

Assessing the Visual Quality of Low-E Glass

Technical Guide

In April 2002, Part L - Conservation of fuel and power came into effect under building regulations, which require replacement windows to meet more rigorous standards of thermal insulation. Without Low Emissivity (Low-E) glass, replacement windows are unlikely to meet the new requirements.

What is low emissivity (Low-E) glass?

Low-E glass improves the energy efficiency of windows by minimising the amount of infrared and ultraviolet light that comes through the glass, without reducing daylight. Low-E glass windows have a thin, transparent coating that reflects heat by allowing short-wavelength heat from the sun to enter the home through the glazing. Combined with a domestic heating system solar energy delivers long-wavelength heat radiation, providing additional warmth in the home.

A large proportion of long-wavelength wave heat radiation would escape through windows made of ordinary glass. However, the Low-E coating reflects the heat into the room and traps the heat.

What are the advantages of Low-E glass?

- Heating systems do not have to work as hard to maintain a comfortable room temperature
- Homes feel warmer during the winter months
- It reduces the cost of heating

How is the visual quality of Low-E glass assessed?

The visual quality of a window containing Low-E glass is assessed by looking through it from the room side, at right angles to the glass, at 3 metres or more, under natural daylight and not direct sunlight, and with no visible moisture on the surfaces of the glass.

Provided your vision through the glass is not impeded under these conditions, for example, by scratches or bubbles, the glass within your windows is of good visual quality.

What are the disadvantages of Low-E glass?

The disadvantages of Low-E glass are very minimal. The only minor disadvantage is that it is possible to see evidence of the coating in the following ways:

- A tint makes some materials appear different when viewed directly through the glass.
- A 'haze' might be seen when viewing the glass at some angles or in some lighting conditions.
- External condensation may form on the outside surface of the glass (face 1) under certain weather conditions. This proves that the window units are thermally efficient and prevent heat loss.
- Low-E glass may exhibit minor blemishes and have differing tints if the windows are made at different times or from different batches of glass. This is not deemed to be a defect and does not impact functionality.