SECTION 08 40 00

GLAZED ALUMINUM SECURITY DOOR ENTRANCES, STOREFRONTS, AND CURTAIN WALLS

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

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\*\* NOTE TO SPECIFIER \*\* U.S. Bullet Proofing, Inc.; Ballistic, Blast, Storm Impact and Forced Entry Resistant Systems.  
This section is based on the products of U.S. Bullet Proofing, Inc., which is located at:16201 Branch Ct.Upper Marlboro, MD 20774Tel: 301-218-7920Fax: 301-218-7925Email: [request info (info@usbulletproofing.com)](https://arcat.com/rfi?action=email&company=U.S.%252BBullet%252BProofing%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(08400ubp)%253A%2520&coid=47901&spec=08400ubp&rep=&fax=301-218-7925)  
Web: <http://USBP.com>   
 [ [Click Here](https://arcat.com/company/u-s-bullet-proofing-inc-47901) ] for additional information.  
United States Bullet Proofing, Inc. (USBP) offers the most advanced product lines for aluminum high level security including Blast, Ballistic, Storm Impact and Forced Entry Resistant Doors, Windows and Wall Systems. Our unique products are engineered using industry-proven design standards and have been developed to compliment today's architectural doors and windows for government applications, educational facilities, financial buildings, safe rooms, guard booths and much more. Demand the very best, especially when your life or the lives of others depend on it. We look forward to helping you with your next security project.

1. GENERAL
   1. SECTION INCLUDES

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

* + 1. Glazed aluminum security curtain wall systems.
    2. Glazed aluminum security storefront systems.
    3. Glazed aluminum security doors and frame systems.
  1. RELATED SECTIONS

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

* + 1. Section 07 27 19 - Plastic Sheet Air Barriers .
    2. Section 07 84 13 - Penetration Firestopping.
    3. Section 07 91 23 - Backer Rods.
    4. Section 08 44 23 - Structural Sealant Glazed Curtain Wall.
    5. Section 08 41 26 - All-Glass Entrances and Storefronts.
    6. Section 08 42 29 - Automatic Entrances.
    7. Section 08 43 29 - Sliding Storefronts.
    8. Section 08 51 13 - Aluminum Windows.
    9. Section 08 71 00 - Door Hardware.
    10. 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. American Architectural Manufacturers Association (AAMA):
       1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
       2. AAMA 701 - Voluntary specification for pile weatherstripping and replaceable fenestration weather seals.
       3. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures For Pigmented Organic Coatings on Aluminum Extrusions and Panels.
       4. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
       5. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
    2. American Society Of Heating, Refrigerating And Air Conditioning Engineers:
       1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
    3. ASTM International (ASTM):
       1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
       2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
       3. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
       4. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
       5. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable.
       6. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
       7. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
       8. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
       9. ASTM C1349 - Standard Specification for Architectural Flat Glass Clad Polycarbonate.
       10. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
       11. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
       12. ASTM F1642 - Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings.
    4. Builders Hardware Manufacturers Association (BHMA):
       1. BHMA A156.1 - Butts and Hinges.
       2. BHMA A156.2 - Locks and Latches.
       3. BHMA A156.3 - Exit Devices.
       4. BHMA A156.4 - Door Control-Closers.
       5. BHMA A156.6 - Architectural Door Trim.
       6. BHMA A156.16 - Auxiliary Hardware.
       7. BHMA A156.21 - Thresholds.
       8. BHMA A156.26 - Continuous Hinge.
    5. Federal Emergency Management Agency (FEMA):
       1. FEMA P-361-15 - Safe Rooms for Tornadoes and Hurricanes.
    6. International Code Council (ICC):
       1. ICC 500-14 - Standard for the Design and Construction of Storm Shelters.
    7. National Fenestration Rating Council (NFRC):
       1. NFRC 100 - Procedure for Determining Fenestration Product U-Factors.
       2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.
       3. NFRC 400 - Procedure for Determining Fenestration Product Air Leakage.
    8. Underwriters Laboratories (UL):
       1. UL 305 - Standard for Safety Panic Hardware.
  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.
     3. Verification Samples: Two representative units of each type, size, pattern, and color.
     4. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
     5. Certificate of Compliance: Certification that installed products meet specified design and performance requirements.
  2. 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 one year warranty against defects in materials and workmanship.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: U.S. Bullet Proofing, Inc., which is located at:16201 Branch Ct.Upper Marlboro, MD 20774Tel: 301-218-7920Fax: 301-218-7925Email: [request info (info@usbulletproofing.com)](https://arcat.com/rfi?action=email&company=U.S.%252BBullet%252BProofing%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(08400ubp)%253A%2520&coid=47901&spec=08400ubp&rep=&fax=301-218-7925);Web: <http://USBP.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 - GENERAL
     1. Delegated Design: System design to be performed by qualified professional engineer licensed in State of \_\_\_\_.
     2. Structural Performance: Design and size components to withstand the following load requirements without damage or permanent set:
        1. Design Wind Loads: \_\_\_\_.
        2. Design Wind Loads: As indicated on Drawings.
        3. Movement:
           1. Ambient temperature range: 120 to \_\_ degrees F (48.9 to \_\_\_ degrees C).
           2. Surface temperature range: 160 to \_\_ degrees F (71.1 to \_\_\_ degrees C).
        4. Uniform structural loading: No glass breakage or permanent damage to fasteners or system components. Tested to ASTM E330/E330M.
           1. Design Pressure: 1.5 times.
           2. Design Pressure: \_\_\_ times.

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

* 1. GLAZED ALUMINUM SECURITY CURTAIN WALLS
     1. Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete ballistics resistance paragraph if not required or delete ballistics levels not required.

* + - 1. Ballistics Resistance: Installed bullet-resistant glazing shall withstand ballistic impact loads and forces without damage to the glazing beyond that allowed by referenced standards.
         1. Ballistic Level: Pass UL 752 Level 1.
         2. Ballistic Level: Pass UL 752 Level 2.
         3. Ballistic Level: Pass UL 752 Level 3.
         4. Ballistic Level: Pass UL 752 Level 4.
         5. Ballistic Level: Pass UL 752 Level 5.
         6. Ballistic Level: Pass UL 752 Level 6.
         7. Ballistic Level: Pass UL 752 Level 7.
         8. Ballistic Level: Pass UL 752 Level 8.

\*\* NOTE TO SPECIFIER \*\* Design Parameters vary for Project and should be determined by a qualified blast consultant based on the Owner's and tenant's requirements. Retain appropriate "Hazard Rating" below if blast resistance is required. Obtain peak pressure, impulse or duration, and hazard and protection criteria conformance from the building team's engineers and blast consultant's calculations. Delete paragraph if not required.

* + - 1. Blast Resistance:
         1. Hazard Rating according to ASTM F1642: None.
         2. Hazard Rating according to ASTM F1642: Very low.
         3. Hazard Rating according to ASTM F1642: Low.
         4. Hazard Rating according to ASTM F1642: Medium.
         5. Hazard Rating according to ASTM F1642: High.
         6. Peak Pressure: \_\_\_.
         7. Positive Phase Impulse: \_\_\_
      2. Water Penetration: No uncontrolled water leakage, Tested to ASTM E331.

\*\* NOTE TO SPECIFIER \*\* Delete minimum static air pressure differential options not required.

* + - * 1. A minimum static air pressure differential of 6.24 psf (298.8 Pa).
        2. A minimum static air pressure differential of 10.0 psf (478.8 Pa\_.
        3. A minimum static air pressure differential of \_\_\_ psf (\_\_\_ Pa).
      1. Energy Performance: Certify and label energy performance for fixed glazing and framing areas per NFRC or other nationally recognized accredited standards organization acceptable to authorities having jurisdiction.

\*\* NOTE TO SPECIFIER \*\* See Climate Zone map at <https://codes.iccsafe.org/content/IECC2021P2/chapter-3-ce-general-requirements> . Delete climate zone options not required.

* + - * 1. Thermal Transmittance (U-Factor): Climate Zone per ASHRAE 90.1-19 and IECC.

Climate Zone: 0. U-Factor per NFRC 100:

0.83 Btu/sq ft. x h x degree F (4.71 W/sq m x degree C.

Climate Zone: 1. U-Factor per NFRC 100:

1.10 Btu/sq ft. x h x degree F (6.25 W/sq m x degree C.

Climate Zone: 2. U-Factor per NFRC 100:

0.83 Btu/sq ft. x h x degree F (4.71 W/sq m x degree C.

Climate Zone: 3. U-Factor per NFRC 100:

0.77 Btu/sq ft. x h x degree F (4.37 W/sq m x degree C.

Climate Zone: 4. U-Factor per NFRC 100:

0.68 Btu/sq ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 5. U-Factor per NFRC 100:

0.68 Btu/sq ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 6. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 7. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 8. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: \_\_. U-Factor per NFRC 100:

\_\_ Btu/sq. ft. x h x degree F ( W/sq m x degree C.

\*\* NOTE TO SPECIFIER \*\* First option below is ASHRAE 90.1-19 limit. Delete option not required.

* + - * 1. Air Infiltration: Maximum air leakage through fixed framing and glass areas of 0.4 cfm per sq. ft. (7.31 cu m per hr per sq m ) of fixed wall area per NFRC 400.
        2. Air Infiltration: Maximum air leakage through fixed framing and glass areas of \_\_\_ cfm per sq. ft. ( ) of fixed wall area per NFRC 400.
        3. Solar Heat Gain Coefficient: Climate Zones per ASHRAE 90.1-19 and 2021 IECC.

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

Climate Zone: 0. SHGC of not more than 0.22 per NFRC 200.

Climate Zone: 1. SHGC of not more than 0.23 per NFRC 200.

Climate Zone: 2. SHGC of not more than 0.25 per NFRC 200.

Climate Zone: 3. SHGC of not more than 0.25 per NFRC 200.

Climate Zone: 4. SHGC of not more than 0.36 per NFRC 200.

Climate Zone: 5. SHGC of not more than 0.36 per NFRC 200.

Climate Zone: 6. SHGC of not more than 0.38 per NFRC 200.

Climate Zone: 7. SHGC of not more than 0.40 per NFRC 200.

Climate Zone: 8. SHGC of not more than 0.40 per NFRC 200.

Climate Zone: \_\_. SHGC of not more than \_\_\_\_ per NFRC 200.

* + 1. Glazed Aluminum Security Curtain Wall System:
       1. Product: Model USAW-400. Flush-glazed, thermally broken, extruded aluminum framed.

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

* + - * 1. Type: Ballistic-resistant storefront.
        2. Type: Blast-resistant storefront.
        3. Type: Ballistic and blast-resistant storefront.

\*\* NOTE TO SPECIFIER \*\* Framing will accommodate glazing from 1 to 2-3/8 inch (25 x 60 mm) thickness. Delete glazing thickness option not required.

* + - 1. Framing: 2-1/2 x 4-1/2 inch (64 x 114 mm). Designed to receive ballistics-resistant glazing retained mechanically with gaskets on four sides.
         1. Glazing Thickness: 1 inch (25 mm).
         2. Glazing Thickness: \_\_ inch (\_\_ mm).

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required.

* + - 1. Ballistics-Resistant Glazing: Thicknesses indicated are minimums. Ballistics-resistant glazing in thicknesses as necessary to comply with requirements indicated.
         1. Form: Laminated glass per ASTM C1172
         2. Form: Glass-clad polycarbonate per ASTM C1349
         3. Form: Polycarbonate sheet
         4. Form: Laminated polycarbonate
         5. Form: Complying with safety glazing requirements.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required. Abrasion resistant surface coating is optional for Levels 1 and 2 and standard for Level 3.

* + - 1. Bullet Resistant Glazing in accordance with UL 752 Level 1 to 3.
         1. Level 1 Form: Laminated polycarbonate/acrylic/polycarbonate.
         2. Level 1 Form: Acrylic sheet.
         3. Level 1 Form: Glass-clad polycarbonate per ASTM C1349.
         4. Level 1 Form: All-Glass.
         5. Level 2 Form: Laminated polycarbonate/acrylic/polycarbonate.
         6. Level 2 Form: Acrylic sheet.
         7. Level 2 Form: Glass-clad polycarbonate per ASTM C1349.
         8. Level 2 Form: All-Glass.
         9. Level 3 Form: Laminated multi-ply polycarbonate.
         10. Level 3 Form: Acrylic sheet.
         11. Level 3 Form: Glass-clad polycarbonate per ASTM C1349.
         12. Level 3 Form: All-Glass.
         13. Level \_\_ Form: \_\_.
         14. Abrasion resistant coating.
    1. Accessories:

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

* + - 1. Glazing Accessories: Specified in Section 08 83 13 - Mirrored Glass Glazing0.
      2. Anchors: Series 316 stainless steel.
      3. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A123/A123M or ASTM A153/A153M.
      4. Exposed Flashing: Aluminum sheet per Div. 07 Section "FLASHING AND SHEET METAL"; finish to match framing members.
      5. Concealed Flashing: Dead-soft, 0.018 inch (0.457 mm) thick stainless steel, ASTM A240 of type recommended by manufacturer.
      6. Framing Sealants: Manufacturer's standard.
      7. Joint Sealants: For installation at perimeter of framing, as specified in Section 07 91 23 - Backer Rods0.
    1. Materials:

\*\* NOTE TO SPECIFIER \*\* Level 1 to 3 is all aluminum, requiring no steel inserts. Level 4 to 8 require steel inserts.

* + - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
         1. Extrusions: ASTM B221.
         2. Sheet: ASTM B209.
      2. Steel Reinforcement: Manufacturer's standard; galvanized or zinc-rich primed finish.
         1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
         2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
    1. Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete aluminum finish options not required, then delete performance and color options not required.

* + - 1. Aluminum Finish: Anodized in accordance with AAMA 611, Architectural Class I anodized.
         1. Color: Clear.
         2. Color: Dark bronze.
      2. Aluminum Finish: Organic 2-Coat PVDF Fluoropolymer. Prepare, pretreat, and apply to exposed metal surfaces complying with coating and resin manufacturers' written instructions.
         1. Performance: Superior in accordance with AAMA 2605. Not less than 70 percent PVDF resin by weight in color coat.
         2. Performance: High in accordance with AAMA 2604. Not less than 50 percent PVDF resin by weight in color coat.
         3. Color: Stock color selected from manufacturer's full color range.
         4. Color: Custom color as directed.
      3. Aluminum Finish: Pigmented Organic. Thermosetting polyester baked enamel coating system.
         1. Performance: AAMA 2603.

Color: Stock color selected from manufacturer's full color range.

Color: Custom color as directed.

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

* 1. GLAZED ALUMINUM SECURITY STOREFRONT
     1. Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete ballistics resistance paragraph if not required or delete ballistics levels not required.

* + - 1. Ballistics Resistance: Installed bullet-resistant glazing shall withstand ballistic impact loads and forces without damage to the glazing beyond that allowed by referenced standards.
         1. Ballistic Level: Pass UL 752 Level 1.
         2. Ballistic Level: Pass UL 752 Level 2.
         3. Ballistic Level: Pass UL 752 Level 3.
         4. Ballistic Level: Pass UL 752 Level 4.
         5. Ballistic Level: Pass UL 752 Level 5.
         6. Ballistic Level: Pass UL 752 Level 6.
         7. Ballistic Level: Pass UL 752 Level 7.
         8. Ballistic Level: Pass UL 752 Level 8.
      2. Blast Resistance:

\*\* NOTE TO SPECIFIER \*\* Design Parameters vary for Project and should be determined by a qualified blast consultant based on the Owner's and tenant's requirements. Retain appropriate "Hazard Rating" below if blast resistance is required. Obtain peak pressure, impulse or duration, and hazard and protection criteria conformance from the building team's engineers and blast consultant's calculations. Delete hazard rating options not required.

* + - * 1. Hazard Rating according to ASTM F1642: None.
        2. Hazard Rating according to ASTM F1642: Very low.
        3. Hazard Rating according to ASTM F1642: Low.
        4. Hazard Rating according to ASTM F1642: Medium.
        5. Hazard Rating according to ASTM F1642: High.
        6. Peak Pressure: \_\_\_.
        7. Positive Phase Impulse: \_\_\_
      1. Water Penetration: No uncontrolled water leakage, Tested to ASTM E331.

\*\* NOTE TO SPECIFIER \*\* Delete minimum static air pressure differential options not required.

* + - * 1. A minimum static air pressure differential of 6.24 psf (30.5 kg per sq m).
        2. A minimum static air pressure differential of 10.0 psf (48.8 kg per sq m).
        3. A minimum static air pressure differential of \_\_\_ psf.
      1. Energy Performance: Certify and label energy performance for fixed glazing and framing areas per NFRC or other nationally recognized accredited standards organization acceptable to authorities having jurisdiction.

\*\* NOTE TO SPECIFIER \*\* See Climate Zone map at <https://codes.iccsafe.org/content/IECC2021P2/chapter-3-ce-general-requirements> . Delete climate zone options not required.

* + - * 1. Thermal Transmittance (U-Factor): Climate Zone per ASHRAE 90.1-19 and IECC.

Climate Zone: 0. U-Factor per NFRC 100:

0.83 Btu/sq ft. x h x degree F (4.71 W/sq m x degree C.

Climate Zone: 1. U-Factor per NFRC 100:

1.10 Btu/sq ft. x h x degree F (6.25 W/sq m x degree C.

Climate Zone: 2. U-Factor per NFRC 100:

0.83 Btu/sq ft. x h x degree F (4.71 W/sq m x degree C.

Climate Zone: 3. U-Factor per NFRC 100:

0.77 Btu/sq ft. x h x degree F (4.37 W/sq m x degree C.

Climate Zone: 4. U-Factor per NFRC 100:

0.68 Btu/sq ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 5. U-Factor per NFRC 100:

0.68 Btu/sq ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 6. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 7. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: 8. U-Factor per NFRC 100:

0.68 Btu/sq. ft. x h x degree F (3.86 W/sq m x degree C.

Climate Zone: \_\_. U-Factor per NFRC 100:

\_\_ Btu/sq. ft. x h x degree F ( W/sq m x degree C.

\*\* NOTE TO SPECIFIER \*\* First option below is ASHRAE 90.1-19 limit. Delete air infiltration option not required.

* + - * 1. Air Infiltration: Maximum air leakage through fixed framing and glass areas of 0.4 cfm per sq. ft. (7.31 cu m per hr per sq m) of fixed wall area per NFRC 400.
        2. Air Infiltration: Maximum air leakage through fixed framing and glass areas of \_\_\_ cfm per sq. ft. (\_\_\_ cu m per hr per sq m ) of fixed wall area per NFRC 400.
        3. Solar Heat Gain Coefficient: Climate Zones per ASHRAE 90.1-19 and 2021 IECC.

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

Climate Zone: 0. SHGC of not more than 0.22 per NFRC 200.

Climate Zone: 1. SHGC of not more than 0.23 per NFRC 200.

Climate Zone: 2. SHGC of not more than 0.25 per NFRC 200.

Climate Zone: 3. SHGC of not more than 0.25 per NFRC 200.

Climate Zone: 4. SHGC of not more than 0.36 per NFRC 200.

Climate Zone: 5. SHGC of not more than 0.36 per NFRC 200.

Climate Zone: 6. SHGC of not more than 0.38 per NFRC 200.

Climate Zone: 7. SHGC of not more than 0.40 per NFRC 200.

Climate Zone: 8. SHGC of not more than 0.40 per NFRC 200.

Climate Zone: \_\_. SHGC of not more than \_\_\_\_ per NFRC 200.

