



1200 ENVISION DOOR INSTALLATION MANUAL

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Legend:

	Caution
	Quality
	Safety
RO	Rough Opening
WRB	Water Resistant Barrier
uPVC	Unplasticized Polyvinyl Chloride

Always read the Vinyl Window and Door Limited Warranty before purchasing or installing Vinyl Windows and Doors manufactured by VPI Quality Windows. By installing this product, you are acknowledging that this Limited Warranty is part of the terms of the sale. Failure to comply with all VPI Quality Windows and maintenance instructions may void your VPI Quality Windows warranty. See Limited Warranty for complete details at <http://www.vpiwindows.com/>

Part 1) PREFACE

1.1) Installation Instructions for Typical Construction

A) These instructions were developed and tested for use with typical construction in a wall system designed to manage water. These instructions are not to be used with any other construction method. Building designs, construction methods, building materials, and site conditions are unique to your project and may require an installation method different from these instructions and additional care. Determining the appropriate installation method is the responsibility of the installer, general contractor, envelope engineer and/or architect. VPI Quality Windows shall not be responsible for site conditions or any variations to these installation instructions. Please contact your outside sales representative for further discussion to insure the installation method properly supports and fastens the product to the structure.

1.2) Handling and Storage

- A) Provide full support under the framework while storing, moving and installing the product.
- B) DO NOT lift the product by the head member only or pull from the jamb members.
- C) DO NOT store in direct sunlight or in containers without adequate ventilation. Allow sufficient spacing between products for ventilation.
- D) DO NOT lean doors more than 10 degrees or in precarious angles. Keep stored in a vertical position if possible.
- E) Damage caused to any part of the door or its components from poor storage practices will not be covered under the limited warranty.
- F) Due to the size and weight, a minimum of two persons is required for installation.

Part 2) TOOLS AND MATERIALS

2.1) You will need to supply

- A) Shims/Spacers – Various thicknesses will be needed. See section 5.1, A.
- B) Corrosion resistant screws long enough to penetrate 1” into structural framing. See section 5.1, B. *(If applicable, fender washers per section 5.1, C.)*
- C) Project approved sealants and backer rod compatible with uPVC and/or other surrounding materials.

2.2) Tools required

- A) Tape measure
- B) 2,4 and 6 foot Level
- C) Square
- D) Hammer
- E) Flat pry bar
- F) Sealant gun
- G) Drill
- H) 4mm Allen keys (Hinge Adjustments)
- I) 5mm Allen key (Hinge Adjustments)
- J) T-20 Torx wrench (Roller Adjustment)
- K) #2 Square bit drive

L) #2 Phillips bit drive

Part 3) ROUGH OPENING PREPARATION

3.1) Confirm the opening is plumb and level. ⚠️

- A) Ensure the sill of the rough opening does not slope toward the interior.
- B) It is critical the sill is level and supported without any interferences that will cause the door frame to twist, bow or tilt.

3.2) Confirm the door will fit the opening. ⚠️

- A) Measure all four sides of the finished rough opening. The finished rough opening includes materials such as WRB, flashing, shims and any other materials that may impede the opening. Measure the width at the top, bottom, and center. Measure the height at the far left side, the far right side, and in the center. The finished RO must be a minimum of 1" wider than the net door frame size, and allow $\frac{3}{8}$ " head space.

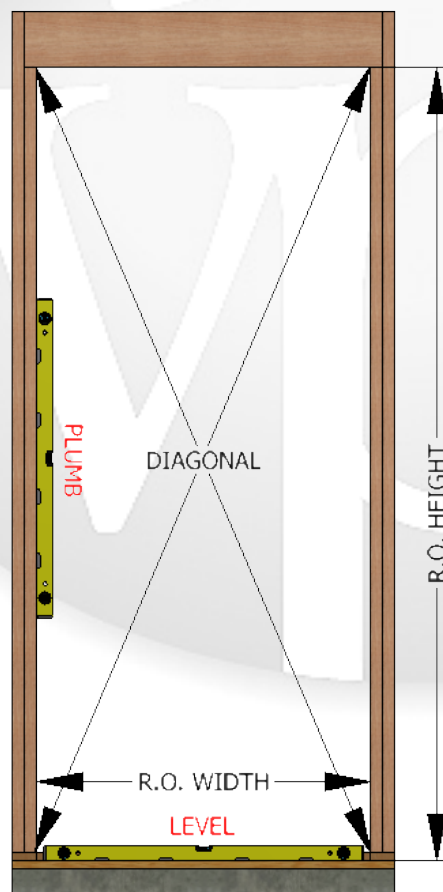


Figure 1: Rough Opening

3.3) Sill-Pans and Sill Conditions

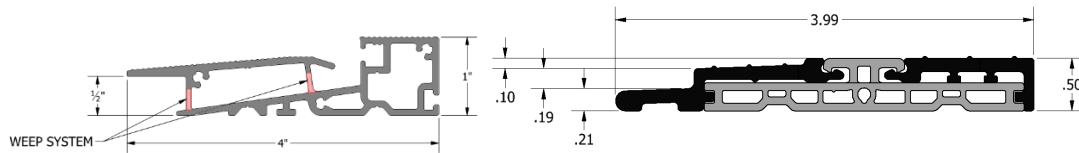


Figure 2: HP SILL (left) vs LP Sill (right)

- A) Sill-Pans must not interfere with proper sill support and fastening of the door unit or cause distortion to the door sill. It is the responsibility of the installer and/or general contractor to ensure that no distortion, warping or bowing is caused to the unit due to fastening over uneven surfaces. VPI requires all units be installed in a flat level plane.
- B) If using the HP Sill a weep hole is located on the bottom of the threshold at each corner. These can not be obstructed, and water must be given a path for proper drainage from the door system.
- C) The weight bearing surface that the sill sits on must be flat to a 1/16" and level to 1/16" to be considered fully supported.
- D) The door's sill must be fully supported along the sill's weight bearing surface. The weight bearing surface is defined as the entire span from the inside edge of frame to the outside edge of frame on the LP sill, and a minimum of 2 1/4" from the inside edge of frame to the outside edge of frame on the HP sill. (See figure 2)
- E) Sills that do not initially meet the previously stated sill conditions must be shimmed to provide a flat level surface within 1/16". Shims shall be placed across the threshold fully supporting the door and create no more than a 2" unsupported span between shims.
- F) VPI Quality Windows does not endorse or discourage the use of any brand of flashing or sealant materials. Following the flashing manufacturer's recommendations, apply flashing to the sills and surrounding wall surface starting with the bottom, sides and top, creating a shingle effect.

