



Aluna+

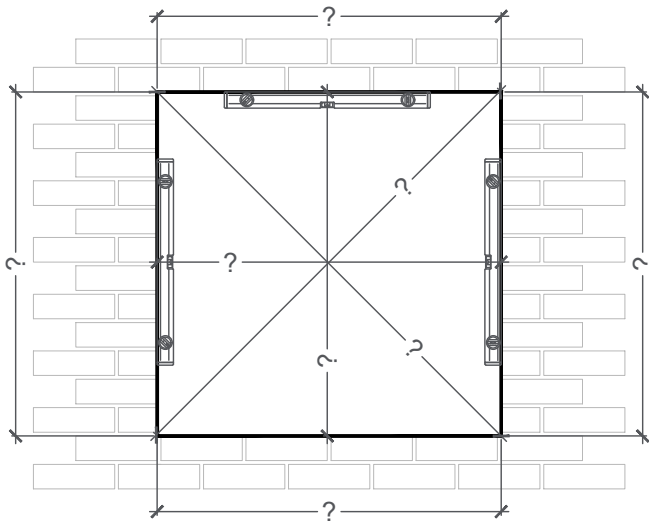
Installation Manual

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All openings must feature a lintel, no loads are to be transferred directly to any part of the frame.

Frames are to be securely fixed to the structure using suitable fixings.

Perimeter of frames to be continuously sealed using low modulus high elasticity sealant.

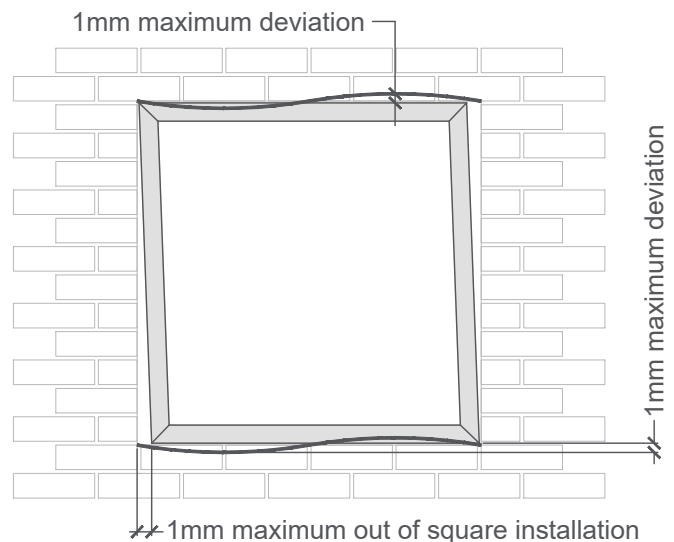
Installations to comply with BS 8213-4 code of practice for the survey and installation of windows and external doorsets...
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Frames must be fully supported along the full length of the cill. It is essential that the frame is installed square and parallel with a maximum 1mm deviation.

Surveying

The surveyor should check for any apparent defects and other considerations around the structural opening. If any defects or special requirements are identified, then the customer should be notified, and agreement reached as to who is responsible for rectifying any defects prior to the new windows or doorsets being installed.

It is good practice to ensure that windows on a single elevation should ideally have a consistent amount of visible frame.



Manufacturing Sizes

Allowances should also be made with regard to the window or doorset and building aperture tolerances. When calculating height deductions, due allowances should be also made for the thickness of any sealant or mortar bed at the sill.

Care should be taken to ensure that the thickness of the internal plaster does not hide or obscure the frame, especially on internally beaded systems. A suitable add-on may therefore be required. Care should be taken to ensure that the thickness of the internal plaster does not hide or obscure the frame, especially on internally beaded systems. A suitable add-on may therefore be required.

Recommended deductions for width & height of structural opening (deductions are from total width or height and are not "per side")	
Up to 1.5m	10mm
From 1.5m to 3.0m	10mm
From 3.0m to 4.5m	15mm
Over 4.5m (may require intermediate expansion joints)	20mm

Frame Positioning

Replacement windows and doorsets should generally be positioned to minimise the amount of making good, taking into account the following points:-

- They should be installed plumb and square within the aperture, without twist, racking or distortion of any member in accordance with the Alunet Systems recommended tolerances, to operate correctly after installation and in accordance with the surveyor's instructions.
- The new frame should bridge the DPC. Any damaged DPC should be repaired.
- The frame should be centralised within the aperture and set as far back in the reveal as is feasible for better weather performance.
- The correct movement gap should be provided around the perimeter of the window or door.
- The condition of the reveal should be considered and any surveyors notes adhered to.

Flush Reveals

Replacement windows and doorsets should be positioned to minimise the amount of making good, taking into account the following points:

- The new frame should bridge the DPC. Any damaged DPC should be repaired.
- Wherever possible to reduce the effects of thermal bridging, the replacement frame should be set in such a position that the rear face of the replacement frame is behind the rear face of the external skin by 25mm or more.
- The frame should be set as far back in the reveal as is feasible for better weather performance. If a sill is included, the projection should be not less than 25mm from the face of the building to allow the shedding of water.
- The correct movement gap should be provided

Check Reveals

When installing in a check reveal, the frames should be positioned taking into account the following points:

- The frame should be positioned directly behind the external skin and positioned centrally with a minimum overlap of the frame behind the external skin of 12 mm on both sides. Where applicable, the frame should be positioned vertically with the head positioned behind the external skin at the head.
- If a vertical DPC is installed in the check reveal, the frame should be positioned as far forward as possible with the vertical DPC between the rear of the external skin and the external face of the frame.
- When installing in a check reveal aperture and the check is being used to hide the width of the frame jambs (i.e. box sash windows) to provide more visually acceptable aesthetics, the frame should be positioned taking into account the following points:

The frame should be positioned behind the external skin and positioned such that the external visible dimensions of the frame jambs are equal.

The frame should be positioned where applicable behind the head check with the frame weight suitably supported.

Box sash windows are often installed in solid wall construction where a vertical DPC is not present. In these circumstances it can be beneficial to incorporate a suitable bead of sealant or impregnated foam tape between the external face of the frame and the external skin to provide additional protection against weather ingress.

Packers

Frame installation packers should be used adjacent to fixing positions to:

- Prevent outer frame distortion during installation and use.
- Ensure that the frame remains centralised, level and square.
- Allow for thermal movement of the frame.
- Assist in withstanding wind loadings.

Packers should normally be left in situ and concealed as part of the completed installation. However, in some instances they may be removed to facilitate perimeter detailing or for reasons of compatibility with the type of frame fixing used. In these cases, the objectives listed above should be satisfied and the fixings manufacturer's guidance followed.

Due to the dynamic forces experienced when doors are opened and closed, it is good practice on doorsets to use additional packers adjacent to hinge and locking points to provide additional support and security.

Some lugs need to be packed off the substrate to prevent distortion.

Frame installation packers should be resistant to compression, rot and corrosion. Over-tightening of fixings can lead to distortion and should be avoided.

Fixing Methods

For correct window and door fixing, each frame member should be fixed to the structure or to an adjacent frame in order to resist all likely imposed loads which could cause the frame to deflect. These loads might be due to:

- Wind loads.
- Operating loads.
- Weight.
- Accidental impact.
- Attempted burglary.

Fixing methods are affected by:

- The presence or absence of a wall cavity.
- The nature and condition of any cavity.
- The relative position of the frame and cavity.
- The position of the plaster line and the need to minimise disturbance and damage to interior decorations.
- The design of the reveal.
- Any requirements for fire resistance (timber frame)

Fixings

There are two principal methods of fixing available, which may be used separately or in combination. These are through frame fixings and lug fixings.

If lug fixings are used they should be of a suitable material to resist corrosion and, if used externally, they should be secured to the wall using "one-way" or other suitable security screws.

Fixings should be sized to securely penetrate at least 40mm for windows and 50mm for doors into brick, block, concrete or masonry, or 25mm into timber framing unless equivalent demonstrable provision can be made by other means, for example by complying with an appropriate structural code.

Connections to steelwork up to 2mm thick such as folded sheet lintels should be made with appropriate thread cutting screws. Connections to steelwork over 2mm thick should be into pre-tapped holes with machine screws of minimum 5mm diameter or alternatively with power-driven hardened self-drilling screws.

Other proprietary mechanical fixing methods should be assessed for suitability, preferably by obtaining an appropriate third party assessment.

Fixings should be at least as corrosion resistant as BS EN 1670:1998, Grade 3.

