INSTALLATION MANUAL

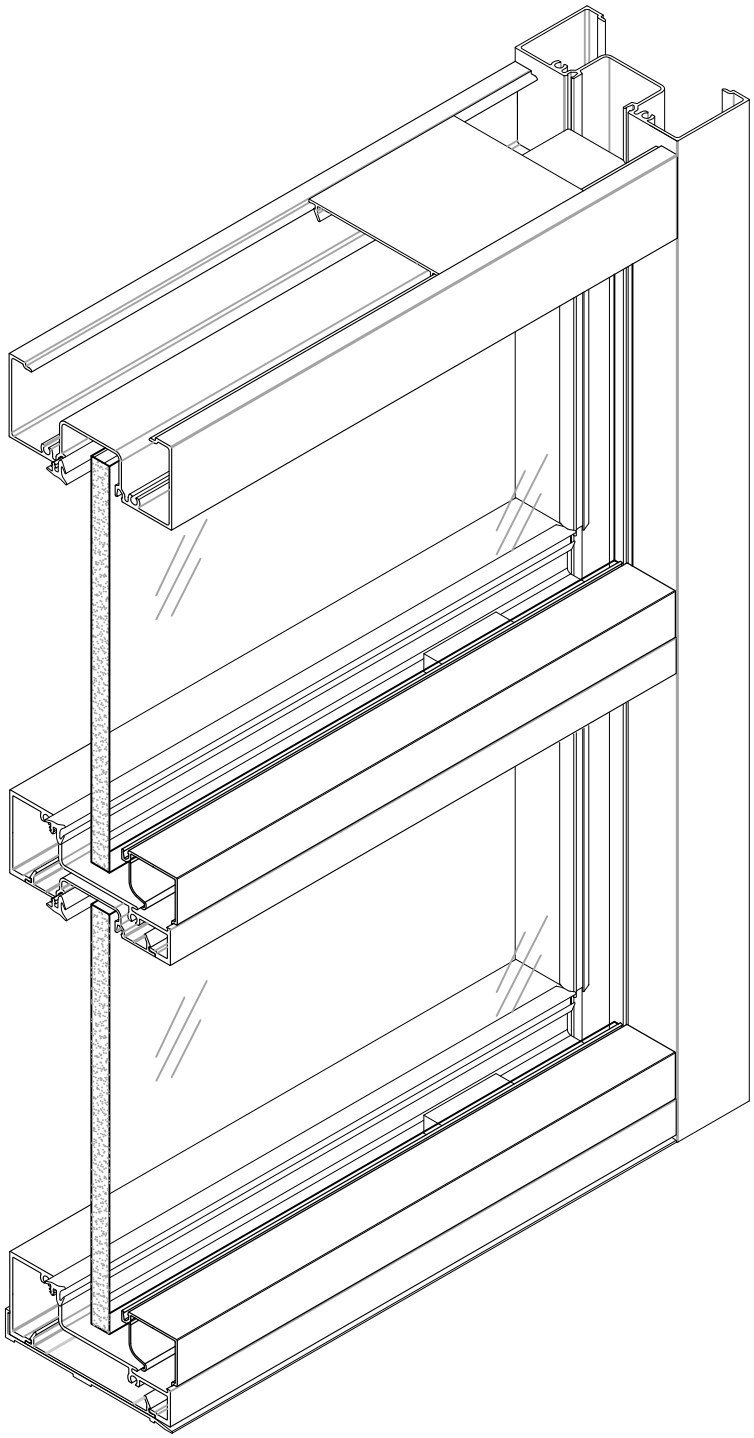


TABLE OF CONTENTS

CONSTRUCTION NOTES

1. These instructions cover typical product application, fabrication, installation, and standard conditions and are general in nature.

2. Materials stored at the job site must be kept in a safe place, protected from possible damage by other trades. Stack with adequate separation so materials will not rub together, and store off the ground. Cardboard or paper wrapped materials must be kept dry. Check arriving materials for quantity and keep record of where various materials are stored.

3. All field welding must be done in accordance with AISC guidelines. All aluminum and glass should be shielded from field welding to avoid damage from weld spatter. Results will be unsightly and may be structurally unsound. Advise general contractor and other trades accordingly.

4. Coordinate protection of installed work with general contractor and/or other trades.

5. Coordinate sequence of other trades with affective framing installation with the general contractor (e.g. fire proofing, back up walls, partitions, ceilings, mechanical ducts, HVAC, etc.)

6. General contractor should furnish and guarantee bench marks, offset lines, and opening dimensions. These items should be checked for accuracy before proceeding with erection. Make certain that all adjacent substrate construction is in accordance with the contract documents and/or approved shop drawings. If not, notify the general contractor in writing before proceeding with installation because this could constitute acceptance of adjacent substrate construction by others.

7. Isolate all aluminum to be placed directly in contact with masonry or other incompatible materials with heavy coat of zinc chromate or bituminous paint.

CONSTRUCTION NOTES
(continued)

8. Sealant selection is the responsibility of the erector, installer, and/or glazing contractor and must be approved by the sealant manufacturer with regard to application and compatibility for its intended use. All sealants must be used in strict accordance with the manufacturer's instructions and applied only by trained personnel to surfaces that have been properly prepared.

9. Sealant must be compatible with all materials with which they have contact, including other sealant surfaces. Consult sealant manufacturer for recommendations relative to shelf life, compatibility, cleaning of substrate, priming, tooling adhesion, etc.

10. Drainage gutters and weep holes must be kept clean at all times. API will not accept responsibility for improper drainage as a result of clogged gutters and weep holes.

11. This product requires clearances at head, sill, and jambs to allow for thermal expansion and contraction. Refer to final distribution drawings for joint sizes. Joints smaller than 1/4" may be subject to failure. Consult your sealant supplier.

12. All materials are to be installed plumb, level, and true with regard to established bench marks and column centerlines established by the general contractor and checked by the erector, installer, and/or glazer.

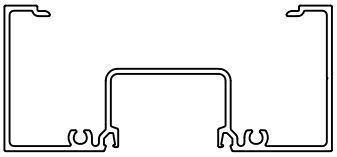
13. Cleaning of exposed aluminum surfaces should be done per AAMA recommendations.

14. Due to varying perimeter conditions and job performance requirements, anchor fasteners are not specified in these instructions. For anchor fastening, refer to the shop drawings or consult the fastener supplier.

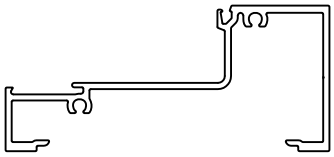
15. Check API's website for any updates on installation instructions (AmericanProd.com).

PARTS LIST - F2000

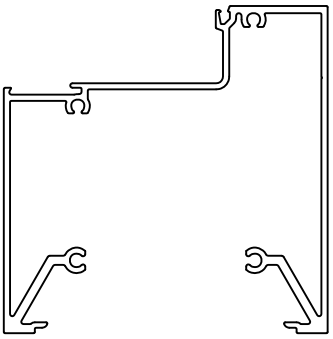
EXTRUSIONS FOR 1" GLASS



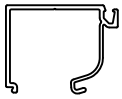
F20010
HEAD/JAMB



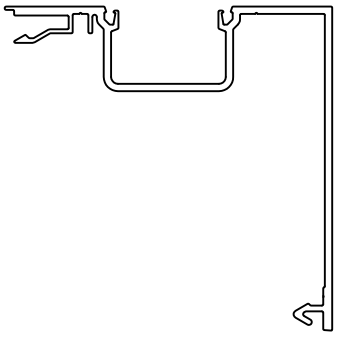
F20020
OPEN BACK
SILL/HORIZONTAL



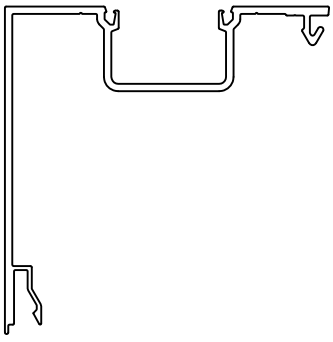
F20079–MOD
4½" SIDELITE BASE



F20025
GLASS STOP



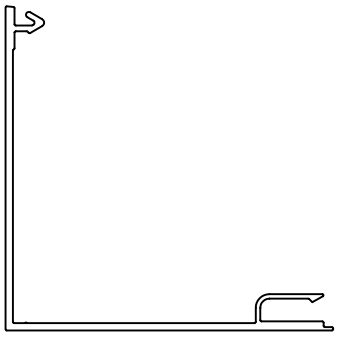
F20060
CORNER POST
(LEFT)



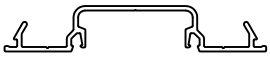
F20065
CORNER POST
(RIGHT)

PARTS LIST - F2000

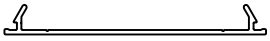
EXTRUSIONS FOR 1" GLASS



F20075
SLICK CORNER



F20015
SHALLOW POCKET FILLER



F20045
FLAT FILLER

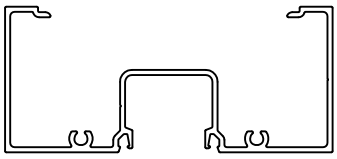
F20050
SILL FLASHING

F50005
1/2" POCKET ADAPTOR

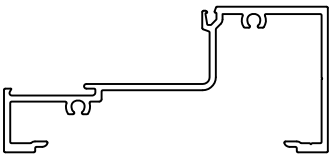
F50010
1/4" POCKET ADAPTOR

PARTS LIST - F2100

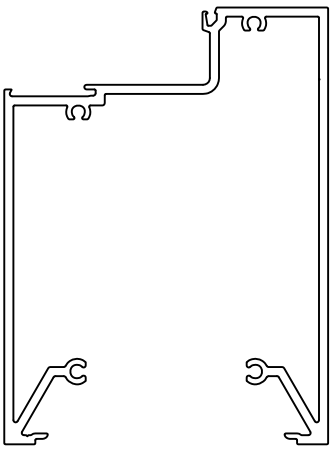
EXTRUSIONS FOR 1/2" GLASS



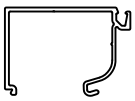
F21210
OPEN BACK
HEAD/JAMB



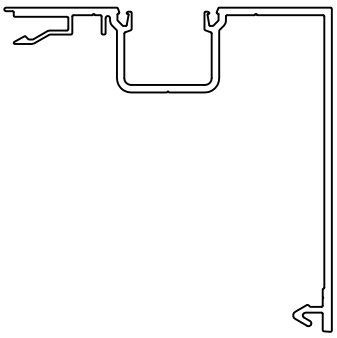
F21220
OPEN BACK
SILL/HORIZONTAL



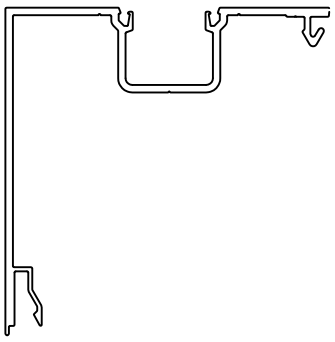
F21280
6" BASE



F20050
SILL FLASHING



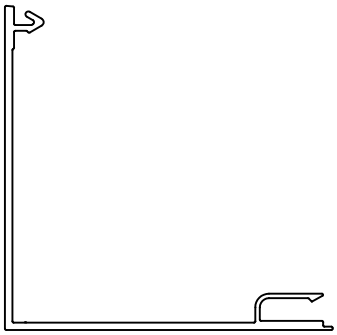
F50005
1/2" POCKET ADAPTOR



F50010
1/4" POCKET ADAPTOR

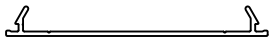
PARTS LIST - F2100

EXTRUSIONS FOR 1/2" GLASS



F21210
OPEN BACK
HEAD/JAMB

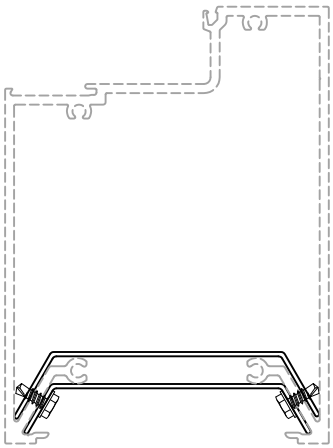
F21220
OPEN BACK
SILL/HORIZONTAL



F21280
6" BASE

F20050
SILL FLASHING

F50005
1/2" POCKET ADAPTOR



F50010
1/4" POCKET ADAPTOR

PARTS LIST - ACCESSORIES

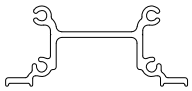
GASKETS, SHEAR BLOCKS, + MISC. EXTRUSIONS

FAPI–176
LIGHT
GLAZING GASKET

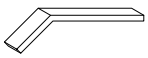
FAPI–129
STANDARD
GLAZING GASKET

FAPI–177
HEAVY
GLAZING GASKET

FA01868
SHEAR BLOCK
(SILL/INTERMEDIATE)

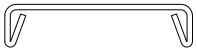


FA01848
SHEAR BLOCK
(HEAD/JAMB)



F20100
WATER DIVERTER

F20105SILL
STEEL
REINFORCEMENT



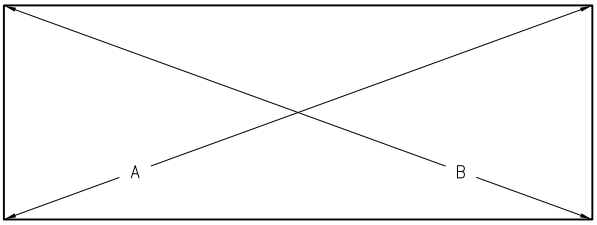
F20107
HEAVY DUTY STEEL
REINFORCEMENT

STEP 1
DETERMINE FRAME SIZE

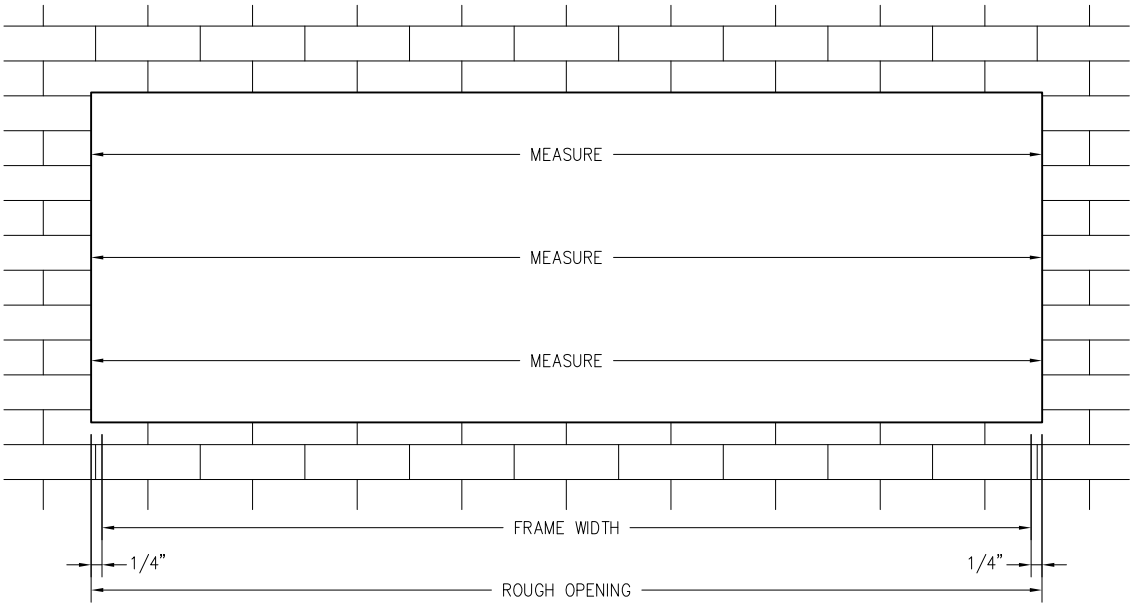
PROCEDURES:

Determine Width

- Check that the opening is plumb at both ends. Units must be installed in a true rectangle. See **Detail 1.**



Detail 1



Detail 2

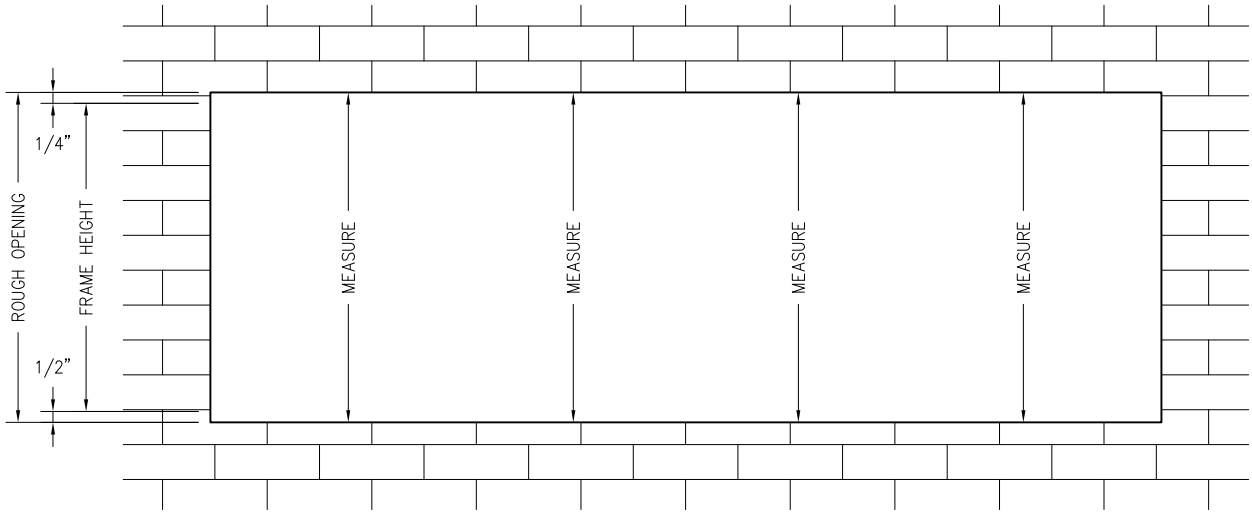
- Measure the width of the opening at the top, middle, and bottom. (See **DETAIL 2**)
- Select the smallest dimension measured. To determine the frame width to be used, subtract a minimum of 1/2" from the smallest measured width, to allow a minimum of 1/4" at each jamb for shimming and caulking.
- Allow a larger clearance if necessary to accommodate building tolerances, an out-of-square opening, anticipated thermal expansion within the unit and/or as required by project.
- Expansion mullions must be used every 16' to 20'.

STEP 1 (con't)
DETERMINE FRAME SIZE

PROCEDURES:

Determine Height

- Measure the height of the opening in several places along the entire length of the opening. (See **DETAIL 5**)
- To determine the frame height to be used, select the smallest dimension measured and subtract 1-1/8" to allow a minimum of 1/2" at sill and 1/4" at head for shimming and caulking.
- Allow a larger clearance if necessary to accommodate building tolerances, an out-of-square opening, anticipated thermal expansion within the unit, and/or as required by project.



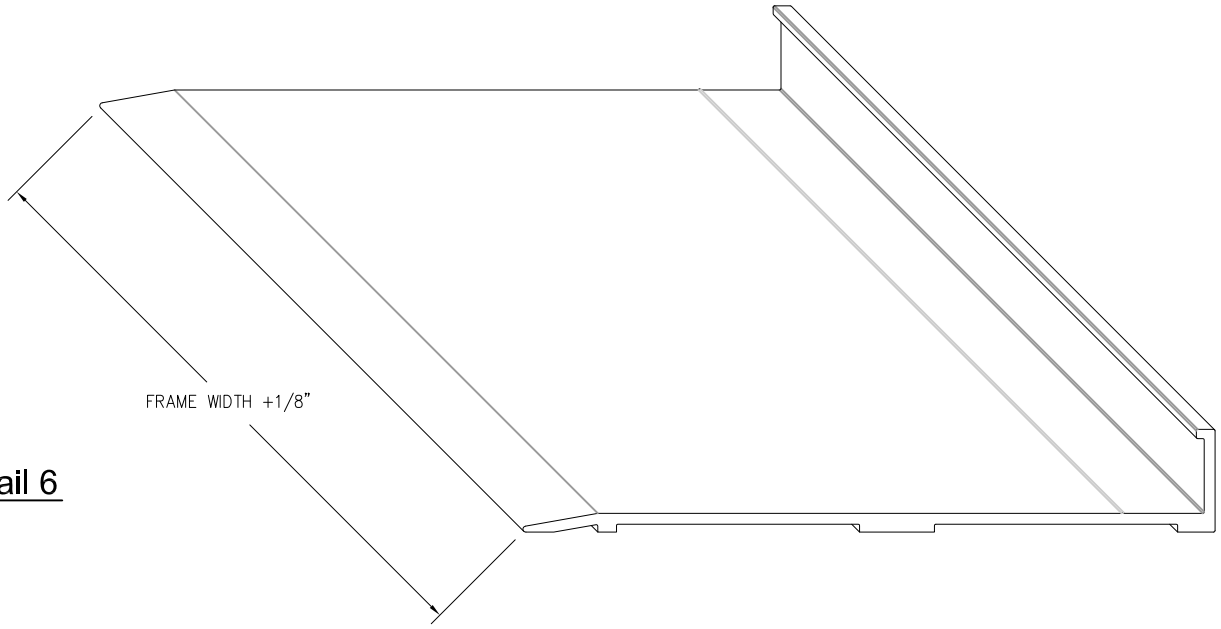
Detail 5

STEP 2
SILL FLASHING

PROCEDURES:

Cut Extruded Sill Flashing to Size

- Field cut extruded sill flashing to frame width +1/8" determined in **Step 1** (rough opening minus clearances). If the installation includes an entrance, flashing should butt against back of door jamb (no clearance).
  (See **DETAIL 6**)



Detail 6

STEP 3
SIZE MULLIONS

PROCEDURE:

Cut Mullions to Size

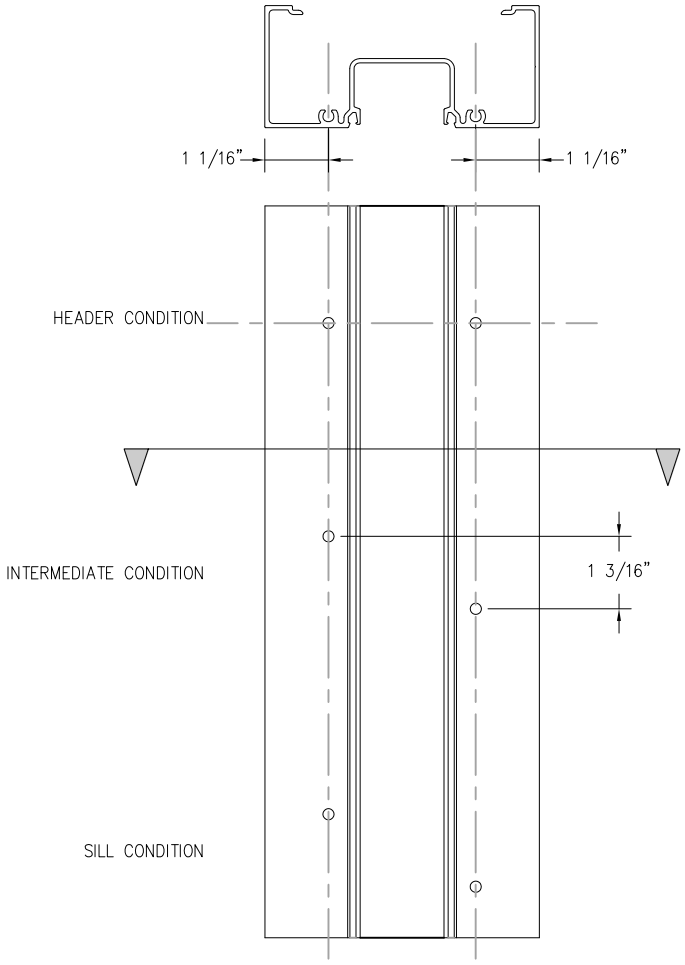
- Verticals should be frame height found in **Step 1** (rough opening height minus clearances).
- Vertical framing members run through.
- Cut horizontal framing members to the daylight opening (the distance between verticals).

STEP 4
SCREW SPLINE DRILL PREP

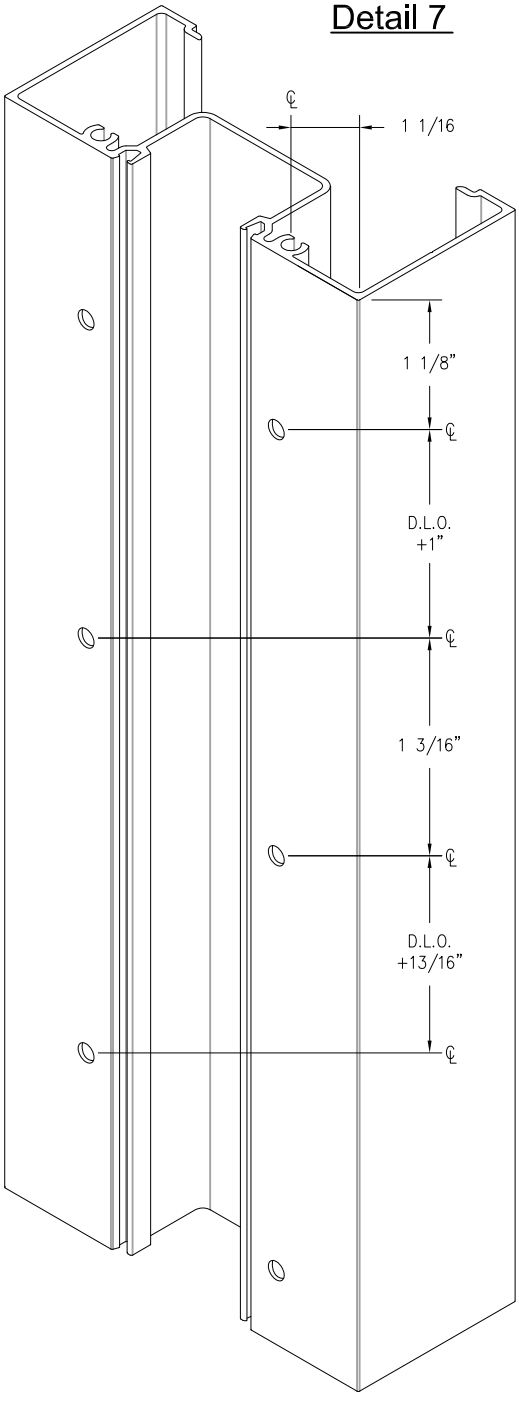
PROCEDURES:

Drill Holes in Vertical Framing Members

- For screw spline assembly, fasteners are driven directly through holes in the vertical members into holes in the horizontal members.
- Drill .182" diameter holes in the vertical framing members, as illustrated in **DETAIL 7**, using a drill fixture.
- Distances will vary vertically depending on horizontals used.



Detail 7

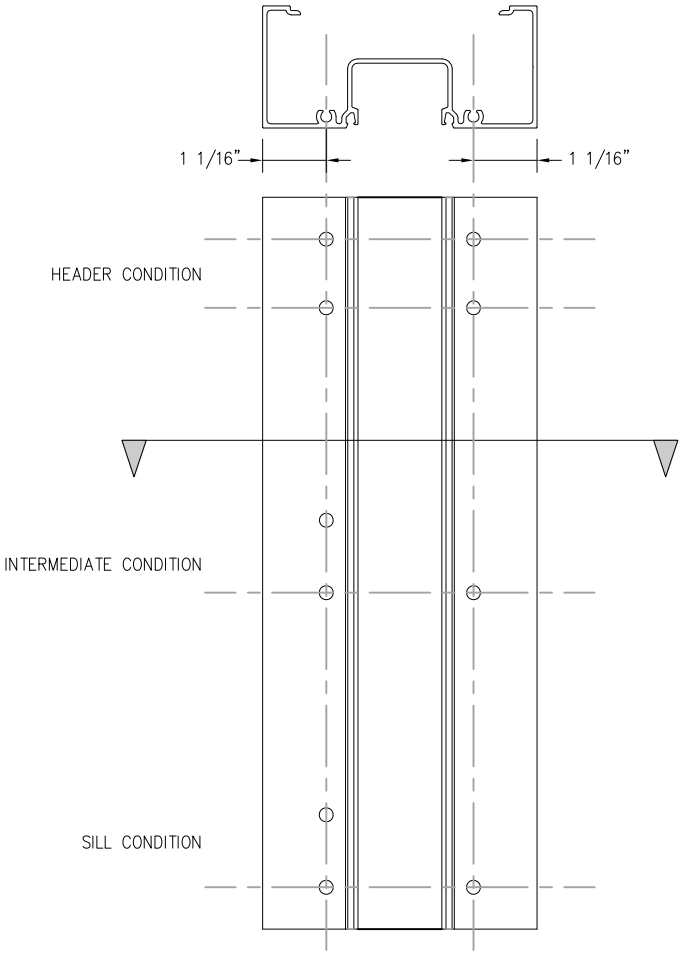


STEP 5
SHEAR BLOCK DRILL PREP

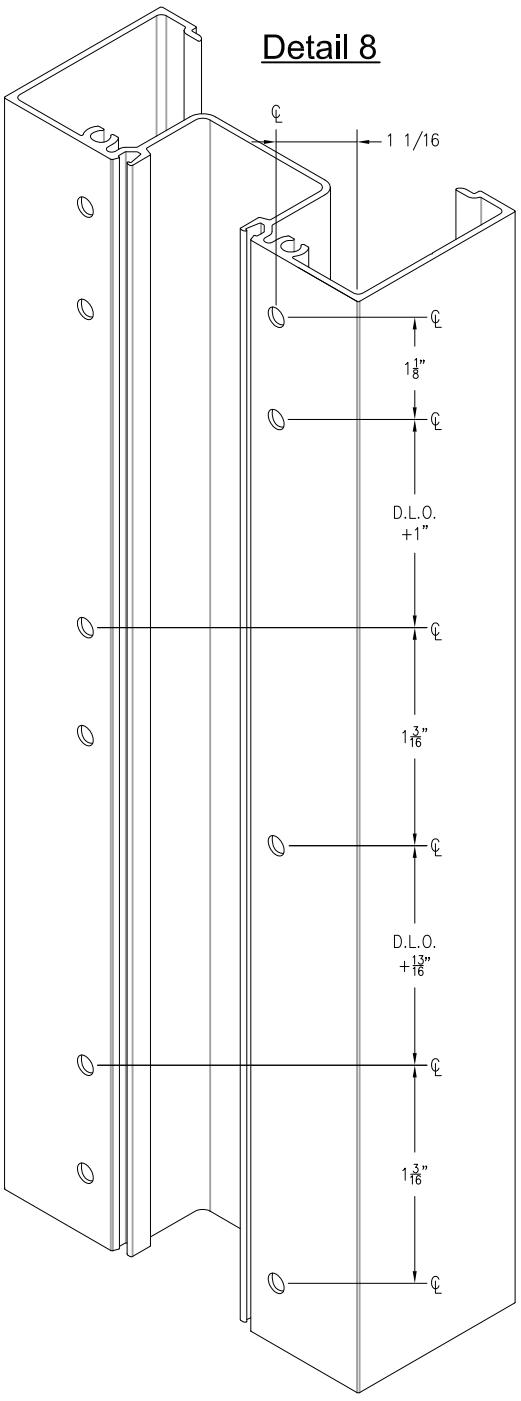
PROCEDURES:

Drill Holes in Vertical Framing Members

- In shear block assembly, the installer secures frame clips to the vertical members with fasteners, slides the horizontal members over the frame clips and secures the horizontal members to the frame clips with fasteners.
- Drill .125" diameter holes in the vertical framing members using a drill fixture, as illustrated in **DETAIL 8**.
- Distances for holes will vary vertically depending on horizontals used.



Detail 8



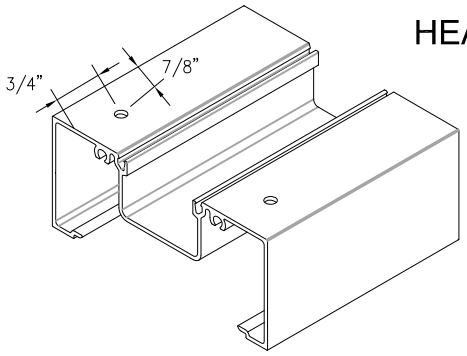
STEP 6
SHEAR BLOCK DRILL PREP

PROCEDURES:

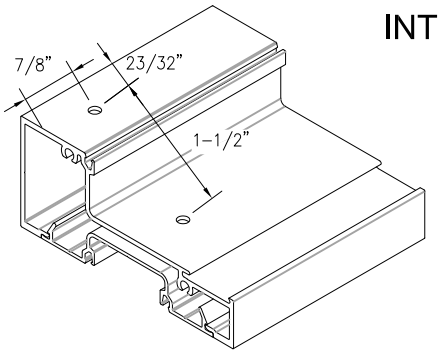
Drill Holes in Horizontal Framing Members (Shear Block)

- Shear block assembly requires drilling of horizontals so they can be fastened to frame clips.
- Drill and countersink .201" diameter holes in the head, intermediate and sill as shown below in **DETAIL 9**.

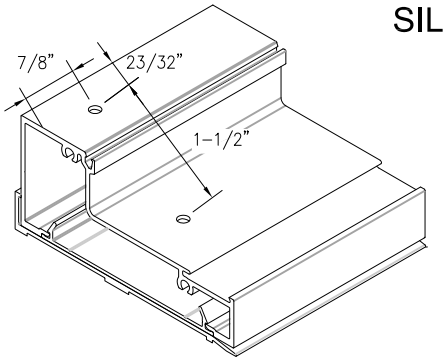
HEAD



INTERMEDIATE



SILL



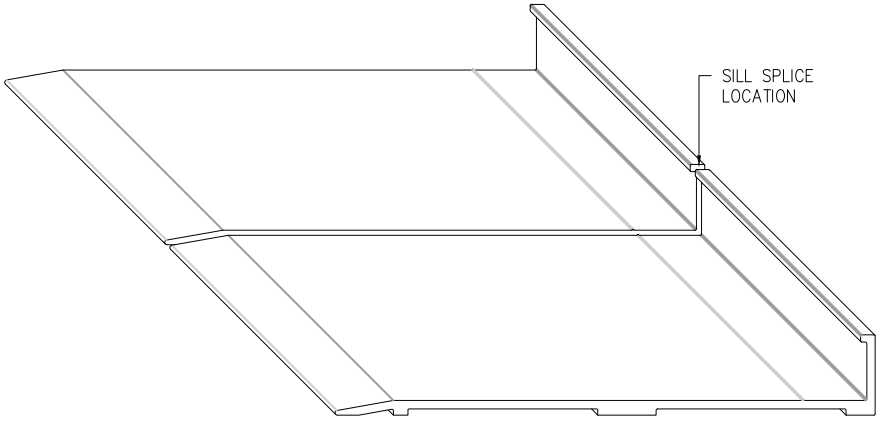
Detail 9

STEP 7
SILL FLASHING SPLICE

PROCEDURES:

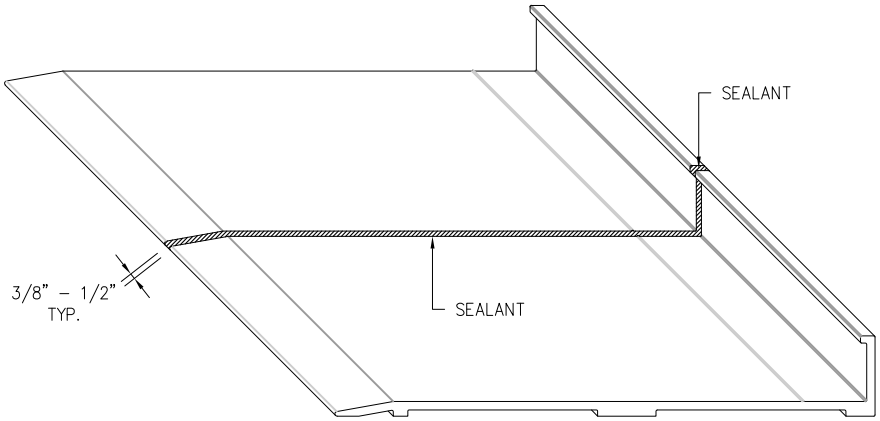
Splice the Sill Flashing Where Required

- If there is an entrance, it should be installed first, taking care to locate it accurately within the opening.
- Properly prepare floor surface as recommended by sealant manufacturer.
- Flashing longer than 24' in length should be spliced as shown in **DETAIL 10**.



