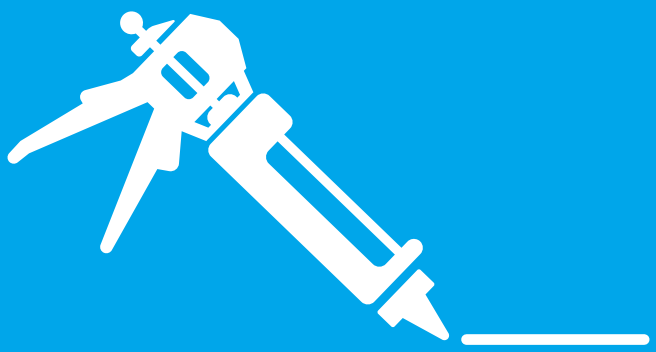


# PERIMETER SEALING

## To prevent air leakage, water penetration and to maintain a bond between frame and structure.

As buildings have become more energy efficient so the performance of the windows and doors has increased. Part of the solution to energy efficiency is to reduce both warm air leaking out and cold air leaking in and a good perimeter seal around the window will be paramount to achieving this primary objective. Most new buildings will be subject to a mandatory air test so thought must be given to how this can be met. We hope the following information will give you a basic understanding but we also advise speaking to a consultant or manufacturer of sealing products who can offer guidance with your particular project.

**Westcoast window products have exceptional water and air tightness performance. To warrant this investment they must be installed correctly with a complementary high performance air and watertight perimeter seal. Good quality control on site will make sure this seal lasts the lifetime of the building and will also offer the following benefits:**

- Draught free window openings
- Better thermal efficiency
- Better durability
- Improved acoustic performance
- Reduced risk of condensation and mould between window and aperture
- Improved build quality (less call backs to site)

## THINGS TO CONSIDER BEFORE SEALING

For all refurbishment projects remove all existing mastic/sealant and DPM /DPC as this can affect the performance of your chosen perimeter sealant.

Choose a sealant that is appropriate to the frame surface (timber/ PPC aluminium) and also the substrate (masonry, timber etc.) see recommended fixing materials page 39).

Consider how large the joint size is going to be and if the product can perform in these conditions. Anticipate any possible joint movement or settlement that may happen after installation.

If the sealant relies on atmospheric curing then do not overfill the joint. Do not overfill the gap with PU foam as this may distort the frame and impede operation of the window or door (see specific instruction over leaf).

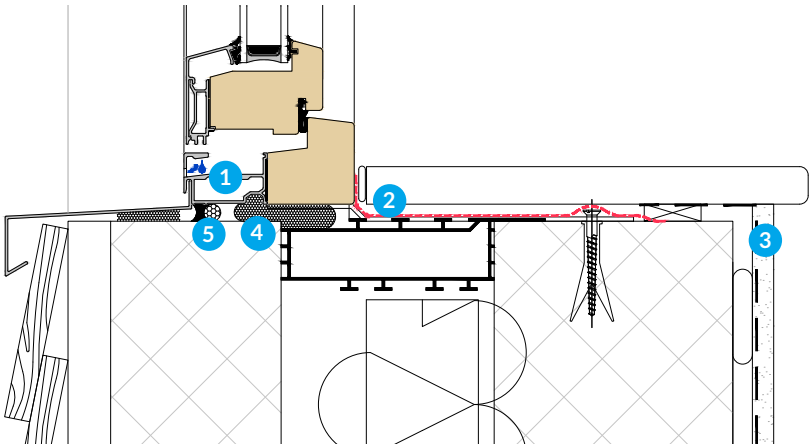
A foam seal alone cannot be used to create a perimeter seal. It can degrade when exposed to UV radiation from the sun.

# SEALING A WINDOW – OVERVIEW

The following drawings are examples of typical sealing details. The external seal is the primary defence against the weather and is either a traditional silicone sealant or a more modern intelligent compressible tape. They are both watertight and perform the same job but are distinct in that the impregnated tape is breathable. The tape allows the passage of moisture out from the joint, whereas the silicone is not breathable and must have a ventilation zone behind it. These are the basic methods of external sealing and secondary products can be added to enhance the weather and airtightness.

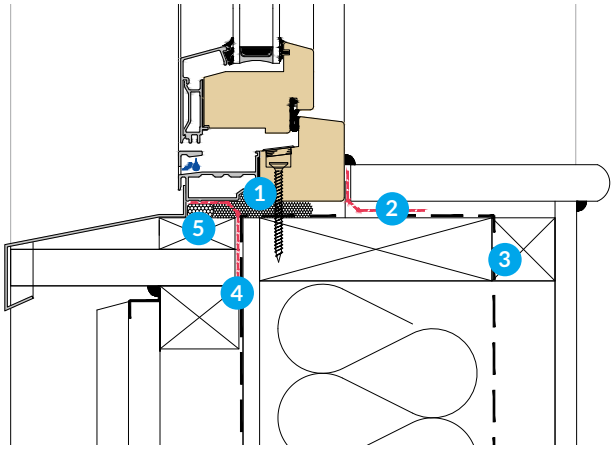
### SILICONE SEALANT PERIMETER

1. Ventilation zone (15mm)
2. Optional internal airtight membrane
3. Building vapour control layer (VCL)
4. Continuous PU foam seal
5. Silicone sealant bead on PU backing rod




### IMPREGNATED TAPE PERIMETER

1. Continuous PU foam seal
2. Optional internal airtight membrane
3. Building vapour control layer (VCL)
4. Optional external airtight membrane
5. Impregnated tape



# SEALING A WINDOW – IN MORE DETAIL

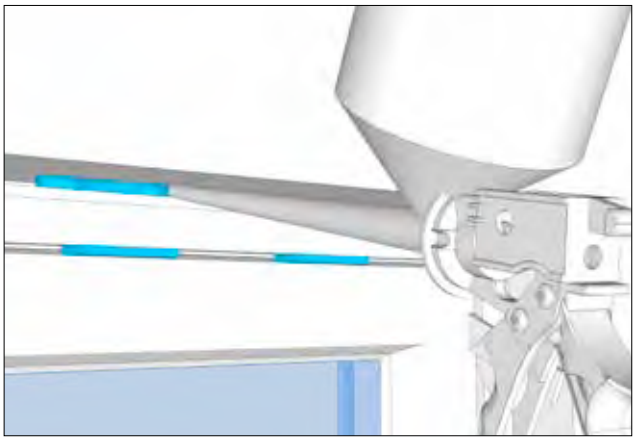
### PU FOAM SEALANT

Apply foam (gun grade) using a commercial applicator gun. This is best applied by an experienced installer as care must be taken not to over fill the gap. Remember the foam can expand many times its original size but try to aim for a depth of 50mm.

It's a good idea to spray the area to be foamed with water as this aids the expansion and adhesion of the foam. Please read the manufacturer's literature.

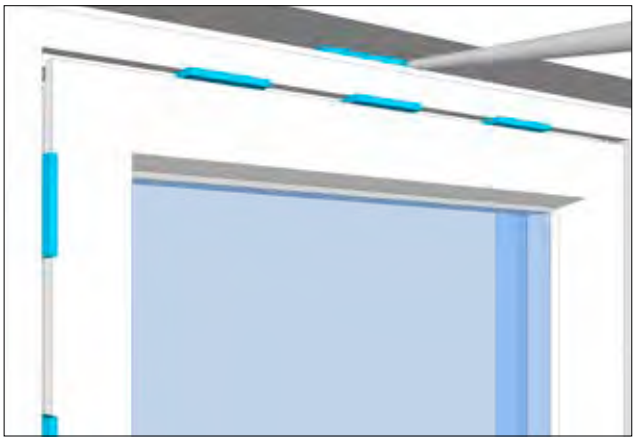
Wait for the foam to cure before using any external or internal sealant on top of it.

A well applied foam seal will create a watertight frame and a thermal barrier.



To prevent distortion of the frame when applying foam it is prudent to place packers between the sash and the frame. A 5mm or 6mm packer should be suitable.

The most helpful packer positions are along the centre point of the head rail, bottom rail and stiles of the frame as this is where the frame can be susceptible to bowing.



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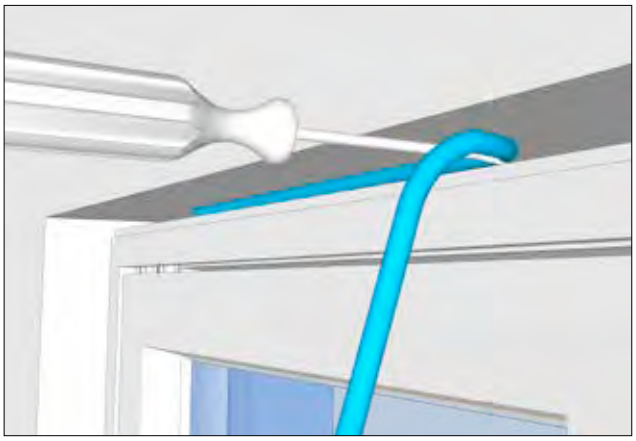
## IF APPLYING A SILICONE SEALANT

### BACKING ROD

Pack the closed cell backing rod into the joint to a depth recommended by the silicone manufacturer. Make sure it covers the full perimeter of the opening. Use a suitable tool to help you push it into the gap (nominal 10mm).

Remember to leave a ventilation gap between the backing rod and any PU foam seal that you have applied.

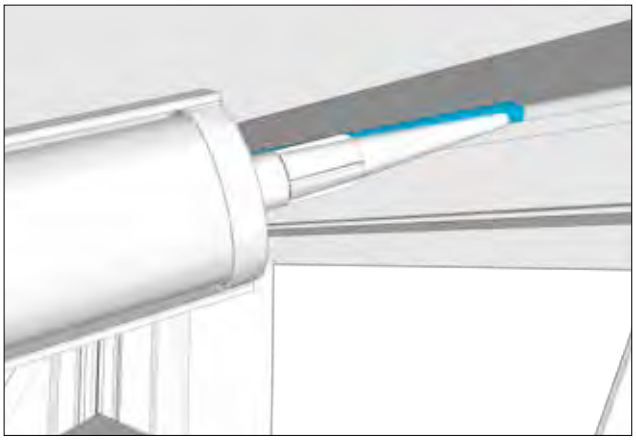


### SILICONE SEALANT (LOW MODULUS)

A continuous perimeter seal is then applied using a silicone gun onto the PU backing rod. Be careful not to make it too deep (maximum 10mm) as the sealant will need to be cured by exposure to the air.

Smooth the sealant down using a suitable tool or by hand.

**TIP** – Spray silicone bead with soapy water to help produce a smooth skin to the bead.



## ALWAYS READ THE SEALANT MANUFACTURER'S INSTRUCTIONS

## IF APPLYING AN IMPREGNATED TAPE

### TAPE

Tape can be applied before installing the window into the aperture or after installation. It is a personal choice but bear in mind how quickly the tape can expand.

Whichever method is used, the tape should be adhered to the same position on the frame – just back from the front of the aluminium section of the frame.

If applying tape before installing the window then a PU foam seal is best applied afterwards.

If applying tape after installation, then using a filler knife and spraying the joint with water can help insertion into the gap.

**Please read the following information from Illbruck who manufacture the leading brand of impregnated tapes – Compriband 600. Guidance is provided on choosing the correct tape for the joint depth and how to install the tape. The following points below will ensure a quality installation every time.**

- Always make sure tapes are pushed tightly into corners of the structure (make a loop in the tape at the corners as above).
- Never wrap the tape tightly around corners – leave a loop as in the picture above so the tape expands right into the corner.
- Never stretch tapes.
- Try not to join tapes.
- If joining tapes do not use mitred joints.
- If joining tapes make sure the ends are pushed tightly against each other.
- Always apply the correct sized tape to all parts of the window frame (head, cill and jambs in all instances).
- Once the tape has expanded fully, expanding foam can't then be applied.

For more information visit **www.Illbruck.com**

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### AIRTIGHT MEMBRANES

When a very low air leakage rate is required then the application for an airtight membrane is recommended. These are intelligent membranes that are airtight and weathertight but are permeable so they allow moisture to escape the building. They are sometimes called 'EPDM' membranes.

Membranes can be applied externally or internally depending on wall construction and purpose. Westcoast Windows recommend SIGA Fentrim products which are self adhesive. Full training is recommended by a SIGA representative to ensure the membrane is installed correctly to meet the critical air leakage compliance. (See recommended fixings page 39).