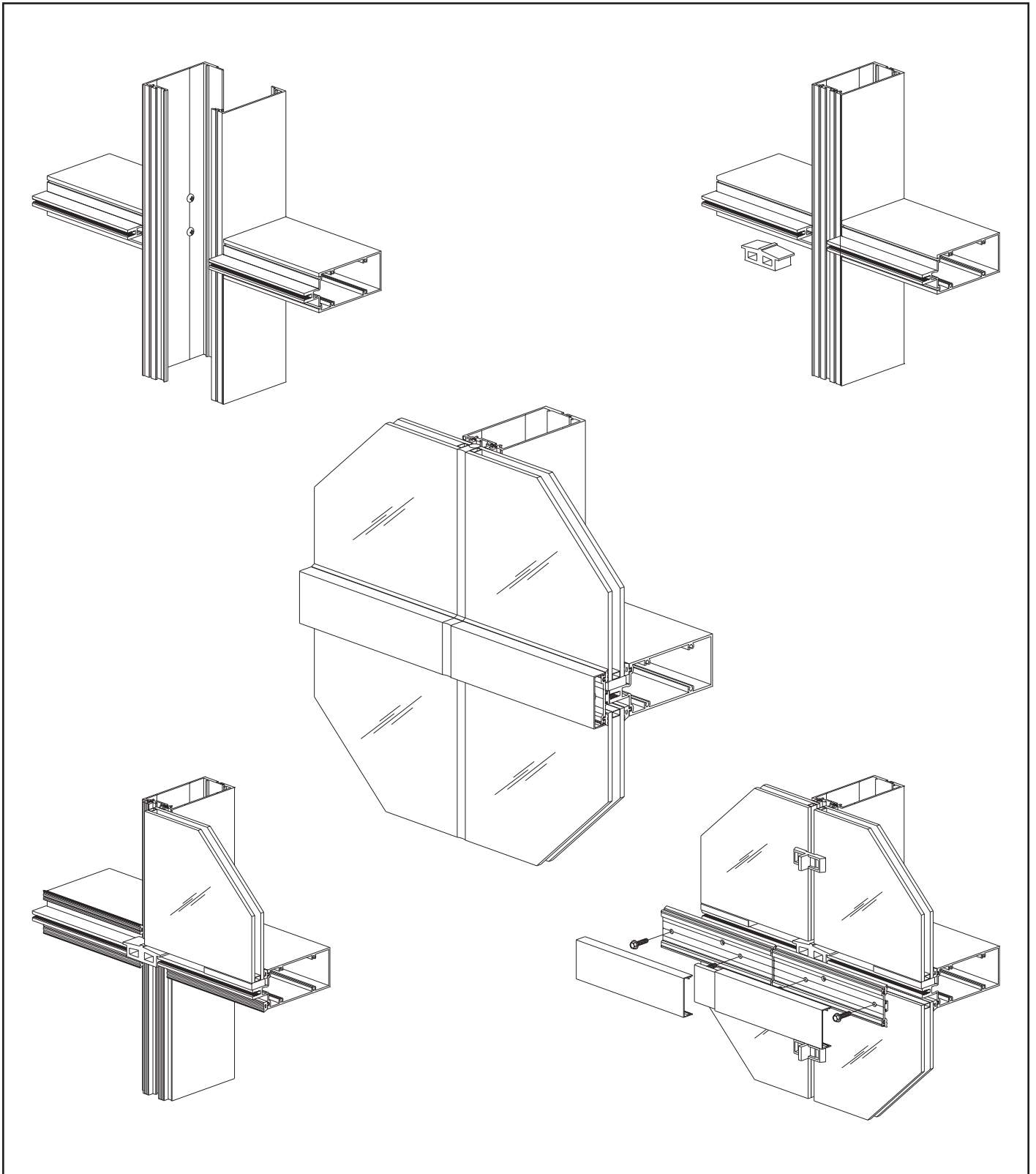


YCW 750 SplineTech[®] Structural Silicone Glazed Curtain Wall System



Installation Manual

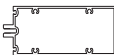


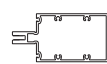












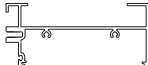
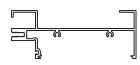

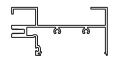




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





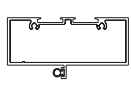






Installation Notes

1. Do not drop, roll or drag boxes of aluminum framing. Move and stack boxes with proper support to prevent distortion. If fork lifts are used be especially careful about striking the boxes when lifting or moving.
2. Store in a dry, out of the way area. If rain exposure, condensation or any water contact is likely, then all packaging material should be removed. Wet packaging materials will discolor and may stain aluminum finishes and paints.
3. All materials should be checked for quality and quantity upon receipt, YKK AP must be notified immediately of any discrepancies in shipment. Check to make sure that you have the required shims, sealants, supplies and tools necessary for the installation.
4. Carefully check the openings and surrounding conditions that will receive your material. Remember, if the construction is not per the construction documents, it is your responsibility to notify the general contractor in writing. Any discrepancies must be brought to the general contractor's attention before you proceed with the installation.
5. Gather your shop drawings, materials, packing list, and this installation manual. Carefully review parts location, the sequence it goes therein, when you glaze it and how you seal it. Installation instructions are of a general nature and may not cover every condition you will encounter. The shop drawings and/or installation manuals were prepared specifically for the product.
6. Any material substitutions must be of equal or greater quality.
7. Make certain that material samples have been sent for compatibility testing for all manufacturer's sealants involved. Make certain sealants have been installed in strict accordance with the manufacturer's recommendations and specifications.
8. Remember to isolate, in an approved manner, all aluminum from uncured masonry or other incompatible materials.
9. System-to-structure fasteners are not supplied by YKK AP. Fasteners called out on shop drawings are to indicate minimum sizes for design loading.
10. If any questions arise concerning YKK AP products or their installation, contact YKK AP for clarification before proceeding.
11. YKK AP storefront and/or curtain wall framing is typically completed before drywall, flooring and other products which may still be in process. Wrap and protect the material when stored at job site.
12. Cutting tolerances are plus zero, minus one thirty second unless otherwise noted.
13. Check our website, www.ykkap.com, for the latest installation manual update prior to commencing work.

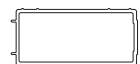



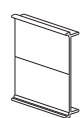

FRAMING MEMBERS

	Horizontal 2-1/2" x 5-1/4" For 1/4" Glazing	E9-3610		Horizontal 2-1/2" x 5-1/4" For 1" Glazing	E9-3605
	Horizontal 2-1/2" x 3-3/4" For 1/4" Glazing	E9-3630		Horizontal 2-1/2" x 3-3/4" For 1" Glazing	E9-3625
	Female Mullion Half 2-1/2" x 5-1/4" For 1/4" Glazing	E9-3612		Female Mullion Half 2-1/2" x 5-1/4" For 1" Glazing	E9-3612
	Male Mullion Half 2-1/2" x 5-1/4" For 1/4" Glazing	E9-3611		Male Mullion Half 2-1/2" x 5-1/4" For 1" Glazing	E9-3611
	Female Mullion Half 2-1/2" x 3-3/4" For 1/4" Glazing	E9-3632		Female Mullion Half 2-1/2" x 3-3/4" For 1" Glazing	E9-3632
	Male Mullion Half 2-1/2" x 3-3/4" For 1/4" Glazing	E9-3631		Male Mullion Half 2-1/2" x 3-3/4" For 1" Glazing	E9-3631
	Jamb Open Back 2-1/2" x 5-1/4" For 1/4" Glazing	E9-3588		Jamb Open Back 2-1/2" x 5-1/4" For 1" Glazing	E9-3580
	Jamb Open Back 2-1/2" x 3-3/4" For 1/4" Glazing	E9-3592		Jamb Open Back 2-1/2" x 3-3/4" For 1" Glazing	E9-3584
	Head/Sill Open Back/Incidental Water 2-1/2" x 5-1/4" For 1/4" Glazing	E9-3609		Head/Sill Open Back/Incidental Water 2-1/2" x 5-1/4" For 1" Glazing	E9-3604
	Head/Sill Open Back/Incidental Water 2-1/2" x 3-3/4" For 1/4" Glazing	E9-3629		Head/Sill Open Back/Incidental Water 2-1/2" x 3-3/4" For 1" Glazing	E9-3624
	Horizontal Flush Filler 2-1/2" x 5-1/4" For 1/4" & 1" Glazing	E9-3162		Standard Pressure Plate E9-1216 with PVC Isolator Punched 9" O.C.	AS-1216
	Horizontal Flush Filler 2-1/2" x 3-3/4" For 1/4" & 1" Glazing	E9-3595	(Optional) 	Pressure Plate For Deep Covers E9-3574 with PVC Isolator Punched 9" O.C.	AS-3574







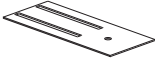
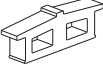
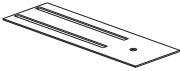

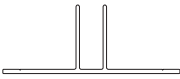

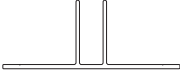






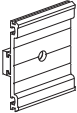


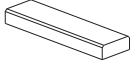

FRAMING MEMBERS

	Glazing Adaptor For 1/4" Glazing	E9-3620		SSG Glazing Adaptor For 1/4" Glazing	E9-1275
	Standard Face Cover 2-1/2" x 3/4"	E9-1206		SSG Mullion Tongue Adaptor For 1" Glazing	E9-1282
	Face Cover 2-1/2" x 1-3/4"	E9-1229		SSG Door Jamb Glazing Adaptor For 1" Glazing	E9-1269
	Face Cover 2-1/2" x 2-3/8"	E9-1219		SSG Door Jamb Glazing Adaptor For 1/4" Glazing	E9-1270
	Horizontal Face Cover 11/16" x 2-1/2"	E9-1207		Single Acting Transom Bar Elastomer Weathering E2-0051 Included	AS-0402
	Face Cover 2-1/2" x 1-1/8"	E9-3504		Door Jamb For 1/4" Glazing Use with AS-0417	E9-1224
	Face Cover 2-1/2" x 1-1/2"	E9-3521		Door Jamb For 1" Glazing Use with AS-0417	E9-3513
	Bull Nose Face Cover 2" x 2-1/2"	E9-1293		Snap-In Door Stop Elastomer Weathering E2-0051 Included Use with E9-1224	AS-0417







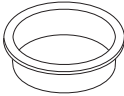

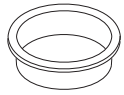
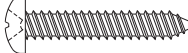

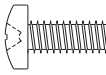
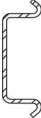

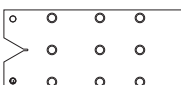






ACCESSORIES

	Mullion Joint Sleeve For 5-1/4" Depth Members	E1-1201		Splice Sleeve For 3-3/4" Depth Two Piece Vertical	E1-3563
	Jamb Splice Sleeve For 3-3/4" Depth Members	E1-1354		Mullion Clip For 5-1/4" Depth Two Piece Vertical	E1-3560
	Splice Sleeve For 5-1/4" Depth Two Piece Vertical	E1-3561		Mullion Clip For 3-3/4" Depth Two Piece Vertical	E1-3562

ACCESSORIES

	Splice Sleeve For 3/4" Face Cover For E9-1206 Face Cover	E1-1202		Side Block With Pressure Sensitive Adhesive For 1" Glazing	E2-0105
	Splice Sleeve For 1-3/4" & 2" Face Cover For E9-1229 and E9-1291 Face Cover	E1-1203		Jamb Joint Plug For 1/4" Glazing	E2-0125
	Jamb Mullion End Cap 2-1/2" x 2-1/4" x 0.050"	E1-1286		Jamb Joint Plug For 1" Glazing	E2-0102
	Standard Mullion End Cap For 3-3/4" Depth Members	E1-3527		SSG Joint Plug For 1/4" Glazing	E2-0279
	Standard Mullion End Cap For 5-1/4" Depth Members	E1-3526		SSG Joint Plug For 1" Glazing	E2-0245
	Intermediate Vertical "T" End Anchor* For 3-3/4" Depth Members	E1-1226		Optional Jamb Anchor Clip* For 3-3/4" Back Depth Use with E9-3584 & E9-3592	E1-3524
	Intermediate Vertical "T" End Anchor* For 5-1/4" Depth Members	E1-1242		Optional Jamb Anchor Clip* For 5-1/4" Back Depth Use with E9-3580 & E9-3588	E1-3525
	Jamb "F" Anchor For 3-3/4" Depth Members	E1-1232		Temporary Glass Retainer For 1/4" Glazing	E3-0006
	Jamb "F" Anchor For 5-1/4" Depth Members	E1-1231		Temporary Glass Retainer For 1" Glazing	E3-0001
	Setting Block With Pressure Sensitive Adhesive For 1/4" Glazing	E2-0112		Temporary Glass Retainer For Horizontal Members 2" Long	E1-1294
	Side Block With Pressure Sensitive Adhesive For 1/4" Glazing	E2-0113		Nylon Slip Pad For Wind Load and Dead Load Anchors	E3-0103
	Setting Block With Pressure Sensitive Adhesive For 1" Glazing	E2-0104		Wind Load Anchor* Refer to Shop Drawings for Anchor Dimensions	E1-1204

ACCESSORIES

	Dead Load Anchor* Refer to Shop Drawings for Anchor Dimensions	E1-1205		Glazing Gasket For Perimeter Pressure Plate	E2-0120
	Jamb Anchor Plate	E1-3536		#8 x 1/2" PHMS Type F Stainless Steel, for Attachment of Splice Sleeve	PF-0808 -SS
	Weep Baffle Use with Incidental Water Head Members	E2-0099		#10-24 x 5/8" PHSMS Type F Stainless Steel, for Attachment of 1/4" Vertical Glazing Adaptor	PF-1010 -SS
	1-1/2" Incidental Water Plug Use with Incidental Water Head Members	E3-1166		#10 x 3/8" PHMS Zinc Plated Steel For Attachment of Pressure Plate to Mullion	PC-1006
	1-1/8" Incidental Water Plug Use with Incidental Water Head Members	E3-1167		#12 x 1-1/4" PHSMS Type AB , Zinc Plated Steel, For Screw Spline Attachment	PC-1220
	Steel Reinforcing For 5-1/4" Back Depth Two Piece Mullion	E1-0183		1/4"-20 x 5/8" PHMS Zinc Plated Steel For Temporary Engagement of Mullion Halves	PM-2510
	Steel Reinforcing For 3-3/4" Back Depth Two Piece Mullion	E1-9988		1/4" x 5/8" FHSMS Type AB , Zinc Plated Steel For Attachment of Mullion End Cap	FC-1410
	Drill Fixture	H-7211		#12 x 3/4" FHSMS Type AB , Zinc Plated Steel For Attachment of Vertical Mullions to Splice	FC-1212
	Interior Glazing Spacer Silicone Use with SSG Verticals	E2-0126		1/4"-20 x 1" HWHMS Type AB , Zinc Plated Steel For Attachment of Pressure Plate to Mullion	HD-2516- W3
	Exterior Glazing Gasket Silicone	E2-0127		Flat Washer Zinc Plated Steel For 1/4" Fasteners	WW-2500
	Interior Glazing Gasket Silicone	E2-0128			

*Anchor attachment will vary depending on job conditions. Consult YKK AP or qualified engineer.

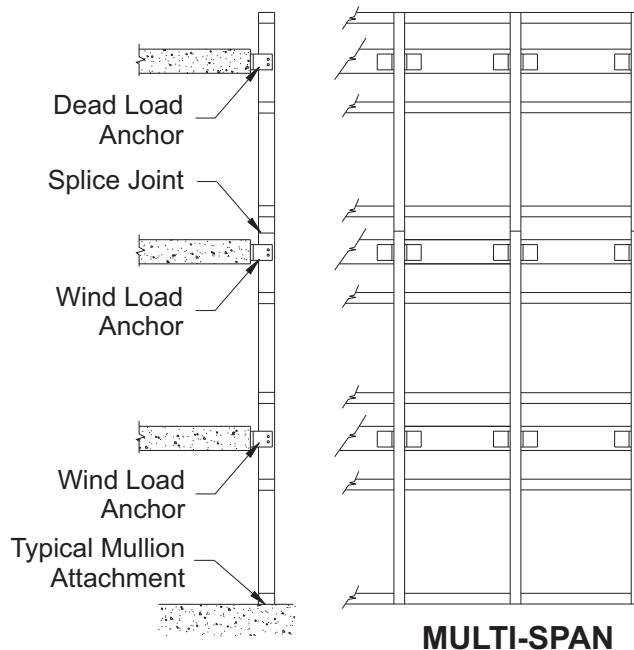
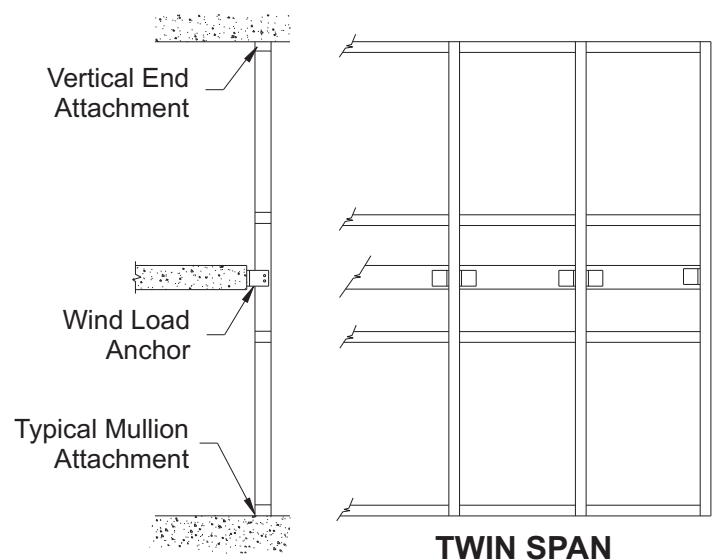
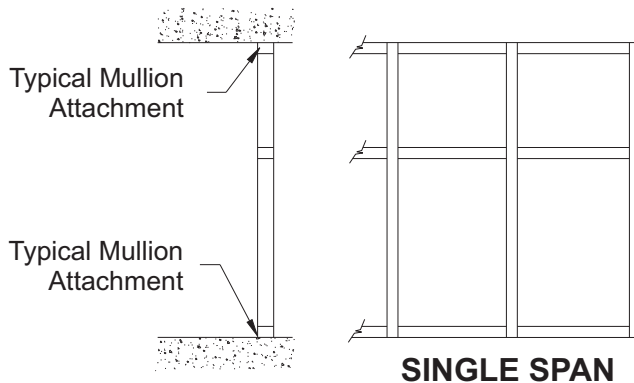
FRAME FABRICATION

GENERAL NOTES:

These drawings and instructions are written so that the glazier will be installing ladder assemblies from left to right. If the installer chooses to go from the right to the left, mullion halves should be reversed, or 'mirrored', as described above.

FRAME TYPES / ANCHORING METHODS

The following is a guideline for common types of frames.
Refer to shop drawings for exact layout of frames.



Shop fabricated and pre-assembled ladders can be installed in the field.

Note: If YKK AP does not prepare the shop drawings for the project, a qualified engineer must approve all anchors, their arrangement, and mullion selection.

All anchors must be attached to structurally sound material that will accommodate the anchor reactions.

