SECTION 08 42 33

REVOLVING DOORS

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\*\* NOTE TO SPECIFIER \*\* ASSA ABLOY Entrance Systems; automatic revolving doors.  
.  
This section is based on the products of ASSA ABLOY Entrance Systems, which is located at:1900 Airport Rd.Monroe, NC 28110Toll Free Tel: 877-SPEC-123 Fax: 704-290-5555Email: [request info (specdesk@besam-usa.com)](https://arcat.com/rfi?action=email&company=ASSA%252BABLOY%252BEntrance%252BSystems&message=RE%253A%2520Spec%2520Question%2520(08470bes)%253A%2520&coid=30906&spec=08470bes&rep=&fax=704-290-5555)  
Web: <https://www.assaabloyentrance.com/us/en/solutions/products/automatic-doors>   
 [ [Click Here](https://arcat.com/company/assa-abloy-entrance-systems-30906) ] for additional information.  
ASSA ABLOY Entrance Systems is the world's most comprehensive supplier of entrance automation solutions. We take an integrative approach to the flow of people and goods, creating solutions with the best possible balance of cost, quality and lifetime performance.  
At our disposal is a strong portfolio of well-established brands that have been the market leaders in their fields for decades to form a complete offering for the front, back and interior of your building.  
For pedestrian door solutions, look to the ASSA ABLOY Entrance Systems brand for a complete line of automatic sliding, swing, revolving and manual ICU/CCU doors. Contact the ASSA ABLOY Entrance Systems architectural SpecDesk for assistance with plan review, spec development, code clarification and CEU programs. Our team also provides nationwide installation as well as service of all brands of automatic doors, planned maintenance contracts and AAADM inspections.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Revolving doors of the following types:
       1. 2 wing revolving doors. (UniTurn)
       2. 3 wing revolving doors. (RD3L)
       3. 3 wing revolving doors. (RD Series)
       4. 4 wing revolving doors. (RD Series)
       5. Access control 3 wing revolving doors. (Model RD3A1)
       6. Access control 4 wing revolving doors. (RD4A Series)
       7. Manual 4 wing revolving doors. (Model RD4M)
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 91 26 - Joint Fillers.
    2. Section 08 41 23 - Steel-Framed Entrances and Storefronts.
    3. Section 08 70 00 - Hardware.
    4. Section 08 83 13 - Mirrored Glass Glazing.
    5. Division 16 - Electrical.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Architectural Manufacturers Association (AAMA).
    2. American Association of Automatic Door Manufacturers (AAADM).
    3. American National Standards Institute (ANSI):
       1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
       2. ANSI Z97.1 - Safety Glazing Material Used in Buildings.
       3. ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
    4. German Institute for Standardization (DIN): DIN 18650 Automatic Door Standard.
    5. National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual for Architectural Metal Products.
    6. National Fire Protection Association (NFPA):
       1. NFPA 70 - National Electrical Code.
       2. NFPA 101 - Life Safety Code.
    7. Underwriters Laboratories Inc. (UL).
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data: Submit manufacturer's product data sheets, including installation details, material descriptions, dimensions of individual components and profiles, fabrication, operational descriptions and finishes:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections and details, indicating dimensions, materials, and fabrication of doors, enclosure wall, canopy, operator, activation sensors, safety sensors, anchors, hardware, finish, options and accessories.
     4. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.
     5. Test Reports: Submit certified test reports from UL, cUL, and ICBO indicating doors comply with specified performance requirements.
     6. Manufacturer's Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA 156.27 after completion of installation.
     7. Operation and Maintenance Manual: Submit manufacturer's operation and maintenance manual. Include spare parts list.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if selections have already been made.

* + 1. Selection Samples: Submit two sets of samples showing manufacturer's standard range of available finishes.
    2. Verification Samples: For each product specified, two samples, representing finishes to be installed.

\*\* NOTE TO SPECIFIER \*\* Informational submittals for LEED projects. Delete if not required.

* + 1. LEED Submittals: Manufacturer's product information and applicable sustainability program credits that are available to contribute towards a LEED rated project certification.
       1. Credit MR 4.1 and 4.2: Manufacturer's or fabricator's certificate indicating percentage of post-consumer recycled content by weight and pre-consumer recycled content by weight for each product specified under this section.
  1. QUALITY ASSURANCE
     1. Manufacturer's Qualifications:
        1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 5 years successful experience.

\*\* NOTE TO SPECIFIER \*\* Does not apply to manual door applications. Delete if not required.

* + - 1. Member: American Association of Automatic Door Manufacturers (AAADM).
    1. Installer's Qualifications:
       1. Minimum of 3 years successful experience in installation of similar doors.
       2. Local certified ASSA ABLOY Entrance Systems distributor.

\*\* NOTE TO SPECIFIER \*\* Does not apply to manual door applications. Delete if not required.

* + - 1. Certification: American Association of Automatic Door Manufacturers (AAADM) certified.

\*\* NOTE TO SPECIFIER \*\* Conditions of warranty may be contingent on approval. Delete if not required.

* + - 1. Approved by manufacturer.
    1. Single Source Requirements: To the greatest extent possible provide products specified in this section from a single manufacturer.
  1. DELIVERY, STORAGE, AND HANDLING
     1. Delivery: Deliver materials to site protected from damage.
     2. Storage: Store materials in clean, dry area indoors in manufacturer's unopened packaging until ready for installation and in accordance with manufacturer's instructions.
     3. Handling: Protect materials and finish from damage during handling and installation.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
  3. MAINTENANCE SERVICE
     1. The manufacturer shall offer a dispatch procedure that shall be available 24 hours per day, 365 days per year to facilitate proper service capability.
        1. A manufacturer's designated service contact shall obtain malfunction information and dispatch appropriate service provider to project location.
        2. Toll free phone number, 1-877-237-2687, shall be prominently displayed on header of each operator.
        3. A geographically assigned installation provider shall be trained and certified to provide maintenance service.
  4. COORDINATION AND SCHEDULING
     1. Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
        1. Coordinate sizes and locations of recesses in concrete if applicable.
     2. Field Measurements: Verify actual dimensions of openings to receive revolving door entrances by field measurements before fabrication and indicate on shop drawings.
  5. WARRANTY
     1. Warranty: Provide manufacturer's standard warranty against defects in materials and workmanship. Warranty shall be one year from date of installation.
        1. Warranty Period: 1 year.
        2. During the warranty period a factory-trained technician shall perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: ASSA ABLOY Entrance Systems, which is located at:1900 Airport Rd.Monroe, NC 28110Toll Free Tel: 877-SPEC-123 Fax: 704-290-5555Email: [request info (specdesk@besam-usa.com)](https://arcat.com/rfi?action=email&company=ASSA%252BABLOY%252BEntrance%252BSystems&message=RE%253A%2520Spec%2520Question%2520(08470bes)%253A%2520&coid=30906&spec=08470bes&rep=&fax=704-290-5555);Web: <https://www.assaabloyentrance.com/us/en/solutions/products/automatic-doors>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Besam UniTurn 2-wing revolving doors have drastically changed the industry's approach to revolving door automation. UniTurn welcomes people into a building with an inviting entryway. By eliminating a need for a center shaft, we've been able to create a much larger door compartment area than traditional revolving doors. The increased space is capable of accommodating shopping and luggage carts, wheelchairs, stretchers and even crowds with ease - up to 5,880 people per hour. Our UniTurn is the safest revolving door in the world, ideal for high-traffic entrances. Besam's two-wing design securely seals the entrance when the unit is closed eliminating the need for costly additional security doors. Delete if not required.

* 1. 2 WING REVOLVING DOORS (UNITURN)
     1. 2 Wing Revolving Doors: UniTurn Series two wing, automatic revolving door entrances as manufactured by ASSA ABLOY Entrance Systems.
        1. Entrances: Provide aluminum framed revolving doors, enclosure walls and canopy; equipped with overhead concealed electro-mechanical, microprocessor controlled, revolving door control system.
        2. Rotation: Counterclockwise.
        3. Emergency Breakaway Capability: Full breakout capability.
        4. Mounting: Fixed to finished floor surface. Floor preparation and finishing work can be completed before installation. No bearings or fittings below floor level are required.

\*\* NOTE TO SPECIFIER \*\* Custom heights are available. Fill in blank below or delete line as applicable. Delete heights not required.

* + - 1. Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Height: Custom, as indicated on Drawings.
      3. Height: Standard, 8 ft 4 inches (2540 mm).

