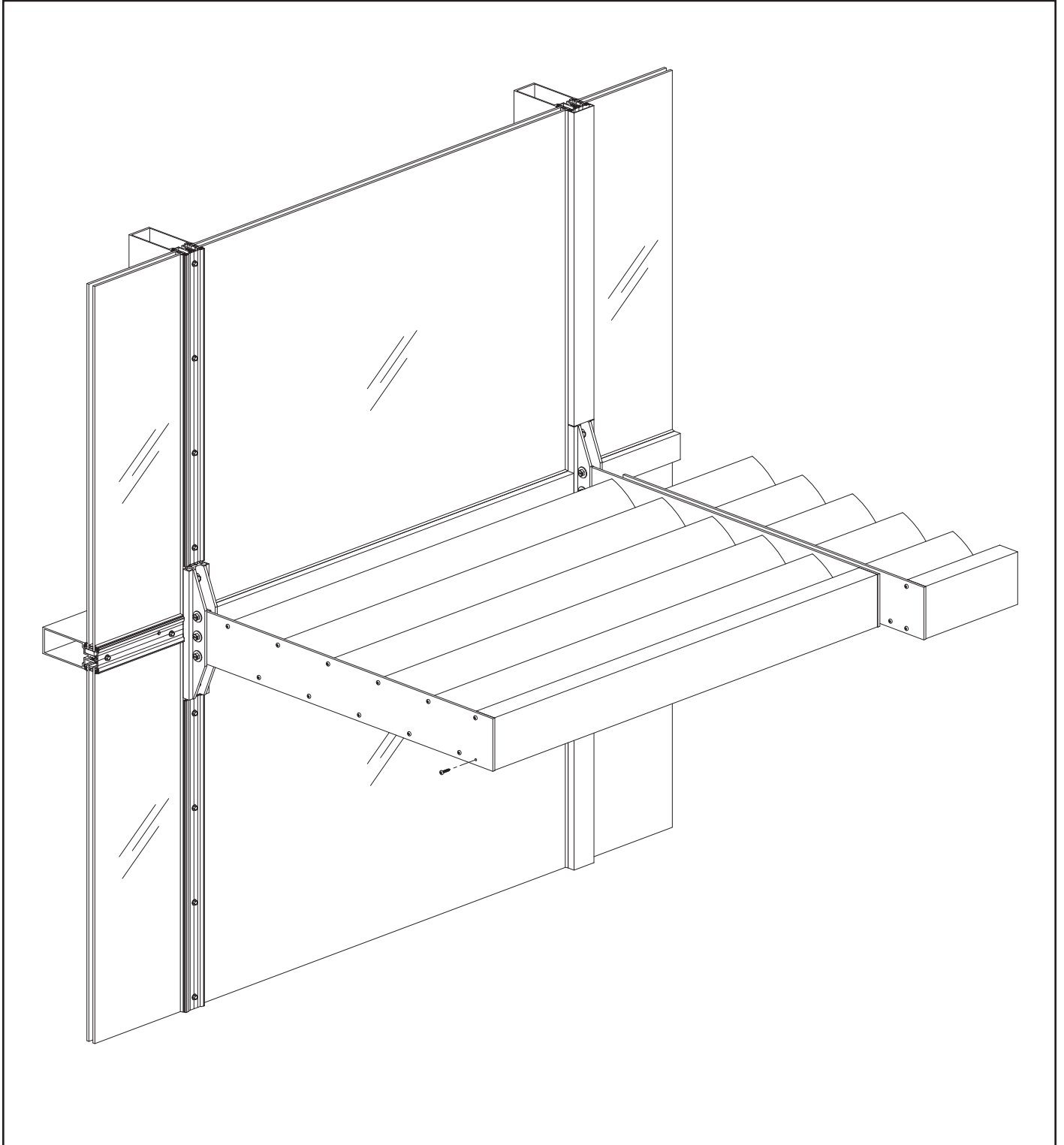


**ThermaShade® Sunshade System for Curtain Wall
Exposed Anchor**



Installation Manual



Prior to fabrication and installation of the YKK AP ThermaShade™ system, an engineering review **MUST** be completed. A qualified engineer must review the “combined load” information for the project to ensure proper selection of curtain wall and ThermaShade members.

Please maintain an executed copy of the document in your project file.

A blank copy of the document is contained in the ThermaShade price book and design manual section.

TABLE OF CONTENTS








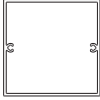



Installation Notes	Page ii
PARTS DESCRIPTION	
ThermaShade Stock Lengths	Page 1
ThermaShade Outriggers	Page 2 to 7
ThermaShade Accessories	Pages 8 & 9
ASSEMBLY FABRICATION	
ThermaShade Assembly Fabrication	Pages 10 to 12
Mullion Preparation (YCW 750 XT Only)	Page 13
Pressure Plate Fabrication	Page 14
STANDARD ASSEMBLY INSTALLATION	
Prepare Jambs	Page 15
Anchor Clip Attachment.....	Pages 16 & 17
Install ThermaShade Assemblies	Pages 18 to 20
Install Face Covers.....	Page 21
ANCHOR CLIP, OUTRIGGER, COVER, CORNER ASSEMBLY	
Inside Corner Anchor Clip Attachment.....	Page 22
Install ThermaShade Assemblies	Page 23
Install Face Covers & Outrigger End Cap.....	Page 24
Outside Corner Anchor Clip Attachment	Page 25
Install Outside Corner Outrigger.....	Pages 25 & 26
Brake Metal Installation	Pages 26 & 27
YHC 300 Anchor Clip Preparation.....	Page 28
WALL MOUNT ATTACHMENT	
Combined Load Charts.....	Page 29
Anchor Clip Attachment.....	Pages 30 & 31
Attach Louvers and Fascia.....	Page 32
Install Outriggers	Page 32
REGLAZING INSTRUCTIONS	
Reglazing Curtain Wall	Page 33

Note: All illustrations show examples of YCW 750. ThermaShade can be used also on YHC 300. Details may vary but are called out and illustrated where required.

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, including cleaning and priming all parts.
8. Remember to isolate, in an approved manner, all aluminum from uncured masonry or other incompatible materials.
9. System-to-structure fasteners are not supplied by YKK AP. Fasteners called out on shop drawings are to indicate minimum sizes for design loading.
10. If any questions arise concerning YKK AP products or their installation, contact YKK AP for clarification before proceeding.
11. YKK AP storefront and/or curtain wall framing is typically completed before drywall, flooring and other products which may still be in process. Take the extra time to wrap and protect the work produced.
12. Cutting tolerances are plus zero, minus one thirty second unless otherwise noted.
13. Check our website, www.ykkap.com, for the latest installation manual update prior to commencing work.

STOCK LENGTHS

 <p>3-1/2" Round Louver or Fascia</p>	<p>E9-3705</p>	 <p>Wedge 6" x 1-3/4" Fascia Only</p>	<p>E9-3711</p>
 <p>3" Round Louver or Fascia</p>	<p>E9-3706</p>	 <p>2-1/4" Round Louver Only</p>	<p>E9-3712</p>
 <p>3" Winged Louver Only</p>	<p>E9-3707</p>	 <p>3-5/8" Airfoil Louver Only</p>	<p>E9-3713</p>
 <p>6" Open Airfoil Louver Only</p>	<p>E9-3708</p>	 <p>Square 3-1/2" x 3-1/2" Louver or Fascia</p>	<p>E9-3714</p>
 <p>6" Airfoil Louver Only</p>	<p>E9-3709</p>	 <p>Rectangular 2-1/4" x 5" Fascia Only</p>	<p>E9-3715</p>
 <p>Angle 5-3/4" x 4-1/4" Louver Only</p>	<p>E9-3710</p>		

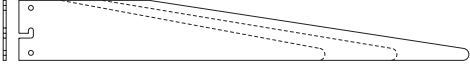
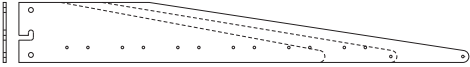
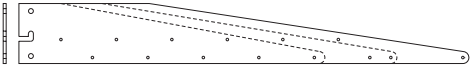
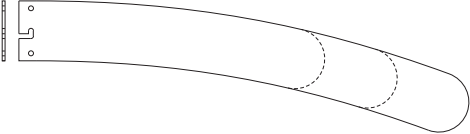
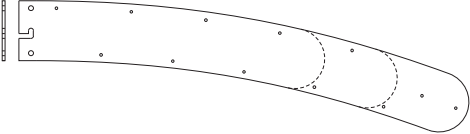
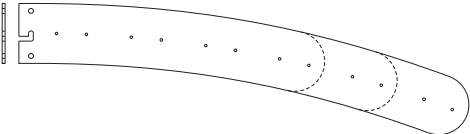
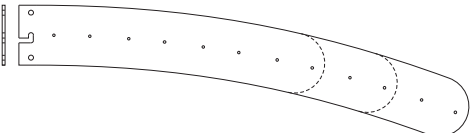
STANDARD OUTRIGGERS

Example:
E1-3720-0200

	<p>Square End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3720-0200 30" E1-3720-0206 36" E1-3720-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3705 & E9-3714</p>	<p>24" E1-3721-0200 30" E1-3721-0206 36" E1-3721-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3706, E9-3707 & E9-3714</p>	<p>24" E1-3722-0200 30" E1-3722-0206 36" E1-3722-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709, E9-3710 & E9-3714</p>	<p>24" E1-3723-0200 30" E1-3723-0206 36" E1-3723-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3714 & E9-3715</p>	<p>24" E1-3724-0200 30" E1-3724-0206 36" E1-3724-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3706, E9-3707 & E9-3715</p>	<p>24" E1-3725-0200 30" E1-3725-0206 36" E1-3725-0300</p>
	<p>Square Intermediate Outrigger Use with E9-3708, E9-3709, E9-3710 & E9-3715</p>	<p>24" E1-3726-0200 30" E1-3726-0206 36" E1-3726-0300</p>
	<p>Rounded End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3740-0200 30" E1-3740-0206 36" E1-3740-0300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705 & E9-3714</p>	<p>24" E1-3741-0200 30" E1-3741-0206 36" E1-3741-0300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705, E9-3706 & E9-3707</p>	<p>24" E1-3742-0200 30" E1-3742-0206 36" E1-3742-0300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709 & E9-3710</p>	<p>24" E1-3743-0200 30" E1-3743-0206 36" E1-3743-0300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3706 & E9-3707</p>	<p>24" E1-3744-0200 30" E1-3744-0206 36" E1-3744-0300</p>

STANDARD OUTRIGGERS

Example:
E1-3760-0200

	<p>Wedge End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3760-0200 30" E1-3760-0206 36" E1-3760-0300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3712</p>	<p>24" E1-3761-0200 30" E1-3761-0206 36" E1-3761-0300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3713</p>	<p>24" E1-3762-0200 30" E1-3762-0206 36" E1-3762-0300</p>
	<p>Curved End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3780-0200 30" E1-3780-0206 36" E1-3780-0300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705, E9-3708 & E9-3709</p>	<p>24" E1-3781-0200 30" E1-3781-0206 36" E1-3781-0300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705</p>	<p>24" E1-3782-0200 30" E1-3782-0206 36" E1-3782-0300</p>
	<p>Curved Intermediate Outrigger Use with E9-3706 & E9-3707</p>	<p>24" E1-3783-0200 30" E1-3783-0206 36" E1-3783-0300</p>

Actual lengths are 1-1/2" longer than nominal.

