SECTION 08 32 13
ALUMINUM FRAMED SLIDING GLASS DOOR SYSTEMS

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PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum framed sliding glass door systems.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 03 41 16 - Precast Concrete Slabs.

C. Section 04 27 23 - Cavity Wall Unit Masonry.

D. Section 05 40 00 - Cold-Formed Metal Framing.

E. Section 06 10 00 - Rough Carpentry.

F. Section 06 20 00 - Finish Carpentry.

G. Section 07 21 19 - Foamed-In-Place Insulation.

H. Section 07 46 16 - Aluminum Siding.

I. Section 07 60 00 - Flashing and Sheet Metal.

J. Section 07 90 00 - Joint Protection.

1.3 REFERENCES

A. American Welding Society (AWS): Structural Welding Code.

B. ASTM International (ASTM):
1. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles, and Tubes.
3. ASTM B241 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tubes.
4. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
5. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
6. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
7. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.

8. ASTM E547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.

C. Fenestration and Glazing Industry Alliance (FGIA):
   1. AAMA 611 - Voluntary Specifications for Anodized Architectural Aluminum.
   2. AAMA 1503 - Voluntary Test Method For Thermal Transmittance And Condensation Resistance Of Windows, Doors, And Glazed Wall Sections.

D. Glass Association of North America (GANA): Glazing manual.

E. Window and Door Manufacturer's Association (WDMA): AAMA/WDMA/CSA 101/I.S.2/A440 - Windows, Skylights and Glass Doors.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. 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.

C. Selection Samples: Two complete color chip sets representing manufacturer's full range of stocked colors with a standard size of 2 x 3 inches (50 x 75 mm).

D. Verification Samples: Two representative units of each type, size, color and finish.
   1. Aluminum Finish: Two samples, minimum size of 2 x 3 inches (50 x 75 mm), representing actual material and color.
   2. Wood Finish: Two samples, minimum size of 2 x 5 inches (50 x 127 mm), representing actual product and color.
   3. Glazing: Two samples, minimum size of 12 x 12 inches (300 x 300 mm), representing specified glass, including coatings and frit patterns.
   4. Assembly Sample: One sample demonstrating connection details with a maximum size of 12 x 12 x 12 inches (305 x 305 x 305 mm). Glazing included as offered by glass supplier. Sample developed to best represent the specified product.

E. Shop Drawings: Detailed drawings prepared specifically for the project by manufacturer. Include information not fully detailed in manufacturer's standard product data, including, but not limited to wall elevations and detail sections of every typical composite member.
   1. Show opening dimensions, framed opening tolerances, profiles, product components, anchorages, and accessories.
   2. Include details of materials, construction, finish, fastener locations, glazing, hardware arrangements and relationship with adjacent construction.
   3. Include schedule identifying each unit, with marks or numbers referencing Drawings.
   4. Show surrounding substrates and relevant conditions.

F. Maintenance Manuals: Manufacturer's maintenance manuals.

G. Warranty: Manufacturer's warranty online registry.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum twenty (20) years documented experience in fabrication and erection of glass door systems for projects of similar scope.
   1. Manufacturer must use an extruded aluminum system comprised of domestically produced aluminum and is fabricated and assembled in the USA.

2. Manufacturer must be recognized by NAMI.
3. Manufacturer must be a member in good standing of the National Glass Association (NGA).

B. Installer Qualifications: Company experienced in performing work of this section that has specialized in installation of work similar in scope and complexity required for this project for a minimum of five (5) years.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

D. 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 surface preparation techniques, quality of workmanship and visual appearance.
2. Approximate Size: _____.
3. Refinish mock-up area as required to produce acceptable work.
4. Do not continue with remaining work until workmanship, color, and sheen are approved by Architect.
5. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
6. Do not alter or remove mock-up until work is completed or removal is authorized.
7. Retain mock-up during construction as standard for comparison with completed work.
8. Incorporate accepted mock-up as part of the Work.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference, by phone, approximately two weeks before scheduled commencement of the Work. Attendees to include Architect, Contractor and trades involved. Agenda to include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations. Store products in manufacturer's original unopened packaging, covered to protect factory finishes from damage, precipitation, and construction dirt until ready for installation. Store materials off construction grounds in a secure location that is a dry, covered area and protected from weather conditions.

