

## SECTION 1: GENERAL

### 1.1. SECTION INCLUDES

Specifications for an exterior film that is using technology that is less reflective than conventional metal films, blocking heat and reducing glare without extreme shine of silver or bronze.

### 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 - 5/2year\*
  - Residential Project warranty - 5/2year\*

**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](mailto:www.support@xpel.com)
- Substitutions: Not permitted

**2.2. FILM PERFORMANCE RESULTS**

XPEL Exterior Neutral 20 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	12%
Visible Light Reflectance (Exterior)	41%
Visible Light Reflectance (Interior)	36%
Solar Transmittance	11%
Solar Reflectance	39%
Solar Absorptance	50%
Ultraviolet Light Blocked (300-380 nanometers)	99%
Total Solar Energy Rejected	76%
Infrared Rejection (780-2500 nanometers)	80%
Shading Coefficient	0.27
Solar Heat Gain Coefficient	0.24
U-Factor (Winter)	1.04
Emissivity	0.80
Glare Reduction	62%

XPEL Exterior Neutral 20 film will have the following physical and thermal properties

PHYSICAL AND THERMAL PROPERTIES, NOMINAL	Value
Film Thickness:	2.0 mil
Combustion Rate	Negligible
Melting Point	260-265 OC
Structure	Multi-layer
Adhesive Type	PSA
Flammability: (Flame Spread Index according to ASTM E-84)	<25
Flammability: (Smoke Development Index according to ASTM E-84)	<450

## 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.