PELLA® IMPERVIA® JOINING MULLION (DIRECT MULL) ASSEMBLY INSTRUCTIONS FOR 2-WAY, 3-WAY, AND 4-WAY JOINTS FOR SLIDING DOOR, WINDOW BESIDE, AND TRANSOM ABOVE

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.

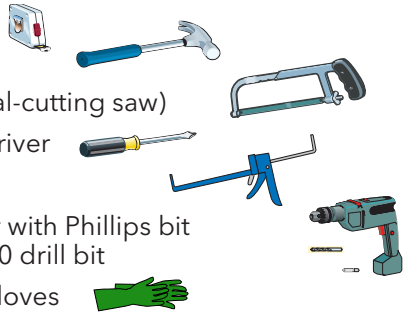
THE FOLLOWING ITEMS ARE NEEDED (not included):

- 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
- 12" x 3" x 1" Wood Block with rounded ends
- Pencil or Center Punch
- Clamps
- Installation Fins (4)
- Shims
- Installation Fin Corners (when vinyl installation fins are used)

* Order Head Drip Cap separately for Vertical Mullion Joints Ending Through the Head

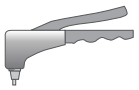
TOOLS REQUIRED:

- Tape measure
- Hammer
- Hack saw (metal-cutting saw)
- Phillips screwdriver
- Sealant gun
- Powered driver with Phillips bit and T20 bit, #20 drill bit
- Green Nitrile gloves
- Variable speed rotary tool



For Special Shape Units Only:

- Drill with #20 drill bit (.161")
- Rivet Gun
- 5/32" dia. Aluminum Peel type rivet



MULLION KIT, PARTS INCLUDED (PER PQM CONFIGURATION):

- Strike Backer Plate
- #8-32 x 1.250", T20 Screws (for strike backer plate)
- 3M 06396 - Surface Preparation Primer Wipes (3)
- 3/32" x 1/2" Roll of Foam Tape
- Mullion Covers (interior and exterior)
- Mullion Reinforcement Plates
- #6 x 1/2" Flat Head Screws (for mullion plates)

MULLION PLATES (with butyl applied):

8" x 15/16"

8" x 3/8"

REMEMBER TO USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT

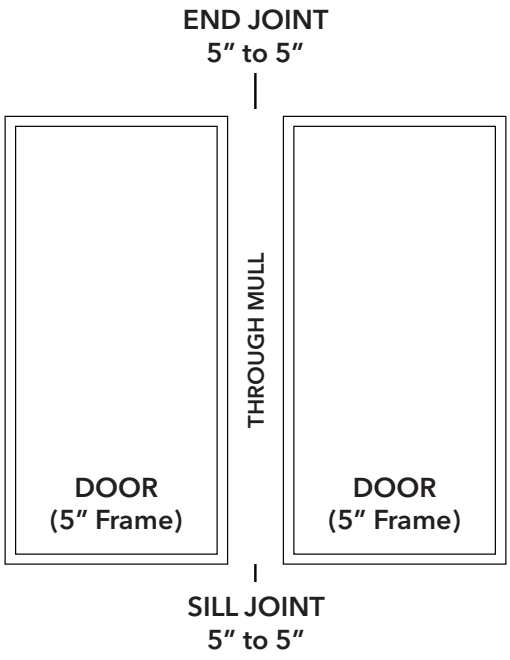
GIF-000002623-1 Part Number: 82JU0000

1 PREPARING:

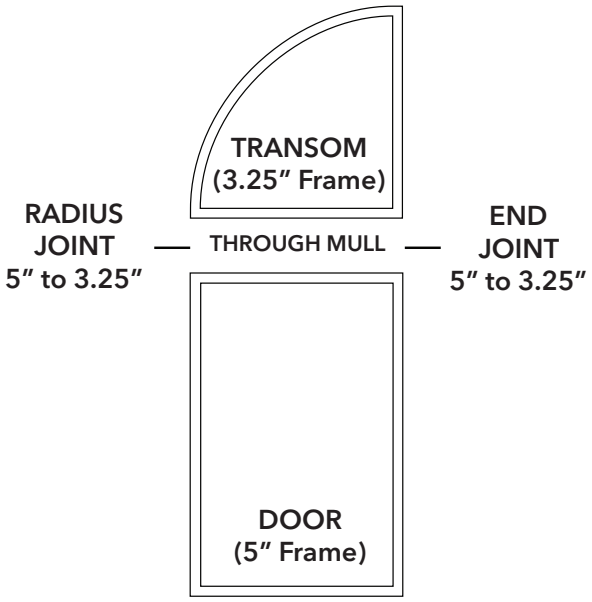
Identify the joints of the mull (exterior side shown):

Note: Not all possible combinations are shown. Find the joint type needed and apply it. For example, a Radius Joint can also be on a 3-Way unit with a half circle transom.

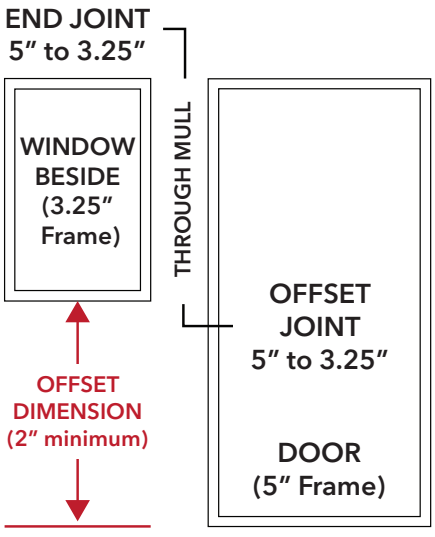
Note: For 3-way or 4-way combinations, the Through Mullion is required to be 1/2" or 1" structural mulled.



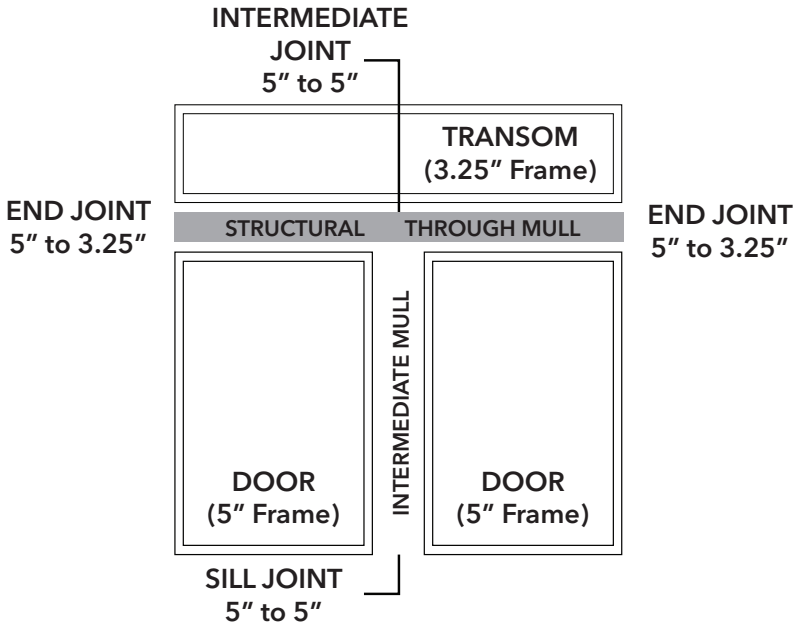
2-WAY UNIT



2-WAY UNIT



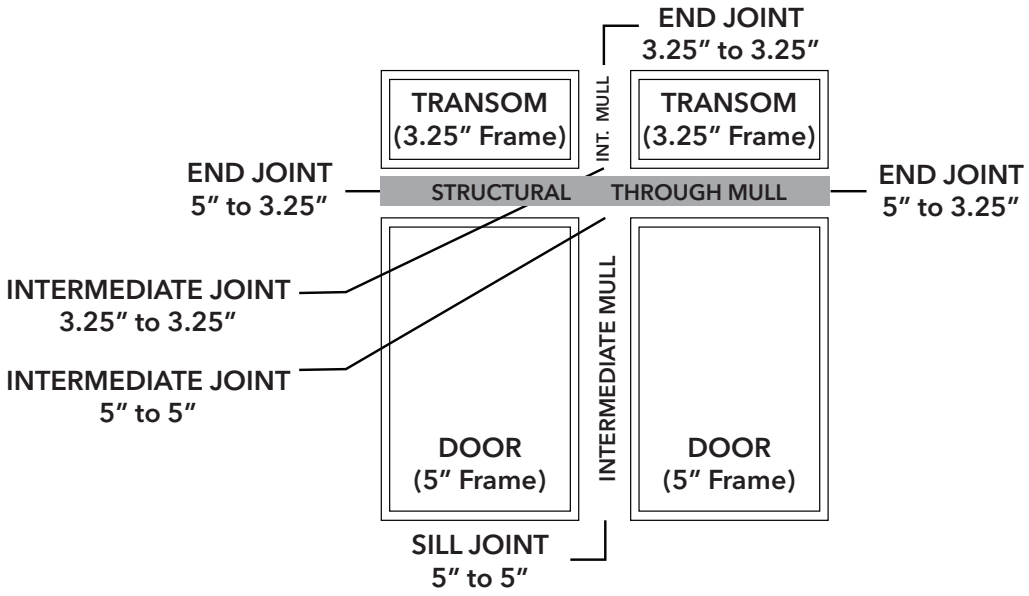
2-WAY UNIT



3-WAY UNIT

1 PREPARING (CONTINUED):

Identify the joints of the mull (exterior side shown) - CONTINUED:



4-WAY UNIT

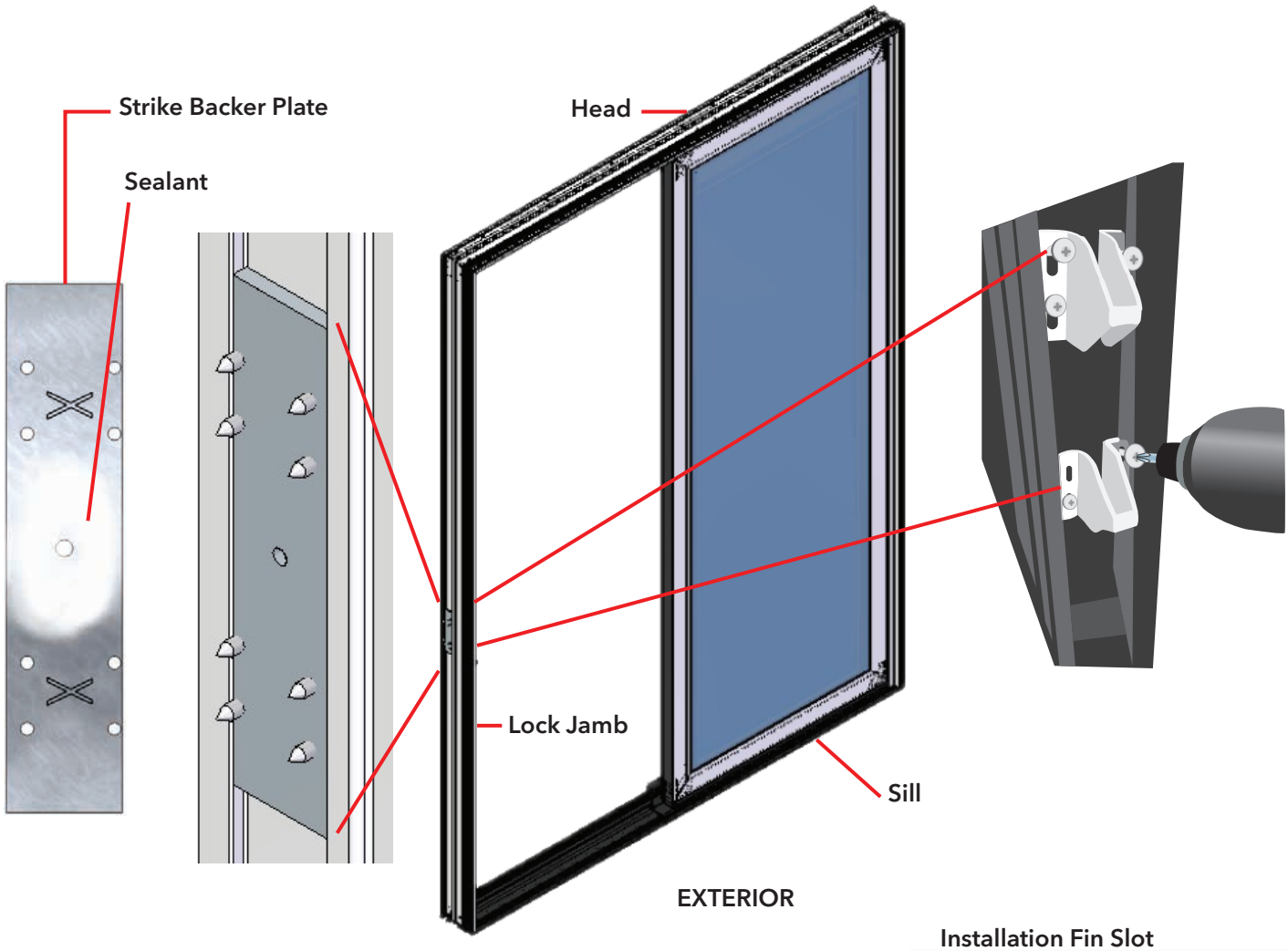
1 PREPARE THE DOORS:

A strike backer plate is required when mulling a unit to the lock jamb side of a door. This is because the strike screws won't be able to tie into the rough opening.

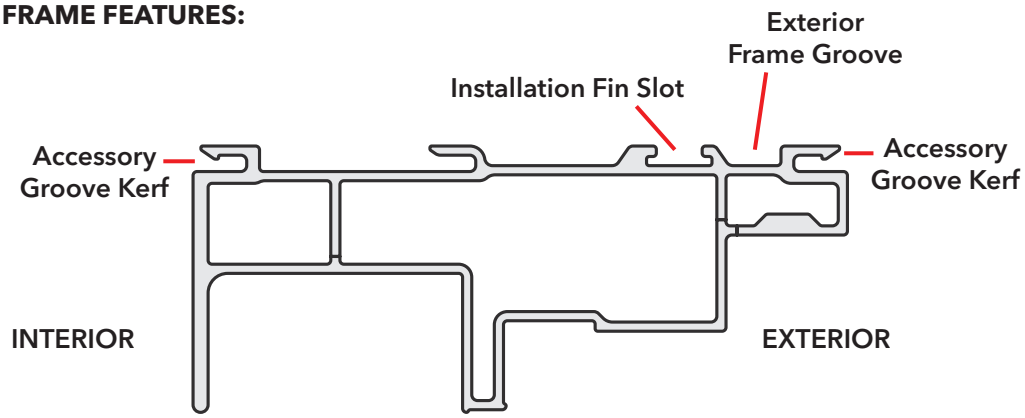
On the side of the backer plate marked by "X", apply small amount of sealant. Place the "X" side against the backside of the lock jamb and aligned with the 8 strike pilot holes.

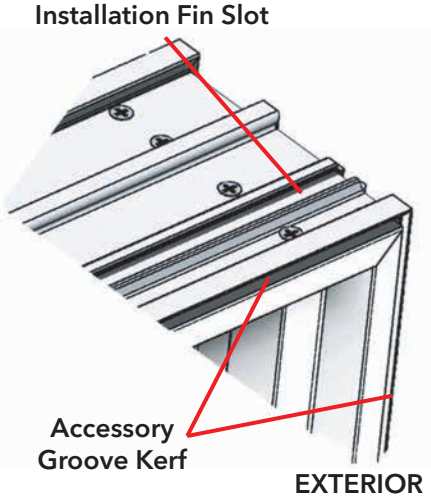
Drive Torx T20 head screws through the strikes, lock jamb, and into the backer plate. Screws will form threads when driven into the plate. Tighten screws with the strike adjusted to its center location.

Note: Tighten the screws snug against the lock strikes but DO NOT OVERTIGHTEN to avoid deforming the jamb profile.



FRAME FEATURES:





1 PREPARE THE DOORS (continued):

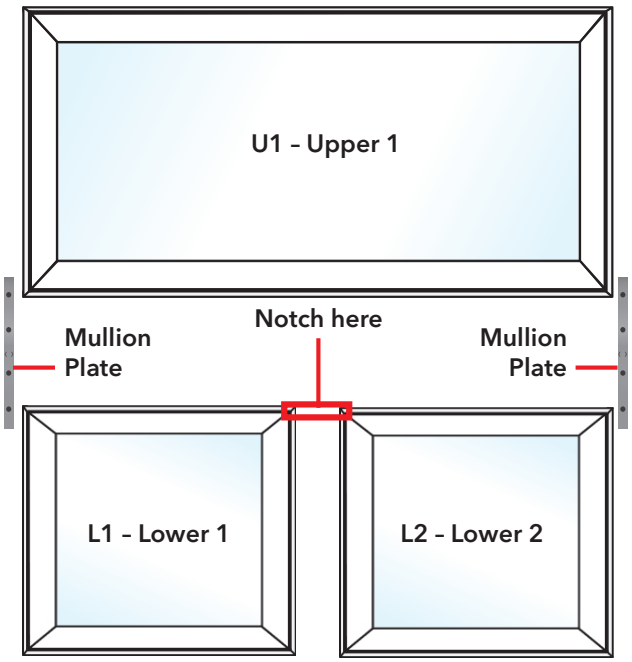
Note: Mullion plates are shown for reference and applied in later steps.

2-WAY JOINTS:
No notching of the frame accessory grooves are needed for the mulling process.

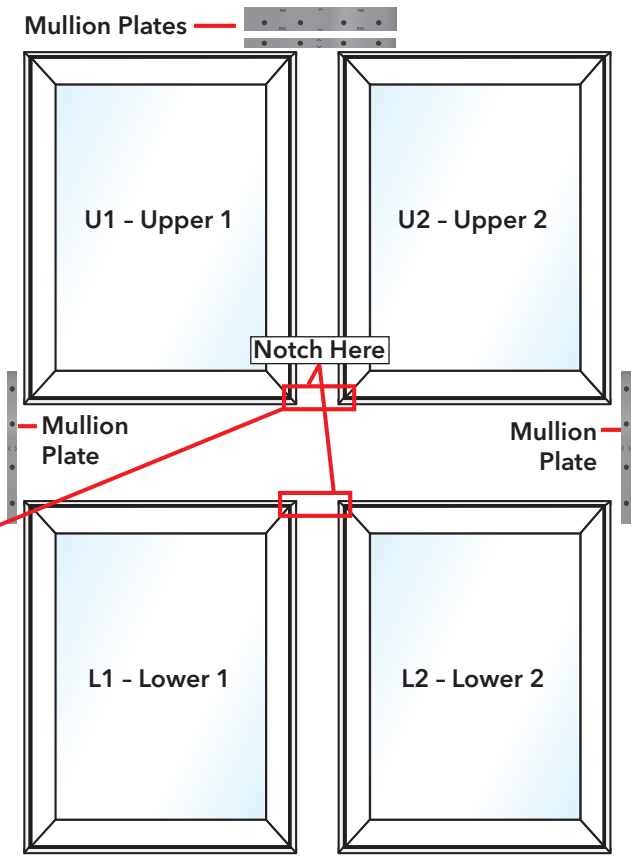
3-WAY JOINTS:
Identify the frame corners of each of L1 & L2 where the 3-way joint will come together.

4-WAY JOINTS:
Identify the frame corners of each of L1 & L2 and each of U1 & U2 where the 4-way joint will come together.

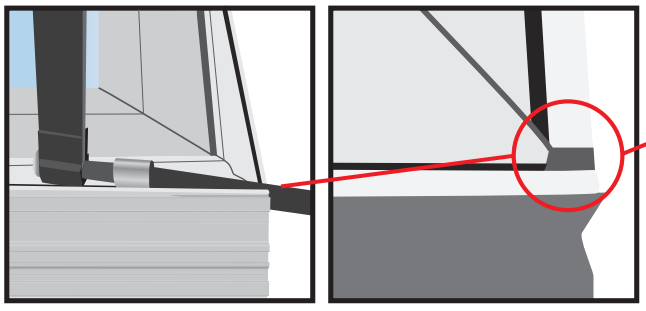
3-WAY MULL
(Exterior Side Shown)



4-WAY MULL
(Exterior Side Shown)

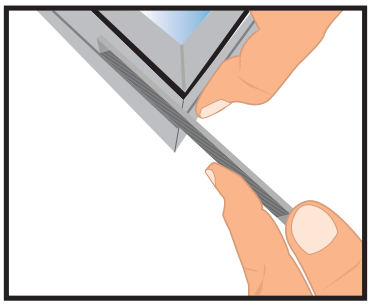


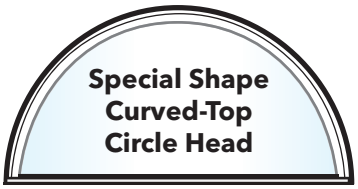
Notch the Accessory Groove at the identified frame corner: Use a hacksaw or variable speed rotary tool to cut a small notch in the accessory groove of each frame on the exterior and interior sides. This will provide clearance for the through mullion covers.

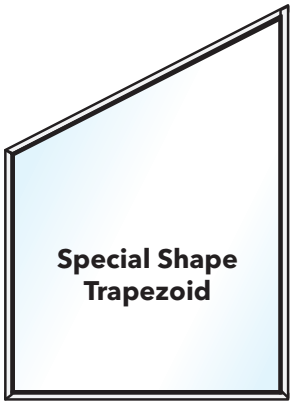


1 PREPARE THE DOORS (continued):

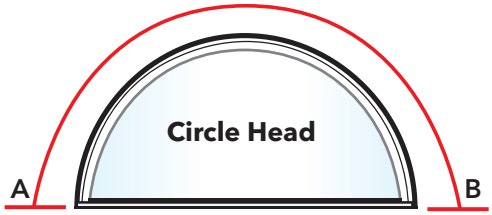
WHEN MULLING A SPECIAL SHAPE WINDOW:
If necessary, file the corners of the special shape window on the sides that will be mulled together to ensure there is no weld flash interference.



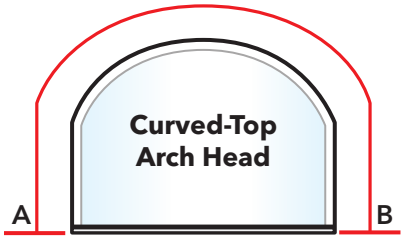




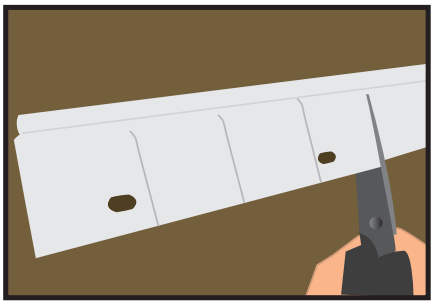
On all curved-top units that will be fin installed but without a fin installed from the factory, install a nail fin prior to mullion assembly. Measure the length around the curved portion of the unit (Point A to Point B). Cut the fin to the distance measured. To allow the fin to fit over the curved portion of the frame, make a cut in the fin every 2" across the entire length of the fin as shown.



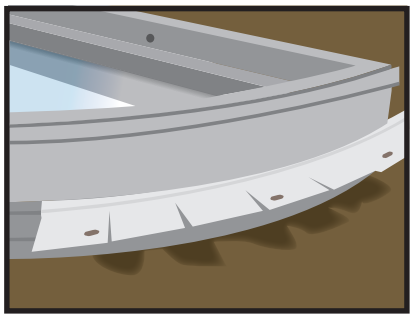
Measure from point A to Point B.

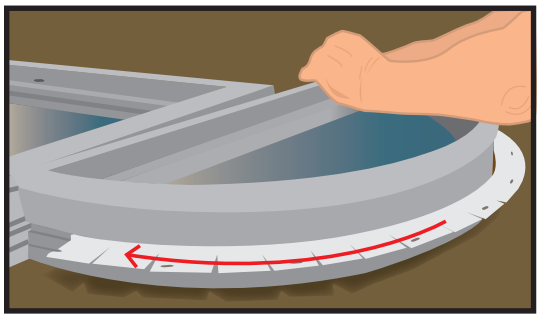


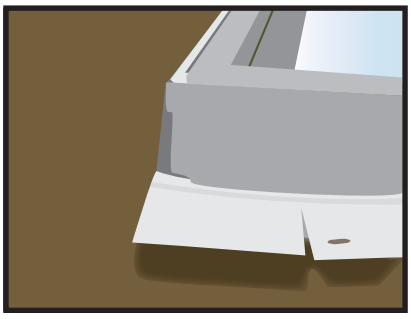
Measure from point A to Point B.



