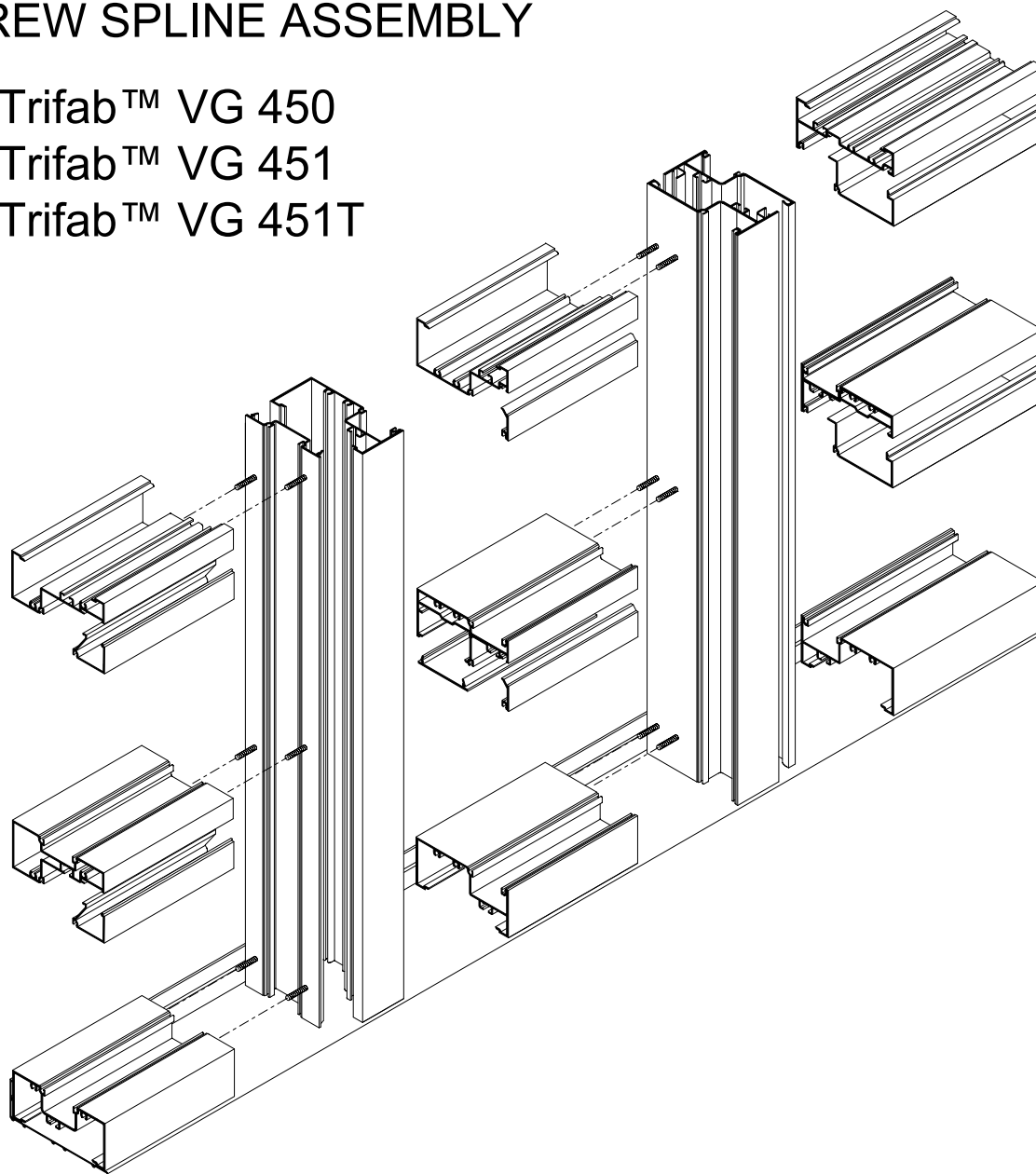


# INSTALLATION

## Trifab™ VG Framing System SCREW SPLINE ASSEMBLY

- Trifab™ VG 450
- Trifab™ VG 451
- Trifab™ VG 451T



# INSTRUCTIONS

# Trifab™ VG SCREW SPLINE INSTALLATION INSTRUCTIONS

## CONTENTS

These instructions provide the general fabrication, assembly, installation sequence and erection procedures for typical applications. They are intended to supplement the project shop drawings and/or published details.

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### NOTE:

Fabrication, installation & glazing artwork depicts typical 1" front glazed members. All 1/4" infill and 1" front, back and multi-plane applications are similar unless otherwise noted. Outside glazing is typically shown unless otherwise noted.

Consult the KawneerDirect website for the latest updates to these instructions before beginning work on your project.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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## HANDLING, STORING, AND PROTECTION OF ALUMINUM

The material must be protected against damage. The following precautions are recommended to assure early acceptance of your products and workmanship.

- A. HANDLE CAREFULLY-** Do not drop from the truck. Stack with adequate separation so material will not rub together. Store off the ground. Protect against elements and other construction trades. **Work safely - always wear proper personal protective equipment. Wear hand protection to prevent injury due to sharp edges of cut extrusions.**
- B. KEEP MATERIAL AWAY FROM WATER, MUD, AND SPRAY** - Prevent cement, plaster, or other materials from damaging the finish.
- C. PROTECT THE MATERIALS AFTER ERECTION** - Protect by wrapping with Kraft paper or by erecting Visqueen or canvas splatter screen. Cement, plaster, terrazzo, and other alkaline solutions and acid based materials used to clean masonry are very harmful to the finish and should be removed with water and mild soap IMMEDIATELY.

## GENERAL INSTALLATION NOTES

The following practices are recommended for all installations:

- A. CHECK SHOP DRAWINGS, INSTALLATION INSTRUCTIONS and GLAZING INSTRUCTIONS** to become thoroughly 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.
- B. All materials are to be INSTALLED PLUMB, LEVEL, and TRUE.**
- C. All work should start from bench marks and/or column lines as established by the ARCHITECTURAL DRAWINGS and the GENERAL CONTRACTOR.** Check mullion spacing from ends of masonry opening to prevent dimensional build-up of daylight opening.
- D. Make certain that the construction and openings which will receive your materials are in accordance with the contract documents.** If not, notify the GENERAL CONTRACTOR IN WRITING and resolve the differences before proceeding with your work.
- E. Isolate all aluminum to be placed directly in contact with uncured masonry or incompatible materials with a heavy coat of zinc chromate or bituminous paint.**
- F. Check all materials on arrival for quantity and be sure you have everything required to begin installation.**
- G. Sealants must be compatible with all materials with which they have contact, including other sealant surfaces.** Consult with sealant manufacturer for recommendations relative to joint size, shelf life, compatibility, priming, tooling, adhesion, etc.
- H. FASTENING** - "Fastening" means any method of securing one part to another or to adjacent materials. These instructions specify only those fasteners used within the system. Due to varying perimeter conditions and job performance requirements, perimeter anchor fasteners are not specified in these instructions. For perimeter anchor fastening, refer to the Shop Drawings or Engineering Calculations.
- I. CHECK OPENINGS** - Make certain that the opening 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 your work.
- J. BUILDING CODE** - Building and glazing codes governing the design and use of products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility for these design considerations. It is the responsibility of the owner, specifier, architect, general contractor and the installer to make these selections in strict conformance with all applicable codes.
- K. EXPANSION JOINTS** - Expansion joints and perimeter seals shown in these instructions and in the shop drawings are shown at a normal size. Actual dimensions may vary due to perimeter conditions and/or difference in metal temperature between the time of fabrication and time of installation. For example, a 12 foot unrestrained length of aluminum extrusion can expand or contract 3/32" over a 50 degree F temperature change. Any movement potential should be accounted for at the time of installation.
- L. FIELD TESTING** - It is recommended that a Water Hose Test be conducted once a sufficient portion of the frame is installed, glazed and caulked to ensure proper installation. The Water Hose Test shall be conducted in accordance with AAMA 501.2. In addition, larger projects should have periodic Water Hose Tests as additional precautionary measures.
- M. GASKET INVENTORY ROTATION** - These high quality rubber extrusions are coated with silicone lubricant. Silicone will dry over time leaving a white "chalky" residue. Please rotate your stock "FIRST IN - FIRST OUT". If the rubber becomes dry, you may use water ONE TIME to reconstitute the silicone, after that, use a soap water solution.

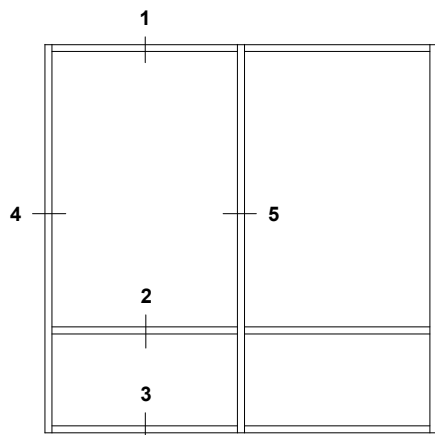
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

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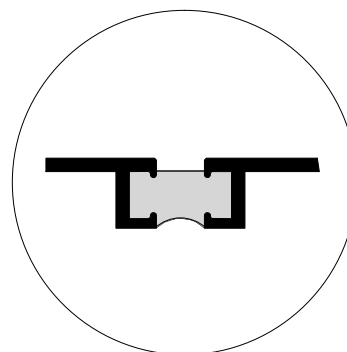
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## INSIDE GLAZED DETAILS SHOWN (Stops Down)

The Screw Spline System is a fabrication and erection method that permits the pre-assembly of single units in the shop or at the job site. These units are then erected by mating the male mullion half of one unit with the female half of the unit already installed.

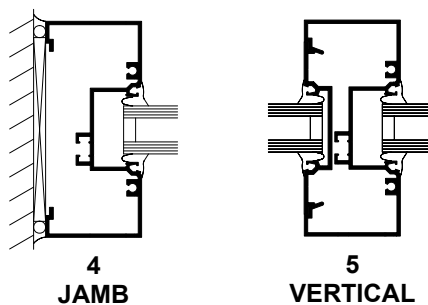


ELEVATION IS NUMBERED KEYED TO DETAILS



Trifab™ VG 451T  
THERMALLY BROKEN MEMBERS

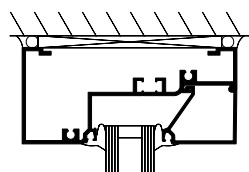
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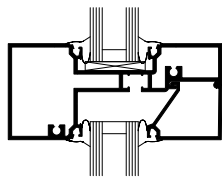
4  
JAMB

5  
VERTICAL

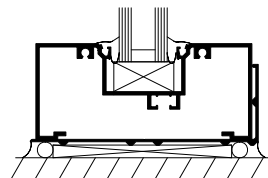
1  
HEAD



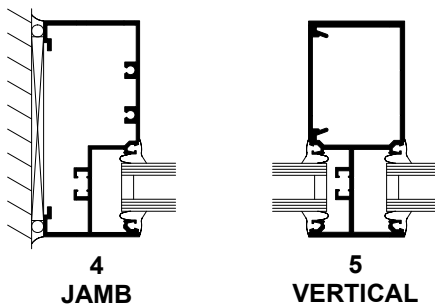
2  
HORIZONTAL



3  
SILL



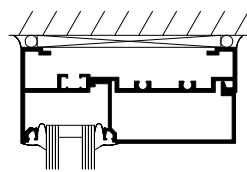
### FRONT



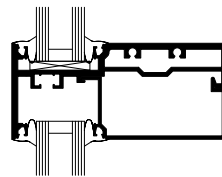
4  
JAMB

5  
VERTICAL

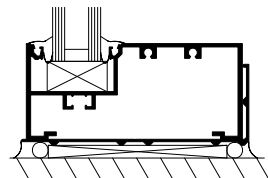
1  
HEAD



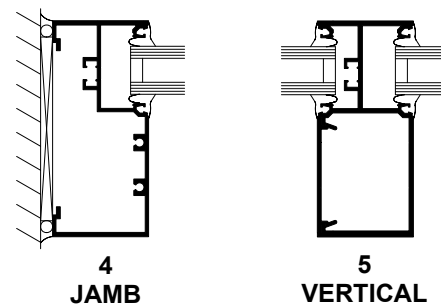
2  
HORIZONTAL



3  
SILL



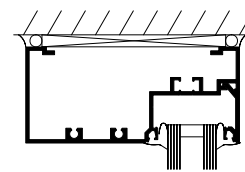
### BACK



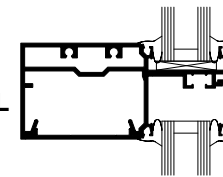
4  
JAMB

5  
VERTICAL

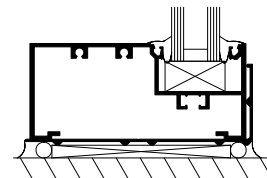
1  
HEAD



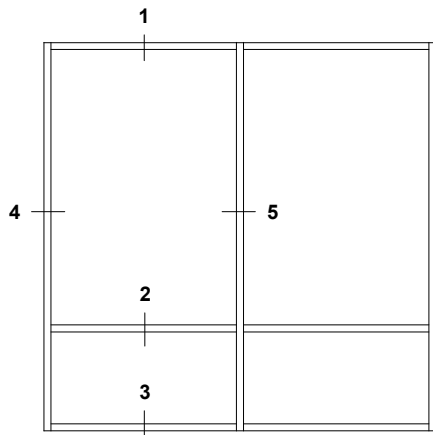
2  
HORIZONTAL



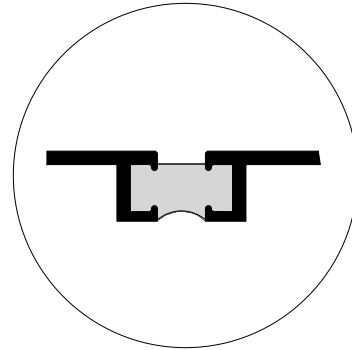
3  
SILL



## OUTSIDE GLAZED DETAILS SHOWN (Stops Down)

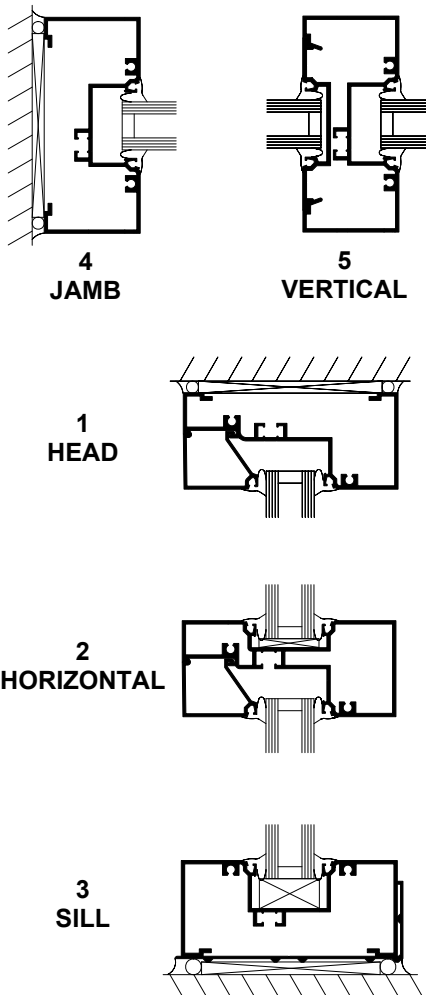


ELEVATION IS NUMBERED KEYED TO DETAILS

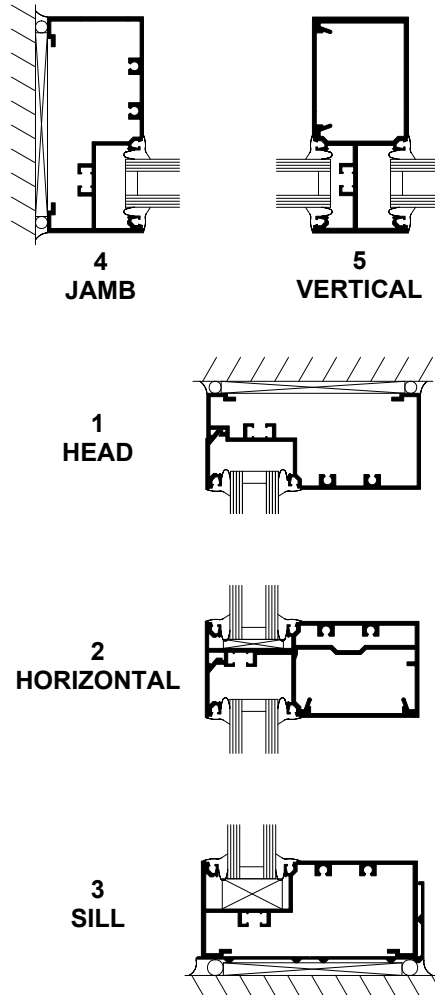


Trifab™ VG 451T  
THERMALLY BROKEN MEMBERS

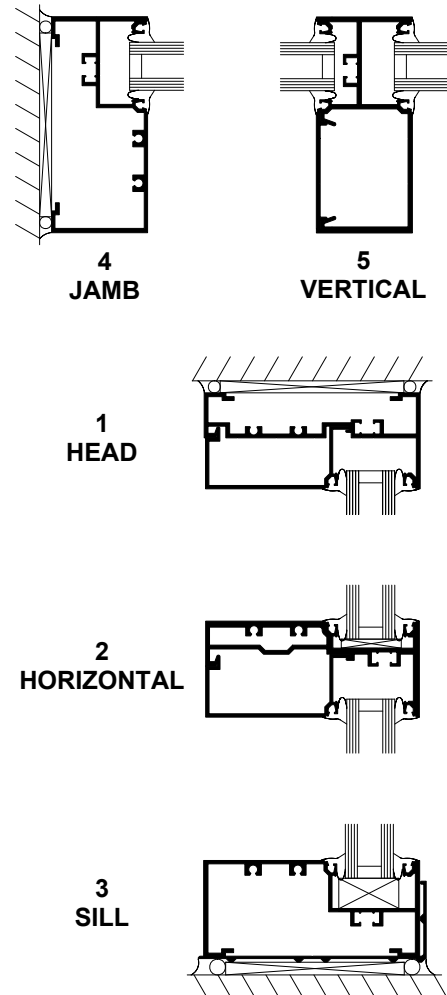
### CENTER



### FRONT



### BACK

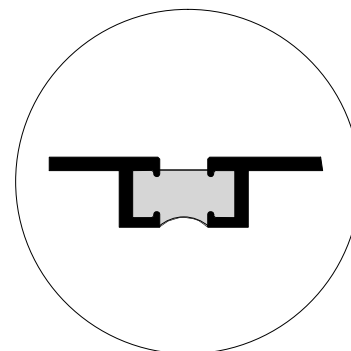
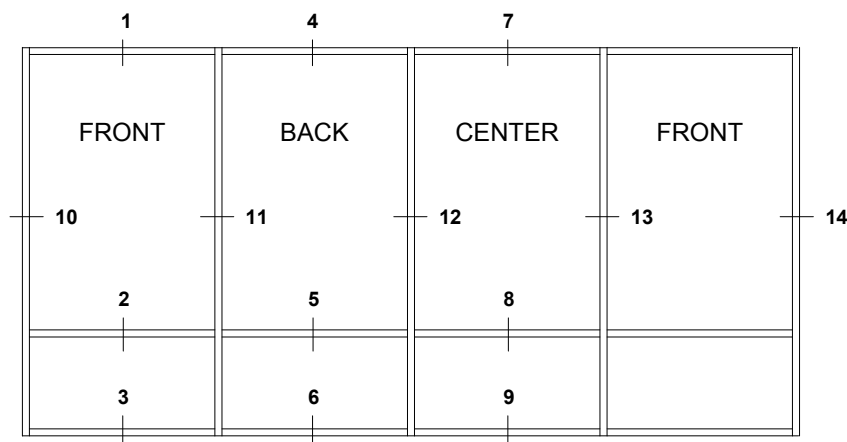


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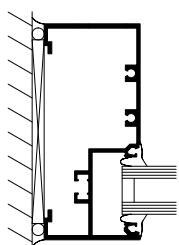
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## OUTSIDE GLAZED DETAILS SHOWN (Stops Down)

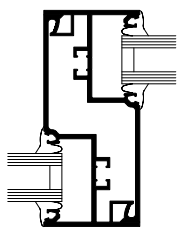


Trifab™ VG 451T  
THERMALLY BROKEN MEMBERS

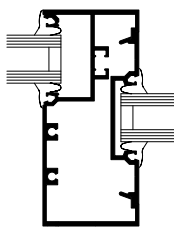
## MULTI-PLANE



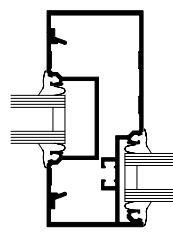
4  
JAMB



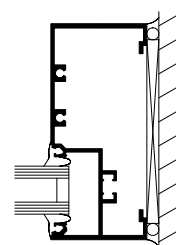
5  
VERTICAL



4  
JAMB



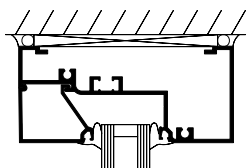
5  
VERTICAL



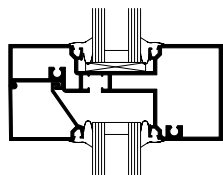
4  
JAMB

## CENTER

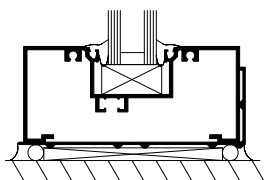
1  
HEAD



2  
HORIZONTAL

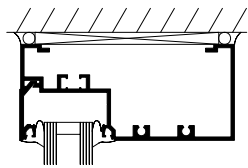


3  
SILL

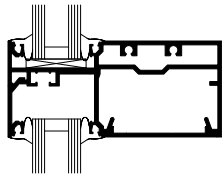


## FRONT

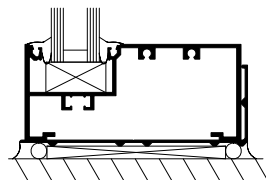
1  
HEAD



2  
HORIZONTAL

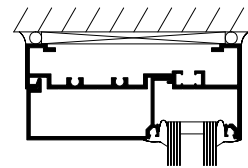


3  
SILL

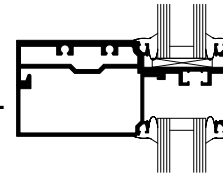


## BACK

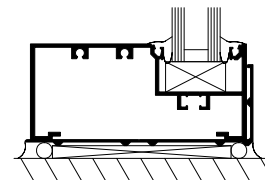
1  
HEAD



2  
HORIZONTAL



3  
SILL

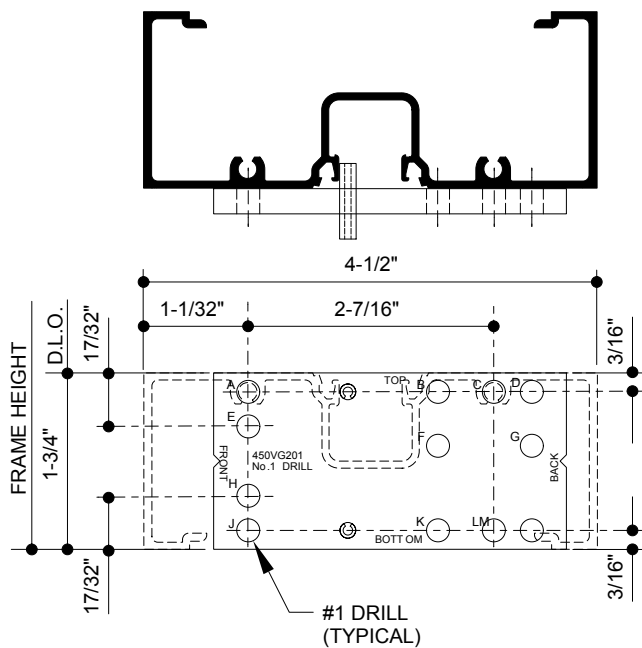


## SCREW SPLINE PREPS FOR CENTER OPTION


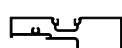

- STEP A:** Measure the opening to determine length of vertical and horizontal framing members. For all units that require sill flashing, allow a minimum of  $\frac{1}{8}$ " for standard flashing and  $\frac{7}{16}$ " for high performance flashing when measuring vertical lengths. Allow  $\frac{1}{4}$ " min. clearance at the head, sill, and jamb to facilitate installation and provide space for caulking. If job conditions are uncertain, or masonry openings are irregular, or high-performance flashing is used, allow extra clearance to accommodate construction tolerance.
- STEP B:** Cut vertical members to required length (Frame Height). At desired horizontal locations drill the proper holes in the vertical member for attachment of the spine screws, as shown below.

### Trifab™ VG 450 (CENTER OPTION)


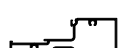

PLACE JIG INTO MULLION AS SHOWN BELOW



### OUTSIDE GLAZED (STOPS DOWN)

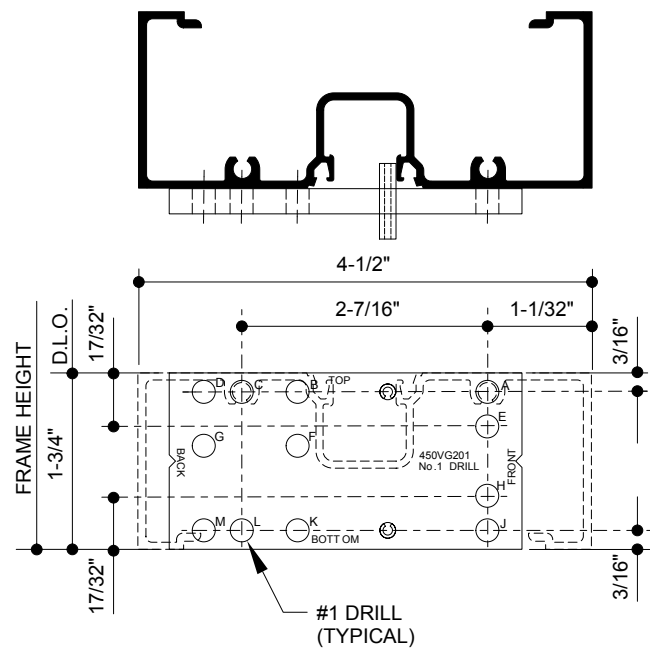
-  HEAD PREP = HOLES (E, L)
-  HORIZONTAL PREP = HOLES (E, L)
-  SILL PREP = HOLES (A, C)

### OUTSIDE GLAZED (STOPS UP)

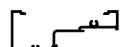
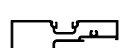

-  HEAD PREP = HOLES (J, L)
-  HORIZONTAL PREP = HOLES (C, H)
-  SILL PREP = HOLES (C, H)

### Trifab™ VG 450 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### INSIDE GLAZED

-  HEAD PREP = HOLES (E, L)
-  HORIZONTAL PREP = HOLES (E, L)
-  SILL PREP = HOLES (A, C)

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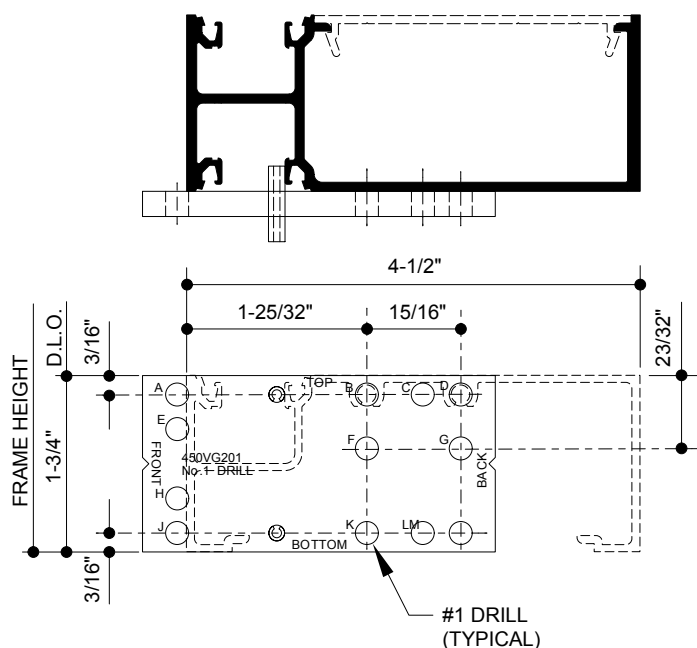
## SCREW SPLINE PREPS FOR FRONT OR BACK OPTION

**STEP A:** Measure the opening to determine length of vertical and horizontal framing members. For all units that require sill flashing, allow a minimum of  $\frac{1}{8}$ " for standard flashing and  $\frac{7}{16}$ " for high performance flashing when measuring vertical lengths. Allow  $\frac{1}{4}$ " min. clearance at the head, sill, and jamb to facilitate installation and provide space for caulking. If job conditions are uncertain, or masonry openings are irregular, or high-performance flashing is used, allow extra clearance to accommodate construction tolerance.

**STEP B:** Cut vertical members to required length (Frame Height). At desired horizontal locations drill the proper holes in the vertical member for attachment of the spine screws, as shown below.

### Trifab™ VG 450 (FRONT OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### OUTSIDE GLAZED

HEAD PREP = HOLES (K, M)

HORIZONTAL PREP = HOLES (B, D)

SILL PREP = HOLES (B, D)

### INSIDE GLAZED

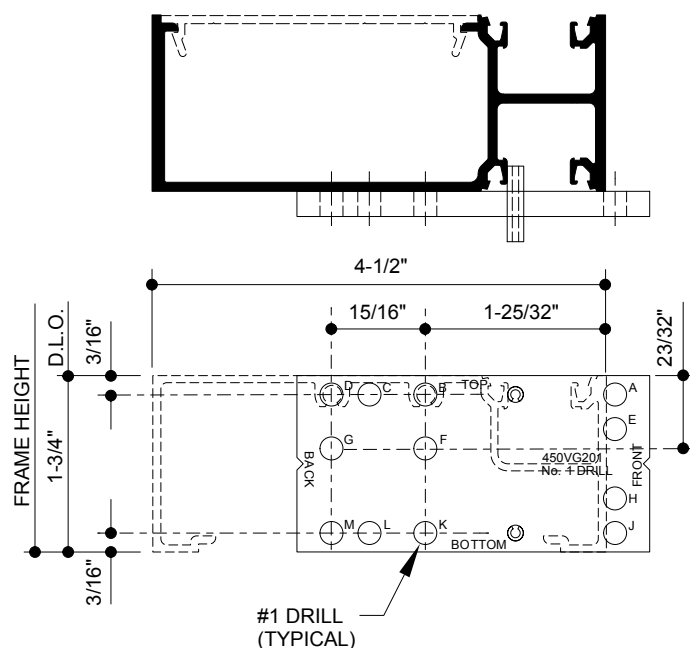
HEAD PREP = HOLES (F, G)

HORIZONTAL PREP = HOLES (B, D)

SILL PREP = HOLES (B, D)

### Trifab™ VG 450 (BACK OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### OUTSIDE GLAZED

HEAD PREP = HOLES (F, G)

HORIZONTAL PREP = HOLES (B, D)

SILL PREP = HOLES (B, D)

HEAD PREP = HOLES (K, M)

HORIZONTAL PREP = HOLES (B, D)

SILL PREP = HOLES (B, D)

**Screw spine preps for mullion fillers** may be completed by using a 2" piece of mullion to support drill jig or by locating the horizontal at the vertical dimensions shown above, and drilling at the "V" grooves in the extrusions.

## SCREW SPLINE ASSEMBLY

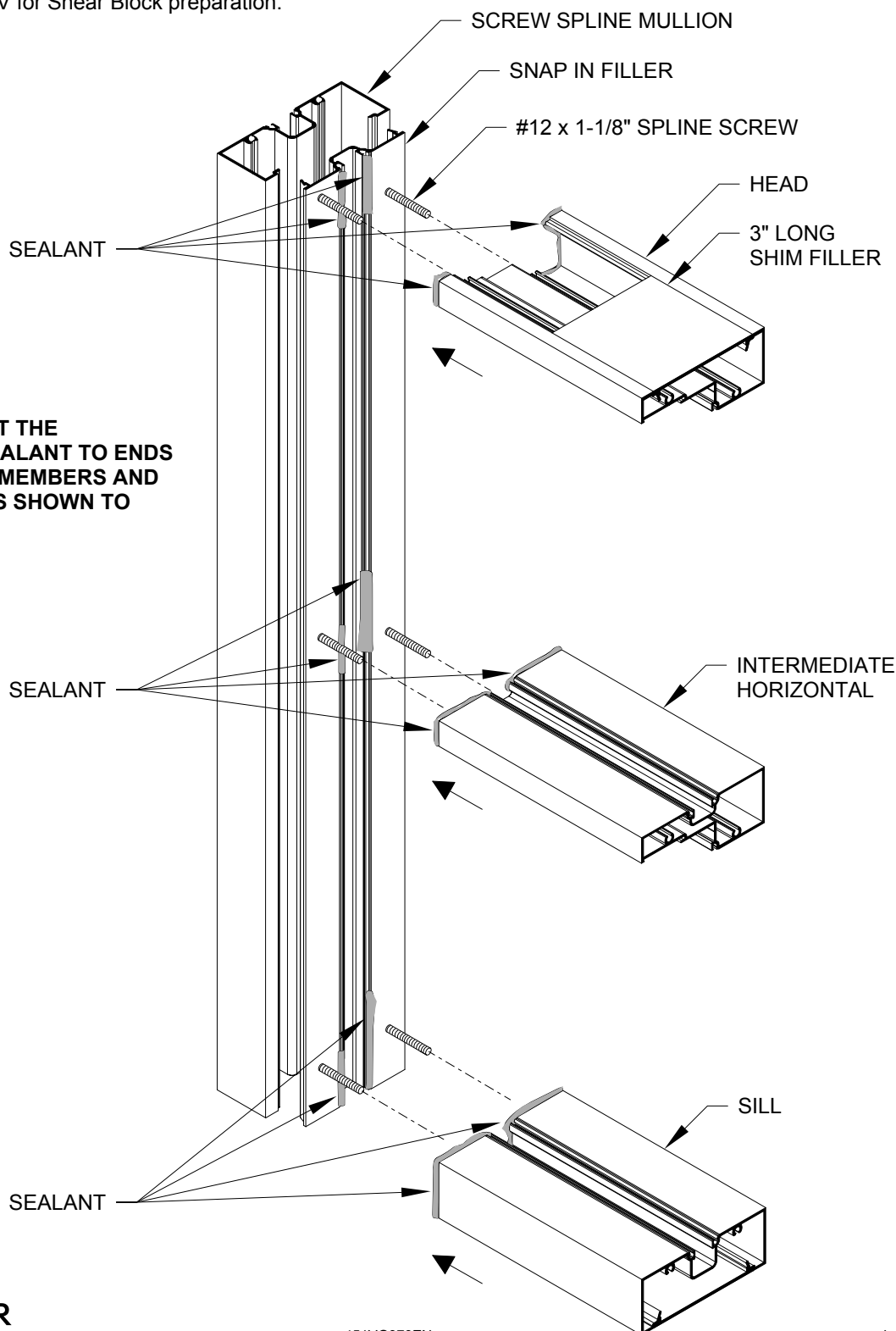
**STEP A:** Cut horizontals to length (Daylight Opening) and apply sealant to the ends ensuring a good seal to the vertical member. (Glass stops should be D.L.O. - 1/6")

**STEP B:** Assemble the units using two (#12 x 1-1/8" P.H. Screws) at each joint as shown below. Be sure that each unit is fabricated with a male and female mullion half.

**NOTE:** Every unit must have at least one deep vertical pocket.

**STEP C:** When an entrance is required, Shear Block joinery must be used to attach horizontals to the immediate door frame. The other side of the sidelite will be fabricated for screw spline joinery as usual. See Section IV for Shear Block preparation.

**NOTE:**  
IT IS IMPORTANT THAT THE  
INSTALLER APPLY SEALANT TO ENDS  
OF ALL HORIZONTAL MEMBERS AND  
GLAZING REGLETS AS SHOWN TO  
ENSURE GOOD SEAL.



## SHEAR BLOCK PREPS FOR CENTER OPTION

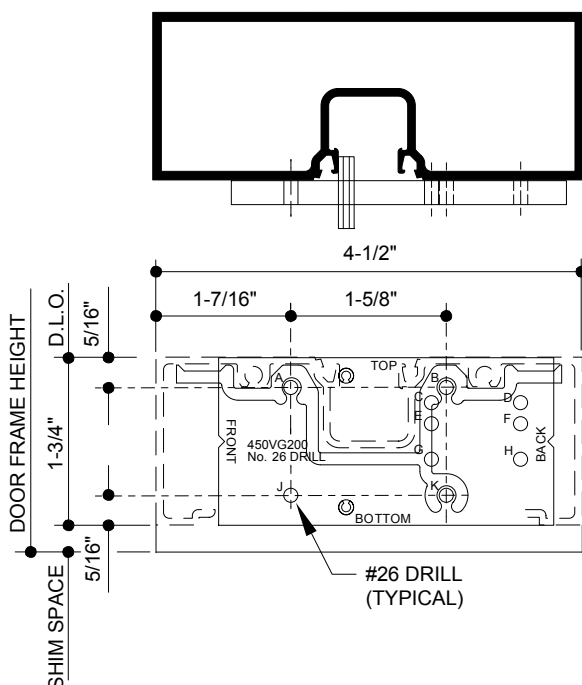
**STEP A:** At desired horizontal locations drill the proper holes in the door jambs for attachment of the shear blocks, as shown below.

**IMPORTANT NOTE:** Door jambs run through to perimeter at sill. **Locate sill to accommodate sill flashing** and shim space at sill.

**STEP B:** Attach shear blocks to door jambs using #028400 (#10 X 1-19/32" P.H.) Screws as required.

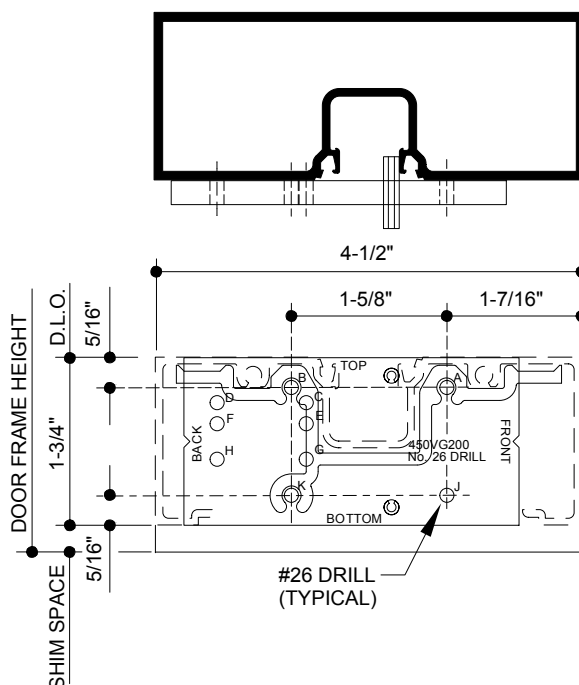
### Trifab™ VG 450 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### Trifab™ VG 450 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



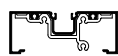
### OUTSIDE GLAZED (STOPS DOWN)



HEAD PREP = HOLES (A, B, K)

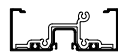


HORIZONTAL PREP = HOLES (A, B, K)

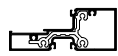


SILL PREP = HOLES (A, B, K)

### INSIDE GLAZED



HEAD PREP = HOLES (B, J, K)



HORIZONTAL PREP = HOLES (B, J, K)

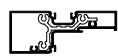


SILL PREP = HOLES (B, J, K)

### INSIDE GLAZED



HEAD PREP = HOLES (A, B, K)



HORIZONTAL PREP = HOLES (A, B, K)



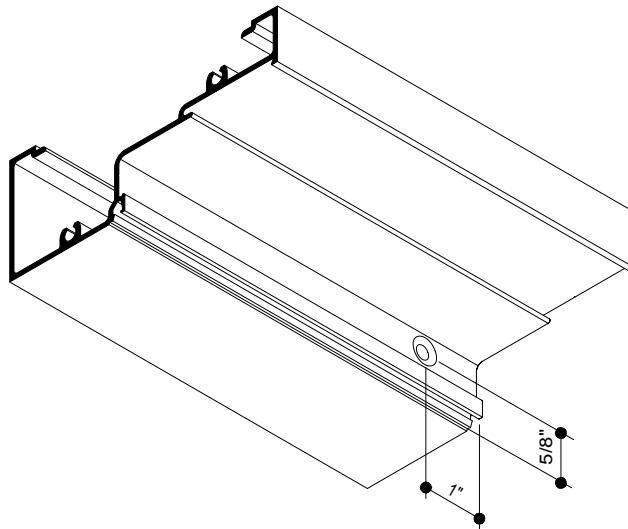
SILL PREP = HOLES (A, B, K)

## SHEAR BLOCK PREPS FOR CENTER OPTION

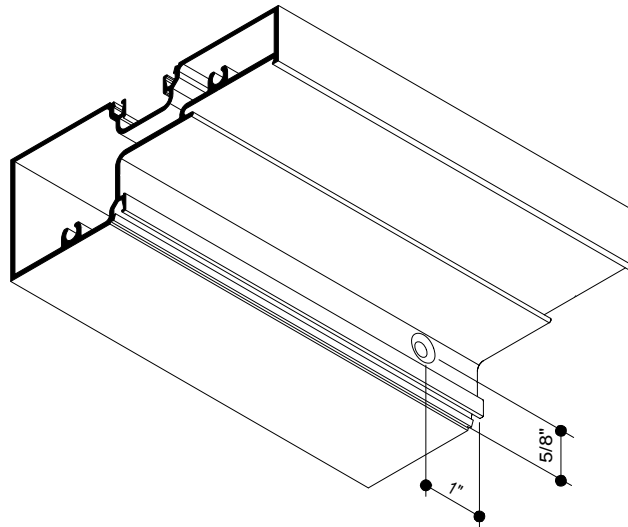
**STEP C:** Cut horizontals to length = Daylight Opening, (glass stops should be D.L.O. - 1/16").

**STEP D:** Fabricate head, sill, and intermediate horizontals by drilling and countersinking for #10 F.H. screw.

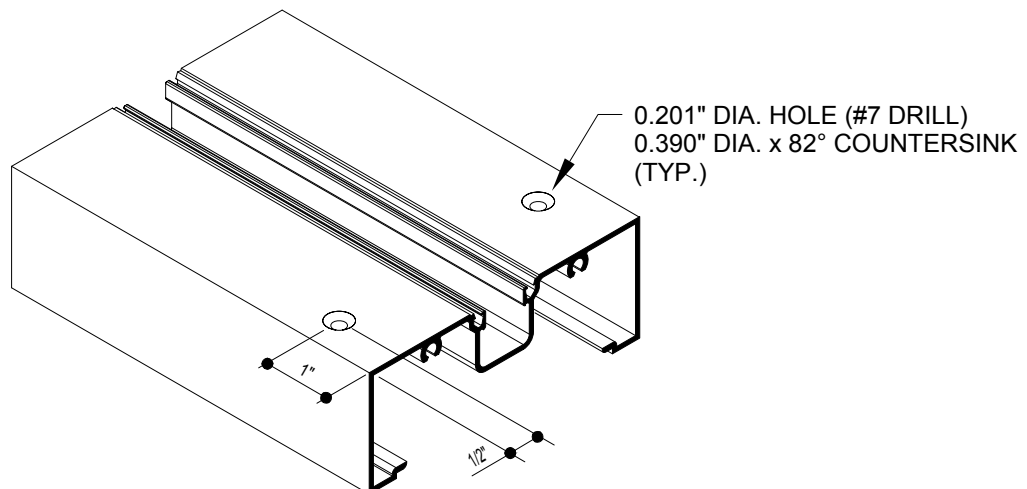
**HEAD**



**HORIZONTAL**



**SILL**



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## SHEAR BLOCK PREPS FOR FRONT OR BACK OPTION

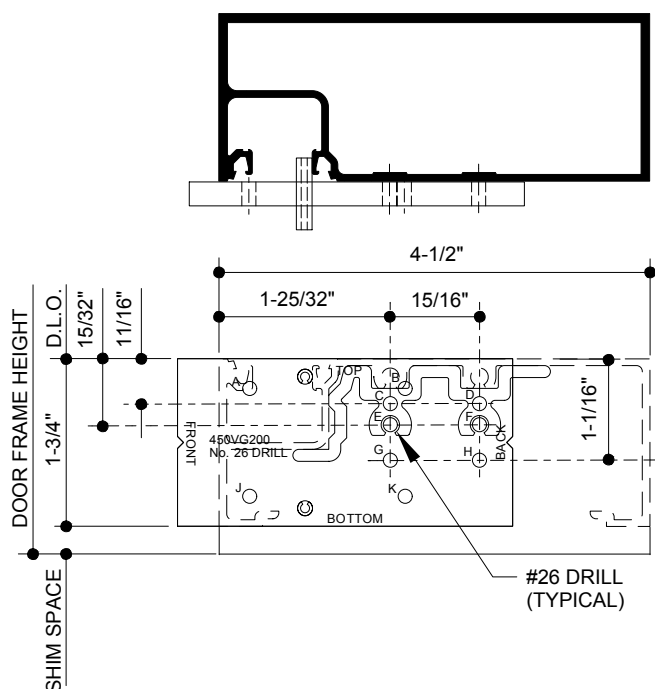
**STEP A:** At desired horizontal locations drill the proper holes in the door jambs for attachment of the shear blocks, as shown below.

**IMPORTANT NOTE:** Door jambs run through to perimeter at sill. **Locate sill to accommodate sill flashing** and shim space at sill.

**STEP B:** Attach shear blocks to door jambs using #028400 (#10 X 1-19/32" P.H.) Screws as required.

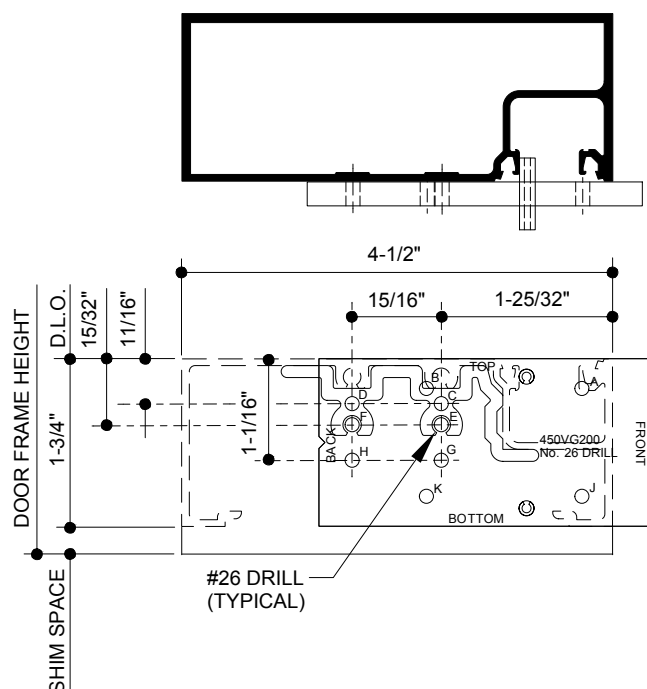
### Trifab™ VG 450 (FRONT OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### Trifab™ VG 450 (BACK OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### OUTSIDE GLAZED



HEAD PREP = HOLES (G, H)



HORIZONTAL PREP = HOLES (E, F)



SILL PREP = HOLES (E, F)

### INSIDE GLAZED



HEAD PREP = HOLES (C, D)



HORIZONTAL PREP = HOLES (E, F)



SILL PREP = HOLES (E, F)

### OUTSIDE GLAZED



HEAD PREP = HOLES (C, D)



HORIZONTAL PREP = HOLES (E, F)



SILL PREP = HOLES (E, F)

### INSIDE GLAZED



HEAD PREP = HOLES (G, H)



HORIZONTAL PREP = HOLES (E, F)



SILL PREP = HOLES (E, F)

## SHEAR BLOCK PREPS FOR FRONT OR BACK OPTIONS

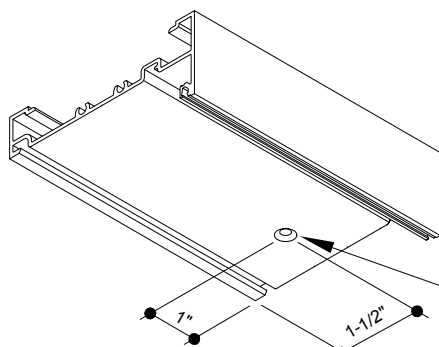
**STEP C:** Cut horizontals to length = Daylight Opening, (glass stops should be D.L.O. - 1/16").

**STEP D:** Fabricate head, sill by drilling and countersinking for #10 F.H. screw.

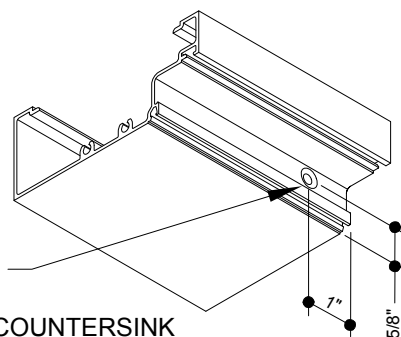
**FRONT - INSIDE GLAZED  
OR  
BACK - OUTSIDE GLAZED**

**FRONT - OUTSIDE GLAZED  
OR  
BACK - INSIDE GLAZED**

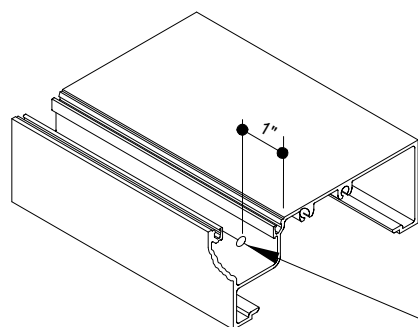
**HEAD**



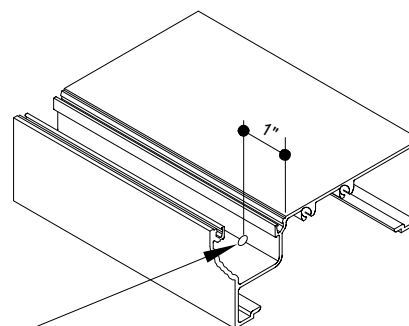
0.201" DIA. HOLE  
(#7 DRILL)  
0.390" DIA. x 82° COUNTERSINK



**SILL**



0.201" DIA. HOLE  
(#7 DRILL)



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**STEP A: FOR CENTER OPTION INTERMEDIATE HORIZONTALS**

Hold fabricated horizontal member in place over shear block and tight against vertical member. Then match drill tap hole in shear block with #26 (.147) slightly offset to **Vertical Mullion Side** of countersunk hole in the horizontal so as to pull the joint tight when assembled as shown below. (See Figure #1)

**NOTE: FOR FRONT OR BACK INTERMEDIATE HORIZONTALS**

Hold fabricated horizontal member in place over shear block and tight against vertical member. Then match drill tap hole in shear block with #26 (.147) slightly offset to **D.L.O. Side** of hole in the shear block so as to pull the joint tight when assembled as shown below. (See Figure #2)

**STEP B:** Apply sealant to the ends of all horizontal members, shear blocks and into reglets as shown below.

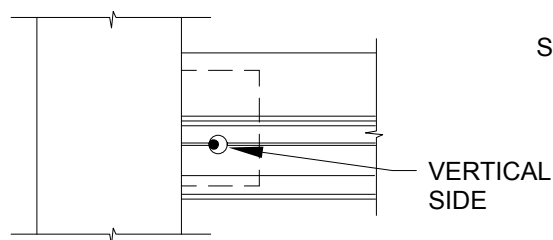
**STEP C:** Attach horizontal members to shear blocks with fasteners provided in shear block packages.

**STEP D:** Continue procedure above until entire frame is assembled.

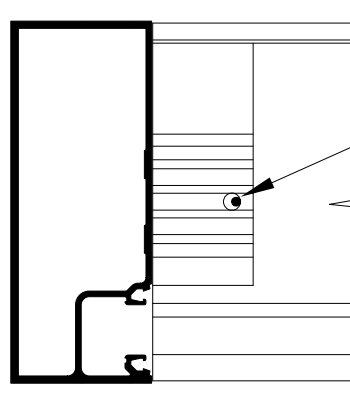
**STEP E:** Install flat fillers into head, jamb and sill at perimeter anchor locations. Crimp material to prevent filler plate from sliding. Perimeter anchors should be located within 6" on each side of vertical mullions and 24" O.C. between vertical mullions.

**NOTE:**

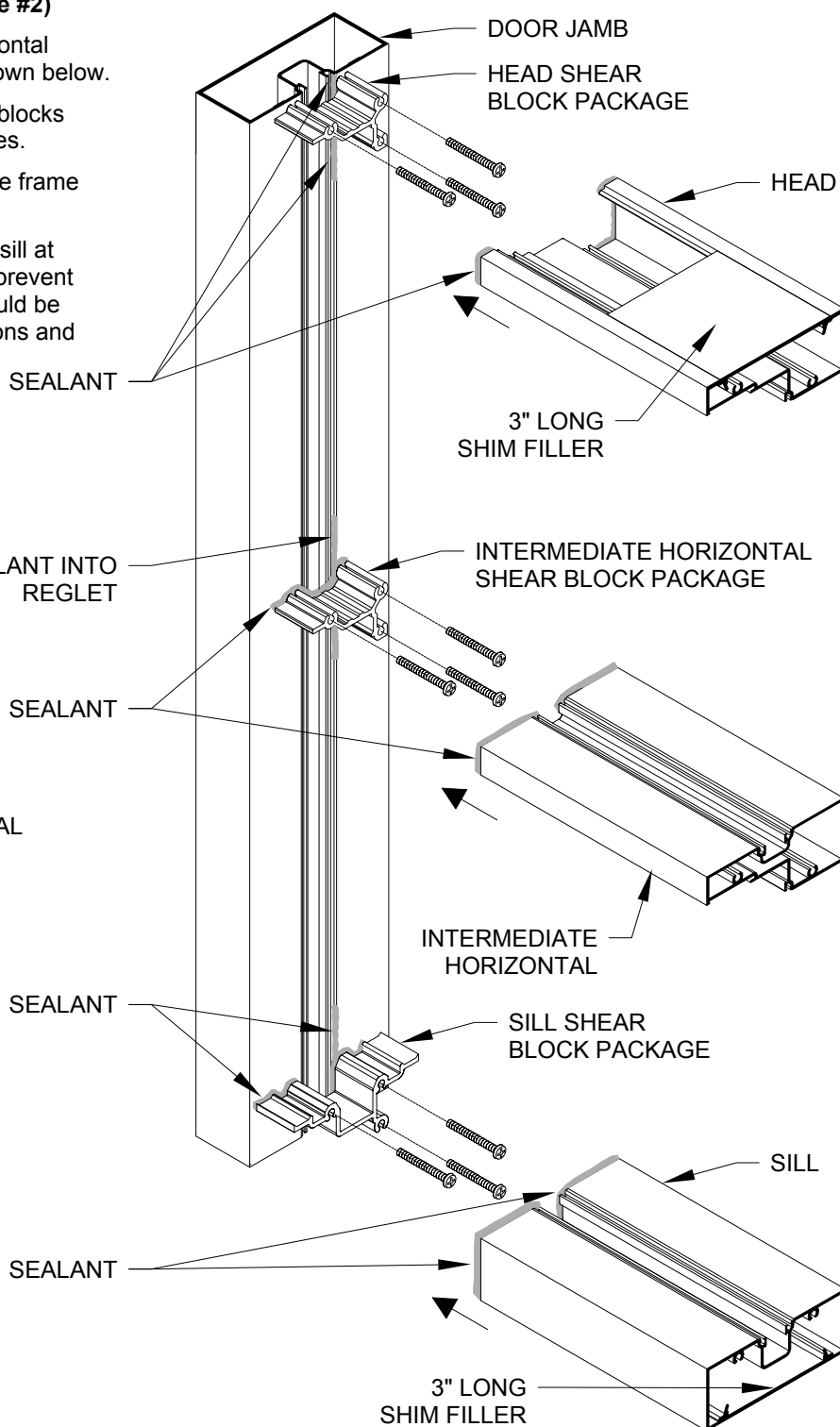
**IT IS IMPORTANT THAT THE INSTALLER APPLY SEALANT TO SHEAR BLOCKS, ENDS OF ALL HORIZONTAL MEMBERS AND GLAZING REGLETS AS SHOWN TO ENSURE GOOD SEAL.**



**FIGURE #1  
FOR CENTER OPTION  
INTERMEDIATE HORIZONTALS**



**FIGURE #2  
FOR FRONT OR BACK OPTION  
INTERMEDIATE HORIZONTALS**



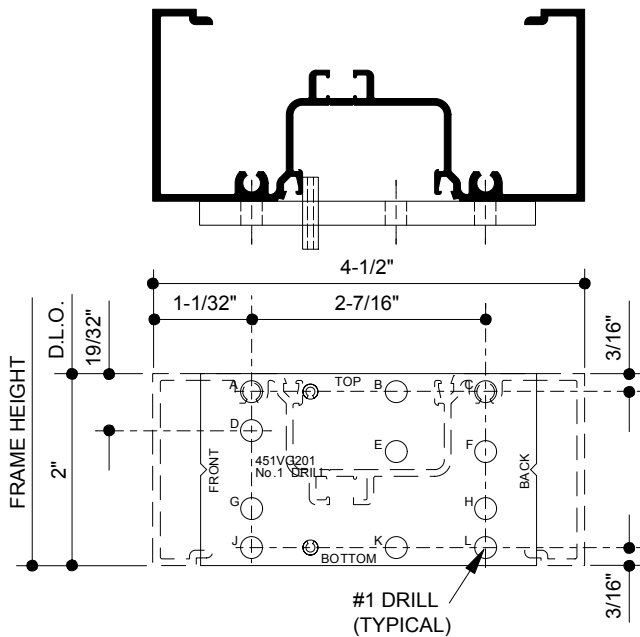
## SCREW SPLINE PREPS FOR CENTER OPTION

**STEP A:** Measure the opening to determine length of vertical and horizontal framing members. For all units that require sill flashing, allow a minimum of **1/8"** for standard flashing and **3/8"** for thermal flashing and **7/16"** for high performance flashing when measuring vertical lengths. Allow **1/4"** min. clearance at the head, sill, and jamb to facilitate installation and provide space for caulking. If job conditions are uncertain, or masonry openings are irregular, or high-performance flashing is used, allow extra clearance to accommodate construction tolerance.

**STEP B:** Cut vertical members to required length (Frame Height). At desired horizontal locations drill the proper holes in the vertical member for attachment of the spine screws, as shown below.

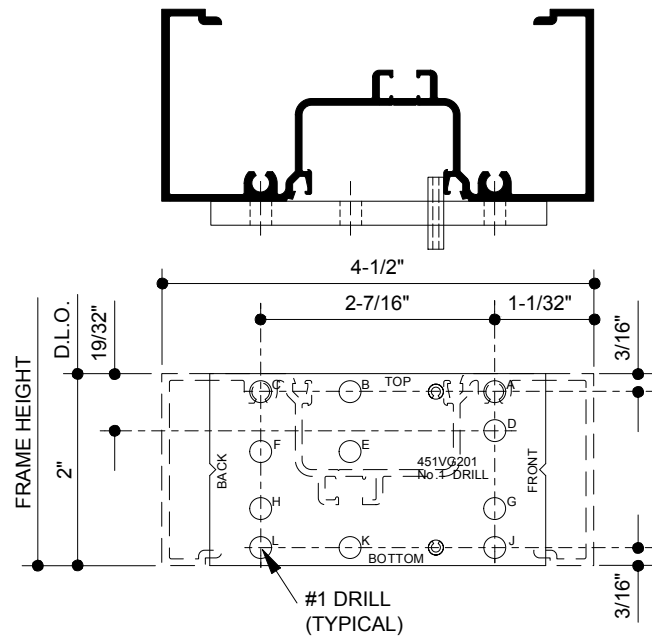
### Trifab™ VG 451 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW

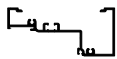


### Trifab™ VG 451 (CENTER OPTION)

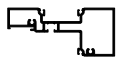
PLACE JIG INTO MULLION AS SHOWN BELOW



### OUTSIDE GLAZED (STOPS DOWN)



HEAD PREP = HOLES (E, L)



HORIZONTAL PREP = HOLES (D, L)

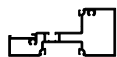


SILL PREP = HOLES (A, C)

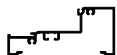
### OUTSIDE GLAZED (STOPS UP)



HEAD PREP = HOLES (J, L)

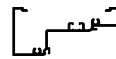


HORIZONTAL PREP = HOLES (C, G)

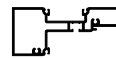


SILL PREP = HOLES (C, G)

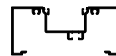
### INSIDE GLAZED



HEAD PREP = HOLES (D, L)



HORIZONTAL PREP = HOLES (D, L)



SILL PREP = HOLES (A, C)

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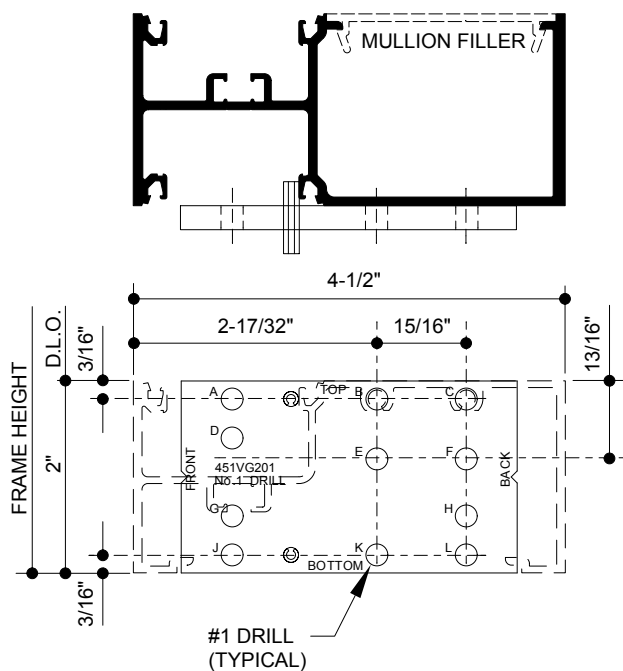
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## SCREW SPLINE PREPS FOR FRONT OR BACK OPTION

- STEP A:** Measure the opening to determine length of vertical and horizontal framing members. For all units that require sill flashing, allow a minimum of **1/8"** for standard flashing and **3/8"** for thermal flashing and **7/16"** for high performance flashing when measuring vertical lengths. Allow 1/4" min. clearance at the head, sill, and jamb to facilitate installation and provide space for caulking. If job conditions are uncertain, or masonry openings are irregular, or high-performance flashing is used, allow extra clearance to accommodate construction tolerance.
- STEP B:** Cut vertical members to required length (Frame Height). At desired horizontal locations drill the proper holes in the vertical member for attachment of the spine screws, as shown below.

### Trifab™ VG 451 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



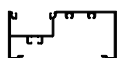
### OUTSIDE GLAZED



HEAD PREP = HOLES (K, L)

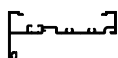


HORIZONTAL PREP = HOLES (B, C)

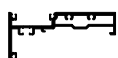


SILL PREP = HOLES (B, C)

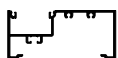
### INSIDE GLAZED



HEAD PREP = HOLES (E, F)



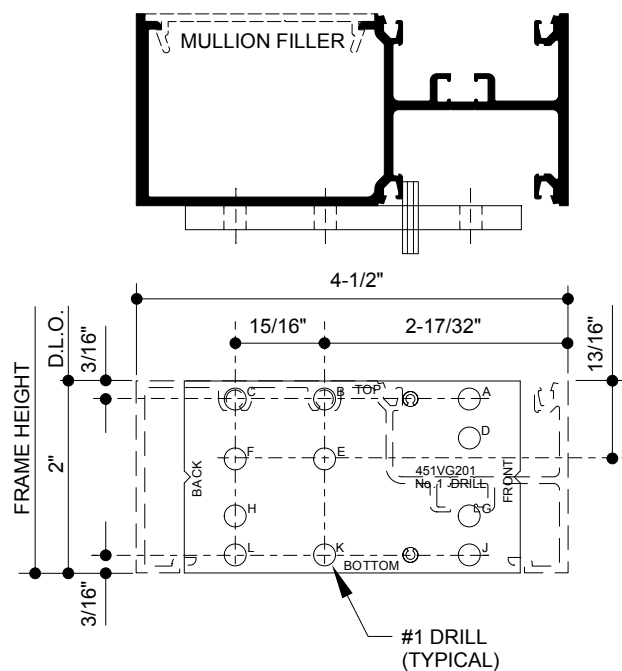
HORIZONTAL PREP = HOLES (B, C)



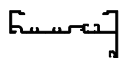
SILL PREP = HOLES (B, C)

### Trifab™ VG 451 (CENTER OPTION)

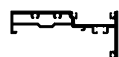
PLACE JIG INTO MULLION AS SHOWN BELOW



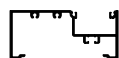
### OUTSIDE GLAZED



HEAD PREP = HOLES (E, F)

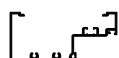


HORIZONTAL PREP = HOLES (B, C)



SILL PREP = HOLES (B, C)

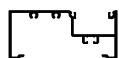
### INSIDE GLAZED



HEAD PREP = HOLES (K, L)



HORIZONTAL PREP = HOLES (B, C)



SILL PREP = HOLES (B, C)

**Screw spine preps for mullion fillers** may be completed by using a 2" piece of mullion to support drill jig or by locating the horizontal at the vertical dimensions shown above, and drilling at the "V" grooves in the extrusions.

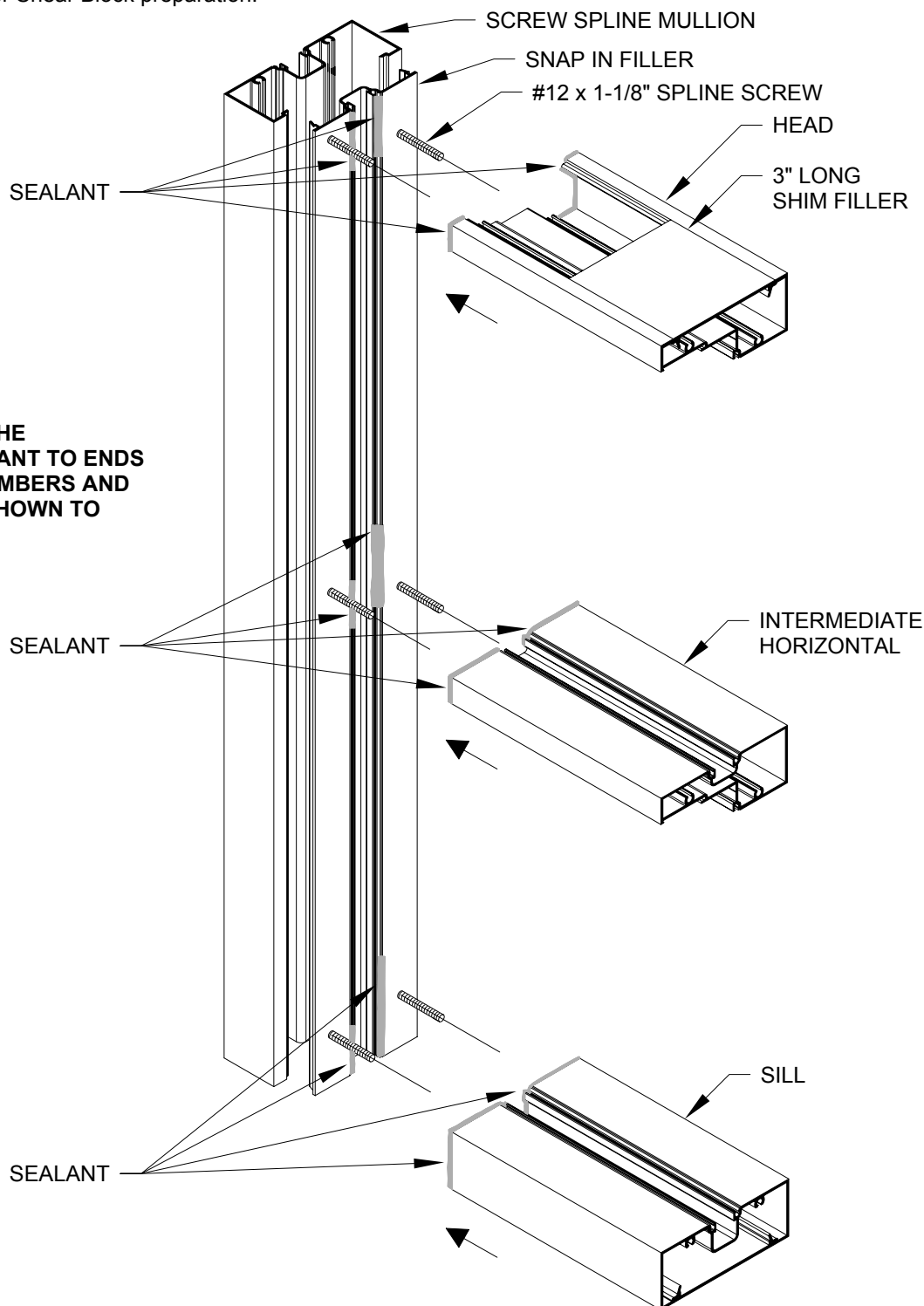
## SCREW SPLINE ASSEMBLY

**STEP A:** Cut horizontals to length (Daylight Opening) and apply sealant to the ends ensuring a good seal to the vertical member. (Glass stops should be D.L.O. - 1/6")

**STEP B:** Assemble the units using two (#12 x 1-1/8" P.H. Screws) at each joint as shown below. Be sure that each unit is fabricated with a male and female mullion half.

**NOTE:** Every unit must have at least one deep vertical pocket.

**STEP C:** When an entrance is required, Shear Block joinery must be used to attach horizontals to the immediate door frame. The other side of the sidelite will be fabricated for screw spline joinery as usual. See Section IV for Shear Block preparation.



**NOTE:**  
IT IS IMPORTANT THAT THE  
INSTALLER APPLY SEALANT TO ENDS  
OF ALL HORIZONTAL MEMBERS AND  
GLAZING REGLETS AS SHOWN TO  
ENSURE GOOD SEAL.

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## SHEAR BLOCK PREPS FOR CENTER OPTION

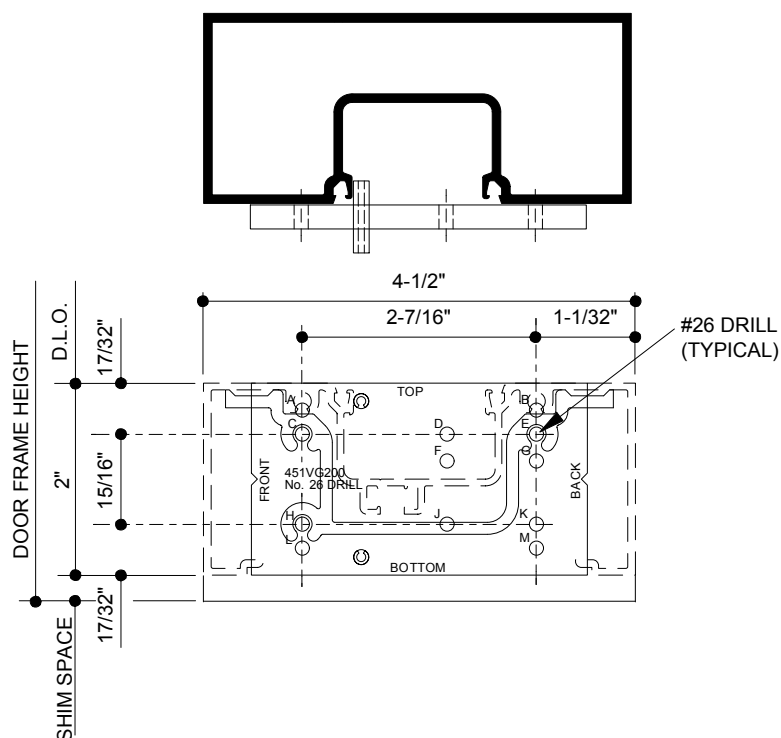
**STEP A:** At desired horizontal locations drill the proper holes in the door jambs for attachment of the shear blocks, as shown below.

**IMPORTANT NOTE:** Door jambs run through to perimeter at sill. **Locate sill to accommodate sill flashing** and shim space at sill.

**STEP B:** Attach shear blocks to door jambs using #028400 (#10 X 1-19/32" P.H.) Screws as required.

### Trifab™ VG 451 (CENTER OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



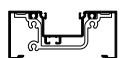
#### OUTSIDE GLAZED (STOPS DOWN)



HEAD PREP = HOLES (E, K)



HORIZONTAL PREP = HOLES (E, K)



SILL PREP = HOLES (C, E, H)

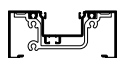
#### OUTSIDE GLAZED (STOPS DOWN) WITH OPTIONAL HORIZONTAL



HEAD PREP = HOLES (E, K)



HORIZONTAL PREP = HOLES (A, B, K)



SILL PREP = HOLES (C, E, H)

#### OUTSIDE GLAZED (STOPS UP)



HEAD PREP = HOLES (C, H, K)



HORIZONTAL PREP = HOLES (E, K)



SILL PREP = HOLES (E, K)

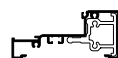
#### OUTSIDE GLAZED (STOPS UP) WITH OPTIONAL HORIZONTAL



HEAD PREP = HOLES (C, H, K)



HORIZONTAL PREP = HOLES (E, L, M)



SILL PREP = HOLES (E, K)

## SHEAR BLOCK PREPS FOR CENTER OPTION

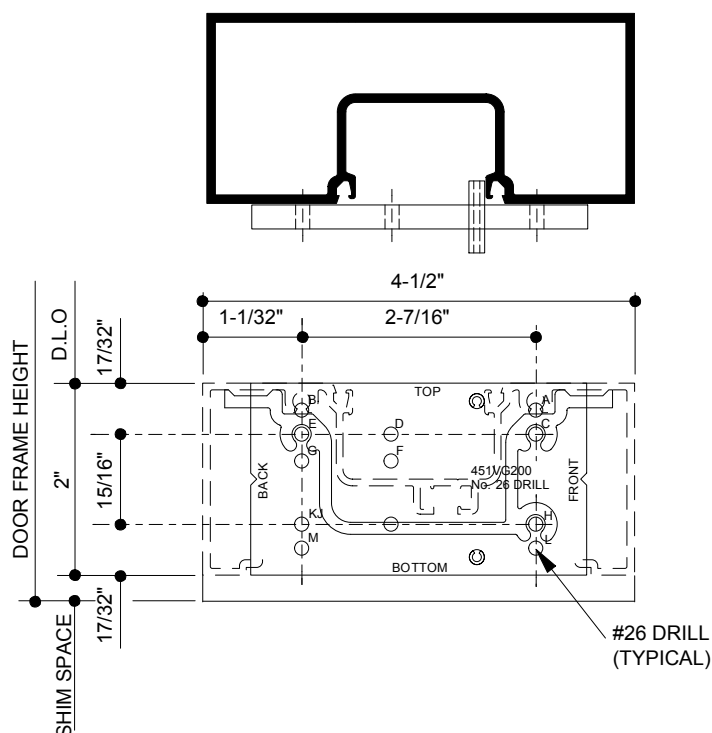
**STEP A:** At desired horizontal locations drill the proper holes in the door jambs for attachment of the shear blocks, as shown below.

**IMPORTANT NOTE:** Door jambs run through to perimeter at sill. **Locate sill to accommodate sill flashing** and shim space at sill.

**STEP B:** Attach shear blocks to door jambs using #028400 (#10 X 1-19/32" P.H.) Screws as required.

### Trifab™ VG 451 (CENTER OPTION)

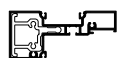
PLACE JIG INTO MULLION AS SHOWN BELOW



## INSIDE GLAZED



HEAD PREP = HOLES (E, K)

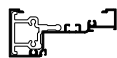


HORIZONTAL PREP = HOLES (E, K)

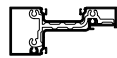


SILL PREP = HOLES (C, E, H)

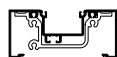
## INSIDE GLAZED WITH OPTIONAL HORIZONTAL



HEAD PREP = HOLES (C, K)



HORIZONTAL PREP = HOLES (A, B, K)



SILL PREP = HOLES (C, E, H)

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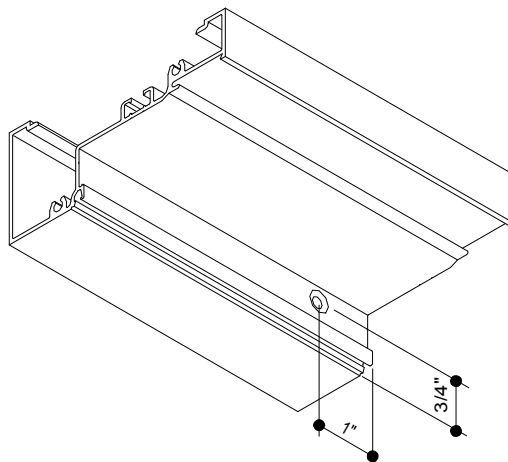
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## SHEAR BLOCK PREPS FOR CENTER OPTION

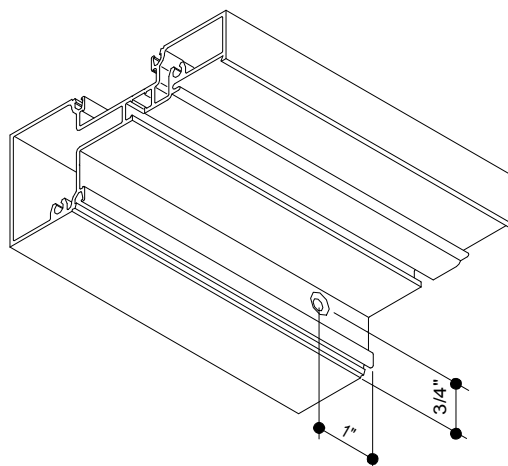
**STEP C:** Cut horizontals to length = Daylight Opening, (glass stops should be D.L.O. - 1/16").

**STEP D:** Fabricate head, sill, and intermediate horizontals by drilling and countersinking for #10 F.H. screw.

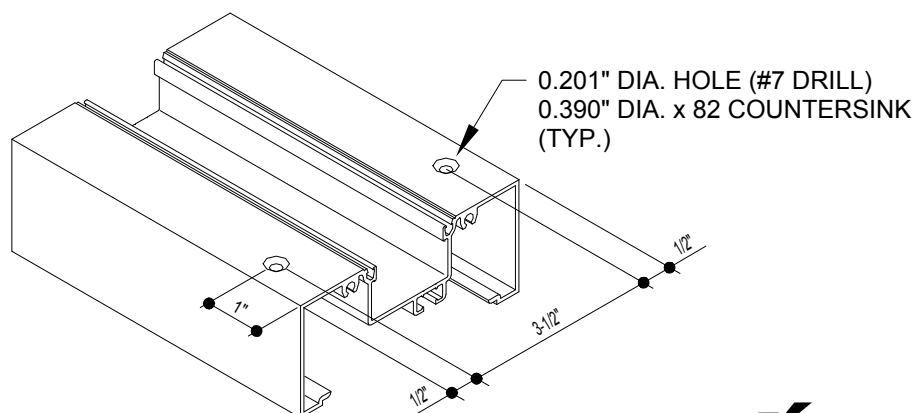
### HEAD



### HORIZONTAL



### SILL



## SHEAR BLOCK PREPS FOR FRONT OR BACK OPTION

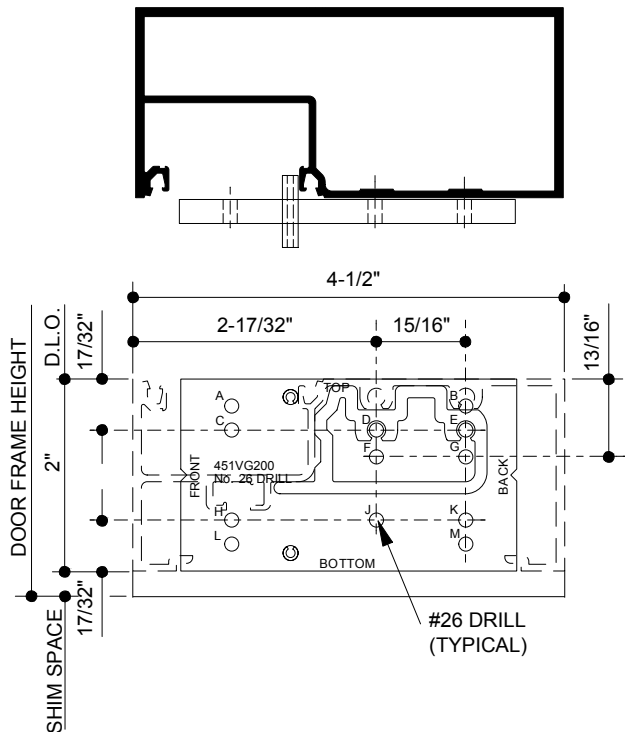
**STEP A:** At desired horizontal locations drill the proper holes in the door jambs for attachment of the shear blocks, as shown below.

**IMPORTANT NOTE:** Door jambs run through to perimeter at sill. **Locate sill to accommodate sill flashing** and shim space at sill.

**STEP B:** Attach shear blocks to door jambs using #028400 (#10 X 1-19/32" P.H.) Screws as required.

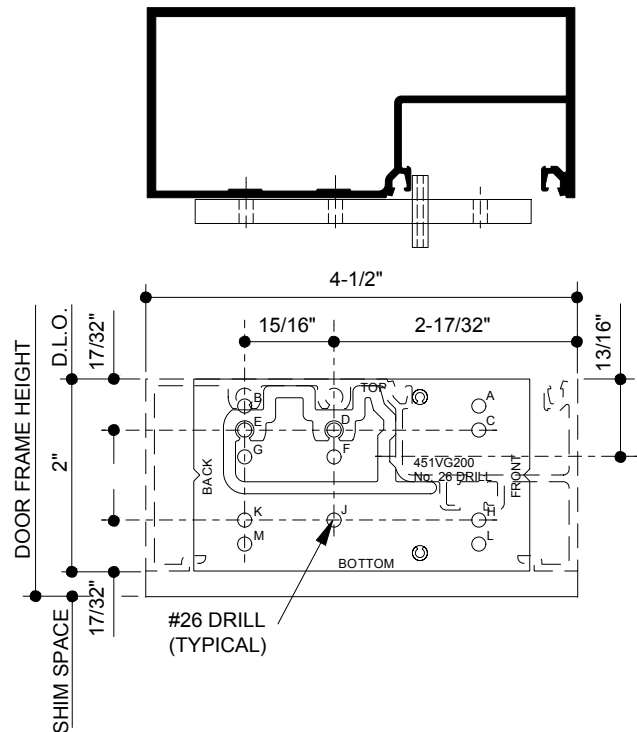
### Trifab™ VG 451 (FRONT OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



### Trifab™ VG 451 (BACK OPTION)

PLACE JIG INTO MULLION AS SHOWN BELOW



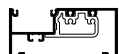
### OUTSIDE GLAZED



HEAD PREP = HOLES (J, K)



HORIZONTAL PREP = HOLES (F, G)

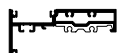


SILL PREP = HOLES (D, E)

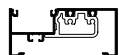
### INSIDE GLAZED



HEAD PREP = HOLES (D, E)



HORIZONTAL PREP = HOLES (F, G)

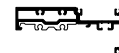


SILL PREP = HOLES (D, E)

### OUTSIDE GLAZED



HEAD PREP = HOLES (D, E)



HORIZONTAL PREP = HOLES (F, G)



SILL PREP = HOLES (D, E)

### INSIDE GLAZED



HEAD PREP = HOLES (J, K)



HORIZONTAL PREP = HOLES (F, G)



SILL PREP = HOLES (D, E)

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## SHEAR BLOCK PREPS FOR FRONT OR BACK OPTIONS

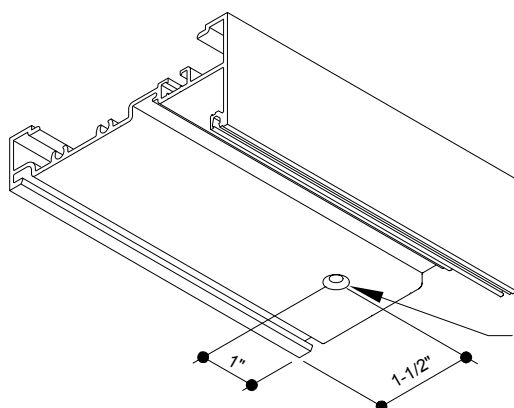
**STEP C:** Cut horizontals to length = Daylight Opening, (glass stops should be D.L.O. - 1/16").

**STEP D:** Fabricate head, sill by drilling and countersinking for #10 F.H. screw.

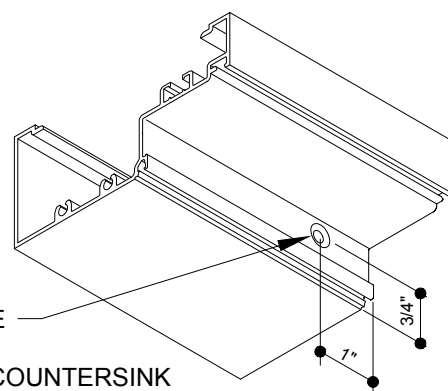
### FRONT - INSIDE GLAZED OR BACK - OUTSIDE GLAZED

### FRONT - OUTSIDE GLAZED OR BACK - INSIDE GLAZED

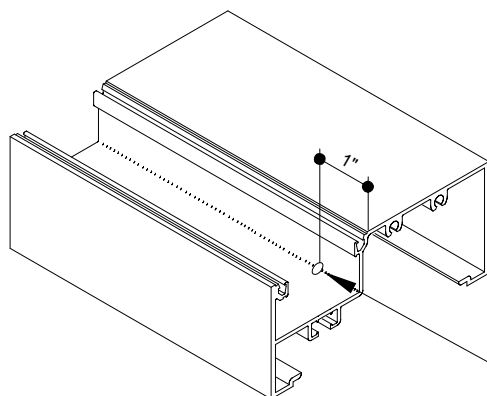
**HEAD**



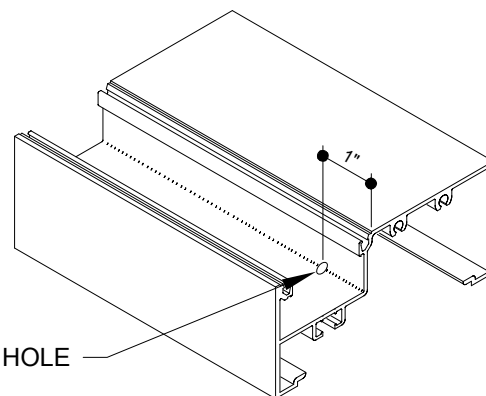
0.201" DIA. HOLE  
(#7 DRILL)  
.390" DIA. x 82° COUNTERSINK



**SILL**



0.201" DIA. HOLE  
(#7 DRILL)



**STEP A: FOR CENTER OPTION INTERMEDIATE HORIZONTALS**

Hold fabricated horizontal member in place over shear block and tight against vertical member. Then match drill tap hole in shear block with #26 (.147) slightly offset to **Vertical Mullion Side** of countersunk hole in the horizontal so as to pull the joint tight when assembled as shown below. (See Figure #1)

**NOTE: FOR FRONT OR BACK INTERMEDIATE HORIZONTALS**

Hold fabricated horizontal member in place over shear block and tight against vertical member. Then match drill tap hole in shear block with #26 (.147) slightly offset to **D.L.O. Side** of hole in the shear block so as to pull the joint tight when assembled as shown below. (See Figure #2)

**STEP B:** Apply sealant to the ends of all horizontal members, shear blocks and into reglets as shown below.

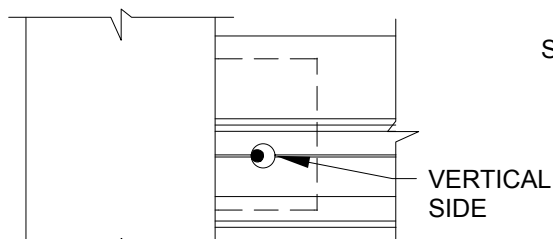
**STEP C:** Attach horizontal members to shear blocks with fasteners provided in shear block packages.

**STEP D:** Continue procedure above until entire frame is assembled.

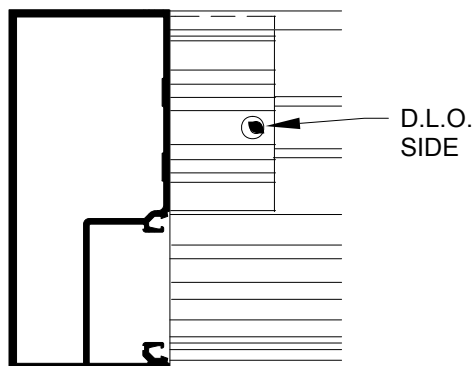
**STEP E:** Install flat fillers into head, jamb and sill at perimeter anchor locations. Crimp material to prevent filler plate from sliding. Perimeter anchors should be located within 6" on each side of vertical mullions and 24" O.C. between vertical mullions.

**NOTE:**

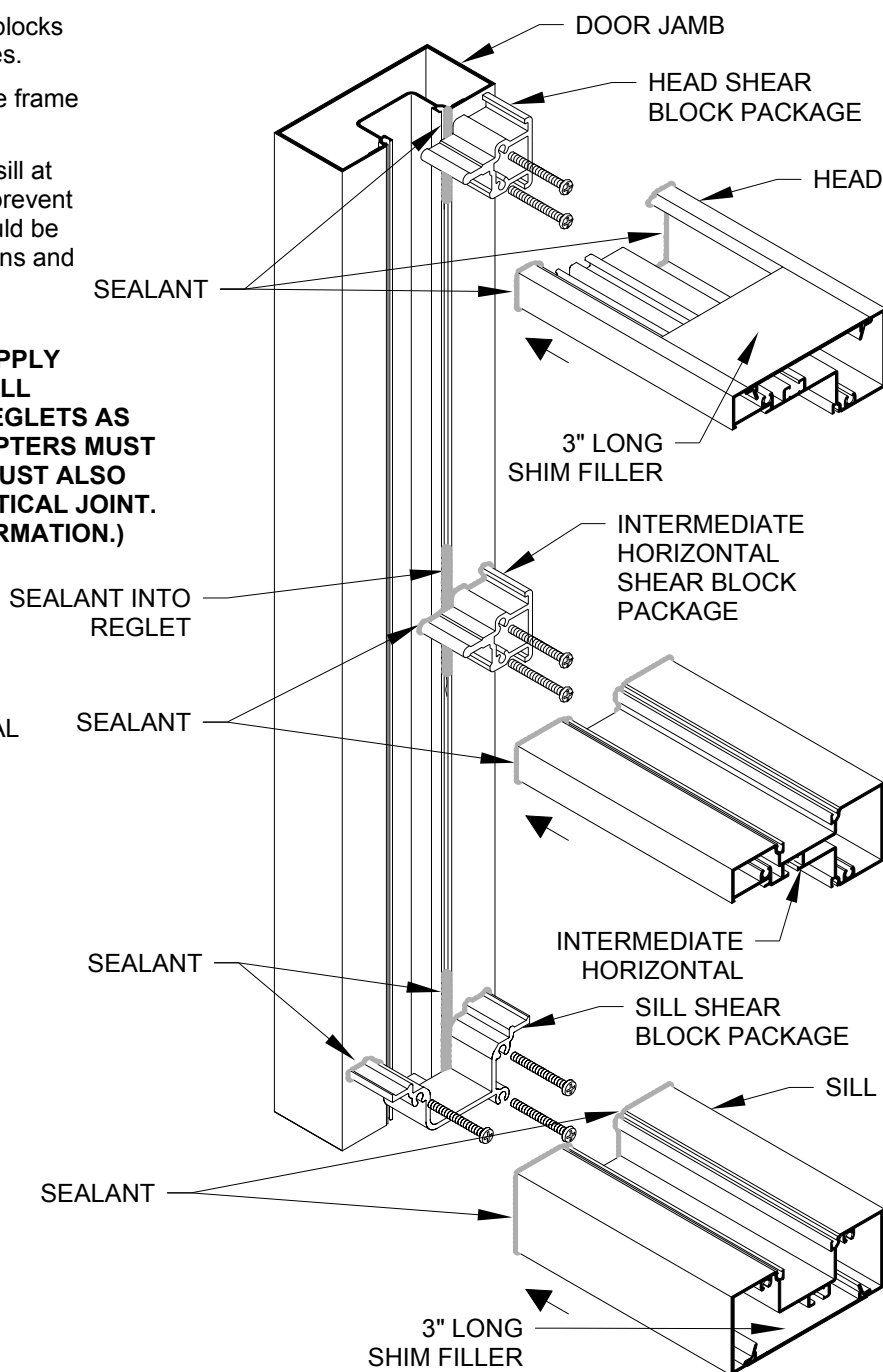
IT IS IMPORTANT THAT THE INSTALLER APPLY SEALANT TO SHEAR BLOCKS, ENDS OF ALL HORIZONTAL MEMBERS AND GLAZING REGLETS AS SHOWN TO ENSURE SEAL. GLAZING ADAPTERS MUST ALSO BE SEALED AT THE HORIZONTAL TO VERTICAL JOINT. (SEE SECTION VIII FOR ADDITIONAL INFORMATION.)



**FIGURE #1**  
**FOR CENTER OPTION**  
**INTERMEDIATE HORIZONTALS**



**FIGURE #2**  
**FOR FRONT OR BACK OPTION**  
**INTERMEDIATE HORIZONTALS**



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## SILL FLASHING, SPLICES, AND END DAMS

### SILL FLASHING

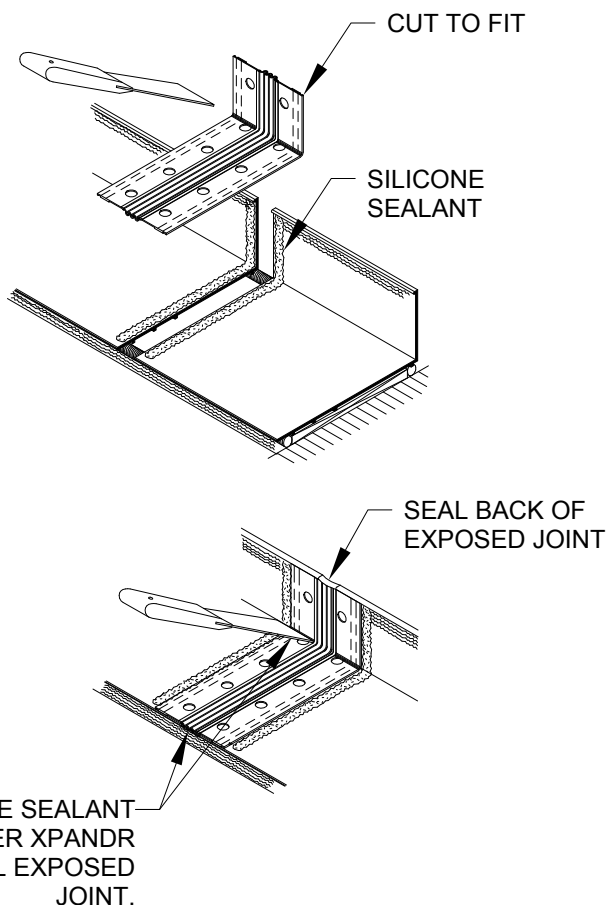
1. Measure rough opening to determine frame size and flashing length. Allow minimum of 1/4" clearance at head and jambs for frame clearance. Flashing will run the full width of the opening minus (-)1/4". If opening is over 24'-0" wide a splice joint is required every 12'-0". (See splice joint procedure.)
2. Install flashing at the sill. It should be level, shimmed up a minimum of 1/4", and carefully sealed at both end dams as shown on Page 26. Seal over the heads of all perimeter fasteners.

### HP SILL FLASHING

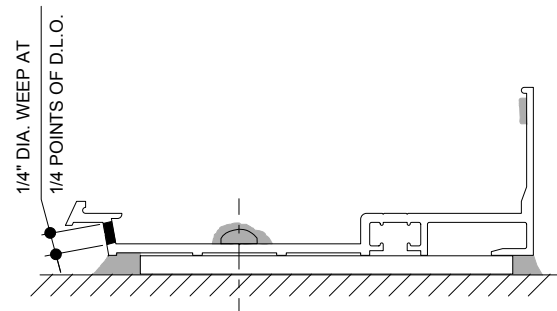
1. Measure rough opening to determine frame size and HP flashing length. Allow minimum of 1/4" clearance at head and jambs for frame clearance. HP flashing will run the full width of the opening minus (-)1/4". If opening is over 24'-0" wide a splice joint is required every 12'-0". (See splice joint procedure.)
2. Drill 1/4" diameter weep holes at 1/4" points of lite opening. **(Figure 1)**
3. Install flashing at the sill. It should be level, shimmed up a minimum of 1/4" and carefully sealed at both end dams as shown on Page 26. Seal over the heads of all perimeter fasteners.

### SPLICE JOINTS

**SPLICES SHOULD BE A MAXIMUM OF EVERY 12'-0" WITH 1/2" JOINT BETWEEN HEAD & SILL MEMBERS. DO NOT LOCATE SPLICE DIRECTLY UNDER A VERTICAL MULLION.**



**NOTE:**  
Alternate silicones must be tested and approved by sealant manufacturer.



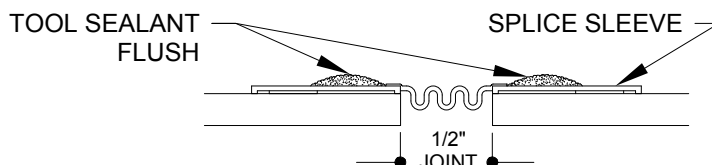
#### PROCEDURE FOR INSTALLING KAWNEER XPANDR™ SPLICE SLEEVE

1. Cut XPANDR Splice Sleeve (027094) to length and form using a putty knife to bend the material square.
2. Clean splice area with solvent.
3. Apply bead of DOW 795 silicone with 1/4" of the edge of the sill members on each side of the 1/2" joint.
4. Remove protective liner from adhesive tape. (for cold weather applications see note below)
5. Center the XPANDR splice sleeve over joint. Then, using a putty knife, seat the XPANDR into corner and onto surface of sill member.
6. Sealant will squeeze out through holes. Use the putty knife to tool off excess silicone.
7. Seal back of exposed joint and apply perimeter seals. Be sure to force sealant up under the XPANDR Splice Sleeve in front.

#### COLD WEATHER NOTE:

For temperatures below 40° the following precautions should be taken. Just prior to installing XPANDR, wipe flashing material with a solvent or cleaning solution recommended by the sealant manufacture. This will remove any condensation or frost that may be present.

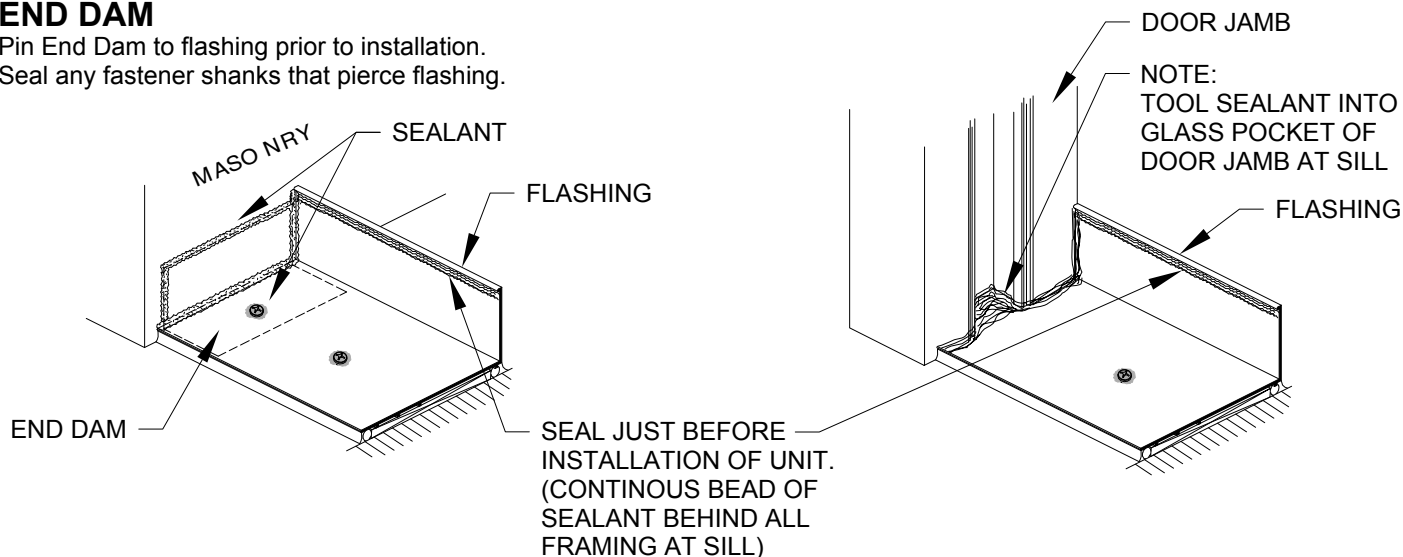
**CAUTION:** Carefully follow the recommendations contained in the material safety data sheet provided by the solvent/cleaning solution manufacturer regarding health and fire/explosion risks.



## SILL FLASHING, SPLICES AND END DAMS

### END DAM

Pin End Dam to flashing prior to installation.  
Seal any fastener shanks that pierce flashing.

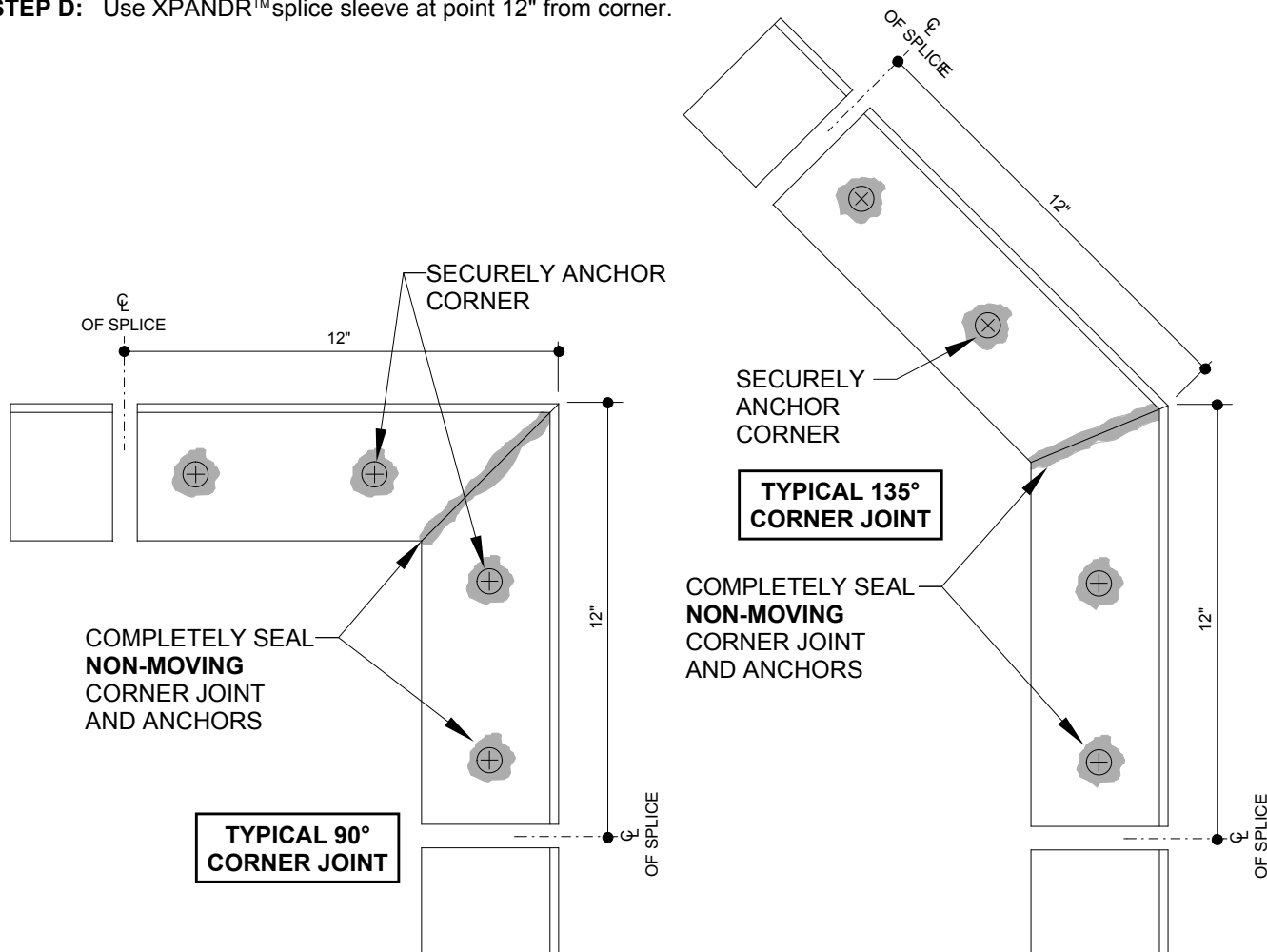


**STEP A:** Miter tow 12" sections of sill flashing to correct angle.

**STEP B:** Set mitered joint in a bed of sealant and securely anchor into place with a tight joint.

**STEP C:** Completely seal non-moving mitered joint and anchors.

**STEP D:** Use XPANDR™ splice sleeve at point 12" from corner.



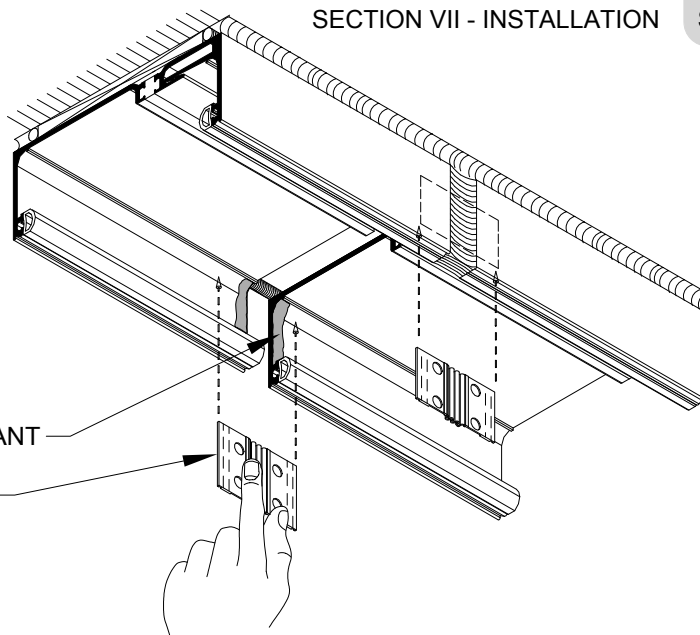
## HEAD RECEPTOR SPLICE JOINT

Install splice sleeve into head receptor as shown.

**Note:**

Alternate silicones must be tested and approved by sealant manufacturer.

SILICONE SEALANT  
XPANDR SPLICE SLEEVE  
CUT TO FIT

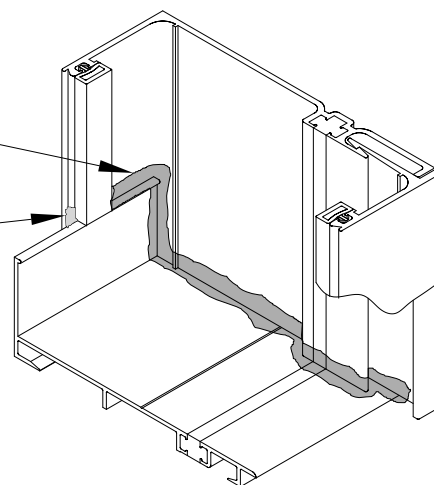


## JAMB RECEPTOR AT SILL FLASHING

SEAL JAMB RECEPTOR AT  
SILL FLASHING AS SHOWN.

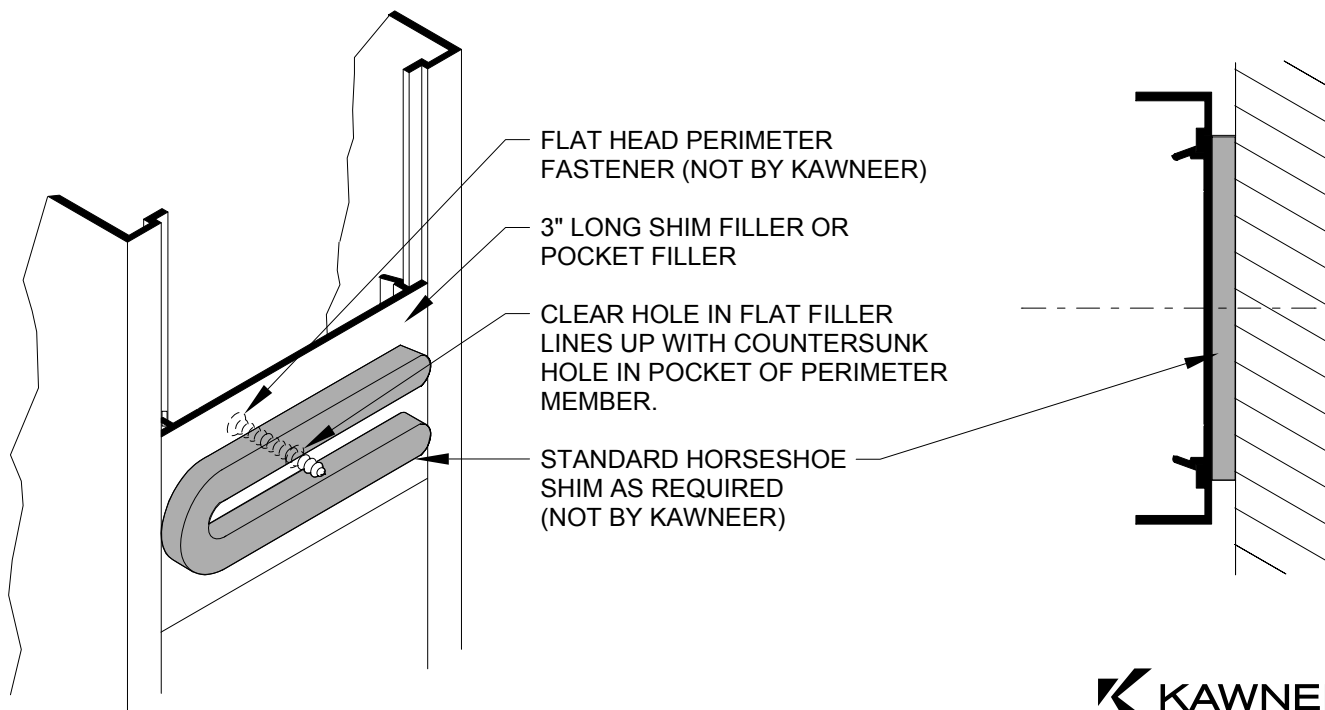
**NOTE:**

BACK SEAL THE EDGE OF THE RECEPTOR  
ALONG THE UPTURNED LEG OF THE FLASHING  
TOOL SEALANT TO PROVIDE SEAL BETWEEN  
RECEPTOR, FLASHING AND RECEPTOR GASKET.



## SHIM INSTALLATION

Install support shims at head, sill and jamb. Place between pocket fillet and perimeter condition at perimeter anchor locations.



## SILL FLASHING

**STEP 1:** Apply sealant to the upstanding leg on the flashing. ①

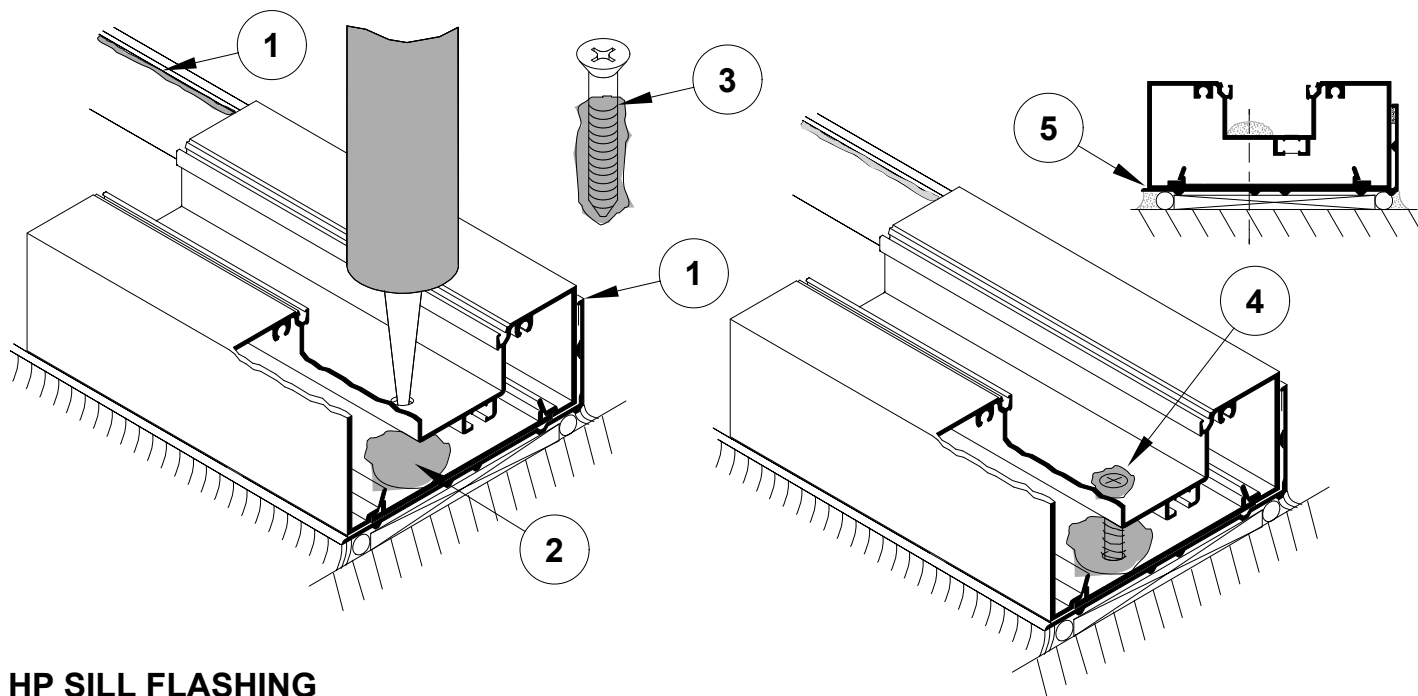
**STEP 2:** Position the assembled frame into the opening to align with sill flashing. Seat frame tightly against back leg of flashing to ensure good seal. Insert shims as needed at head and jambs, checking that the unit is level and plumb.

**STEP 3:** Drill perimeter anchor holes through glass pocket of frame (**DO NOT DRILL THROUGH THERMAL BREAK**). Anchor holes should be located within 6" of each side of vertical mullions and 24" O.C. between. Countersink all screw heads.

Force sealant into hole for sill perimeter fastener. ② Coat fastener threads and shank with sealant prior to installing. ③ Seal over heads of fasteners at sill. ④

**NOTE:** If heavy mullion or steel reinforcing is used, extra perimeter fasteners may be required to handle larger loads. Consult Area Application Engineer Department.

