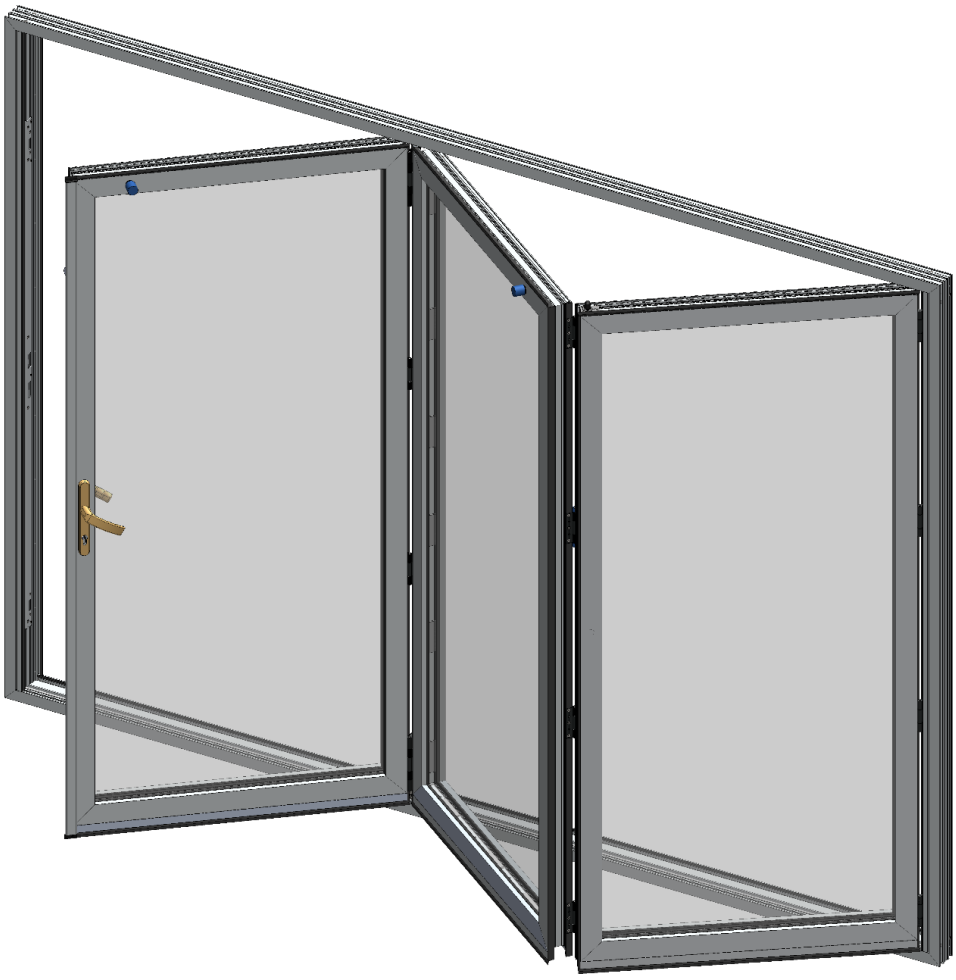
MONUMENTAL
WINDOWS AND DOORS

4510 Series
Bi-fold Door
Installation Guide



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GENERAL INSTALLATION INSTRUCTIONS

1. ASSEMBLY INSTRUCTIONS

IMPORTANT. Read these assembly instructions before beginning any installation work. Install as recommended otherwise the door unit may not function properly and any warranty, written or implied, will be void.

2. QUALIFICATIONS

The assembly instructions are only for the attention of qualified installers who are trained and qualified in window and doors installation techniques, and are aware of the manufacturer's recommendations for the system used.

3. TRANSPORT AND STORAGE

Parts that could come loose during transportation can be damaged or cause accidents.

All packaging opened to allow the goods to be inspected must be closed and properly sealed for further transport.

Any goods that will be further transported must be loaded safely and securely.

4. INCOMING GOODS

All goods received must be inspected for any transport damage prior to being removed from the vehicle. The goods received must match the delivery note.

Any wet packaging may cause damage to the goods, and therefore must be removed immediately.

5. SITE SURVEY

It is important to check the conditions on site before starting the assembly.

- Check for any apparent defects and deficiencies around the structural opening. If any defects are found, then the customer must be notified, and agreement reached as to who is responsible for rectifying these defects prior to the new window/door installation.
- Check structural conditions such as the wall construction, the load capacity or adhesiveness of the edges for adhesive sealing systems, evenness, building moisture, a possibility for load transfer and mounting, constructional tolerances and height reference points.
- Check for contractual agreements, supplied assembly detail, planning guidelines, heat protection, humidity proofing, and interferences to other assembly sections.

ATTENTION! *Anchoring and attachment materials are not part of the scope of supply. The installer must decide on which fasteners to use after assessing the given substructure. If any supplied fasteners are used, Monumental does not accept liability for the correct attachment. The installer must ensure that the fasteners are suitable for the respective substructure and that installation is completed correctly.*

6. HANDOVER

All operating, assembly and adjustment instructions as well as maintenance and care guidelines must be delivered to the user when briefing them. It is essential to train the user on the function of the supplied product and provide instruction on the directions for safety and use. Incorrect operation or failure to observe the instructions may lead to damage and accidents. The customer must store the instructions carefully and hand them over to the new owner in the event of sale.

RECOMMENDED TOOLS

- Appropriate fasteners for structural opening.
- Mixed selection of frame shims.
- Mixed selection of glazing shims.
- Rubber mallet or plastic mallet
- Set of HSS drill bits.
- Drill / SDS hammer drill.
- Saw for cutting aluminium sill.
- Long spirit level
- String line
- Tape measure
- No.2 Pozi drive
- 2.5mm; 3mm; 4mm Allen keys.
- Level or Laser Level
- Gloves
- Vacuum Cups
- Caulk Gun and Low modulus Silicone
- Paper Towels
- Utility Knife
- Silicone and gun.
- Set Square.
- Saw Horses (x4)

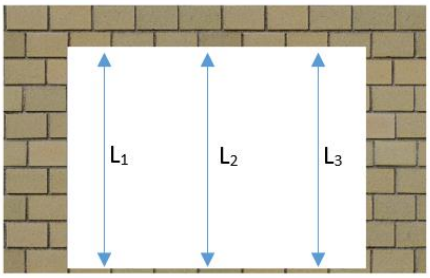
SITE SURVEY

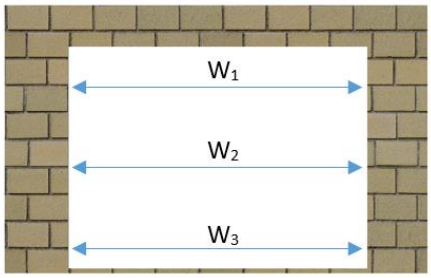
Rough Opening inspection

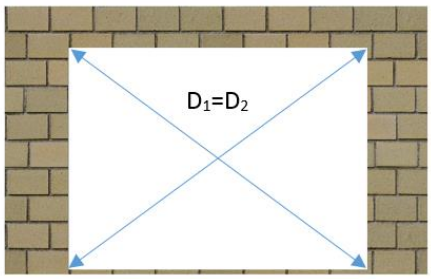
- The opening for the new doors must be flat, level, straight, plumb and square at every single side. There should be a solid structure to attach the frame.
- The opening load bearings must not be transferred to any part of the frame when fitted.
- Prepare the opening by making sure it is clean.
- Remove any debris or foreign material and brush down the sill.
- The rough opening and frame sizes should be checked and any variations must be determined to ensure enough opening space for the area where doors will fold and will not be obstructed by plaster, tiles, etc.
- Check the opening height, width and diagonals to ensure the opening is equal on all sides and square.
- Generally three measurements should be taken.

NOTE: - The smallest measurement of width and height used to determine net frame sizes.

- See Also Section “opening height using laser level”.





