



## SECTION 08 87 23

### SAFETY AND SECURITY FILM

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Safety and Security film field applied to existing glass.
- B. Safety and Security film factory applied to glazed surfaces.

##### 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)
- G. General Services Administration (GSA)
- H. Consumer Products Safety Commission (CPSC)
- I. Code of Federal Regulations (CFR)

##### 1.3 PERFORMANCE REQUIREMENTS

- A. Safety Glazing Impact Performance:
  - 1. Meets ANSI Z97.1 Class A,-Unlimited and 16 CFR 1201 Category II 400 ft-lbs impact resistance
  - 2. Meets ANSI Z97.1 Class B and 16 CFR 1201 Category I 150 ft-lbs impact resistance
  - 3. Meets accelerated weathering requirements in accordance with ANSI Z97.1
- B. Flammability: Meets surface burning characteristics in accordance with ASTM E-84 Class A
  - 1. Flame Spread Index = 15
  - 2. Smoke Development Index = 20
- C. Blast Mitigation Performance: Independent test results when tested in accordance with GSA TS01-2003, ISO 16933, ASTM F1642 and UFC 4-010-01
  - 1. GSA TS-01-2003, GSA Performance Condition with a minimum blast pressure of 4 psi-28 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) single pane tempered glass: 2.
  - 2. GSA TS-01-2003, GSA Performance Condition with a minimum blast pressure of 4 psi-28 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane annealed glass: 2.

3. GSA TS-01-2003, GSA Performance Condition with a minimum blast pressure of 4 psi-28 psi-msec when applied with Dow Corning 995 on 1/4 inch (6 mm) single pane annealed glass: 3A.
4. GSA TS-01-2003, GSA Performance Condition with a minimum blast pressure of 4 psi-28 psi-msec when applied as a daylight application on 1/4 inch (6 mm) single pane annealed glass: 3B.
5. GSA TS-01-2003, GSA Performance Condition with a minimum blast pressure of 4 psi-28 psi-msec when applied as a daylight application on 1/4 inch (6 mm) single pane tempered glass: 3B.
6. ISO 16933 Hazard Rating with a minimum blast pressure of 7 psi-36 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane tempered glass: "Hazard Rating B (EXV33(B))".
7. ISO 16933 Hazard Rating with a minimum blast pressure of 7 psi-36 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane annealed glass: "Hazard Rating C (EXV33(C))".
8. ISO 16933 Hazard Rating with a minimum blast pressure of 7 psi-36 psi-msec when applied with SikaSil® SG20 on 1/4 inch (6 mm) single pane tempered glass: "Hazard Rating C (EXV33(C))".
9. ISO 16933 Hazard Rating with a minimum blast pressure of 7 psi-36 psi-msec when applied with an aluminum mechanical attachment on 1/4 inch (6 mm) double pane annealed glass: "Hazard Rating C (EXV33(C))".
10. ASTM F 1642 Hazard Level with a minimum blast pressure of 4 psi-28 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane annealed glass: "No Hazard".
11. ASTM F 1642 Hazard Level with a minimum blast pressure of 7 psi-36 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane tempered glass: "No Hazard".
12. UFC 4-010-01 Protection Level with a minimum blast pressure of 4 psi-28 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane annealed glass: "High Level of Protection".
13. UFC 4-010-01 Protection Level with a minimum blast pressure of 7 psi-36 psi-msec when applied with GE SCS2000 Silpruf on 1/4 inch (6 mm) double pane tempered glass: "High Level of Protection".

D. Volatile Organic Compound Content:

1. Compliant with the performance standard established for low-emitting materials under the CDPH, the Collaborative for High Performance Schools (CHPS) and the LEED v4 programs.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: 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. Shop Drawings: Detailing installation of film, anchoring accessories, and sealant.
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

F.

sensitive adhesive (Nominal)

- a. Film Color: Clear
- b. Solar Transmittance: 71 percent
- c. Solar Absorptance : 20 percent
- d. Solar Reflectance: 9 percent
- e. Visible Light Transmittance: 86 percent
- f. Visible Light Reflectance: (Exterior) 12 percent
- g. Visible Light Reflectance: (Interior) 12 percent
- h. Emissivity: .94
- i. U-Factor (Winter): 1.06
- j. Shading Coefficient: .89
- k. Solar Heat Gain Coefficient: .77
- l. Ultraviolet Light Blocked (300-380 nanometers): > 99 percent
- m. Total Solar Energy Rejected: 23 percent

2. Film Performance Results when applied to 1/4 inch (6 mm) clear insulated glass with pressure sensitive adhesive (Nominal)

- a. Film Color: Clear
- b. Solar Transmittance: 56 percent
- c. Solar Absorptance : 31 percent
- d. Solar Reflectance: 13 percent
- e. Visible Light Transmittance: 77 percent
- f. Visible Light Reflectance: (Exterior) 19 percent
- g. Visible Light Reflectance: (Interior) 18 percent
- h. Emissivity: .94
- i. U-Factor (Winter): .48
- j. Shading Coefficient: .78
- k. Solar Heat Gain Coefficient: .

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 or safety and security purposes. Completed work must meet IWFA visual acceptance standard.
- B. Install without bubbles, ripples, drips, dirt, cuts, tears or gaps between panels. Installation must be completed within 90 days of installation. Installation must be completed within 90 days of installation. Installation must be completed within 90 days of installation.