SECTION 084233 - REVOLVING DOOR ENTRANCES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:

Revise subparagraphs below to suit Project. Indicate arrangement, size, and location on Drawings.

Manual revolving door entrances.

Automatic revolving door entrances.

Manual access-control revolving door entrances.

Automatic access-control revolving door entrances.

Refer to sections listed below for cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections. Sections listed below are for spec editor’s and design team coordination and are to remain as Editor’s Notes. Remove referenced specification sections within the body of the specification if not applicable to the project.

Section 084113 "Aluminum-Framed Entrances and Storefronts" for adjacent aluminum entrance doors and storefront framing.

* + - 1. COORDINATION

Retain first option in "Recesses" paragraph below for recessed, floor-mounted speed-control units; retain second option for overhead-mounted speed-control or drive units; retain other options as required or revise to suit Project.

* + - * 1. Recesses: Coordinate size and location of recesses in floor construction for [**recessed, floor-mounted speed-control units**] [**pivot bearings**] [**foot grilles**] [**and**] [**recessed mats**], 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.
        2. Electrical System Roughing-in: Coordinate layout and installation of automatic entrances with connections to power supplies[**and access-control system**][**and remote monitoring systems**].
      1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Provide Quality Control Submittals prior to submitting the remaining submittals in order specified.

Submit Product Data, Shop Drawings, and Samples submittals as one package.

* + - * 1. Quality Control Submittals:

Qualification Data: For [Installer] [manufacturer] [Certified Inspector].

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

Product Certificates: For each type of revolving door entrance.

Product Test Reports: For each type of revolving door entrance, for tests performed by manufacturer and witnessed by a qualified testing agency.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

Field quality-control reports.

Sample Warranty: For manufacturer's warranties.

* + - * 1. Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for revolving door entrances.

Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

USE PARAGRAPH BELOW WITH EPD REQUIREMENT WHEN PROJECT ESTIMATE IS $1M OR MORE.

* + - * 1. Submit an Environmental Product Declaration (EPD) from the manufacturer for glass within this specification section, if available. A statement of the contractor’s good faith effort to obtain the EPD shall be provided if not available.

Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

* + - * 1. Shop Drawings: For revolving door entrances.

Include plans, elevations, sections, and attachment details.

Retain first option in first subparagraph below for manual revolving door entrances. Retain second option for automatic revolving door entrances.

Indicate enclosures, [**speed-control units**] [**drive units**], and other components not in manufacturer's product data.

Indicate locations of activation and safety devices.

Include diagrams for power, signal, and control wiring.

* + - * 1. Samples: For each exposed product and for each color and texture specified.

Finishes: For each type of exposed finish required, prepared on Samples of not less than 3 by 5 inches.

Glass Samples: For each type of tinted glass; 12 inches square.

* + - * 1. Sustainable Design Submittals:
        2. Contract Closeout Submittals:

Operation and Maintenance Data: For revolving door entrances to include in emergency, operation, and maintenance manuals.

* + - 1. QUALITY ASSURANCE

Retain "Manufacturer Qualifications" paragraph below if AAADM (American Association of Automatic Door Manufacturers) company certificate is required. ANSI/BHMA A156.27 recommends maintenance and inspection by an AAADM Certified Inspector.

* + - * 1. Manufacturer Qualifications: A manufacturer with company certificate issued by AAADM indicating that manufacturer has a Certified Inspector on staff.
        2. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation and maintenance of units required for this Project[**and who employs a Certified Inspector**].

Retain "Maintenance Proximity" subparagraph below if retaining "Maintenance Service" Article.

Maintenance Proximity: Not more than [**two**] <**Insert number**> hours' normal travel time from Installer's place of business to Project site.

Retain "Certified Inspector Qualifications" paragraph below if retaining "Manufacturer Qualifications" paragraph above, option in "Installer Qualifications" paragraph above, "Certified Inspector" paragraph in "Field Quality Control" Article, or if retaining "Maintenance Service" Article.

* + - * 1. Certified Inspector Qualifications: Certified by AAADM.
      1. DELIVERY, STORAGE, AND HANDLING
         1. Deliver revolving door entrance glass, decorative metalwork, and other exposed elements in padded blankets or other approved protective wrapping.
         2. Protect finish surfaces from damage during handling and installation.
      2. WARRANTY

When warranties are required, verify with Director’s Representative that special warranties stated in this article are not less than remedies available to Facility under prevailing local laws.

* + - * 1. Special Warranty: Manufacturer agrees to repair or replace components of revolving door entrances that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Retain first subparagraph below for manual revolving doors.

Faulty operation of speed-control unit.

Delete option in first subparagraph below if retaining "Special Finish Warranty, Factory-Applied Finishes" or "Special Finish Warranty, Anodized Finishes" paragraph below.

Deterioration of metals[**, metal finishes,**] and other materials beyond normal weathering and use.

Verify available warranties and warranty periods for units and components with manufacturers.

Retain "Warranty Period for Overhead Speed-Control Units" or "Warranty Period for Floor Speed-Control Units" subparagraph below for manual revolving doors.

Warranty Period for Overhead Speed-Control Units: [**10**] <**Insert number**> years from date of Substantial Completion.

Warranty Period for Floor Speed-Control Units: [**Five**] <**Insert number**> years from date of Substantial Completion.

Warranty Period for Finishes: [**20**] <**Insert number**> years from date of Substantial Completion.

* + - * 1. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of baked enamel, powder coat, or organic finishes within specified warranty period.

Retain first subparagraph below for factory-painted finishes. Coordinate color fading and chalking limits with finishes retained in Part 2.

Deterioration includes, but is not limited to, the following:

Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.

Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

Cracking, checking, peeling, or failure of paint to adhere to bare metal.

Coordinate "Warranty Period" subparagraph below with "Aluminum Finishes" Article. AAMA 2604 is intended to represent five years of performance; AAMA 2605 is intended to represent 10 years of performance. Some manufacturers also offer a 20-year warranty. Verify available warranties and warranty periods for finishes.

Warranty Period: [**Five**] [**10**] [**20**] <**Insert number**> years from date of Substantial Completion.

* + - * 1. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.

Retain first subparagraph below for anodized finishes. Coordinate color fading and chalking limits with finishes retained in Part 2.

Deterioration includes, but is not limited to, the following:

Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.

Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

Cracking, peeling, or chipping.

Coordinate "Warranty Period" subparagraph below with "Aluminum Finishes" Article. Five years is standard for Class I anodized finishes, although a few manufacturers offer a 10- or 20-year warranty. Class II anodized finishes often carry less than a five-year warranty. Verify available warranties and warranty periods for finishes.

Warranty Period: [**Five**] [**10**] <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. PERFORMANCE REQUIREMENTS
         1. Revolving Door Entrance Standard: ANSI/BHMA A156.27.
         2. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

Revise "Air Leakage" paragraph below as required to suit Project. ASTM E283 requires testing at a static-air-pressure difference of 1.57 lbf/sq. ft. unless otherwise indicated, which is equivalent to a 25 mph wind.

* + - * 1. Air Leakage: Maximum air leakage through fixed glazing and framing areas of 1.25 cfm/sq. ft. of fixed entrance system area when tested in accordance with ASTM E283 at a minimum static-air-pressure differential of 1.57 lbf/sq. ft.
        2. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

Differential values in "Temperature Change" subparagraph below (for aluminum in particular) are suitable for most of the United States.

Temperature Change: [**120 deg F, ambient; 180 deg F, material surfaces**] <**Insert temperature change**>.

Retain "Windborne-Debris Impact Resistance" paragraph below to suit Project. The BCNYS establishes criteria for buildings in hurricane-prone locations. "Enhanced" option below applies to essential facilities and has additional requirements. Verify requirements of authorities having jurisdiction. Verify which manufacturers have tested products and can demonstrate compliance.

* + - * 1. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone [**1**] [**2**] [**3**] [**4**] for [**basic**] [**enhanced**] protection.

Insert increased heights if different from those in "Large-Missile Test" and "Small-Missile Test" subparagraphs below. For enhanced protection, delete "Small-Missile Test" subparagraph.

Large-Missile Test: For glazing located within [**30 ft.**] <**Insert dimension**> of grade.

Small-Missile Test: For glazing located between 30 ft. and [**60 ft.**] <**Insert dimension**> above grade.

Retain "Seismic Performance" paragraph below for projects requiring seismic design. Model building codes and ASCE/SEI 7 establish criteria for buildings subject to earthquake motions. Coordinate requirements with structural engineer.

* + - * 1. Seismic Performance: Revolving door entrances shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7:

Retain first option in "Regulatory Requirements" paragraph below for revolving door entrances used as a means of egress; retain second option if revolving door entrances are not used as a means of egress and meet one or more conditions listed in the BCNYS. Verify requirements with authorities having jurisdiction.

* + - * 1. Regulatory Requirements: Wings shall be capable of breakout to provide minimum aggregate width of 36 inches when breakout force of no more than [**130 lbf**] [**180 lbf**] is applied within 3 inches of outer edges and 40 inches above floor. Set maximum turning speed to comply with requirements of ANSI/BHMA A156.27.

16 CFR 1201 in "Safety Glass" paragraph below exempts curved-glass enclosures for revolving door entrances from safety-glass requirements. Glass in wings must comply with safety-glass requirements.

* + - * 1. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201.

Retain "Safety-Glass Labeling" subparagraph below if required. Authorities having jurisdiction may approve use of a certificate, affidavit, or other evidence certifying compliance with safety-glass standard.

Safety-Glass Labeling: Where safety-glass labeling is indicated, permanently mark glass with certification label of the Safety Glazing Certification Council, 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.

* + - 1. SOURCE LIMITATIONS
         1. Obtain all components of revolving door entrances from single source from single manufacturer**.**
      2. MANUAL REVOLVING DOOR ENTRANCES

See the Revolving Door Entrance Table at the end of the Evaluations for a list of manufacturers' products. Use table in combination with manufacturers' catalogs or product data to insert series, type, model, and designations of other characteristics.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Manual Revolving Door Entrances <**Insert drawing designation**>: Manufacturer's standard [**three-wing**] [**four-wing**] manual revolving door entrance, complete with center shaft, speed-control unit, wings, hardware, enclosure walls, canopy, glass and glazing, and accessories required for a complete installation.

[Manual Speed-Control Unit: Mechanical speed regulator that allows free rotation of wings up to a predetermined rate of speed and that engages a clutch-type brake to prevent rapid acceleration of wings](http://www.specagent.com/LookUp/?ulid=397&mf=&src=wd).

Retain one of two options in "Location" subparagraph below. Verify availability with manufacturers.

Location: [**Recessed, floor mounted**] [**Overhead**].

Verify, with manufacturers, availability of equipment in "Fold-to-Side Mechanism" subparagraph below.

Fold-to-Side Mechanism: Manufacturer's standard overhead carriage, guide support track, pivot mechanism, and other components necessary to permit folded wings to be moved to one side of revolving door entrance enclosure.

Retain "Power-Assist Operation" subparagraph below if required. Verify availability with manufacturers.

Power-Assist Operation: Drive unit will provide supplemental force, reducing the rotating resistance, when activated by pushing the door. When pushing force is released, door will automatically return to home position.

Retain "Stile-and-Rail Wings" or "All-Glass Wings" subparagraph below.

Stile-and-Rail Wings: Manufacturer's standard with 1-3/4-inch- thick, tubular stile-and-rail members.

Stile Design: [**Narrow stile, 2-inch nominal width**] [**Medium stile, 3-1/2-inch nominal width**] [**Wide stile, 5-inch nominal width**] [**As indicated on Drawings**].

Rail Design: [**3-inch nominal height**] [**4-inch nominal height**] [**As indicated on Drawings**].

Retain "Muntin Design" subparagraph below if required.

Muntin Design: To match stile design.

Not all manufacturers offer tinted glass for wings; verify availability.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, 5/16 inch, and 3/8 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] [**10 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

All-Glass Wings: Manufacturer's standard all-glass wings with tubular metal top and bottom rail members.

Not all manufacturers offer tinted glass for wings; verify availability.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, option for glass thickness in "Thickness" subparagraph below corresponds to 1/2 inch.

Thickness: [**12 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Push Bars: Manufacturer's standard [**horizontal**] [**vertical**] push bars, finished to match wings.

Revise "Shape" subparagraph below to suit Project.

Shape: [**Round bars, 1 inch in diameter**] [**Flat bars, 1/2 inch thick and 1-1/2 inches high**] [**Manufacturer's standard**] <**Insert dimension**>.

Locks: Manufacturer's standard deadbolt locks to receive cylinders; minimum of two for each revolving door entrance, finish to match wings.

Cylinders: Comply with requirements in Section 087100 "Door Hardware."

Mounting: [**Surface applied**] [**Mortised**].

Location: Extend bolt from [**bottom of wing into floor**] [**top of wing into ceiling**] [**bottom of wing into base of wall enclosure**].

Enclosure Walls: Manufacturer's standard, with 1-3/4-inch- thick tubular framing members.

If retaining "Segmented" option in "Configuration" subparagraph below, verify availability with manufacturers. Not all manufacturers offer segmented enclosure walls.

Configuration: [**Curved**] [**Segmented**] <**Insert configuration**>.

Retain one of two subparagraphs below for tempered or laminated glass. Insert insulated glass if required for segmented enclosure walls. Insert requirements for bullet-resistant glass if required.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, and 5/16 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Laminated Glass: [**Clear**] [**Tinted**] consisting of two plies of fully tempered float glass with a PVB interlayer.

First four options for glass thickness in "Thickness" subparagraph below correspond to 5/16 inch, 7/16 inch, 9/16 inch, and 5/8 inch, respectively.

Thickness**.** [**Two 3 mm thick lites, 0.060-inch- thick interlayer**] [**Two 5 mm thick lites, 0.060-inch- thick interlayer**] [**Two 6 mm thick lites, 0.060-inch- thick interlayer**] [**Two 8 mm thick lites, 0.060-inch- thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Muntin Bars" subparagraph below if required.

Muntin Bars: Horizontal tubular rail member for each enclosure wall; match stile design.

Revise "Canopy" subparagraph below for backlit signage if required.

Canopy: Manufacturer's standard ceiling, fascia,[**roof,**] and framing with size, layout, materials, and exposed finishes matching enclosure walls unless otherwise indicated.

Retain "Metal-Clad Plywood," "Metal," or "Glass" subparagraph below.

Metal-Clad Plywood: Fabricate from 3/4-inch- thick plywood clad with metal sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control unit or overhead pivot for recessed, floor-mounted speed-control unit.

Metal: Fabricate from minimum 0.125-inch- thick aluminum sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control unit or overhead pivot for recessed, floor-mounted speed-control unit.

Revise "Glass" subparagraph below for tempered laminated glass, which is available from a few manufacturers.

Glass: [**Clear**] [**Tinted**] laminated glass ceiling with two plies of heat-strengthened or tempered glass separated by a PVB interlayer.

First two options for glass thickness in "Thickness" subparagraph below correspond to 9/16 inch and 13/16 inch, respectively.

Thickness: [**Two 6 mm thick lites, 0.060-inch- thick interlayer**] [**6 mm thick top lite and 12 mm thick bottom lite, 0.060-inch- thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Ceiling Lights" subparagraph below if required.

Ceiling Lights: Manufacturer's standard, consisting of two recessed LED fixtures within the ceiling of the revolving door entrance enclosure, complete with lamps and translucent lenses.

Retain "Canopy Roof" subparagraph below if required; revise to suit Project.

Canopy Roof: Manufacturer's standard construction, with material and finish matching enclosure walls where visible.

Retain "Recessed Grilles" subparagraph below if required.

Recessed Grilles: Provide grille complete with floor pan[**and drainage fitting**] at entry segment only. Fabricate grille, using welded joints, from minimum 1/4-inch-wide by 1-inch-tall, concentrically curved [**stainless steel**] [**bronze**] bar stock with 1/4-inch spacing.

* + - * 1. Materials: [**Extruded aluminum**] [**Stainless steel clad, extruded aluminum**] [**Copper-alloy-clad, extruded aluminum**].

Main Extrusions and Tubing: Minimum wall thickness of 0.125 inch.

Cladding: Minimum 0.04 inch thick.

* + - * 1. 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.

Wings: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

Glaze wings at the factory. Comply with glazing requirements specified in this Section and in Section 088000 "Glazing." Provide minimum clearances for thickness and type of glass indicated in accordance with the "GANA Glazing Manual."

Provide sliding weather stripping, mortised into stiles and rails of wings, to be adjustable and replaceable without dismantling wings.

Retain "Welded Construction," "Mechanically Joined Construction," or "Mechanically Joined Clad Construction" subparagraph below; revise to suit Project and to match manufacturers' products.

Retain "Welded Construction" subparagraph below for highest-quality aluminum revolving door entrances. Verify availability of all-welded units fabricated from stainless steel or bronze sheet.

Welded Construction: Weld reinforcement firmly in place. Weld corners. Grind and polish welds to produce an invisible joint. Mechanically finish exposed surfaces after fabrication to eliminate surface blemishes caused by welding, rolling, bending, and forming.

Retain "Mechanically Joined Construction" subparagraph below if using mechanically joined construction for extruded aluminum, bronze, or stainless steel.

Mechanically Joined Construction: Joints shall be tightly bolted together. Glass stops shall be snap-in type where possible.

Retain "Mechanically Joined Clad Construction" subparagraph below if using mechanically joined clad construction for stainless steel sheet, aluminum-sheet, or bronze-sheet cladding over extruded-aluminum shapes.

Mechanically Joined Clad Construction: Joints shall be tightly bolted together to produce hairline joints. Finish material before fabrication. Carefully assemble to prevent welds or adhesives from blemishing finished surfaces. Glass stops shall be snap-in type where possible.

Enclosure Walls and Canopy: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints, in accordance with manufacturer's standards and as specified. Provide subframes as required for a complete system to support required loads.

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.

Retain "Aluminum Finishes," "Stainless Steel Finishes," or "Copper-Alloy Finishes" paragraph below or revise to suit Project. Verify availability with manufacturers.

* + - * 1. Aluminum Finishes: [**Clear anodic**] [**Color anodic**] [**Baked enamel or powder coat**] [**High performance, organic**] <**Insert finish**>.

Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Revise "Stainless Steel Finishes" paragraph below for other finishes. Verify availability with manufacturers.

* + - * 1. Stainless Steel Finishes: [**Directional satin finish, No. 4**] [**Reflective, directional polish, No. 7**] [**Mirrorlike reflective, nondirectional polish, No. 8**] <**Insert finish**>.

Buffed finish in "Copper-Alloy Finishes" paragraph below is mirrorlike. Copper-alloy finish includes bronze and muntz metal finishes.

* + - * 1. Copper-Alloy Finishes: [**Buffed finish**] [**Medium-satin finish**] <**Insert finish**>.
      1. AUTOMATIC REVOLVING DOOR ENTRANCES

See Revolving Door Entrance Table at the end of the Evaluations for a list of manufacturers' products. Use table in combination with manufacturers' catalogs or product data to insert series, type, model, and designations of other characteristics.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

Not all manufacturers make two-wing units; verify availability with manufacturer. Retain fourth, fifth, or sixth option in "Automatic Revolving Door Entrances" paragraph below for rotating center. If retaining sixth option, retain "Rotating Glazed Display Case" subparagraph. See the Evaluations for a discussion on rotating centers.

* + - * 1. Automatic Revolving Door Entrances <**Insert drawing designation**>: Manufacturer's standard [**two-wing**] [**three-wing**] [**four-wing**] automatic revolving door entrance, complete with [**center shaft**] [**core**] [**core with rotating glazed display case**], drive assembly, wings, hardware, enclosure walls, canopy, glass and glazing, activation devices, safety devices, and accessories required for a complete installation.

[Drive Assembly: Provide an electric drive unit with speed regulator to permit and control automatic rotation of wings. Drive unit allows for manual operation of door upon loss of power. Furnish power-operation equipment to suit current characteristics of building electrical service.](http://www.specagent.com/LookUp/?ulid=398&mf=&src=wd)

Verify, with manufacturers, availability of equipment in "Fold-to-Side Mechanism" subparagraph below.

Fold-to-Side Mechanism: Manufacturer's standard overhead carriage, guide support track, pivot mechanism, and other components necessary to permit folded wings to be moved to one side of revolving door entrance enclosure.

Retain "Electric Wing Locking" subparagraph below if required. Verify availability with manufacturers.

Electric Wing Locking: Provide fail-safe electromagnetic wing lock mechanism to prevent breakout of door wings when engaged. Loss of power or signal from building fire/smoke alarm will release electromagnetic lock, allowing for breakout.

Retain "Manual-Push Activation," "Continuous Operation," or "Signal Activation" subparagraph below.

Manual-Push Activation: Pushing wing activates unit and maintains rotation of wings for manufacturer's standard preset time. Provide signage on each wing visible in direction of traffic flow with instructions to start rotation.

Continuous Operation: Wings revolve continuously.

Signal Activation: Signal from activation device begins and maintains rotation of wings for manufacturer's standard preset time.

Retain applicable subparagraphs below for activation devices or revise to suit Project. Verify availability with manufacturers.

Motion Detectors: Self-contained, K-band-frequency, microwave-scanner units with metal or plastic housing; to provide adjustable detection-field sizes, patterns, and functions required by ANSI/BHMA A156.10. Mount centered on both sides of canopy fascia.

Push-Plate Switch: Momentary-contact control switch with flat push plate actuator[**with contrasting-colored, engraved message**].

Retain "Configuration" or "Configuration, Full Length" subparagraph below. Insert mounting height for wall switches if not indicated on Drawings.

Configuration: [**4.5-inch**] <**Insert dimension**>, [**Round**] [**Square**] push plate.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Configuration, Full Length: 36-inch high-low push plate.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Push-Plate Material: [**Stainless steel**] [**Plastic**] as selected by Director’s Representative from manufacturer's full range.

Messages with international symbol of accessibility are available but are not recommended unless required by authority having jurisdiction because revolving doors do not meet accessibility requirements. Insert if required.

Message: [**"Push to Open"**] <**Insert message**>.

Touchless Switch: Hands-free-activated door-control switch with flat motion sensor faceplate[**with contrasting-colored, engraved message**].

Insert mounting height for wall switches if not indicated on Drawings.

Configuration: [**4.5-inch**] <**Insert dimension**>, [**Round**] [**Square**] faceplate.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Faceplate Material: [**Stainless steel**] [**Plastic**] [**Stainless steel with backlight acrylic window**] as selected by Director’s Representative from manufacturer's full range.

Messages with international symbol of accessibility are available but are not recommended unless required by authority having jurisdiction because revolving doors do not meet accessibility requirements. Insert if required.

Message: [**"Wave to Open"**] [**"Wave to Open" and wave symbol**] <**Insert message**>.

Push-Button Switch: Momentary-contact control switch with one red-button actuator. Provide blue plastic cover engraved with message "Press to Open" in white letters.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Key Switch: Recess-mounted control switch with key-controlled actuator. Provide faceplate engraved with letters indicating switch functions.

Functions: [**On-off**] [**On-off, momentary contact**] <**Insert functions**>.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Retain "Communication System" subparagraph below if required.

Communication System: Provide [**visual signal**] [**and**] [**digital field programmable voice messaging**].

Stile-and-Rail Wings: Manufacturer's standard with 1-3/4-inch- thick tubular stile-and-rail members.

Stile Design: [**Narrow stile, 2-inch nominal width**] [**Medium stile, 3-1/2-inch nominal width**] [**Wide stile, 5-inch nominal width**] [**As indicated on Drawings**].

Rail Design: [**3-inch nominal height**] [**4-inch nominal height**] [**As indicated on Drawings**].

Retain "Muntin Design" subparagraph below if required.

Muntin Design: To match stile design.

Not all manufacturers offer tinted glass for wings; verify availability.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, 5/16 inch, and 3/8 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] [**10 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Signage: Provide signage on door visible from both sides of each wing indicating "Automatic Door," location as indicated on Drawings.

Retain "Push Bars" subparagraph below for manual-push activation. Push bars are not used with automatic revolving door entrances activated by sensors.

Push Bars: Manufacturer's standard [**horizontal**] [**vertical**] push bars, finished to match wings.

Revise "Shape" subparagraph below to suit Project.

Shape: [**Round bars, 1 inch in diameter**] [**Flat bars, 1/2 inch thick and 1-1/2 inches high**] [**Manufacturer's standard**] <**Insert shape**>.

Verify locking options with manufacturers. Coordinate hardware requirements with Door Hardware Consultant.

Locking:

Electric Locking: Internal electromechanical lock.

Mechanical Locking: Manufacturer's standard deadbolt locks to receive cylinders; minimum of two for each revolving door entrance, finish to match wings.

Cylinders: Comply with requirements in Section 087100 "Door Hardware."

Mounting: [**Surface applied**] [**Mortised**].

Location: Extend bolt from [**bottom of wing into floor**] [**top of wing into ceiling**] [**bottom of wing into base of wall enclosure**].

Enclosure Walls: Manufacturer's standard, with 1-3/4-inch- thick tubular framing members.

If retaining "Segmented" option in "Configuration" subparagraph below, verify availability with manufacturers. Not all manufacturers offer segmented enclosure walls.

Configuration: [**Curved**] [**Segmented**] <**Insert configuration**>.

Retain one of two subparagraphs below for tempered or laminated glass. Insert insulated glass if required for segmented enclosure walls. Insert requirements for bullet-resistant glass if required

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, and 5/16 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Laminated Glass: [**Clear**] [**Tinted**] consisting of two plies of fully tempered float glass with a PVB interlayer.

First four options for glass thickness in "Thickness" subparagraph below correspond to 5/16 inch, 7/16 inch, 9/16 inch, and 5/8 inch, respectively

Thickness**.** [**Two 3 mm thick lites, 0.060-inch- thick interlayer**] [**Two 5 mm thick lites, 0.060-inch- thick interlayer**] [**Two 6 mm thick lites, 0.060-inch- thick interlayer**] [**Two 8 mm thick lites, 0.060-inch- thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Muntin Bars" subparagraph below if required.

Muntin Bars: Horizontal tubular rail member for each enclosure wall; match stile design.

Revise "Canopy" subparagraph below for backlit signage if required.

Canopy: Manufacturer's standard ceiling, fascia,[**roof,**] and framing with size, layout, materials, and exposed finishes matching enclosure walls unless otherwise indicated.

Metal-Clad Plywood: Fabricate from 3/4-inch- thick plywood clad with metal sheet. Provide ceiling-access panels for repairs to or maintenance of drive assembly.

Metal: Fabricate from minimum 0.125-inch- thick aluminum sheet. Provide ceiling-access panels for repairs to or maintenance of drive assembly.

Glass: [**Clear**] [**Tinted**] laminated glass ceiling with two plies of heat-strengthened or tempered glass separated by a PVB interlayer.

First two options for glass thickness in "Thickness" subparagraph below correspond to 9/16 inch and 13/16 inch, respectively.

Thickness: [**Two 6 mm thick lites, 0.060-inch-thick interlayer**] [**6 mm thick top lite and 12 mm thick bottom lite, 0.060-inch-thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Ceiling Lights" subparagraph below if required.

Ceiling Lights: Manufacturer's standard, consisting of two recessed LED fixtures within the ceiling of the revolving door entrance enclosure, complete with lamps and translucent lenses.

Retain "Canopy Roof" subparagraph below if required; revise to suit Project.

Canopy Roof: Manufacturer's standard construction, with material and finish matching enclosure walls where visible.

Retain "Recessed Grilles" subparagraph below if required.

Recessed Grilles: Provide grille complete with floor pan[**and drainage fitting**] at entry quadrant only. Fabricate grille, using welded joints, from minimum 1/4-inch-wide by 1-inch-tall, concentrically curved [**stainless steel**] [**bronze**] bar stock with 1/4-inch spacing.

Retain "Rotating Glazed Display Case" subparagraph below if required; revise to suit Project. Verify types and availability of display cases with manufacturers.

Rotating Glazed Display Case: Glazed enclosure incorporated into core, with framing matching wings and with panel on one side for access to display area.

Safety Devices: Manufacturer's standard safety devices as required to stop or slow rotation. Provide the following:

Retain applicable subparagraphs below for safety devices or revise to suit Project. Verify availability with manufacturers.

Emergency Stop Button: Momentary-contact, red push-button switch to immediately stop wing rotation[**and reverse direction to entry position**]. Provide sign indicating "Emergency Stop," location as indicated on Drawings.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Slow-speed operation in "Slow-Speed Operation Button" subparagraph below facilitates usage by persons with disabilities but will not qualify revolving door entrances to comply with accessibility requirements. See "Accessibility" Article in the Evaluations.

Slow-Speed Operation Button: Momentary-contact push-button switch or plate to slow wing rotation by reducing rpm by one half. Include sign indicating operation, location as indicated on Drawings.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Vertical Safety Sensors:

End Wall Sensor Strip: Compressible safety switch consisting of an impact-pressure-activated, internal-contact switch (sensor strip) encapsulated in a flexible housing. Mount on enclosure walls at vertical edge of entry.

Entry Point Sensor: Self-contained, active infrared sensor with metal or plastic housing; to provide adjustable detection-field sizes, patterns, and functions, including presence sensor monitoring, required by ANSI/BHMA A156.27. Detectors shall remain active at all times. Mount recessed in canopy ceiling at right-hand side of opening.

Horizontal Safety Sensors:

Bottom Rail Sensor Strip: Compressible safety switch consisting of an impact-pressure-activated, internal-contact switch (sensor strip) encapsulated in a flexible housing. Mount at bottom edge of each wing.

Wing Presence Sensor: Self-contained, active infrared sensor with metal or plastic housing; to provide adjustable detection-field sizes, patterns, and functions, including presence sensor monitoring, required by ANSI/BHMA A156.27. Detectors shall remain active at all times. Mount [**recessed in canopy ceiling**] [**to top rail of each door wing**].

Signage: As required by ANSI/BHMA A156.27.

Application Process: [**Decals**] [**Silk-screened**] [**Door manufacturer's standard process**] <**Insert requirement**>.

Retain subparagraph below for signs on field-installed glass surfaces.

Provide sign materials with instructions for field application after glazing is installed.

* + - * 1. Materials: [**Extruded aluminum**] [**Stainless steel clad, extruded aluminum**] [**Copper-alloy-clad, extruded aluminum**].

Main Extrusions and Tubing: Minimum wall thickness of 0.125 inch.

Cladding: Minimum 0.04 inch thick.

* + - * 1. 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.

Wings: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

Glaze wings at the factory. Comply with glazing requirements specified in this Section and in Section 088000 "Glazing." Provide minimum clearances for thickness and type of glass indicated in accordance with the "GANA Glazing Manual."

Provide sliding weather stripping, mortised into stiles and rails of wings, to be adjustable and replaceable without dismantling wings.

Retain "Welded Construction," "Mechanically Joined Construction," or "Mechanically Joined Clad Construction" subparagraph below; revise to suit Project and to match manufacturers' products.

Retain "Welded Construction" subparagraph below for highest-quality aluminum revolving door entrances. Verify availability of all-welded units fabricated from stainless steel or bronze sheet.

Welded Construction: Weld reinforcement firmly in place. Weld corners. Grind and polish welds to produce an invisible joint. Mechanically finish exposed surfaces after fabrication to eliminate surface blemishes caused by welding, rolling, bending, and forming.

Retain "Mechanically Joined Construction" subparagraph below if using mechanically joined construction for extruded aluminum, bronze, or stainless steel.

Mechanically Joined Construction: Joints shall be tightly bolted together. Glass stops shall be snap-in type where possible.

Retain "Mechanically Joined Clad Construction" subparagraph below if using mechanically joined clad construction for stainless steel sheet, aluminum-sheet, or bronze-sheet cladding over extruded-aluminum shapes.

Mechanically Joined Clad Construction: Joints shall be tightly bolted together to produce hairline joints. Finish material before fabrication. Carefully assemble to prevent welds or adhesives from blemishing finished surfaces. Glass stops shall be snap-in type where possible.

Enclosure Walls and Ceilings: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints, in accordance with manufacturer's standards and as specified. Provide subframes as required for a complete system to support required loads.

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.

Retain "Aluminum Finishes," "Stainless Steel Finishes," or "Copper-Alloy Finishes" paragraph below or revise to suit Project. Verify availability with manufacturers.

* + - * 1. Aluminum Finishes: [**Clear anodic**] [**Color anodic**] [**Baked enamel or powder coat**] [**High performance, organic**] <**Insert finish**>.

Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Revise "Stainless Steel Finishes" paragraph below for other finishes; No. 4 finish is directional; Nos. 7 and 8 are mirrorlike. Verify availability with manufacturers.

* + - * 1. Stainless Steel Finishes: [**Directional satin finish**] [**Reflective, directional polish**] [**Mirrorlike reflective, nondirectional polish**] <**Insert finish**>.

Buffed finish in "Copper-Alloy Finishes" paragraph below is mirrorlike. Copper-alloy finish includes bronze and muntz metal finishes.

* + - * 1. Copper-Alloy Finishes: [**Buffed finish**] [**Medium-satin finish**] <**Insert finish**>.
      1. MANUAL ACCESS-CONTROL REVOLVING DOOR ENTRANCES

See Revolving Door Entrance Table at the end of the Evaluations for a list of manufacturers' products. Use table in combination with manufacturers' catalogs or product data to insert series, type, model, and designations of other characteristics.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

* + - * 1. Manual Access-Control Revolving Door Entrances <**Insert drawing designation**>: Manufacturer's standard [**three-wing**] [**four-wing**] manual access-control revolving door entrance, complete with center shaft, speed-control unit, wings, hardware, enclosure walls, canopy, glass and glazing, activation devices, safety devices, and accessories required for a complete installation.

[Manual Operation: Valid authorization signal from access-control system or emergency system will allow door to operate by manually pushing the door counter clockwise to allow single passage only; manufacturer's standard braking system to secure doors.](http://www.specagent.com/LookUp/?ulid=13867&mf=&src=wd)

Manual Speed-Control Unit: Mechanical speed regulator that allows free rotation of wings up to a predetermined rate of speed and that engages a clutch-type brake to prevent rapid acceleration of wings.

Retain one of two options in "Location" subparagraph below. Verify availability with manufacturers.

Location: [**Recessed, floor mounted**] [**Overhead**].

Verify, with manufacturers, availability of equipment in "Fold-to-Side Mechanism" subparagraph below.

Fold-to-Side Mechanism: Manufacturer's standard overhead carriage, guide support track, pivot mechanism, and other components necessary to permit folded wings to be moved to one side of revolving door entrance enclosure.

Electric Wing Locking: Provide manufacturer's standard programmable fail-secure or fail-safe electromagnetic wing lock mechanism to prevent breakout of door wings. Fail safe: Loss of power or signal from building fire/smoke alarm will release electromagnetic lock allowing for breakout. Fail secure: Loss of power will engage electromagnetic lock, preventing breakout.

Activation Devices: [**Keypads**] [**Card readers**] [**Biometric identity verification equipment**] as specified in [**Section 087100 "Door Hardware."**]

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Retain "Communication System" subparagraph below if required.

Communication System: Provide [**visual signal**] [**and**] [**digital field programmable voice messaging**].

Stile-and-Rail Wings: Manufacturer's standard with 1-3/4-inch-thick, tubular stile-and-rail members.

Stile Design: [**Narrow stile, 2-inch nominal width**] [**Medium stile, 3-1/2-inch nominal width**] [**Wide stile, 5-inch nominal width**] [**As indicated on Drawings**].

Rail Design: [**3-inch nominal height**] [**4-inch nominal height**] [**As indicated on Drawings**].

Retain "Muntin Design" subparagraph below if required.

Muntin Design: To match stile design.

Not all manufacturers offer tinted glass for wings in "Glass" subparagraph below; verify availability. Insert requirements for bullet-resistant glass if required.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, 5/16 inch, and 3/8 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] [**10 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Push Bars: Manufacturer's standard [**horizontal**] [**vertical**] push bars, finished to match wings.

Revise "Shape" subparagraph below to suit Project.

Shape: [**Round bars, 1 inch in diameter**] [**Flat bars, 1/2 inch thick and 1-1/2 inches high**] [**Manufacturer's standard**] <**Insert dimension**>.

Locks: Manufacturer's standard deadbolt locks to receive cylinders; minimum of two for each revolving door entrance, finish to match wings.

Cylinders: Comply with requirements in Section 087100 "Door Hardware."

Mounting: [**Surface applied**] [**Mortised**].

Location: Extend bolt from [**bottom of wing into floor**] [**top of wing into ceiling**] [**bottom of wing into base of wall enclosure**].

Enclosure Walls: Manufacturer's standard, with 1-3/4-inch-thick tubular framing members.

If retaining "Segmented" option in "Configuration" subparagraph below, verify availability with manufacturers. Not all manufacturers offer segmented enclosure walls.

Configuration: [**Curved**] [**Segmented**] <**Insert configuration**>.

Retain one of two subparagraphs below for tempered or laminated glass. Insert insulated glass if required for segmented enclosure walls. Insert requirements for bullet-resistant glass if required

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, and 5/16 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Laminated Glass: [**Clear**] [**Tinted**] consisting of two plies of fully tempered float glass with a PVB interlayer.

First four options for glass thickness in "Thickness" subparagraph below correspond to 5/16 inch, 7/16 inch, 9/16 inch, and 5/8 inch, respectively.

Thickness**.** [**Two 3 mm thick lites, 0.060-inch-thick interlayer**] [**Two 5 mm thick lites, 0.060-inch-thick interlayer**] [**Two 6 mm thick lites, 0.060-inch-thick interlayer**] [**Two 8 mm thick lites, 0.060-inch-thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Muntin Bars" subparagraph below if required.

Muntin Bars: Horizontal tubular rail member for each enclosure wall; match stile design.

Revise "Canopy" subparagraph below for backlit signage if required.

Canopy: Manufacturer's standard ceiling, fascia,[**roof,**] and framing with size, layout, materials, and exposed finishes matching enclosure walls unless otherwise indicated.

Metal-Clad Plywood: Fabricate from 3/4-inch-thick plywood clad with metal sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control units.

Metal: Fabricate from minimum 0.125-inch-thick, aluminum sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control units.

Retain "Ceiling Lights" subparagraph below if required.

Ceiling Lights: Manufacturer's standard, consisting of two recessed LED fixtures within the ceiling of the revolving door entrance enclosure, complete with lamps and translucent lenses.

Retain "Canopy Roof" subparagraph below if required; revise to suit Project.

Canopy Roof: Manufacturer's standard constructions, with material and finish matching enclosure walls where visible.

Retain "Recessed Grilles" subparagraph below if required.

Recessed Grilles: Provide grille complete with floor pan[**and drainage fitting**] at entry quadrant only. Fabricate, using welded joints, from minimum 1/4-inch-wide by 1-inch-tall, concentrically curved [**stainless steel**] [**bronze**] bar stock with 1/4-inch spacing.

* + - * 1. Materials: [**Extruded aluminum**] [**Stainless steel clad, extruded aluminum**] [**Copper-alloy-clad, extruded aluminum**].

Main Extrusions and Tubing: Minimum wall thickness of 0.125 inch.

Cladding: Minimum 0.04 inch thick.

* + - * 1. 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.

Wings: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

Glaze wings at the factory. Comply with glazing requirements specified in this Section and in Section 088000 "Glazing." Provide minimum clearances for thickness and type of glass indicated in accordance with the "GANA Glazing Manual."

Provide sliding weather stripping, mortised into stiles and rails of wings, to be adjustable and replaceable without dismantling wings.

Retain "Welded Construction," "Mechanically Joined Construction," or "Mechanically Joined Clad Construction" subparagraph below; revise to suit Project and to match manufacturers' products.

Retain "Welded Construction" subparagraph below for highest-quality aluminum revolving door entrances. Verify availability of all-welded units fabricated from stainless steel or bronze sheet.

Welded Construction: Weld reinforcement firmly in place. Weld corners. Grind and polish welds to produce an invisible joint. Mechanically finish exposed surfaces after fabrication to eliminate surface blemishes caused by welding, rolling, bending, and forming.

Retain "Mechanically Joined Construction" subparagraph below if using mechanically joined construction for extruded aluminum, bronze, or stainless steel.

Mechanically Joined Construction: Joints shall be tightly bolted together. Glass stops shall be snap-in type where possible.

Retain "Mechanically Joined Clad Construction" subparagraph below if using mechanically joined clad construction for stainless steel sheet, aluminum-sheet, or bronze-sheet cladding over extruded-aluminum shapes.

Mechanically Joined Clad Construction: Joints shall be tightly bolted together to produce hairline joints. Finish material before fabrication. Carefully assemble to prevent welds or adhesives from blemishing finished surfaces. Glass stops shall be snap-in type where possible.

Enclosure Walls and Ceilings: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints, in accordance with manufacturer's standards and as specified. Provide subframes as required for a complete system to support required loads.

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.

Retain "Aluminum Finishes," "Stainless Steel Finishes," or "Copper-Alloy Finishes" paragraph below or revise to suit Project. Verify availability with manufacturers.

* + - * 1. Aluminum Finishes: [**Clear anodic**] [**Color anodic**] [**Baked enamel or powder coat**] [**High performance, organic**] <**Insert finish**>.

Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Revise "Stainless Steel Finishes" paragraph below for other finishes; No. 4 finish is directional; Nos. 7 and 8 are mirrorlike. Verify availability with manufacturers.

* + - * 1. Stainless Steel Finishes: [**Directional satin finish**] [**Reflective, directional polish**] [**Mirrorlike reflective, nondirectional polish**] <**Insert finish**>.

Buffed finish in "Copper-Alloy Finishes" paragraph below is mirrorlike. Copper-alloy finish includes bronze and muntz metal finishes.

* + - * 1. Copper-Alloy Finishes: [**Buffed finish**] [**Medium-satin finish**] <**Insert finish**>.
      1. AUTOMATIC ACCESS-CONTROL REVOLVING DOOR ENTRANCES

See Revolving Door Entrance Table at the end of the Evaluations for a list of manufacturers' products. Use table in combination with manufacturers' catalogs or product data to insert series, type, model, and designations of other characteristics.

Copy paragraph below and re-edit for each product.

Insert drawing designation. Use these designations on Drawings to identify each product.

Retain third or fourth option in "Automatic Access-Control Revolving Door Entrances" paragraph below for rotating center. See the Evaluations for a discussion on rotating centers.

* + - * 1. Automatic Access-Control Revolving Door Entrances <**Insert drawing designation**>: Manufacturer's standard [**four-wing**] [**three-wing**] automatic access-control revolving door entrance, complete with [**center shaft**] [**core**], drive assembly, wings, hardware, enclosure walls, canopy, glass and glazing, activation devices, safety devices, and accessories required for a complete installation.

[Automatic Operation: Valid authorization signal from access-control system activates the unit and revolves the door up to one turn, then returns door wings to quarter-point position. Provide signage on door visible from both sides of each wing indicating "Automatic Door," location as indicated on Drawings.](http://www.specagent.com/LookUp/?ulid=399&mf=&src=wd)

Drive Assembly: Provide an electric drive unit with speed regulator to permit and control automatic rotation of wings. Drive unit allows for manual operation of door to the emergency egress position upon loss of power. Furnish power-operation equipment to suit current characteristics of building electrical service.

Verify, with manufacturers, availability of equipment in "Fold-to-Side Mechanism" subparagraph below.

Fold-to-Side Mechanism: Manufacturer's standard overhead carriage, guide support track, pivot mechanism, and other components necessary to permit folded wings to be moved to one side of revolving door entrance enclosure.

Electric Wing Locking: Provide manufacturer's standard programmable fail-secure or fail-safe electromagnetic wing lock mechanism to prevent breakout of door wings. Fail safe: Loss of power or signal from building fire/smoke alarm will release electromagnetic lock allowing for breakout. Fail secure: Loss of power will engage electromagnetic lock, preventing breakout.

Activation Devices: [**Keypads**] [**Card readers**] [**Biometric identity verification equipment**] as specified in [**Section 087100 "Door Hardware."**] [**Section 281500 "Access Control Hardware Devices."**]

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening.

Access-Control Operation: [**One way; access-controlled entry, free exit**] [**One way; free entry, access-controlled exit**] [**Two way; access-controlled entry and exit**] [**As indicated on Drawings**].

Retain "Communication System" subparagraph below if required.

Communication System: Provide [**visual signal**] [**and**] [**digital field programmable voice messaging**].

Stile-and-Rail Wings: Manufacturer's standard with 1-3/4-inch-thick, tubular stile-and-rail members.

Stile Design: [**Narrow stile, 2-inch nominal width**] [**Medium stile, 3-1/2-inch nominal width**] [**Wide stile, 5-inch nominal width**] [**As indicated on Drawings**].

Rail Design: [**3-inch nominal height**] [**4-inch nominal height**] [**As indicated on Drawings**].

Retain "Muntin Design" subparagraph below if required.

Muntin Design: To match stile design.

Not all manufacturers offer tinted glass for wings in "Glass" subparagraph below; verify availability. Insert requirements for bullet-resistant glass if required.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" subparagraph below correspond to 1/4 inch, 5/16 inch, and 3/8 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] [**10 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Verify locking options with manufacturers. Coordinate hardware with Door Hardware Consultant.

Locking:

Electric Locking: Internal electromechanical lock.

Mechanical Locking: Manufacturer's standard deadbolt locks to receive cylinders; minimum of two for each revolving door entrance, finish to match wings.

Cylinders: Comply with requirements in Section 087100 "Door Hardware."

Mounting: [**Surface applied**] [**Mortised**].

Location: Extend bolt from [**bottom of wing into floor**] [**top of wing into ceiling**] [**bottom of wing into base of wall enclosure**].

Enclosure Walls: Manufacturer's standard, with 1-3/4-inch-thick tubular framing members.

If retaining "Segmented" option in "Configuration" subparagraph below, verify availability with manufacturers. Not all manufacturers offer segmented enclosure walls.

Configuration: [**Curved**] [**Segmented**] <**Insert configuration**>.

Retain one of two subparagraphs below for tempered or laminated glass. Insert insulated glass if required for segmented enclosure walls. Insert requirements for bullet-resistant glass if required.

Glass: [**Clear**] [**Tinted**], fully tempered float glass.

According to ASTM C1036, options for glass thickness in "Thickness" below correspond to 1/4 inch, and 5/16 inch, respectively.

Thickness: [**6 mm**] [**8 mm**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Laminated Glass: [**Clear**] [**Tinted**] consisting of two plies of fully tempered float glass with a PVB interlayer.

First four options for glass thickness in "Thickness" subparagraph below correspond to 5/16 inch, 7/16 inch, 9/16 inch, and 5/8 inch, respectively.

Thickness**.** [**Two 3 mm thick lites, 0.060-inch-thick interlayer**] [**Two 5 mm thick lites, 0.060-inch-thick interlayer**] [**Two 6 mm thick lites, 0.060-inch-thick interlayer**] [**Two 8 mm thick lites, 0.060-inch-thick interlayer**] [**As indicated**] <**Insert dimension**>.

Retain "Tint Color" subparagraph below for tinted glass.

Tint Color: [**Blue**] [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

Retain "Muntin Bars" subparagraph below if required.

Muntin Bars: Horizontal tubular rail member for each enclosure wall; match stile design.

Revise "Canopy" subparagraph below for backlit signage if required.

Canopy: Manufacturer's standard ceiling, fascia,[**roof,**] and framing with size, layout, materials, and exposed finishes matching enclosure walls unless otherwise indicated.

Metal-Clad Plywood: Fabricate from 3/4-inch-thick plywood clad with metal sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control unit or overhead pivot for recessed, floor-mounted speed-control units.

Metal: Fabricate from minimum 0.125-inch-thick, aluminum sheet. Provide ceiling-access panels for repairs to or maintenance of speed-control unit or overhead pivot for recessed, floor-mounted speed-control units.

Retain "Ceiling Lights" subparagraph below if required.

Ceiling Lights: Manufacturer's standard, consisting of two recessed LED fixtures within the ceiling of the revolving door entrance enclosure, complete with lamps and translucent lenses.

Retain "Canopy Roof" subparagraph below if required; revise to suit Project.

Canopy Roof: Manufacturer's standard constructions, with material and finish matching enclosure walls where visible.

Retain "Recessed Grilles" subparagraph below if required.

Recessed Grilles: Provide grille complete with floor pan[**and drainage fitting**] at entry quadrant only. Fabricate, using welded joints, from minimum 1/4-inch-wide by 1-inch-tall , concentrically curved [**stainless steel**] [**bronze**] bar stock with 1/4-inch spacing.

Safety Devices: Manufacturer's standard safety devices as required to stop or slow rotation. Provide the following:

Safety devices below may be modified in some access-control applications. Safety devices required by ANSI/BHMA A156.27 depend on type of access-control operation. Coordinate with "Access-Control Operation" subparagraph above and retain applicable subparagraphs below or revise to suit Project.

Emergency Stop Button: Momentary-contact, red push-button switch to immediately stop wing rotation[**and reverse direction to entry position**]. Provide sign indicating "Emergency Stop," location as indicated on Drawings.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side of opening on secure side.

Slow-speed operation in "Slow-Speed Operation Button" subparagraph below facilitates usage by persons with disabilities but will not qualify revolving door entrances to meet accessibility requirements. See "Accessibility" Article in the Evaluations.

Slow-Speed Operation Button: Momentary-contact push-button switch or plate to slow wing rotation by reducing rpm by one half. Include sign indicating operation, location as indicated on Drawings.

Mounting: [**Recess mounted, semiflush in wall**] [**Surface mounted on wall**] [**Surface mounted on post**] [**As indicated on Drawings**] on right-hand side on each side of opening.

Vertical Safety Sensors:

End Wall Sensor Strip: Compressible safety switch consisting of an impact-pressure-activated, internal-contact switch (sensor strip) encapsulated in a flexible housing. Mount on enclosure walls at vertical edge of entry.

Horizontal Safety Sensors:

Bottom Rail Sensor Strip: Compressible safety switch consisting of an impact-pressure-activated, internal-contact switch (sensor strip) encapsulated in a flexible housing. Mount at bottom edge of each wing.

Wing Presence Sensor: Self-contained, active infrared sensor with metal or plastic housing; to provide adjustable detection-field sizes, patterns, and functions, including presence sensor monitoring, required by ANSI/BHMA A156.27. Detectors shall remain active at all times. Mount [**recessed in canopy ceiling**] [**to top rail of each door wing**].

Security Devices:

Retain "Anti-Tailgating" subparagraph below if required.

Anti-Tailgating: Manufacturer's standard overhead sensors to monitor passage of authorized users.

Retain "Anti-Piggybacking" subparagraph below if required. Verify availability with manufacturers.

Anti-Piggybacking: Manufacturer's standard overhead sensors to monitor passage of authorized users.

Insert additional security devices as required to suit Project.

<**Insert device**>.

Signage: As required by ANSI/BHMA A156.27.

Application Process: [**Decals**] [**Silk screened**] [**Door manufacturer's standard process**] <**Insert requirement**>.

Retain subparagraph below for signs on field-installed glass surfaces.

Provide sign materials with instructions for field application after glazing is installed.

* + - * 1. Materials: [**Extruded aluminum**] [**Stainless steel clad, extruded aluminum**] [**Copper-alloy-clad, extruded aluminum**].

Main Extrusions and Tubing: Minimum wall thickness of 0.125 inch.

Cladding: Minimum 0.04 inch thick.

* + - * 1. 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.

Wings: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

Glaze wings at the factory. Comply with glazing requirements specified in this Section and in Section 088000 "Glazing." Provide minimum clearances for thickness and type of glass indicated in accordance with the "GANA Glazing Manual."

Provide sliding weather stripping, mortised into stiles and rails of wings, to be adjustable and replaceable without dismantling wings.

Retain "Welded Construction," "Mechanically Joined Construction," or "Mechanically Joined Clad Construction" subparagraph below; revise to suit Project and to match manufacturers' products.

Retain "Welded Construction" subparagraph below for highest-quality aluminum revolving door entrances. Verify availability of all-welded units fabricated from stainless steel or bronze sheet.

Welded Construction: Weld reinforcement firmly in place. Weld corners. Grind and polish welds to produce an invisible joint. Mechanically finish exposed surfaces after fabrication to eliminate surface blemishes caused by welding, rolling, bending, and forming.

Retain "Mechanically Joined Construction" subparagraph below if using mechanically joined construction for extruded aluminum, bronze, or stainless steel.

Mechanically Joined Construction: Joints shall be tightly bolted together. Glass stops shall be snap-in type where possible.

Retain "Mechanically Joined Clad Construction" subparagraph below if using mechanically joined clad construction for stainless steel sheet, aluminum-sheet, or bronze-sheet cladding over extruded-aluminum shapes.

Mechanically Joined Clad Construction: Joints shall be tightly bolted together to produce hairline joints. Finish material before fabrication. Carefully assemble to prevent welds or adhesives from blemishing finished surfaces. Glass stops shall be snap-in type where possible.

Enclosure Walls and Ceilings: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints, in accordance with manufacturer's standards and as specified. Provide subframes as required for a complete system to support required loads.

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.

Retain "Aluminum Finishes," "Stainless Steel Finishes," or "Copper-Alloy Finishes" paragraph below or revise to suit Project. Verify availability with manufacturers.

* + - * 1. Aluminum Finishes: [**Clear anodic**] [**Color anodic**] [**Baked enamel or powder coat**] [**High performance, organic**] <**Insert finish**>.

Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**] <**Insert color**>.

Revise "Stainless Steel Finishes" paragraph below for other finishes; No. 4 finish is directional; Nos. 7 and 8 are mirrorlike. Verify availability with manufacturers.

* + - * 1. Stainless Steel Finishes: [**Directional satin finish**] [**Reflective, directional polish**] [**Mirrorlike reflective, nondirectional polish**] <**Insert finish**>.

Buffed finish in "Copper-Alloy Finishes" paragraph below is mirrorlike. Copper-alloy finish includes bronze and muntz metal finishes.

* + - * 1. Copper-Alloy Finishes: [**Buffed finish**] [**Medium-satin finish**] <**Insert finish**>.
      1. MATERIALS

Retain materials in this article if required for fabrication or installation; revise article for custom installations.

* + - * 1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

Extruded Bars, Rods, Profiles, and Tubes: ASTM B221.

Sheet and Plate: ASTM B209.

Type 304 stainless steel in "Stainless Steel Sheet" paragraph below is most commonly used stainless steel alloy; Type 316 provides greater corrosion resistance; verify availability with manufacturers.

* + - * 1. Stainless Steel Sheet: ASTM A240, austenitic stainless steel, [**Type 304**] [**Type 316**].
        2. Plate, Sheet, Strip, and Bars; Bronze: ASTM B36, alloy UNS No. C28000 (muntz metal, 60 percent copper).
        3. Steel: ASTM A36 plate, shapes, and bars; or ASTM A1008 sheet.
        4. Fasteners: Manufacturer's standard, of same basic metal as fastened metal, unless otherwise indicated.
        5. Weather Stripping: Heavy-duty, single-piece rubber or combination of rubber and felt.
        6. Nonshrink, Nonmetallic Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout; complying with ASTM C1107; of consistency suitable for application.
        7. Corrosion-Resistant Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
      1. ALUMINUM FINISHES

If retaining more than one finish in paragraphs below, indicate location of each on Drawings or by inserts. Revise mechanical finish if custom anodized finish is required and availability is verified.

* + - * 1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
        2. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

"Baked-Enamel or Powder-Coat Finish" paragraph below references AAMA standard for pigmented organic coating on extrusions and panels.

* + - * 1. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

If specific products are required, name coating manufacturers and products.

* + - * 1. High-Performance Organic Finish: [**Two-coat**] [**Three-coat**] [**Four-coat**] fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
      1. STAINLESS STEEL FINISHES
         1. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

Directional Satin Finish: No. 4.

Reflective, Directional Polish: No. 7.

Mirrorlike Reflective, Nondirectional Polish: No. 8.

* + - 1. COPPER-ALLOY FINISHES

Many manufacturers do not publish data indicating compliance with "Buffed Finish" or "Medium-Satin Finish" paragraphs below. Confirm with manufacturers before revising.

* + - * 1. Buffed Finish: M21 (Mechanical Finish: Buffed, smooth specular).
        2. Medium-Satin Finish: M32 (Mechanical Finish: Directionally textured, medium satin).

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION
          1. Install revolving door entrances in accordance with manufacturer's written instructions and ANSI/BHMA A156.27, including signage, controls, wiring, and connections to building power supply.

Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight. Do not install damaged components.

Where aluminum contacts dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

Where aluminum contacts concrete or masonry, protect against corrosion by painting contact surfaces with corrosion-resistant coatings.

Retain "Recessed, Floor-Mounted Speed-Control Unit" or "Overhead-Mounted (Speed-Control Unit) (Drive Unit)" paragraph below. First paragraph is for manual revolving door entrances only.

* + - * 1. Recessed, Floor-Mounted Speed-Control Unit: Insert control unit in rough-in floor opening set on level bed of nonshrink, nonmetallic grout. Fill annular space between control unit and sides of recess with nonshrink, nonmetallic grout. Mix and place grout to comply with grout manufacturer's written instructions.
        2. Overhead-Mounted [**Speed-Control Unit**] [**Drive 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.

Retain first paragraph below for automatic and automatic access-control revolving door entrances.

* + - * 1. Connect drive unit to electrical power-distribution system.
        2. Install revolving door entrances plumb and true, without warp or rack of framing members and wings. Anchor securely in place.

Retain first subparagraph below for field-installed hardware items. Indicate mounting heights on Drawings.

Install surface-mounted hardware using concealed fasteners to greatest extent possible.

Install components to drain water-passing joints, condensation occurring within framing members, and moisture migrating within the assembly to exterior.

Cut and trim framing during installation only with approval of manufacturer.

Restore finish and remove and replace members, as directed, where cutting and trimming have impaired strength or appearance.

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.

Retain "Activation and Safety Devices" paragraph below for automatic and automatic access-control revolving door entrances.

* + - * 1. Activation and Safety Devices: Adjust devices to provide detection field and functions in compliance with ANSI/BHMA A156.27.
        2. Sealants: Comply with requirements specified in Section 079200 "Joint Sealants" to provide weathertight installation.

Set continuous sill members and flashings in full sealant bed.

Seal perimeter of framing members with sealant.

* + - * 1. Signage: Apply signage as required by ANSI/BHMA A156.27.
      1. FIELD QUALITY CONTROL

Retain "Certified Inspector" and "Perform the following tests and inspections" paragraphs below to identify who shall perform tests and inspections. Retain "Field quality-control reports" paragraph in "Informational Submittals" Article.

* + - * 1. Certified Inspector: Engage a Certified Inspector to test and inspect components, assemblies, and installations, including connections.

Retain "Perform the following tests and inspections" paragraph below to require Contractor to perform tests and inspections.

* + - * 1. Perform the following tests and inspections[**with the assistance of a Company Service Advisor**]:

Test and inspect each revolving door entrance, using AAADM inspection forms, to determine compliance of installed systems with applicable BHMA standards.

* + - * 1. Revolving door entrances will be considered defective if they do not pass tests and inspections.
        2. Prepare test and inspection reports.
      1. ADJUSTING
         1. 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.

Lubricate operating hardware and other moving parts.

Adjust [**speed-control unit**] [**drive unit speed regulator**] for rpm no greater than maximum allowable rpm, as specified in ANSI/BHMA A156.27.

Adjust pressure for collapse of wings for specified breakaway force.

* + - * 1. Readjust wings and [**speed-control unit**] [**drive unit speed regulator**] after three days' use by normal traffic. Lubricate hardware and other moving parts.
      1. CLEANING AND PROTECTION
         1. Clean glass and metal surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish.

Comply with requirements in Section 088000 "Glazing" for cleaning and maintaining glass.

* + - * 1. Limit construction traffic during remainder of construction period.
      1. MAINTENANCE SERVICE

Verify with Director’s Representative that maintenance service is required for Project. Revise starting date if required.

* + - * 1. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include [**three**] [**six**] [**nine**] [**12**] months' full maintenance by [**skilled employees of revolving door entrance Installer**] [**manufacturer's authorized service representative**]. Include [**monthly**] [**quarterly**] preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

Retain "Continuing Maintenance Proposal" paragraph below to suit Project. Revise starting date if required. Consider retaining as an Alternate if Director’s Representative wishes to compare cost of continuing maintenance agreement provided by revolving door entrance Installer to price of continuing maintenance agreement provided by others.

* + - * 1. Continuing Maintenance Proposal: From Installer to Director’s Representative, in the form of a standard yearly maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

Engage a Certified Inspector to perform safety inspection after each adjustment or repair and at end of maintenance period. Furnish completed inspection reports to Director’s Representative.

Retain one of two subparagraphs below.

Perform maintenance, including emergency callback service, during normal working hours.

Include 24-hour-per-day, seven-day-per-week emergency callback service.

* + - 1. DEMONSTRATION
         1. Engage a Company Service Advisor to train Facility maintenance personnel to adjust, operate, and maintain revolving door entrances.

END OF SECTION 084233