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



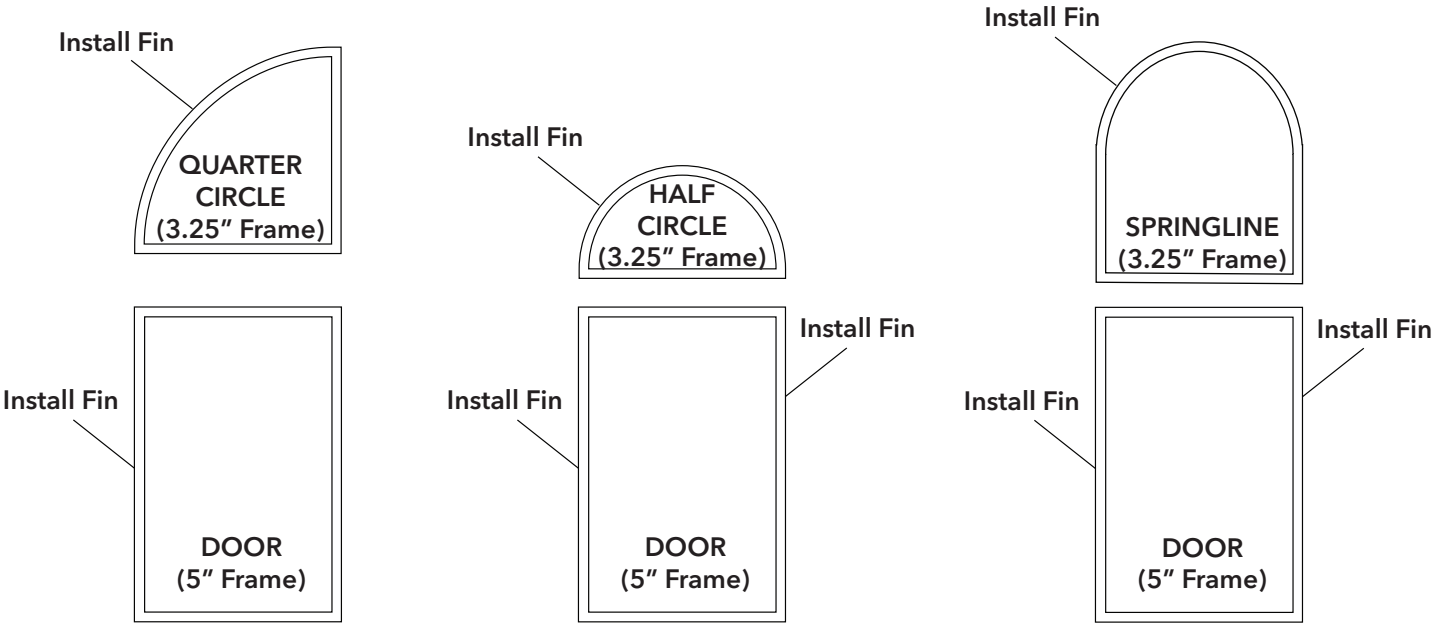


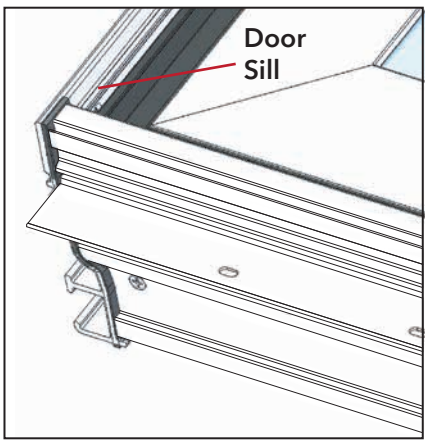


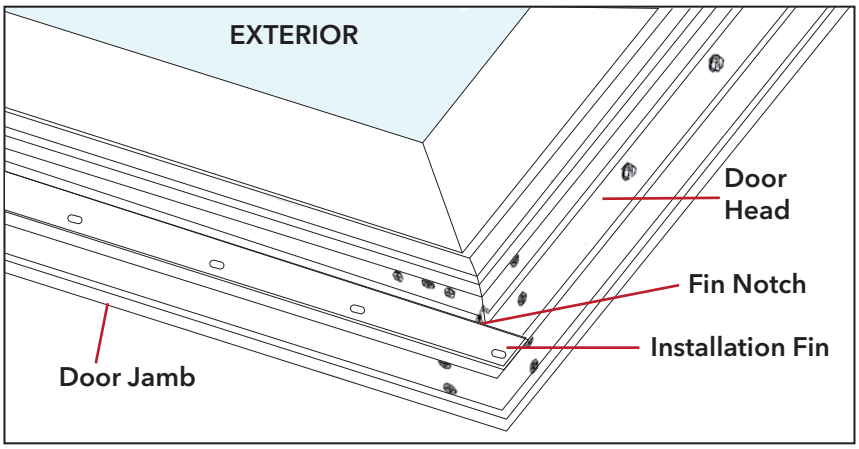
1 PREPARING (CONTINUED):

WHEN MULLING A SPECIAL SHAPE CURVED TOP WINDOW OVER A DOOR:

For Fin Install: The installation fin must be installed into door jamb prior to mullion assembly. There is no access to the installation fin slot after mulling the curved transom above the door . If the door came with an installation fin in the jamb, do not remove it.

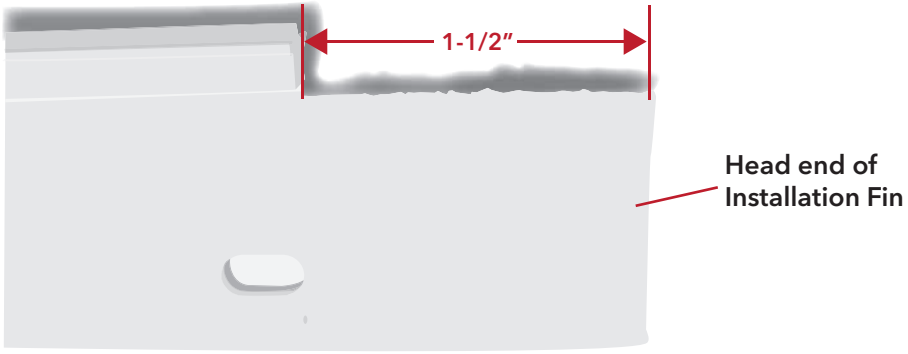






The head end of the installation fin should be notched 1-1/2" as shown.

Jamb: Fin Length = Door Height + 1"



1 PREPARING (CONTINUED):

WHEN MULLING A DOOR TO WINDOW BESIDE:

For Fin Install: The installation fin must be installed into door jamb on the side the window will be mulled, prior to mullion assembly. There is no access to the installation fin slot after mulling the window to the door jamb.

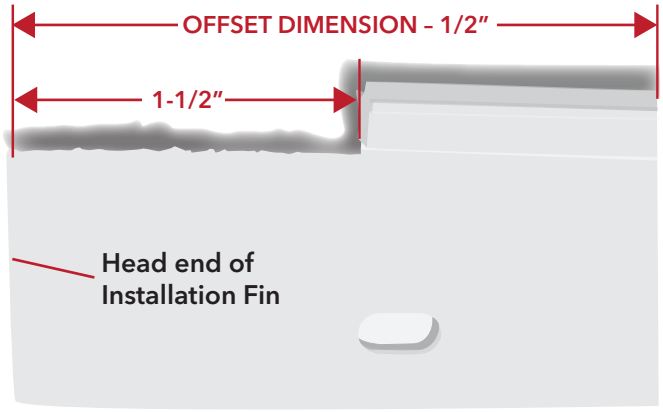
Note: Pre-installing the installation fin is required when OFFSET DIMENSION is 3.5" or greater. Below 3.5" the installation fin is too short and is not used on the door jamb side that is mulled to the window.

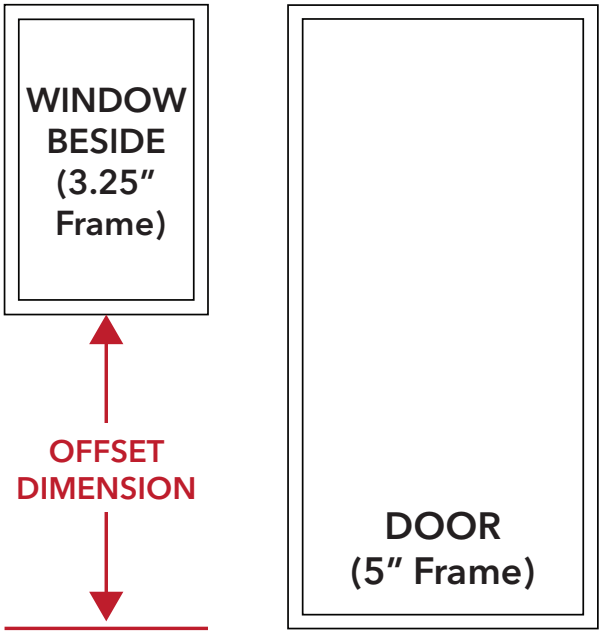
Cut the installation fin for the door jamb to length.

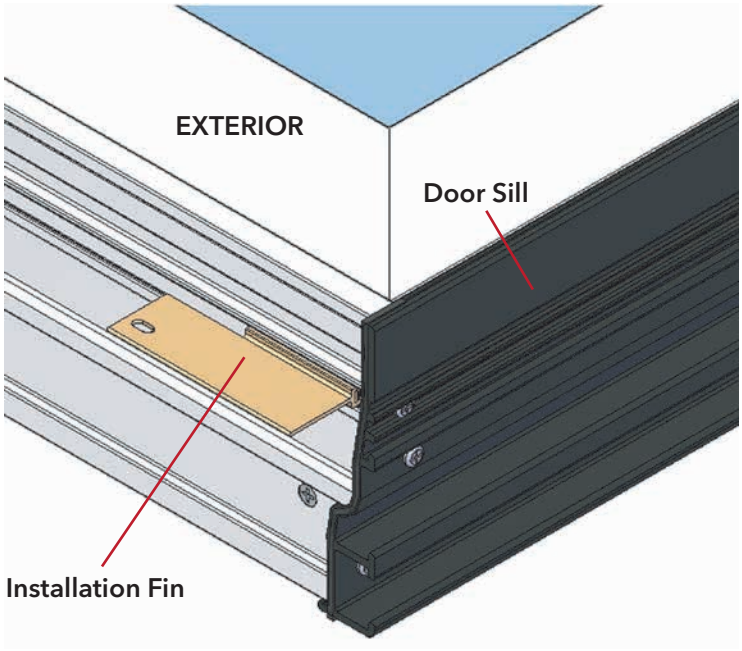
- Fin Length = OFFSET DIMENSION – 1/2"
- Example: If OFFSET DIMENSION = 3.5", cut fin length to 3".

The head end of the installation fin should be notch 1-1/2" as shown.

From the head of the door, slide the installation fin into the installation fin slot and all the way down to the sill.



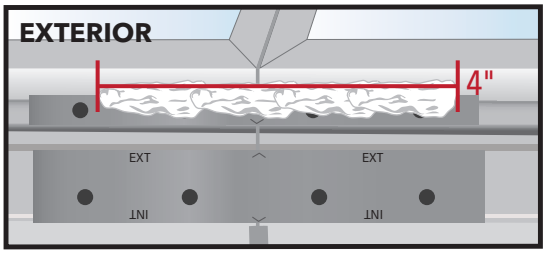




WHEN A FACTORY MULLED COMBINATION IS BEING ADDED TO A FIELD MULL, (APPLIES TO TIGHT OR SPREAD):

On only the side of the factory combination to be placed against the field mull unit; remove the existing flashing tape from the mullion joint so sealant can be applied across the mullion joint.

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



1 PREPARE THE DOORS (INTERIOR SIDE UP):

A. Lay units on a smooth clean flat surface interior side up. Be sure to place them in the same orientation as they will be assembled into the combination. If removable fins are installed, remove fins from the sides to be joined and the sides perpendicular to the sides to be joined. If previously instructed to pre-install the fin based on mull combination, DO NOT remove it.

Exception Note: When mulling Pella Special Shape windows, 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!

Note: For 3-way or 4-way combinations, mull the Intermediate (non thru) Mullions first, and Through Mullion last.

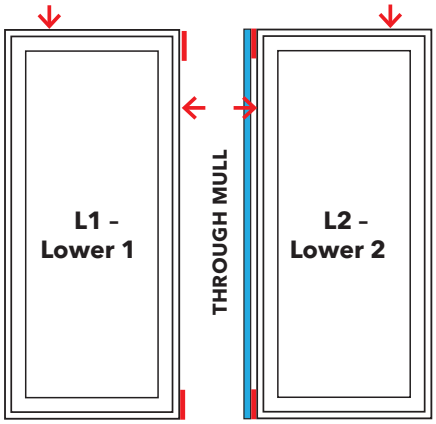
Note: For 3-way or 4-way combinations, the Through Mullion is required to be ½" or 1" structural mulled.

Examples of potential mullion configurations:

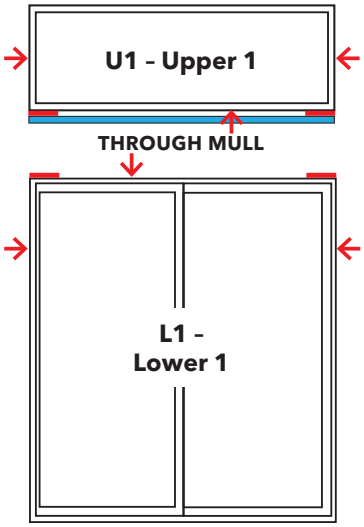
| or | = locations to apply primer.

= If present, remove fins from these sides.

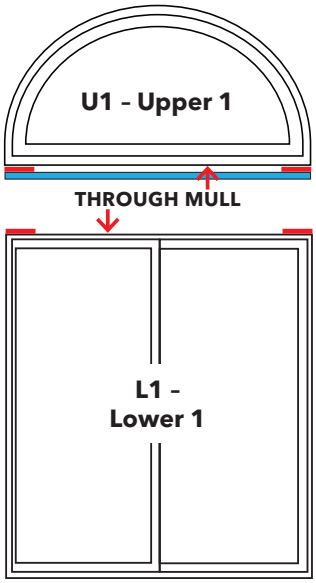
| or | = locations to apply foam tape.