FRAME FABRICATION

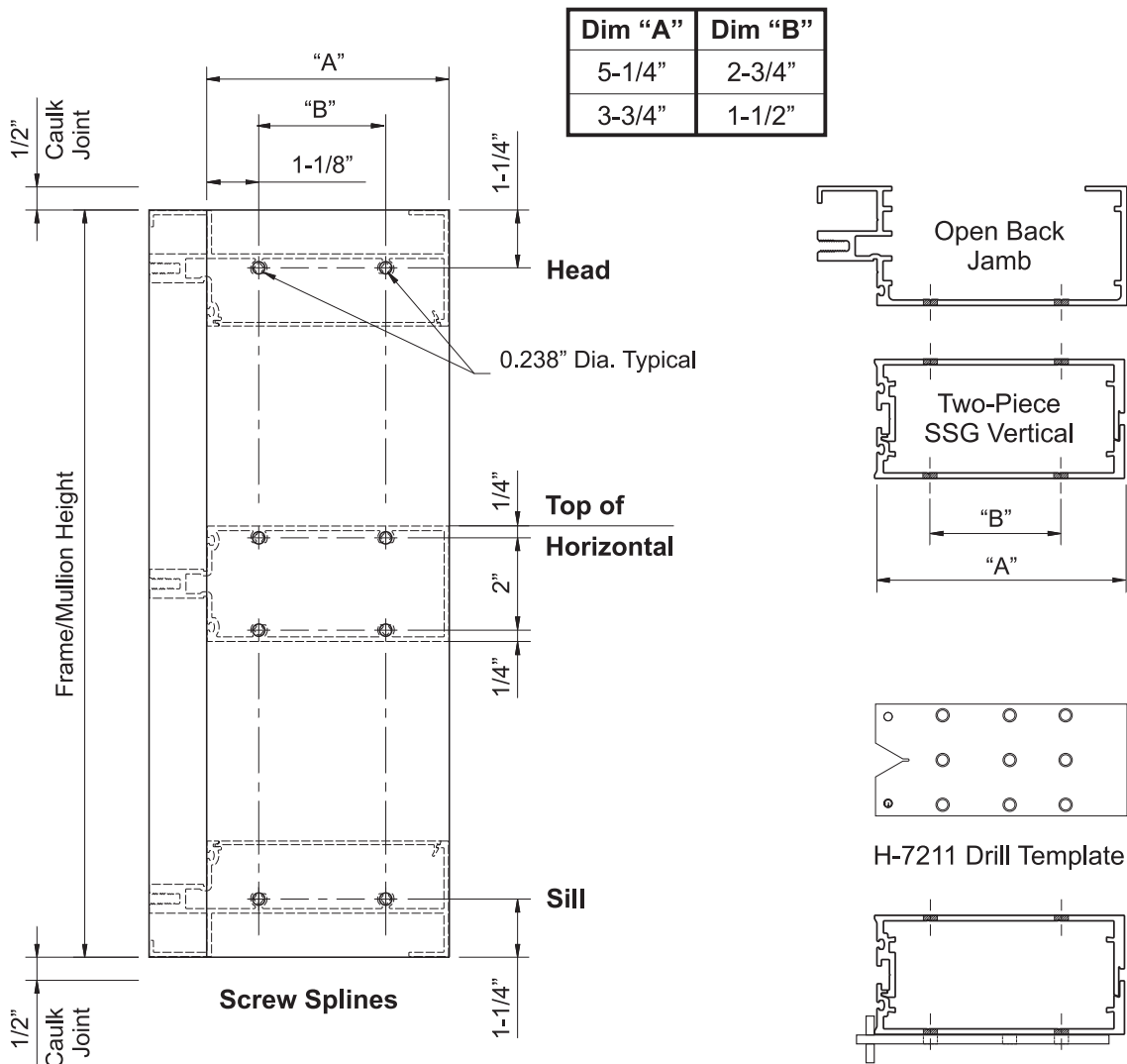
STEP 1

VERTICAL MULLION FABRICATION OPTIONS

Fabrication of verticals may be:

- Hand fabrication, see dimensions below.
- Drill fixture fabrication, see Step 2.
- Punch dies, contact YKK AP sales representative.
- Mullion hole locations for horizontal members are shown below.
- Drill 0.238" dia. (# B drill bit) holes for screw splines at the locations indicated.

See **Detail 1**.



Detail 1

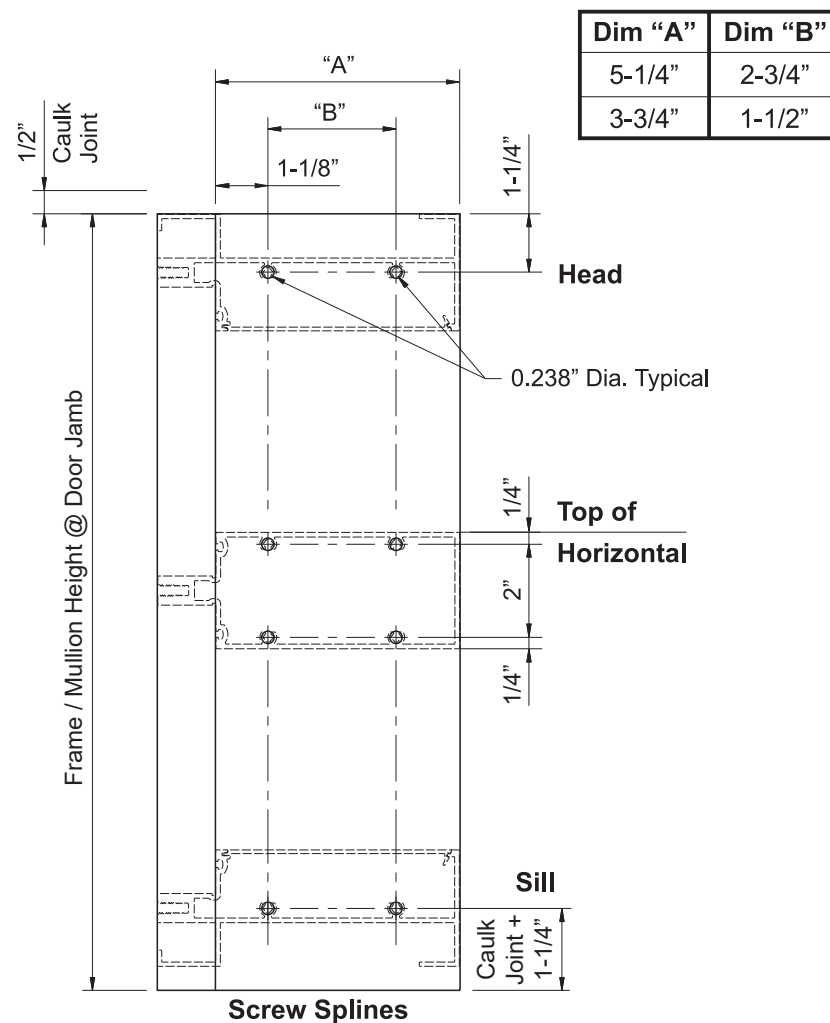
FRAME FABRICATION

STEP 1 (Continued)

DOOR JAMB MULLION FABRICATION OPTIONS

Mullions at door jambs are sealed against the substrate at the sill without a shim space at that location.

See **Detail 2**.

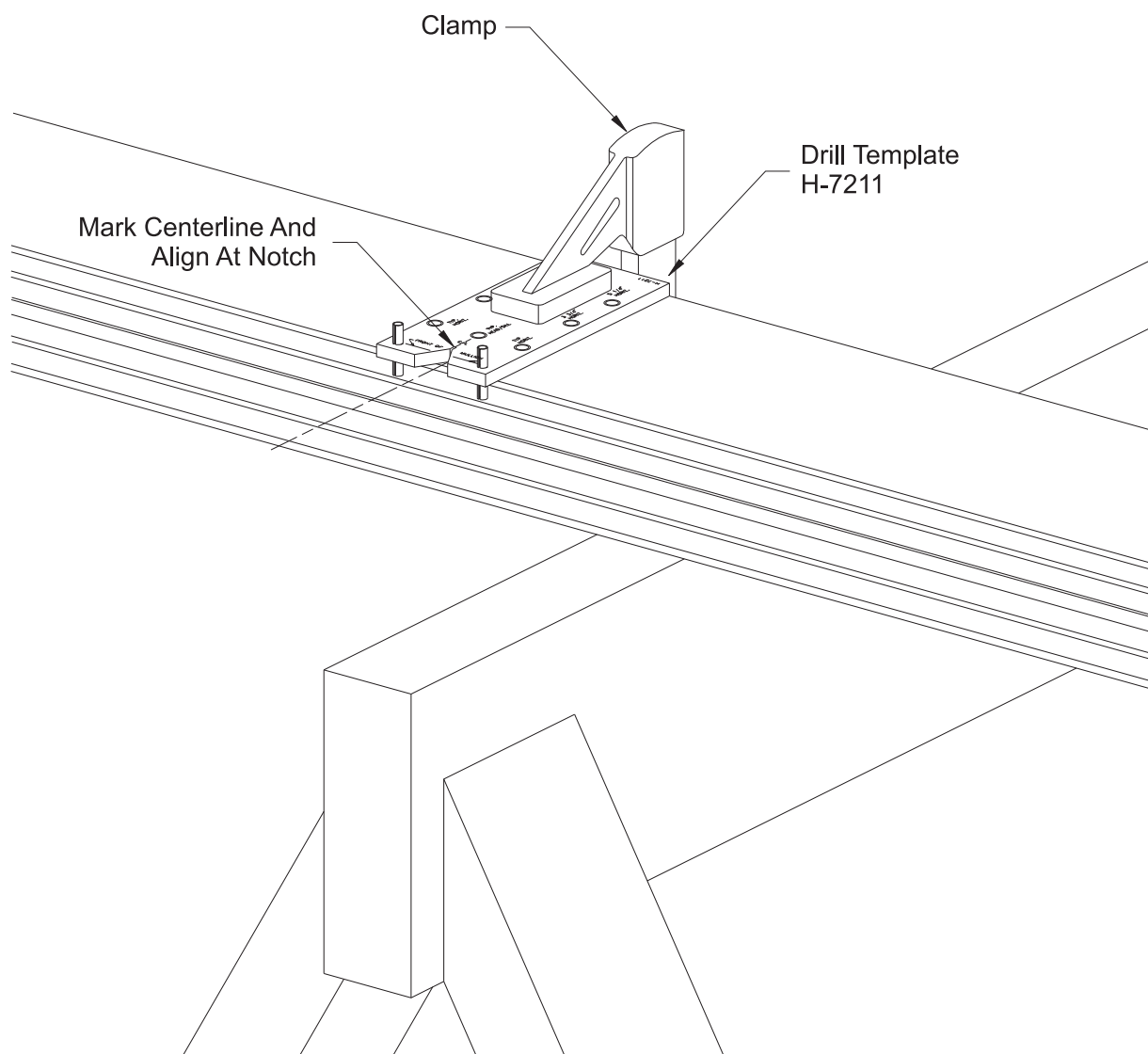


Detail 2

FRAME FABRICATION**STEP 2****FABRICATE VERTICAL MULLIONS**

- Locate horizontal center lines on male and female mullion halves.
- Male and female mullion halves can be placed as shown for ease of clamping together.
- Clamp drill fixture H-7211 stationary with a squeeze clamp and drill .238 (#B drill bit) clear holes as required.

See **Detail 3**.



Detail 3

FRAME FABRICATION

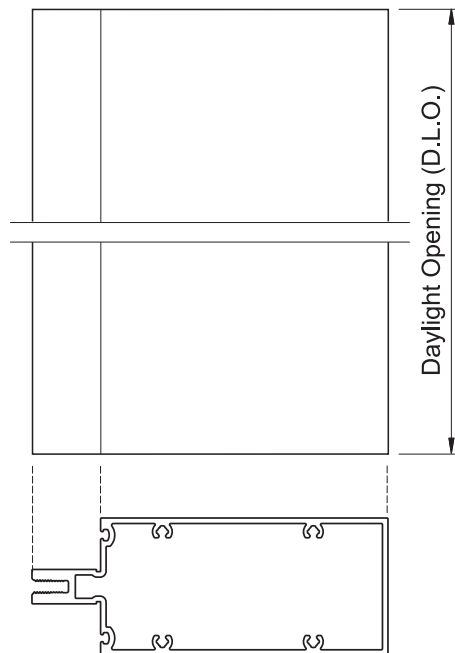
STEP 3

FABRICATE HORIZONTAL MEMBERS

-Cut all horizontal members to the daylight opening as shown in shop drawings.

See **Detail 4**.

Detail 4

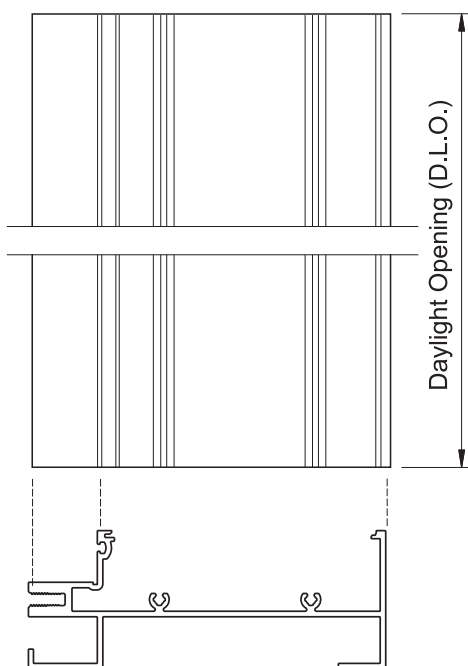


Head and Sill Horizontals:

-Cut all head and sill horizontal members to the daylight opening as shown in shop drawings.
 -Cut all horizontal flush fillers to the daylight opening minus (-)1/32".

See **Detail 5**.

Detail 5



FRAME FABRICATION

STEP 3 (Cont'd)

FABRICATE HORIZONTAL MEMBER

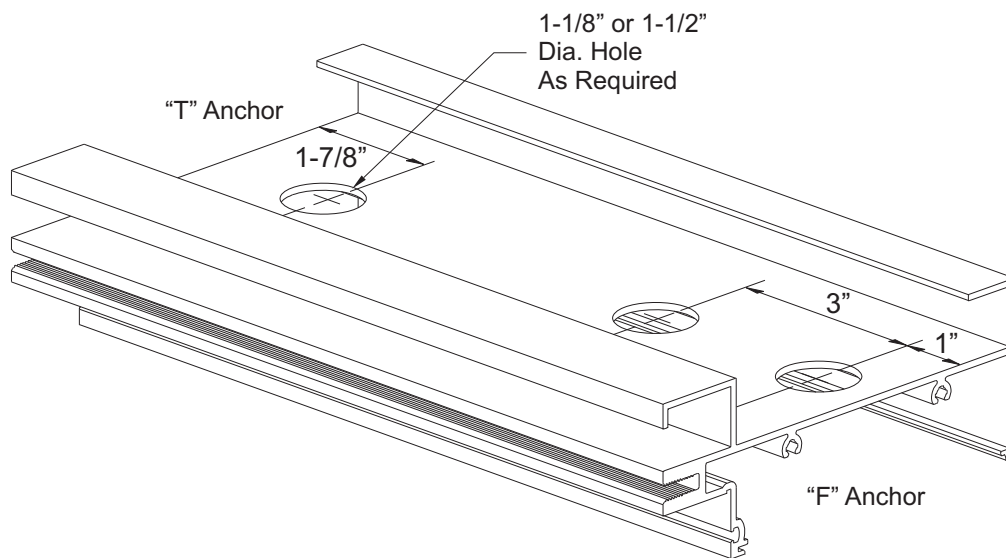
Head and Sill Horizontals:

Head and sill horizontal members require drilling clear holes to permit access to the “F” and “T” anchors that will secure the frame to the structure.

- Drill clear holes for “F” or “T” anchors as shown.
- Drill 1-1/8” holes for 3/8” anchors.
- Drill 1-1/2” holes for 1/2” anchors.

See **Detail 6**.

Intermediate Condition



Detail 6

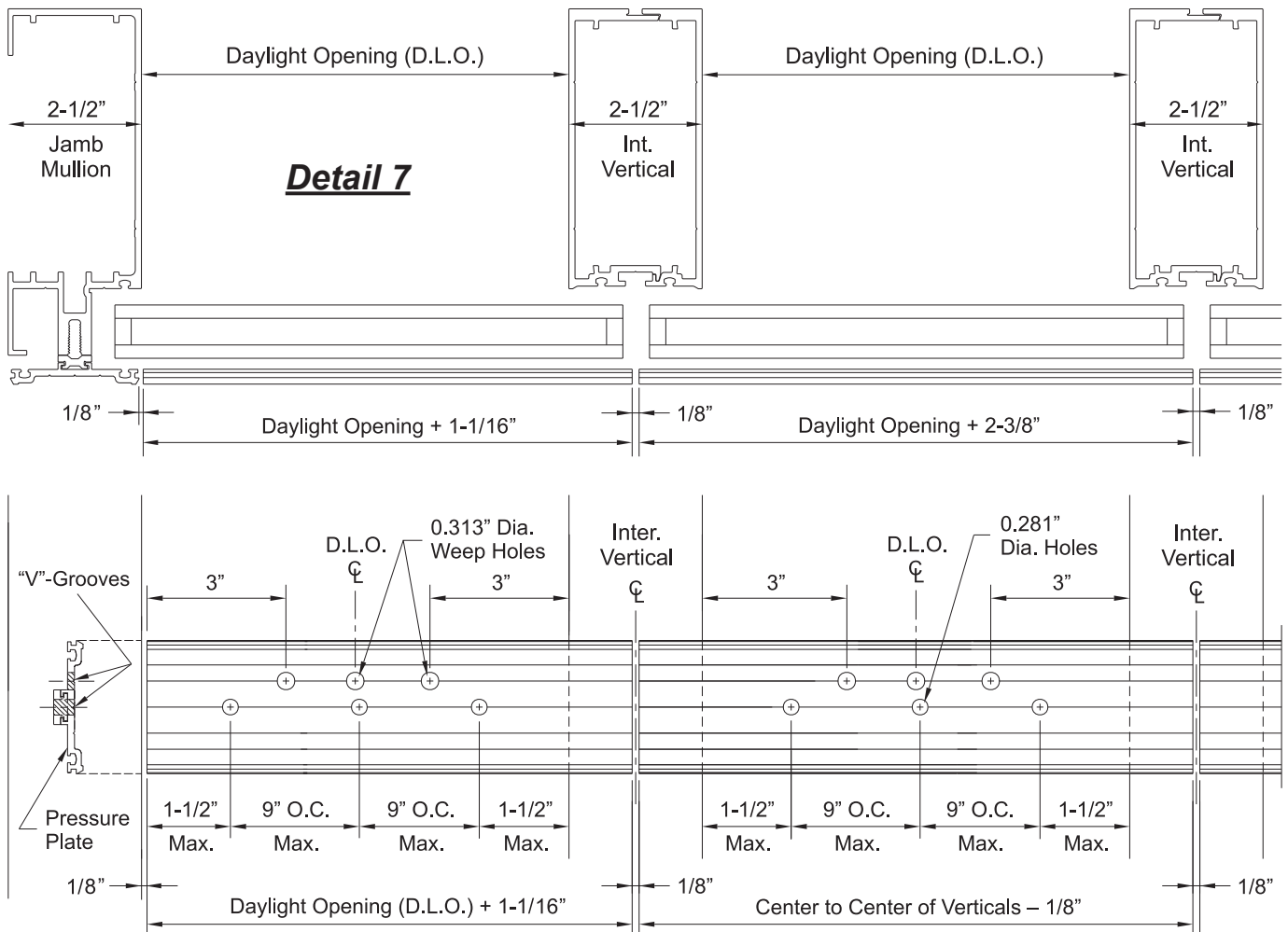
Jamb Condition

FRAME FABRICATION

STEP 4

FABRICATE PRESSURE PLATES

- Cut all jamb pressure plates to the same length as the jamb mullions.
- Drill additional holes if required to ensure that end holes are 1-1/2" from each end.
- If jamb members are spliced, cut pressure plates to accommodate for 1/2" expansion joint as shown in **Step 12** on **Pages 18 & 20**.
- Cut horizontal pressure plates as shown in **Detail 7**.
 - Cut pressure plates between jamb and intermediate verticals to D.L.O. plus(+) 1-1/16".
 - Cut pressure plates between intermediate verticals to D.L.O. plus(+) 2-3/8".
 - For pressure plates spanning more than one bay, cut them to the centerline to centerline dimension between mullions minus(-) 1/8".
- Pressure plate stock lengths have 0.281" dia. holes factory punched every 9".
- Drill additional holes if required to ensure that end holes are within 1-1/2" from each end.
- Drill two 0.313" diameter weep holes 3" from each end and one at the centerline of the D.L.O. for each lite of glass.



