Punched Openings

The application types, installation method & accessories pages contain recommendations and options for applying Pella products to a wide variety of project applications.

Many installation methods are available to meet new construction or replacement project needs. The installation method must fit in the construction sequence, provide secure attachment and integrate with the building envelop. The installation methods shown below are recommended single & combination opening applications. Other options or variations may exist.

### Single & Combination Openings Installation Method Options

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</tr>
<tr>
<td>Nail Fin</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Enduraclad® Exterior Trim for New Construction</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Clip</td>
<td>Y</td>
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<td>Y</td>
<td>Y</td>
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<tr>
<td>Anchor Through Frame</td>
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<td>Y</td>
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<td>Y</td>
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<td>L-Receptor</td>
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<td>–</td>
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<td>–</td>
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<tr>
<td>Wood Brickmould</td>
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<td>–</td>
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<td><strong>Replacement</strong></td>
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<td></td>
</tr>
<tr>
<td>Nail Fin For Replacement</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Enduraclad® Exterior Trim For Replacement</td>
<td>Y</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Clip or Anchor Through Frame after Complete Removal</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>Y</td>
</tr>
<tr>
<td>Anchor Through Frame in Pocket Replacement from the Exterior</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Anchor Through Frame in Pocket Replacement from the Interior</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Subframe</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>T-Subframe/T-Receptor</td>
<td>Y</td>
<td>–</td>
<td>Y</td>
<td>–</td>
<td>–</td>
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</tr>
</tbody>
</table>
Punched Openings

Rough Opening Sizes and Sealants

Typical Rough Opening & Sealant Recommendations

Rough opening clearances are required to create adequate space for flashing, construction & manufacturing tolerances, thermal movement and sealants.

Fiberglass and vinyl windows and doors are often sized using nominal frame sizes, which are equivalent to rough opening size in inches or feet and inches for single openings. Clad and wood products are typically referred to by actual frame size.

<table>
<thead>
<tr>
<th>Construction Type</th>
<th>Single Opening</th>
<th>Combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum-Clad Wood</td>
<td>3/8&quot; (3/4&quot; total)</td>
<td>1/2&quot; to 5/8&quot; (1&quot; to 1-1/4&quot; total)</td>
</tr>
<tr>
<td>Pella® Impervia® Fiberglass</td>
<td>1/4&quot; (1/2&quot; total)</td>
<td>3/8&quot; (3/4&quot; total)</td>
</tr>
<tr>
<td>Pella® 350 Series Vinyl</td>
<td>1/4&quot; (1/2&quot; total)</td>
<td>3/8&quot; (3/4&quot; total)</td>
</tr>
<tr>
<td>Pella® 250 Series Vinyl</td>
<td>1/4&quot; (1/2&quot; total)</td>
<td>3/8&quot; (3/4&quot; total)</td>
</tr>
<tr>
<td>Encompass by Pella® Vinyl</td>
<td>1/4&quot; (1/2&quot; total)</td>
<td>3/8&quot; (3/4&quot; total)</td>
</tr>
</tbody>
</table>

Door rough openings should be sized as shown above for width and 1/2" greater than frame in height. Door sill clearance is 0". Increase rough opening clearances to accommodate flashing material build-up to maintain the dimensions shown above.
Nailing Fin with Sheet Weather Barrier

The nailing flange secures the window or door to the opening. Window & door products are installed from the exterior before the wall cladding. Exterior perimeter sealants and wall flashing deflect bulk water away from the installation. Self-adhered flashing deflects incidental moisture. A drainage path and exit point is available for managing water in the installation and an interior perimeter air seal provides a continuation of the building’s air barrier.

- **A**: Wall flashings with a drip direct water inside the walls drainage cavity to the exterior.
- **B**: Interior sealants prevent air flow and the resulting incidental moisture intrusion.
- **C**: Exterior sealants stop bulk water from entering the wall and window/wall interface.
- **D**: Installation fins secure the window from the exterior, are integrated with the weather barrier in water-shed fashion and allow the building to be enclosed prior to the installation of cladding.
- **E**: A drainage path must be maintained in the perimeter shim space to prevent the trapping of incidental moisture.
- **F**: Do not seal fin to the wall at sill to prevent the trapping of incidental moisture.
- **G**: Cap flashing may be used to prevent the intrusion of moisture at vertical mullion joints.
Nailing Fin with Fluid Applied Weather Barrier

With most fluid applied WRB systems, the WRB is extended into the opening on all four sides. After the window is placed in the opening, an additional application of the fluid WRB is applied at head and jambs. Spacers behind the sill nail fin can assist with maintaining an exit point for secondary moisture.

A: Wall flashings with a drip direct water inside the walls drainage cavity to the exterior.
B: Interior sealants prevent air flow and the resulting incidental moisture intrusion.
C: Exterior sealants stop bulk water from entering the wall and window/wall interface.
D: Installation fins secure the window from the exterior, are integrated with the weather barrier in water-shed fashion and allow the building to be enclosed prior to the installation of cladding.
E: A drainage path must be maintained in the perimeter shim space to prevent the trapping of incidental moisture.
F: Do not seal fin to the wall at sill to prevent the trapping of incidental moisture.
G: Add 1/16" to 1/8" drainage spacer between fin and wall to ensure proper drainage.
Nailing Fin Over Exterior Insulation

When a window is installed over rigid insulation, additional support elements are required to support the window’s weight and prevent frame rotation and deflection during wind loading. Pella’s patented support clips or supporting materials can provide this support. At doors, structural blocking is required to support hinge and strike anchors.

