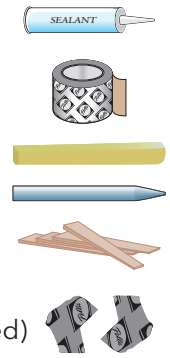
PELLA® IMPERVIA® STRUCTURAL MULLION ASSEMBLY

For additional mullion assembly information; visit *www.installpella.com/mullions*, call (877) 473-5527 to find a local retailer, or scan barcode in upper right corner.

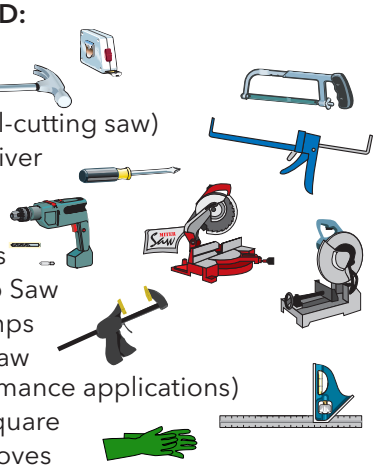
Be sure to thoroughly read and understand all the steps before beginning the mullion assembly process. Window combinations assembled using this instruction have limited structural performance. Consult the Pella Architectural Design Manual or your Pella representative for more information. Subsill systems that weep incidental moisture to the exterior are recommended for water management in openings where the potential for water infiltration is increased and may not be adequately managed by the building weather barrier, flashings and drainage system. Sample conditions include, but are not limited to: increased level of exposure due to multi-story construction, high weather exposure, recaulking would be difficult or unlikely, non-standard installation methods, or when there are multiple units joined within the opening.

YOU WILL NEED THE FOLLOWING ITEMS:



- Pella Window and Door Installation Sealant or equivalent high quality, multi-purpose sealant
- Pella® SmartFlash™ foil backed butyl window and door flashing tape or equivalent
- 1" x 3" x 12" Wood Block with rounded ends
- Pencil or Center Punch
- Clamps
- Installation Fins (4)
- Shims
- Installation Fin Corners (when vinyl installation fins are used)

TOOLS REQUIRED:



- Tape measure
- Hammer
- Hack saw (metal-cutting saw)
- Phillips screwdriver
- Sealant gun
- Drill with 1/8" 3/16", 5/32" bits
- Miter Box/Chop Saw
- Quick Grip clamps
- Metal Cutting Saw (for High Performance applications)
- Combination Square
- Green Nitrile gloves

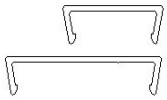
MULLION KIT, PARTS INCLUDED (PER PQM CONFIGURATION):

- Interior and exterior mullion covers (per order configuration)

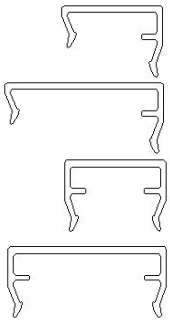
NOTE: *Mull covers are configured per order, not all parts shown are included.*

- Primer, Three (3) Surface Preparation Primer Wipes 3M 06398
- Head Drip Fin, Configured to length
- Installation screw package
- #6 x 3/4" Flat head screws (4)
- #6 x 1/2" flat head screws (16)
- Structural Mullion End Anchors
- Structural Mullion with Foam Tape
- Steel Reinforcement (cut to length at factory) (1)

Exterior/Interior Covers



Interior Covers





For interior vertical tight mulls including DH

INSTALLATION ANCHORS

	SUBSTRATE	HEAD TYPE	SCREW TYPE	SIZE	MIN. EMBEDMENT
Through Frame OR Clip Installation	Concrete	Pan	Masonry	3/16"	2"
	Masonry (Block/CMU)	Pan	Masonry	3/16"	1-1/2"
	Wood	Pan	Wood	#10	1-1/4"
	1/8" Thk. Aluminum	Pan	Sheet Metal	#10	Fully Penetrate substrate with 3 threads protruding internally
	1/8" Thk. Steel	Pan	Sheet Metal	#10	
	20 Ga. Steel (including steel studs)	Pan	Sheet Metal	#10	
Nailing Fin Installation	Wood	Pan	Wood	#10	1-1/2"
	1/8" Thk. Aluminum	Pan	Sheet Metal	#10	Fully Penetrate substrate with 3 threads protruding internally
	1/8" Thk. Steel	Pan	Sheet Metal	#10	
	20 Ga. Steel (including steel studs)	Pan	Sheet Metal	#10	

OPTIONAL SUBSILL KIT, PARTS INCLUDED:

- Inner & Outer Subsill Assembly, 97"
- Subsill Interior Clip, 97"



- Subsill End Cap (LH & RH)
- #6 x 5/8" Pan Head Stainless Steel screw, (6)
- #6 x 1" Pan Head Stainless Steel screw, (20)
- Installation screw package (20)

REMEMBER TO USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT

1 PREPARE THE WINDOWS:

Note: The 4-way steps in this instruction depict a horizontal "through mullion." If assembling a 4-way combination with a vertical " through mullion" adjust steps accordingly.

A. **Lay windows on a smooth clean flat surface exterior side up.** Be sure to place them in the same orientation as they will be assembled into the combination. If removable fins are installed on the windows, remove fins on the sides to be mulled.

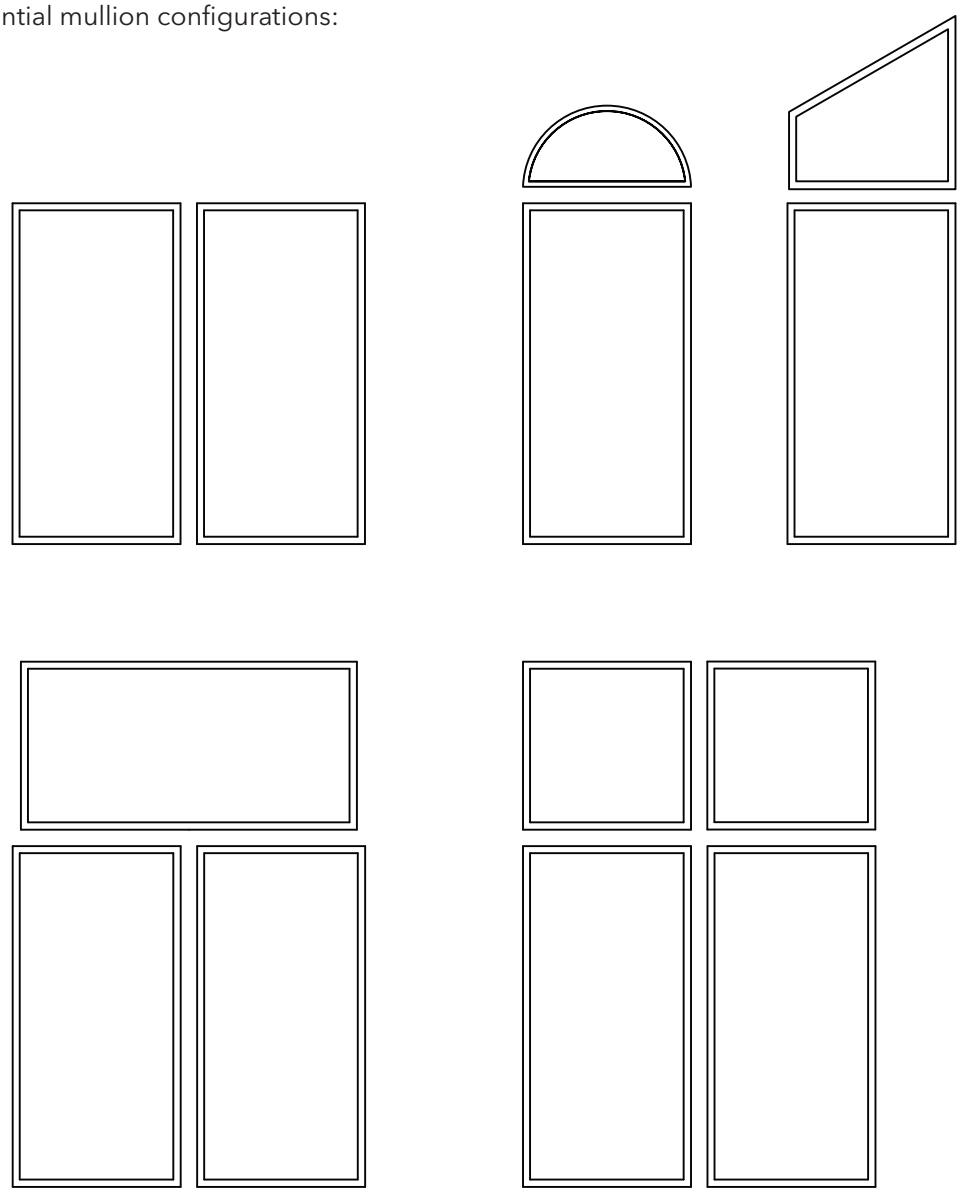
If units have differing frame depths, use ¼" spacers under the narrower (3") frame depth windows to ensure exterior surfaces of windows are flush.

When mulling 3- or 4-way joints, mull the intermediate and end joints first, and through joints last.

Note: Use care to not damage the roto operator stud(s) on the interior side of vent casement and awning windows. Place boards under these windows to provide clearance between the operator stud(s) and the table.

Note: When mulling Pella Special Shape windows to a rectangular Impervia window, the special shape may or may not come with the installation fins factory pre-assembled to the window. If the fin is pre-assembled, DO NOT remove this fin!

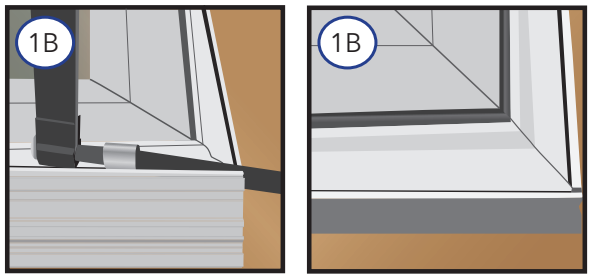
Examples of potential mullion configurations:

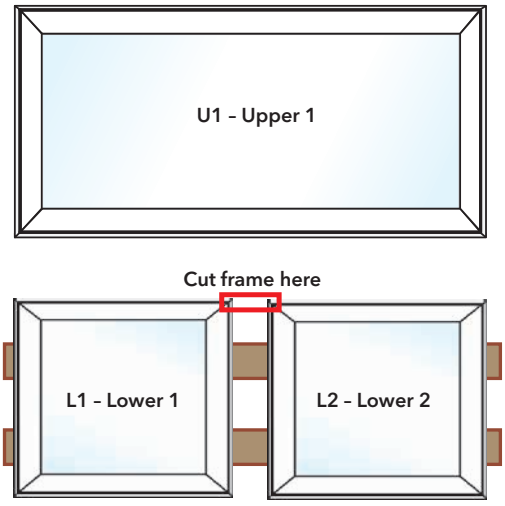


1 PREPARE THE WINDOWS (CONTINUED):

3-WAY JOINTS:

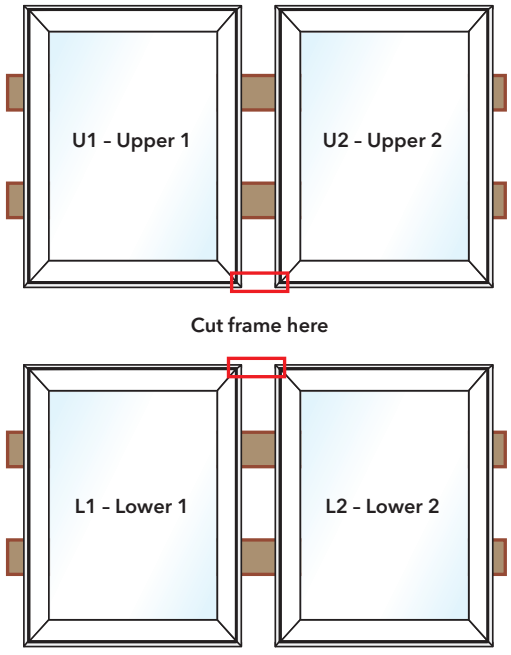
B. **Identify the frame corners of each of L1 & L2** where the 3-way joint will come together. Use a hacksaw or variable speed rotary tool to cut a small notch in the accessory groove of each frame on the exterior and interior. This will provide clearance for the exterior and interior horizontal mullion covers.





4-WAY JOINTS:

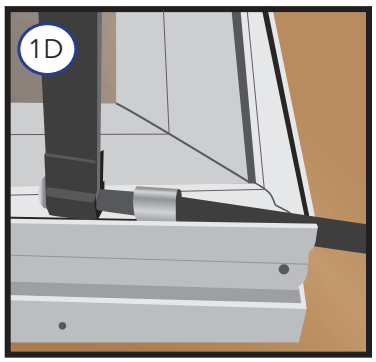
C. **Identify the frame corners of the 4 windows** where the through mullion cover will be installed when assembling the two 2-way combinations to each other. Use a hacksaw or variable speed rotary tool to cut a small notch in the exterior and interior accessory groove of each frame to provide clearance for the mullion cover.

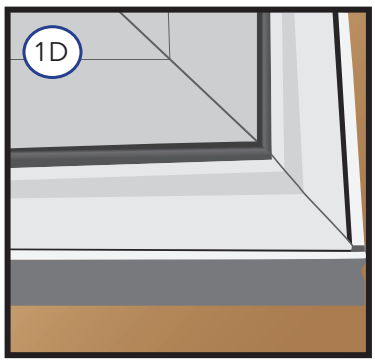


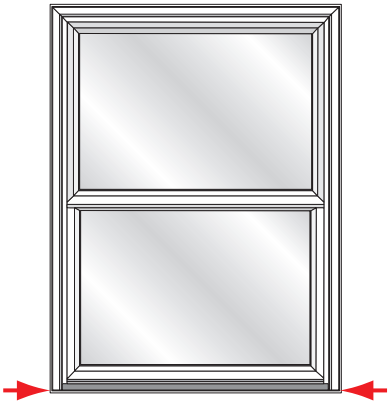
1 PREPARE THE WINDOWS (CONTINUED):

IF USING OPTIONAL SUB-SILL:

D. **Identify the bottom frame corners of the windows.** Use a hacksaw to cut a small horizontal notch in the accessory groove of each bottom frame corner on the exterior and interior. This will provide clearance to allow the subsill assembly to be installed onto the combination.

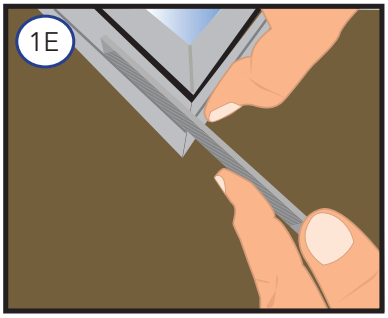





Cut Accessory grooves here

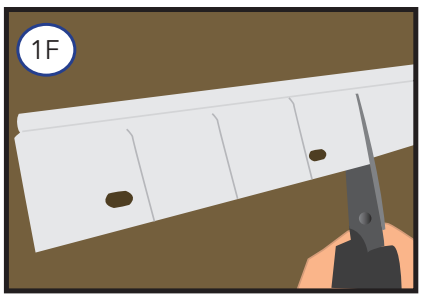
WHEN MULLING A SPECIAL SHAPE WINDOW:

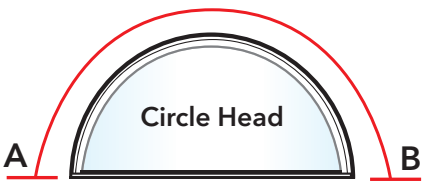
E. **If necessary, file the corners of the special shape window** on the sides that will be mulled together to ensure there is no weld flash interference.



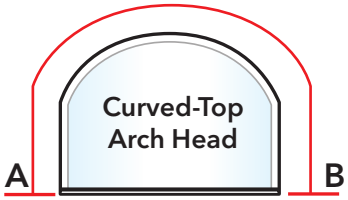
Note: If mulling special shape angled-top to a casement, single-hung, sliding window, fixed window or fixed frame direct set or If no fin is required (Clip or Frame Screw Installations); proceed to Step 1H.

F. **On all curved-top units,** (Circle- Head or Arch Head) without an integral fin; the installation fin must be installed prior to mullion assembly. If there is no factory installed fin: measure the length around the curved portion of the unit (Point A to Point B). Cut the fin to the distance measured. To allow the fin to fit over the curved portion of the frame, make a cut in the fin every 2" across the entire length of the fin as shown.





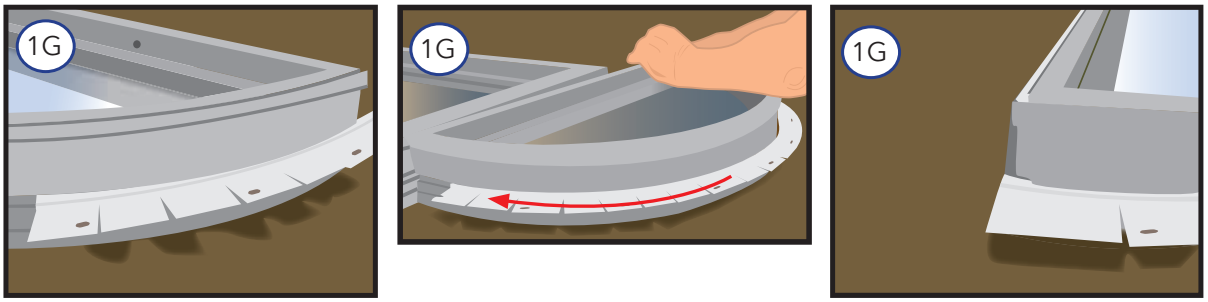
Measure from point A to Point B.



Measure from point A to Point B.

1 PREPARE THE WINDOWS (CONTINUED):

G. **Insert the fin in the fin groove** and slide it around the window.

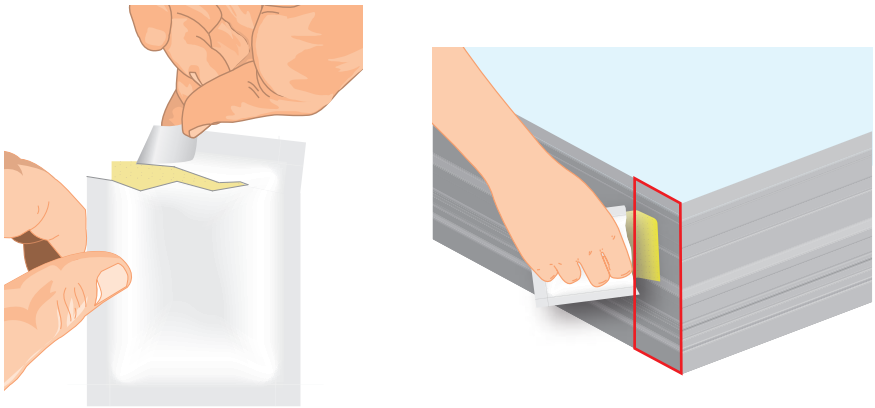


H. **Identify the sides of the frames to be joined together.** Using one of the two primer* application method options shown; use two of the primer wipes and apply primer to the top and bottom edge of the sides of the window frames to be mulled.

Note: DO NOT apply primer to the face of any window unit or in any location on the unit which will be exposed.

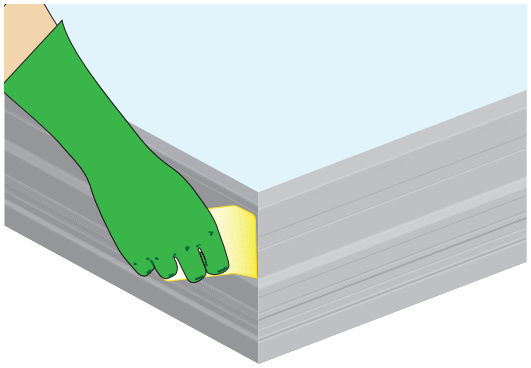
*** MSDS available @ *3M.com***

Method 1: 3M™ Adhesion Promoter 06396 is supplied in an easy-to-use sponge applicator packet. The liquid contents of the packet should be completely used as soon as possible after opening. Hold packet upright and avoid squeezing an opened packet to prevent spillage of liquid contents. The packet can be opened by tearing across the top of the packet at the notches. This will expose the sponge applicator. DO NOT remove the sponge or squeeze a freshly opened packet. Handling the bottom section of the packet should enable application of 3M adhesion promoter 06396 with no mess.

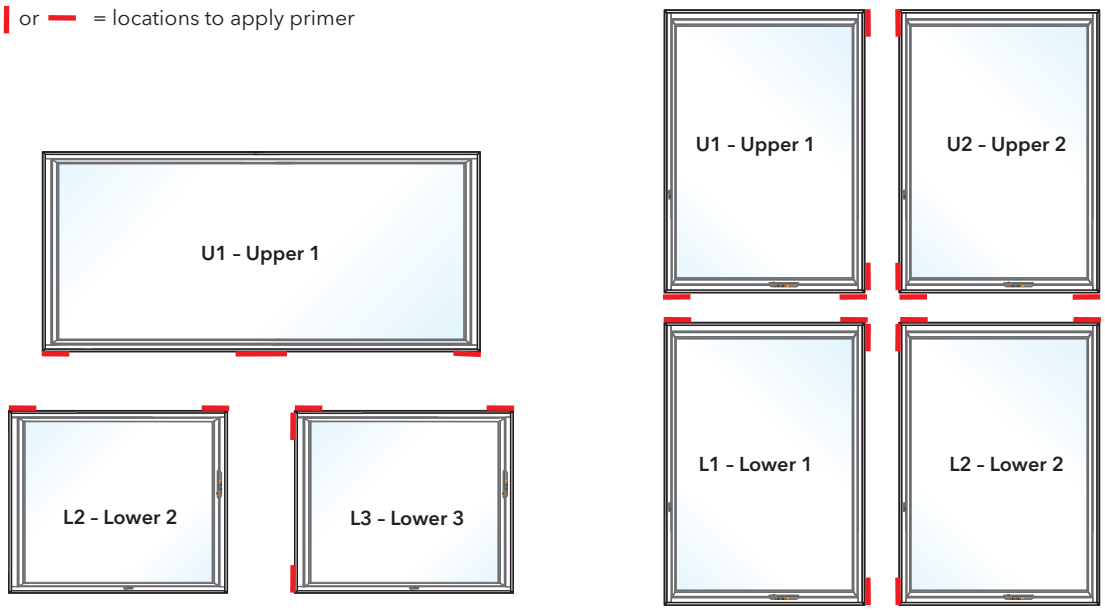


Method 2: Wear Green Nitrile gloves and tear open foil pack and remove the primer sponge applicator and apply primer.

Note: DO NOT touch unit with gloves after using primer.



1 PREPARE THE WINDOWS (CONTINUED):

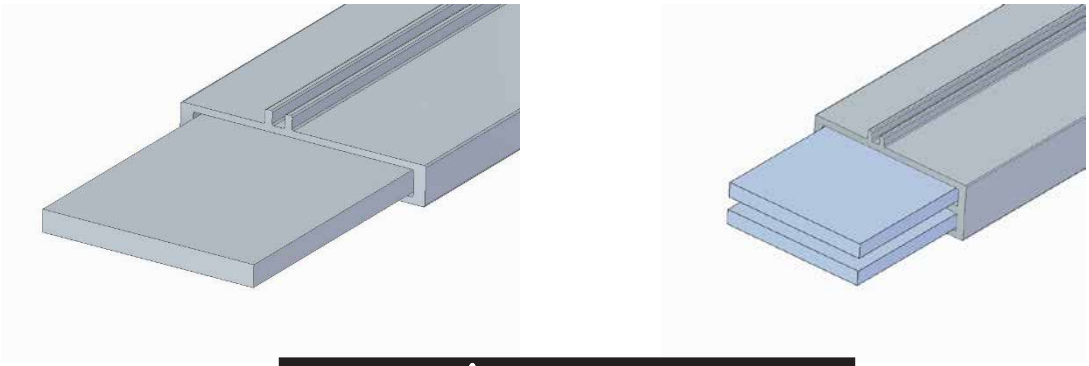


I. **The aluminum structural mullion is cut to size from the factory.** Verify the mullion is 1 ½" shorter than the frame dimension of the units being mulled. If necessary, ***cut the aluminum structural mullion to the proper size.***

J. **If mullion requires structural steel reinforcement,** the ¼" x 2 ½" structural steel bar is cut to size from the factory. Verify the structural steel bar is 3.5" shorter than the frame dimension of the units being mulled. If necessary, cut the structural steel bar to the proper size.

K. **Insert the structural steel bar into the aluminum structural mullion.**

Note 1" mullions may require 1 or 2 structural steel reinforcements. If mullion requires 1 reinforcement, the reinforcement can be installed into either cavity.

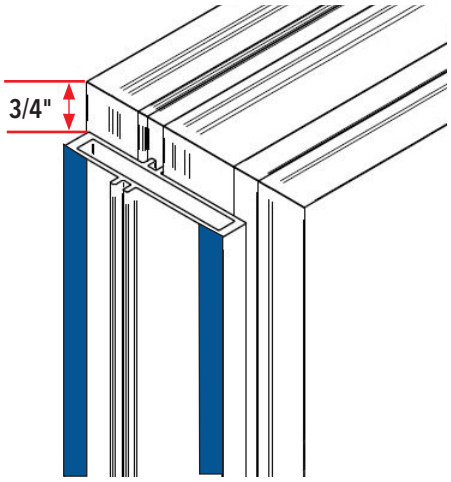


⚠ CAUTION!

DO NOT allow the steel bar to slide out during handling.

2 MULLION ASSEMBLY (EXTERIOR SIDE):

A. **Dry fit the aluminum structural mullion bar between the two windows** to be mulled to make sure there is a minimum of ¾" on each end of the bar to the end of the frame.



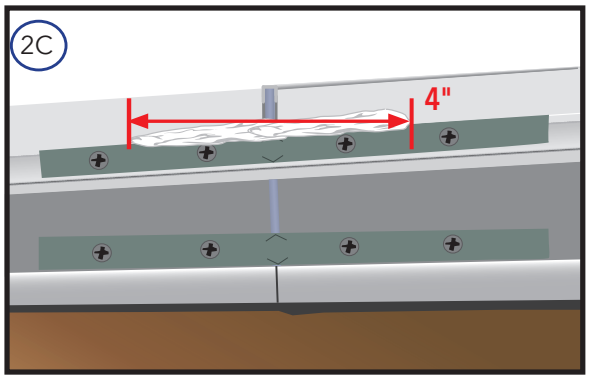
Note: 2B-2C apply when a factory mulled combination is being added to a field mull. Can apply to tight or spread.

B. **For mullion assemblies with tight (direct) mulled units** which will be up against the structural mullion: On only the side of the combination to be placed against the structural mullion; remove the existing flashing tape from the mullion joint so sealant can be applied across the mullion joint and touch the structural mullion when the combination is assembled.

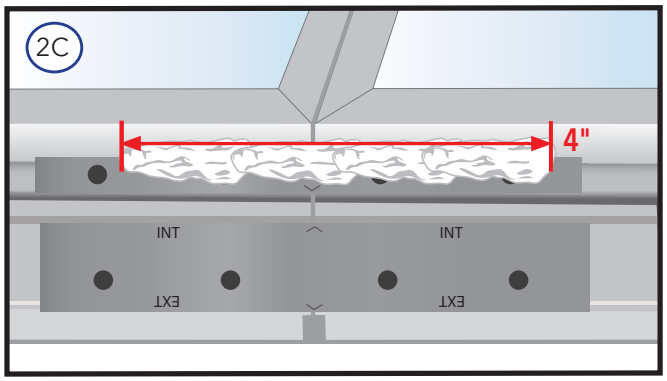
Remove tape from mullion joint which will touch structural mullion



C. **Apply a 3/8" bead of sealant 4" long** on the exterior side of the mullion reinforcement plate, centered on the mullion joint.

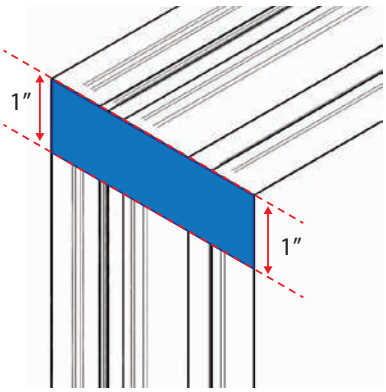


Double-Hung, Single-Hung, Fixed Window, Sliding Window



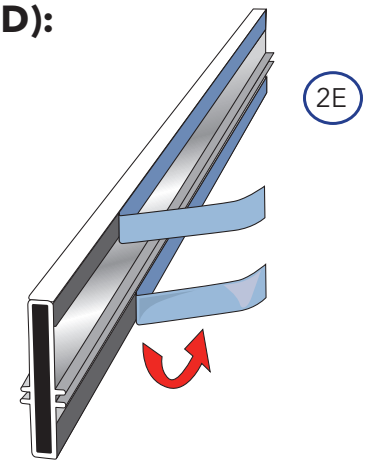
Casement, Awning, Direct Set

D. **Place sealant 1" wide across the frame** on each end of the frame edge of each window.

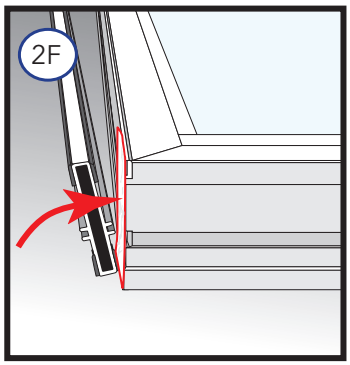


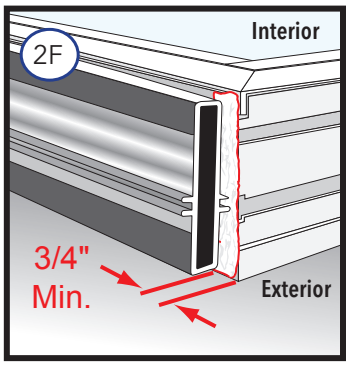
2 MULLION ASSEMBLY (EXTERIOR SIDE) (CONTINUED):

