KOLBE®

WINDOWS & DOORS

SEALANT INFORMATION

READ AND COMPLETELY UNDERSTAND THIS INFORMATION BEFORE STARTING SEALANT APPLICATION AND UNIT INSTALLATION

Contact your Kolbe window and door supplier or visit us at www.kolbewindows.com for further information.

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FOR PURCHASING KOLBE PRODUCTS

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SEALANT INFORMATION

INTRODUCTION

This information sheet provides installers with details on caulk sealant joint types, definitions, and design guidelines for use around Kolbe & Kolbe products. It offers general recommendations; however, specific conditions may require adjustments. The included illustrations apply to Ultra Series and Heritage Series unit types.

For more precise information on anticipated joint movement and sealant joint design for your specific project and building location, consult your architect, engineer, builder, installer, or sealant manufacturer.
Kolbe & Kolbe assumes no responsibility for damage to windows or water infiltration resulting from improper sealant joint design, sealant failure, or wall flashing deficiencies.

For additional guidance on sealant application, refer to the installation instructions specific to your unit.
For more flashing details, refer to the *Flashing* instructions found on the Kolbe website.

General Notes:

- Details represent various wall systems; similar products in the same wall construction will follow comparable principles.
- These details do not constitute complete installation instructions.

Always refer to official unit type Installation Instructions for step-by-step guidance.

Key Objectives for Installation:

- Minimize water and air infiltration.
- Accommodate expansion and contraction around the unit.
- Securely attach the unit to the wall.

Sealant Joint Design:

- Select sealant and joint configuration based on anticipated movement, substrate compatibility, and environmental exposure for your specific project and location..
- Typical joint types include:
  - Fillet Joint – Sealant applied at the intersection of two surfaces.
  - Backer Rod & Sealant Joint – Sealant applied over a backer rod to control depth and shape.

Common Installation Methods:

- **Integrated Nailing Fins:** Typically used for exterior installation to sheathing; common in wood, vinyl, stucco (new construction), and brick veneer (new construction).
- **Installation Clips:** Ideal for interior fastening, often used in renovation projects.
- **Screw Through the Frame:** Suitable for both interior and exterior installation; commonly used when fastening to a wood buck in concrete or masonry wall systems. Utilized for units installed without nailing fin or exterior casing.

Key Installation Procedures:

- Shim the unit so it is plumb, level, and square. Shim windows at least ¼" above the sill plate for proper clearance.
- Use shims to maintain straight frame alignment.
- When insulating around the unit, use batt insulation or low-expansion window and door foam. Do not use high-compression foam.

Note: Illustrations show minimal spacing for clarity; actual assembly may vary.

ITEMS REQUIRED BY INSTALLER

- Safety glasses/goggles
- Sealant
- Caulk gun
- Shims
- Flashing tape
- Fiberglass insulation
- Putty knife
- Power drill
- Closed cell foam backer rod in 1/2" (13mm) & 1" (25mm) diameters

SEALANT JOINT DESIGN GUIDELINES

A common rule for sealant joint design is that the gap between two building components be at least four times the anticipated movement. This approach keeps sealant strain to around 25%, helping to maintain the integrity of the joint over time. It is crucial to use a high-quality sealant with a low modulus (which allows for easier stretching and compressing) and a high movement capability.

NOTE
All surfaces must be clean and dry before applying any sealant for optimal adhesion.

Key Considerations for Sealant Selection:

1. **Movement Capability:**
   - A sealant with a movement rating of 25% is acceptable.
   - A 50% or higher rating is preferable for better performance and longevity.
2. **Low Modulus Sealants:**
   - Easier to stretch or compress, reducing stress on the joint.
   - This extends the service life of the joint.
3. **Installation Considerations:**
   - The installer must determine if a moving joint is necessary.
   - For moving joints, a minimum gap of 1/4" (6.35 mm) is recommended.
   - This allows for approximately 1/16" (1.5 mm) of movement, which is equal to 1/4" ÷ 4.
   - The installer must account for greater movement based on project specifics.
4. **Sealant Compatibility:**
   - Ensure the selected sealant adheres to both building materials.
   - Special cleaning, priming, or a different type of sealant may be needed for optimal performance.

Recommended Types of Sealants:

1. **Silicone Sealants:**
   - Highly recommended for most applications due to their excellent movement capabilities (up to 50%), long life expectancy, and strong adhesion to a wide range of surfaces.
   - They perform well across varying temperatures and come in both paintable and non-paintable options.
   - However, acetoxy-based silicone sealants (those with a vinegar-like smell) should not be used on porous materials like brick, stone, or concrete as they can degrade these surfaces.
2. **Urethane Sealants:**
   - Offer fair movement tolerance and may be required for specific substrates that do not bond well with silicone sealants.
3. **Acrylic Sealants (Latex and Solvent-Based):**
   - Generally not recommended due to poor movement ratings, shorter life expectancy, and tendency to become stiff and brittle over time.

