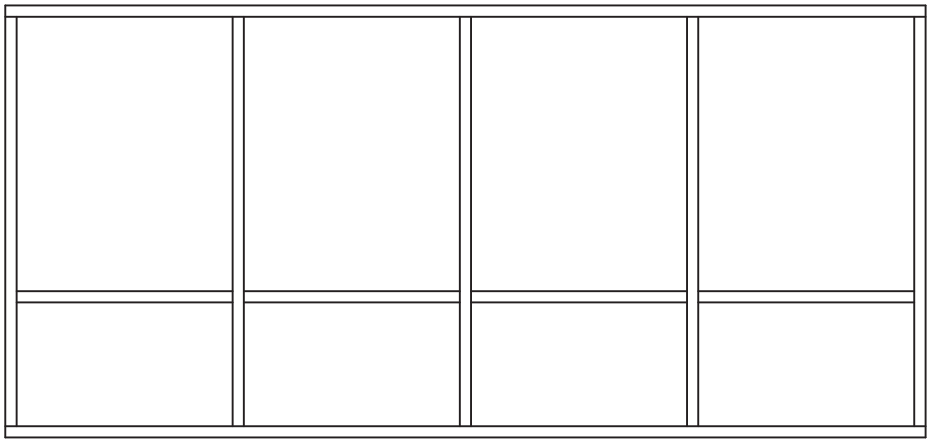


Figure 1
Standard Punched Opening

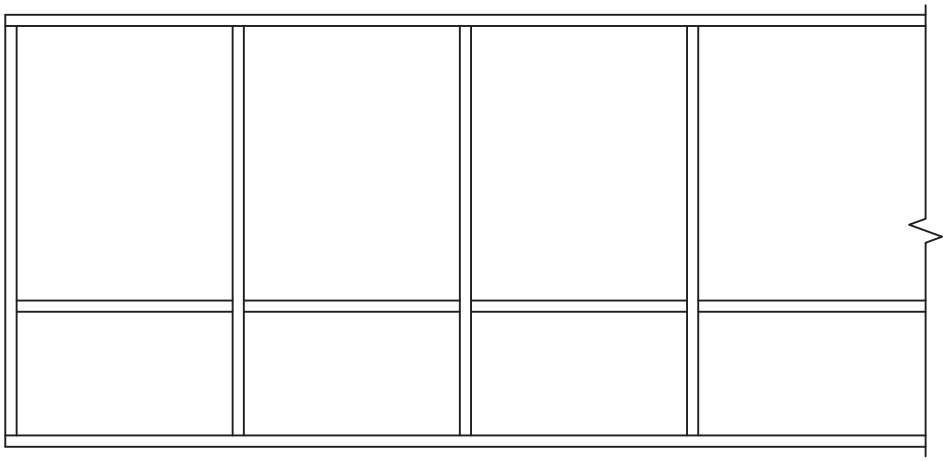


Figure 2
Extended Frame (Width > 24'-0")

FRAME FABRICATION

NOTE : Structural silicone glazed vertical mullion is referred to as "SSG mullion"

1.1 Measure ROUGH OPENING to determine FRAME WIDTH and FRAME HEIGHT dimensions. Allow ½" minimum clearance for shimming and caulking around perimeter of frame.

1.2 Cut material to size. **SEE FIGURE 3** **PAGE 9** for guide.

Frame Members

Sill Anchor.....	FRAME WIDTH minus 1/2" (splice if greater than 24'-0")
Head and Sill (<24'-0").....	FRAME WIDTH
Head and Sill (>24'-0").....	Refer to FRAME SPLICING, page 17
Head and Sill Face Covers.....	See 'Head and Sill' for cut length
Verticals and Jambs.....	FRAME HEIGHT minus 3 13/16" (see FIG. 5, p.5 for notching)
Intermediate Horizontals.....	Daylight Opening (D.L.O.) minus 1/16"
Glass Stops.....	D.L.O. minus 1/32"
Horizontal Face Covers.....	D.L.O.
Horizontal Face Covers @ SSG.....	Bay Width (see **FIGURE 3**)

***NOTE: D.L.O. IS MEASURED AT INTERIOR OF MULLIONS.**

Accessories

Glazing gaskets	
Verticals.....	D.L.O. plus 1" plus allowance*
Horizontals.....	D.L.O. plus allowance* (run between vertical gaskets)
Silicone spacer gaskets.....	D.L.O. plus 1" plus allowance*

*Glazing gaskets should be cut 1/4" longer per foot. Set aside and lay flat until ready to glaze.

1.3 Fabricate head and sill members for vertical and jamb attachment. **SEE FIGURE 4, page**10

1.4 Fabricate vertical mullions for intermediate horizontal members. Notch tops of all verticals and jambs for head member. **SEE FIGURE 8 , page 11.**

1.5 Fabricate intermediate horizontals for shear block fasteners. **SEE FIGURE 6, page 12.**

1.6 Drill 1/4" diameter weep holes in horizontal and sill members at 1/4 points. Install HP-1004 baffles as required, securing with a drop of silicone if needed. If frame is to accommodate incidental water, drill (1) 1/4" diameter weep hole at centerline of lite in head member and install a baffle. **SEE FIGURE 7, page 12**

1.7 Drill one 1/4" diameter weep hole at the bottom center of each light of glass at head, sill and horizontal face covers. **NOTE: For SSG applications, there will be multiple holes per face cover**.

FRAME FABRICATION

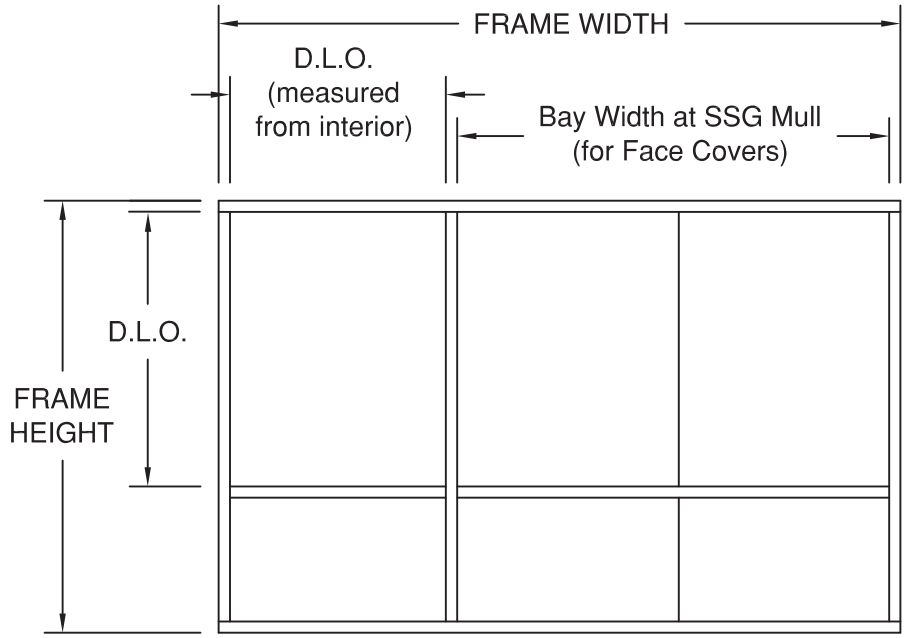
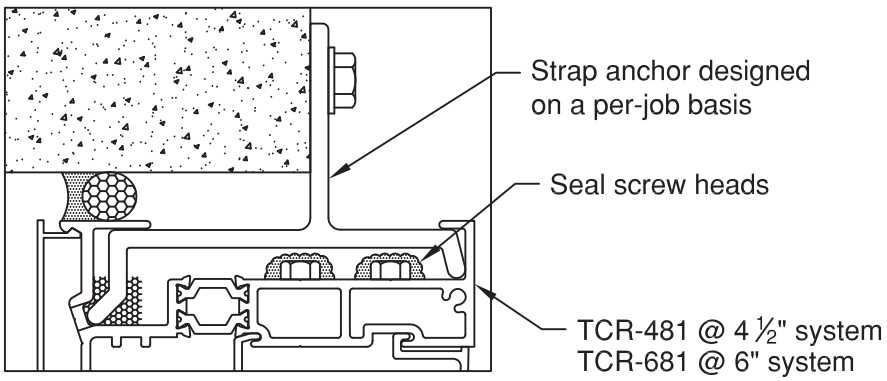


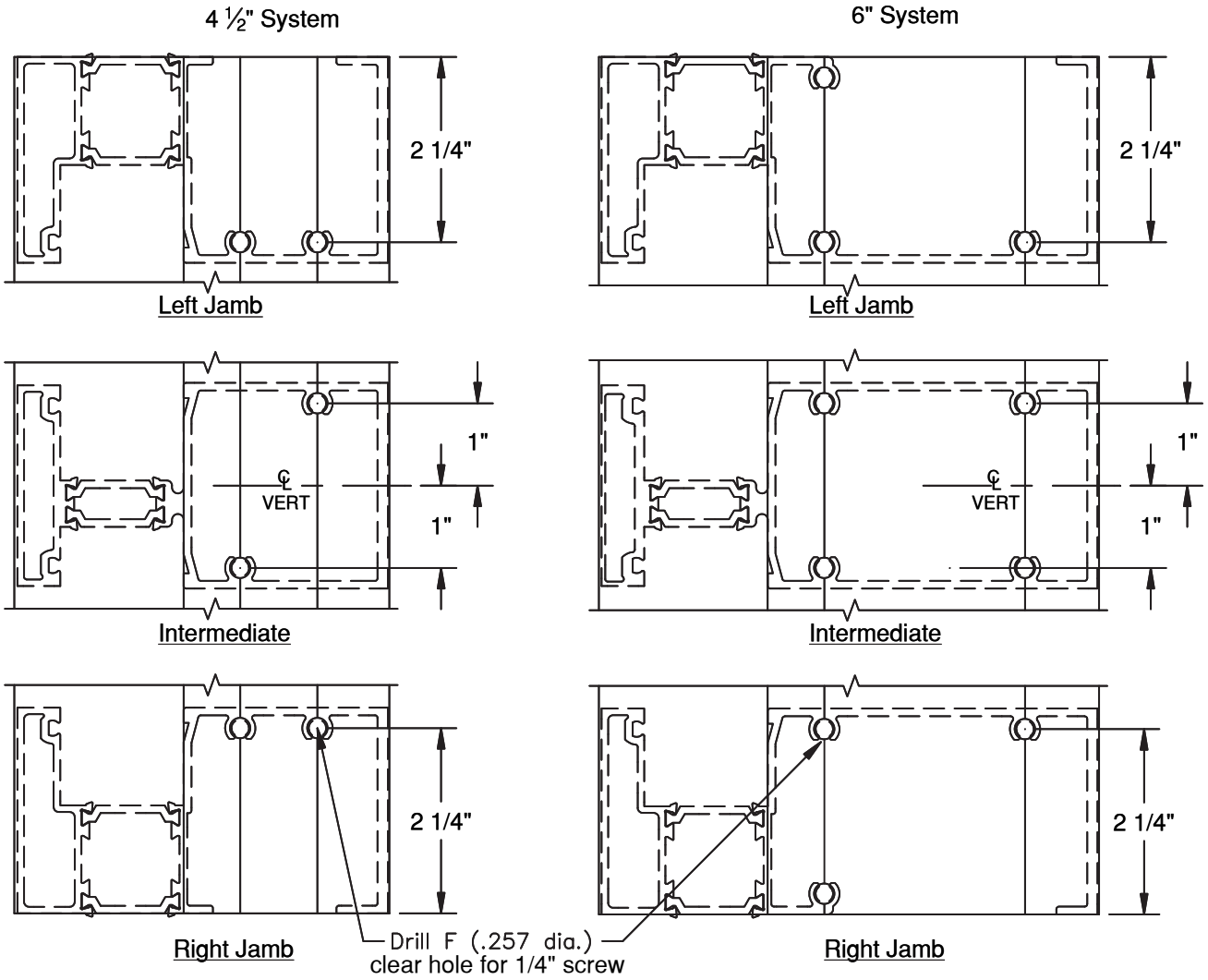
FIGURE 3
Material Fabrication Guide

1.8 If "C" shaped head anchor is used, drill access holes in head member for anchor. See approved shop drawings for location and quantity. Note: Head anchors are pre-loaded into frame and secured to the building condition after frame is set in place. **"C" SHAPED HEAD ANCHOR SHOULD NOT BE USED WHEN USING INCIDENTAL WATER HEAD**. Consult your nearest Oldcastle BuildingEnvelope® facility for anchoring options at these conditions. **SEE DETAIL BELOW**.



Anchor at Incidental Water Application

FRAME FABRICATION



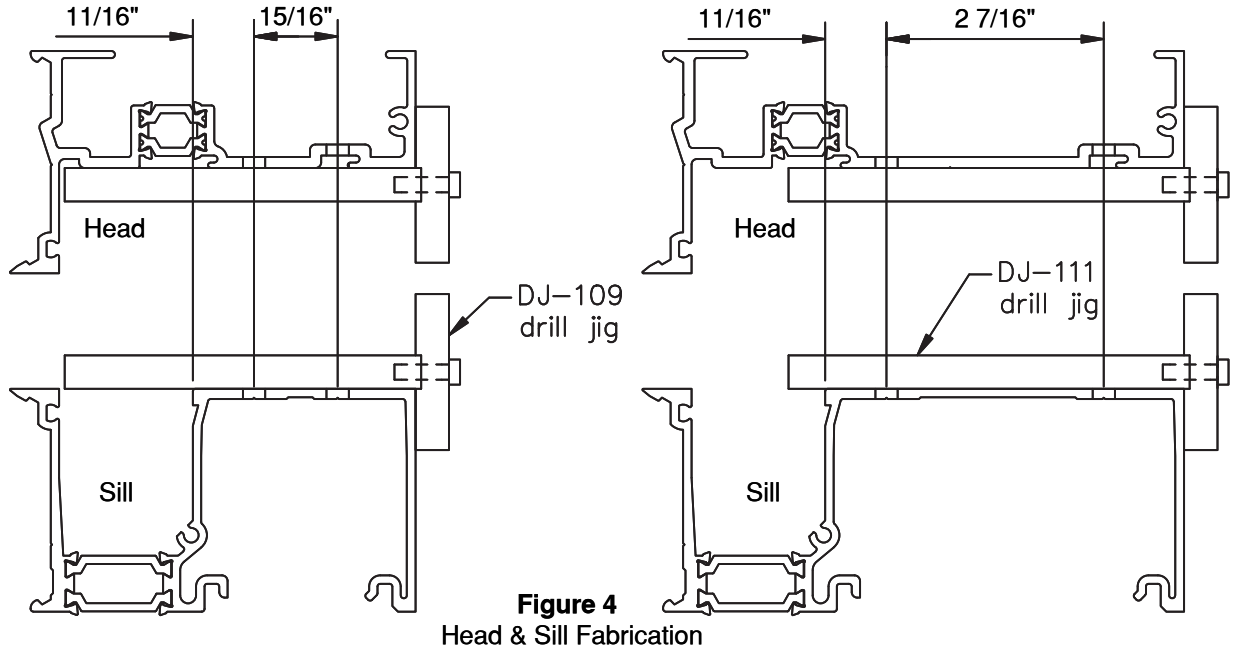


Figure 4
Head & Sill Fabrication

FRAME FABRICATION

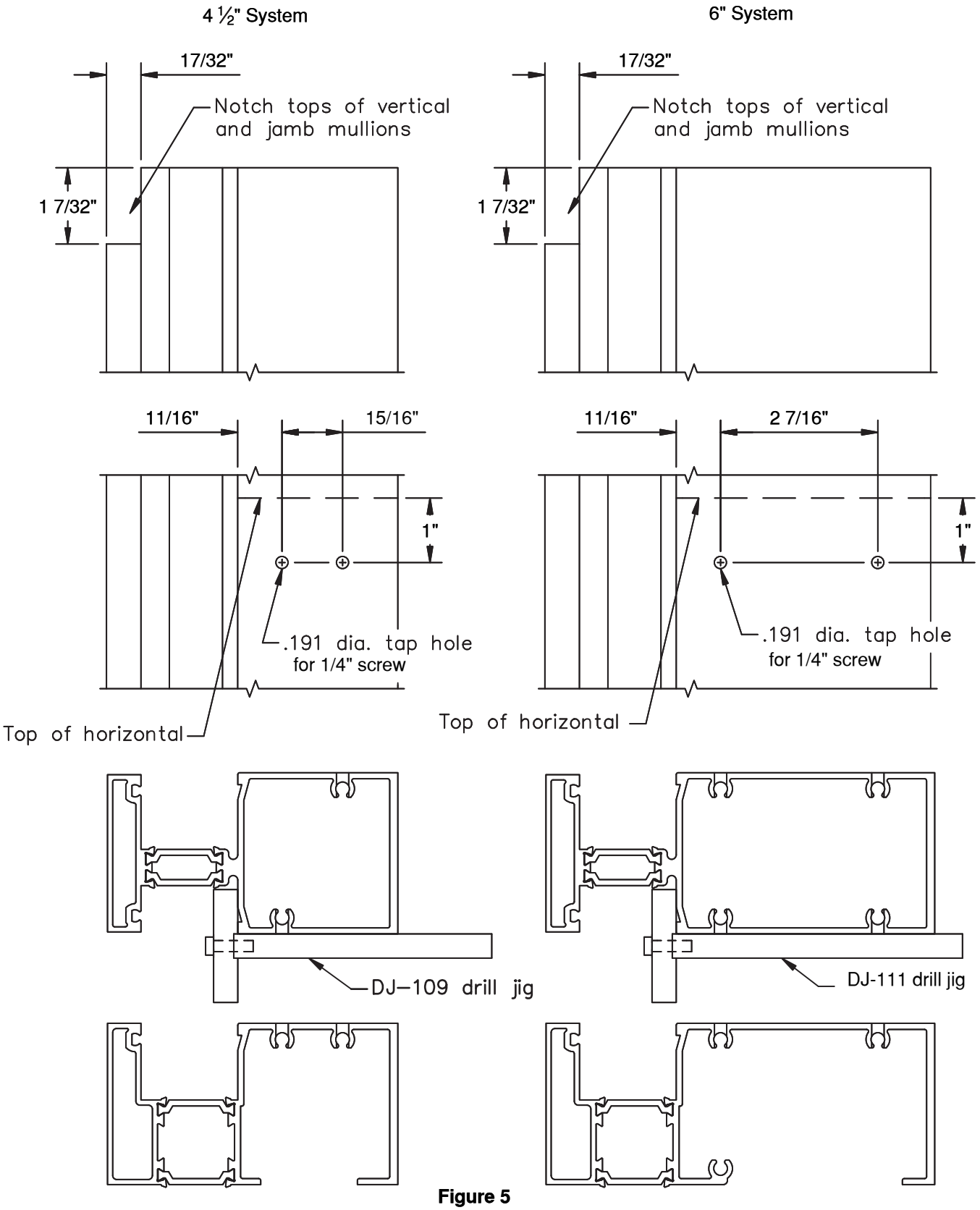
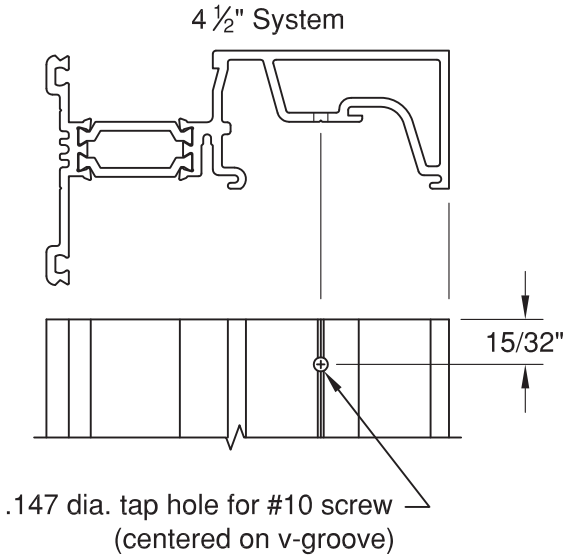


Figure 5
Vertical Mullion Fabrication

FRAME FABRICATION



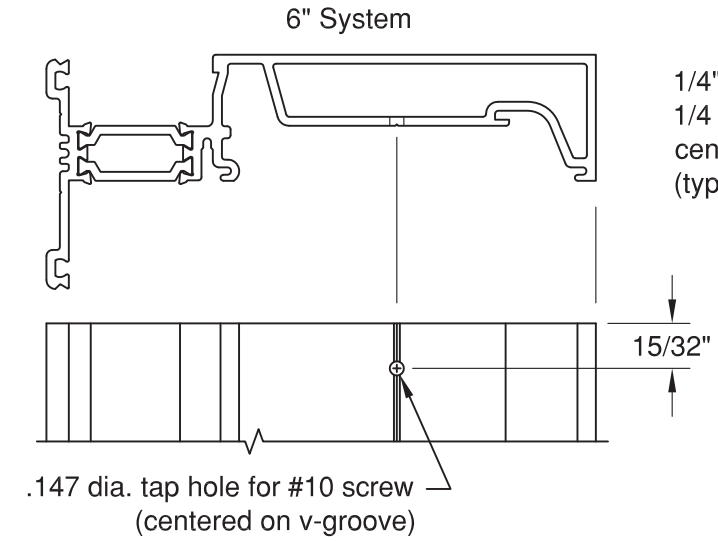


Figure 6
Horizontal Mullion Fabrication

NOTE:
Weep hole & baffle are only required at the head for incidental water applications