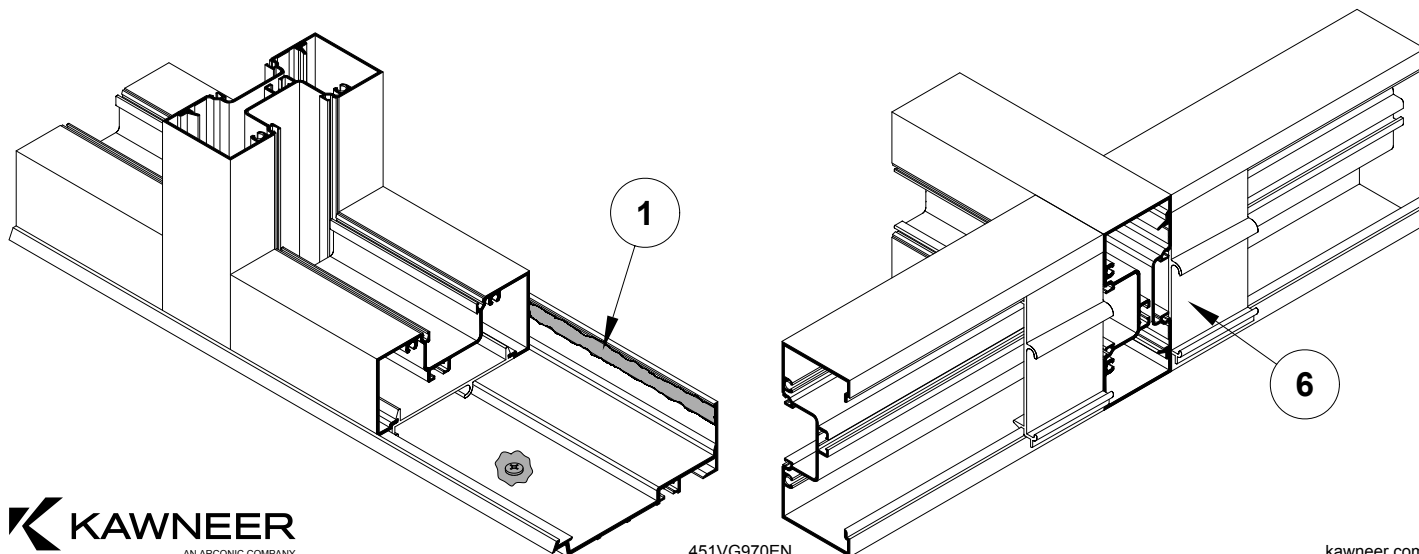
**STEP 4:** Caulk both interior and exterior at head, jambs and under sill flashing with a high quality sealant. Do not caulk between sill member and sill flashing to allow water drainage. ⑤



## HP SILL FLASHING

**STEP 1:** Apply sealant to the upstanding leg on the flashing. ①

**STEP 2:** Install HP interlocking sill clip into sill each side of the vertical and crimp in place to prevent sliding. ⑥

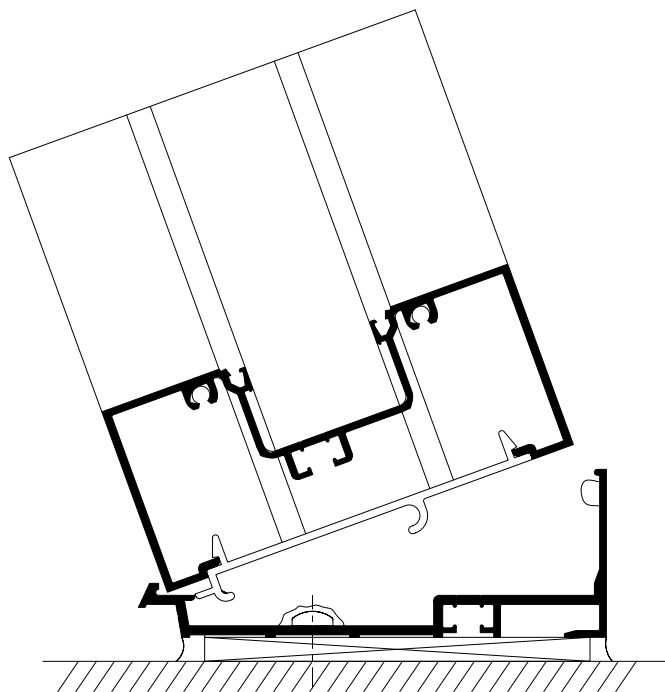


## HP SILL FLASHING

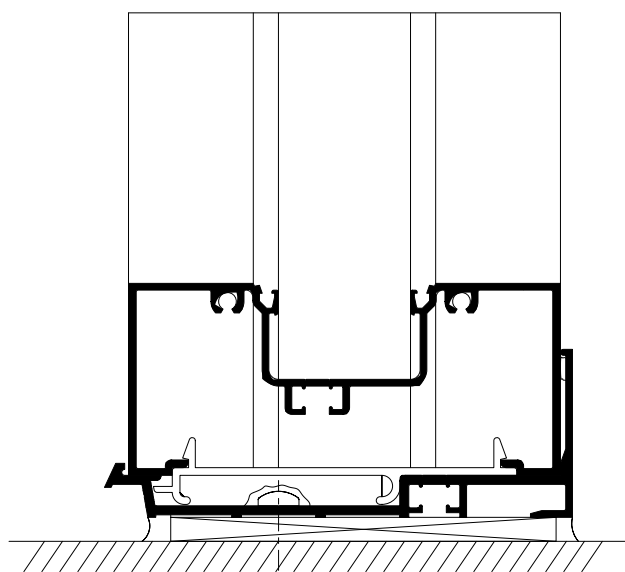
**STEP 3:** Position assembled frame onto sill tilted out at approximately 20 degrees 1A. Allow the interlocking sill clip to engage with the lug of the flashing, and rotate to vertical position. **(Figure 1)**

**NOTE:** If heavy mullion or steel reinforcing is used, extra perimeter fasteners may be required to handle larger loads. Consult area Application Engineering.

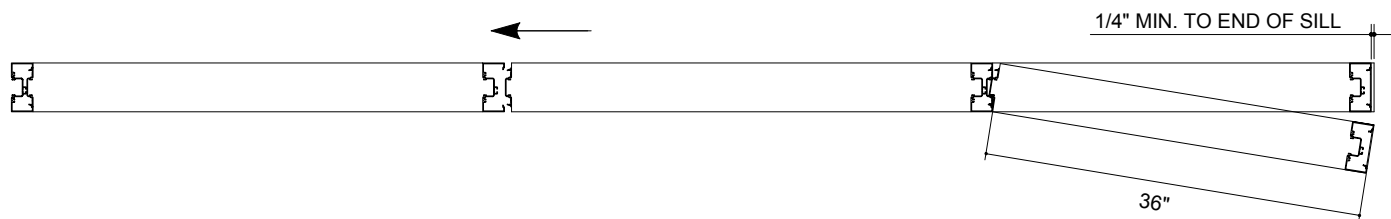
**STEP 4:** Caulk both interior and exterior at head, jamb and under sill flashing with high quality sealant. Do not block weep holes in flashing.



**NOTE:**  
Last bay will not have  
451HP126 interlocking sill clips



**NOTE:**  
HP flashing must extend beyond the  
edge of the frame by 1/4" minimum.



**LAST BAY NOTE:**  
If the last bay is less than 36" width,  
a larger clearance will be required at  
the jamb, or you may snap it with the  
previous bay and install as one unit.

ROTATE LAST PANEL  
INTO POSITION

## WATER DEFLECTOR

Install water deflector on intermediate horizontals by removing the paper backing from the water deflector. Install them on a clean, dry surface centered in the glazing pocket and seal. (See Figure #1)

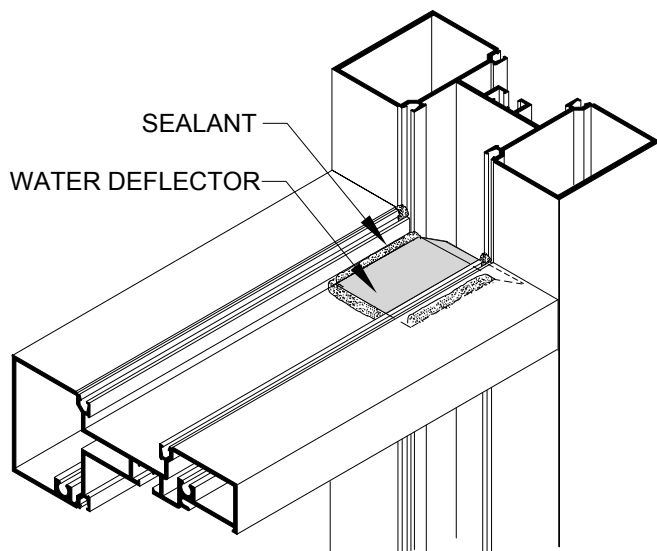
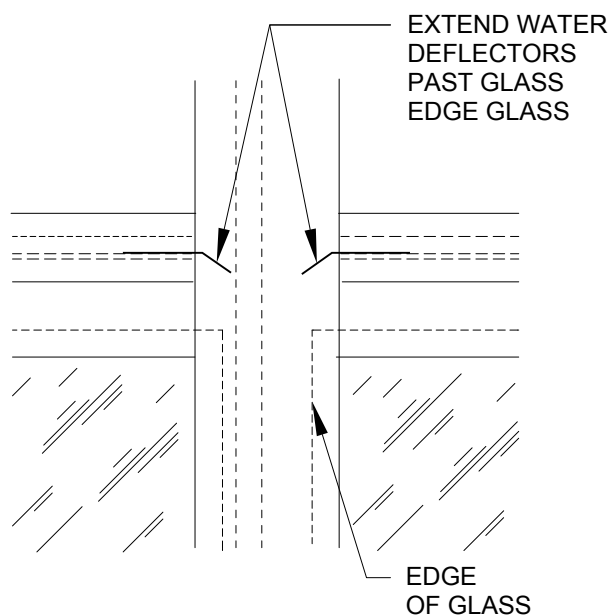


Figure 1

### COLD WEATHER NOTE:

For temperatures below 40° the following precautions should be taken. Just prior to installing the water deflector, wipe glazing pocket with a solvent or cleaning solution recommended by the sealant manufacture.

**CAUTION:** Carefully follow the recommendations contained in the material safety data sheet provided by the solvent/cleaning solution manufacturer regarding health and fire/explosion risks.



SEALANT GLAZING REGLETS

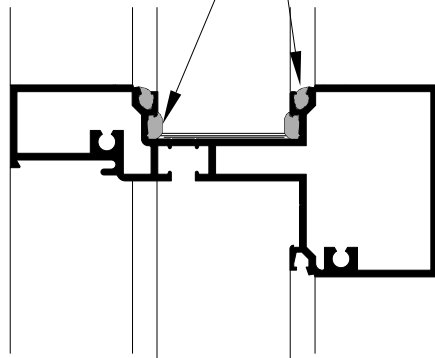


Figure 2

FOR THERMAL MEMBERS,  
SEAL UNDER DEFLECTOR  
FILLING CAVITY WITH SEALANT

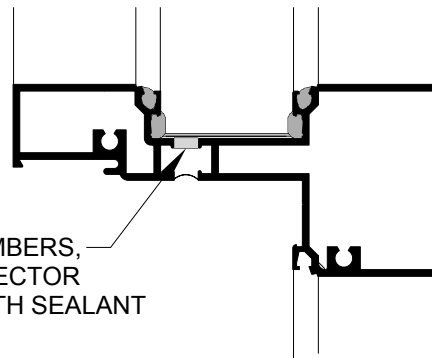


Figure 2

After the water deflector is installed, seal the joint between the back leg of the horizontal and the vertical. Make sure to fill the glazing reglets in that area to prevent water from running down to the lite below. (See Figure #2)

## GLAZING ADAPTORS FOR Trifab™ VG 451/451T

### TYPICAL INSTALLATION OF PARTIAL OR FULL LENGTH VERTICAL GLAZING ADAPTORS - PRIOR TO FRAME ASSEMBLY

Vertical glazing adaptors may be installed for partial, (**Figure 1**) or full-length, (**Figure 2**) applications at the time the frames are assembled.

**STEP 1:** Cut VERTICAL glazing adaptors to D.L.O. plus 1/2" partial length applications or to vertical member length for full-length applications.

**STEP 2:** Cut HORIZONTAL glazing adaptors to D.L.O.

**STEP 3:** Snap vertical adapters into glazing reglets of frame and assemble frame as instructed. In partial length applications, vertical adapter should be positioned to allow sealing of the horizontal adapter to the vertical (approximately 1/4" projection into horizontal pocket, **Figure 3**). It may be necessary to lightly crimp vertical adapter in place to prevent sliding.

**SPECIAL NOTE:** When using pre-installed vertical glazing adaptors, care should be taken at the time of the frame assembly, to seal the vertical glazing reglets where they meet the intermediate horizontals. The 1/4" water deflector should be used on all full-length applications (**Figure 4**), and installed as shown in **Section VII**. 1" water deflectors are used for the partial adapter applications as long as the adapter does not impede water evacuation of the intermediate horizontal. The water deflector must allow water to drain into the vertical pocket beyond the edge of the glass below.

**STEP 4:** Apply sealant to vertical adapter at the final position of the snapped-in horizontal adapter.

**STEP 5:** Snap the HORIZONTAL glazing adapters into the glazing reglet allowing the adapter to rotate into the pocket and contact the sealant at the vertical adapter.

### INSTALLATION OF GLAZING ADAPTORS - AFTER FRAME ASSEMBLY AND FOR FIELD RETROFIT APPLICATIONS

**STEP 1:** Cut VERTICAL glazing adaptors to D.L.O. + 1/2".

**STEP 2:** Make a 1/4" by 1/4" notch at each end of the vertical glazing adapter. Notch should be made on the face side of the adapter nearest the gasket reglet as shown (**Figure 5**).

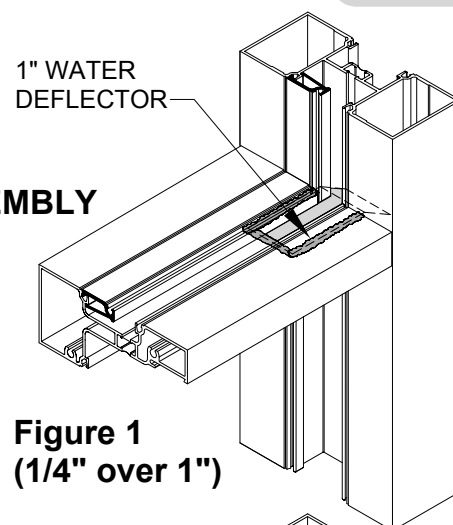
**STEP 3:** Cut HORIZONTAL glazing adapter to D.L.O.

**STEP 4:** Snap vertical adapters into glazing reglets of frame. Adapter should be positioned to allow sealing of horizontal adapter to the vertical adapter (approximately 1/4" projection into horizontal pocket, **Figure 3**)

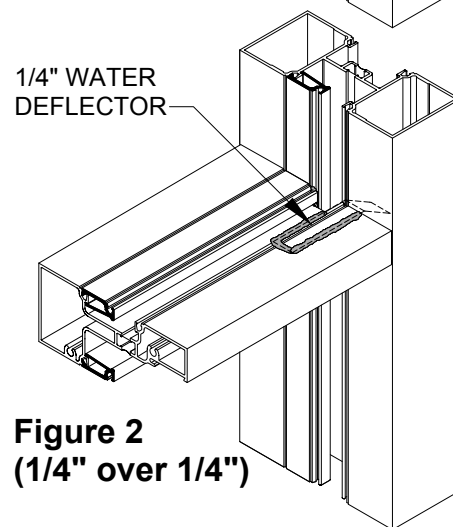
**SPECIAL CARE NOTE:** Care should be taken to insure that the glazing adapter does not impede water evacuation at the intermediate horizontal. The previously installed 1" water deflector must allow water to drain into the vertical pocket beyond the edge of the glass below.

**STEP 5:** Apply sealant to vertical adapter at final position of the snapped-in horizontal adapter.

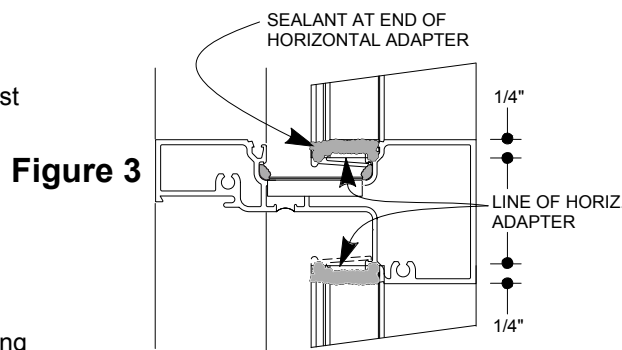
**STEP 6:** Snap the HORIZONTAL glazing adapters in the glazing reglet allowing the adapter to rotate into the pocket and contact the sealant at the vertical adapter.



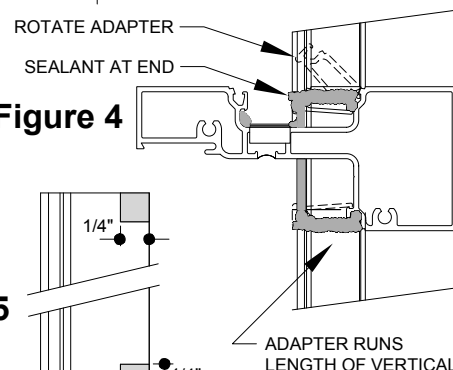
**Figure 1**  
(1/4" over 1")



**Figure 2**  
(1/4" over 1/4")

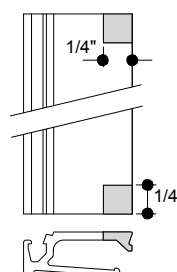


**Figure 3**



**Figure 4**

**Figure 5**



ADAPTER RUNS  
LENGTH OF VERTICAL

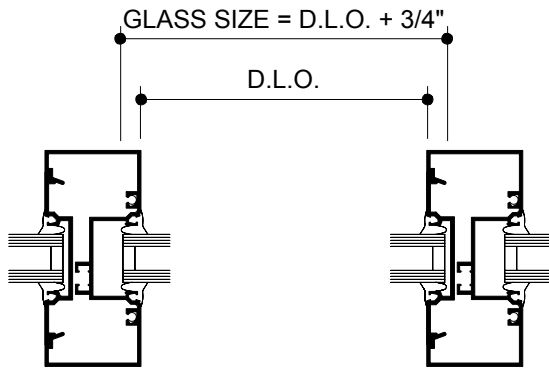
**STEP A:** All pockets for 1" infill are 1-3/8" in width and will accept up to 1-1/8" glass dry glaze.  
All pockets for 1/4" infill are 5/8" in width, and accept up to 3/8" glass dry glazed.

**STEP B:** Glass size is (Daylight Opening) D.L.O. + 3/4".

**NOTE 1:** This formula does not allow for undersize or out of square daylight openings.

**NOTE 2:** The glass manufacture must indicate the specific glazing requirements for the material being used.

**NOTE 3:** See pages 35 or 38 for Dart Corner glass sizes.



**GLAZING CHART for 1/4" SYSTEM**

Infill Thickness	Weathering (Both Sides)
1/8"	027077 (Heavy)
1/4"	027074 (Standard)
3/8"	027076 (Light)

**GLAZING CHART for 1" SYSTEM**

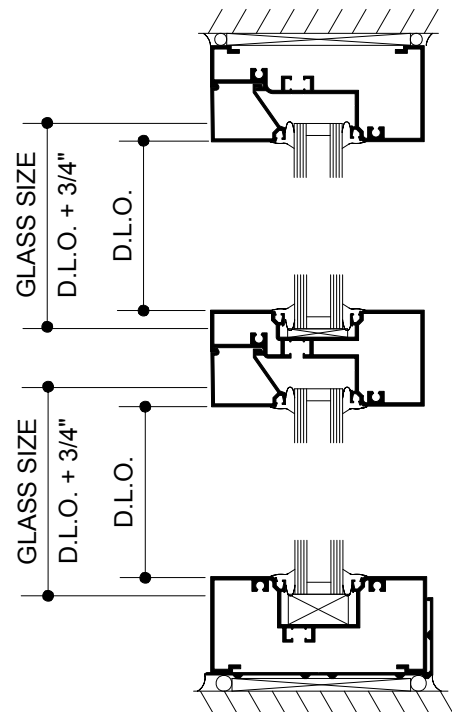
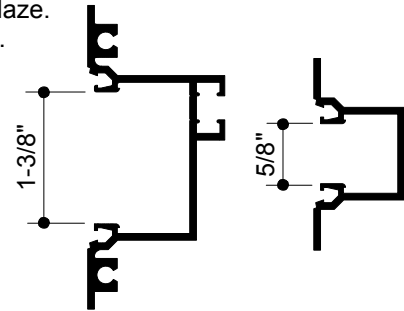
Infill Thickness	*Adapter	Weathering (Both Sides)
1/8"	451VG029	027077 (Heavy)
1/4"	451VG029	027074 (Standard)
3/8"	451VG029	027076 (Light)
1/2"	451VG030	027077 (Heavy)
5/8"	451VG030	027074 (Standard)
3/4"	451VG030	027076 (Light)
7/8"	—	027077 (Heavy)
1"	—	027074 (Standard)
1-1/8"	—	027076 (Light)

**\*NOTE:** For infill thickness in 1/16" increments or oversize and undersize glass, use a combination of the standard (**027074**) with either the light (**027076**) or heavy (**027077**) gaskets.



**027077** (Heavy)   **027074** (Standard)   **027076** (Light)

**\*NOTE:** I.D. Marks = 3 for Heavy, 2 for light, and none for standard.



**\*NOTE:**

Snap-in glazing adapters 451VG029 and 451VG030 are provided for applications requiring infills less than 1" thickness at adapter.

Reference Section VIII, Glazing Adapters for adapter cut lengths and seal information.

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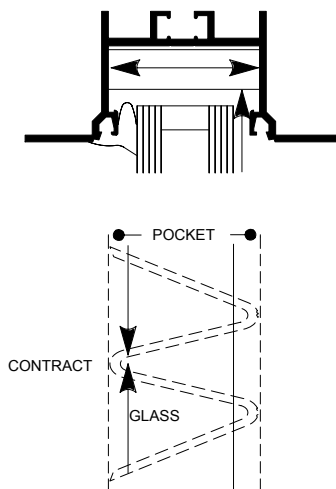
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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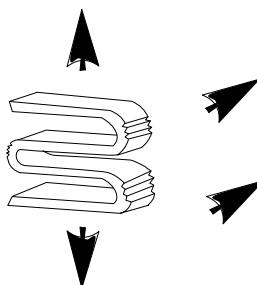
## "W" SIDE BLOCKS

One "W" Side Block should be installed in the deep pocket of the mullion of each lite of glass in the opening.

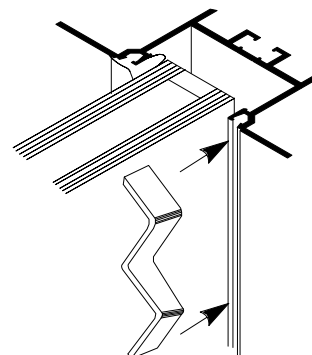
### SIDE BLOCK INSTALLATION



STRETCH



FLATTEN BLOCK & SLIDE  
BETWEEN REGLET AND  
GLASS LITE



INSERT BETWEEN  
GLASS AND FRAME

"W" Block will expand and wedge between walls of glazing pocket and prevent glass from shifting into the deep pocket.

#### NOTE:

If deglazing of lite is required after "W" Block is installed, remove both interior and exterior weathering and use hook to pull "W" Block out of pocket.

## GASKET AND GLASS STOP INSTALLATION

**STEP 1:** Cut horizontal and vertical gaskets to an approximate length of D.L.O. + 1/4" per foot of D.L.O.

**STEP 2:** Install gaskets on the side of frame opposite glass stop first. ①

Insert gasket into the horizontal members first starting at the ends and work toward the center as shown.

(see Figure 1)

Install vertical gasket into the same side of frame after horizontal gaskets are in place in the same manner.

**STEP 3:** Position setting blocks at points under glass as required.

**STEP 4:** Install glass into frame using standard flush glazing technique. ②

**STEP 5:** Run bead of sealant along vertical reglets where glass stop meets, then install glass stop. ③

**STEP 6:** Install horizontal and vertical gasket into glass stop side of frame in the same manner as described in Step #2.

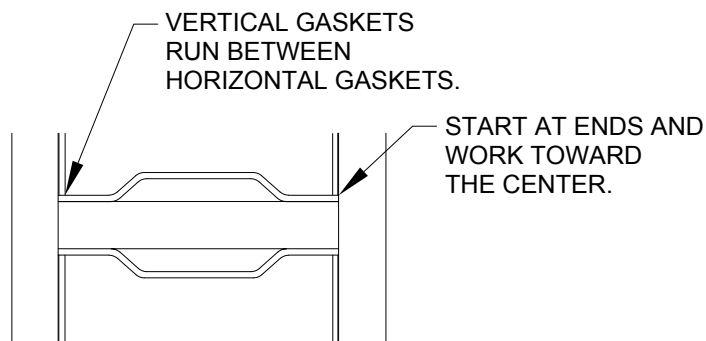
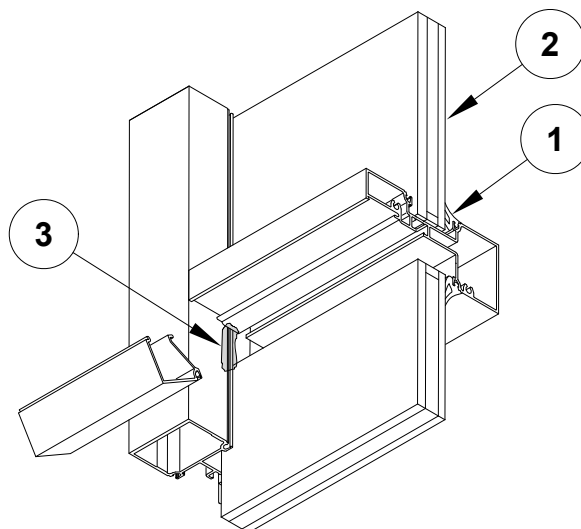
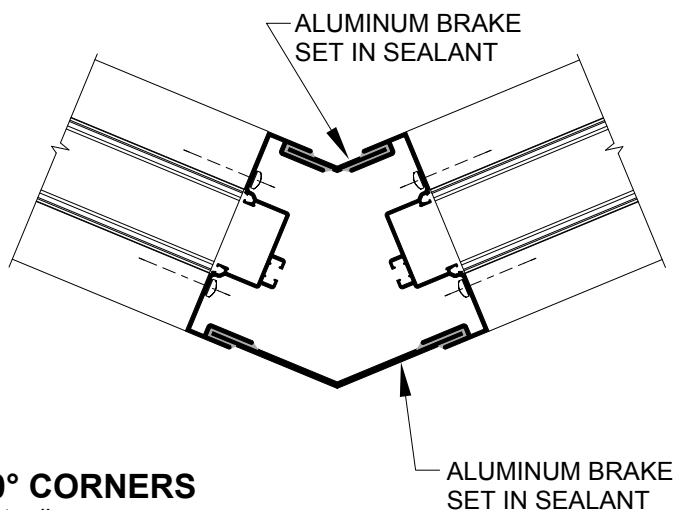


Figure 1



## ADJUSTABLE CORNERS

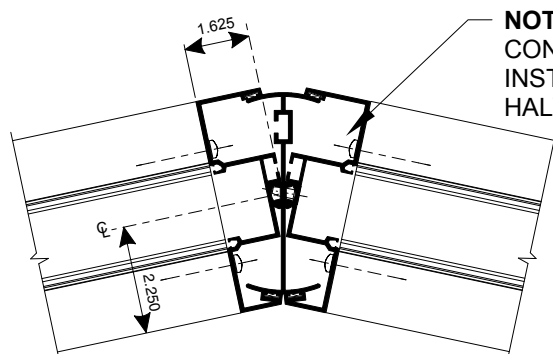
Use the same preps as are required for the standard vertical.