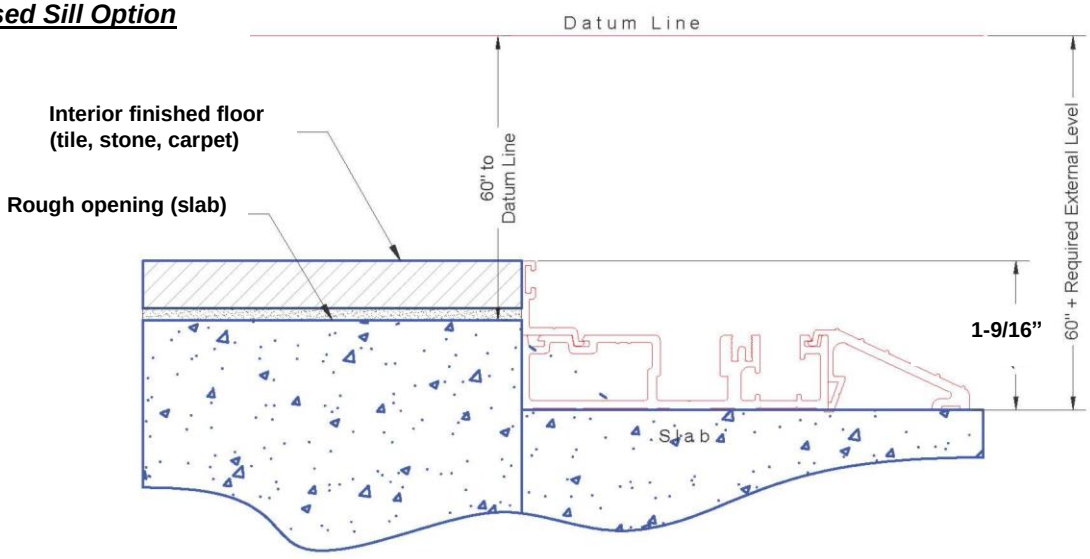


- Use tape measure to verify the opening overall height and width. At least three measurements must be taken.
- Smallest height and width measurement will determine the overall net frame size.
- By measuring the diagonals verify the opening is square.

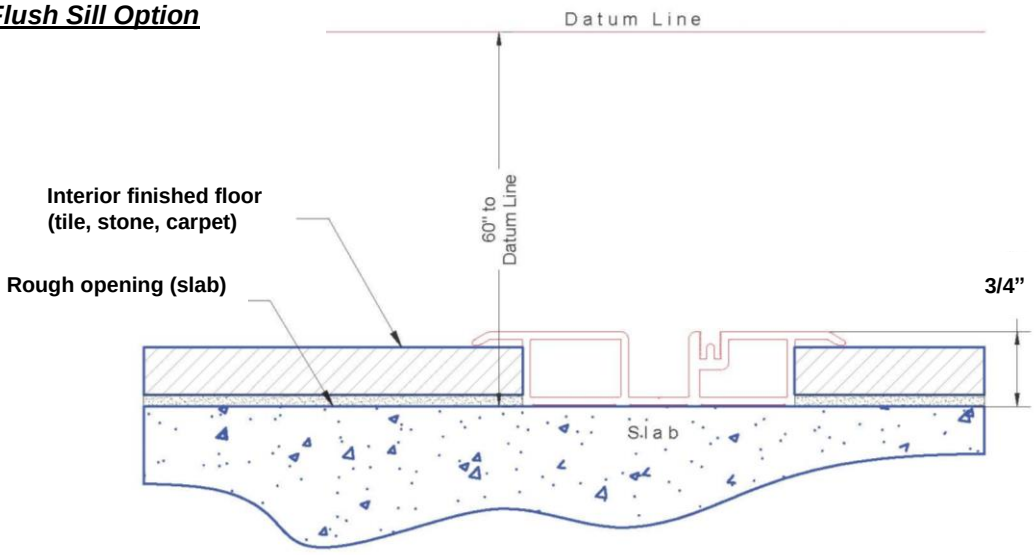
Interior finished floor level and datum line position

- Select a point within the rough opening from where the builder can determine the finished floor level i.e. tile, stone, carpet. Using laser measure set a datum line at 60” from the existing slab. If the slab is not level, use the highest point
- Take into account the agreed finished floor height i.e. tile, stone, carpet, and sill option.
- Mark the datum line on each jamb of the rough opening.

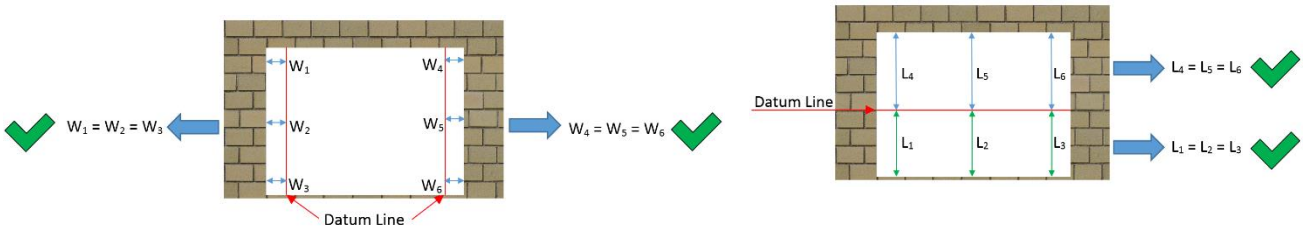
Recessed Sill Option



Flush Sill Option



- Refer to the factory drawing and confirm which threshold profile or sill is being used.
- Check if the existing slab or structure needs to be recessed, taking into account if the interior edge of the aluminium threshold sits flush, or is set at a certain height above the finished floor level.



Opening height inspection using datum line

- From the laser datum line measure the distance to the threshold at left, centre and right positions where new bi-fold door will sit on.
- Each of the bottom measurements should be uniform. If not, then the threshold is not level and structure should be releveled.
- From the original datum line position (set at 60”) measure the distance to the top underside of the rough opening at left, centre and right positions.
- Each of the top measurements should be uniform. If not, then the rough opening at the top is not level and the adjustment to the net frame height must be made.

Opening width Inspection using laser line

- Set a vertical laser datum line position at 10” from the jamb.
- Take measurements from top, middle and bottom of the laser line to the face of the jamb.
- Each horizontal measurement should be equal. If not, then the jamb is not plumb and adjustment to the net frame width must be made.
- Repeat jamb inspection for the opposing side.

Rough Opening sizes

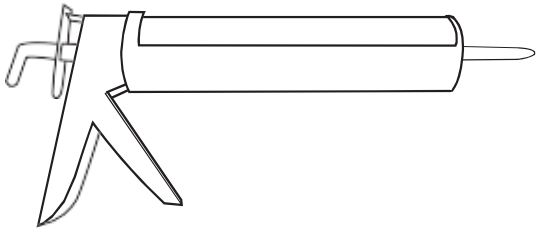
- Allow the rough opening to be 3/8” to 1/2” wider and 3/8” to 1/2” taller than the overall frame size of the ordered unit. It is important that the opening size for new frame is correct.

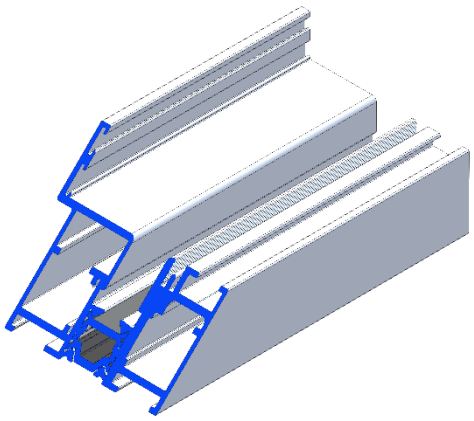
NOTE: - Overall height of new unit is measured from the bottom of the sill and not from the finished floor.

FRAME ASSEMBLY AND INSTALLATION

Outer frame assembly

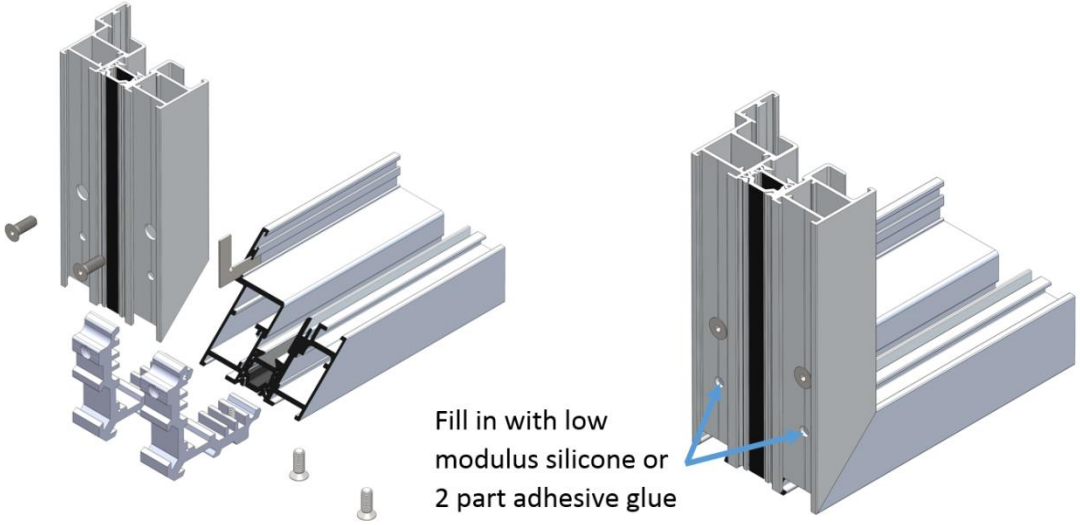
- Apply low modulus silicone at all outer frame connection joints and between the frame components.





- Connect the outer frame corners using outer cleats and M6x16 machine screws as shown below.
- Align the frame by adjusting the screws, if necessary.
- Any silicone excess should be wiped off at this stage.

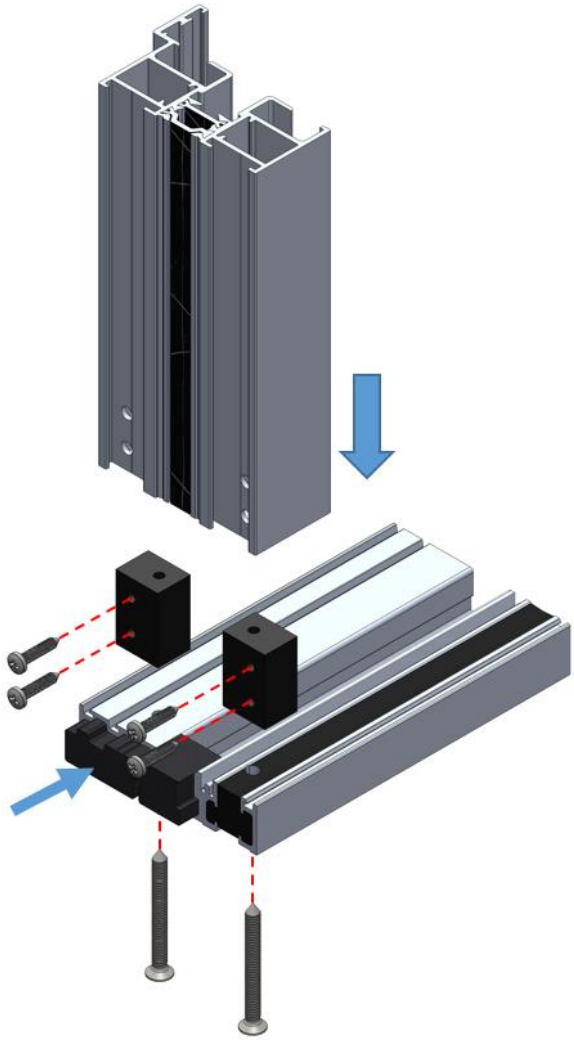
TOOL REQUIREMENT: - 4mm Allen key is required.

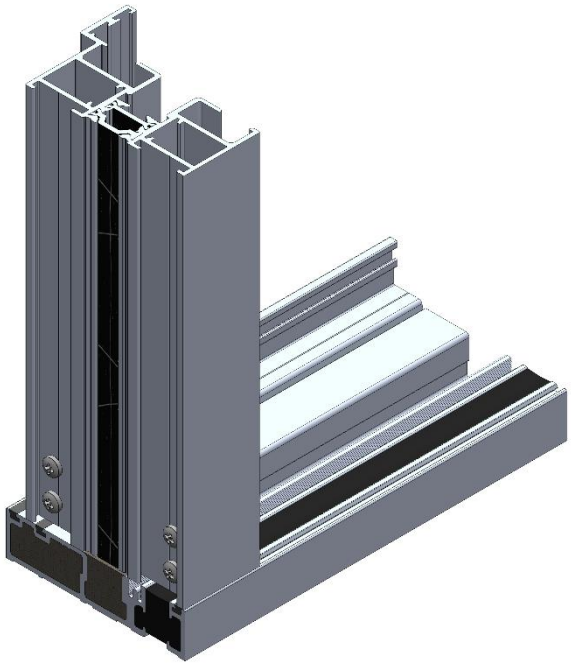


- Repeat same process to all four outer frame corners.

Low threshold assembly

- Apply low modulus silicone to all frame connection joints and between the frame components.
- Use low threshold fixing kit (ref. DBA1-105) to join the corner as shown below.

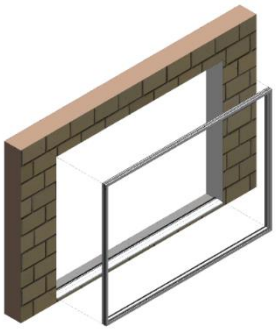


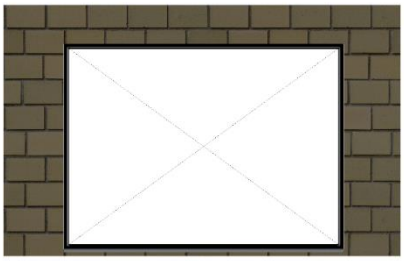


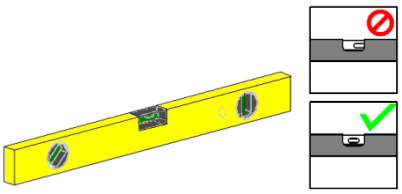
- Align the frame by adjusting the screws, if necessary.
- Any silicone excess should be wiped off at this stage.
- Ensure no water can escape from the low threshold past the jambs.

Outer frame installation

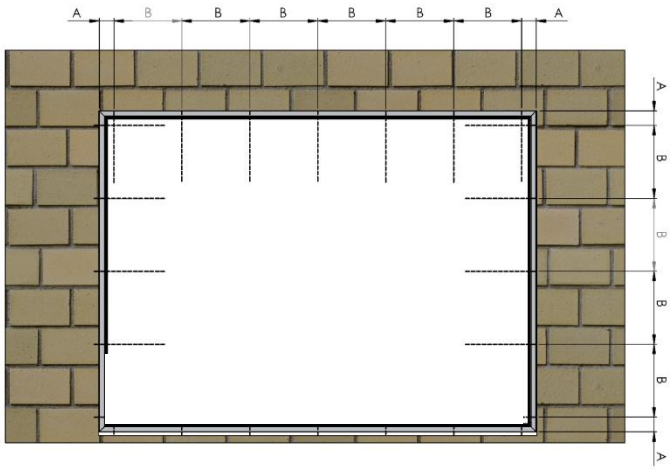
- Insert the frame into prepared structural opening with levelled sill and shim as necessary to ensure that the frame is held plumb and square inside the opening.
- Set frame onto bed of continuous sealant.
- Use sill-pan or flashing as required for water-tightness







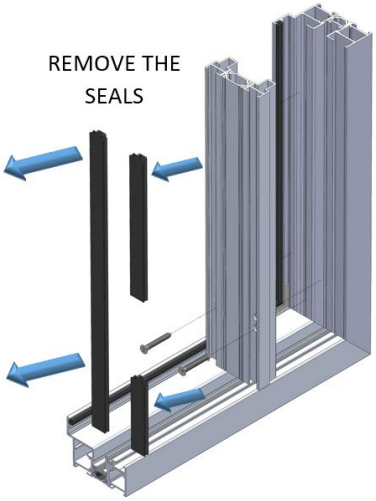
- Hard shim all attachment points to ensure tight and supported mounting.
- Secure frame using suitable screws and plugs.
  A = Anchor distance from corner of frame approximately 6”.
  B = Anchor spacing generally at maximum 20”.
- Ensure the top and bottom frame remain plumb and square over the complete length.
- Use no fasteners/penetrations at sill unless required for structural purposes

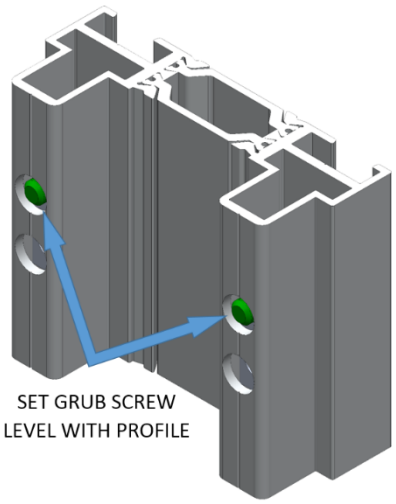


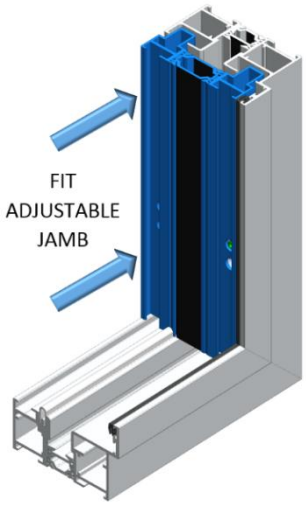
- Check the level and make sure that the frame is set plumb and square.
- Using low modulus silicone ensure that the perimeter is sealed against water penetration at both inside and outside of the opening.
- Clean away all debris from bottom rail, especially guide channel.

ADJUSTABLE JAMB INSTALLATION

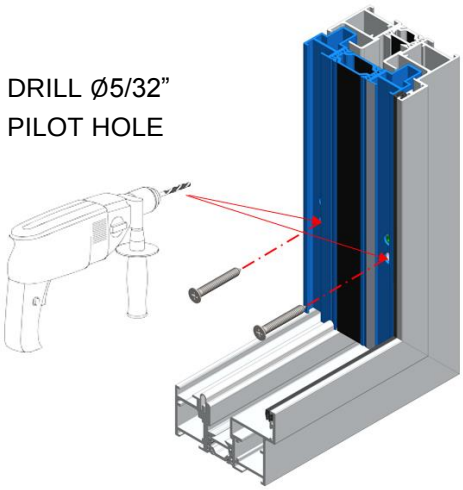
- Remove any weather seals or rebate profiles attached to adjustable jamb.
- Set all grub screws flush with back wall of the adjustable jamb.
- Fit the adjustable jamb profile into outer frame up to the end.

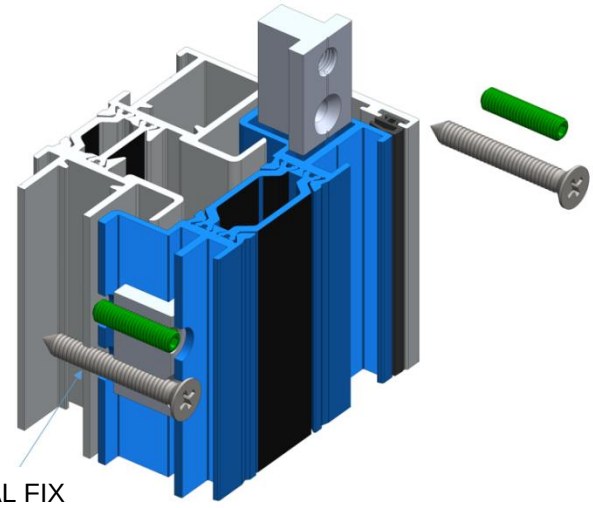






- Use factory pre-drilled holes at adjustable jam profile and drill Ø5/32” pilot holes in the outer frame for self-tapping fixing screws.
- Fix the adjustable jamb in place using Ø4.8 x 38mm self-tapping screw.





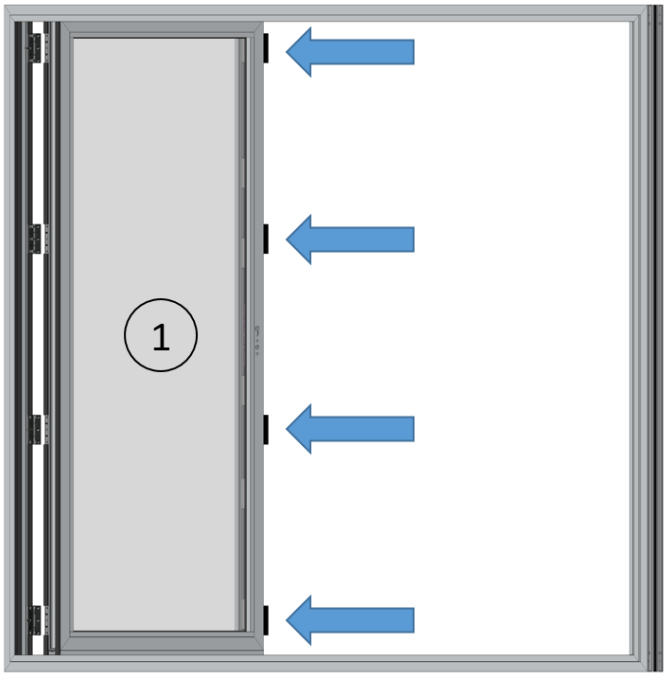
DOOR LEAF INSTALLATION

General installation recommendations

- Before installing any door panels check for all the components. Make sure there is no missing components.
- Look for the panel glass beads to determine the interior side.
- Look for the panel drainage holes to determine the bottom side.
- All panels are numbered and must be installed with accordance to the factory drawing.

Panel No.1 Installation

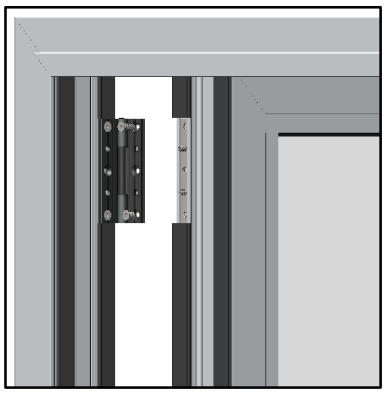
- Align the side of panel No.1 that has clamping plates on with hinges attached to outer frame adjustable jamb.

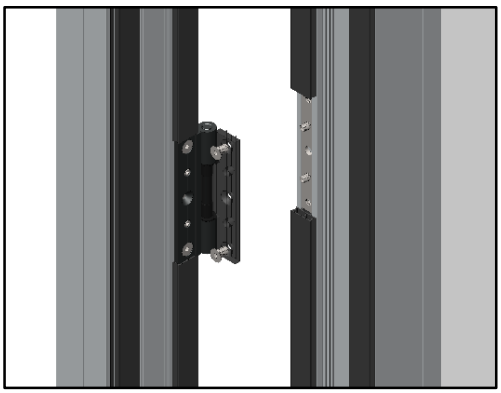


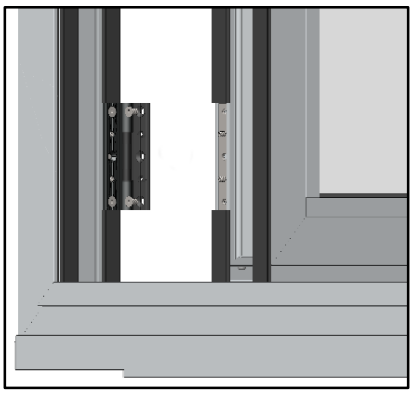
- Locate the hinge leaf over the clamping plate and secure with M5x10mm machine screws using top and bottom countersunk hinge holes.

TOOL REQUIREMENT: - 3mm Allen key is required.

NOTE: - Do not use 4.2x25mm self drilling screws at this point.

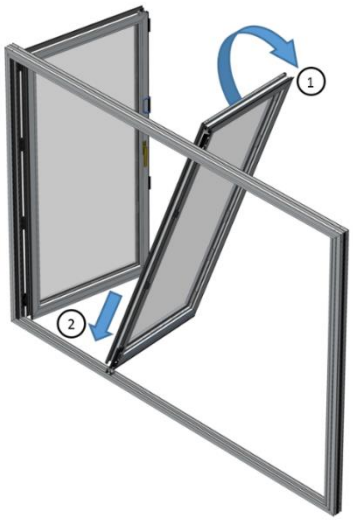


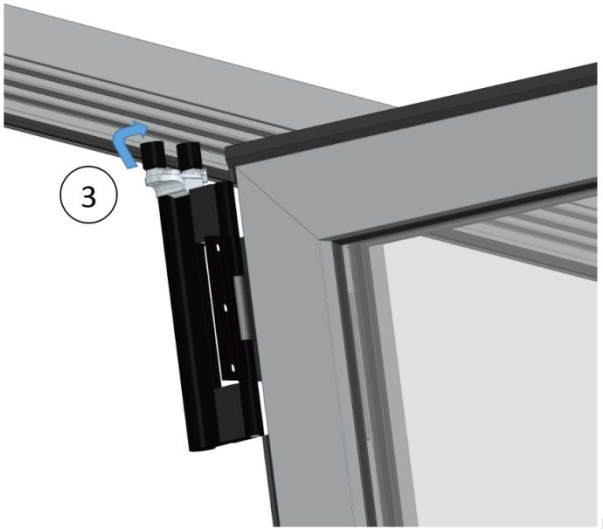




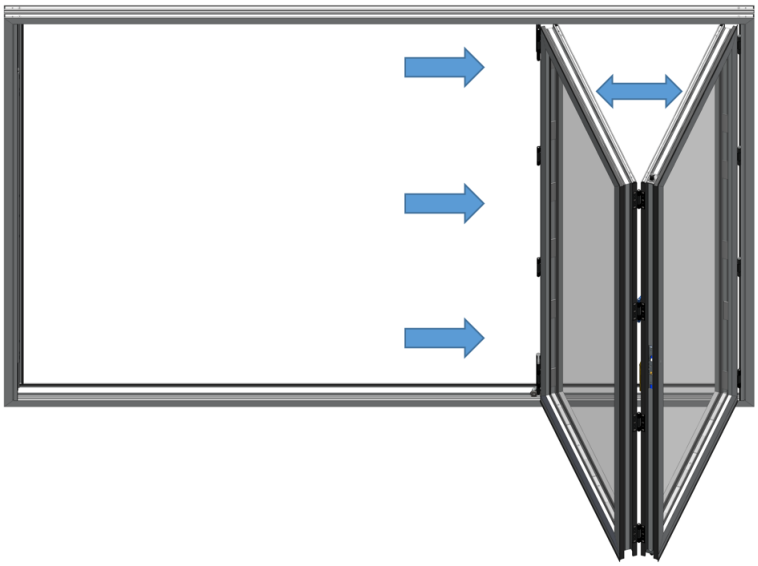
Panel No.2 Installation

- Slightly lean panel No.2 and fit the bottom roller guides into middle channel of the bottom track.
- Align the top guides of panel No.2 and fit them into middle channel at the top.





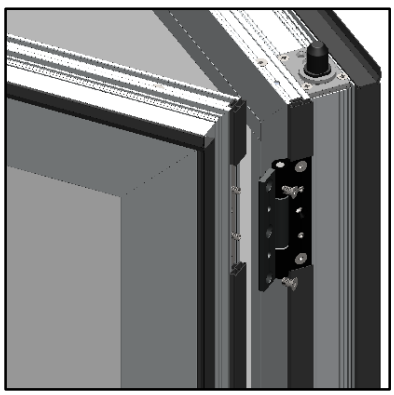
- Slide panel No.2 to align clamping plates with hinges attached to the first panel.
- Keep both doors on an angle for better access to hinges.

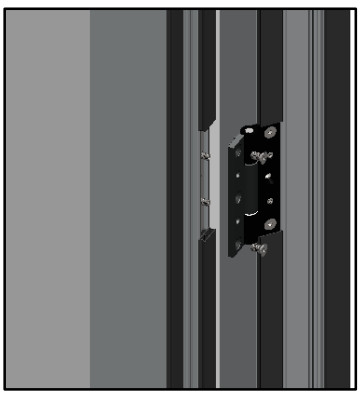


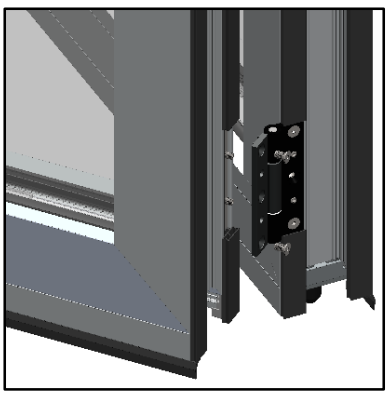
- Locate the hinge leaf over the fixing plate and secure whith M5x10mm machine screws at top and bottom holes.

TOOL REQUIREMENT: - 3mm Allen key is required.

NOTE: - Do not use 4.2x25mm self drilling screws at this point.

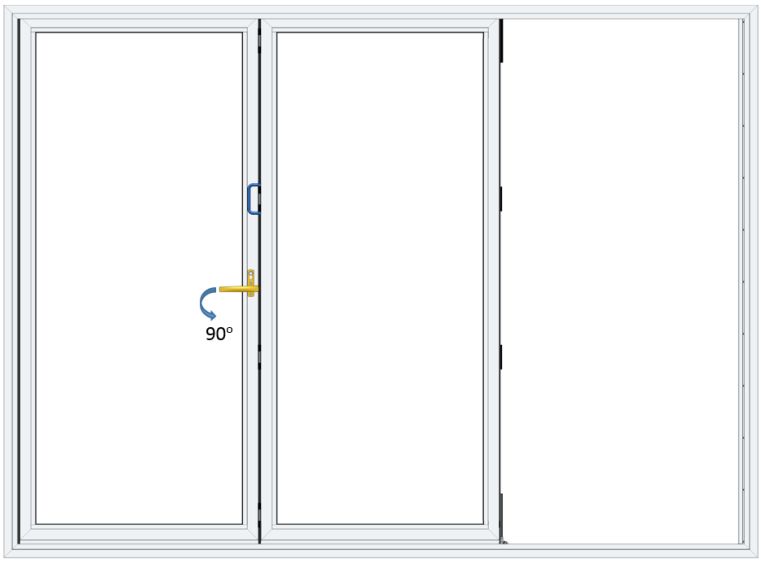




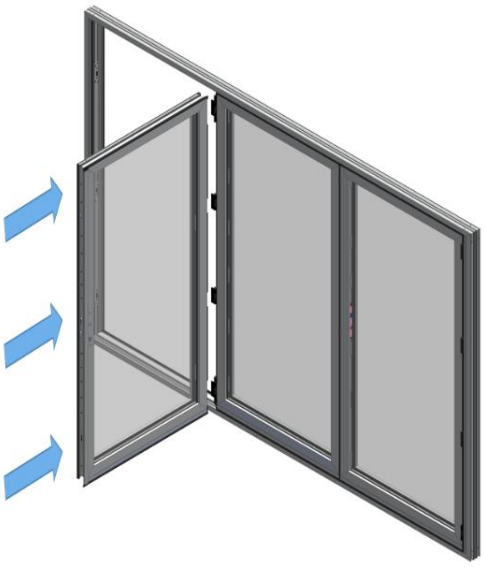


Panel No.3 Installation

- Lock first two panel doors together before installing door No.3.



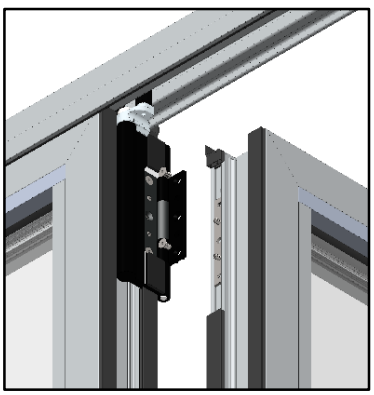
- Align panel No.3 clamping plates with hinges attached to second panel.

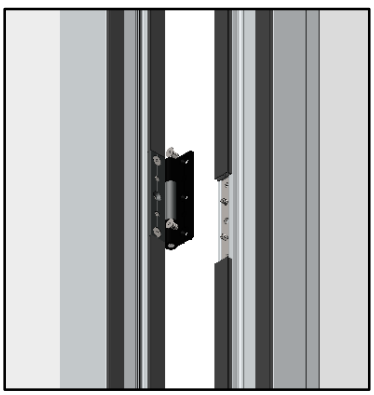


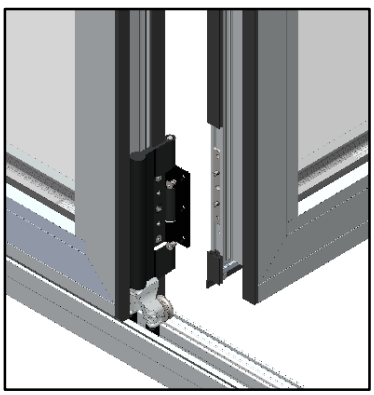
- Locate the hinge leaf over the fixing plate and secure with M5x10mm machine screws at top and bottom position.

TOOL REQUIREMENT: - 3mm Allen key is required.

NOTE: - Do not use 4.2x25mm self drilling screws at this point.



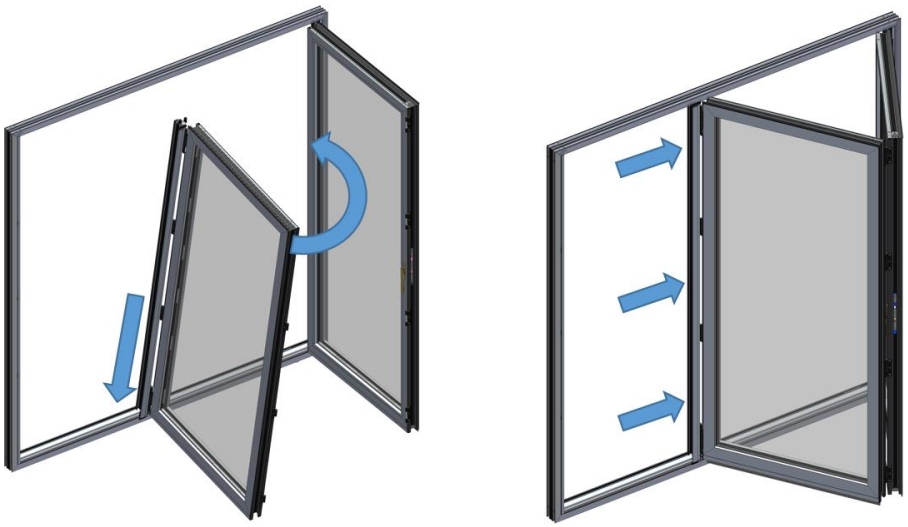




Sliding post installation

- Open the sliding post attached to the door panel as shown below.

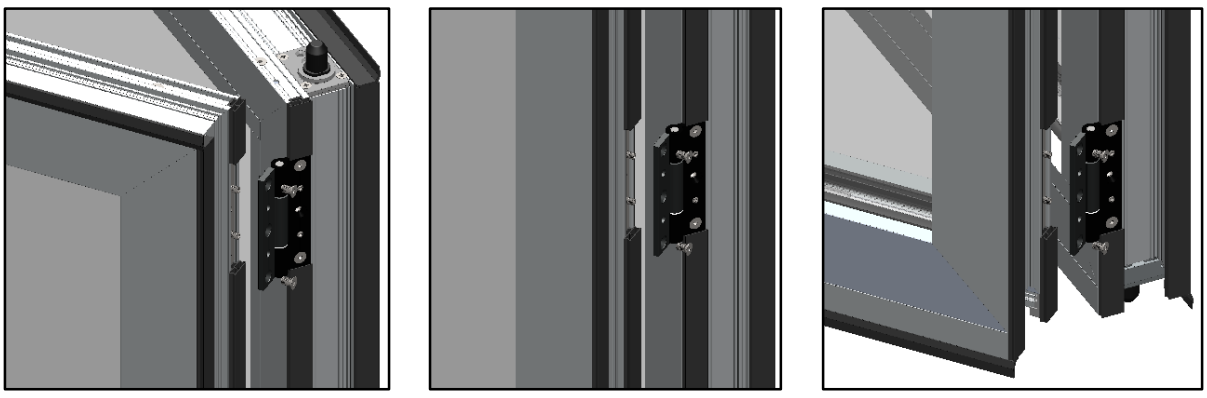
- Slightly lean the panel with sliding post and fit the bottom roller guides into middle channel of the bottom track.
- Align the top guides of panel with sliding post and fit them into middle channel at the top.
- Slide the panel to align clamping plates with hinges attached to the first panel.
- Keep both doors on an angle for better access to hinges.



- Locate the hinge leaf over the fixing plate and secure whith M5x10mm machine screws at top and bottom holes.

TOOL REQUIREMENT: - 3mm Allen key is required.

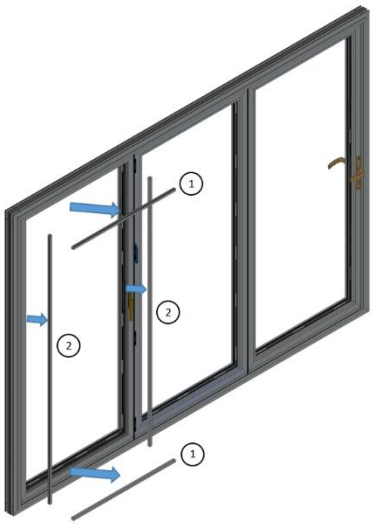
NOTE: - Do not use 4.2x25mm self drilling screws at this point.



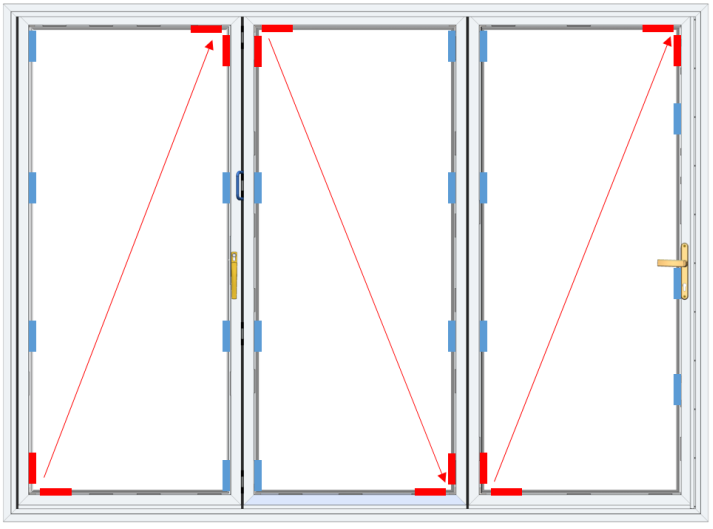
GLAZING INSTRUCTIONS

NOTE: - All glazing should conform in the requirements of BS 6262. In addition any instructions given by glass manufacturers should be followed.

- Before glazing, lock all doors panels and fully engage the locks.
- Starting from the first panel hinged to the jamb remove all beads, taking care to note where the beads are removed.



- Install the glass into the frame and pack it appropriately using various thickness glass setting blocks. Ensure to support inner and outer layers of the glass.
- All panels should be *'toe and heeled'* to maintain equal and parallel gaps between outer frame and panel at the top and bottom.
- Add silicone between each vertical set of packers to help keep them in place. Make sure that all packers do not obstruct any of the drainage or decompression holes.



- ‘Toe and Heel’. Load caring packer must be used to keep panels square and level.

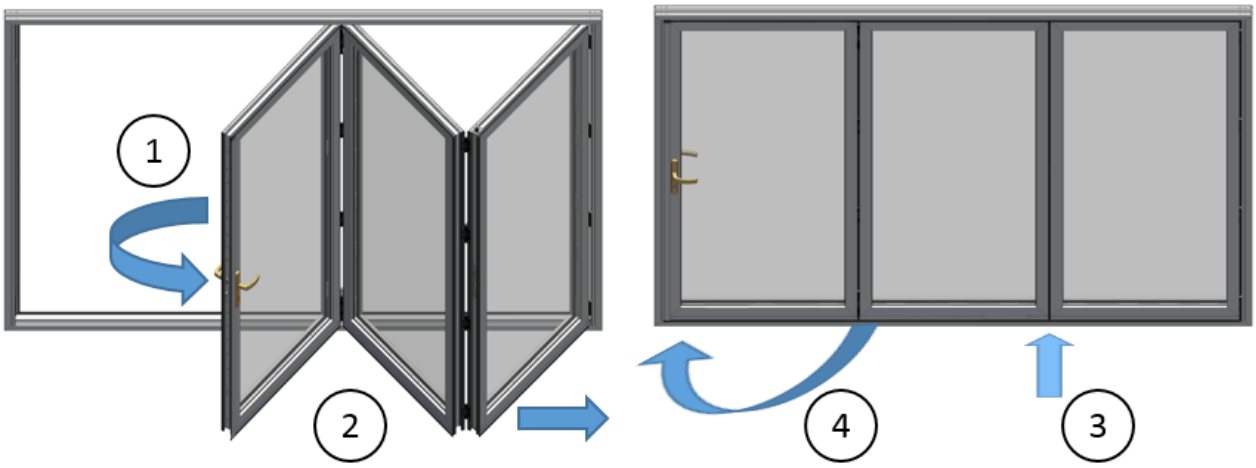
- Supporting packers to prevent movement and provide rigidity to panel. Should be installed between all hardware components

- Replace beading, starting with shortest pieces first and tapping into place with a plastic mallet.
- Replace wedge gaskets into position.
- Repeat the ‘toe and heeling’ process for all panels, ensuring that all door gaps are equal and parallel.
- Check for door running operation and adjust if necessary.

OPERATION CHECKING AND ADJUSTMENT

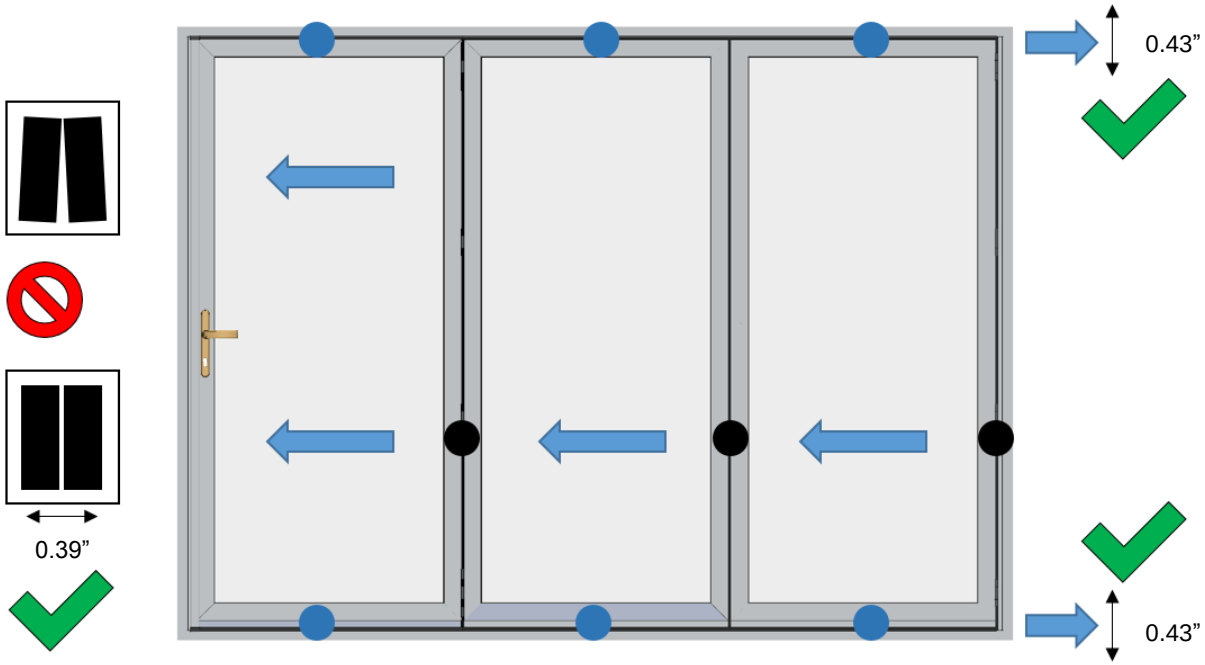
Door unit operation inspection

- Check the basic running operation of the doors to make sure the mechanisms are working properly.



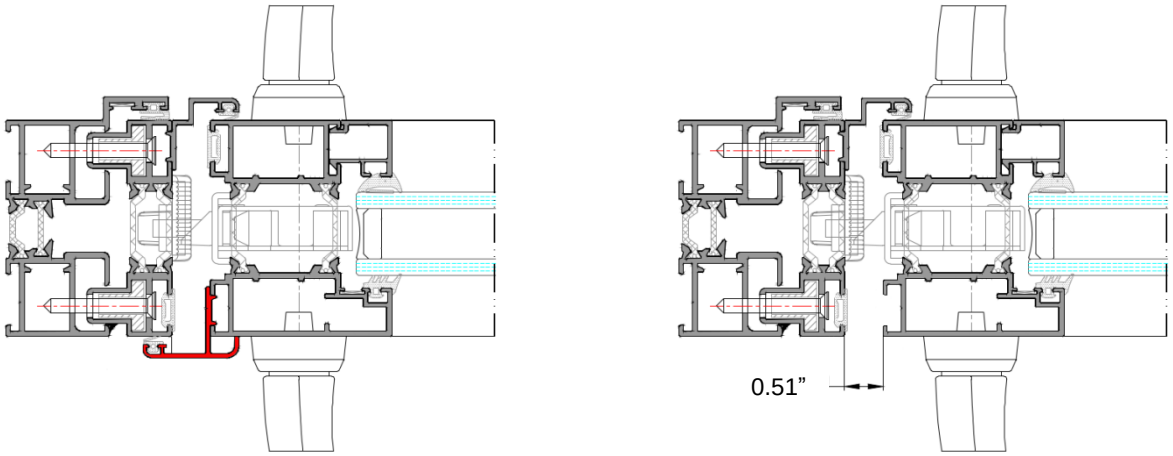
Overall gap size inspection

- Assess the horizontal gaps between the outer frame and sash at the top and bottom ensuring they are even and equal to 0.43”.
- Assess the vertical gaps between the panel frames ensuring they are even and equal to 0.39”.



Master door adjustment

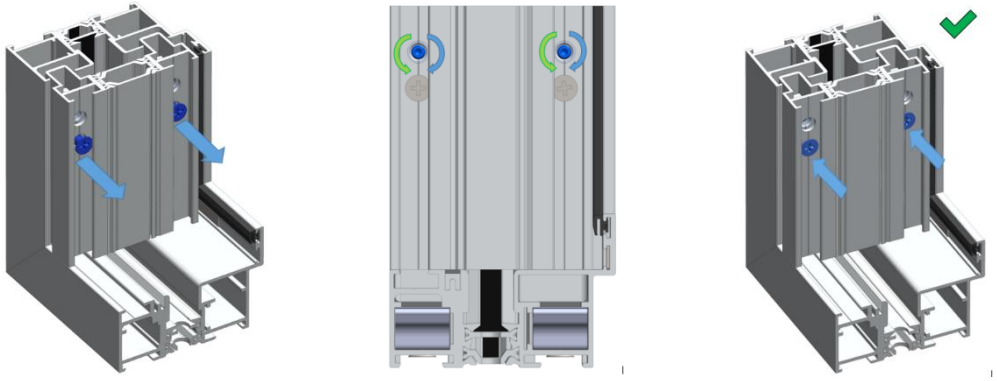
- Remove the rebate profile attached to the master door to see the gap where the lock and the keep are.
- Check the distance between the locking door and the outer frame. The distance should be 0.51”.



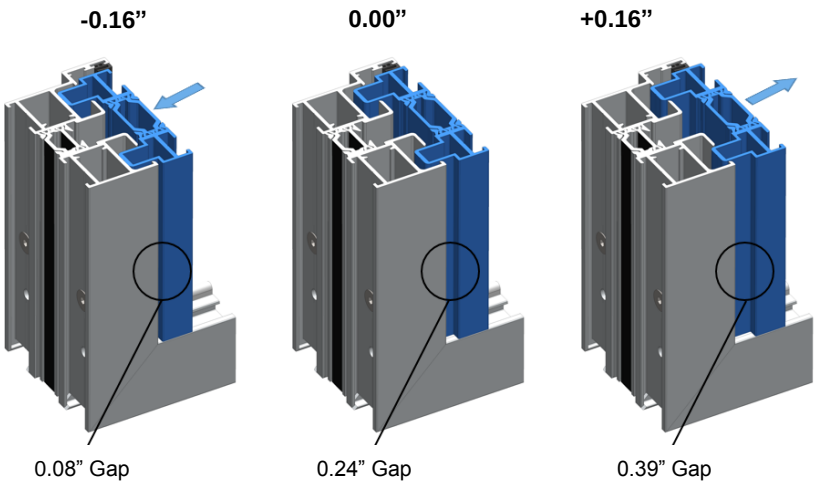
- If the lock and keep are clashing regulate the distance by adjusting adjustable jambs as shown below.
- Once the correct gap is achieved and the lock is locking perfectly fix the rebate profile back on the master door panel.
- Double check if the lock is latching properly.

Width adjustment using adjustable jambs

- To adjust the width release all bottom self-tapping screws that secures the adjustable jamb.
- Use grub screws to change the position of the adjustable jamb.
- Check the gaps to be equal and adjustable jamb is set square and level.
- After completing adjustment fix the adjustable jamb in position by securing self-tapping screws.

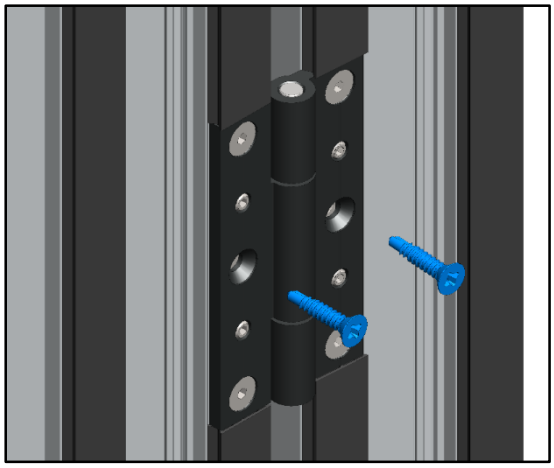


- Adjustable jamb is designed to have both positive and negative adjustment as shown below.



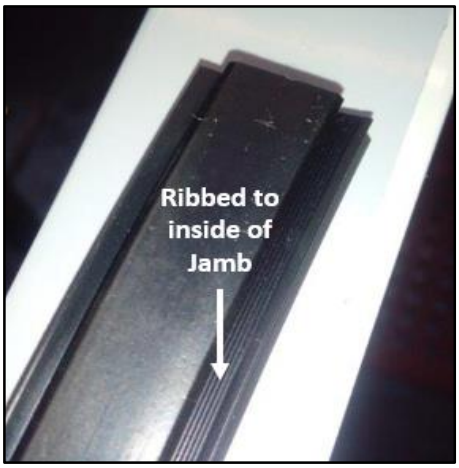
Securing hinges with final fixing screws

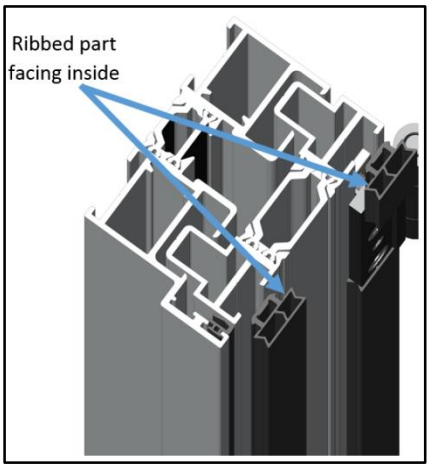
- After completing all the installation and the doors are glazed and operate properly, ensure to secure all hinges with final fixing screws as shown below.



Weather seal application

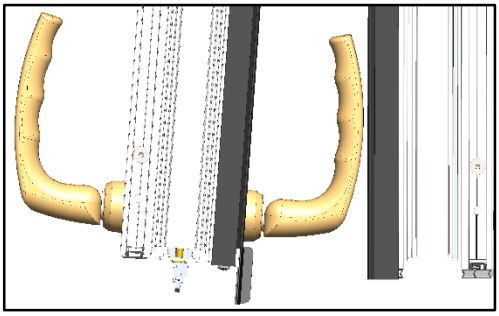
- Apply missing or any removed weather seals on all panels and jambs. Ensure that the ribbed part of the seal would always be installed facing inner part of the profile.



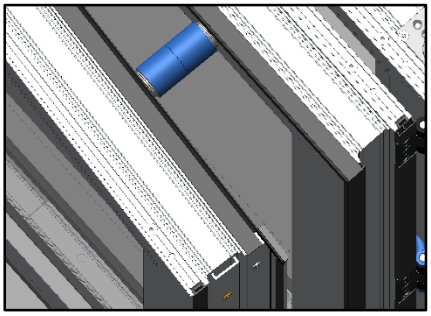


Panel catch installation

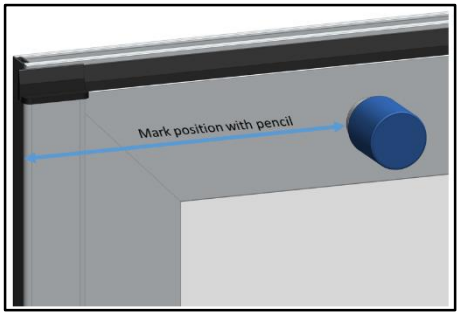
- Position the swing door at the point where it will stop.
- Ensure some clearance between the lever handle and next door.
- Use fully assembled panel catch pair to locate the position between two doors.
- Mark with pencil the position for panel catch on swinging door first.



1. Position the door

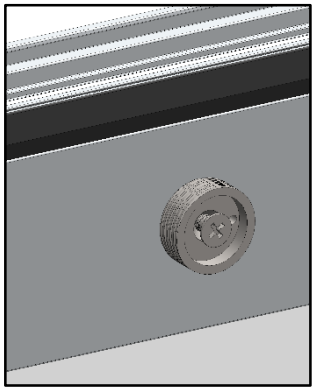


2. Locate panel catch

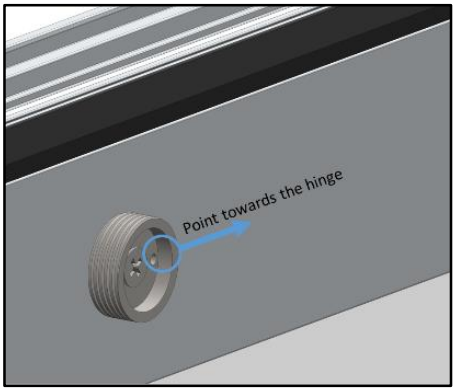


3. Mark position on swing door

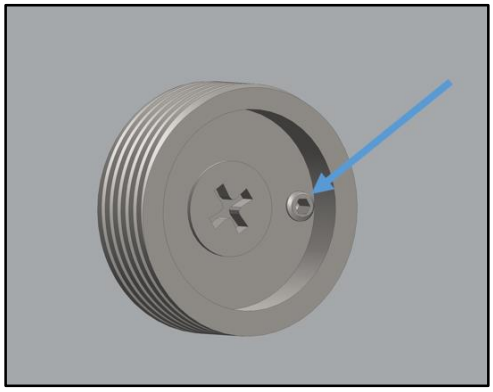
- Unscrew panel catch back plate and fix it with choice of fixings provided in the box.
- Ensure the position for anti-rotation screw is pointed towards the hinge side.
- Secure the 3mm pointed anti rotation grub screw.
- Screw the outer sleeve.



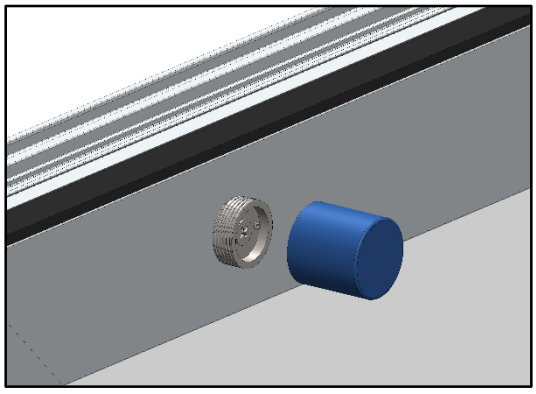
4. Fix the plate



5. Position anti-rotation point



6. Fix anti-rotation screw



7. Screw the outer sleeve

- Mark the perfect position for panel catch on the opposite panel.
- Ensure anti rotation screw is pointed to the nearest swinging door hinge.
- Fix the second panel catch by repeating steps 4 - 7

FINISHING TOUCHES

- Check that the handles and locking mechanisms operate smoothly on each door.
- Check the bi-fold action is smooth and free running.
- Check that the locks operate correctly when closed.
- Check the door magnets are fully engaged when the doors are open.
- Check the hinges and ensure that there are no screws missing.
- Check the weather seal and ensure that the doors are fully sealed.
- Check the perimeter and ensure that the door unit is weather tight.
- Clean the bottom track and ensure it is free of any debris.
- Ensure that the homeowner is instructed and knows exactly how to use and look after bi-fold doors.

OPERATION AND MAINTENANCE

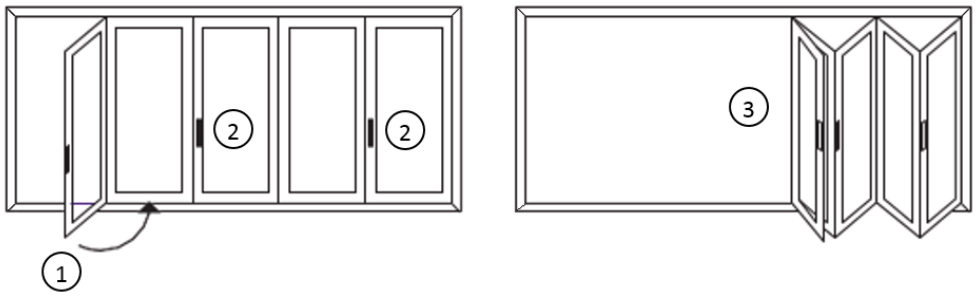
Opening and closing operation for bi-folding door with swinging door

To open doors

- Open the swinging door and connect it to the panel catch located on the next door.
- Release the shoot bolt locks on all other panels.
- Slide the folding panels starting from the pair nearest to the swinging door.

To close doors

- Slide each pair of folding panels back to align with frame
- Secure the panels by locking with shoot bolt lock.
- Close the swinging door last, ensure that all other panels have been locked in frame first.



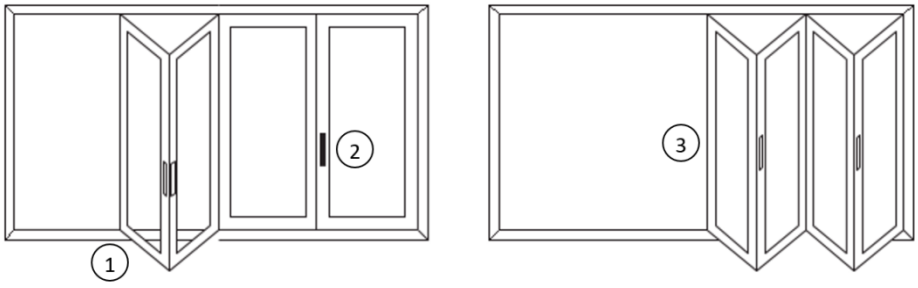
Opening and closing operation for bi-folding door without swinging door

To open doors

- Release the shoot bolt locks on all other panels.
- Slide each pair of folding panels away to one side.

To close doors

- Slide each pair of folding panels back to align with frame
- Secure the panels by locking with shoot bolt lock.



Maintenance

- Ensure top and bottom tracks are kept clean and free of any debris or foreign objects that can stop the function of the folding door.
- Ensure all door locking mechanisms are kept clean and any moving parts are regularly lubricated with light machine oil at least once a year.