SECTION 08 43 11

BALLISTIC RESISTANT WOOD STOREFRONTS

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

*Copyright 2020 - 2021 ARCAT, Inc. - All rights reserved*

\*\* NOTE TO SPECIFIER \*\* SafeWood Designs, Inc.; ballistic resistant wood framed storefront, doors, and windows.  
This section is based on the products of SafeWood Designs, Inc., which is located at:  
7281 Commerce Cir. W.  
Fridley, MN 55432  
Tel: 844-896-1800  
Email: [request info (sales@safewooddesigns.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=SafeWood+Designs,+Inc.&coid=52745&rep=&fax=&message=RE:%20Spec%20Question%20(08411wdd):%20%20&mf=)  
Web: <http://safewooddesigns.com>   
 [ [Click Here](https://www.arcat.com/arcatcos/cos52/arc52745.html) ] for additional information.  
We established SafeWood Designs because our changing world means that safety and security needs are increasing and gun violence is a very real threat. An unfortunate threat to our schools, homes, places of worship, offices, and businesses.  
In today's market nearly all ballistic doors, walls and room products are "cookie cutter", often leaving your home or business looking and feeling like a prison.  
Why should having safety and security mean losing warmth and elegance? In an ideal world, all secure surroundings would be beautiful, blending with existing millwork and furnishings completely undetected.  
At SafeWood Designs you can have both beauty and safety.

1. GENERAL
   1. SECTION INCLUDES

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

* + 1. Ballistic resistant wood storefronts including:
       1. Doors.
       2. Frames.
       3. Windows.
       4. Transoms.
       5. Sidelites.
  1. RELATED SECTIONS

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

* + 1. Section 06 40 00 - Architectural Woodwork.
    2. Section 08 83 13 - Mirrored Glass Glazing.
  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 C1036 - Standard Specification for Flat Glass.
       2. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
       3. ASTM C1349 - Standard Specification for Architectural Flat Glass Clad Polycarbonate.
       4. ASTM D523 - Standard Test Method for Specular Gloss.
       5. ASTM E90 - Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
       6. ASTM E119 - Standard Test for One-Hour Fire-Rating of Building Construction and Materials.
       7. ASTM E413 - Classification for Sound Insulation Rating.
       8. ASTM E1332 - Classification for Determination of Outdoor-Indoor Transmission Class.
       9. ASTM F1233 - Standard Test Method for Forced Entry Testing of Materials and Assemblies.
    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. Architectural Woodwork Institute (AWI):
       1. AWI Architectural Woodwork Standards.
    4. Consumer Product Safety Commission (CPSC):
       1. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.
    5. International Organization for Standardization:
       1. ISO 9001 - Quality Management System.
    6. National Hardwood Lumber Association (NHLA).
    7. National Institute of Justice (NIJ):
       1. NIJ Standard 0108.01 - Ballistic Standards.
    8. U.S. Department of State:
       1. The International Traffic in Arms Regulations (ITAR).
    9. Underwriters Laboratories (UL):
       1. UL 752 - Specifications and Ammunition, Standard for Bullet Resisting Equipment.
  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. Provide samples of the following elements.

\*\* NOTE TO SPECIFIER \*\* Delete element options not required.