E. **Remove the release paper from the foam tape** on one side of the structural mullion bar.

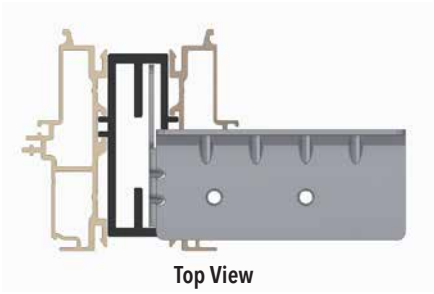


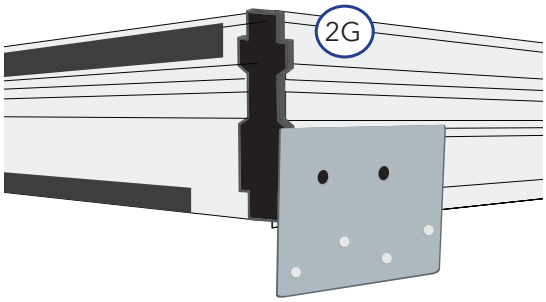
F. **Align the structural mullion bar centered on the side of the window to be mulled;** place the legs on the side of the bar into the fin groove on the side of the window frame. Make sure there is approx. 3/4" on either end of the bar to the end of the frame.



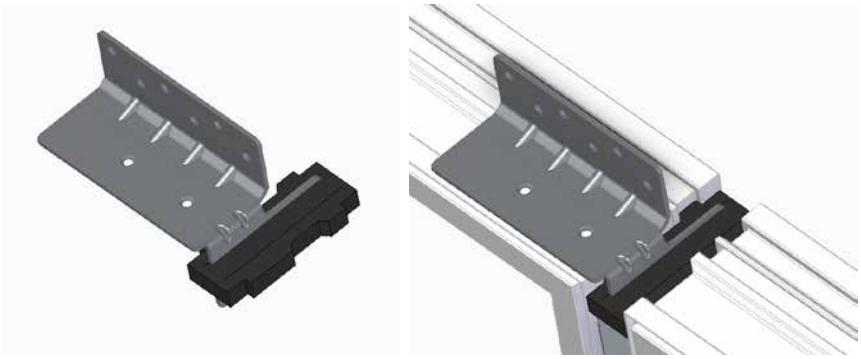


G. **Insert foam plug into each end of the mullion bar.** For END joints, insert end anchor through the slot in the foam plug, and then install into the end of the structural mullion, working the foam plug into the joint and tight to the structural mullion. (Note 1" mullion has 2 slots. End anchor to be inserted in the slot closest to the frame joint.

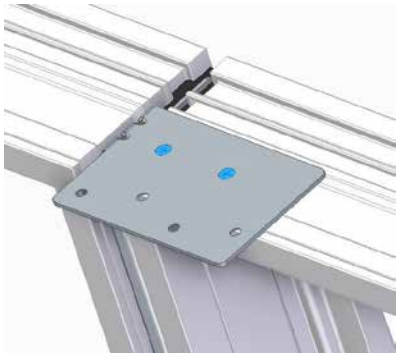




NOTE: DO NOT INSTALL END ANCHORS FOR END JOINTS ADJACENT TO AN OPTIONAL SUB-SILL. Block frame end anchor is optional depending on installation condition. If block frame end anchor is not used, refer to installation instructions for additional requirements.



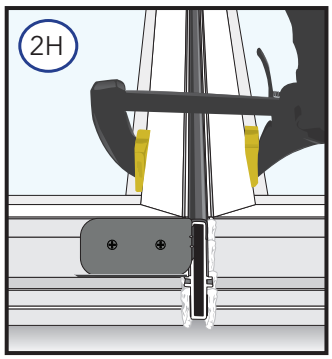
Nail Fin End Anchor shown, Offset Fin is similar.



Block Frame End Anchor (optional) (don't install screws until after sealant is applied).

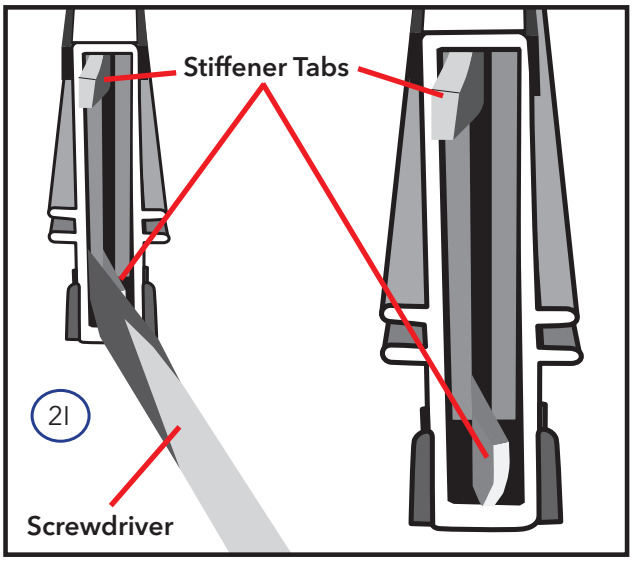
2 MULLION ASSEMBLY (EXTERIOR SIDE) (CONTINUED):

H. **Remove the release paper from the opposite side of the structural mullion bar.** Slide the second window of the assembly against the structural mullion bar, making sure to align the head and sill of the frame with the first window. The legs on the side of the bar should align with the fin groove on the side of the window frame, insert the legs into the fin groove. Press the windows together to ensure adhesion to foam tape. Use clamps to draw the windows together and compress the mullion joint. Loosen clamp and move it across the length of the mullion joint, tightening the clamp about every 12"-18".



I. **If structural mullion contains a structural steel bar,** fill the ends of the structural mullion with sealant to prevent the stiffener from rattling in the assembly.

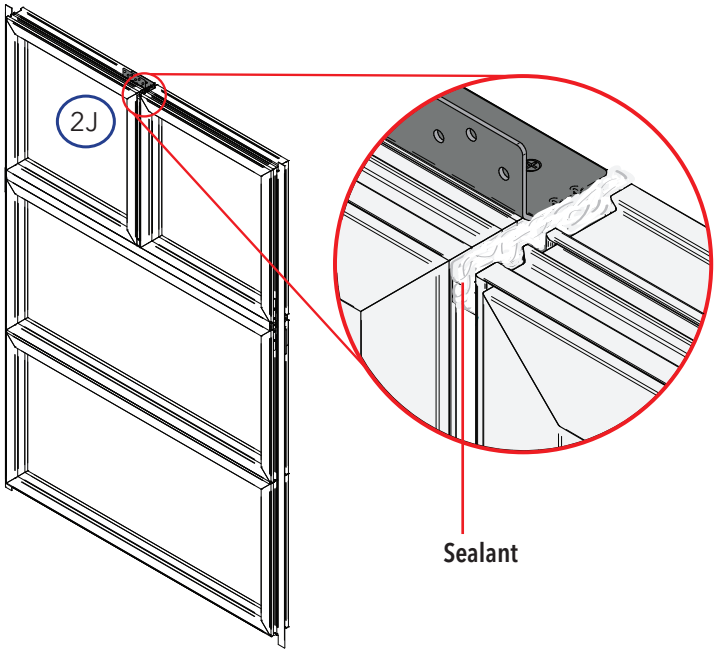
For 1" mullion, use a large screwdriver to bend the tab in the center of the structural mullion on the side of the extrusion opposite where the end anchor will be installed to keep structural steel bar from sliding out of the assembly during handling. End anchor can be used to set depth of structural steel bar in the structural mullion.



1" Mullion Only

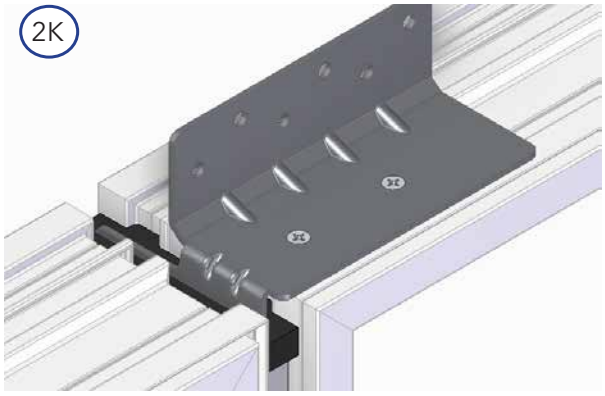
NOTE: DO NOT INSTALL END ANCHORS FOR END JOINTS ADJACENT TO AN OPTIONAL SUB-SILL.

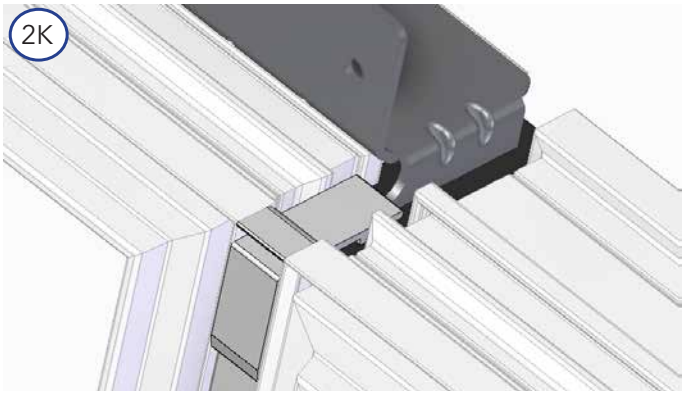
J. **Fully cover each foam plug with sealant** and ensure sealant gets under the end anchor as well. Sealant must fully fill cavity between foam plug and ends of frame. Cover exterior side of foam plug with sealant.



