SECTION 08872

ARCHITECTURAL WINDOW FILM

Display hidden notes to specifier by using "Tools"/"Options"/"View"/"Hidden Text".

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Interior Window Film.

B. Decorative Window Film.

C. Privacy Window Film.

1.2 RELATED SECTIONS

A. Section 08500 - Windows: Windows to receive architectural window film.

B. Section 08600 - Skylights: Glass Skylights to receive architectural window film.

C. Section 08800 - Glazing: General Glazing applications to receive architectural window film.

D. Section 08900 - Glazed Curtain Walls: Curtain Walls to receive architectural window film.

1.3 REFERENCES

A. ASHRAE - American Society for Heating, Refrigeration, and Air Conditioning Engineers; Handbook of Fundamentals, 1997 Edition.

B. ASTM E 84 - Standard Method of Test for Surface Burning Characteristics of Building Materials.

C. ASTM E 308 - Standard Recommended Practice for Spectophotometry and Description of Color in CIE 1931 System.

D. ASTM E 903 - Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres.

E. ASTM G 26 - Standard Practice for Performing Accelerated Outdoor Weatherizing for Non-metallic Materials Using Concentrated Natural Sunlight.

1.4 PERFORMANCE REQUIREMENTS

A. Fire Performance: Surface burning characteristics when tested in accordance ASTM E 84:

1. Flame Spread: 25, maximum.
2. Smoke Developed: 450, maximum.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
   1. Provide documentation that the installer is authorized by the Manufacturer to perform Work specified in this section.
   2. Provide a commercial building reference list of ____ (#) properties where the installer has applied window film. This list will include the following information:
      a. Name of building.
      b. The name and telephone number of a management contact.
      c. Type of glass.
      d. Type of film.
      e. Amount of film installed.
      f. Date of completion.
   3. Provide a Glass Stress Analysis of the existing glass and proposed glass/film combination as recommended by the film manufacturer.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

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

B. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

1.8 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.

1.9 WARRANTY

A. At project closeout, provide to Owner or Owners Representative an executed current copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: 3M Company, Distributed through Energy Products Distribution, 9223 Harford Road, Baltimore, MD 21234, Tel: 1-800-537-3911, Fax: 410-882-5890, www.epdwindowfilm.com, info@epdwindowfilm.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COMBINATION PATTERNED FILM

A. Fasara – Aerina Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 75 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 12 percent.
4. Solar Heat Reduction: Not less than 10 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.86.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

B. Fasara - Illumina Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 49 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 19 percent.
4. Solar Heat Reduction: Not less than 14 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.62.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

2.3 DOT PATTERNED FILM

A. Fasara - Aura 9 Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 83 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 8 percent.
4. Solar Heat Reduction: Not less than 7 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.94.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911,

mhondroulis@epdwindowfilm.com

B. Fasara - Cielo Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 45 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 19 percent.
   4. Solar Heat Reduction: Not less than 15 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.69.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

C. Fasara - Luna 6 Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 44 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 21 percent.
   4. Solar Heat Reduction: Not less than 15 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.67.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

D. Fasara - Luna 9 Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 39 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 23 percent.
   4. Solar Heat Reduction: Not less than 16 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.63.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

E. Fasara - Luna Cell Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 31 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 24 percent.
   4. Solar Heat Reduction: Not less than 17 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.59.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

F. Fasara - Luna Pico Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 32 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 24 percent.
   4. Solar Heat Reduction: Not less than 17 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.60.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

G. Fasara - Vista Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 69 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 16 percent.
4. Solar Heat Reduction: Not less than 13 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.80.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

2.4 LINE PATTERNED FILM

A. Fasara - Arpa Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 46 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 22 percent.
4. Solar Heat Reduction: Not less than 17 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.66.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

B. Fasara - Fine Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 46 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 25 percent.
4. Solar Heat Reduction: Not less than 19 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.62.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

C. Fasara – Lattice Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 34 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 26 percent.
4. Solar Heat Reduction: Not less than 19 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.60.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

D. Fasara - Leise Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 74 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 8 percent.
4. Solar Heat Reduction Not less than 7 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not

less than 0.94.

6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

E. Fasara - Paracell Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 48 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 19 percent.
   4. Solar Heat Reduction: Not less than 15 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.69.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

F. Fasara – Pixela Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 57 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 17 percent.
   4. Solar Heat Reduction: Not less than 14 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.75.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

G. Fasara - Shutie Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 52 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 21 percent.
   4. Solar Heat Reduction: Not less than 17 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.69.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

H. Fasara – Slat Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 34 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 26 percent.
   4. Solar Heat Reduction: Not less than 19 percent.
   5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.60.
   6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

2.5 SINGLE PATTERNED FILM

A. Fasara - Altair Decorative / Privacy Glazing Film:
   1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
   2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 52 percent.
   3. Visible Light Rejected (ASTM E 903): Not less than 16 percent.
   4. Solar Heat Reduction: Not less than 12 percent.

5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.73.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

B. Fasara - Chamonix Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 47 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 29 percent.
4. Solar Heat Reduction: Not less than 20 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.67.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

C. Fasara - Fine Crystal Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 83 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 8 percent.
4. Solar Heat Reduction: Not less than 7 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.93.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

D. Fasara - Lausanne Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 82 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 9 percent.
4. Solar Heat Reduction: Not less than 8 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.90.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

E. Fasara - Luce Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 31 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 25 percent.
4. Solar Heat Reduction: Not less than 17 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.59.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

F. Fasara - Mat Crystal Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 88 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 7 percent.
4. Solar Heat Reduction: Not less than 6 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.92.

6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

G. Fasara - Mat Crystal i Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 83 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 8 percent.
4. Solar Heat Reduction: Not less than 8 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.91
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

H. Fasara - Milano Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 59 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 17 percent.
4. Solar Heat Reduction: Not less than 21 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.75.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

I. Fasara - Opaque White Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 6 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 52 percent.
4. Solar Heat Reduction: Not less than 41 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.29.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

J. Fasara - Oslo Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 77 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 9 percent.
4. Solar Heat Reduction: Not less than 8 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.89.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

K. Fasara - Rikyu Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 47 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 18 percent.
4. Solar Heat Reduction: Not less than 13 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.69.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

L. Fasara - Sagano Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 53 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 16 percent.
4. Solar Heat Reduction: Not less than 12 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.75.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

M. Fasara - San Marino Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 28 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 27 percent.
4. Solar Heat Reduction: Not less than 42 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.55.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

N. Fasara - Vega Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 49 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 16 percent.
4. Solar Heat Reduction: Not less than 12 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.71.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

O. Fasara - Yamato Decorative / Privacy Glazing Film:
1. Ultraviolet Rejected (ASTM E 903): Not less than 99 percent.
2. Visible Light Transmission (ASTM E 903, ASTM E308): Not more than 52 percent.
3. Visible Light Rejected (ASTM E 903): Not less than 15 percent.
4. Solar Heat Reduction: Not less than 11 percent.
5. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E 903): Not less than 0.75.
6. 3M Window Film Point of Contact – Manny Hondroulis, 1-800-537-3911, mhondroulis@epdwindowfilm.com

PART 3 EXECUTION

3.1 EXAMINATION

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

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.

B. Cut film edges neatly and square at a uniform distance of 1/8 inch (3 mm) to 1/16 inch (1.5 mm) of window sealant. Use new blade tips after 3 to 4 cuts.

C. Spray the slip solution, composed of one capful of baby shampoo or dishwashing liquid to 1 gallon of water, on window glass and adhesive to facilitate proper positioning of film.

D. Apply film to glass and lightly spray film with slip solution.

E. Squeegee from top to bottom of window. Spray slip solution to film and squeegee a second time.

F. Bump film edge with lint-free towel wrapped around edge of a 5-way tool.

G. Upon completion of film application, allow 30 days for moisture from film installation to dry thoroughly, and to allow film to dry flat with no moisture dimples when viewed under normal viewing conditions.