FRAME FABRICATION

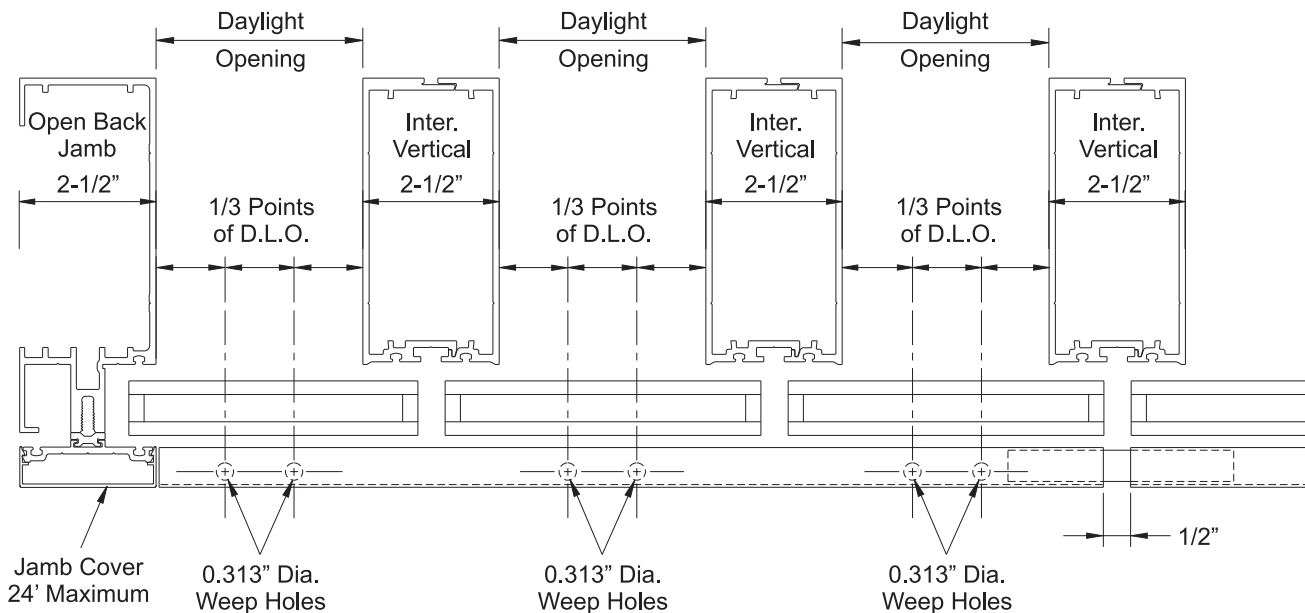
STEP 5

FABRICATE FACE COVERS

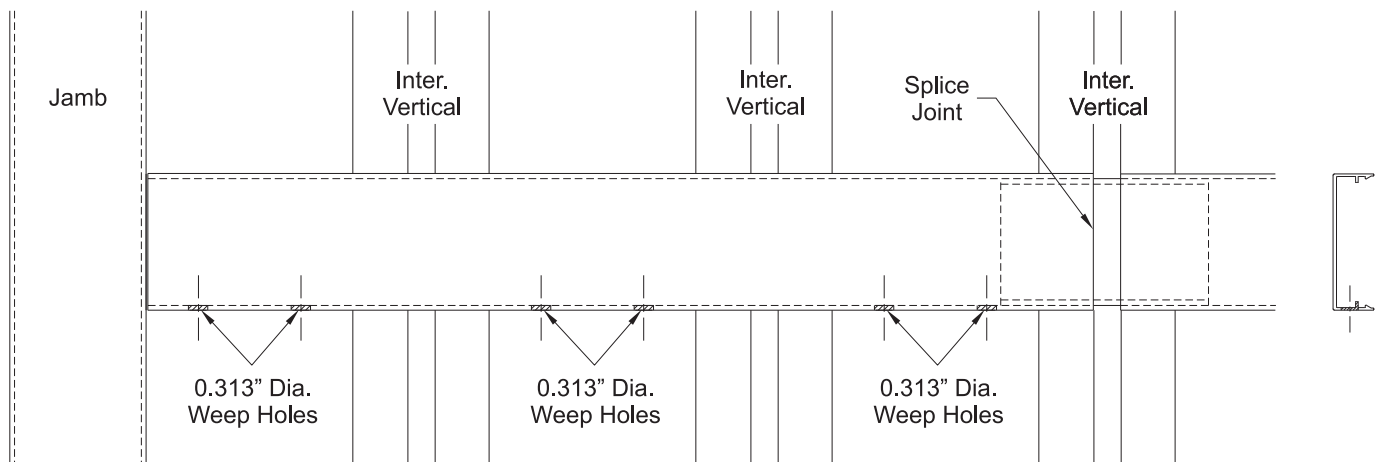
-Cut jamb face covers to the same length as the jamb mullions unless the mullions are spliced. If jamb mullions are spliced, cut jamb covers to accommodate for the 1/2" expansion joint as shown in **Step 12** on **Pages 19 & 20**.

-Cut horizontal covers 1/32" short of jamb mullion on jamb side of frame. Covers are to be spliced at every third light of glass at the centerline of vertical mullion. Optionally, covers may be spliced at every centerline of vertical mullions.

-Drill two 0.313" diameter weep holes as shown, at 1/3 points of each daylight opening. See **Detail 8**.



Detail 8



FRAME ASSEMBLY

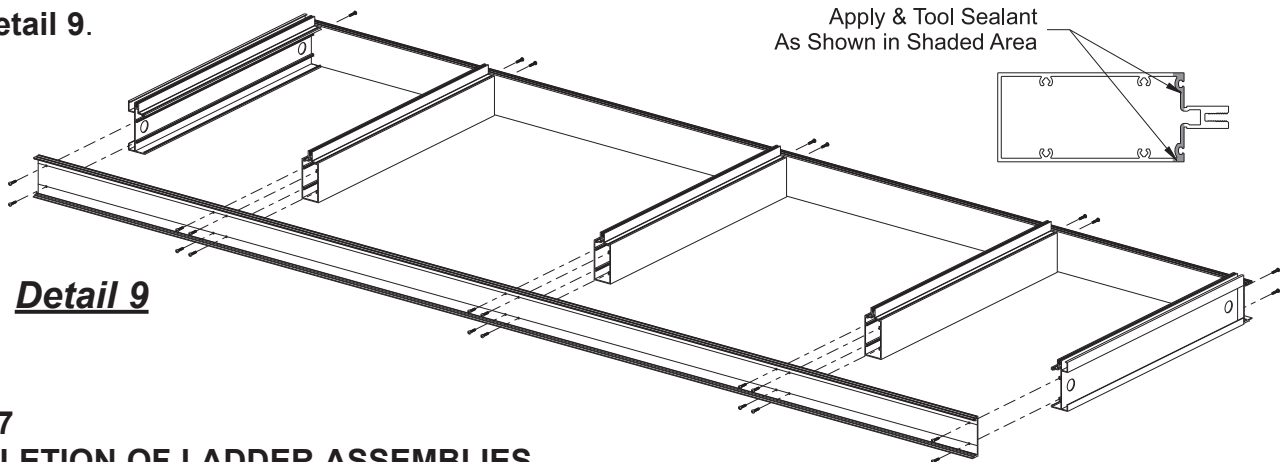
STEP 6

ASSEMBLING LADDERS IN THE SHOP

- Place vertical mullion halves in proper position on sawhorses.
- Mark as left or right half, head and sill respectively.
- Apply (butter) sealant to both ends of all horizontal members immediately prior to assembly.
Tool and clean off any excess sealant
- Assemble vertical mullion halves to head, sill, and intermediate horizontals with #12 x 1-1/4" PHSMS Type AB (PC-1220) Spline Screws.
 - 4 each per head/sill
 - 8 each per intermediate horizontal

Fabrication Tip: Do not tighten screws completely until all members are in place.

See **Detail 9**.



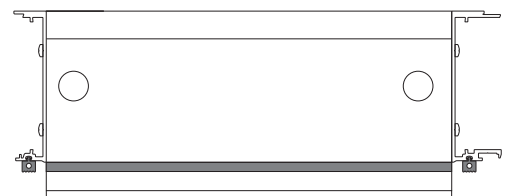
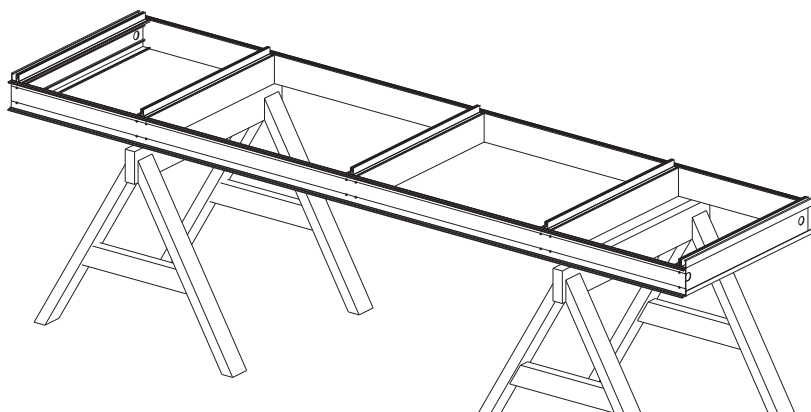
STEP 7

COMPLETION OF LADDER ASSEMBLIES

- After ladders are assembled, end caps, joint seals, joint plugs at jamb mullions, and interior gaskets may be installed in house prior to shipping ladders to the job site.

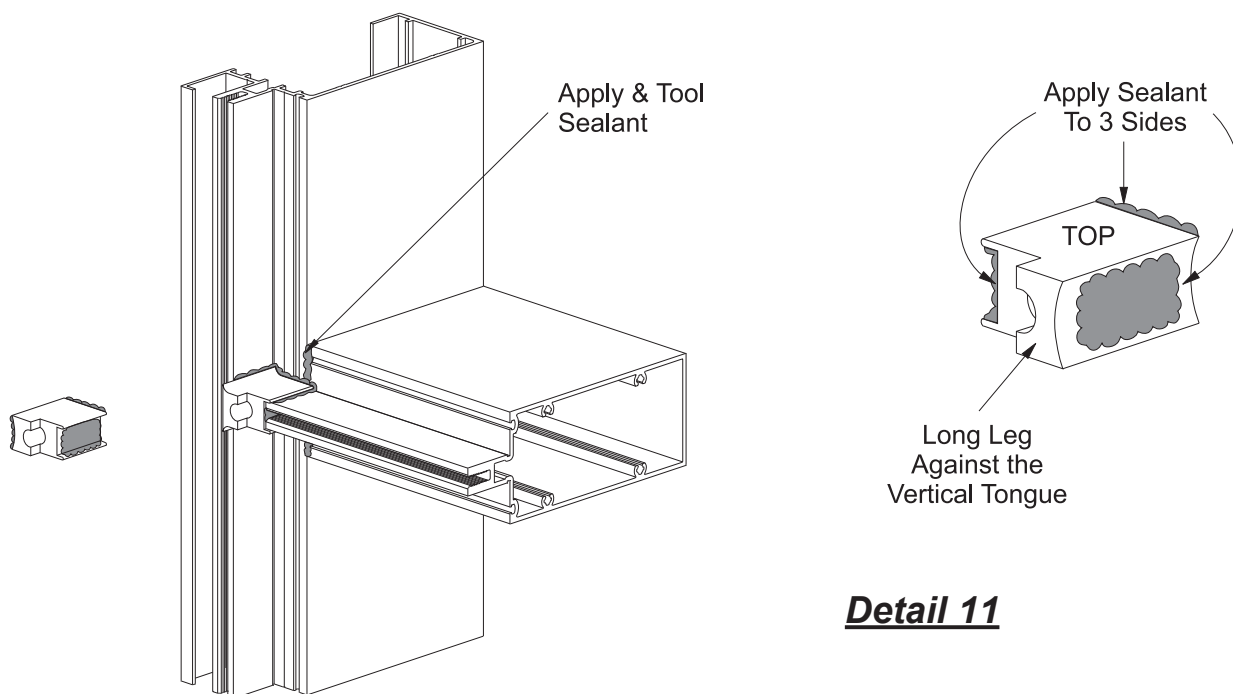
Note: Assemblies must be kept clean and away from objects that may pull or distort the gaskets, critical seals or finish.

See **Detail 10**.



Ladder Assembly

Detail 10

FRAME ASSEMBLY**STEP 7 (Cont'd)
INSTALL JOINT PLUGS****Detail 11**

The tongue of each horizontal must be sealed to the tongue of the vertical mullions. The space between the two tongues is closed by using joint plugs, E2-0102 for 1" glazing or E2-0125 for 1/4" glazing.

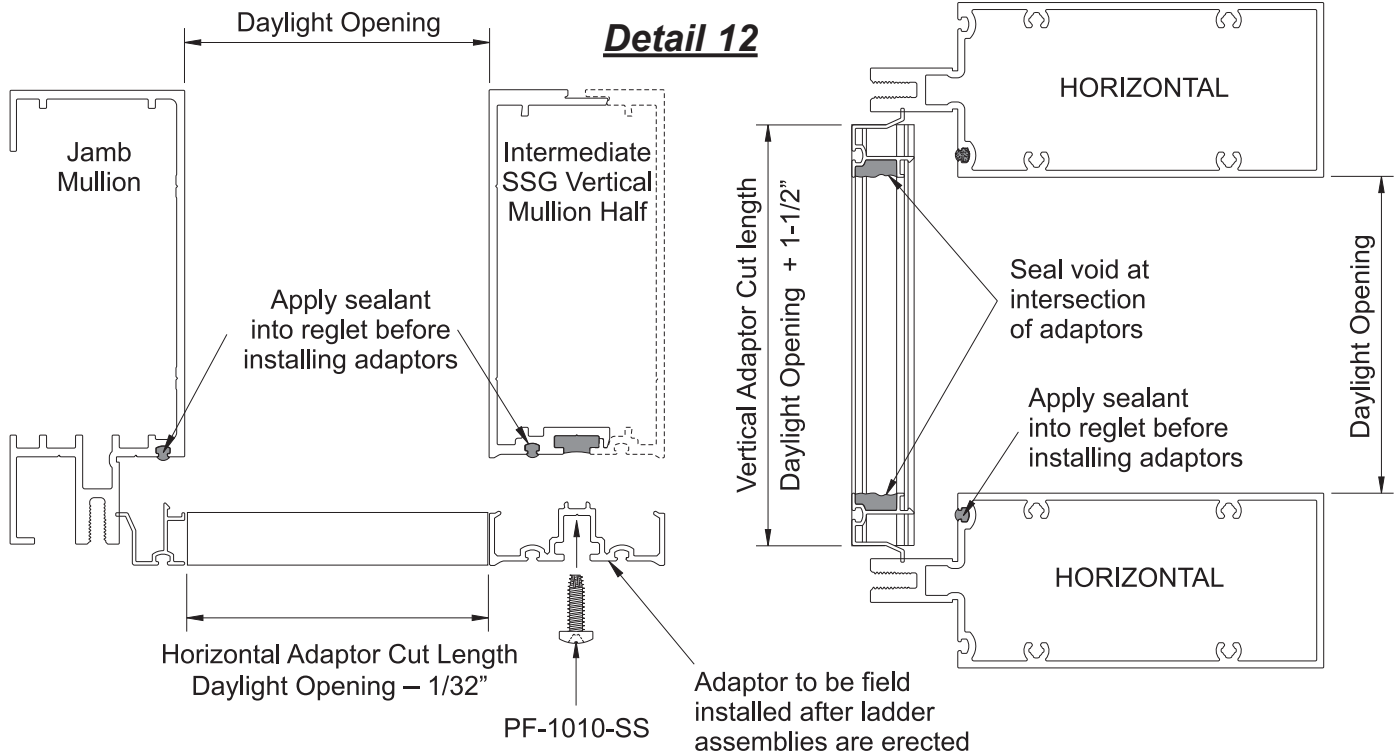
- Clean the area around the tongue intersection with an approved cleaner.
- Apply and tool sealant to the intersection of the horizontal and vertical.
- Apply sealant to the three contact sides of the joint plug and at the intersection of the vertical and horizontal glazing pocket.
- Install joint plug as shown with the long leg of plug against the vertical tongue.
- Press joint plugs firmly against face of mullion.
- Tool the sealant to ensure a watertight seal.

See **Detail 11**.

FRAME ASSEMBLY

STEP 8 INSTALL GLAZING ADAPTORS (When Required)

Note: 1/4" glazing adaptor, E9-3620 shown.



-Cut glazing adaptors to size:

Vertical Cut Length = Daylight Opening plus(+) 1-1/2".

Horizontal Cut Length = Daylight Opening minus(-) 1/32".

-Vertical adaptors must be installed before horizontal adaptors.

-Clean the area around the mullion glazing reglet and the glazing adaptor with a cleaner approved by the sealant manufacturer.

-Apply sealant into the glazing reglet of the mullion .

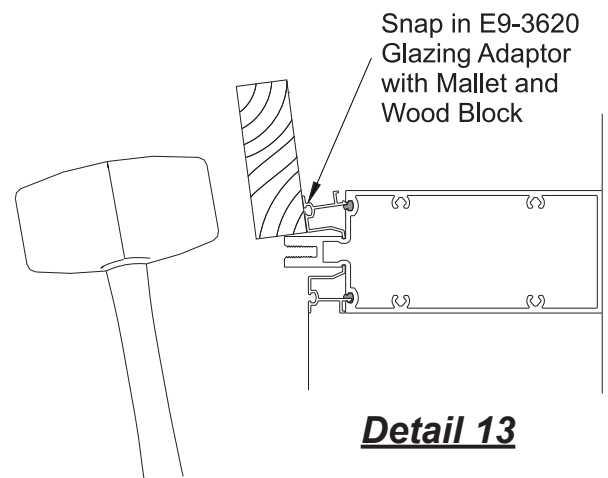
-Install the vertical adaptors first, centered along the day light opening.

See **Detail 12**.

-Snap adaptors in place using a mallet and wood block, to prevent damage.

-Fill void at all adaptor intersections with sealant, tool as needed.

See **Detail 13**.



FRAME ASSEMBLY

STEP 9

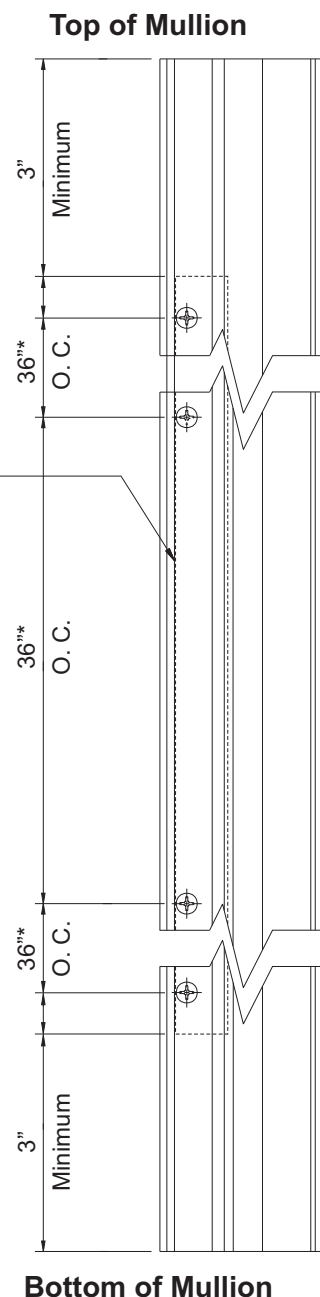
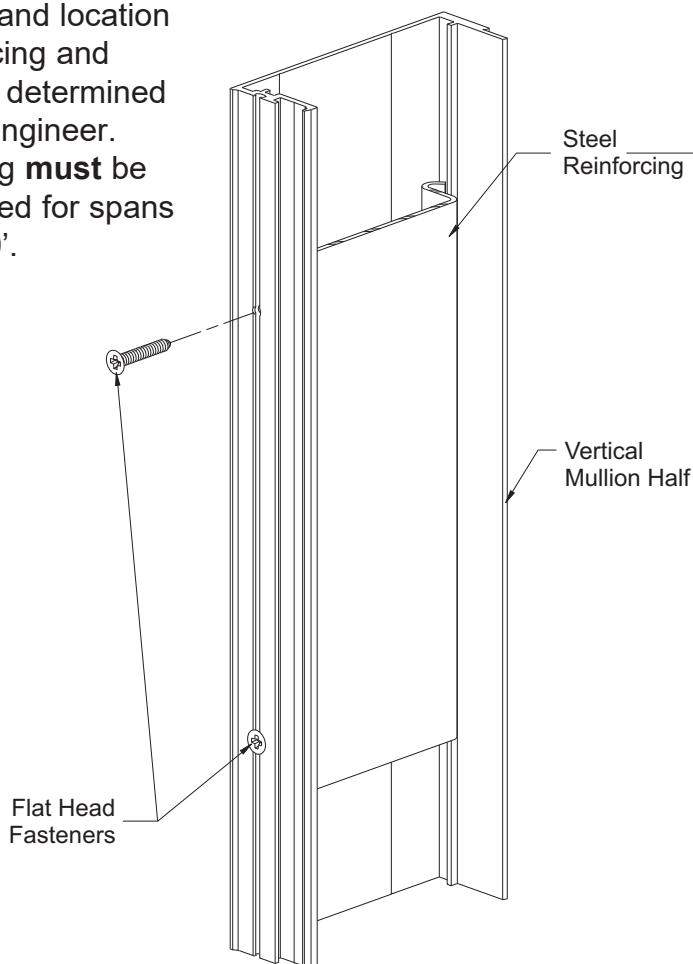
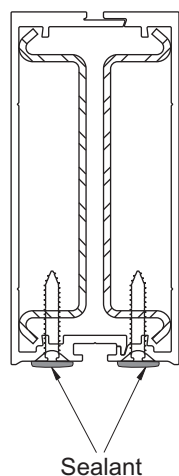
USING ALTERNATE REINFORCING

When engineering calculations require the vertical mullions to be reinforced with steel, secure the reinforcing to the vertical using the appropriate fasteners.

- Allow 3" at top and bottom of vertical mullion for "F" and "T" anchors.
- Fasten steel reinforcement E1-0183 at top and bottom end of vertical mullion half, and 36" O.C. with a flat head fastener as shown.
- Steel reinforcing may be fastened from the front, centered on the glazing reglet.
- Care must be taken in centering the flat head fasteners so that the two halves will join as typically shown.
- Seal over fasteners and notch the dart of the glazing spacer at all fastener locations.
- Seal all screw heads with silicone sealant.

Note: The exact size and location of steel reinforcing and fasteners to be determined by a qualified engineer. Steel reinforcing **must** be spliced or welded for spans greater than 10'.

See **Detail 14**.



Detail 14

*NOTE: Measurement intended as guideline only.

FRAME ASSEMBLY

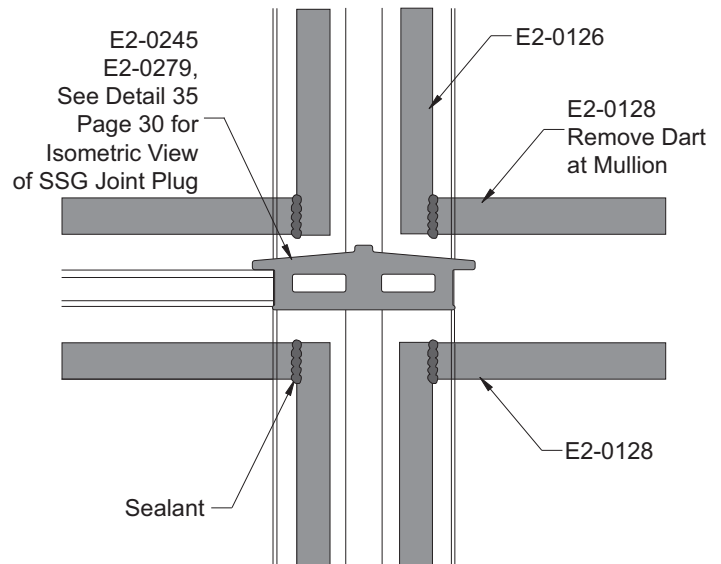
STEP 10

INSTALL INTERIOR GLAZING GASKETS & SPACERS

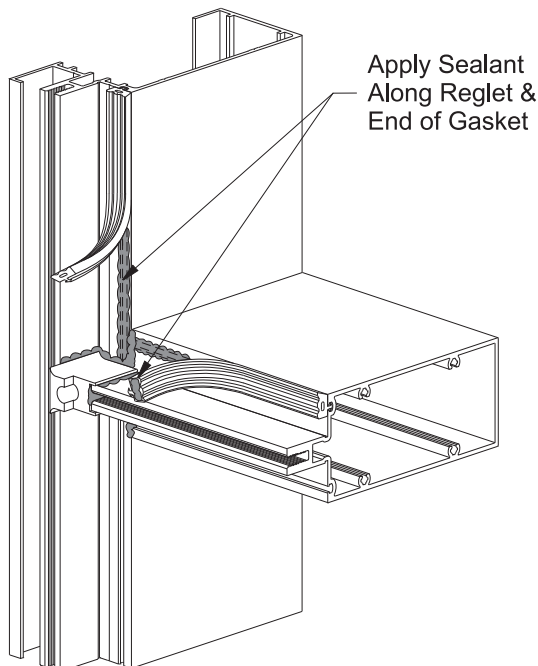
- Cut vertical gaskets and spacers to Daylight Opening plus(+) 1-1/2".
- Cut horizontal gaskets to Daylight Opening plus(+) 1/4" per each foot of opening width.

- Install vertical gaskets and spacers first, centered along the daylight opening.
- Install horizontal glazing gasket spacers by pushing each end into the reglet. Next press the center of gasket into the reglet and then push the rest of the gasket into the reglet working from the center towards each end.

See **Detail 15**.



Detail 15



Detail 16

Glazing gaskets require additional sealant at the jamb and horizontal intersection.

- Pull the last 3" of each gasket away from the reglet.
- With gasket end held out of the way, run a 2" to 3" bead of sealant into the reglet at each end.
- Apply sealant to each end of the horizontal gasket.
- Reinsert the gasket ends and press them firmly against the face of the mullion.
- Apply and tool sealant at the intersection of the vertical and horizontal gaskets.

See **Detail 16**.

FRAME ASSEMBLY

STEP 11

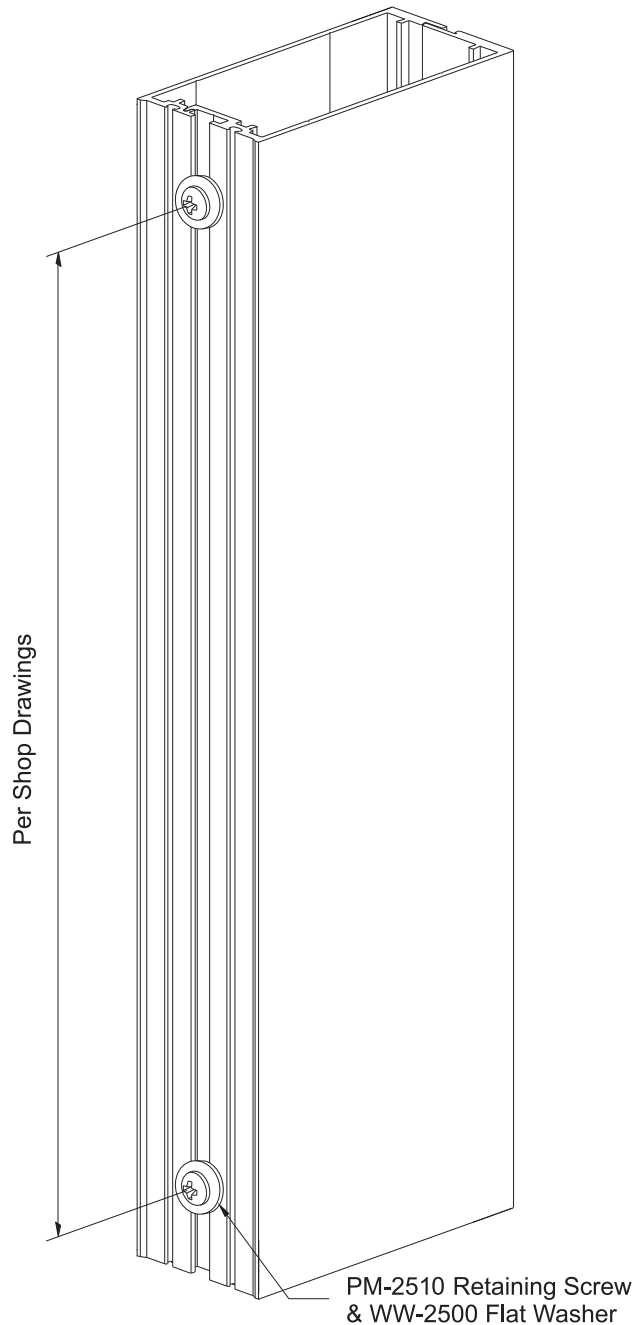
INSTALL RETAINING SCREWS

To secure intermediate vertical mullion halves during ladder assembly installation, PM-2510 fasteners and WW-2500 flat washers must be used.

- Drill 0.213" (# 3 drill bit) holes at locations indicated in shop drawings, centered on "V" groove.
- Insert and tighten down fastner and flat washer.
- Seal all screw heads.

See **Detail 17**.

Note: The number and location of fasteners used must be determined by a qualified engineer. Refer to approved shop drawings.

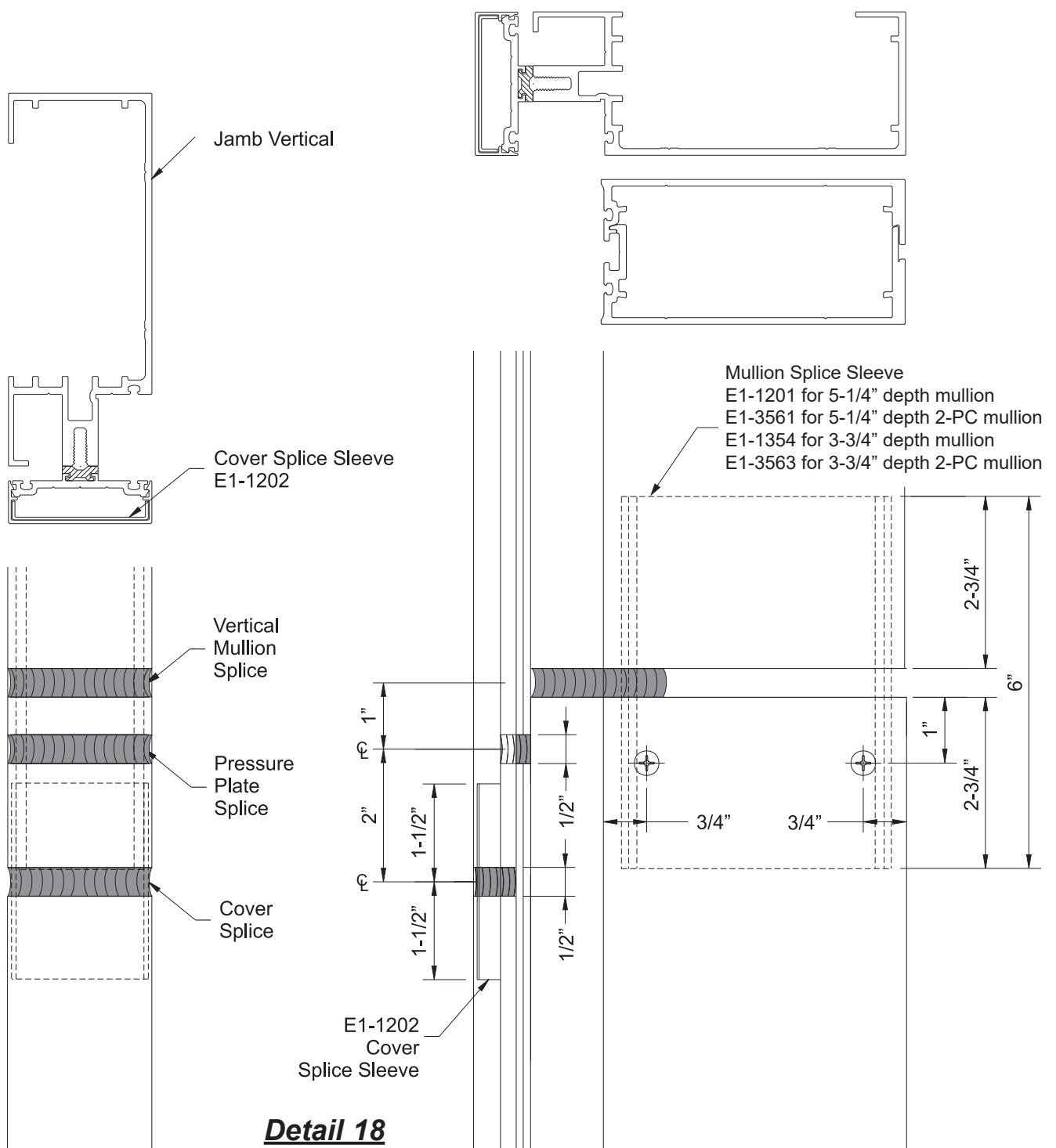


Detail 17

FRAME INSTALLATION

STEP 12 TYPICAL VERTICAL SPLICE

Stagger Mullion, Pressure Plate, and Cover Splice Joints as Shown Below.



FRAME INSTALLATION

STEP 12 (Continued) TYPICAL VERTICAL SPLICE

- Clean all surfaces as recommended by sealant manufacturer.
- Apply bond breaker tape to the face of the splice sleeve at its midpoint (3" from top or bottom).
- Lower the splice sleeve into top of lower mullion 2-3/4" and attach with two FC-1212 fasteners on both sides of the mullion. Screws should be installed 3/4" from the front and back of mullion and 1" down from the top.
- When using 1" glazing mullions, stuff a small piece of backer rod 1/2" down the cavity behind mullion tongue and pump in sealant to fill the cavity in both the top and bottom members.
- Apply sealant to the face of splice sleeve on the upper half and carefully slide the upper mullion down onto the splice sleeve. Place a 1/2" temporary shim between the mullions to locate them.
- Secure the upper mullion to the mid anchors and remove the temporary shims.
- Apply and tool sealant to the face and sides of the splice sleeve to create a water tight joint.

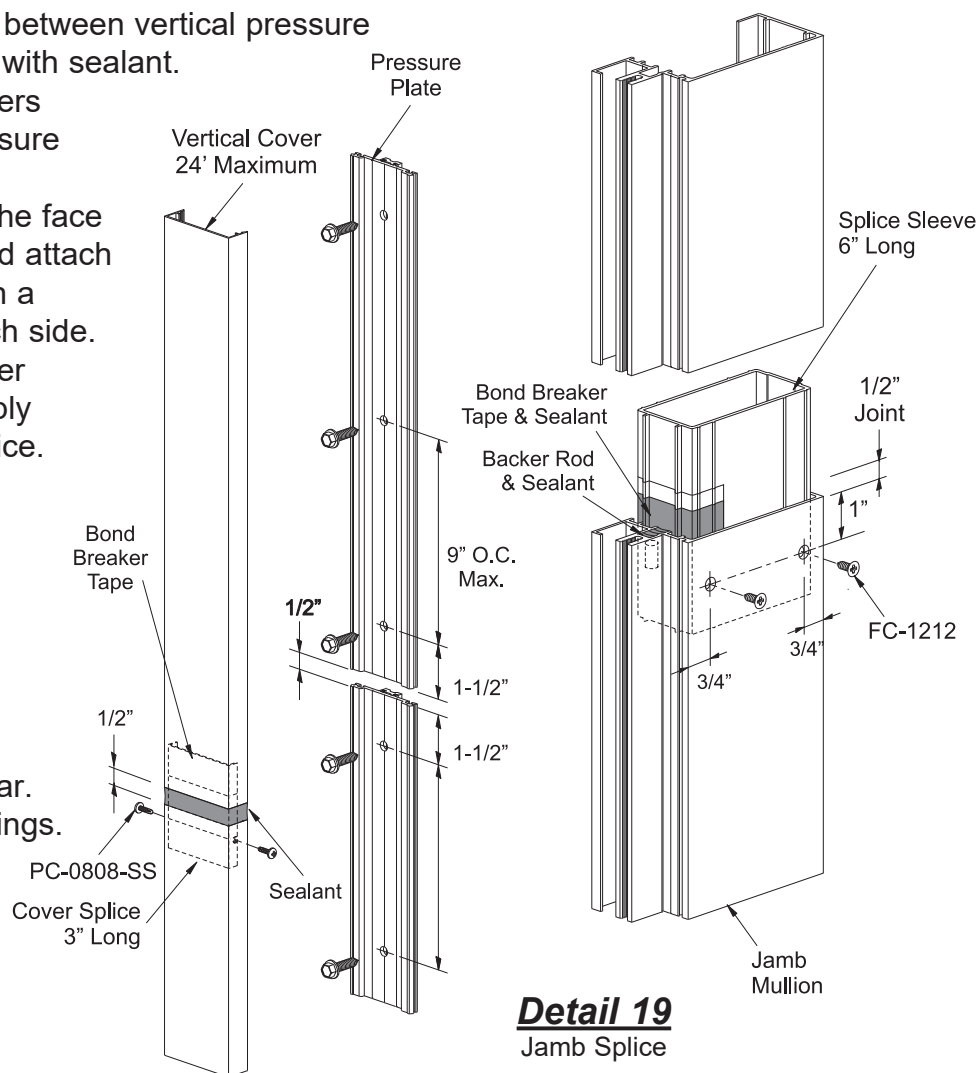
- Leave a 1/2" expansion joint between vertical pressure plate splices and fill the joint with sealant.

- Locate pressure plate fasteners 1-1/2" from each end of pressure plate splice as shown.
- Apply bond breaker tape to the face of the cover splice sleeve and attach it to the lower face cover with a PC-0808-SS fastener on each side.
- Prior to snapping on the upper portion of the face cover, apply sealant to the face of the splice.
- Leave a 1/2" expansion joint between face cover splices.

See **Details 19 & 19A**.

Note: Face covers, pressure plates, and mullions are staggered at splice locations. SSG vertical splices are similar. Refer to approved shop drawings.

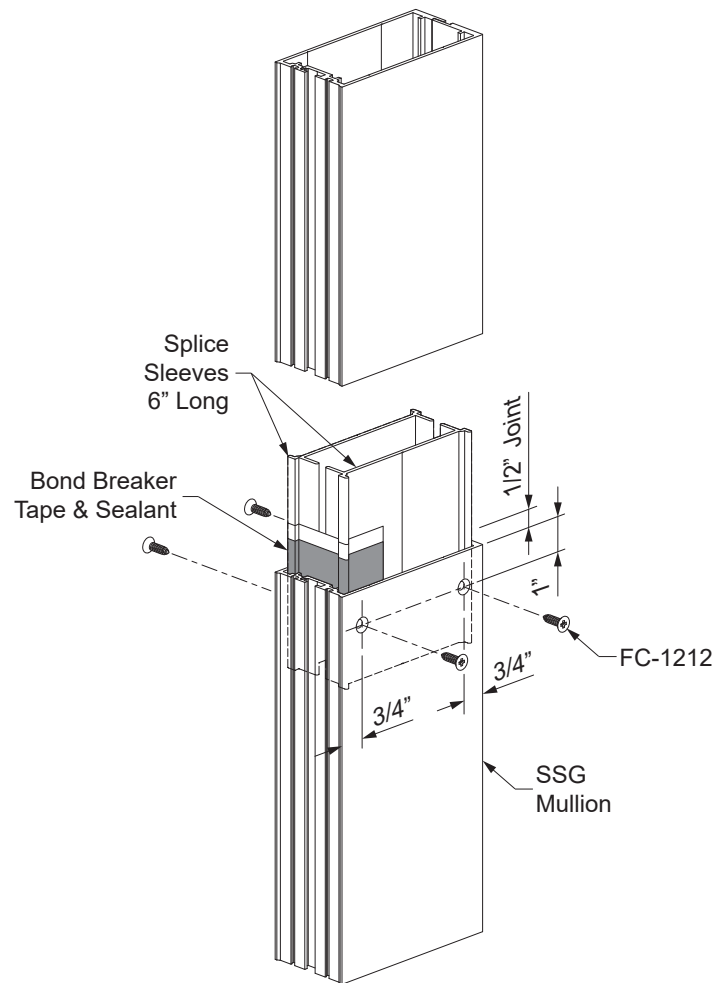
See **Detail 18, Page 19**.



Detail 19
Jamb Splice

FRAME INSTALLATION

STEP 12 (Continued) TYPICAL VERTICAL SPLICE



Detail 19A
SSG Mullion Splice

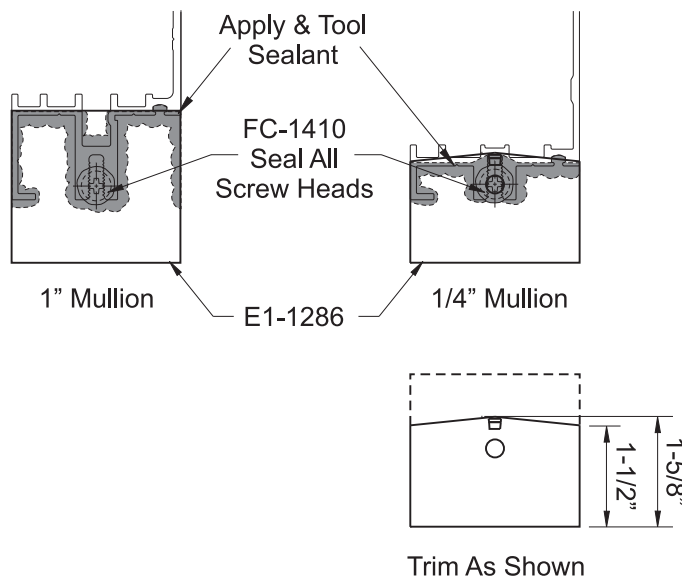
FRAME INSTALLATION

STEP 13

JAMB INSTALLATION

WITH MULLION END ANCHORS

- Prior to erecting ladders, install mullion end caps, E1-1286, at the top and bottom of the mullions with FC-1410 fasteners.
- Clean all contact surfaces as recommended by sealant manufacturer.
- “Butter” ends of verticals with sealant prior to installing end cap E1-1286.
- Apply sealant into the screw raceway and along the front edge of the mullion at each end.
- Seal all screw heads with sealant.



