

## SECTION 08442

### EXTERIOR STOREFRONT & ALUMINUM SWING ENTRANCES

#### PART 1 GENERAL

Furnish all necessary materials, labor, and equipment for the complete installation of the aluminum storefront system as shown on the drawings and specified herein.

##### 1.01 SUMMARY

- A. Section includes: Aluminum Storefront Systems
  - 1. Kawneer Trifab 451 System/Impact Resistant.
- B. Related Sections:
  - 1. Sealants: Dow Corning® 995 Structural Silicone Sealant.
  - 2. Glass and Glazing: Refer to 08800 Glass and Glazing Section for glass and glazing requirements.
  - 3. Single Source Requirement: All products listed below shall be by the same manufacturer.
    - a. Section 08441 Curtain Wall
    - b. Section 08443 Interior Storefront

##### 1.02 SYSTEM DESCRIPTION

- A. General Description: **Exterior Storefront System is required to be impact resistant but** must meet Components and Cladding requirements found on the Structural Drawings.
- B. Performance Requirements: Provide aluminum curtain wall systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with Florida Building Code Test Protocols TAS 201, TAS 202 and TAS 203.
  - 1. Air Infiltration: Completed storefront systems shall have 0.04 CFM/FT<sup>2</sup> (0.74 m<sup>3</sup>/h·m<sup>2</sup>) maximum allowable infiltration when tested in accordance with ASTM E 283-91 at differential static pressure of 6.24 psf (299 Pa).
  - 2. Water Infiltration: No uncontrolled water other than condensation on indoor face of any component when tested in accordance with ASTM E 331-93 at test pressure differential of 12 psf (575 Pa). Water test to be performed immediately after design pressure test.
  - 3. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:
    - a. Exterior Walls without steel reinforcing:
      - 1) Positive Pressure: 50 psf.
      - 2) Negative Pressure: 50 psf.Note: Refer to structural drawings for required pressure as listed under Components and Cladding (S501)
  - 4. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330-90 with allowable stress in accordance with AAMA Specifications for Aluminum Structures.
    - a. Without Horizontals: L/175 or 3/4" (19.1mm) maximum.
    - b. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).

5. Thermal Movement: Provide for thermal movement caused by 180 degrees F. (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.

### **1.03 SUBMITTALS**

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
- B. Product Data: Submit product data for each type storefront series specified. Include Florida product Approval Documentation.
- C. Substitutions: Whenever substitute products are to be considered, supporting technical data, samples and test reports must be submitted ten (10) working days prior to the bid date in order to make a valid comparison.
- D. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors and textures.
- E. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.
- F. Quality Assurance / Control Submittals:
  1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
  2. Installer Qualification Data: Submit installer qualification data.
- G. Closeout Submittals:
  1. Warranty: Submit warranty documents specified herein.
  2. Project Record Documents: Submit project record documents for installed materials in accordance with Section 01700 Project Closeout Section.

### **1.04 QUALITY ASSURANCE**

- A. Qualifications:
  1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
  2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.

### **1.05 PROJECT CONDITIONS / SITE CONDITIONS**

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

## 1.06 WARRANTY

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
  - 1. Beneficiary: Issue warranty in the legal name of the project Owner.
  - 2. Warranty Period: Manufacturer's Standard Warranty commencing on Date of Substantial Completion.
  - 3. 10-year warranty on the anodized finish.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS (Acceptable Manufacturers/Products)

- A. Acceptable Manufacturers:
  - 1. YKK  
YKK AP America Inc.  
7680 The Bluffs, Suite 100  
Austell, GA 30168  
Telephone: (678) 838-6000
  - 2. Kawneer Trifab 451:  
Kawneer Company, Inc.  
555 Guthridge Court,  
Technology Park/Atlanta,  
Norcross, GA 30092  
Telephone: (770) 449-5555
  - 3. Aluminum Swing Entrance: YKK **Impact Resistant** Swing Doors.
  - 4. Approved equal per Section 1600
- B. Storefront Framing Systems:
  - 1. Description: Center set, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery. Continuous and wept sill flashing.
  - 2. Components: Manufacturer's standard extruded aluminum mullions, entrance doors, framing, and indicated shapes, perimeter anchor fillers and steel reinforcing as required.
  - 3. Glazing: Manufacturer's standard glazing stops with EPDM glazing gaskets to prevent water infiltration at the exterior and Dow Corning® 995 Structural Silicone Sealant with fixed stops at the interior.
- C. Heavy Duty Swing Doors:
  - 1. Description: 4-11/16" x 2-3/8" thick.
  - 2. Corner Construction: Fabricate door corners joined by concealed reinforcement secured with screws, and sigma deep penetration welding.
  - 3. Glazing: Manufacturer's standard glazing stops with EPDM glazing gaskets at the exterior and Dow 995 Structural Silicone with fixed stops at the interior.
  - 4. Weather-Stripping: Manufacturer's standard elastomer type in replaceable rabbets for stiles and rails.

5. Hardware:
  - (1-1/2 to 2) pair of Grade 1 mortise butt hinges per leaf. Ball bearing 4-1/2" x 4" Brass US 26D finish.
  - (1) Adams Rite MS1850 three-point hook bolt lock on active leaf or single door. (1) Adams Rite two-point lock on inactive leaf.
  - (1) keyed cylinder with thumb turn on the inside.
  - Smart Series 1" diameter pull/push.
  - LCN 4041 surface mounted closers w/o hold open.
  - Airtight threshold.
  - Provide Astragal for all paired doors.

## **2.02 MATERIALS**

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.
- B. Aluminum Sheet:
  1. Anodized Finish: ASTM B 209 (ASTM B 209M), 5005-H14 Aluminum Alloy, 0.050" (1.27 mm) minimum thickness.

## **2.03 ACCESSORIES**

- A. Manufacturer's Standard Accessories:
  1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners, countersunk, finish to match aluminum color.
  2. Perimeter Sealant: Non-skinning type, AAMA 803.3.
  3. Glazing: Exterior by means of EPDM glazing gaskets designed to lock into gasket reglet. Interior by means of silicone spacer and Structural Silicone Adhesive.
  4. Glazing Adhesive: Dow Corning® 995 Structural Silicone.

## **2.04 RELATED MATERIALS**

- A. Glass: Refer to Section 08800 Glass and Glazing for glass materials.

## **2.05 FABRICATION**

- A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and sealed in accordance with manufacturer's recommendations.
  1. Hardware: Drill and cut to template for hardware. Reinforce frames and door stiles to receive hardware in accordance with manufacturer's recommendations.
  2. Welding: Conceal welds on aluminum members in accordance with AWS recommendations or methods recommended by manufacturer. Members showing welding bloom or discoloration on finish or material distortion will be rejected.

## **2.06 FINISHES AND COLORS**

- A. Anodized Finish: YKK AP America Anodized Plus® Finish:
  1. Clear Anodized Aluminum: YKK AP YS1N with clear protective composite coating.

## **PART 3 EXECUTION**

### **3.01 MANUFACTURER'S INSTRUCTIONS / RECOMMENDATIONS**

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest installation instructions are available at [www.ykkap.com](http://www.ykkap.com).

### **3.02 EXAMINATION**

- A. Site Verification of Conditions: Verify conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Storefront Contractor shall make adjustments to his system to compensate for adjacent elements (steel, CMU, concrete slabs, aluminum panels, etc.). Proper and professional fit and finish are the Storefront Installer's responsibility.

### **3.03 PREPARATION**

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.
  - 1. Aluminum Surface Protection: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

### **3.04 INSTALLATION**

- A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.
  - 1. Shim and brace aluminum system before anchoring to structure.
  - 2. Provide sill flashing at exterior storefront systems. Extend extruded flashing continuous with slice joints; set in continuous beads of sealant.
  - 3. Verify storefront system allows water entering system to be collected in gutters and wept to exterior. Verify metal joints are sealed in accordance with the manufacturer's instructions.
  - 4. Seal metal to metal storefront system joints using sealant recommended by system manufacturer.
  - 5. Any continuous joints must be uniform throughout the run.
  - 6. Any joint greater than 1/8" will be rejected without question.

### **3.05 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
- B. Field Test: Conduct field test to determine watertightness of storefront system. Conduct test in accordance with AAMA 501.2-03.

### **3.06 ADJUSTING AND CLEANING**

- A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's recommendations.
- B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
- C. Protection: The General Contractor shall protect the installed product's finish surfaces from damage during construction.

END OF SECTION 08442