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 12 feet.
         1. Outside Diameter: 12 feet 1-1/4 inches (3589 mm).
      3. Nominal Inside Diameter: 14 feet.
         1. Outside Diameter: 14 feet 7/8 inches (4289 mm).
      4. Nominal Inside Diameter: 16 feet.
         1. Outside Diameter: 16 feet 1/2 inches (4889 mm).
      5. Nominal Inside Diameter: 18 feet.
         1. Outside Diameter: 17 feet 15/16 inch (5206 mm).
      6. Power Supply: 208-230V, 20amp, 60 Hz.
      7. Slow Speed Push Plates: Revolving door shall include 2 handicapped "push to slow" push plates. When the push plate is pressed, the rotation speed will be reduced.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing: Metal-wrapped wood substrate or other metal-wrapped material substrates shall not be acceptable. Segmented walls and canopy shall not be acceptable.
          1. Aluminum Extrusions: Minimum wall thickness of .125 inches (3.2 mm).
          2. Framing for Enclosure Walls and Canopy: Formed to radius.
          3. Internal Structural Support: I-beam construction. A minimum of 8 vertical structural posts shall be provided.
          4. Outside Diameter of Enclosure Walls: Fixed.
       2. Rotating Wings: Aluminum extrusion, 2-wing configuration.
       3. Emergency Egress: Door wings shall be electro-mechanically locked in position; released upon fire alarm input or loss of power. Upon release of electro-mechanical locking device, to provide a clear and unimpeded evacuation path.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for automatic swing door and sliding door specifications, including minimum clear width of openings for various model sizes. Delete center door option not required.

* + - * 1. Center Doors: As indicated on Drawings.
        2. Center Doors: 1 pair of double acting manually operated swing doors across center of opening.
        3. Center Doors: 1 pair of double acting power operated swing doors across center of opening.
        4. Center Doors: Sliding door feature, 1 pair of bi-parting power operated sliding doors across center of opening; provides capability to use entrance as a sliding door entrance when weather conditions are favorable. Provide remote activation switch for sliding door operation.
      1. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
      2. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated.
         1. The roof structure of the canopy shall be covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.
         2. Center panels must be removable and serve as access hatches.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Delete roofs not required.

* + - * 1. Roof: Custom, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.
      1. Rotating Ceiling: 5/8 inch (16 mm) laminate faced insulation board.
      2. Ceiling Lights: Quartz halogen flush mounted ceiling light fixtures in quantity as indicated. Light activation control via the program selection switch or from optional remote location. 203-220VAC, AC light fixtures shall not be acceptable.

\*\* NOTE TO SPECIFIER \*\* 10 light fixtures for a 12 ft and 14 ft diameter revolving door entrance. 12 light fixtures for a 16 ft and 18 ft diameter revolving door entrance. Delete options for roofs not required.

* + - * 1. Fixtures per Entrance: 12.
        2. Fixtures per Entrance: 10.
      1. Glass: Glazing shall comply with ANSI Z97.1, thickness as indicated.
         1. Rotating section and double acting swing doors shall be 1/4 inch (6 mm) clear laminated glass.
         2. Curved walls and curved rotating doors shall be 7/16 inch (11 mm) clear laminated glass formed to the required radius to assure a weather seal throughout enclosure.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for heater options and details. Fill in blank below or delete line as applicable. Delete options for heaters if not required.

* + - 1. Heaters: Custom, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
      2. Heaters: Custom, as indicated on Drawings.
      3. Heaters: None, standard.
    1. Operators: Single 208-230VAC, 60HZ line.
       1. Controls: Microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       2. Drive Assembly: Perimeter-drive assembly with two 1/4 HP DC motors firmly attached to the internal rotating structural framing system. Motor drive wheels shall rotate on a fixed ring, and move ceiling and rotating wing assembly uniformly.
          1. Positive braking and stopping shall be performed by 2 magnetic disc brake and wheel assemblies.
          2. Doors with center shaft or centrally AC motor driven gear/chain/belt mechanisms will not be acceptable.
    2. Activation and Safety Control Devices:
       1. Activation Units: Concealed in the fixed ceiling area directly above throat opening.
          1. Activation: By manufacturer's standard flush-mounted concealed motion sensors. Activation units shall be solid state infrared technology.

Two activation units per throat opening.

Surface mounted motion detectors shall not be acceptable.

* + - * 1. Automatic Operation: Signal from activation device activates unit and revolves door for one turn. The unit shall then return to the closed position with the perimeter display wings closing the throat openings to the enclosure.
      1. Safety Control Devices:
         1. Primary or Secondary Safety Devices: Located vertically on outer edge of rotating wing, horizontally on the wing panels, vertically at the entrances.
         2. Devices shall include touchless, zone supervised Photocell Direct Reflection (PDR) and compressible safety switches.

Vertical Safety Sensors:

2 no-touch PDR sensors covering the area immediately adjacent to the enclosure wall leading edges and must include zone-supervision. Activation of the Photocell Direct Reflection (PDR) within the programmed safety zone shall cause the door to stop.

2 no-touch rotating Photocell Direct Reflection (PDR) sensors placed on the leading edges of the rotating wings. Activation shall cause the door to stop.

2 compressible safety switches on the leading edges of the rotating wings. Activation shall cause the door to stop.

Horizontal Safety Sensors:

4 no-touch infrared sensors placed in the ceiling covering the rotating door panel. Activation of the safety sensors caused by an object being detected within 3 to 4 inches (75-100 mm) from the surface of the wing panel shall cause the door to stop rotation. Door will resume normal speed when the object is removed.

4 compressible safety switches shall be placed on the bottom edge of the wing panels. Activation shall cause the door to stop.

Emergency Stop: The revolving door shall include an emergency stop push button on the curved enclosure per ANSI/BHMA A156.27. When the button is pressed, the rotation shall stop.

* + - 1. Micro-Processor Control Unit (MCU): Supervision of all systems must be performed by the Micro-Processor Control Unit (MCU) by conducting "self-monitoring" continuously. Malfunction of any device shall cause the door to stop and the error code shall be indicated on diagnostic display of Micro-Processor Control Unit MCU.
         1. Loss of power or fire alarm input shall be monitored by the MCU and its emergency battery unit. Activation of the emergency battery unit shall cause the revolving door to rotate to the emergency position.
         2. Doors that do not rotate to the emergency position during a power failure will not be acceptable.
         3. Doors without the "self monitoring function" will be considered unsafe and will not be acceptable.
    1. Hardware:
       1. Locking System:
          1. Revolving door will automatically cycle and rest in full closed and lock position when selector switch is placed in position 1. Locking system utilizes magnetic brakes and motor drive units; controlled by (MCU) Master Control Unit.

The electro-mechanical lock must be completely automatic and must be controlled by the MCU through the selector switch.

* + - * 1. 2 rotating brakes shall provide instantaneous braking of the revolving door.

\*\* NOTE TO SPECIFIER \*\* Delete dead bolt if not required.

* + - * 1. Dead Bolt: Electro-mechanical lock shall set a hardened 1/2 diameter dead bolt between fixed wall structure and rotating door sections of revolving door.
      1. Program Control Device (PCD):
         1. Provide 1 program control device (PCD) on the interior left vertical jamb of the curved wall. PCD shall provide 8 function capability including locked in closed position, entry/exit with start from closed position, entry/exit with start from open position, continuous rotation, exit only with start from open position, exit only with start from closed position, manual operation/forward, manual operation/reverse and summer position.
         2. The PCD utilizes entry code access and does not require key operation during normal use of the door system.
         3. The PCD incorporates a circular buffer memory that records the last 600 operational events of the door system and uses visual displays to notify the user when planned maintenance should be performed, if the real time clock and climate control systems are activated and if manual key lockout is in effect.
         4. Real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.
         5. The PCD can also accommodate remote diagnostics via an optional modem and client supplied telephone/data line.

\*\* NOTE TO SPECIFIER \*\* The Besam RD3L creates a spacious and welcoming entrance that can accommodate shopping carts, luggage rolling bags and wheelchairs with ease. The full rotating ceiling ensures even lighting and eliminates brush marks. With large convenient compartment areas, the Besam RD3L is an ideal solution for entrances with continuous, high-volume pedestrian traffic. Hidden sensors allow for an uncluttered presentation and clean lines throughout. The RD3L's patented drive mechanism is located in the periphery of the drum, reducing stress on the drive itself and resulting in lower maintenance costs. Delete if not required.

* 1. 3 WING REVOLVING DOORS (RD3L)
     1. 3 Wing Revolving Doors: RD3L three wing, automatic revolving door entrances as manufactured by ASSA ABLOY Entrance Systems.
        1. Entrances: Provide aluminum framed, overhead concealed electro-mechanical, microprocessor controlled, revolving door control system. Center shaft revolving door entrance with aluminum framed doors, enclosure walls and canopy.
        2. Rotation: Counterclockwise.
        3. Emergency Breakaway Capability: Full breakout capability. Door panels shall breakout in the direction of egress.
        4. Mounting: Fixed to finished floor surface. Floor preparation and finishing work can be completed before installation. No bearings or fittings below floor level are required.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 13 inches - 49 inches. Fill in blank below or delete line as applicable. Delete fascia heights not required.

* + - 1. Fascia Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Fascia Height: Custom, as indicated on Drawings.
      3. Fascia Height: Standard, 13-3/8 inches (340 mm).

\*\* NOTE TO SPECIFIER \*\* Delete fascia type not required.

* + - 1. Fascia Type: As indicated on Drawings.
      2. Fascia Type: Standard, non-insulated.
      3. Fascia Type: Insulated.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 78 inches - 102 inches. Fill in blank below or delete line as applicable. Delete diameters not required.