Detail 10

- Set splice in a bed of sealant at the predetermined location.
- Properly shim flashing off floor to allow for sealant joint width (refer to sealant manufacturer recommended joint width based on expected expansion/contraction of sill flashing).
- Place and anchor the sill in the opening. The gap between any two pieces of sill should be a minimum 3/8" to 1/2" wide, depending on the length of flashing used.
- Apply sealant between the two pieces of flashing spanning the splice joint as seen in **DETAIL 11**.



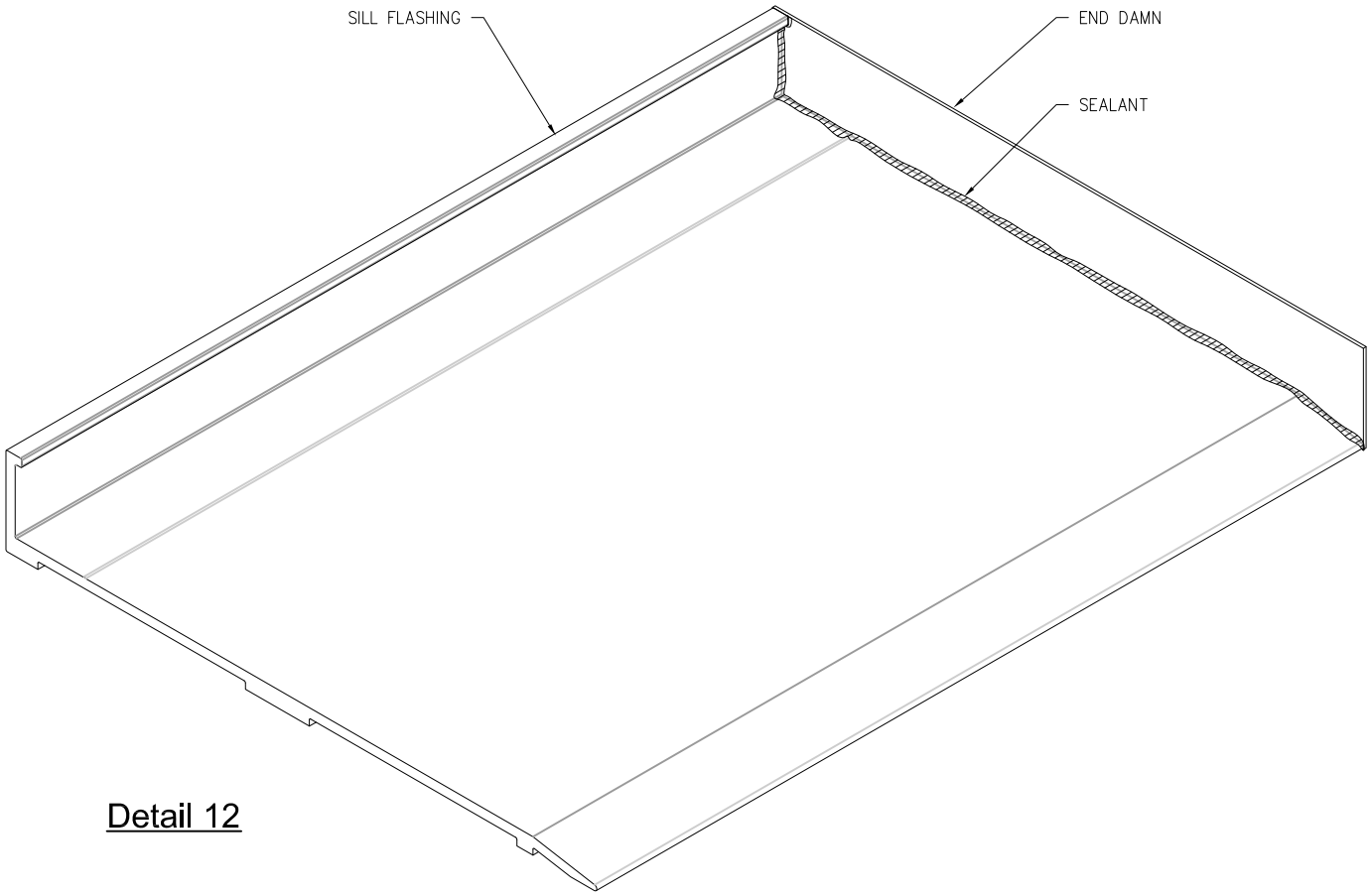
Detail 11

STEP 8
END DAM

PROCEDURES:

Attach End Dam to Sill Flashing at Building Structure

- At a building structure, attach an end dam to the end of the sill flashing with two fasteners and seal the sill to the end dam as shown in **DETAIL 12**.
- End dam must be completely sealed on all sides.



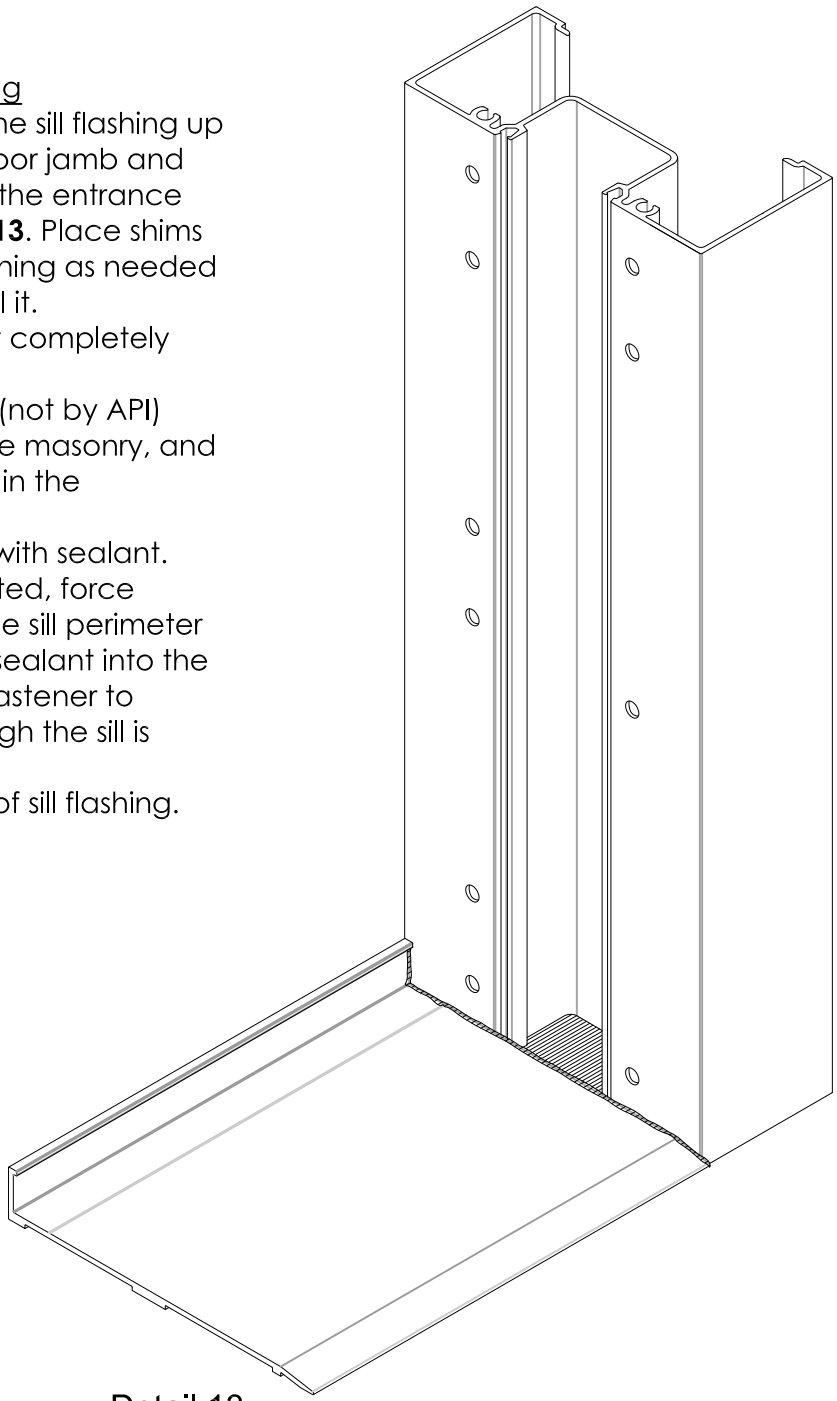
Detail 12

STEP 9
AFFIX SILL FLASHING

PROCEDURES:

Seal and Anchor the Sill Flashing

- At jamb conditions, butt the sill flashing up against the back of the door jamb and seal the sill to the back of the entrance frame as shown in **DETAIL 13**. Place shims (not by API) under the flashing as needed to support the sill and level it.
- Fill the jamb pocket cavity completely with sealant.
- Drill holes for anchor bolts (not by API) through the sill and into the masonry, and secure the sill as specified in the approved shop drawings.
- Cap seal all anchor bolts with sealant. Before the fastener is inserted, force sealant into the hole for the sill perimeter fastener is inserted, force sealant into the hole for the sill perimeter fastener to ensure that the hole through the sill is sealed.
- Do not block weep holes of sill flashing.

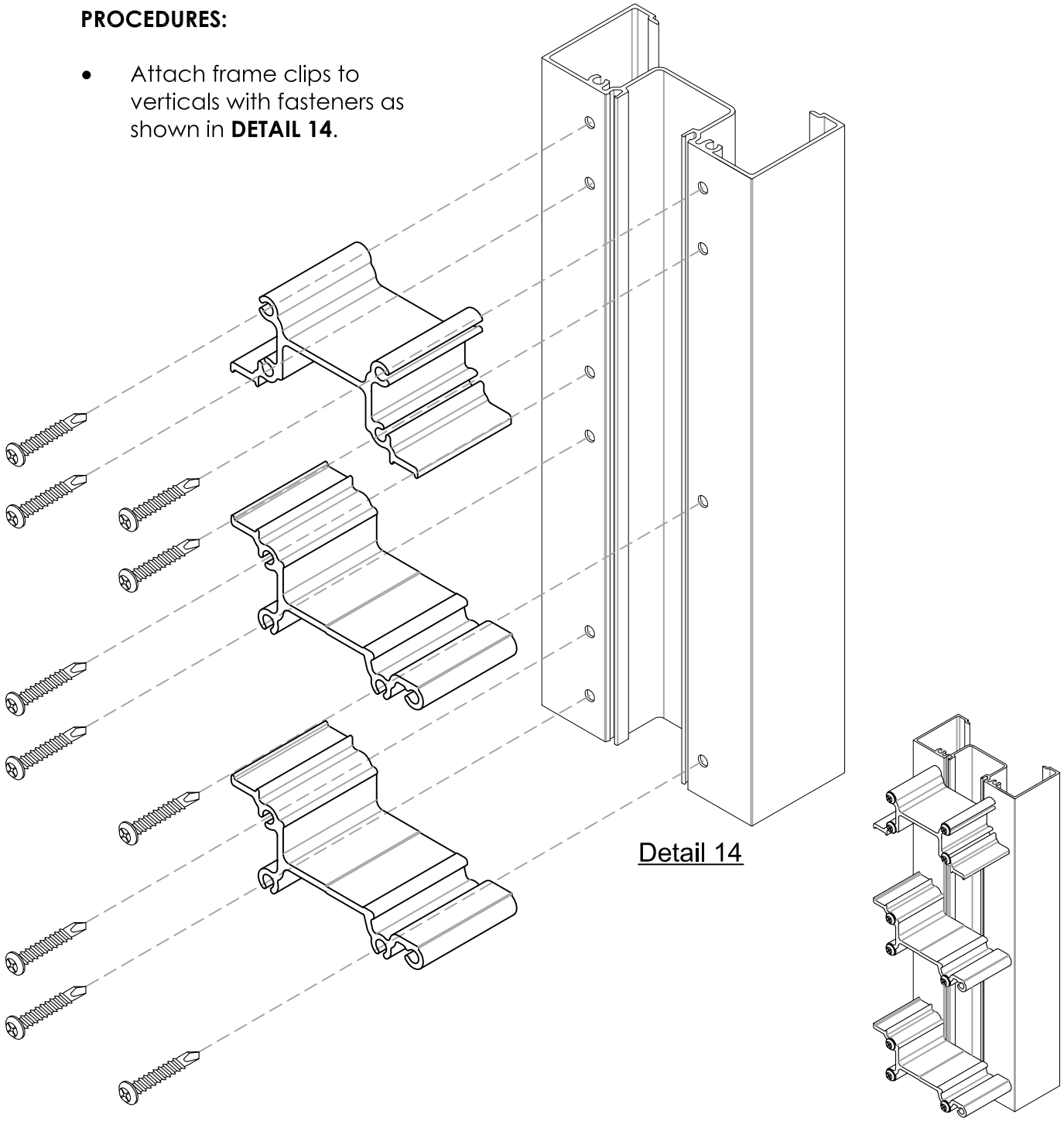


Detail 13

STEP 10
SECURE FRAME CLIPS TO VERTICALS (SHEAR BLOCK)

PROCEDURES:

- Attach frame clips to verticals with fasteners as shown in **DETAIL 14**.

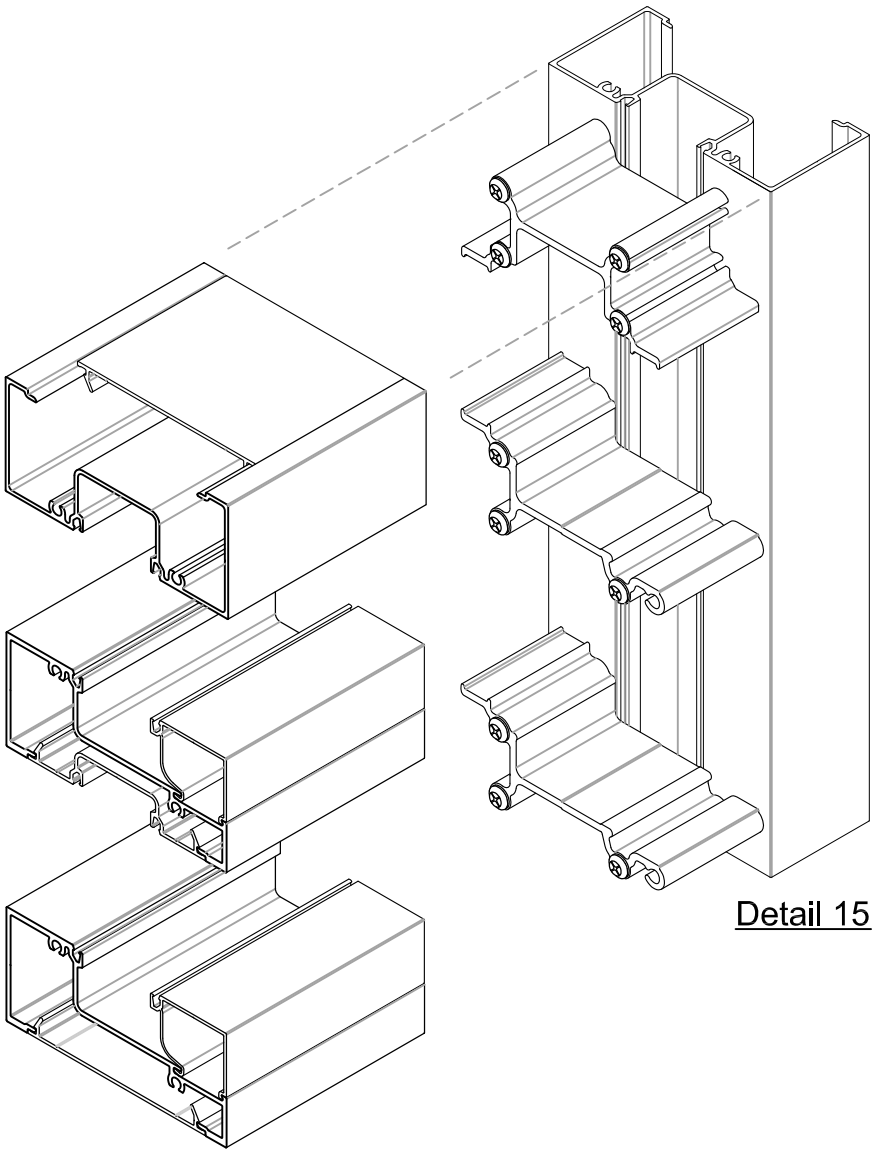


Detail 14

STEP 11
ATTACH HORIZONTALS TO FRAME CLIPS (SHEAR BLOCK)

PROCEDURES:

- Apply sealant to the perimeter of the frame clips.
- Apply sealant to contact edge of the horizontal.
- Slide horizontals onto frame clips as shown below in **DETAIL 15**. Match drill tap holes in the frame clips using holes in the horizontals as guides and secure horizontals to frame clips with fasteners.
- Apply sealant tot he heads of the fasteners which secure the horizontals to the frame clips.

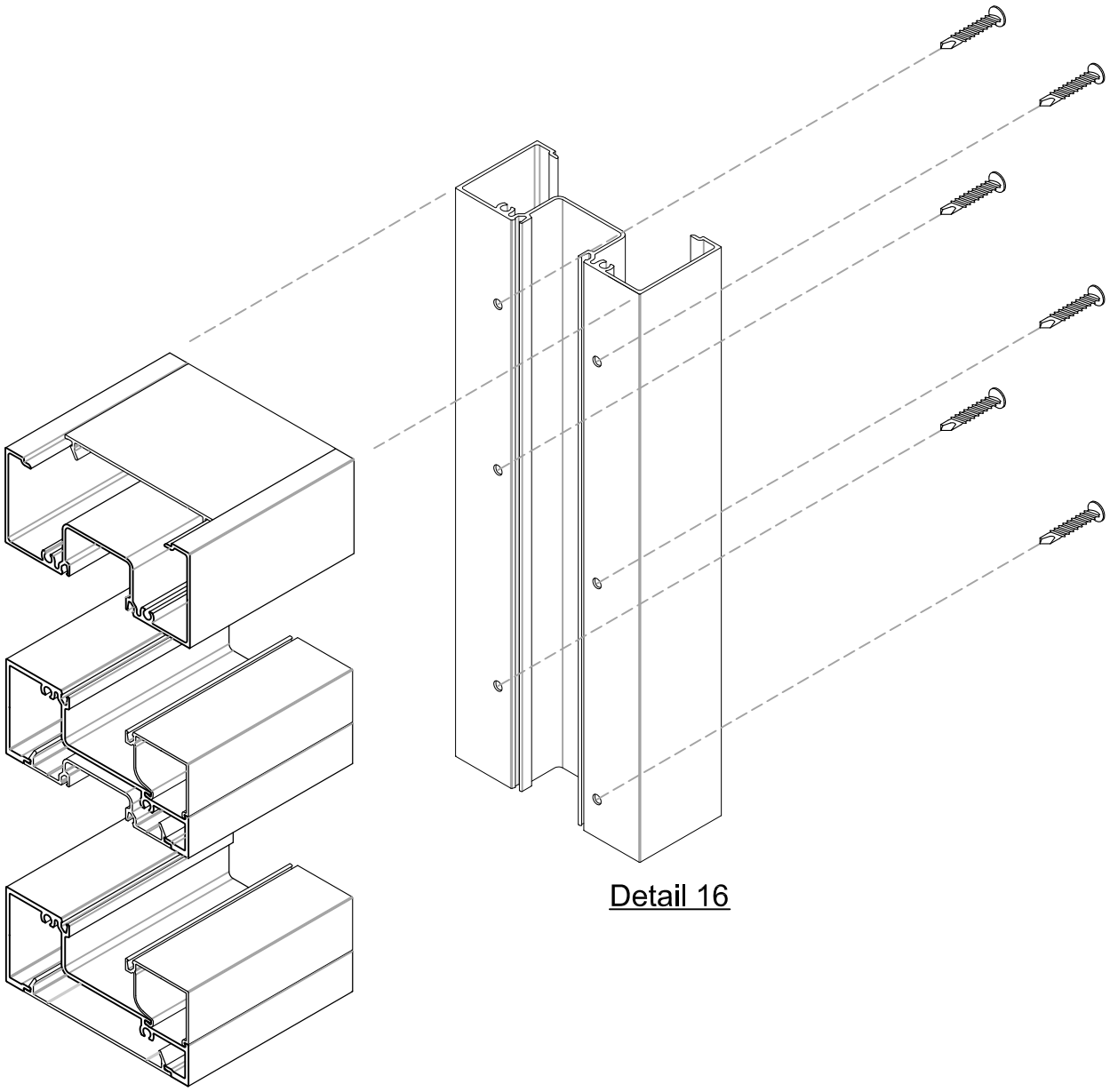


Detail 15

STEP 12
ATTACH HORIZONTALS TO VERTICALS (SCREW SPLINE)

PROCEDURES:

- Apply sealant to all the contact edges of the horizontal.
- Secure horizontals to vertical using fasteners asn illustrated in **DETAIL 16** below.

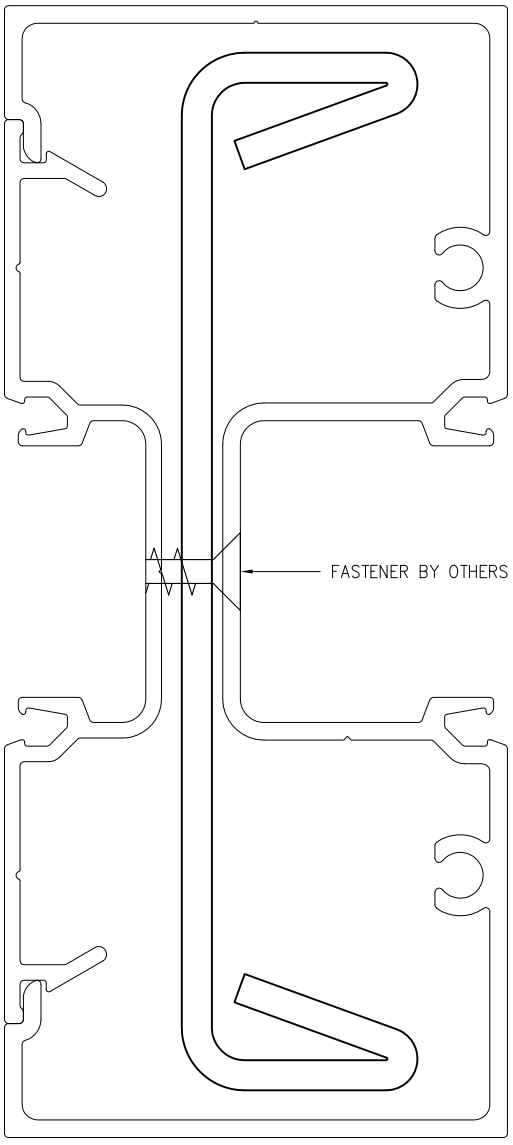


Detail 16

STEP 13
INSTALL ASSEMBLED UNITS

PROCEDURES:

- Apply sealant to end of horizontal.
- Install the assembled units beginning at the entrance, and working toward the jambs. If there is no entrance, begin at one jamb and work toward the other.
- In the case of similar units, the last two may need to be snapped together and then pivoted into position together.