## PIVOTED INSIDE AND OUTSIDE 155° TO 180° CORNERS

**NOTE:** Layout and cut sizes can be determined using pivot center lines.

Corner parts and fabrication are the same when flipped for outside corners.

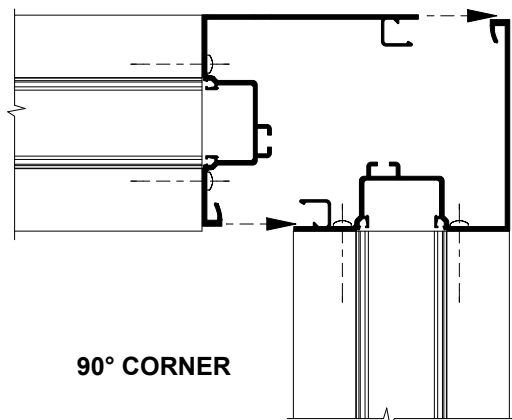


Use the same fabrication methods as are required for standard verticals. Drill (#26) and countersink 0.147 diameter holes for assembly screws (#10 x 9/16"). Fasten together with supplied screws. Screws should be located 6" from each end and 24" on center.

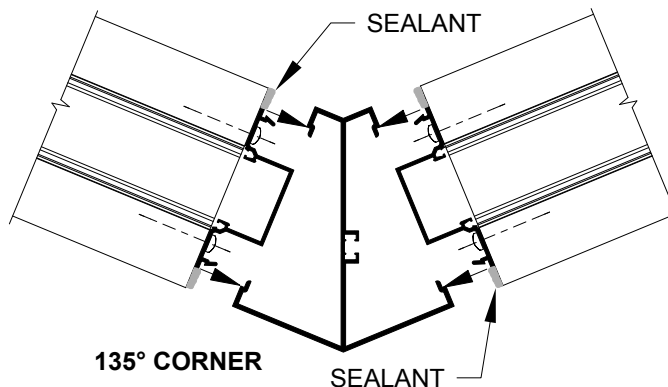
## SNAP CORNERS

Snap corners together as shown.

**NOTE:** Tight snaps may be waxed to make engagement easier. Corners are not designated to be unsnapped.



90° CORNER



135° CORNER

## 90° DART CORNERS

**STEP 1:** Cut mullion halves and cover to required length (Frame Height).

**STEP 2:** Cut horizontal to length = Daylight opening. Miter as shown on page 36 & 37.

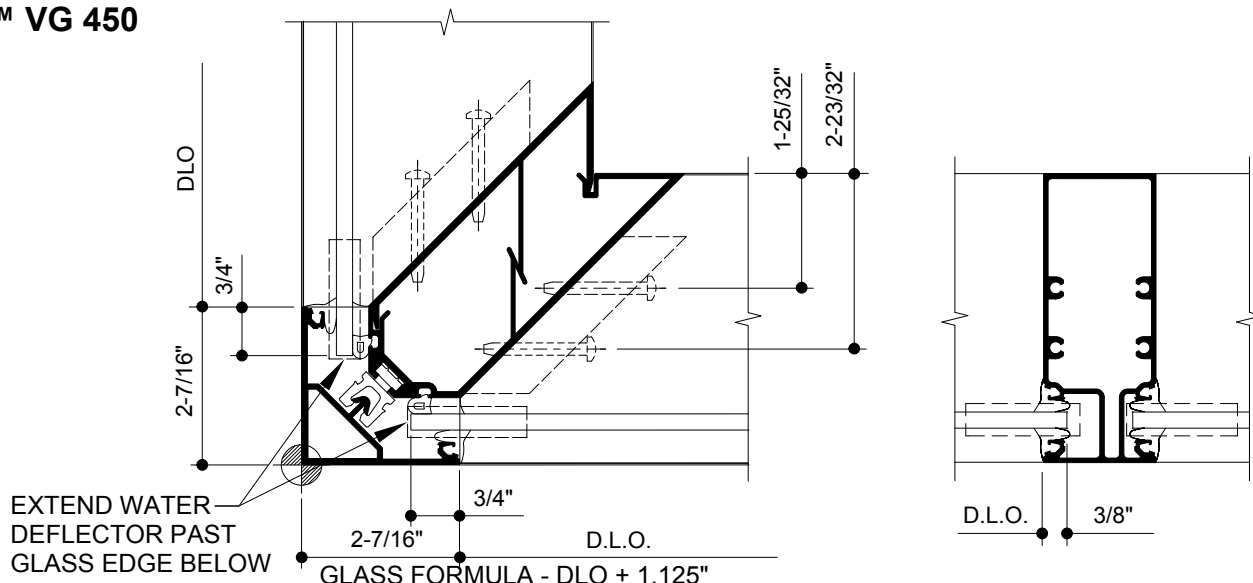
**STEP 3:** Cut glass stops to D.L.O. - 1/16". Miter inside glaze glass stop as shown on page 36 & 37.

**STEP 4:** Drill mullion halves for shear blocks as shown below. Use the actual fabricated clip as a template.

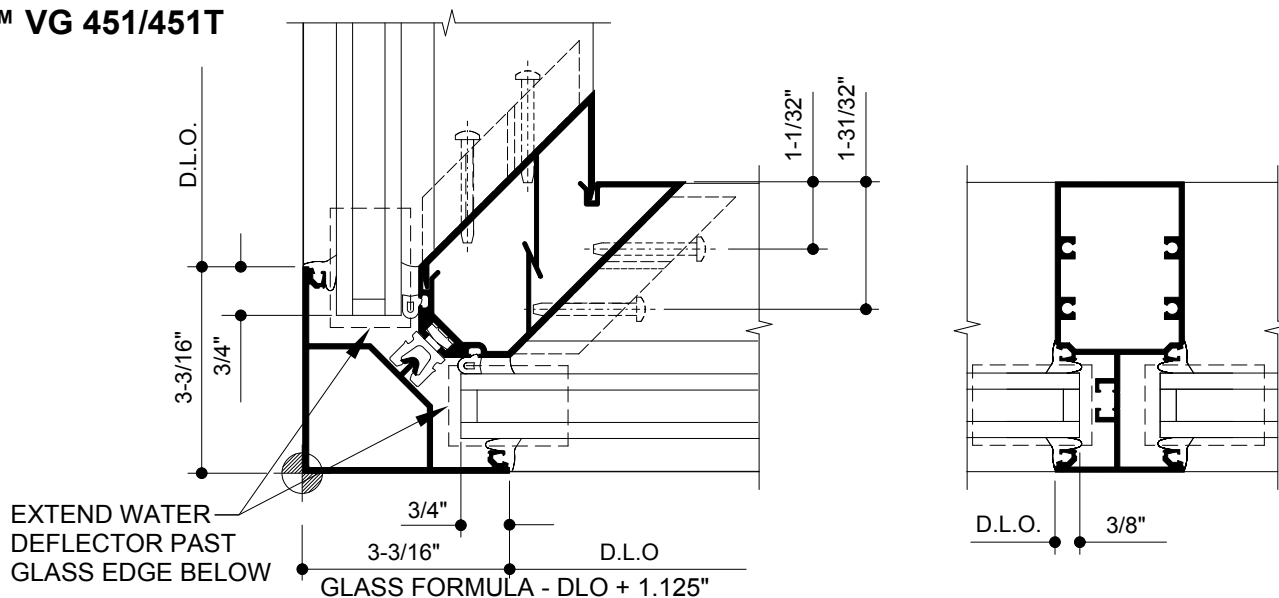
**STEP 5:** Attach shear blocks using (2) #028400 (#10 x 1-19/32") pan head screws.

**STEP 6:** Fabricate horizontals for (1) #128345 (#10 x 9/16") flat head screw as shown on page 36 & 37.

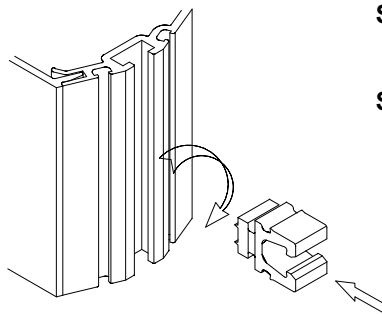
### Trifab™ VG 450



### Trifab™ VG 451/451T



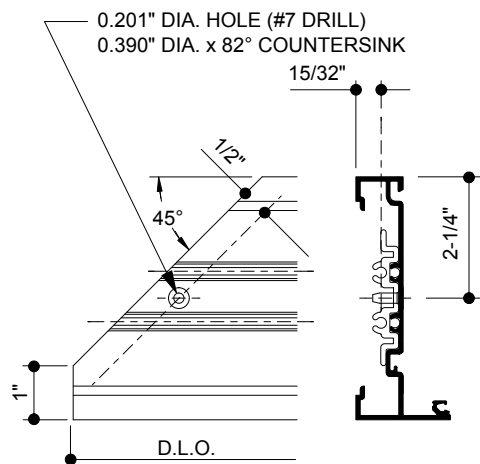
**STEP 7:** Prior to installing cover, install 250299 glazing clip into vertical as shown. These clips should be located no more than 9" O.C. and no more than 3" from the ends of mullions.



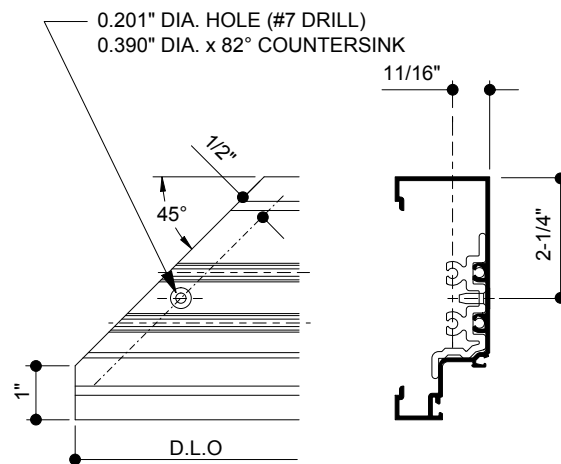
**STEP A:** Push clip (250299) into mullion reglet.

**STEP B:** Twist clip 1/4 turn clockwise to lock in place.

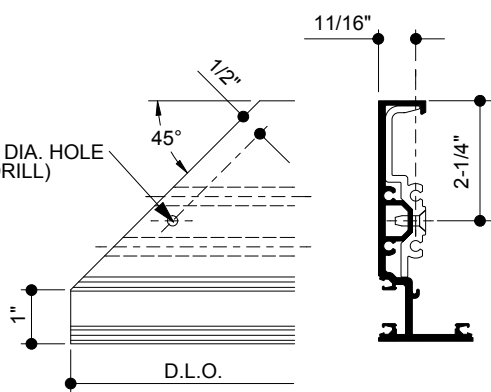
## 90° DART CORNERS FOR Trifab™ VG 450



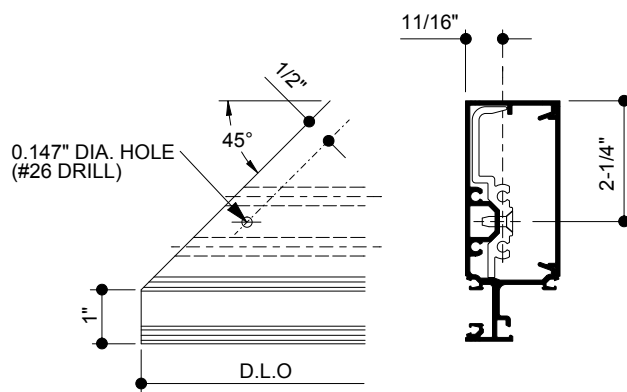
**INSIDE GLAZED HEAD**  
CUT LENGTH = DLO



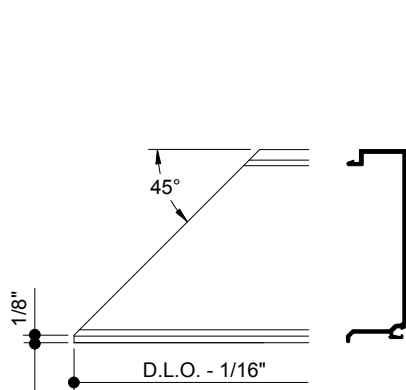
**OUTSIDE GLAZED HEAD**  
CUT LENGTH = DLO



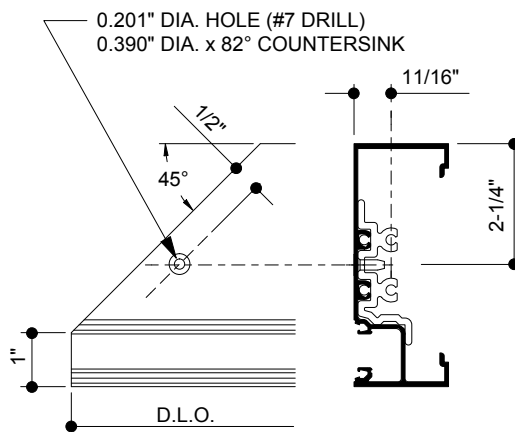
**INSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



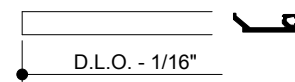
**OUTSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



**INSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"



**INSIDE OR OUTSIDE GLAZED SILL**  
CUT LENGTH = DLO



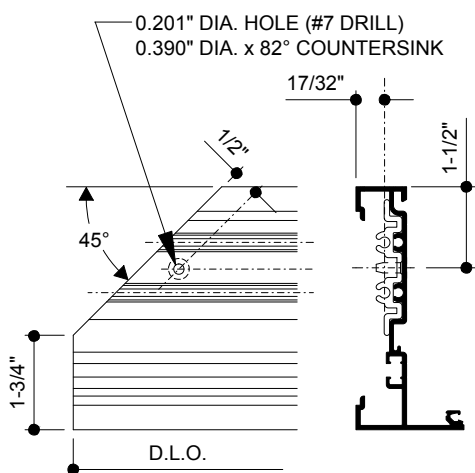
**OUTSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO - 1/16"

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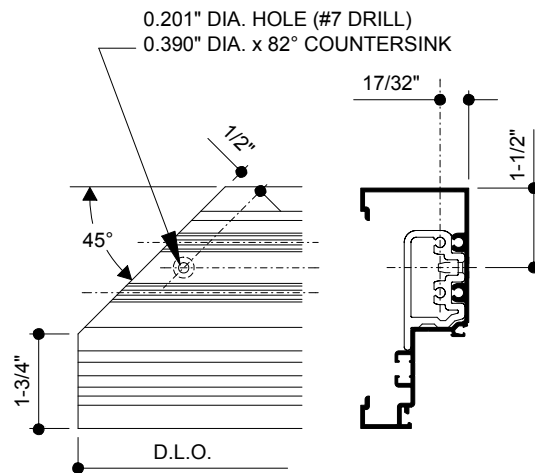
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

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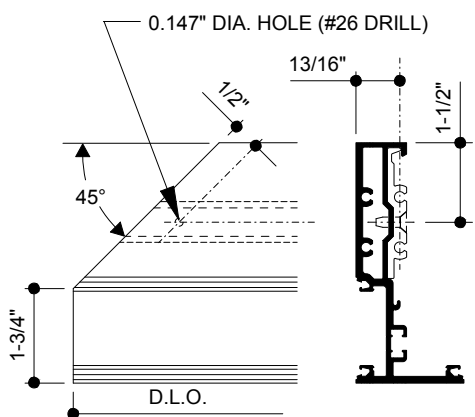
## 90° DART CORNERS FOR Trifab™ VG 451/451T



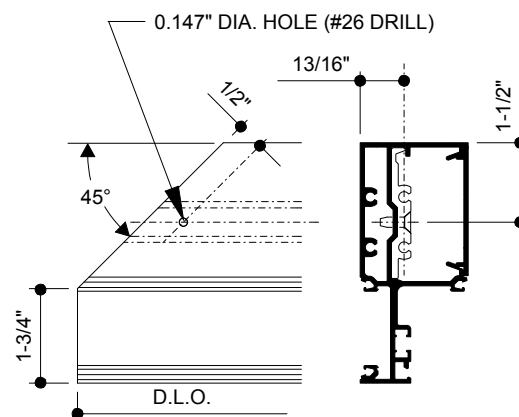
**INSIDE GLAZED HEAD**  
CUT LENGTH = DLO



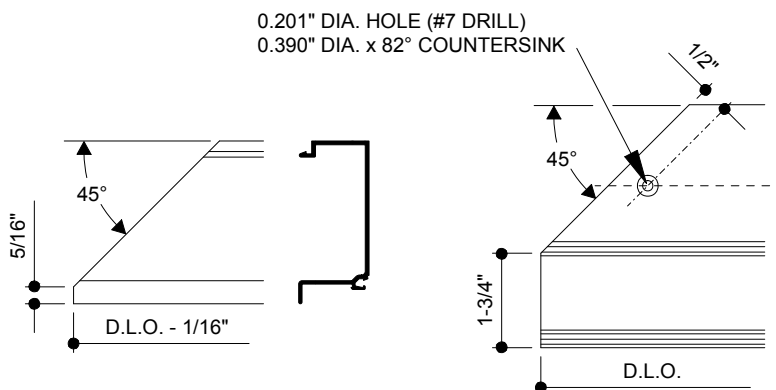
**OUTSIDE GLAZED HEAD**  
CUT LENGTH = DLO



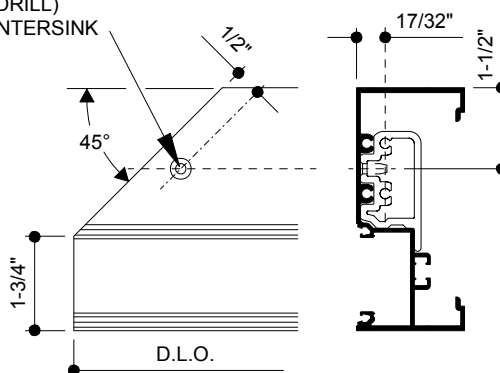
**INSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



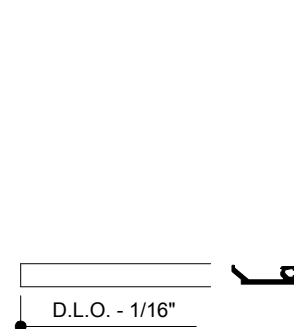
**OUTSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



**INSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"



**INSIDE OR OUTSIDE GLAZED SILL**  
CUT LENGTH = DLO



**OUTSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"

## 90° DART CORNERS

**STEP 1:** Cut mullion halves and cover to required length (Frame Height).

**STEP 2:** Cut horizontal to length = Daylight opening. Miter as shown on page 39 & 40.

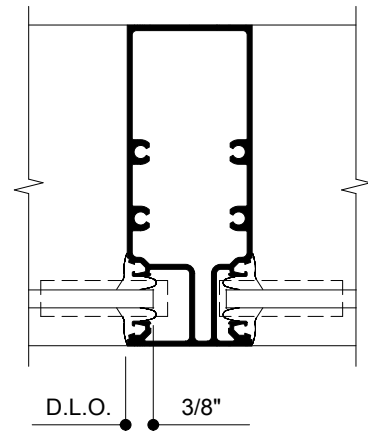
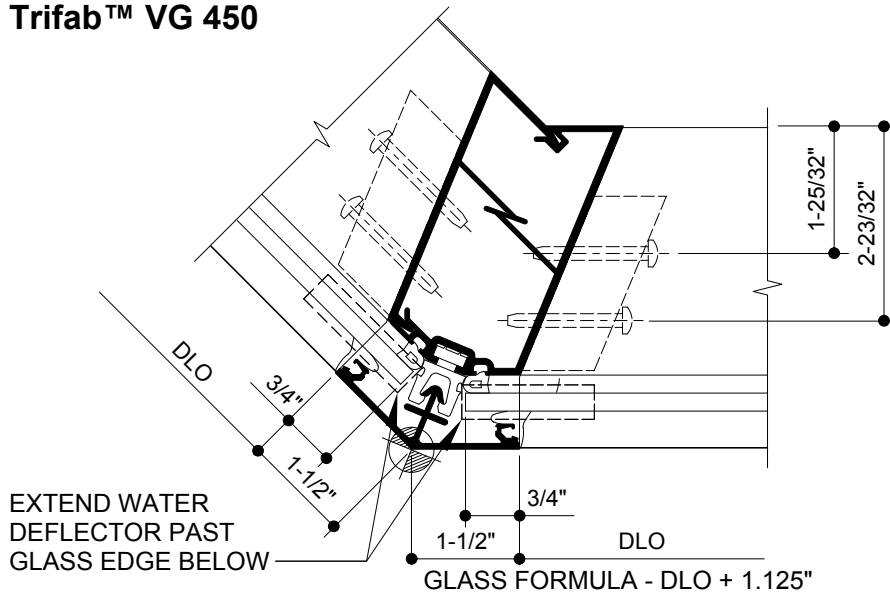
**STEP 3:** Cut glass stops to D.L.O. - 1/16". Miter inside glaze glass stop as shown on page 39 & 40.

**STEP 4:** Drill mullion halves for shear blocks as shown below. Use the actual fabricated clip as a template.

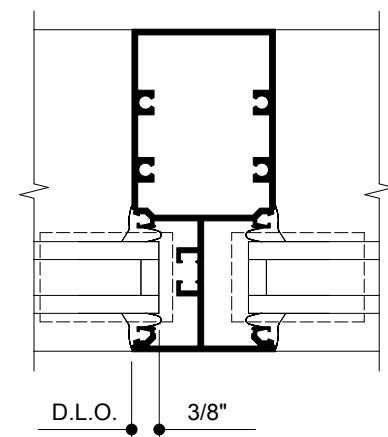
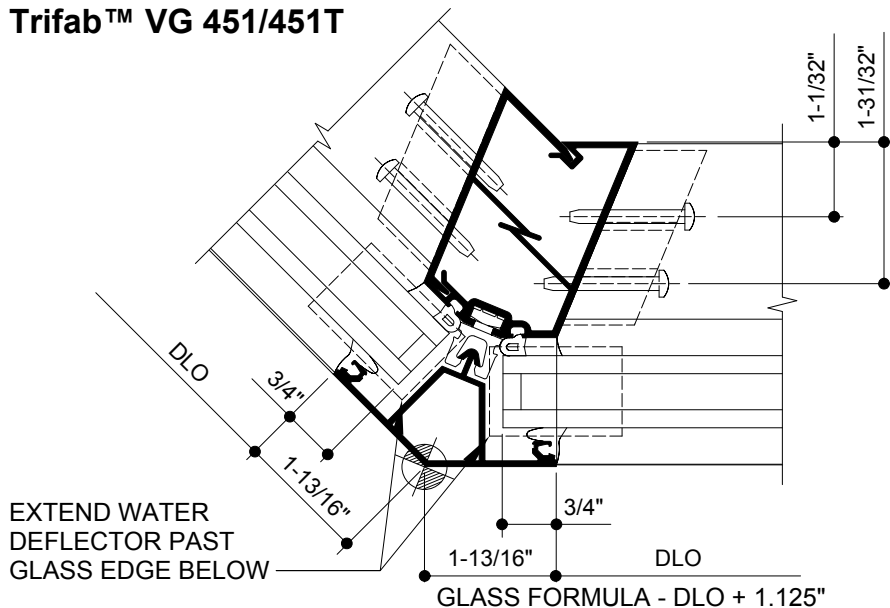
**STEP 5:** Attach shear blocks using (2) #028400 (#10 x 1-19/32") pan head screws.

