

Technical Bulletin

1006 - IGU Installation

March 2022 - V1.0



**Australian
GlassGroup®**

TB 1006 - IGU Installation

Cited National Standards

- **AS 4666:** Insulating Glass Units

Introduction

The insulating and energy saving characteristics of Insulating Glass Units (IGU's) are well documented, however their handling and installation require careful consideration, over and above those glazing methods often used for single glazed products.

IGU's can be manufactured in varying forms with a variety of seals and spacer materials. It is vital that these materials are compatible with glazing sealants and setting blocks used, and are glazed in such a manner to ensure they deliver the performance benefits over the life of the windows in which they feature.

The air space within an IGU is a hermetically sealed cavity (ie. it is sealed away from outside atmosphere and environment). The perimeter seals (Primary and Secondary) of an IGU is the only protection the air space has against the outside environmental factors. Framing systems which cater to single glazed window construction may need some modification to ensure that IGU's are glazed in a way to allow maximum protection of these seals.

Moisture exposure / inability to drain moisture is recognised as a major risk as well as non-compatible sealants and setting blocks.

Glazing systems for IGU's can be defined into two types, drained (eg. weep holes) and non drained. Glazing recommendations for both will differ.

Please read carefully and follow these basic steps before installation to ensure the IGU's that you install are both covered by our lengthy warranty (10 years), and given the best environment to survive the life of the window itself. A vital reference for all installers of IGU's should also be made to the current Australian standard for Insulated Glass Units, AS/NZS 4666-2012, with particular attention to section 3 "Glazing", and Appendices E – "Principles of Glazing" and F – "Glazing Methods."

In summary the essence of recommendations revolve around the following 3 principles:

- 1. Keep the edge seal away from water and water vapor**
- 2. Ensure the compatibility of glazing materials (Silicones/rubbers/setting blocks)**
- 3. Protect the edge seal from Sunlight**

"The life span of IGU's may be significantly reduced if they are installed incorrectly. In addition, manufacturer's warranties against seal failure may be invalidated if the insulating glass unit is installed incorrectly. Therefore, it is important to ensure the glazing system is suitable." – AS 4666

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Handling & Storage

- Stack on edge in a vertical position at 90° to its base support, which is inclined at 5°, with cushioning between floor and edges.
- Do not stack more than six (6) deep without intermediate support for each stack.
- Store in a dry environment away from direct sunlight. Prolonged exposure to dampness may affect IGU seals and lead to product breakdown.
- Do not cover with plastic, as condensation may damage edge seals.
- Never store or transport horizontally.
- Carefully remove all labels after glazing. Large dark coloured labels can be a source of heat absorption and give cause for thermal risk when used in conjunction with annealed components.
- Do not damage edges in any way before or during installation. Even minor local shelling may increase risk of glass breakage.
- Never attempt to nip or grind edges, as this can damage the seals and lead to glass breakage.
- Damaged IGU's must not be glazed.
- Protect IGU's during building works. Guard against contact with wet cement or other alkaline materials released during rain from concrete or masonry, as this can cause staining.
- If glazing in high altitude locations, units may require pressure equalization tubes (also known as capillary tubes). This must be noted on the purchase order. Please contact our sales office should you require more information.

Installation

Frames

Frames, beads and fixings must be adequate to support and restrain IGU's, withstand wind loadings, IGU weight and building movements:

- Ensure all glass framing members are plumb and square.
- Width of the frame rebate must be sufficient to accommodate the thickness of the IGU, plus face clearance plus bead.
- Never force units into the frame.
- Ensure glazing rebates and drainage weep holes are free from debris and obstructions.
- Glazing surfaces must be free of moisture, oil, dirt, grease and other contaminant material.
- Screws, bolts or other obstructions must not protrude into the glazing channel.

Clearances

IGU's must have adequate edge clearance for the full thickness of the unit:

- Setting blocks must allow drainage to pass to weep holes.
- Any point loading must be prevented.
- Edge cover should be a minimum of 12mm.

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Sealing and Drainage

In the case of un-drained systems, all external junctions of glass and frame must be effectively sealed against penetration of weather:

- Glazing materials must achieve watertight glazing seals over the life of the warranty period.
- Water / moisture cannot be allowed to enter inside the glazing, as it will enter into the seal construction as water vapor and reduce the life-time of the sealed airspace.

In the case of drained systems:

- Install IGU's so that lodgement of water in the frame is prevented in the proximity of the edge, as prolonged contact with moisture may lead to seal failure.
- Ensure rebates are well drained and can operate over the life of the warranty period.
- Ensure there are no nails or similar material within the rebate.
- Timber or concrete frames, where in contact with glazing compounds, must be completely sealed with an appropriate sealer.

A list of compatible glazing sealants for both polysulfide and structural silicone sealants are separately available and should be checked for compatibility.

Setting Blocks

IGU's must be centrally located in the frame, with the bottom edge resting on two full-width setting blocks:

- Setting blocks must be at least the full width plus 3mm greater than the unit thickness.
- When pushed hard against the back of the rebate, they must fully support the bottom edge of the unit across its full width.
- Use minimum 3mm thick (for residential applications) and 6mm thick (for commercial applications) non-absorbent, resilient neoprene, santoprene or EPDM, 85 ±5 shore - A hardness.
- The minimum length of each setting block (or two blocks side by side) shall be 25mm in length for every square metre of unit area, with a minimum length of 50mm.
- Composition of setting blocks must be compatible with the IGU edge seal.
- With the exception of pivot sashes, place setting blocks one quarter of the frame length in from each corner, or 150mm from corners, whichever is greater.
- For pivot sashes, setting blocks should be placed over the pivot point.

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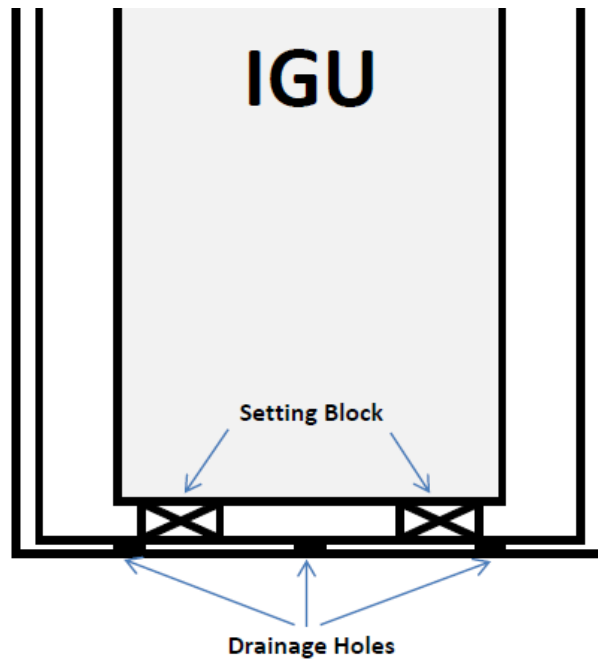
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Setting Block Position

- One Quarter of the frame length in from each corner or 150mm from corners, whichever dimension is greater.



Environmental Conditions

Protect polysulphide IGU edge seals from UV rays (commonly found in natural sunlight), which may break down the compounds contained within the seals. Where edge seals are exposed, it is crucial to specify structural silicone seals which are designed to withstand this UV exposure in external conditions.

Do not expose IGUs to chemical fumes or gases other than those present in normal clean atmospheric air, or to radiation of any type other than normal sunlight.

Important summary note:

All units are covered by our warranty against manufacturing defects (listed separately). Should any IGU panels exhibit traces of internal moisture or break-down, an investigation must be made as to the cause. In the case of drained systems, any traces of moisture need a clear path to drain away and will need to be demonstrated.

In the case of un-drained systems (more common with timber windows) upon removal of glazing beads and seals, internal glazing pockets and materials need to be free of any moisture or traces of moisture. In respect to glazing recommendations for non-drained systems we confirm and re-enforce the need for systems to prevent any chance of moisture from entering inside the glazing system for the term of the warranty.

Any IGU installed outside the above guidelines, allowing secondary seals to have prolonged exposure directly to moisture or moisture vapor, will not be covered by the product warranty.

The Australian Glass Group is a founding member of the Insulating Glass Manufacturers Association (IGMA) with full compliance under the requirements of **AS 4666: Insulating Glass Units**.

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