Building Surfaces:

- **Bare Wood:** May bleed oils or resins, but most silicone sealants adhere well.
- **Latex Painted Wood:** Ensure the paint is fully cured; most silicone sealants will adhere well.
- **Polyurea or Polyurethane (K-Kron) Painted Wood:** Most silicone sealants show excellent adhesion.
- **Painted Aluminum (Polyester or Fluoropolymer Coatings):** These smooth surfaces often require silicone sealants with aggressive adhesion properties; special surface preparation may be necessary.
- **Vinyl Siding (PVC):** Not all silicone sealants are compatible with vinyl; check sealant specifications.
- **Brick, Concrete, and Stone Masonry:** Avoid using acetoxy-based silicone sealants, as they can degrade mortar and other porous materials. Primer may be needed for porous stone surfaces.
- **Stucco & EIFS (Exterior Insulation Finish Systems):**
  - Portland Cement Stucco & MB (Mineral-Based) EIFS: Stucco, like concrete, has unique adhesion concerns. Ensure that the bond to the insulation substrate is not overstressed.
  - PM (Polymer-Modified) and PB (Polymer-Based) EIFS: Similar concerns apply. Some EIFS systems are not compatible with silicone sealants; always consult the EIFS supplier for compatibility.

This guide has been updated to reflect the latest best practices in sealant joint design, selection, and installation for a variety of building materials. Always refer to manufacturer recommendations and technical data sheets for the specific sealants and materials being used.

Nail Fin Corner Seal Application:
For clad exterior Ultra Series units with nail fin and without casing and before unit installation, apply a nailing fin foam corner seal on each corner **(Fig. 1)** at the top of the frame where the side jamb and head jamb nail fins meet.

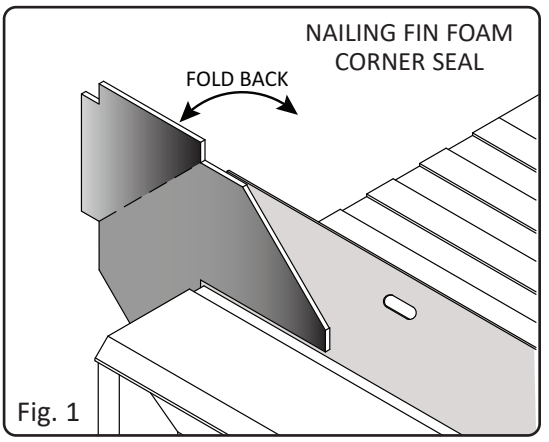


Fig. 1

INSTALLATION DETAILS: NO NAIL FIN OR APPLIED EXTERIOR CASING

(Fig's 2, 3, 4 & 5) SCREW THROUGH THE FRAME INSTALLATION METHOD
NO NAIL FIN OR APPLIED EXTERIOR CASING
(DRIP CAP AT THE HEAD REQUIRED, see Kolbe's Drip Cap Application Instruction for more details on applying drip cap.)

