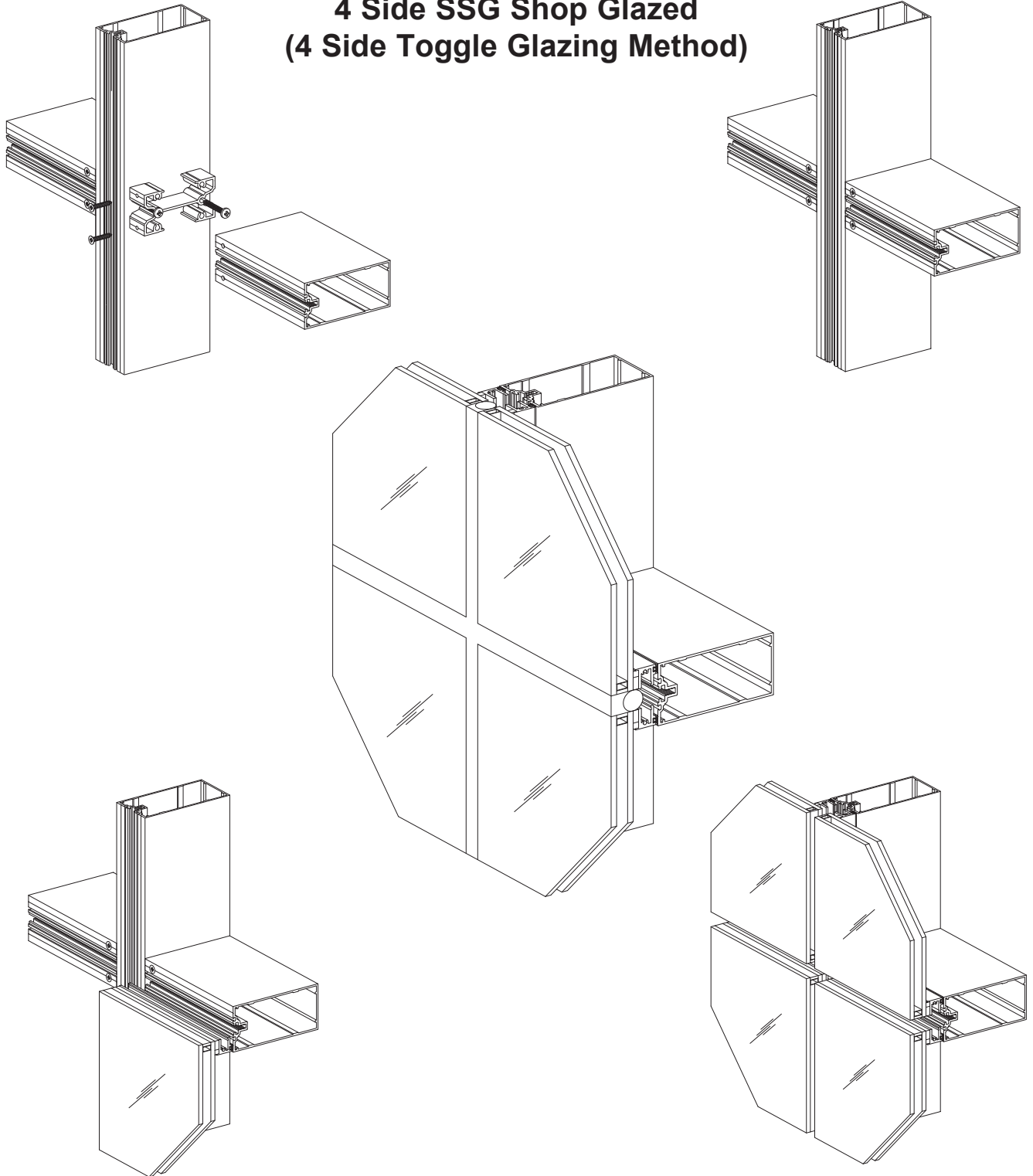


YCW 750 SSG Structural Silicone Glazed Curtain Wall System

4 Side SSG Shop Glazed (4 Side Toggle Glazing Method)



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 materials including but not limited to, 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 and approved prior to its use.
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. Take the extra time to wrap and protect the work produced.
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.

Important Notice for SSG Curtain Wall Systems:

In order to properly perform and to maintain structural integrity, in addition to all other installation requirements, structurally glazed curtain wall systems rely specifically upon effective and appropriate structural sealant selection and installation.

It is the responsibility of the glazing contractor to take all steps to ensure the installed structural sealant is capable of meeting all applicable project requirements in accordance with industry standards. Such steps on each project may include, but are not limited to, design reviews, formal adhesion testing, project specification compliance, validating applications, field testing, auditing, sealant design strength analysis, and the quality control review of the installation and surrounding conditions.

Subject to project specific design pressures, requirements, and/or specifications, the structural sealant that is used between the glass and framing system must be capable of withstanding tensile and shear stresses imposed by the curtain wall without failing adhesively or cohesively.

The structural sealant's capability to withstand these stresses are dependent on several factors including, but not limited to, type of structural sealant, method of application (i.e. cleaning, primer), construction of glazing material (i.e. insulating glass unit (IGU), other infill, and finish of framing (i.e. anodizing, paint).










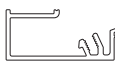











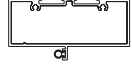
- Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
- Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.

The IGU and/or other infill must be constructed for installation into structurally sealant glazed curtain walls. Notify the manufacturer or fabricator of the IGU and/or infill and advise of the product's application into 2 or 4-sided structurally sealant glazed curtain walls along with the project's design requirements so that appropriate fabrication steps are taken.

Secondary Notice for SSG Curtain Wall Systems:

Standard product details and system offering supports single and twin span applications only. For multi-span applications or elevation configurations that require the application of vertical expansion components, please contact YKK AP engineering for review.


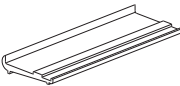


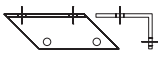
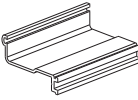
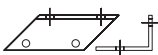
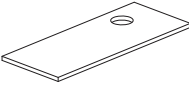


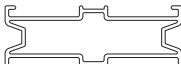

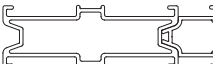



FRAMING MEMBERS

	Vertical / Horizontal 2-1/2" x 8-1/4"	E9-3430		Horizontal Flush Filler Use with E9-3403	E9-3162
	Vertical / Horizontal 2-1/2" x 6-3/4"	E9-3426		Horizontal Flush Filler Use with E9-3424	E9-3595
	Vertical / Horizontal 2-1/2" x 5-1/4"	E9-3402		Cassette Perimeter	E9-3405
	Vertical / Horizontal 2-1/2" x 3-3/4"	E9-3423		Corner Cassette Perimeter	E9-3412
	Vertical Heavy Duty 2-1/2" x 5-1/4"	E9-3401		Perimeter Trim	E9-3408
	Head/Sill/Horizontal Open Back 2-1/2" x 8-1/4"	E9-3431		90° Outside Corner SSG Mullion Adaptor	E9-3413
	Head/Sill/Horizontal Open Back 2-1/2" x 6-3/4"	E9-3428		Corner Trim	E9-3414
	Head/Sill/Horizontal Open Back 2-1/2" x 5-1/4"	E9-3403		Corner Adaptor	E9-3411
	Head/Sill/Horizontal Open Back 2-1/2" x 3-3/4"	E9-3424		90° Outside Corner Interior Cover Base Use with E9-1281	E9-1280
	Horizontal Flush Filler Use with E9-3431	E9-3188		90° Outside Corner Interior Cover	E9-1281
	Horizontal Flush Filler Use with E9-3428	E9-8489		Single Acting Transom Bar Elastomer Weathering E2-0051 Included	AS-0402












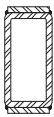










FRAMING MEMBERS

	Door Jamb Adaptor Use with AS-0417	E9-2344		Snap-In Door Stop Elastomer Weathering E2-0051 Included Use with E9-2344	AS-0417
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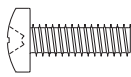



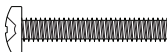

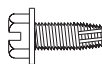



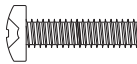

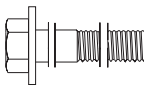
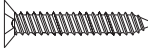
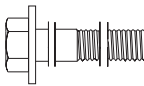






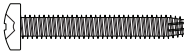
ACCESSORIES

	Standard Shear Block For 3-3/4" Depth Members Use (2) HF-2528-W1 & (2) FC-1212	E1-3425		Setting Block Chair For 4 Sided Toggle Assembly	E1-3546
	Standard Shear Block For 5-1/4" to 8-1/4" Depth Members Use (2) HF-2528-W1 & (2) FC-1212	E1-3542		Perimeter Trim Clip	E1-3543
	RH Shear Clip For 90° Corner	E1-3540A		Temporary Retaining Clip	E1-3547
	LH Shear Clip For 90° Corner	E1-3540B		End Cap For Perimeter Trim	E1-3578
	Mullion Joint Sleeve 18" Long For E9-3401 and E9-3402	E1-3548		Intermediate Vertical "T" End Anchor* For E9-3423	E1-1229
	Mullion Splice Sleeve 18" Long For E9-3426	E1-3427		Intermediate Vertical "T" End Anchor* For E9-3401	E1-1222
	Mullion Splice Sleeve 18" Long For E9-3430	E1-3566		Intermediate Vertical "T" End Anchor* For E9-3402	E1-1208
	Spacer For 90° Corner Use With E9-3411	E1-3550		Intermediate Vertical "T" End Anchor* For E9-3426	E1-3580

ACCESSORIES

	Intermediate Vertical "T" End Anchor* For E9-3430	E1-3568		Setting Block With Pressure Sensitive Adhesive Use With E1-3546	E2-0224
	Corner Vertical "T" End Anchor* For E9-3423	E1-1229A		Wind Load Anchor* Refer to Shop Drawings For Anchor Dimensions	E1-1204
	Corner Vertical "T" End Anchor* For E9-3401	E1-1222A		Dead Load Anchor* Refer to Shop Drawings For Anchor Dimensions	E1-1205
	Corner Vertical "T" End Anchor* For E9-3402	E1-1208A		Steel Reinforcing 2" x 4" x 1/4" Steel Tube	E1-0162
	Corner Vertical "T" End Anchor* For E9-3426	E1-3580A		Jamb Anchor Plate	E1-3536
	Corner Vertical "T" End Anchor* For E9-3430	E1-3568A		Steel Reinforcing 2" x 4" x 1/4" Steel Tube & (2) 1/4" x 1-3/4" Steel Bars	E1-0154
	Jamb "F" End Anchor* For E9-3423	E1-1230		Silicone Splice Sleeve	E2-0070
	Jamb "F" End Anchor* For E9-3401	E1-1234		Glazing Spacer Tape	E2-0110
	Jamb "F" End Anchor* For E9-3402	E1-1233		SSG Cassette Gasket	E2-0262
	Jamb "F" End Anchor* For E9-3426	E1-3581		SSG Glazing Spacer Use with E1-3547	E2-0261
	Jamb "F" End Anchor* For E9-3430	E1-3569		Weep Tube	E3-0102

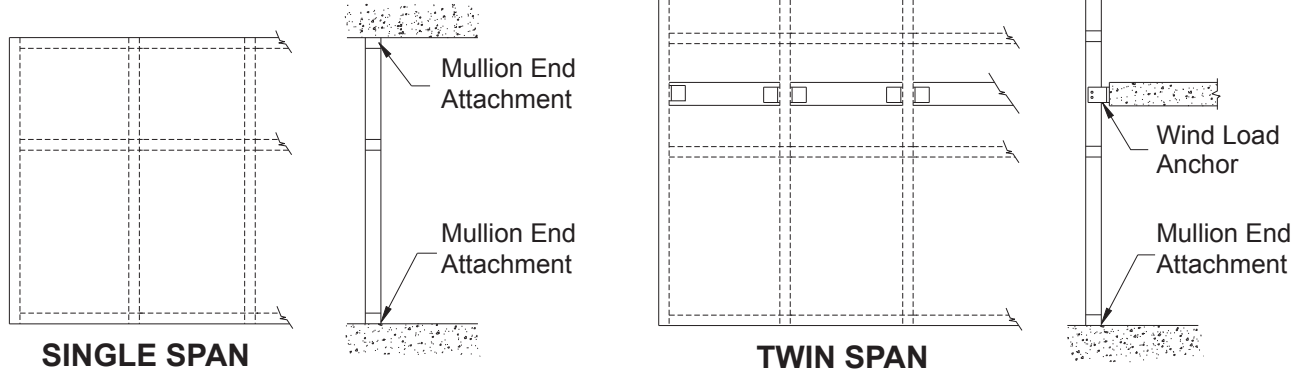
ACCESSORIES

	Nylon Slip Pad For Wind Load & Dead Load Anchor	E3-0103		1/4\"-20 x 3/4\" PHMS Stainless Steel For Attachment of Perimeter Trim Clip to Mullion	PM-2512-SS
	Drill Fixture	H-7210		#10 x 3/8\" PHMS Stainless Steel For Attachment of Perimeter Trim Clip to Perimeter Trim	PM-1006-SS
	Toggle Bar Assembly Install at 9\" Max. O.C.	H-3541		1/4\"-20 x 1 1/2\" PHMS Stainless Steel For Attachment of the Toggle Bar to Mullion	PM-2524-SS
	#10 x 5/8\" PHSMS Type AB , Zinc Plated Steel For Attachment of Interior Cover Base	PC-1010		1/4\"-20 x 5/8\" HWHS Type F, Zinc Plated Steel For Attachment of Shear Clip to Corner Mullion	HF-2510-W1
	#12 x 5/8\" PHSMS Type AB Zinc Plated Steel For Attachment of End Cap to Perimeter Trim	PC-1210		1/4\"-20 x 1\" HWHS Type F, Zinc Plated Steel For Attachment of Shear Clip to Corner Mullion with Steel Reinforcing	HF-2516-W1
	#12 x 5/8\" FHSMS Type AB Zinc Plated Steel, For Attachment of Mitered Horizontal to Shear Block (Exposed Fastener)	FC-1210		1/4\"-20 x 1\" PHMS Stainless Steel, for Attachment of Temporary Retaining Clip	PM-2516-SS
	#12 x 3/4\" FHSMS Type AB Zinc Plated Steel, For Attachment of Horizontal to Shear Block (Exposed Fastener)	FC-1212		1/2\"-13 x 2\" HWHMS Zinc Plated Steel, For Attachment of Windload/Deadload Anchor at Jamb	HM-5032
	#12 x 1-1/4\" FHSMS Type AB , Zinc Plated Steel, For Attachment of Mitered Horizontal to Corner Mullion	FC-1220		1/2\"-13 x 4-1/2\" HWHMS Zinc Plated Steel, For Attachment of Windload/Deadload Anchor at Mullion	HM-5072
	#14 x 5/8\" FHSMS Type AB Zinc Plated Steel, For Attachment of FW-2500-SS Vertical Mullion End Cap to Vertical Mullion	FC-1410		1/2\"-13 Nut HHMS Zinc Plated Steel For Attachment of Mid-Anchors (Wind Load / Dead Load)	HM-5000
	1/4\" Fender Washer Stainless Steel Used as Vertical Mullion End Cap	FW-2500-SS		1/2\" Flat Washer Zinc Plated Steel, For Attachment of Mid-Anchors (Wind Load / Dead Load)	WW-5000
	#8 x 3/4\" PHSMS Type AB Zinc Plated Steel For Assembly of Glazing Cassettes	PC-0812		1/2\" Lock Washer Zinc Plated Steel, For Attachment of Mid-Anchors (Wind Load / Dead Load)	WS-5000
	1/4-20 x 1-3/4\" LG Type F Zinc Plated Steel For Attachment of Vertical to Shear Block	PF-2528			

FRAME FABRICATION

FRAME TYPES / ANCHORING METHODS

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



Note: If YKK AP does not prepare the shop drawings for the project, a qualified engineer must approve all anchors and mullions for wind load and dead load.

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

FRAME FABRICATION

FRAME TYPES / ANCHORING METHODS

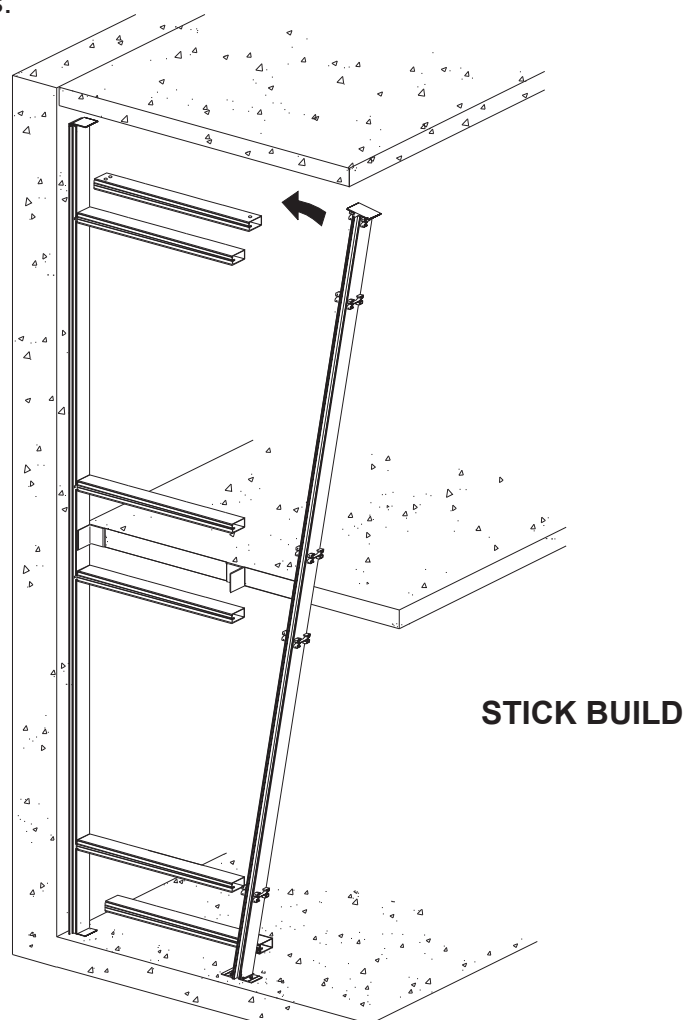
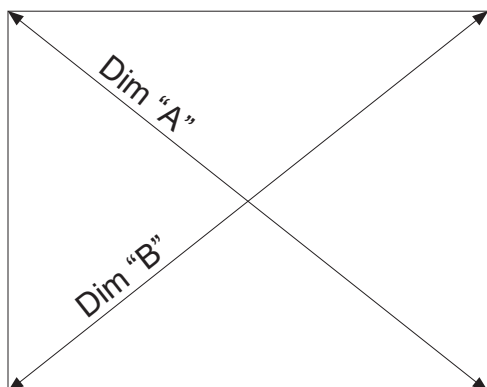
Mullions can be pre-assembled with shear blocks/clips, end anchors, and steel or aluminum reinforcing if necessary.

Smaller units may be assembled on the ground and lifted into place. Larger units require being stick assembled in place.

Framing Members for Stick Build:

- Tubular horizontal members are used at all intermediate locations except at end bays.
- Open back intermediate horizontals are used at end bays to clear the shear blocks, and at head and sill to access "T" and "F" anchor bolts.

Note: When using stick build construction, check overall frame width every fifth mullion as the wall is installed to prevent the buildup of cumulative tolerance errors. Mullions must be installed plumb, horizontals must be installed level. Check diagonals to confirm squareness of daylight openings. Adjust mullion height to square daylight openings. Daylight openings must be within 1/16" to ensure frame squareness.

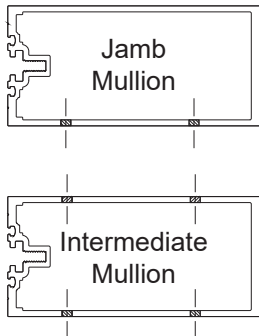


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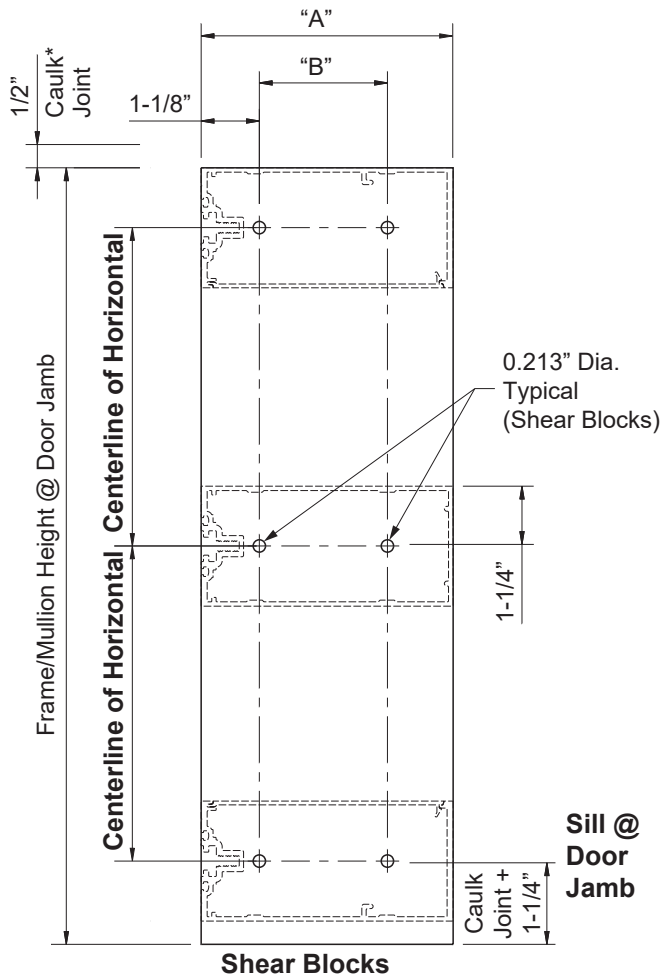
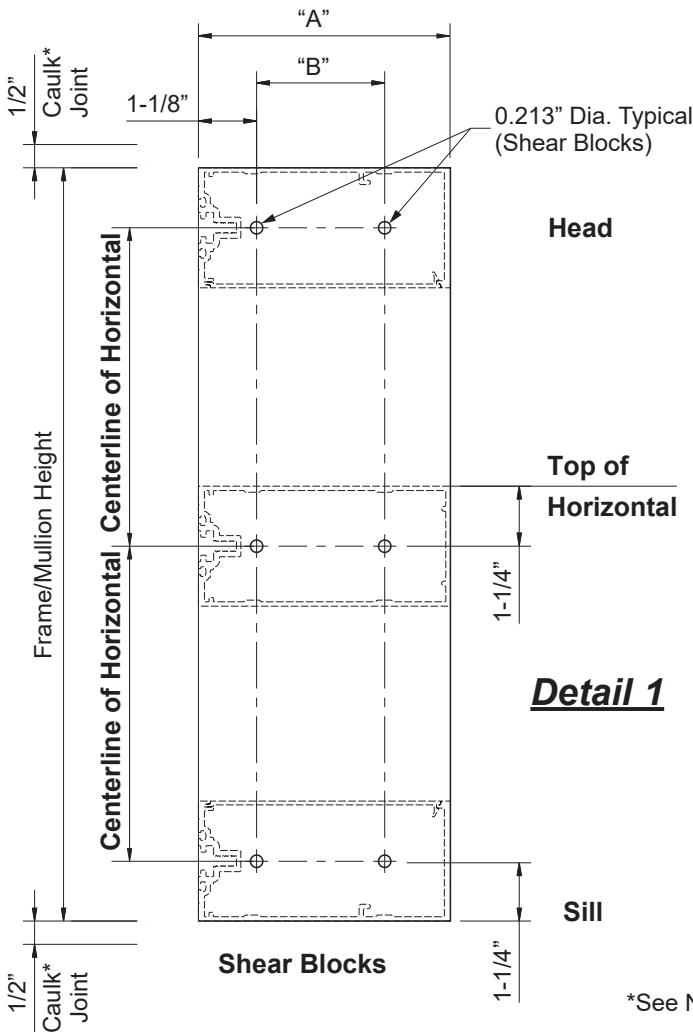
STEP 1

FABRICATE MULLIONS

- Mullion hole locations for shear blocks are shown below.
 - Drill 0.213" dia. (#3 drill bit) holes for shear block attachment at the locations indicated.
- See **Detail 1**.



