



# SERIES 2100/2200

## CURTAIN WALL

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### NOTE

THE INSTALLATION DETAILS FOUND IN THIS PACKAGE ARE GENERIC AND ARE FOR REPRESENTATION ONLY WITH THE INTENT OF GIVING THE INSTALLATION TEAM A VISUAL REPRESENTATION AS TO HOW THE ASSEMBLIES TYPICALLY INSTALL. THE SHOP SUBMISSION DRAWINGS AND DETAILS ARE THE GOVERNING DOCUMENTS AND AS SUCH THIS PACKAGE IS TO BE USED ONLY AS A RESOURCE

FOLLOW SEALANT MANUFACTURERS' RECOMMENDATIONS FOR USE AND APPLICATION OF ALL STRUCTURAL SILICONE SEALANT AND WEATHER SEAL SILICONE SEALANT.

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

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# HANDLING, STORAGE, AND PROTECTION OF ALUMINUM

The following precautions are recommended to protect the material against damage. Following these precautions will help ensure early acceptance of your products and workmanship.

A. **HANDLE CAREFULLY.**

All aluminum materials at job site must be stored in a safe place, well removed from possible damage by other trades. Cardboard wrapped or paper interleaved materials must be kept dry.

B. **CHECK ARRIVING MATERIALS.**

Check for quantity counts and keep records of where various materials are stored.

C. **KEEP MATERIALS AWAY FROM WATER, MUD, AND SPRAY.**

Prevent cement, plaster, or other materials from damaging the finish.

D. **PROTECT THE MATERIALS AFTER ERECTION.**

Protect erected frame with polyethylene or canvas splatter screen. Cement, plaster, terrazzo, other alkaline solutions, and acid based materials used to clean masonry are harmful to the finish. ***If any of these materials come in contact with the aluminum, immediately remove with water and mild soap.***

The rapidly changing technology within the architectural aluminum products industry demands that U.S. Aluminum reserve the right to revise, discontinue, or change any product line, specification, or electronic media without prior written notice.

**NOTE:** Dimensions in parentheses ( ) are millimeters unless otherwise noted.

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# GENERAL INSTALLATION NOTES

## Recommended guidelines for all installations:

1. **REVIEW CONTRACT DOCUMENTS.** Check shop drawings, installation instructions, architectural drawings, and shipping lists to become thoroughly familiar with the project. The shop drawings take precedence and include specific details for the project. Note any field verified notes on the shop drawings prior to installing. The installation instructions are of a general nature and cover most conditions.
2. **INSTALLATION.** All materials are to be installed plumb, level, and true.
3. **INSTALLER QUALIFICATION.** The **Series 2100** and **Series 2200** curtain wall systems are 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.
4. **BENCH MARKS.** All work should start from bench marks and/or column lines as established by the architectural drawings and the general contractor with guaranteed accuracy. Working from these datum points and lines determine:
  - a) The plane of the wall in reference to offset lines provided on each floor.
  - b) The finish floor lines in reference to bench marks on the outer building columns.
  - c) Mullion spacing from both ends of masonry opening to prevent dimensional build-up of daylight opening.
5. **STEEL ANCHORS.** Steel anchors that weld to steel structure are normally line set before mullions are hung. Outstanding leg of anchors must be at 90° to offset lines. Mullion space should be held to  $\pm 1/32"$  (0.8). Anchor clips vary per job conditions. Follow approved shop drawings for size and location of clips.
6. **FIELD WELDING.** All field welding must be adequately shielded to avoid any splatter on glass or aluminum. Results will be unsightly and/or structurally unsound. Advise general contractor and other trades accordingly. All field welds of steel anchors must receive touch-up paint (zinc chromate) to avoid rust.
7. **SURROUNDING CONDITIONS.** Make certain that construction which will receive your materials is in accordance with the contract documents. If not, notify the general contractor in writing and resolve differences before proceeding with work.
8. **ISOLATION OF ALUMINUM.** Aluminum to be placed in direct contact with uncured masonry or incompatible materials should be isolated with a heavy coat of zinc chromate or bituminous paint. For steel reinforcement primer, use manufacturer's standard corrosion resistant primer, meeting or exceeding Sherwin Williams Kem Kronik® meeting ASTM D5894. 1008 Corrosion Resistance.
9. **SEALANTS.** 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.

# GENERAL INSTALLATION NOTES CONT.

## Recommended guidelines for all installations:

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.

10. **FASTENING.** Within the body of these instructions "fastening" means any method of securing one part to another or to adjacent materials. Only those fasteners used within the system are specified in these instructions. Due to the varying perimeter conditions and performance requirements, perimeter and anchor fasteners are not specified in these instructions. For perimeter and anchor fasteners refer to the shop drawings or consult the fastener supplier.
11. **BUILDING CODES.** Due to the diversity in state/provincial, local, and federal laws and codes that govern the design and application of architectural products, it is the responsibility of the individual architect, owner, and installer to assure that products selected for use on projects comply with all the applicable building codes and laws. U.S. Aluminum exercises no control over the use or application of its products, glazing materials, and operating hardware, and assumes no responsibility thereof.
12. **EXPANSION JOINTS.** Expansion joints and perimeter seals shown in these instructions and in the shop drawings are shown at normal size. Actual dimensions may vary due to perimeter conditions and/or difference in metal temperature between the time of fabrication and the time of installation. Gaps between expansion members should be based on temperature at time of installation.
13. **COORDINATION WITH OTHER TRADES.** Coordinate with the general contractor any sequence with other trades which offset curtain wall installation (i.e. fire proofing, back-up walls, partitions, ceilings, mechanical ducts, converters, etc.).
14. **CARE AND MAINTENANCE.** Final cleaning of exposed aluminum surfaces should be done in accordance with AAMA 609.1 for anodized aluminum and 610.1 for painted aluminum
15. **GLAZING PRACTICES.** The air and water performance of the **Series 2100** and **Series 2200** curtain wall systems 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:

- Glazing gaskets should be cut 1/4" longer per foot, and lay flat, preferably for 24 hours
- Gaskets should be cut as single monolithic pieces and "crowded" during their installation to avoid corner gaps caused by post-installation relaxation
- The interior glazing gasket should be installed so as to avoid stretching, buckles, or tears
- 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.
- Gasket corner joinery must also be crowded, and sealant applied onto the gasket contact frame surface and into gasket reglet raceway where applicable.
- 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.

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# GENERAL INSTALLATION NOTES CONT.

## Recommended guidelines for all installations:

- 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
- Check the placement of the installed glass and verify there is proper edge bite into the pocket, and proper edge clearance from framing elements

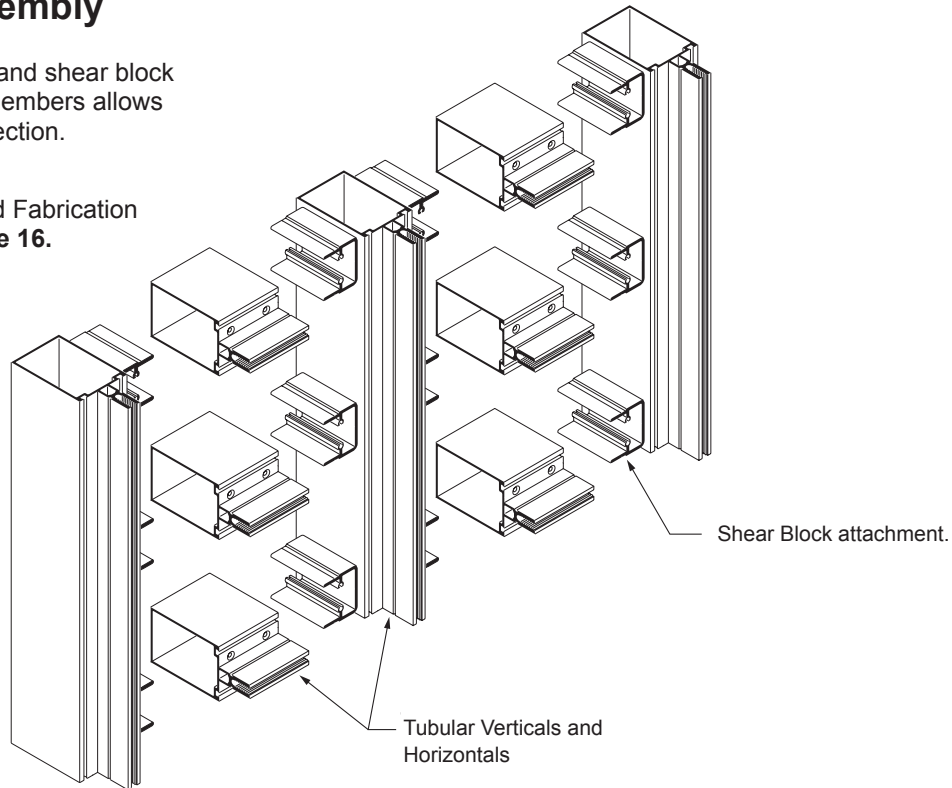
After sealant has set and a representative amount of the wall has been installed and glazed (250 square feet or more) run a water hose test in accordance with AAMA 501.2 specifications to check installation. On large projects the hose test should be repeated during the glazing operation. Consult and follow NGA's GANA Manual and FGMA Glazing Manual for proper glazing technique and procedure.

# TYPE "A" FABRICATION PROCEDURES

## Shear Block Assembly

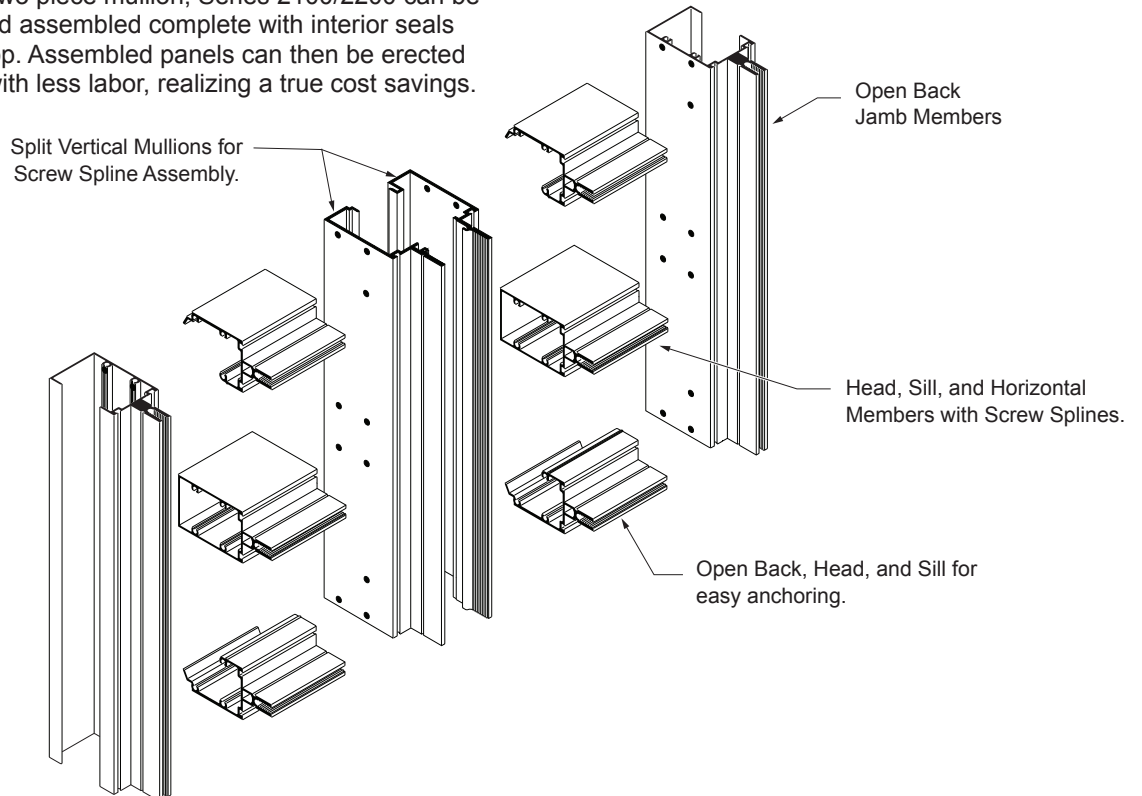
All tubular back members and shear block attachment of horizontal members allows for traditional stick type erection.

**NOTE:** For Preassembled Fabrication Method, See Page 16.



## Screw Spine Assembly

With the addition of the two piece mullion, Series 2100/2200 can be completely fabricated and assembled complete with interior seals and end dams in the shop. Assembled panels can then be erected in the field quicker and with less labor, realizing a true cost savings.



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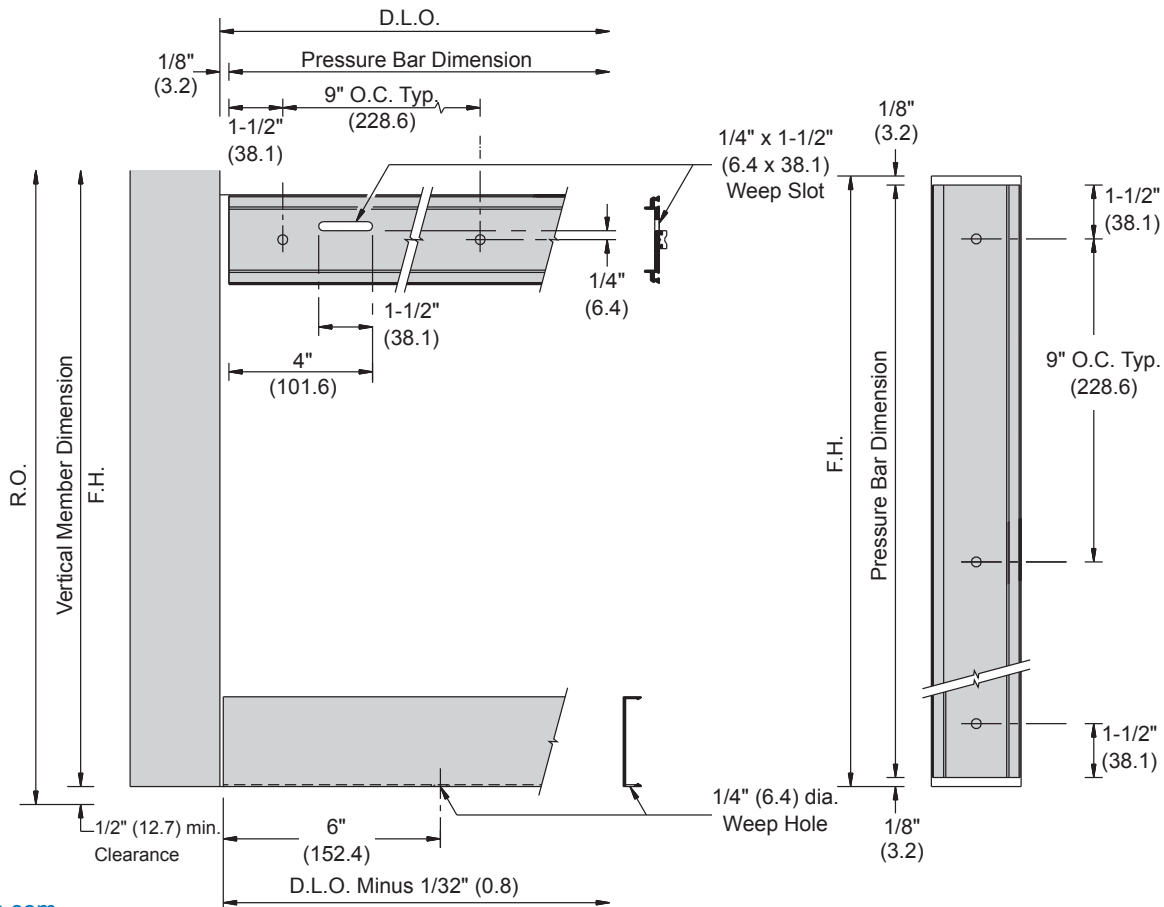
# TYPE "A" FABRICATION PROCEDURES

## Cutting Instructions for Shear Block and Screw Spline Assembly

Most of the details shown on these instructions are for 1" (25) Glazing 2-7/8" (73) back members. Details for 4" (101.6) and 5" (127) back members are similar.

1. Cut members to size:

- Vertical Back Members:** Rough Opening Minus Top and Bottom Clearances (Frame Height)
- Vertical Pressure Bars:** Frame Height Minus 1/4" (6.4)
- Vertical Face Covers:** Frame Height
- Vertical Transition Adapters:** D.L.O. Plus 1" (25)
- Horizontal Transition Adapters:** D.L.O. Minus 1/16" (1.6)
- Horizontal Back Members:** D.L.O. Plus 1/32" (.08)
- Horizontal Pressure Bars:** D.L.O. Minus 1/4" (6.4)
- SSG Pressure Bars:** Frame Width Minus 4-1/4" (108)
- Horizontal Face Members:** D.L.O. Minus 1/32" (.08)
- Horizontal Trim Members:** D.L.O. Minus 1/32" (.08)
- Jamb Perimeter Fillers:** Frame Height Minus 1/4" (6.4)
- Head and Sill Perimeter Fillers:** D.L.O. Minus 1/8" (3.2)



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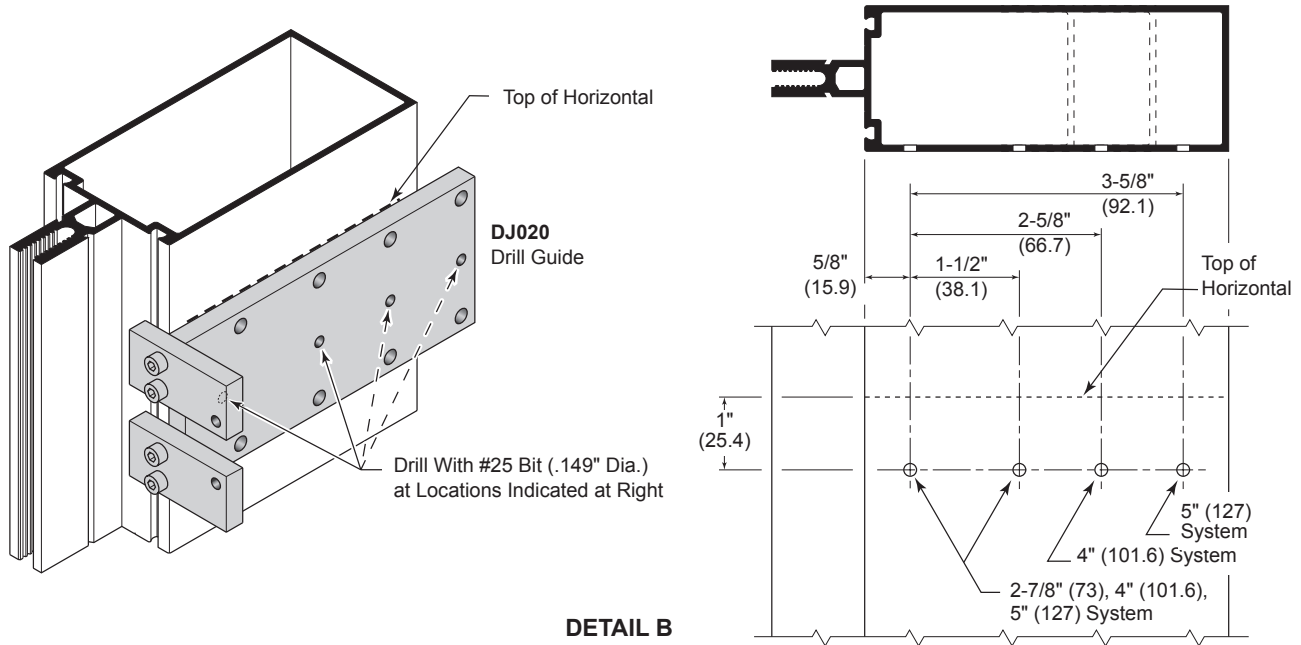
DETAIL A

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# DRILL JIG PREPARATION

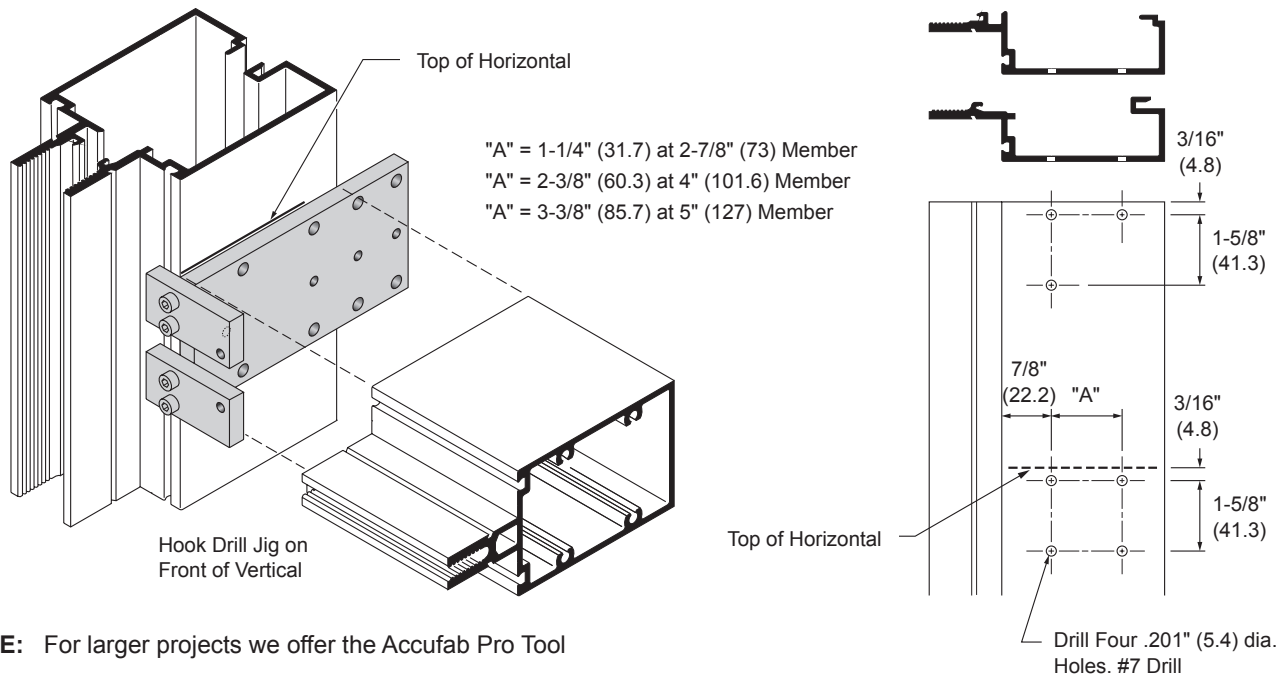
## Shear Block Fabrication

- Fabricate verticals for horizontal members. Mark on verticals the location of horizontal members and drill holes for shear blocks (See **DETAIL B**). Visit [usalum.com](http://usalum.com) for additional information.



## Screw Spine Fabrication

- Fabricate two piece verticals for horizontal members. Mark on verticals the location of horizontal members and drill holes for screw spine (See **DETAIL C**).



**NOTE:** For larger projects we offer the Accufab Pro Tool

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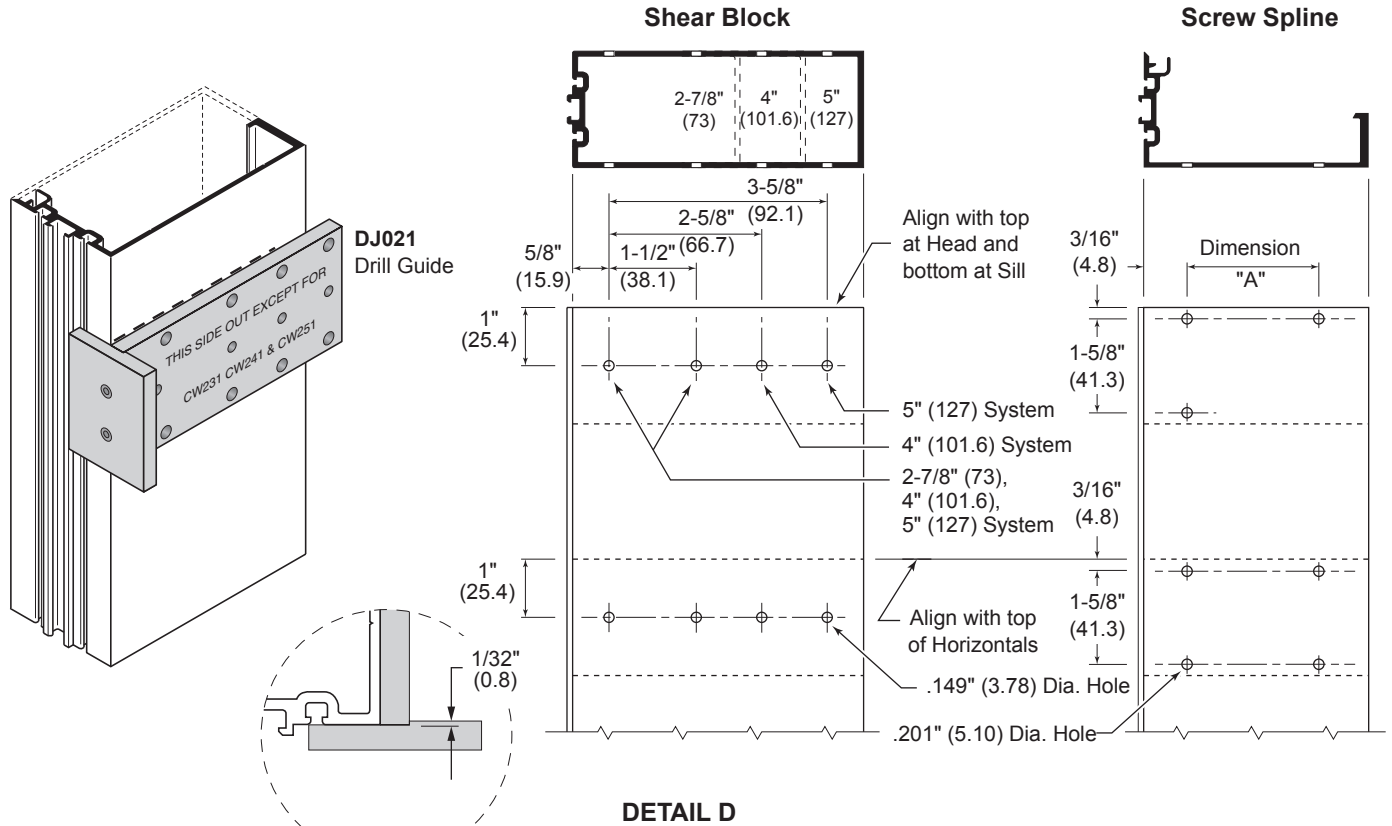
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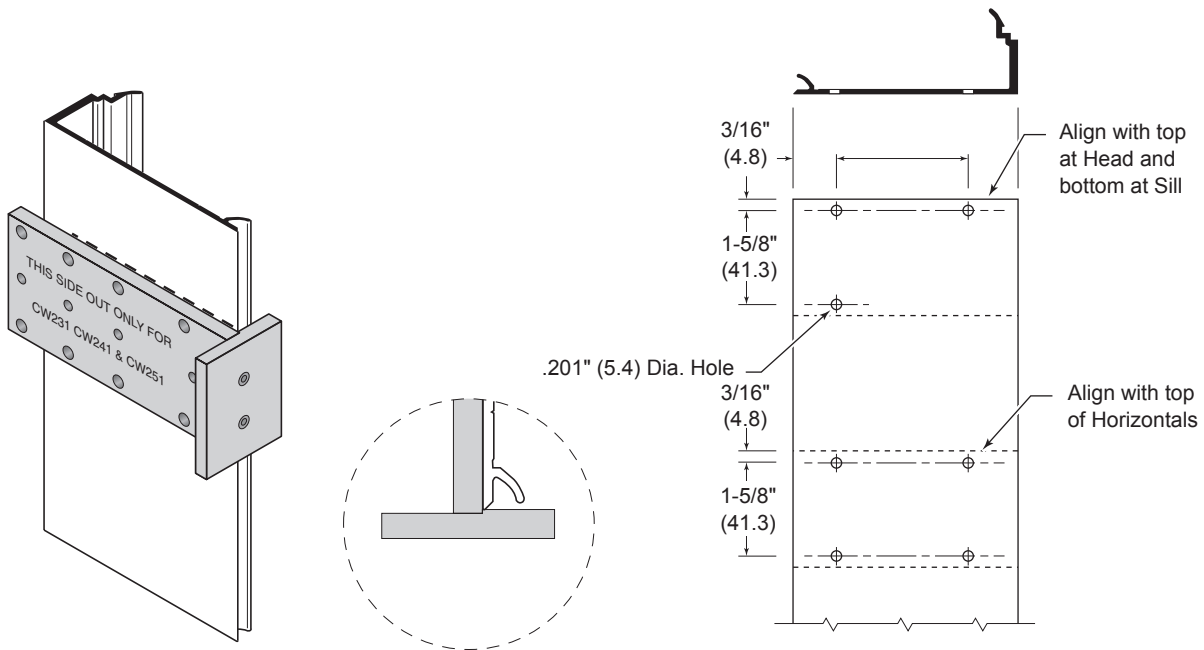
Structural Silicone Fabrication



DETAIL D

"A" = 1-1/4" (31.7) at 2-7/8" (73) Member  
 "A" = 2-3/8" (60.3) at 4" (101.6) Member  
 "A" = 3-3/8" (85.7) at 5" (127) Member

4. Fabricate structural silicone verticals for horizontal members as shown in DETAIL D and E.



DETAIL E

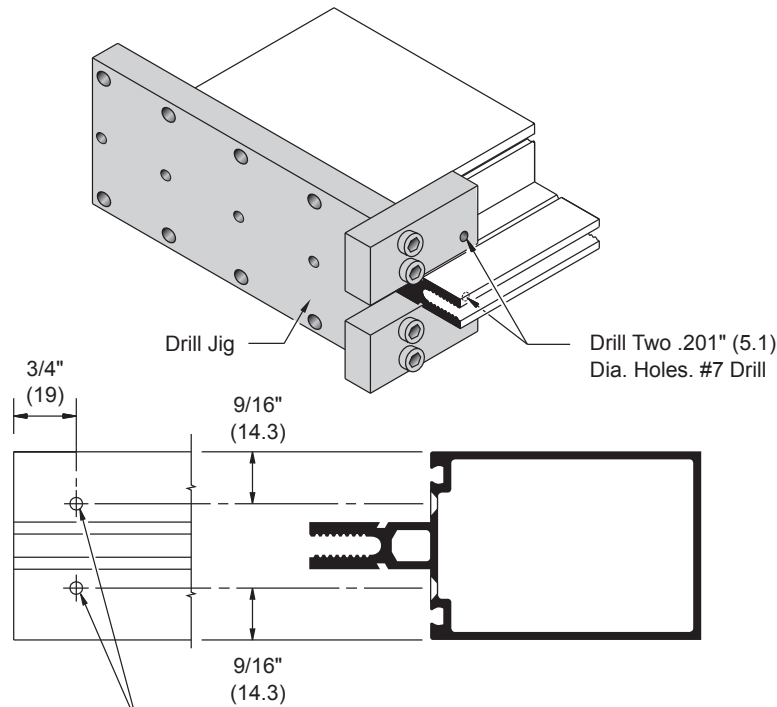
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## For Shear Block Assembly

- Fabricate ends of horizontal members for shear block attachment screws. See **DETAIL F** for drill usage.

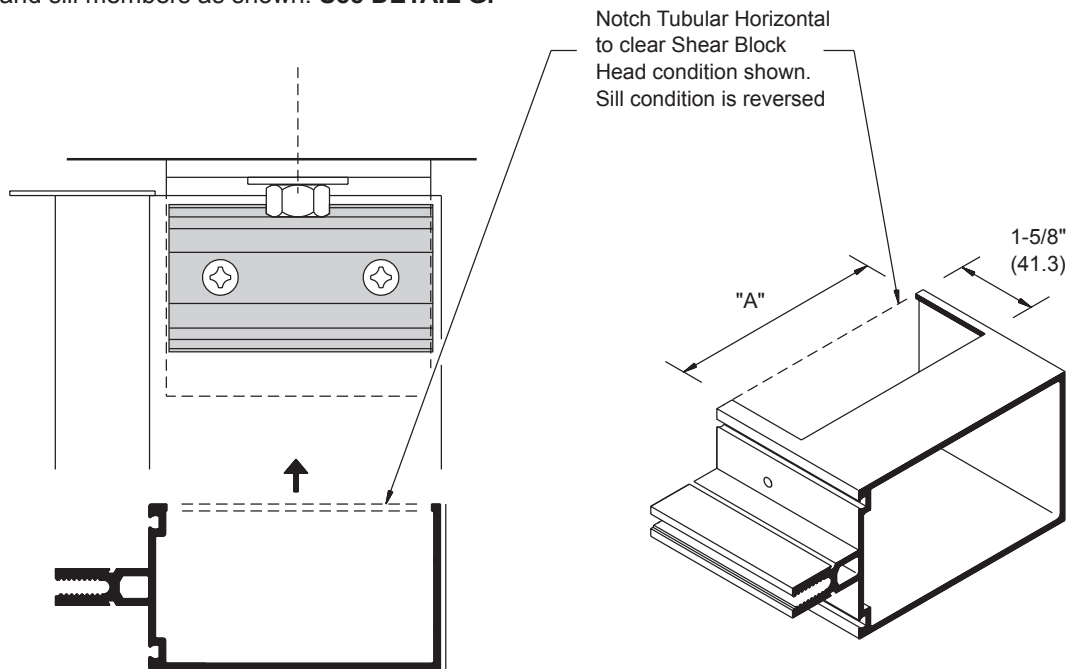
Shear Block



**NOTE:** Drill lower hole only at head and upper hole only at sill. Countersink for a #8 F.H.S.M.S.

**DETAIL F**

- Notch head and sill members as shown. See **DETAIL G**.



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**DETAIL G**

"A" = 2-1/2" at 2-7/8" (73) Back Member  
 "A" = 3-5/8" at 4" (101.6) Back Member  
 "A" = 4-5/8" at 5" (127) Back Member

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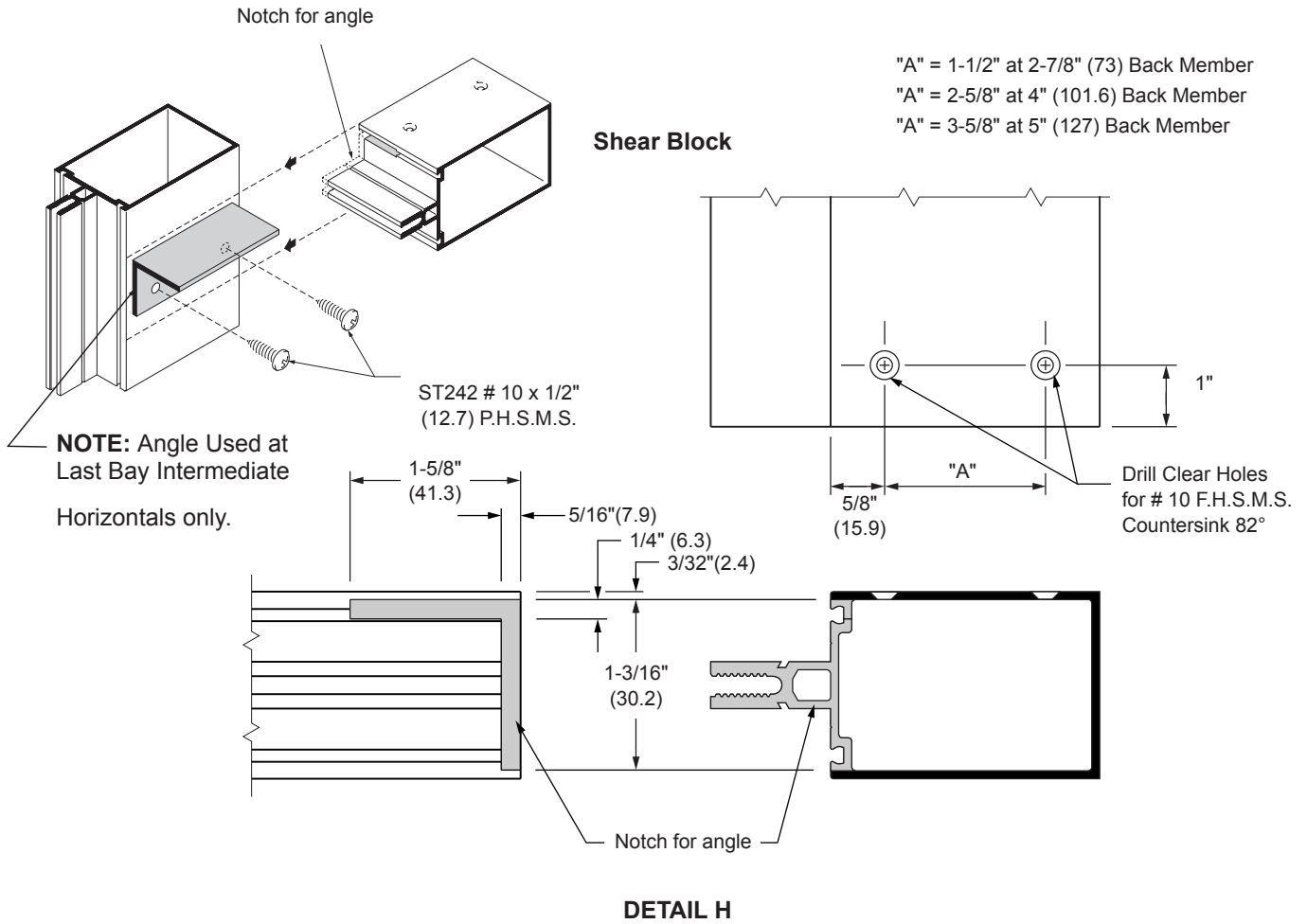
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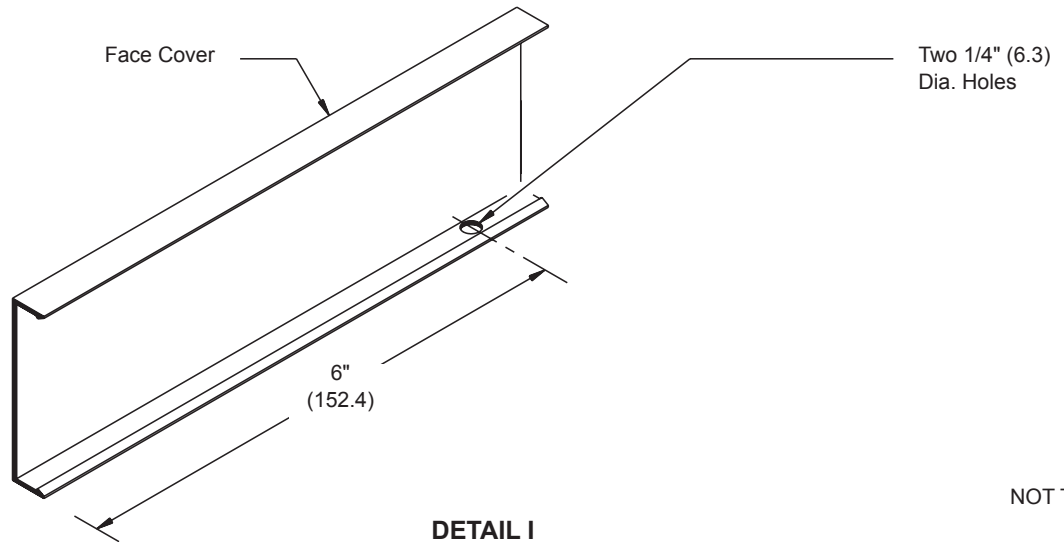
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7. Notch intermediate horizontal for last bay installation only. See **DETAIL H**.



8. Drill 1/4" dia. holes in bottom of horizontal face covers 6" (152.4) from each end.

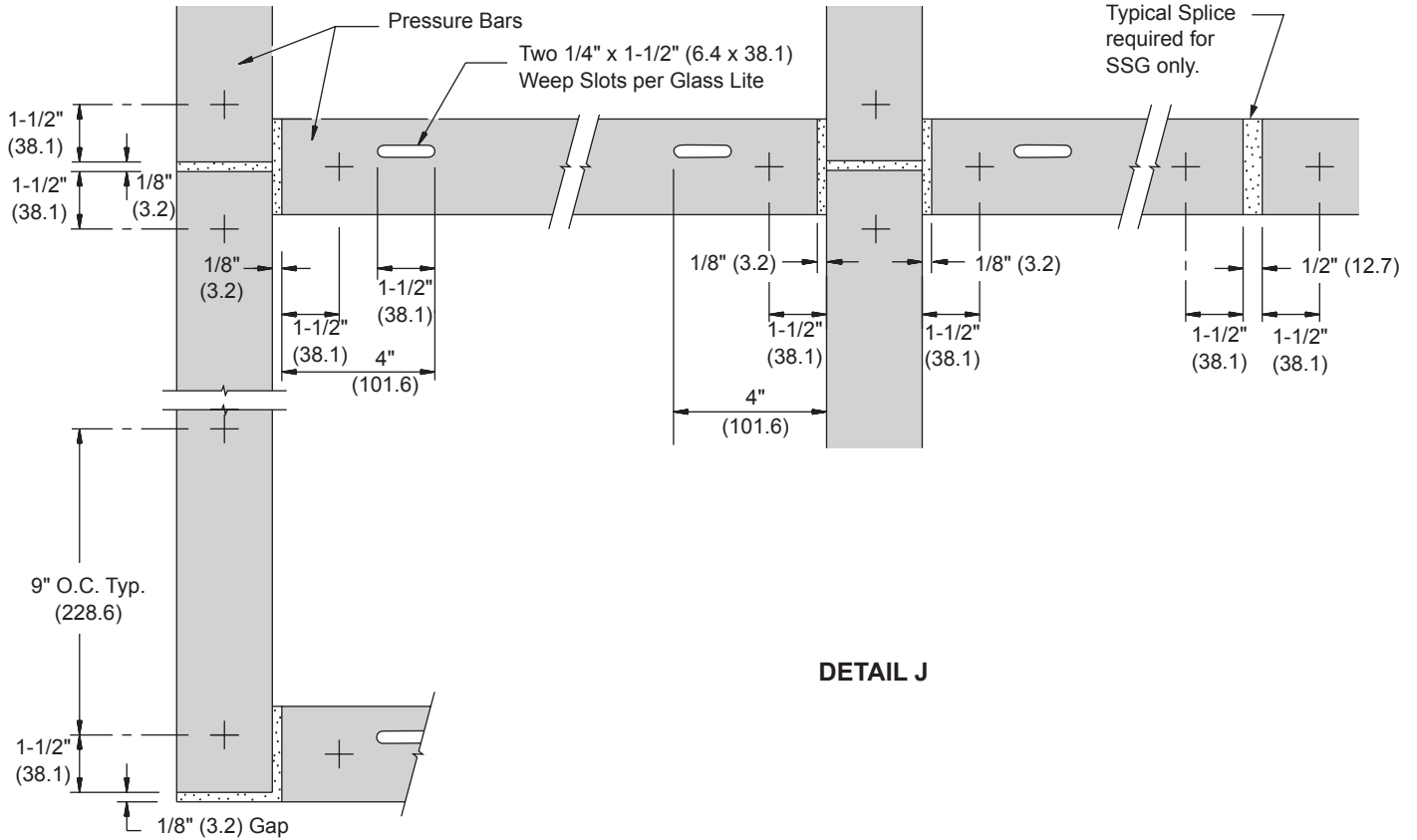


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**SERIES 2100/2200 CURTAIN WALL**

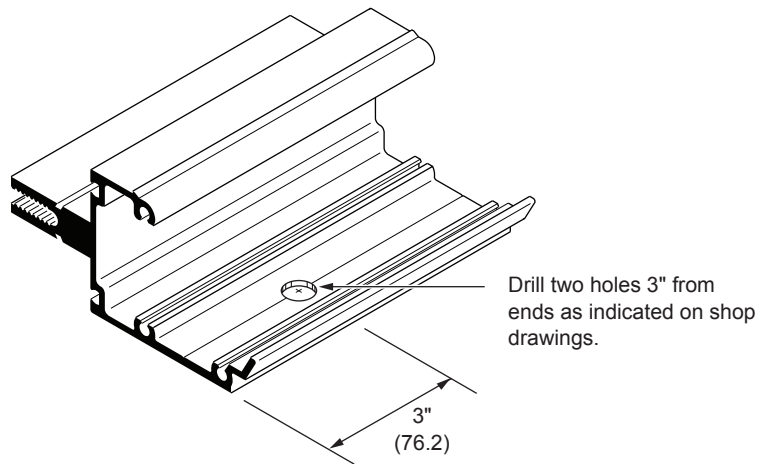
**Shear Block and Screw Spline Pressure Bar Fabrication**

9. Fabricate horizontal pressure bar members for slots and holes. Pressure bars are supplied with 9/32" attachment holes at 9" (228.6) O. C. Additional holes are required in pressure bars at 1-1/2" (38.1) from each end. **See DETAIL J.**



**DETAIL J**

10. Drill clear holes 3" (76.2) from each end of head and sill members for anchor. See approved shop drawings for actual anchor types and sizes. **See DETAIL K.**



**NOTE:** Sill Member shown,  
Head Member similar.

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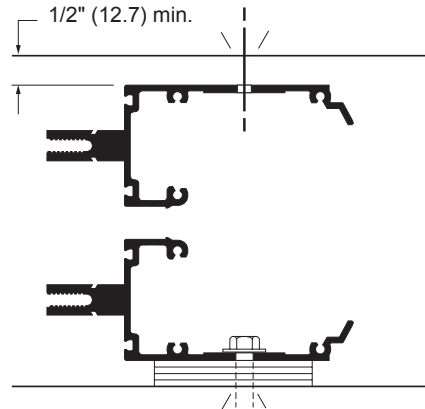
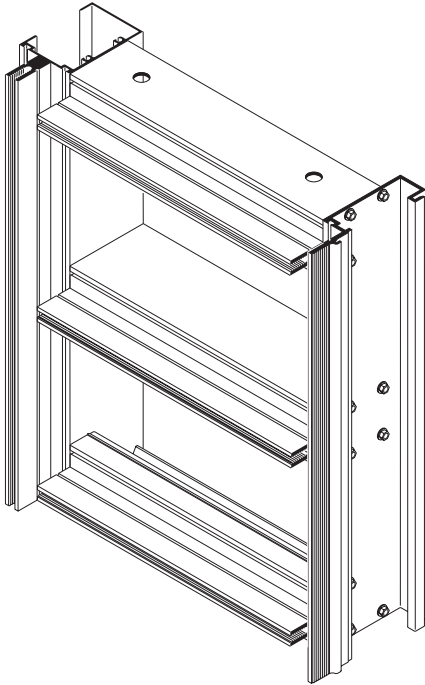
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## For Screw Spline Assembly

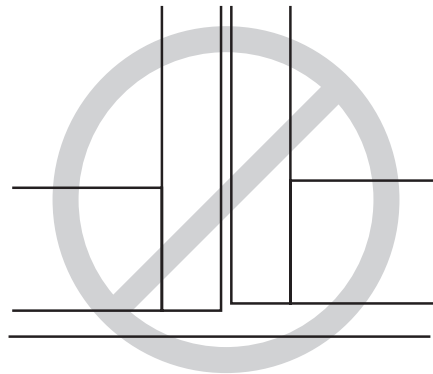
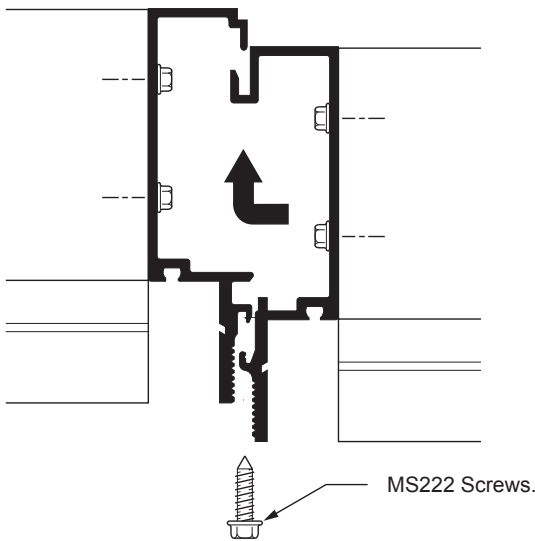
1. Assemble panels. Apply closer plates to tops and bottoms of vertical mullions. **See Page 14 DETAIL O.** Place jamb panel into opening, shim, plumb, level and true. Anchor head and sill. See approved shop drawings for correct anchor type and size. **See DETAIL L.**

Allow for expansion with shoulder bolts or Pipe Sleeves as shown on approved shop drawings.



DETAIL L

2. Place next panel into opening, engage with jamb panel, and shim flush with bottom of jamb panel. Attach vertical mullions with screws at horizontal/vertical intersections and one at top and bottom. Be certain that mullion halves are flush at the bottom with each other. Complete this procedure until all panels are installed. **See DETAIL M.**

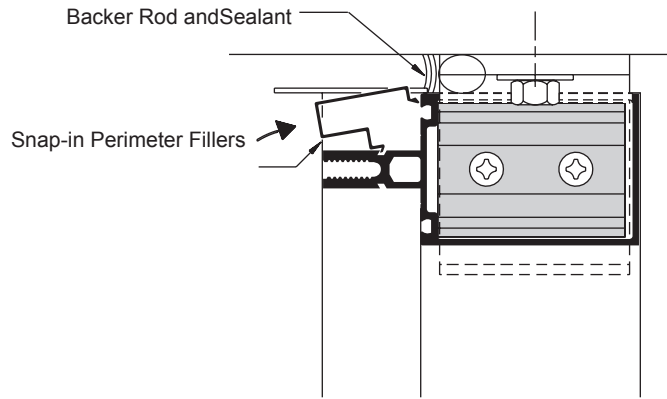


DETAIL M

**SERIES 2100/2200 CURTAIN WALL**

**Installation Procedure Screw Spline or Shear Block Assembly**

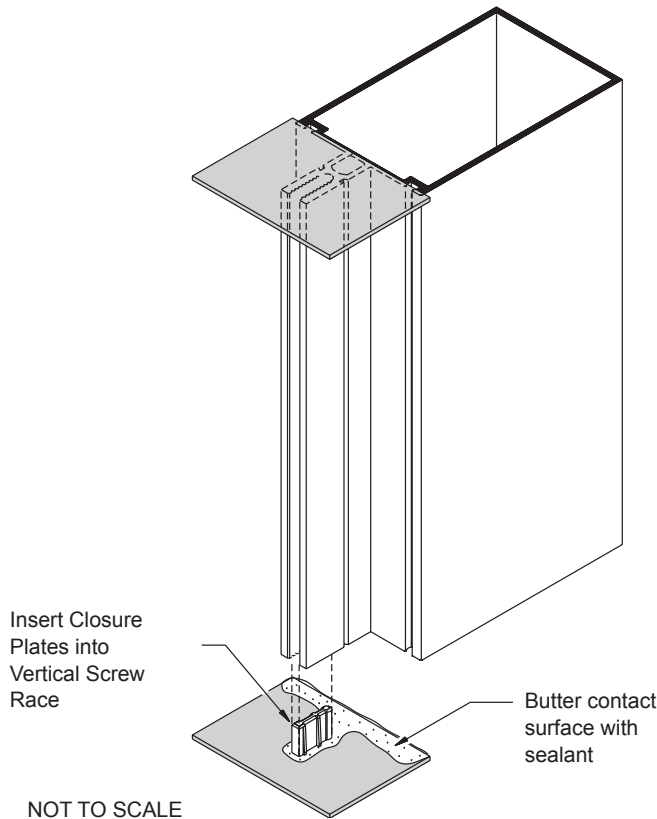
3. Apply Backer Rod and Sealant along entire perimeter. Install Perimeter Fillers.



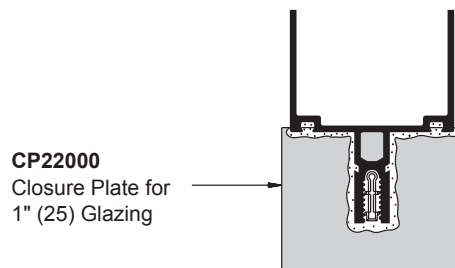
**DETAIL N**

**Installation Procedure for Shear Block Assembly**

1. Apply Closure Plates to vertical mullions as shown in **DETAIL O**.



**NOTE:** Shear Blocks not shown for clarity.



**DETAIL O**

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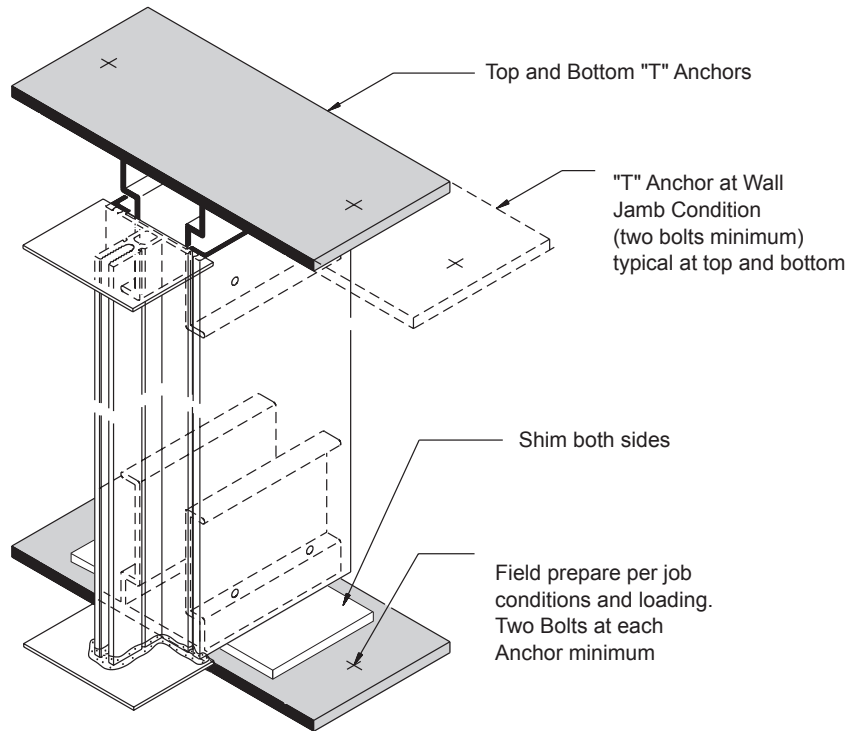
**Installation Procedure for Shear Block Assembly**

- Slide anchors into ends of vertical mullions. If shims are required place them directly under each side of vertical for proper load distribution. Secure anchors to structure plumb, level, and true. See approved shop drawings for anchor bolt type and size.

Aluminum anchors must be isolated from dissimilar materials. Typical at top and bottom



**NOTE:** Shear Blocks not shown for clarity.

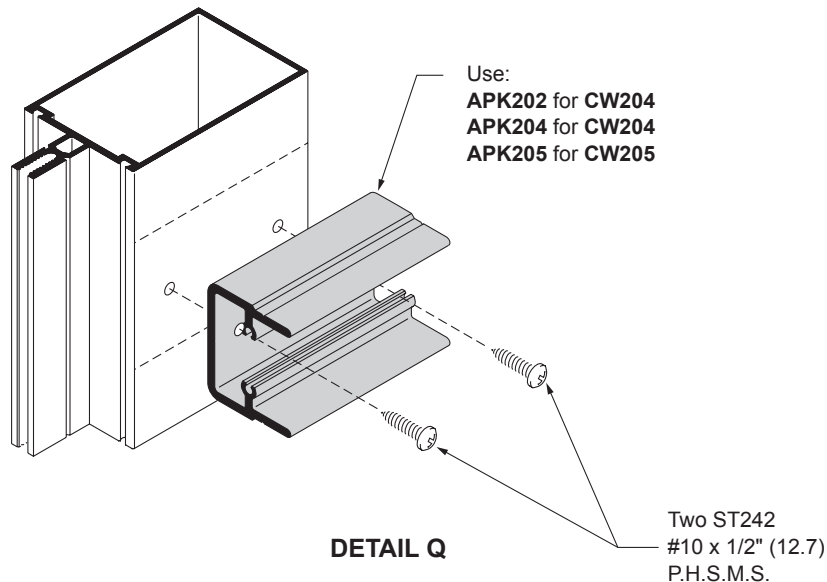


**DETAIL P**

- Attach Shear Blocks to verticals with screws provided.

**NOTE:** Tubular intermediate horizontals must be installed per bay along with verticals. Head and sill members are notched. See Page 10. Last bay intermediate horizontal is notched.

- Install backer rod, sealant and perimeter fillers along entire perimeter of opening. See **DETAIL N** on Page 12.

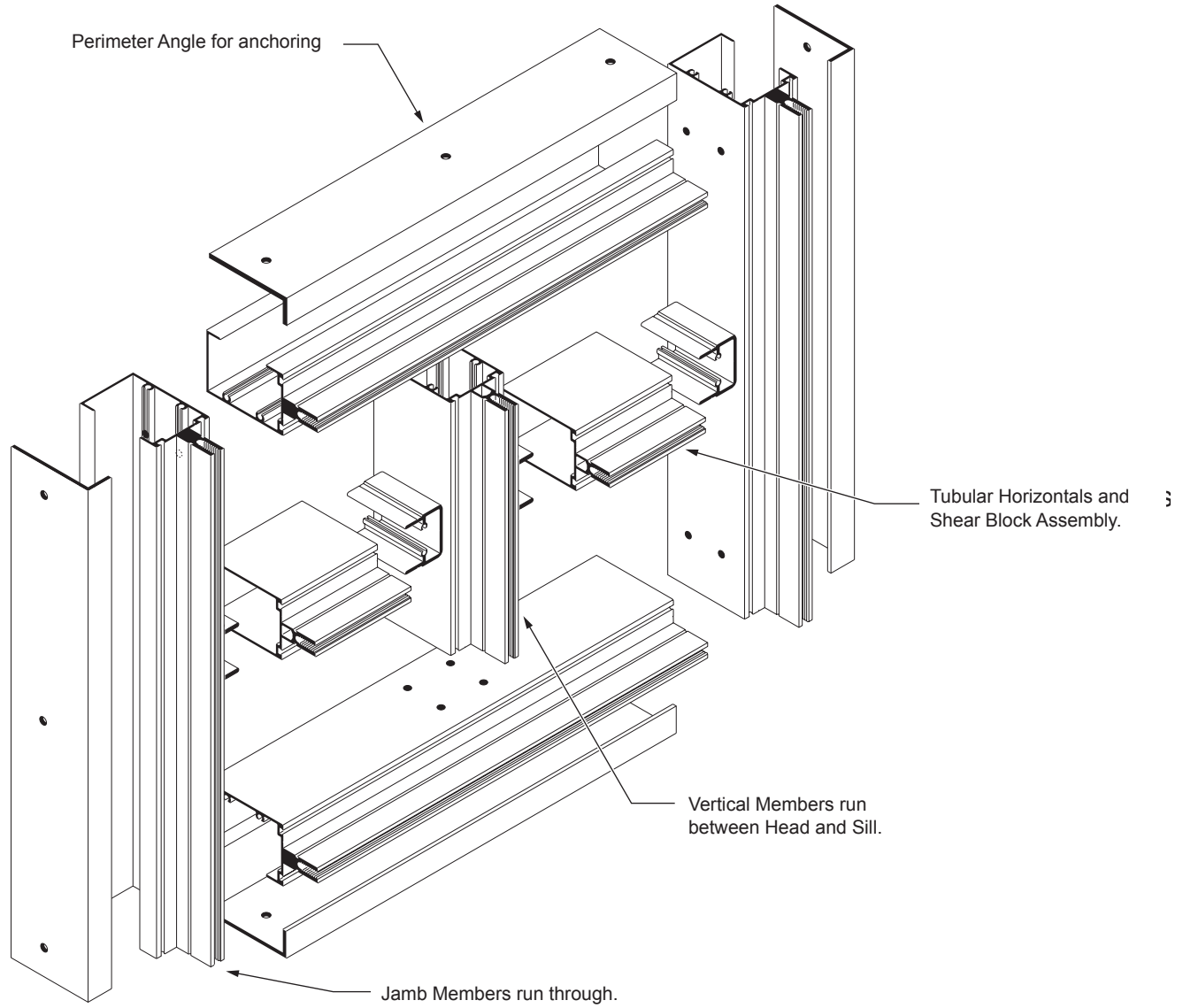


**DETAIL Q**

# TYPE "B" FABRICATION PROCEDURES

## Preassembled Multi-Lite Assembly

This assembly method allows for jamb members to run through and intermediate verticals to butt between and be attached through head and sill members as shown below. Intermediate horizontal members are attached with shear blocks. This type assembly is best utilized when the complete frame can be assembled and placed in the opening.



**DETAIL R**

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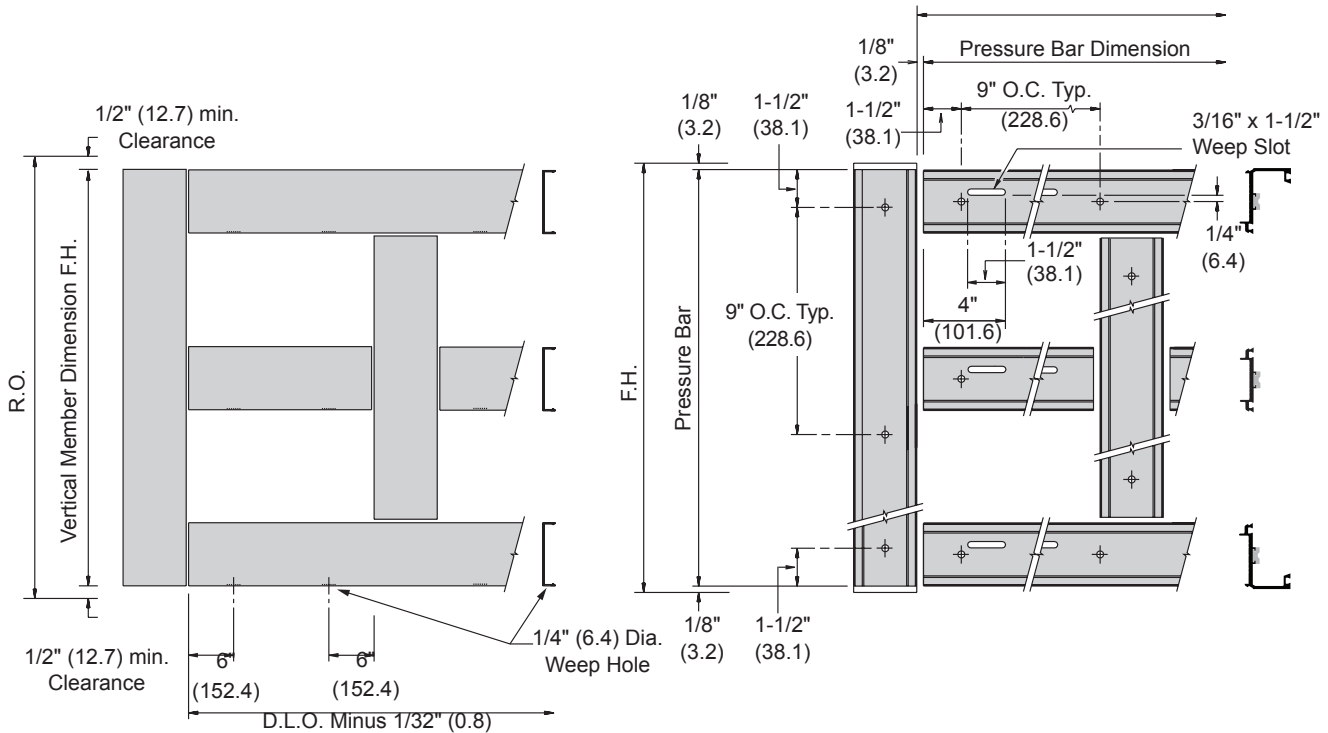


# TYPE "B" FABRICATION PROCEDURES

## Cutting Instructions for Preassembled Multi-Lite Assembly

1. Cut members to size:

<b>Wall Jamb Back Member:</b>	Rough Opening Minus Top and Bottom Clearances (Frame Height)
<b>Wall Jamb Pressure Bar:</b>	F.H. Minus 1/4" (6.4)
<b>Wall Jamb Face Cover:</b>	Frame Height
<b>Wall Jamb Anchor Angle:</b>	Frame Height
<b>Intermediate Vertical Back Member:</b>	Frame Height minus 4" (101.6) (+ 0" - 1/32")
<b>Intermediate Vertical Pressure Bar:</b>	Frame Height minus 4-1/4" (107.9)
<b>Intermediate Vertical Cover:</b>	D.L.O. (+ 0" - 1/32") (8.1)
<b>Intermediate Horizontal Back Member:</b>	D.L.O. (+ 0" - 1/32") (8.1)
<b>Intermediate Horizontal Pressure Bar:</b>	D.L.O. Minus 1/4" (6.4)
<b>Intermediate Horizontal Cover:</b>	D.L.O. Minus 1/32" (8.1)
<b>Head and Sill Back Member:</b>	Frame Width Minus 4" (101.6)
<b>Head and Sill Pressure Bar:</b>	Frame Width Minus 4-1/4" (107.9)
<b>Head and Sill Cover:</b>	Frame Width Minus 4" (101.6) (+ 0" - 1/32")
<b>Head and Sill Filler:</b>	Frame Width Minus 4-1/8" (104.8)
<b>Head and Sill Anchor Angle:</b>	Frame Width Plus 1/2" (12.7)
<b>Vertical Transition Adapter:</b>	D.L.O. Plus 1" (25.4)
<b>Horizontal Transition Adapter:</b>	D.L.O. Minus 1/8" (3.2)



DETAIL S

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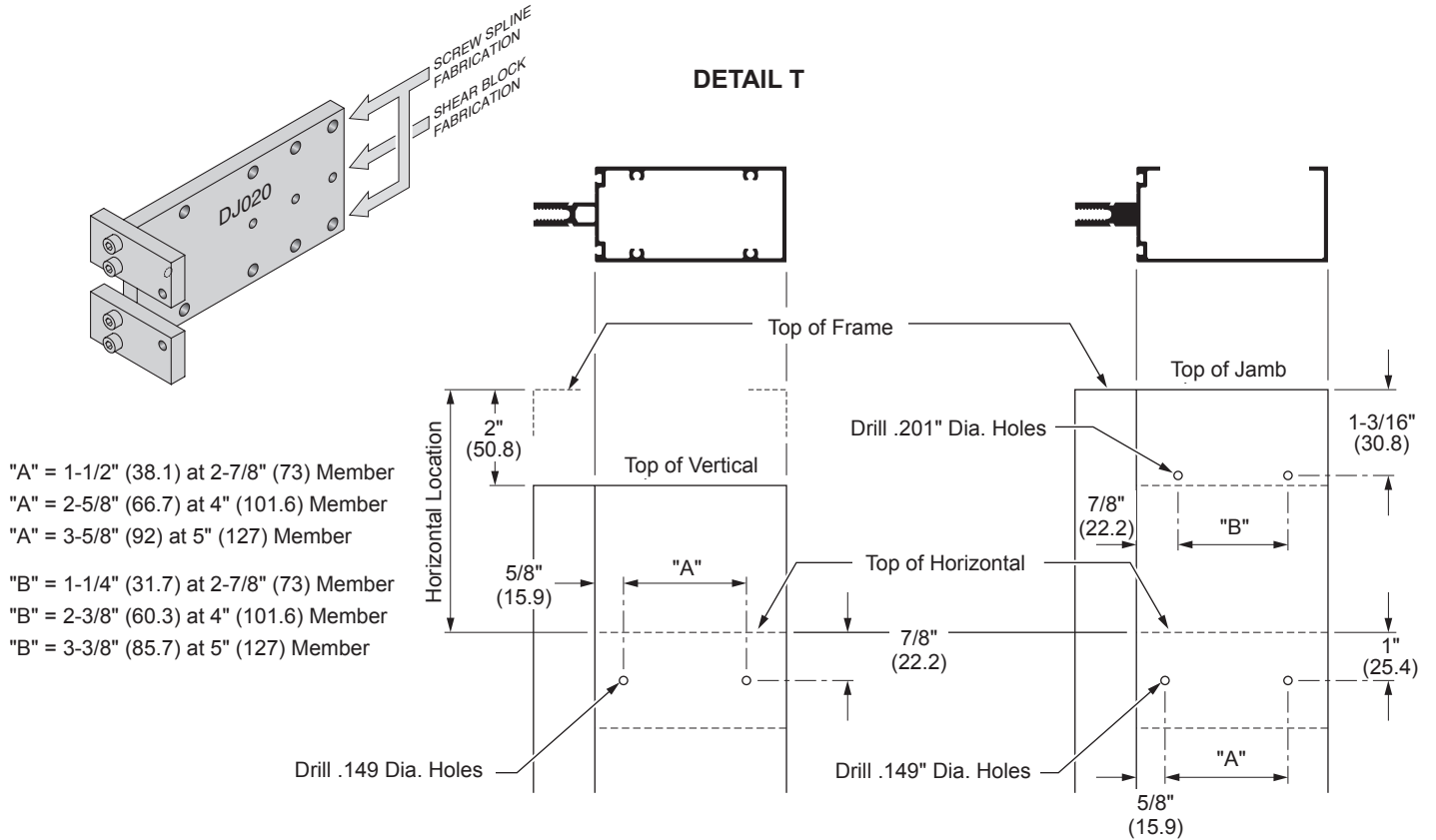
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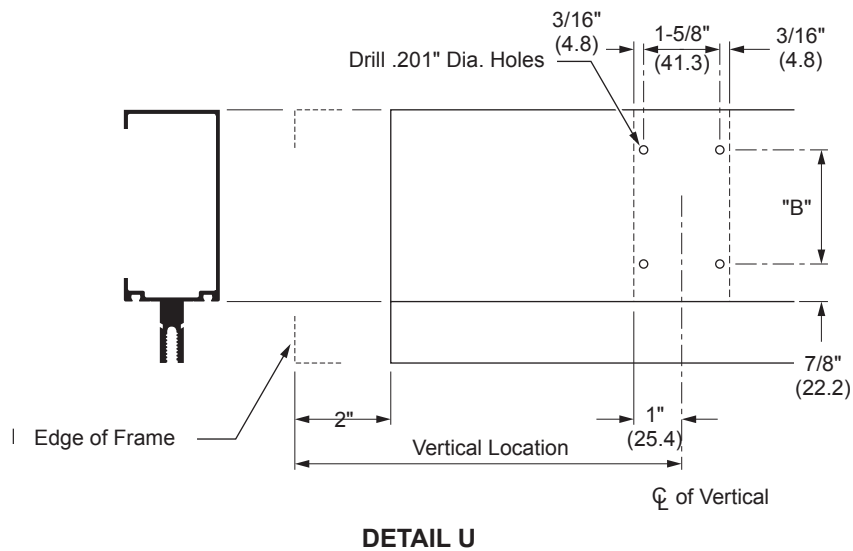
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2. Mark on verticals locations of horizontal members and drill holes for shear blocks or screw splines.



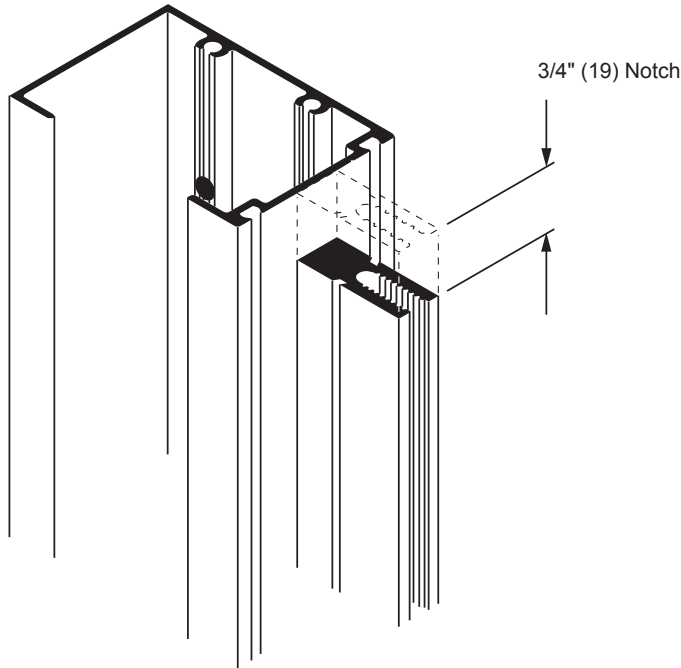
3. Mark on head and sill members locations of intermediate verticals and drill holes.
4. Fabricate intermediate horizontal members for shear block attachment screws. **See DETAIL F on Page 10.**



5. Fabricate horizontal pressure bars for slots and attachment holes. **See DETAIL J on Page 12.**

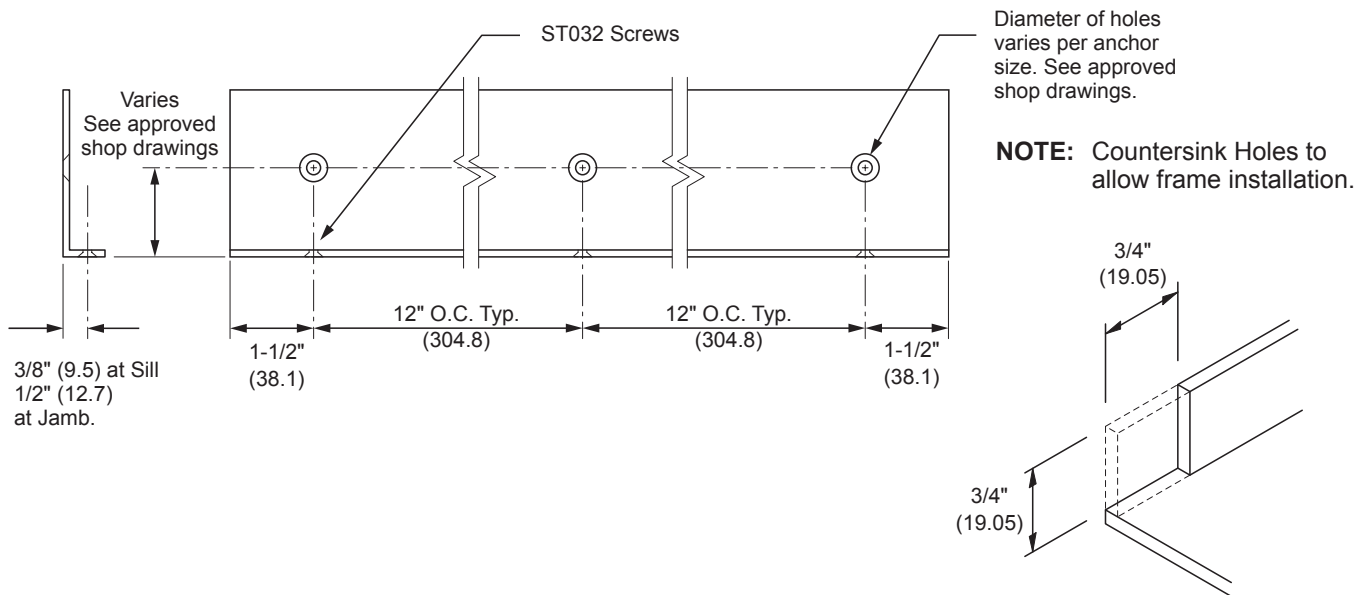
# SERIES 2100/2200 CURTAIN WALL

6. Notch top and bottom of jamb members as **shown in DETAIL V** to clear perimeter angle. Top shown, bottom similar.



**DETAIL V**

7. Fabricate perimeter angle as **shown in DETAIL W**. Head portion of anchor does not receive holes on 3/4" (19.0) leg. Do not attach head member to anchor at head.



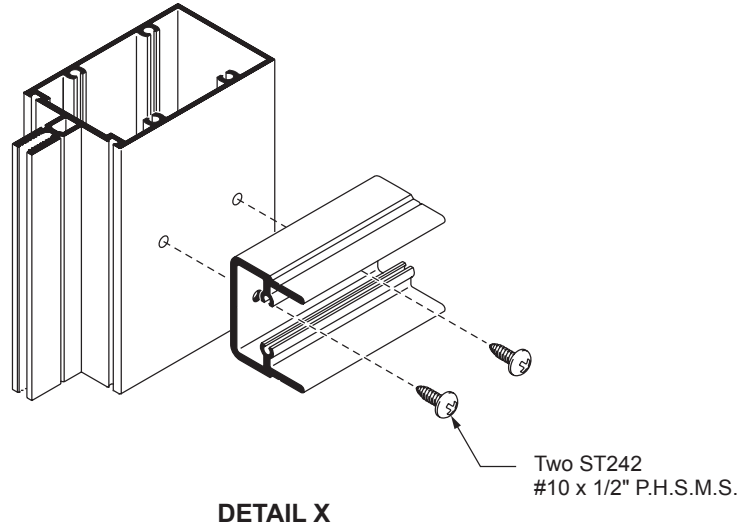
**DETAIL W**

NOT TO SCALE

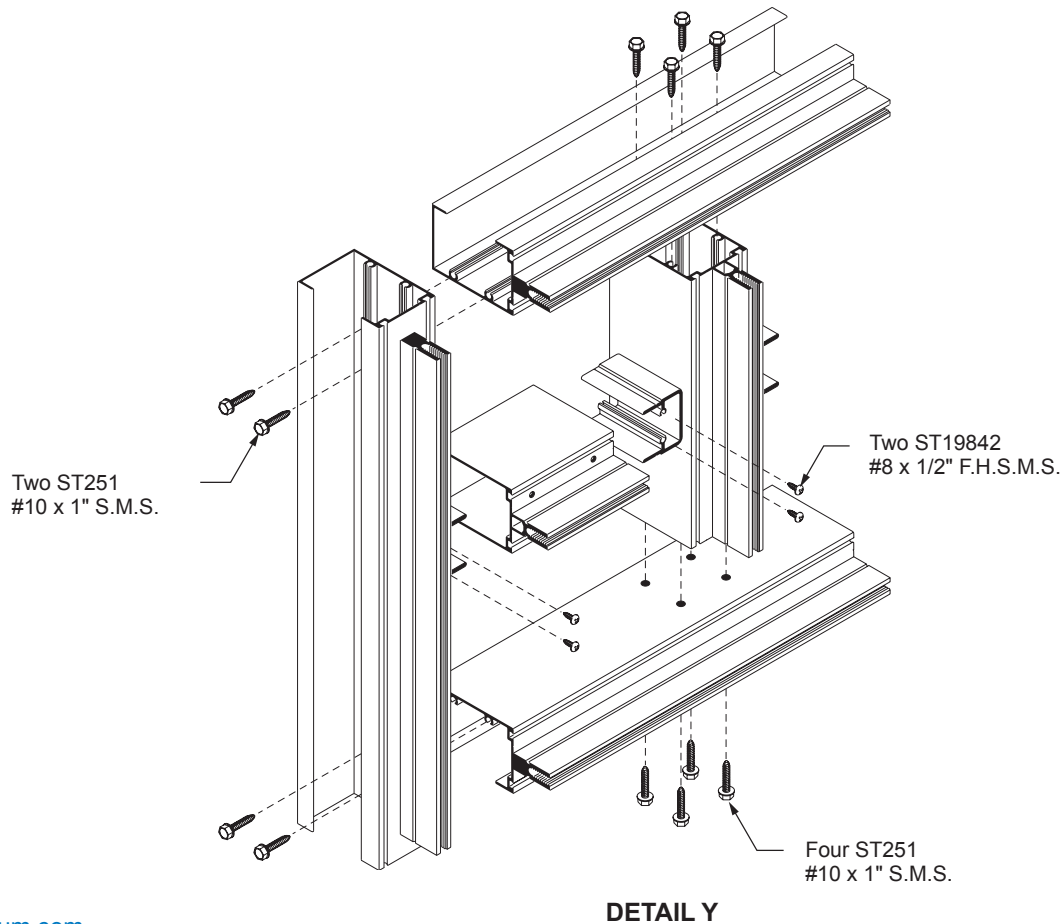
# ASSEMBLY PROCEDURE

## Installation Procedure For Preassembled Multi-Lite Assembly

1. Attach shear blocks to mullion and jambs as **shown in DETAIL X**.

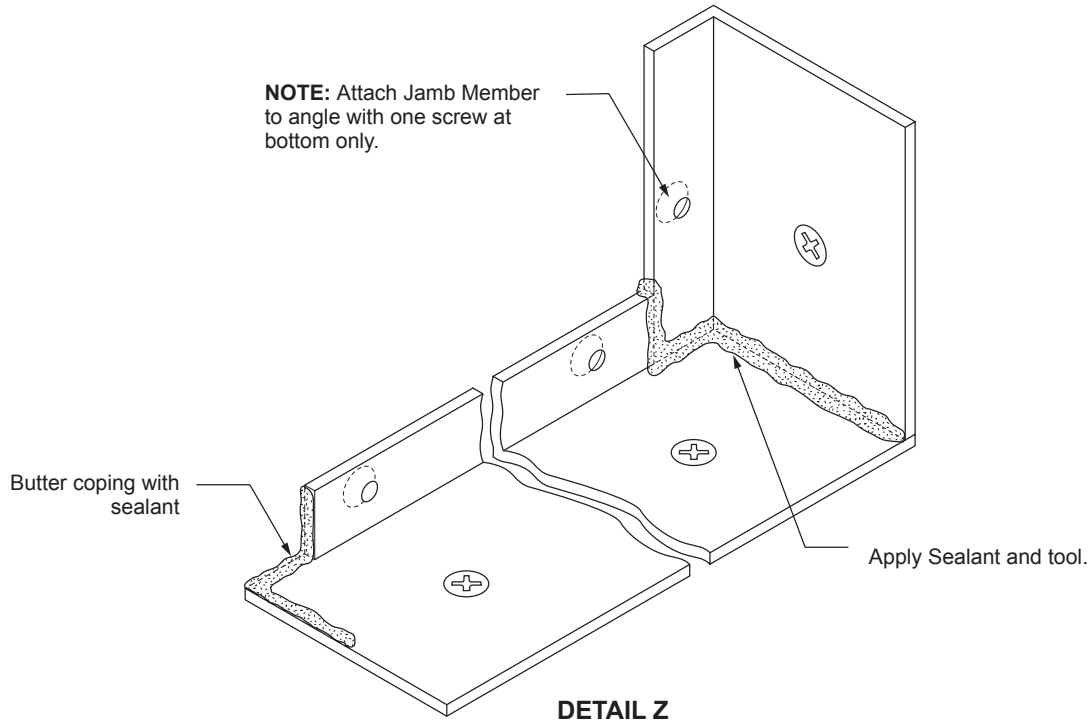


2. Assemble frame as **shown in DETAIL Y**.

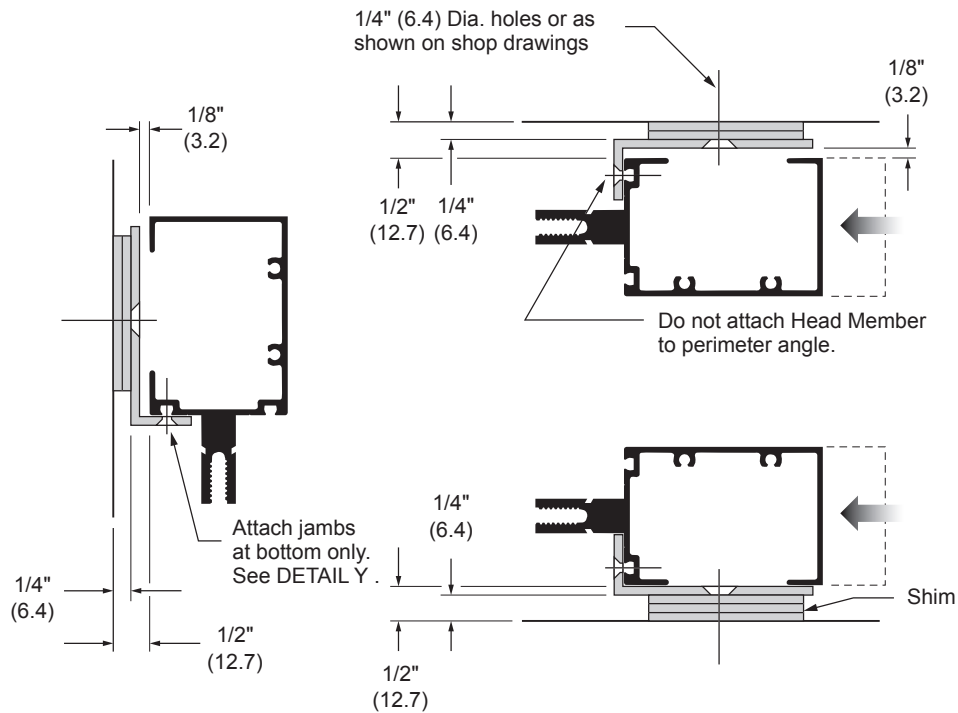


# ASSEMBLY PROCEDURE

3. Install perimeter angle into opening. See approved shop drawings for proper anchor bolt and size. Apply sealant to areas **as shown in DETAIL Z**.

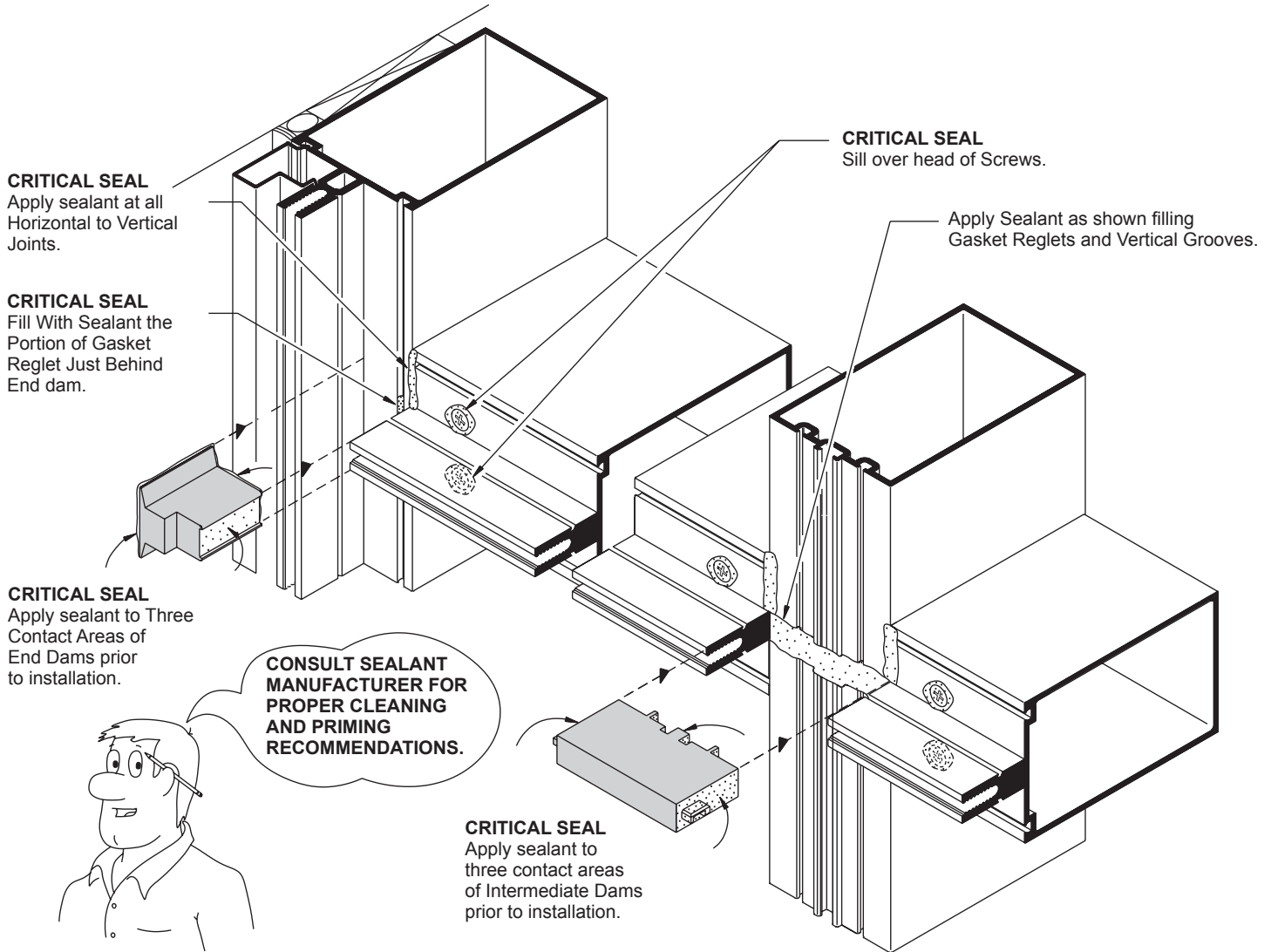


4. Install frame into opening plumb, level and true. Attach frame to angle at sill and one screw at bottom of jambs with ST035 screws 12" on center. Attach a piece of the perimeter pressure bar at the head to temporarily hold the frame in place.



