

Series 526 Thermal Impact Storefront Installation Instructions



June 26, 2023

WHERE WINDOWS ARE JUST THE BEGINNING[®]



TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
I. General Notes and Guidelines.....	3
II. Parts Identification Chart.....	4-8
III. Fabrication.....	9-16
IV. Frame Assembly.....	17-20
V. Door Frame Installation.....	21-23
VI. Subsill Fabrication and Installation.....	24-29
VII. Frame Installation.....	30-36
VIII. Glazing.....	37-50

Minimizing Condensation

Note: Please reference EFCO's "Understanding Condensation" brochure which can be obtained through your EFCO representative.

Condensation will form on any surface when unfavorable conditions (interior temperature and relative humidity and exterior temperature) are present. When the formation of excessive condensation is a concern, it is highly recommended that a design professional is utilized to perform an analysis of the shop drawings to recommend the best possible installation methods. Please contact your EFCO representative for information on EFCO's Thermal Analysis Services.

Many current installation practices lead to an increase in the possibility of the formation of condensation. Though not all inclusive, the list of examples below illustrates conditions under which condensation is likely to occur:

1. Bridging system thermal break with non-thermally broken metal flashing or lintels that are exposed to the exterior
2. System exposure to cold air cavities
3. Interior relative humidity levels not maintained at recommended levels, see EFCO's "Understanding Condensation" brochure
4. Inadequate separation between system and surrounding condition at perimeter
5. Product combinations during the shop drawing stage that result in bridging thermal breaks of one or all products involved

SECTION I: General Notes and Guidelines

The Series 526 is a thermally broken impact framing system that is designed for impact resistance of windborne debris. It can be used as a single-span storefront window wall, a punched opening system, or a ribbon window system. Various glazing capabilities allow the 526 to be used as either wet sealed or dry gasket glazed. Both the wet sealed and the dry glazed are outside glazed. The dry glazed system can be inside glazed also except the transom above the door.

The Series 526 thermally broken impact system contains primarily stock length material with in-the-field fabrication. Entrance doors are also an integrated part of this system, utilizing frame members and hardware that accommodate doors and door hardware that will withstand impact from windborne debris.

1. Check the 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 encountered.
2. Check all materials on arrival and be sure you have everything required to begin installation. See Section II "PARTS IDENTIFICATION CHART" for parts cross-referenced.
3. All work should start from benchmarks and/or column centerlines as established by the architectural drawings and the general contractor. Installers should check building construction for compliance with architectural documents to ensure the proper window system foundation is available before installation.
4. All materials are to be installed plumb, level, and true.
5. Protect materials after erection. Cement, plaster, alkaline solutions, and acid based materials can be harmful to the finish. Clean exposed finished surfaces with a mild detergent and water. No abrasive cleaning agent should be used.
6. Throughout these instructions the term "**SEALANT**" will appear. For the purposes of these instructions, sealant is to be defined as the following:

SEALANT - A weather resistant, gunnable liquid filler which when cured provides a resilient, flexible ($\pm 50\%$ movement capability) air and water seal between similar and dissimilar materials.

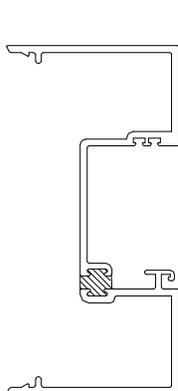
All sealant must meet **ASTM C 920, CLASS 50**.

NOTE: All sealant must be compatible with all surfaces where adhesion is required, including other sealant surfaces. All frame surfaces should be clean, dry, and frost free. If a primer is required, it must be applied to clean surfaces. All perimeter substrates shall be clean and properly treated to receive sealant.

NOTE: These installation instructions are general in nature, a supplement to the approved shop drawings, and must be used in conjunction with those drawings.

SECTION II: Parts Identification Chart

Vertical Parts:



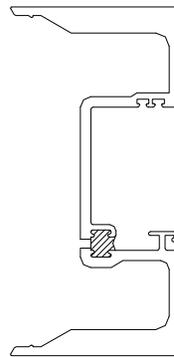
16G8
2 1/2" X 5"
SS Vertical Mullion
use w/ 16G9 filler



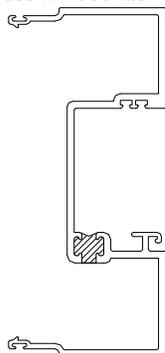
16H9
2 1/2" X 5"
Expansion Mullion
Shallow Pocket Half
use w/ 16J5



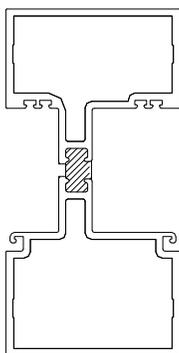
16G9
2 1/2" X 5"
SS Vertical Mullion Filler
use w/ 16G8 mullion



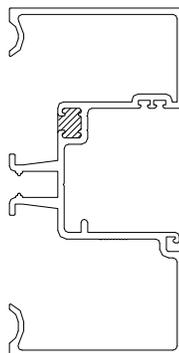
37H9
2 1/2" X 5"
Screw Spline
Heavy Duty
use w/ 16G9



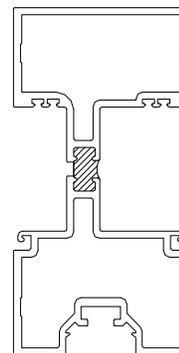
16J5
2 1/2" X 5"
Expansion Mullion
Deep Pocket Half
use w/ 16H9



16K6
2 1/2" X 5"
Shear Block Mullion
use w/ horizontal thru only



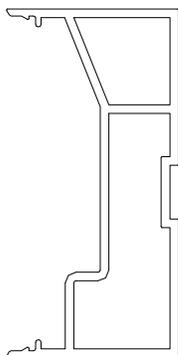
16G1
2 1/2" X 5"
SS Perimeter Jamb



21R8
2 1/2" X 5"
Sunshade Vertical
Shear Block Mullion
Outside Glazed Only
use 1283 filler



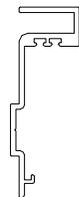
1283
Mullion Cover Clip



16H3
2 1/2" X 5"
Door Jamb
use w/ 16H6 filler



16H6
2 1/2" X 5"
Door Jamb Filler
use w/ 16H3



16H8
Fixed Transom
Glass Stop
Used with 4488
Use at 16H3



16M6
Pocket Filler



4399
Door Stop at
2" Doors
Use at 16H3 with 9155



16M1
5/8" Door Stop
2" Doors
Use at 16H3 with 9155



4488
Removable
Transom Glass
Stop



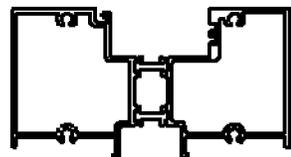
4437
Door Stop at
1 3/4" Doors
Use at 16H3 with 9155



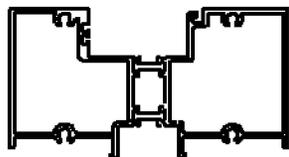
9155
Door Stop
Cover

SECTION II: Parts Identification Chart

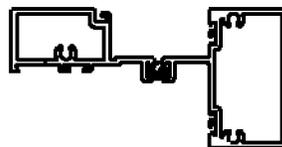
Horizontal Parts:



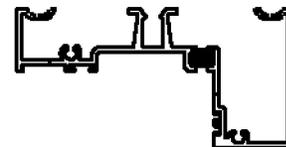
4G77
Outside Glaze Sill
Use With 4G79



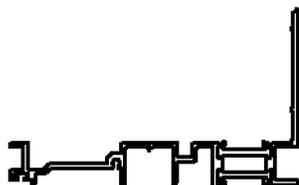
4G78
Inside Glaze Sill
Use With 4G79



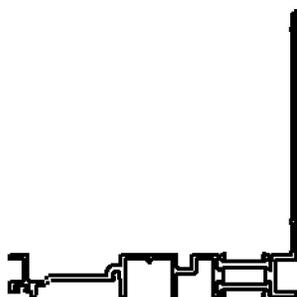
16H2
Horizontal
Head
Use With 16G3 &
16G4



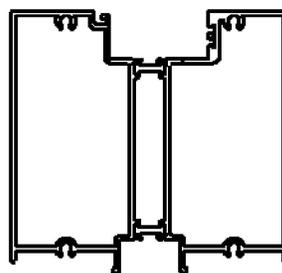
16G2
Head
Use With 16G3 &
16G4



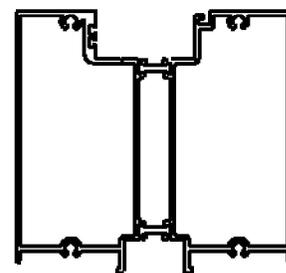
4G79
Subsill
Use With 4G77, 4G78,
4G81 & 4G82



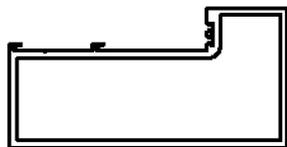
4G80
4 1/2" Subsill
Use With 4G81 &
4G82



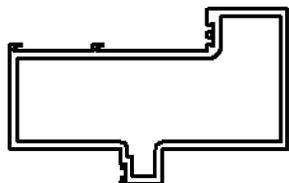
4G81
Outside Glaze
4 1/2" Sill
Use With 4G79 &
4G80



4G82
Inside Glaze
4 1/2" Sill
Use With 4G79 &
4G80



16H4
Door Header
Use 16H7 Stop &
9914 Door Stop



16H5
Door Header With
Fixed Glass Stop
Use 16H7 Stop



16H7
Door Header
Glass Stop
Use With 16H4 & 16H5



16G3
Horizontal Fixed
Glass Stop
Use With 16G4
@ 16H2 & 16G2



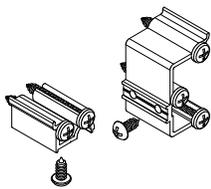
16G4
Horizontal Fixed
Glass Stop Cover
Use With 16G3
@ 16H2 & 16G2



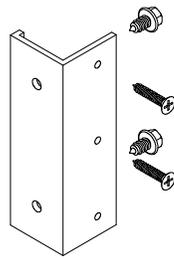
9914
Slide Arm Cover/
Door Stop
Use With 16H4

SECTION II: Parts Identification Chart

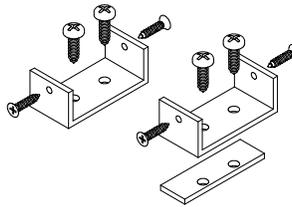
Shear Blocks:



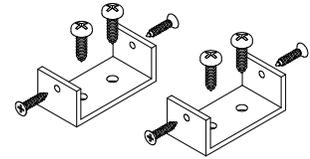
KP01
Head & Horizontal
Shear Block Package
Use With 16H2 & 16G2



K876
Door Header
Shear Block Package
Use With 16H4 & 16H5

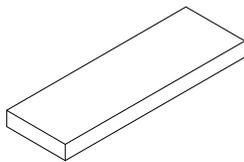


KP04
Shear Block Package
With Shim for
Horizontal Thru
Use With 16K6

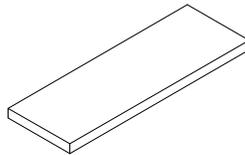


KP03
Shear Block Package
for Horizontal Thru
Use With 16K6

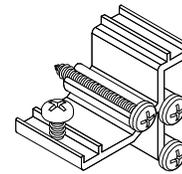
Setting Blocks:



HEP0
Sill & Horizontal
Setting Blocks

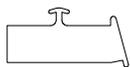


HN13
Door Header
Setting Block



KO45
Shear Block Package
For Use With
4G77 Sill / 21R8 Vertical

Glazing Gasket:



W146
Dry Glazed
Preset Gasket



W167
Drive-In Glazing
Gasket



WEQ1
Structural Glazed
Preset Gasket

Weather Seal:



W138
Door Stop
Weather Seal

SECTION II: Parts Identification Chart

Fasteners:



STC8
#12-14 X 1 1/4
PH-SMS 18-8 25



SDR1
#10-16 X 3/4
PH-SMS SG TEK/2

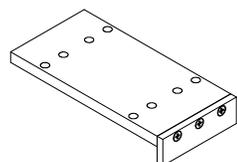


STT6
#8-18 X 9/16
PH-SMS ZC TEK/2

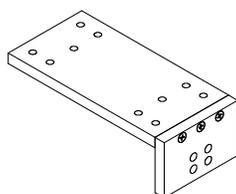


S130
#8-15 X 1 3/4
PH-SMS 18-8 A

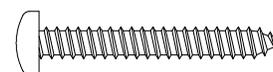
Drill Jigs:



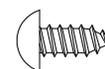
DJ28
Screw Spline Drill Jig



DJ29
Shear Block Drill Jig

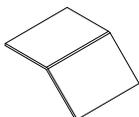


STB5
12-11 X 1 5/8
SQ-PH-SMS 18-8 A

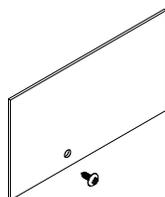


STB9
#12-11 X 1/2
SQ-RH-SMS 18-8 A

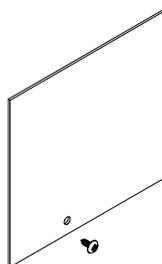
Miscellaneous:



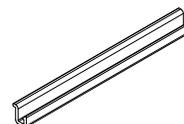
FWB0
Water Deflector
Use @ 16H2



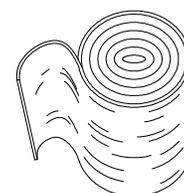
KP00
Subsill End Cap
Use @ 4G79



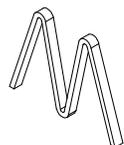
KP10
4 1/2" Subsill End Cap
Use @ 4G80



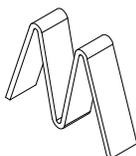
HC03
Subsill Isolator
Use @ 4G77, 4G78,
4G81, & 4G82



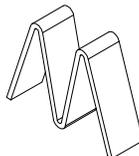
WM01
Bond Breaker Tape
Use @ 4G79 & 4G80



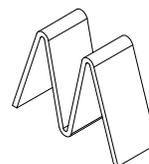
HNA5
3/16" Anti-Walk Block
Use @ 16G9, 16K6, &
16H9 Shallow Pockets



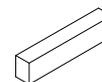
HNA7
5/8" Anti-Walk Block
Use @ 16H6



HNA6
3/4" Anti-Walk Block
Use @ 16G8, 16J5, &
16K6



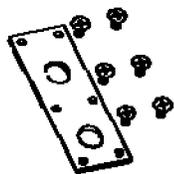
HN53
13/16" Anti-Walk Block
Use @ 16G1 Jamb



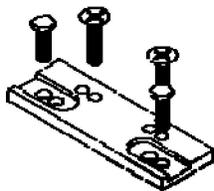
FWE5
Foam Weep
Baffle
Use @ 4G79 & 4G80

SECTION II: Parts Identification Chart

Miscellaneous:



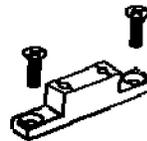
KP11
3-Point Impact Lock
Strike Package



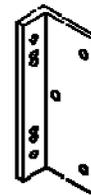
KP08
Dorma RTS-88 C.O.C.
Support PKG. for Butt
& Cont. Hinges



KP07
Dorma RTS-88 C.O.C.
F-Clip Spacer PKG. for
Butt & Cont. Hinges



K435
Attachment Clip for
Dorma RTS-88 C.O.C.
F-Clip Spacer PKG. for
Offset Pivots



FT16
F-Clip for Dorma RTS-88
C.O.C. at Offset Pivots
Use Fasteners Supplied
With Closer



FT20
RH Cover Plate for
Dorma RTS-88 C.O.C.
at Offset Pivot
(Customer Specify Finish)



FT26
LH Cover Plate for
Dorma RTS-88 C.O.C.
at Offset Pivot
(Customer Specify Finish)



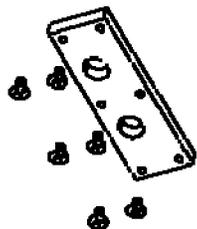
K492
MILL Cover Plate for
Dorma RTS-88 C.O.C.
at Butt & Cont. Hinge
(Customer Specify Finish)



K495
Cover Plate for Dorma
RTS-88 C.O.C. at Butt
& Cont. Hinge
(Clear Anodize)



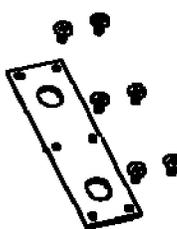
K496
Cover Plate for Dorma
RTS-88 C.O.C. at Butt &
Cont. Hinge
(Dark Bronze Anodize)



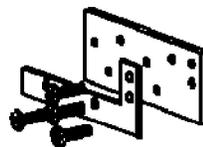
K936
Reinforcing PKG. for
Flush Bolt & 3-Point
Lock @ Head for Pair
Doors



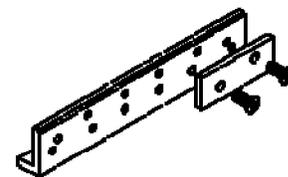
K990
Reinforcing PKG. for
1490 Panic & 3-Point
Lock @ Threshold and
3-Point Lock @ Head
for Single Doors



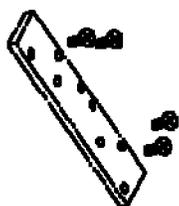
K987
Reinforcing PKG. for
1490 Panic @
Threshold for Pair
Doors



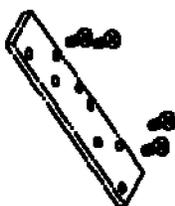
K999
Backer Plate & Shim
PKG. for 180/MP1
Top Pivots



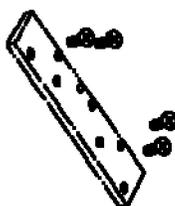
KP09
Baker Plate & Shim PKG.
for MP2/195 Bottom Pivot



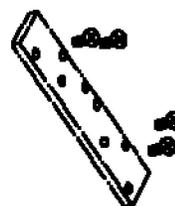
K900
Butt Hinge Backer
PKG. for 4 1/2 X 4
Butt Hinges
(Clear)



K901
Butt Hinge Backer
PKG. for 4 1/2 X 4
Butt Hinges
(Bronze)



K904
Butt Hinge Backer
PKG. for 5 X 4 1/2
Butt Hinges
(Clear)



K905
Butt Hinge Backer
PKG. for 5 X 4 1/2
Butt Hinges
(Bronze)

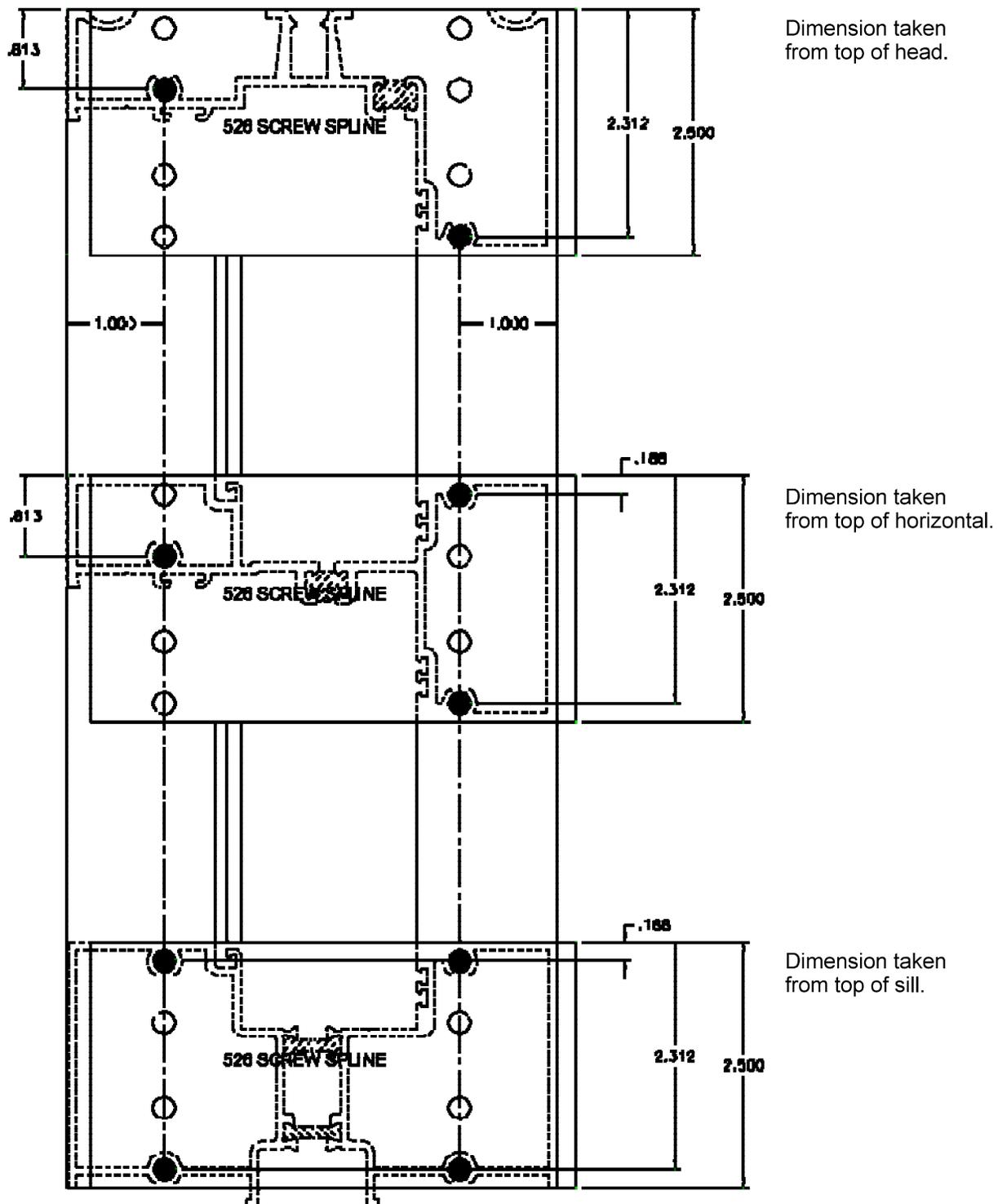


K968
Door Jamb Mounting
Plate and Spacer PKG.
for M19/MP3
Intermediate Pivot

SECTION III: Fabrication

A. Drilling Template for Screw Spline at Verticals Outside Glazed

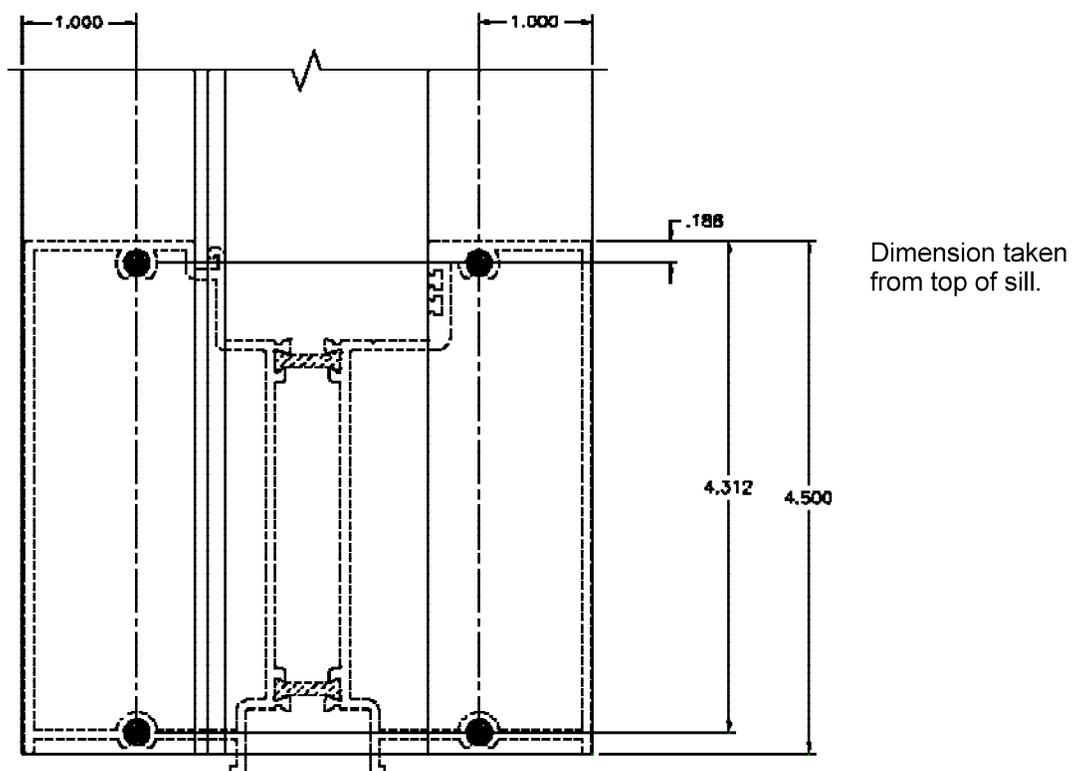
Use the interior or exterior edge of the vertical to align drill jig, DJ28. Drill with a .221 dia. (#2) drill at darkened areas only.



