

YCN 40 T Thermal Storefront Can System

# **Installation Manual**

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## **Installation Notes**

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

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

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

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

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

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

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

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

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

10. 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

	Vertical	BE9-1441	Ĩ	<b>Inside Hinged Mullion</b> 165° to 177° Male	BE9-1449
	Head Receptor	BE9-1442		90° Inside/Outside Corner Mullion	BE9-1463
	Sill Receptor	BE9-1443		90° Inside/Outside Corner Filler	E9-1438
{2 	<b>Head Filler</b> Use with BE9-1442	BE9-1444		90° Inside/Outside Corner Support Use with E9-1440	E9-1439
<u>*</u>	<b>Sill Filler</b> Use with BE9-1443	BE9-1445	<u>F</u>	90° Inside/Outside Corner Support Use with E9-1439	E9-1440
,,	<b>Glass Stop</b> For BE9-1444 head filler	E9-1416	LŢ,	<b>Glazing Adaptor</b> For 5/8" & 3/4" Glazing	E9-1039
	Horizontal	BE9-1461	L Z	<b>Glazing Adaptor</b> For 3/16", 1/4", 5/16" & 3/8" Glazing	E9-1040
	Interior Glass Stop For BE9-1461 horizontal	BE9-1461	imi	<b>Pocket Filler</b> Use with BE9-1441	BE9-2570
	Hinged Mullion Female	BE9-1447			
	Outside Hinged Mullion 167.5° to 176° Male	BE9-1448			



## **DOOR FRAMING MEMBERS**

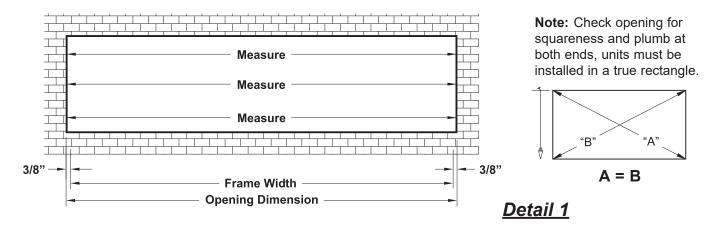
d	<b>Single Acting</b> <b>Transom Bar</b> Elastomer Weathering E2-0051 Included	AS-0452	j	<b>Transom Glass Stop</b> For 1" Glazing	E9-0413
	Double Acting Transom Bar Pile Weathering E2-0062 Included	AS-0456	L. S.	<b>Transom Glazing Pocket</b> For 1" Glazing	E9-0435
<b>111</b>	Single Acting Door Jamb Elastomer Weathering E2-0051 Included	AS-0451		Door Stop O/P Assembly Elastomer Weathering E2-0051 Included	AS-0409
	Double Acting Door Jamb	E9-0453		<b>Door Stop Base</b> Usede with AS-0409	E9-1113
	Head Member @ Transom	E9-1313	<u>[]</u>	<b>Sash Base</b> Use with E9-0403 or E9-0413 Glass Stops	E9-0408
	Intermediate Door Jamb	E9-9311		Threshold 1/2" x 4"	E9-0407

# ACCESSORIES

	<b>Shear Block</b> For BE9-1461 Horizontal Use (2) PC-1228 & (2) FB-1008 Not Included	E1-1044	27.	Glazing Gasket	E2-0053
	Anchor Clip For 90° Corner Mullions	E1-1005	2.I	Glazing Gasket	E2-0064
	End Dam For Head & Sill Receptor	E1-1019	<u>S</u> IJ	Glazing Gasket	E2-0221
	<b>Flat Filler</b> Use at Door Jamb Conditions	E1-1054		Elastomer Weathering Use with Door Frame	E2-0051
	Setting Block	E2-0040	¥	<b>Pile Weathering</b> Use with Door Frame	E2-0062
	Setting Block Support Use at Sill	E2-0237	Jannas	<b>#10 x 1/2" FHSMS</b> <b>Type B,</b> Zinc Plated Steel For Attachment of Horizontal to Shear Block E1-1044	FB-1008
	<b>Isolator Tape</b> For 90° Inside Corner Assembly	E2-0286	Sum	<b>#10 x 3/8" PHSMS</b> <b>Type AB,</b> Zinc Plated Steel, For Attachment of Splice Sleeve to Receptor	PC-1006
	Water Deflector	E2-0047	Summe	<b>#10 x 1/2" PHSMS</b> <b>Type AB,</b> Zinc Plated Steel, For Attachment of Anchor Clip E1-1005	PC-1008
	Silicone Splice Sheet	E2-0070	Spinning	<b>#12 x 1/2" PHSMS</b> <b>Type AB,</b> Zinc Plated Steel, For Attachment of Door Jamb Clip	PC-1208
	<b>Steel Reinforcing</b> 1-3/4" x 1-3/4" x 0.135" Steel Channel Use with BE9-1441	E1-0158	()	<b>#12 x 1" PHSMS</b> <b>Type AB,</b> Zinc Plated Steel, For Attachment of BE9-2570 Pocket Filler	PC-1216
	<b>Steel Reinforcing</b> 3/8" x 2" Steel Bar Use with BE9-1441	E1-0170	()	<b>#12 x 1-3/4" PHSMS</b> <b>Type AB</b> , Zinc Plated Steel For Attachment of Shear Block E1-1044 to Vertical	PC-1228
2.J	Glazing Gasket	E2-0052			



## STEP 1 FABRICATE HEAD & SILL RECEPTORS

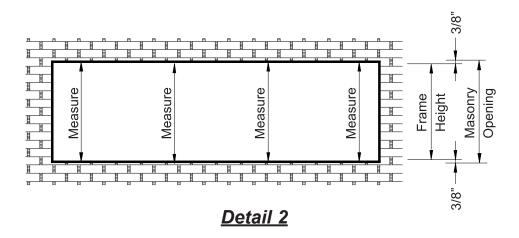


-Measure the width of the masonry opening at the top, middle, and bottom.

-Select the smallest dimension measured and subtract 3/4" to determine frame width to be used. See **Detail 1**.

**Note:** Frame widths over 24'-0" require receptor splice joints every 12 to 15 feet (locations as indicated on the approved shop drawings.

### **Determine Frame Height:**



-Measure the masonry opening height several times along the length of the opening to obtain the smallest vertical dimension.

-Frame height equals the smallest vertical dimension minus(–) 3/4".

(Allow 3/8" minimum caulk joint at both the head and the sill.)

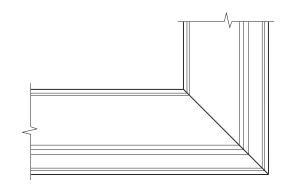
### See Detail 2.

## Step 1 (Continued) FABRICATE HEAD & SILL RECEPTORS

### **Receptors at Corners:**

If your project has corners, then the head and sill receptors are to be mitered. See **Detail 3**.

**Note:** 90° corner shown, other angles similar.



Detail 3

### STEP 2 WEEP HOLES IN SILL RECEPTOR

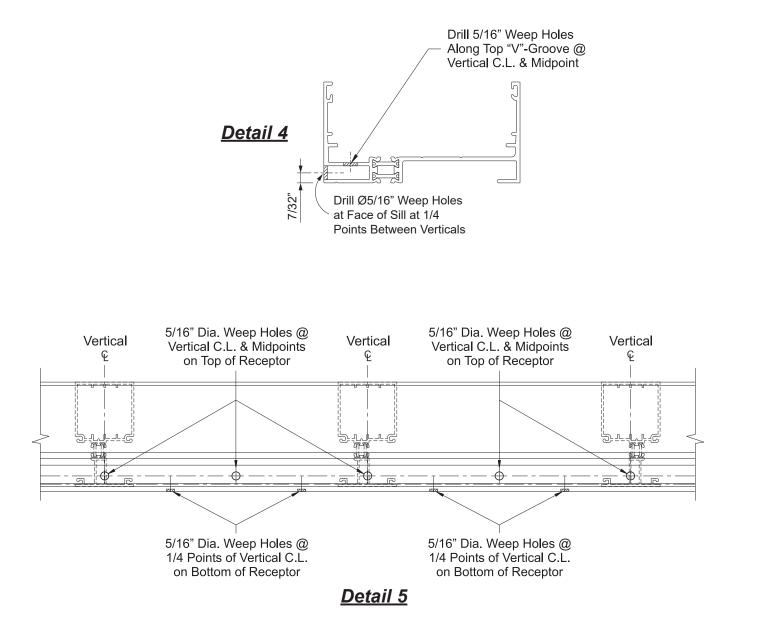
-Inside the sill receptor, mark the centerline of each vertical and the centerline between verticals along the "V"-Groove at the front of the receptor.

-Turn the sill receptor over and mark the quarter points between vertical mullions along the "V"-Groove on the bottom of the receptor.

-Drill 5/16" diameter weep holes at each location marked.

### See Details 4 & 5.

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### STEP 3 FABRICATE VERTICAL MULLIONS

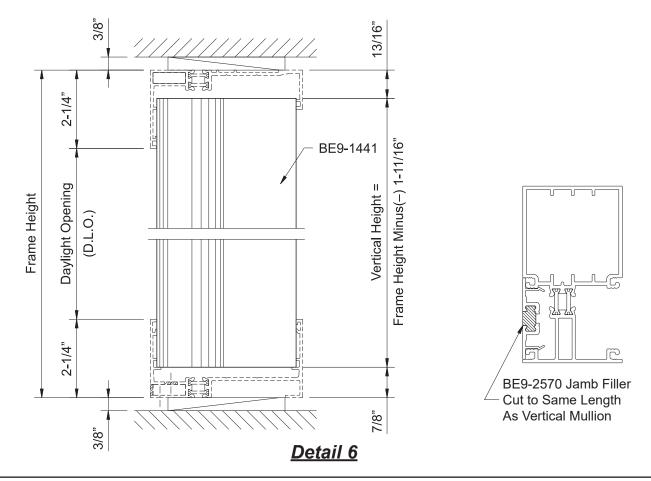
Cut vertical mullions:

-Vertical and jamb members must be fabricated to fit into the head and sill receptors.

-Cut all vertical members to the Frame Height minus(-) 1-11/16".

-Cut the BE9-2570 jamb filler the same length as the vertical mullion.

See Detail 6.





### STEP 4 FABRICATE VERTICAL MULLIONS FOR SHEAR BLOCKS

Shear blocks, E1-1044, are required to attach horizontals to vertical and jamb members.

-Refer to shop drawings and mark a line on the side of the vertical at the top of each horizontal. -Using a small piece of horizontal with a shear block attached as a template, align the glazing pockets and mark the hole locations for the shear block onto the vertical.

-Drill a 0.189" (#12) diameter hole at each location marked.

### OR

-Locate the top of the horizontal, measure down 3/8" and draw a line across the side of the vertical using a small T-square.

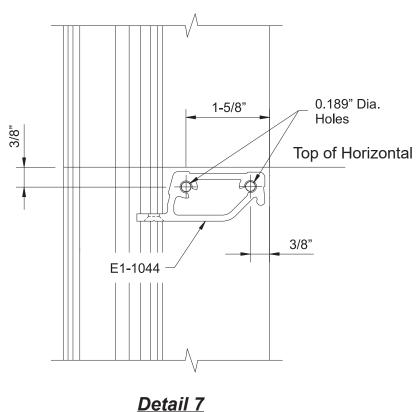
-Mark the hole location for the back fastener 3/8" from the back of the mullion along the line.

-Mark the hole location for the front fastener 1-5/8" from the back of the mullion along the line. Use extreme care. The horizontal must be installed level.

-Drill a 0.189" (#12) diameter hole at each location marked.

-Attach horizontal shear blocks with two PC-1228 fasteners per block.

### See Detail 7.

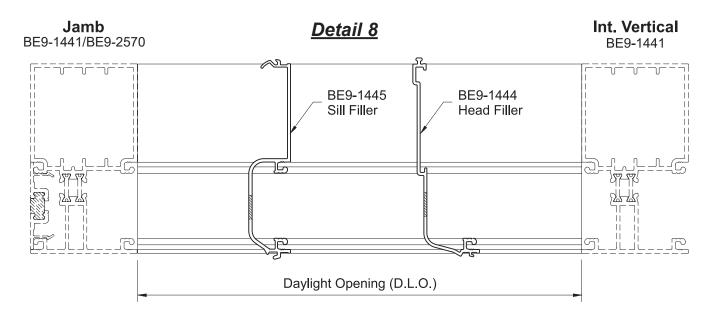


## Vertical/Jamb Mullions



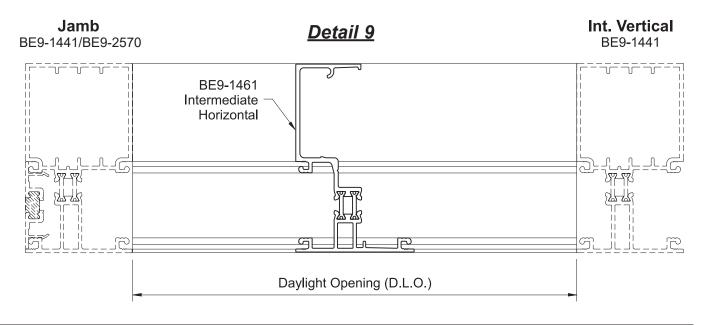
## STEP 5 FABRICATE HEAD & SILL FILLERS

-Cut all head and sill fillers to the daylight opening dimension between vertical mullions. (Tolerance plus 0", minus 1/32") See **Detail 8**.



## STEP 6 FABRICATE INTERMEDIATE HORIZONTALS

-Cut intermediate horizontals to the daylight opening dimension between vertical mullions. (Tolerance plus 0", minus 1/32") See **Detail 9**.

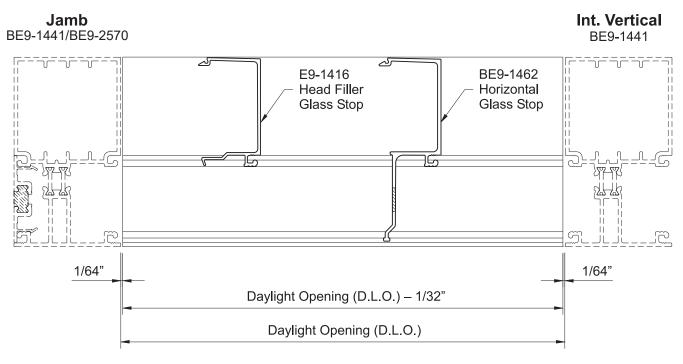




## STEP 7 FABRICATE INTERIOR GLASS STOPS

-Cut interior glass stops, E9-1416 and BE9-1462, to the daylight opening dimension between vertical mullions minus(–) 1/32".

See Detail 10.



Detail 10



### STEP 8 INSTALL HEAD & SILL RECEPTOR END DAMS

-Before installing head and sill receptors, insert a backer rod into the front chambers at each end of the receptors and fill with sealant.

### See Detail 11.

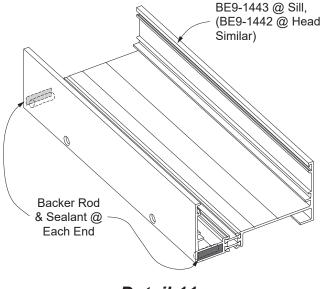
End dams are required at each end of head and sill receptors to provide a watertight installation.

All end dams need to be modified as shown in **Details 12** & **12A**.

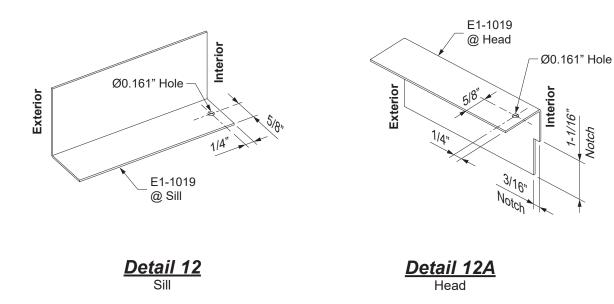
-Apply sealant to the end of the receptor. -Center the end dam, E1-1019, with the end of the head and sill receptor.

-Drill a 0.161" (#20 bit) diameter hole through both end dams and receptor as shown.

-End dams at the head will require notching at the interior to clear the jamb as shown in **Detail 12A**.



Detail 11



# STEP 8 Apply & Tool INSTALL HEAD & SILL RECEPTOR END DAMS Sealant

-Prior to installing the end dam at the jamb, apply sealant to the end of the receptor -Fasten the end dam to the head & sill receptor at the interior side with a PC-1006 fastener.

-Apply and tool sealant between end dam and receptor to create a watertight joint.

See Detail 13.

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-Using building control lines, locate inside face

of head and sill receptors.

-Check the vertical opening height along the length of each opening and locate the smallest dimension. Begin installation at the smallest opening height with a minimum 3/8" shim between the masonry and the receptors.

-As anchoring proceeds, shim as necessary to keep receptors parallel and level.

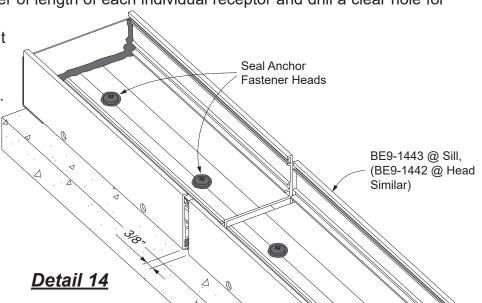
-Locate anchors within 6" from each end of the receptor, within 6" of each side of vertical mullion centerline, and 24" on center maximum.

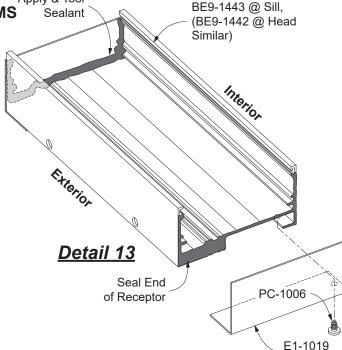
-Locate the approximate center of length of each individual receptor and drill a clear hole for

anchor bolt. Check approved shop drawings for anchor bolt and clear hole size.

Do not drill larger clear holes. See **Detail 14**.

-Seal all anchor heads and fasteners that penetrate the receptor.





End Dam

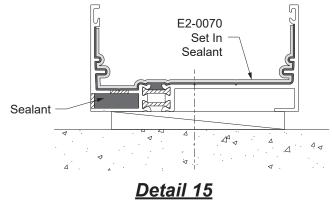
## STEP 10 INSTALL HEAD & SILL RECEPTORS

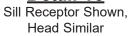
-The expansion joint gaps in the head and sill receptor must be bridged with E2-0070 splice sheets at the head at the sill.

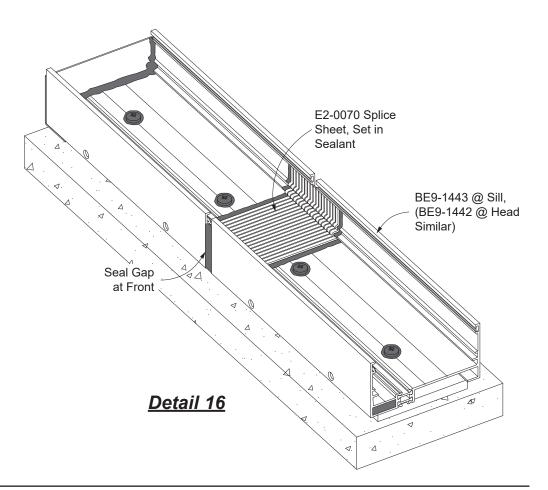
-Locate 3/8" expansion/splice joints at center of daylight opening.

Clean all sealant contact surfaces using cleaner approved by sealant manufacturer.
Adhere the E2-0070 splice sheet with sealant to the receptor at the joint. Trm the sheet to fit.
Apply pressure and tool the excess sealant over the edges of the splice sleeve.

See Details 15 & 16.







### STEP 11 INSTALL JAMB MULLIONS

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-Apply sealant to the interior walls of the head and sill receptor at the ends where the jambs are to be installed.

- -Install the jamb into head and sill receptor. Slide the jamb toward end of receptor until contact is made with the end dam.
- -Shim the jamb as required. Install anchors within 6" from each end and no more than 24" on center. Refer to approved shop drawings or P.E. calcs for anchor fastener requirements.
- -Apply and tool sealant to the heads of all anchor fasteners.

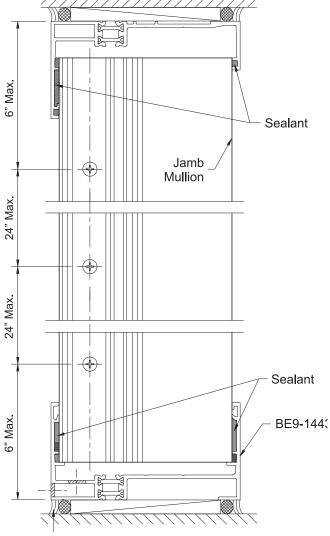
-Seal the jamb to the receptors and structure. See **Details 17 & 18**.

## STEP 12 APPLY PERIMETER SEALANT

-Install backer rod around the exterior and interior perimeter of the frame.

-Apply perimeter sealant between the frame and the structure.

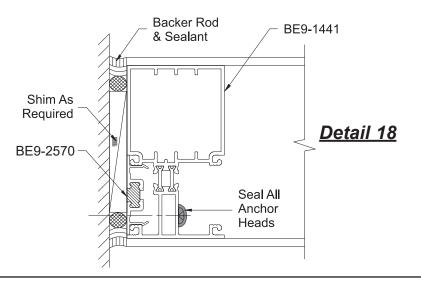
### See Detail 17 & 18.



Backer Rod & Sealant

<u>Detail 17</u>

BE9-1441/BE9-2570





### STEP 13 INSTALL VERTICAL MULLIONS

Once the jamb is anchored and sealed, proceed with the installation of the intermediate vertical mullions.

-Prior to snapping in any sill fillers, install setting block supports, E2-0237, along the sill receptor at quarter points of daylight opening between verticals.

-Snap in the first sill filler, BE9-1445, and slide it tight against the jamb mullion.

-Snap in the first head filler, BE9-1444, and slide it tight against the jamb mullion.

-Stand the first vertical up into the head and sill receptors making sure that it is installed plumb and square.

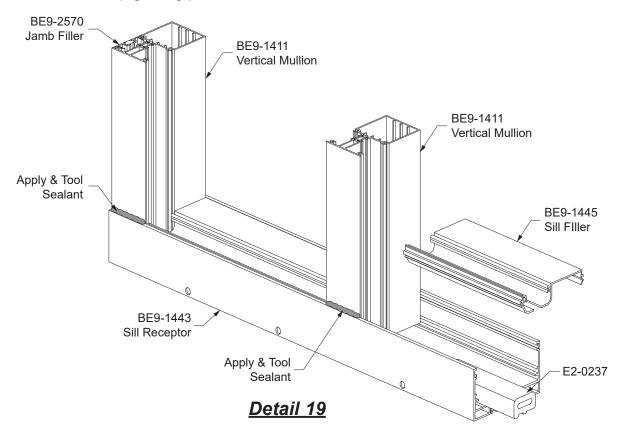
-Snap in the next sill and head fillers and slide it tight against the vertical mullion.

-Install the rest of the verticals, sill fillers, and head fillers using the same technique described above. Install verticals so that each opening has a minimum of one deep pocket. All verticals must be installed plumb and square.

-Apply and tool sealant to the intersection of all verticals to the head and sill receptors. See **Detail 19**.

**Caution:** 1) Periodically check mullion to mullion dimension to avoid accumulating dimensional error.

2) Install verticals so that each lite of glass has a minimum of one deep glazing pocket.



E9-1440

# FRAME INSTALLATION

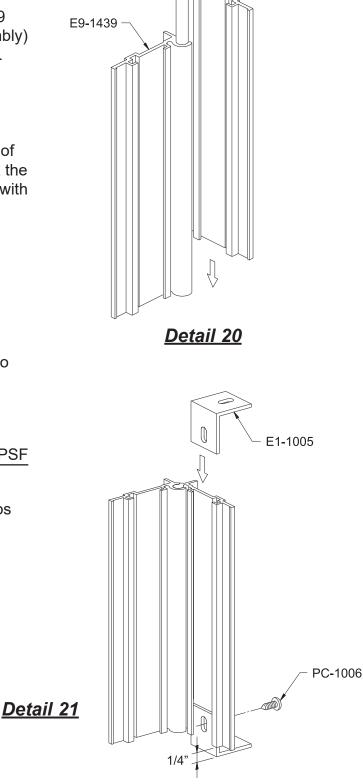
## STEP 14 INSTALL CORNER MULLIONS

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-Prior to installing the head and sill fillers adjacent to the corner mullion, cut E9-1439 and E9-1440 (pivot frame mounting assembly) to the same length as the vertical mullions. -Slide the two pieces together as shown in **Detail 20**.

-Install anchor clip, E1-1005, at the bottom of E9-1440. Allow the clip to extend 1/4" past the bottom of the corner assembly and fasten with one PC-1008 fastener.

-Install anchor clip, E1-1005, at the top of E9-1440, but do not fasten. See **Detail 21**.



-Before installing any corner assemblies into the receptors, determine the end reaction using the following formula:

REACTION LBS. = <u>Mullion Spacing (ft) x Mullion Height (ft) x PSF</u> 2

-If the answer exceeds 400 lbs., anchor clips E1-1005 must be installed at both ends of E9-1439 prior to attaching BE9-1463.



### STEP 14 (Continued) INSTALL CORNER MULLIONS

-Fill the front and back reglets of BE9-1463 with silicone sealant.

-Install corner mullion, BE9-1463, onto the E9-1439 side of the pivot frame mounting assembly with PC-1008 fasteners 3" from each end and no more than 24" on center.

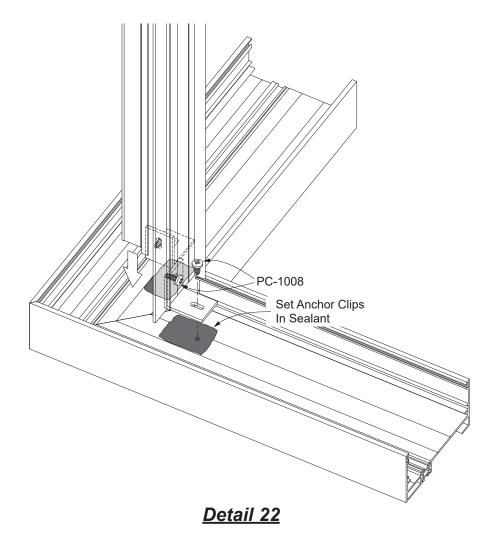
-Set corner filler, E9-1438, into the head and sill receptors.

-Install partial corner assembly into the head and sill receptors by engaging E9-1438 into the front reglet of BE9-1463.

-Prior to attaching the bottom anchor clip to the sill receptor, apply sealant to where the clip is to be attached.

-Attach bottom anchor clip, E1-1005, to the sill receptor with one PC-1008 fastener.

See Detail 22.





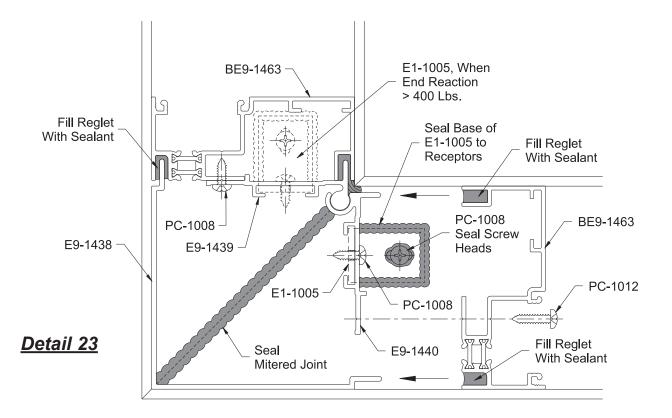
### STEP 14 (Continued) INSTALL CORNER MULLIONS

-Apply and tool sealant to the screw head and around the base of the anchor clip. -Attach top anchor clip, E1-1005, to the head receptor with one PC-1008 fastener. Do not fasten top anchor clip to E9-1440.

-Fill the reglets of the last corner mullion, BE9-1463, with sealant and install it into the head and sill receptors. Engage E9-1438 into the front reglet and E9-1440 into the back reglet. -Fasten BE9-1463 to E9-1440 with PC-1012 fasteners 3" from each end and no more than 24" on center.

See Detail 23.

-Continue to install the rest of the verticals, sill fillers, and head fillers.



