

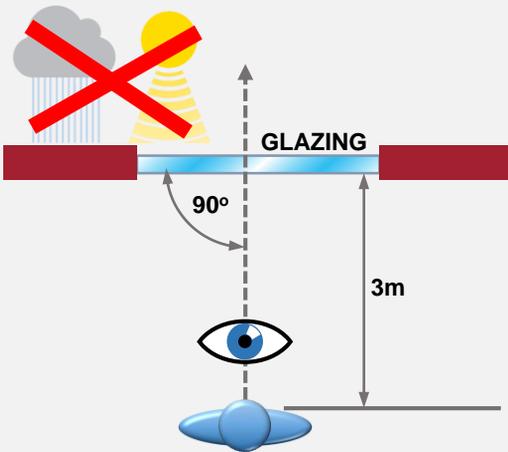
# QUALITY CRITERIA FOR INSTALLED IGUs

This guide has been produced to help answer many of the common questions which arise once glazing has been installed.

The inherent material properties of glass, and the many different processes it goes through to deliver the final performance characteristics, can sometimes affect the appearance of the installed product.

The manufacturing standards for the production of glass and glazing define what is and isn't acceptable.

Here we explain how to check your glazing – why you may notice certain things and when you might need to contact your supplier/installer.



IGUs with loose material or foreign bodies inside the cavity between the glass panes are unacceptable.

## How to conduct a visual inspection

The Insulating Glass Unit (IGU) conformity assessment should be carried out in the conditions described in British Standard (BS EN 1279-1, Annex F) and the Glass and Glazing Federation (GGF) observation guidelines, detailed below;

Stand 3 metres away from the unit to be inspected on the room side and at right angles (90°) to the glass surface.

Look through the glass, not directly at it, in a vertical plane. Do this in diffused natural daylight – but not in direct sunlight or artificial lighting – and when the glass is completely dry.

The time allowed to spot defects is 1 minute per m<sup>2</sup> of glass.

Magnifying devices and strong light sources are not permitted during the observation. All defects must first be identified at a distance of 3m and not within a closer range.

If a defect is not visible at 3m or it takes longer than the time limit to identify it will **not** be considered as a fault

## Spot faults / Seeds

These include “bubbles”, stones and “seeds”; and are evaluated by identifying the quantity and size of the inclusions. Limits as per the chart;



Diameter of Spot fault / Seed	Size of the Window Pane in m <sup>2</sup>			
	1m <sup>2</sup> or less	Larger than 1m <sup>2</sup> and 2m <sup>2</sup> or less	Larger than 2m <sup>2</sup> and 3m <sup>2</sup> or less	Larger than 3m <sup>2</sup>
1mm or less	Acceptable if less than 3 in each area of 20cm diameter			
1mm to 2mm	2	3	4	5 + 2 for each extra m <sup>2</sup>
Over 2mm	Not allowed			

For Triple glazed units the allowable number of faults is multiplied by 1.25  
If there is a laminated pane the allowable number of faults is multiplied by 1.25

## Scratches

Individual scratches are permitted up to 15mm long but no more than 45mm combined length in the whole unit.

Hairline scratches are allowed if they do not form a cluster

## Distortion, Haze and Reflections

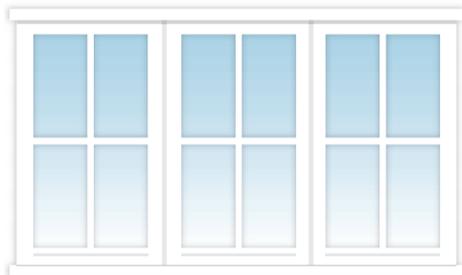
The panes of an IGU will bow in or out due to barometric pressure and where a pane is toughened there may also be a slight unevenness to the glass surface (roller wave). This is not considered a fault.

Under some lighting conditions the heat reflecting coatings on the glass may appear hazy or cause multiple reflections to be observed. This effect can be amplified by triple glazing. This is not considered a fault.

## Safety glass marking

Panes of glass certified as safety products (toughened or laminated) are legally required to show a mark indicating the appropriate safety rating. GLASSOLUTIONS do not guarantee that these marks will all be in the same corner of the unit.

Stamps on Laminated glass and Toughened glass panes will look different.



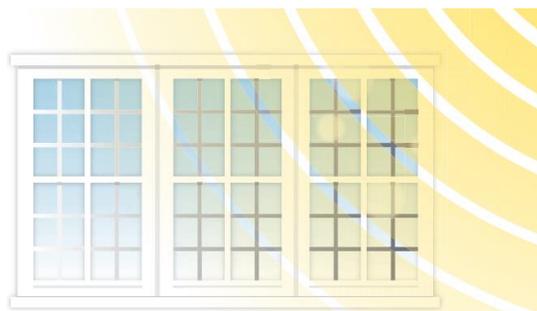
## Georgian and Duplex bars

Georgian or Duplex bars can sometimes rattle against the glass, this is normal and unpreventable when the unit is subject to external vibration such as opening or closing the window/door or when there are strong gusts of wind.

Duplex bars and Georgian bar inserts will be manufactured with a positional tolerance of +/-2mm

## External Lead

Lead has to age before it achieves its familiar grey colour. This process is called patination and can cause a white powder to form on the lead surface. This powder can be wiped off or rain may cause a white run-off from the lead. This is perfectly natural and any temporary blemishes will eventually disappear once the patination process completes.



## Condensation

**If you see condensation forming on your glazing wipe the inside and outside of the unit with a dry cloth and observe if or where the cloth gets wet;**

**If the cloth gets wet wiping the glass on the outside of the building this is external unit condensation;**

Condensation forming on the outdoor face is a positive indicator of the thermal efficiency of the glazing. Heat is prevented from leaving the building so the outer pane of glass remains cold causing condensation to form. This often happens in specific weather conditions, typically misty mornings. This is not an IGU fault.

**If the cloth gets wet wiping the side facing into the room then this is internal building condensation;**

Condensation forming on the glass surface facing the room is due to warm, moist air trapped in the building. This indicates a problem with the building itself suggesting that increased air ventilation is required. The condensation on the glass is a symptom of this trapped warm moist air and not a fault of the IGU

**If the cloth remains dry this indicates the condensation is Inside the cavity**

Condensation inside the cavity indicates the IGU seal has broken down. This is a failure of the IGU seals and if the unit is still under warranty contact your installer.

For further advice and information on condensation see the Glass and Glazing Federation leaflet from [www.ggf.org.uk](http://www.ggf.org.uk)



## Cleaning best practice

Use mild, non-abrasive glass cleaner, uniformly apply the solution to surfaces by spraying or with a clean brush, grit-free cloth or grit-free sponge.

Using a circular motion and light to medium pressure, wipe the cleaning solution on the glass. Rinse the glass immediately with generous amounts of clean water making sure to remove all the cleaning solution.

Use a clean lint-free cloth or a squeegee to dry the glass surface.

Care should be taken to ensure that no metal parts of the cleaning equipment, e.g. blades, make contact with the glass surface and that no abrasive particles are trapped between the glass and cleaning materials.

If residues are still present on the glass the steps above should be repeated.

Abrasive cleaners, powder based cleaners, scouring pads or other harsh materials should not be used to clean the glass or frame surrounds