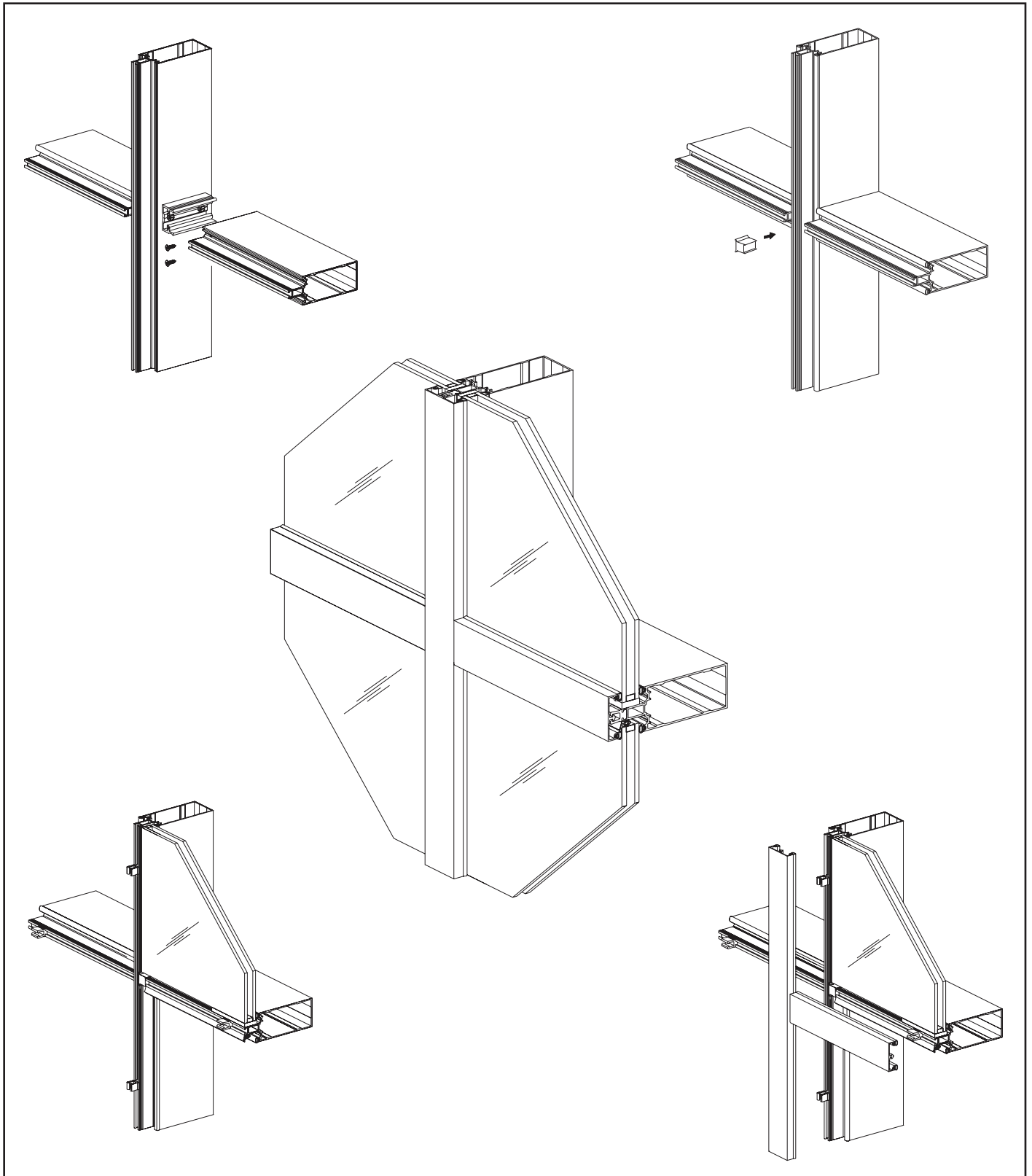


## YCW 700 Thermal Clip Curtain Wall System



## Installation Manual



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





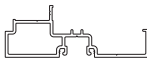

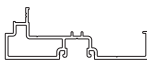






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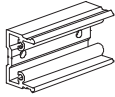

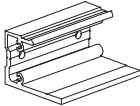

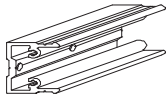

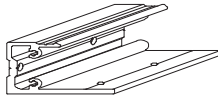

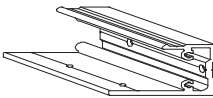

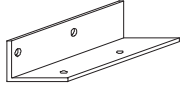
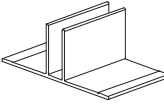
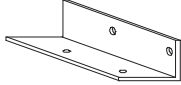
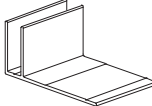

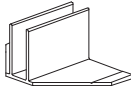
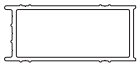



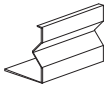



## **Installation Notes**

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. These installation instructions are of a general nature and may not cover every condition you will encounter. The shop drawings prepared should be specifically for the project.
6. Any material substitutions must be of equal or greater quality.
7. Make certain that material samples have been sent for compatibility and adhesion testing for all manufacturer's sealants involved. Make certain sealants have been installed in strict accordance with the sealant 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 (0"), minus one thirty second (-1/32") unless otherwise noted.
13. Check our website, [www.ykkap.com](http://www.ykkap.com), for the latest installation manual update prior to commencing work.




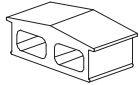

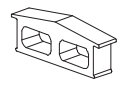
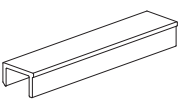

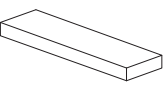

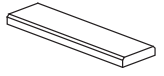
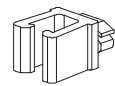

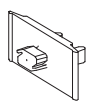
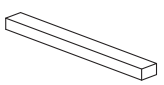
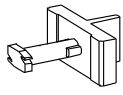

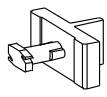
## FRAMING MEMBERS

	<b>Vertical / Horizontal</b> For 1" Glazing 2-1/4" x 4-15/16"	<b>E9-3201</b>		<b>Face Cover</b>	<b>E9-3211</b>
	<b>Head, Sill, Horizontal</b> For 1" Glazing 2-1/4" x 4-15/16"	<b>E9-3202</b>		<b>Perimeter Face Cover</b> For 1" Glazing	<b>E9-3212</b>
	<b>Vertical / Horizontal</b> For 1/4" Glazing 2-1/4" x 4-15/16"	<b>E9-3205</b>		<b>Perimeter Face Cover</b> For 1/4" Glazing	<b>E9-3213</b>
	<b>Head, Sill, Horizontal</b> For 1/4" Glazing 2-1/4" x 4-15/16"	<b>E9-3206</b>		<b>90° Corner Interior Snap Cover Base</b> Use with E9-3214	<b>E9-1618</b>
	<b>SSG Vertical Mullion</b> For 1/4" & 1" Glazing 2-1/4" x 4-15/16"	<b>E9-3207</b>		<b>Interior Mullion Cover</b> Use with E9-1618	<b>E9-3214</b>
	<b>Flush Filler</b> Use with E9-3202 & E9-3206	<b>E9-3203</b>		<b>Flush Filler</b> For 1" Glazing	<b>E9-3215</b>
	<b>1/4" Glazing Adaptor</b>	<b>E9-3204</b>		<b>Flush Filler</b> For 1/4" Glazing	<b>E9-3216</b>
	<b>SSG 1/4" Glazing Adaptor</b>	<b>E9-3208</b>		<b>Door Jamb</b> For 1" Glazing	<b>E9-3217</b>
	<b>SSG 90° Corner Adaptor</b>	<b>E9-3209</b>		<b>Door Jamb</b> For 1/4" Glazing	<b>E9-3218</b>
	<b>SSG 90° Outside Corner Trim</b>	<b>E9-2348</b>		<b>Snap-in Door Stop</b>	<b>AS-0417</b>
	<b>SSG Tongue Adaptor</b> For 1" Glazing	<b>E9-3219</b>		<b>Angle (1" x 1")</b> For 90° Corner	<b>E9-9302</b>
	<b>SSG Tongue Adaptor</b> For 1/4" Glazing	<b>E9-3220</b>		<b>Angle (1-1/2" x 1-1/2")</b> For 90° Corner	<b>E9-9303</b>












**ACCESSORIES**

	<b>Shear Clip</b>	<b>E1-1301</b>		<b>Mullion End Cap</b> For 1" Glazing	<b>E1-1310</b>
	<b>Shear Clip / "J" Anchor</b>	<b>E1-1302</b>		<b>Mullion End Cap</b> For 1/4" Glazing	<b>E1-1311</b>
	<b>Shear Clip</b> For SSG 90° Corner	<b>E1-1315</b>		<b>Joint Plug</b> For SSG 90° Corner 1" Glazing	<b>E1-1312</b>
	<b>Shear Clip / "J" Anchor</b> For SSG 90° Corner	<b>E1-1316</b>		<b>Left Joint Plug</b> For SSG 90° Corner 1/4" Glazing	<b>E1-1313</b>
	<b>Shear Clip / "J" Anchor</b> For SSG 90° Corner	<b>E1-1317</b>		<b>Right Joint Plug</b> For SSG 90° Corner 1/4" Glazing	<b>E1-1314</b>
	<b>Shear Angle</b> For SSG 90° Corner	<b>E1-1318</b>		<b>Mullion "T" Anchor</b>	<b>E1-1308</b>
	<b>Shear Angle</b> For SSG 90° Corner	<b>E1-1319</b>		<b>Jamb "F" Anchor</b>	<b>E1-1309</b>
	<b>Mullion Splice Sleeve</b> 6" Long	<b>E1-1303</b>		<b>Mullion "T" Anchor</b> For SSG 90° Corner Mullion	<b>E1-1320</b>
	<b>Mullion Reinforcement Sleeve</b> 29" Long	<b>E1-1304</b>		<b>Wind Load Anchor</b>	<b>E1-1204</b>
	<b>Splice Sleeve</b> For Face Cover	<b>E1-1305</b>		<b>Dead Load Anchor</b>	<b>E1-1205</b>
	<b>Splice Sleeve</b> For Perimeter Face Cover, 1" Glazing	<b>E1-1306</b>		<b>Jamb Anchor Plate</b>	<b>E1-3536</b>
	<b>Splice Sleeve</b> For Perimeter Face Cover, 1/4" Glazing	<b>E1-1307</b>		<b>Wind Load / Dead Load Anchor Slip Pad</b>	<b>E3-0103</b>

## ACCESSORIES

	<b>Interior / Exterior Gasket</b>	<b>E2-0330</b>		<b>Joint Plug</b> For 1/4" Glazing	<b>E2-0333</b>
	<b>SSG Glazing Spacer</b>	<b>E2-0176</b>		<b>SSG Joint Plug</b> For 1" Glazing	<b>E2-0334</b>
	<b>Water Deflector</b>	<b>E2-0331</b>		<b>SSG Joint Plug</b> For 1/4" Glazing	<b>E2-0335</b>
	<b>Setting Block Chair</b> For 1" Glazing Sill at End Bay	<b>E1-1321</b>		<b>Isolator Tape</b> (1/8" x 7/16") Use with E9-3212 & E9-3213	<b>E2-0239</b>
	<b>Setting Block</b> For 1" Glazing	<b>E2-0178</b>		<b>Isolator Tape</b> (1/8" x 11/16") Use with 90° Inside Corner	<b>E2-0356</b>
	<b>Side Block</b> For 1" Glazing	<b>E2-0134</b>		<b>Thermal Clip</b>	<b>E3-0040</b>
	<b>Setting Block</b> For 1/4" Glazing	<b>E2-0192</b>		<b>Temporary Glass Retainer</b>	<b>E3-0041</b>
	<b>Side Block</b> For 1/4" Glazing	<b>E2-0623</b>		<b>SSG Temporary Glass Retainer</b> For 1" Glazing	<b>E3-0001</b>
	<b>Joint Plug</b> For 1" Glazing	<b>E2-0332</b>		<b>SSG Temporary Glass Retainer</b> For 1/4" Glazing	<b>E3-0006</b>

**FASTENERS**

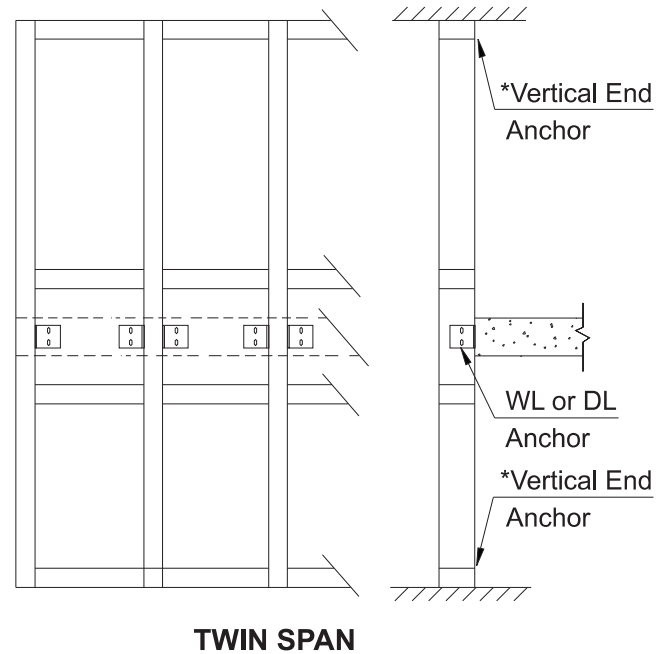
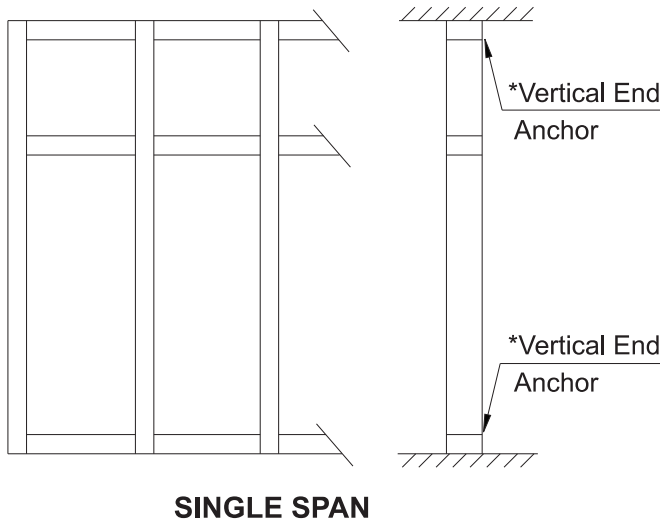
	<b>#8 x 3/8" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of E9-2348 to E9-3209	<b>PC-0806</b>		<b>#12 x 5/8" FHSMS</b> Type AB, Zinc Plated Steel For Attachment of Splice Sleeve, E1-1303	<b>FC-1210</b>
	<b>#10 x 3/8" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of E9-1618 to Mullion	<b>PC-1006</b>		<b>#12 x 1-1/4" FHSMS</b> Type AB, Zinc Plated Steel For Attachment of Horizontal to Shear Clip	<b>FC-1220</b>
	<b>#10 x 5/8" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of E9-3208 to E9-3207	<b>PC-1010</b>		<b>1/4" -20 x 5/8" HWHS</b> Type F, Zinc Plated Steel For Attachment of Shear Clip to Vertical	<b>HF-2510-W1</b>
	<b>#10 x 1-1/2" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of E9-3209 to E9-3207	<b>PC-1024</b>		<b>1/4" -20 x 1" HWHS</b> Type F, Zinc Plated Steel For Attachment of Shear Clip to Vertical	<b>HF-2516-W1</b>
	<b>#12 x 1/2" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of 90° Corner Shear Clips	<b>PC-1208</b>		<b>1/4" Flat Washer</b> Zinc Plated Steel For Attachment of Shear Angle to SSG 90° Vertical	<b>WW-2500</b>
	<b>#8-32 x 1/2" FHTCS</b> Type F, Stainless Steel For Attachment of Face Cover Splice	<b>FF-0808-SS</b>			



## 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.



Larger units require being stick assembled with open back horizontals used in the last bay.

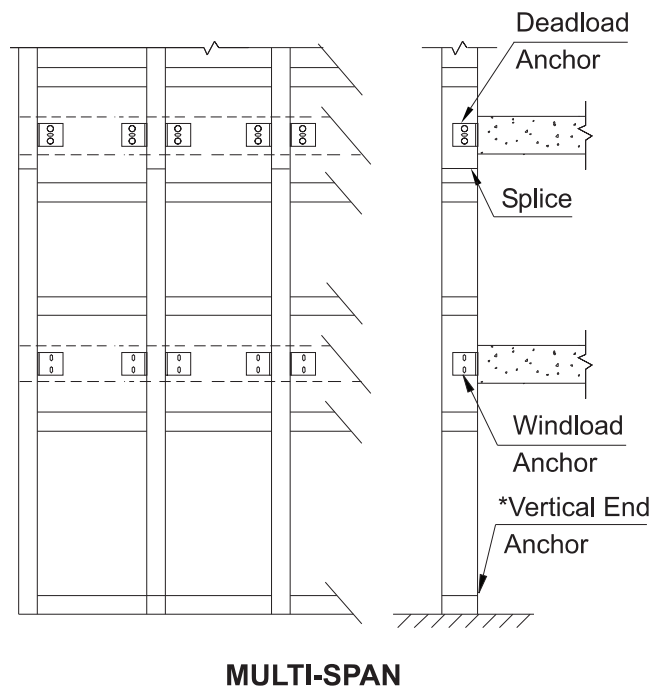
**Note:** If YKK does not prepare the shop drawings for the project, a qualified engineer must approve all anchors and mullions for wind load and dead load.

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

\*Vertical end attachment will be “J” anchor or mullion end anchor.

Smaller units may be assembled on the ground and tipped into place.

**Fabrication of YCW 700 varies depending on the type of vertical end attachment required for a given project.**



“J” Anchors, E1-1302, are for medium load conditions.

Mullion End Anchors “F”, E1-1309, & “T”, E1-1308, are for high load conditions.

## FRAME FABRICATION

### Using Mullion End Anchors:

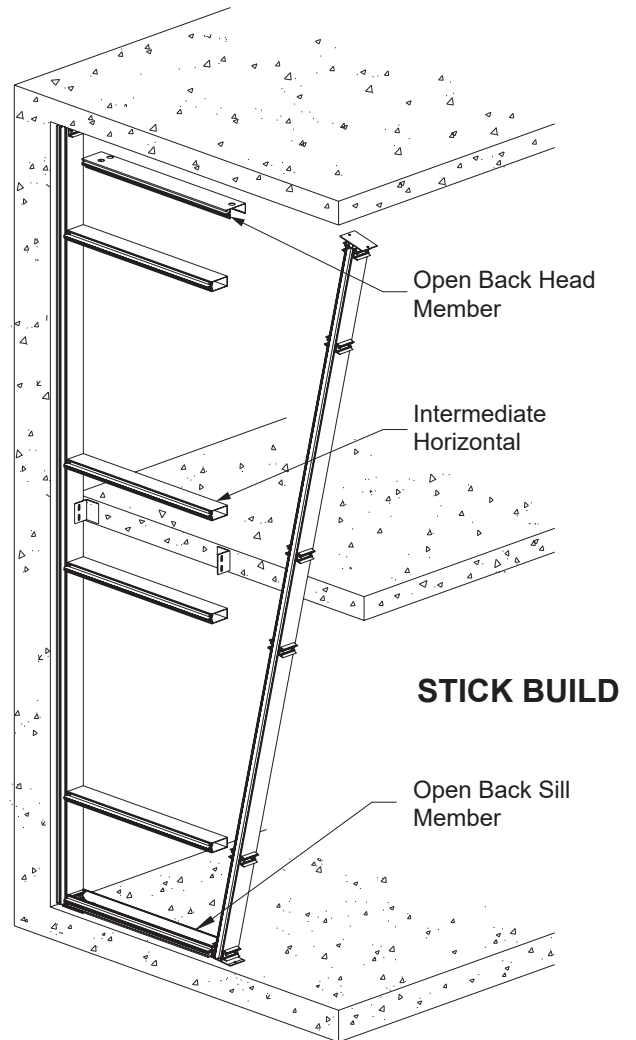
YCW 700 has three possible end anchoring conditions: “J”, “T”, and “F”. Anchors depend on end conditions, stress, and attachment.

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

#### Framing members:

- Open back members, E9-3202 & E9-3206, are used for all head and sill members.
- Closed horizontal members, E9-3201 & E9-3205, are used for all intermediate horizontals with the exception of end bays.
- Open back members, E9-3202 & E9-3206, are used for intermediate horizontals at end bays, to slide over the shear clips.

**Note:** When using stick build construction, check for plumb, level, and overall frame width every fifth mullion as the wall is installed. This helps to avoid the buildup of cumulative tolerance errors. Also check that all anchors are secure and firmly attached to the building substrate.



