



Visual quality standard for installed insulating glass units constructed from flat transparent glass

- 1 Transparent glass used in the manufacture of insulating glass units is identical to that used traditionally for single glass and will therefore, have a similar level of quality.
- 2 Both panes of the sealed unit shall be viewed at right angles to the glass from the room side, standing at a distance of not less than 2 metres in natural daylight and not in direct sunlight. For units incorporating toughened, laminated or coated glass. The viewing distance will be no less than 3 metres. The area to be viewed is the normal vision area with the exception of a 50mm wide band around the perimeter of the unit.
- 3 Flat transparent glass including laminated or toughened, shall be deemed acceptable if the following phenomena are neither obtrusive nor bunched: totally enclosed seeds, bubbles or blisters: hairlines or blobs: fine scratches not more than 25mm long: minute embedded particles. Obtrusiveness of blemishes shall be judged by looking through the glass, not at it. These will be looked at under the lighting conditions described in paragraph 2.
- 4 When thermally toughened glass is viewed by reflection the effect of the toughening process may be seen under certain lighting conditions. The visibility of surface colouration or patterns does not indicate deterioration in the physical performance of the toughened glass. Because of the nature of the toughening process distortion will be accentuated when the glass is viewed in reflection or incorporated in insulating glass units.
- 5 Visible double reflection can occur under certain lighting aspect conditions, especially when viewed from an angle. This is an optical phenomenon arising from multiple surface reflections in sealed units.
- 6 The manufacture of flat laminated glass does not usually affect the visual quality of the glass incorporated in insulating sealed units. However the faults generally accepted in paragraph 3 may be increased in number if several glasses and interlayers are used in the production of laminated glass. When viewed under certain light conditions, insulating glass units may show a distortion effect caused by reflection on the multiple surfaces of the components of the laminated glass.

BREWSTER'S FRINGES

The appearance of the optical phenomenon known as Brewster's fringes is not a defect of the glass and can occur with any glass of high optical and surface quality. The phenomenon is a result of the high quality now being achieved worldwide by modern methods of glass manufacture. Brewster's fringes occur if wavelengths of light meet up with each other when they are exactly 180° out of phase- an example of the phenomenon known to physicists as the interference of light. The effect is similar to although usually much smaller than the interference fringes which can sometimes be seen on toughened glass windscreens. Brewster's fringes occur when the surfaces of the glass are flat and the two panes of glass are parallel to each other. This phenomenon is not a defect of the product, being dependent on the laws of physics and not on the quality of the insulating glass. In fact it arises because modern glass made by the float process is flat, therefore free of distortion inherent in sheet glass.

Note:- Patterned glass

The above criteria do not apply to patterned glass as due to the method of manufacture imperfections such as seeds and bubbles are deemed acceptable.

Edge deletion

The removal of coating, often referred to as edge-deletion or edge stripping, is often required for sputtered or soft coated glass, because the coating is not always sufficiently durable and resistant to the service environment, or the adhesion of the secondary sealant to the coating may compromise the estimated service life if the insulating glass unit.

In order to ensure the optimum performance of an insulating glass unit it is important to meet requirements for long term stability. Therefore the stripping has to be done efficiently following the recommendations of the particular supplier.

In general there are four different methods for the removal of soft coating on glass:

- Mechanical removal (Abrasion/grinding)
- Chemical removal. (Acid)
- Thermal removal (Flame)
- Masking the glass edge before coating application.

Grinding has proven to be most productive and economical method of removing a narrow strip of the coating from the perimeter of the glass.

The selection of the correct edge deletion width is very important; it is normally recommended that the coating be completely removed around the perimeter of the glass. The coating should be deleted to a width that does not contact the secondary sealant and is a minimum of half the primary polyisobutylene sealant depth.

The standard sight line for insulating glass units is 12mm +2, -2, which generally consists of an average 5mm polyisobutylene primary seal and the remainder of polysulphide or silicone secondary seal. If the glazing is required to be part of a structurally glazed system, where silicone sealant is being used the secondary depth may vary from 8mm upward, which determines the coating width to be removed.

The choice of deletion width is limited to the width of the abrasive wheels available this may result in one of two situations with regard to the aesthetic appearance of the insulating glass when in situ. Where the edges are not included within the glazing rebate and the coating overlaps slightly onto the primary isobutylene seal a silver, red or gold band may be apparent below the sightline of the unit. When the coating is stripped beyond the primary seal a clear band may be visible around the perimeter sightline when viewed from inside the building and the seal system may be clearly seen when viewed from outside the building.

The whole of the edge stripped area may be included within the rebate of captive systems or not dependant on the rebate depths. However where the edges may be structurally bonded back to the glazing frame on one, two, three or four edges and where there are no external cover plates the edge seal detail will also be visible.

We would like to take this opportunity to thank you for past custom and look forward to working with you in the future.



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