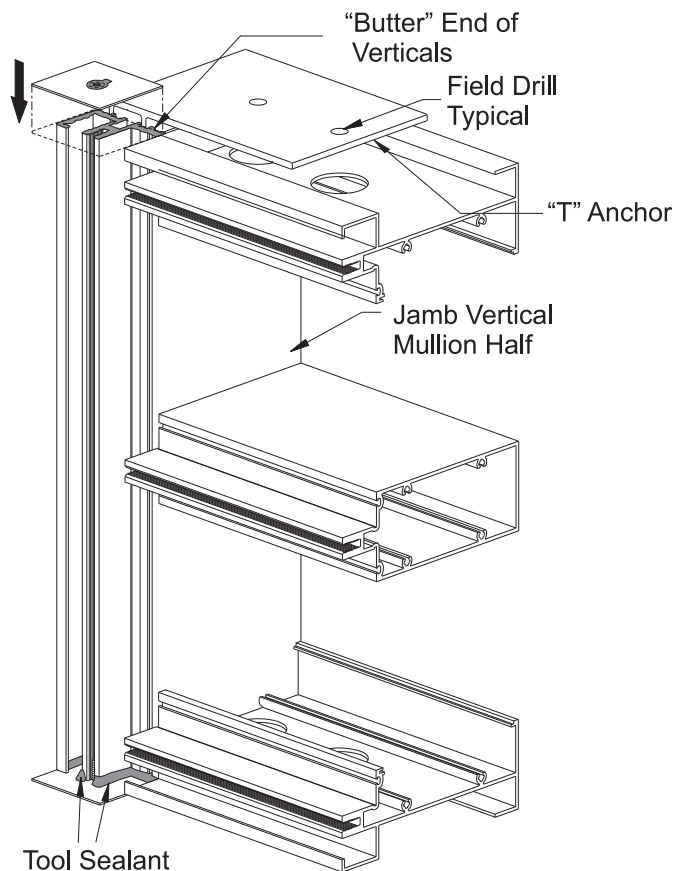
Installation Tip: For single spans, the top end cap E1-1286 may be added after ladder assemblies are installed by sealing as shown above and tapping FC-1410 fastener into the tongue from the top.

See **Detail 20**.

- Tape mullion “F” anchors into the top and bottom of the jamb mullions before erecting them into the opening. “T” anchors can also be added after unit half is erected.
- Erect and locate the first ladder assembly and temporarily attach it to the structure. All mullions must be installed plumb and true.
- Field drill holes in “F” and “T” anchors for the appropriate anchor fasteners according to shop drawings or engineering calculations. Consult YKK AP if load requirements are in question.

See **Detail 21**.

Detail 20



Detail 21

FRAME INSTALLATION

STEP 13

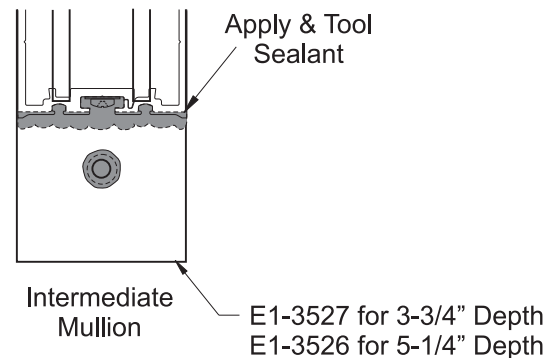
INTERMEDIATE VERTICAL INSTALLATION WITH MULLION END ANCHORS

- Prior to erecting ladders, install and tape mullion end caps, at the top and bottom of the mullions with “T” anchors as shown.
- Clean all contact surfaces as recommended by sealant manufacturer.
- “Butter” ends of verticals prior to installing end cap.
- Prior to installing perimeter backer rod, apply sealant into the screw raceway and along the front edge of the mullion at each end.
- While silicone is uncured and as backer rod is installed at the head and sill, the mullion end cap will seat against the mullion. If backer rod is loose, place a shim at the cap to compress it.

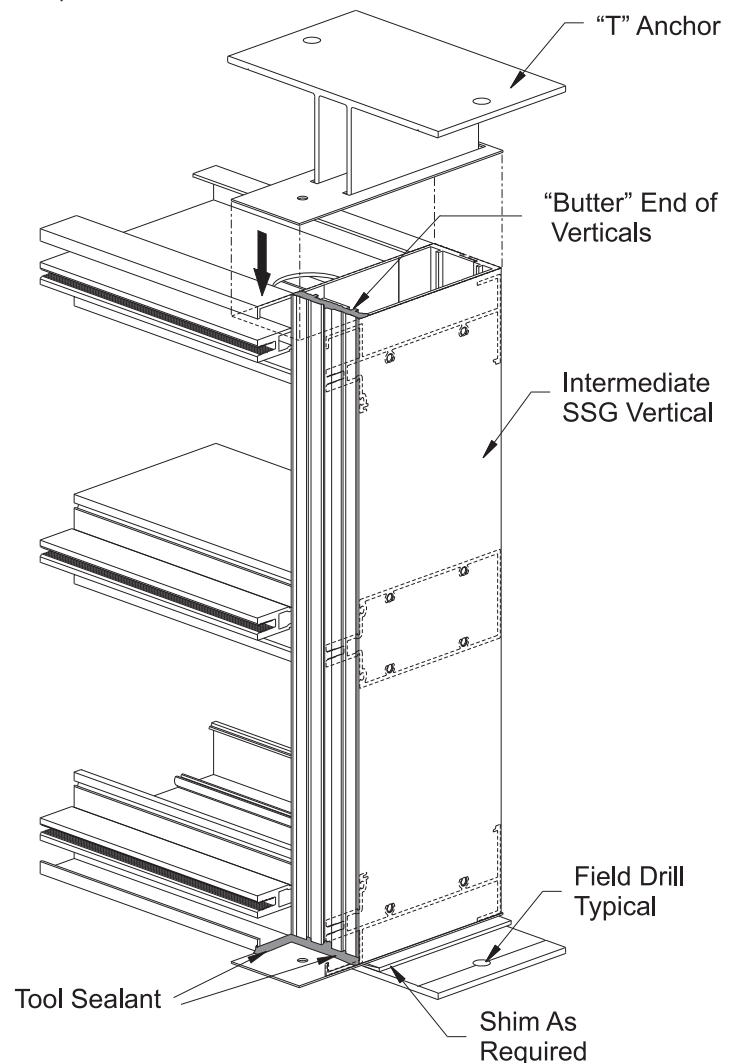
See **Detail 22**.

- Tape mullion “T” anchors into the top and bottom of the mullions before erecting them into the opening.
- Erect and locate the first ladder assembly and temporarily attach it to the structure. All mullions must be installed plumb and true.
- Field drill holes in “T” anchors for the appropriate anchor fasteners according to shop drawings or engineering calculations. Consult YKK AP if load requirements are in question.

See **Detail 23**.



Detail 22



Detail 23

FRAME INSTALLATION

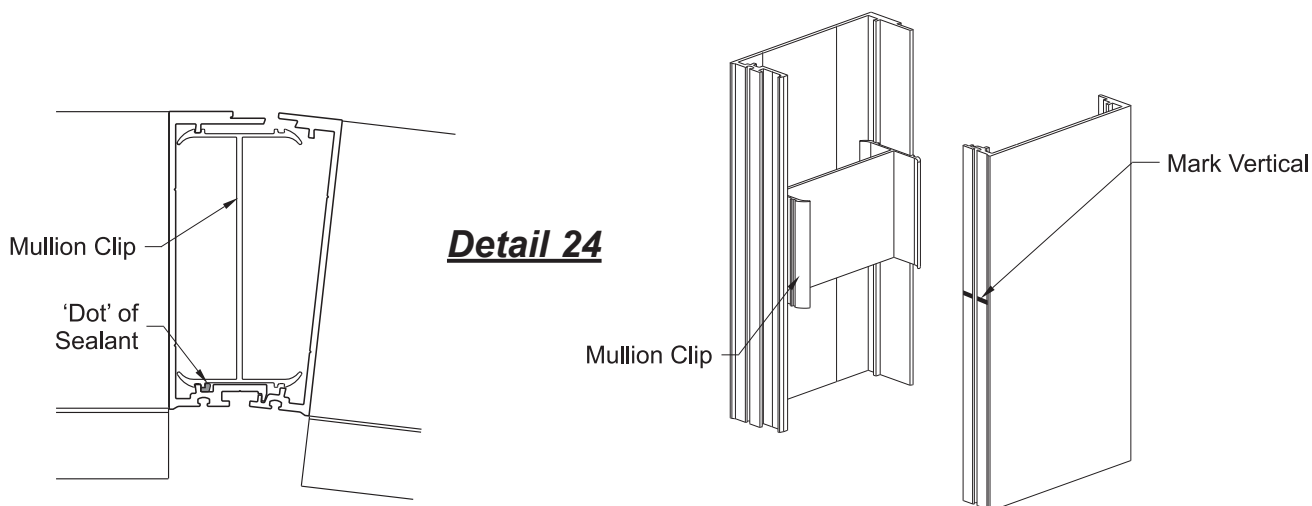
STEP 14

INSTALL VERTICAL MULLION CLIPS

Mullion clips are required to prevent the back side of the mullion from separating under high load conditions. Clips are not required where an intermediate horizontal is located. Refer to approved shop drawings for mullion clip locations.

-Mark both halves of vertical as shown below in order to locate mullion clip should removal be necessary. A small dot of silicone sealant placed at the front center of the clip prior to installation will prevent the clip from sliding down inside the mullion under extreme load conditions.

See **Detail 24**.

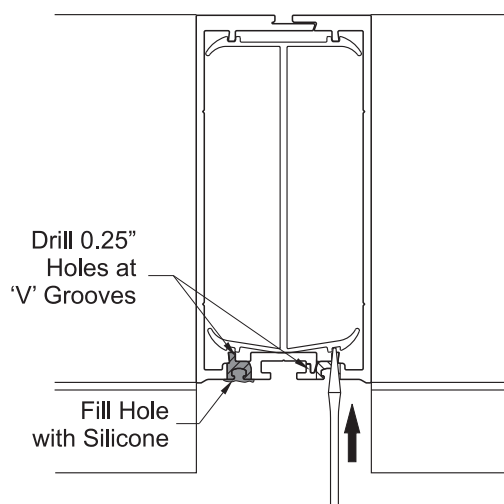


REMOVAL OF VERTICAL MULLION CLIPS

In the event a ladder assembly should need to be separated, the mullion clips will need to be removed, discarded and replaced. Under no circumstances should mullion clips be re-used.

- Locate mullion clips at marks as indicated above.
- Drill 0.25" holes at 'V' groove on both halves of vertical mullion.
- Insert screwdriver blade into holes and tap end of screwdriver with mallet until mullion clip bends and slides down in mullion.
- Seal holes with silicone when finished.

See **Detail 25**.

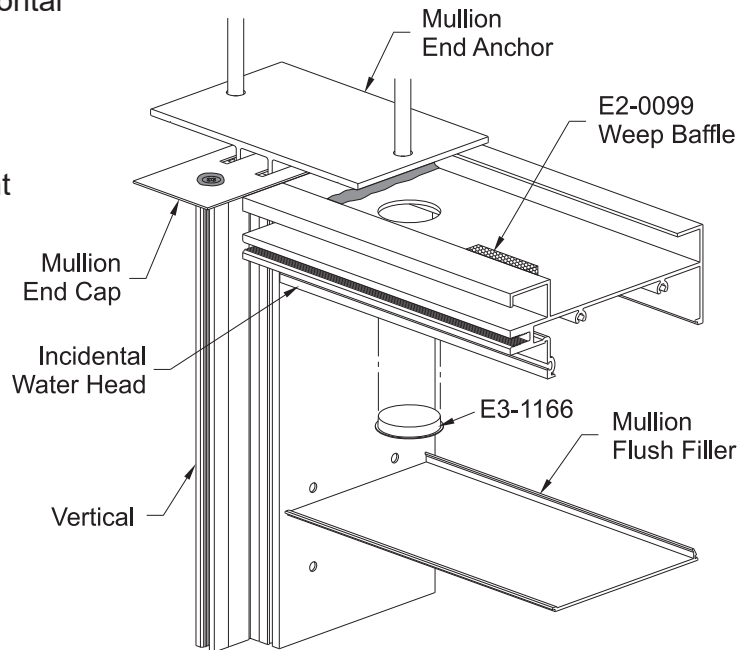


FRAME INSTALLATION

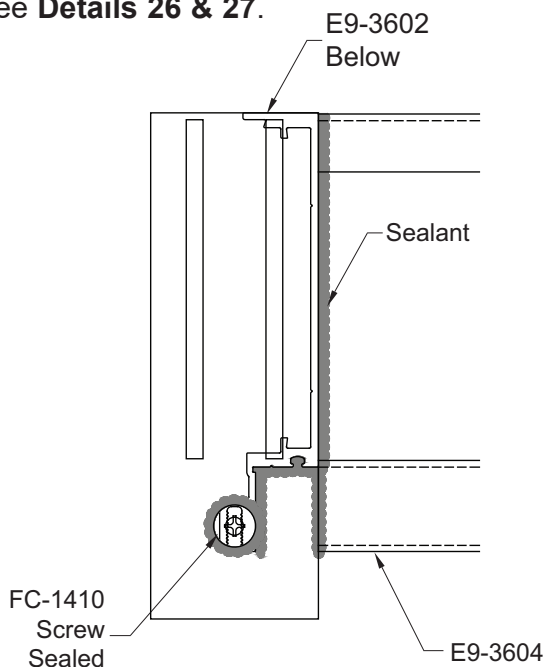
STEP 15 INSTALLATION OF OPTIONAL INCIDENTAL WATER HEAD

- Prior to ladder assembly installation, seal horizontal to vertical as shown in detail 21.
- Locate 0.313" weep holes at 1/3 points of incidental water head member.
- Install a weep baffle, E2-0099, directly behind each weep hole. Dab a small amount of sealant on the bottom of the weep baffle to secure it.
- Install mullion end cap E1-3526 onto female mullion half.
- Slide anchor into mullion half, then install ladder assembly as described previously.
- Just prior to installing the incidental water head members, apply sealant to the underside around the perimeter of the clear hole on the underside surface prior to installing E3-1166 plug.
- Apply and tool sealant completely over and around the plug after inserting and seating it in place.
- Snap on the mullion flush filler.

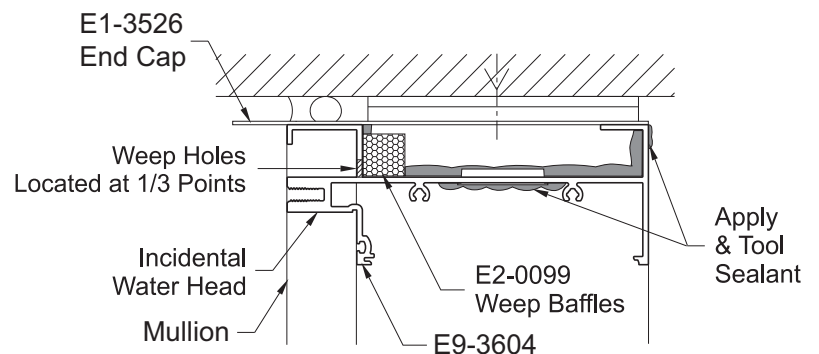
INCIDENTAL WATER HEAD



See **Details 26 & 27.**



Detail 26



Detail 27

FRAME FABRICATION

GENERAL NOTES:

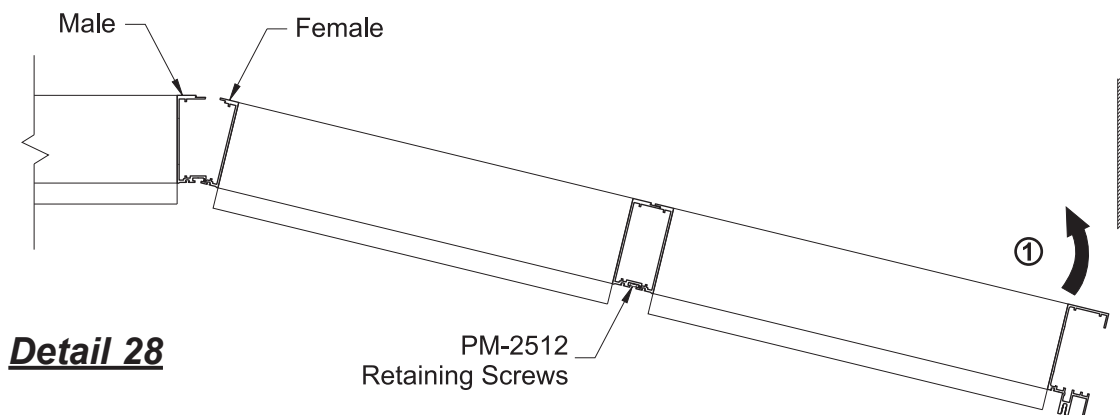
Typical Ladder Installation

Ladder Assemblies, or units, are typically rotated into place, starting left to right with the engagement at the front tongue. Holding the front of the mullion halves together at the tongue, rotate the new ladder assembly into the receiving unit until the mullion halves engage. On odd shape elevations, such as spokes, splays, etc., YKK AP's shear block version, YCW 750 SSG may be required. YCW 750 SSG may be easily integrated into the YCW 750 SplineTech™ SSG Screw Spline mullion assembly.

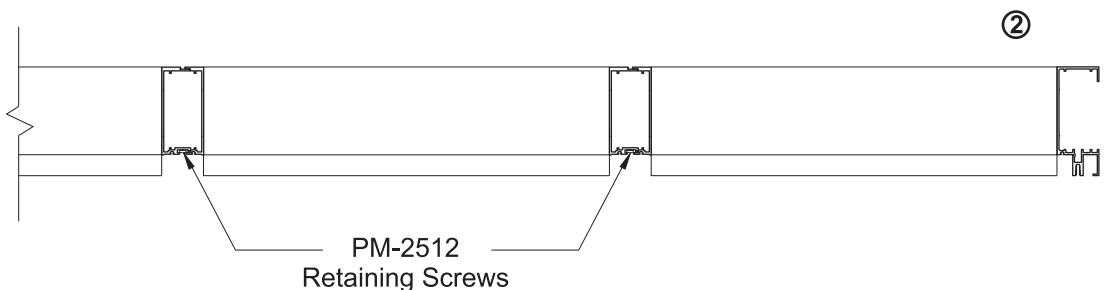
Installation of Final Ladder Assembly

When installing the final ladder assembly, rotate the final unit as described above. Units with a daylight opening of 42" or less may not rotate into an opening with a 1/2" or less perimeter caulk joint. In order to install such an assembly, the configuration illustrated below is recommended. Attach the final two ladders together and work the assembly into the opening as one final unit. Rotating a larger assembly will allow the back of the jamb mullion to clear the masonry opening.

See **Detail 28**.



OPTIONAL ROTATION OF TWO FINAL LADDER ASSEMBLIES



COMPLETED INSTALLATION

FRAME INSTALLATION

STEP 16

LADDER ANCHORING METHOD

Using Mullion End Anchors:

YCW 750 SplineTech™ SSG has two possible end anchoring conditions: “T”, and “F”.

-“T” anchors are used with intermediate verticals at the head and sill.

-“F” anchors are used with jamb mullions at the head and sill.

Ladders should be pre-assembled with end anchors, and steel or aluminum reinforcing if necessary.

To install units into place, pre-attach the “F” anchor and the “T” anchor into the left jamb ladder assembly by temporarily taping them to the ladder assembly.

Temporary wood planks at the center may be used to shim the unit to approximate height until final shims are placed under the vertical mullion. Place fixed hard shims under vertical mullion halves after ladder assemblies are located.

