

SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 DESCRIPTION:

- A. This section specifies aluminum entrance work including interior sliding doors, and other components to make a complete assembly.

1.2 RELATED WORK:

- A. Hardware: Section 08 71 00, DOOR HARDWARE.
- B. Automatic Door Actuators: Section 08 71 13, AUTOMATIC DOOR OPERATORS.

1.3 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Shop Drawings: 1:2 (half size) scale showing construction, anchorage, reinforcement, and installation details. Show interfaces and relationships to work of other trades.
- C. Manufacturer's Literature and Data:
 - 1. Doors, each type.
 - 2. Entrance construction.

1.4 QUALITY ASSURANCE:

- A. Contracting Officer Representative (COR) approval is required of products of proposed manufacturer, suppliers, and installers.
- B. Certify manufacturer regularly and presently manufactures aluminum entrances and storefronts as one of their principal products.
- C. Installer: A firm with a minimum of three (3) years' experience in type of work required by this Section and which is acceptable to manufacturers of primary materials.
- D. Design Criteria: Drawings indicate sizes, member spacings, profiles, and dimensional requirements of work of this Section. Minor deviations will be accepted in order to utilize manufacturer's standard products when, in the CORs sole judgment, such deviations do not materially detract from the design concept or intended performances.
- E. Engineering: Furnish services of a Professional Engineer if required, registered in the State of Tennessee, to design and certify that work of this Section conforms to performance requirements specified.
- F. Obtain aluminum frame and hardware from a single source.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Deliver aluminum entrance material to the site in packages or containers; labeled for identification with the manufacturer's name, brand and contents.
- B. Store aluminum entrance material in a weather-tight and dry storage facility.
- C. Protect from damage from handling, weather and construction operations before, during and after installation.

1.6 APPLICABLE PUBLICATIONS:

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Civil Engineers (ASCE)
ASCE 7-10.....Minimum Design Loads for Buildings and Other Structures
- C. ASTM International (ASTM):
 - B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate
 - B209M-14.....Aluminum and Aluminum-Alloy Sheet and Plate (Metric)
 - B221-14.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
 - B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes (Metric)
 - D1187/D1187M-97(R2011) .Asphalt-Base Emulsions for Use as Protective Coatings for Metal
 - E1886-13a.....Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missiles(s) and Exposed to Cyclic Pressure Differentials
 - E1996-14a.....Performance of Exterior Windows, Curtain Walls, Doors, and impact Protective Systems Impacted by Windborne Debris in Hurricanes
 - E283-04(R2012)Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

- E330/E330M-14.....Standard Test Method for Structural Performance
of Exterior Windows, Doors, Skylights and
Curtain Walls by Uniform Static Air Pressure
Difference
- E331-00(R2009).....Water Penetration of Exterior Windows, Curtain
Walls, and Doors by Uniform Static Air Pressure
Difference
- F1642-12.....Test Method for Glazing and Glazing Systems
Subject to Airblast Loadings
- F468-13.....Nonferrous Bolts, Hex Cap Screws, and Studs for
General Use
- F593-13a.....Stainless Steel Bolts, Hex Cap Screws, and
Studs
- D. National Association of Architectural Metal Manufacturers (NAAMM):
AMP 500-06 Series.....Metal Finishes Manual
- E. American Architectural Manufacturer's Association (AAMA):
611-14.....Voluntary Specification for Anodized
Architectural Aluminum
- 1503-09.....Voluntary Test Method for Thermal Transmittance
and Condensation Resistance of Windows, Doors
and Glazed Wall Sections
- 2604-13.....High Performance Organic Coatings on
Architectural Aluminum Extrusions and Panels
- 2605-13.....Voluntary Specification, Performance
Requirements and Test Procedures for Superior
Performing Organic Coatings on Aluminum
Extrusions and Panels
- F. American Welding Society (AWS):
D1.2/D1.2M-08.....Structural Welding Code Aluminum
- G. U.S. Veterans Administration:
Physical Security Design Manual for VA Facilities (VAPSDG); Life Safety
Protected
- Physical Security Design Manual for VA Facilities (VAPSDG); Mission
Critical Facilities
- Architectural Design Manual for VA Facilities (VASDM)
- H. Environmental Protection Agency (EPA):
40 CFR 59(2014).....National Volatile Organic Compound Emission
Standards for Consumer and Commercial Products

1.7 PERFORMANCE REQUIREMENTS:

- A. Aluminum perimeter frames with integral acoustic seals.
- B. Soft self-closing mechanism integrated with top track.
- C. Concealed door guide.

PART 2 - PRODUCTS**2.1 MATERIALS:**

- A. Aluminum, ASTM B209M (B209) and B221M (B221):
 - 1. Alloy 6063 temper T5 for doors and door frames.
 - 2. Alloy 6061 temper T6 for guide tracks for sliding doors and other extruded structural members.
- B. Fasteners:
 - 1. Aluminum: ASTM F468, Alloy 2024.
 - 2. Stainless Steel: ASTM F593, Alloy Groups 1, 2 and 3.
- C. Sealants are to have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, (EPA Method 24).

2.2 FABRICATION:

- A. Fabricate doors, of extruded aluminum sections not less than 3 mm (0.125 inch) thick.
- B. Form metal parts and fit and assemble joints, except those joints designed to accommodate movement.
- C. Use electrodes and method to make welds in aluminum in accordance with the recommended practice AWS D1.2/D1.2M.
 - 1. Make welds behind finished surfaces so as to cause no distortion or discoloration of the exposed side.
 - 2. Clean welded joints of welding flux and dress exposed and contact surfaces.
- D. Make provisions in doors and frames to receive the specified hardware and accessories.
 - 1. Coordinate schedule and template for hardware specified under Section 08 71 00, DOOR HARDWARE.
 - 2. Where concealed closers or other mechanisms are required, provide the necessary space, cutouts, and reinforcement for secure fastening.

- E. Fit and assemble the work at the manufacturer's plant. Mark work that cannot be permanently plant-assembled to assure proper assembly in the field.

2.3 PROTECTION OF ALUMINUM:

- A. Isolate aluminum from contact with dissimilar metals other than stainless steel, white bronze, or zinc by one of the following:
 - 1. Coat the dissimilar metal with a protective bituminous coating.
 - 2. Place caulking compound, non-absorptive tape, or gasket between the aluminum and the dissimilar metal.
 - 3. Paint aluminum in contact with mortar, concrete and plaster, with a coat of aluminum paint primer.

2.4 FRAMES:

- A. Fabricate frames and similar members from extruded aluminum not less than 3 mm (0.125 inch) thick.
- B. Provide concealed screws, bolts and other fasteners.
- C. Secure cover boxes to frames in back of lock strike cutouts.
- D. Single extruded aluminum top track.
- E. Valances extruded aluminum with integral end caps.
- F. Top rollers tandem nylon roller sized to match door weight.
- G. Concealed integral jamb floor guide.

2.5 FLUSH PANEL DOORS:

- A. Nominal 45 mm (1-3/4 inches) thick flush wood door. Wood doors are specified under section 08 14 00, INTERIOR WOOD DOORS.

2.6 FINISH:

- B. In accordance with NAAMM AMP 500 series.
- C. Anodized Aluminum:
 - 1. Clear Finish: AAMA 611 (AA-M12C22A41) Chemically etched medium matte, with clear anodic coating, Class I Architectural, 0.18 mm (7 mils) thick.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Allowable Installation Tolerances: Install work plumb and true, in alignment and in relation to lines and grades shown. Variation of 3 mm

(1/8 inch) in 2438 mm (8 feet), non-accumulative, is maximum permissible for plumb, level, warp, bow and alignment.

- B. Anchor aluminum frames to adjoining construction at heads, jambs and bottom. Anchor frames with stainless steel or aluminum countersunk flathead, expansion bolts or machine screws, as applicable. Provide aluminum clips for internal connections of adjoining frame sections.
- C. Provide protection against galvanic action.
- D. Where work is installed within masonry or concrete openings, place no parts other than built-in anchors and provision for operating devices located in the floor, until after the masonry or concrete work is completed.
- E. Erection Tolerances: Install entrance and storefront systems to comply with the following maximum tolerances.
 - 1. Variation from Plane: Limit variation from plane or location shown to 32 mm in 3.65 m (1/8 inch in 12 feet); 6.3 mm (1/4 inch) over total length.
 - 2. Alignment: Where surfaces abut in line, limit offset from true alignment to 2 mm (1/16 inch). Where surfaces meet at corners, limit offset from true alignment to 8 mm (1/32 inch).
 - 3. Diagonal Measurements: Limit difference between diagonal measurements to 3 mm (1/8 inch).
- F. Install hardware specified under Section 08 71 00, DOOR HARDWARE.
- G. Install hung door operators specified under Section 08 71 13, AUTOMATIC DOOR OPERATORS.

3.2 ADJUSTING:

- A. After installation of entrance work is completed, adjust and lubricate operating mechanisms to ensure proper performance.

3.3 PROTECTION, CLEANING AND REPAIRING:

- A. Remove all mastic smears and other unsightly marks, and repair any damaged or disfiguration of the work. Protect the installed work against damage or abuse. Protect aluminum surfaces from contact with lime, mortar, cement, acids, plaster, and other harmful contaminants.

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