# FRAME SEALANT PROCEDURE

1. Seal joint at horizontal and vertical intersection. Seal over heads of screws in the glazing pockets. **See DETAIL BB.**
2. Apply sealant at the three contact areas of end dams. Fill the vertical gasket reglet with sealant at the end dam location.
3. Slide end dams into place. **NOTE:** End dams occur at head and sill also.



**DETAIL BB**

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# GLAZING

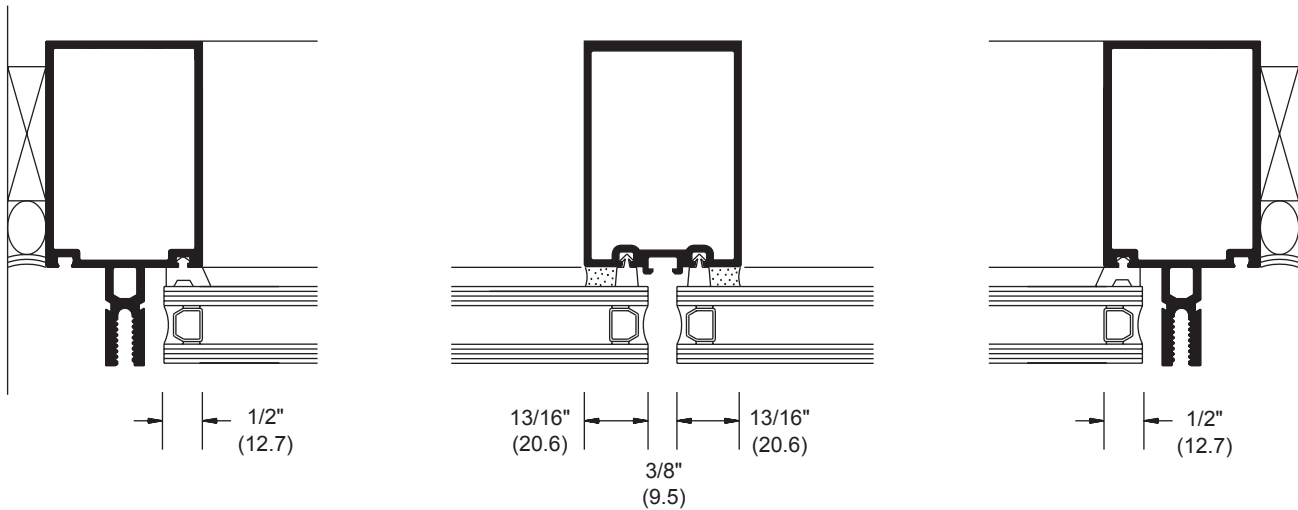
## GLASS SIZES (Captured)

GLASS WIDTH & HEIGHT = DAYLIGHT OPENING + 1" (25.4)

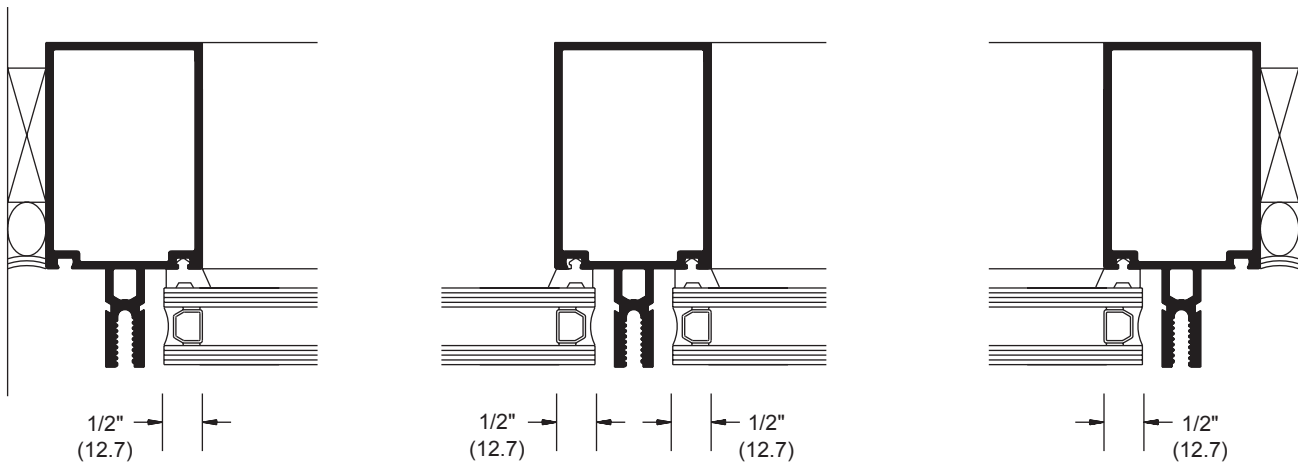
## GLASS SIZES (Structural Silicone Glazed)

GLASS HEIGHT = DAYLIGHT OPENING + 1" (25.4)  
 GLASS WIDTH = DAYLIGHT OPENING + GLASS BITES

**NOTE:** These formulas do not take into account glass tolerances. Consult glass manufacturer before ordering glass.



DETAIL CC



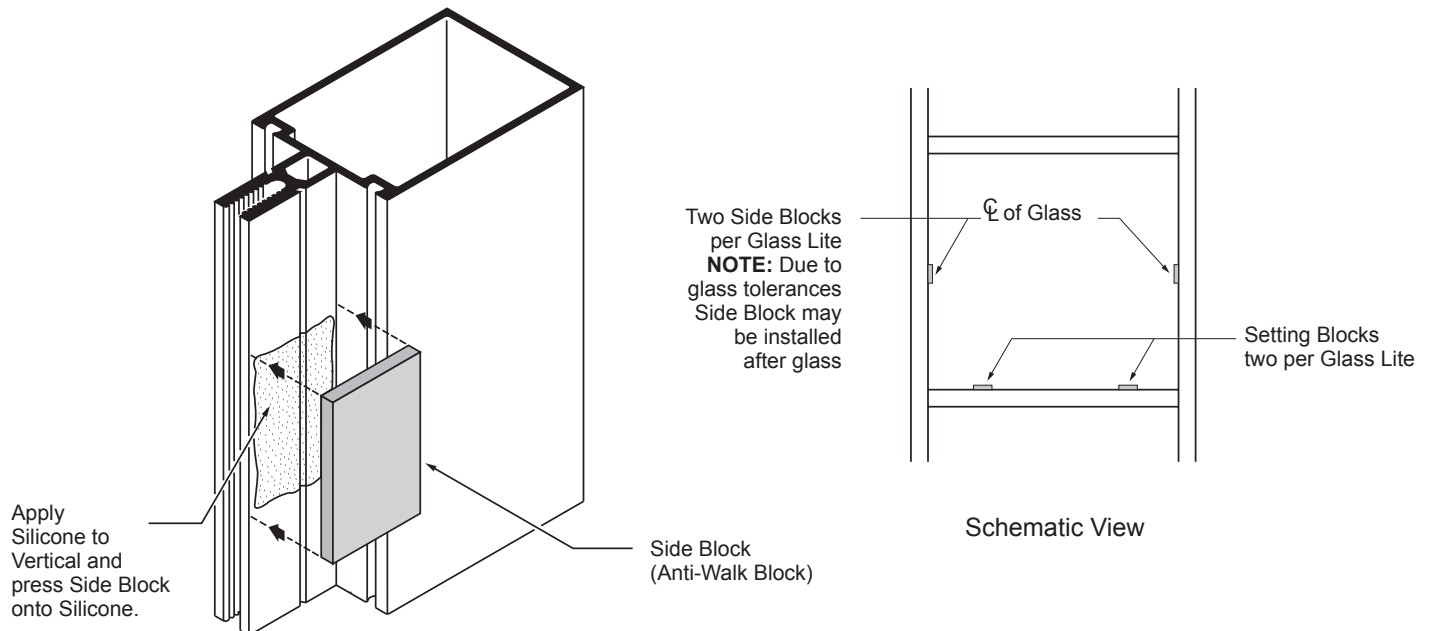
DETAIL DD

## GLAZING

Remove gaskets from carton and lay flat in a clean, dry area in order to recover shape. Allow gaskets to relax at least two hours at temperatures above 50°F (10°C). Glaze with gaskets above 40°F (4.44°C). If necessary warm gaskets in a hot box before installing.

Use **NP430** dense gasket at exterior and **NP420** sponge at interior.

1. Cut gaskets allowing 1/8" (3.2) extra length per foot of extrusion to allow for shrinkage.  
Vertical gaskets on mullion run past horizontal gaskets by 5/8" (15.9).  
Horizontal gaskets butt against vertical gaskets.
2. Install back gaskets into vertical and horizontal members and front gaskets into pressure bars. Horizontal pressure bar gaskets should extend 1/8" (3.2) beyond each end of the extrusions. Vertical pressure bar gaskets run continuous.
3. Position two setting blocks for each glass lite as directed by the deadload charts and shop drawings.
4. Apply silicone to vertical mullion and press on two side blocks per glass lite, at approximately mid-height of glass. **See DETAIL EE.**



**DETAIL EE**

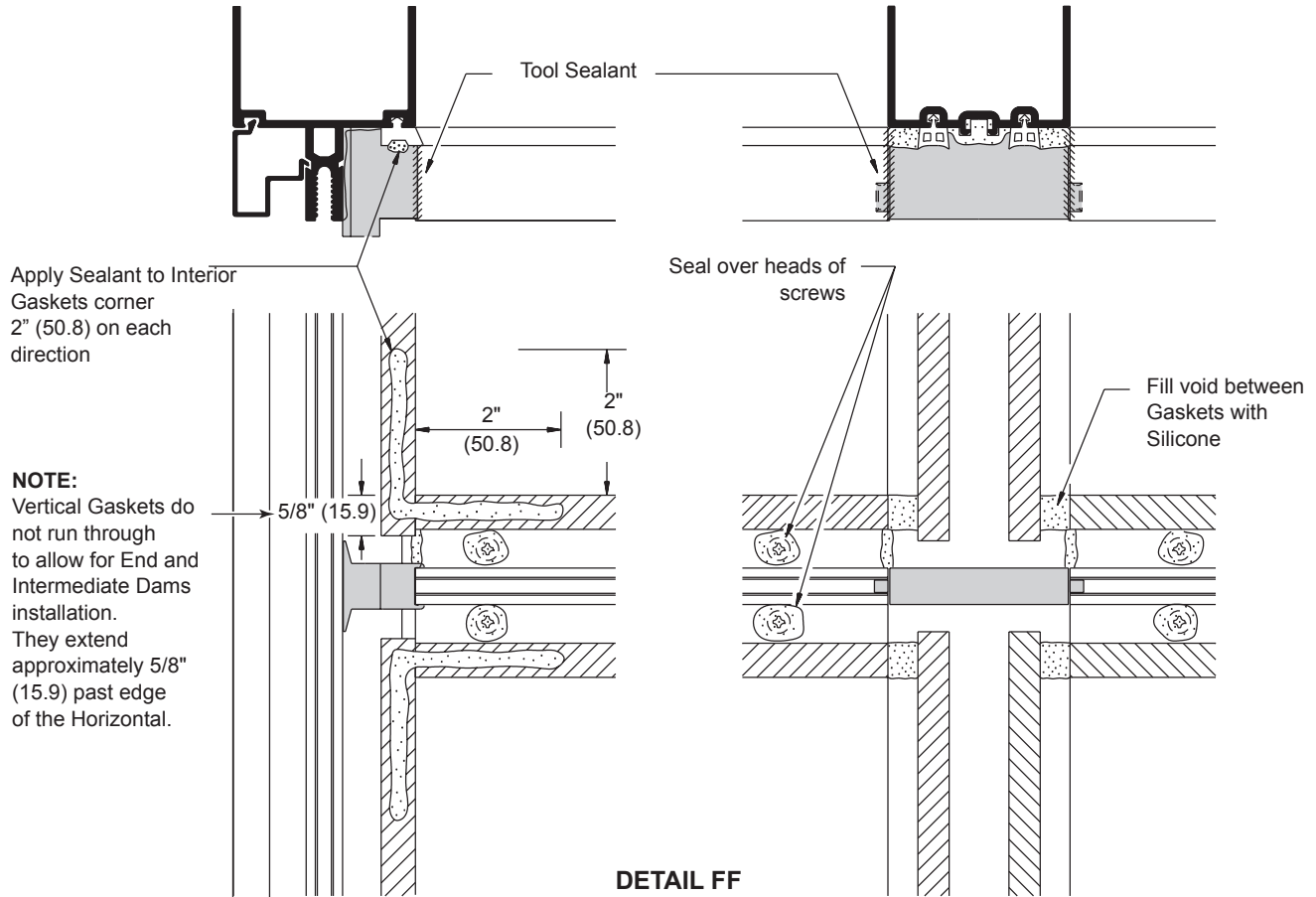
5. Apply bead of sealant at interior gaskets corners 2" (50.8) in each direction. **See DETAIL FF on Page 25.**
6. Install glass and center in opening. Use **CW368** temporary glass retainers to hold glass in place until pressure bars are installed. **See DETAIL GG on Page 25.**

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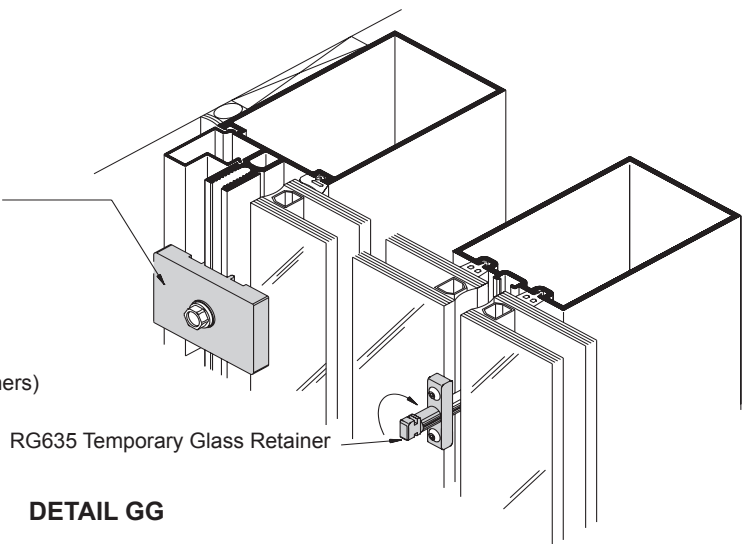


**Glazing Structural Silicone Application**

7. Structural silicone is applied from the interior. Follow silicone manufacturer's instructions and recommendations for surface preparation and silicone application. Mask glass and aluminum and tool sealant.
8. After structural silicone has fully cured remove temporary glass retainers from intermediate verticals; insert open cell polyurethane rod between glass edges; mask glass adjacent to joint, and apply outside weatherseal.



**CW368** Temporary Glass Retainer.  
Torque to 30 in. Pound (3.4N.m)  
**NOTE:** Do Not Over Torque Glass Retainers Bolts.  
Use one Retainer per each 150 lbs. (667.2N) of load.  
(I.e. if glass height x glass width x windload = 350 lbs. use three retainers)



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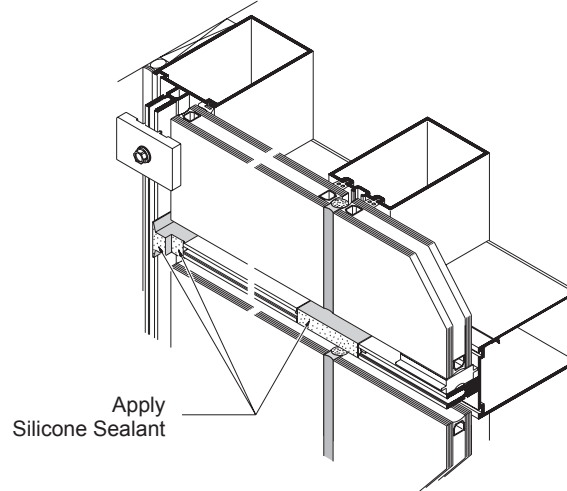
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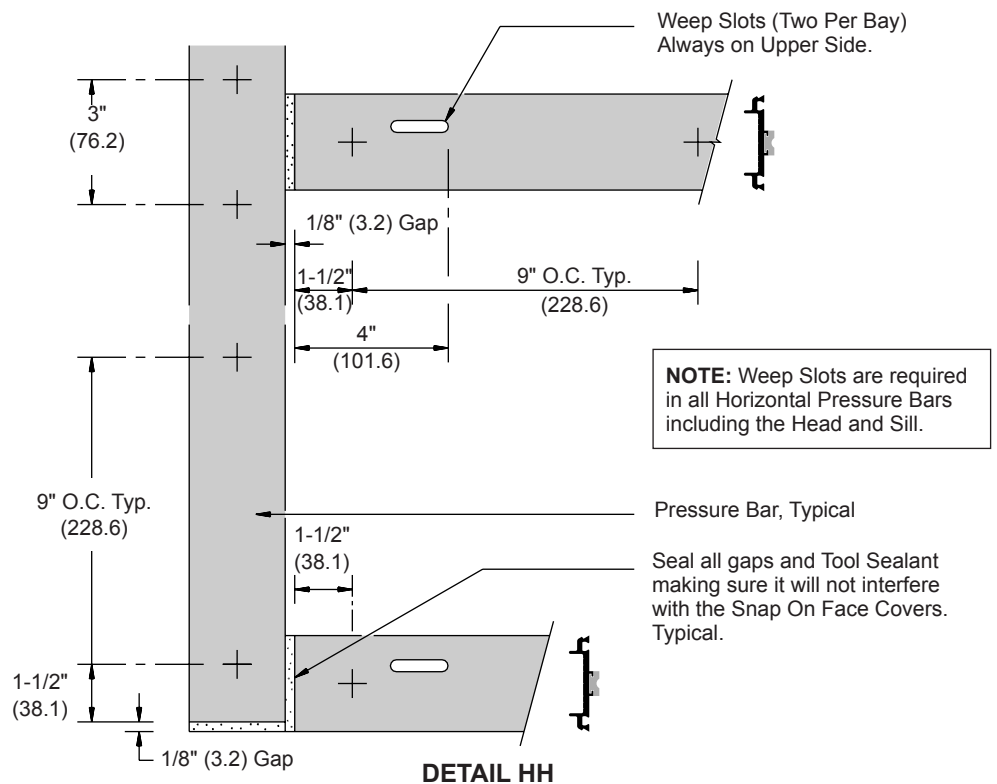
# PRESSURE BAR INSTALLATION

Apply sealant to faces of end dams prior to installing pressure bars. Pressure bars should be installed while sealant is wet.



Install vertical pressure bar bolts from bottom to top and horizontal pressure bar bolts from center outward. Always locate bolts 1-1/2" (38.1) maximum from vertical/horizontal intersections to ensure proper pressure over end dams. **See DETAIL HH. Be sure pressure bar spacer is not disengaged.**

1. Install vertical pressure bars first leaving 1/8" (3.2) gaps at top and bottom. Using a torque wrench, torque bolts to 30 inch pound (3.4N.m). Increase torque to 50 to 60 inch pound (5.7 to 6.8N.m) minimum after all four sides have been secured.
2. Center horizontal pressure bars in opening, leaving 1/8" (3.2) gaps at each end.  
**NOTE:** Weep slots must be on top side of all horizontal pressure bars and level with bottom of glazing pocket to ensure proper drainage. **See DETAIL HH.**
3. Seal gaps at vertical/horizontal intersections and at top and bottom of vertical pressure bars. **See DETAIL HH.**



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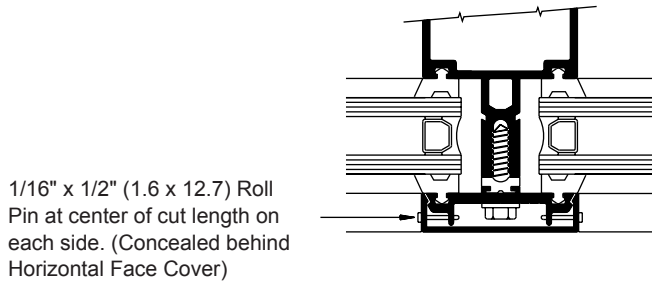
# FACE COVER INSTALLATION

Care must be taken to prevent damage of face covers during installation. Use a piece of wood such as 2" x 4" x 12" (51 x 102 x 305) and a dead blow soft face hammer.

