**SECTION 08 11 16**

**Medium Stile Monumental Door**

**PART 1 GENERAL**

1. **SECTION INCLUDES**
   1. SL-14 Medium Stile Monumental Door.
   2. SL-14 Medium Stile Monumental Door installed in Aluminum Framing.
   3. SL-14 Medium Stile Monumental Door installed in Thermally Broken Aluminum Framing.
   4. SL-14 Medium Stile Monumental Door installed in Retrofit Aluminum Framing.
2. **RELATED SECTIONS**
   1. Section 08 01 17 – Operation and Maintenance of Integrated Door Opening Assemblies.
   2. Section 08 06 71 – Door Hardware Schedule.
   3. Section 08 06 80 – Glazing Schedule.
   4. Section 08 10 00 – Doors and Frames.
   5. Section 08 12 16 – Aluminum Frames.
   6. Section 08 42 13 – Aluminum-Framed Entrances.
   7. Section 08 71 00 – Door Hardware.
   8. Section 08 91 26 – Door Louvers.
3. **REFRENCES**

* 1. [ASTM-B209](#ASTM_B_209) – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  2. [ASTM-B221](#ASTM_B_221) – Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
  3. [ASTM-C518](#ASTM_C_518) – Standard test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.
  4. [ASTM-D256](#ASTM_D_256) – Standard Test Methods for Determining the Pendulum Impact Resistance of Plastics.
  5. [ASTM-D570](#ASTM_D_570) – Standard Test Method for Water Absorption of Plastics.
  6. [ASTM-D638](#ASTM_D_638) – Standard Test Method for Tensile Properties of Plastics.
  7. [ASTM-D790](#ASTM_D_790) – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
  8. [ASTM-D1621](#ASTM_D_1621) – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
  9. [ASTM-D1622](#ASTM_D_1622) – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
  10. [ASTM-D1623](#ASTM_D_1623) – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
  11. [ASTM-D2126](#ASTM_D_2126) – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
  12. [ASTM-D2583](#ASTM_D_2583) – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
  13. [ASTM-D3029](#ASTM_D_3029) – Test Methods for Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight) (Withdrawn 1995) (Replaced by ASTM-D5420).
  14. [ASTM-D5116](#ASTM_D_5116) – Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/ Products.
  15. [ASTM-D6670](#ASTM_D_6607) – Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/ Products.
  16. [ASTM-E84](#ASTM_E_84) – Standard Test Method for Surface Burning Characteristics of Building Materials.

1. **SUBMITTALS**
   1. Must comply with Section 01 33 00 – Submittal Procedures.
   2. Action Submittals/ Informational Submittals.
      1. Product Data.
         1. Submit manufacturer’s product data sheets, catalog pages illustrating the products, description of materials, components, fabrication, finishes, installation instructions, and applicable test reports.
      2. Shop Drawings.
         1. Submit manufacturer’s shop drawings, including elevations, sections, and details indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.
      3. Samples.
         1. Submit manufacturer’s door sample composed of door face sheet, core, framing and finish.
         2. Submit manufacturer’s sample of standard colors for door face and frame.
      4. Testing and Evaluation Reports.
         1. Submit testing reports and evaluations provided by manufacturer conducted by and accredited independent testing agency certifying doors and frames comply with specified performance requirements listed in Section 2.04.
      5. Manufacturer Reports.
         1. Manufacturer’s Project References.
            1. Submit list of successfully completed projects including project name, location, name of architect, type, and quantity of doors manufactured.
   3. Closeout Submittals.
      1. Operation and Maintenance Manual.
         1. Submit manufacturer’s maintenance and cleaning instructions for doors and frames, including maintenance and operating instructions for hardware.
      2. Warranty Documentation.
         1. Submit manufacturer’s standard warranty.
2. **QUALITY ASSURANCE**
   1. Manufacturer’s Qualifications.
      1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years concurrent successful experience.
      2. Door and frame components must be fabricated by same manufacturer.
      3. Evidence of a documented complaint resolution quality management system.
3. **DELIVERY, STORAGE, AND HANDLING**
   1. Delivery.
      1. Deliver materials to site in manufacturer’s original, unopened, containers and packaging.
      2. Labels clearly identifying opening, door mark, and manufacturer.
   2. Storage.
      1. Store materials in a clean, dry area, indoors in accordance with manufacturer’s instructions.
   3. Handling.
      1. Protect materials and finish from damage during handling and installation.
4. **WARRANTY** 
   1. Warrant doors, frames, and factory installed hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.
   2. Standard Period.
      1. Ten years starting on date of shipment.
   3. Limited lifetime
      1. Covers failure of corner joinery, core deterioration, and delamination or bubbling of door skin and corrosion of all-fiberglass products while the door is in its specified application in its original installation.
   4. Finish
      1. Kynar painted aluminum: 10 years.
      2. Painted SL-17, SL-18, SL-19, SL-20 face sheets: 5 years.
      3. Painted AF-100, AF-200, AF-150 frames, AF-250 frames: 3 years.
      4. Painted FR doors: 3 years.
      5. Stained SL-18 and SL-9 face sheets: 5 years.
      6. Anodized, aluminum:10 years.
      7. Thresholds do not have a finish warranty.

