



WINDOW FILMS • PHOTOVOLTAICS • CUSTOM COATINGS

## SECTION 08871

### SOLAR CONTROL FILM

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Solar control film applied to existing glass.

##### 1.2 REFERENCES

- A. American Society for Testing Materials (ASTM)
- B. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)
- C. Association of Industrial Metallizers, Coaters and Laminators (AIMCAL)
- D. American National Standards Institute (ANSI)
- E. International Standards Organization (ISO)
- F. International Window Film Association (IWFA)

##### 1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Manufacturer's data sheets on each product to be used, including:
  - 1. Physical properties and independent testing agency reports showing compliance with specified tests.
  - 2. Preparation instructions and recommendations.
  - 3. Storage and handling requirements and recommendations.
  - 4. Installation methods.
- C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

##### 1.4 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** Solar film manufacturer shall be the standard product of a manufacturer regularly engaged in the manufacture and distribution of such products in satisfactory use for a minimum of 5 years. Manufacturing facility shall have an ISO 9001-2000 standard registration.
- B. **Installer Qualifications:** Documented experience in the application of self



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adhesive window films with at least 10 applications of similar size and complexity, and approved by the solar film manufacturer.

- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Apply film to one window designated by Architect.
  - 2. Do not proceed with remaining work until workmanship and color, is approved by Architect.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors in manufacturer's unopened packaging until ready for installation.

## 1.6 PROJECT CONDITIONS

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

## 1.7 WARRANTY

- A. See Section 01780 - Closeout Submittals for additional warranty requirements.
- B. Provide film manufacturer's limited warranty against failure of film, peeling, bubbling, rippling, cracking, delamination and demetalization; include cost of material and labor for removal and reinstallation. Duration of warranty shall be as follows:
  - 1. 10 Year Commercial Limited Warranty for the following products:
    - a. 2 Mil Clear

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Solar Gard, 4540 Viewridge Ave; San Diego, CA 92123. Toll Free: (877) 273-4364. Tel: (858) 576-0200. Fax: (858) 571-3605. Email: [info@solargard.com](mailto:info@solargard.com). Web: [www.solargard.com](http://www.solargard.com)
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

### 2.2 SOLAR CONTROL FILM

- A. Film shall be manufactured from polyethylene terephthalate (polyester) to achieve the desired performance and aesthetic characteristics. The finished film shall be self adhesive and include absorbers and inhibitors



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for the purpose of reducing ultra violet rays.

- B. Solar Gard 2 Mil Clear film shall have the following properties when applied to 1/8 inch (3 mm) clear float glass.
1. Film Performance Results, Nominal
    - a. Solar Transmittance 77 percent
    - b. Solar Absorptance 12 percent
    - c. Solar Reflectance 11 percent
    - d. Visible Light Transmittance 85 percent
    - e. Visible Light Reflectance (Exterior) 13 percent
    - f. Visible Light Reflectance (Interior) 12 percent
    - g. Emissivity .85
    - h. U-Factor (Winter) 1.04
    - i. Shading Coefficient .93
    - j. Solar Heat Gain Coefficient .81
    - k. Ultraviolet Light Blocked (300-380 nanometers) > 99 percent
    - l. Total Solar Energy Rejected 19 percent
  2. Physical and Thermal Properties, Nominal
    - a. Film Thickness: 2.0 mils (50 microns).
    - b. Tensile Strength 30,000 lbs/sq in (2,110 kg/cm sq)
    - c. Combustion Rate Negligible
    - d. Melting Point 260-265 degrees C
- C. Solar Gard 2 Mil Clear film shall have the following properties when applied to 1/4 inch (6 mm) clear float glass.
1. Film Performance Results, Nominal
    - a. Solar Transmittance 71 percent
    - b. Solar Absorptance 19 percent
    - c. Solar Reflectance 10 percent
    - d. Visible Light Transmittance 84 percent
    - e. Visible Light Reflectance (Exterior) 12 percent
    - f. Visible Light Reflectance (Interior) 12 percent
    - g. Emissivity .85
    - h. U-Factor (Winter) 1.03
    - i. Shading Coefficient .89
    - j. Solar Heat Gain Coefficient .77
    - k. Ultraviolet Light Blocked (300-380 nanometers) > 99 percent
    - l. Total Solar Energy Rejected 23 percent
  2. Physical and Thermal Properties, Nominal
    - a. Film Thickness: 2.0 mils (50 micron)
    - b. Tensile Strength 30,000 lbs/sq in (2,110 kg/cm sq)
    - c. Combustion Rate Negligible
    - d. Melting Point 260-265 degrees C

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.



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- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions. Installation must be accomplished by a recognized professional installer of film for energy control purposes. Completed work must meet IWFA visual acceptance standard.
- B. Install without bubbles, ripples, drips, dirt, cuts, tears or gaps between film and frame.
- C. Clean newly installed film and window frames after installation.
- D. Clean up cleaning solutions, run-off cleaning water and adhesive mounting solution.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Where installed film could be damaged by subsequent construction provide tape warning strips or barricades to prevent contact.

END OF SECTION



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