SECTION 08 42 29.33

SWINGING AUTOMATIC ENTRANCES AND OPERATORS

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\*\* NOTE TO SPECIFIER \*\* ASSA ABLOY Entrance Systems; swinging automatic entrances and operators.  
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(08462bes)%253A%2520&coid=30906&spec=08462bes&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 ASSA ABLOY Entrance Systems for a complete line of automatic sliding, swing, revolving, and manual ICU/CCU doors. Our products combine safety and security with comfort and convenience, making them a top choice for some of the most prestigious organizations in the retail, healthcare, hospitality, and transportation industries.

1. GENERAL
   1. SECTION INCLUDES

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

* + 1. Exterior and interior swinging automatic entrances.
    2. Swing door operators of the following types:
       1. Full energy power door operators for swinging doors.
       2. Low energy and power assist door operators for swinging doors.
       3. In-ground, low energy power door operators for swinging doors.
    3. Activation by smoke evacuation system.
    4. Activation devices.
    5. Safety devices.
    6. Accessories.
  1. RELATED SECTIONS

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

* + 1. Section 07 90 00 - Joint Protection.
    2. Section 08 34 13 - Cold Storage Doors.
    3. Section 08 42 29 - Automatic Entrances.
    4. Section 08 71 00 - Door Hardware.
    5. Section 08 83 13 - Mirrored Glass Glazing.
    6. Divisions 26 and 28.
  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):
       1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
    2. American Association of Automatic Door Manufacturers (AAADM).
    3. American National Standards Institute (ANSI):
       1. ANSI/BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors.
       2. ANSI/BHMA A156.19 - Standards for Power Assist and Low Energy Power Operated Doors.
       3. ANSI Z97.1 - Standards for Safety Glazing Material Used in Buildings.
    4. International Code Council (ICC):
       1. ICC/IBC - International Building Code.
       2. CBC - California Building Code.
    5. National Association of Architectural Metal Manufacturers (NAAMM):
       1. Metal Finishes Manual for Architectural Metal Products.
    6. Underwriters Laboratories (UL):
       1. UL 325 - Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems.
  1. DEFINITIONS

\*\* NOTE TO SPECIFIER \*\* Delete terms not referenced in this section.

* + 1. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to activate the operation of the door.
    2. Knowing Act: Consciously initiating the opening of a power operated door using acceptable methods including wall mounted switches such as push plates and controlled access devices such as keypads, card readers and key switches.
    3. Safety Device: A device that detects the presence of an object or person within a zone where contact could occur and provides a signal to stop the movement of the door.
    4. Double Egress Doors: A pair of doors that swing with the two doors moving in opposite directions and no mullion between them.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
    2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
    3. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum ten years documented experience.
        1. Manufacturer to have a company certificate issued by AAADM.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and trained by Manufacturer.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project. Delete if not required.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  3. 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 recommended limits.
     2. Field Measurements: Verify actual dimensions of openings to receive ICU/CCU entrances by field measurements before fabrication and indicate on shop drawings.
  4. WARRANTY
     1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

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(08462bes)%253A%2520&coid=30906&spec=08462bes&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.
  1. PERFORMANCE REQUIREMENTS

\*\* NOTE TO SPECIFIER \*\* Delete performance requirements not required.

* + 1. Standards Compliance:
       1. ANSI/BHMA A156.10 - American National Standard for Power Operated Pedestrian Doors.
       2. ANSI/BHMA A156.19 - Standards for Power Assist and Low Energy Power Operated Doors.
       3. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
       4. Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.
       5. UL Listed R-9469 Fire Door Operator with Automatic Closer.

\*\* NOTE TO SPECIFIER \*\* Select first paragraph below for model SW100. Select second paragraph below for all other models. Delete option not required.

* + 1. Automatic door equipment accommodates medium pedestrian traffic.
    2. Automatic door equipment accommodates medium to heavy pedestrian traffic.
    3. Opening Force requirements for Egress Doors: In the event of power failure to the operator, swinging automatic entrance doors shall open with a manual force, not to exceed 30 lbf (133 N) applied at 1 inch (25 mm) from the latch edge of the door.

\*\* NOTE TO SPECIFIER \*\* Break away device is only applicable to SW200i overhead concealed operator with center pivots. Delete if not required.

* + 1. Break Away Device: Swinging automatic entrances shall require no more than 50 lbf (222 N) applied 1 inch (25 mm) from the latch edge of the door. When the doors is opened in the breakout mode, powered operated components excluding spring power shall not operate the doors.
    2. Closing Time:
       1. Doors shall be field adjustable to close from 90 degrees to 10 degrees in 2 seconds or longer as applicable per ANSI/BHMA A156.10 standards.
       2. Doors shall be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

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

* 1. SWINGING AUTOMATIC ENTRANCES

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

* + 1. Basis of Design: SW200i with Door Package, swinging automatic entrance with sensor system; as manufactured by Besam ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.10.
       2. Door Configuration: Automatic operated swing doors; configurations and sizes as indicated on the drawings.

\*\* NOTE TO SPECIFIER \*\* Select configurations required. Delete options not required.

* + - * 1. Single Swing Door: One active leaf (primary panel).
        2. Pair of Swing Doors: Two simultaneous swing, active leaves (both primary panels).
        3. Double Egress Swing Doors: Two simultaneous swing, active leaves (both primary panels) swinging in opposite directions.

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - 1. Traffic Pattern: Two-way.
      2. Traffic Pattern: One-way.
    1. Stile and Rail Swinging Doors:
       1. Material: Extruded Aluminum, Alloy 6063-T5.
       2. Door panels shall have a minimum 0.125 inch (3 mm) structural wall thickness including adjoining perimeter frames where applicable.
          1. Aluminum extrusions shall allow for a factory installed, slide-in type weather-stripping.
       3. Door Construction shall be by means of an integrated corner block with 1/2 inch (13 m) all-thread through bolt from each stile.
       4. Glass stops shall be 0.062 inch (1.6 mm) wall thickness and shall provide security function as a standard by means of a fixed non-removable exterior section with glazing to be performed from the interior only.

\*\* NOTE TO SPECIFIER \*\* Select vertical stile size required. Delete sizes not required.

* + - 1. Vertical Stiles: Narrow stile, 2-1/8 inches (54 mm).
      2. Vertical Stiles: Medium stile, 4 inches (102 mm).
      3. Vertical Stiles: Wide stile, 5 inches (127 mm).

\*\* NOTE TO SPECIFIER \*\* Select bottom rail size required. Delete options not required.

* + - 1. Bottom Rails: 4 inches (102 mm).
      2. Bottom Rails: 7 inches (178 mm).
      3. Bottom Rails: 10 inches (254 mm).

\*\* NOTE TO SPECIFIER \*\* Intermediate muntins are optional. Delete options not required.

* + - 1. Intermediate Muntin: 1-3/4 inches (45 mm).
      2. Intermediate Muntin: 4 inches (102 mm).
      3. Weather-Stripping: Slide-in type, replaceable pile mohair seals retained by the aluminum extrusions. Bottom rails shall be provided with an adjustable nylon sweep.
      4. Glass: Glazing shall comply with ANSI Z97.1, thickness as indicated.

\*\* NOTE TO SPECIFIER \*\* Select glazing types required. Delete options not required.

* + - * 1. Glazing Door Panels: 1/4 inch (6 mm) clear tempered glass.
        2. Glazing Door Panels: 5/8 inch (16 mm) clear insulated glass with tempered glass.
        3. Glazing Door Panels: 1 inch (25 mm) clear insulated glass with tempered glass.
        4. Glazing Transom Panel: 1/4 inch (6 mm) clear tempered glass.
        5. Glazing Transom Panel: 5/8 inch (16 mm) clear insulated glass with tempered glass.
        6. Glazing Transom Panel: 1 inch (25 mm) clear insulated glass with tempered glass.
        7. Glazing Installation: See Division 8 Section "Glazing" for requirements.

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

* + - * 1. Glazing: Furnished by others.
    1. Framing Members: Provide automatic entrances as complete assemblies. Manufacturer's standard extruded aluminum framing reinforced as required to support loads.
       1. Vertical Jambs: 1-3/4 inches (44.5 mm) by 4-1/2 inches (114 mm).
    2. Header: Manufacturer's standard extruded aluminum header unit extending full width of entrance unit to conceal door operators.
       1. Header Mounting: Overhead concealed mounted header installed between jambs.
    3. Hardware: Provide manufacturer's standard hardware as required for operation indicated.
       1. Bottom pivot assemblies and fingerguards shall be provided and comply with applicable codes.
       2. Locking hardware shall be provided as indicated:

\*\* NOTE TO SPECIFIER \*\* Consult Manufacturer for locking hardware options. Delete items not required. Mortise type hookbolt latch is for single swing entrance only. Delete if not required.

* + - * 1. Mortise type hookbolt latch.

\*\* NOTE TO SPECIFIER \*\* Select options required for interior side and exterior side. Delete items not required.

Interior Side: Thumbturn. Lock indicators shall be provided if required by code.

Interior Side: Keyed cylinder. Lock indicators shall be provided if required by code.

Exterior Side: Keyed cylinder.

Exterior Side: No cylinder.

\*\* NOTE TO SPECIFIER \*\* Two point locking system is for pairs of swinging doors only. Delete if not required.

* + - * 1. Two point locking system with concealed vertical rod and mortise hookbolt.

\*\* NOTE TO SPECIFIER \*\* Select options required for interior side and exterior side. Delete items not required.

Interior Side: Thumbturn. Lock indicators shall be provided if required by code.

Interior Side: Keyed cylinder. Lock indicators shall be provided if required by code.

Exterior Side: Keyed cylinder.

Exterior Side: No cylinder.

\*\* NOTE TO SPECIFIER \*\* Exit devices are optional. Delete if not required.

* + - * 1. Exit devices with concealed vertical rods:

\*\* NOTE TO SPECIFIER \*\* Flush mounted exit devices require 4 inch horizontal muntin. Delete options not required.

Egress Side: Adams-Rite 8600 Series, concealed vertical rod exit device mounted to active doors.

Egress Side: Flush mounted Adams-Rite F86 Series, concealed vertical rod exit devices mounted to active doors.

Entry Side: Entry trim with curved lever.

Entry Side: Thumbturn with keyed cylinder to retract vertical rod.

* + - * 1. Keyed cylinders:

\*\* NOTE TO SPECIFIER \*\* Select cylinder option required. Delete options if not required.

Manufacturer's standard keyed cylinder.

Keyed cylinder specified in Division 8 Section "Door Hardware".

Keyed cylinder by others.

* + - 1. Threshold: 1/2 inch (13 mm) high continuous aluminum threshold shall span the entire width of the opening and fit between the vertical framing members. Threshold design shall allow for optional extruded ramps to securely interlock to flat section to meet ADA requirements.

\*\* NOTE TO SPECIFIER \*\* Select mounting required. Delete option not required.

* + - * 1. Surface mounted threshold with interlocking ADA accessible ramps.
        2. Recessed mounted threshold.
    1. Operator: SW200i full energy automatic door operator; as manufactured by Besam ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.10.
       2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated.
       3. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
          1. Automatic operator shall be capable of operating and controlling up to a 700 lbs (317.5 kg) door, 48 inches (1219 mm) in width.
          2. Overhead Concealed Mounted Operator:

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.

Center Pivoted Door Connecting Hardware: Overhead concealed mounted operators to have a cast steel arm from the operator, concealed mounted to the top edge of the swing door.

\*\* NOTE TO SPECIFIER \*\* Select the following option if inswing center pivoted doors require breakaway for egress. Delete if not required.

Emergency Breakaway: Where inswing doors also serve as required exits, provide emergency breakaway feature to allow doors to swing in the direction of egress. Forces to comply with ANSI/BHMA A156.10. Discontinue power to automatic door operator when door is in emergency breakaway position, and to automatically reset when door is manually returned to the full closed position.

* + - * 1. Operator Temperature Range: Capable of operating within temperature ranges of minus 31 to 160 degrees F (minus 35 to 71 degrees C).
        2. Electrical Characteristics: Maximum power consumption is 300 watts (2.5 amps at 120 VAC), 50/60 hz, built-in thermal overload protection.

\*\* NOTE TO SPECIFIER \*\* Battery convenience mode is optional. Delete if not required.

* + - * 1. Battery Convenience Mode: Operator to maintain continuous operation by battery power during power failure. Battery is continuously monitored and provides a warning signal if the battery is not working properly.

\*\* NOTE TO SPECIFIER \*\* Digital cycle counter is optional. Delete if not required.

* + - * 1. Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.
      1. Door Operation:
         1. Opening Cycle: The adjustable speed operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle regardless of stack pressures or wind speed. Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1 inch (25 mm) from the latch edge of the door.

Manual push force shall be adjustable from 5 to 30 lbf (22.24 to 133.45 N) maximum.

* + - * 1. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 seconds to 30 seconds).
        2. Closing Cycle: Spring close with speed controlled power assist.

Upon loss of power, dynamic braking will control the door insuring controlled closing.

Selectable Torque Control: Automatically adjusts torque without changing the closing speed of the operator.

When the torque control is activated, the closing speed shall remain constant regardless of stack pressures or wind speed.

Torque Cancellation: The torque control is deactivated whenever there is a signal received from door mounted sensors.

The torque control is disabled during manual use of the door.

* + - * 1. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.
        2. Stack Pressure Compensation: Operator shall counteract positive stack pressures, negative stack pressures, and sudden changes of stack pressures. The operator never allows the door to open or close faster than the speed control settings, regardless of pressures.
        3. Obstruction Control: The operator will stop and reverse the door movement.
        4. Electric Lock Management:

Internal module for electrified locking integration.

Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.

Lock monitoring prevents operators from opening doors until release of electrified lock.

Operator pulls door closed before opening, automatically unjamming electric latch hardware.

Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination.

* + - * 1. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
        2. Selectable Alarm Reset: The operator can be field set so that after receiving an alarm signal, the operator will not accept any activation impulses and will operate only as a manual door closer until manually reset.
        3. Electronic Controls: Solid state integrated circuit controls the operation and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. The controls include time delay (1 to 30 seconds) for normal cycle.
        4. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

\*\* NOTE TO SPECIFIER \*\* Select control switch option required. Delete option not required.

3 position toggle switch remotely mounted (On-Off-Hold).

4 position rotary switch remotely mounted (On-Off-Hold- Special Function).

* + - 1. Operator Interface: Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.
    1. Activation Devices: Provide safety devices in accordance with ANSI/BHMA A156.10 standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.
       1. Automatic Activation Device: Motion sensors, self-contained, K-band-frequency, microwave-scanner unit; achieving both a narrow or wide sensing pattern, adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.
       2. Motion Sensors to offer three motion detection actions; bi-directional, uni-directional, and uni-MTF detection.
    2. Safety Devices: Provide safety devices in accordance with ANSI/BHMA A156.10 standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.

\*\* NOTE TO SPECIFIER \*\* Select activation device required. Consult manufacturer for recommendations. Delete option not required.  
\*\* NOTE TO SPECIFIER \*\* Select following paragraph for maximum safety at the doorway. Delete if not required.