* + 1. Glazed Aluminum Security Storefront Systems
    2. Product: Model USAW-400. Flush-glazed, thermally broken, extruded aluminum framed.

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

* + - 1. Type: Blast-resistant storefront.
      2. Type: Ballistic-resistant storefront.
      3. Type: Blast and ballistic-resistant storefront.

\*\* NOTE TO SPECIFIER \*\* Framing will accommodate glazing from 1 to 2-3/8 inch (25 x 60 mm) thickness. Delete glazing thickness option not required.

* + - 1. Framing: 2-1/2 x 4-1/2 inch (64 x 114 mm). Designed to receive ballistics-resistant glazing retained mechanically with gaskets on four sides.
         1. Glazing Thickness: 1 inch (25 mm).
         2. Glazing Thickness: \_\_ inch (\_\_ mm).

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required.

* + - 1. Ballistics-Resistant Glazing: Thicknesses indicated are minimums. Ballistics-resistant glazing in thicknesses as necessary to comply with requirements indicated.
         1. Form: Laminated glass per ASTM C1172
         2. Form: Glass-clad polycarbonate per ASTM C1349
         3. Form: Polycarbonate sheet
         4. Form: Laminated polycarbonate
         5. Form: Complying with safety glazing requirements.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required. Abrasion resistant surface coating is optional for Levels 1 and 2 and standard for Level 3.

* + - 1. Bullet Resistant Glazing in accordance with UL 752 Level 1 to 3.
         1. Level 1 Form: Laminated polycarbonate/acrylic/polycarbonate.
         2. Level 1 Form: Acrylic sheet.
         3. Level 1 Form: Glass-clad polycarbonate per ASTM C1349.
         4. Level 1 Form: All-Glass.
         5. Level 2 Form: Laminated polycarbonate/acrylic/polycarbonate.
         6. Level 2 Form: Acrylic sheet.
         7. Level 2 Form: Glass-clad polycarbonate per ASTM C1349.
         8. Level 2 Form: All-Glass.
         9. Level 3 Form: Laminated multi-ply polycarbonate.
         10. Level 3 Form: Acrylic sheet.
         11. Level 3 Form: Glass-clad polycarbonate per ASTM C1349.
         12. Level 3 Form: All-Glass.
         13. Level \_\_ Form: \_\_.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required.

* + - 1. Ballistics-Resistant Glazing: Thicknesses indicated are minimums. Ballistics-resistant glazing in thicknesses as necessary to comply with requirements indicated.
         1. Form: Laminated glass per ASTM C1172
         2. Form: Glass-clad polycarbonate per ASTM C1349
         3. Form: Polycarbonate sheet
         4. Form: Laminated polycarbonate
         5. Form: Complying with safety glazing requirements.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph if not required or delete form options not required. Abrasion resistant surface coating is optional for Levels 1 and 2 and standard for Level 3.

* + - 1. Bullet Resistant Glazing in accordance with UL 752 Level 1 to 3.
         1. Level 1 Form: Laminated polycarbonate/acrylic/polycarbonate.
         2. Level 1 Form: Acrylic sheet.
         3. Level 1 Form: Glass-clad polycarbonate per ASTM C1349.
         4. Level 1 Form: All-Glass.
         5. Level 2 Form: Laminated polycarbonate/acrylic/polycarbonate.
         6. Level 2 Form: Acrylic sheet.
         7. Level 2 Form: Glass-clad polycarbonate per ASTM C1349.
         8. Level 2 Form: All-Glass.
         9. Level 3 Form: Laminated multi-ply polycarbonate.
         10. Level 3 Form: Acrylic sheet.
         11. Level 3 Form: Glass-clad polycarbonate per ASTM C1349.
         12. Level 3 Form: All-Glass.
         13. Level \_\_ Form: \_\_.
         14. Abrasion resistant coating.
    1. Accessories:

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

* + - 1. Glazing Accessories: Specified in Section 08 83 13 - Mirrored Glass Glazing0.
      2. Anchors: Series 316 stainless steel.
      3. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A123/A123M or ASTM A153/A153M.
      4. Exposed Flashing: Aluminum sheet per Div. 07 Section "FLASHING AND SHEET METAL"; finish to match framing members.
      5. Concealed Flashing: Dead-soft, 0.018 inch (0.09 mm) thick stainless steel, ASTM A240 of type recommended by manufacturer.
      6. Framing Sealants: Manufacturer's standard.
      7. Joint Sealants: For installation at perimeter of framing, as specified in Section 07 91 23 - Backer Rods0.
    1. Materials:

\*\* NOTE TO SPECIFIER \*\* Level 1 to 3 is all aluminum, requiring no steel inserts. Level 4 to 8 require steel inserts.

* + - 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
         1. Extrusions: ASTM B221.
         2. Sheet: ASTM B209.
      2. Steel Reinforcement: Manufacturer's standard; galvanized or zinc-rich primed finish.
         1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
         2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
    1. Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete aluminum finish options not required, then delete performance and color options not required.

* + - 1. Aluminum Finish: Anodized in accordance with AAMA 611, Architectural Class I anodized.
         1. Color: Clear.
         2. Color: Dark bronze.
      2. Aluminum Finish: Organic 2-Coat PVDF Fluoropolymer. Prepare, pretreat, and apply to exposed metal surfaces complying with coating and resin manufacturers' written instructions.
         1. Performance: Superior in accordance with AAMA 2605. Not less than 70 percent PVDF resin by weight in color coat.
         2. Performance: High in accordance with AAMA 2604. Not less than 50 percent PVDF resin by weight in color coat.
         3. Color: Stock color selected from manufacturer's full color range.
         4. Color: Custom color as directed.
      3. Aluminum Finish: Pigmented Organic. Thermosetting polyester baked enamel coating system.
         1. Performance: AAMA 2603.

Color: Stock color selected from manufacturer's full color range.

Color: Custom color as directed.

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

* 1. ALUMINUM SECURITY DOORS AND FRAMES
     1. Performance Requirements:

\*\* NOTE TO SPECIFIER \*\* Delete two of the following three paragraphs, whichever do not apply

* + 1. Ballistics Resistance: Installed bullet-resistant glazing shall withstand ballistic impact loads and forces without damage to the glazing beyond that allowed by referenced standards.

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

* + - 1. Ballistic Level: Pass UL 752 Level 1.
      2. Ballistic Level: Pass UL 752 Level 2.
      3. Ballistic Level: Pass UL 752 Level 3.
      4. Ballistic Level: Pass UL 752 Level 4.
      5. Ballistic Level: Pass UL 752 Level 5.
      6. Ballistic Level: Pass UL 752 Level 6.
      7. Ballistic Level: Pass UL 752 Level 7.
      8. Ballistic Level: Pass UL 752 Level 8.
    1. Blast Resistance:

\*\* NOTE TO SPECIFIER \*\* Design Parameters vary for Project and should be determined by a qualified blast consultant based on the Owner's and tenant's requirements. Retain appropriate "Hazard Rating" below if blast resistance is required. Obtain peak pressure, impulse or duration, and hazard and protection criteria conformance from the building team's engineers and blast consultant's calculations. Delete hazard rating options not required.

* + - 1. Hazard Rating according to ASTM F1642: None.
      2. Hazard Rating according to ASTM F1642: Very low.
      3. Hazard Rating according to ASTM F1642: Low.
      4. Hazard Rating according to ASTM F1642: Medium.
      5. Hazard Rating according to ASTM F1642: High.
      6. Peak Pressure: \_\_\_.
      7. Positive Phase Impulse: \_\_\_.
    1. Storm Resistance: Pass FEMA P-361-15 and ICC 500-14 testing.
  1. Security Doors and Frames:
     1. Doors and Frames: Model USAW-1000. Flush-glazed, thermally broken, extruded aluminum framed.

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

* + - 1. Type: Detention security.
      2. Type: Storm-resistant.
      3. Type: Forced-entry-resistant.
      4. Type: Blast-resistant.
      5. Type: Ballistic-resistant.

\*\* NOTE TO SPECIFIER \*\* Doors will accommodate glazing from 1 to 2-3/16 inch (25 x 56 mm) thickness. Delete glazing thickness and xize options not required.

* + - 1. Doors: Designed to receive glazing retained mechanically with gaskets on four sides.
         1. Glazing Thickness: 1 inches (25 mm).
         2. Glazing Thickness: \_\_\_ inches (\_\_\_ mm).
         3. Size (W x H): 36 x 84 inch (914 x 2134 mm).
         4. Size (W x H): \_\_\_ x \_\_\_ inch (\_\_\_ x \_\_\_ x mm).
         5. Size (W x H): As scheduled on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Contact Manufacturer for Custom Sizing

* + - * 1. Thickness: 2-3/4 inch (70 mm).
        2. Stiles: Wide: 5-7/16 inch (138 mm) width.
        3. Stiles: Narrow: 3 inch (76 mm) width.

\*\* NOTE TO SPECIFIER \*\* 6-5/16 inch (130 mm) bottom rail is standard. 10 inch (254 mm) bottom rail required to comply with ADA standards.

* + - * 1. Top Rails: 6-5/16 inch (160 mm).
        2. Bottom Rails: 10 inch (254 mm).
        3. Bottom Rails: 6-5/16 inch (160 mm).
        4. Design: Full vision.
        5. Design: Half-lite.
        6. Design: Two-lite with horizontal mullion.
        7. Design: Flush (opaque non-glazed).

\*\* NOTE TO SPECIFIER \*\* Framing will accommodate glazing from 1/4 to 2-1/4 inch (6 to 57 mm) thickness. Delete glazing option not required.

* + - 1. Frame Size: 2-1/2 x 4-1/2 inch (64 x 114 mm), designed to receive ballistics-resistant glazing retained mechanically with gaskets on four sides.
         1. Glazing: 1 inch (25 mm).
         2. Glazing: \_\_ inch (\_\_ mm).
    1. Hardware:

\*\* NOTE TO SPECIFIER \*\* Delete paragraph below if specifying door hardware in this Section.

* + 1. Entrance Door Hardware: As specified in Division 08 Section "Door Hardware" and as follows.

\*\* NOTE TO SPECIFIER \*\* Delete hardware items below that are not needed or that are specified in Division 08 Section "Door Hardware." Hardware below is specified according to BHMA standards. Modify if desired to indicate proprietary products and model numbers.

* + 1. Continuous-Gear Hinges in accordance with BHMA A156.26:

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

* + - 1. Type: gear.
      2. Type: pin-and-barrel.
    1. Pivot Hinges in accordance with BHMA A156.4, Grade 1.
       1. Offset-Pivot Hinges: Top, bottom, and intermediate offset pivots at each door leaf.
    2. Butt Hinges in accordance with BHMA A156.1, Grade 1, radius corner.
       1. Nonremovable Pins: Set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while entrance door is closed.

\*\* NOTE TO SPECIFIER \*\* Delete exterior pin option not required.

* + - 1. Exterior Hinges: Stainless steel, with stainless-steel pin.
      2. Exterior Hinges: Nonferrous.
      3. Quantities: One hinge for every 30 inches of door height, unless otherwise indicated.
    1. Mortise Auxiliary Locks in accordance with BHMA A156.5, Grade 1.

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

* + - 1. Cylinders: BHMA A156.5, Grade 1; keyed as directed.
      2. Cylinders: As specified in Division 08 Section "Door Hardware."
    1. Panic Exit Devices in accordance with BHMA A156.3, Grade 1, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
    2. Removable Mullions in accordance with BHMA A156.3 extruded aluminum, keyed removable type.
       1. When used with panic exit devices, provide units tested with exit devices to be used; listed and labeled per UL 305.
    3. Manual Flush Bolts in accordance with BHMA A156.16, Grade 1.
    4. Automatic and Self-Latching Flush Bolts in accordance with BHMA A156.3, Grade 1.
    5. Strikes: Each latch or lock bolt with dust box fabricated for aluminum framing.
    6. Paragraph below include pulls and push plates.
    7. Operating Trim in accordance with BHMA A156.6.
    8. Closers in accordance with BHMA A156.4, Grade 1, sized as required by door size, exposure to weather, and anticipated frequency of use; adjustable to comply with field conditions and requirements for opening force, with accessories required for a complete installation.
    9. Overhead Holders and Stops in accordance with BHMA A156.8, Grade 1.
    10. Door Stops in accordance with BHMA A156.16, Grade 1, with integral rubber bumper.

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

* + - 1. Mounting: Floor.
      2. Mounting: Wall.
    1. Weather Stripping: Manufacturer's standard replaceable components.
       1. Sliding Type: AAMA 701, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
    2. Bottom Sweeps: Manufacturer's standard with concealed fasteners on mounting strip.
    3. Thresholds in accordance with BHMA A156.21 raised thresholds; 1:2 maximum beveled slope; 1/2 inch (13 maximum height.
    4. Security Glazing:

\*\* NOTE TO SPECIFIER \*\* The project forced entry and/or bullet resistance threat must be identified before selection of test standard. The designer should then select the forced entry testing standard that most represents the threat. Contact manufacturer for assistance.

* + - 1. Thicknesses indicated are minimums. Ballistics-resistant glazing in thicknesses as necessary to comply with requirements indicated.

\*\* NOTE TO SPECIFIER \*\* Delete the ballistic resistance glazing paragraph option not required. The possible UL 752 Levels are 1, 2, 3, 4, 5, 6, 7, or 8.

* + - 1. Ballistic-Resistant Glazing: Pass UL 752 Level \_\_\_.

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

* + - * 1. Level 1 Form: Laminated polycarbonate/acrylic/polycarbonate.
        2. Level 1 Form: Acrylic sheet.
        3. Level 1 Form: Glass-clad polycarbonate per ASTM C1349.
        4. Level 1 Form: All-Glass.
        5. Level 2 Form: Laminated polycarbonate/acrylic/polycarbonate.
        6. Level 2 Form: Acrylic sheet.
        7. Level 2 Form: Glass-clad polycarbonate per ASTM C1349.
        8. Level 2 Form: All-Glass.
        9. Level 3 Form: Laminated multi-ply polycarbonate.
        10. Level 3 Form: Acrylic sheet.
        11. Level 3 Form: Glass-clad polycarbonate per ASTM C1349.
        12. Level 3 Form: All-Glass.
        13. Level \_\_ Form: Laminated glass per ASTM C1172.
        14. Level \_\_ Form: Glass-clad polycarbonate per ASTM C1349.
        15. Level \_\_ Form: Polycarbonate sheet.
        16. Level \_\_ Form: Laminated polycarbonate.
        17. Level \_\_ Form: \_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete blast-resistant glazing if not required or delete form options not required.

* + - 1. Blast-Resistant Glazing: Pass ASTM F 1642 Hazard Rating specified in Performance Requirements Article above.
      2. Form: Laminated glass per ASTM C1172.
      3. Form: Glass-clad polycarbonate per ASTM C1349.
      4. Form: Polycarbonate sheet Laminated polycarbonate.
      5. Form: \_\_\_\_\_\_\_\_\_.
  1. Accessories:

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

* + 1. Glazing Accessories:
       1. Specified in Section 08 80 00 - Glazing.
       2. Specified in Section 08 88 39 - Pressure-Resistant Glazing.
       3. Specified in Section 08 88 53 - Security Glazing.
       4. Specified in Section 08 88 56 Ballistics-Resistant Glazing.
    2. Anchors: Series 316 stainless steel.
    3. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A123/A123M or ASTM A153/A153M.
    4. Exposed Flashing: Aluminum sheet finished to match framing members.
    5. Concealed Flashing: Dead-soft, 0.018 inch (0.457 mm) thick stainless steel, ASTM A240 of type recommended by manufacturer.
    6. Concealed Framing Sealants: Manufacturer's standard.
    7. Joint Sealants: For installation at perimeter of framing, as specified in Section 07 91 23 - Backer Rods0.
  1. Materials:

\*\* NOTE TO SPECIFIER \*\* UL 752 Levels 1 to 3 are all aluminum, requiring no steel inserts. Level 4 to 8 require steel inserts.

* + 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
       1. Extrusions: ASTM B221.
       2. Sheet: ASTM B209.
    2. Steel Reinforcement: Manufacturer's standard; galvanized or zinc-rich primed finish.
       1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
       2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
    3. Finishes:

\*\* NOTE TO SPECIFIER \*\* Delete aluminum finish options not required, then delete performance and color options not required.

* + - 1. Aluminum Finish: Anodized in accordance with AAMA 611, Architectural Class I anodized.
         1. Color: Clear.
         2. Color: Dark bronze.
      2. Aluminum Finish: Organic 2-Coat PVDF Fluoropolymer. Prepare, pretreat, and apply to exposed metal surfaces complying with coating and resin manufacturers' written instructions.
         1. Performance: Superior in accordance with AAMA 2605. Not less than 70 percent PVDF resin by weight in color coat.
         2. Performance: High in accordance with AAMA 2604. Not less than 50 percent PVDF resin by weight in color coat.
         3. Color: Stock color selected from manufacturer's full color range.
         4. Color: Custom color as directed.
      3. Aluminum Finish: Pigmented Organic. Thermosetting polyester baked enamel coating system.
         1. Performance: AAMA 2603.

Color: Stock color selected from manufacturer's full color range.

Color: Custom color as directed.

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. Aluminum Security Curtainwall and Storefront:
         1. Install framing and glazing in accordance with manufacturer's instructions and approved Shop Drawings and Section 08 83 13 - Mirrored Glass Glazing0.
         2. Installation Tolerances: Comply with the following non-accumulating maximum tolerances:
            1. Maximum Variation in Diagonal Framing Measurements: 1/8 inch 3 mm).
            2. Offset Between Adjacent Framing Members: 1/16 inch (1.5 mm).
            3. Maximum Variation from Plumb: 1/8 inch (3 mm) per 12 ft (3.658 m).
            4. Alignment: Plus or minus 1/16 inch (1.5 mm) from door face to face of framing.
            5. Sealant space between system and adjacent construction:

As indicated but not greater than 1/2 inch (13 mm) or less than 1/4 inch (6 mm).

As indicated but not greater than \_\_\_ inch or less than \_\_\_ inch.

* + 1. Aluminum Security Doors and Frames:
       1. Install doors, framing, and glazing in accordance with manufacturer's instructions and approved Shop Drawings and appropriate related sections in Division 08,
       2. Installation Tolerances: Comply with the following non-accumulating maximum tolerances:
          1. Maximum Variation in Diagonal Framing Measurements: 1/8 inch (3 mm).
          2. Offset Between Adjacent Framing Members: 1/16 inch (1.5 mm).
          3. Maximum Variation from Plumb: 1/8 inch (3 mm) per 12 ft (3.658 m).
          4. Alignment: Plus or minus 1/16 inch (1.5 mm) from door face to face of framing.
          5. Door Twist: Plus or minus 1/16 inch (1.5 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
          6. Sealant space between system and adjacent construction:

As indicated but not greater than 1/2 inch (13 mm) or less than 1/4 inch (6 mm).

As indicated but not greater than \_\_\_ inch or less than \_\_\_ inch.

* + - 1. Design Clearances:
      2. Between Door and Frame: Maximum 1/8 inch (3 mm).
      3. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.5 mm).

\*\* NOTE TO SPECIFIER \*\* Confirm values in two paragraphs below meet requirements of specified standards. Consult manufacturer if required.

* + - 1. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (10 mm).
      2. Between Bottom of Door and Top of Threshold: Maximum \_\_\_ inch (\_\_\_ mm).
      3. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).
      4. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum \_\_\_ inch (\_\_\_ mm).
  1. 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 manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION