

## SECTION 08520

### ALUMINUM WINDOWS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. Section includes:
  - 1. Storefront systems and aluminum framed glass doors.
  - 2. Hardware, fasteners, accessories, filler pieces, etc., required for a complete installation of the work in this section.
  - 3. Glazing in accordance with Section 08800.
  - 4. Caulking required for the work of this section, in accordance with Section 07900.
  
- B. Sustainable Design Intent: Comply with project requirements intended to achieve sustainable design, measured and documented according to the LEED Green Building Rating System, of the US Green Building Council. Refer to Section 01811, SUSTAINABLE DESIGN REQUIREMENTS LEED FOR NEW CONSTRUCTION AND MAJOR RENOVATIONS for certification level and certification requirements.

##### 1.02 SYSTEM DESCRIPTION

- A. Extruded aluminum frame members reinforced internally where required to withstand vertical and horizontal live loading, including wind and negative pressure, in addition to the dead weight of the components; glass doors forming part of the framework or independently framed; glazing; sealing of joints between the systems and adjacent construction; compliance with applicable life safety and fire resistive standards, and hardware, anchorage and accessories required.
  
- B. The intent of this section is to include related systems under a single responsibility, including engineering design and compliance with codes and standards specified herein or required by applicable laws and regulations.
  
- C. Comply with the Florida Building Code. The contractor shall be fully responsible for all testing and compliance requirements of the code. Nothing in this Section shall be construed as allowing or requiring noncompliance with code.

##### 1.03 REFERENCE STANDARDS

- A. The following standards affect work of this section as minimum unless more strict requirements are specified.
  - 1. AAMA Metal Curtain Wall Manual, 1996 Edition
  - 2. ANSI/AAMA 101-88 - Voluntary Specification for Aluminum Prime Windows and Sliding Doors
  - 3. AAMA 603.8-85 - Voluntary Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum

4. AAMA 1302-76 - Voluntary Specification for Forced Entry Resistant Aluminum Prime Windows
5. AAMA 1303-76 - Voluntary Specification for Forced Entry Resistant Aluminum Sliding Glass Doors
6. ASTM C 1036-85 - Standard Specification for Flat Glass.
7. ASTM C 1048-88 - Standard Specification for Heat Treated Flat Glass
8. ASTM E 283-84 - Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors
9. ASTM E 331-86 - Test Method for Water Penetration Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
10. Florida Building Code

#### 1.04 SUBMITTALS

- A. Shop drawings with complete layout, erection details, dimensions, anchorage details, and work required by other trades which interfaces with the installation.
- B. Engineering calculations showing compliance with wind load requirements of the Florida Building Code, plus rigidity and weathertightness criteria contained in this section.
- C. Engineering calculations showing:
  1. Glass thicknesses required in accordance with Florida Building Code.
- D. Manufacturer's literature and data as required, including current Miami-Dade County Product Control approval and testing laboratory results.
- E. Samples of aluminum finish, glass, gaskets, sealant and other components.
- F. LEED Certification Documentation: Submit documentation from the manufacturer highlighting LEED requirements for materials and products of this Section. Comply with requirements of Section 01315, LEED Submittals.

#### 1.05 SUSTAINABLE DESIGN REQUIREMENTS

- A. Recycled Content (Credit MR 4): Provide products manufactured from recycled content as specified, to be documented according to the LEED Green Building Rating System.
- B. Regional Content (Credit MR 5): Provide products manufactured within 500 miles from the project site as specified, to be documented according to the LEED Green Building Rating System.
- C. Low-Emitting Materials, Adhesives and Sealants (Credit EQ 4.1): Materials used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) must not exceed the following requirements as described in Section 01811.
  1. Adhesives, Sealants, and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168, requirements in effect on July 1, 2005, and rule amendment date January 7, 2005.

2. Aerosol Adhesives: Green Seal Standard for Commercial Adhesives GS-36, requirements in effect on October 19, 2000.
- D. Low-Emitting Materials, Paints and Coatings (Credit EQ 4.2): Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) must not exceed the VOC limits and must not include any of the chemical components limited or restricted by the following standards as described in Section 01811.
1. Architectural Paints, Coatings and Primers: Green Seal GS-11, Paints, First Edition May 20, 1993. For applications on walls and ceilings.
  2. Anti-Corrosive and Anti-Rust Paints: Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997. For applications on ferrous metal substrates.

#### 1.06 QUALITY ASSURANCE

- A. Perform work under this section under a single subcontract to ensure unified responsibility for the installation as an integrated system. Coordinate interfacing of separate systems.
- B. Component Systems: Produced by a single manufacturer, designed as a coordinated installation capable of conforming to detailed requirements of the drawings and produce a uniform appearance.
- C. Contract Documents define design intent, scope and performance requirements. The details show preferred profiles.

#### 1.07 FIELD TESTING

- A. As early in the project as possible, selected windows, sliding doors and fixed glass panels shall be tested for water penetration in accordance with AAMA standard 501.3 - Field Check of Water Penetration Through Installed Windows, Curtain Walls and Doors By Uniform Air Pressure Difference". The Architect shall designate 3 areas to be tested.
- B. Testing shall be conducted by an independent testing agency selected by the Owner.
- C. The 3 AAMA 501.3 field tests shall be conducted at an air pressure differential of 12 lbs/sq ft at areas selected by the Architect. There shall be no water leakage as defined in AAMA 501.3.
- D. Should failure occur, the Contractor shall identify the cause and submit a method statement for the remediation to the Architect for approval. Upon approval, the remedial work will be carried out and the specimen retested until it meets the performance criteria. The Contractor shall notify the Architect in advance prior to performing any investigatory or remedial work on the test specimen.
- E. The Contractor shall then ensure that the approved remedial work is incorporated into all similar areas of windows.

- F. The Contractor shall bear the cost of all testing and retesting as well as additional testing of similar specimens as may be requested by the Architect. Testing shall continue at Contractor's expense until 3 consecutive successful tests have been achieved.

## 1.08 WARRANTY

- A. Furnish a written warranty against defects in workmanship, materials, finish and leakage which may appear within a period of 3 years following completion and final acceptance of the work, including agreement to repair or replace defective work and related construction damaged or removed during such repair, at no cost to the Owner.

## PART 2 - PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A. Provide 3100 Resistor Series system manufactured by Trulite Glass & Aluminum Solutions, LLC is intended as a guide.
- B. Systems of other manufacturers which meet the requirements of the drawings and this section will be considered subject to approval by the Architect.
  - 1. Arch Aluminum
  - 2. Kawneer Co., Inc.
  - 3. YKK America AP

### 2.02 GENERAL REQUIREMENTS

- A. Sealants: Comply with the requirements of Section 07900 and the recommendations of the manufacturers.
- B. Glazing: See Section 08800.

### 2.03 FIXED GLASS PANEL SYSTEM

- A. Provide products equal to 3100 Resistor Series as manufactured Trulite Glass & Aluminum Solutions, LLC indicated on the drawings.
- B. Framework: Standard extruded shapes, following details on the drawings, complete with supports and accessories.
  - 1. Acceptable alloy and temper combinations for extrusions subject to fabrication, finish and structural requirements are: 6063-T5; 6063-T6; 6061-T6. Other alloys of the 6xxx series and other tempers may be submitted for approval. Nominal wall thickness of 0.125 inch (3.2 mm) or greater is acceptable for structural extrusions; wall thickness less than 0.125 inch (3.2 mm) may be acceptable and is subject to approval. Minimum nominal wall thickness for nonstructural trim shall be 0.062 inch (1.6 mm).
  - 2. Acceptable alloy and temper combinations for sheet and plate subject to fabrication, finish and structural requirements are: 3003-H14; 5005-H14. Other

alloys of the 3xxx, 5xxx and 6xxx series and other tempers may be submitted for approval. Provide 0.125 inch (3.2 mm) minimum nominal thickness.

C. Performance Requirements:

1. Air Infiltration: Tested in accordance with ASTM E 283 and AAMA for "Heavy Commercial". Maximum air infiltration of .06 cfm/sq ft at a test pressure of 6.24 psf.
2. Water Infiltration: Tested in accordance with ASTM E 331. No water penetration at a test pressure of 15 psf or 15% of design pressure, whichever is greater.
3. Structural Performance: Meet ASCE 7-88 requirements.

D. Fasteners: Stainless steel, AISI Type 302 (18-8), having annealed tensile strength of 80,000 psi minimum, exposed surfaces finished to match framework members. Plated or coated materials will not be permitted.

1. Anchorage of frames at jambs, heads, sills and mullions: Provide a minimum of five #10 stainless steel screws per jamb, 1" long. If additional fastenings are required to satisfy local building department requirements, install without extra cost to the Owner.

D. Anchors for bolting units to concrete or solid masonry: Non-ferrous compound or cinch-type. Secure machine screws in concrete or masonry with non-ferrous expansion shields.

E. Install heavy gage aluminum closure strips, finished to match adjacent frames, where required by job conditions such as oversized height openings, jamb closures or columns.

## 2.04 DOORS

- A. Comply with general requirements in this section, and quality, finish and performance specifications for fixed glass panel system specified above.
- B. Provide minimum medium stile entrance units, offset pivot action, beveled glass stops, complete with hardware required except lock cylinder, which will be provided by the finish hardware supplier but installed by door manufacturer, concealed overhead closers finished to match door and frame, pull bars on exterior and panic exit devices on interior of each leaf to be selected by Owner from manufacturer's standard models, manual hurricane locks, thresholds, and aluminum frames to match storefront sections.

## 2.05 ALUMINUM FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. Comply with and certify to AAMA 2605-02 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on

Aluminum Extrusions and Panels.

- D. Finish: Exposed Aluminum Surfaces: AAMA AA-M12C22A31, Class 1, 0.7 mils thick bronze anodized; AAMA 607.1

PART 3 - EXECUTION

3.01 FABRICATION

- A. Fabricate components at the shop whenever possible, in accordance with approved shop drawings.

3.02 INSTALLATION

- A. Set glass framing in locations shown in the details, level, square, plumb and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings.
- B. Seal joints between framing and the building structure in order to secure a watertight installation.

3.03 PROTECTION AND CLEANING

- A. After installation, protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement or other contaminants.
- B. At the completion of the project, clean surfaces and adjust operating parts to leave the work free of defects or blemishes and in good operating condition.

END OF SECTION