SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS - REVISED

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors and frames.

C. Weatherstripping.

D. Door hardware.

E. Perimeter sealant.

1.02 RELATED REQUIREMENTS

A. Section 07 25 00 - Weather Barriers: Perimeter air and vapor seal between glazing system and adjacent construction.

B. Section 07 90 05 - Joint Sealers: Perimeter sealant and back-up materials.

C. Section 08 80 00 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2012.

B. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2010.

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2012.

D. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2012.

E. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).

F. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2002 (Reapproved 2010).

G. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, internal drainage details.

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.

D. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.

1.06 QUALITY ASSURANCE

A. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum glazing systems with minimum three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

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

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a 10 year period after Date of Substantial Completion.

C. Provide 10 year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

D. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Basis of Design: Kawneer North America: www.kawneer.com.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, thermally broken and related flashings, anchorage and attachment devices. Basis of Design: Trifab 451T (Thermal) as manufactured by Kawneer or approved equal.
   1. Glazing Rabbet: For 1 inch insulating glazing at all exterior window units; 5/8 inch insulating glazing at all entrances and ¼ inch at interior locations as scheduled.
   2. Glazing Position: Centered (front to back).
   3. Vertical Mullion Dimensions: 2 inches wide by 4.5 inches deep.
   4. Sill Pan: Provide sill pan accessory at all exterior storefront openings. Type, finish and color to match framing members.
   5. Finish: Anodized
   6. Finish Color: Refer to storefront schedule on the drawings.
   7. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   8. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   9. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   10. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without

causing detrimental effect to system components, anchorages, and other building elements.

11. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
12. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.

B. Performance Requirements:
   1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
      a. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
   2. Water Penetration Resistance: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8.00 lbf/sq ft.
   3. Air Leakage: Maximum of 0.06 cu ft/min/sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 pounds per square foot pressure differential across assembly.
   4. Movement: Accommodate movement between storefront and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
   5. Air Infiltration: Limit air infiltration through assembly to 0.06 cu ft/min/sq ft of wall area, measured at specified differential pressure across assembly in accordance with ASTM E283.
   6. Water Leakage: None, when measured in accordance with ASTM E331 at specified pressure differential.
   7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   8. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.

2.03 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.
   1. Glazing stops: Flush.

B. Swing Doors: Glazed aluminum. Basis of Design: Kawneer – 500 Series with 10 inch bottom rail.
   1. Thickness: 1-3/4 inches.
   2. Top Rail: 5 inches wide.
   3. Vertical Stiles: 5 inches wide.
   4. Bottom Rail: 10 inches wide.
   5. Glazing Stops: Square.
   6. Finish: Same as storefront.
   7. Glazing: 5/8 inch insulating glass – see glazing specification section.

C Venting (Operable) Windows:
   1. Manufacturer's standard units, complying with AAMA/WDMA/CSA 101/I.S.2/A440, and as follows:

      a. Basis-of-Design: Glassvent Windows by Kawneer.
      b. Window Type: Project-Out; coordinate hinge preference in shop drawing submittal.
      c. Minimum Performance Class: HC.

d. Minimum Performance Grade: 70.
e. Hardware: Manufacturer's standard; of aluminum, stainless steel, die-cast steel, malleable iron, or bronze; including the following:
   1) Cam handle locking system.
   2) Stainless steel operating arms.
   3) Egress Opening: Provide full 90 degree clear opening.
f. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.
g. Glazing: Same as adjacent aluminum-framed entrances and storefront glazing.
h. Finish: Match adjacent aluminum-framed entrances and storefront finish.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Fasteners: Stainless steel.

C. Perimeter Sealant: As specified in Section 07 90 05.

D. Glass: As specified in Section 08 80 00.

E. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

2.05 FINISHES

A. High Performance Organic Finish: AAMA 2604; multiple coats, thermally cured fluoropolymer system.

B. Color: To be selected by Architect from manufacturer's full range.

C. Touch-Up Materials: As recommended by coating manufacturer for field application.

2.06 HARDWARE

A. All storefront entrance hardware to be provided by the storefront entrance manufacturer.
   1. Finish on Hand-Contacted Items: mill finish.

B. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.

C. Sill Sweep Strips: Provide and install at bottom rail on both the interior and exterior sides of the door. Product: PEMKO 412 PKL., provide on all doors.

D. Threshold: Extruded aluminum, one piece per door opening, ribbed surface for offset pivot type; provide on all doors.

E. Pivots: offset pivot type; top and bottom.
   1. Provide on all doors.

F. Push/Pull Set: Interior – CP-11; Exterior – CO-9/CO-12.
   1. Provide on all doors.

G. Closers: LCN 4040
   1. Provide on all doors.

H. Locks: Adams Rite MS 1850 Deadlock with thumbturn inside; keyed cylinder outside-by others, see Section 08710.
   1. Provide on all doors.

2.07 FABRICATION

A. Fabricate 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, and weatherproof.

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

D. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.

E. Arrange fasteners and attachments to conceal from view.

F. Reinforce components internally for door hardware.

G. Reinforce framing members for imposed loads.

H. Finishing: Apply factory finish to all surfaces that will be exposed in completed assemblies.
   1. Touch-up surfaces cut during fabrication so that no natural aluminum is visible in completed assemblies, including joint edges.

PART 3 EXECUTION

3.01 EXAMINATION

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

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

3.02 INSTALLATION

A. Install 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. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Coordinate attachment and seal of perimeter air and vapor barrier materials.

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

J. Set thresholds in bed of mastic and secure.

K. Install hardware using templates provided.

L. Install glass and infill panels in accordance with Section 08 80 00, using glazing method required to achieve performance criteria.

M. Install perimeter sealant in accordance with Section 07 90 05.

N. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.

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

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for independent testing and inspection requirements. Inspection will monitor quality of installation and glazing.

3.05 ADJUSTING

A. Adjust operating hardware and sash for smooth operation.

3.06 CLEANING

A. Remove protective material from pre-finished 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 method acceptable to sealant manufacturer.

3.07 PROTECTION

A. Protect installed products from damage during subsequent construction.

END OF SECTION 08 41 13