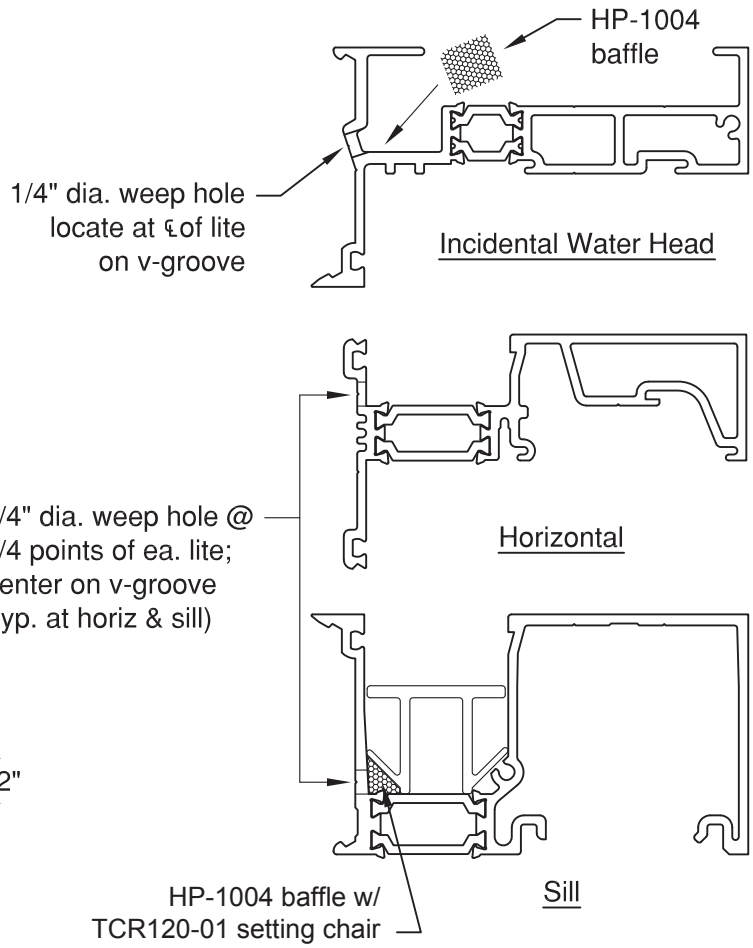


Figure 7
Weep Holes

FRAME ASSEMBLY

Prior to applying sealant to any frame member, the aluminum must be cleaned. Consult sealant manufacturer for cleaning recommendations.

2.1 If frame has horizontal mullions, attach shear blocks to jambs and verticals with (2) FS-9, 1/4-14 x 1 1/2" Hex Head screws.

If frame is to accommodate incidental water at the head, slide strap anchors into the head member prior to setting the frame in the opening.

2.2 If end reactions exceed 700 lbs. (4 ½" and 6" systems) a reinforcing sleeve must be inserted in the head & sill member at each vertical location. Attach with vertical assembly screws. **SEE FIGURE 9**. **Note: Max end reaction at head & sill with reinforcing sleeves is 900 lbs. (4 ½" and 6" systems).**

2.3 Attach PVC end dams to each end of head and sill member with (2) FS-320 #10 U-drive. Bed end dams in sealant and seal as shown on **FIGURE 8.** Cap seal FS-320 drive screws.

2.4 Apply face covers to head and sill members. Install by setting long leg into head or sill snap then rotate towards short cap leg to snap in place. **See FIGURE 9**.

2.5 Seal top & bottom of verticals prior to attaching to head and sill. At jambs, seal end dam area that will contact the jambs. Attach to head & sill with (2) FS-9 1/4-14 x 1 ½" HH screws. DO NOT OVER TORQUE SCREWS. Seal screws at head members. **SEE FIGURE 9**.

2.6 NOTE: Horizontals can be attached before or after frame is installed. If installed prior and shipped to jobsite, care must be taken not to disturb seals in transit. Prior to attaching intermediate horizontals, apply sealant to face of shear blocks. Roll the horizontal over the shear blocks & attach with (1) FS-55 #10 x ½" Phillips RH screw. Seal ends of horizontal. **SEE FIGURE 10**.

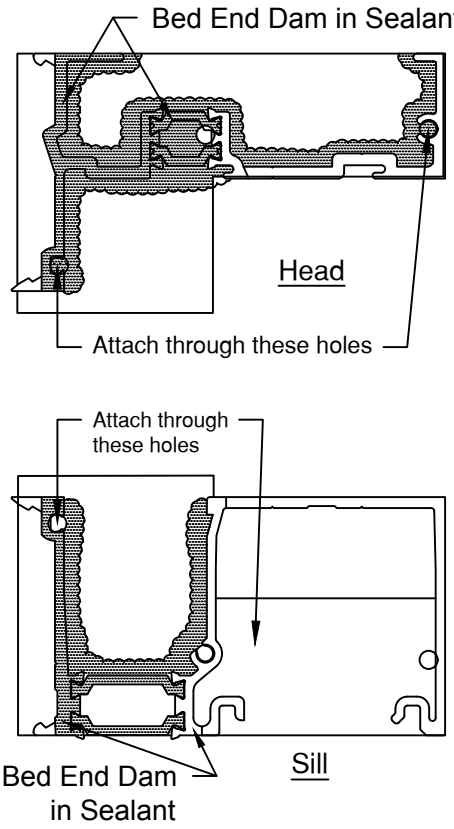
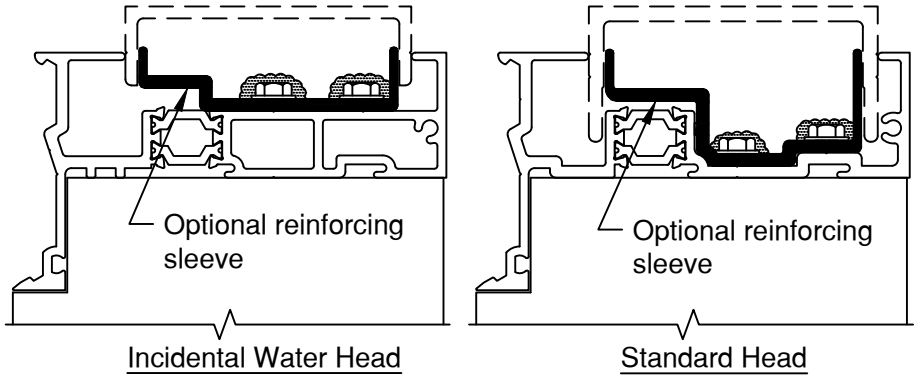


Figure 8
End Dam Attachment



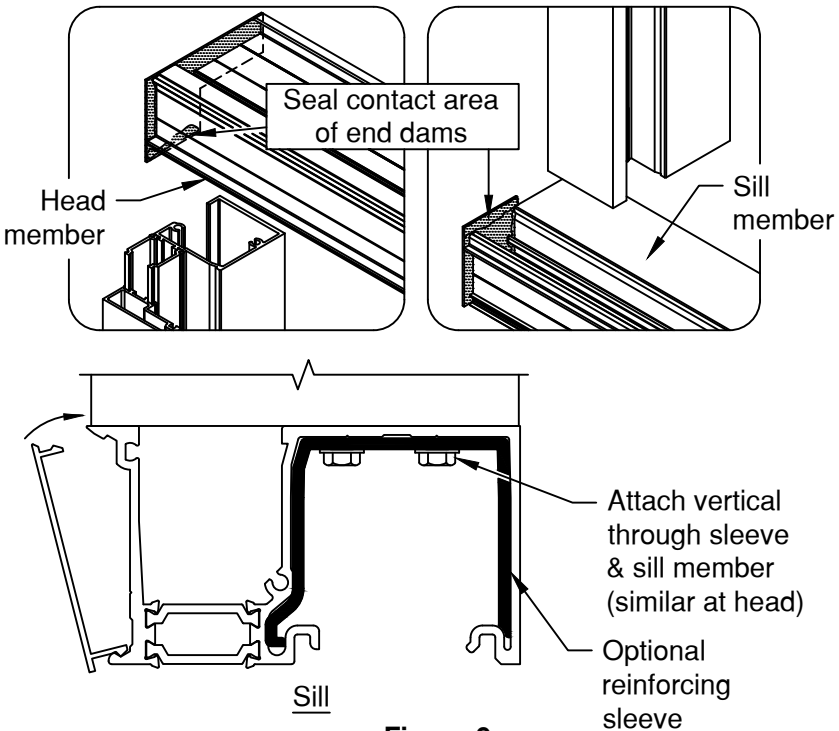
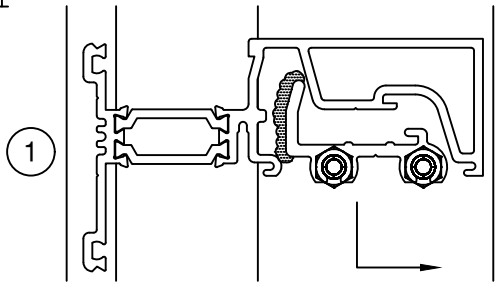


Figure 9
Vertical Attachment & Sealing



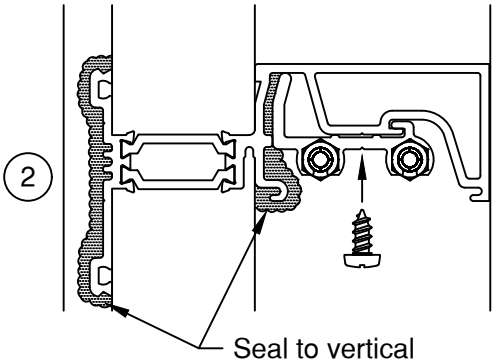


Figure 10
Horizontal Installation

FRAME INSTALLATION

Unless noted otherwise, these instructions describe installation of frames using the standard "C" shaped head anchor.

3.1 Shim continuous sill anchor off floor. Anchor must be level. **SEE FIGURE 11** for shim placement. Ends of sill anchor should be equal distance from wall on either side of opening. Refer to approved shop drawings for anchor size and placement. NOTE: Front of sill anchor is 2 3/8" behind rear edge of wall at 4 ½" system; 3 7/8" at 6" system.

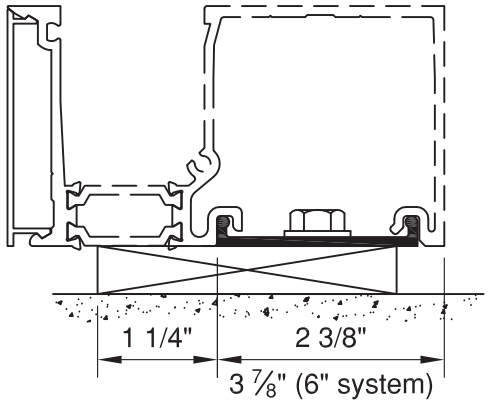


Figure 11
Shim Placement at Sill Anchor

3.2 Prior to setting frame, tape head anchor pieces above access hole locations in head. Place frame onto sill anchor & tilt into opening plumb, square & level. Check caulk joints to insure uniformity. Anchor head through access holes per approved shop drawings. NOTE: FOR OPTIMAL PERFORMANCE OF HEAD ANCHOR, DIE LINES MUST BE VISIBLE ON THE ANCHOR AT THE TOP OF THE FRAME. **SEE FIGURE 12**. Seal over access hole on the inside.

If horizontals & zone plugs were pre-installed in the shop, check these seals before proceeding to insure they are intact. Repair as necessary. Skip to step 3.4.