Wood blocking or support brackets keep the window in the proximity of the wall cladding to support the installation of exterior perimeter sealants.

1. This option requires less wood blocking; however, decreases the amount of exterior insulation at the perimeter of window openings.

2. This option requires more wood blocking; however, increases the amount of exterior insulation at the perimeter of window openings.

3. This option eliminates the use of wood blocking and maximizes the amount of exterior insulation at the perimeter of window openings.
Nailing Fin Under Exterior Insulation

When a window or door is installed with a nailing flange under exterior insulation, the wall cladding must be returned to the frame or customized exterior frame extensions are available to extended the window to the wall cladding for the application of exterior sealants.

1. Exterior frame extensions are installed after the window is placed in the opening.
2. Exterior frame extensions are secured to the window frame before or after window installation.
Creating a traditional aesthetic with a durable, low maintenance exterior trim is easy with Pella’s factory applied Enduraclad® Exterior Trim.

Wall flashings with a drip direct water inside the walls drainage cavity to the exterior.

Interior sealants prevent the intrusion of water generated by a differential in air pressure between the interior and exterior.

Exterior sealants reduce elevated pressures caused by the compounding nature of bulk water cascading down the exterior of the building.

Installation fins integrate with the walls weather barrier with flashing tape or membrane in a ship lap fashion.

A drainage path must be maintained in the perimeter shim space to prevent the trapping if incidental moisture.

Do not seal fin to the wall at sill to prevent the trapping of incidental moisture.
Punched Openings

Enduraclad Exterior Trim for New Construction

Factory Applied Enduraclad® Exterior Trim for New Construction

Factory Applied Enduraclad® Exterior Trim is available in five profiles for aluminum clad windows and doors. Windows are available with four different sill options.

Head and jamb joints are mitered except for the 3-1/2" flat casing option, which is butt jointed.

3-1/2" wide trim has a narrow flange for flashing purposes only. Clips or anchors through the frame must be used to secure the window or door.

Jamb pieces are cut to fit on the sloped sill and notched to create a water managed trim system.

Maximum combination size: 138” x 101”.

Not available on 4-panel sliding doors, bays & bows, precision fit windows and Architect Series® Specialty windows.

<table>
<thead>
<tr>
<th>HEAD DRIP CAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 11/16&quot;</td>
</tr>
<tr>
<td>2&quot;</td>
</tr>
<tr>
<td>2 5/16&quot;</td>
</tr>
<tr>
<td>1 3/8&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRIM PROFILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>2 3/16&quot;</td>
</tr>
<tr>
<td>3 1/2&quot;</td>
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</table>

<table>
<thead>
<tr>
<th>SILL NOSE</th>
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</thead>
<tbody>
<tr>
<td>1/2&quot; Nose</td>
</tr>
<tr>
<td>1 1/2&quot; Nose</td>
</tr>
<tr>
<td>2&quot; Nose</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Frame to exterior trim</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>Jamb (single)</td>
</tr>
<tr>
<td>1-1/2&quot; Brickmould</td>
</tr>
<tr>
<td>3-1/2&quot; Brickmould</td>
</tr>
<tr>
<td>3-1/2&quot; Flat Casing</td>
</tr>
<tr>
<td>Jefferson</td>
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<tr>
<td>Monroe</td>
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</tbody>
</table>

These dimensions do NOT include 3/8" per side for sealant, foam and backer rod, only the dimension of the trim beyond the unit frame.
Punched Openings

Field Applied Traditional Exterior Trim for New Construction

Standard and flat aluminum brickmould with sill nose for installation in the field after a nailing fin installation is complete. Available for aluminum-clad products only.

![Diagram of Field Applied Traditional Exterior Trim](image)

Custom Profiles available

Details Available for: Clad
Field Applied Custom Exterior Trim for New Construction or Replacement

Custom extruded aluminum trim can be designed to meet aesthetic and installation goals. It is available through Pella Architectural Solutions. Contact your Pella representative for assistance.

Example Profiles

A  Custom extruded aluminum exterior trim for installation after a nailing fin installation is complete. Typically used in new construction building additions replicating historic.

B  Custom extruded aluminum exterior trim attached to window frame for installation over an existing window frame left in place or over blocking. Typically used in replacement applications.

C  Custom extruded aluminum exterior trim installed over frame expander or brake metal and secured using standard clips. Typically used in replacement applications.
Punched Openings

Clip or Anchor Through Frame Installation - New Construction

The installation clip or screw secures the window or door to the opening. Window and door products are installed from the exterior or interior after the wall cladding. Exterior perimeter sealants and wall flashing deflect bulk water away from the installation. A drainage path and exit point is available for managing water in the installation and an interior perimeter air seal provides a continuation of the building’s air barrier.

Subsill flashing systems can be used to provide an exit path for secondary moisture if a through wall flashing is not available.

- **A**: Optional Installation screws permit the window to be secured from the interior after the wall cladding is in place without penetrating the interior seal.
- **B**: Optional Installation clips permit the window to be secured from the interior after the wall cladding.
- **C**: A drainage path and exit point is available for managing water in the installation.
- **D**: Interior sealants prevent air flow and the resulting incidental moisture intrusion.
- **E**: Exterior sealants stop bulk water from entering the wall and window/wall interface.
- **F**: A masonry compatible membrane will prevent moisture in the wall from entering the shim space.
- **G**: Optional Pella subsills provides a drainage path for incidental moisture to the exterior.
Punched Openings

Installation Clip - Aluminum Clad Exterior Windows and Doors

Installation Clip - Pella® Impervia® Fiberglass and Pella® 350 Series Vinyl Products

Optional Subsill - Aluminum Clad Exterior Windows

Optional Subsill - Pella® Impervia® Fiberglass Windows

Details Available for:

- Clad
- Fiberglass
- Vinyl
Punched Openings

Clip or Anchor Through Frame Installation - Complete Frame Replacement

The installation clip or screw secures the window or door to the opening. Window and door products are installed from the exterior or interior after the existing frame has been removed. Exterior perimeter sealants and trims deflect bulk water away from the installation. An interior perimeter seal prevents air infiltration.

A: A method for anchoring a replacement window is clip in combination with anchor through frame. The benefit of an installation clip method is the elimination of fastener holes in the interior finish.

B: A treated wood buck can prevent the absorption of moisture by a window from a solid brick with or mass wall, which manages water through absorption and evaporation.

C: A drainage path must be maintained in the perimeter shim space to prevent the trapping if incidental moisture.

D: Interior sealants prevent the intrusion of water generated by a differential in air pressure between the interior and exterior.

E: Exterior sealants reduce elevated pressures caused by the compounding nature of bulk water cascading down the exterior of the building.

F: An anchor through frame method is recommended to eliminate penetrations in the interior line of sealant at the sill, where the greatest potential for water penetration exists.
**Punched Openings**  
Clip or Anchor Through Frame Installation - Exterior Trim

Frame Expander Exterior Trim - Aluminum Clad & Pella® Impervia® Fiberglass Windows and Doors

Details Available for:  
- Clad
- Fiberglass

Frame Expander Exterior Trim - Pella® 350 Series Vinyl Products

Details Available for: Vinyl

Frame Expander Exterior Trim - Pella® 250 Series & Vinyl Products

Details Available for: Vinyl

Brickmould with Clip Exterior Trim

Details Available for:  
- Clad
- Fiberglass
- Vinyl

Custom profiles available. Contact your Pella representative for assistance.
Punched Openings  
Clip or Anchor Through Frame Installation - Exterior Trim

Field Applied Historic Brickmould

All other Clad Wood products including Architect Series® Monumental Hung

Architect Series® Double Hung (Traditional, Contemporary, and Reserve)

Trim # 19876
1 7/8" Dimension may vary to accommodate project specifications.

Trum # 19875
3 Step Historic Brickmould with Clip

Brickmould # 19874
Clip # 72AQ

Sill Cover # 49A1M119
119 Break Metal Configured as needed to actual project conditions.

*This configuration of extruded brickmould and break metal sill cover has previously been approved for use with historic projects. It is available through custom quoting as noted below. Please verify approval with local historic review board prior to ordering. Custom variations are available upon request.

Refer to the product information pages for nail fin types, wall depth and frame project options for each product. Refer to InstallPella.com for current installation instructions.
Punched Openings

Clip or Anchor Through Frame Installation - Exterior Trim

Brake Metal Mullion Trim

<table>
<thead>
<tr>
<th>M100</th>
<th>M101</th>
<th>M102</th>
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<tbody>
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<table>
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<tbody>
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Brake Metal Head and Jamb Trim

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<table>
<thead>
<tr>
<th>M110 Bay Jamb</th>
<th>M111 Bow Jamb</th>
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Brake Metal Sill Trim and Flashing

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<th>M114</th>
<th>M115</th>
<th>M116</th>
<th>M117</th>
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<th>M128</th>
<th>M130</th>
<th>M131</th>
<th>M132</th>
<th>M133</th>
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</tbody>
</table>

M129 Attachment Clip

Compatible with: Clad, fiberglass
Punched Openings

Factory Applied Enduraclad® Exterior Trim for Complete Frame Replacement

Details Available for: Clad

The installation clip or screw secures the window or door to the opening. Window and door or products are installed from the exterior after an existing brickmould and frame has been removed. Exterior perimeter sealants and trims deflect bulk water away from the installation. An interior perimeter seal prevents air infiltration. Refer to the Enduraclad® Exterior Trim Options page for trim and head drip flashing options.

A: Optional Installation screws permit the window to be secured from the interior after the wall cladding is in place without penetrating the interior seal.

B: Optional Installation clips permit the window to be secured from the interior after the wall cladding.

C: A drainage path must be maintained in the perimeter shim space to prevent the trapping of incidental moisture.

D: Interior sealants prevent air flow and the resulting incidental moisture intrusion.

E: Exterior sealants stop bulk water from entering the wall and window/wall interface.

F: A masonry compatible membrane will prevent moisture in the wall from entering the shim space.
Punched Openings

Wood Brickmould Installation

Wood Brickmould Exterior Trim & Installation

Details Available for: Wood Exterior

Wood Subsill

 Sealant

Interior Perimeter

Exterior Brickmould Anchor

Incidental Moisture

Drainage Path

Through Frame Anchor

1 7/8” [47]

3/16” [5]

11/16” [17]

1 1/8” [29]

1 1/8” [29]

1 1/8” [29]

3 1/2” FLAT CASING #380R

#38L6

BRICKMOULD WITH RABBET

1 1/8” [29]

3/16” [5]

CURVED WITH RABBET #33M

1 1/8” [29]

3/16” [5]

CURVED WITHOUT RABBET #33P2

1 1/8” [29]

3/16” [5]

WITH RABBET #3443

1 1/8” [29]

3/16” [5]

WITHOUT RABBET #3419

5 3/8” [137]

5/16” [8]

1 1/8” SUBSILL #3544

1 7/8” [47]

3/16” [5]

1 1/8” [29]

1 1/8” [29]

1 1/8” [29]

Pella Wood Subsill
L-Receptor Installation for Aluminum Clad Products

An L-shaped receptor is secured to the head and jambs of the opening and a subsill flashing system at the sill. A compressible gasket is installed in the accessory groove. Clips attached to the frame at the head and jambs are screwed to the receptors, compressing the gasket.

Windows and Doors can be installed from the interior before or after wall cladding materials.

Details Available for: Clad

Refer to InstallPella.com for current installation instructions.
Receptor Installation for Pella® Impervia® Fiberglass Products

An L or T-shaped receptor is secured to the head and jambs of the opening and a subsill flashing system at the sill. A compressible gasket is installed in the accessory groove. Clips attached to the frame at the head and jambs are screwed to the receptors, compressing the gasket.

Windows and Doors can be installed from the interior before or after wall cladding materials.
Punched Openings

Pocket Replacement from the Exterior

An existing wood hung window frame is left in place while the sashes, exterior stop and parting stop are removed, the new window is placed from the exterior against the interior stop. No interior trim is disturbed.

In some cases, brake metal or frame expander exterior trim can be used to create a low maintenance exterior finish over the existing window frame.

Refer to InstallPella.com for current installation instructions.
Pocket Replacement from the Interior

An existing wood hung window frame is left in place while the sashes, interior stop and parting stop are removed, the new window is placed from the interior against the exterior stop. No exterior materials are disturbed. The interior stop can sometimes be re-used. Frame depths of approximately 3-1/4”, Precision Fit® windows and "replacement windows" are designed for this installation method.

In some cases, brake metal or frame expander exterior trim can be used to create a low maintenance exterior finish over the existing window frame.
Subframe Installation

An existing wood window frame is left in place while the sashes are removed, and a pre-assembled subframe is secured to the opening. The new window is placed from the interior inside the subframe. No exterior materials are disturbed.

In many cases, all installation steps can be complete from the interior.

*NOTE: Subframe leg may be field-cut as required.

Refer to InstallPella.com for current installation instructions.
T-Subframe Installation

An existing aluminum or steel window frame is left in place while the sashes are removed, and a pre-assembled subframe is secured to the opening. The new window is placed from the interior inside the subframe. No exterior materials are disturbed. In many cases, all installation steps can be complete from the interior.

*NOTE: Subframe leg may be field-cut as required.*
Punched Openings

Pella SmartFlash Tape

Pella’s exclusive SmartFlash installation tape is overlapped to create a natural drainage path when applied according to Pella’s installation instructions. This extra-tough tape stands up to a lifetime of UV exposure and can be applied in temperatures as low as 0º F. Plus, it easily tears to length.

<table>
<thead>
<tr>
<th>Overall Performance</th>
<th>Pella® Foil Backed (Butyl-Based)</th>
<th>Polyethylene-Backed (Butyl-Based)</th>
<th>Mylar-Backed (TAR-BASED)</th>
<th>Polyethylene-Backed (TAR-BASED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunlight Exposure (UV/Xenon)</td>
<td>Excellent No Impact on tape.</td>
<td>Fair Shows weathering 120 days’ maximum exposure.</td>
<td>Excellent No Impact on tape.</td>
<td>Poor Material degraded quickly 30 to 120 days maximum exposure.</td>
</tr>
<tr>
<td>Hot/cold Performance (-40º F to 160º F)</td>
<td>Excellent No Impact on tape.</td>
<td>Fair Some curling in corners.</td>
<td>Fair Some curling in corners.</td>
<td>Poor Curls quickly in corners.</td>
</tr>
<tr>
<td>Cold Adhesion</td>
<td>Excellent Adheres down to 0º F.</td>
<td>Fair Adheres down to 30º F.</td>
<td>Poor No adhesion at temperatures less than 40º F.</td>
<td>Poor No adhesion at temperatures less than 40º F.</td>
</tr>
<tr>
<td>Ease of application</td>
<td>Excellent Foil conforms to shape. Thinnest and 3” width improve ease of installation. Can tear by hand.</td>
<td>Fair Hard to conform to shape, cannot tear by hand. If stretched, to apply it comes back to initial dimensions.</td>
<td>Poor If cold, it won’t stick. If hot, it sticks too aggressively and is hard to adjust. It is messy and stains.</td>
<td>Poor If cold, it won’t stick. If hot, it sticks too aggressively and is hard to adjust. It is messy and stains.</td>
</tr>
<tr>
<td>Material Thickness</td>
<td>Excellent (11mm) Thinnest window and door flashing tape. Allows less build-up at corners for improved water performance and makes it easier to apply J-moulds and trim.</td>
<td>Fair to poor (20 – 30mm). At least twice as thick as Pella® tape.</td>
<td>Fair to Poor (25 - 30mm) Significant build-up in corners.</td>
<td>Poor (25 - 50mm) Significant build-up in corners.</td>
</tr>
<tr>
<td>Material Flow In Heat</td>
<td>Excellent No Impact on tape.</td>
<td>Excellent No Impact on tape.</td>
<td>Poor Tar flows significantly at 160º F.</td>
<td>Poor Tar flows significantly at 160º F.</td>
</tr>
<tr>
<td>Sealant Compatibility With Adhesive</td>
<td>Excellent No Impact on tape.</td>
<td>Excellent No Impact on tape.</td>
<td>Poor Incompatible with polyurethane.</td>
<td>Poor Incompatible with polyurethane.</td>
</tr>
<tr>
<td>Sealant Compatibility With backing</td>
<td>Excellent Polyurethane, silicones and other sealants adhere to backing material.</td>
<td>Poor Polyurethane, silicones and other sealants do not adhere to backing.</td>
<td>Excellent Polyurethane, silicones and other sealants adhere to backing material.</td>
<td>Poor Polyurethane, silicones and other sealants do not adhere to backing.</td>
</tr>
</tbody>
</table>