Dim "A"	Dim "B"
8-1/4"	2-3/4"
6-3/4"	2-3/4"
5-1/4"	2-3/4"
3-3/4"	1-1/2"



*See Note on Page iii.

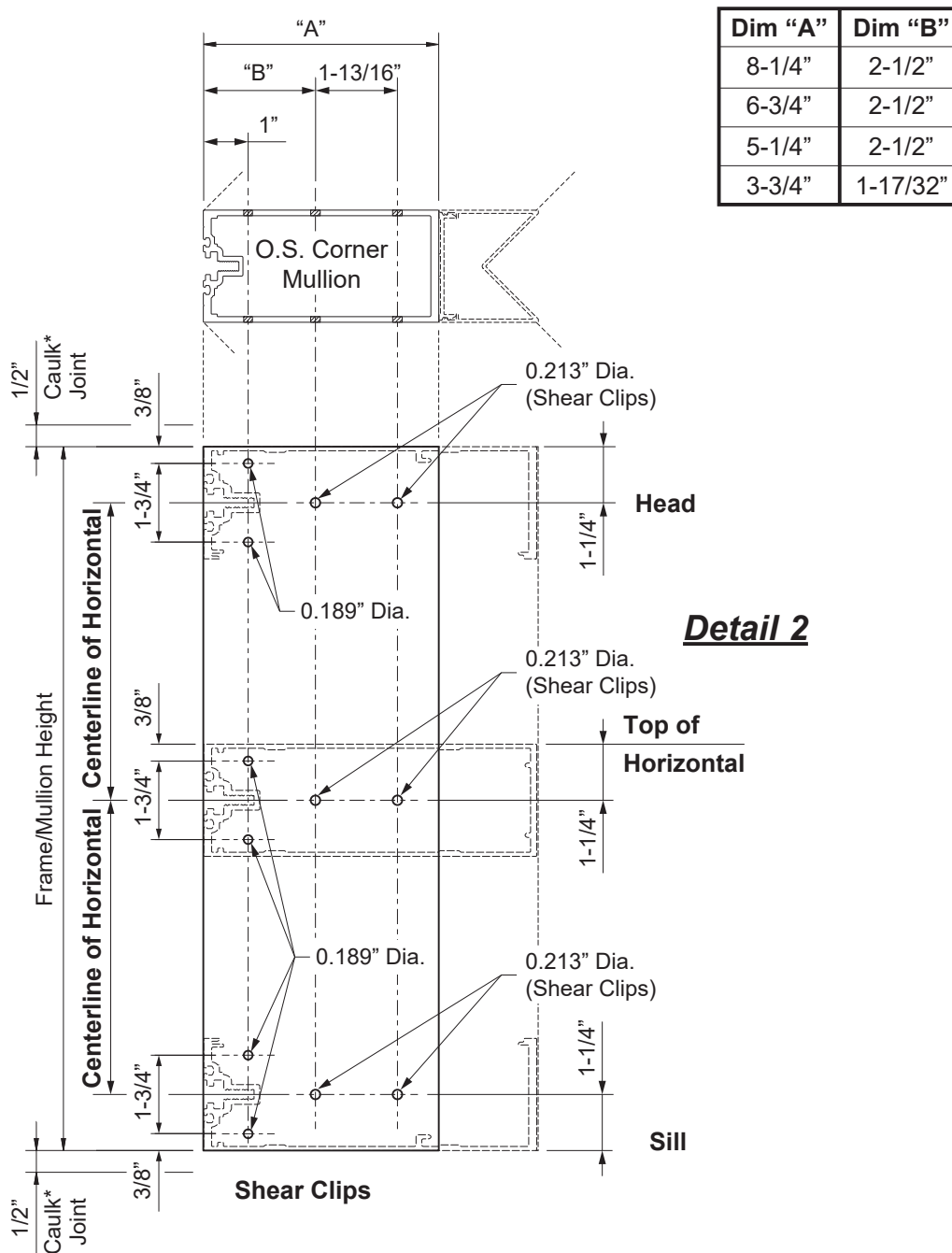
FRAME FABRICATION

STEP 1

FABRICATE 90° OUTSIDE CORNER MULLIONS

- Mullion hole locations for shear blocks are shown below.
- Drill 0.213" dia. (#3 drill bit) holes for shear block attachment at the locations indicated.
- Drill 0.189" dia. holes 1" from the face of the mullion at the locations indicated.

See **Detail 2**.



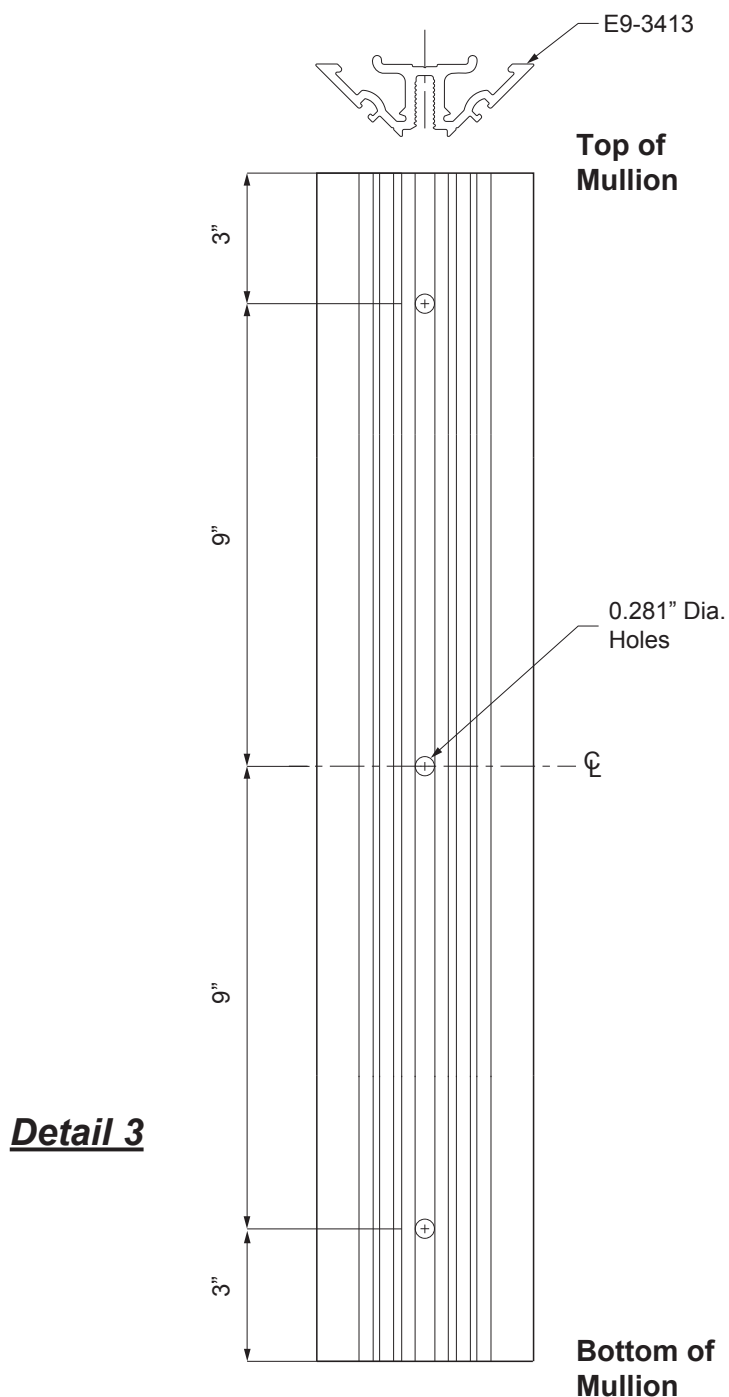
FRAME FABRICATION

STEP 1 (Continued)

FABRICATE CORNER GLAZING ADAPTOR

- Cut E9-3413 outside corner mullion adaptor to mullion length.
- Drill 0.281" dia. (9/32 bit) clear holes every 9" on center, and 3" maximum from each end.

See **Detail 3**.



Detail 3

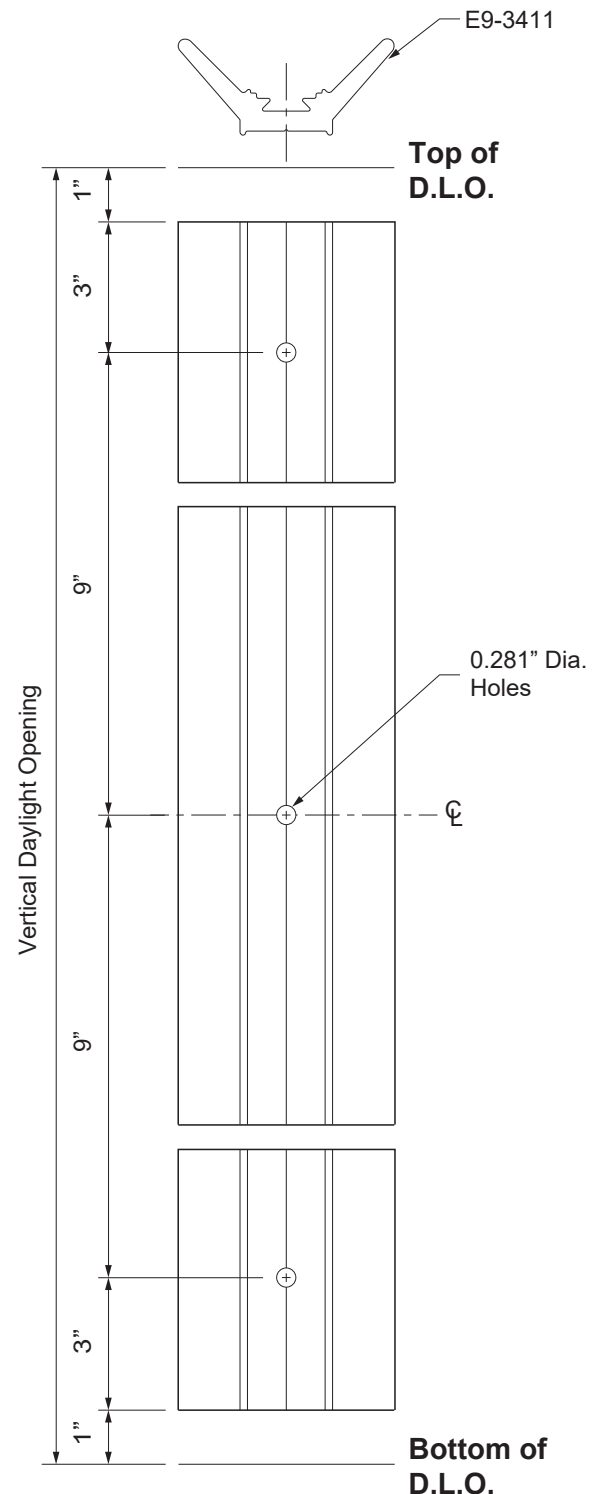
FRAME FABRICATION

STEP 1 (Continued)

FABRICATE 90° OUTSIDE CORNER SSG CORNER ADAPTOR

- Cut E9-3411 outside corner glazing adaptor to D.L.O minus(-) 2".
- Drill 0.281" dia. (9/32 bit) clear holes every 9" on center, and 3" maximum from each end.

See **Detail 4**.



Detail 4

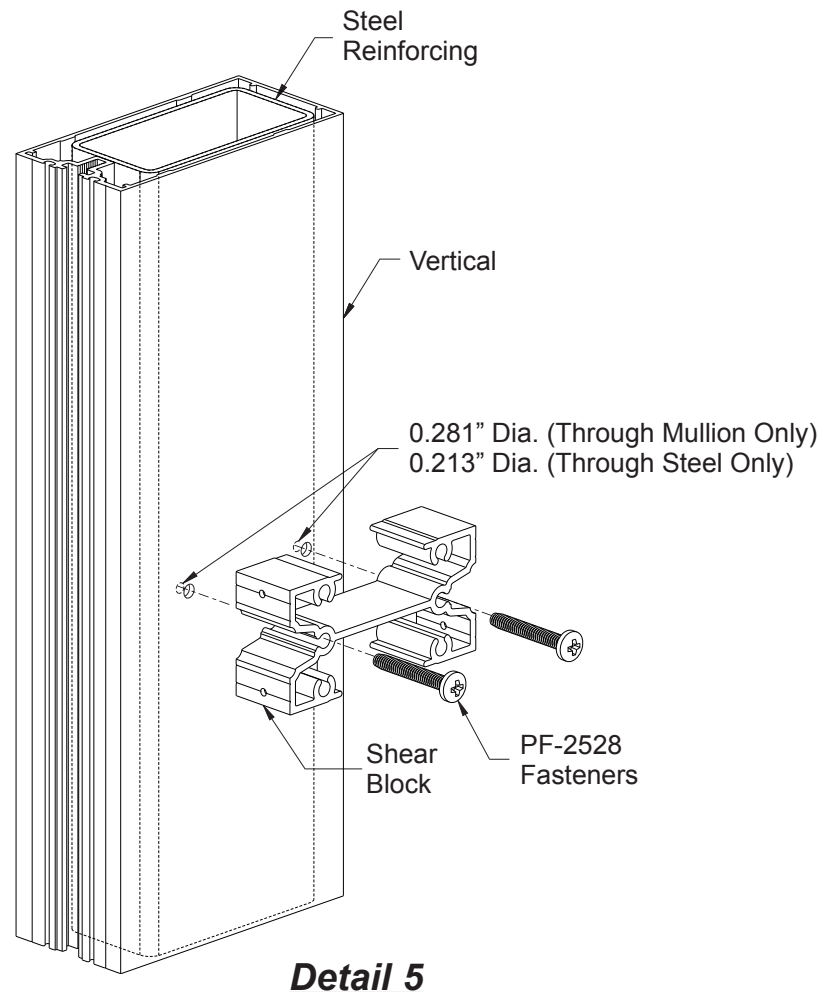
FRAME FABRICATION

STEP 2 USING ALTERNATE REINFORCING

Engineering calculations may require the mullions to be reinforced with either steel or aluminum.

- Reinforcing shall be attached to the mullion in accordance with engineering requirements
 - Slide the reinforcing into the mullion and into position.
 - When attaching reinforcing at shear block locations, drill a 0.281" diameter (#9/32 bit) hole in the mullion, being careful not to drill a hole in reinforcing.
 - Drill a 0.213" diameter (#3 bit) hole in the reinforcing through the previous holes.
 - Tap the 0.213" hole to accommodate a 1/4-20 fastener.
 - Attach the shear blocks to the mullion and steel with two PF-2528 fasteners per block.
- See **Detail 5**.

Note: Reinforcing to be determined by a qualified engineer.
Steel reinforcing must be coated to insulate the steel from the aluminum.



FRAME FABRICATION

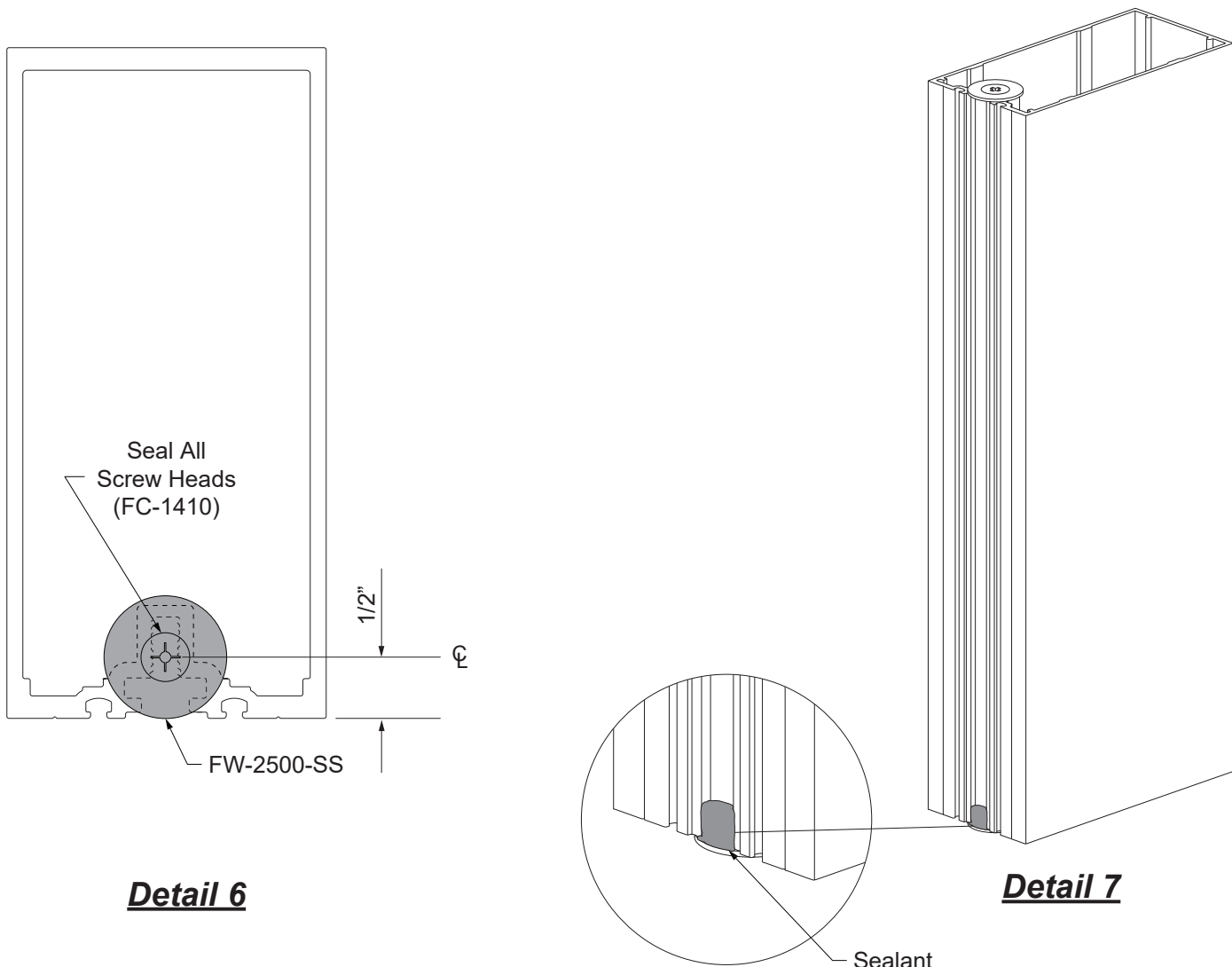
STEP 3

ATTACH MULLION END CAPS

Mullion end caps are required at the head and sill of jamb and mullions.

- Clean the mullion ends and mullion end caps with a cleaner and method approved by the sealant manufacturer.
- Apply sealant to the spline cavity and along the front of the mullions on both ends prior to installing mullion end caps, FW-2500-SS.
- Attach the mullion end caps to each end of the mullion with FC-1410 fasteners as shown in **Detail 6**.
- Tool the excess sealant flush between the mullion end cap and the mullion.
- Seal over all screw heads.
- At the bottom of the mullions, apply sealant to the center cavity to a height of 1/2".

See **Detail 7**.



FRAME FABRICATION

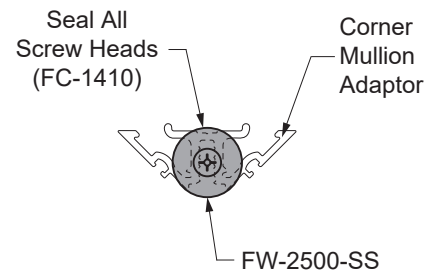
STEP 3 (Continued)

ATTACH MULLION END CAPS AT CORNER MULLIONS

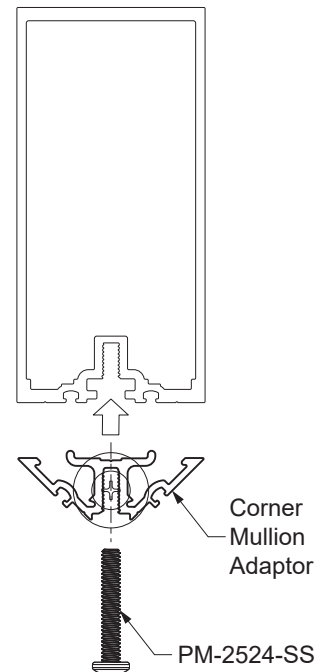
At the outside corners, end caps are installed at the outside corner mullion adaptors.

- Clean the corner adaptor ends and mullion end caps with a cleaner and method approved by the sealant manufacturer.
- Apply sealant to the spline cavity and along the front of the adaptor on both ends prior to installing mullion end caps, FW-2500-SS.
- Attach the mullion end caps to each end of the adaptor with FC-1410 fasteners as shown **Detail 8**.
- Tool the excess sealant flush between the corner adaptor end cap and the mullion.
- Seal over all screw heads.
- Fasten the corner mullion adaptor onto the corner mullion using PM-2524-SS screws at 9" on center. Tighten the screws to 70 inch-pounds.

See **Detail 9**.



Detail 8



Detail 9

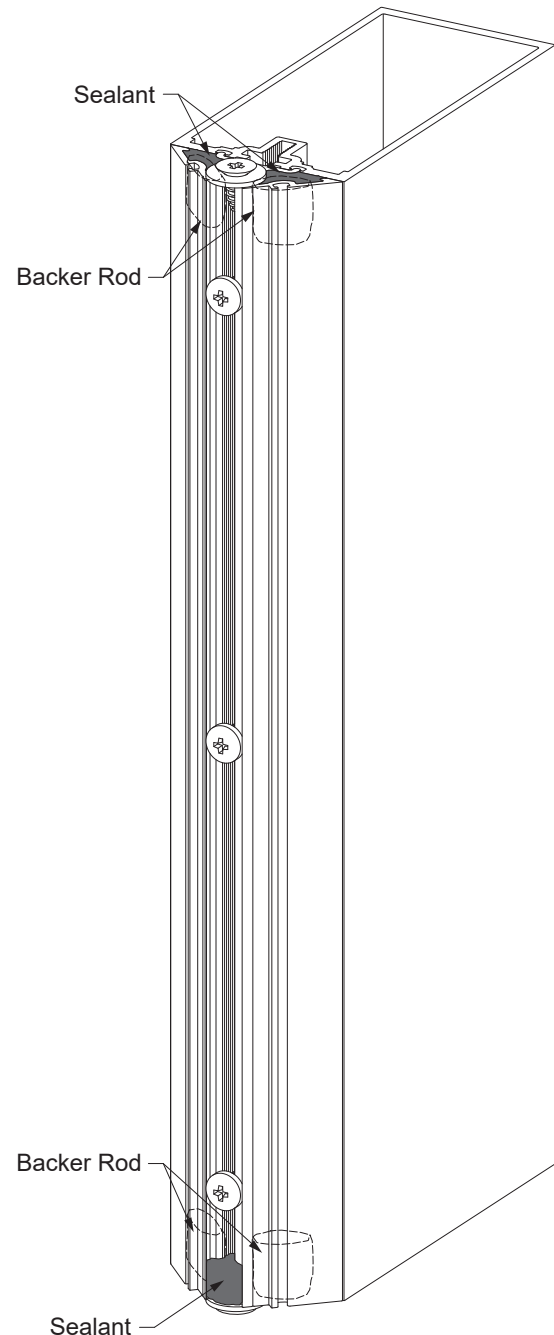
FRAME FABRICATION

STEP 3 (Continued)

ATTACH MULLION END CAPS AT CORNER MULLIONS

- At the bottom of the corner adaptor, apply sealant to the screw raceway to a height of 1/2".
- Insert backer rods inside the cavities at the top and bottom of the corner adaptor and apply sealant to close off the cavities.

See **Detail 10**.



Detail 10

FRAME FABRICATION

STEP 4 ATTACH SHEAR BLOCKS FOR HORIZONTALS

Shear blocks are used to attach horizontal members to the jamb and vertical mullions:

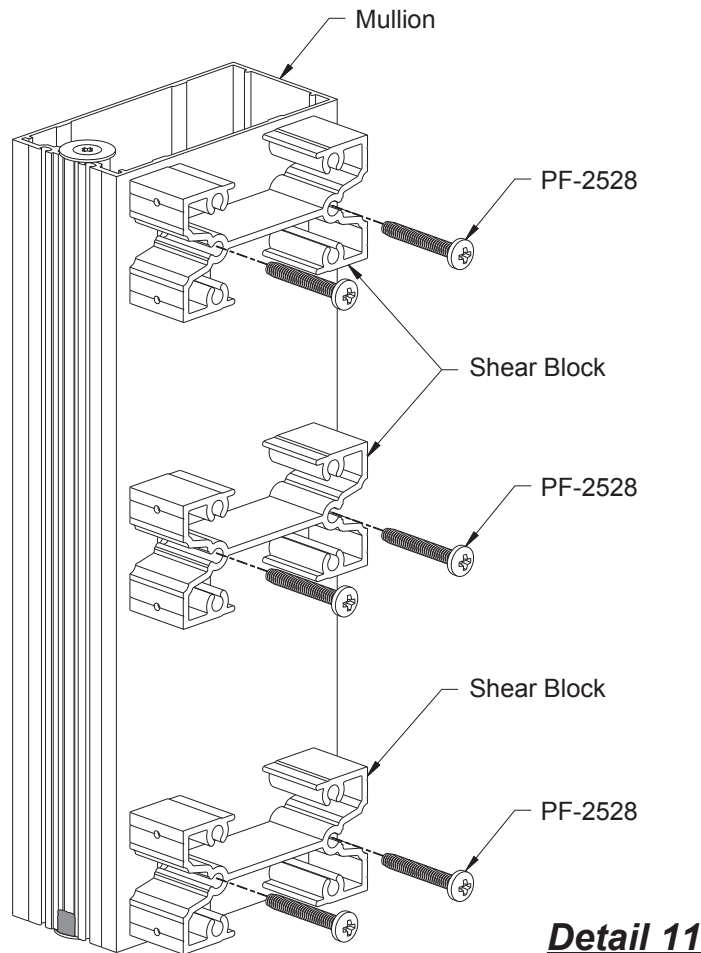
-Attach the shear blocks to jambs and verticals with two PF-2528 fasteners per block.

See **Detail 11**.

Note: Tight tolerance will ensure proper fit and appearance of the pre-glazed cassettes into the daylight openings.

-Additional fasteners may be required to accomodate special project conditions.
-Alternate holes can be utilized to correct fabrication errors.

Note: See **Step 2** on **Page 9** when using reinforcing.



FRAME FABRICATION

STEP 4 (Continued)

ATTACH SHEAR BLOCKS FOR HORIZONTALS

E1-3540A and E1-3540B shear clips are used to attach horizontal members to the corner mullions:

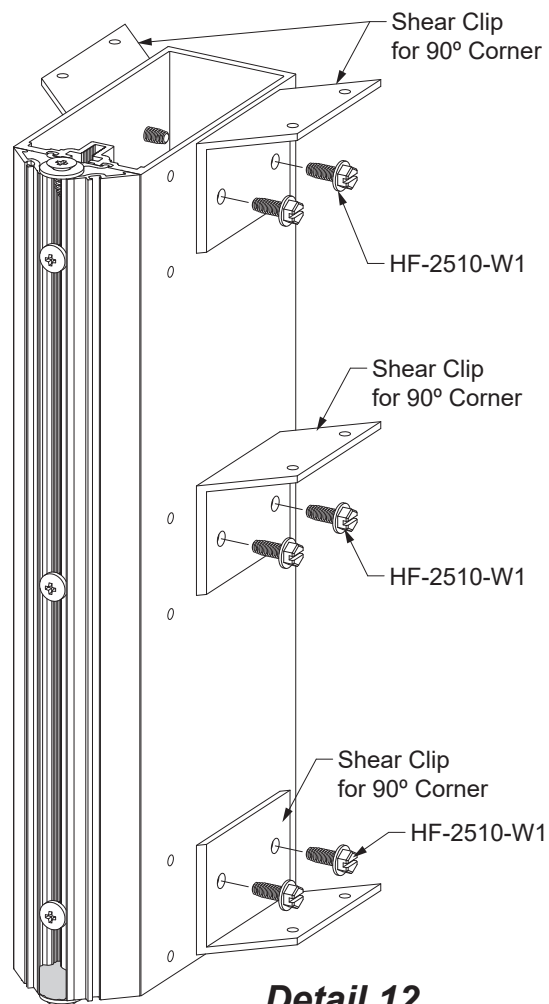
-Attach the shear blocks to jambs and verticals with two HF-2510-W1 fasteners per block (HF-2516-W1 where steel reinforcing is used.)

See **Detail 12**.

Note: Tight tolerance will ensure proper fit and appearance of the pre-glazed cassettes into the daylight openings.

-Additional fasteners may be required to accomodate special project conditions.

-Alternate holes can be utilized to correct fabrication errors.



Detail 12

FRAME FABRICATION

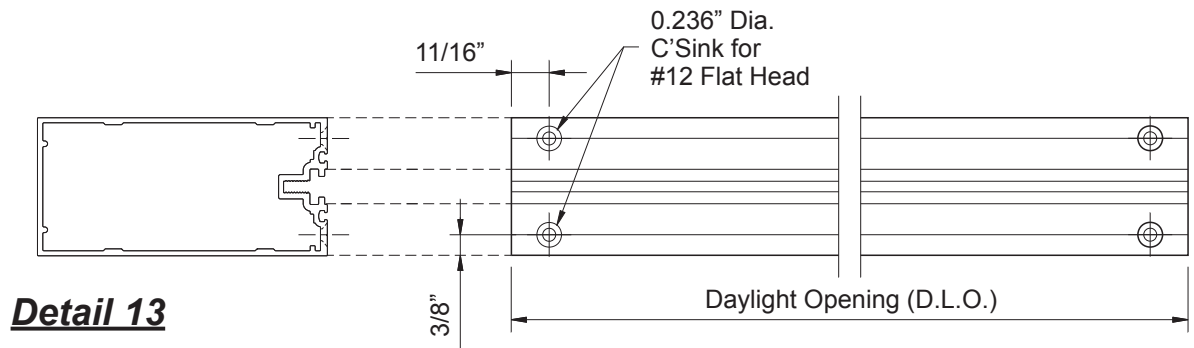
STEP 5

FABRICATE HORIZONTAL MEMBERS

Horizontals with Concealed Fasteners:

- Layout hole locations on the face of the horizontal at both ends as shown below.
- Drill 0.236" diameter (#B bit) holes and countersink for #12 flat head fasteners. Screw heads must be flush with face of horizontal.

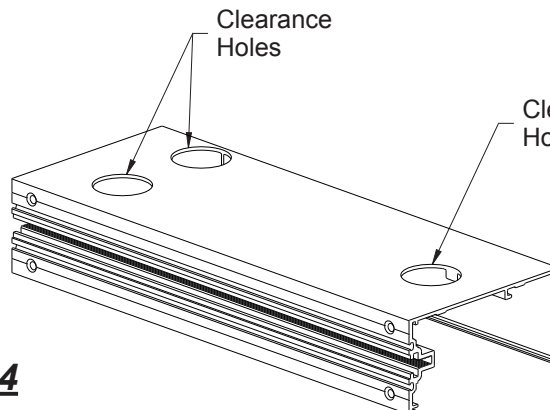
See **Detail 13**.



Head and Sill Horizontal Member Anchor Preps:

- Drill appropriate size clearance holes at each end of the mullion as shown in **Detail 14**, or according to shop drawings or engineering calculations to align with corresponding anchor holes in "T" and "F" end anchors.

Typical Fabrication
for "F" Anchor



Detail 14

FRAME FABRICATION

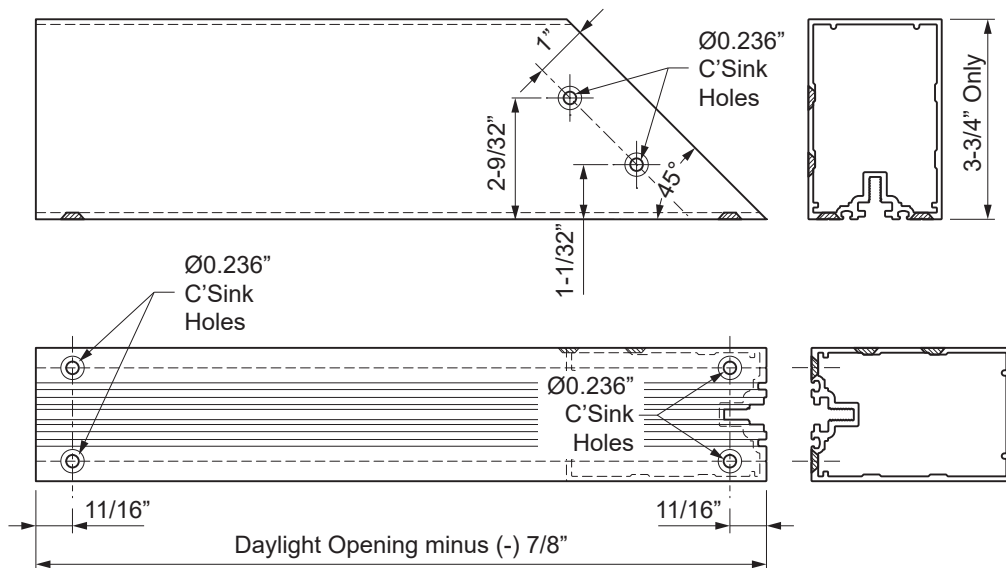
STEP 5 (Continued)

FABRICATE HORIZONTAL MEMBERS

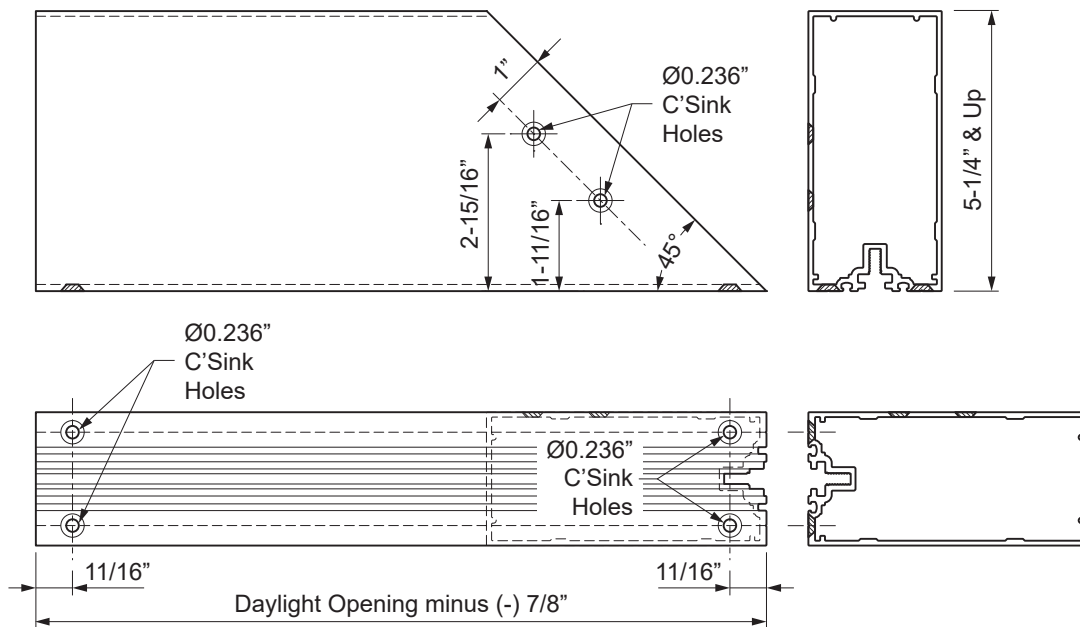
Horizontals with Concealed Fasteners:

- Layout hole locations from the face of the tubular horizontal at both ends as shown below.
- Drill 0.236" diameter (#B bit) holes and countersink for #12 flat head fasteners. Screw heads must be flush with face of horizontal.

See **Detail 15**.



Detail 15

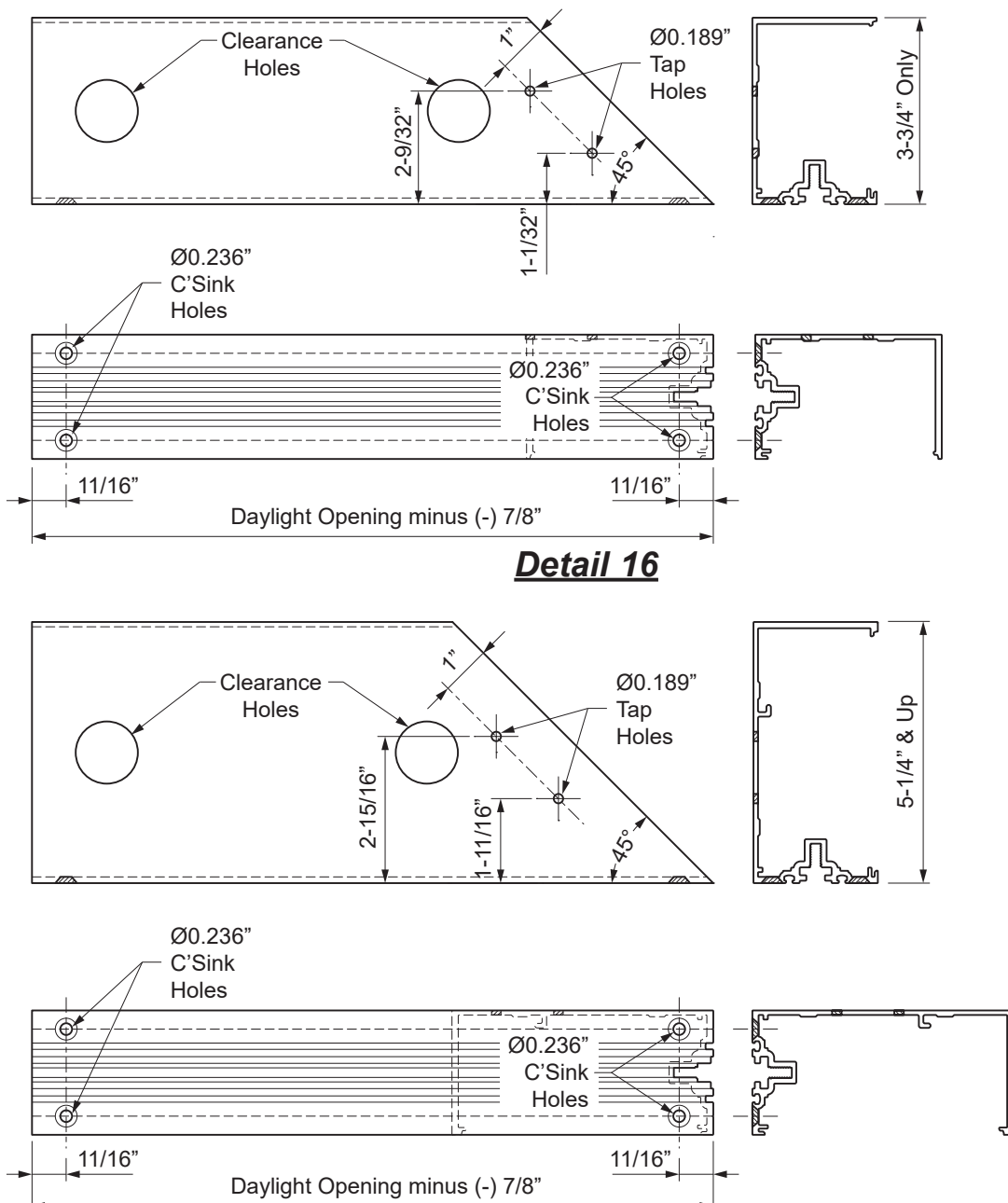


FRAME FABRICATION

STEP 5 (Continued) FABRICATE HORIZONTAL MEMBERS

Head and Sill Horizontal Member Anchor Preps:

-Drill appropriate size clearance holes at each end of the mullion as shown in **Detail 16**, or according to shop drawings or engineering calculations to align with corresponding anchor holes in "T" and "F" end anchors.



FRAME FABRICATION

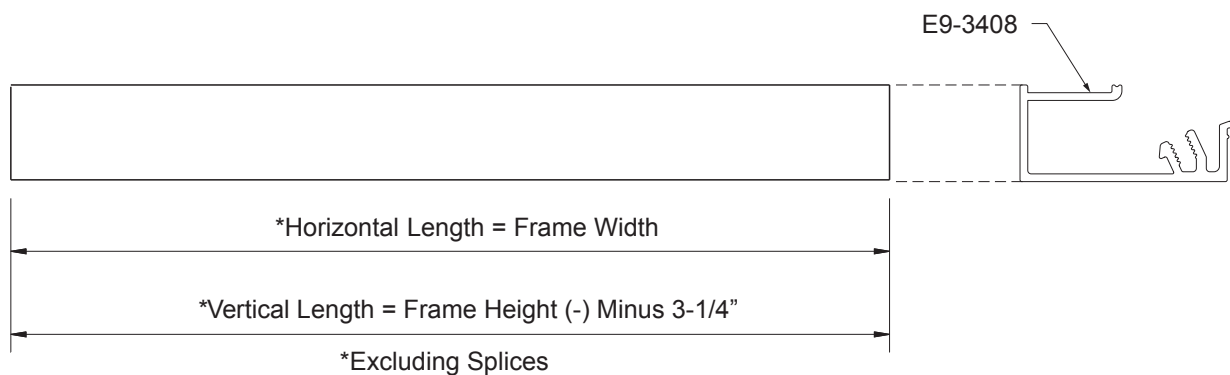
STEP 6a

FABRICATE PERIMETER TRIM

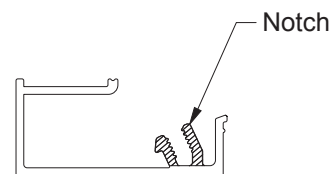
-Cut E9-3408 perimeter trim as shown in **Detail 17**.

-For elevations over 24' in length or height, perimeter trim must be spliced. Perimeter trim splice joint must be 1/2" and located no more than 18' between splice joints. Refer to **Detail 50** on **Page 40**.

-Notch perimeter trim 1-1/4" from each splice end as shown in **Detail 18**.



Detail 17



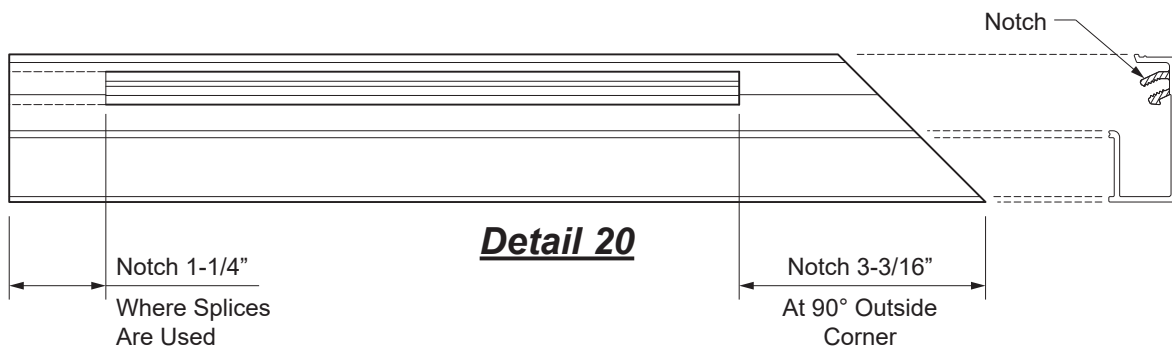
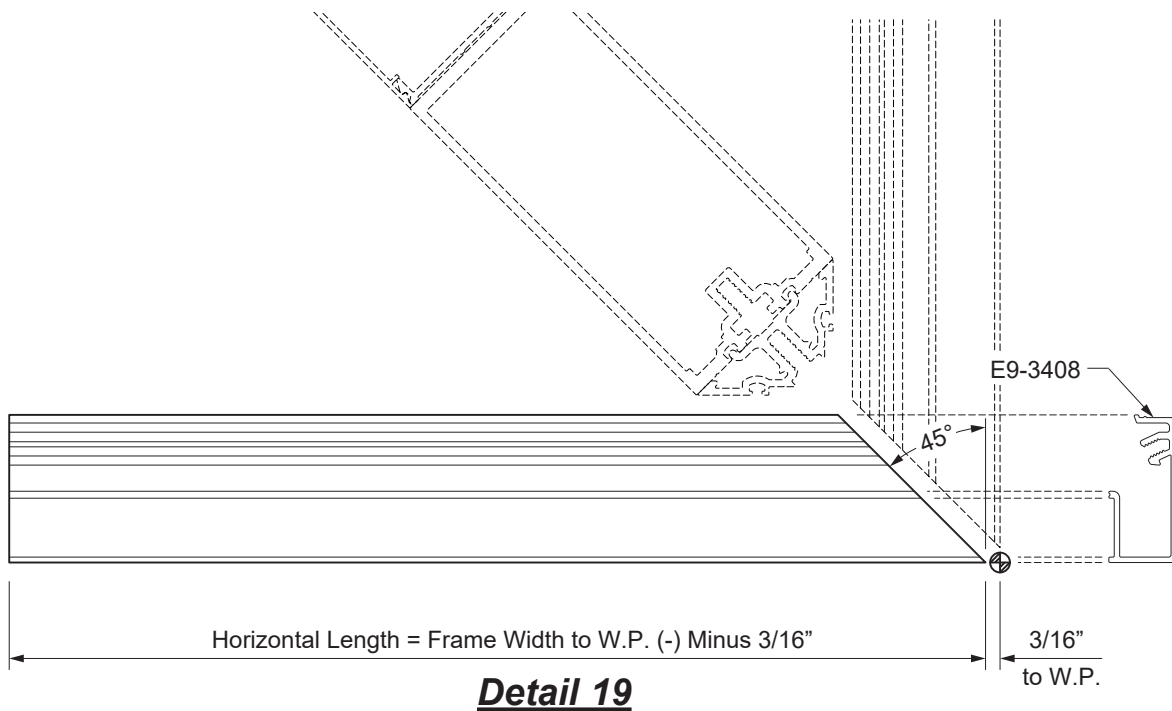
Detail 18

FRAME FABRICATION

STEP 6b

FABRICATE PERIMETER TRIM AT 90° OUTSIDE CORNER

- Miter cut E9-3408 perimeter trim as shown in **Detail 19**.
- Notch the mitered end by 3-3/16" as shown in **Detail 20**.
- For elevations over 24' in length, perimeter trim must be spliced. Perimeter trim splice joint must be 1/2" and located no more than 18' between splice joints. Refer to **Detail 50** on **Page 40**.
- Notch the end at the splice by 1-1/4". Do not notch the horizontal perimeter trim at the jambs.
- Refer to **Detail 54** on **Page 43** for perimeter trim splice at corner mullions.



