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I. Care and Maintenance

Operational Warning: Fleetwood products operate smoothly and special care should be taken by the owner to make sure users are not injured.

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, & Load / 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**. It 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.

Load / Anchor Instructions

- Live or Dead Loads can affect product functionality, loads shall be designed to withstand the most critical effects of load factors and load combinations as required by building code.
- Fleetwood requires maximum vertical deflection of the header not to exceed Span/720 or 1/8"
- Structural engineer to determine anchor quantity and spacing for design load requirements.
- Proper isolating material must be between dissimilar surfaces (i.e. block/concrete & aluminum).

III. Assembly and Installation

General: The key to any window or door installation is preparation. This extends from storage of the product to the final installation and to all points in between. Careful planning and attention to detail can help ensure proper 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.

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 & Sillpan 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 with a clearance of 1/2" in width and 1/2" in height.
- 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 (Figure 1).

2. Pre-Fit and Leveling

- Place sillpan 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.

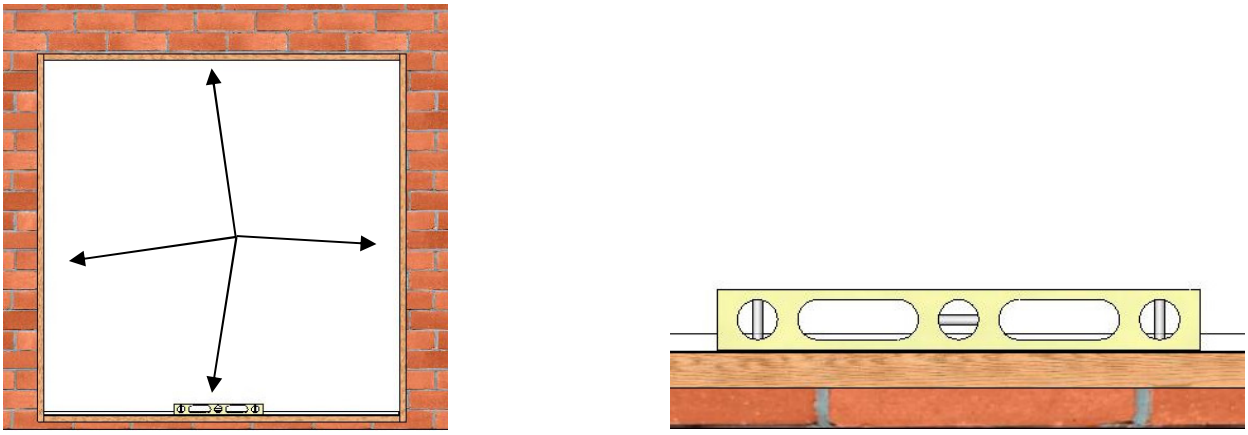


Figure 1:
Use level to determine if the opening is plumb and level

3. Flash the Opening

- Once the opening has been confirmed, flashing of the opening is required prior to Frame installation. Paper and/or liquid flashing methods are acceptable (see AAMA 711/714 for material requirements).
- Check local Building codes for any additional flashing requirements.

Paper Flashing

- At each Jamb the flashing paper should be cut at least 3” past the weep-screed or diado flashing and at least 6” above the head of the door. The flashing must wrap around the jamb and at least 3” back into the opening.
- At the Head run the flashing paper long enough to extend at least 3” past the jamb flashing and wrap around the Header at least 3” into the opening.

Liquid Flashing

- Follow the liquid flashing manufacturer instructions.

4. Sillpan Installation

Note: For splicing and multiple piece Sillpans – (*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 (Sillpan is provided).
- Apply sealant in all corners and seams of the sillpan (Figure 2).
- With bottom side of sillpan 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 sillpan. Also apply sealant beads near the sides and across the front (Figure 3).
- Secure the sillpan to the floor with sealant. Position sillpan as necessary to allow for proper installation of frame assembly (Figure 4).

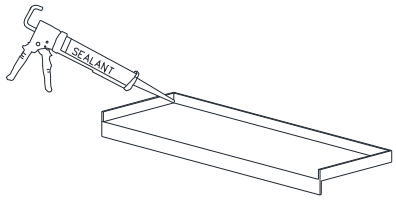


Figure 2:
Seal corners and seams

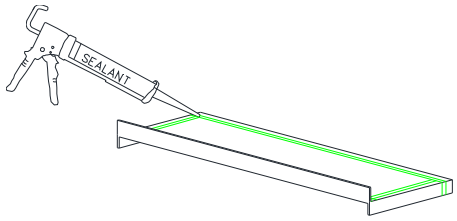


Figure 3:
Seal underside of Sill-pan

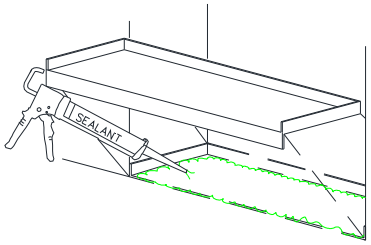


Figure 4:
Set pan in full bed of sealant

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 350-T & 450-T Limit Devices Installation Instructions.* Where a butt hinge is present additional anchoring is required (Figure 7).

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).

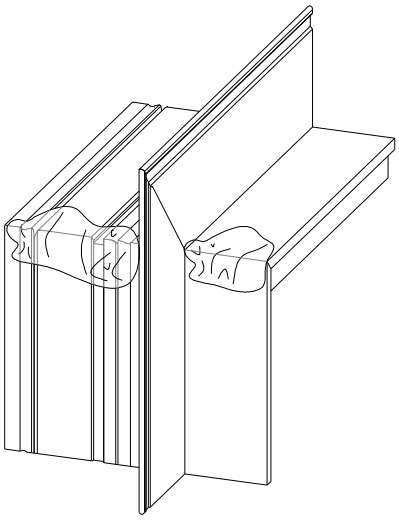


Figure 5:
Nail-fin sealant location

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 sillpan (Figure 7, page 6). Do not apply sealant along the front of the sill, this will prevent proper weepage.
- Insert the frame into the opening, confirm the weep holes are to the exterior and at the sill.
- 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 sillpan (Figure 8, page 7). Do not apply sealant along the front of the sill, this will prevent proper weepage.
- Insert the frame into the opening, confirm the weep holes are to the exterior and at the sill.
- 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.

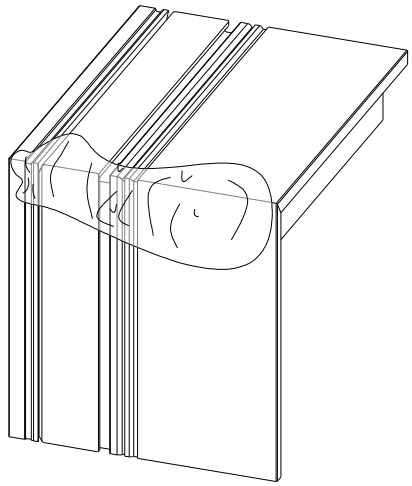


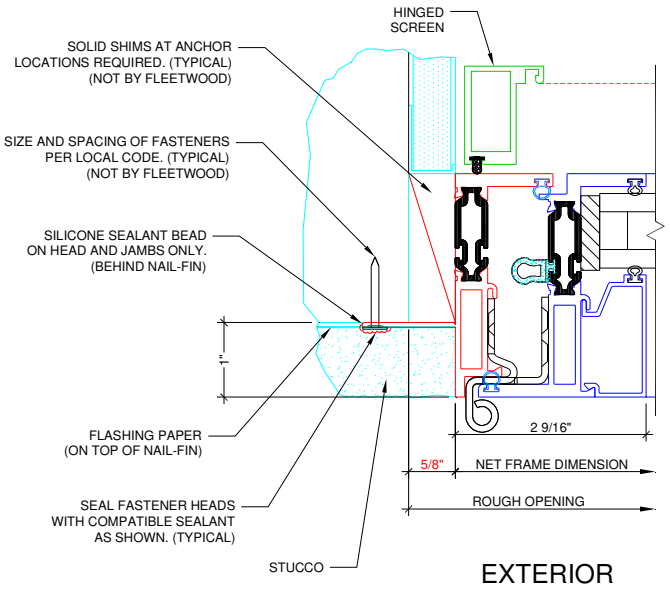
Figure 6:
Block frame sealant location

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

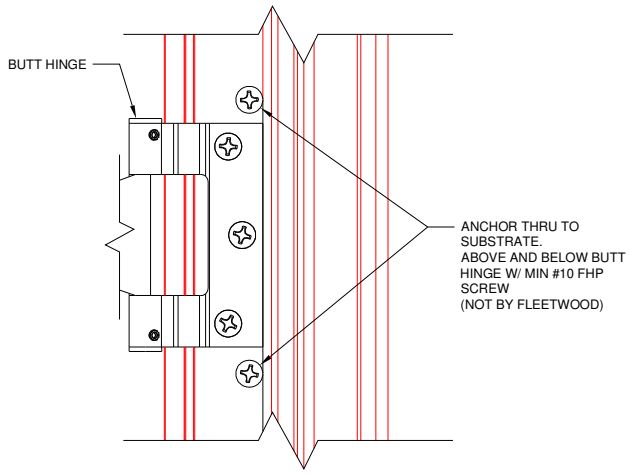
3. **Wall Conditions**

- 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:

Series 450-T Wall Conditions

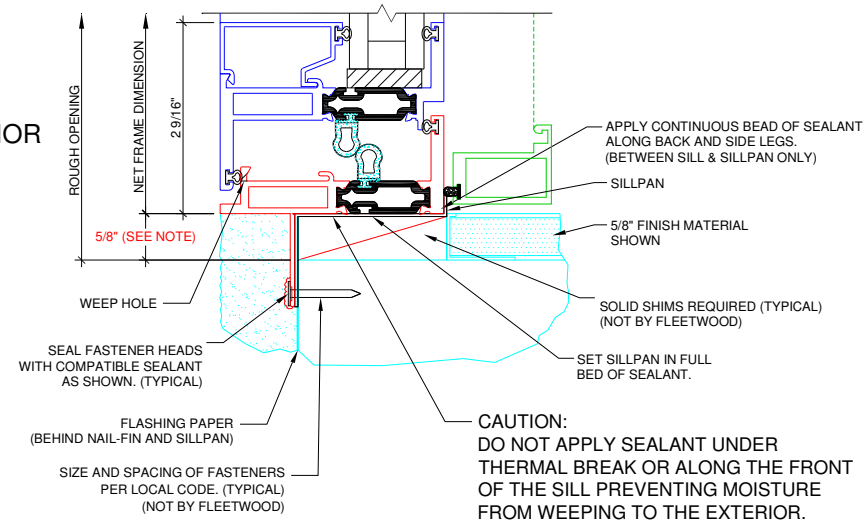


EXTERIOR



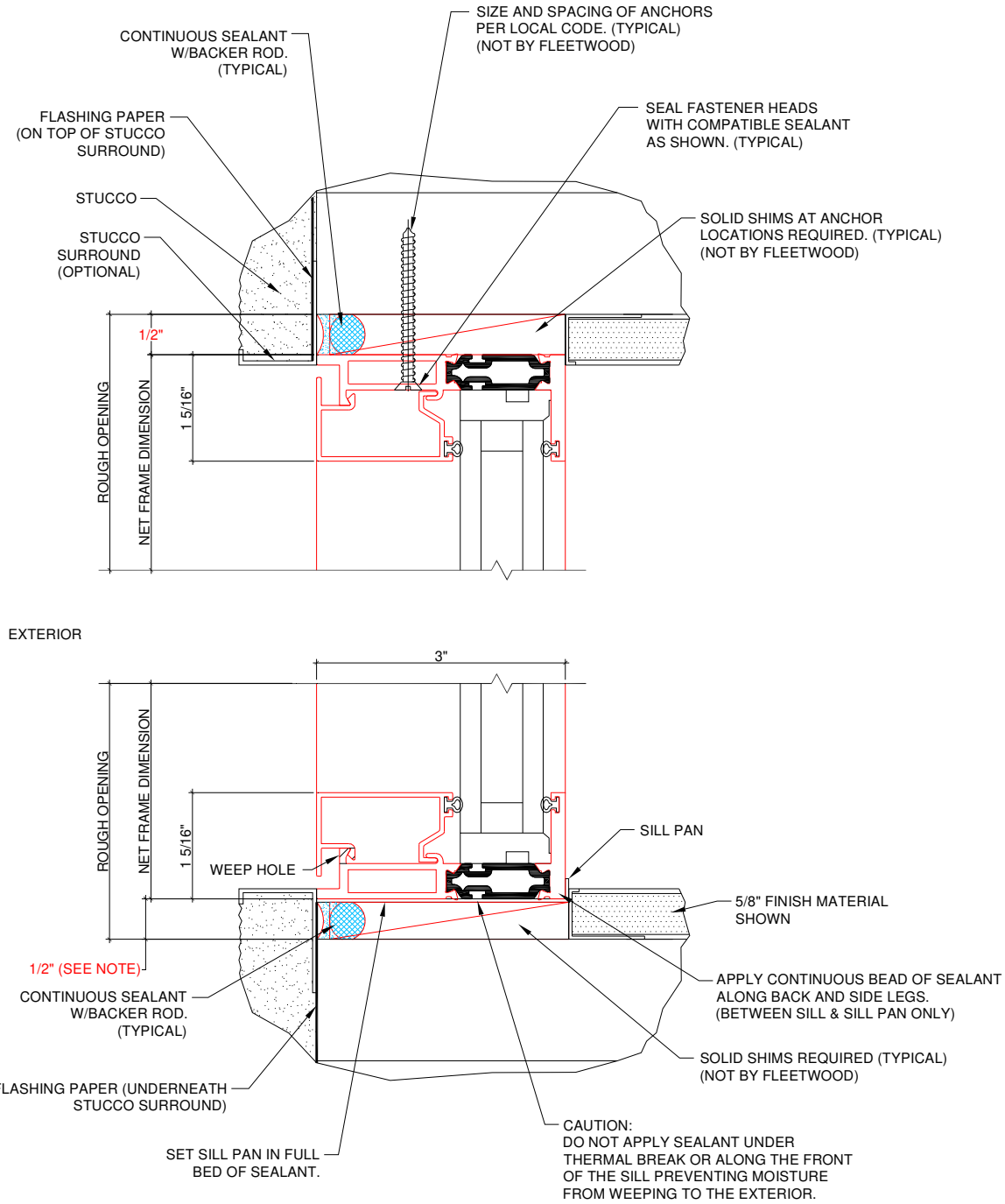
SIDE VIEW
(BUTT HINGE ONLY)

EXTERIOR



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
(Casement 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, stagger setting blocks accordingly to support glass lites.
  Awning & Fixed: 1/4 points along the top, bottom, and sides of the frame.
  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).

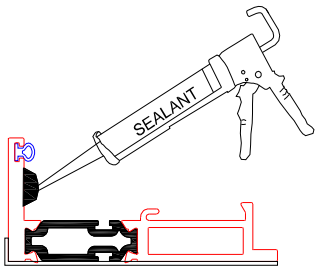


Figure 9:
Sealant Size

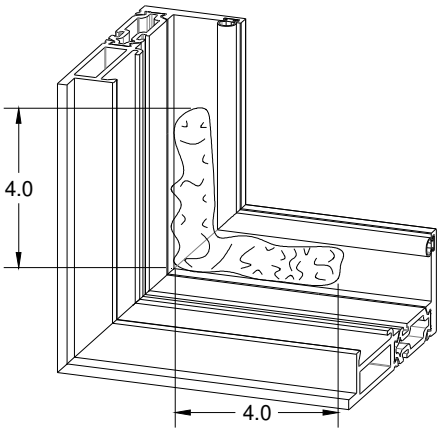


Figure 10:
Sealant Location and Sizes
(Fixed Window Shown)

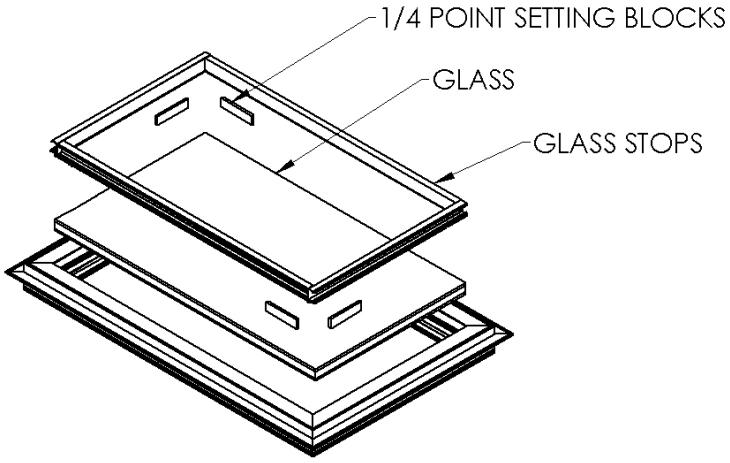


Figure 11:
Glass Installation
(Casement Hinge Side Left Shown)

Alternate Glazing Procedure

Note: Applies to inside glazed or outside glazed product(s) where additional water protection is required. Including areas where snow accumulation and subsequent melting/freezing may cause thermal bridging.

1. Before glazing, apply a continuous bead of sealant to the entire inner frame (Figure 9).
2. After glazing, apply a continuous bead of sealant to the exterior frame and glass along the sill and a minimum of 18 inches up the sides. (Figure 12).

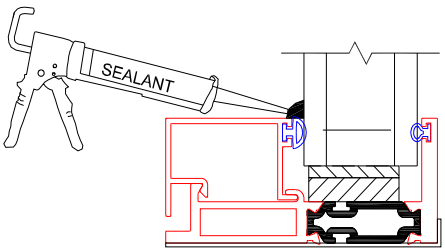


Figure 12:
After Glazing Locations

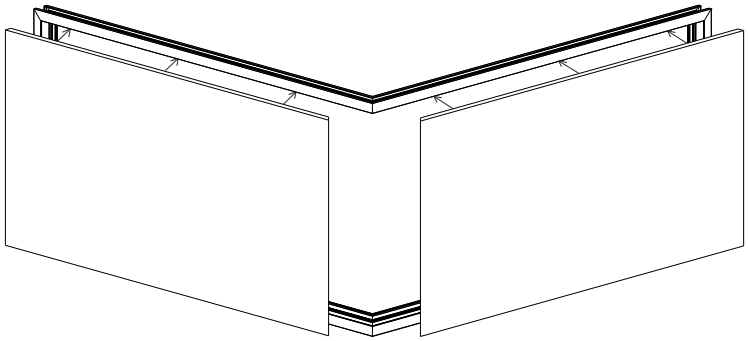
VII. Corner Window Installation

1. Corner Butt Glazing

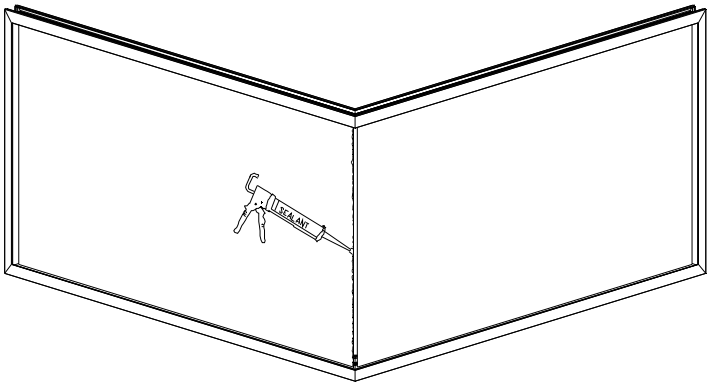
Note: Corner windows will be butt glazed on site.

- Install window frame per instruction in Section V.
- Align corner glass panels in frame leaving a 1/4" gap between glass for sealant (Figure 13). Orientation and sealant requirement options shown in Figures 14-15.
- Install glass stops following dry glazing procedure in Section VI.

Step #1



Step #2



Step #3

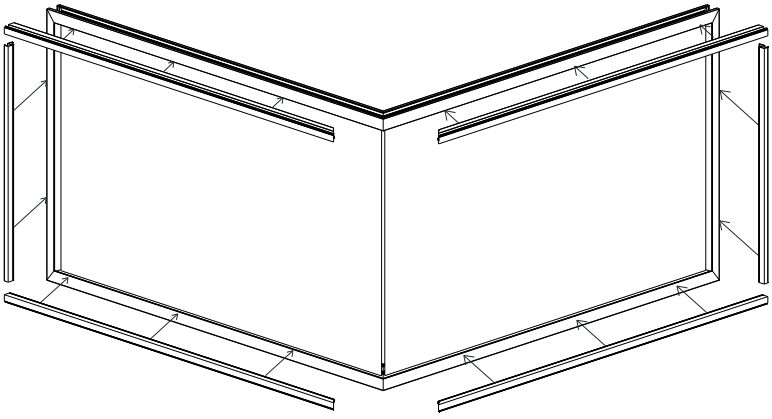


Figure 13:
Corner Butt Glazing

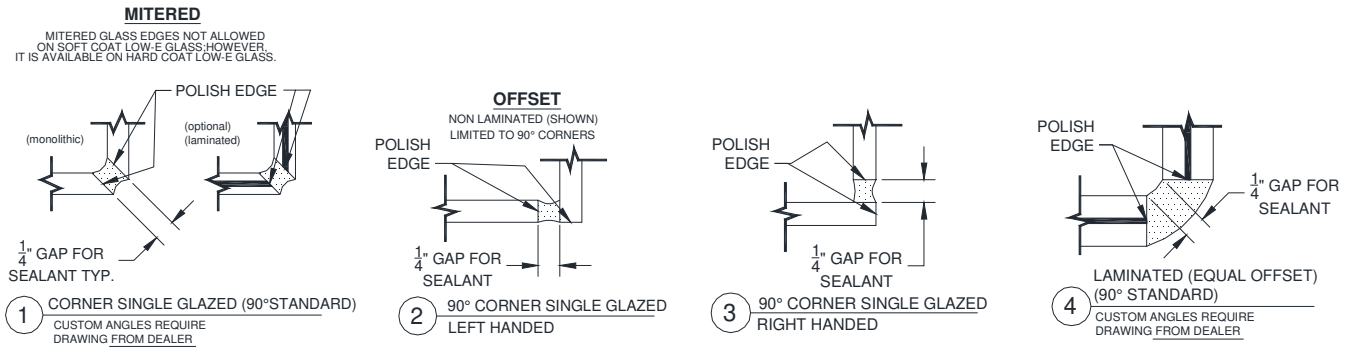


Figure 14:
Monolithic Glass Butt Glazing Options

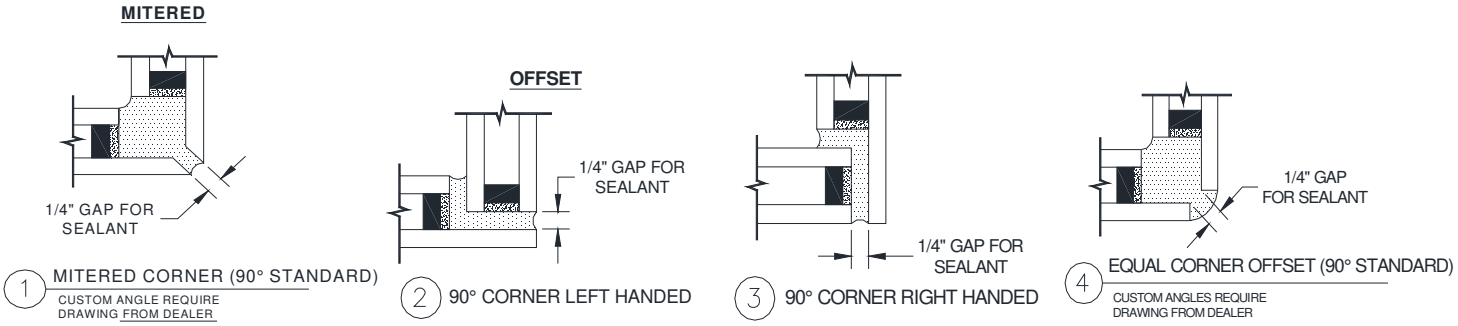


Figure 15:
Insulated Glass Butt Glazing Options
(Dual Glaze Shown)

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 16).
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 17).
4. Weather resistant building paper should be applied in a weatherboard fashion to complete the installation (Figure 18).

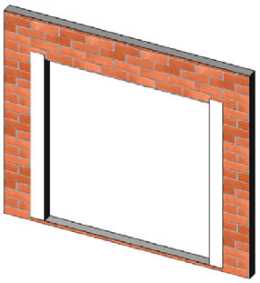


Figure 16:
Jamb flashing

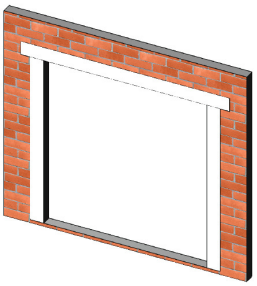


Figure 17:
Head Flashing

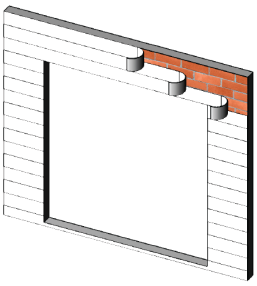


Figure 18:
Building Flashing

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 Sillpans

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

1. Install Sillpans per product installation instructions. *Caution: Apply a compatible sealant to the underside of the sillpan 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 sillpan that may have migrated in during installation.
4. Remove the adhesive backing from the waterproof material and apply to the sillpan. Waterproof material shall contain a fold on the interior water leg and attach to the sillpan as shown.

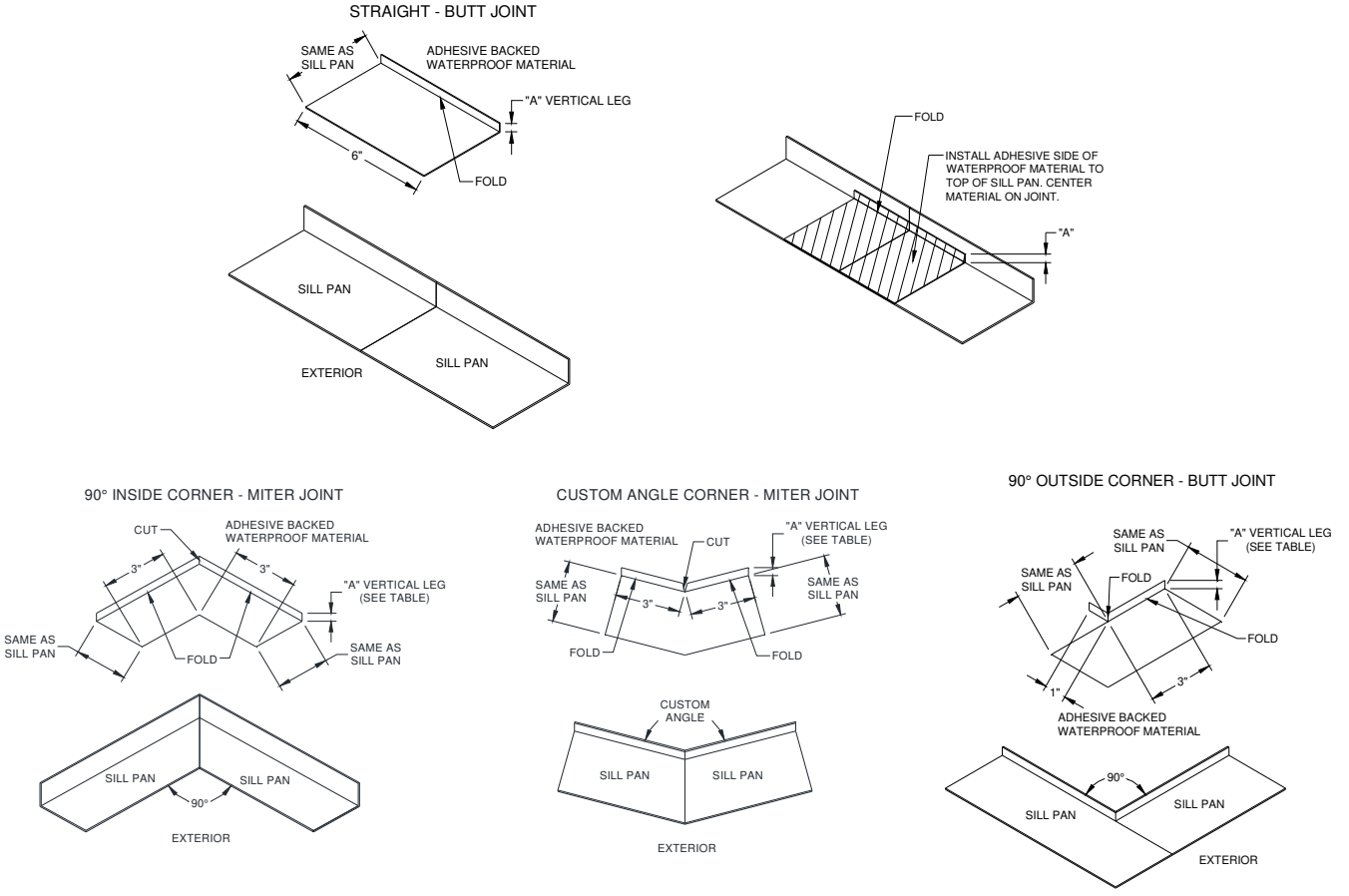


Figure A1:
Showing multiple piece sill-pans joining

Appendix B: Screen Installation

Hinged Screen

1. With a 2mm Hex wrench remove the set screw from all screen hinges (Figure B1).
2. Remove the hinge pins, resulting in the hinge separating into two pieces. The part not attached to the screen frame will be attached to the window frame in the predrilled hole locations.
3. Align the detached portion of the hinge to the predrilled holes on the frame. Fasten with the #8 FHP-A-UC screws provided (red bag).
4. Take the screen re-insert the hinge pins. Make sure while re-inserting pins that screen frame is not misaligned, any misalignment may affect the performance of the hinges.
5. Fasten the set screw in place.

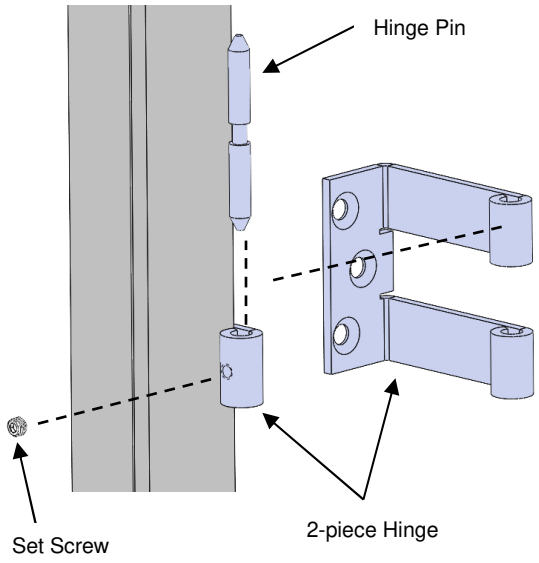


Figure B1:
Hinged Screen Removal / Installation

Flat Screen

1. Insert the clip into the t-slot groove as shown in Figure B2 (weatherstrip was not shown to improve clarity).
2. Rotate screen clip as shown in Figure B3.
3. As you continue rotating the screen clip it will snap into place as shown in Figure B4.

Note: DO NOT SLIDE SCREEN CLIP ON THE EXTRUSION! Sliding the screen clip may damage the finish of the window.

Recommended Locations (locations may be adjusted per screen configuration and size):

- **Awning Windows** – 1 clip centered on each jamb and 2 clips at head 6" from the ends.
- **Casement Windows** – 1 clip centered on each jamb and 2 clips at head 6" from the ends.
- **Hopper Windows** – 2 clips at head 6" from the ends and 2 clips at sill 6" from the ends.
- Additional screen clips provided for large screen configurations



Figure B2:
Insert Screen Clip

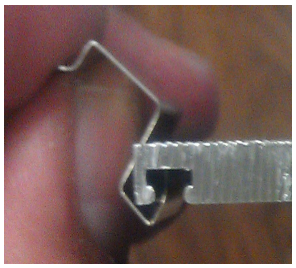


Figure B3:
Angle Screen Clip

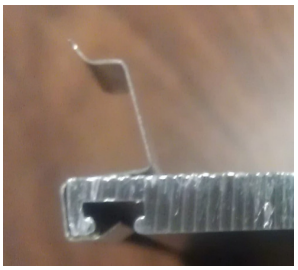


Figure B4:
Finished Installation Screen Clip

Appendix C: Panelized Window Installation (Block Frame Anchoring)

- Panelized windows will be shipped from the manufacturer with the vent secured to the frame.
- On block frame windows, the vent must be made operable before the window can be installed (anchored) into the rough opening.
- Removal of glass may be necessary on glass thickness > 1”. Do not remove the glass unless necessary.

Note: The glass is secured in place by a 4” glazing bead in the corners.

1. Use a putty knife to carefully remove all glass stops.
2. Along the bottom [and depending on size, the sides / top] are fastener(s) for connecting the vent to the frame, remove the fastener(s) and save for later (Figure C1). While removing the fastener(s) be careful to not damage the glass.
3. After the fastener(s) are removed, the vent can be opened, the vent has two 4-bar hinges and opens similar to an awning (Figure C2). Follow the framing instructions in Section V Window Installation.
4. Once the frame is secured, close the vent and re-insert the vent fasteners.
5. Re-install the glass stops.

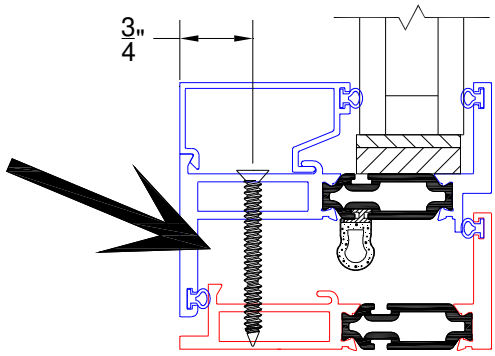


Figure C1:
Vent Fastener Location
(Block Frame Sill Shown)

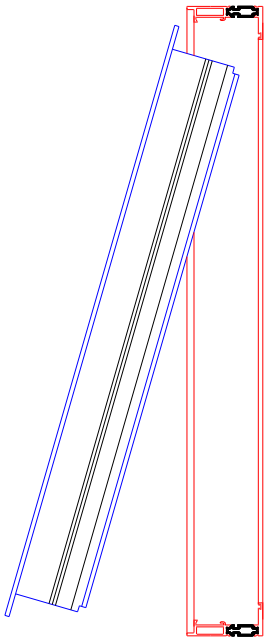


Figure C2:
Vent In Open Position
(Block Frame Shown)

Appendix D: Window Operator Replacement

Applications:

For Awnings and Casements when an operator needs to be replaced.

Tools Required:

Phillips screwdriver (or drill with Phillips bit), T25 bit (Casement), T20 bit (Awning).

Removal / Installation Instructions:

1. Open the window.
2. On the underside of the vent, remove the (2x) Phillips screws from the track(s). Slide the track off of the operator (Figure D1).

   Caution: With the track removed, the vent may move freely.

3. Remove the Torx Fastening screws from the operator, 2 for awning, 4 for casement (Figure D2). Additional opening of the vent may be required.
4. The operator can now be removed.
5. To reinstall follow steps 1-4 in reverse, Ensure the gasket [sits between the operator and the frame] is properly aligned, if the gasket is not placed properly leaking may occur (Figure D3).

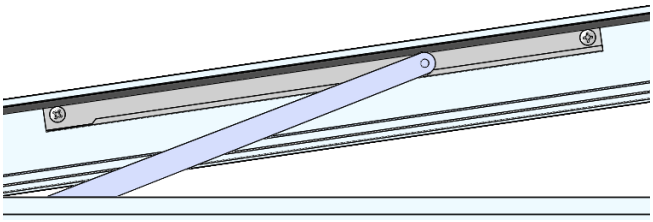


Figure D1:
Track Location (Casement Shown)

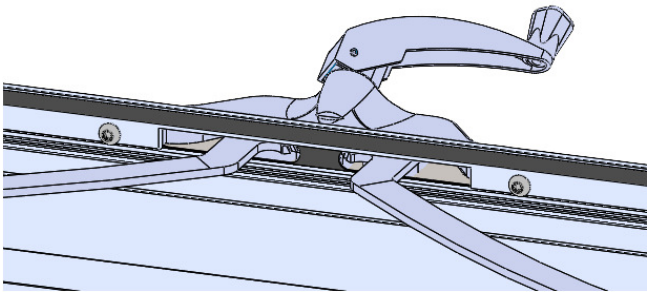


Figure D2:
Fastening Screws (Awning Shown)

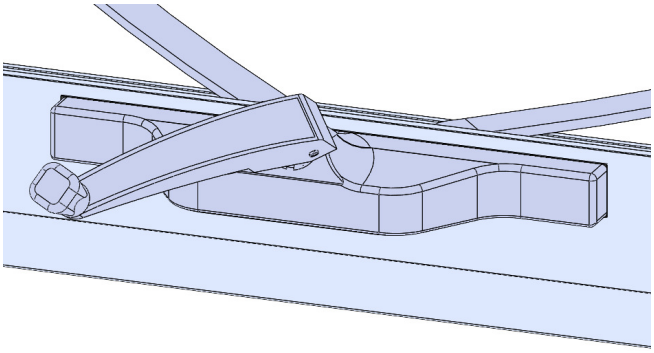


Figure D3:
Gasket Alignment

Appendix E: Encore Window Operator Replacement

Applications:

For Awnings and Casements when an operator needs to be replaced.

Tools Required:

Phillips screwdriver (or drill with Phillips bit)

Removal / Installation Instructions:

1. Open the window.
2. On the underside of the vent, remove the Phillips screws that are connecting the operator to the vent. For casements, slide the track off of the operator (Figure E1,E2).

   Caution: With the track removed, the vent may move freely.

3. Remove the (8) Philips screws from the operator, (Figure E3). Additional opening/closing of the vent may be required to access the screws.
4. The operator can now be removed.
5. To reinstall follow steps 1-4 in reverse, Ensure the gasket [sits between the operator and the frame] is properly aligned, if the gasket is not placed properly leaking may occur (Figure E4).

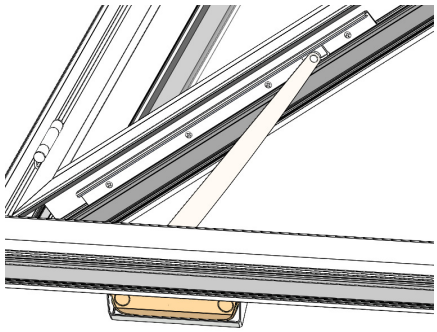


Figure E1:
Track Location (Casement Shown)

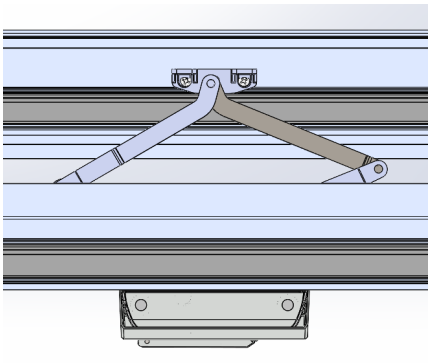


Figure E2:
Fastening Location (Awning Shown)

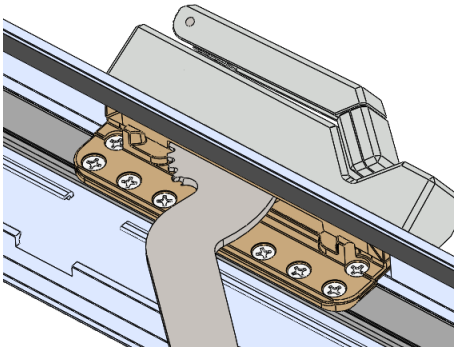


Figure E3:
Fastening Screws (Casement Shown)

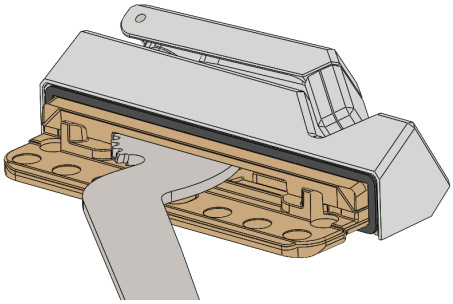


Figure E4:
Gasket Alignment (Casement Shown)

Appendix F: Limit Device

Fleetwood offers several options for limiting the opening of your window. It is important to choose the correct device for its intended application.

Limit Device.....LIMIT DEVICE Installation Instructions

Appendix G: CLiC Glass Installation

Fleetwood offers CLiC on demand Privacy Glass as a glazing option. This type of glazing option requires power to be run to each lite using cardinals proprietary glass controller. Depending on the type of product ordered, the wire leads locations will vary. Please ask at the time of purchase to confirm where these leads will be located so assist in preparing the opening accordingly.

Below are links to CLiC glass specific installation instructions:

Quick Start Guide

Installation Manual

Technical Data Sheet