






1200 ENVISION WINDOW INSTALLATION MANUAL

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Legend:


	Caution
	Quality
	Safety
RO	Rough Opening
WRB	Water Resistant Barrier
PVC	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.


B)  Please follow the latest version of ASTM E 2112 Standard Practices for Installation.

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 windows more than 10 degrees or in precarious angles. Keep stored in a vertical position if possible.

E) Damage caused to the any part of the window or its components from poor storage practices shall 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

B) Project approved sealants and backer rod compatible with uPVC

C) #8 X 1" - 2" Pan head corrosion resistant screws or other approved fasteners long enough to penetrate 1" of structural framing

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) 2mm, 3mm and 4mm Allen keys (Hinge Adjustments)

I) T-20 Torx wrench (Roller Adjustment)

J) #2 Square bit drive

K) #2 & #3 Phillips bit drive rough opening preparation

Part 3) ROUGH OPENING PREPERATION

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 window frame to twist, bow or tilt.

3.2) Confirm the window will fit the opening.

A) Measure all four sides of the finished rough opening to make sure there is a minimum of 1/2" clearance in width and height. Windows that will be installed with straps require 1" clearance in width and height. 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 1/2" wider and taller than the net window frame size.

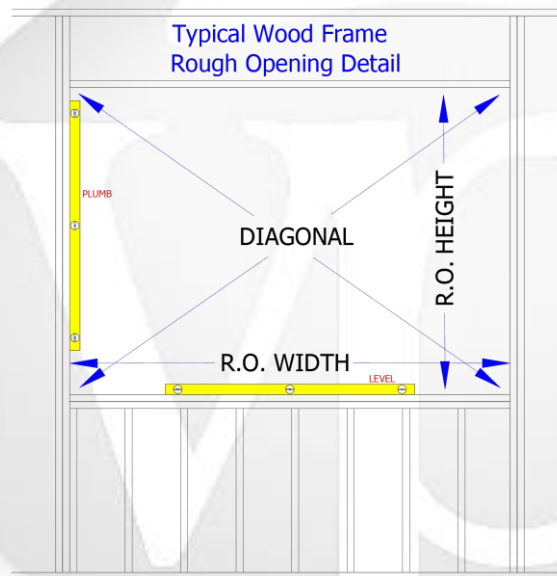


Figure 1: Rough Opening View

3.3) Sill-Pans and Sill Conditions

- A) Sill-Pans must not interfere with proper sill support and fastening of the window unit or cause distortion to the window 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 vertical plane.
- B) 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. (See Figure 2)
- C) The window's sill must be fully supported along the sill's weight bearing surface, starting from the inside edge of the frame. (See Figure 3)
- D) Sills that do not initially meet the previously stated sill conditions must be shimmed to provide a flat to 1/16" and level within a 1/16". (See 5.3.A for sill shimming requirements)

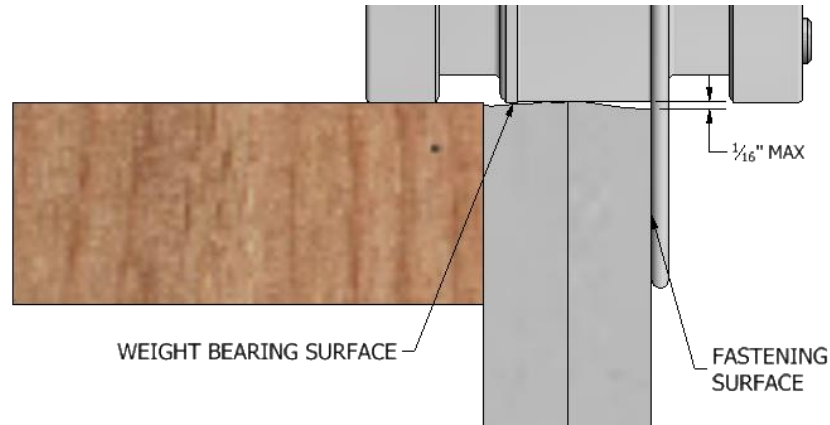


Figure 2: Acceptable Condition (flatness)

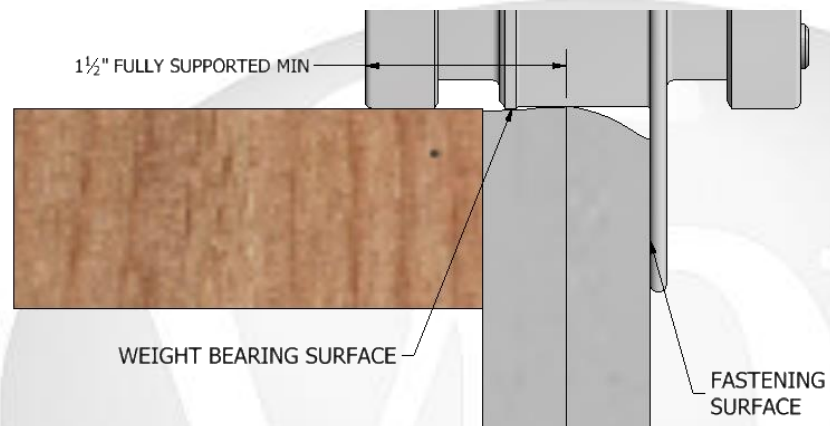






Figure 3: Acceptable Condition (minimum supported area)

- E)  Ensure all waterproofing materials are designed for use with PVC products and installed correctly.
- 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.