SECTION III: Fabrication

B. Drilling Template for Screw Spline at Verticals Outside Glazed (4 1/2" Sill)

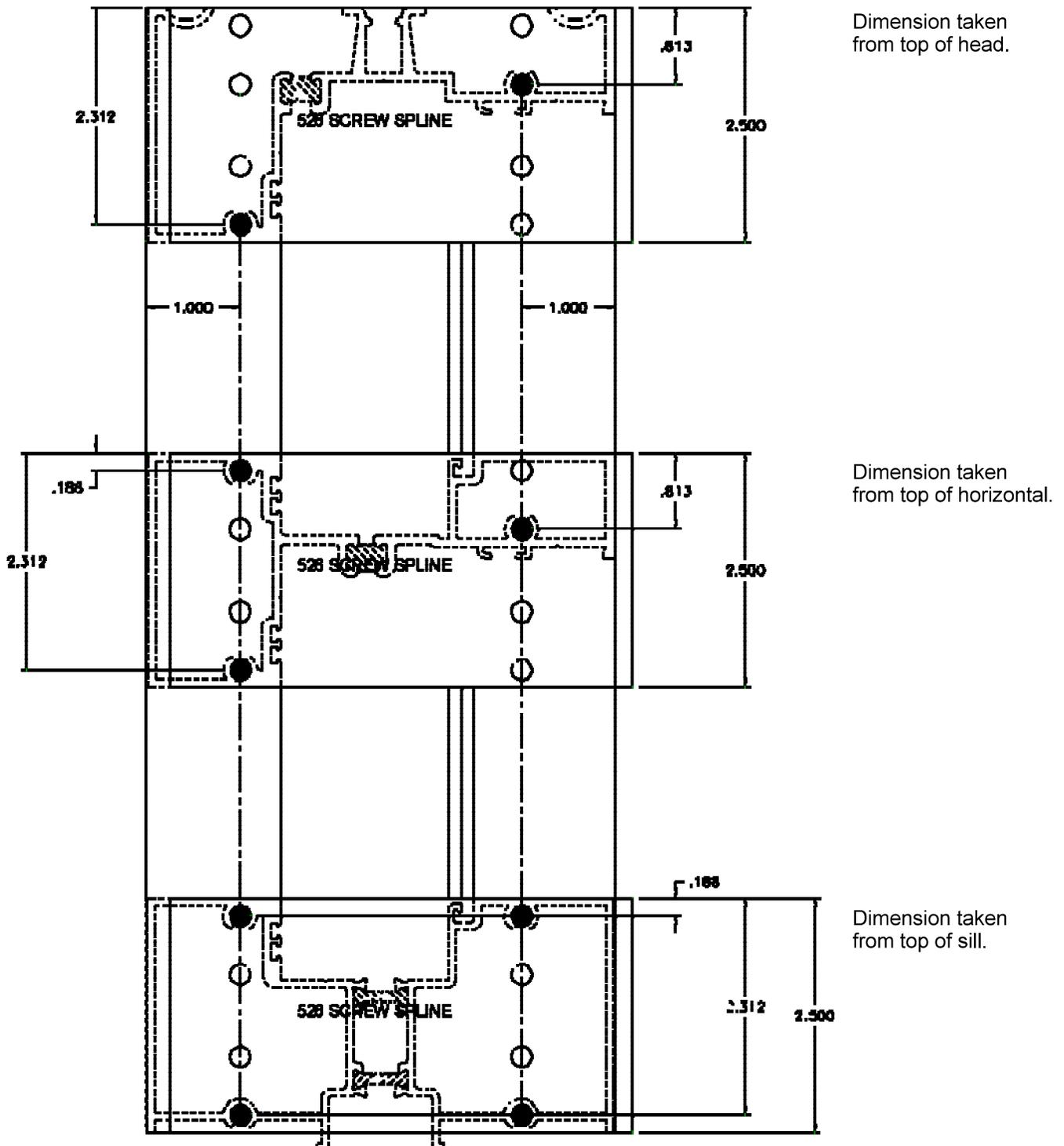
Use dimensions as shown, or cut a short piece of the sill material and use as a template. Drill with a .221 dia. (#2) drill at darkened areas only.



SECTION III: Fabrication

C. Drilling Template for Screw Spline at Verticals Inside Glazed

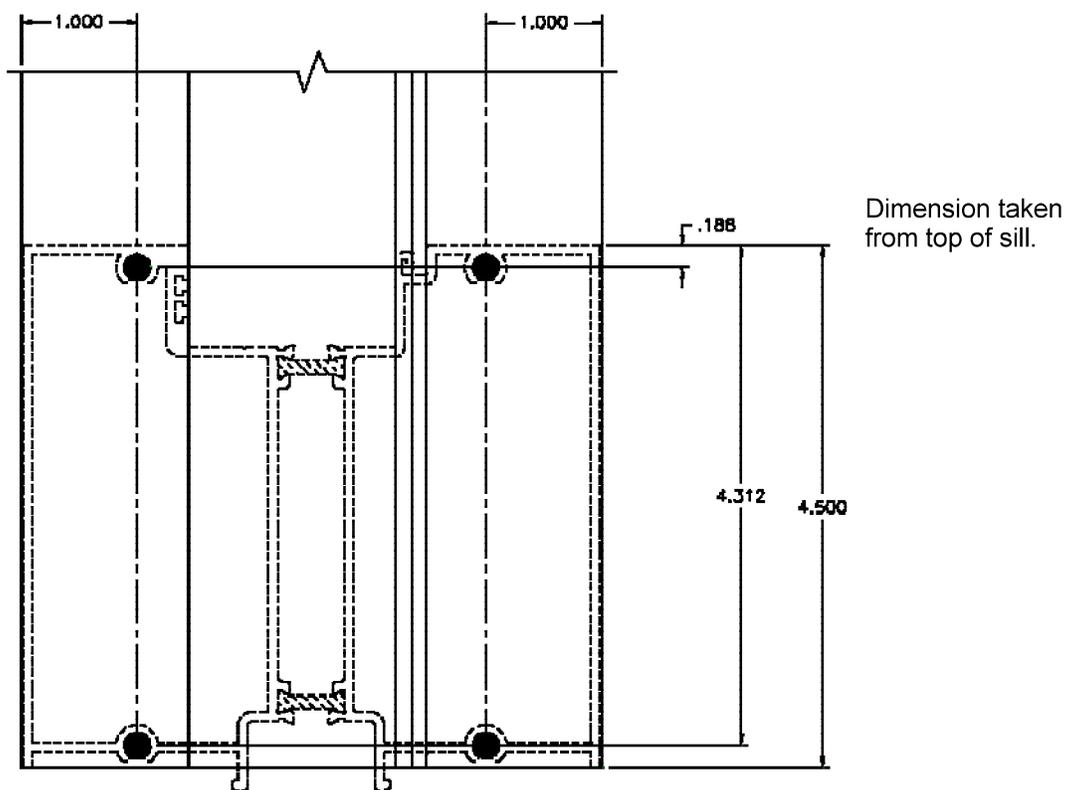
Use the interior or exterior edge of the vertical to align drill jig, DJ28. Drill with a .221 dia. (#2) drill at darkened areas only.



SECTION III: Fabrication

D. Drilling Template for Screw Spline at Verticals Inside Glazed (4 1/2" Sill)

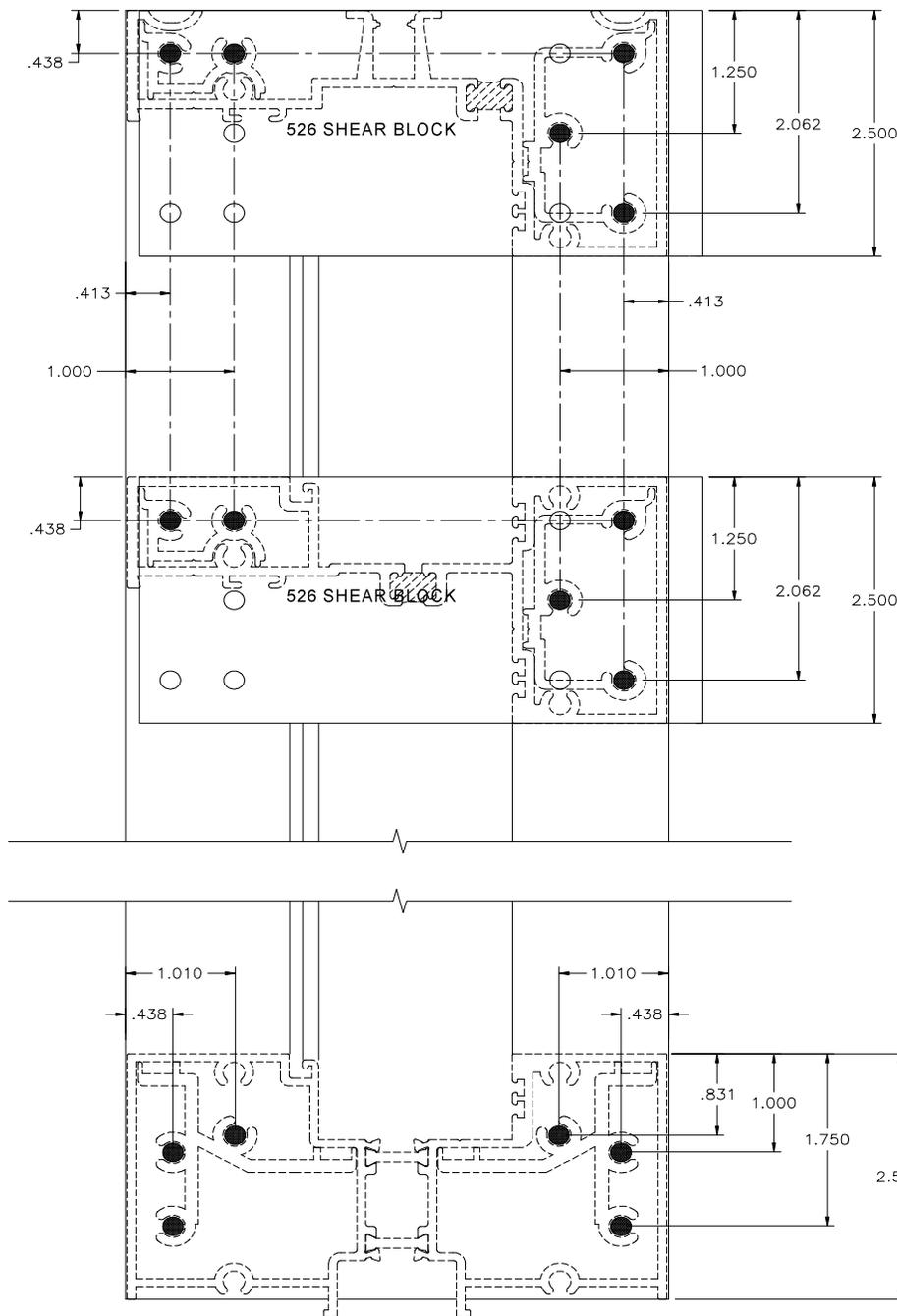
Use dimensions as shown or cut a short piece of the sill material to use as a template. Drill with a .221 dia. (#2) drill at darkened areas only.



SECTION III: Fabrication

E. Drilling Template for Shear Blocks at Verticals Outside Glazed

Use the interior or exterior edge of the vertical to align drill jig, DJ29. Drill with a .182 dia. (#28) drill at darkened areas only. Note: Currently, jig is not available for sill frame.



Dimension taken from top of horizontal.

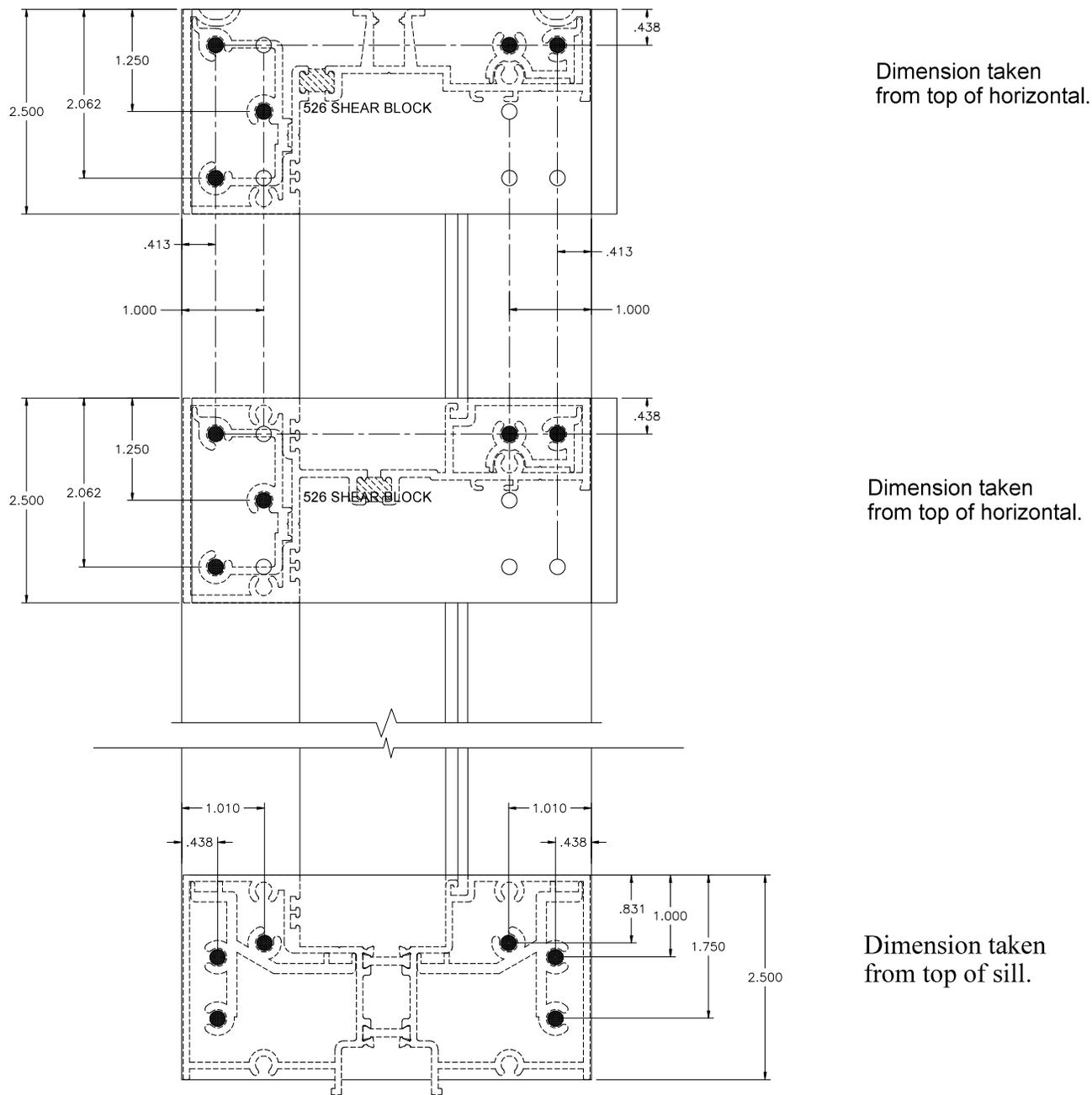
Dimension taken from top of horizontal.

Dimension taken from top of sill.

SECTION III: Fabrication

F. Drilling Template for Shear Blocks at Verticals Inside Glazed

Use the interior or exterior edge of the vertical to align drill jig, DJ29. Drill with a .182 dia. (#28) drill at darkened areas only. Note: Currently, jig is not available for sill frame.



Dimension taken from top of horizontal.

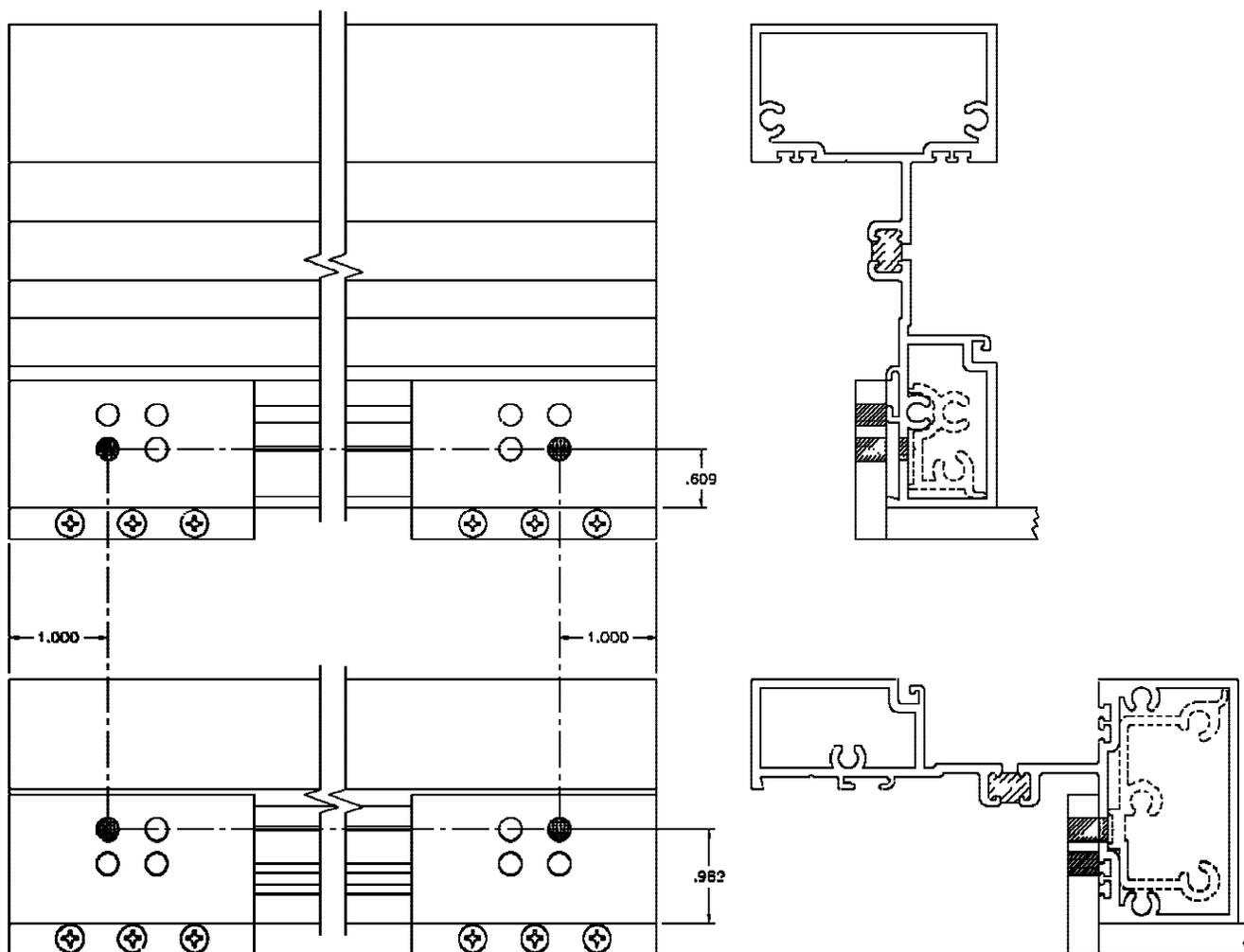
Dimension taken from top of horizontal.

Dimension taken from top of sill.

