SECTION 08 87 23

SAFETY AND SECURITY WINDOW LAMINATES

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

*Copyright 2021 - 2024 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense US, LLC; security laminates.  
This section is based on the products of Safe Haven Defense US, LLC, which is located at:  
22849 N. 19th Ave., Suite 100  
Phoenix, AZ 85027  
Tel: 303-263-7259  
Email: [request info (tesch@safehavendefense.com)](https://arcat.com/rfi?action=email&company=Safe%252BHaven%252BDefense%252BUS%252C%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08873shl)%253A%2520&coid=53548&spec=08873shl&rep=&fax=)  
Web: <https://safehavendefense.com>   
 [ [Click Here](https://arcat.com/company/safe-haven-defense-us-llc-53548) ] for additional information.  
Safe Haven Defense manufactures security laminates that offers superior protection against glass breakage due to burglaries, hurricanes, bombs and even bullets.   
Unlike most competing product, SAFE HAVEN DEFENSE laminates are applied onsite to existing windows in commercial, municipal, and residential buildings, with virtually no disruption to business activity. No special modifications or retrofitting is required.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Smash resistant laminate film.
    2. Forced entry resistant laminate film.
    3. Small armsbullet resistant laminate film.
    4. Bullet resistant laminate film.
    5. Riot control laminate film.
    6. Riot resistant laminate film.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 08 50 00 - Windows (08 54 13) - Fiberglass Windows.
    2. Section 08 60 00 - Roof Windows and Skylights (08 60 00) - Roof Windows and Skylights.
    3. Section 08 83 00 - Mirrors (08 83 13) - Mirrored Glass Glazing.
    4. Section 08 44 23 - Structural Sealant Glazed Curtain Wall (08 44 23) - Structural Sealant Glazed Curtain Wall.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
       2. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
       3. ASTM F3561 - Standard Test Method For Forced-Entry-Resistance Of Fenestration Systems After Simulated Active Shooter Attack.
    2. American National Standards Institute (ANSI):
       1. ANSI Z97.1 - For Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
    3. Consumer Product Safety Commission (CPSC):
       1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
    4. United States General Services Administration (GSA):
       1. GSA TS01-2003 - Standard Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.
    5. Blast Mitigation Action Group (BMAG):
       1. BMAG Safety Standard Level 1.
    6. U.S. Department of Justice, National Institute of Justice (NIJ):
       1. NIJ 0108.01 - Technology Assessment Program Ballistic Resistant Protective Materials.
    7. Underwriters Laboratories (UL):
       1. UL 752 - Standard for Bullet-Resisting Equipment.
       2. UL 972 - Burglary Resisting Glazing Material.
    8. Underwriters Laboratories Canada (ULC):
       1. ULC 332 - Standard for Burglary Resisting Glazing Material.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Safe Haven Defense US, LLC, which is located at:  
         22849 N. 19th Ave., Suite 100  
         Phoenix, AZ 85027  
         Tel: 303-263-7259  
         Email: [request info (tesch@safehavendefense.com)](https://arcat.com/rfi?action=email&company=Safe%252BHaven%252BDefense%252BUS%252C%252BLLC&message=RE%253A%2520Spec%2520Question%2520(08873shl)%253A%2520&coid=53548&spec=08873shl&rep=&fax=);Web: <https://safehavendefense.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete article not required.

* 1. SECURITY GLAZING LAMINATES

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW40SR laminate is applied onsite, to the Interior of existing windows in commercial, municipal, and residential buildings. Unlike traditional smash resistant glass, no special modifications or retrofitting to existing structure needs to be done. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional SR glass. Existing window must be inspected to be structurally sound. Delete if not required.

