SECTION 08 87 00 SECURITY GLAZING FILM

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Security Glazing film applied to new and existing glazing assemblies.

B. Locations: As identified in the Contract Documents.

1.2 RELATED SECTIONS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 REFERENCED STANDARDS

A. American National Standards Institute (ANSI)

1. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; current version.

B. American Society for Testing and Materials (ASTM)

1. ASTM D882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting, current version.
2. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics, current version.
3. ASTM D2244 – Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates, current version.
4. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials; current version.
5. ASTM F3561 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack.

C. Code of Federal Regulations

1. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Consumer Products Safety Commission; current edition.

D. FILTI Testing and Development

1. FTD SA – FILTI Shooter Attack Certification Testing, FILTI Testing and Development Shooter Attack Certification.

E. Florida Building Code (Miami-Dade County) for Hurricane Resistance

1. TAS 201 – Impact Test Procedures
2. TAS 202 – Criteria for Testing Impact & Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure
3. TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Glazing film manufacturer specializing in manufacture of security glazing films with minimum 5 years' experience manufacturing products meeting specified

requirements.

B. Installer Qualifications: Direct employees of film manufacturer or manufacturer-approved installers trained in all aspects of film installation.

C. Field Mockup: Apply security glazing film in location(s) as directed to verify installation requirements and to demonstrate application effects and qualities of materials and execution.
   1. Obtain approval of field samples before continuing with remainder of installation.
   2. Maintain mockup during duration of installation in an undisturbed condition as a standard for judging the completed Work.
   3. Approved field mockup may become part of the completed Work.

D. Film application and performance verification:
   1. In addition to only proceeding with reviewed and approved submittals, the awarded contractor/ installer shall certify that the security film installed meets the performance requirements identified within the Contract Documents.
   2. Post installation film verification may include the random choosing and removal of up to three pieces of glass with applied film to be tested to verify that film installed meets specification and performance requirements as indicated. Film may need to be removed as part of the verification process.
   3. All installed film locations shall be subject to inspection of structural sealant to verify full bite on frames has been achieved.

1.5 SUBMITTALS

A. Submit under provisions of Division 01.

B. Test Reports: Detailed reports of full-scale chamber tests to specified criteria, using assemblies commensurate with those required for this project.

C. Product Data: Manufacturer’s data sheets on product to be used, including:
   1. Record of product certification for safety requirements.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Installation methods.

D. Samples: For each film product to be used, minimum size 4-inches by 6-inches, representing actual product, color, and patterns.

E. Manufacturer Guidelines
   1. Completed work inspection procedure and guidelines
   2. Post-Installation Agreement
      a. Curing time and expectations
      b. Cleaning guidelines
      c. Other manufacturer specific information

F. Specimen Warranty.

1.6 DELIVERY, STORAGE, AND HANDLING

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

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of authorities having jurisdiction.

1.7 FIELD CONDITIONS

A. Coordinate installation timeline with General Contractor's and/or Owner's schedule and potential other adjacent work that may create or cause adverse installation conditions.

B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside the manufacturer's absolute limits.

1.8 WARRANTY

A. Provide 15 Year manufacturers replacement warranty to cover film against peeling, cracking, discoloration, and deterioration.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Armoured One, LLC., 386 North Midler Ave. Syracuse, NY 13206. Tel: 315-720-4186; Email: info@armouredone.com; Web: www.armouredone.com.

1. Basis of design: Armoured One 23mil Shooter Attack Security Film.

B. Substitutions: Must provide demonstrated equality to the specified basis of design product and performance requirements.

2.2 SECURITY GLAZING FILM MATERIALS

A. Security Glazing Film

1. Single thickness 23 mil (0.023 inch) thick, clear, UV stable, optically transparent, adhesive backed polyester film for permanent bonding to glass.
    a. Installing multiple layers of thinner film to accomplish the required thickness is not acceptable nor considered equal to the basis of design.
2. Adhesive Type: Pressure sensitive as recommended by glazing film manufacturer.
3. Performance Requirements:
    a. ASTM F3561 - Standard Test Method for Forced-Entry-Resistance of Fenestration Systems After Simulated Active Shooter Attack, Resistance Level 1 (tested on 1/4-inch tempered glass.).
        1) Specimen sample shall be evaluated per the requirements of the ASTM F3561 Appendix for Glazing Only Weakening Testing – Non-System Test, as this method is not a systems test and therefore not a certified assembly.
    b. FTD SA – Standard for Shooter Attack certification, Class 1 (tested on 1/4-inch tempered glass).
    c. Tensile Strength: ASTM D-882, 35,000 psi minimum.

