

# Scotchshield Ultra Safety and Security Window Films

## Product Specification Guideline- S50NEAR400

- 1.0 Scope:** 1.1 This specification is for an abrasion resistant, optically clear micro-layered, metallized, safety and security window film called 3M Scotchshield **S50NEAR400**. Once applied to the interior window surface, it will provide shatter resistance protection, reduce transmitted ultra-violet rays and infrared radiation. 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 E903 Standard Test Method of Solar Absorbance, Reflectance and Transmittance of Materials using Integrating Spheres.
  - 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 metallized coating. 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	<b>26 layers</b>
3.3	Film Thickness (inches and mm)	<b>0.004 inches nominal (0.10mm)</b>
3.4	Nominal Tensile Strength (ASTM D882-95a in PSI)	<b>30,000 PSI (<math>2.07 \times 10^8</math> Pa)</b>
3.5	Nominal Elongation (ASTM D882-95a in stretch %)	<b>140%</b>
3.6	Nominal Break Strength (ASTM D882-95a in lbs./inch width)	<b>120 lbs. (21.4 kg/cm)</b>
3.7	Minimum Young's Modulus (ASTM D882-95a in PSI)	<b>&gt;500k PSI (<math>&gt;3.45 \times 10^9</math> Pa)</b>
3.8	Minimum Graves Area Tear (ASTM D1004-94a in lbs.%)	<b>&gt;780 lbs.% (&gt;355 kg %)</b>
3.9	Minimum Puncture Propagation Tear (ASTM D2582-93 in lbs.)	<b>7.5 lbs. (.32 kg)</b>
3.10	Safety Impact Test (ANSI Z97.1)	<b>unlimited on 1/8" -1/4" (3mm-6mm) glass</b>
3.11	Safety Impact Test (CPSC 16 CFR)	<b>Category II 400 ft. lbs. 1/8"-1/4" (3mm-6mm)</b>
3.12	Adhesive Peel Strength (ANSI Z97.1)	<b>&gt;2,500 gr/in. (&gt;984 gr/cm)</b>
3.13	Adhesive after Intensified Weathering (CPSC 1201.4)	<b>&gt;3,500 gr/in. (&gt;1,378 gr/cm)</b>
3.14	Abrasion Resistance Test (ASTM D-1044 in % change of haze)	<b>&lt;6%</b>
3.15	Surface Burn Characteristics (ASTM E84)	<b>Class A Interior Use</b>
3.16	Flame Spread Index, Smoke Developed (ASTM E84)	<b>Class A Interior Use</b>
3.17	Shading Co-efficient on Single Clear _" (6mm) Glass	<b>0.66</b>
3.18	Visible Light Reflected on Single Clear _" (6mm) Glass	<b>15%</b>
3.19	Visible Light Transmitted on Single Clear _" (6mm) Glass	<b>51%</b>
3.20	Glare Reduction on Single Clear _" (6mm) Glass	<b>42%</b>
3.21	UV Blocked on Single Clear _" (6mm) Glass	<b>98%</b>

**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 all details.

**5.0 Manufacturer:** Film to be manufactured by: 3M Specified Construction Products Department  
3M Center Building 225-4S-08  
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.