PELLA® IMPERVIA® COMBINATION ASSEMBLY USING 1/2" OR 1" MULLION REINFORCEMENT AND SUBSILL (ASSEMBLED IN THE OPENING) BLOCK FRAME (SCREWS THROUGH JAMBS OR CLIPS)

Be sure to thoroughly read and understand all the steps before beginning the mullion assembly process.

REMEMBER TO USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT

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

- Low expansion, low pressure polyurethane insulating window and door foam sealant – DO NOT use high pressure or latex foams.

- Installation Fins (4)

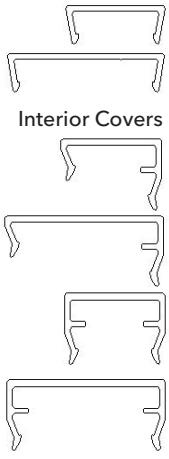
- Shims

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	

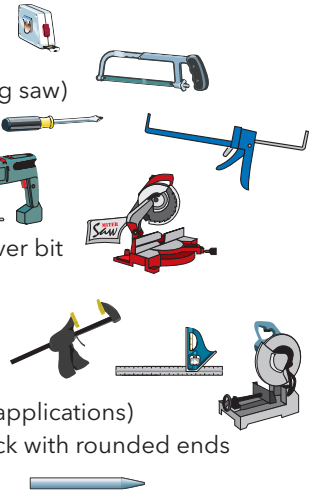
MULLION KIT, PARTS INCLUDED (PER PQM CONFIGURATION):

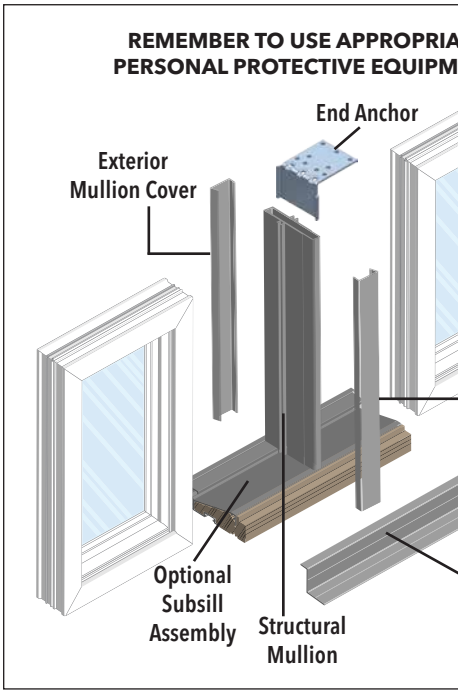
- 1/2" Exterior Mullion cover, 3-1/4" to 3-1/4" frame, Configured to length
- 1" Exterior Mullion cover, 3-1/4" to 3-1/4" frame, Configured to length
- 1" Exterior Mullion cover, 3" to 3-1/4" frame, Configured to length
- 1/2" Exterior Mullion cover, 3" to 3-1/4" frame, Configured to length
- 1/2" Exterior Mullion cover, 3" to 3" frame, Configured to length
- 1" Exterior Mullion cover, 3" to 3" frame, Configured to length
- Structural Mullion End Anchors, Block Frame
- Structural Mullion with Foam Tape
- Steel bar (cut to length at factory) – 1
- Primer



TOOLS REQUIRED:

- Tape measure
- Hammer
- Hack saw (metal-cutting saw)
- Phillips screwdriver
- Sealant gun
- Drill with 1/8" bit, 3/16" bit, 5/32" bit, and 6" long Phillips driver bit
- Miter Box/Chop Saw
- Quick Grip clamps
- Combination Square
- Metal Cutting Saw (for High Performance applications)
- 12" x 3" x 1" Wood Block with rounded ends
- Pencil or Center Punch





OPTIONAL SUBSILL KIT, PARTS INCLUDED:

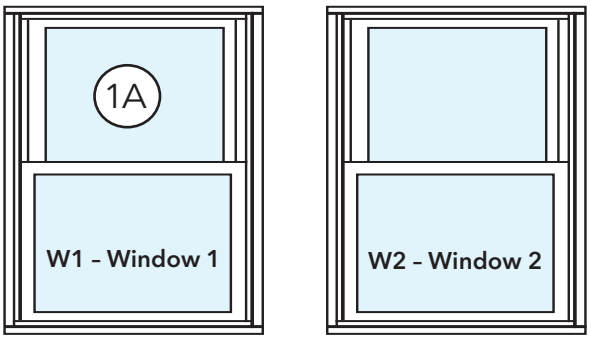
- Inner & Outer Subsill Assembly, 97"
- Subsill Interior Clip, 97"

- 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)
- #8 x 2" Corrosion Resistant pan head screws

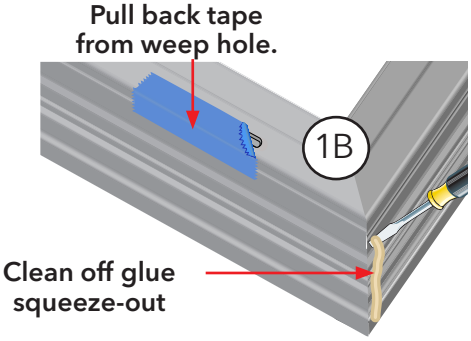
GIF-000002614- Part Number: 82E90000

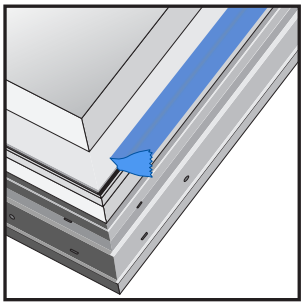
1 PREPARE THE WINDOWS:

A. **Lay windows on a smooth clean flat surface** with the exterior side up. If fins are installed on the windows, remove the fins.



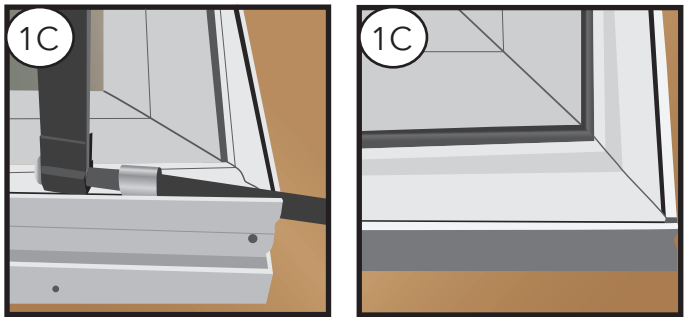
B. **For windows with weep valve assemblies at the sill:** Remove the tape covering the weep slots on the exterior of each window. Casements/Awnings - remove the protective tape from bottom sash weatherstrip. Clean off any glue squeeze-out on the outside of each frame.

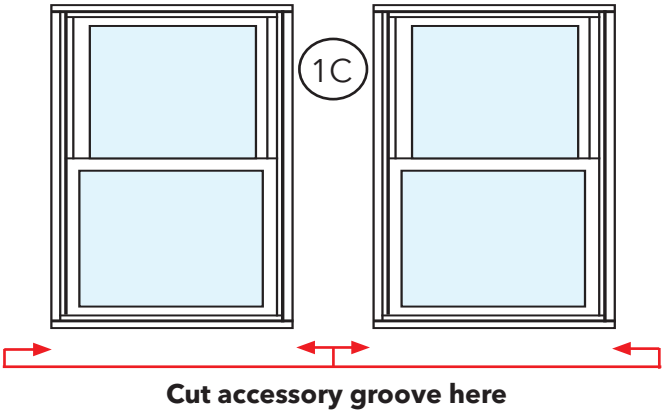




OPTIONAL, ONLY IF FOR SUBSILL:

C. **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. This will provide clearance to allow the windows to be placed on the subsill in the window opening.





D. **If mulling double-hung or single-hung windows, remove the lower sash.** If mulling casement windows, remove interior frame covers on the jambs that will be next to the rough opening.

Note: For Casement Interior frame cover removal, go to CASEMENT JAMB INTERIOR FRAME COVER REMOVAL steps at the end of this instruction.

1 PREPARE THE WINDOWS (CONTINUED):

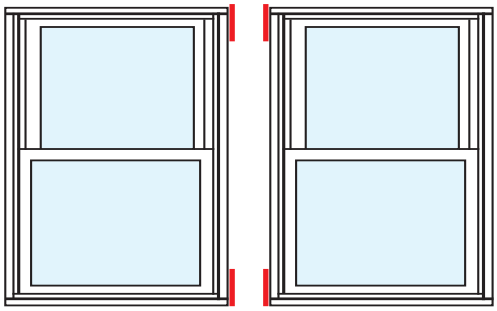
E. **Apply primer to the edges of the frames as indicated in the diagrams.** Remove the primer covered towelette from the package and apply the primer to all locations before the towelette dries.