Part 4) UNIT PREPARATION

- 4.1) **Remove shipping protection.**
 - A) Unscrew the 2x4 and inspect the frame and panels for damage.
 - B)  DO NOT install damaged units.
- 4.2) **Rotate straps.**
 - A) Rotate straps to the desired installation prior to inserting the unit into the rough opening.
 - B)  DO NOT bend or twist straps.

Part 5) INSTALL AND FASTEN

- 5.1)  Two or more people will be required for the following steps.

5.2) Shim thickness and material

A) Wedge shaped shims are not recommended for use under the sill unless used as part of an engineered sill pan system. Shims must be constructed from high impact non-deteriorating and corrosion resistant material such as PVC or similar plastic.

5.3) Sill shimming

A) Sill shimming should only be used when the water proofing details requires 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 two inches and shims within $\frac{1}{2}$ " from any welded corners.

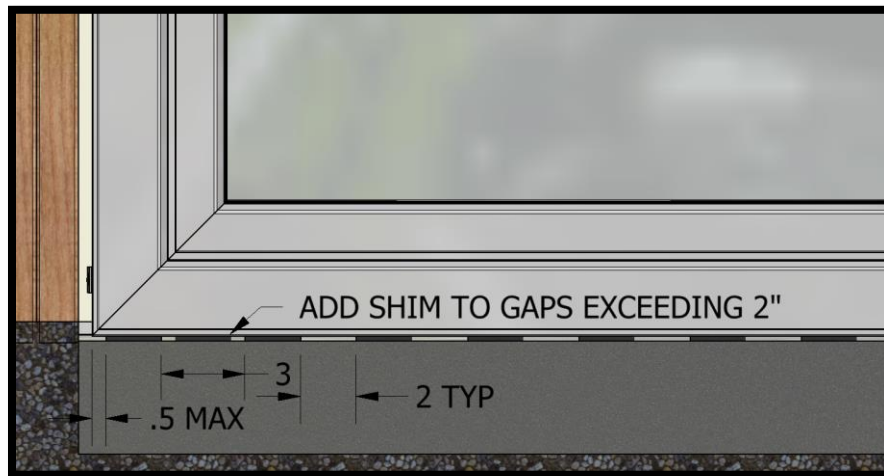



Figure 4: Sill Shimming


5.4) Insert the Window


Insert the window by placing the sill of the window on the sill of the RO and then tilt the top into position. Center the window between the sides of the opening to allow equal clearance for shimming, temporarily fasten a few straps to hold the window in place while shimming it plumb, level and square.

5.5) Jamb shimming

A) Shims should be installed on both frame jambs and where structural horizontal members intersect the perimeter frame, and at locking hardware points.

B)  Vinyl windows and doors require shimming and fastening to support the frame from twisting and moving.

C)  If the window has steel strap, shims should be located 1" above or below the strap.


D)  Additional shims may be required for support at the top of the jambs. It is the installers' responsibility to address any rough opening framing issues during installation.

5.6) Do not shim head

A) Shimming the head will not allow for normal building movement and will cause failures that are not warrantable.

5.7) Plumb and square the window

A) Insert shims between the window and rough opening. Keep shims back $\frac{1}{4}$ " from interior face of window if an interior seal is specified. The window must be plumb, level and square to avoid having to make unnecessary adjustments to the sash.

B)  Correct application of shims must be verified before fastening.

5.8) Frame Squaring

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 $\frac{1}{8}$ " of

tolerance. If not then split the difference and that is the overall adjustment that needs to be made. (See Figure 5)

B) **Level & Plumb** Use a level to check the sill and jamb to determine if the frame is level and plumb. (See Figure 5)

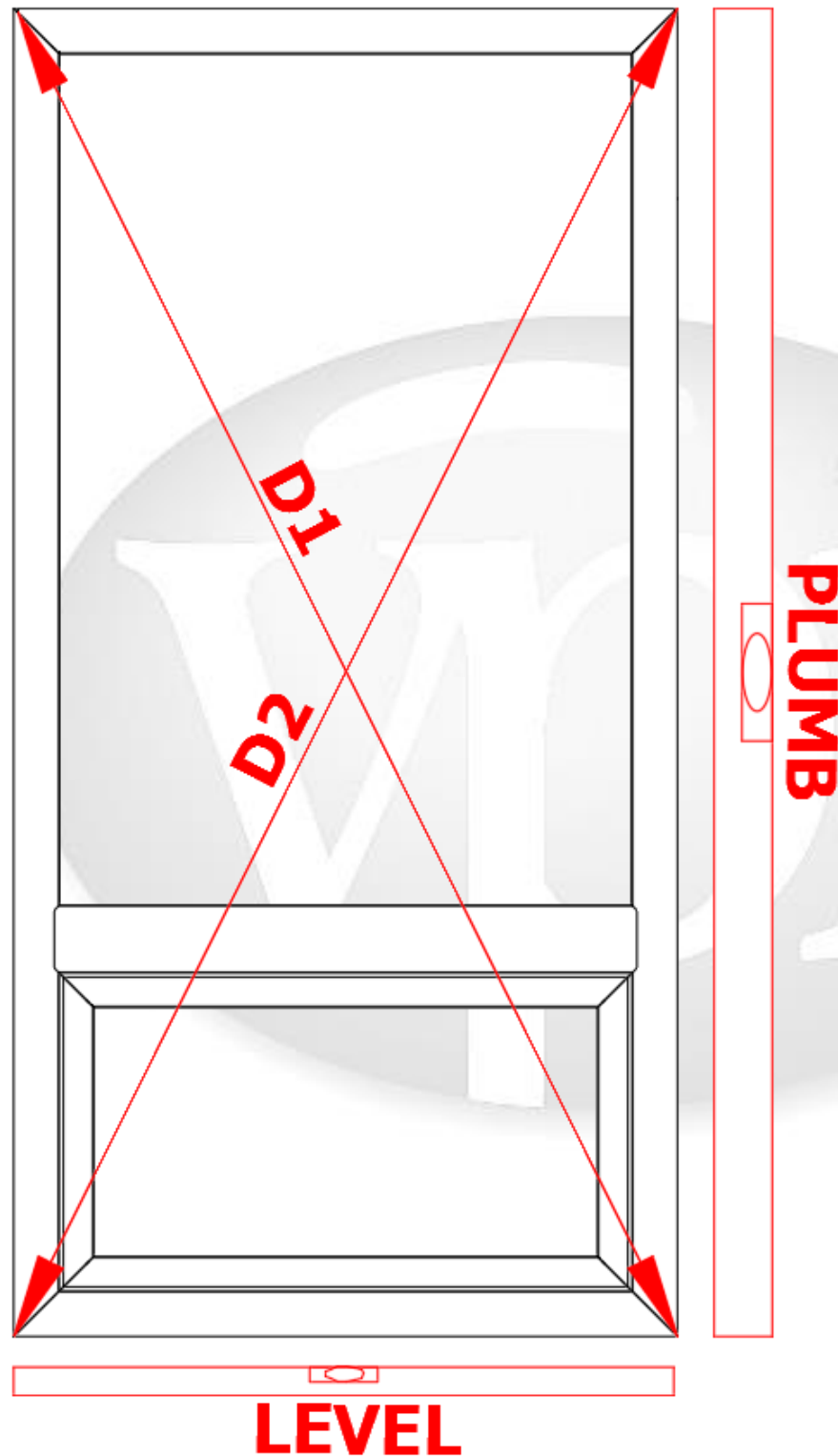



Figure 5: Frame Squaring View

5.9) Fasten the Window to the Rough Opening

A) Fastener Selection for Fastening Windows

- I.  **All fasteners** used to fasten the window to the rough opening must have a rounded head and be constructed from or coated with corrosion resistant material such as, but not limited to, stainless or galvanized steel. Fasteners must be long enough to penetrate a minimum of 1" into structural framing. (See Figure 6)

