Oldcastle BuildingEnvelope®

Reliance
2 pc. Horizontal Expansion Joint, Back Pan & Dual Seal
INSTALLATION AND GLAZING MANUAL

June 2019

1-866-OLDCASTLE (653-2278)
Web: www.obe.com

GENERAL INFORMATION

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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. To ensure 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 12 for details which permit 1/2" movement. For designs and applications that may require greater movement or special considerations please contact your local Oldcastle BuildingEnvelope® 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 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.

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 water tight due to extreme glass tolerances.

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 rich, 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.

GENERAL INFORMATION

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.

1.1 Stack horizontal installation may be used when movement greater than 1/4" is expected. This section may be used to accommodate up to a maximum of 3/4".

1.2 Notch tongue of upper mullion 31/32" and lower mullion 15/16" as shown in **FIGURE 1**. Notch flush with face of mullion to allow installation of WW- 257 & WW-258 expansion joint gasket retainers.

1.3 Drill mullions using "F" (.257Ø) drill bit. Upper mullion may use either standard WW-400 or WW-500 horizontal or WW- 483 or WW-583 at exposed expansion conditions. Lower mullion fabricated for WW-486 or WW-586 horizontals. **See FIGURE 1**.

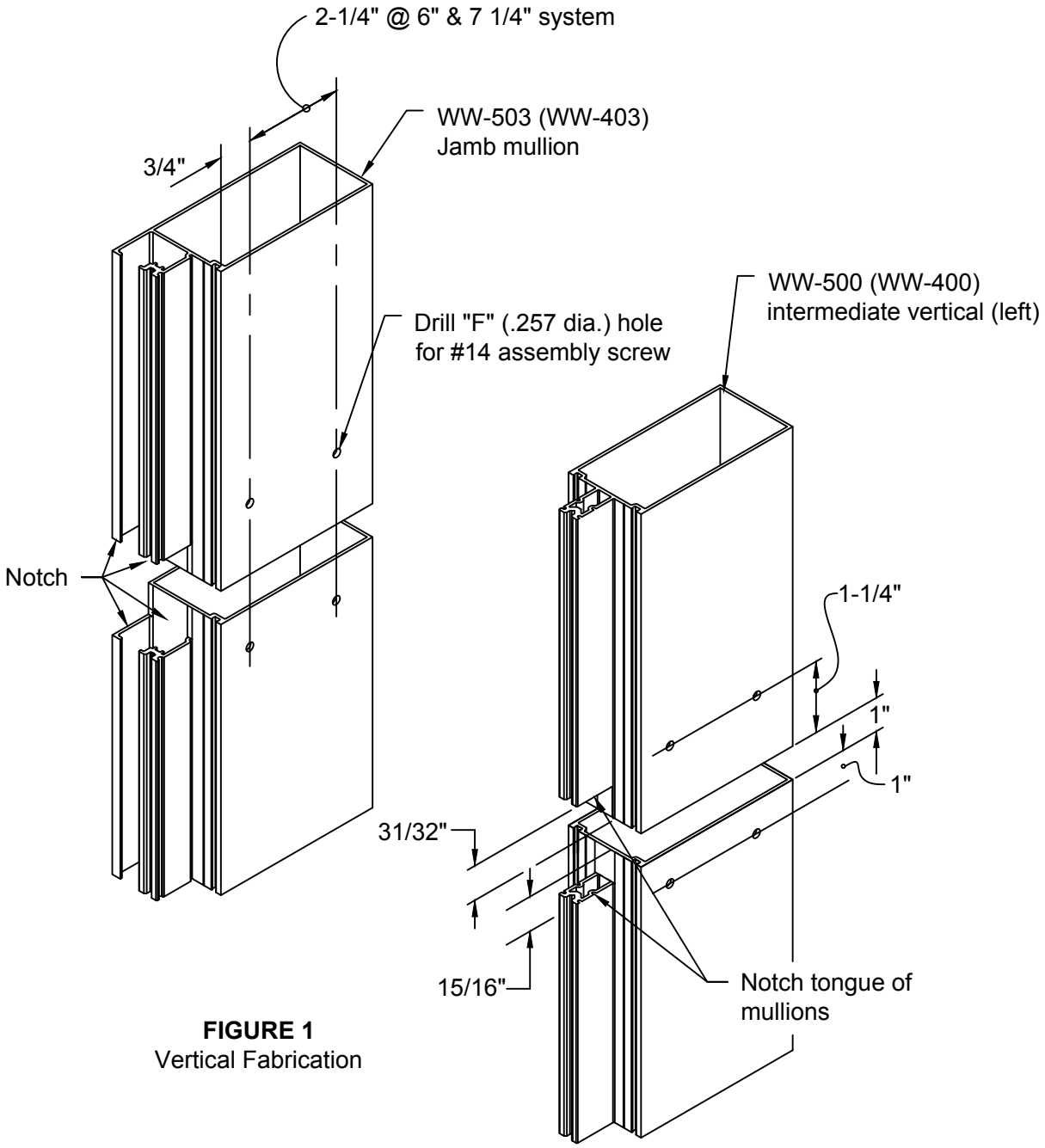


FIGURE 1
Vertical Fabrication

1.4 Bellows gasket retainers, WW-257 & WW-258 will be fabricated to run from mull center to mull center except at jambs. These will be cut to extend full width of jamb mullion. A 1/4" joint will be located between retainers at each intermediate mullion. Retainers will be cut Day Light Opening plus 2-1/2" at jambs and DLO plus 1-1/8" at each intermediate vertical. WW-257 will be notched to clear mullion as shown in FIGURE 2. WW-258 will be notched to clear mullions as shown in FIGURE 3 below. Notch 2-9/16" at Jambs and 1-3/16" at Intermediate Vertical Mullions.

1.5 WW-257 upper gasket retainer will be square cut typical , miter as required at corners. Drill #11 (.191) holes at 12" on center. See **FIGURE 2**

1.6 WW-258 lower gasket retainer will be square cut typical, miter as required at corners. Drill #11 (.191) holes at 12" on center for attachment. 5/16" dia. weep holes must also be drilled in upper channel at centerline of day light opening. See **FIGURE 3**

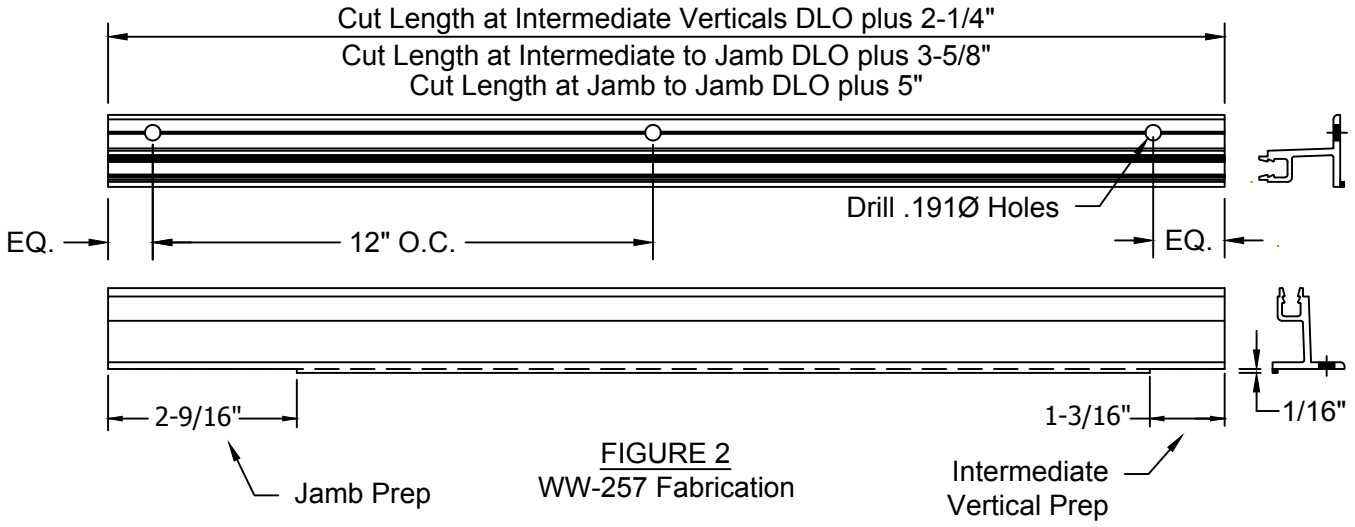


FIGURE 2
WW-257 Fabrication

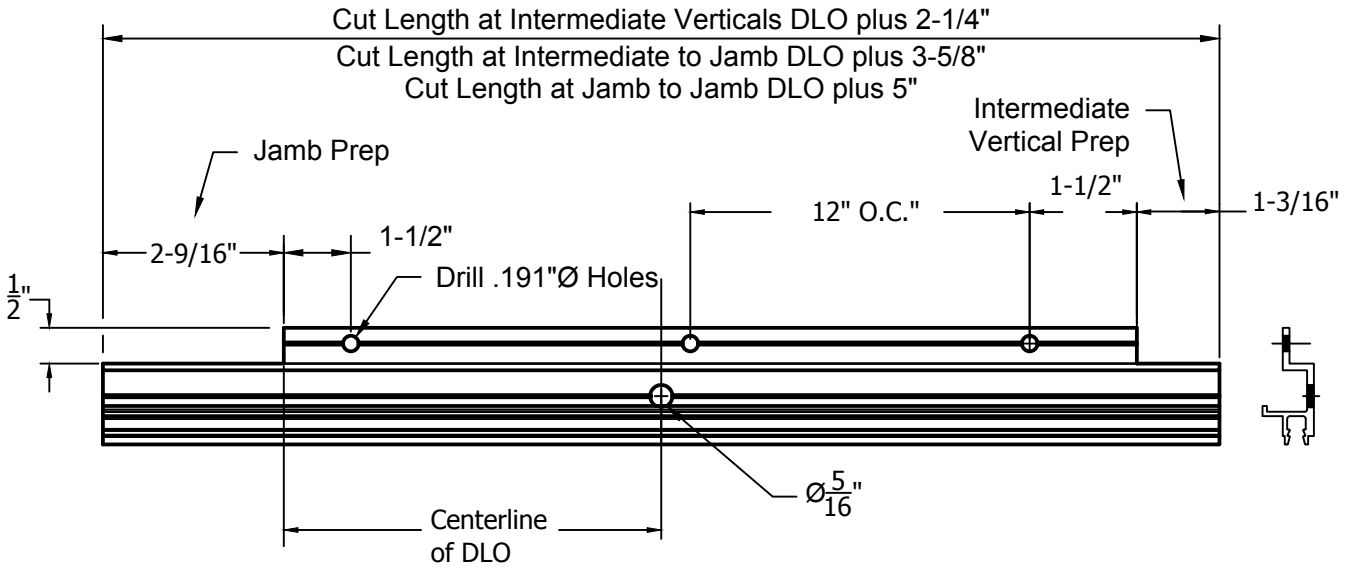


FIGURE 3
WW-258 Fabrication

1.7 Install splices in top of lower mullion assemblies. Splices are 8" long and will be inserted into mullion 4" and attached using (1) FS-107 (1/4-20 X 3-1/2" Hex Bolt) FSN-37 Nut and FSW-65 lock washers. **See FIGURE 4 & 5.** If project configuration does not allow for splice installation as shown below, reference **Page 17** of Reliance Installation Manual for alternate splice install.

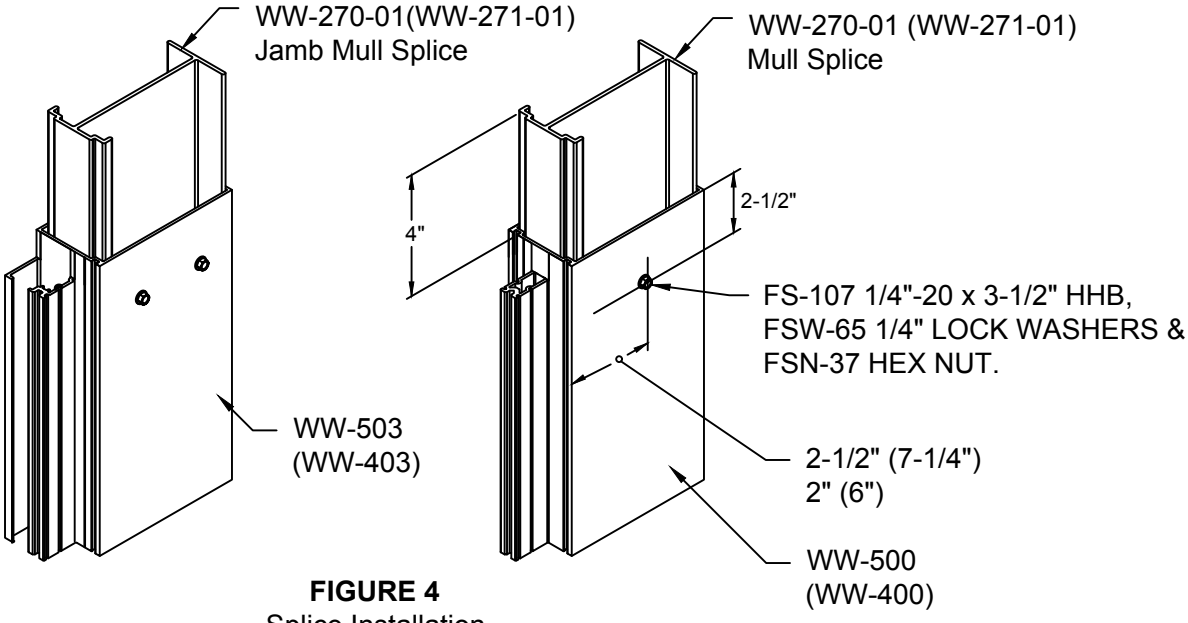
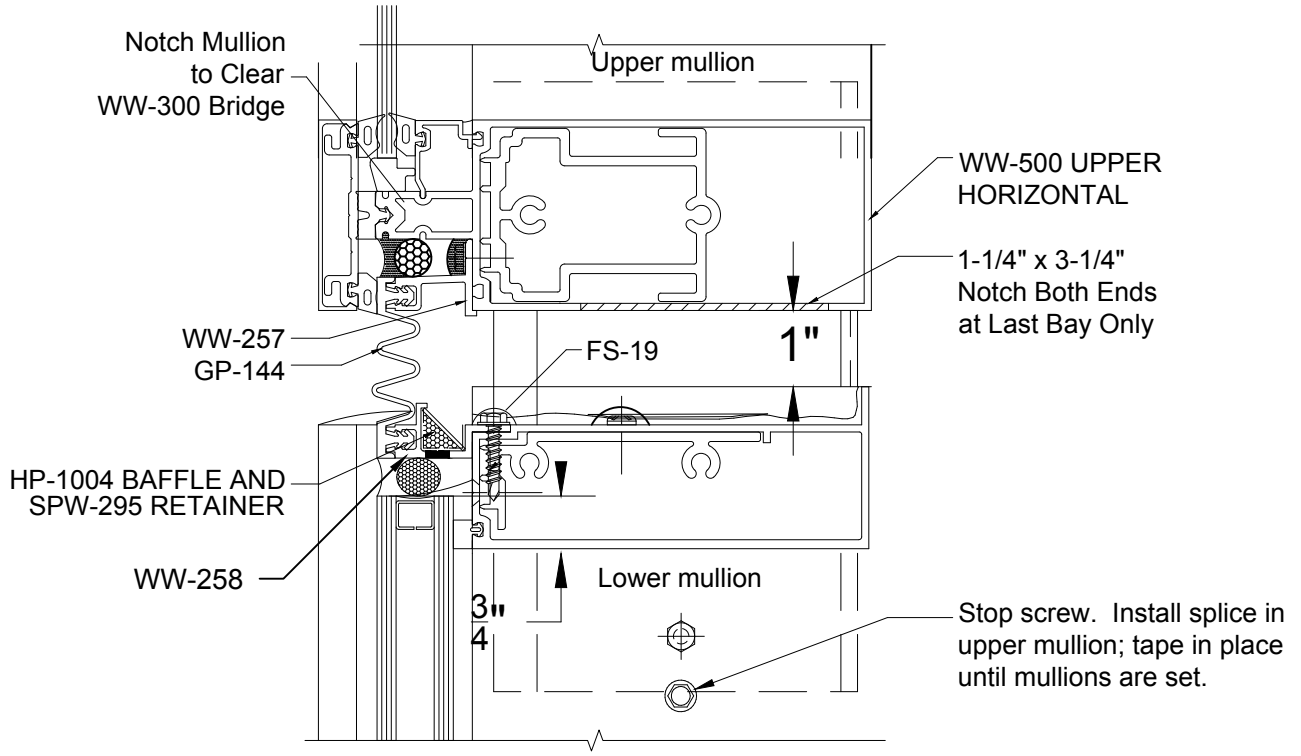


FIGURE 4
Splice Installation



3/4" Live Load Condition

Figure 5
Vertical Mullion Splice

1.8 Assemble each frame with stack horizontals at top or bottom as shown in figure below. Lower section will be assembled with WW-586 (WW-486) horizontal located at top of unit, back leg of horizontal will be located flush with top of lower mullion. Upper frame section will use either typical WW-500 (WW-400) intermediate horizontal at bottom of assembly or for vision areas may use WW-583 (WW-483) horizontal with WW-297-01 Shear Block and WW-259 interior trim. All horizontal shear blocks will be attached to vertical mullions using FS-9 (#14 x 1-1/2" HHSTS). **See FIGURE 6**

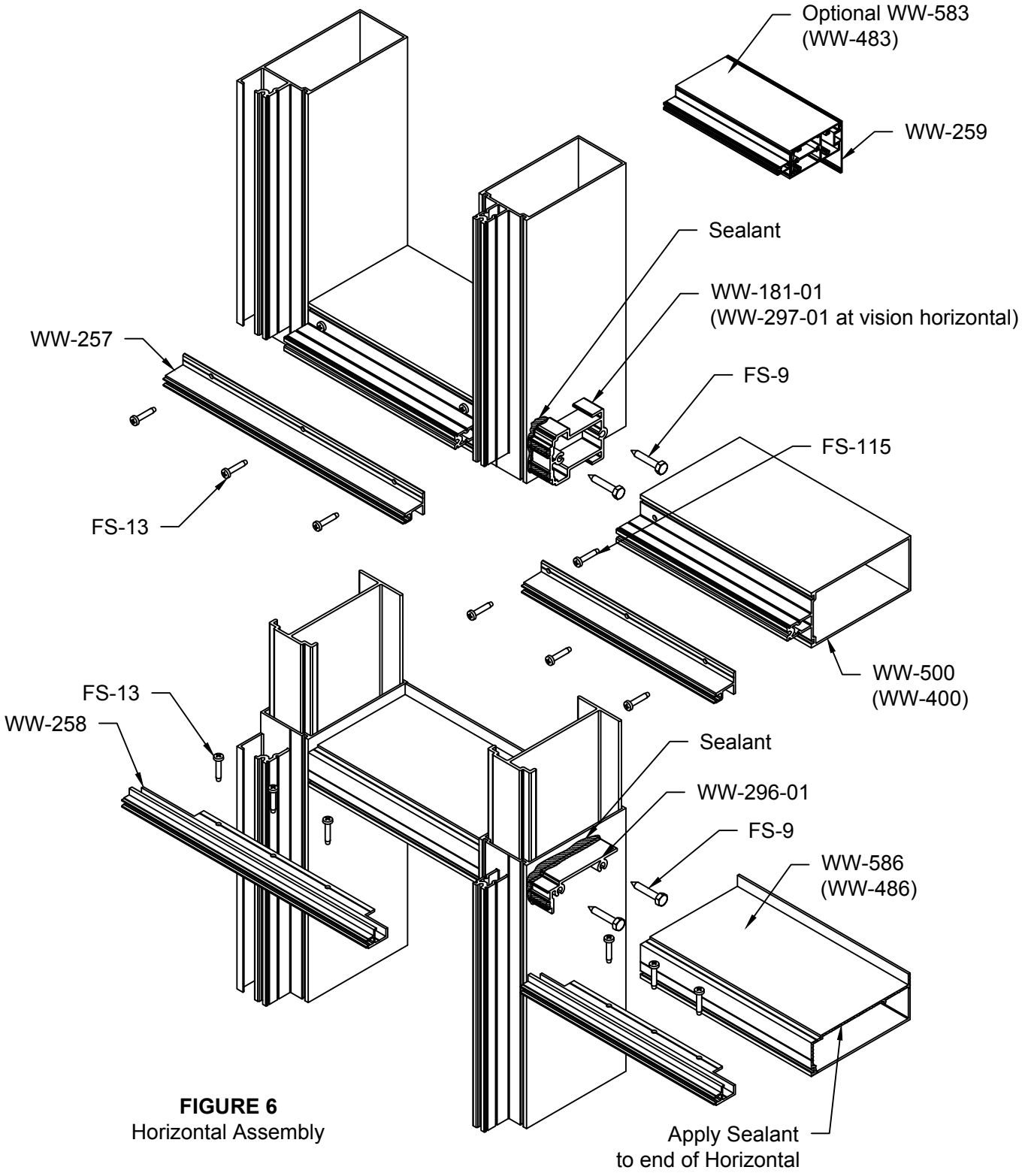


FIGURE 6
Horizontal Assembly

1.9 Install WW- 258 lower gasket retainer to face of horizontal. Bed in continuous bead of sealant and cap seal all fasteners. A 1/4" joint will be located at mull center lines. Attach with FS-13 (#10 x 1" PPH Tek) at 12" on center. **See FIGURE 7**

1.10 Install HP-1004 baffles , held in place using SPW-295 baffle retainer. Apply a small amount of sealant to back edge of SPW-295 to hold in place during shipment. Seal ends of horizontal to vertical mullions as shown in **FIGURE 7**. Assembly and sealing of gasket retainer should be performed as part of shop assembly of screw spline frames.

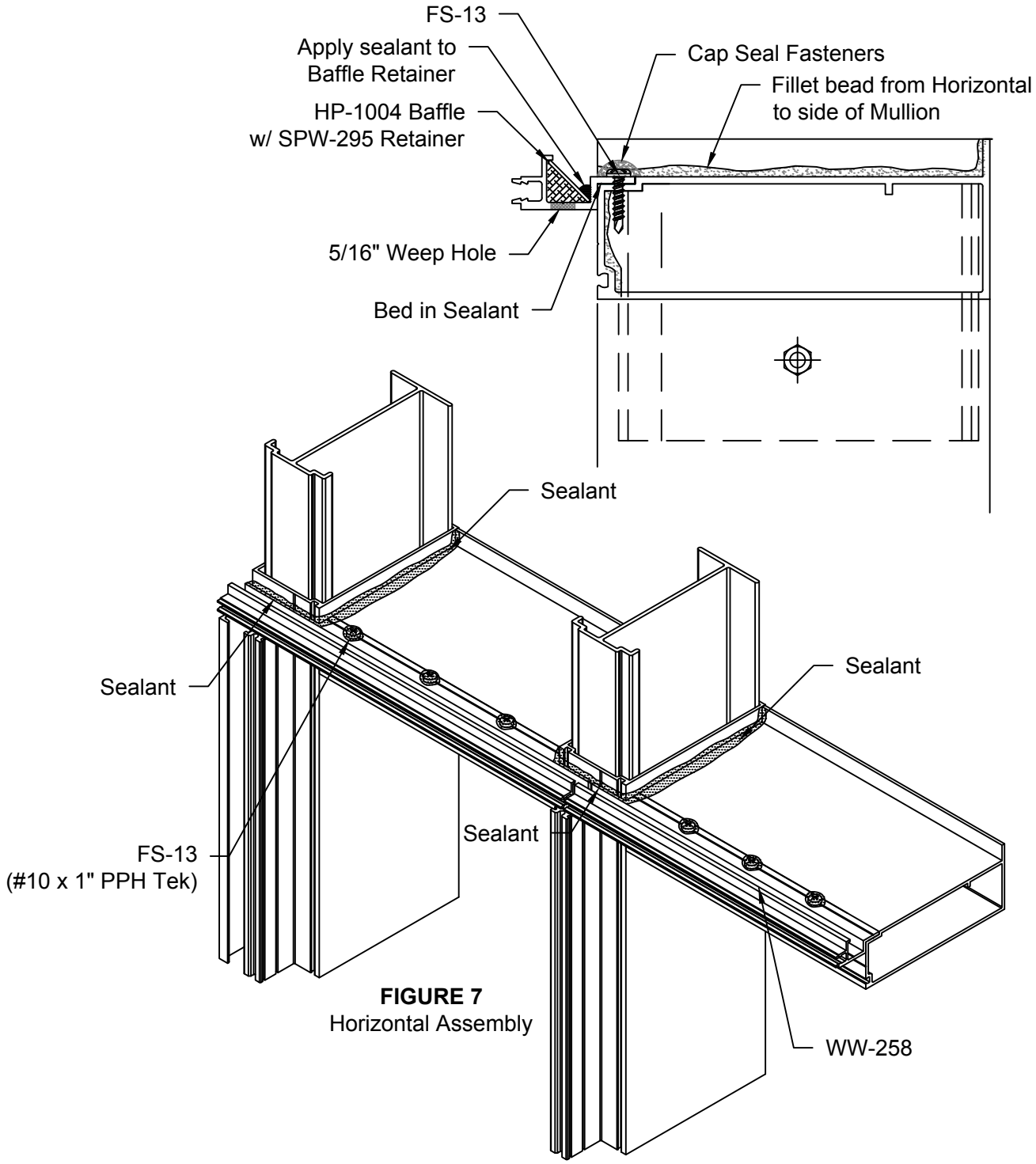


FIGURE 7
Horizontal Assembly

1.11 Install WW- 257 upper gasket retainer to face of horizontal. Bed in continuous bead of sealant and cap seal all fasteners. A 1/4" joint will be located at mull center lines. Attach with FS-13 (#10 x 1" PPH Tek) at 12" on center. **See FIGURE 8**

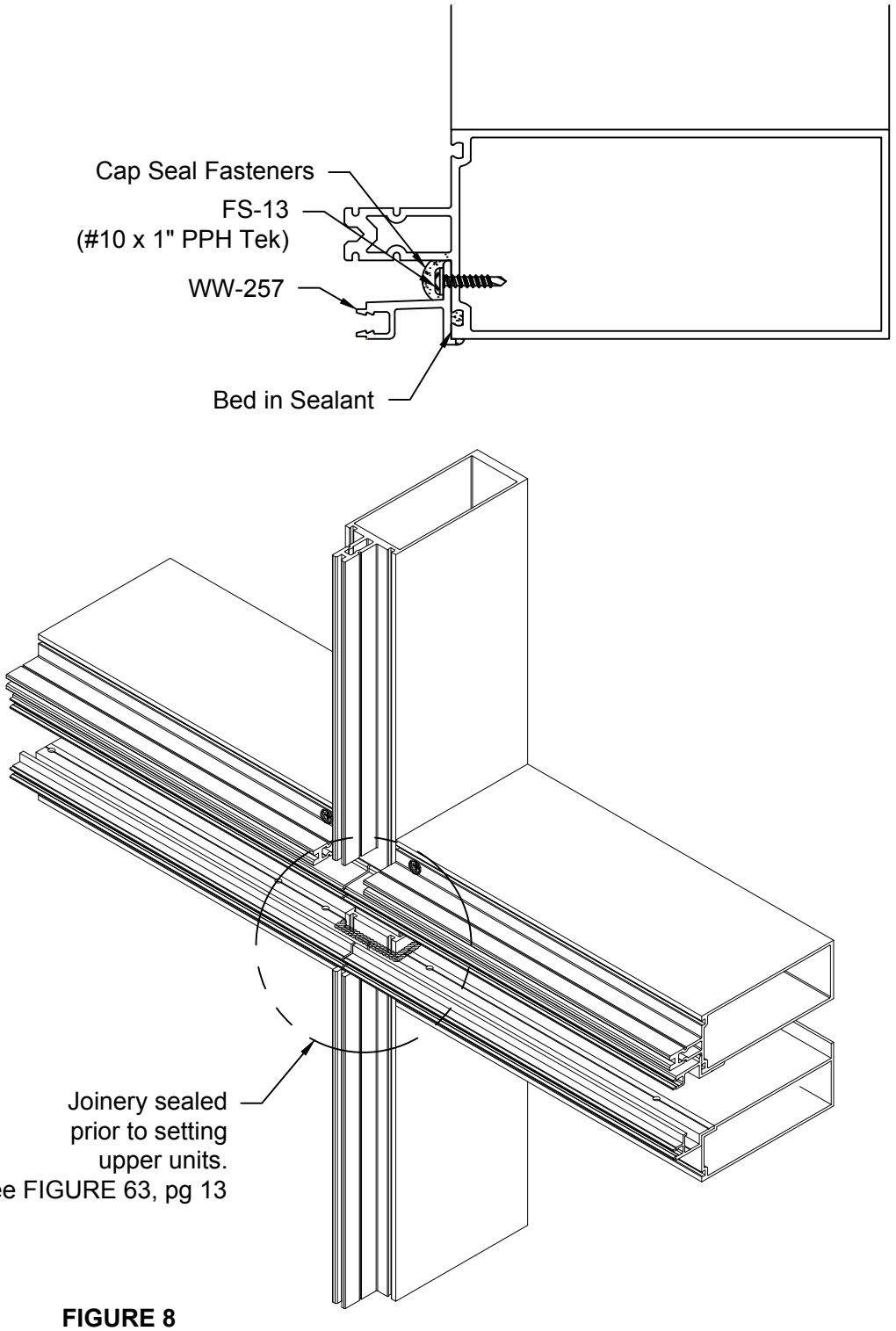


FIGURE 8
Horizontal Assembly

1.12 After Reliance-SS framing is installed, install 4" long strips of Silicone Sheet to WW-257 and WW-258 retainers at center line of each vertical mullion. Sheet to be bed in sealant and tooled to form a splice connection. Install Silicone Sheet and sealant at WW-258 in lower unit prior to installing unit above. See FIGURE 9

1.13 Gasket race of WW-257 to be filled with continuous bead of sealant and GP-144 gasket inserted into races for WW-257 and WW-258. Leave ends of gasket loose at jambs or corners and set once molded jamb or corner gaskets are installed. See FIGURE 10

1.14 Install GP-144-01 jamb sleeve (corner gasket simliar) by sealing WW-257 gasket race, sealing end flap and installing onto mullion and mull splice. Once in place, run bead of sealant across splice section of jamb gasket. Install GP-144 gasket over jamb splice and then run exterior bead of sealant over splice area to create water tight seal. See FIGURE 11

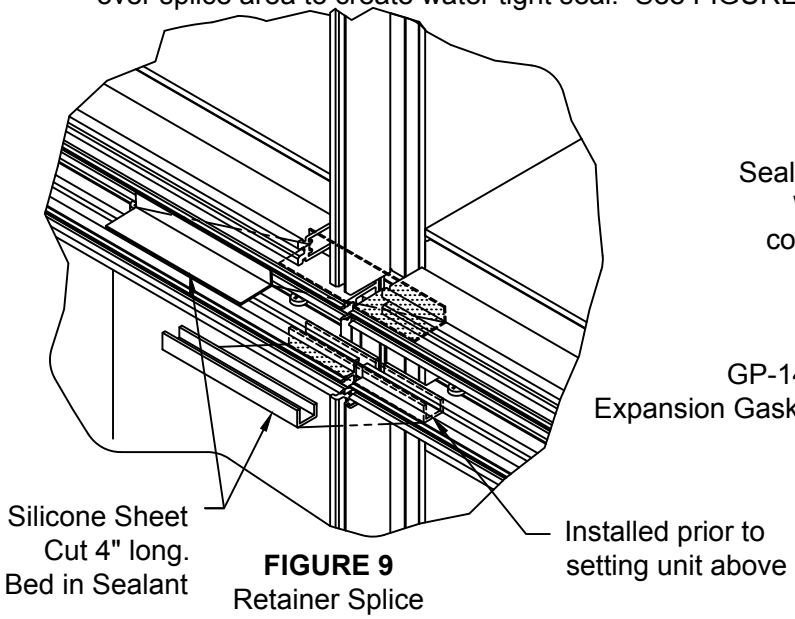


FIGURE 9
Retainer Splice

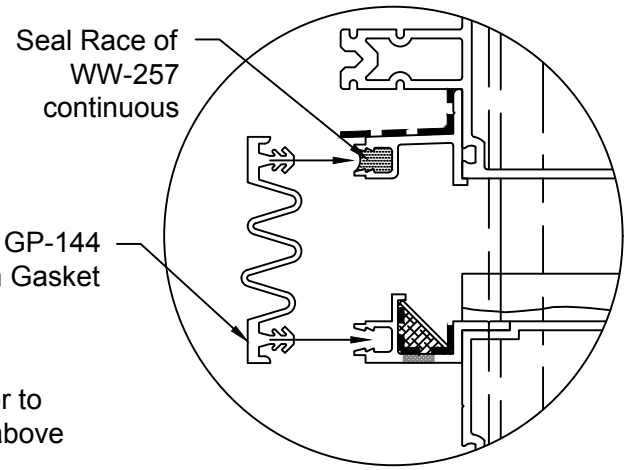


FIGURE 10
Expansion Gasket Installation

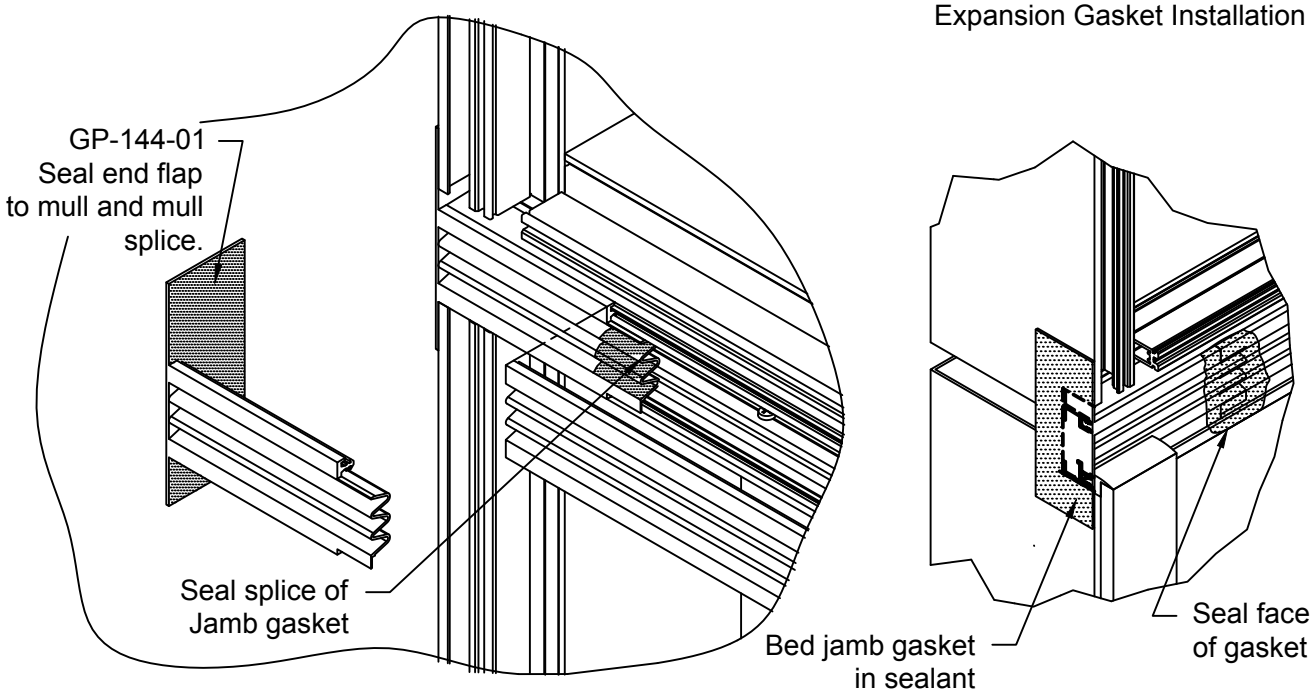


FIGURE 11
Expansion Gasket Installation

1.15 Glaze Reliance per instructions in glazing section of this manual.

1.16 Structural Silicone seal is required at top of glass of lower units. This seal must extend forward to cover top of glass. Insert backer rod and seal face of glass to lower side of WW-258 gasket retainer. See **FIGURE 12.** Do not obstruct weep hole in WW-258 gasket retainer.

1.17 Face caps for lower units will be cut Mullion Length minus 1/2". Pressure plate Mullion Length minus 3/4". Upper unit will cut per standard Reliance instructions page 4. Multi span will repeat cut lengths for lower units as needed.

1.18 Once pressure plates and face caps are installed. Top side of face cap will have backer rod inserted into opening and sealant applied to seal pressure plate and cap. See **FIGURE 13**.

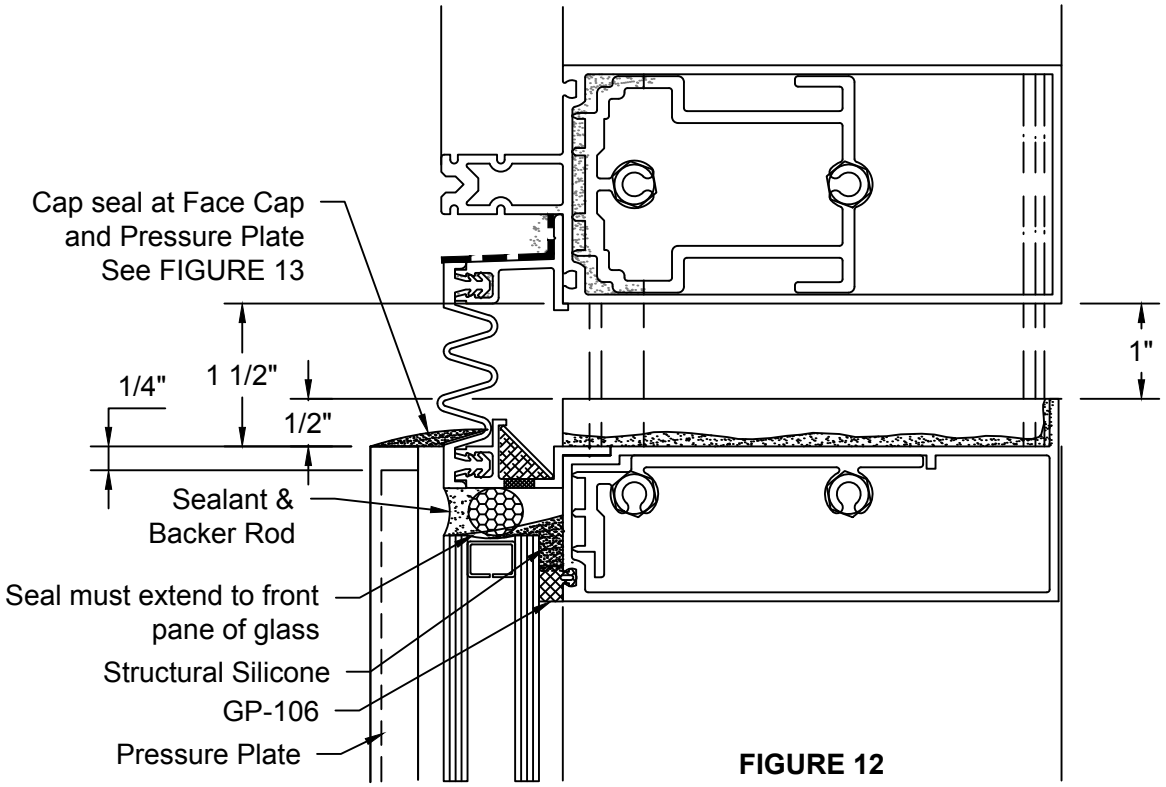


FIGURE 12
Structural Seal at Lower Units

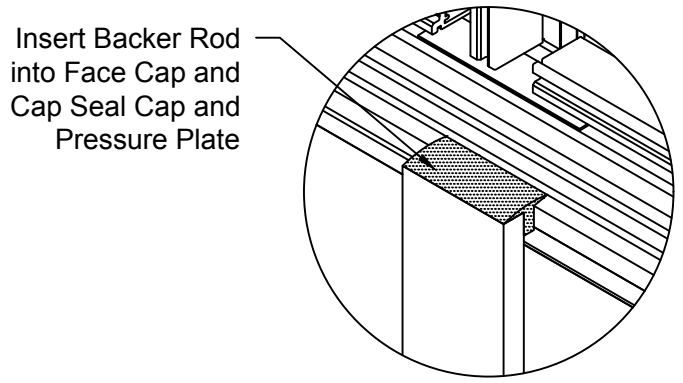


FIGURE 13
Face Cap / Pressure Plate Seal

1.19 When using the optional WW-583 (WW-483) upper horizontal a WW-259 interior snap on cover will be required. The cover must be notched to clear jamb mullions and intermediate mullions. Ends of cover will be notched 3" at jambs to extend to edge of jamb. If cover is ran to cross vertical mullions then a 3" notch will also be fabricated at these locations. Where the cover needs to be spliced at intermediate mullions the notch will be 1-1/2" long and cover will be cut mullion centerline minus 1/16" to form a 1/8" joint. See FIGURE 14 below for fabrication and FIGURE 15 for butt joint.