B. Inspect and report any freight damages to the manufacturer immediately.

C. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 PROJECT CONDITIONS

A. 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.

B. Perform structural silicone sealant work when air temperature is between 40 -120 degrees F (4 - 29 degrees C).

1.9 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard limited warranty against defects in materials and workmanship.
1. Warranty Period for Aluminum Framed Glass Doors: 10 years for cases of normal use.

2. Warranty Period for Rollers: Stainless steel rollers free from defect for a period of 10 years.
3. Warranty for Frame Finish:
    a. Anodized Finishes: Provide a warranty of 5 years.
    b. Stock Color AAMA 2605 Finishes: 2-3 coats powder or liquid dependent on color and/or application, provide paint manufacturer's warranty for color and film integrity for at least 15 years from date of application.
    c. Custom Color AAMA 2605 Finishes: 2-3 coats powder or liquid dependent on color and/or application, provide paint manufacturer's warranty for color and film integrity for at least 15 years from date of application.
    d. Stock Color AAMA 2604 Finishes: 2 coats powder or liquid, provide warranty for color and film integrity for 10 years from date of application.
    e. Custom Color AAMA 2604 Finishes: 2 coats powder or liquid, provide paint manufacturer's warranty for cracking and pulling integrity for 10 years from date of application.
    f. Custom AAMA 2603 Finishes: 1 coat liquid only, thermosetting acrylic resin finishes, provide warranty for cracking and pulling integrity for 5 years from date of application.
    g. Stock Color AAMA 2603 Finishes: 1 coat liquid only, provide paint manufacturer's warranty for cracking and pulling integrity for at least 5 years from date of application.
    h. Custom Warranty Period: ____ years, to be approved and accepted in writing by manufacturer based on project's scope and application.
4. Warranty for Flat Glazing: Provide glazing manufacturer's standard warranty against defective materials, delamination, seal failure, and defects in manufacturing for up to 20 years prorated or as otherwise provided in or limited by the glass manufacturer's limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Solar Innovations Architectural Glazing Systems(r), which is located at: 31 Roberts Rd.; Pine Grove, PA 17963; ASD Toll Free: 800-618-0669; Phone: 570-915-1500; Fax: 800-618-0743; Fax: 570-915-6083; Email: skylight@solarinnovations.com; Web: www.solarinnovations.com.

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements and the following criteria.
1. Structural Calculations: For products specified; stamped by a professional engineer licensed in the state in which the Project is located.

2.2 PERFORMANCE REQUIREMENTS

A. Air Leakage Performance:
1. Design, fabricate, assemble, and erect the aluminum glazed system to be permanently free of significant air leakage.
2. Significant leakage to be defined as a differential test pressure amounting to 20 percent of specified strength performance pressure required with operable windows doors, or joints, if any, sealed to prevent crack leakage.

B. Structural Performance: Structural performance as tested in accordance with ASTM E330; with no glass breakage or permanent damage to fasteners, anchors, hardware, or actuating mechanisms.
1. Normal wall deflection not exceeding 1/175 of clear span for span lengths of 162

inches (4115 mm) or less and 1/240 plus 1/4 inch (6 mm) for others. Restrict deflection to 3/4 inch (19 mm) maximum for individual glazing lites.

2. Parallel to wall deflection not exceeding 175 percent of glass edge clearance. Restrict deflection to L/360 or 1/8 inch (3 mm) maximum. Restrict deflection to 1/16 inch (1.6 mm) maximum above doors and/or windows. Increasing the deflection to 1/8 inch (3 mm) to be permitted if the door operation is not affected.
3. Deflection of the entire assembly, including, but not limited to, glass, not to exceed 1-1/2 inches (38 mm).

C. Thermal Performance: Tested values, certifications, and simulation protocols.
   1. Thermal Characteristics:
      a. U-Value: ___.
      b. CRF: ___.
   2. U-Value: Unit complies with U-value, NFRC rating, or simulation in accordance with NFRC 100 protocol, shown in manufacturer's published data for glazing and sill specified.
   3. Solar Heat Gain Coefficient: Unit to comply with the Solar Heat Gain Coefficient NFRC rated, or simulation in accordance with NFRC 200 protocol, shown in manufacturers published data for the glazing and sill specified.

D. Compliance:
   1. Manufacturer's certificates showing door system meets or exceeds SD-HC40 Product Designation conforming to AAMA/WDMA/CSA 101.I.S.2/A440 and/or testing indicated.
   2. Testing Results for Door System: G2 Multi Track Door System, with or without pocket, when tested on a typical four panel door unit size of (W x H) 244 x 100 inches tall (6198 x 2540 mm); panel size of (W x H) 99 x 60.5 inches (2515 x 1537 mm).
      a. Air Infiltration Test per ASTM E283: Force of 0.14 cfm per sq ft (43 L per min per cu m) when tested at 1.57 psf (75 Pa) pressure differential.
      b. Water Penetration Test per ASTM E331: Water pressure of 12.0 psf (575 Pa) and 5.0 gal per hour per sq ft (204 L per hour per sq m).
      c. Uniform Structural Load Test (ASTM E330):
         1) Structural test pressure (overload) positive or negative 97.5 psf (4668 Pa)
         2) Design Pressure: positive or negative 65 psf (3112 Pa).
      d. Florida Product Approval: Impact FL No. 16028.1.
   3. Testing Results for Door System: G3 Multi-Track Door System, with or without pocket when tested on a typical four panel door unit size of (W x H) 244.5 x 115.815 inches (6210 x 2942 mm); panel size of (W x H) 59.375 x 114.34 inches (1508 x 2904 mm).
      a. Air Infiltration Test per ASTM E283: Force of 0.10 cfm per sq ft (30.5 L per min per sq m) when tested at 1.57 psf (75 Pa) pressure differential.
      b. Water Penetration Test per ASTM E331 and ASTM E547: Water pressure of 7.52 psf (360 Pa) and 5.0 gal per hour per sq ft (204 L per hour per sq m) with 1.5 inch (38 mm) upleg.
      c. Uniform Structural Load Test (ASTM E330):
         1) Structural test pressure (overload): positive or negative 105.26 psf (5040 Pa).
         2) Design Pressure: Positive 50 psf (2394 Pa) to negative 70 psf (negative 3352 Pa).
      d. Florida Product Approval: Impact FL No. 17268.3.
   4. Testing Results for Door System: G3 Multi-Track Door System, with or without pocket, when tested on a typical four panel door unit size of (W x H) 244.5 x 115.813 inches (6210 x 294 mm); panel size of (W x H) 59.375 x 114.34 inches (1508 x 2904 mm).
      a. Air Infiltration Test per ASTM E283: Force of 0.10 cfm per sq ft (30.5 L per min per sq m) when tested at 1.57 psf (75 Pa) pressure differential.
      b. Water Penetration Test per ASTM E547: Water pressure of 10.56 psf (505.6

Pa) and 5.0 gal per hour per sq ft (204 L per hour per sq m).
c. Uniform Structural Load Test per ASTM E330:
1) Structural test pressure (overload): positive or negative 105.26 psf (5040 Pa).
2) Design Pressure: Positive 70 psf (3352 Pa) to negative 70 psf (negative 3352 Pa).
d. Florida Product Approval: Non-Impact FL No. 17268.4.

5. Testing Results for Door System: G3 Lift Slide - Impact Lift Slide Door System.
a. Air Infiltration Test per ASTM E283:
1) Force of 1.6 psf (75 Pa): 0.02 cfm per sq m (6.1 L per min per sq m) infiltration.
2) Force of 6.2 psf (300 Pa): 0.07 cfm per sq m (21 L per min per sq m infiltration.
b. Water Penetration Test per ASTM E547 and ASTM E331: Water pressure of 12.11 psf (580 Pa) and 5.0 gal per hour per sq ft (204 L per hour per sq m), no leakage.
c. Uniform Structural Load Test per ASTM E330:
1) Structural test pressure (overload): positive or negative 112.78 psf (5400 Pa)
2) Design pressure: Positive 75.19 psf (33600 Pa) to negative 75.19 psf (3600 Pa)
d. Florida Product Approval: Impact FL Approval No. 17287.1.

2.3 ALUMINUM-FRAMED GLASS DOOR SYSTEMS

A. Aluminum-Framed Glass Door Systems:
1. Basis of Design: SI8200 G2 Sliding Glass Door System - G2 Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
2. Basis of Design: SI8200 G2 Sliding Glass Door System - G2 Hurricane Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
3. Basis of Design: SI8200HP G2 Sliding Glass Door System - G2 Back to Back Hurricane Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
4. Basis of Design: SI8600 G3 Sliding Glass Door System - G3 Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
5. Basis of Design: SI8600 G3 Sliding Glass Door System - G3 Hurricane Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
6. Basis of Design: SI8600 G3 Sliding Glass Door System - Back to Back G3 Hurricane Hook Rail as manufactured by Solar Innovations Architectural Glazing Systems.
7. Basis of Design: SI8600LS Impact G3 Lift Slide Door System as manufactured by Solar Innovations Architectural Glazing Systems.
8. Basis of Design: As scheduled and indicated on Drawings.
9. Framing Members Thickness: As indicated on Drawings.
10. Framing Members Thickness: Minimum .080 inch (2 mm) wall thickness for structural members.
11. Framing Members Thickness: As determined by manufacturer based on design loading, cross sectional configuration, and fabrication requirements.
12. Load Bearing: Bottom load bearing system.
13. Configuration: As indicated on Drawings.
14. Configuration: Dual track.
15. Configuration: Multi-track.
16. Configuration: Multi-track, pocketing.
17. Configuration: No post corner.
18. Configuration: Segmented radius.
19. Operation: As indicated on Drawings.
20. Operation: Manual.

21. Operation: Motorized system compatible with wireless remote, keypad, motion sensor and infrared sensor controls.
22. Panel Size: As indicated on Drawings.
23. Panel Size:
    a. Width __ x __ ft (__ x __ mm).
    b. Height __ x __ ft (__ x __ mm).
24. Drainage: Factory installed weep holes.
25. Transoms and Sidelites: Fixed, matching door frame.
26. Glazing Accessories:
    a. Type: As indicated on Drawings.
    b. Type: Decorative mullions.
    c. Type: Interior grids, 3/16 x 5/8 inch (5x 16 mm).
    d. Type: Simulated divided lites, 3/8 x 5/8 inch (9.5 x 16 mm).
    e. Type: Interior muntin grid on insulated glazing.
    f. Type: Interior and exterior applied grids, 3/4 inch (19 mm) low profile grid.
    g. Type: Interior and exterior applied grids, arched grid.
    h. Type: Interior and exterior applied grids, gothic grid.
    i. Type: Interior and exterior applied grids, double gothic grid.
    j. Type: Interior and exterior applied grids, English grid.
    k. Type: Interior and exterior applied grids, traditional grid.
    l. Type: Interior and exterior applied grids, cross grid.
    m. Type: Decorative raised panels.
27. Screens:
    a. Type: As indicated on Drawings.
    b. Type: SI1000 Fixed screens as manufactured by Solar Innovations Architectural Glazing Systems.
    c. Type: SI1000 Operable screens as manufactured by Solar Innovations Architectural Glazing Systems.
    d. Type: SI1000 B-Series Horizontally Retractable Screen System as manufactured by Solar Innovations Architectural Glazing Systems.
    e. Type: SI1000 C-Series Centor SIE Horizontally Retractable Eco-Screen System as manufactured by Solar Innovations Architectural Glazing Systems.
    f. Type: SI1000 S-Series Motorized SC4500 Mastershade Vertically Retractable Screen System as manufactured by Solar Innovations Architectural Glazing Systems.
    g. Framing: Aluminum, 1 x 1 inch (25 x 25 mm).
    h. Screen Materials: As indicated on Drawings.
    i. Screen Materials: Standard gray colored charcoal.
    j. Screen Materials: Fiberglass.
    k. Screen Materials: Aluminum.
    l. Screen Materials: Custom pet screens.
    m. Screen Materials: Black Tuffscreen mesh.
    n. Size: As indicated on the Drawings.
    o. Size: _____.
    p. Mounting and Configuration: As indicated on Drawings.
28. Perimeter Weather Gaskets: EPDM with or without solid strand cord.
29. Sills: As indicated on Drawings.
30. Sills: Tile sill, non-thermal.
31. Sills: Low profile thermal slider track sill.
32. Sills: Low profile thermal slider track sill with ramps.
33. Sills: Slider non-thermal sill (G2 Only)
34. Sills: High performance thermal slider sill.
35. Sills: Extra high performance thermal slider sill.
36. Sills: G3 High performance thermal lift slide sill with 1-1/2 inches (39 mm) upleg.
37. Sills: G3 Extra high performance thermal lift slide sill with 2-5/16 inches (59 mm) upleg.

38. Sills: G3 Low profile thermal slider track sill.
39. Sills: G3 Low profile thermal slider track sill with ramps.
40. Sills: G3 Tile sill, non-thermal.
41. Corners:
    a. Corner Lugs: Extruded aluminum, with thermal break.
    b. Corner Connectors: With thermal break.
42. End Caps: Do not breech thermal break.

B. Hardware:
1. For Sliding Door Systems:
    a. Lock Sets: As scheduled and indicated on Drawings.
    b. Lock Sets: _____.
    c. Lock Sets: As specified in Division 8.
    d. Handles: Type and finish as scheduled and indicated on Drawings.
    e. Handles: Standard ergonomic handle.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Black.
        3) Finish: White.
        4) Finish: Painted aluminum.
        5) Finish: Custom, _____.
    f. Handles: Standard recessed handle with lock.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Black.
        3) Finish: Satin nickel.
        4) Finish: Custom, _____.
    g. Handles: Standard recessed handle with no lock.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Black.
        3) Finish: Satin nickel.
        4) Finish: Custom, _____.
    h. Handles: Pocket door hardware with clear anodized finish.
    i. Handles: Coastal recessed handle.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Dark bronze anodized.
        3) Finish: Clear anodized.
        4) Finish: Custom, _____.
2. For SI8600LS G3 Lift Slide Door Systems:
    a. Lock Sets: As scheduled and indicated on Drawings.
    b. Lock Sets: _____.
    c. Lock Sets: As specified in Division 8.
    d. Handles: Type and finish as scheduled and indicated on Drawings.
    e. Handles: Atlanta style.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Satin nickel.
        3) Finish: Polished brass.
        4) Finish: Antique brass.
        5) Finish: Rustic umber.
        6) Finish: Pure white.
        7) Finish: Dark bronze metallic.
        8) Finish: Custom, _____.
    f. Handles: Athinai style.
        1) Finish: As scheduled and indicated on Drawings.
        2) Finish: Polished chrome.
        3) Finish: Stainless steel.
        4) Finish: Custom, _____.
    g. Handles: Tokyo style.

1) Finish: As scheduled and indicated on Drawings.
2) Finish: Silver.
3) Finish: Chestnut.
4) Finish: Pure white.
5) Finish: Custom, _____.

h. Handles: Handle and finger grip.
1) Finish: As scheduled and indicated on Drawings.
2) Finish: Manufacturer's standard finish.
3) Finish: Custom, _____.

3. Rollers: As indicated on Drawings.
4. Rollers: 1-13/16 inches (46 mm) stainless steel wheels and stainless steel precision bearings.
5. Rollers: 3 inches (76 mm) stainless steel wheels and stainless steel precision bearings.
6. Rollers: 3 inches (76 mm) nylon wheels and stainless steel precision bearings.
7. Salt Spray Test (ASTM B117): Minimum 100 hrs.

C. Materials:
1. Aluminum Flashing and Closures:
a. Alloy and Temper: 6063-T52, 6063-T6, or 6061-T6.
b. Sheet Aluminum Finish: Matching system components.
c. Thickness: Minimum 0.040 inch (1 mm) thick.
d. Attachment: Secured with concealed fastening method or fastener with head finished to match system components.
e. Snap-on Covers and Miscellaneous Non-Structural Trim: Minimum thickness as recommended by manufacturer.
2. Insulation: Expanded polystyrene insulation at filler panels and sheet metal members.
3. Thermal Breaks: Thermal Insulbar Separation, manufacturer's standard system to provide thermal separation between exterior and interior components.
4. Internal Reinforcing:
a. Structural Aluminum Compliance: ASTM B221 and ASTM B241.
b. Carbon Steel Compliance: ASTM A36.
c. Carbon Steel Finish: Factory primed steel, manufacturer recommended primer.
5. Structural Glazing Sealant: Manufacturer's standard, black.
6. Perimeter Sealant: Manufacturer's standard, color to match framing finish.
7. Perimeter Sealant: Manufacturer's standard, color as selected from manufacturer's standard range.
8. Glazing: Single pane, 3/16 inch (5 mm) float glass.
9. Glazing: Single pane, 1/4 inch (7 mm) float glass.
10. Glazing: Single pane, polycarbonate.
11. Glazing: Custom, single pane, _____.
12. Glazing: Double pane glazing, 1 inch (25 mm) insulated glass unit.
a. Outboard Glazing Lites: 3/16 inch (5 mm) tempered clear glass with LoE 272 low-emissivity coating on surface two.
1) Visible Light Transmittance: 72 percent.
2) Solar Heat Gain Coefficient: 0.41.
b. Outboard Glazing Lites: 3/16 inch (5 mm) tempered clear glass with LoE 366 low-emissivity coating on surface two.
1) Visible Light Transmittance: 65 percent.
2) Solar Heat Gain Coefficient: 0.27.
c. Outboard Glazing Lites: 3/16 inch (5 mm) tempered clear glass with LoE 340 low-emissivity coating on surface two.
1) Visible Light Transmittance: 39 percent.
2) Solar Heat Gain Coefficient: 0.18.
d. Outboard Glazing Lites: 1/4 inch (6 mm) tempered clear glass with LoE 272 low-emissivity coating on surface two.

1) Visinle Light Transmittance: 70 percent
2) Solar Heat Gain Coefficient: 0.40.

e. Vertical Inboard Glazing Lites: 3/16 inch (5 mm) tempered clear glass.
f. Vertical Inboard Glazing Lites: 1/4 inch (6 mm) tempered clear glass.
g. Air Spacers: Stainless steel spacer with dual seals of polyisobutylene/silicone and filled with argon gas.

13. Glazing: Specialty, thermochromic glass.
14. Glazing: Specialty, Solera light diffusion glazing system.
15. Glazing: Specialty, Lumira polycarbonate filled polycarbonate panels.
16. Glazing: Decorative, _____.
17. Glazing: Decorative, Pattern 62.
18. Glazing: Decorative, single glue chip.
19. Glazing: Decorative, glue chip.
20. Glazing: Decorative, English reeded.
21. Glazing: Decorative, satin/acid etch.
22. Glazing Gaskets: Compatible with glazing sealant.
    a. Compliance: ASTM C864.
    b. Design Compression type, replaceable, EPDM gaskets; with or without solid strand cord to prevent shrinkage where applicable.
    c. Color: Manufacturer's standard, black.
    d. Corners: Factory molded corners required at interior.
23. Setting Blocks, Edge Blocks, and Spacers: As recommended by manufacturer and compatible with insulated glass.
24. Fasteners: Aluminum and stainless steel, not causing electrolytic action or corrosion.
25. Fasteners: Zinc Cadmium-plated, acceptable in locations as approved by manufacturer.
26. Finish for Exposed Fasteners: To match finish of aluminum frame.

D. Finishes:
1. Aluminum Door Frames: As scheduled and indicated on Drawings.
2. Aluminum Door Frames: Dual color, as indicated on Drawings.
3. Aluminum Door Frames: Dual finish, as indicated on Drawings.
4. Aluminum Door Frames: Mill finish, unfinished.
5. Aluminum Door Frames: Manufacturer's standard white stock finish, AAMA 2603.
6. Aluminum Door Frames: Manufacturer's standard bronze stock finish, AAMA 2603.
7. Aluminum Door Frames: Manufacturer's standard clear anodized finish, Class I AAMA 611.
8. Aluminum Door Frames: Manufacturer's standard dark bronze anodized, Class 1 AAMA 611.
9. Aluminum Door Frames: Manufacturer's Designer black finish, AAMA 2603.
10. Aluminum Door Frames: Manufacturer's Designer sandstone finish, AAMA 2603.
11. Aluminum Door Frames: Manufacturer's Designer natural clay finish, AAMA 2603.
12. Aluminum Door Frames: Manufacturer's Designer Hartford green finish, AAMA 2603.
13. Aluminum Door Frames: Copper cladding.
14. Aluminum Door Frames: Lead coated copper cladding.
15. Aluminum Door Frames: 304 stainless steel cladding with No. 4 satin finish.
16. Aluminum Door Frames: 304 stainless steel cladding with No. 8 mirror finish.
17. Aluminum Door Frames: Powder coating solids finish, bone white, AAMA 2604.
18. Aluminum Door Frames: Powder coating solids finish, fashion gray, AAMA 2604.
19. Aluminum Door Frames: Powder coating solids finish, colonial gray, AAMA 2604.
20. Aluminum Door Frames: Powder coating solids finish, military light blue, AAMA 2604.
21. Aluminum Door Frames: Powder coating solids finish, burgundy, AAMA 2604.
22. Aluminum Door Frames: Powder coating solids finish, charcoal, AAMA 2604.
23. Aluminum Door Frames: Powder coating solids finish, bone white, AAMA 2605.
24. Aluminum Door Frames: Powder coating solids finish, fashion gray, AAMA 2605.
25. Aluminum Door Frames: Powder coating solids finish, colonial gray, AAMA 2605.

26. Aluminum Door Frames: Powder coating solids finish, military light blue, AAMA 2605.
27. Aluminum Door Frames: Powder coating solids finish, burgundy, AAMA 2605.
28. Aluminum Door Frames: Powder coating solids finish, charcoal, AAMA 2605.
29. Aluminum Door Frames: Powder coating metallics finish, champagne, AAMA 2604.
30. Aluminum Door Frames: Powder coating metallics finish, cosmic gray, AAMA 2604.
31. Aluminum Door Frames: Powder coating metallics finish, light bronze, AAMA 2604.
32. Aluminum Door Frames: Powder coating metallics finish, copper, AAMA 2604.
33. Aluminum Door Frames: Powder coating metallics finish, champagne, AAMA 2605.
34. Aluminum Door Frames: Powder coating metallics finish, cosmic gray, AAMA 2605.
35. Aluminum Door Frames: Powder coating metallics finish, light bronze, AAMA 2605.
36. Aluminum Door Frames: Powder coating metallics finish, copper, AAMA 2605.
37. Aluminum Door Frames: Acacia 1001, Light DS 716 textured faux wood finish.
38. Aluminum Door Frames: Acacia 1001, Light DS 402 smooth faux wood finish.
39. Aluminum Door Frames: Acacia 1001, Dark DS 733 textured faux wood finish.
40. Aluminum Door Frames: Acacia 1001, Dark DS 403 smooth faux wood finish.
41. Aluminum Door Frames: Douglas fir 1501 DS 716 textured faux wood finish.
42. Aluminum Door Frames: Douglas fir 1501 DS 402 smooth faux wood finish.
43. Aluminum Door Frames: Cherry 1402 DS 716 textured faux wood finish.
44. Aluminum Door Frames: Cherry 1402 DS 402 smooth faux wood finish.
45. Aluminum Door Frames: Knotty pine 2103 DS 716 textured faux wood finish.
46. Aluminum Door Frames: Knotty pine 2103 DS 402 smooth faux wood finish.
47. Aluminum Door Frames: Cherry 1402 DS 733 textured faux wood finish.
48. Aluminum Door Frames: Cherry 1402 DS 403 smooth faux wood finish.
49. Aluminum Door Frames: Oak assi 2501 DS 733 textured faux wood finish.
50. Aluminum Door Frames: Oak assi 2501 DS 403 smooth faux wood finish.
51. Aluminum Door Frames: Dark walnut 1802 DS 733 textured faux wood finish.
52. Aluminum Door Frames: Dark walnut 1802 DS 403 smooth faux wood finish.
53. Aluminum Door Frames: Teak 2601 DS 706 textured mahogany faux wood finish.
54. Aluminum Door Frames: National walnut 1806 DS 706 textured mahogany faux wood finish.
55. Aluminum Door Frames: White oak wood veneering.
56. Aluminum Door Frames: Red oak wood veneering.
57. Aluminum Door Frames: Birch wood veneering.
58. Aluminum Door Frames: Hard maple wood veneering.
59. Aluminum Door Frames: White ash wood veneering.
60. Aluminum Door Frames: Cherry wood veneering.
61. Aluminum Door Frames: Walnut wood veneering.
62. Aluminum Door Frames: Sapele Mahogany wood veneering.
63. Aluminum Door Frames: Southern yellow pine wood veneering.
64. Aluminum Door Frames: Northern white pine wood veneering.
65. Aluminum Door Frames: Spanish cedar wood veneering.
66. Aluminum Door Frames: Western red cedar wood veneering.
67. Aluminum Door Frames: Douglas fir wood veneering.
68. Aluminum Door Frames: White maple wood veneering.
69. Aluminum Screen Frames: Finish as indicated on Drawings.
70. Aluminum Screen Frames: _____.
71. Aluminum Screen Frames: Finish to match frames.
72. Wood Veneer Finish: As indicated on Drawings.
73. Wood Veneer Finish: Unfinished.
74. Wood Veneer Finish: Manufacturer's standard water based sealer, ICA 3-coat clear, consisting of impregnating agent, base coat, and top coat.

E. Fabrication:
1. Fabricate components in accordance with approved Shop Drawings.
2. Major fabrication must done at the manufacturing location.
3. Install gaskets and tapes at factory.

4. Disassemble only to the extent necessary for shipping and handling limitations.
5. Manufacturer is to be notified of any field modification prior to the activity commencing.
6. Welding is to comply with standards set forth by the American Welding Society.
7. Factory-grind exposed welds smooth and flush with adjacent surfaces prior to finish application; restore mechanical finish.
8. Isolation membrane materials to be used to separate dissimilar metals to prevent galvanic corrosion/action between materials.
9. Fabricate components to allow for accurate and rigid fit of joints and corners. Match components carefully ensuring continuity of line and design. Ensure joints and connections will be flush and weather tight. Ensure slip joints make full, tight contact and are weathertight.
10. Fabricate components true to detail and free from defects impairing appearance, strength or durability.
11. Provide contoured exterior horizontal or purlin glazing retainers to minimize water, ice, and snow buildup.
12. Fabricate with removable sill and head stop.
13. Reinforce components at anchorage and support points, joints, and attachment points for interfacing work.
14. Accurately size glazing to fit openings allowing for clearances as set forth by the "Glazing Manual" published by the Glass Association of North America (GANA).
15. Cut glass clean and carefully. Nicks and damaged edges will not be accepted. Replace glass with damaged edges.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Prepare substrates in strict accordance with the approved Shop Drawings, using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions. Thoroughly clean surfaces and substrates prior to installation.

B. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

C. Verify the structural integrity or the header such that the maximum deflection with both the live and dead loads is limited to be less than 1/8 inch (3 mm). Provide structural support for lateral wind loading. A maximum vertical deflection of greater than 1/8 inch (3 mm) per request may be allowable if accepted by manufacturer. Any deflections larger than 1/8 (3 mm) that is requested must be reevaluated and analyzed for engineering approval.

D. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
1. Separate dissimilar materials using nonconductive tape, paint, or other material not visible in finished work.
2. Provide attachments and shims to permanently fasten system to building structure.
3. Maintain dimensional tolerances and alignment with adjacent work.
4. Anchor securely in place, allowing for required movement, including but limited to expansion and contraction.
5. Install glazing sealants in accordance with manufacturer's instructions, including but

not limited to surface preparations.

6. Set sill members in bed of sealant. Set other members with internal sealants to provide weather tight construction.
7. Install flashings, bent metal closures, corners, gutters, and other accessories as detailed on Shop Drawings and required for complete installation.
8. Clean surfaces and install sealant in accordance with sealant manufacturer's instructions and guidelines.

3.3 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.4 TESTING AND ADJUSTING

A. Adjust hinge set, locksets, and other hardware for proper operation.

B. Lubricate using a manufacturer approved lubricant compatible with door and frame coatings.

3.5 CLEANING AND PROTECTION

A. Clean and protect products in accordance with the manufacturer's recommendations.
   1. Remove temporary coverings and protection of adjacent work areas.
   2. Clean and dress sealant prior to installation completion.
   3. Clean glass prior to installation completion.
   4. Clean the entire enclosure one time at the completion of the installation. Cleaning to include surface cleaning of aluminum framing and glass and clean up of construction debris.

B. Touch-up, repair or replace damaged products before Substantial Completion.
   1. Areas with Abraded Surface Finish: Clean and touch-up with air dry paint, as approved and furnished by window manufacturer, color to match factory applied finish.

END OF SECTION