GLAZIERS SPECIFICATIONS

SECTION 08410 – ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 – GENERAL

1.00 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.01 SUMMARY:

Extent of aluminum entrances and storefronts is indicated on drawings.

Aluminum entrance and storefront types required for the project include:

- Exterior entrance doors
- Frames for exterior entrances
- Storefront type framing system

Glazing: Refer to another Division-8 section of this specification "Glass and Glazing (08800)" for glazing requirements for aluminum entrances and storefronts, including doors specified to be factory preglazed.

Glazed Aluminum curtain wall (08920) is specified in another Division-8 section of this specification.

1.03 SYSTEM DESCRIPTION

Performance Requirements: Provide aluminum entrance and storefront assemblies that comply with performance characteristics herein specified. Test each system by a recognized testing laboratory or agency in accordance with specified test methods. Provide certified test results.

Thermal Movement: Provide systems capable of withstanding thermal movements resulting from an ambient temperature range of 120° F (67° C) that could cause a metal surface temperature range of 180° F (100° C) within the framing system.

Wind Loading: Provide assemblies capable of withstanding a uniform pressure of 20 psf inward and 20 psf outward when tested in accordance with ASTM E 330.

Fixed Framing Transmission Characteristics: Provide aluminum entrance and storefront framing system that complies with requirements indicated for transmission characteristics.

Air Infiltration: Provide framing system with an air infiltration rate of not more than 0.06 cfm per sq. ft. of fixed area (excluding operable door edges) when tested in accordance with ASTM E 283 at an inward test pressure differential of 6.24 psf.

Water Penetration: Provide framing systems with no water penetration (excluding operable door edges) as defined in the test method when tested in accordance with ASTM E 331 at an inward test pressure differential of 6.24 lbf. per sq. ft.

Condensation Resistance: Provide framing systems that are “thermal-break” construction, tested for thermal performance in accordance with AAMA 1502 showing condensation resistance factor (CRF) of not less than 45.

Thermal Transmittance: Provide framing systems that have an overall U-value of not more than 0.65 BTU/(hr. x sq. ft. x degrees F) at 15 mph exterior wind velocity when tested in accordance with AAMA 1503.

Aluminum Entrance Transmission Characteristics: Provide weatherstripped entrance doors with jamb and head frames that comply with requirements indicated for transmission characteristics.

Air Infiltration: Provide doors with an air infiltration rate of not more than 0.50 cfm for single doors and 1.0 for pairs of doors when tested in accordance with ASTM E 283 at an inward test pressure differential of 1.567 psf.

Condensation Resistance: Provide entrance door units tested for thermal performance in accordance with AAMA 1502 showing a condensation resistance factor (CRF) of not less than 48.

Thermal Transmittance: Provide entrance doors that have an overall U-value of not more than 0.93 BTU/(hr. x sq. ft. x degrees F) at 15 mph exterior wind velocity when tested in accordance with AAMA 1503.

1.05 SUBMITTALS:

Product Data: Submit manufacturer’s product specifications, technical product data standard details, and installation recommendations for each type of entrance and storefront product indicated. Include the following information:

- Fabrication methods
- Finishing
- Hardware
- Accessories

Samples: Submit pairs of samples of each type and color of aluminum finish selected, on 12" long sections of extrusions or formed shapes and on 6" square sheets. Where color or texture variations anticipated, include 2 or more units in each set of samples indicating extreme limits of variations.

Shop Drawings: Submit shop drawings for fabrication and installation of entrances and storefronts, including the following:

- Elevations
- Detail sections of typical composite members
- Hardware, mounting heights
- Anchorages and reinforcements
- Expansion provisions
- Glazing details

Certification: Provide certified test results showing that entrance and storefront systems have been tested by a recognized testing laboratory or agency and comply with the performance characteristics of this specification.

1.06 QUALITY ASSURANCE:

Manufacturer's Qualifications: Provide entrances and storefront produced by a single manufacturer with not less than 5 years successful experience in the fabrication of assemblies of the type and quality specified.

Installer's Qualifications: Entrances and storefront shall be installed by a firm that has not less than 5 years successful experience in the installation of systems similar to those specified.

Design Criteria: Drawings are based on one manufacturer's entrance and storefront system. Another manufacturer's system of a similar and equivalent nature will be acceptable when, in the Architect's sole judgment, differences do not materially detract from the design concept or intended performance.

1.08 PROJECT CONDITIONS:

Field Measurements: Check openings by field measurement before fabrication to ensure proper fitting of work; show measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay in the work. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.09 WARRANTY:

Special Product Warranty: Submit a written warranty, executed by the Contractor, Installer, and Manufacturer, agreeing to repair or replace units (including reglazing) that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, structural failures including excessive deflection, leakage, or air infiltration, faulty operation, and deterioration of metals, metal finishes, and other materials beyond normal weathering. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

Warranty period for aluminum entrances and storefronts is 3 years after date of substantial completion.

PART 2 – PRODUCTS

2.01 MANUFACTURERS:

Manufacturer: The design of Aluminum Entrances and Storefronts as shown on the drawings is based on the TRIFAB 451T with thermally broken members, including thermal flashing/sill plate series as manufactured by Kawneer Company, Inc. The design of doors is based on the Medium series doors as manufactured by Kawneer Company, Inc. Subject to compliance with requirements of this specification, provide products by one of the following:

Center-screw spline/center-OG type framing for entrance and storefront system type “C,” as indicated on the drawings.

Kawneer Company, Inc.
PPG Industries, Inc.

2.02 MATERIALS:

Aluminum Members: Provide alloy and temper recommended by the manufacturer for strength, corrosion resistance, and application of specified finish; comply with ASTM B 221 for extrusions and ASTM B 209 for sheet or plate material.

Fasteners: Provide fasteners of aluminum, nonmagnetic stainless steel, or other materials warranted by the manufacturer to be noncorrosive and compatible with aluminum components, hardware, anchors, and other components.

Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard noncorrosive pressed-in splined grommet nuts.

Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For the application of hardware, use fasteners that match the finish of member of hardware being fastened.

Provide Phillips flat-head machine screws for exposed fasteners.

Concealed Flashing: Provide 26 gauge minimum dead-soft stainless steel, or 0.026" minimum extruded aluminum of alloy and type selected by manufacturer for compatibility with other components.

Brackets and Reinforcements: Provide high-strength aluminum brackets and reinforcements; otherwise provide nonmagnetic stainless steel or hot-dip galvanized steel complying with ASTM A 386.

Concrete/Masonry Inserts: Provide concrete and masonry inserts fabricated from cast-iron, malleable iron, or hot-dip galvanized steel complying with ASTM A 386.

Compression Weatherstripping: Provide the manufacturer's standard replaceable compressible weatherstripping gaskets of molded neoprene complying with ASTM D 2000 or molded PVC complying with ASTM D 2287.

Sliding Weatherstripping: Provide the manufacturer's standard replaceable weatherstripping of wool, polypropylene, or nylon woven fabric or aluminum strip backing, complying with AAMA 701.2.

Glass and Glazing Materials: Provide glass and glazing materials that comply with the requirements of the "Glass and Glazing (08800)" section of this specification.

2.03 COMPONENTS:

Storefront Framing System: Provide center-screw spline storefront framing system with provisions for glass replacement. Shop-fabricate and preassemble frame components where possible.

Thermal-Break Construction: Fabricate storefront framing systems with integrally concealed, low conductance, thermal barrier, located between exterior materials and exposed interior members to eliminate direct metal-to-metal contact. Use manufacturer's standard construction that has been in use for similar projects for a period of not less than 5 years.

Aluminum Door Frames: Fabricate tubular and channel frame assemblies with mechanical joints in accordance with manufacturer's standards; reinforce as necessary to support specified loads.

Stile-and-Rail Type Aluminum Doors:

Frame: Provide tubular frame members, fabricated with mechanical joints using heavy inserted reinforcing plates and concealed tie-rods or j-bolts.

Design: Provide 1¾" thick doors of medium stile.

Glazing: Fabricate doors to facilitate replacement of glass, without disassembly of stiles and rails. Provide snap-on extruded aluminum glazing stops, with exterior stops anchored for nonremoval.

2.04 HARDWARE:

General: Refer to another Division-8 section "Hardware" for requirements for hardware items other than those indicated to be provided by the aluminum entrance manufacturer. (The "Hardware" section is not included with this module, used for reference only.)

Provide manufacturer's heavy-duty hardware units as indicated, scheduled, or required for operation of each door, including the following items of sizes, number, and type recommended by manufacturer for service anticipated; finish to match door.

Ball-Bearing Butts: Provide 5-knuckle, 2-bearings, steel ball bearing butts sized to comply with ANSI A156.1, Grade 1; provide 2 butts for doors 7½' or less, 3 for taller doors.

Offset Pivot Sets: Provide offset pivot assemblies complying with ANSI A156.4, Grade 1; provide exposed parts of cast aluminum alloy; provide an intermediate pivot for doors over 7½' high.

Surface-Mounted Overhead Closers: Provide modern type surface-mounted overhead closers, with cover, for parallel arm type mounting, installation comply with ANSI A156.4, Grade 1. Comply with manufacturer's recommendations for size of closer, depending on door size, exposure to weather and anticipated frequency of use. Include the following:

- ☐ Hold-open arm
- ☐ Delayed-action closing

Door Stop: Provide floor- or wall-mounted doorstop with integral rubber bumper; comply with ANSI A156.16, Grade 1.

Keyed Cylinders: Provide mortise type, 5-pin tumbler, outside cylinder units with cast aluminum face; comply with ANSI A156.5, Grade 1.

Deadlocks: Provide mortised maximum security type deadlocks, with minimum 1" long pivoted bolt and stainless steel strike box; comply with ANSI A156.5, Grade 1.

Lever Handles: Provide cast aluminum alloy inside lever handle units.

Panic Hardware: Provide concealed-rod type panic exit devices actuated by full-width crash bar; comply with UL 305.

Push-Pull Plates: Provide standard aluminum push-pull plates in style selected by Architect.

Thresholds: Provide extruded aluminum threshold of size and design indicated on final shop drawings in mill finish, complete with anchors and clips, coordinated with pivots and floor-concealed closers.

Coordinate the incorporation/accommodation of special electric and security requirements with the Owner.

2.06 FINISHES:

Color Anodized Finish: Provide NAAMM AA-M12C22A41/A44, Class I (non-specular as fabricated mechanical finish; chemical etch, medium matte; minimum thickness 0.7 mil) integrally or electrolytically deposited colored anodic coating.

Anodic Coating Color: Bronze

PART 3 – EXECUTION

3.04 INSTALLATION:

Comply with manufacturer's instructions and recommendations for installation.

Set units plumb, level, and true to line, without warp or rack of framing members, doors, or panels. Provide proper support and anchor securely in place.

Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials. Comply with requirements specified under paragraph “Dissimilar Materials” in the Appendix to AAMA 101-85.

Drill and tap frames and doors and apply surface-mounted hardware items. Comply with hardware manufacturer’s instructions and drill and tap using templates. Use concealed fasteners wherever possible.

Set sill members in sealant, or with joint fillers or gaskets to provide weathertight construction. Comply with requirements of a Division-7 section for sealants, fillers, and gaskets. (This Division -7 section is not included with this module, used for reference only.)

Refer to another Division-8 section of this specification “Glass and Glazing (08800)” for installation requirements of glass and other panels indicated to be glazed into doors and framing, and not preglazed by manufacturer.

3.05 ADJUSTING:

Adjust operating hardware to function properly, for smooth operation without binding, and for weathertight closure.

3.05 CLEANING:

Clean the completed system, inside and out, promptly after installation, exercising care to avoid damage to coatings.

Clean glass surfaces after installation, complying with requirements contained in the “Glass and Glazing (08800)” section of this specification for cleaning and maintenance. Remove excess glazing and sealant compounds, dirt, and other substances from aluminum surfaces.

3.05 PROTECTION:

Institute protective measures throughout the remainder of the construction period to ensure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at date of substantial completion.

END OF SECTION