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084113 - Aluminum-Framed Entrances and Storefronts

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SECTION 08 4113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

1.1 SUMMARY

- A. The University prefers to use regional materials within a 500 mile radius of the campus.
- B. Section Includes:
 - 1. Exterior and interior storefront framing.
 - 2. Storefront framing for window walls.
 - 3. Storefront framing for punched openings.
 - 4. Exterior and interior manual-swing entrance doors and door-frame units.

1.2 SUBMITTALS

- A. LEED Submittals:
 - 1. Product Data for Credit MR 4.1 and Credit MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
 - 2. Product Data for Credit EQ 4.1: For adhesives and sealants used inside of the weatherproofing system, including printed statement of VOC content

1.3 QUALITY ASSURANCE

- A. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- B. Quality-Control Program for Structural-Sealant-Glazed System: Develop quality control program specifically for Project. Document quality-control procedures and verify results for aluminum-framed systems. Comply with ASTM C 1401 recommendations including, but not limited to, system material-qualification procedures, preconstruction sealant-testing program, procedures for system fabrication and installation, and intervals of reviews and checks.
 - 1. Only Heavy Duty Systems shall be considered for the University of New Hampshire.
- C. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1. and Architectural Barrier-Free Design Code for the State of New Hampshire references ADAAG.
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code - Aluminum."

1.4 MAINTENANCE SERVICE

A. Entrance Door Hardware:

1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for University's continued adjustment, maintenance, and removal and replacement of entrance door hardware.

1.5 MANUFACTURERS

A. Manufacturers:

1. EFCO Corporation.
2. Kawneer North America; an Alcoa company.
3. TRACO.
4. Tubelite.

1.6 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: ASTM B 209 (ASTM B 209M).
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.
5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.

1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

1.7 FRAMING SYSTEMS

A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Nonthermal for interior locations. Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance for exterior locations.

- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.
- E. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.
- F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.
 - 1. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- G. Storefront Framing: Fabricate components for assembly using screw-spline frame construction, shear-block frame construction or head- and sill-receptor construction with shear-block construction at intermediate horizontal components as recommended by the storefront manufacturer. Provide shear block construction at door frames.
 - 1. Provide thermally broken framing with vertical and horizontal framing members having a nominal face dimension of 2 inches (50 mm), and overall depth of 4-1/2 inches (114.3 mm).
 - 2. Provide minimum 0.118 inch (4.8 mm) thick aluminum framing at door frames.
 - 3. Products:
 - a. Model Thermal S-403, with heavy wall entrance door frames for doors; EFCO Corp.
 - b. Model VG451T, with heavy wall entrance door frames for doors; Kawneer Company, Inc.
 - c. TR-7850 Multi-Glaze Framing System, with heavy wall entrance door frames for doors; TRACO Architectural Systems, Inc.
 - d. T14000 Series, with heavy wall entrance door frames for doors; Tubelite Inc.
- H. Brake Metal Adapters: Thermally broken extruded aluminum adapter of dimensions indicated with 0.125 inch aluminum break metal matching storefront finish with concealed fasteners.

1.8 GLAZING SYSTEMS

- A. Glazing: As specified.

1.9 ENTRANCE DOOR SYSTEMS

- A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or powered operation.

1. Door Construction: 2-inch (50.8-mm) overall thickness, with minimum 0.188-inch- (4.8-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
2. Door Design: Wide stile; 5-inch (127-mm) nominal width.
 - a. Top Rail: 6-1/2 inches (165.1 mm) wide.
 - b. Mid Rail: 6 inches (150 mm) wide.
 - c. Bottom Rail: 10-1/4 inches (260 mm) wide.
3. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
4. Products:
 - a. Durastile Wide Stile; EFCO Corp.
 - b. HeavyWall Entrances; Kawneer Company, Inc.
 - c. Rugged Stile Entrances; TRACO Architectural Systems, Inc.
 - d. Wide Stile Monumental Doors; Tubelite, Inc.

1.10 ENTRANCE DOOR HARDWARE

- A. General: Provide heavy-duty units in sizes and types recommended by entrance system and hardware manufacturers for entrances and uses indicated.
- B. Opening-Force Requirements:
1. Delayed-Egress Locks: Lock releases within 15 seconds after applying a force of not more than 15 lbf (67 N) for not more than 3 seconds.
 2. Latches and Exit Devices: Not more than 15 lbf (67 N) required to release latch.
- C. Pivot Hinges: BHMA A156.4, Grade 1.
1. Offset-Pivot Hinges: Provide top, bottom, and intermediate offset pivots at each door leaf.
- D. Butt Hinges: BHMA A156.1, Grade 1, square corner.
- E. Continuous-Gear Hinges: Manufacturer's standard with stainless-steel bearings between knuckles, fabricated to full height of door and frame.

- F. Mortise Auxiliary Locks: BHMA A156.5, Grade 1.
- G. Automatic and Self-Latching Flush Bolts: BHMA A156.3, Grade 1.
- H. Panic Exit Devices: BHMA A156.3, Grade 1, listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
- I. Cylinders: As specified in Chapter 5, Division 08, Section 087100.
- J. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.
- K. Operating Trim: BHMA A156.6.
- L. Removable Mullions: BHMA A156.3, extruded aluminum.
 - 1. When used with panic exit devices, provide key removable mullions listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305. Use only mullions that have been tested with exit devices to be used.
- M. Closers: BHMA A156.4, Grade 1, with accessories required for a complete installation, sized as required by door size, exposure to weather, and anticipated frequency of use; adjustable to meet field conditions and requirements for opening force.
- N. Concealed Overhead Holders: BHMA A156.8, Grade 1.
- O. Surface-Mounted Holders: BHMA A156.16, Grade 1.
- P. Door Stops: BHMA A156.16, Grade 1, floor or wall mounted, as appropriate for door location indicated, with integral rubber bumper.
- Q. Weather Stripping: Manufacturer's standard replaceable components.
 - 1. Shall be surface applied Thermal Brush as manufactured by SEALEZE Corporation. Weather stripping shall not be mounted under the door.
 - 2.
- R. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.
- S. Silencers: BHMA A156.16, Grade 1.
- T. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch (13 mm).
- U. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored to frame hinge-jamb at center-pivoted doors.

1.11 ACCESSORY MATERIALS

- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Chapter 5, Division 07, Section 079200.
 - 1. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

END OF SECTION 08 4113