3.3 Install & seal zone plugs at captured verticals as shown in **FIGURE 13**. Tool sealant into space between zone plug & vertical & horizontal. Where there are SSG verticals, install & seal bridges. **SEE FIGURE 14 PAGE 15.**

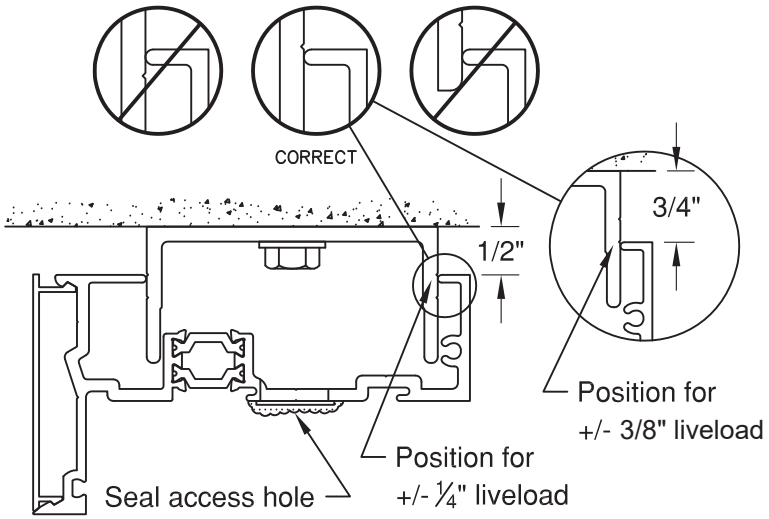


Figure 12
Head Anchor Position

3.4 Seal perimeter of frame. Care must be taken to marry seals at the corners of the frame. Interior seals are not required for system performance, but may be necessary for cosmetic purposes. **SEE FIGURE 15 PAGE 15.**

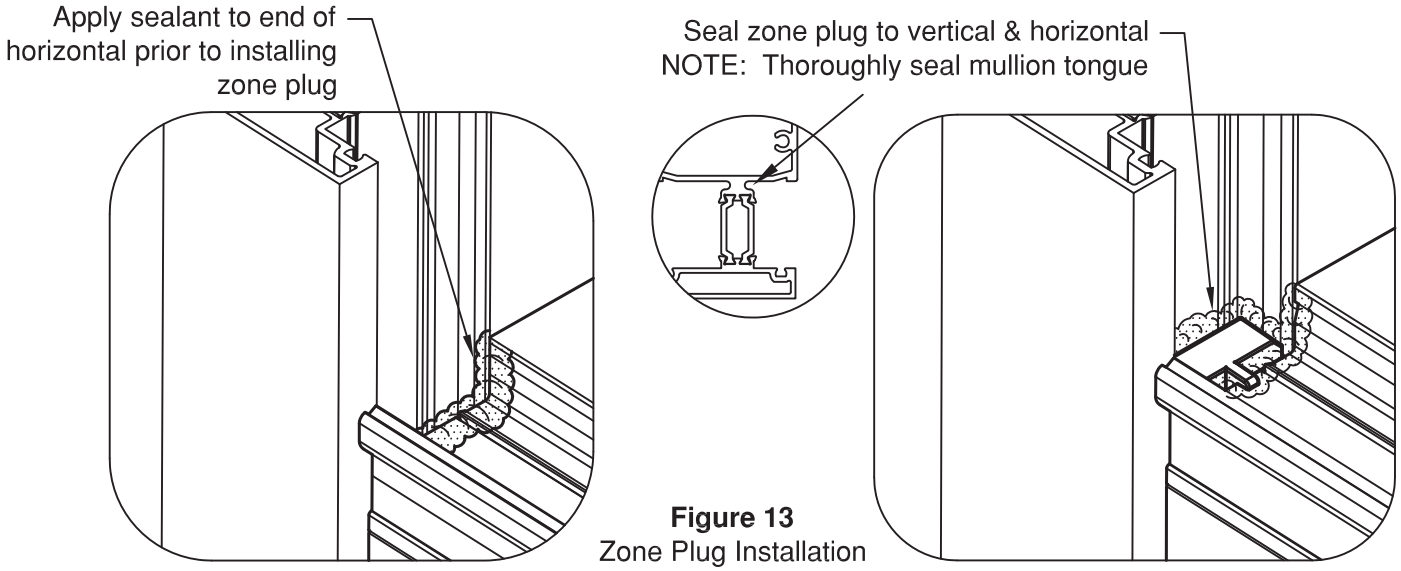


Figure 13
Zone Plug Installation

FRAME INSTALLATION

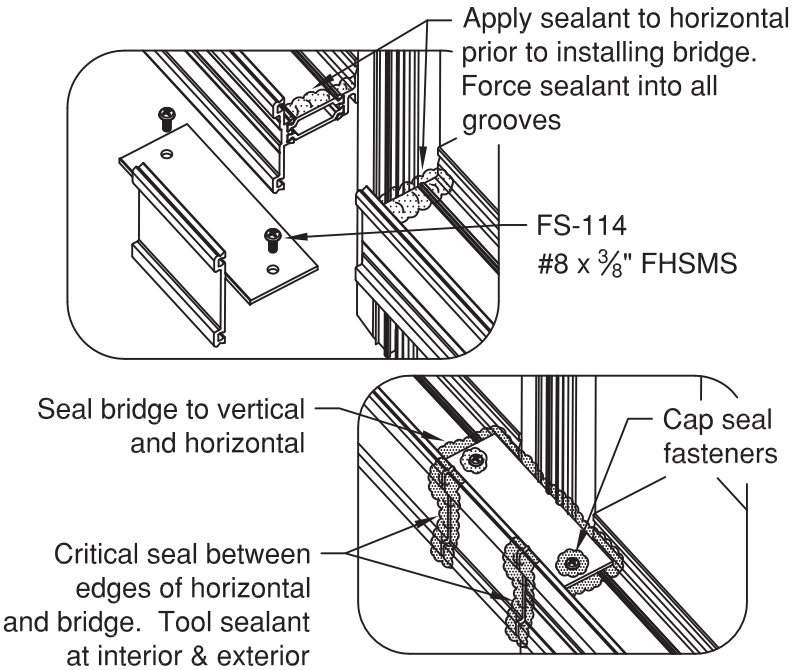


Figure 14
SSG Bridge Installation

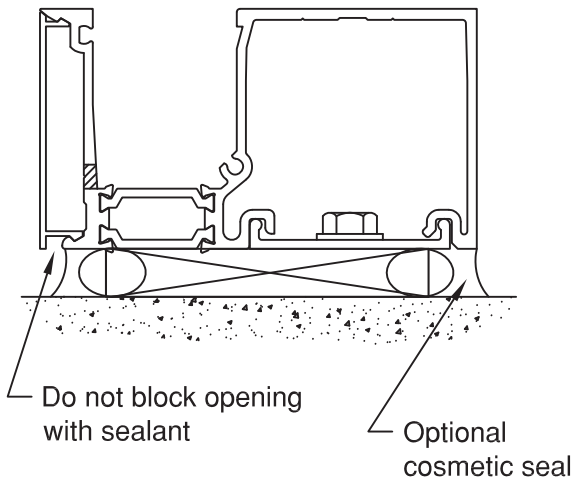


Figure 15
Perimeter Seal

GLAZING

Start glazing the frame at the bottom and work up.

GLASS SIZE CALCULATION:
D.L.O. + 1" for WIDTH and HEIGHT at CAPTURED MULLIONS (including corners)
D.L.O. + 2" for WIDTH at SSG VERTICALS

4.1 **Note: To avoid silicone curing before glass is set in place, and contamination from job-site debris, glazing prep must be done as each opening is glazed. Do not pre-seal the gaskets in the entire frame; install and seal gaskets as you are ready to set glass in each opening.** Install exterior gaskets. Glazing gaskets at verticals run through; horizontal gaskets butt into vertical gaskets. Gaskets at head and sill members run through. Crowd the gaskets into corners, cutting the horizontal gasket at an angle to match bevel on adjoining gaskets. Seal joint between the corners of the gaskets just prior to glazing.

NOTE: Sealant is not required at the horizontal gasket abutting an SSG mullion. This gap will be sealed during structural silicone application.

4.2 Position setting blocks at correct location (two per lite). Refer to approved shop drawings or dead load charts. Lubricating the top of the setting block will help insure proper setting of glass. **Note: Consult glass manufacturer for correct setting block location and length for glass sizes exceeding 40 sq.ft.**

4.3 Set glass in opening. Ensure that glass bite is equal on all sides. For frames with SSG verticals, glass can be set from the interior. **SEE FIGURE 16, page 13** for glazing sequence. **CAUTION: Be certain that glass is placed firmly against exterior gasket to ensure a proper seal and to avoid binding of the glass on the setting block.**

4.4 Install glass stops and run interior wedge gasket, crowding into the corners. Seal corners of wedge gasket at the bottom of each lite after all gaskets have been installed on the lite.

GLAZING

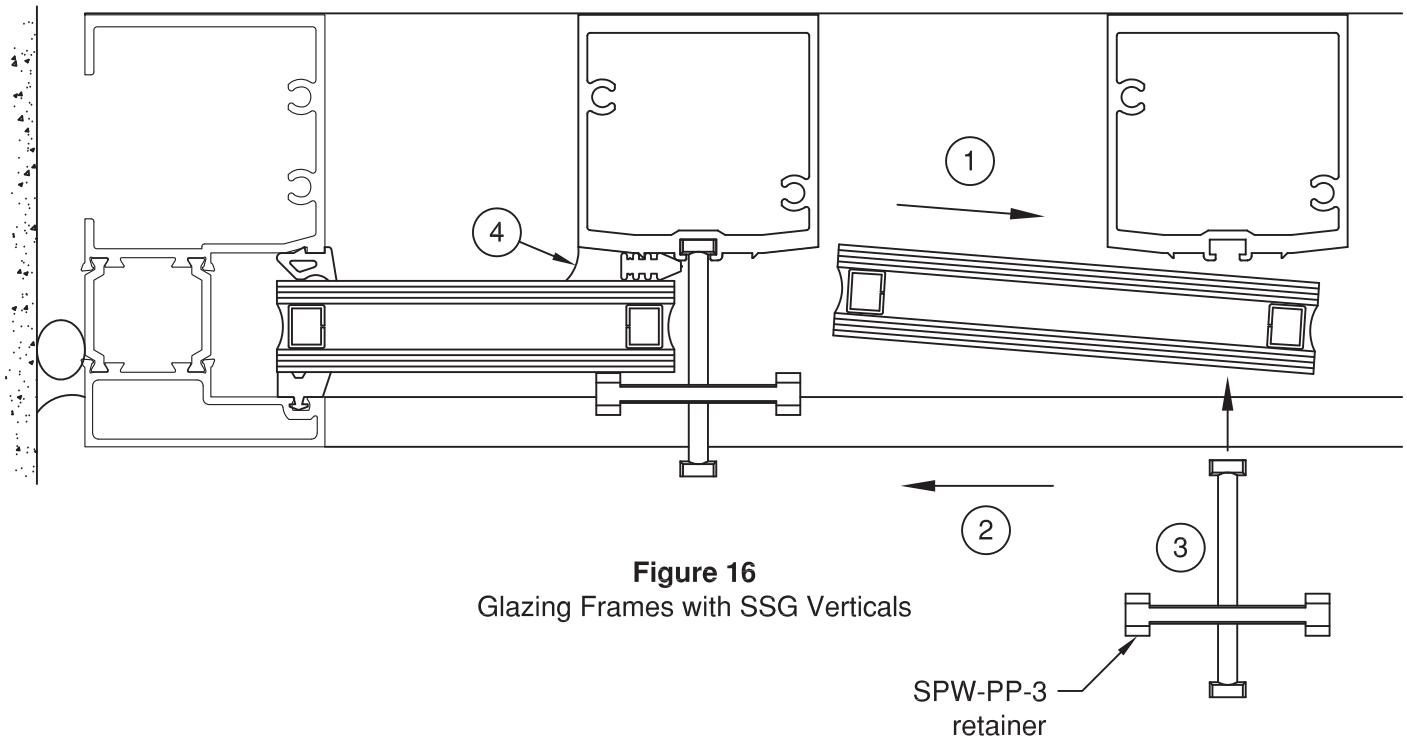


Figure 16
Glazing Frames with SSG Verticals

4.5 Install side blocks in vertical mullions as required. **SEE FIGURE 17**. Consult glass manufacturer for preferred location in seismic areas. **Note: Side blocks are not required at SSG mullions.**

4.6 Repeat steps 4.1 through 4.5 until all glass is set, working row by row up the elevation.

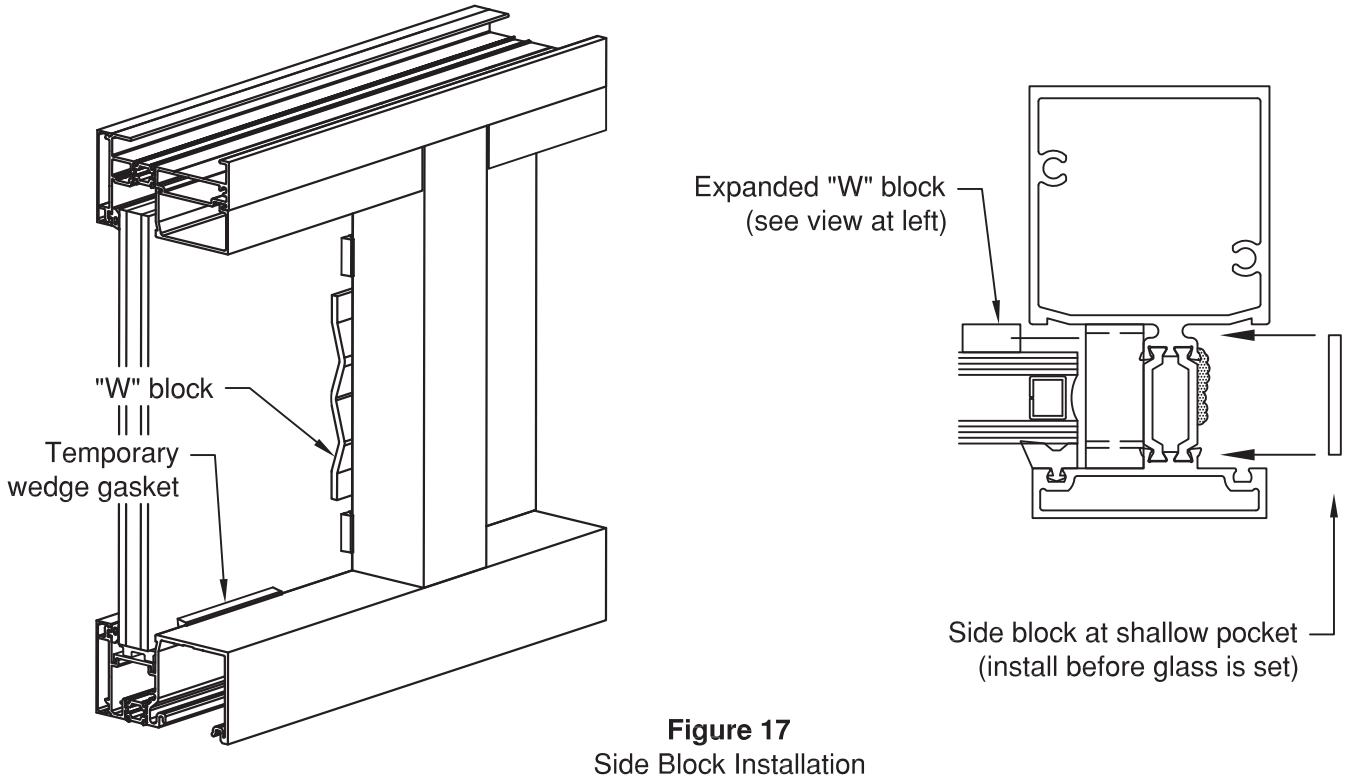


Figure 17
Side Block Installation

FRAME SPLICING

When the FRAME WIDTH exceeds 24'-0", the head and sill members must be spliced. Locate splice joints at or near mid-lite. Splice sill anchors 12" from the frame splice. Head and sill members should be cut to allow for a ½" splice joint between each frame section. Sill anchors can be butted together. Locate an anchor bolt 3" from each side of the sill anchor joint. Locate a head anchor at the head splice joint.

A.1 Prior to setting frames in place, apply a non-hardening, non-skinning sealant to both sides of the splice joint at the head and sill members.

A.2 Place splice sleeves in head and sill of first frame section. Pin in place with FS-114 #8 x ⅜" Phillips pan head screw (seal head). **SEE FIGURE 18**. Slide the next frame section over the splice sleeves to achieve a 1/2" joint.

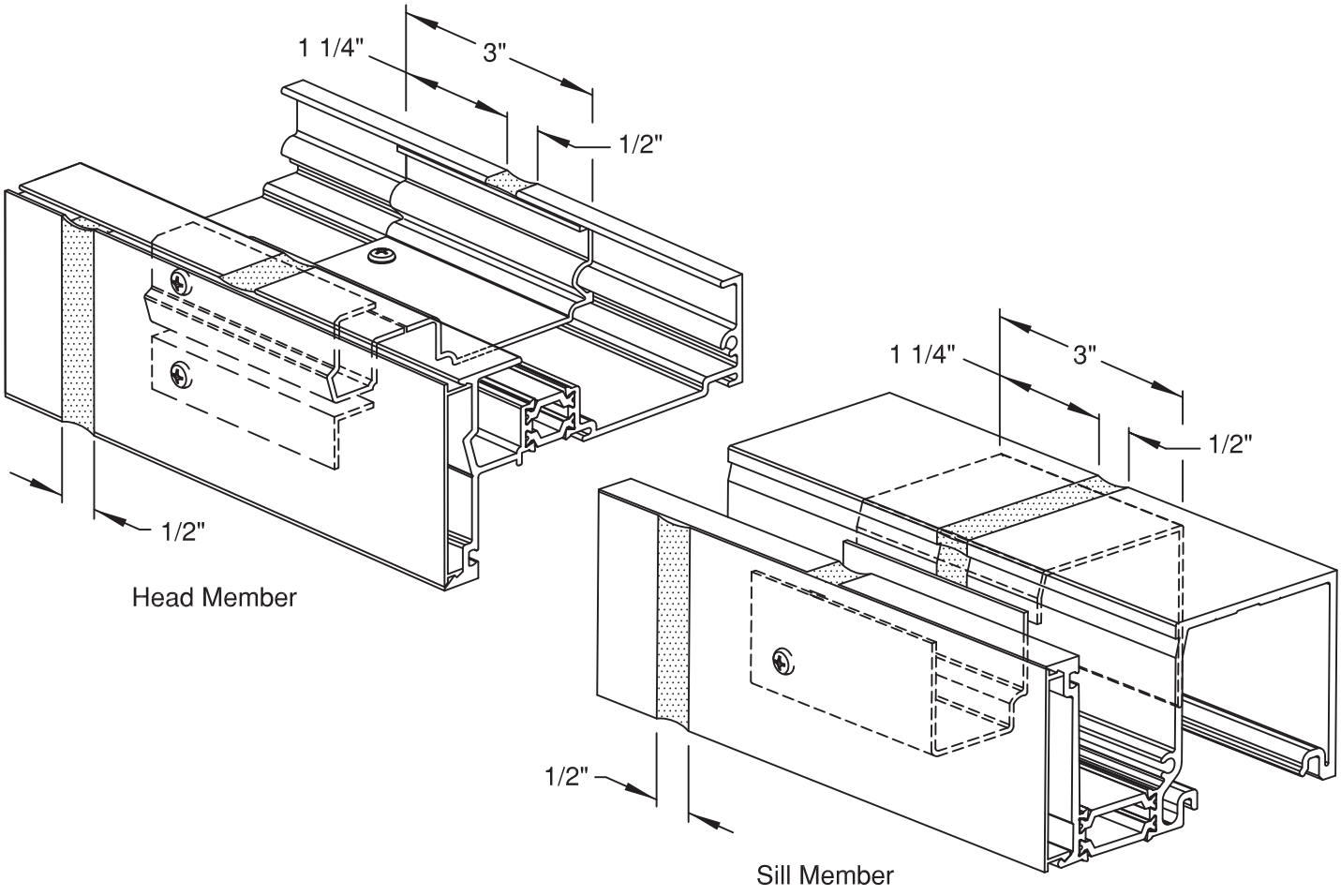


Figure 18
Head & Sill Member Splicing

A.3 Offset head and sill face cover splice joints 3" from main member splices. Set joint at face covers at ½" and seal as necessary.

A.4 Follow instructions for shimming and anchoring the frame.

A.5. Seal over gap at splice joint.

REGLAZING FROM THE EXTERIOR

NOTE: These instructions cover the replacement of glass below an intermediate horizontal. The same procedures can be used if a lite must be reglazed at a head member.

B.1 Remove face cover from the member above the affected lite (i.e. horizontal or head).

B.2 Remove lite of glass and all glazing gaskets from opening to be reglazed.

B.3 The bottom glazing leg of the horizontal member above the removed lite must be cut away. Carefully cut along the v-groove at the face of the leg. **SEE FIGURE 19**.

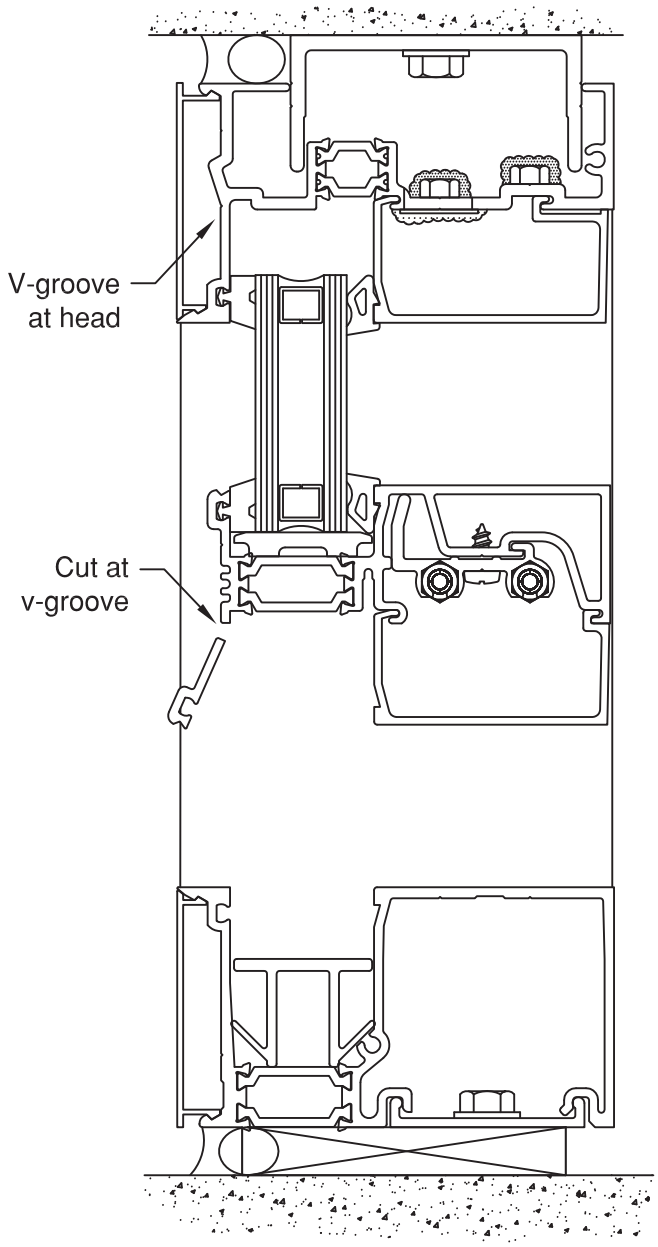


Figure 19
Modification for Exterior Reglazing

B.4 Clean pocket of debris, dirt and oils. Apply reglazing sponge gasket with adhesive backing onto interior of pocket. Crowd gasket into corners to prevent gaps. Seal between joints at the corners.

B.5 Glaze new lite, checking to make sure that the setting chair and setting block are properly located. Care must be taken during glazing so as not to disturb interior gasket. Hold glass in place temporarily with short pieces of the wedge gasket at the sides of the lite.

B.6 Run a continuous bead of sealant along the face of the horizontal, then screw apply the reglazing adaptor with FS-43 #12 x ¾" Phillips pan head at 12" O.C. (1 ½" from ends). Seal heads of fastener. **SEE FIGURE 20**.

B.7 Install wedge gasket around exterior of lite and replace horizontal face covers to complete the reglazing procedure.

REGLAZING FROM THE EXTERIOR

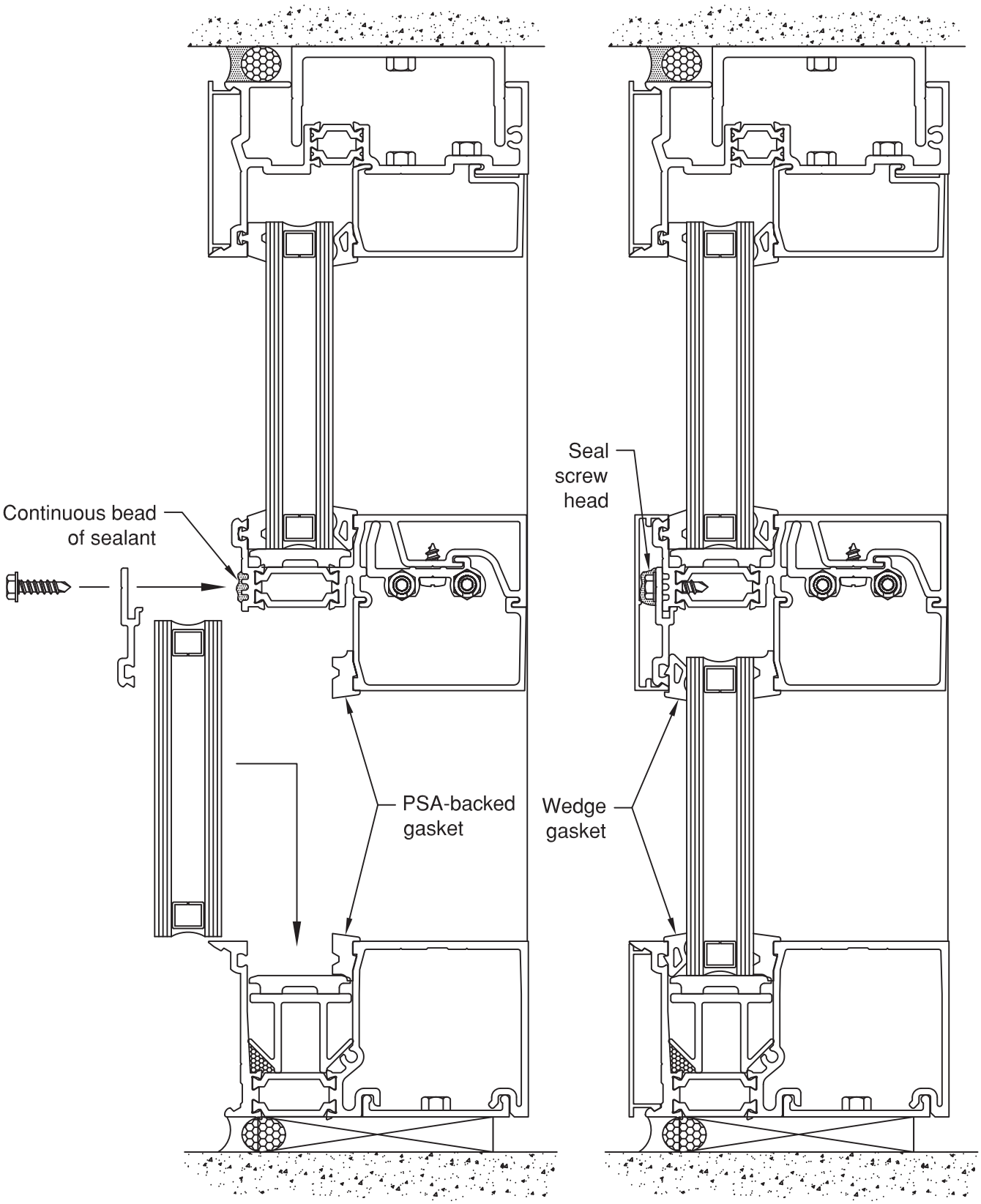


Figure 20
Exterior Reglazing

OUTSIDE 90° CORNER ASSEMBLY for 6" SYSTEM

FIGURE 21 shows the basic layout of the standard one-piece corner mullion assemblies for 6" system depths. These details are for general reference and do not necessarily reflect all conditions. For specific assembly, sealing and anchoring notes, refer to approved shop drawings.

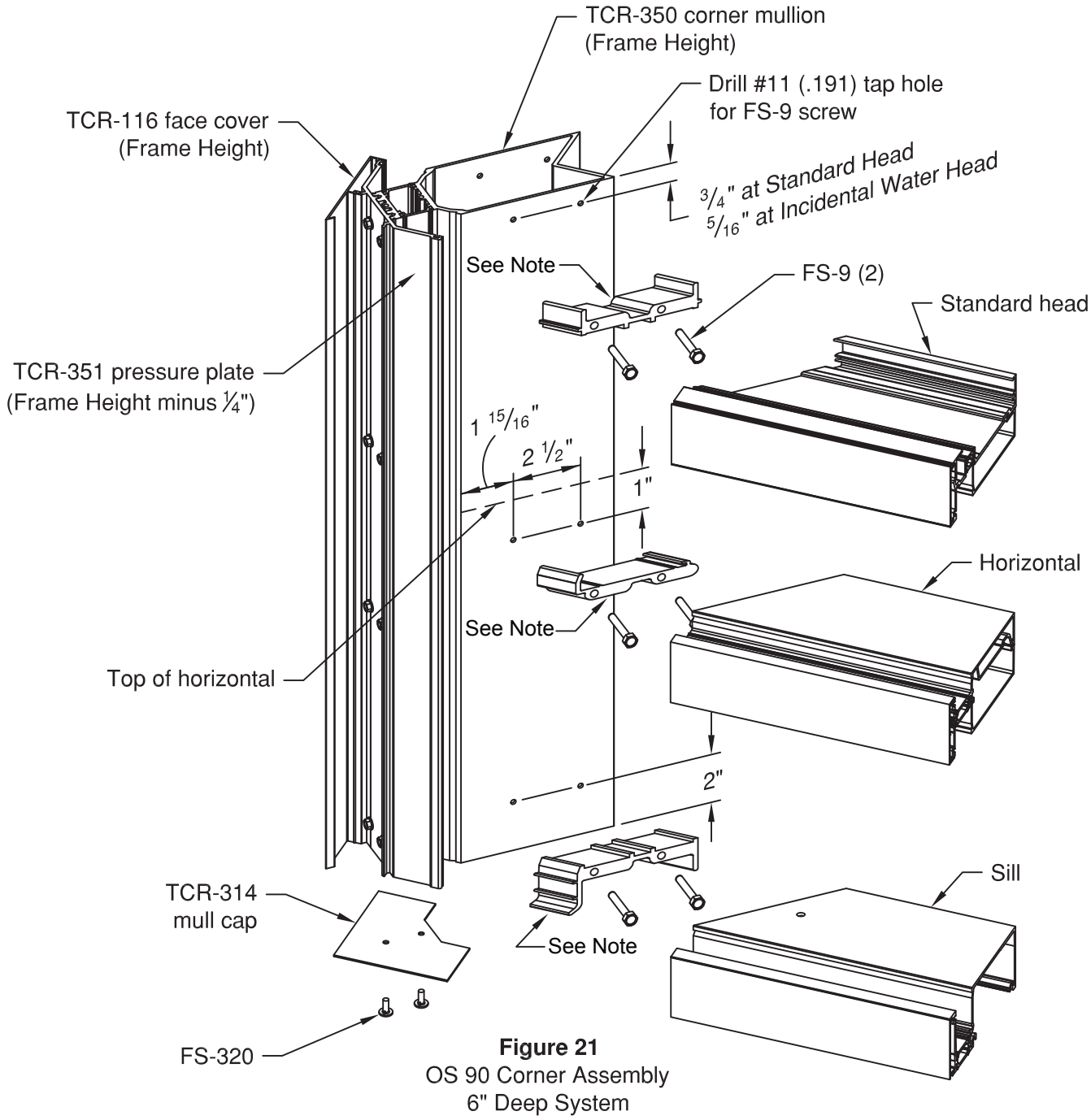


Figure 21
OS 90 Corner Assembly
6" Deep System

NOTE:
TCR-282-01 (R) -TCR-282-02 (L) at Sill
TCR-283-01 (R) -TCR-283-02 (L) at Standard Head
TCR-284-01 (R) -TCR-284-02 (L) at Incidental Water Head
TCR-285-01 (R) -TCR-285-02 (L) at Horizontal

OUTSIDE 90° CORNER ASSEMBLY for 6" SYSTEM (CONT.)