SECTION III: Fabrication

G. Drilling Template for Shear Blocks at Head and Horizontal Inside Glazed and Outside Glazed

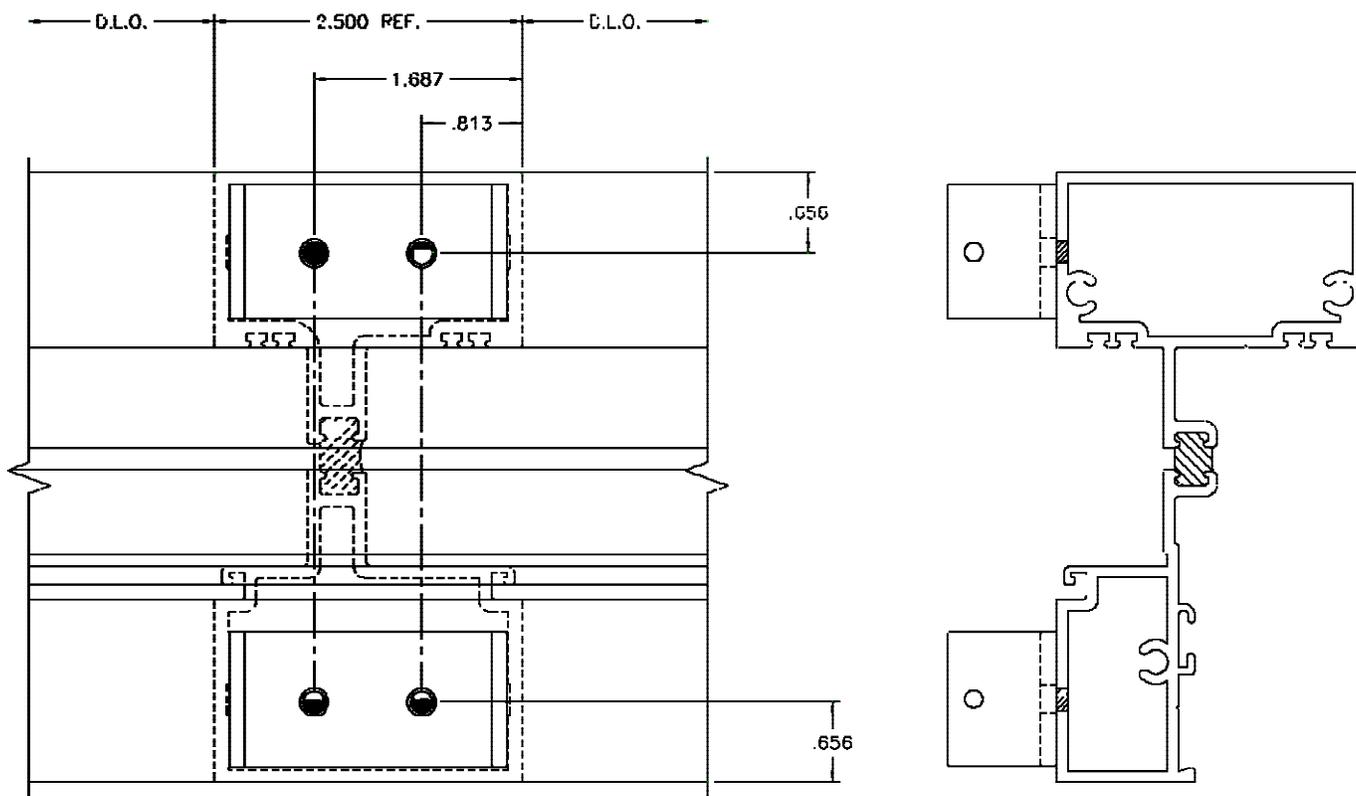
Align drill jig, DJ29, flush to the end of the head or horizontal.
Drill with a .221 dia. (#2) drill at darkened areas only.



SECTION III: Fabrication

H. Drilling Template for Shear Blocks at Horizontal Use When Vertical Runs Between Horizontal

Use dimensions as shown when a vertical runs between horizontal runs. Drill with a .180 dia. (#15) drill at darkened areas only.

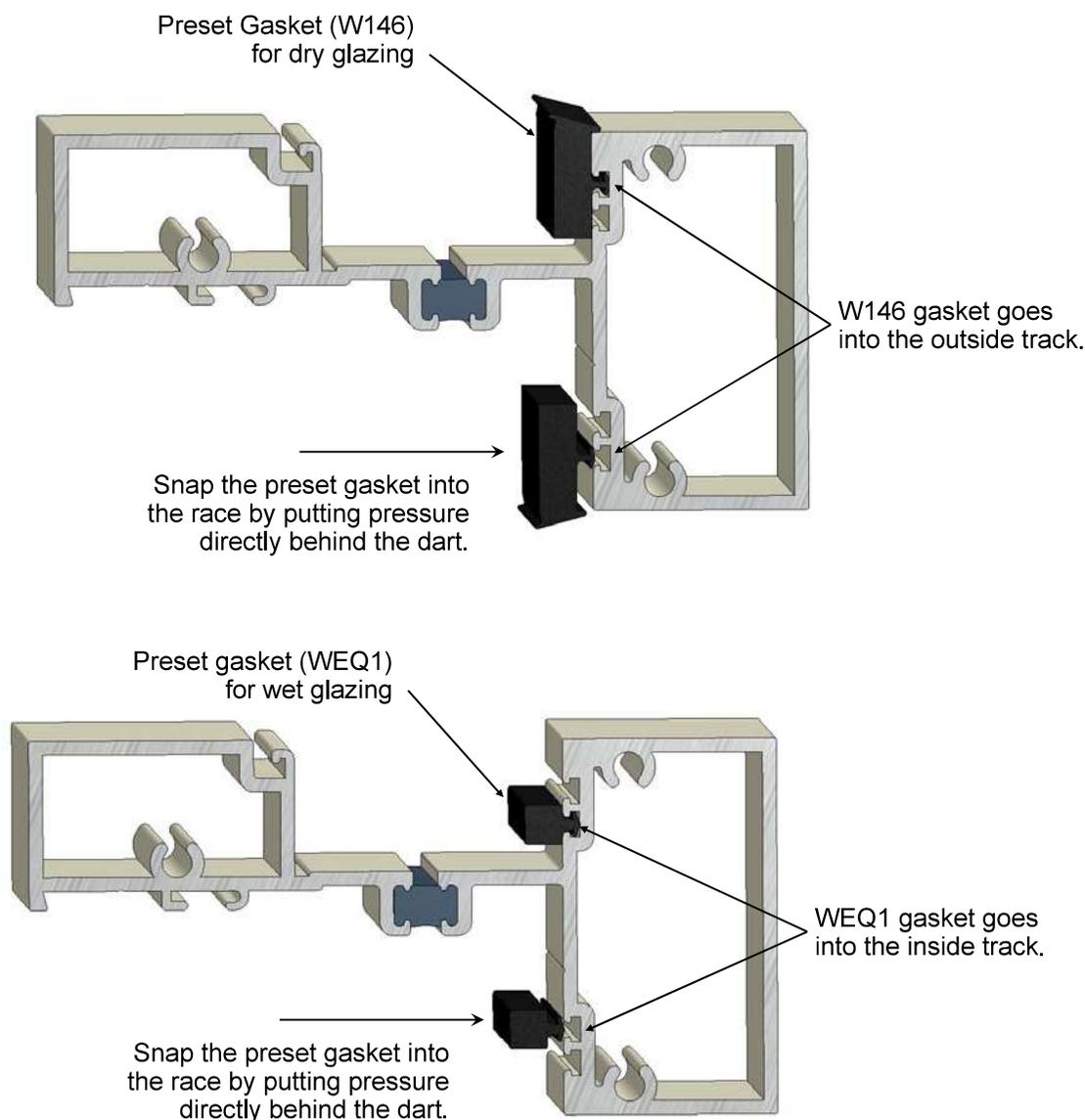


This fabrication works with vertical attaching to either the head, horizontal, or sill.

SECTION IV: Frame Assembly

A. Preset Gasket Installation for Dry Glazed and Wet Glazed

After all the material is cut to the appropriate length, the preset gasket should be installed. Begin the installation of the preset gasket by first ensuring that the gasket race is clean and free of debris. The preset gasket should be cut longer than the frame member it is being installed into. Lay the preset gasket down the length the frame member. Ensure that the gasket will hang over both ends of the frame member because once the gasket is snapped-in place, it may be difficult to slide it in the race. After the gasket is installed, crowd the gasket in from each end as much as possible, and cut flush with the frame member.

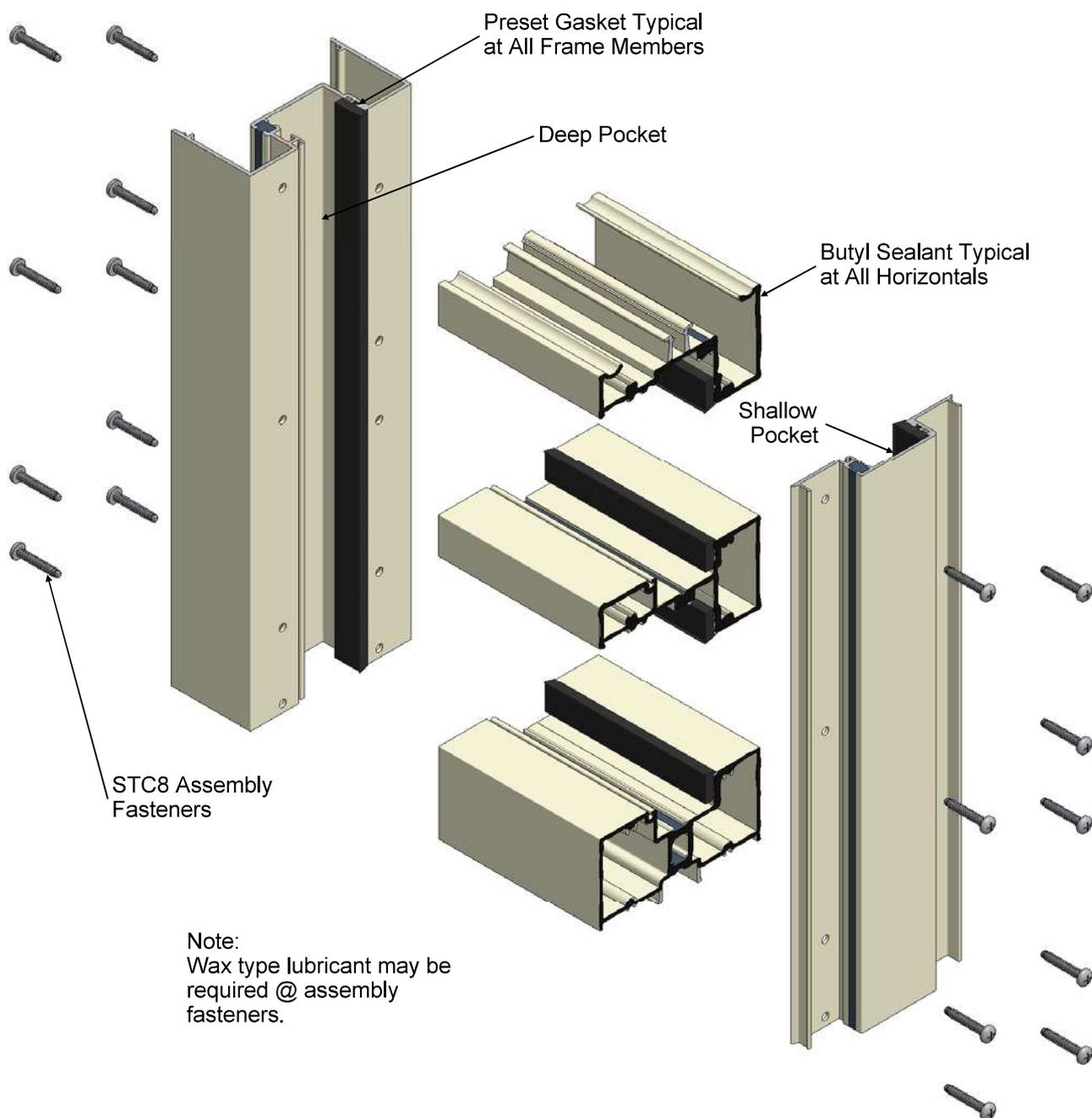


SECTION IV: Frame Assembly

B. Screw Spline Assembly Inside Glazed and Outside Glazed

Each module must have at least one deep pocket vertical to facilitate glazing installation. See page 39 for more detail on glazing pockets. Apply sealant to both ends of all horizontals prior to assembling the module. After module is assembled, clean off all excess butyl sealant.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

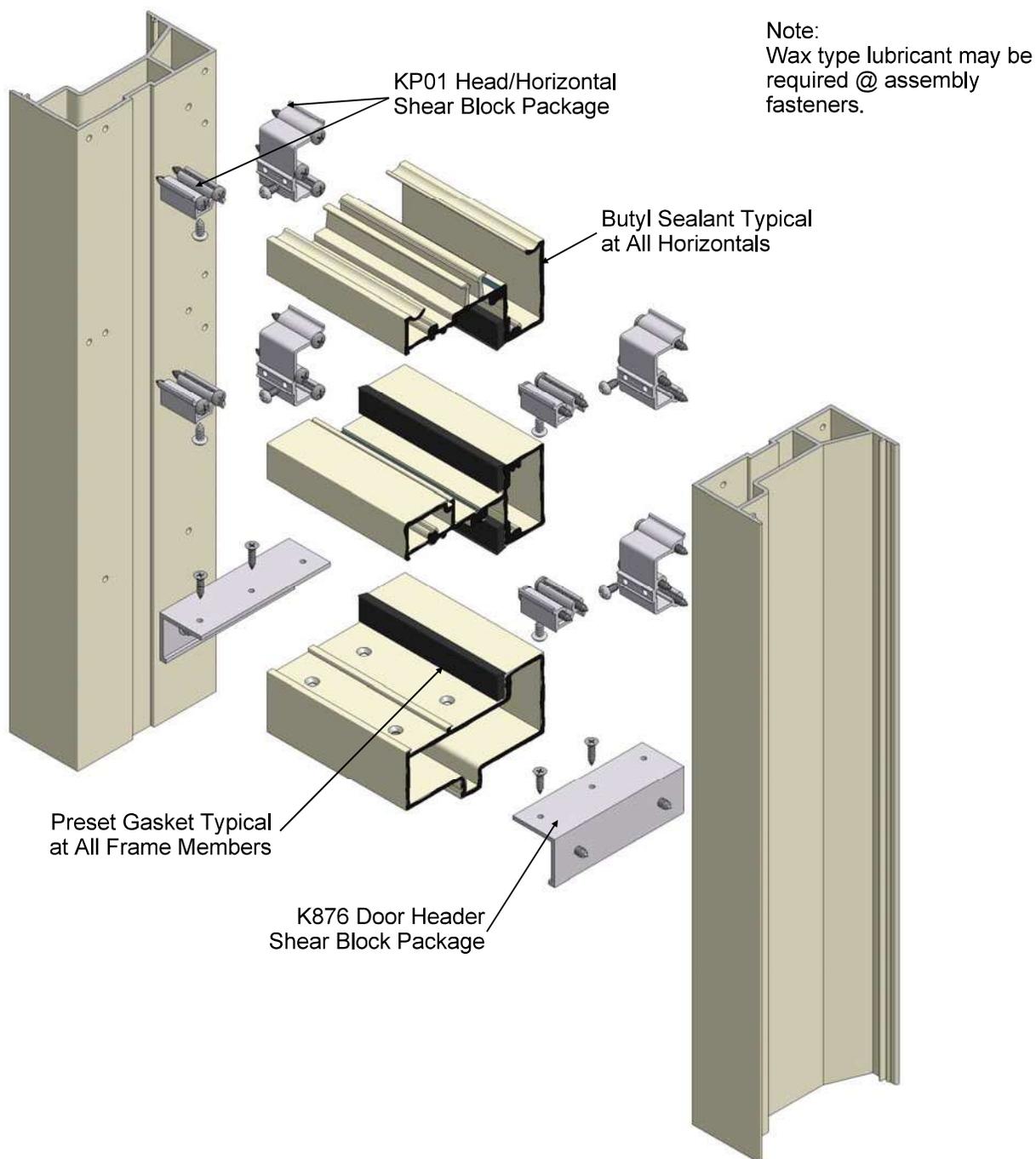


SECTION IV: Frame Assembly

C. Door Frame Shear Block Assembly Outside Glazed Only

Apply sealant to both ends of all the horizontals prior to assembling the module. After module is assembled, clean off all excess butyl sealant. Shear block packages come with shear blocks and fasteners.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

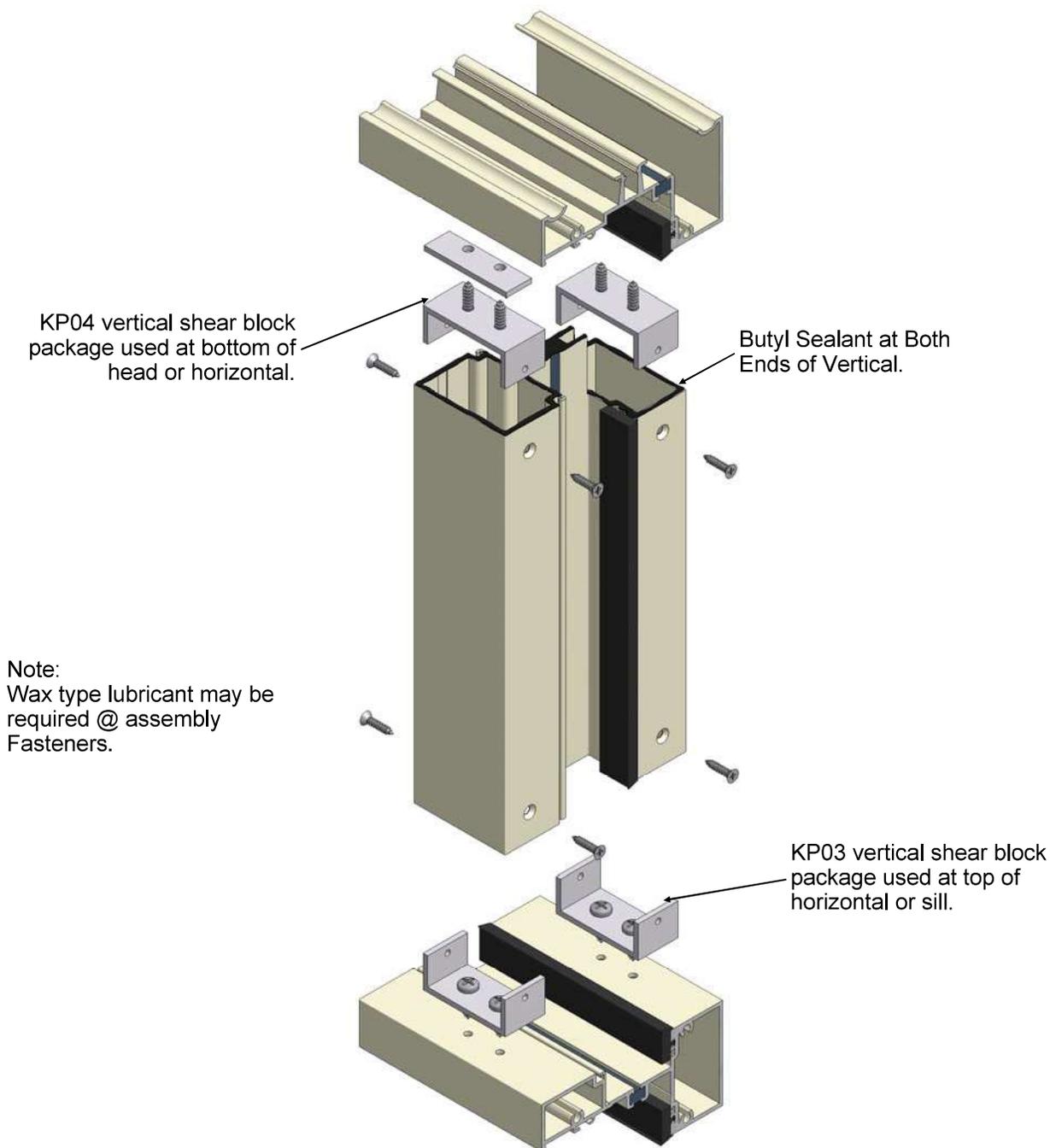


SECTION IV: Frame Assembly

D. Horizontal Thru Shear Block Assembly Inside Glazed and Outside Glazed

Apply butyl type sealant to both ends of the vertical prior to assembling the module.
After module is assembled, clean off all excess butyl sealant.
Shear block packages come with shear blocks and fasteners.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.



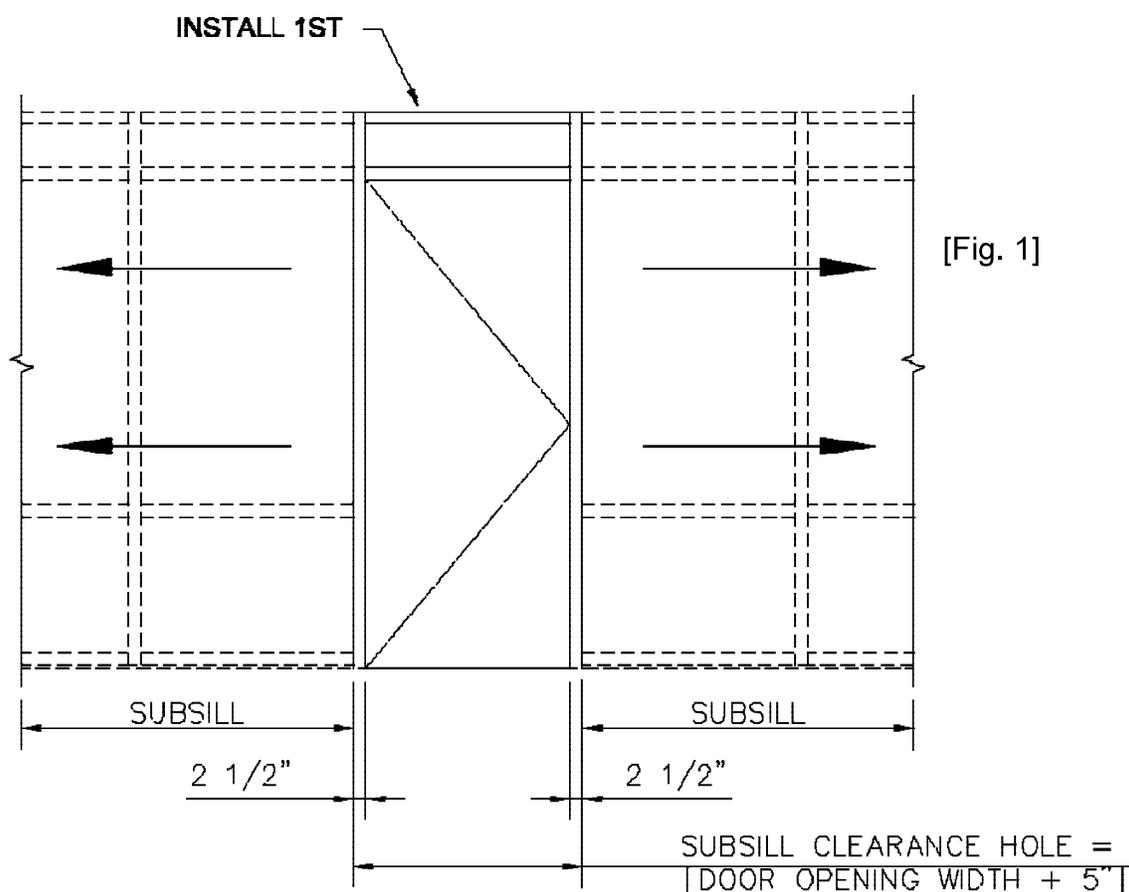
SECTION V: Door Frame Installation

Step 1) General Notes

Door frames should be installed first, before all other framing material. The system subsill must be installed from the door framing, ensuring that the appropriate clearance is available for the door frame. All subsequent modules must be installed from the door jambs outward.

The door frame module is shear block only. All sidelites will be screw spline application.

Door jambs do not set on the subsill. Door jambs must run through to the floor condition.