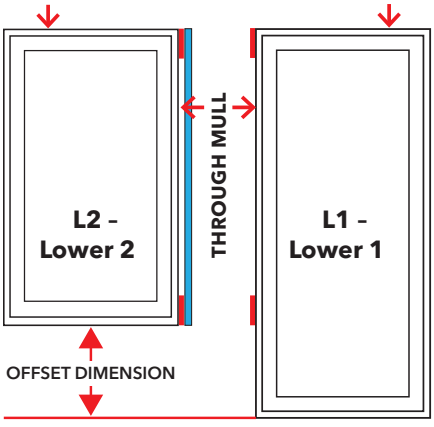
2-WAY MULL



2-WAY MULL



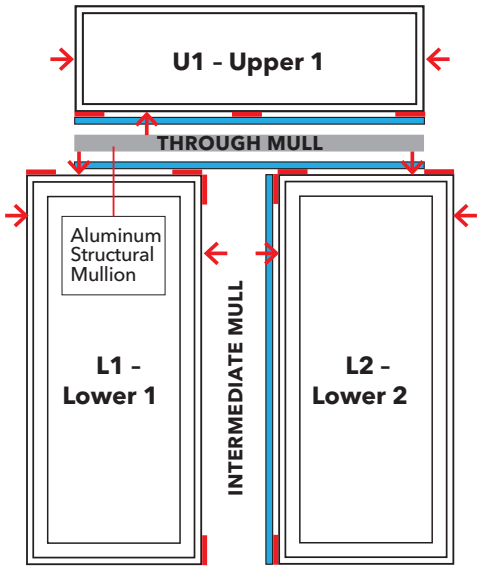
2-WAY MULL



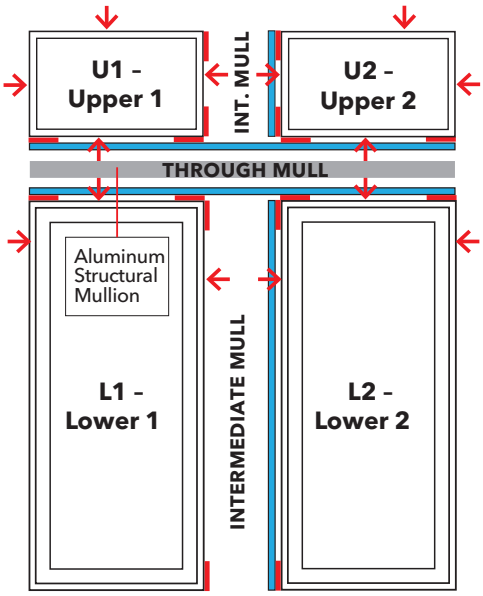
2-WAY MULL

(DOOR TO WINDOW BESIDE)

NOTE: ON THE DOOR, PRIMER STARTS AT OFFSET DIMENSION.



3-WAY MULL



4-WAY MULL

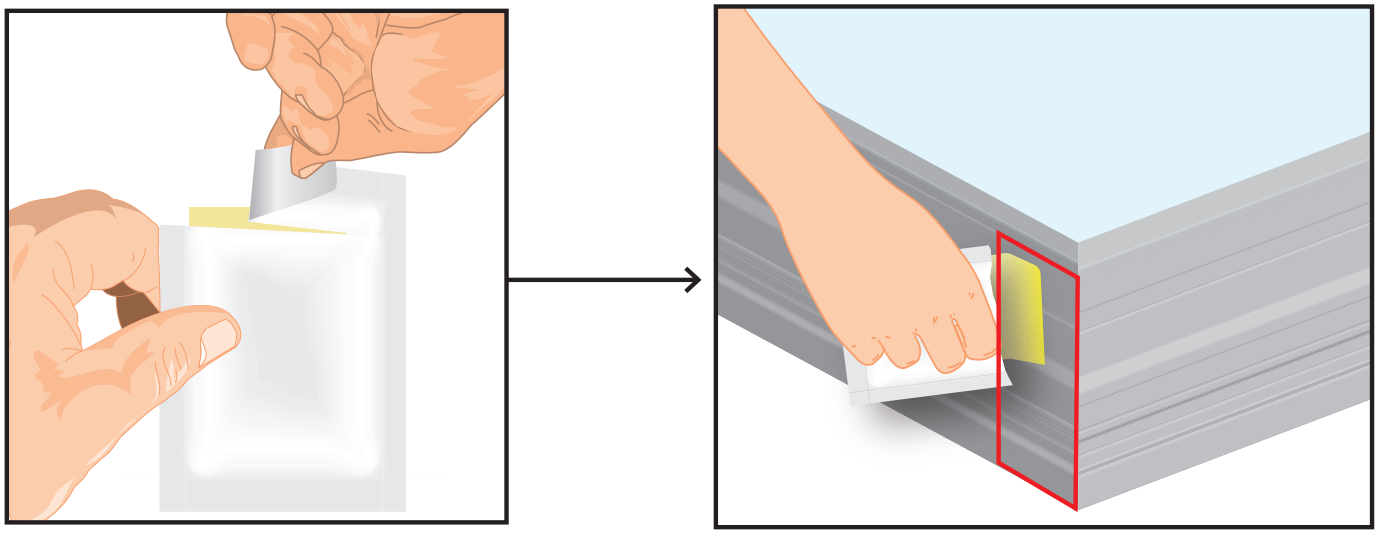
1 PREPARE THE DOORS (continued):

B. **Once the sides of the frames to be joined together are identified;** Using one of the two primer* application method options shown; use two of the primer wipes and apply primer to the sides of the unit frames to be mulled.

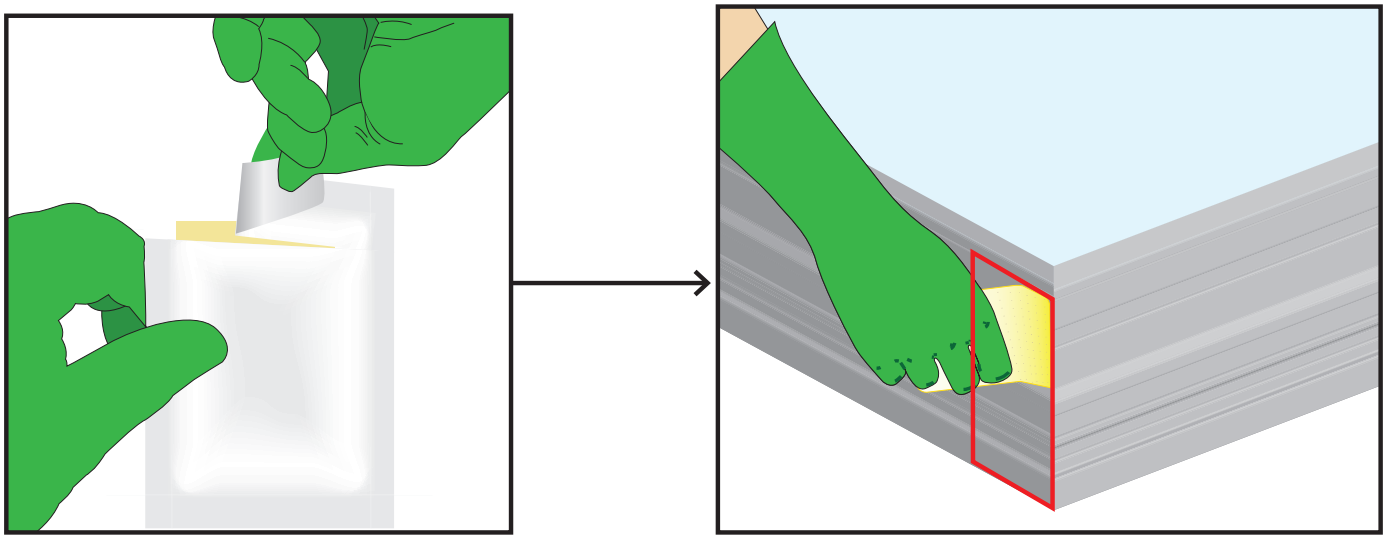
Note: DO NOT apply primer to the face of any unit or in any location on the unit which will be exposed.

*** MSDS available at 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.

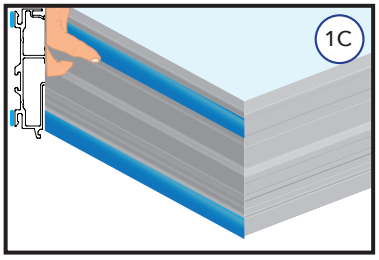


Allow primer to dry before proceeding to the next step.

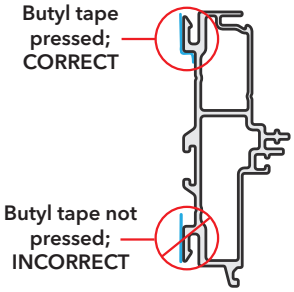
1 PREPARE THE DOORS (INTERIOR SIDE UP):

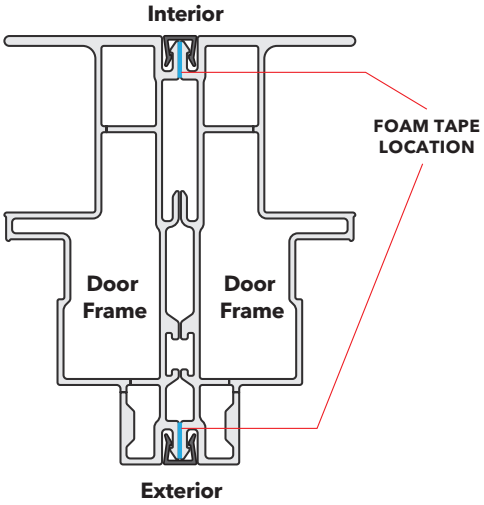
C. **Identify the sides of the frames to be joined together.** Apply two strips of 3/32" thick x 1/2" wide foam tape along the side of <u>one</u> unit to be mulled as shown.

Note: For Door To Window Beside, tape on the door frame runs from the head end and down the door jamb to the OFFSET DIMENSION.

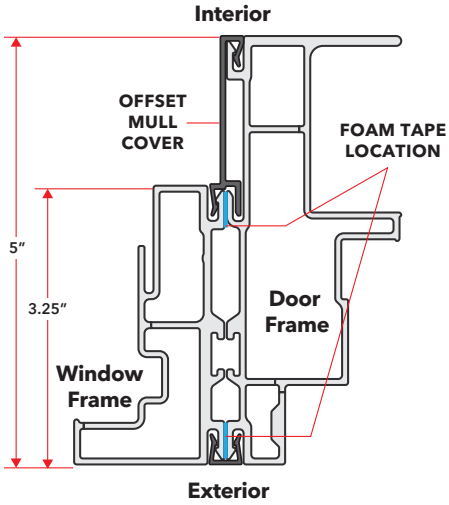


Apply Foam Tape





Door to Door Mull Joint

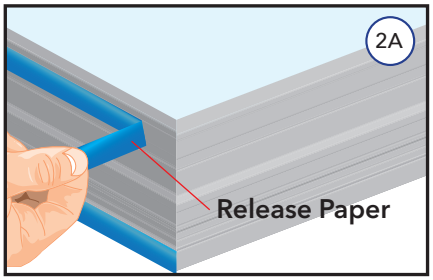


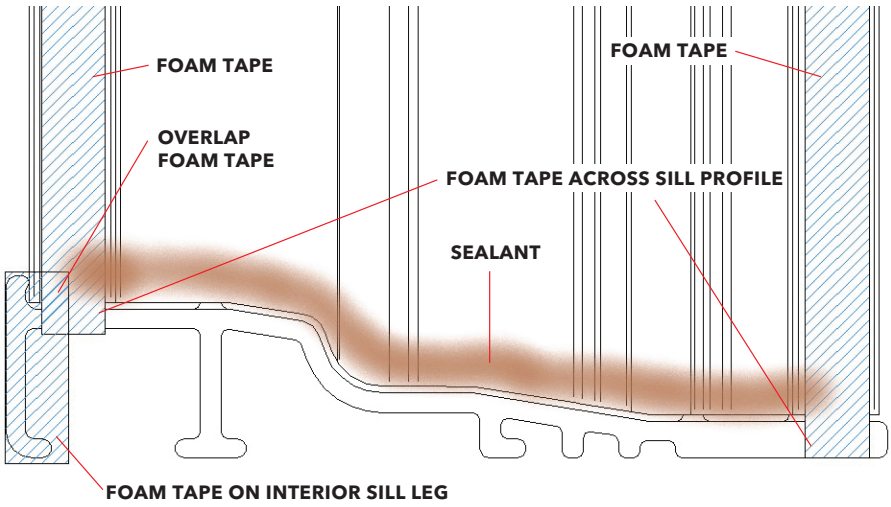
Door to Window Mull Joint

Note: Make sure the last 3" of the tape near the sill is completely pressed against the frame to remove any overhang the tape may have on the back side of the accessory groove.

2 MULLION ASSEMBLY (INTERIOR SIDE UP):

A. **<u>SILL JOINT</u>:** At the sill, pull the blue release liner up off the jamb's foam tapes. Place a piece of foam tape on interior sill leg, over-lapping the foam tape coming down the jamb. Remove the release liner from foam tape. Then apply 3/8" diameter bead of sealant connecting the interior and exterior foam tape coming down the jamb. Apply the sealant in the same pattern on the other door in the mulled combination.