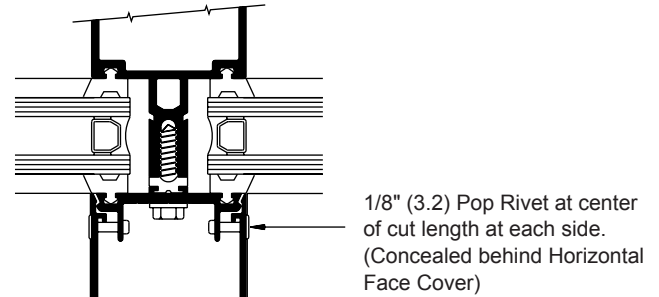
1. Install vertical face covers first. Do not disturb top and bottom closure plates when installing face covers. Pinning of vertical face cover is required to prevent slippage. Use one pin on each side per cut length, concealed behind horizontal face cover closer to center line or as shown on shop drawings. **See DETAIL II.**
2. Install snap-in horizontal face covers with the weep holes located on the bottom side.
 

**NOTE:** Extended face covers require a special pressure bar. Pin vertical extended covers with one 1/8" (3.2) Dia. pop rivet on each side per cut length (optional #10 x 1/2" F.H.S.M.S.) **See DETAIL JJ.**

Extended horizontal covers must be pinned on top side at both ends.

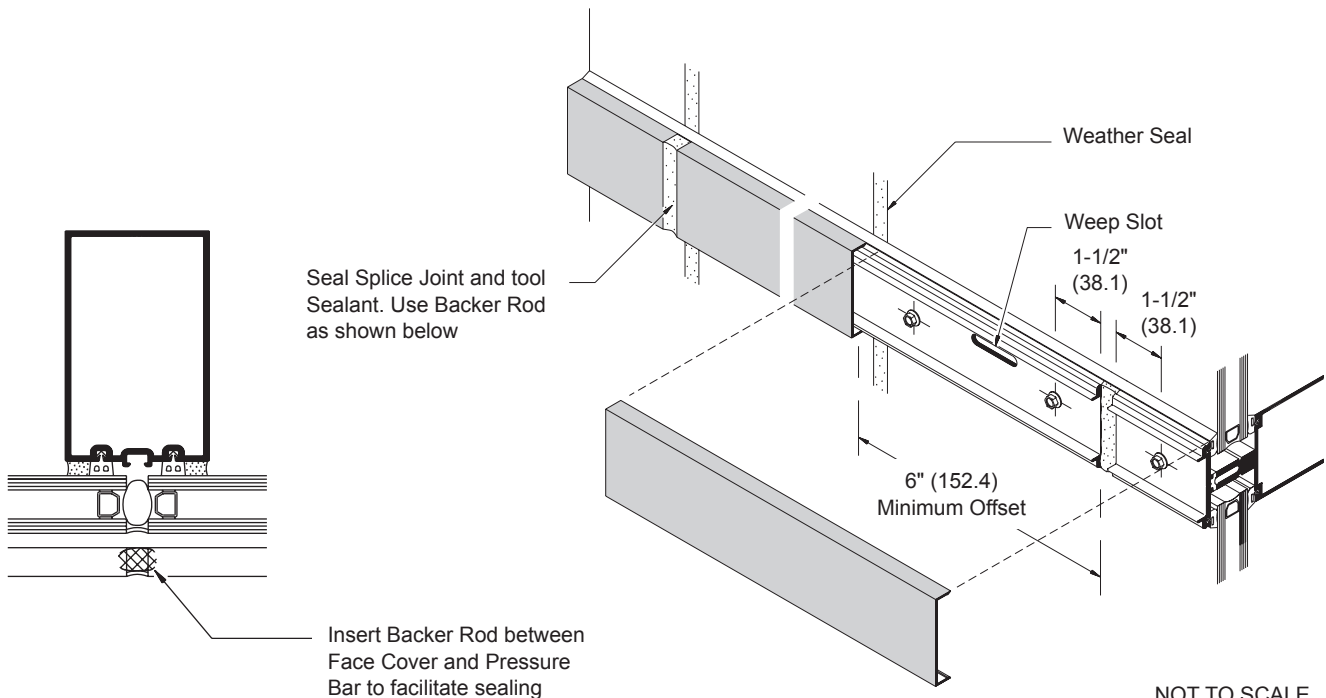


DETAIL II



DETAIL JJ

**NOTE:** Locate splice joints at center line of vertical members. Splice joint width should be based on linear expansion for aluminum specifications and sealant movement capability. Do not align face cover splices with pressure bar splices. Offset by 6" (152) minimum. Set backer rod between face cover and pressure bars at joint and seal.

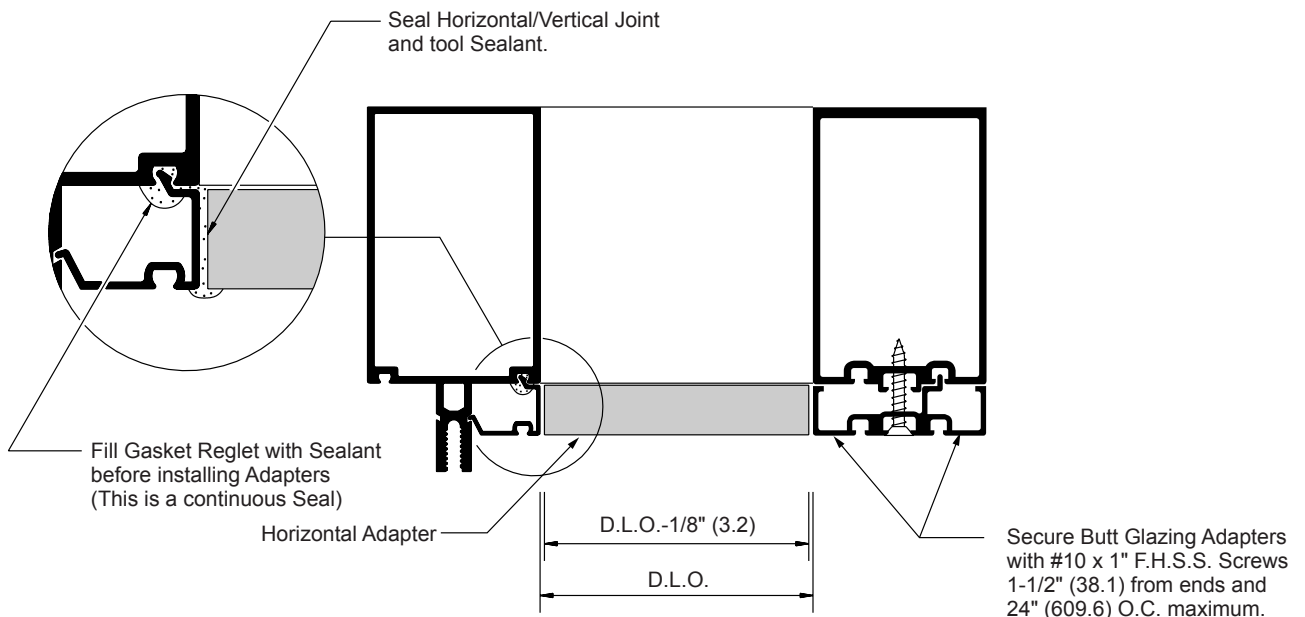
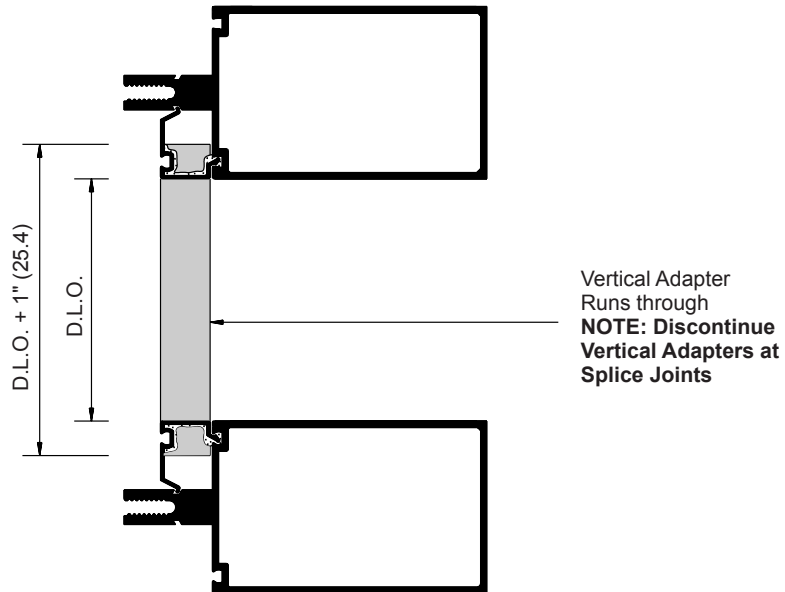


DETAIL KK

\*CRL items listed above or equivalent

# TRANSITION GLAZING

1. Apply sealant into gasket reglets before installing snap-in transition adapters.
2. Install vertical adapters first.
3. Install horizontal adapters and seal horizontal/vertical joints. Tool sealant. **See DETAIL LL.**



**DETAIL LL**

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## VERTICAL SPLICE JOINTS

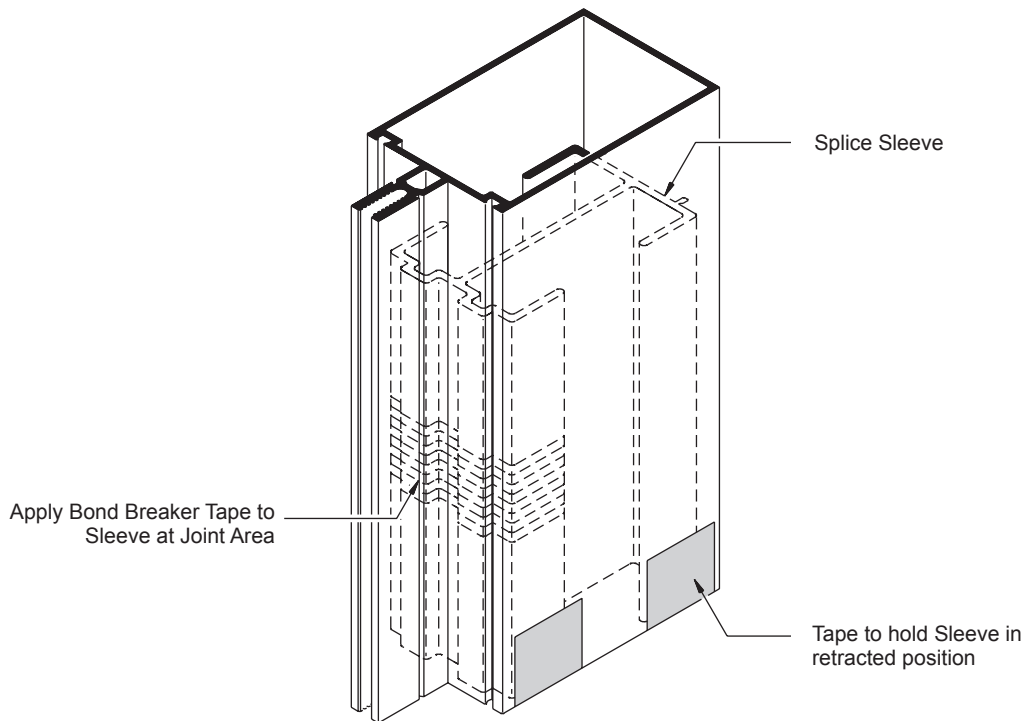
Splice joint width should be based on sealant movement capability and on the following formula:

Linear expansion for aluminum, in inches	= Length (") x F° difference in temperature x .0000129
Linear expansion for aluminum, in millimeters	= Length (mm) x C° difference in temperature x .0232

A 1/2" (12.7) minimum joint is recommended. Use a 1/2" (12.7) spacer shim to set and hold the mullion joint constant during erection. Remove the shim after attaching the verticals to the anchors. **Splice joints must occur at spandrel areas.**

**NOTE:** Splice joints are designed to accommodate thermal movement only. They do not compensate for variations in floor levels.

1. Clean splice sleeves and all joint surfaces. Apply bond breaker tape to areas where sleeve will be sealed to avoid three side adhesion. **See DETAIL MM.**
2. Slide sleeve into the upper member before it is installed and tape to hold it in retracted position. **See DETAIL MM.**

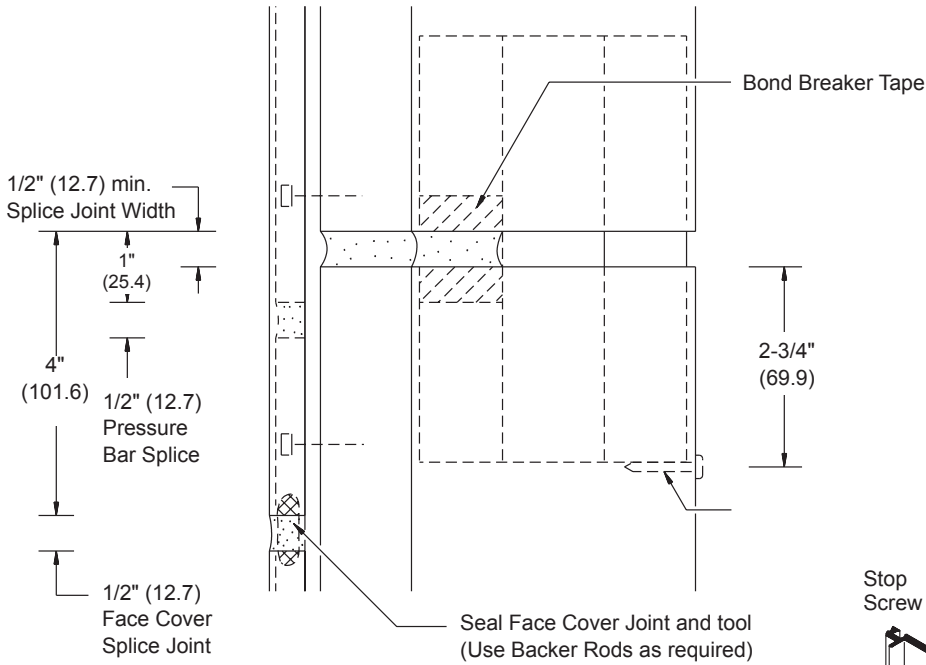
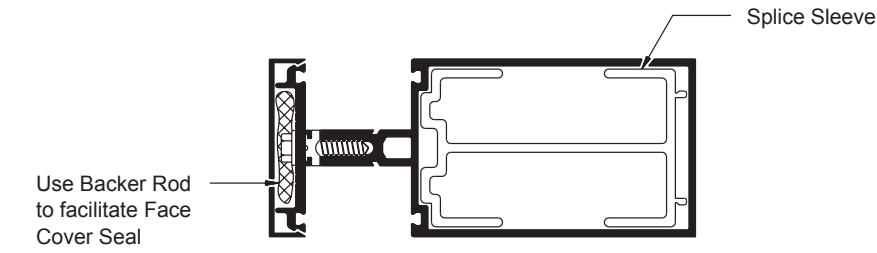


**DETAIL MM**

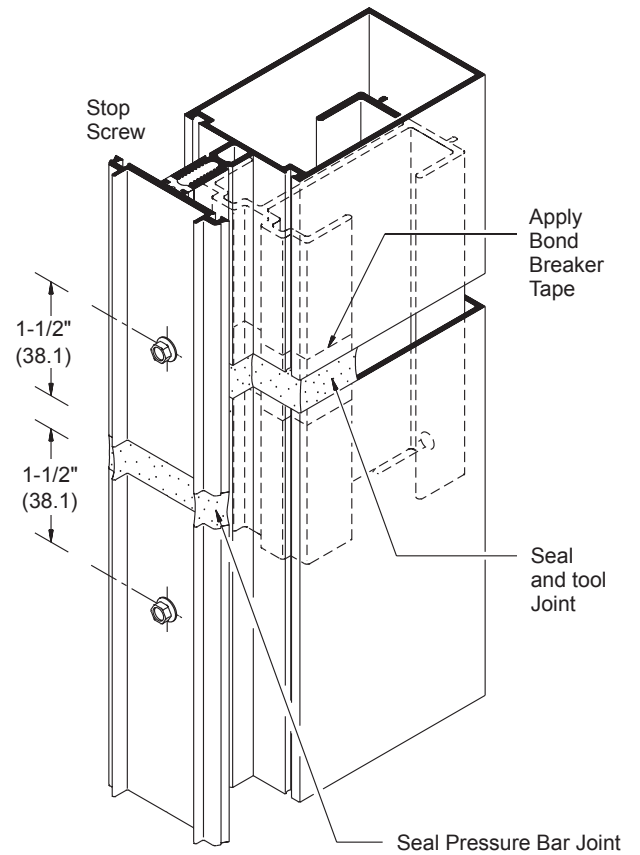
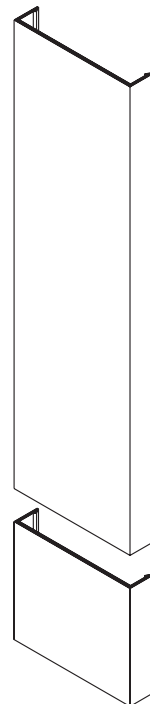
3. Install stop screw, 2-3/4" (69.9) down from top of extrusion at inside of lower member. **See DETAIL NN on Page 30.**
4. Install upper member and let extruded sleeve slide down until it sits on top of stop screw.
5. Seal joint over sleeve as shown in **DETAIL NN on Page 28**. When transition adapters for 1/4" (6) spandrel are used they should be discontinued at splice joint and installed after splice joint is sealed. Stagger joints on back members, pressure bars and face caps as shown in **DETAIL OO on Page 30**.
6. Seal pressure bar joint. **See DETAIL OO on Page 30.**
7. Install face covers and seal joint using backer rod as required. **See DETAIL NN on Page 30.**

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# SERIES 2100/2200 CURTAIN WALL



**DETAIL NN**



**DETAIL OO**

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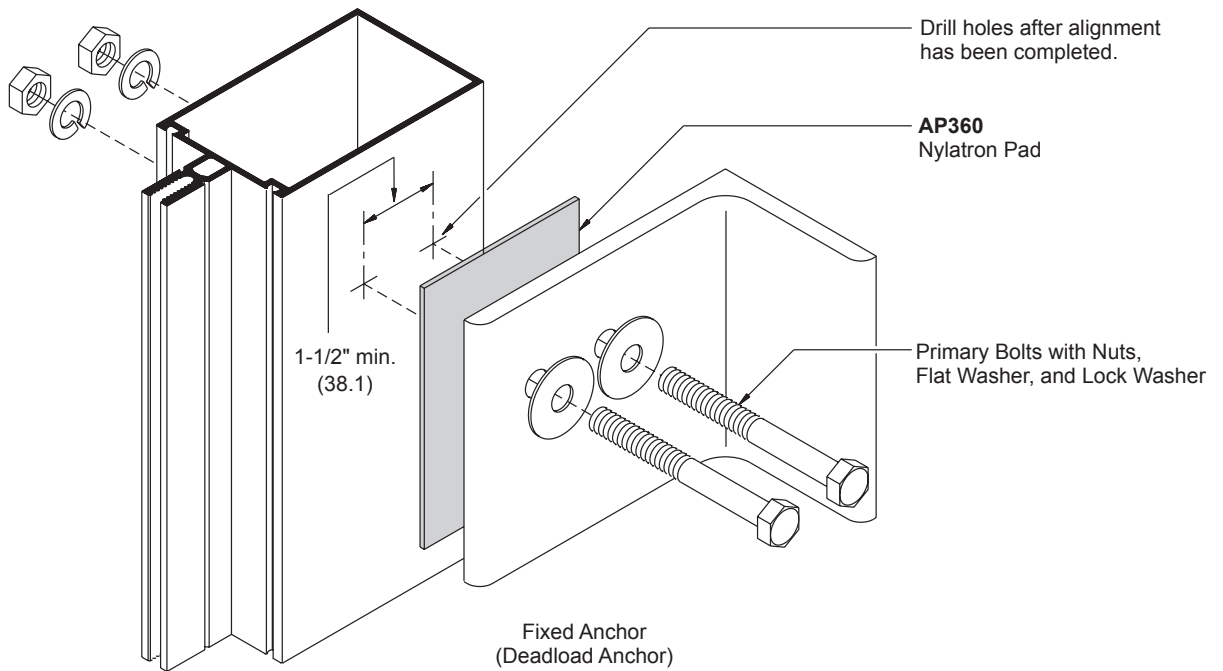
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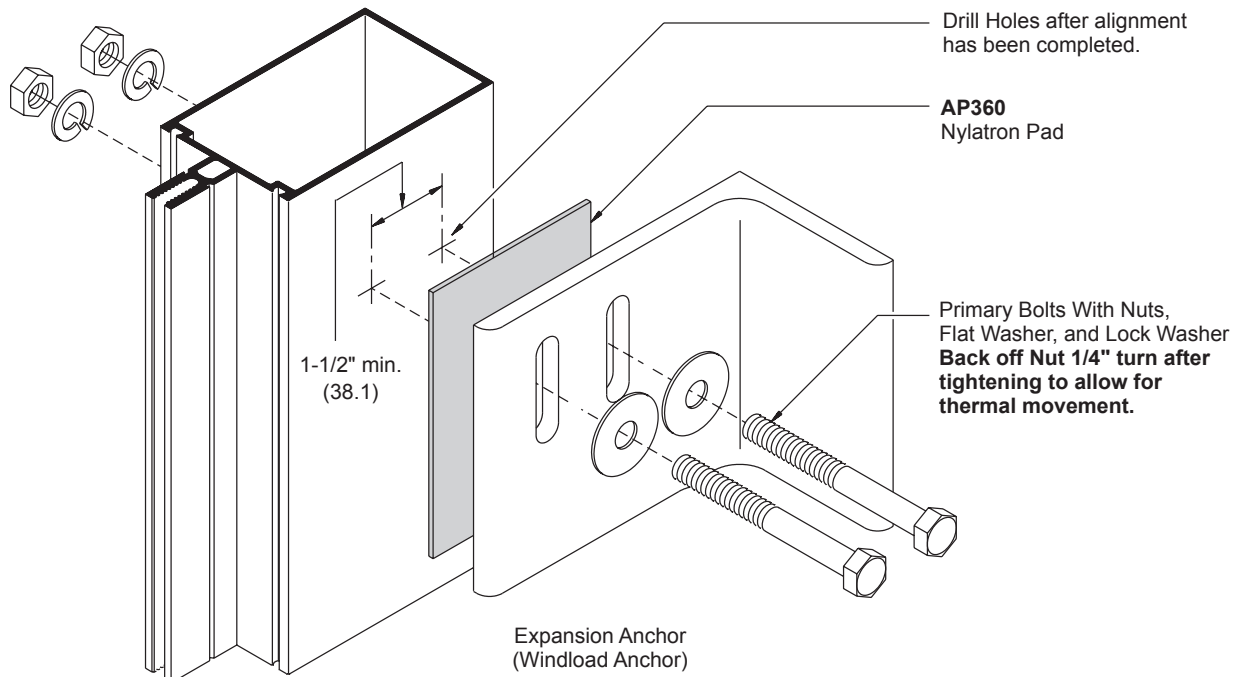
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# MULTI-SPAN CONDITION

DETAILS PP and QQ show fixed (deadload) and expansion (windload) anchors. Anchor type and size vary per job requirements. Details shown are to be used as a guide only. See approved shop drawings for actual conditions.



**DETAIL PP**



**DETAIL QQ**

Secure verticals to anchor clips after alignment has been completed.

**NOTE: Mullion spacing must be held to within +1/32" (0.8). Check overall frame dimension every four bays to monitor dimension build up.**

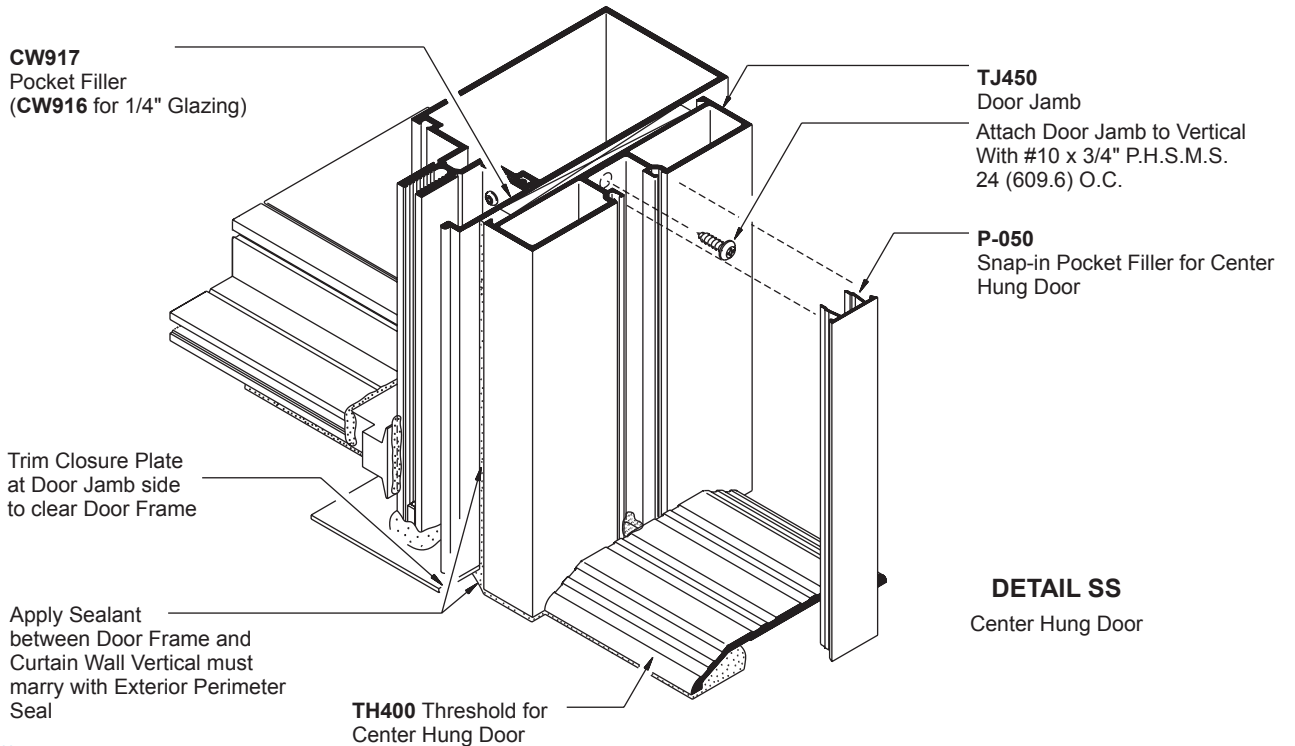
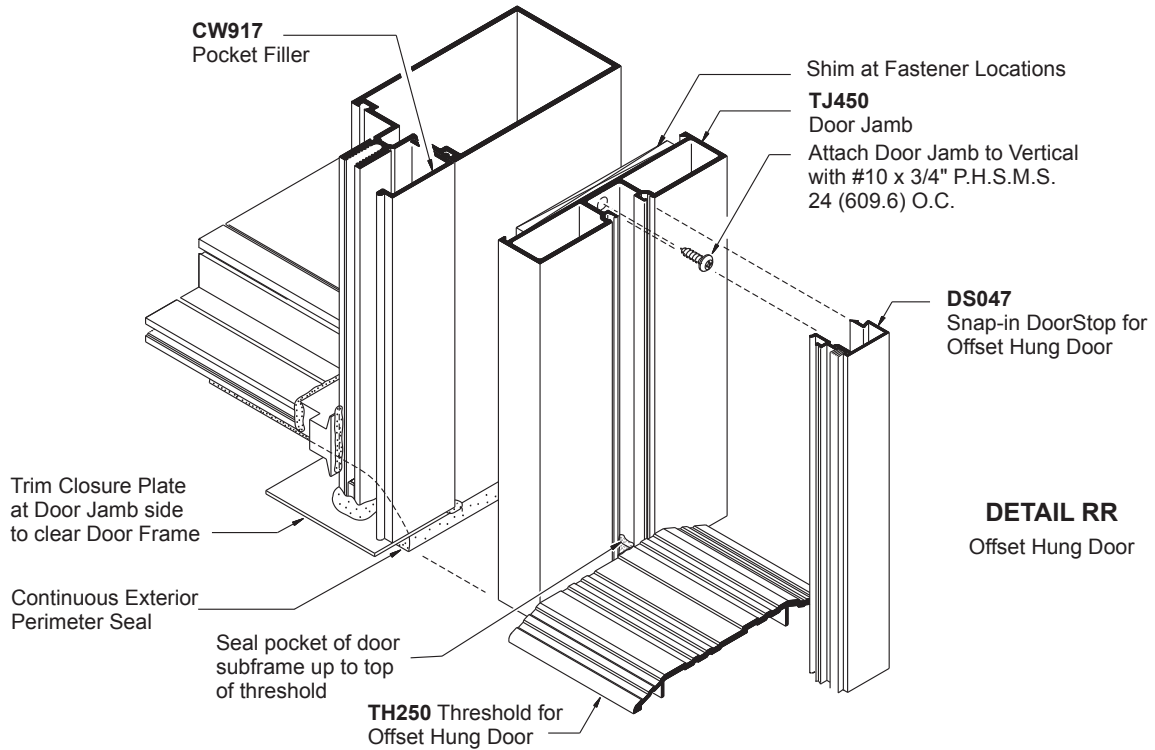
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# ENTRANCE FRAMES

Reference this section of manual for Entrance Frame fabrication and installation.

Entrance Frames may be installed simultaneously with Curtain Wall or after Curtain Wall installation has been completed.

Use **CW917** or **CW916** pocket fillers to close glazing pocket at door side.



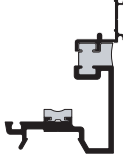


# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

## Fabrication

**NOTE:** FLUSH DOOR ADAPTORS ARE NOT AVAILABLE FOR SERIES 2100 BUTT GLAZE APPLICATIONS

- Cut door adaptor members to length.



**CW207**

Header Adaptor Length = DOOR OPENING WIDTH MINUS 1/32" (.8).  
 Jamb Adaptor Length = DOOR OPENING HEIGHT Plus 7/16" (11.1).



**CW206**

Header Cap Length = DOOR OPENING WIDTH MINUS 1/32" (.8).  
 Jamb Cap Length = DOOR OPENING HEIGHT Plus 7/16" (11.1).  
 (Field cutting may be required to obtain a tight joint with vertical cap above)



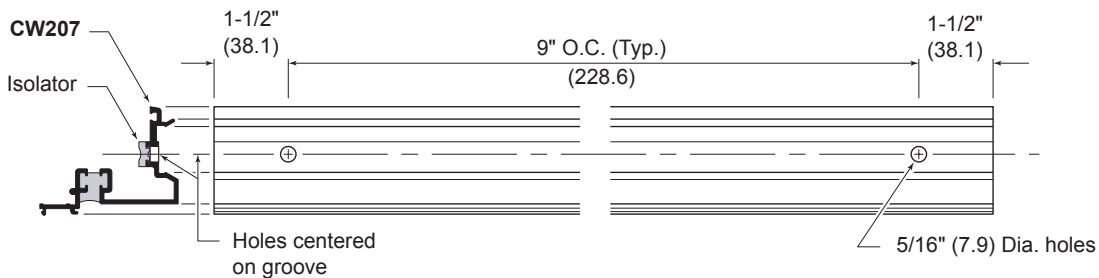
**CW209**

Header DoorStop Length = DOOR OPENING WIDTH MINUS 1/32" (.8).  
 Jamb DoorStop Length = DOOR OPENING HEIGHT MINUS 1-1/32"  
 (27.8).

- Drill 5/16" (7.9) diameter anchor holes in all cut to length adaptors 1-1/2" (38.1) from each end and 9" (228.6) O.C.

**See DETAIL TT.**

**NOTE:** Isolator must be in place prior to drilling anchor holes.

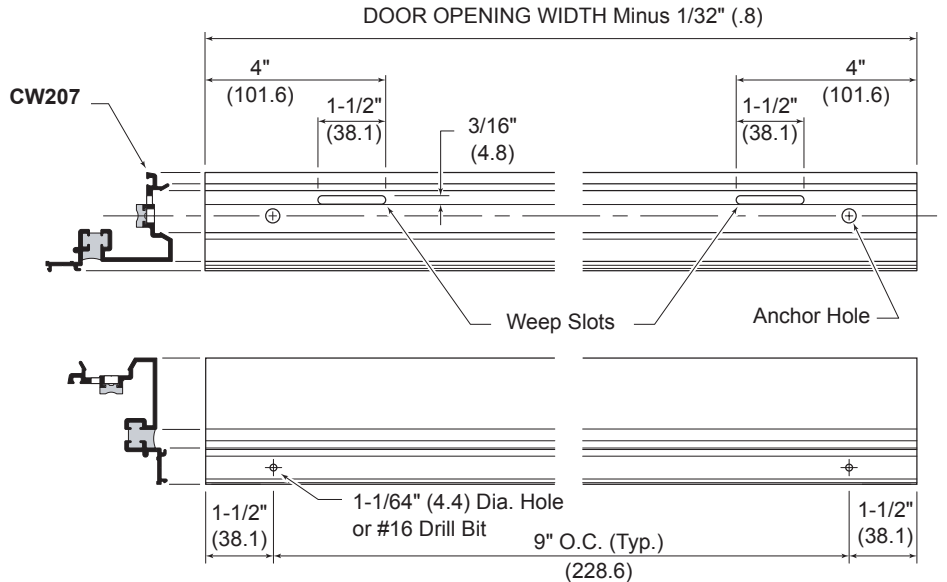


**DETAIL TT**

# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

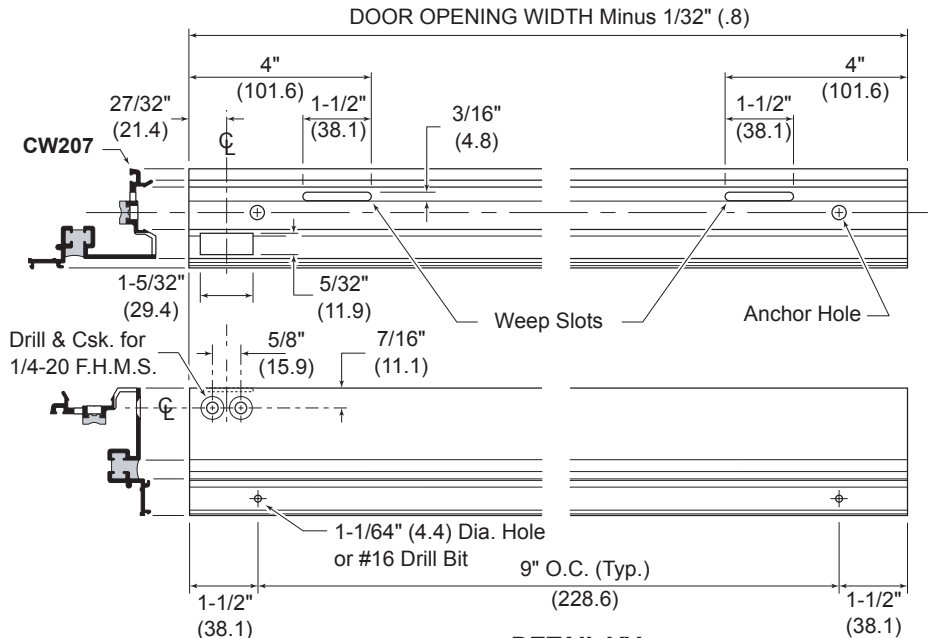
## Fabrication

- For butt hung doors, fabricate header adaptor for weep slots and additional anchor holes as **shown in DETAIL B**. (Refer to the *Entrances and Frames* section of this manual for flush bolt and panic rod strike fabrication.)

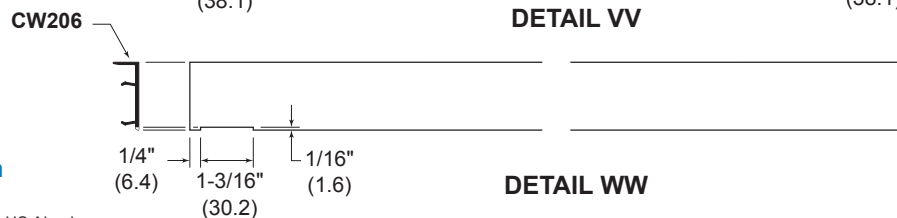


**DETAIL UU**

- For offset pivot doors, fabricate header adaptor for pivot (Left hand shown), weep slots and additional anchor holes as **shown in DETAIL VV**. Notch face cap for pivot clearance as **shown in DETAIL WW**. (Refer to the *Entrances and Frames* section of this manual for flush bolt and panic rod strike fabrication.)



**DETAIL VV**



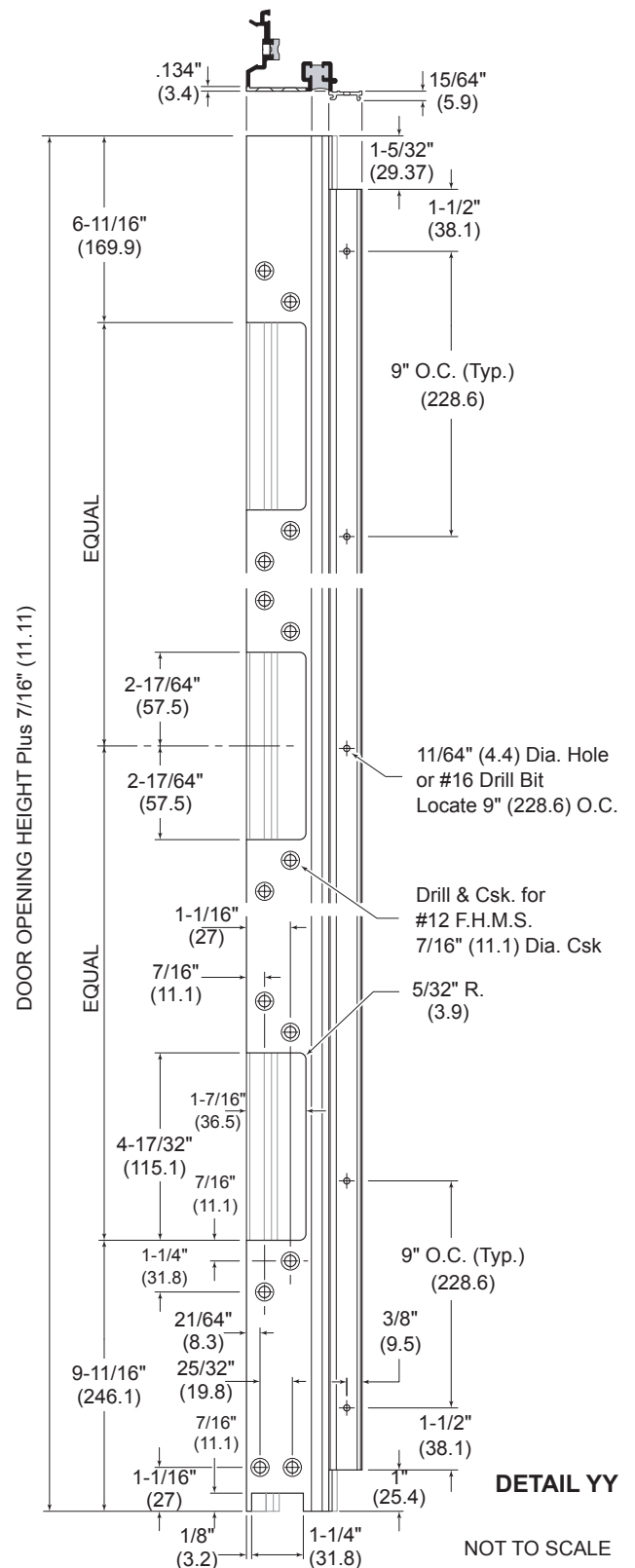
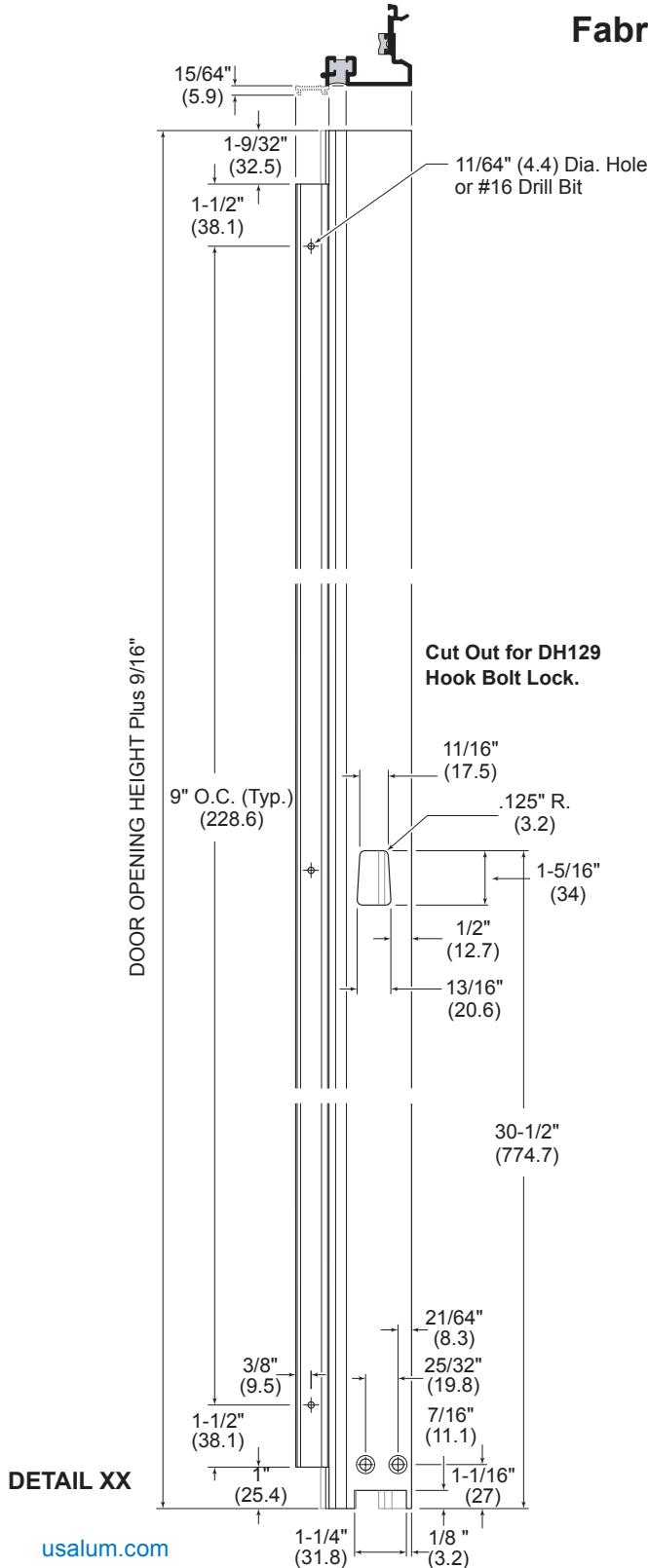
**DETAIL WW**

# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

5. Fabricate for lock jamb see **DETAIL XX**.  
(Right hand shown; left hand opposite)

6. Fabricate for butt hinges see **DETAIL YY**.  
(Left hand shown; right hand opposite)

## Fabrication



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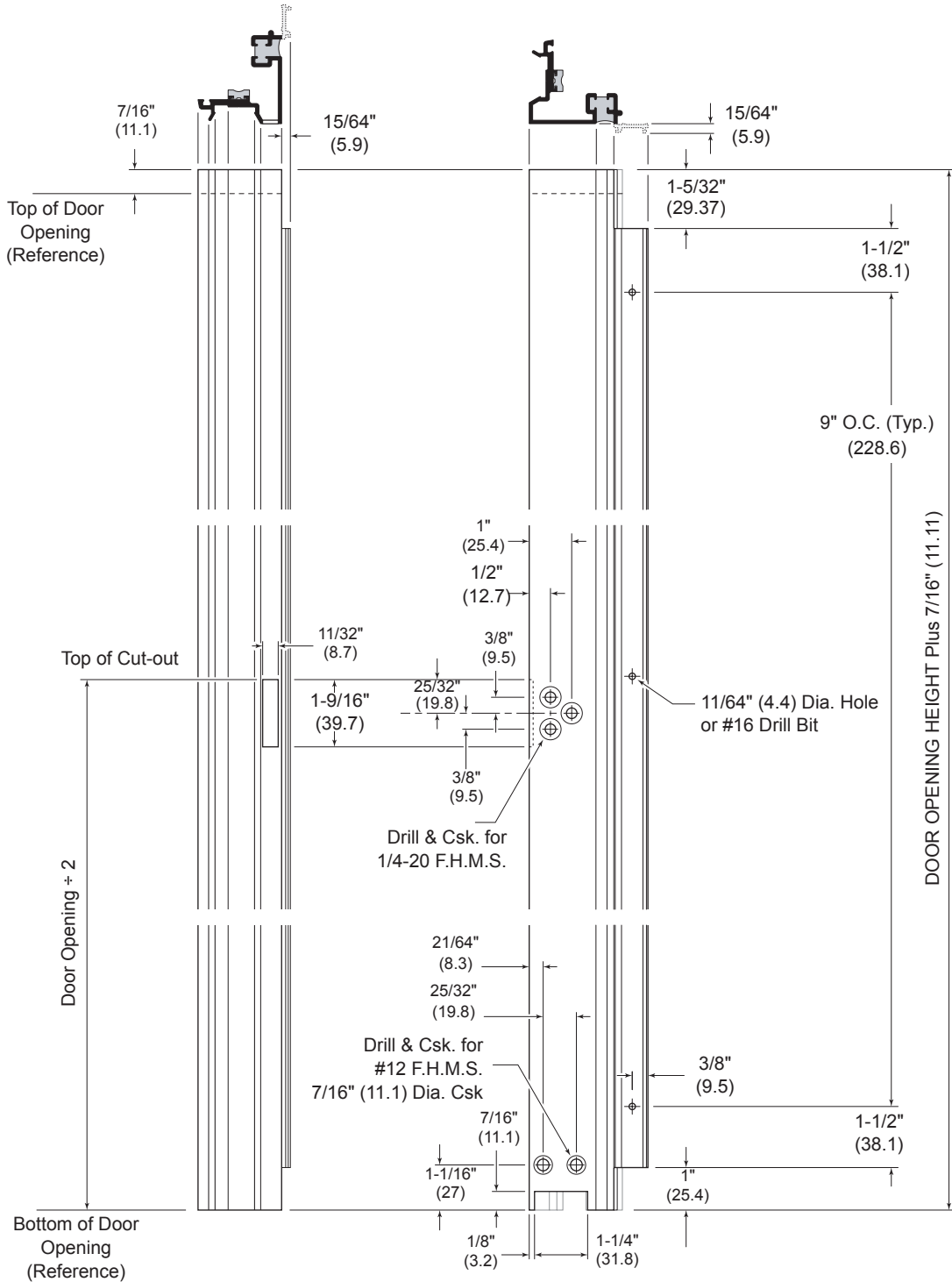
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# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

## Fabrication

7. Fabricate for offset pivots **see DETAIL ZZ**. (Left hand shown; right hand opposite)



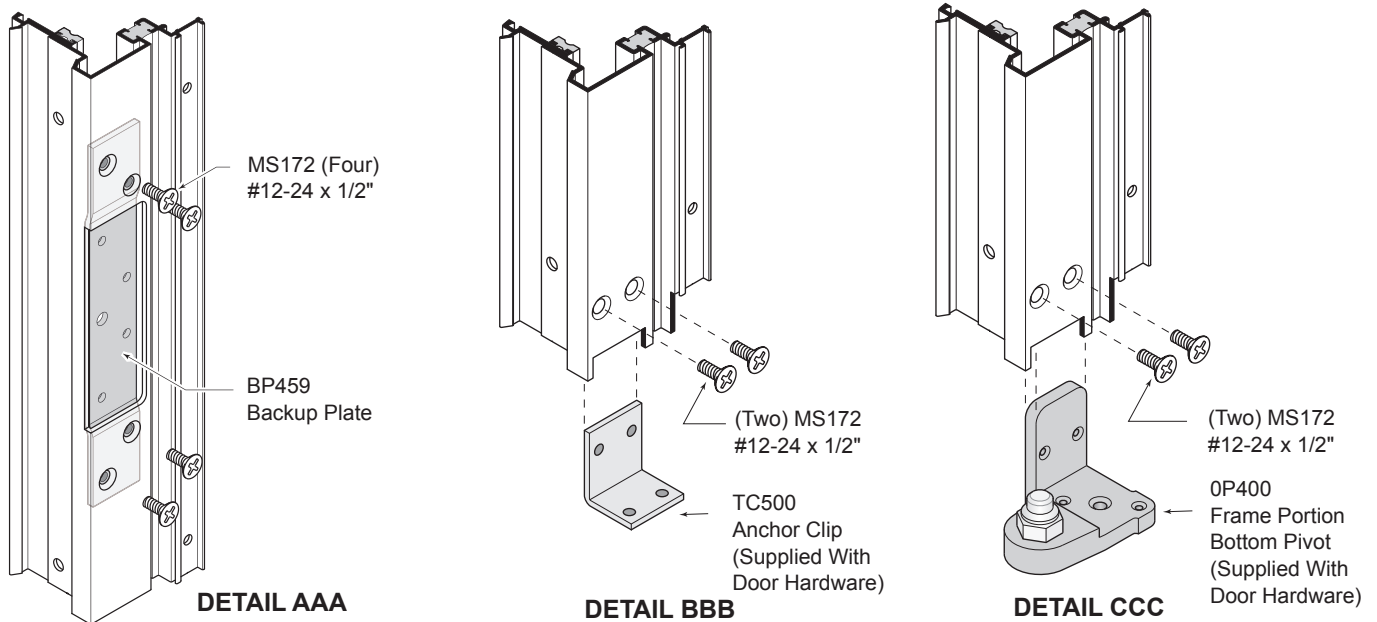
**DETAIL ZZ**

NOT TO SCALE

# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

## Fabrication

- For butt hung application, install hinge back up plates and threshold clips as **shown in DETAIL AAA and DETAIL BBB**. For offset pivot application, install bottom frame portion pivot(s) as **shown in DETAIL CCC**. Single doors require threshold clip at lock jamb. **See DETAIL BBB**.
- Install gaskets in door adaptors.

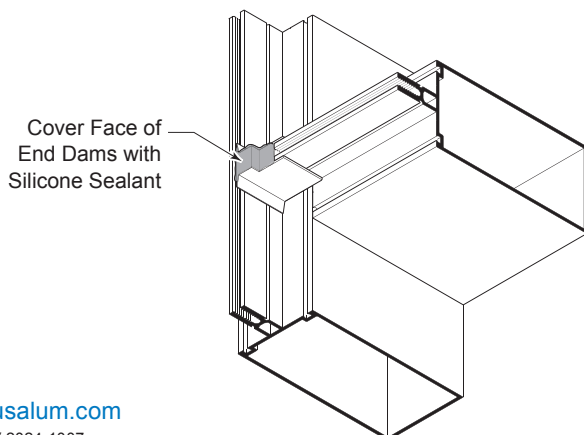


These hardware items must be applied prior to door adaptor installation.

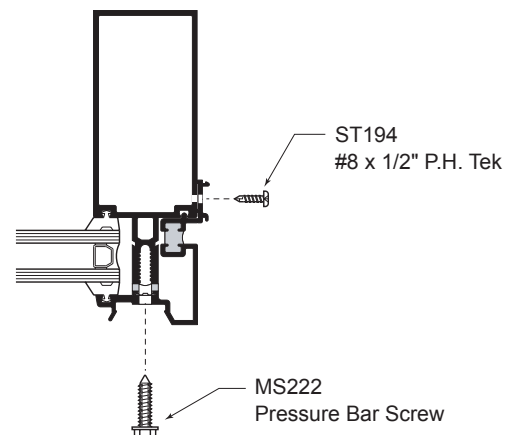
## Installation

**NOTE:** Prior to adaptor installation all end dams must be installed and sealed. Transom and sidelight glass must be in place.

- Seal face of end dams as **shown in DETAIL DDD**.
- Install jamb and head adaptors using MS222 pressure bar bolts as **shown**. Refer to page 26 of the glazing portion of this section for bolt tightening procedures. Vertical adaptors extend from floor to 7/16" above bottom of door header/horizontal and must be installed prior to head adaptor installation.
- Secure adaptors to mullion side walls with ST194 tek screws as **shown in DETAIL DDD**.



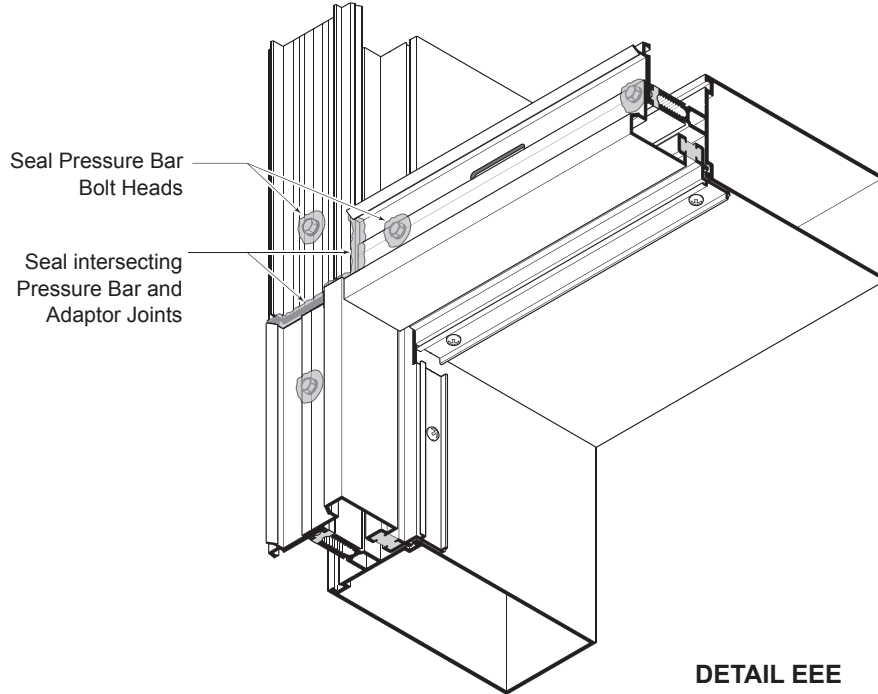
**DETAIL DDD**



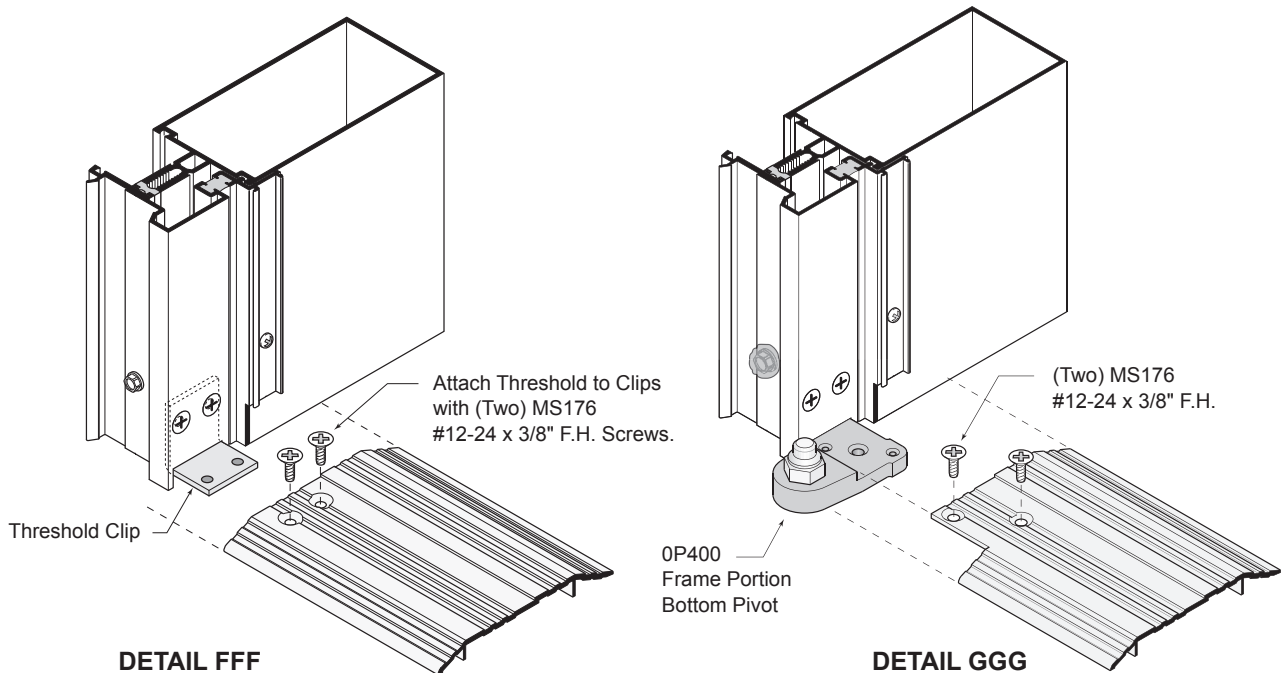
# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

## Installation

4. Seal all pressure bar bolt heads. **See DETAIL EEE.**
5. Seal gaps at intersections of pressure bars and door adaptors.  
**NOTE: THIS IS A CRITICAL SEAL.**



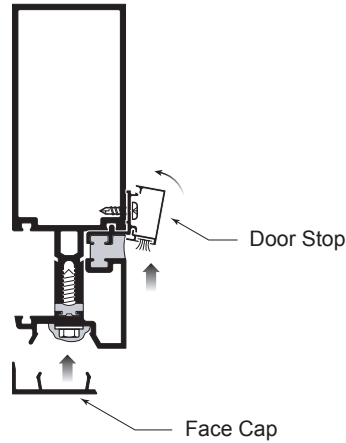
6. Install thresholds into opening using screws provided with door hardware.  
**See DETAIL FFF for butt hung, DETAIL GGG for offset pivot application.**



# FLUSH DOOR ADAPTOR FABRICATION AND INSTALLATION

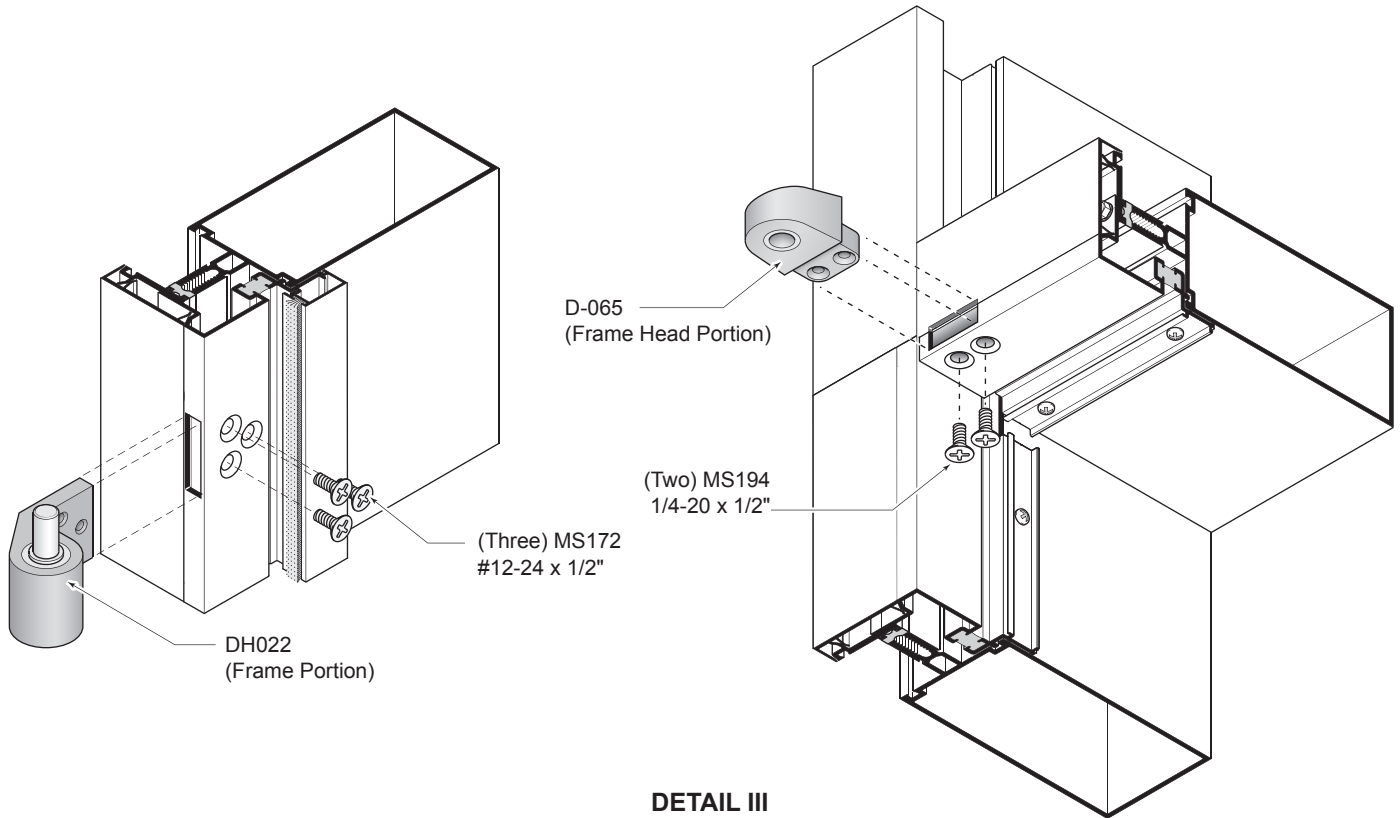
## Installation

7. Snap on face caps. **See DETAIL HHH.** Vertical face caps run from floor to 9/16" (14.3) above bottom of header.  
(Field cutting to length is recommended)
8. Snap door stop on header adaptor. **See DETAIL HHH.** (Head door stop runs through)
9. Snap door stops on jamb members **per DETAIL HHH.**



DETAIL HHH

10. For offset pivot doors, install frame portion pivots as shown. **See DETAIL III.**



DETAIL III

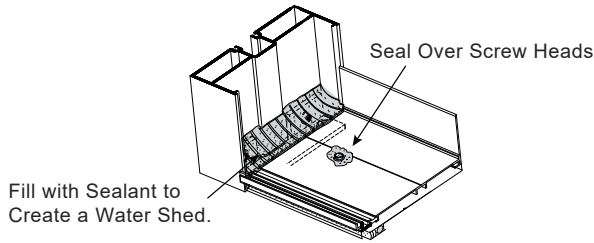
# GUIDE TO SEALANTS

**NOTE:** All sealants must be tooled to ensure proper adhesion.

## WATERPROOFING

• **Typical Weather Sealant**

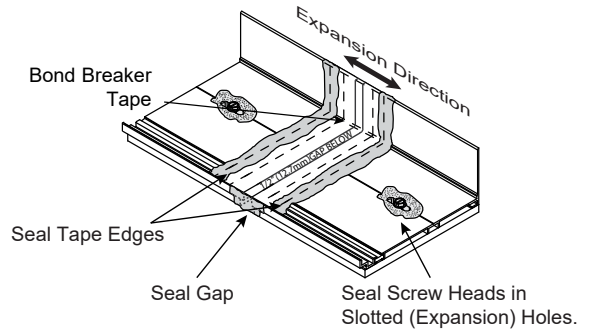
Sill to Subsill, End Dams, Screw Heads, and Threshold to Door Frame Sealing.



## EXPANSION

• **Typical Weather Sealant**

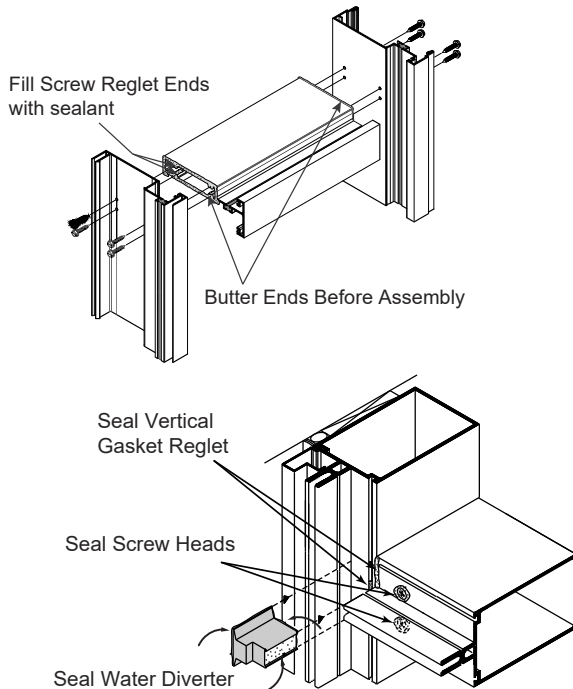
Expansion Joints.



## JOINT ADHESIVE

• **Typical Weather Sealant**

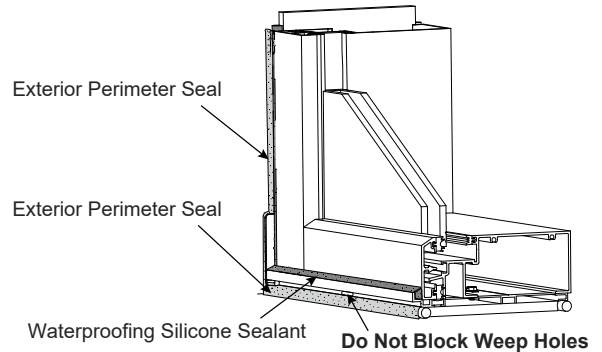
Small Joints, End Joints and Buttered Surfaces, Water Diverters, End Dams, and Reglet Fills.



## PERIMETER

• **Typical Weather Sealant**

Perimeter Seals, Expansion Joints, Sill and Threshold Beds, Concrete, Wood, and Steel Openings.



## STRUCTURAL

• **ALL STRUCTURAL SEALANTS REQUIRE TESTING AND APPROVAL.**

Glass-to-Glass or Glass-to-Metal