

Quality Criteria for Insulating Glass Units

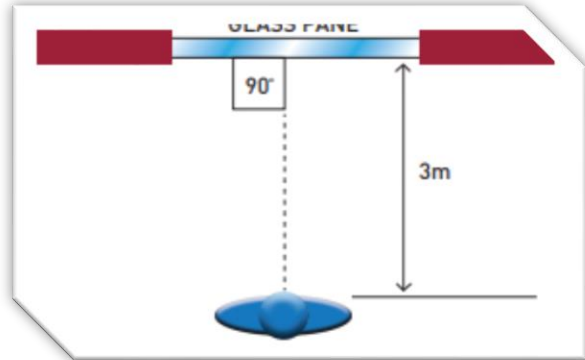
Glass Systems is the UK's leading manufacturer of insulating glass units.

To maintain confidence in the quality of our products we have decided to share information about the inherent material properties of glass, and how the many different processes it goes through, can sometimes affect the appearance of the installed product.

That's why we have created this simple observation guide based on the British product standards and the Glass and Glazing Federation (GGF) observation guidelines (freely available from www.ggf.org.uk).

How to do a professional check ...

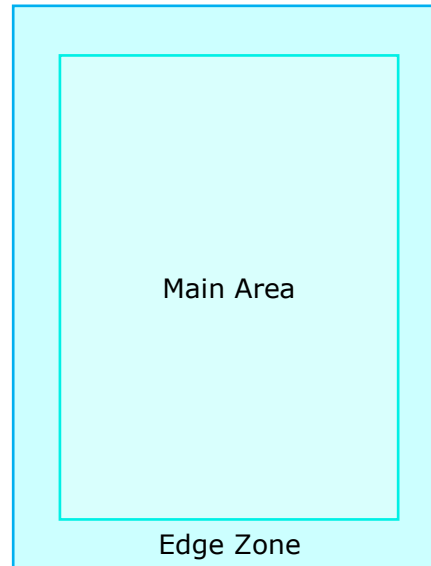
- Stand in the room no less than 2 metres away from the IGU and look directly through it.
- For toughened, laminated or coated glasses, stand no less than 3 meters away.
- Do so in natural daylight, but not directly towards the sun and with no visible moisture on the surface of the glass.
- Where it is not possible to stand at the right distance then stand as far away as you can from the IGU.
- Glass must be viewed at 90° to the window.



It is not permissible to find defects at a closer range and then mark them to be visible from given distance

In a visual observation you look through the glass, not at it. Any defects should be identified within 20 seconds.

If the defect is not visible at the specified distance, or it takes longer than the time limit to identify, it is regarded as neither obtrusive nor visually disturbing.



The area to be viewed is the main viewing area except for the edge zone (5% of W x H or 50mm which ever is greater)

What to expect when viewed as described...

Flat transparent glass, including laminated or toughened (tempered) or coated glass is acceptable if the following are neither obtrusive nor bunched:

- bubbles or blisters
- fine scratches not more than 25mm long
- minute particles.

The obtrusiveness of blemishes is judged by looking **through** the glass, not at it, under natural light. It must be understood that the glass used in double glazing is a processed glass, and so consequently, blemishes are to be expected.

Insulating glass units with optical defects such as smears, fingerprints or other dirt on the cavity faces of the glass, or extraneous material in the cavity are unacceptable, except in some cases where small particles of desiccant can be seen.

Special glasses

Toughened glass may show visual distortions which are accentuated by reflections in double glazing. Such surface colourations and patterns do not indicate a change in physical performance.

Laminated glass may have a few more blemishes due to it being made of several layers.

Patterned glass

The above does not apply to patterned glass as its manufacturing process is different.



Roller pluck/pickup (toughened glass only)

The toughening process involves heated glass being in contact with rollers in the furnace, this may result in small imprints in the glass surface. This may be more pronounced in thicker glasses.

Roller wave (toughened glass only)

The toughening furnace rollers may also cause a slight unevenness in the glass surface this is inherent to the process of toughening glass

Thermal fracture

Thermal stress breaks occur when there is a temperature variance in the body of the glass. The risk of thermal fracture is increased in installations with deep partial shadow, back-up (e.g., posters, furniture against the glass), blinds, applied films, heaters or air conditioners directed onto the glass.

Haze

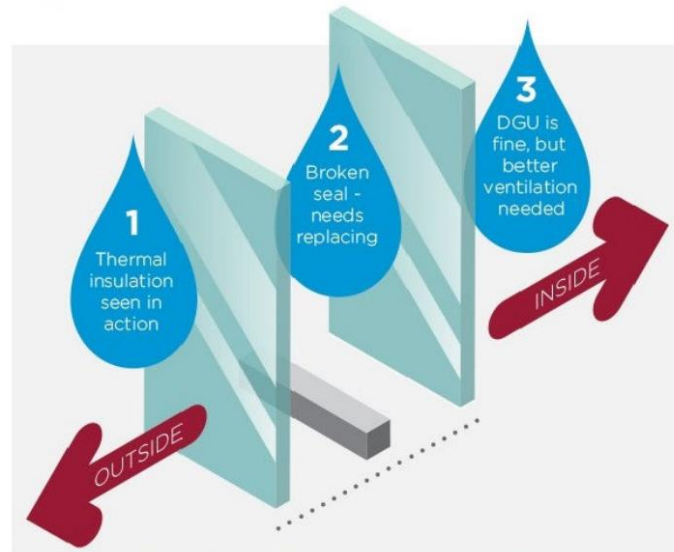
Under certain lighting conditions and viewing angles some coatings or laminated products may exhibit a phenomenon known as haze (a cloudy/dusty appearance). This is not a fault.

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 not a fault.

Internal Condensation inside the cavity indicates the IGU seal has broken down; this is a failure of the IGU.

Condensation forming on the outdoor face is a positive indicator of the thermal efficiency of the glazing. This is not an IGU fault.



Safety glass marking

Individual panes of glass certified as safety products will each carry the appropriate mark relevant to the product.

Glass Systems **do not** guarantee that these marks will all be in the same corner of the unit or that they will align through the unit.

Leaded units

The lead on leaded units will oxidise (white powder) over time – this is perfectly natural, and the temporary blemishes will eventually disappear as the patination process continues. The powder can safely be wiped off from time to time until the natural patination process is complete.