* + 1. Basis of Design: SW450SR - Glazing Smash Resistant Laminate Film as manufactured by Safe Haven Defense. Offers protection for glass breakage due to forced entry such as burglaries, hurricanes, and blast. Hinders entry into property.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. GSA Explosive Test: GSA TS01-2003.
          4. BMAG: Level 1- Blast Mitigation.
          5. ASTM E1996 - Hurricane
       2. Performance Requirements:
          1. Protection Level: Exigent Protection.
          2. Thickness (1 layer): 15 mil (0.38).
          3. Number or Plies: 2.
          4. Break Strength: 450 psi (3103 kPa).
          5. Tensile Strength: 32,500 psi (224,080 kPa).
          6. Peel Strength: 6 psi (41.4 kPa).
          7. Total Solar Energy Rejection: 20 percent.
          8. IR Rejection: 59 percent.
          9. UV Rejection: 99 percent.

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW600FE laminate is applied onsite, to the Interior of existing windows in commercial, municipal, and residential buildings. SW600FE improves break strength by 40 percent relative to SW450SR. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional SR glass. Existing window must be inspected to be structurally sound. Delete if not required.

* + 1. Basis of Design: SW600FE - Glazing Force Entry Resistant Laminate Film as manufactured by Safe Haven Defense. Offers protection for glass breakage due to forced entry such as burglaries, hurricanes, and blast. Hinders entry into property.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. ASTM E1886: Hurricane Wind.
          4. GSA Explosive Test: GSA TS01-2003.
          5. BMAG: Level 1- Blast Mitigation.
          6. UL972 / ULC 332: Burglary Protection.
          7. ASTM F3561: Forced Entry after Shooter Attack.
       2. Performance Requirements:
          1. Thickness (1 layer): 22 mil (0.56 mm).
          2. Break Strength: 660 psi (4550 kPa).
          3. Tensile Strength: 34,000 psi (234,420 kPa).
          4. Peel Strength: 6 psi (41.4 kPa).
          5. Total Solar Energy Rejection: 20 percent.
          6. IR Rejection: 59 percent.
          7. UV Rejection: 99 percent.

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW440BR laminate is applied onsite, to the interior of existing windows in commercial, municipal, and residential buildings. Unlike traditional BR Glass, no special modifications or retrofitting to existing structure needs to be done. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), Dual Pane 1/4 inch (6 mm) and 1/2 inch (13 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional BR Glass \*existing window must be inspected to be structurally sound. Window must be free from debris and thoroughly cleaned prior to application. Delete if not required.

* + 1. Basis of Design: SW440BR - Glazing Bullet Resistant Control Laminate Film as manufactured by Safe Haven Defense. Offers protection for small arms bullet resistance and glass breakage due to burglaries, hurricanes, and blast. Allows individuals inside the structure to fire out, while maintaining directional bullet and blunt force resistance from external threats.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. ASTM E1886: Hurricane Wind.
          4. GSA Explosive Test: GSA TS01-2003.
          5. BMAG: Level 1- Blast Mitigation.
          6. UL972 / ULC 332: Burglary Protection.
          7. NIJ 0108.01: Bullet Resistance; 3rd Party Lab.
          8. UL 752: Bullet Resistance; 3rd Party Lab.
       2. Performance Requirements:
          1. Protection Level: Exigent Protection.
          2. Thickness (1 layer): Varies.
          3. Number or Plies: Varies.
          4. Break Strength: Starting at 1200 psi (8274 kPa).
          5. Tensile Strength: 32,000 psi (220632 kPa).
          6. Peel Strength: 6 psi (41 kPa).
          7. Total Solar Energy Rejection: 20 percent.
          8. IR Rejection: 59 percent.
          9. UV Rejection: 99 percent.

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW600BR laminate is applied onsite, to the interior of existing windows in commercial, municipal, and residential buildings. Unlike traditional BR Glass, no special modifications or retrofitting to existing structure needs to be done. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), Dual Pane 1/4 inch (6 mm) and 1/2 inch (13 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional BR Glass \*existing window must be inspected to be structurally sound. Window must be free from debris and thoroughly cleaned prior to application. Delete if not required.

