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I. Care and Maintenance

This product is factory finished. Please handle with extreme care. Protect all exposed surfaces from contact with caustics, corrosives, solvents, abrasions, impacts, wet packing material etc.

FAILURE TO DO SO WILL NULLIFY THE WARRANTY. Before **ANY CLEANING**, review the Care & Maintenance Instructions (go to www.fleetwoodusa.com for more information).

Contact the local dealer with any questions or concerns. Fleetwood strongly recommends that all products be cleaned after installation and totally protected from construction debris and equipment.

II. Tools / Materials, Sealant Requirements, & Anchor Instructions

Tools Required: Tape measure, level, shims, nails, hammer, putty knife, screws, Sealant, caulk gun, backer Rod, 6mm hex wrench, scissors or utility knife, drill bit, drive bit and powered drill.

Sealant Requirements

- The sealant referred to within this document for seals associated with the assembly of the product should conform to **AAMA 800-16**. It is recommended that all other sealants should also conform to **AAMA 800-16** but may be a sealant recommended and approved by the sealant manufacturer that is compatible with the framing, finish and surrounding materials.
- All sealant bead sizes must conform to the sealant manufacturers' size requirements.
- The Owner / General Contractor is responsible for identifying the need for any additional sealant to be applied by others. Such sealant shall be elastomeric material, with the framing, finish and surrounding materials.

Anchor Instructions

- Structural engineer to determine anchor quantity and spacing for design load requirements.
- Proper isolating material must be between dissimilar surfaces (i.e. block/concrete & metals).

III. Assembly and Installation

It is essential that each Fleetwood product be assembled and glazed in accordance with AAMA standards and factory instructions. It is the installer's responsibility to ensure that each Fleetwood product is assembled, glazed and installed and completely sealed to ensure that the product is leak-free and operates correctly. **Installation of Fleetwood products must be in accordance with the standards set forth in ASTM E 2112.** If there are any questions regarding the installation of a Fleetwood product contact the factory customer service department.

Due to inherent manufacturing tolerances Fleetwood has provided this product with recommended field glazed weather-stripping. If the provided weather-stripping does not ensure an optimum fit of glass to frame the Fleetwood Authorized Dealer should contact Customer Service for an expedited **NO CHARGE** shipment of replacement weather-stripping.

IV. Structure Verification & Sillpan¹ Installation

Note: Sillpan Substitution- If the factory provided pan is not desired, the product warranty will remain intact if the substitute panning system emulates the essential design of the factory pan.

1. Opening Verification

- Check the measurements of the opening and verify that the product will fit into the opening. Measure all four sides of the opening to make sure there is proper clearance, follow the link in section V number 3 for minimum suggested shim spacing.
- Remove the product(s) from the packaging and lay it in front of the opening. Check width and height dimensions.
- Verify the opening is plumb and level.

2. Pre-Fit and Leveling

- Place sill-pan into the opening and determine any leveling that must be done prior to installation
- Shim as necessary to stabilize the entire depth and length of the pan. No unsupported width of more than 8" is allowed. Shim to be load bearing, non-porous, non-absorbent and inorganic.
- If more than 1/8" shim height is required, it is recommended that pouring self-leveling "Rock Hard" (or equal) to achieve level and stable surface.

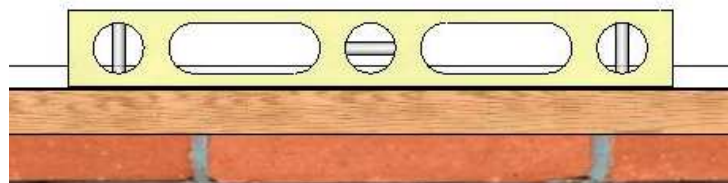
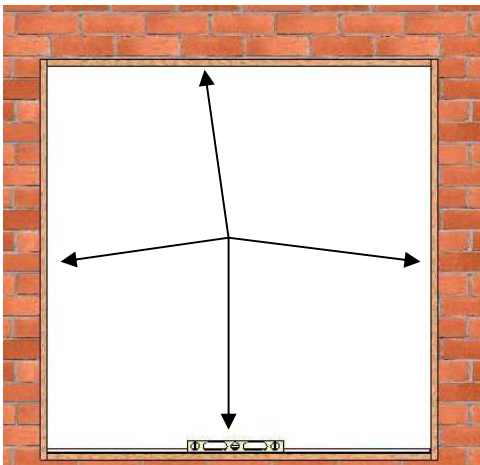


Figure 1:
Use level to determine if the opening is plumb and level

¹ Sillpan refers to a factory provided aluminum pan (or equivalent).
DOC: Series 450-T Installation Instructions

3. Sill-pan Installation

Note: For splicing and multiple piece Sill-pans – (See Appendix A)