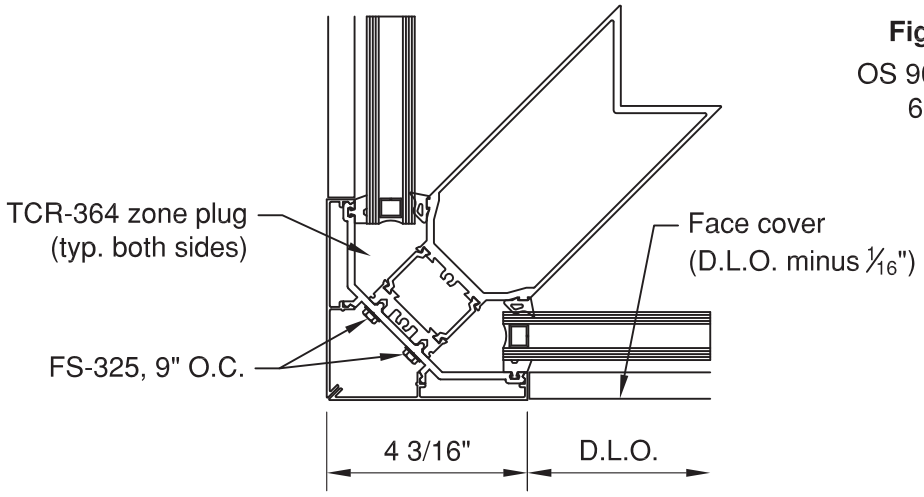
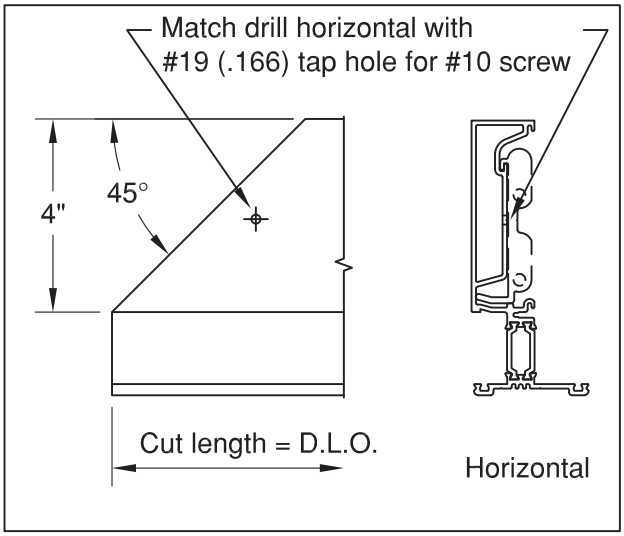
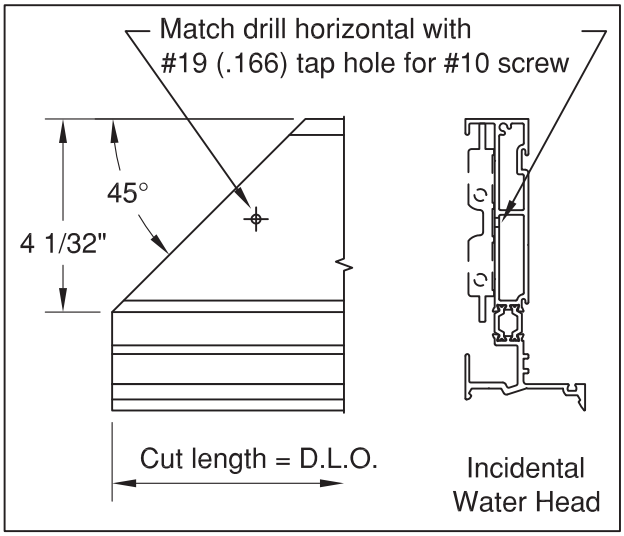
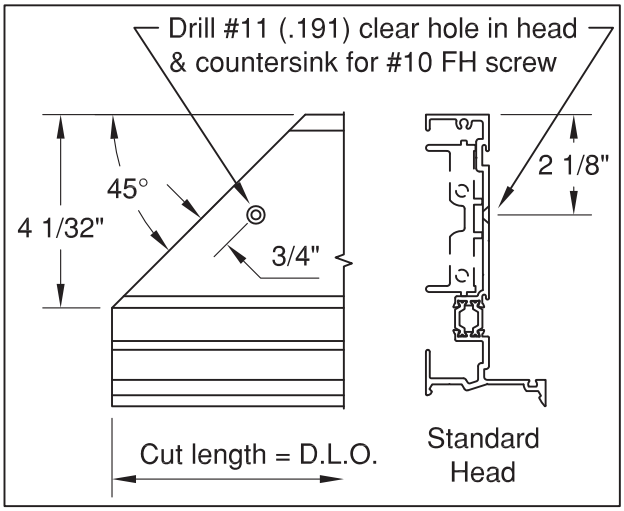


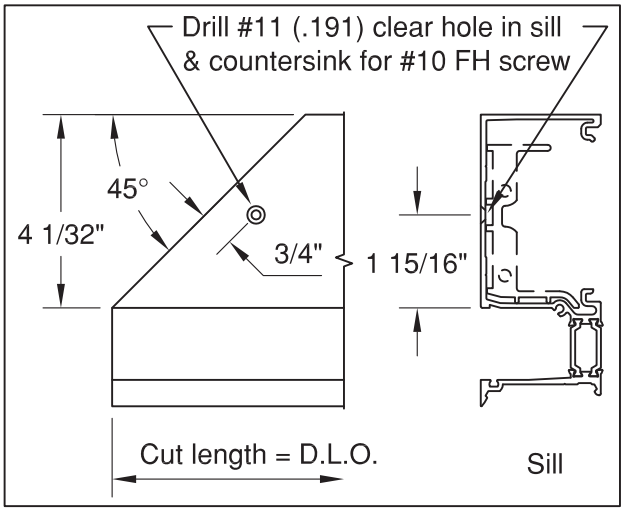
Figure 21 (cont.)
OS 90 Corner Assembly
6" Deep System

OS 90 Corner Assembly Guide
(See details below for fabrication notes)









OUTSIDE 90° CORNER ASSEMBLY for 4 1/2" SYSTEM

FIGURE 22 shows the basic layout of the standard one-piece corner mullion assemblies for both the 4 ½" and 6" system depths. These details are for general reference and do not necessarily reflect all conditions. For specific assembly, sealing and anchoring notes, refer to approved shop drawings.

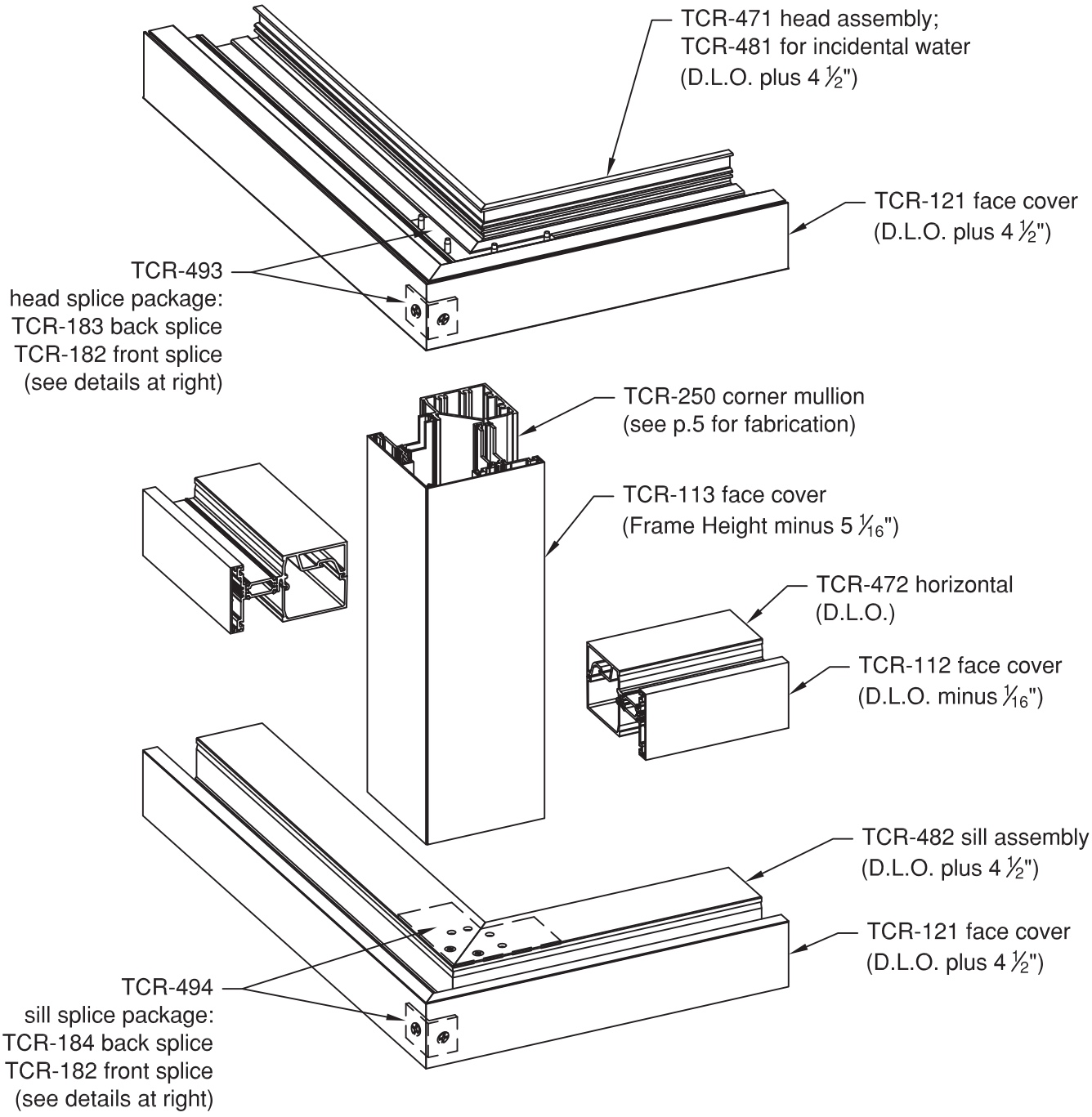
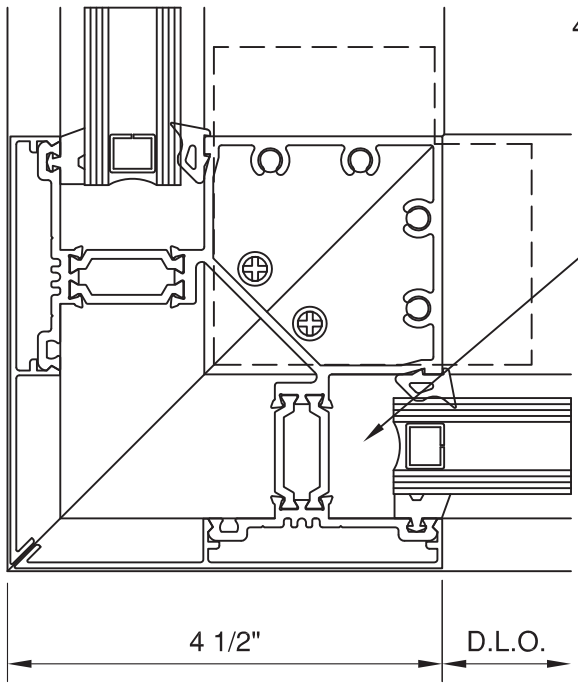


