

SECTION 08900

ALUMINUM CURTAIN WALL

1 PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Kawneer Architectural Aluminum Curtain Wall Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of curtain wall framing.

1. Types of Kawneer Aluminum Curtain Wall include:

a. 1600 Wall System² – 2–1/2" x 6" or 2–1/2" x 7–1/2", outside, glazed structural silicone glazed (SSG) format.

B. Related Sections:

1. Section 08410 – Aluminum Entrances and Storefronts

1.2 REFERENCES (INDUSTRY STANDARDS)

1.3 SYSTEM DESCRIPTION

A. Curtain Wall System Performance Requirements:

1. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft² at a static air pressure differential of 6.24 psf.
2. Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a static air pressure differential of 12 psf as defined in AAMA 501.
3. Water Resistance, (dynamic): The test specimen shall be tested in accordance with AAMA 501.1. There shall be no leakage at an air pressure differential of 12 psf as defined in AAMA 501.
4. Uniform Load: A static air design load of 40 psf shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
5. Thermal Transmittance (U-factor) tested to AAMA Specification 1503.1, the thermal transmittance (U-factor) not be more than: 0.46 (low-e) or 0.58 (clear).
6. Condensation Resistance (CRF): When tested to AAMA Specification 1503.1, the condensation resistance factor shall not be less than 75_{frame} and 67_{glass} (low-e) or 76_{frame} and 59_{glass} (clear).
7. Seismic: When tested to AAMA 501.4, system must meet design displacement of 0.010 x the story height and ultimate displacement of 1.5 x the design displacement.

8. Sound Transmission Loss: When tested to ASTM E90, the Sound Transmission Class (STC) shall not be less than 34.

1.4 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. Quality Assurance/Control Submittals:
 1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

1.5 WARRANTY

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for curtain wall system as follows:
 1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Kawneer.

1.6 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 and who is acceptable to product manufacturer.
 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
- B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect curtain wall material against damage from elements, construction activities, and other hazards before, during and after curtain wall installation.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS (ACCEPTABLE MANUFACTURERS/PRODUCTS)

A. Acceptable Manufacturers:

1. Products equal to :

- a. Series: Kawneer 1600 Wall System²
- b. Finish/Color: (See 2.06 Finishes)

B. Substitutions:

1. Shall be approved during the final pricing process and prior to acceptance of bid.

2.2 MATERIALS

A. Aluminum (Curtain Wall and Components):

1. Material Standard: Extruded Aluminum, ASTM B 221, 6063-T6 alloy and temper.
2. Member Wall Thickness: Each framing member shall have a wall thickness sufficient to meet the specified structural requirements.
3. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of curtain wall members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 ACCESSORIES

- A. Fasteners: Where exposed, shall be Stainless Steel.
- B. Gaskets: Glazing gaskets shall comply with ASTM C 864 and be extruded of a silicone compatible EPDM rubber that provides for silicone adhesion.
- C. Perimeter Anchors: Aluminum. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
- D. Thermal Barrier: Thermal separator shall be extruded of a silicone compatible elastomer that provides for silicone adhesion.

2.4 RELATED MATERIALS

- A. Sealants: Refer to Joint Treatment (Sealants) Section.
- B. Glass: Sealed insulated glass. Refer to Glazing Section 08800.

2.5 FABRICATION

- A. General:

1. Fabricate components per manufacturer's installation instructions and with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
2. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
3. Prepare components to receive anchor devices. Fabricate anchors.
4. Arrange fasteners and attachments to conceal from view.

2.6 FINISHES

A. Shop Finishing:

1. Kawneer Permanodic® AA-M12C22A44, AAMA 611, Architectural Class I Color Anodic Coating. Color shall be Dark Bronze.

2.7 SOURCE QUALITY CONTROL

A. Source Quality: Provide aluminum curtain walls specified herein from a single source.

1. Building Enclosure System: When aluminum curtain walls are part of a building enclosure system, including entrances, entrance hardware, windows, storefront framing and related products, provide building enclosure system products from a single source manufacturer.

3 PART 3 EXECUTION

3.1 EXAMINATION

- #### A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive curtain wall system and sill plate is level in accordance with manufacturer's acceptable tolerances.
1. 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.

3.2 INSTALLATION

- #### A. General: Install curtain wall systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
 2. Weathertight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of construction.

- a. Refer to Division 7 Joint Treatments (Sealants) for installation requirements.
- B. Related Products Installation Requirements:
 - 1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants) Section.
 - 2. Glass: Refer to Division 8 Glass and Glazing Section.
 - a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

3.3 FIELD QUALITY CONTROL

- A. Field Tests: Architect shall select curtain wall units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
 - 1. Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Division 1 Testing Section for payment.
 - a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft², which ever is greater.
 - b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 10 psf.
 - B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

3.4 PROTECTION AND CLEANING

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
- B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

...END OF SECTION 08900