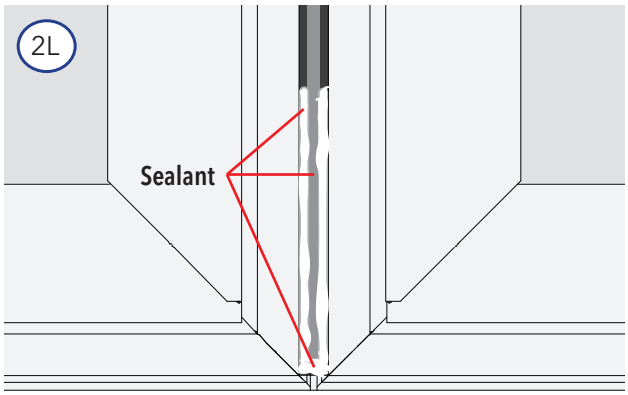
2 MULLION ASSEMBLY (EXTERIOR SIDE) (CONTINUED):

K. **Press the end anchor, (if used) down tight to the frame and attach with (2) #6 screws.** Insert end splice on the exterior of the frame. Press end splice down into the sealant and align to edges of the frame.



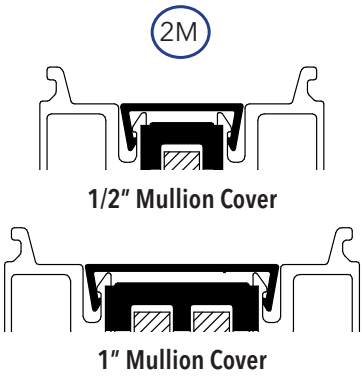


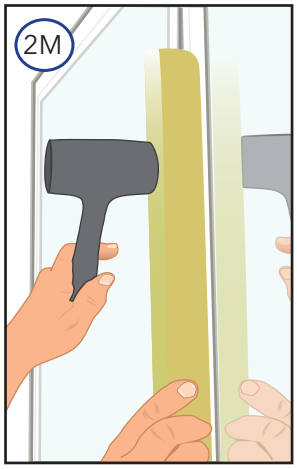
L. **Run a 4" to 6" long bead of sealant down the exterior accessory grooves** and ensure the exterior of the end splice is covered on both ends with sealant.

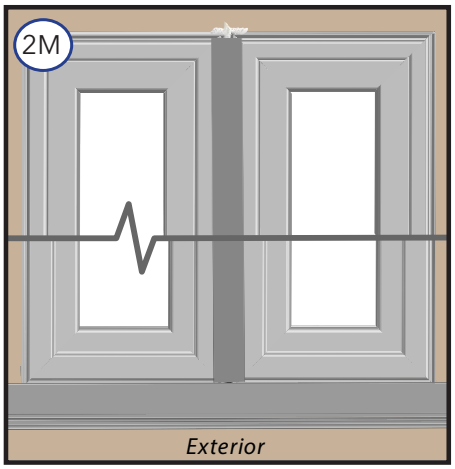


M. **Insert the exterior mullion cover into the accessory grooves of the adjoining windows.** Tap the end of the mullion cover with wood block and a rubber mallet. Continue to drive the cover into the grooves moving slowly along the length of the cover until it is completely seated into the grooves.

Note: Tapping the cover in slowly using a wood block with rounded edges will help prevent dents in the mullion cover. For best results, make sure the wood block is the same width as the mullion covers.



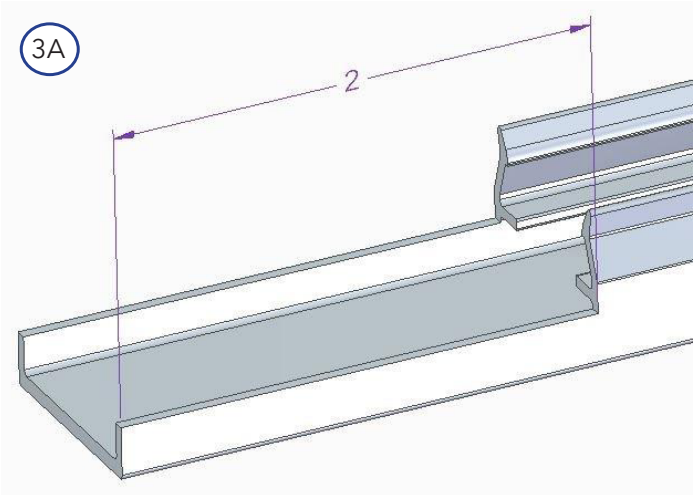




N. **Flip units over**. If the small notch in the interior accessory groove of each frame was not cut as described in Step 1B, 1C, or 1D, cut it now. Run a 4" to 6" long bead of sealant down both ends of the interior accessory grooves and ensure each foam plug is completely covered with sealant.

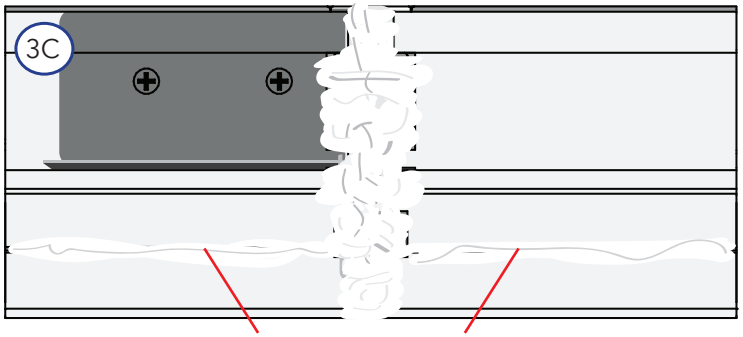
3 MULLION ASSEMBLY (INTERIOR SIDE):

A. **When mulling double-hung windows,** notch the interior mull cover at the sill end. Notch only the side of the mull cover adjacent to the double-hung window if mull contains a non-double hung product.



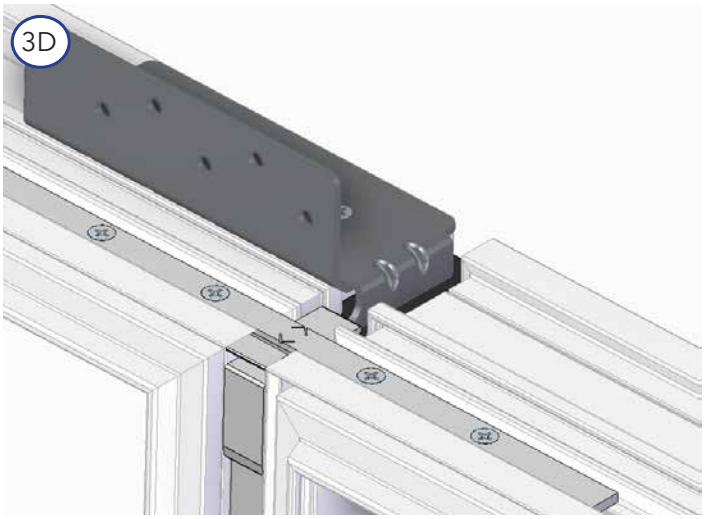
B. **Install interior mull covers.** Ends of mull covers should be aligned to the inside of the frame accessory groove so accessory groove is not obstructed by the mull cover. Use a mallet and wood block to prevent denting the mull cover. Clean up any sealant squeeze out.

C. **Run a ¼" diameter bead of sealant through the exterior frame groove** approximately 4" on either side of mull joint.



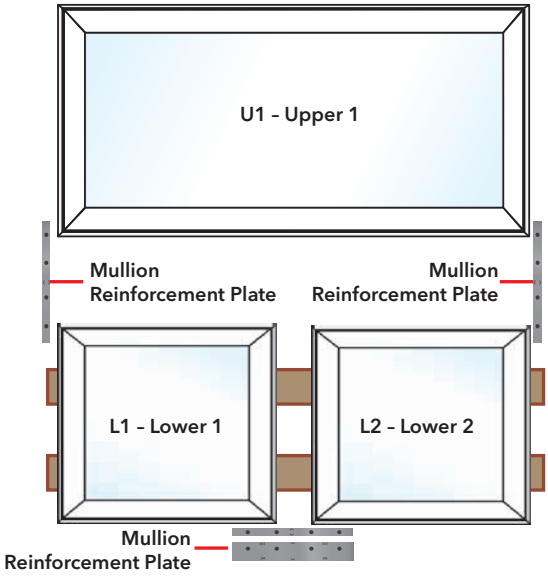
Sealant should be a minimum of 4" and cavity should be filled.

D. **Apply exterior mullion reinforcement plate.** Arrows on small mullion reinforcement plate indicate center of part. Align part such that it is approximately centered on the mull joint. Press small mullion reinforcement plate into the sealant and attach using (4) #6 x ½" screws.



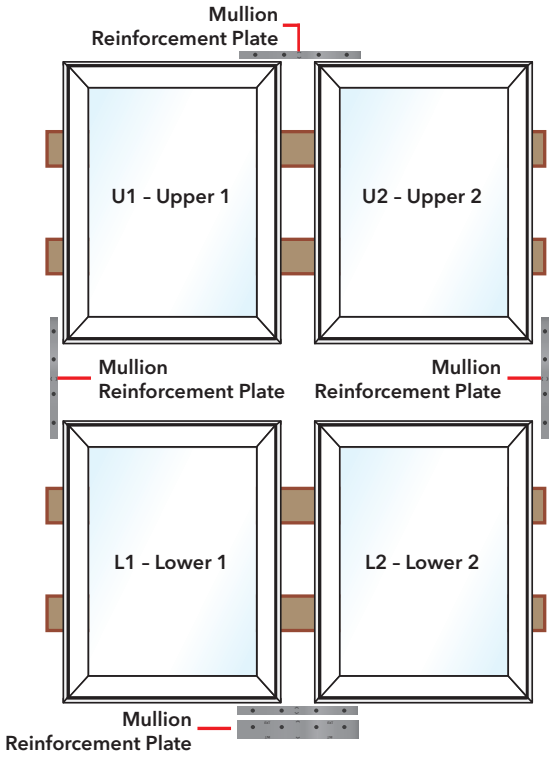
3 MULLION ASSEMBLY (INTERIOR SIDE) (CONTINUED):

3-Way Joint Mullion Reinforcement Plate Locations



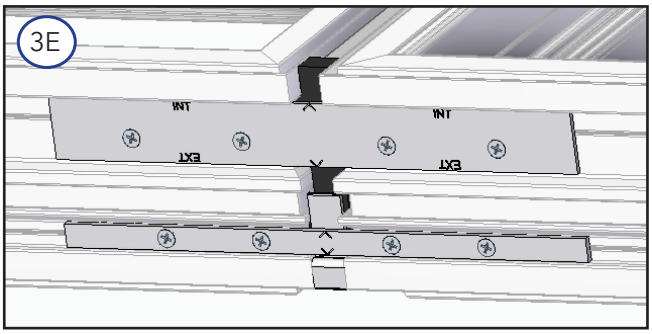
Wide mullion reinforcement plates only used when using sub-sill and no end anchor is used.

4-Way Joint Mullion Reinforcement Plate Locations

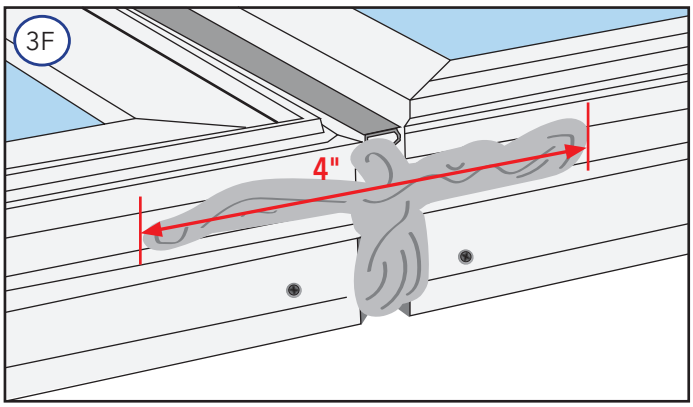


E. **If mull joint is a sill joint** when using optional subsill or not using the optional block frame end anchors, a mullion reinforcement plate will be applied to the interior frame groove as well. When mulling 3 ¼" to 3 ¼" frame depths, the large mullion reinforcement plate will be used. For 3" to 3", or 3" to 3 ¼" the small mullion reinforcement plate will be used.

   For the large mullion reinforcement plate, orient the "INT" that is stamped on the part towards the interior of the windows.



F. **When joining additional units into a 3-way or 4-way joint,** apply sealant as shown to interior mullion joints and follow previous steps to assemble the mullion. On the exterior side of the mullion joint, apply a 3/8" bead of sealant 4" long centered on the mullion joint.

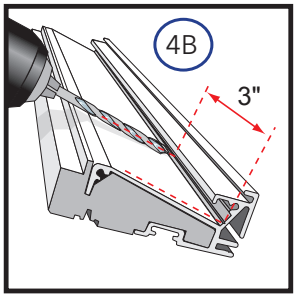


FOR INSTALLATIONS USING OPTIONAL SUB-SILL:

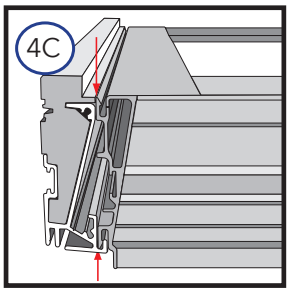
4 PREP AND INSTALL SUBSILL ASSEMBLY:

A. **Cut subsill assembly,** to the total window combination width (no more than + 1/16" more than the width).

B. **Drill a 3/16" drain/weep hole,** 3" from each end through the subsill in the location shown.



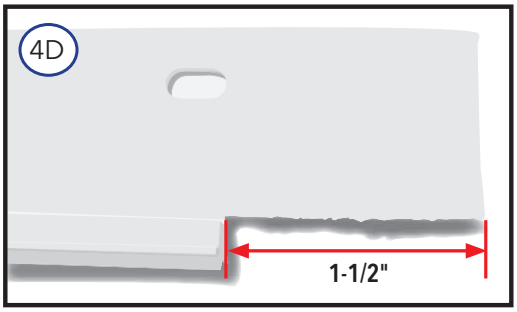
C. **Dry fit the subsill** on the sill of the combination to confirm fit and placement.



For Nail Fin Units only:

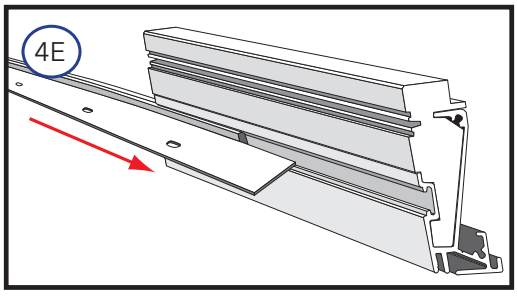
D. **Measure and cut the installation fin for subsill.** Cut the fin 2-1/2" longer than the subsill length. Trim 1-1/2" off each end to form a notch as shown.

Note: The installation fins for the window head may also be cut and notched at this time, but will not be installed until later.

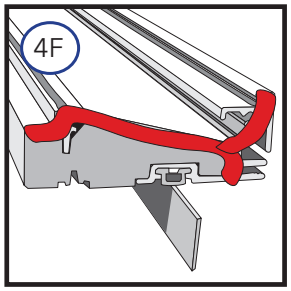


For Nail Fin Units only:

E. **Insert the installation fin** into the fin groove of the subsill.



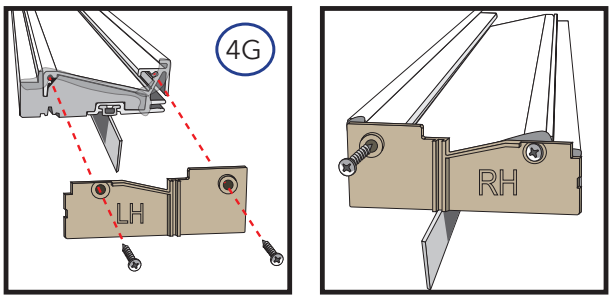
F. **Apply Sealant** to each end of the subsill assembly as shown.



4 PREP AND INSTALL SUBSILL ASSEMBLY (CONTINUED):

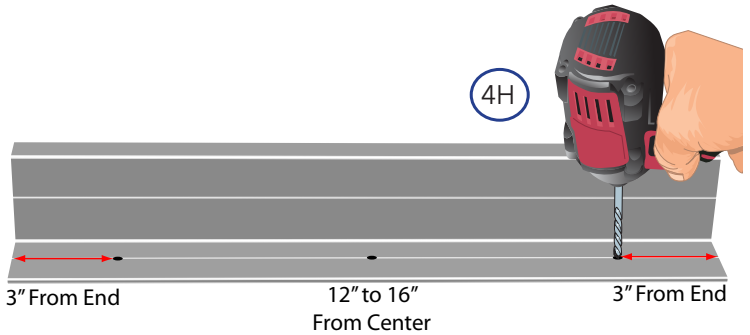
G. **Insert subsill end caps into each end of the subsill assembly.** Attach end caps with two #6 x 5/8" pan head screws.

Note: The mullion end splices are handed, LH & RH.

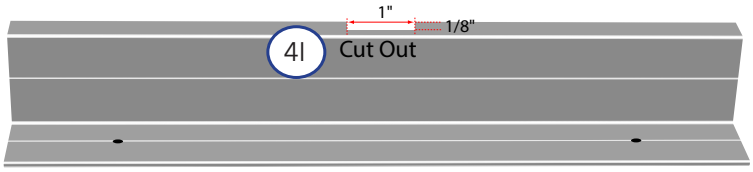


H. **Prep the interior sill cover clip** by cutting it to the same width as the subsill. Drill a 5/32" pilot hole on the scored mark of the cover 3" from each end and 12"-16" on center across the width of the sill cover clip.

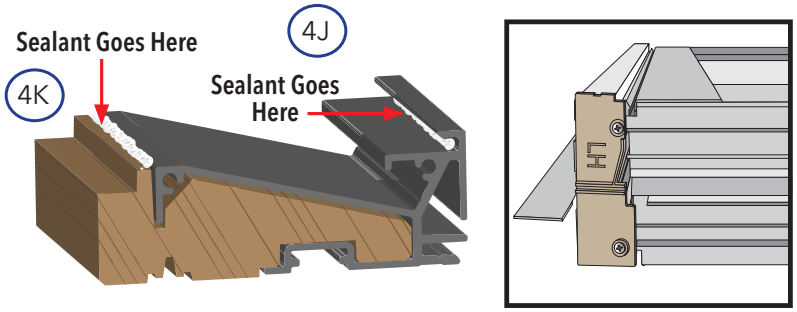
I. **Notch the sill cover clip:** At the location of each mullion, cut a 1/8" x 1" notch to clear the aluminum mullion.



J. **Place a 1/4" bead of sealant** along the exterior lip of the subsill assembly, across the entire length of the subsill.



K. **Place a 1/4" diameter bead of sealant** on top of the inner subsill joint across the length of the subsill.

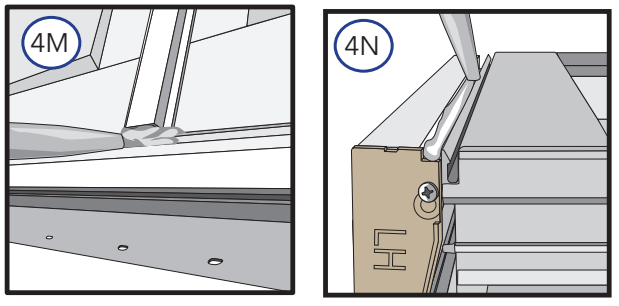


L. **Install the subsill assembly** by hooking it onto the exterior accessory groove. Position the combination so the subsill is over the edge the table. Shims under the subsill may be used to help seat it onto the accessory groove.

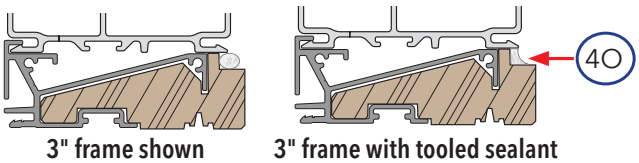
M. **Inject sealant** into the area just below the interior mullion cover.

N. **Apply continuous bead of sealant across interior kerf** between subsill and combination frame. Start the bead on the end of the subsill assembly, go across the kerf the width of the combination to the other end of the subsill assembly.

Note: It is critical there are no voids in this sealant bead!

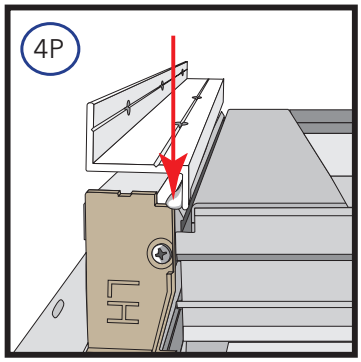


O. **Tool the applied bead of sealant** to make sure there are no sealant gaps.

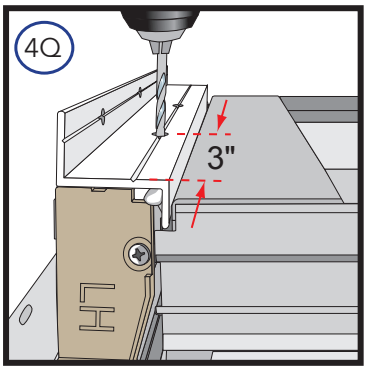


4 PREP AND INSTALL SUBSILL ASSEMBLY (CONTINUED):

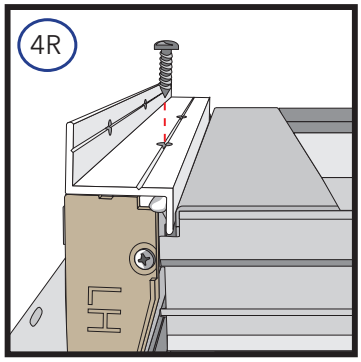
P. **Install the sill cover clip** over the subsill assembly by inserting the edge in to the accessory groove.



Q. **Drill 1/8" pilot holes** 7/8" deep through the clip into the sub sill assembly 3" from each end and 12"-16" on center across the width of the sill cover clip. Drill the holes on the scored line on the clip.



R. **Attach the clip** by driving a #6 x 1" pan head screw into each hole location.

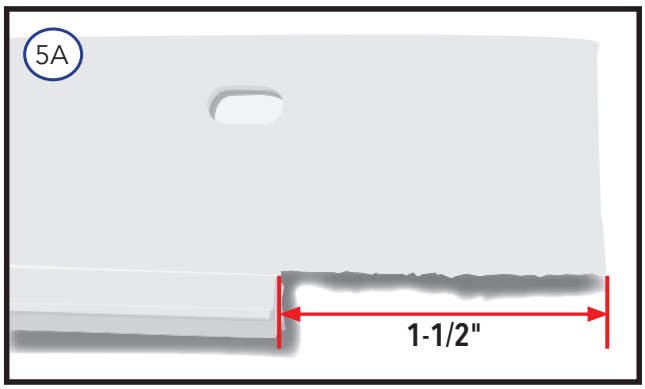


If installing with installation clips or frame screws; Go to Step 6.

FOR UNITS WITH INSTALLATION FINS:

5 FIN PREP AND INSTALLATION AND FINAL ADJUSTMENTS:

A. **Measure and cut the installation fins for each side of the combination.** Cut each fin 2-1/2" longer than both the width and height of the combination. Trim 1-1/2" off each end of the fin to form a notch as shown.



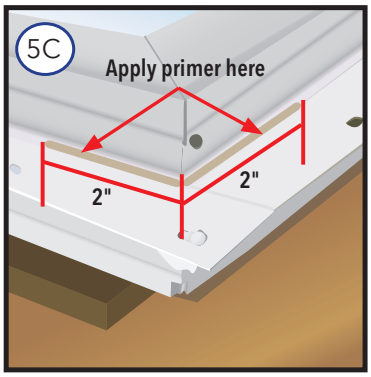
5 FIN PREP AND INSTALLATION AND FINAL ADJUSTMENTS (CONTINUED):

B. **Fins are to be installed in a watershed orientation** with the side fins overlapping the bottom fin and the top fin overlapping the side fins.

(If there is interference with the fin crossing a mull joint, the fin may be cut and inserted from both ends and spliced at the mull joint).

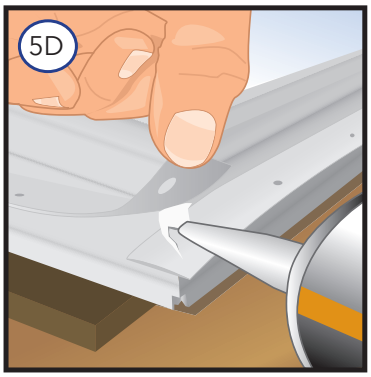
C. **Using one of the primer application methods covered in step 1H;** Apply primer, using one (1) of the primer sponge wipes at each corner to the edge of the frame on top of the fin 2" each direction.

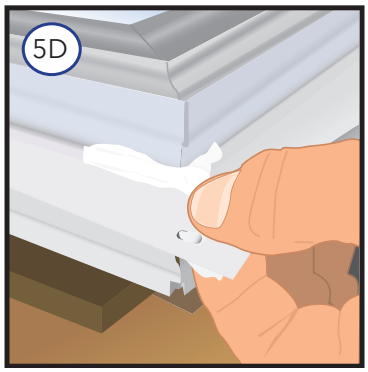
Note: Allow primer to flash dry 2 minutes before moving to next step to apply sealant.

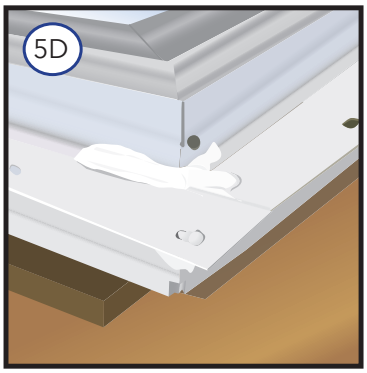


D. **At each corner where the fins overlap,** apply a generous bead of sealant between overlapped fins and squeeze to assure a good seal between the fins. Place sealant on the exterior side of the fin for approximately 2" from the corner on each side. Tool sealant applied at the corners.

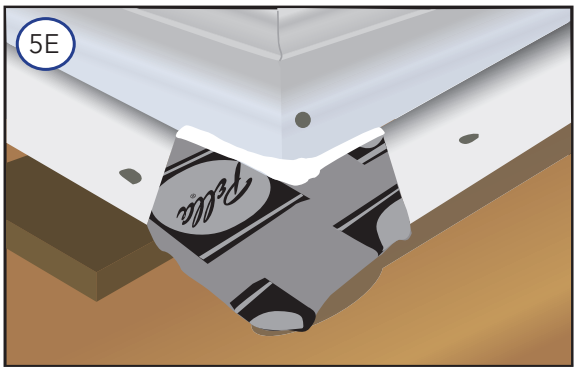
Note: Make sure there are no gaps in sealant between frame and vinyl fin.





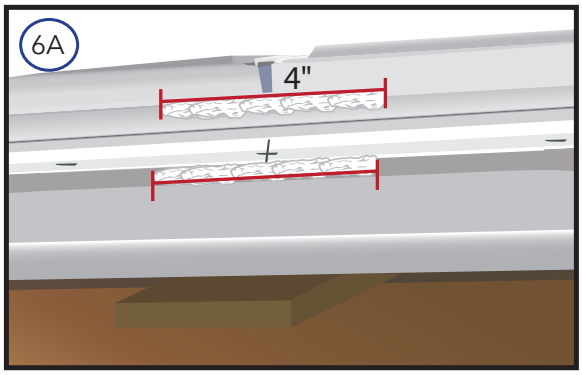


E. **At each corner,** apply a fin corner over the overlapping fins.



6 FLASHING TAPE APPLICATION OVER FIN SPLICES:

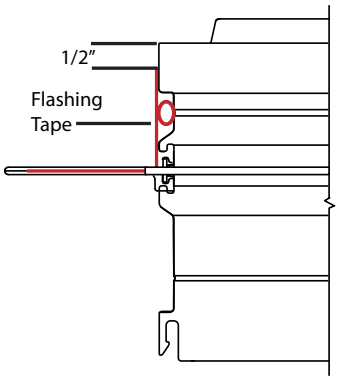
A. **At each mullion joint and spliced fin;** Apply a 3/8" bead of sealant 4" long on the exterior side of the mullion plate and add a 3/8" bead of sealant 4" long on the interior sides of the mullion plate next to the fin, centered on the joint or spliced fin location.



B. **For each mullion joint and fin splice; cut a piece of flashing tape 12" long.**

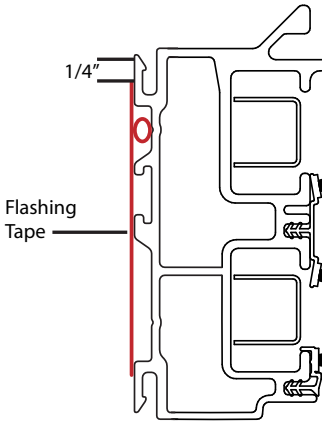
C. **At each mullion joint and fin splice; apply the flashing tape over the plate, fin and 8" bead of sealant** so the tape extends 2" beyond either side of the plate and/or fin splice. Hold the tape back 1/2" from the frame edge. Fold the tape over the fin and press firmly to adhere to the frame edge and the fin.





D. **For Units without nail fin; Apply flashing tape over the plate and sealant bead** so the tape extends 2" beyond either side of the plate. Hold the tape back 1/4" from the frame edge. Press flashing firmly to adhere to the frame edge and plate.





7 HEAD DRIP INSTALLATION:

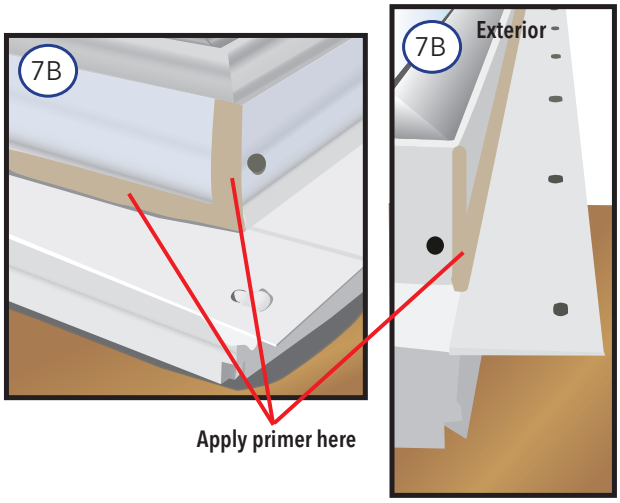
Required on Mullions with Vertical Mullion Joints Ending Through the Head.

Note: These steps must be performed in immediate succession either in the shop or at the job site.

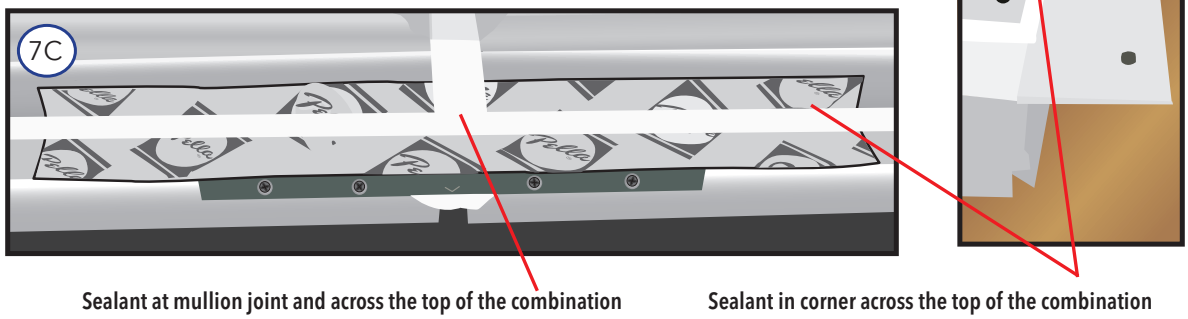
A. **Cut the head drip cap to the overall width of the window combination.** Dry fit the head drip cap to make sure the cap does not extend beyond the ends of the combination and no more than 1/16" shorter than the combination on each end. Remove the head drip cap before proceeding to 7B.

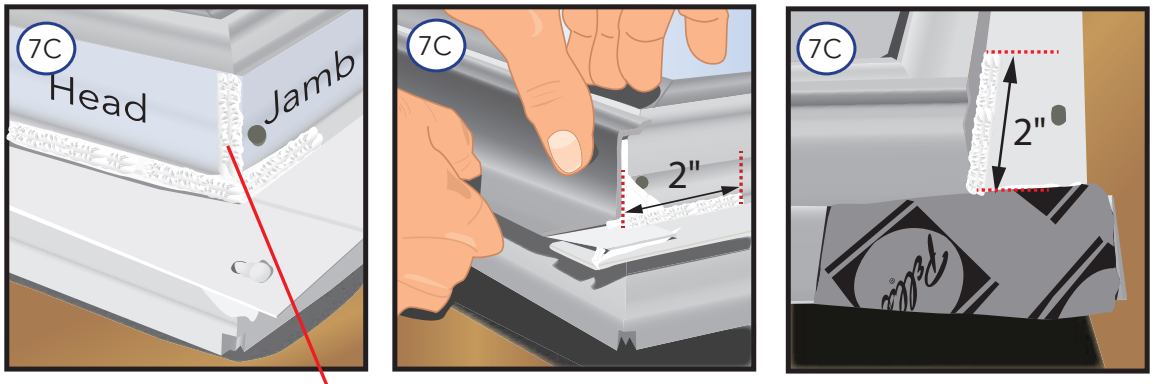
B. **Apply primer, using one (1) of the primer wipes across the top** of the head where the fin and frame meet and on each end as shown.

Note: Allow primer to dry at least 2 minutes before proceeding to next step.

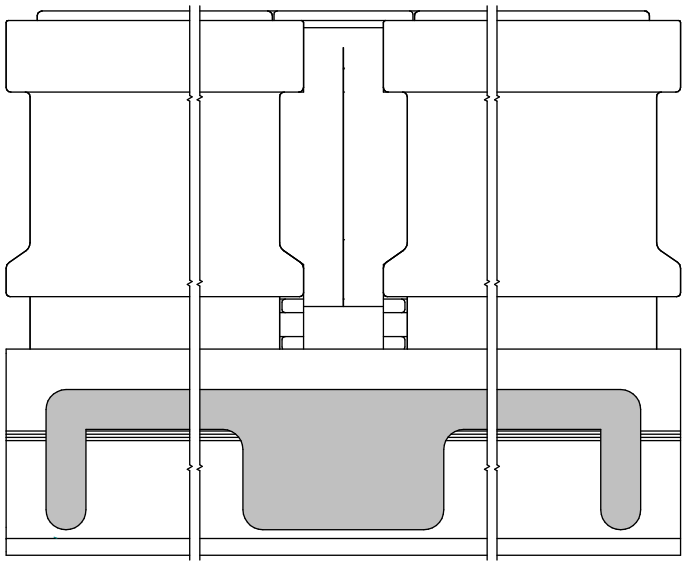


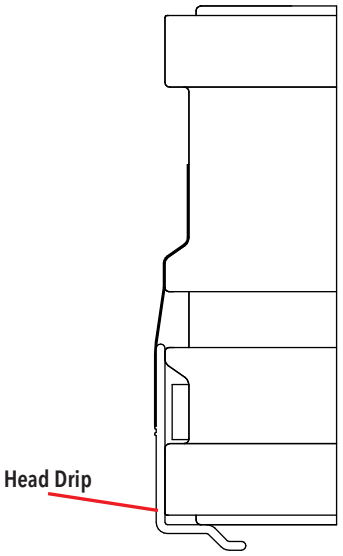
C. **Apply sealant at the top of the exterior mullion cover** to seal the space between the mullion cover and window frame heads. Also apply sealant at each end of the top of the combination and across the top of the entire combination at the joint where the fin and frame connect for nail fin units, and in the exterior frame groove for block frame units (see illustrations on following page) to prep for installation of the head drip cap. Install the drip cap immediately after applying sealant to the head either in the shop or at the job site when installing the combination unit in the opening. Apply a piece of flashing tape at each end overlapping the head drip cap to hold in place while the sealant sets up.



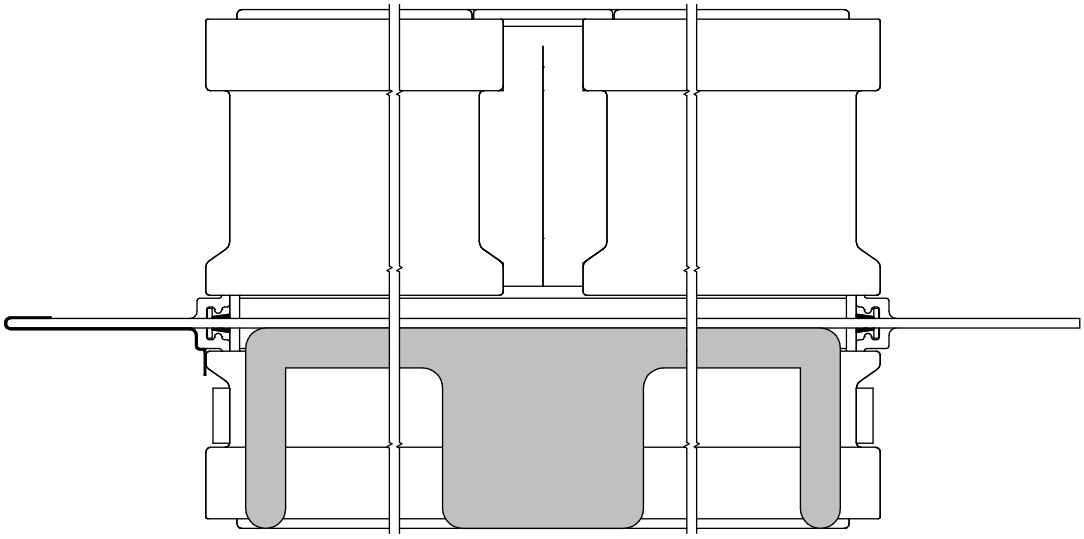


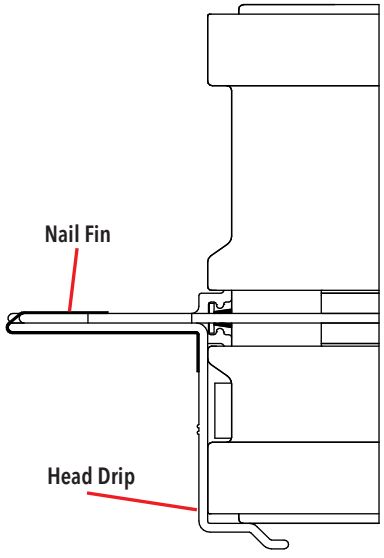
7 HEAD DRIP INSTALLATION (CONTINUED):





BLOCK FRAME





NAIL FIN

7 HEAD DRIP INSTALLATION (CONTINUED):

D. **If there are no installation holes in the head drip cap,** drill 5/32" clearance holes 1/2" from the top edge, 4" from each end and 6" on center. These will be used for Installation Activities in the Installation Instruction.

E. **Using the end anchor holes as a template,** drill a 5/32" pilot hole through the head drip cap by drilling through each end anchor bracket hole.

