Visual Quality for Applied Window Film

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1. Scope
Installed film on flat glass surfaces is not expected to have the same level of visual quality as glass.
The following criteria applies to the installed film only and not to any defect inherent in the glass.

2. Installed film has a discrete time for full adhesion to be effected since installation utilises a detergent solution in water to float the film onto the glass: the excess water is squeegeed out but inevitably residual water will remain between the film and glass. The time to achieve full adhesion is often referred to as "the adhesive cure time". Adhesion will be increasing from a lower value during this time. Visual and adhesive cure time is related to thickness of the film used. Typical visual cure times may be extended or shortened according to climatic conditions.

3. Inspection for optical quality can be made before full visual cure is attained. Table 1 provides a guide for typical visual cure times. It should be noted that effects during cure, such as water bubbles, water distortion, and water haze are not to be regarded as defects.

4. The glass with applied film shall be viewed at right angles to the glass from the room side, at a distance of not less than 2 metres. Viewing shall be carried out in natural daylight, not in direct sunlight, and shall assess the normal vision area with the exception of a 50mm wide band around the perimeter of the unit.

5. The installation shall be deemed acceptable if any of the following are unobtrusive (effects during visual cure should be disregarded):

Dirt Particles	Water Haze
Hair and Fibres	Scores and Scratches
Adhesive Gels	Film Distortion
Fingerprints	Creases
Insects	Air Bubbles
Edge Lift	Nicks and Tears

Inspection may by made within 1 day of installation.
Obtrusiveness of blemishes shall be judged by looking through the film installation under lighting conditions described in 4.

6. The 50mm wide band around the perimeter shall be assessed by a similar procedure to that in 3 and 4, but a small number of particles is considered acceptable where poor frame condition mitigates against the high quality standards normally achieved.

7. Edge gaps will normally be 1-4mm. This allows for the water used in the installation to be squeegeed out. This ensures that film edges are not raised up by contact with the frame margin. Contact with the frame margin could lead to peeling of the film, and is an installation fault.
For thicker safety films the edge gaps will normally be 1-4mm, with 1-5mm being acceptable for films of >175µ.
Combination solar control safety films will also fall within this standard.
An edge gap of up to 2mm is recommended, especially for darker (tinted, metallised, tinted/metallised, and sputtered) films, to minimise the light line around the edge of the installed film.

8. Splicing of films is necessary when larger panels of glass are treated, where both length and width of the glass exceed the maximum width of film. The splice line itself should not be viewed as a defect. This line should be straight and should be parallel to one edge of the frame margin. The two pieces of film may be butt jointed, and should be close but not touching; the maximum gap at any point in the splice line should be 1mm.

Film of less than 50µ may be overlapped, spliced or butt jointed.

9. It should be noted that visible light reflections can be changed by installation of window film. This is especially the case for films with deposited layers containing metal or metal alloys. This is not a defect, but is a natural consequence of the high performance coatings used within the film.

10. Safety films used to comply with BS6262 Part 4, "Safety related to human impact", shall be correctly marked in accordance with the relevant British Standard (BS6206).

Table 1
Typical Cure Times

Film Thickness/µ	Typical Cure Times/Days
Up to 100	30
100 to 200	60
200 to 300	100
over 300*	140

* but not exceeding 425µ.

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