Avery Dennison®

Poly Film

Installation and Maintenance of Poly Films
for Rigid Plastic Glazing

AVERY DENNISON

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Poly Film - General Introduction

Poly film from Avery Dennison is a range of clear and metallized films, for exterior installation, specifically developed to upgrade rigid plastic glazing. These films feature a unique adhesive formulation for bubble-free installation, and outstanding warranties. When professionally installed on the exterior of existing polycarbonate or PMMA glazing, Poly films protect easily scuffed plastic while dramatically reducing troublesome heat buildup and glare.

Product Description

The Poly film product range includes two product categories for clear protection or solar control.

Poly Protect

Clear exterior films safeguarding plastic substrates from scratches, discoloration and graffiti.

- **Clear 4 mil Poly X™ -** protective film
- **Clear 6 mil Poly X™ -** thicker sacrificial film with wipe-clean anti-graffiti hard coating.

Poly Sun Control

High-performance, transparent exterior silver films to reduce glare and heat buildup.

- **R Silver 20X Poly™ -** solar control film with SR hard coat for vertical, sloped and horizontal exterior applications.
- **R SkyLite 20 XTRM Poly™ -** solar control specifically developed for exterior roofing applications.
- Total product thickness is 6 mil, including hazy protective layer and glossy release liner; net thickness on substrate– 4 mil
- Extremely durable polymeric base film laminate
- Ten year limited warranty*
- Available only to XTRM™ certified installers

*See warranty for complete details: http://graphics.averydennison.com/en/home/graphics-products/window-films/architectural-window-films.html

Product Application

Poly film is suitable for exterior application to most polycarbonate sheets and PMMA acrylic substrates (Perspex, Plexiglas, etc). However, we do not recommend installing these films on corrugated substrates.

We recommend performing a trial installation before executing large projects, or if the installer has no previous experience with plastic glazing. Use the installation procedures outlined in this guide to install $3ft^2$/ $1m^2$, and check the film after a few days for bubbling, creasing or tunneling or lack of adhesion. If any of these phenomena should appear, please contact us for advice.

Scratch resistant protective coatings on the plastic sheet may prevent successful adhesion of the film to the substrate. **Check adherence to the substrate before applying the film to unidentified or SR coated rigid plastic glazing material** (see Appendix 1 for Crosshatch Test Method for Coated or Unidentified Substrates).

Installation Instructions

The installation process for Poly films on rigid plastic glazing is similar to the installation of standard exterior solar films on glass. However:

- Great care must be taken not to scratch the plastic surface when preparing the substrate for installation.
- The wetting solution requires a slightly different composition.
- Particular attention must be paid to removal of all moisture between the film and substrate.
- An edge sealant must be used on all four edges for exterior application of metallized films.
- Special care must be taken when installing on multi-wall sheets to ensure even adhesion of the film to the substrate, paying attention to complete removal of water from the light parallel grooves on the surface.

While the Poly film product line is compatible with multi-wall polycarbonate and the majority installations to date of Poly film have been completed for roofing applications on multi-wall polycarbonate, application requires special attention to remove excess water during installation.

Installation must therefore only be performed by suitably skilled Avery Dennison accredited applicators. Avery Dennison® warrants* professionally installed Poly window films against crazing, cracking, demetallising, delaminating, changing color or adhesive failure. Any ensuing warranty claims relating to improper installation will be borne by the applicator.

Substrate Surface Preparation

Surrounding air temperature during installation should be between **41-104°F/ 5-40°C**.

- **Do not install** in windy or rainy weather!
- Before installing the film, keep in mind that polycarbonate, PMMA and other plastic substrates are easily scratched, and are sensitive to chemicals:
  - Use only non-abrasive cloths and soft squeegees on the substrate.
  - Use water and detergent-free soap, such as Johnson's® Baby Shampoo.

In case of uncertainty, please consult the Avery Dennison window film technical support team – hanita.wf.tech@eu.averydennison.com.

*See warranty for complete details: http://graphics.averydennison.com/en/home/graphics-products/window-films/architectural-window-films.html

Film Installation

Poly film X – clear and sun control, excepting R SkyLite 20 XTRM Poly™

Follow standard installation procedures, but pay particular attention to the following:

1 Use a sharp cutter blade to cut the film edges without hesitation. Any edge you leave on the film may cause the film to start to separate.

2 Spray the SR surface of film with the wetting solution, so that the squeegee will move smoothly and uniformly across the surface of the film.

3 Use a 6" heavy-duty safety film squeegee, applying firm pressure to work out the water from top to bottom. Removal of all the water is critical to the success of the installation.

4 Repeat the above steps to ensure complete removal of moisture.

Wetting Solution

The wetting solution should contain a higher concentration of detergent-free soap (such as Johnson's® Baby Shampoo) than is generally used for applying film to glass. Use 20-30 drops (2cc) per quart/ liter of water. Any detergent-free soap used should not contain additives such as lanolin or silicone that may affect adhesive bond strength.

Edge Sealing

- External application of Poly metallized exterior films requires a neutral silicone edge sealant for exterior use (such as GE Max Flex 5000 or DOWSIL™ 995, or an equivalent neutral silicone sealing agent for exterior application) on all four sides of the film.
- It is important that profiles be clean of paint, emulsions, etc prior to installation.
- Edge sealant must be used on all four edges, applied at least 24 hours after installation (to allow the film to dry), but completed within 3-4 days of installation.

SkyLite 20 XTRM Pro Poly

For full SkyLite 20 XTRM Pro Poly window film installation guidelines visit:
https://graphics.averydennison.com/content/dam/averydennison/graphics/na/en/documents/product-overviews/window-films/skyLite-XTRM-Pro-Window-Film-Series_Installation-Guide.pdf

R SkyLite 20 XTRM Poly™ **Product discontinued as of Feb. 2024**

Film available only to XTRM™ certified installers. Install as previously instructed for Poly film X, but with the following changes:

Wetting Solution

Use ~40 drops (4cc) per quart/ liter of water. To increase initial tack, you may add an additional 20 cc (200 drops) of ethanol in the wetting solution (this is not a "must", but is recommended in cases where tunnels might appear due to low adhesion strength).

Film Installation

Follow standard installation procedures, but pay particular attention to the following:

1 Use a good cutter blade to cut the film edges without hesitation. Any edge you leave on the film may cause the film to start to separate.

2 Spray the protective masking layer of film with the wetting solution (see below), so that the squeegee will move smoothly and uniformly across the surface.

3 Use a 6" heavy-duty safety film squeegee, **applying firm pressure – similar to 12mil safety film** - to work out the water from top to bottom.

4 Removal of all the water is critical to the success of the installation!

Please note - the protective layer is hazy, making it difficult to see if all water has been completely removed.

5 Allow film to cure for at least 24 hours before removing masking layer and applying edge sealant.

Protective Masking Film

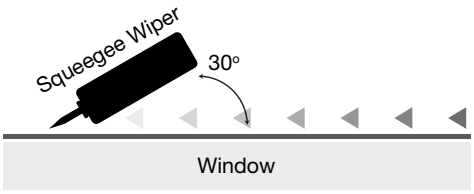
Must be removed before applying edge sealant.

Edge Sealing

External application of Poly SkyLite metallized exterior film requires a neutral silicone edge sealant for external use (such as Dow Corning® 995 or 791, GE Max 5000, or an equivalent neutral silicone sealing agent for external application) on all four sides of the film. Any other equivalent neutral silicone edge sealant requires prior testing and verification of firm adhesion to film within 24 hours.

- It is important that profiles be clean of paint, emulsions, etc prior to installation.
- Do not forget to remove masking layer before sealing the film.
- Wherever joint seaming is required, please use neutral edge sealant Dow Corning® DOWSIL™ 1199 Silicone Glazing Sealant.

Recommended Squeegee Technique



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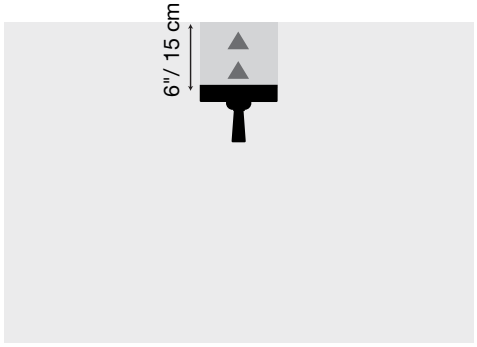

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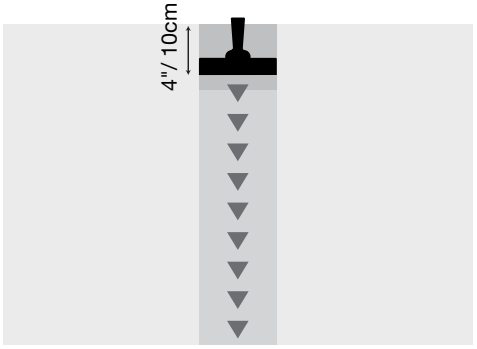

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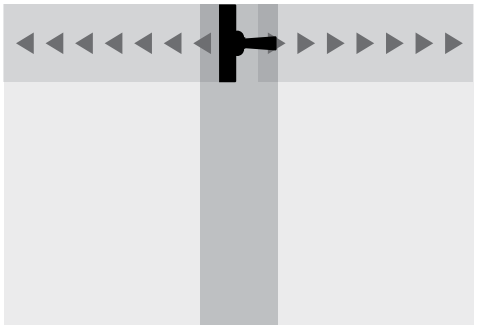

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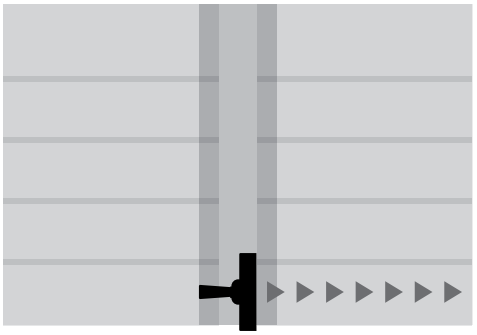

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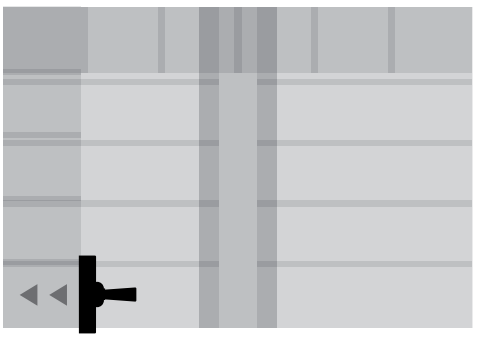

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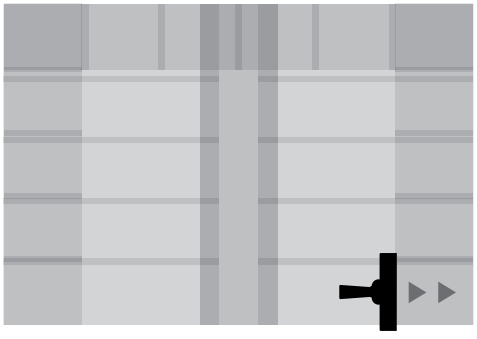

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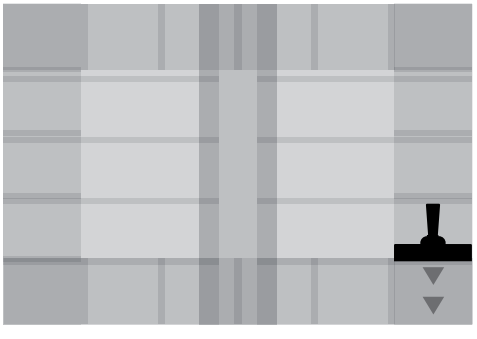


Maintenance

Exterior films should be cleaned three times a year in order to maintain the appearance and clarity of the film. This is particularly important on all sloped or horizontal installations, since the accumulation of dirt and precipitation can cause problems.