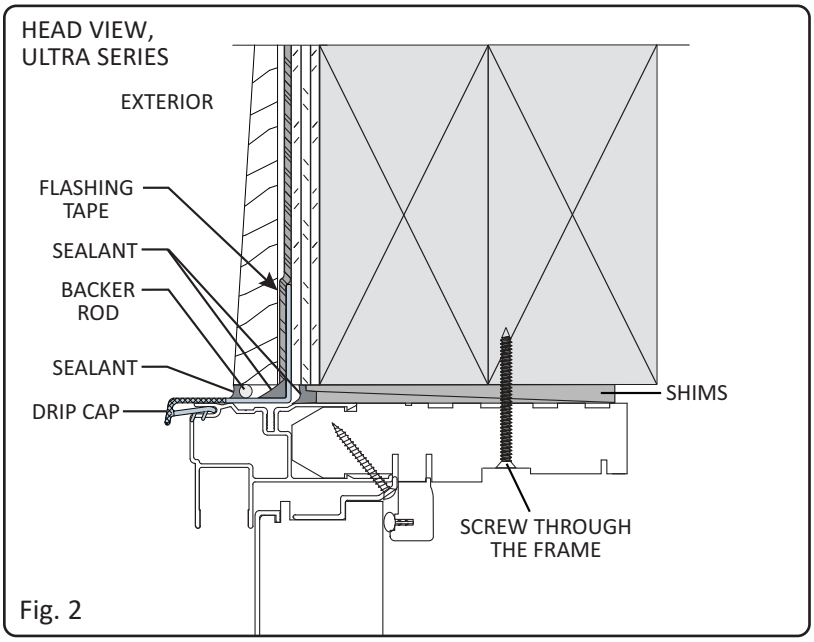


Fig. 2

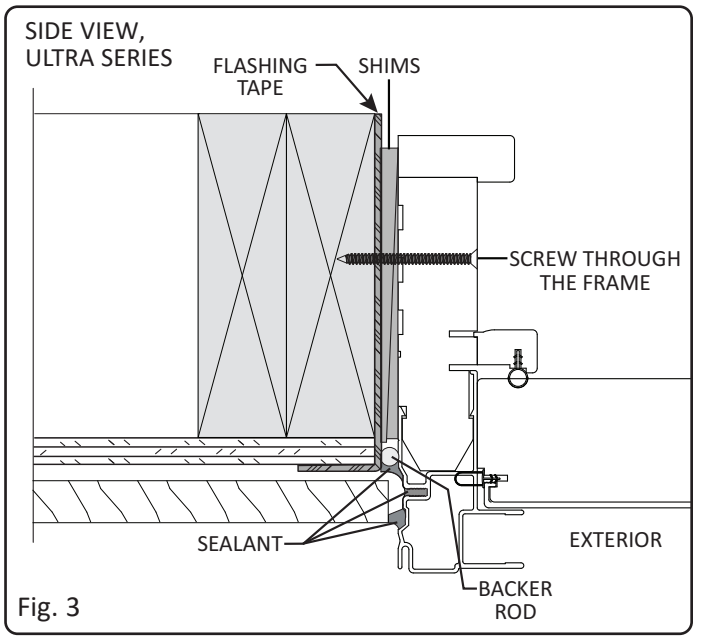


Fig. 3

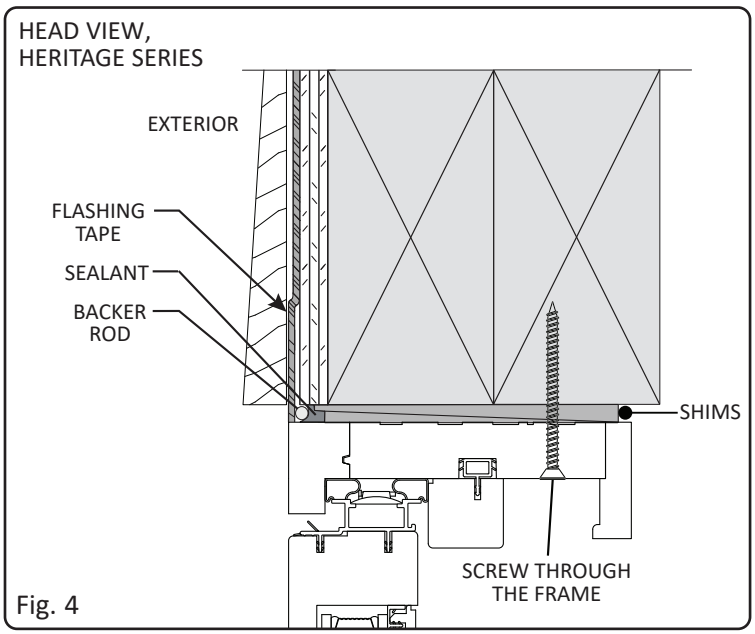


Fig. 4

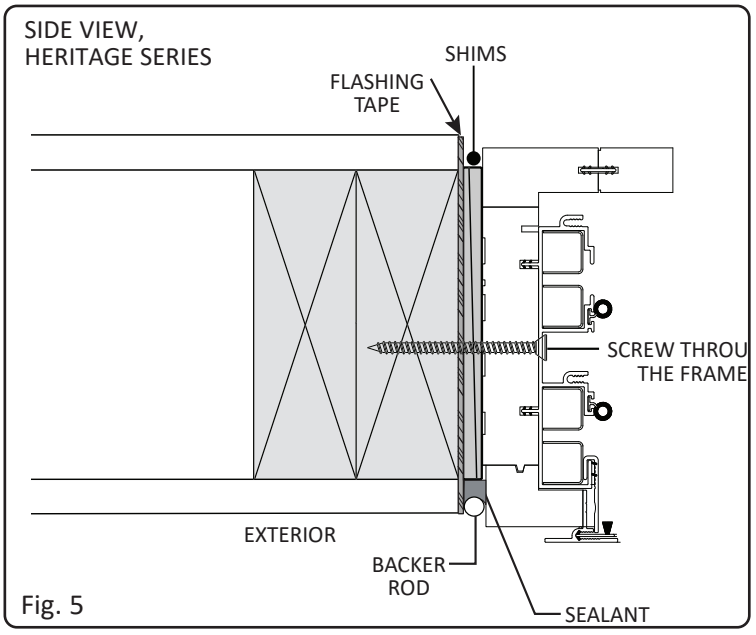


Fig. 5

SEALANT TYPES AND DEFINITIONS

Installer-applied sealant joints on Kolbe & Kolbe units typically fall into one of these categories: lap, fillet, modified-fillet, or wide-butt. In this discussion and the accompanying illustrations, the window frame's side jamb and brickmould are considered stationary, while the wall or siding is assumed to move horizontally.

LAP JOINT

The lap joint illustrated is classified as non-moving, because the two adjacent building components are positioned very close together. A concealed sealant joint is difficult to inspect later for potential issues (see Fig. 6 & 7).

FILLET JOINT

The brickmould side jamb fillet joint is also non-moving for similar reasons. However, the perimeter fillet joint that seals the brickmould to the siding will experience movement—even if the brickmould is nailed to the wall—since the siding itself will shift.

A different sealant joint rated for movement is required for sealing to the siding (see Fig. 8 & 9).

MODIFIED-FILLET JOINT

The modified-fillet joint shown leaves a gap between the brickmould and siding. Insert a foam backer rod into the gap and apply sealant as illustrated. This joint can tolerate some movement (see Fig. 10 & 11).

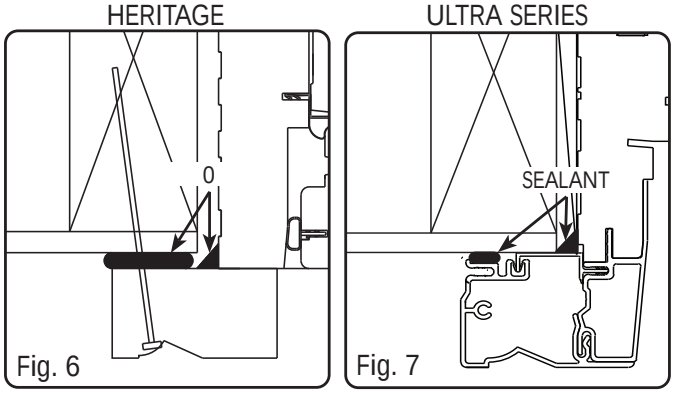
A similar movement issue occurs when a window is structurally fastened to a wood main wall, while the perimeter seal attaches to a floating brick veneer. The brick wall may move independently of the wood wall, requiring a joint with greater movement tolerance.

WIDE-BUTT JOINT

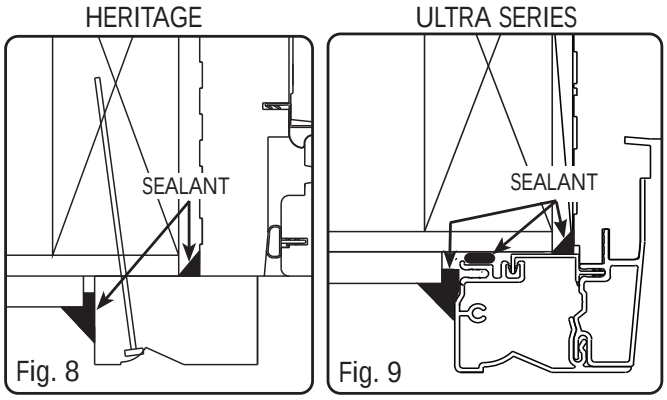
Wide-butt joints are typically 3/8" wide or more. This type of sealant joint offers the greatest movement capability. A foam backer rod is usually placed behind the sealant (although in certain cases, TEFLON® or polyethylene bond breaker tape may be used).

The joint is hourglass-shaped, providing ample adhesive contact on both sides, with a thinner center section to allow easy movement (see Fig. 12 & 13).

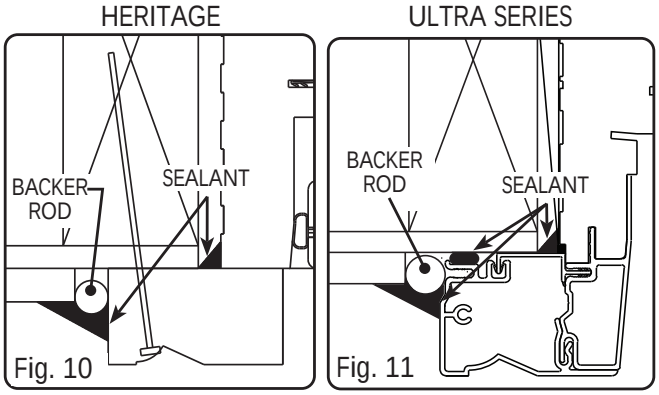
LAP JOINT



FILLET JOINT



MODIFIED-FILLET JOINT



WIDE-BUTT JOINT