

# **Installation Manual**



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# Installation Notes

1. Do not drop, roll or drag boxes of aluminum framing. Move and stack boxes with proper support to prevent distortion. If fork lifts are used be especially careful about striking the boxes when lifting or moving.

2. Store in a dry, out of the way area. If rain exposure, condensation or any water contact is likely, then all packaging material should be removed. Wet packaging materials will discolor and may stain aluminum finishes and paints.

3. All materials should be checked for quality and quantity upon receipt, YKK AP must be notified immediately of any discrepancies in shipment. Check to make sure that you have the required shims, sealants, supplies and tools necessary for the installation.

4. Carefully check the openings and surrounding conditions that will receive your material. Remember, if the construction is not per the construction documents, it is your responsibility to notify the general contractor in writing. Any discrepancies must be brought to the general contractor's attention before you proceed with the installation.

5. Gather your shop drawings, materials, packing list, and this installation manual. Carefully review parts location, the sequence it goes therein, when you glaze it and how you seal it. Installation instructions are of a general nature and may not cover every condition you will encounter. The shop drawings and/or installation manuals were prepared specifically for the product.

6. Any material substitutions must be of equal or greater quality.

7. Make certain that material samples have been sent for compatibility testing for all manufacturer's sealants involved. Make certain sealants have been installed in strict accordance with the manufacturer's recommendations and specifications.

8. Remember to isolate, in an approved manner, all aluminum from uncured masonry or other incompatible materials.

9. System-to-structure fasteners are not supplied by YKK AP. Fasteners called out on shop drawings are to indicate minimum sizes for design loading.

10. Entrances are to be installed plumb, square, level and true.

11. If any questions arise concerning YKK AP products or their installation, contact YKK AP for clarification before proceeding.

12. 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.

13. Cutting tolerances are plus zero (0"), minus one thirty second (-1/32") unless otherwise noted.

14. Check our website, www.ykkap.com, for the latest installation manual update prior to commencing work.



# FRAMING MEMBERS (1-3/4" x 4")

	Head/Jamb/Vertical	E9-1303		Head Receptor Elastomer Weathering E2-0051 Not Included	E9-1310
4 	Horizontal	E9-1306	l e	Head Receptor Stop Elastomer Weathering E2-0051 Not Included	E9-1033
	Sill/Horizontal	E9-1304		Two Way 90° Corner Post	E9-1309
ال	Glass Stop	E9-1305		Two Piece 90° Corner Post	E9-1321
	Sill Flashing	E9-1030		Two Piece 90° Corner Post	E9-1322
	Jamb/Vertical	E9-1301		Two Piece 90° Corner Post	E9-1323
3	Deep Pocket Filler	E9-1009		Two Piece 90° Corner Post	E9-1324
	Shallow Pocket Filler	E9-1002		Sidelite Base	E9-1034
	<b>Expansion Mullion</b> (Female) Weathering Gasket K2-2441 Not Included	E9-1325	Ĺ	Sidelite Base Shoe	E9-1035
	<b>Expansion Mullion</b> (Male) Use with E9-1325	E9-1326	ŗ	Sidelite Base Glass Stop	E9-0403
ŢŢ,	Flush Pocket Filler	E9-1010	<u>4</u>	Flat Filler	E9-1038



# FRAMING MEMBERS (2" x 4")

	Head/Jamb/Vertical	E9-1313	L <u></u> ,	<b>Glazing Adaptor</b> For 5/8" & 3/4" Glazing	E9-1039
	Horizontal	E9-1316	<u>t</u>	<b>Glazing Adaptor</b> For 3/16", 1/4", 5/16", & 3/8" Glazing	E9-1040
	Sill/Horizontal	E9-1314		<b>Two Way 90° Corner Post</b> Use with E9-1019	E9-1309
, T	Glass Stop	E9-1315	Ç	<b>Deep Pocket Filler</b> Use with E9-1309 Corner Mullion	E9-1019
}	Sill Flashing	E9-1030		Sidelite Base	E9-1034
Ç	Shallow Pocket Filler	E9-1012	[]	Sidelite Base Shoe	E9-1035
ŢŢ	Flush Pocket Filler	E9-1020	j.	Sidelite Base Glass Stop	E9-0413
	Head Receptor Elastomer Weathering E2-0051 Not Included	E9-1310	<u>د</u>	Flat Filler	E9-1038
	Head Receptor Stop Elastomer Weathering E2-0051 Not Included	E9-1033			

