3M™ Building Safety Solutions Window Film
3M Center, Building 0223-02-5-24
Saint Paul, MN 55144-1000
Phone: (800) 430-1704
Phone: (651) 737-1053
www.3m.com/windowfilm

This MANU-SPEC® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]. Delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies solar control window films. These products are manufactured by 3M. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 08 87 13
SOLAR CONTROL FILMS

PART 1 GENERAL

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standards, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

1.01 REFERENCES

A. ASTM International (ASTM):

1. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E308 Standard Practice for Computing the Colors of Objects by Using the CIE System.
3. ASTM E903 Standard Test Method for Solar Absorptance, Reflectance, and Transmittance of Materials Using Integrating Spheres.

1.02 DEFINITIONS

A. Luminous Efficacy: The ratio of visible light transmission to shading coefficient.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Fire Performance: Surface burning characteristics when tested in accordance ASTM E84:
   a. Flamespread: 25, maximum.
   b. Smoke Developed: 450, maximum.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor either before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Section [01 33 00 - Submittals Procedures].

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Section [01 33 00 - Submittal Procedures] [_____].

B. Product Data: Submit product data, including manufacturer=s SPEC-DATA® sheet, for specified products.

C. Samples: Submit 8 1/2 × 11 inch (216 × 279 mm) samples of specified film(s).

D. Quality Control Submittals:

1. Certificates: Manufacturer=s certification that the installer is acceptable.

2. Manufacturer=s Instructions: Manufacturer=s installation instructions.

E. Closeout Submittals:

1. Warranty: Manufacturer=s standard warranty document executed by authorized company official. Manufacturer=s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 01 Quality Assurance Section.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Acceptable to the manufacturer.

B. Regulatory Requirements: In accordance with Section [01 41 00 - Regulatory Requirements] [_____].

1.06 DELIVERY, STORAGE & HANDLING

A. General: Comply with Section [01 61 00 - Common Product Requirements] [_____].

B. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

Specifier Note: Coordinate article below with Conditions of the Contract and with Section 01 78 36 - Warranties.

1.07 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer’s Warranty: Submit, in accordance with Section [01 78 36 - Warranties] [_____] for Owner=s acceptance, manufacturer’s standard warranty document executed by authorized company official. Manufacturer’s warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: 15 years commencing on Date of Substantial Completion.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards and descriptions as applicable. Use of “or equal” or “or approved equal” or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining “or equal” products.

2.01 SOLAR CONTROL FILMS

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier’s practice.

A. Manufacturer: 3M.

1. Contact: 3M™ Building Safety Solutions Window Film, 3M Center, Building 0223-02-5-24, Saint Paul, MN 55144-1000; Telephone: (800) 430-1704, (651) 737-1053; website: www.3m.com/windowfilm.

Specifier Note: Retain film(s) below to conform to project requirements. If more than one is retained, create designators and coordinate with the drawings.

B. Prestige 70 - Clear Film:
   1. Thickness: 2 mils.
   2. Physical Properties When Film Is Applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
      a. Visible Light Transmission (ASTM E903, ASTM E308): 68% when measured with an integrating sphere spectrometer and calculated using Standard Source ÃC@ for average daylight.
      b. Visible Reflection - Exterior (ASTM E903): Not more than 9%.
      c. Visible Reflection - Interior (ASTM E903): Not more than 9%.
      d. Ultraviolet Rejected (ASTM E903): Not less than 99.9%.
      e. Infrared Energy Rejected (ASTM E903): Not less than 97%.
      f. Luminous Efficacy: Not less than 1.17.
      g. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 0.58.
      h. Total Solar Energy Rejected (TSER) at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 50%.
      i. Total Solar Energy Rejected (TSER) at 60 Degrees (ASTM E903): Not less than 59%.

C. Prestige 60 - Clear Film:
   1. Thickness: 2 mils.
   2. Physical Properties When Film Is Applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
      a. Visible Light Transmission (ASTM E84): 61%.
      b. Visible Reflection - Exterior (ASTM E903): Not more than 8%.
      c. Visible Reflection - Interior (ASTM E903): Not more than 8%.
      d. Ultraviolet Rejected (ASTM E903): Not less than 99.9%.
      e. Infrared Energy Rejected (ASTM E903): Not less than 97%.
      f. Luminous Efficacy: Not less than 1.11.
      g. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 0.55.
      h. Total Solar Energy Rejected (TSER) at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 52%.
      i. Total Solar Energy Rejected (TSER) at 60 Degrees (ASTM E903): Not less than 61%.

D. Prestige 50 - Lightly Tinted Film:
   1. Thickness: 2 mils.
   2. Physical Properties When Film Is Applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
      a. Visible Light Transmission (ASTM E84): 50%.
      b. Visible Reflection - Exterior (ASTM E903): Not more than 8%.
      c. Visible Reflection - Interior (ASTM E903): Not more than 7%.
      d. Ultraviolet Rejected (ASTM E903): Not less than 99.9%.
      e. Infrared Energy Rejected (ASTM E903): Not less than 97%.
      f. Luminous Efficacy: Not less than 0.98.
      g. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 0.51.
      h. Total Solar Energy Rejected (TSER) at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 56%.
      i. Total Solar Energy Rejected (TSER) at 60 Degrees (ASTM E903): Not less than 63%.

E. Prestige 40 - Lightly Tinted Film:
   1. Thickness: 2 mils.
   2. Physical Properties When Film Is Applied to 1/4 Inch (6.4 mm) Thick Clear Glass:
      a. Visible Light Transmission (ASTM E84): 39%.

b. Visible Reflection - Exterior (ASTM E903): Not more than 7%.

c. Visible Reflection - Interior (ASTM E903): Not more than 6%.

d. Ultraviolet Rejected (ASTM E903): Not less than 99.9%.

e. Infrared Energy Rejected (ASTM E903): Not less than 97%.

f. Luminous Efficacy: Not less than 0.83.

g. Shading Coefficient at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 0.47.

h. Total Solar Energy Rejected (TSER) at 90 Degrees (Normal Incidence) (ASTM E903): Not less than 59%.

i. Total Solar Energy Rejected (TSER) at 60 Degrees (ASTM E903): Not less than 66%.

2.02 PRODUCT SUBSTITUTIONS

A. Substitutions: Substitutions in accordance with Section [01 25 13 - Product Substitution Procedures] [No substitutions permitted] [_____].

PART 3 EXECUTION

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier=s practice.

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer=s product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify that substrate conditions for substrates that have been previously installed under other sections are acceptable for product installation in accordance with manufacturer's instructions.

3.03 CLEANUP

A. Proceed in accordance with Section [01 74 23 - Final Cleaning] [_____].

B. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION