

# uPVC Window Installation Guide

An industry guide to the correct installation of high performance uPVC windows for Australian conditions.

The uPVC Window Alliance ('the Alliance'), in conjunction with the Vinyl Council of Australia, is pleased to produce this industry guide for the installation of uPVC windows. The Alliance is committed to the promotion and uptake of high performance uPVC windows to suit Australia's unique and challenging climatic conditions.

## **uPVC Window Alliance**

The uPVC Windows Alliance is a member-led initiative of the Vinyl Council of Australia. Supported by leading profile manufacturers for the Australian market, the Alliance has built a solid member base of local fabricators, resellers, equipment suppliers and ancillary window products. The Alliance seeks to engage the construction supply chain and regulators, fostering awareness and market uptake of high performance uPVC window frames.

## **Vinyl Council Australia**

The Vinyl Council of Australia is a member-based organisation established in June 1998. It acts as the peak organisation representing the Australian PVC, or vinyl, value chain. Members are drawn from across the supply chain of the vinyl industry in Australia, representing a wide range of products.

The Vinyl Council is working to advance the sustainability of the PVC industry in Australia through sharing information on, and engaging with stakeholders regarding the life cycle of PVC.

## **Objective**

The Guide aims to support industry training and skill development in the correct installation of high performance uPVC window frames, maximizing energy efficiency performance and consumer return on investment.

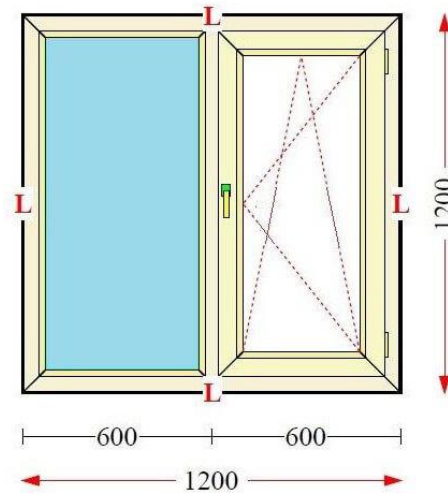
## **Acknowledgements**

The Vinyl Council of Australia recognizes the input and support of the uPVC Windows Alliance Taskforce and the Alliance Members in the development of this Guide.

## **Disclaimer:**

While the uPVC Windows Alliance has made every effort to ensure that the material within this guide is accurate, the uPVC Windows Alliance and Vinyl Council of Australia will not be liable for any mistakes, errors or omissions arising as a result of information contained in this guide.

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## Preparation

### Tools and materials

Required tools and materials for the correct installation of high performance uPVC windows:

- Driver
- Drill
- Levels (600mm/1200mm/2000mm), or self levelling laser
- Pry Bar/Pinch bar
- Personal protective equipment (PPE)

### Additional recommended tools and materials:

- Reveal lifters
- Glass suckers
- Lifting equipment

### Frame installation

- Hardened plastic packers (75mm Horseshoe packers in various sizes pink is DOC changes)
- Stainless steel or adequately coated steel screws
- Silicon / acrylic / expanding foam
- Angled Finishing Gun

### Glazing

- Bridging packers

### Flashing

Fit flashing to the window surround as required

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## Measurements and checks

- On arrival, check the measurements of the new frame.
- Measure the frame opening to ensure there is sufficient room for the new frame to be installed level, plumb and square, and allow for the handling of openers, sill size and additional packing etc. Clearance dimensions vary between manufacturer's products. For adequate clearance refer to the window manufacturer's instructions.

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## Window replacement – guidance on old frame removal

- Once satisfied that the frame is correct, begin the removal of the old frame.
- Put down dust sheets.
- Remove window furnishings if present and if there are paintings or pictures anywhere near the window that could get damaged remove them and put in a safe place.
- Take note of any low hanging light fittings that could get in the way and remove if necessary.
- With a sharp blade score between the back of the architrave and the plasterwork/Tiling to break the bond between the frame and the plaster, hopefully this should minimise the damage to any internal decorations.
- Internally, remove the architrave to protect the wall from potential damage and loosen the reveal so that the fixing pins can be cut
- Externally, cut the render lines so that the external render is not disrupted when removing the frame. Remove old fixings and break the external silicon seal with the blade in order to release the old frame.

- Take out as much glazing as possible in order to reduce weight and allow easier handling.
- Carefully remove the old window and timber reveal. Note: two people may be required for large windows/heavy lifts.
- After removal of the window, clean off all old sealant and debris from the window aperture.
- For double brick or block construction, if the old mortar bed at the sill is sound, it may be left in place if there is sufficient clearance. Measure the clearance and if it is not sufficient, remove the old mortar bed.
- Clean and check that the aperture is level. If it is not, level the aperture with packers so it is ready to take the new window.

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## High performance frame sealing

External finishing must be air and water tight, and be thermally insulated to maintain the high performance rating of the uPVC window. The use of expandable foam or foam tapes is recommended for a high performance seal, not just silicone.

### ***Option 1 – expandable foam tape for weather and air tightness and thermal insulation***

- Select tape size to match the gap between the window and structural opening
- Use a spray bottle to make wet the opening before applying expandable foam
- Apply expandable foam tape to the head and jambs of the window. The tape will expand to fully seal the gap between the wall and the window, following the contours of the reveal.
- Follow installation steps below.

## **Option 2 – weather seal tape, thermally insulating expandable foam and flexible window membrane for air tightness**

- Adhere the flexible membrane around all edges of the window frame and provide a 50mm material overlap so the membrane bonds without any gaps. Pinch corner folds and use a roller to adhere the membrane adhesive to the frame.
- Add fixing brackets.
- Follow installation steps below.

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### **New frame installation**

Do not stand on the windows, or use them as a support for scaffolding, or slide material through the frame. It is important to prevent damage to windows during construction

Do not permit the weight of eaves or arch bars to bear on any window frame. Windows are not load bearing.

- Remove packaging from the new frame.
- Remove sashes and install the new frame empty. Alternatively, keep sashes closed whilst installing frames.
- Carefully position the new frame into the aperture and centralize it.
- Windows must be installed square and plumb, with a deviation of no greater than 2mm over the course of the frame. This is particularly true for tilt and turn windows, as the high quantity of fittings must be working in unison for the window to function properly.
- Position packers between the frame and brickwork / timber studs / steel at the fixing points to level the frame, prevent its distortion and to maintain the expansion gap.

- Ensure that there is no torsion twisting of the frame when installing the window, as this can affect the operation of the sashes.
- Check that the window is level and plumb at every fixing point before fixing.
- To fix the window in place, pack and screw adequately coated steel screws to all four sides of the frame. The distance between screws or brackets should be no more than 600mm. At the corners, the distance to each screw/bracket should be no more than 200mm. Extra screws or brackets are also required at 150mm either side of a mullion.
- Seal any holes drilled through the bottom of the frame with silicon around the screw heads to prevent water ingress to the reinforcing area within the frame.
- If using Option 2 for High performance frame sealing (see below), fill the perimeter joint (between the membrane and the wall) with thermally insulating expandable foam.
- Remove the adhesive liner from the membrane edge and press firmly to the reveal on all sides of the frame. Seal the membrane overlap with a suitable sealant and use a roller to consolidate the bond.
- Using a chisel, break off the excess length of the packers to give a neat finish.
- Clean any brick dust or debris from the frame and surrounding area as required.

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## Internal finishing

- Fill the gap around the new window with expanding insulating foam to ensure the window is air and watertight
- Ensure the frame, glass and general area is clean and dust free to ensure good sealing bonds are made. When using cleaning agents, be sure to keep the room well ventilated.
- Cut and fit architraves around timber reveals affixed to the window frame
- Measure and fit any internal trims required using a suitable PVC adhesive or a bead of silicone
- Fix the timber reveal into place before installing the timber architrave. Use adequately coated steel screws (or nails) every 450mm centres to all four sides
- Run a strip of masking tape around the perimeter of the frame and apply a bead of sealant between the frame and the wall. Use an acrylic sealant or decorators cork internally to allow for painting / redecoration
- When all four sides have been sealed, and before the sealant sets, peel the tape away carefully for a neat finish.
- Check that all trims fitted are bonded to the frame to prevent dirt entering the joint.
- Clean up the inside working area and remove all materials, tools and, waste and debris.
- Replace any window furnishings that were removed.



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## External finishing

- Clean the external surfaces to remove dust and grit.
- For non-revealed systems, apply the end caps to the external sill using a suitable adhesive if required
- Fill gaps with expanding insulating foam, or foam tape between the reveals and the frame, and under the window-sill. If using foam tape, ensure the tape is measured to fit tightly in the space around the frame under the sill, and use a flat blade to make sure the tape is seated properly.
- Apply silicone to the edge and underside of the sill
- Measure, cut and install uPVC trim around the outside of the window to cover the foam from view.
- Silicone seal or foam tape may be used for external finishing if gaps are small (i.e. less than 5mm). Run a strip of masking tape to the frame perimeter and apply a bead of silicone sealant between the frame and brickwork. Before the sealant sets, remove the masking tape carefully for a neat finish.
- Clean up the outside working area and remove all materials, tools and, waste and debris.

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## Glazing

When installing a new window it is important to fit the glass units within the aperture correctly so that the opening sash works smoothly. The Toe and Heeling method should be used to:

- Fit glass into unglazed uPVC window frames,
- Check or adjust pre-glazed frames.
- Lift the double-glazed unit into place. Note: Two people may be required for a large window or heavy lift
- Fit packers into the frame to allow water to drain away under the units. Insert two bridging packers into the top corner on the handle side of the frame, and another pair in the bottom corner on the hinge side, ensuring that drainage packers are used on the bottom.
- Once in place, position the glass unit onto the drainage packers. Note that there should still be a gap between the edge of the glass and the other bridging packers.
- Push glazing packers in these gaps, ensuring that the unit remains square and parallel in the aperture, until it is firmly held in position and the sash opens and closes without catching on the frame.
- Once the sash is operating smoothly, apply silicone to secure all packers in place and to stop them moving during normal use.
- Fit the beads, using a rubber mallet to tap the short ones first. Then bow the longer beads into the corners and use the rubber mallet to tap them into place. Use spray bottle of glass cleaner to make it easier for beads to slide into place and give tight join between bead mitres.

- Tap the outside of the sash to bring the sash back parallel after beading. The same applies with mullions to straighten up.
- Open and close the sash again to make sure it is parallel and the window operates correctly.
- Fully open doors to make sure that they clear floor.

### Trouble-shooting:

- If the sash catches at the bottom, push more glazing packers in the top corner on the handle side. This will force the bottom up, allowing the sash to operate without it catching.
- If the sash is catching at the top, remove some glazing packers to lower the sash, allowing it to operate without catching.

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## Care and maintenance

- Maintain frames, glazing and hardware in accordance with window supplier's instructions.