Detail 17

STEP 14
ADD STEEL REINFORCEMENT (IF NECESSARY)

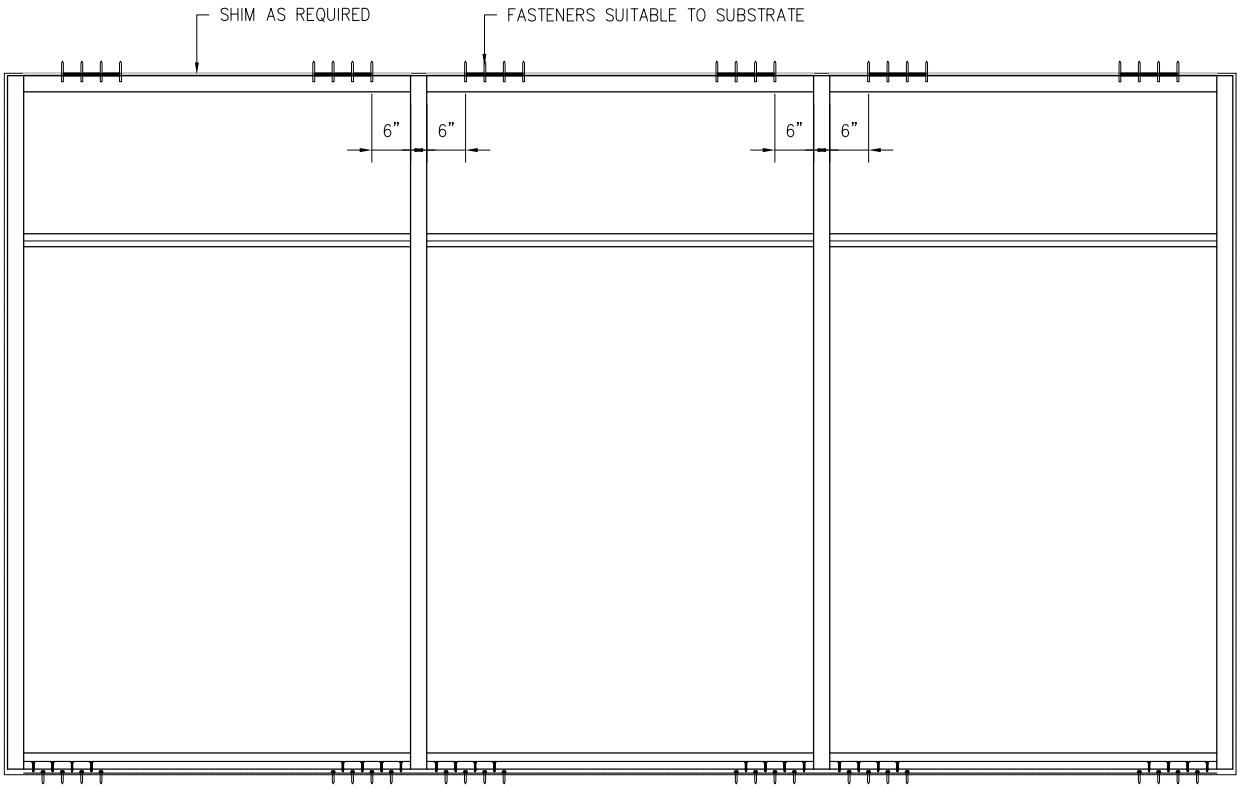
PROCEDURES:

- Refer to approved shop drawings to determine whether the application requires steel reinforcement.
- Cut steel reinforcement channel 4" shorter than mullion length. Paint ends to prevent rust.
- Insert steel into the mullion as shown in **DETAIL 17**. Align and center the steel with mullion, then drill .213" diameter holes through the mullion and steel at 16" O.C.
- Drill and clear hole for a flat head countersunk fastener (not supplied by API) at 16" O.C. or as specified on shop drawings.
- Grind down the fasteners inside the glass pocket when installed as shown.

STEP 15
ATTACH FRAME TO STRUCTURE

PROCEDURES:

- Install shims at head and jambs to ensure frames are installed plumb and true. Use a snap-in anchor support to provide back-up support for shimming.
- Attach the and jambs to the perimeter of the opening with suitable fasteners (not provided by API).
- Perimeter anchors should be located within 6" of each side of the vertical mullion.



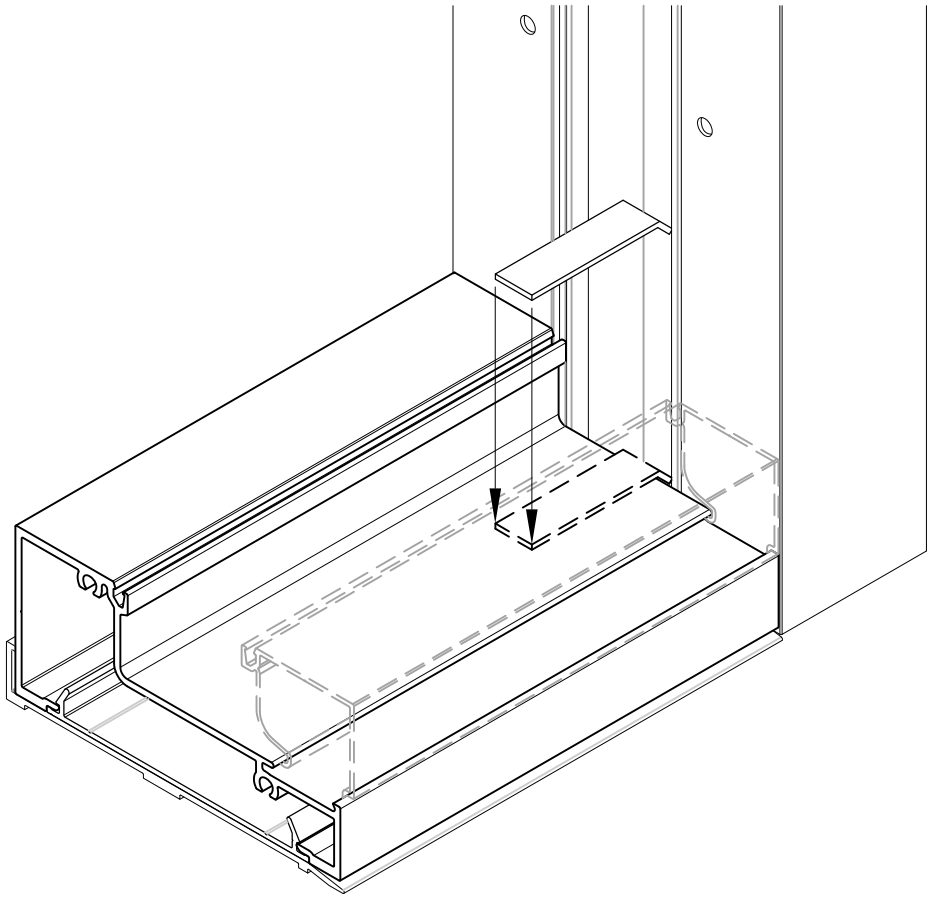
Detail 18

NOTE:
This is for general erection purposes only. For actual job conditions, refer to shop drawings for appropriate fastener and hole locations as determined by a qualified engineer or consult the project design professional.

STEP 16
INSTALL WATER DIVERTERS

PROCEDURES:

- Use a solvent and a clean cloth to clean the surfaces of the horizontals where water diverters will be installed. Also clean the vertical reglets on both sides to at least 1" above the gasket reglets on the horizontal member.
- When the surfaces are dry, butter the underside of the water diverter with sealant and press the diverter to the horizontal in the glazing pocket as shown in **DETAIL 19**.



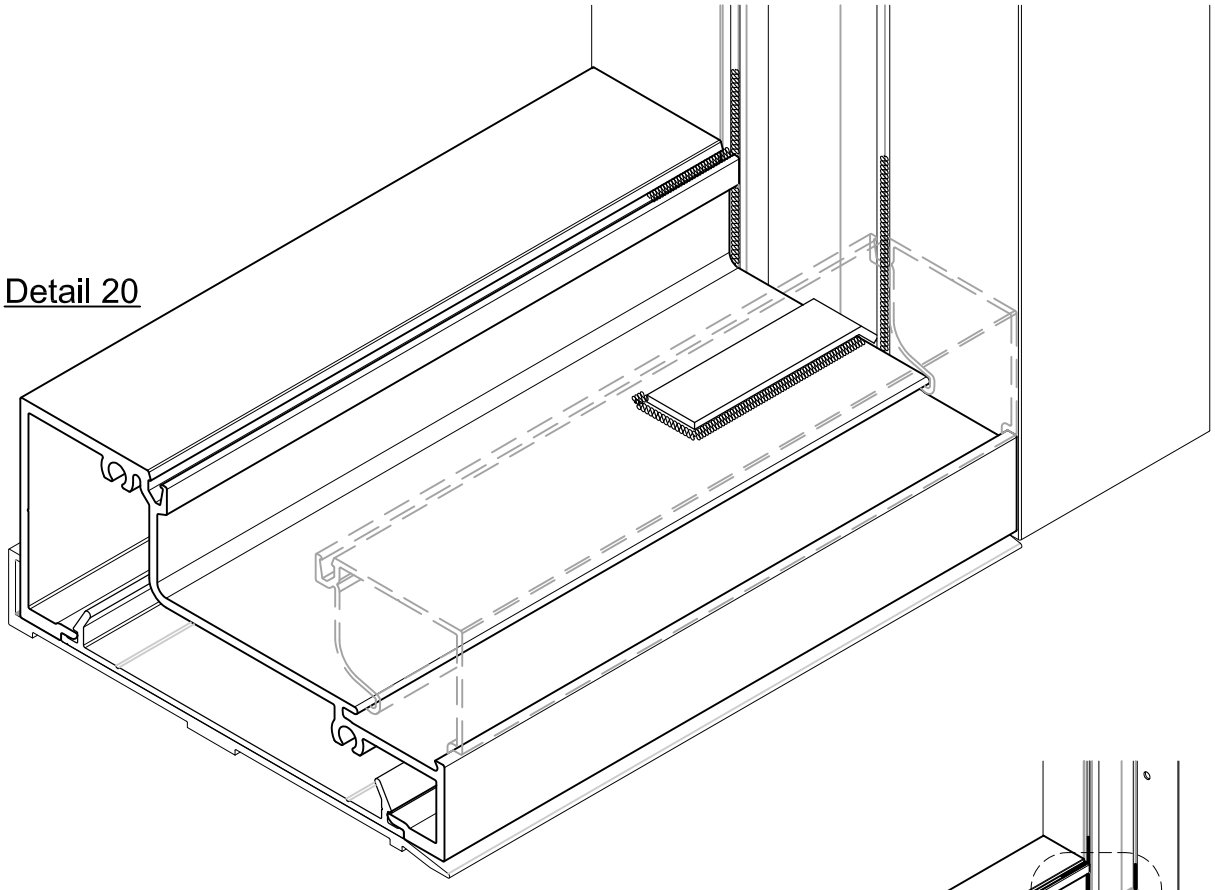
Detail 19

STEP 16 (con't)
INSTALL WATER DIVERTERS

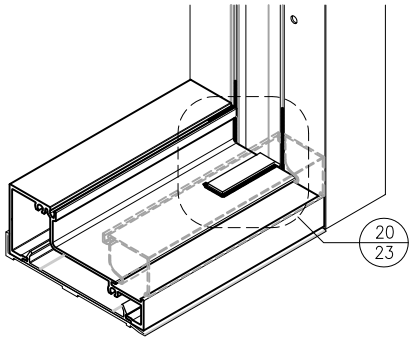
PROCEDURES:

- Pump sealant into both vertical gasket reglets, and seal the edges of the diverter on all sides EXCEPT the edge facing the pocket as illustrated in **DETAIL 20** below. You must avoid getting sealant in this area in order to allow the system to drain.
- Seal the joint between the vertical and horizontal members from the diverter to the top of the horizontal reglet.
- Cap seal fastener heads and embed water diverter in sealant.

Detail 20

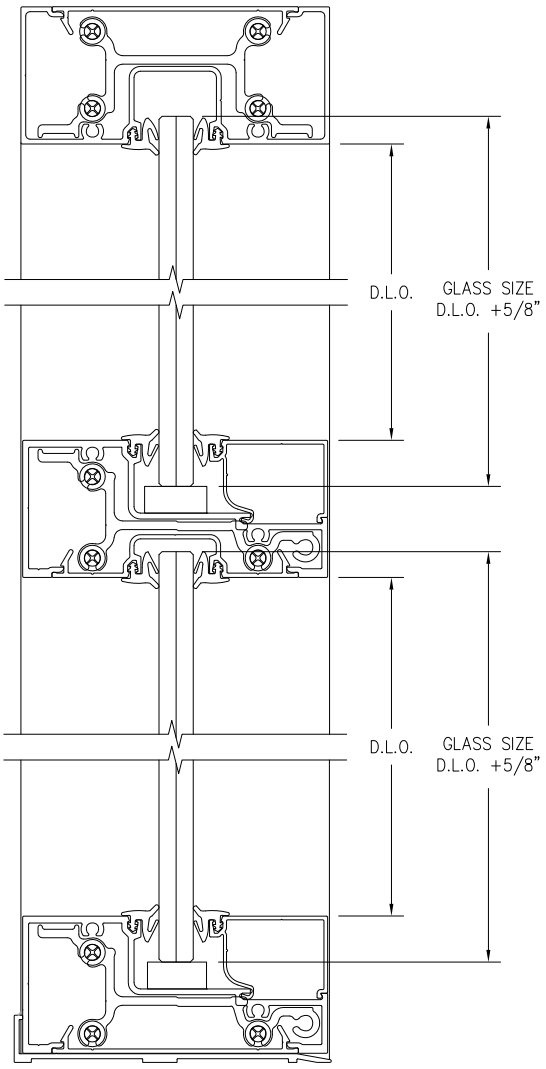


NOTE:
Seal the reglets and the water diverter on all edges except the one facing the vertical pocket as shown in **DETAIL 20**.



PROCEDURES:

- All glazing pockets are1.375" wide, and will accept glazing up to and including 1/2" thick, dry glazed.
- Glass dimensions should not exceed daylight opening (D.L.O.) plus 5/8", except when using the pocket reducer, in which glass size is D.L.O. plus 9/16" as shown in **DETAIL 21**. This formula does not take into account out-of-square openings or glass tolerances. Consult the glass manufacturer before determining final glass sizes.
- When cutting gaskets, add 1/16" to 1/8" per foot of D.L.O. for shrinkage (1/8" per foot is approximately 1%). Open, unsealed gasket joints are a potential source of leakage and water damage to interior finishes.
- When installing gaskets, always begin at each end of the gasket and work toward the center. Do not stretch the gasket or it will return to it's original form, creating gaps at the gasket intersections.



Detail 21

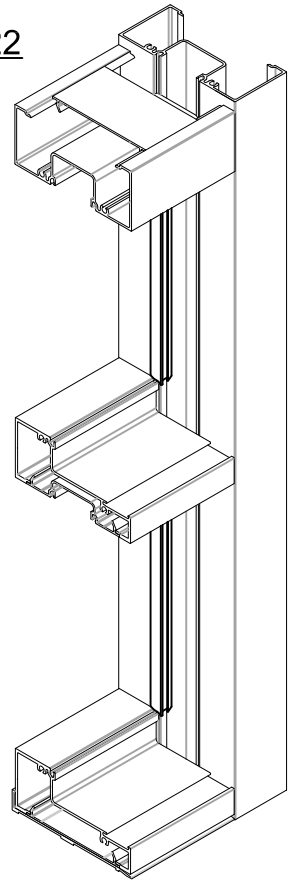
STEP 18
INSTALL INTERIOR GASKETS

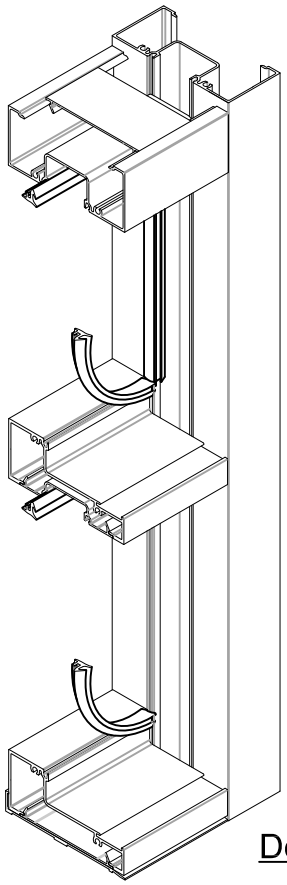
PROCEDURES:

Cut and Install Interior Gaskets

- Cut the interior gaskets.
- Install gaskets on the side of frame opposite glass stop first.
- Apply sealant in the gasket reglet for 1" from the intersection of the vertical member.
- Install the interior vertical gaskets, at each end and work toward the center, firmly pushing the gasket in place, as shown in **DETAIL 22**.

Detail 22





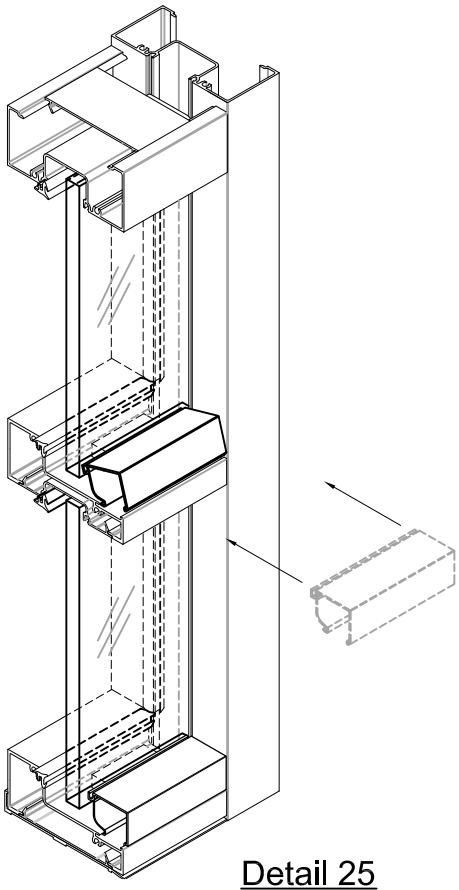
Detail 23

- Apply sealant in the gasket reglet for 1" from the intersection of the horizontal member.
- Install the interior horizontal gaskets at each end and work toward the center, firmly pushing the gasket in place as shown in **DETAIL 23**.
- Apply sealant at the intersection to marry the vertical and horizontal glazing gaskets. Tool all sealant to present a neat, clean appearance.

STEP 19
INSTALL THE GLASS

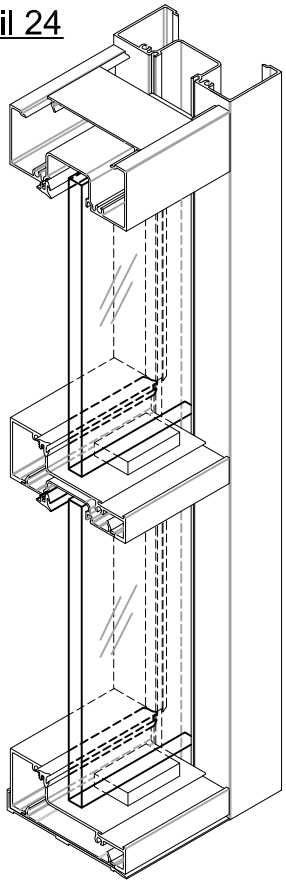
PROCEDURES:

- Position the glass in the frame.
- Raise the glass off the horizontal, and place a setting block at each quarter point (two setting blocks per light) or as required by project.
- Lower the glass onto the setting blocks as required by project as illustrated in **DETAIL 24**.
- Consult glass manufacturer about setting blocks if glass size is more than 40 square feet.



Detail 25

Detail 24



STEP 20
INSTALL GLASS STOP

PROCEDURES:

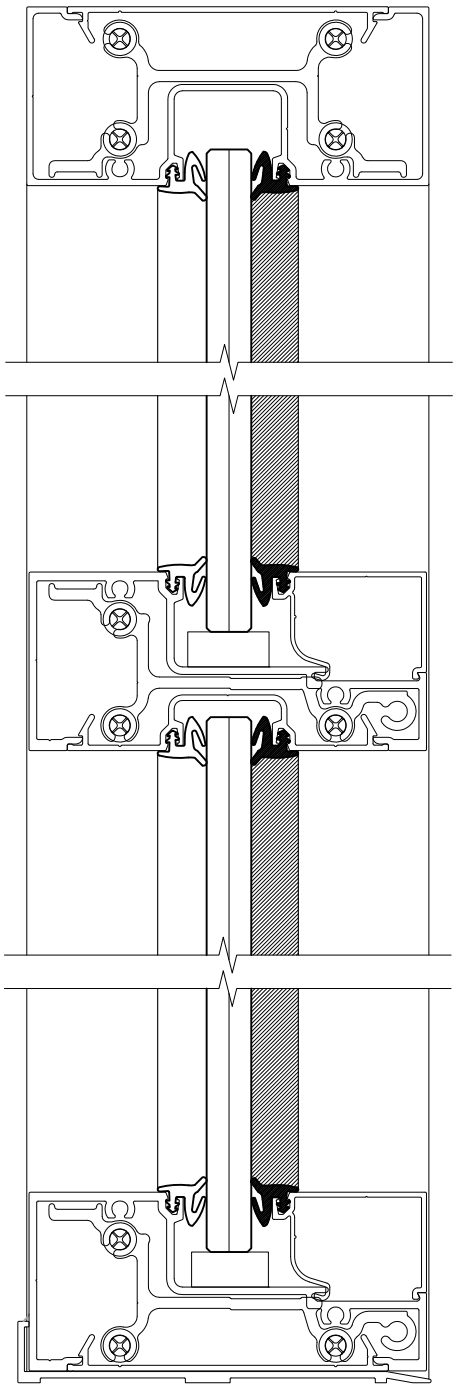
- Install the glass stop into the horizontal, after the glass has set, by tilting the gasket reglet towards the glass and hooking into the receiver as shown in **DETAIL 25**.
- Once the glass stop is engaged, snap the glass stop down to secure in place.

STEP 21
INSTALL EXTERIOR GASKETS

PROCEDURES:

Cut and Install Exterior Gaskets

- Cut the exterior vertical gaskets.
- Apply sealant in the gasket reglet for 1" from the intersection of the vertical member.
- Install the exterior vertical gaskets at each end and work toward the center, firmly pushing the gasket in place, as illustrated in **DETAIL 26**.
- Cut the exterior horizontal gaskets.
- Apply sealant in the gasket reglet for 1" from the intersection of the horizontal member.
- Install the exterior horizontal gaskets, at each end and working toward the center, firmly pushing the gasket in place.



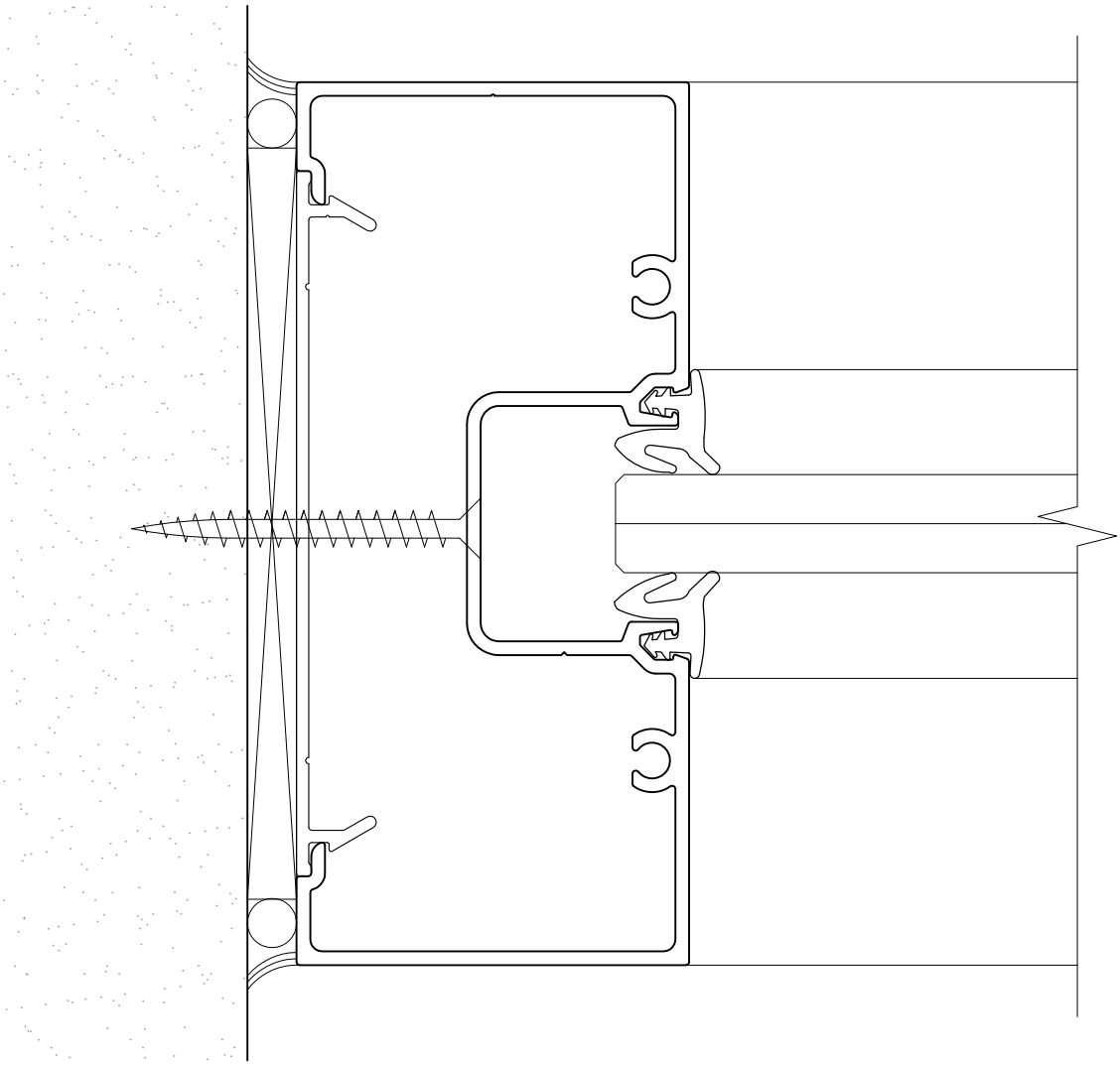
Detail 26

STEP 22
SEALANT

PROCEDURES:

Seal Perimeter of Installation

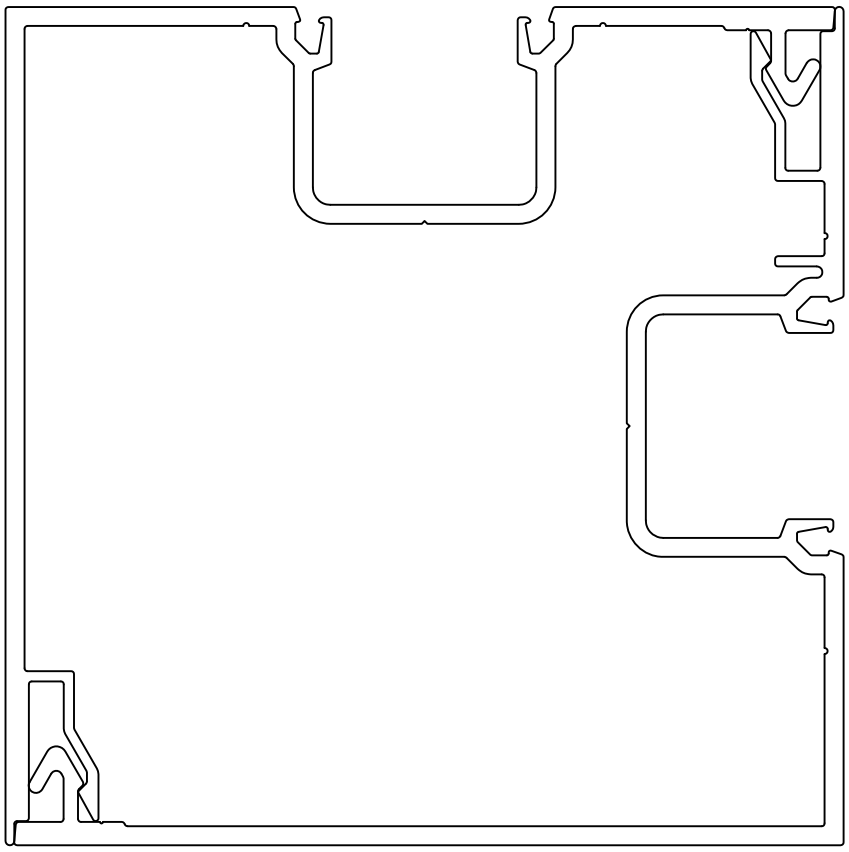
- The primary, critical seal location is at the interior leg of the framing members, including the interior leg at the bottom of the sill flashing.
- Insert backer rod into the gap between the frame and the building substrate on top, sides, and bottom of the installation as shown in **DETAIL 27**.
- Apply sealant to fill the void.
- Tool the sealant smooth.



Detail 27

90-DEGREE CORNER ASSEMBLY

NOTE:
90-Degree corners can be made with any combinations of F21060, F21065, and F20075.



Detail 28

STEP 1
ASSEMBLE CORNER MEMBERS

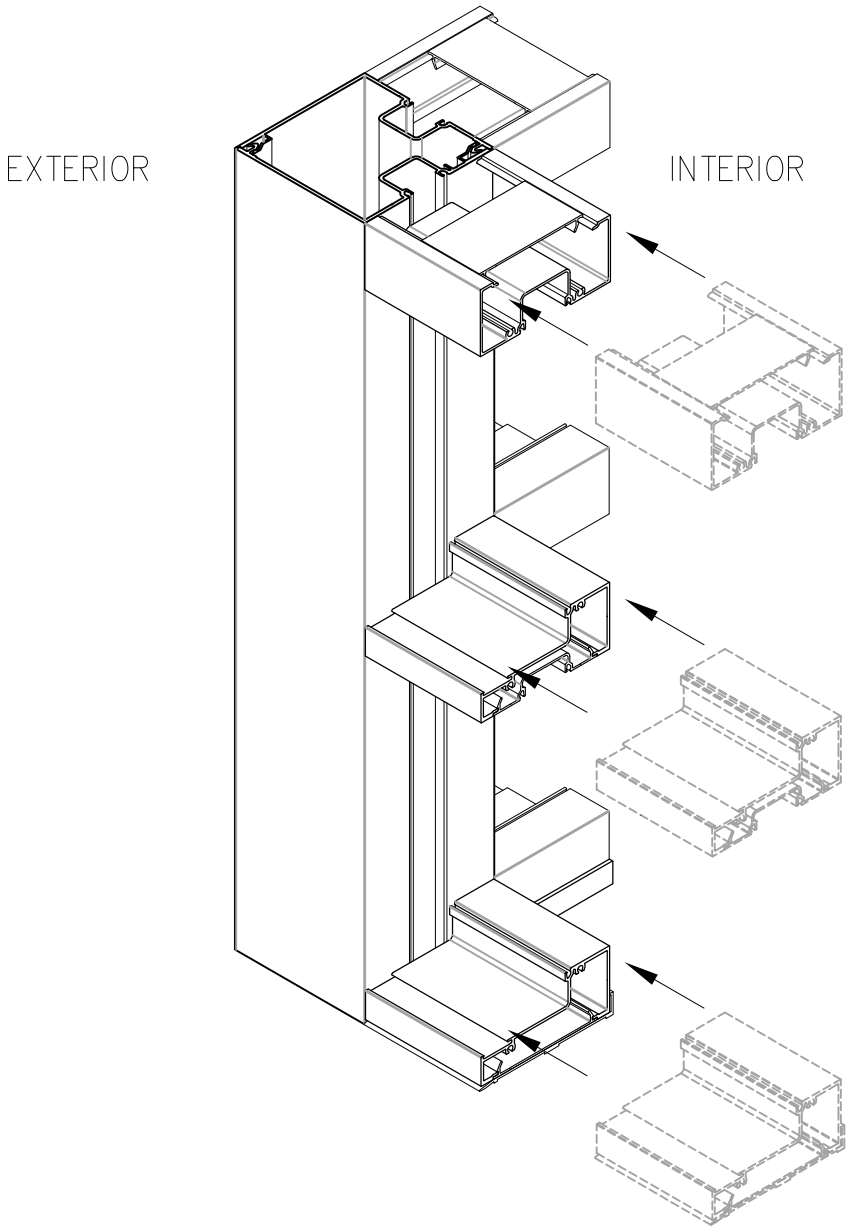
PROCEDURES:

- Assemble corner members as shown in **DETAIL 28**.
- Seal where the corners intersect.

STEP 2
ASSEMBLE HORIZONTALS TO CORNER

PROCEDURES:

- Assemble horizontals to screw spline and/or shear block assembly as illustrated in **DETAIL 29.**
- Seal where horizontals meet corner assembly.

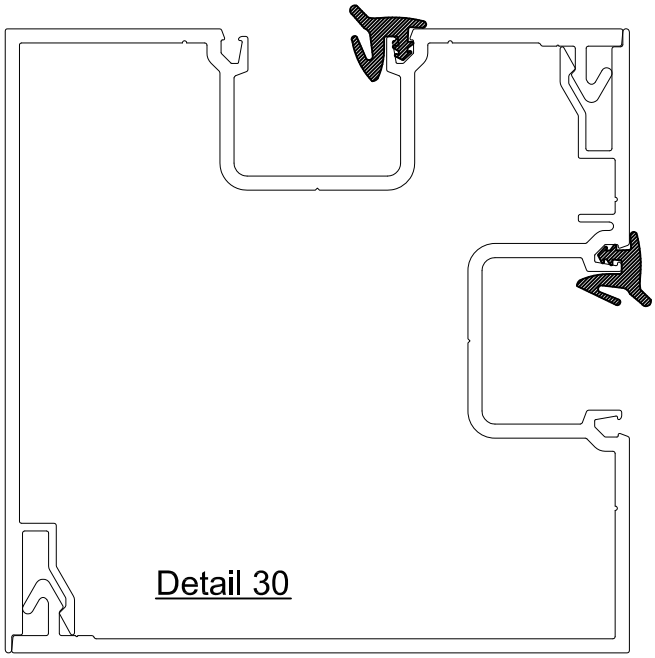


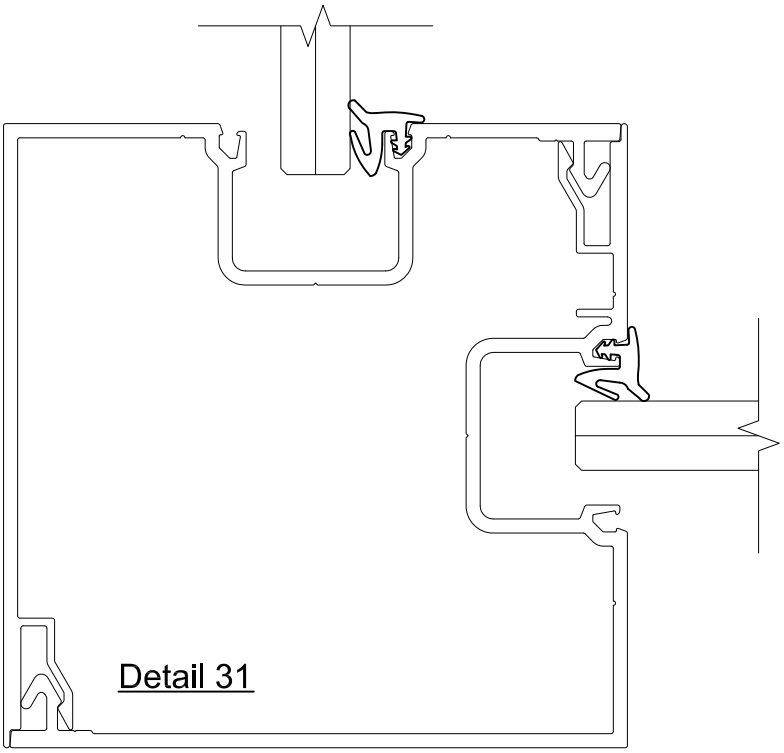
Detail 29

STEP 3
INSTALL INTERIOR GASKETS

PROCEDURES:

- Install interior gaskets at corner assembly as shown in **DETAIL 30**.





STEP 4
SET GLASS

PROCEDURES:

- Install the glass, as shown in **DETAIL 31**.

STEP 5
INSTALL EXTERIOR GASKETS

PROCEDURES:

- Install exterior gaskets at corner assembly as shown in **DETAIL 32**.