SECTION 08411

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum entrance doors.
2. Interior storefront
3. Brise soleil made of aluminum framing curtainwall system components at exterior.

B. Related Sections:

1. Section 07410 - Prefinished Insulated Metal Panel System: Exterior skin with aluminum stick-type glazed aluminum curtain wall.
2. Section 07840 - Firestopping.
3. Section 07920 - Joint Sealants: Perimeter sealant around curtain wall and interior storefront systems.
4. Section 08210 - Flush Wood Doors

1.2 REFERENCES

A. Industry Standards: The Industry Standards listed below refer to the latest date of issue or edition, unless otherwise indicated:

1. AAMA Metal Curtain Wall, Window, Storefront and Entrance Guide Specifications Manual.
2. AAMA - Aluminum Curtain Wall Design Guide Manual 1989.
3. AAMA - Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum From Shop to Site.
4. AAMA - Series no. 11 Design Wind loads for Buildings and Boundary Layer Wind Tunnel Testing.
5. AAMA 501 Test method for water penetration of Exterior Windows, Curtain Walls, and Doors by dynamic air pressure differential.
6. AAMA T1R - A1 - Sound Control for Aluminum Curtain Walls and Windows.
7. AAMA FC-1 - Field Check of Metal Curtain Walls for Water Leakage.
8. ASTM A36 - Structural Steel.
9. ASTM A386 - Zinc Coating (hot dip) or Zinc Chromate paint on assembled steel products.
10. ANSI/ASTMA446 _ Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
11. ANSI/ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
12. ANSI/ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
13. ASTM E283-84 rate of air leakage through exterior Window, Curtain Walls and Doors.
14. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
15. ASTM E_331 - Test method for water penetration of Exterior Windows, Curtain Wall and Doors.
16. ASTM E413 - Classification for Determination of Sound Transmission Class.

17. SSPC - Steel Structures Painting Council.
18. SSTD12

1.3 SYSTEM DESCRIPTION

A. **Glazed exterior aluminum curtain wall system and brise soleil** includes tubular aluminum sections with self supporting framing, shop fabricated, factory prefinished, related flashings, anchorage and attachment devices.

B. **Glazed interior aluminum storefront system** includes tubular aluminum sections with self supporting framing, shop fabricated, factory prefinished, anchorage and attachment devices. Interior storefront shall comply with PERFORMANCE REQUIREMENTS applicable to interior work as directed by the Architect.

1.4 PERFORMANCE REQUIREMENTS

A. **Loading:** Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable codes.

B. **Structural Performance:** Exterior fabrications shall be designed to comply with the requirements of all governing building codes, including all connections of exterior fabrication framing members and the connections of exterior fabrication framing members to supporting members and structural elements. Erect exterior fabrication framing to withstand the following design loads under conditions involved.

1. Design Loads: Positive and negative wind loads determined in accordance with the International Building Code, 2003 Edition, and the referenced standard ASCE 7-02 for the parameters specified and the following criteria:
   a. Basic wind gust - V = 130 mph.
   b. Importance factor - = Category 2.
   c. Exposure - B.
2. Install exterior fabrication framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change (range) of 120 deg. F.
3. Install exterior fabrication framing system to accommodate deflection of primary building structure and construction tolerances, and to maintain clearances at openings.

C. **Limit mullion deflection** to 1/175; with full recovery of glazing materials.

D. **Movement:** System to accommodate, without damage to system, components or deterioration of seals; movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; deflection of structural support framing, shortening of building concrete structural columns, creep of concrete structural members and a mid-span slab edge deflection.

1. Special consideration must be given in the design to allow for differential movement between the anchored end mullions and the adjacent mullions.

E. **Impact Resistance:** System to meet requirements for coastal hurricane missile impact loads.

1. Glazed aluminum curtain wall up to 30 feet above grade shall be designed for Large Missile Impact (LMI) in accordance with SSTD12.
2. Glazed aluminum curtain wall frame 30 feet to 60 feet above grade shall be designed for Small Missile Impact (SMI) in accordance with SSTD12.

3. Glazed aluminum curtain wall 60 feet above grade or higher shall be designed for Not Impact Resistant (NIR) in accordance with SSTD12

F. Air Infiltration: Limit air infiltration through assembly to 0.06 cfm/min/sq ft of crack length, measured at a reference differential pressure across assembly of 6.24 psf as measured in accordance with ANSI/ASTM E283.

G. Water Leakage: System shall meet a water test with no uncontrolled leakage at 15 psf pressure differential with a water rate of 5 gallons/hr/sq. ft. when tested in accordance with ASTM E331.

H. Condensation Resistance Factor (CRF) will be determined in accordance with AAMA Specification 1503.1-1988; CRF of 59.

I. Thermal Transmittance Coefficient (U Value): Determined in accordance with ASTM C236-89 and AAMA 1503.1-1988; U = .65.

J. Expansion and Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 100 degrees F over a 12 hour period without causing detrimental effects to system components.

K. Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

L. Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

1.5 SUBMITTALS

A. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.

1. Shop drawings shall be sealed and signed by a registered Professional Engineer registered in the State of Louisiana.

B. Product Data: Provide framing member structural and physical characteristics, dimensional limitations, and special installation requirements.

1. Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow.

C. Samples: Submit two samples in size illustrating prefinished aluminum surface.

D. Test Reports: Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.

E. Manufacturer's Installation Instructions: Indicate special installation procedures and recommended installation procedures.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Perform Work in accordance with AAMA Metal Curtain Wall, Window, Store Front and Entrance Guide Specifications Manual and AAMA Aluminum Curtain Wall Design Guide Manual.

1.7 QUALIFICATIONS

A. **Manufacturer:** Company specializing in manufacturing aluminum curtain wall systems similar to those indicated for this Project with a record of successful in-service performance.

B. **Installer for Total System:** Company authorized by system manufacturer.

C. **Certification:** Design structural support framing components under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State of Louisiana.

1.8 PRE-INSTALLATION CONFERENCE

A. **Convene** one week prior to commencing work of this Section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. **Handle** work of this Section in accordance with AAMA -Curtain Wall Manual #10.

B. **Protect** prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.10 ENVIRONMENTAL REQUIREMENTS

A. **Temperature:** Do not install sealants when ambient temperature is less than 40 degrees F.

B. **Sealants:** Maintain this minimum temperature during and after installation of sealants.

1.11 FIELD MEASUREMENTS

A. **Verify** that field measurements are as indicated on shop drawings.

1.12 COORDINATION

A. **Coordinate** the Work with installation of firestopping, air and vapor barriers.

1.13 WARRANTY

A. **Manufacturer's Warranty:** Submit, for the 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 the Owner may have under the Contract Documents.

1. Warranty: Include coverage for complete system for failure to meet specified requirements.
2. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. **Approved Products (or level of performance in the case of custom curtainwall and brise soleil)/Manufacturers:**

1. Centria system as shown on Drawings – see Section 07410 - Prefinished Insulated Metal Panel System.

2. Prior approved equal

B. Interior Storefront
1. "Tri-Fab II – 450", KAWNEER COMPANY, INC
2. Prior approved equal

C. Brise Soleil
1. Construction Specialties as shown on Drawings
2. Prior approved equal

D. Approved Products/manufacturers for Doors:
1. "350 Heavy Wall," KAWNEER COMPANY, INC
2. Prior approved equal

2.2 MATERIALS

A. Extruded Aluminum: ANSI/ASTM B221; 6063 alloy, T5 temper.

B. Fasteners: Stainless Steel.

2.3 COMPONENTS

A. Mullion Profile: Rectangular profile, matching stops and pressure plate of sufficient size and strength to provide bite on glass and infill panels.
1. Refer to Drawings for horizontal structural glazed joints.

B. Flashings: .063inch thick aluminum to match curtain wall mullion sections where exposed, secured with concealed mechanical fastening method.

C. Exposed Fasteners: Except where unavoidable, do not use exposed fasteners. When unavoidable, locate fasteners away from direct viewing angle if possible.

D. Glazing Gaskets: Manufacturer's standard extruded glazing gasket. Gaskets at wall systems must have molded corners at interior and exterior.

E. Overall System Depth: Curtain wall system depth shall be as noted herein or on the drawings. Any deviation from the profiles shall require Architect's approval.

F. Extruded Aluminum Trim: Interior extruded aluminum trim is to be supplied by curtain wall manufacturer. When corner closures and trims are to be formed with brake metal, .090" minimum thickness is required.

2.4 GLASS AND GLAZING MATERIALS

A. Glass and Glazing Materials: As specified in "Section 08800 - Glazing".

2.5 SEALANT MATERIALS

A. Sealant and Backing Materials: As specified in "Section 07920 - Joint Sealants".

2.6 FABRICATION

A. Fabricate curtain wall components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

B. **Accurately fit and secure joints** and corners. Make joints flush, hairline.

C. **Prepare components** to receive anchor devices. Fabricate anchors.

D. **Arrange fasteners** and attachments to ensure concealment from view.

E. **Reinforce framing members** for external imposed loads, if required by loading conditions.

2.7 FINISHES

A. **Exterior Finish Coatings:**

1. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

B. **Interior Finish Coatings**

1. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 EXAMINATION

A. **Verify dimensions,** tolerances, and method of attachment with other work.

B. **Verify wall openings** and adjoining air and vapor seal materials are ready to receive work of this Section.

3.2 INSTALLATION

A. **Install curtain wall system** in accordance with manufacturer's instructions.

B. **Attach to structure** to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. **Provide alignment attachments** and shims to permanently fasten system to building structure.

D. **Align assembly** plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. **Provide thermal isolation** where components penetrate or disrupt building insulation.

F. **Flashings:** Install sill flashings.

G. **Firestopping:** Coordinate installation of fire stop insulation at each floor slab edge.

H. **Vapor Barriers:** Coordinate attachment and seal of perimeter air and vapor barrier materials.

I. **Thermal Barrier:** Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

J. Doors: Install storefront doors.

K. Perimeter Sealants: Install perimeter sealant to method required to achieve performance criteria, backing materials, and installation criteria in accordance with Section 07920.

3.3 TOLERANCES

A. Maximum Variation from Plumb: 0.06inches every 3 ft, non-cumulative, or 0.5inches per 100 ft, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.4 FIELD QUALITY CONTROL

A. Testing and Inspection: Inspection shall monitor quality of installation and glazing.

1. Test to AAMA FC-1.

3.5 CLEANING

A. Remove protective material from prefinished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.

C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.6 PROTECTION OF FINISHED WORK

A. Protect finished Work from damage.

END OF SECTION