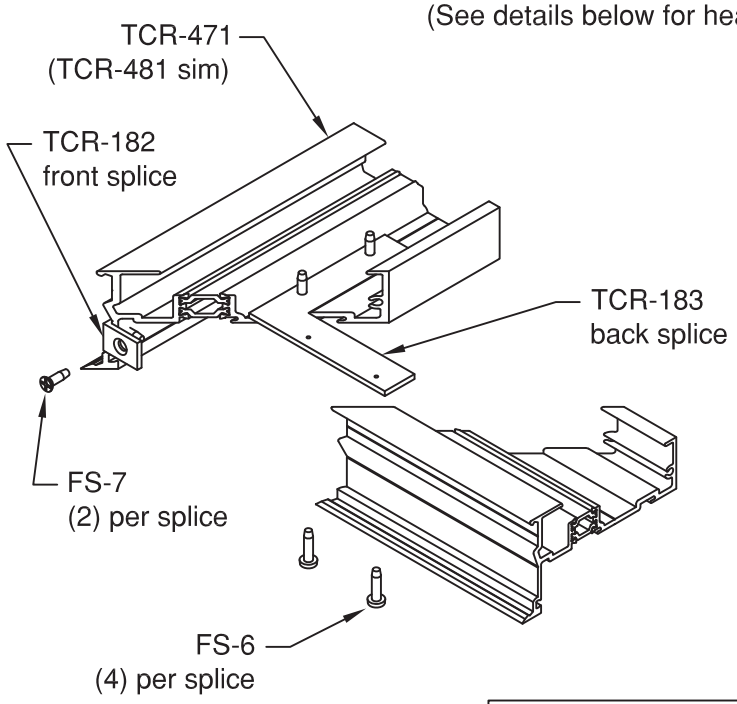
Figure 22
OS 90 Corner Assembly
4 ½" Deep System

OUTSIDE 90° CORNER ASSEMBLY for 4 1/2" SYSTEM (CONT.)

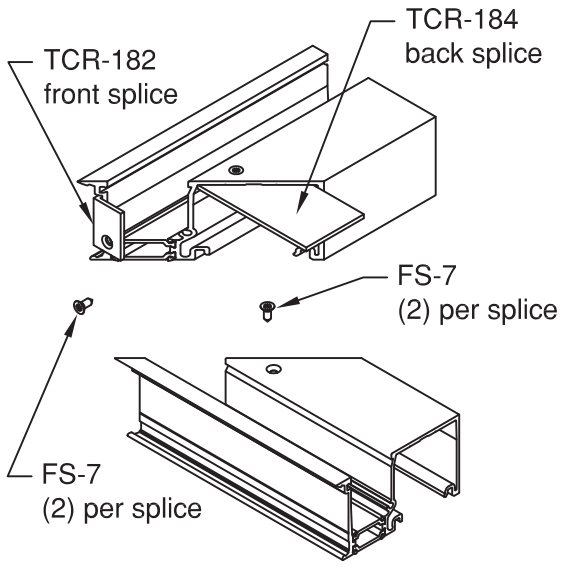
Figure 22 (cont.)
OS 90 Corner Assembly
4 ½" Deep System



OS 90 Corner Assembly Guide
(See details below for head/sill splices)



Head Splice Detail

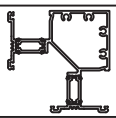
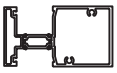
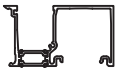
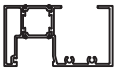
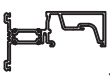


Sill Splice Detail

NOTE:
Splice sleeves sold in packages.
TCR-493 for head member and
TCR-494 for sill member

PARTS LIST

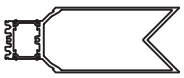
2 1/2" x 4 1/2" Extrusions

 TCR-102	Sill Anchor
 TCR-112	Face Cover at Horizontal
TCR-113	O.S. 90° Corner Face Cover
 TCR-121	Face Cover at Head & Sill
 TCR-133	Reglazing Leg at Head
 TCR-132	Reglazing Leg at Horizontal
 TCR-250	O.S. 90° Corner Corner Mullion
 TCR-480	Vertical Mullion
 TCR-471	Head
 TCR-482	Sill
 TCR-453	Jamb
 TCR-454	SSG Mullion
 TCR-481	Optional Incidental Water Head
 TCR-472	Horizontal

2 1/2" x 4 1/2" Extrusions

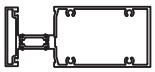
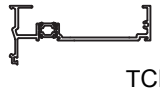
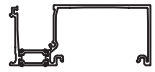
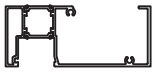
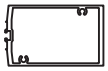
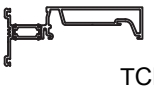
 TCR-413	Glass Stop at Horizontal
 TCR-473	Glass Stop at Head
 FG-2145	Door Stop
 DS-117	Thermal Door Stop

2 1/2" x 6" Extrusions

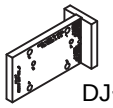
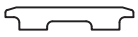
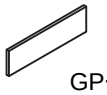
 TCR-103	Sill Anchor
TCR-112	Face Cover at Horizontal
 TCR-116	O.S. 90° Corner Face Cover
TCR-121	Face Cover at Head & Sill
 TCR-133	Reglazing Leg at Head
TCR-132	Reglazing Leg at Horizontal
 TCR-350	O.S. 90° Corner Corner Mullion
 TCR-351	O.S. 90° Corner Pressure Plate

PARTS LIST

2 1/2" x 6" Extrusions

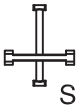
 TCR−680	Vertical Mullion
 TCR−671	Head
 TCR−682	Sill
 TCR−653	Jamb
 TCR−654	SSG Mullion
 TCR−681	Optional Incidental Water Head
 TCR−672	Horizontal
 TCR−673	Glass Stop at Head
 TCR−613	Glass Stop at Horizontal
 FG−2145	Door Stop
 DS−117	Thermal Door Stop

Standard Accessories

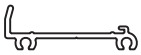
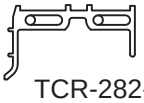
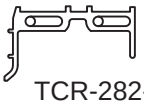
 DJ−109	Drill Jig 4 ½" System
 DJ−111	Drill Jig 6" System
 GP−100	EPDM Sponge Gasket w/PSA (Exterior Reglazing)
 GP−101	Setting Block
 GP−102	SSG Spacer
 GP−103	Typical EPDM Dense Exterior Gasket
 GP−104	Optional EPDM Sponge Exterior Gasket
 GP−113	Standard Interior Wedge Gasket
 GP−114	Side Block Shallow Pocket
 GP−115	Side Block Deep Pocket
 TCR-120-01	Setting Chair at Sill
 HP−1004	Weep Baffle at Head & Sill
FS−6	#10 x ¾" RH Shear Block Screw at TCR−284, −285
FS−7	#10 x ¾" FH Shear Block Screw at TCR−282, −283

PARTS LIST

Standard Accessories

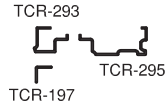
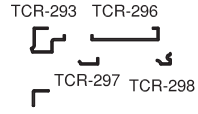
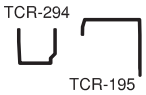
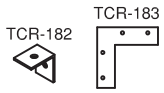
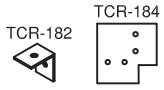
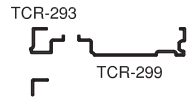
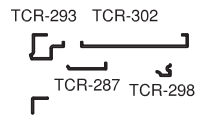
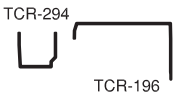
 FS-8	1/4-14 x 1" HWH Assembly Screw
 FS-9	1/4-14 x 1 ½" HWH Assembly Screw at Reinf. Sleeves
 FS-19	#10 x ⅝" TEK at TCR-133, TCR-132 Reglazing Legs & Hd/Sill Splices
 FS-55	#10 x ½" PRH at TCR-280, TCR-281 Shear Blocks
 FS-320	#10 x ½" U-Drive at Head/Sill End Dams
 SPW-PP-3	Temporary Glazing Retainer at SSG Verticals
 TCR-100-01	Head Anchor at TCR-481 (4 ½" System)
 TCR-106-01	Head Reinforcing Sleeve at TCR-471 (4 ½" System)
 TCR-107-01	Head Reinforcing Sleeve at TCR-481 (4 ½" System)
 TCR-114-01	Sill Reinforcing Sleeve at TCR-682 (6" System)
 TCR-160-01	Head Anchor at TCR-681 (6" System)
 TCR-200-01	Head Anchor at TCR-471 (4 ½" System)
 TCR-201-01	Sill Reinforcing Sleeve at TCR-482 (4 ½" System)
 TCR-206-01	Head Reinforcing Sleeve at TCR-671 (6" System)

Standard Accessories

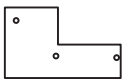
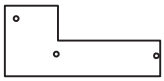
 TCR-207-01	Head Reinforcing Sleeve at TCR-681 (6" System)
 TCR-210-01	Head Anchor at TCR-671 (6" System)
 TCR-280-01	Shear Block (4 ½" System)
 TCR-281-01	Shear Block (6" System)
 TCR-282-01	Sill Shear Block at O.S. 90° Corner (Right Side)
 TCR-282-02	Sill Shear Block at O.S. 90° Corner (Left Side)
 TCR-283-01	Head Shear Block at O.S. 90° Corner (Right Side)
 TCR-283-02	Head Shear Block at O.S. 90° Corner (Left Side)
 TCR-284-01	Incidental Water Head Shear Block at O.S. 90° Corner (Right Side)
 TCR-284-02	Incidental Water Head Shear Block at O.S. 90° Corner (Left Side)
 TCR-285-01	Horiz. Shear Block at O.S. 90° Corner (Right Side)
 TCR-285-02	Horiz. Shear Block at O.S. 90° Corner (Left Side)

PARTS LIST

Standard Accessories

 TCR-490	Splice Sleeves for TCR-471 Head (4 ½" System)
 TCR-491	Splice Sleeves for TCR-481 Head (4 ½" System)
 TCR-492	Splice Sleeves for TCR-482 Sill (4 ½" System)
 TCR-493	O.S. 90° Corner Head Splice Sleeves (4 ½" System)
 TCR-494	O.S. 90° Corner Sill Splice Sleeves (4 ½" System)
 TCR-690	Splice Sleeves for TCR-671 Head (6" System)
 TCR-691	Splice Sleeves for TCR-681 Head (6" System)
 TCR-692	Splice Sleeves for TCR-682 Sill (6" System)
 WW-364	Zone Plug at Deep Pocket
 WW-365	Zone Plug at Shallow Pocket

Standard Accessories

 TCR-300	Bridge at SSG Vertical
 TCR-312	Vinyl End Dam Head & Sill (4 ½" System)
 TCR-313	Vinyl End Dam Head & Sill (6" System)
 TCR-314	Mull Cap O.S. 90° Mullion (6" System)
 TCR-364	Foam Zone Plug @ O.S. 90° Mullion