Step 2) Subsill Installation at Door Opening

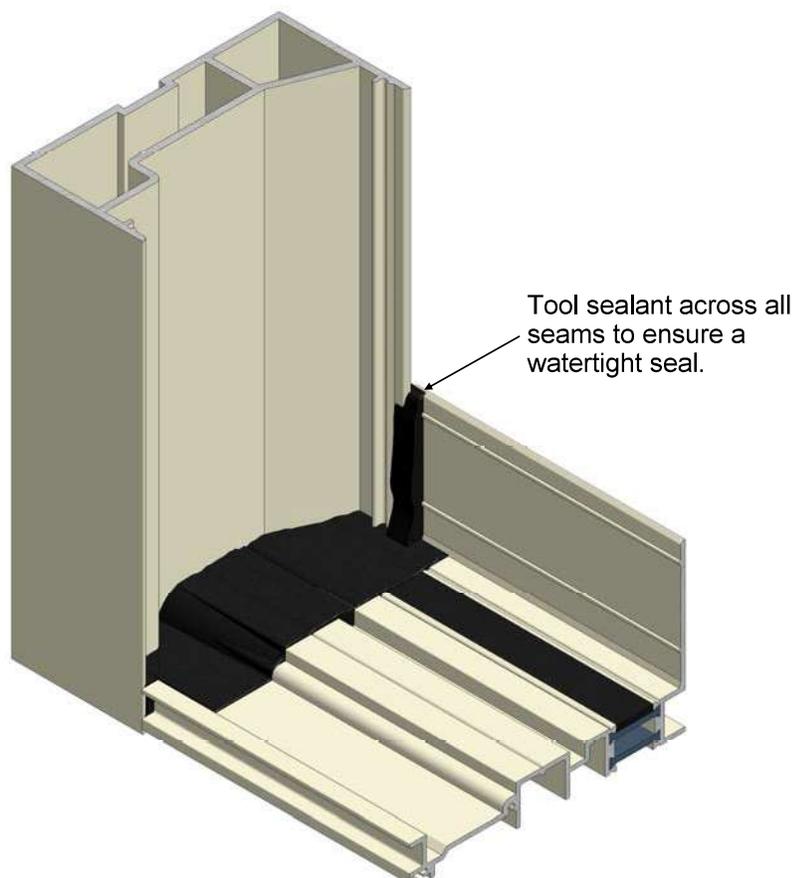
Where a door opening is required, use the equation in figure 1 above. Install the door frame true and plumb in the opening as specified on the shop drawings or architectural drawings. Install the subsill in the same manner as illustrated in figures 7-22 on pages 24 through 30. End dams are not required at the door frame end of the subsill. The subsill should butt up tight to the door frame.

SECTION V: Door Frame Installation

Step 3) Subsill Sealant at Door Frame

Before installing the subsill to the door frame, seal the end of the subsill with a silicone type sealant. Install the subsill, and tool all excess sealant into the joint where the subsill and door jamb meet. If required, add more sealant to create a smooth watertight seal. Do not build-up excess sealant as it will keep the sill member of the frame pushed away from the jamb, if allowed to cure before the sidelite frame is installed. At the glazing pockets, a build-up of sealant must be used to fill the depth of the pocket up to the level of the subsill at the glazing area. See figure 2 below for sealant application at the subsill to door jamb joint.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

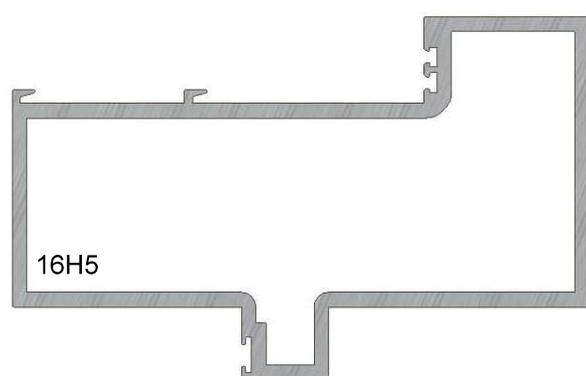


NOTE: Fill the glazing pocket of the door jamb flush with the sealant to the tallest portion of the subsill that bridges the pocket. Tool the silicone so a watertight seal is made to make sure that water will be directed out of the glazing pocket and into the subsill.

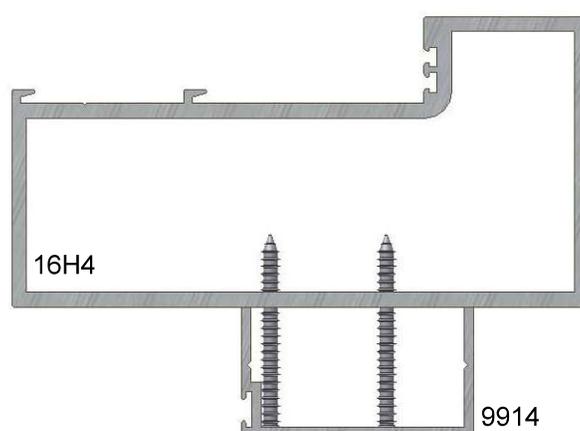
SECTION V: Door Frame Installation

Step 4) Door Header Identification

Depending on what type closer is used, two different door headers are available. The header for surface closers has an extruded door stop and will not have a stop applied at the door header. Concealed Overhead Closers (COC) do not have an extruded stop and must have a slide arm cover/door stop applied. The 9914 stop is applied with S130 #8 FH fasteners in pre-located holes. Match drill the holes in the stop to the door header. See figure 3 below for door header identification and stop application.

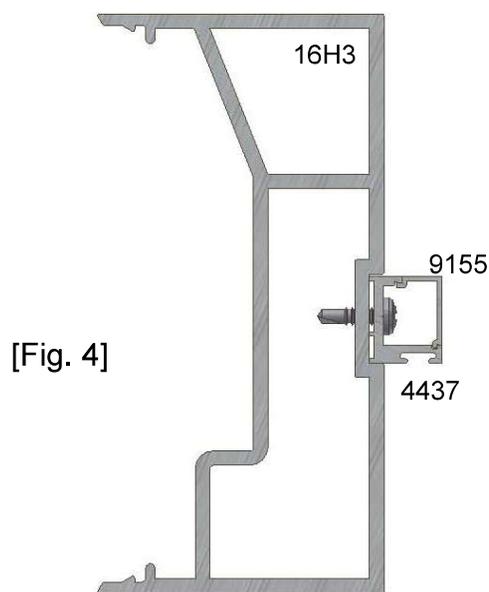


[Fig. 3]



Step 5) Door Jamb Stop Application

The door jambs are designed to accept a screw applied door stop in a recessed area of the door jamb. The applied door stops should run from the top of the threshold to the bottom of the door header stop. They should be attached with STT6 TEK screws @ 2" from each end and 9" on center maximum. After the applied stop is attached, snap-on the applied stop cover to hide the attachment fasteners. See figure 4 for door stop and cover application.

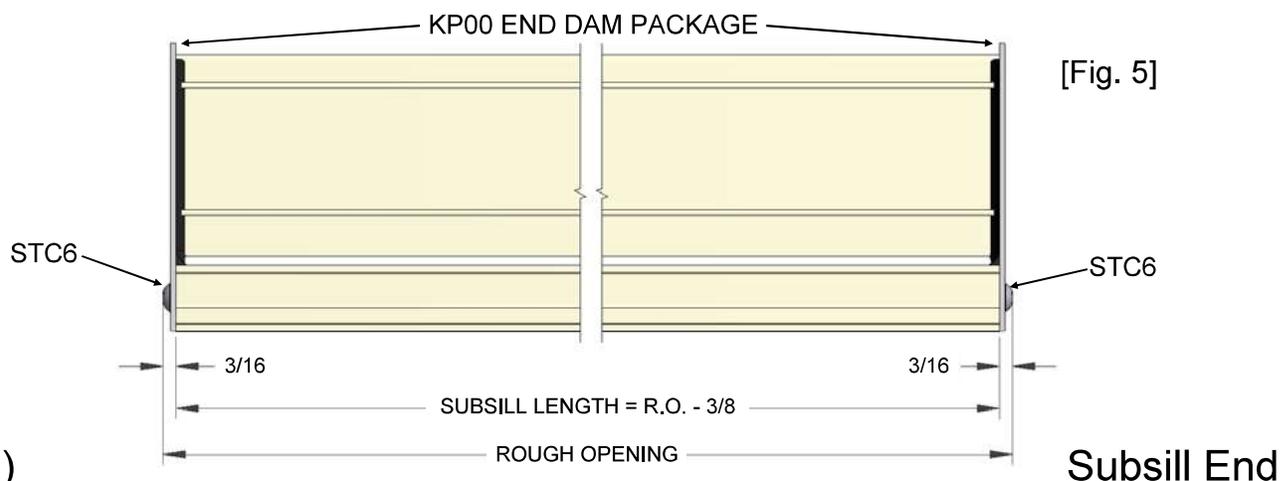


[Fig. 4]

SECTION VI: Subsill Fabrication and Installation

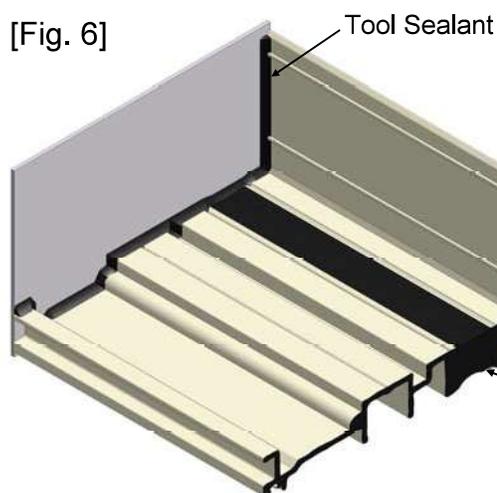
Step 1) Subsill End Dam Requirements

Before installing the subsill into the rough opening, determine whether an end dam (KP00) is required or not. If the surrounding condition does not have an open area or can be used as a water dam, move to Step 3 on page 25. The first step to installation of the end dams is to measure the rough opening width. The subsill length should be, $\text{ROUGH OPENING WIDTH} - 3/8"$. This formula will give enough room for the end dam and attachment screws to fit on both ends of the subsill without interference with the rough opening. (See figure 5 below.)

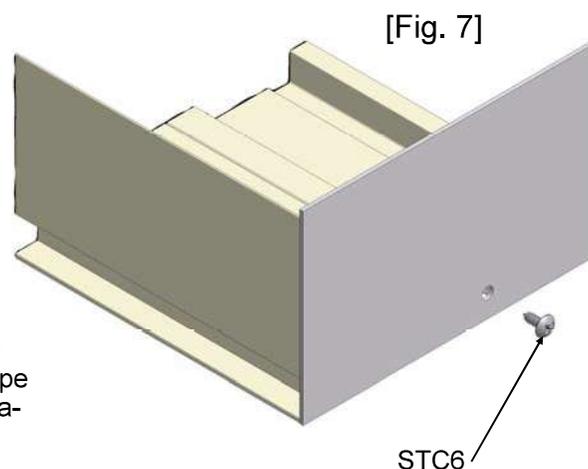


Step 2) Dam Installation

Prior to installing the end dam, apply a generous amount of silicone type sealant to the end of the subsill. Insert the STC6 fasteners into the end dam, and attach it to the end of the subsill. After the end dam is attached, the excess sealant should be tooled at the interior of the subsill/end dam joint to provide a watertight seal. Apply more sealant, if required, for a watertight seal. (See figures 6 and 7.)



Butter the ends of the subsill with silicone type sealant prior to installation of the end dam.

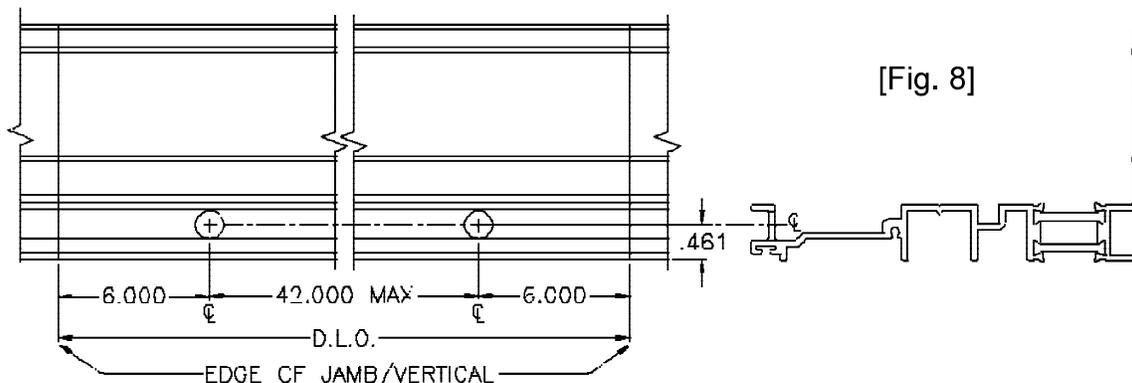


Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

SECTION VI: Subsill Fabrication and Installation

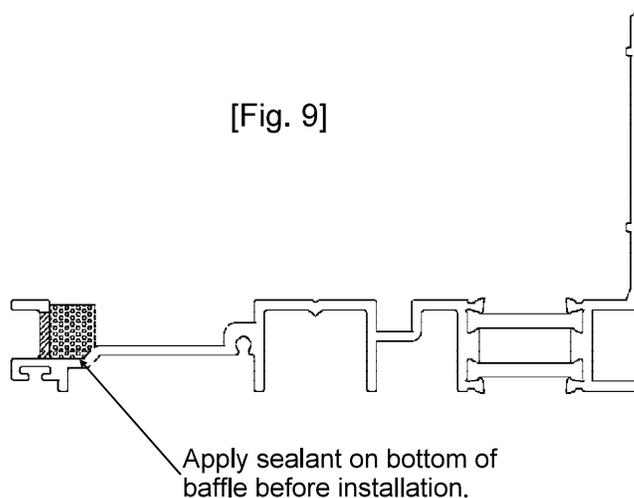
Step 3) Subsill Weep Fabrication

Drill 3/8" weep holes in subsill 6" from each jamb/vertical and no more than 42" apart.



Step 4) Subsill Weep Baffle Installation

Weep baffles (FWE5) are placed on the subsill behind the weep holes. Apply a small amount of silicone type sealant to the baffles, and locate them over the weep holes as shown in figure 9. Ensure the sealant does not cover the weep holes.



Step 5) Subsill Installation When End Dams Are Not Required

An end dam may not be required in all cases. Before installing a subsill without an end dam, determine if the surrounding condition can be used to create a water dam, and if the material will not degrade over time if it comes into contact with water. Once it has been determined that the condition is appropriate to create a water dam, continue the installation of the subsill as described in Steps 6-10 of this section.

SECTION VI: Subsill Fabrication and Installation

Step 6) Benchmarks for Subsill Location

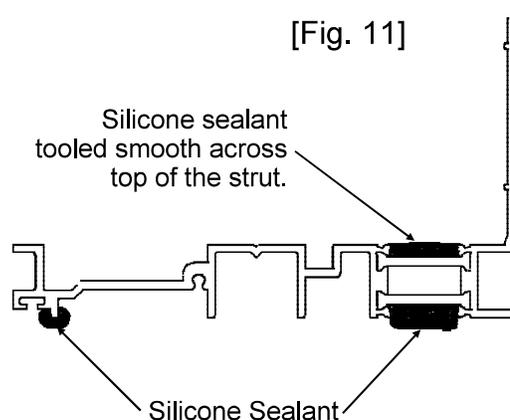
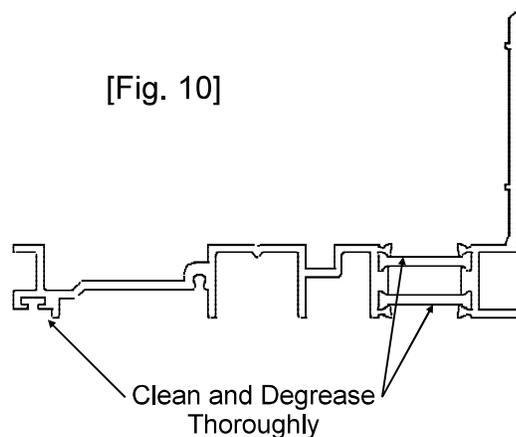
Before installing the subsill, the exterior face location of the frame should be found using benchmark information from the shop drawings or architectural drawings. The subsill protrudes 1/32" to the exterior of the exterior face of the frame. Locate this line based on the benchmark information, and snap a chalk line to follow when installing the subsill. The subsill exterior angled leg should follow the chalk line for correct installation.

Step 7) Preparing and Sealing the Subsill for Installation

Regardless of whether an end dam is used or not, the subsill must be sealed to the condition to create a watertight condition when it is installed. It is also necessary to run a continuous bead of silicone on the top of the strut. See figure 11 below. Begin the process by cleaning the bottom and top strut of the subsill with a degreasing solution, and wipe it dry after all foreign material has been removed. See figure 10 below. When the subsill is clean and dry, run a bead of silicone type sealant across the top of the strut, and tool smooth. Then turn the subsill over, and apply a generous amount of silicone type sealant to the areas shown in figure 11. This should be done just prior to the installation of the subsill.

prevent the sealant from setting up before the subsill is installed.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

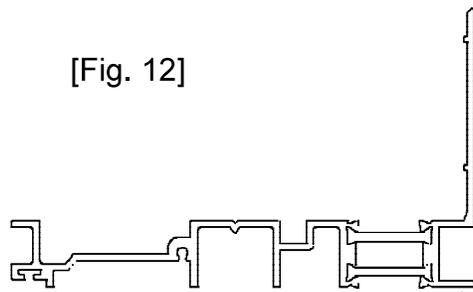


SECTION VI: Subsill Fabrication and Installation

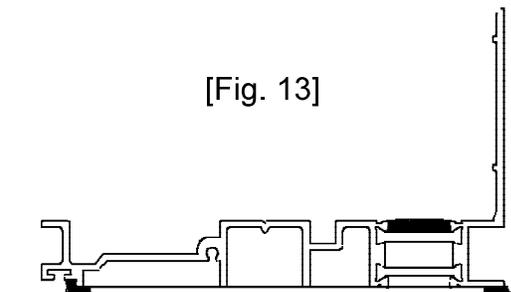
Step 7A) Shimming the Subsill if Required

In cases where the sill condition is not true and level, shimming may be required. The subsill must be level and true and will need to be prepped as described in Step 7 on page 26. At the shimmed area, there is no need to apply sealant until after the subsill is set on the condition and anchored as described in Step 8. See figures 14 and 15.

[Fig. 12]



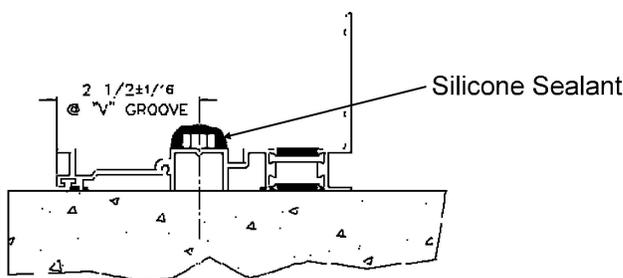
[Fig. 13]



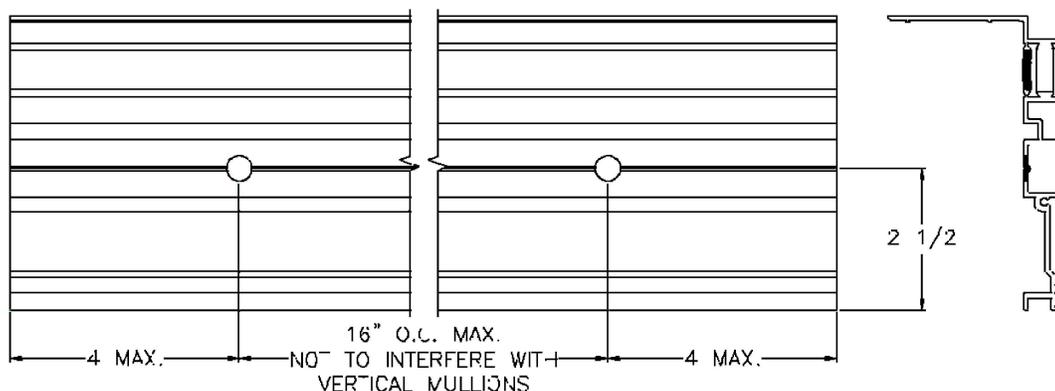
Step 8) Anchorage of the Subsill

After the subsill has been cleaned and the silicone sealant has been applied, rotate the subsill into position, and follow the chalk line location marks. Firmly press the subsill into position so that the sealant is pressed uniformly onto the condition. Locate anchors on the "V" groove of the subsill, tighten firmly and uniformly to anchor the subsill. Anchors should be placed 6" from each end and 16" on center. Seal and tool the anchor heads with silicone type sealant. See figure 14. These are general anchor location guidelines. Size, space, and embedment of anchors as required to meet structural loads.

[Fig. 14]



[Fig. 15]

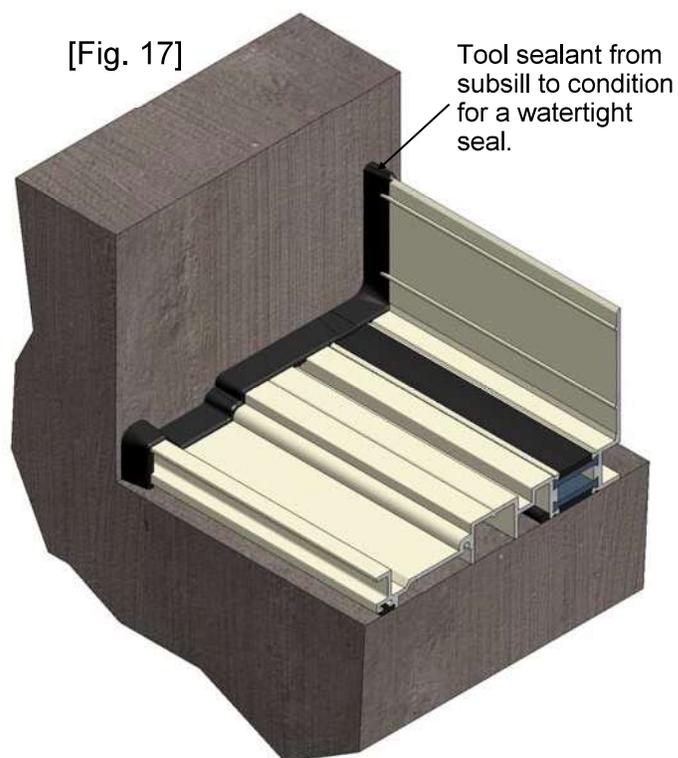
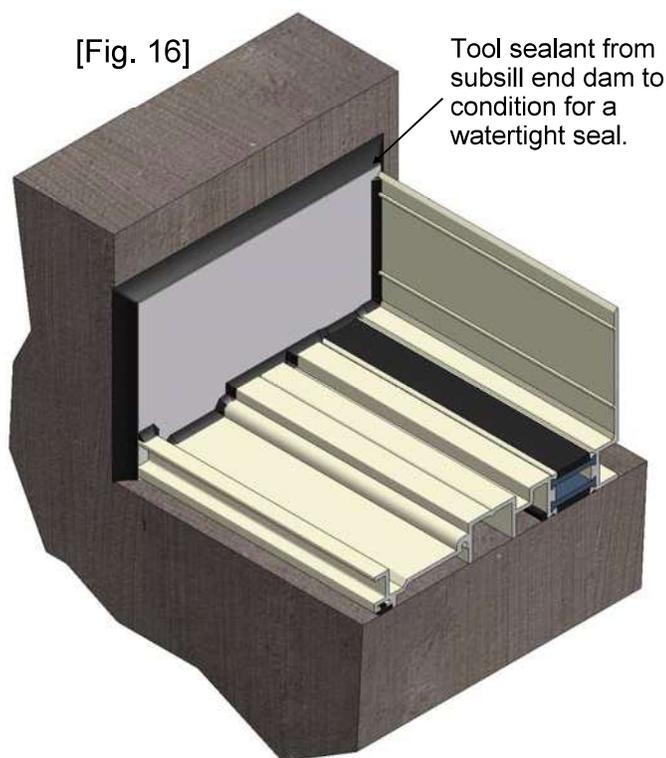


SECTION VI: Subsill Fabrication and Installation

Step 9) Sealing the Ends of the Subsill

After the subsill has been installed and anchored, it must be sealed to the condition at each end with silicone type sealant. If the subsill has an end dam, there should be a continuous bead of silicone type sealant placed up both the interior and exterior and across the top edges of the end dam, where it meets the condition. The sealant should be tooled to make a watertight seal between the end dam and the condition. If the subsill does not have an end dam, a continuous bead of silicone type sealant must be applied to the end of the subsill, where it meets the condition. The sealant should be tooled to make a watertight seal between the subsill and the condition. See figures 16 and 17 below for sealant application.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

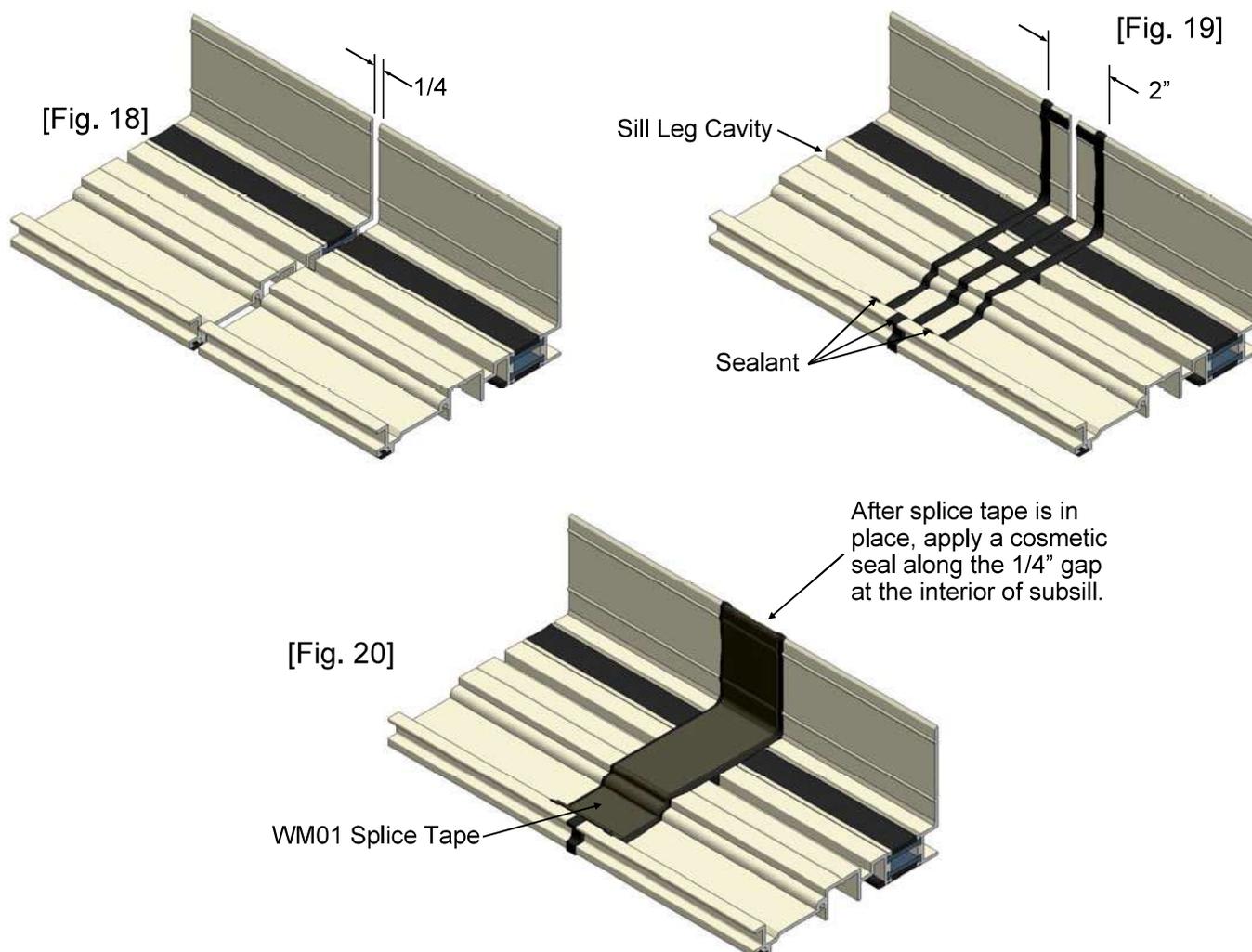


SECTION VI: Subsill Fabrication and Installation

Step 10) Splicing the Subsill

Verify that the subsills have been installed according to instructions on pages 24-28. Splice areas should be centered at the vertical mullion only. Subsill length should never exceed 20-25 feet. If a splice is required, leave a 1/4" gap between the subsill ends centered on a vertical mullion location. See figure 18. Use silicone type sealant and a strip of WM01, bond breaker tape, 2" wide and approximately 7 1/2" long to create the splice material. Apply the sealant to both sides of the subsill ends, fill the void between the subsills from the exterior to the interior at the condition, and fill the sill leg receptor cavities on both subsills to a width of 2". See figure 19. Ensure that the bond breaker tape is centered over the 1/4" gap, and set the bond breaker tape in the sealant. See figure 20. Tool the sealant over the bond breaker tape to create a watertight seal. If more sealant is required to cover the edges of the bond breaker tape, apply the required amount. Ensure that the splice joint does not interfere with anchor legs of the sill or the leg receptors of the subsill. This is done by making sure the splice joint is located at the center of a vertical mullion. Refer to the shop drawings or architectural drawings for mullion center lines.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

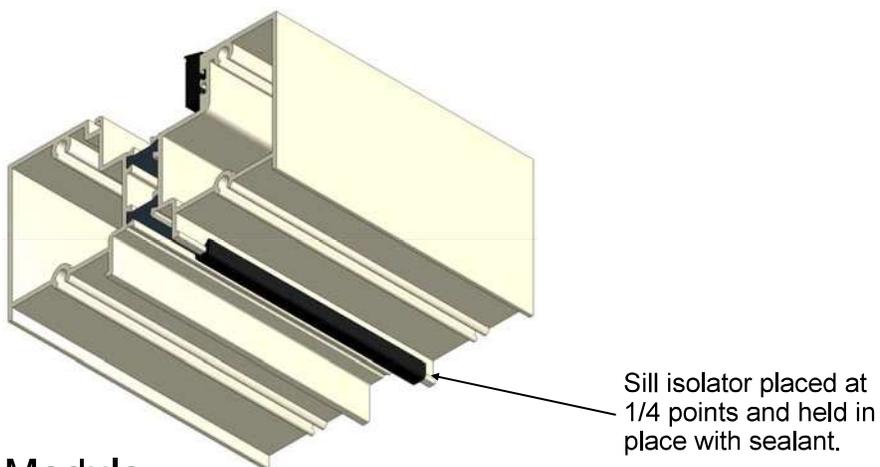


SECTION VII: Frame Installation

Step 1) Installing Sill Isolator

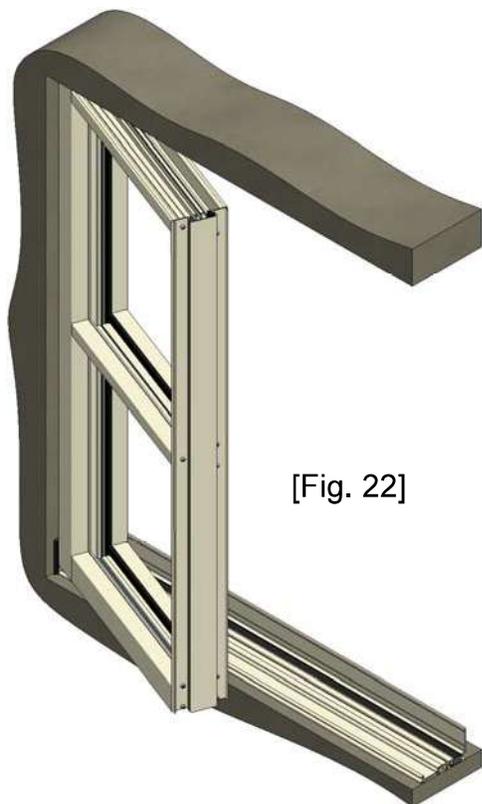
Before installing the jamb module into the opening, the sill isolator (HC03) must be in place. Slide the isolator onto the interior interlock leg on the sill. See figure 21 below. There will need to be one at each end of the sill at quarter points. Place a small amount of sealant on the interlock leg at the quarter point location to hold the isolator in place while installing the module.

[Fig. 21]

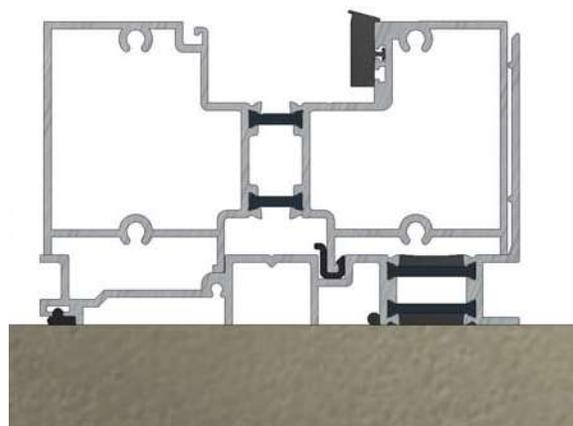


Step 2) Installing Jamb Module

Place the module on the subsill at an approximate 30° angle. While applying pressure upward, rotate the module into the condition. See figure 22. When rotated correctly into place, the interlocking legs of the sill will set inside the lock cavity of the subsill; the sill should set flat on the subsill. See figure 23 for sill placement on the subsill.



[Fig. 23]

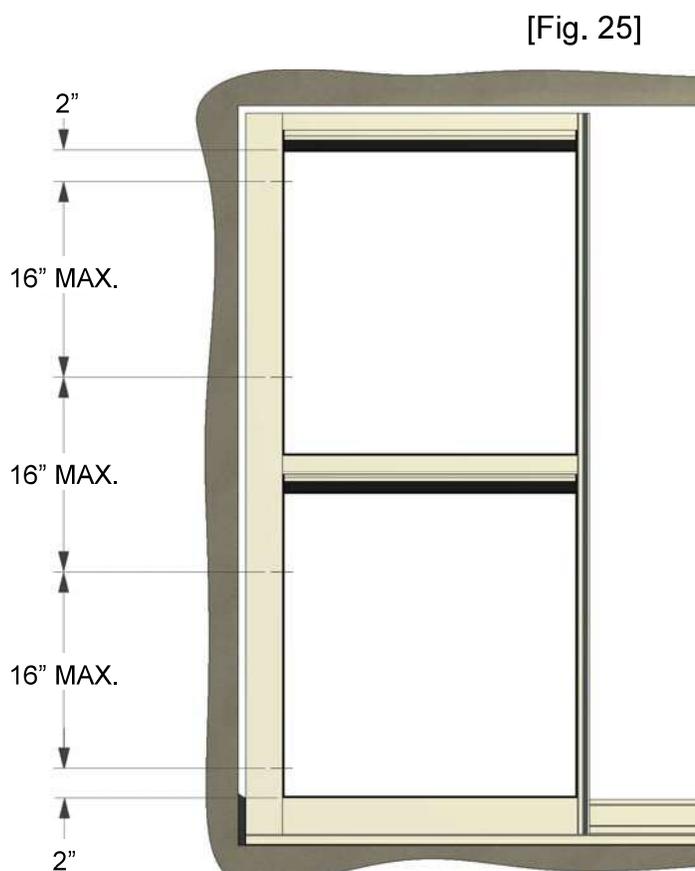
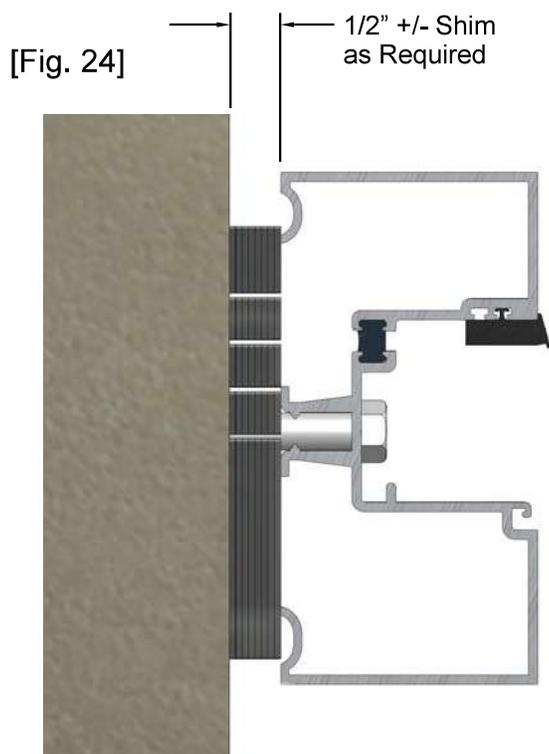


SECTION VII: Frame Installation

Step 3) Anchoring the Jamb

Ensure that the frame jamb is true and plumb. Anchor through the jamb and into the condition as shown in figures 24 and 25 below. As a general guideline, anchors will be located 2" from head and sill with a maximum of 16" O.C. and 1/2" shimming.

Remember these are general anchor location guidelines. The size, space, and embedment of anchors required to meet structural loads per job specifications will override these guidelines.

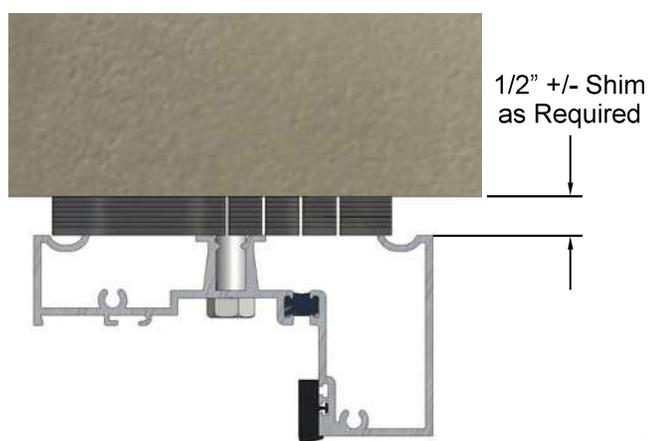


SECTION VII: Frame Installation

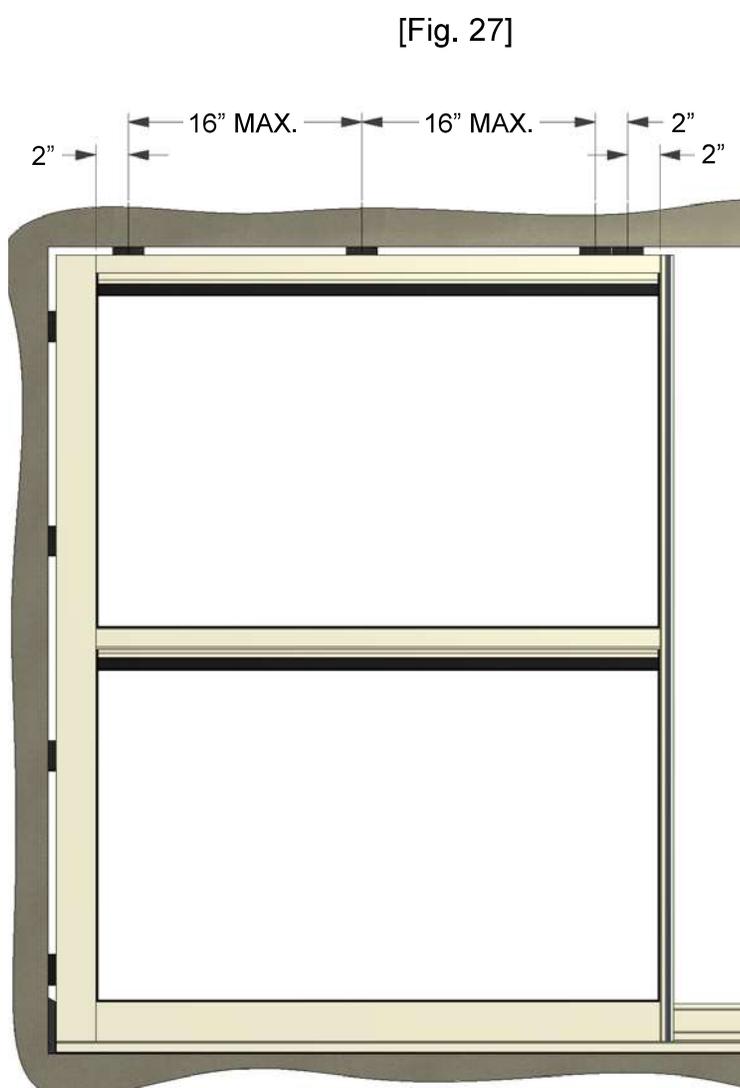
Step 4) Anchoring the Head

For D.L.O.s 22" and narrower, the anchors must be spaced 2" from the jamb and vertical members. Also, another anchor 4" from the intermediate vertical is required. For D.L.O.s wider than 22", the outside anchors must be spaced in a similar manner, and all center anchors must be located at 16" on center maximum. See figures 26 and 27 below for anchor placement.

Remember these are general anchor location guidelines. The size, space, and embedment of anchors required to meet structural loads per job specifications will override these guidelines.



[Fig. 26]

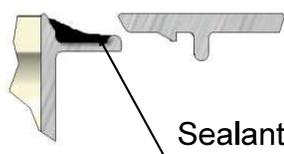


SECTION VII: Frame Installation

Step 5) Sealing Vertical Mullions

Prior to installing an intermediate vertical mullion or perimeter jamb, apply silicone type sealant to the vertical mullion in the location shown in figure 28 below. Both sides of the entire mullion should be sealed. Apply enough sealant so when the filler or opposite mullion half is snapped, it will create a good seal. Wipe off excess sealant from the exterior, if required. This sealant practice should be used for screw spline vertical mullions only.

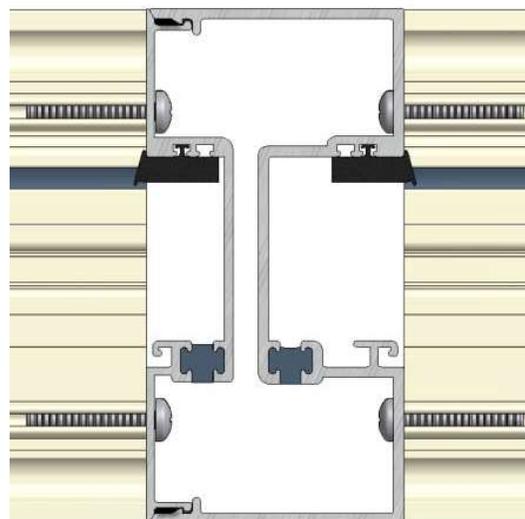
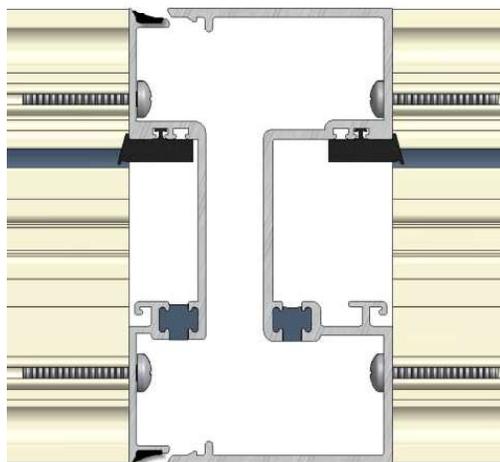
Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.



[Fig. 28]

Sealant at both interior & exterior

Clean off any excess sealant at both interior and exterior.



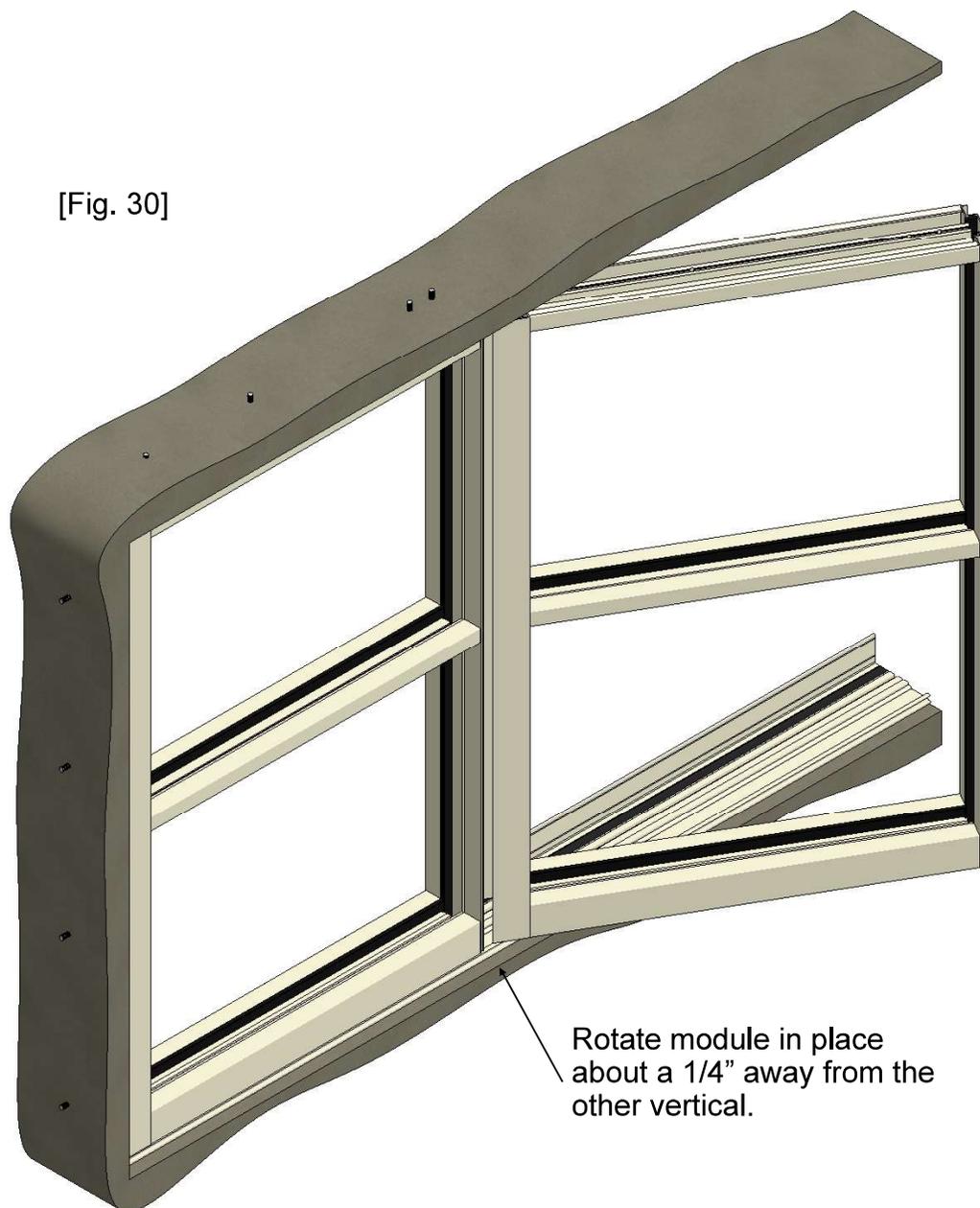
[Fig. 29]

SECTION VII: Frame Installation

Step 6) Installing Subsequent Modules

Make sure that the anchors are installed into the head and jamb of the first module as specified in figures 24-27 on pages 31 and 32. The silicone type sealant should be applied to the mullion as specified in figure 28 on page 33. Place the second module on the subsill at an approximate 30 degree angle. See figure 30 below. Rotate the module into the condition approximately 1/4" away from the previously installed module. When rotated correctly into place, the interlocking legs of the sill will set inside the lock cavity of the subsill, and the sill should set flat on the subsill. See figure 23 on page 30 for sill placement on the subsill. Once the second module is in place a 1/4" from the first module, slide it into position and begin snapping the mullion halves together.

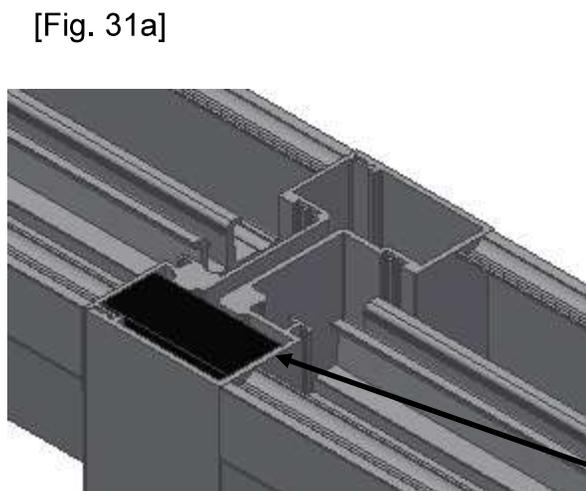
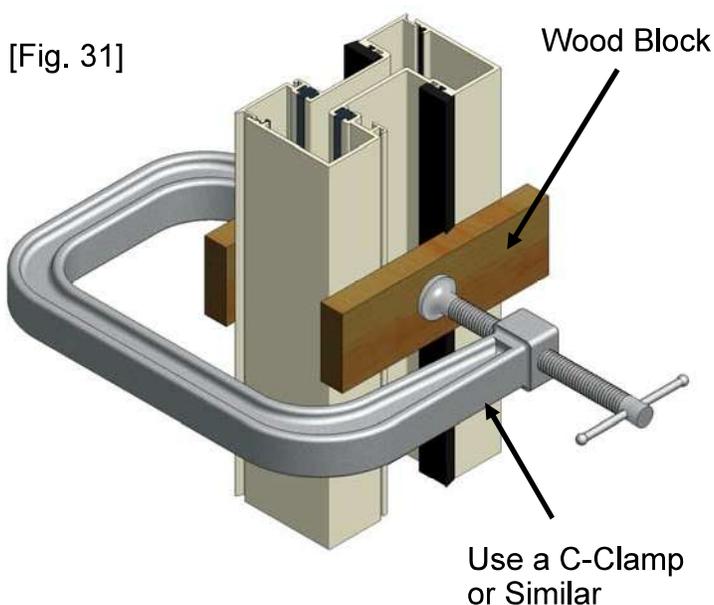
[Fig. 30]



SECTION VII: Frame Installation

Step 7) Snapping Screw Spline Vertical Mullions Together

In some cases, it may be necessary to use a clamping device to get the mullions together properly, if they cannot be snapped by hand. To do this, place one clamp at the bottom of the mullions using wood blocks to protect the extrusions. Tighten the clamp until the mullion halves begin to snap together. Place another set of wood blocks and a clamp at the middle of the mullions and tighten it. Then repeat the same process at the top. Tighten the clamps until the mullion halves are pressed together. The sight line should be 2 1/2". It may be necessary to work from one clamp to the next several times, or move the clamps to ensure the mullions are snapped together evenly. **DO NOT try to hammer** the mullion halves together! This will dent, bend, scratch, or deform the mullions and may cause them to leak. Ensure that the previous module is fully anchored before installing the next module.



After vertical mullions are snapped together, close off at head before installing the frame into the building opening. Insert a foam plug (N.B.E.) into the top of the mullion at the exterior side of the system. Make sure that the top of the plug is flush with the top of the vertical mullion in order to keep the exterior perimeter joint seal continuous.

Step 8) Anchoring Subsequent Modules

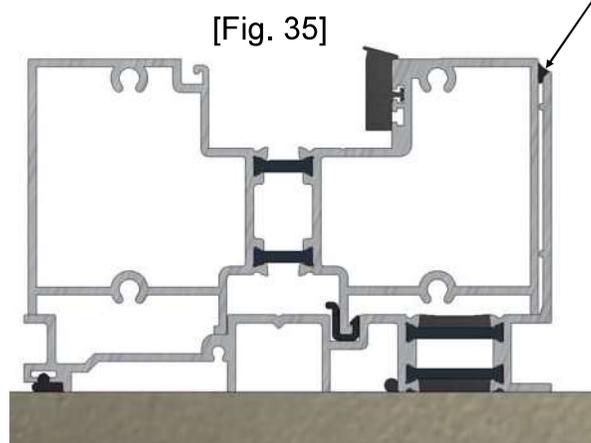
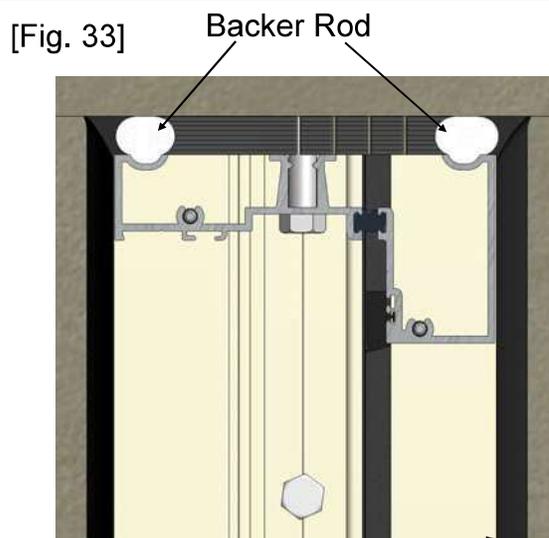
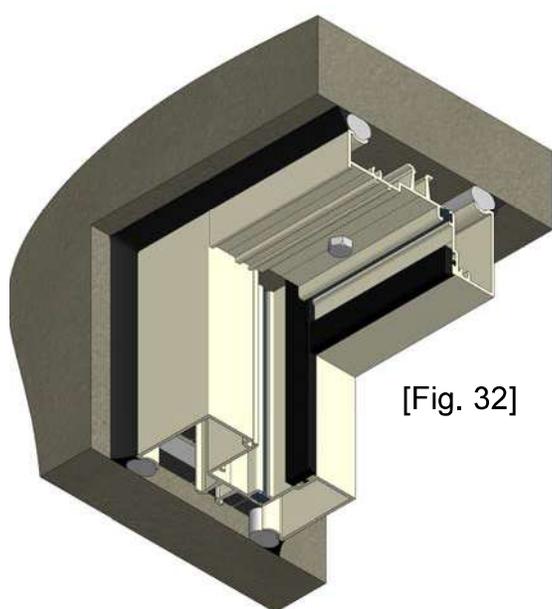
After the mullion halves are snapped correctly, ensure that the mullions are plumb and true. Anchor the head as shown on page 32. If this is the last module in a run, ensure that the mullion halves are snapped correctly, and install the required shims between the jamb and condition. Install the head and jamb anchors as shown on pages 31 and 32. Ensure that the jamb anchors do not separate the last module from the previous. It may be necessary to shim tightly against the condition to prevent this. Seal and tool all anchor heads with silicone type sealant.

SECTION VII: Frame Installation

Step 7) Perimeter Frame Sealant

All portions of the frame and surrounding conditions, where sealant will be applied, should be cleaned and prepped per the sealant manufacturer's recommendations. Use silicone type sealant to create the perimeter seal of the system at both exterior and interior perimeters. Exterior and interior seals are required for air and water performance. Begin by pushing caulk backer rod into position around the full perimeter of the frame at the head and jambs. Push the backer rod into the gap, between the frame and condition, so it sets below the frame edge. See figures 32 - 34 below for backer rod placement. The sealant should be applied by a skilled tradesman to ensure proper seal and appearance. See figures 33 and 35 below for sealant application. The sill and subsill will have a bead of sealant across the full length of the subsill. See figure 35.

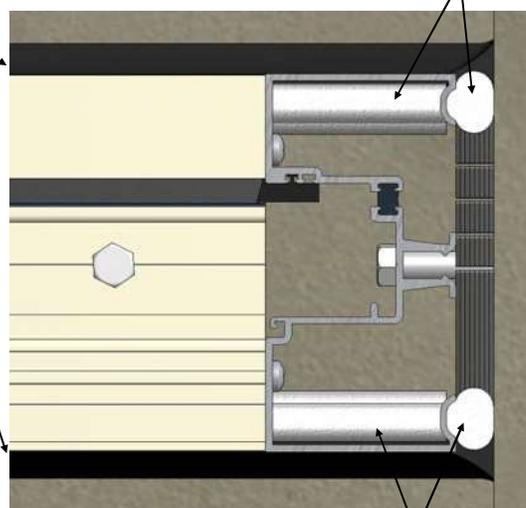
Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.



Sealant

[Fig. 34]

Backer Rod



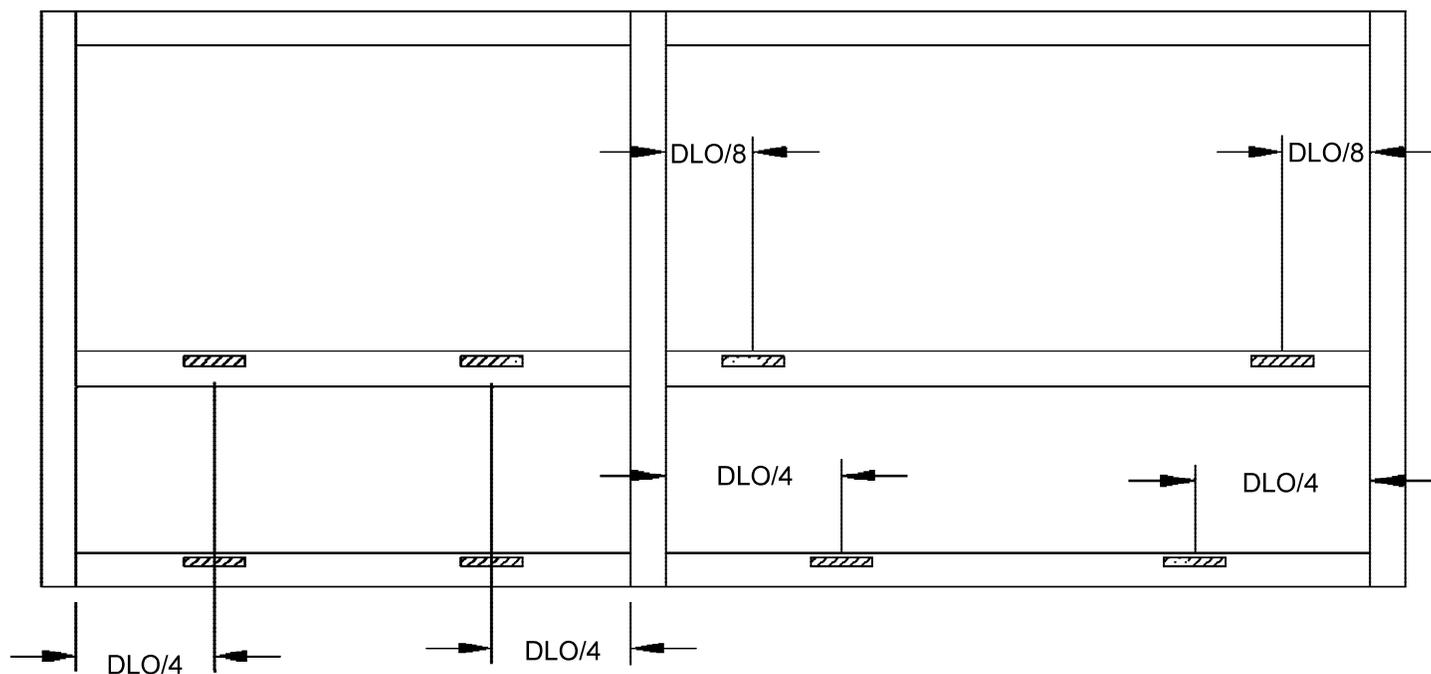
Backer Rod

SECTION VIII: Glazing

Step 1) Setting Block Identification and Location

The setting block for standard frame horizontals is HEP0. The door headers require the use of a HN13 setting block. Two setting blocks per D.L.O. are required and should be placed at 1/4 points or 1/8 points, depending on special dead load requirements. Depending on the size and configuration of each DLO, the glass setting blocks must be placed to give the best support of the glass without adding dead load weight to deflect the horizontal. Figure 36 below shows typical 1/4 point and 1/8 point setting block locations. Contact EFCO Structural Engineering for blocking requirements, other than 1/4 and 1/8 points.

[Fig. 36]



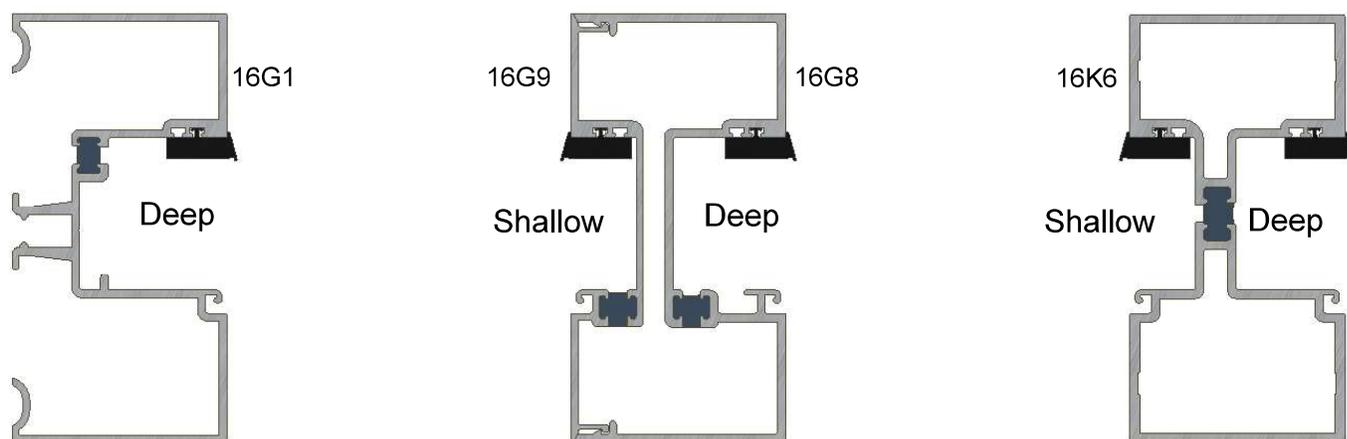
Customer / Installer Note:

EFCO setting blocks are typically 4" in length with different depths. If the glazing infill is "NOT BY EFCO" and glazing sizes are larger than 40 square feet, the glazing details must be reviewed by the glazing manufacturer for proper setting block size.

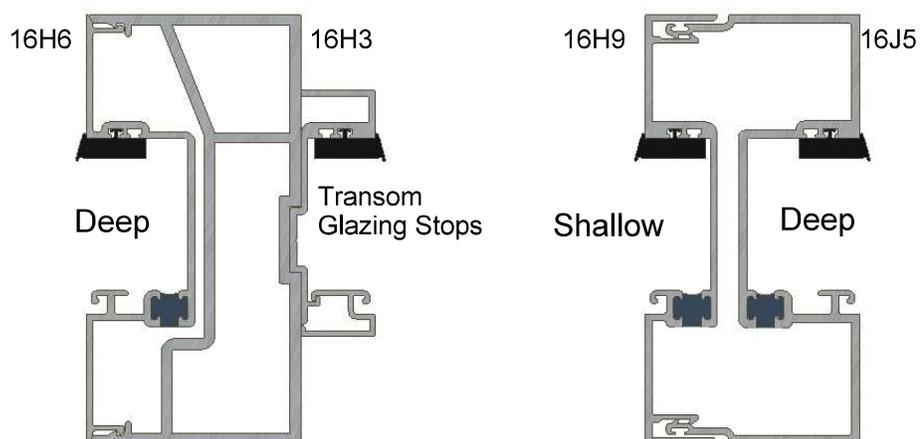
SECTION VIII: Glazing

Step 2) Glazing Pocket Identification in Verticals

Ensure that each vertical DLO has at least one DEEP glass pocket on either side. It is necessary for the glazing installation that a deep pocket be used to load the glazing units. One exception is the applied transom glazing stops. The applied stops do not require the glass to be loaded into a deep pocket. The details below (figure 37) are shown with the deep glazing pockets to the right for viewing clarity.



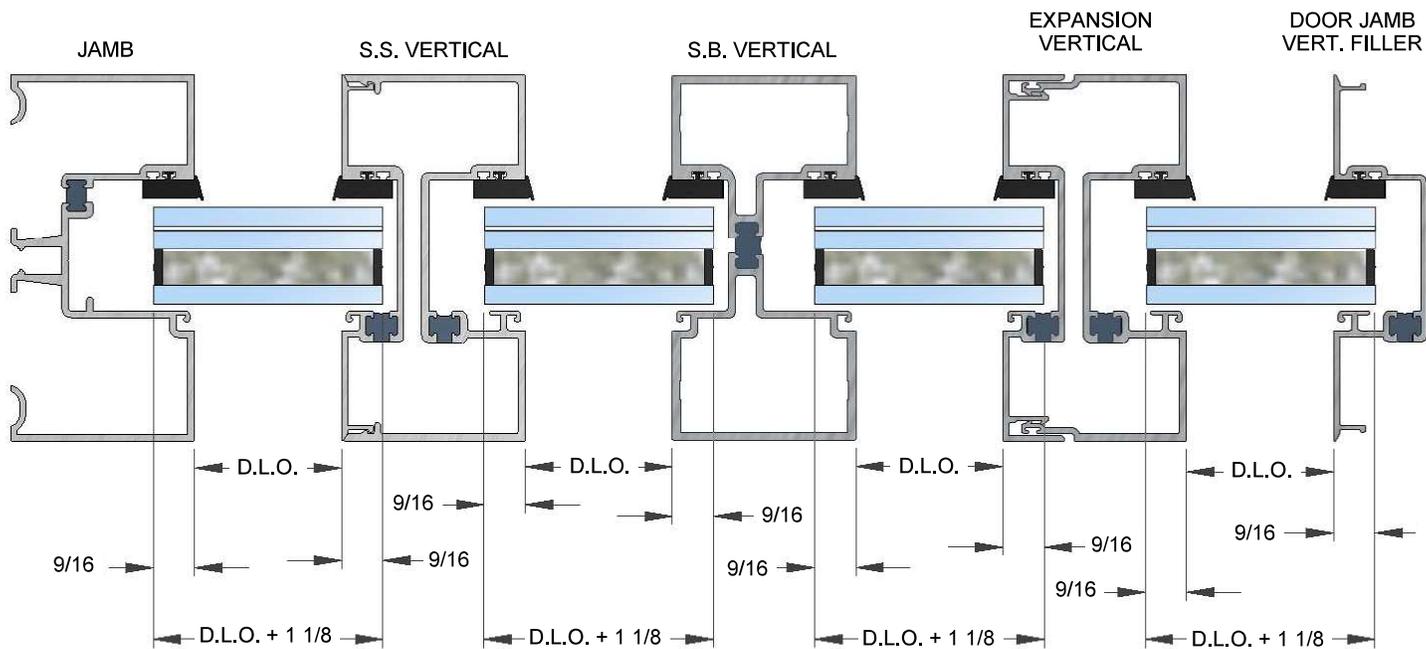
[Fig. 37]



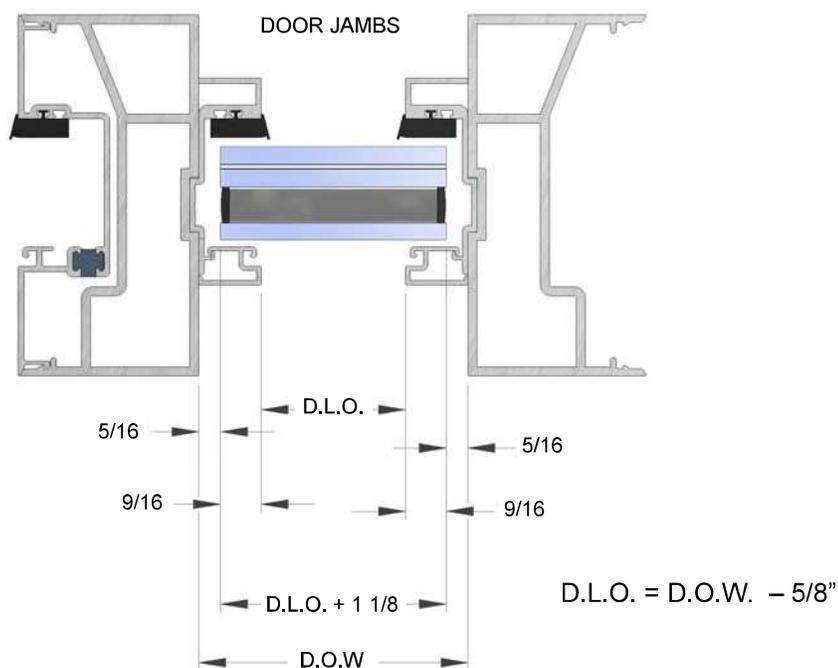
SECTION VIII: Glazing

Step 3) Glass Size Formulas and Glass Bite (Verticals)

Glass size formulas are D.L.O. + 1 1/8" for both horizontal and vertical D.L.O.s. Glass bite for all glazing is 9/16". See figure 38 below for horizontal glass size and bite and figure 39 on the next page for vertical glass size and bite.



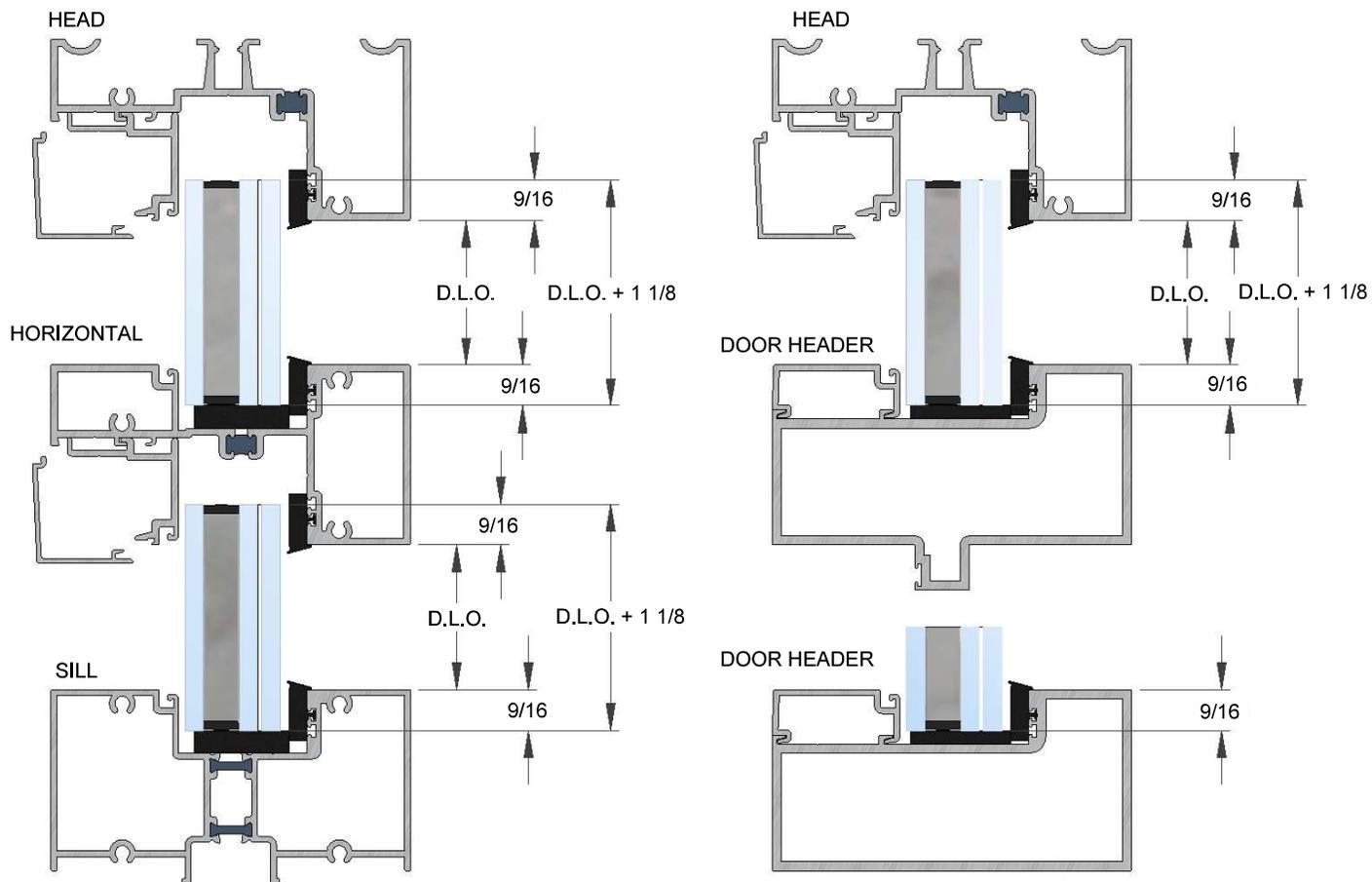
[Fig. 38]



SECTION VIII: Glazing

Step 3A) Glass Size Formulas and Glass Bite (Horizontals)

[Fig. 39]



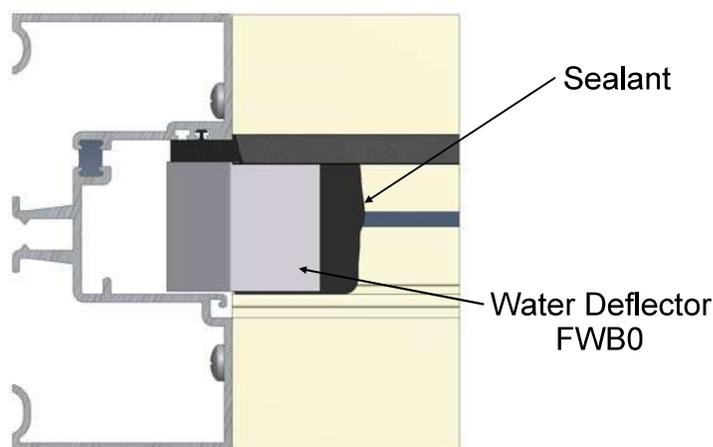
SECTION VIII: Glazing

Step 4) Installing the FWB0 Water Deflector

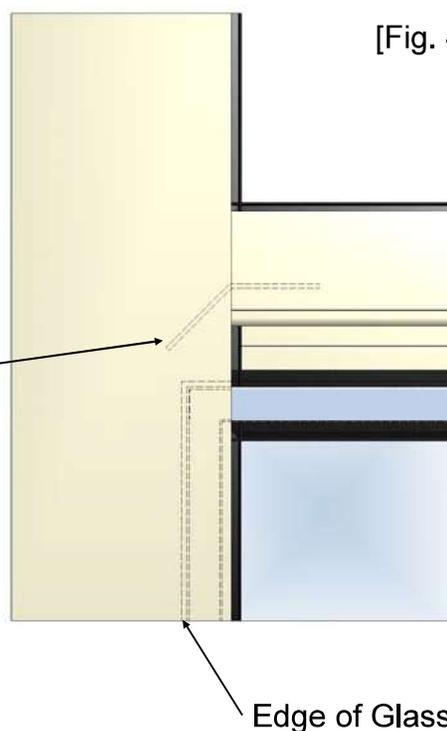
Install the FWB0 at the ends of the intermediate horizontals only. It is not required at heads or sills. Use silicone type sealant to adhere the FWB0 on the intermediate horizontal. Ensure that the thermal cavity is filled with sealant. Place FWB0 onto the top of the intermediate horizontal glazing pocket, and smooth any excess sealant so water will flow easily over the water deflector. See typical installation of the FWB0 in figures 40 through 42 below. The FWB0 will extend over the edge of the glass unit to deflect any water from getting on the top of the unit below.

Prior to applying sealant to the required areas, clean the area with Isopropyl Alcohol and a clean towel that will not leave towel materials behind. Wipe off material with a sufficiently dampened towel to remove all dust, oil, and cutting fluids from the required areas. Allow to air dry before applying any sealant.

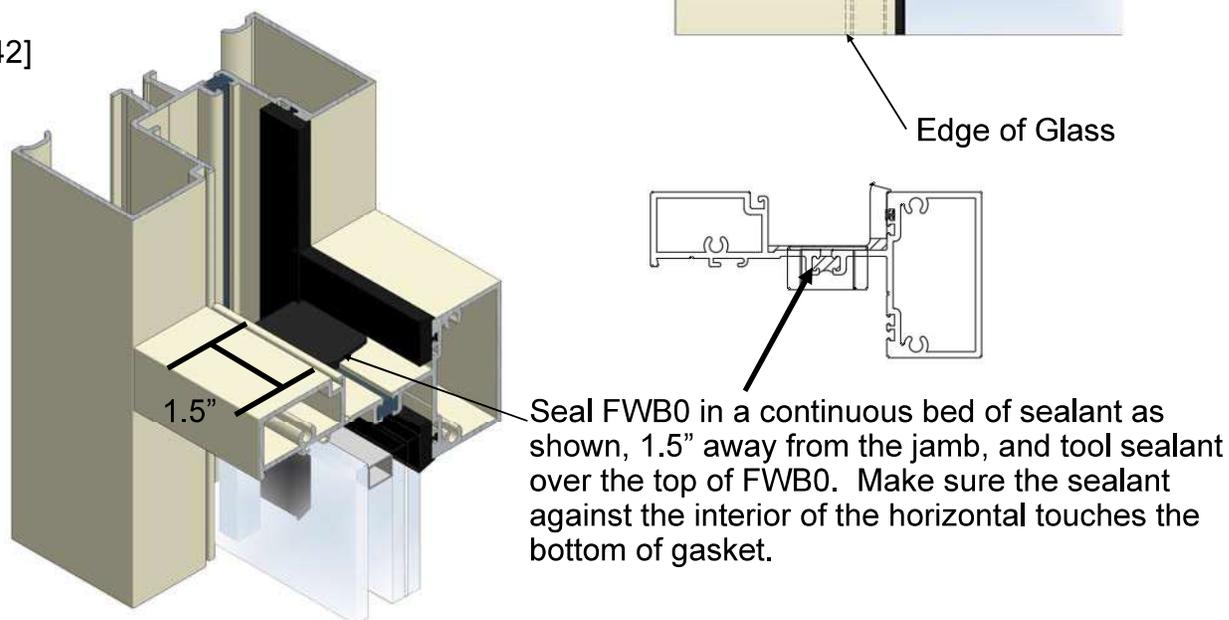
[Fig. 40]



[Fig. 41]



[Fig. 42]



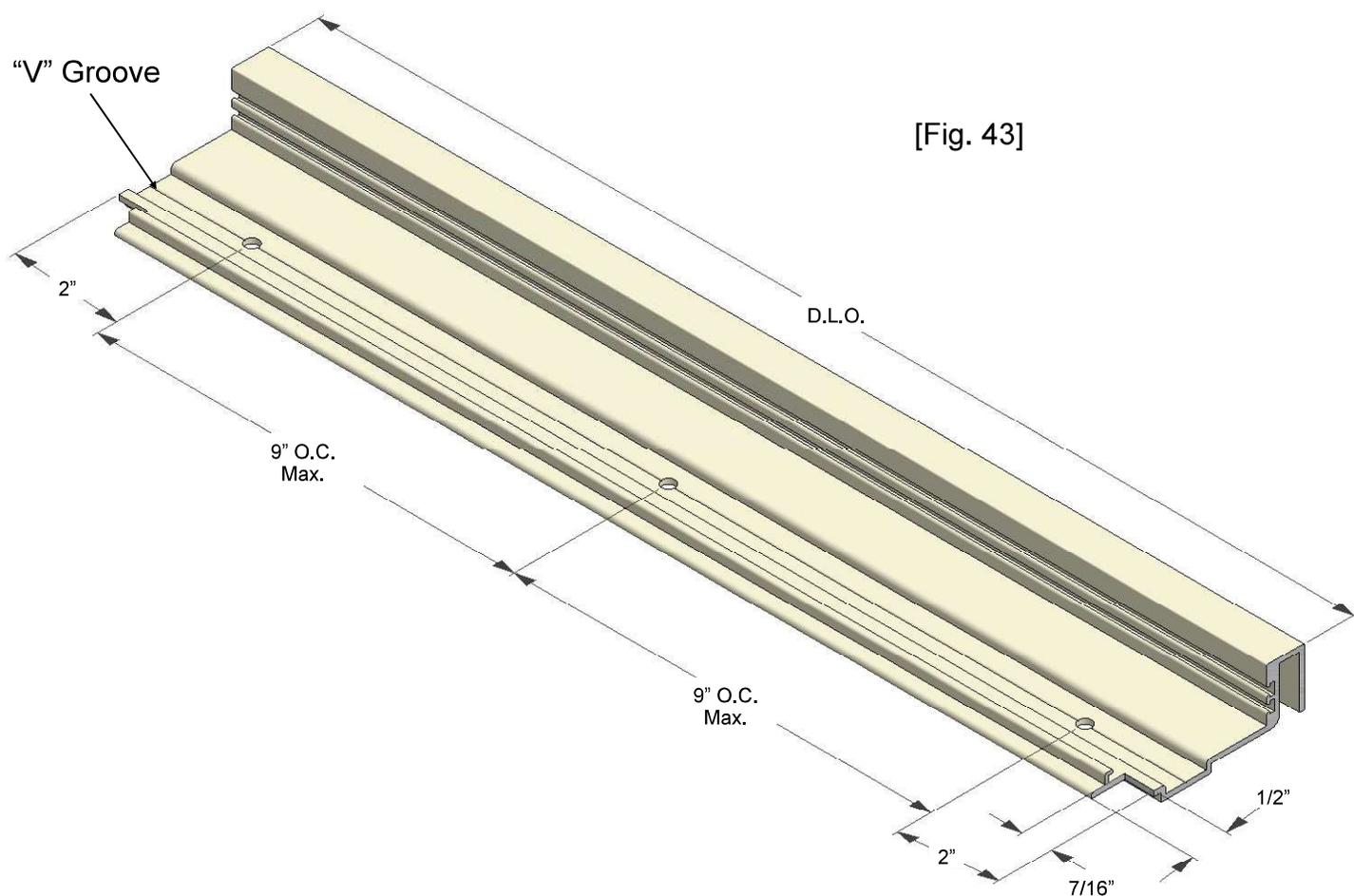
SECTION VIII: Glazing

Step 5) Installing the Door Transom Glazing Adaptor

Before installing the transom glazing adaptor (16H8), it has to be fabricated. The cut length is transom D.L.O. Transom D.L.O. is measured from top of door header to bottom of transom head as shown in figure 39 on page 40.

To facilitate the installation of the door header glass stop, notch both ends of the adaptor with a 1/2" X 7/16" notch as shown below.

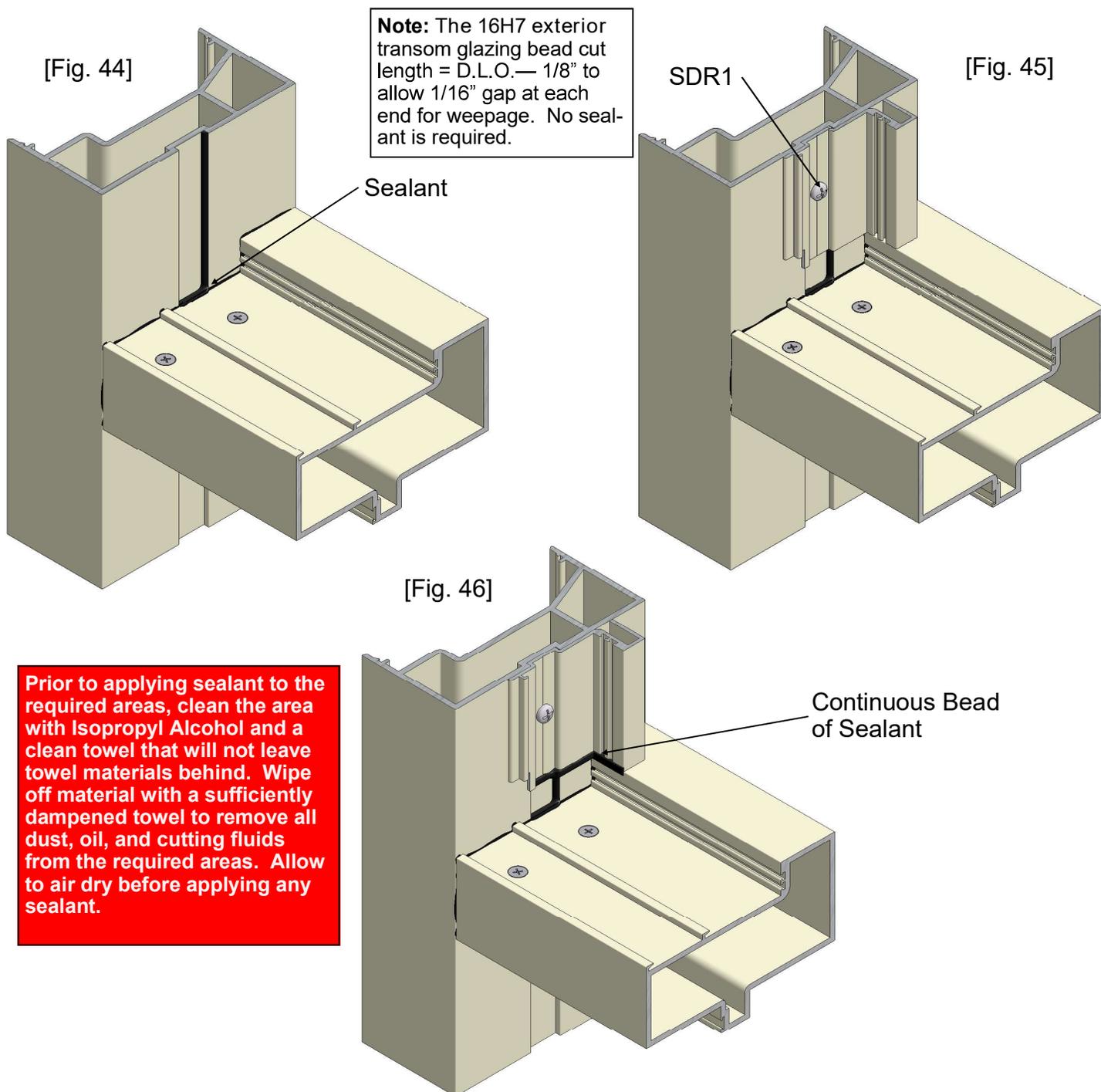
Drill a .201 dia. (#7 Drill) clear hole 2" from each end and 9" on center maximum. Use the "V" groove that is extruded into the adaptor as a guide for drill placement.



SECTION VIII: Glazing

Step 5A) Installing the Door Transom Glazing Adaptor

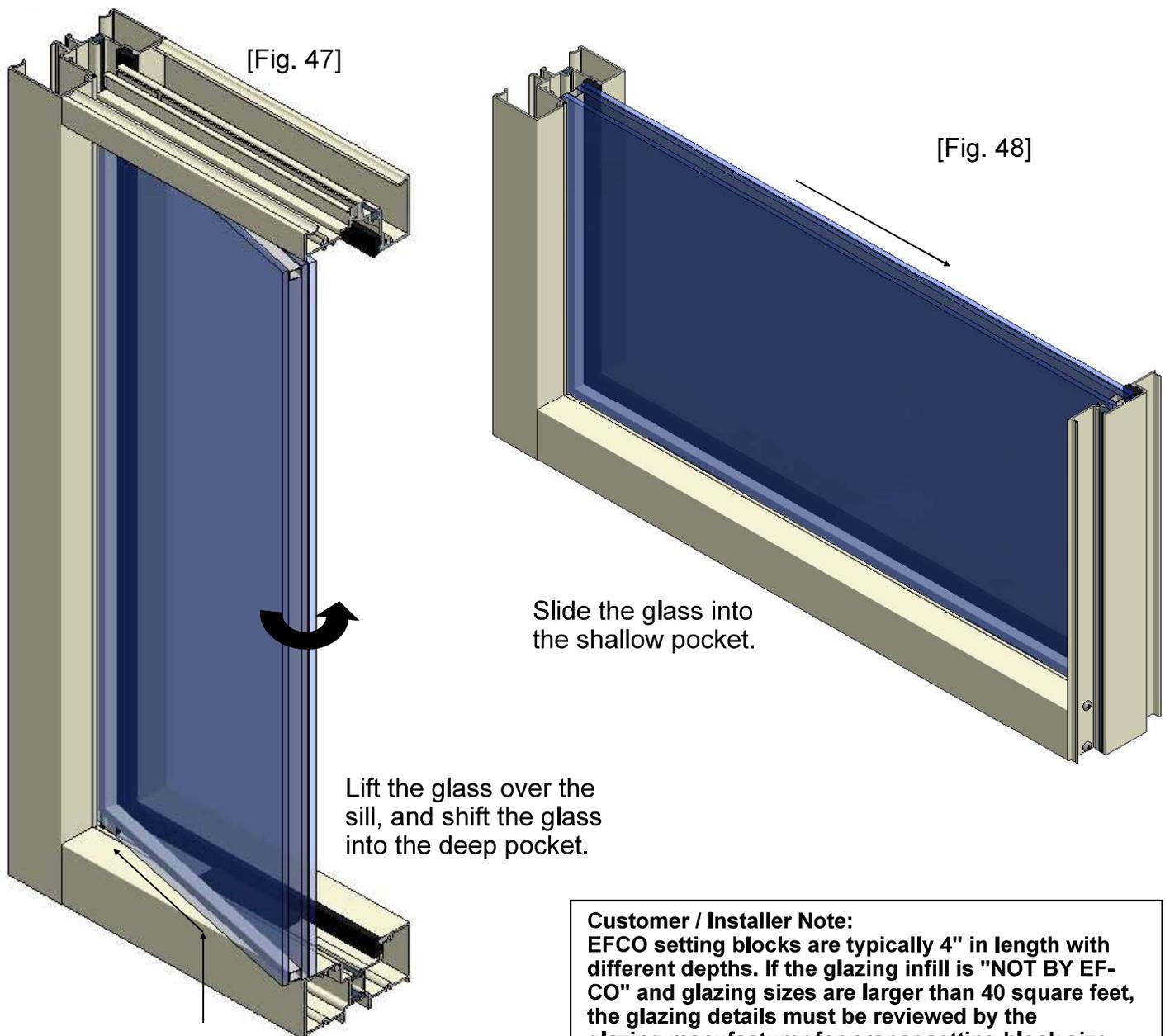
The preset gasket will need to be pulled out of the corners or removed completely before starting to install the 16H8 glazing adaptor. Run a bead of sealant from the bottom of the head, down the interior edge of the glazing adaptor pocket, and across the pocket at the top of the door header. Attach the glazing adaptor using SDR1 (10-16 X 3/4 TEK) fasteners. Run a continuous bead of sealant across the seam of the glass legs and all the way to the exterior edge of the glazing adaptor pocket in the jamb. Tool it to ensure a watertight seal. Do this at both top and bottom of the adaptor. Snap the preset gasket back into the gasket track before sealant sets up.