The presence of precast concrete or steel lintels can make it impracticable to achieve the recommended fixing distances using through-frame fixings or fixing lugs, or can pose severe difficulties in doing so. In these instances polyurethane (PU) foam may be used as a supplement to mechanical fixings but should not, under any circumstances

Sealing

A thermally insulating filling material should be applied into the perimeter gap around the frame, e.g. PU foam or impregnated foam tapes. The presence of old oil-based mastics and bituminous DPCs can adversely affect the behaviour or appearance of otherwise correctly specified and applied wet sealants, through the migration of hydrocarbons to the surface of the new sealants. Consequent photo-oxidation of the migrant products can affect sealant performance and produce discolouration. This risk should be avoided by removal of unwanted mastic and by keeping sealant away from DPCs. Perimeter joints should be continuously sealed on both the outside and the inside with a sealant appropriate to:

The frame surface; The substrate material; Joint size and configuration; Anticipated joint movement; Anticipated exposure to weather.

When using impregnated foam tapes, over-capping with a wet sealant is generally not required. The manufacturer's instructions should be followed.

In situations where sealants rely upon atmospheric moisture to initiate curing, deep filling should be avoided.

The sealant should be applied against a firm backing so that it is forced against the sides of the joint during application. To avoid failure in service, the sealant should not adhere to the backing because this would restrict the lateral movement of the joint. Note: For gaps greater than 6 mm these recommendations can be achieved through the use of a closed-cell over-sized polyethylene (PE) foam backer rod.

When applying sealant into a parallel joint, a width to depth ratio of between 1:1 and 2:1 should be observed. When applying a fillet joint, a minimum 6mm contact to non-porous and 10mm to porous substrates should be achieved. An insulating fill should be inserted or injected wherever practicable around their full perimeter behind the external seal between frame and structural opening. An adequate seal should be provided between any cill and frame, and a barrier should be created at the ends of the cill.

Coupled Assemblies

When building up components into the required assembly, care should be taken to keep coupling joints equal, and frames both aligned and plumb. When coupling joints are also to be used as expansion joints, they should have seals, such as wet sealants, impregnated foam tapes or flexible polymer gaskets, placed within the joint during the assembly operation. It is not sufficient to rely solely on external pointing sealant. Particular attention should be paid to weatherproofing. Alunet Systems recommend max 400mm fixing crs for coupled assemblies.

Bay Poles

Where significant loads are being transferred (e.g. several storeys or just a roof) the bay poles are carried through the sill to the bearing plate. If unsure, a competent engineer should be consulted.

For lesser loads it might be possible to position bay poles directly on to the cill. A bay pole jacking system using a load bearing pole with shims is also acceptable

Glazing

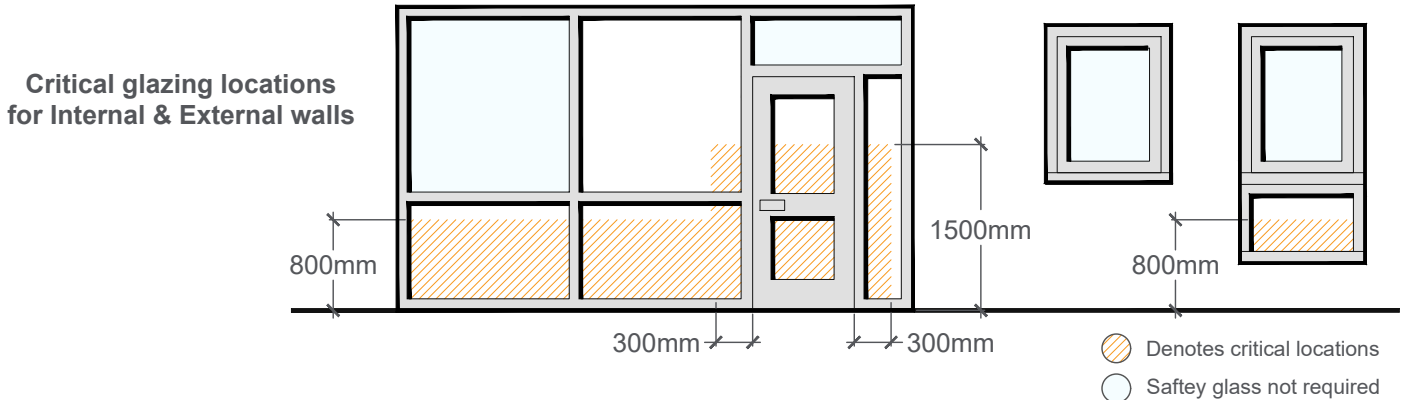
All IGU's are to be installed on site after installation. All glazing should be in accordance with BS 6262 glazing for buildings.

The **Aluna+** system accepts 28mm (± 1 mm) double glazed & 40mm (± 1 mm) triple glazed configurations.



Safety Glazing

Safety glazing should be installed in critical locations. Low level glazing areas within 800mm of floor level, glazing in doors and within 300mm of door edges less than 1500mm above floor level should generally be of a type so that if broken, it will break safely. **In practice this means such glazing should be either laminated or toughened.** Ordinary glazing can still be used in small pane sizes however, provided the glass is sufficiently strong to resist breakage.



Part Q Guidance

Part Q is a mandatory building regulation for new dwellings in England, it covers anything that could provide an easy access point into a building. **You are under no legal obligation to meet these standards when replacing existing products.**

Windows should be made to a design shown by test to meet security requirements of British Standards PAS 24. Where windows contain glass and non-key unlocking hardware, each glazed area shall include at least one pane of laminate glass meeting requirements of BS EN 356:2000, Class P1A or higher, and shall be glazed in accordance with BS 6292.

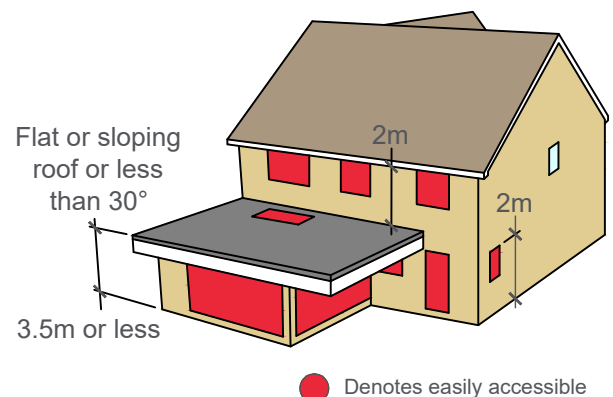
In glazing terms Class P1A is a two-layered pane construction with two foiled layers of 0.38mm thickness and two sheets of 3mm glass. There is no specification for glass for Part Q compliance where the window is not coupled with or adjacent to a door and has locking hardware.

In summary P1A specifications are ONLY required where windows contain glass & Non-Key unlocking hardware.

The Approved Document define 'easily accessible' as either:

A window, any part of which is within 2m vertically of an accessible level surface such as the ground or basement level, or an access balcony; or,

A window within 2m vertically of a flat or sloping roof (with a pitch of less than 30°) that is within 3.5m of ground level.



PAS 24 Guidance

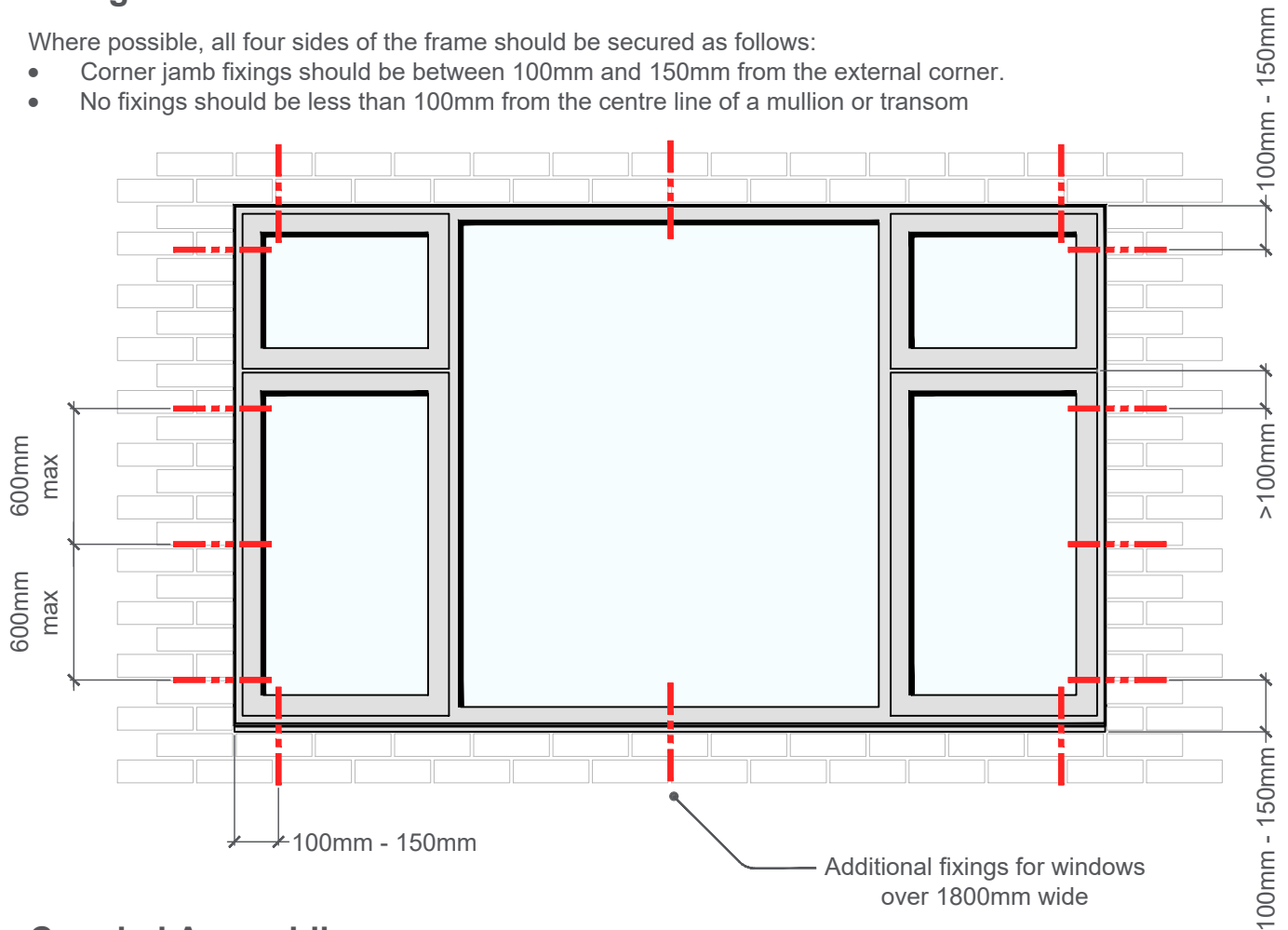
PAS24 is a voluntary certification scheme that demonstrates enhanced security performance and a simply way to ensure compliance with part Q.

It is not necessary to use a UKAS accredited laboratory if the testing undertaken can be shown to be fully in accordance with PAS 24. Any test evidence used to confirm the security of a window should be carefully checked to ensure that it demonstrates compliance that is adequate and that applies to the intended use.

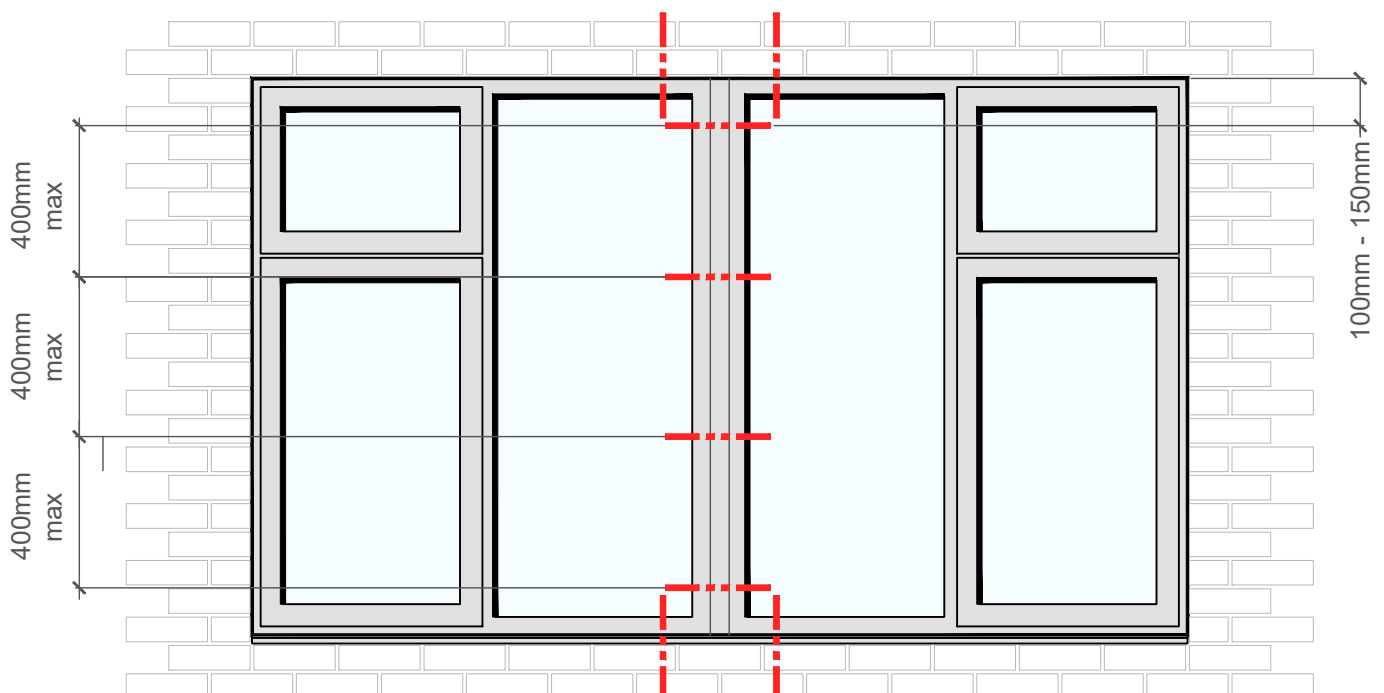
Fixing Distances

Where possible, all four sides of the frame should be secured as follows:

- Corner jamb fixings should be between 100mm and 150mm from the external corner.
- No fixings should be less than 100mm from the centre line of a mullion or transom

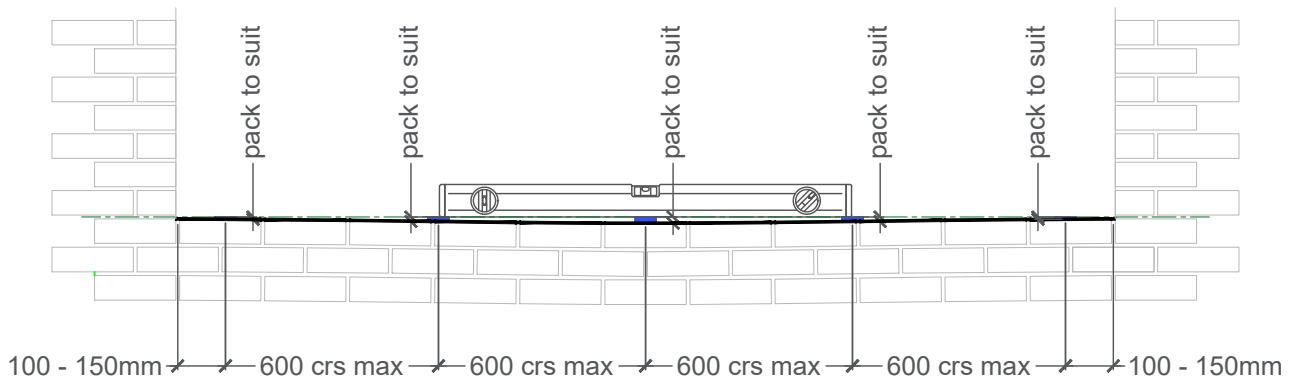


Coupled Assemblies

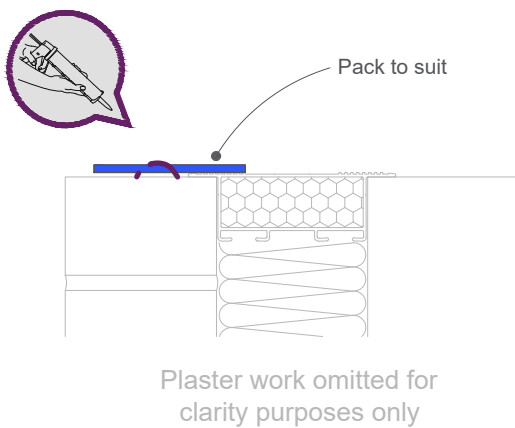


All window or door products MUST be installed plumb, level and square. There must not be any distortion twist or racking of any section, failure to ensure products are fitted correctly may result in operational and drainage issues in the future.

Make sure the aperture is clear and clean, with any debris and any loose mortar is removed before offering the up the product.

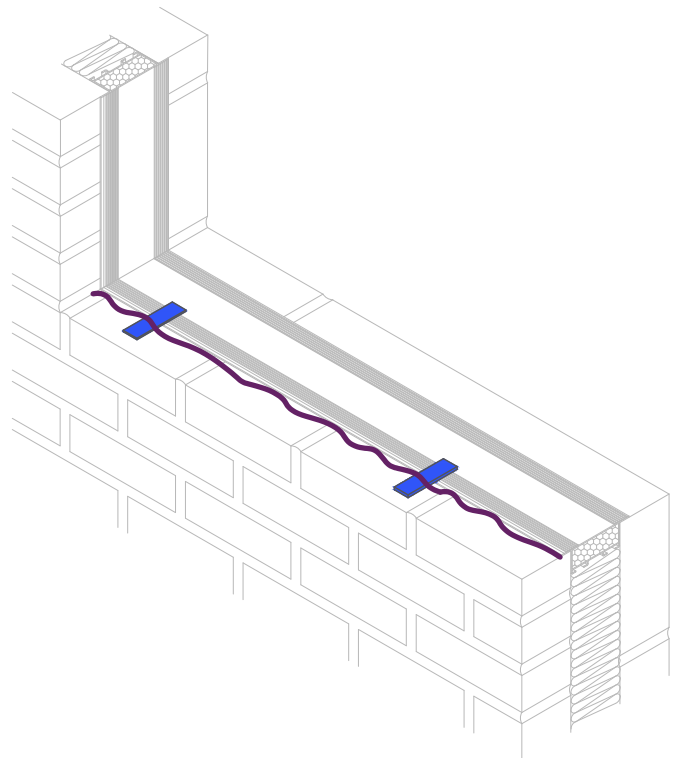


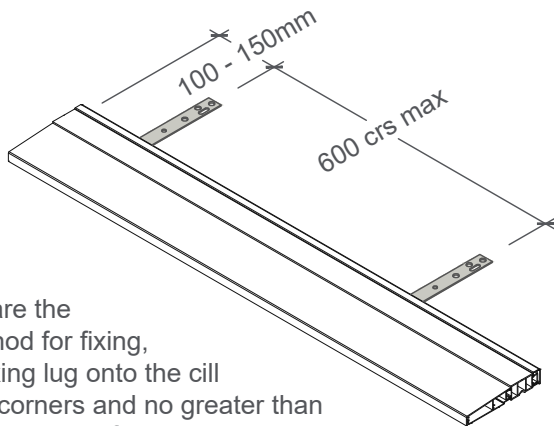
Use glazing packers to ensure the aperture, position packers 100 - 150mm from both ends and equally spaced to suit fixing points.



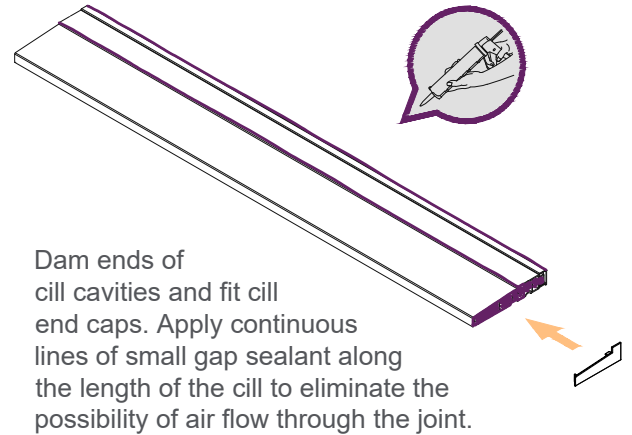
Run a continuous bead of silicone along the full width of the aperture (over the glazing packers).

Ensure a suitable silicone is applied for the correct use with the host structure.

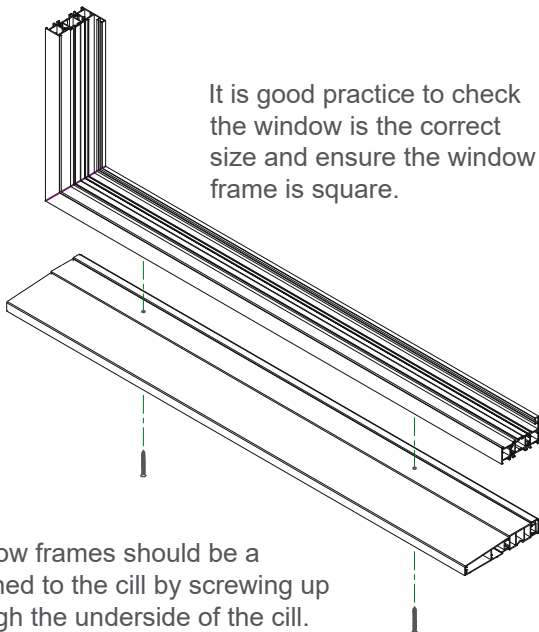




If lug fixings are the adopted method for fixing, secure the fixing lug onto the cill 150mm from corners and no greater than 600mm crs. Perimeter fixing lug positions should also be secured to jambs & head of window.



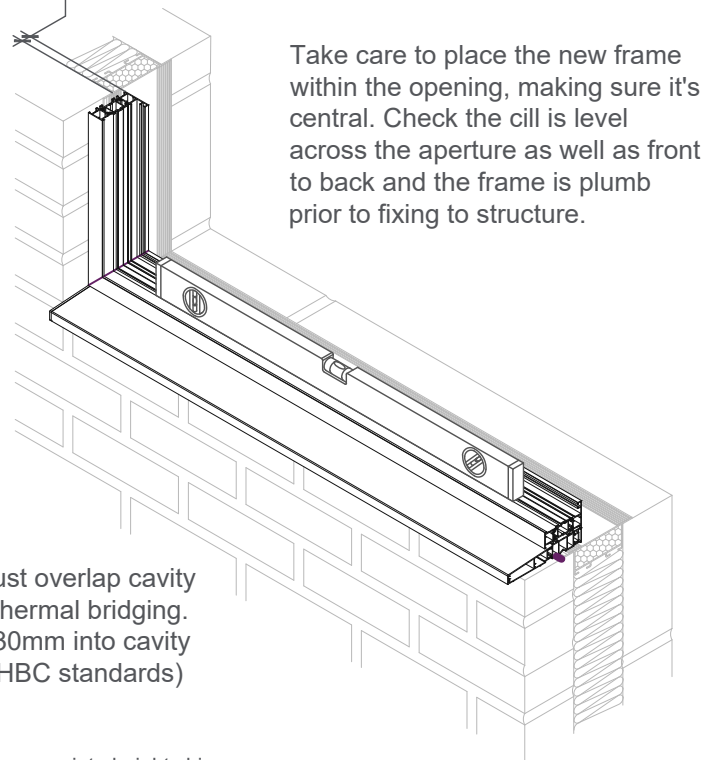
Dam ends of cill cavities and fit cill end caps. Apply continuous lines of small gap sealant along the length of the cill to eliminate the possibility of air flow through the joint.



It is good practice to check the window is the correct size and ensure the window frame is square.

Window frames should be attached to the cill by screwing up through the underside of the cill. Make sure the screws do not break into the upper rebate section of the frame.

Frame overlap

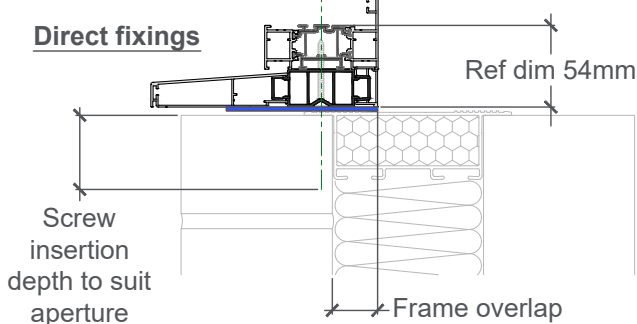


Take care to place the new frame within the opening, making sure it's central. Check the cill is level across the aperture as well as front to back and the frame is plumb prior to fixing to structure.