d. Breaking Strength: ASTM D-882, 640 lbs. / inch.
e. Elongation at Break: ASTM D-882, 230%
f. Haze: ASTM D1003, <4%
g. Color b: ASTM D2244, 4.2
h. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, as tested in accordance with ASTM E84 (Class A).

2.3 SUPPLEMENTAL MATERIALS

A. Structural Sealant: Per manufacturer's recommendations for the installation application.
   1. Acceptable product: DOW Corning DOWSIL795 Silicone Building Sealant, DOWSIL 995 Structural Silicone Sealant, or glazing film manufacturer approved equal.
B. Provide supplemental anchoring system components as required.
C. Cleaners, Primers, and Sealers: Types recommended by glazing film manufacturer.

2.4 FIRE RATED SECURITY GLAZING

A. Fire-rated laminated glass panes can be fabricated to fire-rating resistance ratings of 20-, 45-, 60-, and 90-minute protection as required utilizing security glazing film applied in factory under controlled conditions.
   1. Consult with manufacturer if higher rating resistance is required.
B. Security glazing film may be field applied to existing fire-rated glazing assemblies maintaining the existing fire-resistance protection rating.

PART 3 - EXECUTION

3.1 GENERAL

A. At existing glazed openings, retrofit glazing assemblies to provide impact resistance and forced/ attack resistance complying with FTD-SA-C1, ANSI Z97.1 and CPSC 16 CFR 1201 Category II.

3.2 EXAMINATION

A. Field-Applied Film: Verify that existing conditions are adequate for proper application and performance of film.
B. Examine glass and frames, ensure that existing conditions are adequate for proper application and performance of film.
C. Verify glass is not cracked, chipped, broken, or damaged.
D. Verify that frames are securely anchored and free of defects.

3.3 PREPARATION

A. Clean glass of dust, dirt, paint, oil, grease, mildew, mold, and other contaminants that would inhibit adhesion.
B. Blade the inside surface of window glass to ensure removal of foreign contaminants.
C. Immediately prior to applying film, thoroughly wash glass with neutral cleaning solution.
D. Protect adjacent surfaces.

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

3.4 INSTALLATION

A. Install in accordance with manufacturer's instructions as required to achieve specified performance.

B. Seams. Seam film only as required to accommodate material sizes, seam without overlaps. Seam orientation to be identified and coordinated during shop drawing review and verified in field prior to installation.

C. Apply bead of structural sealant overlapping 3/8-inch to 1/2-inch of the exposed edge of film and overlapping equally onto the glazing system frame. Allow to cure before cleaning.

D. Clean glass and excess structural sealants from finished surfaces.

E. Remove any labels or protective covers. Do not encapsulate anything under the film.

3.5 POST INSTALLATION VERIFICATION

A. Awarded contractor will be required to verify that film installed meets the requirements highlighted in this bid. By submitting a bid, contractor understands that three pieces of glass, chosen at random will be removed and film applied will be measured to verify that film installed meets specifications as requested. Film may need to be removed as part of the verification process.

3.6 PROTECTION

A. Protect installed products until completion and final acceptance of project.

B. Repair or replace damaged products before Substantial Completion.

1. Bubbles and haziness during the curing period is not considered grounds for replacement.

3.7 CURING

A. After installation, small bubbles or a hazy appearance may appear due to trapped moisture between the film and the glass. These imperfections typically disappear as the film cures, a process that can take anywhere from a few days to several weeks, depending on temperature, humidity, other environmental conditions.

B. Allow the film to cure undisturbed for a smooth, clear finish.

C. Allow film to cure for up to six weeks prior to initiating an inspection review of bubbles or haziness.

D. If after 6 months of curing, bubbles and haziness persist, replace film.

END OF SECTION 08 8753