SECTION VIII: Glazing

Step 6) Glass Installation

- A. Make sure that the FWB0 is installed per the instructions on page 41.
- B. Clean the ends of the horizontal preset gasket with alcohol. Clean the vertical, where the horizontal butts up against it, with alcohol. Apply sealant to the end of the horizontal so that it will create a seal when it butts against the vertical.
- C. Insert the setting blocks at the predetermined 1/4 or 1/8 point locations.
- D. Position the glass on the side of the frame that takes the removable glass stop.
- E. Lift the glass over the sill, and shift the glass into the deep pocket to begin installation.
- F. Rotate the glass into the glazing pocket, and slide the glass into the shallow pocket.
- G. Adjust the glass so that an equal amount of glass bite is in each pocket.



Customer / Installer Note:
EFCO setting blocks are typically 4" in length with different depths. If the glazing infill is "NOT BY EFCO" and glazing sizes are larger than 40 square feet, the glazing details must be reviewed by the glazing manufacturer for proper setting block size.

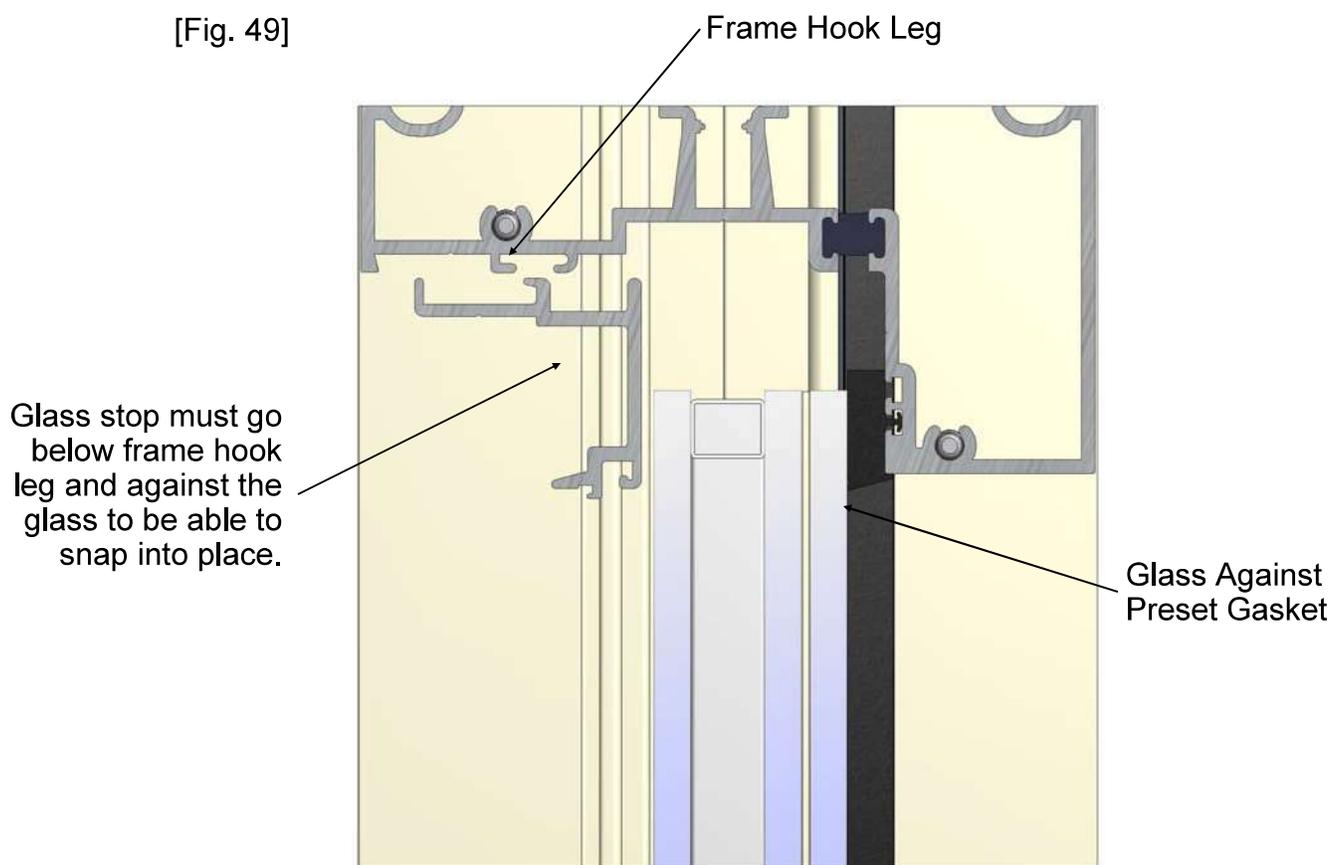
SECTION VIII: Glazing

Step 7) Attaching Glass Stop and Glass Stop Cover

The 16G3 glass stop has a hook leg that has to go past the frame hook leg towards the glass. So, it is necessary to push the glass against the preset gasket. This will give the 16G3 leg enough clearance of the frame hook leg. Lift and pull into place. It may be necessary to use short pieces of the drive-in gasket (W167) to temporarily hold it in place.

For DRY glazing, it is necessary to use SDR1 (10-16 X 3/4 TEK) fasteners to attach the glass stop, but for a WET glazing, the SDR1 is optional. Pre-drill the 16G3 glass to locate the SDR1 6" from each end, and one in the center for anything over 36" a maximum of 24" on center. Place the short temporary pieces of W167 at fastener locations. This will keep the 16G3 in place while attaching.

[Fig. 49]

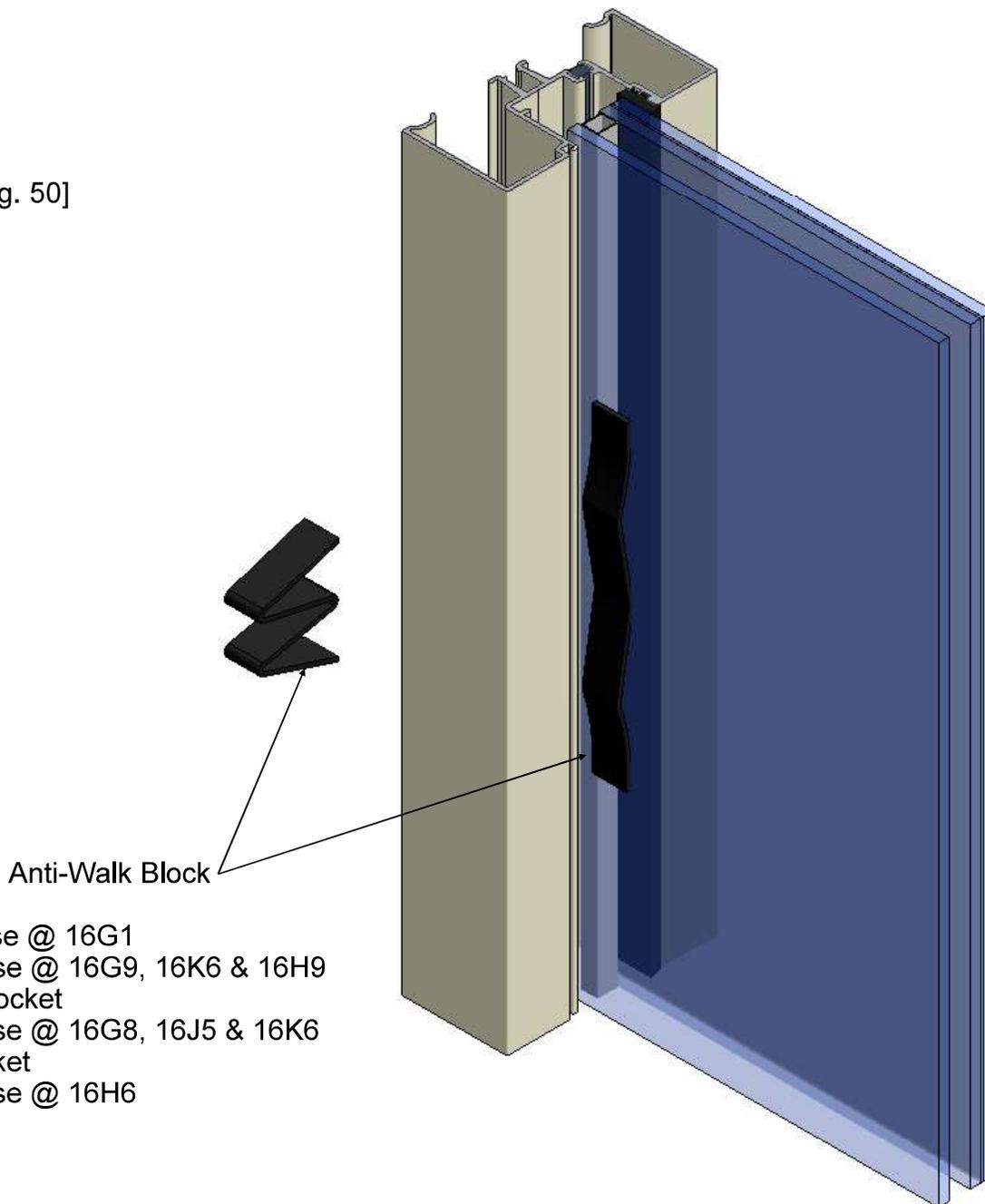


SECTION VIII: Glazing

Step 8) Anti-Walk Block Installation

Stretch the anti-walk block out as flat as possible, and insert it in between the glass and frame so that it opens up inside the glass pocket at midspan of the D.L.O. at the deep pocket. See figure 50 below. This can only be done from the drive-in gasket side of the frame. After the deep pocket anti-walk block is installed, slide the glass unit over against the anti-walk block, and insert one into the shallow pocket at midspan of the D.L.O. If Necessary, re-center the glass unit to maintain equal glass bite all around.

[Fig. 50]



- HN53 - use @ 16G1
- HNA5 - use @ 16G9, 16K6 & 16H9
shallow pocket
- HNA6 - use @ 16G8, 16J5 & 16K6
deep pocket
- HNA7 - use @ 16H6

SECTION VIII: Glazing

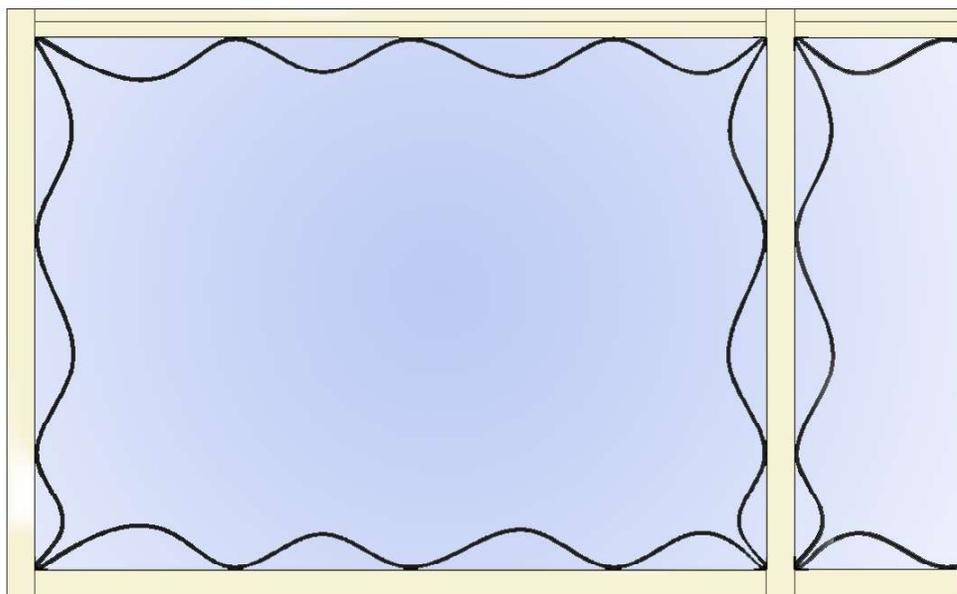
Step 9) Drive-in Glazing Gasket Installation

Ensure that the glass, setting blocks, snap-in glazing bead, and anti-walk blocks have been installed according to the instructions on the previous pages. Begin by measuring the D.L.O. width and height. Cut the drive-in glazing gasket (W167) to length by using the following formula.

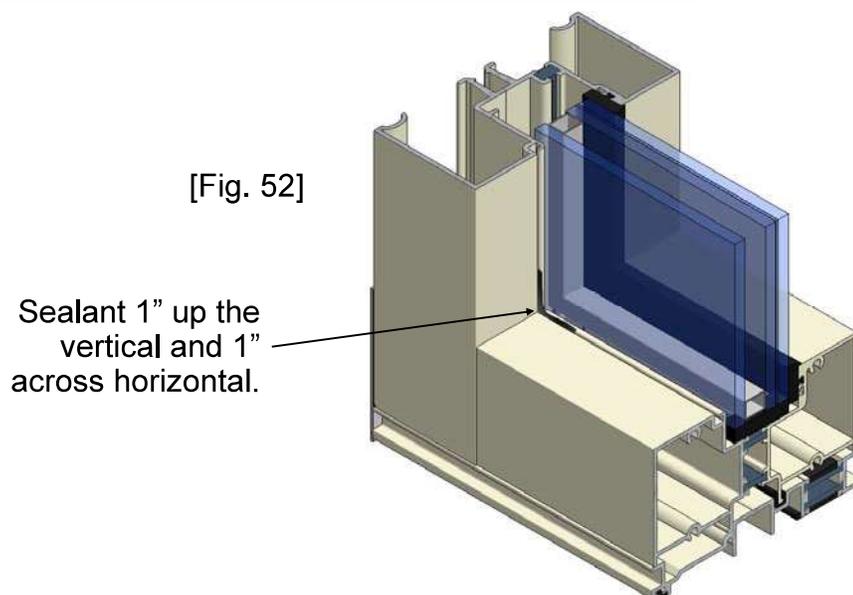
$$\text{EXTERIOR GASKET CUT LENGTH} = \text{D.L.O.} + 3.0''$$

Seal 1" vertically and horizontally in the gasket race with silicone type sealant at all corners. Seal the ends of the horizontal gaskets to the vertical gaskets. To install the W167 gasket, start by pushing the precut gasket in place at the ends. Move to the middle, then to 1/4 points, and work the "waves" toward the ends. Try to maintain 8" to 12" placement of the gasket to ease the installation.

Note: Install the vertical gasket first, then run the horizontal gasket into it.



[Fig. 51]



[Fig. 52]

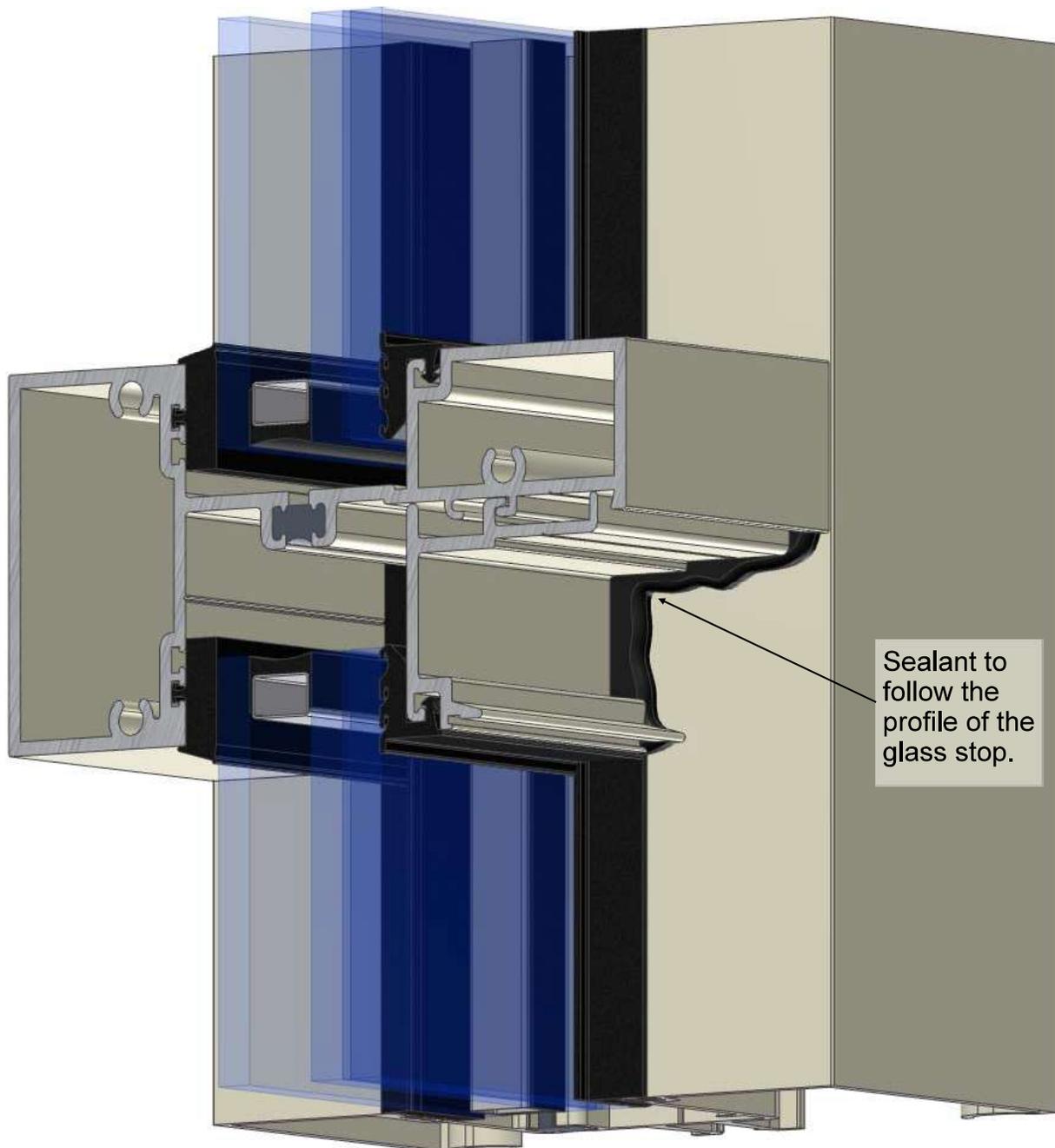
Sealant 1" up the vertical and 1" across horizontal.

SECTION VIII: Glazing

Step 10) Inside Glazed Glass Stop Seal (Dry Glazed Only)

After installing the 16G3 glass stop, run a bead of silicone type sealant across the seam of the glass stop and jamb, then fill the gasket raceway with sealant. Tool the sealant to make a watertight seal. See figure 53 below.

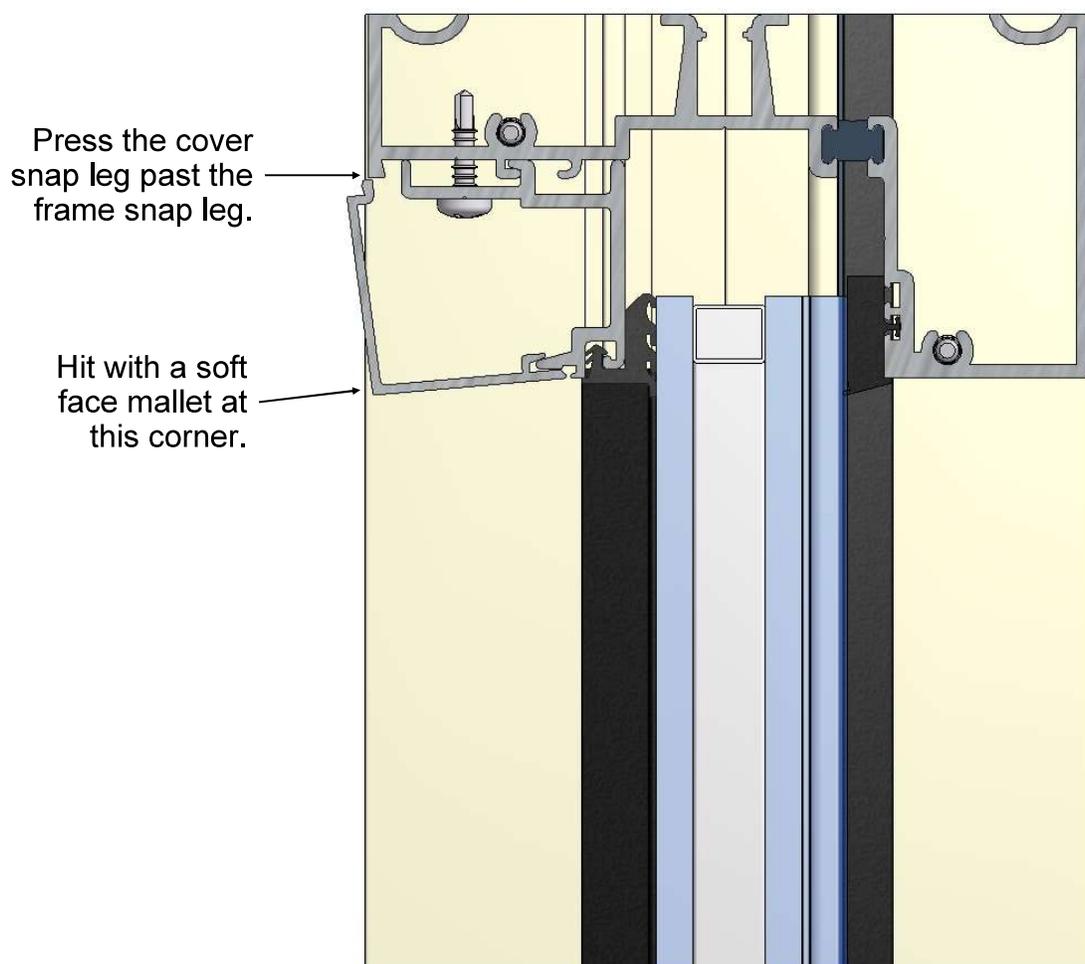
[Fig. 53]



SECTION VIII: Glazing

Step 11) Applying the Glass Stop Cover

The glass stop cover (16G4) is snapped in place after the drive-in gasket is glazed. It may be necessary to use a soft face mallet to snap the cover into place. Start by pressing the cover down so that it will clear the frame snap leg, then run it to the other end.



[Fig. 54]

SECTION VIII: Glazing

Step 12) Wet Glazed Application (Outside Glazed Only)

When glazing a wet glazed unit, follow all the previous instructions in this manual and substitute the W146 gasket with WEQ1.

Begin the interior glass sealant application by ensuring that the glass and metal are cleaned and dry per the sealant manufacturer's instructions. Apply sufficient structural silicone sealant to the gap between the glass and metal to fill the void back to the interior gasket on all sides of each DLO. Ensure that air pockets in the sealant are not present as this would create a weak area in the glass and metal adhesion. Tool the sealant flat against the metal for a clean cosmetic appearance. It may be beneficial to use a form of masking tape on the metal and/or glass to aid in the clean appearance of the seal and to lessen the clean-up effort. See figure 55 below for sealant application.

[Fig. 55]