Material Specifications

- **Width:** Available in 3” or 6” widths
- **Backin:** Aluminum foil, 2 mils thick
- **Adhesive:** Black butyl rubber adhesive without asphalt, 9 mils thick
- **Overall Thickness:** 11.0 mils
- **Release Paper:** Poly-coated natural kraft paper
Punched Openings

Pella Window and Door Installation Sealant

Pella® Window and door Installation Sealant* is a one-component, multi-purpose, fast cure polymer-modified polyurethane sealant that is environmentally friendly and adheres to all Pella Window and door or frames and common construction material, including aluminum, steel, vinyl, painted metals, wood, glass, flashing and underlayment papers. It contains no solvents or isocyanate and requires no primer. Pella Window and door or Installation Sealant has excellent weatherability, resists yellowing, is non-staining, paintable, and has superior elasticity. It extrudes at 0° F and achieves best results when applied above 32° F. Sealant will gain a skin in 30 minutes and exhibit full cure within 24 hours; and can be painted within two hours.

Specifications

Exceeds the requirements of ASTM C 920, Type S, Grade NS, Use NT, M, G and A; Federal Specification TT-S-00230C, Type II, Class A; CAN/CGSB-19 13-M87; AAMA 808.3-92 Exterior Perimeter Sealing.

Skin Time: Less than 20 minutes @ 77° F/50% RH
Tack Free Time: Less than 1 hour @ 77° F/50% RH
Cure Time: 1/4" Bead per 24 Hrs.
VOC: Chemically curing sealant, less than 30% VOC
Elongation @ Break: 450%
Shore A: 35+/-5
Movement Capability: 25%
Lap Shear: 350 psi
Staining: None
Low Temp. Flexibility: Retained to -90° F
High Temp. Flexibility: Up to 425° F for short periods
Sag: None

Features*

• Adheres to common building materials
• Superior Elasticity
• Environmentally Friendly
• No Solvents
• Interior Or Exterior Use
• Non-shrinking for use in Bedded Joints
• Fast Cure at Wide Range of Temperatures
• Resists Yellowing
• Available in All Pella Standard and Feature Colors
• Paintable

*Features and Specifications listed may not apply to translucent silicone.
Interior Trim Accessories for Vinyl Products

Compatible with: Vinyl

Interior Trim

Punched Openings

Compatible with: Clad, Fiberglass, Vinyl

Punch Openings

Interior Trim

Compatible with: Vinyl

Interior Trim Accessories for Vinyl Products

CASING Base Shoe CASING CORNER CLIP

1" X 3/4" STOP 3/4" X 1/2" STOP

Trim Extensions Traditional Interior Casing Flat Interior Trim

1-3/4" FLAT TRIM

Flat Interior Trim Base Shoe CASING CASING CORNER CLIP

3/4" X 1/2" STOP 1" X 3/4" STOP

Trim Extensions
Combination Openings

The International codes require that window and door products be tested for wind load performance or designed to limit deflection. Pella products are available in composites or combinations that can meet code requirements. Mullion stiffeners, and in some cases end load anchor brackets resist wind load and transfer it to the surrounding construction. Building structural elements can also be introduced to separate large combinations into smaller openings and provide wind load resistance.

Pella Architectural Support Services can conduct a design analysis and provide recommendations for combination mullion design and end load transfer requirements.

The following pages summarizes Pella’s composite and combination options by product type.