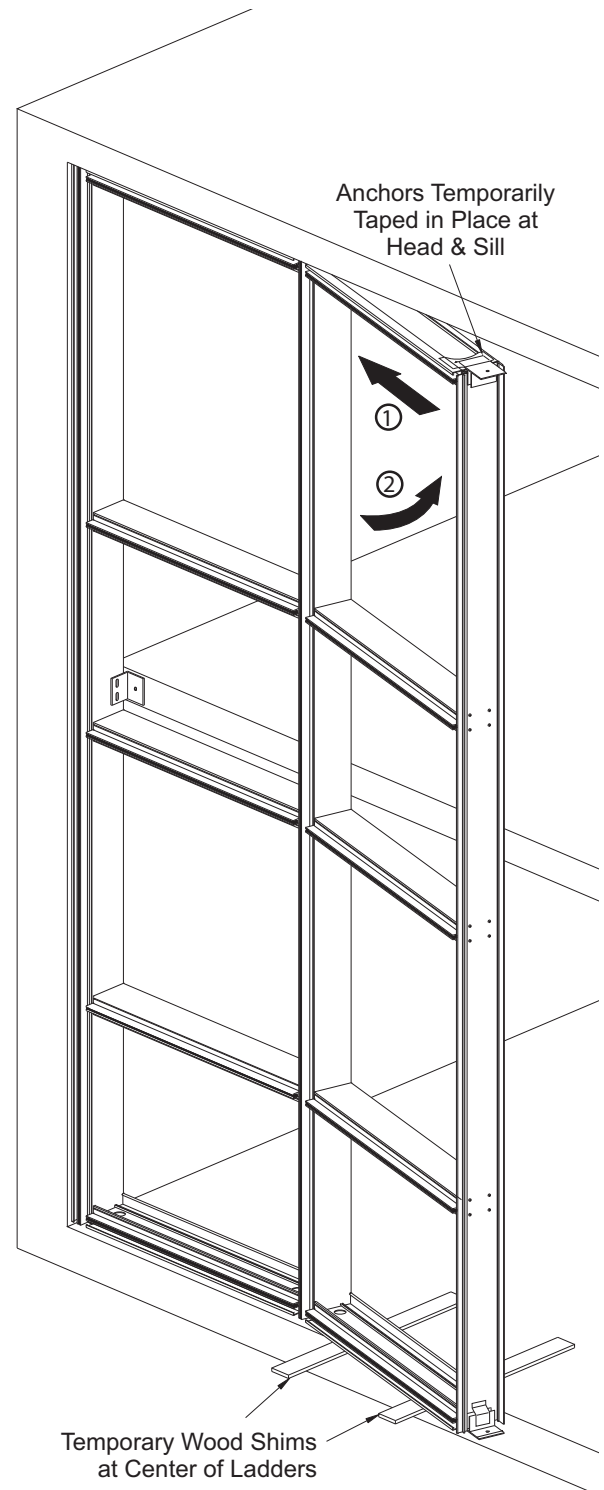
See **Detail 29**.

End anchors should be pre-drilled for anchor bolts according to approved shop drawings or engineering calculations.

Note: When installing ladders, check overall frame width every fifth mullion as the wall is installed. A buildup of cumulative tolerance errors may occur, resulting in excessive DLO spacing.

As ladder assemblies are rotated into place, PM-2510 retaining screws and WW-2500 flat washer can be fastened into the mullion groove to hold the assemblies together.

See **Detail 17, Page 18**.



Detail 29

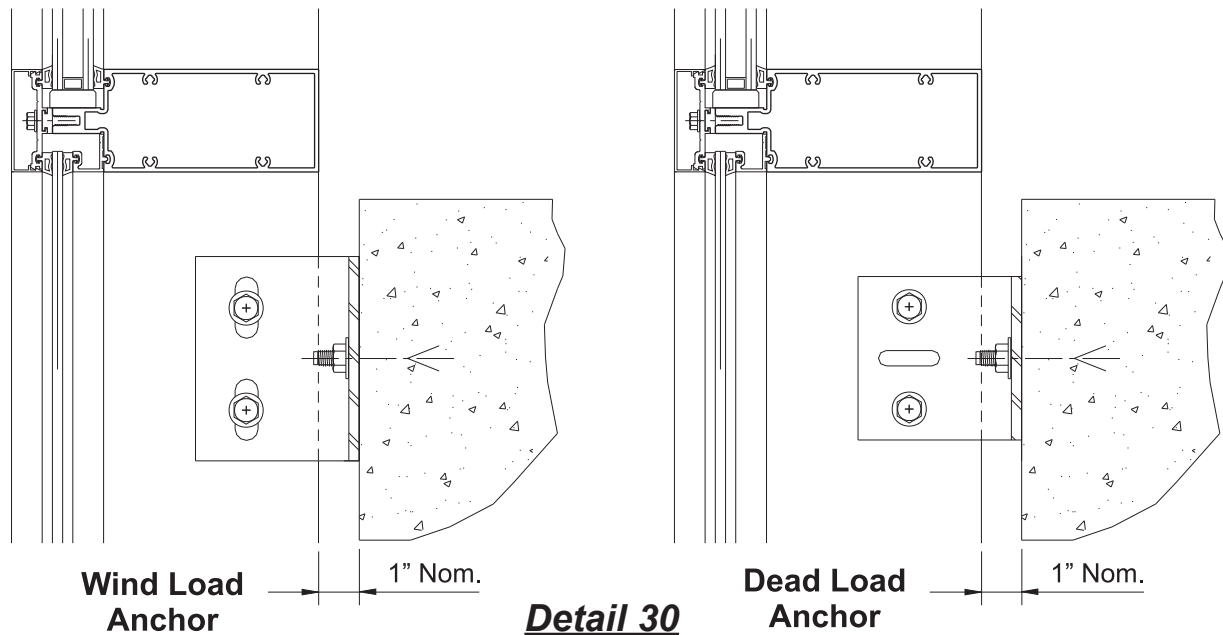
FRAME INSTALLATION

STEP 17

INSTALL WIND LOAD / DEAD LOAD ANCHORS

-Install steel wind load and dead load anchor clips. Anchor clips are normally template or line set before mullions are hung. Outstanding leg of clip must be set at 90° to offset line. The back of the vertical mullion should set 1" from the anchoring substrate.

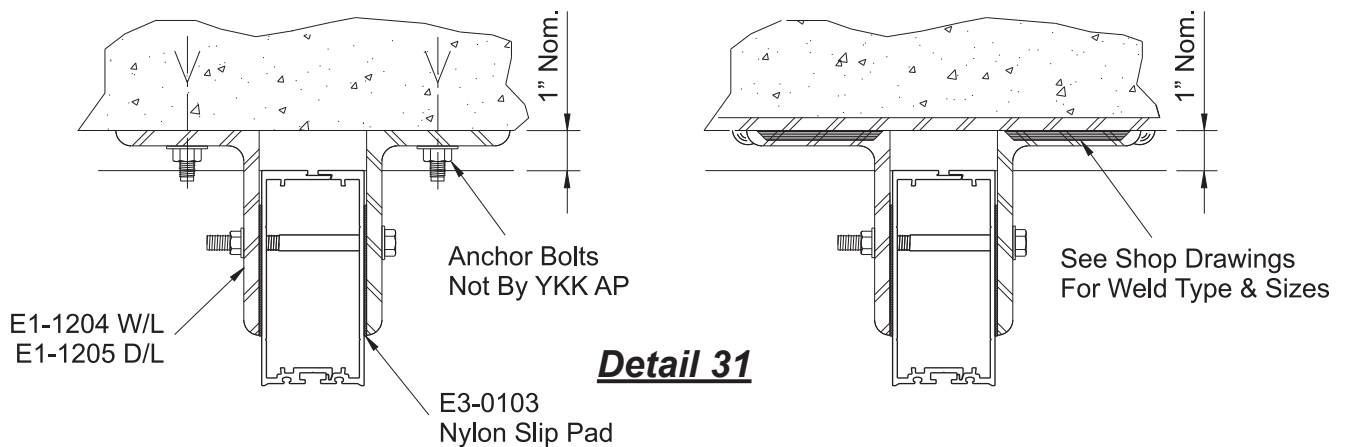
See **Detail 30**.



-Install, plumb, and align vertical mullions. Drill and install appropriate diameter anchor bolts. If shop drawings are not prepared by YKK AP, all anchors and bolts must be checked by a qualified engineer.

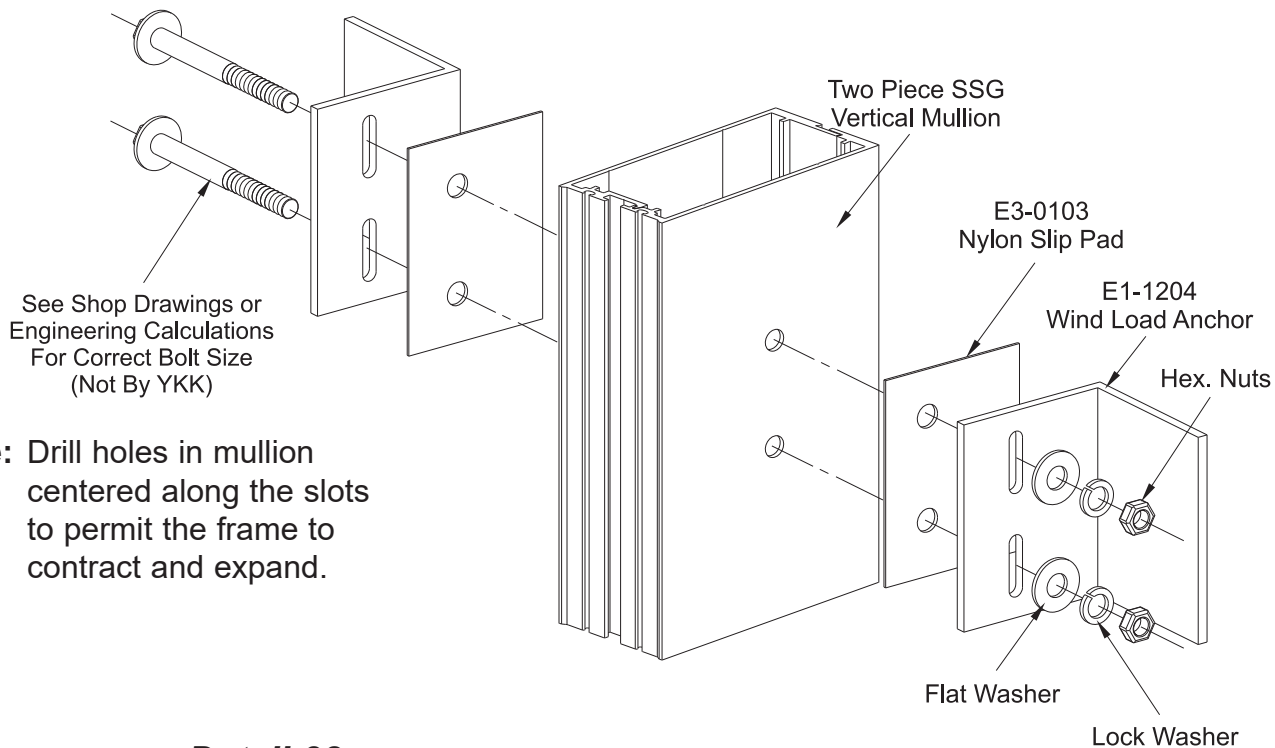
-Nylon slip pads, E3-0103, must be installed between mullion and anchor.

See **Detail 31**.



FRAME INSTALLATION

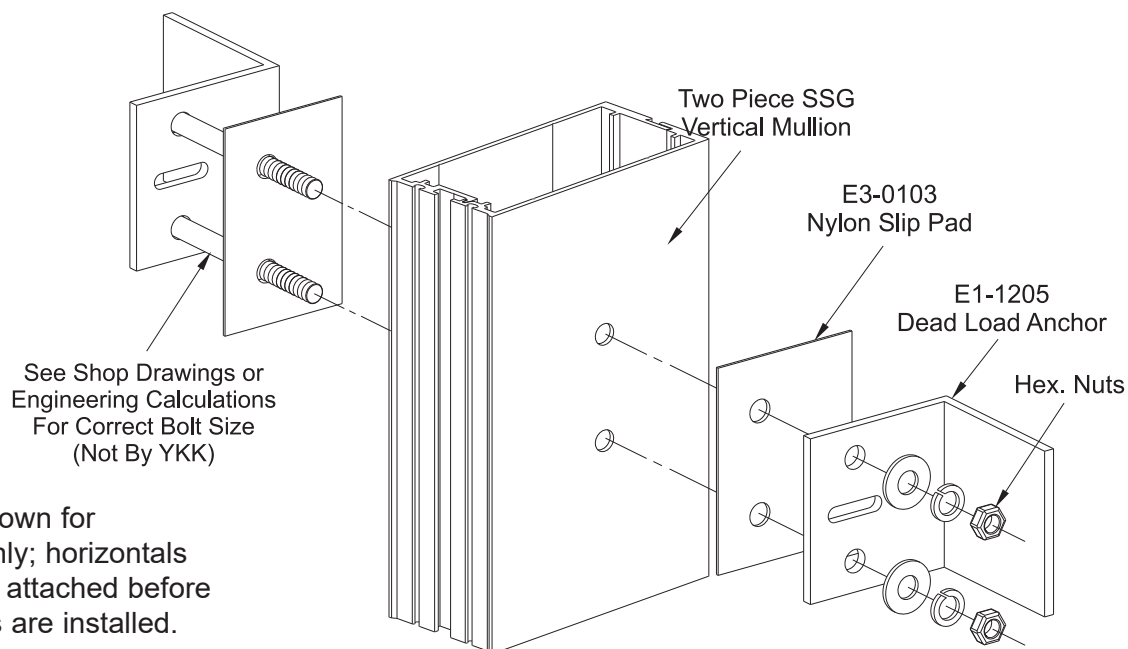
TYPICAL WIND LOAD ANCHOR



Note: Drill holes in mullion centered along the slots to permit the frame to contract and expand.

Detail 32

TYPICAL DEAD LOAD ANCHOR

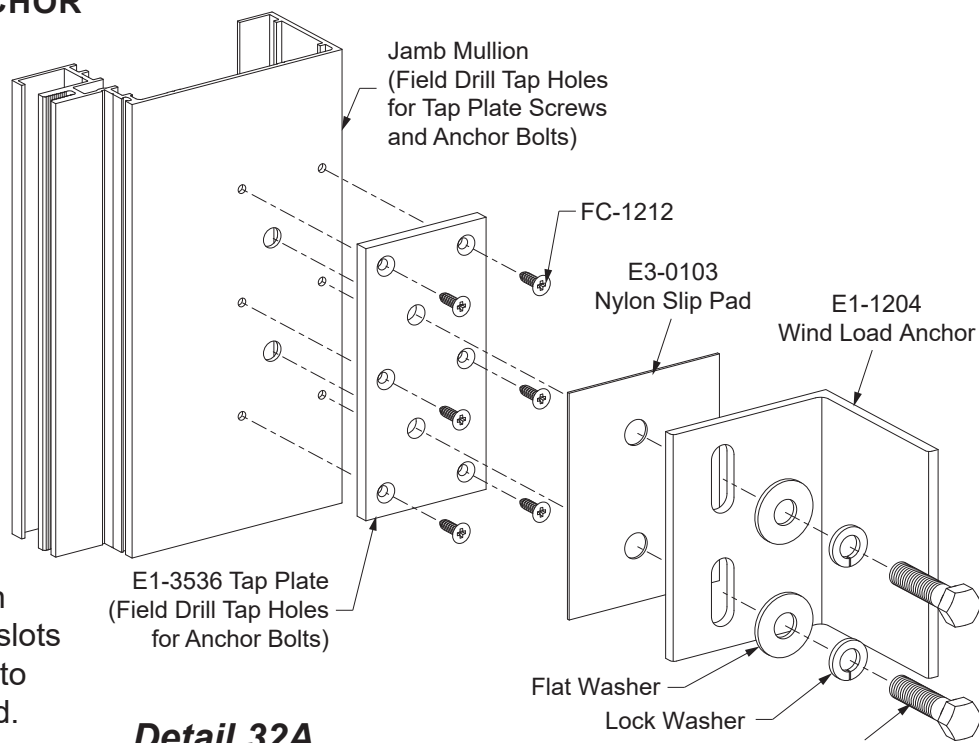


Note: Bolts are shown for reference only; horizontals are typically attached before anchor bolts are installed.

* Anchor attachment will vary depending on job conditions. Consult YKK AP or qualified engineer.

FRAME INSTALLATION

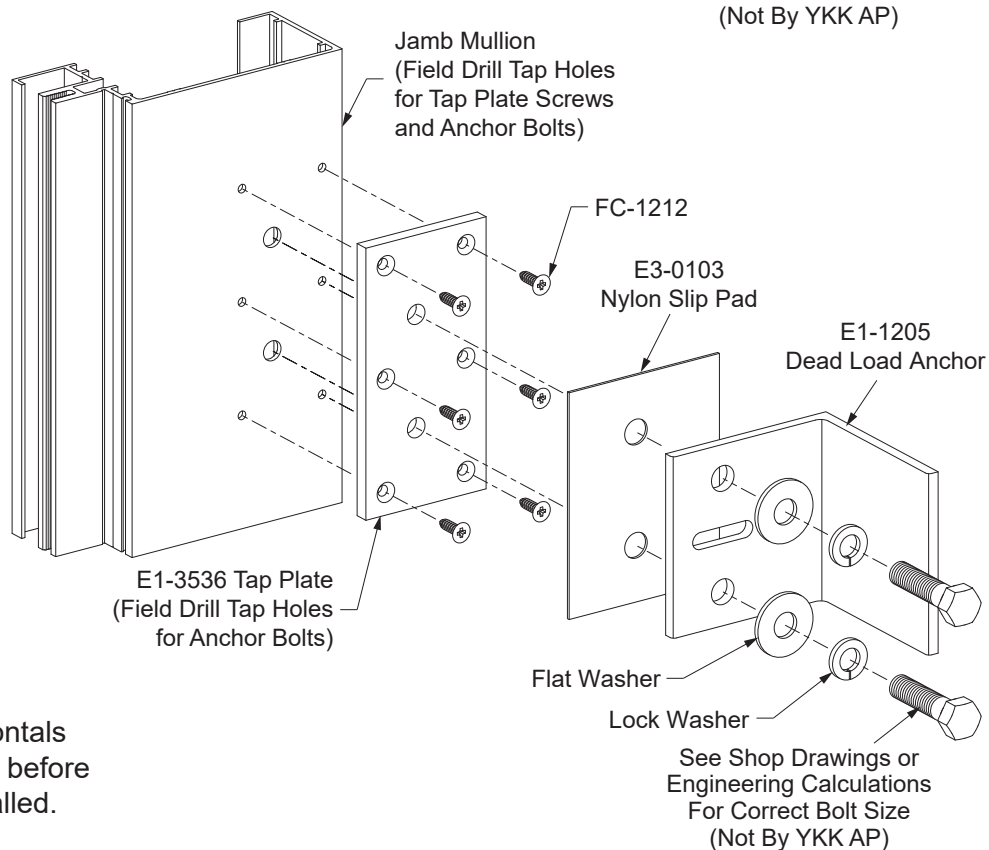
JAMB WIND LOAD ANCHOR



Note: Drill holes in mullion centered along the slots to permit the frame to contract and expand.

Detail 32A

JAMN DEAD LOAD ANCHOR



Note: Bolts are shown for reference only; horizontals are typically attached before anchor bolts are installed.

FRAME INSTALLATION

STEP 18 (Optional)

JAMB INSTALLATION WITH JAMB ANCHORS

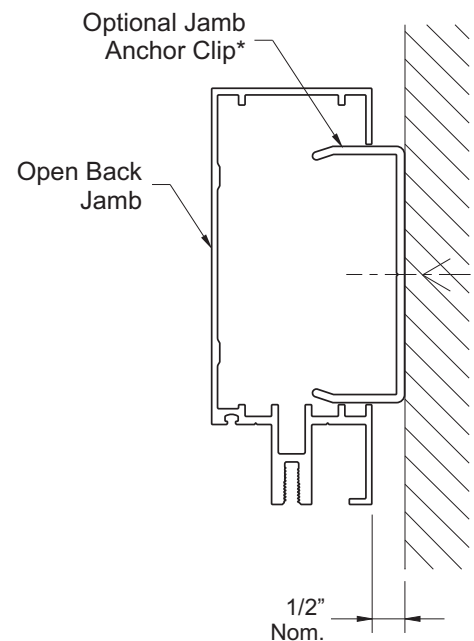
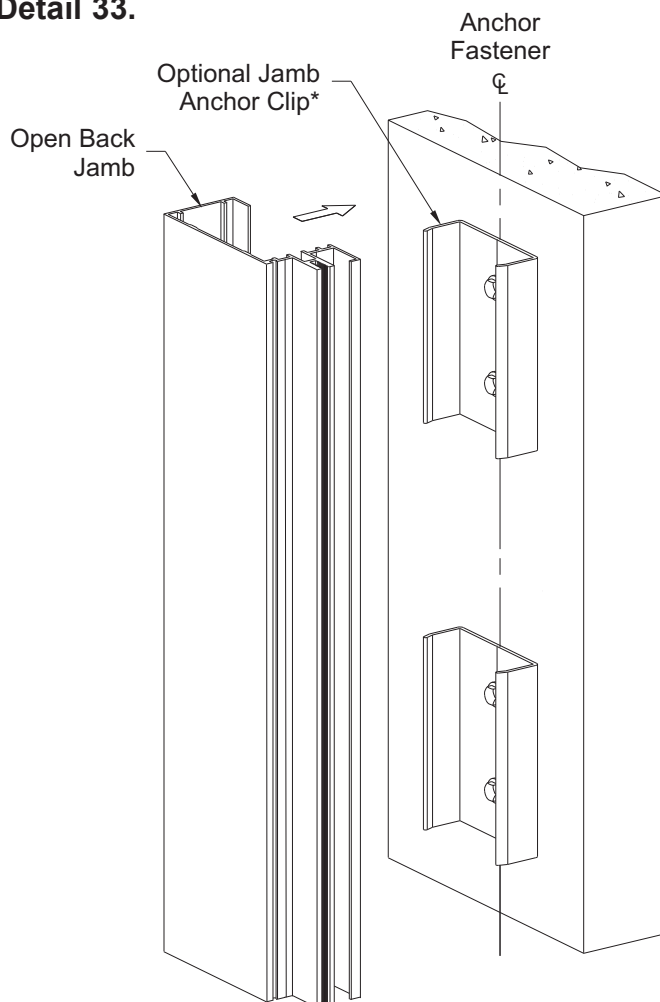
Optional jamb anchor clips, E1-3524 for 3-3/4" back depth and E1-3525 for 5-1/4" back depth, may be used with open back jamb members to reduce deflection at the jambs.

- Locate the jamb anchor locations on the structure according to approved shop drawings.
- Strike a plumb line the length of the frame height at the center line of the anchor fasteners.
- Provide anchor fasteners as per approved shop drawings or engineering calculations.
- Install the anchor fasteners as recommended by fastener manufacturer.
- Install the jamb mullions as instructed in the next step.

Note: Jamb anchors may not be feasible at last ladder installation.

Jamb anchor clips must be installed plumb and line up straight with each other.

See **Detail 33**.



Detail 33

FRAME INSTALLATION

STEP 19

INSTALL DOOR FRAME ANCHOR

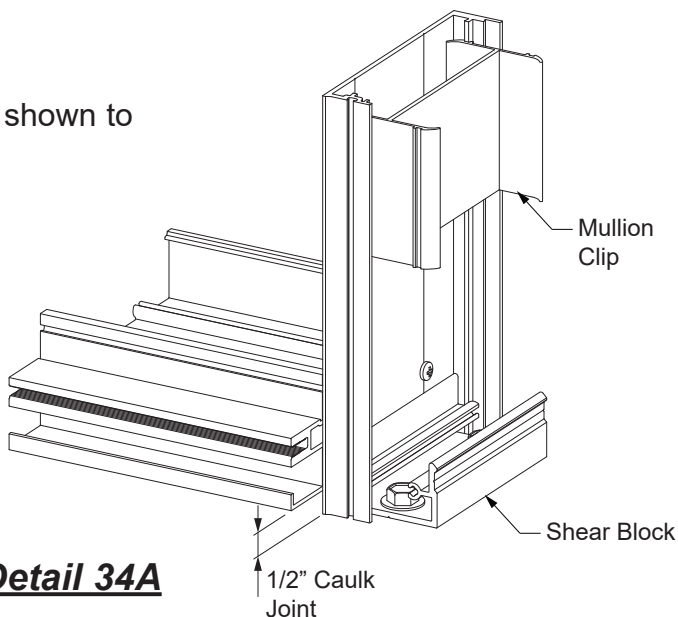
- Place ladder assembly in proper location
- Position door jamb anchor E1-3564 or E1-3565 on floor with suitable anchors.

See **Detail 34A**.

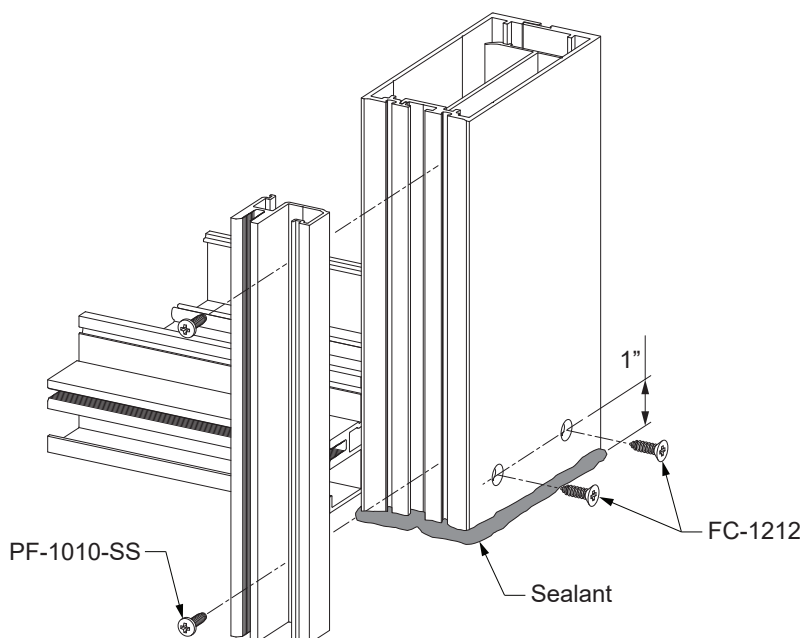
- Drill and countersink 0.238" hole in location shown to accommodate FC-1212 fastener.
- Rotate next assembly into position & fasten as shown.
- Seal around base of of mullion prior to installing door frame.

See **Detail 34B**.

- After applying the sealant, attach the SSG Door Jamb Adaptor to the mullion with PF-1010-SS fasteners.



Detail 34A



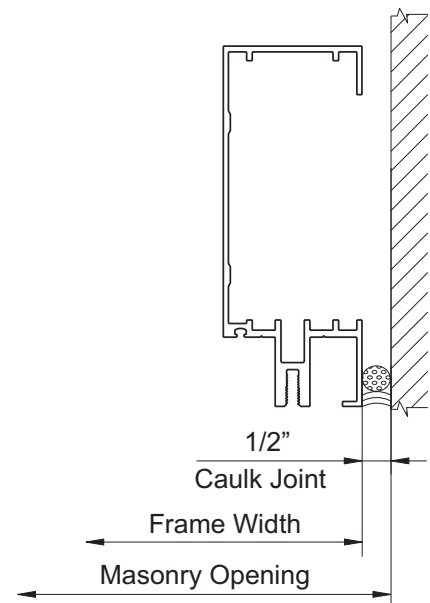
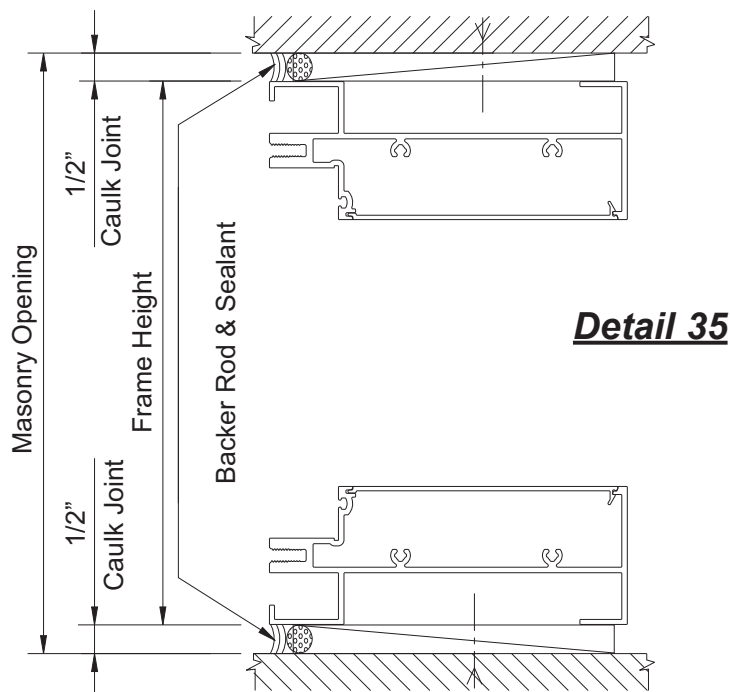
Detail 34B

FRAME INSTALLATION

STEP 20

APPLY PERIMETER SEALANT

- Clean the area around the perimeter of the frame with cleaner and method approved by sealant manufacturer.
 - Push in backer rod between the perimeter of the frame and the substrate about 1/4".
 - Apply sealant to the perimeter of the frame.
 - Tool the sealant making sure that sealant provides a watertight joint.
- See **Detail 35**.



FRAME INSTALLATION

STEP 21

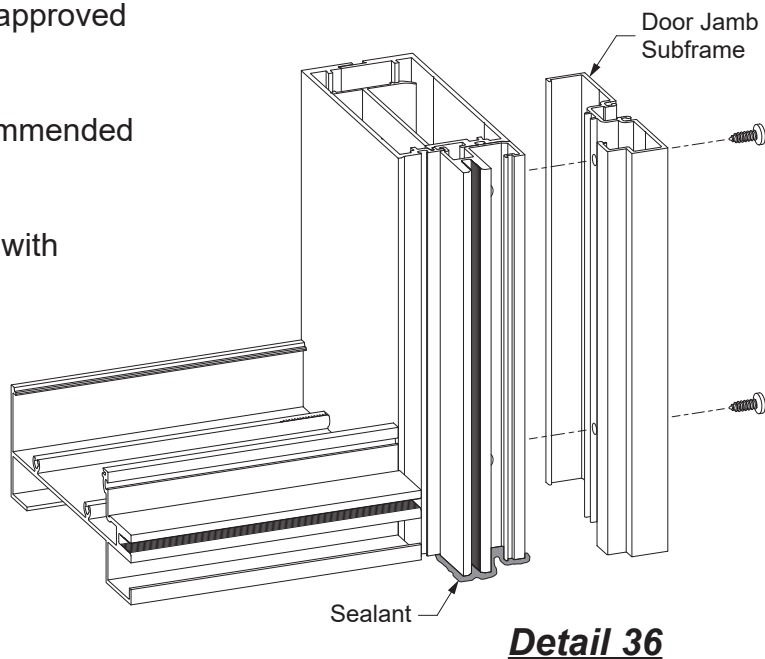
INSTALL DOOR SUBFRAMES

Refer to the **Entrances Installation Manual** for assembly of the door subframes. These subframes are typically glazed into the curtain wall framing at the jambs, and set directly upon the sill substrate without any shims. The subframe members are determined by the approved shop drawings.

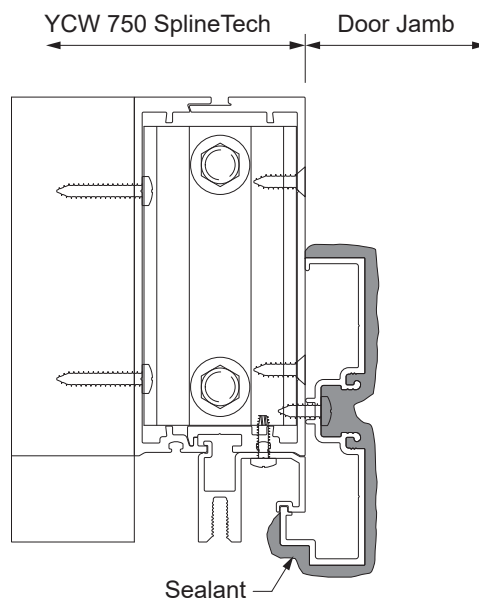
-Clean all sealant contact surfaces as recommended by the sealant manufacturer.

-Install the jamb subframe onto the mullion with fasteners according to the approved shop drawings, setting the subframe jambs in beds of sealant as shown in **Detail 36**.

-Apply and tool sealant to the bottom of the jamb subframe as shown in **Detail 37**.



Detail 36



Detail 37

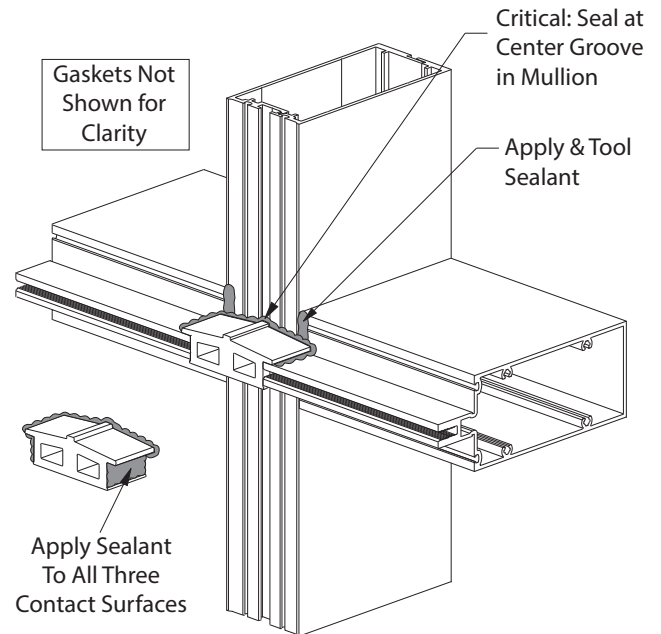
FRAME INSTALLATION

STEP 22 INSTALL JOINT PLUGS

At Intermediate SSG Verticals:

The space between the horizontals at each SSG vertical must be closed with joint plugs, E2-0245 for 1" glazing or E2-0279 for 1/4" glazing.

- Clean the area around the vertical and horizontal intersection with an approved cleaner.
 - Apply and tool sealant to the intersection of the horizontal and vertical.
 - Apply sealant to the three contact sides of the joint plug and into all cavities behind where the joint plug will go.
 - Press joint plug firmly against face of mullion.
 - Tool the sealant to ensure a watertight seal.
 - Seal all exposed screw heads on the face of the mullion.
- See **Detail 38**.

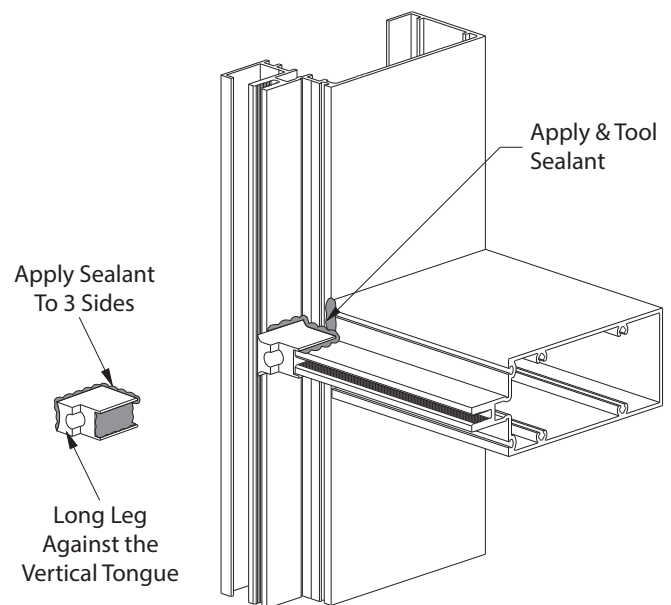


Detail 38

At Jamb Mullions:

The tongue of the horizontal mullion must be sealed to the tongue of the jamb mullion with joint plugs, E2-0102 for 1" glazing or E2-0125 for 1/4" glazing.

- Clean the area around the tongue intersection with an approved cleaner.
- Apply and tool sealant to the intersection of the horizontal and jamb mullions.
- Apply sealant to the three contact sides of the joint plug and at the intersection of the vertical and horizontal glazing pocket.
- Install joint plug as shown with the long leg of plug against the vertical tongue.
- Press joint plug firmly against face of mullion.
- Tool the sealant to ensure a watertight seal.
- Seal all exposed screw heads on the face of the mullion.



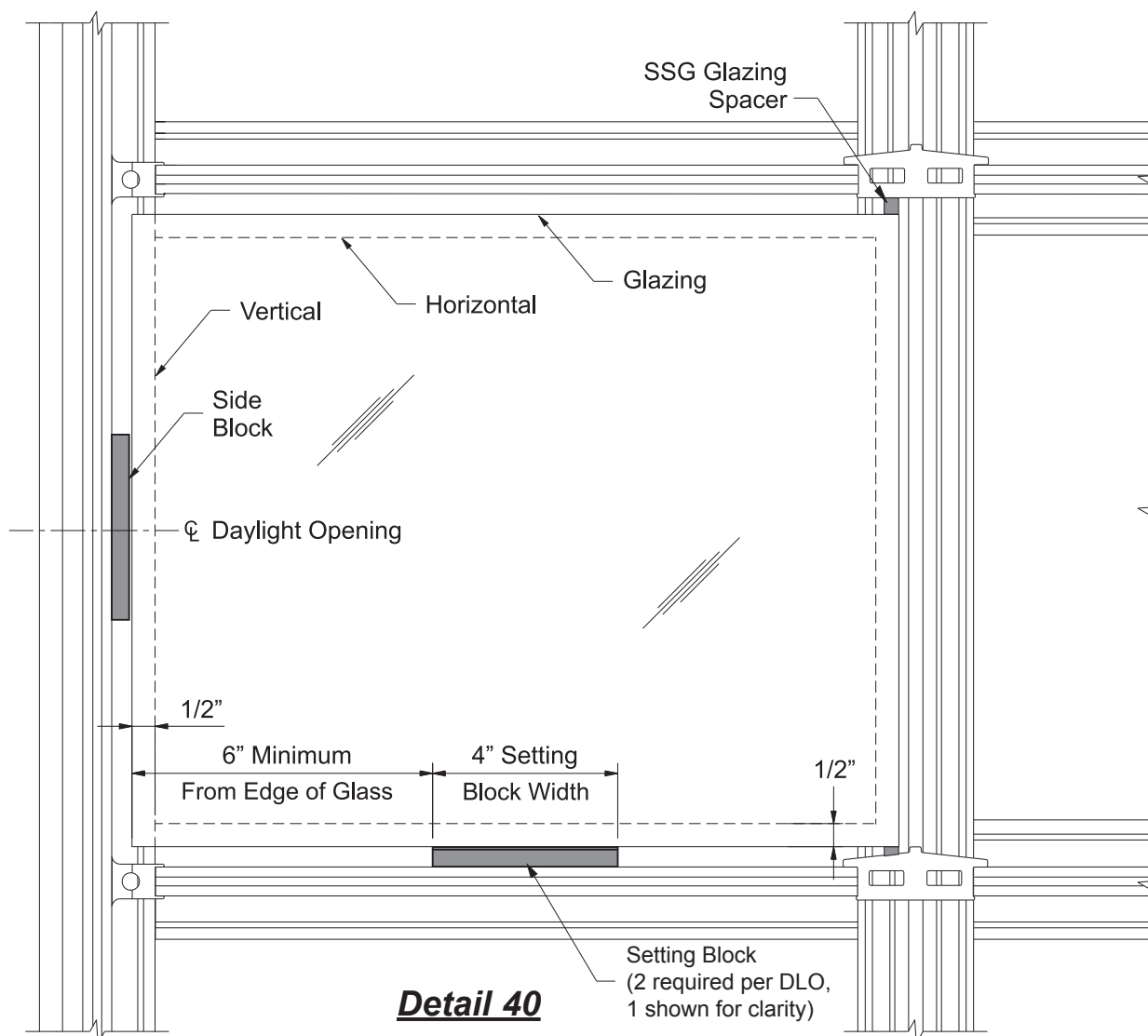
Detail 39

See **Detail 39**.

GLAZING

STEP 23

INSTALL SETTING & SIDE BLOCKS



- Install setting blocks, E2-0104 for 1" glazing or E2-0112 for 1/4" glazing, at 1/4 points of D.L.O. or at 1/8 points of D.L.O. or minimum of 6" from edge of glass, whichever is greater. Consult YKK AP for setting block requirements on units that exceed 60" x 96" or 40 sq. ft.
- Install side blocks, E2-0105 for 1" glazing or E2-0113 for 1/4" glazing, centered along the daylight opening on both sides of glazing material.

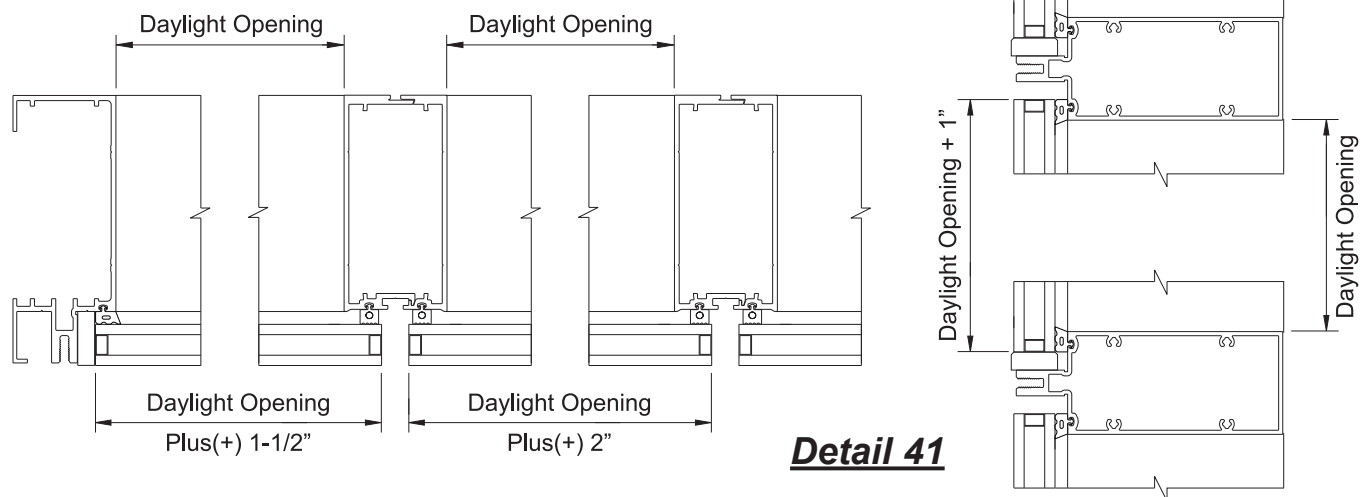
See **Detail 40**.

GLAZING

STEP 24

INSTALL EXTERIOR GLAZING GASKETS

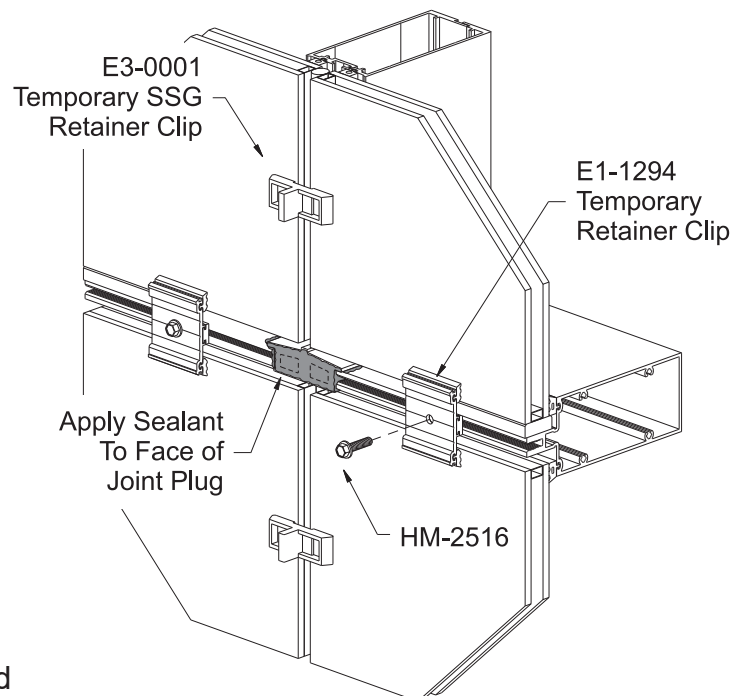
- Cut exterior jamb glazing gaskets to the same length as the jamb pressure plates.
 - Cut exterior horizontal glazing gaskets to daylight opening plus 1/4" per foot of opening width.
 - Install by pushing jamb glazing gaskets centered along the jamb pressure plates.
 - Install horizontal gaskets by pushing each end into the reglet of the pressure plate. Next press center of gasket into reglet; then push gasket into reglet working from center towards the ends.
- Caution:** Do not stretch the gaskets.



STEP 25

INSTALL GLASS

- Install glass at this time.
See **Detail 37** for glass sizes.
 - As each lite is installed, attach a temporary retaining clip, E1-1294, in the middle of each horizontal and 4" from glass edge at each end with HM-2516 fasteners.
 - Additionally, secure glass with SSG temporary glass retainers E3-0001 every 3'-0" maximum along the SSG verticals.
 - Apply sealant to the face of the joint plug just prior to installing pressure plates.
Do not allow sealant to skin over prior to installing pressure plates.
- See **Detail 41**.



Note: Sealant must form a complete seal between the pressure plate, thermal isolator, and the joint plug.

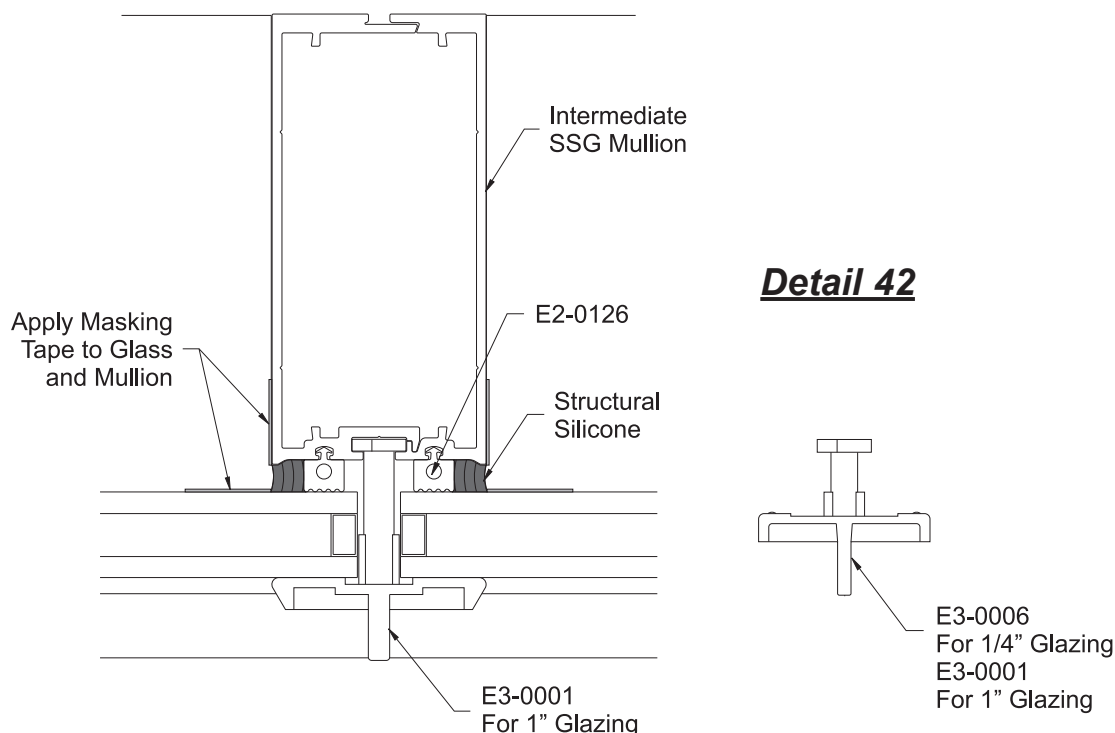
GLAZING

STEP 26

APPLY INTERIOR STRUCTURAL SILICONE SEALANT

- Carefully read and follow sealant manufacturer's sealant recommendations.
- Make sure all silicone contact surfaces and joints have been cleaned with cleaner and method recommended by sealant manufacturer.
- Apply masking tape to the mullion and glass as shown in **Detail 42**.
- Apply an approved structural silicone from the bottom to the top of the joint. Use positive pressure to completely fill the cavity between the glass and vertical mullion.
- Using a nylon spatula or other non-scratching implement, tool the silicone immediately after running the vertical joint. Exert positive pressure while tooling to ensure that the silicone completely fills the cavity.
- Be careful not to remove too much silicone. The silicone should make complete contact with the glass and aluminum surfaces. The finished joint should be flush with the edge of the vertical. See **Detail 42**.

- Allow silicone to cure as per manufacturer's recommendations. Temporary retainers should be left in place until silicone has cured.

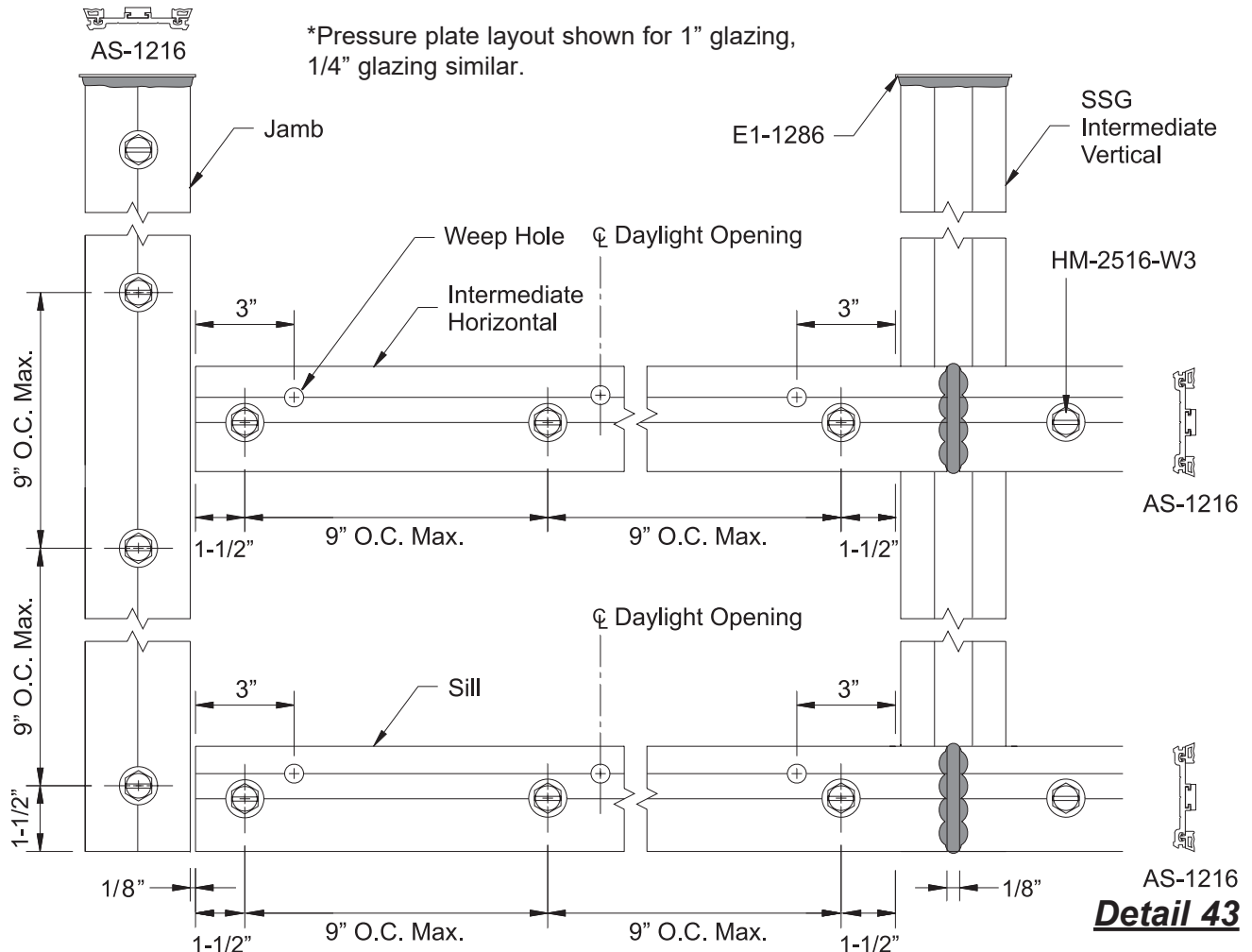


Caution: Do not permit the silicone to skin over before it is tooled. Immediately remove masking tape after tooling the silicone.

GLAZING

STEP 27

PRESSURE PLATE LAYOUT AND ASSEMBLY



- Pressure plate stock lengths are factory punched with 0.281" diameter holes at 9" o.c. maximum. After cutting, additional holes may be required to have screws 1-1/2" from each end.
- At the top of the pressure plate, start an HM-2516-W3 screw through the pressure plate and slightly through the thermal separator.
- Hold vertical pressure plate to the extreme top of the mullion against the end cap and start the screw into the mullion tongue, applying pressure to keep the thermal separator up against the mullion tongue.
- Torque screws to 50 inch-pounds with a speed wrench or torque limiting screw gun.
- Work from the top down.
- Install vertical face cover E9-1206 where applicable.
- Install horizontal pressure plates in opening, leaving a 1/8" gap at the ends.
- Starting at the center of each pressure plate, tighten each retainer screw to 50 inch-pounds.
- Apply and tool sealant to 1/8" joint where horizontal pressure plate ends meet.
- Torque all vertical pressure plate bolts to 50 inch-pounds.
- Install horizontal face cover E9-1206.

See **Detail 43.**

GLAZING

STEP 28

INSTALL EXTERIOR FACE COVERS

-Snap on exterior covers using a mallet and clean scrap piece of lumber. Snap on vertical covers first where applicable. Start at one end. Work block and mallet down the mullion. Apply and tool sealant to seams between the ends of the horizontal pressure plate and the applied mullion covers. Snap on horizontal covers. Start at one end with block and mallet and work across the horizontal.

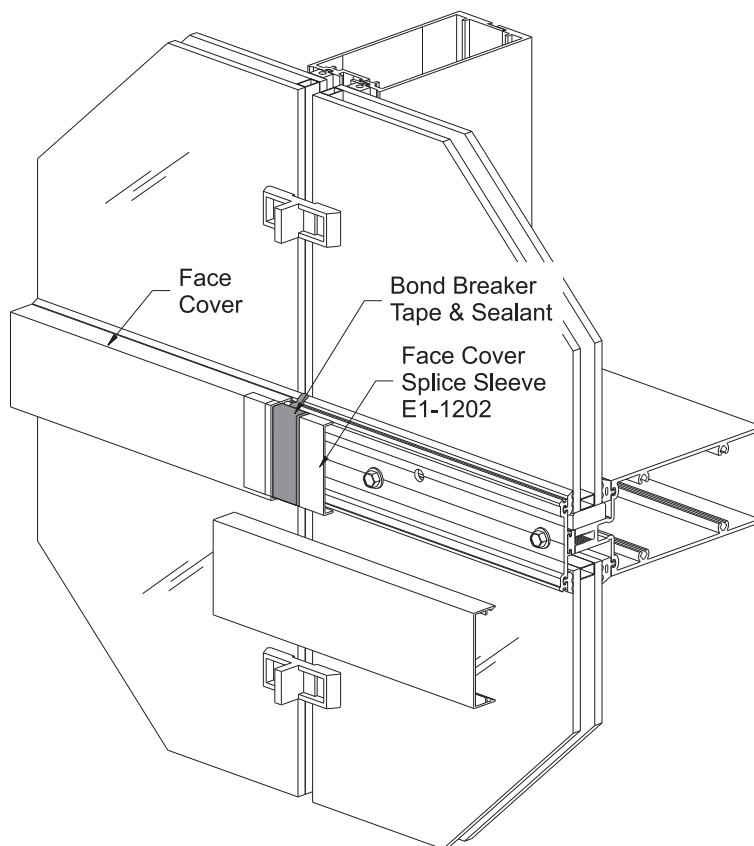
-If horizontal face covers are spliced, apply bond breaker tape and sealant to the face of the splice sleeve, E1-1202, and insert it at the end of the first cover.

-Attach the second face cover leaving a 1/2" joint between the two covers.

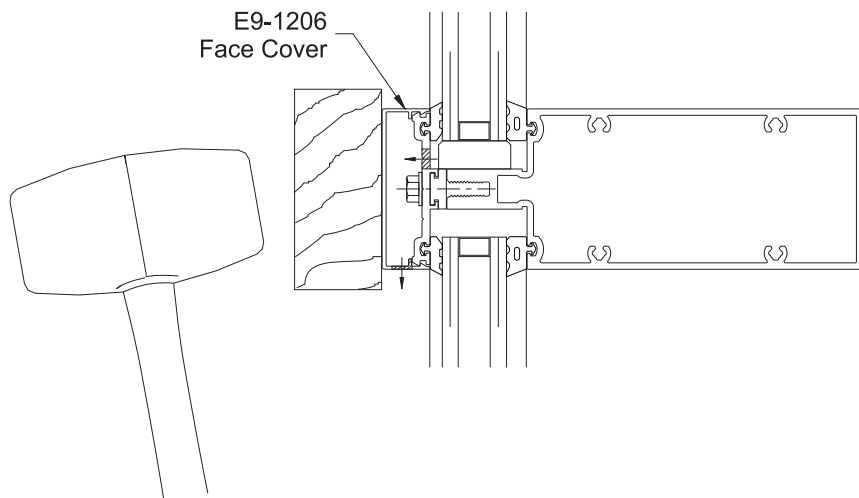
-Seal the joint between the face covers with sealant. Make sure all sealant contact surfaces have been cleaned with method recommended by sealant manufacturer.

See **Detail 44**.

Note: Face cover splice joint should align with the vertical glass joint.



Detail 44



GLAZING

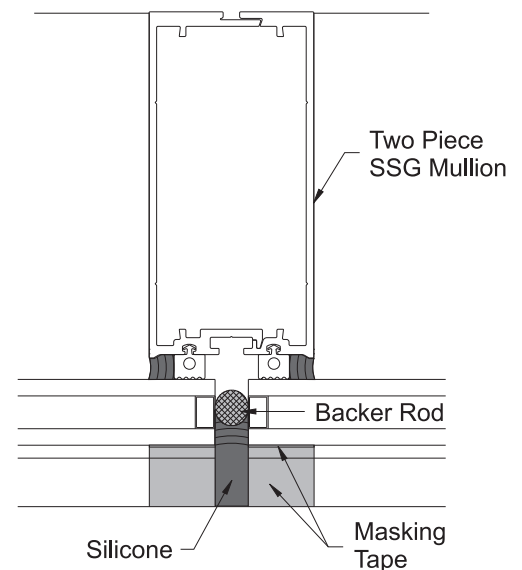
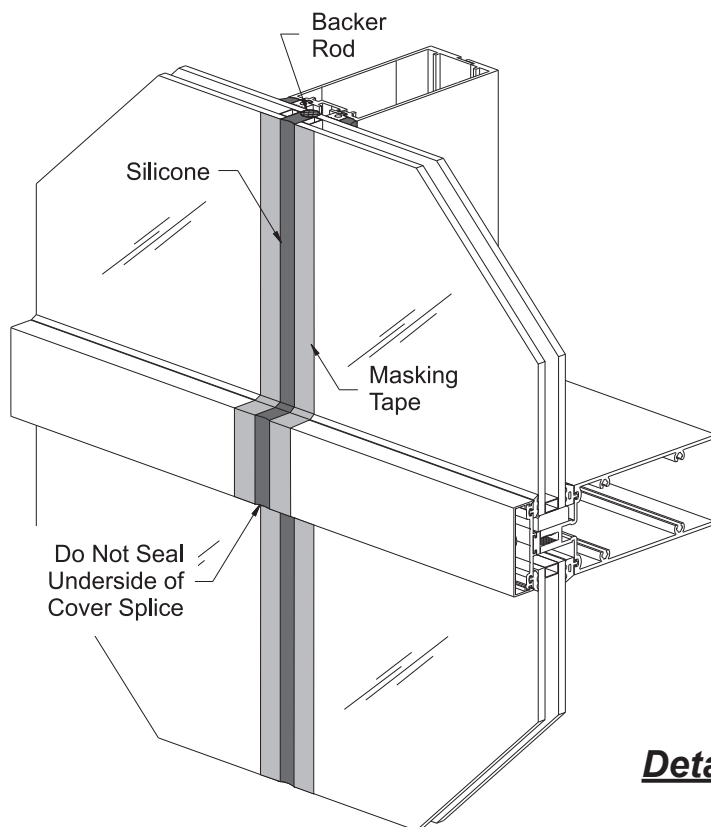
STEP 29

APPLY EXTERIOR WEATHERSEAL

- Once interior structural silicone has cured, remove the temporary retainer clips and insert an approved open cell polyurethane backer rod into the glass joint.
- Clean all silicone contact surfaces and joints with cleaner and method recommended by sealant manufacturer.
- Apply masking tape to the edges of the glass and aluminum as shown in **Detail 45**.
- Apply silicone sealant into the cavity between the mullion and glass starting from the bottom and work towards the top. Use positive pressure so that the silicone sealant completely fills the cavity.

Note: The underside of face cover splices are left unsealed to allow for weepage.

- Using a spatula or other non-scratching implement, tool the silicone sealant immediately after running the joint. Exert positive pressure while tooling to ensure that the silicone sealant makes complete contact with all surfaces. Be careful not to remove too much silicone.



Detail 45

Caution: Do not permit the silicone to skin over before it is tooled. Immediately remove masking tape after tooling the silicone.



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