Oldcastle BuildingEnvelope®

ICR-225 WINDOW WALL

INSTALLATION AND GLAZING MANUAL

NOTE:

THE ASSEMBLY DETAILS FOUND IN THIS PACKAGE ARE GENERIC AND ARE FOR REPRESENTATION ONLY WITH THE INTENT OF GIVING THE ASSEMBLY TEAM A VISUAL REPRESENTATION AS TO HOW THE ASSEMBLIES TYPICALLY ASSEMBLE. 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 MANUFACTURES RECOMMENDATIONS FOR USE AND APPLICATION OF WEATHER SEAL SILICONE SEALANT.

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

May 2024

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ICR-225 WINDOW WALL INSTALLATION MANUAL

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GENERAL INFORMATION

PRODUCT USE

The **ICR-225** thermally improved ribbon window system is intended for fabrication, assembly, sealing, installation and glazing by professionals with appropriate knowledge and experience of the system(s) and their incorporation into various building conditions.

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 **ICR-225** thermally improved ribbon window system is directly related to the completeness and integrity of the installation process, including but not limited to the assembly seals of the framing joinery, the installed glazing gaskets, and the alignment of the framing joinery glazing plane. Before glazing, verify the glazing pocket width and glazing infill thickness, as both must be in tolerance to assure adequate edge pressure and to achieve the desired air and water performance levels. (In general, framing systems utilizing 1" insulating glass are designed to accommodate a thickness variance of +/- 1/32"). Note: Excessive pressure can cause glass breakage and/or IGU failure. Consult the glass manufacturer for their recommended edge pressure per lineal inch. To achieve the designed and tested air and water performance, best practices include:

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 “Care and Handle 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 ICR-225 Window Wall system is designed to accommodate glass or panels measuring 1" (+/- 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 condition 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.

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 in Figures 1 thru 4 below are representative of typical frame configurations that are covered in these instructions. Contact your local Vistawall facility for custom configurations involving non-standard installation methods.

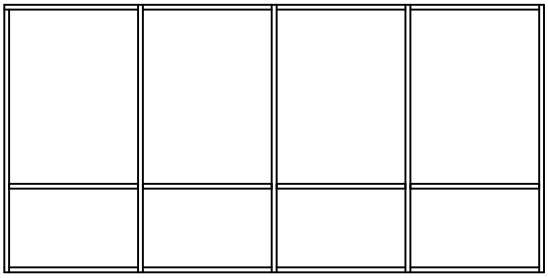


Figure 1
Standard Punched Opening - Type "A" installation
(Verticals Run Through)

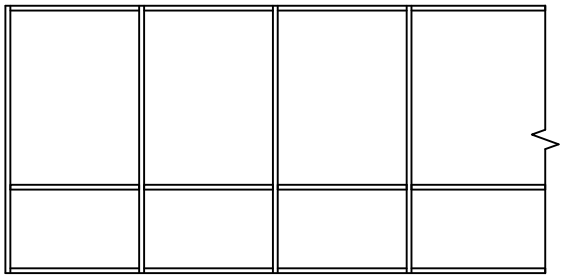


Figure 2
Extended Frame (width > 24'-0") - Type "A" installation

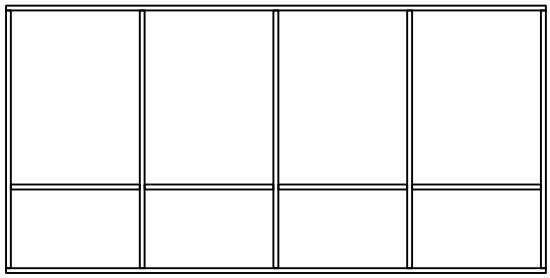


Figure 3
Standard Punched Opening - Type "B" installation
(Head & Sill Run Through)

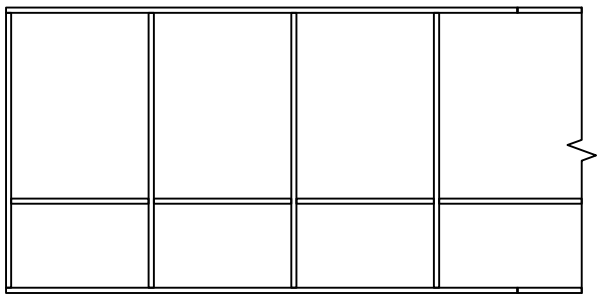


Figure 4
Extended Frame (width > 24'-0") - Type "B" installation

FRAME FABRICATION SYSTEM "A"

Details in this manual reflect the 4-1/2" system. The 6" system part numbers and dimensions are referenced in parenthesis () where applicable.

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 1/2" minimum clearance for shimming and caulking around perimeter of frame.

1.2 Cut material to size. SEE FIGURE 5 for guide.

Head and Sill	Daylight Opening (D.L.O.)
Verticals, vertical filler and jambs	Frame Height
Vertical Face Caps	Frame Height
Intermediate Horizontals	D.L.O. (Screw Spline)
Intermediate Horizontals	D.L.O. minus 1/16" (Shear Block)
Horizontal Glass Stops	D.L.O. minus 1/32"
Horizontal Face Caps	D.L.O. minus 1/16"
Horizontal Face Caps @ SSG	Bay Width minus 1/16" (See figure 5) (Maximum length 3 lites or 15 feet)

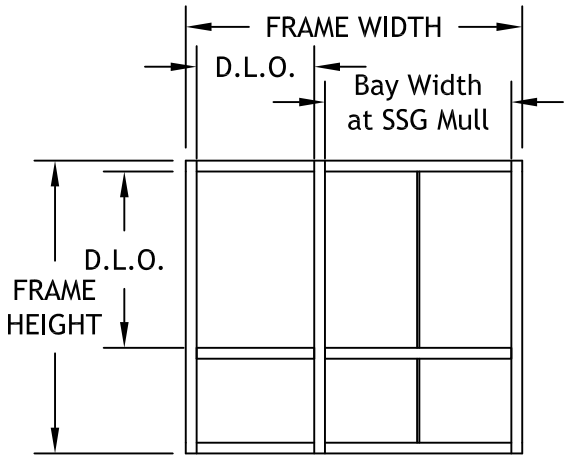


Figure 5
Material Fabrication Guide

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

FRAME FABRICATION SYSTEM "A"

1.3 Fabricate vertical/jamb members for head, sill and intermediate horizontal attachment. SEE FIGURE 6, page 7

Drill jig guide:
Align drill jig with top of horizontal. Drill holes outlined below based on the member:

- Head Member (DJ-101) - Use holes D,E for 4-1/2" system; D,F for 6" system
- Screw Spline Horizontal (DJ-101) - Use holes A,B for 4-1/2" system; A,C for 6" system
- (Optional) Shear Block Horizontal (DJ-103) - Use holes A,B for 4-1/2" system; A,C for 6" system
- Sill Member (DJ-101) - Use holes G,H for 4-1/2" system; G,I for 6" system

If using optional shear block attachment for intermediate horizontal (SEE FIGURE 21, page 20), fabricate hole on each end of horizontal per FIGURE 20, page 20.

1.4 Drill 5/16" diameter weep holes in horizontals and sill members at 1/4 points. Install HP-1004 baffles as required at sill, secure with SPW-295 baffle retainers. Install ICR-312 baffle clips at horizontal weep holes. FIGURE 7, page 8

1.5 Drill one 5/16" diameter weep hole at the bottom center of each lite of glass at the horizontal face caps. NOTE: For SSG applications, there will be multiple holes per face cap.

1.6 Drill anchor holes in sill members on "V" groove. Head anchors are secured to building condition before frame is set in place. See approved shop drawings for location and quantity of anchors and anchor bolt sizes.

Maximium end reactions:

- 4-1/2" system: 600 lbs
- 6" system: 1000 lbs (Type A) with optional head reinforcing sleeve

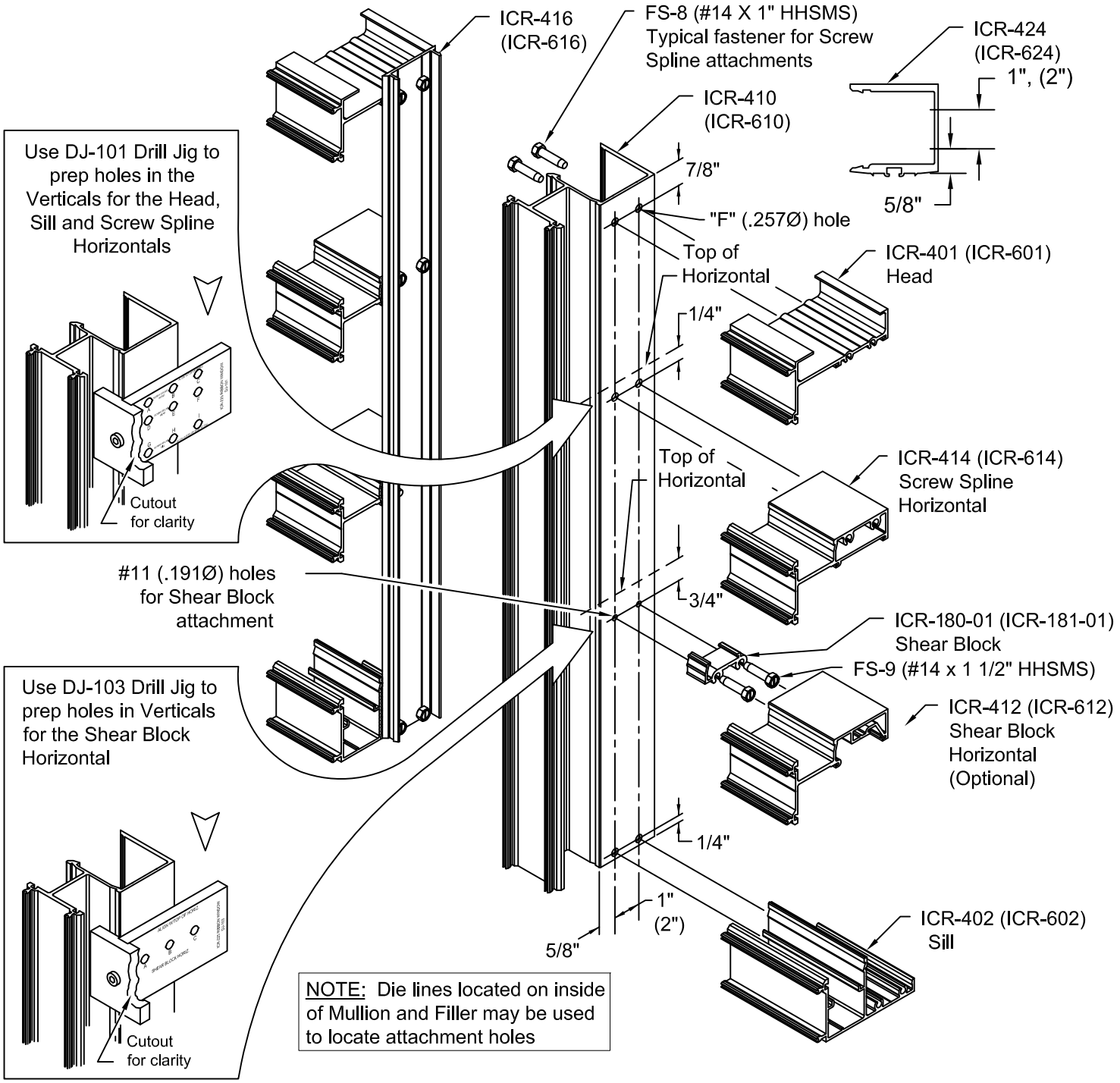


Figure 6
Type "A" Layout

FRAME ASSEMBLY TYPE "A"

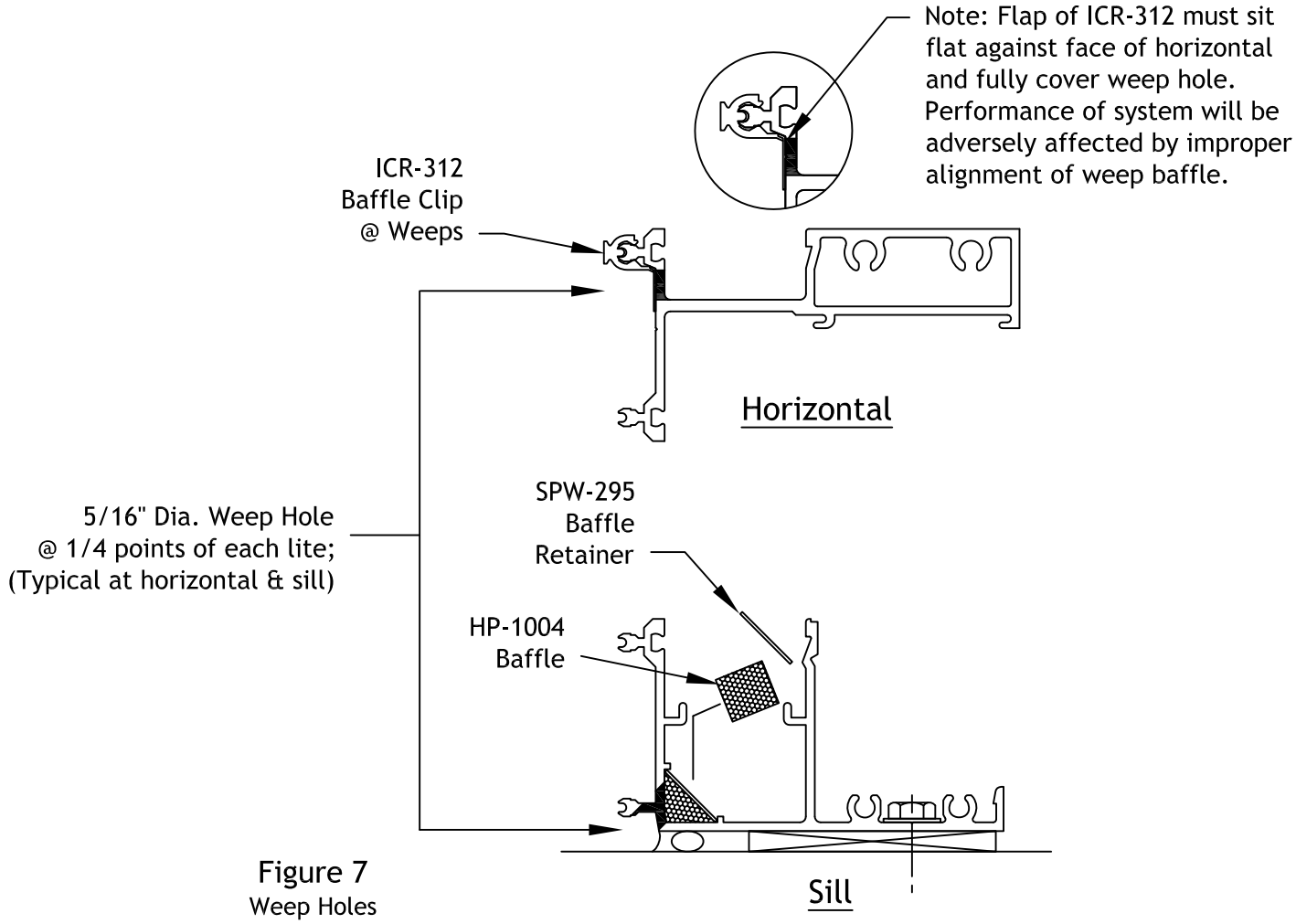


Figure 7
Weep Holes

Prior to applying sealant to any frame member, the aluminum must be cleaned. Consult sealant manufacturer for cleaning recommendations. Steps 2.1 through 2.4 refer to screw spline assembly of system. Refer to Step 2.5 for optional installation of shear block horizontals.

2.1 Attach ICR-112-01 mull caps using (2) FS-320 #10 U-Drive fasteners. Install and seal as shown in FIGURE 8, page 9. The attachment and sealing of the mull caps is one of the most critical phases of the installation of the Type "A" assembly. After installation of each unit, tool sealant around glazing pocket to insure water tight seal. Add sealant as required. Special care and attention should be given to this process.

2.2 Install ICW-12 isolator clips on all vertical and horizontal framing members at 12" o.c., stagger the clips by approximately 2" at the ends and 6" at intermediate clips.SEE FIGURE 9, page 10. Check ICR-12 clip locations to insure they do not block the weep hole in face caps. ICR-312 isolator clip/baffles must be installed over each horizontal weep hole. Once clips are installed, snap face caps into position. The vertical caps should be installed first, then horizontal, head and sill caps.

2.3 Seal ends of horizontal framing members before assembly. SEE FIGURE 10, Page 11.

If optional head reinforcing sleeves are used (6" system only), refer to section B, page 29 for instructions before proceeding.

FRAME ASSEMBLY SYSTEM "A"

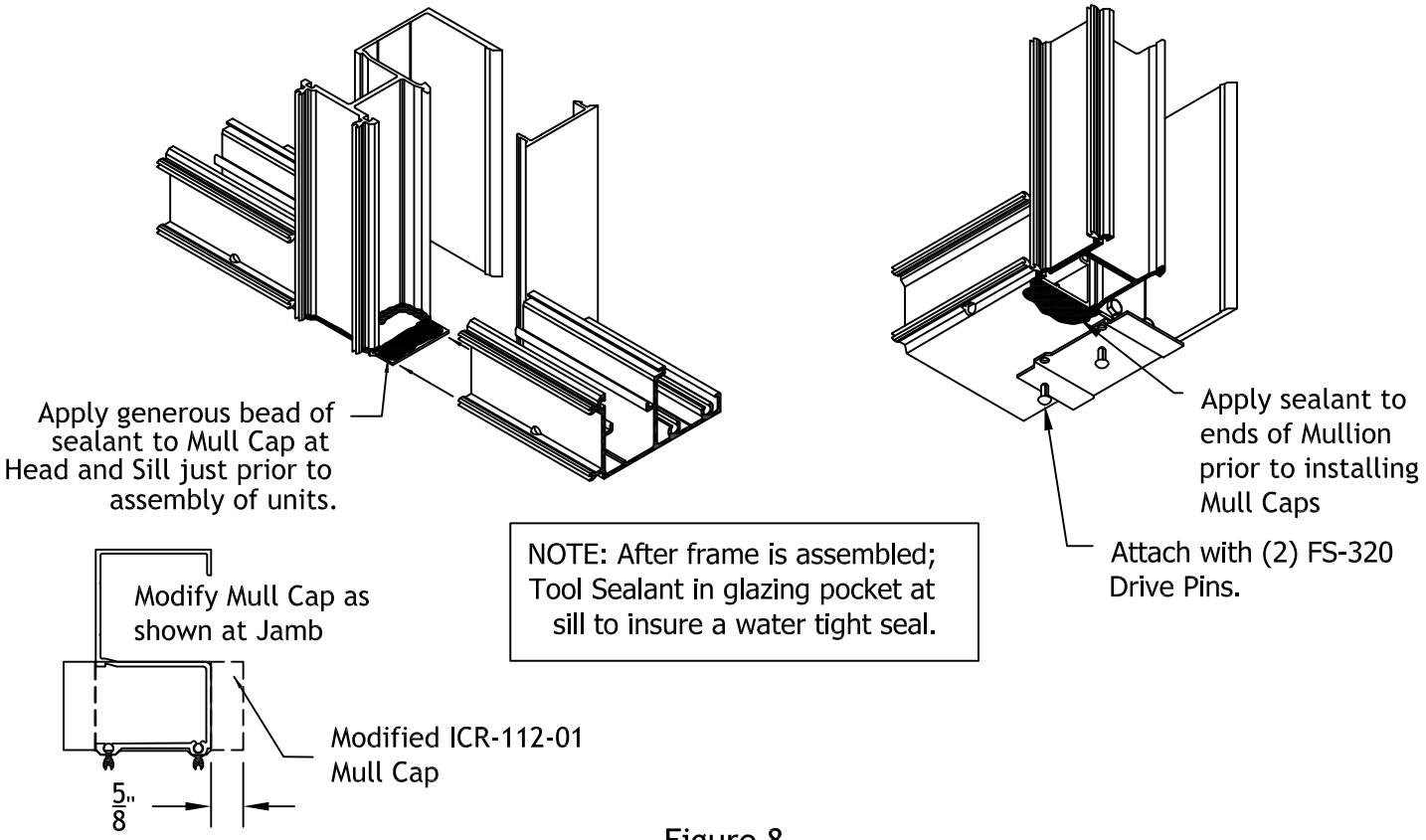


Figure 8
Mull Cap Attachment

2.4 Attach head, sill and intermediate horzontals to verticals with (2) FS-8 #14 x 1" Hex Head screws. DO NOT OVER TORQUE SCREWS. SEE FIGURE 9, PAGE 10.

2.5 Note: Optional shear block horizontals may be used with Type "A" installations. Begin by installing ICR-180-01 (ICR-181-01) shear blocks to verticals using (2) FS-9 #14 x 1 1/2" Hex Head screws. Prior to attaching horizontals to shear blocks; apply sealant to face and top of shear block and along front edge of vertical in line with face of horizontal. Roll the horizontal over the shear block and attach with (1) FS-55 #10 x 1/2" Phillips Round Head screw.
SEE FIGURE 21, Page 20

FRAME ASSEMBLY SYSTEM "A"

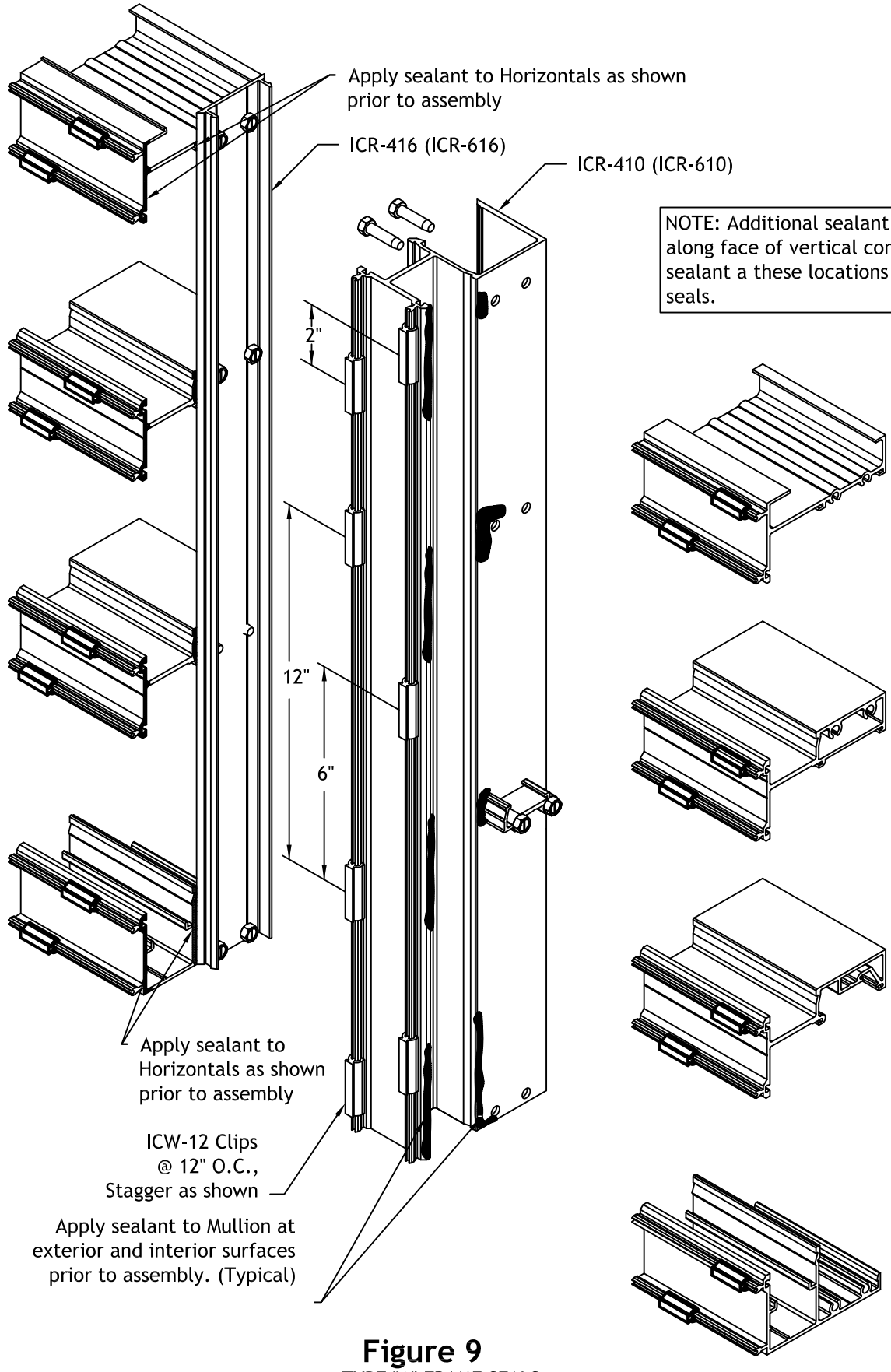


Figure 9
TYPE "A" FRAME SEALS

FRAME INSTALLATION TYPE "A"

3.1 Install frame sections starting with a frame unit comprised of a jamb and vertical mullion with head/sill and horizontals. Each additional frame unit will be made from a mullion filler and a mullion until you reach the opposite end of the opening. The final frame member will be made from the mullion filler and a jamb. (This description assumes a ribbon installation with a jamb at each end, your installation units may vary.)

a) Each frame unit will be assembled and sealed as shown in **FIGURES 8, page 9 & FIGURE 9, page 10** with mull caps installed as shown in **FIGURE 8, page 9**. A second bead of sealant is applied to the mullion cap that is protruding into the opening just prior to assembly of the frame units. **SEE FIGURE 8, page 9. NOTE: Sealant must be tooled at head and sill to insure proper seal.**

b) When installing each unit, first slide head member over the head anchor ,which has been previously installed, and rotate unit into position. Each adjacent unit will be rotated into position beside the installed units and slid into position between the mull caps that are attached at the head and sill, then snapped into position. (A furniture clamp may be used to simplify the snapping of units together.) **NOTE: When optional head reinforcing sleeves are used (6" system only), slide head member into position over head anchor so that reinforcing sleeve is centered on head anchor.**

c) Make sure each unit is plumb, square and level, anchoring each unit as it is installed.

d) Once all units are installed inspect caulk joints to insure uniformity.

NOTE: For optimal performance of Head Anchor, Die Lines must be visible on the Anchor at the top of the Frame. SEE FIGURE 10 below

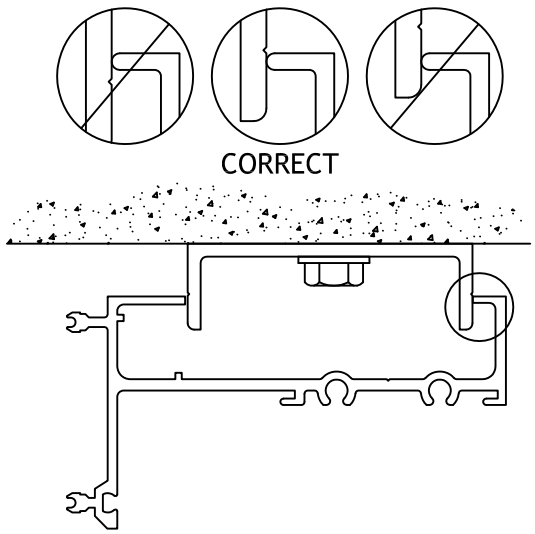


Figure 10
Head Anchor Position

FRAME INSTALLATION

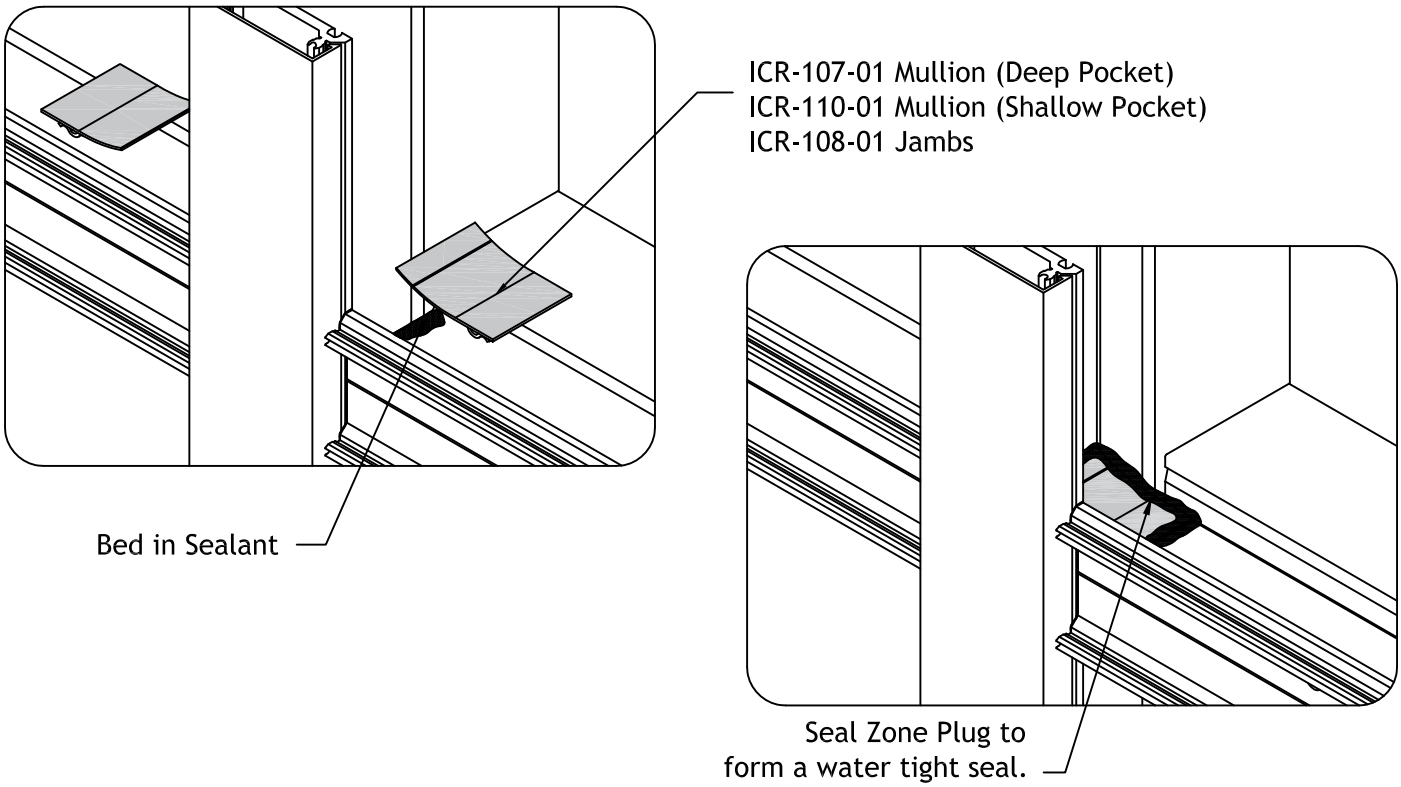


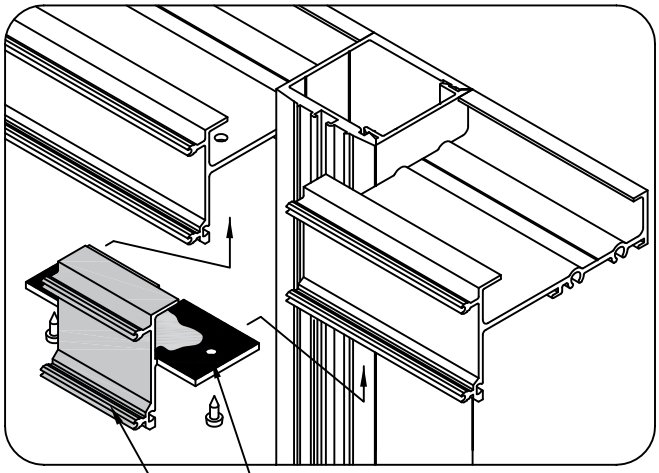
Figure 11
Zone Plug Installation

3.2 Install and seal zone plugs at captured verticals as shown in **FIGURE 11**. Where there are SSG verticals, install and seal aluminum bridges per instructions in Step 3.4.

3.3 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. When installing exterior seal it is recommended that the seal be run prior to installing face caps. Keep weep holes at sill clear of sealant. Never run perimeter seal along outer edge of face cap.

3.4 SSG Bridge Installation: An aluminum bridge must be installed at each horizontal to vertical connection when using a SSG mullion. Attach to the horizontals using (2) FS-55 #8 x 1/2" Pan Head screws. Apply sealant to the horizontal member and to the mating surface of the bridge. Set bridge in place and attach. Tool sealant around the perimeter of the bridge and along the face of the mullion. Cap seal fasteners. The joint at the face of the bridge to the horizontal must also be sealed. **SEE FIGURES 12, 13 & 14, page 13**

SSG BRIDGE INSTALLATION



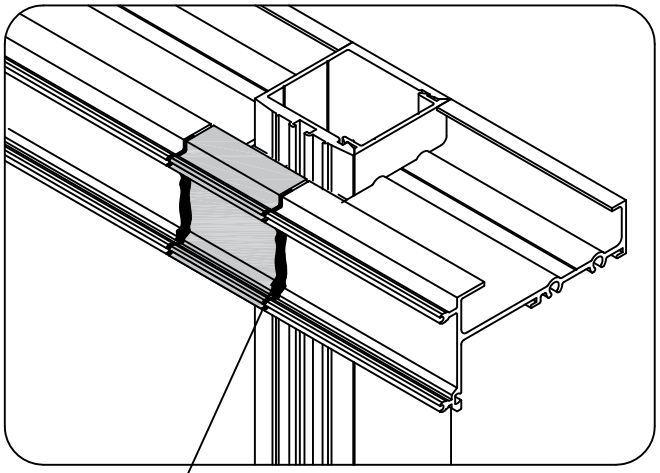
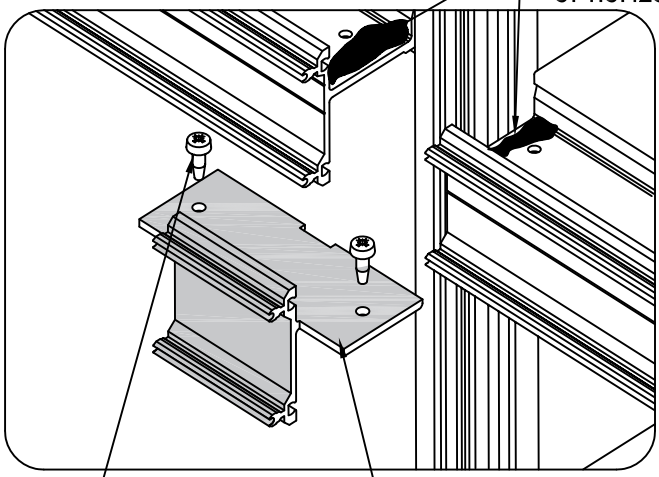


Figure 12



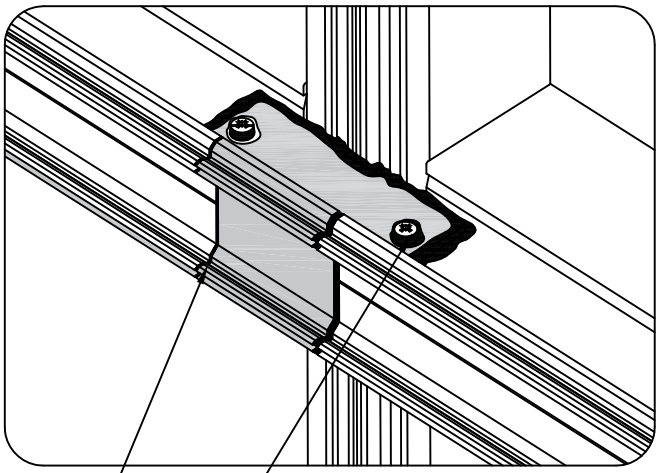
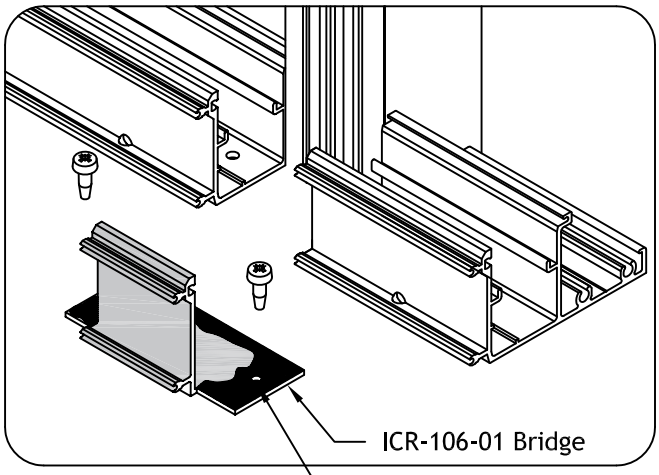


Figure 13



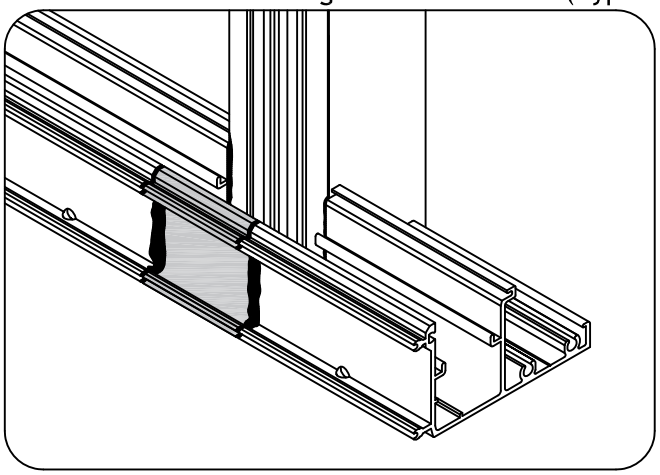


Figure 14

FRAME FABRICATION SYSTEM "B"

Details in this manual reflect the 4-1/2" system. 6" system part numbers and dimensions are referenced in parenthesis ( ) where applicable.

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

4.1 Measure ROUGH OPENING to determine FRAME WIDTH and FRAME HEIGHT dimensions. Allow 1/2" minimum clearance for shimming and caulking around perimeter of frame.

4.2 Cut material to size. **SEE FIGURE 15** for guide.

Head and Sill	Frame Width
Head and Sill Face Caps	Frame Width
Verticals and jambs	Frame Height minus 3-5/16"
Vertical Face Caps	Frame Height minus 4-9/16"
Intermediate Horizontals	D.L.O. (Screw Spline)
Intermediate Horizontals	D.L.O. minus 1/16" (Shear Block)
Horizontal Glass Stops	D.L.O. minus 1/32"
Horizontal Face Caps	D.L.O. minus 1/16"
Horizontal Face Caps @ SSG	Bay Width minus 1/16" (See figure 5)

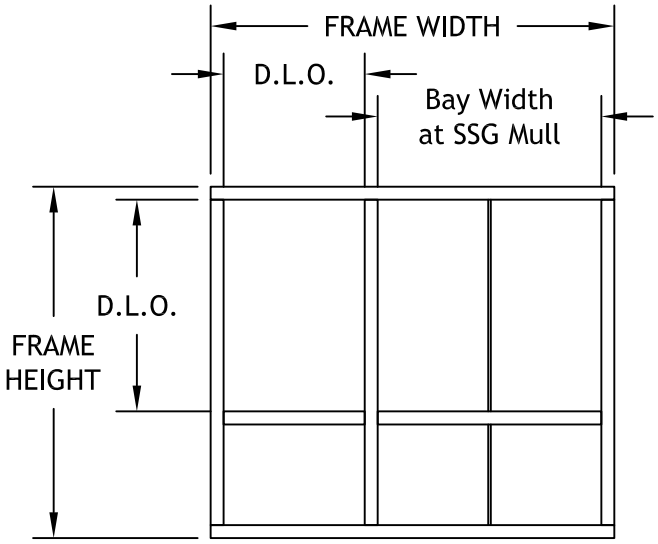


Figure 15
Material Fabrication Guide

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

FRAME FABRICATION SYSTEM "B"

4.3 Fabricate head & sill members for vertical/jamb attachment. Use DJ-101 drill jig to drill the holes at the sill member and DJ-104 for the head member. SEE FIGURE 16, page 16

Drill Jig Guide:

Align drill jig with side of mullion at head & sill member. Drill holes outlined below based on the member.

- Head Member (DJ-104) - Use holes 1,2,3 & 4 for 4-1/2" system; A,B,C & D for 6" system
- Sill Member (DJ-101) - Use holes A,B, G & H for 4-1/2" system; A,C,G & I for 6" system

NOTE: Only two (2) holes are needed for 4-1/2" system.
Drilling four (4) holes is recommended in case
verticals must be flipped for pocket orientation.

4.4 Align drill jig DJ-103 with top of Horizontal. Fabricate vertical mullions for intermediate horizontals. Notch top of all verticals and jambs for head member. SEE FIGURE 16, page 16.

4.5 If horizontals are required, fabricate hole on each end of horizontal per FIGURE 20, page 20

4.6 Drill 5/16" diameter weep holes in horizontals and sill members at 1/4 points. Install ICR-312 baffle clip at all horizontals and head (incidental water only) Install HP-1004 baffles as required at sill, secure with SPW-295 baffle retainers. SEE FIGURE 18, PAGE 18

4.7 Drill one 5/16" diameter weep hole at the bottom center of each lite of glass at the head, sill, and horizontal face caps. NOTE: For SSG applications, there will be multiple holes per face cap.

4.8 Drill anchor holes in sill members on "V" groove. Head anchors are secured to building condition before frame is set in place. See approved shop drawings for location and quantity of anchors and anchor bolt sizes for both head and sill.

Maximum end reaction:

- 4-1/2" system: **600 lbs.**
- **6" system: 1000 lbs. (Type "B") with optional head and sill reinforcing sleeves**

FRAME FABRICATION SYSTEM "B"

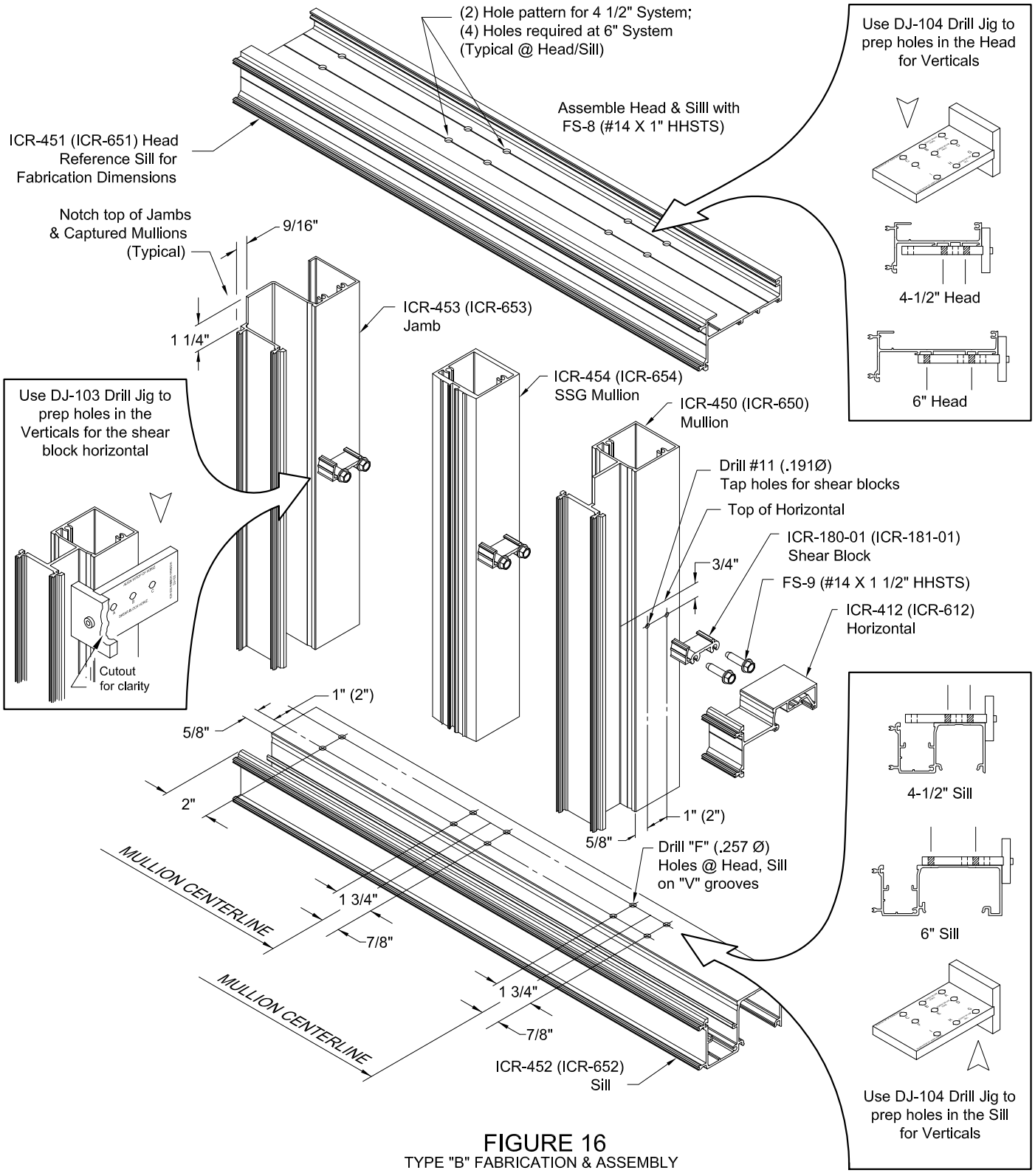


FIGURE 16
TYPE "B" FABRICATION & ASSEMBLY

FRAME ASSEMBLY SYSTEM "B"

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

5.1 If frame has horizontals, attach Shear Blocks to jambs and vertical mullions with (2) FS-9 #14 x 1 1/2" Hex Head screws.

If optional Head & Sill reinforcing sleeves are used (6" system only), refer to Section B, page 29 for instructions before proceeding.

5.2 Attach jambs and vertical mullions to the head and sill using (2) FS-8 #14 x 1" Hex Head screws (4-1/2" system) or (4) FS-8 #14 x 1" Hex Head screws (6" system). If head is to be used for incidental water, screws must be cap sealed.

If frame is to accomodate incidental water at the head, slide strap anchors into head member prior to installing end caps (Step 5.3) and setting the frame in the opening.

5.3 Attach aluminum end caps to each end of head and sill members with (2) FS-320 U-drive and seal as shown on FIGURE 17.

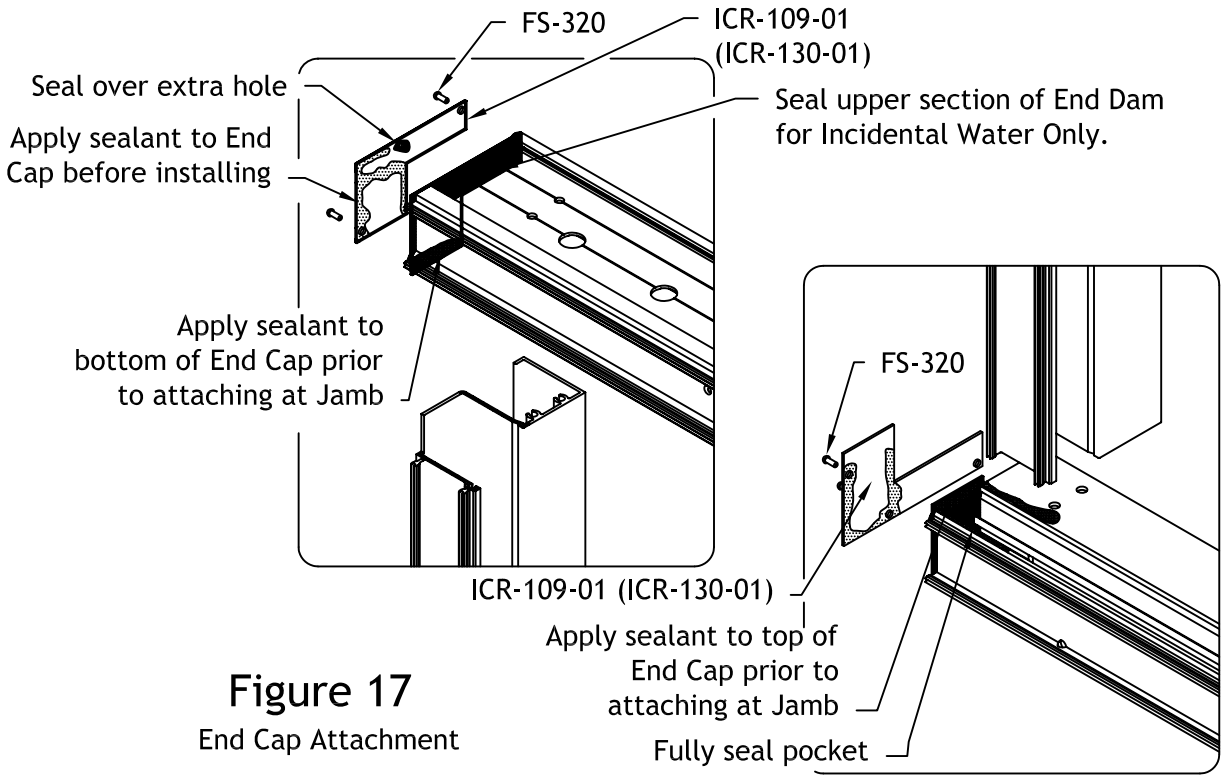


Figure 17
End Cap Attachment

FRAME FABRICATION TYPE "B"

5.4 Install ICW-12 isolator clips on all vertical and horizontal framing members at 12" o.c., stagger the clips by approximately 2" at ends and 6" at intermediate clips. **SEE FIGURE 18, page 17.** ICR-312 isolator clip/baffles must be installed over each weep hole at the horizontals or head (incidental water only). Once clips are installed, snap face caps into position. The vertical caps should be installed first, then horizontal, head and sill caps. Make sure ICR-12 clips do not block weep holes in face cap.

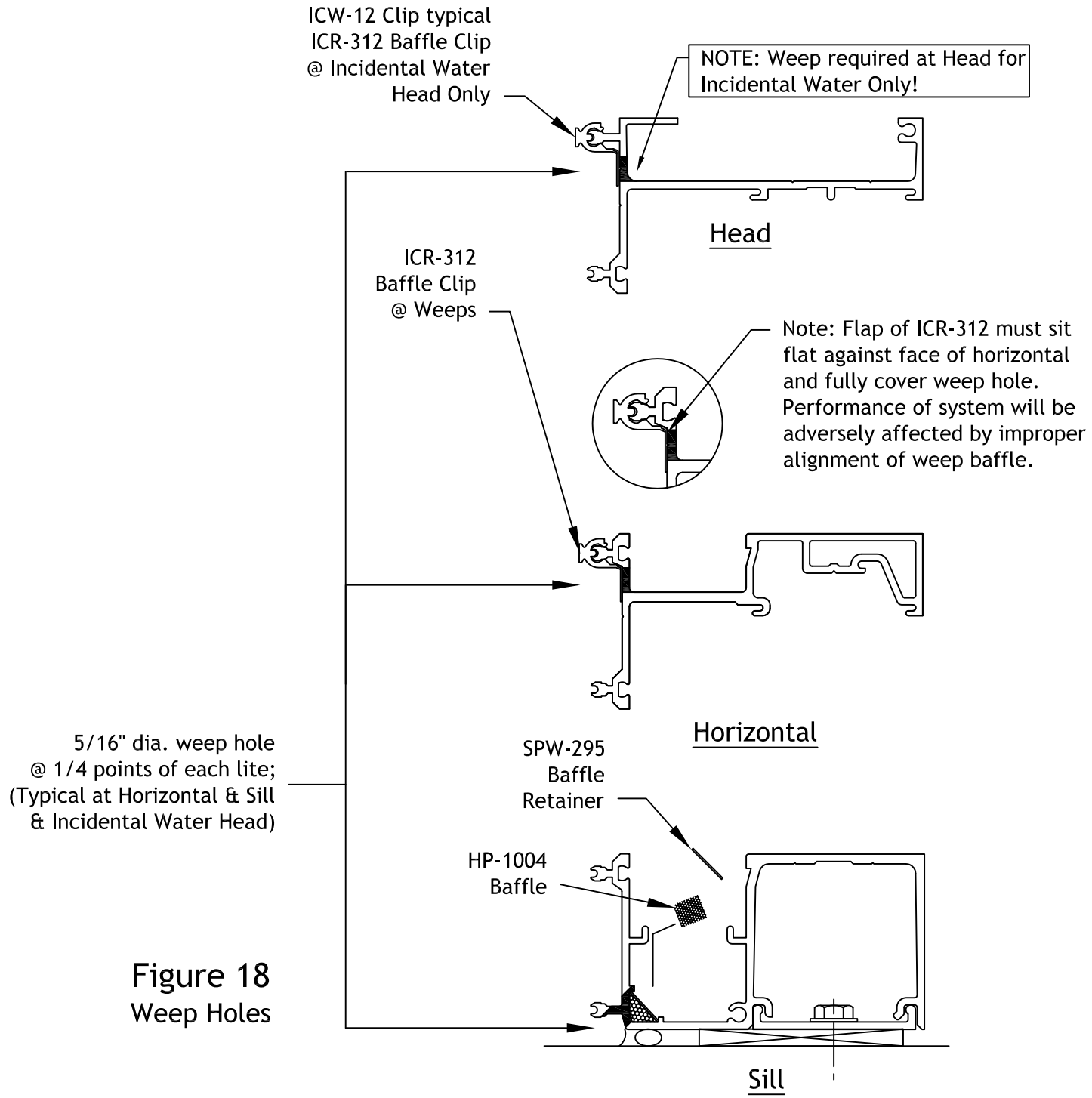


Figure 18
Weep Holes

FRAME ASSEMBLY SYSTEM "B"

5.5 Seal ends of vertical and horizontal framing members before assembly. **SEE FIGURE 19.**

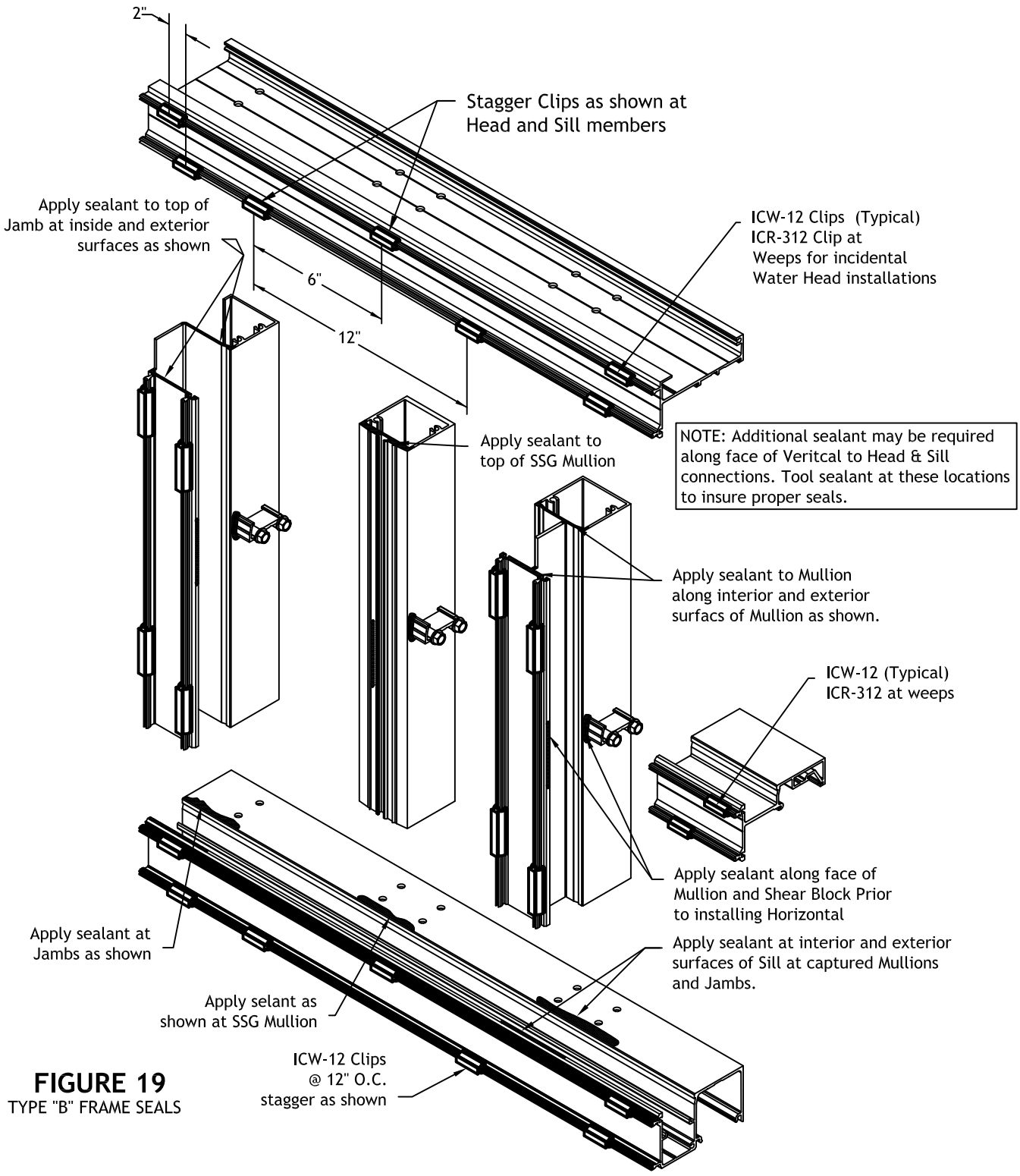


FIGURE 19
TYPE "B" FRAME SEALS

FRAME INSTALLATION TYPE "B"

5.6 Horizontals can be attached either before or after the frame is installed in the opening. Prior to attaching intermediate horizontals, apply sealant to the face of shear block and along outer face of mullion where horizontal will intersect the face. Roll the horizontal over the shear blocks and attach with (1) FS-55 #10 x 1/2" Phillips Pan Head screw. SEE FIGURE 20 & 21.

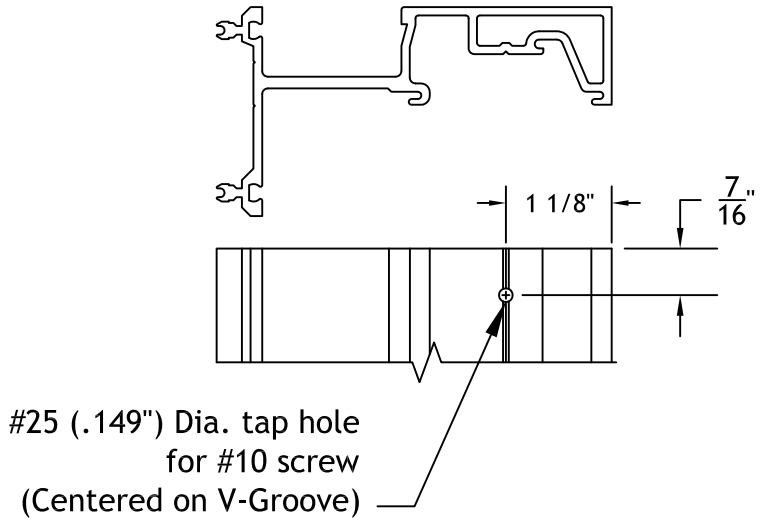


Figure 20
Horizontal Mullion Fabrication

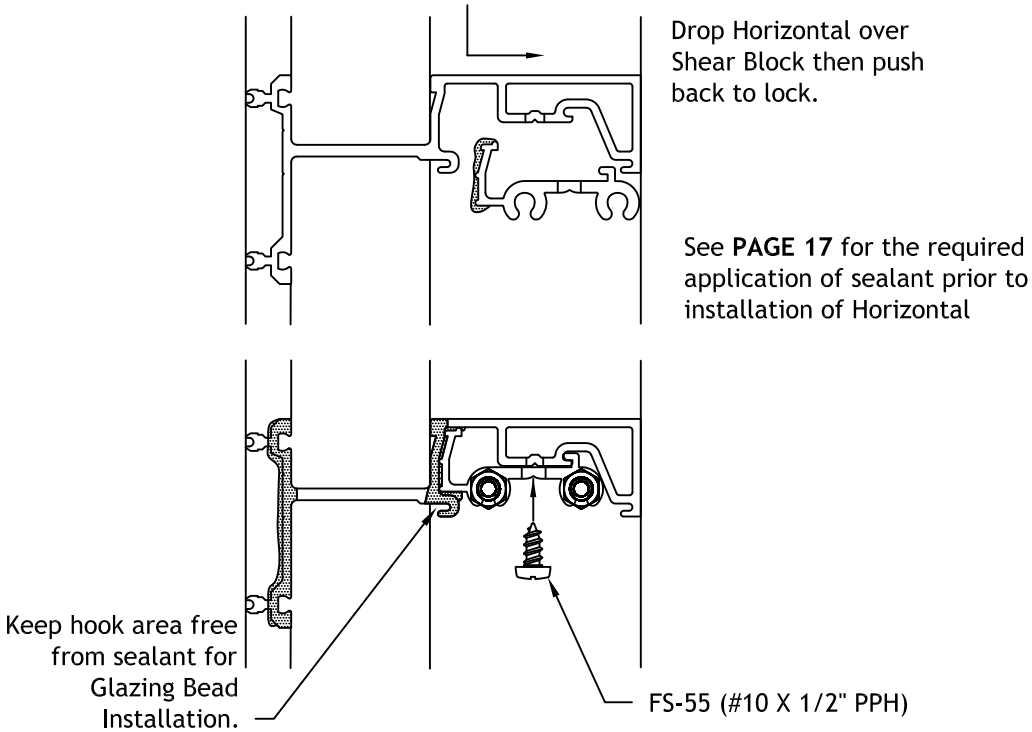


Figure 21
Horizontal Installation

FRAME INSTALLATION SYSTEM "B"

6.1 Shim continuous sill anchor off floor. Anchor must be level. **SEE FIGURE 22** 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 2-3/16" (3-11/16") in front of rear edge of wall.**

6.2 **If optional reinforcing sleeves are used (6" system only), refer to Section B, page 30 for instructions before proceeding. NOTE: Front edge of head anchor is 3-1/8" (4-5/8") in front of rear edge of frame.** Slide head of frame over the head anchor which has been previously installed and rotate into position, then lower onto sill anchor. Check to insure that frame is plumb, square and level. Check caulk joints to insure uniformity.
NOTE: FOR OPTIMAL PERFORMANCE OF HEAD ANCHOR, DIE LINES MUST BE VISIBLE ON THE ANCHOR AT THE TOP OF THE FRAME. FIGURE 23.

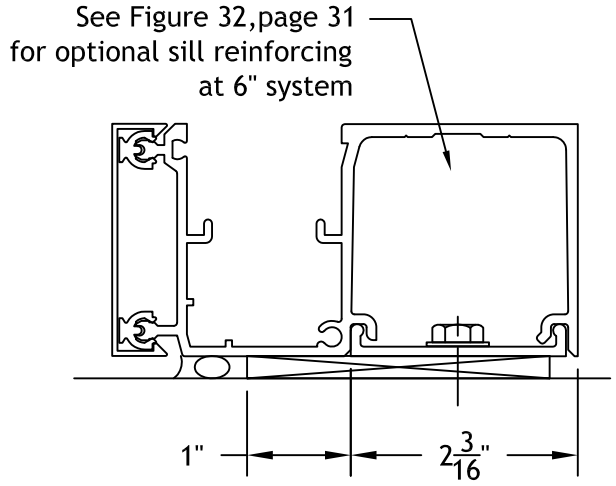


Figure 22
Shim placement at Sill Anchor

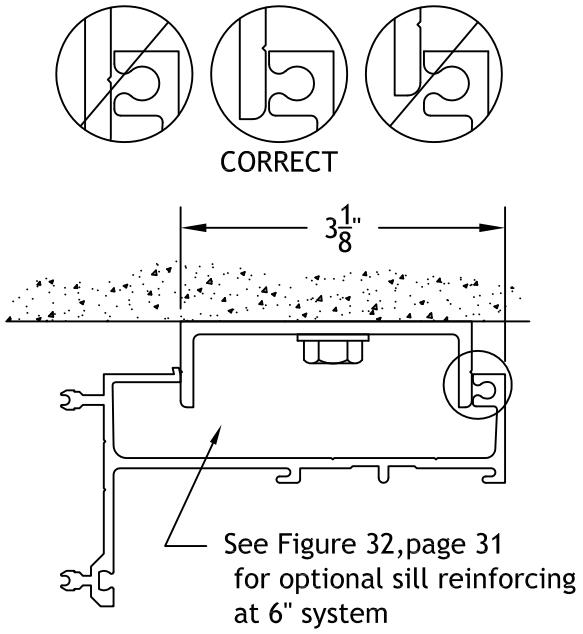


Figure 23
Head Anchor Position

ZONE PLUG & BRIDGE INSTALLATION

6.3 Install and seal zone plugs at captured verticals as shown in **FIGURE 24**. Where there are SSG verticals, install and seal aluminum bridges per instructions in **STEP 6.5.**

6.4 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. When installing exterior seal it is recommended that the seal be ran prior to installing face caps and care should be take to keep weep holes at sill clear of sealant. Never apply perimeter seal along outer edge of face cap.

6.5 SSG Bridge Installation: An aluminum bridge must be installed at each horizontal to vertical connection when using a SSG mullion. The bridge will be attached to the horizontals using (2) FS-202 #8 x 1/2" Pan Head screws. Sealant will be applied to the horizontal member and to the mating surface of the bridge. Set bridge in place and attach. Tool sealant around the perimeter of the bridge and along the face of the mullion. Cap seal all fasteners. The joint at the face of the bridge to the horizontal must also be sealed. **SEE FIGURE 25**.

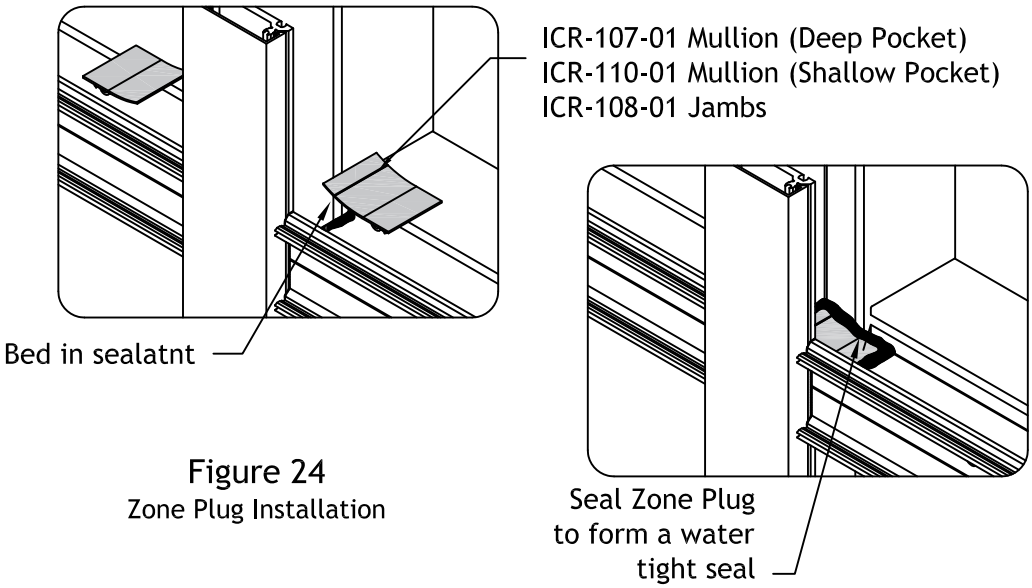


Figure 24
Zone Plug Installation

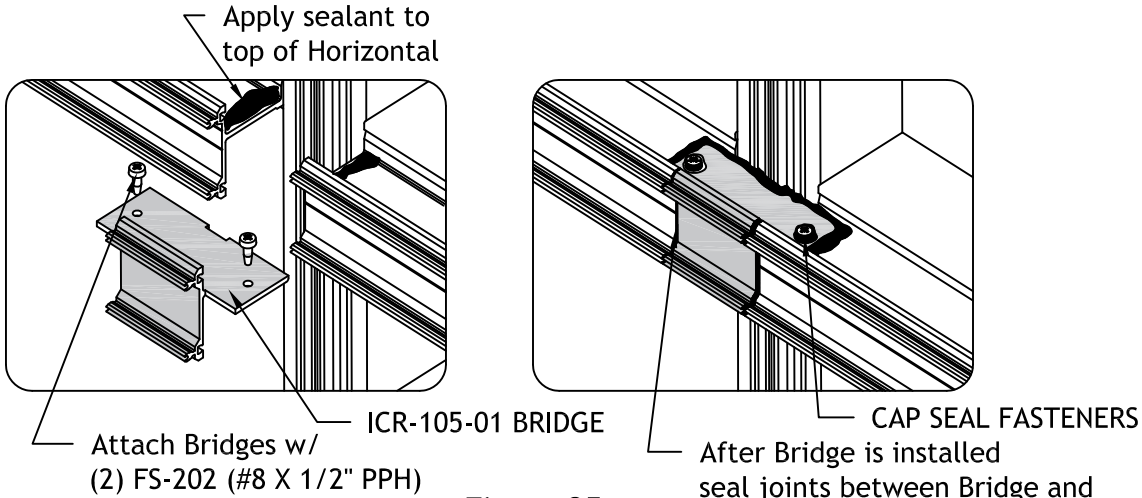


Figure 25
Bridge Installation

FRAME SPLICING SYSTEM "B"

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 1/4" 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.

7.1 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. Attach splices to one side of frame with FS-55 (#10 x 1/2" Phillips Pan Head) as shown in **FIGURE 26**.

7.2 Place splice sleeves in head and sill of first frame section, slide the next frame section over the splice sleeves to achieve a 1/4" joint. **SEE FIGURE 26**

7.3 Offset head and sill face cap splice joints by 3" from main member splices. Set joint at face caps at 1/2" and seal as necessary.