* + - 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Premium Safety Sensor System A202, Door Mounted Presence Sensor Adaptable Field (DMPS-AF) as specified:
         1. Door Mounted Presence Sensor Adaptable Field (DMPS-AF): Door mounted combination activation motion sensor/safety presence sensor. Sensor shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 sensors per leaf).

\*\* NOTE TO SPECIFIER \*\* Select one of the following sensor technologies. First option is standard. Second option is an alternate option. Delete option not required.

* + - * 1. Sensor shall utilize active infrared presence technology with auto adapting field to detect moving or stationary presence of people or objects in the swing path of the door.
        2. Sensor shall utilize presence laser technology with auto adapting field to detect moving or stationary presence of people or objects in the swing path of the door.
        3. Presence detection shall always be active and remain active when the door is in motion. The sensor provides a full detection pattern that covers the entire swing of the door and also provides detection in the full open and full close position.
        4. The sensor has an auto adapting field which maximizes the sensor pattern tailored to the environment providing detection beyond the moving part of the door. The sensor provides detection to the wall and or guide rails ensuring maximum safety resulting in the door stopping much sooner (further) from the person using the doorway.
        5. Upon detection the sensor shall provide a signal to slow, stop, or reverse the door action depending on the situation.
        6. The sensor provides secondary activation as required for "knowing act" doorways.
        7. Since the infrared presence detection is always active, no overhead safety sensor is required.
        8. Motion/presence detecting sensors to be field installed and adjusted.

\*\* NOTE TO SPECIFIER \*\* Select following paragraph for safety at the doorway, compliant with ANSI/BHMA A156.10 requirements. Delete if not required.

* + - 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Flex Safety Sensor System A102, Combination of an Overhead Presence Sensor (OPS) and Door Mounted Presence Sensors (DMPS) as specified:
         1. Overhead Presence Sensor (OPS): Header mounted, overhead presence sensor utilizing infrared technology for detection; adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10. Unit to provide the following two independently adjustable patterns of detection:

The door closed position covering the area on the swing side of the door.

The door open position including an area of detection that reaches through the threshold toward the non-swing side of the door.

The unit is not active during the door closing cycle.

* + - * 1. Door Mounted Presence Sensor (DMPS): Door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.

The door mounted presence detector shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 sensors per leaf), providing detection on both sides of the door.

Unit to provide detection during the travel of the door.

Upon detection the sensor shall provide a signal to stop or reverse the door action.

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

Door mounted presence sensor shall be monitored, providing a supervisory circuit to the operator.

\*\* NOTE TO SPECIFIER \*\* Select following paragraph for safety at the doorway, compliant with ANSI/BHMA A156.10 requirements. Delete if not required.

* + - 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Flex Safety Sensor System A101, Combination of an Overhead Presence Sensor (OPS) and Door Mounted Presence Sensors (DMPS) as specified:
         1. Overhead Presence Sensor (OPS): Header mounted, overhead presence sensor utilizing infrared technology for detection; adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10. Unit to provide the following two independently adjustable patterns of detection:

The door closed position covering the area on the swing side of the door.

The door open position including an area of detection that reaches through the threshold toward the non-swing side of the door.

The unit is not active during the door closing cycle.

* + - * 1. Door Mounted Presence Sensor (DMPS): Door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.

The door mounted presence detector shall be mounted on the swing (pull) side of the door (1 sensor per leaf), providing detection on one side of the door only. On "knowing act" double egress doorways, the door mounted presence detector shall be mounted on the approach (push) side of the door (1 sensor per leaf).

Unit to provide detection during the travel of the door.

Upon detection the sensor shall provide a signal to stop or reverse the door action.

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

Door mounted presence sensor shall be monitored, providing a supervisory circuit to the operator.

\*\* NOTE TO SPECIFIER \*\* ANSI/BHMA A156.10 requires guide rails for power operated swing doors unless the door is located adjacent to a wall. Select first paragraph below to describe guide rails in this Section. Select second paragraph below if guide rails will be detailed on Drawings. Delete options not required.

* + 1. Guide Rails: Minimum 30 inches (762 mm) high, and finished to match doors unless otherwise indicated; positioned and projecting from face of door jamb for distance as indicated, but not less than that required by ANSI/BHMA A156.10 for type of door and direction of travel; with filler panel.

\*\* NOTE TO SPECIFIER \*\* Select material required. Delete options not required.

* + - 1. Material: Anodized aluminum.
      2. Material: Painted aluminum.
      3. Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select fabrication required. Delete option not required.

* + - 1. Fabricated from bars.
      2. Fabricated from tubing.
      3. Filler Panel:

\*\* NOTE TO SPECIFIER \*\* Select material required. Delete option not required.

* + - * 1. Material: Expanded aluminum mesh.

\*\* NOTE TO SPECIFIER \*\* Select orientation required. Delete options not required.

Orientation: With long dimensions of diamonds parallel to top rail.

Orientation: With long dimensions of diamonds perpendicular to top rail.

Orientation: With long dimensions of diamonds horizontal.

Orientation: With long dimensions of diamonds vertical.

* + - * 1. Material: Polycarbonate plastic.

\*\* NOTE TO SPECIFIER \*\* Select color option required. Delete options not required.

* + - * 1. Color: To match guide rails.
        2. Color: Clear.
        3. Color: \_\_\_\_\_.
        4. Color: As indicated on Drawings.
        5. Color: To be selected by Architect.

\*\* NOTE TO SPECIFIER \*\* Select mounting required. Delete options not required.

* + - 1. Mounting: Jamb and floor.
      2. Mounting: Floor, freestanding.
    1. Guide Rails: As detailed on Drawings.
    2. Guide Rail Finish:

\*\* NOTE TO SPECIFIER \*\* Delete finish types and finish options not required.

* + - 1. Anodized Finish:
         1. AAMA 611, Clear, AA- M12C22A41, Class I, 0.018 mm.
         2. AAMA 611, Dark Bronze, AA-M12C22A44, Class I, 0.018 mm.
         3. AAMA 611, Color anodized, \_\_\_\_\_.
         4. AAMA 611, Color anodized, color as indicated on Drawings.
         5. AAMA 611, Color anodized, color to be selected by Architect.
      2. Painted Finish:
         1. Powder coat painted, \_\_\_\_\_ color.
         2. Powder coat painted, color as indicated on Drawings.
         3. Powder coat painted, color to be selected by Architect.
         4. Kynar finish, 2 coat, \_\_\_\_\_ color.
         5. Kynar finish, 2 coat, color as indicated on Drawings.
         6. Kynar finish, 2 coat, color to be selected by Architect.
         7. Kynar finish, 3 coat, \_\_\_\_\_ color.
         8. Kynar finish, 3 coat, color as indicated on Drawings.
         9. Kynar finish, 3 coat, color to be selected by Architect.
      3. Stainless Steel Finish: Satin finish.
      4. Finish:
         1. \_\_\_\_\_.
         2. As indicated on Drawings.
         3. To be selected by Architect.

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

* 1. FULL ENERGY POWER DOOR OPERATORS FOR SWINGING DOORS

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

* + 1. Basis of Design: SW200i full energy automatic door operator; as manufactured by Besam ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.10.
       2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated on the drawings and specified below:

\*\* NOTE TO SPECIFIER \*\* Select configurations required. Delete options not required.

* + - * 1. Pairs of Doors: Simultaneous swing.
        2. Double Egress Doors: Simultaneous swing.

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - * 1. Traffic Pattern: Two-way.
        2. Traffic Pattern: One-way.
      1. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
         1. Automatic operator shall be capable of operating and controlling up to a 700 lbs (317.5 kg) door, 48 inches (1219 mm) in width.

\*\* NOTE TO SPECIFIER \*\* Select type of operator mounting required. Delete options not required.

* + - * 1. Surface Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select type of operator housing required. Delete options not required.

Side Access Operator Housing: Operator is contained in 5-1/8 inch (130 mm) deep x 4 5/16 inch (110 mm) high extruded aluminum housing with a removable cover.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Bottom Load Operator Housing: Operator is contained in a 6 inch (152 mm) x 6 inch (152 mm) high, extruded aluminum housing with removable bottom cover.

Surface Mounted Housing: Continuous for full width of door.

Connecting Hardware: Surface mounted operators to have a steel arm from the operator, mounted to the top face of the swing door.

UL Listed R-9469 Fire Door Operator with Automatic Closer (surface mounted operator).

* + - * 1. Overhead Concealed Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select the following operator housing for hinged doors. Delete options not required.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.

Hinged Door Connecting Hardware: Overhead concealed mounted operators to have a steel arm from the operator with a sliding track that is mounted to the top face on the approach (push) side of the swing door.

* + - * 1. Overhead Concealed Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select the following operator housing for center pivoted doors. Delete options not required.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) x 6 inch (152 mm) high side access, extruded aluminum housing with a hinged cover.

Bottom Load Operator Housing: Operator is contained in a 6 inch (152 mm) x 6 inch (152 mm) high, extruded aluminum housing with removable bottom cover.

Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.

Center Pivoted Door Connecting Hardware: Overhead concealed mounted operators to have a cast steel arm from the operator, concealed mounted to the top edge of the swing door.

\*\* NOTE TO SPECIFIER \*\* Select the following option if inswing center pivoted doors require breakaway for egress. Delete if not required.

Emergency Breakaway: Where inswing doors also serve as required exits, provide emergency breakaway feature to allow doors to swing in the direction of egress. Forces to comply with ANSI/BHMA A156.10. Discontinue power to automatic door operator when door is in emergency breakaway position, and to automatically reset when door is manually returned to the full closed position.

* + - * 1. Operator shall be field switchable between an ANSI/BHMA A156.10 and an ANSI/BHMA A156.19 compliant operator and vice versa. Addition of the activation devices may be required to comply with the applicable standard.
        2. Operator Temperature Range: Capable of operating within temperature ranges of minus 31 to 160 degrees F (minus 35 to 71 degrees C).
        3. Electrical Characteristics: Maximum power consumption is 300 watts (2.5 amps at 120 VAC), 50/60 hz, built-in thermal overload protection.

\*\* NOTE TO SPECIFIER \*\* Battery convenience mode is optional. Delete if not required.

* + - * 1. Battery Convenience Mode: Operator to maintain continuous operation by battery power during power failure. Battery is continuously monitored and provides a warning signal if the battery is not working properly.

\*\* NOTE TO SPECIFIER \*\* Digital cycle counter is optional. Delete if not required.

* + - * 1. Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.
      1. Door Operation:
         1. Opening Cycle: The adjustable speed operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle regardless of stack pressures or wind speed. Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1 inch (25 mm) from the latch edge of the door.

Manual push force shall be adjustable from 5 to 30 lbf (22.24 to 133.45 N) maximum.

* + - * 1. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 seconds to 30 seconds).
        2. Closing Cycle: Spring close with speed controlled power assist.

Upon loss of power, dynamic braking will control the door insuring controlled closing.

Selectable Torque Control: Automatically adjusts torque without changing the closing speed of the operator.

When the torque control is activated, the closing speed shall remain constant regardless of stack pressures or wind speed.

Torque Cancellation: The torque control is deactivated whenever there is a signal received from door mounted sensors.

The torque control is disabled during manual use of the door.

* + - * 1. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.
        2. Stack Pressure Compensation: Operator shall counteract positive stack pressures, negative stack pressures, and sudden changes of stack pressures. The operator never allows the door to open or close faster than the speed control settings, regardless of pressures.
        3. Obstruction Control: The operator will stop and reverse the door movement.
        4. Electric Lock Management:

Internal module for electrified locking integration.

Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.

Lock monitoring prevents operators from opening doors until release of electrified lock.

Operator pulls door closed before opening, automatically unjamming electric latch hardware.

Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination.

* + - * 1. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
        2. Selectable Alarm Reset: The operator can be field set so that after receiving an alarm signal, the operator will not accept any activation impulses and will operate only as a manual door closer until manually reset.
        3. Electronic Controls: Solid state integrated circuit controls the operation and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. The controls include time delay (1 to 30 seconds) for normal cycle.
        4. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

\*\* NOTE TO SPECIFIER \*\* Select control switch option required. First and second options below are only available with surface mounted operators. Delete options not required.

3 position rocker switch mounted on end cap (On-Off-Hold).

2 position rocker switch mounted on end cap (On-Off).

3 position toggle switch remotely mounted (On-Off-Hold).

4 position rotary switch remotely mounted (On-Off-Hold- Special Function).

* + - 1. Operator Interface: Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.

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

* 1. LOW ENERGY AND POWER ASSIST DOOR OPERATORS FOR SWINGING DOORS

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

* + 1. Basis of Design: SW200i low energy automatic door operator; as manufactured by Besam ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.19.
       2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated on the drawings and specified below:

\*\* NOTE TO SPECIFIER \*\* Select configurations required. Delete options not required.

* + - * 1. Pairs of Doors: Simultaneous swing.
        2. Pairs of Doors: Single leaf operation.
        3. Double Egress Doors: Simultaneous swing.
        4. Double Egress Doors: Independent operation.

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - * 1. Traffic Pattern: Two-way.
        2. Traffic Pattern: One-way.
      1. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
         1. Automatic operator shall be capable of operating and controlling up to a 700 pound (317.5 kg) door, 48 inches (1219 mm) in width.

\*\* NOTE TO SPECIFIER \*\* Select type of operator mounting required. Delete options not required.

* + - * 1. Surface Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select type of operator housing required. Delete options not required.

Side Access Operator Housing: Operator is contained in 5-1/8 inch (130 mm) deep x 4-5/16 inch (110 mm) high extruded aluminum housing with a removable cover.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Bottom Load Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high, extruded aluminum housing with removable bottom cover.

Surface Mounted Housing: Continuous for full width of door.

Connecting Hardware: Surface mounted operators to have a steel arm from the operator, mounted to the top face of the swing door.

UL Listed R-9469 Fire Door Operator with Automatic Closer (surface mounted operator).

* + - * 1. Overhead Concealed Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select the following operator housing for hinged doors. Delete if not required.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.

Offset Pivoted and Hinged Door Connecting Hardware: Overhead concealed mounted operators to have a steel arm from the operator with a sliding track that is mounted to the top face on the approach (push) side of the swing door.

* + - * 1. Overhead Concealed Mounted Operator:

\*\* NOTE TO SPECIFIER \*\* Select following operator housing for center pivoted doors. Delete if not required.

Side Access Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high extruded aluminum housing with a hinged cover.

Bottom Load Operator Housing: Operator is contained in a 6 inch (152 mm) deep x 6 inch (152 mm) high, extruded aluminum housing with removable bottom cover.

Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.

Center Pivoted Door Connecting Hardware: Overhead concealed mounted operators to have a cast steel arm from the operator, concealed mounted to the top edge of the swing door.

\*\* NOTE TO SPECIFIER \*\* Emergency breakaway is optional. Delete if not required.

Emergency Breakaway: Where inswing doors also serve as required exits, provide emergency breakaway feature to allow doors to swing in the direction of egress. Forces to comply with ANSI/BHMA A156.10. Discontinue power to automatic door operator when door is in emergency breakaway position, and to automatically reset when door is manually returned to the full closed position.

* + - * 1. Operator shall be field switchable between an ANSI/BHMA A156.19 and an ANSI/BHMA A156.10 compliant operator and vice versa. Addition of the required safety sensors, activation devices and guard rails may be required to comply with the applicable standard.
        2. Operator Temperature Range: Capable of operating within temperature ranges of minus 31 to 160 degrees F (minus 35 to 71 degrees C).
        3. Electrical Characteristics: Maximum power consumption is 300 watts (2.5 amps at 120 VAC), 50/60hz, built-in thermal overload protection.

\*\* NOTE TO SPECIFIER \*\* Battery convenience mode is optional. Delete if not required.

* + - * 1. Battery Convenience Mode: Operator to maintain continuous operation by battery power during power failure. Battery is continuously monitored and provides a warning signal if the battery is not working properly.

\*\* NOTE TO SPECIFIER \*\* Digital cycle counter is optional. Delete if not required.

* + - * 1. Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.
      1. Door Operation:
         1. Opening Cycle: The adjustable speed operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle regardless of stack pressures or wind speed. Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1 inch (25 mm) from the latch edge of the door.

Manual push force shall be adjustable from 5 lbf to 15 lbf (22.2 to 66.7 N) maximum.

* + - * 1. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 to 30 seconds).
        2. Closing Cycle: Spring close with speed controlled power assist.

Upon loss of power, dynamic braking will control the door insuring controlled closing.

Selectable Torque Control: Automatically adjusts torque without changing the closing speed of the operator.

When the torque control is activated, the closing speed shall remain constant regardless of stack pressures or wind speed.

Torque Cancellation: The torque control is deactivated whenever there is a signal received from door mounted sensors.

The torque control is disabled during manual use of the door.

* + - * 1. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.
        2. Stack Pressure Compensation: Operator shall counteract positive stack pressures, negative stack pressures, and sudden changes of stack pressures. The operator never allows the door to open or close faster than the speed control settings, regardless of pressures.
        3. Obstruction Control: The operator will stop and reverse the door movement.
        4. Electric Lock Management:

Internal module for electrified locking integration.

Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.

Lock monitoring prevents operators from opening doors until release of electrified lock.

Operator pulls door closed before opening, automatically unjamming electric latch hardware.

Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination.

* + - * 1. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
        2. Selectable Alarm Reset: The operator can be field set so that after receiving an alarm signal, the operator will not accept any activation impulses and will operate only as a manual door closer until manually reset.
        3. Electronic Controls: Solid state integrated circuit controls the operation and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. The controls include time delay (1 to 30 seconds) for normal cycle.
        4. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

\*\* NOTE TO SPECIFIER \*\* Select control switch option required. First and second options below are only available with surface mounted operators. Delete options not required.

3 position rocker switch mounted on end cap (On-Off-Hold).

2 position rocker switch mounted on end cap (On-Off).

3 position toggle switch remotely mounted (On-Off-Hold).

4 position rotary switch remotely mounted (On-Off-Hold- Special Function).

* + - 1. Operator Interface: Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.
    1. Basis of Design: SW100 low energy automatic door operator; as manufactured by Besam ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.19.
       2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated on the drawings and specified below:

\*\* NOTE TO SPECIFIER \*\* Select configurations required. Delete options not required.

* + - * 1. Pairs of Doors: Simultaneous swing.
        2. Pairs of Doors: Single leaf operation.
        3. Double Egress Doors: Simultaneous swing.
        4. Double Egress Doors: Independent operation.

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - * 1. Traffic Pattern: Two-way.
        2. Traffic Pattern: One-way.
      1. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/8 hp (93.2 W) motor. Spring shall be adjustable to compensate for different manual push forces required on varying door widths.
         1. Automatic operator shall be capable of operating and controlling up to a 200 pound (91 kg) door, 48 inches (1219 mm) in width.
         2. Surface Mounted Operator:

Side Access Operator Housing: Operator is contained in 5-1/8 inch (130.2 mm) deep x 4-5/16 inch (110 mm) high extruded aluminum housing with a removable cover.

\*\* NOTE TO SPECIFIER \*\* Select housing required. Delete option not required.

Surface Mounted Housing: Standard width.

Surface Mounted Housing: Continuous for full width of door.

Connecting Hardware: Surface mounted operators to have a steel arm from the operator, mounted to the top face of the swing door.

UL Listed R-9469 Fire Door Operator with Automatic Closer (surface mounted operator).

* + - * 1. Operator Temperature Range: Capable of operating within temperature ranges of minus 20 to 160 degrees F (minus 29 to 71 degrees C).
        2. Electrical Characteristics: Nominal current draw 75 watts (.625 amps at 120 VAC), built-in thermal overload protection.

\*\* NOTE TO SPECIFIER \*\* Battery convenience mode is optional. Delete if not required.

* + - * 1. Battery Convenience Mode: Operator to maintain continuous operation by battery power during power failure. Battery is continuously monitored and provides a warning signal if the battery is not working properly.

\*\* NOTE TO SPECIFIER \*\* Digital cycle counter is optional. Delete if not required.

* + - * 1. Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.
      1. Door Operation:
         1. Opening Cycle: The adjustable speed operator shall control the door opening to the back check position, where the opening speed is reduced.