dj	Single Acting Transom Bar Elastomer Weathering E2-0051 Included	AS-0452		Door Stop O/P Assembly Elastomer Weathering E2-0051 Included	AS-0409
	Double Acting Transom Bar Pile Weathering E2-0062 Included	AS-0456	Ĺ	<b>Door Stop Base</b> Usede with AS-0409	E9-1113
8	<b>Single Acting</b> <b>Door Jamb</b> Elastomer Weathering E2-0051 Included	AS-0451	G S	<b>Door Stop Assembly</b> Elastomer Weathering E2-0051 Included	AS-0457
	Double Acting Door Jamb	E9-0453	<u>[]</u>	<b>Sash Base</b> Use with E9-0403 or E9-0413 Glass Stops	E9-0408
	Intermediate Door Jamb	E9-9311		<b>Threshold</b> 1/2" x 4"	E9-0407
ŗ.	<b>Transom Glass Stop</b> For 1/4" Glazing	E9-0403			
Ľ	<b>Transom Glass Stop</b> For 1" Glazing	E9-0413			
C,	Transom Glazing Pocket For 1/4" Glazing	E9-0434			
L.	Transom Glazing Pocket For 1" Glazing	E9-0435			

# **Door Framing Members**



# ACCESSORIES

~	Shaar Blook			Catting Plack	
	<b>Shear Block</b> For Head, Horizontal & Sill (YES 40 FS)	E1-1012		<b>Setting Block</b> For Transom Bar 1" Glazing (YES 40 FI)	E2-0056
A CONTRACTOR OF	<b>Shear Block</b> For Head, Horizontal & Sill (YES 40 FI)	E1-1013	$\sim$	Water Deflector For 1" Glazing (YES 40 FI)	E2-0047
an an	<b>Shear Block</b> For Transom Bar AS-0456	E1-0326		Water Deflector For 1/4" Glazing (YES 40 FS)	E2-0048
	Shear Block For Sidelite Base (YES 40 FS)	E1-1010	R	Anti-Walk Block For Deep Pocket (YES 40 FI)	E2-0153
	Shear Block For Sidelite Base (YES 40 FI)	E1-1011	2.2	Glazing Gasket	E2-0052
	<b>End Dam</b> For Sill Flashing E9-1030	E1-1147	jî	Glazing Gasket	E2-0053
	<b>Splice Sleeve</b> For Sill Flashing E9-1030	E1-1146	2.S	Glazing Gasket	E2-0064
	Flat Filler Use at all Anchor Locations	E1-1054		Elastomer Weathering	E2-0051
	Steel Reinforcing (YES 40 FS)	E1-0157	¥	Pile Weathering	E2-0062
	Steel Reinforcing (YES 40 FI)	E1-0166	<u>ر</u> ۲	<b>Weathering Gasket</b> Use with Expansion Mullion E9-1325	K2-2441
	<b>Setting Block</b> For 1/4" Glazing (YES 40 FS)	E2-0019			
	<b>Setting Block</b> For 1" Glazing (YES 40 FI)	E2-0020			



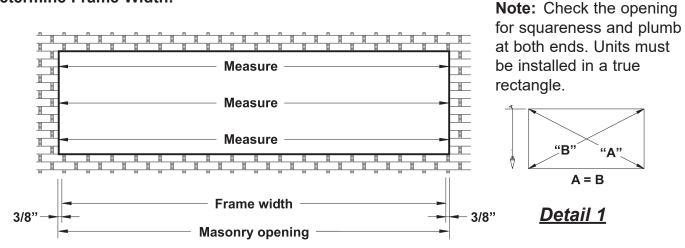
# ACCESSORIES

	<b>#8 x 1/4" FHMS</b> Zinc Plated Steel, For Attachment of Steel Reinforcing to Vertical (YES 40 FI)	FM-0804	()uuun»	<b>#12 x 5/8" PHSMS</b> Type AB, Zinc Plated Steel For Attach. of Horizontal & Sill to Shear Block E1-1013	PC-1210
	<b>#8 x 3/8" FHMS</b> Zinc Plated Steel, For Attachment of Steel Reinforcing to Vertical (YES 40 FS)	FM-0806	(]1111111111111111111111111111111111111	<b>#12 x 1" PHSMS</b> Type AB, Zinc Plated Steel For Screw Spline Attachment	PC-1216
Januar	<b>#10 x 1/2" FHSMS</b> Type AB, Zinc Plated Steel, For Attach. of Horiz. to Shear Blocks E1-0326, E1-1010, E1-1011	FC-1008	(]	<b>#12 x 1-1/4" PHSMS</b> Type AB, Zinc Plated Steel For Screw Spline Attachment	PC-1220
Annum	<b>#12 x 1/2" FHSMS</b> Type AB, For Attachment of Head to Shear Blocks E1-1012 & E1-1013	FC-1208	(]	<b>#12 x 1-3/4" PHSMS</b> Type AB, Zinc Plated Steel For Attachment of Shear Block E1-0326 to Vertical	PC-1228
Jummunnummun	<b>#10 x 1-3/4" PHSMS</b> Type AB, Zinc Plated Steel, For Attachment of Shear Blocks E1-1012 & E1-1013 to Vertical	PC-1028	Quuununna, quuununnee	<b>#12 x 3" PHSMS</b> Type AB, Zinc Plt. Stl., For Attach. of Shear Block E1-1010 & E1-1011 to Vertical	PC-1248



## STEP 1 DETERMINE FRAME SIZE

#### Determine Frame Width:

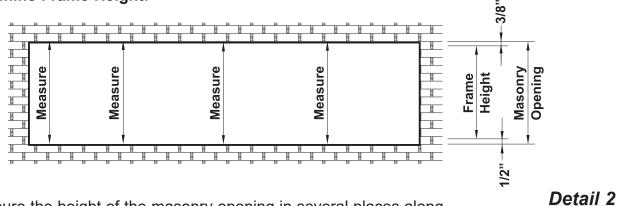


-Measure the width of the masonry opening at the top, middle and bottom. -Select the smallest dimension measured and subtract 3/4" to the determine the frame width to be used.

See Detail 1.

**NOTE:** Frame widths over 24'-0" require expansion mullions every 12 to 15 feet (best location at vertical next to the door jamb.)

**Determine Frame Height:** 



-Measure the height of the masonry opening in several places along the entire length of the opening.

-Select the smallest dimension measured and subtract 7/8" to determine the frame height to be used:

3/8" shim/caulk joint at the head.

- 1/8" for sill flashing, E9-1030.
- 3/8" shim/caulk joint below the sill flashing.

See Detail 2.

#### STEP 2 FABRICATE SILL FLASHING

#### For elevations without door framing:

Without Door Framing

JAMB

-Cut sill flashing, E9-1030, to the frame width determined in **Step 1**.

#### For elevations with door framing:

-Cut the sill flashing, E9-1030, from the end of the frame to the door jamb. (See approved shop drawings for this dimension)

#### See Detail 3.

-For openings longer than 24'-0", allow for a 3/8" joint for expansion between sill flashing members.

**INTERMEDIATE** 

VERTICAL

Sill Flashing Cut Length (Frame Width)

57

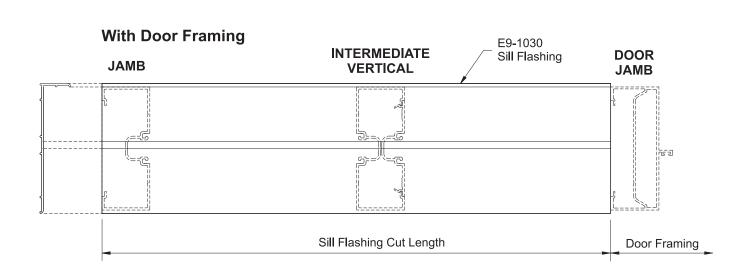
YES 40 FS Shown YES 40 FI Similar

**JAMB** 

<u>5</u>-:

E9-1030

Sill Flashing



**B B** 



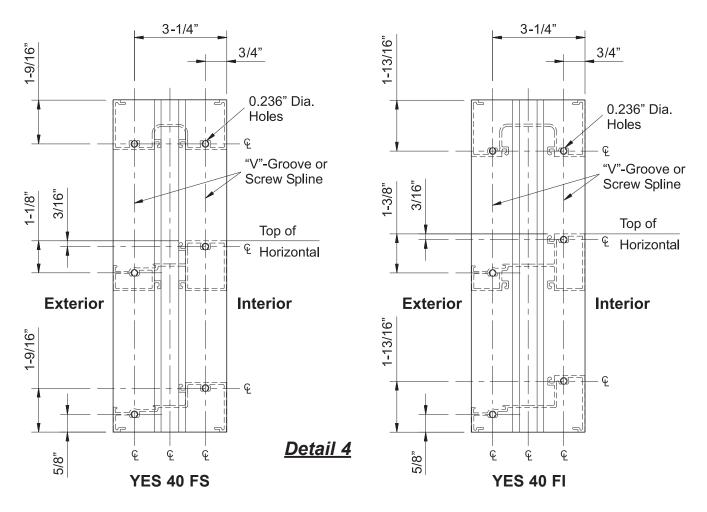


#### STEP 3 FABRICATE TWO PIECE VERTICALS FOR SCREW SPLINE ASSEMBLY

-Cut the two piece vertical and jamb members to the frame height determined in Step 1. -Fabricate holes in vertical members for screw spline attachment using one of the methods below:

- 1. Using a short piece of each horizontal member as a template, center the template on the face of the vertical and mark the location of each screw spline. Drill a 0.236" diameter (#B drill bit) hole at each location marked.
- 2. Layout the hole locations as shown in **Detail 4** and drill a 0.236" dia. (#B drill bit) clearance hole at each location marked.
- 3. Use the YKK AP drill fixture, H-7201, to drill the holes.
- 4. Use punch press with appropriate die set.

## See Detail 4.





## STEP 4 FABRICATE TUBULAR VERTICALS FOR SHEAR BLOCK ASSEMBLY

## YES 40 FS & YES 40 FI:

-Cut the vertical and jamb members to the frame height determined in **Step 1**.

-Tubular verticals require shear blocks for the attachment of head, horizontal and sill members:

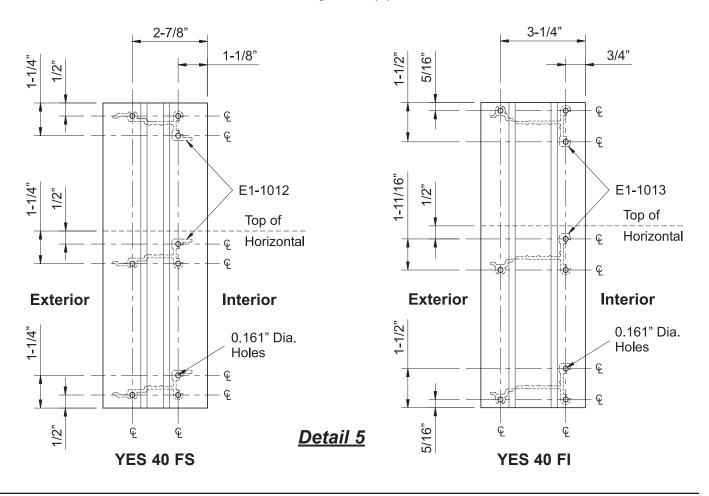
E1-1012 for YES 40 FS. E1-1013 for YES 40 FI.

**Note:** Open back horizontals, E9-1304 (YES 40 FS) and E9-1314 (YES 40 FI), must be used when using shear blocks.

-Mark the location for each shear block using one of the methods below:

- 1. Use a short piece of each horizontal member with a shear block installed as a template. Center the template on the face of the vertical and mark each hole location.
- 2. Layout the shear blocks as shown in **Detail 5**.

-Drill a 0.161" diameter hole (#20 drill bit) at each location marked. -Attach the shear blocks to the verticals using three (3) PC-1028 fasteners.





## STEP 5 FABRICATE HEAD, HORIZONTAL & SILL MEMBERS

-Cut head, sill and horizontal members to the daylight opening between verticals.

-Members that are to be attached to shear blocks require additional fabrication:

**Head Members:** Mark a hole location at each end, 1" from the ends centered along the glazing pocket "V"-groove.

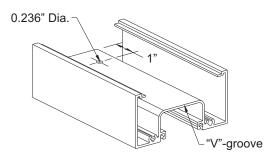
#### YES 40 FS horizontal and sill members:

Mark a hole location at each end, 1" from the ends centered along the glazing pocket "V"-groove.

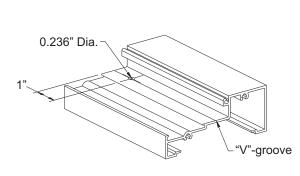
#### YES 40 FI horizontal and sill members:

Measure up 1/4" from the glazing pocket and mark a hole location at each end, 1" from the ends.

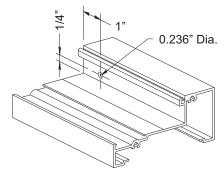
-Drill a 0.236" diameter hole (# B drill bit) at each location marked.



YES 40 FI Head Shown YES 40 FS Similar



YES 40 FS Horizontal/Sill <u>Detail 6</u>



YES 40 FI Horizontal/Sill

# STEP 6 FABRICATE GLASS STOPS & GLAZING ADAPTORS

-Cut glass stops to the same dimensions as their respective horizontals minus(-) 1/32".

-Cut glazing adaptors to the daylight opening minus(-) 1/32".