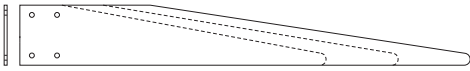
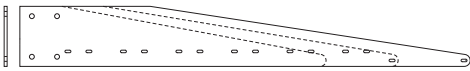
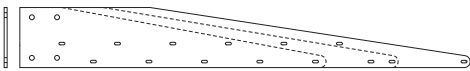

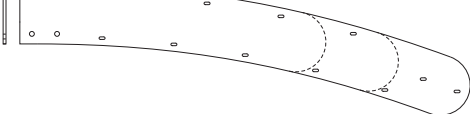
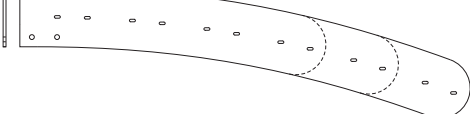
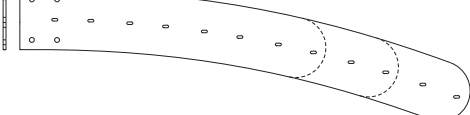
90° OUTSIDE CORNER OUTRIGGERS

Example:
E1-3720-A200

	<p>Square End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3720-A200 30" E1-3720-A206 36" E1-3720-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3705 & E9-3714</p>	<p>24" E1-3721-A200 30" E1-3721-A206 36" E1-3721-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3706, E9-3707 & E9-3714</p>	<p>24" E1-3722-A200 30" E1-3722-A206 36" E1-3722-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709, E9-3710 & E9-3714</p>	<p>24" E1-3723-A200 30" E1-3723-A206 36" E1-3723-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3705, E9-3714 & E9-3715</p>	<p>24" E1-3724-A200 30" E1-3724-A206 36" E1-3724-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3706, E9-3707 & E9-3715</p>	<p>24" E1-3725-A200 30" E1-3725-A206 36" E1-3725-A300</p>
	<p>Square Intermediate Outrigger Use with E9-3708, E9-3709, E9-3710 & E9-3715</p>	<p>24" E1-3726-A200 30" E1-3726-A206 36" E1-3726-A300</p>
	<p>Rounded End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3740-A200 30" E1-3740-A206 36" E1-3740-A300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705 & E9-3714</p>	<p>24" E1-3741-A200 30" E1-3741-A206 36" E1-3741-A300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705, E9-3706 & E9-3707</p>	<p>24" E1-3742-A200 30" E1-3742-A206 36" E1-3742-A300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709 & E9-3710</p>	<p>24" E1-3743-A200 30" E1-3743-A206 36" E1-3743-A300</p>
	<p>Rounded Intermediate Outrigger Use with E9-3706 & E9-3707</p>	<p>24" E1-3744-A200 30" E1-3744-A206 36" E1-3744-A300</p>

90° OUTSIDE CORNER OUTRIGGERS

Example:
E1-3760-A200

	<p>Wedge End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3760-A200 30" E1-3760-A206 36" E1-3760-A300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3712</p>	<p>24" E1-3761-A200 30" E1-3761-A206 36" E1-3761-A300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3713</p>	<p>24" E1-3762-A200 30" E1-3762-A206 36" E1-3762-A300</p>
	<p>Curved End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3780-A200 30" E1-3780-A206 36" E1-3780-A300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705, E9-3708 & E9-3709</p>	<p>24" E1-3781-A200 30" E1-3781-A206 36" E1-3781-A300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705</p>	<p>24" E1-3782-A200 30" E1-3782-A206 36" E1-3782-A300</p>
	<p>Curved Intermediate Outrigger Use with E9-3706 & E9-3707</p>	<p>24" E1-3783-A200 30" E1-3783-A206 36" E1-3783-A300</p>

Actual lengths are longer than nominal due to the geometry of a 90° corner.

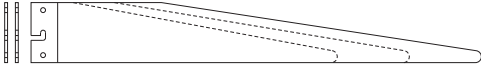
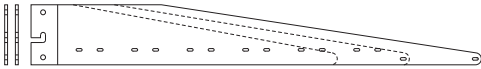
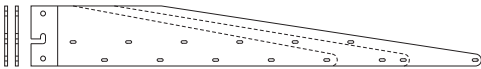
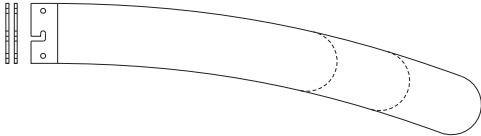
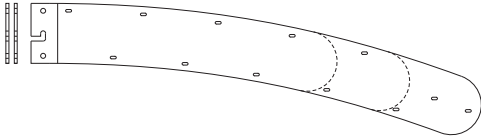
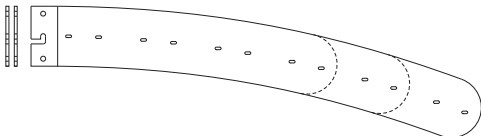
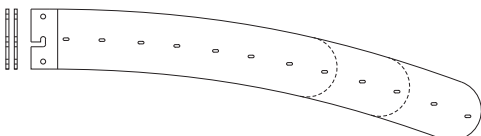
90° INSIDE CORNER OUTRIGGERS

Example:
 E1-3720L-B200 (Left)
 E1-3720R-B200 (Right)

	Square End Bay Outrigger Use for End Bay Condition Only	24" E1-3720L or R-B200 30" E1-3720L or R-B206 36" E1-3720L or R-B300
	Square Intermediate Outrigger Use with E9-3705 & E9-3714	24" E1-3721L or R-B200 30" E1-3721L or R-B206 36" E1-3721L or R-B300
	Square Intermediate Outrigger Use with E9-3705, E9-3706, E9-3707 & E9-3714	24" E1-3722L or R-B200 30" E1-3722L or R-B206 36" E1-3722L or R-B300
	Square Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709, E9-3710 & E9-3714	24" E1-3723L or R-B200 30" E1-3723L or R-B206 36" E1-3723L or R-B300
	Square Intermediate Outrigger Use with E9-3705, E9-3714 & E9-3715	24" E1-3724L or R-B200 30" E1-3724L or R-B206 36" E1-3724L or R-B300
	Square Intermediate Outrigger Use with E9-3706, E9-3707 & E9-3715	24" E1-3725L or R-B200 30" E1-3725L or R-B206 36" E1-3725L or R-B300
	Square Intermediate Outrigger Use with E9-3708, E9-3709, E9-3710 & E9-3715	24" E1-3726L or R-B200 30" E1-3726L or R-B206 36" E1-3726L or R-B300
	Rounded End Bay Outrigger Use for End Bay Condition Only	24" E1-3740L or R-B200 30" E1-3740L or R-B206 36" E1-3740L or R-B300
	Rounded Intermediate Outrigger Use with E9-3705 & E9-3714	24" E1-3741L or R-B200 30" E1-3741L or R-B206 36" E1-3741L or R-B300
	Rounded Intermediate Outrigger Use with E9-3705, E9-3706 & E9-3707	24" E1-3742L or R-B200 30" E1-3742L or R-B206 36" E1-3742L or R-B300
	Rounded Intermediate Outrigger Use with E9-3705, E9-3708, E9-3709 & E9-3710	24" E1-3743L or R-B200 30" E1-3743L or R-B206 36" E1-3743L or R-B300
	Rounded Intermediate Outrigger Use with E9-3706 & E9-3707	24" E1-3744L or R-B200 30" E1-3744L or R-B206 36" E1-3744L or R-B300

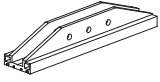
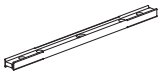
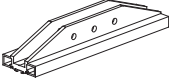

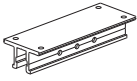

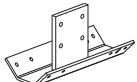

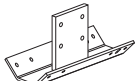

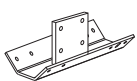


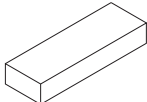

90° INSIDE CORNER OUTRIGGERS

Example:
E1-3760L-B200 (Left)
E1-3760R-B200 (Right)

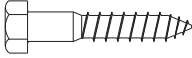

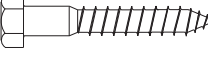




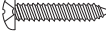



	<p>Wedge End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3760L or R-B200 30" E1-3760L or R-B206 36" E1-3760L or R-B300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3712</p>	<p>24" E1-3761L or R-B200 30" E1-3761L or R-B206 36" E1-3761L or R-B300</p>
	<p>Wedge Intermediate Outrigger Use with E9-3711 & E9-3713</p>	<p>24" E1-3762L or R-B200 30" E1-3762L or R-B206 36" E1-3762L or R-B300</p>
	<p>Curved End Bay Outrigger Use for End Bay Condition Only</p>	<p>24" E1-3780L or R-B200 30" E1-3780L or R-B206 36" E1-3780L or R-B300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705, E9-3708 & E9-3709</p>	<p>24" E1-3781L or R-B200 30" E1-3781L or R-B206 36" E1-3781L or R-B300</p>
	<p>Curved Intermediate Outrigger Use with E9-3705</p>	<p>24" E1-3782L or R-B200 30" E1-3782L or R-B206 36" E1-3782L or R-B300</p>
	<p>Curved Intermediate Outrigger Use with E9-3706 & E9-3707</p>	<p>24" E1-3783L or R-B200 30" E1-3783L or R-B206 36" E1-3783L or R-B300</p>

Actual lengths are longer than nominal due to the geometry of a 90° corner.

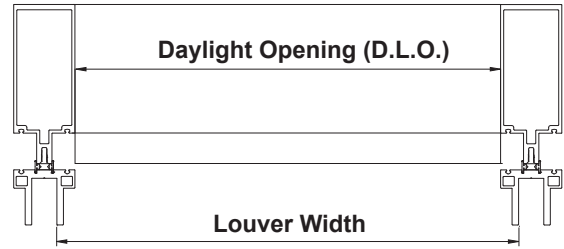
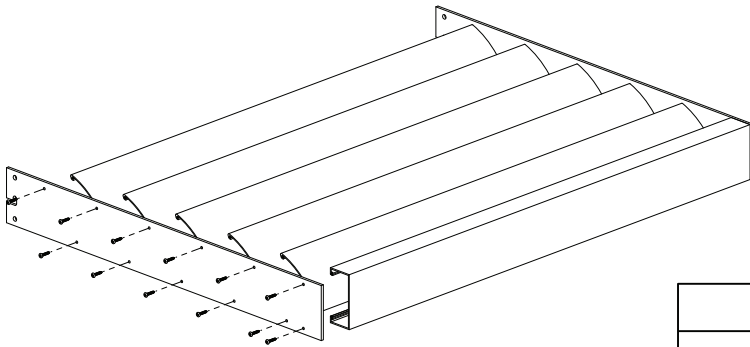
ACCESSORIES

	Exposed Bolt Anchor Use with YCW 750 OG (1) Per Pair of Outriggers	E1-3931		Thermal Insulator Use with YHC 300 OG and YCW 750 OG Insulated Glazing	E3-3701
	Exposed Bolt Anchor Use with YHC 300 OG (1) Per Pair of Outriggers	E1-3933		Thermal Insulator Use with YHC 300 OG Monolithic Glazing	E3-3702
	Wall Mount Anchor Clip	E1-3830		18" Long PVC Filler Use with YCW 750 XT	E3-3703
	90° Outside Corner Steel Anchor Use with E9-1215 & E9-1225	E1-3817		End Cap Use with YCW 750 OG/XT face cover	E3-7024
	90° Outside Corner Steel Anchor Use with E9-3101 (Insulating)	E1-3818		End Cap Use with YHC 300 OG face cover	E3-7030
	90° Outside Corner Steel Anchor Use with E9-3103 (Monolithic)	E1-3819		End Bay Spacer	E1-3549
	Outrigger Spacer Use with Intermediate Outriggers	E1-3934		Outrigger Plug 1-1/2" x 4-1/2" x 0.75" @ 90° Corners	E2-3801
	Outrigger Spacer Use with Jamb Outriggers	E1-3935			

FASTENERS

	<p>3/8" x 2" Lag Screw Stainless Steel, For Attach. of Anchor Clip to Mullion Four per Anchor Clip</p>	<p>HW-3832 -SS</p>		<p>#10 x 1" FHSMS Type AB Stainless Steel, For Attachment of End Bay Outriggers</p>	<p>FC-1016 -SS</p>
	<p>3/8" x 2-1/2" Lag Screw Stainless Steel, For Attach. of Anchor Clip to Mullion Four per Anchor Clip</p>	<p>HW-3840 -SS</p>		<p>3/8" Flat Washer, Stainless Steel For Attachment of Outrigger to Anchor Clip</p>	<p>WW-3800 -SS</p>
	<p>3/8" x 3" Lag Screw Stainless Steel, For Attach. of Anchor Clip to Mullion Four per Anchor Clip</p>	<p>HW-3848 -SS</p>		<p>3/8" Lock Washer, Stainless Steel, For Attachment of Outrigger to Anchor Clip</p>	<p>WS-3800 -SS</p>
	<p>3/8" x 2" Bolt, Stainless Steel, For Attachment of Outrigger to Anchor Clip Three per Anchor Clip</p>	<p>HM-3832 -SS</p>		<p>#10 x 1" PHSMS Type AB Stainless Steel, For Attachment of Louvers/ Fascia to Outrigger</p>	<p>PC-1016 -SS</p>
	<p>3/8" Jamb Nut, Stainless Steel, For Attachment of Outrigger to Anchor Clip</p>	<p>JM-3800 -SS</p>		<p>#10 x 1-3/4" FHSMS Type AB Stainless Steel, For Attachment of Louvers to Corner Outrigger</p>	<p>FC-1028 -SS</p>
	<p>1/4"-20 x 1-3/4" HWHS Type F, Zinc Plated Steel</p>	<p>HF-2528 -W1</p>			

THERMASHADE ASSEMBLY FABRICATION



Detail 1

Louver Width		
Bay Type	YCW 750 OG/XT	YHC 300 OG
Common / Intermediate	D.L.O. + 1-1/2"	D.L.O. + 2"
Common / Jamb (Single Outrigger)	D.L.O. + 2-1/4"	D.L.O. + 2-3/4"
Common / Jamb (Double Outrigger)	D.L.O. + 1-1/2"	D.L.O. + 2"
Punched Opening (Single Outrigger)	D.L.O. + 3"	D.L.O. + 3-1/2"
Punched Opening (Double Outrigger)	D.L.O. + 1-1/2"	D.L.O. + 2"

STEP 1 FABRICATION OF THERMASHADE ASSEMBLIES

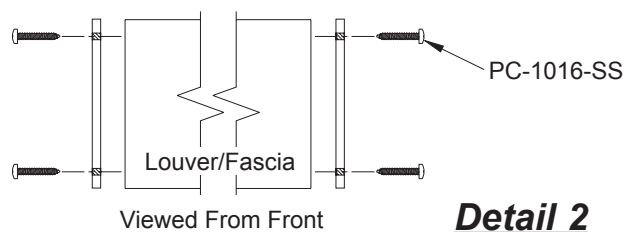
For proper anchoring of the outrigger: The top of the outrigger must be a minimum of 4-1/2" down from the top of the curtain wall.

Intermediate Outriggers

-Cut louvers and optional fascia in accordance to the louver width chart in **Detail 1**. Accurate sizing is critical for a quality installation. Field measure as needed. To field measure after the anchor clips are installed, lay the measuring tape from the inside right leg of the anchor clip to the inside left leg of the adjacent anchor clip (this is the proper louver width).

-Prepare ThermaShade assemblies by fastening two (2) outriggers to the cut louvers and fascia.

See **Detail 2** for proper alignment of extruded outriggers.



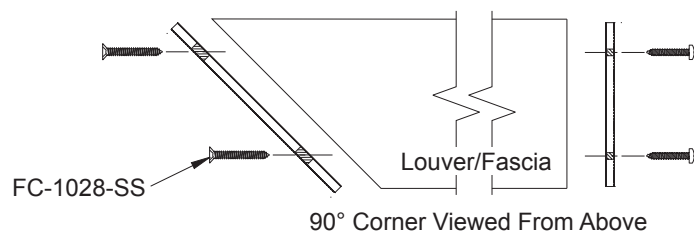
THERMASHADE ASSEMBLY FABRICATION

Corner Outriggers

-Louvers and fascia are to be cut 45° for inside and outside outrigger assemblies. All louvers and fascia must be flat on the cutting table with splines at the same location as the standard outrigger hole location shown on the approved shop drawings. Lengths must be calculated or determined from shop drawing layout.

-Prepare ThermaShade assemblies by fastening two (2) outriggers to the cut louvers and fascia.

See **Detail 2B** for proper alignment of extruded outriggers.



Detail 2B

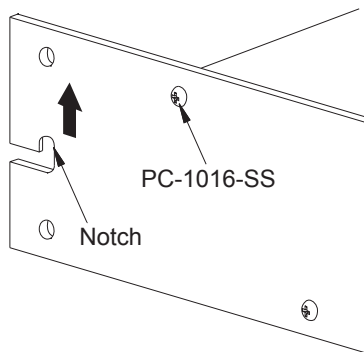
STEP 2

Intermediate Outriggers

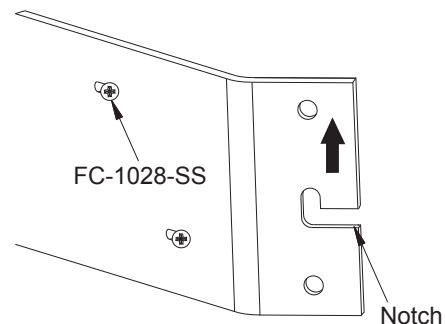
-Attach louver to the outrigger with PC-1016-SS screws by aligning pre-drilled holes in the outrigger with the screw splines of the louver.

-Ensure that the notch at the center of the outrigger points upward to prevent attaching the outriggers upside down. Do not tighten screws completely until all louvers and fascia are attached, then tighten all fasteners until the connections are snug.

See **Detail 3A**.



Detail 3A



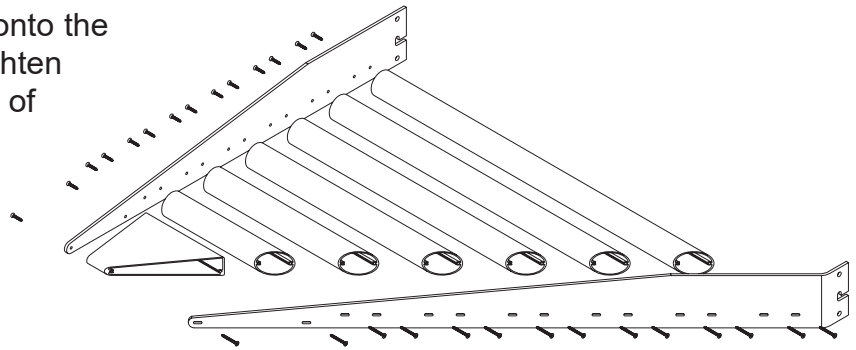
Detail 3B

THERMASHADE ASSEMBLY FABRICATION**STEP 2 (Continued)
Corner Outriggers**

-Louvers and fascia are installed to the outriggers in a similar fashion as the standard assembly. The corner outrigger is attached with a longer, flat head screw FC-1028-SS. This screw is attached thru a special sized slotted hole, and will seat into the end of the slot with a portion of the flat heads screw not completely countersunk.

See **Detail 3B**.

- As the louvers and fascia are installed onto the outrigger, wax the screw threads and tighten into screw spline of the louver 1/2" short of completely tightening. After all of the screws are located and semi-tightened, start at the large end and work the screws into the splines as needed. Tighten until well seated, without over torquing.



See **Detail 3C**.

Detail 3C

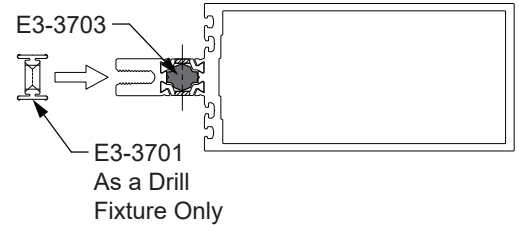
Inside Corner Shown,
Outside Corner Similar

THERMASHADE ASSEMBLY FABRICATION

STEP 3 MULLION PREPARATION (YCW 750 XT ONLY)

Installing Thermashade in YCW 750 XT curtain wall requires a PVC filler E3-3703 to be inserted into the mullion at the outrigger to reinforce the thermal break in the mullion.

Note: This step should be performed prior to field erection of the YCW 750 XT curtain wall.



Detail 4

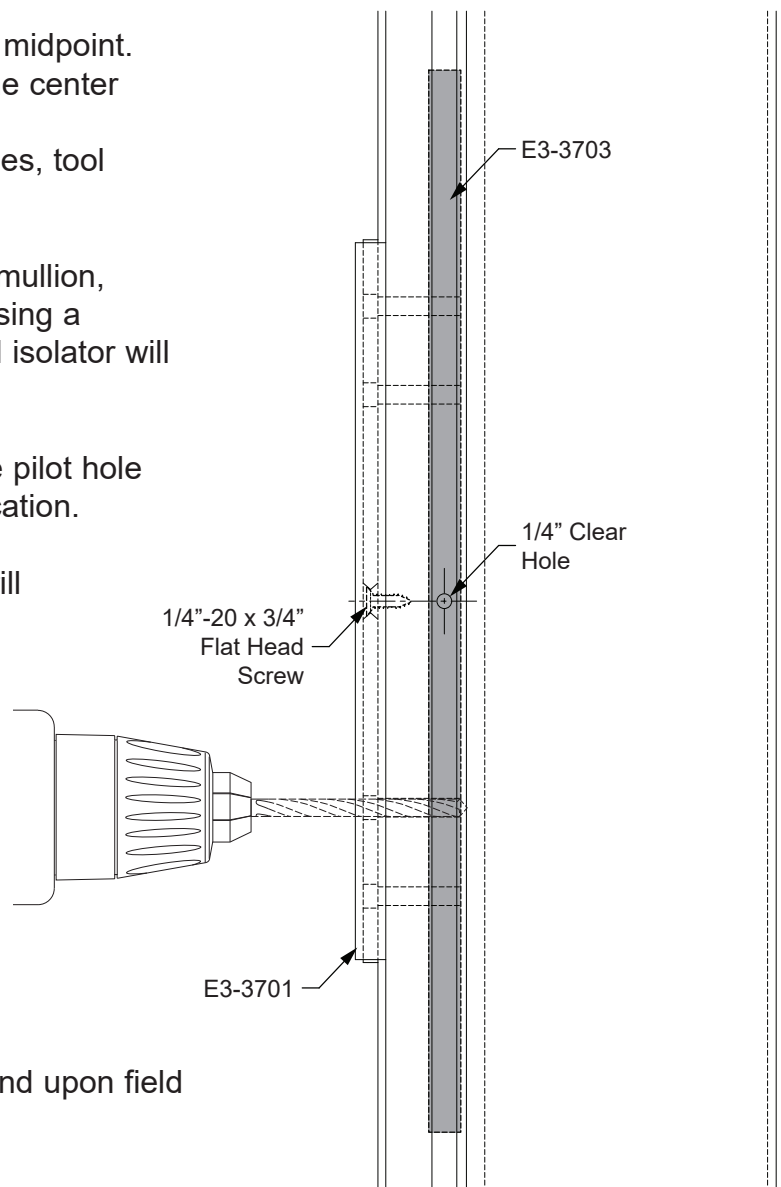
- Drill 1/4" clear holes on each side of the thermal break at the outrigger anchor center line.
- Mark the 18" long PVC filler E3-3703 at its midpoint. Slide the filler into the void between until the center mark is visible in the clear holes.
- Seal the filler in place through the clear holes, tool smooth, and allow it to cure over night.
- Attach the E3-3701 thermal isolator to the mullion, centered at the outrigger anchor location using a 1/4"-20 x 3/4" flat head screw. This thermal isolator will be used as a drill fixture.
- Drill 0.316" dia. ("O" bit) pilot holes. Drill the pilot hole into the center of the slotted hole screw location.

Installation Tip: Due to the tendency for drill bits to bind when inserted into the tongue of the vertical mullion, run the drill at full speed and then slowly drill into the mullion tongue. It is essential that the pilot holes are drilled true, level and clean to ensure proper anchoring of the system.

See **Detail 4**.

Caution: Do not oversize anchor holes while drilling.

Remove the isolator clip from the mullion, and upon field erection, attach it to the anchor.



THERMASHADE ASSEMBLY FABRICATION

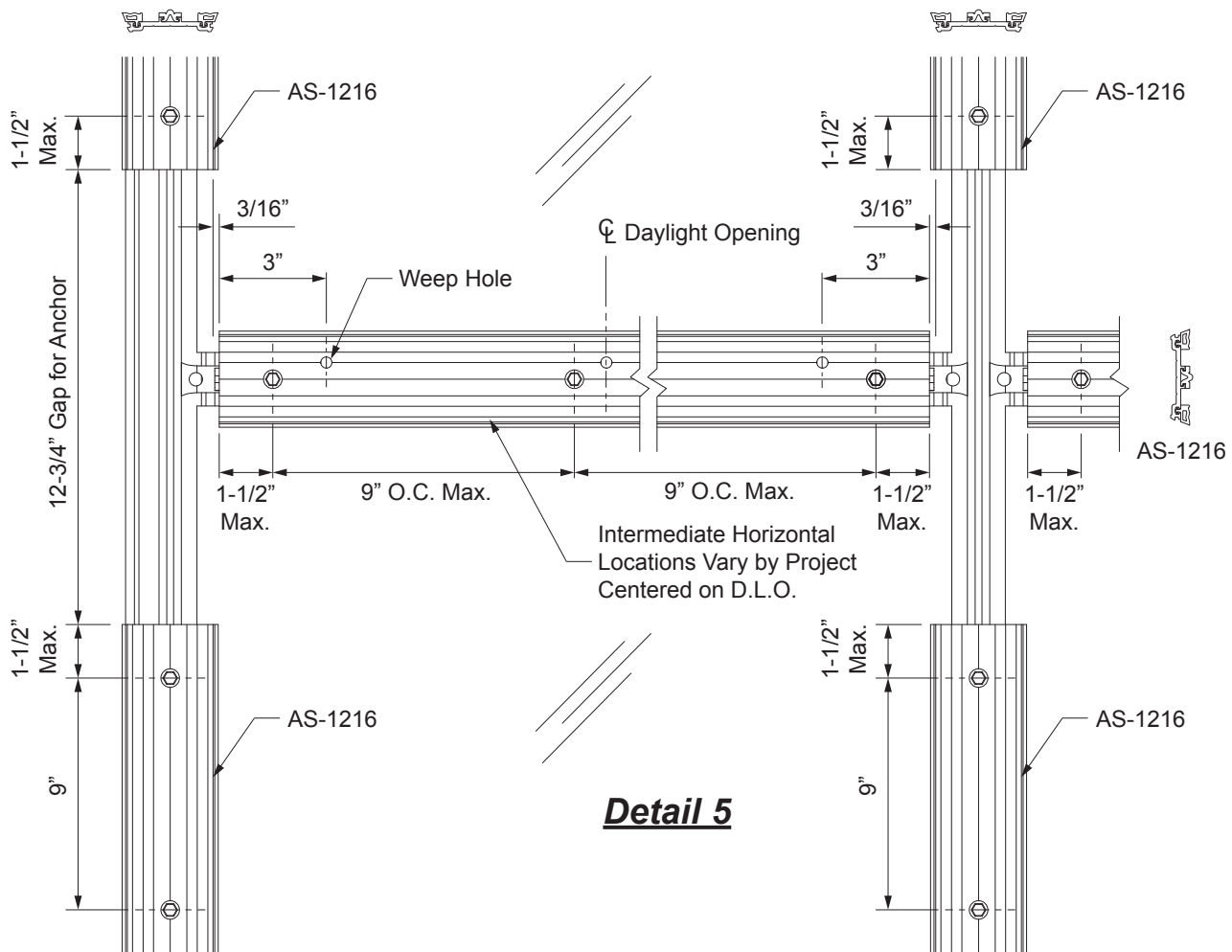
STEP 4 PRESSURE PLATE FABRICATION

* YHC 300 Note: Refer to page 28 for E9-3101

- Remove temporary glass retainers in the sunshade area two feet above and below the location of the outrigger.
- Vertical pressure plate holes for the HD-2516-W3 fasteners are to be fabricated at 9" maximum on center and one (1) at 1-1/2" maximum from each end of the pressure plate.
- Install surrounding pressure plates to the vertical mullion using the HD-2516-W3 bolts per the curtainwall installation instructions. Leave a 12-3/4" gap between vertical pressure plates where the outrigger anchor is to be installed.

See **Detail 5**.

Note: Horizontal pressure plates may be installed after Thermashade anchors, which would allow for an easier placement, centering the pressure plate.



THERMASHADE JAMB PREPARATION

STEP 5

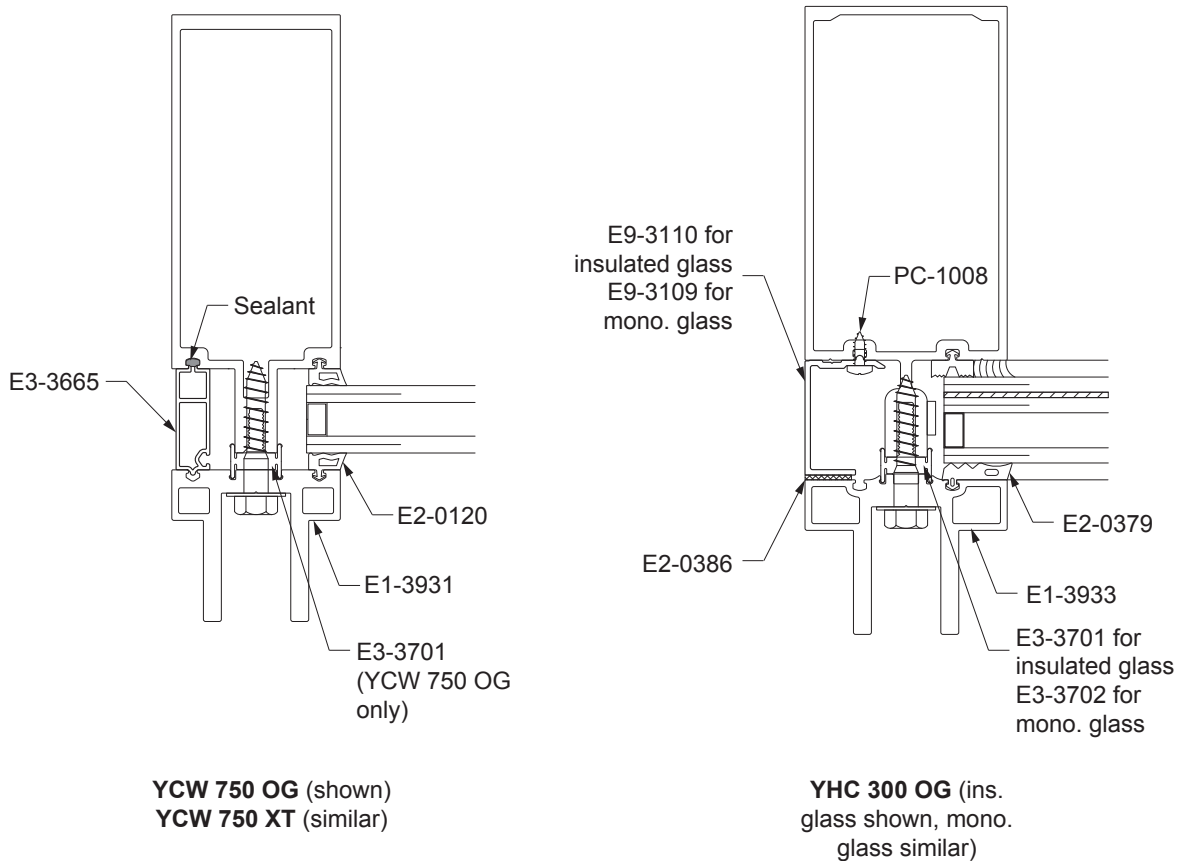
PREPARE JAMBS

The jambs will require pocket fillers to bridge the gap at the outrigger anchors.

-For YCW 750 OG/XT, apply a thin amount sealant to the reglet on the mullion. Then snap in the E3-3665 PVC pocket filler into the mullion.

-For YHC 300 OG, fasten the pocket filler (E9-3110 for insulated glass, E9-3109 for monolithic glass) with PC-1008 fasteners at 24" maximum on center. Then, adhere the E2-0386 isolator tape to the pocket filler.

See **Detail 6**.



Detail 6

ANCHOR CLIP ATTACHMENT

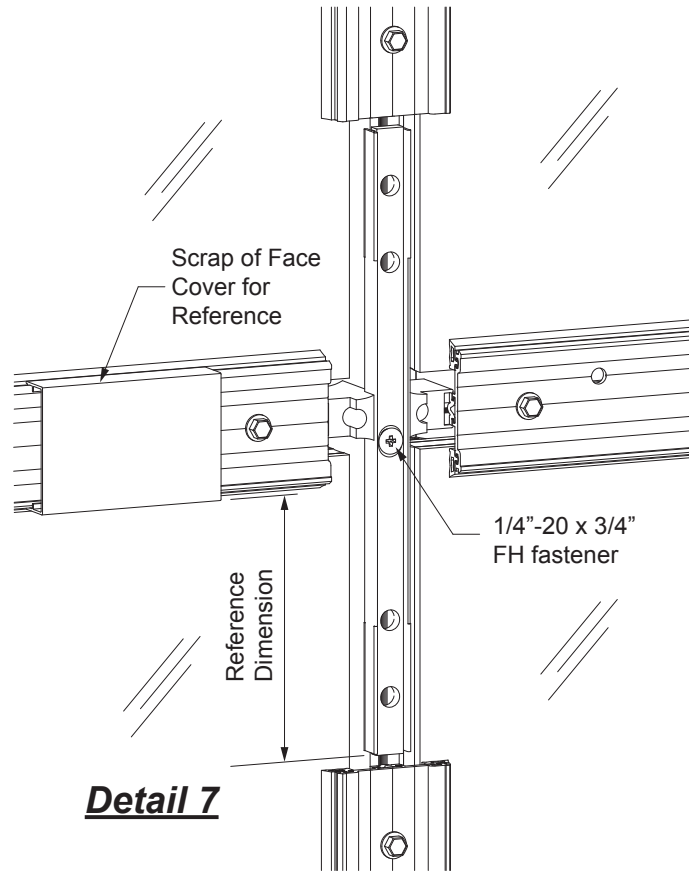
STEP 6 ATTACH ANCHOR CLIP

-Position and seat anchor clip into the mullion tongue of the curtain wall. Pre-attach the mullion clip with one 1/4"-20 x 3/4" flat head screw.

Installation Tip: To ensure proper alignment of the ThermaShade system, snap on a small scrap piece of face cover onto the closest horizontal and verify the reference dimension from shop drawings.

See **Detail 7**.

Note: This step can be performed either at the shop or in the field. Also, YCW 750 XT does not require the isolator.

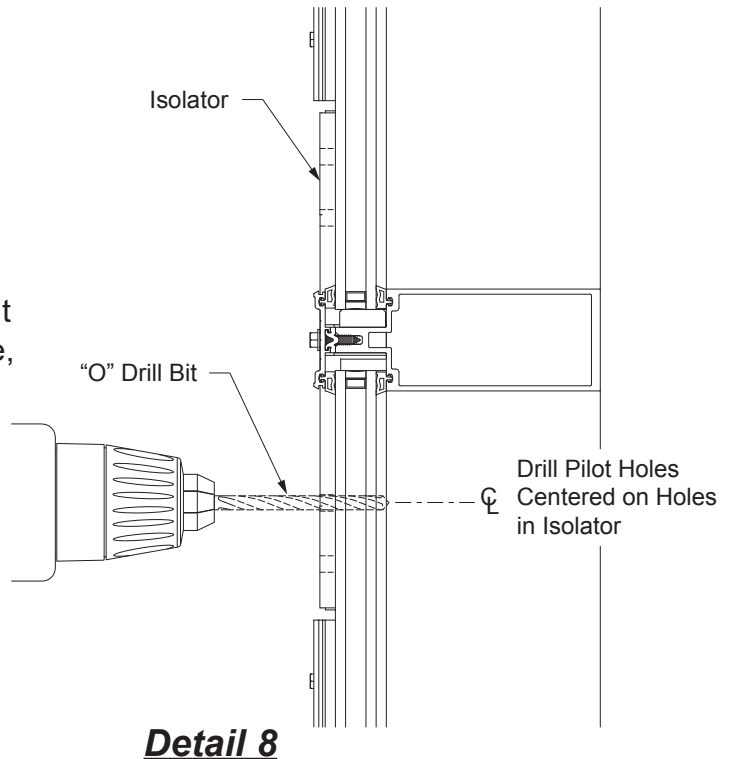


-Drill 0.316" dia. ("O" bit) pilot holes. Drill the pilot hole into the center of the slotted hole screw location.

Installation Tip: Due to the tendency for drill bits to bind when inserted into the tongue of the vertical mullion, run the drill at full speed and then slowly drill into the mullion tongue. It is essential that the pilot holes are drilled true, level and clean to ensure proper anchoring of the system.

See **Detail 8**.

Caution: Do not oversize anchor holes while drilling.



ANCHOR CLIP ATTACHMENT

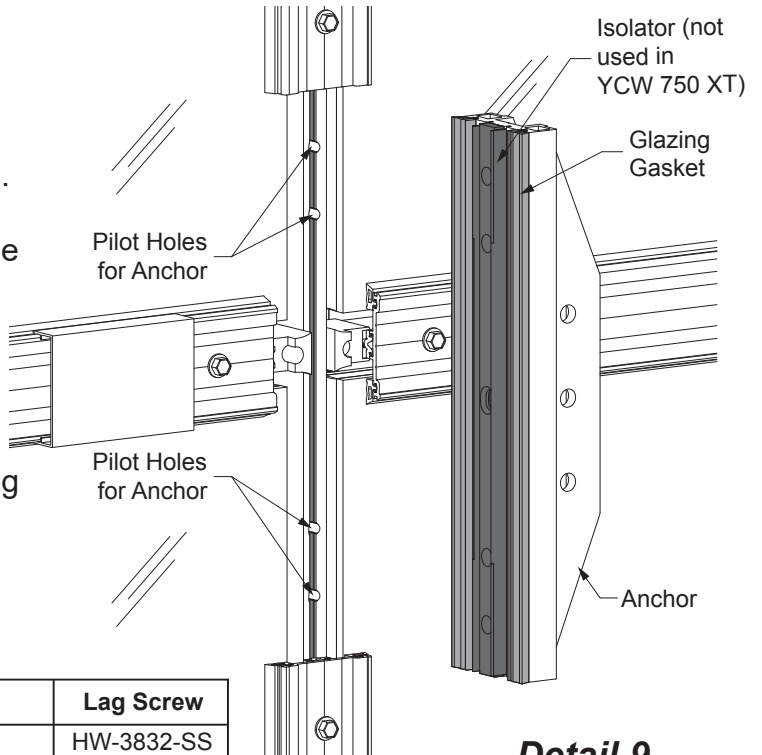
STEP 6 (Cont'd) ATTACH ANCHOR CLIP

-Once the four pilot holes are drilled, remove the isolator from the curtain wall. See **Detail 9**.

-Insert the isolator into the anchor (except in the case of YCW 750 XT). Seal the slotted pilot hole and install the first washer and appropriate lag screw as shown on **Detail 9A** (Do Not Substitute).

NOTE: Due to the use of stainless steel lag screws, a hand ratchet **MUST** be used to prevent the screw heads from breaking off due to over straining, a result which could occur from the use of a power drill. Do not remove and re-install lag screws as over-sizing the holes may occur.

System	Lag Screw
YCW 750 OG, YHC 300 OG monolithic	HW-3832-SS
YHC 300 OG insulating	HW-3840-SS
YCW 750 XT	HW-3848-SS



Detail 9

-Before completely tightening the first lag screw, adjust the anchor clip up or down in the slotted hole as needed until the clip is in the exact location required. After thoroughly checking the vertical alignment, snug the lag screw until the anchor clip meets the mullion.

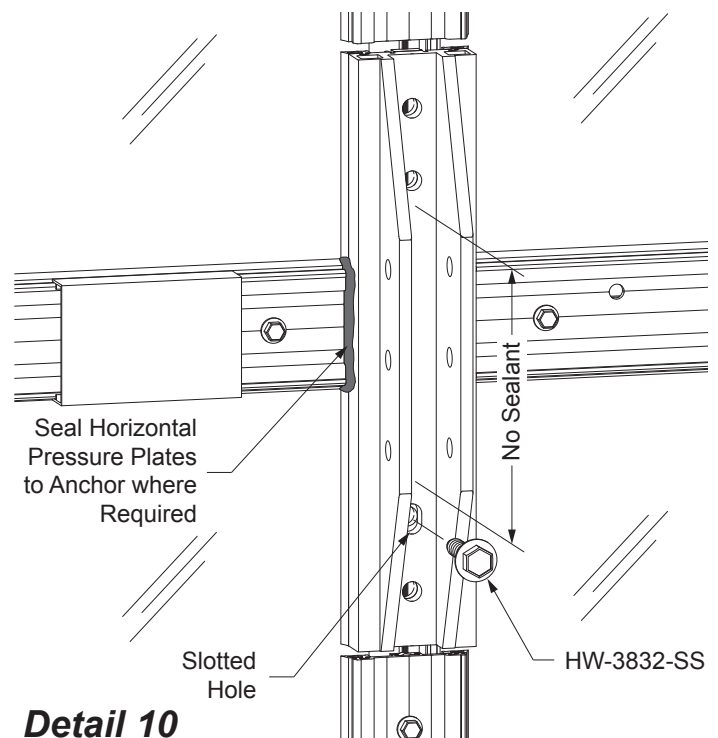
-Seal and install the washers and lag screws into the remaining hole locations, beginning with the top screw and working down. Tighten the screws until the screw head, washers and the extrusion fit together snugly. **DO NOT** over-tighten.

NOTE: Do not allow sealant to adhere to the center 6" of the inside wall of the anchor clip.

-Seal any horizontal pressure plates intersecting with the anchor as if sealing to a vertical face cover.

See **Detail 10**.

Detail 9A



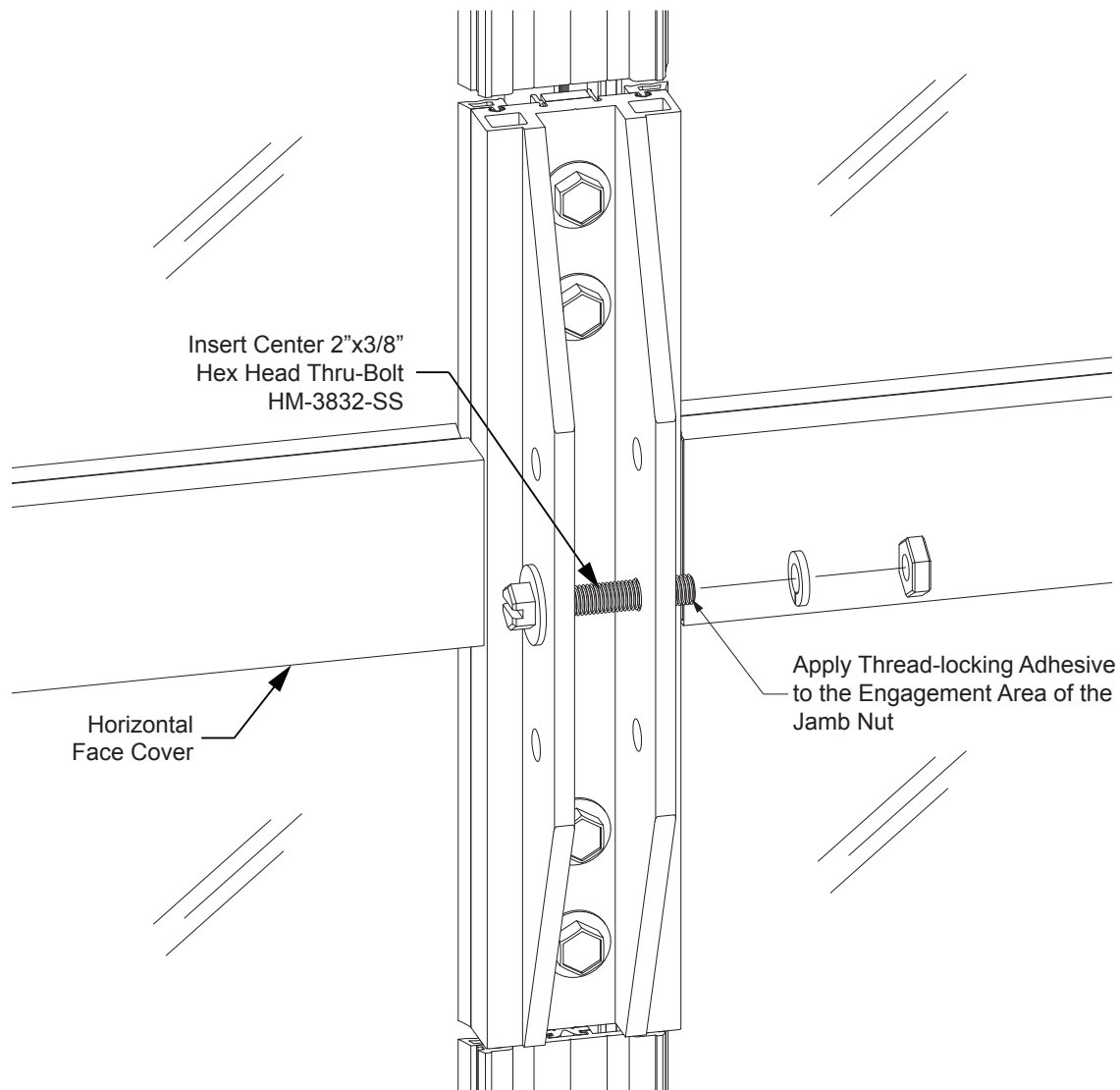
Detail 10

INSTALL THERMASHADE ASSEMBLIES**STEP 7****INSTALL THERMASHADE ASSEMBLIES**

Note: Before proceeding, it is preferable to snap on the horizontal face covers for any horizontals directly behind the Thermashade outriggers.

-Once the anchors are installed, insert the middle 2" x 3/8" thru bolt HM-3832-SS into anchor and hand tighten. This center bolt will be used to temporarily hang the ThermaShade assemblies during the installation process.

See **Detail 11**.



Detail 11

INSTALL THERMASHADE ASSEMBLIES

STEP 7 (Continued)

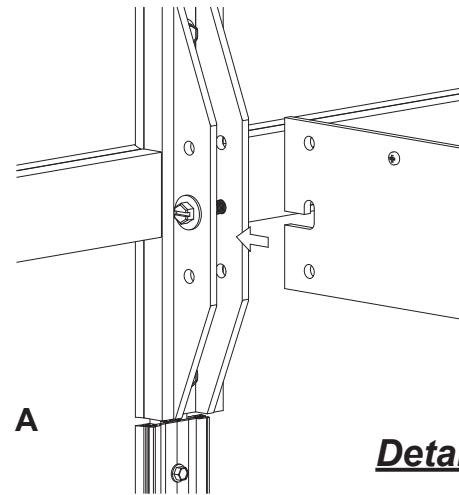
INSTALL THERMASHADE ASSEMBLIES

- As previously noted, install the middle bolt, washer, lock washer and nut as shown through the two legs of all the anchor clips.
- Lift the assembly until the outrigger “hook slot” is aligned with the pre-positioned anchor clip thru bolt. insert assembly onto the thru bolts until the assembly drops and engages the thru bolt in the hook.
- After the outrigger assemblies have been placed in this position, snap the spacer back over the bolt.

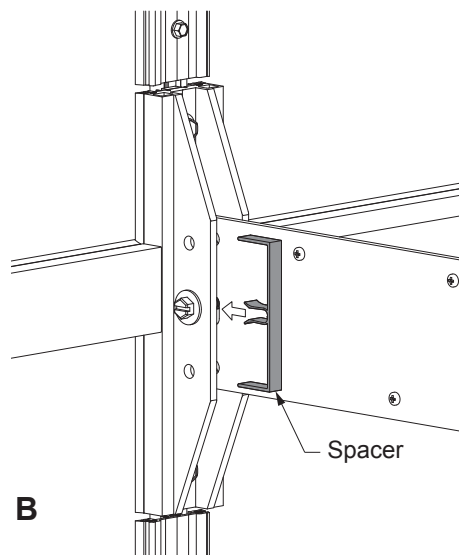
E1-3934 Common Spacer
E1-3935 Jamb Spacer

- Continue to hang remaining ThermaShade assemblies onto the anchor clips in the same manner, making sure to slide the spacers into position for each unit.
- The remaining two anchor clip bolts can be inserted at any time during the installation sequence when two adjacent assemblies have been hung, with the exception of the end bay anchor clip. Finger tighten only for now.

See **Detail 12**.



Detail 12



INSTALL THERMASHADE ASSEMBLIES

STEP 7 (Continued)

INSTALL THERMASHADE ASSEMBLIES

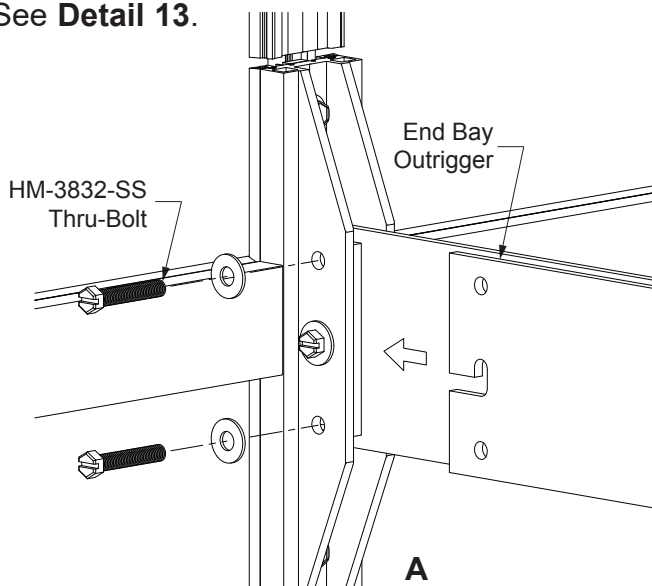
- Repeat above instructions for the remaining intermediate ThermaShade units.
- After the assemblies are aligned, tighten all anchor clip thru-bolts.

INSTALLATION OF END BAY OUTRIGGERS (IF REQUIRED)

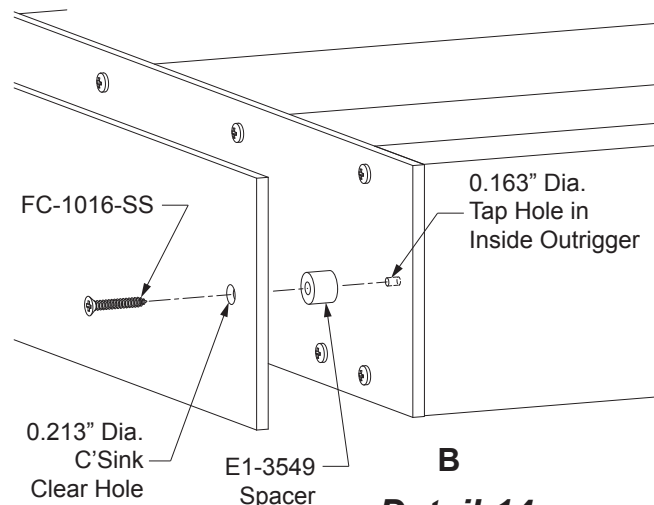
End bay outriggers only have three attachment holes, to align with the anchor clip and are used to “cap off” the end bay assembly.

- To complete the end bay assemblies, hang an end bay outrigger onto the outermost anchor clips.
- Insert the remaining two thru-bolts and finger tighten.
- Insert E1-3834 connector (see below).

See **Detail 13**.



Detail 13



Detail 14

- Install the E1-3549 tube spacer at best hidden location between the intermediate outrigger and the end bay outrigger.
- Locate and drill a 0.213” diameter countersunk clear hole in the end bay outrigger.
- Locate, drill and tap a 0.161” diameter hole for a #10 screw at the same location in the adjoining intermediate outrigger.
- Fasten the E1-3549 spacer between the end bay outrigger and the intermediate outrigger using one FC-1016-SS fastener.