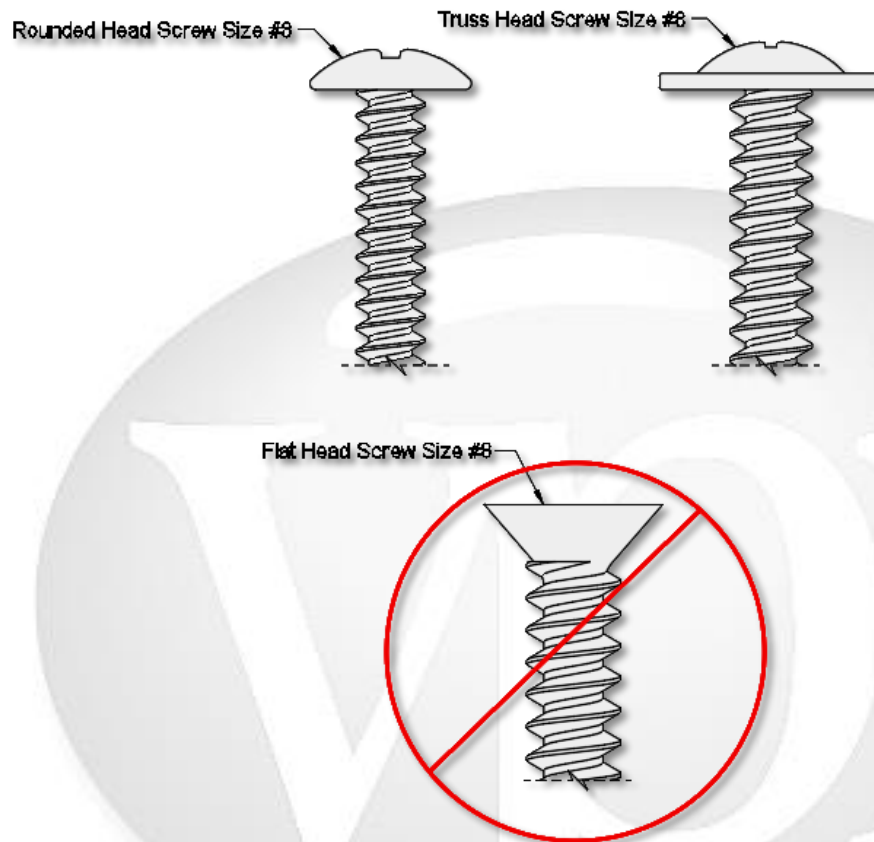



Figure 6: Fastener Selection

B) Fastening a Nail Flange Only Window

- I. Use a #8 fastener when fastening the nailing flange to the rough opening.
- II. Head must be fastened, beginning 4" – 8" from welded corners, then every 12" on center using fender washers lapped over nailing flange a minimum of 3/8", leaving a minimum of 3/8" gap between shaft of fastener and edge of nailing flange.
- III. Place fasteners in every hole of the nail flange along jamb and sill beginning 4"-8" from welded corners. (See Figure 7)
- IV.  **DO NOT** over tighten fasteners as this may distort or twist the frame.

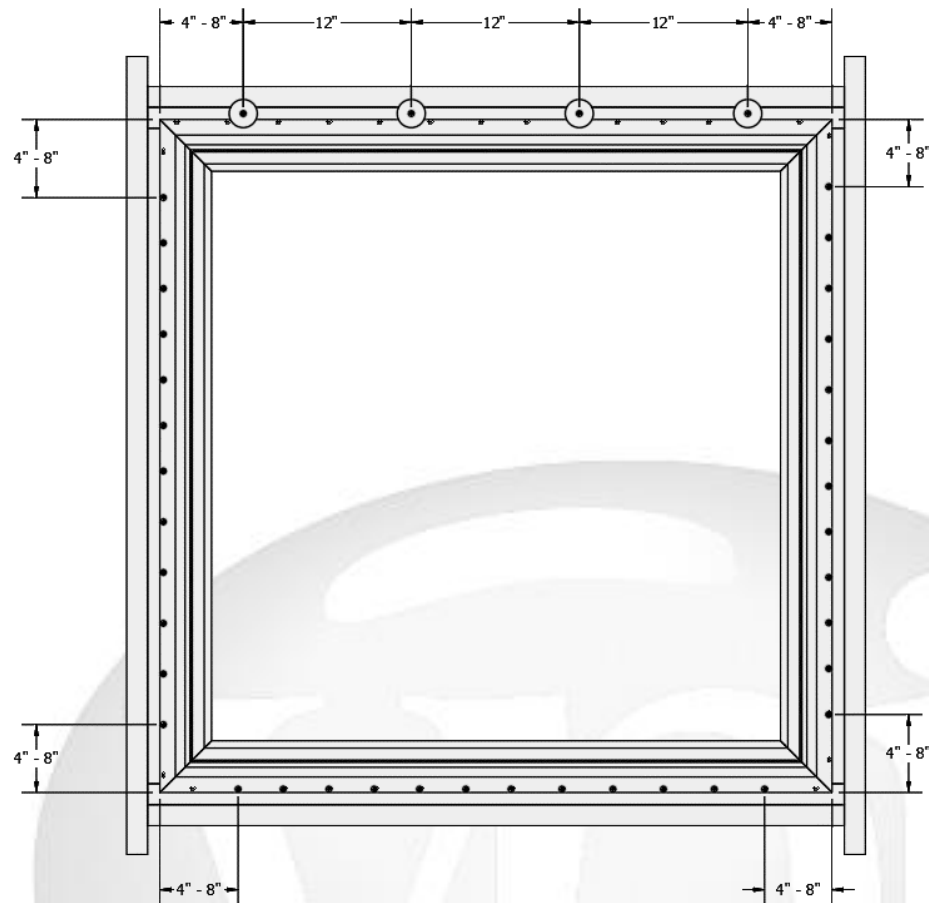


Figure 7: Exterior View with Fastener Locations

- V. Correctly shimmed and fastened windows with nail flange will not experience frame roll and gasket over-compression. (See Figure 8)

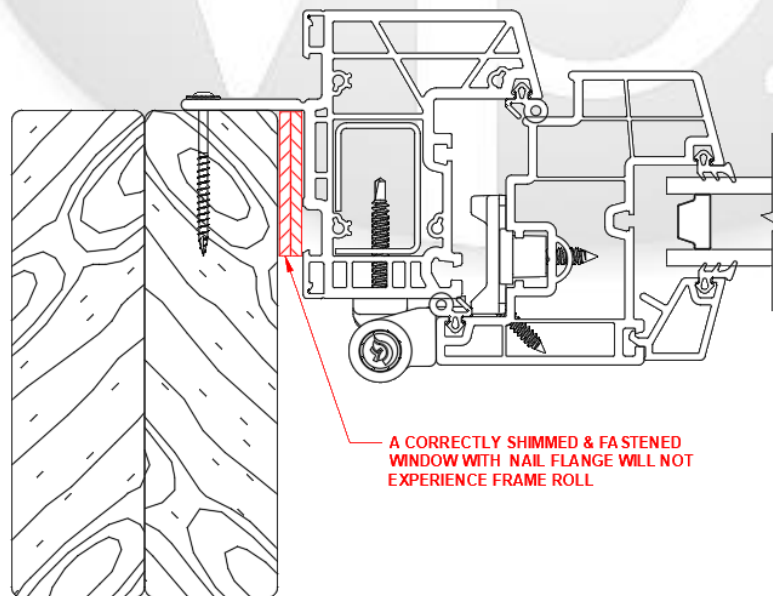


Figure 8: Example Correctly Shimmed & Fastened Window Nail Flange

C) Fastening a Steel Strap Only Window

- I. Use a #8 fastener when fastening steel strap to the rough opening.
- II. Steel strap will be delivered unbent and attached to the frame (See Figure 9)

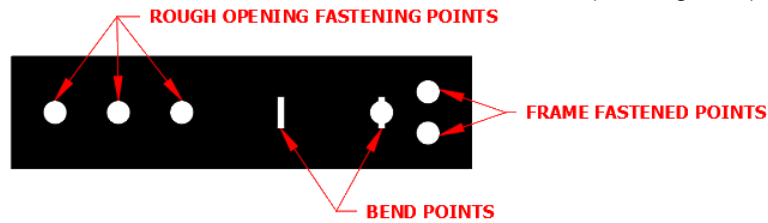


Figure 9: Unbent Steel Strap

- III. By bending at the bend points of all straps, fasten the straps of the window to the rough opening. (See Figure 10) Bend the strap to eliminate torsion on the frame.

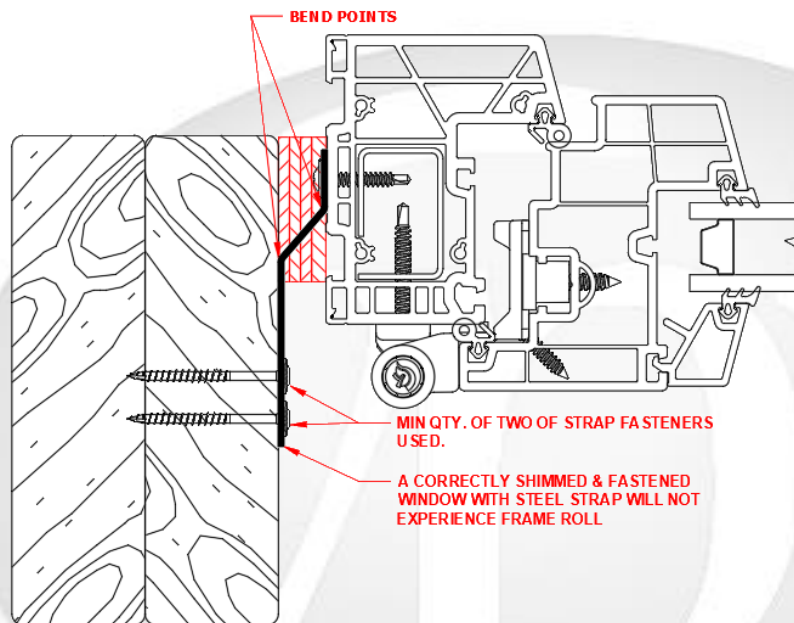




Figure 10: Example of Correctly Shimmied & Fastened Window with Steel Strap

- IV.  DO NOT over tighten fasteners as this may distort or twist the frame.
- D) Fastening with Nail Flange and Strap
 - I. Use a #8 fastener when fastening steel strap and/or nail flange to the rough opening. (See Figure 11)
 - II. Follow nail flange and steel strap fastening instructions in Sections 5.9.B and 5.9.C respectively.
- III.  DO NOT over tighten fasteners as this may distort or twist the frame.

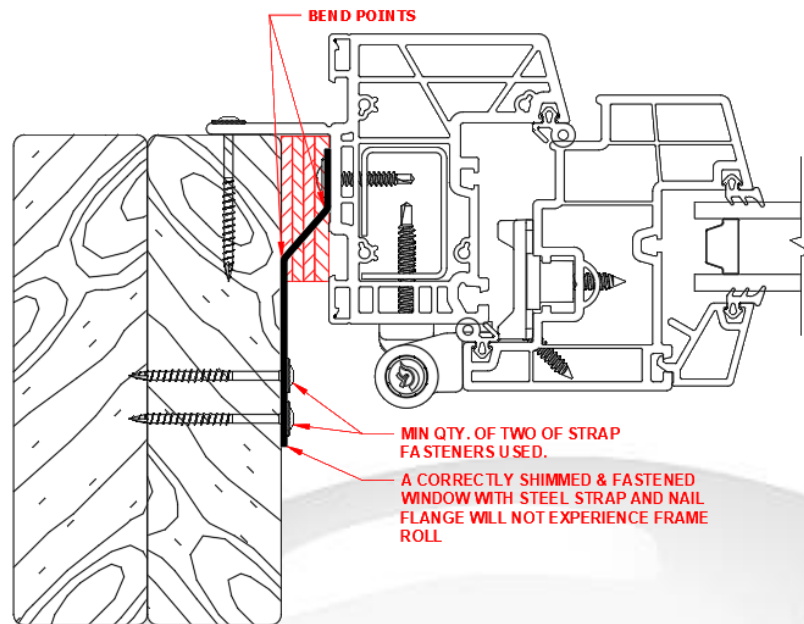


Figure 11: Jamb View Example of Correctly Shimmed & Fastened Window with Nail Flange & Steel Strap

5.10) 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 frame roll. Frame roll, which causes improper compression, can potentially damage the gaskets or locking hardware.

- I. Below is an example of a nail flange window that is shimmed incorrectly and is experiencing frame roll. (See Figure 12)

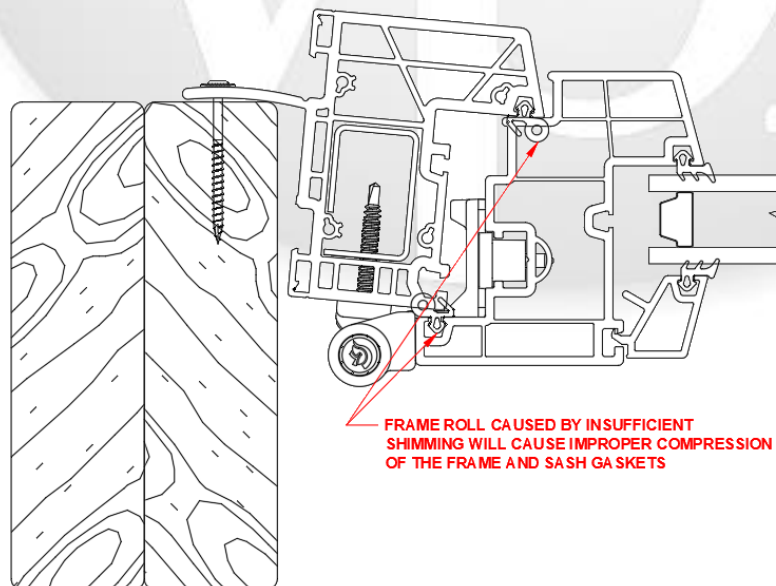


Figure 12: Jamb View Nail Flange Window with Frame Roll

- II. Below is an example of a steel strap window that is shimmed incorrectly and is experiencing frame roll. (See Figure 13)

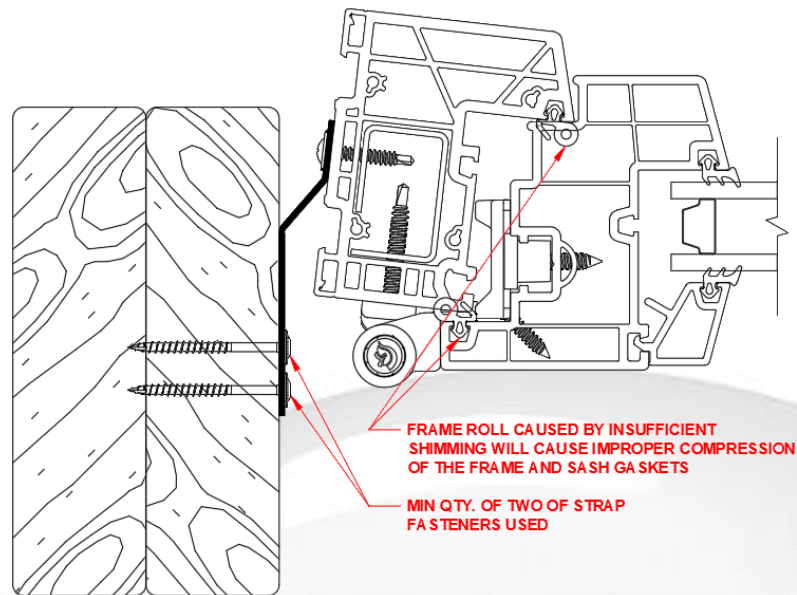


Figure 13: Jamb View Steel Strap Window with Frame Roll

- III. Below is an example of a nail flange window with steel strap that is shimmed incorrectly and is experiencing frame roll. (See Figure 14)

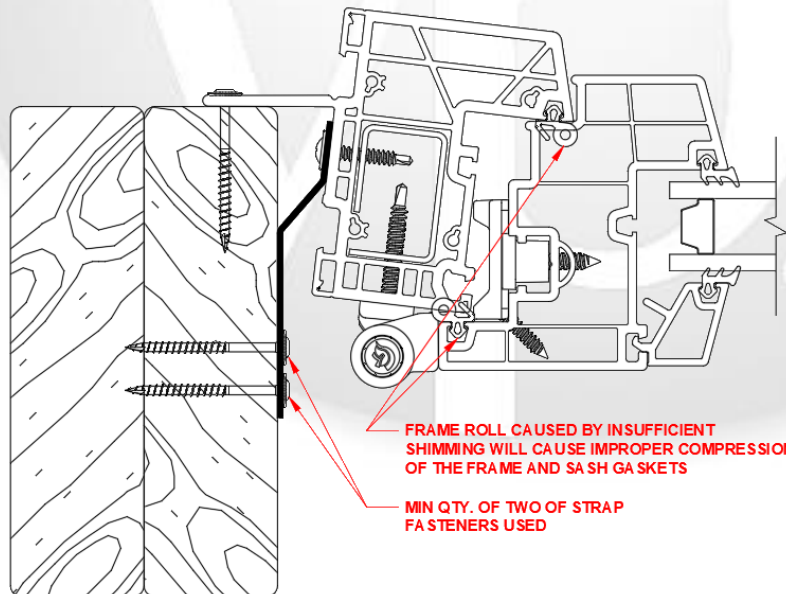




Figure 14 Jamb View: Nail Flange & Steel Strap Window with Frame Roll

B) The affected area of compression loss or gain will need to be shimmed behind the frame in order to correct the frame roll. Refer to Sections 5.4 & 5.5 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 6) FINAL ADJUSTMENT

6.1) Sash Reveal

- A)  Verify the sash reveal is consistent on the operable panel to the frame. (See Figure 15)

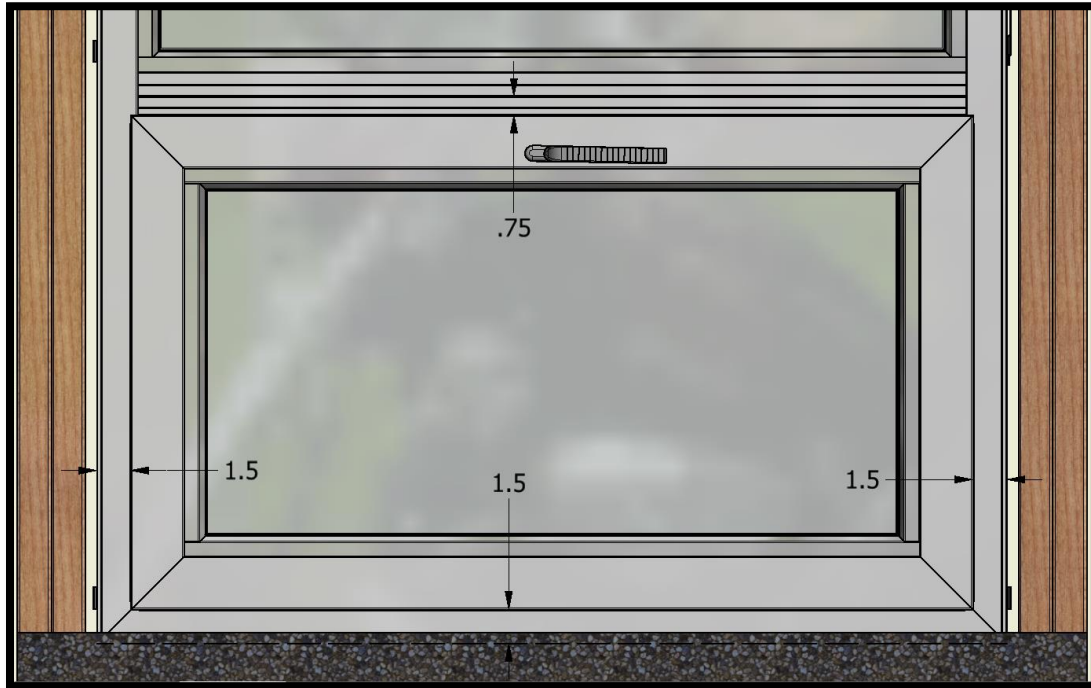


Figure 15: Sash Reveal

6.2) Adjusting the Operable Field's Reveal

- A) Remove Hinge Cover Plates
 I. Open the operable field that you are trying to adjust to reveal the set screws used to hold the cover plate on the hinge. (See Figure 16)



Figure 16: Cover Plate Set Screws

- II. Using a 2mm Allen Key, remove the cover plates of all hinges on for the operable field. (See Figure 17)



Figure 17: Removing Cover Plates

B) Adjusting Vertical and Horizontal Reveal

- I. With the operable field closed, slacken both exposed socket head cap head screws with a 4mm Allen Key on all hinges. (See Figure 18)



Figure 18: Exposed Socket Head Cap Screws


- II.  Do not remove socket head cap screws from hinge. Doing so could cause the sash of the window to fall out.
- III. Horizontal and vertical adjustments can be made simultaneously.
- IV. Hinges can be adjusted vertically $\pm 4\text{mm}$ or $.16\text{in.}$ (See Figures 19 & 20)



Figure 19

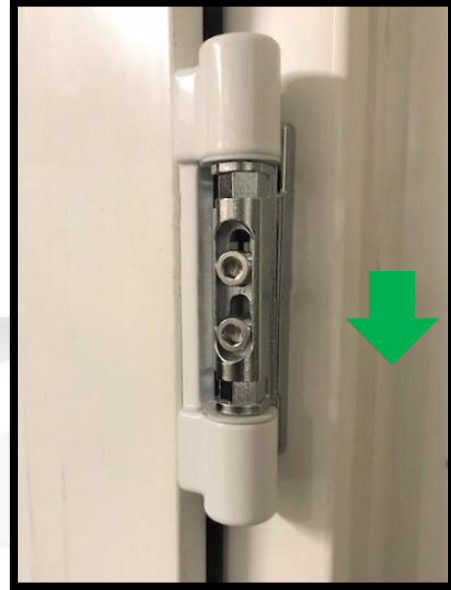


Figure 20

- V. Hinges can be adjusted horizontally $\pm 4\text{mm}$ or $.16\text{in.}$ (See Figure 21 & 22)



Figure 21

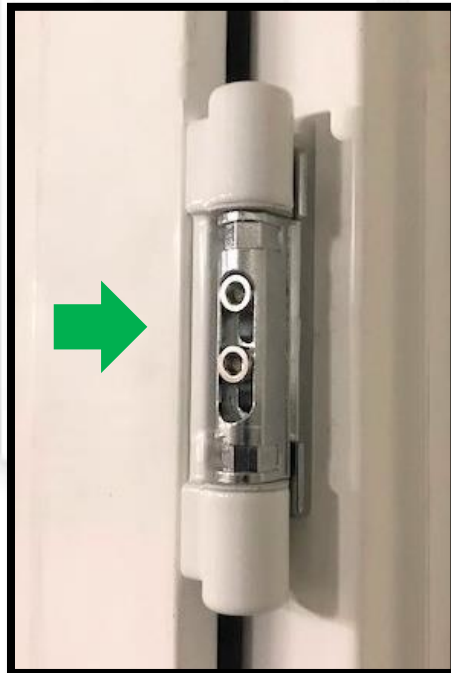



Figure 22

- VI.  Tighten both socket head cap screws for all hinges after horizontal and vertical adjustments are made.
- C) Re-Attaching Hinge Cover Plates

- I. After adjusting Vertical and Horizontal Reveal, put the cover plates back on their respective hinges with the set screws facing inwards towards the operable field. (See Figure 23)



Figure 23: Re-installing the Cover Plate

- II. Open the operable field to expose the set screws and tighten using a 2mm Allen Key. (See Figure 24)





Figure 24: Tightening Cover Plate Screws Set Screws

D) Adjusting Hinge Compression

- I. Open the operable field to reveal the compression adjustment set screws (See Figure 25)



Figure 25: Adjusting Compression Set Screws

- II. With the operable field opened, rotate the set screws counter-clockwise to increase compression and clockwise to decrease compression using a 3mm Allen Key
- III.  Do not remove the compression set screws from the hinge. They should not extend beyond the face of the hinge.
- IV.  Both compression adjustment set screws must be adjusted equally to for an even adjustment.

6.3) Frame Roller Adjustment

A) 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 what is required. (See Figure 26)

B) 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 and applied to the interior glass surface.

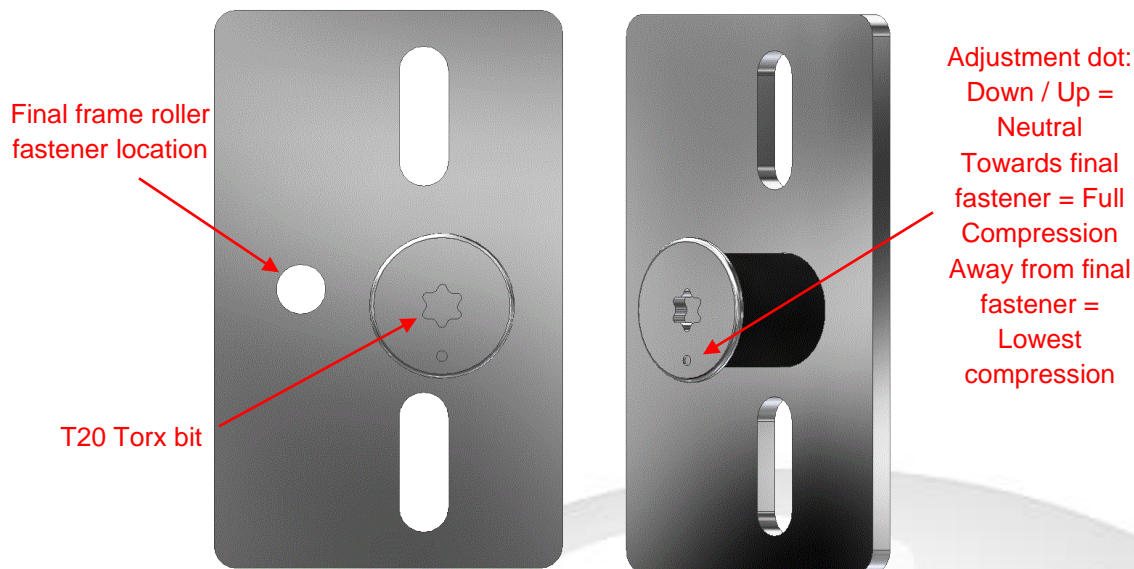




Figure 26: Frame Rollers

- C)  All rollers must engage to lock properly. Verify all locking points on the window before finalizing the installation.
- D)  It is the responsibility of the installer to verify the window 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