

LOW-E GLASS DESIGN & GLAZING NOTES



Coating Position - For single glazed low-E glass, the coating should always be facing the inside of the building with no prolonged contact with moisture or direct weathering. To aid correct specification and make-ups an industry numbering sequence is used which identifies glass surface positions for the coatings e.g., #1,2,3,4 as shown Fig's 1-4. For single monolithic low-E glass the default position is #2 and for single low-E laminated is #4. The low-E coated surface needs to be air side for it to function in relation to thermal heat control (U-value). It is possible to make-up a laminated glass such that the coating is #2 or #3. The coating would now be sandwiched between the two glass panels and would lose its thermal control function (eg., the U-value would be the same as that of ordinary non-coated single glass). This same make-up does not retain all of the solar control properties (SHGC value) you have when the coating is normally on #4.

For IGU's the general rule is that the low-E coating is always surface position #2 (facing the IGU cavity). This provides optimal solar control whilst protecting the coating itself.

FIG.1 SINGLE LOW-E

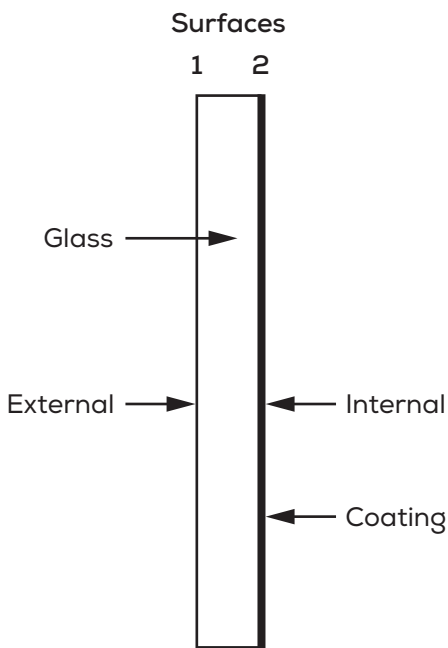


FIG.2 SINGLE LOW-E LAMINATED

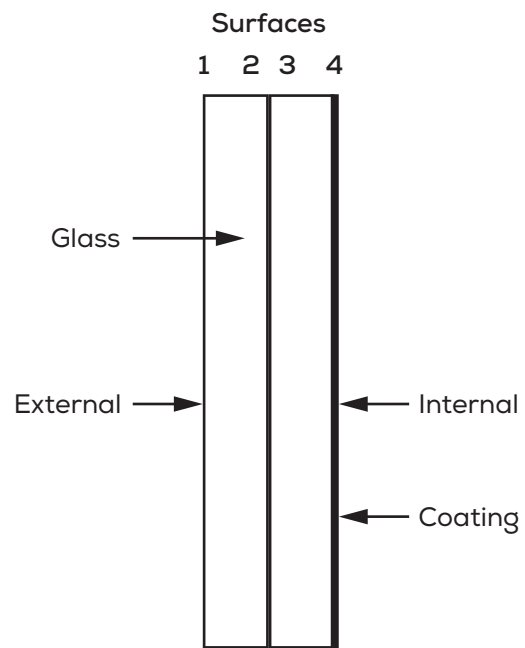


FIG.3 IGU LOW-E

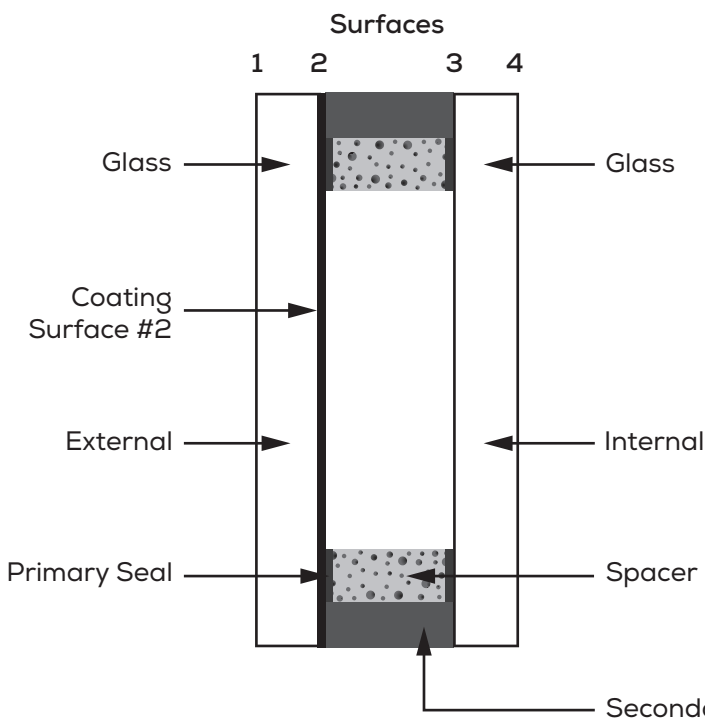
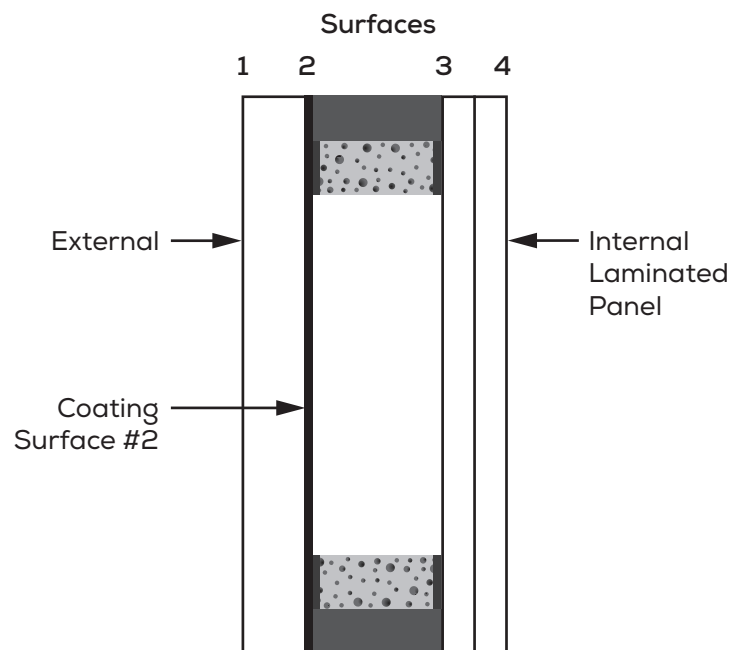


FIG.4 IGU LAMINATED



LOW-E GLASS

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Thermal breakage – Low-E coated glass absorb and reflect a greater amount of heat than ordinary clear glass and therefore are more prone to thermal breakage. Ask our technical department for a free thermal assessment. Toughening or heat strengthening will prevent these breakages.

Glass edges – Before glazing, annealed glass edges must be 'good' straight and clean cut with minimal defects. Laminated glass made up with tinted PVB's or body tinted glass should have flat ground edges on all sides as a minimum. Under no circumstances should glass be glazed with damaged edges.

Cleaning – Under no circumstances can abrasive cleaner be used on any surface, See "Protection and Cleaning" guidelines.

Visual appearance – Low-E coated products in certain lighting conditions may display slight visual distinctions when compared to ordinary non coated glass. This is an inherent characteristic of the coating and indicates the functional properties of the glass. See Haze below. We recommend samples be viewed under both natural and artificial lighting conditions for product acceptance.

Distortion/ Deflection – the tempering of glass (eg Toughening and Heat Strengthening) can create slight visual distortions across the glass surface. Distortions can also occur due to atmospheric pressure and temperature changes. This is not considered a defect.

Haze – defined as the scattering of light rays when visible light passes through a transparent material like glass. Haze is a characteristic that is a common consequence of the crystalline structure of the coating. Some of the light that enters glass is absorbed, and some scattered by components within the glass. If sufficient light is scattered, then it will appear as a haze in the glass. The visibility of haze depends on two criteria: the surrounding conditions and the brightness of the background.

It is possible for a glass product to exhibit haze at certain times of the day and not at another. It is also possible for the same type of glass to display haze in one location and not in another. With any coated glass, it is possible to see the presence of the coating under a certain angle and intensity of the lighting. Haze sometimes has the appearance of a blue-grey film or dust on the coated glass. Haze can occur in both clear and coloured laminate, with it more evident in grey laminate. Haze is very dependent on the angle and intensity of the light. Some colour variations such as a blue haze may exhibit in low-E glass, especially noticeable if part of the glass is shaded. Haze is not considered a manufacturing defect. (AGWA)