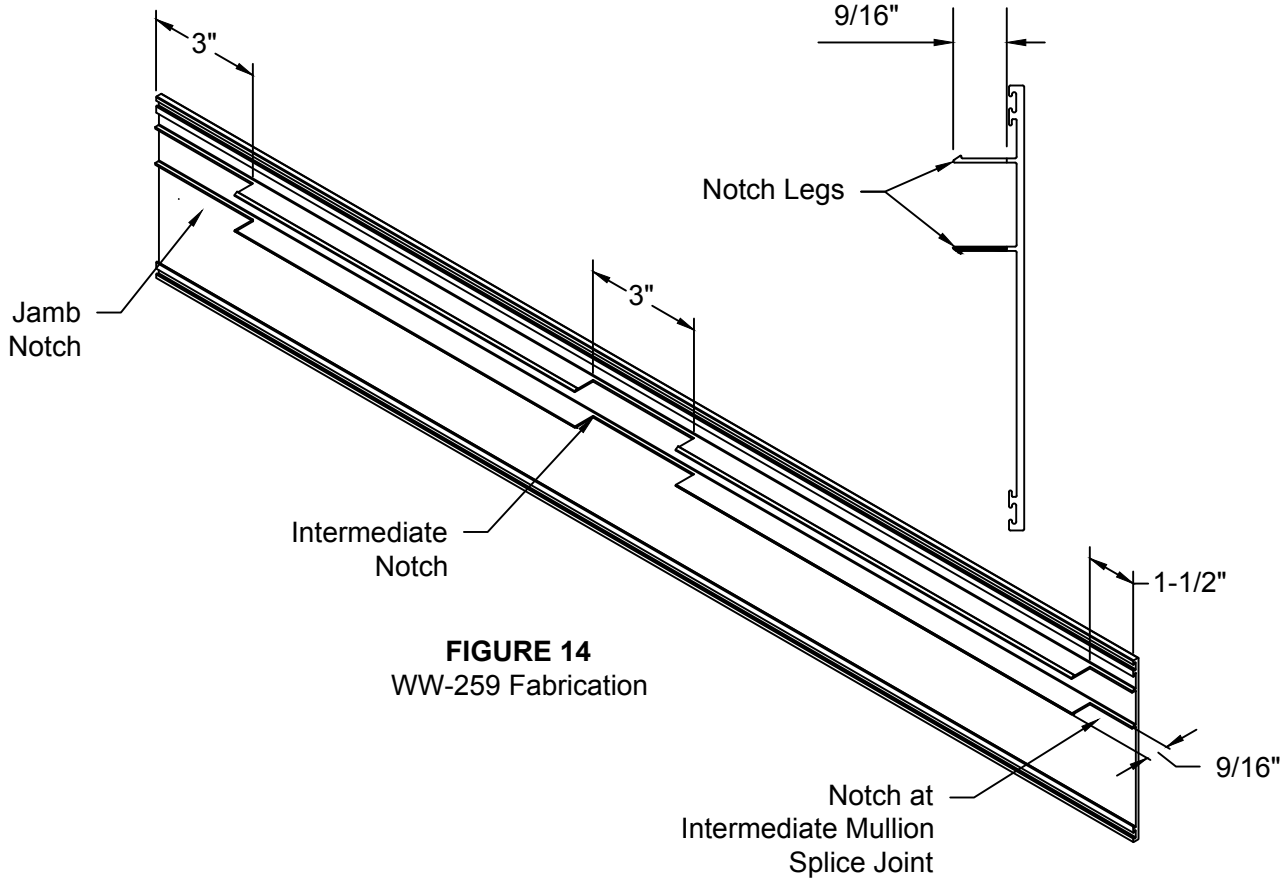


FIGURE 14
WW-259 Fabrication

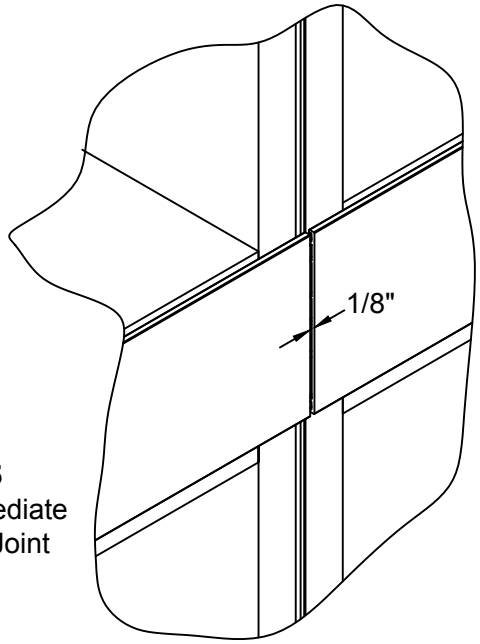


FIGURE 15
WW-259 Intermediate
Mullion Splice Joint

BACK PAN INSTALLATION

2.1 When installing back pans into Reliance™, use the WW-508 (WW-408) horizontal at top and bottom of back pan areas. These will have 5/16" vent holes drilled into guttered area located at 1/8 points of horizontal span. Each vent location to be baffled using a HP-1004 baffle held in place with an SPW-295 retainer. See **FIGURE 16**.

2.2 The back pan is installed at back of horizontal from exterior and fully sealed around perimeter, cap seal fasteners and marry seal with seals at verticals to horizontals connections **See FIGURE 17, page 16**.

2.3 Install shadow box attachment angles around perimeter as shown in **FIGURE 18, page 16**. Bed angles in sealant and cap seal attachment fasteners. Note: angles are only required for shadow box application.

2.4 Insulation will be placed into cavity. See **FIGURE 18,page 16**.

2.5 Shadow box is installed onto attachment angles. Note: The shadow box is not required to be sealed if back pan and horizontals are sealed as described above. See **FIGURE 19,page 17**.