- Apply bituminous paint to raw masonry or concrete at the sill to eliminate electrolytic and chemical reactions. We recommend a PVC liner be placed to ensure separation of the metal frame with the substrate. In balcony situations flash the sill with aluminum or galvanized brake metal (Sill-pan is provided).
- Apply sealant in all corners and seams of the sill-pan (Figure 2).
- With bottom side of sill-pan up, apply a 3/8" bead of compatible sealant 1/2" in from interior leg. Sealant bead to run across the bottom as well as up each vertical leg of the sill pan. Also apply sealant beads near the sides and across the front (Figure 3).
- Secure the sill-pan to the floor with sealant. Position sill pan as necessary to allow for proper installation of frame assembly (Figure 4).

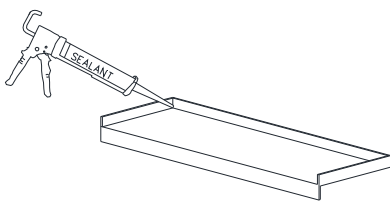


Figure 2:
Seal corners and seams

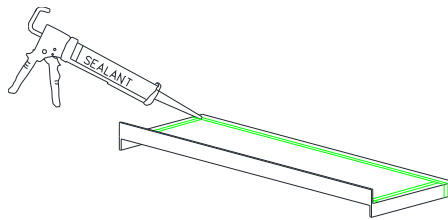


Figure 3:
Seal underside of Sill-pan

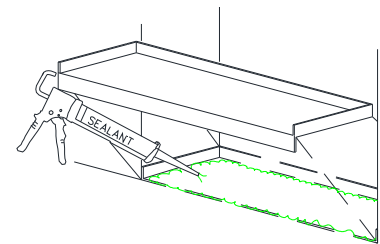


Figure 4:
Set pan in full bed of sealant

V. Window Installation

Note: All windows come pre-assembled and glazed unless specified otherwise. For Awnings and Hoppers where a limit device is requested, reference the *Series 250-T Limit Devices Installation Instructions*.

1. Nail-fin Frames

- Prepare the opening to accept the frame ensuring that the weep-screed flashing at the sill is adjusted to maintain a weatherboard style flashing.
- Flashing paper must be applied with galvanized nails or corrosion resistant staples. Flashing paper shall be applied in a weatherboard fashion around the full perimeter of the framed opening.
- Seal frame and vent joints completely with compatible sealant. Apply a heavy bead of sealant to the interior side of the mounting flange (nail-on) where the frame jamb and sill join. Sealant must cover the entire joint (from the flange to the inside leg) and extend 1 1/2" up the jamb and along the sill (Figure 5).

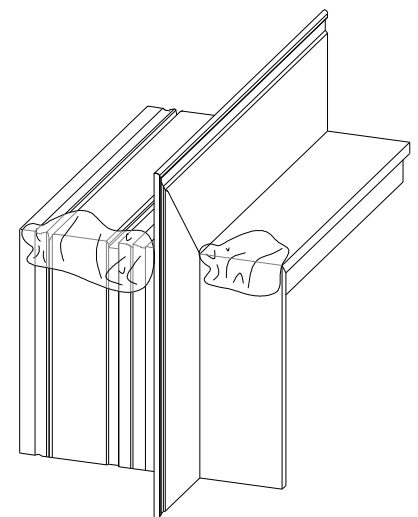


Figure 5:
Nail-fin sealant
location

Note: Inside glazed products-see Additional Glazing procedure, page 8.

- Apply a continuous bead of sealant along the back and side legs between the sill and sill pan (Figure 7, page 6).
- Insert the frame into the opening.
- Cross-measure and adjust using non-porous, non-absorbent, inorganic shims to achieve a plumb square and level condition, as well as an even reveal around the framed opening. Ensure shims are in a location to support any loads that are transferred from the anchor to the frame. Seal all fastener heads with compatible sealant. Only drill holes through Sill as required for design load. In these cases, the installer is responsible to seal these breaches.

Note: Frame installation anchors furnished by installer, not by Fleetwood. Stainless steel screws are recommended.

2. Block Frames

- Prepare the opening to accept the frame ensuring that the weep-screed flashing at the sill is adjusted to maintain a weatherboard style flashing.
- Seal frame and vent joints completely with compatible sealant. Apply a heavy bead of sealant to the interior side where the frame jamb and sill join. Sealant must cover the entire joint (from the flange to the inside leg) and extend 1 1/2" up the jamb and along the sill (Figure 6).
- Apply a continuous bead of sealant along the back and side legs between the sill and sill pan (Figure 8, page 7).
- Insert the frame into the opening.
- Cross-measure and adjust using non-porous, non-absorbent, inorganic shims to achieve a plumb square and level condition, as well as an even reveal around the framed opening. Ensure shims are in a location to support any loads that are transferred from the anchor to the frame. Seal all fastener heads with compatible sealant. Only drill holes through Sill as required for design load. In these cases, the installer is responsible to seal these breaches.

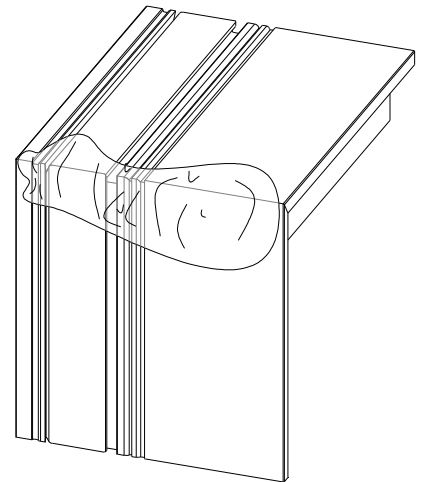


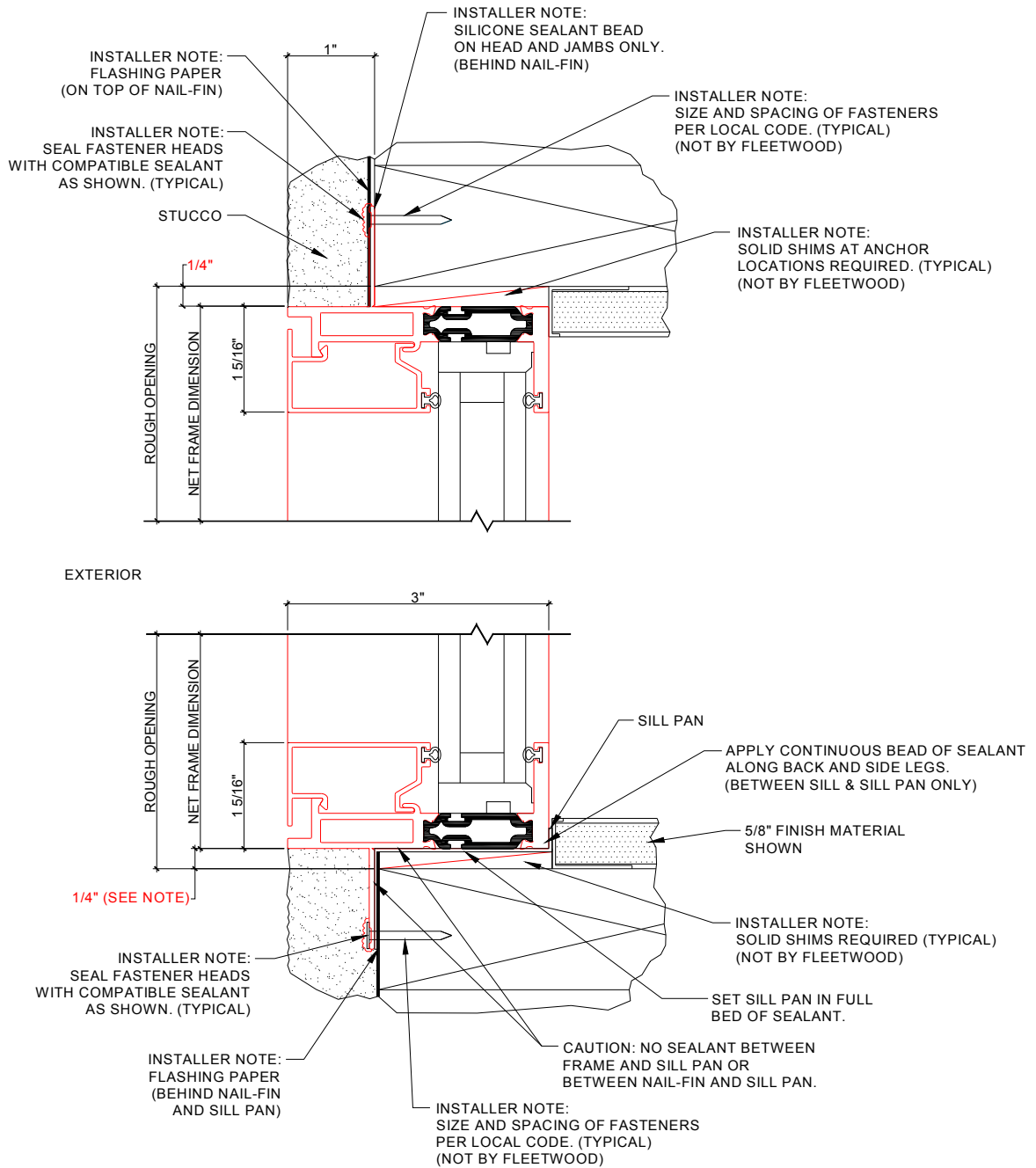
Figure 6:
Block frame sealant location

Note: Installer responsible to ensure anchors maintain edge distance. For fixed panels, remove glass stops to install anchor screws.

3. Wall Conditions

- Nail-fin frame window wall conditions are illustrated on page 6 Figure 7. Please note that shim spacing is different from that of a block frame window as illustrated on page 7 Figure 8.
- For additional wall conditions please follow the link below:

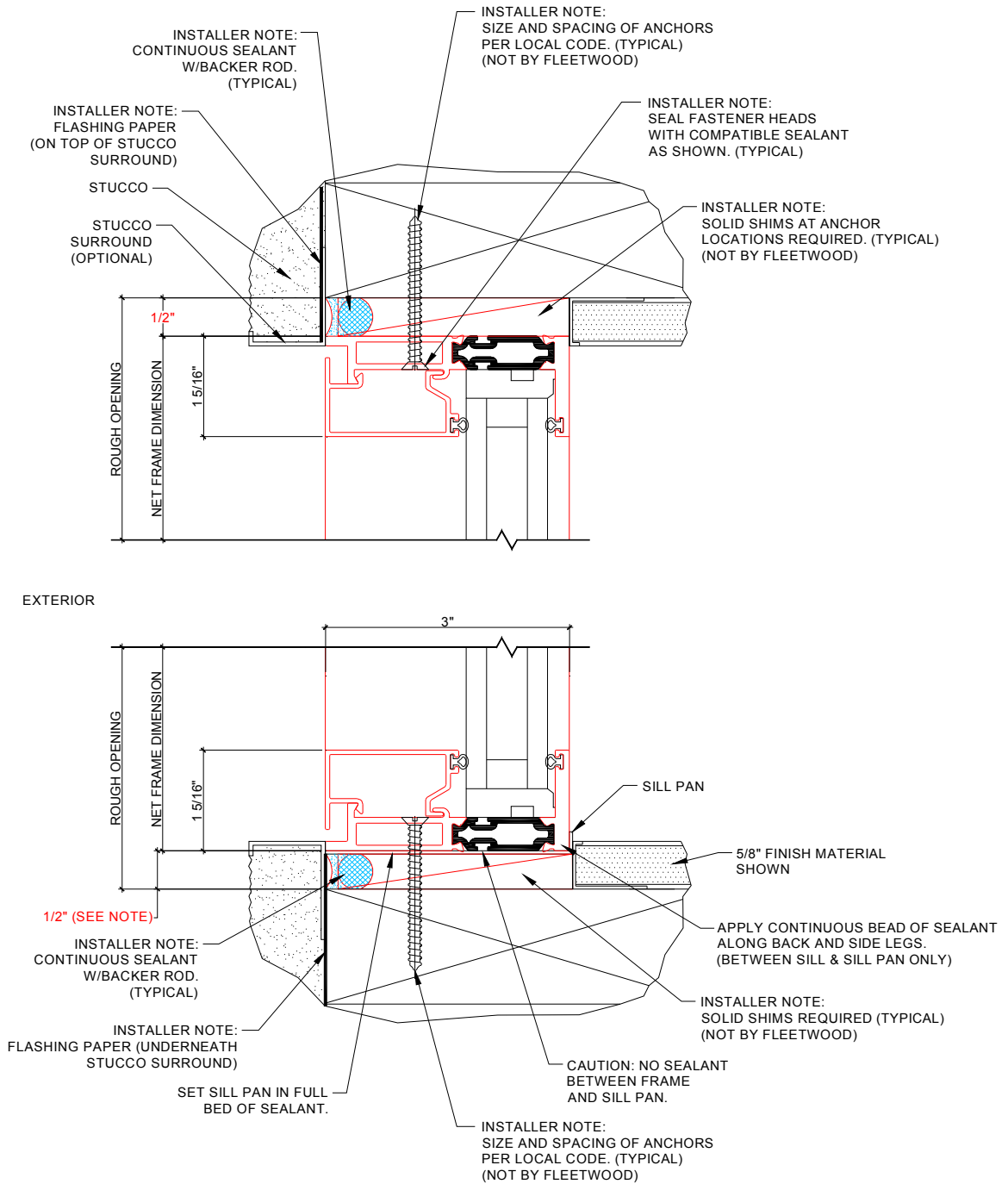
http://www.fleetwoodusa.net/Documents_Guide/Products/450-T/Installation/Series%20450-T%20typical%20wall%20conditions.pdf



NOTE: SHIM SPACE MAY VARY TO ACCOMMODATE FRAME OPTIONS AND INTERIOR FINISH MATERIAL.

SILL DISCLAIMER: IT IS THE MANUFACTURERS DESIRE FOR THE INSTALLER TO **NOT** PIERCE THE SILL. IN SOME CASES THE CODE OR SPECIFICATIONS REQUIRE SUCH. IN THESE CASES THE INSTALLER IS RESPONSIBLE TO SEAL THESE BREACHES.

Figure 7:
Nail-Fin Window Installation
(Fixed Frame Shown)



NOTE: SHIM SPACE MAY VARY TO ACCOMMODATE FRAME OPTIONS AND INTERIOR FINISH MATERIAL.

SILL DISCLAIMER: IT IS THE MANUFACTURERS DESIRE FOR THE INSTALLER TO **NOT** PIERCE THE SILL. IN SOME CASES THE CODE OR SPECIFICATIONS REQUIRE SUCH. IN THESE CASES THE INSTALLER IS RESPONSIBLE TO SEAL THESE BREACHES.

Figure 8:
Block Frame Window Installation
(Fixed Frame Shown)

VI. Glazing Instructions

Note: Glass stops must be removed before continuing.

Dry Glazing Procedure

- Apply a 1/4"×1/4"×4" bead of compatible sealant from each corner on inner flange of panel (Figure 9 & 10).
- Install glass setting blocks
 - Awning & Fixed:** 1/4 points along the top, bottom, and sides of the frame. Fixed lite above an operable window with widths greater than 48" and weights over 150 lbs. see Appendix B prior to installation.
 - Casement:** 1/4 points on the hinge side lower corner (bottom and side) and 1/4 points of the diagonal (top and side) to prevent "sash sag" (Figure 11).
- Install glass to rest on the inner flange of panel then install glass stops (Figure 11).

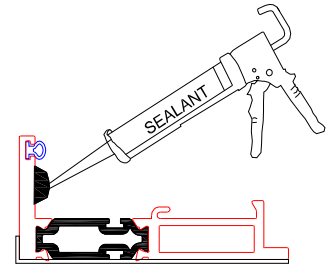


Figure 9:
Sealant Size

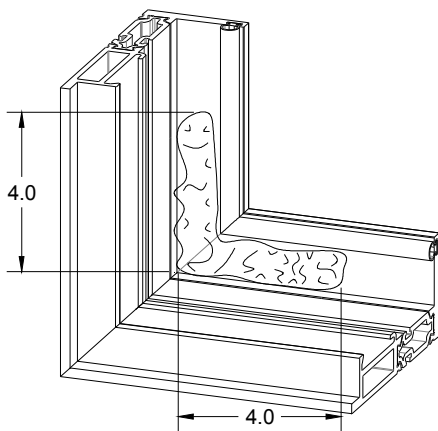


Figure 10:
Sealant Location and Sizes
(Fixed Window Shown)

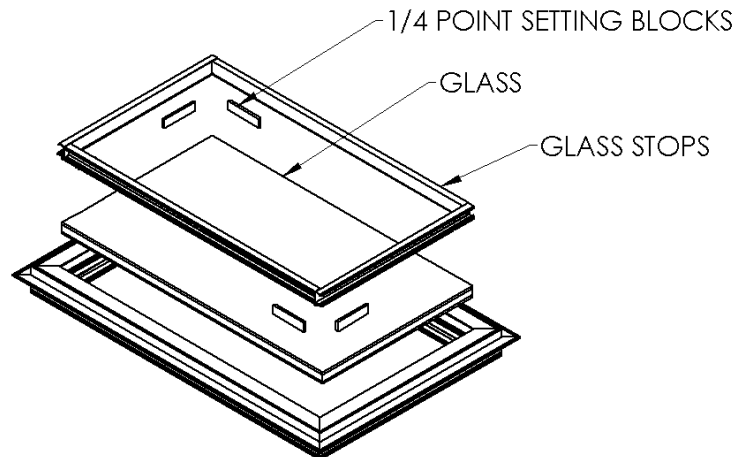


Figure 11:
Glass Installation
(Casement Hinge Side Left Shown)

Additional Glazing Procedure (Optional)

Note: Applies to products where additional water protection is required.

1. Before glazing, apply a continuous bead of sealant to the inner frame (Figure 9).
2. After glazing, apply a continuous bead of sealant to the frame and glass (Figure 13).

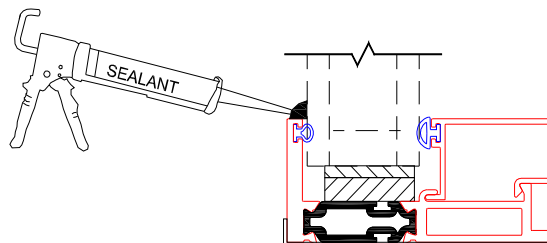


Figure 13:
After Glazing Locations

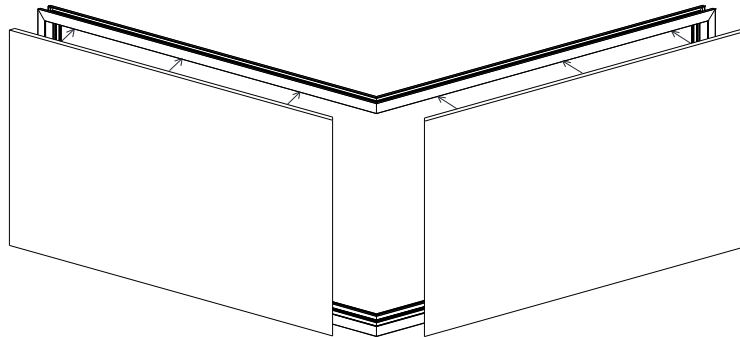
VII. Corner Window Installation

1. Corner Butt Glazing

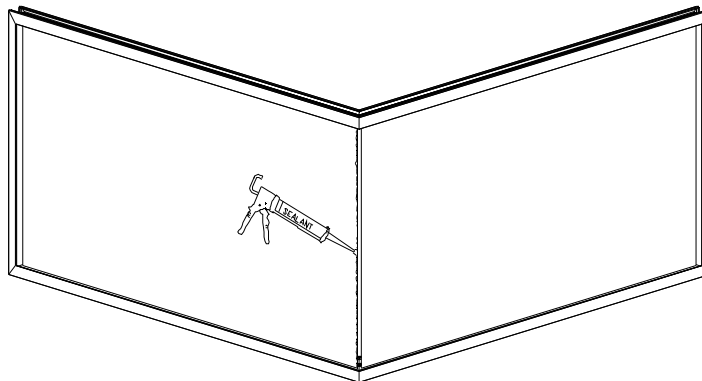
Note: Corner windows will be butt glazed on site.

- Install window frame per instruction in Section V.
- Align corner glass panels in frame leaving a 1/4" gap between glass for sealant (Figure 14).
- Orientation and sealant requirement options shown in Figures 15-17.
- Install glass stops following dry glazing procedure in Section VI.

Step #1



Step #2



Step #3

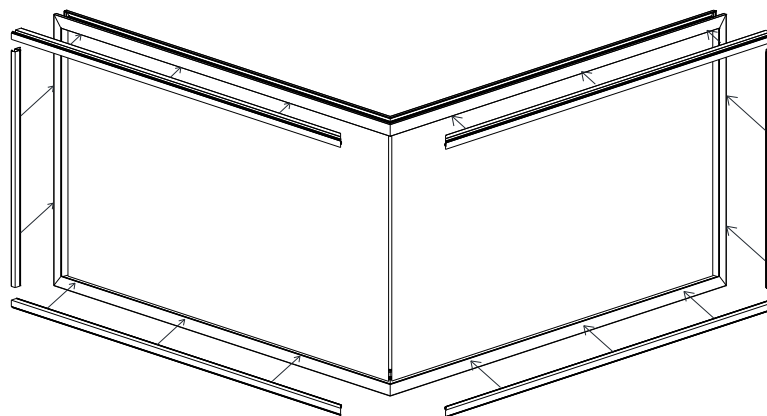


Figure 14:
Corner Butt Glazing

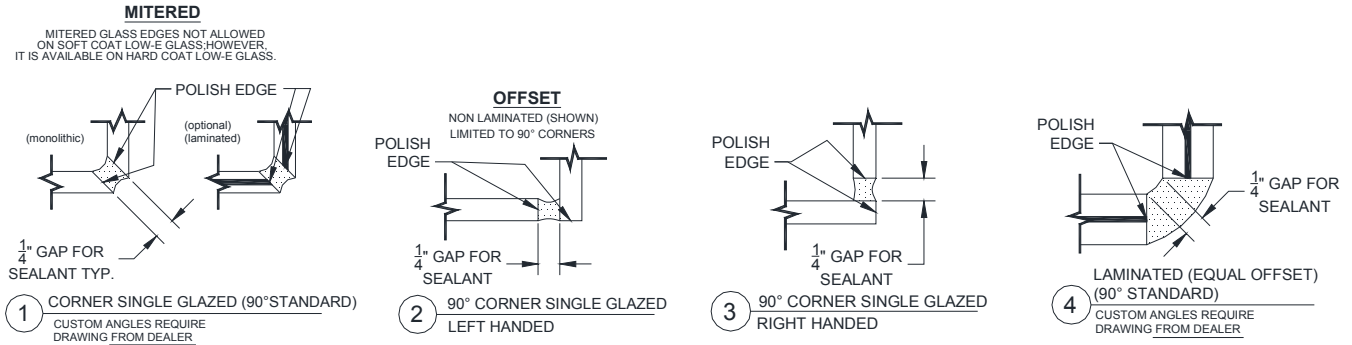


Figure 15:
Monolithic Glass Butt Glazing Options

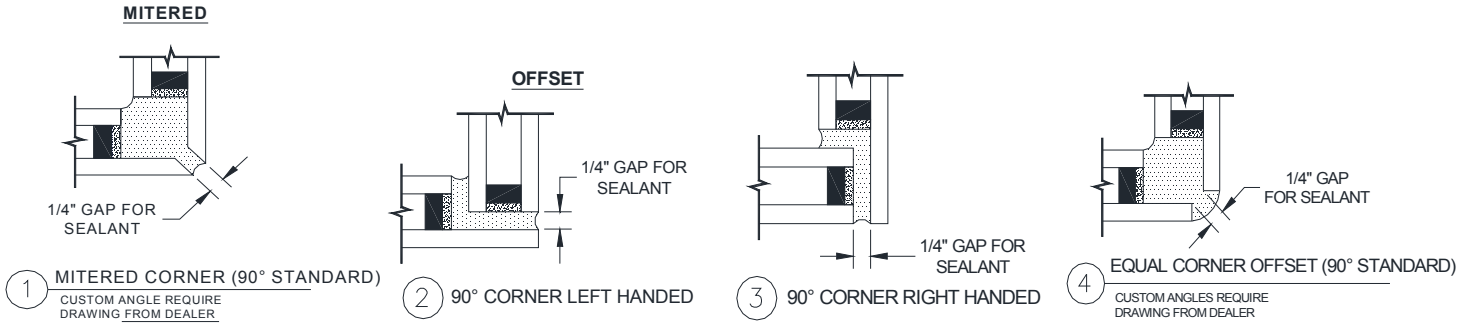


Figure 16:
Insulated Glass Butt Glazing Options
(Dual Glaze Shown)

Note: Sealant not provided by Fleetwood.

VIII. Flashing after Installation

The flashing paper referred to in this document is Moistop or other code compliant flashing material that conforms to **Federal Specification UU-B-790a, Type 1, Grade A, Style 4**. The strips of flashing paper are to be no less than 9 inches wide (or wider as required by local codes). Flashing paper must be applied with galvanized nails or corrosion resistant staples. Flashing paper shall be applied in a weatherboard fashion around the full perimeter of the framed opening.

Important Note: The flashing paper referred to in this document is Moistop or other code compliant flashing material that conforms to Federal Specification UU-B-790a, Type 1, Grade A, Style 4. The strips of flashing paper are to be no less than 9 inches wide (or wider as required by local codes).

1. Once satisfied that the frame is watertight, and immediately prior to application of the flashing paper at the head and jambs, apply a continuous bead of sealant to the exposed mounting flange (nail-fin) at the top (head) and sides (jambs) of the installed frame. Also, apply sealant at corners of the frame and the full length of the seams where the nail fin flashing is mounted.
2. At each jamb, embed the flashing paper into the sealant onto mounting flange and fasten into place. The flashing paper should be cut sufficiently long enough to extend at least 3 in. past the weep-screed flashing and at least 6 inches above the head of the product (Figure 17).
3. Finally, at the head, embed the flashing into the sealant on the mounting flange and fasten into place. The flashing paper should be cut sufficiently long enough to extend past the flashing paper at each jamb by at least 3 in (Figure 18).
4. Weather resistant building paper should be applied in a weatherboard fashion to complete the installation (Figure 19).

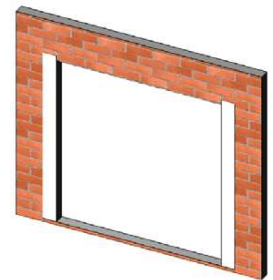


Figure 17:
Jamb flashing

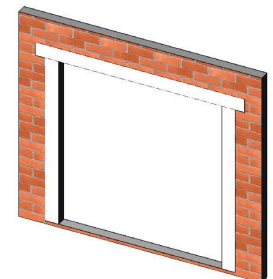


Figure 18:
Head Flashing

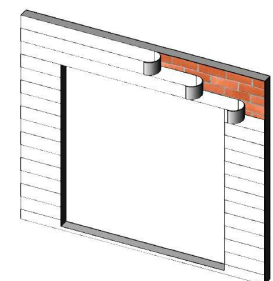


Figure 19:
Building Flashing

Note: Where weather resistant building paper, insulating board, or other materials by other trades may constitute the primary weather barrier behind the exterior wall finish (i.e. stucco, masonry, siding, etc.), the owner / General Contractor are responsible to ensure that the weather barrier is continuous by effectively sealing the material to the product frame.

Appendix A: Joining Sill-pans

Follow the instructions below for joining multiple piece Sill-pans. Multiple piece Sill-pans are required on products with net frame widths greater than 14 feet (168 inches) and corner units.

1. Install Sill-pans per product installation instructions. *Caution: Apply a compatible sealant to the underside of the sill-pan at the seam joint.*
2. Cut a piece of adhesive backed waterproof material to fit the joint as specified in drawing below, $A = 3/8"$. *Caution: Select waterproofing material that is compatible for your application. Waterproofing material must have an adhesive backing and be capable of withstanding the temperature ranges for your region.*
3. Remove excess sealant at joint on top of the sill-pan that may have migrated in during installation.
4. Remove the adhesive backing from the waterproof material and apply to the sill-pan. Waterproof material shall contain a fold on the interior water leg and attach to the sill-pan as shown.

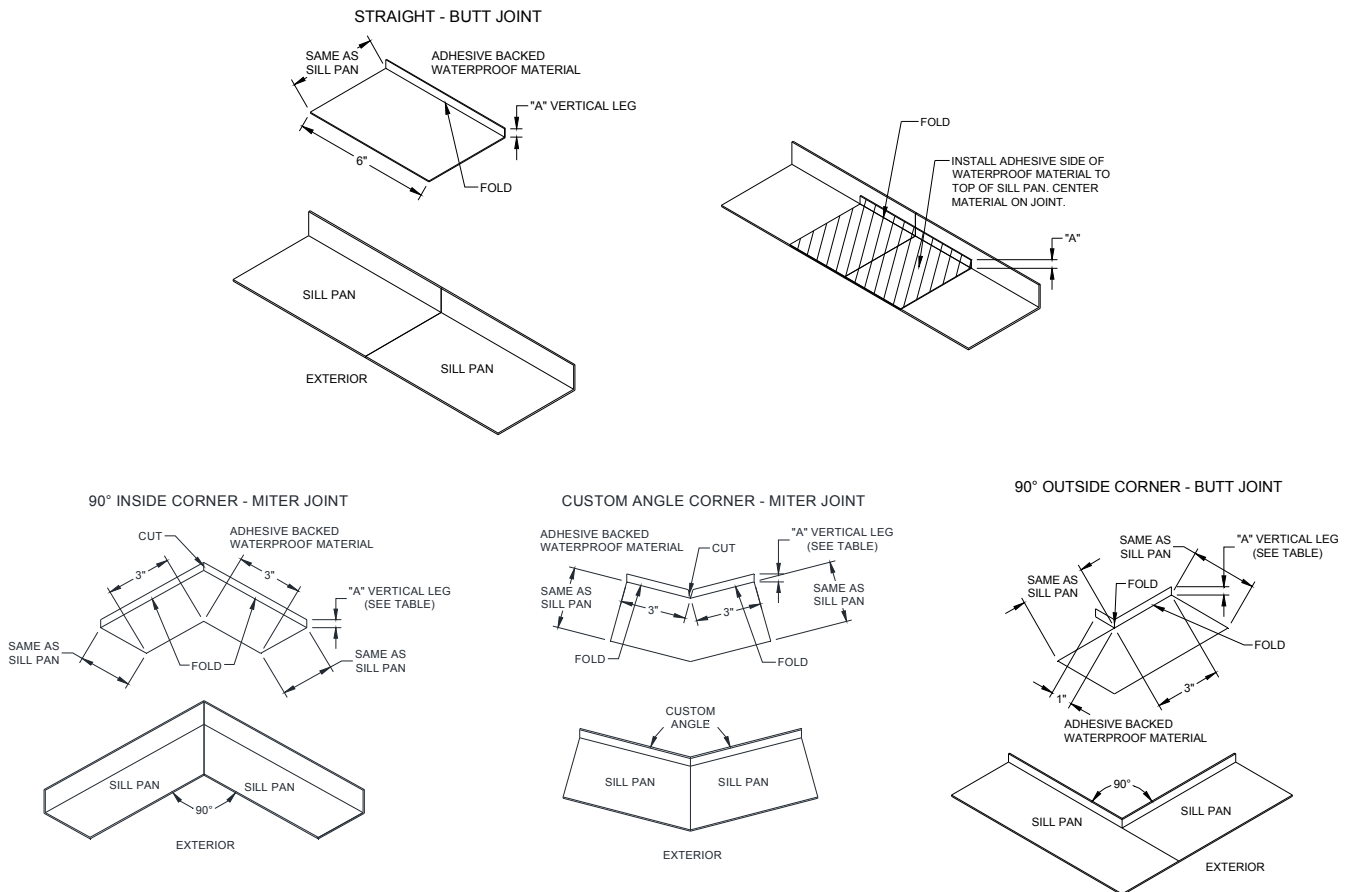


Figure A1:
Showing multiple piece sill-pans joining