



1/2" AND 1" JOINING MULLION ASSEMBLY INSTRUCTION FOR 2-WAY, 3-WAY AND 4-WAY JOINTS FOR 350 SERIES WINDOW WITH NAIL FIN

Be sure to thoroughly read and understand all the steps before beginning the mullion assembly process. It is recommended this process be completed by a construction professional.

YOU WILL NEED TO SUPPLY:

- Pella® SmartFlash™ foil backed butyl window and door flashing tape or equivalent
- Sellador para la instalación de puertas y ventanas Pella o sellador multiuso de alta calidad equivalente (1 tube per window)
- Isopropyl Alcohol



MULLION KIT, PARTS INCLUDED:

- (1) 1/2" or 1" Aluminum Mullion Reinforcement Bar with foam tape applied
- (2) Plastic injectable end splices
- (2) End clips
- (2) End clip straps
- (30) #10 x 3/8" Flat Head Screws
- (1) 10" piece of Pella® SmartFlash foil backed butyl flashing tape
- (2) Foam backer plugs
- (2) 1/2" or 1" Vinyl Mullion Covers

OPTIONAL:

- (1) or (2) 14 gauge x 4" Stainless Steel Mullion Reinforcement(s)

TOOLS REQUIRED:

- Tape measure 
- Hammer 
- Phillips Screwdriver 
- Sealant Gun 
- Drill with 1/8" bit 
- Clamps 
- Aviation Snips 
- 1/4" Chisel 
- Utility knife 
- Scissors 
- Straight Edge (Level) 
- Marker or Pencil 
- Rubber Mallet 
- Rotary Cutting Tool 
- Hacksaw 

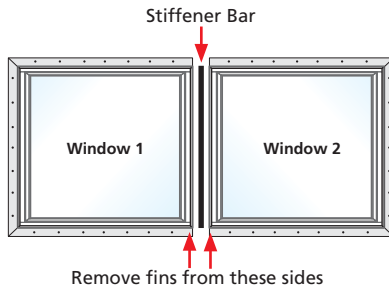
REMEMBER TO USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT

1 PREPARE THE WINDOWS

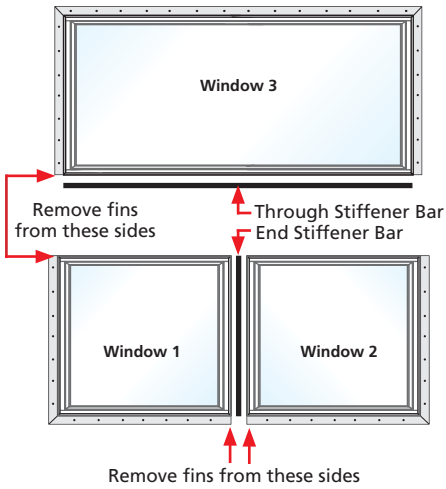
- Remove the packing material from the windows.** Inspect product; DO NOT mull or install damaged windows.
- Lay out the windows on a flat surface with exterior side up** in the intended mullion assembly position(s). Place a mark on the jamb on the sides to be mulled together. The nail fins on these sides will be removed.
- Make sure any fixed windows are in the correct orientation** by matching alignment of glazing beads (exterior glass stops). The horizontal glazing beads run through to the corners.

1 PREPARE THE WINDOWS (CONTINUED)

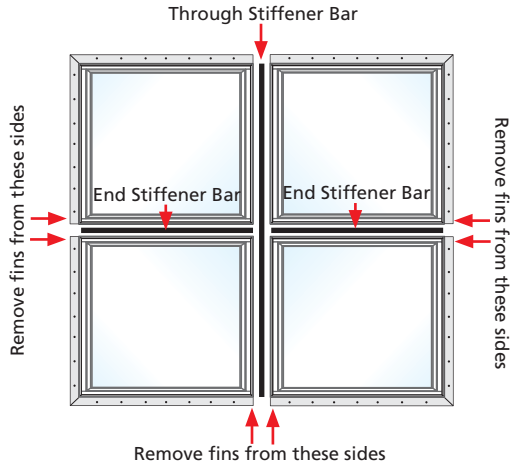
2-Way Joint



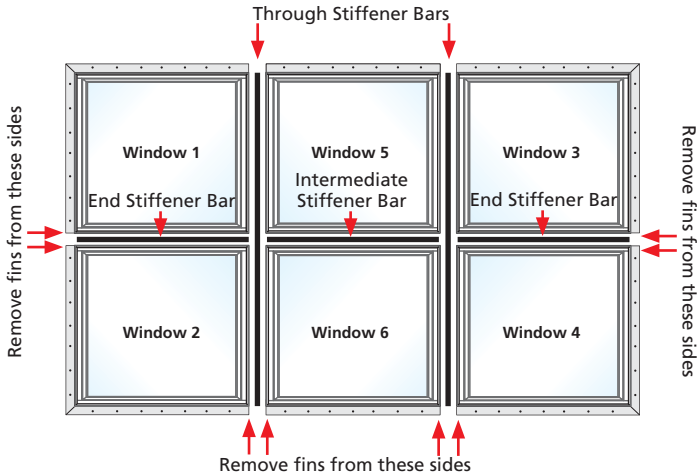
3-Way Joint



4-Way Joint



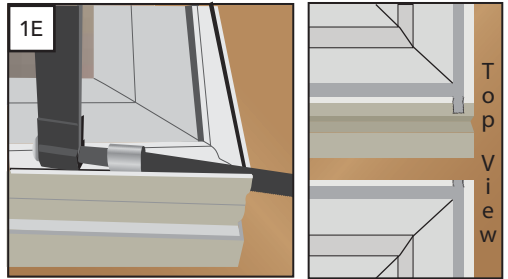
4-Way Joint (6-Windows)