## FRAME FABRICATION

### FABRICATE VERTICAL MULLIONS

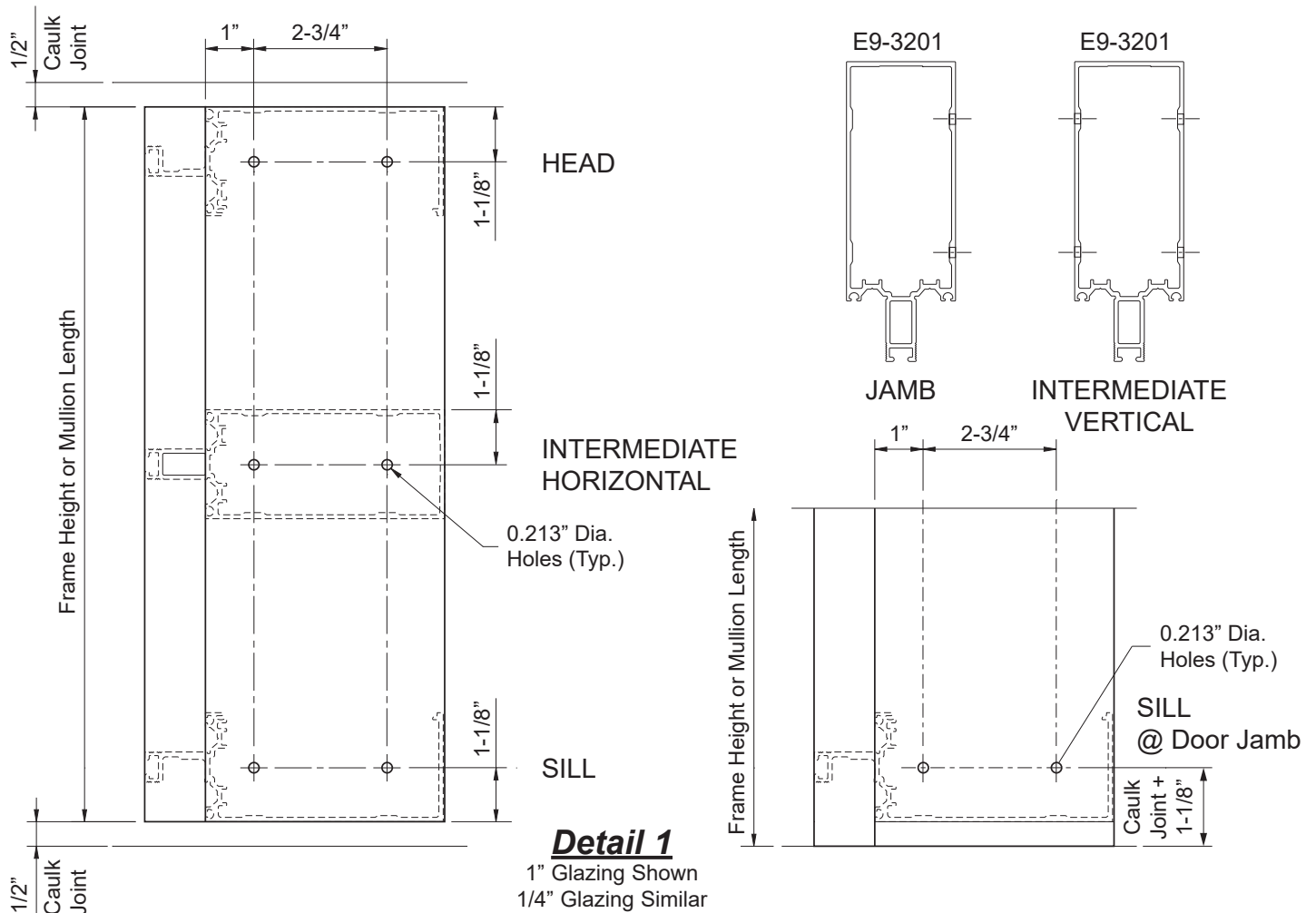
#### STEP 1

-Cut all vertical and jamb mullions to frame height as shown on shop drawings.  
Allow for 1/2" caulk joint around the frame & 1/2" joint at vertical splices.  
See **Detail 1**.

#### STEP 2

-Mullion hole locations for shear clips, E1-1301, and "J" anchor clip, E1-1302, are shown below  
-Drill 0.213" (#3) diameter holes for HF-2510-W1 fasteners at the locations indicated  
See **Detail 1**.

**Note:** Hole locations for shear clips and "J" anchors are the same.



## FRAME FABRICATION

### STEP 3

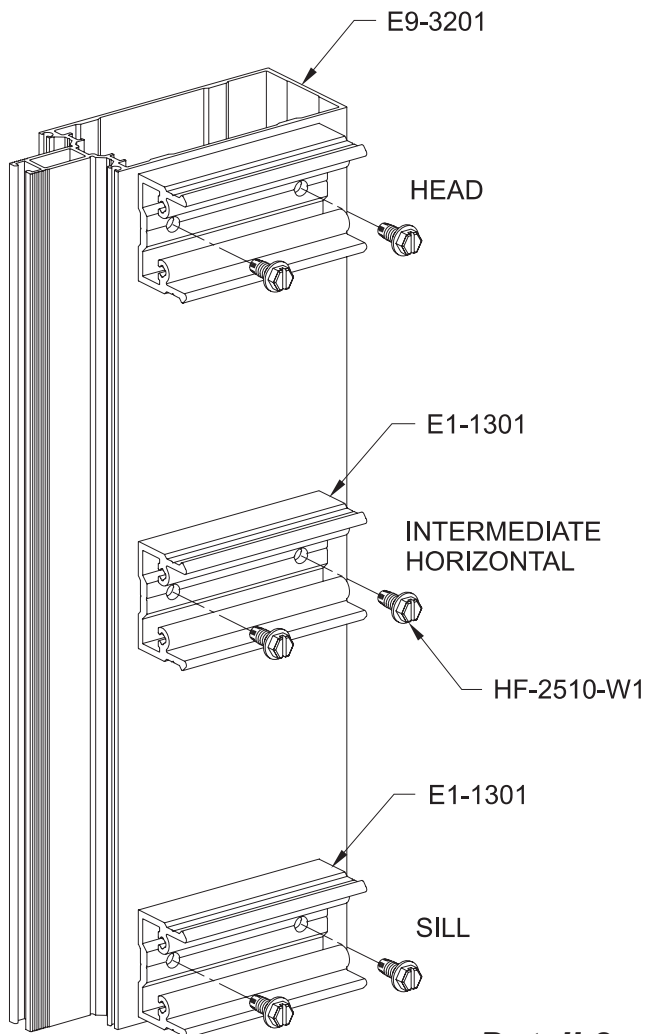
#### SHEAR CLIPS / “J” ANCHORS FOR HORIZONTALS

-Attach shear clips, E1-1301 and “J” anchors, E1-1302, to the vertical members using two HF-2510-W1 screws for each clip.

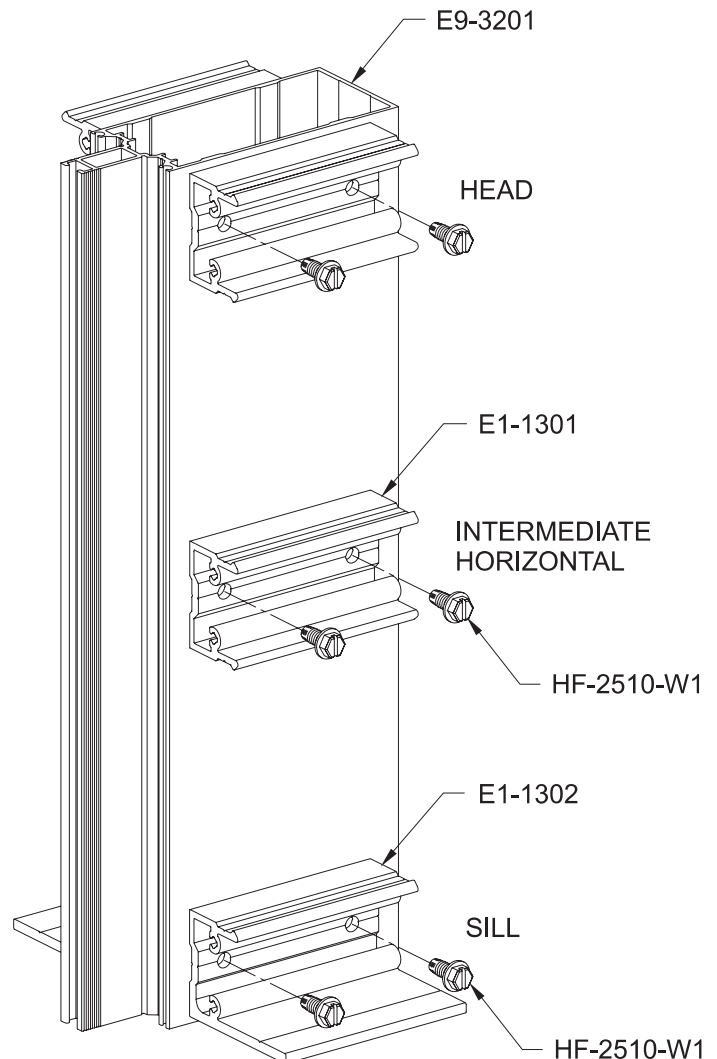
See **Detail 2**.

**Note:** “J” anchors may be used with jambs or intermediate verticals only at sill conditions.

**Jamb with “F” anchor  
at Head & Sill Shown**



**Mullion with “T” anchor at Head  
and “J” anchor at Sill Shown**



### **Detail 2**

1" Glazing Shown  
1/4" Glazing Similar

## FRAME FABRICATION

### STEP 4 USING STEEL REINFORCING

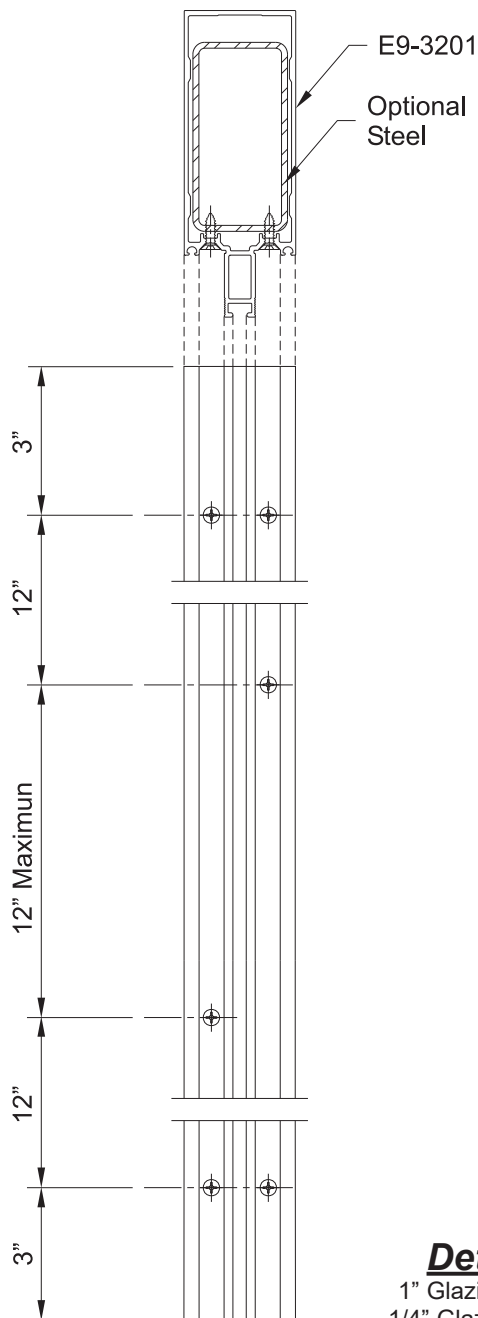
When engineering calculations require the vertical mullions to be reinforced with steel, secure the reinforcing to the vertical using the appropriate fasteners.

- Start 3" from both ends of the mullion and install a flathead fastener on both sides of the tongue.
- Stagger the fasteners on either side of the tongue going up the vertical, maximum 12" apart.
- Seal all screw heads with sealant.

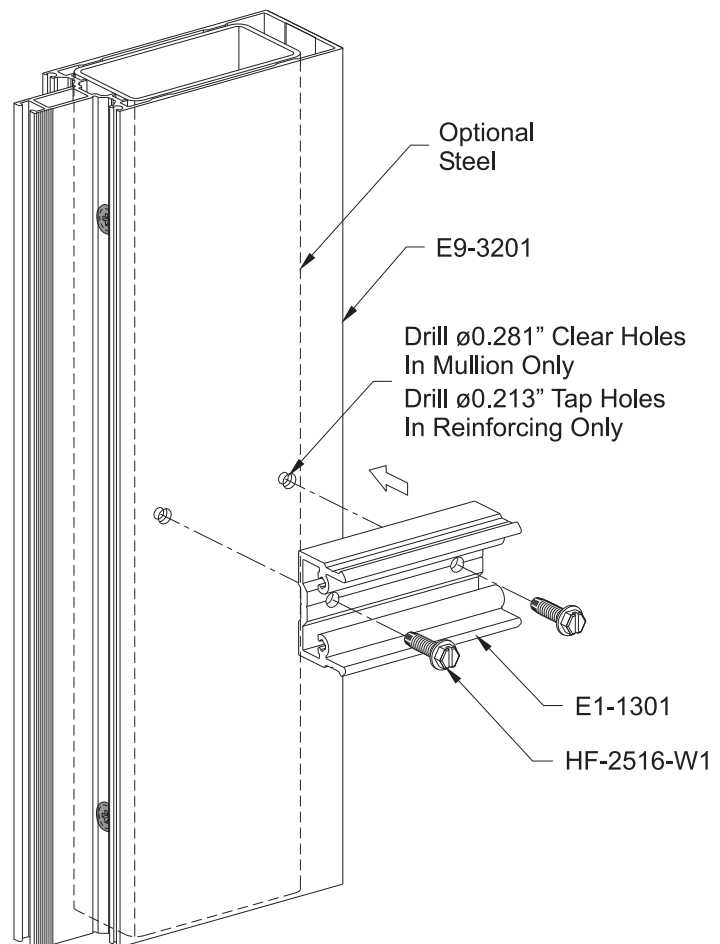
Optional reinforcing is also attached on the sides of the mullion with the attachment of shear clips and "J" anchors.

- Drill 0.281" diameter (9/32 bit) clear holes in the mullion as previously shown in **Detail 1**.
  - Match drill 0.213" (#3) diameter tap holes into the reinforcing.
  - Attach shear clips / "J" anchors using HF-2516-W1 screws.
- See **Detail 3**.

**Note:** Exact size of reinforcing and the size and location of fasteners to be determined by a qualified engineer.



**Detail 3**  
1" Glazing Shown  
1/4" Glazing Similar



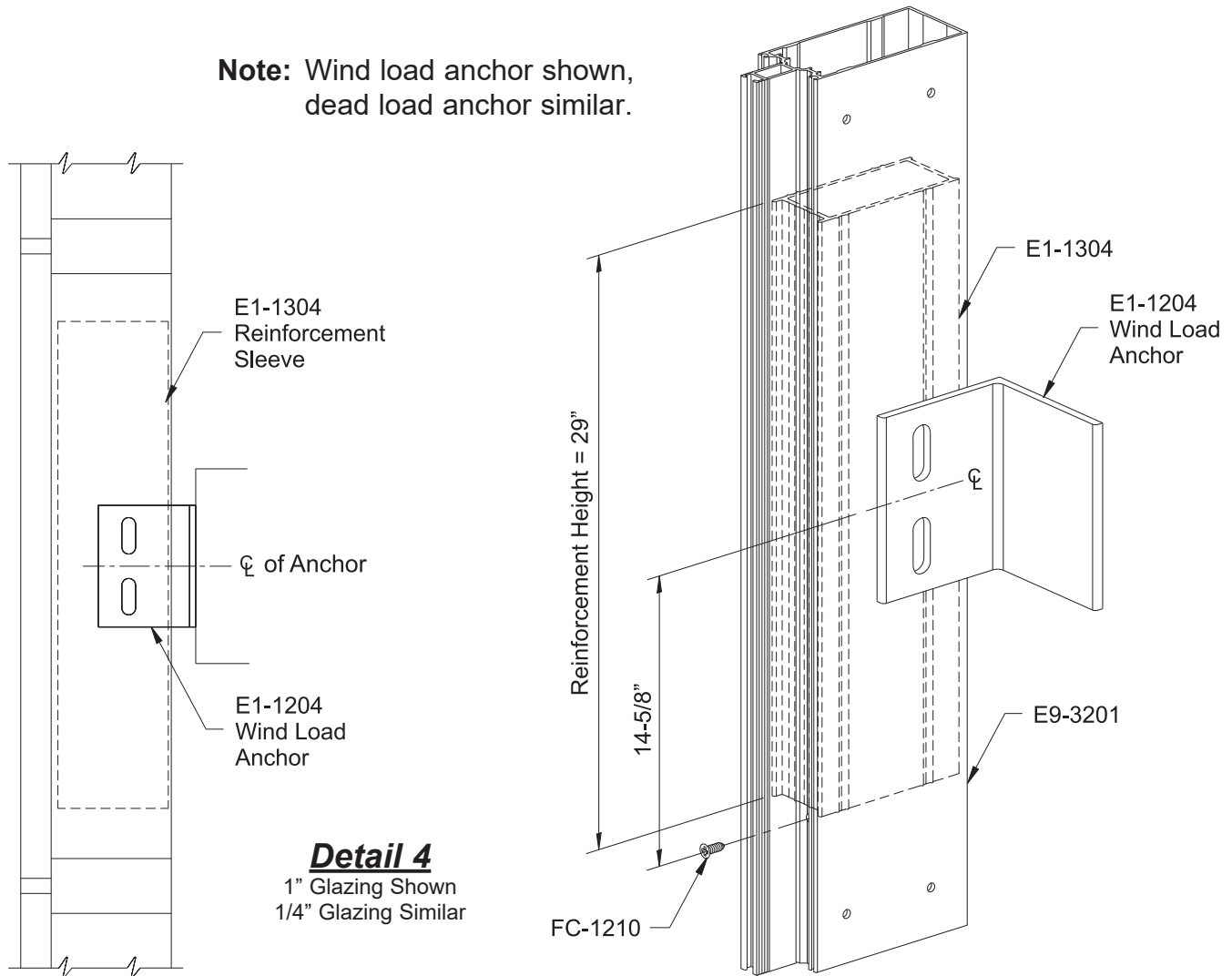
## FRAME FABRICATION

### STEP 5

#### USING OPTIONAL REINFORCEMENT SLEEVE, E1-1304

If engineering calculations require the vertical mullions to be reinforced with additional aluminum, E1-1304, the reinforcement sleeve may be used at wind load / dead load points. Checking stress levels at point load areas will require different anchors or possibly steel reinforcing. A qualified engineer should do these calculations.

**Note:** Wind load anchor shown, dead load anchor similar.



-Reference your shop drawings for the exact location of the centerline of the wind load / dead load anchors.

-From the centerline measure down 14-5/8" along the "V-groove" of the screw raceway on the face of the mullion and mark the location.

-Drill a 0.189" (#12) diameter hole and install an FC-1210 fastener to properly locate the sleeve. Seal over the screw head.

**Note:** The reinforcement sleeve must be inserted into the mullion before shear clips are attached. See **Detail 4**.

## FRAME FABRICATION

### STEP 6

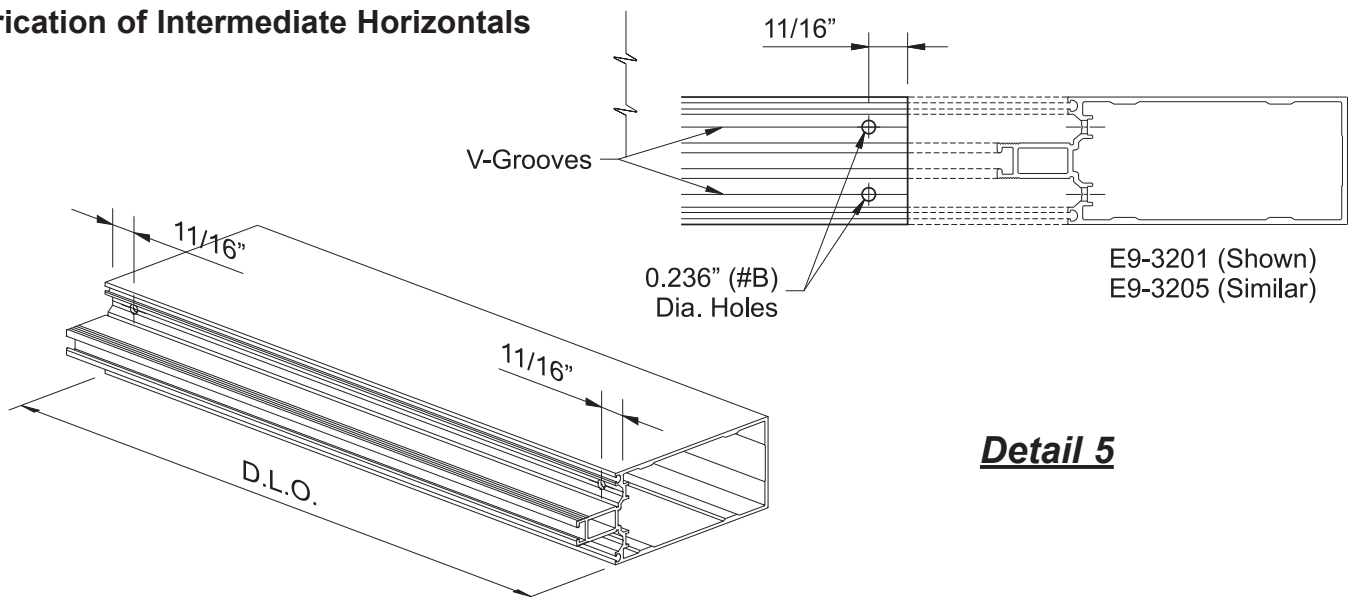
### FABRICATION OF HORIZONTALS

- Cut all flush fillers\* to the daylight opening minus (-) 1/32".
- Drill two 0.236" (#B) diameter holes along the V-Grooves above and below the mullion tongue on both ends of the mullion to attach members to the shear clips.

See **Details 5 & 6**.

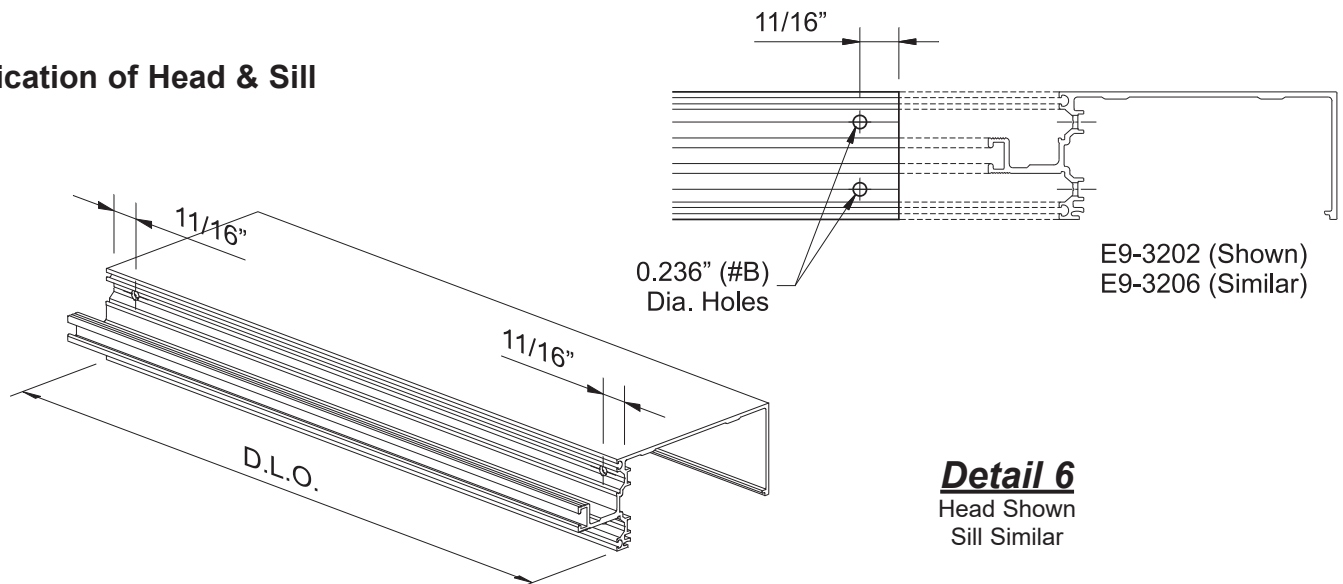
**Note:** \*Flush fillers are cut shorter at end bay conditions, see **Details 9 & 10** on **Page-12**.

### Fabrication of Intermediate Horizontals



**Detail 5**

### Fabrication of Head & Sill



**Detail 6**  
Head Shown  
Sill Similar

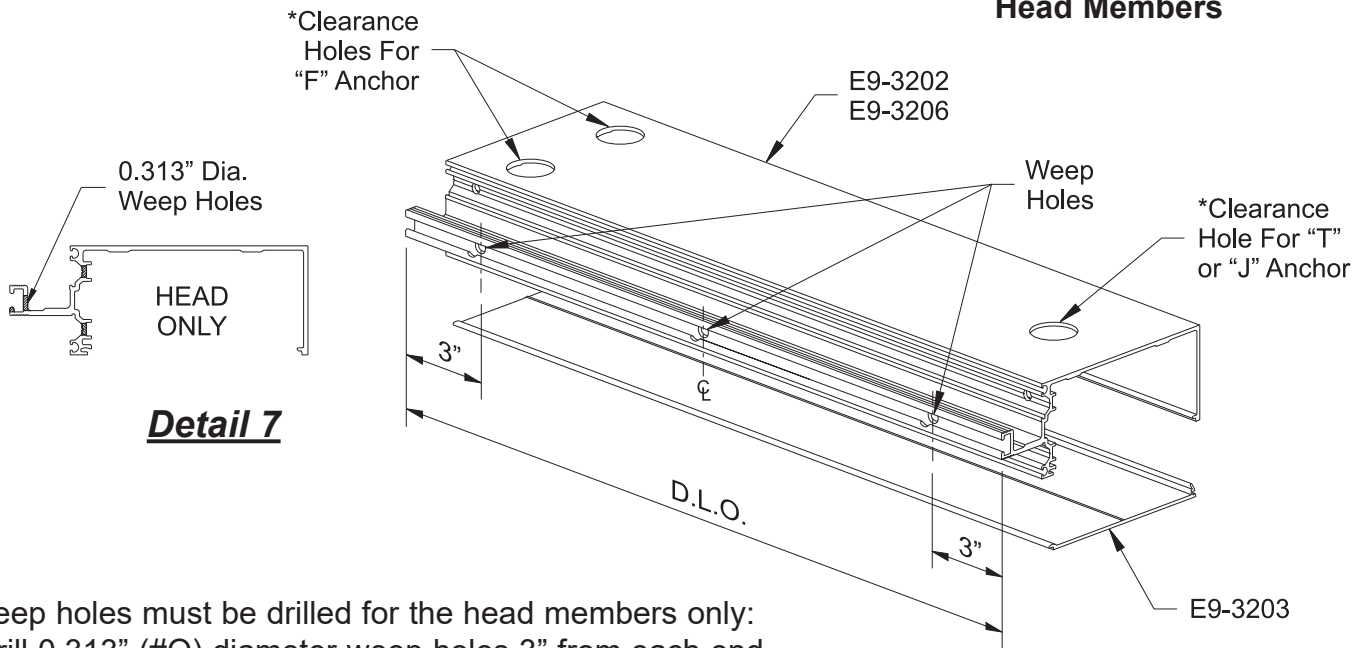
## FRAME FABRICATION

### STEP 7

#### FABRICATION OF HEAD AND SILL

##### Fabrication of Intermediate Horizontals

#### Additional Fabrication of Head Members



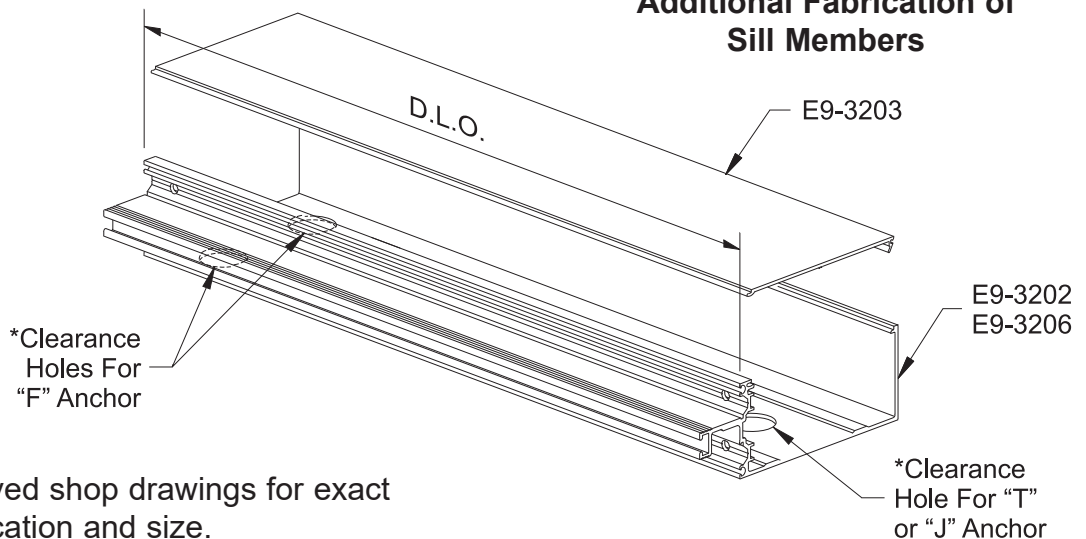
Weep holes must be drilled for the head members only:  
 -Drill 0.313" (#0) diameter weep holes 3" from each end and one in the middle of the head member as shown in **Detail 7**.

Clearance holes for anchor bolts and nuts must be drilled on both head and sill members:  
 -Drill appropriate size clearance holes on each end of the mullion to clear anchor bolts and nuts.  
 1-1/8" diameter holes for 3/8" bolts.  
 1-7/16" diameter holes for 1/2" bolts

See **Details 7 & 8**.

#### Additional Fabrication of Sill Members

#### Detail 8



**Note:** \*Consult approved shop drawings for exact anchor hole location and size.



## FRAME FABRICATION

### STEP 8

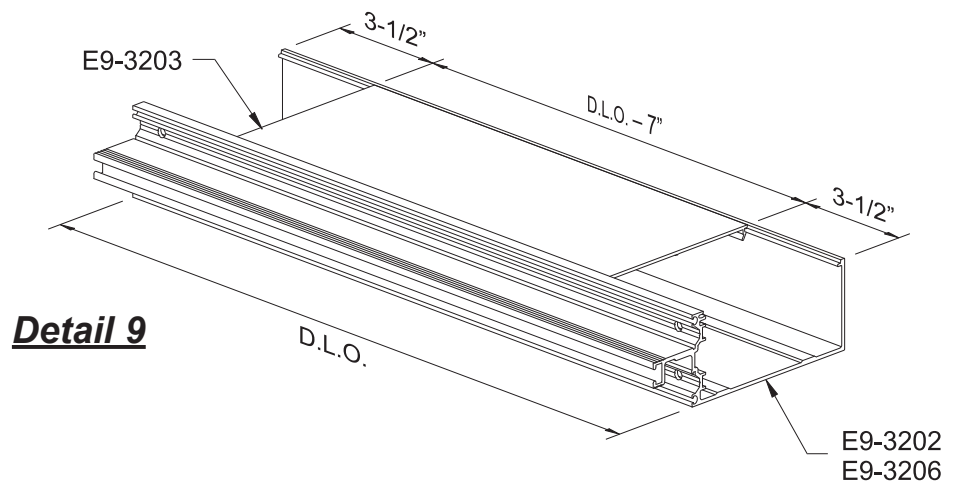
#### FABRICATION OF HEAD AND SILL AT END BAYS

At end bays when using stick built construction, the head and sill members must be turned over from their normal orientation to clear the shear clips already attached to the verticals.

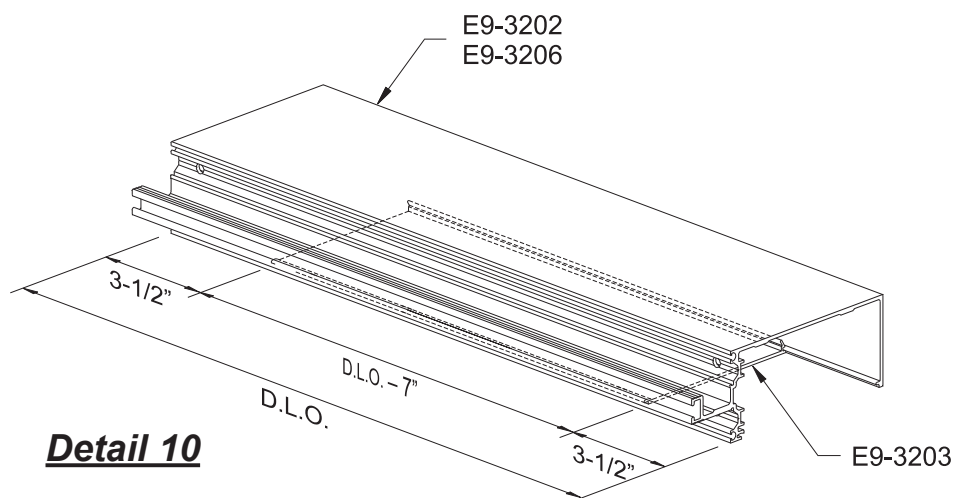
-The flush fillers must also be cut short to clear any anchor bolts or nuts:  
Daylight opening minus (-) 7".

-Snap in the flush filler, E9-3203, centered along the horizontal to support backer rod and caulking.  
See **Details 9 & 10**.

#### Fabrication of Head At End Bays



#### Fabrication of Sill At End Bays

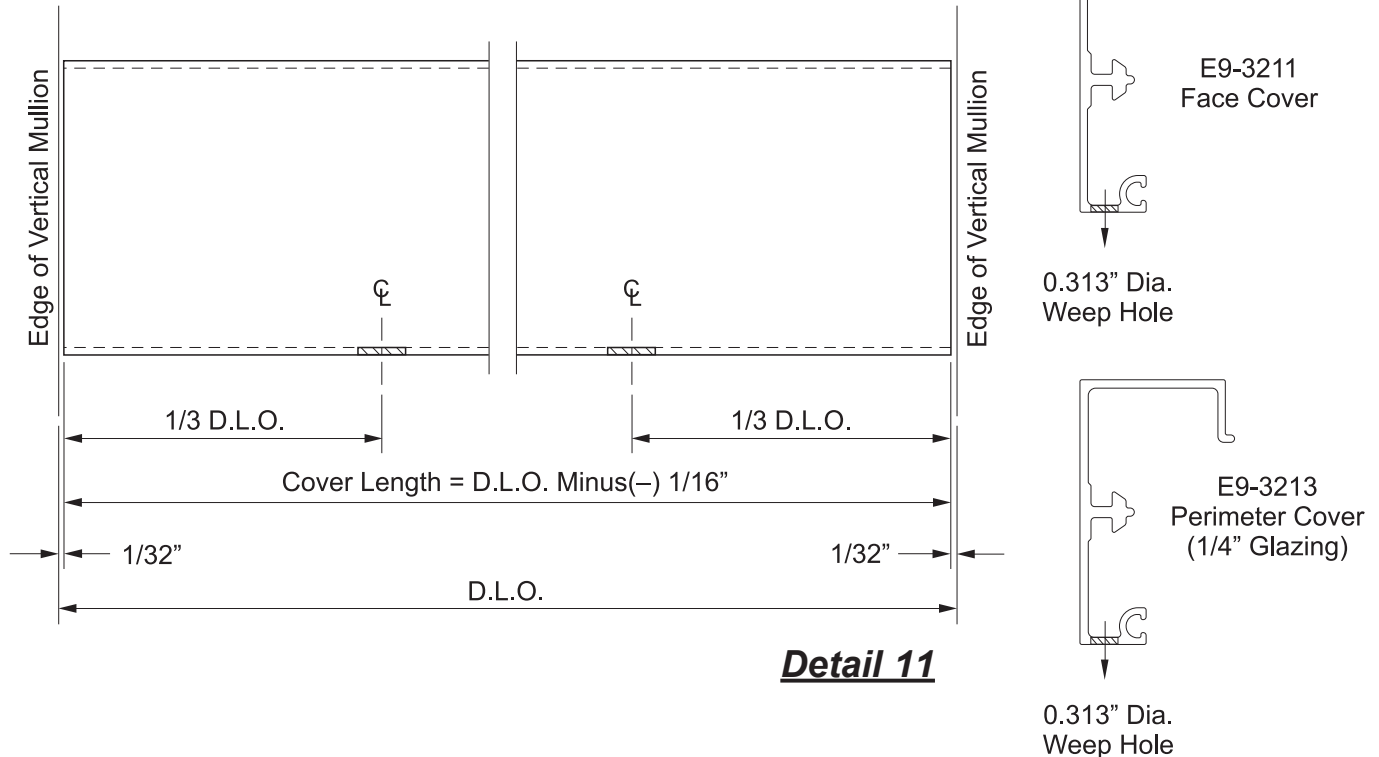


## FRAME FABRICATION

### STEP 9

#### FABRICATION OF HEAD AND SILL AT END BAYS

- Cut all horizontal covers 1/16" less than daylight opening as shown on shop drawing.
  - Drill two 0.313" (#O) diameter weep holes at 1/3 points of cover.
- See **Detail 11**.

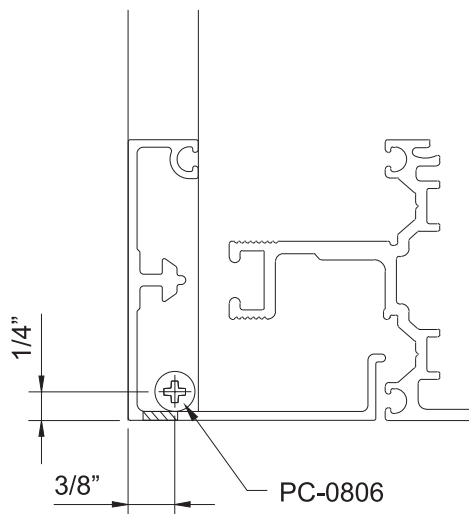


**Detail 11**

### STEP 10

#### FABRICATE VERTICAL FACE COVERS

- Cut all vertical covers to the same length as the vertical mullions unless the verticals are spliced.
- Drill a 0.141" (#28) diameter hole in the vertical covers at the sill as shown in **Detail 12**.
- Install one PC-0806 fastener at this location to prevent the vertical covers from sliding down due to thermal expansion and contraction.
- If vertical mullions are spliced, cut covers to accommodate for 1/2" expansion joint.
- Install one PC-0806 fastener into the vertical cover at the first intermediate horizontal cover above the splice, similar to the sill condition shown in **Detail 12**, to prevent the face cover from sliding down.



**Detail 12**

## FRAME FABRICATION

### STEP 11

#### FABRICATE VERTICAL FOR SPLICES

Install splice locator screw:

- From the top of the vertical, measure down 2-3/4" along the screw raceway on the face of the mullion and mark the location.
- Drill a 0.189" (#12) diameter hole for the splice locator screw.

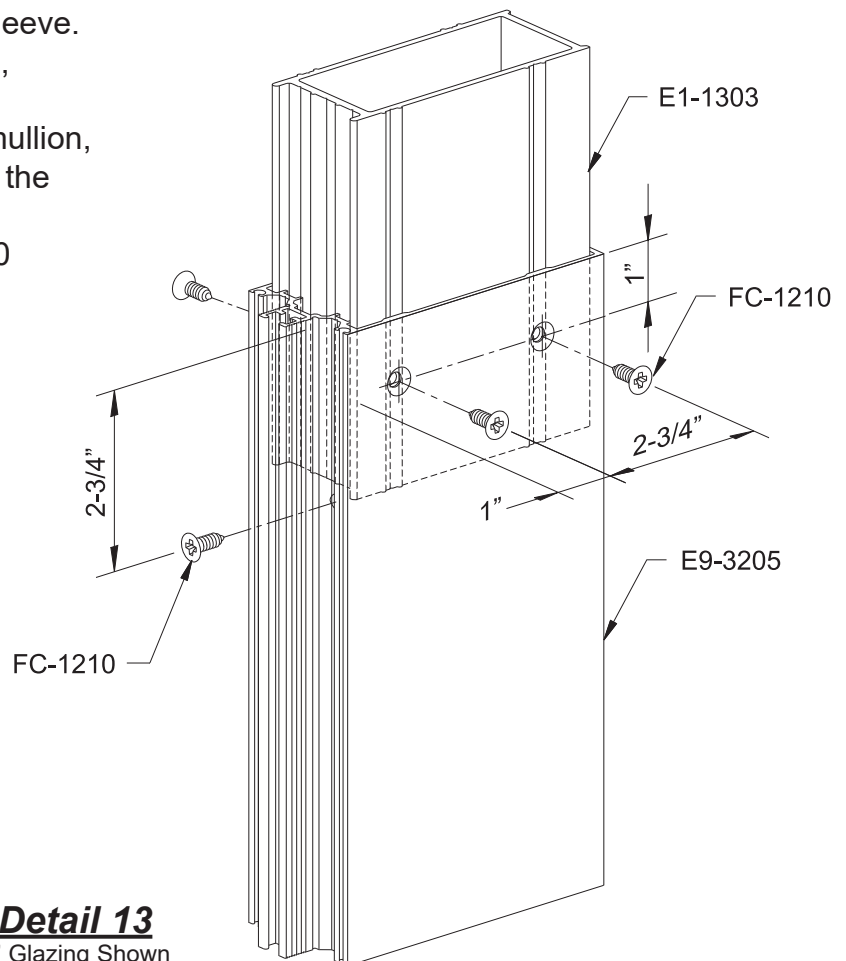
Drill holes for splice attachment:

- From the top of the vertical, measure down 1" and draw a line across the side of the mullion. From the face of the mullion, measure in 1" along the line and mark the location; measure in 2-3/4" from the first mark for the second hole location.
- Drill a 0.236" (#B) diameter hole at each location and countersink for a #12 flathead fastener.
- Repeat the previous two steps on the other side of the vertical.

Install splice sleeve:

- Install one FC-1210 fastener into the face of the mullion to properly locate the splice sleeve.
- Carefully slide the splice sleeve, E1-1303, down into the end of the mullion.
- Using the holes previously drilled in the mullion, drill 0.189" (#12) diameter pilot holes into the splice sleeve.
- Attach the splice sleeve with two FC-1210 fasteners on each side of the mullion.

See **Detail 13**.



### **Detail 13**

1" Glazing Shown  
1/4" Glazing Similar

## FRAME INSTALLATION

### STEP 12

#### TYPICAL VERTICAL SPLICE

- Clean all surfaces as recommended by the sealant manufacturer.
- Apply bond breaker tape to the faces of the splice sleeves.

#### Assemble Mullion Splice:

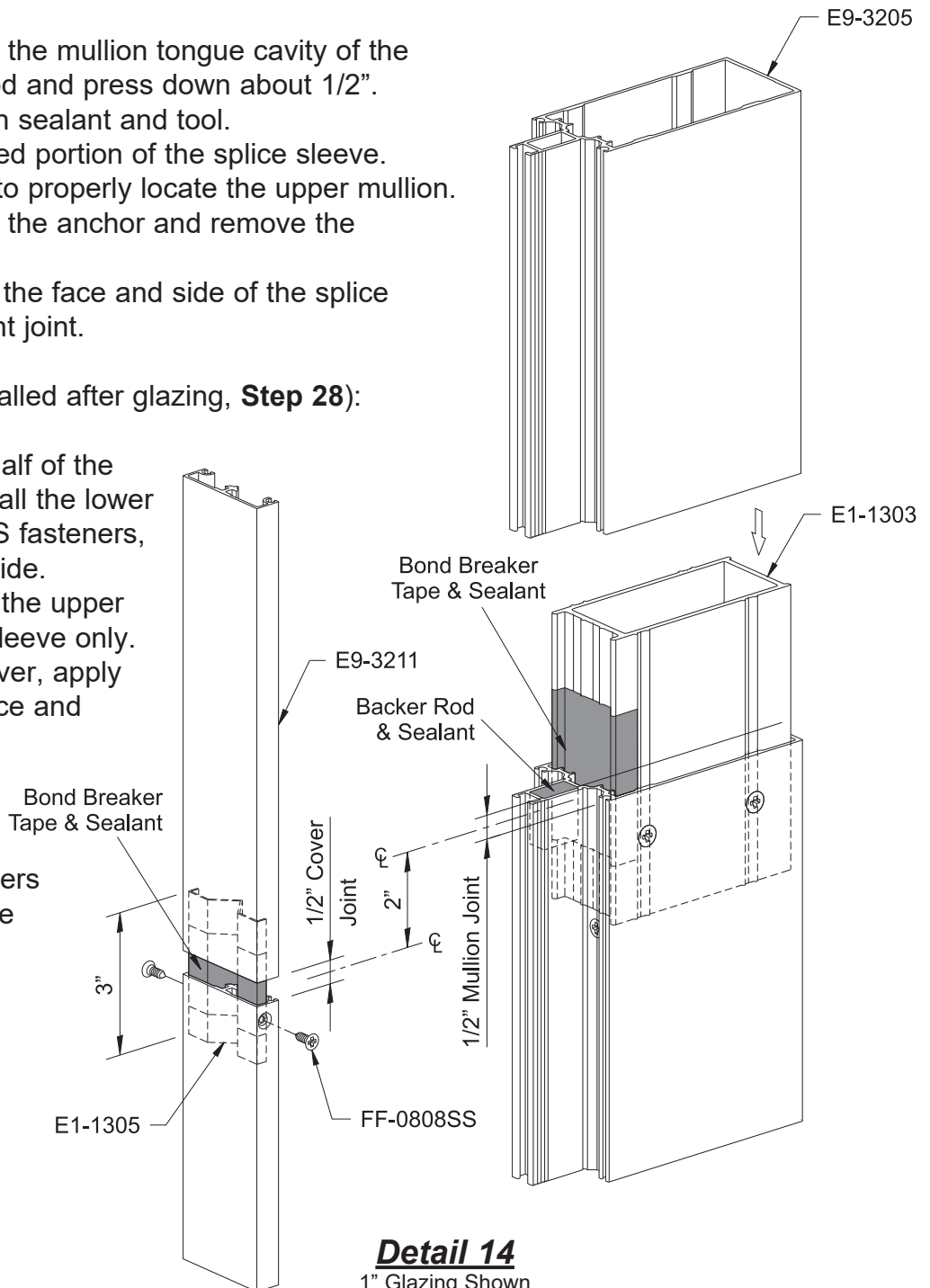
- If using E9-3201 mullion, fill the mullion tongue cavity of the lower vertical with backer rod and press down about 1/2".
- Fill the rest of the cavity with sealant and tool.
- Apply sealant to the projected portion of the splice sleeve.
- Use a 1/2" temporary shim to properly locate the upper mullion.
- Secure the upper mullion to the anchor and remove the temporary shim.
- Apply and tool sealant onto the face and side of the splice sleeve to create a water tight joint.

#### Assemble Cover Splice (installed after glazing, **Step 28**):

- Install the lower face cover.
- Apply sealant to the lower half of the cover splice sleeve and install the lower cover using two FF-0808-SS fasteners, countersunk, one on each side.
- Apply bond breaker tape to the upper portion of the cover splice sleeve only.
- After installing the upper cover, apply and tool sealant onto the face and sides fo the splice sleeve.

See **Detail 14**.

**Note:** Mullions and face covers are staggered at splice locations.



#### **Detail 14**

1" Glazing Shown  
1/4" Glazing Similar

## FRAME INSTALLATION

### STEP 13

### INSTALL MULLION END CAPS

-Apply sealant to the reglets at the top and bottom of the mullion prior to installing the mullion end caps.

E1-1310 for E9-3201, 1" glazing

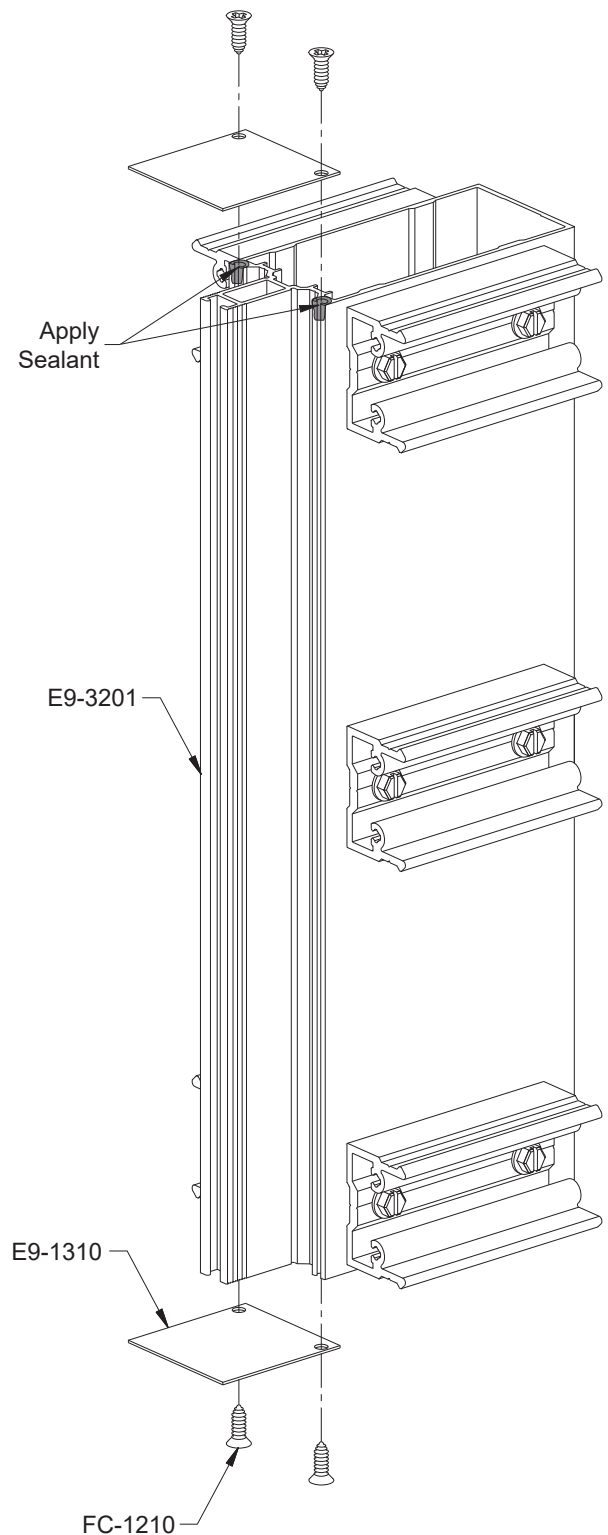
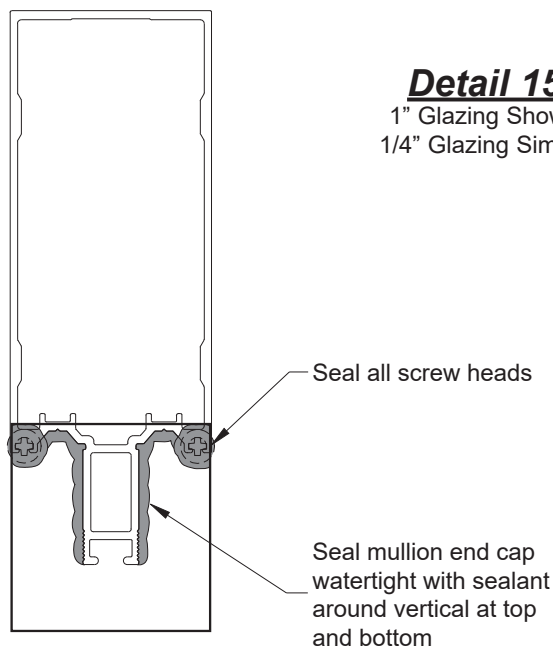
E1-1311 for E9-3205, 1/4" glazing

-Install the mullion end caps onto the mullion at the top and bottom using two FC-1210 fasteners prior to erecting the verticals/

-Seal all screw heads.

-Apply and tool sealant along the intersection of the end cap and mullion at the top and bottom of the vertical.

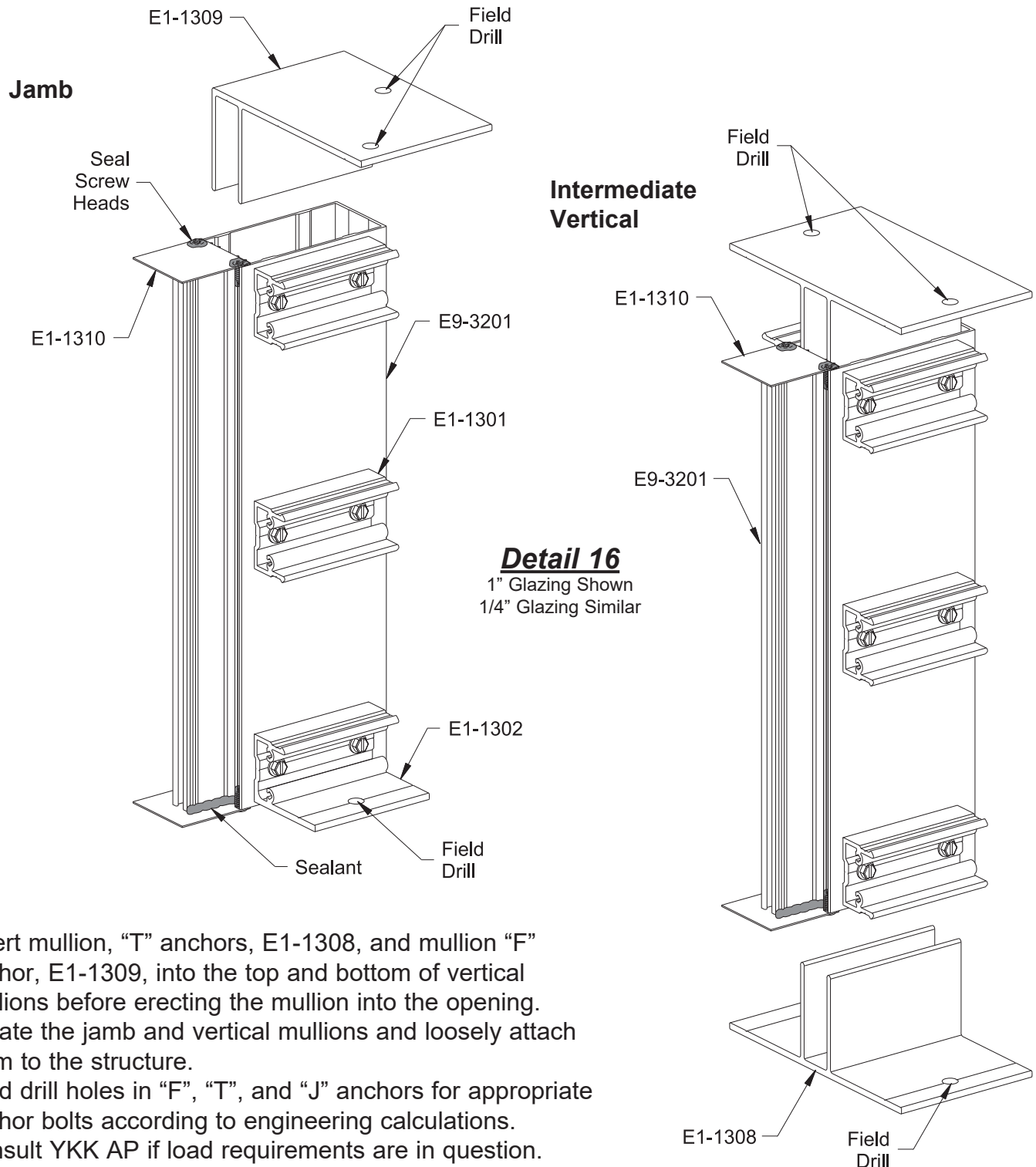
See **Detail 15**.



## FRAME INSTALLATION

### STEP 14

#### FABRICATION OF HEAD AND SILL



- Insert mullion, "T" anchors, E1-1308, and mullion "F" anchor, E1-1309, into the top and bottom of vertical mullions before erecting the mullion into the opening.
- Locate the jamb and vertical mullions and loosely attach them to the structure.
- Field drill holes in "F", "T", and "J" anchors for appropriate anchor bolts according to engineering calculations. Consult YKK AP if load requirements are in question.

See **Detail 16**.

## FRAME INSTALLATION

### STEP 14A 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.

-Clean all contact surfaces as recommended by sealant manufacturer.

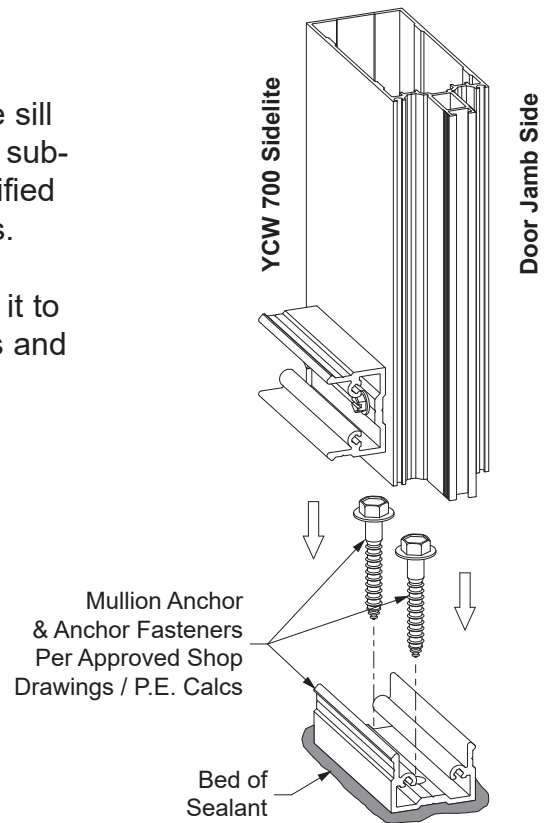
-Set the mullion on the anchor, directly onto the sill substrate in a bed of sealant. Avoid using shims at this location.

See **Detail 17**.

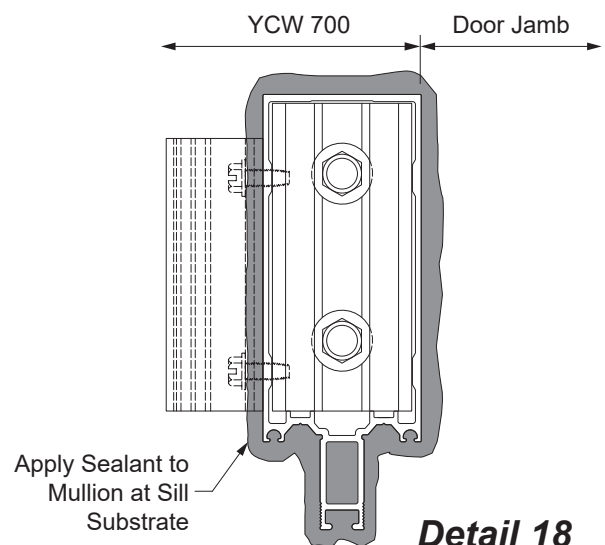
-Refer to the approved shop drawings for any additional fasteners required at anchor.

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

See **Detail 18**.



**Detail 17**



**Detail 18**

## FRAME INSTALLATION

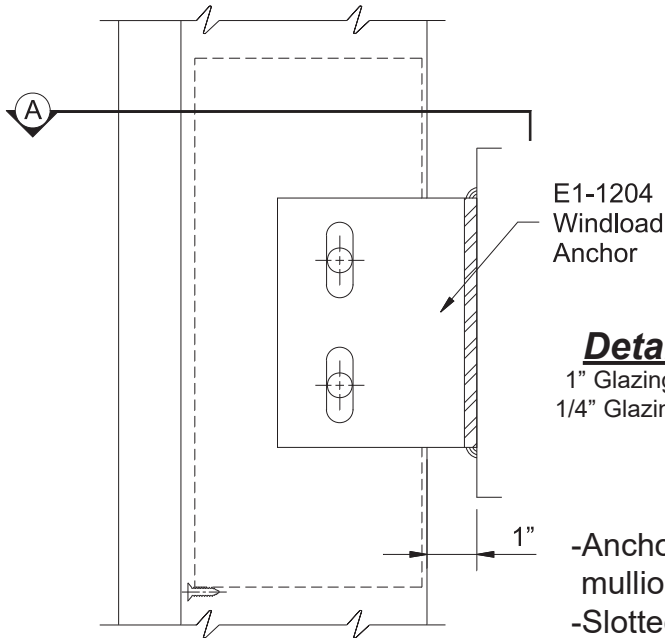
### STEP 15

#### INSTALL WIND LOAD / DEAD LOAD ANCHORS

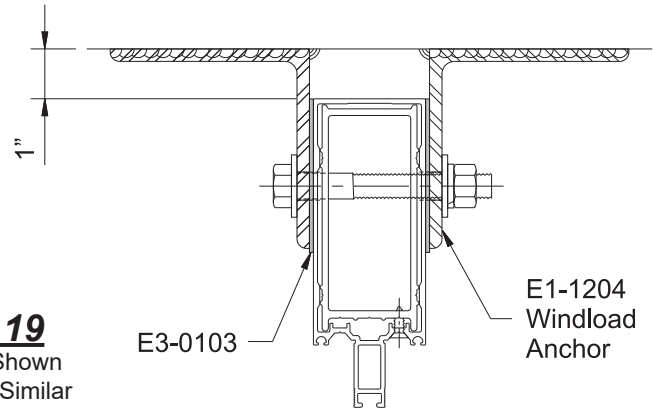
-Install steel mullion anchor clips:

Wind load anchor, E1-1204. See **Detail 19**.

Dead load anchor, E1-1205. See **Detail 20**.

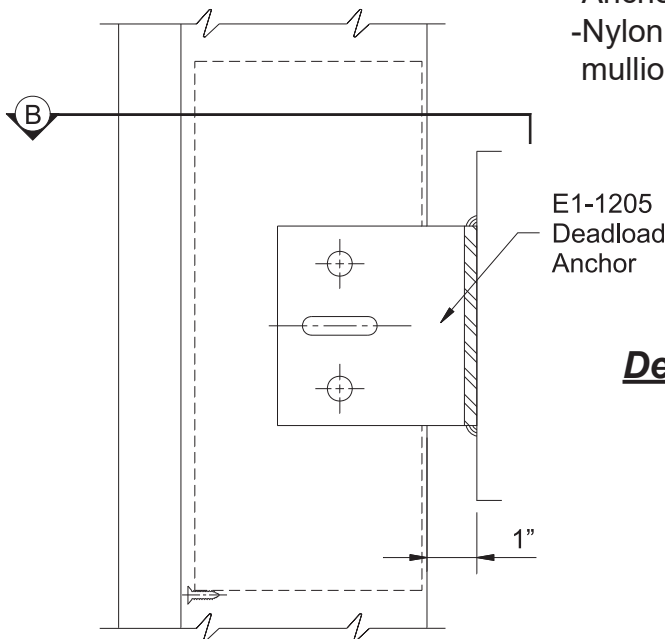


**Detail 19**  
1" Glazing Shown  
1/4" Glazing Similar

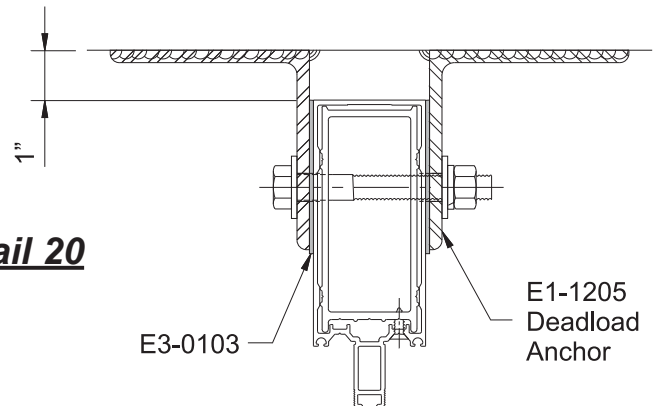


**SECTION A - Wind Load Anchor**

- Anchor clips are normally template or line set before mullions are hung.
- Slotted or drilled leg of clip must be set at 90° to offset leg. See shop drawings for details of anchor attachment.
- Install plumb and align vertical mullions, drill appropriate size holes for anchor bolts as shown in shop drawings.
- Anchor bolts are fastened after horizontals are attached.
- Nylon slip pads, E3-0103, must be installed between mullion and anchors.



**Detail 20**



**SECTION B - Dead Load Anchor**

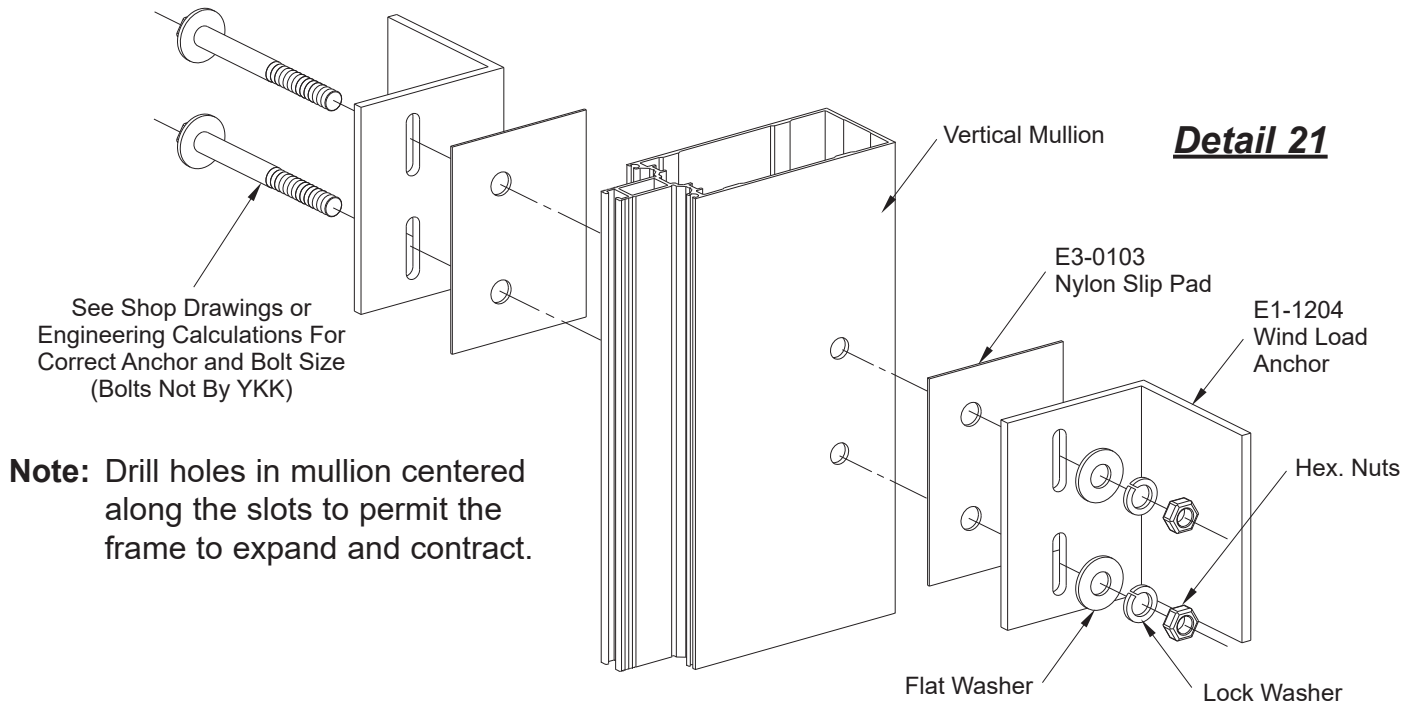


## FRAME INSTALLATION

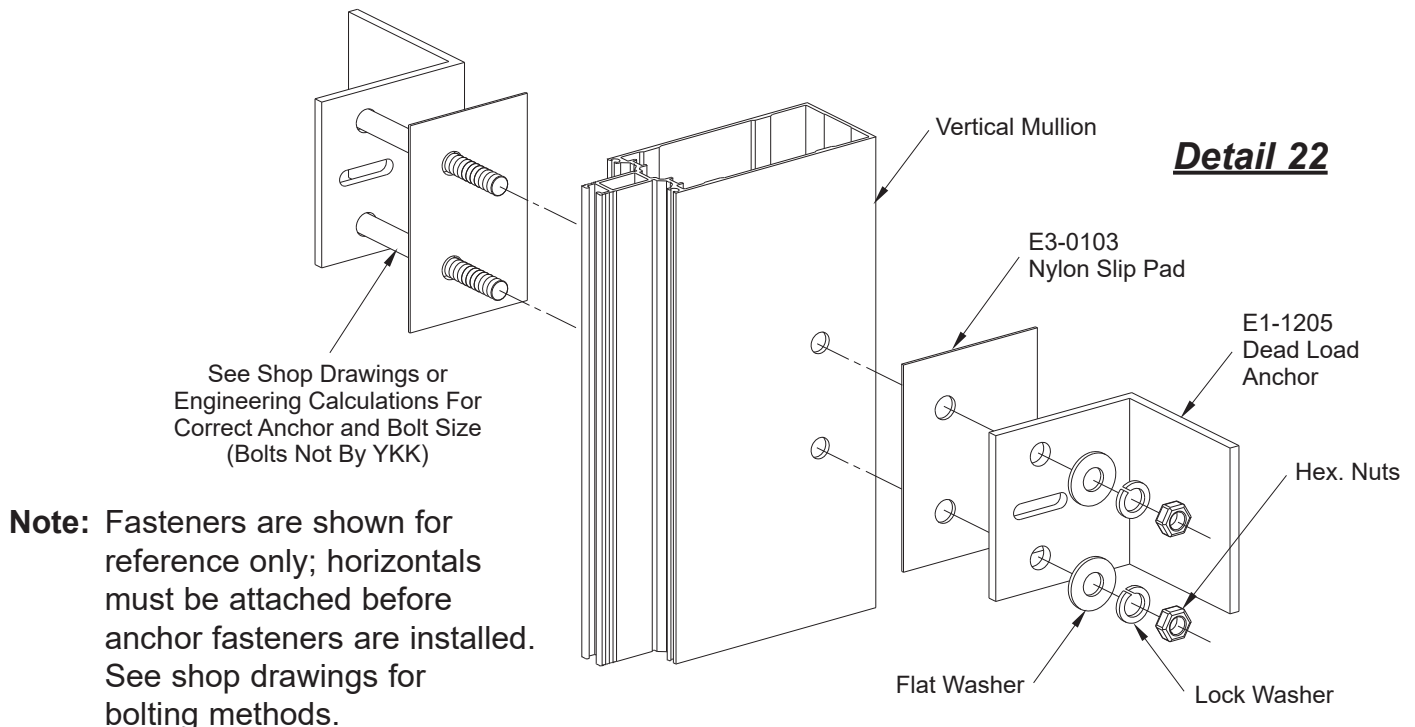
### STEP 15 (Continued)

### INSTALL WIND LOAD / DEAD LOAD ANCHORS

#### TYPICAL WIND LOAD ANCHOR



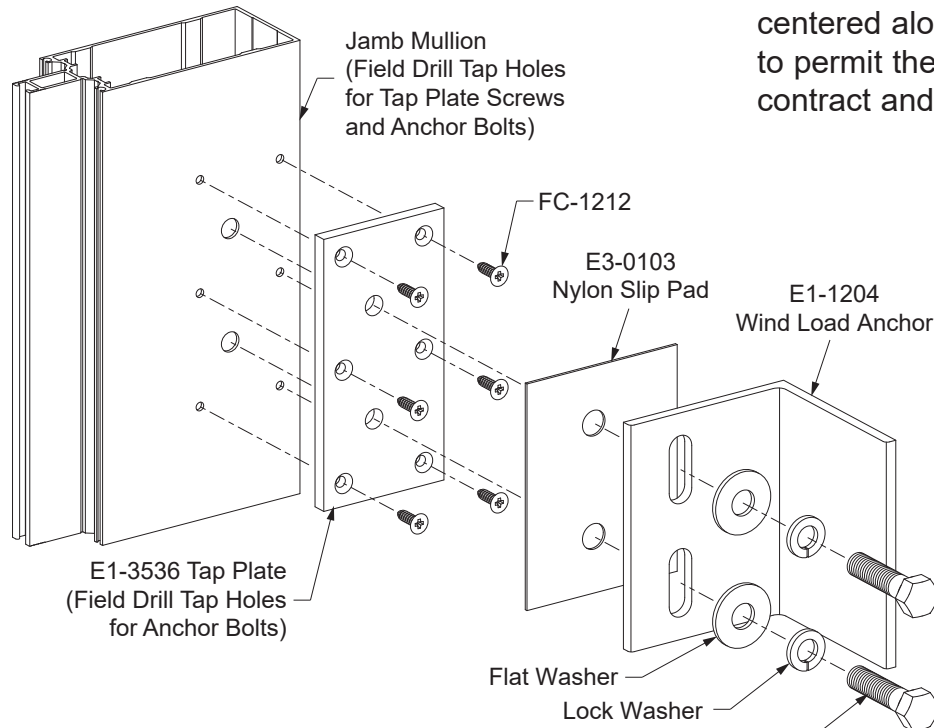
#### TYPICAL DEAD LOAD ANCHOR



## FRAME INSTALLATION

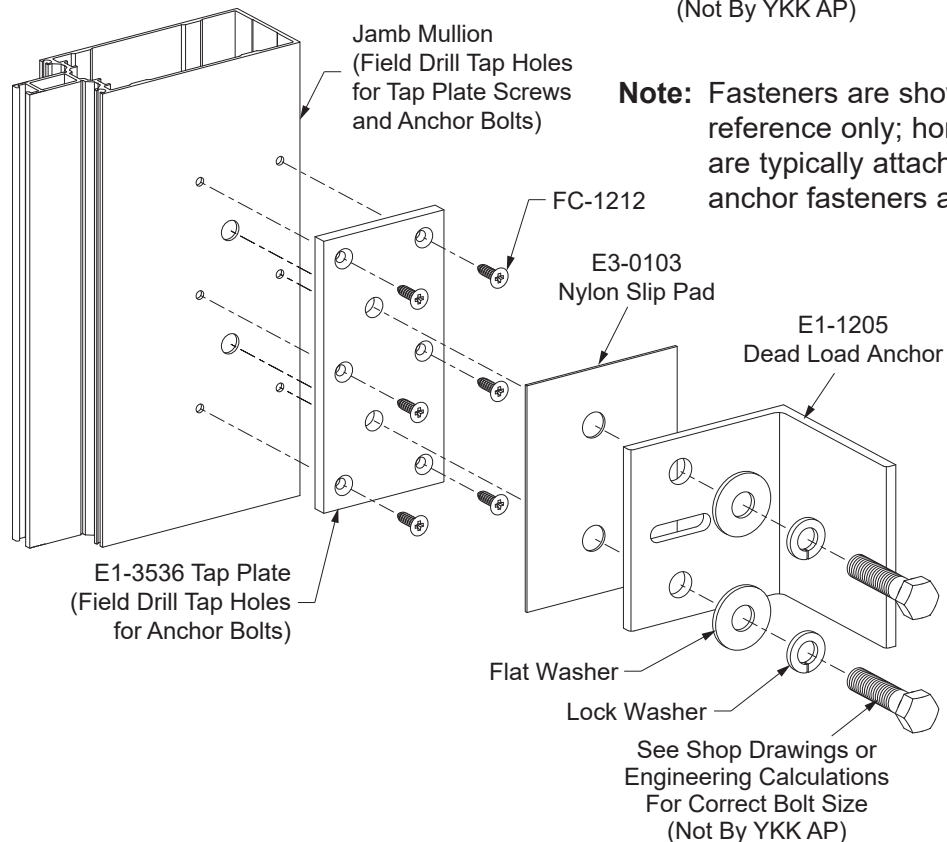
### JAMB WIND LOAD ANCHOR

**Detail 21A**



### JAMB DEAD LOAD ANCHOR

**Detail 22A**

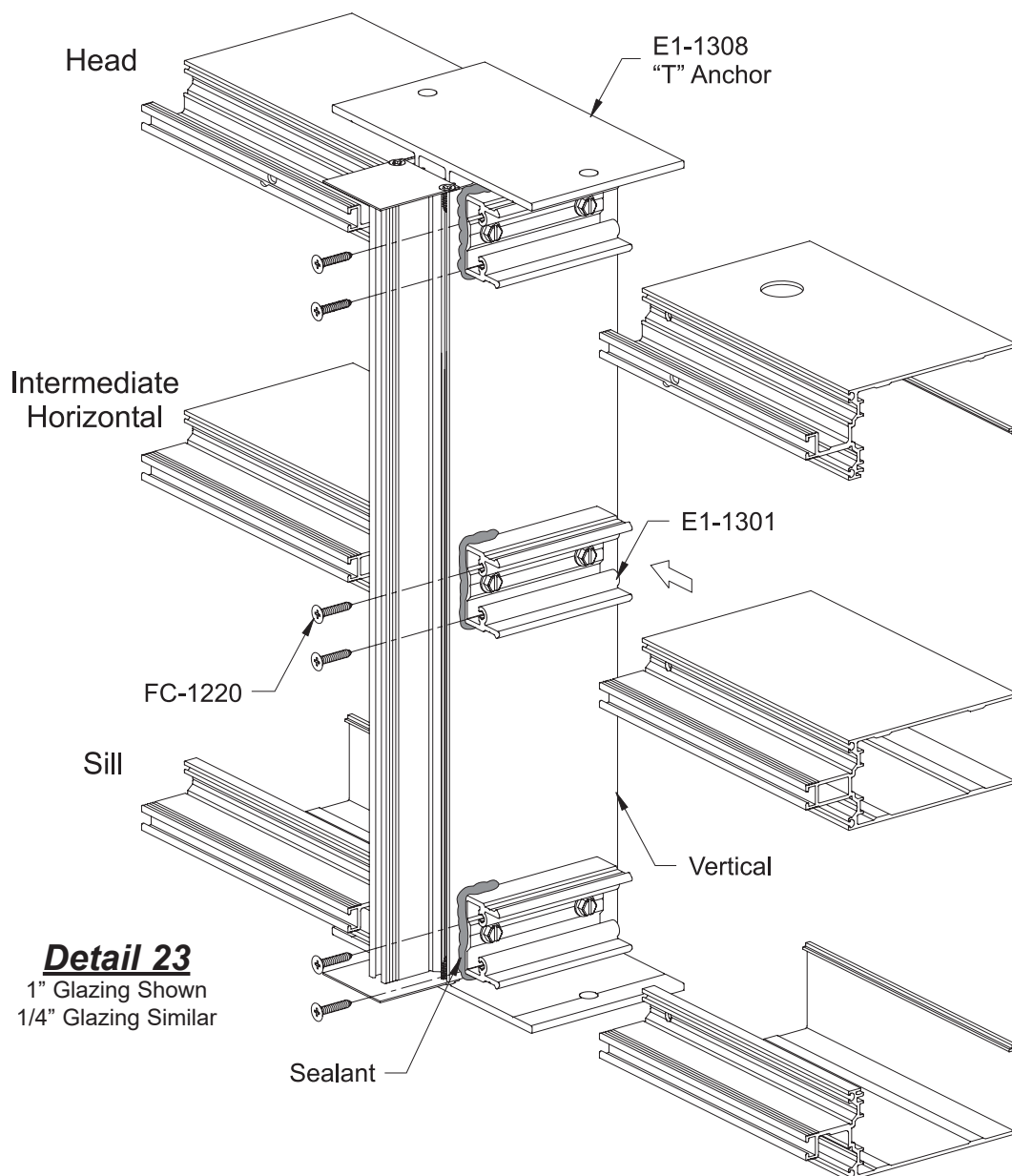


## FRAME INSTALLATION

### STEP 16 ATTACH HORIZONTAL MEMBERS

- Just prior to attaching the horizontals to the vertical, apply sealant to the front of the shear clip and 1/2" back on the top and bottom with sealant.
  - Slide the horizontal members towards the shear clips and attach with two FC-1220 fasteners at each end.
- See **Detail 23**.

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



## FRAME INSTALLATION

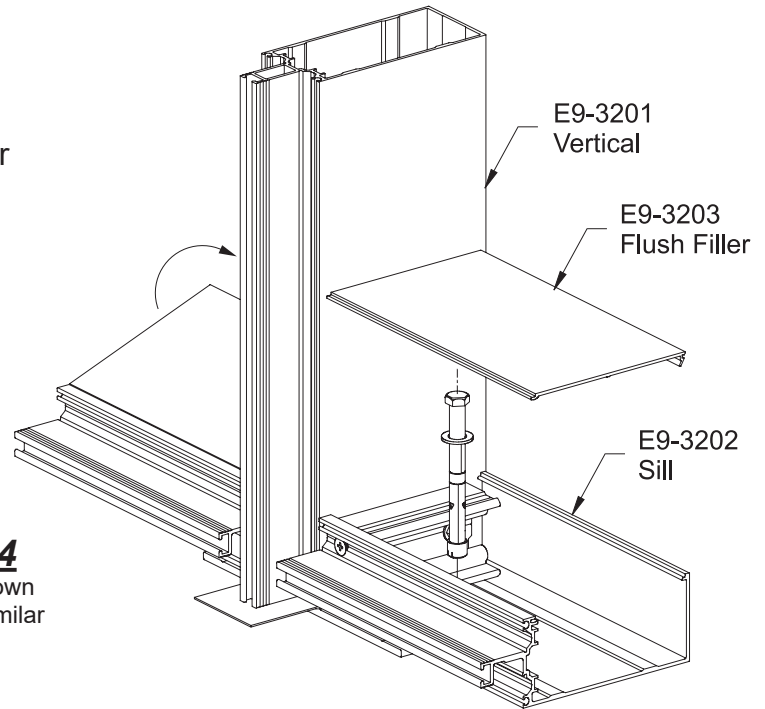
### STEP 16 (Continued) ATTACH HORIZONTAL MEMBERS

- Drill appropriate size holes into the structure for the anchor bolts.
- Provide anchor bolts as per job requirements.  
See approved shop drawings or engineering calculations for appropriate anchor bolts.
- Install the anchor bolts.

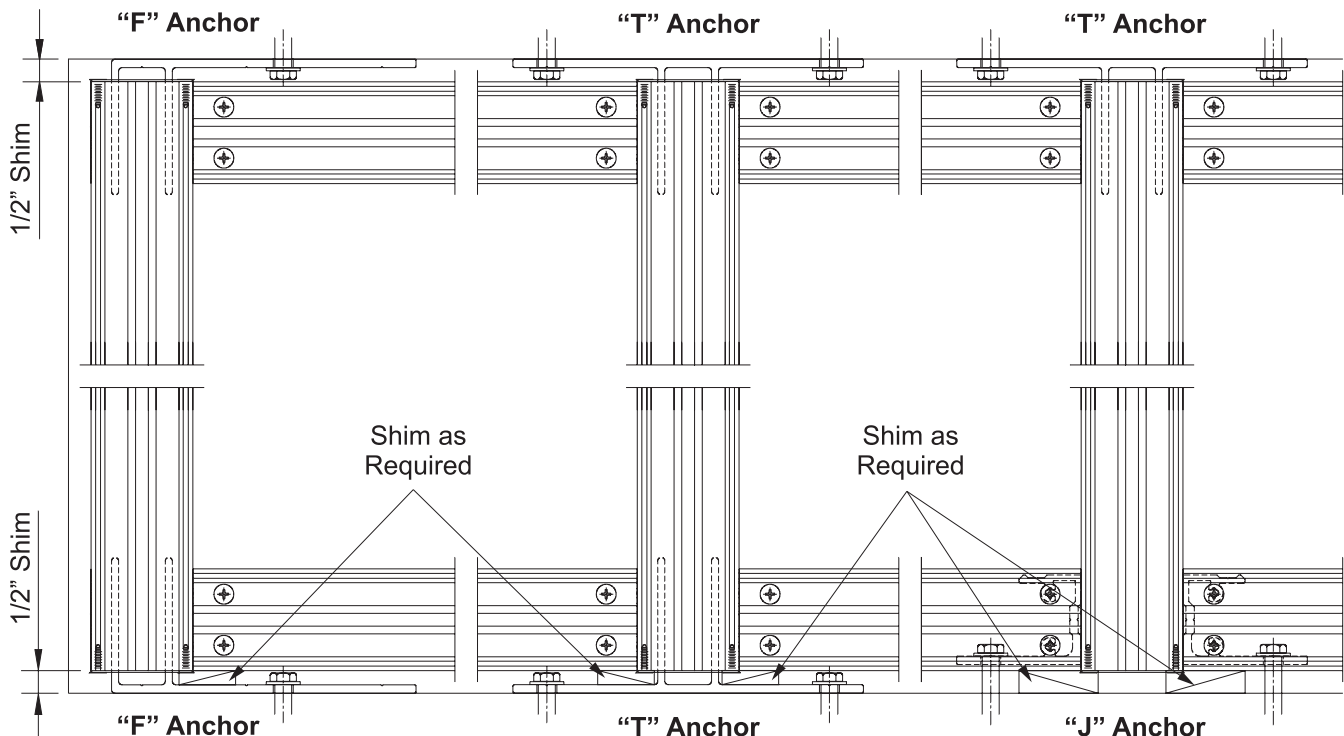
**Caution:** There must always be a shim under the mullion to transfer glazing dead loads to the foundation.

- Install the flush filler, E9-3203, by first engaging the front lip and then rotating the cover down into the back snap.

See **Detail 24**.



**Detail 24**  
1" Glazing Shown  
1/4" Glazing Similar



## FRAME INSTALLATION

### STEP 17

### ATTACH HORIZONTAL MEMBERS

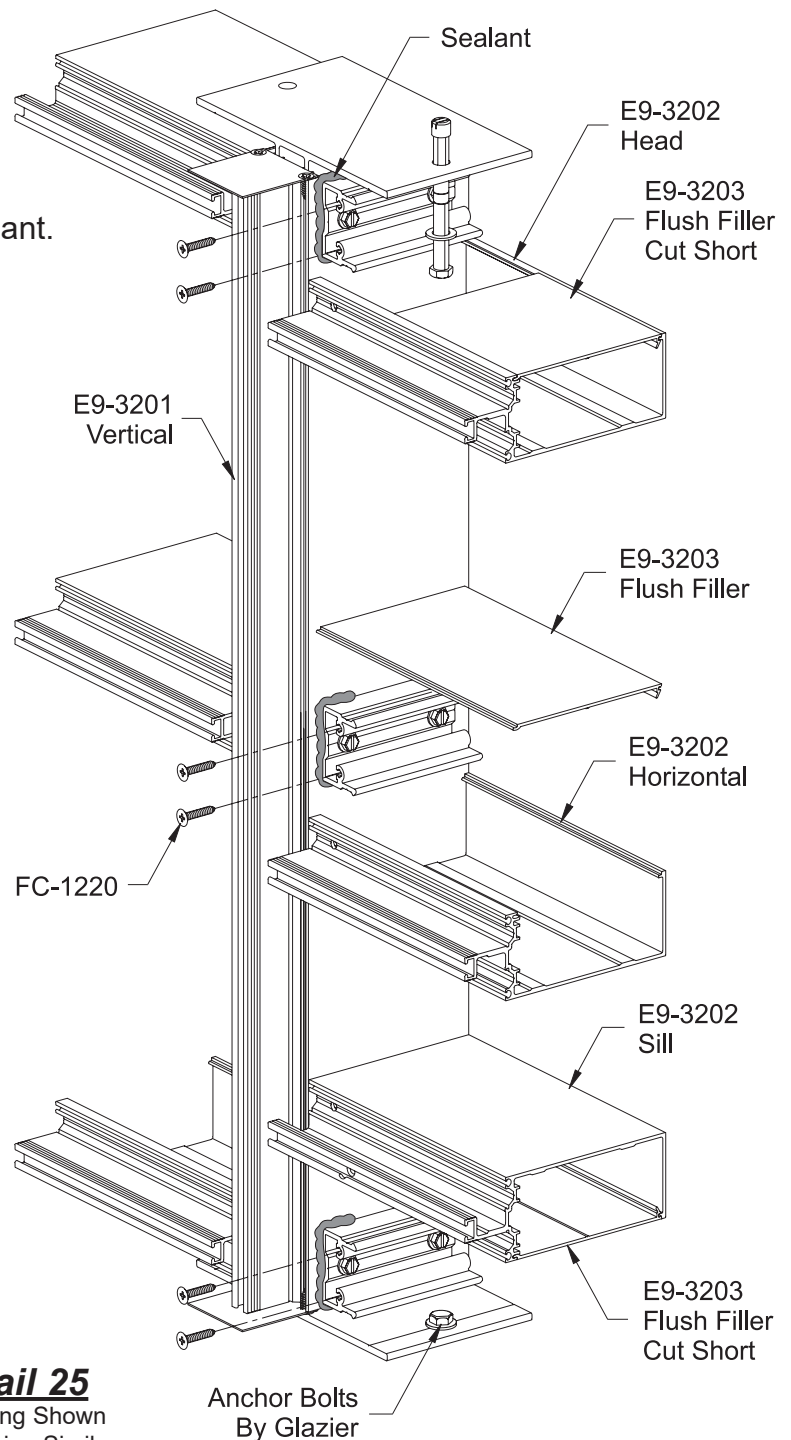
Open back horizontal members, E9-3202 (for 1" glazing) and E9-3206 (for 1/4" glazing), must be used for all horizontal conditions at end bays in order to clear the shear clips.

- Fasten all anchor bolts at the end bay before attaching horizontal members.
- Apply sealant to the front of the shear clip and 1/2" back on the top and bottom with sealant.

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

- Install the intermediate horizontals by sliding the mullion under the shear clips and up into position making sure the glazing pockets are flush.
- Attach horizontal mullions to shear clips using two FC-1220 fasteners at each end.
- In order to clear the shear clips, the head and sill must be turned over from their normal orientation (with the open back facing the structure.)
- Slide the head member up into position; slide the sill member down into position.
- Making sure the glazing pockets are flush, attach horizontal mullions to the shear clips using two FC-1220 fasteners at each end.

See **Detail 25**.



### **Detail 25**

1" Glazing Shown  
1/4" Glazing Similar

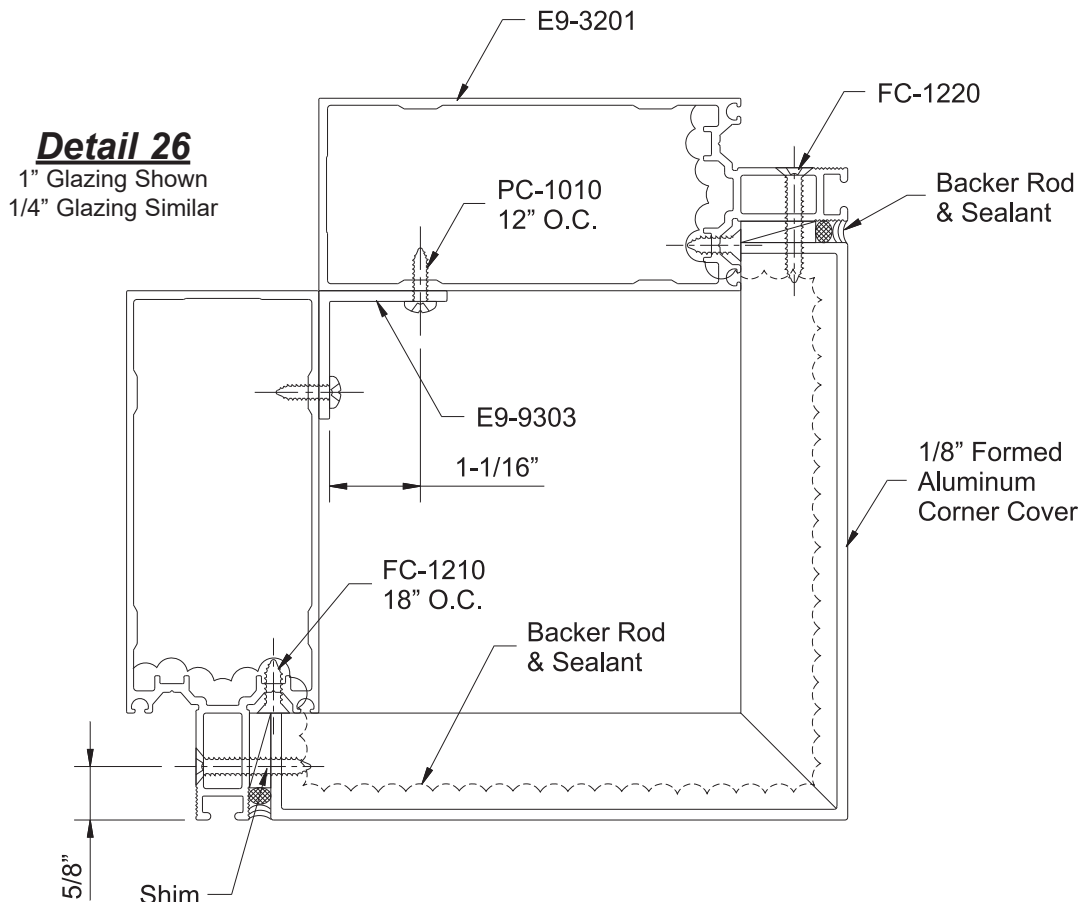
## FRAME INSTALLATION

### STEP 18

#### STANDARD MULLION 90° CORNER ASSEMBLY

- Locate both vertical mullions perpendicular to each other as shown in **Detail 26**.
- Anchor head and sill ends with appropriate end anchors - "J", "F", or "T".  
Refer to shop drawings for wind load / dead load anchor.
- Position angle E9-9303 into the corner between the two vertical mullions and fasten both legs every 12" O.C. using PC-1010 fasteners.
- Install FC-1210 fasteners every 18" O.C. into the screw raceways of both mullions to create a bearing surface for formed aluminum corner cover.
- Position the formed aluminum cover into place and fasten with FC-1220 fasteners every 18" O.C. as shown in **Detail 26**. Shim between the corner cover and mullion tongue as necessary.
- Compress back rod between the corner cover more and mullion tongue; apply and tool sealant.
- Do not span formed aluminum covers more than 12'-6"; leave a 1/2" joint between each span.
- Clean area around joint using cleaner and method approved by sealant manufacturer. Priming may be required for certain finished.
- Compress the backer rod into the 1/2" joint. Apply and tool sealant to the joint.

See **Detail 26**.



## SSG MULLION 90° CORNER ASSEMBLY

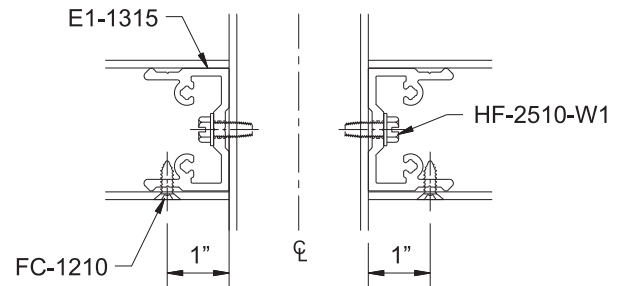
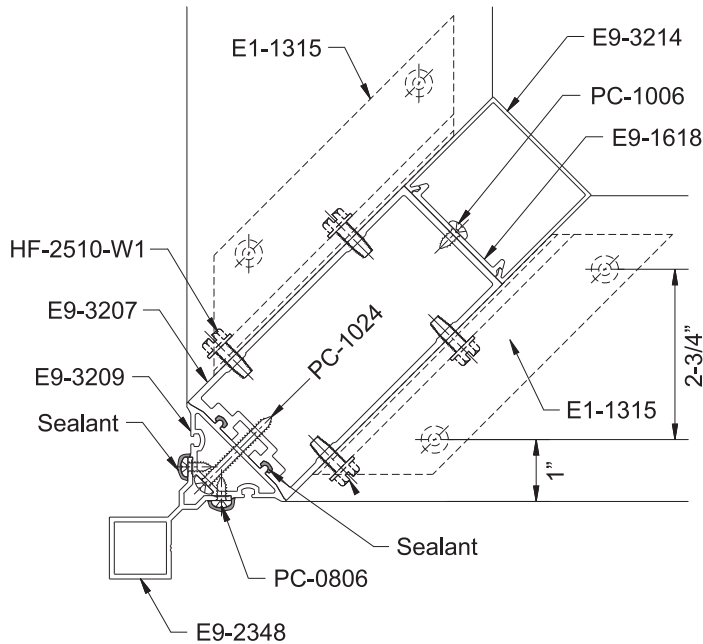
- 
- Technical drawing of a window assembly showing various components and dimensions. The drawing includes the following labels and dimensions:
- Labels:**
    - HF-2510-W1
    - E9-3207
    - E9-3209
    - Backer Rod & Sealant
    - PC-0806
    - Sealant
    - E9-2348
    - PC-1024
    - PC-1006
    - E9-1618
    - E1-1318
    - E1-1320
    - E1-1319
    - E9-3214
  - Dimensions:**
    - 2'-3 1/4"
    - 1"



**FRAME INSTALLATION**

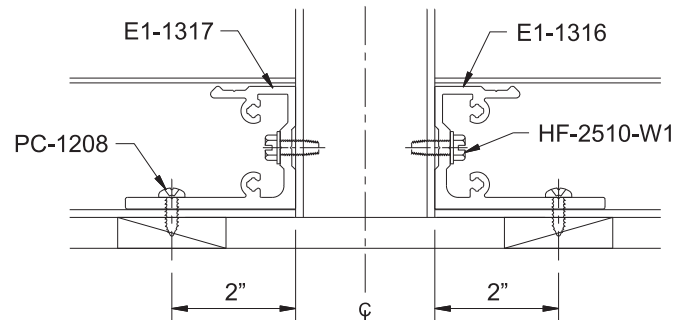
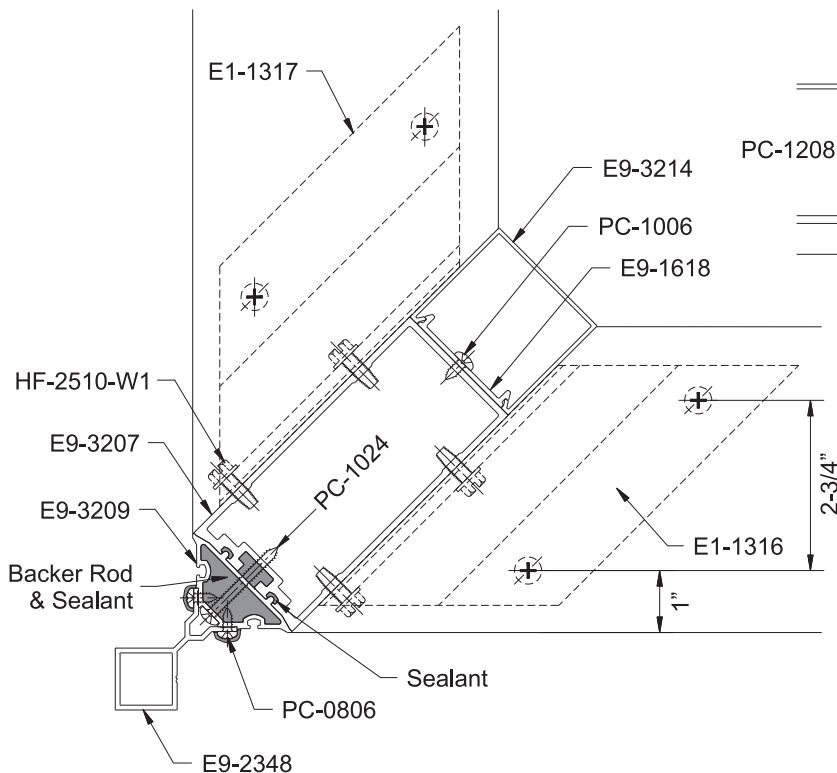
**STEP 19 (Continued)**

**SSG MULLION 90° CORNER ASSEMBLY**



**Shear Clip**

**Detail 28**



**"J" Anchor**

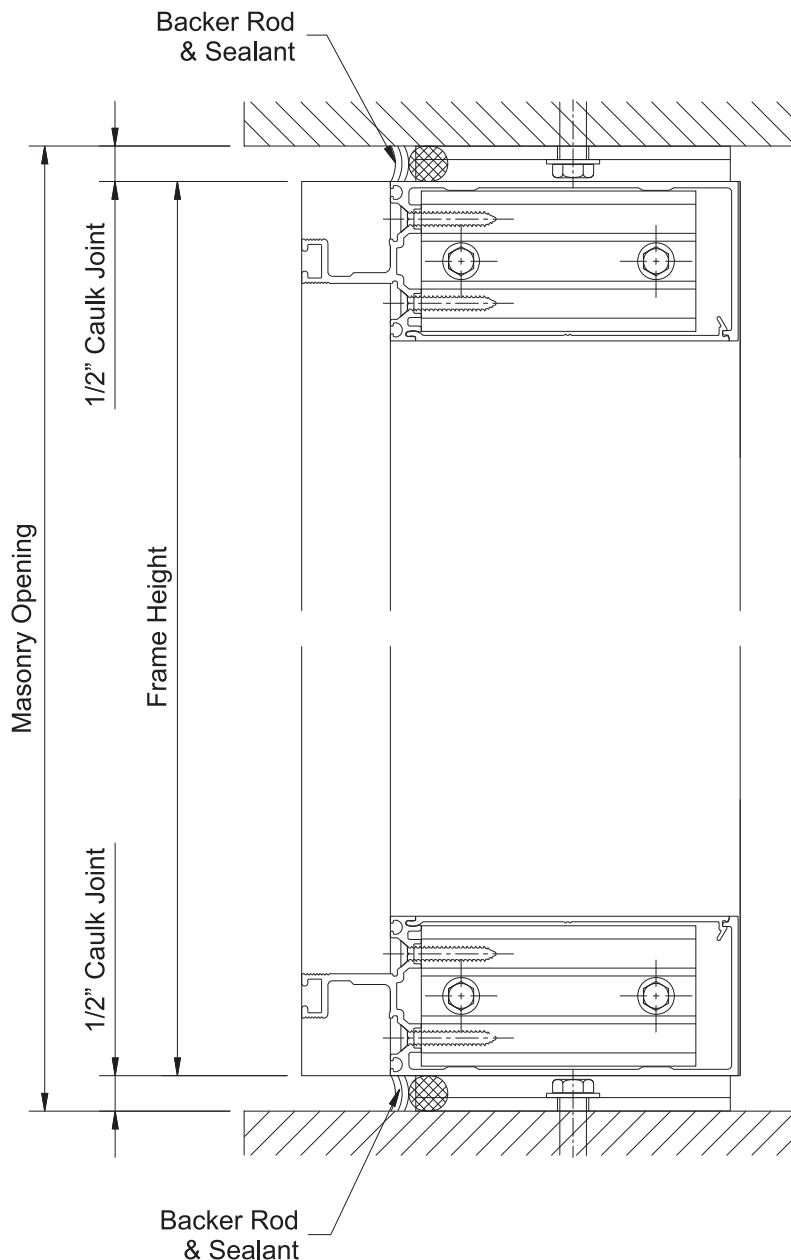
**Detail 29**



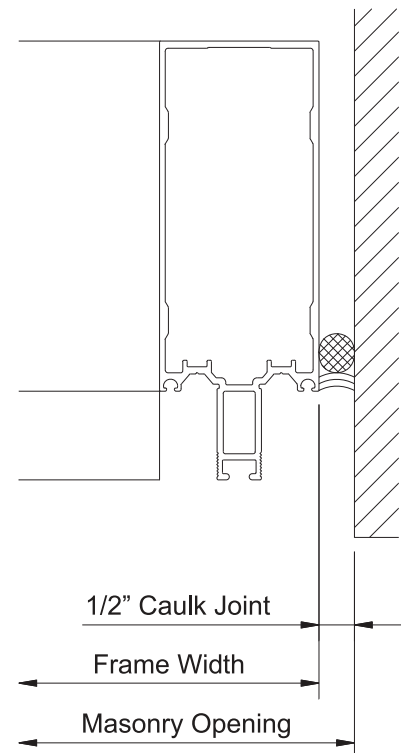
## FRAME INSTALLATION

### STEP 20 PERIMETER SEALANT

- Position backer rod around perimeter of the frame.
  - Clean around the perimeter of the frame with cleaner and method approved by the sealant manufacturer.
  - Apply and tool sealant to the perimeter of the frame.
- See **Detail 30**.



**Detail 30**  
1" Glazing Shown  
1/4" Glazing Similar



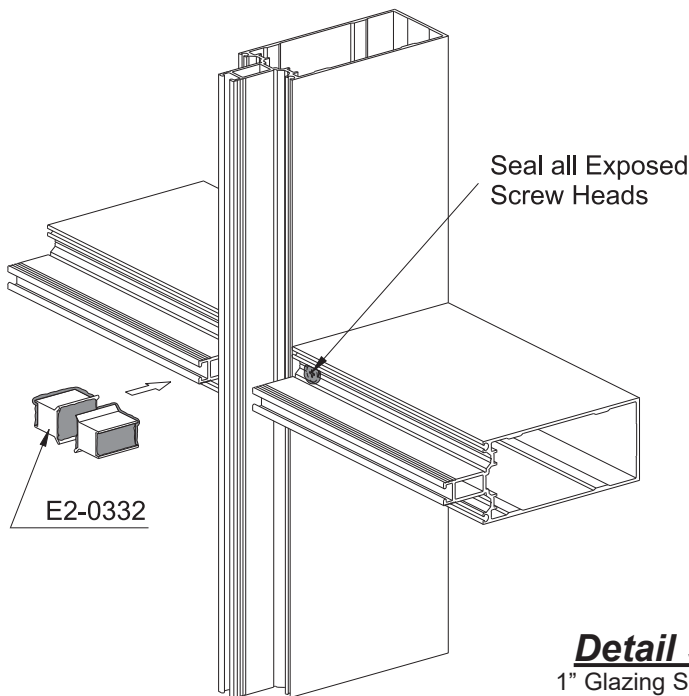
## FRAME INSTALLATION

### STEP 21

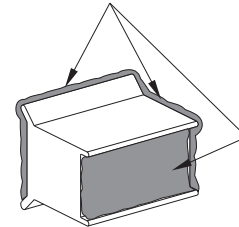
#### INSTALL JOINT PLUGS FOR STANDARD MULLIONS

The tongue of each horizontal mullion must be sealed to the tongue of the vertical mullion. The space between the two tongues is closed by installing joint plugs, E2-0332 for 1" glazing and E2-0333 for 1/4" glazing.

**Note:** Joint plugs are not necessary at the sill.



Apply Sealant To  
All 3 Contact Sides

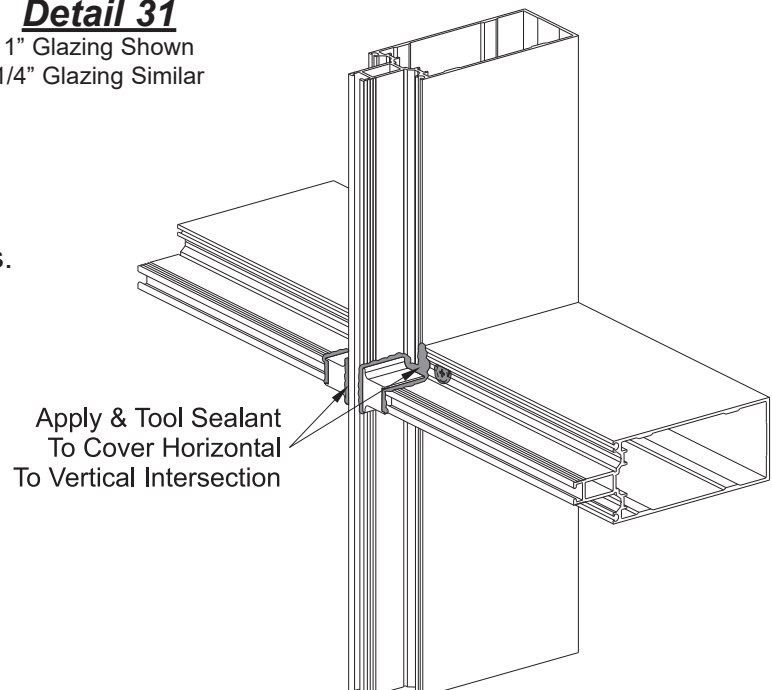


- Clean all aluminum surfaces.
- Apply sealant to all three contact sides of the joint plug.
- Apply sealant into all cavities of the vertical, directly behind the joint plug.

#### **Detail 31**

1" Glazing Shown  
1/4" Glazing Similar

- Install joint plug as shown and press firmly against face of mullions.
  - Apply sealant to vertical-to-horizontal joints. Tool the sealant to completely seal the joints.
- See **Detail 31**.



## FRAME INSTALLATION

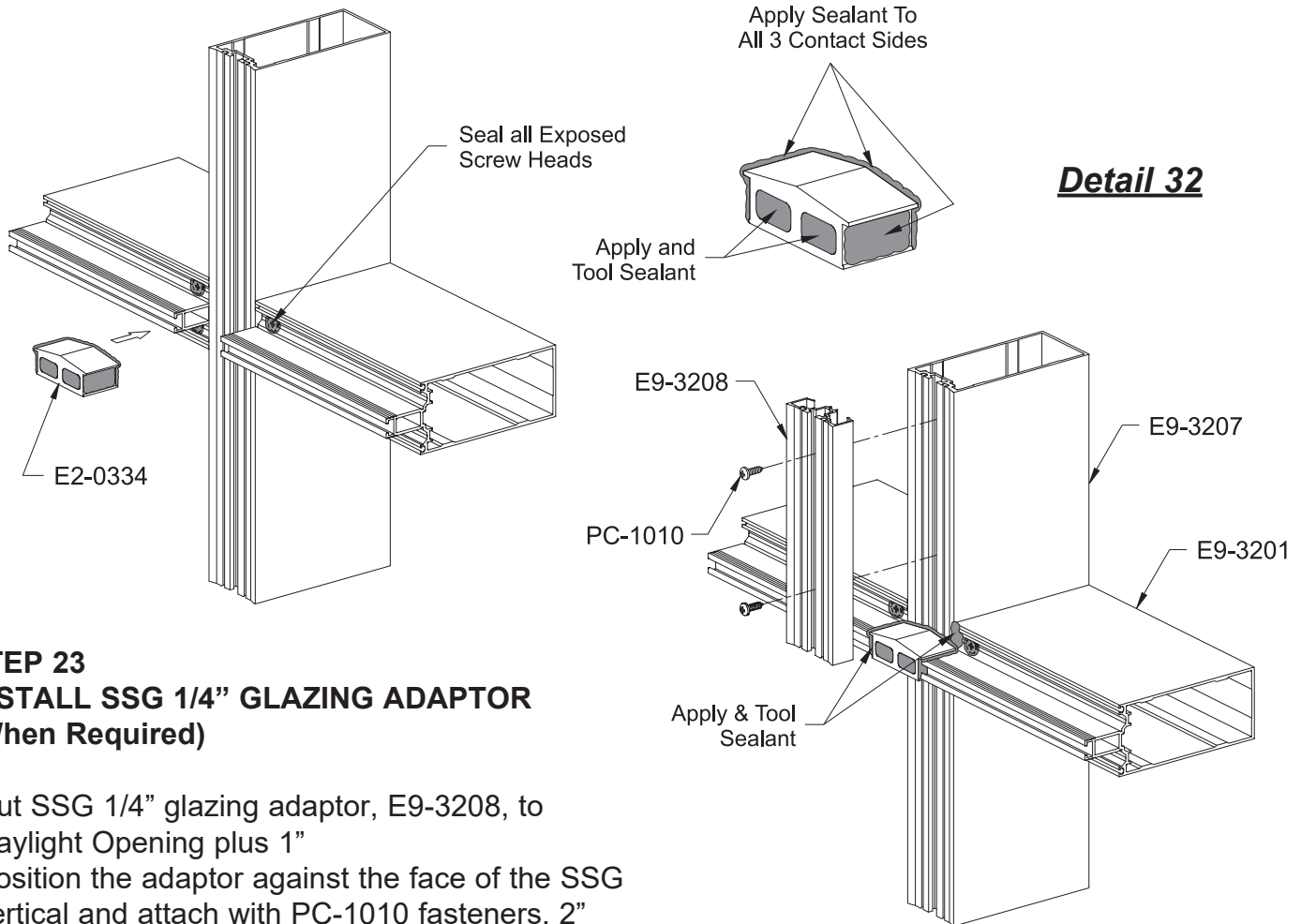
### STEP 22

#### INSTALL JOINT PLUGS FOR SSG MULLIONS

The space between the SSG vertical and the two horizontal mullion tongues must be closed by installing joint plugs, E2-0334 for 1" glazing and E2-0335 for 1/4" glazing.

- Clean all aluminum surfaces.
- Apply sealant to all three contact sides of the joint plug. Apply and tool sealant to the two cavities on the front of the joint plug.
- Apply sealant into all cavities of vertical, directly behind the joint plug.
- Install joint plug as shown and press firmly against the face of the mullion.
- Apply sealant to vertical-to-horizontal joints. Tool sealant to completely seal the joints.

See **Detail 32**.



### STEP 23

#### INSTALL SSG 1/4" GLAZING ADAPTOR (When Required)

- Cut SSG 1/4" glazing adaptor, E9-3208, to Daylight Opening plus 1"
- Position the adaptor against the face of the SSG vertical and attach with PC-1010 fasteners, 2" from each end and at 18" maximum on center.
- Seal all screw heads.

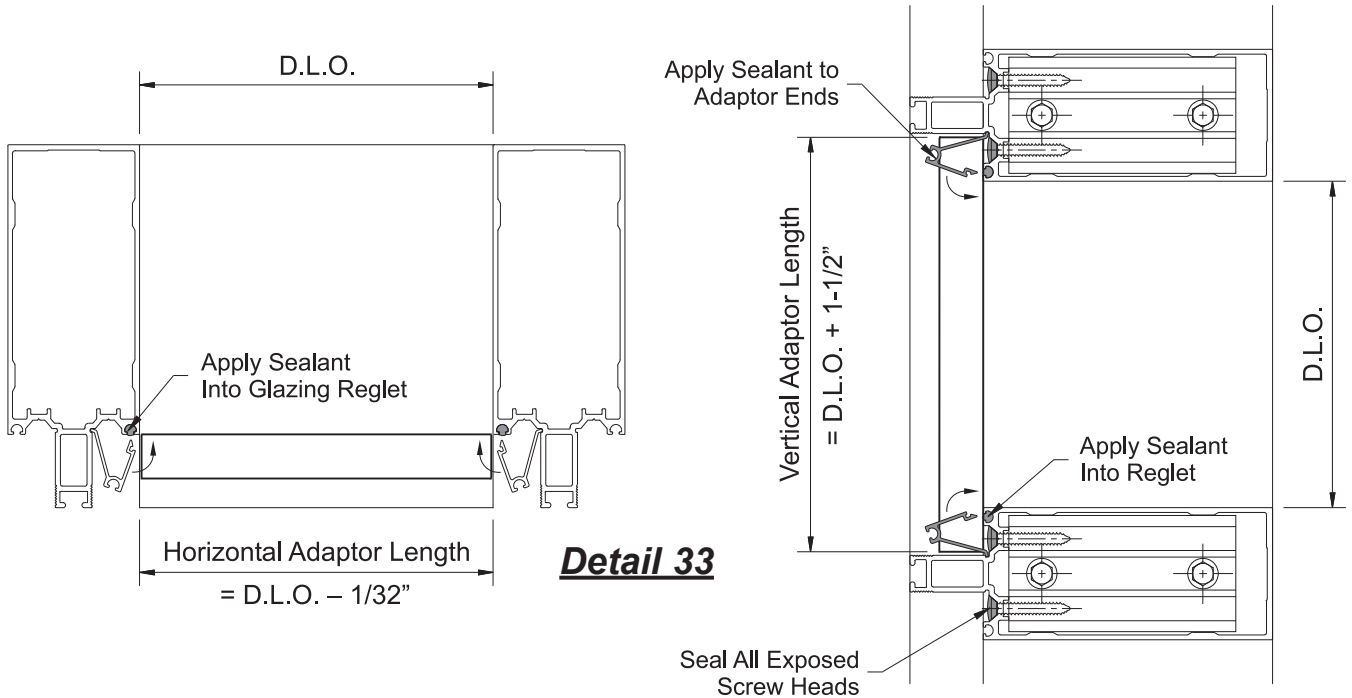
See **Detail 32**.

- Install the horizontal 1/4" glazing adaptors as shown in **Step 24 on Page-32**.
- Seal the ends of the horizontal adaptors to the vertical adaptors.

## GLAZING

### STEP 24

#### INSTALL 1/4" GLAZING ADAPTOR (When Required)



- Cut glazing adaptors for verticals:  
Cut Length = Daylight Opening + 1-1/2"
- Cut glazing adaptors for horizontals:  
Cut Length = Daylight Opening - 1/32"
- Run a bead of sealant along the gasket reglets.  
Seal all exposed screw heads.

Attach the vertical glazing adaptors first:

- Center the vertical adaptors in the opening.
- Insert the ball end leg of the adaptor into the recess at the back of the mullion tongue and rotate the snap leg into the reglet.

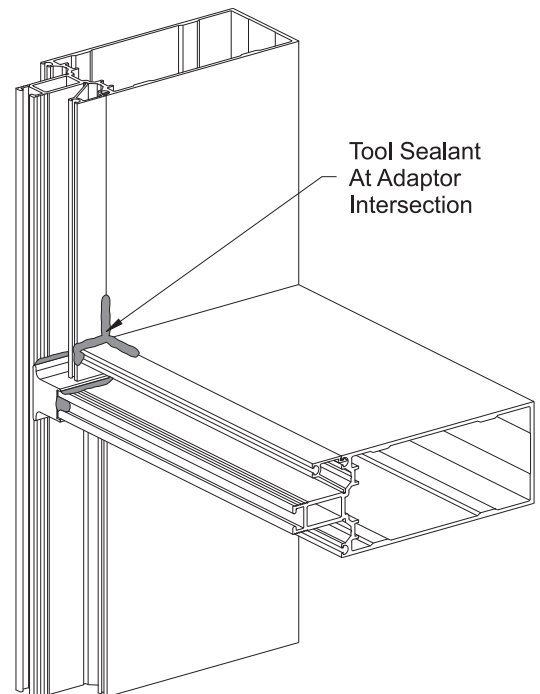
Attach the horizontal glazing adaptors last:

- Apply sealant to the ends of the horizontal glazing adaptors.
- Snap on the horizontal adaptors.

See **Detail 33**.

- Tool the excess sealant at the intersections of the adaptors to completely seal the joint.

See **Detail 34**.



**Detail 34**

## GLAZING

### STEP 25

#### INSTALL INTERIOR GLAZING GASKETS / SPACER

- Using a small brush, clean out any dirt that may have accumulated in the gasket reglets.
- Prior to installing the gaskets, apply a 3" long bead of sealant along the vertical and horizontal gasket reglets at the intersection.

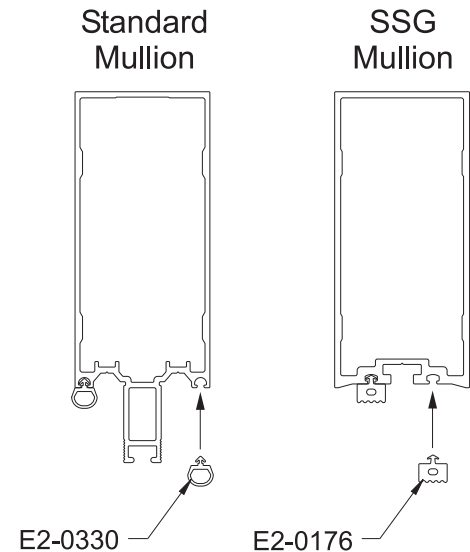
Vertical glazing gasket / spacers must be installed first:

- Cut vertical internal glazing gasket, E2-0330, and/or interior glazing spacer, E2-0176:  
Cut length = Daylight Opening plus (+) 1-1/2".
- Install interior glazing gasket / spacers in all vertical mullions centered along the daylight opening.

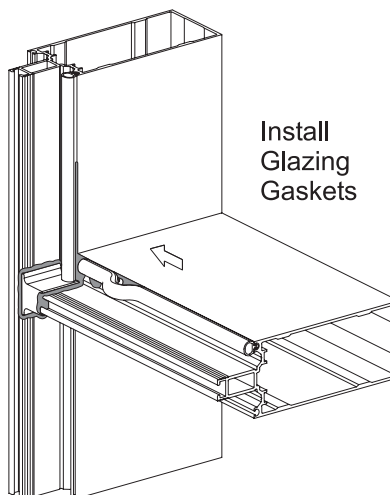
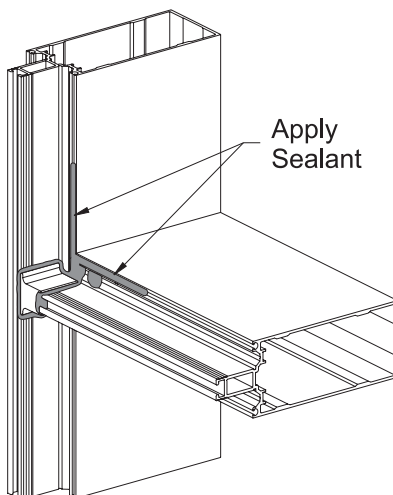
Install horizontal glazing gaskets next:

- Cut horizontal glazing gaskets to daylight opening plus (+) 3/16" for each foot of opening width.
- Apply sealant to each end of the horizontal glazing gasket prior to inserting into the reglet.
- Insert the gasket into the reglet at each end first and push each end tight against the vertical gasket.
- Then insert the gasket at the midpoint of the opening and push the gasket into the reglet starting at the midpoint and work towards each end.
- Tool the excess sealant at the gasket corners to ensure a watertight seal.

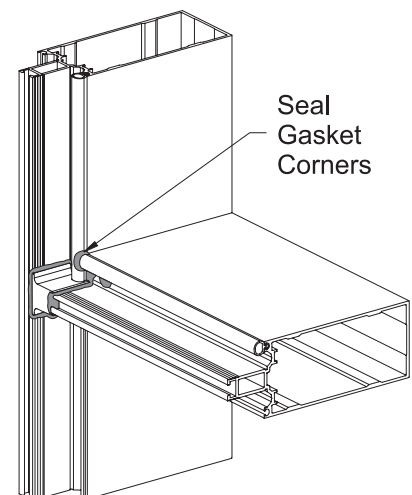
See **Details 35 & 36**.



**Detail 35**



**Detail 36**



## GLAZING

### STEP 26

#### INSTALL THERMAL CLIPS

Install thermal clips, E3-0040, in all horizontal and vertical mullions as shown in **Detail 37**.

- Insert thermal clips into the front of the mullion tongue and twist 1/4 turn clockwise to engage.
- Thermal clips should be installed 3" from each end of the mullion and 12" maximum on center.

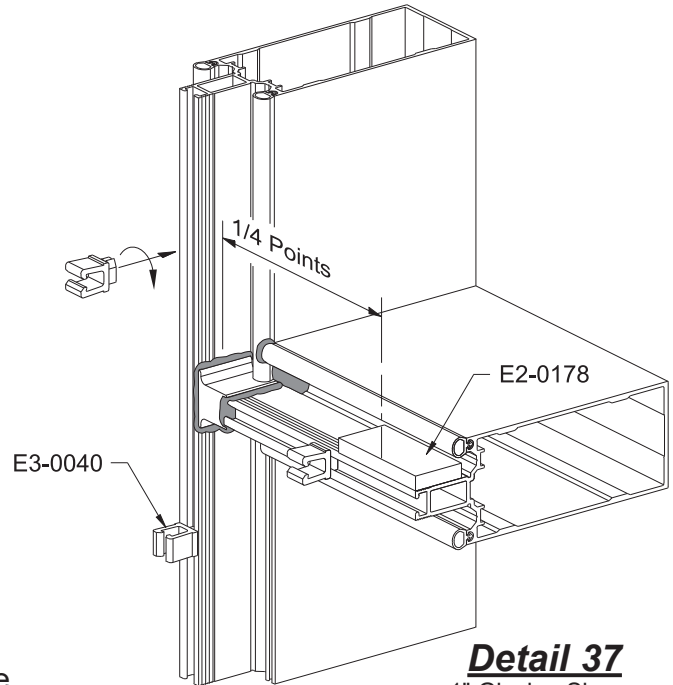
### STEP 27

#### INSTALL GLASS

- Install setting blocks, E2-0178, for 1" glazing and E2-0192 for 1/4" glazing, at 1/4 points of D.L.O., or according to engineering calculations.
- \*Setting block chair, E1-1321, is required for sill members at end bays.
- Install side blocks, E2-0134, for 1" glazing and E2-0623 for 1/4" glazing, at jamb and intermediate standard mullions centered along the daylight opening.

**Note:** Side block are not required for SSG mullions.

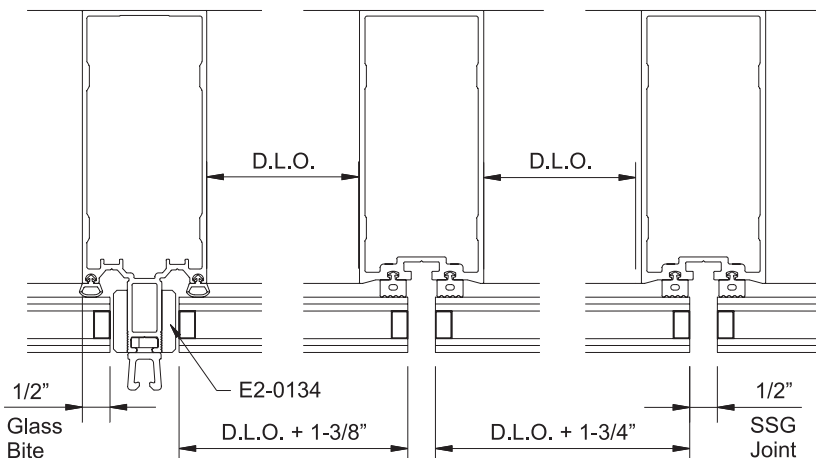
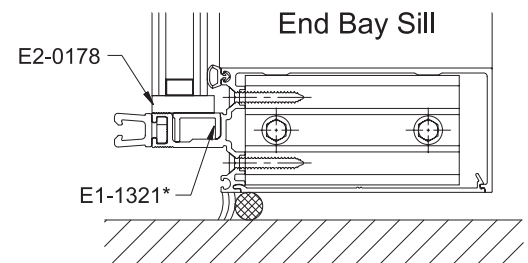
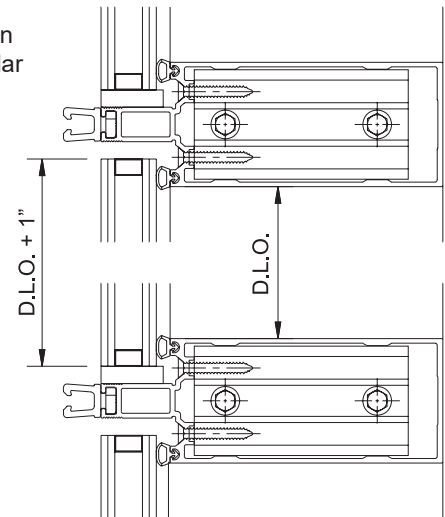
- Carefully install glass into the frame. Make sure setting blocks and spacers are properly aligned with glass. See **Detail 38** for glass sizes.



**Detail 37**  
1" Glazing Shown  
1/4" Glazing Similar

**Detail 38**  
1" Glazing Shown  
1/4" Glazing Similar

Type of Unit	Glass Width	Glass Height
Standard	D.L.O. + 1"	D.L.O. + 1"
Jamb to SSG	D.L.O. + 1-3/8"	D.L.O. + 1"
SSG to SSG	D.L.O. + 1-3/4"	D.L.O. + 1"



## GLAZING

### STEP 27

#### INSTALL GLASS (Continued)

-Install temporary glass retainers to secure the glass; install one every two feet maximum:

E3-0041 for standard mullions.

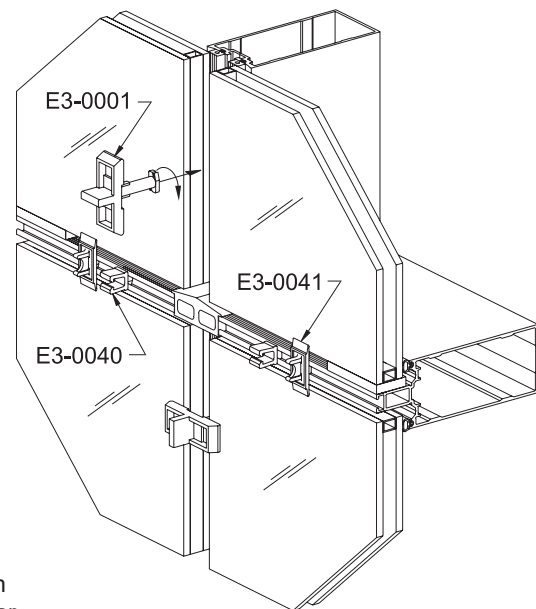
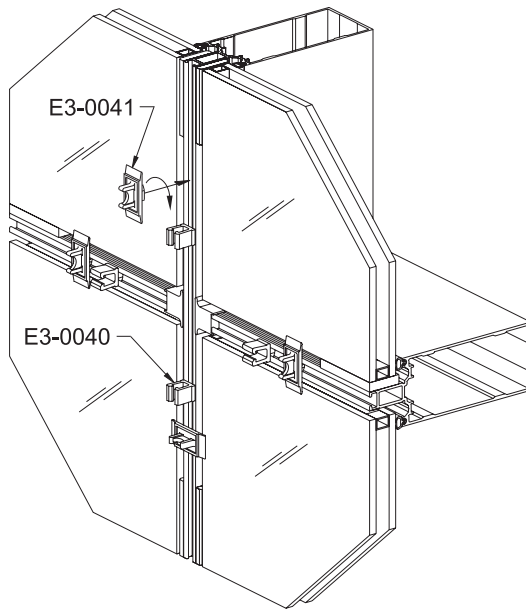
E3-0001 for 1" SSG mullions.

E3-0006 for 1/4" SSG mullions.

For SSG mullions, add a temporary retainer at the vertical midpoint of each lite.

-Insert the temporary glass retainers into the front of the mullion tongue and twist 1/4 turn clockwise to engage.

See **Detail 39**.



**Detail 39**  
1" Glazing Shown  
1/4" Glazing Similar

### STEP 28

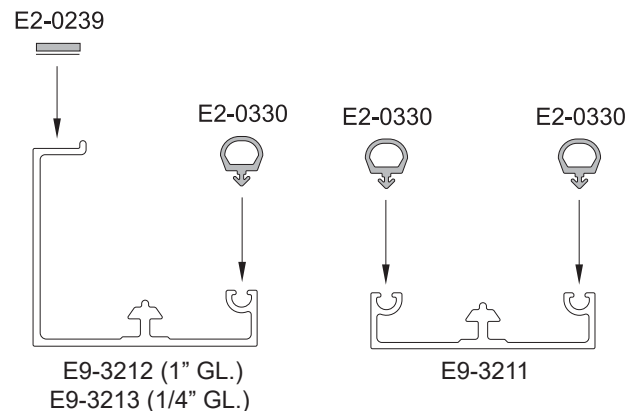
#### INSTALL EXTERIOR GLAZING GASKETS

-Install glazing tape, E2-0239, onto the flat leg of the perimeter face covers, E9-3212 for 1" glazing and E9-3213 for 1/4" glazing.

-Cut the glazing tape flush with the ends of the face covers.

-Install glazing gasket, E2-0330, into the reglets of the face covers and cut flush with the ends of the face covers.

See **Detail 40**.



**Detail 40**

**GLAZING**

**STEP 29**  
**INSTALL WATER DEFLECTORS**  
**& FACE COVERS**

Prior to installing face covers, water deflectors must be installed above each lite of glass.

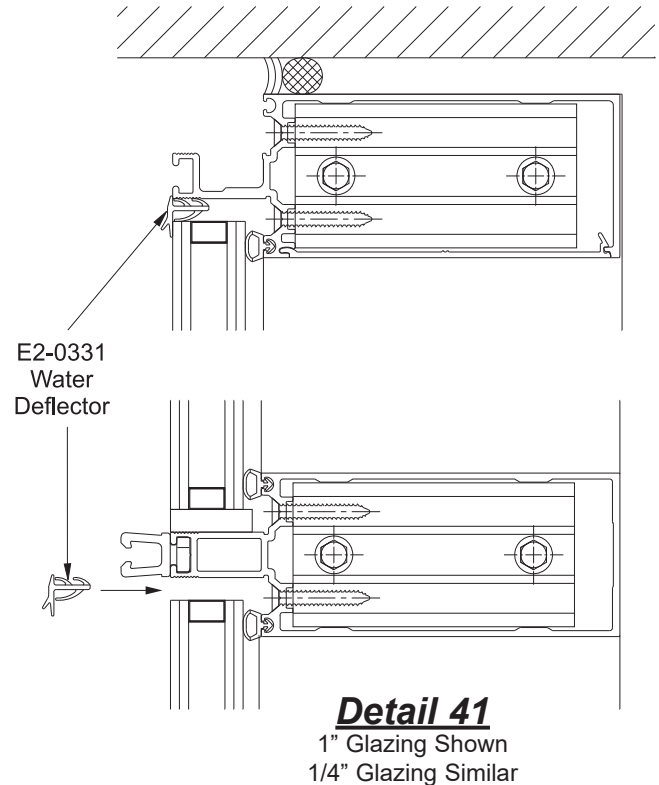
- Cut water deflector, E2-0331, to length:  
Cut Length = Daylight Opening + 1-1/2".
- Install water deflector as shown in **Detail 41**.
- Install face covers as shown.

**Note:** Leave temporary glass retainers in place while installing face covers.

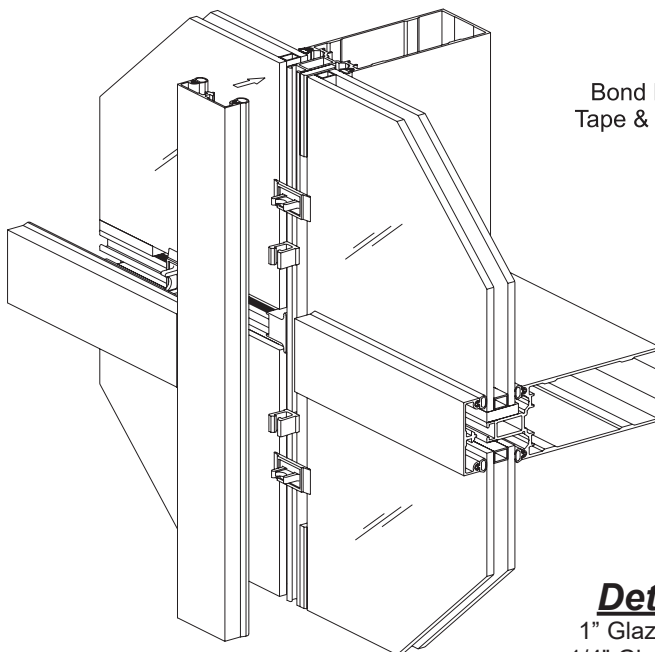
Horizontal face covers may be splice using splice sleeve, E1-1305:

- Apply bond breaker tape to the face of the splice sleeve.
  - Assemble there splice leaving a 1/2" joint.
  - Apply and tool sealant to the joint.
- See **Detail 43**.

For vertical face cover splice, see **Detail 14** on **Page-16**.

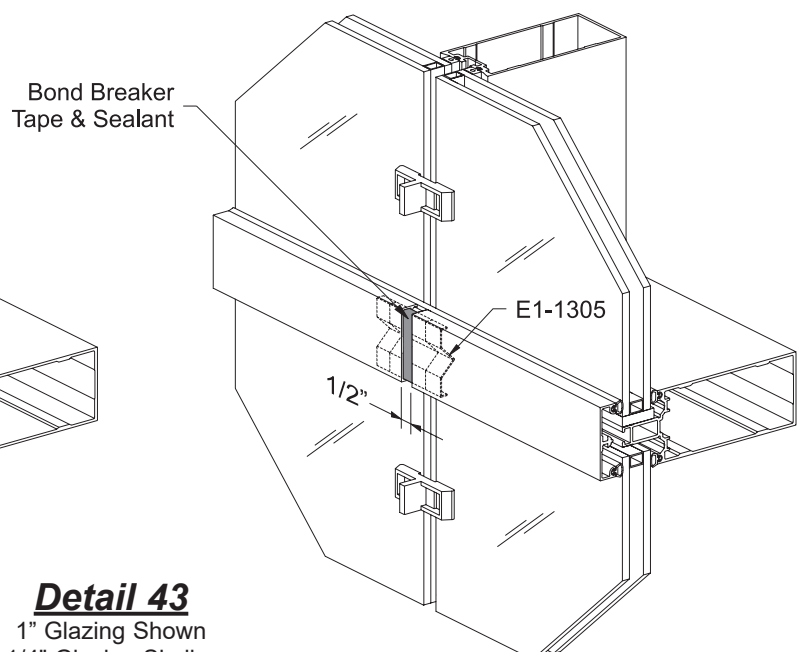


**Standard Mullion**



**Detail 43**  
1" Glazing Shown  
1/4" Glazing Similar

**SSG Mullion**



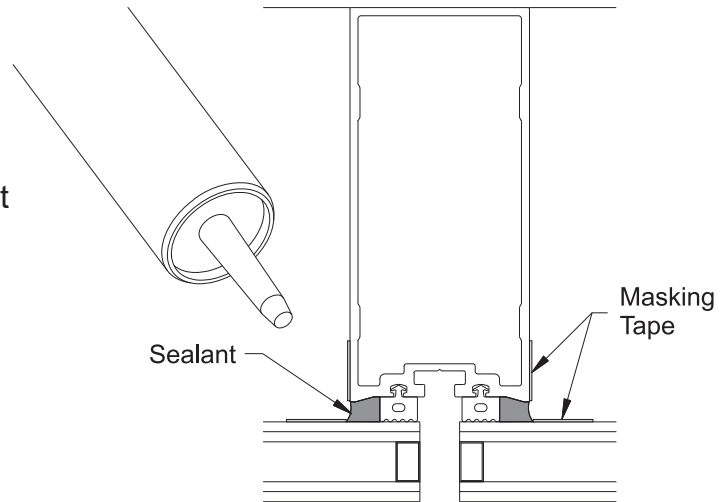


## GLAZING

### STEP 30 STRUCTURAL SILICONE GLAZING

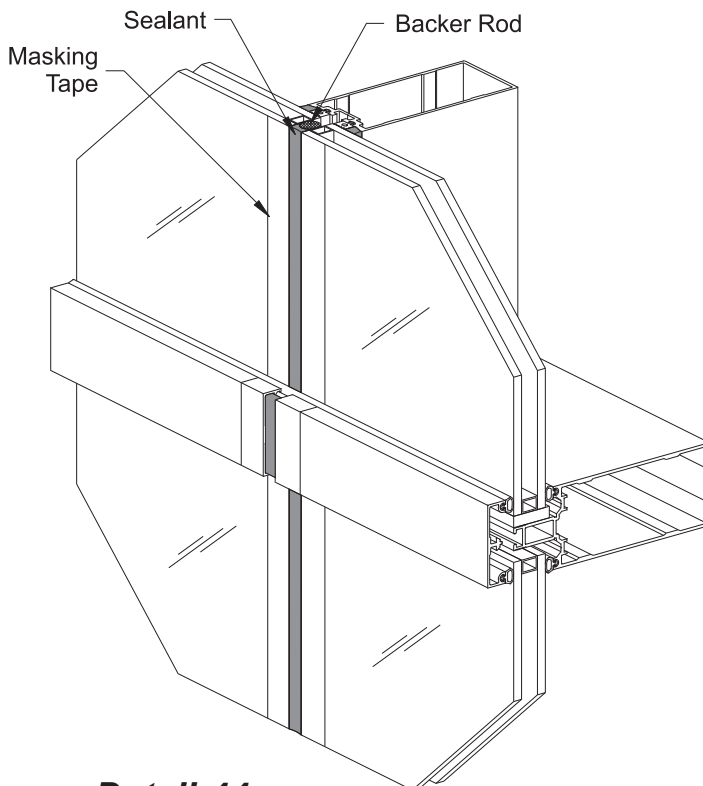
- Clean all silicone contact surfaces per sealant manufacturer's recommendation.
- Apply masking tape to the mullion and glass.
- Apply an approved structural silicone sealant from the bottom to top of joint making sure that the sealant completely fills the cavity.
- Using a non-scratching implement, tool the structural silicone sealant immediately after running the joint.
- Exert positive pressure while tooling to ensure proper adhesion with all surfaces.
- Immediately remove masking tape while wet; do not allow the silicone to skin.

See **Detail 43**.



#### **Detail 43**

1" Glazing Shown  
1/4" Glazing Similar



#### **Detail 44**

1" Glazing Shown  
1/4" Glazing Similar

- Allow structural silicone sealant to cure as recommended by sealant manufacturer (approximately two weeks.)

**Note:** Temporary SSG retainers should be left in place until sealant has cured.

- Once interior structural seal has cured, remove temporary retainers and insert an approved open cell polyurethane backer rod into the glass joint.
- Clean all silicone contact surfaces per sealant manufacturer's recommendations.
- Apply masking tape to glass and mullion.
- Apply structural silicone sealant to the exterior glass joint using the same technique used in sealing the interior joint.

See **Detail 44**.

**Note:** Exterior vertical seal at glass joint must extend down and over top of the cover to cover splice.

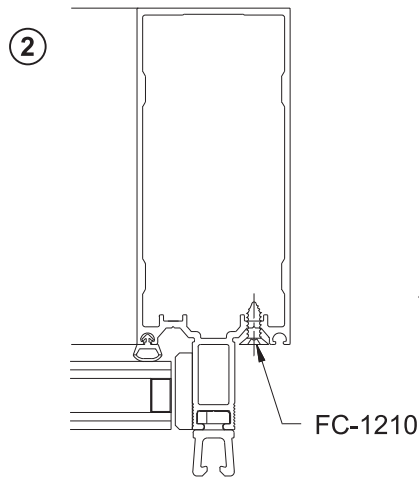
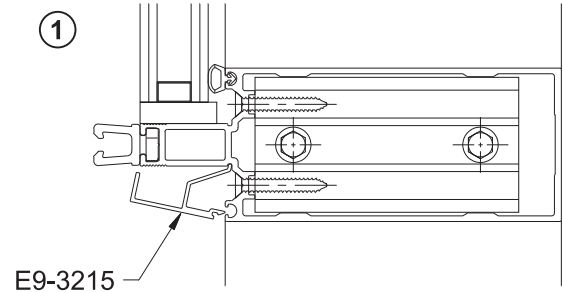
## DOOR SUB-FRAME INSTALLATION

### STEP 31

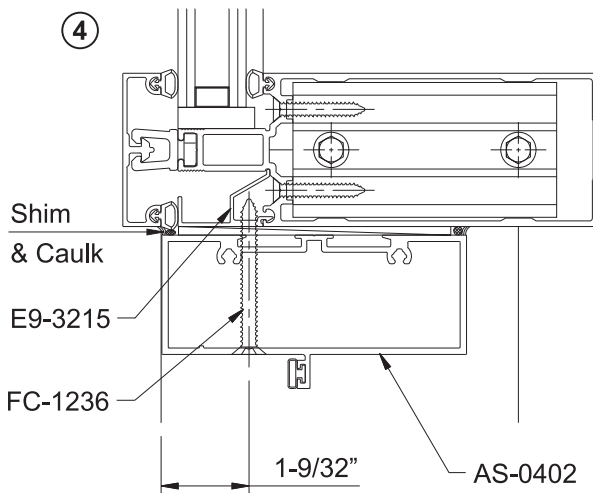
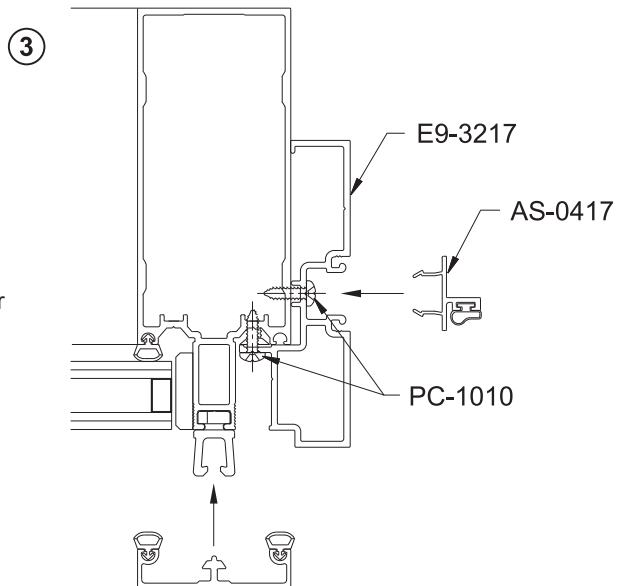
#### INSTALLATION DOOR SUB-FRAME

Doors are shipped assembled, and door sub-frames will be fabricated and shipped knocked down. Please refer to the **Entrances Installation Manual** for door installation and follow the instructions below to install the door sub-frame:

- ① Cut flush filler, E9-3215 for 1" glazing or E9-3216 for 1/4" glazing to door opening width and install at the transom bar as shown.



**Detail 45**  
1" Glazing Shown  
1/4" Glazing Similar



- ② Install FC-1210 fasteners into the screw raceway even with the face of the mullion on both sides of the door jambs as shown, 2" from each end and 18" max. on center.
- ③ Position the door sub-frame into place and fasten door jamb E9-3217 to the mullion on both sides using PC-1010 fasteners, 3" from each end and at 12" max. on center. Install door stop, AS-0417, and face covers as shown.
- ④ Fasten the transom bar to the horizontal using FC-1236 fasteners as shown, 3" from each end and at 12" max. on center. Shim between the transom bar and horizontal as needed. Apply and tool sealant between the transom bar and horizontal on the exterior and interior.





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