#### See Detail 6.



# FRAME ASSEMBLY

#### STEP 7 ASSEMBLE FRAMES

## Screw Spline Assembly:

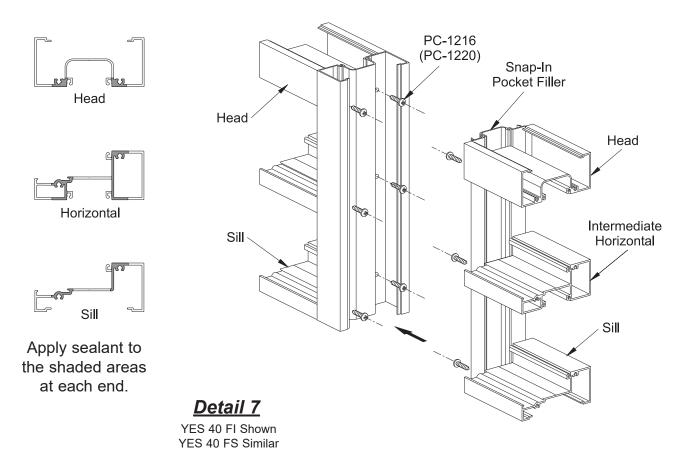
-Clean all joint surfaces using cleaner approved by sealant manufacturer.

-Apply (butter) sealant to both ends of head, horizontal and sill members just prior to assembly. -Attach head, horizontal and sill members to vertical members with two (2) PC-1216 fasteners at each end.

**Note:** Fasteners PC-1220 must be substituted for PC-1216 when the head member (with screw splines) is used as a vertical.

-Tool the sealant into the joints and wipe away any excess sealant.

See Detail 7.



**CAUTION:** Always assemble frames such that each lite of glass will have a minimum of one deep vertical glazing pocket.



# FRAME ASSEMBLY

#### STEP 7 (Continued) ASSEMBLE FRAMES

## Shear Block Assembly:

-Clean all joint surfaces using cleaner approved by sealant manufacturer.

-Apply (butter) sealant to both ends of head, horizontal and sill members.

-Apply sealant to the shear blocks as shown.

-Attach head members to shear blocks at each end with one (1) FC-1208 fastener.

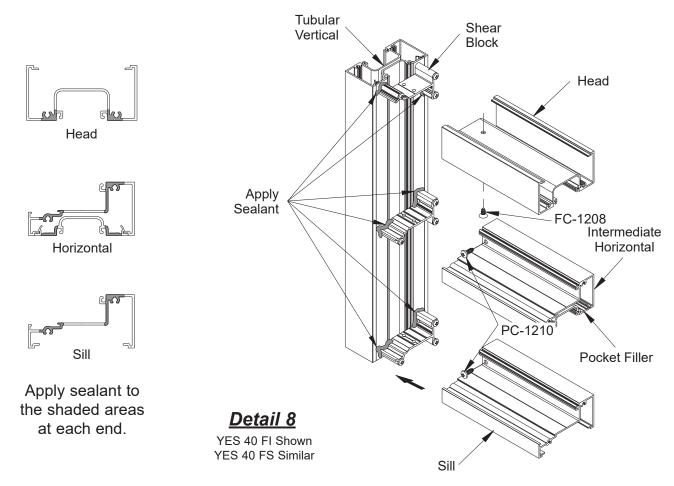
-Attach horizontal and sill members to shear blocks at each end with:

one (1) PB-1206 fastener for YES 40 FS.

one (1) PC-1210 fastener for YES 40 FI.

**Note:** Open back horizontals must be used with shear blocks at end bays.

#### See Detail 8.

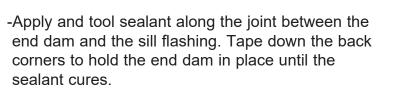


**CAUTION:** Always assemble frames such that each lite of glass will have a minimum of one deep vertical glazing pocket.

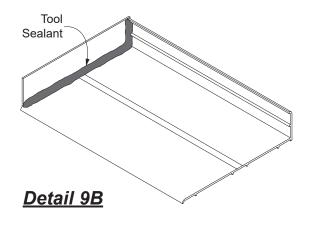
# STEP 8 INSTALL SILL FLASHING

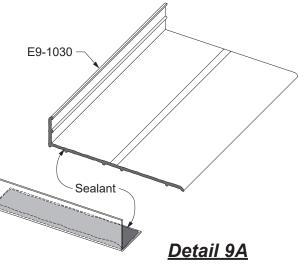
-Clean all joint surfaces using cleaner approved by sealant manufacturer.-Apply sealant to each end of the sill flashing.-Apply sealant to the contact surfaces of the E1-1147 end dam and adhere it to each end of the sill flashing.

See Detail 9A.



See Detail 9B.









#### STEP 8 (Continued) INSTALL SILL FLASHING

-Starting at the smallest opening height, install the sill flashing with a minimum of 3/8" shim underneath. Sill flashing must be installed level.

-Anchor the sill flashing to the structure a maximum of 4" from each end and then 18" to 24" on center.

-Apply and tool sealant to cover the heads of all fasteners.

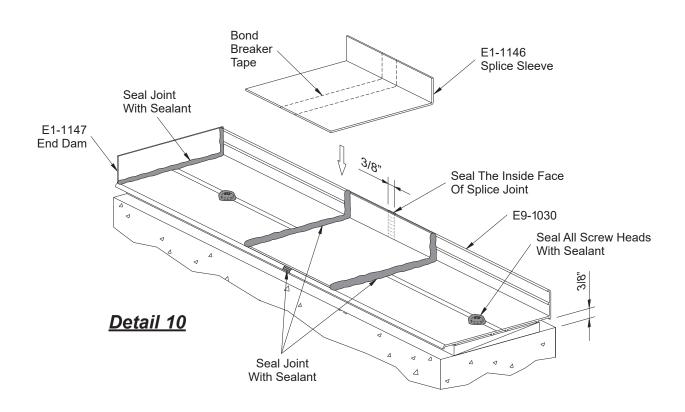
The sill flashing must be spliced every twelve to fifteen feet using splice sleeve, E1-1146: -Apply bond breaker tape to center of the splice sleeve on the underside.

-Apply a generous amount of sealant to both sides of the sill flashing splice.

-Center the splice sleeve over the 3/8" splice joint.

-Tool the sealant up and over the edges of the splice sleeve to completely seal the joint. -Apply and tool sealant at the front and back faces of the splice joint.

See Detail 10.





## STEP 9 INSTALL FRAMES

-Snap in flat fillers, E1-1054, or 2-1/2" long pieces of E9-1038 at head, jamb, and sill anchor locations.

-Snap assembled frames together if using screw spline assembly.

-Apply sealant to the front of the back leg of the sill flashing and immediately set the frame into the opening.

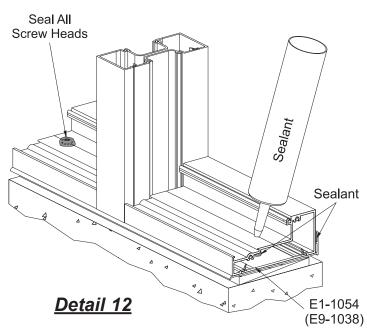
## See Detail 11.

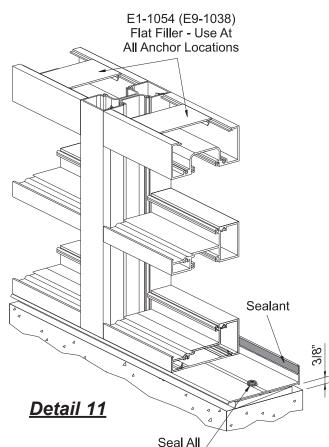
-Shim jamb and head members with a minimum of 3/8" shim.

-Anchor the frame to the structure at the sill\*, head, and jamb: 3" from the ends and then 18" to 24" on center.

-Always install a shim at all anchor locations. -Seal all screw heads.

**Note:** Use only flat head fasteners at head and jamb conditions.





Seal All Screw Heads

\*Sill anchors penetrate the sill flashing and must be sealed watertight.

Prior to installing sill anchors:

-Force sealant down through the anchor holes in the sill member

-Apply sealant to the screw threads of the sill anchor fastener.

-Apply and tool sealant to cover the sill anchor screw heads.

See Detail 12.

## STEP 9 (Continued) INSTALL FRAMES

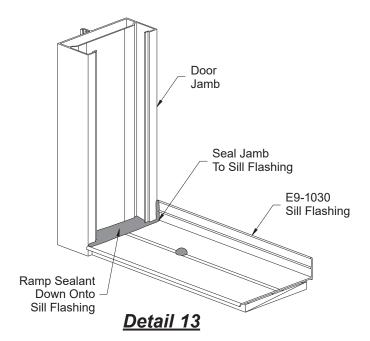
Prior to snapping the assembled frames into the door jamb, the end of the sill flashing needs to be sealed to the door jamb.

-Apply and tool sealant to all sill flashing to door jamb joints.

-Apply a liberal amount of sealant to completely fill the door jamb cavity and ramp the sealant down onto the sill flashing.

See Detail 13.

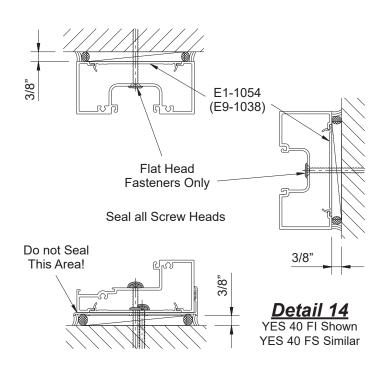
Refer to the **20D**, **35D**, **& 50D Entrances Installation Manual** for door installation instructions.



## STEP 10 APPLY PERIMETER SEALANT

- -Install backer rod around the perimeter of the frame.
- -Apply perimeter sealant to the joint between the frame and the structure.
- **-Do not** seal the joint between the sill and the sill flashing.
- -Make sure all screw heads are sealed.

## See Detail 14.



## STEP 11 INSTALL WATER DEFLECTORS

YES 40 FS/FI requires the installation of water deflectors, E2-0047 (for 1" glazing) or E2-0048 (for 1/4" glazing), at each end of the intermediate horizontals. Water deflectors aid to properly divert water away from the framing system.

-Peel away the protective paper from the bottom of the water deflector and install the water deflector by rotating it over each end of the horizontal.

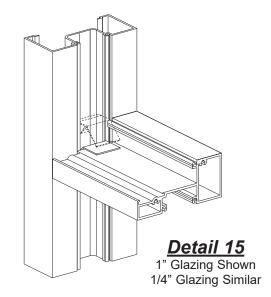
# See Detail 15.

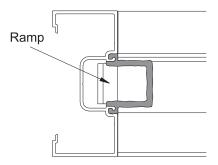
-Position the vertical leg of the water deflector against the end of the horizontal.

**Note:** For best adhesion, make sure that the horizontal is clean and dry.

-Apply and tool sealant along the edges of the water deflector and down onto the horizontal. See **Detail 16**.

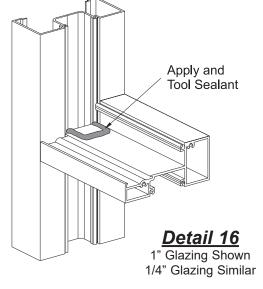
-Seal the ramp of the water deflector to the sides of the vertical gasket reglets. See **Detail 17**.





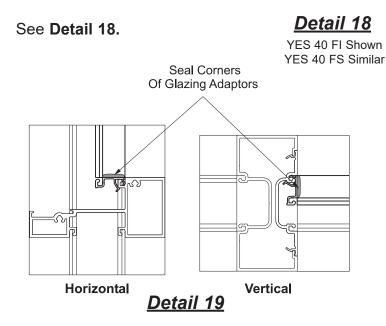






## STEP 12 APPLY INTERNAL SEALANT

- -Apply a generous amount of sealant to the vertical intersection of the horizontal and vertical members.
- -Tool all of the sealant to ensure a water tight joint.
- -Make sure all exposed screw heads are sealed.

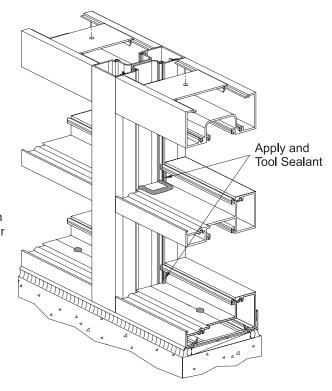


## STEP 13 (Optional) INSTALL GLAZING ADAPTORS

Glazing adaptors, E9-1039 and E9-1040, allow for glazing infills other than the standard 1/4" or 1". Please refer to the glazing tables on the right for possible adaptor/gasket combinations.

- -Snap glazing adaptors into the interior gasket reglets of the verticals.
- -Snap glazing adaptors into the interior gasket reglets of the horizontals.
- -Apply and tool sealant to the joint between vertical and horizontal glazing adaptors.

#### See Detail 19.



## **Glazing Table - YES 40 FS**

Glass Thickness	Exterior	Interior
3/16"	E2-0052	E2-0064
1/4"	E2-0052	E2-0052
5/16"	E2-0053	E2-0052
3/8"	E2-0053	E2-0053

## Glazing Table - YES 40 FI

Glass Thickness	Adaptor	Exterior	Interior
3/16"	E9-1040	E2-0052	E2-0064
1/4"	E9-1040	E2-0052	E2-0052
5/16"	E9-1040	E2-0053	E2-0052
3/8"	E9-1040	E2-0053	E2-0053
1/2"	E9-1039	E2-0064	E2-0064
5/8"	E9-1039	E2-0052	E2-0052
3/4"	E9-1039	E2-0053	E2-0053
7/8"	_	E2-0064	E2-0064
1"		E2-0052	E2-0052



# GLAZING

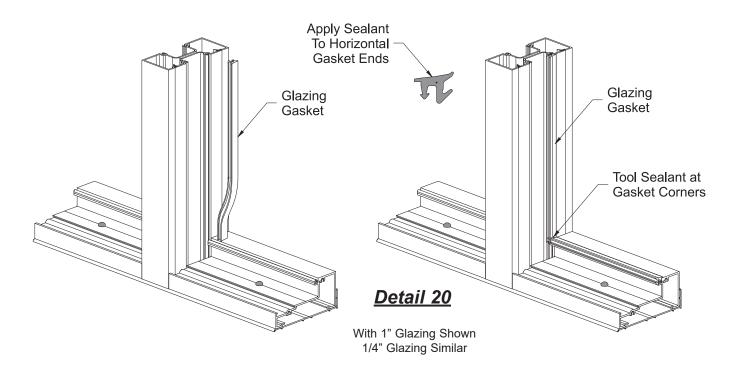
## STEP 14 INSTALL INTERIOR GLAZING GASKETS

The interior glazing gaskets must be installed prior to the glazing process.