3.4 CLEANING AND PROTECTION

A. Remove left over material and debris from Work area. Use necessary means to protect film before, during, and after installation.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. After application of film, wash film using common window cleaning solutions, including ammonia solutions, 30 days after application. Do not use abrasive type cleaning agents and bristle brushes to avoid scratching film. Use synthetic sponges or soft cloths.

END OF SECTION

3M Fasara Decorative, Interior, and Privacy Films Performance Table

Jan-08

Specimen: Film laminated to 6mm thick float glass (Face of incidence: glass surface)

Fasara Type	Ultraviolet Rejected	Visible Light Transmitted	Visible Light Rejected	Solar Heat Reduction	Shading Coefficient 90 Degrees
COMBINATION PATTERNS					
Aerina	99%	Not more than 75%	Not Less than 12%	Not less than 10%	0.86
Illumina	99%	Not more than 49%	Not Less than 19%	Not less than 14%	0.62
DOT PATTERNS					
Aura 9	99%	Not more than 83%	Not Less than 8%	Not less than 7%	0.94
Cielo	99%	Not more than 45%	Not Less than 19%	Not less than 15%	0.69
Luna 6	99%	Not more than 44%	Not Less than 21%	Not less than 15%	0.67
Luna 9	99%	Not more than 39%	Not Less than 23%	Not less than 16%	0.63
Luna Cell	99%	Not more than 31%	Not Less than 24%	Not less than 17%	0.59
Luna Pico	99%	Not more than 32%	Not Less than 24%	Not less than 17%	0.60
Vista	99%	Not more than 69%	Not Less than 16%	Not less than 13%	0.80
LINE PATTERNS					
Arpa	99%	Not more than 46%	Not Less than 22%	Not less than 17%	0.66
Fine	99%	Not more than 46%	Not Less than 25%	Not less than 19%	0.62
Lattice	99%	Not more than 34%	Not Less than 26%	Not less than 19%	0.60
Leise	99%	Not more than 74%	Not Less than 8%	Not less than 7%	0.94
Paracell	99%	Not more than 48%	Not Less than 19%	Not less than 15%	0.69
Pixela	99%	Not more than 57%	Not Less than 17%	Not less than 14%	0.75
Shutie	99%	Not more than 52%	Not Less than 21%	Not less than 17%	0.69
Slat	99%	Not more than 34%	Not Less than 26%	Not less than 19%	0.60
SINGLE PATTERNS					
Altair	99%	Not more than 52%	Not Less than 16%	Not less than 12%	0.73
Charmonix	99%	Not more than 47%	Not Less than 29%	Not less than 20%	0.67
Fine Crystal	99%	Not more than 83%	Not Less than 8%	Not less than 7%	0.93
Lausanne - Textured	99%	Not more than 82%	Not Less than 9%	Not less than 8%	0.90
Luce	99%	Not more than 31%	Not Less than 25%	Not less than 17%	0.59
Matcrystal	99%	Not more than 85%	Not Less than 7%	Not less than 6%	0.92
Matcrystal i	99%	Not more than 83%	Not Less than 8%	Not less than 8%	0.91
Milano - Opaque	99%	Not more than 59%	Not Less than 17%	Not less than 21%	0.75
Opaque White	99%	Not more than 6%	Not Less than 52%	Not less than 41%	0.29
Oslo - Textured	99%	Not more than 77%	Not Less than 9%	Not less than 8%	0.89
Rikyu	99%	Not more than 47%	Not Less than 18%	Not less than 13%	0.69
Sagano - Rice Paper	99%	Not more than 53%	Not Less than 16%	Not less than 12%	0.75
San Marino - Opaque	99%	Not more than 28%	Not Less than 27%	Not less than 42%	0.55
Vega	99%	Not more than 49%	Not Less than 16%	Not less than 12%	0.71
Yamato - Rice Paper	99%	Not more than 52%	Not Less than 15%	Not less than 11%	0.75