Wood Exterior and Aluminum-Clad Wood

### Combination Examples

- **Joining Mullion**
- **Reinforcing Plate** Horizontal Mullion only
- **1/2” Aluminum**
- **1/2” Heavy Aluminum**
- **1” to 4” Wood Spread**

### Factory and Site Assembled Combinations

<table>
<thead>
<tr>
<th>Mullion Type</th>
<th>Max. Design Pressure</th>
<th>Typical Max. Span</th>
<th>Max. Factory Combination Size</th>
<th>Max. Site Assembled Combination Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joining Mullion*</td>
<td>Up to 50 psf</td>
<td>Up to 8’</td>
<td>8’ x 12’</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>Reinforcing Plates</td>
<td>Up to 50 psf</td>
<td>Up to 8’</td>
<td>8’ x 8’ or 8’ x 8’</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2” Aluminum**</td>
<td>Up to 50 psf</td>
<td>Up to 12’</td>
<td>108” x 144” or 144” x 108”</td>
<td>20’</td>
</tr>
<tr>
<td>1/2” Heavy Aluminum**</td>
<td>Up to 50 psf</td>
<td>Up to 12’</td>
<td>108” x 144” or 144” x 108”</td>
<td>20’</td>
</tr>
<tr>
<td>1” to 4” Wood Spread Mullion</td>
<td>Up to 50 psf</td>
<td>Up to 12’</td>
<td>108” x 144” or 144” x 108”</td>
<td>Factory Assembled Only</td>
</tr>
</tbody>
</table>

Actual span and combination size availability depends on design pressure requirements. Consider combination size, weight and jobsite handling during design. The use of factory applied Enduradead Exterior Trim reduces the maximum factory assembled combination overall frame size to 138" x 101". *Not available when at least one window frame in not continuous between structural supports.

** Available with Aluminum Clad Wood products only.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.
Combination Openings

Pella® Impervia®

Composite Configuration Examples

**Fixed Frame**

**Single-Hung and fixed sash and frame**

**Combination Examples**

**Factory and Site Assembled Combinations**

<table>
<thead>
<tr>
<th>Mullion Type</th>
<th>Max. Design Pressure</th>
<th>Typical Max. Span</th>
<th>Max. Factory Combination Size</th>
<th>Max. Site Assembled Combination Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Mullion</td>
<td>Up to 30 psf</td>
<td>6’</td>
<td>9’ x 6’ Max. Composite</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>Joining Mullion</td>
<td>Up to 50 psf</td>
<td>5’</td>
<td>5’ x 12’ or 12’ x 5’</td>
<td>20’</td>
</tr>
<tr>
<td>Joining Mullion with Reinforcing Plates*</td>
<td>Up to 50 psf</td>
<td>5’</td>
<td>5’ x 12’ or 12’ x 5’</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2” Aluminum</td>
<td>Up to 50 psf</td>
<td>8’</td>
<td>8’ x 12’ or 12’ x 8’</td>
<td>20’</td>
</tr>
<tr>
<td>1/2” Steel Reinforced Aluminum</td>
<td>Up to 50 psf</td>
<td>9’ (Field Assembly)</td>
<td>12’ (Factory)</td>
<td>8’ x 12’ or 12’ x 8’</td>
</tr>
</tbody>
</table>

Actual span and combination size availability depends on design pressure requirements. Consider combination size, weight and jobsite handling during design.

The use of nailing fins reduces the maximum factory assembled combination overall frame size.

For combinations with more than 2 windows, all windows within a row or column must have the same frame depth.

*Available on Casement & Awning Products only.

**Double Hung cannot be placed above a 1/2” Aluminum Mullion.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.

For combinations with more than 2 windows, all windows within a row or column must have the same frame depth.

**Available on Casement & Awning Products only.

**Double Hung cannot be placed above a 1/2” Aluminum Mullion.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.
Combination Openings

Pella® 350 Series Vinyl

Composite Examples

Fixed Frame

Single and Double-Hung

Factory and Site Assembled Combinations

<table>
<thead>
<tr>
<th>Mullion Type</th>
<th>Max. Design Pressure</th>
<th>Typical Max. Span</th>
<th>Max. Factory Combination Size</th>
<th>Max. Site Assembled Combination Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Mullion</td>
<td>20 psf</td>
<td>5'</td>
<td>10’ x 5’</td>
<td>Factory Only</td>
</tr>
<tr>
<td>1/2” Light Structural Mullion</td>
<td>50 psf</td>
<td>6’</td>
<td>10’ x 8’ or 72 sq ft</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2” Structural Mullion</td>
<td>50 psf</td>
<td>8’</td>
<td>10’ x 8’ or 72 sq ft</td>
<td>12’</td>
</tr>
<tr>
<td>1/2” Structural Mullion with Reinforcement</td>
<td>70 psf</td>
<td>8’</td>
<td>10’ x 8’ or 72 sq ft</td>
<td>12’</td>
</tr>
<tr>
<td>1” Structural Mullion</td>
<td>70 psf</td>
<td>10’</td>
<td>10’ x 8’ or 72 sq ft</td>
<td>12’</td>
</tr>
<tr>
<td>1” Structural Mullion with Reinforcement(s)</td>
<td>70 psf</td>
<td>10’</td>
<td>10’ x 8’ or 72 sq ft</td>
<td>12’</td>
</tr>
</tbody>
</table>

Actual span and combination size availability depends on design pressure requirements.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.
Combination Openings

Pella® 250 Series Vinyl

Composite Examples

Actual span and combination size availability depends on design pressure requirements.