Frames must overlap cavity to reduce thermal bridging. (Typically 30mm into cavity for ACD/NHBC standards)

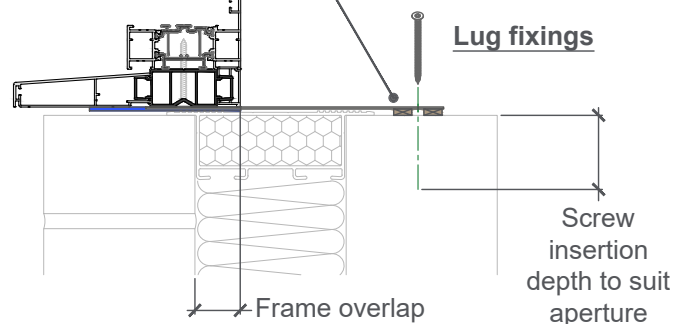
Position appropriate height shims between the fixing lugs and aperture to ensure lugs are not bent.

Direct fixings

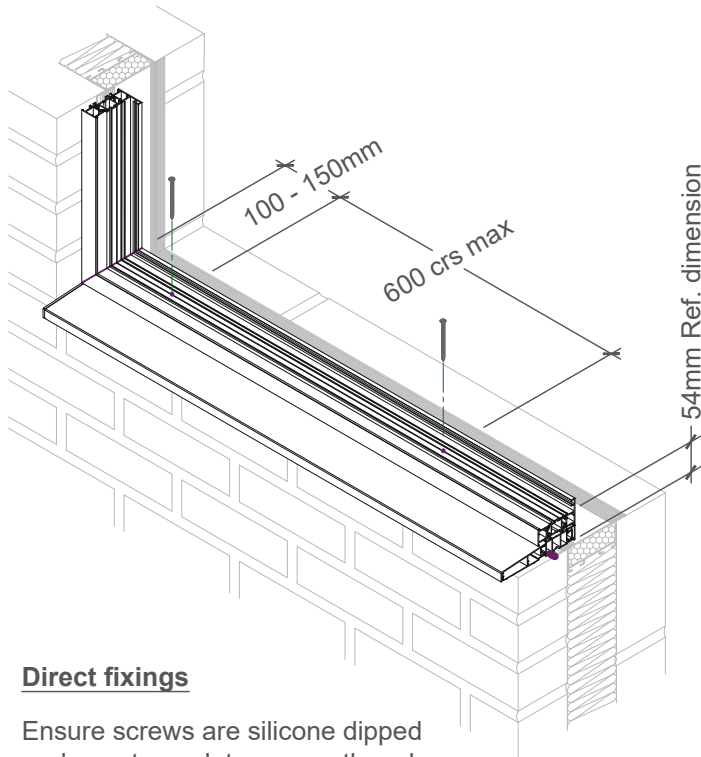


Fixings should penetrate at least 40mm for windows and 50mm for doors into brick, block, concrete or masonry, or 25mm into timber framing.

Lug fixings

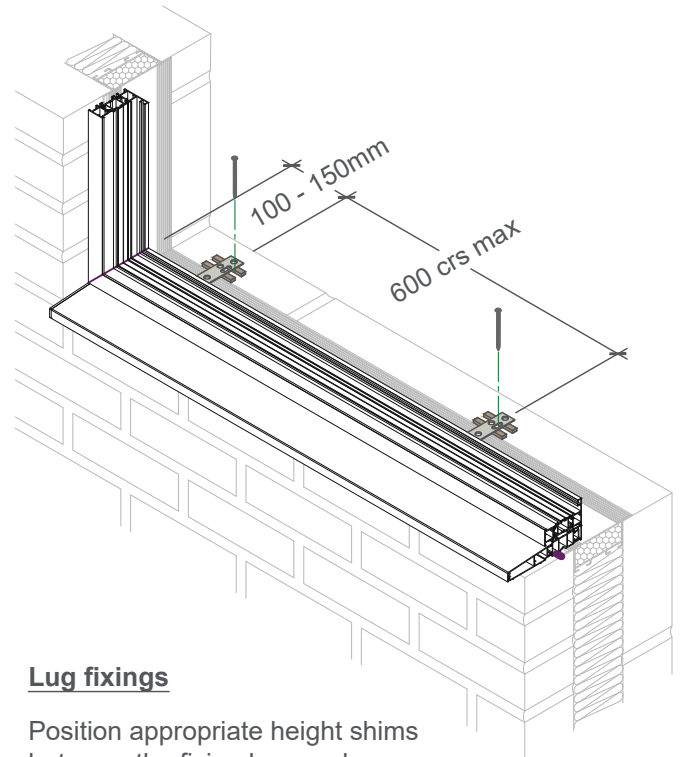


Fit window packers around the perimeter of the window frame. It is essential the packer bridge the full width of the frame.



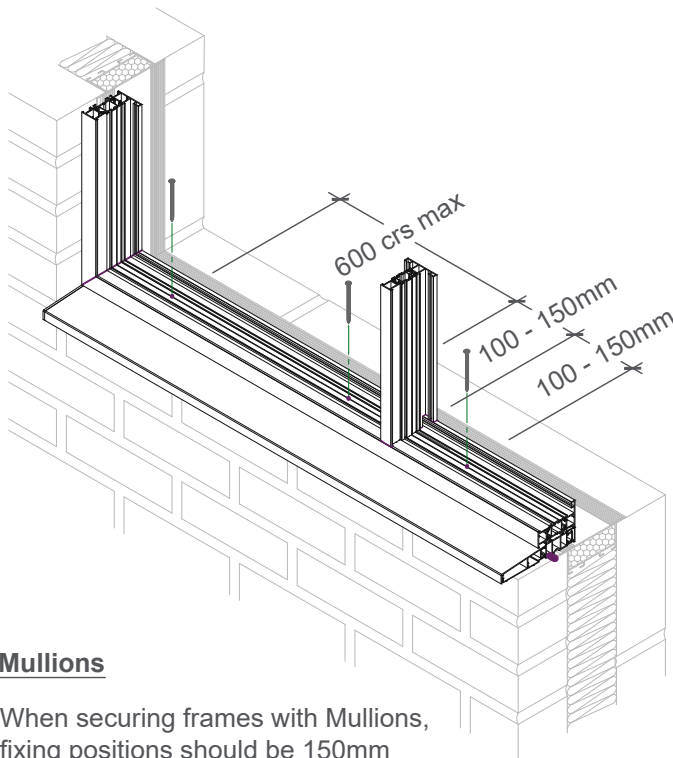
Direct fixings

Ensure screws are silicone dipped and countersunk to ensure they do not sit proud of the face of the profile. Take care not to over tighten the fixings.



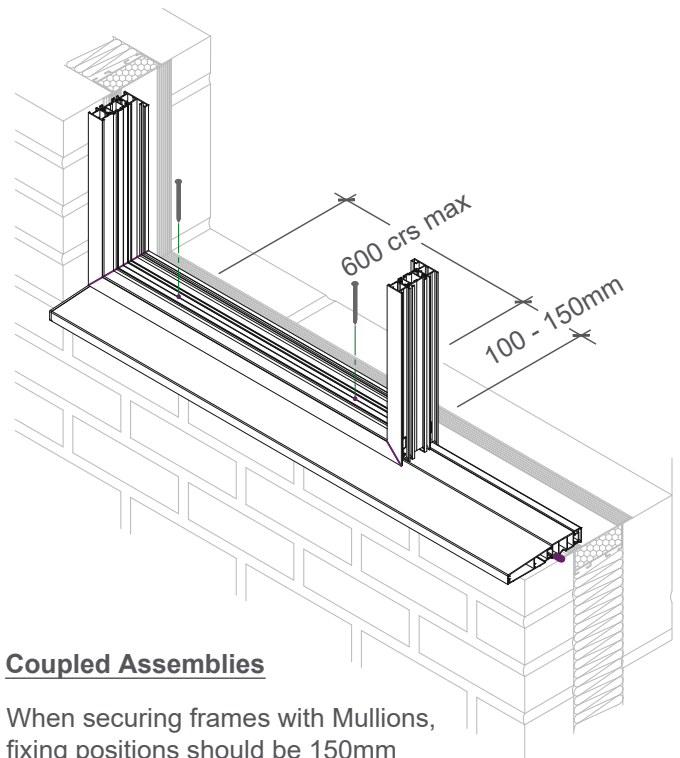
Lug fixings

Position appropriate height shims between the fixing lugs and aperture to ensure lugs are not bent.