1 PREPARE THE WINDOWS (CONTINUED)

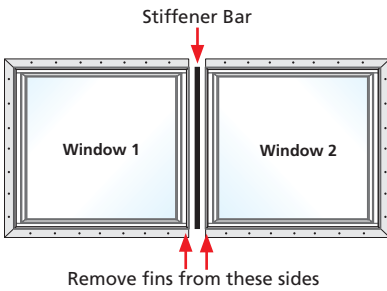
D. **4-Way Joints Only:** Select equal window frame widths + or - 1/32" (no more than 1/16" difference) for center sub-assemblies. (**Example:** 4-Way Joint (with 6-windows) units #5 and #6 above, it is critical they be the same width.)

E. **3-Way and 4-Way Joints only:** Use a hacksaw to cut a notch out of the exterior accessory grooves on the sides of the windows to be mullioned. These notches run parallel to the through stiffener bar and will allow the mullion covers to be installed in step 3H.

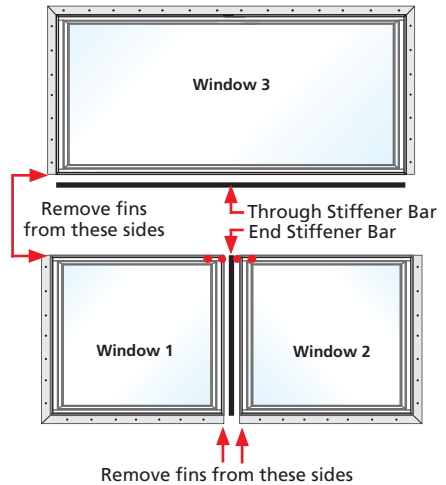


•••• = Notch cut out of accessory grooves for mullion cover installation.

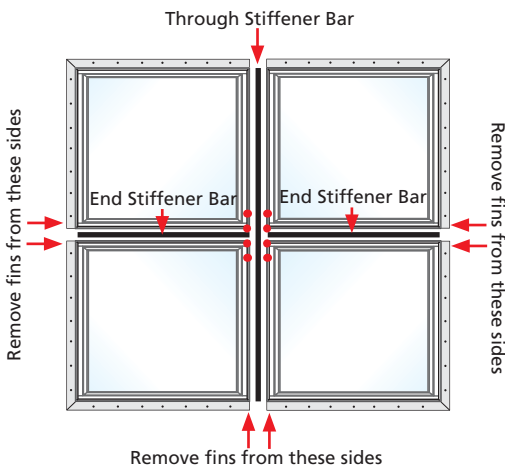
2-Way Joint



3-Way Joint

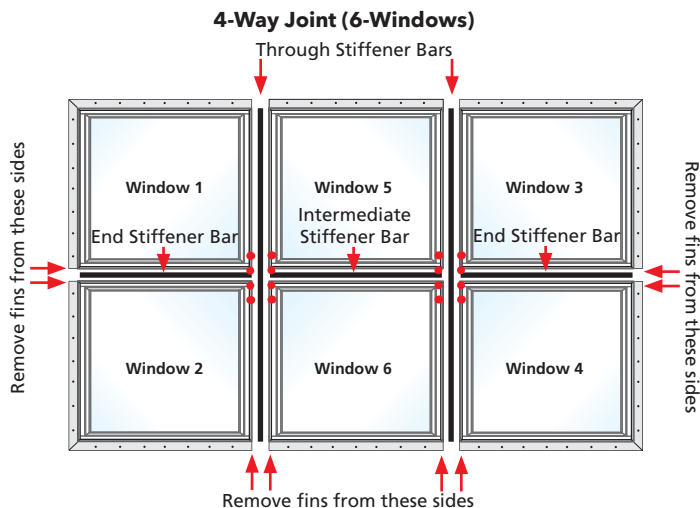


4-Way Joint



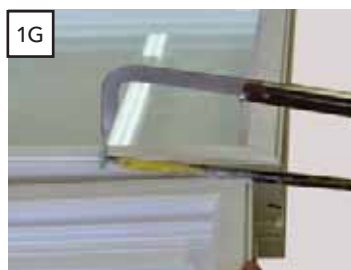
1 PREPARE THE WINDOWS (CONTINUED)

•••• = Notch cut out of accessory grooves for mullion cover installation.



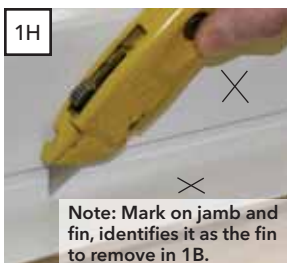
F. **Turn all units over so the interior side is up.** Make sure to place them in the correct orientation for the combination assembly.

G. **3-Way and 4-Way Joints only:** Use a hacksaw to cut a notch out of the interior accessory grooves on the sides of the windows to be mullioned as shown in above diagrams. These notches run parallel to the stiffener bar and will allow the mullion covers to be installed in step 2L.



H. **Score and remove fin.** Cut each end of the fin to the corner of the frame. Use a utility knife to score the nail fin three times at the fin base (where the fin meets the frame). Bend and break off the fin.

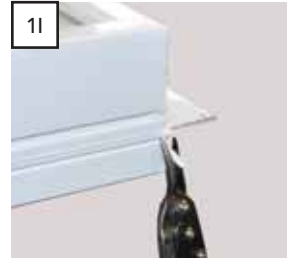
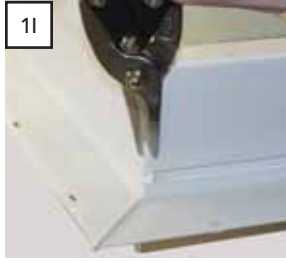
Note: Use a chisel to trim off any remaining fin nub > 1/16".



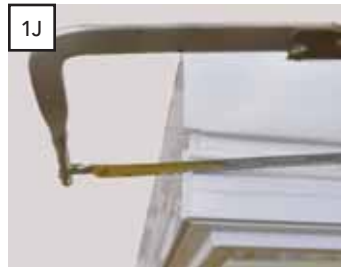
1 PREPARE THE WINDOWS (CONTINUED)

I. **Inspect the corner welds.**

Trim weld as needed above and below fin location using a chisel or aviation snips.



J. **Clean out recessed slots to provide clearance for through bar end splice installation** using a hacksaw or chisel.



K. **If not using a kit with parts pre-cut to length**, cut the stiffener bar and mullion covers as follows:

Through Stiffener Bars = Overall Mull Length - 3/4"		Intermediate and End Stiffener Bar(s) = Mull length- 3/4"		Steel Reinforcement bar(s) = Mull length - 6"	
		KEY: FW=Frame Width FH=Fame Height CW=Combination Width CH=Combination Height			
MULL COVERS:	2-WAY JOINTS	3-WAY JOINTS	4-WAY JOINTS		
Nail Fin (Interior and Exterior)	• Vertical Through Cover = FH - 7/16"	• Horizontal Through Cover = CW - 7/16"	• Vertical Through Cover = CH - 7/16"		
	• Horizontal Through Cover = FW- 7/16"	• Vertical End Cover = FH - 17/32"	• Horizontal End Cover = FW - 17/32"		
			• Horizontal Intermediate Cover = FW - 19/32"		

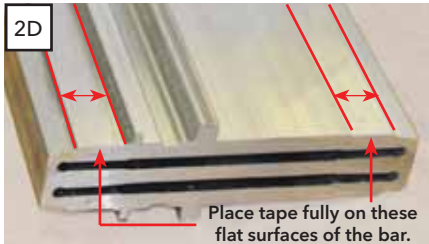
2 INTERIOR 2-WAY MULLION ASSEMBLY, PLUS 3-WAY AND 4-WAY MULLION SUB-ASSEMBLY

- A. **Clean the sides of all the windows** to be mullied to which the stiffener bar(s) will be applied. Wipe the frame jambs with Isopropyl Alcohol to remove dirt or debris.
- B. **Dry fit all the applicable stiffener bars between the windows to be mullied.** Make sure the windows fully contact the stiffener bar along the length of the windows at the mullion joint. If not, remove stiffener bar and inspect the frames. Remove material as needed and test fit again. If using a mullion kit with tape applied stiffener bars included, proceed to step 2F.



If using lineal length Stiffener Bars:

- C. **Clean both sides of the stiffener.** Wipe the bar and frame jambs down to remove any dirt or debris with a paper towel or cloth and Isopropyl Alcohol.
- D. **Apply two strips of adhesive tape** on the flat surfaces as shown to each side of the stiffener bars. Make sure the tape is applied the full length of each bar. Be sure to press the tape to the surface of the bar along the length of the bar to ensure good adhesive contact.

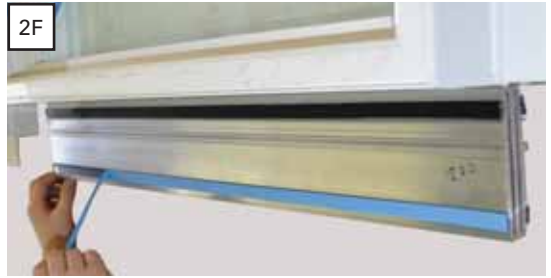


- E. **Place a mark 3/8"** from the end of jamb on one of the windows to mark the correct location of where to apply the stiffener bar.

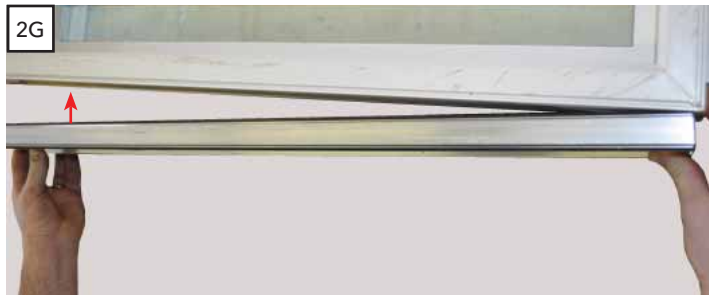
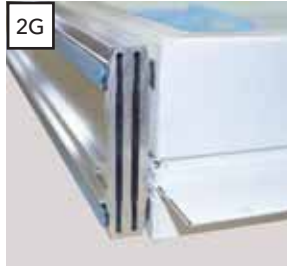


2 INTERIOR 2-WAY MULLION ASSEMBLY, PLUS 3-WAY AND 4-WAY MULLION SUB-ASSEMBLY (CONTINUED)

- F. **Remove the release paper** from the two strips of tape on one side of the bar.



- G. **Install stiffener bar to first window.** With the exposed tape toward the window, align one end of the bar with the mark on the frame and attach the bar to the window. Press bar firmly against the window.



- H. **Align the second window** with the first and remove the tape release paper from the other side of the bar.



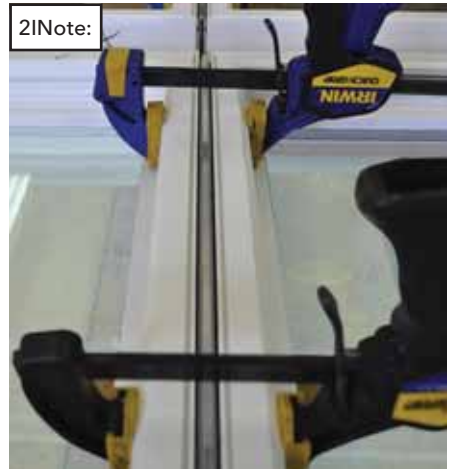
2 INTERIOR 2-WAY MULLION ASSEMBLY, PLUS 3-WAY AND 4-WAY MULLION SUB-ASSEMBLY (CONTINUED)

- I. **Use a straight edge** to ensure window alignment and install the second window to the first window and the stiffener bar.

Note: *If assembling 3-Way or 4-Way combination, it is critical the sides where the other unit(s) will be mullied is straight and the edges of the units are aligned.*



Note: *Clamps should be used to help draw the mullion joint together and ensure adequate tape adhesion.*



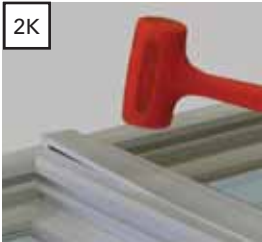
- J. **Notch the legs** (if needed) at each end of all the mullion covers (interior and exterior) at a 45° angle as shown.



2 INTERIOR 2-WAY MULLION ASSEMBLY, PLUS 3-WAY AND 4-WAY MULLION SUB-ASSEMBLY (CONTINUED)

- K. **Install the mullion cover.** Align one end of the cover with the inside edge of the accessory groove and install the cover by inserting the legs of the cover into the accessory grooves of the two windows. If needed, use a rubber mallet to seat the cover, along the length of the mullion joint.

2-Way Joints: Tap on the cover end to adjust position of cover as needed.



3-Way and 4-Way Joints: Hold the cover back 1" from where the center intersection joint will be to allow for sealant injection in a later step.



- L. **4-Way Joints:** Repeat Steps 2A - 2L on Window 3 and Window 4 (and other sub-assemblies as needed).
- M. **Dry Fit the stiffener "through" bar on sub-assembly combination #1.** Make sure the through bar fully contacts the windows along the length of the combination sub-assembly at the mullion joint. If not, remove the bar and inspect the frames. Remove material as needed and test fit again.

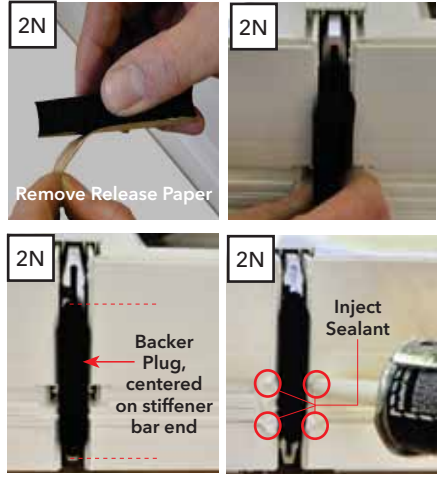
2 INTERIOR 2-WAY MULLION ASSEMBLY, PLUS 3-WAY AND 4-WAY MULLION SUB-ASSEMBLY (CONTINUED)

N. **Install Backer Plugs** centered as needed on the ends of the sub-assembly stiffener bars.

3-Way Combination: Install backer plug centered on the end of the stiffener bar of the sub-assembly combination that will be assembled to the other window in the combinations. Inject sealant in 4 places around backer plug as shown. Go to Step 3.

