



Scotchshield™ Ultra Safety and Security Window Films

Product Specification Guideline- ULTRA600

- 1.0 Scope:** 1.1 This specification is for an abrasion resistant, optically clear micro-layered, safety and security window film called 3M Scotchshield **ULTRA600**. Once applied to the interior window surface, it will provide shatter resistance protection and reduce transmitted ultra-violet rays. The film shall be manufactured using micro-layered technology to provide superior tear and penetration resistance and improve personal/property safety from flying shards of glass in the event of glass breakage. It will also deter “smash and grab” crime.
- 2.0 Reference:** 2.1 The American National Standards Institute ANSI Z97.1 Specification for Safety Glazing used in buildings:
- Sec. 5.1 Impact Test: 100 ft. lbs. (135J) Minimum
 - Sec. 5.3 Intensified Weathering using Carbon Arc.
- 2.2 Consumer Product Safety Commission Publications CPSC 16 CFR, for Category I and II used in buildings:
- Sec. 16 CFR Impact Test: 150 ft. lbs. (202J) Minimum, Category I.
400 ft. lbs. (538J) Maximum, Category II.
 - Sec. 1201.4 Accelerated Weathering using Xenon Lamp.
- 2.3 The American Society for Testing and Materials (ASTM) Publications:
- 2.3.1 ASTM D882-95a Tensile Properties of Plastic Film and Sheeting - Tensile, Elongation, Break and Flexibility (Young’s Modulus).
 - 2.3.2 ASTM D1004-94a Initial Tear Resistance of Plastic Film and Sheeting - Initial Force to Tear (Graves Area).
 - 2.3.3 ASTM D2582-93 Puncture-Propagation Tear Resistance of Plastic Film and Sheeting.
 - 2.3.4 ASTM F1642-96 Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings, as per US Governments GSA Test Standard Protocol.
 - 2.3.5 ASTM D1044 Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion.
 - 2.3.6 ASTM E84-94 Surface Burn Characteristics of Building Materials.

3.0 Materials: 3.1 Optically clear polyester safety and security window film with factory applied adhesives, abrasion resistant coating and release liner.

SPEC NOTE: All of the following attributes or physical properties must be considered together, since they define the overall performance of a given film.

SPEC NOTE: To enhance performance, use optional anchoring system to secure the window film to the frame.

3.2	Number of Laminated Micro Layers	42 layers
3.3	Film Thickness (inches and mm)	0.006 inches nominal (0.152mm)
3.4	Nominal Tensile Strength (ASTM D882-95a in PSI)	30,000 PSI (2.07 x 10⁸ Pa)
3.5	Nominal Elongation (ASTM D882-95a in stretch %)	140%
3.6	Nominal Break Strength (ASTM D882-95a in lbs./inch width)	180 lbs. (32.1 kg/cm)
3.7	Minimum Young's Modulus (ASTM D882-95a in PSI)	>500k PSI (>3.45 x 10⁹ Pa)
3.8	Minimum Graves Area Tear (ASTM D1004-94a in lbs.%)	>1150 lbs.% (>523 kg %)
3.9	Minimum Puncture Propagation Tear (ASTM D2582-93 in lbs.)	18.5 lbs. (8.4 kg)
3.10	Safety Impact Test (ANSI Z97.1)	unlimited on 1/8"-1/4" (3mm-6mm) glass
3.11	Safety Impact Test (CPSC 16 CFR)	Category II 400 ft. lbs. 1/8"-1/4 (3mm-6mm)
3.12	Large Scale Explosive Open-air Test (ASTM F1642-96)	Level C, 3b or better
3.13	Adhesive Peel Strength (ANSI Z97.1)	>2,500 gr/in. ((>984 gr/cm)
3.14	Adhesive after Intensified Weathering (CPSC 1201.4)	>3,500 gr/ in. (>1,378 gr/cm)
3.15	Abrasion Resistance Test (ASTM D-1044 in % change of haze)	<6%
3.16	Surface Burn Characteristics (ASTM E84)	Class A Interior Use
3.17	Flame Spread Index, Smoke Developed (ASTM E84)	Class A interior Use
3.18	Visible Light Reflected on Single Clear 1/4" (6mm) Glass	10%
3.19	Visible Light Transmitted on Single Clear 1/4" (6mm) Glass	84%
3.20	UV Blocked on Single Clear 1/4" (6mm) Glass	99%
3.22	Large Scale Explosive Open-air Test (ASTM F1642-96)	Level C, 3b or better depending on glass type

4.0 Warranty 4.1 Manufacturer's Warranty for a period of at least 10 years, to include:

- 4.1.1 Maintain adhesion properties without blistering, bubbling or delaminating from the glass.
- 4.1.2 Maintain appearance without discoloration.
- 4.1.3 In the event the product is found defective under above points, the seller will provide removal and reapplication free of charge. * See warranty for details.

5.0 Manufacturer: Film to be manufactured by: 3M Consumer Safety and Light Management Department
3M Center Building 223-2S-24
St. Paul, MN 55144-1000

6.0 Applicator: Window films shall be installed by an authorized 3M Dealer/Applicator to obtain 3M warranties. Allow up to 30 days before washing windows.

7.0 Application: According to the manufacturer's instructions.