Casement Series Window Installation

Understanding the design and conditions of the building envelope under consideration is important for proper installation of fenestration products. Building materials, methods, and designs, vary between projects. It is the responsibility of the installer to determine the proper installation method. Please consult your architect or a construction professional if necessary. No less than two (2) people are required for installation.

I. Receiving and Inspection

- Inspect each window thoroughly upon delivery. Ensure each window is the proper type, operability, and dimensions. Check for any shipping damage and report it immediately to your EnerLux representative.
- If installation will not take place immediately after the windows are delivered, proper storage techniques must be followed. Below are the recommended storage methods and guidelines.
    - Transport windows in an upright position with manufacturer's packaging in place. Store windows in an upright position (as close to 90^{o} as possible), on the sill, on a flat & level surface, and away from any moisture.
    - Do not lay, transport, or carry the window while in a flat (table-top) position
    - Handle units with shipping handles or glass suction cups as much as possible
    - If windows must be stacked so some lean against one another, stack largest unit at back in a complete upright position and proceed forward with gradually smaller units. Do not lean units that are taller than 40".

II. Select Installation Method

Selection of the proper installation method is the responsibility of the installer, with assistance from the architect or construction professional if necessary.

Through-Frame Anchoring (Replacement)

Through-frame anchoring is used to secure the window unit to the rough opening by inserting a fastener through the frame of the window. This method is typically used when replacing a previously installed window.

With Integral Nailing Fin (New Construction)

The most common installation method for new construction is the AAMA A1 Method. This method assumes the weather resistant barrier (WRB) is applied prior to installation and includes an integral nailing fin on the window. Other methods are referenced in the following text, but the A1 Method is the primary focus of this document. Refer to Table 1 to determine the proper installation method for windows with nailing fins.

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Table 1: AMMA Installation method selection		
	A	**B**
	Jamb flashing will be applied AFTER the window or OVER the face of the nailing fin	Jamb Flashing will be applied BEFORE the window or BEHIND the face of the nailing fin
Weather resistant barrier is to be applied LAST or AFTER the window installation	Use AAMA "A" Method	Use AAMA "B" Method
Weather resistant barrier is to be applied FIRST or BEFORE the window installation	Use AAMA "A1" Method	Use AAMA "B1" Method

III. Prepare Rough Opening (RO)

1. Determine if the RO is level, square, and plumb. Measure the distance between opposite corners. If the measurements are the same, the opening is square. Use a 12" (or longer) level to determine if the sill and header are level, and the jambs are plumb.
2. Check that the window will fit in the RO. Measure both width and height at three locations along the sides and bottom/top of the window. Allow for a minimum of ¼" on all sides and a maximum of ½" on all sides of the window.
3. Ensure the opening is clean and free of debris.

With weather resistant barrier (WRB) in place: AAMA A1 Method

1. Score the WRB in a modified "I" shape, or upside-down "Y" within the RO (Fig 1)
2. Fold the WRB to the interior of the RO and fasten with tape (Fig 2)
3. Cut WRB on exterior at header in a 45° angle moving outwards and upwards to a location 9" above and 9" to the outside of the RO. Lift the newly created flap and secure with tape (Fig 3)

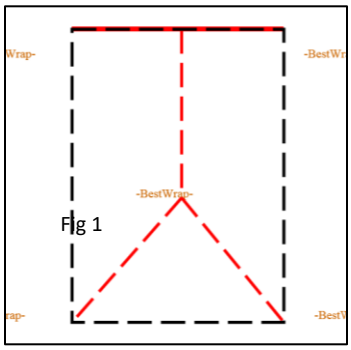

Fig 1

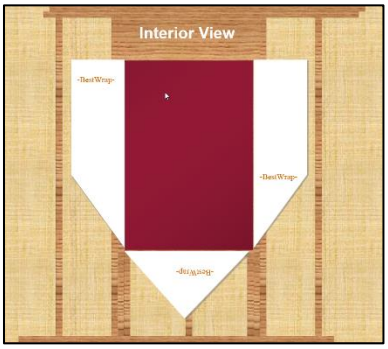

Fig 2

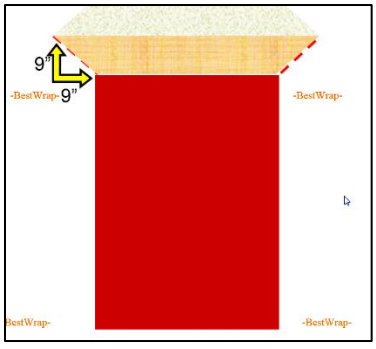

Fig 3

Source: AAMA Installation Masters Training Material

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IV. Apply Sill Flashing

Refer to ASTME E 2112-01 and AAMA Installation Masters guidelines for complete literature and training on properly applying flashing. This will ensure an integral seal between the window and the RO in addition to properly directing water to the exterior of the structure. Reference Table 2 for proper flashing lengths.

Table 2

Flashing Lengths and Cut Formulas	
Sill Flashing	= RO^W + (2 x Flashing Width)
Jamb Flashing	= RO^H + (2 x Flashing Width) – 1”
Head Flashing	= RO^W + (2 x Flashing Width) + 2”
Legend	
RO = Rough Opening **RO^H** = Rough Opening Vertical Height **RO^W** = Rough Opening Horizontal Width	

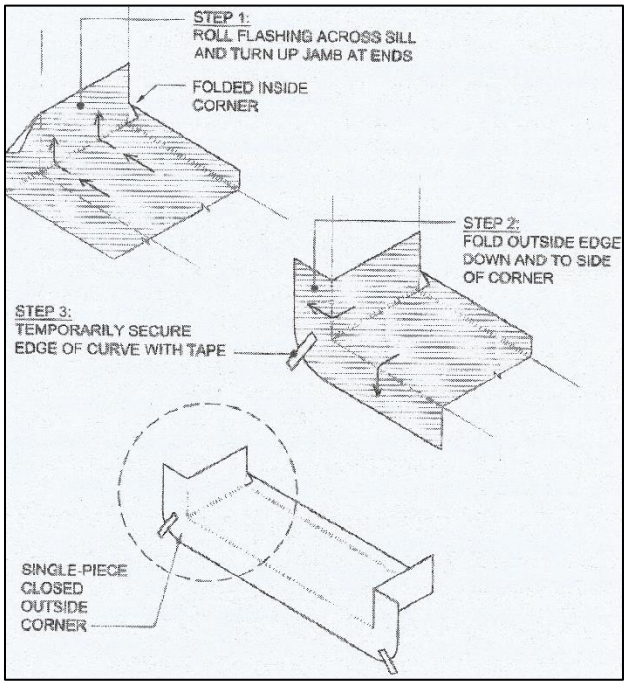
Source: AAMA Installation Masters Training Material

Rigid Sill Pan

EnerLux recommends and encourages the use of a rigid sill pan for window installation when possible. Rigid sill pans decrease the time required to install a window and increase the integrity of the building enclosure. When a rigid sill pan is available, follow the manufacturer’s instructions for use.

Flexible Membrane Sill Pan

1. Apply the flashing material on the upper surface of the RO and wrap it upwards along the jambs of the RO
2. The flashing material should extend up the jambs 6”. Allow for the creation of a rear upturned leg (back dam) on the interior side of the sill of the RO. This will ensure positive drain towards the exterior of the building.
3. Fold outside edge down onto the face of the WRB at the sill and jamb, forming a closed outside corner.
4. Use a roller to press flashing material to the building envelope and remove air pockets.



Source: AAMA Installation Masters Training Material

Please refer to Installation Masters guidelines for additional information regarding back dam heights, side jamb heights for flashing, redundant lines of sealant, and flashing in weatherboard fashion. Insulating the cavity between the RO and frame of the window is important as is the sealing of the window to the interior of the building prior to interior trim-out. This should be done as is most fitting to the opening conditions.

V. Shimming

Shims may be applied at various times and in various locations depending on the installation method and the conditions of the RO. Shims shall be rectangular or horseshoe style, made of high impact plastic, 1/8” minimum thick. Never use wood shims. Thicker shims may be required depending on the RO.

1. Place setting shims (bottom shims) along the sill of the RO every 6”-8”, within 6” of each corner, and on each side of all mullion locations at least 3” from the center of the mullion.
2. If using tapered shims, always install them in complementary pairs with two shims oriented in opposite directions. This will ensure a flat level surface to support the window.
3. Shims must be a minimum of 1 ½” wide and long enough to provide continuous contact and uniform support across the entire depth of the window frame.
4. If installation method uses through-frame fasteners, ensure that shims used to establish spacing at anchor points be penetrated by the fastener.
5. Place lateral shims between side jambs and frame to square window.

VI. Setting and Securing the Window

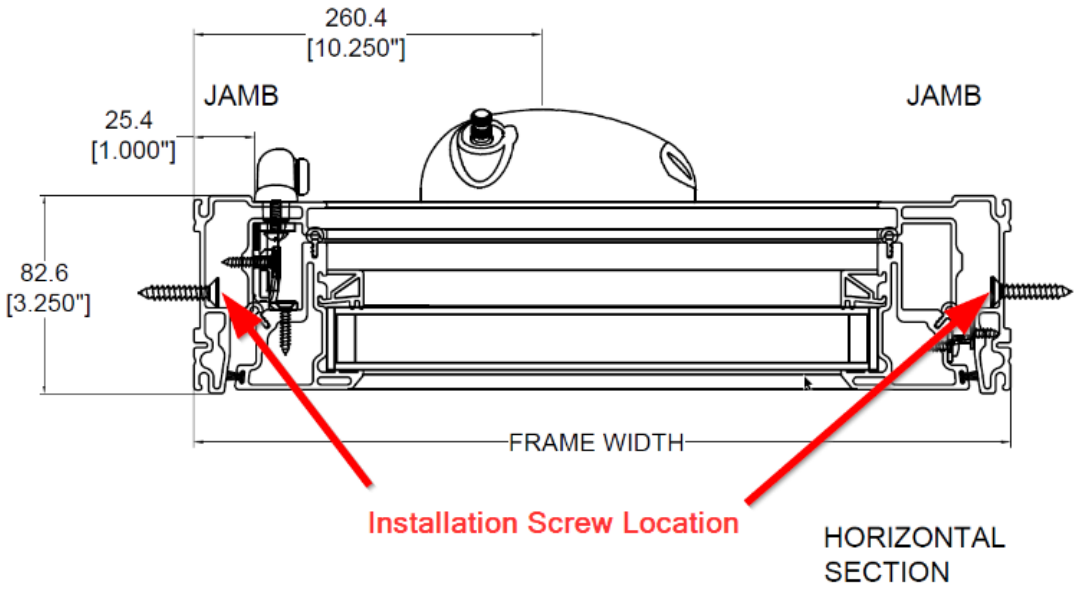
Use Installation Method selected in Section II

Refer to AMMA Installation Masters Guidelines for specific instructions regarding alternative methods

Use sealant compliant with ASTM C920 Class 100/50

Through-Frame Anchoring (Replacement)

1. Place window into the RO after preparation of RO and shimming have been completed. Adjust shims as necessary to level, plumb, and square the window unit, securing it firmly against the RO.
2. Drill a 3/8” hole through the inner profile wall (but not the outer-most profile wall). Use a diamond coated 3/8” rounded tip drill bit or a fish-tail tipped 3/8” milling bit for the inner hole. Not using the appropriate drill bit can result in tearing and fraying of the glass fibers in the window profile. Pre-drill 1/8” pilot hole through the outer profile wall, through the supporting shims, and into the RO. Refer to the figures below for installation screw location.



Casement/Awning Unit

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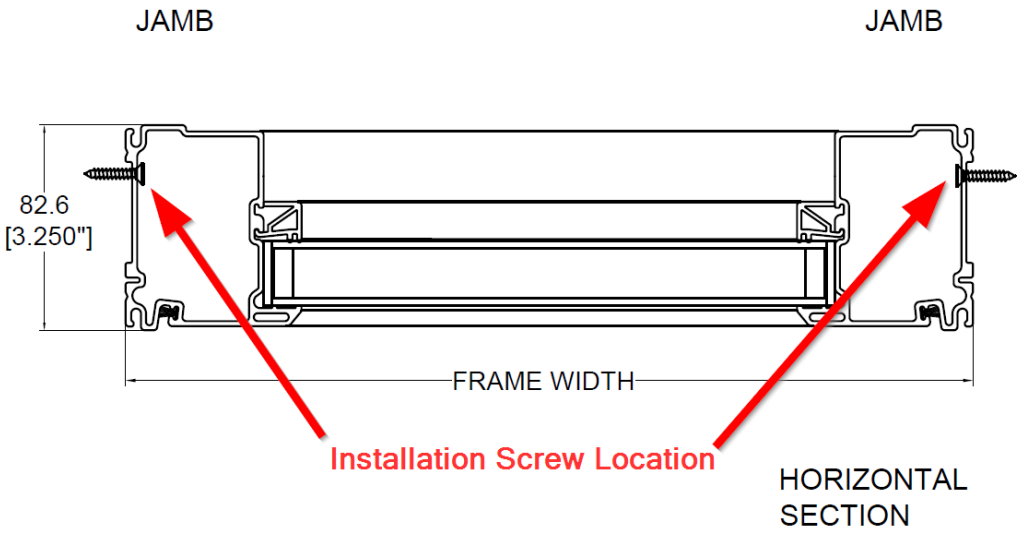
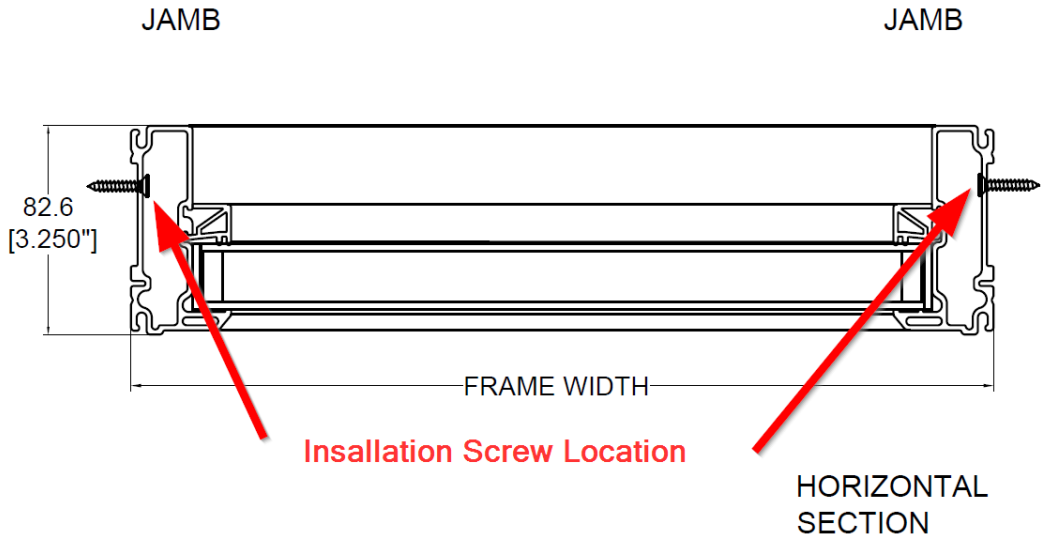


Fixed Unit



Picture Unit

3. Fasten the window through the pre-drilled pilot hole using the appropriate fastener.
    a. Corrosive resistant and cross-compatible with sealant materials (ASTM B766, B633, B456). Tapcon or wood screw.
    b. Flat, non-tapered head, that covers the pre-drilled pilot hole.
    c. Sufficient length to adequately penetrate RO framing material.
4. Apply silicone to the supplied hole caps and insert them into the 3/8” inner hole to prevent water penetration in the interior of the window frame profile.

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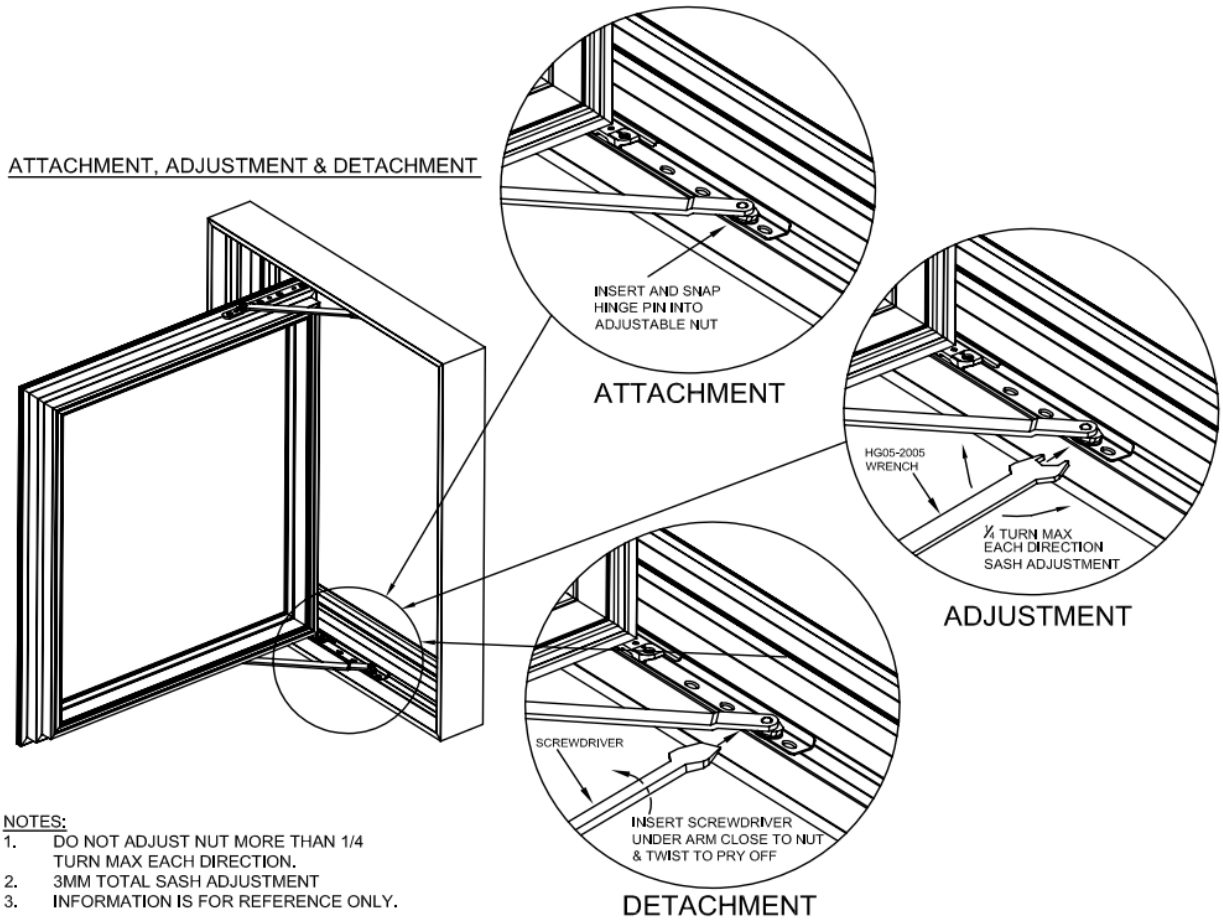
With Integral Nailing Fin (New Construction)

1. Apply a continuous bead of sealant to the back side (interior surface) of the nailing fin. Apply sealant in line with the pre-punched holes on the nailing fin. DO NOT APPLY SEALANT TO THE BACK (INTERIOR) SIDE OF THE NAILING FIN ALONG THE SILL (BOTTOM) OF THE WINDOW.
2. Immediately set the window into the opening. Starting at one corner, fasten the upper corner (on the side, not on the top) in place through the mounting flange. Do not drive the fastener in all the way.
3. Adjust shims as necessary to level, plumb, and square the window unit.
4. Tack the corner diagonally opposite the upper corner that was first tacked. Continue to fasten sides, top, and bottom 4" from all corners and 6"- 8" from each other along the lengths of the window. Finish screwing all fasteners, avoiding over compression of the nailing fin. Cover all fastener heads with sealant.
5. Apply a sealant bead to the back of the jamb flashing. Jamb flashing material should follow guidelines in Table 2 of this document. Apply jamb flashing to the window, covering the nailing fin. Use a roller to press flashing material to the building envelope and remove air pockets.
6. Apply sealant bead to the back of the head flashing. Head flashing should follow guidelines in Table 2 of this document. Apply the head flashing to the window, covering the nailing fin, and tuck it beneath the flap of the WRB at the head. Use a roller to press flashing material to the building envelope and remove air pockets. Allow the flap of the WRB above the window to fold down over the head flashing. Secure the flap with a new piece of sheathing tape over the entire diagonal cut made in the WRB.

VI. Sash Adjustment

With the window installed plumb, level, square, and securely, adjust the sash of all operable windows to ensure proper functionality. Use a 9/16" flat wrench to turn the hinge adjustment nuts as shown in the figure below. The sash should be adjusted so that the edge of the sash is parallel to the frame around the entire perimeter of the window.



Source: Roto Frank of America, Inc

VII. Final Check for Square and Window Operation

Windows should NEVER be load bearing or contribute to the structural integrity of the building in any way after installation

1. Measure both diagonal distances on the interior of the window. These two lengths must be within 1/16” (2mm) of each other.
2. The height of the frame at the center must be the same as the height at each end.
3. The width of the frame at the center must be the same as the width on each end.
4. Inspect all flashing and fasteners to ensure there is no damage to the water seal.

Notes

- Shims shall be rectangular or horseshoe style, made of high impact plastic. Never use wood shims
- Only fully adhering flexible flashing shall be used and must meet AAMA 711
- Sealant must meet ASTM C920
- No flashing tape should be applied over the nailing fin (if used) along the sill (bottom) of the window unit.

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