

# TECHNICAL SALES BULLETIN 007

## THE LOW DOWN ON LOW E

### What is low E?

Low E refers to Low Emissivity, and is a special multi-layer metal coating applied to one surface of a glass pane, altering the panes capacity to radiate heat. Emissivity is measured across a scale from 0 to 1, with 1 representing the highest emissivity. The lower the emissivity, the better the insulation (U-value).

### How does it work?

The Low E coating is spectrally selective, which means it affects some wavelengths of radiation more than others. Energy from the sun is short-wave Infrared, whilst the heat generated by our bodies, heaters, electrical lighting, etc, as well as that re-radiated from furnishings in warm rooms, is long wave Infrared.

Low E coatings have the ability to transmit a high percentage of short wave, whilst reflecting a high percentage of long wave infrared energy. This ability to reflect long wave radiation greatly reduces the amount of heat escaping through the glass on a cold night, or the amount of heat entering through the glazing on a hot day, thereby substantially reducing the energy consumption required to maintain a comfortable internal environment.

### How is it used?

Low E coated glass can be effectively used in single glazed applications, but it is preferable to include it as a component of an SIGU (Sealed Insulating Glass Unit) for sustained optimum performance.

### SINGLE GLAZED i.e. **SmartGlass X1**:

The Low E coating must always be exposed to the interior of the building to realise any improvement in insulation (U-value).

Although soft-coated (off-line) Low E coatings are far superior performers, only pyrolitic Low E coatings can be single glazed, as the soft off-line Low E coatings lack durability when exposed to the atmosphere.

Most locally available Low E coatings are pyrolitic i.e. they are applied and fused onto the molten glass during the float manufacturing process, resulting in excellent durability.

Notwithstanding the fact that the hardness of the pyrolitic Low E

coating is similar to that of uncoated glass, care must be exercised when cleaning the coating, as any scratches will be more visible than would be the case with uncoated clear glass.

DOUBLE GLAZED (Sealed Insulating Glass Unit) i.e. **SmartGlass X2**:

The Low E coating is always exposed onto the clean, dehydrated airspace of the SIGU, thereby ensuring optimal performance under all conditions.

Both pyrolitic and soft-coated Low E products are suitable for use in SIGU's, as the coating is hermetically sealed inside the SIGU.

Normally, the Low E coating is used on surface #3 of the unit i.e. the inner glass, with the coating facing the airspace. This allows for a solar control glass to be used as the outer lite of the SIGU, reducing heat gain in summer.

If additional insulation is required, argon gas can be used to substitute the dehydrated air in the unit, providing U-values approaching that of a single layer brick wall.

PG have recently invested in "state of the art" equipment to satisfy the growing need for increased insulation values.

*When is Low E necessary?*

With the recent phenomenal increases in energy costs, it is always prudent to consider utilising Low E coatings to reduce energy consumption, and payback can usually be demonstrated within 3 to 4 years, or sooner for homes having large window to floor ratios. Apart from the need to follow a proper cleaning protocol when single glazed, there are no disadvantages associated with correctly selected Low E coated products.

*Where is it available?*

Various types of Low E glass are available through the national PG Building Glass Sales Centres.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'm.pote', written in a cursive style.

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