

# NEW CONSTRUCTION INSTALLATION INSTRUCTIONS (WITH NAILING FLANGE)

## Double-Hung, Single-Hung, Horizontal Sliders, Casement, Fixed Casement, Direct-Set Picture Windows, Awning & Architectural Shapes

### Recommended materials:

- Flexible flashing tape (width determined by application and wall thickness)
- Caulking
- Fasteners
  - For applications requiring DP20 or less and do not have structural mullions use #11, 2" long corrosion resistant roofing nails in every hole. Fastener must penetrate framing material by a minimum of 1-1/2".
  - For applications requiring greater than DP20 or which have structural mullions use #8, 1-1/2" long corrosion resistant pan head wood screws in every other hole and at ends of all mullions. Fastener must penetrate framing material by a minimum of 1".
- Fiberglass or non-expanding foam insulation
- Shims

### Materials included:

- (2) #8 x 2-1/2" Phillips Pan head screws
- Drip cap (for casement and awning only)

### Recommended tools:

- Tape measure
- Level
- Square
- Hammer
- Drill/screw gun
- Drill bits (1/8" and 3/8")
- Caulking gun
- Utility knife

The perimeter joint between window exterior and the exterior building material must conform to siding manufacturer's recommendations. All masonry, stucco, or synthetic stucco systems require an expansion joint around the window perimeter that must be filled with sealant compatible with the building material and window components.

For siding details for windows with and without integral J-channel see the siding manufacturer's recommendations.

Due to variables in local building codes, jurisdictions and the variety of building details these are recommended instructions only.

Penetrations and openings in exterior walls shall be flashed or sealed in such a manner that it will inhibit entry of water into the wall cavity or penetration of water to the building structural framing components.

Self-adhered membranes used as flashing shall comply with AAMA 711.

Refer to AAMA or ASTM for more additional installation guidelines.

Thermo-Tech Windows recommends the following flashing and installation system for new construction. The following is for the method when the Water-Resistive Barrier (WRB) has been installed before the window.

### 1 Step 1. Rough opening size

- The rough opening must provide a shim space that does not exceed 3/8" on all sides.
- Check the rough opening dimensions against the units actual frame width and height. **(fig. 1)**
- Make sure the walls are plumb and not twisted. Check the rough opening for square by measuring diagonally from corner to corner in both directions. Measurements cannot differ from each other by more than 1/4". **(fig. 2)**
- Check the sill for level and make sure jambs are plumb. **(fig. 2)**

### 2 Step 2. Prepare Water-Resistive Barrier for window installation

- When the water-resistive barrier covers the window opening, make a modified I-cut in the barrier. **(fig. 3)**
- Fold the bottom and side flaps over and behind the interior sides of the rough opening and fasten every 12" to 16" with staples. **(fig. 4)**
- Cut two 45 degree slits a minimum of 8" from the corner of the header to create a flap above the rough opening to expose the sheathing or the framing material to allow head flashing installation. Flip head flap up and temporarily secure with tape. **(fig. 5)**

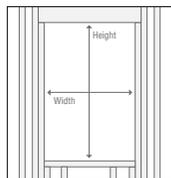


fig. 1

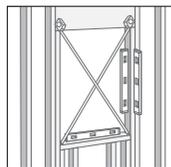


fig. 2

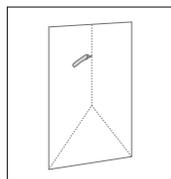


fig. 3

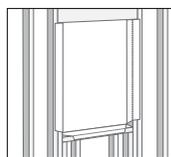


fig. 4 - Interior view

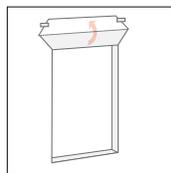


fig. 5

### 3 Step 3. Preparing the sill flashing tape

Thermo-Tech recommends a flexible flashing tape for ease of use. If a flexible tape is not available use **alternate step 3** for sill flashing.