4-Way Combination: Install backer plug centered on the end of the stiffener bar of the sub-assembly combination that will be assembled to the other window in the combinations. Inject sealant in 4 places around each backer plug as shown.

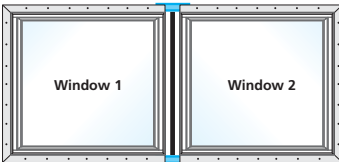
Note: On 6 Window assemblies center sub-assemblies (Windows #5 and #6) install a backer plug on both ends of the stiffener bar. Inject sealant in 4 places around each backer plug as shown. Go to Step 3.



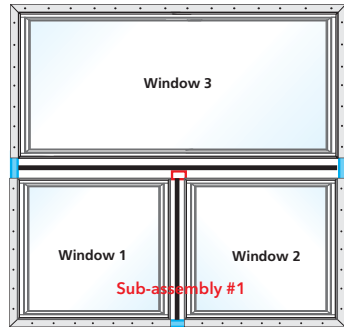
Diagrams show where mullion nail fin end clips, strap plates and backer plugs are to be applied. Backer plugs are applied in step 2N. Clips and Straps are applied in Step 4A.

■ = Nail Fin End Clips and Strap Plates
 □ = Backer Plug

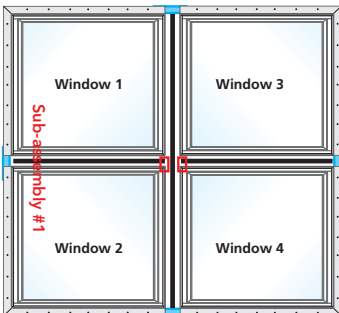
2-Way Joint



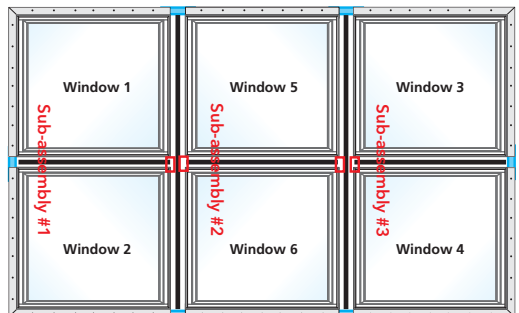
3-Way Joint



4-Way Joint



4-Way Joint (6-Windows)

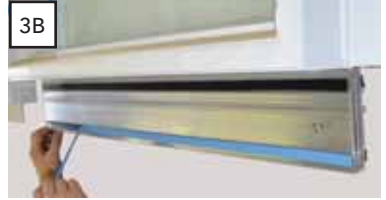


3 3-WAY AND 4-WAY THROUGH BAR ATTACHMENT AND INTERIOR MULLION ASSEMBLY

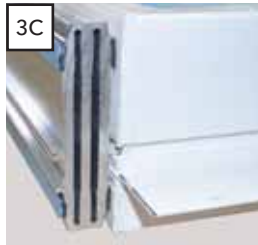
- A. **Place a mark 3/8"** from the end of jamb on one of the windows to mark the correct location of where to apply the stiffener bar.



- B. **Remove the release paper** from the two strips of tape on one side of the bar.



- C. **Install stiffener "through" bar to sub-assembly.** With the exposed tape toward the sub-assembly, align one end of the bar with the mark on the frame and attach the bar to the sub-assembly. Press bar firmly against the sub-assembly. Use clamps to help ensure tape adhesion.



Stiffener bar clamped to subassembly

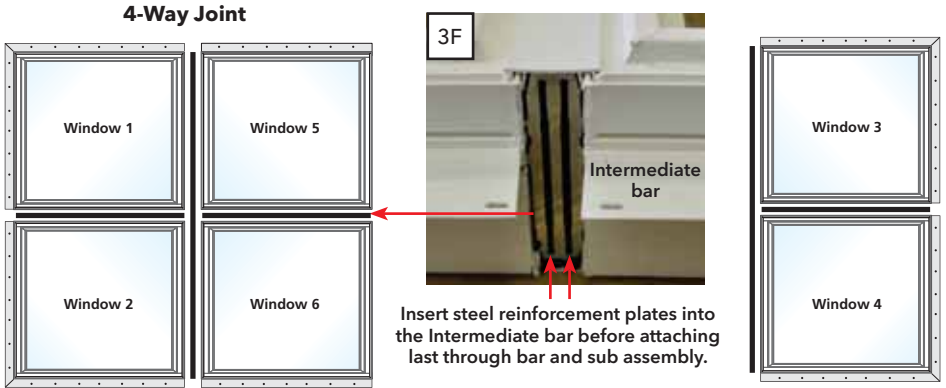
- D. **Align and Dry Fit the window or next combination assembly to sub-assembly #1 with the attached stiffener "through" bar.** Make sure the through bar tape fully contacts the window or sub-assembly along the length of the bar. If not, separate the two halves of the assembly and inspect the frames. Remove material as needed and test fit again.
- E. **Remove the tape release paper and Install the window (3-Way) or sub-assembly (4-Way) to the sub assembly with the bar.**



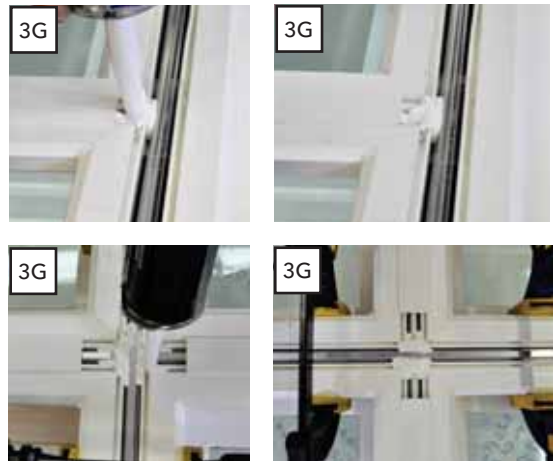
3 3-WAY AND 4-WAY THROUGH BAR ATTACHMENT AND INTERIOR MULLION ASSEMBLY (CONTINUED)

Note: Use clamps to ensure tape adhesion.

- F. **4-Way Joint (6-Window Combinations Only):** If required, (see ADM Mullion Load Chart). Insert steel reinforcement plates into the intermediate bar between Window #5 and Window #6 before attaching the next sub assembly. Repeat 3A - 3E with the next sub-assembly.



- G. **Inject sealant into intersection(s) of the combination.** Inject a high quality urethane sealant into the intersections where the mullioned units come together. Completely fill the area on top of the foam plug and then extend the sealant approximately 1/2" down each side of the stiffener bars.



Note: It may be necessary to pull back the intermediate mull covers when injecting into 4-Way joints.

Note: 4-Way joints - make sure sealant is injected on both sides of the through bar.

3 3-WAY AND 4-WAY THROUGH BAR ATTACHMENT AND INTERIOR MULLION ASSEMBLY (CONTINUED)

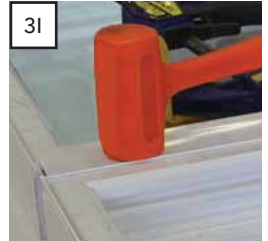
- H. **Apply interior through mullion cover(s).** Align one end of the cover with the inside edge of the accessory groove and install the cover by inserting the legs of the cover into the accessory grooves of the two windows. If needed, use a rubber mallet to seat the cover, along the length of the mullion joint.

Note: Position clamps as needed along the length of the cover to help draw the units together and seat the cover in the accessory groove.



- I. **Align all sub-assembly mullion covers to the through mullion cover.** Use a rubber mallet to tighten the mull covers to the through mullion cover. Seat cover end when complete.

- J. **Turn the combination over so the exterior side is up.** Use care to make sure the products are held together as they are being turned over.



Note: On larger combinations, extra bracing or bar clamps maybe be needed to make sure the tape along the joints is not stressed.

- K. **Apply clamps along the through mullion joints(s) to ensure tape adhesion.**

- L. **Inject sealant into the intersection(s) of the combination.** Inject a high quality urethane sealant into the intersections where the mullied units come together. Completely fill the area on top of the foam plug and then extend the sealant approximately 1/2" down each side of the stiffener bars.



- M. **Install the exterior mullion cover(s).** 3-Way and 4-Way Joints, install the through mullion cover first and then install the sub-assembly mullion covers. If needed, use a rubber mallet to seat the cover along the length of the mullion joint. Use a rubber mallet to tighten the sub-assembly mullion cover(s) to the through mullion cover. Seat the cover when complete.

Note: Position clamps as needed along the length of the mullion joint to help draw the units together and seat the cover in the accessory grooves.



4 INSTALLING MULLION END CLIPS AND STRAP PLATES

- A. **If Needed, install steel reinforcement bar(s)** in the through mullion joint(s) stiffener bar. If the mullion assembly application requires steel reinforcement bars, insert into the slot(s) of the stiffener bar.



1" Stiffener Bar Shown

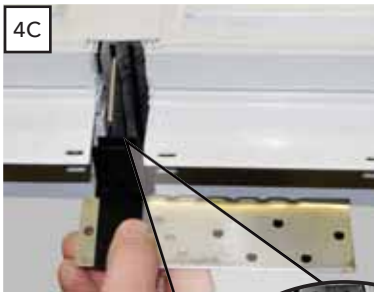
For Impact Mullion Assemblies, go to Step 4G.

Non-Impact Units only:

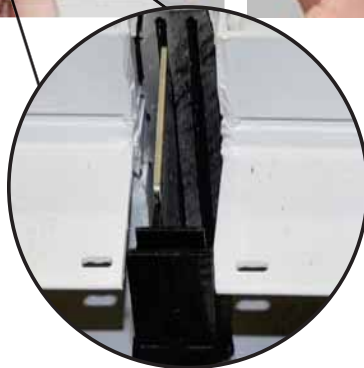
- B. **Install end splice onto the nail fin end clip.** End splices will be color matched to window color.



- C. **Insert nail fin end clip into the left slot** on one end of the through mullion stiffener bar as shown.



1" Stiffener Bar Shown



4 INSTALLING MULLION END CLIPS AND STRAP PLATES (CONTINUED)

D. **Install three (3) 3/8" flathead screws** in the nail fin end clip. **DO NOT** Use screws longer than 3/8".

Note: DO NOT over-tighten screws.



E. **Install strap plate** over top of the end clip and attach with 12 screws.



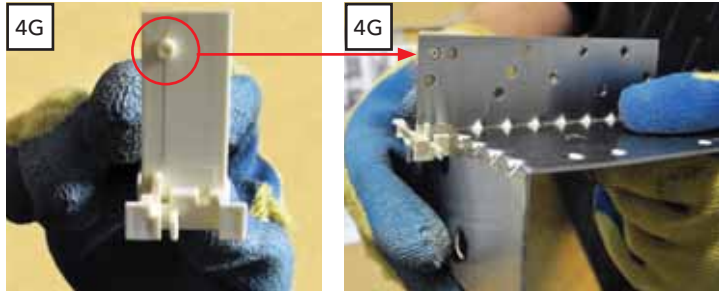
F. **Repeat 4A - 4E** on the end of all other mullion joint(s).



4 INSTALLING MULLION END CLIPS AND STRAP PLATES (CONTINUED)

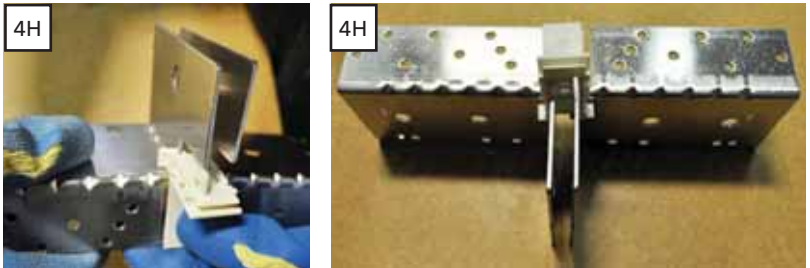
Impact Units only:

- G. **Attach the end splice to one** of the impact nail fin end clips making sure the tab on the back of the clip is inserted into the alignment hole.

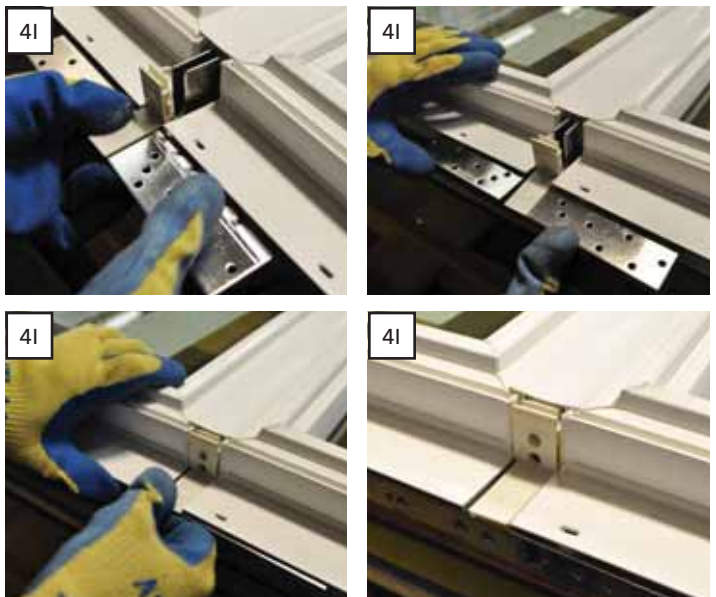


- H. **Complete the nail fin end clip assembly** by attaching the other impact nail fin end clip to the splice.

Note: Two nail fin end clips and one end splice are made into one assembly for each end of the mullion joint.



- I. **Insert the nail fin end clip assembly into the slots** on one end of the through mullion stiffener bar.

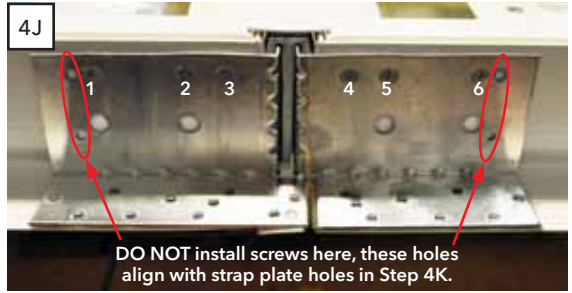
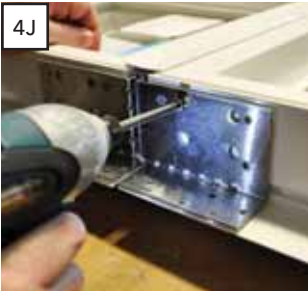


4 INSTALLING MULLION END CLIPS AND STRAP PLATES (CONTINUED)

Note: In steps J & K, for Photo Purposes Only - the combination was flipped to show the screw installation in the nail fin end clips and the strap plate.

- J. Install six (6) 3/8" flathead screws in the nail fin end clip. DO NOT use screws longer than 3/8".

Note: DO NOT over-tighten screws.



- K. Install the impact strap plate over the top of the nail fin end clip assembly. Make sure to align the four holes in the center of the plate with the four holes on the nail fin end assembly. Attach with twelve (12) 3/8" screws.

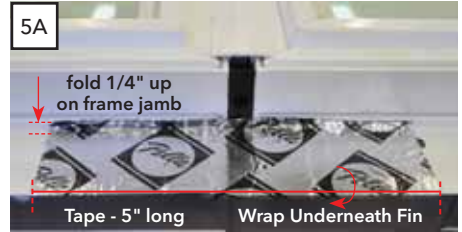


- L. Repeat 4G-4K on the end of all other mullion joint(s).

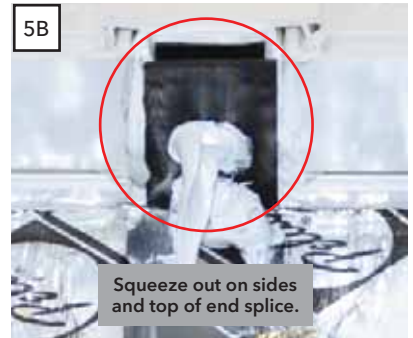
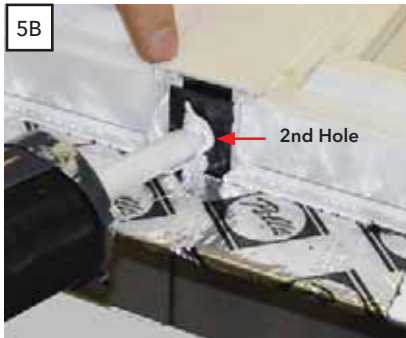
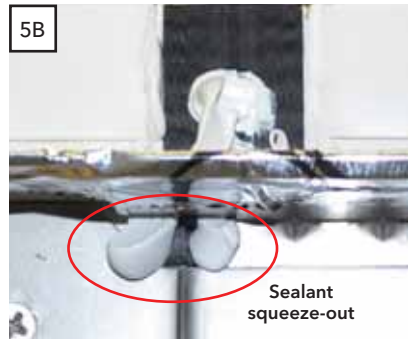
5 FINAL ADJUSTMENTS

- A. **Apply a 5" piece of Pella flashing tape** 1/4" onto the side of the frame jamb and over the nail fin and clip. Wrap tape down around fin.

Tip: Cut the tape down to 2-1/2" wide so it does not wrap under so far on the end clip and cover the installation holes.



- B. **Inject sealant into the end splice using the hole closest to the nail fin.** When sealant squeeze-out is visible on the back side of the fin as shown; stop injecting and move the sealant gun up to the upper injection hole. Inject sealant until it is visibly touching the sides and top of the end splice.



- C. **Clean off excess sealant.**



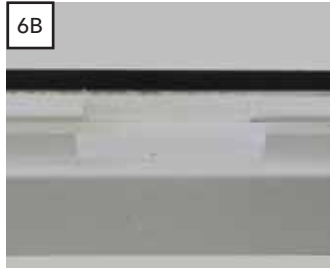
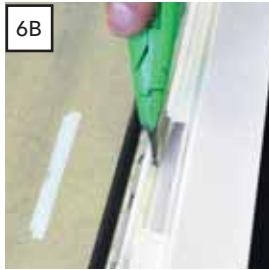
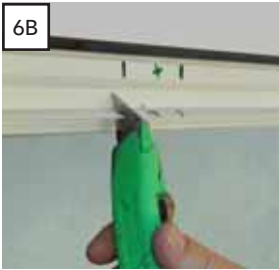
- D. **Repeat 5A - 5C on all end splices.**
- E. **Attach head drip.**

6 HEAD DRIP INSTALLATION

- A. Align the head drip next to the combination head and mark the head drip legs at each mullion joint to identify the part of the legs to be trimmed. Also mark to trim off 1/4" of the legs on each end of the head drip. This will allow the head drip to fit over the mullion joint.



- B. Use a sharp utility knife to cut and score each leg at the marked locations. The marked locations will be approximately 2" wide. Bend each cut and scored portion of leg over and remove.



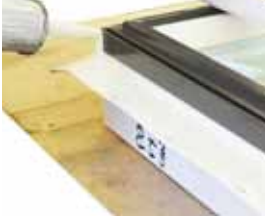
- C. Use a sharp utility knife to cut 1/4" from the legs on each end of the head drip. This will allow for clearance at the ends of the accessory groove and frame.



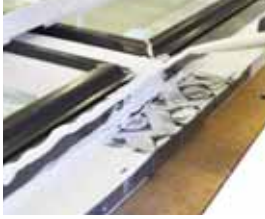
6 HEAD DRIP INSTALLATION (CONTINUED)

D. Apply sealant along the edge of the combination above the nail fin and on each end as shown.

6D



6D



6D



E. Align the head drip on the head of the combination.

6E



F. Tap the head drip into the accessory groove working along the length of the head drip.

6F



6F



G. Tap the side of the head drip into the frame groove working along the length of the head drip.

6G



6G



6G



Refer to the 350 Series Combination Assemblies installation instructions to install this combination.