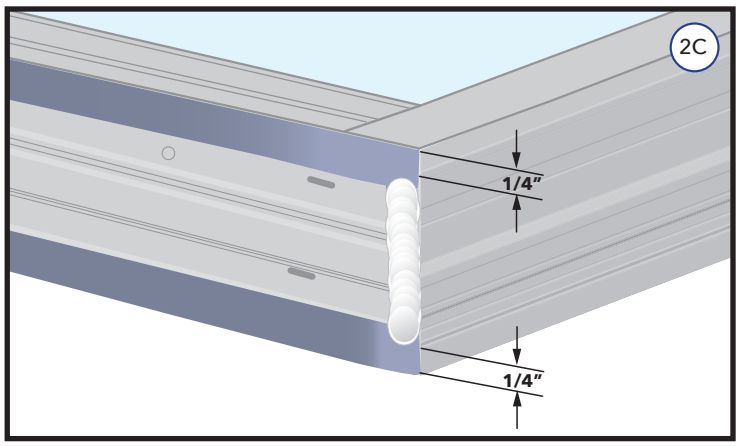




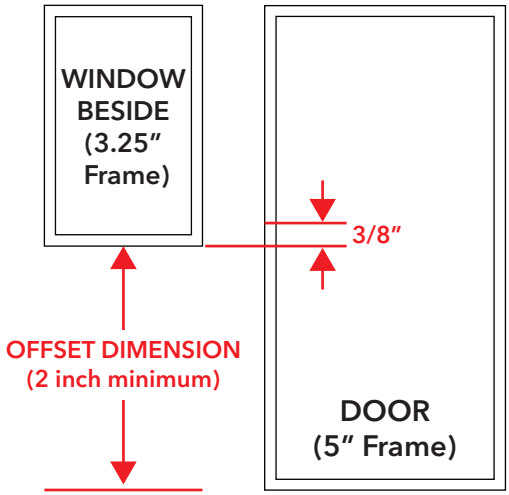
2 MULLION ASSEMBLY (INTERIOR SIDE UP) (continued):

B. **Completely remove release liner from all the foam tape.**

C. **END JOINT, INTERMEDIATE JOINT, OFFSET JOINT on window side, or RADIUS JOINT:** Starting 1/4" from the frame edge, apply a 3/8" thick bead of sealant connecting the interior and exterior tape, stop 1/4" from the other frame edge as shown. Apply the sealant in the same pattern on the other unit in the mulled combination.



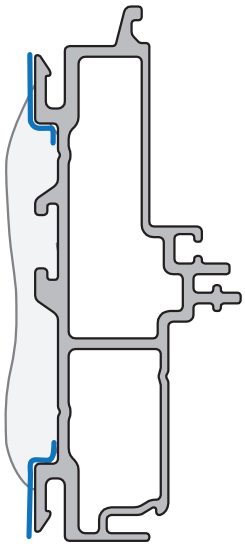
OFFSET JOINT on door side: The applied sealant starts up from the door sill at OFFSET DIMENSION. **Starting 1/4" from the frame edge,** apply a 3/8" thick bead of sealant connecting the interior and exterior tape, stop 1/4" from the other frame edge.



2-WAY UNIT

Apply sealant to both ends of the unit per its joint type. Then apply sealant in the same pattern on the other unit in the mulled combination.

Note: Foam tape pressed on and sealant applied. Window frame shown, but also applies to doors.



2 MULLION ASSEMBLY (INTERIOR SIDE UP) (continued):

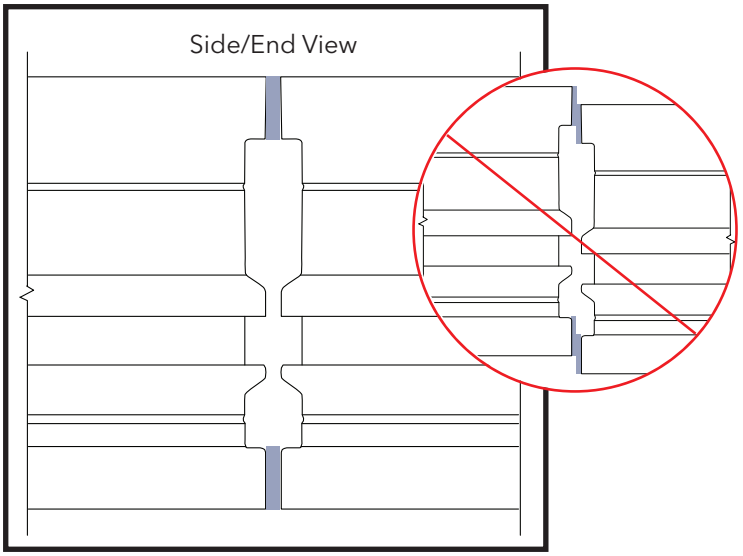
In the following steps, assemble all Lower units (i.e., L1 to L2) and Upper units (i.e., U1 to U2) first. Then mull the Upper combination to the Lower combination.

D. **Position and align the units** with the sides to be mulled facing each other and slowly slide the units together. Use a straight edge on the ends to help ensure proper alignment of the units.

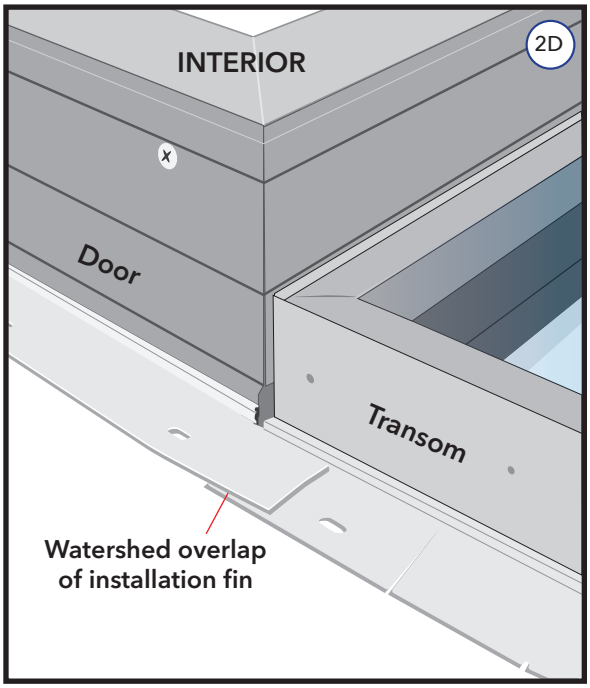
Press the units together. Use clamps (do not overtighten) to draw the units together and compress the mullion joint.

To ensure adhesion to foam tape, loosen clamp and move it across the length of the mullion joint, tightening the clamp about every 12"-18".

Caution: Units must be aligned before sliding together as foam tape adhesion will limit adjustment.



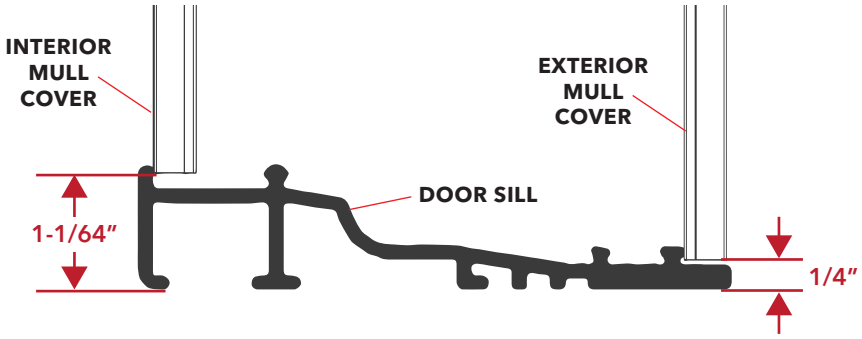
For Special Shape Transom Mulls that required the installation fin to be pre-installed in the door jamb, overlap the door installation fin with the transom installation fin in a watershed pattern.

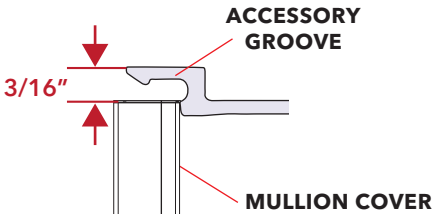


2 MULLION ASSEMBLY (INTERIOR SIDE UP) (continued):

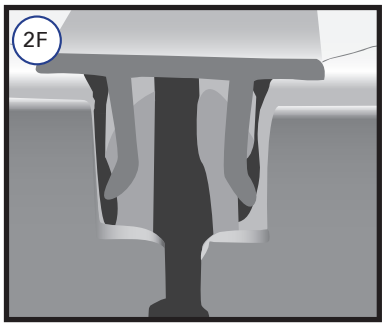
Note: Verify the mull cover length before installing. The mull covers are difficult to remove. They need to be flush to just short of the Accessory Groove.

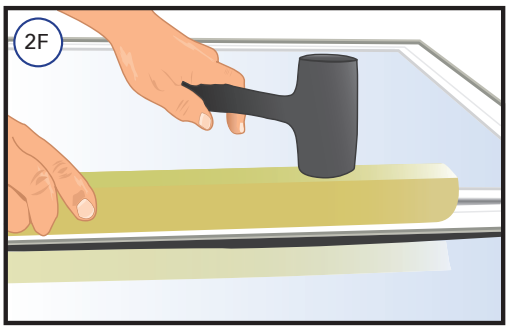
E. **The mullion covers are cut to size from the factory.** Verify the length by laying the cover on the mull joint. The cover should align with the Accessory Groove or with the Door Sill as shown. Cut covers to length if necessary.



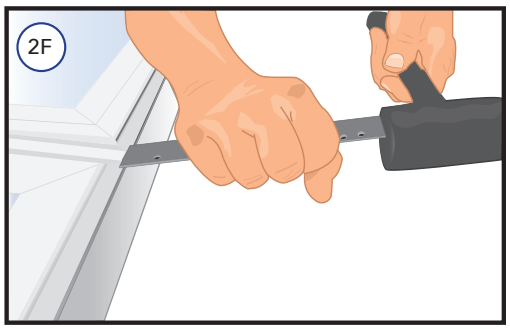


F. **Install the interior mullion cover** into the accessory groove of both units. Align one end of the mullion cover with the frame accessory groove as shown. Tap the end of the mullion cover into the grooves with a hammer and wood block. Continue to drive the cover into the grooves moving slowing along the length of the cover using the hammer and wood block until the cover is completely seated into the grooves. Remove clamps.



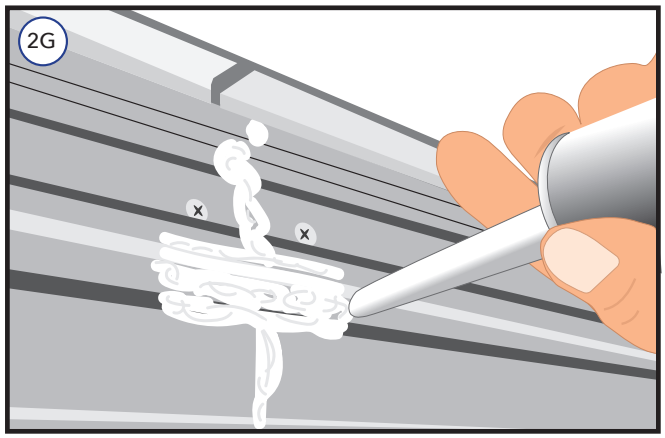


Note: Tapping the cover slowly using a wood block with rounded edges will help prevent dents in the mull cover. For best results, make sure the wood block is the same width as the mullion covers.



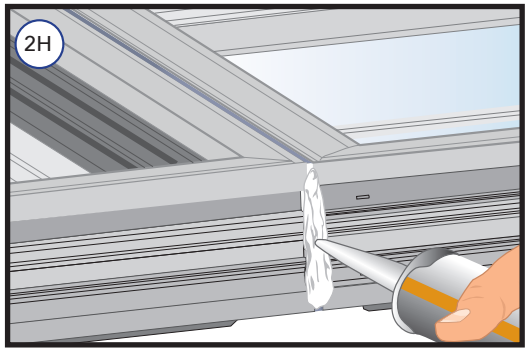
Note: If needed, mullion cover location can be adjusted slightly using a hammer and straight bar tool (such as one of the mullion plates).

G. **<u>SILL JOINT</u>:** On the bottom of the sill, fill the 3 slots in the sill profile with sealant and cover with tape.



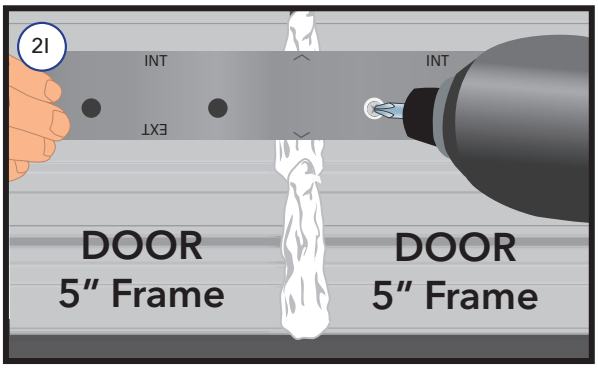
2 MULLION ASSEMBLY (INTERIOR SIDE UP) (continued):

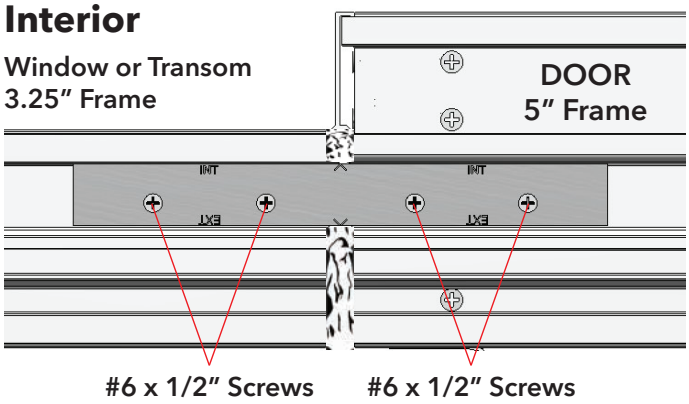
H. **END JOINT, INTERMEDIATE JOINT, OFFSET JOINT, or RADIUS JOINT:** Fill any voids in the space between the frames at the end of the mullion joints.



I. **END JOINT, INTERMEDIATE JOINT:** Position the 8" x 15/16"mullion plate between the two units by aligning the ^ mark scribed on the plate with the point where the two units join together.

Attach the mullion plate using #6 x ½" flat head screws.