- Cut flexible flashing tape at least 12" longer than the width of the rough opening sill. **(fig. 6)**
- Remove the release paper, cover the horizontal sill by aligning flashing tape to the inside edge of sill and adhere into rough opening along the sill and up the jambs a minimum of 6". **(fig. 7 & 7a)**
- Fold down on to the face of the exterior wall, it will be necessary to use mechanical fasteners to hold the corners against the wall at the flexed corners. Do not cut or tear flashing tape. **(fig. 8)**

#### ALTERNATE STEP 3

- Cut a piece of weather barrier self-adhering window flashing tape 9" tall and as long as the opening width plus at least 18". Apply to the face of the exterior wall so 1" extends above the opening and 9" extends beyond each side of the opening. **(fig. 9)**
- Cut along the corners of the rough opening and fold down onto the sill. **(fig. 9a)**
- Cut the second piece of weather barrier tape the thickness of the wall plus at least 1". Make the tape 18" longer than the width of the opening. Align flush with the interior of the wall and extend edge of the tape at least 1" past the exterior wall surface. **(fig. 10)**
- Start the piece 9" up the side of the rough opening and run it to the bottom of the opening, to the other side of the opening and 9" up the other side. Use a utility knife to cut the sill piece on both corners of the rough opening, and fold along the outside wall. **(fig. 10a)**

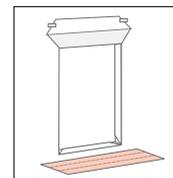


fig. 6

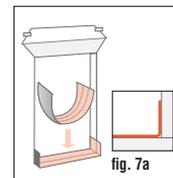


fig. 7

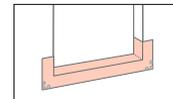


fig. 8

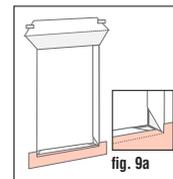


fig. 9

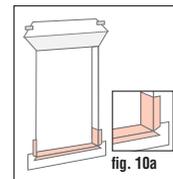


fig. 10



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**NOTE:** When removal of existing windows/doors is necessary, proper precautions and procedures for lead paint management may be required.

Visit [www.epa.gov/lead](http://www.epa.gov/lead) for more information. Consult [www.energystar.gov/products/recycle/where\\_do\\_old\\_windows\\_doors\\_go](http://www.energystar.gov/products/recycle/where_do_old_windows_doors_go) for recycling/reuse of old building components.

#### 4 Step 4. Prepare the opening with caulk

- Apply a continuous 3/8" nominal bead of caulk at the window head and jambs to wall or back side of the window mounting flange. Align with the pre-punched nailing fin holes. DO NOT APPLY CAULK ACROSS BOTTOM SILL FLANGE OR WALL to allow for drainage. (fig. 11)

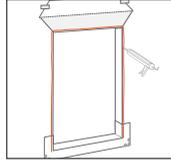


fig. 11

#### 5 Step 5. Installing the window

- Immediately set the window into the opening before the caulk has a chance to form a skin over it.
- Shimming the window:  
**The sill of the window must be supported in a straight and level position**, with the shims at all locations where the jambs, intermediate jamb or stiles meet the sill. Select and apply shims on the sill as described above. Multiple units or uniframe units need to have a shim under each mullion, intermediate jamb and the center stiles of the slider. Check mulls for level. (fig. 12, 13, 14, 15 & 16)
- Check for plumb and shim accordingly. When unit is level and plumb install the first fastener in upper side of left or right corner (NOT on top). **See recommended materials section at the beginning of these instructions for fastener selection and placement.**
- Check for plumb again and then install the next fastener in the opposite side at jamb sill.

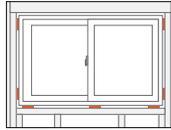


fig. 12 - Slider

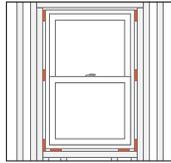


fig. 13 - Single/Double-Hung

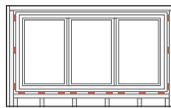


fig. 14 - Mullied units

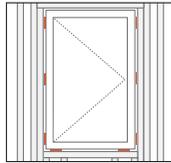


fig. 15 - Casement

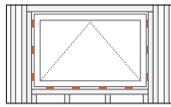


fig. 16 - Awning

- Check for plumb and level. If correct, finish securing the window (including head and sill). Fasteners should **NOT** be over compressed into flange. **See recommended materials section at the beginning of these instructions for fastener selection and placement.**
- Make sure the window operates smoothly and the operable sashes are sitting square in their opening. Also, make sure the unit locks properly.
- For Casement:** Open window and using #8 x 2-1/2" Pan head screws fasten the operating casement in two locations on the main frame hinge jamb. (fig. 17 & 18)
- For Awning:** Open the window and place #8 x 2-1/2" Pan head screws 5" down from the inside of the top of the window. (fig. 17 & 19)

*Note: On larger Casement and Awning operating units and units incorporating Energy Guard triple insulated Glass, it is recommended to fasten in every pre-punched hole.*

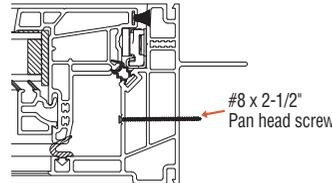


fig. 17

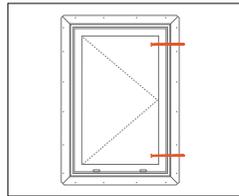


fig. 18 - Casement screw placement

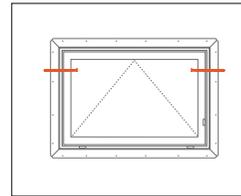


fig. 19 - Awning screw placement

#### 6 Step 6. Prepare to install adhesive flashing

- Cut two pieces of flashing tape for jamb flashings extending 1" above the window head flange and below bottom edge of sill flashing, remove release paper and press tightly along sides of window frame. A flashing roller is highly recommended to complete this process. (fig. 20)
- Cut a piece for head flashing that extends beyond outer edges of jamb flashings. Remove release paper and install completely covering mounting flange and adhering to exposed sheathing or framing material. Use a flashing roller to assure a weather tight seal. (fig. 21)

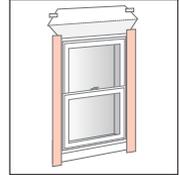


fig. 20

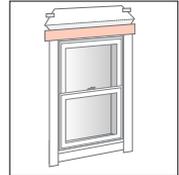


fig. 21

#### 7 Step 7. Drip cap installation

*It is required that a drip cap, which can be purchased from Thermo-Tech, be installed on all vertically mullied units.*

- Measure and cut the drip cap that is as long as the top of the window frame.
- Apply a continuous 3/8" bead of caulk to the exterior face of the flashing tape and on the top of frame. Caulk must be as long as the drip cap. (fig. 22)
- Place drip cap on top of window, and center its length on the top of window, push tightly down against the caulk. (fig. 22)
- Nail drip cap in place with galvanized roofing nails long enough to penetrate framing material. Place nails every 12" to 16". (fig. 22)

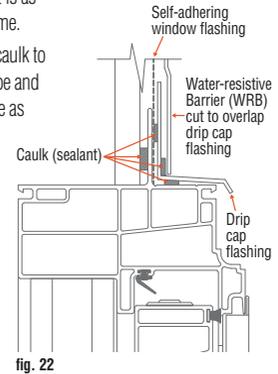


fig. 22

**8 Step 8. Prepare to finish Water-Resistive Barrier (WRB) so its water tight**

- a. Apply silicone sealant to the underside of the top flap or apply on the nail fin or drip cap insuring to cover any exposed fasteners. Flip down flap of WRB at the head so it lays flat across the head flashing. (fig. 23)
- b. Tape along all cuts in WRB and tape across the head of the window with WRB tape. (fig. 24)



fig. 23



fig. 24

**9 Step 9. Insulate and seal the interior**

- a. Insulate around 3 sides of the frame. Top and 2 sides (low-expansion foam is recommended). Insulate the full cavity from the interior surface of the nail flange to the interior side of the frame. Completely seal the bottom of frame and at least 6" up each side with caulking that is compatible with the vinyl frame and framing material. (fig. 25)

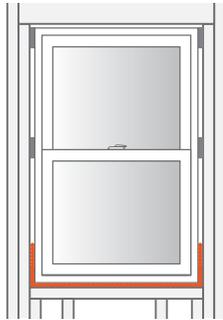


fig. 25 - Interior view

**SASH ALIGNMENT TEST**

- 1 Step 1. Unlock and fully open sash.
- 2 Step 2. Close sash until it is open 1/2".
- 3 Step 3. The gap should be equal on the Single-Hung and Double-Hung from right to left and on the Slider from top to bottom. (fig. 26 & 27)
- 4 Step 4. If the gap is unequal, the unit requires further adjustment.
- 5 Step 5. For Casement & Awning:

Throughout the fastening process it is important to continually check the gaps on the exterior between the operating sash and the main frame to ensure even spacing on all four sides. (fig. 28)

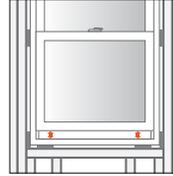


fig. 26 - Single/Double-Hung

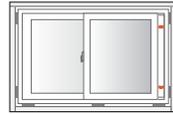


fig. 27 - Slider

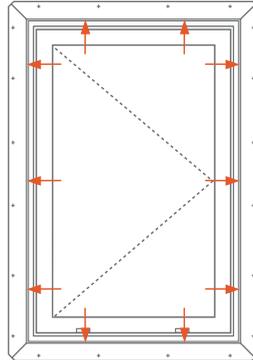


fig. 28

**WHEN THERE IS A RADIUS SHAPE MULLED ABOVE WINDOW**

- 1 Step 1. Prepare the Water-Resistive Barrier (WRB)
  - a. Make a horizontal cut 2" above the mull joint and flush with the bottom rough sill. (fig. 29)
- 2 Step 2. Follow rectangular window instructions steps 3 through 5
- 3 Step 3. Prepare to install adhesive flashing (for flexible flashing tape)

- a. Cut two pieces of flashing tape for jamb flashings extending 1" above the window head flange and below bottom edge of sill flashing, remove release paper and press tightly along sides of window frame. A flashing roller is highly recommended to complete this process. (fig. 30)

- b. Cut a piece for head flashing at least 12" longer than the arc of the round top/elliptical window. Remove release paper and install completely covering mounting flange and adhering to exposed sheathing or framing material (fig. 31). Use a flashing roller to assure a weather tight seal. Head flashings should cover the jamb flashing by at least 6". Secure outer edge of the flexible flashing at the head with mechanical fasteners every 6" to 12" along outer perimeter to prevent the flexible flashing from coming loose. (fig. 32)

(Option: If a flexible type flashing tape is not available you will have to use the overlapping weatherboard method as shown in fig. 33a-e.)

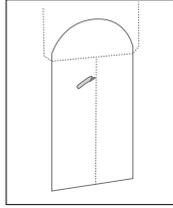


fig. 29

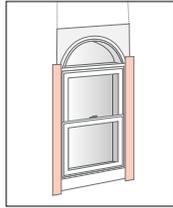


fig. 30

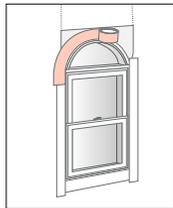


fig. 31

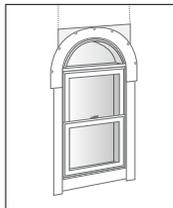
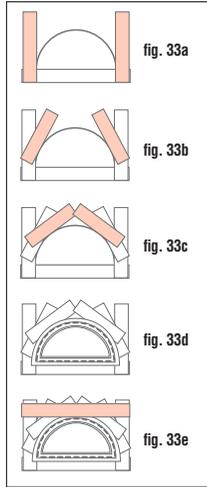


fig. 32

**4 Step 4. Prepare to finish WRB so it's water tight**

- a. Cut the flap of WRB so it lays flat across the head flashing.
- b. Apply silicone sealant to the back side of the WRB or apply directly to the nailing flange insuring to cover all fasteners. Flip down the flap of the WRB so it lays flat against the nail flange.
- c. Tape along all cuts in WRB and tape across the head of the window with WRB tape.
- d. Do not cover nailing flange at bottom of window it is to remain exposed to allow for water drainage.



## STAND-ALONE ARCHITECTURAL SHAPE WINDOWS

**1 Step 1. Prepare the Water-Resistive Barrier (WRB) (see fig. 3)**

**2 Step 2. Follow rectangular window instructions steps 3 through 5**

**3 Step 3. Prepare to install flexible adhesive flashing**

- a. Cut piece for head flashing for around the perimeter of shape and below bottom of edge of sill flashing.  
*(Option: If a flexible type flashing tape is not available you will have to use the overlapping weatherboard method as shown in fig. 33a-e.)*

**4 Step 4. Follow rectangular window instructions steps 8 & 9**