Technical Bulletin

Summaries of the Architectural Technical Service (ATS) Bulletins available on our web site at: www.pilkington.com/na

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ATS-116 **Glass and Energy**
Definitions and descriptions of key window energy control (heat loss & gain) terms including: Solar Heat Gain Coefficient, Shading Coefficient, U-Value, etc., and how these factors are used to specify heat gains and losses through a window. (4 pages)

ATS-122 **Glass Selection**
Twelve important performance aspects of glass which need to be considered at the glass selection stage of window design. (4 pages)

ATS-123 **Thermal Stress**
The stress factors and glass breakage mechanisms which need to be considered when evaluating thermal stress. See ATS-139 or the web site program for evaluation methods. (3 pages)

ATS-124 **Spandrel Panel Glazing**
Spandrel panel design options are discussed to help select the most effective option in terms of appearance, performance and durability.

ATS-125 **Pilkington Mirropane™ Transparent Mirror Guidelines**
Lighting Ratios and the calculation of Observation and Masking Ratios are explained to ensure correct installed performance of Transparent Mirrors or ‘One Way’ Mirrors. (4 pages)

ATS-126 **Guidelines When Using Lawn Sprinklers**
The repeated wetting and evaporation of ‘hard’ water on glass, can cause maintenance problems if appropriate guidelines are not followed.

ATS-128 **Glass Specification Guidelines**
Sample specification formats for use with Pilkington NA Inc products.

ATS-129 **Properties of Soda-Lime-Silica Float Glass**
Basic optical and physical characteristics needed for thermal and mechanical engineering analysis of glass installations.

ATS-133 **Machine Cleaning Pilkington Energy Advantage™ Low-E Glass**
Washing machine operation settings and recommended detergents for optimum performance.

ATS-135 **Handling, Inspecting and Fabricating Pilkington Energy Advantage™ Low-E Glass**
Instructions for unpacking and packing, surface identification, inspection, cutting, washing, heat treating, laminating and insulating glass fabrication for the hard coated pyrolytic Low-E product. (3 pages)
ATS-136  **Guidelines for Prevention of Thermal Stress Breakage in Annealed Glass**

When a thermal stress analysis such as the web site program or ATS-139 suggests that annealed glass can be used the basic guidelines listed here must still be followed.

ATS-137-4  Improvements in the Appearance of Installed Pilkington **Energy Advantage™** Low-E Glass

Understanding the coating structure and recent improvements in the appearance of installed Low-E coatings in varying lighting conditions. (7 pages)

ATS-137-4 Fr  Aspect Visuel du Verre Pilkington **Energy Advantage™** Low-E Glass et Pilkington **Solar-E™** Solar Control Low-E Glass (en Francais)

ATS-138  How Pilkington **Energy Advantage™** Low-E Glass Works

By selectively transmitting and reflecting different wavelengths of visible and invisible radiant energy significant savings can be made. The graphs in this bulletin clearly demonstrate the physics of steady-state heat transfer through Low-E coated glass.

ATS-138D  **Window Energy Efficiency with Multiple Low-e Coatings**

Adding a hard coat Low-E to the room side surface of an insulating unit with another low-e coating within the sealed air space significantly improves the window’s insulation or U-Factor.

ATS-139  Thermal Stress for Pilkington **Eclipse Advantage™** Low-E Glass

Tables of results from the Pilkington on-line Thermal Stress Calculator for popular glass selections.

ATS-141  **Glazing Choice Can Affect Fading of Home Furnishings**

Both the ultra violet and visible light in sunlight cause fading of fabrics and organic materials. This bulletin shows how the LBNL programs Window 5 or 6 can be used to give a more accurate measure of fading control with appropriate glass and coatings than by simply using UV transmission values alone.

ATS-143  Hand Cleaning Pilkington **Energy Advantage™** Low-E Glass and Pilkington **Solar-E™** Solar Control Low-E Glass

Techniques and materials for optimum hand cleaning of the hard pyrolitic coatings are listed.
Manual Washing of Clear and Tinted (Non-Reflective Coated) Glass

Standard washing instructions for manual removal of typical in-service (during fabrication and when installed) contaminants.

Plant Growth Behind Pilkington Energy Advantage™ Low-E Glass and Pilkington Solar-E™ Solar Control Low-E Glass

The use of clear Low-E coated glass has negligible effect on the visible light needed for plant growth.

Interference Fringes in Insulating Glass

Two different types of faint fringe patterns can occasionally be seen in double glazing. One can be prevented, the other is a result of the extreme flatness and high optical quality of window glass. (4 pages)

The Appearance of Quench Marks in Heat Strengthened and Tempered Glass

Tempered glass can have visible shadowy spots when polarized light is present. These spots are a normal result of the quenching process and do not indicate any fabrication error. (6 pages)

Strength of Pilkington Texture™ Glass

Strength reductions caused by the stress concentration effect of the texture patterns are quantified.

Tempering Pilkington Optiwhite™ Low Iron Glass

The very high transparency of this glass requires a slightly longer furnace time to reach tempering temperature before quenching.

First Surface Condensation

Condensation on the exterior surface of high performance insulating glazing.

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

Single glazing, or non-sealed double glazing, is only possible with such a hard, durable, Low-E coating. Significant energy savings for heat loss and unwanted solar heat gain are achieved compared to non-coated glass. Details for installation and maintenance are listed.
Handling, Inspecting and Fabricating Pilkington Solar-E™ Solar Control Low-E Glass

Specific instructions for unpacking and packing, inspection, cutting, washing, heat treating, laminating and insulating glass fabrication are given for Pilkington Solar-E™ Solar Control Low-E Glass. (3 pages)

How Pilkington Solar-E™ Works

NiS – Spontaneous Breakage of Tempered Glass

Breakage of tempered glass is immediately noticeable. There are a number of possible causes of the initial cracking.

Maintenance and Hand Cleaning of Pilkington Activ™ Self-Cleaning Glass

Detailed instructions and recommended cleansers for the first surface coated glass.

Handling, Inspecting and Fabricating Pilkington Activ™ Self-Cleaning Glass

Specific instructions for unpacking and packing, inspection, cutting, washing, heat treating, laminating and insulating glass fabrication.

Pilkington Activ™ Self-Cleaning Glass Glazing Guidelines

Handling and glazing material recommendations.

Optics and Window Procedures

LBNL Window 6 and Optics 6 procedures to compute the solar/optical performance of new products and laminated glass

Handling, Inspecting, Fabricating & Glazing Pilkington Clear, Blue-Green, Bronze, Grey, Pilkington Eclipse Advantage™ EverGreen and Pilkington Eclipse Advantage™ Arctic Blue Solar Control Low-E Glass

Specific fabrication and usage instructions.

Bending PNA Low-E Coated Glasses

There are a few processing details which must be observed for the successful bending of certain types of PNA Glasses.
ATS-180  Hand Washing Pilkington Mirropane™ Transparent Mirror

ATS-181  Hand Washing Pilkington Eclipse Advantage™ Low-E Glass

ATS-183  Handling, Inspection and Fabricating Pilkington OptiView™ Anti-Reflection Glass

This bulletin also covers unpacking, cutting, internal transportation, washing, packing and quality inspection.

ATS-184  Glass Selection and Design with Pilkington OptiView™ Anti-Reflection Glass

ATS-186  Installation of Heat Treated non Coated Glass

Covers design consideration, preparation, heating, quenching, examination, installation and distortion.

ATS-187  Handling, Inspection and Fabricating of NSG TEC™ Glass

How to unpack TEC Glass, surface identification, inspection, coating quality inspection for cut sizes, fabrication and packing.

ATS-189  Fabricating Pilkington Gold Eclipse™

The guidelines in this bulletin offer an excellent starting point for optimizing typical operations.

ATS-190  Handling, Inspection and Fabricating Pilkington Solar-E™ on Tinted Glass

The high solar control performance of this product requires attention to fabrication details.

ATS-191  Handling, Inspection and Fabricating Pilkington MirroView™ TV Screen Cover Glass

ATS-192  General Glazing Guidelines