7.4 Follow instructions for shimming and anchoring of frame.

7.5 Seal over gap at splice joint.

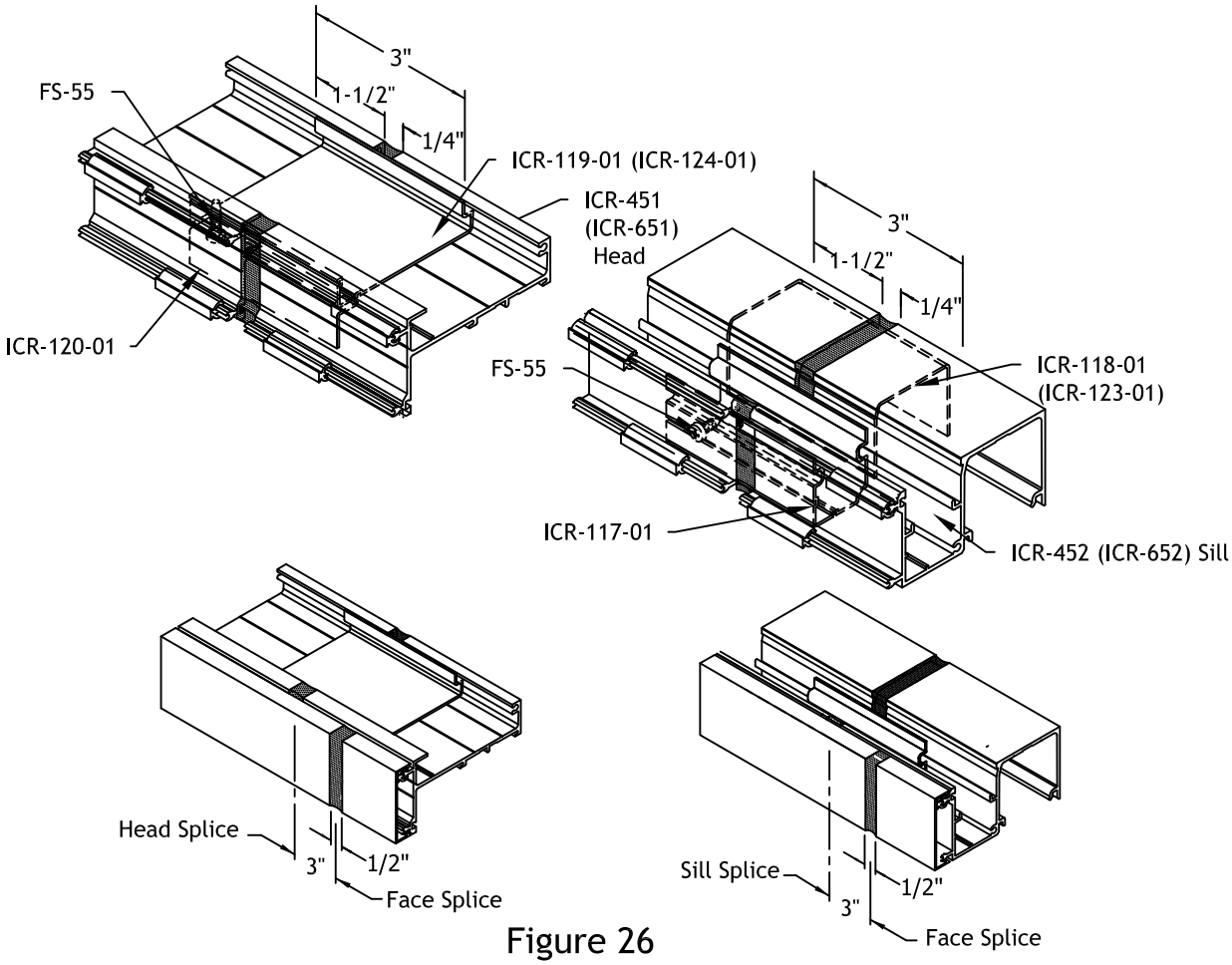


Figure 26
Head & Sill Member Splicing

GLAZING

Start glazing the frame from bottom and work up.

GLASS SIZE CALCULATION:

D.L.O. + 1" FOR WIDTH & HEIGHT at CAPTURED SYSTEM
D.L.O. + 1 3/4" FOR WIDTH at SSG SYSTEM (VERTICALS ONLY)
D.L.O. + 1" at CORNER MULLIONS (CAPTURED)

8.1 Note: To avoid sealant 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 set glass in each opening. Install exterior gaskets.

Type A installation: (verticals running through) - Gaskets at all verticals run through; head, sill and intermediate horizontal gaskets butt into vertical gaskets. Cut Vertical gaskets DLO plus 1", notch ear and allow gasket to extend into glazing pocket by 1/2" at top and bottom. Horizontal gaskets will cut DLO and miter to fit tight against vertical gasket.
See FIGURE 33, page 25

Type B installation (head / sill run through) - Gaskets at head and sill run through; vertical gaskets butt into head and sill gaskets. At intermediate horizontals, the vertical gaskets run through. At intermediate horizontal notch the ear of vertical gasket so that it may extend 1/2" into glazing pocket. Miter horizontal gasket to fit tight against the vertical gasket.
See FIGURE 33, page 25

Crowd the gaskets into the corners, cutting the horizontal gaskets at an angle to match the bevel on adjoining gaskets. Gaskets should be removed from the roll and allowed to relax overnight before cutting and cut all gaskets at D.L.O. plus 1/4" per foot of metal extrusion. Seal corners of gaskets per **FIGURE 33, page 25**. Just prior to glazing; seal all exterior corners by bedding in sealant minimum 1" from corner in gasket race and between gaskets tooling into the corners..

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

8.2 Position setting blocks at correct location (two per lite). Refer to approved shop drawings or deadload charts for locations. Stake the hooks on both sides of setting chair at sill. Lubricating the top of the setting block will help insure proper setting for lites of glass. **Note: Consult glass manufacturer for correct setting block location and length for lites larger than 40 sq.ft.**

8.3 Set glass in opening. Ensure that glass bite is equal on all sides. **SEE FIGURE 27 & 28, page 26** for glazing sequence. **CAUTION: Be certain that glass is placed firmly against exterior gasket to insure a proper seal and to avoid binding of the glass on the setting block.**

GLAZING

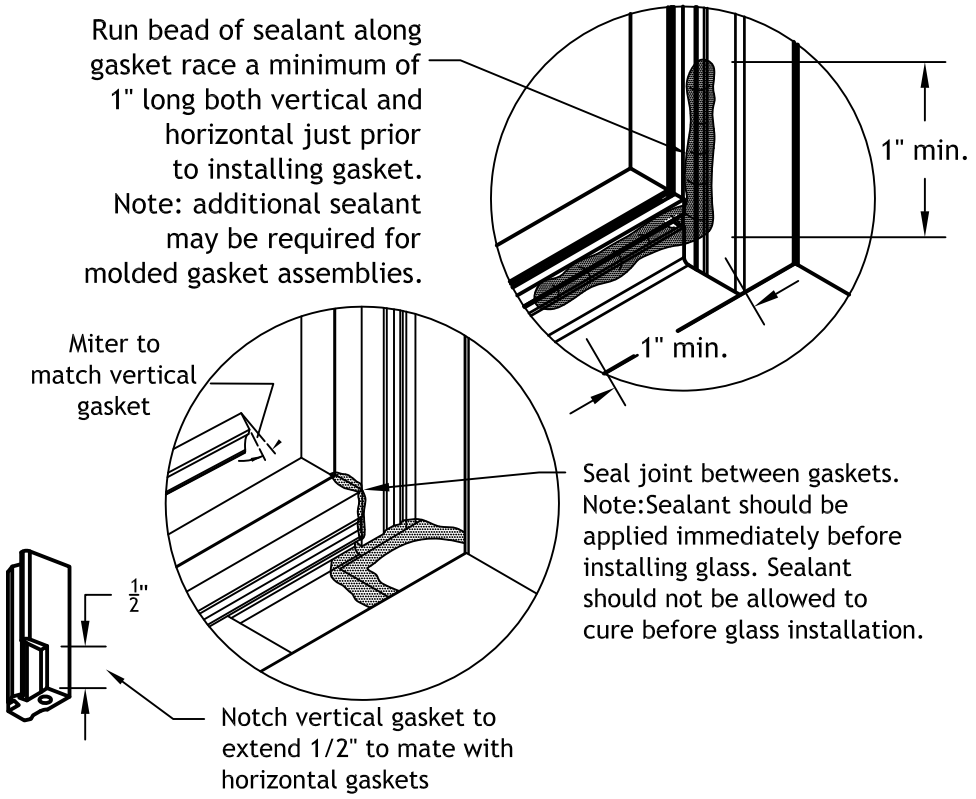


Figure 33
Gasket Install & Corner Seals

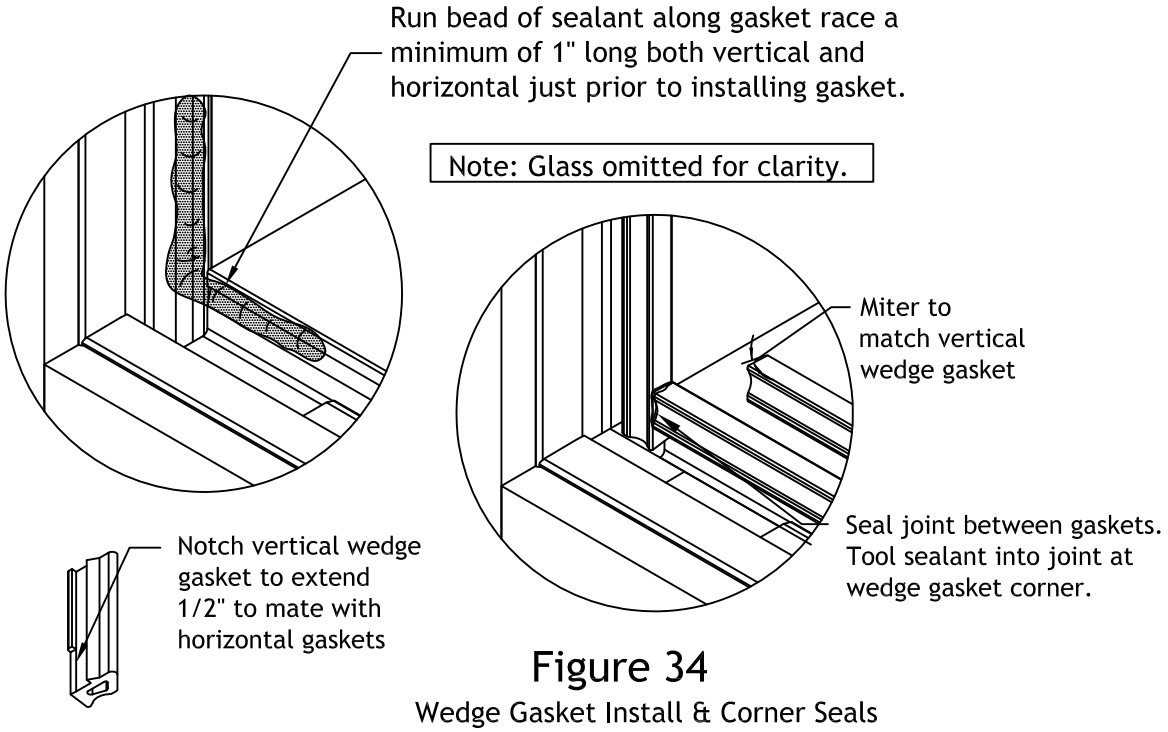


Figure 34
Wedge Gasket Install & Corner Seals

GLAZING

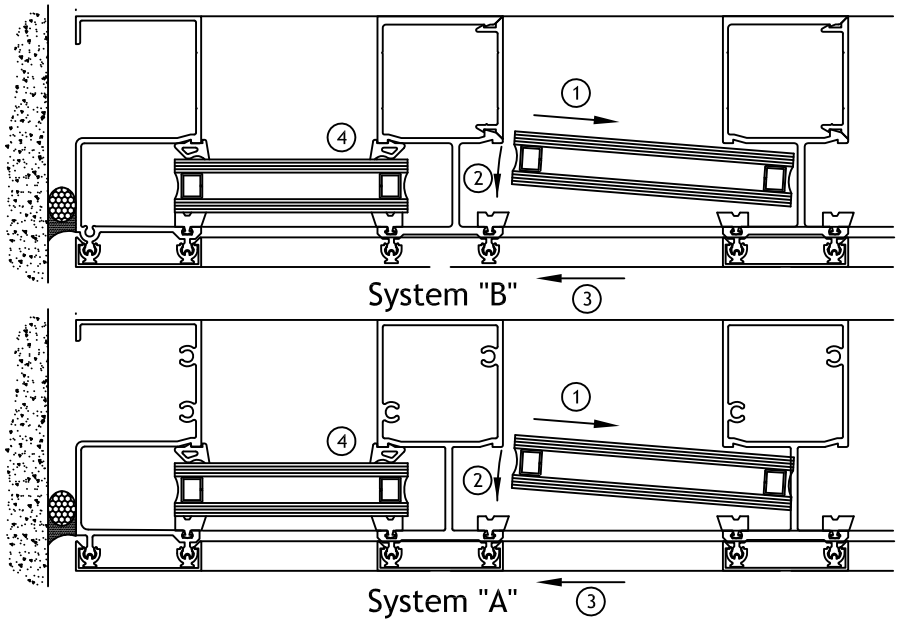


Figure 27
Glazing Frames with Captured Mullions

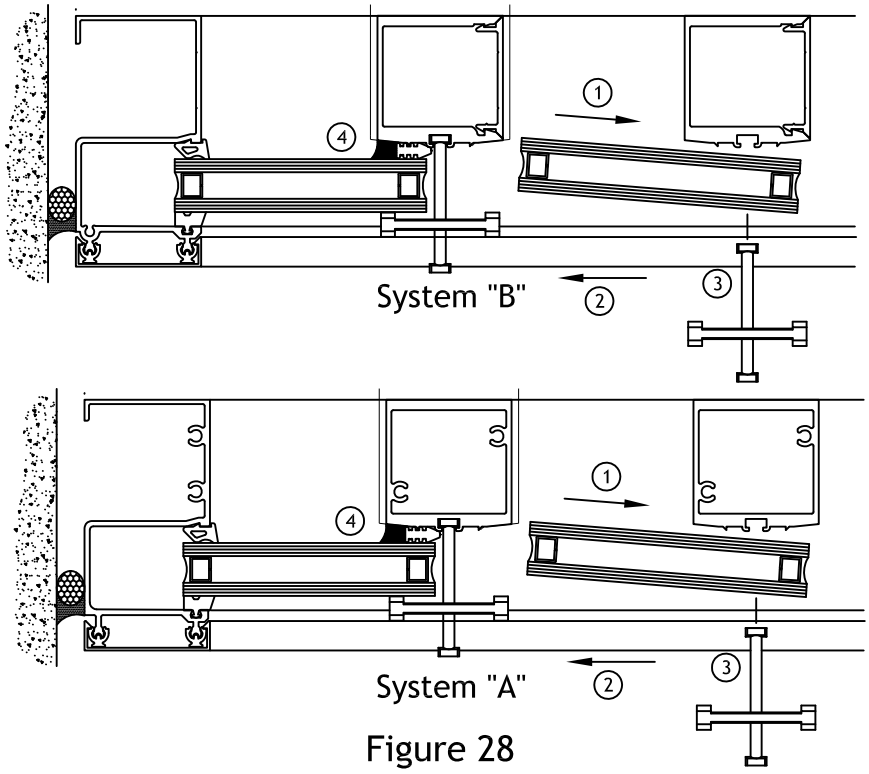


Figure 28
Glazing Frames with SSG Mullions

SIDE BLOCK INSTALLATION

8.4 Install side blocks in vertical mullions as required. **SEE FIGURE 29**. Consult glass manufacturer for preferred location in seismic areas. **Note: Side Blocks are optional and not required at SSG Mullions.**

8.5 Install glass stops and run interior wedge, crowding into corners. Vertical wedge should be cut DLO plus 1", notch ear and push into glazing pocket by 1/2 at top and bottom of lite. Horizontal wedge to run DLO and mitered to fit tight against vertical wedge. Seal corners of wedge gaskets per **FIGURE 34, page 25.**. Wedge should be allowed to relax and cut long as described in step A.1. All wedge gaskets should be cut long by 1/4 " per foot of extrusion length.

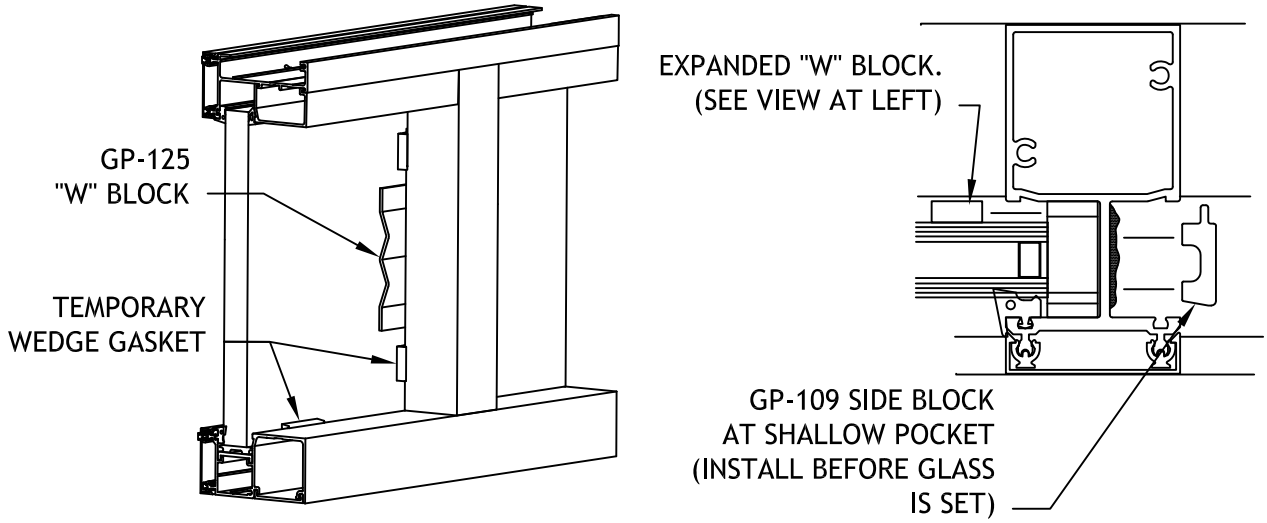


FIGURE 29
Side Block Installation

REGLAZING FROM THE EXTERIOR

NOTE: These instructions cover the replacement of glass below an intermediate horizontal or head member. Glass size for reglazed lites is D.L.O. +1" at captured systems.

A.1 Remove face cap from members above and below affected lite.

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

A.3 The bottom leg of the horizontal/head above the removed lite must be cut away. Carefully cut along the V-groove along the face of the leg. **SEE FIGURE 30**

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

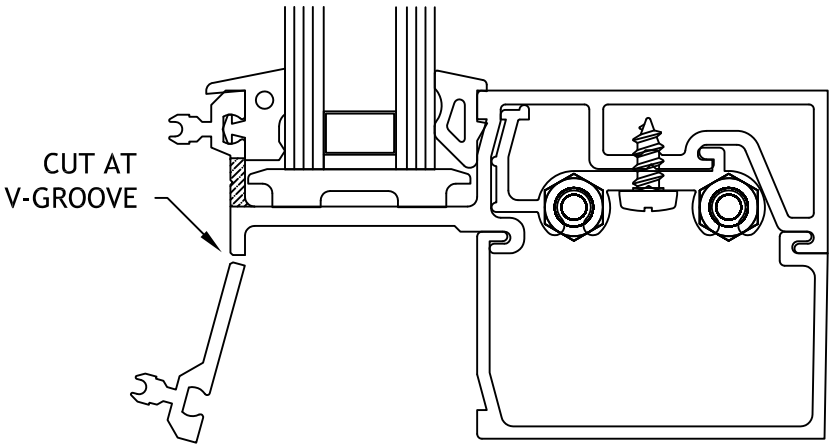


FIGURE 30
Modification for Exterior Reglazing
(Shear Block Horizontal shown, head and screw spline horizontal require same modification.)

A.5 Glaze new lite, checking to make sure that 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.

A.6 Run a continuous bead of sealant along the face of horizontal, then screw apply the reglazing adaptor with FS-55 #10 x 1/2" Phillips Pan Head screws at 12" o.c. (1 1/2" from ends). Seal heads of all fasteners. SEE FIGURE 31, page 29 Pre drill or notch face of reglaze leg at weep holes / baffle clips. SEE FIGURE 31, page 29.

A.7 Install wedge gasket around exterior of lite and seal all corners. Replace horizontal face caps to complete the reglazing procedure.

REGLAZING FROM THE EXTERIOR

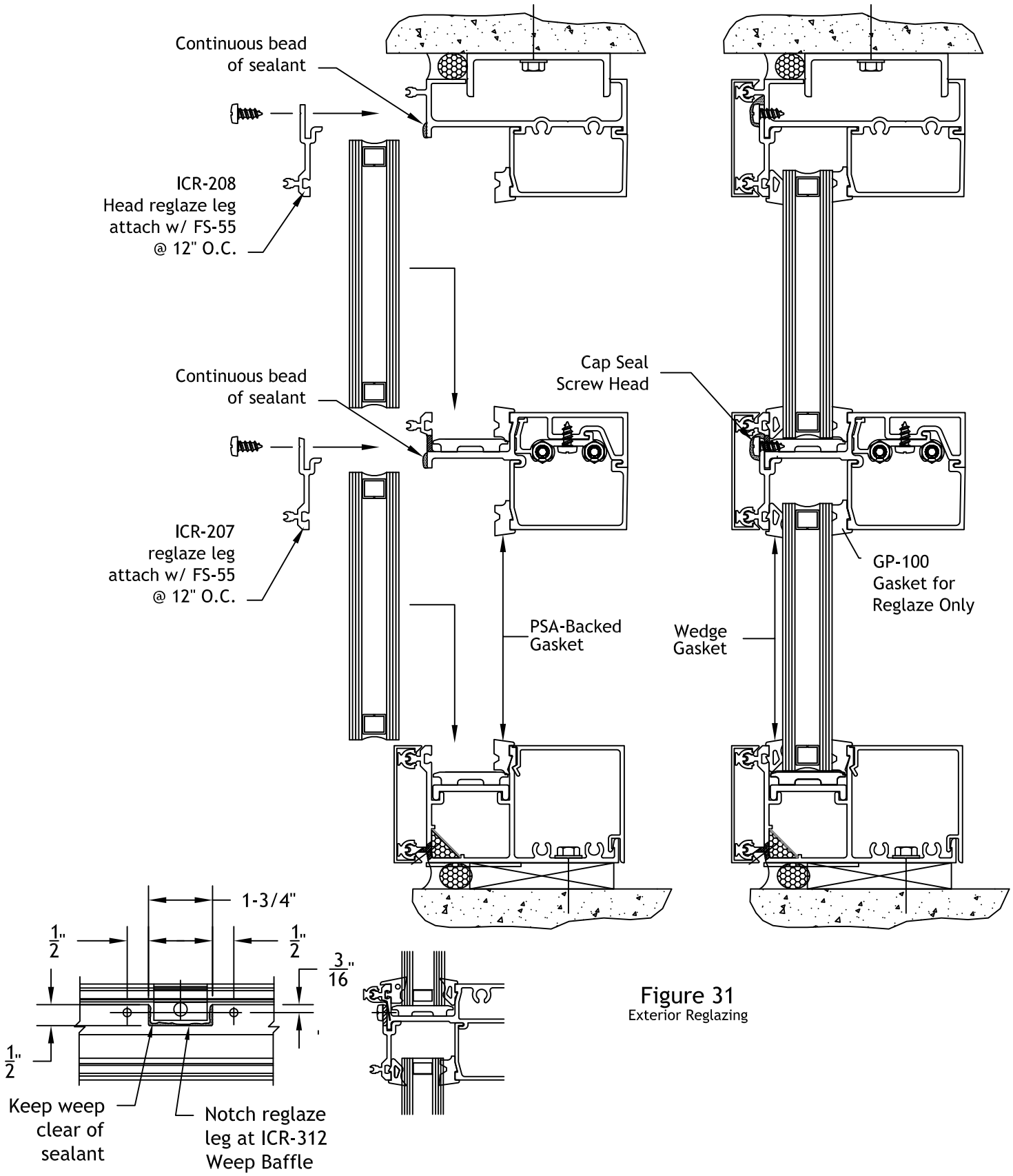


Figure 31
Exterior Reglazing

OPTIONAL HEAD & SILL REINFORCING
6" SYSTEM DEPTH ONLY

Optional reinforcing sleeves are available with Type "A" systems (head only) and Type "B" systems (head and sill) when end reactions exceed 600 lbs.

Do not pre-install head anchors onto building condition.

B.1 Prior to assembling frame, slide reinforcing sleeves and head anchors into position as follows. See FIGURE 32, page 31:

- Type "A" & "B" Head: At head anchor locations or per approved shop drawings
- Type" B" Sill: At each vertical or per approved shop drawings.

NOTE: Assembly screws for verticals and jambs run through to sill reinforcing sleeves.

B.2 Attach jambs and vertical mullions to the head and sill members. Refer to **STEP 2.4, page 9** for Type "A" systems and **STEP 5.2, page 17** for Type "B" systems.

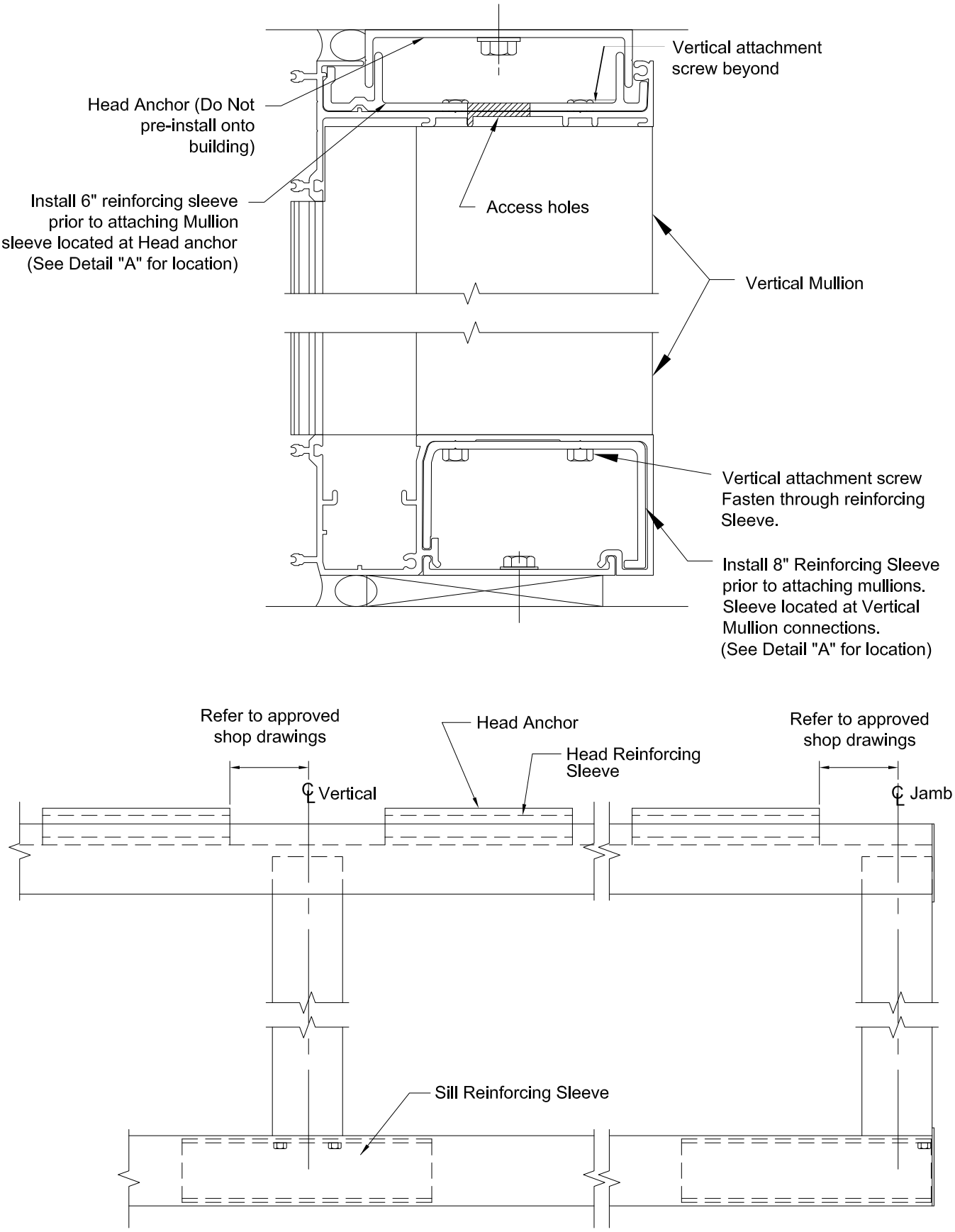


Figure 32
Head & Sill Reinforcing Sleeves (6" System)

All door framing components are shipped fabricated from the factory. The main window wall framing can be erected prior to installing the doors. Lites adjacent to doors should be temporarily secured in place until after door framing is installed.

C.1 Door subframes run through to finished floor. Install window wall system per instructions found within this manual. When installing a Type "B" system an ICR-114-01 end dam will be required in sill glazing pocket and must be sealed water tight at mullion stem per FIGURE 33 below.

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 per Door Installation Manual.

C.2.3 Bed subframes in sealant. Anchor to window wall framing members with FS-316 1/4"-20 x 2" HWH Drill Flex at 18" O.C. Glazing beads at door head will be held in place by installing CH-93 channel in glazing pocket and securing with FS-6 (#10 x $\frac{3}{4}$" PHSTS) at 12" o.c. Glazing bead will be attached to head members and screw spline horizontal with FS-316. When attaching door head sub-frame to shear block horizontal match drill horizontal with 7/32" drill and attach with FS-239 ($\frac{1}{4}$"-20 x 2" PPHTCS) at 12" o.c. Cap seal all fasteners and seal joint between jamb and header subframes.Seal tops of the jamb subframes. **See FIGURE 33.**

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.

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

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

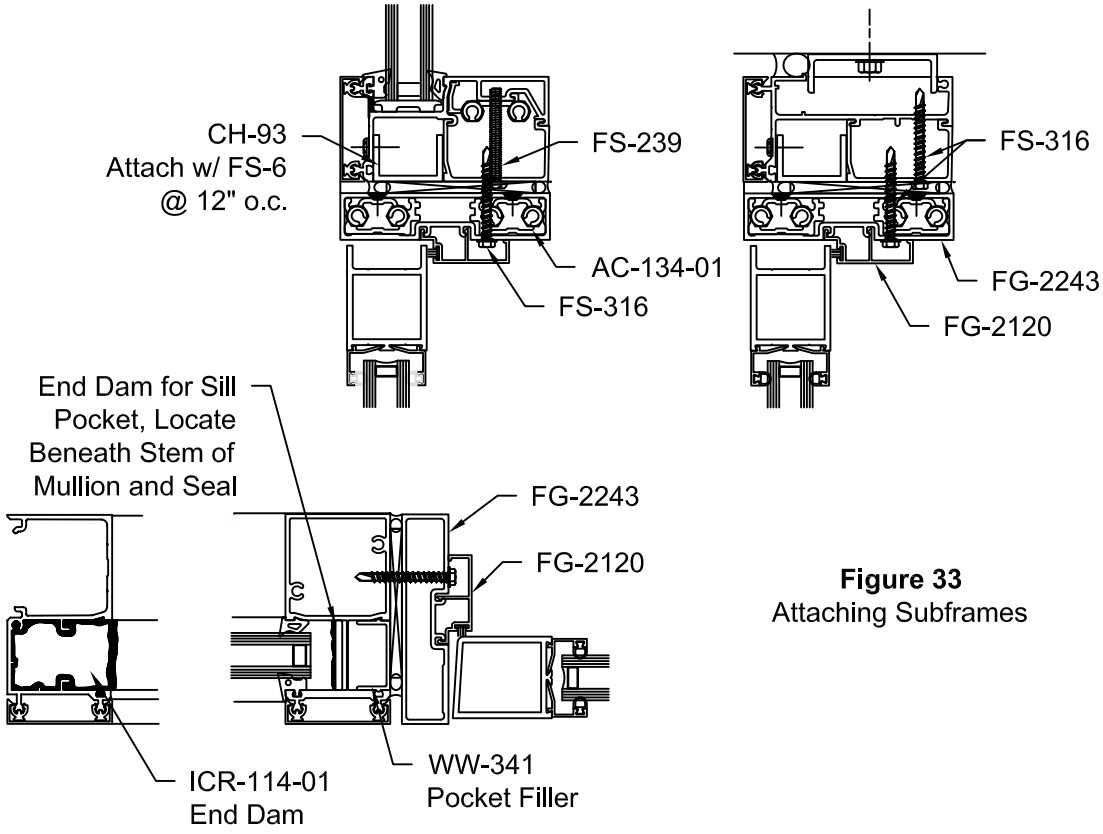
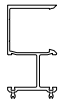
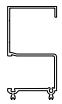
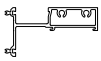
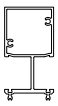
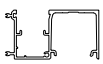
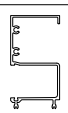


Figure 33
Attaching Subframes

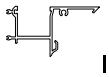
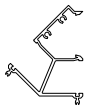
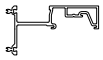
2 1/4" x 4 1/2" SYSTEM
Type "A" System Extrusions

ITEM	DESCRIPTION
 ICR-410	Vertical Mullion
 ICR-401	Head
 ICR-402	Sill
 ICR-403	Jamb
 ICR-424	SSG Vertical Mullion
 ICR-405	Sill Glazing Bead
 ICR-416	Vertical Mullion Filler
 ICR-414	Screw Spline Horizontal

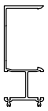
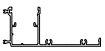
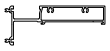
Type "B" System Extrusions

 ICR-450	Vertical Mullion
 ICR-451	Head
 ICR-452	Sill
 ICR-453	Jamb
 ICR-454	SSG Vertical Mullion
 TCR-102	Sill Anchor

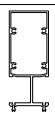
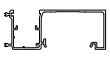
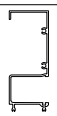
2 1/4" x 4 1/2" SYSTEM
Type "A" & "B" Extrusions

ITEM	DESCRIPTION
 ICR-203	Outside 90 Degree Face Cover
 ICR-204	Outside 135 Degree Face Cover
 ICR-240	Outside 90 Degree Corner Mullion Half
 ICR-241	Outside 90 Degree Corner Mullion Half
 ICR-242	Outside 90 Degree SSG Corner Mullion
 ICR-263	Outside 135 Degree Corner Mullion
 ICR-264	Outside 135 Degree SSG Corner Mullion
 ICR-412	Horizontal (Shear Block Ass'y)
 ICR-413	Head & Horizontal Glazing Bead

2 1/4" x 6" SYSTEM
Type "A" System Extrusions

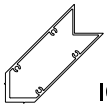
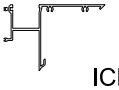
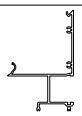
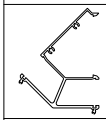
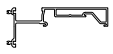
ITEM	DESCRIPTION
 ICR-610	Vertical Mullion
 ICR-601	Head
 ICR-602	Sill
 ICR-603	Jamb
 ICR-624	SSG Vertical Mullion
 ICR-605	Sill Glazing Bead
ICR-616	Vertical Mullion Filler
 ICR-614	Screw Spline Horizontal

Type "B" System Extrusions

 ICR-650	Vertical Mullion
 ICR-651	Head
 ICR-652	Sill
 ICR-653	Jamb
 ICR-654	SSG Vertical Mullion
ICR-103	Sill Anchor

PARTS LIST

2 1/4" x 6" SYSTEM
Type "A" & "B" Extrusions

ITEM	DESCRIPTION
ICR-213	Outside 90 Degree Face Cover
 ICR-214	Outside 135 Degree Face Cover
 ICR-245	SSG Outside 90 Corner Spear Mull
 ICR-250	Outside 90 Degree Corner Mullion Half
 ICR-251	Outside 90 Degree Corner Mullion Half
 ICR-252	Outside 90 Degree SSG Corner Mullion
 ICR-273	Outside 135 Degree Corner Mullion
 ICR-274	Outside 135 Degree SSG Corner Mullion
 ICR-612	Horizontal (Shear Block Ass'y)
 ICR-613	Head & Horizontal Glazing Bead
 F-57	1" x 1" x .125 Tube SSG Corners

4 1/2" x 6" SYSTEMS
Common Extrusions

ITEM	DESCRIPTION
 ICR-117-01	Sill Splice System "B"
 ICR-120-01	Head Splice System "B"
 ICR-200	Typical Face Cover
ICR-201	Snap-in Pocket Filler
 ICR-202	Inside 90 Degree Corner Closure
 ICR-205	Inside 135 Degree Corner Closure
 ICR-207	Reglaze Leg for Horizontal
 ICR-208	Reglaze Leg for Head Members
 ICR-209	Glazing Adaptor 1/4" Infill - Captured
 ICR-210	Dual Glazing Adaptor 1/4" Infill - SSG
 ICR-211	Single Glazing Adaptor 1/4" Infill - SSG

2 1/4" x 4 1/2" SYSTEM
Accessories

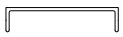
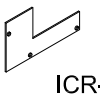
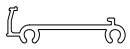
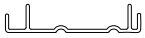
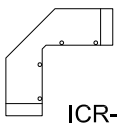
ITEM	DESCRIPTION
 ICR-100-01	Head Anchor System "A" & "B"
 ICR-109-01	End Dam at Head/Sill System "B"
 ICR-113-01	90 deg. Corner Clip System "B"
 ICR-115-01	135 deg. Corner Clip System "B"
 ICR-118-01	Sill Splice System "B"
 ICR-119-01	Head Splice System "B"
 ICR-121-01	Outside 90° Corner End Cap System "A"
 ICR-180-01	Shear Block

Entrance Framing

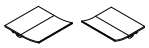
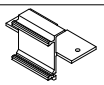
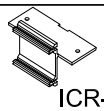
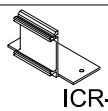
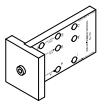
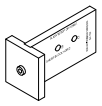
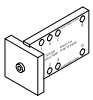
 FG-2243	Door Subframe
 FG-3160	Door Header (O.H.C.C.)
 DS-104	Door Stop (O.H.C.C.)
 FG-2120	Door Stop

PARTS LIST

2 1/4" x 6" SYSTEM Accessories

 ICR-101-01	Head Anchor Type "A" & "B"
 ICR-123-01	Sill Splice Type "B"
 ICR-124-01	Head Splice Type "B"
 ICR-130-01	End Dam at Head/Sill Type "B"
 ICR-163-01	90 deg. Corner Clip Type "B"
 ICR-165-01	135 deg. Corner Clip Type "B"
 ICR-171-01	Outside 90° Corner End Cap Type "A"
 ICR-181-01	Shear Block
 ICR-135-01	6" Head Reinforcing Sleeve
 ICR-125-01	6" Head Reinforcing Sleeve
 ICR-126-01	8" Sill Reinforcing Sleeve
 ICR-114-01	Sill End Dam @ Pocket Type "B" Entrances & Corners
 ICR-122-01	Inside 90° Corner End Cap Type "A"
 ICR-127-01	Inside 90° Corner Corner Mull Cap Type "B"
 ICR-128-01	Inside 135° Degree Corner Mull Cap Type "B"

Common Accessories

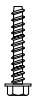
ITEM	DESCRIPTION
 ICR-107-01/ ICR-110-01	Zone Plugs at Mullions (Package for deep & shallow pocket - 50ea.)
 ICR-108-01	Zone Plug at Jambs
 ICR-104-01	SSG Bridge at Head Type "A"
 ICR-105-01	SSG Bridge at Horizontal Type "A" & "B"
 ICR-106-01	SSG Bridge at Sill Type "A"
 DJ-101	Drill Jig for Screw Spline Ass'y (Head, Horiz, Sill)
 DJ-103	Drill Jig for Shear Block Ass'y (for ICR-412 & ICR-612)
 DJ-104	Drill Jig for Type "B" Head & Sill
 SPW-295	Weep Baffle Retainer
 HP-1004	Weep Baffle
 ICR-112-01	Mull Cap Type "A"
 ICR-182-01 ICR-182-02	Outside 90 Degree Shear Blocks

PARTS LIST

Common Accessories

ITEM	DESCRIPTION
 GP-100	Interior Reglaze Gasket
GP-101	Setting Block at Horizontal & Sill
GP-102	SSG Spacer
 GP-109	Side Block
 GP-113	Interior Wedge
 GP-123	Exterior Gasket (Dense)
 GP-124	Exterior Gasket (Sponge)
 GP-125	"W" Side Block Deep Pocket
 GP-127	Exterior Gasket 1 1/8" Glazing (Sponge)
 GP-128	Interior Wedge 1 1/8" Glazing
GP-129	SSG Spacer (3/16" F.C.)
 GP-140	Side Block Shallow Pocket

Common Accessories

ITEM	DESCRIPTION
 ICR-206	Corner Closure Isolator
 ICW-12	Typical Isolator Clip
 ICR-312	Isolator Clip at Weep Holes
 ICR-116-01	Temporary Clip OS135 SSG Corner
 SPW-PP-3	Temporary Glazing Retainer
TCR-310-01	Vinyl Setting Chair at Sill
 FS-6	#10 X 3/4" P.P.H. Attachment of Corner Closures
 FS-8	#14 X 1" H.H.S.T.S. Assembly Screw
 FS-9	#14 X 1 1/2" H.H.S.T.S. Assembly Screw Attachment of Shear Block to verticals
 FS-55	#10 x 1/2" P.P.R.H. Attachment of Horizontals to Shear Blocks
 FS-202	#8 x 1/2" P.P.H. Attachment of SSG Bridge
 FS-320	#10 x 1/2" U-Drive at Mull Caps

PARTS LIST