Clean by spraying with soapy water under moderate pressure, followed by rinsing the roof with purified water using a moderate-pressure hose. If additional cleaning is required, use a paint roller with a foam sleeve and soapy water. Rinse after using paint roller.

Installations in areas with heavy atmospheric pollution (such as in dense industrial zones) may require more frequent cleaning.

Warning: do not use cleaning solutions that contain ketones such as MEK or acetone. Avoid use of brushes and squeegees used in standard window washing.

Film Removal

Within the warranty period, film removal will be clean. However, after this time, removal will become progressively more difficult. We recommend replacing the film as soon as the warranty expires. Film removal will be easier and more effective if the ambient air temperature is between 59-86°F/ 15-30°C.

We recommend removing the film by delicately scoring the film (without touching the substrate!) into strips of ~2"/ ~5 cm width with a Stanley knife, and carefully starting removal of the film at the edge using a window film scraper. Remove the film strip from the surface by peeling slowly and smoothly at a 90° angle, in a continuous movement. Some adhesive residue may remain on the substrate after removing the film, and can be removed by gently wiping the adhesive traces (not the entire surface) with a non-abrasive cloth or pad dipped in IPA (iso-propanol alcohol) or denatured alcohol (ethanol).

Please ensure that all customers receive explanation of maintenance and film removal instructions

Appendix

Crosshatch Adhesion Test for Coated or Unidentified Substrates

To check adherence of Poly film to coated substrates, the following procedure should be performed:

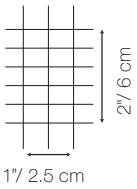
1 Clean a small, non-visible surface area (0.82 ft²/ 0.25 m²) of the plastic sheet, as per instructions above. Cut a small piece from the film (8" x 8"/ 20 x 20 cm), and remove release liner.

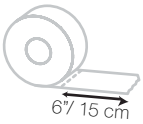
2 Install the film onto the cleaned surface by dry installation: Adhere one corner of the film to the plastic sheet surface, and using a soft squeegee, carefully position and smooth the rest of the film sample, avoiding air bubbles as much as possible.

3 Smooth out any air bubbles.

4 Wait at least two hours for sufficient initial tack.

5 Use a sharp Stanley knife to cut a small crosshatch lattice shape in the center of the film (taking care not to score the substrate), dividing the small area into 10 relatively even, squares, as in the diagram:





6 Cut a 6"/ 15 cm long strip of any 1"/ 2.5 cm sticky tape, and adhere well, using your fingertip to firmly smooth the tape onto the lattice, leaving about 2"/ 5 cm from each end.

7 Peel the tape swiftly from bottom to top, at a 90° angle.

Evaluation: If no film is removed, adhesion is good enough to continue to a trial installation. However, if any squares of film are peeled off by the tape, there is insufficient adhesion, and installation on the coated substrate is not recommended. In either case, we recommend repeating the test.

Contact us for advice if necessary - hanita.wf.tech@eu.averydennison.com

About Avery Dennison

Avery Dennison Corporation (NYSE: AVY) is a global materials science and manufacturing company specializing in the design and manufacture of a wide variety of labeling and functional materials. The company's products, which are used in nearly every major industry, include pressure-sensitive materials for labels and graphic applications; tapes and other bonding solutions for industrial, medical and retail applications; tags, labels and embellishments for apparel; and radio-frequency identification (RFID) solutions serving retail apparel and other markets. Headquartered in Glendale, California, the company employs approximately 30,000 employees in more than 50 countries. Reported sales in 2018 were $7.2 billion.
Learn more at www.averydennison.com.

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