<table>
<thead>
<tr>
<th>Mullion Type</th>
<th>Max. Design Pressure</th>
<th>Typical Max. Span</th>
<th>Max. Factory Combination Size</th>
<th>Max. Site Assembled Combination Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integral Mullion</td>
<td>35 psf</td>
<td>6'-6&quot;</td>
<td>6'-6&quot; x 9' or 54 sq ft</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2&quot; Joining Mullion</td>
<td>20 psf</td>
<td>53.5&quot;</td>
<td>53.5&quot; x 108&quot; or 54 sq ft</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2&quot; Structural Mullion</td>
<td>50 psf</td>
<td>9'</td>
<td>144&quot; x 97&quot; or 72 sq ft</td>
<td>12'</td>
</tr>
<tr>
<td>1&quot; Structural Mullion</td>
<td>50 psf</td>
<td>9'</td>
<td>144&quot; x 97&quot; or 72 sq ft</td>
<td>12'</td>
</tr>
<tr>
<td>1&quot; Structural Mullion with Reinforcement(s)</td>
<td>50 psf</td>
<td>9'</td>
<td>144&quot; x 97&quot; or 72 sq ft</td>
<td>12'</td>
</tr>
</tbody>
</table>

*144" x 100" max. Overall frame size for block frame & 5/8" flange frame types.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.
Combination Openings

Encompass by Pella®

Composite examples

Fixed Frame

Single and Double-Hung

Sliding Window

Combination Examples

Factory and Site Assembled Combinations

<table>
<thead>
<tr>
<th>Mullion Type</th>
<th>Max. Design Pressure</th>
<th>Typical Max. Span</th>
<th>Max. Factory Combination Size</th>
<th>Max. Site Assembled Combination Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encompass by Pella® Vinyl</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integral Mullion</td>
<td>35 psf</td>
<td>6'-6&quot;</td>
<td>Varies by configuration</td>
<td>Factory Assembled Only</td>
</tr>
<tr>
<td>1/2&quot; Joining Mullion*</td>
<td>NA</td>
<td>53&quot;</td>
<td>53' x 107.5&quot;*</td>
<td>Max. of 3 windows per opening and 50 sq ft.</td>
</tr>
<tr>
<td>1/2&quot; Structural Mullion*</td>
<td>NA</td>
<td>9'</td>
<td>9' x 8'</td>
<td>Max. of 3 windows per opening and 50 sq ft.</td>
</tr>
<tr>
<td>1/2&quot; Structural Mullion (H-Bar)</td>
<td>NA</td>
<td>8'</td>
<td>9' x 7' or 54 sq ft</td>
<td>Max. of 3 windows per opening and 50 sq ft.</td>
</tr>
</tbody>
</table>

Actual span and combination size availability depends on design pressure requirements.

*Interior and exterior accessory grooves are required.

Design pressure shown indicates maximum structural performance of mullion only. Combination assemblies are not hallmark certified.
Combination Openings

Large combinations can be created by framing windows into separate openings and using Pella-supplied mullion trim or trim by others. The mullion structure must be designed to resist wind loads and any other building loads (if applicable).

Aluminum Clad and Pella® Impervia® Fiberglass Mullion Covers

Vinyl Mullion Covers*

"SPECIAL ORDER – Consult with your Pella representative"
Combination Openings

Door and Window Combinations

Transoms Over Doors

Minimum Mullion Recommendations

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Single-Wide Window Above</th>
<th>Multi-Wide Window Above</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aluminum Clad Exterior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 or 3 panel sliding</td>
<td>A, B, C, D</td>
<td>A, B, C, D</td>
</tr>
<tr>
<td>4 panel OXXO sliding</td>
<td>C, D</td>
<td>D</td>
</tr>
<tr>
<td>Hinged*</td>
<td>A, B, C, D</td>
<td>B, C, D</td>
</tr>
<tr>
<td><strong>Pella® Impervia® Fiberglass</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 panel sliding</td>
<td>E, F, D</td>
<td>D</td>
</tr>
<tr>
<td><strong>Pella® 350 Series Vinyl</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 panel sliding</td>
<td>G, D</td>
<td>D</td>
</tr>
<tr>
<td>3 or 4 panel sliding</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td><strong>Encompass by Pella® Vinyl</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 panel sliding</td>
<td>H, D</td>
<td>D</td>
</tr>
</tbody>
</table>

*Any time closer hardware is used, a minimum 1.5” solid wood factory or field assembled spread mull is required between the door and transom(s).

Mullion options may be affected by wind loads and actual combination size. Consult with your Pella representative or Pella Architectural Services for project specific requirements.
Combination Openings

Door and Window Combinations

A - Joining Mullion
B - 1/2" Joining Mullion
C - 1 1/2" Spread Mullion
D - Framed Header
E - Joining Mullion
F - 1/2" Reinforcing Mullion
G - 4 1/4" Tube Mullion
H - 1/2" Flat Bar Mullion
## Minimum Mullion Recommendations

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Patio/Balcony Condition</th>
<th>High Traffic Entrance</th>
<th>Any Application with Sidelights &amp; Transoms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aluminum Clad Exterior</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding next to fixed door panel</td>
<td>A, B, C</td>
<td>NA</td>
<td>B, C</td>
</tr>
<tr>
<td>Hinged next to fixed door panel</td>
<td>A, B, C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Door next to window</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td><strong>Pella® Impervia® Fiberglass</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding next to fixed door panel</td>
<td>D, C</td>
<td>NA</td>
<td>C</td>
</tr>
<tr>
<td>Door next to window</td>
<td>C</td>
<td>NA</td>
<td>C</td>
</tr>
<tr>
<td><strong>Pella® 350 Series Vinyl</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding next to fixed door panel</td>
<td>C</td>
<td>NA</td>
<td>C</td>
</tr>
<tr>
<td>Door next to window</td>
<td>C</td>
<td>NA</td>
<td>C</td>
</tr>
<tr>
<td><strong>Encompass by Pella® Vinyl</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sliding next to fixed door panel</td>
<td>C*, F**</td>
<td>NA</td>
<td>C</td>
</tr>
<tr>
<td>Door next to window</td>
<td>C</td>
<td>NA</td>
<td>C</td>
</tr>
</tbody>
</table>

* Use C type mullion on lock side of sliding doors.

