

SECTION 1: GENERAL

1.1. SECTION INCLUDES

Specifications for a multi-layer anti-graffiti film installed on the outside of the glass to reduce the damage done by graffiti. Creating a protective skin on the outside of the glass to reduce unwanted scratches and markings.

1.2. REFERENCES

The reference listed below help form part of this specification.

- American Society for Testing Materials (ASTM)
- The Association of International Metallizers, Coaters and Laminators (AIMCAL)
- International Standards Organization (ISO)
- General Services Administration Standard (GSA) Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings
- American National Standards Institute (ANSI)
- International Window Film Association (IWFA)
- National Fenestration Rating Council (NFRC)
- Consumer Product Safety Commission (CPSC)
- ISO (International Organization for Standardization)
- Underwriters Laboratory (UL)

1.3. RELATED SECTIONS

- Section 08400 – Entrances, Storefronts, and Curtain Walls.
- Section 08500 – Windows.
- Section 08600 – Roof Windows and Skylights.
- Section 08800 – Glazing.
- Section 08800 – Glass.
- Section 08870 – Window Films.

1.4. SUBMITTALS

- Submit under provisions of Section 01300.
- Manufacturer's data sheets on each product to be used, including:
 - Physical properties and independent testing agency reports showing compliance with specified tests.
 - Preparation instructions and recommendations.
 - Storage and handling requirements and recommendations.
 - Installation methods.
 - Verification Samples: For each finish product specified, two samples, minimum size 6 inches square, representing actual product, color, and patterns.

1.5. QUALITY ASSURANCE

- Manufacturer Qualifications: Solar film will be a standard product of a manufacturer regularly engaged in the manufacture and distribution of such products in satisfactory use for a minimum of 20 years. Manufacturing facility shall have an ISO 14001-2014, ISO 9001-2014
- Installer Qualifications: Installer to furnish documentation to show they are an authorized installer of manufacturer and have preapproval for the application from the manufacturer.
- Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship:
 - Apply film to one window designated by Architect.
 - Do not proceed with remaining work until workmanship and color, is approved by Architect.

1.6. DELIVERY, STORAGE, AND HANDLING

- Store products indoors in manufacturer's unopened packaging until ready for installation
- Product name and designated roll id to be clearly displayed on the inside of the film core and exterior of the box

1.7. PROJECT CONDITIONS

- Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside the manufacturer's absolute limits.

1.8. WARRANTY

- Provide film manufacturer's standard warranty against failure of film, including change of color, peeling, bubbling, rippling, cracking, delamination and demetalization; include cost of material and labor for removal and reinstallation.
- Duration of warranty to be as follows:
 - Commercial project warranty - 3year
 - Residential Project warranty - 3year

SECTION 2: PRODUCTS

2.1. MANUFACTURERS

- Basis of Design; XPEL, Inc. Architectural window films 3251 I-35, San Antonio, TX 78219, Phone (210) 678-8700, email: www.support@xpel.com
- Substitutions: Not permitted

2.2. FILM PERFORMANCE RESULTS

ANTI-GRAFFITI 4mil- solar control film will have the following properties when applied to 1/8 inch (3 mm) clear float glass with pressure sensitive adhesive (PSA).

Property	Value
Visible Light Transmittance	89%
Visible Light Reflectance (Exterior)	9%
Visible Light Reflectance (Interior)	9%
Solar Transmittance	80%
Solar Reflectance	8%
Solar Absorptance	12%
Ultraviolet Light Blocked (300-380 nanometers)	99%
Total Solar Energy Rejected	17%
Infrared Rejection (780-2500 nanometers)	N/A
Shading Coefficient	0.95
Solar Heat Gain Coefficient	0.83
U-Factor (Winter)	1.04
Emissivity	0.95
Glare Reduction	1%

XPEL ANTI-Graffiti 4mil film will have the following physical and thermal properties

PHYSICAL AND THERMAL PROPERTIES, NOMINAL	Value
Film Thickness:	4.0 mil
Combustion Rate	Negligible
Melting Point	260-265 OC
Structure	Multi-layer
Tensile Strength lbs./in ²	N/A
Peel Strength	N/A
Break Strength lbs./in	N/A
Puncture Strength lbs.	N/A
Adhesive Type	R-PSA
Flammability: (Flame Spread Index according to ASTM E-84)	<25
Flammability: (Smoke Development Index according to ASTM E-84)	<450
ANSI Z97.1-2004: Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test	N/A
CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Material	N/A

SECTION 3: EXECUTION

3.1. EXAMINATION

- Inspect all glass surfaces for any defects before starting installation
- If surface preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2. PREPARATION

- Clean surfaces thoroughly prior to installation
- Do not begin installation until substrates have been properly prepared
- Prepare surfaces using the methods recommended by the manufacturer for achieving the best results for the substrate under the project conditions.

3.3. INSTALLATION

- Install it in accordance with the manufacturer's instructions. Installation must be accomplished by a recognized professional installer of film. Completed work must meet IWFA visual acceptance standard.
- Install without ripples, drips, dirt, cuts, tears or gaps exceeding manufacturers tolerances between film and frame.
- Upon completion, the film may have a dimpled appearance from residual moisture. Under normal weather conditions the film will dry flat with no moisture dimples within a period of 30 calendar days.

3.4. CLEANING

- Window film is not to be cleaned for 30 days.
- Solution should be non-acidic with no spot remover added. Use water & couple of drops of baby shampoo / Joy / Palmolive, for example.
- Cleaning solution should NEVER be sprayed directly on the film itself but sprayed onto a high-quality non-abrasive material such as microfiber towel first then clean window film.
- Cleanup project removing cleaning solutions and run-off cleaning water.
- Manufacturers' care and maintenance instructions are available upon request.

3.5. PROTECTION

- Protect installed products until completion of project.
- General contractors will notify other contractors that film is installed and to take care not to damage the film.