2.6 Reference Reliance Installation and Glazing Manual, pages 23 thru 28 for glazing information.

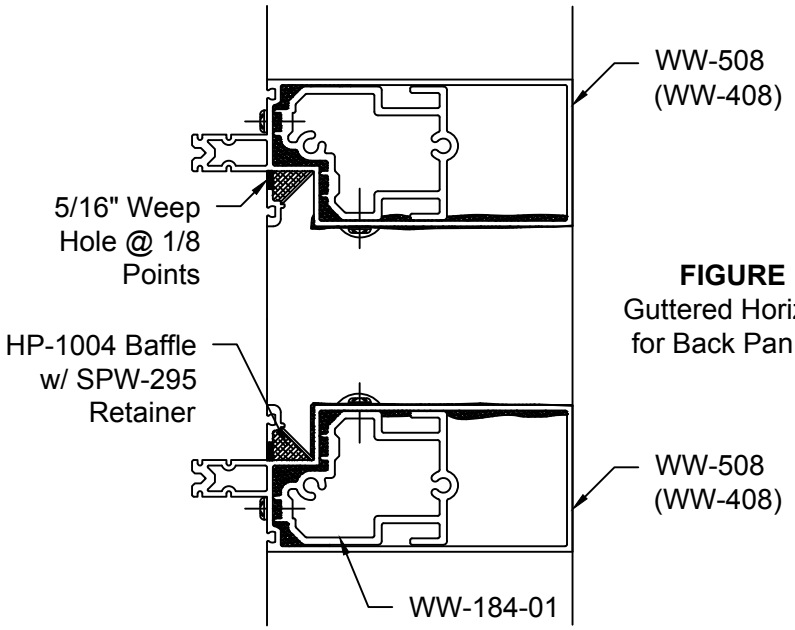


FIGURE 16
Guttered Horizontals
for Back Pan Areas

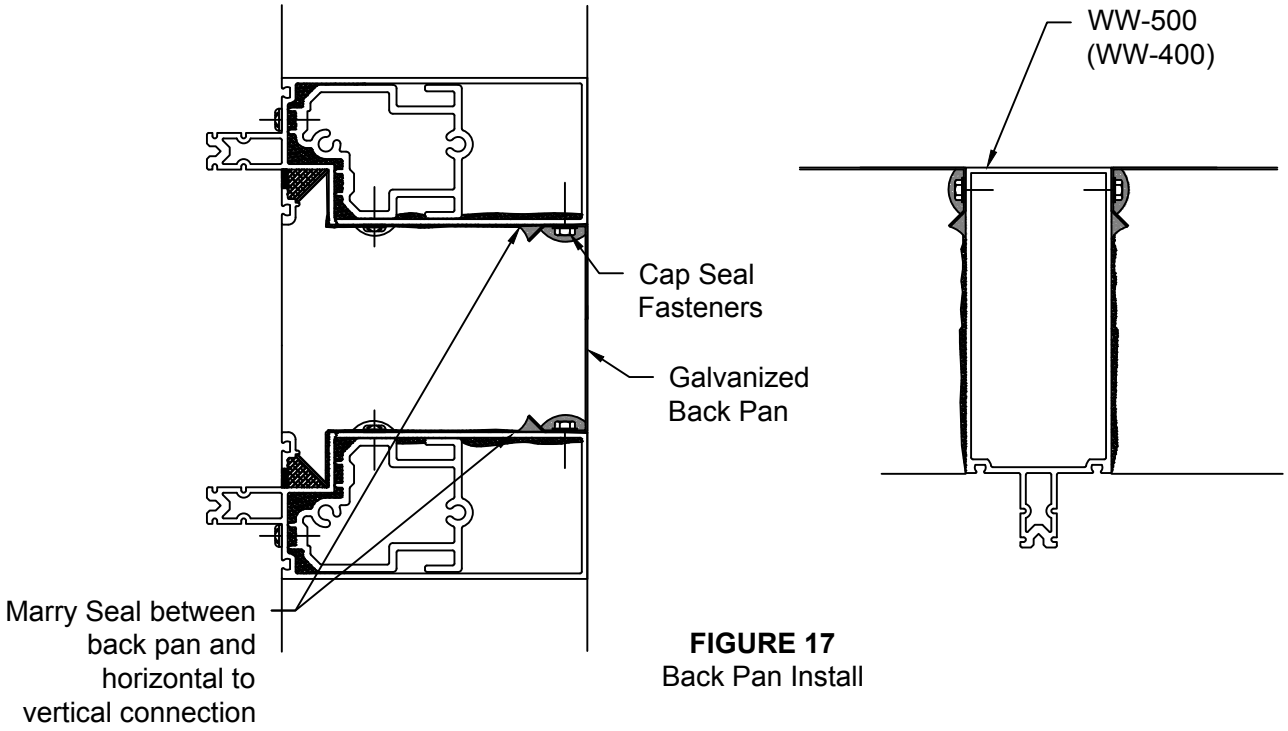


FIGURE 17
Back Pan Install

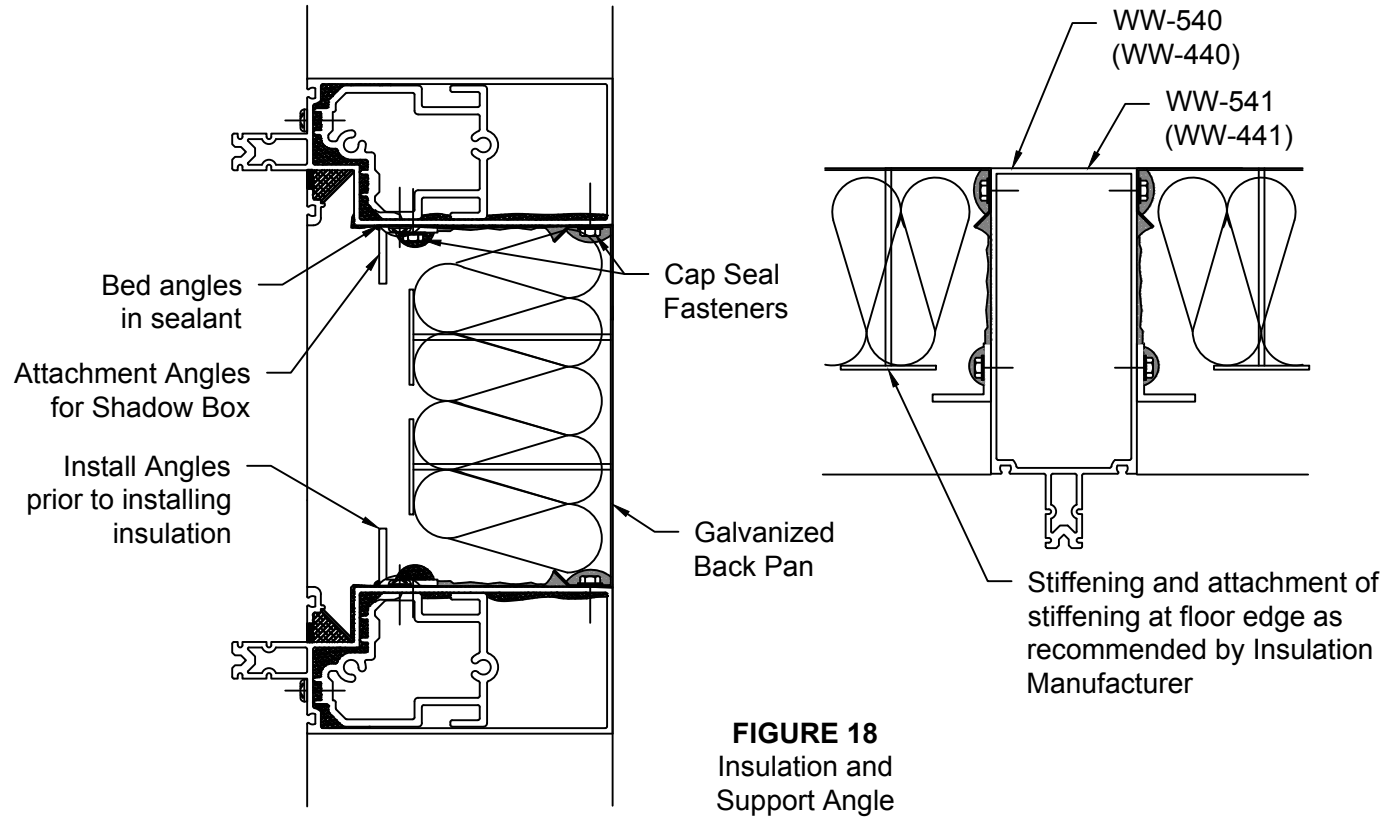


FIGURE 18
Insulation and
Support Angle
Installation

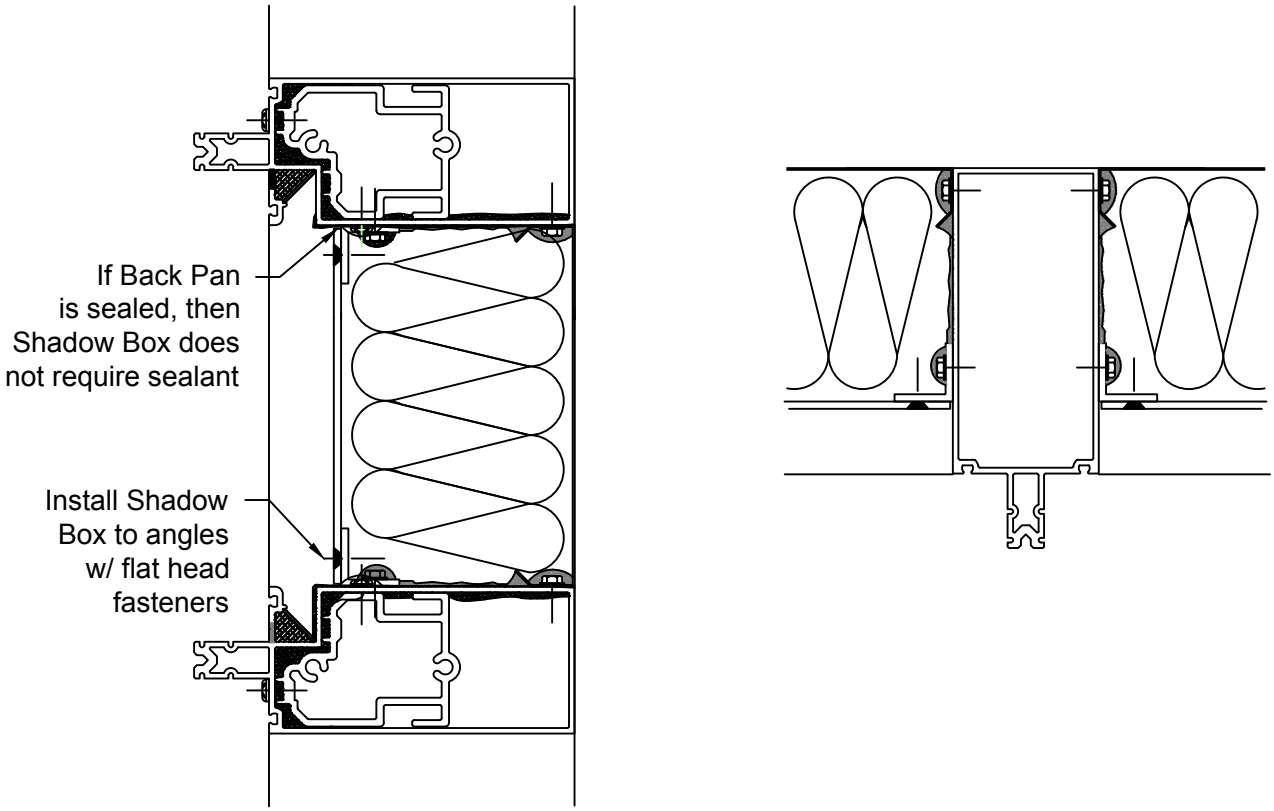


FIGURE 19
Back Pan Horizontal
& Vertical Details

3.1 Drill two countersunk holes in face of mullion as shown in **FIGURE 20** for attachment WW-2656-01 Dual Seal load block. Apply sealant to face and ends of WW-2656-01 and insert into top and bottom of mullion at head and sill. Attach block with two FS-7 (#10 x $\frac{3}{4}$" PFH) fasteners.

3.2 Apply sealant to WW-325 mull cap and attach to top and bottom of mullion at head and sill with two FS-320 drive screws. Tool sealant along mull stem and mull face to insure water tight joints.

3.3 Prior to glazing run secondary seal along the face plane of curtain wall. Sealant manufacturers recommendations for curing of secondary seal prior to installing primary seal must be followed. See **FIGURE 21, page 19.**

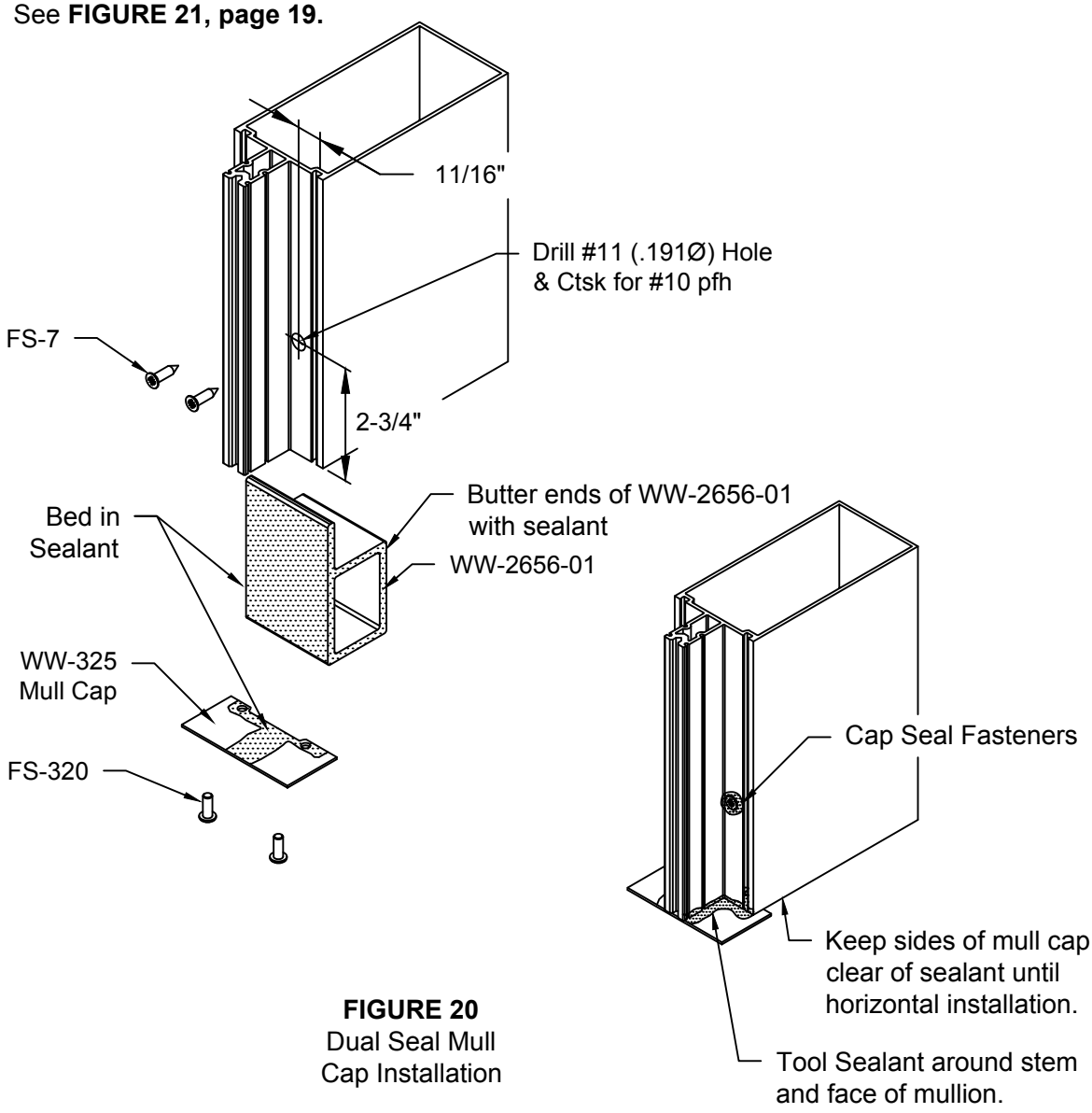


FIGURE 20
Dual Seal Mull
Cap Installation

DUAL SEAL INSTALLATION

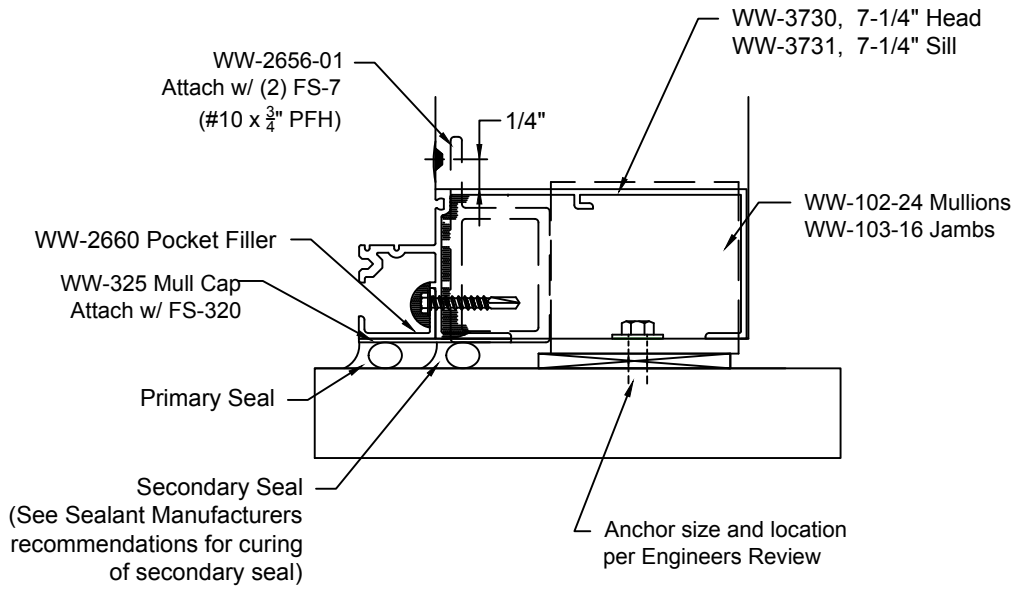
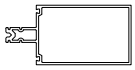
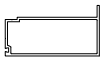
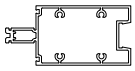
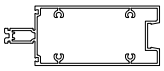
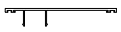


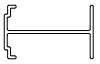
FIGURE 21
Dual Seal Sill Detail
(Head Similar)

PARTS LIST

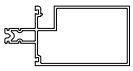
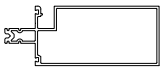
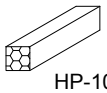
EXPANSION STACK & ACCESSORIES

 WW-400	Horizontal - Upper Stack Spandrel Area 6"
 WW-486	Horizontal - Lower Stack 6"
 WW-500	Horizontal - Upper Stack Spandrel Area 7-1/4"
 WW-586	Horizontal - Lower Stack 7-1/4"
 WW-483	Horizontal - Upper Stack Vision Area 6"
 WW-583	Horizontal - Upper Stack Vision Area 7-1/4"
 WW-259	Interior Trim for WW-483 & WW-583
 WW-257	Upper Expansion Gasket Retainer
 WW-258	Lower Expansion Gasket Retainer
 GP-144	Expansion Gasket
 GP-144-01	Expansion Gasket for Jamb Mullion
 GP-144-02	Expansion Gasket for O.S.90 Corners
 GP-144-03	Expansion Gasket for I.S.90 Corners

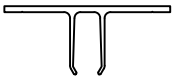
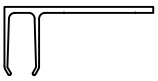
EXPANSION STACK & ACCESSORIES

 WW-271-01	Splice Sleeve for WW-400
 WW-270-01	Splice Sleeve for WW-500
FS-13	#10 X 1" PPH Tek
 WW-296-01	Shear Block for WW-486 & WW-586
 WW-297-01	Shear Block for WW-483 & WW-583

GUTTERED HORIZONTAL & ACCESSORIES

 WW-408	Guttered Horizontal 6"
 WW-508	Guttered Horizontal 7-1/4"
 AN-2	Shadow Box Attachment Angle
 HP-1004	Weep Baffle for WW-258
 SPW-295	Baffle Retainer
 WW-184-01	Shear Block for WW-408 & WW-508

DUAL SEAL EXTRUSIONS & ACCESSORIES

 WW-3730	Head Horizontal for Dual Seals
 WW-3731	Sill Horizontal for Dual Seals
 WW-2660	Pocket Filler for Dual Seals
 WW-2656-01	Dual Seal Bearing Tube
 WW-325	Captured Mullion Cap
 WW-338-01	Captured Mullion Cap at Jamb Mullions 1" Infill
 WW-102-24	Mull Anchor for Dual Seal WW-500
 WW-103-16	Jamb Anchor for Dual Seal WW-500