**F** type mullion available only on fixed panel side.

Mullion options may be affected by wind loads and actual combination size. Consult with your Pella representative or Pella Architectural Services for project specific requirements.
Combination Openings

Product Application | Installation & Applications

A - Joining Mullion
B - 1 1/2" Spread Mullion
C - Framed Mullion
D - Joining Mullion (Impervia)
E - 4 1/4" Tube Mullion
F - 1/2" Flat Bar Mullion
### Combination Openings

#### Ribbon Applications

Due to the thermal expansion and contraction of window frame and cladding materials as well as frame and construction tolerances, ribbon windows must have expansion trim at the intervals shown below. Head flashing and sill flashing and/or subsill systems should be used to ensure water is managed properly. Header deflection can often be accommodated using a clip or L-Receptor installation method.

Frame Expanders can be used at opening jambs to accommodate combined frame size and construction tolerances. Actual span and combination size availability depends on design pressure requirements.

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Max. Distance Between Expansion Trim</th>
<th>72AL Expansion Mullion</th>
<th>72HF Expansion Trim</th>
<th>49A1M101 Expansion Trim</th>
<th>1AAF Expansion Trim</th>
<th>Solid Trim by Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Clad Exterior</td>
<td>20'</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Pella® Impervia® Fiberglass</td>
<td>20'</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Pella® 350 Series, Pella® 250 Series and Encompass by Pella® Vinyl</td>
<td>12'</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Continuous Treated Wood Blocking, Wood Trim and Sealant by Others**

**Note:** Apply continuous bead of sealant to inside corner of frame expander before installing to unit.
Actual span and combination size availability depends on design pressure requirements.
Combination Openings

Due to the thermal expansion and contraction of window frame and cladding materials, frame and construction tolerances as well as weight, stacked windows must have expansion trim and weight bearing mullion structure at the intervals shown. Certain venting windows may require additional weight bearing support above. Head flashing and sill flashing and/or subsill systems should be used to ensure water is managed properly.

### Product Type

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Max. Distance Between Supporting Mullions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Clad Exterior</td>
<td>20’</td>
</tr>
<tr>
<td>Pella® Impervia® Fiberglass</td>
<td>20’</td>
</tr>
<tr>
<td>Pella® 350 Series, Pella® 250 Series and Encompass by Pella®</td>
<td>12’*</td>
</tr>
</tbody>
</table>

*Vinyl Combinations cannot be stacked. Separate each combination with a weight bearing horizontal mullion. Refer to the factory and site assembled combinations recommendations for limitations.*

Frame Expanders can be used at opening jambs to accommodate combined frame size and construction tolerances. Actual span and combination size availability depends on design pressure requirements.
Combination Openings

Storefront Applications

Aluminum clad exterior storefront

- Performance up to AW 90
- Air infiltration as low as .05 cfm/sf
- U values as low as .15
- Single windows up to 10’ and 50 sf.
- Factory assembled combinations up to 12’ x 8’.
- Incorporate vent, fixed, grille patterns, etc. for virtually limitless configuration options.

2" Structural Receptor Mullion 0APK (vertical mullion)

Vertical Receptor Mullion 2" Structure 50E5
Combination Openings

Storefront Applications

Diagram showing the components of a storefront opening:

1. HEAD
2. HORIZONTAL MULLION
3. SILL
4. JAMB
5. VERTICAL MULLION
6. SILL
Combination Openings

Storefront Applications

- Single windows up to 9’ 4” and 50 ft²
- Factory assembled combinations up to 12’ x 8’.
- Performance up to CW50.
- Air infiltration as low as .03 cfm/sf.
- U-values as low as 0.25.

Example Configuration 1:
Maximum single window height.

Example Configuration 2:
8” wide windows to align with door.

Example Configuration 3:
Maximum factory assembles combination height.
Optional 1-5/8” applied grilles shown in upper units.
Combination Openings

Storefront Applications

1. HEAD
2. FACTORY MULLION
3. SILL
4. FIELD MULLION
5. Jamb

The Rose | Meyer, Scherer and Rockcastle | Minneapolis, MN
Combination Openings

Window Wall Applications

- Performance up to AW 90
- Air infiltration as low as 0.05 cfm/sf
- U values as low as 0.15
- Single windows up to 10’ and 50 sf.
- Factory assembled combinations up to 12’ x 8’.
- Incorporate vent, fixed, grille patterns, etc. for virtually limitless configuration options.

Hyland Ski Chalet
Partners & Simey Architects
Bloomington, MN

Actual span and combination size availability depends on design pressure requirements.
Combination Openings

Window Wall Applications

1. **HEAD**

2. **HORIZONTAL MULLION**
   - Steel Stud Option

3. **SILL**

4. **JAMB**

5. **VERTICAL MULLION**
   - Steel Tube Option

6. **VERTICAL MULLION**
   - Glulam Option