Oldcastle BuildingEnvelope™

RELIANCE CURTAIN WALL

INSTALLATION AND GLAZING MANUAL

Note: Installation and Glazing Manuals are product specific. ***FOR REVIEW ONLY!***

February 2012

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Web Address: www.oldcastlebe.com

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Quick Reference Guide:

1.Torque pressure plate screws to 90 in-lbs 2.

Glass Sizing:
Captured System: DLO + 1” for width and height.

SSG System:DLO + 2” for width. DLO + 1” for height. 3. Locate pressure plate screws @ 9” o.c. (1 1/2" from ends)

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PRODUCT USE

The Reliance curtain wall system is intended for installation by glazing professionals with appropriate experience. Subcontractors without experience should employ a qualified person to provide field instruction and project management.

Oldcastle BuildingEnvelope™ does not control the application or selection of its product configurations, sealant or glazing material 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.

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

The air and water performance of the **Reliance** 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 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. The interior glazing gasket should be installed so as to avoid stretching, buckles or tears. 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.
3. Vertical movement of mullion at intermediate floors requires special expansion joints and glazing materials. **See page 14&15** for details which permit ¼" movement. For designs and applications that may require greater movement or special considerations please contact your local Vistawall facility.

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 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.

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 “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 water tight due to extreme glass tolerances. The Reliance curtain wall system is designed to accommodate glass or panels measuring 1” and ¼” 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 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. 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 50º 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.

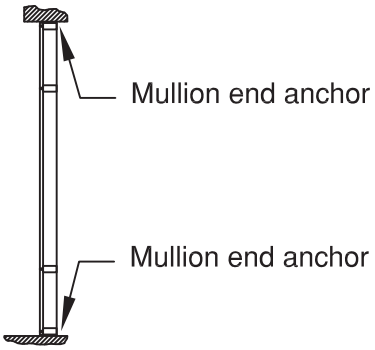
C. In extreme conditions the fan of the heating system should not cycle on and off, but should run continuously.

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 the problem.

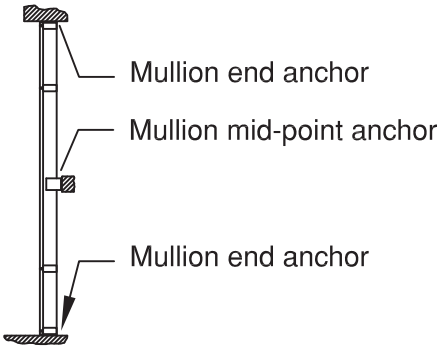
E. On rare occasions an extremely cold storm may cause frost to appear on the glass framing. A space heater and electric fan blowing along the plane of the window wall can reduce or eliminate this temporary condition.

INSTALLATION TYPES

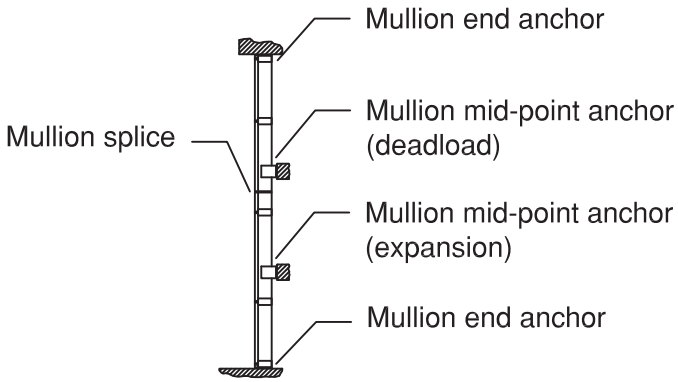
The following wall sections represent common types of installations for this product. Refer to approved shop drawings for specifics regarding splicing and anchoring of frame.



Single Span
Refer to steps 2.1.1 through 2.1.3



Twin Span
Refer to steps 2.1.4 through 2.1.8



Multi-Span
Refer to steps 2.1.9 through 2.1.16

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FRAME FABRICATION

Unless otherwise noted, the details shown in these instructions reflect the 7 1/4" system for 1" glazing. Instructions for 1/4" glazing in other backmember depths are similar.
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 1** for guide.

Frame Members

Verticals FRAME HEIGHT (ROUGH OPENING minus top & bottom joints)

Vertical pressure plates	FRAME HEIGHT minus 1/4"
Vertical face covers.....	FRAME HEIGHT (vertical covers run through)
Intermediate horizontals (tubular).....	Daylight opening (D.L.O.)
Intermediate horizontals (rollover).....	D.L.O. minus 1/16"
Head and sill.....	D.L.O. minus 1/16"
Horizontal pressure plates.....	D.L.O. minus 1/4"
Horizontal face covers.....	D.L.O. minus 1/16"
Horizontal interior trim (for rollover).....	D.L.O. minus 1/16"

Accessories

Glazing gaskets

Exterior.....	Pressure plate length plus allowance*
Interior at verticals.....	D.L.O. plus 1" plus allowance* (vertical gaskets run through)
Interior at horizontals.....	D.L.O. plus allowance*
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.

Other Members (as required)

Glazing adaptors	
Horizontal.....	D.L.O. minus 1/32"
Vertical.....	D.L.O. plus 1"
Door subframe	
Jamb.....	DOOR OPENING plus 1"
Header.....	DOOR OPENING minus 1/32"
Flush door pressure plate	
Jamb.....	DOOR OPENING plus 3/4"
Header.....	DOOR OPENING minus 1/16"
Flush door face cover	
Jamb.....	DOOR OPENING plus 2 1/2"
Header.....	DOOR OPENING minus 1/16"
Incidental Water Head	FRAME WIDTH (ROUGH OPENING minus left & right joints)

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FRAME FABRICATION

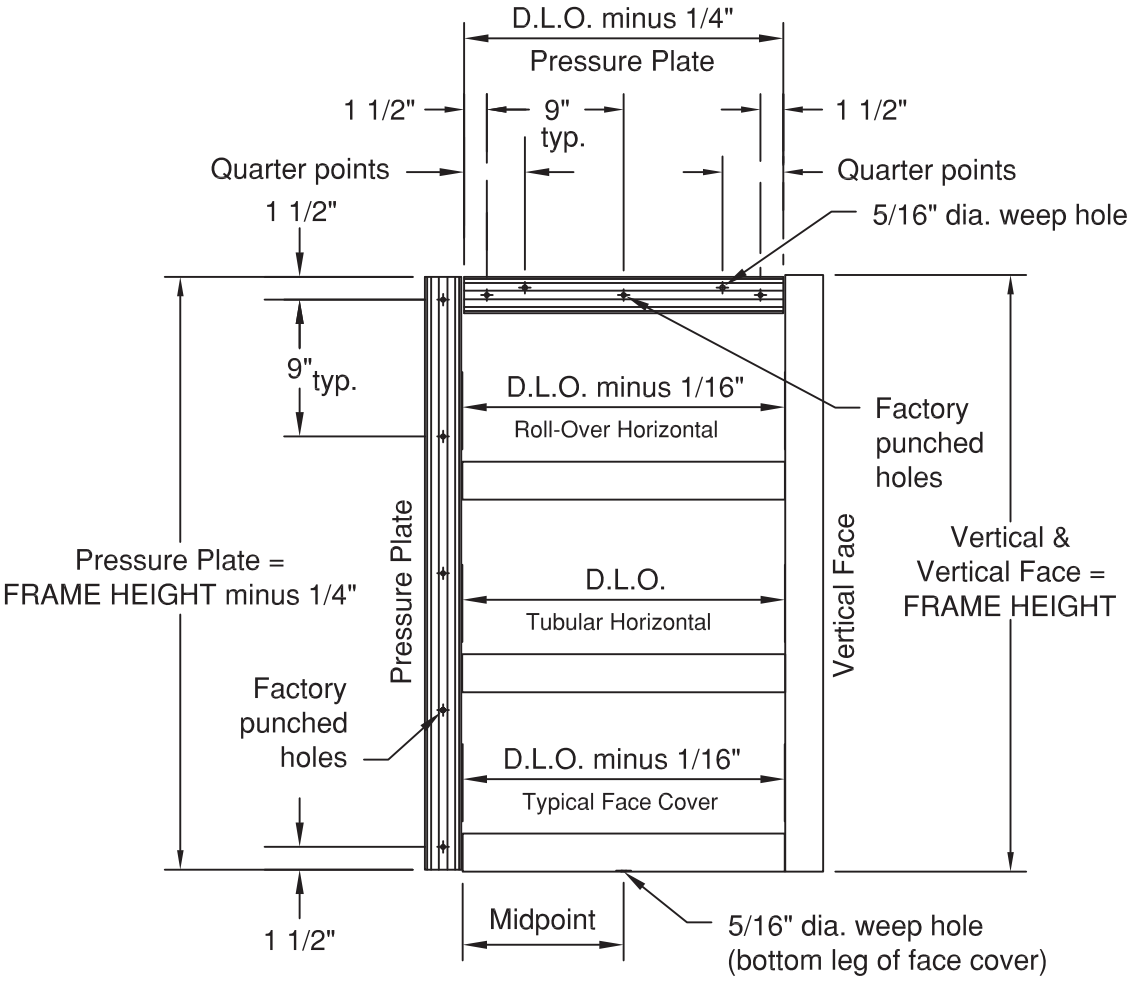

Figure 1
Material Fabrication Guide

1.3 Fabricate vertical mullions for horizontal members, using DJ-100 drill jig. Drill holes for shear block using holes marked “A” and “B”. **SEE FIGURE 2**. When working off horizontal centerlines, use the slot milled into the drill jig to align the jig with the centerline. **NOTE: 10” deep system requires special shear block and fabrication.**

FRAME FABRICATION

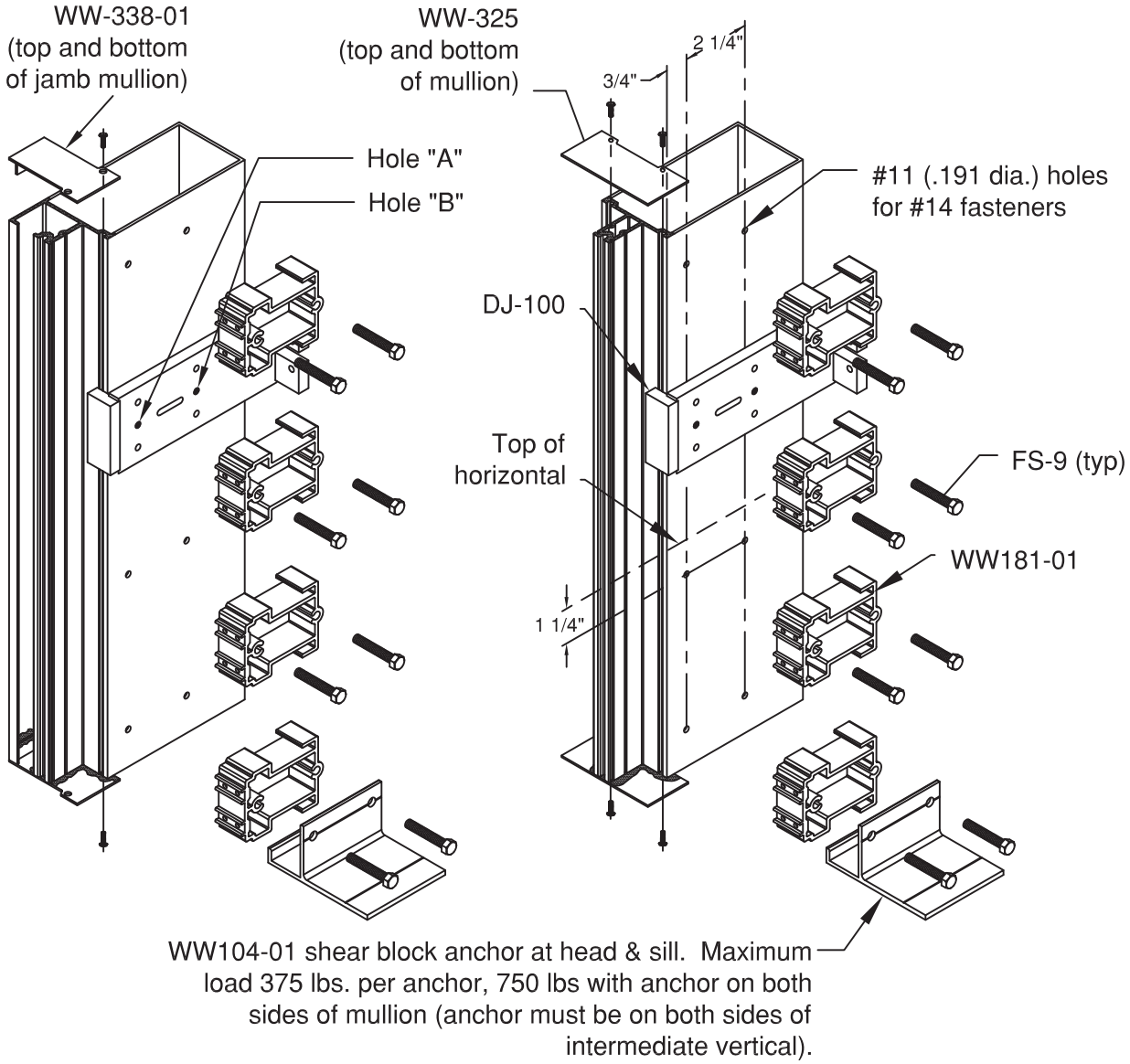

Figure 2
Vertical Fabrication

1.4 Install and seal end caps to top and bottom of all jamb and intermediate vertical mullions with (2) FS-320 #10 x ½" Drive screw (only (1) required at jambs). **SEE FIGURE 2.**

1.5 Fabricate ends of horizontal members for shear block screws, using DJ-100 drill jig. **SEE FIGURE 3. Note: When fabricating tubular (one-piece) horizontals, use the side of the drill jig stamped "Horizontal". When fabricating head, sill and roll-over horizontals, use the side stamped "Head/Sill/Rollover".**

FRAME FABRICATION

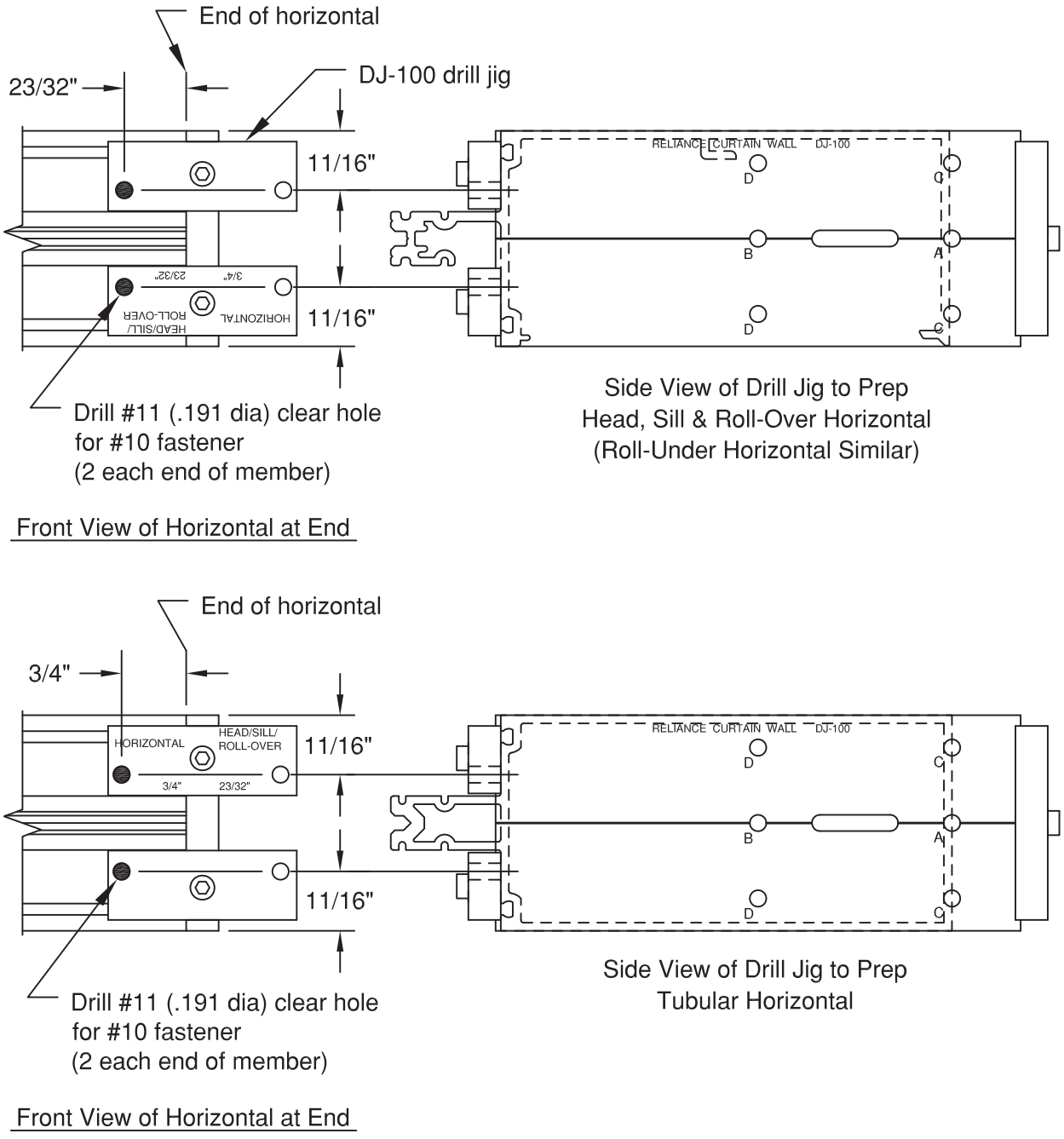

Figure 3
Horizontal Fabrication

1.6 Drill 5/16” diameter weep holes at 1/4 points in the horizontal pressure plate. Drill (1) 5/16” diameter weep hole at the bottom of each horizontal face cover at centerline of D.L.O. **SEE FIGURE 19. NOTE: For SSG applications, face covers typically run across mullions, so there will be multiple holes in each horizontal face cover.**

1.7 All pressure plates have factory-punched holes for screws at 9” O.C. To ensure proper pressure on the glazing, 7/32” diameter holes may need to be drilled at the ends of each horizontal pressure plate as required. Locate at 1 ½” maximum from the ends

FRAME INSTALLATION

Anchor type and sizes vary per job requirements. Details shown in these instructions are to be used as a guide only. Refer to approved shop drawings for actual conditions.

2.1 Vertical mullion installation:

SINGLE SPAN INSTALLATION:

2.1.1 Attach shear blocks to all vertical members. The shear block anchors are designed for use with standard shear blocks. **SEE FIGURE 4** for proper orientation and installation onto mullion. **NOTE: Tee anchors may also be used for single span installations. Refer to TWIN SPAN INSTALLATION below.**

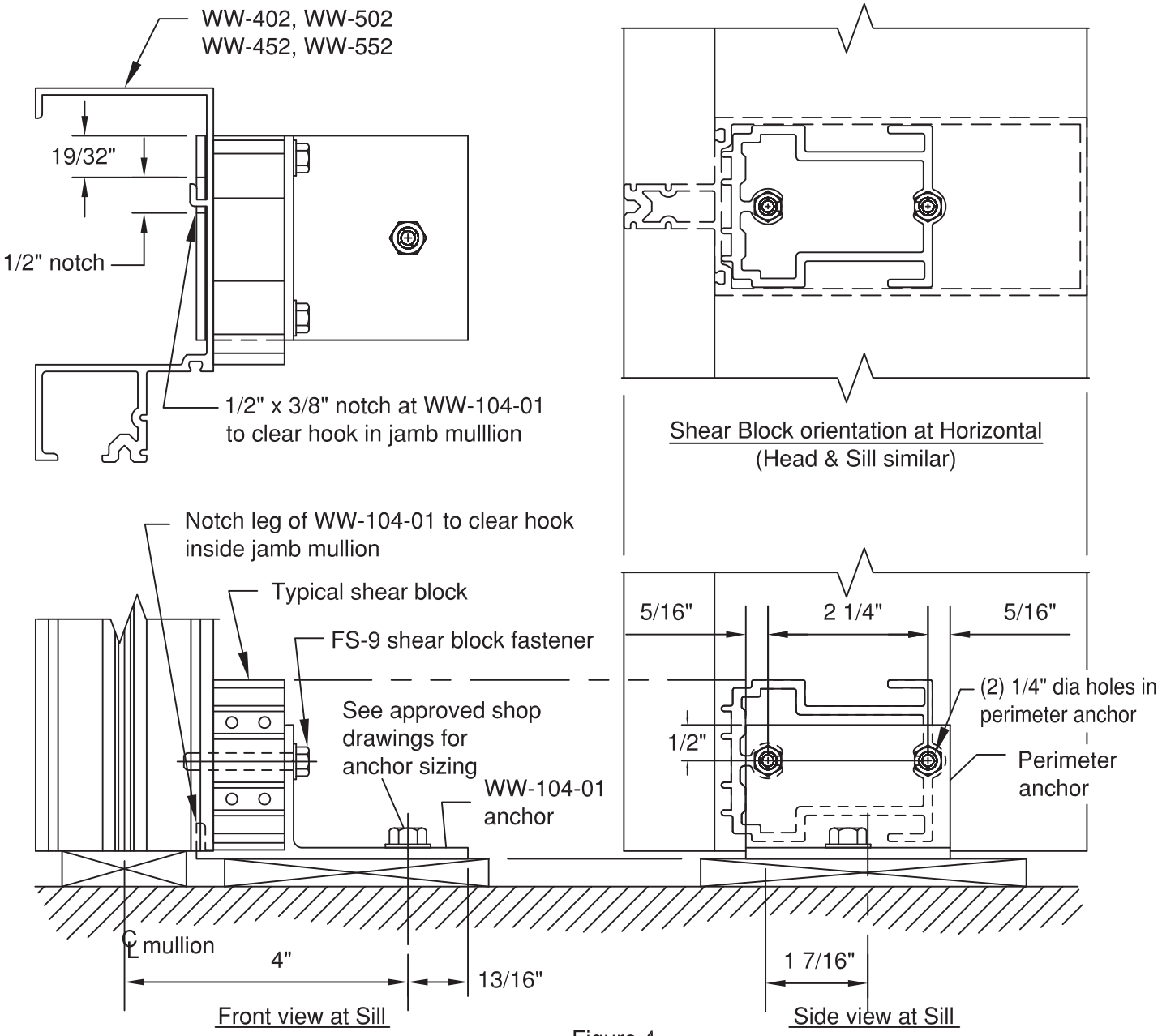

Figure 4

Shear Block Orientation
and Single Span Perimeter Anchor
(Captured Mullion Shown; SSG Mullion Similar)

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FRAME INSTALLATION

2.1.2 Install verticals plumb and level. Place shims under vertical mullion at sill to evenly distribute deadload from wall. Install pipe sleeve anchor at head to allow for thermal movement of the vertical mullions. **SEE FIGURE 5.**

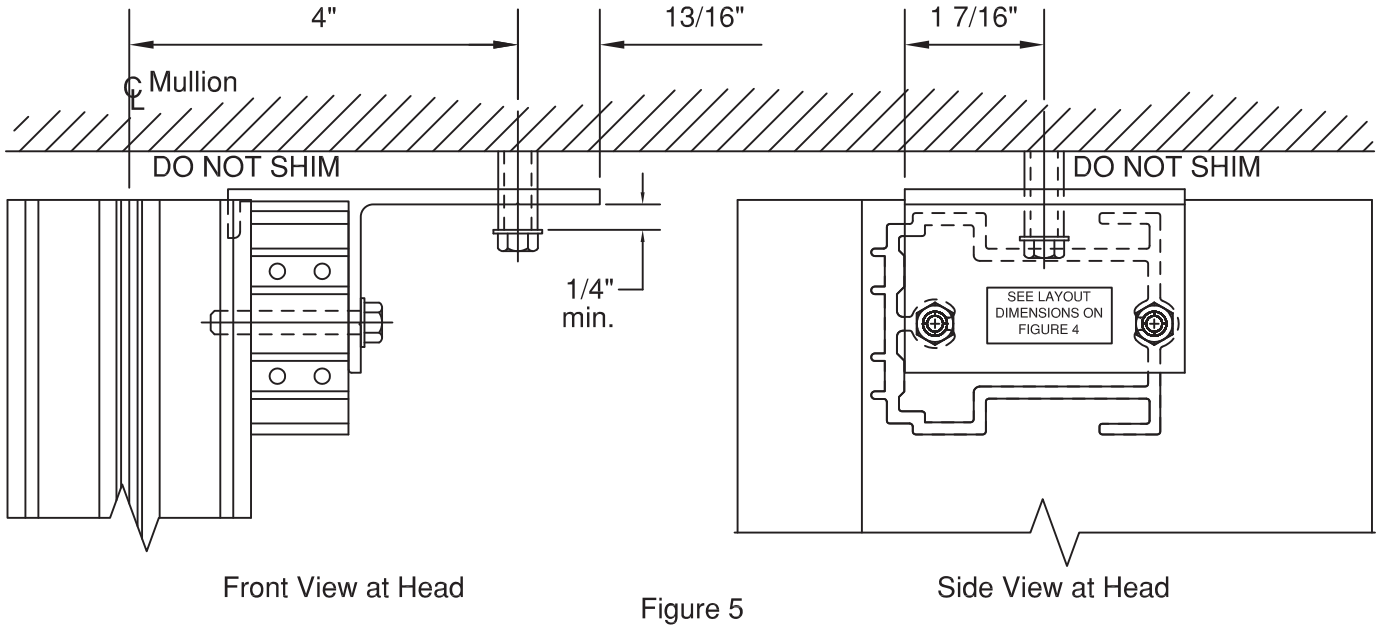

Figure 5
Single Span Head Anchorage
(Captured Mullion Shown; SSG Mullion Similar)

NOTE: If roll-over horizontals are used, all vertical mullions can be installed first. If tubular horizontals are used, the wall must be stick erected. Last bay tubular horizontals must be notched. SEE FIGURE 6. Option: Use roll-over horizontals at last bay to avoid notch.

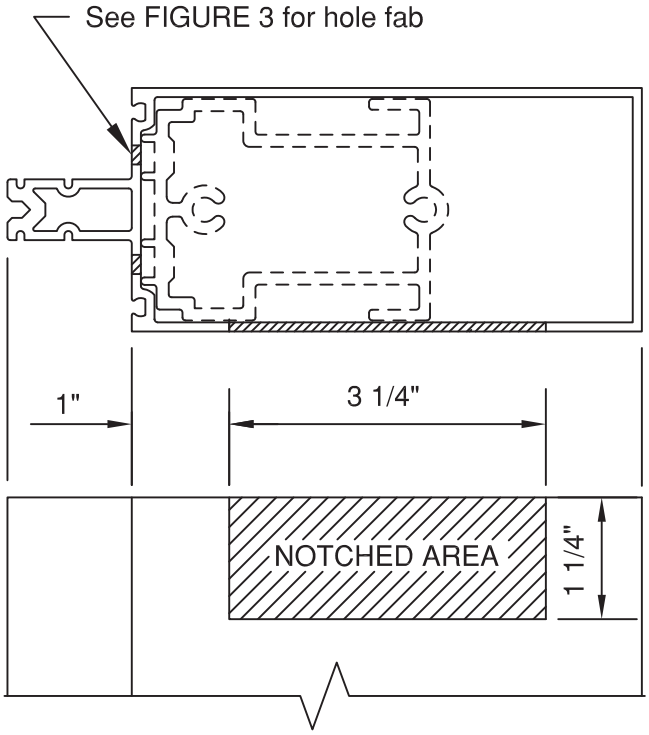

Figure 6
Last Bay Horizontal Notch

2.1.3 Check D.L.O. and diagonal dimensions every four bays to ensure correct spacing and frame squareness to prevent dimensional buildup.

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FRAME INSTALLATION

TWIN SPAN INSTALLATION:

2.1.4 Attach shear blocks to all vertical members. **SEE FIGURE 4** for proper orientation on mullion. For installations using the shear block anchors, attach to head and sill shear block. **NOTE: Depending on the end reactions, either the shear block anchor or tee anchors can be used to anchor the wall. For the shear block anchor, the maximum load PER ANCHOR is 375 lbs (750 pounds at intermediate mullions utilizing two anchors)**.

2.1.5 For installations using tee anchors, slide tee anchors into top and bottom of vertical mullions. The tee anchors are designed to clear the shear block fasteners.

2.1.6 Install verticals plumb and level, ensuring proper spacing out from floor slab or beam.
Shear Block Anchor Method: Place shims under vertical mullion and anchor at sill to evenly distribute deadload from wall. Anchor top and bottom of mullions to structure.
Tee Anchor Method: Place shims under vertical mullion (tee anchor is set on building condition) and anchor at sill to evenly distribute deadload from wall. Anchor top and bottom of mullions to structure.

NOTE: If roll-over horizontals are used, all vertical mullions can be installed first. If tubular horizontals are used, the wall must be stick erected. Last bay tubular horizontals must be notched. SEE FIGURE 6. Option: Use roll-over horizontals at last bay to avoid notch.

2.1.7 Anchor the mullion to floor slab or beam. Do not overtighten bolt(s). For expansion anchors, back off nut ¼ turn and stake bolt.

2.1.8 Check D.L.O. every four bays to ensure correct spacing and prevent dimensional buildup.

MULTI-SPAN INSTALLATION:

2.1.9 Install tee anchors at the sill condition prior to setting mullions. Each tee anchor must be anchored with a minimum of two anchor bolts. See approved shop drawings for bolt size and location.

2.1.10 Attach shear blocks to all vertical members. **SEE FIGURE 2** for proper orientation on mullion.

2.1.11 Install lower verticals plumb and level, ensuring proper spacing out from floor slab or beam. Place shims under vertical mullion at sill to evenly distribute deadload from wall. **NOTE: If roll-over horizontals are used, all vertical mullions can be installed first. If tubular horizontals are used, the wall must be stick erected. Last bay tubular horizontals must be notched. SEE FIGURE 6. Option: Use roll-over horizontals at last bay to avoid notch.**

2.1.12 Anchor the mullion to floor slab or beam. Do not overtighten bolt(s).

2.1.13 Repeat steps 2.1.11 and 2.1.12 until all lower verticals are in place. Check the D.L.O. every four bays to ensure correct spacing and prevent dimensional buildup.

2.1.14 Install the next vertical above, temporarily shimming between verticals to maintain proper splice joints (refer to approved shop drawings). **SEE FIGURE 7.**

2.1.15 Slide tee anchors into top of upper-most mullions. The tee anchors are designed to clear the shear block fasteners. Attach tee anchor to building condition.

2.1.16 When the wall is set, remove shims between vertical mullions at splices, back off nut ¼ turn at expansion anchors and stake bolts.

Continue with step 2.2 for remaining installation after all verticals have been erected.

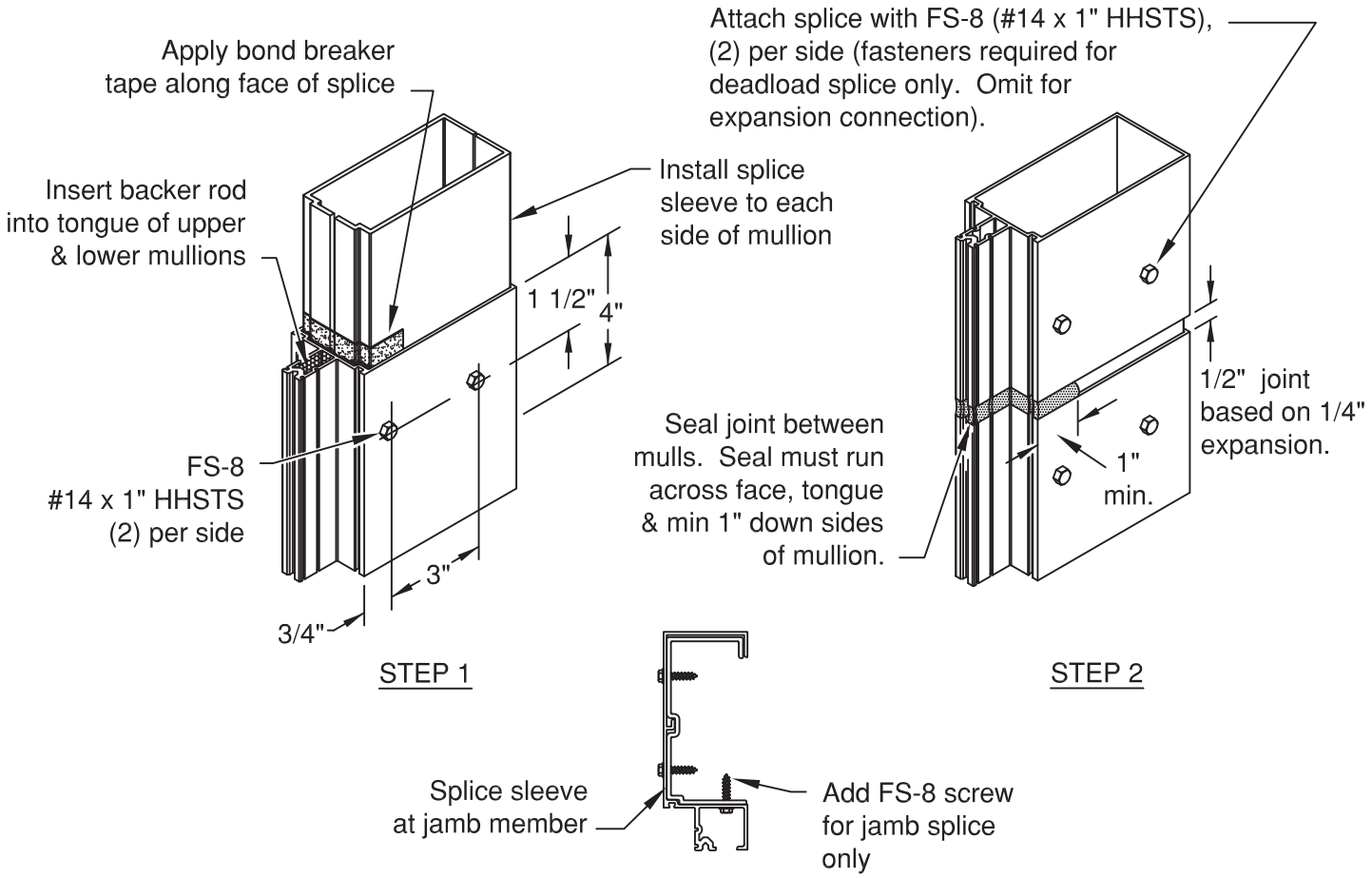


Figure 7
Vertical Splicing

2.2 **SEE FIGURE 9** as a guide for horizontal layout. Seal around shear blocks prior to installing each horizontal mullion. Install horizontal mullions as shown in **FIGURE 8**. Prior to attaching 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) FS-115 #10 x 1" Phillips Pan Head screw at each end of horizontal. Check head of screw to insure proper seal.

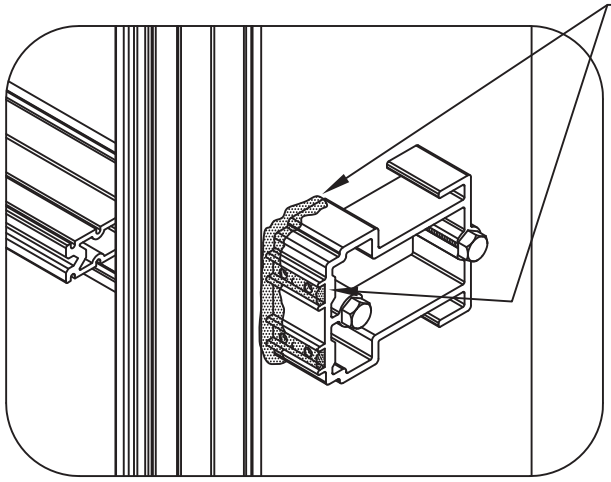
2.3 If applicable, install cover plates for roll-over horizontals.

2.4 Wipe excess sealant from exposed areas. Tool sealant into the joint between the horizontal and vertical at the glazing pocket. Avoid a buildup of sealant on the gasket surfaces or in the gasket reglets. **TIP: Use a short piece of interior glazing gasket to clean out excess sealant in glazing reglets. Also wipe excess sealant away from the horizontal filler snap areas on roll-over horizontals.**

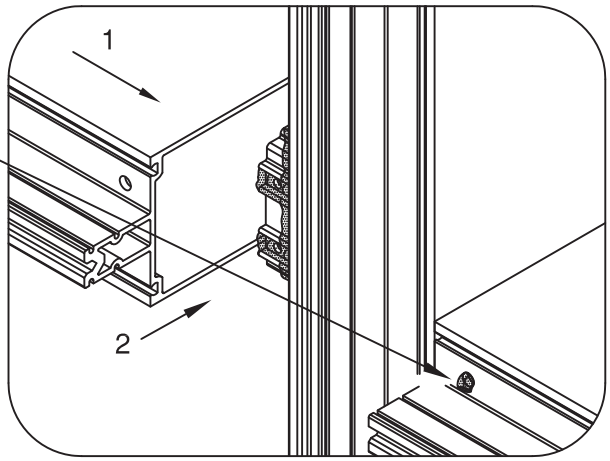
2.5 Apply sealant to all contact surfaces on vertical and horizontal mullions where zone plugs will be installed. Apply sealant to horizontal tongue receptor on zone plug and install at the end of each horizontal, head and sill. Tool any excess sealant around front end of zone plug where thermal spacer abuts the zone plug. Tool sealant in the glazing pockets to ensure a watertight fit. **SEE FIGURE 10.**

2.6 When all framing members are installed, apply the perimeter seal. **SEE FIGURE 11**. The interior perimeter seal is not required for system performance, but can be installed for cosmetic purposes. Perimeter sealing must be completed prior to glazing.

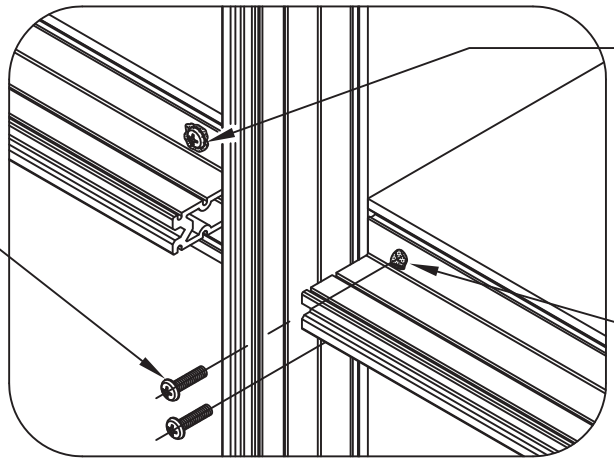
FRAME INSTALLATION



Seal face, top, bottom, and screw tracks of shear blocks.



To install horizontals, slide in front of shear block (1), then push back into position (2). This will force sealant through attachment holes in horizontal.



FS-115 (2) per shear block

Sealant should form a seal around and beneath attachment fastener. If sealant does not form complete seal around screw head, the fastener should be cap sealed to insure a proper seal.

Adequate sealant should be applied in track of shear block to allow sealant to force through holes in horizontal.