Mullions

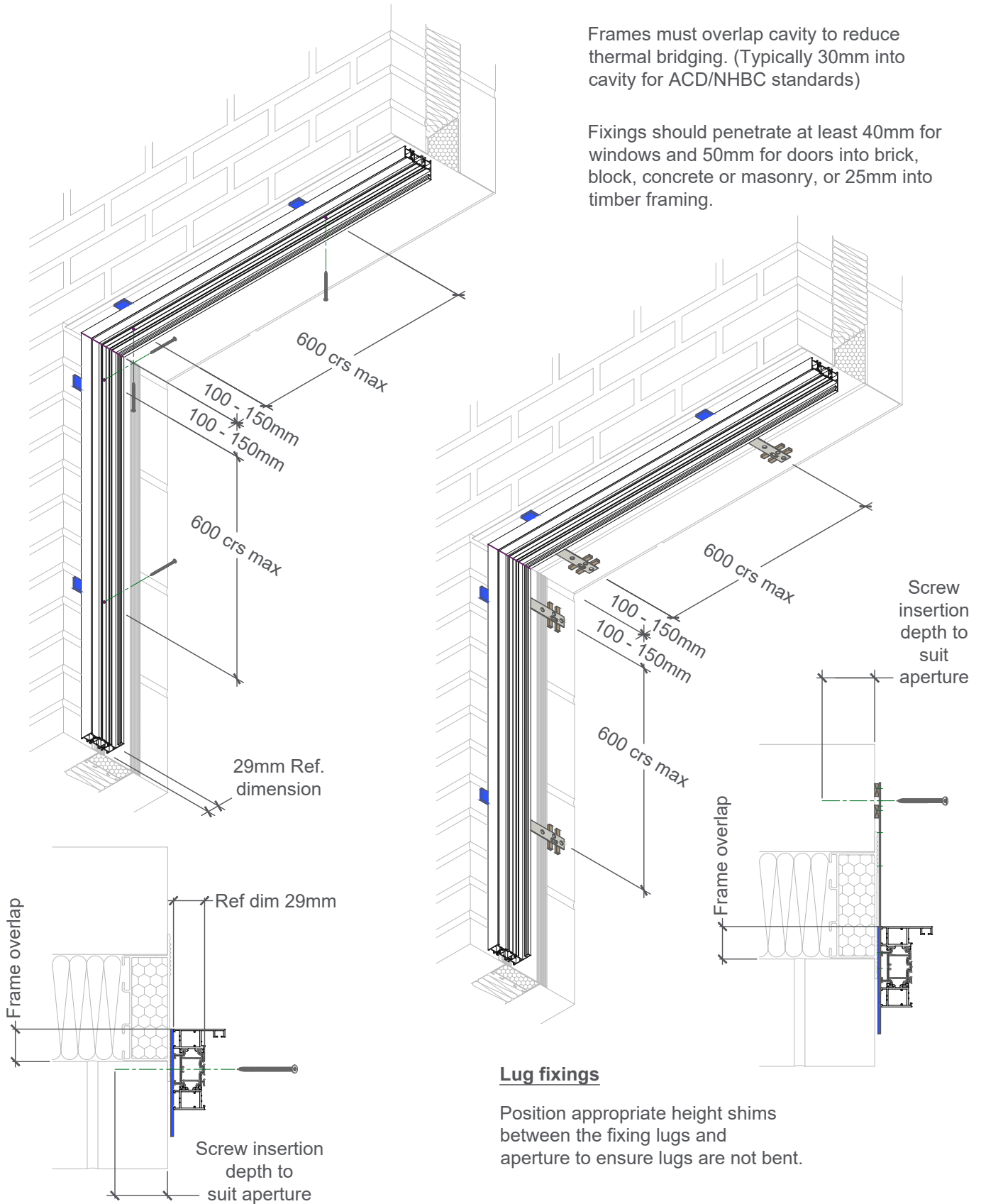
When securing frames with Mullions, fixing positions should be 150mm and 600mm max crs thereafter.

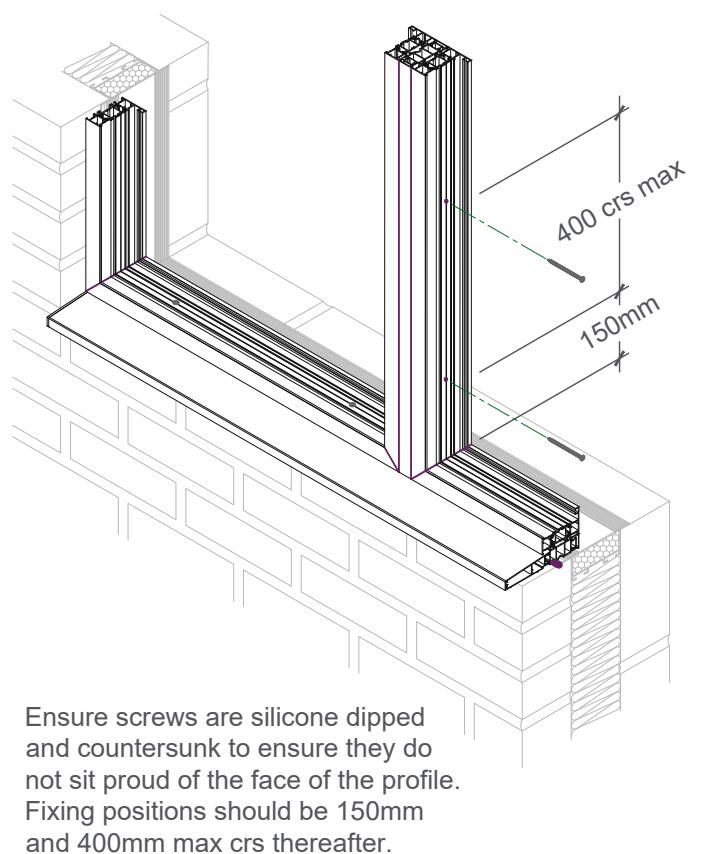
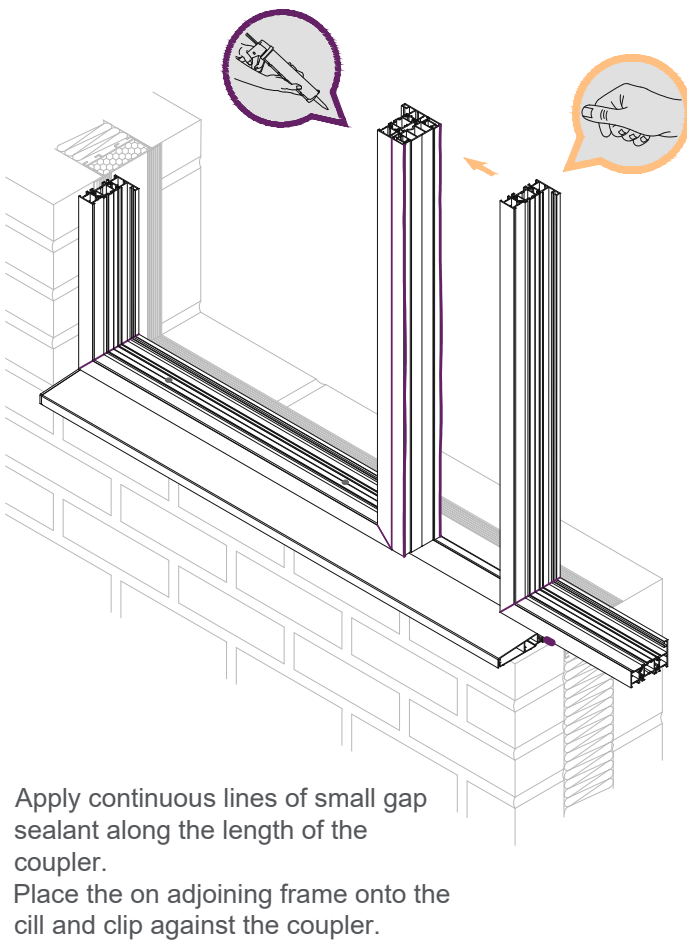
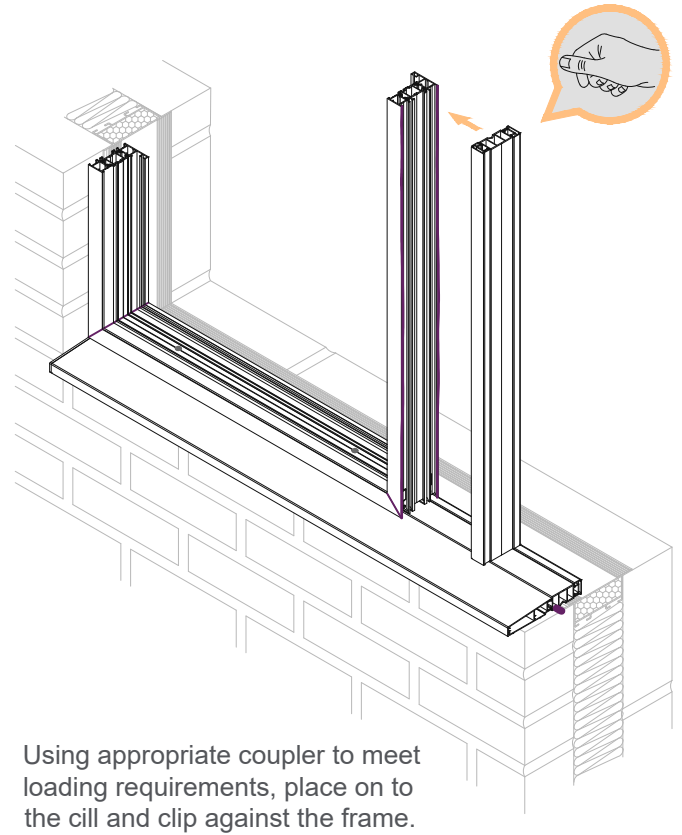
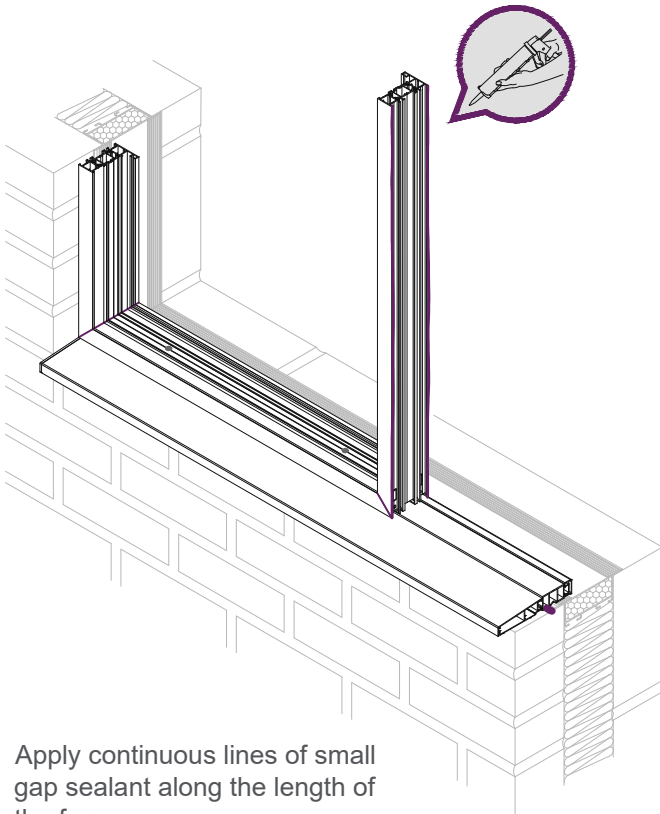


Coupled Assemblies

When securing frames with Mullions, fixing positions should be 150mm and 600mm max crs thereafter.

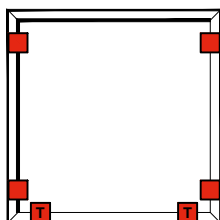
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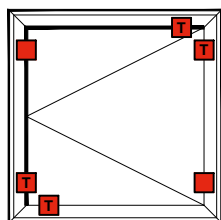


Key ■ APX.ANC.011 Glazing Packer

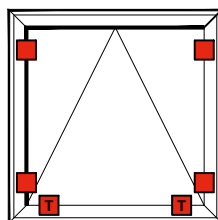
T APX.ANC.011 Glazing Packer for Toe & Heeling Requirements



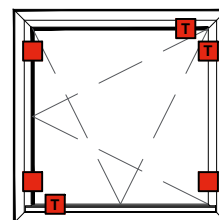
Fixed



Side Hung



Top Hung

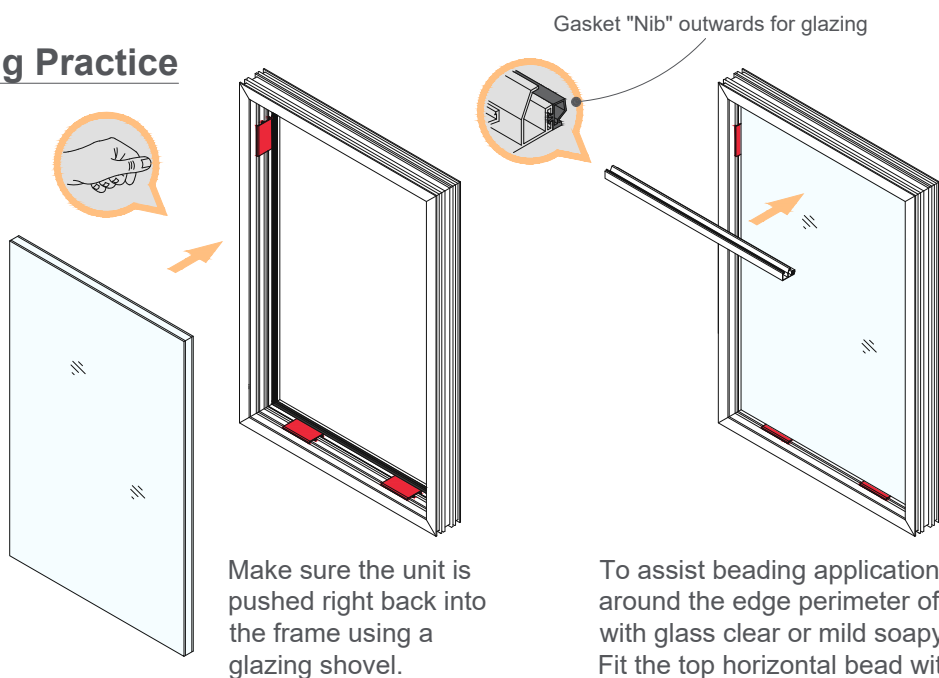


Tilt & Turn

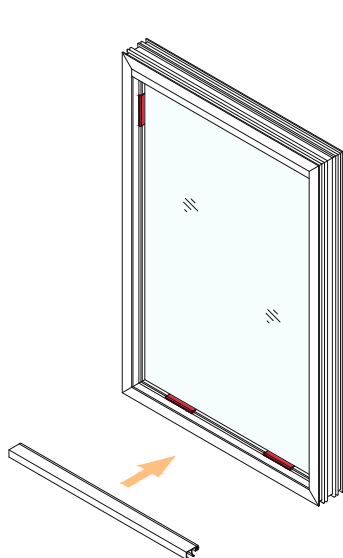
Recommended Glazing Practice

Any debris or brick dust will need to be cleaned from the frame and surrounding areas before prior to inserting the glazing.

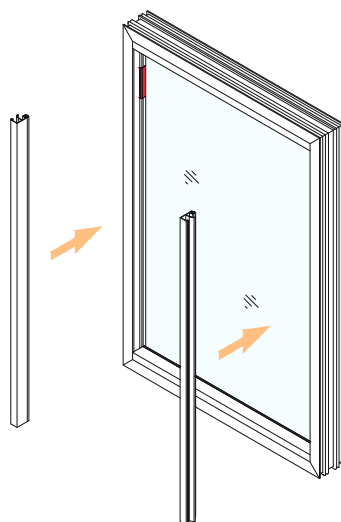
Using APX.ANC.011 glazing platforms, fit around the opening before fitting the glass, this will keep the glass square within the frame. Insert glazed unit into frame or sash. Additional packers can be used to lift the sash to the required height to ensure ease of use and equal seal around the frame.



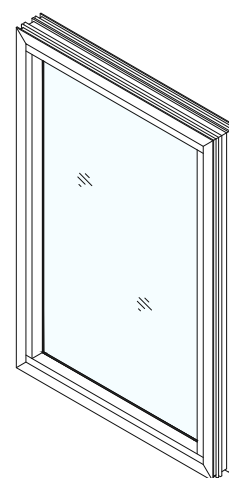
To assist beading applications, spray around the edge perimeter of the unit with glass clear or mild soapy solution. Fit the top horizontal bead with gasket first to hold the glazed unit in place.



Once secure, fit the bottom glazing bead & gasket (this bead will have drainage holes if externally beaded!).



Fit the two remaining vertical beads.

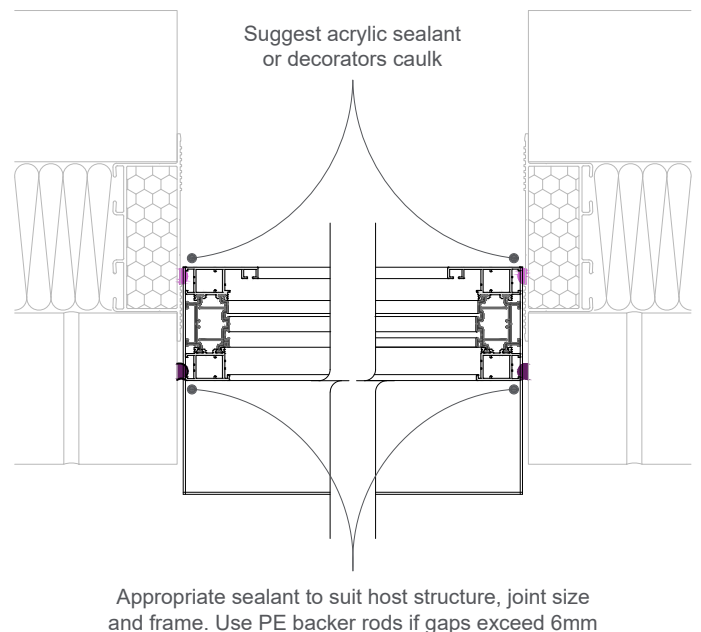
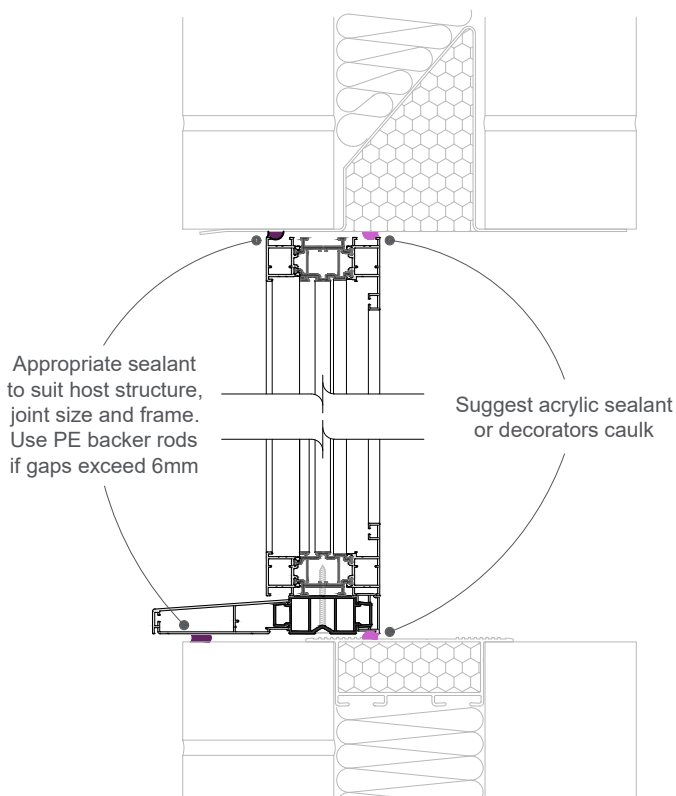
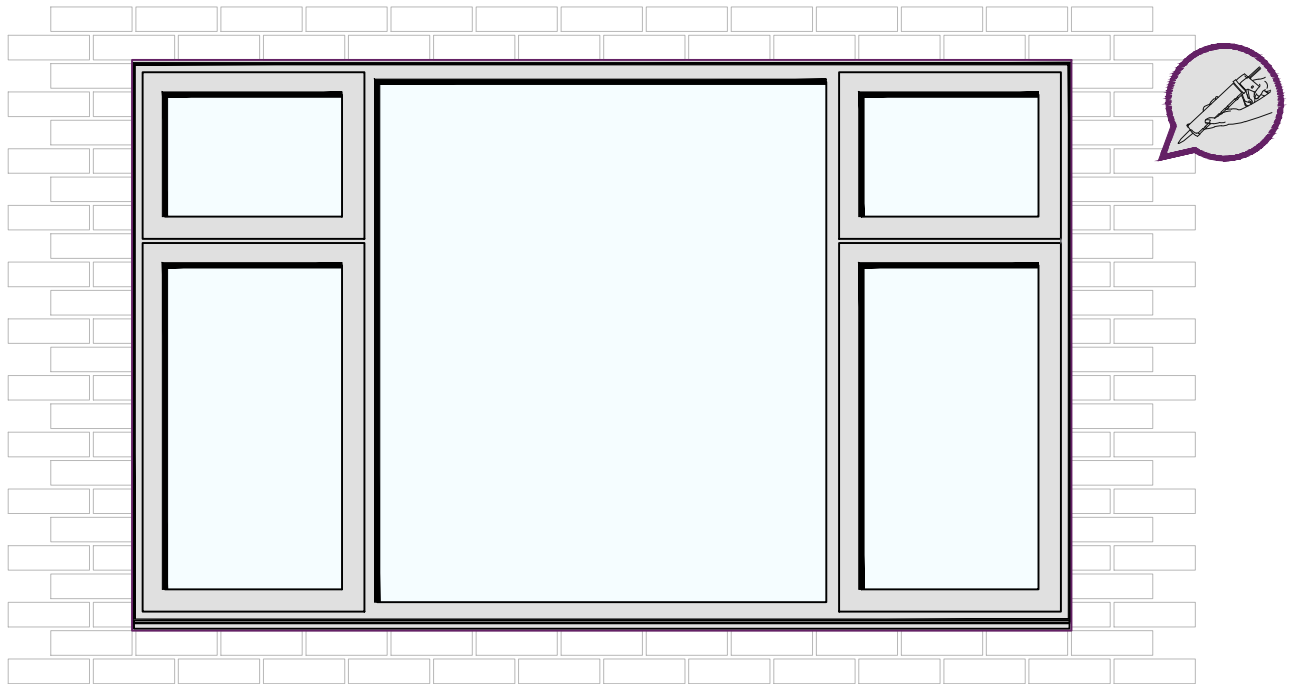


Alternate method: Start with glazing with bead where handle is located!

Perimeter Sealing

When all of the glass panes are fitted, clean the frame and glass to remove dust or grit prior to sealing internal and external sealing.

Sealing between the host structure and the window frame will be required to ensure a weather proof seal is created around the perimeter. Perimeter seals must be sealed from the outside using an appropriate sealant suitable for use in accordance within the manufacturer's guidelines.



Final Inspection Check List		Y/N
Visual appearance	Is the frame installed plumb and square?	
	Is the beading fitted correctly and evenly?	
	Are exposed faces, including beads, free from damage?	
	Is the frame clean with all protective tape removed?	
	Has any damage to aperture been correctly made good?	
	Have all trims been fitted correctly?	
	Has all site debris been removed?	
Glazing	Is all glazing as specified within the contract?	
	Do the sealed units meet current visual quality standards?	
	Are obscure and coated glassed oriented properly?	
	Are sealed unit spacer bars covered by frame and beads?	
	Is the glazing held properly by beads/gaskets, etc.?	
	Is safety glass used where necessary?	
Operation	Do all openers open, close and lock as intended?	
	Are seals on frames without gaps?	
	Are cams free from binding against strikers?	
	Is all operating gear lubricated as necessary?	
	Is all hardware attached with correct numbers of fixings?	
Sight lines	Are all sight lines visually correct?	
	Are adjacent opening lights aligned as appropriate?	
	Are all decorative features, e.g. leading, correctly aligned?	
Sealing	Are all joints smooth and correctly formed?	
	Is the sealant continuous around the frame?	
	Is the frame face free from excess sealant?	
Drainage	Are all drainage channels free from obstruction?	
Miscellaneous	Are all sill end caps fitted?	