**PART 2 PRODUCTS**

1. **FRP/ALUMINUM HYBRID DOORS**
   1. Manufacturer.
      1. Special-Lite, Inc.
         1. PO Box 6, Decatur, Michigan 49045.
         2. Toll Free (800) 821-6531, Phone (269) 423-7068, Fax (800) 423-7610.
         3. Web Site [www.special-lite.com](http://www.special-lite.com).
         4. E-Mail [info@special-lite.com](mailto:info@special-lite.com).
2. **DESCRIPTION**
   1. Model.
      1. [SL-14 Medium Stile Monumental Door.](http://special-lite.com/product/sl-14-medium-stile-monumental-door/)
   2. Door Opening Size.
      1. Click or tap here to enter text.
   3. Construction.
      1. Door Thickness.
         1. 1-3/4”.
      2. Stiles.
         1. 3-1/2” wide with integral glass stop on exterior side, no snap or applied stops allowed.
         2. Aluminum extrusions made from 6063 aluminum alloys with a minimum temper of T5.
         3. Screw or snap in place applied caps are not acceptable.
         4. Meeting stiles to include integral pocket to accept pile brush weather seal.
      3. Rails.
         1. Top Rail Height.
            1. Choose an item.
         2. Bottom Rail Height.
            1. Choose an item.
         3. Integral glass stops on exterior side, no snap or applied stops allowed.
         4. Aluminum extrusions made from 6063 aluminum alloys with a minimum temper of T5.
         5. Screw or snap in place applied caps are not acceptable.
      4. Corners.
         1. True mortise and tenon joints.
         2. Secured with 3/8” diameter full-width steel tie rod.
         3. Weld, glue, or other methods of corner joinery are not acceptable.
      5. Mid Rail.
         1. Width.
            1. Choose an item.
         2. One-piece extrusion with integral exterior glass stops.
         3. Secure to vertical stiles with mortise & tenon joints with 3/8” steel tie rods and locking hex nuts.
      6. Mid Panel.
         1. Model SL-484.
         2. 12” high.
         3. Core.
            1. Poured-in-place polyurethane foam.
            2. Laid in foam cores are not acceptable.
            3. Foam Plastic Insulated Doors: IBC 2603.4.

Foam plastic shall be separated from the interior of a building by an approved thermal barrier.

Approved thermal barrier must meet the acceptance criteria of the Temperature Transmission Fire Test and Integrity Fire Test as stated in NFPA 275.

IBC 2603.4.1.7 foam plastic insulation, having a flame spread index less than 75 and a smoke developed index of not more than 450 shall be permitted as a door core when the face is metal minimum 0.032” aluminum or 0.016” steel.

Standard door assembly can be tested to show it meets these requirements without the use of thermal barrier. If no independent testing conducted all doors with foam plastic core must have a thermal barrier.

* + - * 1. Frame.

Aluminum extrusions with extruded spline and interlocking edges to secure face sheet.

* + - * 1. Secured to stiles with mortise & tenon joints and two 3/8” steel tie rods with locking hex nuts.
      1. Face Sheet.
         1. Exterior.

Pebble texture FRP.

0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.

Optional painted finish consult manufacturer.

Class C standard.

Sandstone texture FRP.

0.120” thick, Sandstone texture, through color FRP sheet.

Optional painted finish consult manufacturer.

Class C standard.

Rustic wood grain FRP.

0.120” thick, rustic wood grain, painted FRP sheet.

Contemporary wood grain FRP.

0.120” thick, contemporary wood grain, painted FRP sheet.

Aluminum

Standard 0.062” thick smooth aluminum sheet.

Optional 0.125” thick smooth aluminum sheet.

Texture.

Available in 0.062” thickness.

Embossed.

Fluted.

* + - * 1. Interior.

Pebble texture FRP.

0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.

Optional painted finish consult manufacturer.

Class C standard optional Class A available consult manufacturer.

Sandstone texture FRP.

0.120” thick, Sandstone texture, through color FRP sheet.

Optional painted finish consult manufacturer.

Class C standard optional Class A available consult manufacturer.

Rustic wood grain FRP.

0.120” thick, rustic wood grain, painted FRP sheet.

Contemporary wood grain FRP.

0.120” thick, contemporary wood grain, painted FRP sheet.

Aluminum

Standard 0.062” thick smooth aluminum sheet.

Optional 0.125” thick smooth aluminum sheet.

Texture.

Available in 0.062” thickness.

Embossed.

Fluted.

* + 1. Hardware.
       1. Pre-machine doors in accordance with templates from specified hardware manufacturers.
       2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
       3. Factory install door hardware.
    2. Reinforcements.
       1. Aluminum extrusions made from 6061 or 6063 aluminum alloys.
       2. Sheet and plate to conform to ASTM-B209.
       3. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.
       4. Bars and tubes to meet ASTM-B221.
  1. Sustainability Characteristics.
     1. LEED Declaration.
        1. Entrance Products contribute to point calculations for the following credits:
           1. MR Credit 4.1 Recycled Content 10% (post-consumer = ½ pre-consumer) 1 point.
           2. MR Credit 4.2 Recycled Content 20% (post-consumer = ½ pre-consumer) 1 point.
        2. All aluminum extrusions are produced using prime-equivalent billet produced from 100% reprocessed 6063-T6 alloy recovered from industrial processes. The USGBC classifies these extrusions as pre-consumer recycled material.
        3. Manufacturing facility located within 500 miles of major components and materials, including aluminum extrusions.
        4. The point of recovery and smelting of pre-consumer recycled material within 500 miles of the manufacturing facility.

1. **FRAMING**
   1. Framing
      1. [Aluminum Tube Framing with Applied Stops.](http://special-lite.com/product/tube-frame-with-applied-stops/)
         1. [Model.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Tech%20Data/tf_w_applied_stop.pdf)
            1. Choose an item.
         2. Materials.
            1. [See 2.05. A.](#Aluminum_Members)
         3. Perimeter Frame Members.
            1. Box type with 4 enclosed sides.
            2. Factory fabricated.
            3. Open-back framing is not acceptable.
         4. Applied Door Stops.
            1. 5/8” x 1-1/4” or 5/8” x 1-3/4”, 0.125” wall thickness, with screws and weather-stripping.
            2. Provide solid ½” aluminum bar behind door stop for closer shoe attachment.
            3. Pressure gasketing for weathering seal.
            4. Counterpunch fastener holes in door stop to preserve full-metal thickness under fastener head.
         5. Caulking.
            1. Caulk joints before assembling frame members.
         6. Frame Member to Member Connections.
            1. Secure joints with fasteners.
            2. Provide hairline butt joint appearance.
         7. Hardware
            1. Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and door hardware schedule.
            2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
            3. Factory install door hardware.
         8. Anchors:
            1. Anchors appropriate for wall conditions to anchor framing to wall materials.
            2. Door Jamb and Header Mounting Holes: Maximum of 24-inch centers.
            3. Secure head and sill members of transom, side lites, and similar conditions.
      2. [Thermally Broken Aluminum Framing.](http://special-lite.com/product/thermally-broken-framing/)
         1. [Model.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Tech%20Data/SL-450TB600TB.pdf)
            1. Choose an item.
         2. Materials.
            1. [See 2.05.A.](#Aluminum_Members)
         3. Perimeter Frame Members.
            1. Storefront frame with thermally broken pocket filler.
            2. Factory fabricated.
            3. Open-back framing is not acceptable.
         4. Thermal Strut.
            1. Fiber reinforced plastic, no other materials will be accepted.
         5. Applied Door Stops.
            1. 5/8” x 1-1/4” or 5/8” x 1-3/4”, 0.125” wall thickness, with screws and weather-stripping.
            2. Provide solid ½” aluminum bar behind door stop for closer shoe attachment.
            3. Pressure gasketing for weathering seal.
            4. Counterpunch fastener holes in door stop to preserve full-metal thickness under fastener head.
            5. Minimum ½” aluminum bar reinforcement under doorstop for required hardware attachments, aluminum to meet ASTM-B221.
         6. Caulking.
            1. Caulk joints before assembling frame members.
         7. Frame Member to Member Connections.
            1. Secure joints with fasteners.
            2. Provide hairline butt joint appearance.
            3. Shear block construction only, no screw spline allowed.
         8. Hardware
            1. Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and door hardware schedule.
            2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
            3. Factory install door hardware.
         9. Anchors:
            1. Anchors appropriate for wall conditions to anchor framing to wall materials.
            2. Door Jamb and Header Mounting Holes: Maximum of 24-inch centers.
            3. Secure head and sill members of transom, side lites, and similar conditions.
      3. [Retrofit Framing.](http://special-lite.com/product/retrofit-framing/)
         1. [Model.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Literature/RetrofitFraming.pdf)
            1. Choose an item.
         2. Materials.
            1. [See 2.05.A.](#Aluminum_Members)
         3. Insert frame as indicated on the Drawings, using integral stop fitted with weather-stripping.
         4. Corner joints of miter design, secure with furnished aluminum clips, and screw into place.
         5. Hardware.
            1. Pre-machine and reinforce insert frame members for hardware in accordance with manufacturer's standards and hardware schedule.
            2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
            3. Factory install hardware.
         6. Anchors.
            1. Anchors of suitable type to fasten insert framing to existing frame materials.
            2. Minimum of 5 anchors on jambs up to 7'-4" height, 3 anchors on headers, and 1 additional anchor for each additional foot of frame.
      4. [Capping.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Literature/RetrofitFraming.pdf)
         1. Model.
            1. SL-70
         2. Materials.
            1. [See 2.05.A.](#Aluminum_Members)
            2. Size as indicated on drawings.
      5. [AF-150.](http://special-lite.com/product/af-150-framing/)
         1. [Jamb Depth.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Fiberglass%20Door%20Frames/Tech%20Data/AF-150-Framing.pdf)
            1. Choose an item.
         2. Materials.
            1. [See 2.05.A.](#Aluminum_Members)
         3. Perimeter Frame Members.
            1. ¼” thick pultruded fiberglass open throat with return.
            2. Factory fabricated.
            3. 2” or 4” face available for frame headers.
         4. Transoms and Sidelites.
            1. Same as perimeter frame members.
            2. Removable stop for ¼”, 5/8” or 1” glass or panels.
         5. Integral Door Stops.
            1. 5/8” x 2-1/4”.
         6. Frame Assembly.
            1. Standard knock down.
            2. Optional chemically welded consult factory for details.
         7. Frame Member to Member Connections.
            1. Corners mitered with 4” x 4” x 3/8” pultruded FRP angle reinforcement with interlocking pultruded FRP brackets.
            2. All member to member connections knocked down at factory unless chemically welded at factory requested.
            3. Provide hairline butt joint appearance.
         8. Reinforcements.
            1. Standard.

¼” thick pultruded FRP chemically welded to frame at all hinge, strike, and closer locations.

* + - * 1. Optional

Aluminum, contact factory for details.

* + - 1. Hardware
         1. Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and door hardware schedule.
         2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
      2. Anchors:
         1. Masonry.

Existing concrete or block punch and dimple.

Sill anchor.

Concealed existing masonry anchor.

Fiberglass masonry t anchor.

* + - * 1. Drywall.

Standard jamb anchor tuck.

KD wrap.

Optional punch and dimple tuck with either metal or wood studs.

* + 1. [AF-250.](http://special-lite.com/product/af-250-framing/)
       1. Jamb Depth.
          1. 5-3/4”.
       2. Materials.
          1. [See 2.05.A.](#Aluminum_Members)
       3. Perimeter Frame Members.
          1. 3/16” thick pultruded fiberglass open throat with return.
          2. Factory fabricated.
          3. 2” or 4” face available for frame headers.
       4. Integral Door Stops.
          1. 5/8” x 2-1/4”.
       5. Frame Assembly.
          1. Standard knock down.
          2. Optional chemically welded consult factory for details.
       6. Frame Member to Member Connections.
          1. Corners mitered with 2” x 2” x 1/4” pultruded FRP angle reinforcement with interlocking pultruded FRP brackets.
          2. All member to member connections knocked down at factory unless chemically welded at factory requested.
          3. Provide hairline butt joint appearance.
       7. Reinforcements.
          1. ¼” thick pultruded FRP chemically welded to frame at all hinge, strike, and closer locations.
       8. Hardware
          1. Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and door hardware schedule.
          2. Surface mounted closures will be reinforced for but not prepped or installed at factory.
       9. Anchors:
          1. Masonry.

Existing concrete or block punch and dimple.

Sill anchor.

Concealed existing masonry anchor.

Fiberglass masonry t anchor.

* + - * 1. Drywall.

Punch and dimple for metal or wood studs.

1. **PERFORMANCE**
   1. Mid Panel.
      1. Pebble grain FRP.
         1. Standard Interior and Exterior Class C 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
            1. Flexural Strength, ASTM-D790: 21 x 103 psi.
            2. Flexural Modulus, ASTM-D790: 0.7 x 106 psi.
            3. Tensile Strength, ASTM-D638: 13 x 103 psi.
            4. Tensile Modulus, ASTM-D638: 1.2 x 106 psi.
            5. Barcol Hardness, ASTM-D2583: 55.
            6. Izod Impact, ASTM-D256: 14.0 ft-lb/in.
            7. Gardner Impact Strength, ASTM-D5420: 120 in-lb.
            8. Water Absorption, ASTM-D570: 0.20%/24hrs at 77°F.
            9. Surface Burning, ASTM-E84: Flame Spread ≤ 200, Smoke Developed ≤ 450.
            10. Taber Abrasion Resistance, Taber Test: 0.007% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.
            11. Chemical Resistance.

Excellent Rating.

Acetic Acid, Concentrated.

Acetic Acid, 5%.

Bleach Solution.

Detergent Solution.

Distilled Water.

Ethyl Acetate.

Formaldehyde.

Heptane.

Hydrochloric Acid, 10%.

Hydrogen Peroxide, 3%.

Isooctane.

Lactic Acid, 10%.

* + - * 1. USDA/FSIS Requirements.

FRP face sheet with surfaseal is a finished outer surface material that is rigid; durable; non-toxic; non-corrosive; moisture resistant; a light, solid color such as white; easily inspected; smooth or an easily cleaned texture.

FRP face sheet with surfaseal does not contain any known carcinogen, mutagen, or teratogen classified as hazardous substances; heavy metals or toxic substances; antimicrobials; pesticides or substances with pesticidal characteristics.

* + - 1. Optional Interior Face Only Class A 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
         1. Flexural Strength, ASTM-D790: 13 x 103 psi.
         2. Flexural Modulus, ASTM-D790: 0.57 x 106 psi.
         3. Tensile Strength, ASTM-D638: 6.8 x 103 psi.
         4. Tensile Modulus, ASTM-D638: 0.90 x 106 psi.
         5. Barcol Hardness, ASTM-D2583: 40.
         6. Izod Impact, ASTM-D256: 12.0 ft-lb/in notched.
         7. Gardner Impact Strength, ASTM-D3029: 45 in-lb.
         8. Water Absorption, ASTM-D570: 0.32%/24hrs at 77°F.
         9. Surface Burning, ASTM-E84: Flame Spread ≤ 25, Smoke Developed ≤ 450.
         10. Taber Abrasion Resistance, Taber Test: 0.02% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.
    1. Sandstone texture FRP.
       1. Standard Interior and Exterior Class C 0.120” thick, Sandstone texture, through color FRP sheet.
          1. Flexural Strength, ASTM-D790: 27 x 103 psi.
          2. Flexural Modulus, ASTM-D790: 0.7 x 106 psi.
          3. Tensile Strength, ASTM-D638: 18 x 103 psi.
          4. Tensile Modulus, ASTM-D638: 1.0 x 106 psi.
          5. Barcol Hardness, ASTM-D2583: 40.
          6. Izod Impact, ASTM-D256: 7.0 ft-lb/in.
          7. Gardner Impact Strength, ASTM-D5420: 30 in-lb.
          8. Water Absorption, ASTM-D570: 0.16%/24hrs at 77°F.
          9. Surface Burning, ASTM-E84: Flame Spread ≤ 200, Smoke Developed ≤ 450.
          10. Chemical Resistance.

Excellent Rating.

Acetic Acid, Concentrated.

Acetic Acid, 5%.

Bleach Solution.

Detergent Solution.

Distilled Water.

Ethyl Acetate.

Formaldehyde.

Heptane.

Hydrochloric Acid, 10%.

Hydrogen Peroxide, 3%.

Isooctane.

Lactic Acid, 10%.

* + - * 1. USDA/FSIS Requirements.

FRP face sheet with surfaseal is a finished outer surface material that is rigid; durable; non-toxic; non-corrosive; moisture resistant; a light, solid color such as white; easily inspected; smooth or an easily cleaned texture.

FRP face sheet with surfaseal does not contain any known carcinogen, mutagen, or teratogen classified as hazardous substances; heavy metals or toxic substances; antimicrobials; pesticides or substances with pesticidal characteristics.

* + - 1. Optional Interior Face Only Class A 0.120” thick, Sandstone texture, through color FRP sheet.
         1. Flexural Strength, ASTM-D790: 14 x 103 psi.
         2. Flexural Modulus, ASTM-D790: 0.4 x 106 psi.
         3. Tensile Strength, ASTM-D638: 7 x 103 psi.
         4. Tensile Modulus, ASTM-D638: 0.8 x 106 psi.
         5. Barcol Hardness, ASTM-D2583: 45.
         6. Izod Impact, ASTM-D256: 4.0 ft-lb/in notched.
         7. Water Absorption, ASTM-D570: 0.16%/24hrs at 77°F.
         8. Surface Burning, ASTM-E84: Flame Spread ≤ 25, Smoke Developed ≤ 450.
         9. Taber Abrasion Resistance, Taber Test: 0.036% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles
    1. Rustic wood grain FRP.
       1. Interior and Exterior 0.120” thick, rustic wood grain, painted FRP sheet.
          1. Flexural Strength, ASTM-D790: 18.1 x 103 psi.
          2. Flexural Modulus, ASTM-D790: 1.0 x 106 psi.
          3. Tensile Strength, ASTM-D638: 7.9 x 103 psi.
          4. Tensile Modulus, ASTM-D638: 1.4 x 106 psi.
          5. Barcol Hardness, ASTM-D2583: 38.
          6. Izod Impact, ASTM-D256: 3.9 ft-lb/in.
          7. Gardner Impact Strength, ASTM-D5420: 140 in-lb.
          8. Water Absorption, ASTM-D570: 0.49%/24hrs at 77°F.
          9. Taber Abrasion Resistance, Taber Test: 0.022% Max Wt. Loss, cs-17 wheels, 500 g. Wt., 25 cycles.
    2. Contemporary wood grain FRP.
       1. Standard Interior and Exterior Class A 0.120” thick, contemporary wood grain, painted FRP sheet.
          1. Surface Burning, ASTM-E84: Flame Spread ≤ 25, Smoke Developed ≤ 350.
    3. Aluminum.
       1. Standard 0.062” thick smooth aluminum sheet.
          1. ASTM B209.
    4. Foam Core.
       1. Density, ASTM-D1622: ≤ 5.0 pcf.
       2. Compressive Properties, ASTM-D1621: Compressive Strength ≥ 60 psi, Compressive Modulus ≥ 1948 psi.
       3. Tensile and Tensile Adhesion Properties, ASTM-D1623: Tensile Adhesion, 3” x 3” FRP Facers ≥ 53 psi, Tensile Adhesion, 1” x 1” Foam ≥ 104 psi.
       4. Thermal and Humid Aging, ASTM-D2126: Volume Change at 158 °F, 100% humidity, 14 days ≤ 13%.
       5. Thermal Conductivity, ASTM-C518, Thermal Resistance ≥ 0.10 m2K/W.
  1. Door Panel.
     1. Indoor Air Quality, ASTM-D5116, ASTM-D6607: GreenGuard, GreenGuard Gold.
  2. Door and Thermally Broken Aluminum Frame Assembly.
     1. Air Leakage, NFRC 400, ASTM-E283.
        1. Commercially Glazed Swinging Entrance Door (> than 50% glass)
           1. 0.18 cfm/sqft @ 1.57 psf.
     2. Sound Transmission, ASTM-E90: STC = 32, OITC = 28.
  3. AF-150 Framing.
     1. Tensile Strength, ASTM-D638: 15,900 psi.
     2. Tensile Modulus of Elasticity, ASTM-D638: 1.58 x 106 psi.
     3. Maximum Compressive Strength, ASTM-D695: 15,500 psi.
     4. Compressive Modulus of Elasticity, ASTM-D695: 6.7 x 105 psi.
     5. Flexural Strength, ASTM-D790: 39.3 x 103 psi.
     6. Flexural Modulus, ASTM-D790: 1.23 x 106 psi.
     7. Izod Impact, ASTM-D256: 8.1 ft-lb/in.
     8. Barcol Hardness, ASTM-D2583: 57.
     9. Specific Gravity, ASTM-D792: 1.45 @ 23 °C.
     10. Density, ASTM-D792: 1445.6 kg.m3 @ 23 °C.
     11. Coefficient of Linear Expansion, ASTM-D696: 1.26 x 10-5 in/in/°F.
     12. Short Beam Strength, ASTM-D2344: 3,980 psi.
     13. Fastener Withdrawal, ASTM-D1761: 924 lbs.
     14. Percent Fiberglass: 60%.

1. **MATERIALS**
   1. Aluminum Members.
      1. Aluminum extrusions made 6061 or 6063 aluminum alloys.
      2. Sheet and plate to conform to ASTM-B209.
      3. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.
   2. Fiberglass.
      1. See 2.02.C.5.d.
   3. Fasteners.
      1. All exposed fasteners will have a finish to match material being fastened.
      2. 410 stainless steel or other non-corrosive metal.
      3. Must be compatible with items being fastened.
2. **FABRICATION**
   1. Factory Assembly.
      1. Door and frame components from the same manufacturer.
      2. Required size for door and frame units, shall be as indicated on the drawings.
      3. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
      4. All cut edges to be free of burs.
      5. Welding of doors or frames is not acceptable.
      6. Maintain continuity of line and accurate relation of planes and angles.
      7. Secure attachments and support at mechanical joints with hairline fit at contact surfaces.
   2. Shop Fabrication
      1. All shop fabrication to be completed in accordance with manufactures process work instructions.
      2. Quality control to be performed before leaving each department.
3. **FINISHES**
   1. Door.
      1. Aluminum.
         1. Mill.
            1. AA-M10C22A21-Flash.
         2. Anodizing.
            1. Class 1 Anodizing, minimum 0.7 mils thick.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Choose an item.

* + - 1. Paint.
         1. Aluminum.

KYNAR®.

Topcoat.

70% KYNAR® or HYLAR® 5000 Coating, meets or exceeds all AAMA 2605 specifications, 2.5 to 4.0 wet mils,1.00 to 1.20 dry mils.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Consult manufacturer.

* + - 1. Powder Coat.
         1. Special-Lite’s® Wood Expressions™.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Choose an item.

Durability against humidity, warping and cracking.

Resists fading from UV rays.

Natural, high-definition grains with the look and feel of real wood.

Durable powder coat protects against scratching.

* 1. Mid panel.
     1. Pebble FRP Face Sheets.
        1. Through color.
           1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-17-Color-Selections.pdf)

Choose an item.

* + - 1. Painted.
         1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-17-Color-Selections.pdf)

Choose an item.

* + - * 1. Custom colors available consult manufacturer.
    1. Sandstone Texture FRP Face Sheets.
       1. Through color.
          1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-20-Color-Selections.pdf)

Choose an item.

* + - 1. Painted.
         1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-20-Color-Selections.pdf)

Choose an item.

* + - * 1. Custom colors available consult manufacturer.
    1. Rustic Woodgrain FRP Face Sheets.
       1. Stained.
          1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-18-Color-Selections.pdf)

Choose an item.

* + - * 1. Custom colors available consult manufacturer.
    1. Contemporary Woodgrain FRP Face Sheets.
       1. Stained.
          1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/Hybrid/Literature/SL-19-1-Color-Selections.pdf)

Choose an item.

* + - * 1. Custom colors available consult manufacturer.
    1. Aluminum.
       1. Mill.
          1. AA-M10C22A21-Flash.
       2. Anodizing.
          1. Class 1 Anodizing, minimum 0.7 mils thick.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Choose an item.

* + - 1. Paint.
         1. Aluminum.

KYNAR®.

Topcoat.

70% KYNAR® or HYLAR® 5000 Coating, meets or exceeds all AAMA 2605 specifications, 2.5 to 4.0 wet mils,1.00 to 1.20 dry mils.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Consult manufacturer.

* + - 1. Powder Coat.
         1. Special-Lite’s® Wood Expressions™.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14SL-15-Color-Selections.pdf)

Choose an item.

Durability against humidity, warping and cracking.

Resists fading from UV rays.

Natural, high-definition grains with the look and feel of real wood.

Durable powder coat protects against scratching.

* 1. Frame
     1. Aluminum.
        1. Mill.
           1. AA-M10C22A21-Flash.
        2. Anodizing.
           1. Class 1 Anodizing, minimum 0.7 mils thick.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Color/aluminum_color_chart-1.pdf)

Choose an item.

* + - 1. Paint.
         1. Aluminum.

KYNAR®.

Topcoat.

70% KYNAR® or HYLAR® 5000 Coating, meets or exceeds all AAMA 2605 specifications, 2.5 to 4.0 wet mils, 1.00 to 1.20 dry mils.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Color/kynar_color_chart.pdf)

Consult manufacturer.

* + - 1. Powder Coat.
         1. Special-Lite’s® Wood Expressions™.

[Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Framing%20&%20Panels/Aluminum%20Door%20Frames/Color/Wood_Expression_Color_Chart.pdf)

Choose an item.

Durability against humidity, warping and cracking.

Resists fading from UV rays.

Natural, high-definition grains with the look and feel of real wood.

Durable powder coat protects against scratching.

* + 1. Fiberglass.
       1. Two-part aliphatic polyurethane paint.
          1. [Color.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Fiberglass%20Doors/All%20Fiber/Literature/af100_color_chart.pdf)

Choose an item.

* + - * 1. Custom colors available consult manufacturer.
        2. Unique, high-solids, high-build, multifunctional coating.
        3. Low VOC, high-gloss, self-priming coating.
        4. Impact Resistance, ASTM-D2794: 140 in·lbs (direct), 50 in·lbs (reverse) @ 5 mils thickness.
        5. Taber Abrasion, 1 kg load, 1000 cycles, CS-17 wheel: 60.2 mg.
        6. Graffiti cleaning with Amerase with gloss retention: 100 cycles.
        7. Chemical Resistance.

Excellent.

Acidic.

Alkaline.

Salt Solutions.

Seawater.

Fresh Water.

Petroleum Products.

1. **ACCESSORIES**
   1. [Vision Lites.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/CAD/SL14CAD.pdf)
      1. Factory Glazing.
         1. Glazing Thickness.
            1. Choose an item.
            2. [Rectangular Vision Lite Accessories.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Hardware%20&%20Lites/Aluminum%20Hardware%20&%20Lites/Literature/HardwareAndLites.pdf)

[Security Grate.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Hardware%20&%20Lites/Aluminum%20Hardware%20&%20Lites/Literature/HardwareAndLites.pdf)

SL-SG349.

Frame perimeter is 1” x 1” x 1/8” steel angle.

Grate material is 14-gauge steel sheet perforated with ¼” diameter round holes.

[Vandal Screen.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Hardware%20&%20Lites/Aluminum%20Hardware%20&%20Lites/Literature/HardwareAndLites.pdf)

SL-SG350.

Frame perimeter is aluminum.

Screen material is 16-gauge stainless steel sheet perforated with ¼” diameter round holes.

[Louvers.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Hardware%20&%20Lites/Aluminum%20Hardware%20&%20Lites/Literature/HardwareAndLites.pdf)

Size, as indicated on drawings.

Factory installed.

1” thick Y-Type fixed blade, 12” minimum from the bottom of the door.

Exterior side of louver shall be free of fasteners.

Optional insect screen.

[Muntins.](http://special-lite.com/wordpress/wp-content/uploads/files/Categories/Doors/Aluminum_Doors/Literature/SL-14and15.pdf)

Applied with ¼” glass.

½” and 1-1/4” wide.

1” glass with internal muntins.

Finish.

To match finish of door.

* 1. [Hardware.](http://special-lite.com/product-category/products/hardware_land_lites/aluminum_hardware_lites/)
     1. Pre-machine doors in accordance with templates from specified hardware manufactures and hardware schedule.
     2. Factory install hardware.
     3. Hardware Schedule.
        1. Choose an item.
           1. Hinges.

Choose an item. Click or tap here to enter text.

* + - * 1. Locking Hardware.

Click or tap here to enter text.

* + - * 1. Flush/ Surface Bolts.

Click or tap here to enter text.

* + - * 1. [Door Pulls.](http://special-lite.com/product/door-pulls-pushbars/)

Choose an item.

* + - * 1. [Push Bars.](http://special-lite.com/product/door-pulls-pushbars/)

Choose an item.

* + - * 1. [Concealed adjustable meeting stile astragal.](http://special-lite.com/product/astragals/)

Adjustable astragal by Special-Lite.

* + - * 1. [Mullions.](http://special-lite.com/product/removable-mullions/)

Model.

Choose an item.

* + - * 1. [Thresholds.](http://special-lite.com/product/thresholds/)

Aluminum threshold by Special-Lite.

* 1. [Architectural Panels.](http://special-lite.com/product/architectural-panels/)
     1. Model.
        1. Choose an item.
           1. Size, as indicated on drawings.
           2. Thickness.

Choose an item.

* + - * 1. Face Sheet.

Material.

Based on model selected, consult manufacturer for details.

Color.

Based on model selected, consult manufacturer for details.

* + - * 1. Performance.

Face Sheet.

See 2.04.A.

1” Thick Panel.

Polyurethane foam core.

Impervious to water.

Thermal Performance, AAMA 1503-98.

U-Factor = 0.23 Btu/hr∙ft²∙°F.

CRFp = 81.

**PART 3 EXECUTION**

1. **EXAMINATION**
   1. Examine areas to receive doors.
   2. Notify architect of conditions that would adversely affect installation or subsequent use.
   3. Do no proceed with installation until unsatisfactory conditions are corrected.
2. **PREPARATION**
   1. Ensure openings to receive frames are plumb, level, square, and in tolerance.
3. **ERECTION**
   1. Install doors in accordance with manufacturer’s instructions.
   2. Install doors plumb, level, square, true to line, and without warp or rack.
   3. Anchor frames securely in place.
   4. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by architect.
   5. Set thresholds in bed of mastic and back seal.
   6. Install exterior doors to be weathertight in closed position.
   7. Repair minor damages to finish in accordance with manufacturer’s instructions and as approved by architect.
   8. Remove and replace damaged components that cannot be successfully repaired as determined by architect.
4. **FIELD QUALITY CONTROL**
   1. Manufacture’s Field Services.
      1. Manufacturer’s representative shall provide technical assistance and guidance for installation of doors.
5. **ADJUSTING**
   1. Adjust doors, hinges, and locksets for smooth operation without binding.
6. **CLEANING**
   1. Clean doors promptly after installation in accordance with manufacturer’s instructions.
   2. Do not use harsh cleaning materials or methods that would damage finish.
7. **PROTECTION**
   1. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

**END OF SECTION**