* + 1. Basis of Design: SW600BR - Glazing Bullet Resistant Laminate Film as manufactured by Safe Haven Defense. Offers protection for bullet resistance and glass breakage due to burglaries, hurricanes, and blast. Allows individuals inside the structure to fire out, while maintaining directional bullet and blunt force resistance from external threats.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. ASTM E1886: Hurricane Wind.
          4. GSA Explosive Test: GSA TS01-2003.
          5. BMAG: Level 1- Blast Mitigation.
          6. UL972 / ULC 332: Burglary Protection.
          7. NIJ 0108.01: Bullet Resistance; 3rd Party Lab.
          8. UL 752: Bullet Resistance; 3rd Party Lab.
       2. Performance Requirements:
          1. Protection Level: Exigent Protection.
          2. Thickness (1 layer): Varies.
          3. Number or Plies: Varies.
          4. Break Strength: Starting at 1320 psi (9101 kPa).
          5. Tensile Strength: 34,000 psi (234,420 kPa).
          6. Peel Strength: 6 psi (41 kPa).
          7. Total Solar Energy Rejection: 20 percent.
          8. IR Rejection: 59 percent.
          9. UV Rejection: 99 percent.

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW440RC laminate is applied onsite, to interior of existing windows in commercial, municipal, and residential buildings. Unlike traditional Riot Control glass, no special modifications or retrofitting to existing structure needs to be done. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional RC glass. Existing window must be inspected to be structurally sound. Window must be free from debris and thoroughly cleaned prior to application. Delete if not required.

* + 1. Safe Haven Defense: SW440RC - Glazing Riot Control Laminate Film as manufactured by Safe Haven Defense. Offers protection for glass breakage due to forced entry such as burglaries, hurricanes, and blast. Hinders entry into property.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. GSA Explosive Test: GSA TS01-2003.
          4. UL972 / ULC 332: Burglary Protection.
          5. Flame Spread: ASTM E-84.
       2. Performance Requirements:
          1. Protection Level: Exigent Protection.
          2. Thickness (1 layer): 30 mil (0.76 mm).
          3. Number or Plies: 2.
          4. Break Strength: 900 psi (6205 kPa).
          5. Tensile Strength: 32,500 psi (224080 kPa).
          6. Peel Strength: 6 psi (41 kPa).
          7. Total Solar Energy Rejection: 20 percent.
          8. IR Rejection: 59 percent.
          9. UV Rejection: 99 percent.

\*\* NOTE TO SPECIFIER \*\* Safe Haven Defense SW600RC laminate is applied onsite, to interior of existing windows in commercial, municipal, and residential buildings. Unlike traditional Riot Control glass, no special modifications or retrofitting to existing structure needs to be done. Because our laminate can be applied over existing glass as thin as 1/4 inch (6 mm), customers achieve the end goal of hardening their structure at a significant cost savings to traditional RC glass. Existing window must be inspected to be structurally sound. Window must be free from debris and thoroughly cleaned prior to application. Delete if not required.

* + 1. Safe Haven Defense: SW600RC - Glazing Riot Resistant Laminate Film as manufactured by Safe Haven Defense. Offers protection for glass breakage due to forced entry such as burglaries, hurricanes, and blast. Hinders entry into property.
       1. Standards Compliance:
          1. Building Glaze Materials: Per ANSI Z97.1.
          2. CPSC 16 CFR 1201: Impact Test.
          3. ASTM E1886: Hurricane Wind.
          4. GSA Explosive Test: GSA TS01-2003.
          5. BMAG: Level 1- Blast Mitigation.
          6. UL972 / ULC 332: Burglary Protection.
          7. ASTM F3561: Forced Entry after Shooter Attack.
       2. Performance Requirements:
          1. Thickness (1 layer): 35 mil (0.89 mm).
          2. Estimated 15-30 minutes of resistance against common burglar tools.
          3. Break Strength: 1100 psi (7584 kPa).
          4. Tensile Strength: 34,000 psi (234,420 kPa).
          5. Peel Strength: 6 psi (41 kPa).
          6. Total Solar Energy Rejection: 20 percent.
          7. IR Rejection: 59 percent.
          8. UV Rejection: 99 percent.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
         1. Existing window must be inspected to be structurally sound.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
         1. Window must be free from debris and thoroughly cleaned prior to application.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturer's recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION