



BLAST RESISTANT SAFETY GLAZING FILMS 8M CLEAR

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes blast resistant film products applied to various glass surfaces

1.2 REFERENCES

- A. ANSI Z97.1: Safety Glazing Materials Used in Buildings—Safety Performance Specifications and Methods of Test.
- B. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials.
- C. ASTM E-84: Test Method for Surface Burning Characteristics of Building Materials
- D. GSA-TS01-2003: Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.
- E. ASTM D 882: Standard Test Method for Tensile Properties of Thin Plastic Sheetings.
- F. ASTM D 1044: Test Method for Resistance of Transparent Plastics to Surface Abrasion.

1.3 PERFORMANCE REQUIREMENTS

- A. Performance Properties: Provide window films with the following performance properties (on 1/8 inch clear glass) at a minimum:
 - a. Visible Light Transmittance: 83%
 - b. Solar Transmittance: 77%
 - c. Solar Reflectance: 8%
 - d. Solar Absorbance: 15%
 - e. U-Value (winter median): 1.05
 - f. Ultraviolet Rejection: 99%
 - g. Shading Coefficient: .92
 - h. Solar Energy Rejected: 19%
 - i. Solar Heat Gain Coefficient: 81%
- B. Scratch Resistance: Provide films that have 5.0 % maximum haze increase when tested to ASTM D 1044, using 100 revolutions, a CS-10F Taber abrading wheel and 500 g weights.
- C. Impact Resistance:
 - a. ANSI Z97.1 / CPSC 16 CFR 1201 - Category I: Pass
- D. Puncture Strength of 173 lbs under ASTM D4830.



Blast Resistant Safety Glazing Films
**** Note that these are minimum specifications****



- E. Surface Burning Characteristics: Provide films that shall have a flame spread index not to exceed 10 and a smoke density index not to exceed 40 when tested in accordance to ASTM E 84.
- F. Tensile Properties: In accordance with ASTM D 882
 - a. Minimum Tensile Strength: >32,000 psi.
 - b. Minimum Elongation at Break: >100%.
 - c. Minimum Break Strength: 269 lb/in.

1.4 SUBMITTALS

- A. Product Data (on 1/8 inch clear glass): Manufacturer's data sheets on each product to be used.
- B. Samples for Verification: (2) 12-inch square samples of each finished product specified.
- C. Qualification Data: Manufacturer and Installers specified in Quality Assurance section are required to include lists of completed projects with project names, addresses and installation dates.
- D. Manufacturer's Testing Certifications: proof that product submitted meets or exceeds specified requirements.
- E. Closeout Submittals: Upon completion of the Work, installers are required to submit:
 - a. Completed warranty.
 - b. Cleaning and replacement instructions.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Window film manufacturer with verifiable manufacturing facility and proven track record in safety window films for minimum of 10 years.
- B. Mockups: Apply specified films in locations as directed to obtain approval on installer execution and aesthetic appearance of films selected. .

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Products to remain in manufacturer's original, unopened packaging to prevent damage by condensation, abnormal temperature changes, prolonged exposure to sun, or other causes, until ready for installation.
- B. All materials and solvent based materials to be disposed of in accordance with local jurisdiction requirement.





1.7 PROJECT CONDITIONS

- A. Installation of products must be in accordance with manufacturer's guidelines. Abnormal shifts in temperature, outside temperature below 40°F, condensation on glass, frost or other conditions need approval from manufacturer.

1.8 WARRANTY

- A. Manufacturer's warranty to cover films against crazing, cracking, delaminating or adhesive failure agreeing to replace films that fail within 15 years from date of original installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Shatter Safe Security Window Films; Tel: 888-948-8468; Website: www.shattersafe.com
- B. Product Description: 8 mil clear safety window film, to be applied to interior glass surfaces, consisting of:
 - a. Disposable release liner.
 - b. Pressure sensitive adhesive.
 - c. Clear layers of polyester film.
 - d. Scratch resistant coating.
- C. Colors: Clear.

2.2 GLAZING ASSEMBLIES/ACCESSORIES:

- A. General: Provide products complying with requirements of window film manufacturer with a proven record of compatibility with surfaces present during installation.
- C. Provide Level 2 blast resistance when tested in accordance with GSA TS01 and impact resistance complying with ANSI Z97.1 and CPSC 16 CFR 1201: Category I, using 4-sided, wet glaze attachment with:
 - a. Shatter Safe SSF-800
 - b. ¼ inch clear, annealed glass
 - c. Structural silicone sealant
- D. Cleaners and other accessories: Types recommended by window film manufacturer.





PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine glass and surrounding frames for conditions that could negatively affect installation. These would include:
 - a. Any glass that is broken, chipped, cracked, abraded, or damaged in any way.
 - b. Unsecured frames that are not securely anchored and/or show signs of defects
 - c. Unsatisfactory preparation and cleaning of glass, leaving behind dust, paint, oil, mildew and/or any other contaminants that would hinder proper adhesion.

- B. Once installation has commenced, acceptance of conditions is implied. Because of this, proceed with installation only after all unsatisfactory conditions have been remedied.

3.2 PREPARATION

- A. Comply with manufacturer's instructions for surface preparation.

- B. Clean glass surfaces of substances of any/all contaminants that would hinder proper adhesion such as dust, paint, oil, mildew, etc.

- C. Protect all adjacent surfaces including frames, upholstery, carpeting, etc.





3.3 INSTALLATION

- A. General: Install in accordance with window film manufacturer's written installation instructions applicable to products and applications indicated
- a. Install with no gaps or overlaps, except allowed gap at perimeter of 1/16" to 1/8"
 - b. Do not remove release liner from individual pieces of film until glass has been properly prepared and each piece of film is cut and ready for installation.
 - c. Install film with proper mounting solution recommended by window film manufacturer.
 - d. Install film without air bubbles, creases, pinholes, curled edges or blemishes (in accordance with manufacturer's acceptable guidelines.)
 - e. Seams – Not approved for Blast Hazard Mitigation applications.
 1. Seam only if required due to available material sizes in comparison with needs of glazing unit
 2. Horizontal seams not approved. Vertical seams to be installed without gaps or overlaps.
- B. Glazing Attachment System: Where film attachment is required, only DOW 995 structural silicone may be used. The installation of the silicone is to be in accordance with the GSA requirements for wet glaze attachment systems and Dow Corning's installation techniques as described in Dow's published article TECHtalk entitled The Use of Dow Corning 995 Silicone Structural Adhesive in Retrofit Protective Glazing Installations. In general, the silicone is to cover 1/2" of the fragment retention film and 1/2" of the window frame. The existing window glazing gasket is not included as part of the 1/2" coverage. The silicone is to be applied as a triangular bead. Concave beads, beads that attach to the existing glazing gasket only or do not cover approximately 1/2" of the film and 1/2" of the metal window frame are unacceptable.

END OF SECTION