-Using a small brush clean out any dirt that may have accumulated in the gasket reglets.

Vertical glazing gaskets must be installed first:

- -Cut vertical glazing gaskets to Daylight Opening plus(+) 3/16" for each foot of length. -Insert the gasket into the reglet at each end first, and then insert the gasket at the midpoint of the opening.
- -Push the gasket into the reglet starting at the midpoint and work towards each end.



Install horizontal glazing gaskets next:

- -Cut horizontal glazing gaskets to Daylight Opening plus(+) 3/16" for each foot of length.
- -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 Detail 20.

# GLAZING

# STEP 15 INSTALL GLASS

Determine the glass size:

	1/4" Glass Size	1" Glass Size	
Vertical	D.L.O. + 5/8"	D.L.O. + 7/8"	
Horizontal	D.L.O. + 5/8"	D.L.O. + 7/8"	

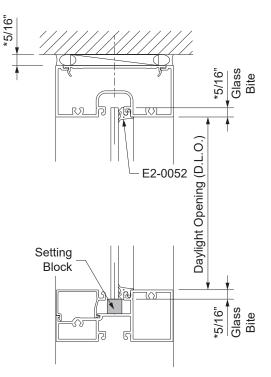
-Carefully install the glass into the opening: bring the lite up and into the deep pocket first and then rotate the other end in place.

-Carefully lift lite of glass, install setting blocks at quarter points of horizontal D.L.O. or according to engineering calculations.

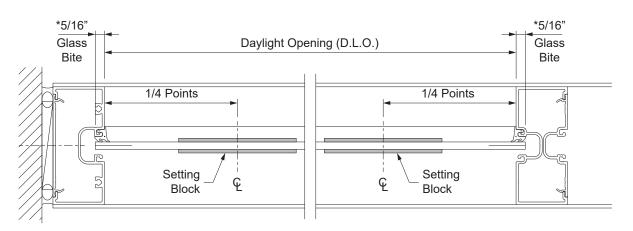
-Make sure the glass is engaged with all setting blocks.

## See Detail 21.

\* Note: For 1" glazing glass bite is 7/16".



Detail 21 1/4" Glazing Shown 1" Glazing Similar





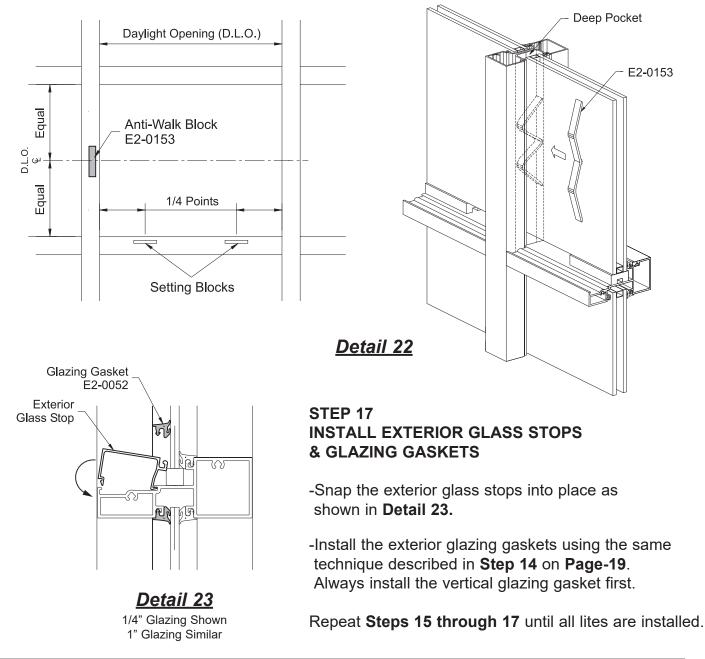
# GLAZING

## STEP 16 (YES 40 FI Only) INSTALL ANTI-WALK BLOCKS

YES 40 FI frames require the installation of an anti-walk block, E2-0153, in the vertical deep glazing pocket of each lite centered along the daylight opening.

-Flatten the anti-walk block against the exterior surface of the glass and push it into the opening between the glass and the mullion until it is released into the glazing pocket.

## See Detail 22.





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