**STEP 6:** Fabricate horizontals for (1) #128345 (#10 x 9/16") flat head screw as shown on page 39 & 40.

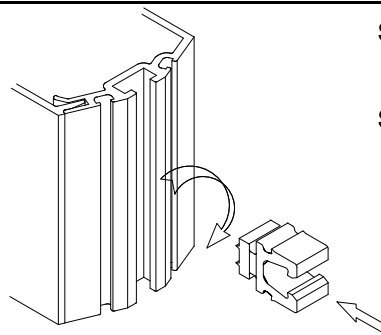
### Trifab™ VG 450



### Trifab™ VG 451/451T



**STEP 7:** Prior to installing cover, install 250299 glazing clip into vertical as shown. These clips should be located no more than 9" O.C. and no more than 3" from the ends of mullions.

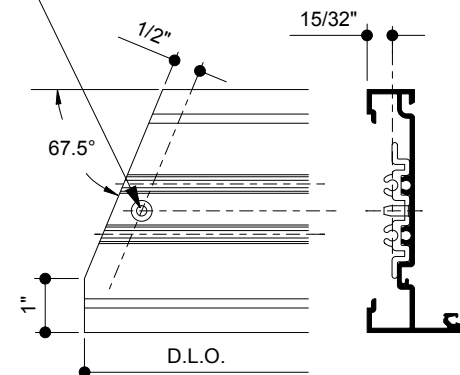


**STEP A:** Push clip (250299) into mullion reglet.

**STEP B:** Twist clip 1/4 turn clockwise to lock in place.

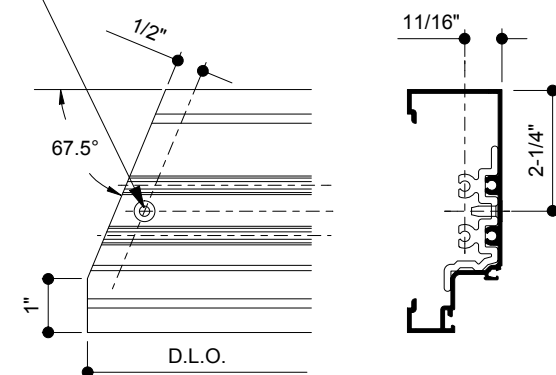
## 135° DART CORNERS FOR Trifab™ VG 450

0.201" DIA. HOLE (#7 DRILL)  
0.390" DIA. x 82° COUNTERSINK

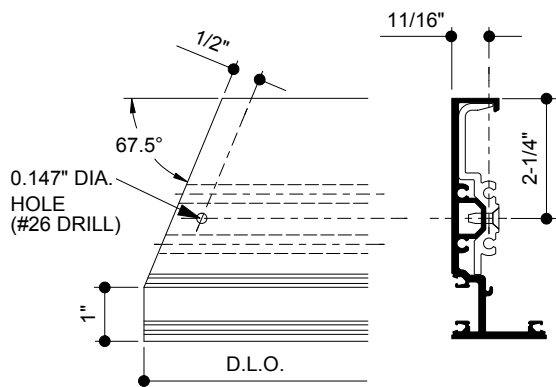


**INSIDE GLAZED HEAD**  
CUT LENGTH = DLO

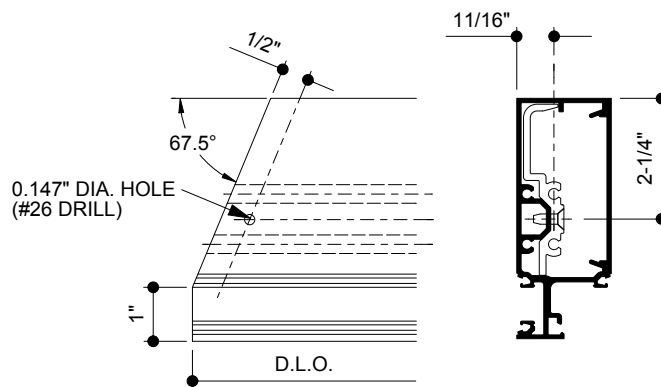
0.201" DIA. HOLE (#7 DRILL)  
0.390" DIA. x 82° COUNTERSINK



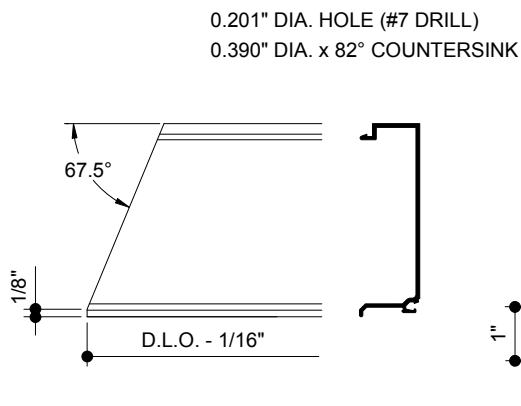
**OUTSIDE GLAZED HEAD**  
CUT LENGTH = DLO



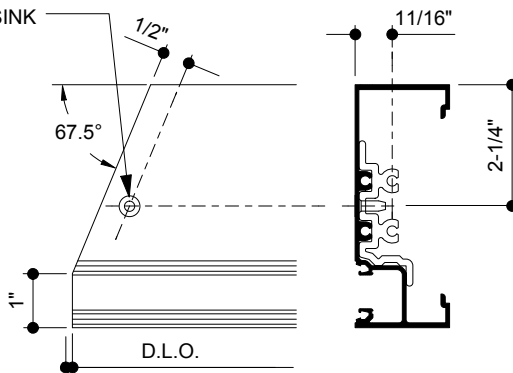
**INSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



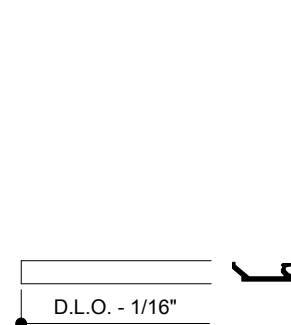
**OUTSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



**INSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"

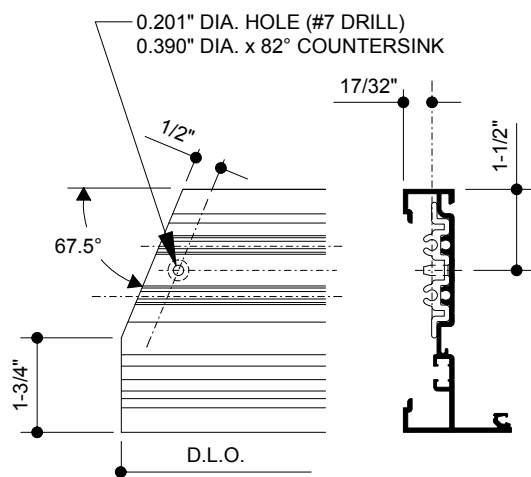


**INSIDE OR OUTSIDE GLAZED SILL**  
CUT LENGTH = DLO

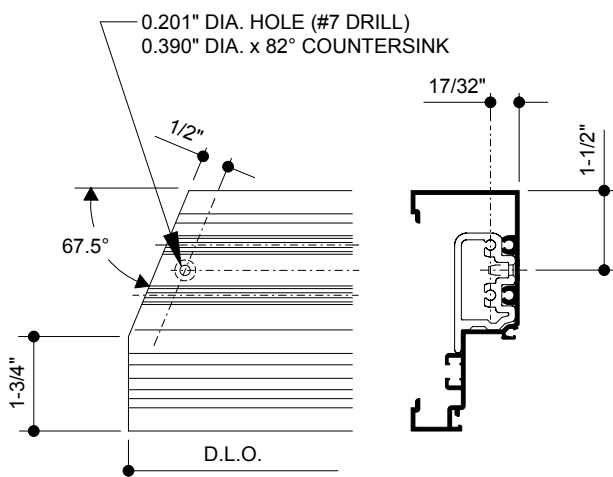


**OUTSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"

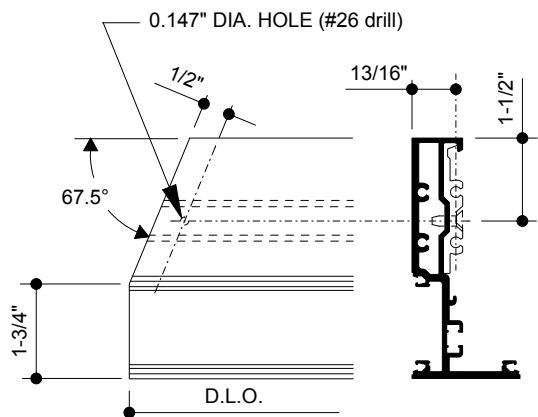
## 135° DART CORNERS FOR Trifab™ VG 451/451T



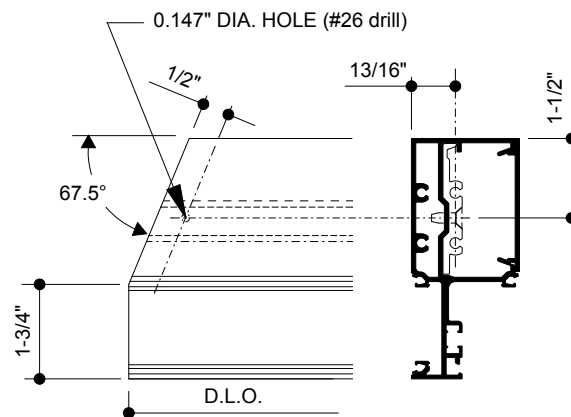
**INSIDE GLAZED HEAD**  
CUT LENGTH = DLO



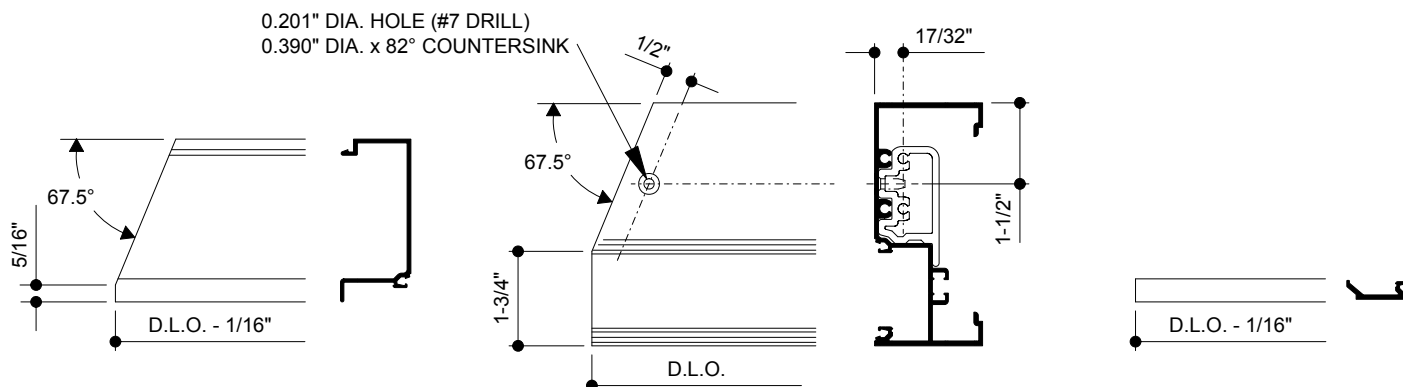
**OUTSIDE GLAZED HEAD**  
CUT LENGTH = DLO



**INSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



**OUTSIDE GLAZED HORIZONTAL**  
CUT LENGTH = DLO



**INSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"

**INSIDE OR OUTSIDE GLAZED SILL**  
CUT LENGTH = DLO

**OUTSIDE GLAZED GLASS STOP**  
CUT LENGTH = DLO - 1/16"

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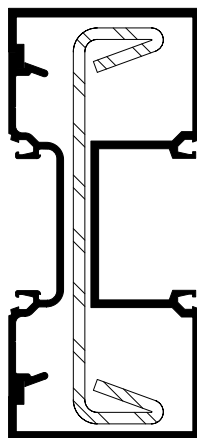
An Expansion Mullion is to be used every 20' in large openings, regardless of the method of construction. The dimension of the assembly should be adjusted based on the temperature at the time of assembly and expected high and low service temperature use reference dimension. (For examples, the sight line will be reduced slightly when installed in hot weather and increased slightly when installed in cold weather).



## SECTION XII - STEEL REINFORCING

Steel reinforcement should run the full length of the mullion and be shimmed or fastened into place to prevent movement of the steel in the mullion. The cut ends of the steel reinforcing must be coated with a corrosion-inhibiting primer before installation.

**NOTE:** For Trifab™ VG 451 center plane applications, when steel reinforcing is required, the non-thermal split mullion without thermal pockets must be used.



SPLIT MULLION WITH  
450110 STEEL REINFORCING

**FOR CENTER GLAZED OPTION USING NON-THERMAL, 2 PIECE VERTICAL ONLY**

**NOTE:** Project windloads may produce end load reactions at the vertical mullions that may require additional anchors. Consult Application Engineering for review of narrow sidelite base applications.

Determine height of Sidelite Base.

Common bottom door rail heights are shown below.

**STANDARD BASE**

190 Door with Threshold ----- 5-1/16"

190 Door without Threshold ----- 4-9/16"

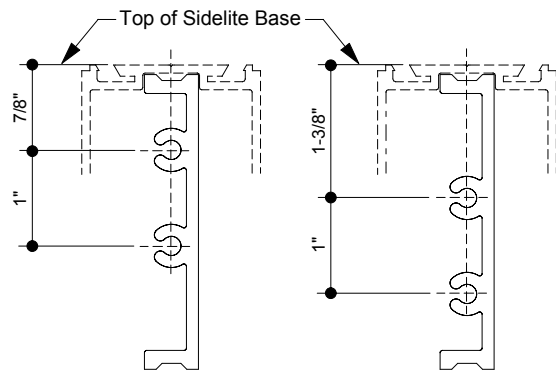
**TALL BASE**

350/500 Door with Threshold ----- 5-1/16"

350/500 Door without Threshold ----- 4-9/16"

**NOTE:**

When using the sidelite base on both sides of the mullion, a clip is required in each pocket of the vertical. One of the clips must be the reversed as shown to avoid interference of the screws.



DRILL WITH #26 DRILL AND COUNTERSINK  
USE 128345 SCREW  
CENTERED IN POCKET.

SEAL INTERIOR  
GLASS STOP  
CONTINUOUSLY  
ACROSS  
OPENING AND  
TO VERTICAL  
AT ENDS.

DRILL THROUGH SPLINES  
OF CLIP WITH #26 DRILL INTO  
POCKET OF VERTICAL. SECURE  
CLIP TO VERTICAL WITH  
(2) (#128354) #10 x 2-5/8" P.H.  
SCREWS, CLIP IS CENTERED  
IN POCKET.

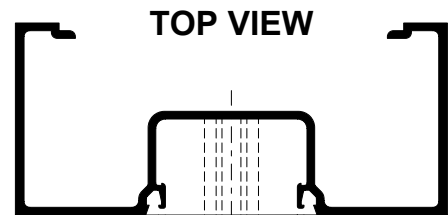
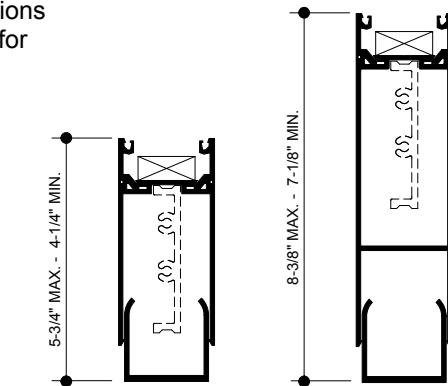
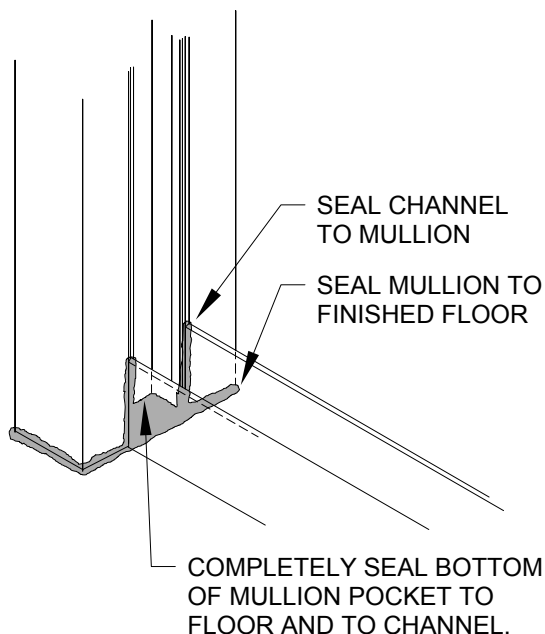
129345 SCREWS  
AT SETTING  
BLOCK POINTS.

1/4" WEEP HOLES  
AT 1/4 POINTS OF  
CHANNEL (TYP.)

SEAL OVER  
HEADS OF  
PERIMETER  
FASTENERS

SET IN BED  
OF SEALANT

ANCHOR TO  
MASONRY

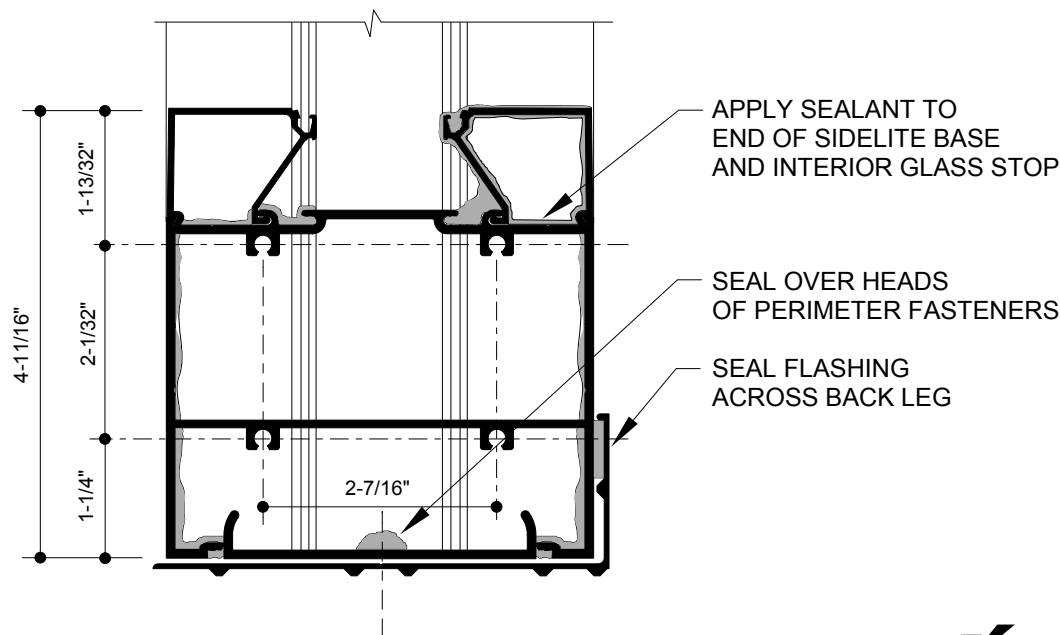
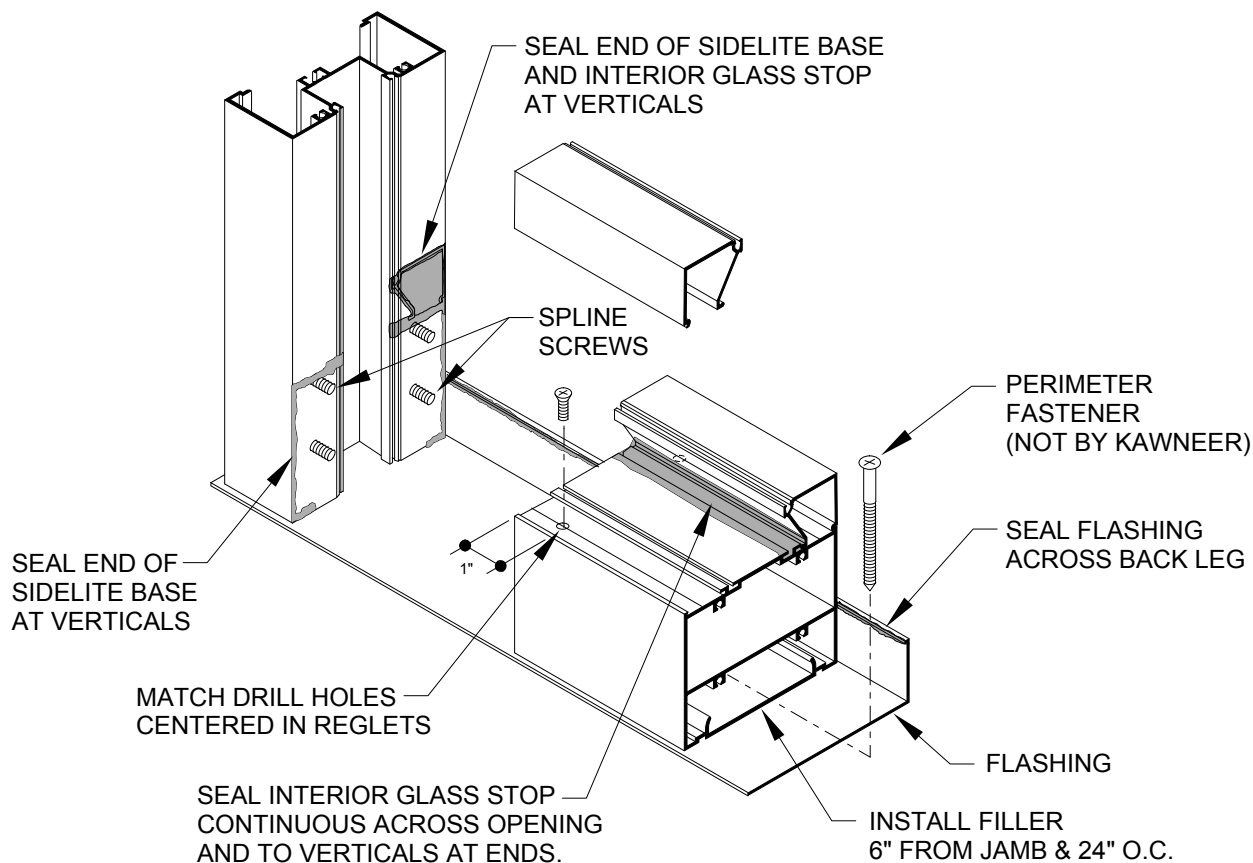


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## FOR CENTER GLAZED OPTION

SCREW SPLINE  
CENTER OPTION ONLY



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555 GUTHRIDGE COURT  
NORCROSS, GEORGIA 30092**