



# Technical Bulletin

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ATS-100  
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Summaries of the Architectural Technical Service (ATS) Bulletins available on our web site at:  
[www.pilkington.com/na](http://www.pilkington.com/na)

<u>Bulletin Number</u>	<u>Title</u> (unless otherwise noted, Technical Bulletins are 1 or 2 pages long)
ATS-100	<b>ATS Bulletin Index</b>
ATS-104	<b>Protecting Flat Glass Surfaces</b> How to protect float glass from water, alkali, chemical and physical damage during shipment, storage and installation. (4 pages)
ATS-112	<b>Preventing Moisture Stains on Stored Glass</b> Controlling ambient atmospheric conditions to prevent surface damage, from condensation or humidity, to glass during long term storage. (3 pages)
ATS-113	<b>Field Applied Plastic Films and Coatings on Vision Glass</b> Assessing the risks of thermal fracture and other issues associated with field applied solar control or clear plastic films to previously installed glass.
ATS-114	<b>Butt Joint Glazing Edgework Requirements</b> Nine line drawings of cut edge quality issues to be considered and specified when designing and installing exposed edge or butt joint edge glazing. (4 pages)

- 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 pyrolytic coatings are listed.

- ATS-144      **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.
- ATS-148      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.
- ATS-149      **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)
- ATS-157      **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)
- ATS-158      Strength of Pilkington **Texture™** Glass
- Strength reductions caused by the stress concentration effect of the texture patterns are quantified.
- ATS-160      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.
- ATS-161      **First Surface Condensation**
- Condensation on the exterior surface of high performance insulating glazing.
- ATS-162      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.

- ATS-163 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)
- ATS-164 How Pilkington **Solar-E™** Works
- ATS-165 **NiS – Spontaneous Breakage of Tempered Glass**
- Breakage of tempered glass is immediately noticeable. There are a number of possible causes of the initial cracking.
- ATS-166 Maintenance and Hand Cleaning of Pilkington **Activ™** Self-Cleaning Glass
- Detailed instructions and recommended cleansers for the first surface coated glass.
- ATS-168 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.
- ATS-169 Pilkington **Activ™** Self-Cleaning Glass Glazing Guidelines
- Handling and glazing material recommendations.
- ATS-171 **Optics and Window Procedures**
- LBNL Window 6 and Optics 6 procedures to compute the solar/optical performance of new products and laminated glass
- ATS-176 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.
- ATS-177 **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**