* + - 1. Internal Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Internal Height: Custom, as indicated on Drawings.
      3. Internal Height: Standard, 7 ft 2-5/8 inches (2200 mm).

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 14 feet.
      3. Nominal Inside Diameter: 16 feet.
      4. Nominal Inside Diameter: 18 feet.
      5. Nominal Inside Diameter: 20 feet.
      6. Compliance and Approvals:
         1. CE marked Complies with the Machinery Directive (98/37/EC).
         2. Low Voltage Directive (2006/95/EC).
         3. Electromagnetic Compatibility Directive (2004/108/EC).
         4. Meets the requirements according to DIN 18650.
      7. Slow Speed Push Plates: Revolving door shall include 2 "push to slow" push plates. When the push plate is pressed, the rotation speed will be reduced.

\*\* NOTE TO SPECIFIER \*\* Optional night closing door provides an elegant solution for optimum security. Delete optional night closing door feature if not required.

* + - 1. Night Closing Door (NCD): Provide optional night-closing door.

\*\* NOTE TO SPECIFIER \*\* Delete door type not required.

* + - * 1. Door Type: As indicated on Drawings.
        2. Door Type: Bi-parting manual slide door.
        3. Door Type: Single slide manual slide door.
        4. In emergency situations, door wings are released immediately and then folded to allow for emergency egress.
        5. When in the open position, the night closing door's one-door-leaf solution fits securely and close to the outer wall sections without obstructing traffic, and parks safely on the opposite side to closing mullion. Door can be slid closed, sealing off the entrance for security at night or after business hours.

\*\* NOTE TO SPECIFIER \*\* Delete optional air curtain if not required.

* + - 1. Air Curtain: Provide optional air curtain as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
      1. Power supply: 200-240 V, 50-60 Hz.
      2. Main Fuse: 10 A.
      3. Power Consumption:
         1. Drive Unit: 600 W.
         2. Spotlights: 500 W.
         3. Downlights: 300 W.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing: Segmented walls and canopy shall not be acceptable. Metal-wrapped wood substrate or other metal-wrapped material substrates shall not be acceptable.
          1. Slim line aluminum extrusions; minimum wall thickness of 0.125 inches (3 mm).
          2. Framing For The Enclosure Walls And Canopy: Formed to the required radius.
          3. Internal Structural Support: .0.125 inch (3.2 mm) slim line aluminum.
          4. Outside Diameter of Enclosure Walls: Fixed.
       2. Rotating Wings: Aluminum extrusion, three wing configuration.
       3. Center Post: Slim profile design, extruded aluminum in finish to match door wings.
       4. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
       5. Emergency Escape Doors: In rotating wing sections.
          1. 3 Double Acting Swing Doors:

Door wings shall have electro-magnetic locking that holds the door panels in a closed position.

Electro-magnetic locking device to be located at the leading edge of each door wing to provide positive, secure latching of door wings.

* + - 1. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated
         1. Roof Structure: 5/8 inch (16 mm) inch laminated wood covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.
         2. Panels must be removable and serve as access hatches.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Structural roof options available as well. Delete roofs not required.

* + - * 1. Roof: Custom roof, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom roof, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete rotating ceiling materials not required.

* + - 1. Rotating Ceiling Materials: As indicated on Drawings.
      2. Rotating Ceiling Materials: 5/8 inch (16 mm) laminate faced insulation board.
      3. Rotating Ceiling Materials: Aluminum clad insulation board.
      4. Ceiling Lights: Quartz halogen flush mounted ceiling light fixtures in quantity as indicated. Light activation control via the program selection switch or from optional remote location. 203-220VAC, AC light fixtures shall not be acceptable.
         1. Three Wing: 6 light fixtures.
      5. Glass: Glazing shall comply with ANSI Z97.1, thickness as indicated.
         1. Rotating section and double acting swing doors shall be 1/4 inch (6 mm) clear laminated glass.
         2. Curved walls and curved rotating doors shall be 7/16 inch (11 mm) clear laminated glass formed to the required radius to assure a weather seal throughout enclosure.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.
    1. Operators: Rotation speed adjustment.
       1. Operating Modes: Program selector operated by access code.
          1. Autostart.
          2. Continuous rotation on low speed.
          3. Automatic start-up to high speed when impulse is activated.
          4. Manual override, forward or reverse.
          5. Closed (locked).
          6. Summer position.
       2. Controls: Must be microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       3. Drive Assembly must be perimeter-drive assembly with two 1/4 HP DC motors firmly attached to the internal rotating structural framing system. Motor drive wheels shall rotate on a fixed ring, and move ceiling and rotating wing assembly uniformly.
          1. Motors: With internal brake mechanism that gradually slows the revolving door.
          2. Doors: With center shaft or centrally AC motor driven gear/chain/belt mechanisms will not be acceptable.
       4. Emergency Braking System: Instantaneous, electro-mechanical self adjusting brake.
       5. Power Requirements: Single 208-220VAC, 20 Amp, 60HZ line.
    2. Activation and Safety Control Devices:
       1. Activation Devices: Solid state infrared technology.
          1. Activation: Revolving door shall be activated by manufacturer's standard flush-mounted concealed motion sensors..
          2. Activation Units: Concealed in the fixed ceiling area directly above throat opening.

2 activation units per throat opening.

Surface mounted motion detectors shall not be acceptable.

* + - * 1. Automatic Operation: Signal from activation device activates unit and revolves door for one turn, and then returns door wings to third-point position.
      1. Safety Control Devices:
         1. Primary and Secondary Safety Devices: Located vertically on the outer edge of the rotating wing, horizontally on the wing panels, vertically at the entrances. Devices shall include touchless, Photocell Direct Reflection (PDR) and compressible safety switches.

Vertical Safety Sensors:

No-touch Photocell Direct Reflection (PDR) sensor recessed mounted in the fixed ceiling ring at the right side of each door opening. Activation shall cause the door to stop.

Compressible safety switches on the leading edge of each door wing. Activation shall cause the door to stop.

Horizontal Safety Sensors:

2 no-touch sensors located at the top of each door wing. Activation of outer sensor shall cause the door to stop, activation of the inner sensor shall slow the door to 0.5 rpm.

Compressible safety switches placed on the bottom edge of the trailing wing panels in each compartment. Activation shall cause the door to stop.

Other Safety Sensing Devices: Force-sensitive door leaves automatically stop the door rotation upon activation.

Emergency Stop: The revolving door shall include 1 emergency stop push button. When the button is pressed, the rotation shall stop.

Slow Speed Push Plates: The revolving door shall include 2 handicapped "push to slow" push plates. When the push plate is pressed, the rotation speed will be reduced.

* + - 1. Emergency Operation: Loss of power and fire alarm input will initiate release of electro-magnetic lock allowing for door panels to be manually pushed to emergency egress position.
      2. Control System: Supervision of all systems must be performed by the micro-Processor control system by conducting continuous "self-monitoring". Malfunction of any device shall cause the door to stop and the error code shall be indicated on the diagnostic display.
         1. Doors without the "self monitoring function" will be considered unsafe and will not be acceptable.
    1. Hardware:
       1. Locking System:
          1. The revolving door will automatically cycle and rest in the full closed and locked position when the selector switch is placed in the "off" position.
          2. Locking of the revolving door entrance is by an internal electro-mechanical.

The electro-mechanical lock must be completely automatic and must be controlled through the selector switch.

\*\* NOTE TO SPECIFIER \*\* Delete additional/optional mechanical locking if not required.

* + - * 1. Mechanical Locking: Provide capability to lock doors with 2 manual keyed deadbolts; provide dust proof floor strike.

Location: Extend bolt from bottom of door wing into floor.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

Keyed Cylinders: As indicated on Drawings.

Keyed Cylinders: Manufacturer's standard keyed cylinder.

Keyed Cylinders: As specified in Division 8.

Keyed Cylinders: Custom, by others as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Night Closing Door: Lockable.
      1. Program Control Device (PCD):
         1. Provide one 1 program control device (PCD) on the interior vertical jamb of the curved wall. PCD shall provide 6 function capability including locked in closed position, entry/exit with activation by motion sensor, continuous rotation, manual override - forward and reverse, autostart, summer position.
         2. The PCD utilizes entry code access and does not require key operation during normal use of door system. PCD includes key switch for additional security.
         3. The buffer memory is a function of the microprocessor that records the last 600 operational events of the door system.
         4. The PCD provides visual displays to notify the user of operational codes, when planned maintenance should be performed, if the real time clock and climate control systems are activated and if manual key lockout is in effect.
         5. Real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.
         6. The PCD can also accommodate remote diagnostics via an optional modem and client supplied telephone/data line.

\*\* NOTE TO SPECIFIER \*\* The RD series 3-wing revolving door package provides space for wheeled traffic as well as excellent energy efficiency. Our three-wing revolving doors are a popular choice for facilities with a large, continuous traffic flow. The compact sizes are ideal for hotels, hospitals and office buildings while larger sizes are perfect for supermarkets, hospitals, hotels, airports, retail and office buildings. Delete if not required.

* 1. 3 WING REVOLVING DOORS (RD SERIES)
     1. 3 Wing Revolving Doors: RD Series as manufactured by ASSA ABLOY Entrance Systems.
        1. Entrances: Provide aluminum framed, overhead concealed electro-mechanical, microprocessor controlled, revolving door control system. Center shaft revolving door entrance with aluminum framed doors, enclosure walls and canopy.
        2. Rotation: Counterclockwise.
        3. Emergency Breakaway Capability: Double acting door panels shall breakout in direction of egress.
        4. Door Speed Reduction Switches: 2 per unit, to assist with wheelchair access.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 13 inches - 49 inches. Fill in blank below or delete line as applicable. Delete fascia heights not required.

* + - 1. Fascia Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Fascia Height: Custom, as indicated on Drawings.
      3. Fascia Height: Standard, 13-3/8 inches (340 mm).

\*\* NOTE TO SPECIFIER \*\* Delete fascia type not required.

* + - 1. Fascia Type: As indicated on Drawings.
      2. Fascia Type: Standard, non-insulated.
      3. Fascia Type: Insulated.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 78 inches - 102 inches. Fill in blank below or delete line as applicable. Delete diameters not required.

* + - 1. Internal Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Internal Height: Custom, as indicated on Drawings.
      3. Internal Height: Standard, 7 ft 2-5/8 inches (2200 mm).

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 8 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      3. Nominal Inside Diameter: 9 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      4. Nominal Inside Diameter: 10 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      5. Nominal Inside Diameter: 12 feet.
         1. Light Fixtures Per Unit: 8 light fixtures.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing:
          1. Extrusions: Slim line aluminum extrusions with a minimum wall thickness of 0.125 inches (3.2 mm).
          2. Framing for Enclosure Walls And Canopy: Formed to radius.
          3. Internal Structural Support: .0.125 inch (3.2 mm) slim line aluminum construction.
          4. Outside Diameter of Enclosure Walls: Fixed.
          5. Segmented walls and canopy shall not be acceptable.
          6. Metal-wrapped wood substrate or other metal-wrapped material substrates shall not be acceptable.
       2. Rotating Wings: Shall be of aluminum extrusion, 3 wing configuration.
       3. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
       4. Emergency Escape Doors: 3 double acting swing doors. Door wings shall have electro-magnetic locking that holds the door panels in a closed position.
       5. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated
          1. The roof structure of the canopy shall be 5/8 inch (16 mm) inch laminated wood covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Structural roof options available as well. Delete roofs not required.

* + - * 1. Roof: Custom roof, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom roof, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.
      1. Ceiling Lights shall be quartz halogen flush mounted ceiling light fixtures in quantity as indicated. Light activation control via the program selection switch or from optional remote location. (203-220VAC, AC light fixtures shall not be acceptable).
      2. Glass: Glazing shall comply with ANSI Z97.1, thickness as indicated.
         1. Rotating Section and Double Acting Swing Doors: 1/4 inch (6 mm) clear laminated glass.
         2. Curved Walls And Curved Rotating Doors: 7/16 inches (11 mm) clear laminated glass formed to radius.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.
    1. Operators:
       1. Controls: Must be microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       2. Drive Assembly: Worm gear reducer with one 1/4 HP DC permanent magnet motor. The drive assembly allows manual rotation, when there is no power to the motor for fail safe operation. Drive assembly shall not permit door speed to be over ridden beyond the set operational speed.
       3. Power Requirements: Single 208-220VAC, 20 Amp, 60HZ line.
    2. Activation And Safety Control Devices:
       1. Activation Units:
          1. Activation: Revolving door shall be activated by manufacturer's standard flush-mounted concealed motion sensors.
          2. Activation Units: Solid state infrared technology. Activation units shall be concealed in the fixed ceiling area directly above throat opening.
          3. Activation Unit Per Throat Opening:

1 unit per opening for units with diameter under 12 ft (3658 mm).

2 units per opening for units with diameter over 12 ft (3658 mm).

* + - * 1. Automatic Operation: Signal from activation device activates unit and revolves door for one turn, and then returns door wings to quarter-point position.
      1. Safety Control Devices:
         1. Primary and Secondary Safety Devices: Located vertically on the outer edge of the rotating wing, horizontally on the wing panels, vertically at the entrances.
         2. Safety Switches: Devices shall include touchless, Photocell Direct Reflection (PDR) and compressible safety switches.
         3. Vertical Safety Sensors:

2 no-touch Photocell Direct Reflection (PDR) sensors placed in the fixed ceiling ring at the right side of each door opening. Activation shall cause the door to stop.

2 compressible safety switches on the outer drum wall entrances. Activation shall cause the door to stop.

* + - * 1. Horizontal Safety Sensors:

2 no-touch sensors located at the top of each door wing. Activation shall cause the door to stop.

1 compressible safety switches shall be placed on the bottom edge of each of the wing panels. Activation shall cause the door to stop.

* + - * 1. Emergency Stop: The revolving door shall include 1 emergency stop push button. When the button is pressed, the rotation shall stop.
        2. Slow Speed Push Plates: The revolving door shall include 2 handicapped "push to slow" push plates. When the push plate is pressed, the rotation speed will be reduced.
      1. Emergency Operation: Loss of power or fire alarm input will initiate the release of the electro-magnetic lock allowing for the door panels to be manually pushed to the emergency egress position (book-fold position).
      2. Micro-Processor Control Unit (MCU): Supervision of all systems must be performed by the Micro-Processor Control Unit (MCU) by conducting "self-monitoring" continuously. Malfunction of device shall cause the door to stop and the error code shall be indicated on the diagnostic display of the Micro-Processor Control Unit MCU.
         1. Doors without the "self monitoring function" will be considered unsafe and will not be acceptable.
    1. Hardware:
       1. Locking System: The electro-mechanical lock must be completely automatic and must be controlled through the selector switch.
          1. The revolving door will automatically cycle and rest in the full closed and locked position when the selector switch is placed in the "off" position.
          2. Locking of the revolving door entrance is by an internal electro-mechanical.
       2. Program Control Device (PCD):
          1. Provide one 1 program control device (PCD) on the interior vertical jamb of the curved wall. PCD shall provide 6 function capability including locked in closed position, entry/exit with activation by motion sensor, continuous rotation, manual override - forward and reverse, autostart, summer position.
          2. The PCD utilizes entry code access and does not require key operation during normal use of door system. PCD includes key switch for additional security.
          3. The buffer memory is a function of the microprocessor that records the last 600 operational events of the door system.
          4. The PCD provides visual displays to notify the user of operational codes, that is when planned maintenance should be performed, if the real time clock and climate control systems are activated and if manual key lockout is in effect.
          5. Real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.
          6. The PCD can also accommodate remote diagnostics via an optional modem and client supplied telephone/data line.

\*\* NOTE TO SPECIFIER \*\* The RD series four-wing revolving door system is attractive and inviting in appearance, and allow for one group of people to enter and another to exit your facility simultaneously. Our four-wing revolving doors allow one group of people to enter, and another to exit your facility. Four-wing units are attractive and inviting in appearance, and allows one group of people to enter, and another to exit your facility simultaneously. And with this practical design, there are always two seals to provide an effective barrier against outside elements to provide climate control. Delete if not required.

* 1. 4 WING REVOLVING DOORS (RD SERIES)
     1. 4 Wing Revolving Doors: RD Series as manufactured by ASSA ABLOY Entrance Systems.
        1. Entrances: Provide aluminum framed, overhead concealed electro-mechanical, microprocessor controlled, revolving door control system. Center shaft revolving door entrance with aluminum framed doors, enclosure walls and canopy.
        2. Rotation: Counterclockwise.
        3. Emergency Breakaway Capability: Double acting door panels shall breakout in direction of egress.
        4. Door Speed Reduction Switches: 2 per unit, to assist with wheelchair access.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 13 inches - 49 inches. Fill in blank below or delete line as applicable. Delete fascia heights not required.

* + - 1. Fascia Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Fascia Height: Custom, as indicated on Drawings.
      3. Fascia Height: Standard, 13-3/8 inches (340 mm).

\*\* NOTE TO SPECIFIER \*\* Delete fascia type not required.

* + - 1. Fascia Type: As indicated on Drawings.
      2. Fascia Type: Standard, non-insulated.
      3. Fascia Type: Insulated.

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 78 inches - 102 inches. Fill in blank below or delete line as applicable. Delete diameters not required.

* + - 1. Internal Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Internal Height: Custom, as indicated on Drawings.
      3. Internal Height: Standard, 7 ft 2-5/8 inches (2200 mm).

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 8 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      3. Nominal Inside Diameter: 9 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      4. Nominal Inside Diameter: 10 feet.
         1. Light Fixtures Per Unit: 5 light fixtures.
      5. Nominal Inside Diameter: 12 feet.
         1. Light Fixtures Per Unit: 8 light fixtures.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing:
          1. Extrusions: Slim line aluminum extrusions with a minimum wall thickness of 0.125 inches (3.2 mm).
          2. Framing for Enclosure Walls And Canopy: Formed to radius.
          3. Internal Structural Support: .0.125 inch (3.2 mm) slim line aluminum construction.
          4. Outside Diameter of Enclosure Walls: Fixed.
          5. Segmented walls and canopy shall not be acceptable.
          6. Metal-wrapped wood substrate or other metal-wrapped material substrates shall not be acceptable.
       2. Rotating Wings: Shall be of aluminum extrusion, 4 wing configuration.
       3. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
       4. Emergency Escape Doors: In rotating wing sections. 4 double acting swing doors. Door wings shall have electro-magnetic locking that holds the door panels in a closed position.
       5. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated
          1. The roof structure of the canopy shall be 5/8 inch (16 mm) inch laminated wood covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Structural roof options available as well. Delete roofs not required.

* + - * 1. Roof: Custom roof, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom roof, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.
      1. Ceiling Lights shall be quartz halogen flush mounted ceiling light fixtures in quantity as indicated. Light activation control via the program selection switch or from optional remote location. (203-220VAC, AC light fixtures shall not be acceptable).
      2. Glass: Glazing shall comply with ANSI Z97.1, thickness as indicated.
         1. Rotating Section and Double Acting Swing Doors: 1/4 inch (6 mm) clear laminated glass.
         2. Curved Walls And Curved Rotating Doors: 7/16 inches (11 mm) clear laminated glass formed to radius.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.
    1. Operators:
       1. Controls: Must be microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       2. Drive Assembly: Worm gear reducer with one 1/4 HP DC permanent magnet motor. The drive assembly allows manual rotation, when there is no power to the motor for fail safe operation. Drive assembly shall not permit door speed to be over ridden beyond the set operational speed.
       3. Power Requirements: Single 208-220VAC, 20 Amp, 60HZ line.
    2. Activation And Safety Control Devices:
       1. Activation Units:
          1. Activation: Revolving door shall be activated by manufacturer's standard flush-mounted concealed motion sensors.
          2. Activation Units: Solid state infrared technology. Activation units shall be concealed in the fixed ceiling area directly above throat opening.
          3. Activation Unit Per Throat Opening:

1 unit per opening for units with diameter under 12 ft (3658 mm).

2 units per opening for units with diameter over 12 ft (3658 mm).

* + - * 1. Automatic Operation: Signal from activation device activates unit and revolves door for one turn, and then returns door wings to quarter-point position.
      1. Safety Control Devices:
         1. Primary and Secondary Safety Devices: Located vertically on the outer edge of the rotating wing, horizontally on the wing panels, vertically at the entrances.
         2. Safety Switches: Devices shall include touchless, Photocell Direct Reflection (PDR) and compressible safety switches.
         3. Vertical Safety Sensors:

2 no-touch Photocell Direct Reflection (PDR) sensors placed in the fixed ceiling ring at the right side of each door opening. Activation shall cause the door to stop.

2 compressible safety switches on the outer drum wall entrances. Activation shall cause the door to stop.

* + - * 1. Horizontal Safety Sensors:

2 no-touch sensors located at the top of each door wing. Activation shall cause the door to stop.

1 compressible safety switches shall be placed on the bottom edge of each of the wing panels. Activation shall cause the door to stop.

* + - * 1. Emergency Stop: The revolving door shall include 1 emergency stop push button. When the button is pressed, the rotation shall stop.
        2. Slow Speed Push Plates: The revolving door shall include 2 handicapped "push to slow" push plates. When the push plate is pressed, the rotation speed will be reduced.
      1. Emergency Operation: Loss of power or fire alarm input will initiate the release of the electro-magnetic lock allowing for the door panels to be manually pushed to the emergency egress position (book-fold position).
      2. Micro-Processor Control Unit (MCU): Supervision of all systems must be performed by the Micro-Processor Control Unit (MCU) by conducting "self-monitoring" continuously. Malfunction of device shall cause the door to stop and the error code shall be indicated on the diagnostic display of the Micro-Processor Control Unit MCU.
         1. Doors without the "self monitoring function" will be considered unsafe and will not be acceptable.
    1. Hardware:
       1. Locking System: The electro-mechanical lock must be completely automatic and must be controlled through the selector switch.
          1. The revolving door will automatically cycle and rest in the full closed and locked position when the selector switch is placed in the "off" position.
          2. Locking of the revolving door entrance is by an internal electro-mechanical.
       2. Program Control Device (PCD):
          1. Provide one 1 program control device (PCD) on the interior vertical jamb of the curved wall. PCD shall provide 6 function capability including locked in closed position, entry/exit with activation by motion sensor, continuous rotation, manual override - forward and reverse, autostart, summer position.
          2. The PCD utilizes entry code access and does not require key operation during normal use of door system. PCD includes key switch for additional security.
          3. The buffer memory is a function of the microprocessor that records the last 600 operational events of the door system.
          4. The PCD provides visual displays to notify the user of operational codes, that is when planned maintenance should be performed, if the real time clock and climate control systems are activated and if manual key lockout is in effect.
          5. Real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.
          6. The PCD can also accommodate remote diagnostics via an optional modem and client supplied telephone/data line.

\*\* NOTE TO SPECIFIER \*\* The RD3A1 3-wing access control revolving door systems offer fully automated entrance control for interior or exterior use. Delete if not required.

* 1. ACCESS CONTROL 3 WING REVOLVING DOORS (MODEL RD3A1)
     1. 3 Wing Revolving Doors: Besam Model RD3A1 as manufactured by ASSA ABLOY Entrance Systems.
        1. Model: Besam RD3A-1 one way access control, three wing revolving door entrances.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - 1. Operation: As indicated on Drawings.
      2. Operation: One-way access control operation; access controlled entry, free exit (one access control device required).
      3. Operation: One-way access control operation; no entry, access control exit (one access control device required).
      4. Entrances: Provide aluminum framed, overhead concealed electro-mechanical, microprocessor controlled, revolving door control system. Center shaft revolving door entrance with aluminum framed doors, enclosure walls and canopy.
      5. Rotation: Counterclockwise.
      6. Emergency Breakaway Capability: 3 or 4 double acting door panels shall breakout in direction of egress.
         1. Emergency Escape Doors: Door wings shall have electro-magnetic locking that holds the door panels in a closed position.
         2. Emergency Escape Doors: In rotating wing section.
      7. Door Speed Reduction Switches: 2 per unit, to assist with wheelchair access.

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 6 feet.
         1. Overall Diameter (OD): 74-1/4 inches (1888 mm).
         2. Throat Opening (TO): 47-1/4 inches (1191 mm).
      3. Nominal Inside Diameter: 7 feet.
         1. Overall Diameter (OD): 86-1/8 inches (2188 mm).
         2. Throat Opening (TO): 55-5/8 inches (1403 mm).
      4. Nominal Inside Diameter: 8 feet.
         1. Overall Diameter (OD): 98 inches (2488 mm).
         2. Throat Opening (TO): 64 inches (1615 mm).

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 78 inches - 102 inches. Fill in blank below or delete line as applicable. Delete diameters not required.

* + - 1. Internal Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Internal Height: Custom, as indicated on Drawings.
      3. Internal Height: Standard, 7 ft 2-5/8 inches (2200 mm).
      4. Overall Height: 7 ft 10-1/2 inch (2451 mm).
      5. Security-Type Operation: Activation of the revolving door entrance by access control device.

\*\* NOTE TO SPECIFIER \*\* Anti-tailgating logic recognizes unauthorized users attempting to gain access in either the quadrant behind, or in the direction opposite of an authorized user.

* + - 1. Anti-Tailgating: Standard, overhead sensors monitor passage of authorized users.
         1. Overhead sensor will detect an unauthorized user attempting passage in a separate quadrant as an authorized user enters. If an unauthorized user is detected, the door will stop revolving preventing entry of either user, a voice annunciator will announce "security violation", and the door will reverse backing the unauthorized user into the area that he came from. The door will then resume allowing the authorized user to enter.

\*\* NOTE TO SPECIFIER \*\* Optional night closing door provides an elegant solution for optimum security. Delete optional night closing door feature if not required.

* + - 1. Night Closing Door (NCD): Provide optional night-closing door.

\*\* NOTE TO SPECIFIER \*\* Delete door type not required.

* + - * 1. Door Type: As indicated on Drawings.
        2. Door Type: Manually operated.
        3. Door Type: Power operated.
        4. In emergency situations, door wings are released immediately and then folded to allow for emergency egress.
        5. When in the open position, the night closing door's one-door-leaf solution fits securely and close to the outer wall sections without obstructing traffic, and parks safely on the opposite side to closing mullion. Door can be slid closed, sealing off the entrance for security at night or after business hours.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
      1. Power supply: 208 - 240 V 50 - 60 Hz.
      2. Power Consumption: 200 W.
      3. Lighting: 12 V, 120 W.
      4. Mains Fuse: 10 A.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing: Segmented walls and canopy shall not be acceptable.
          1. Extrusions: Narrow stile aluminum extrusions with a minimum wall thickness of 0.125 inches (3.2 mm).
          2. Framing: For enclosure walls and canopy shall be formed to radius.
          3. Internal Structural: Support shall be of 0.125 inch (3.2 mm) inch narrow stile aluminum construction.
          4. Outside Diameter of Enclosure Walls: Fixed.
       2. Rotating Wings: Shall be of aluminum extrusion, 3-wing configuration.
       3. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
       4. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated
          1. Roof Structure: Shall be 5/8 inch (16 mm) inch laminated wood covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Structural roof options available as well. Delete roofs not required.

* + - * 1. Roof: Custom roof, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom roof, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.
      1. Ceiling Lights shall be flush mounted light fixtures in type and quantity as indicated. Light activation control via the program selection switch or from optional remote location. (203-220VAC, AC light fixtures shall not be acceptable).

\*\* NOTE TO SPECIFIER \*\* Retain item "1" if only anti-tailgating is specified. Retain item "2" if the Secure360 with both anti-tailgating and anti-piggy backing is specified. Delete if not required.

* + - * 1. Light Fixtures: As indicated on Drawings.
        2. Light Fixtures: 6 quartz halogen light fixtures.
        3. Light Fixtures: A combination of 6 total quartz halogen and compact florescent light fixtures.
      1. Glass: Glazing shall be thickness as indicated.
         1. Rotating section and double acting swing doors shall be 1/4 inch (6 mm) clear laminated glass.
         2. Curved walls shall be 7/16 inch (11 mm) clear laminated glass formed to the required radius to assure a weather seal throughout enclosure.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.
    1. Operators:
       1. Controls must be microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       2. Drive Assembly shall be worm gear reducer with one 1/4 HP DC permanent magnet motor. The drive assembly allows manual rotation, when there is no power to the motor for fail safe operation. Drive assembly shall not permit door speed to be over ridden beyond the set operational speed.
       3. Power Requirements: Single 208-220 VAC, 20 Amp, 60HZ line, and single 115-120 VAC, 50/60 Hz.
    2. Activation And Safety Control Devices:
       1. Activation Units: Refer to Program Control Device (PCD) for modes of operation not controlled by the access control devices.
          1. Revolving door shall be activated by access control devices allowing the following type of operation (access control devices by others):
          2. Automatic Operation: Signal from the access control device activates the unit and revolves the door up to one turn, and then returns door wings to quarter-point position.
       2. Safety Control Devices: Provide primary and secondary safety devices located vertically at the entrances and force-sensitive door leaves.
          1. Vertical Safety Sensors: 2 total compressible safety switches on outer drum wall entrances. Activation shall cause door to stop and reverse.
          2. Force-Sensitive Door Leaves: When an obstacle prohibits or slows rotation of the door, (at a value higher than the pre-set resistance of the door) rotation will stall and cease for 3 seconds. If no obstacle is detected after 3 seconds, the rotation of the door will resume.
          3. Emergency Stop: The revolving door shall include 1 emergency stop push button. When the button is pressed, the rotation shall stop.
       3. Emergency Operation: Loss of power or fire alarm input will initiate the release of the electro-magnetic lock allowing for the door panels to be manually pushed to the emergency egress position (book-fold position).
       4. Micro-processor Control Unit (MCU): Supervision of all systems must be performed by the Micro-processor Control Unit (MCU) by conducting "self-monitoring" continuously. Malfunction of any device shall cause the door to stop and error code shall be indicated on diagnostic display of the Micro-processor Control Unit MCU.
          1. Doors without "self monitoring function" will be considered unsafe and will not be acceptable.
    3. Hardware:
       1. Locking System: The electro-mechanical lock must be completely automatic and must be controlled through the selector switch.
          1. The revolving door will automatically cycle and rest in the full closed and locked position when the selector switch is placed in the "off" position
          2. Locking of the revolving door entrance is by an internal electro-mechanical lock.

\*\* NOTE TO SPECIFIER \*\* Delete additional/optional mechanical locking if not required.

* + - * 1. Mechanical Locking: Provide capability to lock doors with 2 manual keyed deadbolts; provide dust proof floor strike.

Location: Extend bolt from bottom of door wing into floor.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

Keyed Cylinders: As indicated on Drawings.

Keyed Cylinders: Manufacturer's standard keyed cylinder.

Keyed Cylinders: As specified in Division 8.

Keyed Cylinders: Custom, by others as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Night Closing Door: Lockable.
      1. Program Control Device (PCD):
         1. Provide 1 program control device (PCD) on the interior left vertical jamb of the curved wall. PCD shall provide 7 functions including locked in closed position, entry/exit with activation by access control device (one-way or two-way operation as specified), free entry/free exit, no entry/free exit, manual operation (forward/reverse).
         2. The PCD utilizes entry code access and does not require key operation during normal use of the door system.
         3. The buffer memory is a function of the microprocessor that records the last 600 operational events of the door system.
         4. The PCD provides visual displays to notify the user of operational codes.
         5. The real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.

\*\* NOTE TO SPECIFIER \*\* The RD4A four-wing access control revolving door systems offer fully automated entrance control for interior or exterior use. Incorporating all of the principle advantages of revolving door systems - such as barrier and draft-free access, noise reduction and energy efficiency - the RD4A-2 provides a level of control and flexibility that conventional doors simply cannot match. In addition, the RD4A-2 offers a cost-effective alternative to conventional monitoring systems and manned security stations; can be connected to compatible direct or remote access control systems. Incorporating all of the principle advantages of revolving door systems the RD4A-1 and RD4A-2 provide a level of control that conventional doors simply cannot match. In addition, both revolving doors are compatible with all types of access control systems. The RD4A can be connected to any access control system, direct or remote, such as key cards, code locks, biometrics, and voice recognition. Delete if not required.

* 1. ACCESS CONTROL 4 WING REVOLVING DOORS (RD4A SERIES)
     1. 4 Wing Revolving Doors: RD4A Series as manufactured by ASSA ABLOY Entrance Systems.

\*\* NOTE TO SPECIFIER \*\* Delete models not required.

* + - 1. Model: As indicated on Drawings.
      2. Model: Besam RD4A-1 one way access control, four wing revolving door entrances
      3. Model: Besam RD4A-2 two way access control, four wing revolving door entrances.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - 1. Operation: As indicated on Drawings.
      2. Operation: One-way access control operation; access controlled entry, free exit (one access control device required).
      3. Operation: One-way access control operation; no entry, access control exit (one access control device required).
      4. Entrances: Provide aluminum framed, overhead concealed electro-mechanical, microprocessor controlled, revolving door control system. Center shaft revolving door entrance with aluminum framed doors, enclosure walls and canopy.
      5. Rotation: Counterclockwise.
      6. Emergency Breakaway Capability: 3 or 4 double acting door panels shall breakout in direction of egress.
         1. Emergency Escape Doors: Door wings shall have electro-magnetic locking that holds the door panels in a closed position.
         2. Emergency Escape Doors: In rotating wing section.
      7. Door Speed Reduction Switches: 2 per unit, to assist with wheelchair access.

\*\* NOTE TO SPECIFIER \*\* Custom diameters are not available. Delete diameters not required.

* + - 1. Nominal Inside Diameter: As indicated on Drawings.
      2. Nominal Inside Diameter: 6 feet.
         1. Overall Diameter (OD): 74-1/4 inches (1888 mm).
         2. Throat Opening (TO): 47-1/4 inches (1191 mm).
      3. Nominal Inside Diameter: 7 feet.
         1. Overall Diameter (OD): 86-1/8 inches (2188 mm).
         2. Throat Opening (TO): 55-5/8 inches (1403 mm).
      4. Nominal Inside Diameter: 8 feet.
         1. Overall Diameter (OD): 98 inches (2488 mm).
         2. Throat Opening (TO): 64 inches (1615 mm).

\*\* NOTE TO SPECIFIER \*\* Custom heights available from 78 inches - 102 inches. Fill in blank below or delete line as applicable. Delete diameters not required.

* + - 1. Internal Height: Custom, \_\_\_\_\_\_\_\_\_\_\_.
      2. Internal Height: Custom, as indicated on Drawings.
      3. Internal Height: Standard, 7 ft 2-5/8 inches (2200 mm).
      4. Overall Height: 7 ft 10-1/2 inch (2451 mm).
      5. Security-Type Operation: Activation of the revolving door entrance by access control device.

\*\* NOTE TO SPECIFIER \*\* Anti-tailgating logic recognizes unauthorized users attempting to gain access in either the quadrant behind, or in the direction opposite of an authorized user.

* + - 1. Anti-Tailgating: Standard, overhead sensors monitor passage of authorized users.
         1. Overhead sensor will detect an unauthorized user attempting passage in a separate quadrant as an authorized user enters. If an unauthorized user is detected, the door will stop revolving preventing entry of either user, a voice annunciator will announce "security violation", and the door will reverse backing the unauthorized user into the area that he came from. The door will then resume allowing the authorized user to enter.

\*\* NOTE TO SPECIFIER \*\* Anti-piggy backing is optional. Anti-piggy backing is not available in a 3-wing revolving door configuration. Anti-piggybacking recognizes more than one person in a secure quadrant. Both conditions initiate door reversal, which backs the offenders out of the door. Delete if not required.

* + - 1. Anti-Piggy Backing: The Besam Secure360 overhead sensor system monitors passage of authorized users.
         1. The Secure360 overhead sensors detect suspicious activity, such as piggybacking (two people in the same quadrant) and tailgating (an unauthorized person attempting to use a separate quadrant). If a suspicious activity is detected, the door will stop revolving thus preventing entry of unauthorized users and a voice annunciator will announce "security violation."
         2. Overhead monitoring sensors shall be located in the ceiling of secure compartments.

\*\* NOTE TO SPECIFIER \*\* Delete operation not required.

* + - * 1. Operation: As indicated on Drawings.
        2. Operation: One-way access control operation; access controlled entry, free exit (one access control device required).
        3. Operation: One-way access control operation; no entry, access control exit (one access control device required).
        4. Operation: Two-way access control operation; access controlled entry and exit (two access control devices required).

\*\* NOTE TO SPECIFIER \*\* Optional night closing door provides an elegant solution for optimum security. Delete optional night closing door feature if not required.

* + - 1. Night Closing Door (NCD): Provide optional night-closing door.

\*\* NOTE TO SPECIFIER \*\* Delete door type not required.

* + - * 1. Door Type: As indicated on Drawings.
        2. Door Type: Manually operated.
        3. Door Type: Power operated.
        4. In emergency situations, door wings are released immediately and then folded to allow for emergency egress.
        5. When in the open position, the night closing door's one-door-leaf solution fits securely and close to the outer wall sections without obstructing traffic, and parks safely on the opposite side to closing mullion. Door can be slid closed, sealing off the entrance for security at night or after business hours.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom ceiling finish options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Ceiling Panels: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Ceiling Panels: As indicated on Drawings.
      3. Ceiling Panels: Standard, white laminate faced insulation board, 5/8 inch (16 mm) thick.
      4. Ceiling Panels: Colored laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with color designation or delete line as applicable. Delete color not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
      1. Ceiling Panels: Simulated stainless steel laminate faced insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Stainless Steel Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Stainless Steel Finish: As indicated on Drawings.
      1. Ceiling Panels: Aluminum clad insulation board panels.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below with finish designation or delete line as applicable. Delete finish not required.

* + - * 1. Aluminum Finish: \_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Aluminum Finish: As indicated on Drawings.
      1. Power Supply: 208 - 240 V 50 - 60 Hz.
      2. Power Consumption: 200 W.
      3. Lighting: 12 V, 120 W.
      4. Mains Fuse: 10 A.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
       6. Control Mechanism: Speed of the rotating door panels adjustable to maximum allowable revolutions per minute (RPM) as specified by ANSI/BHMA A156.27.
    2. Components:
       1. Circular Enclosure Walls and Canopy Framing: Segmented walls and canopy shall not be acceptable.
          1. Extrusions: Narrow stile aluminum extrusions with a minimum wall thickness of 0.125 inches (3.2 mm).
          2. Framing: For enclosure walls and canopy shall be formed to radius.
          3. Internal Structural: Support shall be of 0.125 inch (3.2 mm) inch narrow stile aluminum construction.
          4. Outside Diameter of Enclosure Walls: Fixed.
       2. Rotating Wings: Shall be of aluminum extrusion, 4-wing configuration.
       3. Weather Stripping: Natural horse hair and synthetic fiber brush shall provide continuous horizontal and vertical seals during both the rotating mode and the non-rotating closed position to insure limited air infiltration.
       4. Canopy: Manufacturer's standard canopy construction, size and layout matching diameter of enclosure walls, with formed metal panel sides of material and finish matching enclosure walls, unless otherwise indicated
          1. Roof Structure: Shall be 5/8 inch (16 mm) inch laminated wood covered by a waterproof EPDM membrane, and shall include a water diversion system to drain roof water.

\*\* NOTE TO SPECIFIER \*\* Fill in blank below or delete line as applicable. Consult Besam SpecDesk for metal roof options. Structural roof options available as well. Delete roofs not required.

* + - * 1. Roof: Custom roof, \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Roof: Custom roof, as indicated on Drawings.
        3. Roof: Standard, aluminum sheet roof, finish as indicated on Drawings.
      1. Ceiling Lights shall be flush mounted light fixtures in type and quantity as indicated. Light activation control via the program selection switch or from optional remote location. (203-220VAC, AC light fixtures shall not be acceptable).

\*\* NOTE TO SPECIFIER \*\* Retain item "1" if only anti-tailgating is specified. Retain item "2" if the Secure360 with both anti-tailgating and anti-piggy backing is specified. Delete if not required.

* + - * 1. Light Fixtures: As indicated on Drawings.
        2. Light Fixtures: 6 quartz halogen light fixtures.
        3. Light Fixtures: A combination of 6 total quartz halogen and compact florescent light fixtures.
      1. Glass: Glazing shall be thickness as indicated.
         1. Rotating section and double acting swing doors shall be 1/4 inch (6 mm) clear laminated glass.
         2. Curved walls shall be 7/16 inch (11 mm) clear laminated glass formed to the required radius to assure a weather seal throughout enclosure.
         3. Flat glass and flat segmented glass shall not be accepted in the enclosure walls. Butt glazed panels shall not be acceptable. Plastic glazing material shall not be acceptable.
    1. Operators:
       1. Controls must be microprocessor based "plug-in type" electronics (hard wired systems are not acceptable) with self-diagnostics and digital display status indicator. Digital display status indicator must be located on the interior left of the curved outside wall system. System must be capable of providing information indicating door status, source or probable cause plus remedy.
       2. Drive Assembly shall be worm gear reducer with one 1/4 HP DC permanent magnet motor. The drive assembly allows manual rotation, when there is no power to the motor for fail safe operation. Drive assembly shall not permit door speed to be over ridden beyond the set operational speed.
       3. Power Requirements: Single 208-220 VAC, 20 Amp, 60HZ line, and single 115-120 VAC, 50/60 Hz.
    2. Activation And Safety Control Devices:
       1. Activation Units: Refer to Program Control Device (PCD) for modes of operation not controlled by the access control devices.
          1. Revolving door shall be activated by access control devices allowing the following type of operation (access control devices by others):
          2. Automatic Operation: Signal from the access control device activates the unit and revolves the door up to one turn, and then returns door wings to quarter-point position.
       2. Safety Control Devices: Provide primary and secondary safety devices located vertically at the entrances and force-sensitive door leaves.
          1. Vertical Safety Sensors: 2 total compressible safety switches on outer drum wall entrances. Activation shall cause door to stop and reverse.
          2. Force-Sensitive Door Leaves: When an obstacle prohibits or slows rotation of the door, (at a value higher than the pre-set resistance of the door) rotation will stall and cease for 3 seconds. If no obstacle is detected after 3 seconds, the rotation of the door will resume.
          3. Emergency Stop: The revolving door shall include 1 emergency stop push button. When the button is pressed, the rotation shall stop.
       3. Emergency Operation: Loss of power or fire alarm input will initiate the release of the electro-magnetic lock allowing for the door panels to be manually pushed to the emergency egress position (book-fold position).
       4. Micro-processor Control Unit (MCU): Supervision of all systems must be performed by the Micro-processor Control Unit (MCU) by conducting "self-monitoring" continuously. Malfunction of any device shall cause the door to stop and error code shall be indicated on diagnostic display of the Micro-processor Control Unit MCU.
          1. Doors without "self monitoring function" will be considered unsafe and will not be acceptable.
    3. Hardware:
       1. Locking System: The electro-mechanical lock must be completely automatic and must be controlled through the selector switch.
          1. The revolving door will automatically cycle and rest in the full closed and locked position when the selector switch is placed in the "off" position
          2. Locking of the revolving door entrance is by an internal electro-mechanical lock.

\*\* NOTE TO SPECIFIER \*\* Delete additional/optional mechanical locking if not required.

* + - * 1. Mechanical Locking: Provide capability to lock doors with 2 manual keyed deadbolts; provide dust proof floor strike.

Location: Extend bolt from bottom of door wing into floor.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

Keyed Cylinders: As indicated on Drawings.

Keyed Cylinders: Manufacturer's standard keyed cylinder.

Keyed Cylinders: As specified in Division 8.

Keyed Cylinders: Custom, by others as indicated on Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Night Closing Door: Lockable.
      1. Program Control Device (PCD):
         1. Provide 1 program control device (PCD) on the interior left vertical jamb of the curved wall. PCD shall provide 7 functions including locked in closed position, entry/exit with activation by access control device (one-way or two-way operation as specified), free entry/free exit, no entry/free exit, manual operation (forward/reverse).
         2. The PCD utilizes entry code access and does not require key operation during normal use of the door system.
         3. The buffer memory is a function of the microprocessor that records the last 600 operational events of the door system.
         4. The PCD provides visual displays to notify the user of operational codes.
         5. The real time clock is programmable for 3 different day schedules, 10 different operation modes per day schedule, weekly schedules and up to 16 exceptions for holidays.

\*\* NOTE TO SPECIFIER \*\* The RD4M manual revolver is 4-wing system with slim profile doors and curved outer walls; ideal for commercial entryways. The RD4M also seals the building envelope to significantly reduce energy consumption by separating the conditioned air of the interior environment from the unconditioned air, noise, and drafts of the exterior environment. Delete if not required.

* 1. MANUAL 4 WING REVOLVING DOORS (MODEL RD4M)
     1. Manual 4 Wing Revolving Doors: RDM4 as manufactured by ASSA ABLOY Entrance Systems.

\*\* NOTE TO SPECIFIER \*\* Speed control will also keep the door in rest position until a user activates the door which significantly reduces energy consumption. Delete optional speed control if not required.

* + - 1. Speed Control: Accessory unit that prevents the door from being rotated at a faster rate than allowed by building codes.
      2. Operation: Door leafs can be folded out in direction of egress by pushing on doors.
      3. Door Leaves: Flat glass, 1/4 inch (6 mm) clear tempered safety glass.
      4. Curved Outer Walls of Revolver: 7/16 inch (11 mm) clear laminated safety glass.
      5. Outside Diameter: 86 inches (2184 mm).
      6. Canopy Height: 7-7/8 inches (198 mm).
      7. Inside Diameter: 84 inches (2133 mm).
      8. Total Height: 94-1/2 inches (2400 mm).
      9. Inside Height: 86-1/2 inches (2197 mm).
      10. Outer Walls and Doors: Aluminum extrusions.
      11. Main Shaft: Steel.
      12. Door Mounting: Doors hung on center shaft by means of a top and bottom guide ring.
      13. Ceiling: Aluminum, painted or clad to match the roof of revolving door package.
      14. Roof: Solid 3/4 inch painted plywood.
      15. Push Bars: Tubular.
      16. Locking: Revolver system is locked with 2 sliding floor bolts with key cylinders.
    1. Performance Requirements:
       1. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.
       2. Compliance: ANSI/BHMA A156.27 American National Standard for Power and Manual Operated Revolving Pedestrian Doors.
       3. Thermal Movements: Provide revolving entrance doors that allow for thermal movements resulting from maximum change in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
       4. Operating Temperature Range: -22 degrees F to 130 degrees F (-29 degrees C to 54 degrees C).
       5. Breakout Force Requirements: Revolving doors shall be provided with a mechanism that allows emergency breakout of door panels when a maximum force of 130 lbs (570 N) applied 3 inches (75 mm) from the outer edge of the door panel and 40 inches (1020 mm) above the floor, unless otherwise allowed by ANSI/BHMA A156.27.
  1. FINISHES
     1. Finish Requirements: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
     2. Curved Enclosures:

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom finish options. Fill in blank below with custom finish options or delete line as applicable. Delete ceiling panels if not required.

* + - 1. Curved Enclosure Finish: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
      2. Curved Enclosure Finish: As indicated on Drawings.
      3. Curved Enclosure Finish: Anodized finish, Clear, AAMA AA-M12C22A41, Class I, 0.018 mm.
      4. Curved Enclosure Finish: Anodized finish, Dark Bronze, AAMA AA-M12C22A44, Class I, 0.018 mm.
      5. Curved Enclosure Finish: Custom anodized finish, to match architect's sample.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom anodizing options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Curved Enclosure Finish: Painted finish, powder coat.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Curved Enclosure Finish: Kynar finish, 2 coats.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Curved Enclosure Finish: Kynar finish, 3 coats.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Curved Enclosure Finish: Clad Finish, as indicated on Drawings.
      2. Curved Enclosure Finish: Clad Finish, to match architects sample.
      3. Curved Enclosure Finish: Clad Finish, stainless steel with No. 4 satin finish (protective coatings by others).
      4. Curved Enclosure Finish: Clad Finish, stainless steel with No. 8 mirrorlike, reflective, non-directional finish, (protective coatings by others).
      5. Curved Enclosure Finish: Clad Finish, bronze with a satin finish (protective coatings by others).
      6. Curved Enclosure Finish: Clad Finish, bronze with a polished, non-directional finish (protective coatings by others).
      7. Curved Enclosure Finish: Clad Finish, Brass with a satin finish (protective coatings by others).
      8. Curved Enclosure Finish: Clad Finish, Brass with a polished, non-directional finish (protective coatings by others).

\*\* NOTE TO SPECIFIER \*\* Typically the curved enclosure (above) and the rotating enclosure (below) are specified to receive the same finish. Consult Besam SpecDesk for custom finish options. Fill in blank below with custom finish options or delete line as applicable. Delete ceiling panels if not required.

* + 1. Rotating Enclosures:
       1. Rotating Enclosure Finish: Custom, \_\_\_\_\_\_\_\_\_\_\_\_.
       2. Rotating Enclosure Finish: As indicated on Drawings.
       3. Rotating Enclosure Finish: Anodized finish, Clear, AAMA AA-M12C22A41, Class I, 0.018 mm.
       4. Rotating Enclosure Finish: Anodized finish, Dark Bronze, AAMA AA-M12C22A44, Class I, 0.018 mm.
       5. Rotating Enclosure Finish: Custom anodized finish, to match architect's sample.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom anodizing options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Rotating Enclosure Finish: Painted finish, powder coat.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Rotating Enclosure Finish: Kynar finish, 2 coats.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Rotating Enclosure Finish: Kynar finish, 3 coats.

\*\* NOTE TO SPECIFIER \*\* Consult Besam SpecDesk for custom color options. Fill in blank below with custom panel options or delete line as applicable. Delete ceiling panels if not required.

* + - * 1. Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
        2. Color: As indicated on Drawings.
        3. Color: To match architect's sample.
      1. Rotating Enclosure Finish: Clad Finish, as indicated on Drawings.
      2. Rotating Enclosure Finish: Clad Finish, to match architects sample.
      3. Rotating Enclosure Finish: Clad Finish, stainless steel with No. 4 satin finish (protective coatings by others).
      4. Rotating Enclosure Finish: Clad Finish, stainless steel with No. 8 mirrorlike, reflective, non-directional finish, (protective coatings by others).
      5. Rotating Enclosure Finish: Clad Finish, bronze with a satin finish (protective coatings by others).
      6. Rotating Enclosure Finish: Clad Finish, bronze with a polished, non-directional finish (protective coatings by others).
      7. Rotating Enclosure Finish: Clad Finish, brass with a satin finish (protective coatings by others).
      8. Rotating Enclosure Finish: Clad Finish, brass with a polished, non-directional finish (protective coatings by others).

1. EXECUTION
   1. PREPARATION
      1. Examine and measure areas to receive revolving doors.
      2. Prepare substrates using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
         1. Ensure openings to receive frames are plumb, level, square, and in tolerance.
         2. Ensure floor is level and smooth.
      3. Do not proceed with installation until substrates have been prepared using the methods recommended by the manufacturer and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.
         1. Doors and Frames: With Installer present, for compliance with requirements for installation tolerances, wall and floor construction, and conditions affecting performance.
         2. Rough-In: For electrical source to verify actual locations of wiring connections.
      4. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
   2. INSTALLATION
      1. Install doors in accordance with manufacturer's instructions and ANSI/BHMA 156.27.
         1. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.
         2. Install exterior doors to be weathertight in closed position.
         3. Do not install damaged components.
      2. General: Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
         1. Entrances: Install revolving door entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
            1. Install revolving door entrances in accordance with manufacturer's printed instructions and recommendations.
            2. Install surface mounted hardware using concealed fasteners to greatest extent possible.
            3. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the assembly to exterior.
         2. Door Operators: Connect door operators to electrical power distribution system.
         3. Glazing: Glaze revolving door entrances in accordance with the Glass Association of North America (GANA) Glazing Manual, published recommendations of glass product manufacturer, and published instructions of automatic entrance system manufacturer.
         4. Sealants: Provide weather tight installation.
            1. Set sill members, flashings, and framing members in full bed of sealant.
            2. Seal perimeter of framing members with sealant.
         5. Signage: Apply signage on both sides of each door as required by ANSI/BHMA A156.27 and manufacturers installation instructions.
   3. FIELD QUALITY CONTROL
      1. Manufacturer's Field Services:
         1. Manufacturer's representative shall provide technical assistance and guidance for installation of doors.
         2. Before placing doors in operation, technician shall inspect and approve doors for compliance with ANSI/BHMA 156.27. Certified technician shall be approved by manufacturer.
   4. ADJUSTING
      1. Adjust door operators, controls and hardware for smooth and safe operation and for weather tight closure. Adjust doors in compliance with ANSI/BHMA A156.27.
   5. DEMONSTRATION AND TRAINING
      1. Engage a factory-authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the revolving door entrance.
   6. CLEANING AND PROTECTION
      1. Clean adjacent surfaces soiled by door installation. Clean glass and metal surfaces promptly after installation in accordance with manufacturer's instructions. Remove excess sealants, compounds, dirt and other substances. Use cleaning materials, methods approved by manufacturer to prevent damage to glass or finish.
      2. Protect installed doors and finish to ensure that, except for normal weathering, doors and finish will be without damage or deterioration at time of substantial completion. Protect exposed aluminum surfaces from damage.
      3. Touch-up, repair or replace damaged products before Substantial Completion.
         1. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
         2. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

END OF SECTION