3.4) HP Sill Installations

- A) Correct installation clearances are essential in order for HP sill doors to operate and perform. Below is an installation which shows the appropriate clearance to be used when installing all HP sill doors.

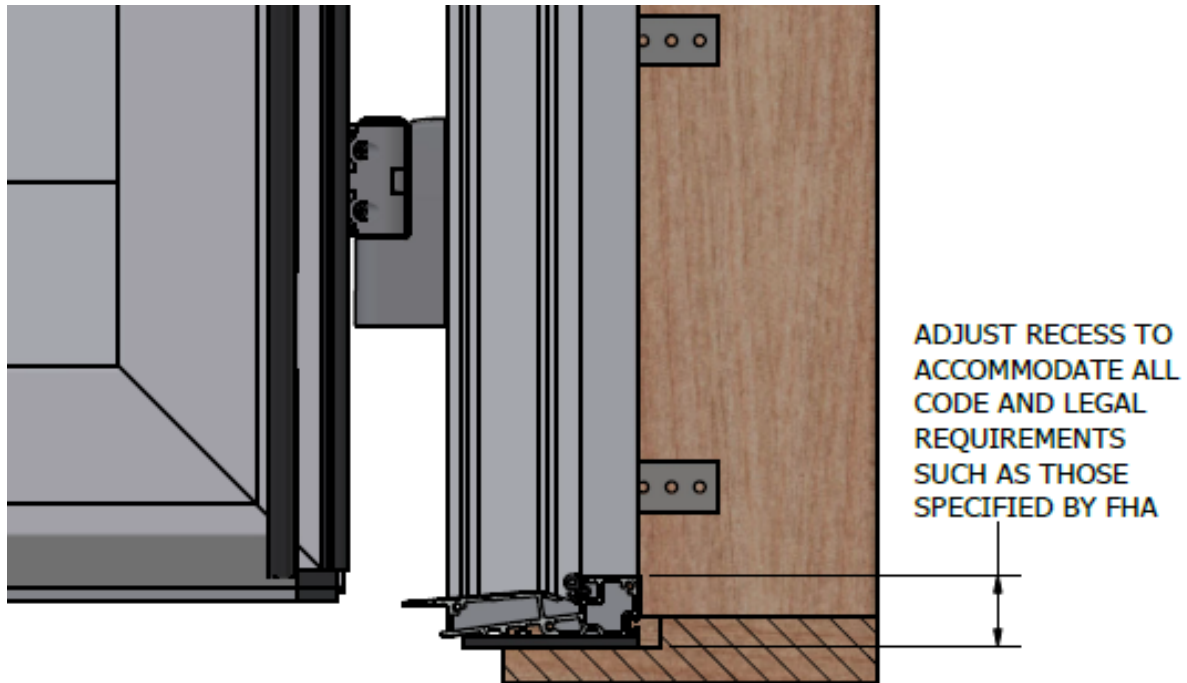


Figure 3: Subfloor Foundation Clearance to Finished Floor

Part 4) UNIT PREPARATION

- 4.1) **Remove shipping protection & prepare for placement.** ⚠️
- A) Unscrew the 2x4 and inspect the frame and panels for damage.
 - B) DO NOT install damaged units.
 - C) The film applied to the glass is intended to remain on the interior and exterior surfaces to provide protection throughout the duration of construction. Do not remove the protective film during installation.
 - D) Rotate the provided strap anchors to the desired location prior to inserting the unit into the rough opening.

Part 5) INSTALLATION STANDARDS

5.1) Inspection Guidelines

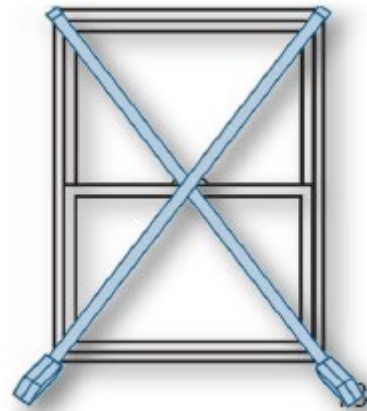
- A) Reference ASTM E2112 Standard Practice for Installation of Exterior Windows, Doors and Skylights.
- B) Accurate measurements are essential in determining level and plumb. Measure the farthest gap between the level or string and the surface.
- C) Use the appropriate size level to cover the maximum surface.

D) Use Squaring Rods for the most accurate measurement.

5.2) Installation Tolerances

A) Square

I) Use squaring rods or a tape measure to measure the frame/ sash from top left to bottom right corner and from top right to bottom left corner (measure only the actual frame, do not include any applied trims.) The maximum allowable difference between measurements for windows over 20 square feet is 1/8" and windows greater than 20 square feet is 1/4".



B) Plumb and Level

I) For plumb and level measurements place the level against each side. Use gap gages to show the difference to level or plumb.



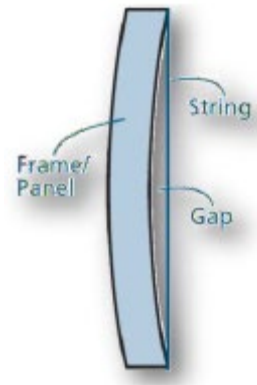
Measurement	in./ft.	Over 4 ft. in.	Max Deviation	Method of Measure
Level (horizontal measure)	1/32 in. (0.8 mm)	1/8 in. (3 mm)	1/8 in. (3 mm)	level and steel rule or tape
Plumb (vertical measure)	1/32 in. (0.8 mm)	1/8 in. (3 mm)	1/8 in. (3 mm)	level or plumb-line and steel rule or tape

C) Frame Twists

I) Attach two pieces of string to frame/ sash, corner to corner. If the strings touch, reverse the orientation of the strings and recheck the measurements. Use gap gages to show the difference to level or plumb.

Measurement	in./ft.	Over 4 ft. in.	Max Deviation	Method of Measure
True/Rack	1/32 in. (0.8 mm)	1/8 in. (3mm)	3/16 in. (1.6 mm)	using two strings across corners

- D) Frame/Panel Bow
 - I) Inspect interior and exterior frame jambs, or stiles/rails of panel (not glass) to determine if bowed. Use a string slightly longer than height of frame or panel. Stretch the string over the upper and lower corners of jambs, or, stiles or rails of panel. Look for gap between string and frame or panel. If gap measures more than 1/4" at any point, the panel is bowed.



Part 6) INSTALL AND FASTENING

6.1) Materials

- A) Shims
 - I) Shims must be constructed from high impact non-deteriorating and corrosion resistant material such as PVC or similar plastic. Horseshoe shims as shown in *figure 11* are recommended and will be needed in various thicknesses to achieve proper installation.
 - II) Section 5.6 C specifies specific shims that work well in conjunction with the VPI Shim Shelf for jamb shimming. Please note that these are not adequate for sill shimming.
 - III) Wedge shaped shims are not recommended unless used as part of an engineered sill pan system. In that case, details outlined in section 3.3 must still be maintained.
- B) Fasteners

All fasteners shall be made of a corrosion resistant material, long enough to penetrate into 1" of structural framing and designed for the correct material in which it is being applied to. Wood, steel, concrete, etc.

 - I) Screws for Strap Anchors, Fender Washers, & Nail Flange
 - a) A #8 pan head screw as shown below in *figure 4* must be used.

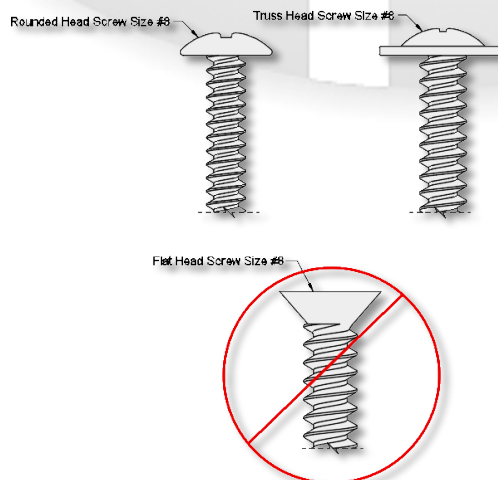


Figure 4: Approved Screw Heads – Strap Anchors, Fender Washers, & Nail Flange

II) Jamb Screws

If the installation detail allows for screws to be placed at the jamb as the primary fastening method six jamb screws can be used for single doors with or without a transom to secure the door to the structure.

a) Screws must be a 1/4" in shaft size and have a rounded head (cabinet screw, truss, or rounded head screw, etc.) as shown below in *figure 5*.

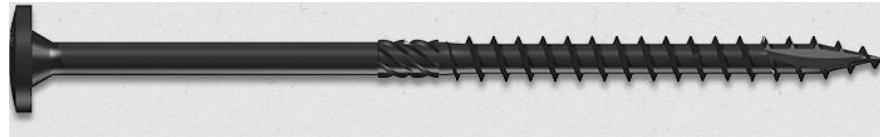


Figure 5: Jamb Screw

b) Approved Vendors:

- 1) Screw Products
- 2) Fastenmaster

c) Please note that if an integral sidelite is present only three jamb screws can be applied. The adjacent jamb and head will need to be fastened with screws per section B, I, a, and per 5.5, A, VII, a. Using the provided strap anchors may be a more feasible option in this condition.

C) Fender Washers

In the event an integral sidelite exists and the perimeter frame contains a nail flange, fender washes can be used to overlap the nail flange at the head compressing the unit to the structure in lieu of using the provided strap anchors. See section 5.7 B for further details.

I) Fender washers shall be galvanized or stainless steel, large enough to overlap 3/8" – 3/4" of the nail flange and allow for 3/8" movement between the top of the flange and the bottom of the #8 screw shaft applied through the center of the washer.

6.2) Sill shimming

A) Sill shimming should only be used when the water proofing details require it or the sill is uneven or not level. Fully supported sills without shims are preferred. However, if you choose to use shims, we require the sill to be fully supported with no gaps exceeding 2" and shims must be within a 1/2" from welded corners. See *figure 6*.



ADD SHIMS TO GAPS EXCEEDING 2"

2.00" TYP

.50" MAX

Figure 6: Sill Shimming

B) Please note in the event an HP sill condition is presented in conjunction with a nail flange and the supporting exterior surface is not structural such as gypsum board, shims will be needed to support the threshold as shown in *figure 7*.



Figure 7: Sill Shimming

+ Two or more people will be required for the following steps. +

6.3) Insert the Door

- A) Insert the door by placing the threshold into the rough opening and tilting the top into position. Center the door between the sides of the opening to allow equal clearance for shimming.
- B) Using the single anchor strap located at the head of the door (See *Figure 8*) insert a temporary fastener as shown in section 5.7, A, *figure 22* to hold the door in place while preparing for proper shimming and fastening.



Figure 8: Single Head Anchor Strap

6.4) Jamb Shimming

- A) Plastic horseshoe shims as shown in *figures 9 & 11* must be used for supporting the door jambs. Various thicknesses will be needed to provide adequate support. Adequate support is achieved when the shims are tightly compressed in place without distorting the frame.

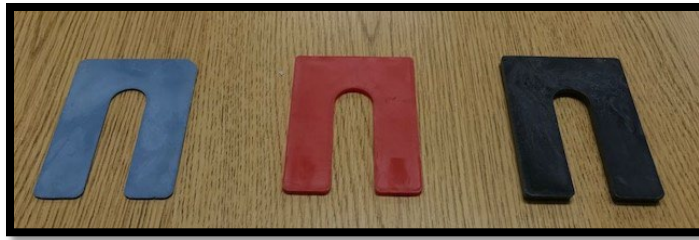


Figure 9: Horseshoe Shims

B) *Figure 10* illustrates all required jamb shim locations. These are placed at and across from all hinged points, and horizontal intermediate bars. The frame system must be square/plumb and free of any twisting. It is the installers' responsibility to address any rough opening issues that impact proper installation.

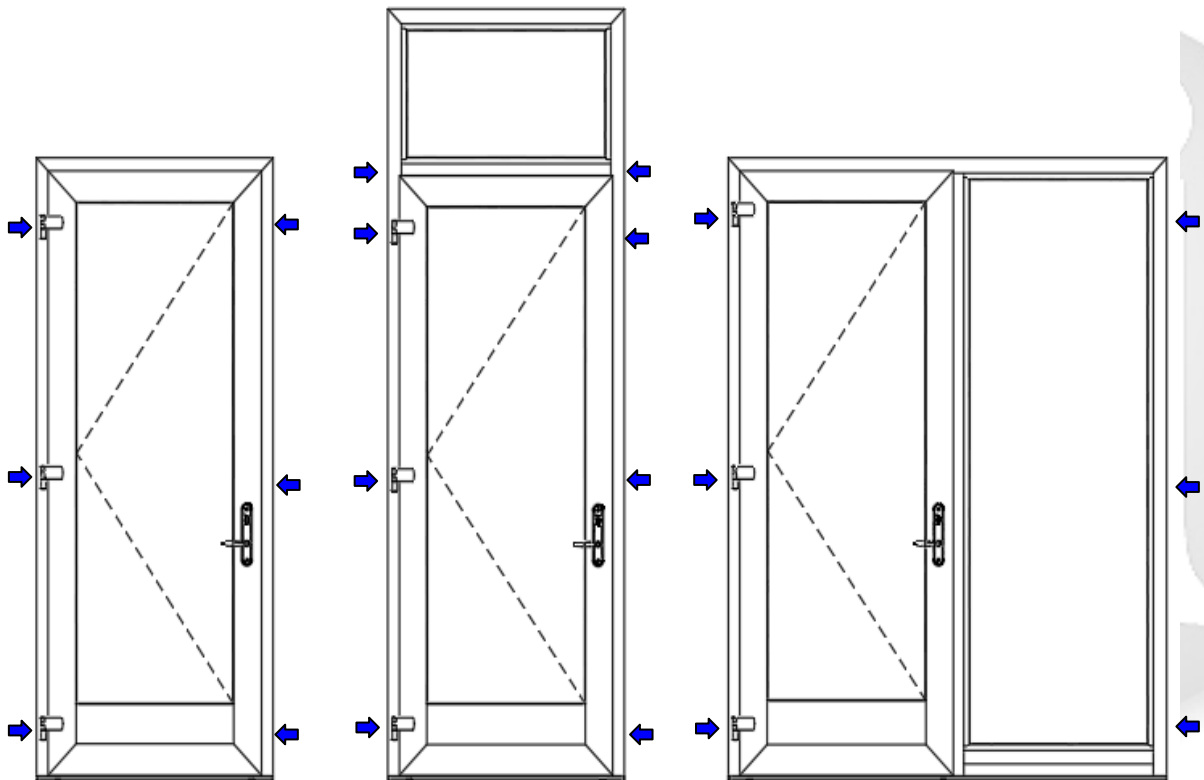


Figure 10: Jamb Shim Locations

C) A "SHIM HERE" label in addition to a VPI Shim Shelf foam block as shown in *figure 11* is included at all required jamb shim locations. The Shim Shelf will provide a safety net to keep shims in place during the remainder of the installation process. Shims of the size in *figure 11* (available from Glazelock) are an ideal fit, but most shims are compatible.

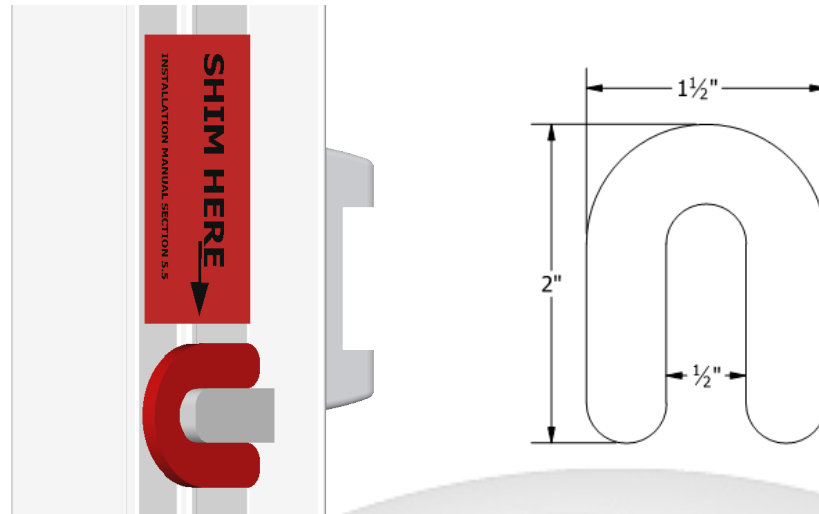


Figure 11: Jamb Shim Shelf Application

D) *Figure 12* below shows a door that lacks proper shimming and is experiencing frame roll. Over shimming will create the same effect in the opposite direction. Shimming the door correctly is required and is critical to establishing a properly performing door system. If shims are absent or not done properly it will void the warranty.

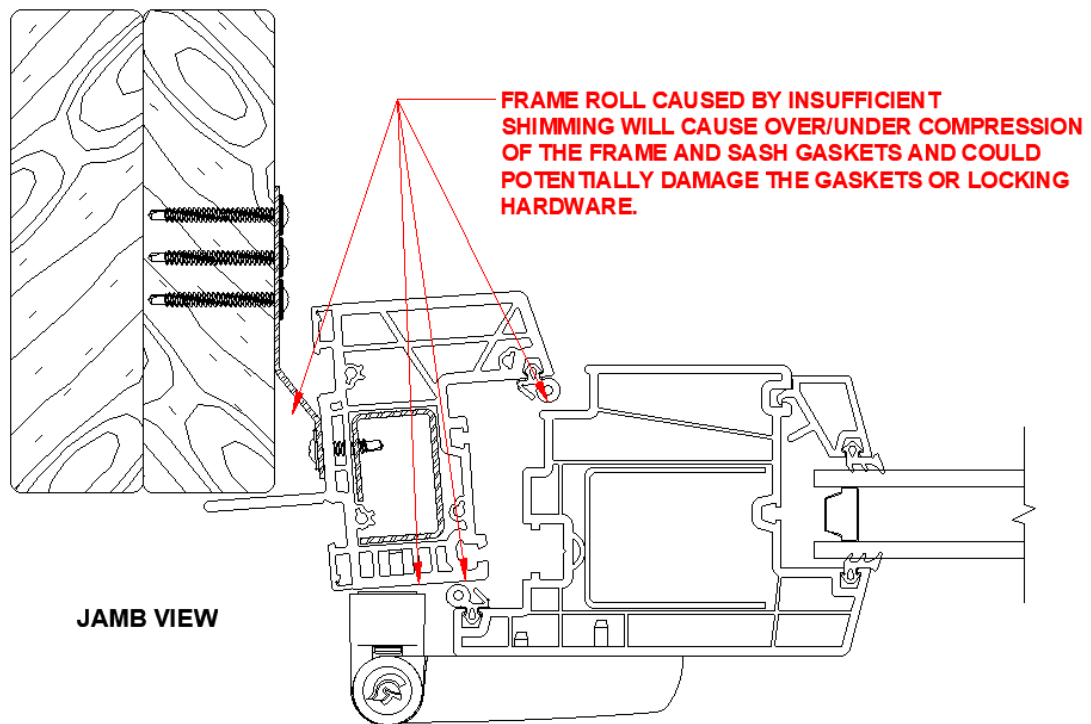


Figure 12: Jamb View: Steel Strap Door with Frame Roll

6.5) Jamb Fastening

The Envision Door is designed to be fastened either directly through the jamb to the structure, or mechanically fastened to the structure utilizing the provided VPI strap anchor system that comes attached to the door. If present, the nail flange is designed to be

utilized as a waterproofing barrier only. Fastening is not required. It however could be the primary method used on an integral sidelite condition as further described in *section 5.5 A, VII, a.*

A) Jamb Fastening Process – ***Directly through the frame***

- I) With the sill shimmed and the door located in the rough opening, open the door to reveal the jamb fastening pilot holes. (See Figures 13 & 14)



Figure 13: Open Door



Figure 14: Revealed Jamb Fastening Pilot Holes

- II) Partially drive all three of the hinge side jamb fasteners specified in section 5.1, B, II at the pilot holes through the frame and into the rough opening's structural framing. (See Figure 15)



Figure 15: Partially Fastened Jamb Fastener

- III) Shim along the jambs between the rough opening and the door frame as needed to ensure the entire jamb is plumb and free of any twisting. (See Figure 16)



Figure 16: Jamb Shims

- IV) Keep all shims 3/8" back from the interior face of the door if an interior sealant joint is specified.
- V) Shims on the jambs are required for through frame installation.
- VI) Once appropriately shimmed finish driving the hinge side fasteners into the structural framing. (See Figure 17)



Figure 17: Fully Shimmed & Fastened Jamb Fastener

- VII) DO NOT over tighten as this may distort or twist the frame.
- VIII) Check to make sure that the door jamb is still plumb. If so, move onto step 5.6.
 - a) **If an integral sidelite exists, the jamb cannot be fastened directly through the frame on the sidelite side. Two options exist to fasten the jamb in this location.**
 - 1) Utilizing the nail flange in the event it is present per the following.
 - a. Fasteners as specified in 5.6, A, shall be placed in each pre-punched elongated hole, but be placed no closer than 4" from each corner. See figure 18.

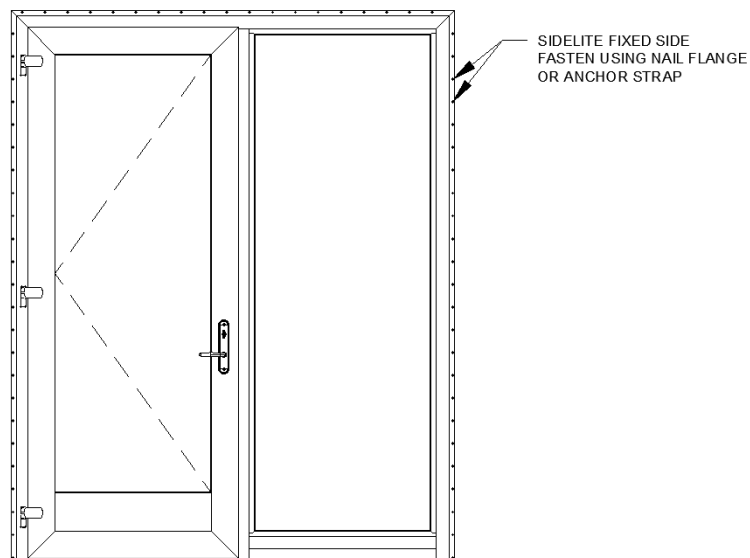


Figure 18: Sidelite Fastening

- 2) With the supplied and attached strap anchors outlined below in section 5.5, B.

B) Jamb Fastening Process – With Strap Anchors

- I) Install shims at the jamb locations indicated in figure 10. Shims are required to correctly install the door and prevent distortion or twisting of the frame. Failure to install shims as required will void the warranty.
- II) Steel straps will be delivered unbent and attached to the frame as shown in Figure 19.

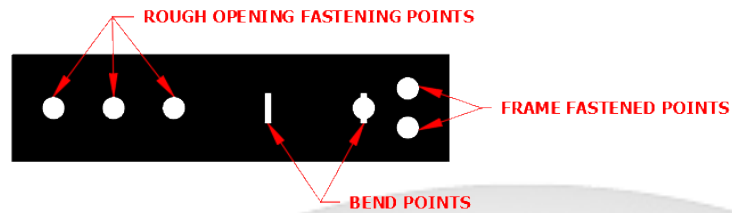


Figure 19: Unbent Steel Strap

- III) Fasten the straps of the door using fasteners as indicated in section 5.1 B, I, to the rough opening following the same routine outlined in 5.5, A, starting at the hinged side establishing a plumb frame free of any twisting or distortion. Bend the strap as needed using the bend points illustrated in figure 20 to eliminate torsion on the frame.

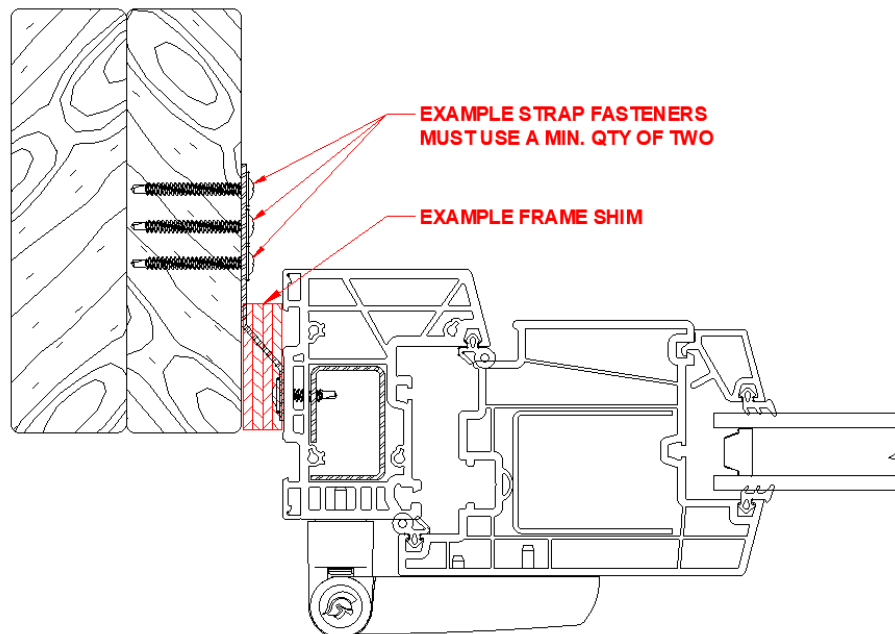


Figure 20: Example of Correctly Shimmed & Fastened Door

- IV) In the event the space between the door and framing exceeds the bending capability of the strap anchor shims may be needed behind the strap anchor to prevent twisting of the frame.

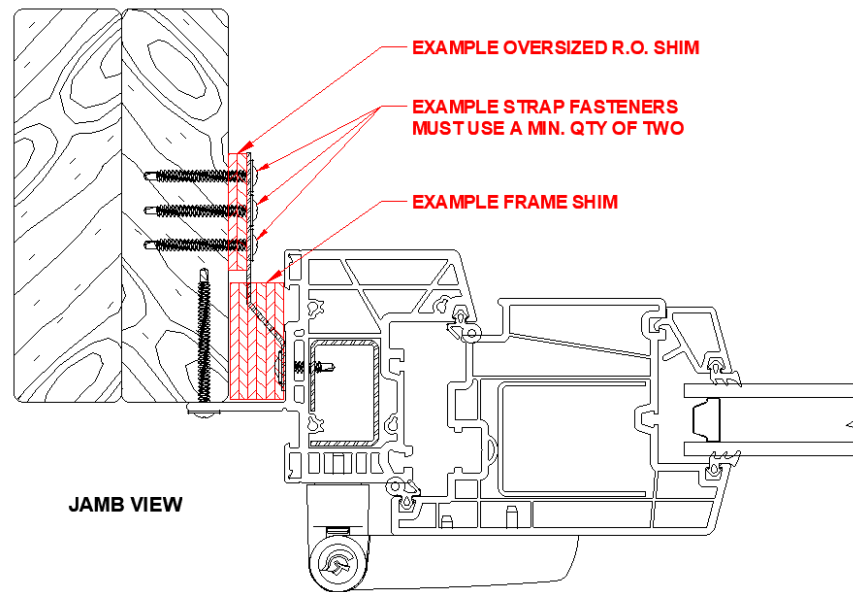


Figure 21: Example of Oversized R.O Shim Requirements

V) DO NOT over tighten fasteners as this may distort or twist the frame. ⚠

6.6) Frame Squaring & Final Jamb Fastening

A) Frame squaring is essential. To do this properly one must first take corner to corner dimensions (D1 & D2) then determine if both dimensions are within the allowed 1/8" of tolerance. If not, then split the difference and that is the overall adjustment that needs to be made. See Figure 21.

B) Leveling and plumbing is essential. Use a level to check the sill and jambs to determine if the frame is level and plumb. See Figure 22.

C) The door must be plumb, level, and square to avoid having unnecessary adjustments to the sash panel. Once achieved, fasten the remaining jamb locations as previously done. If installing an integral sidelite door and jamb screws were initially used establishing a plumb hinged frame return to section 5.5, A, VII, a.

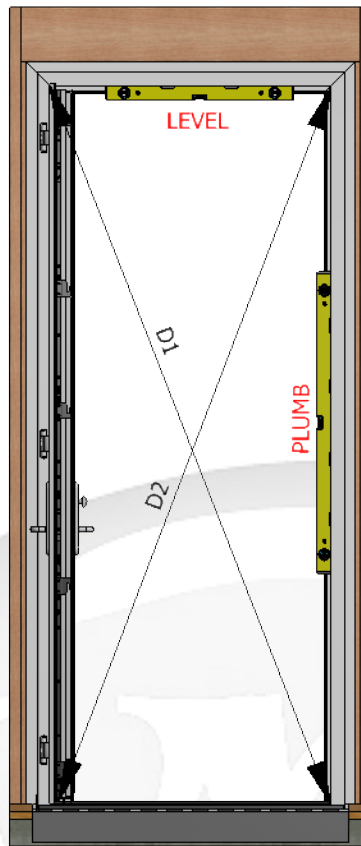


Figure 22: Frame Squaring View

6.7) Head Fastening

Do not shim the head. Shimming the head will not allow for normal building movement and will cause failures that are not warrantable. ⚠

The Envision Door only needs to be fastened at the head in the event an integral sidelite is present. In that case this can be accomplished with the VPI provided strap anchors, or if a nail flange is present using fender washers to overlap the flange compressing the unit to the structure while allowing for building movement.

- A) Fastening head with provided strap anchors.
 - l) See *figure 23* utilizing fasteners as specified in section 5.1, B.

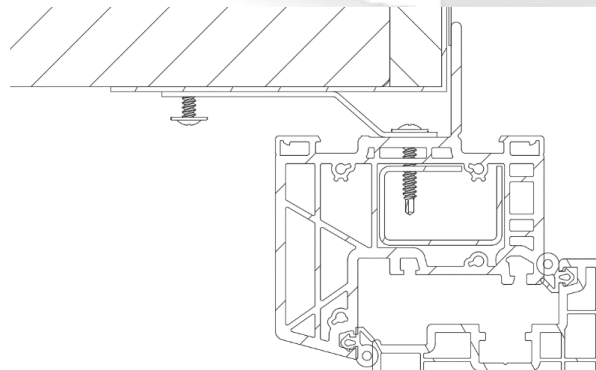


Figure 23: Door with sidelite head fastening detail with strap anchor.

B) Fastening head with fender washers.

- I) Place fender washers beginning 4"-8" from the welded corners, then 12" on center across the remaining span of the nail flange. See figure 24.
- II) A minimum of 3/8" space should exist between the bottom of the faster shaft and the top of the flange allowing for normal building movement. The washer should also be large enough to overlap the flange a minimum of 3/8" and maximum of 3/4". See figure 25.
- III) A #8 corrosion resistant fastener large enough to penetrate 1" of structural framing must be used.

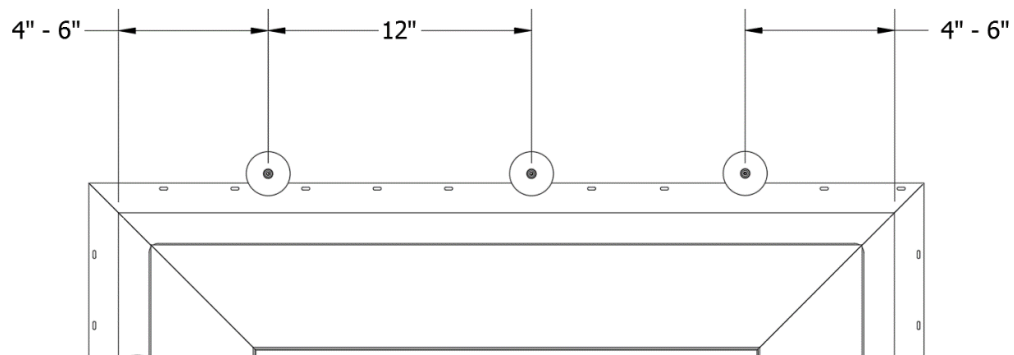


Figure 24: Head Washer Fastening

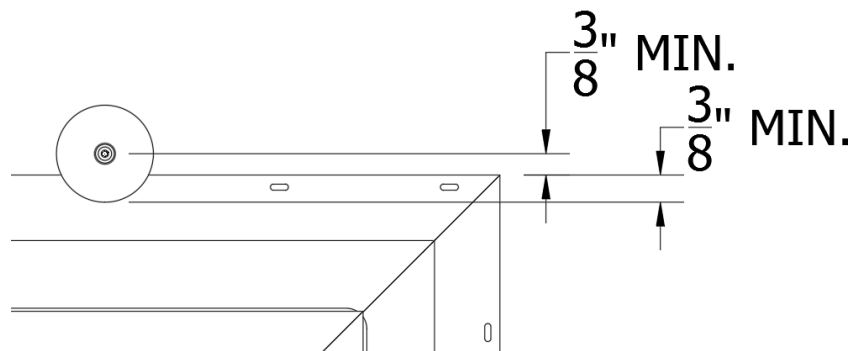


Figure 25: Head Washer Fastening

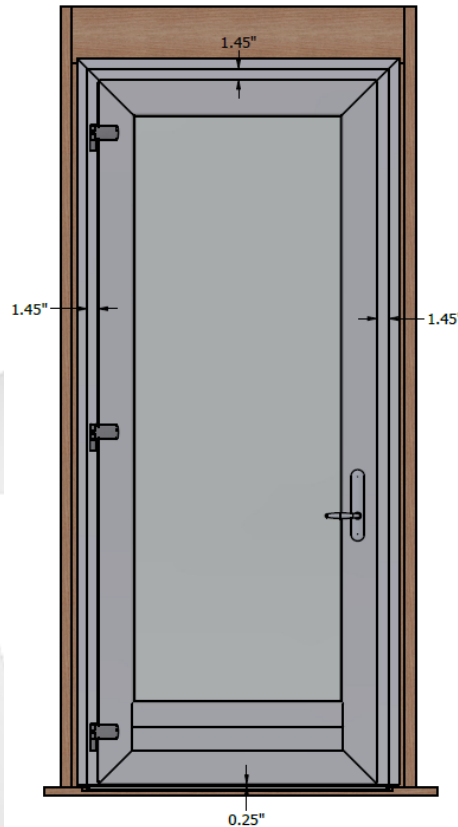
6.8) Verify frame gasket is compressed.

- A) This can simply be done by inserting a business card between the sash and the frame when closed and locked. The card should be held firmly by the compression. If the card falls out, this indicates a lack of compression, if the card fails to slide between the sash and frame, this is a sign of over compression and may be caused by frame roll. Frame roll, which causes improper compression, can potentially damage the gaskets or locking hardware.
- B) The affected area of compression loss or gain will need to be shimmed behind the frame to correct the frame roll. Refer to Sections 5.4, 5.5, and 5.6 for any remedial work that may need to be done to correct frame roll.
- C) This must be done before finalizing the install, check both interior and exterior.

Part 7) FINAL ADJUSTMENT

7.1) Adjusting the operable panel - Adjustments can be made using a 4mm or 5mm allen key.

A) Verify the reveal is consistent on the operable panel to the frame.



B) Adjustments will likely be needed to achieve a proper reveal, smooth operation, and adequate gasket compression. Adjust in the lateral direction first.

i. With the door in the open position locate the cover cap screws and fully loosen them using a #2 point Phillips screwdriver. The screws are self-retaining.



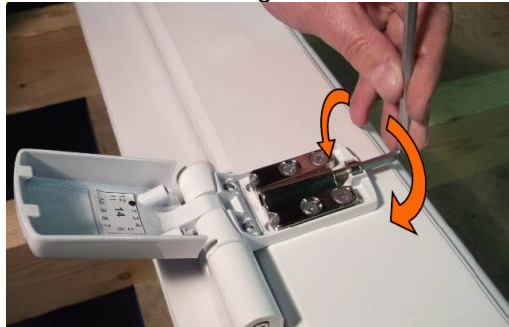
1
Undo Cover
Screws

ii. Pull the cover toward the center of the door. On release a click will be heard. Repeat on all hinges. If the cover does not open by hand a screwdriver can be used behind the knuckle to gently assist opening. Take care to preserve the finish.



2
Clip and Slide
Cover

iii. Turn the adjustment bolt to give the required lateral setting. Ensure even distribution across all hinges.



Lateral
Adjustment

+/- 6mm

5mm Allen Key

C) Adjust the height screw. Rotate the 5mm Allen key clockwise to give the required height setting. Ensure that the weight of the door is evenly distributed across all hinges.



Height
Adjustment

+ 8mm
- 0

5mm Allen Key

D) Adjust gasket compression by rotating the 4mm Allen key to give the required compression setting. Ensure compression is evenly distributed across all hinges. Note: a positive click will be felt during adjustment, full adjustment range is two clicks in each direction.



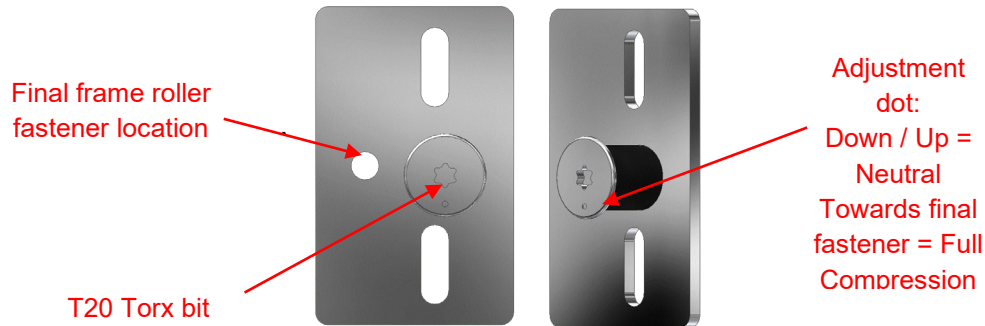
Compression
Adjustment

+/- 1.5mm

4mm Allen Key

E) Operate the sash panel and verify the sash freely opens and locks properly. After adjusting the panel with consistent reveals, you may need to adjust the rollers. The roller (frame locking point) must engage with the frame keeper (sash locking point) correctly to lock properly. The roller may need to be adjusted **depending on** what is required.

- I) Set the frame rollers to the final permanent position and install the final frame roller fasteners. The additional fasteners will be in an adhesive envelope applied to the interior glass surface.



- II) All rollers must engage to lock properly. Verify all locking points on the door before finalizing the installation.

It is the responsibility of the installer to verify the door operates and locks correctly; adjustments are required by the installation company to finalize the install. Follow ASTM E 2112 Standard Practices for Installation. Please contact VPI for any assistance or training with our product @ 1-800-634-1478.

7.2) Removing the operable panel from the door.



1
Undo Cover
Screws



2
Clip and Slide
Cover



3
Lift Door