



PILKINGTON

NSG Group Flat Glass Business

Technical Information

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Single Glazing With Pilkington Energy Advantage Low-E™ Glass and Pilkington Solar E™ Solar Control Low-E Glass

These two products both have very hard, low emittance top surface coatings of Fluorine doped Tin Oxide. This material is as hard as glass and is as difficult to scratch. The coating does have a very fine surface roughness compared to a non-coated glass surface. This can be seen by the fact that one can write on the coated side with a lead pencil, while the same pencil will slide on the glass side, without leaving a mark. These glass products can be used effectively in many locations in single glazed form, with the low emittance coating on the #2 or room-side surface, where window sash dimensions, total cost or other factors necessitate single glazing.

The following points must be considered when using either of these products in single glazed installations, or in removable storm window applications where the coated surface is not permanently sealed in an insulating glass air space:

1. The coated surface, because of its fine texture, requires more effort to clean than non-coated glass. Please see Technical Bulletin ATS-143 for complete cleaning details.
2. It is easier to make a mark on the coating than on non-coated glass because the Tin Oxide surface is rougher than flat glass. A hard plastic or metal object dragged across the coating, at a pressure which would not mark ordinary glass, can make a visible deposit on the coating which looks like a scratch. In fact, the mark is usually only a deposit of material from the dragged object and can be removed by using appropriated materials: solvents for plastics and muriatic acid for metals (see ATS-143).
3. The low emittance surface, when used on the #2 or room-facing side, will give about a 37% improvement to the U-Value or insulation value compared to non-coated single glazing.

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4. When used in a laminated single glazed light, the coating should be on the #4 surface of the laminate, facing the building interior. The coating should not normally contact the pvb laminate interlayer. If the coating is against the pvb the low emissivity effect, and resulting U-Value improvement, will be lost. For Pilkington **Solar E™** glass there may be occasions where it is desirable to laminate the coating against the pvb (on surface #2 of the laminate). If this is done the U-Value of the glass will be about the same as that of uncoated clear glass, but the solar control property will still be partially effective as shown by the low SHGC (Solar Heat Gain Coefficient) value. The SHGC for laminated Solar E glass (with the coating against the pvb) is about 0.58, compared to 0.53 for monolithic Solar E glass.
5. The improved insulation value with a low-e coating on the room side surface of monolithic glass means that in winter the room side glass surface will be a few degrees cooler than that of plain glass. This is because non-coated glass absorbs room side infrared (IR) radiant heat and becomes warmer while a low-e coating reflects that radiant heat back into to room instead of absorbing it. In a cold climate, or with high indoor humidity, condensation can then occur more readily on the #2 surface than with single glazed non-coated glass.
6. These coatings, when exposed on the room side surface, are covered by the Pilkington warranty of 10 years against peeling under normal conditions provided the products have been fabricated, transported, installed, used, cleaned and maintained in accordance with Pilkington's published instructions.

Questions or comments should be directed to: Pilkington North America, Inc. Architectural Technical Services, and (419) 247-4448.

The information contained in this bulletin is offered for assistance in the application of Pilkington flat glass products, but IT DOES NOT CONSTITUTE A WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Actual performance may vary in particular applications.