* + - 1. Door: Provide a corner of door showing joinery and glass and gasket, completely assembled.
      2. Door Frame: Provide a corner sample of door frame with legs of minimum 6 inch (152 mm) length.
      3. Stile and Rail: Provide a sample of stile and rail corner, including glass and gasket, with legs of minimum 6 inch (152 mm) length.
      4. Window.
      5. Window frame.
      6. Sidelight.
      7. Transom.
      8. Wall panel.
    1. 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 store or install products under environmental conditions outside manufacturer's recommended limits.
     2. Maintain temperature and humidity in installation area as required to maintain moisture content of installed woodwork within acceptable limits as defined by AWI, from at least two days prior to the date of product arrival through the remainder of construction period.
     3. Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 degrees F (16 and 32 degrees C) and relative humidity as directed by AWI for the appropriate region during the remainder of the construction period and the warranty period.
  4. WARRANTY
     1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: SafeWood Designs, Inc., which is located at: 7281 Commerce Cir. W.; Fridley, MN 55432; Tel: 844-896-1800; Email: [request info (sales@safewooddesigns.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=SafeWood+Designs,+Inc.&coid=52745&rep=&fax=&message=RE:%20Spec%20Question%20(08411wdd):%20%20&mf=); Web: <http://safewooddesigns.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.
  1. PERFORMANCE REQUIREMENTS
     1. Standards Compliance:
        1. Perform work in accordance with Quality Standards of the Architectural Woodwork Institute to a Custom quality.
        2. ASTM E90, ASTM E413, and ASTM E1332 for sound transmission.
        3. ASTM F1233 for forced entry resistance.
        4. Manufactured in the USA.
     2. Ballistic Resistance:
        1. Bullet resistance of joints equal to that of the panel.
        2. Non-ricochet type doors and frames to permit the capture and retention of an attacking projectile lessening the potential of a random injury or lateral penetration.
        3. Window, frame, and door components shall effectively reduce the penetration potential of bullets at all seams and gaps between different wall construction components.

\*\* NOTE TO SPECIFIER \*\* Delete ballistic rating options not required.

* + - 1. Ballistic Rating, UL 752: Level 1.
      2. Ballistic Rating, UL 752: Level 2.
      3. Ballistic Rating, UL 752: Level 3.
      4. Ballistic Rating, UL 752: Level 4.
      5. Ballistic Rating, UL 752: Level 5.
      6. Ballistic Rating, UL 752: Level 6.
      7. Ballistic Rating, UL 752: Level 7.
      8. Ballistic Rating, UL 752: Level 8.
  1. BALLISTIC RESISTANT WOOD STOREFRONTS

\*\* NOTE TO SPECIFIER \*\* Modify configuration paragraph as required to meet project requirements.

* + 1. Configuration: As indicated on Drawings.
    2. Materials:

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

* + - 1. Fiberglass: Multiple layers of woven roving ballistic grade fiberglass cloth impregnated with thermoset resin and compressed into rigid, flat sheets.
         1. Fire Rating, ASTM E119: 1 hour.

\*\* NOTE TO SPECIFIER \*\* Delete thickness options not required.

* + - * 1. Thickness, Level 1: 1/4 inch (6.4 mm).
        2. Thickness, Level 2: 0.375 to 0.40 inches (9.5 to 10 mm).
        3. Thickness, Level 3: 1/2 inch (12 mm).
        4. Thickness, Level 4: 1-3/16 to 1-1/2 inch (30 to 38 mm).
        5. Thickness, Level 5: 1-3/8 to 1-1/2 inch (35 to 38 mm).
        6. Thickness, Level 6: 3/8 to 1/2 inch (9.5 to 12 mm).
        7. Thickness, Level 7: 1 to 1-1/16 inch (25 to 27 mm).
        8. Thickness, Level 8: 1-7/16 to 1-1/2 inch (36 to 38 mm).
      1. Steel: Hardened steel, equal to S6000 or higher.
      2. Kevlar: Heat-resistant, synthetic, lightweight fiber.
      3. Trim: Hardwood lumber, NHLA, vertical grain, of quality suitable for transparent finish.

\*\* NOTE TO SPECIFIER \*\* Delete wood species options not required.

* + - * 1. Wood Species: As indicated on Drawings.
        2. Wood Species: To be selected by Architect.
        3. Wood Species: White Oak, WWOAK.
        4. Wood Species: Red Oak, WROAK.
        5. Wood Species: Walnut, WWALT.
        6. Wood Species: Cherry, WCHRY.
        7. Wood Species: Maple, WMAPL.
        8. Wood Species: Alder, WALDR.
        9. Wood Species: Hickory, WHICK.
        10. Wood Species: \_\_\_\_\_.
      1. Panel Products: Veneer-faced hardwood plywood.
         1. Contains no added urea formaldehyde.