Figure 8
Shear Block Sealing

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FRAME INSTALLATION

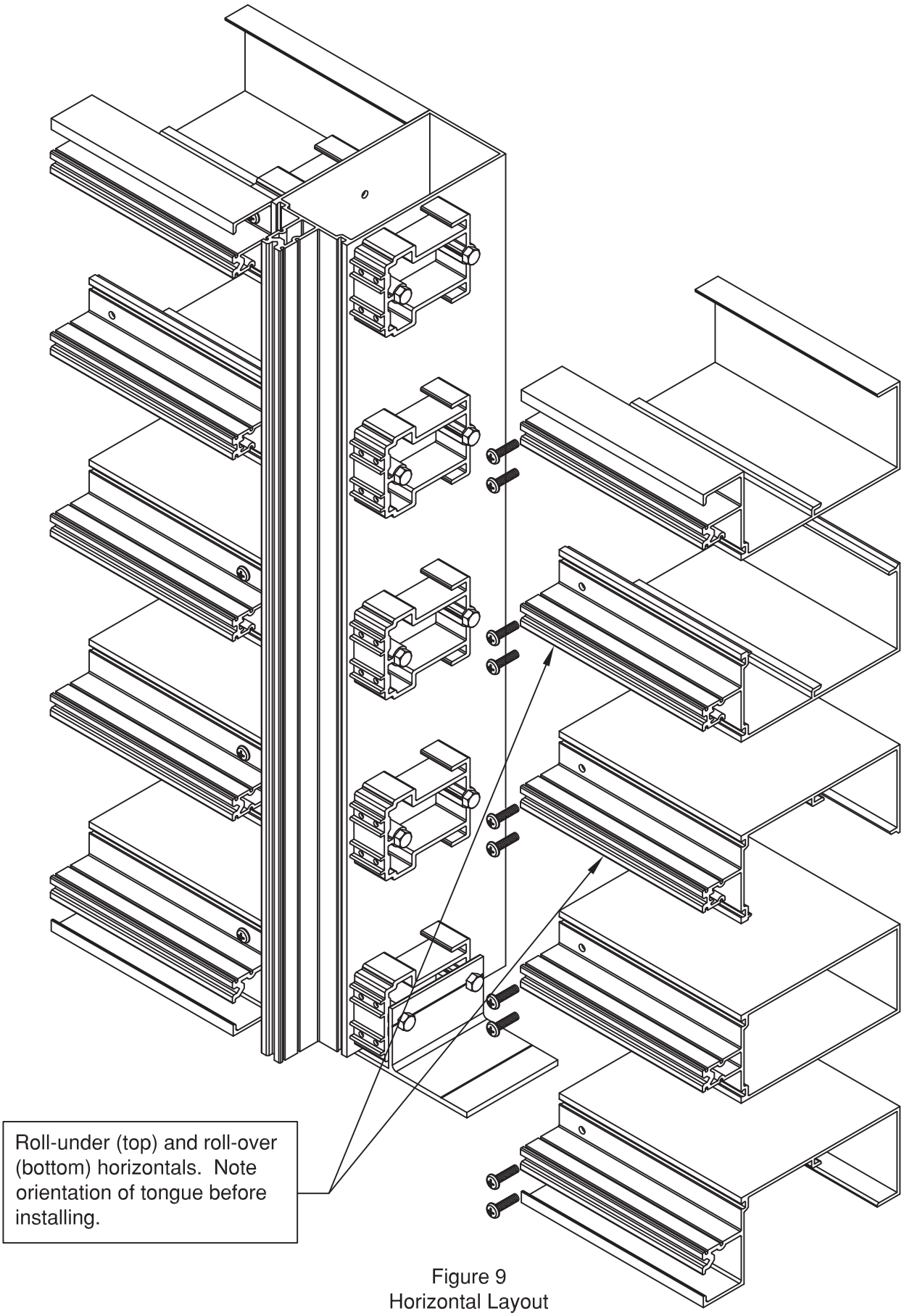

Figure 9
Horizontal Layout

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FRAME FABRICATION

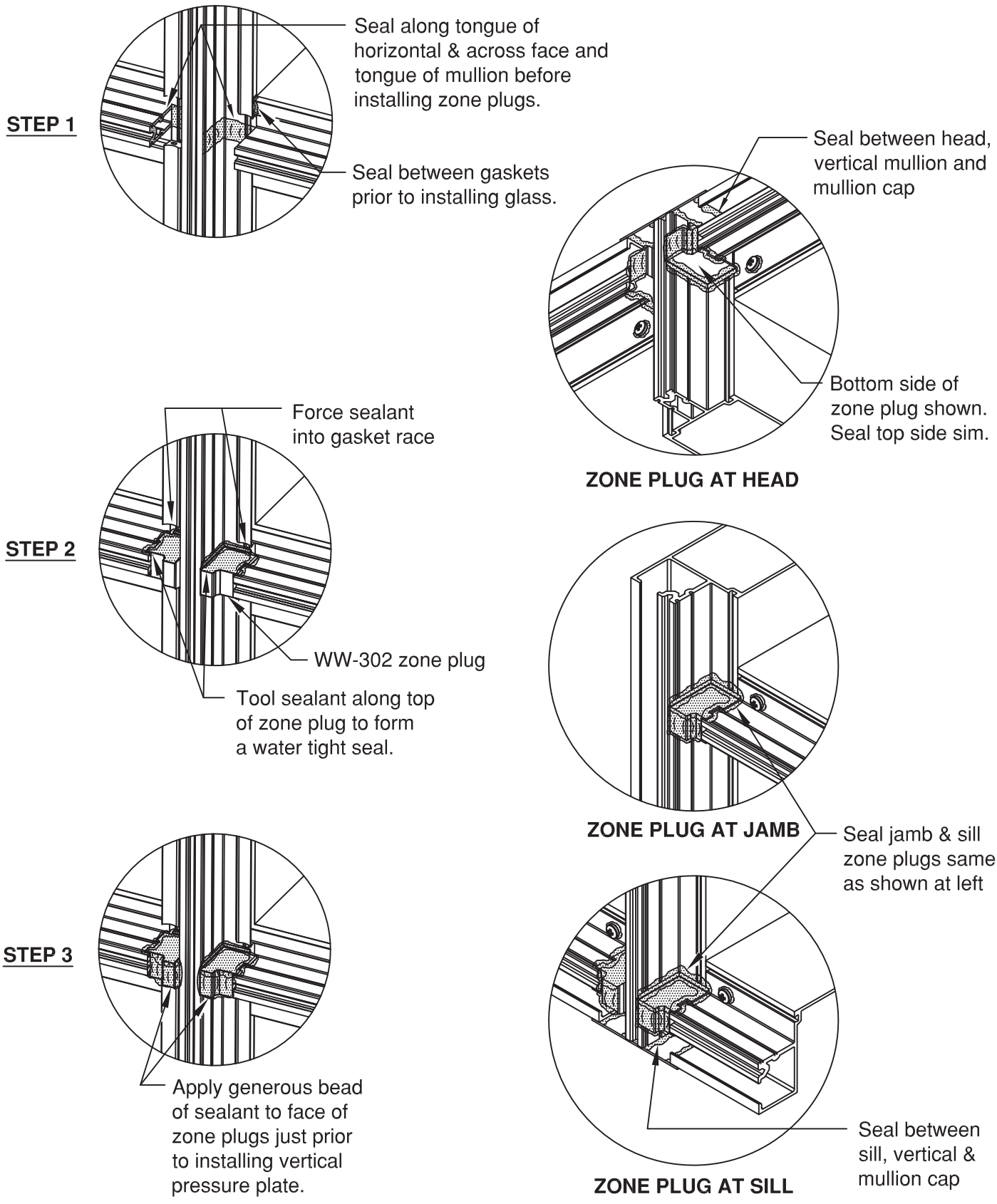


Figure 10
Zone Plug Installation

FRAME INSTALLATION

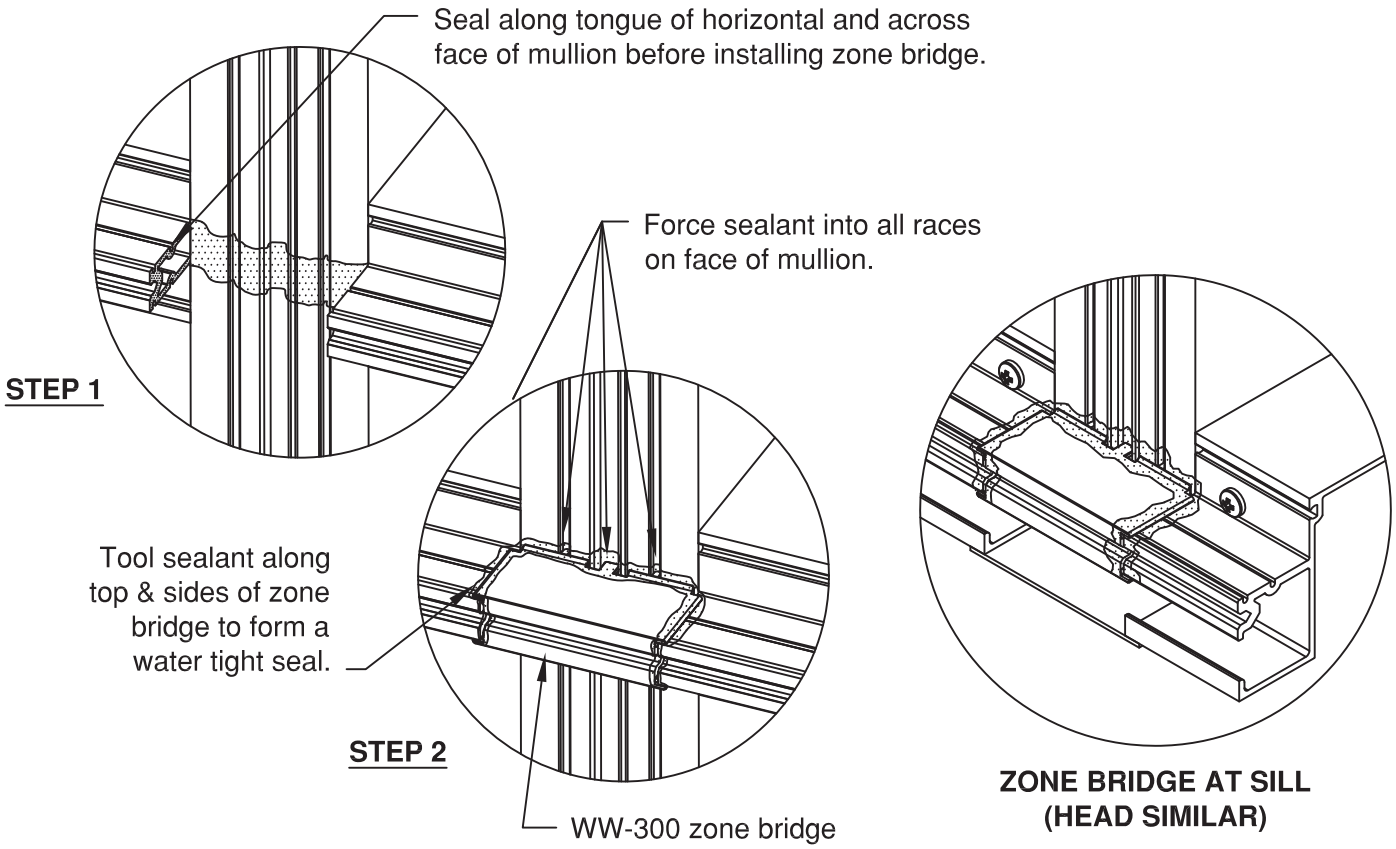


Figure 10 (continued)
Zone Bridge Installation

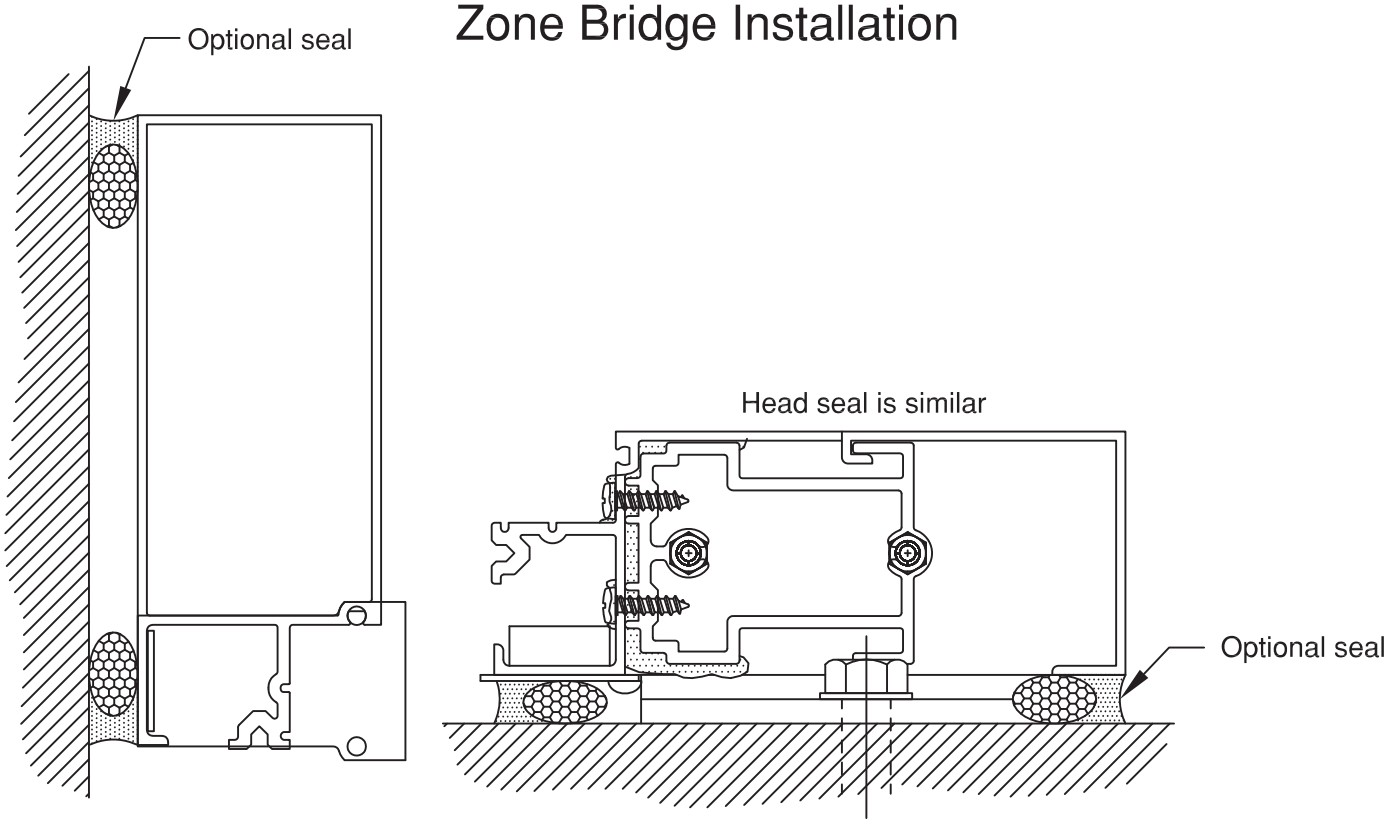


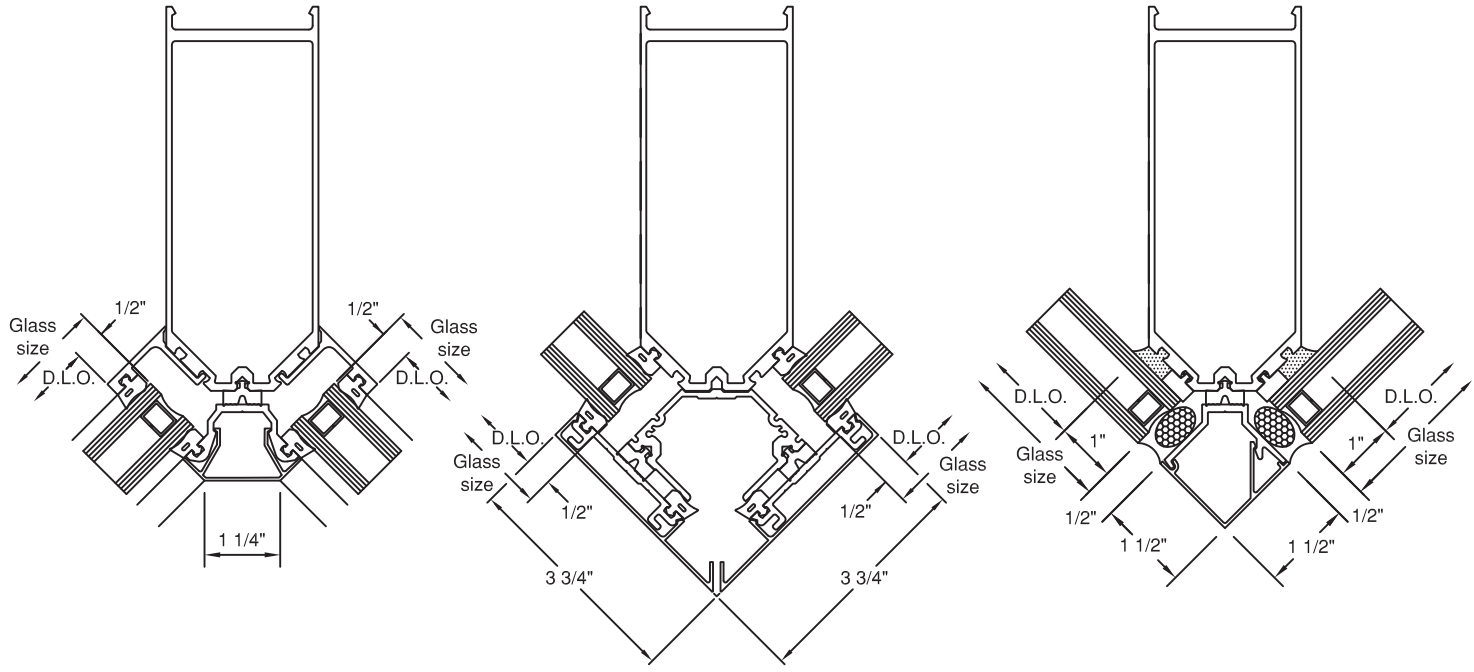
Figure 11
Perimeter Seal

GLAZING

GLASS SIZE CALCULATION =

D.L.O. plus 1” for WIDTH & HEIGHT at Captured System
D.L.O. plus 2” for WIDTH at SSG System (Verticals Only)
SEE FIGURE 12 for calculation at corner mullions

Note: Steps 3.1 through 3.16 refer to standard glazing of 1” infill. For openings requiring transition glazing with adaptors, refer to “TRANSITION GLAZING”, page 13.



I.S. 90 - CAPTURED | O.S. 90 - CAPTURED | O.S. 90 - SSG

I.S. 135 - CAPTURED | O.S. 135 - CAPTURED | O.S. 135 - SSG

Figure 12
Glass Size Calculation at Corners
SOME PARTS NOT SHOWN FOR CLARITY

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GLAZING

3.1 Install face gaskets into all pressure plates. Install silicone spacer gaskets into the SSG mullions. Crowd all gaskets into members to avoid gaps caused by relaxation of gasket material.

3.2 Install thermal spacer into groove on face of mullion tongues. Run through at vertical splice joints. Cut short 1/8" from each end of the mullion. **SEE FIGURE 13.**

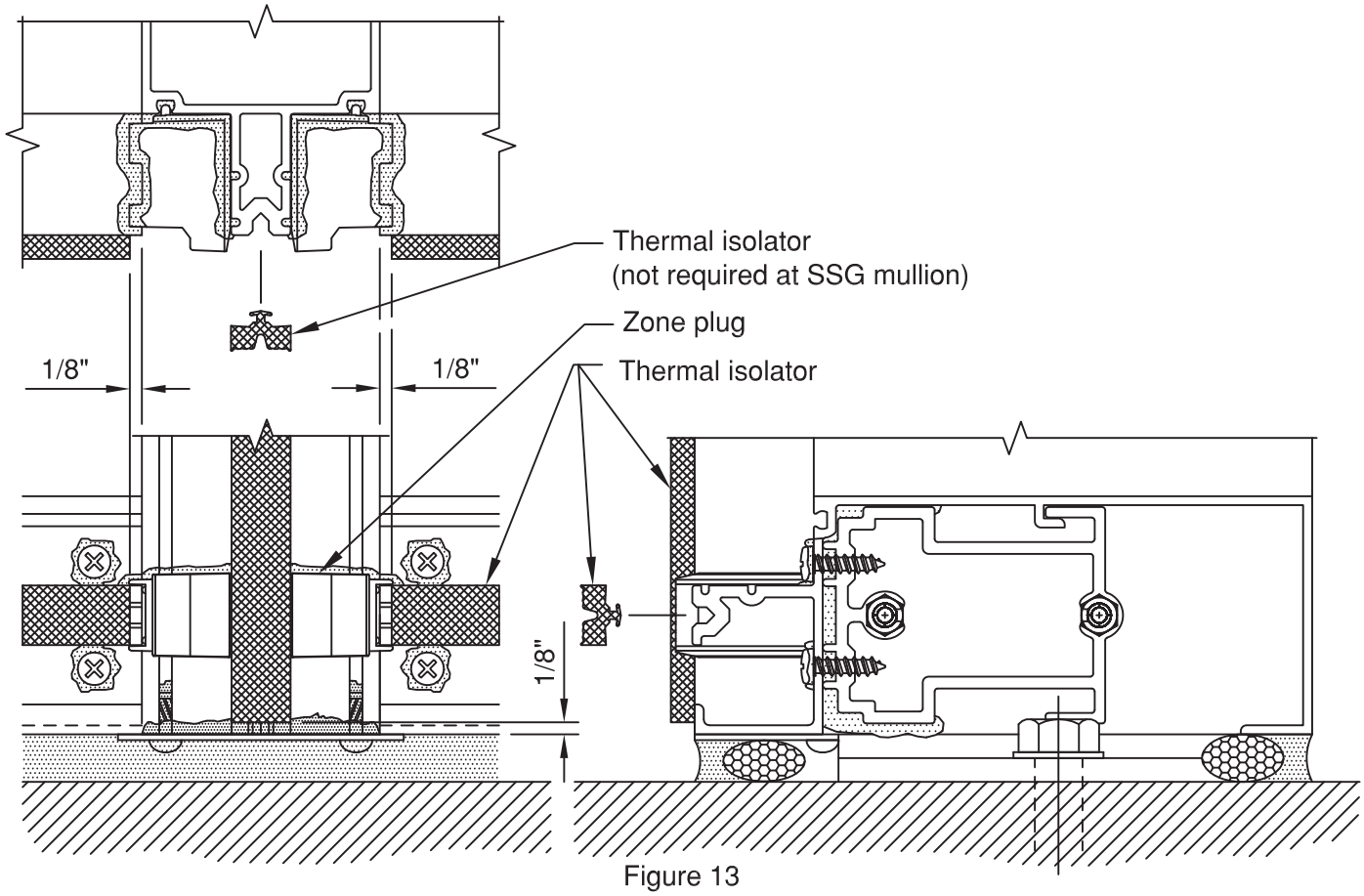


Figure 13
Thermal Isolator Installation

3.3 **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; seal only the gaskets in the opening for which you are ready to set glass.**

- Install interior gaskets into back member (vertical gaskets first). If mullion is spliced, run gasket through the splice joint, setting in fresh silicone at the joint. Trim the gasket dart as required to form an air tight seal. (Glazing gaskets at verticals run through; horizontal gaskets butt into the vertical gaskets.
- Crowd gaskets into corners, cutting horizontal gaskets at a slight angle to conform to the bevel on vertical gaskets.
- Pulling the horizontal gasket back at the ends, seal joint at gasket corners JUST PRIOR TO GLAZING THE OPENING. Release the gasket back to its original position, making sure sealant fills entire joint.
- Tool corner joints after glass is set and temporary glazing retainers are in place.

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

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

3.5 Set glass in opening. Ensure that glass bite is equal on all sides. **CAUTION: 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.**

3.6 Temporarily hold glass in the opening with WW-333 temporary glazing retainers & FS-325 screw (FS-322 for ¼" infill). Use SPW-PP-3 retainer for SSG verticals. Torque the FS-325 screw to 60 in-lbs.

- WW-333 temporary glazing retainers must be applied at each glass edge 3" from the corner (minimum of 8 per lite). Glass edges greater than 4' in length but less than 8' require an additional retainer at the glass mid-span.
- Retainers are intended for short term use only. Additional retainers may be required to withstand full design wind load pressures.
- Full length pressure plates must be installed if severe weather or high wind loads are anticipated. **SEE FIGURE 14 & 15.**

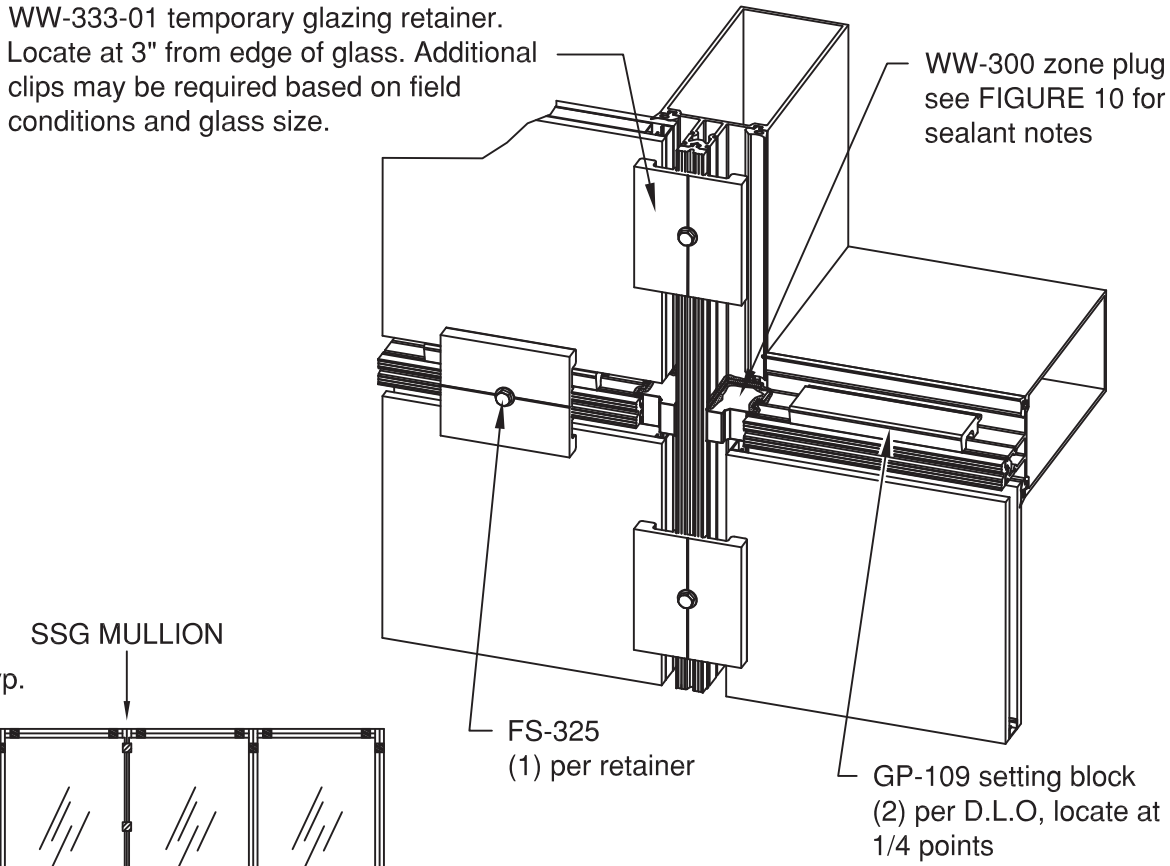


Figure 14
Glazing Instructions

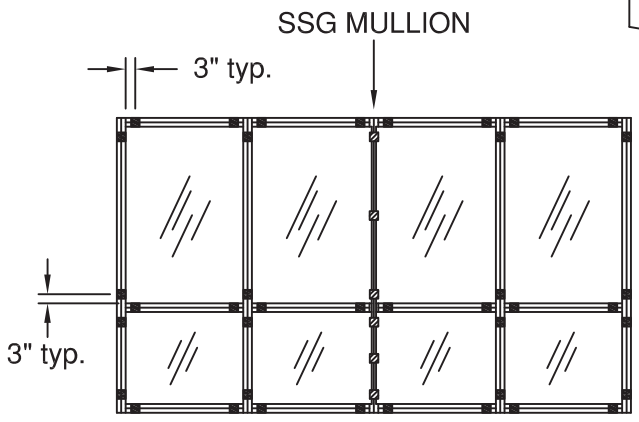


Figure 15
Typical Location of
Temporary Glazing Retainers

3.7 If required, install GP-111 (1") or GP-112 (1/4") side blocks with silicone at centerline of each lite of glass, along vertical edges, or per approved shop drawings. For framing that will be subjected to seismic events, consult glass manufacturer for preferred location. **NOTE: Side blocks are not required at SSG mullions.**

3.8 Repeat steps 3.3 through 3.7 until all glass is set, working row by row up the elevation.

For elevations requiring vertical mullion splices, refer to the **VERTICAL SPLICING section, pages 14 &15,** before continuing the installation.

3.9 Prior to installing vertical pressure plates, apply sealant to the face of each horizontal zone plug. **SEE FIGURE 16.** Vertical pressure plates must be installed before the horizontal pressure plates are applied.

FS-325 (1") or FS-322 (1/4") pressure plate fasteners must be located 1 1/2" from horizontal/vertical mullion intersections in order to maintain proper compression on the glass. Drill 7/32" holes in pressure plates as required.

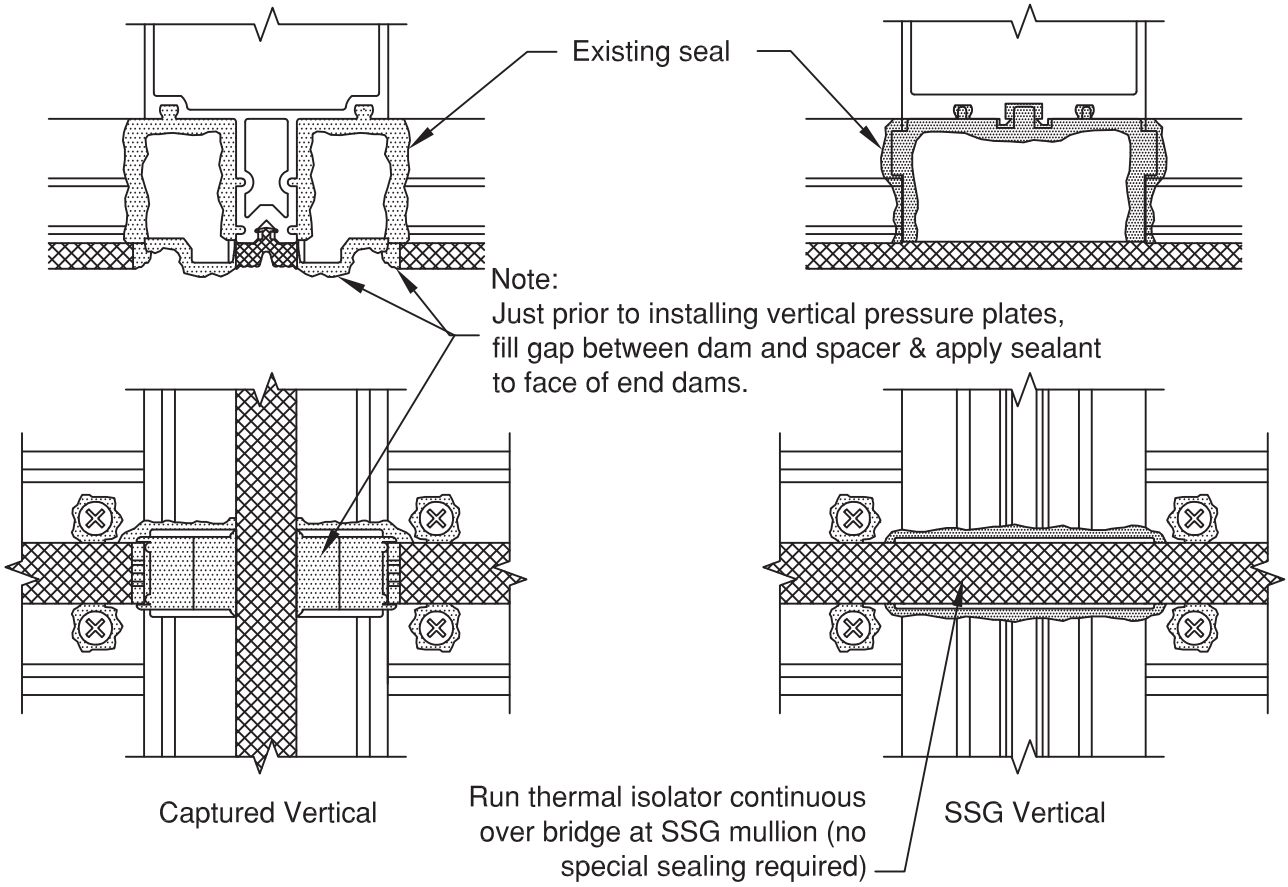


Figure 16
Sealing for Pressure Plates

3.10 After removing vertical temporary retainers, install vertical pressure plates with FS-325 (1") or FS-322 (1/4") screws, holding back 1/8" from the ends of the vertical mullion.

3.11 After removing horizontal temporary retainers, center horizontal pressure plates in opening, leaving 1/8" gap on each end. Make sure that 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. SEE FIGURE 17 for splicing and sealing instructions.**

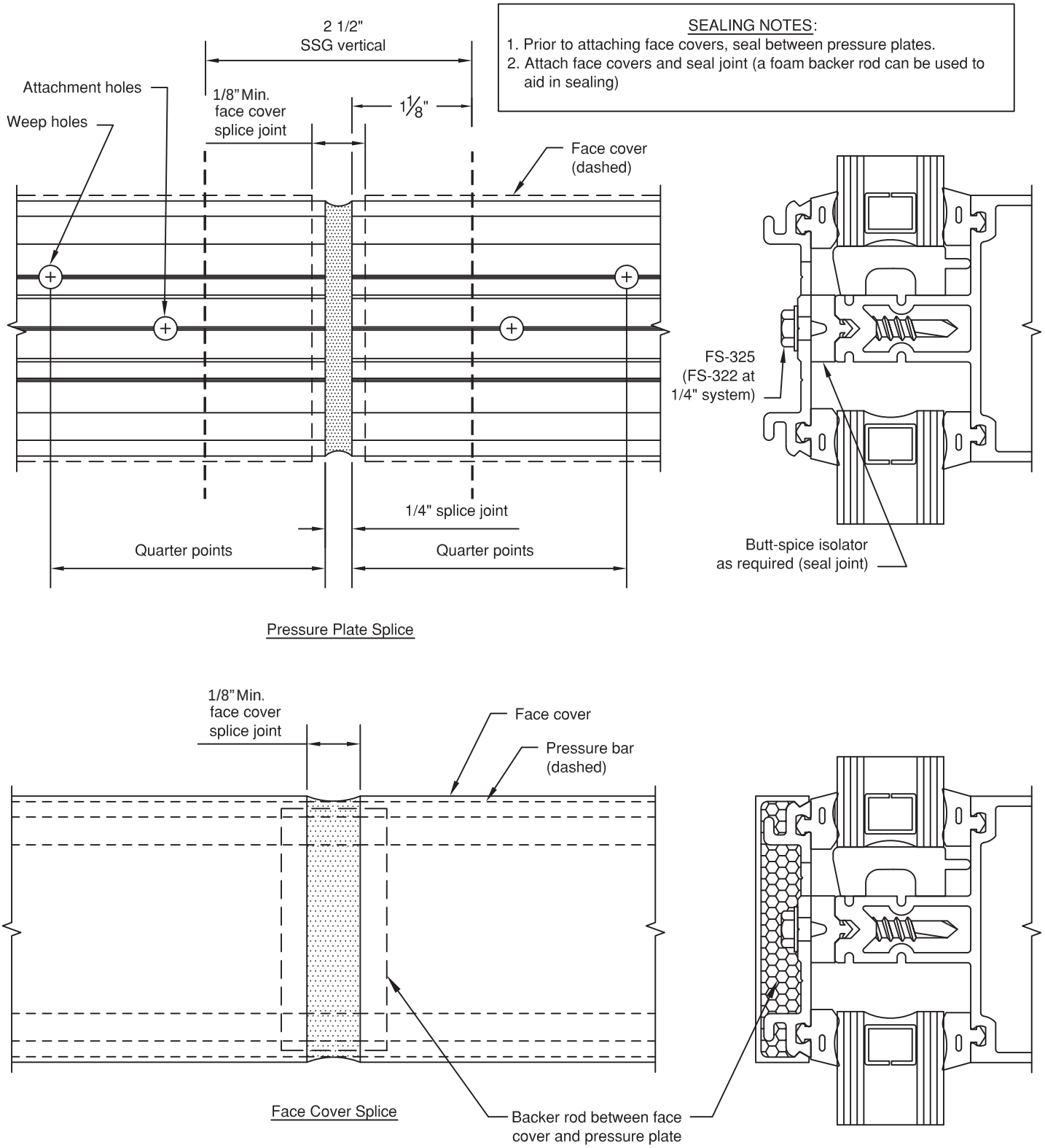


Figure 17
Pressure Plate/Face Cover Splicing & Sealing at SSG Mullions
(Intermediate Horizontal Shown; Head & Sill Similar)

GLAZING

3.12 After all pressure plates are installed on the frame, torque FS-325 (1") or FS-322 (1/4") screws to 90 in-lbs. The use of either a drill motor with a torque limiter or torque wrench can be used. If using a cordless drill, check torque periodically since battery usage will affect the torque setting.

3.13 Install vertical face covers. Using a wood block to protect the cover, apply with dead blow soft face hammer. Pin the vertical face covers once per length as required, concealing pin at a horizontal location.

3.14 Insert backer rod into cavity at the top of each vertical mullion. Seal off end of vertical, sloping sealant back to marry with the perimeter seal. **SEE FIGURE 18**.

3.15 Seal horizontal pressure plates against the vertical face covers. Tool sealant into the joint. **SEE FIGURE 19**.

3.16 Install horizontal face covers, leaving an equal gap at each end. Make sure that the weep hole in the face cover is on the bottom.

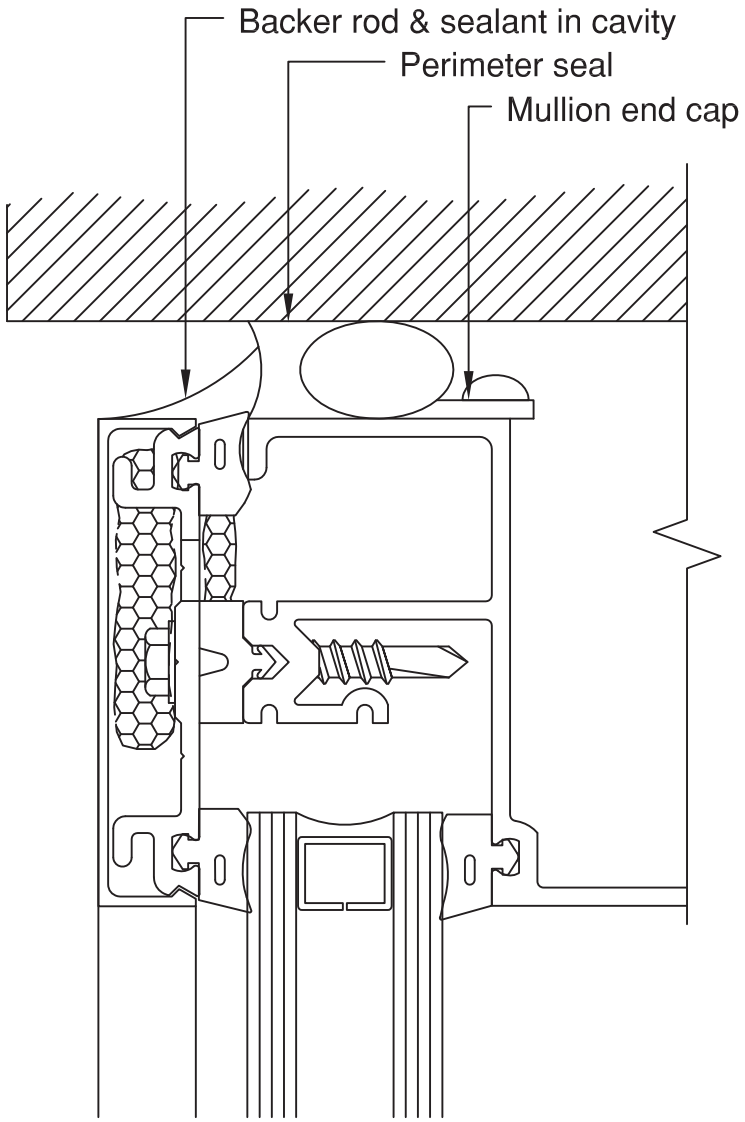
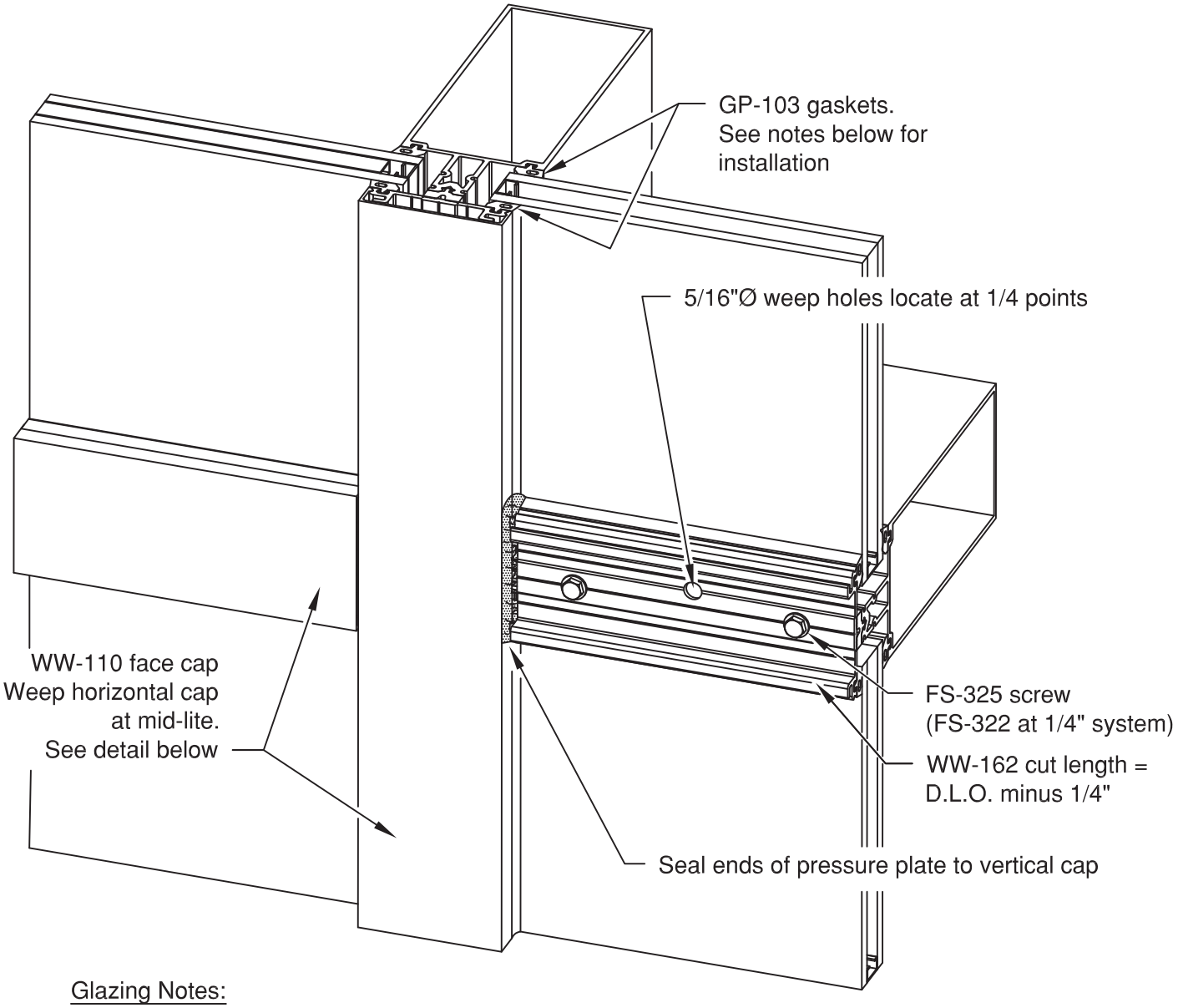


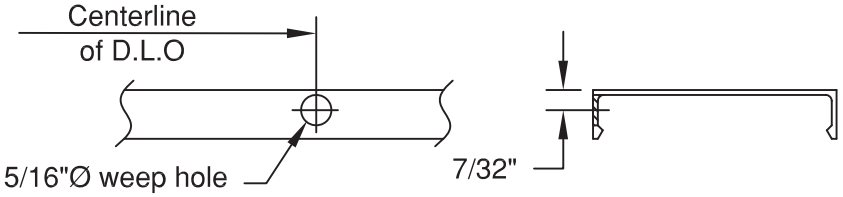
Figure 18
Sealing Top of Captured Verticals

GLAZING



Glazing Notes:

1. GP-103 dense EPDM gasket used on interior and exterior of system.
2. Remove gaskets from reels and allow to relax overnight before installing.
3. Cut gaskets to allow minimum 1/4" per foot for any relaxation of gasket that may occur after installation.
4. To ensure proper pressure on the glazing, 7/32” diameter holes may need to be drilled at the ends of each horizontal pressure plate as required. locate at 1 ½” maximum from the ends.



Horizontal Face Cap Fabrication

Figure 19
Glazing Instructions

TRANSITION GLAZING

A.1 Install vertical adaptors first, leaving an equal overlap into each pocket. For captured verticals and all horizontals, insert the hook side into the glazing reglet, then insert leg into reveal on mullion. **SEE FIGURE 20**. Refer to **VERTICAL SPLICING, page 14&15** if vertical mullion is spliced within a spandrel lite. Transition adaptors must be installed after mullion splice is sealed.

A.2 For SSG mullions, install locator leg into one of the glazing reglets. Secure to mullion with FS-318 #12 x 1 ¾" Phillips Flat Head screw 3" from the ends and 12" O.C. **SEE FIGURE 20**.

A.3 Install horizontal adaptors maintaining an equal gap at each end. N**ote: For horizontal adaptors that are adjacent to SSG mullions, a small notch must be made to the tongue engagement hook in order to clear the SSG mullion bridge. SEE FIGURE 21.** Once all adaptors have been installed in the opening, seal all joints between the vertical and horizontal adaptors. Run a bead of sealant in the groove formed between the adaptor and mullion. This seal must be continuous around opening and must marry with the seal at the horizontal to vertical adaptor joints. **SEE FIGURE 22.**

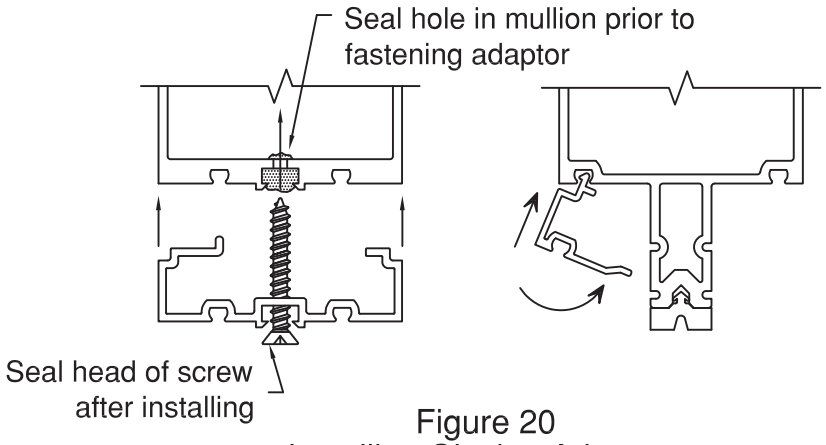


Figure 20
Installing Glazing Adaptors

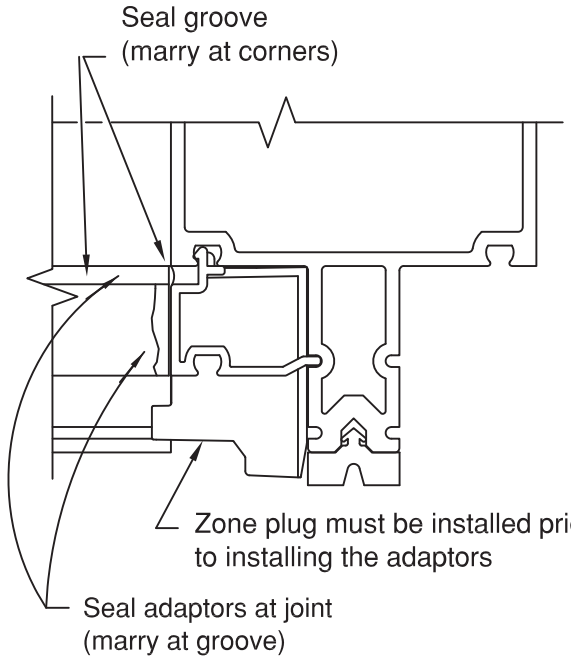


Figure 22
Sealing Glazing Adaptors
(Vertical Shown; Horizontal Similar)

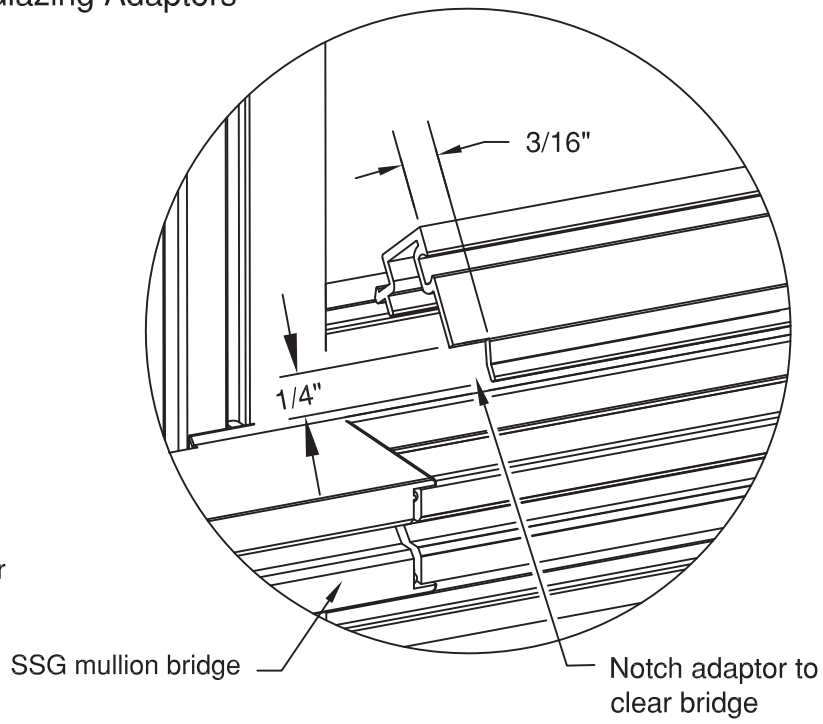


Figure 21
Notching Adaptor for SSG Mullion Bridge

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TRANSITION GLAZING

*** Note : WW-141 (WW-142 for 1/4" system) MUSt be slid in place and fastened to mullion prior to erecting the mullion.**

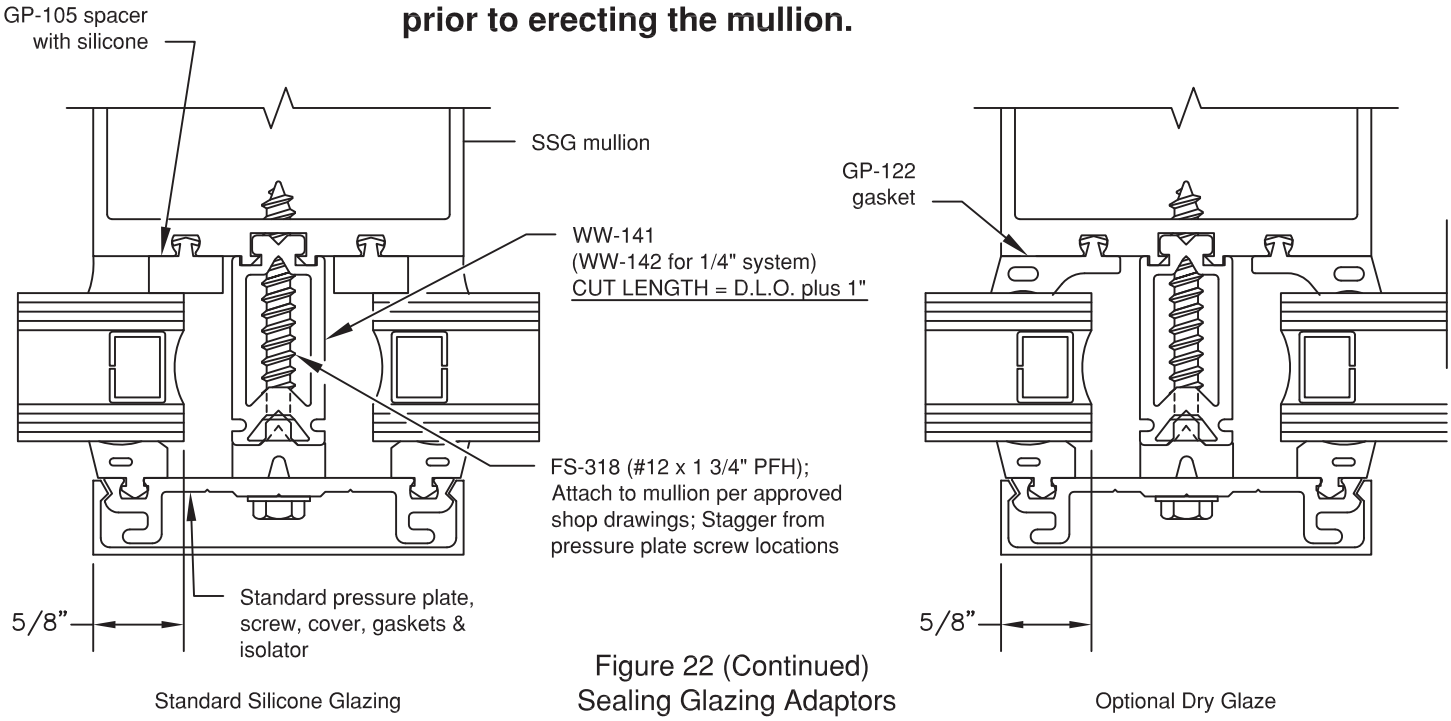


Figure 22 (Continued)
Sealing Glazing Adaptors
(Vertical Shown; Horizontal Similar)

Captured Glazing Adaptor for SSG Mullion

VERTICAL SPLICING

Refer to M**ULTI-SPAN INSTALLATION, page 7** for splice sleeve installation.

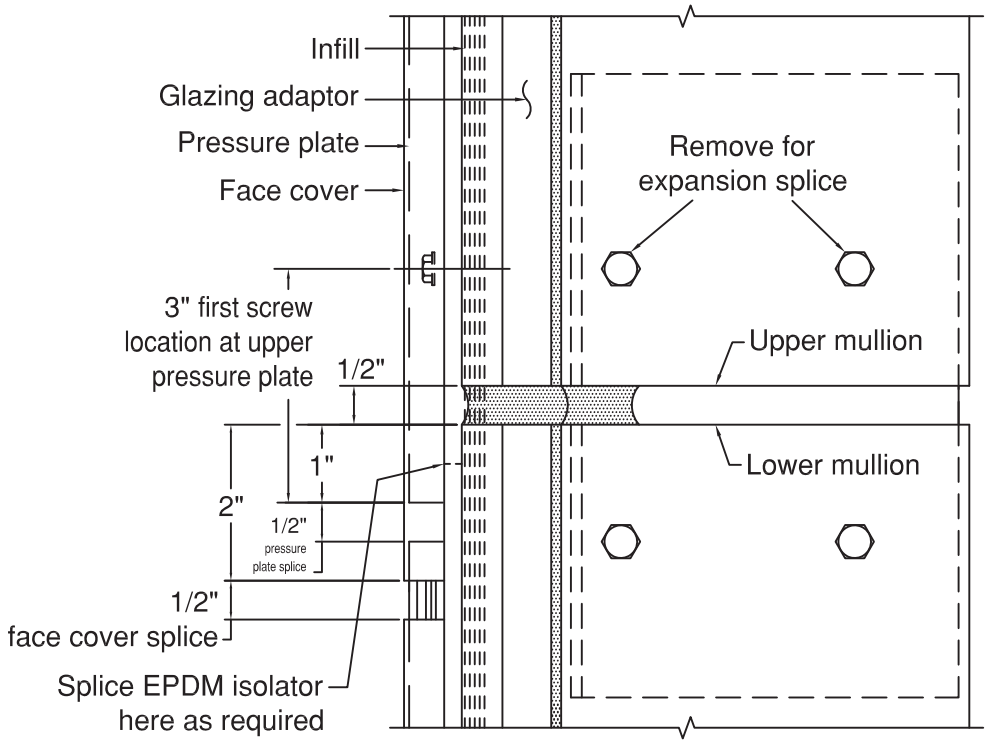
Follow sealant manufacturer's guidelines for proper joint width based on anticipated movement. A minimum ½" joint is recommended. **Note: Standard splice joints are engineered to accommodate thermal expansion only. They do not allow for movement in floor levels.** Refer to approved shop drawings for special circumstances, or contact your nearest Vistawall facility.

B.1 Apply bond breaker tape to the face of splice sleeves, returning back on the sides 1" minimum. Insert backer rod into the hollow of the vertical mullion, top and bottom. Seal between top and bottom mullion from the front of the tongue to 1" behind glass pocket. Follow the contour of the glazing reglets with the sealant to insure a good seal when gaskets are installed. **SEE FIGURE 7.**

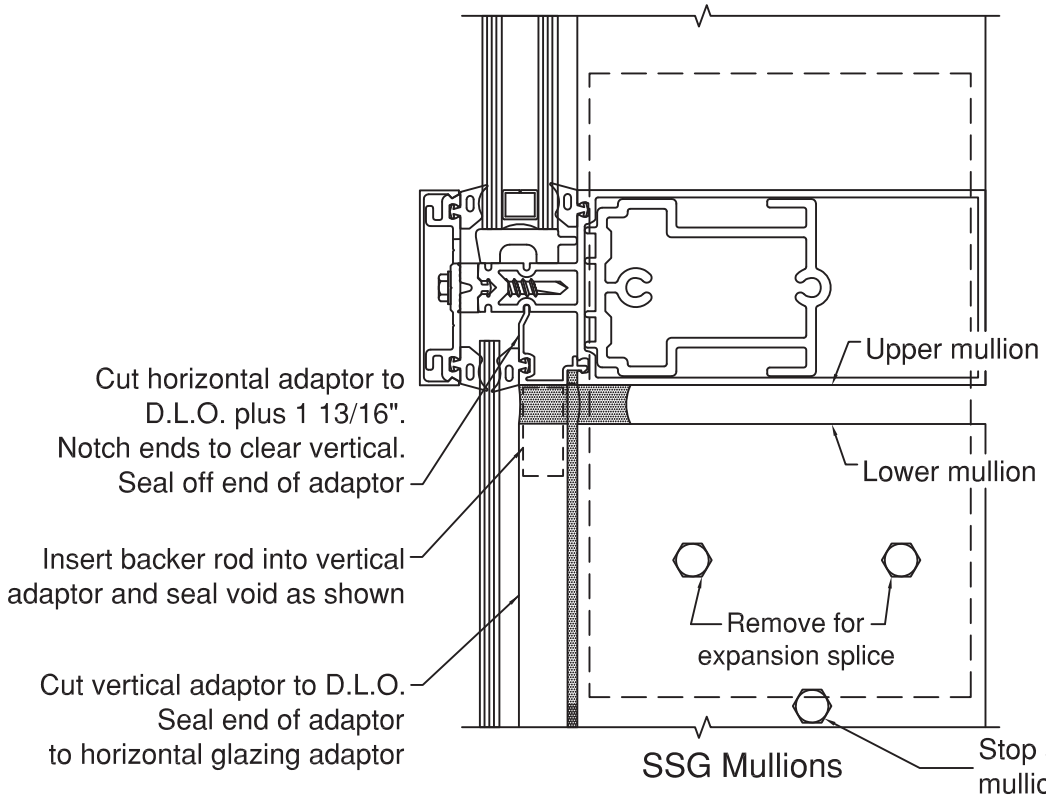
B.2 Discontinue glazing adaptors at splice joints. Install backer rod into cavity and seal between adaptors. Marry adaptor seal with main mullion seal. Refer to step B.1 above for sealing notes at glazing reglets.

B.3 Offset pressure plates and face covers per **FIGURE 23**, sealing pressure plate and face cover joints as shown in **FIGURE 24.**

VERTICAL SPLICING



Captured Mullions



SSG Mullions

Figure 23

Vertical Mullion Splice

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VERTICAL SPLICING

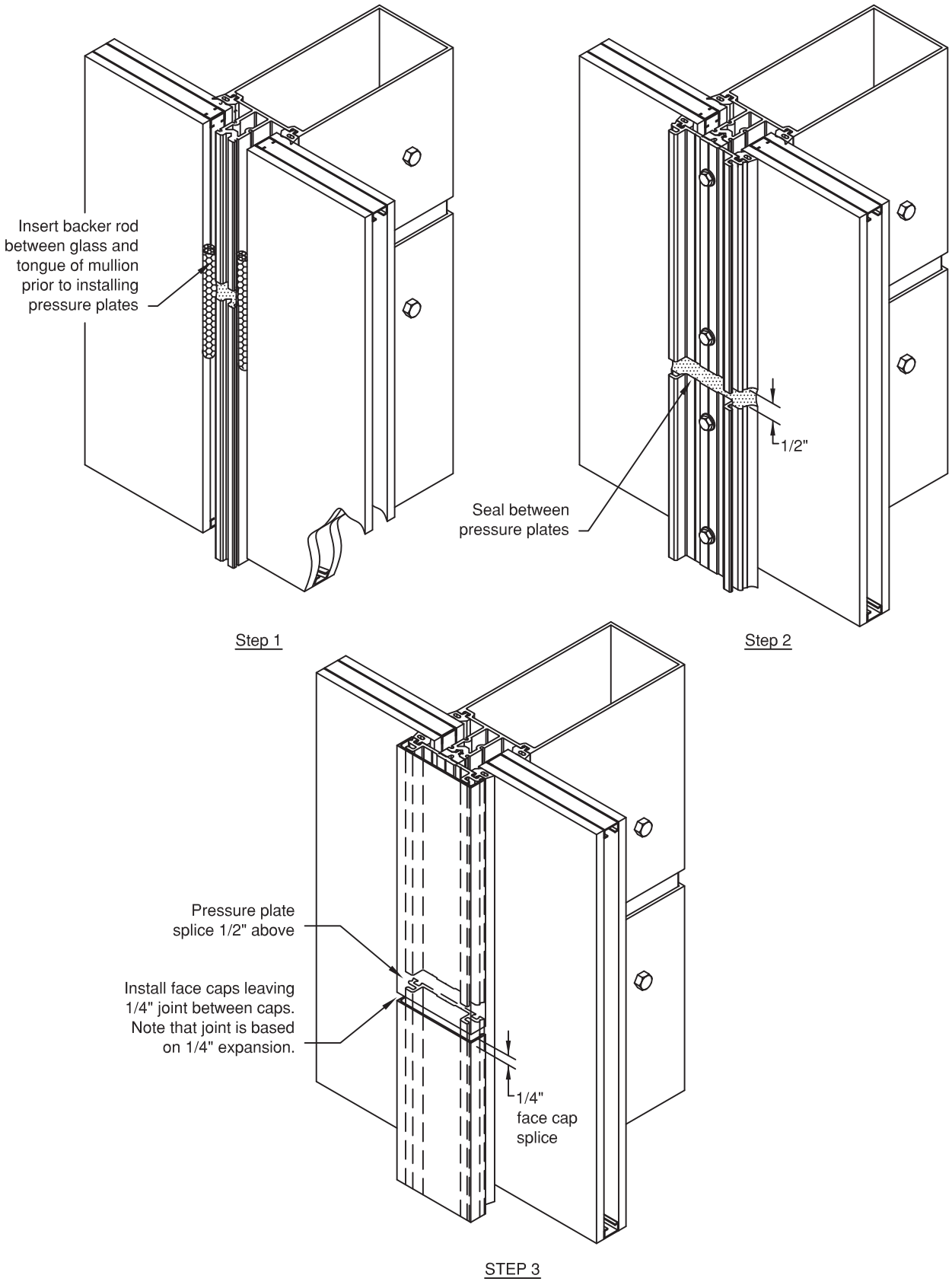

Figure 24
Splice Joint Sealing Instructions

ENTRANCE FRAMING

All door framing components are shipped fabricated from the factory. The main curtain wall framing can be erected prior to installing the doors. Lites adjacent to doors must be temporarily secured in place until after door framing is installed. Refer to FIGURE 29 for door header fabrication and installation instructions.

C.1 Curtain wall verticals and door subframes run through to finished floor. Bed adjacent curtain wall verticals in sealant and anchor to floor per approved shop drawings. **SEE FIGURE 32A, page 17** for suggestions on anchoring door jamb mullion.

C.2 SUBFRAME INSTALLATION:

C.2.1 Attach TH-44 threshold clip to bottom of each jamb subframe with two (2) FS-256 #8 x 1 1/2" Phillips Round Head screws.

C.2.2 Install thermal spacer into curtain wall vertical glazing reglet. Hold in place with silicone if necessary. **SEE FIGURE 25.**

C.2.3 Bed subframes in sealant. Anchor to curtain wall framing members with FS-322 #12 x 1" HH STS at 18" O.C. Cap seal all fasteners and seal joint between jamb and header subframes. Seal tops of the jamb subframes. **SEE FIGURE 26.**

C.2.4 Bed threshold in sealant, attaching to TH-44 clips with FS-42 #12 x 1/2" Phillips Flat Head screws. Marry threshold seal with subframe and main system seal. **SEE FIGURE 26.**

C.2.5 Install door stops in subframe. The vertical stops run through.

C.2.6 Install pressure plates and face covers per standard installation instructions.

C.2.7 Install door per DOOR & FRAME INSTALLATION & GLAZING MANUAL.

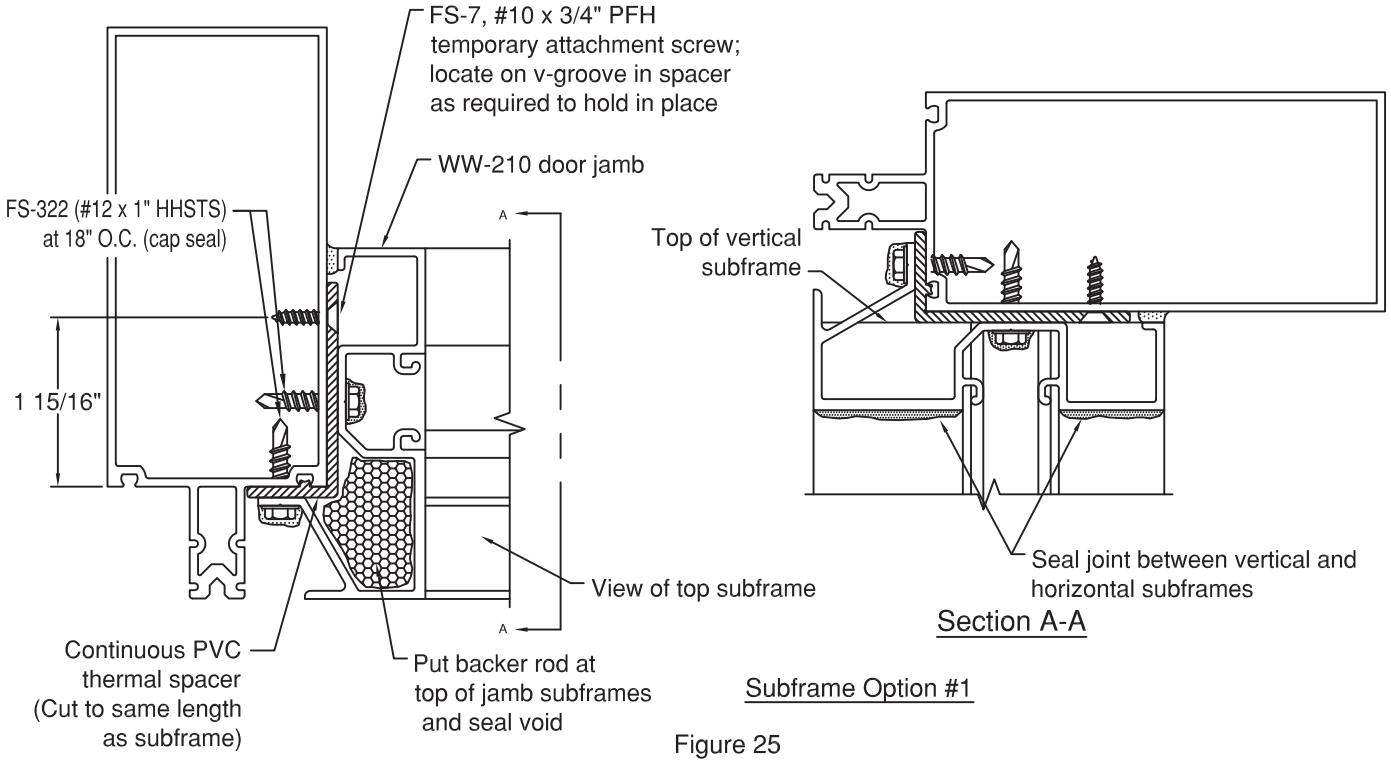

Figure 25
Attaching Subframes

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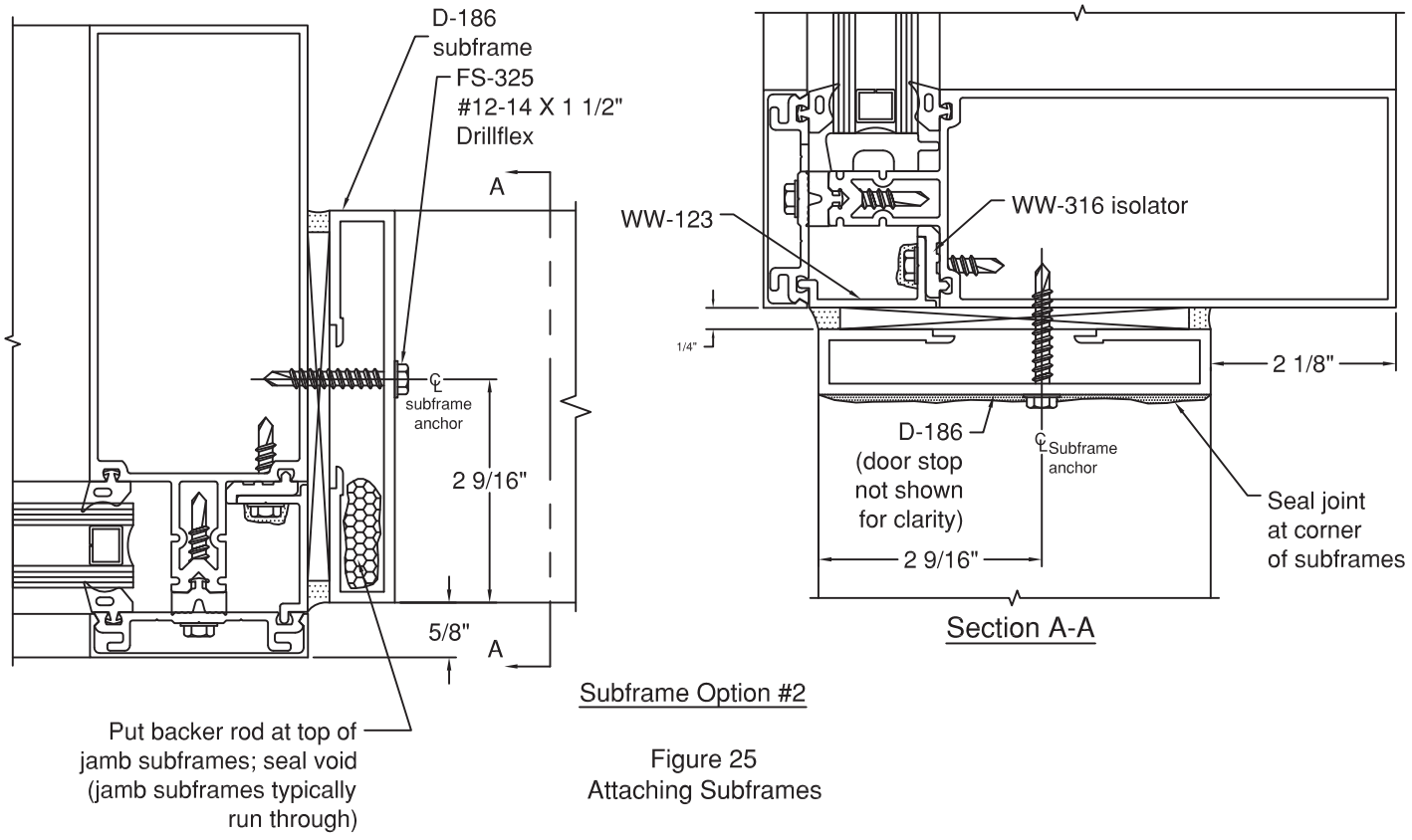
ENTRANCE FRAMING



Subframe Option #2

Figure 25
Attaching Subframes

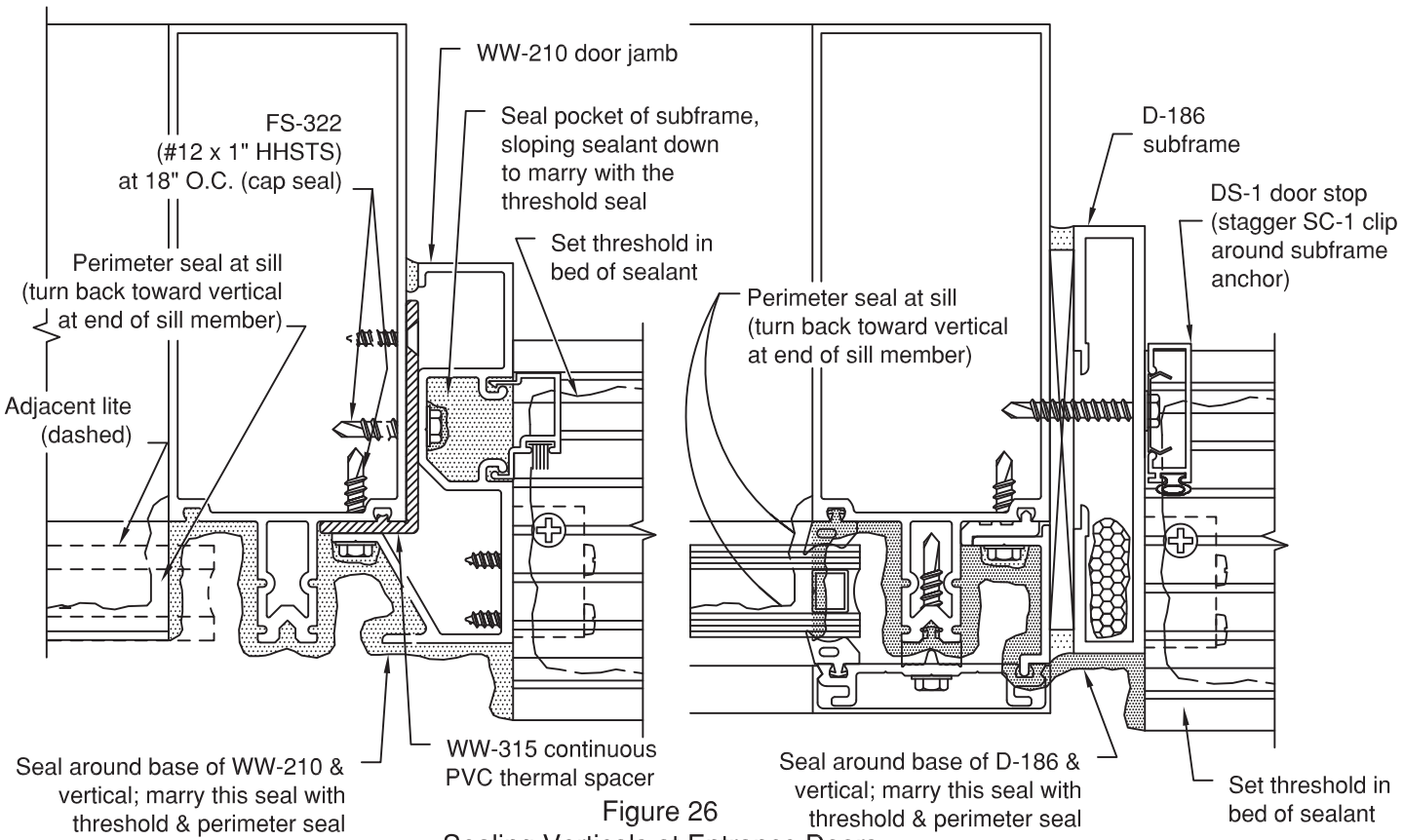


Figure 26
Sealing Verticals at Entrance Doors
(Temporary Glazing Retainer Not Shown for Clarity)

C.3 FLUSH DOOR INSTALLATION:

C.3.1 Drill 1/2" diameter access holes in flush door pressure plates 1 ½" from ends and 12" O.C. **SEE FIGURE 27**.

C.3.2 Attach TH-44 threshold clip to bottom of each vertical pressure plate with two (2) FS-256 #8 x 1 1/2" Phillips Round Head screws.

C.3.3 Complete the glazing adjacent to the door frame, installing the flush door pressure plates per standard procedures previously outlined. Bed vertical pressure plates in sealant at sill and attach through access holes to mullion with FS-43 #12 x 3/4" Phillips Pan Head screw 1 1/2" from each end and 12" O.C. **SEE FIGURE 28 and FIGURE 30**.

C.3.4 Apply continuous seal to horizontal tongue before installing horizontal pressure plate. Seal ends of horizontal pressure plate to vertical pressure plates. **SEE FIGURE 29**.

C.3.5 Bed threshold in sealant, attaching to TH-44 clips with FS-42 #12 x 1/2" Phillips Flat Head screws. Marry threshold seal with subframe and main system seal. **SEE FIGURE 30**.

C.3.6 Drill #11, .191 diameter holes in curtain wall mullions for FS-15 rivets. Install door stops onto mullion with SC-1 clips at 18" O.C. **SEE FIGURE 31**. Vertical stops run through.

C.3.7 Install face covers onto pressure plates. **SEE FIGURE 32**.

C.3.8 Install door per DOOR & FRAME INSTALLATION & GLAZING MANUAL.

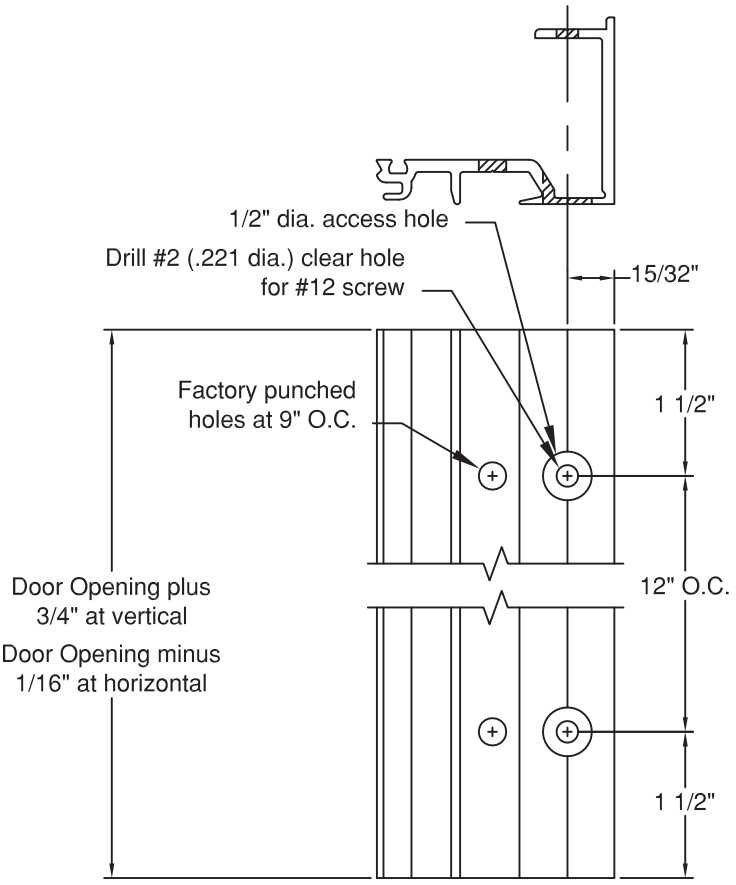


Figure 27
Flush Door Pressure Plate Fab

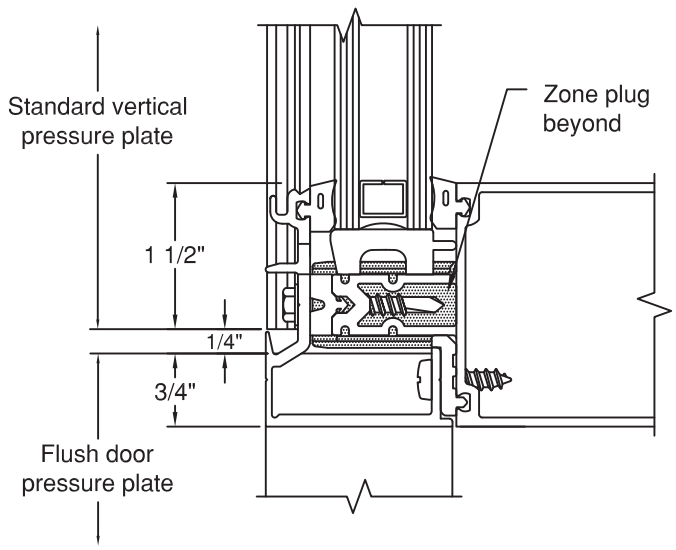


Figure 28
Horizontal Pressure Plate Layout at Flush Door

ENTRANCE FRAMING

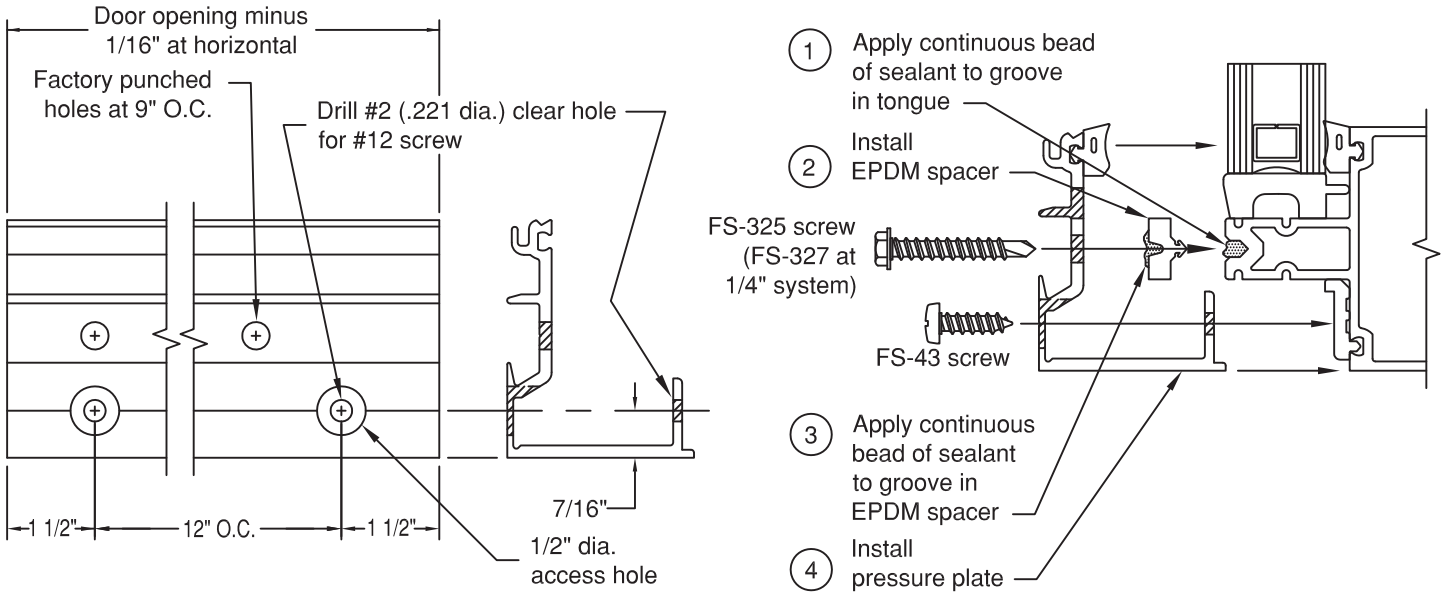


Figure 29

Door Header Pressure Plate Fabrication (detail above)
Flush Door Pressure Plate Seal (right detail)

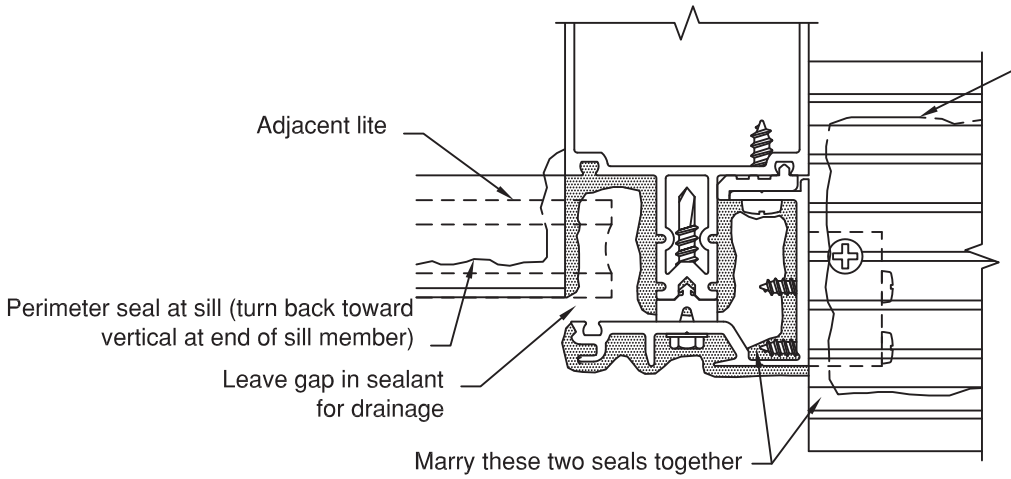


Figure 30
Flush Door Sealing

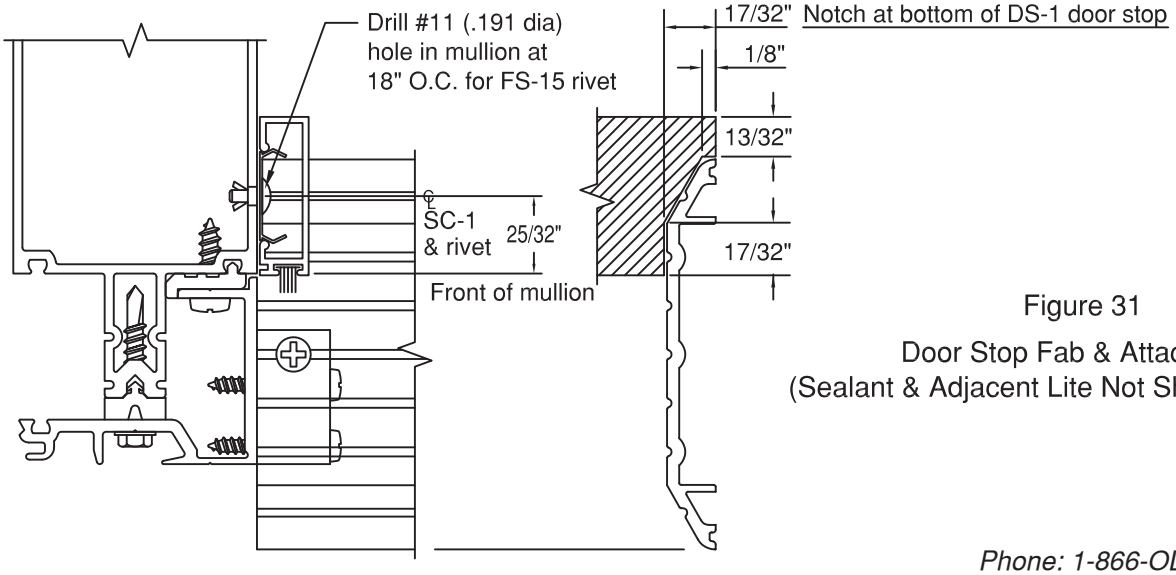


Figure 31

Door Stop Fab & Attachment
(Sealant & Adjacent Lite Not Shown for Clarity)

ENTRANCE FRAMING

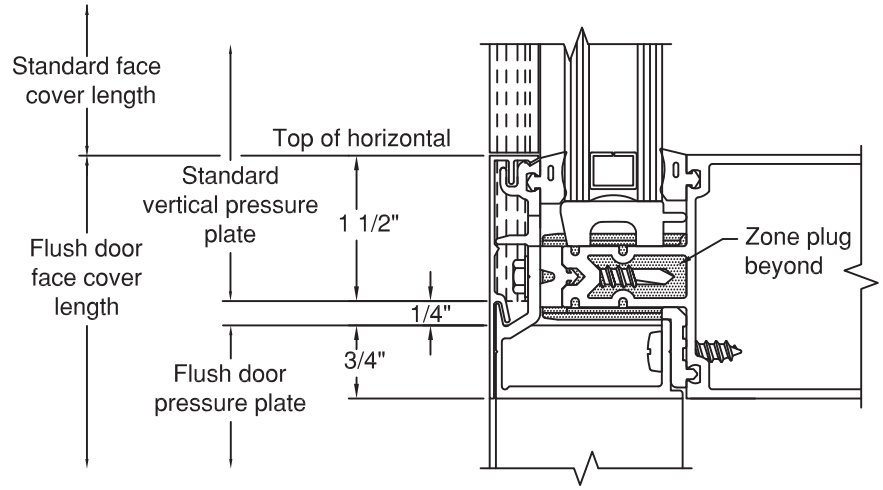


Figure 32
Vertical Face Cover Location at Door Header

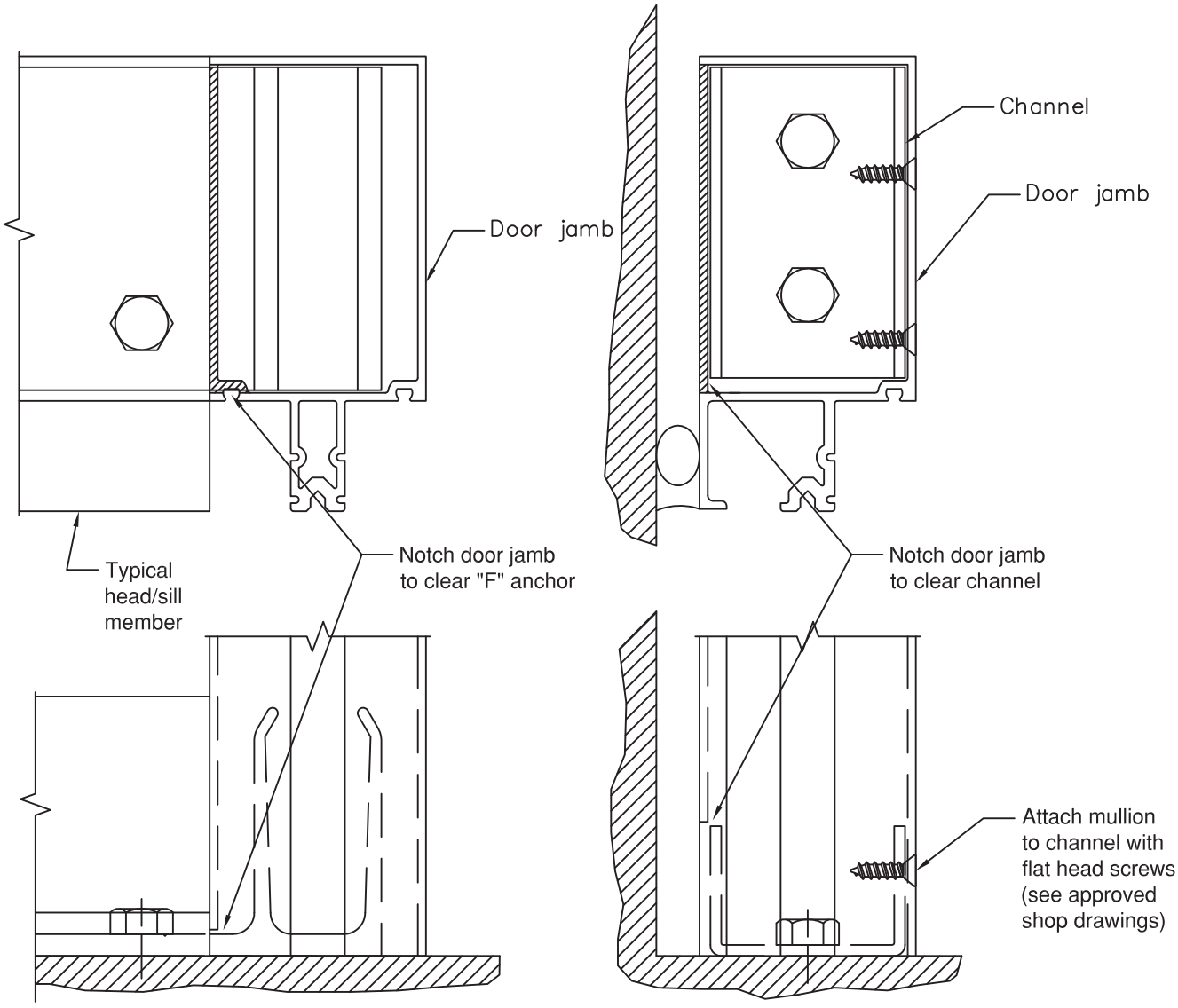


Figure 32A
Anchoring Door Jamb Mullions

INCIDENTAL WATER MANAGEMENT

The head member for incidental water management was designed to be run continuously across the width of the elevation. For situations where the FRAME WIDTH exceeds the extrusion length, consult the nearest Vistawall facility for splicing instructions.

D.1 Drill head member for vertical mullions using holes marked “A” and “B” on DJ-100 drill jig. **SEE FIGURE 33.**

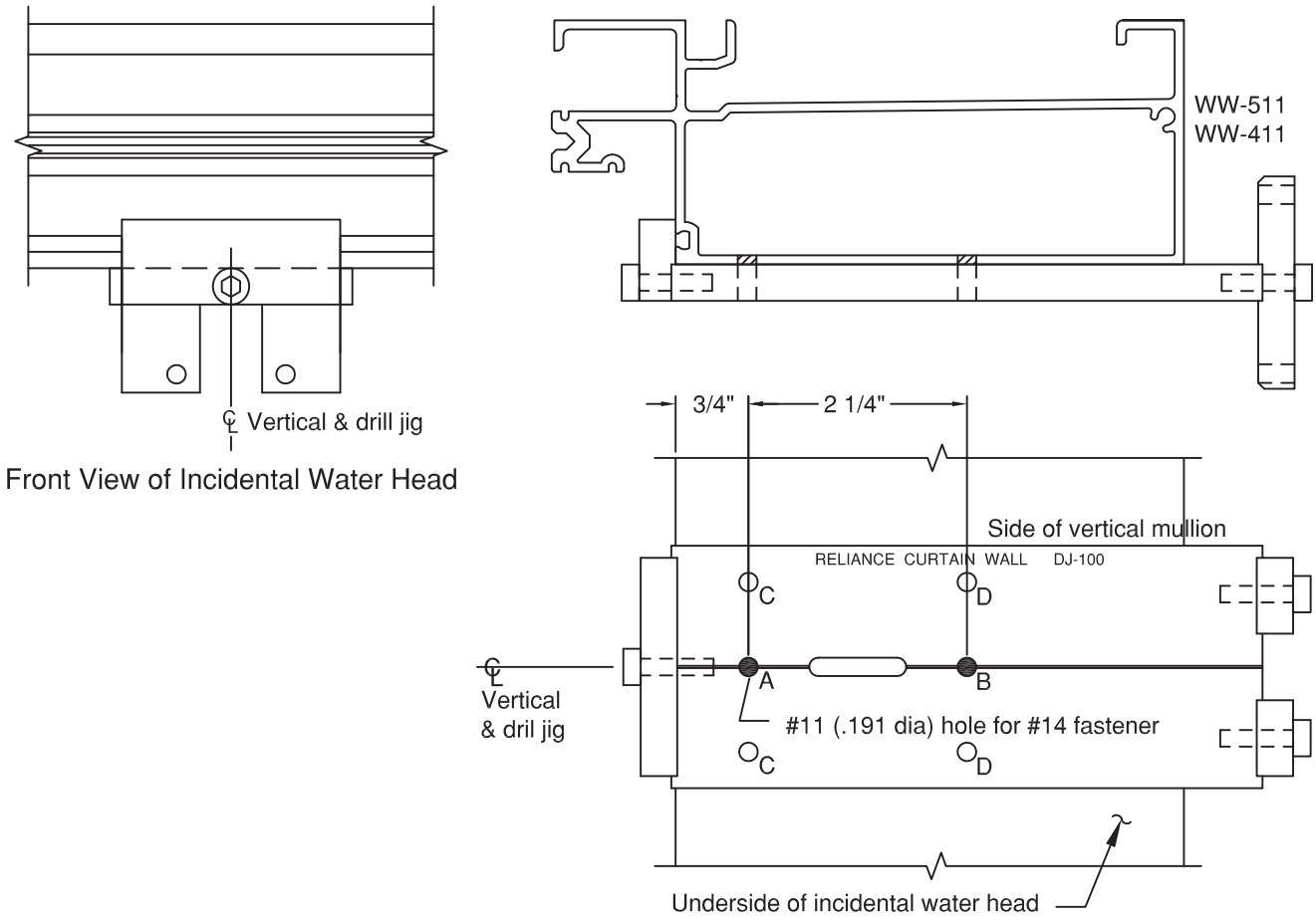


Figure 33
Hole Fab at Incidental Water Head

D.2 Drill 5/16” diameter weep holes in head member. Consult approved shop drawings for location. **SEE FIGURE 34.**

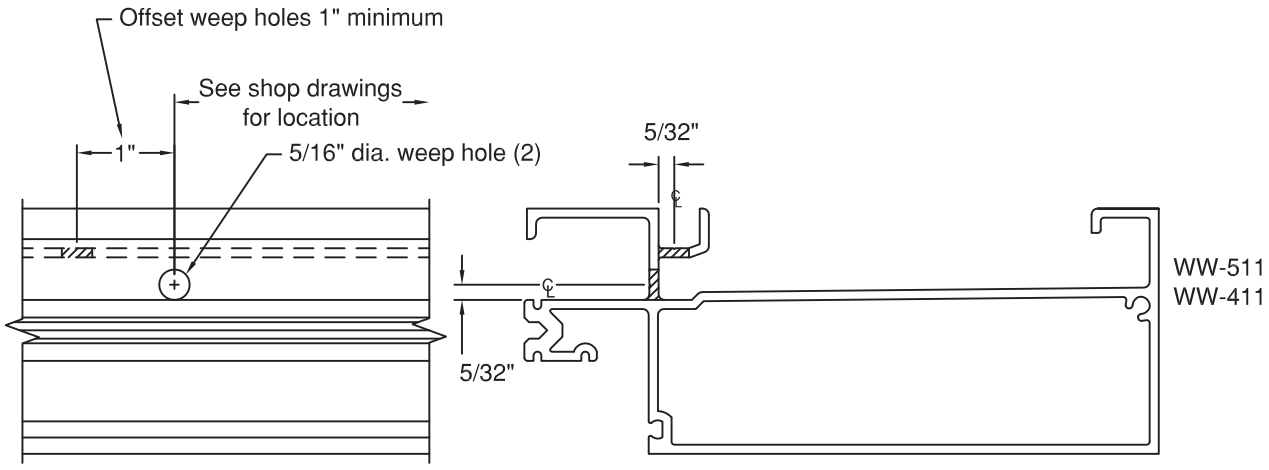


Figure 34
Weep Hole Fab at Incidental Water Head

D.3 Attach mullion shear blocks to the underside of the head member. **SEE FIGURE 35.**

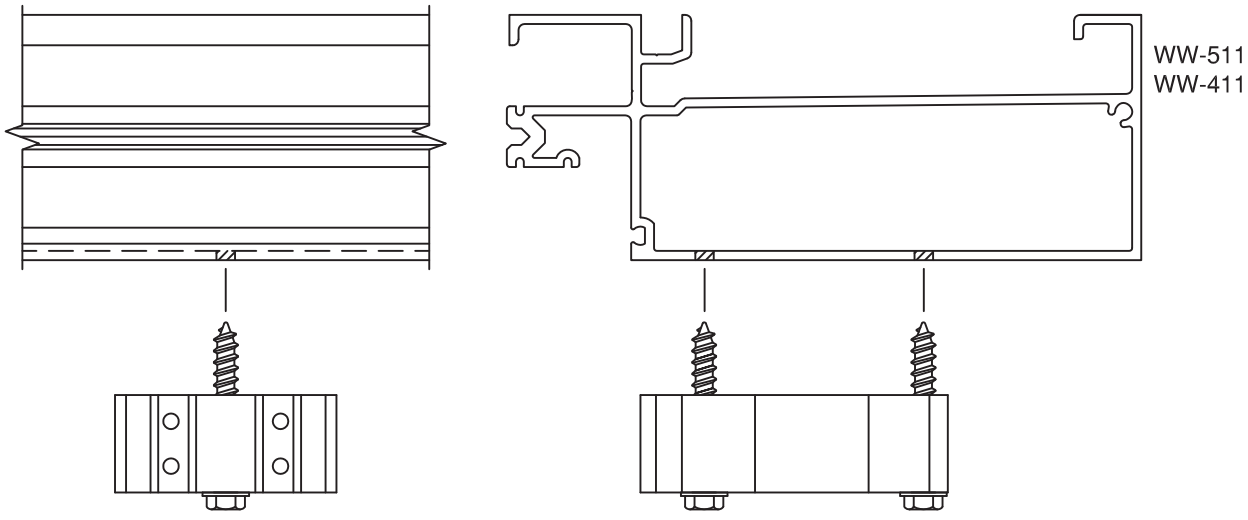


Figure 35
Attaching Shear Blocks at Incidental Water Head

D.4 Insert head anchors into gutter. See approved shop drawings for the number required.

D.5 Install air baffle at weep hole locations. **SEE FIGURE 36.**

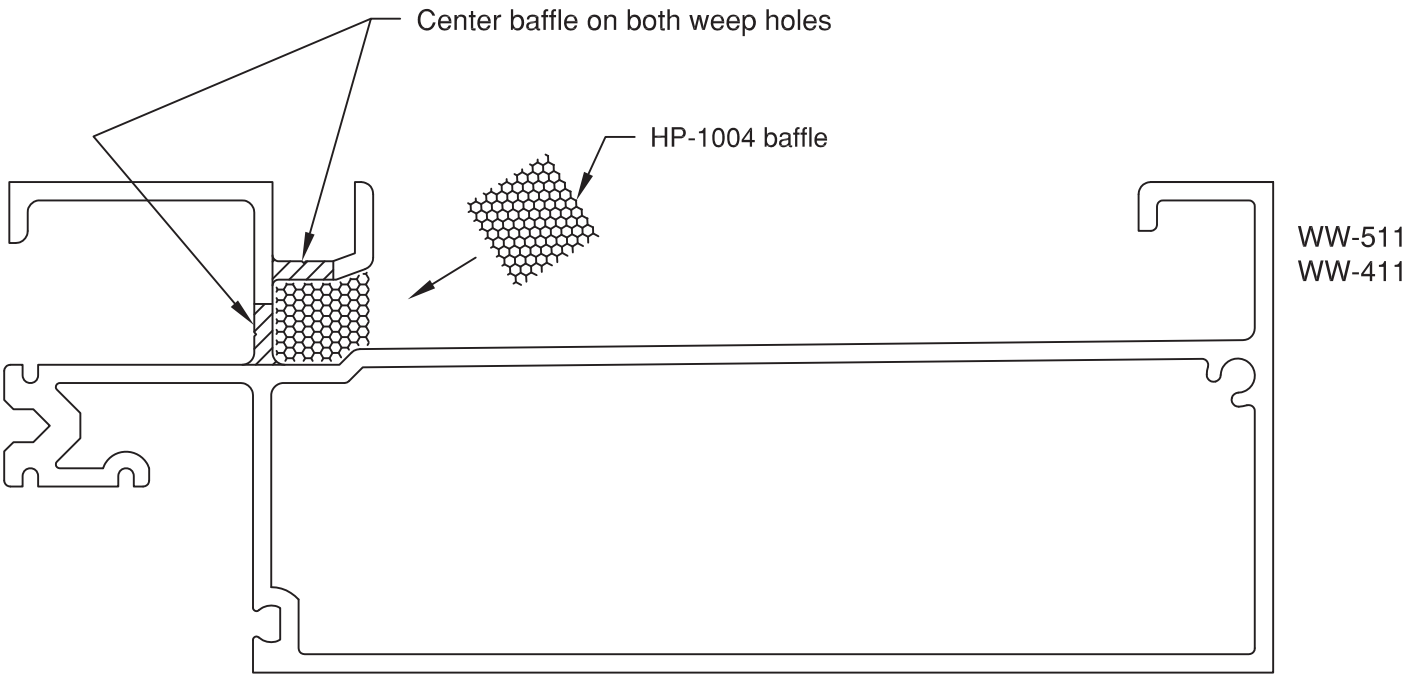


Figure 36
Installing air baffle at Incidental Water Head

D.6 Attach end caps to ends of the head member, sealing as shown on **FIGURE 37**.

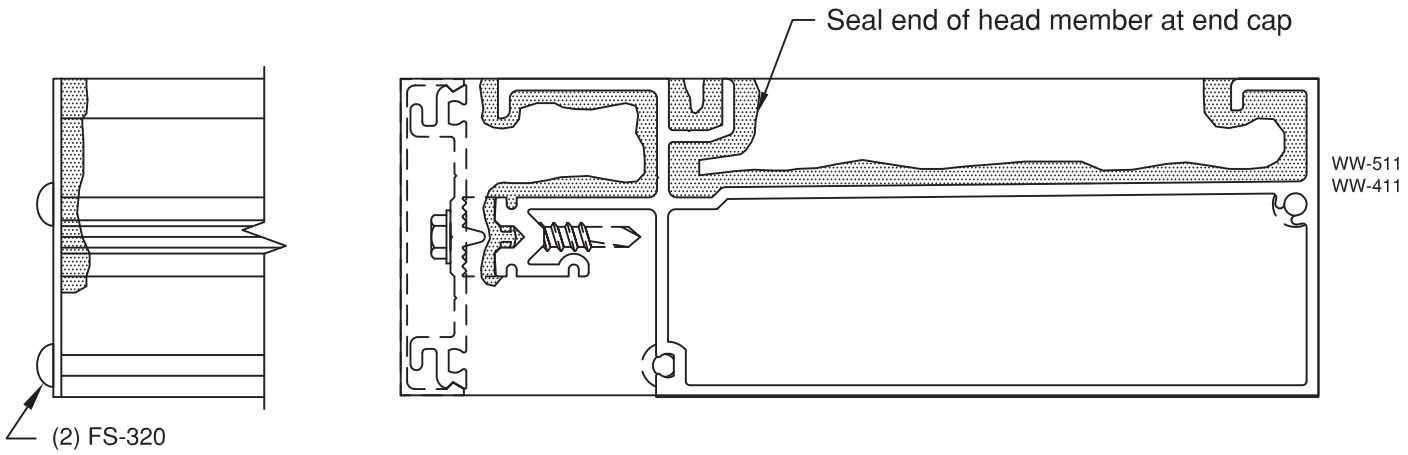


Figure 37
End Cap Installation at Incidental Water Head

D.7 Assemble verticals, sills and head member together on the ground. seal the verticals to the head member per FIGURE 38. Lift into the opening and anchor to structure. When frame is in place, install horizontals as required. Note: If tubular intermediate horizontals are used, they must be installed with the rest of the frame before it is lifted into the opening.

D.8 Seal and glaze the frame per standard installation instructions.

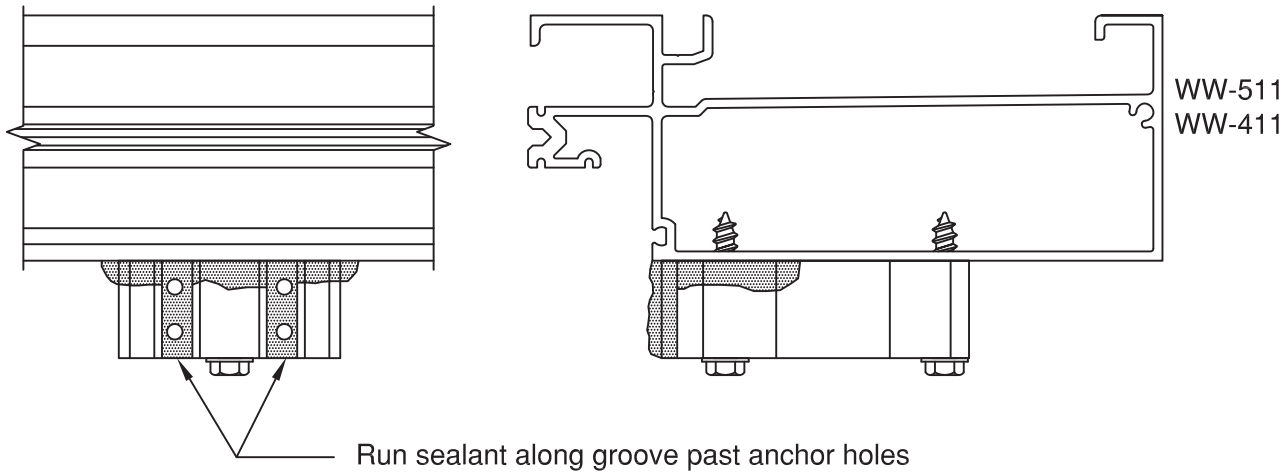


Figure 38
Shear Block Sealing at Incidental Water Head

REGLAZING PROCEDURES

E.1 Reglazing must be done from the exterior. carefully remove face covers surrounding the lite of glass to be deglazed. **SEE FIGURE 39.**

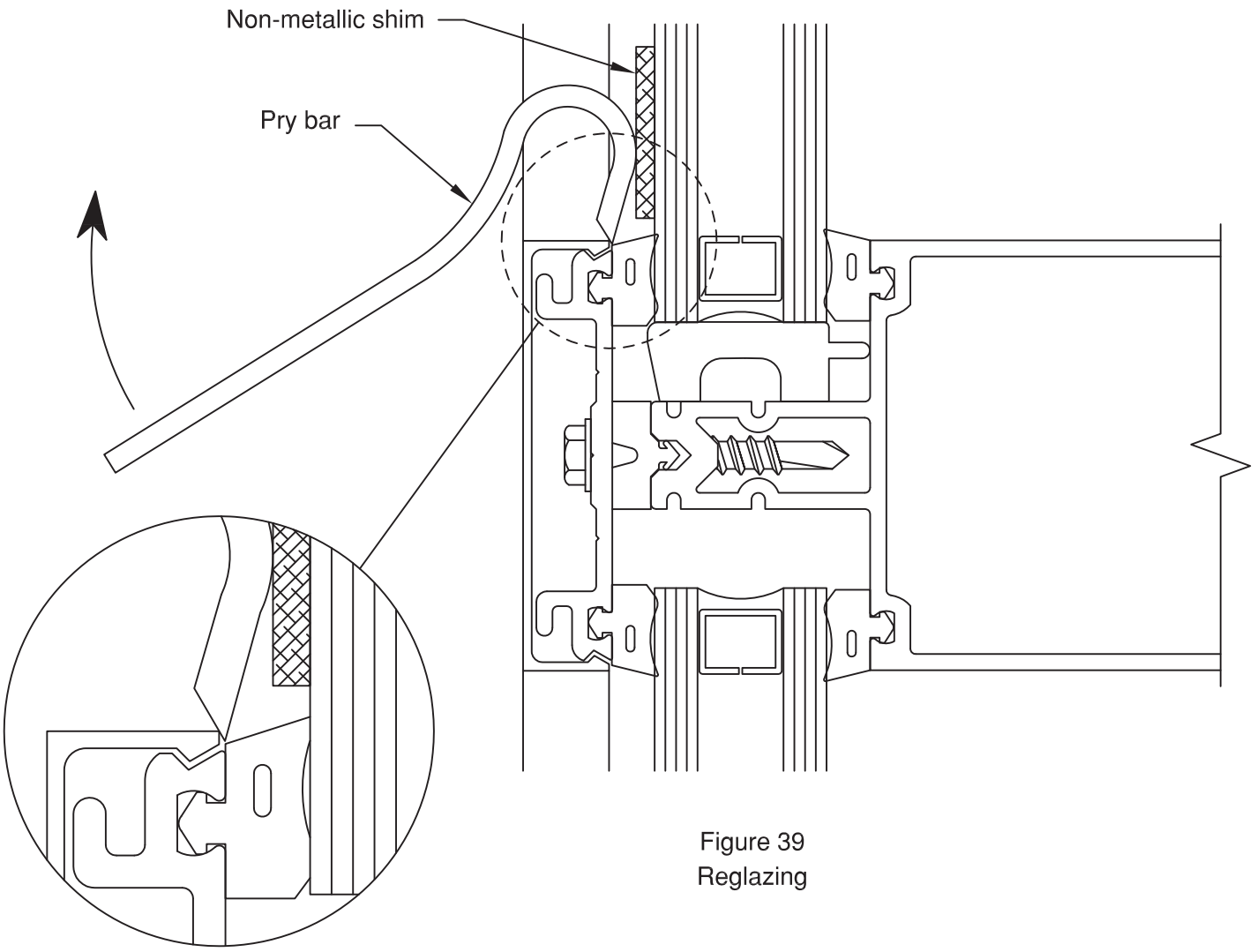


Figure 39
Reglazing

E.2 Remove vertical and horizontal pressure plates adjacent to lite that must be replaced. Temp surrounding glass in place with WW-333 temporary glazing retainers. torque to 60 IN-LBS. refer to step 3.6, page 11 for instructions on locating retainers.

E.3 Remove lite of glass and existing gaskets from opening. clean debris and sealant from aluminum framing members and pressure plates.

E.4 Install new gaskets into framing and install new lite of glass. see glazing section of this manual for proper procedure.

E.5 Reinstall pressure plates and seals per glazing section of this manual.

MULLION REINFORCING

FIGURE 40 Shows the typical attachment method for reinforcing in the vertical mullion. refer to approved shop drawings for placement, size and quantity of reinforcing required.

Refer to wind load charts in the detail catalog for single span and equal twin span conditions (unbraced lengths less than 8.11 feet). for all other conditions such as unequal twin spans, knee brace and multi-span conditions, contact your local vistawall facility for mullion reinforcing requirements.

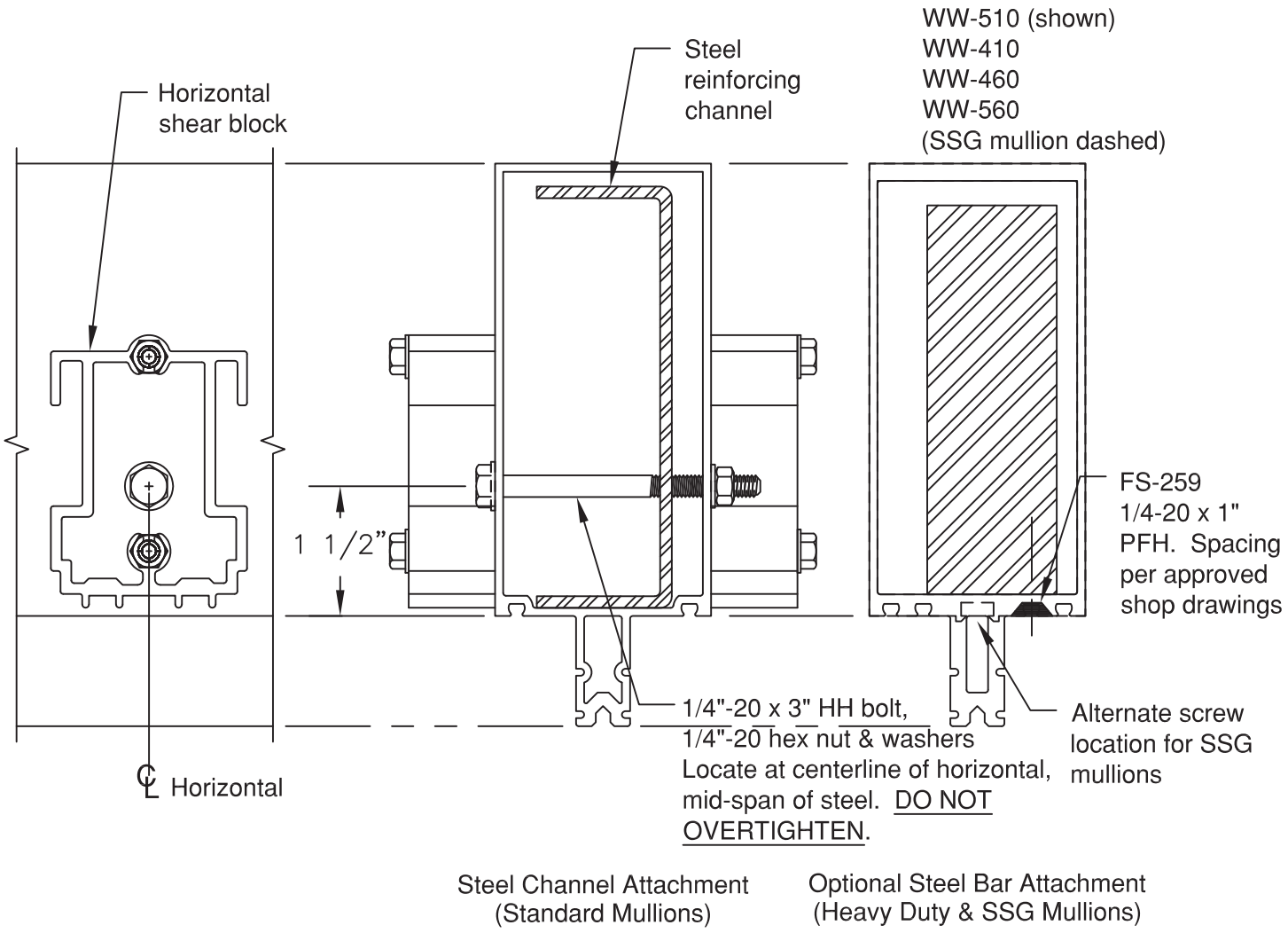


Figure 40
Typical Steel Reinforcing Attachment
(SSG Mullion Similar)

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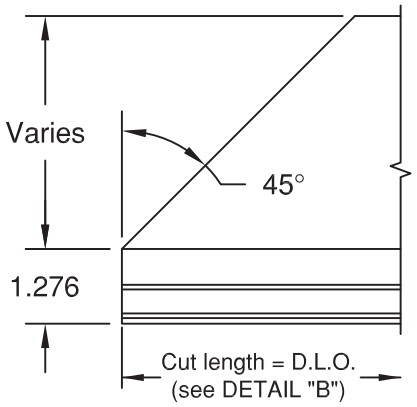
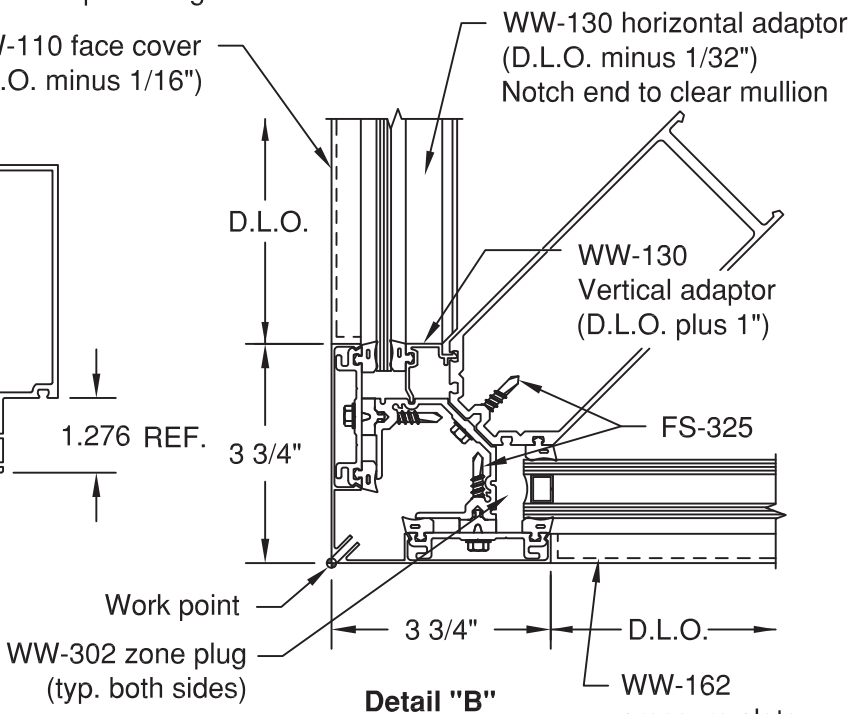
CORNER MULLIONS

FIGURE 41 through FIGURE 47 shows the basic layout of the standard one-piece corner mullion assemblies. 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.



Detail "A"
Miter Cut at 1" Horizontal



Detail "B"
Captured OS 90 Corner
Assembly Guide

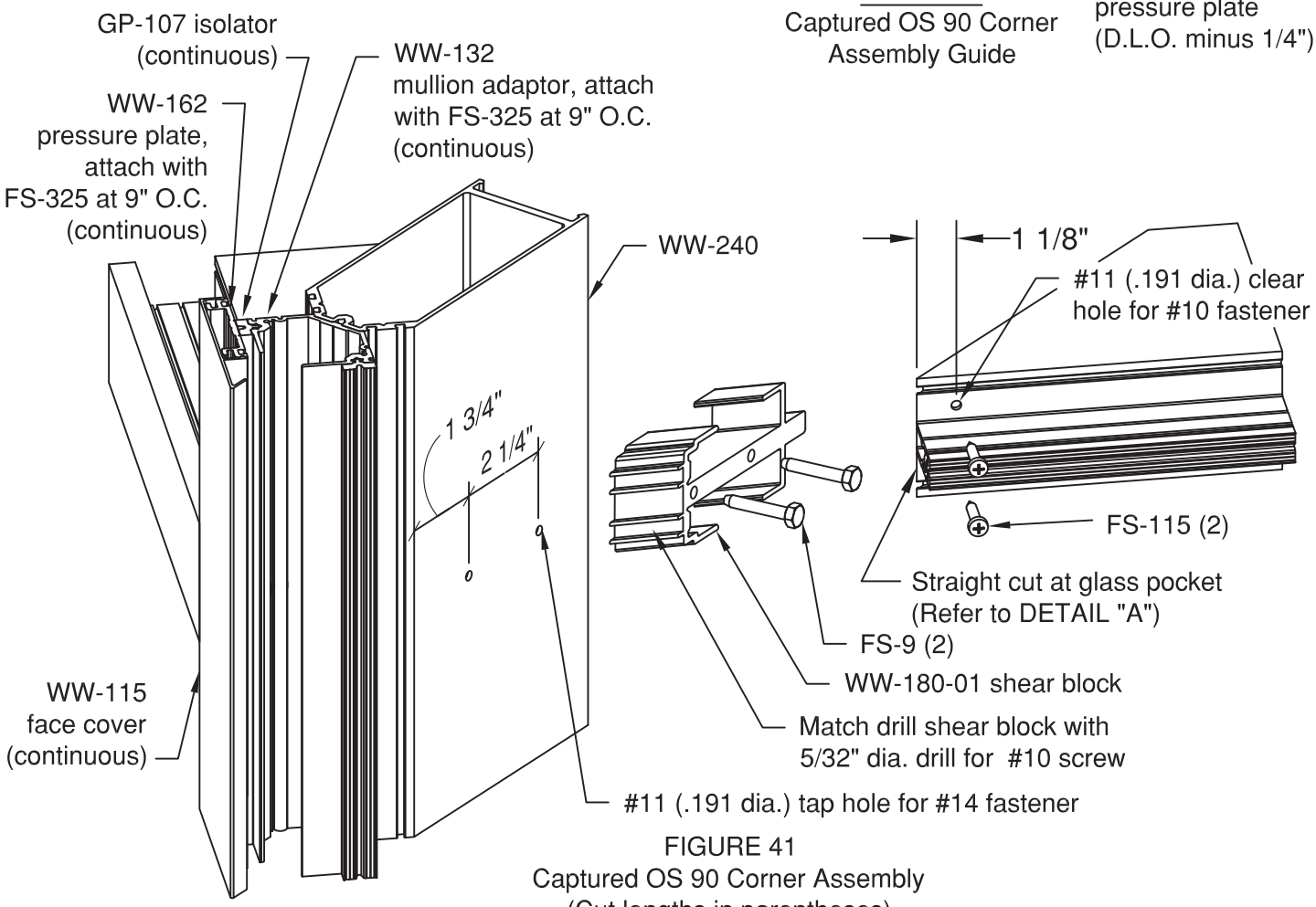


FIGURE 41
Captured OS 90 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS

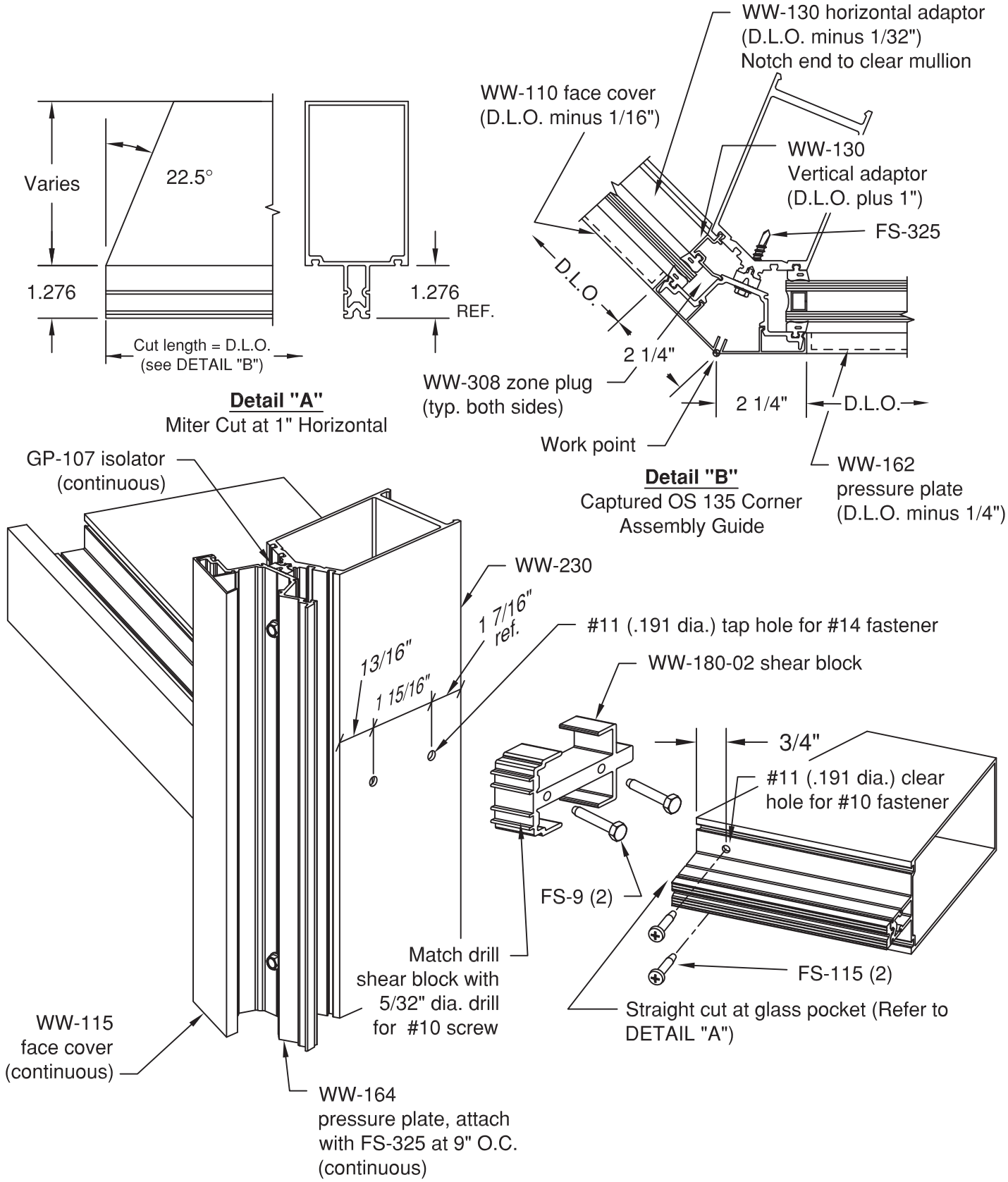


Figure 42
Captured OS 135 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS

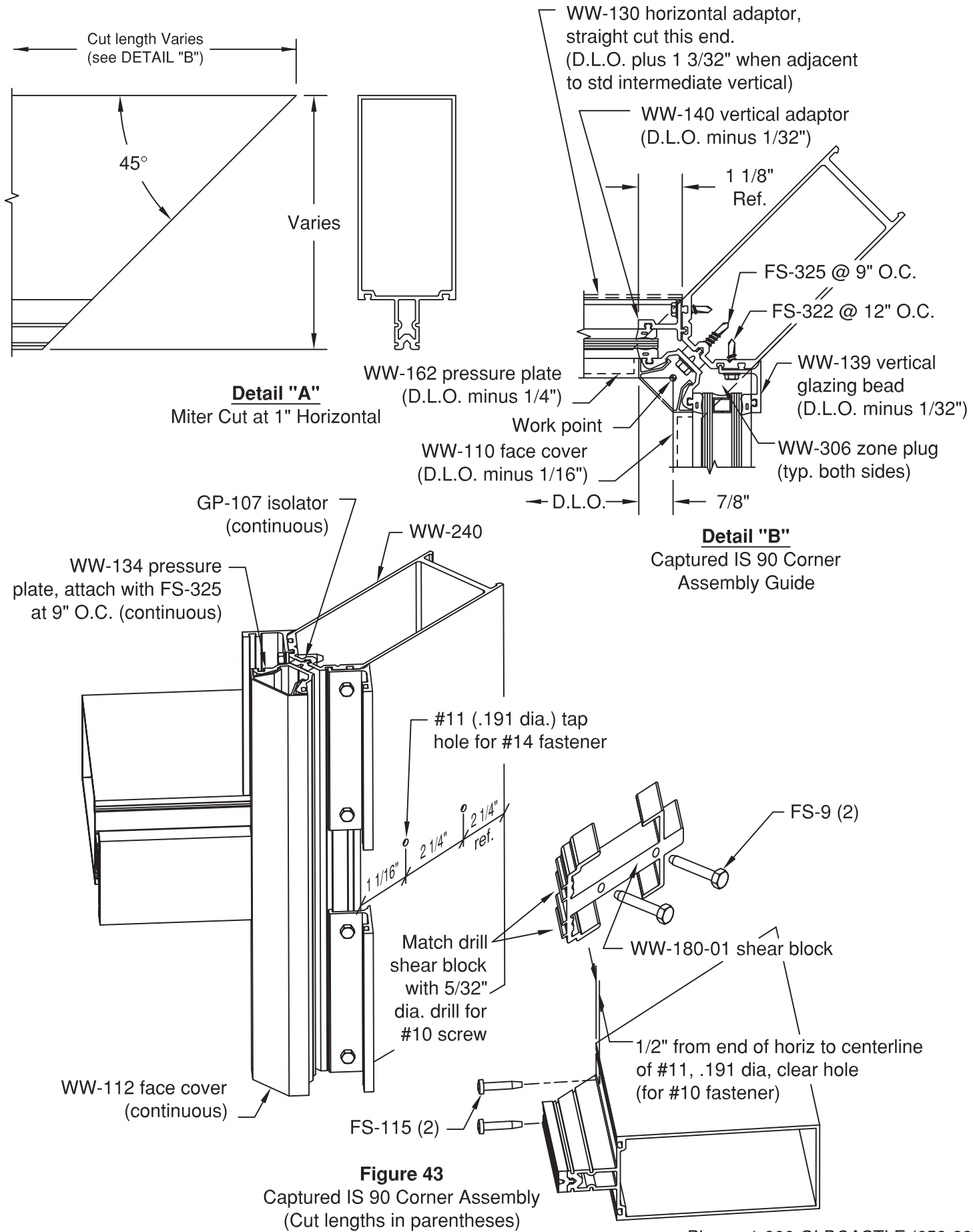


Figure 43
Captured IS 90 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS

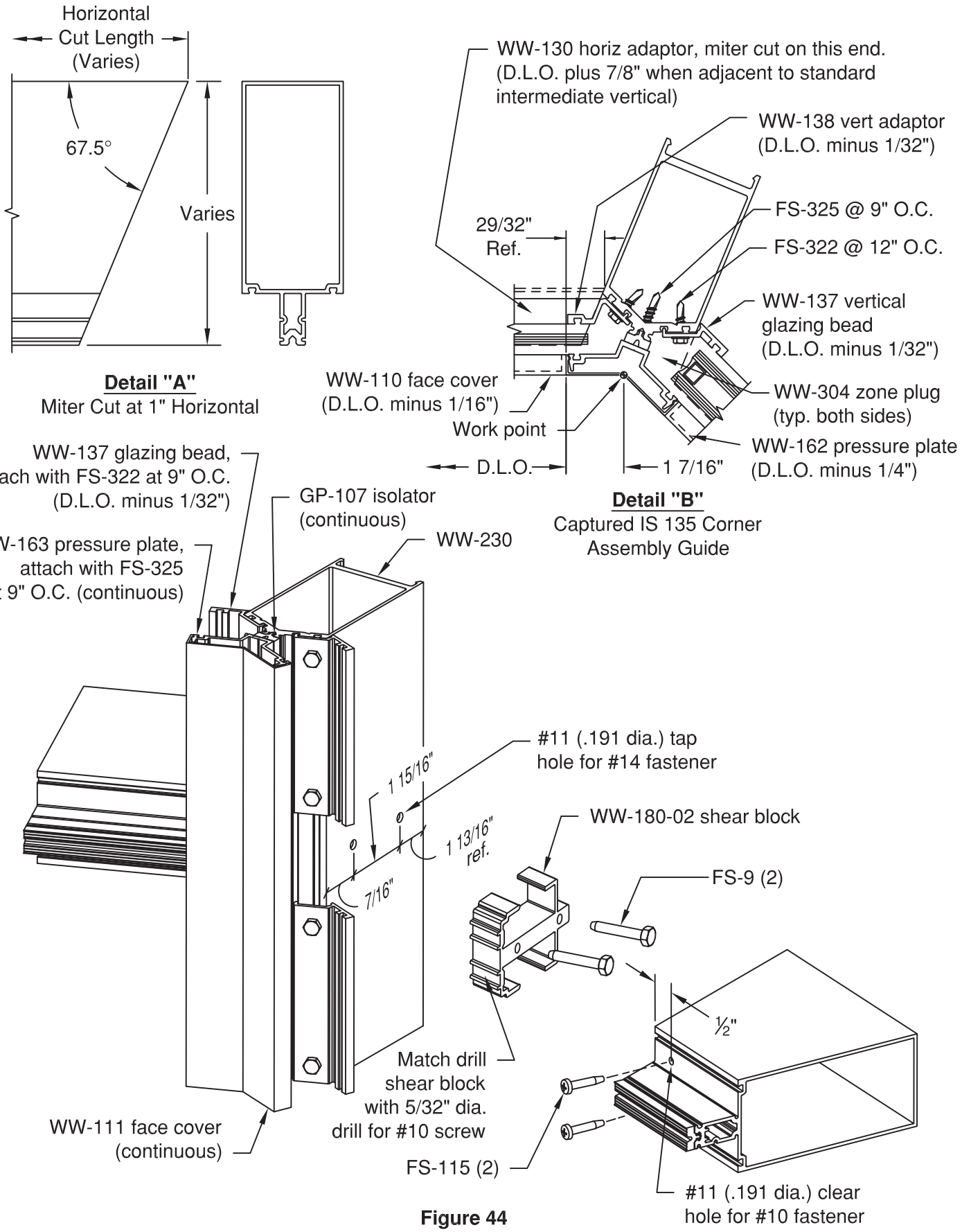


Figure 44
Captured IS 135 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS

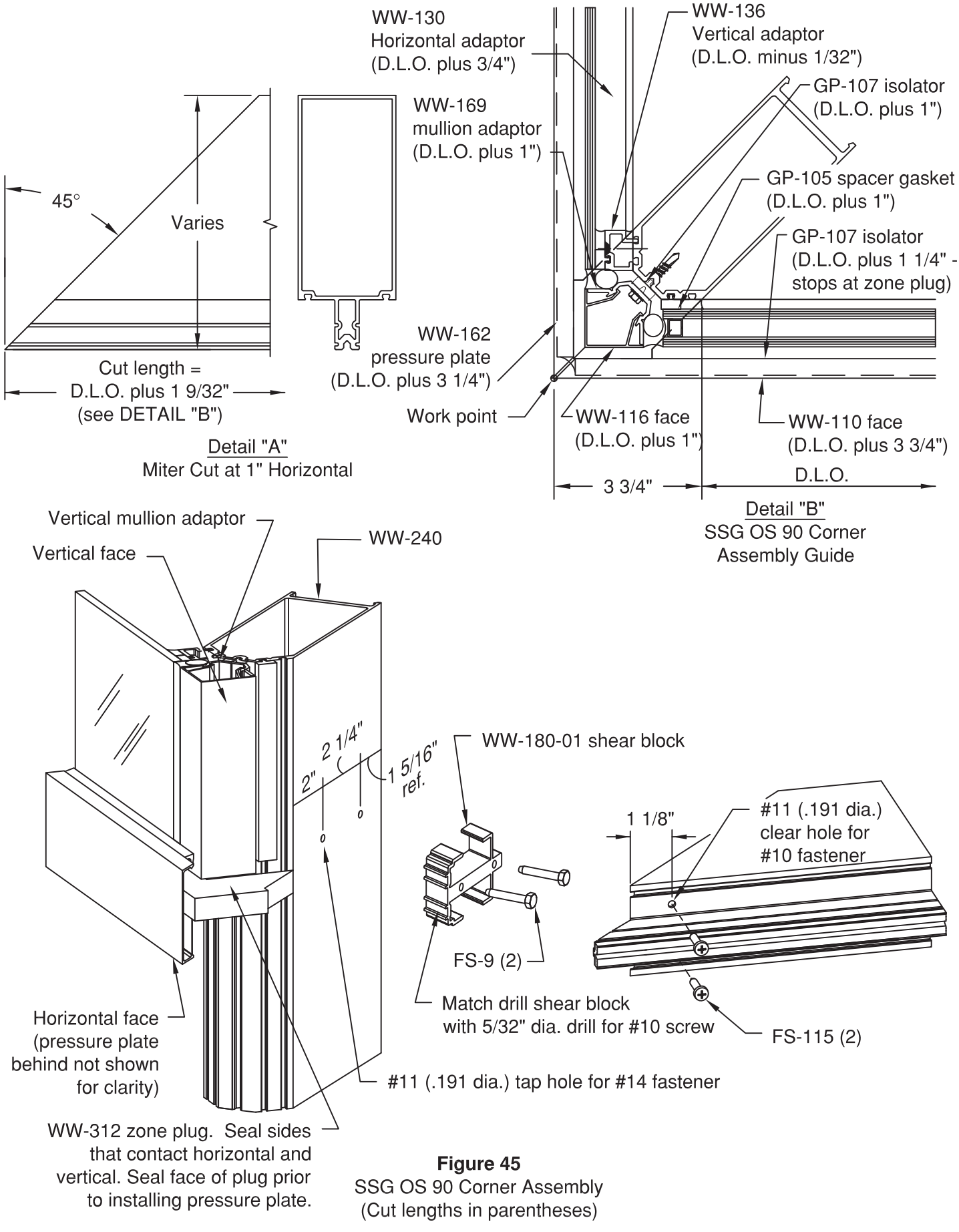
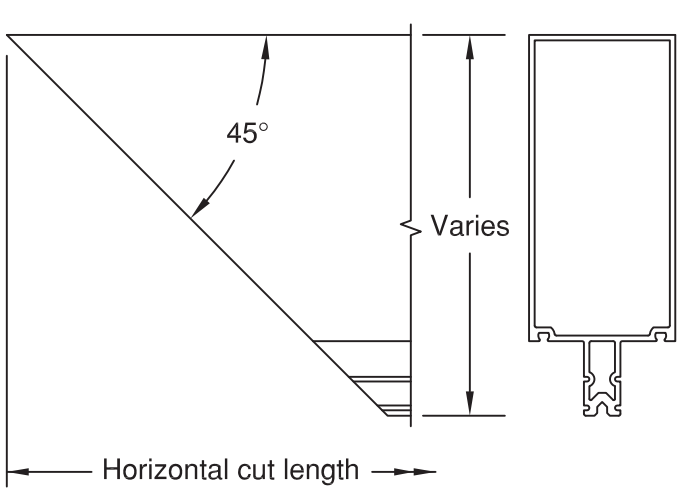
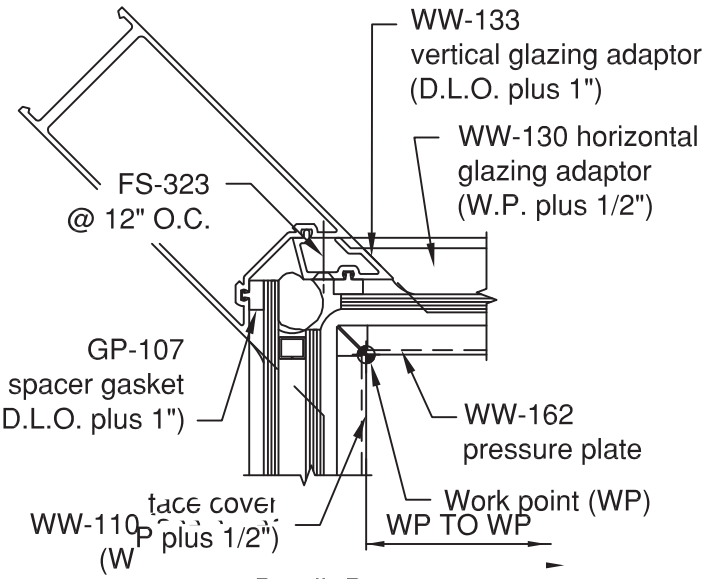


Figure 45
SSG OS 90 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS



Detail "A"
Miter Cut at 1" Horizontal



Detail "B"

SSG IS 90 Corner
Assembly Guide

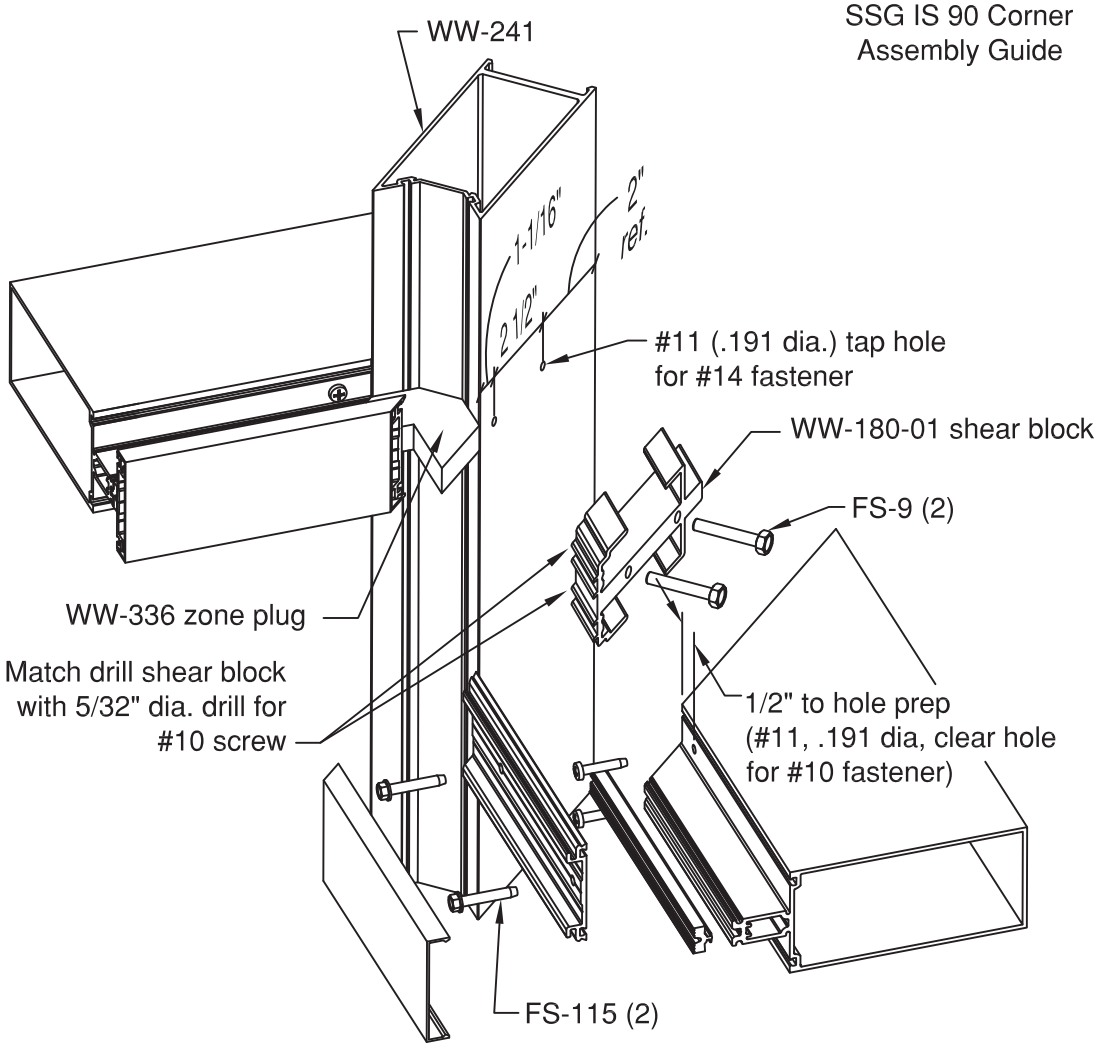
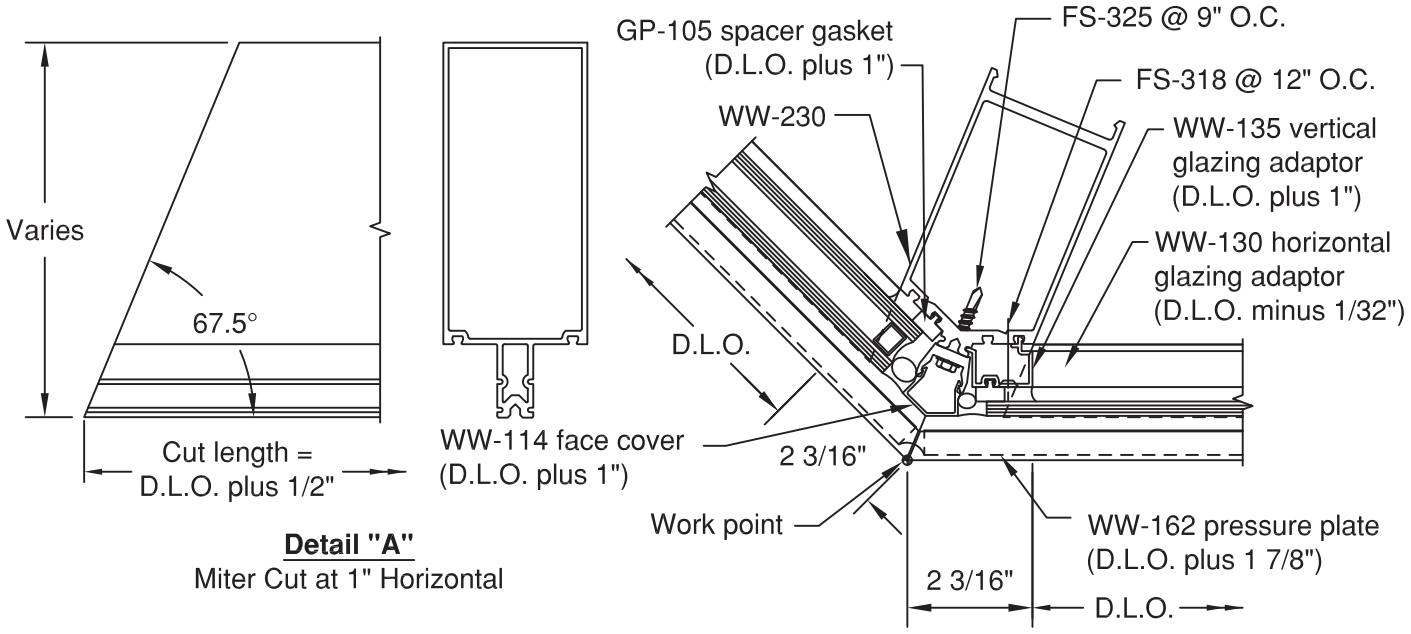


Figure 46
SSG IS 90 Corner Assembly
(Cut lengths in parentheses)

CORNER MULLIONS



Detail "A"
Miter Cut at 1" Horizontal

Detail "B"
SSG OS 135 Corner
Assembly Guide

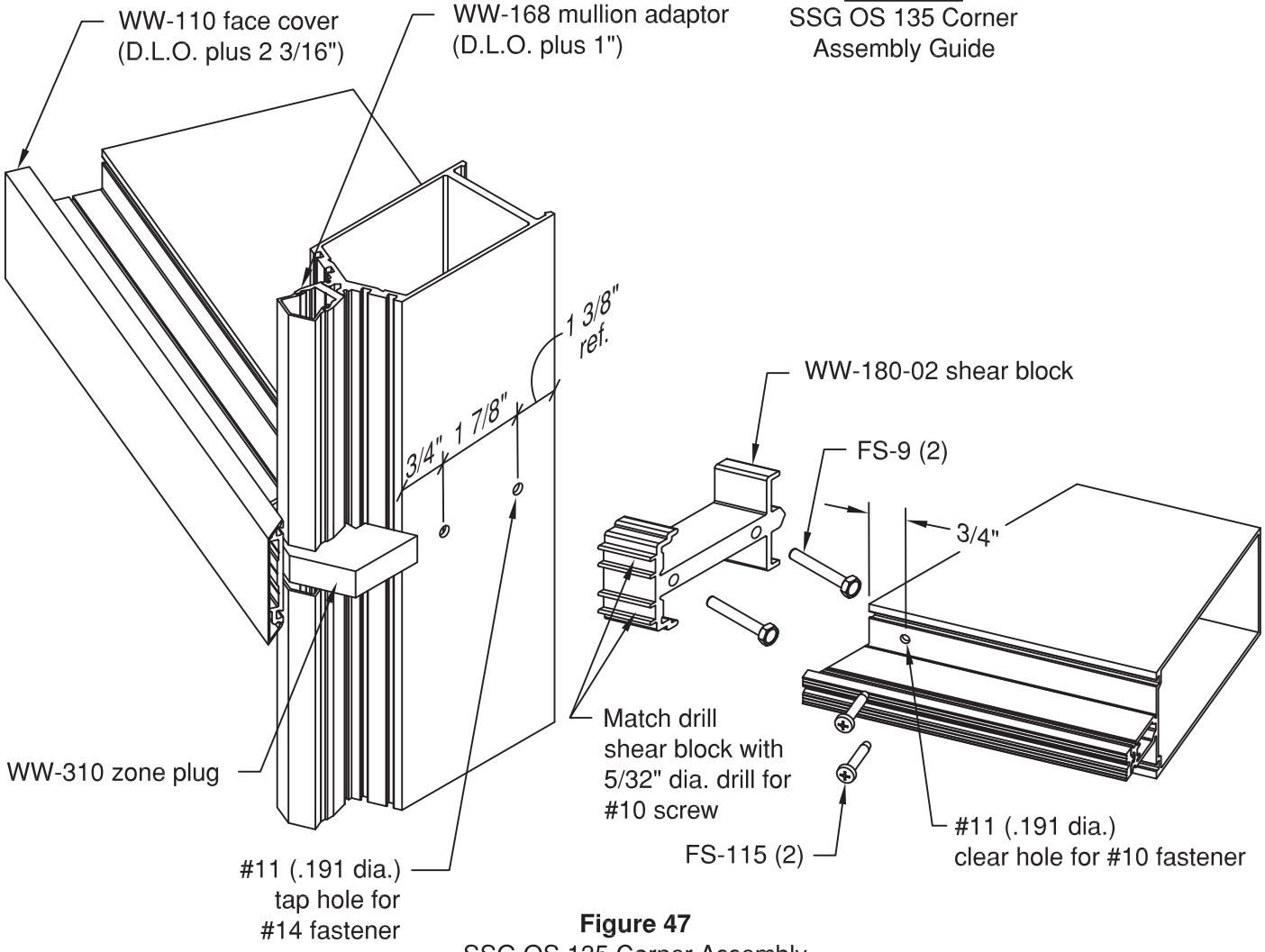


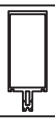
Figure 47
SSG OS 135 Corner Assembly
(Cut lengths in parentheses)

PARTS LIST

4" BACKMEMBERS
1" INFILL, 6" SYSTEM DEPTH

 WW-400	Typical Vertical & Intermediate Horizontal
 WW-401	Head
 WW-402	Sill & Open Back Jamb
 WW-403	Optional Tubular Jamb
 WW-404	Typical SSG Mullion
 WW-410	Heavy Vertical Mullion
 WW-432	Roll Over Horizontal (Vision over Spandrel)
 WW-433	Roll Under Horizontal (Spandrel over Vision)

5 1/4" BACKMEMBERS
1" INFILL, 7 1/4" SYSTEM DEPTH

 WW-500	Typical Vertical & Intermediate Horizontal
 WW-501	Head
 WW-502	Sill & Open Back Jamb
 WW-503	Optional Tubular Jamb
 WW-504	Typical SSG Mullion
 WW-510	Heavy Vertical Mullion
 WW-532	Roll Over Horizontal (Vision over Spandrel)
 WW-533	Roll Under Horizontal (Spandrel over Vision)

4" BACKMEMBERS
1/4" INFILL, 5 1/4" SYSTEM DEPTH

 WW-450	Typical Vertical & Intermediate Horizontal
 WW-451	Head
 WW-452	Sill & Open Back Jamb
 WW-453	Optional Tubular Jamb
 WW-404	Typical SSG Mullion
 WW-460	Heavy Vertical Mullion
 WW-482	Roll Over Horizontal

5 1/4" BACKMEMBERS
1/4" INFILL, 6 1/2" SYSTEM DEPTH

 WW-504	Typical SSG Mullion
 WW-550	Typical Vertical & Intermediate Horizontal
 WW-551	Head
 WW-552	Sill & Open Back Jamb
 WW-553	Optional Tubular Jamb
 WW-560	Heavy Vertical Mullion
 WW-582	Roll Over Horizontal

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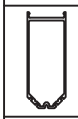
PARTS LIST

CORNER MULLIONS & ACCESSORIES

4" and 5 1/4" Backmembers

 WW-230	Corner Mullion 135° Inside & Outside Captured & SSG 1" & 1/4" Infill
 WW-240	Corner Mullion 90° Outside, Captured & SSG 90° Inside, Captured 1" & 1/4" Infill
 WW-241	Corner Mullion 90° Inside, SSG 1" & 1/4" Infill
 WW-111	Face Cover 135° Inside Corner 1" Infill, Captured
 WW-112	Face Cover 90° Inside Corner 1" Infill, Captured
 WW-113	Face Cover 135° Outside Corner 1" Infill, Captured
 WW-114	Face Cover 135° Outside SSG Corner 1" Infill
 WW-115	Face Cover 90° Outside Corner 1" Infill, Captured
 WW-116	Face Cover 90° Outside SSG Corner 1" Infill
 WW-118	Face Cover 90° Inside Corner 1/4" Infill, Captured
 WW-119	Face Cover 90° Outside Corner 1/4" Infill, Captured
WW-120	Face Cover 135° Inside Corner 1/4" Infill, Captured
 WW-121	Face Cover 135° Outside Corner 1" Infill, Captured
 WW-132	Mullion Adaptor 90° Outside Corner 1" Infill, Captured
 WW-133	Glazing Adaptor 90° Intside SSG Corner 1" to 1/4" Infill

 WW-134	Pressure Plate 90° Inside Corner 1" Infill, Captured
 WW-135	Glazing Adaptor 135° Outside SSG Corner 1" to 1/4" Infill
 WW-136	Glazing Adaptor 90° Outside SSG Corner 1" to 1/4" Infill
 WW-137	Glazing Bead 135° Inside Corner 1" Infill, Captured
 WW-138	Glazing Adaptor 135° Inside Corner 1" to 1/4" Infill, Captured
 WW-139	Glazing Bead 90° Inside Corner 1" Infill, Captured
 WW-140	Glazing Adaptor 90° Inside Corner 1" to 1/4" Infill, Captured
 WW-143	Pressure Plate 90° Inside Corner 1/4" Infill, Captured
 WW-163	Pressure Plate 135° Inside Corner 1" Infill, Captured
 WW-164	Pressure Plate 135° Outside Corner 1" Infill, Captured
 WW-165	Pressure Plate 90° Outside Corner 1" Infill, Captured
 WW-166	Pressure Plate 135° Inside Corner 1/4" Infill, Captured
 WW-167	Pressure Plate 135° Outside Corner 1/4" Infill, Captured
 WW-168	Pressure Plate 135° Outside SSG Corner 1" Infill
 WW-169	Pressure Plate 90° Outside SSG Corner 1" Infill

 CW-823	Snap-In Back Trim Use with WW-230 Corner Mullion (5 1/4" & 6" System Depths)
 WW-220	Snap-In Back Trim Use with WW-240 & WW-241 Corner Mullions (6 1/2" & 7 1/4" System Depths)
 WW-221	Snap-In Back Trim Use with WW-230 Corner Mullions (6 1/2" & 7 1/4" System Depths)
 WW-223	I.S. 90 Snap-In Back Trim Use with WW-240 & WW-241 Corner Mullions (6 1/2" & 7 1/4" System Depths)
 WW-224	O.S. 90 Snap-In Back Trim Use with WW-240 & WW-241 Corner Mullions (6 1/2" & 7 1/4" System Depths)
 WW-225	I.S. 135 Snap-In Back Trim Use with WW-230 Corner Mullion (6 1/2" & 7 1/4" System Depths)
 WW-226	O.S. 135 Snap-In Back Trim Use with WW-230 Corner Mullion (6 1/2" & 7 1/4" System Depths)
 WW-102-05	"T" Anchor Use with WW-240 Corner Mullion
 WW-102-06	"T" Anchor Use with WW-230 Corner Mullion
 WW-102-07	"T" Anchor Use with WW-241 Corner Mullion
WW-180-01	Shear Block Use with WW-240 & WW-241 90° Corner Mullions
WW-180-02	Shear Block Use with WW-230 135° Corner Mullion
WW-190-01	Splice Sleeve Use with WW-230 135° Corner Mullion
WW-191-01	Splice Sleeve Use with WW-240 90° Corner Mullion
WW-202-01	Splice Sleeve Use with WW-241 90° SSG Corner Mullion

PARTS LIST

CORNER MULLIONS & ACCESSORIES

4" and 5 1/4" Backmembers

 WW-317	Mullion Cap 135° Inside Corner 1" Infill, Captured & SSG
 WW-318	Mullion Cap 135° Inside Corner 1/4" Infill, Captured & SSG
 WW-319	Mullion Cap 90° Inside Corner 1" Infill, Captured
 WW-320	Mullion Cap 90° Inside Corner 1/4" Infill, Captured
 WW-321	Mullion Cap 135° Outside Corner 1" Infill, Captured & SSG
 WW-322	Mullion Cap 135° Outside Corner 1/4" Infill, Captured & SSG
 WW-323	Mullion Cap 90° Outside Corner 1" Infill, Captured & SSG
 WW-324	Mullion Cap 90° Outside Corner 1/4" Infill, Captured & SSG
 WW-337	Mullion Cap 90° Inside SSG Corner 1" Infill
 WW-339	Mullion Cap 90° Inside SSG Corner 1/4" Infill
 WW-304	Foam Zone Plug 135° Inside Corner 1" Infill, Captured
 WW-305	Foam Zone Plug 135° Inside Corner 1/4" Infill, Captured
 WW-306	Foam Zone Plug 90° Inside Corner 1" Infill, Captured
 WW-307	Foam Zone Plug 90° Inside Corner 1/4" Infill, Captured
 WW-308	Foam Zone Plug 135° Outside Corner 1" Infill, Captured

 WW-309	Foam Zone Plug 135° Outside Corner 1/4" Infill, Captured
 WW-310	Foam SSG Bridge 135° Outside Corner 1" Infill, SSG
 WW-311	Foam SSG Bridge 135° Outside Corner 1/4" Infill, SSG
 WW-312	Foam SSG Bridge 90° Outside Corner 1" Infill, SSG
 WW-313	Foam SSG Bridge 90° Outside Corner 1/4" Infill, SSG
 WW-314	Foam Zone Plug 90° Outside Corner 1/4" Infill, Captured (use WW-302 for 1" Infill)
 WW-336	Foam Zone Plug 90° Inside SSG Corner 1" Infill
 WW-340	Foam Zone Plug 90° Inside SSG Corner 1/4" Infill

COMMON EXTRUSIONS

All System Depths and Infills

 WW-100	Perimeter Anchor Clip 1" Infill
 WW-101	Perimeter Anchor Clip 1/4" Infill
 WW-110	Standard Face Cover
 WW-117	Face Cover for Flush Door Adaptor
 WW-122	Pocket Filler 1" Infill (use with exterior gasket)
 WW-123	Pocket Filler 1" Infill (full pocket closure)

COMMON EXTRUSIONS - cont'd.

All System Depths and Infills

 WW-124	Pocket Filler 1/4" Infill (use with exterior gasket)
 WW-125	Pocket Filler 1/4" Infill (full pocket closure)
WW-236	Horizontal Filler for WW-432 & WW-482
WW-237	Horizontal Filler for WW-532 & WW-582
 WW-130	Transition Glazing Adaptor 1" to 1/4" Infill, Captured
 WW-131	Transition Glazing Adaptor 1" to 1/4" Infill, SSG
 WW-141	Transition Glazing Adaptor SSG to Captured 1" Infill
 WW-142	Transition Glazing Adaptor SSG to Captured 1/4" Infill
 WW-160	Flush Door Pressure Plate 1" Infill
 WW-161	Flush Door Pressure Plate 1/4" Infill
 WW-162	Standard Pressure Plate
WW-210	Standard 1" Door Subframe 1" Infill
WW-211	Standard 1" Door Subframe 1/4" Infill
D-186	Optional 3/4" Door Subframe 1" or 1/4" Infill
DS-1	Optional Door Stop for D-186 Subframe Use with SC-1 Clip

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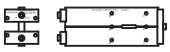
PARTS LIST

STANDARD ACCESSORIES
All System Depths and Infills

 FG-2145	Door Stop Standard Doors
 DS-117	Door Stop Thermal Doors
 DJ-100	Drill Jig Vertical Mullions 4" & 5 1/4" Backmembers
 GP-103	Standard Dense Gasket Interior & Exterior 1/4" Face Clearance
 GP-104	Optional Sponge Gasket Interior Only 1/4" Face Clearance
 GP-117	Optional Dense Gasket 3/16" Face Clearance
 GP-118	Optional Dense Gasket 5/16" Face Clearance
 GP-105	Standard Spacer Gasket SSG Vertical Mullions 3/8" Silicone Joint Width
 GP-106	Optional Spacer Gasket SSG Vertical Mullions 1/2" Silicone Joint Width
 GP-107	Thermal Isolator 1" Infill Systems
 GP-108	Thermal Isolator 1/4" Infill Systems
 GP-109	Setting Block 1" Infill
 GP-110	Setting Block 1/4" Infill
 GP-111	Side Block 1" Infill
 GP-112	Side Block 1/4" Infill

 PP-16	10 Ga. Steel Stiffener for WW-500, WW-504, WW-510, WW-550 & WW-560
 PP-17	10 Ga. Steel Stiffener for WW-500, WW-504, WW-510, WW-550 & WW-560
 RS-18	10 Ga. Steel Stiffener for WW-504, WW-510 & WW-560
 RS-19	10 Ga. Steel Stiffener for WW-500 & WW-550
 RS-21	10 Ga. Steel Stiffener for WW-400, WW-404, WW-412, WW-450 & WW-460
 RS-22	10 Ga. Steel Stiffener for WW-400 & WW-450
 RS-23	10 Ga. Steel Stiffener for WW-404, WW-410 & WW-460
 WW-300	SSG Mullion Bridge 1" Infill
 WW-301	SSG Mullion Bridge 1/4" Infill
 WW-302	Standard Zone Plug 1" Infill
 WW-303	Standard Zone Plug 1/4" Infill
 WW-102-01	Intermediate "T" Anchor Use with WW-500 & WW-550
 WW-102-02	Intermediate "T" Anchor Use with WW-504, WW-510 & WW-560
 WW-102-03	Intermediate "T" Anchor Use with WW-400 & WW-450
 WW-102-04	Intermediate "T" Anchor Use with WW-404, WW-410 & WW-460

 WW-103-01	Std. Jamb "F" Anchor WW-503 or WW-553 Jamb WW-500, WW-504 or WW-550 Intermediates
 WW-103-02	Optional Jamb "F" Anchor WW-504, WW-510 or WW-560 SSG & Heavy Mullions
 WW-103-03	Std. Jamb "F" Anchor WW-403 or WW-453 Jamb WW-400, WW-404 or WW-450 Intermediates
 WW-103-04	Optional Jamb "F" Anchor WW-404, WW-410 or WW-460 SSG & Heavy Mullions
 WW-181-01	Standard Shear Block 4" & 5 1/4" Backmembers
 WW-104-01	Shear Block Anchor 4" & 5 1/4" Backmembers (for Head & Sill)
 WW-193-01	Vertical Mullion Splice Use with WW-400, WW-403, WW-450 & WW-453
 WW-192-01	Vertical Mullion Splice Use with WW-404, WW-410 & WW-460
 WW-194-01	Vertical Mullion Splice Use with WW-500, WW-503, WW-550 & WW-553
 CW-74	Vertical Mullion Splice Use with WW-504, WW-510 & WW-560
WW-293	Jamb Mullion Splice Use with WW-402 & WW-452
WW-294	Jamb Mullion Splice Use with WW-502 & WW-552
WW-315	Thermal Isolator for WW-210 & WW-211 Standard Door Subframe
WW-316	Thermal Isolator for WW-160 & WW-161 Flush Door Pressure Plate
WW-325	Captured Mullion Cap at Intermediate Verticals 1" Infill

 WW-326	Captured Mullion Cap at Intermediate Verticals 1/4" Infill
 WW-327	Captured Mullion Cap at SSG Verticals 1" Infill
 WW-328	Captured Mullion Cap at SSG Verticals 1/4" Infill
 WW-338-01	Captured Mullion Cap at Jamb Mullions 1" Infill
 WW-338-02	Captured Mullion Cap at Jamb Mullions 1/4" Infill
WW-333-01	Temporary Glazing Retainer All Captured Verticals 1" & 1/4" Infill
 SPW-PP-3	Temporary Glazing Retainer All SSG Verticals 1" & 1/4" Infill
 HP-1004	Optional Weep Baffle

FASTENERS

 FS-8	#14 x 1" Phillips Hex Head Splice Sleeve to Vertical
 FS-9	#14 x 1 1/2" Hex Head Shear Block to Vertical
FS-15	3/16" x 7/16" Drive Rivet SC-1 Door Stop Clip to Mullion
FS-43	#12 x 3/4" Phillips Pan Head Flush Door Pressure Plate to Mullion
FS-115	#10 x 1" Phillips Pan Head Horizontal to Shear Block
FS-318	#12 x 1 3/4" Phillips Flat Head WW-141, WW-142 & WW-131
FS-320	#10 x 1/2" U-Drive All Mullion Caps
FS-323	#12 x 1" Phillips Flat Head Steel Stiffener (through face of mullion)
FS-325	#12-14 x 1 1/2" Hex Washer Head Drillflex @ Press. Plate to Vertical, 1" Infill
FS-322	#12-14 x 1" Hex Washer Head Drillflex @ Press. Plate to Vertical, 1/4" Infill Door Subframe & Corner Glazing Beads
FS-319	1/4-20 x 3" Hex Head Bolt Through Bolt at Steel Stiffeners
FSN-37	1/4-20 Hex Nut Use at FS-319
FSW-65	1/4" Lockwasher Use at FS-319

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