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## FRAME INSTALLATION

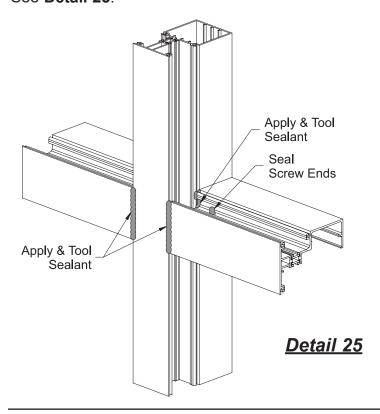
## STEP 15 INSTALL INTERMEDIATE HORIZONTALS

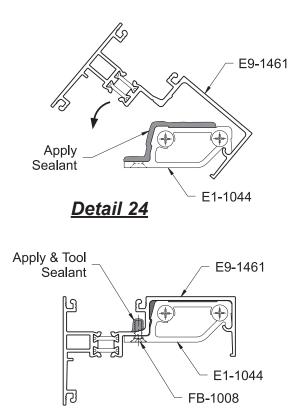
-Once all of the verticals have been installed, apply a bead of sealant along the top of the shear block, E1-1044, where it meets the vertical. -Immediately after applying the sealant, rotate the horizontal onto the shear block making sure that the horizontal glazing pocket is aligned with the vertical glazing pocket. Take care to ensure there are no voids between the shear block and the horizontal. See **Detail 24**.

-The shear block already has two countersunk holes drilled in the underside of the leg that extends under the glazing pocket. Using the farthest hole from the vertical mullion, match drill a 0.161" (#20) diameter hole at each end of the horizontal.

-Attach the horizontal to the shear block using one FB-1008 fastener at each end.

-Tool the sealant into the vertical and horizontal mullion joint and wipe away any excess sealant. -Seal the ends of the fasteners that penetrate the glazing pocket of the horizontal. See **Detail 25**.





All intermediate horizontal to vertical joints must be sealed.

-Apply and tool sealant to the horizontal to vertical joint along the inside wall of the glazing pocket and to the exterior horizontal to vertical joint. See **Detail 25**.



## STEP 16 INSTALL WATER DEFLECTORS

YCN 40 T requires the installation of a water deflector, E2-0047, at both ends of every intermediate horizontal.

-Peel away the protective paper from the bottom of the water deflector, E2-0047, and install the water deflector by rotating it over each end of the horizontal.

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

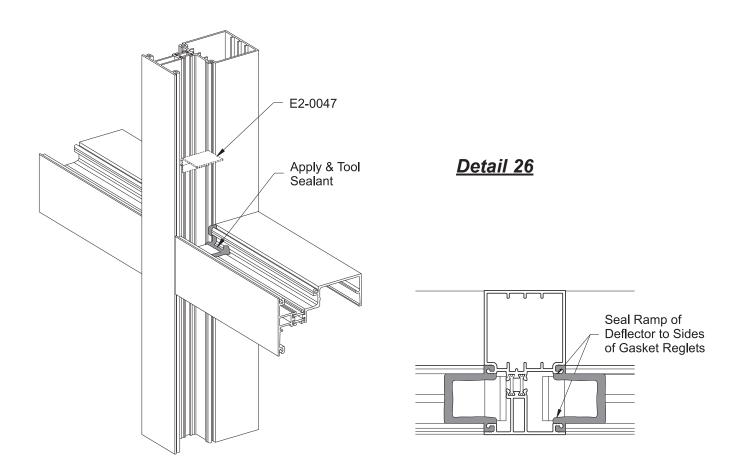
**Note:** For best adhesion, make sure that the horizontal is clean and dry.

-Apply and tool sealant along the edges of the water deflector, down onto the horizontal, and up the vertical.

-Seal the ramp of the water deflector to the sides of the vertical gasket reglets.

See Detail 26.

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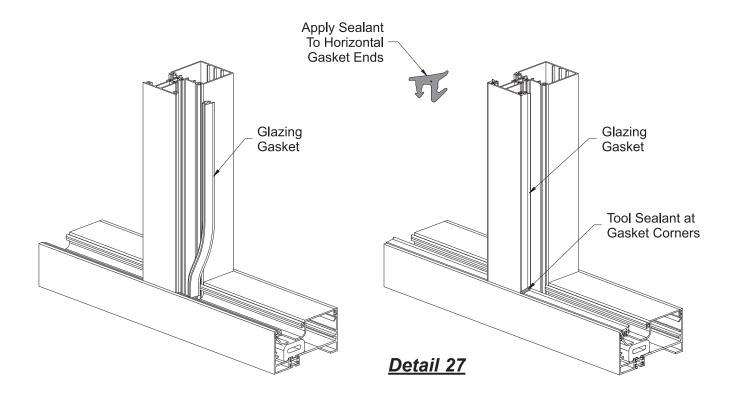
# GLAZING

## STEP 17 INSTALL GLAZING GASKETS

The exterior glazing gaskets must be installed prior to beginning the glazing process.

-Using a small brush clean out any dirt that may have accumulated in the gasket reglets. -Install the vertical glazing gaskets first:

- -Cut vertical glazing gaskets to the Daylight Opening plus(+) 3/16" for each foot of length.
- -Insert the gasket into the reglets at each end first; then insert the gasket into 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 and insert the gasket into the reglet at each end first.

-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 27**.



## GLAZING

### STEP 18 INSTALL GLASS

-Determine the glass size:

### **GLASS SIZES**

Horizontal Glass Size = D.L.O. plus(+) 7/8" Vertical Glass Size = D.L.O. plus(+) 7/8"

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.

