MILGARD®

V400
Delta Mull
Field Installation Instructions



By MITER Brands™

Things to Know Before You Start

MULLING DISCLAIMERS & CAUTIONS FOR FIELD MULLING

1. Read this entire document before proceeding with the mulling of Milgard's products. These instructions address only the mulling process for vertical and horizontal mulls to be installed in wood or steel frame construction. Follow **Milgard's Installation Recommendations for Mounting Fin Windows** which provide additional information applicable to the installation of mounting fin windows, including preparation of the rough opening prior to mulling the windows.

2. These instructions are to be used only with products specifically ordered as combination (mulled) assemblies. Window products to be field-mulled must be identified as such on the order documents so the manufacturing plant can properly prepare the windows for field-mulling. If windows do not arrive prepared for use with this kit, do not move forward with installation and contact your Milgard representative. Read the instructions in full before starting the mulling process and contact your Milgard representative if you have any questions. Field mulling is not a DIY project and should only be performed by experienced and qualified installation professionals.

3. Windows ordered for field-mulling will be delivered with a mull kit containing parts to be used when mulling the windows. Milgard's mullion products are rated for performance based on the specific parts and fasteners included with this mull kit. Any deviation from the mulling guidelines or substitutions / use of parts not provided with the kit could affect the performance of the window unit.

4. Proper anchoring of a mullion requires securing fasteners into rough opening framing members. This has the potential to impact the flashing and water management systems at a product opening. Consult the responsible system supplier or responsible owner, architect and/or builder to ensure that mullion anchoring is effective for the existing design and in compliance with applicable laws, site requirements and building codes.

5. Performance Grade ratings for mulled products can depend on many factors. Labels on individual window units may not represent the Performance Grade of a mulled assembly. Contact Milgard with any questions regarding rating of the combination assembly.

6. Inspect the mull and window product thoroughly before beginning the mulling process. Confirm the window units, once mulled, will match the size needed for the opening, measuring 1/2" smaller than the rough opening dimensions in width and height of the entire unit. Inspect and report any window product or mull damage to your Milgard representative prior to installation.

7. Jobsite and worker protections are recommended and may be required. Follow all manufacturers' instructions for appropriate and safe use of protective equipment, tools, materials, hardware and site protections necessary for mulling the window products.

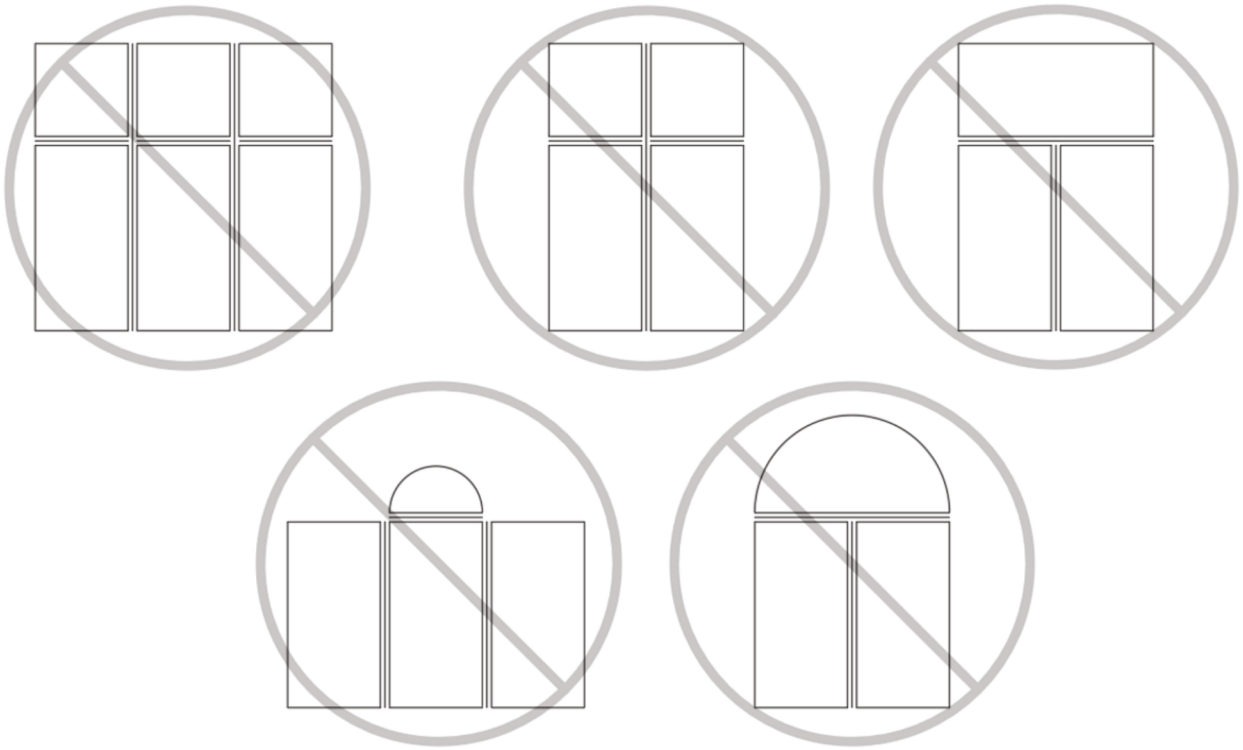
8. It is the sole responsibility of the owner, architect, and/or builder to select correct the products and ensure that installation is to be in compliance with applicable laws, site requirements, and building codes. Failure to follow these recommendations, local requirements, or good building practices may affect the availability of remedies under Milgard's warranty.

9. **DO NOT** mull more than 3 window units together (i.e. maximum of 2 V400 Delta mullions per window opening). Field-mulled assembly size limitations.
   Minimum window height with horizontal mull: 17"
   Maximum horizontal mull length: 143 1/2"
   Minimum window width with vertical mull: 17"
   Maximum vertical mull length: 96"

Things to Know Before You Start

DO NOT install vertically and horizontally mulled windows in a single rough opening such that it creates a 3-way or 4-way joint (see diagram below). Structural support must be installed between units to avoid 3-way and 4-way joints. IMR products with a continuous frame may be mulled together as long as they do not exceed the maximum size limits.

INCOMPATIBLE MULLING CONFIGURATIONS

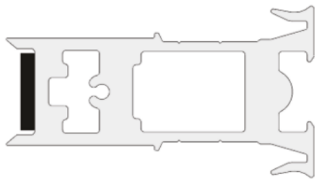


Things to Know Before You Start

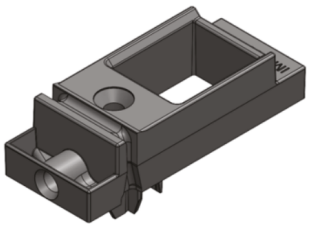
PARTS NECESSARY FOR INSTALLATION (NOT INCLUDED)

- 2-part Epoxy applicator for 50 mL tube with 1:2 ratio (epoxy is supplied)
- Impact drill with square drive SQ2 and Philips drive PH2
- Rigid putty knife
- Caulking gun
- High-quality compatible exterior grade sealant (color: clear)
- Narrow rubber mallet

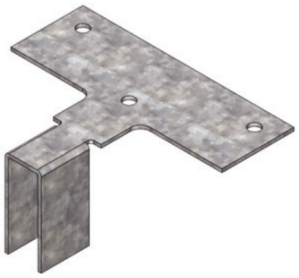
OTHER PARTS NECESSARY FOR INSTALLATION



Mull Bar
EX7100ML



End Cap
IM1750NA
(Installed on the mull bar EX7100ML)



Mull Anchor
RF3000ST



Fastener for Mull
FA0151SS



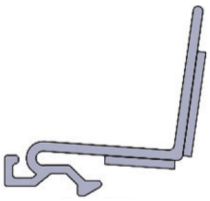
Pressure Plate
EX7101ML



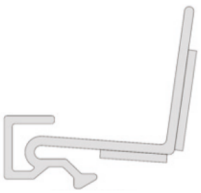
Mull Cover
VA4100CV



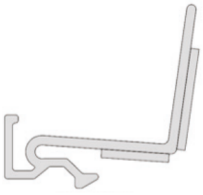
Fastener for Mull Anchor
FA0821SS



Drip Cap
VA4103



Drip Cap
VA4102



Drip Cap
VA4104

ASSORTED DRIP CAPS



Single Sided Foam Tape
SE8038WH

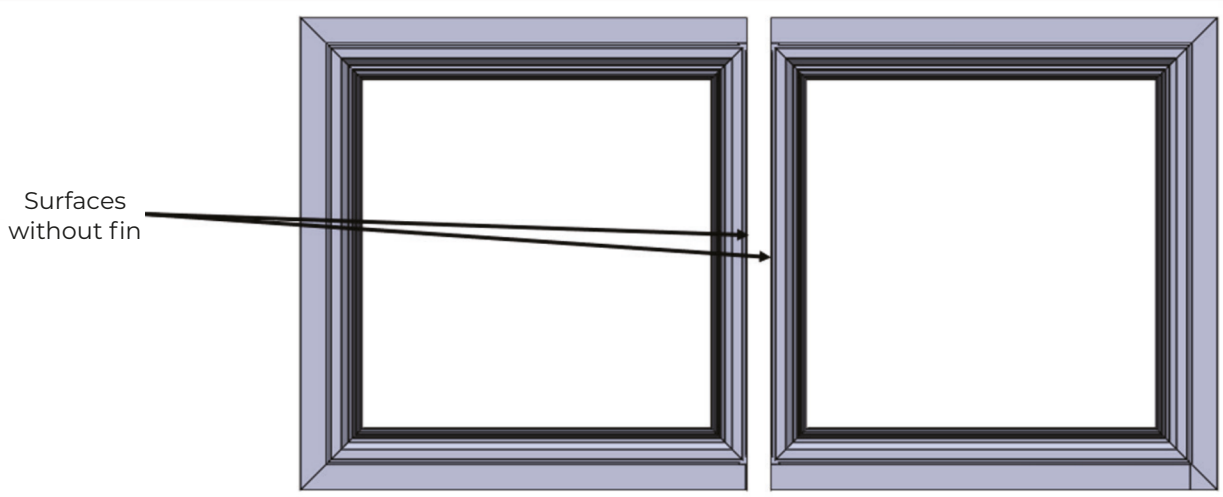
FOR VERTICAL MULL, FOLLOW STEP 1 THROUGH STEP 30
FOR HORIZONTAL MULL, FOLLOW STEP 31 THROUGH STEP 54

VERTICAL MULL

Step 1

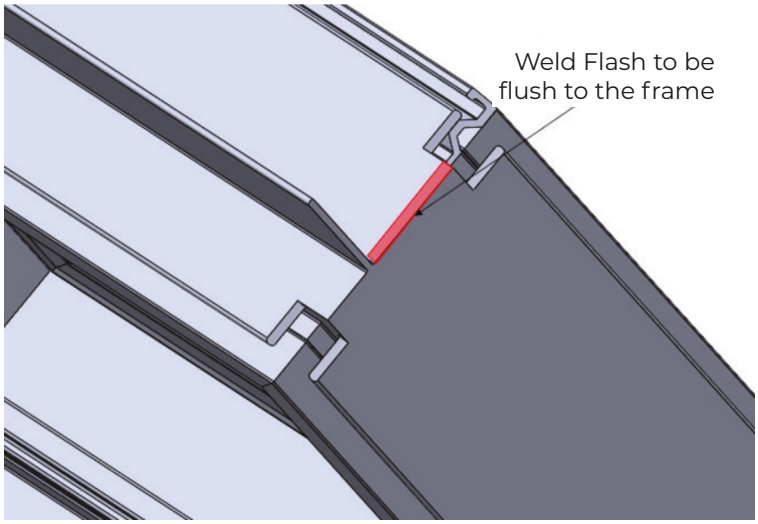
Remove all packaging components from the windows. Identify the surface(s) of your windows where there is no fin.

Note: These surfaces are where the mull bar(s) (EX7100ML) will interface with the windows. When assembling a triple mulled unit, the center unit will have no fin on both jambs.



Step 2

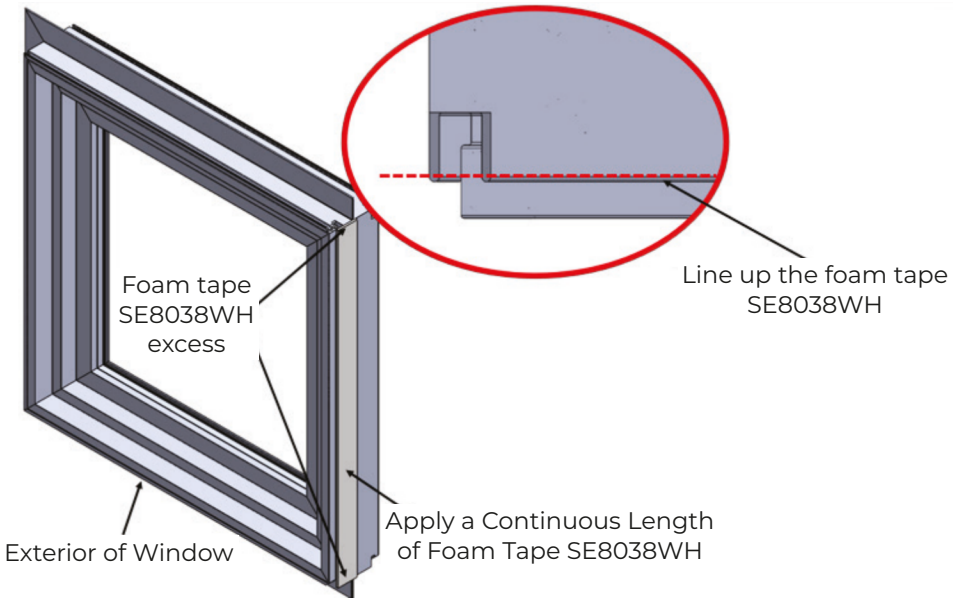
Verify that the welds of both sill and head interior side corners are cleaned flush with the frame. If not, clean the corners so the weld is flush to the frame.



Step 3

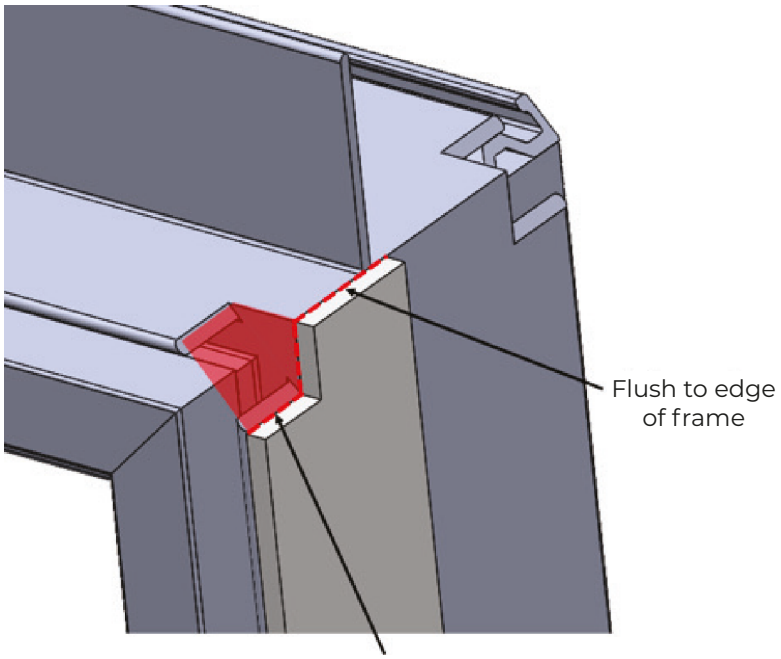
Apply a continuous length of foam tape (SE8038WH) on the exterior facing side of the window jamb. The foam tape should pass the edge of the frame from 1/4” to 1/2” on both sides of the window. The foam tape (SE8038WH) should align with the accessory groove leg.

IMPORTANT: The foam tape must not pass the accessory groove leg but can be recessed 1/8”.



Step 4

Trim the head and sill extremities of the foam tape (SE8038WH) so the foam tape is flush to 1/16” longer to the edge of the frame and creates a notch at the accessory groove.



Repeat Step 1 through Step 4 for each surface without fin

WINDOW INSTALLATION SEQUENCE:

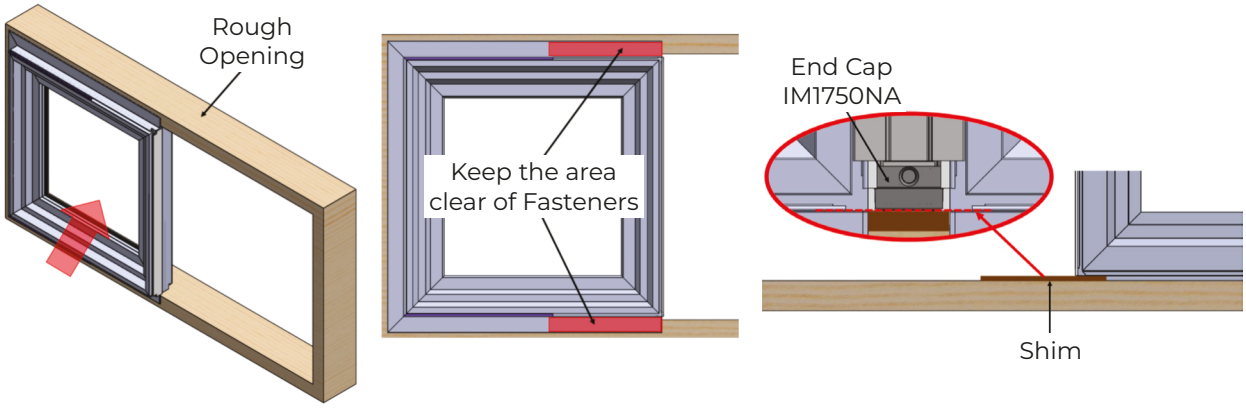
START FROM ONE END AND WORK ACROSS (STARTING FROM THE LEFT VIEWED FROM EXTERIOR IS SHOWN IN THIS DOCUMENT)

Step 5

Ensure that the opening and the windows have been prepared per the Milgard's Installation Recommendations for Mounting Fin Windows. Then insert the first window unit in the rough opening. Verify the window is plumb, level and square. When shimming the sill, ensure the same thickness shim extends under adjacent frames and mull bar anchor to allow alignment of all components at the sill.

Next, secure the first window unit per Milgard's Installation Recommendations for Mounting Fin Windows. Keep the red areas indicated in the above illustration clear of fasteners until the assembly of the mull is complete.

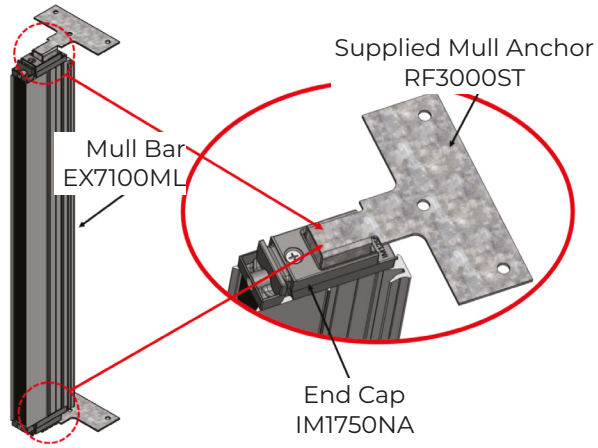
IMPORTANT: Using the same thickness shim will ensure window 1, window 2 and the mull bar (EX7100ML) are all aligned at the sill. For the mull bar, shims should only be placed under the mull bar (EX7100ML) and not under the holes of the mull anchors (RF3000ST).



Step 6

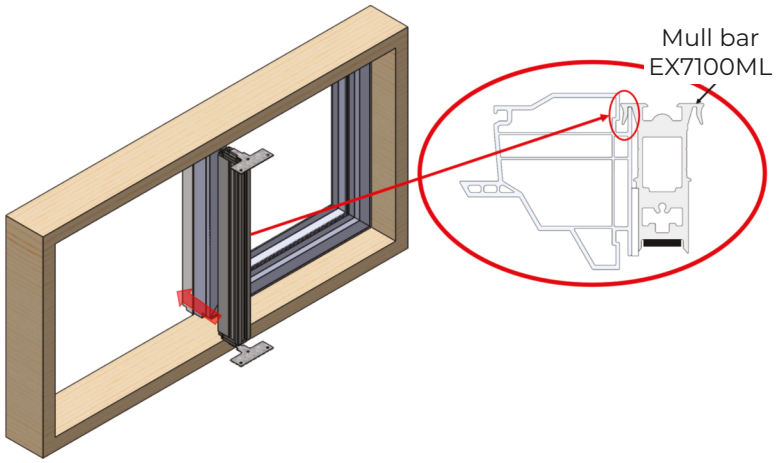
Insert the mull anchors (RF3000ST) in the end cap (IM1750NA) as shown above. The mull anchor (RF3000ST) must be installed at both ends of the mull bar (EX7100ML) into the end cap (IM1750NA).

IMPORTANT: Each mull bar (EX7100ML) must use two (2) mull anchors (RF3000ST), one at each end.



Step 7

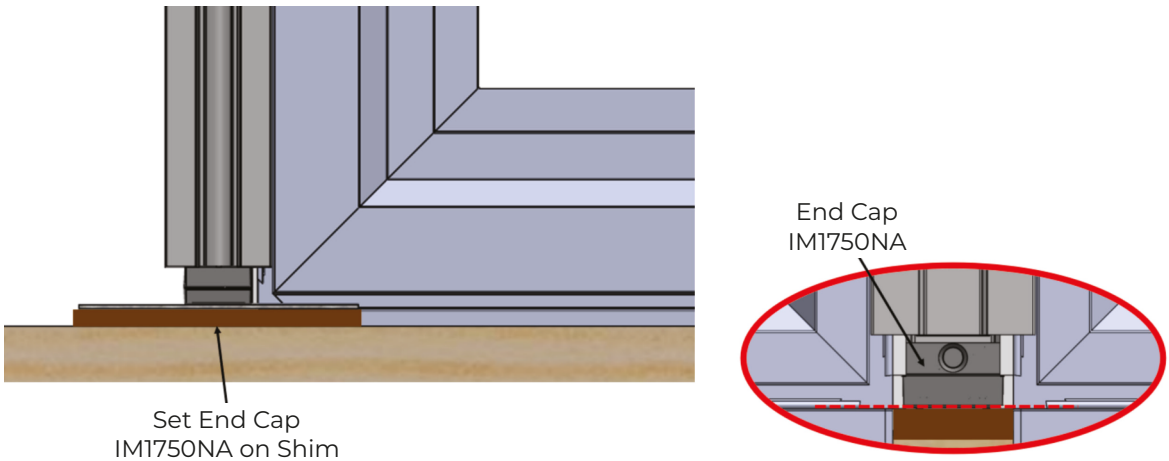
Insert the mull bar (EX7100ML) with the installed mull anchors (RF3000ST) in the rough opening. The leg of the mull bar (EX7100ML) must be fully inserted in the window accessory groove on the interior facing side, so the mull anchors (RF3000ST) extend to the interior.



Step 8

Set the end cap (IM1750NA) with the mull bar (EX7100ML) on the shim to ensure alignment with the frames.

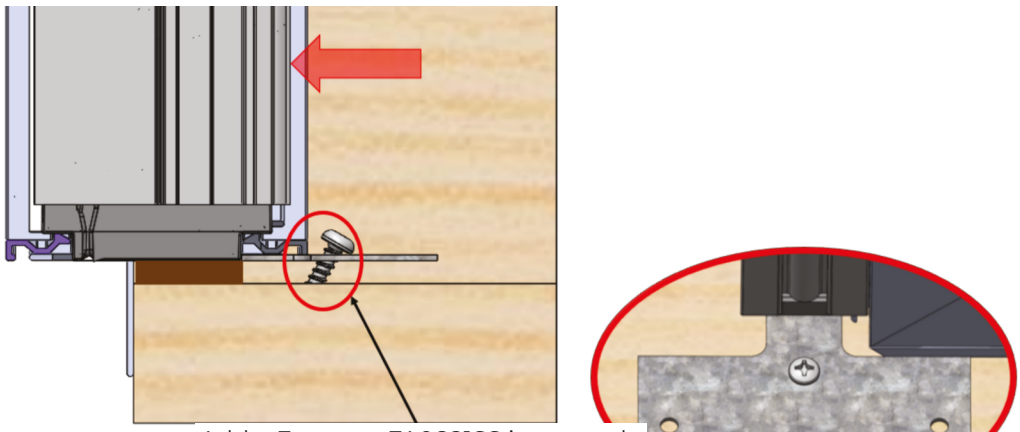
Note: The anchor does not need to be on the shim.



Step 9

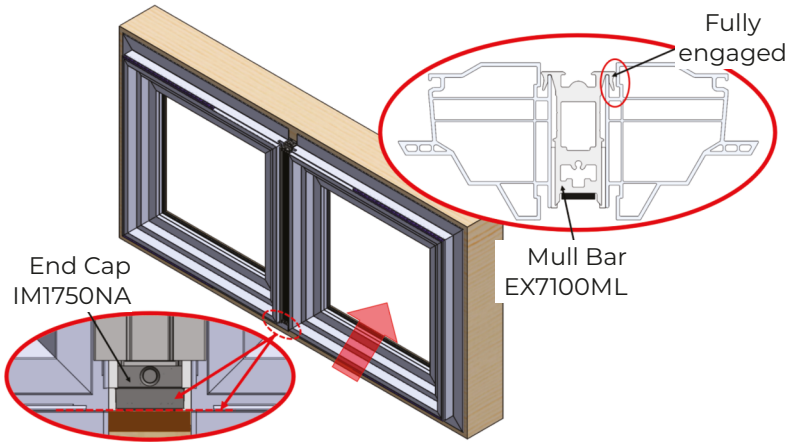
Push the mull bar (EX7100ML) toward the exterior, while installing 1 fastener (FA0821SS) angled toward the exterior in each (head and sill) mull anchor (RF3000ST) to set the mull bar (EX7100ML) for the mulling process. This will be a temporary fastener to keep the mull bar from moving when mulling the windows.

Note: Step 9 will help with the mulling process by pushing the window forward (towards the exterior).



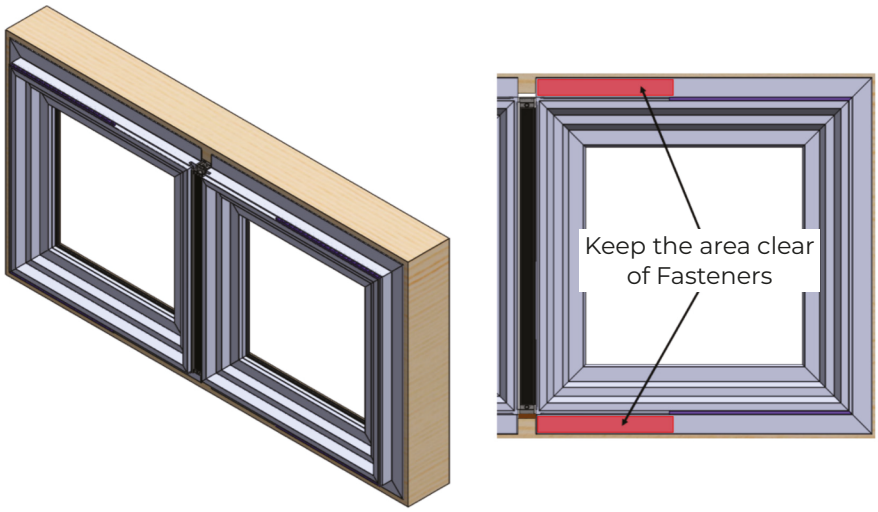
Step 10

Insert the second window unit in the rough opening. The other leg of the mull bar (EX7100ML) must be inserted in the accessory groove of the second window on the interior side. The edge of the end cap (IM1750NA) should be aligned with the edge of the window frames. Both windows need to be fully engaged with the mull bar (EX7100ML).



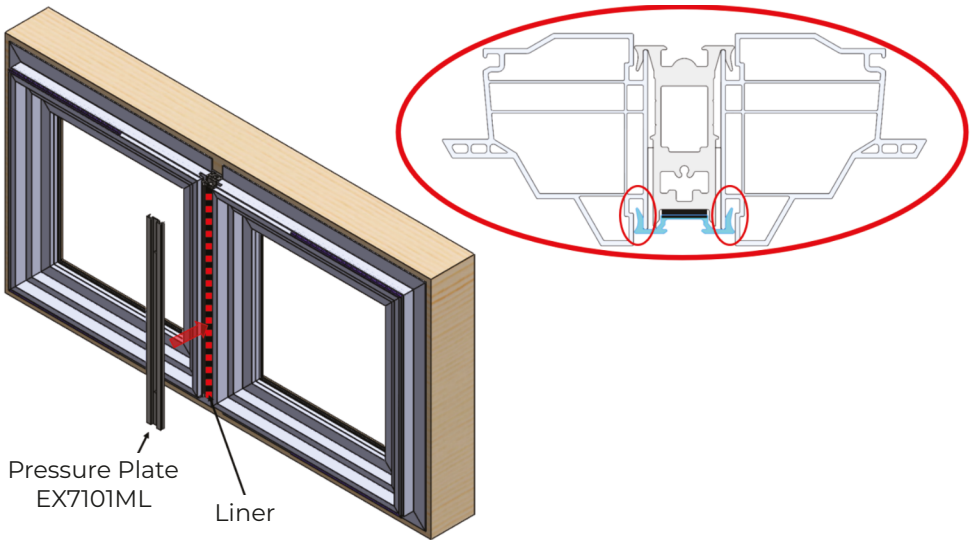
Step 11

Verify that the second window is level. If not, shim accordingly. Secure the second window unit per Milgard's Standard Installation Recommendations for Mounting Fin Windows. Keep the red area shown in the above illustration clear of fasteners until the assembly of the mull is complete.



Step 12

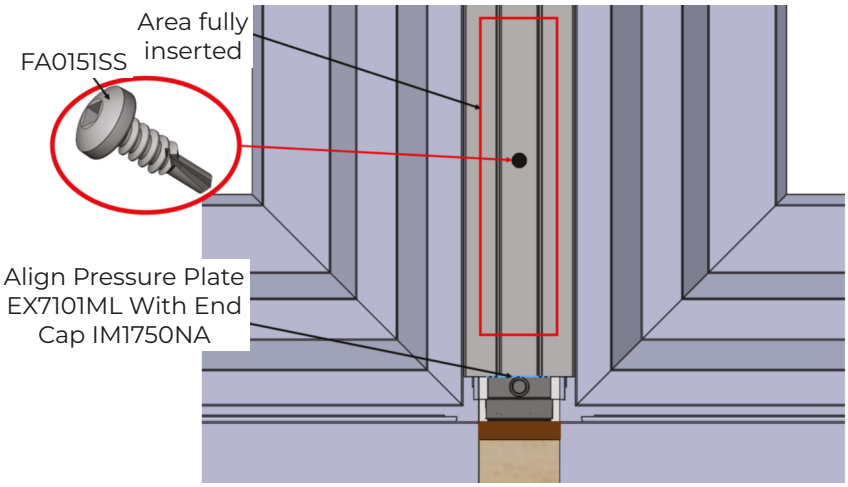
Remove the protective liner from the foam tape on the mull bar (EX7100ML). The liner is on the exterior facing surface. Insert the pressure plate (EX7101ML) in the accessory groove of both windows near the bottom of the mull bar.



Step 13

Align one end of the pressure plate (EX7101ML) with the edge of the end cap (IM1750NA) that touches the mull bar (EX7100ML). At the area around the first fastener hole, use a rubber mallet to tap in the pressure plate (EX7101ML) until the pressure plate legs are fully engaged in the accessory grooves of both windows. Installed a supplied fastener (FA0151SS) in the pre-drilled hole.

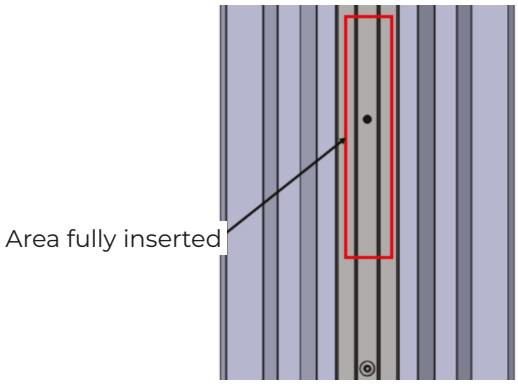
IMPORTANT: The pressure plate must not cover any portion of the end cap (IM1750NA). No debris should be under the head of the screw.



Step 14

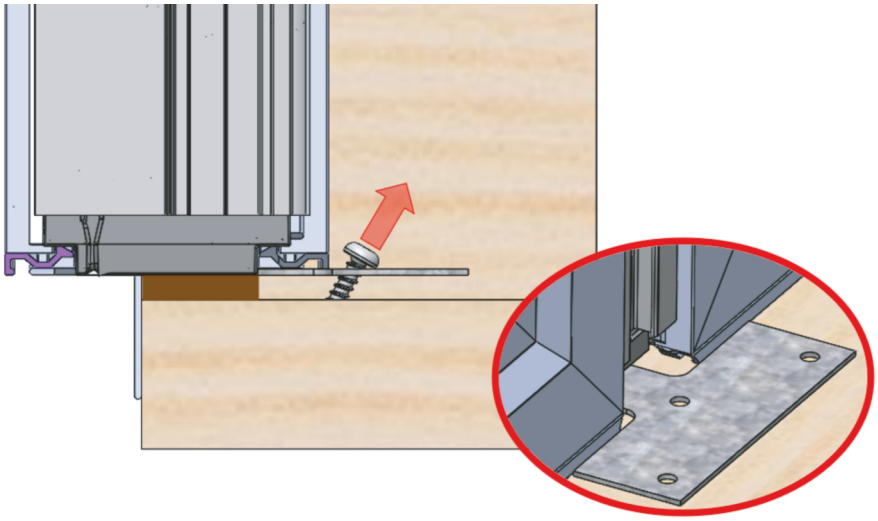
At the area around the next fastener hole, use the rubber mallet to tap in the pressure plate (EX7101ML) until the pressure plate legs are fully engaged in the accessory grooves. Install another fastener (FA0151SS) and continue this process until the pressure plate (EX7101ML) is fully secured with the supplied fasteners (FA0151SS) in all pre-drilled holes.

IMPORTANT: No debris should be under the head of the screws.



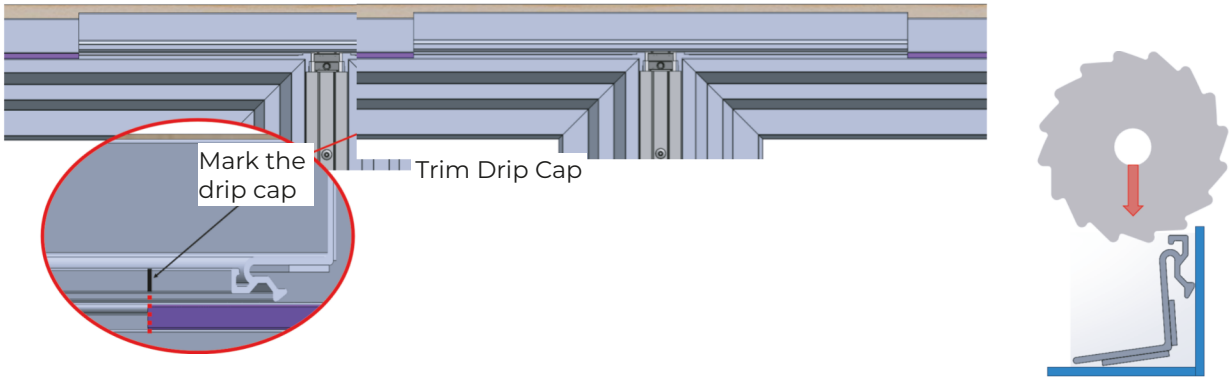
Step 15

Remove the temporary fastener (FA0821SS) inserted on both (head and sill) mull anchors (RF3000ST) in Step 9.



Step 16

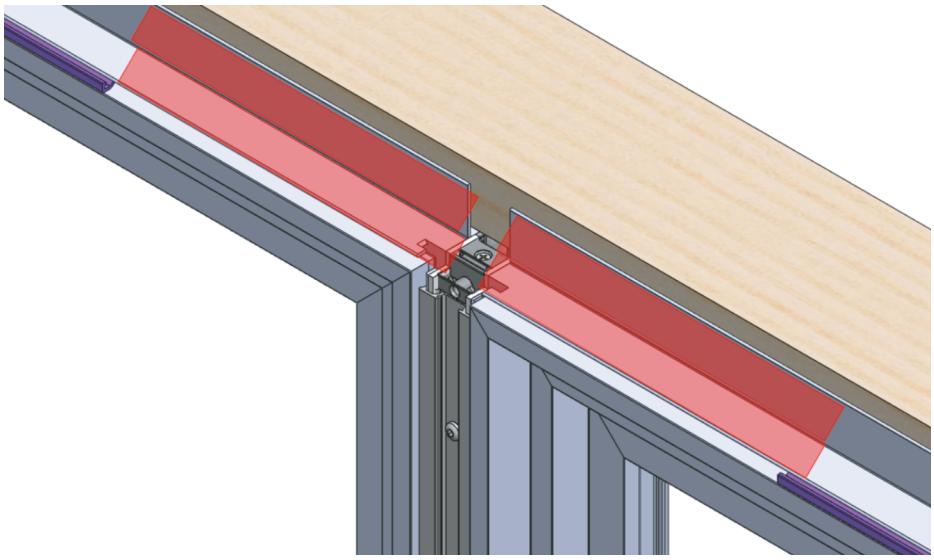
Align one end of the drip cap (VA4102XX/VA4103XX/VA4104XX) with the matching accessory of the frame and use a pencil to mark the drip cap on its face (as shown above) so the drip cap can fit in the accessory groove between the accessories. Trim the drip cap to length. Then clean the two foam tapes on the back of the drip cap of any dust or debris. Before proceeding with the next step, mark the holes where you will add fasteners to the drip cap to complete the installation (See Step 25).



TIP: If using a chop saw to trim the drip cap, orient the drip cap with the accessory shape pointing to the blade of the saw as shown below and slowly trim.

Step 17

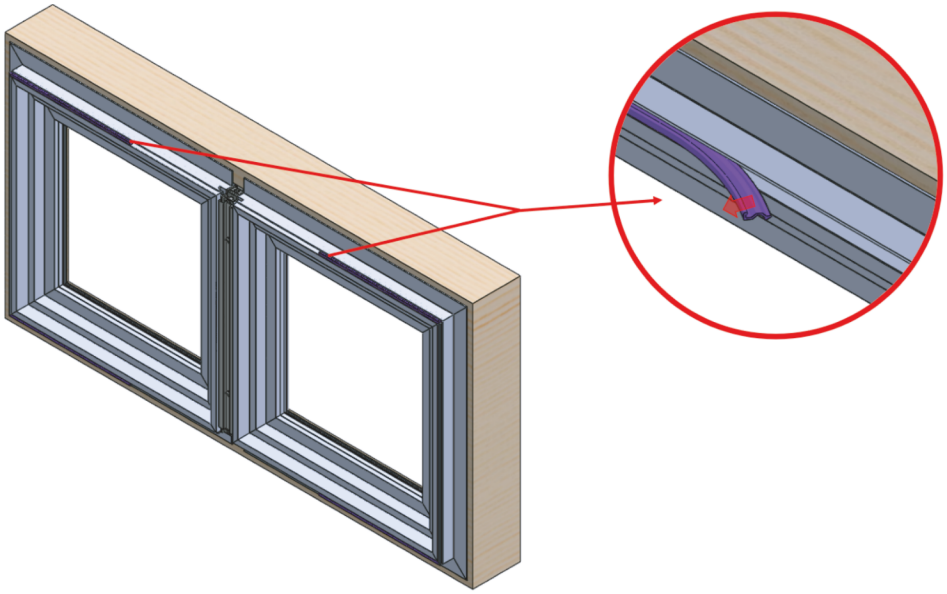
Clean the edge of the frame and the fin from any dust or debris (in red areas shown above).



Step 18

With the help of a putty knife, remove the accessory out of the accessory groove to have access behind the accessory.

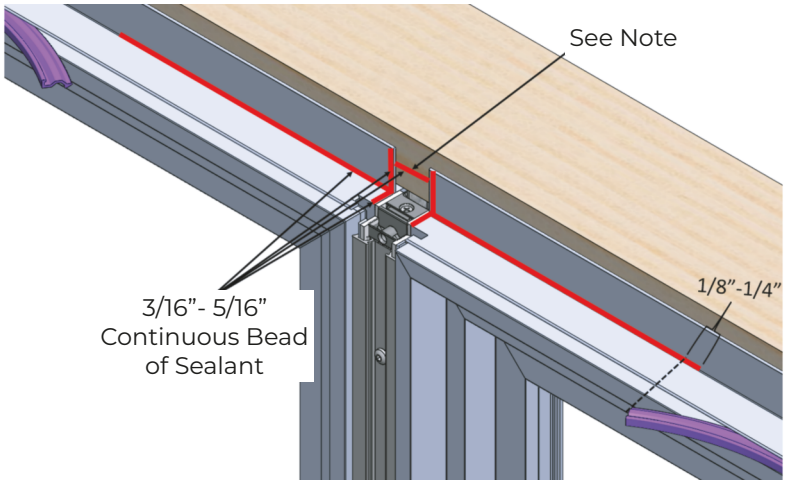
Note: 4” to 6” of the accessory should be removed from the accessory groove so you can have access to the groove of the frame.



Step 19

Apply a 3/16”-5/16” continuous bead of high-quality compatible exterior grade sealant to the windows (as shown in red above). Sealant should continue 1/8” to 1/4" past the accessory shown purple in the above picture.

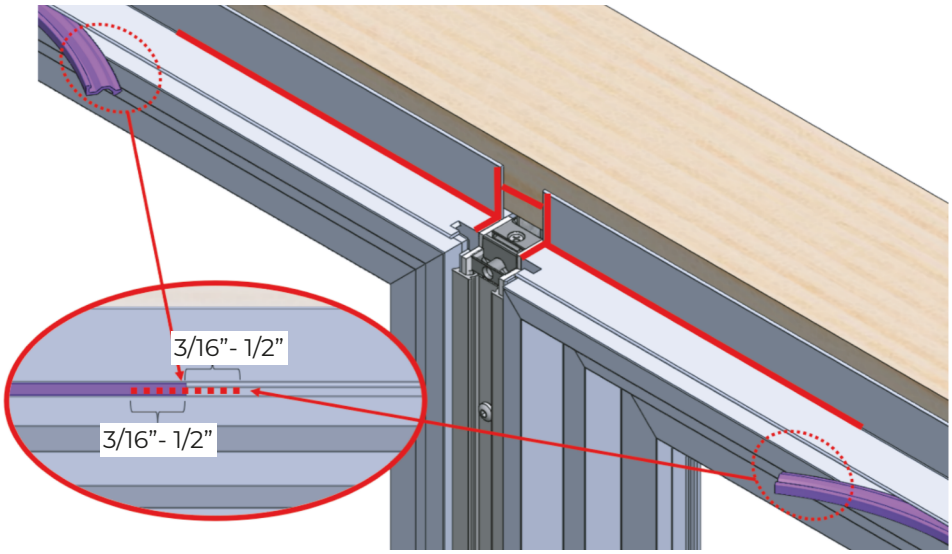
Note: The sealant must run behind the drip cap at the mull joint and must continuously contact the back of the drip cap once installed.



Step 20

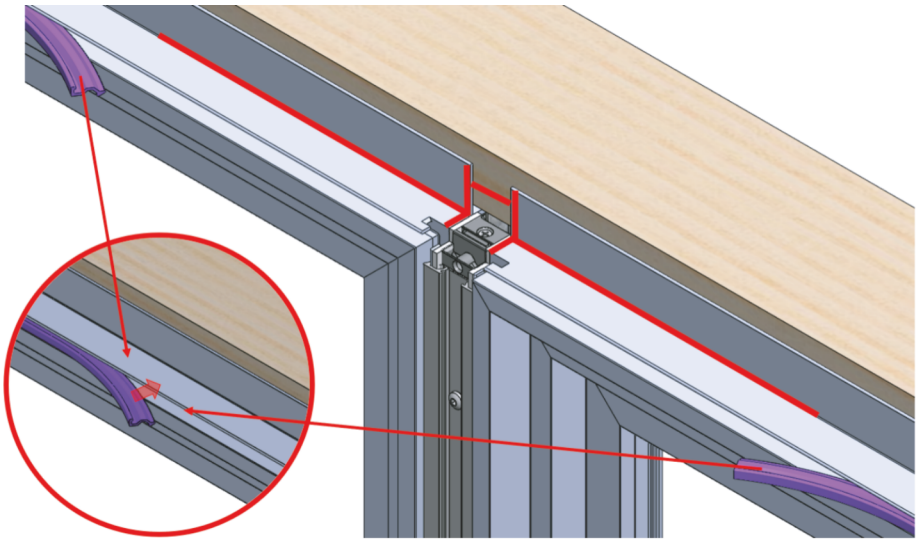
In the accessory groove, apply a bead of 2-part vinyl epoxy 3/16” to 1/2" in length at each end of the accessory groove where the drip cap will sit and behind the accessories.

IMPORTANT: The cure time of the 2 part epoxy is approximately 5 minutes. Steps 21 and 22 must be completed before the epoxy cures.



Step 21

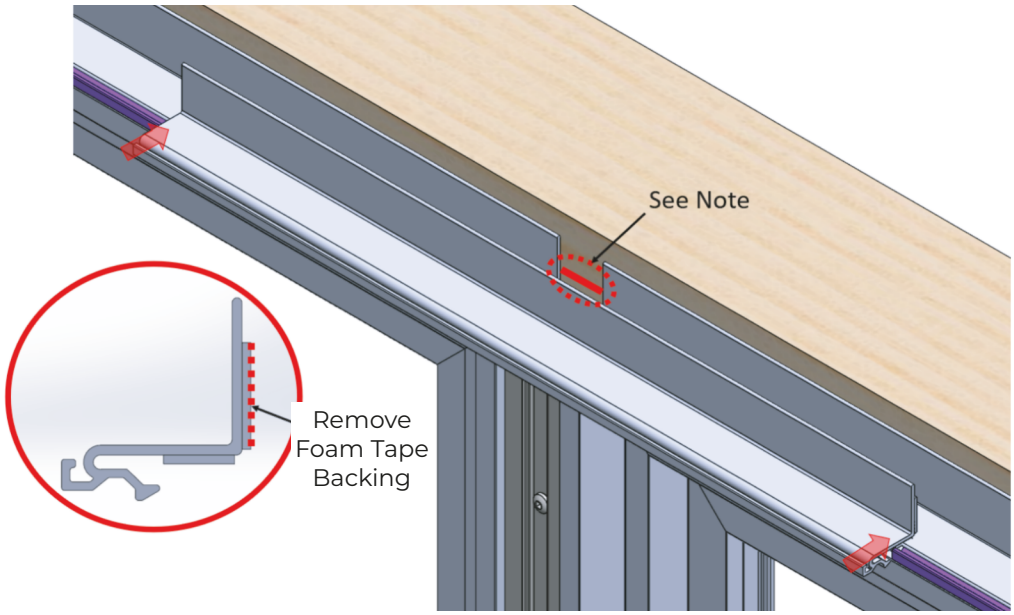
Push the accessory back into the accessory groove.



Step 22

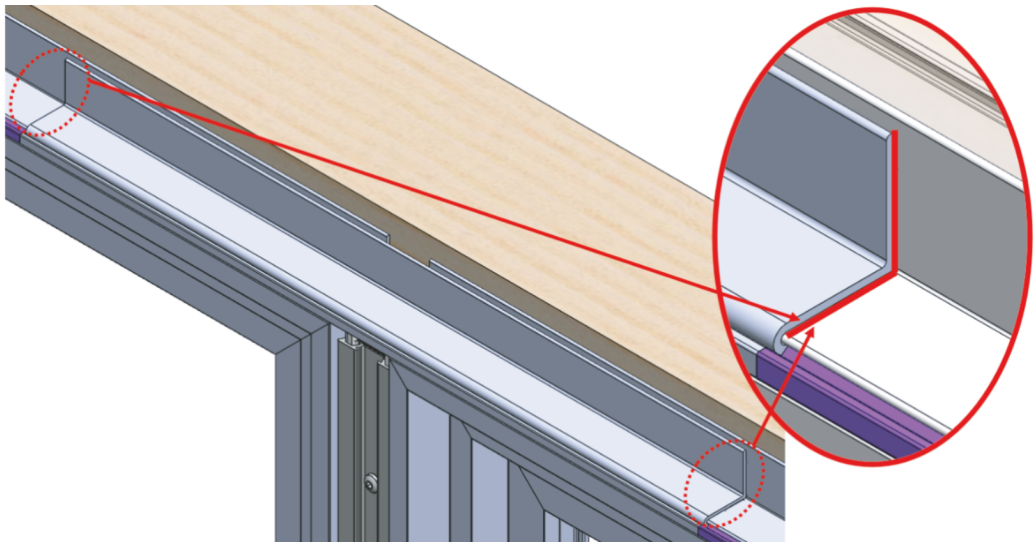
Remove the backing from the foam tape from the drip cap as shown above. Install the drip cap into the accessory groove.

Note: At the mull joint, sealant must bridge the gap between the two fins and must continuously contact the back of the drip cap.



Step 23

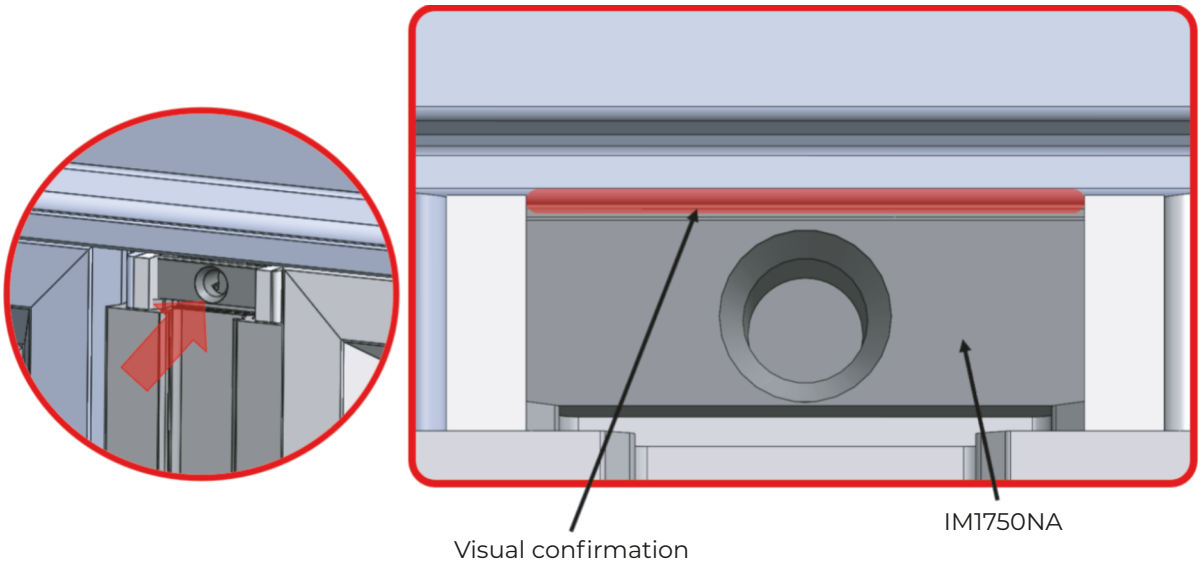
Seal both ends of the drip cap with high-quality compatible exterior grade sealant.



Step 24

Inject high-quality compatible exterior grade sealant through the injection port in the end cap (IM1750-NA) (shown in the above left illustration) until sealant fully fills the end cap. The end cap (IM1750NA) has enough sealant when sealant can be seen on the full width of the end cap (IM1750NA).

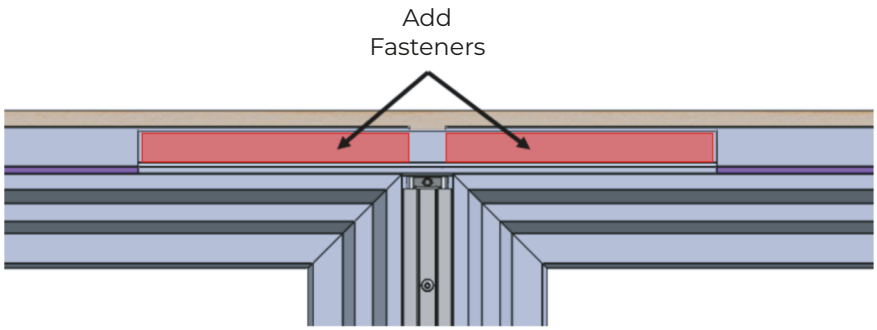
Note: The tip of the nozzle should be cut at a maximum of 1/4" diameter.