See **Detail 14**.

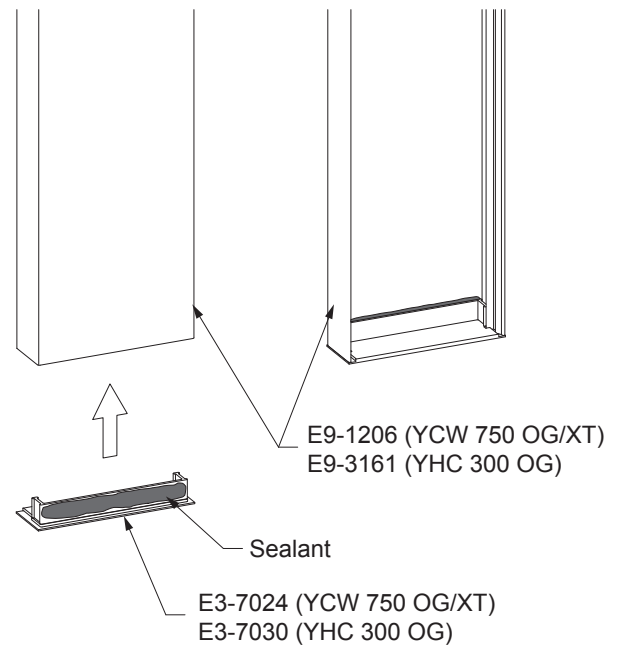
INSTALL FACE COVERS

STEP 8 INSTALL FACE COVERS

End caps must first be installed on the vertical face covers before being installed onto the curtain wall system.

- Apply sealant to the broad side of the end cap inserting area (not to the sides).
- Push the end cap into the face cover.

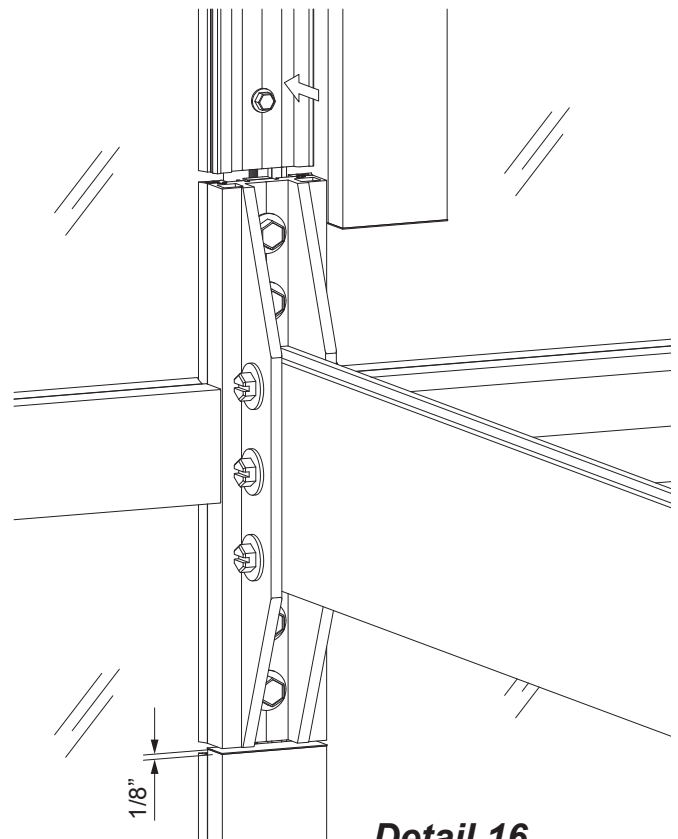
See **Detail 15**.



Detail 15

- Snap the face covers onto the curtain wall system using a rubber mallet and a scrap piece of lumber. Leave a 1/8" gap between the face covers and the outrigger anchor, not including the end cap.

See **Detail 16**.

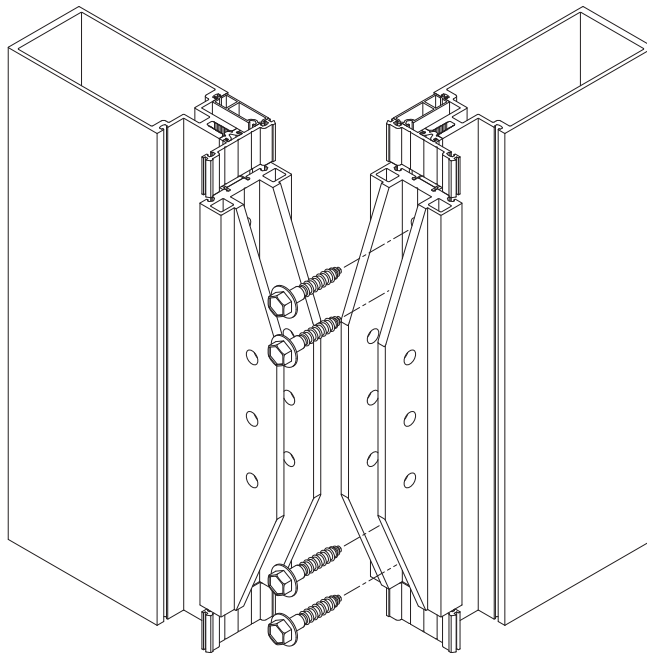


Detail 16

INSIDE CORNER INSTALLATION**STEP 1
ANCHOR CLIP ATTACHMENT**

-Install mullion anchors to the inside corner mullions identical to the installation of the standard mullion anchors.

See **Detail 17**.



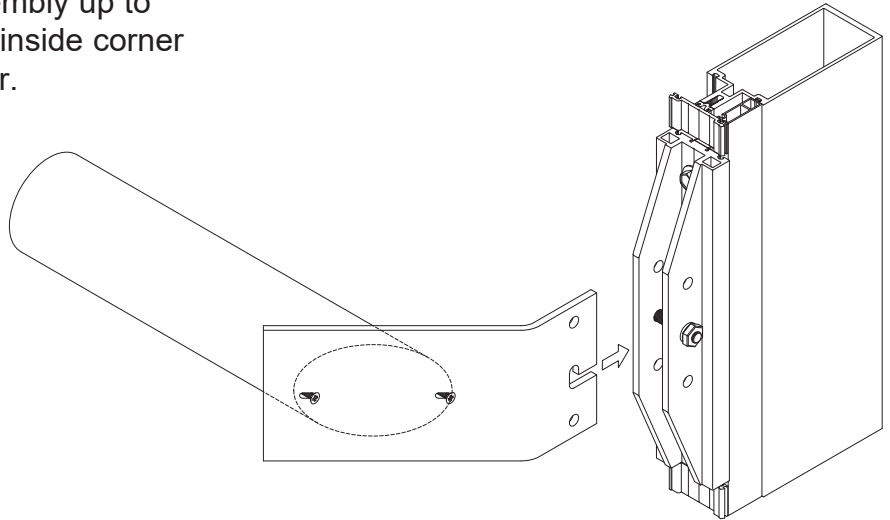
Detail 17

INSIDE CORNER INSTALLATION

STEP 2 INSIDE CORNER OUTRIGGER INSTALLATION

- To install the first half assembly of the inside corner, preinstall the left and right 3/8" bolts, HM-3832-SS, to hang the sunshade on.
- Lift the sunshade assembly and drop it into the slotted holes. Then slide the assembly up to one half of an inch away from the inside corner until the assembly slides no further.

See **Detail 18**.

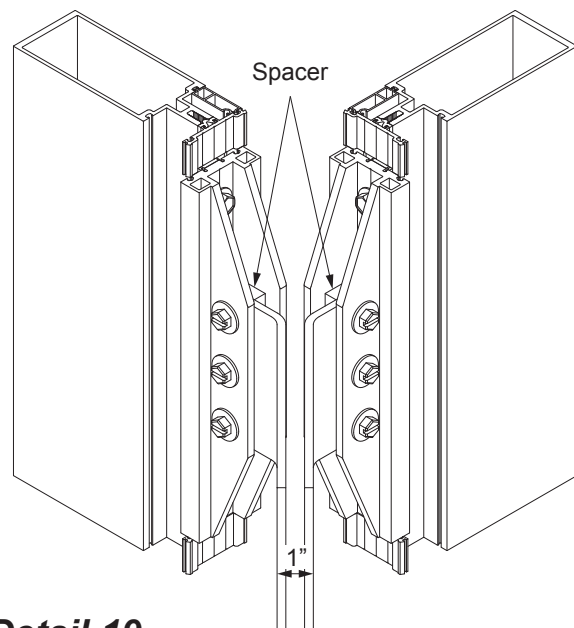


Detail 18

STEP 2 (Cont'd)

- Repeat for the second half of the corner. After both units are hanging, install the remainder of the HM-3832-SS bolts. Align the outriggers together at the corner to achieve a proper gap.
- Shim on both sides of all six (6) of the 3/8" bolts, HM-3832-SS, with a structural non-metallic shim or stacked washers.
- Tighten after alignment.

See **Detail 19**.



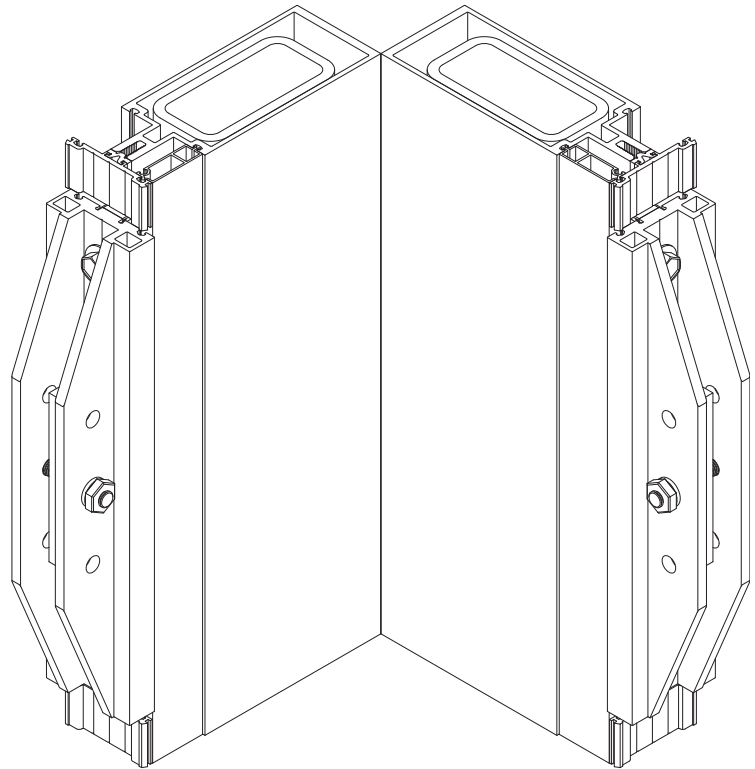
Detail 19

OUTSIDE CORNER INSTALLATION

STEP 1 ANCHOR CLIP ATTACHMENT

-After the jamb adapters are installed to the mullions, install mullion anchors to the outside corner mullions similar to the installation of the standard mullion anchors. Refer to YKK AP standard corner drawings found on the YKK AP Architectural Product Master.

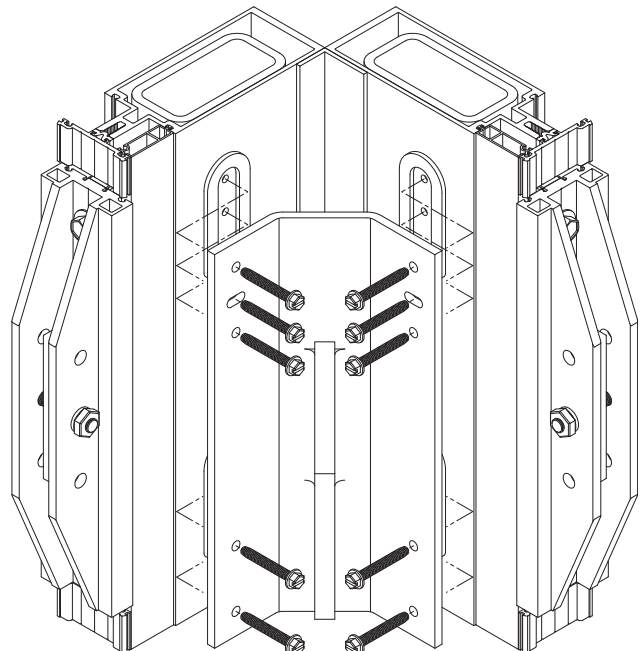
See **Detail 20**.



Detail 20

- Place the steel anchor (centered vertically with the centerline of the mullion clips and outriggers) and position into place.
- Locate the slotted holes in the steel anchor and drill a #3 hole to attach the steel anchor into the side of the mullion, threading into the steel reinforcing. (Minimum 3 feet long, centered on the outrigger).
- After positioning correctly, install the corner steel anchor into the mullion's steel reinforcing at the top two slotted holes with a 1/8" shim and a HF-2528-W1 fastener.
- The slots in the steel anchor are for a final adjustment.

See **Detail 21**.



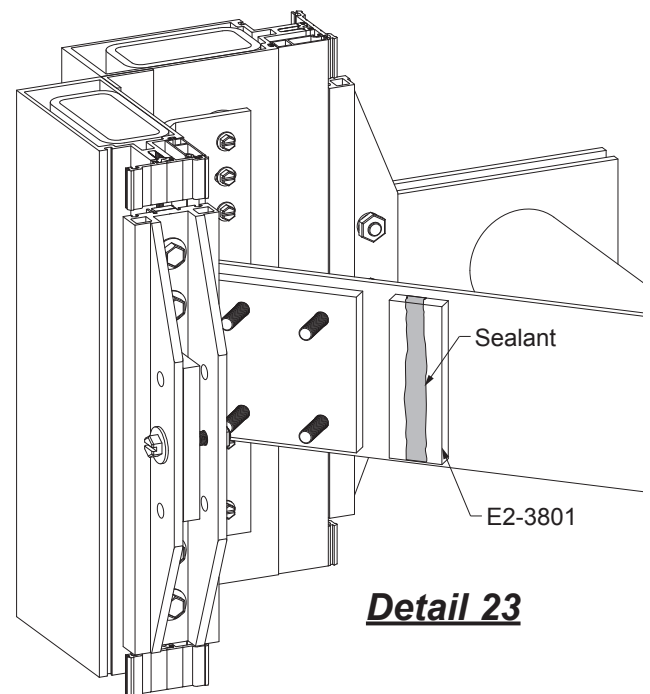
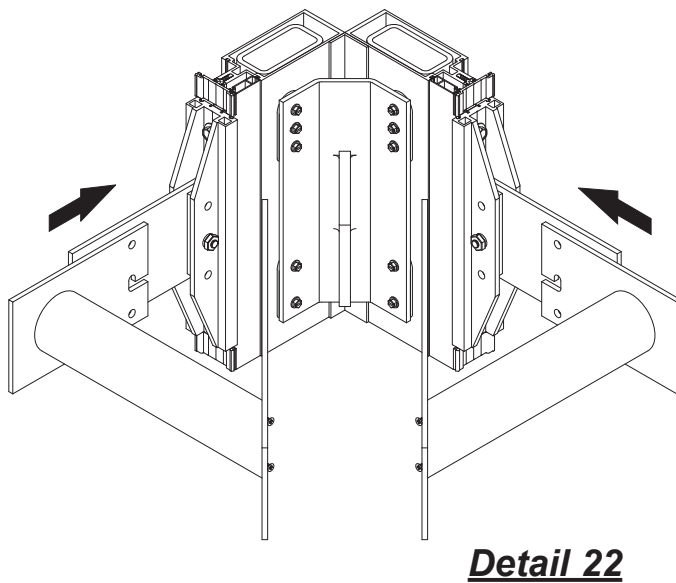
Detail 21

OUTSIDE CORNER INSTALLATION

STEP 2 OUTSIDE CORNER OUTRIGGER INSTALLATION

- To hang the sunshade, place the outrigger assembly into the adjacent outrigger's 3/8" bolt and bring the assembly's corner outrigger up against the steel anchor.
- Temporarily bolt the louver assembly into one of the 3/8" clear holes in the steel anchor.
- Before installing the second half of the corner outrigger, silicone will be required between the outriggers where it aligns with the face of the breakmetal. To do so, seal the inside of the outrigger where it will align with the face of the breakmetal. Place E2-3801 into the silicone area. Before installing the remaining sunshade corner section, seal over the dry side of E2-3801 with silicone sealant. See **Detail 22**.
- Guide the second half of the assembled outrigger into place similar to the first half.
- Add the (2) remaining 3/8" bolts to the standard outriggers immediately next to the corner.

See **Detail 23**.



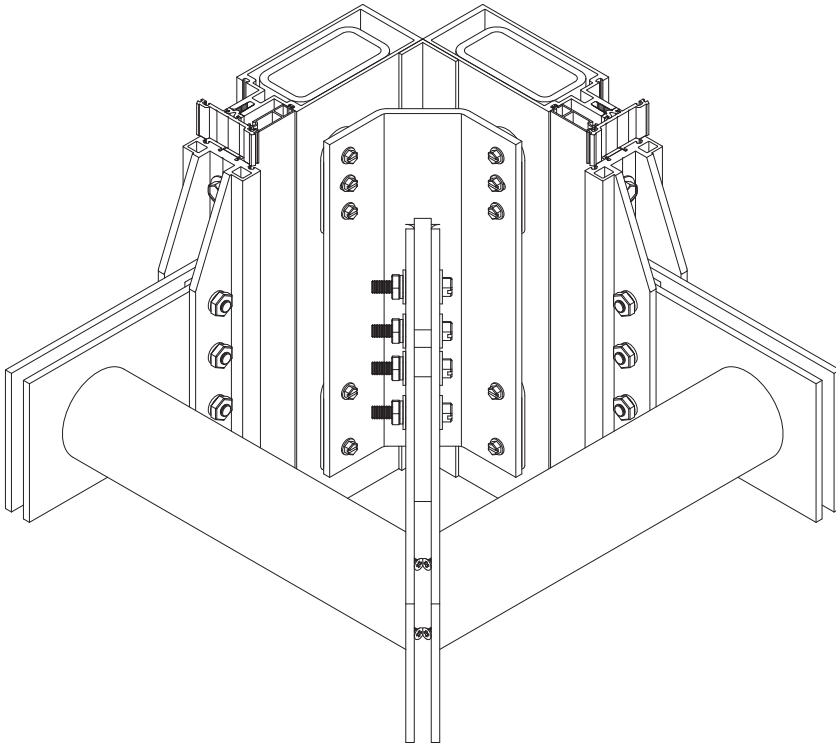
STEP 2 (Cont'd)

After both halves are in place, align the corner outriggers to their correct position by sliding the assemblies across the slotted steel anchor hole, or by shimming between the steel anchor hole, or by shimming between the steel anchor and the mullions.

Confirm the outriggers are aligned, then add the eight remaining HF-2528-W1 bolts

See **Detail 23**.

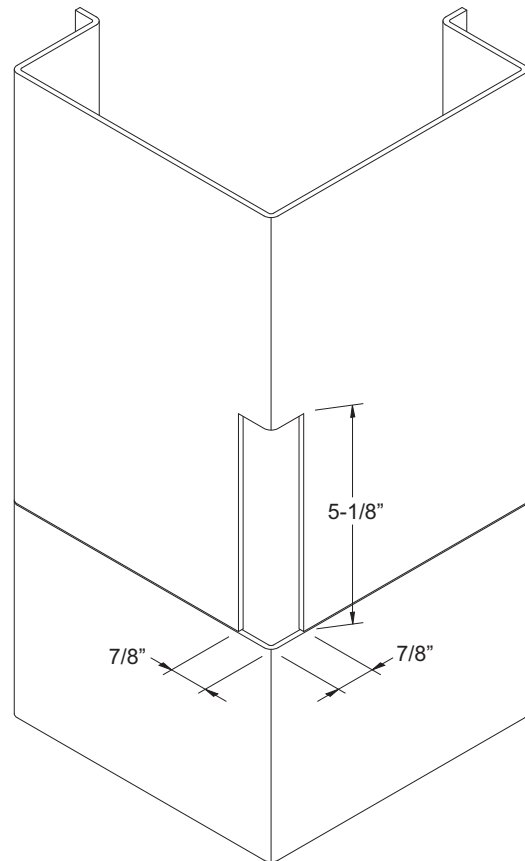
OUTSIDE CORNER INSTALLATION



Detail 24

**STEP 3
BREAKMETAL INSTALLATION**

- After all of the components are tight, breakmetal can be added between the two vertical covers.
- Notch the breakmetal as shown in **Detail 25**.



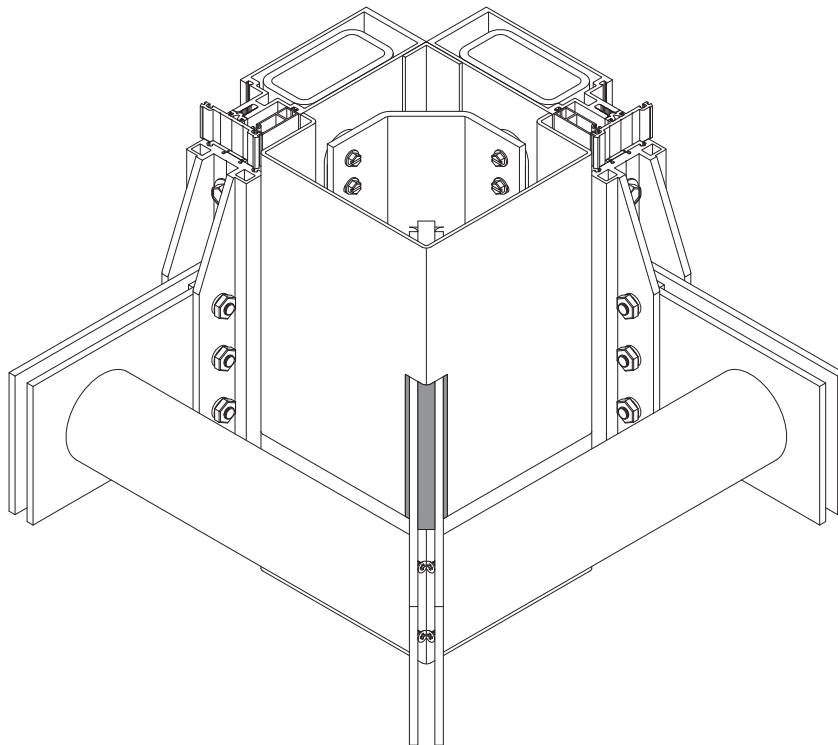
Detail 25

OUTSIDE CORNER INSTALLATION

STEP 3 (Cont'd)

-Seal the gap where the breakmetal has been notched to allow the outrigger to run thru.

See **Detail 26**.

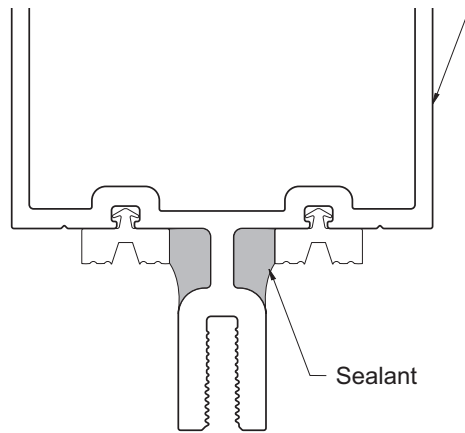


Detail 26

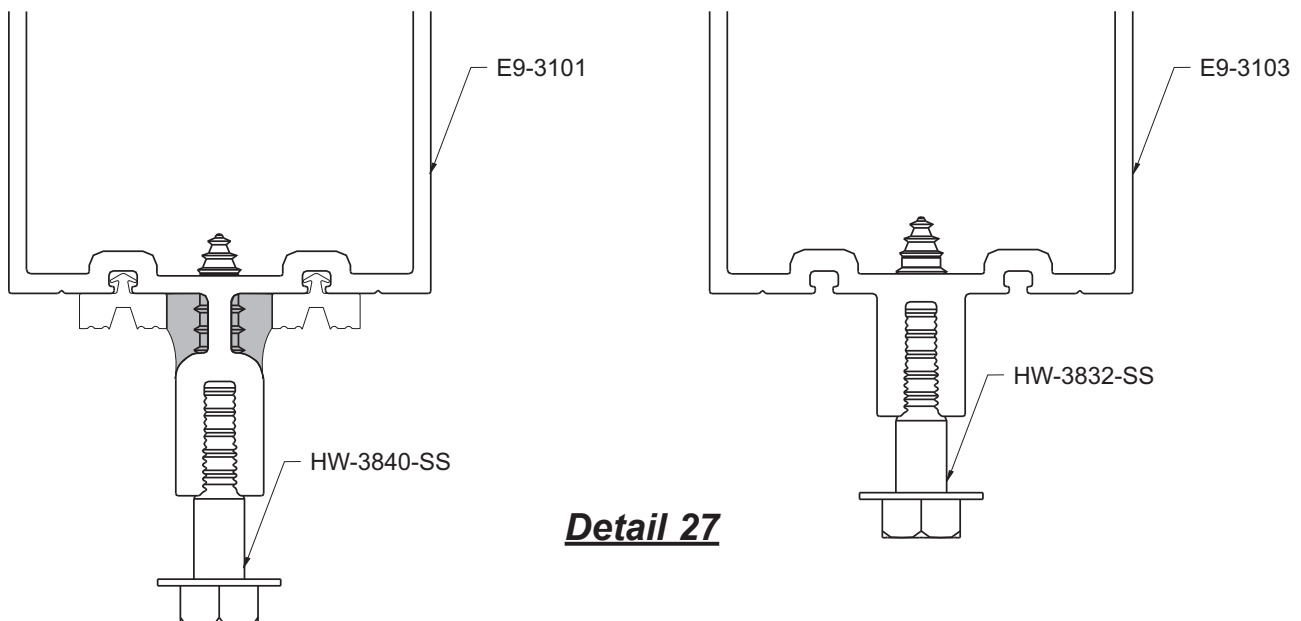
YHC300 OG (E9-3101 & E9-3183) ANCHOR CLIP PREPARATION

The following must be done prior to the pressure plate installation. Before the pressure plate has been installed, run a 12" line of silicone sealant (centered on the outrigger) to fill both sides of the recess in the mullion tongue as shown. Tool smooth and allow to cure before drilling for mullion anchor attachment.