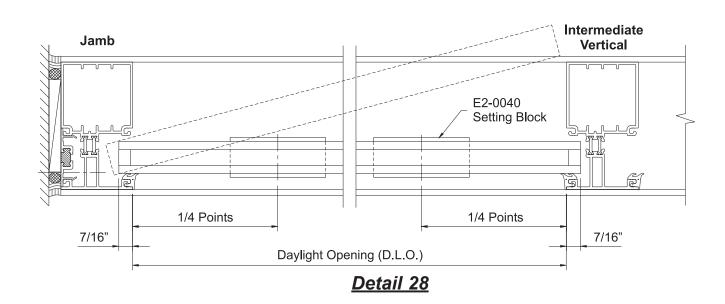
Glass Thickness	Adaptor	Exterior	Interior
3/16"	E9-1040	E2-0052	E2-0064
1/4"	E9-1040	E2-0052	E2-0052
5/16"	E9-1040	E2-0053	E2-0052
3/8"	E9-1040	E2-0053	E2-0053
1/2"	E9-1039	E2-0064	E2-0064
5/8"	E9-1039	E2-0052	E2-0052
3/4"	E9-1039	E2-0053	E2-0053
7/8"		E2-0064	E2-0064
1"	_	E2-0052	E2-0052

-Clean the sill receptor of debris to clear weep holes.

-Install setting blocks at 1/4 points of horizontal D.L.O. or according to engineering calculations. -Begin installation of glass at one end and work towards the opposite end. To clear the opening width, insert one end of the glass into the vertical deep pocket, rotate the glass into the opening, and slide the glass towards the shallow pocket to maintain the 1/2" glass bite.

-Use a short piece of glazing gasket installed on the sides of the verticals to temporarily secure the glass.

-Continue glass installation until all units are in place. See **Detail 28**.



## Glazing Table

# YCN 40 T Thermal Storefront Can System

## GLAZING

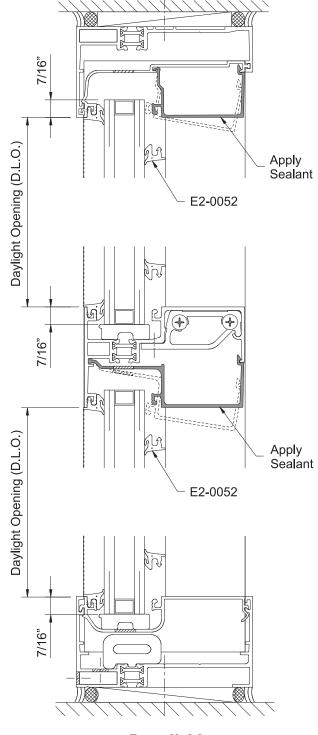
## STEP 19 INSTALL INTERIOR GLASS STOPS

-Apply sealant to each end of the glass stops and snap them into position.

-Tool the sealant into the joint between the glass stop and the vertical to ensure a watertight seal and wipe away any excess sealant. See **Detail 29**.

-Cut interior vertical and horizontal glazing gaskets to the same dimension as described in Step 17.
-Remove the temporary gaskets as you work.
-Install the interior vertical and horizontal glazing gaskets using the same technique described in Step 17 on Page 21.

Note: Always install vertical glazing gaskets first.



Detail 29

# DOOR FRAME ATTACHMENT

## STEP 20 INSTALL DOOR FRAMES

**Note:** The glass on the YCN 40 T side of a door jamb is always glazed into the deep glazing pocket of the BE9-1441 mullion.

-Insert a BE9-2570 pocket filler, full length of the door height, into the shallow glazing pocket of the door jamb mullion. Secure the filler with PC-1216 fasteners at 3" from each end and at 18" maximum on center or per engineering calculations.

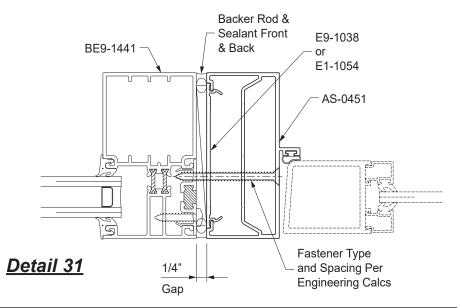
See Detail 30.

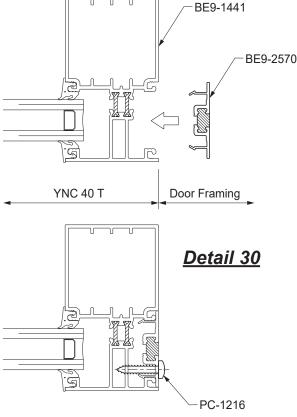
-Attach the door framing to the door jamb mullion using PC-1240 fasteners at 3" from each end and at 18" maximum on center or per engineering calculations. Ensure a 1/4" shim space between the door framing and the YCN 40 T framing.

See Detail 31.

Note: The transom glazing will be center set.











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