

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084113

ALUMINUM-FRAMED ENTRANCES
and STOREFRONTS
BWC-080003-01

SECTION 08 41 13 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior and interior storefront framing.
2. Exterior and interior manual-swing entrance doors and door-frame units.

B. Related Sections:

1. Division 07 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
2. Division 08 Section "Revolving Door Entrances" for curtain-wall systems that mechanically retain glazing on four sides.

1.3 DEFINITIONS

- A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum entrance and storefront systems that comply with performance characteristics specified, as demonstrated by testing the manufacturer's corresponding stock assemblies according to test methods indicated.
- B. Thermal Movement: Design the aluminum entrance and storefront systems to provide for expansion and contraction of the component materials. Entrance doors shall function normally over the specified temperature range.

1. The system shall be capable of withstanding a metal surface temperature range of 180 degrees F without buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, stress on glazing, or other detrimental effects.
- C. Design Requirements: Provide aluminum entrance and storefront systems that comply with structural performance, air infiltration, and water penetration requirements indicated.
1. Uniform Load Deflection: The system shall withstand wind pressures of 20 psf inward and 20 psf outward acting normal to the plane of the wall when tested in accordance with ASTM E 330. Deflection under design load shall not exceed $L/175$ of the clear span.
 2. Uniform Load Structural: No glazing breakage, permanent damage to fasteners, storefront parts, or any other damage causing the storefront to be defective when tested in accordance with ASTM E 330 at a pressure 1.5 times the design wind pressure.
 3. Air Infiltration: Shall not exceed 0.06 CFM per sq. ft. of fixed area (excluding operable door edges) when tested in accordance with ASTM E 283 at a static air pressure difference of 6.24 psf.
 4. Water Resistance: No uncontrolled water penetration (excluding operable door edges) when tested in accordance with ASTM E 331 at a static test pressure of 12.00 psf.
 5. Condensation Resistance: Condensation Resistance Factor (CRF) shall not be less than 59 when tested in accordance with AAMA 1503.1.
 6. Thermal Transmittance: Conductive thermal transmittance (U-value) shall not be more than 0.63 BTU/hr/degree F/SF when tested in accordance with AAMA 1503.1.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
 2. Include details for all connections to other items and materials.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12-inch lengths of full-size components and showing details of the following:

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084113

ALUMINUM-FRAMED ENTRANCES
and STROEFRONTS
BWC-080003-01

1. Joinery, including concealed welds.
 2. Anchorage.
 3. Expansion provisions.
 4. 12" x 12" insulated panels
 5. Flashing and drainage.
- F. Qualification Data: For qualified Installer and testing agency.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.
- H. Source quality-control reports.
- I. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
- J. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer with not less than 5 years successful experience who has completed installations of aluminum storefront and entrance systems similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.
- B. Fabricator Qualifications: Provide aluminum entrance and storefront systems fabricated by a firm experienced in producing systems that are similar to those indicated for this Project, and that have a record of successful in-service performance. The fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the Work.
- C. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- D. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.
- E. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.
- F. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
1. Build mockup of typical wall area which includes 1 inch insulated panel as shown on Drawings.

- 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- G. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 WARRANTY

- A. Submit a written warranty, executed by the manufacturer, agreeing to repair or replace units that fail in materials or workmanship within 3 years after the date of Substantial Completion. Failures include, but are not necessarily limited to:
 - 1. Structural failures including excessive deflection, excessive leakage or air infiltration.
 - 2. Faulty operation.
 - 3. Deterioration of metals, metal finishes and other materials beyond normal weathering.
- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product:
 - 1. Manufacturer: EFCO Corporation.
 - 2. Storefront System: EFCO System 403T center glazed thermal storefront system, shear block framing, 2 inches x 4-1/2 inches, and 1 inch insulated panel at exterior locations. Panel shall be removable.
- B. Subject to compliance with requirements, a comparable product by one of the following is acceptable:

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084113

ALUMINUM-FRAMED ENTRANCES
and STROEFRONTS
BWC-080003-01

1. Kawneer North America; an Alcoa company.
2. TRACO.
3. Tubelite.
4. Vistawall Architectural Products; The Vistawall Group; a Bluescope Steel company.

2.2 MATERIALS

- A. Aluminum Members: Alloy and temper recommended by the manufacturer for strength, corrosion resistance, and application of required finish; comply with ASTM B 221 for aluminum extrusions, ASTM B 209 for aluminum sheet or plate, and ASTM B 211 for aluminum bars, rods and wire.
- B. Carbon steel reinforcement of aluminum framing members shall comply with ASTM A 36 for structural shapes, plates and bars, ASTM A 611 for cold rolled sheet and strip, or ASTM A 570 for hot rolled sheet and strip.
- C. Panel Materials: 1" thick insulated panel with metal on both sides.
 1. Finish:
 - a. Bronze Clad Alloy #280 (Muntz Metal)
 - 1) #8 Highly Polished (mirror finish).
- D. Metal trim: Provide 20 gauge Muntz sheet metal as necessary to comply with design intent.
 1. Finish:
 - a. Bronze Clad Alloy #280 (Muntz Metal)
 - 1) #8 Highly Polished (mirror finish).
- E. Fasteners: Aluminum, non-magnetic stainless steel, zinc plated steel, or other material warranted by the manufacturer to be non-corrosive and compatible with aluminum components, hardware, anchors and other components.
 1. Reinforcement: Where fasteners screw-anchor into aluminum members less than 0.125 inches thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in splined grommet nuts.
 2. Exposed Fasteners: Do not use exposed fasteners except for application of hardware. For application of hardware, use Phillips flat-head machine screws that match the finish of member or hardware being fastened

- F. Concealed Flashing: 0.0179 inch (26 gage) minimum dead-soft stainless steel, or 0.026 inch thick minimum extruded aluminum of alloy and type selected by manufacturer for compatibility with other components.
- G. Brackets and Reinforcements: ASTM A 123 high-strength aluminum brackets and reinforcements; where use of aluminum is not feasible provide non-magnetic stainless steel or hot-dip galvanized steel.
- H. Concrete and Masonry Inserts: ASTM A 123 cast iron, malleable iron, or hot-dip galvanized steel inserts.

2.3 COMPONENTS

- A. Storefront Framing: Provide framing systems fabricated from extruded aluminum members of size and profile indicated. Include subframes and other reinforcing members of the type indicated. Shop fabricate and preassemble frame components where possible. Provide frame sections without exposed seams
 - 1. Mullion Configurations: Mullions and horizontals shall be one piece. Make provisions to drain moisture accumulation to the exterior.
 - 2. Insulated panel shall be removable. Provide removable stops per standard manufacturer's details and profiles.

2.4 FABRICATION

- A. General: Fabricate aluminum entrance and storefront components to designs, sizes and thicknesses indicated and to comply with indicated standards. Sizes and profile requirements are indicated on the drawings. Variable dimensions are indicated, with maximum and minimum dimensions required, to achieve design requirements and coordination with other work.
 - 1. Thermal-Break Construction: Fabricate storefront framing system with an 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 period of not less than 3 years.
- B. Prefabrication: Complete fabrication, assembly, finishing, hardware application, and other work to the greatest extent possible before shipment to the Project site. Disassemble components only as necessary for shipment and installation.
 - 1. Perform fabrication operations, including cutting, fitting, forming, drilling and grinding of metal work to prevent damage to exposed finish surfaces. Complete these operations for hardware before application of finishes.

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084113

ALUMINUM-FRAMED ENTRANCES
and STROEFRONTS
BWC-080003-01

2. Preglaze frame units to greatest extent possible.
 - C. Welding: Comply with AWS recommendations. Grind exposed welds smooth to remove weld spatter and welding oxides. Restore mechanical finish.
 1. Welding behind finished surfaces shall be performed in such a manner as to minimize distortion and discoloration on the finished surface.
 - D. Install reinforcing as required for hardware and as necessary for performance requirements, sag resistance and rigidity
 - E. Separate dissimilar metals with bituminous paint, or a suitable sealant, or a non-absorptive plastic or elastomeric tape, or a gasket between the surfaces. Do not use coatings containing lead.
 - F. Continuity: Maintain accurate relation of planes and angles with hairline fit of contacting members.
 1. Uniformity of Metal Finish: Abutting extruded aluminum members shall not have an integral color or texture variation greater than half the range indicated in the sample pair submittal
 - G. Conceal fasteners wherever possible.
 - H. Weatherstripping: Provide compression weatherstripping against all stops.
- 2.5 FINISHES
- A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
 1. Finish:
 - a. Bronze Clad Alloy #280 (Muntz Metal)
 - 1) #8 Highly Polished (mirror finish).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and supports, with the Installer present, for compliance with requirements indicated, installation tolerances, and other conditions that affect installation of aluminum entrances and storefronts. Correct unsatisfactory conditions before proceeding with the installation.
1. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for installation.
- B. Set units plumb, level, and true to line, without warp or rack of framing members, doors, insulated panels, or polycarbonate glazing panels. Install components in proper alignment and relation to established lines and grades indicated. Provide proper support and anchor securely in place
- C. Construction Tolerances: Install aluminum entrance and storefront systems to comply with the following tolerances:
1. Variation from Plane: Do not exceed 1/8 inch in 12 feet of length or 1/4 inch in any total length.
 2. Offset from Alignment: The maximum offset from true alignment between two identical members abutting end to end in line shall not exceed 1/16 inch.
 3. Diagonal Measurements: The maximum difference in diagonal measurements shall not exceed 1/8 inch.
 4. Offset at Corners: The maximum out-of-plane offset of framing at corners shall not exceed 1/32 inch.
- D. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
1. Zinc or cadmium plate steel anchors and other unexposed fasteners after fabrication.
 2. Paint dissimilar metals where drainage from them passes over aluminum.
 3. Paint aluminum surfaces in contact with mortar, concrete or other masonry with alkali resistant coating.
- E. Drill and tap frames and doors and apply surface-mounted hardware items. Comply with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084113

ALUMINUM-FRAMED ENTRANCES
and STROEFRONTS
BWC-080003-01

- F. Set sill members and other members in bed of sealant as indicated, or with joint fillers or gaskets as indicated to provide weathertight construction. Comply with Section 07900 requirements for sealants, fillers, and gaskets.

3.3 ADJUSTING

- A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
 - 1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch, measured to the leading door edge.

3.4 CLEANING

- A. Clean the completed system, inside and out, promptly after erection and installation of panels and sealants.
- B. At the time of Substantial Completion, clean the entrance and storefront systems thoroughly and polish panels. Demonstrate proper cleaning methods and materials to the Owner's maintenance personnel.
- C. Protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure the entrance and storefront systems are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08 41 13

Section 084113

**ALUMINUM-FRAMED ENTRANCES
and STOREFRONTS
BWC-080003-01**

DIVISION 8

**Bureau of Workers' Compensation
Entry Modification**

This Page is Intentionally Blank

SECTION 084233.13 - REVOLVING DOOR ENTRANCES-A

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Automatic revolving door entrances.

B. Related Sections:

- 1. Division 08 Section "Aluminum-Framed Entrances and Storefronts" for adjacent aluminum entrance doors and storefront framing.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for revolving door entrances.

- B. Shop Drawings: For revolving door entrances. Include plans, elevations, sections, details, and attachments to other work. Indicate enclosures, speed-control units, and other components not in manufacturer's product data.

- 1. Wiring Diagrams: Power, signal, and control wiring.

C. Samples for Verification:

- 1. Finishes: For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches (76 by 127 mm).
- 2. Glass Samples: For each type of tinted glass; 12 inches (300 mm) square.
- 3. Panel Samples: For each type of panel; 12 inches (300 mm) square.

- D. Qualification Data: For qualified Installer.

- E. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for revolving door entrances.

- F. Operation and Maintenance Data: For revolving door entrances to include in operation and maintenance manuals.
- G. Warranties: Samples of special warranties.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Regulatory Requirements: Wings shall be capable of collapsing into a book-fold position to provide minimum aggregate parallel width of 36 inches (914 mm) when breakaway force of no more than 130 lbf (572N) is applied within 3 inches (76 mm) of outer edges. Set maximum turning speed to comply with requirements of authorities having jurisdiction.
- C. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201.
 - 1. Safety-Glass Labeling: Where safety-glass labeling is indicated, permanently mark glass with certification label of the SGCC, another certification agency acceptable to authorities having jurisdiction, or the manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety-glass standard with which glass complies.
- D. Revolving Door Entrance Standard: BHMA A156.27.
- E. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver revolving door entrance glass, decorative metalwork, and other exposed elements in padded blankets or other approved protective wrapping.
- B. Protect finish surfaces from damage during handling and installation.

1.6 COORDINATION

- A. Recesses: Coordinate size and location of recesses in floor construction for pivot bearings including anchorages for frames and supports. Furnish setting drawings, templates, and directions for installing anchorages that are to be embedded into concrete. Deliver these items to Project site in time for installation. Concrete, reinforcement, and formwork requirements are specified in Division 03 Sections.

1.7 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of revolving door entrance Installer. Include **quarterly** preventive maintenance, repair or replacement of worn or defective components, lubrication,

cleaning, and adjusting as required for proper revolving door entrance operation at rated speed and capacity. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

PART 2 - PRODUCTS

2.1 REVOLVING DOOR ENTRANCES

- A. Air Infiltration: Maximum air leakage of 1.25 cfm/sq. ft. (6.4 L/s x sq. m) of wing area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).
- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Windborne-Debris-Impact Resistance: Provide exterior glazing that passes **enhanced** protection testing requirements in ASTM E 1996 for **Wind Zone 2** when tested using the large-missile test according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on the Project and shall be installed in same manner as glazing indicated for use on the Project.

2.2 AUTOMATIC REVOLVING DOOR ENTRANCES

- A. Description: Provide manufacturer's standard three-wing automatic revolving door entrance, complete with center shaft, speed-control unit, wings, enclosure walls, canopy, hardware, glass and glazing, activation devices, safety devices, and accessories as indicated.
- B. Basis-of-Design Product: Series TX by Boon Edam Tomsed Inc.
- C. Subject to compliance with requirements, provide products by one of the following manufacturers is acceptable:
 - 1. Besam Entrance Solutions; an ASSA ABLOY Group company.
 - 2. Horton Automatics; a division of Overhead Door Corporation.
- D. Basis-of-Design Product: Requirements for Series TX by Boon Edam Tomsed Inc.
 - 1. Curved Side Walls and Canopy: Shall have a standard diameter of 12'-0"(O.D.) and be manufactured from six (6) extruded aluminum posts, four (4) 300 mm (12") high one-piece extruded aluminum canopies and two (2) extruded aluminum bottom rails.
 - 2. Door Wings: Three door wings as designed and manufactured of 1 3/4" wide aluminum extrusions and reinforced with internal aluminum door corners for strength. Door wings must utilize removable horsehair weather stripping on three sides. Door wings must be capable of folding forward or backward allowing for emergency egress.

3. Ceiling: Shall be fabricated of formed aluminum sheet in a pie-shaped configuration. Each section must be secured in position and removable only by authorized personnel.
4. Equipment:
 - a. Drive System: Overhead drive system with one 1/4 HP AC motor attached to the internal structural framing. The door shall be powered by a 208-230 VAC, 1-phase service. The motor shall utilize an internal angle encoder for constant monitoring of door position and a Frequency Controller to provide for the following characteristics:
 - 1) Adjustment of rotation speed through a digital setting.
 - 2) Constant regulation of rotation speed.
 - 3) Adjustment of startup/run torque through a digital setting to minimize force required to stop door.
 - 4) Adjustment of stopping distance through a digital setting.
 - b. Braking Assembly: Positive braking and stopping shall be performed by electromagnetic brake assembly incorporated within the drive system. The brake unit to remain unlocked at all times until locked by electric locking system.
 - c. Controls: Microprocessor-based electronics utilizing a 2000-step Programmable Logic Controller (PLC) with the following characteristics:
 - 1) RAM & ROM memory.
 - 2) Self-diagnostics for quick detection of problem source.
 - 3) Visual display of problem source.
 - d. Collapsing Mechanism:
 - 1) Precision-engineered door hangers and disks to allow the door wings to be collapsed, or folded and stored in a bookfold position.
 - 2) Hangers and disks are finished in black and provide tension to hold the door wings in position when the electric locking is released.
 - 3) The wings shall be capable of being collapsed outward under pressure on the outer stile not to exceed 130 pounds to meet NFPA, BOCA code requirements.
 - e. Electric Wing Locking:
 - 1) A fail-safe electromagnetic wing lock mechanism. When engaged, the electric locking will prevent collapsing of the door wings. Electric locking is disengaged by loss of power or signal from building/fire/smoke alarm.
 - f. Electric Shaft Locking:
 - 1) A fail-safe electromagnetic shaft lock with a three (3) position post-mounted key switch to activate locking.
 - 2) When engaged, the electric shaft locking will prevent rotation of the door wings.

- 3) Electric locking is disengaged by loss of power or signal from building/fire/smoke alarm (Requires a 4 wire system, 208V 1 Phase, 60Hz, 20A, service from above, by others)
 - g. 360N Night locking:
 - 1) This is a locking mechanism on the center shaft, which locks the door set in the rest position.
 - 2) This will be achieved by switching the three-position key-switch in the night-mode (moon).
 - 3) In this night-mode the door can be used, with a card-reader or pushbutton, in order to enter or exit through the door.
 - h. Two-Point Recessed Locks (Optional): Two (2) standard concealed two point recessed locks with removable, profile style keyed cylinders that lock into the ceiling and floor on the two interior door wings.
 - i. Anti-Entrapment Sensors: Sensors in the ceiling that detect an individual inside the revolving door compartments after the door has been locked electrically, and disengages the shaft locking mechanism to prevent entrapment.
 - j. Lights: Provide (4) 12V 20W Halogen lamps, 4 3/4" diameter lights to be recessed into ceiling. (110V power service required from above by others.)
 - k. All revolving door casing jambs shall be equipped with all components and wiring necessary for handicapped push buttons and security swipes/keypads. All handicapped operators and accessories shall be provided and installed by the door supplier. Security equipment shall be Owner furnished and Contractor installed.
5. Sensor System:
- a. M.M.S. Microwave Motion Detectors: Two (2) microwave motion detectors, one mounted to the canopy on each side of the door that will start the rotation of the door upon actuation. Detection pattern shall be adjustable directly or by remote control.
 - b. T.R.S. (Top Rail Sensors): Active infrared sensors mounted to the top rail of each door wing that will detect presence in front of each door wing and stop the door immediately. Sensors must be adjustable for pattern size and distance from door wing.
 - c. E.B.S. (Endwall Buffer Sensors): Two (2) active infrared sensors mounted in front of the curved side walls that will detect presence and stop the door immediately. The EBS sensors should be capable of switching on as each door wing approaches the endpost of each sidewall and off as each door wing departs the endpost of each sidewall.
 - d. S.R.B. (Safety Rail Bentwall): A multi-directional, closed-contact pressure sensitive switch contained within a black rubber profile mounted to the edge of each inbound endpost that will immediately stop the door's rotation if compressed.
 - e. S.R.D. (Sensor Rail Doorwing): A multi-directional, closed-contact pressure sensitive switch contained within a black rubber profile mounted to the bottom rail of each door wing that will immediately stop the door's rotation if compressed.
 - f. Handicap Button: Two (2) Handicap "Push to Slow" Buttons mounted on the inbound endposts that will reduce the rotating speed of the revolving door to approximately 1/2 the regular speed for approximately one revolution.

- g. Emergency Stop Button: Two (2) Emergency Stop Buttons mounted on the inbound endposts that will immediately stop the door when pressed.
 - h. Key Switch: A key switch mounted on the interior endpost that will turn the door on/off.
6. Glazing:
- a. Flat glass in door wings shall be 1/4" clear tempered safety glass.
 - b. Curved glass shall be 1/4" clear bent tempered safety glass.
 - c. glass shall meet ANSI standard Z 97.1.
 - d. Glazing Seal: Glass shall be sealed with push in glazing vinyl.
7. Panels:
- a. Curved panels shall be 1/4" clear bent tempered safety glass with Muntz metal covering..
 - b. glass shall meet ANSI standard Z 97.1.
 - c. Glazing Seal: Glass shall be sealed with push in glazing vinyl.
8. Aluminum Extrusions: All commercial grade extrusions shall be of aluminum alloy 6063-T6 per ASTM B-221.
9. Aluminum Sheets: Shall meet ASTM B-209 and be of .063 minimum thickness.
10. Weather Stripping: Genuine horsehair weather stripping on all required edges of door wings to provide a seal between door wings and drum that meets ASTM E-283.
11. Bumpers: rigid, rubber-tipped bumper located on the top door rail of each door wing to prevent door wings from contacting one another when in the bookfold position.
12. Pivot: Floor mounted pivot under the center shaft to provide smooth rotation.
13. Center Shaft: Extruded center shaft shall be of aluminum alloy 6061-T6 per ASTM B-221 with connections to the speed control and pivot.
14. Finish:
- a. Bronze Clad Alloy #280 (Muntz Metal)
 - 1) #8 Highly Polished (mirror finish).
15. Canopy: Manufacturer's standard ceiling, fascia, roof, and framing with size, layout, materials, and exposed finishes matching enclosure walls unless otherwise indicated.
- E. Materials: Copper-alloy-clad, extruded aluminum.
- 1. Main Extrusions and Tubing: Minimum wall thickness of 0.125 inch (3.2 mm).
 - 2. Cladding: Minimum 0.04 inch (1.0 mm) thick.
- F. Fabrication: Fabricate revolving door entrance components to designs, sizes, thicknesses, and configurations indicated with profiles that are sharp, straight, and free of defects or deformations. Accurately fit joints with ends coped or mitered to produce hairline joints free of burrs and distortion. Prefit all hardware at the factory. Provide anchorage and alignment brackets for concealed support of assembly from the building structure.

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084233.13

REVOLVING DOOR ENTRANCES
BWC-080003-01

1. Wings: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
 - a. Glaze wings at the factory. Comply with glazing requirements specified in this Section and in Division 08 Section "Glazing." Provide minimum clearances for thickness and type of glass indicated according to GANA's "Glazing Manual."
 - b. Provide sliding weather stripping, mortised into stiles and rails of wings, to be adjustable and replaceable without dismantling wings.
 2. Enclosure Walls and Ceilings: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints, according to manufacturer's standards and as specified. Provide subframes as required for a complete system to support required loads.
 - a. Exterior Framing: Fabricate components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior. Provide anchorage and alignment brackets for concealed support of assembly from the building structure. Allow for thermal expansion of exterior units.
- G. Copper-Alloy Finishes: Buffed finish, lacquered.

2.3 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's standard, of same basic metal as fastened metal, unless otherwise indicated.
- B. Nonshrink, Nonmetallic Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout; complying with ASTM C 1107/C 1107M; of consistency suitable for application.
- C. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- D. Lacquer for Copper Alloys: Clear, acrylic lacquer specially developed for coating copper-alloy products.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish revolving door entrance components as follows:
 1. Finish:

- a. Bronze Clad Alloy #280 (Muntz Metal)
 - 1) #8 Highly Polished (mirror finish).

2.5 COPPER-ALLOY FINISHES

- A. Finish designations for copper alloys comply with the system established for designating copper-alloy finish systems defined in NAAMM's "Metal Finishes Manual for Architectural and Metal Products."
- B. Buffed Finish, Lacquered: M21-O6x (Mechanical Finish: buffed, smooth specular; Coating: clear organic, air drying, as specified below).
 - 1. Clear, Organic Coating: Lacquer specified for copper alloys, applied by air spray in two coats per manufacturer's written instructions, with interim drying, to a total thickness of 1 mil (0.025 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with corrosion-resistant coatings.
- B. Overhead-Mounted Speed-Control Unit: Insert pivot bearing in rough-in floor opening set on level bed of nonshrink, nonmetallic grout. Fill annular space between pivot bearing and sides of recess with nonshrink, nonmetallic grout. Mix and place grout to comply with grout manufacturer's written instructions.
 - 1. Connect speed-control unit to electrical power distribution system as specified in Division 26 Sections.

DIVISION 8

Bureau of Workers' Compensation
Entry Modification

Section 084233.13

REVOLVING DOOR ENTRANCES
BWC-080003-01

- C. Install revolving door entrances according to manufacturer's written instructions, plumb and true, without warp or rack of framing members and wings. Anchor securely in place.
 - 1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - 2. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the assembly to exterior.
 - 3. Cut and trim framing during installation only with approval of manufacturer.
 - a. Restore finish and remove and replace members, as directed, where cutting and trimming have impaired strength or appearance.
 - b. Do not install members that are warped, bowed, deformed, or otherwise damaged or defaced to such an extent as to impair strength or appearance. Remove and replace members that have been damaged during installation.
- D. Activation and Safety Devices: Adjust devices to provide detection field and functions indicated.
- E. Sealants: Comply with requirements specified in Division 07 Section "Joint Sealants" to provide weathertight installation.
 - 1. Set continuous sill members and flashings in full sealant bed.
 - 2. Seal perimeter of framing members with sealant.

3.3 ADJUSTING

- A. Adjust wings to provide an even, tight fit at contact points and weather stripping for smooth operation and weathertight closure. Adjust wings to operate smoothly and rotate evenly, with hardware and operators functioning properly.
 - 1. Lubricate operating hardware and other moving parts.
 - 2. Adjust speed-control unit for specified rpm.
 - 3. Adjust pressure for collapse of wings for specified breakaway force.
- B. Readjust wings and speed-control units after repeated operation of completed installation equivalent to three days' use by normal traffic (100 to 300 cycles). Lubricate hardware and other moving parts.

3.4 CLEANING AND PROTECTION

- A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish.
- B. Limit construction traffic during remainder of construction period.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train The maintenance personnel to adjust, operate, and maintain revolving door entrances. Refer to Division 01 Section "Closeout Procedures."

END OF SECTION 084233.13