See **Detail 27**.

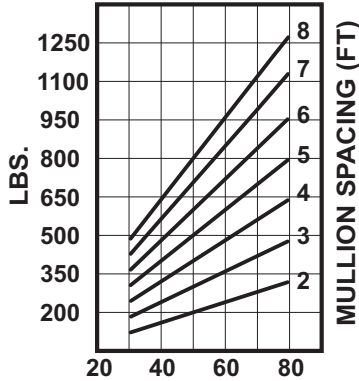


Note: YHC 300 insulating glass mullions use HW-3840-SS fasteners.
 YHC 300 monolithic glass mullions use HW-3832-SS fasteners.



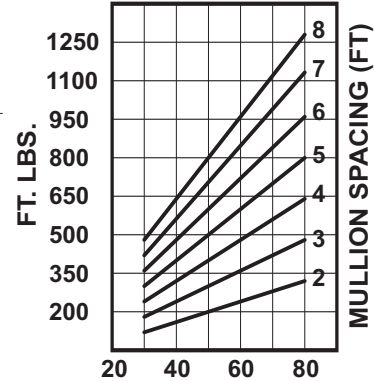
Detail 27

**24" THERMASHADE
MAX. END REACTIONS-SHEAR
AT THE ATTACHMENT POINT**

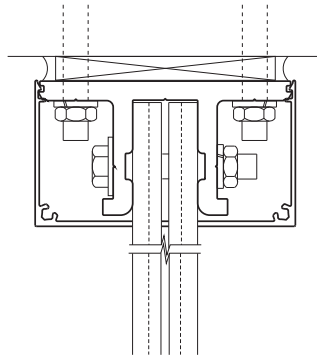


ALLOWABLE COMBINED LOAD (PSF)

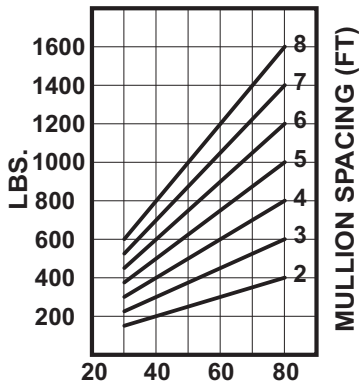
**24" THERMASHADE
MAX. END REACTIONS-MOMENT
AT THE ATTACHMENT POINT**



ALLOWABLE COMBINED LOAD (PSF)

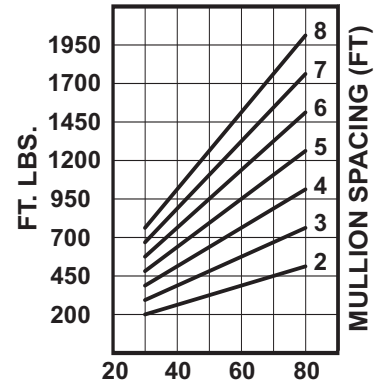


**30" THERMASHADE
MAX. END REACTIONS-SHEAR
AT THE ATTACHMENT POINT**



ALLOWABLE COMBINED LOAD (PSF)

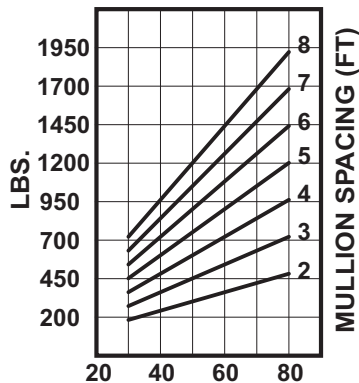
**30" THERMASHADE
MAX. END REACTIONS-MOMENT
AT THE ATTACHMENT POINT**



ALLOWABLE COMBINED LOAD (PSF)

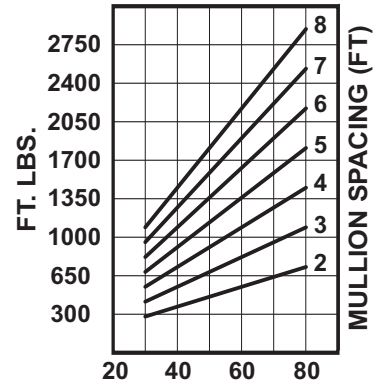
*Wall Mount attachment refers to anchoring ThermaShades to various building facade conditions other than aluminum framing systems. It is the responsibility of others (not YKK AP) to ensure the facade condition and anchor attachments are capable of withstanding the reactions applied as shown on these charts.

**36" THERMASHADE
MAX. END REACTIONS-SHEAR
AT THE ATTACHMENT POINT**



ALLOWABLE COMBINED LOAD (PSF)

**36" THERMASHADE
MAX. END REACTIONS-MOMENT
AT THE ATTACHMENT POINT**



ALLOWABLE COMBINED LOAD (PSF)

WALL MOUNT ATTACHMENT

The wall mount sunshade attachment is designed to allow ThermaShade[™] sunshades to attach to wall conditions other than YKK AP framing members. The wall condition, however, must be designed in such a way as to provide adequate structure to withstand the combined loads on the sunshades. The building's Engineer of Record will need to verify the loads and the structural design. The shear force and moment of each sunshade attachment varies per the combined load and the width of the sunshades. Refer to YKK AP's Shear and Moment charts on Page 31 to determine the end reactions at the attachment point.

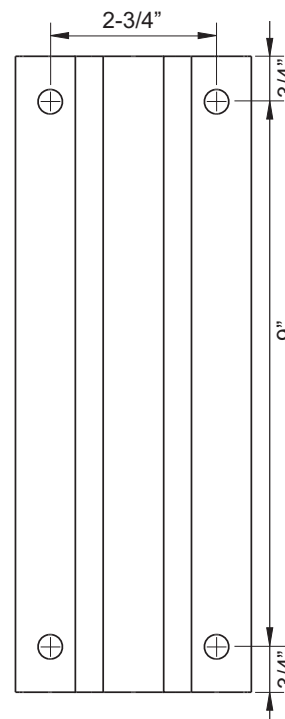
STEP 1 ANCHOR CLIP ATTACHMENT

Attach anchor E1-3830 to the buildings structure with fasteners designed for the specific structure. The anchor is prepped for 3/8" fasteners 2-3/4" apart horizontally and 9" vertically. See **Detail 28**.

The anchor is designed to attach to a steel beam or steel anchor. See **Detail 29 & Detail 30**.

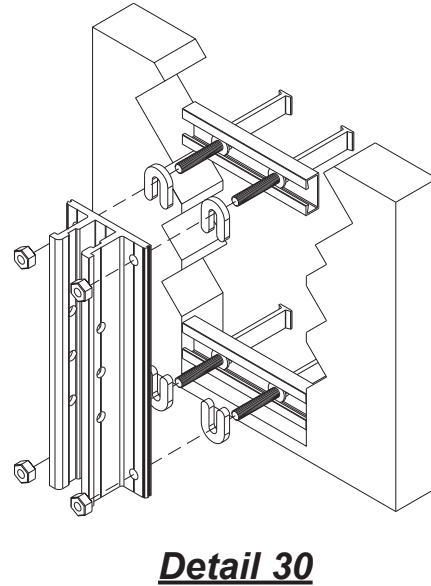
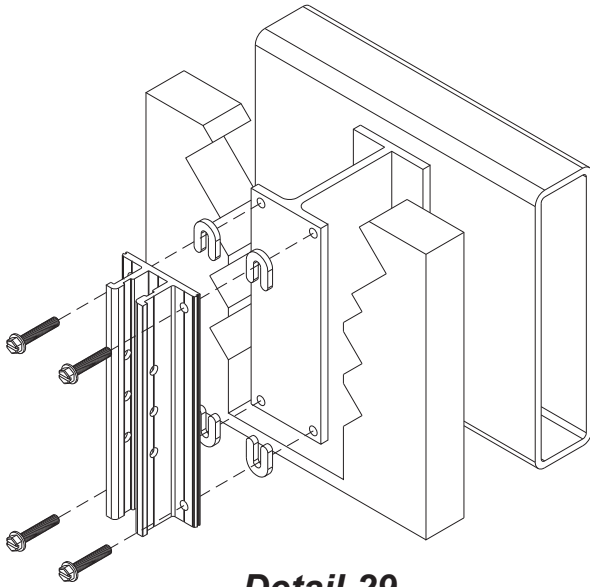
Up to 3/8" of structural shims can be placed behind the anchor and the wall attachment point.

Using the anchor as a template, mark the 4 holes and drill for the appropriate fasteners. The anchors must be plum and true to properly install the sunshades.



Detail 28

WALL MOUNT ATTACHMENT (Cont).

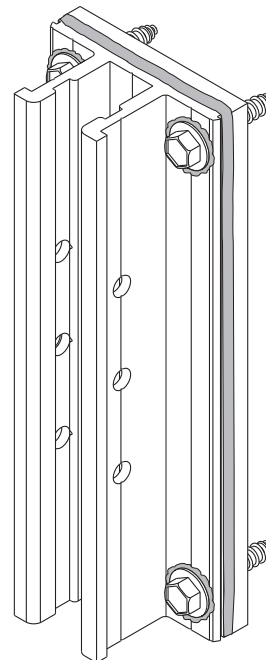


STEP 2 ADD SILICONE

After the anchor is positioned and tight, a full perimeter seal around the anchor at this point and around the bolt head is required to keep the area watertight.

Note: The snap engagement for the cover must be kept clean and free of any silicone or debris.

See **Detail 31**.

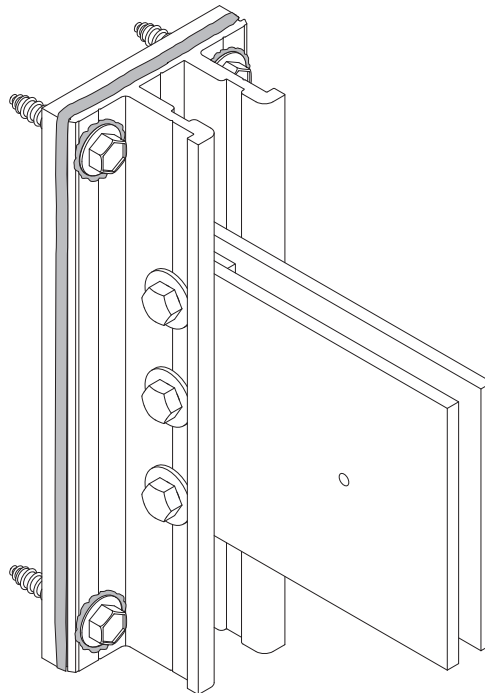


WALL MOUNT ATTACHMENT (Cont.)**STEP 3
ATTACH LOUVERS AND FASCIA**

Due to the nature of drilling into an unknown structure, it is recommended that the louvers and fascia be cut after the anchors are installed. To measure the length of the louvers and fascia, place the tape measure from the inside leg of one anchor to the next, (similar to Detail 1 on page 10).

**STEP 4
INSTALL OUTRIGGERS**

Install the outriggers similar to the standard Curtainwall outriggers shown on Pages 18 to 21.



Detail 32

REGLAZING INSTRUCTIONS

REGLAZING CURTAIN WALL

ThermaShade assemblies must be removed to allow access to glass for reglazing. The adjacent assemblies must also be removed on both sides of the replaced glass to allow for setting. For example, three ThermaShade assemblies must be removed for one piece of glass, four removed for two, etc.

- Loosen and remove the top and bottom bolts. Loosen the center bolt until finger-tight.
- At this point the outrigger can be lifted 3/8" and pulled away from the glass.
- Carefully remove the four 3/8" diameter lag screws holding in the anchor clip.

Note: After the glass has been replaced, follow the standard installation instructions for replacing the ThermaShade assemblies that had to be removed. It is important that care be taken when re-inserting the anchor clip lag screws, so that new threads are not cut. Rotate the lag screws counter clockwise until the threads engage the thread paths of the original installation.

- Remove the horizontal pressure plates and replace with small temporary glazing retainers.
- Remove the vertical pressure plates, carefully cutting the silicone at the joint plugs.
- Check and clean all surfaces as required for glazing per curtain wall instructions.



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