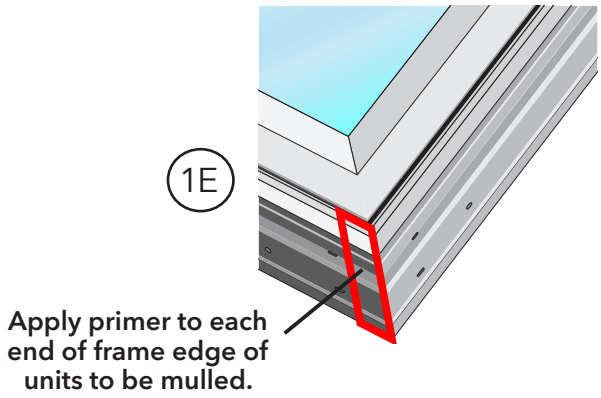
Note: DO NOT apply primer to the face of any window unit or in any location on the unit which will be exposed after the combination is installed.

Allow primer to dry before proceeding to the next step.

| or — = locations to apply primer.

2-Way



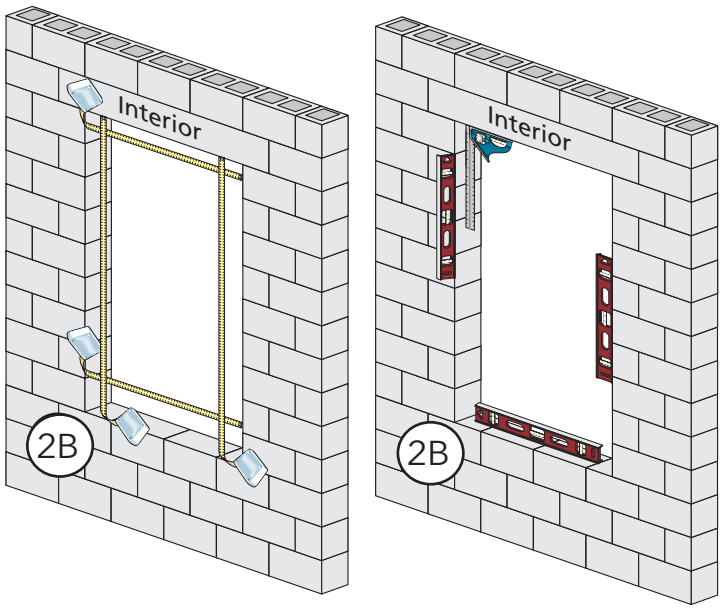


2 PREPARE THE OPENING:

A. **Prepare the window opening** as required to allow the window to fit into the opening.

B. **Confirm the opening is plumb, level and square**.

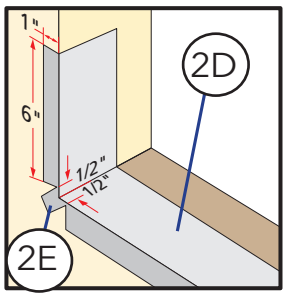
C. **Confirm the window(s) will fit into the opening.**



2 PREPARE THE OPENING (CONTINUED):

D. **Apply sill flashing tape #1.** Cut a piece of flashing tape 12" longer than the opening width. Apply at the bottom of the opening as shown (2D) so it overhangs 1" to the exterior.

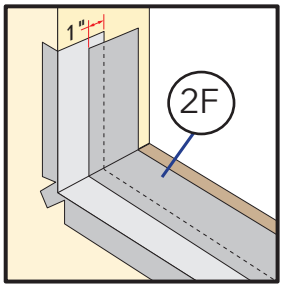
Note: The tape is cut 12" longer than the width so it will extend 6" up each side of the opening.



E. **Tab the sill flashing tape and fold.** Cut 1" wide tabs at each corner (1/2" from each side of corner) (2E). Fold tape to the exterior and press firmly to adhere it to the water resistive barrier.

F. **Apply sill flashing tape #2.** Cut a piece of flashing tape 12" longer than the opening width. Apply at the bottom, overlapping tape #1 by at least 1". DO NOT allow the tape to extend past the interior face of the framing (2F).

Note: The flashing tape may not fully cover the framing members.



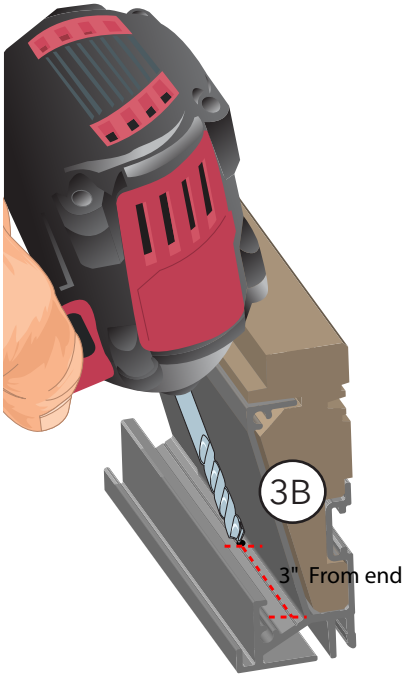
3 PREP AND INSTALL (OPTIONAL) SUBSILL:

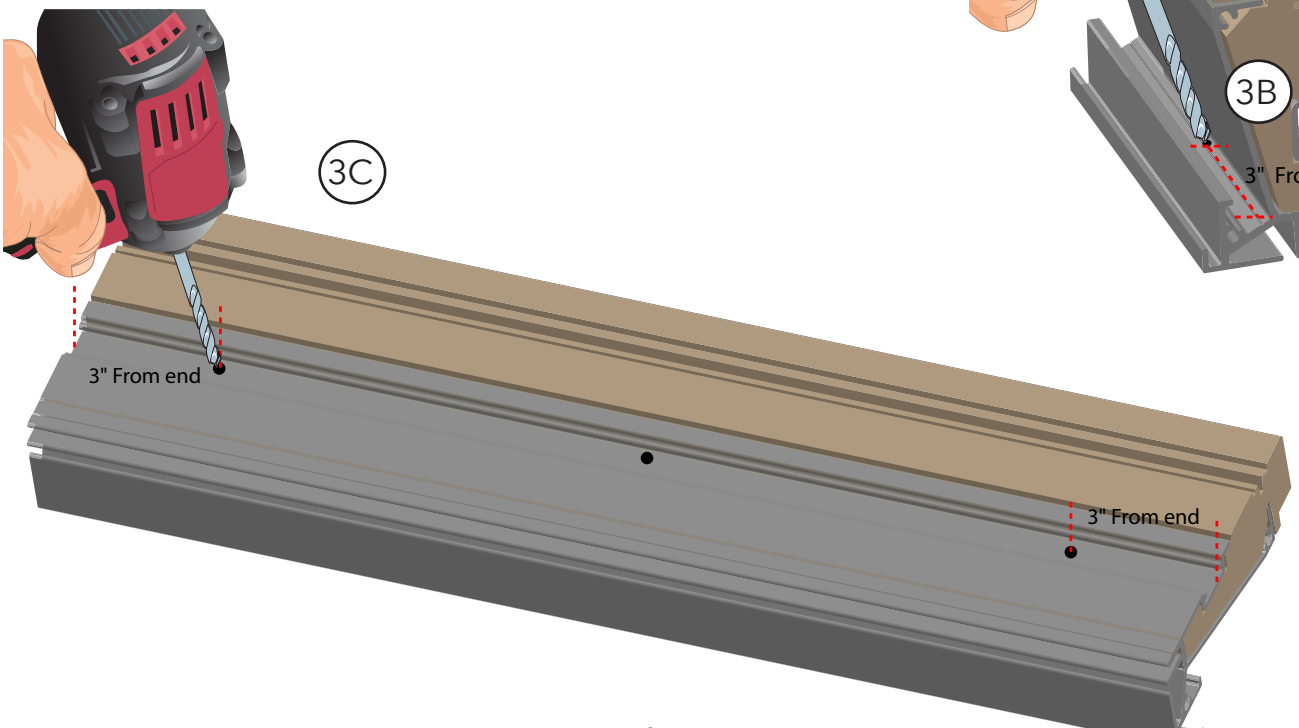
For applications without subsill; Skip to Step 3E.

A. **Cut subsill assembly,** to the total rough opening width – 1/8".

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

C. **From the bottom side of the subsill,** in the nail fin groove near the center, drill 5/32" pilot holes 3" from each end and 16" on center maximum through the subsill.





3 PREP AND INSTALL (OPTIONAL) SUBSILL (CONTINUED):

D. **Dry fit the subsill** on the sill of the rough opening to confirm fit and placement.

E. **The aluminum structural mullion is cut to size from the factory.** Verify the mullion is 1-1/2" shorter than the frame dimension of the units being mulled. If necessary, cut the aluminum structural mullion to the proper size.

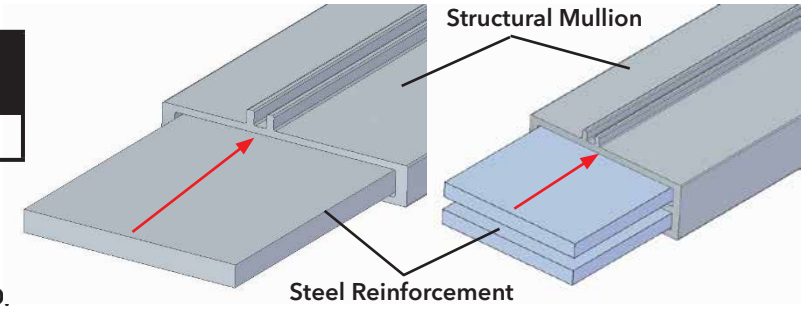
F. **If mullion requires structural steel reinforcement,** the 1/4" x 2-1/2" structural steel bar is cut to size from the factory. Verify the structural steel bar is 3.5" shorter than the frame dimension of the units being mulled. If necessary, cut the proper size.

G. **For High Performance Applications:** insert the steel reinforcement 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.

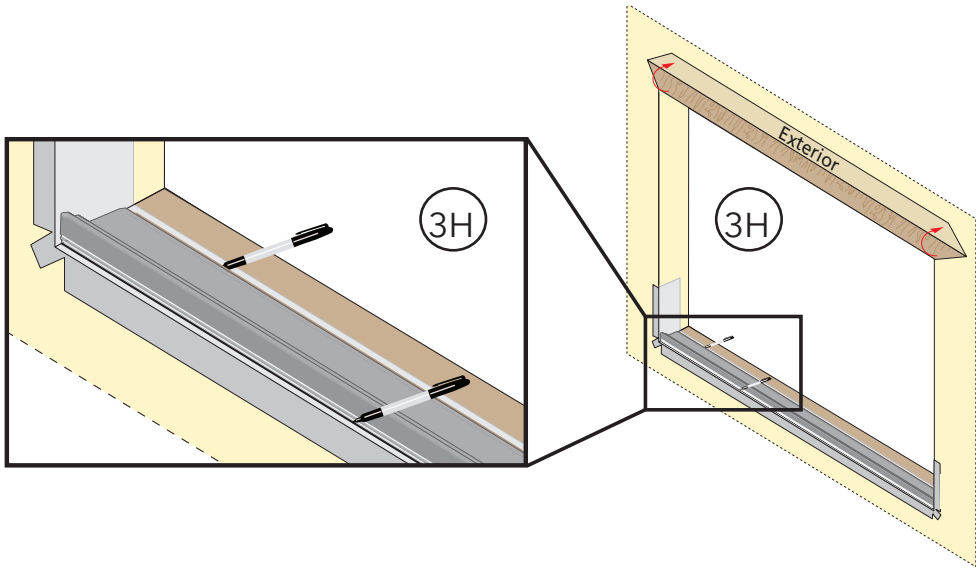
⚠ CAUTION!

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



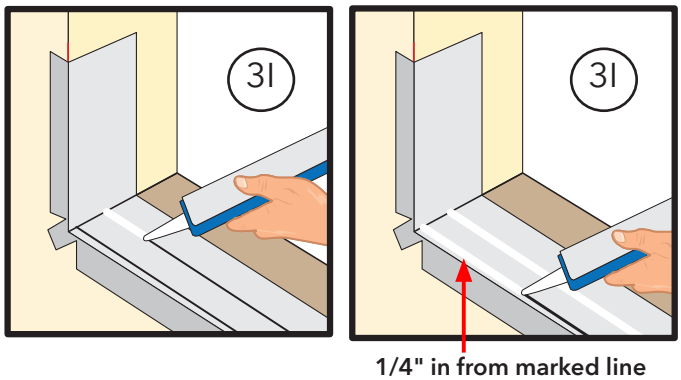
For applications without Optional subsill; Go to Step 4D.

H. **Place the subsill on the opening in the position it will be installed.** Trace a line along the length of both sides of the subsill.



I. **Place a 3/8" bead of sealant** on top of the interior line marked across the sill of the opening.

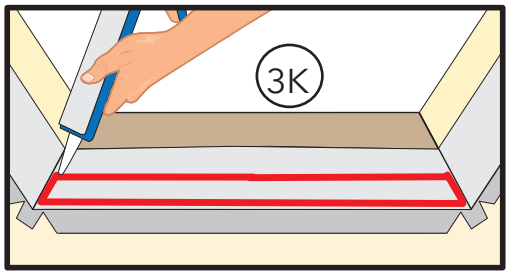
Note: If subsill requires shims to level, backer rod and sealant will be required after subsill installation to seal interior and exterior subsill edges to opening sill.



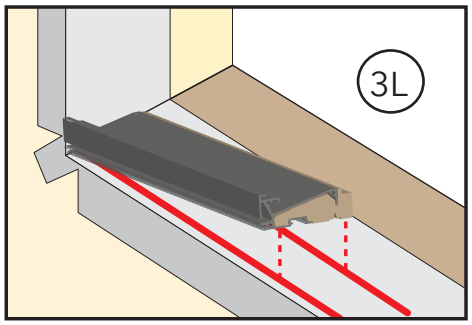
3 PREP AND INSTALL (OPTIONAL) SUBSILL (CONTINUED):

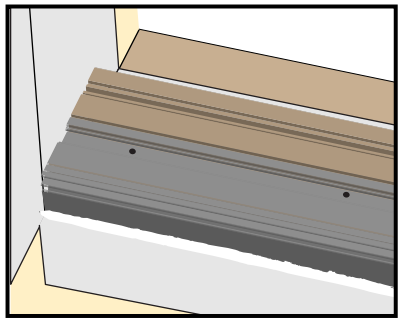
J. **Place a 3/8" bead of sealant** 1/4" inward from the location of the exterior face of the subsill across the sill of the opening.

K. **Place a 3/8" bead of sealant** in each corner of the opening connecting the two beads across the sill.

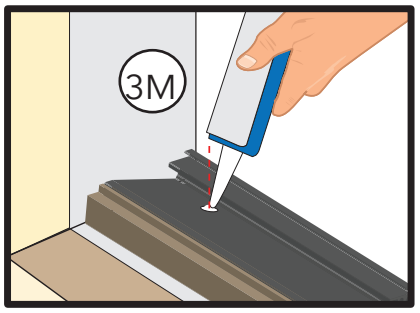


L. **Place the subsill on the sealant on the opening** with the metal edge of the subsill facing the exterior.



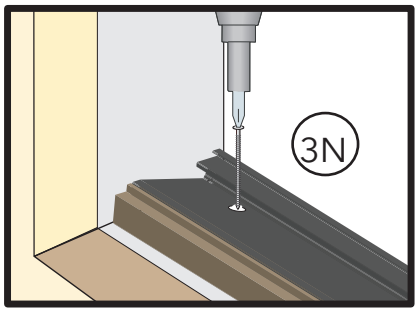


M. **Inject each drilled attachment hole with sealant.**

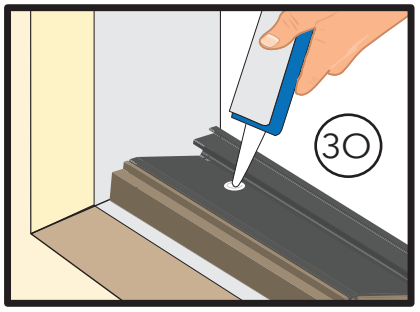


N. **Attach using appropriate installation fasteners per anchor table.** Place one in each hole drilled in step 3B.

Note: If subsill was shimmed, longer screws will be required.

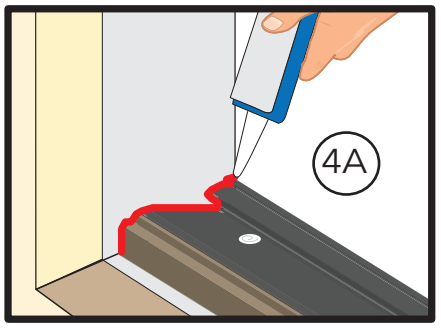


O. **Apply sealant on the top of each pan head screw.**



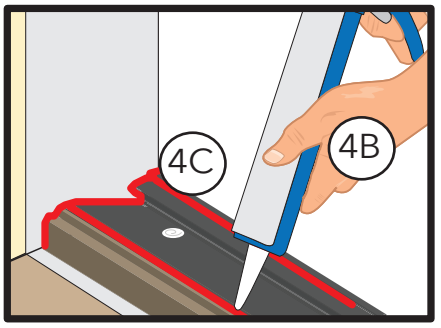
4 INSTALL WINDOW:

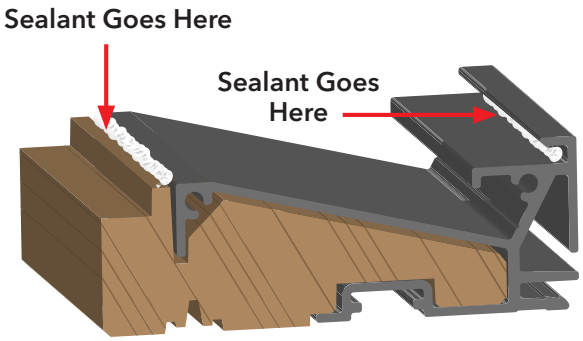
A. **Seal the ends of the subsill to the opening jambs** with a 3/8" bead of sealant. Extend the sealant at exterior and interior to opening sill.



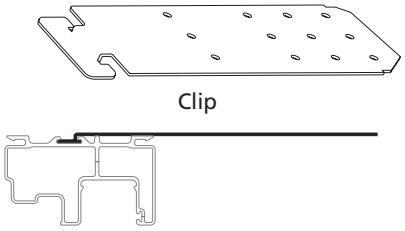
B. **Place a 1/4" bead of sealant** in the top receptor groove of the subsill. Do this across the entire length of the subsill, from opening jamb to opening jamb.

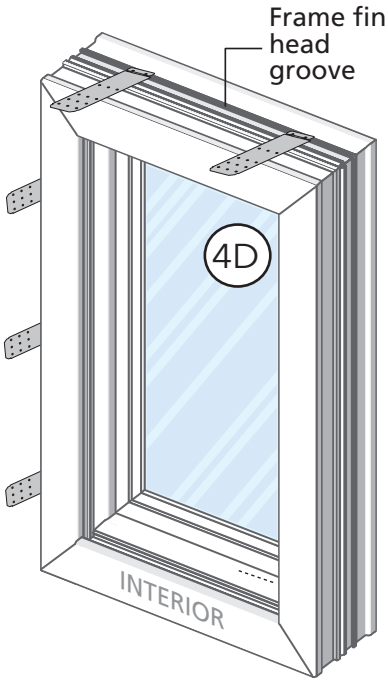
C. **Place a 1/4" diameter bead of sealant** on top of the inner subsill joint across the entire length of the subsill from opening jamb to opening jamb.





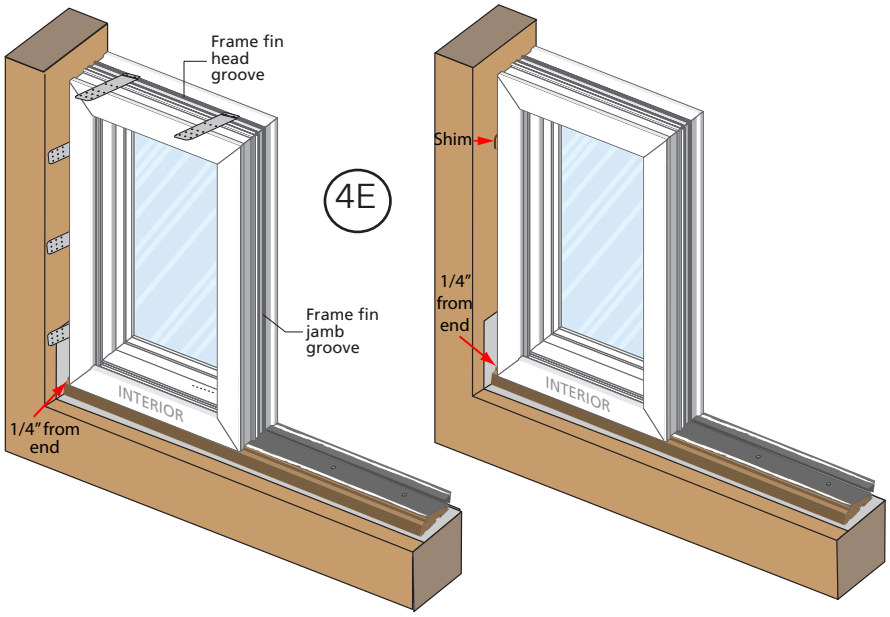
D. **If using installation clips;** slide clips into the frame fin groove of each window at the head and jamb which will be next to the rough opening. Place one clip 6" from each end of the window and no more than 16" on center.

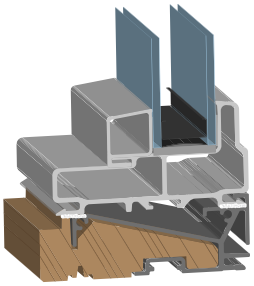




4 INSTALL WINDOW (CONTINUED):

E. **From the Interior, install the first window onto the subsill by** placing the window exterior frame accessory groove into the subsill receptor and position the window so it is approximately 1/4" to 3/8" from the end of the opening.



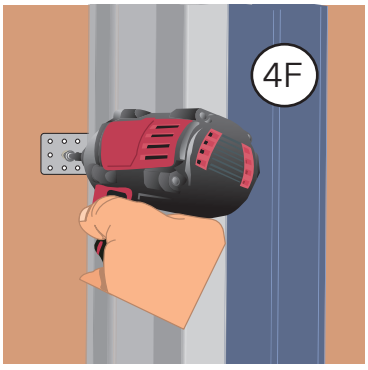


3" Frame Shown

F. **Plumb the window in the rough opening,** from the interior, place shims aligned with the top pre-drilled (from the factory) hole in the window frame or installation clip which is next to the opening frame. Use appropriate fasteners per anchor table. Partially insert one pan head screw. Repeat the process along the same jamb at all predrilled holes. If using installation clips in masonry openings use one masonry screw per clip. Use appropriate fasteners per anchor table.

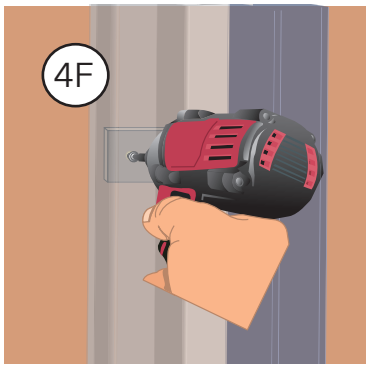
Note: Position shims to ensure they allow at least 3/4" set back from the exterior and interior surface of the window to allow for placement of sealant.

