



Installation Instructions

Receiving | Handling | Storage | Installation

uPVC Fixed Windows / Tilt + Turn Windows

uPVC Tilt + Turn Doors / Terrace Swing Doors / Entry Doors

Version 2.0

☰ [Table of Contents]

Installation Instructions

— Receiving, Handling, Storage, Installation / Page 02 of 72



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IMPORTANT NOTICE

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1. Before you start	04
1.1. Innotech products - different by design	04
1.2. Shop drawings	04
1.3. Exterior finishes and Innotech products	04
1.4. Building codes	04
1.5. Building interface detailing	04
1.6. Second plane of protection	05
1.7. Key installation principle	05
1.8. Clearances and rough opening tolerances	05
1.9. Interstorey deflection	05
1.10. Rough opening condition	05
1.11. Compatibility of materials	06
1.12. Protecting Innotech products	06
1.13. Field testing and validity	07
2. Materials and tools required	08
2.1. Tools required	08
2.2. Materials required	08
2.3. Materials supplied by Innotech	09
3. Receiving, handling and storage	10
3.1. Receiving and inspection	10
3.2. Safely unloading products from window and door steel racks	10
3.3. Handling and moving products	12
3.4. Storing Innotech products	13
3.5. Removing sashes before installation	14
4. Installing windows	22
4.1. Inspect rough openings	22
4.2. Prepare frames for installation	22
4.3. Put frames in openings	25
4.4. Initial anchoring (temporary fastening)	26
4.5. Position sill and jamb support shims	26
4.6. Seal and fasten anchors	29
4.7. Hurricane extension anchor installation	32
4.8. Hang sashes on frames	33
4.9. Check sash operation	37

[Table of Contents]

Installation Instructions

— Receiving, Handling, Storage, Installation / Page 03 of 72

4.10. If a sash does not operate correctly	37
4.11. Apply sealant for second plane of protection	38
4.12. Remove shipping blocks (spacer shims)	39
4.13. Remove protective tapes, install wind caps	39
4.14. How to glaze a fixed window	39
5. Installing doors	41
5.1. Inspect rough openings	41
5.2. Prepare frames for installation	42
5.3. Put frames in openings	45
5.4. Initial anchoring (temporary fastening)	45
5.5. Position sill and jamb support shims	45
5.6. Seal and fasten anchors	46
5.7. Hurricane extension anchor installation	51
5.8. Fastening door frames to rough opening	52
5.9. Hang sashes on frames	54
5.10. Check sash operation	56
5.11. If a sash does not operate correctly	56
5.12. Apply sealant for second plane of protection	56
5.13. Remove shipping blocks (spacer shims)	57
5.14. Remove protective tapes, install wind caps	57
6. On-site coupling	58
6.1. H-couplers	58
6.2. Zero-couplers	63
7. Troubleshooting and adjustments	65
7.1. Before you begin	65
7.2. Diagnosing the cause of operating problems	65
7.3. Correcting frame and sash problems	68
8. Reference	70
8.1. Compatible sealants	70
8.2. Definitions (glossary)	70
8.3. Additional resources	72

1 [Pre-Installation]

• Before you start

— Innotech products - different by design / Page 04 of 72

1. Before you start

1.1. Innotech products - different by design

You are receiving high-quality windows and doors that have unique operating features. The instructions for handling, storing, and installing these products may be different from other window and door products you have installed. Please read these instructions carefully before you begin installation.

1.2. Shop drawings

If you have received Innotech shop drawings, refer to them for specific installation instructions that may differ from this document. Shop drawings contain important information about the products such as the spacing and type of anchoring method to be used.

1.3. Exterior finishes and Innotech products

The mounting flanges on Innotech products are not nailing flanges. They must not be used to anchor the windows/doors to the wall structure. Fasteners penetrating the flanges can cause operating problems and product damage that is not covered by warranty. No permanent fasteners are to penetrate windows/doors flanges after windows/doors installation. The builder shall notify all trades of this requirement.

Exterior cladding must not impose loads on windows/doors frames or restrict thermal movement. Exterior cladding details must allow for differential movement between the cladding and the windows/doors frames.

As these requirements may differ from local construction practice, Innotech strongly recommends that builder and building designer review exterior finishing details and coordinate the work of trades to ensure that fasteners used to attach exterior finishes and flashings do not penetrate Innotech mounting flanges and to ensure that cladding details allow for differential movement between the cladding and the windows/doors frames.

1.4. Building codes

Innotech builds quality products designed according to information provided by the purchaser. It is the responsibility of the owner, architect or builder to select and install products in compliance with all applicable laws, regulations and building codes.

1.5. Building interface detailing

These instructions show you how to place, shim and anchor the windows and doors to the building. They do not show you how to apply all the sealants, flashings, or barrier membranes required for a code-compliant and weather-sealed installation as these requirements vary from one jurisdiction to another. Before installation consult the authority having jurisdiction (architect, building envelope consultant, local building

WARNING!

Warranty does not cover damage to products. Permanent fasteners penetrating window or door flanges after installation can result in damage to the windows or doors. Exterior cladding that restricts differential movement between the cladding and the window or door frames can result in damage to the windows or doors.

VIDEOS

Innotech has several how-to videos that provide additional information for the successful installation and maintenance of our products. Visit: [innotech-windows.com/resources](https://www.innotech-windows.com/resources) to watch the videos.

[Pre-Installation]

1. Before you start

└─ Second plane of protection / Page 05 of 72

department or building inspector) about requirements for weather-tight installation, including use of flashings, sealants and barrier membranes.

1.6. Second plane of protection

In a window or door installation, the exterior sealants and barrier membranes create the first plane of protection against water penetration. Some building codes require windows to be installed with a Second Plane of Protection to prevent water that penetrates the first plane of protection from entering the wall or the building interior.

Innotech agrees with the consensus of most building envelope professionals that the most effective way to provide a second plane of protection is to create a drained sill pan (impermeable membranes or flashing with end dams) under the windows/doors and to seal the interior plane of the window or door frame to the rough opening on all four sides to prevent the passage of air and wind-driven water.

There are several industry best-practice methods for creating an effective second plane of protection. Consult with the authority having jurisdiction for the optimal method for your specific project.

1.7. Key installation principle

Innotech products must be installed plumb, level and square to operate properly. The installer must install them this way even if openings are not square and walls are not straight or plumb.

1.8. Clearances and rough opening tolerances

To allow for small defects in the size, level and squareness of the rough opening, Innotech recommends the following clearances between the windows/doors frame and the rough opening:

- Minimum clearance 3/8" (10 mm)
- Maximum clearance 3/4" (19 mm)

1.9. Interstorey deflection

The structure above all window and door openings must be designed to limit deflection due to dead loads and live loads.

The maximum allowable deflection of the structure above or below the Innotech window or door is $\pm 3/8"$ (10 mm).

1.10. Rough opening condition

Inspect all rough openings for square, level sills, and plumb jambs. Use a long level vertically to confirm the wall face is straight and plumb at window and door jambs.

If an opening is out of square, adjust shim thickness to install the window or door frame square, level, and plumb regardless of the rough opening. If the wall face is

CAUTION

Damage to Innotech products caused by inadequate clearances or building structure deformations is not covered by warranty.

WARNING!

Inspect the rough openings and notify the general contractor or the responsible party of rough opening defects BEFORE you start installation.

In many jurisdictions, the start of installation work indicates acceptance of existing conditions.

Installer will be responsible for operating problems arising from improper installation.

[Pre-Installation]

1. Before you start

Compatibility of materials / Page 06 of 72

bowed or leaning, install the window plumb.

If rough openings or wall conditions prevent proper installation, notify the general contractor or responsible party. A satisfactory rough opening must allow the frame to be installed level, square, straight in all directions, and plumb, with a clearance of at least 3/8" (10 mm) and no more than 3/4" (19 mm) between the top of the frame and the top of the rough opening.

1.11. Compatibility of materials

Sealants, adhesives, adhesive tapes and barrier membranes used with Innotech windows and doors must be compatible and safe for use with rigid PVC and Innotech painted and laminated colour finishes. The installer or authority having jurisdiction is responsible for selecting compatible materials. The Innotech warranty does not cover damage to Innotech products or surrounding materials arising from the use of incompatible or unsuitable products.

For information about sealants known by Innotech to be compatible with Innotech finishes, See [Section 8.1 on page 70] .

If you are not sure what the finishes are on the Innotech products you are installing, contact your Innotech representative.

1.12. Protecting Innotech products

You are responsible for damage to the products from the time they are delivered until they are installed and turned over to the owner.

1.12.1. Protecting installed products

Protect windows and doors from all construction damage and do not block sashes open with materials. Keep sills clean and free of dust and debris, and ensure gaskets and drainage remain intact. Protect units from welding, grinding, concrete, mortar, stucco, paint, and other harmful materials.

Protect installed windows and doors from acid solutions used to wash masonry. These solutions are corrosive and will damage window and door framing, glass, hardware, and flashings.

If contact with acid occurs, rinse immediately with clean water. Do not use metal scrapers, solvents, or abrasive cleaners.

1.12.2. Protective tapes and protective films

Vinyl window and door frames may have protective plastic TAPE applied to interior and exterior surfaces to protect them during manufacturing and handling. Glass surfaces may have protective FILM applied to interior and exterior surfaces. Protective tapes and films may not be present on some products for specific technical reasons.

- Protective TAPE on EXTERIOR frame surfaces must be removed as soon as products are installed.

WARNING!

Risk of Static Discharge. Removal of protective film can cause sparks of static electricity and can ignite combustible liquids used nearby.

[Pre-Installation]

1. Before you start

└─ Field testing and validity / Page 07 of 72

WARNING!

Metal scrapers, chemical solvents and acidic masonry cleaning solutions will permanently damage window and door finishes. Damage from inappropriate cleaning methods is not covered under warranty.

- Protective FILM on EXTERIOR glass surfaces must be removed within twelve months of installation. Protective TAPE left on exterior vinyl surfaces can begin to fuse to the product surface from warm temperatures and exposure to the sun.

Failure to remove the protective plastic tape at the time the frames are installed may cause the tape to bond to the frame and may permanently damage the frame finish.

Protective FILM must be removed very carefully in the presence of flammable and explosive chemicals and gases. Removal of protective film can cause sparks of static electricity and can ignite combustible liquids used nearby.

To reduce the potential for creating sparks do one or more of the following:

- Mist the surface of the film with a light water spray.
- Remove film slowly.
- Touch film to glass surface often while you are removing it.

1.12.3. Final cleaning and commissioning

After installation, clean and commission windows and doors following the Innotech instructions supplied with the contract/purchase documents. Visit:

innotech-windows.com/resources for complete care and maintenance instructions.

Carefully read Innotech cleaning and maintenance instructions before attempting final cleaning of products after installation.

Innotech products must only be cleaned with a mild soap solution, non-abrasive rags or sponges, and rinsed with clean water.

- Do not use metal scrapers to remove substances from frames or glass.
- Do not use abrasive cleaners.
- Do not use any kind of chemical solvent on any surfaces of the product.
- Do not use lubricants containing silicone or graphite. Use of such products may permanently damage the hardware and product finishes.

1.13. Field testing and validity

Innotech will honour performance guarantees made in writing, but product performance must be verified in a fair and responsible manner. Field testing for water penetration is valid only if the test unit(s) are correctly installed, free of construction damage, clean of construction debris and adjusted to operate properly. Innotech shall BE NOTIFIED in advance of such tests and given adequate opportunity to inspect products to be tested if Innotech so chooses.

Innotech shall not be bound by the results of tests performed by uncertified or unqualified test agents, by tests that are not fully documented according to the referenced test specifications or by tests carried out without provision of adequate advance notice.

CAUTION

For retrofit installations:

Buildings and homes constructed prior to 1990 may contain lead-based paints. Removing, repairing or disturbing this paint during window or door replacement can cause serious health risks. For more information on proper management of lead-based paint, go to www.epa.gov/lead or <https://www.canada.ca/en/health-canada/services/home-safety/lead-based-paint.html>

It is your responsibility to safely and responsibly recycle or dispose old windows and doors that are removed during retrofit installations. Disposing of old building materials, including windows and doors, into landfills should only be considered if recycling is not offered in your local area. Contact your local recycling management company for additional information.

2. [Pre-Installation]

2. Materials and tools required

— Tools required / Page 08 of 72

2. Materials and tools required

2.1. Tools required

Table 1. Required tools and equipment for installation setup.

Spirit levels	Use 24", 48", and 72" levels. Longer levels improve accuracy; use 72" for tall units.
Framing hammer	—
Flat pry bar	—
Screw gun	—
Screwdrivers	—
Tape measure	—
Sealant gun	—
Wrench	Small adjustable wrench OR 11 mm box-end/crescent wrench (may be needed for certain hardware adjustments)
Vacuum cups	Use at least two vacuum cups for large, heavy windows and doors. See [Section 3.3.4 on page 13] .
Hex keys: 3, 4, 5, 8 mm (or combo: 4 mm hex + 11 mm socket).	Required for adjusting hardware (clearance and locking tightness).

WARNING!

Treated wood products can be corrosive to many commonly used fasteners.

Installer or authority having jurisdiction is responsible for selecting fasteners that are compatible with the substrates into which they are fastened.

2.2. Materials required

Table 2. Materials required.

Fasteners for Innotech Strap Anchors (one per anchor)	Wood substrates: #8-13 × 1-1/2" pan head screws Steel studs: #8-13 × 3/4" pan head screws Concrete: 3/16" × 1-1/4" minimum Tapcon® concrete screws or approved equivalent All fasteners must be corrosion resistant and selected for compatibility with the substrate.
Sealants and membranes	Sealants and barrier membranes for air and water seal at perimeter joints shall be compatible with rigid PVC, with building substrates, and with one another.

(Continuous data table. Page 08 and page 09)

[Pre-Installation]

2. Materials and tools required

— Materials supplied by Innotech / Page 09 of 72

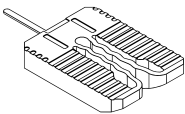
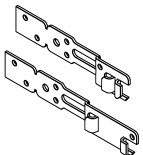
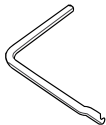
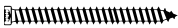
Table 2. Materials required.

Sealant and backer rod	Compatible sealant for second plane of protection at the interior perimeter of each window and door. See [Section 8.1 on page 70] .
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(Continuous data table. Page 08 and page 09)

2.3. Materials supplied by Innotech

Table 3. Materials and components supplied by Innotech.

	Stackable shims, Plastic or other non-deteriorating, non-swelling, non-compressible support shims, available in various thicknesses from 1/32" (1 mm) to 3/8" (10 mm).
	Strap anchors are shipped loose with every order. The anchors are in one or more cardboard boxes and are identified on the packing slip. Make sure you have all the anchors you need before you start installing windows/doors.
	Wind caps (Drainage cap) are shipped loose with every order.
	Tilt + Turn windows and doors: 4 mm Hex Key Outswing doors: 3, 4, and 5 mm Hex key
	The assembly key is used to remove the pin from the top hinge of Tilt + Turn Windows and Tilt + Turn Doors. It can also be used as a temporary handle to open and close Tilt + Turn Windows and Tilt + Turn Doors.
	7.5 × 102 mm AMO III Type 2 fastener with 8.0 mm head and AW30 (Torx®) drive, for window and door installation.
	7.5 × 80 mm AMO III Type 2 fastener with 8.0 mm head and AW30 (Torx®) drive, for window and door installation.
Handles and keys	Handles and screws are in pre-packaged plastic bags. Keys are supplied for doors that have key-lock cylinders.

3. [Pre-Installation]

3. Receiving, handling and storage

— Receiving and inspection / Page 10 of 72

3. Receiving, handling and storage

3.1. Receiving and inspection

Carefully inspect the windows and doors at the time you receive them. Any visible defects of glass or framing must be reported to the Innotech dealer within 24 hours of receiving them.

Inspect products again before you install them to make sure they have not been damaged on the jobsite. Report any jobsite related damages to your Innotech representative to determine if product can be safely installed.

WARNING!

Use extreme caution when handling and unloading products from window and door steel racks. Always unload steel racks with at least two people. Never leave product unsecured or unattended on steel racks.

3.2. Safely unloading products from window and door steel racks

Innotech products are either delivered on steel racks and secured with ratchet straps (tie-downs), or in wooden crates secured by wood blocking.

Windows and doors may have shifted during transportation. Always use extreme caution when unloading products from steel racks.

Before unloading, evaluate the surface, steel rack/crate and product conditions and take appropriate precautions.

3.2.1. Place steel racks or wooden crates on a level surface to attain a safe lean angle

To prevent tipping, place rack/crate on a level surface. Due to varying product weight, surface conditions and rack/crate conditions, it may be necessary to use small wooden shims (about 1 - 1 1/2" [~25 - 38 mm] thick) to attain a safe lean angle.

To begin, place the rack/crate on a level and even surface. If surface is not level, place wooden shims under the front legs of the steel rack to slightly shift the product load towards the back of the rack. Do not exceed safe lean angle as this may cause the steel rack to tip backwards.

TIP

To avoid injury, always ensure the products at the back remains secured to the steel rack with a ratchet strap.

To do this, carefully loosen the ratchet strap and lift it over one product at a time. This allows you to resecure the next products at the back of the rack, while safely unloading the front products.

3.2.2. Carefully remove the ratchet straps

Steel racks are loaded with the largest and heaviest products at the back. Unload front products first. While unloading front products, back products must remain secured to the rack.

With at least two people, carefully remove the ratchet straps one at a time, starting with the most forward ratchet strap. Depending on the size of the product, at least one person should hold the products while the other slowly loosens and removes the ratchet strap. Only remove the ratchet strap if necessary; when possible, leave ratchet strap secured to the back products while unloading the front products. **Never remove all ratchet straps at once. Never leave product unsecured or unattended on the steel rack.**

[Pre-Installation]

3. Receiving, handling and storage

— Safely unloading products from window and door steel racks / Page 11 of 72



Figure 1. Never leave product unsecured or unattended on the steel rack.



Figure 2. At least one person should hold the products while the other slowly loosens and removes the ratchet strap.

[Pre-Installation]

3. Receiving, handling and storage

— Handling and moving products / Page 12 of 72

3.3. Handling and moving products

Handle windows and doors carefully. Mishandling frames can cause cracks and can separate screwed connections. Cracked, bent, and damaged frames are signs that the products have not been handled correctly – damage due to mishandling is not covered by warranty.

WARNING!

When using vacuum cups do not place cups on joint seams of plastic film.

Always use vacuum cups according to manufacturer's instructions.

Be mindful when removing plastic film as it can cause static discharge that can ignite flammable materials.

TIP

Vacuum cups such as Wood's Powr Grip, can make handling of smooth-sided heavy objects easier and safer.

For more information see:
www.powrgrip.com

3.3.1. Safe handling practices

The installer is responsible for safe handling of heavy windows and doors, for selecting appropriate handling equipment, and for the safety of the installation crew. The following guidelines are intended to help installers prevent product damage caused by mishandling.

Innotech products are heavy. Always use at least two people to carry them. Do not drop these products. Use slow and gentle movements.

3.3.2. Carry products vertically

Windows and doors are delivered in a vertical position and resting on one edge that has support blocks attached. Make sure windows and doors are vertical when you move them and when you put them down. Lift frames gently.

Avoid the following handling practices:

- Do not carry Innotech products tilted at a sharp angle or in a horizontal position for an extended period or without proper support.
- Do not lay Innotech products flat on any surface for an extended period or without proper support.
- Never lift units by the top framing member.
- Do not attempt to bend, twist or distort frames to go around corners or other barriers.

3.3.3. Carrying frames with no glass

Frames with no glass can be heavy. Always carry frames by supporting the frame weight from the bottom near the corners or by grasping vertical members. Lift frames gently.

Avoid the following handling practices:

- Never lift units by the top framing member.
- Never lift units by a horizontal framing member.
- When lifting frames with vertical mullions, support the joints between mullions and the horizontal framing members, if you lift the frames by the ends only.

[Pre-Installation]

3. Receiving, handling and storage

— Storing Innotech products / Page 13 of 72

3.3.4. Use vacuum cups to carry frames with glass

Most installers consider vacuum cups to be the safest way to carry heavy glass and windows/doors units with glass.

Innotech windows and doors may have the glass surfaces covered with protective plastic film. When using vacuum cups, remove the film before applying vacuum cups.

3.3.4.1. Carrying glazed units (frames with glass)

Carry frames by supporting the frame weight from the bottom at quarter points or use vacuum cups.

When using vacuum cups, place cups at quarter points from either end of the unit. For glass surfaces with protective plastic film, remove the protective film before using vacuum cups.

3.3.4.2. Carrying partially glazed units

Use vacuum cups to lift the part of the frame with glass. Support the unglazed part of the frame, especially the joints between mullions and the bottom frame, to prevent cracking of frame joints.

3.3.5. Always support frames on shipping blocks

Products with a flange have shipping blocks on the bottom. Make sure windows and doors are always supported on the blocks.

3.4. Storing Innotech products

Store windows and doors indoors on a flat, level surface, protected from rain, wind, direct sunlight, and extreme temperatures. Ensure good ventilation to prevent heat build-up under covers. Store units on edge with attached support blocks, leaning frames against a wall at a uniform angle with a base distance of no more than 10" (254 mm). Never stack frames more than seven deep. Never stack frames directly against each other; separate them with soft, resilient shipping foam blocks to maintain ventilation gaps. Shield stored products from construction hazards like welding splatter, grinding sparks, concrete, mortar, stucco, and paint. Cover units using only opaque or white poly; never transparent poly to prevent excessive heat build-up and damage.

See [Table 4 on page 14] .

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 14 of 72

Table 4. Temperature and weather handling precautions.

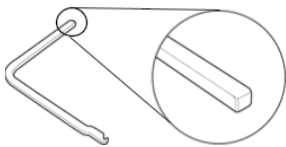
COLD WEATHER CAUTION	WARM WEATHER CAUTION
Cold weather makes products brittle. When handling or installing at temperatures below 5 °C (41 °F), avoid any impact to frame, sash or glazing bead. Even small impacts can crack frames under these conditions.	Very warm temperatures or exposure to direct sunlight can damage window and door products stacked against one another. Heat trapped between surfaces and reflected by glass coatings can lead to permanent damage of frames, finishes, and glass.

3.5. Removing sashes before installation

Before installing operable windows and doors it is often helpful to remove the sashes to make the products easier to handle. Before removing sashes you need to install the handles or use a temporary handle (such as the assembly key) that will let you operate the hardware. You should also know that there are several possible operating modes.

TIP

The square end of the assembly key can be used as a temporary handle to operate the windows and doors. This ensures your handles are not damaged during construction.



NOTE

To avoid damage to handles during construction, you may use a single handle or the assembly key to operate all of the windows and doors during installation. In this case, you would not have to install the handle.

3.5.1. Hardware operating modes

Innotech window and door products may have several modes of operation. Dual-action sashes have labels on the handle side of the sash indicating the operating mode.

Table 5. Product types and handle operating modes.

Operating mode	Handles down	Handles to the side	Handles up
Product type			
Terrace Swing Door	Lock	Swing open	N/A
Tilt + Turn (Turn before Tilt)	Lock	Swing open	Tilt in
Tilt before Turn (TBT)	Lock	Tilt in	Swing open
Tilt Only	Lock	N/A	Tilt in

3.5.2. How to install window and door handles

Window and door handles are shipped loose. Each new handle is in a plastic bag with two installation screws.

Follow the steps below to install the handles.

1. Insert the handle shaft into the centre hole of the frame with the handle pointing downward (locked position).

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 15 of 72

NOTE

Make sure the sash is in the locked position and the handle is pointing down before installation.

2. Rotate the handle 90° to the open position.
3. While the handle is in the open position, rotate the handle faceplate aside to expose the screw holes. (Pull the top and bottom edges of the handle faceplate towards you and rotate to one side.)
4. Secure the handle by fastening the provided screws.
5. Rotate the handle faceplate back to its original position to cover the screws.

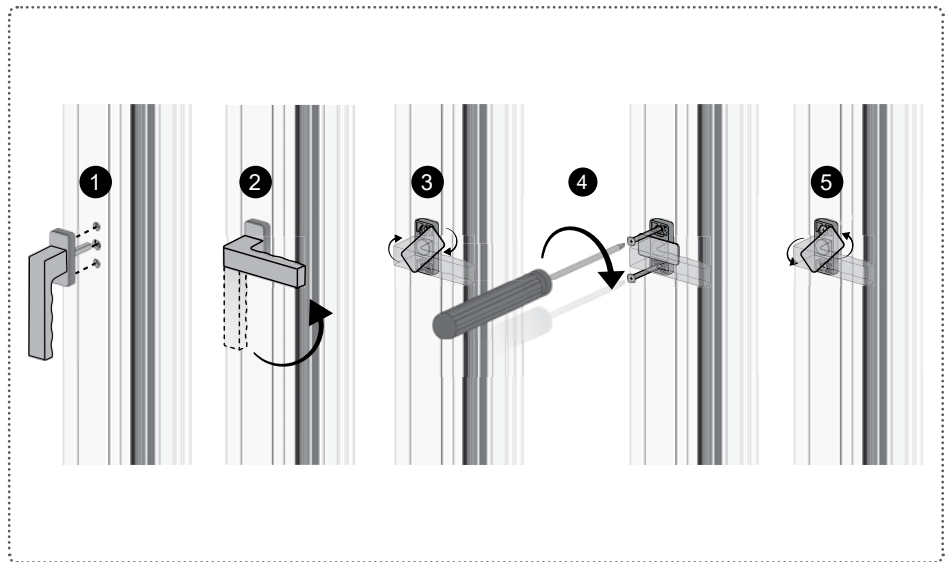


Figure 3. Fastening the handle to the unit.

WARNING!

The sash is heavy! DO NOT try to remove the sash by yourself. Innotech recommends a crew of at least two people for this procedure.

3.5.3. How to remove sashes from windows and doors

3.5.3.1. How to remove Tilt + Turn sashes from frames with barrel hinges

These steps apply to both Tilt + Turn Windows and Tilt + Turn Doors. This procedure requires two people.

1. Partially open the sash in the turn position. If you do not partially open the sash, you will not be able to remove the hinge cover.
2. Starting with the top hinge, grasp the top and bottom edges of the upper hinge cover and pull them towards you. Remove the hinge cover.
3. Once the hinge cover is removed, insert the hook end of the assembly key into the bottom of the hinge.
4. With a gentle tug, pull the assembly key down to remove the pin from the hinge. The hinge on the sash will then detach from the frame.

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 16 of 72

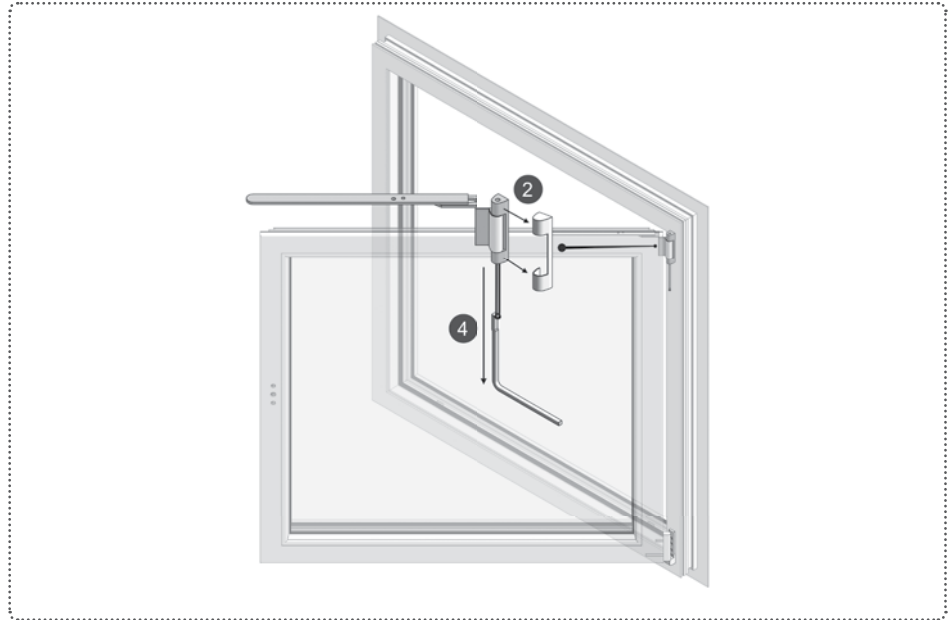


Figure 4. Hinge pin removal.

5. Tilt sash towards you slightly then lift it off the lower hinge pin.

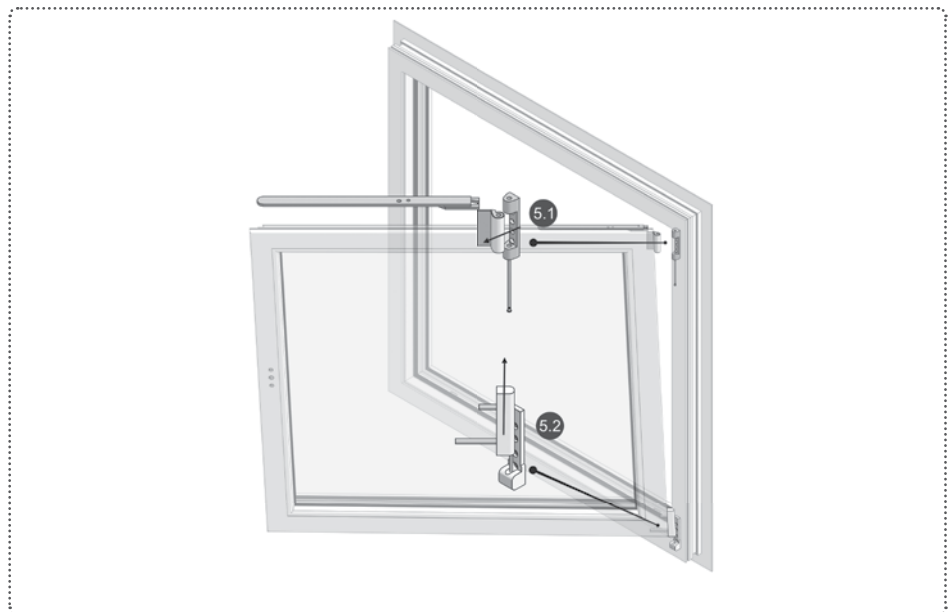


Figure 5. Sash removal from lower hinge.

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 17 of 72



Figure 6. Sash placement on support blocks.

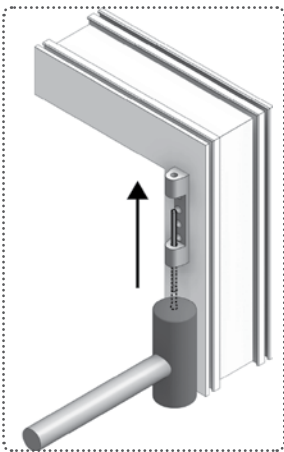


Figure 7. Upper hinge pin clicked into place.

6. Put the sash in a safe place, on support blocks, on a clean and dry surface, at a safe angle against a wall. Make sure dirt and sand do not enter the lower hinge hole while the sash is stored in this way. See [Figure 6 on page 17] .
7. Push the upper hinge pin from below until it “clicks” in place. Put the hinge cap back on the hinges to avoid damage or misplacing them. See [Figure 7 on page 17] .

3.5.3.2. How to remove Tilt + Turn sashes from frames with concealed hinges

1. Open the window to the turn position to access the stay arm at the head of the window.



Figure 8. Opening window to access stay arm.

2. With two people, unlock the stay arm by turning the connector tab towards the frame. (This is easier to rotate with a flathead screwdriver)

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 18 of 72

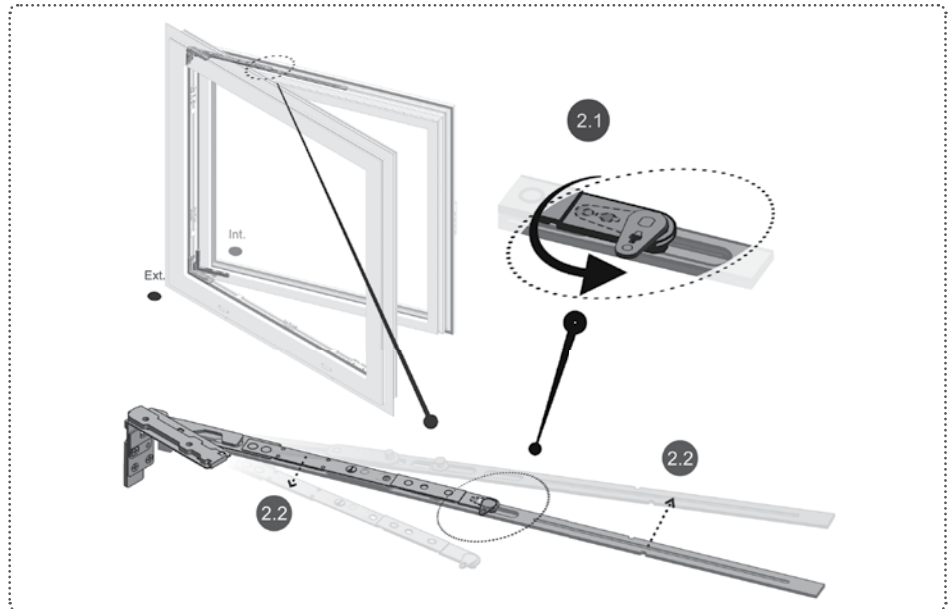


Figure 9. Releasing the stay arm.

3. Gently disengage the stay arm from the pin.

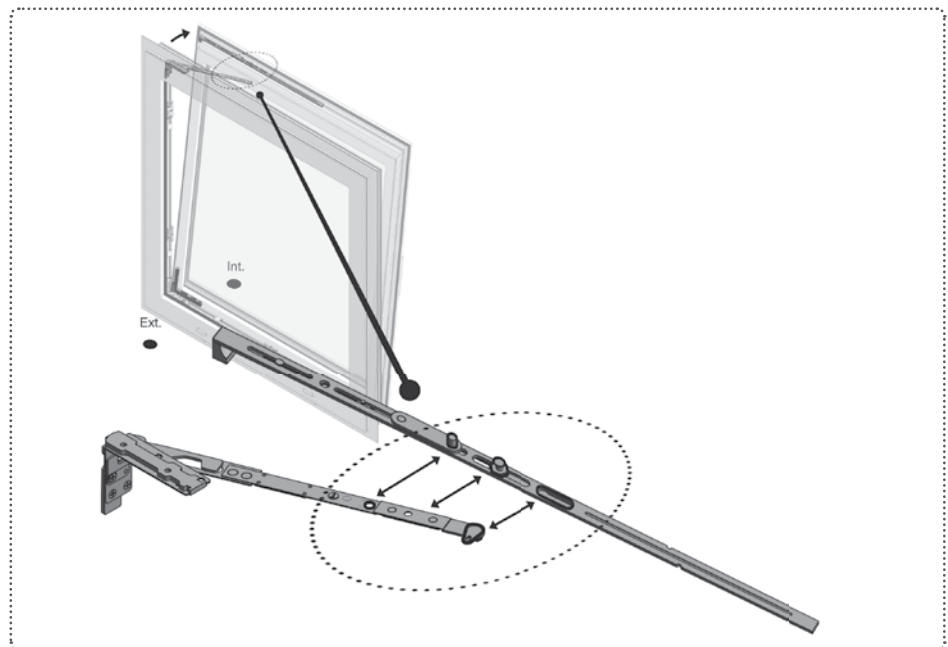


Figure 10. Stay arm disengagement.

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 19 of 72

4. Close the sash as much as possible and lift the sash from the bottom hinge.

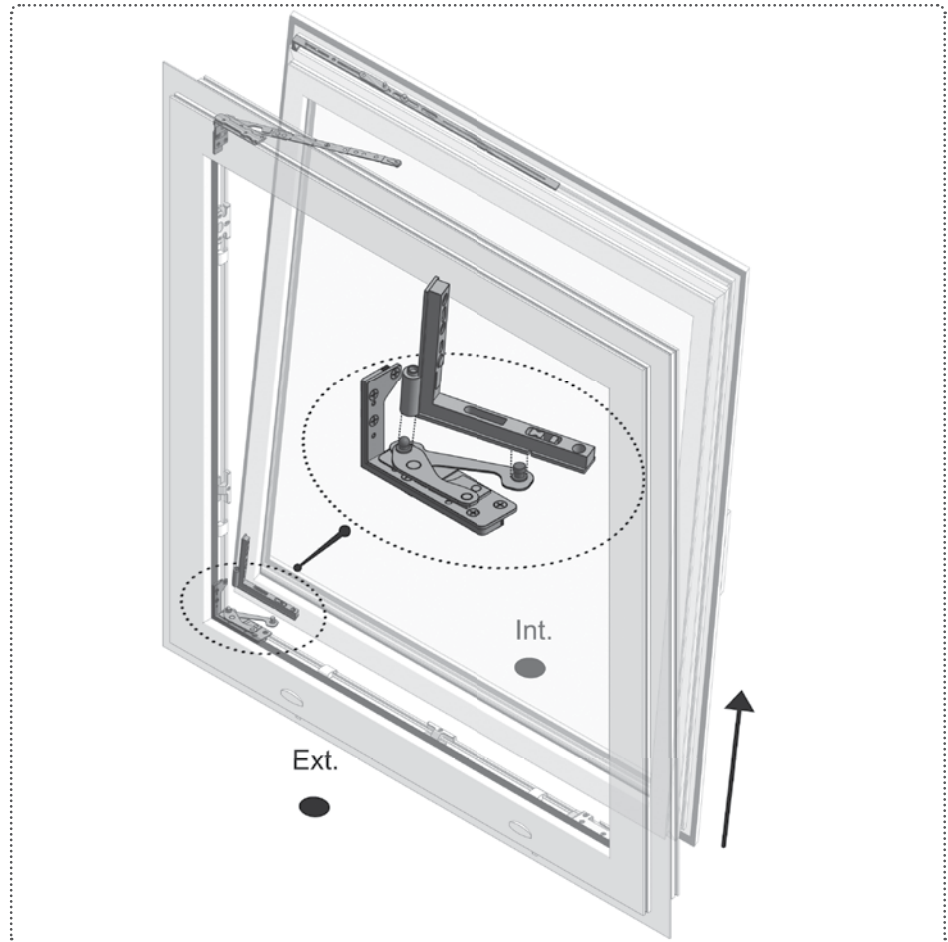


Figure 11. Sash removal from lower hinge.

5. Put the sash in a safe place, on support blocks, on a clean and dry surface. Make sure dirt and debris do not enter the lower hinge hole while the sash is stored in this way.

3.5.3.3. How to remove side-hinged doors from frames

This procedure requires at least two people. Glazed door sashes are heavy. Innotech recommends using vacuum cups to lift door sashes. Because sashes are often heavier than the frames, take care not to drop or damage the frame when removing the sash. Follow the steps below to remove side-hinged door sashes.

1. Remove all the hinge covers (there are three covers on each hinge).
2. Open the sash 90°.

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 20 of 72

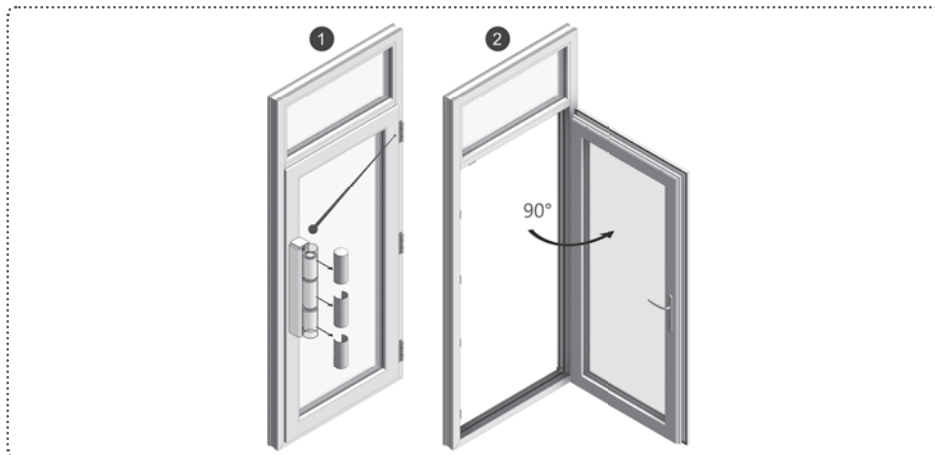


Figure 12. Removing hinge covers and opening sash to 90°.

3. Remove the set bolt from all hinges; this will unlock the pin (do not lose the set bolts).
4. Using a 4 mm hex key, remove vertical adjustment bolts from underneath each hinge (do not lose the adjustment bolts).



Figure 13. Removing hinge adjustment bolts.

[Pre-Installation]

3. Receiving, handling and storage

— Removing sashes before installation / Page 21 of 72



Figure 15. Storing the sash on support blocks.

5. Remove the hinge pins from each hinge. Make sure one person is holding the door sash while another holds the frame. Slightly lift the sash to remove the hinge pins.



Figure 14. Removing door hinge pins.

6. Put the sash in a safe place, on support blocks, on a clean and dry surface at a safe angle against a wall. [Figure 15 on page 21]

4. [Windows]

Installing windows

— Inspect rough openings / Page 22 of 72

CAUTION

Do not install windows/doors products if you cannot provide a minimum 3/8" (10 mm) clearance at the top of the windows/doors frame. Ensure the rough opening is enlarged to allow a minimum clearance of 3/8" (10 mm) at the head.



Figure 16. Bowed frame condition (illustration exaggerated).



Figure 17. Tapping frame back into alignment.

4. Installing windows

4.1. Inspect rough openings

4.1.1. Building interface details

Before installing windows, make sure flashings and barrier membranes are installed according to the requirements of the authority having jurisdiction.

4.1.2. Clearances

Measure the frame and the rough opening to see if the windows/doors can be installed with the required clearances: minimum 3/8" (10 mm), maximum 3/4" (19 mm) at both jambs and the head.

4.1.3. Leaning or uneven walls

When the face of the wall is not plumb, straight, or even on all four sides of an opening, it may need to be corrected before windows are installed.

Sometimes a wall is leaning in or out, is bowed, or is misaligned with the edge of the floor. Sometimes thick waterproofing membranes at door sills project 1/4" (6.35 mm) or more from the face of the wall. In these cases the faces of the wall at all four sides of the opening are not in the same plane.

Because operable windows and doors must be installed plumb and straight to operate properly, they cannot follow a misaligned wall.

Innotech strap anchors allow the windows/doors to be installed plumb regardless of the wall condition. When the gap between the flange and the wall is significant, it is often helpful to ask the builder to fur out the exterior wall surface at the windows/doors to provide a flat and plumb surface for the flange and for barrier membranes as shown in [Figure 44 on page 41] .

4.2. Prepare frames for installation

4.2.1. Remove wooden shipping blocks

Remove the wooden shipping blocks that are attached to the flange (flanged windows only). The wooden blocks are attached to the flange with a #8 x 3/4" Quad Drive Wood Screw.

4.2.2. Straighten bowed frames

Sometimes a frame member may become slightly bowed by actions such as dragging it by the edge of the frame. [Figure 16 on page 22] . The frame may be straightened by gently tapping it back into place with a wooden block and a mallet [Figure 17 on page 22] .

[Windows]

4. Installing windows

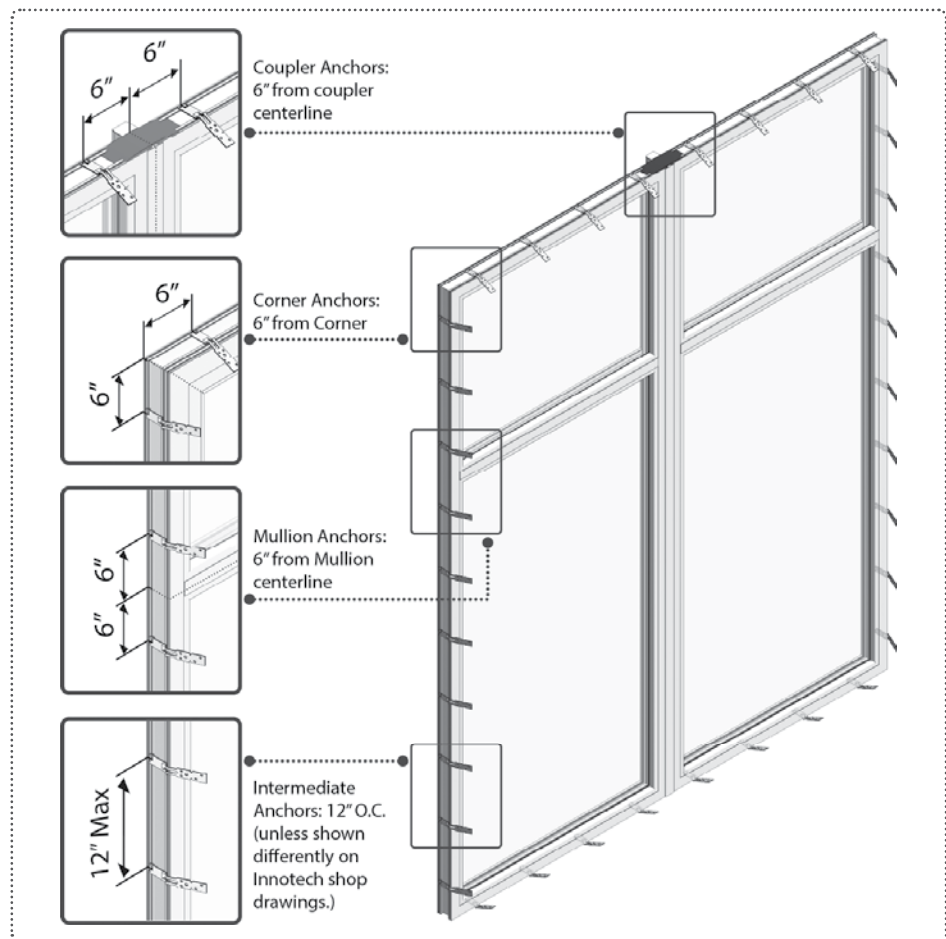
└─ Prepare frames for installation / Page 23 of 72

4.2.3. Install the anchors

Innotech windows are installed using strap anchors. If you have shop drawings, refer to the shop drawings for anchor placement. Otherwise, install the strap anchors as indicated:

First, locate anchors from frame corners and mullions: [Figure 18 on page 23]

- **Corner anchors.** Install anchors on both sides of each frame corner at 6" (~150 mm) from the corner.
- **Mullion anchors.** Install anchors on both sides of each vertical and horizontal mullion at 6" (~150 mm) from the mullion centreline.
- **Intermediate anchors.** Install anchors at a maximum spacing of 12" (~300 mm) on centre between the corner and mullion anchors unless you have shop drawings that show a different spacing.



NOTE

When Innotech determines that intermediate anchor spacing can be greater than 12" (~300 mm) on centre, this will be indicated on the Innotech shop drawings.

Figure 18. Strap anchor locations (example).

[Windows]

4. Installing windows

— Prepare frames for installation / Page 24 of 72

Correct anchor installation is vital to the structural integrity and sealing performance of the window assembly. Before proceeding with the steps below, verify that you have the correct anchor type for your specific frame dimensions. Ensure the workspace remains clean and free of construction dust that could foul the alignment channels.

1. **Place the anchor into the groove.** With the interior side of the window facing you, place the prongs of the anchor into the wide groove on the edge of the frame. The illustration shows the anchor placed on the right side of the window.

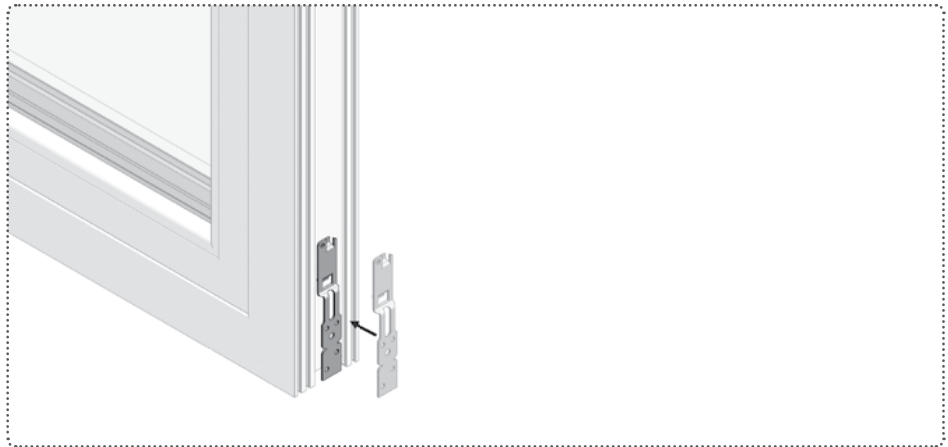


Figure 19. Placing the anchor into the groove.

2. **Turn the anchor clockwise 90°.** Place the anchor in the groove and turn clockwise. You cannot turn the anchors counter-clockwise.

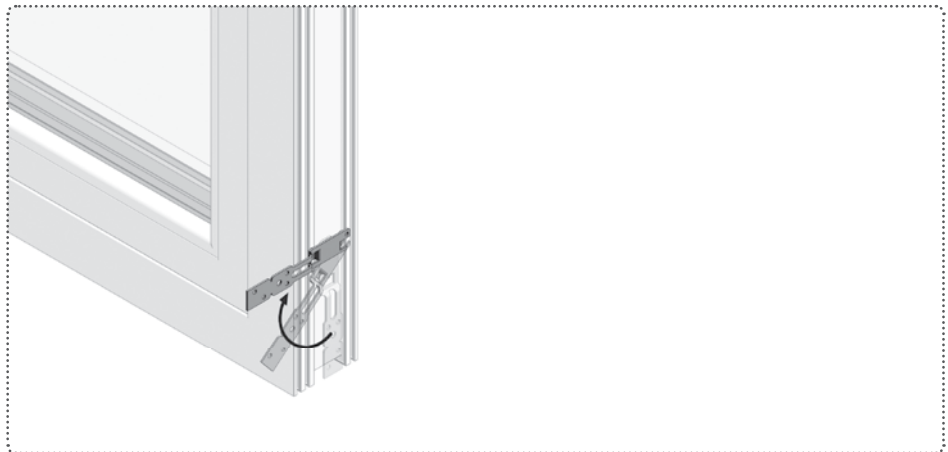


Figure 20. Turning the anchor clockwise 90°.

TIP

For narrower clearances, pre-bend the anchor less. For wider clearances, pre-bend the anchor more.

3. **Bend the anchor 45° towards the centre of the window.** Once the anchors are installed around the perimeter of the frame, gently bend each anchor 1" (~25mm)

[Windows]

4. Installing windows

— Put frames in openings / Page 25 of 72

towards the centre of the frame. DO NOT overbend the anchors; this may cause problems with the installation later.

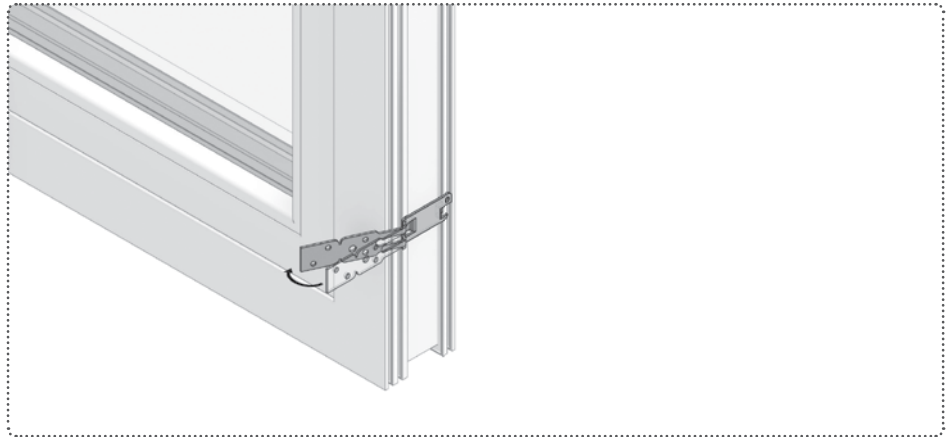


Figure 21. Bending strap anchors towards frame centre.

4.3. Put frames in openings

Follow the handling instructions in this document and on the Innotech sticker that appears on each frame.

4.3.1. Fixed windows

Centre the frame in the opening. Ensure frame is right side up.

4.3.2. Tilt + Turn windows

Position the frame so interior finish materials clear the hinge edge by at least 1/4" (6.35 mm). If jamb finishes are thicker than 1/2" (12.7 mm), shift the hinge side farther from the rough opening to maintain this mandatory 1/4" (6.35 mm) clearance.

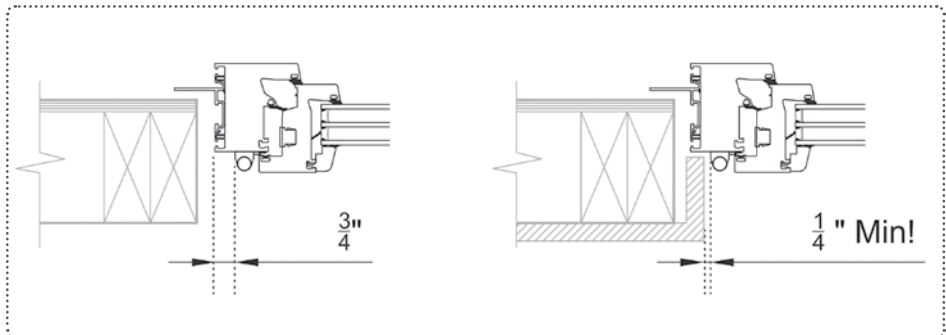


Figure 22. Window hinge clearance.

[Windows]

4. Installing windows

Initial anchoring (temporary fastening) / Page 26 of 72

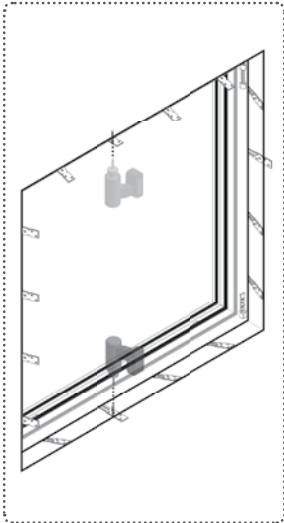


Figure 23. Partially fastening anchors (allow adjustment).

WARNING!

Failure to shim the products according to these instructions will cause operating problems and may permanently damage the products. NEVER place shims under strap anchors.

TIP

You will not be able to place the jamb shims until you are ready to anchor the frames as described under [Section 4.4 on page 26]. Use a dab of sealant to glue the jamb shims in place so they do not fall out of position.

4.4. Initial anchoring (temporary fastening)

Fasten two anchors to hold the unit in place. Do not fully tighten or secure all anchors at this stage, as the unit must remain adjustable for proper alignment in the following steps.

4.5. Position sill and jamb support shims

4.5.1. Place shims under the frame

Place sill support shims under each frame where shown in the following diagrams. Adjust thickness of sill shims to ensure sill is level and straight. Do not damage frames by forcing shims into place.

Adjust the height of the shims to obtain a level sill, ensuring there is a minimum 3/8" (10 mm) gap at the head.

Innotech recommends using stackable plastic shims of different thicknesses to achieve the correct placement of the window in the rough opening.

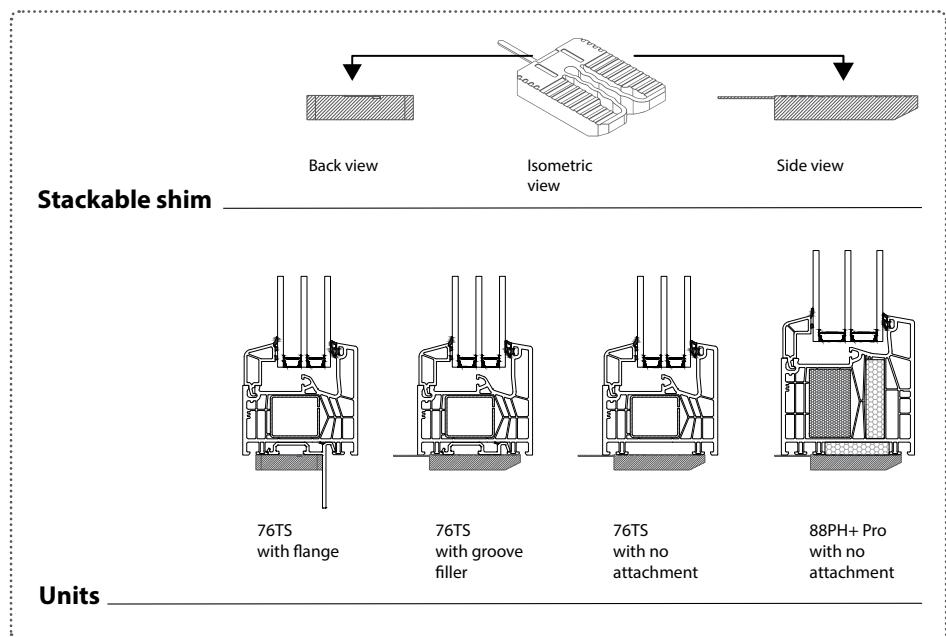


Figure 24. Installation shim placement below the frames.

4.5.2. Place shims at jambs of operable windows

Place lateral support shims at jambs as shown in the following diagrams. Jamb shims are required near the tops of jambs opposite to the hinge side to prevent the frames from moving sideways from the weight of window sashes.

[Windows]

4. Installing windows

— Position sill and jamb support shims / Page 27 of 72

4.5.3. Shim placement for fixed windows

For fixed (non-operable) windows, place shims 7" (~180 mm) from each corner and 7" (~180 mm) from the centre of each mullion to support the weight of the glass. These positions align the shims with the glass supports inside the frame. To prevent bending of the sill, you must place the shims within 1" (~25 mm) of the positions shown in [Figure 25 on page 27] . Proper shim placement is critical to ensure even load distribution and to avoid unnecessary stress on the frame components.

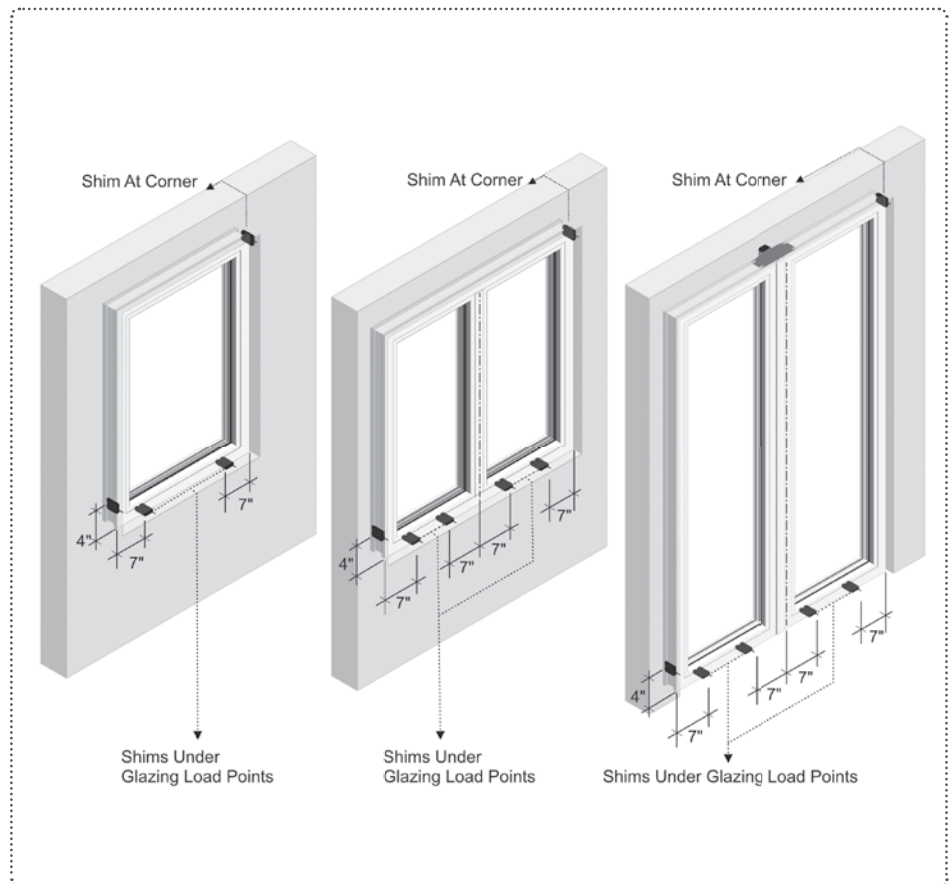


Figure 25. Shim placement for fixed windows.

4.5.4. Shim placement for Tilt + Turn windows

For operable windows, place shims under the vertical jambs to support the weight of the glass as transferred to the frame through the hinges. Then place shims as shown at the jambs to keep the frame from bending sideways. To prevent bending of the sill and jambs you must place the shims within 1" (~25 mm) of the positions shown in [Figure 26 on page 28] .

[Windows]

4. Installing windows

— Position sill and jamb support shims / Page 28 of 72

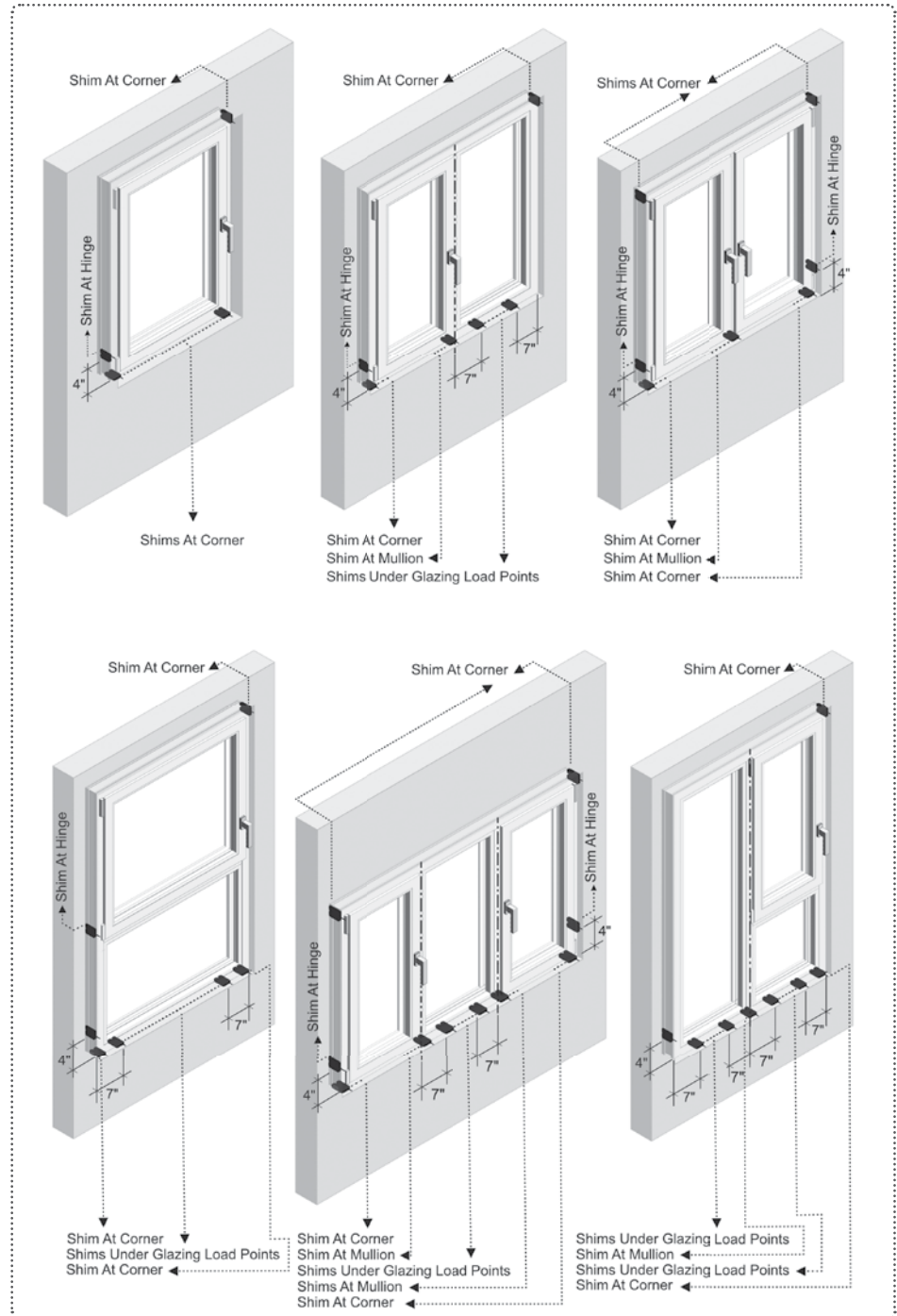


Figure 26. Shim placement for Tilt + Turn windows.

[Windows]

4. Installing windows

— Seal and fasten anchors / Page 29 of 72

4.6. Seal and fasten anchors

Once the frames are correctly shimmed as noted for their product type and product configuration (fixed or operable, couplers or mullions), all anchors can be fastened to the rough opening.

4.6.1. Apply sealant to anchors

Apply a generous amount of sealant to each anchor near the edge where the anchor bends on the side that will lie flat against the rough opening.

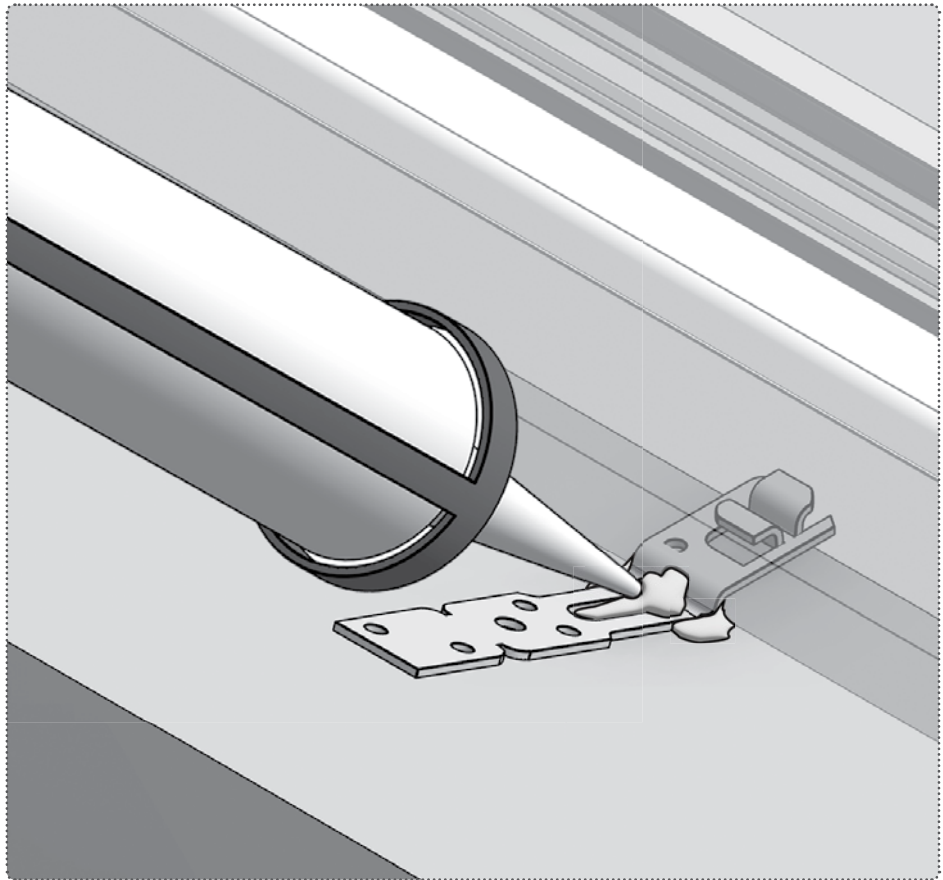


Figure 27. Apply sealant to anchors.

TIP

Sealing the anchors helps maintain continuity of the second-plane air and water seal between the frame and rough opening.

Ensure the sealant spreads over the entire width of the anchor to maintain the continuity of the air barrier when the installation is finished. **Use the same sealant that will be used for the second plane of protection** as described in [Section 1.6 on page 05] . If you use a different sealant, it must be compatible with the sealant used for the second plane of protection, see [Section 8.1 on page 70] .

[Windows]

4. Installing windows

— Seal and fasten anchors / Page 30 of 72

4.6.2. Plumb, level and square the frame

Before fastening the anchors to the rough opening make sure the frame is plumb, level and square, even if wall is not plumb or straight.

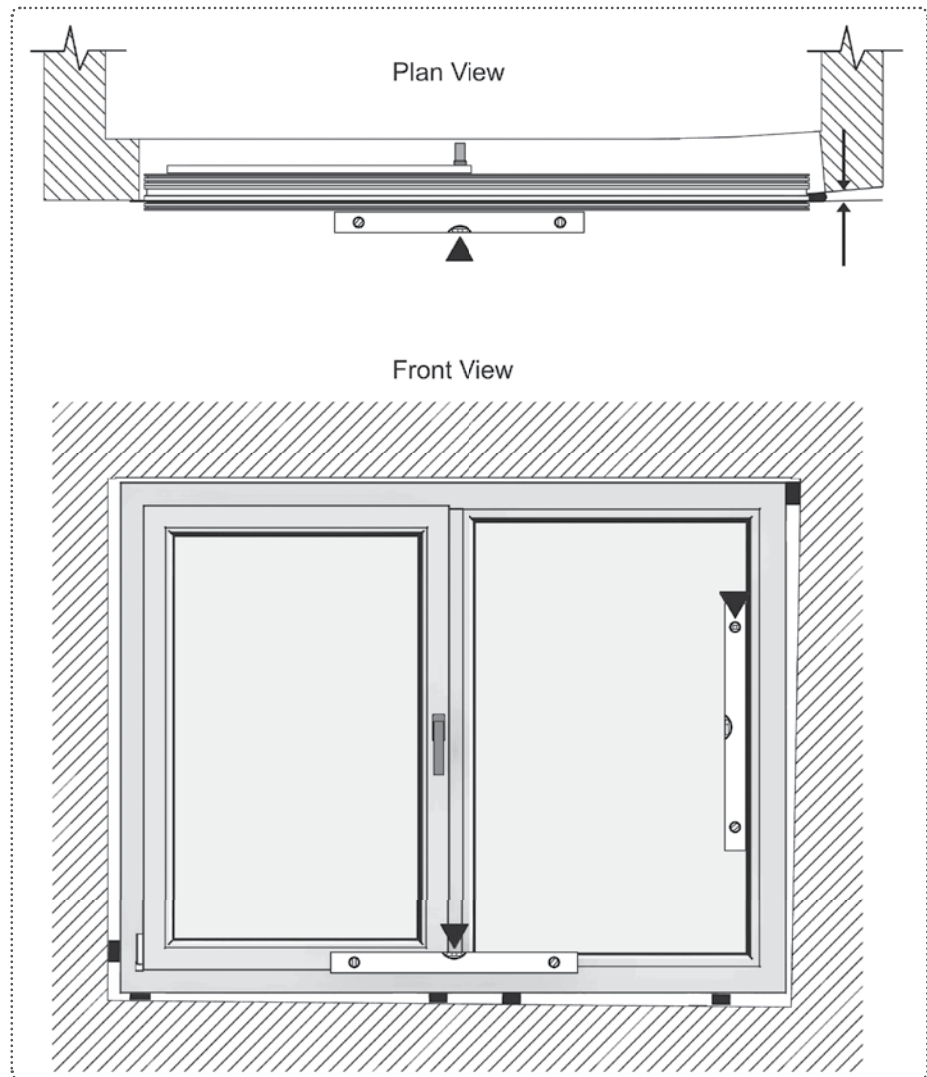


Figure 28. Checking frame for plumb, level and square.

CAUTION

DO NOT FASTEN anchors to the rough opening unless the frames are LEVEL, PLUMB and SQUARE.

4.6.3. Fasten anchors to rough opening

Once the sealant is applied to every anchor, each anchor must then be bent. **The objective is to have the anchor lie flat against the rough opening before it is fastened into place.**

[Windows]

4. Installing windows

— Seal and fasten anchors / Page 31 of 72

WARNING!

Under-bending / over-bending the anchors can result in deformed or twisted frames. Frames damaged in this way are not covered under warranty.

WARNING!

Anchors that do not lie flat against the rough opening can cause damage to the products, result in operational problems, and/or complicate finishing work. Do not fasten any anchors that are not correctly bent.

TIP

It may be helpful to take a few minutes to practise how much to bend the anchors to get the right amount of bend for it to lie flat against the rough opening.

1. Bending the anchor to suit the clearance between the frame and the rough opening is a two-step process: first, pre-bend the anchor towards the window, as shown in [Figure 21 on page 25] , second, bend it back against the side of the rough opening [Figure 29 on page 31] .

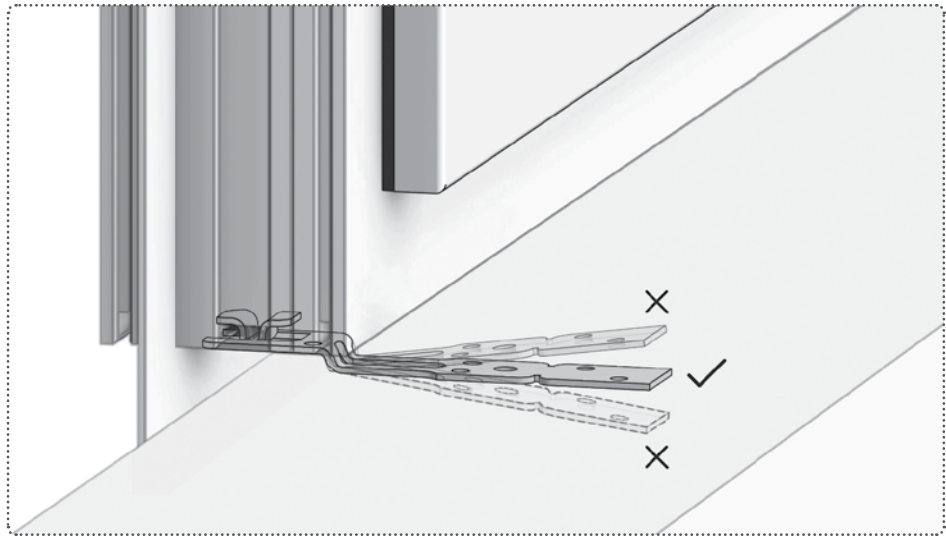


Figure 29. Bending strap anchors to fit opening.

2. Place the fasteners (approximately 1–1 1/2" (~25 - 38 mm) in length, based on the rough opening structure) into the centre hole of the anchor to fasten it to the rough opening.

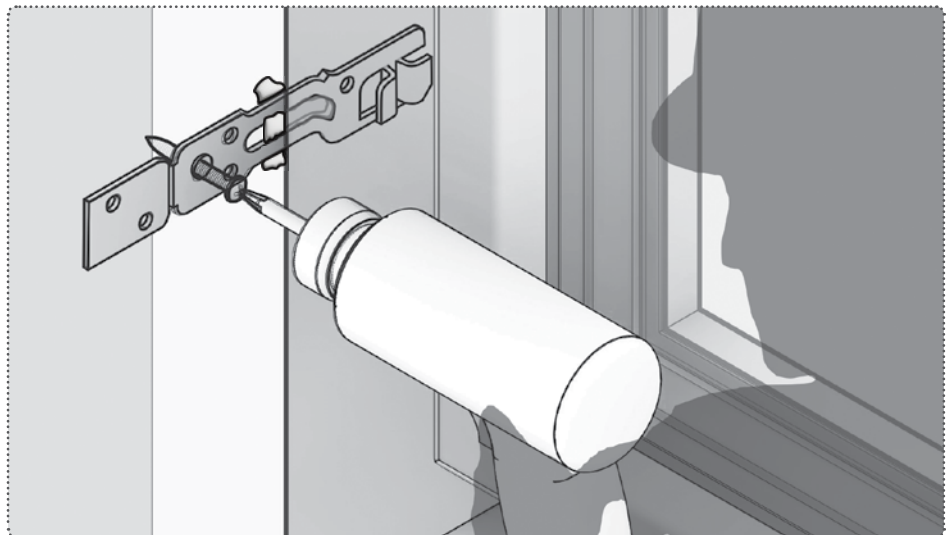


Figure 30. Fastening anchors to rough opening.

[Windows]

4. Installing windows

— Hurricane extension anchor installation / Page 32 of 72

3. Once all the anchors are fastened, remove the anchor tabs by bending and breaking each tab that extends past the rough opening. For ease, use locking pliers or pliers.

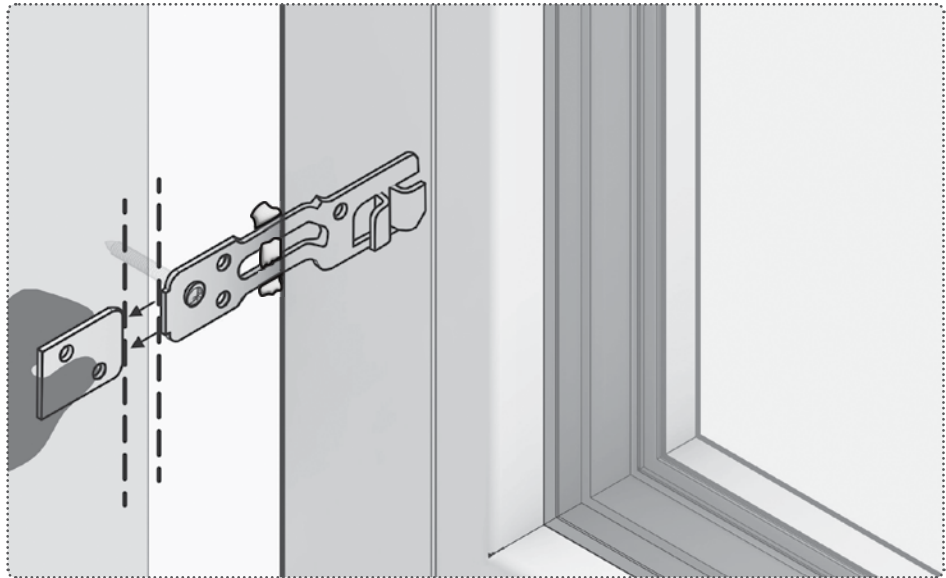


Figure 31. Removing anchor tabs.

Do not fasten the anchors in a clockwise sequence. Start by loosely fastening each corner anchor.

Next fasten the anchors at the midpoints of the frame and/or at the mullions.

Finally, fasten the intermediate anchors. If you alternate from side to side, top to bottom, you are less likely to deform or shift the position of the frame.

Make minor adjustments to the frame position as the anchors are fastened by carefully using a pry bar between the frame and the rough opening.

4.7. Hurricane extension anchor installation

1. **Verify anchor brackets.** Confirm that anchor brackets are already inserted in both ends of the hurricane extension and properly seated.
2. **Fasten anchors to framing.** Secure each anchor bracket to the structural framing using: eight #8 1-1/2" screws per anchor.
3. **Check alignment.** Verify that the hurricane extension is straight, level, and properly positioned before fully tightening all fasteners.
4. **Final tightening.** Tighten all screws securely, ensuring anchors are firmly attached without overdriving.

See [Figure 32 on page 33] .

[Windows]

4. Installing windows

— Hang sashes on frames / Page 33 of 72

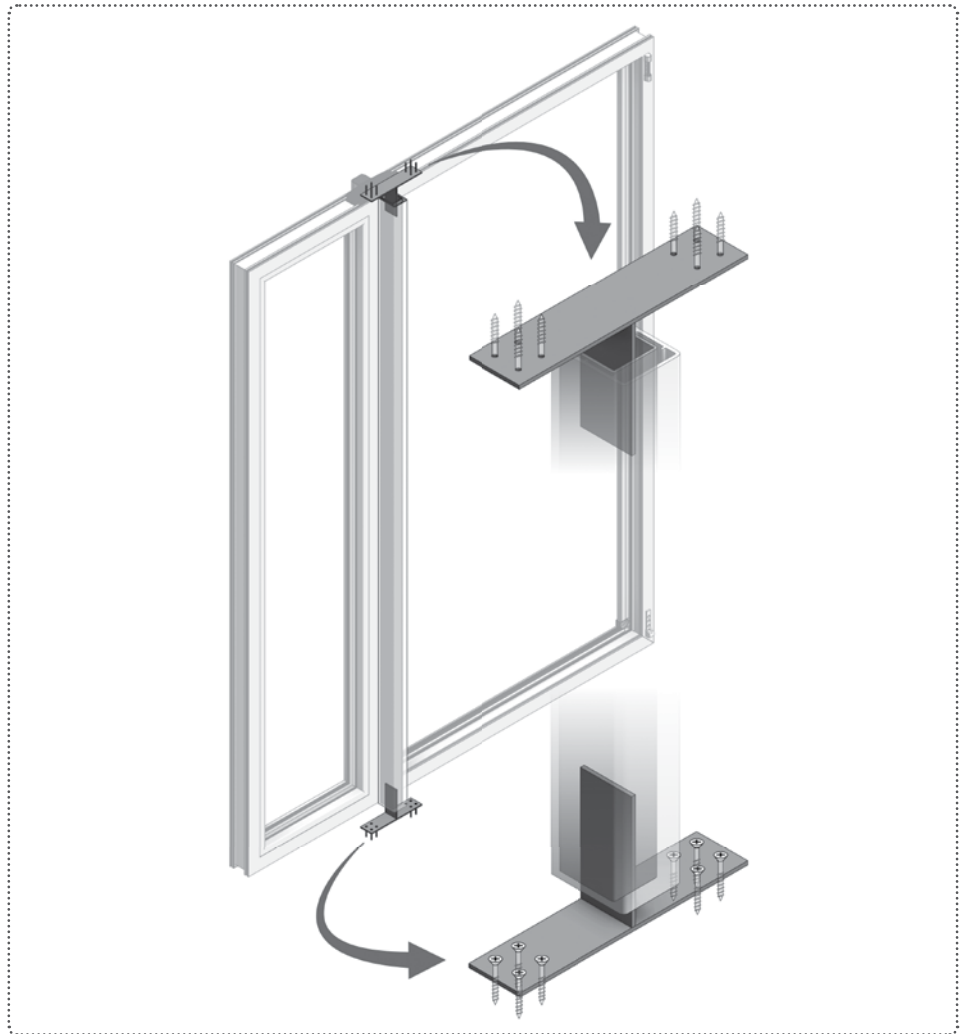


Figure 32. Hurricane extension anchors.

4.8. Hang sashes on frames

Once the frames are fastened to the rough openings and each frame is confirmed to be plumb, level and square, the sashes can be installed into the frames.

4.8.1. How to install Tilt + Turn sashes on frames with barrel hinges

1. Remove the upper hinge cover and push the hinge pin down.

[Windows]

4. Installing windows

— Hang sashes on frames / Page 34 of 72

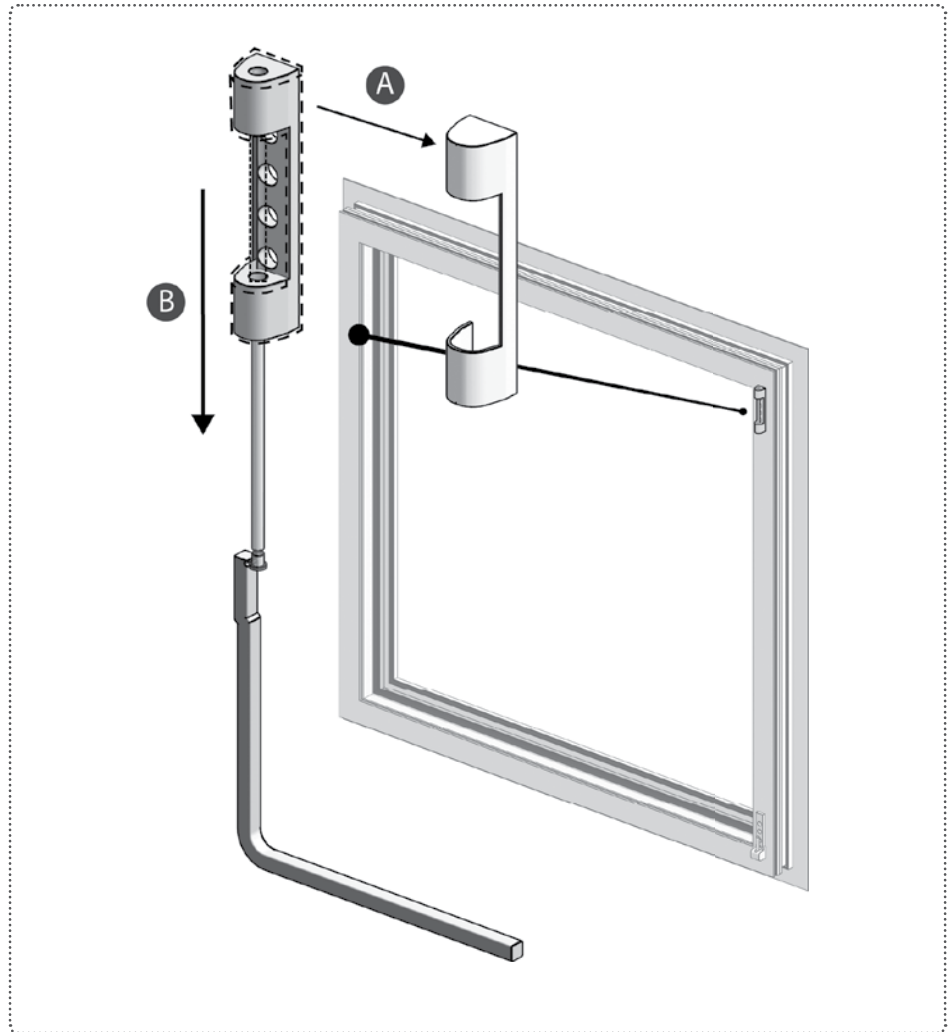


Figure 33. Removing the cover (A) and pushing the hinge pin down (B).

2. Tilt the lower hinge pin towards you approximately 30°.
3. Prepare the sash for installation:
 - Make sure there is no dirt in the lower hinge of the sash.
 - Make sure the handle is in the Turn position (as when sash is swung open to one side).
4. With two people, safely lift the sash, then set it down onto the lower hinge pin of the frame. Slowly tilt the sash towards the frame and align the upper sash hinge with the slot in the frame hinge body, as shown in the illustration.

[Windows]

4. Installing windows

— Hang sashes on frames / Page 35 of 72

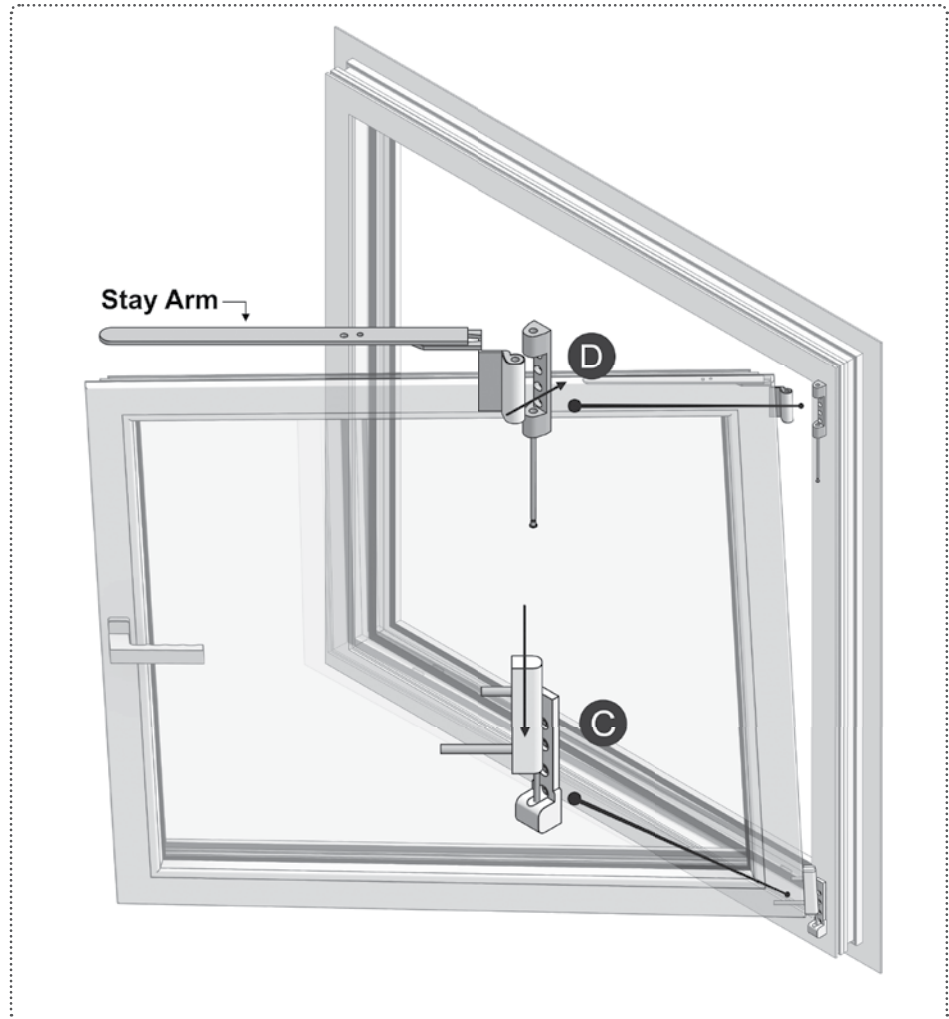


Figure 34. Positioning sash onto lower hinge (C) and align with top hinge (D).

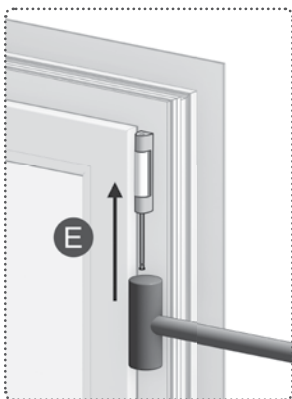


Figure 35. Pushing hinge pin until it clicks (E).

5. As you tilt the sash into place, the stay arm at the top of the sash may disengage. If this occurs, gently lift the arm upwards and move it parallel to the sash, then press it downwards until it “clicks” into place.

6. Push the upper hinge pin upwards until it “clicks” into place. The pin should easily click into place. [Figure 35 on page 35]

TIP: Align the sash to the frame so the sash hinge is flush with the frame hinge. Make sure that the hinge pin is fully upward until the bottom is in line with the frame hinge.

7. Replace the plastic upper hinge cover.

8. Close the sash.

[Windows]

4. Installing windows

— Hang sashes on frames / Page 36 of 72

4.8.2. How to install Tilt + Turn sashes on frames with concealed hinges

1. Ensure the bottom hinge is in the closed position; see the illustration. Carefully lift the sash and place it into the frame. It will snap onto the bottom hinge pins.

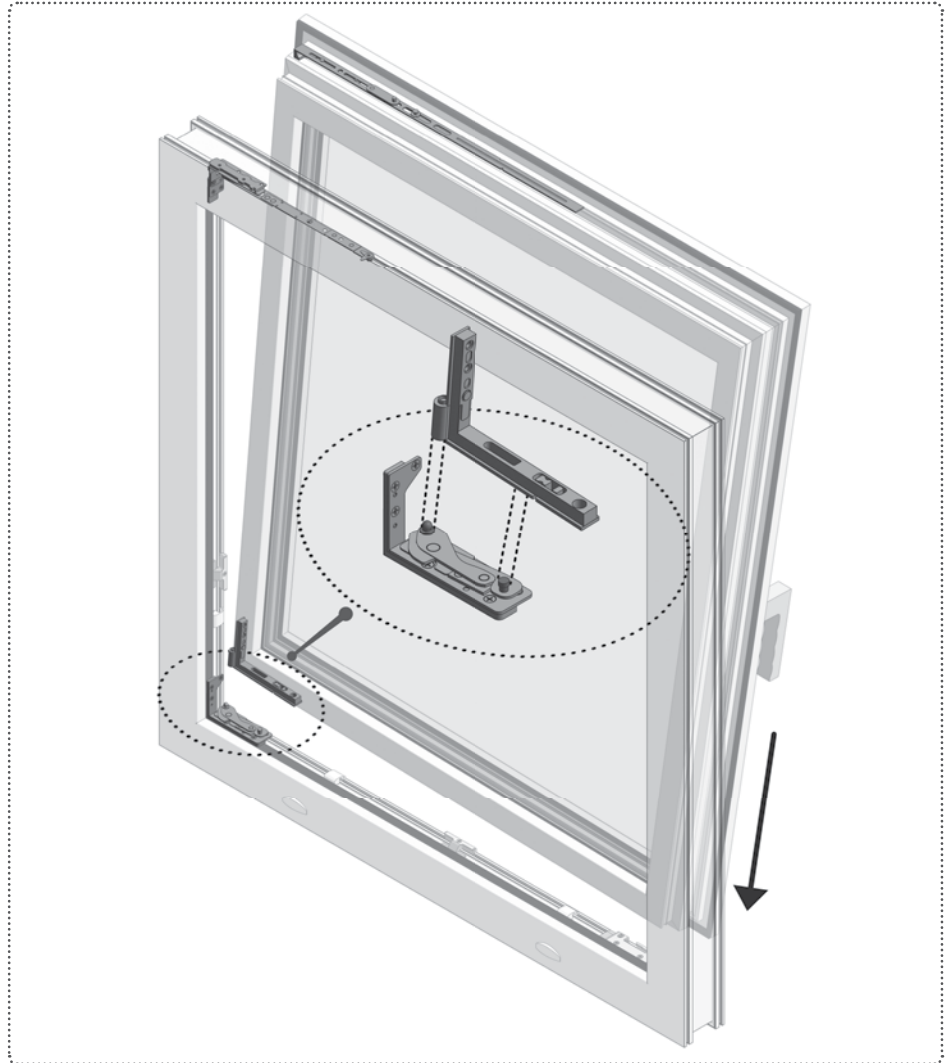


Figure 36. Setting sash onto bottom hinge pins.

2. While someone holds the sash in place, align the stay arm with the sash hardware. Slide the cam into the tilting mechanism, snap the pin into the hole, and snap the locking plate into the track. Turn the locking plate counterclockwise to lock it in place.

[Windows]

4. Installing windows

— Check sash operation / Page 37 of 72

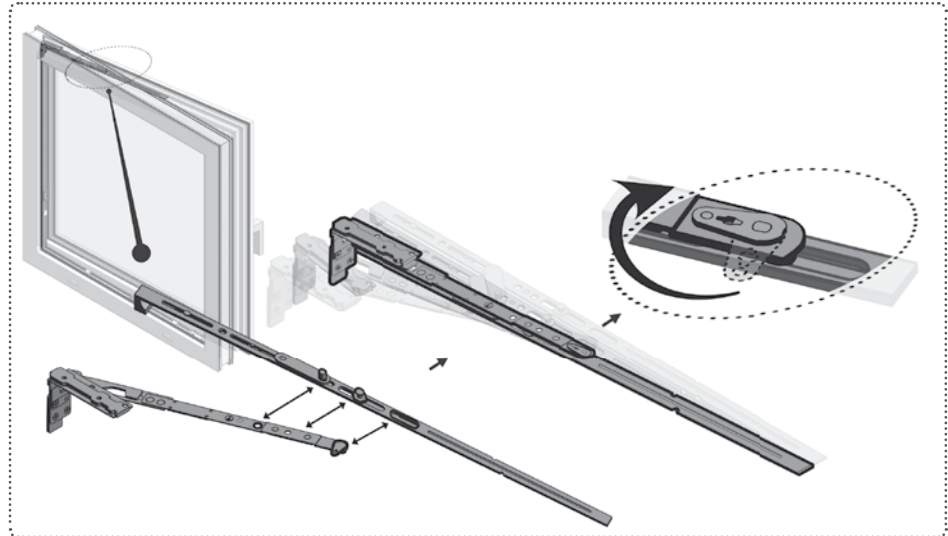


Figure 37. Aligning and securing stay arm mechanism.

WARNING!

Make sure sash operating problems are corrected before you apply sealant. Frame adjustment may not be possible after sealant has been applied. Visit innotech-windows.com/resources for additional troubleshooting resources, contact your product representative or authorized Innotech dealer, or contact our service department at: service@innotech-windows.com

4.9. Check sash operation

Innotech squares the sashes and aligns them with the hardware at the factory. Operating problems occur when the frame is not installed level, plumb and square, or when the frame or sash members are not straight because of mishandling or incorrect installation.

4.9.1. Operate the sashes and locking hardware

Open and close each sash several times and operate the locking hardware through its full range.

The window is ready for the next step when all of the following are true:

- The sash moves freely and does not bind or strike the frame at any point.
- The handle rotates smoothly and fully into the locked position.
- All hardware functions engage without force.

When every sash passes, continue to [Section 4.11 on page 38] Apply sealant for second plane of protection.

4.10. If a sash does not operate correctly

A sash that binds, will not close, will not lock, or leaks air indicates that the frame is not plumb, level and square, or that the frame or sash has been deformed. Do not adjust the hardware to compensate. Adjusting hardware before the cause is known usually makes the original problem harder to correct.

[Windows]

4. Installing windows

└─ Apply sealant for second plane of protection / Page 38 of 72

Go to [Section 7 on page 65] , Troubleshooting and adjustments, and work through the diagnostic checks in order.

4.11. Apply sealant for second plane of protection

The Second Plane of Protection [Section 1.6 on page 05] is a continuous air and water seal on all four sides of each window. It provides an important secondary layer of protection against unwanted air and water leakage.

Use only sealant that is compatible with both the window/door framing and the rough-opening materials. For a list of sealants that are compatible with Innotech finishes, see [Section 8.1 on page 70]

There are several industry best-practice methods for creating an effective second plane of protection. Consult with the authority having jurisdiction for the optimal method for your specific project.

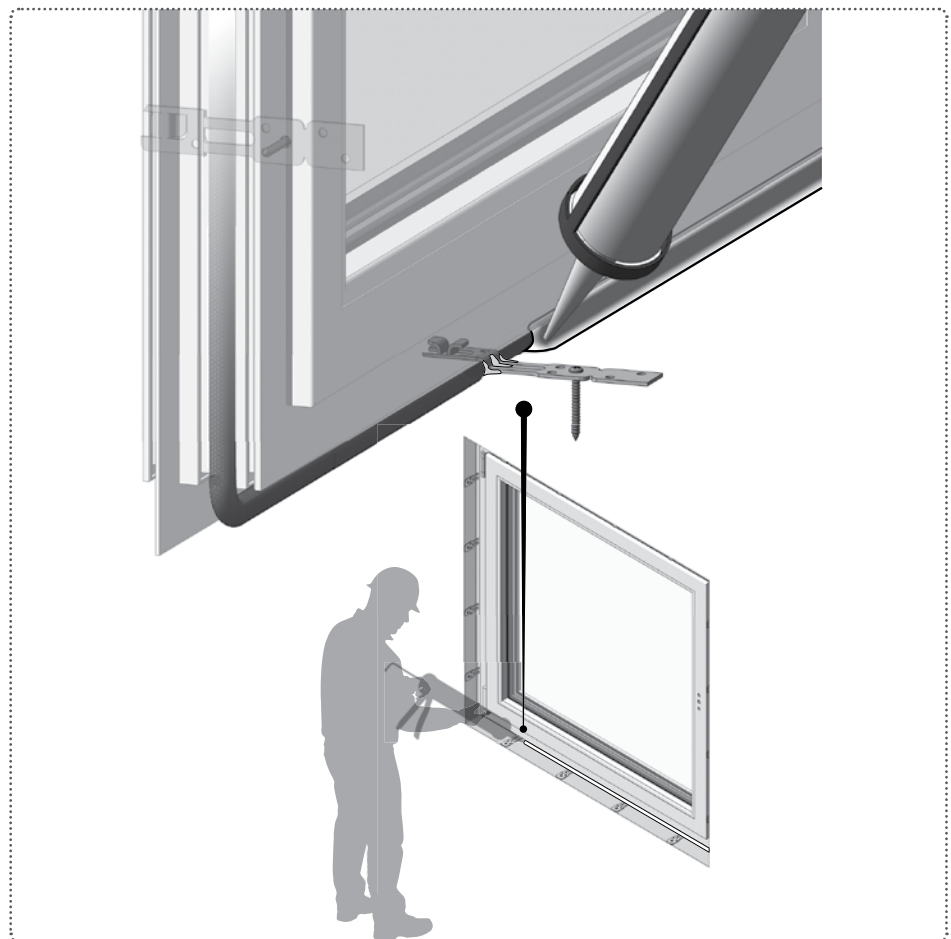


Figure 38. Applying sealant for second plane of protection.

[Windows]

4. Installing windows

— Remove shipping blocks (spacer shims) / Page 39 of 72

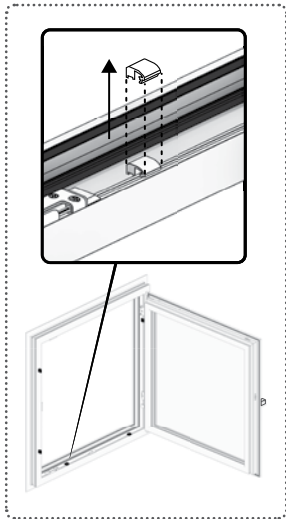


Figure 39. Removing shipping blocks (spacer shims).

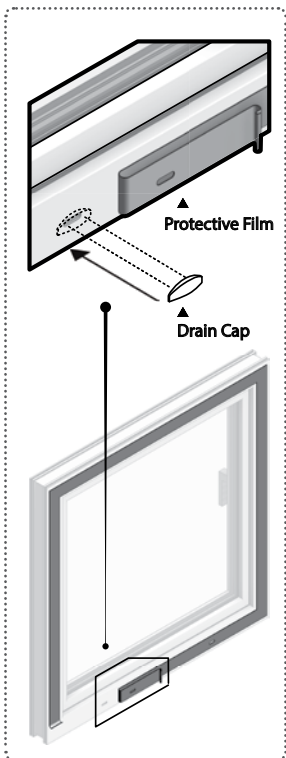


Figure 40. Removing tapes, installing caps.

4.12. Remove shipping blocks (spacer shims)

Open each window sash and remove the white shipping blocks (spacer shims) from all sides of the opening, as shown in [Figure 39 on page 39].

4.13. Remove protective tapes, install wind caps

Remove protective tape from frame and install the wind caps (drainage caps) over the drainage slots on the exterior of all windows. [Figure 40 on page 39]

4.14. How to glaze a fixed window

1. Remove all four glazing beads. You will need a thin glazing tool to get in between the bead and the frame. Use a mallet to wedge tool in.
2. Install glazing shims 7" (~180 mm) from corner to the inside of the weeping holes.
3. Place the glass/panel in the opening. Centre and make sure the glazing shims are properly positioned.

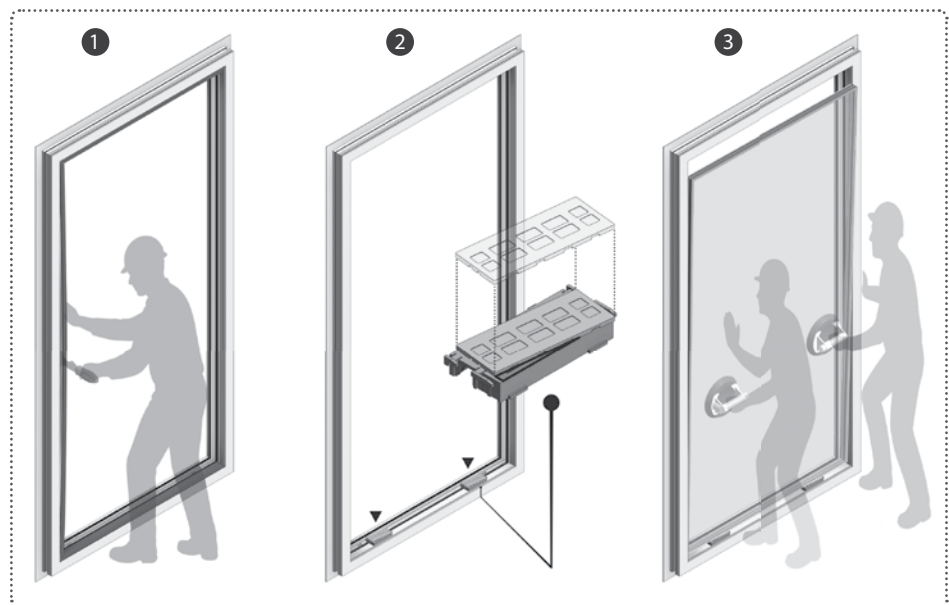


Figure 41. Installing glazing beads, shims, and panel.

4. Insert the two shortest beads into their designated position and tap the corners into the place to ensure a proper fit. [Figure 42 on page 40]
5. Apply an adequate amount of sealant to all four corners of the two glazing beads (2 corners per bead), as shown in [Figure 42 on page 40].
6. Insert the final two longest beads by positioning each end into the miter corners.
7. Tap the centre of each bead into place. Then work upward, tapping the bead into

[Windows]

4. Installing windows

— How to glaze a fixed window / Page 40 of 72

position, followed by working downward. Repeat on both sides to complete the installation. [Figure 43 on page 40] .

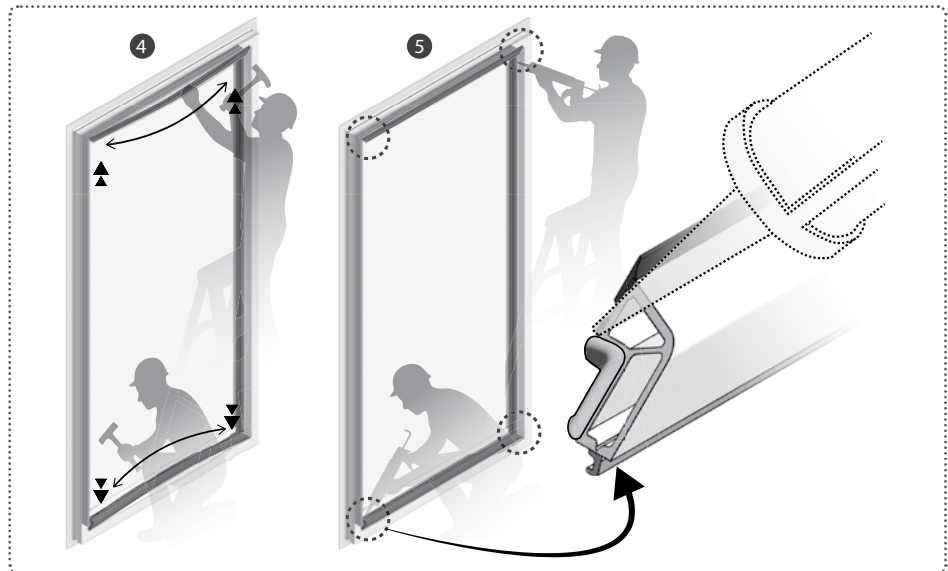


Figure 42. Installing and securing final glazing beads (steps 4-5)

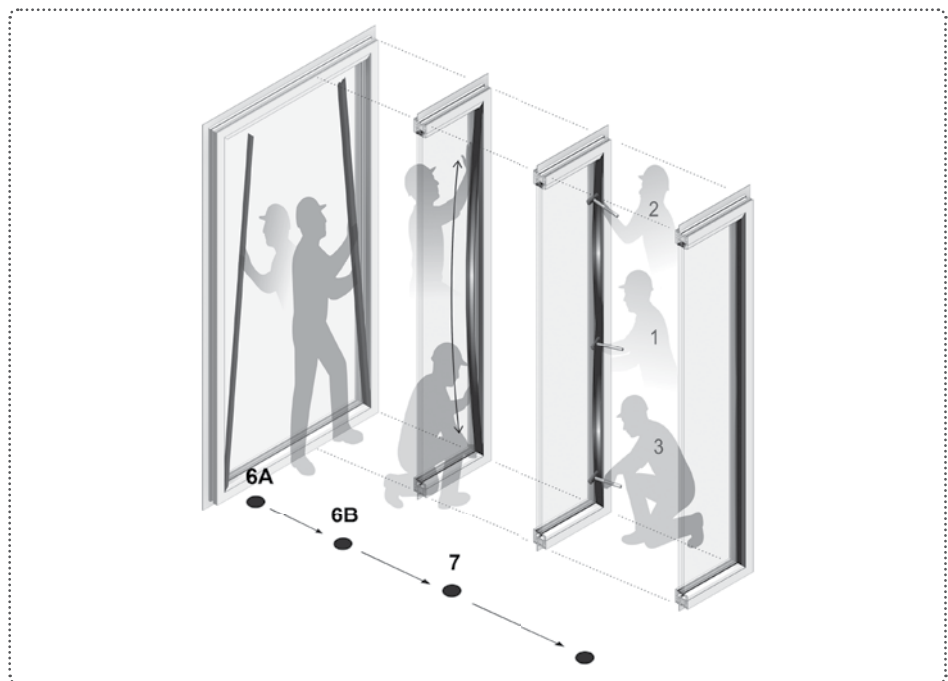


Figure 43. Installing and securing final glazing beads (steps 6A-6B-7)

5. [Doors]

5. Installing doors

— Inspect rough openings / Page 41 of 72

5. Installing doors

5.1. Inspect rough openings

5.1.1. Building interface details

Before installing doors make sure flashings and barrier membranes are installed according to the requirements of the authority having jurisdiction.

5.1.2. Clearances

Measure the frame and the rough opening to see if the door can be installed with the required clearances: minimum 3/8" (10 mm), maximum 3/4" (19 mm) at both jambs and the head.

5.1.3. Doors on concrete floors

When doors with mounting flanges are installed on concrete floors, check to make sure that the exterior face of the concrete is in line with the exterior face of the sheathing (see Detail A in [Figure 44 on page 41]). If the concrete does not extend as far as the sheathing, have the builder add a treated furring strip to make the edge of the floor line up with the face of the sheathing (see Detail B in [Figure 44 on page 41]). If the concrete extends past the face of the sheathing (see Detail C in [Figure 44 on page 41]) and the door has a flange at the bottom, the flange will have to be removed before the door is installed, or the frame will need to be shimmed away from the wall as described under [Section 5.1.4 on page 41] .

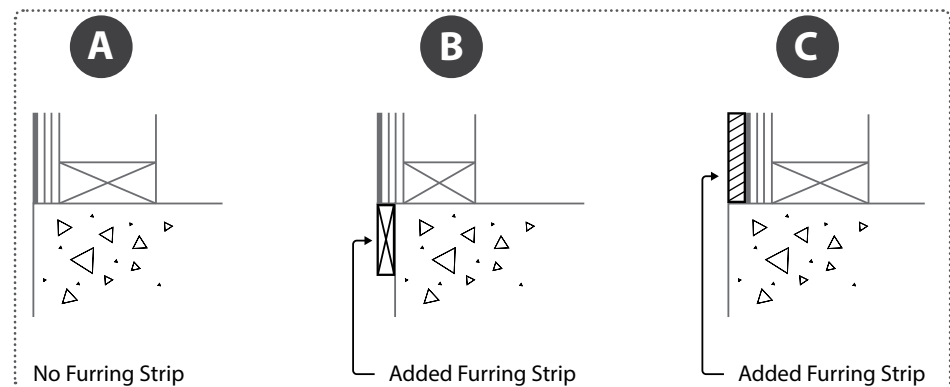


Figure 44. Position of wall at concrete floor.

CAUTION

Do not install windows/doors products if you cannot provide a minimum 3/8" (10 mm) clearance at the top of the windows/doors frame. Ensure the rough opening is enlarged to allow a minimum clearance of 3/8" (10 mm) at the head.

5.1.4. Leaning or uneven walls

When the face of the wall is not plumb, straight, or even on all four sides of an opening, it may need to be corrected before doors are installed.

[Doors]

5. Installing doors

— Prepare frames for installation / Page 42 of 72

Sometimes a wall is leaning in or out, is bowed, or is misaligned with the edge of the floor. Sometimes thick waterproofing membranes at door sills project 1/4" (6.35 mm) or more from the face of the wall. In these cases, the faces of the wall at all four sides of the opening are not in the same plane. Because operable windows and doors must be installed plumb and straight to operate properly, they cannot follow a misaligned wall. Innotech strap anchors allow the door to be installed plumb regardless of the wall condition. When the gap between the flange and the wall is significant, it is often helpful to ask the builder to fur out the exterior wall surface at the windows/doors to provide a flat and plumb surface for the flange and for barrier membranes as shown in [Figure 44 on page 41] .



Figure 45. Bowed frame condition (illustration exaggerated).



Figure 46. Tapping frame back into alignment.

5.1.5. Floor finish clearance - inswing doors

Check floor finish thickness and make sure door sash will clear finished floor with a minimum 3/8" (10 mm) clearance gap. Notify builder if the rough opening is too small.

5.2. Prepare frames for installation

5.2.1. Remove wooden shipping blocks

Remove the wooden shipping blocks that are attached to the flange (flanged doors only). The wooden blocks are attached to the flange with a #8 x 3/4" Quad Drive Wood Screw.

5.2.2. Straighten bowed frames

Sometimes a frame member may become slightly bowed by actions such as dragging it by the edge of the frame. See [Figure 45 on page 42] .

The frame may be straightened by gently tapping it back into place with a wooden block and a mallet. See [Figure 46 on page 42] .

5.2.3. Install the anchors

Innotech windows and side-hinged doors are installed using the anchoring method with strap anchors. If you have shop drawings, refer to the shop drawings for anchor placement. Otherwise, install the strap anchors as indicated:

First locate anchors from frame corners and mullions:

- **Corner anchors.** Install anchors on both sides of each frame corner at 6" (~150 mm) from the corner.
- **Mullion anchors.** Install anchors on both sides of each vertical and horizontal mullion at 6" (~150 mm) from the mullion centreline.
- **Intermediate anchors.** Install anchors at a maximum spacing of 12" (~300 mm) on centre in between the corner and mullion anchors unless you have shop drawings that show a different spacing.

[Doors]

5. Installing doors

— Prepare frames for installation / Page 43 of 72

NOTE:

When Innotech determines that intermediate anchor spacing can be greater than 12" (~300 mm) on centre, this will be indicated on the Innotech shop drawings.

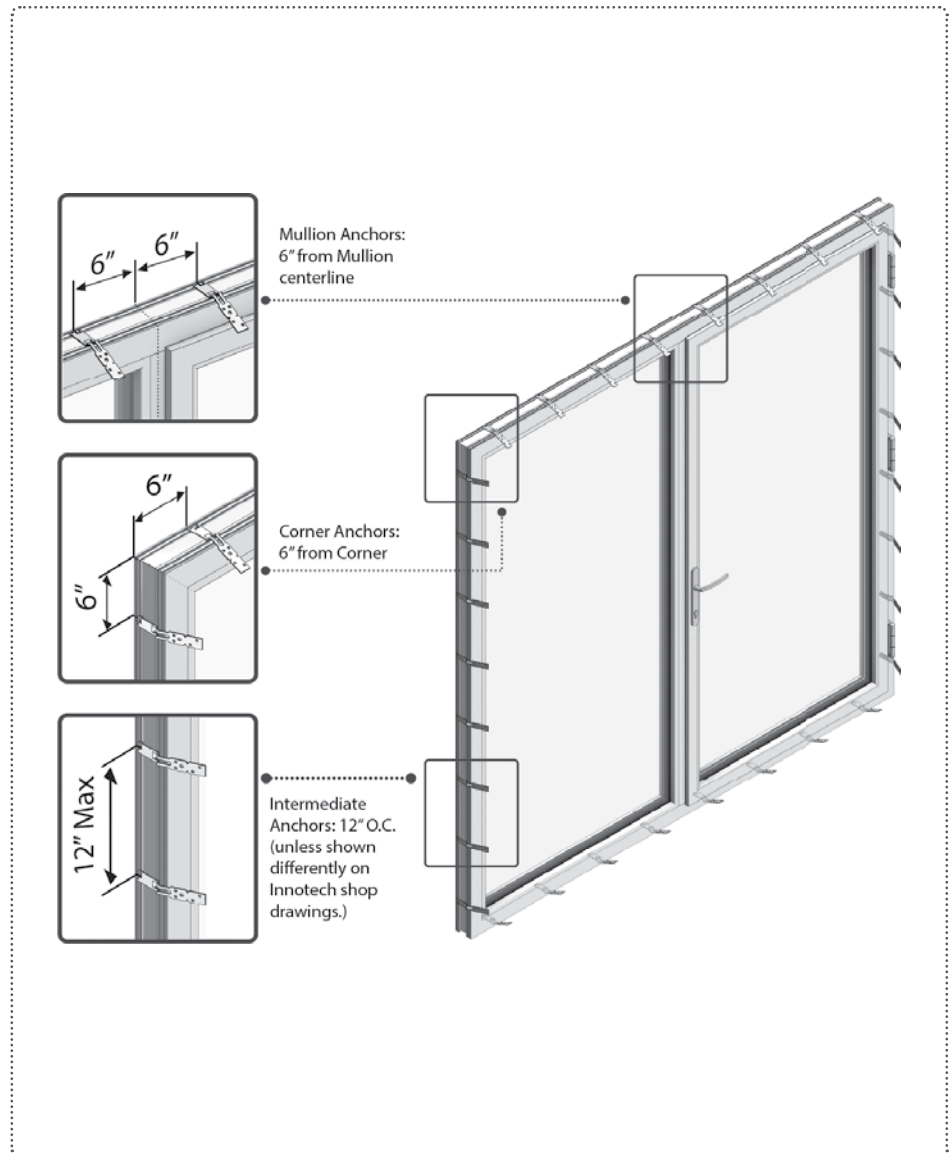


Figure 47. Strap anchor locations (example).

- 1. Place the anchor into the groove.** With the interior side of the door facing you, place the prongs of the anchor into the wide groove on the edge of the frame. The illustration shows the anchor placed on the right side of the door.

[Doors]

5. Installing doors

└─ Prepare frames for installation / Page 44 of 72



Figure 48. Placing the anchor into the groove.

2. Turn the anchor clockwise 90°. Place the anchor in the groove and turn clockwise. You cannot turn the anchors counter-clockwise.



Figure 49. Turning the anchor clockwise 90°.

3. Bend the anchor 45° towards the centre of the door. Once the anchors are installed around the perimeter of the frame, gently bend each anchor 1" (~25mm) towards the centre of the frame. DO NOT overbend the anchors; this may cause problems with the installation later.

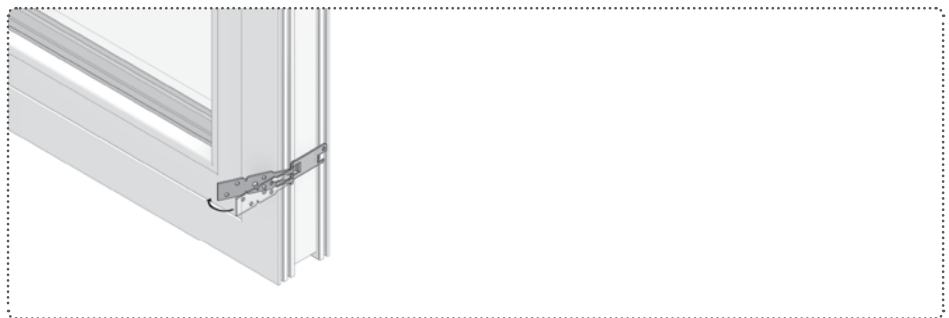


Figure 50. Bending strap anchors towards frame centre.

TIP

For narrower clearances, pre-bend the anchor less. For wider clearances, pre-bend the anchor more.

[Doors]

5. Installing doors

— Put frames in openings / Page 45 of 72

5.3. Put frames in openings

Follow the handling instructions in this document and on the Innotech sticker that appears on each frame.

5.3.1. Side-hinged doors

For frames with hinges, make sure to position the frame in a way that will allow finish materials to clear the edge of the hinge by at least 1/4" (6.35 mm). When jamb finish materials are thicker than 1/2" (12.7 mm) you may need to move the hinge side of the frame farther from the rough opening to allow finish materials to clear the edge of hinge by at least 1/4" (6.35 mm).

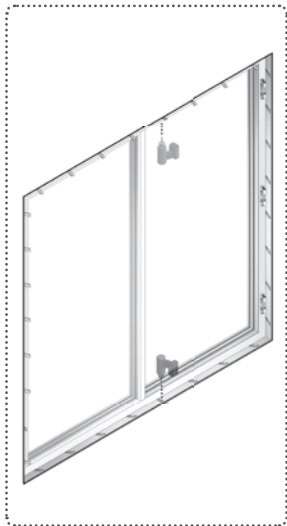


Figure 52. Partially fastening anchors (allow adjustment).

WARNING!

Failure to shim the products according to these instructions will cause operating problems and may permanently damage the products.
NEVER place shims under strap anchors.

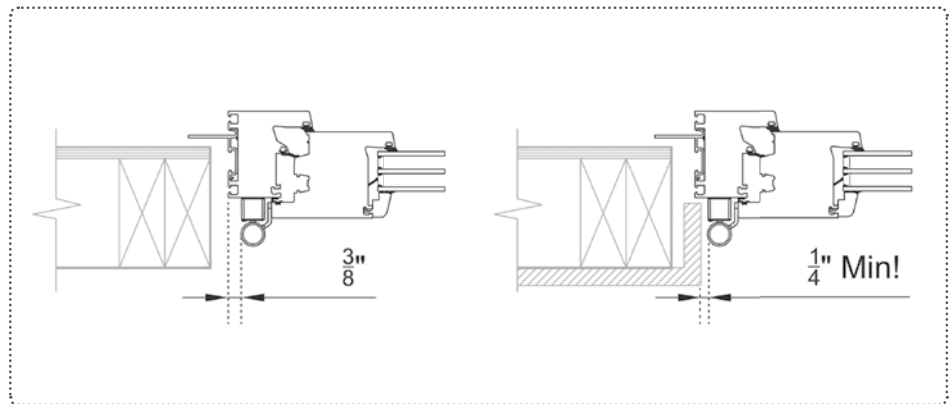


Figure 51. Inswing door hinge clearance.

5.4. Initial anchoring (temporary fastening)

Fasten two anchors to hold the unit in place [Figure 52 on page 45]. Do not fully tighten or secure all anchors at this stage, as the unit must remain adjustable for proper alignment in the following steps.

5.5. Position sill and jamb support shims

5.5.1. Place shims under the frame

Place sill support shims under each frame where shown in the following diagrams. Adjust thickness of sill shims to ensure sill is level and straight. Do not damage frames by forcing shims into place.

Adjust the height of the shims to obtain a level sill, ensuring there is a minimum 3/8" (10 mm) gap at the head.

Innotech recommends using stackable plastic shims of different thicknesses to achieve the correct placement of the door in the rough opening.

[Doors]

5. Installing doors

— Seal and fasten anchors / Page 46 of 72

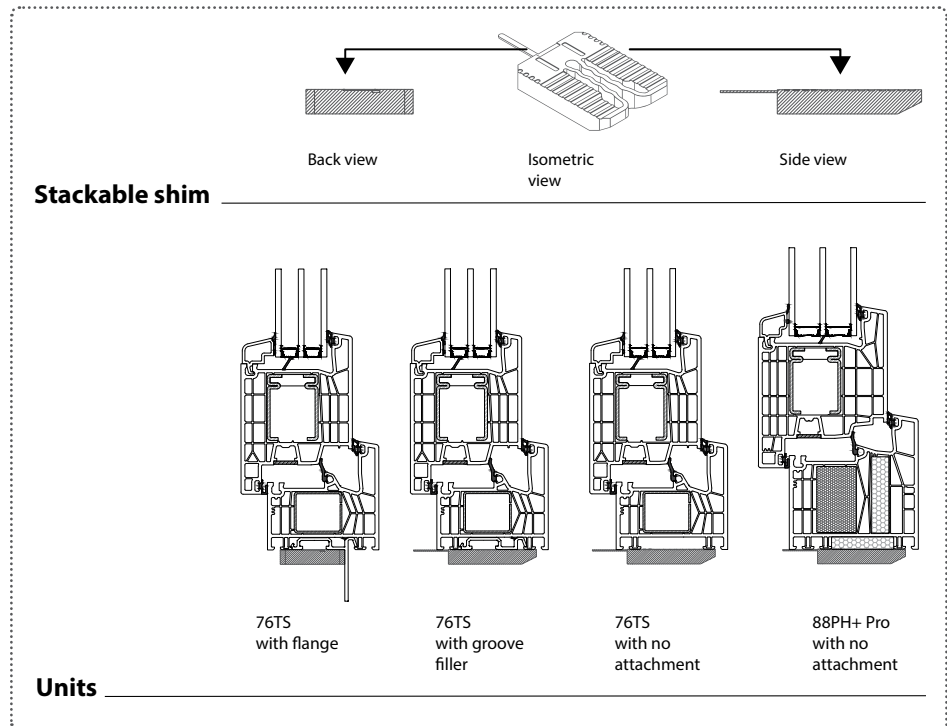


Figure 53. Installation shim placement below the frames.

5.5.2. Place shims at jambs of doors

Place lateral support shims at jambs as shown in the following diagrams. Jamb shims are required near the tops of jambs opposite to the hinge side to prevent the frames from moving sideways from the weight of door sashes.

Jamb shims are also required at the midpoints of door jambs to prevent operational problems resulting from building movement.

5.5.3. Shim placement for doors

For doors place shims under the jambs to support the weight of the glass as transferred to the frame through the hinges. Then place shims as shown at the jambs to keep the frame from bending sideways. To prevent bending of the sill and jambs you must place the shims within 1" (~25 mm) of the positions shown in [Figure 54 on page 47].

5.6. Seal and fasten anchors

Once the frames are correctly shimmed as noted for their product type and product configuration (couplers or mullions), all anchors can be fastened to the rough opening.

TIP

You will not be able to place the jamb shims until you are ready to anchor the frames as described under [Section 5.4 on page 45]

Use a dab of sealant to glue the jamb shims in place so they do not fall out of position.

5. Installing doors

Seal and fasten anchors / Page 47 of 72

TIP

Alternative French Door Installation Sequence

For French door installations some installers find it easier to square the frame by hanging the door sashes before all the anchors are fastened. If you wish to follow this method, first read through all the steps in chapter 5 so you understand the whole installation process. After you have loosely fastened the corner anchors to hold the frame plumb, and after you have shimmed the frame level, hang the sashes and close them. Use shims and anchors to make the frame square. The frame will be square when the meeting rails of the sashes are in line with one another at the head or sill. Next fasten the corner anchors securely and then continue with the intermediate anchors. Finally, secure the jamb shims in place using the approved method.

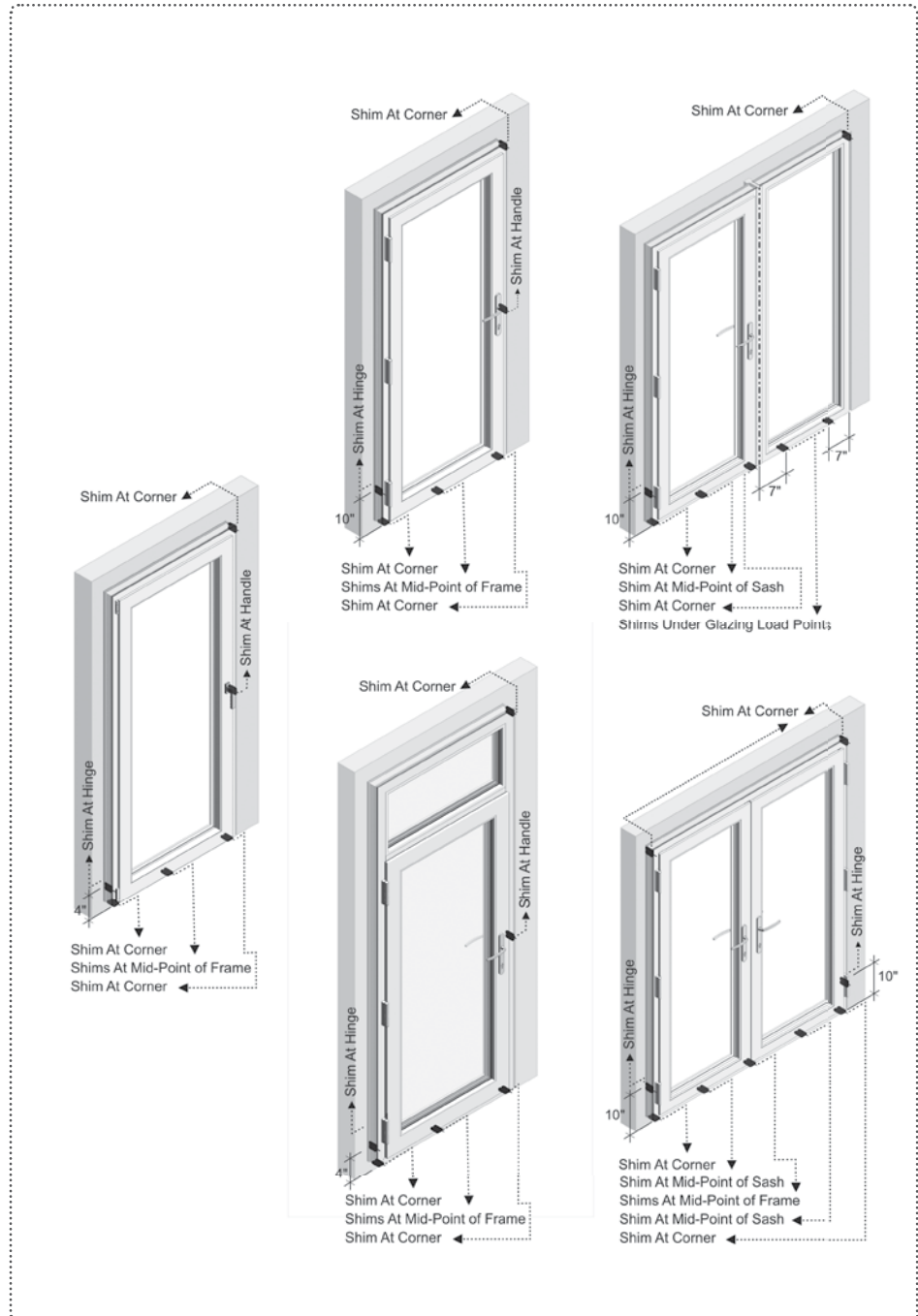


Figure 54. Shim placement at doors.

[Doors]

5. Installing doors

— Seal and fasten anchors / Page 48 of 72

5.6.1. Apply sealant to anchors

Apply a generous amount of sealant to each anchor near the edge where the anchor bends on the side that will lie flat against the rough opening.

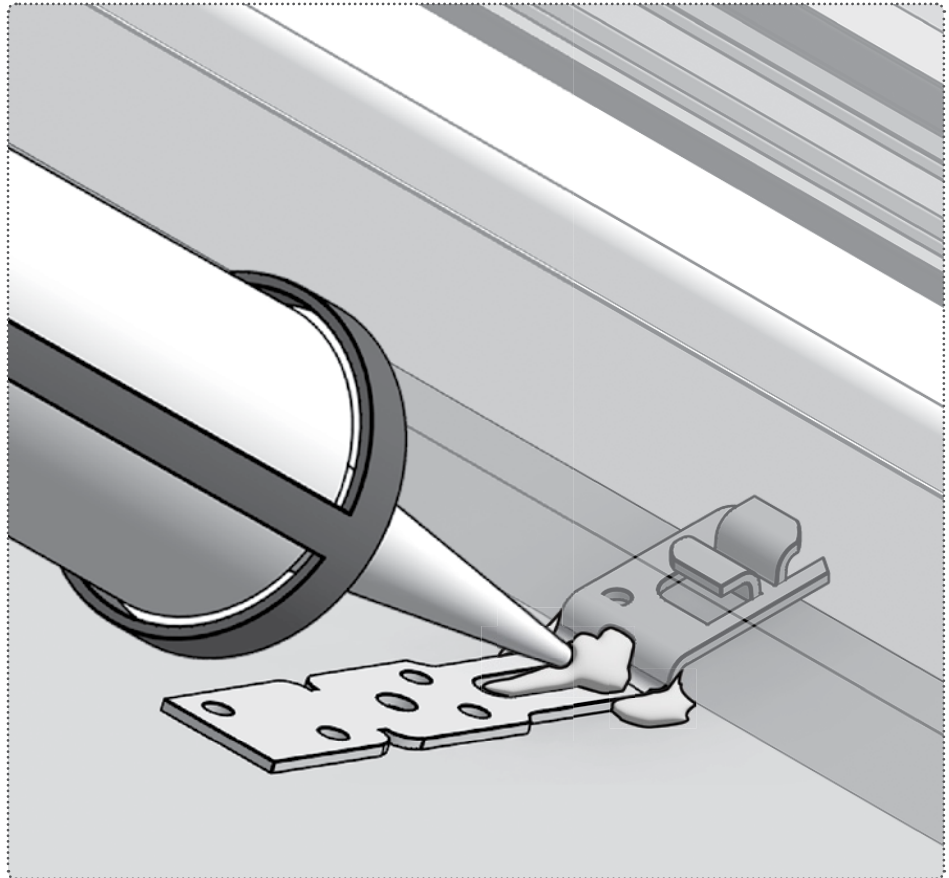


Figure 55. Applying sealant to anchors.

TIP

Sealing the anchors helps maintain continuity of the second-plane air and water seal between the frame and rough opening.

WARNING!

Under-bending or over-bending the anchors can result in deformed or twisted frames. Frames damaged in this way are not covered under warranty.

Ensure the sealant spreads over the entire width of the anchor to maintain the continuity of the air barrier when the installation is finished. **Use the same sealant that will be used for the second plane of protection** as described in [Section 1.6 on page 05] If you use a different sealant it must be compatible with the sealant used for the second plane of protection. See [Section 8.1 on page 70].

5.6.2. Plumb, level and square the frame

Before fastening the anchors to the rough opening make sure the frame is plumb, level and square, even if wall is not plumb or straight.

[Doors]

5. Installing doors

— Seal and fasten anchors / Page 49 of 72

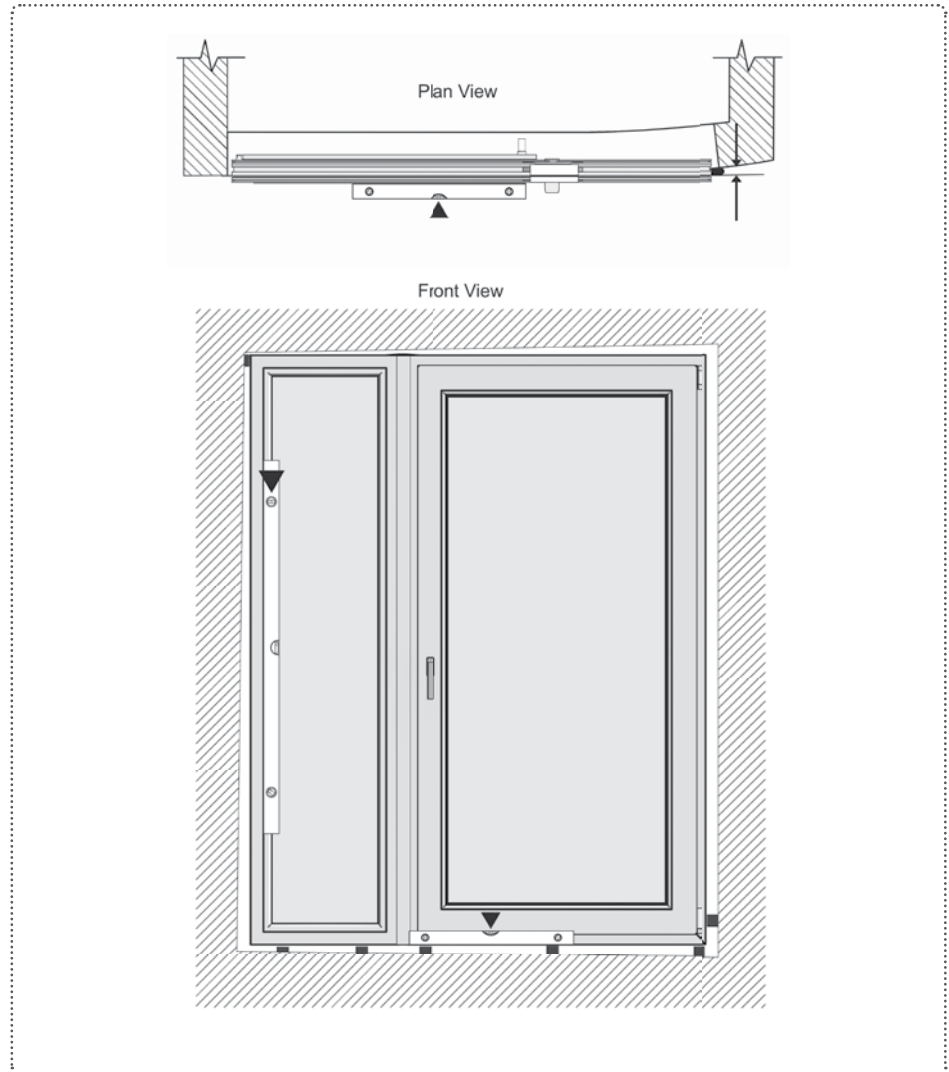


Figure 56. Checking frame for plumb, level and square.

5.6.3. Fasten anchors to rough opening

Once the sealant is applied to every anchor, each anchor must then be bent. The objective is to have the anchor lie flat against the rough opening before it is fastened into place.

1. Bending the anchor to suit the clearance between the frame and the rough opening is a two-step process: first, pre-bend the anchor towards the frame as shown in [Section 5.2.3 on page 42] and in [Figure 50 on page 44] , second, bend it back against the side of the rough opening [Figure 57 on page 50] .

CAUTION

DO NOT FASTEN anchors to the rough opening unless the frames are LEVEL, PLUMB and SQUARE.

[Doors]

5. Installing doors

— Seal and fasten anchors / Page 50 of 72

WARNING!

Under-bending / over-bending the anchors can result in deformed or twisted frames. Frames damaged in this way are not covered under warranty.

WARNING!

Anchors that do not lie flat against the rough opening can cause damage to the products, result in operational problems, and/or complicate finishing work. Do not fasten any anchors that are not correctly bent.

TIP

It may be helpful to take a few minutes to practise how much to bend the anchors to get the right amount of bend for it to lie flat against the rough opening.

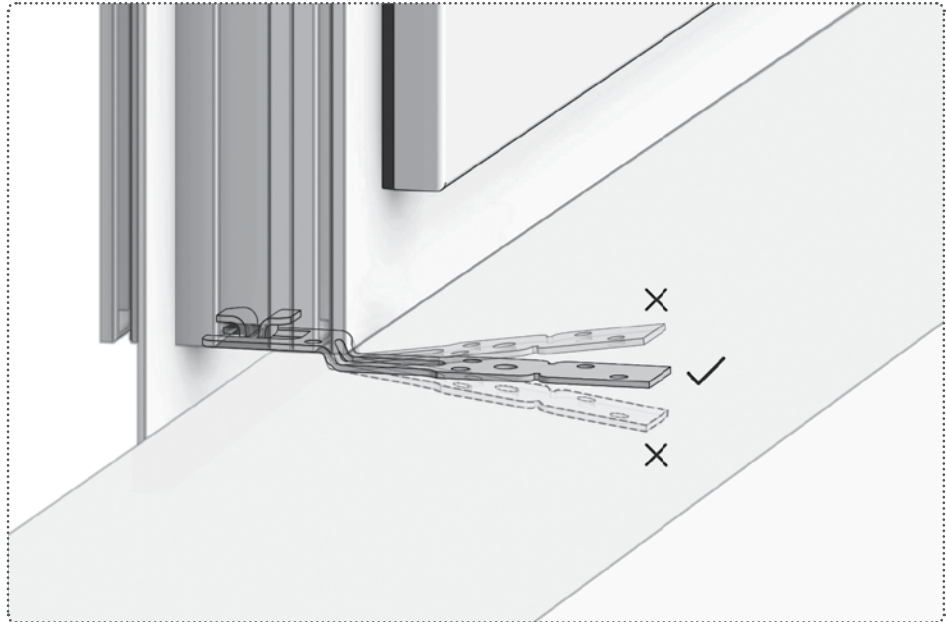


Figure 57. Bending strap anchors to fit opening.

2. Then place the fasteners (approximately 1-1 1/2" (~25 - 38 mm) in length, based on the rough opening structure) into the centre hole of the anchor to fasten it to the rough opening.

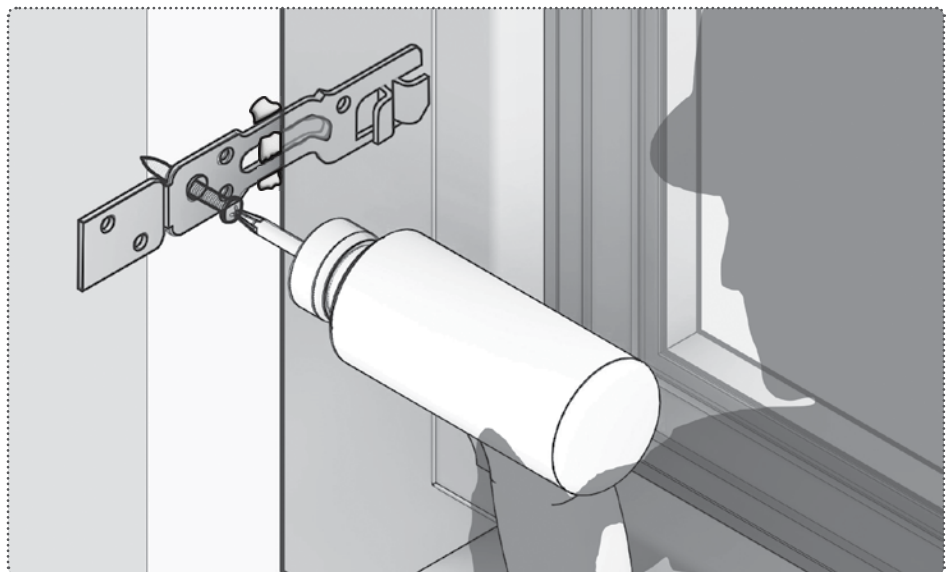


Figure 58. Fastening anchors to rough opening.

[Doors]

5. Installing doors

— Hurricane extension anchor installation / Page 51 of 72

3. Once all the anchors are fastened, remove the anchor tabs by bending and breaking each tab that extends past the rough opening. For ease, use locking pliers or pliers.

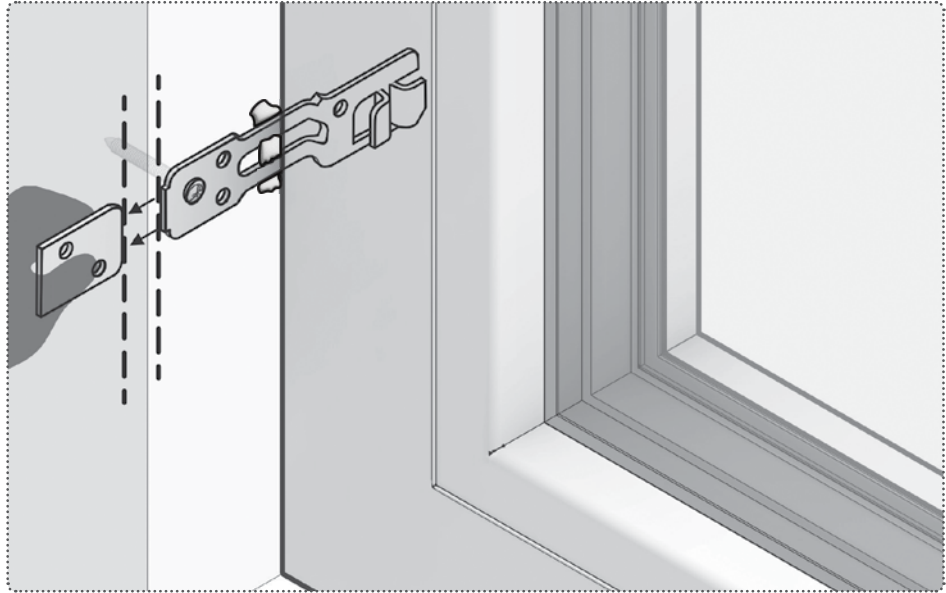


Figure 59. Removing anchor tabs.

Do not fasten the anchors in a clockwise sequence. Start by loosely fastening each corner anchor.

Next fasten the anchors at the midpoints of the frame and/or at the mullions.

Finally, fasten the intermediate anchors. If you alternate from side to side, top to bottom, you are less likely to deform or shift the position of the frame.

Make minor adjustments to the frame position as the anchors are fastened by carefully using a pry bar between the frame and the rough opening.

5.7. Hurricane extension anchor installation

1. **Verify anchor brackets.** Confirm that anchor brackets are already inserted in both ends of the hurricane extension and properly seated.
2. **Fasten anchors to framing.** Secure each anchor bracket to the structural framing using: sixteen #8 1-1/2" screws per anchor.
3. **Check alignment.** Verify that the hurricane extension is straight, level, and properly positioned before fully tightening all fasteners.
4. **Final tightening.** Tighten all screws securely, ensuring anchors are firmly attached without overdriving.

See [Figure 60 on page 52] .

[Doors]

5. Installing doors

— Fastening door frames to rough opening / Page 52 of 72

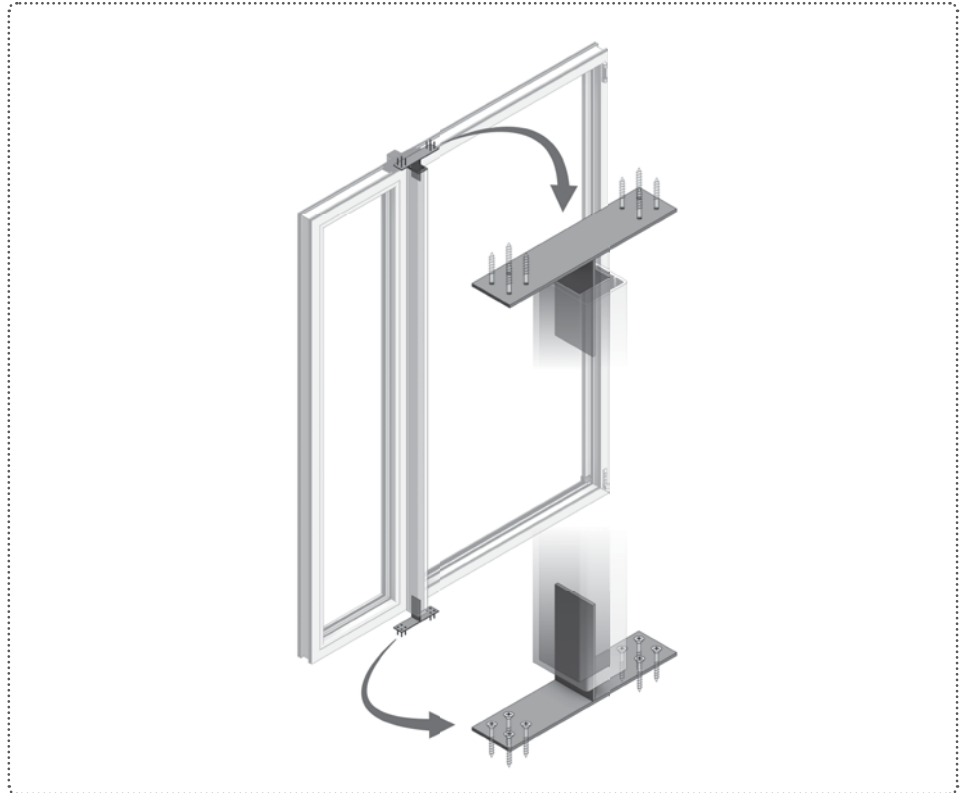


Figure 60. Hurricane extension anchors.

WARNING!

Before fastening through the frame make sure door has been shimmed and is straight, level and plumb.

5.8. Fastening door frames to rough opening

In addition to the anchoring method, doors are also fastened to the rough opening using supplied screws fastened through factory-drilled holes.

The following outlines the fastening method for:

- 88PH+ Pro and 88TS Outswing Door
- 88PH+ Pro and 88TS Inswing Door
- 76TS Inswing Door with Flange
- 76TS Inswing Door without Flange
- 76TS Outswing Door without Flange

Before fastening the door to the rough opening, ensure the door is shimmed as required and is straight, level and plumb. Using two screws [7.5x102 AMO III Type 2 (head 8.0mm) with AW30 (Torx)], for door installation, fasten through the two pre-drilled holes located above and below the top hinge. When you hit the rough opening you will get push back. Reverse the drill and go in again.

[Doors]

5. Installing doors

└─ Fastening door frames to rough opening / Page 53 of 72

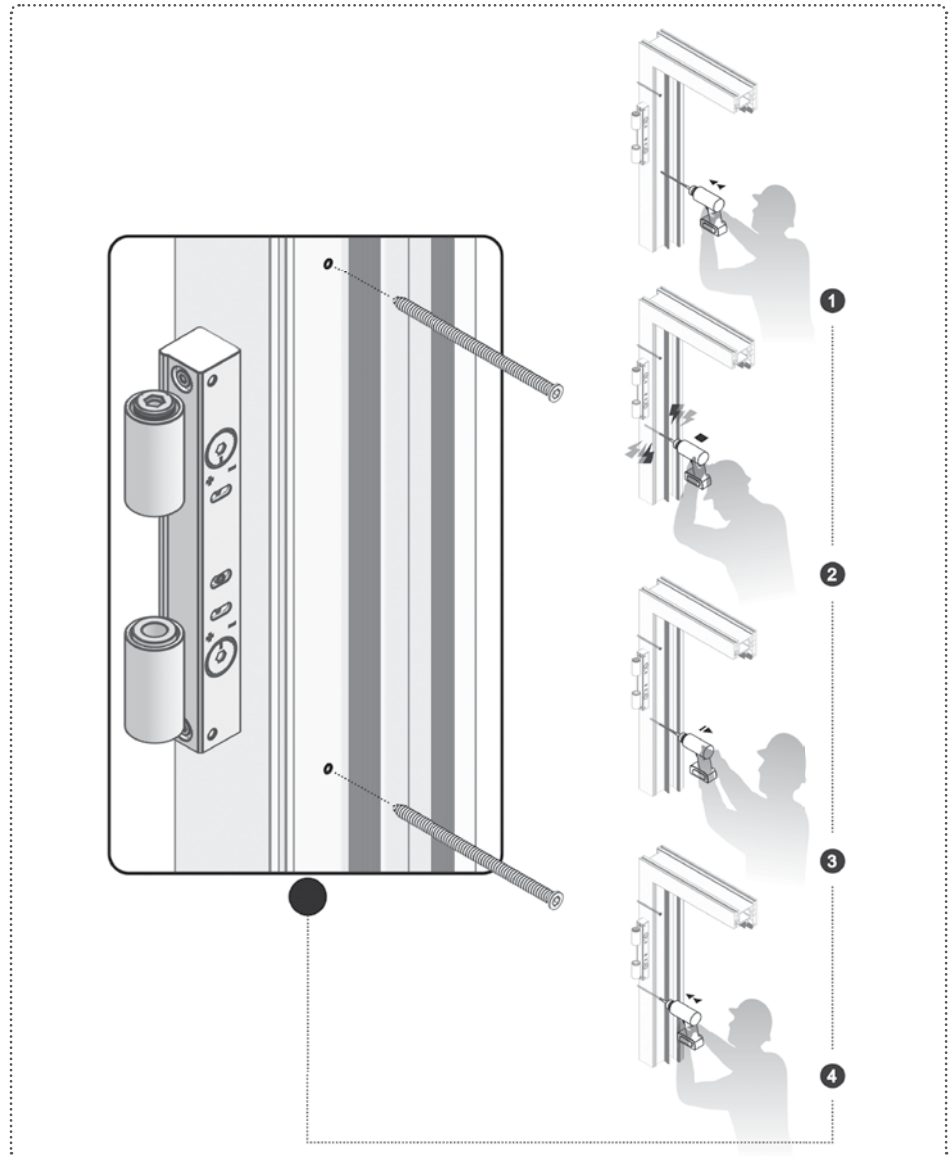


Figure 61. Fastening door (76TS inswing door without flange) frame to rough opening.

The following outlines the fastening method for:

- 76TS Outswing Door with a Flange

Using four screws (approximately 1-1 1/2" (~25 - 38 mm) in length, based on the rough opening structure) fasten through the four pre-drilled holes located above and below the top hinge.

[Doors]

5. Installing doors

— Hang sashes on frames / Page 54 of 72

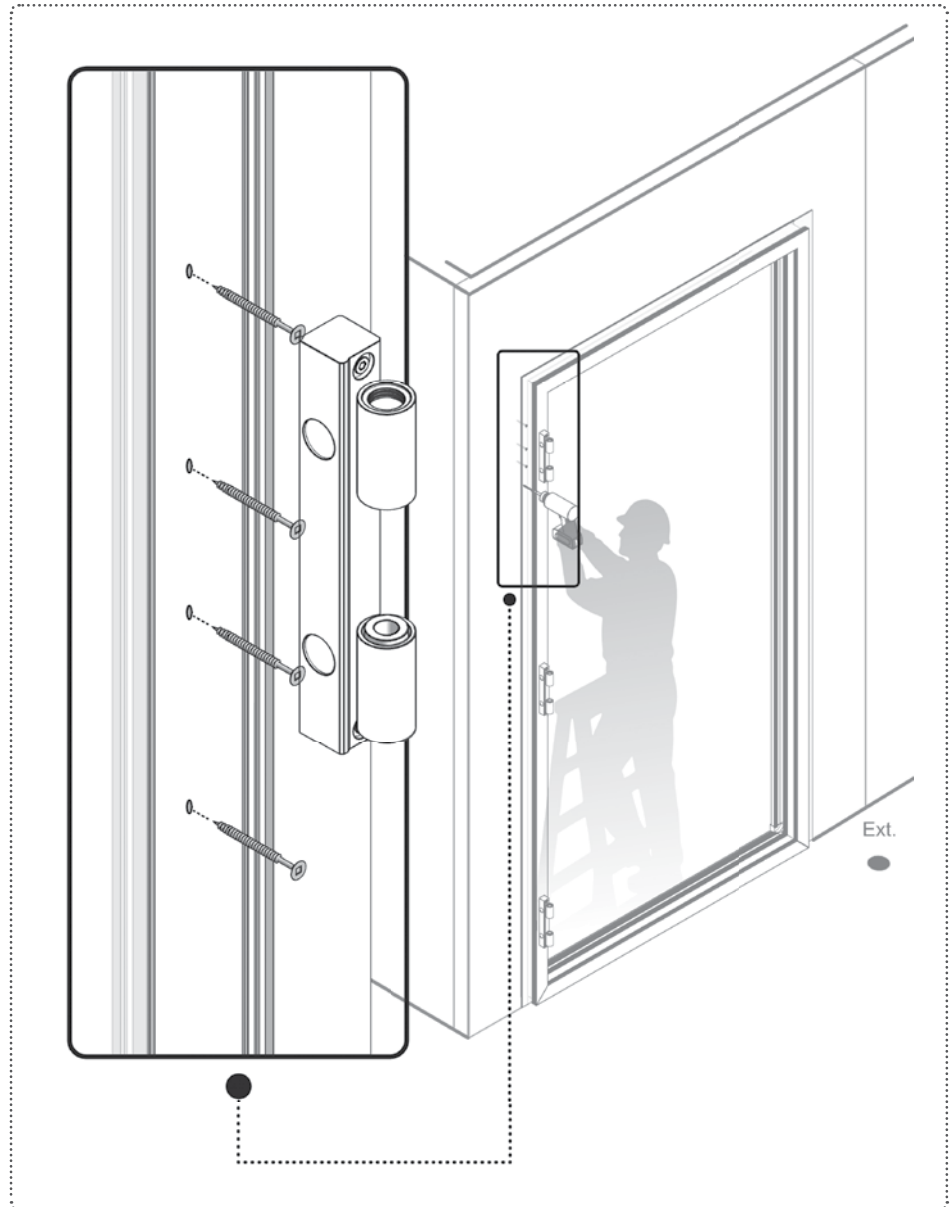


Figure 62. Fastening door (76TS outswing door with a flange) frame to rough opening.

5.9. Hang sashes on frames

Once the frames are fastened to the rough openings and each frame is confirmed to be plumb, level and square, the sashes can be installed into the frames.

[Doors]

5. Installing doors

— Hang sashes on frames / Page 55 of 72

5.9.1. How to install Tilt + Turn sashes on frames with barrel hinges

For installation of Tilt + Turn sashes on frames with barrel hinges, refer [Section 4.8 on page 33] . (The procedure is the same)

CAUTION

For inswing side-hinged doors, hang these doors before interior finishes are installed. Once the interior finishing is in place at the head, there will not be enough clearance to lift the door on or off its hinges.

5.9.2. How to install side-hinged door sashes

1. Inspect the hinge pins on the door frame to make sure they are clean and free of construction debris.
2. Inspect the hinges on the sash to make sure there is no dirt or construction debris in the holes at the bottom.
3. Lift the sash vertically. Align the hinges of the sash with the hinge pins of the frame, then lower the sash onto the hinges as shown in [Figure 63 on page 55] .
4. Close the sash.



Figure 63. Installing side-hinged door sash.

[Doors]

5. Installing doors

— Check sash operation / Page 56 of 72

WARNING!

Make sure sash operating problems are corrected before you apply sealant. Frame adjustment may not be possible after sealant has been applied. Visit

innotech-windows.com/resources

for additional troubleshooting resources, contact your product representative or authorized Innotech dealer, or contact our service department at:

service@innotech-windows.com

5.10. Check sash operation

Innotech squares the sashes and aligns them with the hardware at the factory. Operating problems occur when the frame is not installed level, plumb and square, or when the frame or sash members are not straight because of mishandling or incorrect installation.

5.10.1. Operate the sashes and locking hardware

Open and close each sash several times and operate the locking hardware through its full range.

The door is ready for the next step when all of the following are true:

- The sash moves freely and does not bind or strike the frame at any point.
- The handle rotates smoothly and fully into the locked position.
- All hardware functions engage without force.

When every sash passes, continue to [Section 5.12 on page 56] Apply sealant for second plane of protection.

5.11. If a sash does not operate correctly

A sash that binds, will not close, will not lock, or leaks air indicates that the frame is not plumb, level and square, or that the frame or sash has been deformed. Do not adjust the hardware to compensate. Adjusting hardware before the cause is known usually makes the original problem harder to correct.

Go to [Section 7 on page 65], Troubleshooting and adjustments, and work through the diagnostic checks in order.

5.12. Apply sealant for second plane of protection

The Second Plane of Protection [Section 1.6 on page 05] is a continuous air and water seal on all four sides of each door [Figure 64 on page 57]. It provides an important secondary layer of protection against unwanted air and water leakage.

Use only sealant that is compatible with both the window/door framing and the rough-opening materials. For a list of sealants that are compatible with Innotech finishes, see [Section 8.1 on page 70].

There are several industry best-practice methods for creating an effective second plane of protection. Consult with the authority having jurisdiction for the optimal method for your specific project.

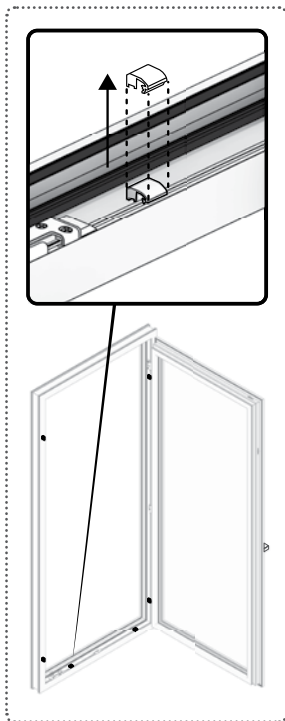


Figure 65. Removing shipping blocks (spacer shims).

[Doors]

5. Installing doors

— Remove shipping blocks (spacer shims) / Page 57 of 72

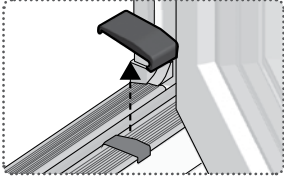


Figure 66. Removing shipping blocks (spacer shims) (Doors with sill adapter).

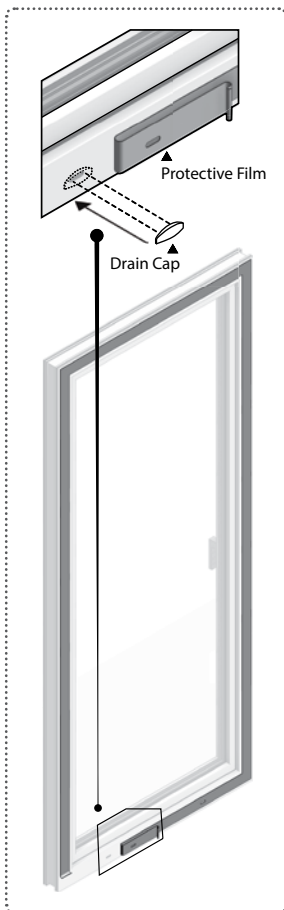


Figure 67. Removing tapes and installing caps.

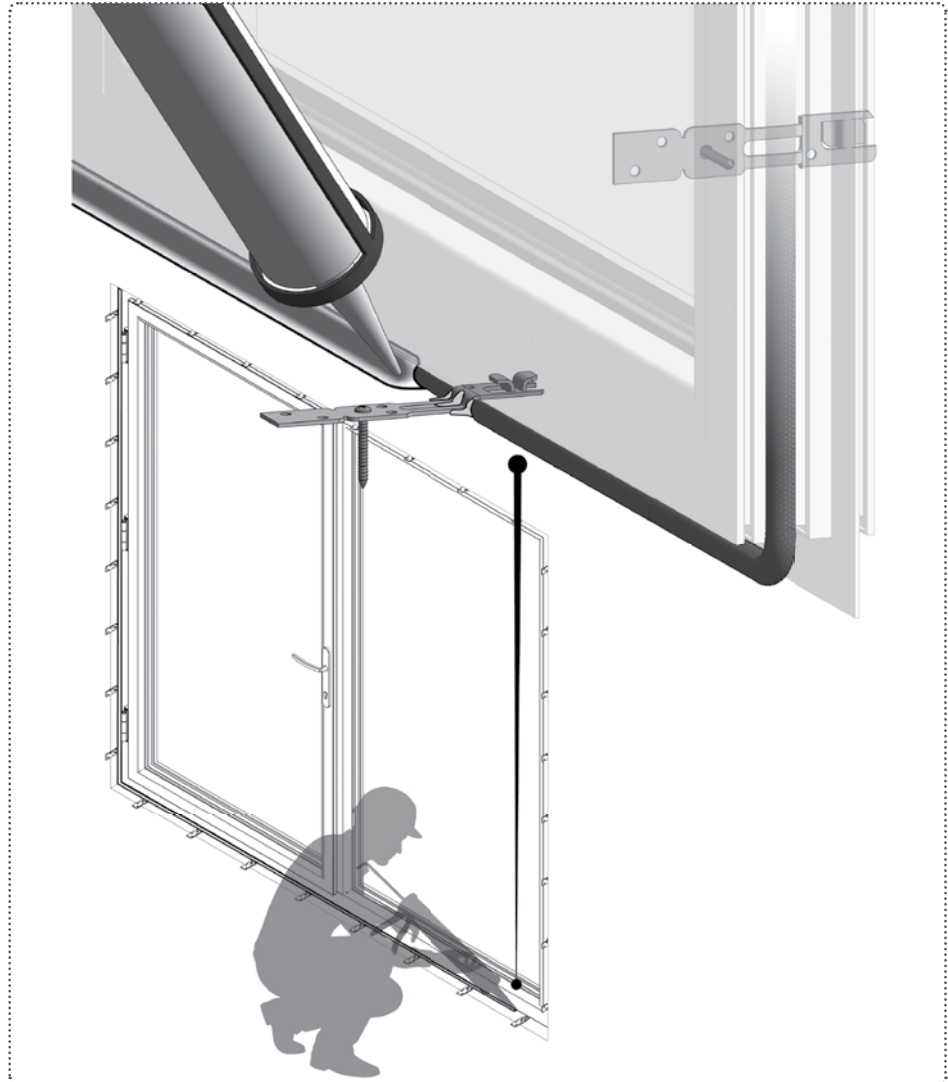


Figure 64. Applying sealant for second plane of protection.

5.13. Remove shipping blocks (spacer shims)

Open each door sash and remove the shipping blocks (spacer shims) from all sides of the opening, as shown in [Figure 65 on page 56] and [Figure 66 on page 57].

5.14. Remove protective tapes, install wind caps

Remove protective tape from frames and install the wind caps (drainage caps) over the drainage slots on the exterior of all doors [Figure 67 on page 57].

6. [Field Assembly]

• On-site coupling

— H-couplers / Page 58 of 72

6. On-site coupling

6.1. H-couplers

6.1.1. Vertical couplers

1. Add sealant to the two inside edges of the coupler along its entire length.

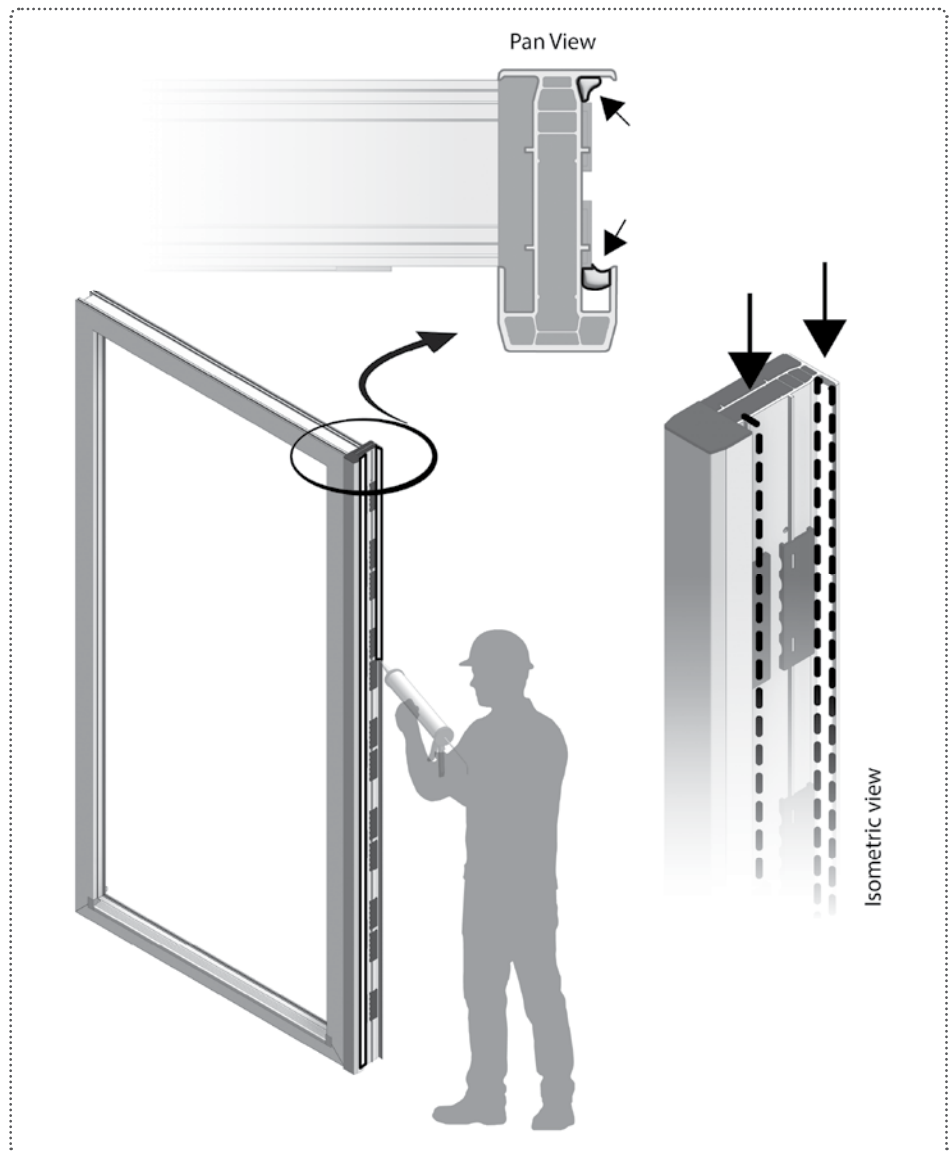


Figure 68. Sealant both inside edges of coupler.

[Field Assembly]

6. On-site coupling

└─ H-couplers / Page 59 of 72

2. Join the frame to the coupler. Ensure the frame jamb is seated evenly on all shims along the length of the coupler.



Figure 69. Frame jamb seated evenly on coupler shims.

[Field Assembly]

6. On-site coupling

— H-couplers / Page 60 of 72

3. Use clamps at the top, middle and bottom to compress the frame to the coupler. Make sure the compression is equal along the entire length of the coupler. Confirm compression by measuring from the edge of coupler to the edge of the frame.



Figure 70. Evenly clamping frame to coupler.

[Field Assembly]

6. On-site coupling

└─ H-couplers / Page 61 of 72

4. Screw the frame to the coupler in the pre-drilled holes using the provided fasteners.



Figure 71. Screwing frame to coupler at pre-drilled holes.

[Field Assembly]

6. On-site coupling

— H-couplers / Page 62 of 72

6.1.2. Horizontal couplers

6.1.2.1. Sealant bead at horizontal coupler

1. Apply continuous sealant bead (approx. 3/8" (10 mm) wide) along the entire length of the horizontal coupler, positioned at the corner where the frame meets the coupler.
2. Ensure the sealant runs continuously from end to end without any gaps.
3. Wrap the sealant around the corners at both ends, ensuring all holes at the coupling ends are fully sealed.



Figure 72. Sealant bead at horizontal coupler.

[Field Assembly]

6. On-site coupling

— Zero-couplers / Page 63 of 72

6.2. Zero-couplers

1. Clean both coupling surfaces. Cut two zero-coupler gaskets to the length specified on the product label. Fill the coupling-side grooves with sealant (A) and apply a cross bead of sealant at both frame edges (B).

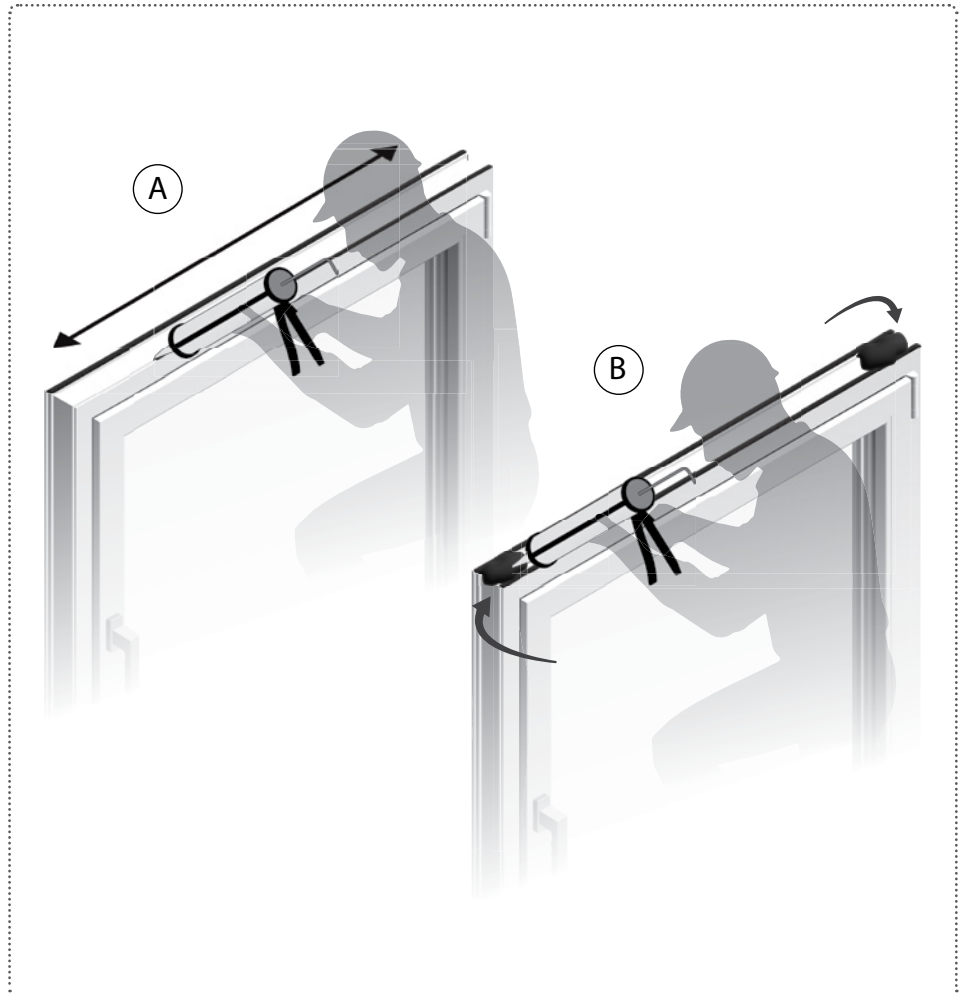


Figure 73. Preparing coupling surfaces and installing the zero-coupler gasket.

2. Install the gaskets by inserting the gasket lips into the designated grooves. Ensure the longest gasket lip faces the centre of the frame. Verify that the top and bottom gaskets are fully snapped into the grooves, flush with the frame surface, and not protruding beyond the frame edge.

Ensure all gasket lips are fully engaged and all sealant beads are continuous before fastening the frames together.

[Field Assembly]

6. On-site coupling

— Zero-couplers / Page 64 of 72

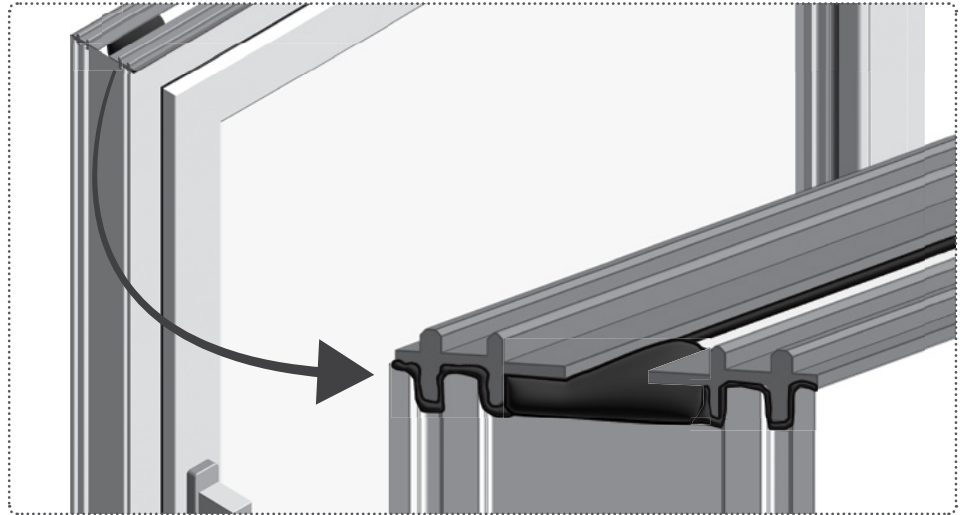


Figure 74. Installing gaskets with longest lip facing inward.

3. Couple the frames by snapping the gasket lips into the mating frame. Secure the frames together using either 3 1/8" (~80 mm) self-drilling screws or 3 15/16" (100 mm) wood screws, as provided and specified for the selected unit system.



Figure 75. Coupling frames and securing with screws.

4. Seal both ends of the coupler with sealant. Tool the sealant into the grooves and finish flush with the surface. (For flanged items, apply butyl tape at flange joints where adjacent flanges meet and a gap is present, ensuring the gap is fully covered and sealed). Remove all excess sealant and verify that the completed assembly is clean and properly sealed.

7 [Troubleshooting]

• Troubleshooting and adjustments

— Before you begin / Page 65 of 72

7. Troubleshooting and adjustments

This chapter helps you find the cause of a window or door that does not operate correctly, and shows you how to correct it. Diagnose the problem using the checks in [Section 7.2 on page 65] before you make any of the corrections described in [Section 7.3 on page 68].

Operating problems may have several causes, including faulty installation, building settlement, deformations arising from mishandling, product damage or unusual environmental conditions. In most cases operating problems are due to deformations of the frame or sash that exceed hardware tolerances.

WARNING!

Correct all operating problems **BEFORE** you apply interior sealant.
Frame adjustment may not be possible after sealant has been applied.

7.1. Before you begin

Do not make any assumptions about the cause of the problem. A common mistake is to start adjusting the hardware before the problem has been diagnosed. This can add to existing problems and make the original problem harder to correct. Follow all the troubleshooting steps in [Section 7.2 on page 65] before making any hardware adjustments. The checks tell you whether the operating problem can be corrected by adjusting the hardware, the frame members, or the sash.

7.2. Diagnosing the cause of operating problems

Most operating problems come from one of three places: the frame, the sash, or the hardware. The checks in this section work through them in that order. A frame that is not plumb, level and square will pull the sash out of alignment, and a sash that is out of square will prevent the hardware from engaging correctly. Adjusting the hardware first leaves the underlying cause in place, and the problem returns. Where a window or door has more than one operable sash, check each sash separately. One sash may bind while the others operate normally.

7.2.1. Sash operation problems

Operating problems include the sash binding in one or more places, a sash that cannot be closed or locked, and excessive air leakage around the sash. The handle may feel stiff, stop short of the locked position, or require force that was not needed at installation. Open and close the sash slowly and note where the resistance begins. Then operate the handle with the sash open. Hardware that moves freely with the sash open but binds when the sash is closed indicates a frame or sash problem, not a hardware problem.

7.2.2. Sash overlap

Innotech windows and doors are designed for a 1/4"–5/16" (6.5 - 8 mm) overlap of sash to frame. Lightly trace the outline of the sash corners onto the frame with a pencil (be careful not to damage frame finish).

If there is too little or too much overlap, the sash or the frame may be out of square.

[Troubleshooting]

7. Troubleshooting and adjustments

— Diagnosing the cause of operating problems / Page 66 of 72

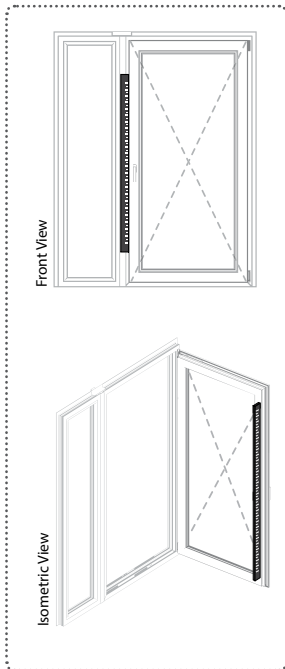


Figure 77. Inspecting sash alignment and straightness.

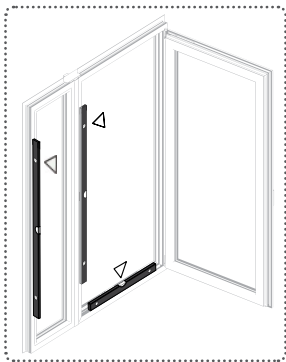


Figure 78. Inspecting frame alignment and straightness.

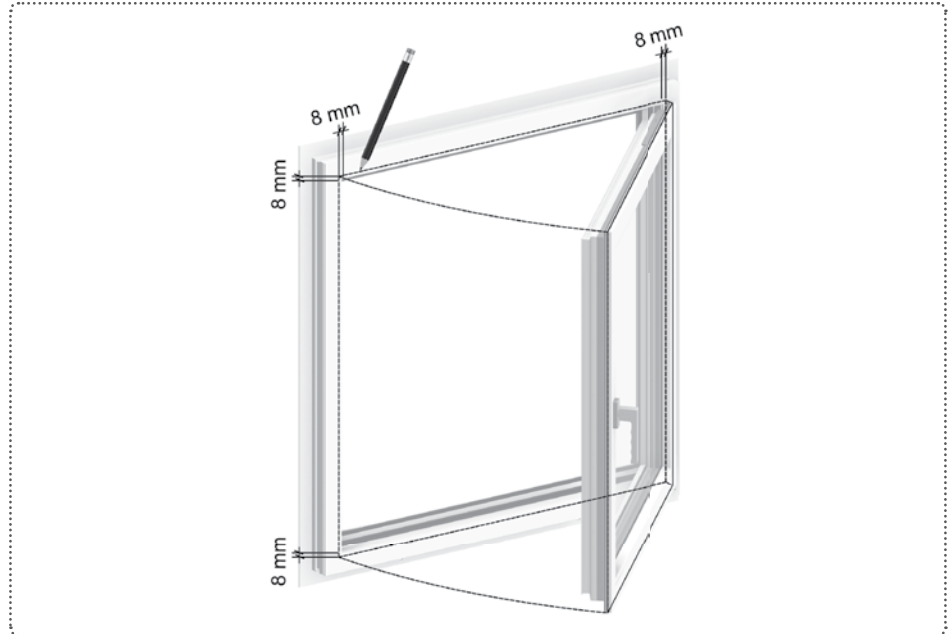


Figure 76. Inspecting and adjusting sash overlap.

7.2.3. Sash square, straightness or bow

Determine if the sash is square by measuring the two diagonals. An out of square sash can cause operating problems such as difficulty opening, closing and/or locking the window or door. Use a long straightedge or laser level to determine if the vertical edges of the sash are straight. If edges are bowed, hardware may not easily or properly engage. If sashes are bowed towards the centre of the glass, the glazing shims may have slipped. Use a 6-foot (1.8 m) straightedge or laser level on the face of the sash to determine if the top, middle and bottom are in line or bowed towards or away from the frame. [Figure 77 on page 66]

7.2.4. Frame plumb, level, square and bow

Use a long level or laser level to determine if the frame and mullions are vertical when facing the window or door, and a shorter level or laser level to determine if the sill is level. Use a long level or laser level on the face of the frame and mullions to determine if the frame members are leaning inward or outward at the top. Use a long straightedge on the face of the frame to determine if the top, middle, and bottom are in line or bowed toward or away from the sash. [Figure 78 on page 66]

7.2.5. Twisted frames

Incorrect bending of strap anchors can twist the frame and result in locking points

[Troubleshooting]

7. Troubleshooting and adjustments

— Diagnosing the cause of operating problems / Page 67 of 72

that bind or don't engage. This is an installation problem that cannot be easily corrected after finishes are installed. Use a straightedge to span between both jambs of an open sash to see if the jambs are twisted inwards (shown) or outwards.

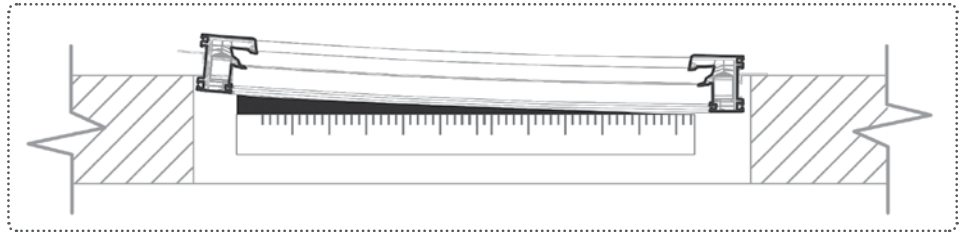


Figure 79. Checking for twisted frames.

7.2.6. Cam to keeper clearance

The minimum distance between the cam and the keeper (striker / mushroom) should be 2-3 mm to ensure proper engagement and operation.

To verify this clearance in the field:

- Open the sash slightly (do not fully open it).
- Bring the cam close to the keeper without fully engaging it.
- Measure the gap between the cam and the keeper using a feeler gauge or similar measuring tool.

Maintaining this clearance is important to ensure smooth operation and proper locking performance.

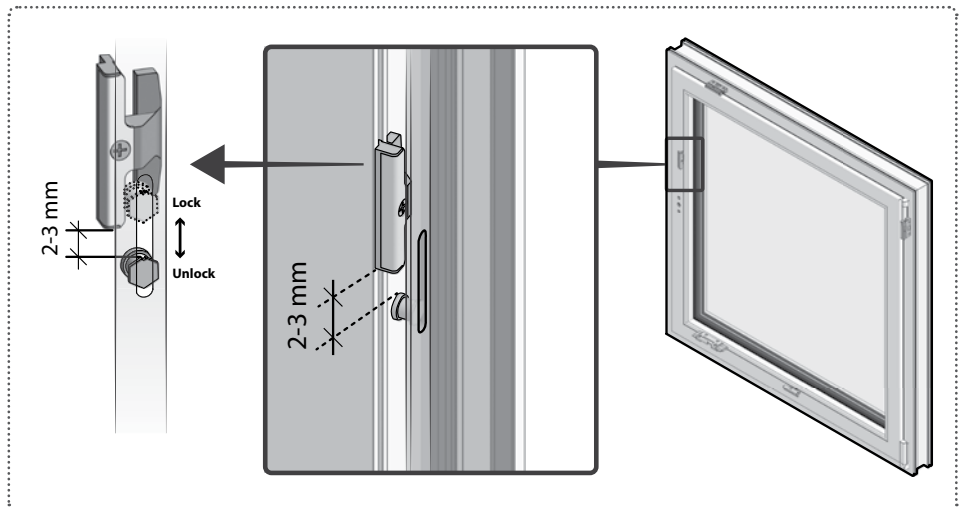


Figure 80. Checking cam to keeper clearance – Sash shown transparent and the distance is exaggerated for clarity.

[Troubleshooting]

7. Troubleshooting and adjustments

— Correcting frame and sash problems / Page 68 of 72

7.3. Correcting frame and sash problems

Correct the frame before you adjust the hardware. Adjusting hardware to compensate for a frame that is not plumb, level and square will not solve the problem and may make it worse.

- If the frames are not plumb, level, square and straight, the frame installation must be corrected as described in [Section 7.3.1 on page 68] and [Section 7.3.2 on page 68] .
- If sashes are out of square or bowed, they must be deglazed, reshimmed and reglazed. See [Section 7.3.3 on page 68] .
- If hardware binds or does not close properly, the frame installation must be corrected first. In some cases the remaining problem can be corrected with minor hardware adjustments. See [Section 7.3.4 on page 69] .

7.3.1. Correcting twisted frames

During fastening, it is possible that the frame may twist if the anchors were not installed properly.

If the frame is twisted towards the side of the rough opening, loosen the anchor screws and use a flat pry bar to straighten the frame. Insert shims between the frame and rough opening and retighten the anchor screws.

If the frame is twisted away from the rough opening, try to twist it back into position. If that is not possible, it may be necessary to replace and rebend the anchor to prevent deforming the frame.

After correcting the frame, repeat the sash operation check in [Section 4.9.1 on page 37] for windows or [Section 5.10.1 on page 56] for doors before you continue.

7.3.2. Correcting bowed frames

If the interior face of the frames is bowed, unscrew the anchors in the affected area, straighten the frame, and refasten the anchors.

If the outside edges of the frames are bowed, follow the same steps as for correcting twisted frames in [Section 7.3.1 on page 68] .

After correcting the frame, repeat the sash operation check in [Section 4.9.1 on page 37] for windows or [Section 5.10.1 on page 56] for doors before you continue.

7.3.3. Correcting out-of-square or bowed sashes

If a sash has become out-of-square or has become bowed and cannot be straightened, the sash may have to be reglazed and reshimmed.

Visit innotech-windows.com/resources for glazing instructions.

[Troubleshooting]

7. Troubleshooting and adjustments

— Correcting frame and sash problems / Page 69 of 72

7.3.4. Hardware adjustment and further support

Only adjust the hardware once the frame has been confirmed plumb, level, square and straight, and the sash has been confirmed square and flat.

Visit innotech-windows.com/resources for information about hardware adjustment and reglazing, contact your Innotech Product Representative or authorized Innotech dealer, or contact our Service Department at service@innotech-windows.com

8. [Technical Information]

Reference

Compatible sealants / Page 70 of 72

8. Reference

8.1. Compatible sealants

NOTE

If you are not sure what the finishes are on the Innotech products you are installing, contact your Innotech representative.

Innotech has determined the sealants in the table below are chemically compatible with the listed Innotech surface finishes. The table indicates the adhesion performance of each compatible sealant on the listed Innotech finishes.

Installers or authorities having jurisdiction that wish to use other sealant products must arrange for their own compatibility and adhesion testing. The Innotech warranty does not cover damage to Innotech products or surrounding materials arising from the use of incompatible or unsuitable products.

Innotech makes no recommendations about the compatibility or suitability of the named sealants with other substrates. Installers or authorities having jurisdiction are responsible to determine whether the named products are suitable for use with adjoining materials.

Adhesion performance of compatible sealants:

Table 6. Adhesive properties of compatible sealants.

Sealant	White uPVC surfaces	Foiled surfaces
Dow 795 Silicone	Very good	Good
Tremco Spectrem 2 Silicone	Very good	Good
Tremco Dymonic 100	Very good	Very good
Henry 925	Very good	Untested
Dow 995	Very good	Good
Sikaflex NP1	Good	Poor
Mulco Supra Elite	Very good	Very good
Chemlink Duralink 50	Untested	Poor

8.2. Definitions (glossary)

The following terms are used in Innotech window and door publications. Many are common to all windows and doors.

Anchor. A device used to attach a window or door to the building structure.

Anchoring method. A method for structurally attaching a window or door to a building's structure. Innotech products may be installed using several anchoring methods. The most common are strap anchors and sill angles.

Brick moulding. A style of moulding commonly used to cover the gap between a window or door frame and the exterior finish.

[Technical Information]

8. Reference

— Definitions (glossary) / Page 71 of 72

Coupling or Coupling mullion. A type of mullion that connects (couples) two separate frames.

Drywall return. A type of moulding applied to the interior edges of a window or door frame to receive gypsum board.

Flange or Mounting flange. A fin extending from the edge of a window or door to help the installer position it in the wall. The flange is not to be used for anchoring an Innotech window or door to the building structure.

Frame. The structural member that surrounds the window or door and retains glass. A frame has a head (top member), sill (horizontal bottom member) and jambs (vertical members on the left and right edges). A frame may also have mullions, vertical members that span from the head to the sill; and transoms, horizontal members that span between mullions or jambs.

Grid/Muntin. A decorative bar that simulates the appearance of a muntin bar (narrow bar that separates panes of glass in single-pane wooden windows). Innotech has three types of grids:

In-glass grids. Aluminum bars between the panes of glass in a sealed insulating glass unit.

On-glass grids. PVC bars applied to both sides of the surface of the glass.

Combined In-glass/On-glass grids. To simulate the appearance of true divided lites separated by muntins.

Head. The horizontal frame member at the top of the window or door.

Insulated panel. An opaque panel composed of rigid foam insulation bonded to thin sheets of aluminum or plastic. Panels are installed in window or door sashes in the same way as insulating glass.

Insulating glass, Insulating Glass Unit (IGU). A glass panel composed of two or more panes of glass assembled with spacers and sealants.

Jamb. Vertical members on the left and right edges of a window or door.

Lite or Light. An individual panel of glass in a window or door sash. A sash may have a single lite, or be subdivided into multiple lites.

Mullion. A vertical member that spans from the head to the sill.

Rail. One of the two horizontal members that bound a sash: the top rail and the bottom rail.

Sash. The operable element of a window or door that is opened and closed. A sash is composed of top and bottom rails (horizontal members), as well as stiles (vertical members). The hinge stile is the stile with hinges and the lock stile has the handle.

Sash bar. A vertical or horizontal framing member that divides the glass in a sash into separate pieces of glass. Like a muntin, a sash bar divides lites of glass. A sash bar is wider than a muntin because it protects the edges of the insulating glass units. A sash bar is like a mullion or a transom in a sash.

Sill. The horizontal frame member at the bottom of the window or door.

[Technical Information]

8. Reference

— Additional resources / Page 72 of 72

Sill angle. A galvanized steel angle used to attach the sill of a window or door to the building structure.

Stile. One of the two vertical members that support glass in a sash: the hinge stile and the lock stile.

Strap anchor. Flat galvanized steel attachment clips designed to engage the edge of Innotech window and door frames. Strap anchors are clipped to the window or door frame before it is placed in the rough opening and are attached to the building structure with screws.

Transom. A horizontal member that spans between mullions or jambs.

Wind cap. A cap that shields the drainage holes at the sill of a window or door frame from wind and flowing rainwater. Also called a drainage cap.

8.3. Additional resources

To help ensure a long service life, additional instructions for product installation, alarm-contact installation, hardware adjustments, cleaning and maintenance instructions are available for your windows and doors. Visit [innotech-windows.com/resources](https://www.innotech-windows.com/resources) to watch important how-to videos and download these documents.

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