FRAME FABRICATION

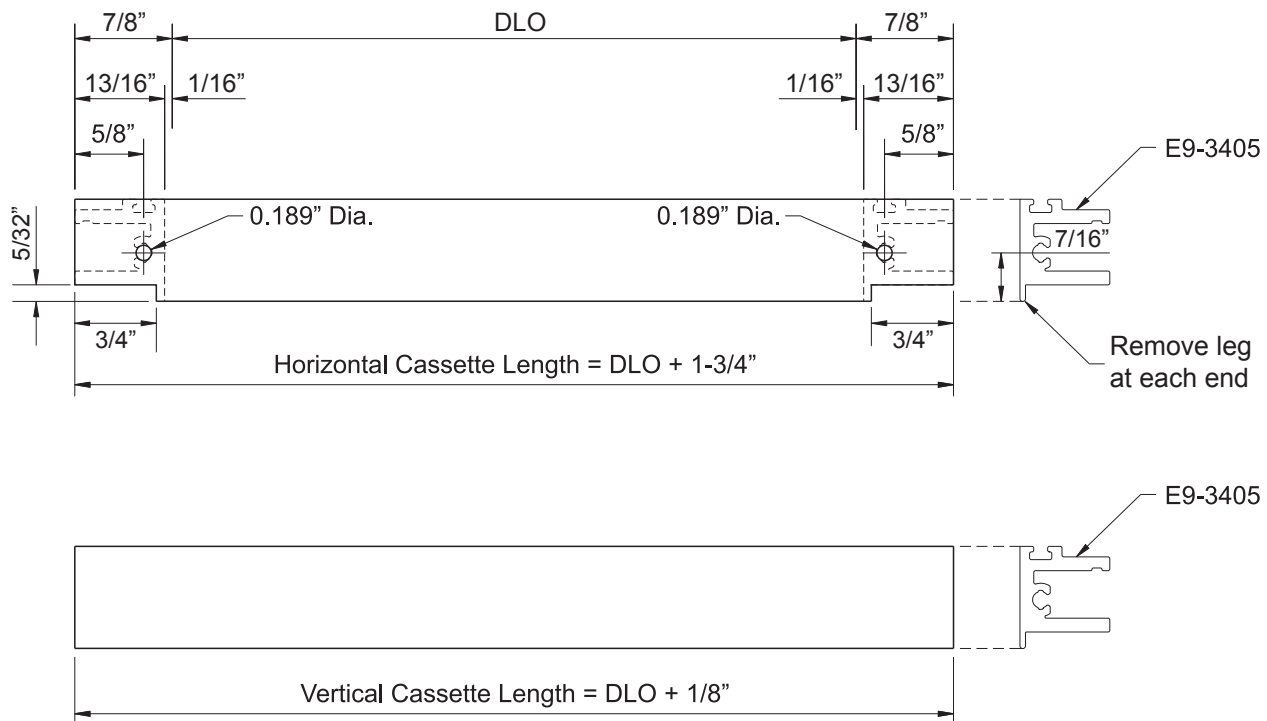
STEP 7

FABRICATE GLAZING CASSETTES

For Typical Cassette Fabrication:

- Cut E9-3405 glazing cassette horizontal to Daylight Opening plus (+) 1-3/4".
- Drill 0.189" dia. (#12 drill bit) holes into the glazing cassette horizontal for vertical glazing cassette attachment at the locations indicated.
- Remove 3/4" of both ends of the legs as shown below.
- Cut E9-3405 glazing cassette vertical to Daylight Opening plus (+) 1/8".

See **Detail 21**.



Detail 21

FRAME FABRICATION

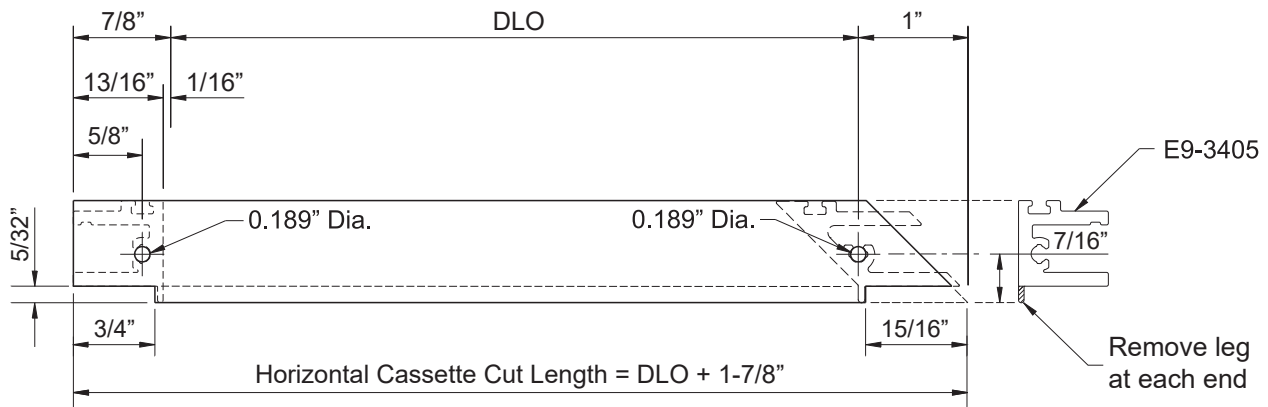
STEP 7 (Continued)

FABRICATE GLAZING CASSETTES

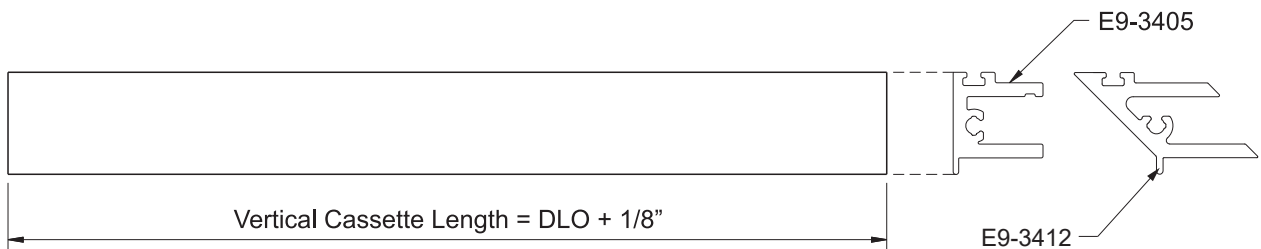
For 90° Outside Corner Cassette Fabrication:

- Cut E9-3405 glazing cassette horizontal to Daylight Opening plus (+) 1-7/8", miter cut 45° at the corner.
- Drill 0.189" dia. (#12 drill bit) holes into the glazing cassette horizontal for vertical glazing cassette attachment at the locations indicated. Do this prior to notching the legs.
- Remove 3/4" from the leg at the intermediate mullion, and 15/16" from the leg at the corner.
- Cut E9-3405 and E9-3412 glazing cassettes vertical to Daylight Opening plus (+) 1/8".

See **Detail 22**.



Detail 22



FRAME FABRICATION

STEP 7 (Continued)

FABRICATE GLAZING CASSETTES

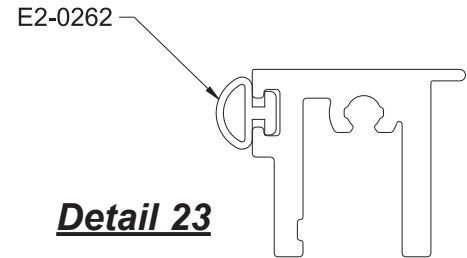
-Cut E2-0262 gaskets to size:

Horizontal Gasket = glazing cassette perimeter width.

Vertical Gasket = glazing cassette perimeter height.

-Install vertical and horizontal gaskets into the reglets of the glazing cassette.

-Crimp horizontal cassette perimeter to keep horizontal gasket in place.



Detail 23

See **Detail 23**.

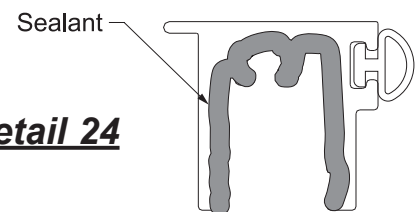
-Clean each end of the vertical glazing cassette with isopropyl alcohol using two cloth cleaning method.

-Apply silicone sealant to the both ends of the vertical glazing cassette.

See **Detail 24**.

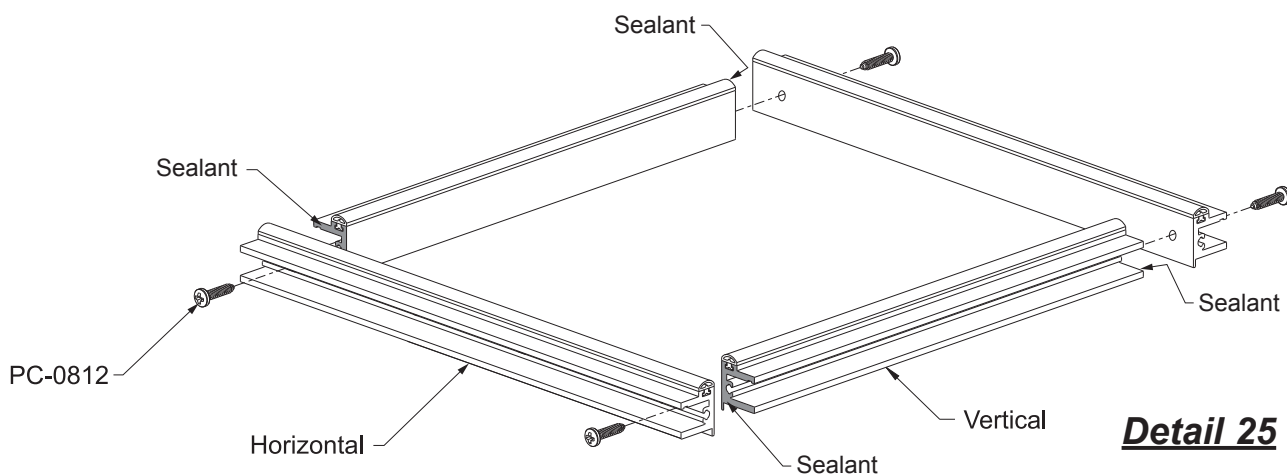
-Assemble cassette units by fastening through holes at ends of horizontals into splines of verticals.

-Clean excess sealant.



Detail 24

See **Detail 25**.



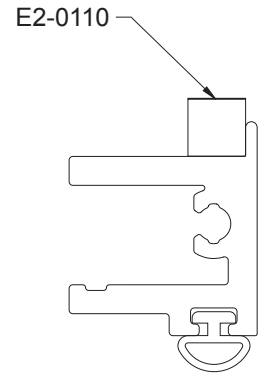
Detail 25

FRAME FABRICATION

STEP 7 (Continued) FABRICATE GLAZING CASSETTES

Apply Glazing Spacer Tape

- Cut E2-0110 spacer tape to size:
Horizontal Spacer Tape = glazing cassette length minus (-) 1".
Vertical Spacer Tape = glazing cassette length.
- Clean surfaces of the glazing cassette that will come into contact with the spacer tape with isopropyl alcohol.
- Horizontal spacer tape is centered on the glazing cassette, leaving 1/2" from each end.
- Tape locations are as shown. Apply pressure to bond the tape to the glazing cassette. Do not allow the tape to twist or catch debris.

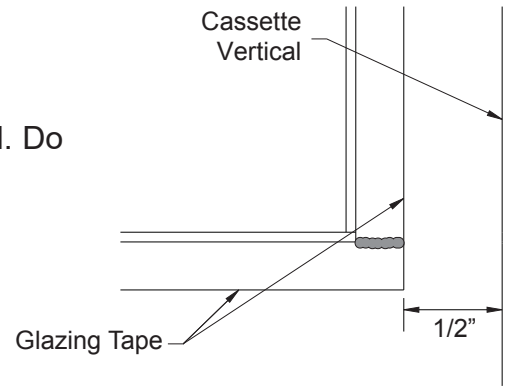


Detail 26

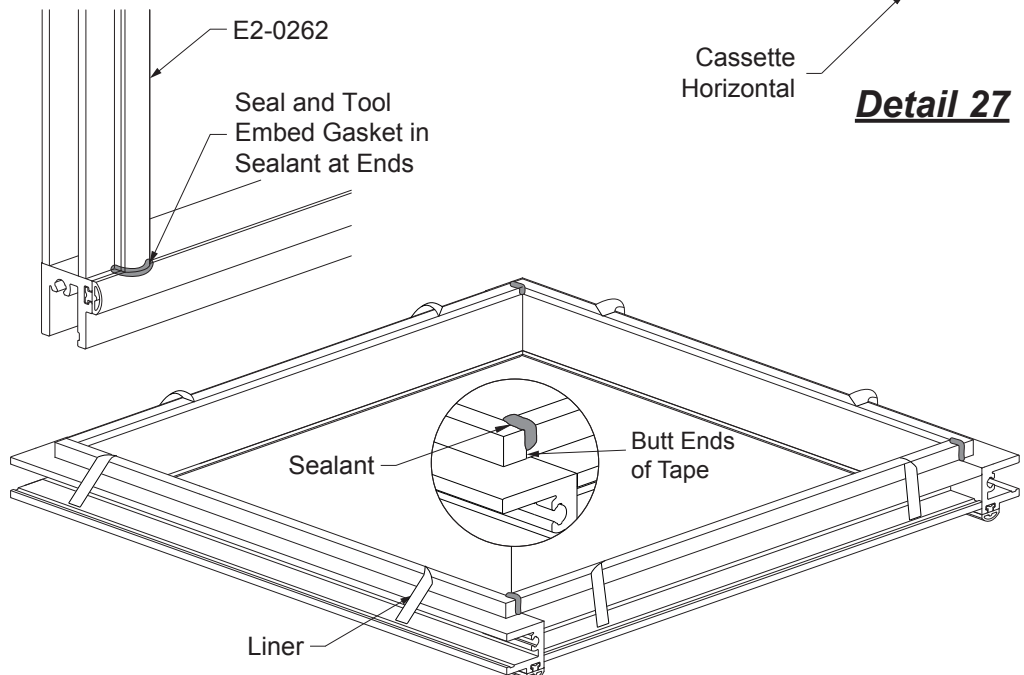
See **Details 26 and 27**.

- Pull back the liner of the glazing tape 3" from each end. Do not allow the tape to catch debris.
- Apply and tool sealant to the joints of the spacer tape.

See **Detail 28**.



Detail 27



Detail 28

FRAME FABRICATION

STEP 7 (Continued)

FABRICATE GLAZING CASSETTES

- Lay the glass on a flat surface with the interior glass surface facing up.
- Check the assembled cassette frame for squareness prior to application of structural silicone sealant.
- Prepare glass and frame for application of structural silicone sealant in accordance with sealant manufacturer's instructions. See note on **Page iii**.

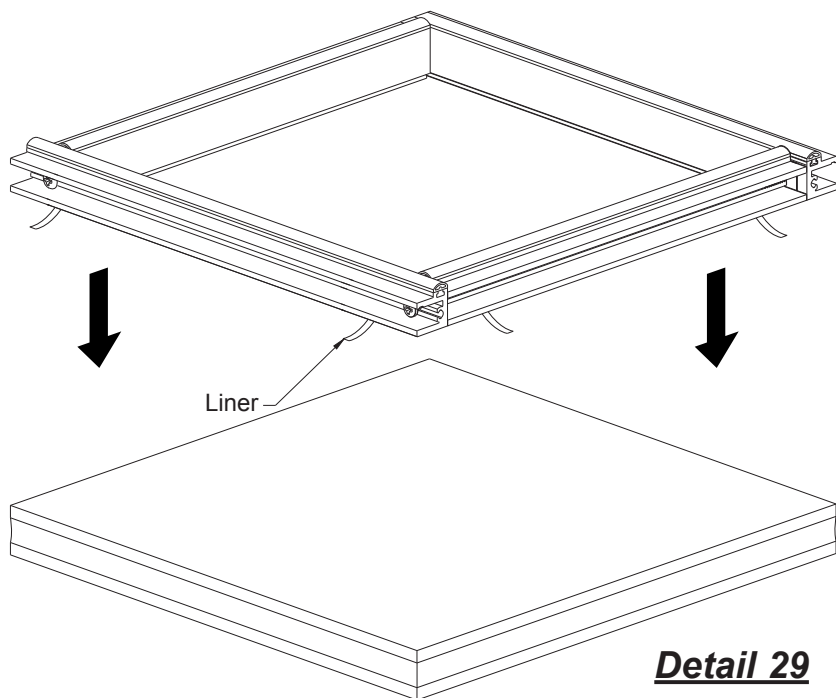
Note: Tight tolerance will ensure proper fit and appearance of the pre-glazed cassette into the daylight openings. If the glass is over/under sized, align the bottom of the cassette with the bottom of the glass and center the frame vertically, and consult with a qualified engineer.

- Adhere the cassette to the glass using the E2-0110 glazing tape. Ensure the 3" of exposed glazing tape liner is exposed for removal.
- Ensure squareness of cassette with insulating glazing unit.
- Peel off the remaining glazing tape liner.
- Press the frame firmly onto the glass for good adhesion.

See **Detail 29**.

- Ensure all areas of glass and frame that will contact the structural silicone sealant have been prepared to receive the sealant prior to its application. See note on **Page iii**.
- Apply and tool structural silicone sealant in accordance to sealant manufacturers instructions.
- Allow sealant to fully cure per the sealant manufacturers recommendations before installing cassettes.
- Inspect to make certain there are no voids or gaps in sealant. See note on **Page iii**.

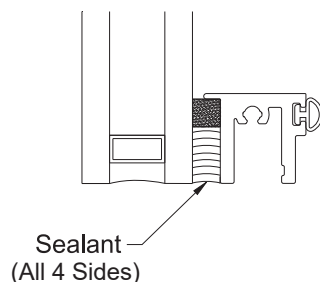
See **Detail 29A**.



Detail 29

2 TYP. MULLIONS:
GLASS SIZE = D.L.O. + 1-3/4"
(HORIZONTAL & MULLION)

TYP. MULLION & O.S. CORNER:
HOR. GL. SIZE = D.L.O. + 2-1/8"
VERT. GL. SIZE = D.L.O. + 1-3/4"



Detail 29A

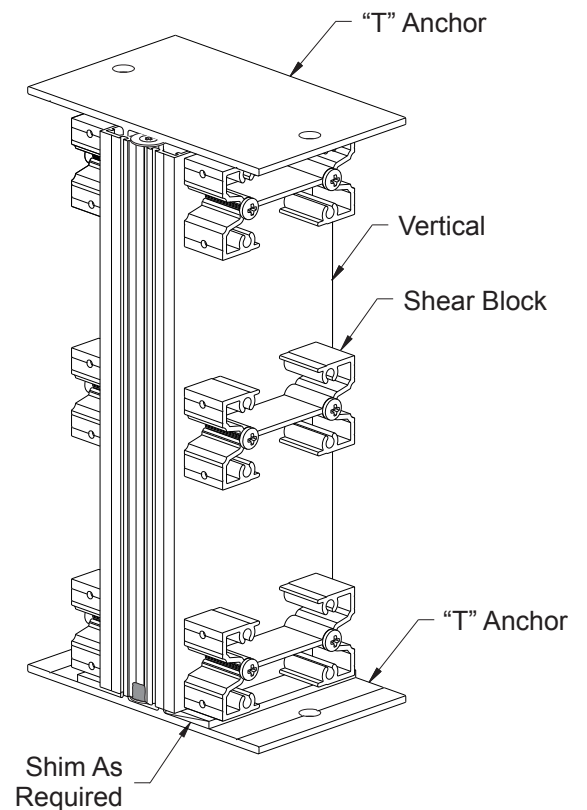
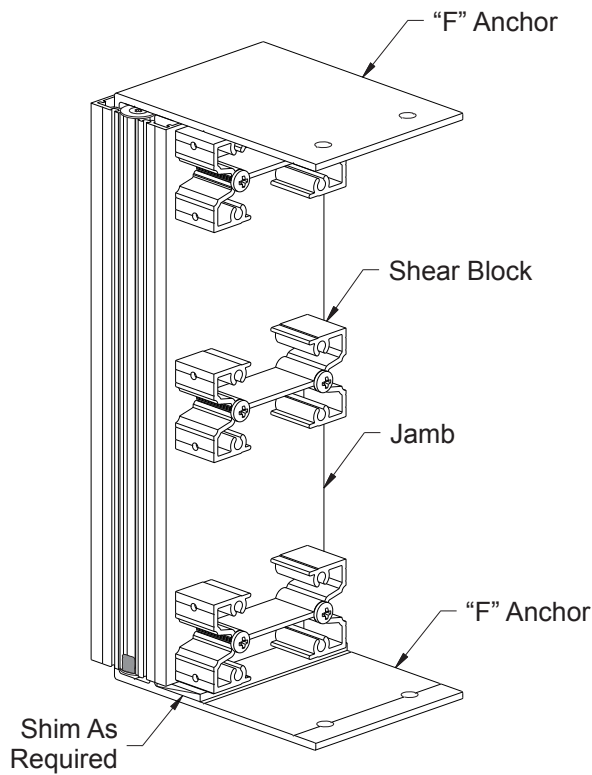
FRAME INSTALLATION

STEP 8 JAMB/MULLION INSTALLATION WITH MULLION END ANCHORS

- Insert mullion “T” and “F” end anchors into the top and bottom of the mullions before erecting them into the opening.
- Position the jamb and intermediate mullions and attach them to the structure.

See **Detail 30**.

Note: Shim under the mullions to transfer glazing dead loads to the building structure.



Detail 30

FRAME INSTALLATION

STEP 8A VERTICAL INSTALLATION AT DOOR JAMB END ANCHORS

The mullions at the door jambs are set directly upon the sill substrate without any shims and are sealed against the substrate. The anchors to be used at this location are specified by the approved shop drawings and or P.E. calculations.

-Locate the mullion anchor for the door jamb and install it to the substrate according to the approved shop drawings and P.E. calculations.

Note: if using an exposed fasteners shear block as a mullion anchor, check to ensure the sill shear block fasteners will not cause interference. Field modify the shear block anchor as required. See **Detail 32**.

-Clean all contact surfaces as recommended by sealant manufacturer.

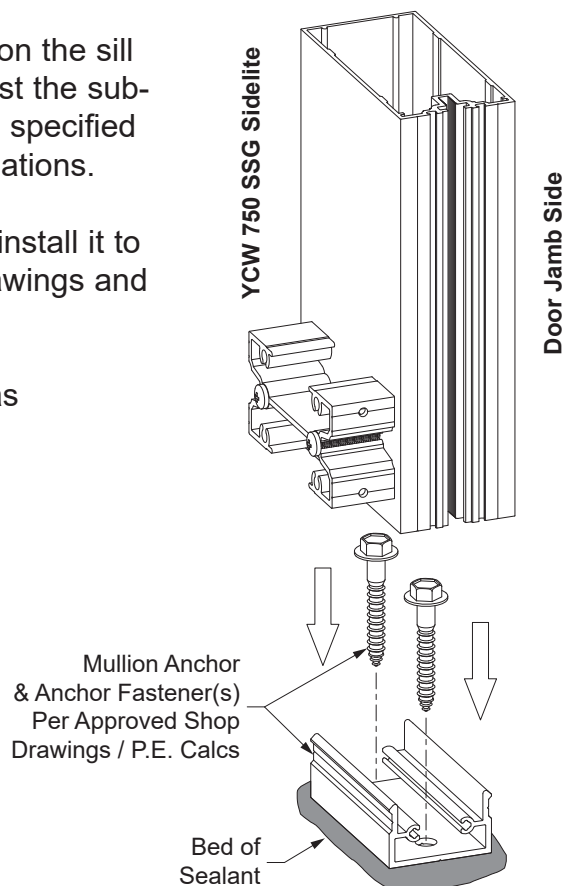
-Set the mullion on the anchor, directly onto the sill substrate in a bed of sealant. Avoid using shims at this location.

See **Detail 31**.

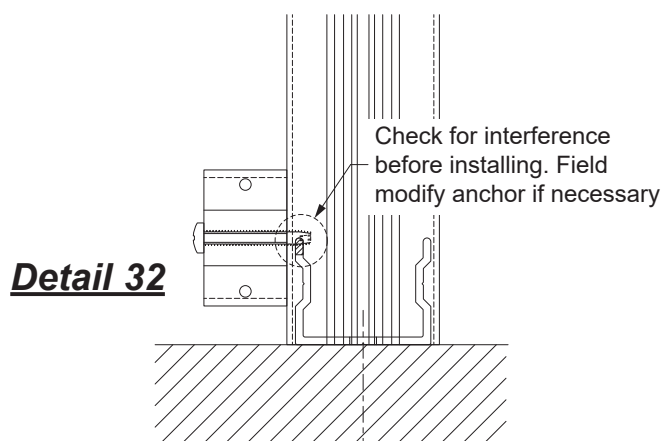
-Refer to the approved shop drawings for any additional fasteners required at anchor.

-Tool sealant at the bottom of the mullion at the sill substrate around the perimeter of the mullion.

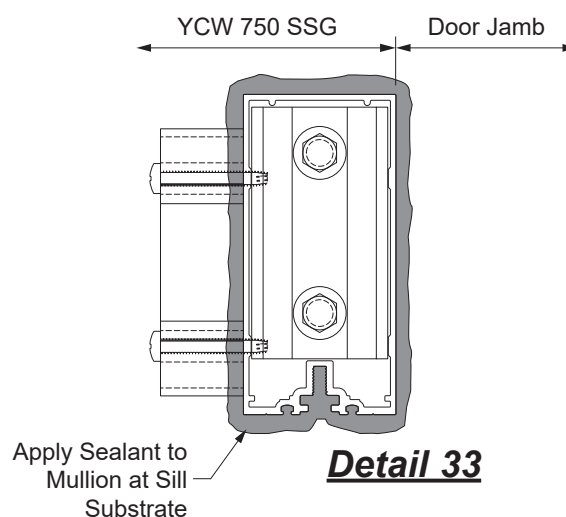
See **Detail 33**.



Detail 31



Detail 32



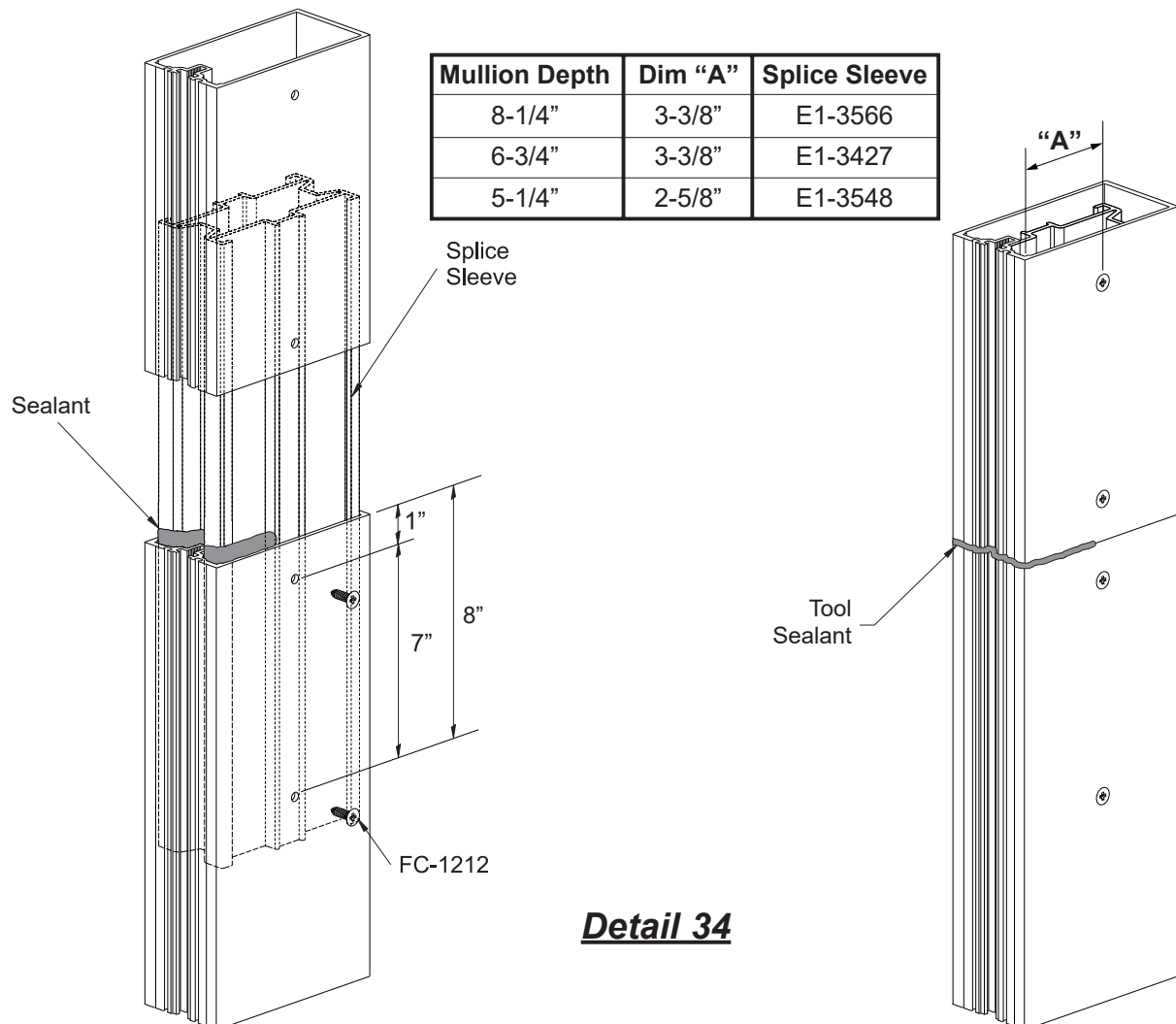
Detail 33

FRAME INSTALLATION

STEP 9 TYPICAL MULLION SPLICE

- Clean all surfaces as recommended by sealant manufacturer.
- Drill 0.236" splice sleeve attachment holes into the upper and lower mullion. Attachment hole locations should be drilled as shown in chart below from the front and back of mullion, and 1" and 8" down from the top of the lower mullion and 1" and 8" up from the bottom of the upper mullion.
- Lower the splice sleeve into top of lower mullion 9". Match drill 0.189" splice sleeve anchor holes into the splice sleeve and attach with (2) two FC-1212 fasteners, on both sides of the lower mullion.
- Slide the upper mullion down over the splice sleeve flush with the top of the lower mullion. Match drill 0.189" splice sleeve anchor holes into the splice sleeve and attach with (2) two FC-1212 fasteners, on both sides of the upper mullion.
- Apply and tool sealant to the face and sides of the splice sleeve. See Note on **Page iii**.

See **Detail 34**.



Detail 34

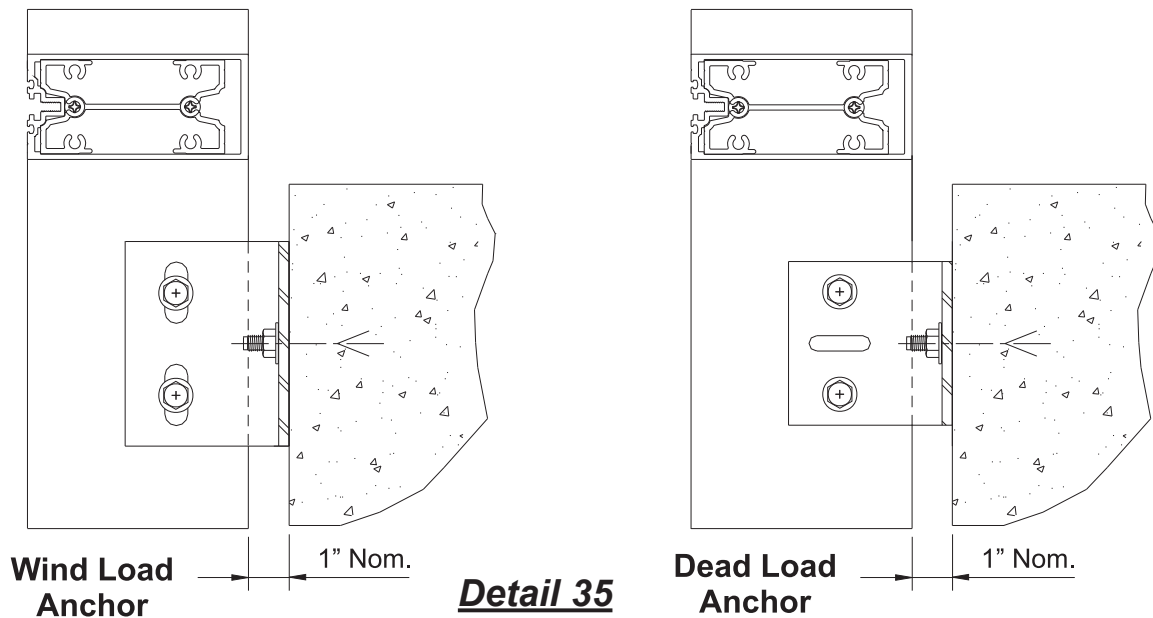
FRAME INSTALLATION

STEP 10

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. When using standard YKK AP anchors, typical space between the back of the vertical mullion and the anchoring substrate to be 1" nominal.

See **Detail 35**.

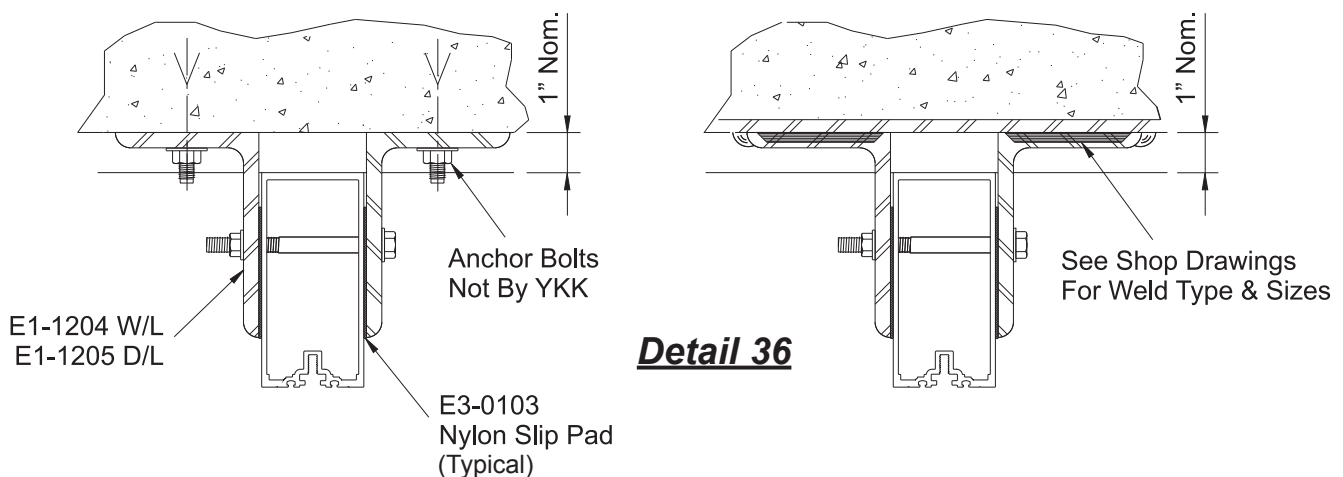


-After positioning vertical mullions, drill and install appropriate diameter anchor bolts.

All anchors and bolts must be checked by a qualified engineer.

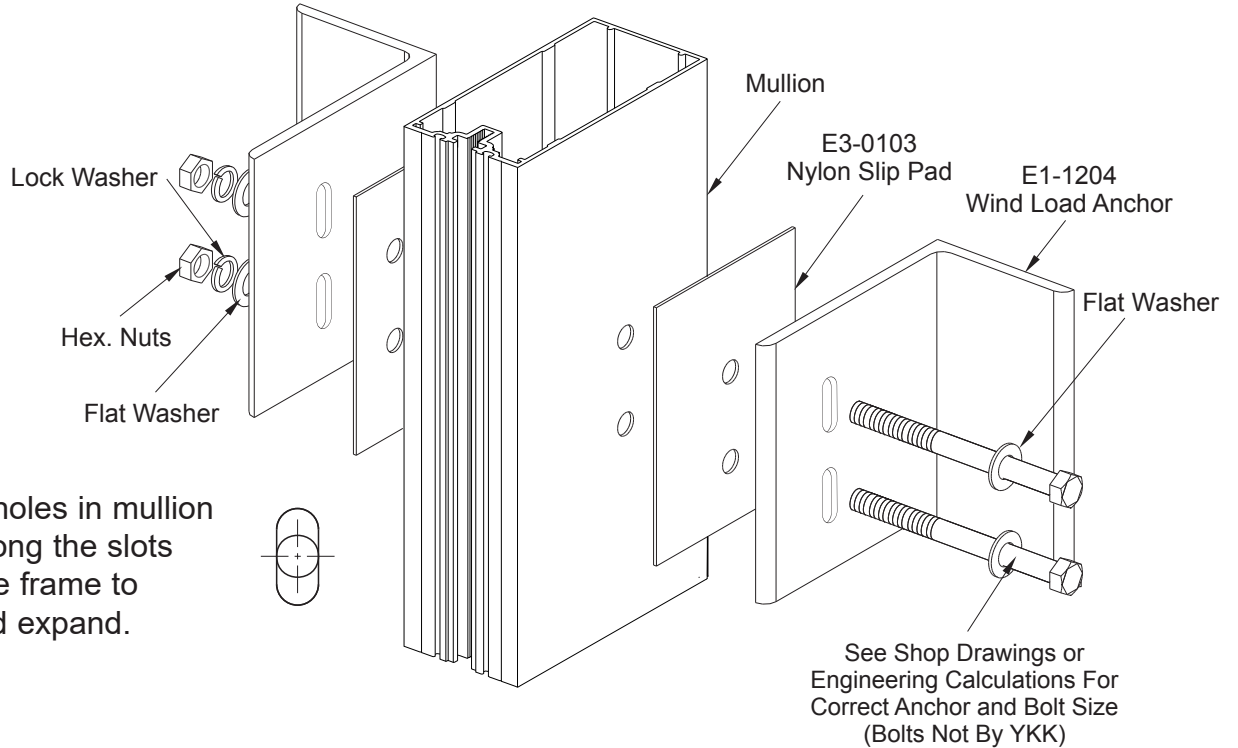
-Nylon slip pads, E3-0103, must be installed between mullion and anchor.

See **Details 36 & 37**.



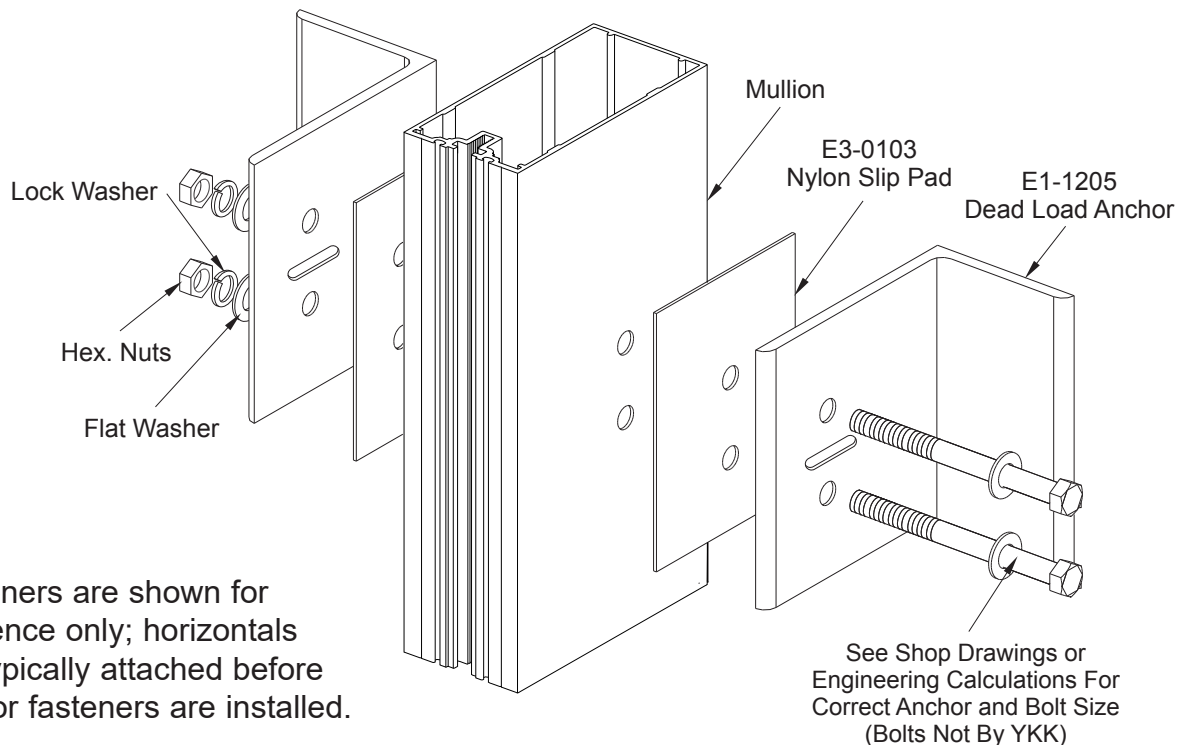
FRAME INSTALLATION

TYPICAL WIND LOAD ANCHOR



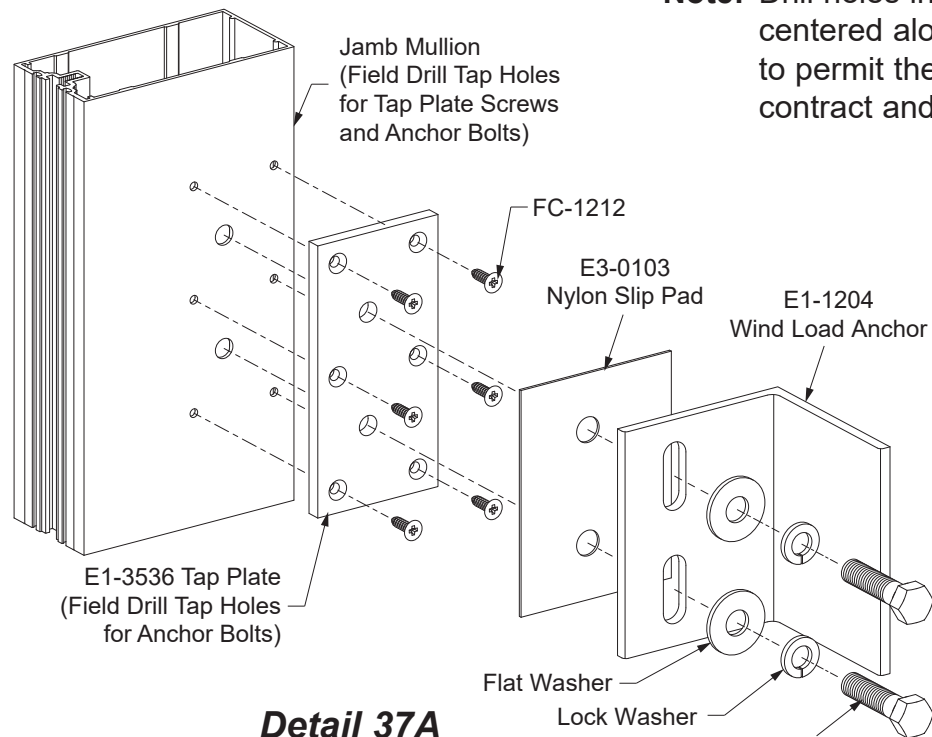
Detail 37

TYPICAL DEAD LOAD ANCHOR



FRAME INSTALLATION

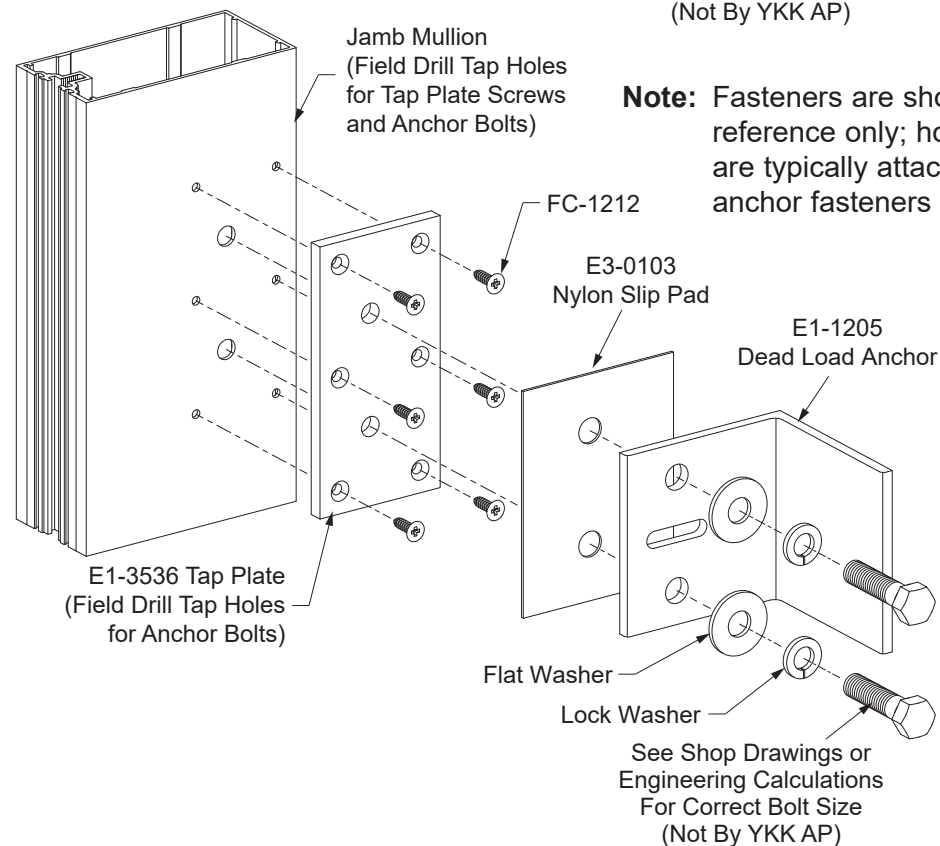
JAMB WIND LOAD ANCHOR



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

Detail 37A

JAMB DEAD LOAD ANCHOR



Note: Fasteners are shown for reference only; horizontals are typically attached before anchor fasteners are installed.

FRAME INSTALLATION

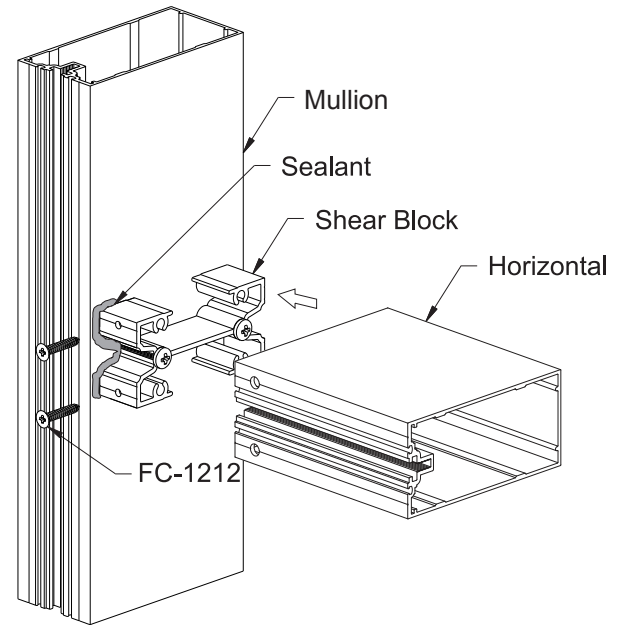
STEP 11

ATTACH HORIZONTAL MEMBERS

Note: Before applying any sealant, clean aluminum surfaces using cleaner and method approved by sealant manufacturer.

- Just prior to attaching the horizontal members to the vertical, apply sealant to the front of the shear block as shown.
- Slide the horizontal members towards the vertical and attach them to the shear blocks at each end with two FC-1212 fasteners.
- Tool and wipe away any excess sealant at the vertical to horizontal joints.
- Seal horizontal to shear block fastener heads.

See **Detail 38**.



Detail 38

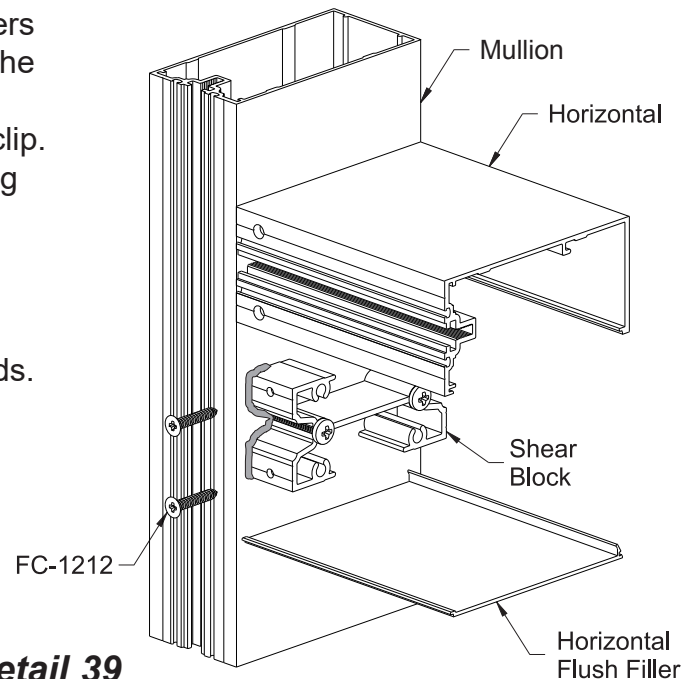
For Two Piece Horizontals:

Note: Before applying any sealant, clean aluminum surfaces using cleaner and method approved by sealant manufacturer.

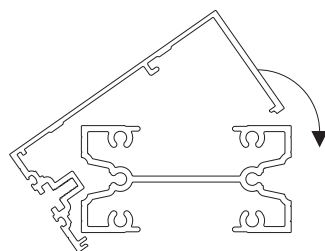
- Just prior to attaching the horizontal members to the vertical, apply sealant to the front of the shear block as shown.
- Rotate the horizontal down over the shear clip. Make sure the horizontal and vertical glazing pockets are flush.
- Attach the horizontals to the shear blocks with two FC-1212 fasteners.
- Snap on the horizontal flush filler.
- Seal horizontal to shear block fastener heads.

See **Detail 39**.

TWO PIECE HORIZONTAL



Detail 39



FRAME INSTALLATION

STEP 11 (Continued)

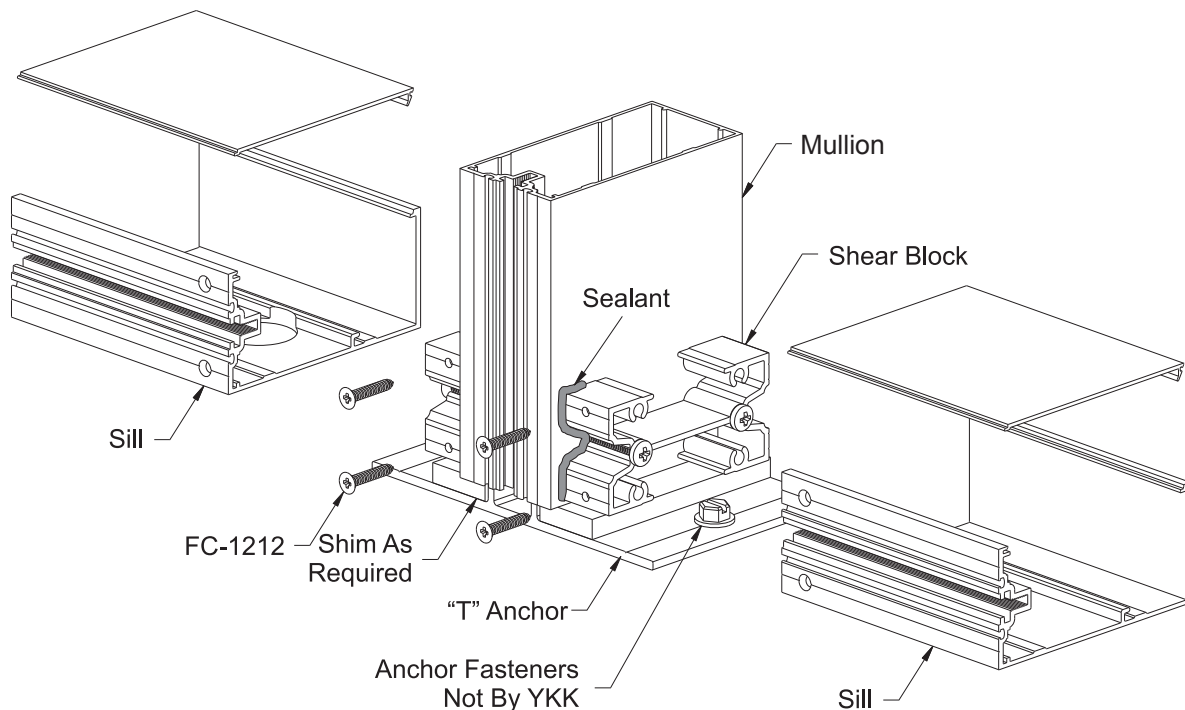
ATTACH HEAD AND SILL MEMBERS

Note: Before applying any sealant, clean aluminum surfaces using cleaner and method approved by sealant manufacturer.

-Just prior to attaching the horizontal members to the mullion, apply sealant to the front of the shear block as shown.

-Seal head/sill to shear block fastener heads.

See **Detail 40**.



Detail 40

FRAME INSTALLATION

STEP 11 (Continued)

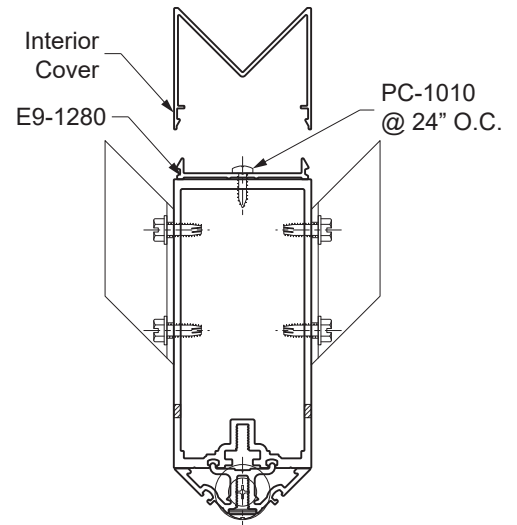
ATTACH HORIZONTAL MEMBERS AT CORNER MULLIONS

-Prior to attaching the mitered head, sill, and horizontals to the corner mullion, the interior covers must be installed. Attach the interior cover base E9-1280 to the back of the corner mullion with PC-1010 screws at 24" maximum on center. Then snap on the interior cover.

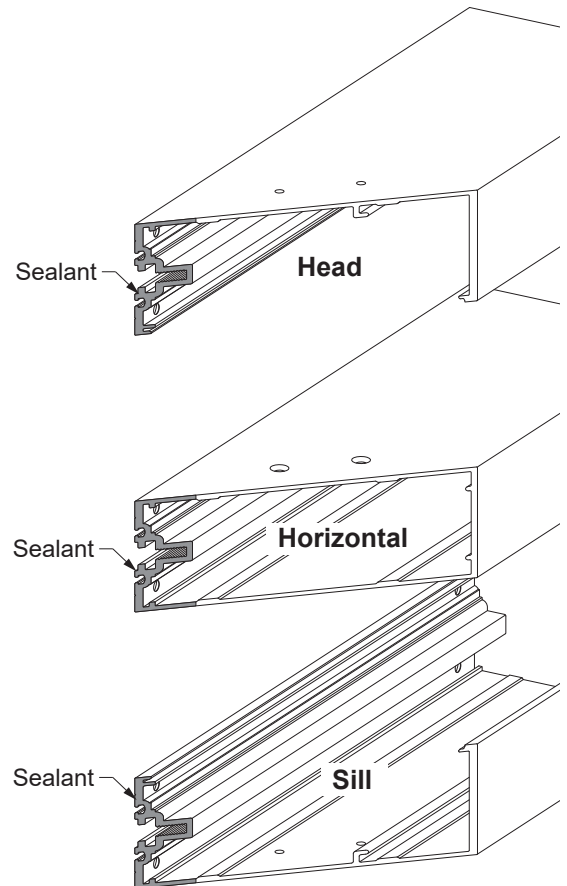
See **Detail 41**.

Note: Before applying any sealant, clean aluminum surfaces using cleaner and method approved by sealant manufacturer.

-Just prior to attaching the horizontal members to the corner mullion, apply sealant to the front of the horizontal at the mitered end as shown in **Detail 42**.



Detail 41



Detail 42

FRAME INSTALLATION

STEP 11 (Continued)

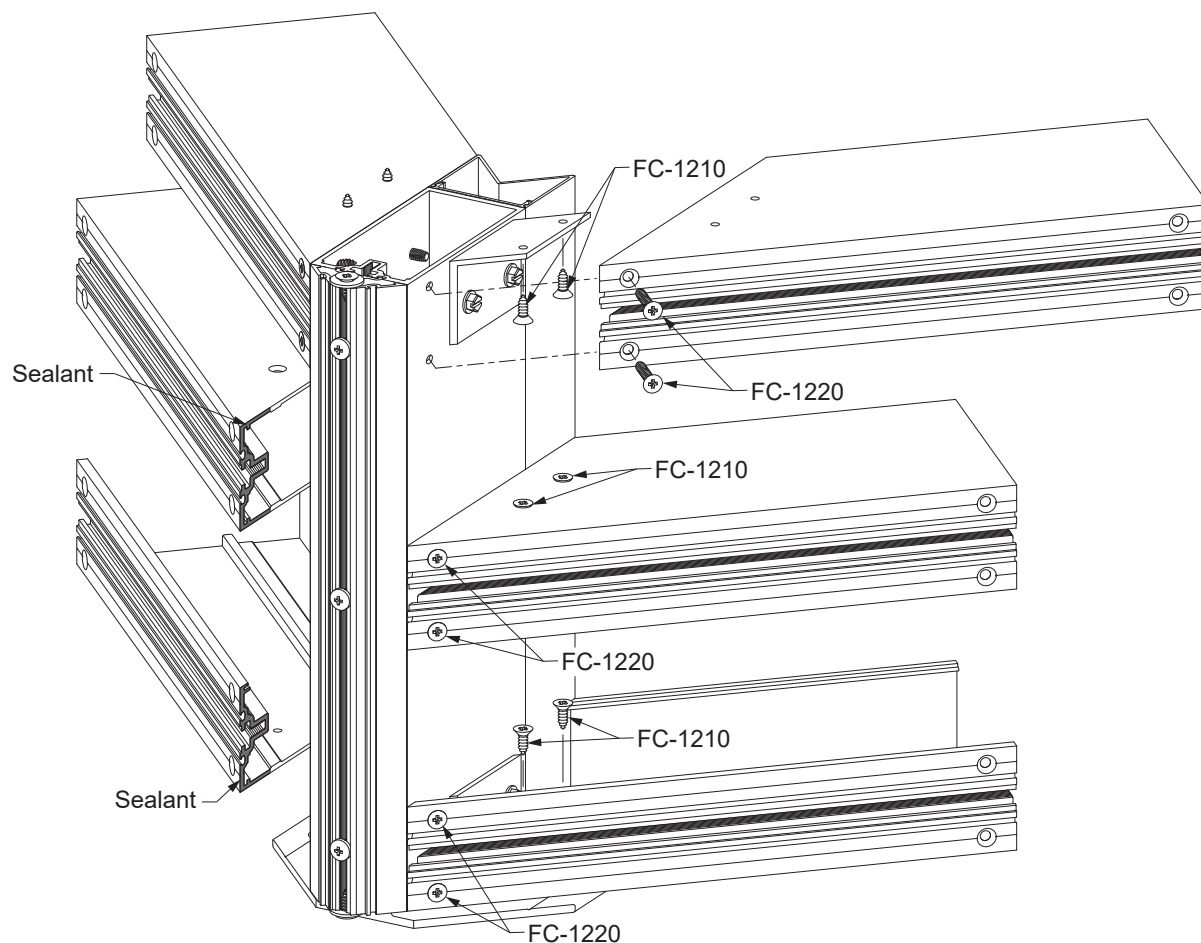
ATTACH HORIZONTAL MEMBERS AT 90° OUTSIDE CORNER MULLIONS

-Attach the horizontal members at the mitered end to the corner mullion at the shear blocks with two FC-1210 fasteners.

-Tool and wipe away any excess sealant at the vertical to horizontal joints.

-Fasten FC-1220 screws into the front of the mitered horizontals into the corner mullion. Seal these fastener heads.

See **Detail 43**.



Detail 43

FRAME INSTALLATION

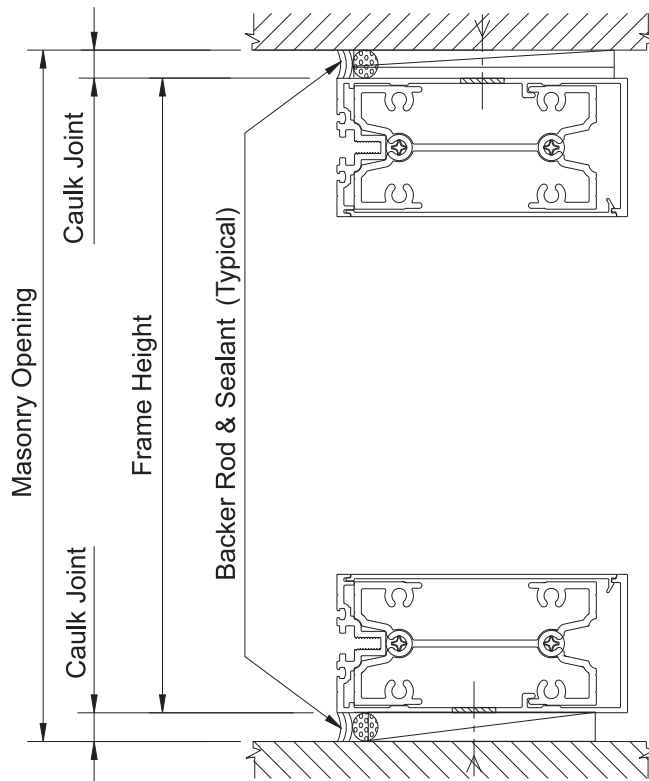
STEP 12

APPLY PERIMETER SEALANT

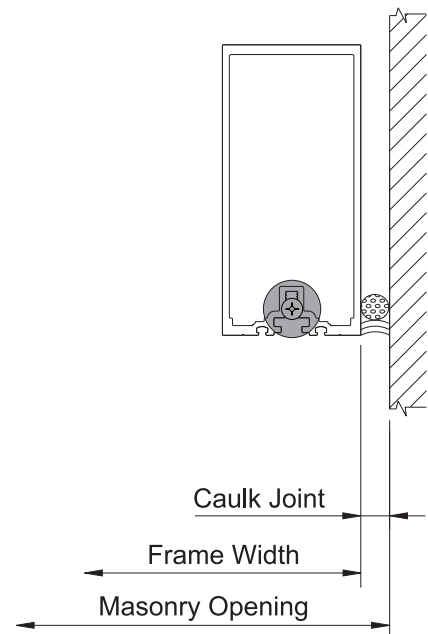
- Clean the area around the perimeter of the frame with cleaner and method approved by sealant manufacturer. **Note:** Taping the front face of the mullion is recommended to keep the surface free of sealant.
- Place backer rod between the perimeter of the frame and the substrate.
- Apply sealant to the substrate of the frame.
- Apply and tool sealant to the perimeter and the frame.

See **Detail 44**.

Note: Additional space at the caulk joint may be required to allow for expansion and/or contraction of the system per a qualified engineer's review (1/2" minimum).



Detail 44



FRAME INSTALLATION

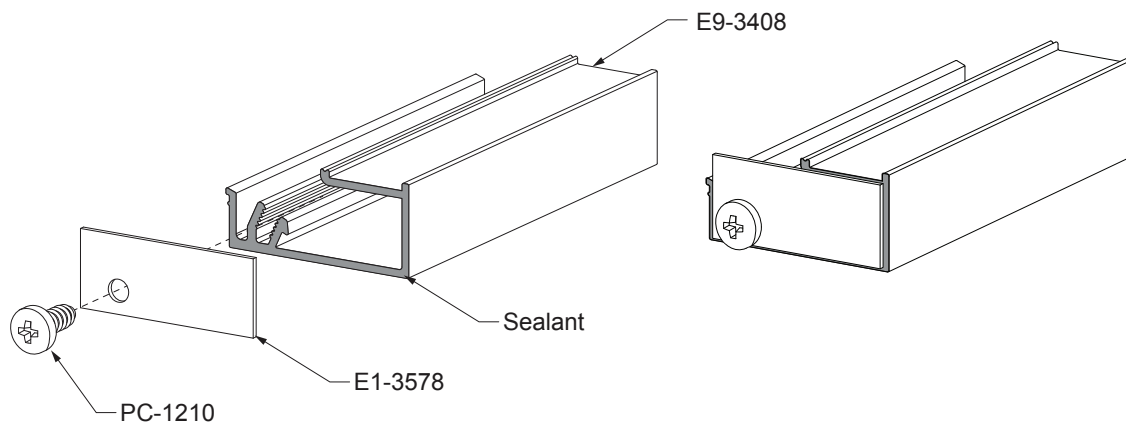
STEP 13 (Continued) ATTACH PERIMETER TRIM

Sill and Jamb Perimeter Trim

Note: E1-3578 end dam must be attached at each end of the E9-3408 head, sill and jamb. perimeter trim.

- Clean all joint surfaces using cleaner approved by sealant manufacturer.
- Apply sealant to the E9-3408 perimeter trim as shown in **Detail 45**.
- Fasten the E1-3578 end dam to the E9-3408 perimeter trim with one PC-1210 screw.
- Clean and remove excess sealant.

See **Detail 45**.



Detail 45

FRAME INSTALLATION

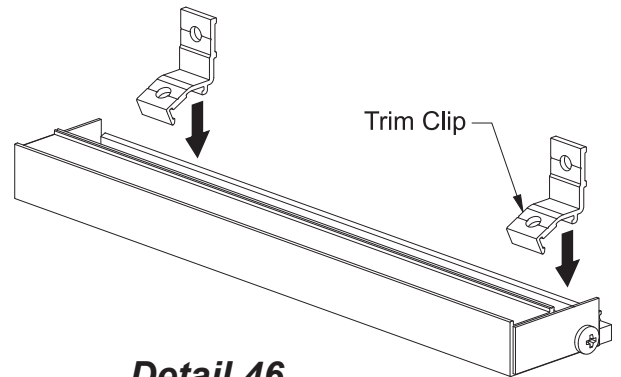
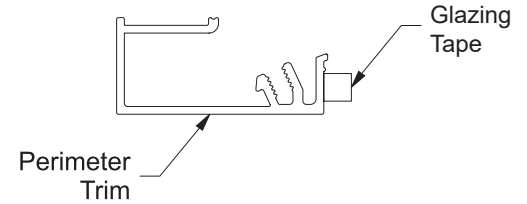
STEP 13 (Continued) ATTACH PERIMETER TRIM

Sill Perimeter Trim

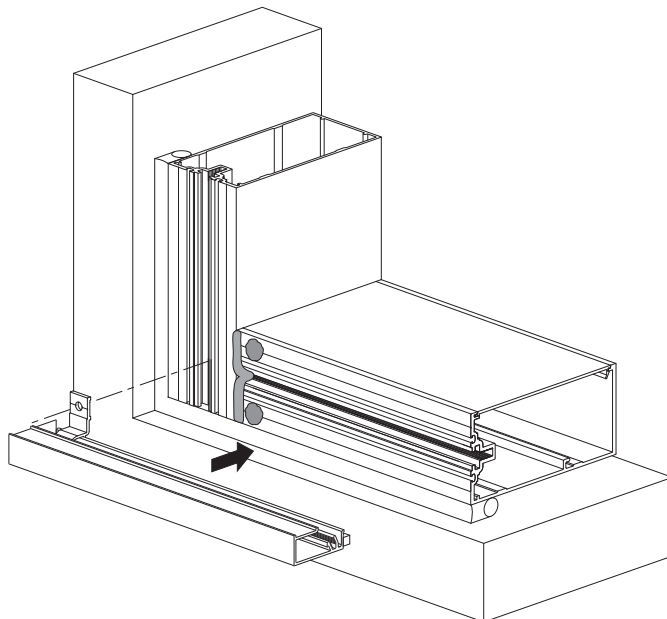
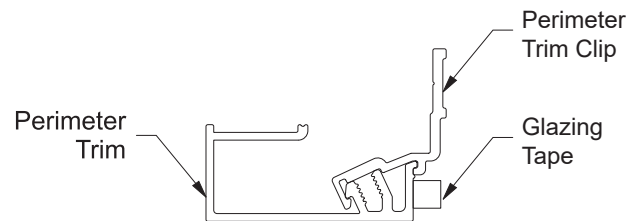
- Apply E2-0110 spacer tape to the entire length of the E9-3408 perimeter trim member.
- Attach E1-3543 perimeter trim clip to the E9-3408 perimeter trim member 1-1/4" from each end and at all intermediate mullion locations. Trim clip locations can be adjusted after perimeter trim is adhered to the sill member.

See **Detail 46**.

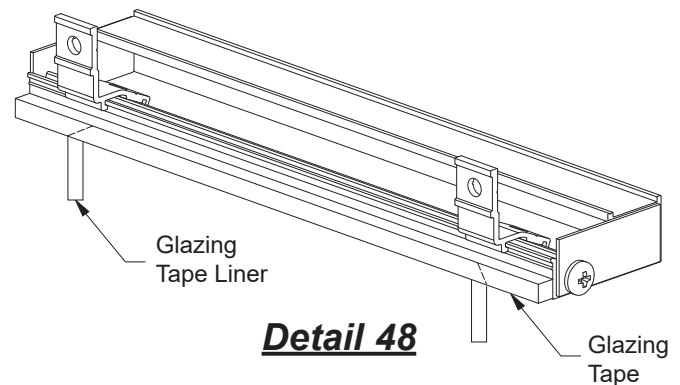
- Pull back the tapes liner of the perimeter trim 2" from each end to expose the adhesive backing.
 - Press the perimeter trim firmly onto the sill member.
 - Pull the remaining tape liner from the tape of the perimeter trim while continuing to press the perimeter trim firmly against the sill member.
- See **Detail 47** and **Detail 48**.



Detail 46



Detail 47



Detail 48

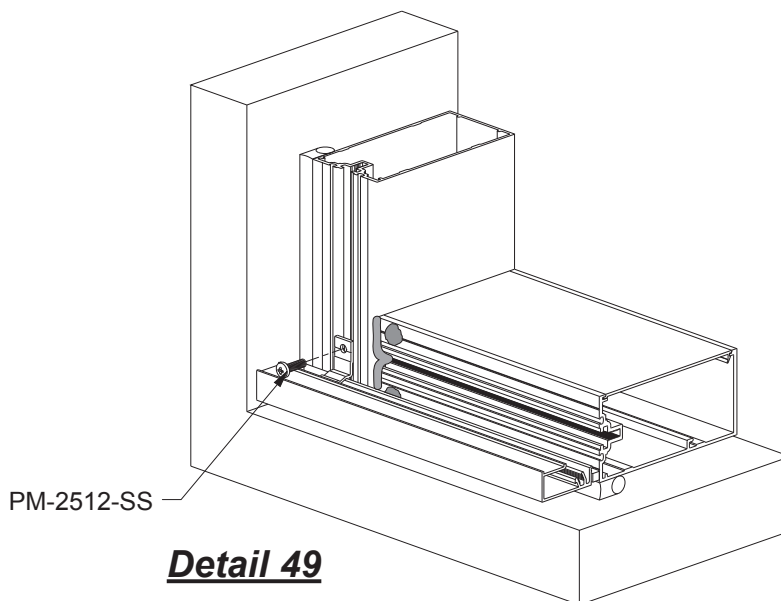
FRAME INSTALLATION

STEP 13 (Continued) ATTACH PERIMETER TRIM

Sill and Head Perimeter Trim

- Using PM-2512-SS fasteners, fasten the perimeter trim clips into the spline of the mullions.
- Using PM-1006-SS fasteners, fasten the perimeter trim clip into the spline of the perimeter trim.

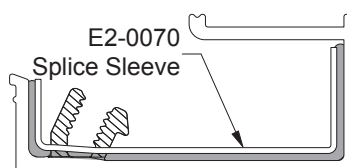
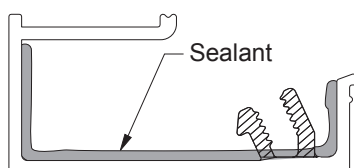
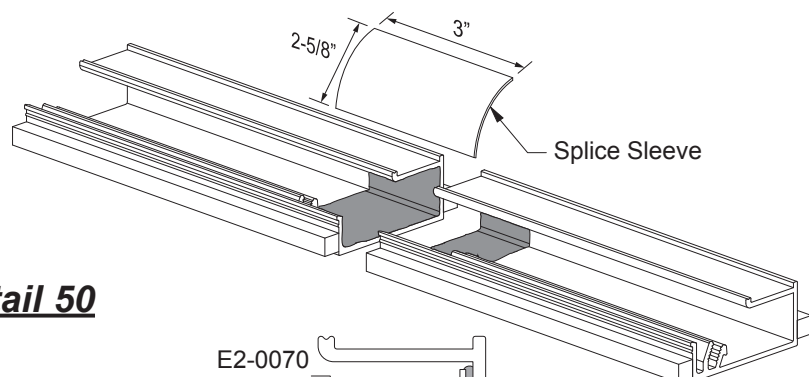
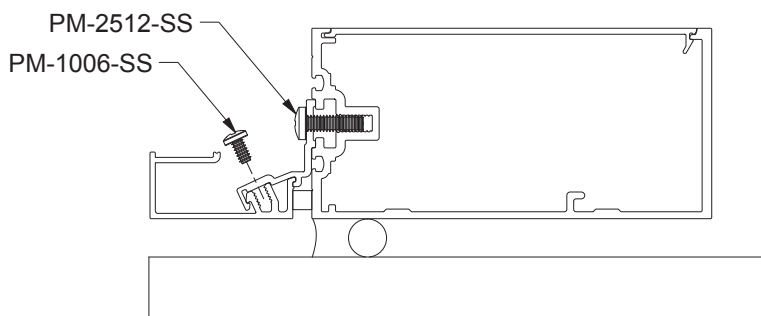
See **Detail 49**.



Sill Perimeter Trim Splice

- Cut E2-0070 silicone splice sleeve to 3" x 2-5/8".
- Clean perimeter trim and silicone splice sleeve per sealant manufacturer's recommendations at the splice location.
- Seal the perimeter trim at the splice location as shown in **Detail 50**, before positioning the silicone splice sleeve. Fit the silicone splice sleeve into the perimeter trim.
- Tool excess sealant.

See **Detail 50**.



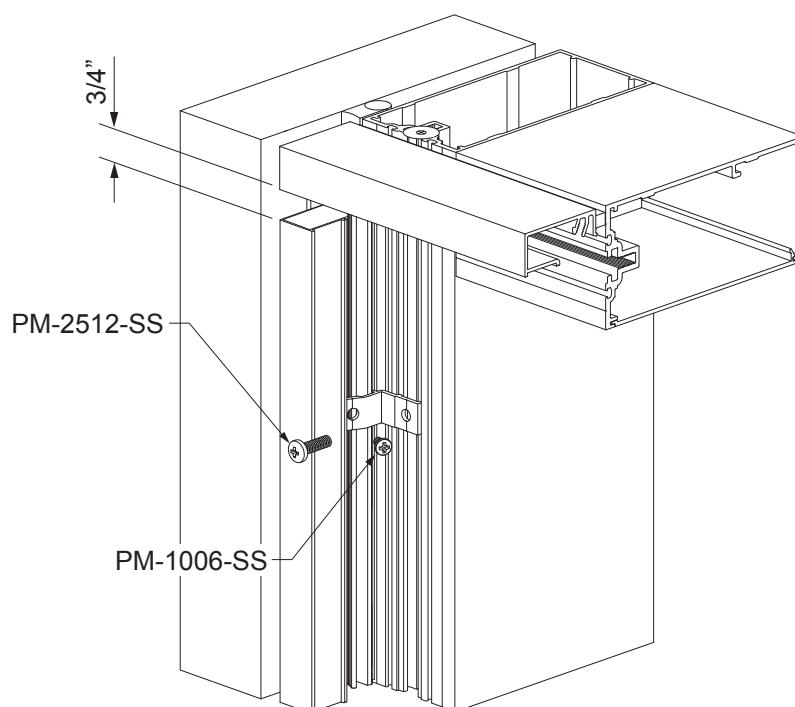
FRAME INSTALLATION

STEP 13 (Continued) ATTACH PERIMETER TRIM

Jamb Perimeter Trim

- Prepare the perimeter trim at jamb locations as stated on **Page 38**.
- Trim clips should be located 2" from each end of the perimeter trim, and 3' on center.
- Using PM-2512-SS fasteners, fasten the perimeter trim clips into the spline of the jamb member.
- Using PM-1006-SS fasteners, fasten the perimeter trim clip into the spline of the perimeter trim.

See **Detail 51**.



Detail 51

Head Condition Shown, Sill Condition Similar

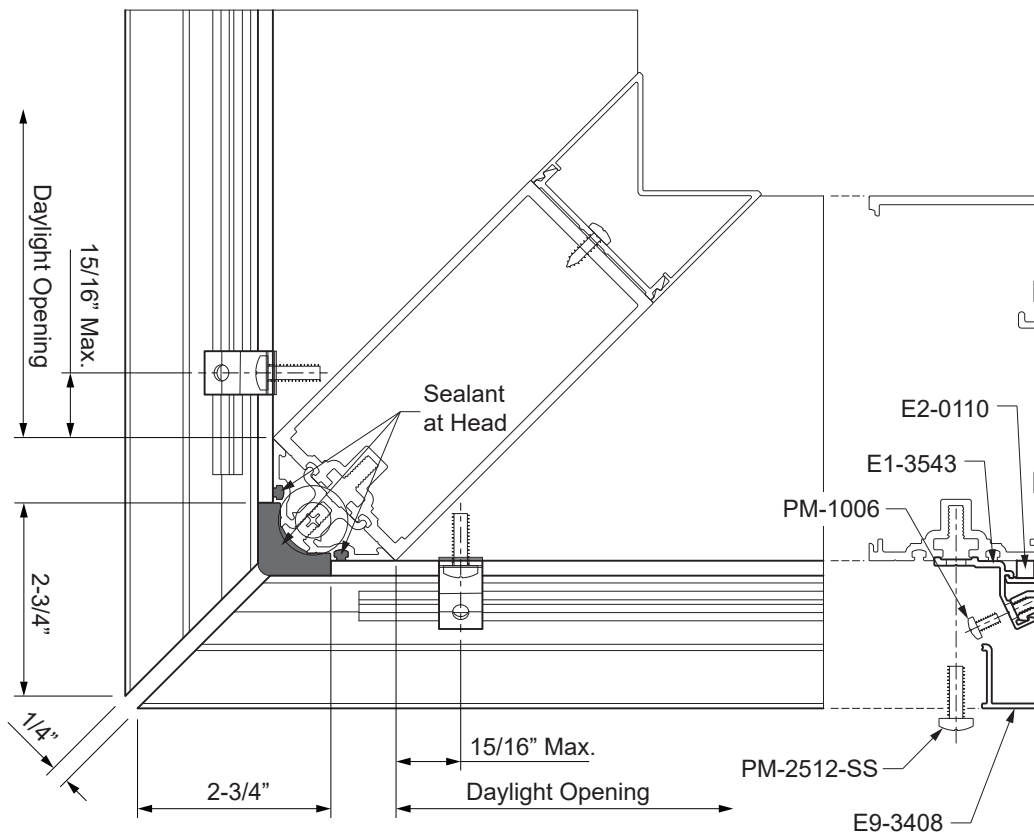
FRAME INSTALLATION

STEP 13 (Continued) ATTACH PERIMETER TRIM

90° Outside Corner Perimeter Trim

- Cut E2-0110 spacer tape to mitered perimeter trim length minus 2-3/4", and adhere it to the mitered perimeter trim.
- Adhere the mitered perimeter trim to the head and sill, leaving a 1/4" gap at the corner.
- Trim clips should be located no more than 15/16" from the end of the daylight opening and at 3' on center thereafter.
- Using PM-2512-SS fasteners, fasten the perimeter trim clips into the spline of the jamb member.
- Using PM-1006-SS fasteners, fasten the perimeter trim clip into the spline of the perimeter trim.
- At the head, fill the void between the perimeter trim and the mullion with backer rods and sealant.

See **Detail 52**.



Detail 52

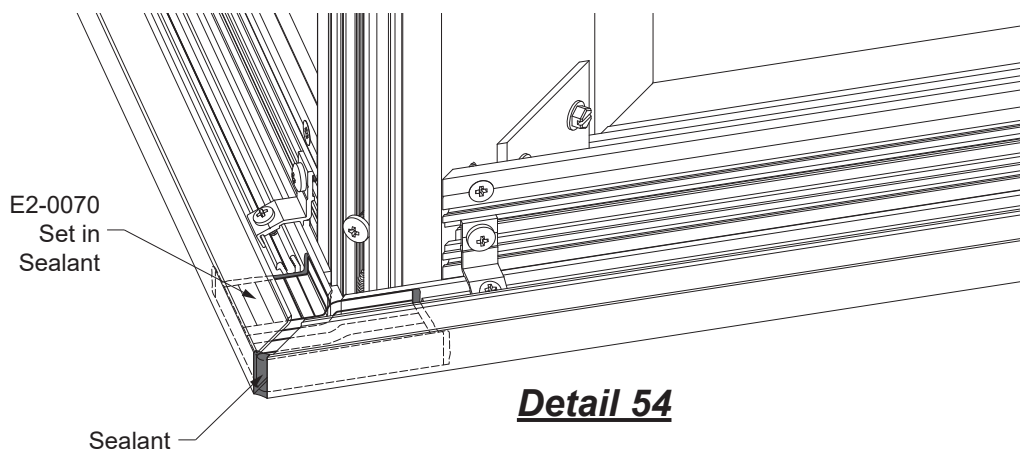
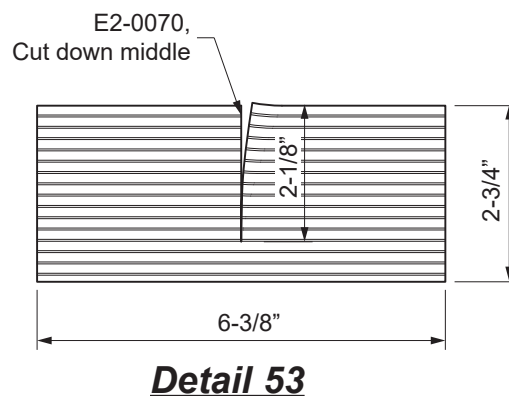
FRAME INSTALLATION

STEP 13 (Continued) ATTACH PERIMETER TRIM

90° Outside Corner Perimeter Trim

- Cut a E2-0070 silicone sheet to the dimensions shown on **Detail 53**.
- Cut the sheet down the middle to allow the sheet to be folded over and overlapped.
- Adhere the sheet into place with sealant.
- Apply sealant to the face and substrate side of the gap in the corner perimeter trim.

See **Detail 54**.



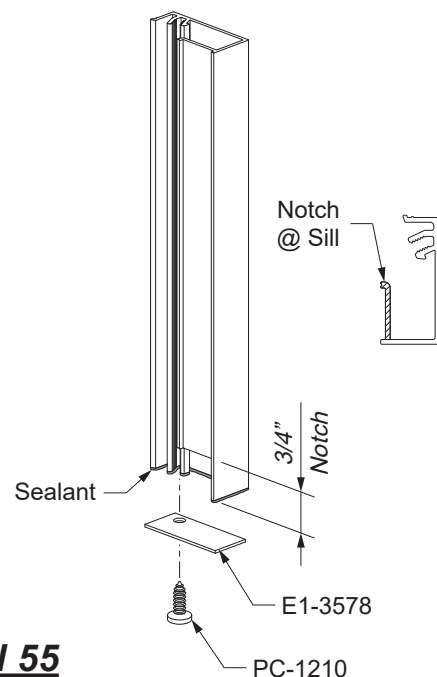
FRAME INSTALLATION

STEP 13A

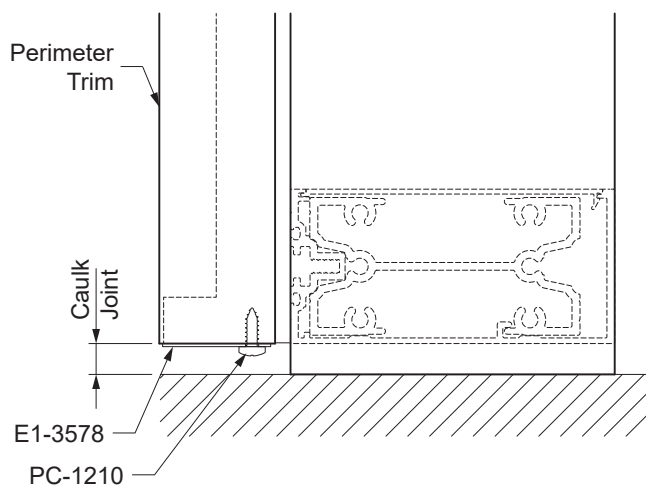
INSTALL PERIMETER TRIM AT DOOR JAMB

- Cut the vertical perimeter trim to Door Opening Height minus 3/4" and minus the Caulk Joint at the sill.
- Notch the bottom of the perimeter trim by 3/4" as shown in **Detail 55**.
- Apply sealant to the ends of the vertical trim, and attach E1-3579 end caps at each end with PC-1210 fasteners.
- Cut E2-0110 spacer tape to the length of the perimeter trim, and apply it to the perimeter trim as previously stated in **Page 39**.
- Attach perimeter trim clips to the perimeter trim at 2" from each end and at 3' maximum on center, shown similarly on **Detail 51** on **Page 41**.
- Using PM-2512-SS fasteners, fasten the perimeter trim clips into the spline of the mullion.
- Using PM-1006-SS fasteners, fasten the perimeter trim clip into the spline of the perimeter trim. Allow the same space above the sill substrate as the caulk joint at the sill.

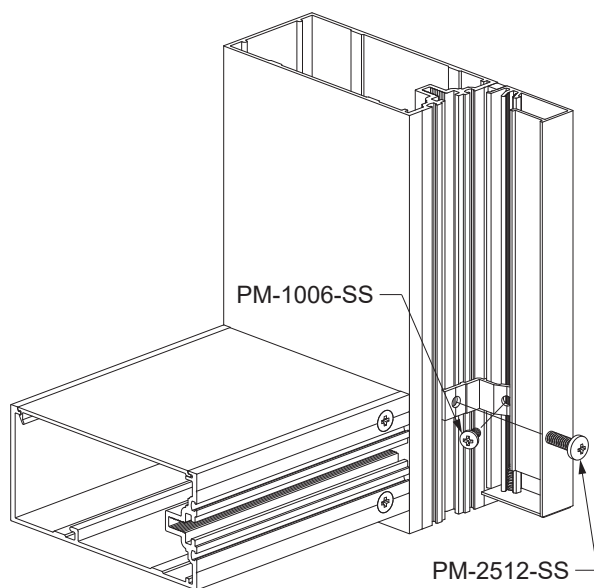
See **Details 56 & 57**.



Detail 55



Detail 56



Detail 57

FRAME INSTALLATION

STEP 13A (Continued) INSTALL PERIMETER TRIM AT DOOR JAMB

Perimeter trim at the sill member is to be cut to overlap the mullion at the door jamb by 7/8". This perimeter trim is also to be notched at the end by 1-1/4" as previously shown on **Page 21**.

-Cut E2-0110 spacer tape to the length of the perimeter trim, and apply it to the perimeter trim as previously stated in **Page 40**.

-Using PM-2512-SS fasteners, fasten the perimeter trim clips into the spline of the sill.

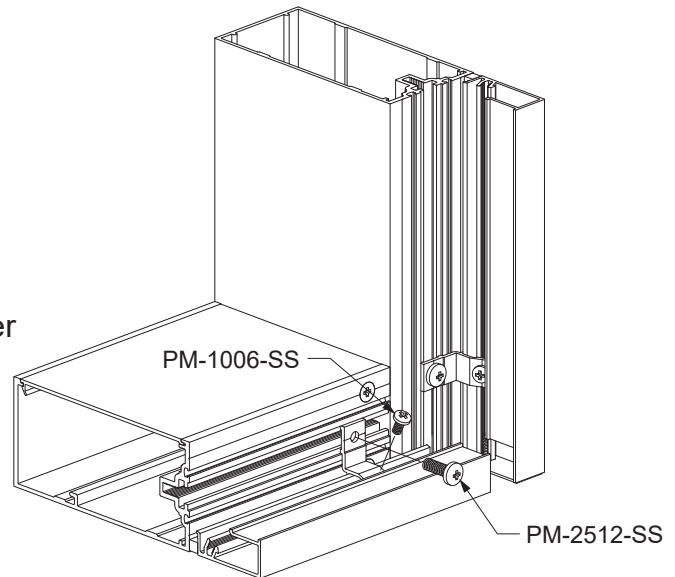
-Using PM-1006-SS fasteners, fasten the perimeter trim clip into the spline of the perimeter trim.

See **Detail 59**.

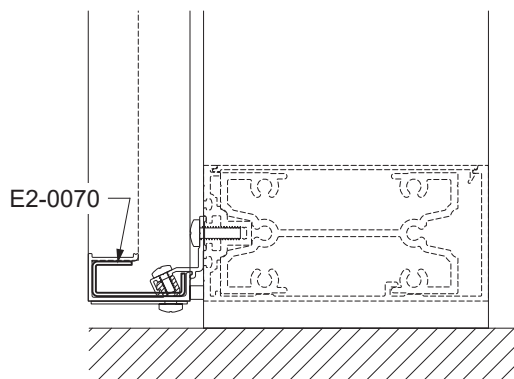
-Cut a 2-1/4" x 2" piece of E2-0070 silicone sheet, and adhere it with sealant to span the gap between the sill perimeter trim and the trim at the door jamb.

-Apply sealant to the front of the sheet and the cavity behind the sheet.

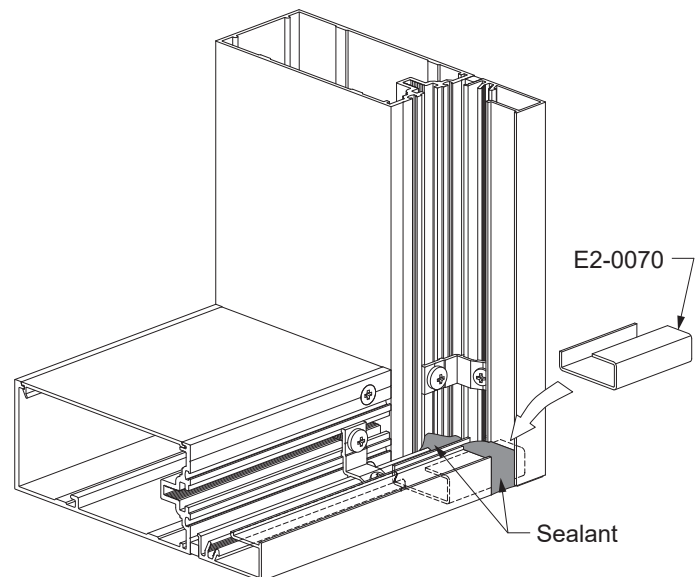
See **Details 60 & 61**.



Detail 58



Detail 59



Detail 60

FRAME INSTALLATION

STEP 14

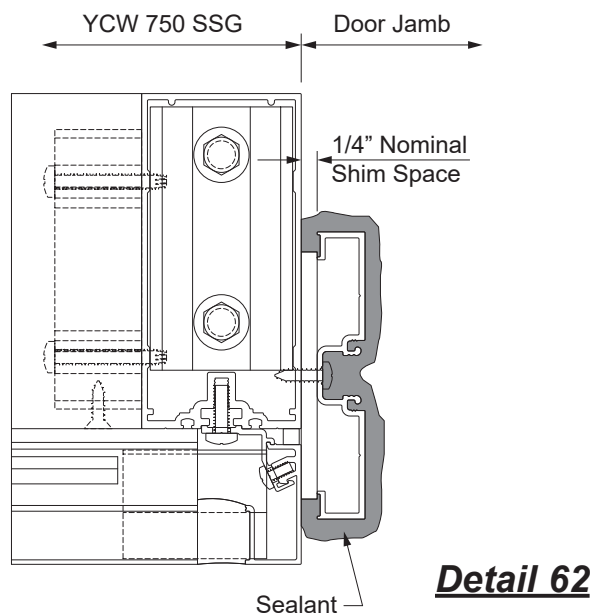
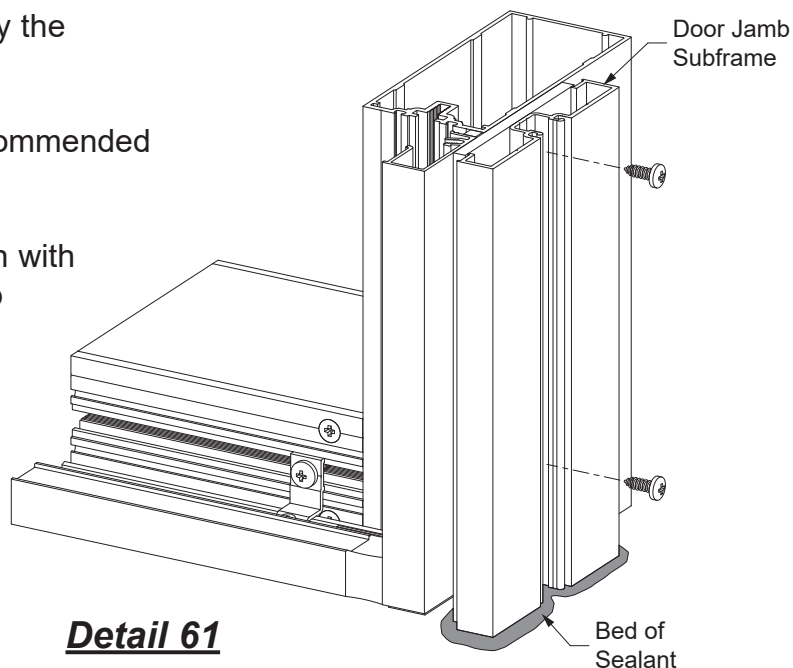
INSTALL DOOR SUBFRAMES

Refer to the **Entrances Installation Manual** for assembly of the door subframes. These subframes are typically installed into the curtain wall framing at the jambs, and set directly upon the sill substrate. 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 and/or P.E. calculations, setting the subframe jambs in beds of sealant as shown in **Detail 61**.

-Apply and tool sealant to the bottom of the jamb subframe as shown in **Detail 62**.



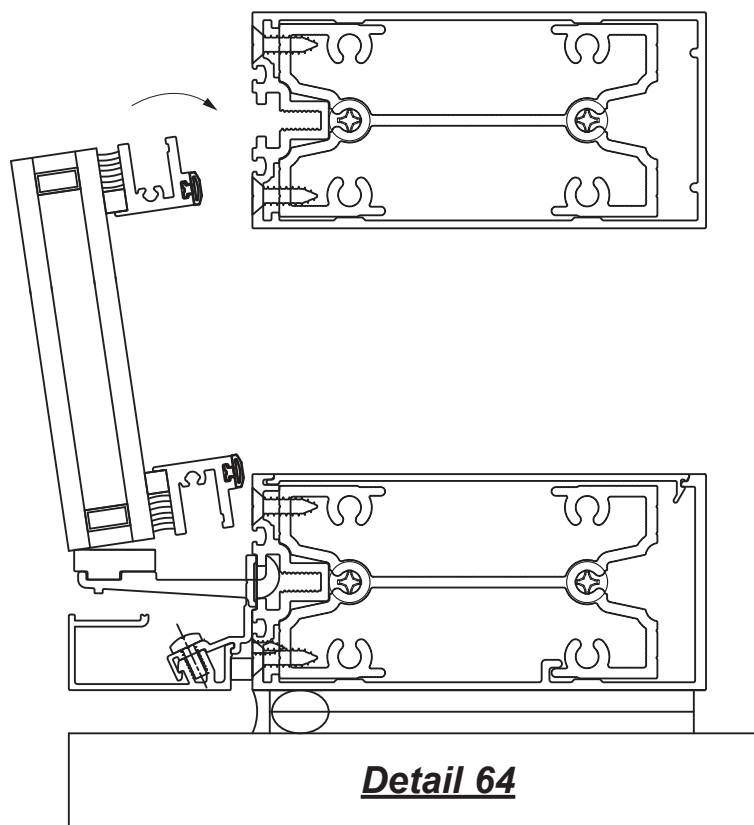
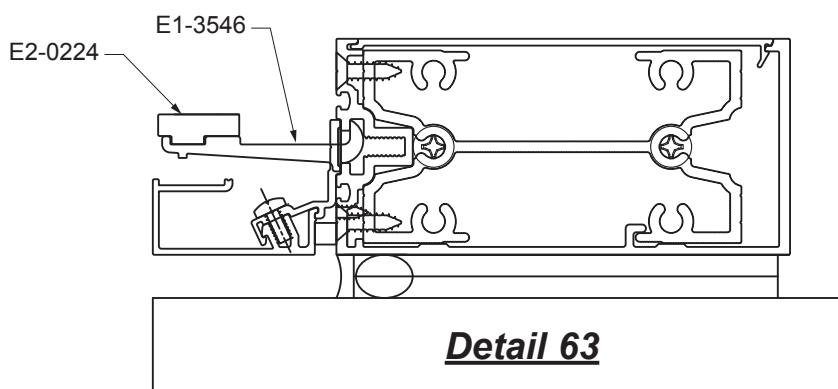
GLAZING

STEP 15 INSTALL CASSETTES

- Note, toggle bar assemblies are located 9" OC as a standard, or possibly closer per engineering calculations and approved shop drawings. Prior to setting the glass, mark the toggle bar fastener locations on each mullion and horizontal before the glass is in place. This will enable the glazers to locate the temps between the clips, thus avoiding the same hole location being used twice.
- Glazing is also done from the ground up when using the setting block chair method.
- Prior to cassette installation, insert setting block chairs E1-3546 into the horizontal to their proper location. (per glass manufactures guidelines.) Center the silicone setting block E2-0224 onto the E1-3546 chair. See **Detail 63** on **Page 48**.
- Center the glazed cassette unit vertically into the opening, tilting the bottom of the glass inward. Gently rest the weight of the glass onto the setting blocks. See **Detail 64** on **Page 48**.

GLAZING

STEP 15 (Continued)
INSTALL CASSETTES



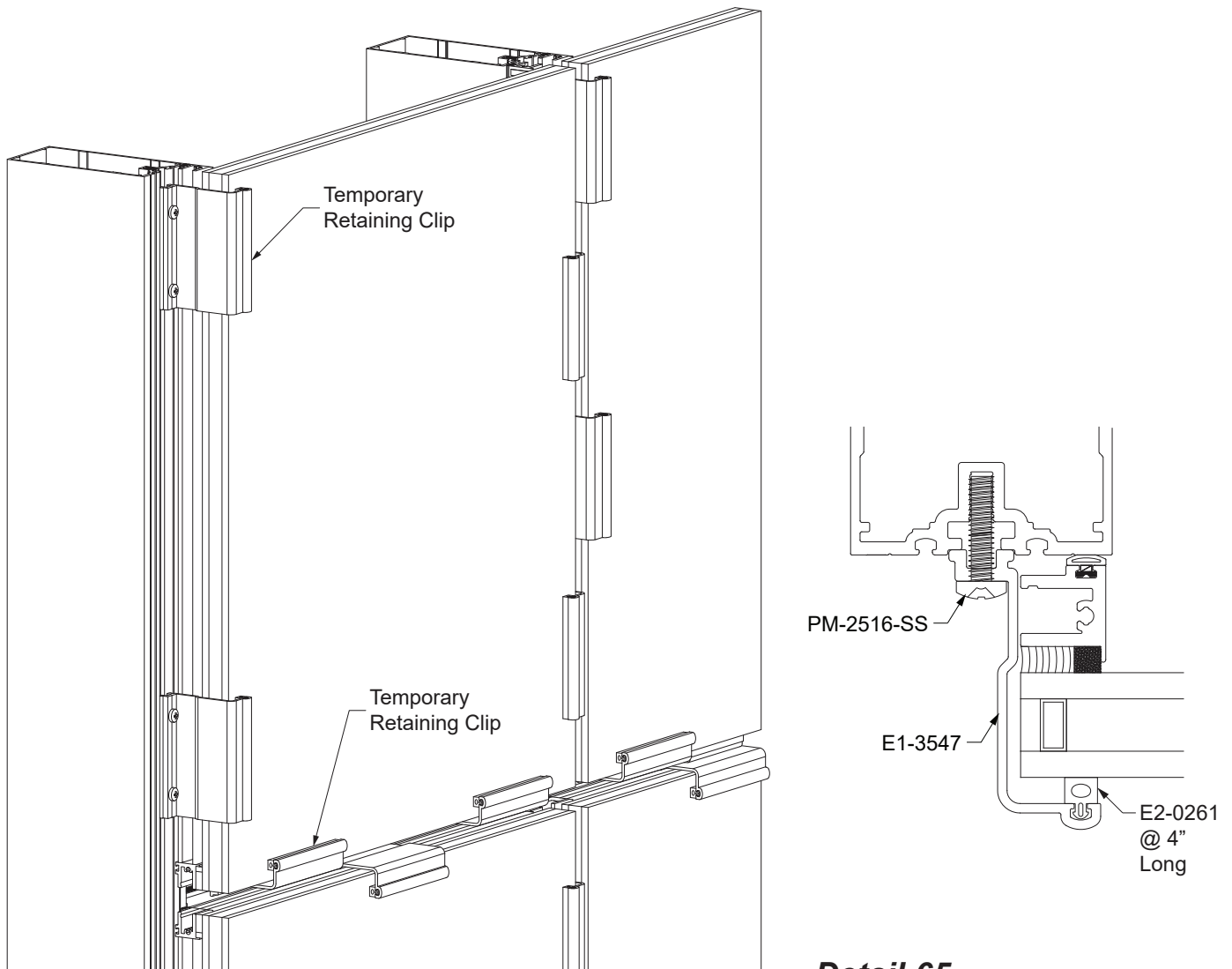
GLAZING

STEP 16 INSTALL TEMPORARY RETAINING CLIPS

-Immediately install E1-3547 temporary retaining clips, every 2' on center, into the center spline of the mullion along the vertical and horizontal edge of the unit with (2) PM-2516-SS fasteners per clip and 4" of E2-0261 SSG glazing spacer per clip.

See **Detail 65**.

-Check to see if the inside of the cassette is centered with the daylight opening. The cassette should be 1/16" inward at each of the vertical and horizontal mullions.



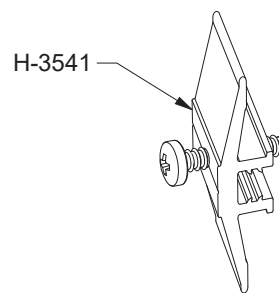
Detail 65

GLAZING

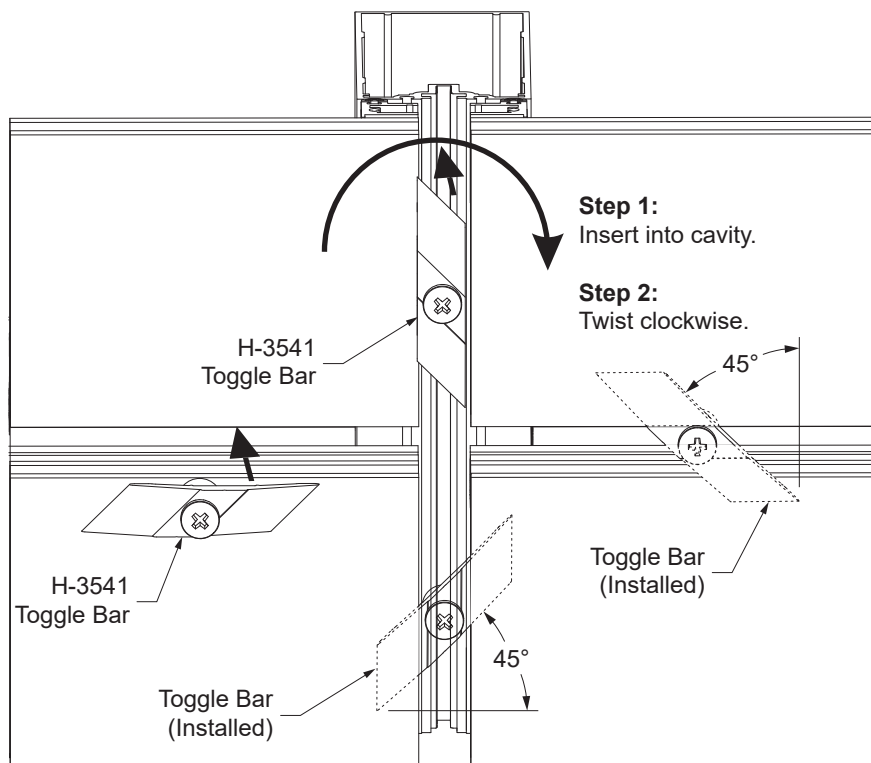
STEP 17 INSTALL TOGGLE BAR ASSEMBLIES

-After the adjoining glass is installed, the H-3541 toggle bar assemblies (shown in **Detail 66**) can then be installed at 9" maximum on center. Slide the toggle assembly into 3/4" gap between the glass. Slowly start the fastener the first 45°, which should turn the toggle bar 45° and engage itself into the proper position within the two adjoining cassettes. Continue screwing the fastener approx. 3/8" deep until the toggle is fully seated against the mullion, fully engaging the cassettes. Remove temporary clips after toggles are installed.

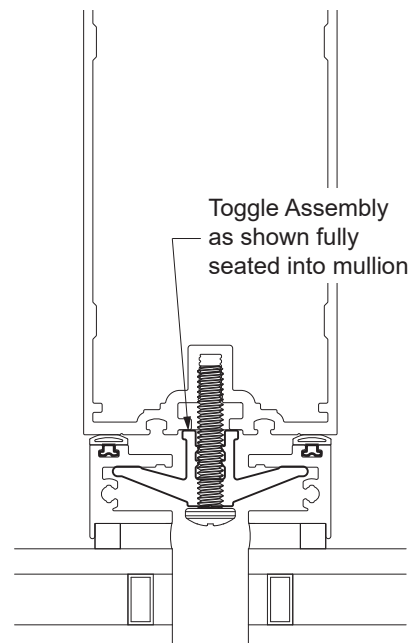
NOTES: Do not re-use a screw location twice, which may weaken the strength of the attachment. If a toggle bar strips the tongue of the mullion, relocate the toggle bar approximately 1/2" away from the intended location. Toggles will not fully seat onto the mullion / horizontal unless they are positioned at a 45° angle as shown in **Detail 67**.



Detail 66



Detail 67



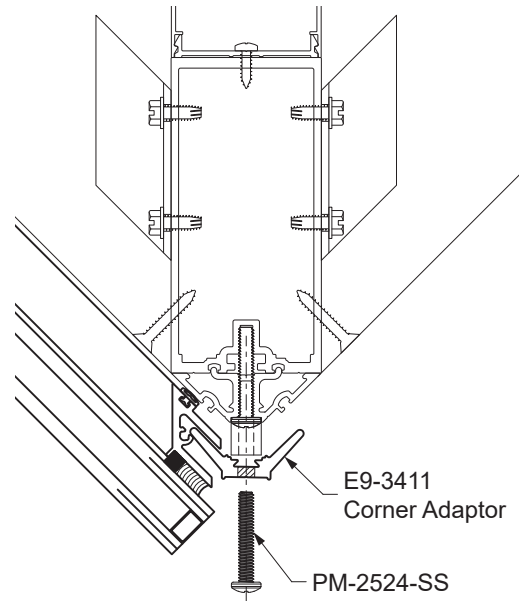
GLAZING

STEP 17 (Continued)

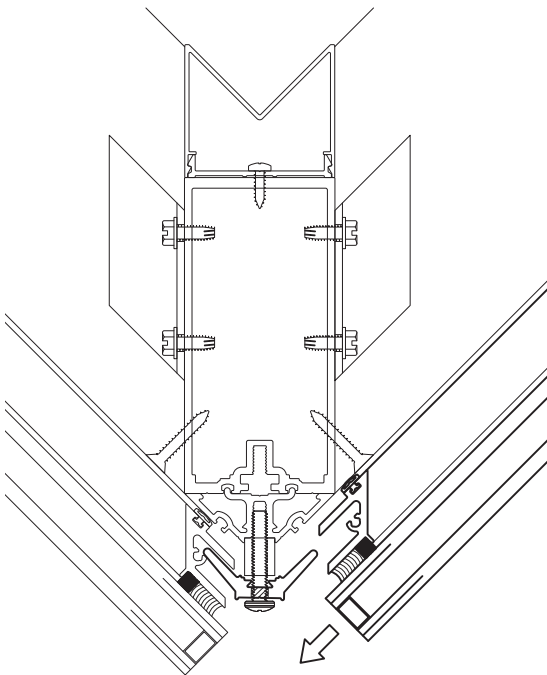
INSTALLING CASSETTES AT OUTSIDE CORNERS

- Install the first glazed unit at one side of the corner.
- Install the toggle bar assemblies on the other side of the cassette not at the corner.
- Install the corner adaptor with PM-2524-SS screws, leaving a 1/4" short of full engagement. See **Detail 68**.
- Install the second cassette on the other side of the corner, and slide it inward to the corner as shown in **Detail 69**.
- Install the toggle bar assemblies for this cassette, and tighten the fasteners for the corner adaptor to 70 inch-pounds.

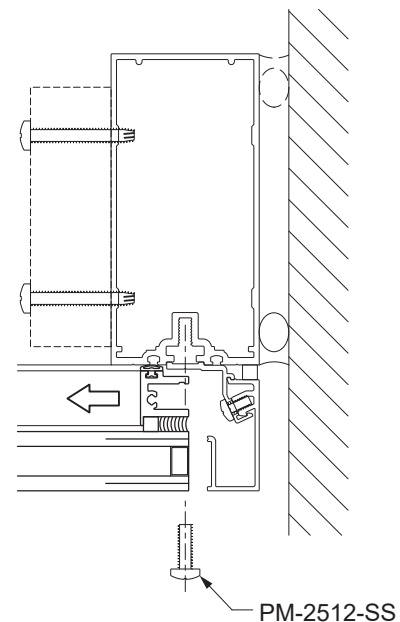
Note: If the other side of the corner glazing unit is at a jamb, then the PM-2512-SS screws at the jamb trim clip will need to be temporarily removed to allow the corner cassette to slide. Reinstall the screws after the cassette is set into place. See **Detail 69A**.



Detail 68



Detail 69



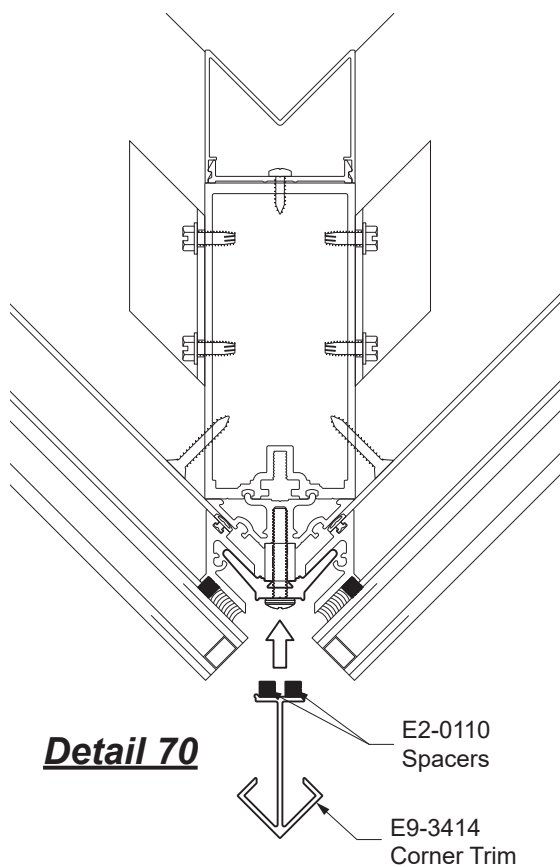
Detail 69A

GLAZING

STEP 17 (Continued)

INSTALLING CASSETTES AT OUTSIDE CORNERS

- Cut the E9-3414 corner trim to length of the jamb perimeter trim and adhere E2-0110 spacers to the corner trim also cut to the same length.
- Adhere the corner trim to the corner adaptor as shown in **Detail 70**.

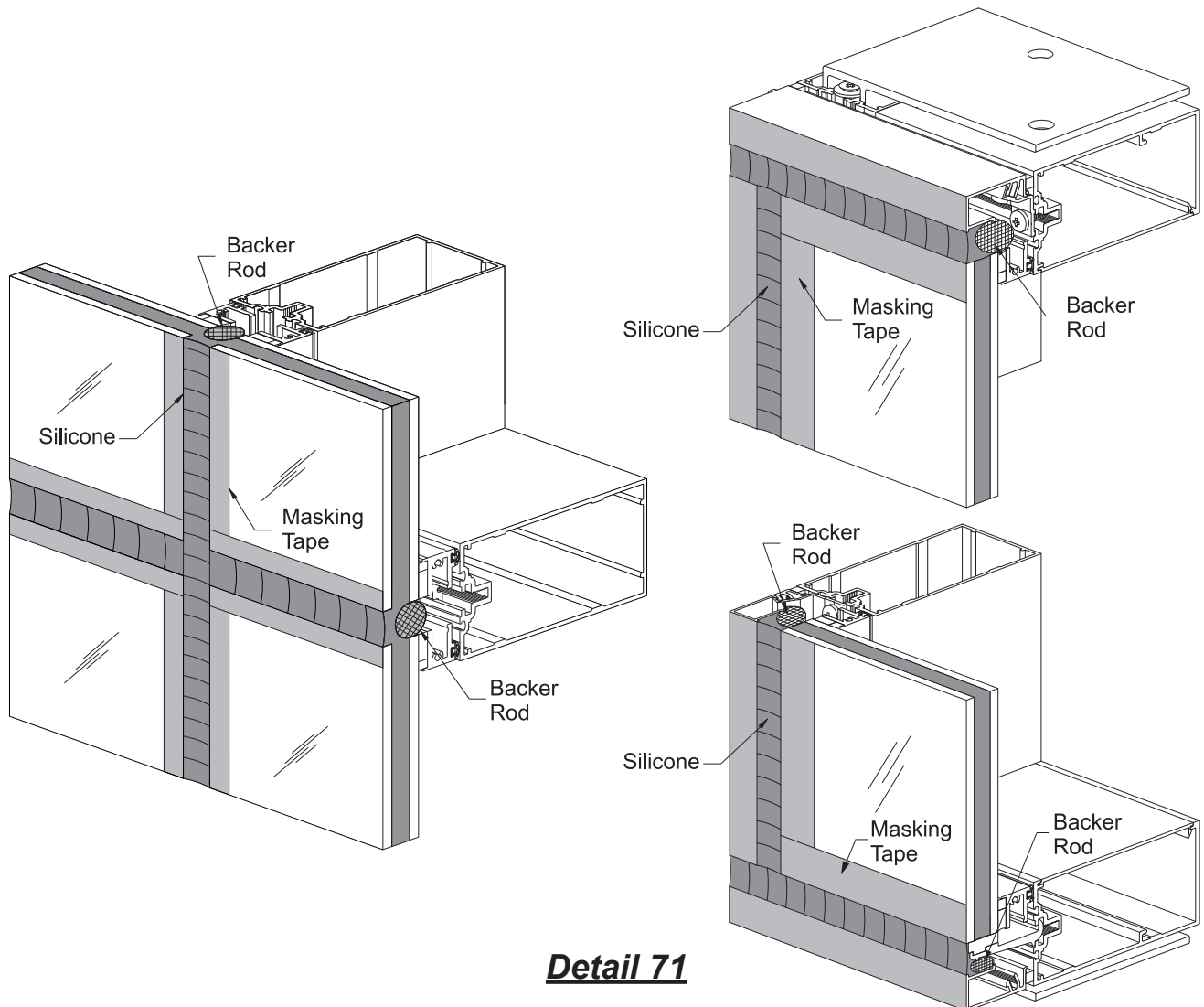


GLAZING

STEP 18

APPLY EXTERIOR WEATHERSEAL

- After toggle bars are in place, insert a backer rod into the glass joint.
- Clean all silicone contact surfaces and joints (including the outside SSG corner) with cleaner and method recommended by sealant manufacturer.
- Apply masking tape to the edges of the glass as shown in **Detail 71**.
- Apply silicone sealant into the cavity between the lites of glass. Tool the silicone sealant immediately after running the joint.
- Remove the masking tape. Do not allow the sealant to skin over.



Detail 71

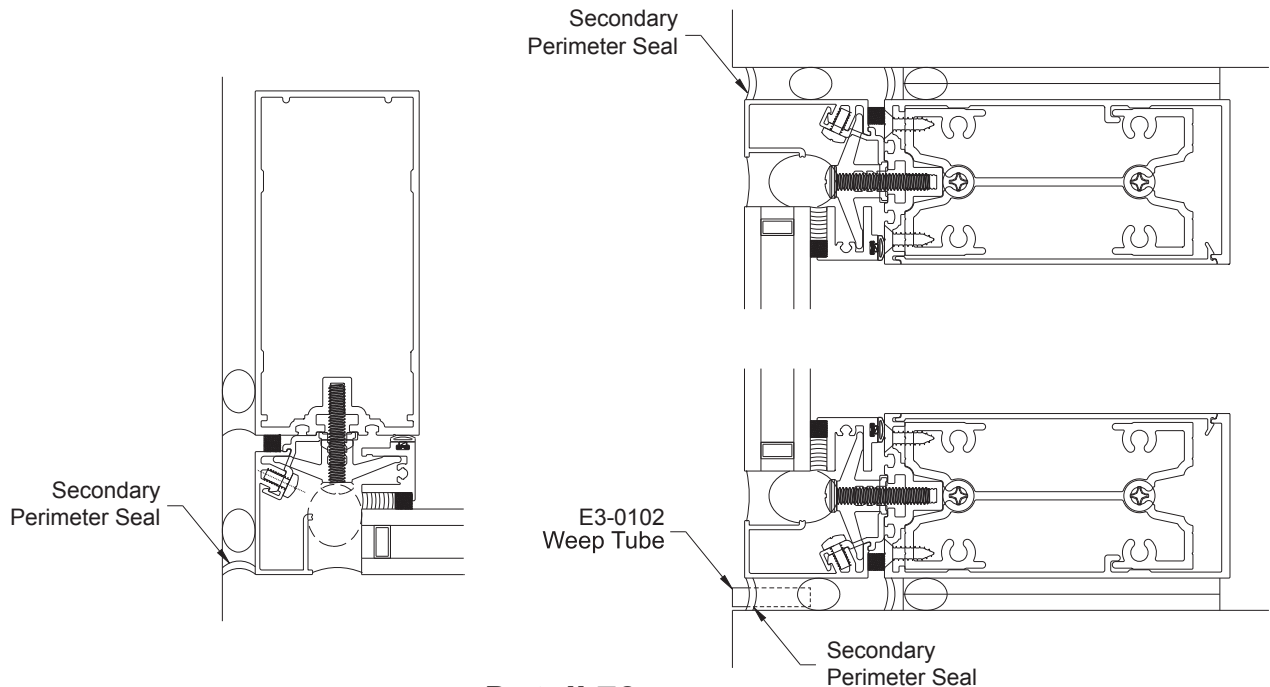
Note: Do not permit the silicone to skin over before it is tooled.
Immediately remove masking tape after tooling the silicone.

GLAZING

STEP 19

INSTALL SECONDARY PERIMETER SEALS

- Carefully read and follow sealant manufacturers sealant recommendations.
- Make sure all silicone contact surfaces and joints have been cleaned with cleaner and method recommended by sealant manufacturer.
- Install backer rod and apply sealant to the areas indicated in **Detail 72**.
- Apply E3-0102 weep tubes, 2 per DLO at 1/4 points.



Detail 72



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Suite 2100
Atlanta, Georgia 30303
www.ykkap.com