\*\* NOTE TO SPECIFIER \*\* Delete wood species options not required.

* + - * 1. Wood Species and Cut: As indicated on Drawings.
        2. Wood Species and Cut: To be selected by Architect.
        3. Wood Species: White Oak, WWOAK.
        4. Wood Species: Red Oak, WROAK.
        5. Wood Species: Walnut, WWALT.
        6. Wood Species: Cherry, WCHRY.
        7. Wood Species: Maple, WMAPL.
        8. Wood Species: Alder, WALDR.
        9. Wood Species: Hickory, WHICK.
        10. Wood Species: \_\_\_\_\_.
      1. Plastic Laminate:

\*\* NOTE TO SPECIFIER \*\* Delete plastic laminate style options not required.

* + - * 1. Style: As indicated on Drawings.
        2. Style: To be selected by Architect from manufacturer's standard options.
        3. Style: Custom laminate to be selected by Architect.
        4. Style: \_\_\_\_\_.
      1. Glazing: Asymmetrical composite of glass, clear adhesive interlayers, and high-quality multilayer polycarbonate.
         1. Standards Compliance:

ASTM C1036 for float glass.

ASTM C1349 for laminate quality.

ASTM C1048 for tempered glazing.

ANSI Z97.1 and CPSC 16 CFR 1201: Category 1 and 2 for impact.

* + - * 1. Maximum Size: 60 x 96 inches (1524 x 2438 mm).

\*\* NOTE TO SPECIFIER \*\* Delete thickness options not required.

* + - * 1. Thickness, Level 1: 0.818 inches (20.8 mm).
        2. Thickness, Level 2: 1.075 inches (27.3 mm).
        3. Thickness, Level 3: 1.288 inches (32.7 mm).
        4. Thickness, Level 4: 1.338 inches (34.0 mm).
        5. Thickness, Level 5: 1.542 inches (39.2 mm).
        6. Thickness, Level 8: 2.374 inches (60.3 mm).

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - * 1. Color: Clear.
        2. Color: As indicated on Drawings.
        3. Color: To be selected by Architect.
        4. Color: \_\_\_\_\_.
      1. Glazing Accessories: Gaskets and sealant per Manufacturer's recommendations.

\*\* NOTE TO SPECIFIER \*\* Delete door options not required.

* + 1. Wood Doors:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete door type options not required.

* + - 1. Door Type: Flush Single, DR-FP.
      2. Door Type: Half Vision Single, DR-HV.
      3. Door Type: Full Vision Single, DR-FV.
      4. Door Type: Narrow Vision Single, DR-NV.
      5. Door Type: Double Vision Single, DR-DV.
      6. Door Type: Flush Double, DR-FP.
      7. Door Type: Half Vision Double, DR-HV.
      8. Door Type: Full Vision Double, DR-FV.
      9. Door Type: Narrow Vision Double, DR-NV.
      10. Door Type: Double Vision Double, DR-DV.
      11. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.
    1. Metal Doors:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete door type options not required.

* + - 1. Door Type: Flush Single, DR-FP.
      2. Door Type: Half Vision Single, DR-HV.
      3. Door Type: Full Vision Single, DR-FV.
      4. Door Type: Narrow Vision Single, DR-NV.
      5. Door Type: Double Vision Single, DR-DV.
      6. Door Type: Flush Double, DR-FP.
      7. Door Type: Half Vision Double, DR-HV.
      8. Door Type: Full Vision Double, DR-FV.
      9. Door Type: Narrow Vision Double, DR-NV.
      10. Door Type: Double Vision Double, DR-DV.
      11. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.
    1. Plastic Laminate Doors:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete door type options not required.

* + - 1. Door Type: Flush Single, DR-FP.
      2. Door Type: Half Vision Single, DR-HV.
      3. Door Type: Full Vision Single, DR-FV.
      4. Door Type: Narrow Vision Single, DR-NV.
      5. Door Type: Double Vision Single, DR-DV.
      6. Door Type: Flush Double, DR-FP.
      7. Door Type: Half Vision Double, DR-HV.
      8. Door Type: Full Vision Double, DR-FV.
      9. Door Type: Narrow Vision Double, DR-NV.
      10. Door Type: Double Vision Double, DR-DV.
      11. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.
    1. Frames:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete frame options not required.

* + - 1. Frame Type: Wood Frame, DR-SF.
      2. Frame Type: Metal Frame, DR-SF.
      3. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect. Frame shall leave no bullet path through frame body or stop.

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

* + 1. Windows:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete window type options not required.

* + - 1. Window Type: Wood Fixed Window, FW-FV.
      2. Window Type: Metal Fixed Window, FW-FV.
      3. Window Type: Wood Transaction Window, TW-FV.
      4. Window Type: Metal Transaction Window, TW-FV.
      5. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.

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

* + 1. Transoms:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete frame options not required.

* + - 1. Frame Type: Wood Frame, TR-FV.
      2. Frame Type: Metal Frame, TR-FV.
      3. Frame Type: PLAM Frame, TR-FV.
      4. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.

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

* + 1. Sidelights:
       1. Locations and Size: As indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete frame options not required.

* + - 1. Frame Type: Wood Frame, SL-FV.
      2. Frame Type: Metal Frame, SL-FV.
      3. Frame Type: PLAM Frame, SL-FV.
      4. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect.
    1. Hardware:
       1. Hinges: Minimum, hardened steel 5x5 inch (127 x 127 mm) bearing hinges.

\*\* NOTE TO SPECIFIER \*\* Delete locking option not required.

* + - 1. Locking: Coordinated with security consultant.
      2. Locking: As directed by Architect.
      3. Construction: As recommended by manufacturer to maintain ballistic properties and as approved by Architect. Frame shall leave no bullet path through frame body or stop.
    1. Fabrication:
       1. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
       2. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation.
          1. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
          2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled.
          3. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting.
          4. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
       3. Provide door, frame and glazing assemblies as integral units ready for installation.
    2. Finishes:
       1. General: To the greatest maximum possible, finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
       2. Preparation for Shop-Applied Transparent Finishing: Comply with referenced quality standard for sanding, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
       3. Transparent Finish:
          1. Grade: Premium.
          2. Finish: System - AWI System - 8, Acrylic Cross Linking, Water-Based.

\*\* NOTE TO SPECIFIER \*\* Delete stain options not required.

* + - * 1. Stain: As indicated on Drawings.
        2. Stain: To be selected by Architect.
        3. Stain: Not required.
        4. Stain: \_\_\_\_\_.
        5. Sheen, ASTM D523: Satin.
      1. Metal Finish:

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

* + - * 1. Aluminum: Clear Anodized, ALUCL.
        2. Aluminum: Light Bronze, ALULB.
        3. Aluminum: Medium Bronze, ALUMB.
        4. Aluminum: Dark Bronze, ALUDB.
        5. Aluminum: Custom painted, ALUPT, color as indicated on Drawings.
        6. Aluminum: Custom painted, ALUPT, color to be selected by Architect.
        7. Stainless Steel, STSTL.
        8. Steel: Light Bronze, STELB.
        9. Steel: Medium Bronze, STEMB.
        10. Steel: Dark Bronze, STEDB.
        11. Steel: Custom painted, STEPT, color as indicated on Drawings.
        12. Steel: Custom painted, STEPT, color to be selected by Architect.
        13. Custom Metal: \_\_\_\_\_.
      1. Protect mechanical finishes on exposed surfaces as necessary per manufacturer's recommendation.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      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.
      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.
      2. Adjust doors and hardware for proper operation.
   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