Installation Clip



or

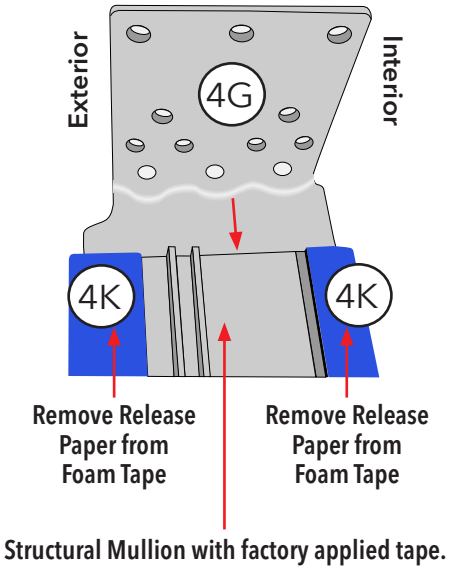
Frame Screw



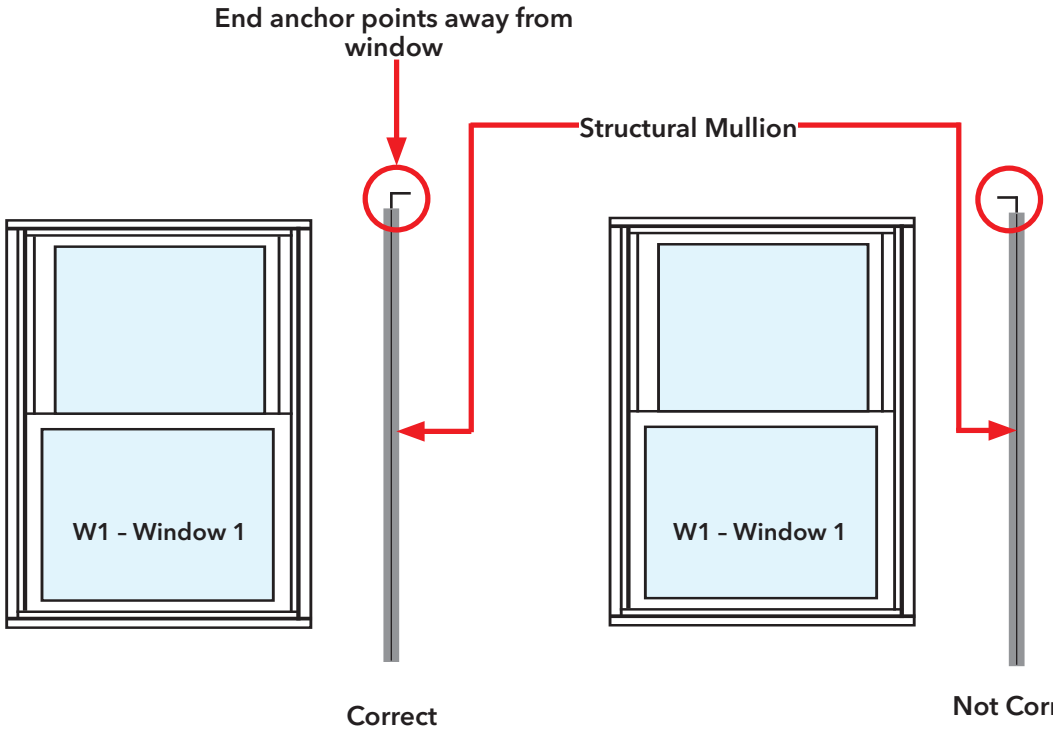
4 INSTALL WINDOW (CONTINUED):

G. **Insert the end anchor into the top of the structural mullion.**
Installations without subsill also require end anchors at the sill.

Recessed side of end anchor oriented to the exterior provides room for backer rod when sealing the combination to the exterior wall cladding in step 6.

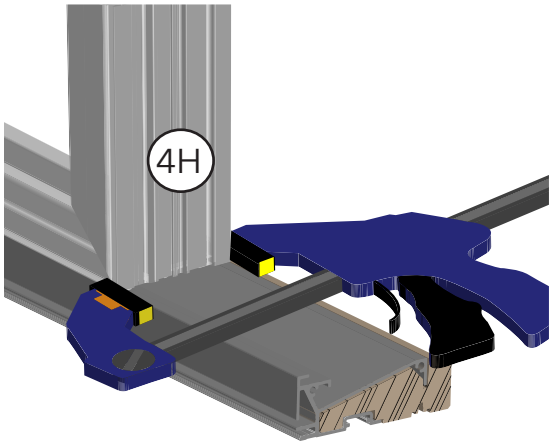


NOTE: Make sure the correct hand (LH vs. RH) end anchor is used. (Correct end anchor is the one where the top flat surface points away from the window installed in step 4E-4F which allows the screw attachment holes to be accessed. And the recessed side will be toward the exterior).



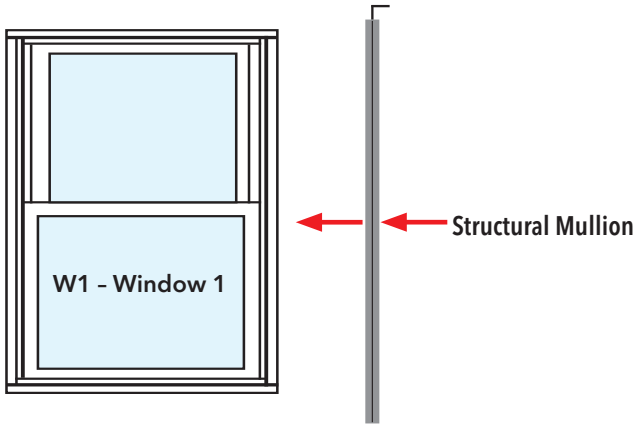
4 INSTALL WINDOW (CONTINUED):

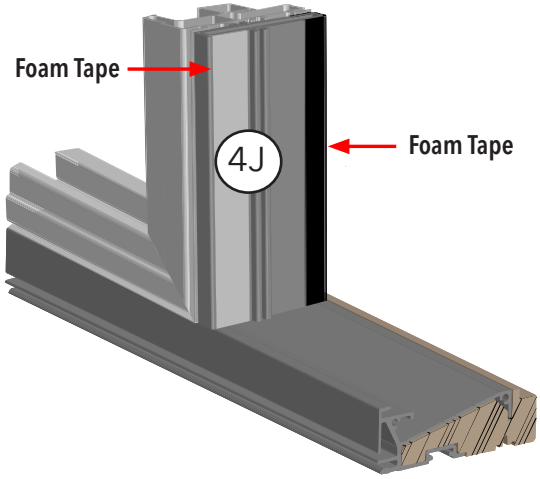
H. **A quick clamp may be used** on the window sill to make sure it is aligned properly on the subsill.



I. **Remove the release paper** from both tape strips on the side of the structural mullion bar that will face the window already installed.

J. **Place the structural mullion** against the window making sure it is aligned with the interior and exterior and seated on top of the subsill. Press it against the window so the foam tape completely contacts the window.



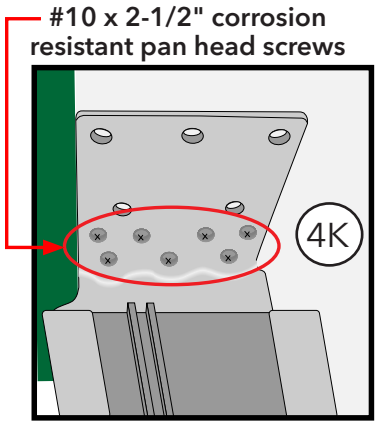


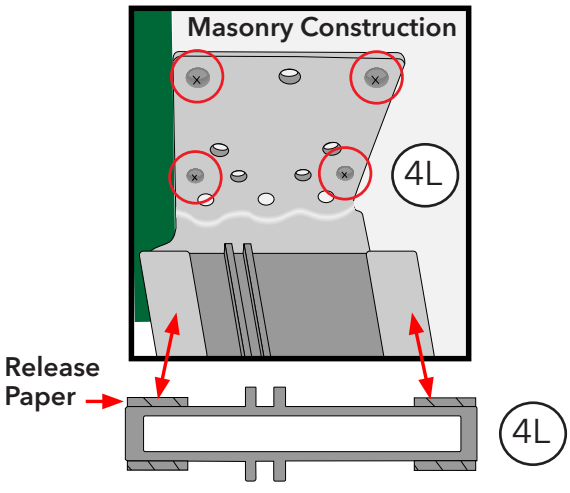
K. **Push the end anchor bracket against the top of the rough opening** and insert screws.

Use appropriate fasteners per anchor table.

For applications without subsill repeat this step at the sill.

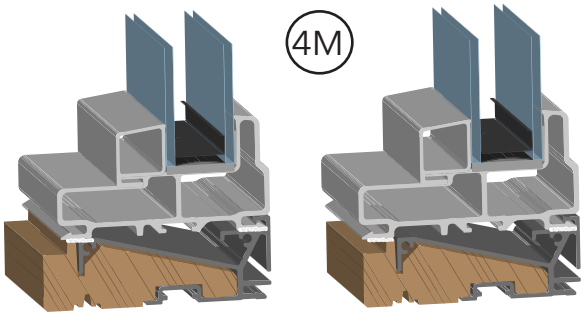
L. **Remove the release paper** from both tape strips on the open side of the structural mullion.





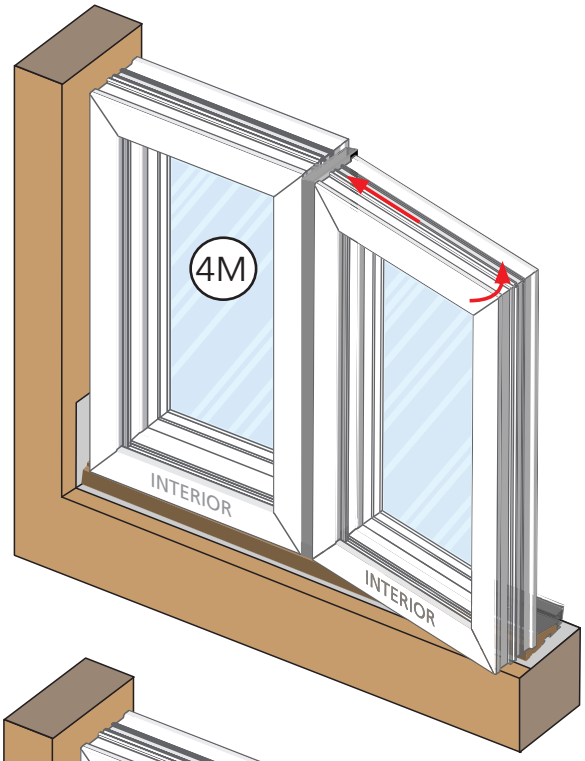
4 INSTALL WINDOW (CONTINUED):

M. **Place the next window of the combination in the opening** and on the subsill by aligning the window accessory groove with the subsill receptor groove.



3" frame installed on subsill

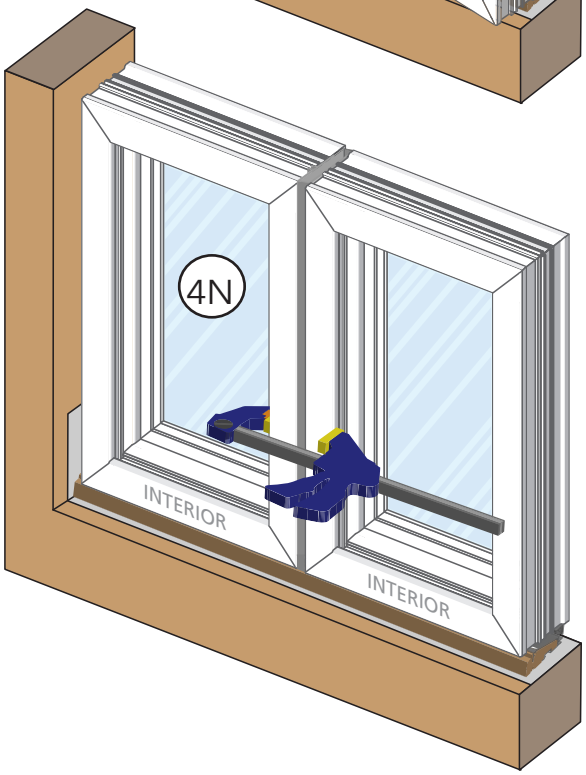
3-1/4" frame installed on subsill



N. **Push the window against the structural mullion** and make sure the window accessory groove is completely in the subsill receptor groove.

Note: A clamp can assist in making sure the windows are tight against the structural mullion and subsill. Apply clamp pressure along the full length of the structural mullion, approximately every 12".

Note: Repeat steps if mulling more than 2 windows.



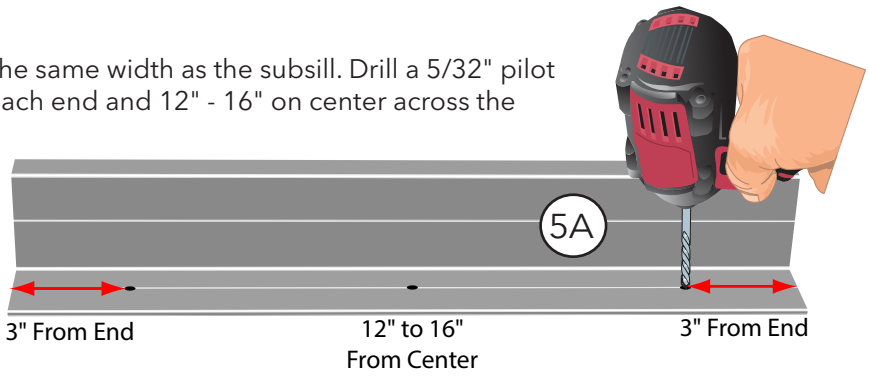
O. **From the interior, place shims near the top of the jamb** which is next to the rough opening frame, aligned with the top pre-drilled hole in the window frame or installation clip. Use appropriate fasteners per anchor table. Repeat the process along the same jamb at all predrilled holes or installation clips. Make sure all the installation screws are completely installed into the opening frame on both sides of the combination.

P. **Awning, Fixed casement or fixed frame windows:** Place shims at the head aligned with pre-drilled installation holes in the frame. Insert #8 x 2" corrosion resistant pan head screws. Repeat process along the head of each window. If using installation clips in masonry openings use appropriate fasteners per anchor table masonry screw per clip.

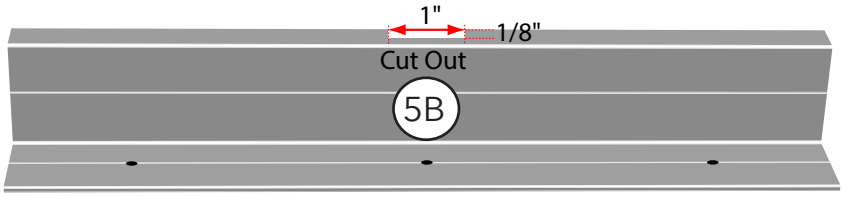
5 INSTALL INTERIOR SILL COVER CLIP AND MULLION COVERS:

For applications without subsill; Go to step 5J.

A. **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.

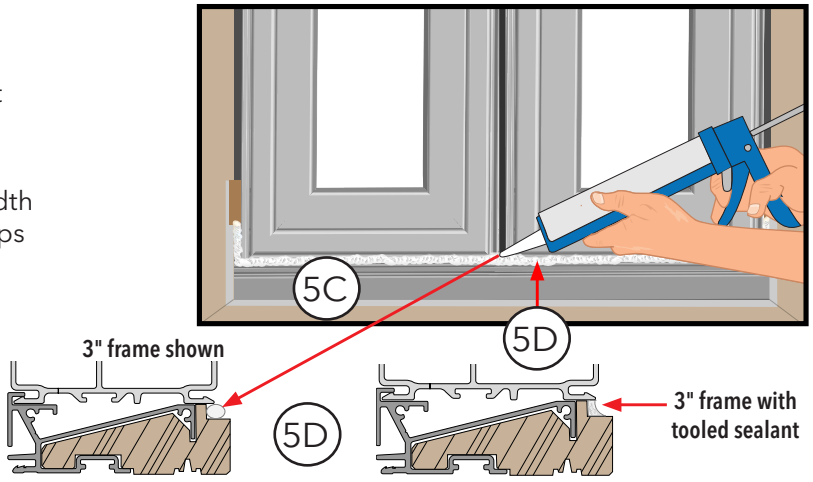


B. **Notch the sill cover clip:** At the location of each mullion, cut a 1/8" x 1" notch to clear the aluminum mullion.



C. **On the interior between the window sill and the subsill, place a generous bead of sealant** at each corner, mullion end gap and in the interior groove across the entire width of the combination. Sealant must connect with the foam tape on the mullion reinforcement to ensure a proper perimeter seal.

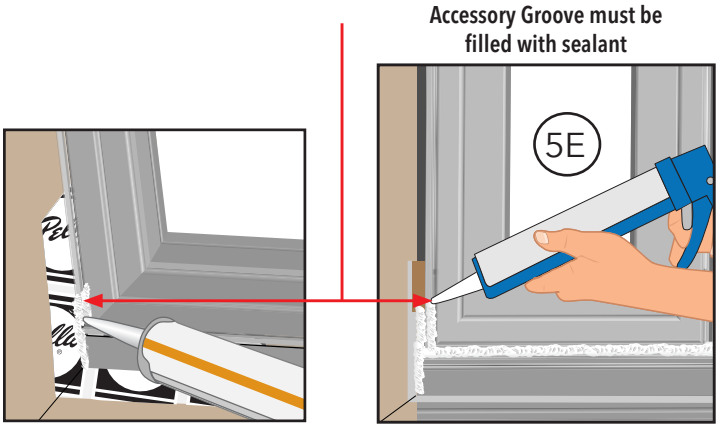
D. **Tool the sealant in the groove** across the entire width of the combination and make sure there are no gaps in the sealant.



E. **On the interior, inject sealant** into the accessory groove at each end of the combination.

Note: It is critical to make sure the accessory groove is filled with sealant.

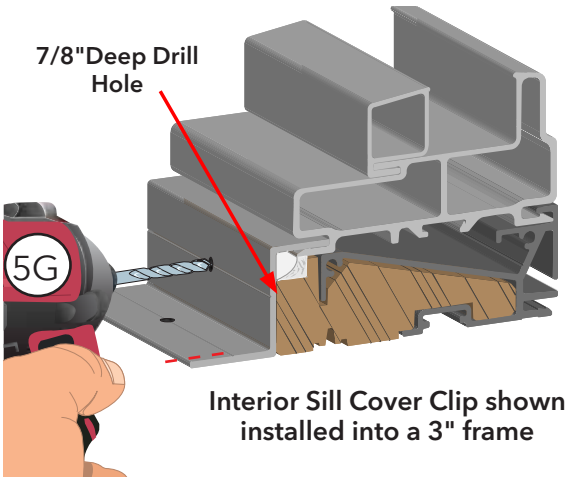
F. **Place the sill cover clip on the bottom of the opening** and insert the leading edge into the window interior groove. Make sure the cover is completely inserted into the window accessory groove along the entire width of the combination.



5 INSTALL INTERIOR SILL COVER CLIP AND MULLION COVERS (CONTINUED):

G. **Drill 1/8" pilot hole 7/8" deep** through the vertical leg of the clip on the scored mark, above each of the drilled holes in the horizontal leg.

Note: The pilot hole must be 7/8" deep so it goes through the metal leg of the subsill.

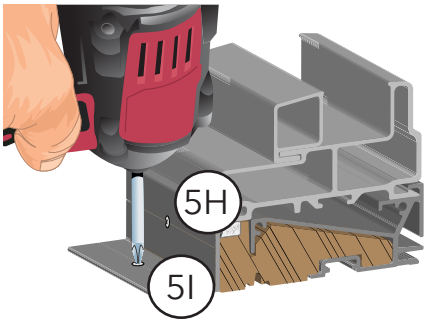


Interior Sill Cover Clip shown installed into a 3" frame

H. **Install #6 x 1" corrosion resistant pan head screws (included)** in each of the hole in the vertical leg of the clip into the subsill.

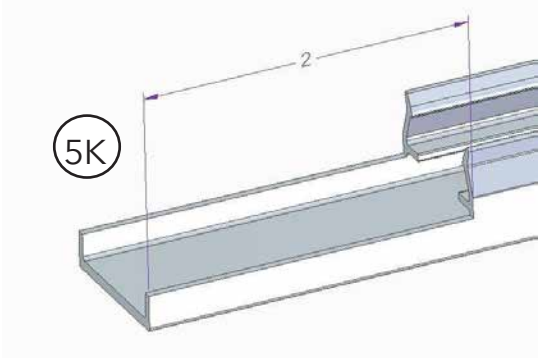
I. **Use appropriate fasteners per anchor table. Install corrosion resistant pan head screws (not included)** in each of the holes in the horizontal leg of the clip into the opening sill.

J. **Cut the interior mullion cover 7/16"** shorter than window frame height.



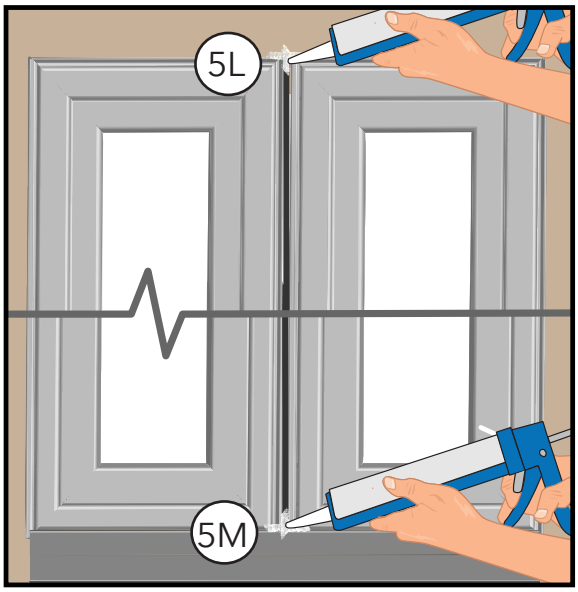
Interior Sill Cover Clip shown installed into a 3-1/4" Frame

K. **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.



L. **On the interior,** inject a generous amount of sealant on and around the end anchor at the head. Fill the gap from the top of the structural mullion to the underside of the top of the rough opening.

M. **On the interior, inject and fill the gap between the bottom end of the structural mullion** and the top surface of the interior subsill cover clip.



5 INSTALL INTERIOR SILL COVER CLIP AND MULLION COVERS (CONTINUED):

N. **Insert the interior mullion cover into the accessory grooves of the adjoining windows.** Make sure it is completely seated in the grooves by tapping it into place with a wood block and a rubber mallet.

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.

1″ Mullion Cover 3-1/4′ to 3″

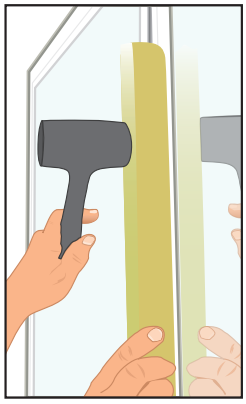
1/2″ Mullion Cover 3-1/4′ to 3″

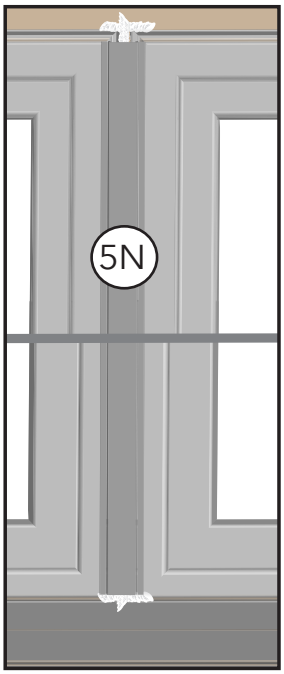
1″ Mullion Cover 3′ to 3″

1/2″ Mullion Cover 3′ to 3″

1″ Mullion Cover 3-1/4′ to 3-1/4″

1/2″ Mullion Cover 3-1/4′ to 3-1/4″

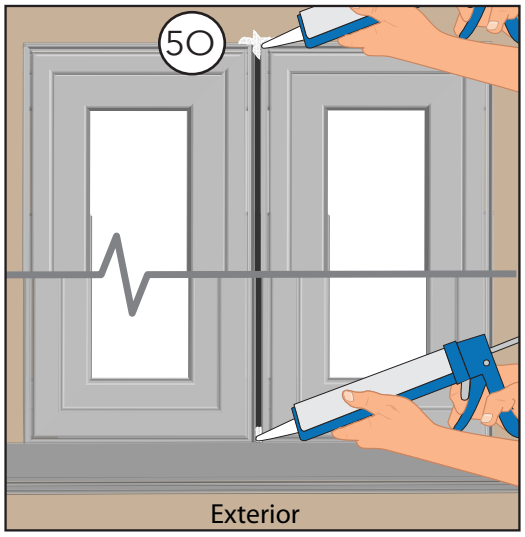




EXTERIOR:

O. **On the exterior, inject a generous amount of sealant** at the mullion on top and bottom of the structural mullion.

Note: This sealant will tie into the exterior perimeter seal and backer rod.

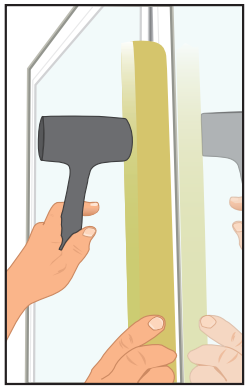


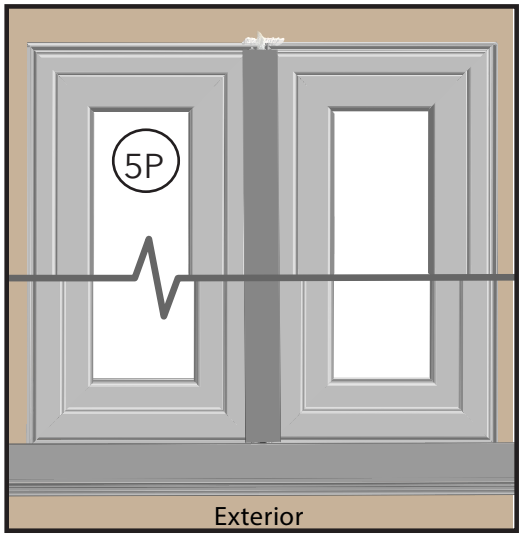
P. **Insert the exterior mullion cover into the accessory grooves of the adjoining windows.** Tap the end of the mullion cover with wood block and a rubber mallet. Continue to drive the cover into the grooves moving slowly along the length of the cover until it is completely seated into the grooves.

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.

1/2″ Mullion Cover

1″ Mullion Cover

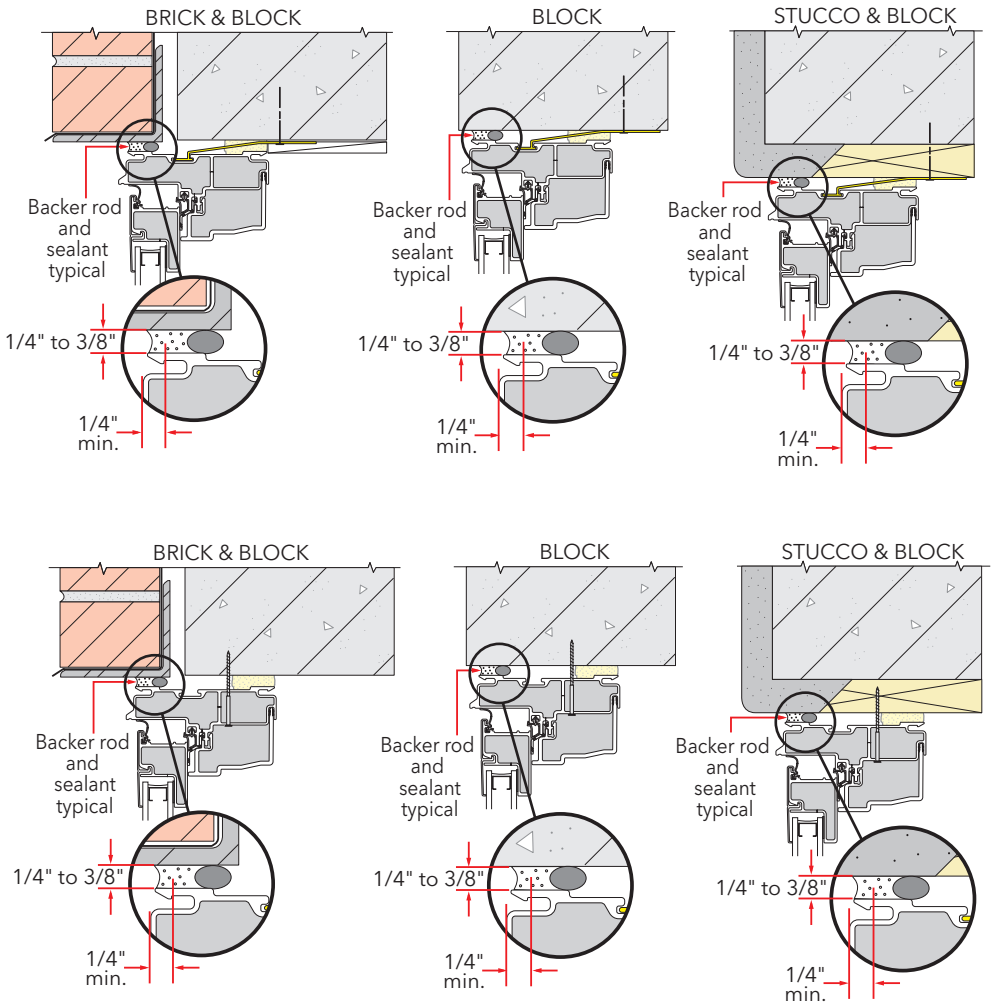




6 SEALING THE WINDOW TO THE EXTERIOR WALL CLADDING:

When applying siding, brick veneer or other exterior finish material, leave adequate space between the window frame and the material for sealant. Refer to the illustration corresponding to your finish material.

Note: The sealant details shown are standard recommendations from the sealant industry. Contact your sealant supplier for recommendations and instructions for these and any other applications.



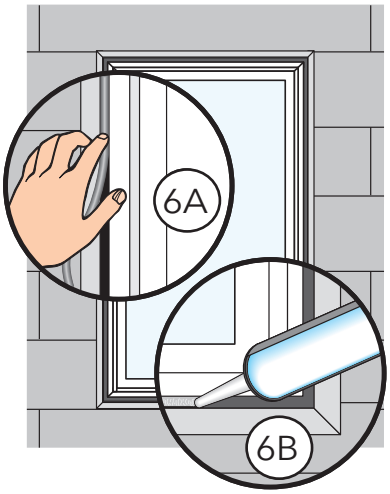
A. **Insert closed cell foam backer rod into the space around the combination.** This should provide at least a 1/4" clearance between the backer rod and the exterior face of the window.

Note: Backer rod adds shape and depth for the sealant line.

B. Apply a bead of sealant to the entire perimeter of the window.

C. **Shape, tool and clean excess sealant.** When finished, the sealant should be the shape of an hourglass.

Note: This method creates a more flexible sealant line capable of expanding and contracting.



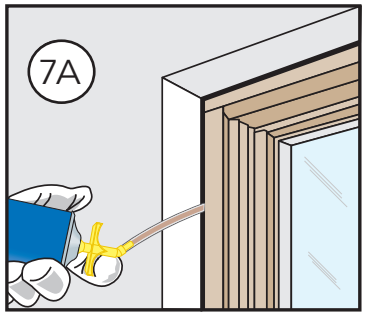
7 INTERIOR SEAL:

Caution: Ensure use of low pressure polyurethane window and door insulating foams and strictly follow the foam manufacturer's recommendations for application. Use of high pressure foams or improper application of the foam may cause the window frame to bow and hinder operation.

A. **Apply insulating foam sealant.** From the interior, insert the nozzle between the window frame (not the jamb extensions) and the opening and place a continuous 1" bead of foam sealant. Allow the foam to cure completely before proceeding to the next step. Apply sealant across interior surface of shims to create a continuous seal. For windows with jamb extensions installed, ensure the foam is placed between the window frame and the rough opening, not between the jamb extension and the rough opening. Follow foam manufacturer's instructions.

Note: Interior foam seal must tie into sealant applied in step 5C.

Note: It may be necessary to squeeze the end of the tube with pliers to be able to insert into the space between the window frame and the rough opening. DO NOT completely fill the space from the back of the backer rod to the interior face of the opening.



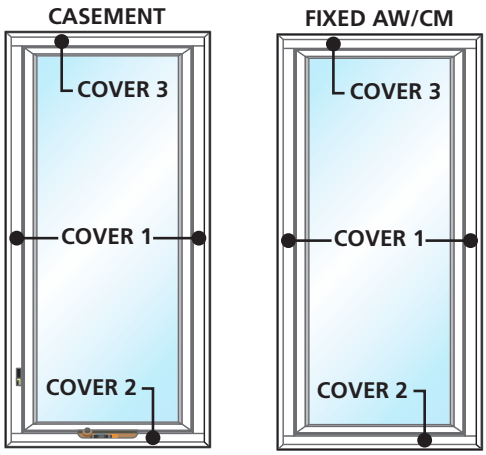
B. **Check the window operation** (vent units only) by opening and closing the window.

Note: If the window does not operate correctly, check to make sure it is still plumb, level, square, and the jambs are not bowed. If adjustments are required, remove the foam with a serrated knife. Adjust the shims and reapply the insulating foam sealant.

CASEMENT JAMB INTERIOR FRAME COVER REMOVAL

CASEMENT ONLY: The interior frame covers on jambs of casement units to be installed that will be next to the rough opening must be removed to provide access to the pre-drilled frame screw installation holes on the jambs.

The order of interior frame cover removal is indicated in diagrams to the right. Use reverse order for re-installation of covers.



A. **Prepare the Window.**

1. Remove the screen and set aside.
2. Use pliers to remove the plug(s) from the lock handle location(s).
3. Remove the construction handle tool from the handle package.

B. **Remove Interior Frame Cover #1.** If an Interior Frame Cover has a "Quick Release Band" around the cover; pull the band to help remove the cover.

If Quick Release Bands are not present, use a putty knife or flat blade screwdriver to carefully pry and remove the frame covers.

Casement jamb interior frame cover installation: Insert the cover barbs of the interior frame cover into the frame kerfs near Interior Fame Cover # 2, Rotate the frame cover towards the Interior Frame cover # 3 and align the kerfs along the frame, then press the cover until it "clicks" into place.