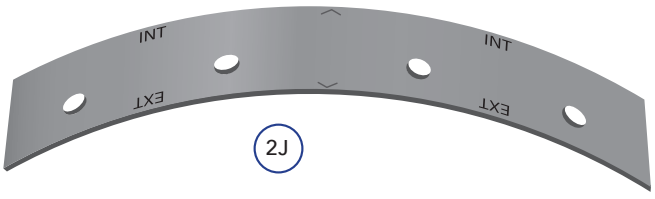


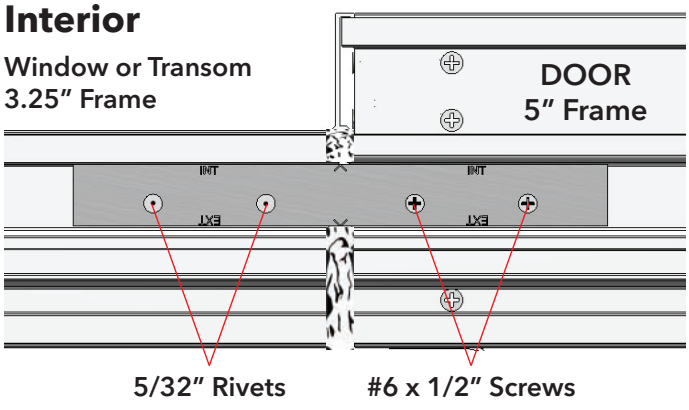
J. **RADIUS JOINT:**

Pre-bend the mullion plate to conform to the shape of each side of the curved-top unit.

Attach to the door using (2) #6 x ½" screws.

Attach to the curved unit by pilot drilling #20 (0.161") holes and using (2) 5/32" diameter x 7/16" aluminum peel type rivets.





3 FIN PREP (EXTERIOR SIDE UP):

Note: If mulling a window into the mulled combination, use care to not damage the roto operator stud(s) on the interior side of vent casement and awning windows. Place boards under the venting windows to provide clearance between the operator stud(s) and the table.

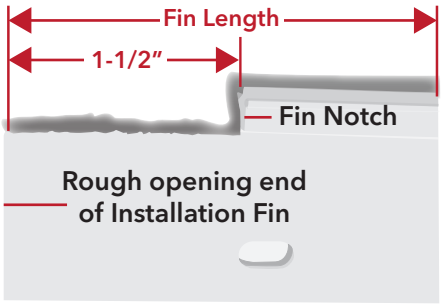
Turn the combination over so the exterior side is up. Use care to make sure the products are held together as they are being turned over.

A. **OFFSET JOINT:**

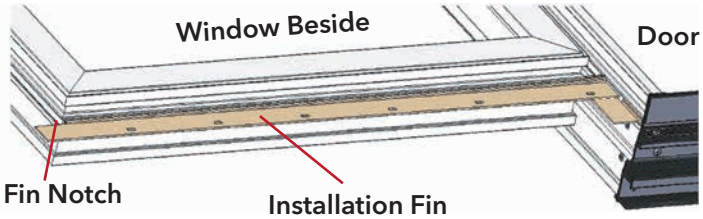
Cut to length and notch the installation fin for the bottom of the window.

- Fin Length = Window Frame Width + 1-1/4"

Insert the installation fin at the bottom of the window, overlapping for watershed.



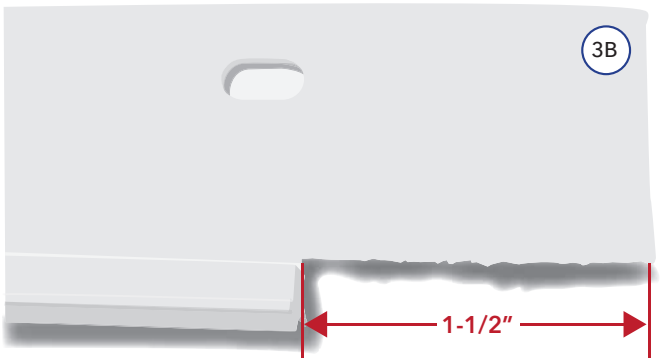
3A



B. **Measure and cut the installation fins for each jamb and the head of the combination.**

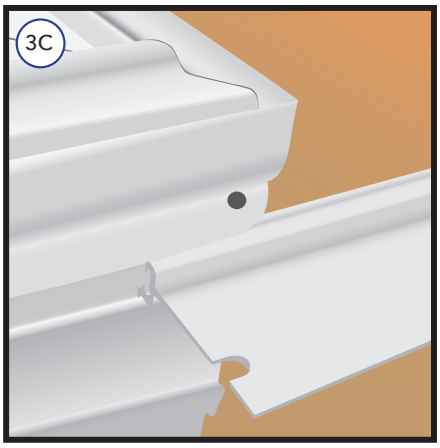
- Horizontal Length = Combination Width + 2-1/2"
- Vertical Length = Combination Height + 1"
- Vertical Window Beside Length = Window Height + 2-1/2"

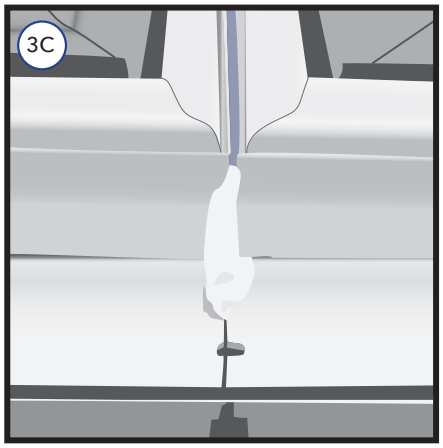
Where two fins meet at a combination corner, trim 1-1/2" off the end of the fin to form a notch as shown. DO NOT notch the sill end of the installation fins. Fins can be spliced if they are not long enough. Splice fins at the mullion joint.



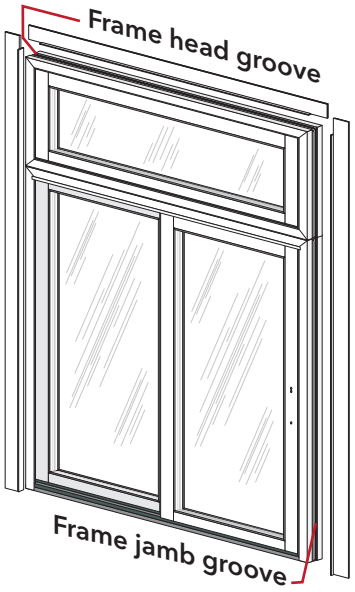
3 FIN PREP (EXTERIOR SIDE UP) (continued):

C. **Fins are to be installed in a watershed pattern with the top fins overlapping the side fins.** If splicing, insert the non-trimmed end of one of the fin halves into the fin groove and slide it over to the mullion joint. Repeat on the other side so the fins halves meet. Install the fins around the perimeter of the combination.



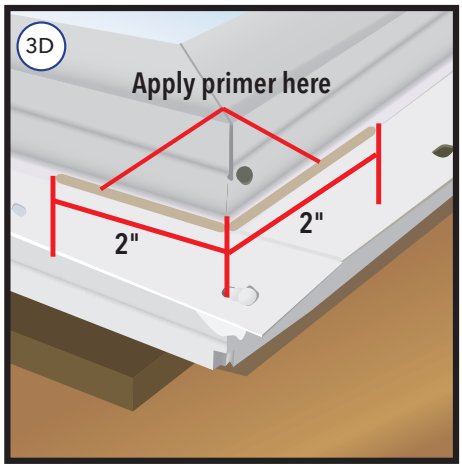


The two halves of the fin meet at the mullion joint.



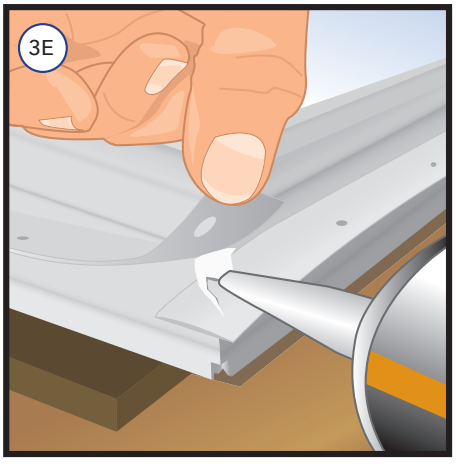
D. **Using one of the primer application methods covered in step 1E;** Apply primer, using one (1) of the primer sponge wipes at each corner to the edge of the frame on top of the fin 2" each direction.

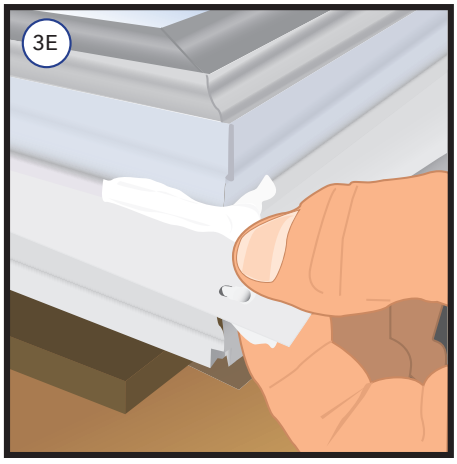
Note: Allow primer to flash dry 2 minutes before moving to next step to apply sealant.

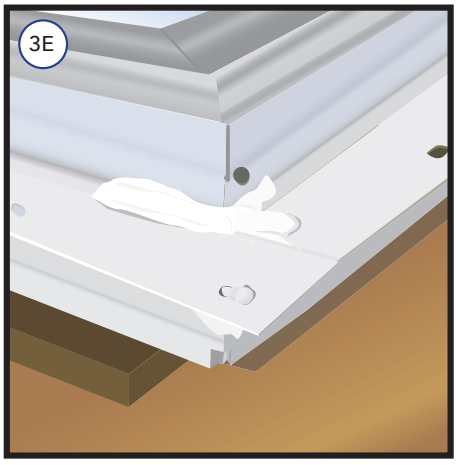


E. **At each corner where the fins overlap,** apply a generous bead of sealant between overlapped fins and squeeze to assure a good seal between the fins. Place sealant on the exterior side of the fin for approximately 2" from the corner on each side. Tool sealant applied at the corners.

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

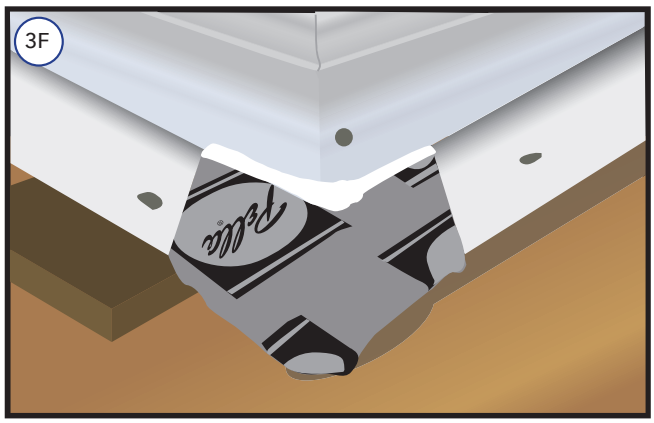




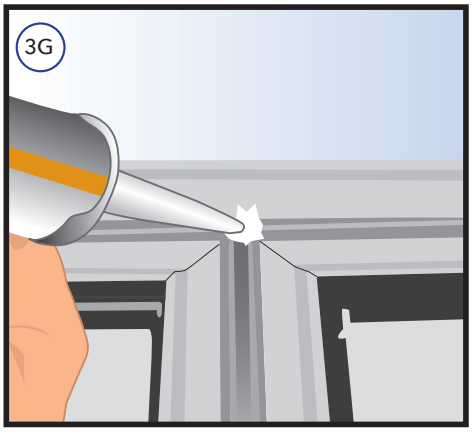


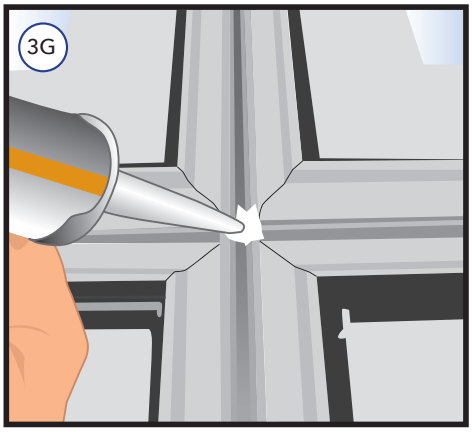
3 FIN PREP (EXTERIOR SIDE UP) (continued):

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

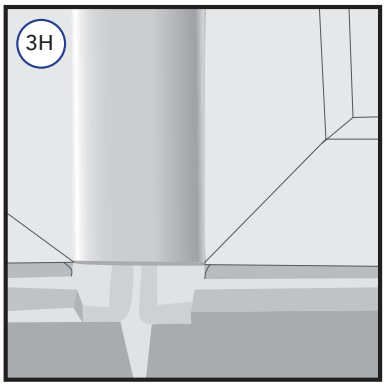


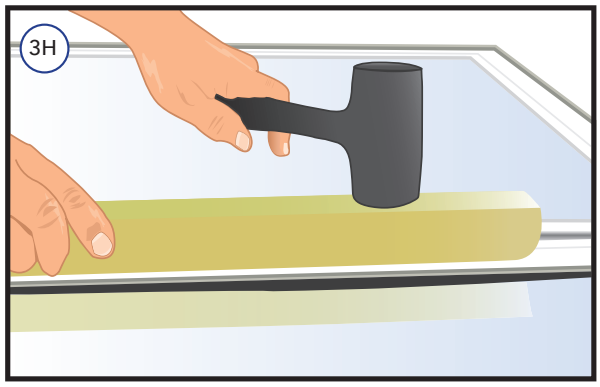
G. **Use sealant to completely fill** in at the 3-way or 4-way joint where the units come together.

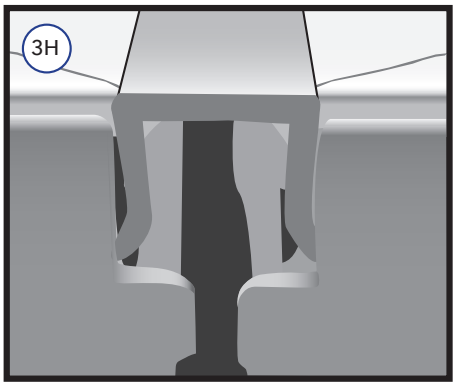




H. **After checking mullion cover length as previously described,** Install the exterior mullion cover into the accessory groove of both units. Align one end of the mullion cover with the frame accessory groove as shown. Tap the end of the mullion cover into the grooves with a hammer and wood block. Continue to drive the cover into the grooves moving slowing along the length of the cover using the hammer and wood block until the cover is completely seated into the grooves. Remove clamps.

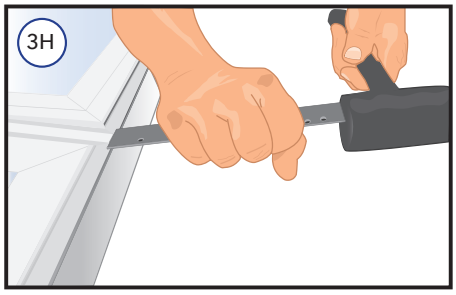






Note: Tapping the cover slowly using a wood block with rounded edges will help prevent dents in the mull cover. For best results, make sure the wood block is the same width as the mullion covers.

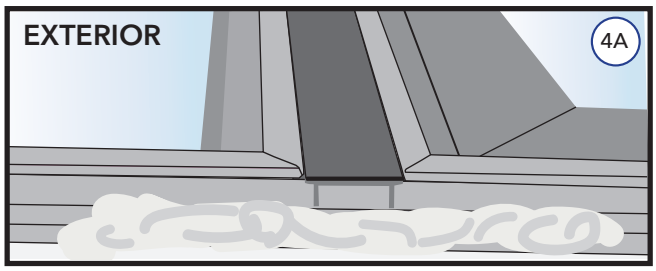
Note: If needed, mullion cover location can be adjusted slightly using a hammer and straight bar tool (such as one of the mullion plates).



4 SECOND MULLION PLATE (EXTERIOR SIDE UP):

A. **END JOINT**, **INTERMEDIATE JOINT**, or **RADIUS JOINT:**

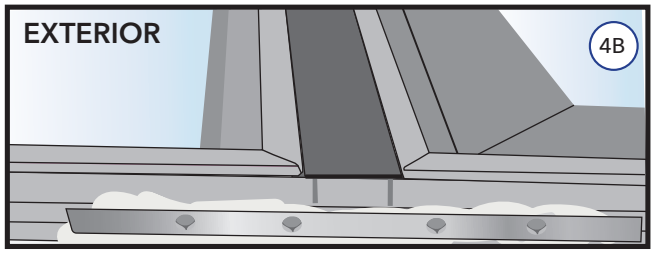
Run a ¼" diameter bead of sealant through the exterior frame groove approximately 4" on either side of mull joint.

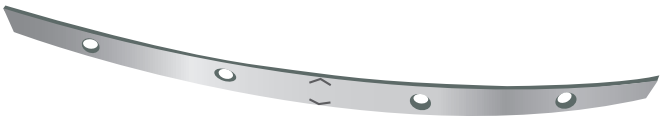


B. **END JOINT, INTERMEDIATE JOINT**:

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.

Attach using (4) #6 x ½" screws.





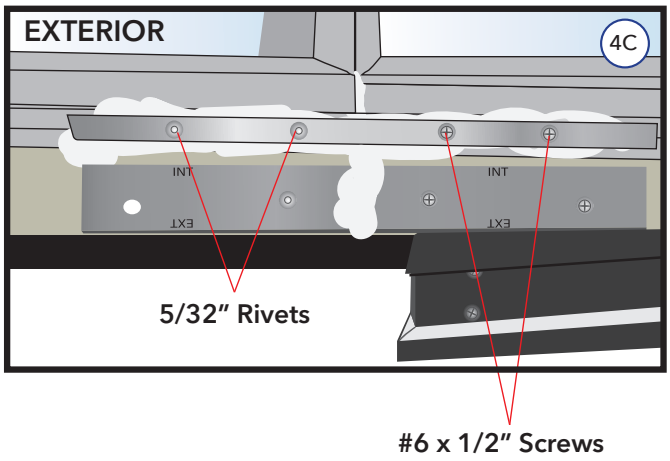
C. **RADIUS JOINT**:

Pre-bend the mullion plate to conform to the shape of each side of the curved-top unit.

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.

Attach to the door using (2) #6 x ½" screws.

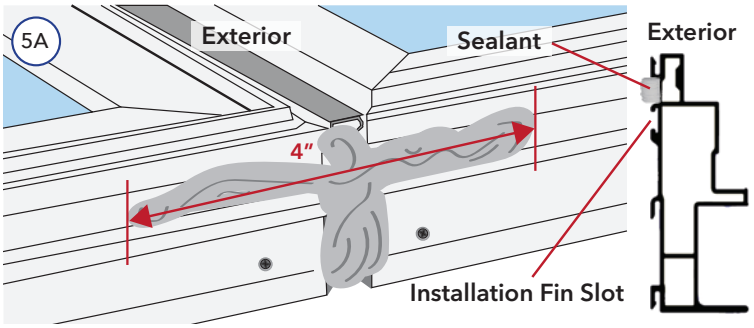
Attach to the curved unit by pilot drilling #20 (0.161") holes and using (2) 5/32" diameter x 7/16" aluminum peel type rivets.



5 FLASHING TAPE APPLICATION OVER SPLICES (EXTERIOR SIDE UP):

A. **When joining additional units into a 3-way or 4-way joint**, apply sealant as shown. On the exterior side of the **INTERMEDIATE JOINT**, apply a 3/8" bead of sealant 4" long centered on the mullion joint.

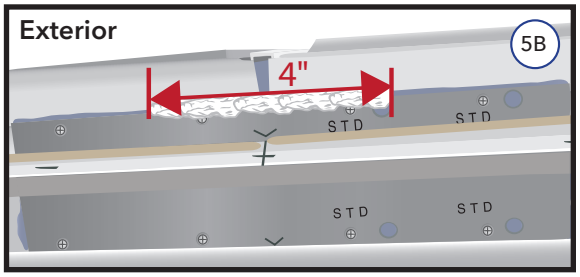
Note. This step should be done after completing the Intermediate Mullion and just prior mulling the transom or transom composite to the doors.



5 FLASHING TAPE APPLICATION OVER SPLICES (EXTERIOR SIDE UP) (continued):

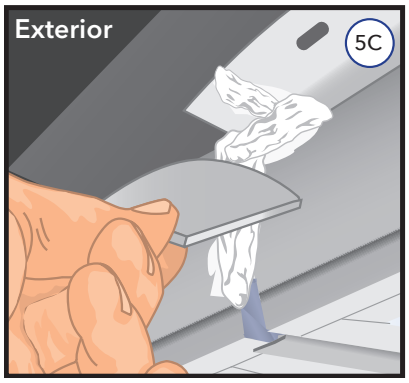
B. **END JOINT**:

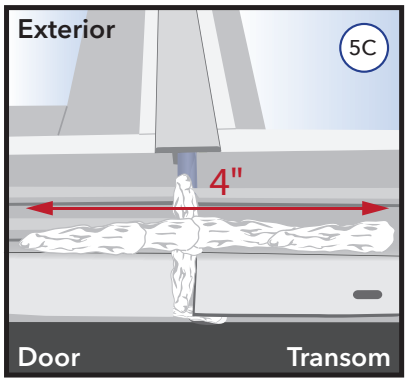
At each mullion joint and spliced fin; Apply a 3/8" bead of sealant 4" long on the exterior side of the mullion plate, centered on the joint or spliced fin location.



C. **RADIUS JOINT**:

Apply sealant between the overlapped fins and squeeze to assure a good seal between the fins. Add a 4" bead of sealant on top of the fin centered across the mullion joint.



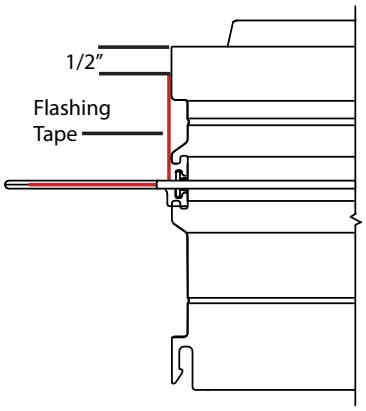


D. **END JOINT** or **RADIUS JOINT**:

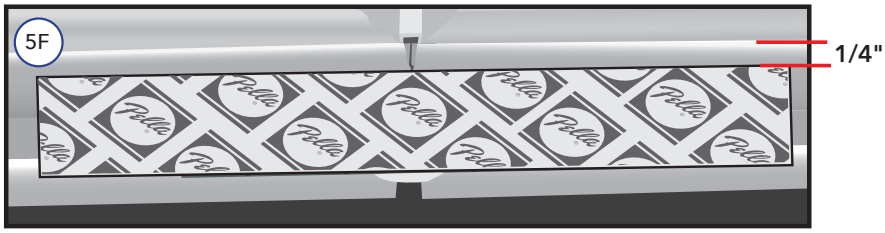
For each mullion joint and fin splice, cut a piece of flashing tape 12" long.

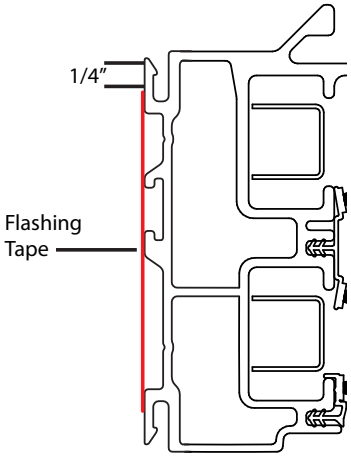
E. **END JOINT** or **RADIUS JOINT**:

At each mullion joint and fin splice joint; apply the flashing tape over the plate and fin so the tape extends 2" beyond either side of the plate. 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.



F. **END JOINT** or **RADIUS JOINT**: **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 ¼" from the frame edge. Press flashing firmly to adhere to the frame edge and plate.



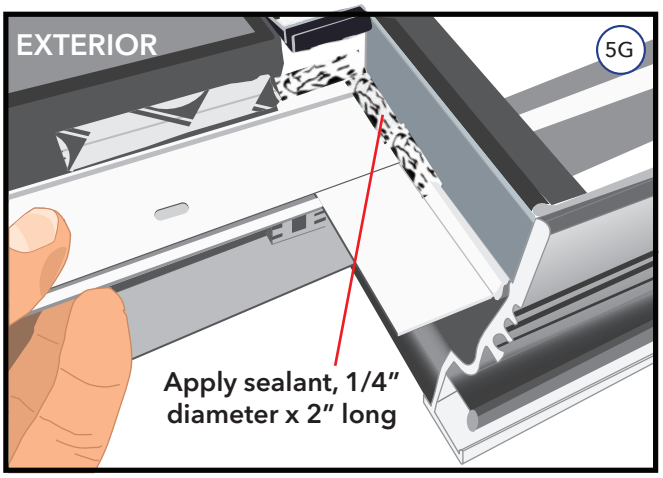


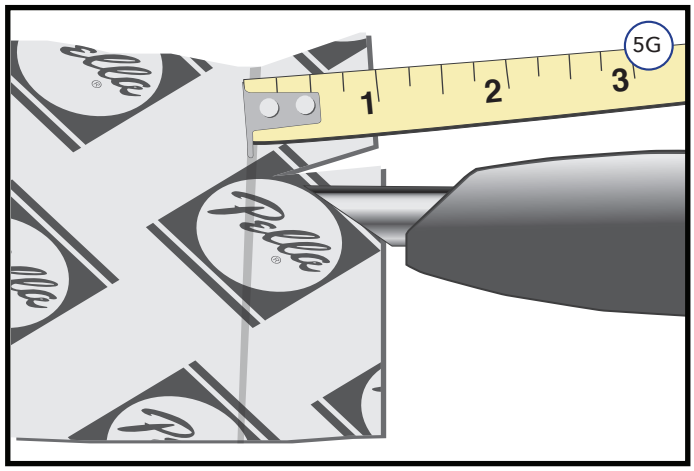
5 FLASHING TAPE APPLICATION OVER SPLICES (EXTERIOR SIDE UP) (continued):

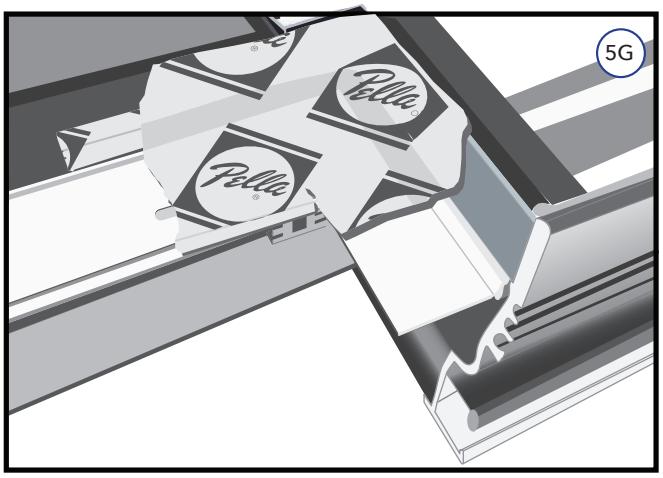
G. **OFFSET JOINT**: **For Fin Install (shown),** Apply sealant at the end of the installation fin, 1/4" diameter bead x 2" long.

Apply flashing tape over the joint, wrapping up the window and door frames. Hold the tape back ¼" from the frame edge. Press flashing firmly to adhere to the frame.

For Block Frame Install, Apply flashing tape over the joint, wrapping up the door frame. Hold the tape back 1/4" from the frame edge. Press flashing firmly to adhere to the frame.







6 HEAD DRIP CAP INSTALLATION (EXTERIOR SIDE UP):

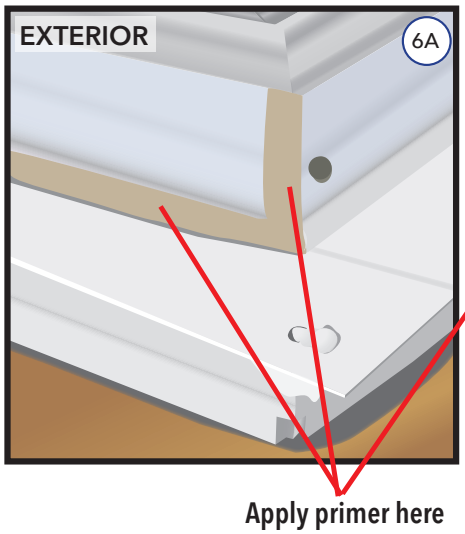
Note: Head drip cap required for Vertical Mullion Joints Ending Through the Head.

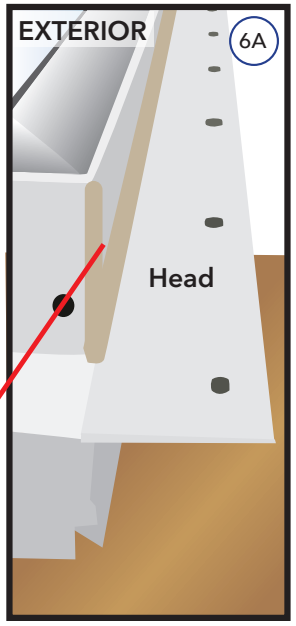
Note: These steps must be performed in immediate succession either in the shop or at the job site.

A. **Cut the head drip cap to the overall width of the combination.** Verify the length by laying the cover on the mull joint. Dry fit the head drip cap to make sure the fin does not extend beyond the ends of the combination and no more than 1/16" shorter than the combo on each end.

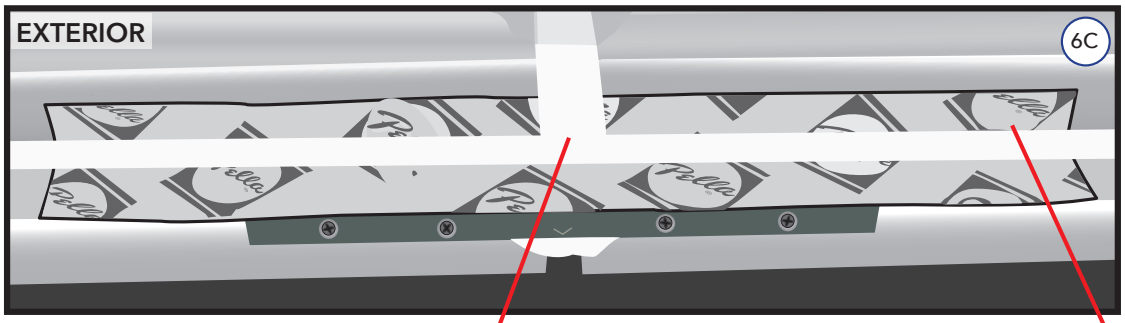
B. **Apply primer,** using one (1) of the primer wipes across the top of the head where the fin and frame meet and on each end, as shown.

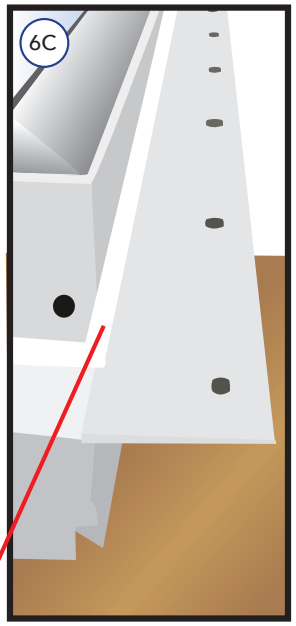
Note: Allow primer to dry at least 2 minutes before proceeding to next step.

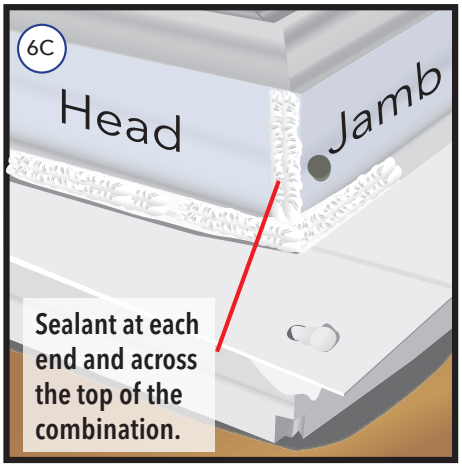


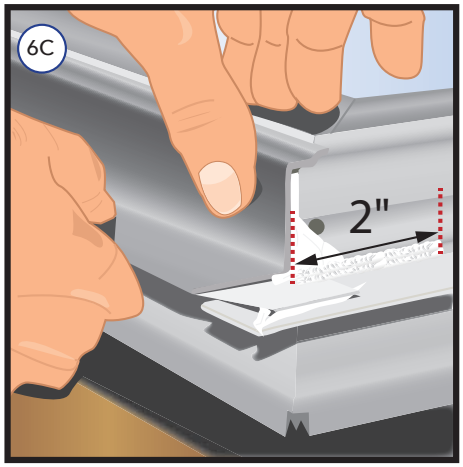


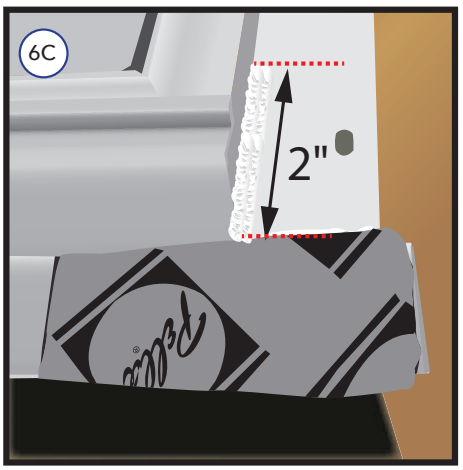
C. **Apply sealant at the top of the exterior mullion joint** to seal the space between the mullion cover and combinations frame head. **Also apply sealant at each end of the top** of the combination and across the top of the entire combination at the joint where the fin and frame connect to prep for 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 and nailing fin to hold the cap in place while the sealant sets up.



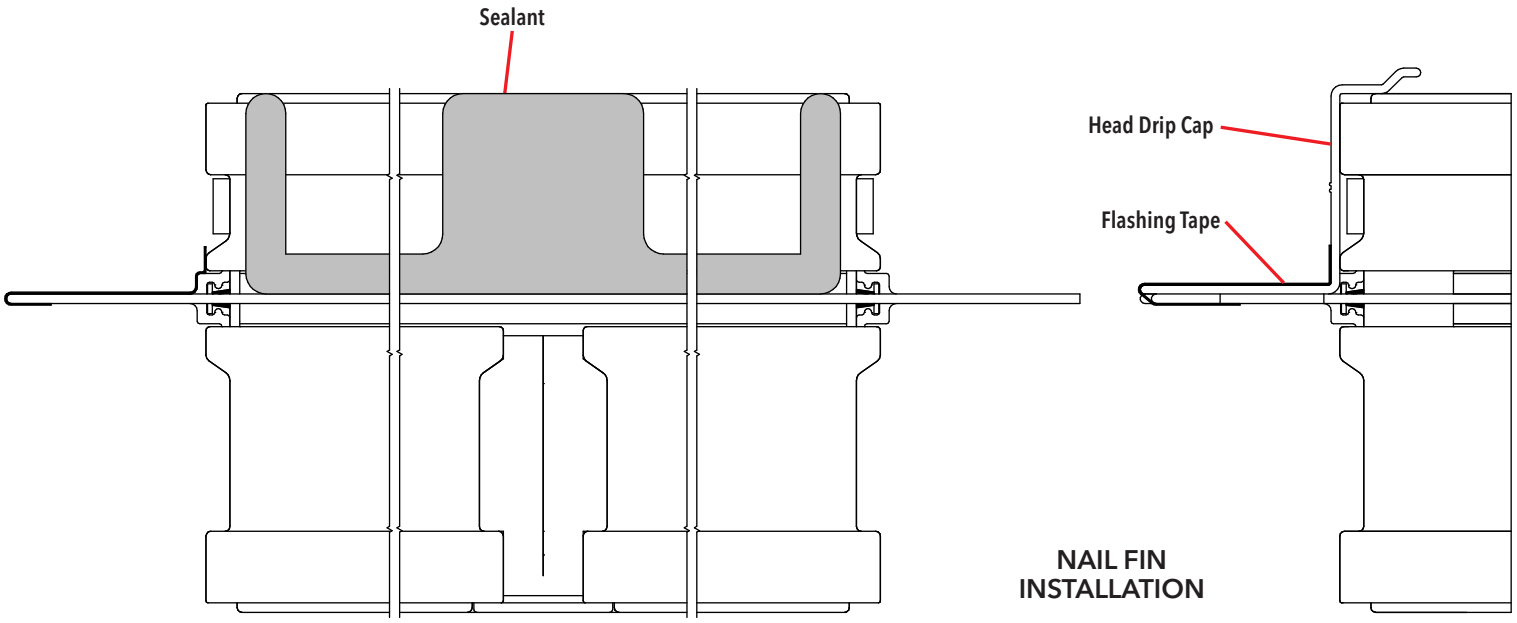






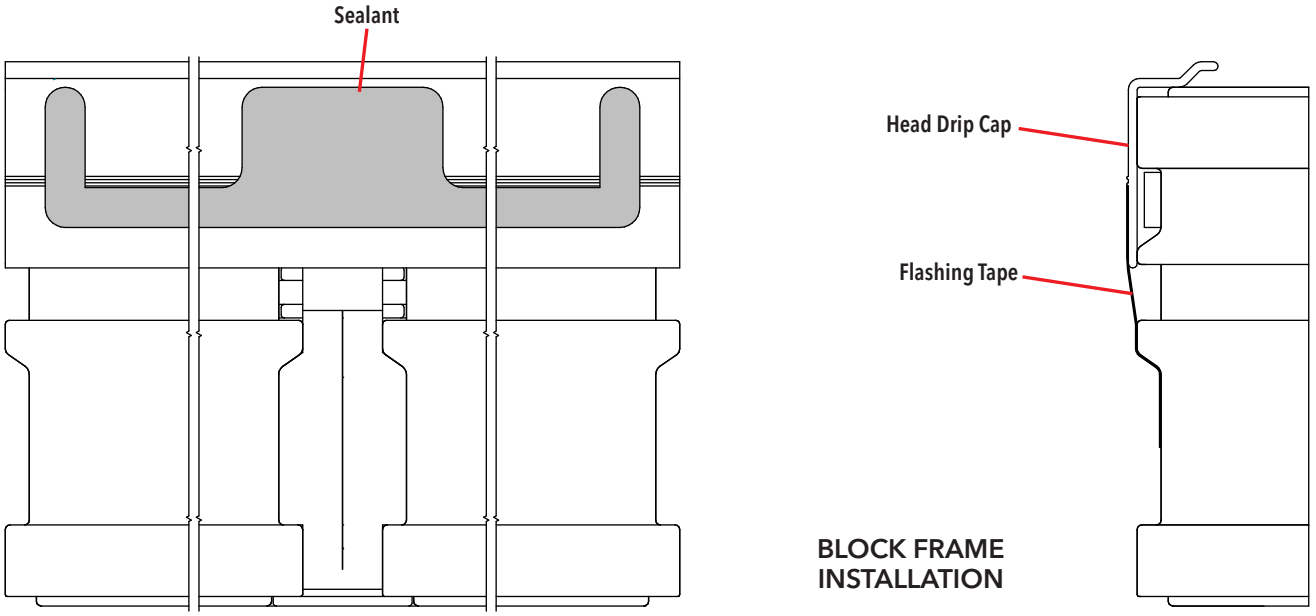


6 HEAD DRIP CAP INSTALLATION (EXTERIOR SIDE UP) (CONTINUED):



NAIL FIN INSTALLATION

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.



BLOCK FRAME INSTALLATION