Step 25

Add fasteners through drip cap as necessary (lining them up with the fastener holes in the fin) to complete the window installation in the rough opening. At this point the window should be fully seated on the rough opening.

Note: Do not add a fastener at the area where there is no fin behind the drip cap

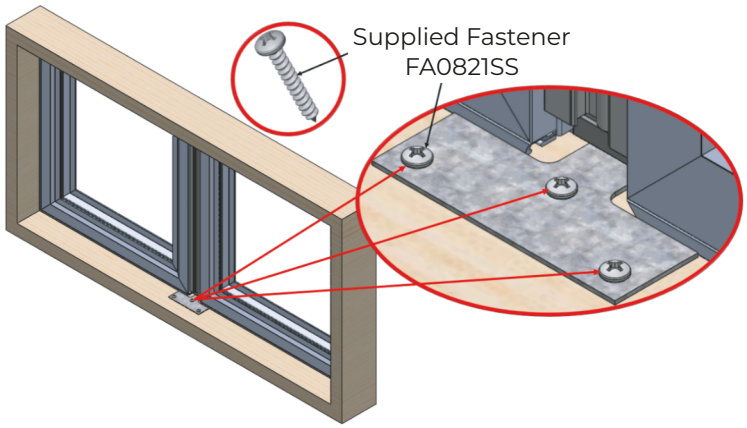


Repeat Step 16 through Step 25 for the other end of the mull bar (EX7100ML)

Step 26

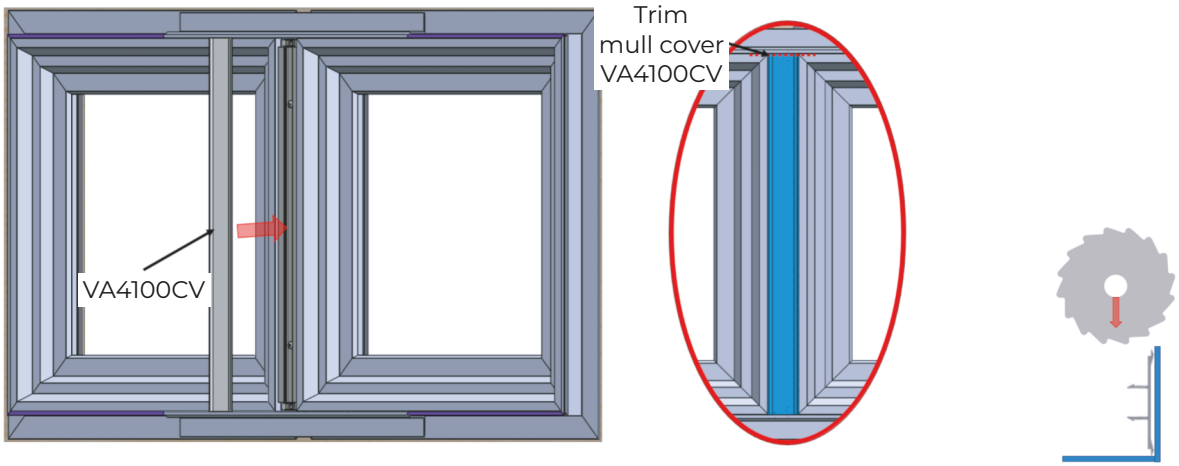
Secure both head and sill mull anchors (RF3000ST) using three (3) fasteners (FA0821SS) for each mull anchor.

IMPORTANT: Three (3) fasteners (FA0821SS) must be used per mull anchor (RF3000ST). Each mull bar must have two (2) mull anchors (RF3000ST).



Step 27

For the exterior mull cover (VA4100CV), take one of the two mull covers (VA4100CV) and align it in between the drip caps to see if the mull cover is too long. If needed, use a pencil to mark the mull cover on its face and trim the excess. Wait to install the mull cover (VA4100CV) and go to step 28.

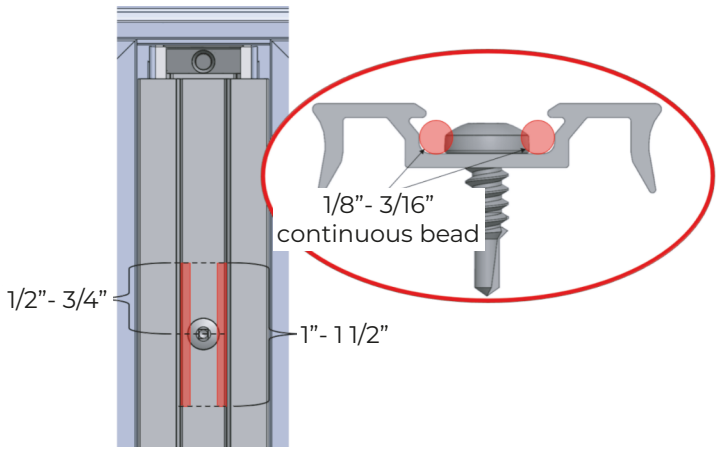


TIP: If using a chop saw to trim the drip cap, orient the drip cap with the accessory shape pointing to the blade of the saw as shown below and slowly trim.

Step 28

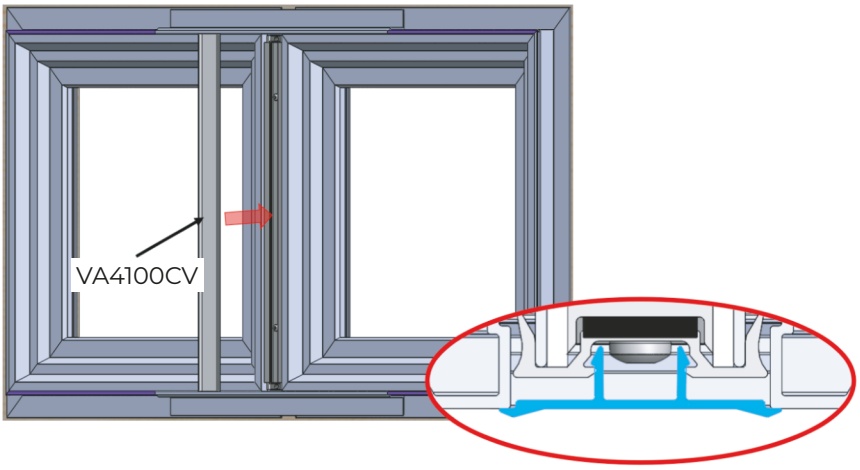
Apply a continuous bead of 2-part vinyl epoxy on both sides of the first fastener of the pressure plate (EX7101ML) (as shown above). The diameter of the bead should be 1/8” to 3/16” and should be 1" to 1 1/2" long. Repeat this step for the other ends of the pressure plate (EX7101ML).

IMPORTANT: The cure time of the 2 part epoxy is approximately 5 minutes. Step 29 must be completed before the epoxy cures.



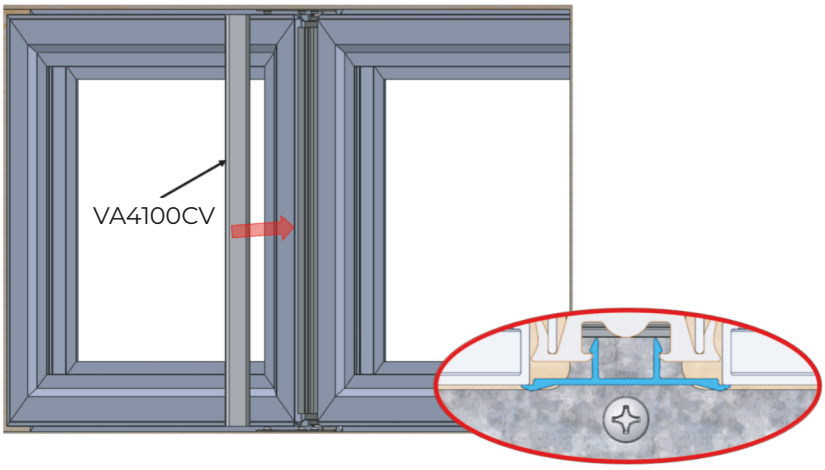
Step 29

Install the exterior (trimmed) mull cover (VA4100CV) between the drip caps to cover the mull on the exterior side.



Step 30

Install the interior mull cover VA4100CV (now longest of the two mull covers) to cover the mull on the interior. The mull cover (VA4100CV) may need to be trimmed if too long to fit.



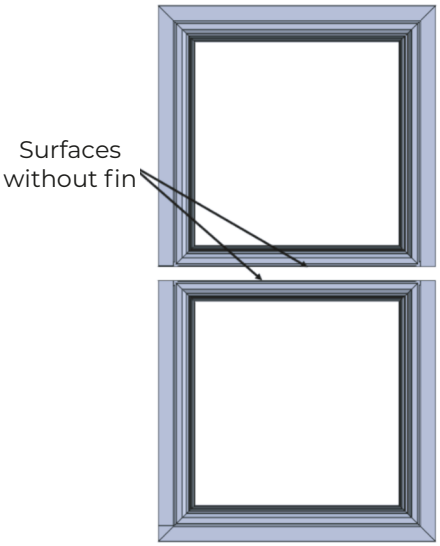
Repeat all steps (Step 1 through 30) for every additional mull bar

HORIZONTAL MULL

Step 31

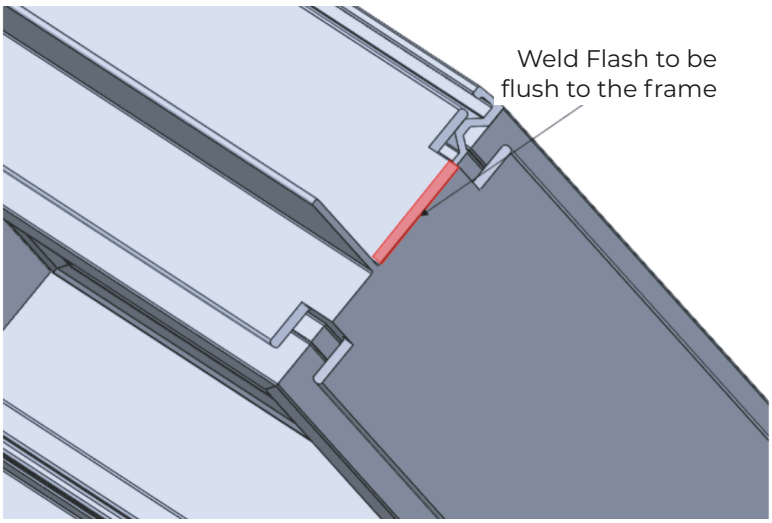
Remove all packaging components from the windows. Identify the surface(s) of your windows where there is no fin.

Note: These surfaces are where the mull bar(s) (EX7100ML) will interface with the windows. When assembling a triple mulled unit, the center unit will have no fin on both head and sill.



Step 32

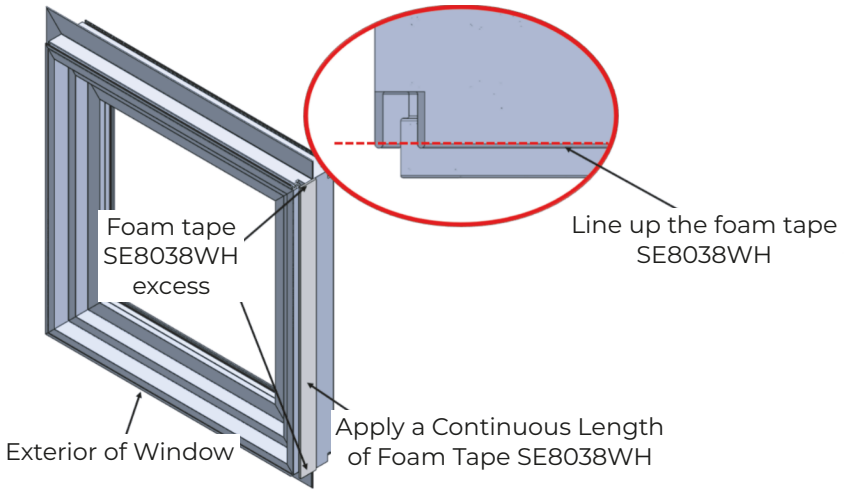
Verify that the welds of both left jamb and right jamb interior side corners are cleaned flush with the frame. If not, clean the corners so the weld is flush to the frame.



Step 33

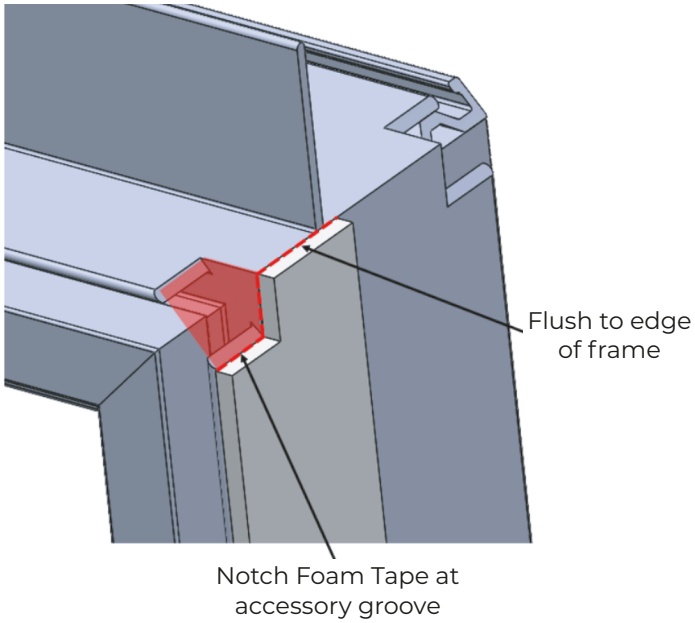
Apply a continuous length of foam tape (SE8038WH) on the exterior facing side of the window head/sill. The foam tape should pass the edge of the frame from 1/4” to 1/2” on both sides of the window. The foam tape (SE8038WH) should align with the accessory groove leg.

IMPORTANT: The foam tape must not pass the accessory groove leg but can be recessed 1/8”.



Step 34

Trim the left jamb and right jamb extremities of the foam tape (SE8038WH) so the foam tape is flush to 1/16” longer to the edge of the frame and creates a notch at the accessory groove.

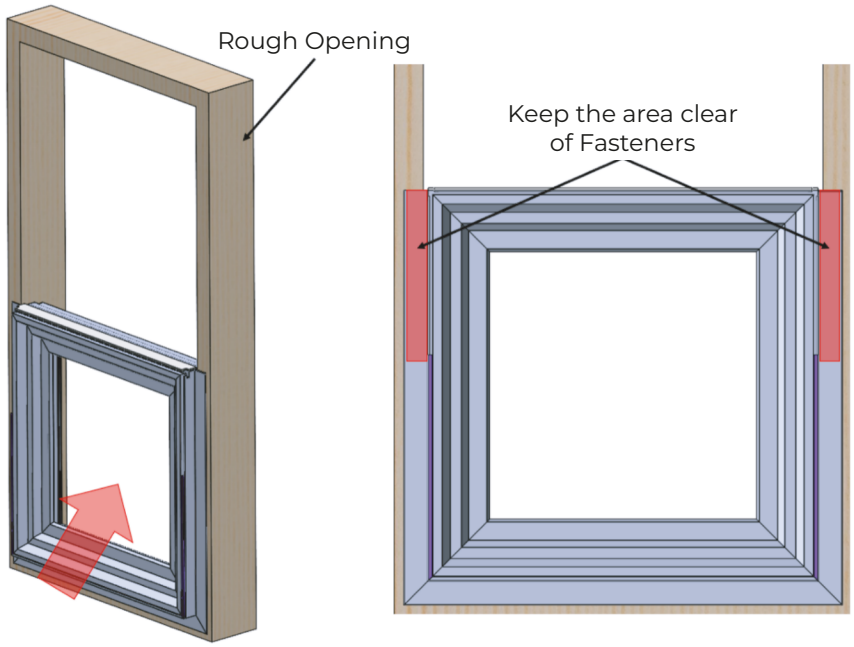


Repeat Step 31 through Step 34 for each surface without fin

WINDOW INSTALLATION SEQUENCE:
START FROM BOTTOM TO TOP

Step 35

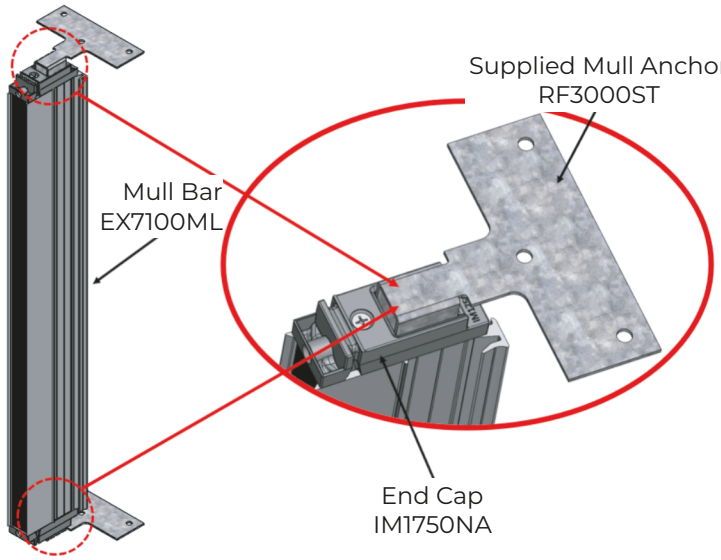
Ensure that the opening and the windows have been prepared per the **Milgard's Installation Recommendations for Mounting Fin Windows.** Then insert the first window unit in the rough opening. Verify the window is plumb, level and square. Next, secure the first window unit per **Milgard's Installation Recommendations for Mounting Fin Windows.** Keep the red areas indicated in the above illustration clear of fasteners until the assembly of the mull is complete.



Step 36

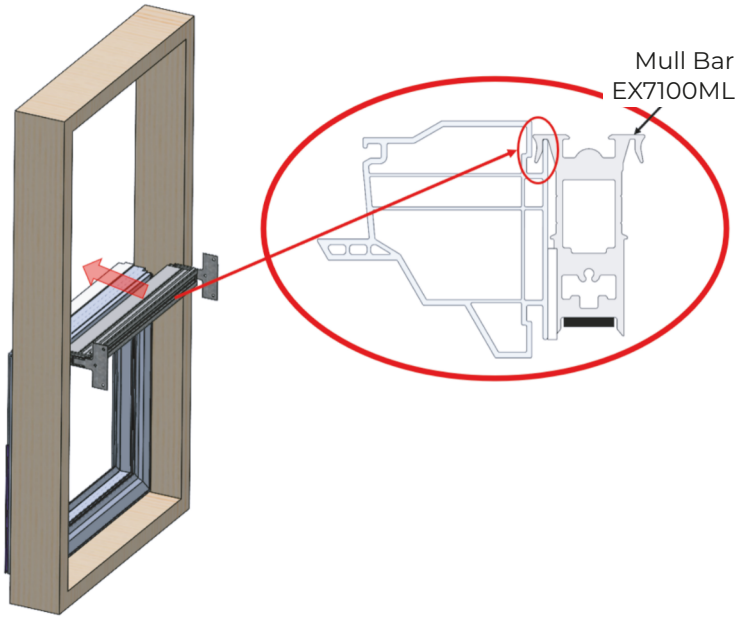
Insert the mull anchors (RF3000ST) in the end cap (IM1750NA) as shown above. The mull anchor (RF3000ST) must be installed at both ends of the mull bar (EX7100ML) into the end cap (IM1750NA).

IMPORTANT: Each mull bar (EX7100ML) must use two (2) mull anchors (RF3000ST), one at each end.



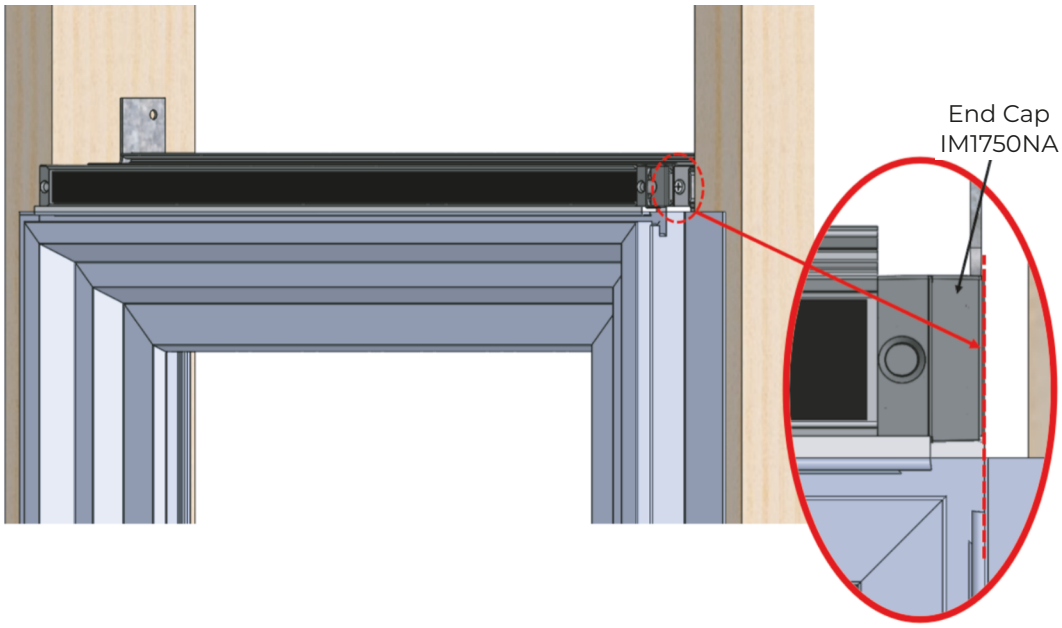
Step 37

Insert the mull bar (EX7100ML) with the installed mull anchors (RF3000ST) in the rough opening. The leg of the mull bar (EX7100ML) must be fully inserted in the window accessory groove on the interior facing side, so the mull anchors (RF3000ST) extend to the interior.



Step 38

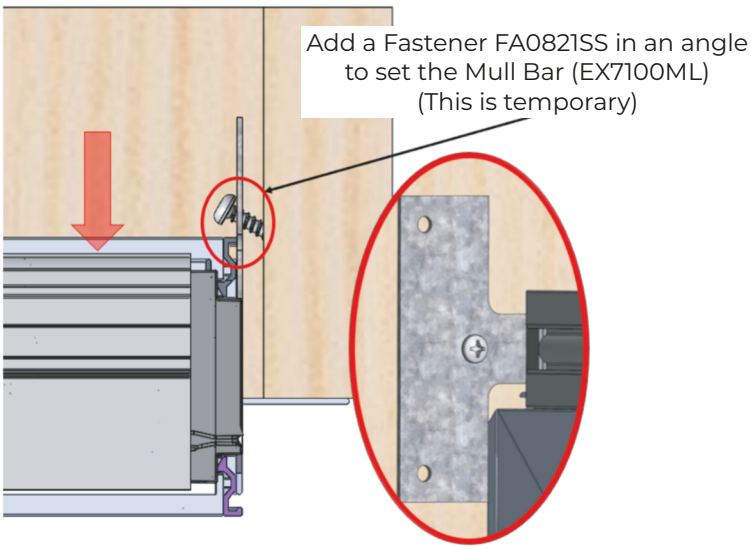
Align the edge of the end cap (IM1750NA) with the edge of the frame.



Step 39

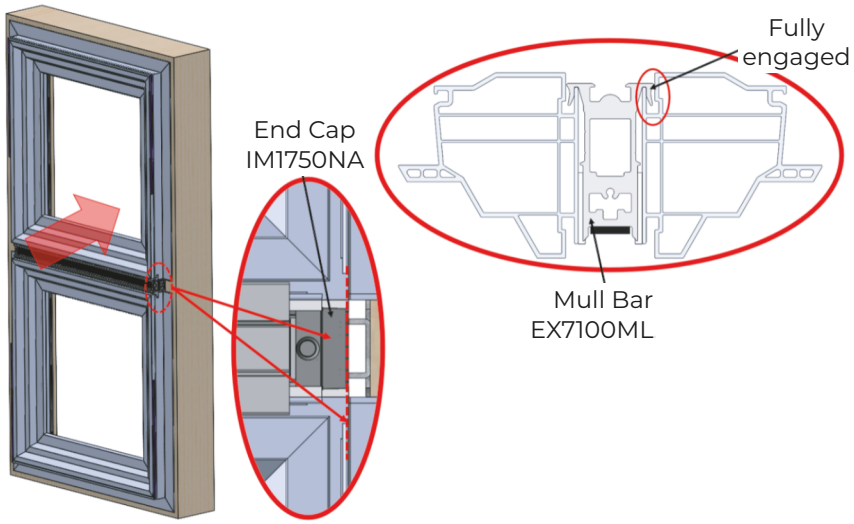
Push the mull bar (EX7100ML) toward the exterior, while installing 1 fastener (FA0821SS) angled toward the exterior in each (left and right jambs) mull anchor (RF3000ST) to set the mull bar (EX7100ML) for the mulling process. This will be a temporary fastener to keep the mull bar from moving when mulling the windows.

Note: Step 39 will help with the mulling process by pushing the window forward (towards the exterior).



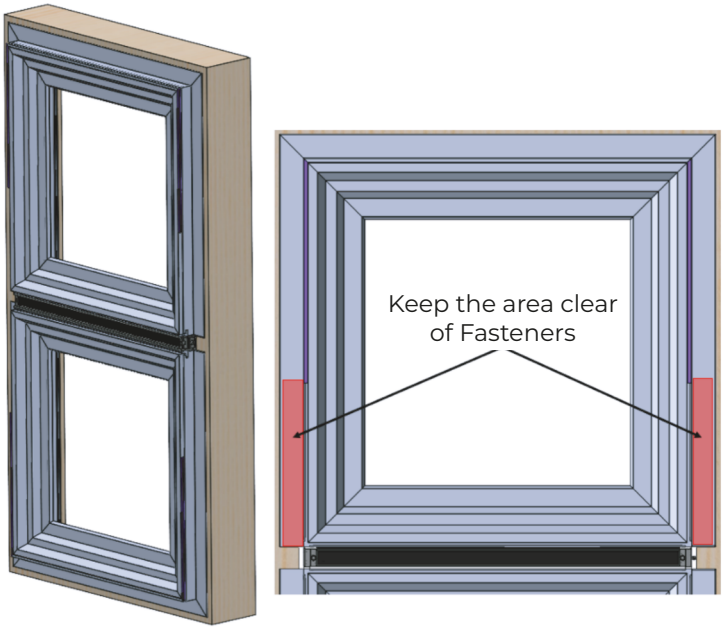
Step 40

Insert the second window unit in the rough opening. The other leg of the mull bar (EX7100ML) must be inserted in the accessory groove of the second window on the interior side. The edge of the end cap (IM1750NA) should be aligned with the edge of the window frames. Both windows need to be fully engaged with the mull bar (EX7100ML).



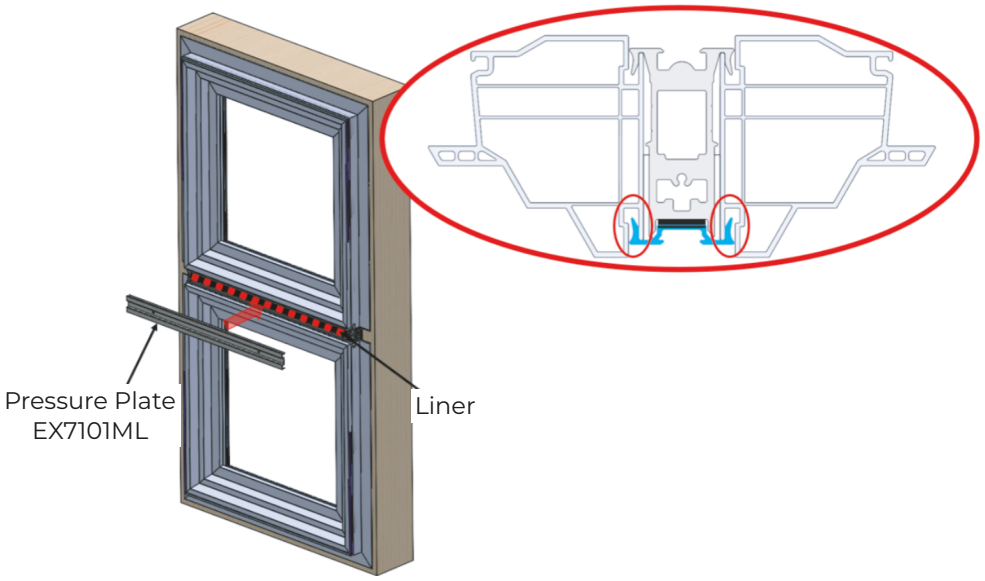
Step 41

Verify that the second window is level. If not, shim accordingly. Secure the second window unit per Milgard's Standard Installation Recommendations for Mounting Fin Windows. Keep the red area shown in the above illustration clear of fasteners until the assembly of the mull is complete.



Step 42

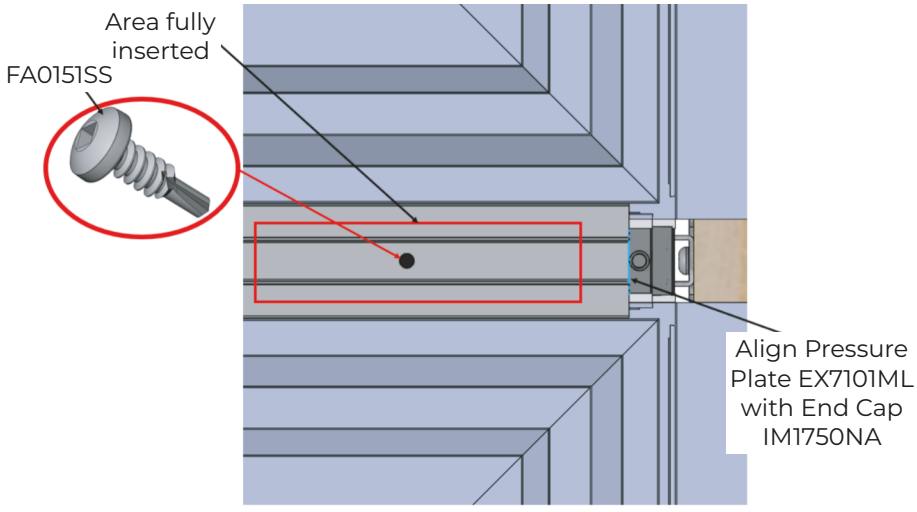
Remove the protective liner from the foam tape on the mull bar (EX7100ML). The liner is on the exterior facing surface. Insert the pressure plate (EX7101ML) in the accessory groove of both windows near the bottom of the mull bar.



Step 43

Align one end of the pressure plate (EX7101ML) with the edge of the end cap (IM1750NA) that touches the mull bar (EX7100ML). At the area around the first fastener hole, use a rubber mallet to tap in the pressure plate (EX7101ML) until the pressure plate legs are fully engaged in the accessory grooves of both windows. Install a supplied fastener (FA0151SS) in the pre-drilled hole.

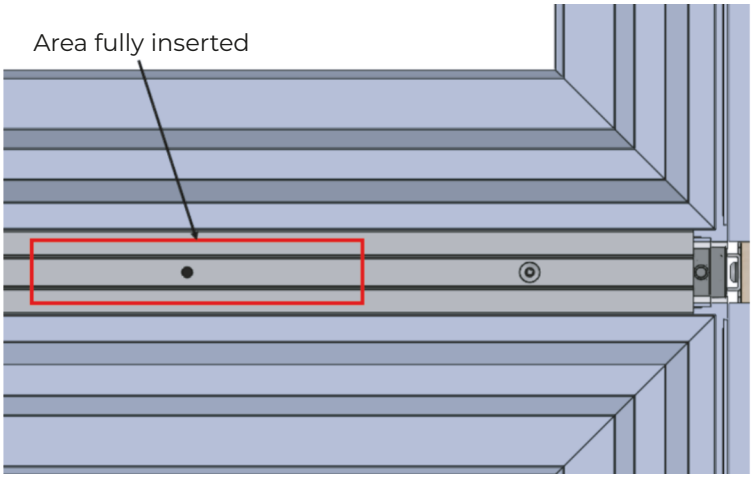
IMPORTANT: The pressure plate must not cover any portion of the end cap (IM1750NA). No debris should be under the head of the screw.



Step 44

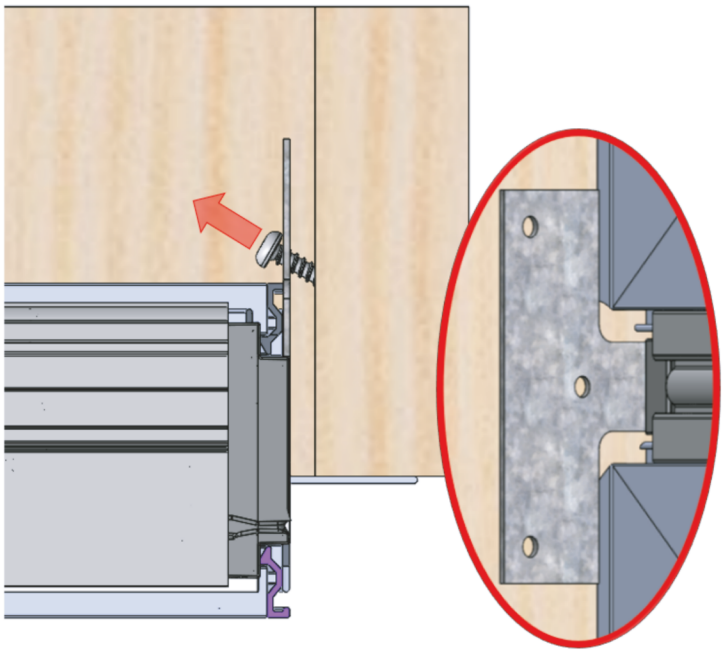
At the area around the next fastener hole, use the rubber mallet to tap in the pressure plate (EX7101ML) until the pressure plate legs are fully engaged in the accessory grooves. Install another fastener (FA0151SS) and continue this process until the pressure plate (EX7101ML) is fully secured with the supplied fasteners (FA0151SS) in all pre-drilled holes.

IMPORTANT: No debris should be under the head of the screws.



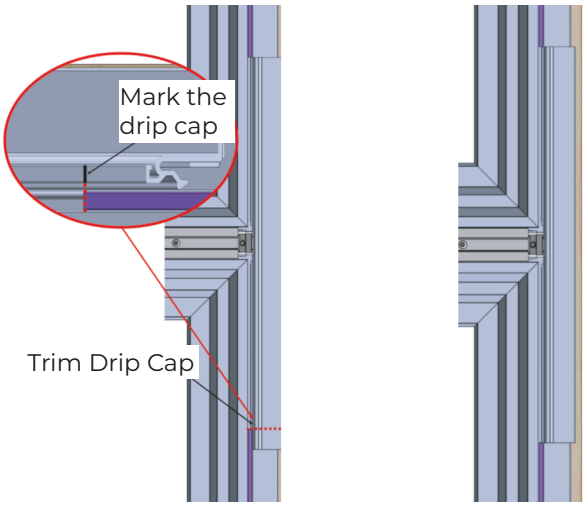
Step 45

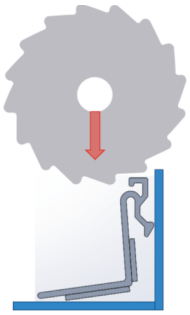
Remove the temporary fastener (FA0821SS) inserted on both (left and right jambs) mull anchors (RF3000ST) in Step 39.



Step 46

Align one end of the drip cap (VA4102XX/VA4103XX/VA4104XX) with the matching accessory of the frame and use a pencil to mark the drip cap on its face (as shown above) so the drip cap can fit in the accessory groove between the accessories. Trim the drip cap to length. Then clean the two foam tapes on the back of the drip cap of any dust or debris. Before proceeding with the next step, mark the holes where you will add fasteners to the drip cap to complete the installation (See Step 55).

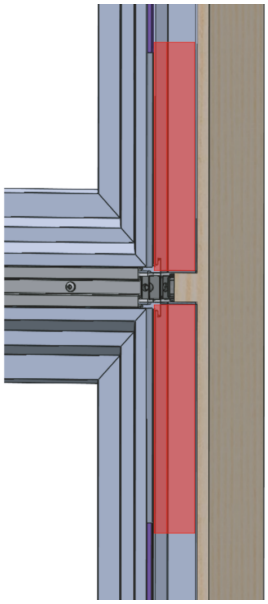




TIP: If using a chop saw to trim the drip cap, orient the drip cap with the accessory shape pointing to the blade of the saw as shown below and slowly trim.

Step 47

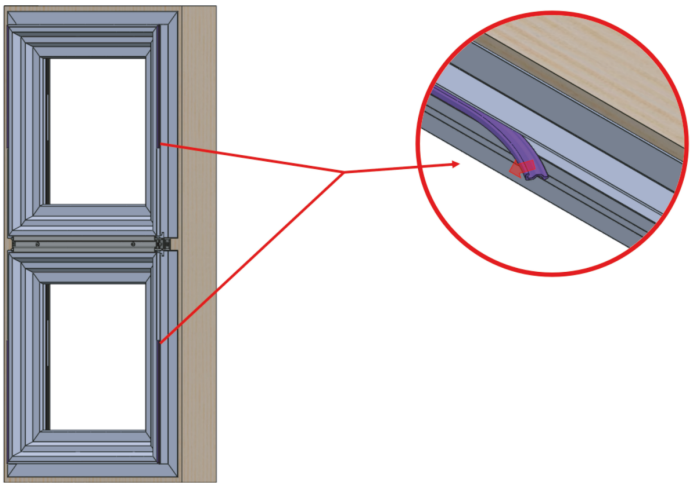
Clean the edge of the frame and the fin from any dust or debris (in red areas shown above).



Step 48

With the help of a putty knife, remove the accessory out of the accessory groove to have access behind the accessory.

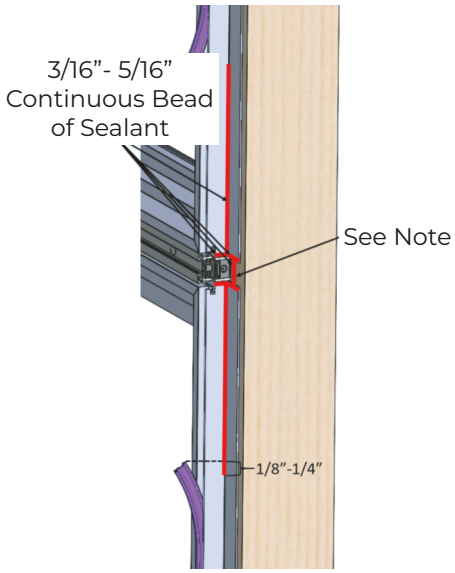
Note: 4” to 6” of the accessory should be removed from the accessory groove so you can have access to the groove of the frame.



Step 49

Apply a 3/16”-5/16” continuous bead of high-quality compatible exterior grade sealant to the windows (as shown in red above). Sealant should continue 1/8” to 1/4" past the accessory shown purple in the above picture.

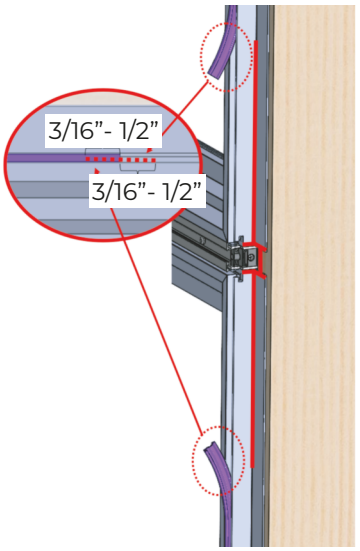
Note: The sealant must run behind the drip cap at the mull joint and must continuously contact the back of the drip cap once installed.



Step 50

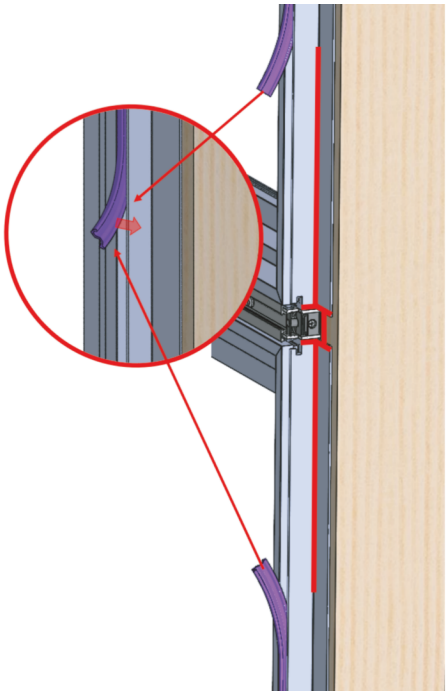
In the accessory groove, apply a bead of 2-part vinyl epoxy 3/16” to 1/2" in length at each end of the accessory groove where the drip cap will sit and behind the accessories.

IMPORTANT: The cure time of the 2 part epoxy is approximately 5 minutes. Step 51 and 52 must be completed before the epoxy cures.



Step 51

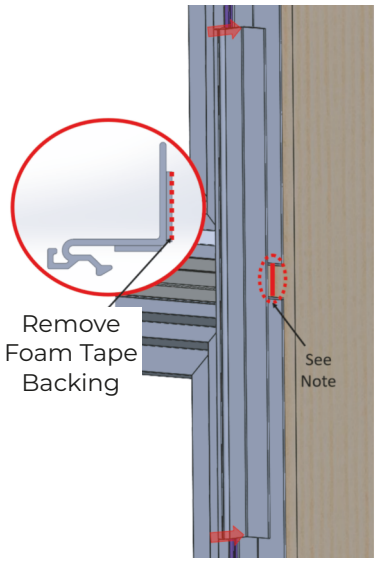
Push the accessory back into the accessory groove.



Step 52

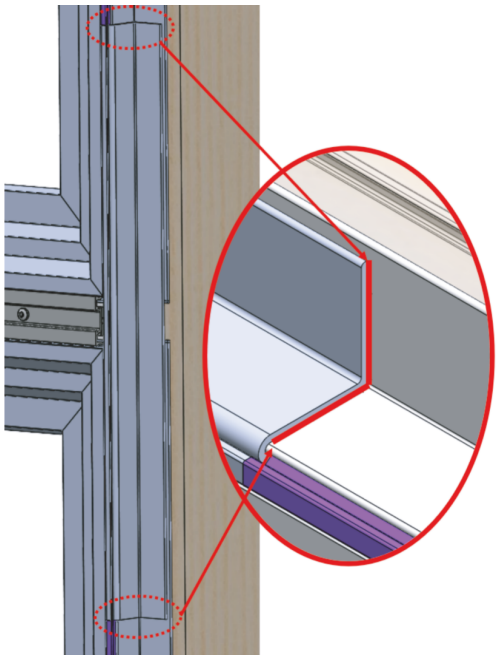
Remove the backing from the foam tape from the drip cap as shown above. Install the drip cap into the accessory groove.

Note: At the mull joint, sealant must bridge the gap between the two fins and must continuously contact the back of the drip cap.



Step 53

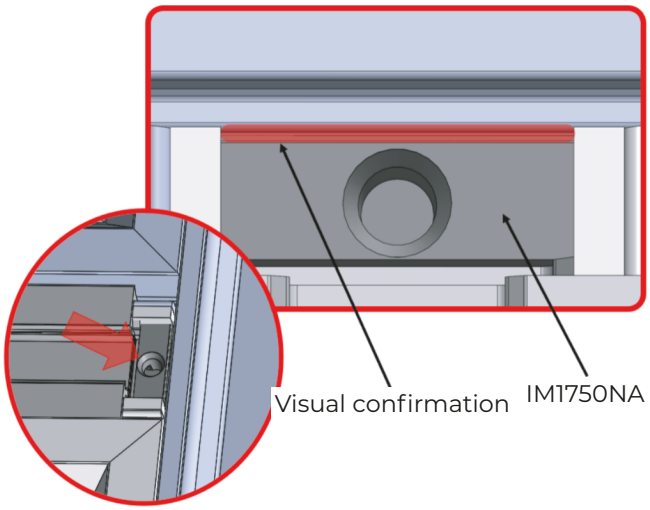
Seal both ends of the drip cap with high-quality compatible exterior grade sealant.



Step 54

Inject high-quality compatible exterior grade sealant through the injection port in the end cap (IM1750-NA) (shown in the above left illustration) until sealant fully fills the end cap. The end cap (IM1750NA) has enough sealant when sealant can be seen on the full width of the end cap (IM1750NA).

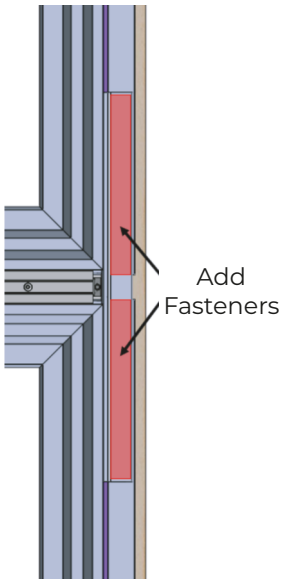
Note: The tip of the nozzle should be cut at a maximum of 1/4" diameter.



Step 55

Add fasteners through drip cap as necessary (lining them up with the fastener holes in the fin) to complete the window installation in the rough opening. At this point the window should be fully seated on the rough opening.

Note: Do not add a fastener at the area where there is no fin behind the drip cap

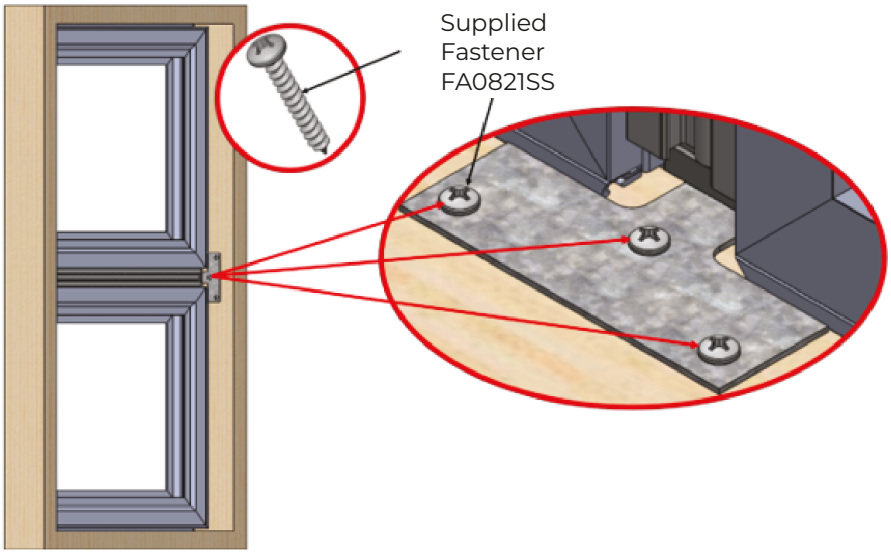


Repeat Step 46 through step 55 for the other end of the mull bar (EX7100ML)

Step 56

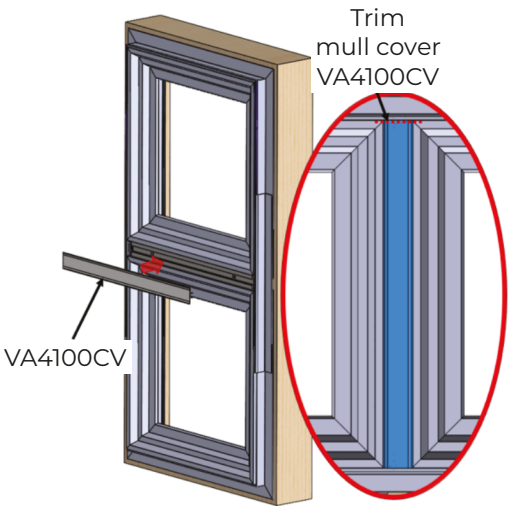
Secure both left jamb and right jamb mull anchors (RF3000ST) using three (3) fasteners (FA0821SS) for each mull anchor.

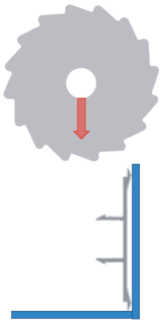
IMPORTANT: Three (3) fasteners (FA0821SS) must be used per mull anchor (RF3000ST). Each mull bar must have two (2) mull anchors (RF3000ST).



Step 57

For the exterior mull cover (VA4100CV), take one of the two mull covers (VA4100CV) and align it in between the drip caps to see if the mull cover is too long. If needed, use a pencil to mark the mull cover on its face and trim the excess. Wait to install the mull cover (VA4100CV) and go to step 58.



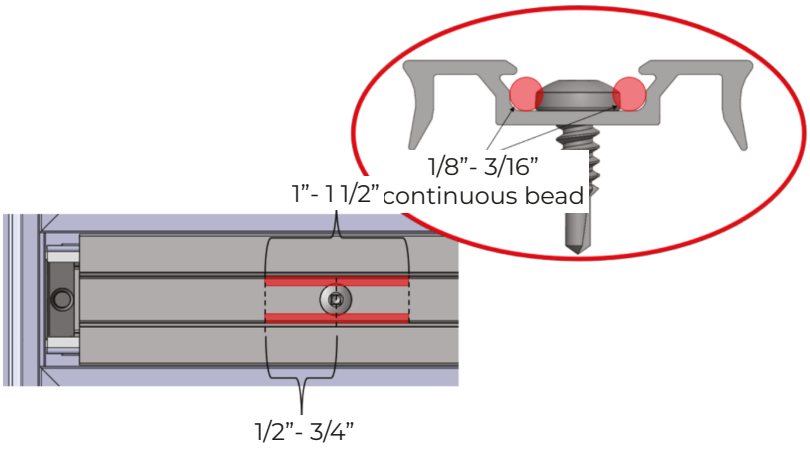


TIP: If using a chop saw to trim the mull cover, orient the saw blade and the mull cover as shown below and slowly trim.

Step 58

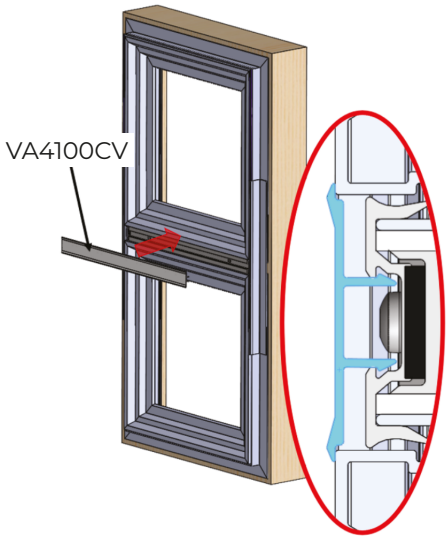
Apply a continuous bead of 2-part vinyl epoxy above and below the first fastener of the pressure plate (EX7101ML) (as shown above). The diameter of the bead should be 1/8” to 3/16” and should be 1" to 1 1/2" long. Repeat this step for the other fasteners of the pressure plate (EX7101ML).

IMPORTANT: The cure time of the 2 part epoxy is approximately 5 minutes. Step 59 must be completed before the epoxy cures.



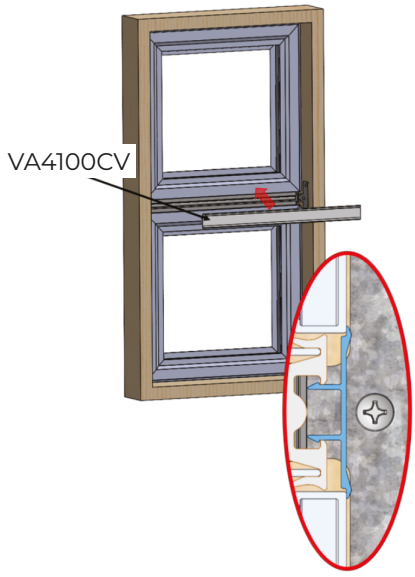
Step 59

Install the exterior (trimmed) mull cover (VA4100CV) between the drip caps to cover the mull on the exterior side.



Step 60

Install the interior mull cover VA4100CV (now longest of the two mull covers) to cover the mull on the interior. The mull cover (VA4100CV) may need to be trimmed if too long to fit.



Repeat all steps (Step 31 through 60) for every additional mull bar

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