Manual door operation with operational forces of 15 lbf (66.7 N) maximum to fully open the door applied at 1 inch (25 mm) from the latch edge of the door.

* + - * 1. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 to 30 seconds).
        2. Closing Cycle: Power closing shall be provided by means of clock spring and motor. The door will slow to low speed at latch check before it reaches the fully closed position.
        3. Electronic Dampening: Operator to include standard electric dampening system which automatically counteracts additional forces applied to the door during the opening or closing cycle by reducing door speed.
        4. Stack Pressure Compensation: Electronic control allows for increases of forces to overcome minor stack pressures while compensating to lower manual push forces when the door is used in manual mode in order to comply with ANSI/BHMA A156.19.
        5. Obstruction Control: The operator will stop and reverse the door movement.
        6. Astragal Coordinator: Sequenced electronic operation between operators for pairs of doors allowing astragal coordination.
        7. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
        8. Electronic Controls: Microprocessor controlled unit shall control the operation and switching of the swing power operator. The microprocessor unit provides low voltage power supply for all means of actuation. The controls include time delay (1.5 to 30 seconds) for normal cycle.
        9. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

\*\* NOTE TO SPECIFIER \*\* Select control switch option required. Delete option not required.

Rocker Switch: 3 position mounted on end cap (On-Off-Hold).

Rocker Switch: 2 position mounted on end cap (On-Off).

\*\* NOTE TO SPECIFIER \*\* Operator interface options below are optional. Delete options not required.

* + - 1. Operator Interface: Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.
      2. Operator Interface: Electric Strike Integration: To interface operator with electrified door hardware.

\*\* NOTE TO SPECIFIER \*\* SW60 swing operators are recommended for interior openings with a maximum door weight of 200 pounds.

* + 1. Basis of Design: SW60 low energy automatic door operator; as manufactured by ASSA ABLOY.
       1. Compliant with ANSI/BHMA A156.19.
       2. Configuration: Control single swinging doors as indicated on drawings as specified:

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - * 1. Traffic Pattern: Two-way.
        2. Traffic Pattern: One-way.
      1. Automatic Door Operator: Electro-mechanical, non-handed operator. Motor: 24 V, 1/8 hp. Spring: Adjustable. Compensates for push forces required on varying door widths.
         1. Operate and control a 200 lb (90.82 kg) door, 48 inch (1219 mm) width.
         2. Surface Mounted Operator: Contained in side access aluminum housing with removable cover. (DxHxL): 2-3/8 x 1-7/8 x 39-1/2 inch (60 x 48 x 1003 mm).

Connecting Hardware: Steel arm from operator, mounted to top face of swing door.

UL Listed R-9469 Fire Door Operator with Automatic Closer.

* + - * 1. Operator Temperature Range: Minus 4 to 113 degrees F (Minus 20 to 45 degrees C).
        2. Electrical Characteristics: Current draw is 90 W, 3.75 A at 24 VDC.

Operator power supply requires 1.3 amps at 120 VAC, 50/60 hz.

\*\* NOTE TO SPECIFIER \*\* SW60 is a low voltage operator requiring an external power supply. Direct connection of 120 VAC is not available. Maximum distance from remote mounted power supply to swing operator is 24 feet (7.2 meters) with 14 AWG rated wire. No electrician is required for electrical power to the swing operator when plug-in power supply is specified and a 120 VAC receptacle is within 18 feet of the door. Delete power supply not required.

Remote Mounted Power Supply: UL listed steel box with 24 VDC transformer and terminal blocks, hard wired to swing operator.

Mounting: Concealed above ceiling.

Mounting: Flush mounted in wall below ceiling.

Plug-In Power Supply: 24 VDC. White in color. Cable Length: 18 ft.

A 120 VAC receptacle must be located so cable can be routed to hinge side of door operator in anappropriate and esthetic way.

Wire Mold: Provided by others.

* + - 1. Door Operation: For adjustable speed operator and gear reduction system
         1. Opening Cycle: Mechanically powers arm system throughout opening cycle, self-adjusting to mild internal stack pressures and door weight. Allows manual door operation with operational forces as indicated to fully open door.

Manual Door Operation: With operational forces applied at 1 inch (25 mm) from latch edge of door, allows door to be fully opened by a force adjustable from 5 to 15 lbf maximum.

Manually stop door at any position during opening cycle and holds open at that position.

* + - * 1. Hold Open: Operator to stop and hold door open at selected door opening angle for adjustable period of time; 1.5 to 30 seconds.

Hold open indefinitely at any position during opening or closing cycles by use of mode selector or smart device application.

AUTO Mode: A "nudge" feature cancels hold open and allows door to immediately close for privacy when door is pushed in the close direction.

* + - * 1. Closing Cycle: Power closing provided by means of closing spring and motor. Door slows to low speed at latch check before reaching fully closed position.

Manually stop door at any position during closing cycle and hold open at that position.

Selectable Closing Torque Control: When activated, closing torque is increased without changing closing speed of operator.

Torque control is disabled during manual use of door.

* + - * 1. Electronic Dampening: Electric dampening system automatically counteracts forces applied to door during opening or closing by reducing door speed.
        2. Stack Pressure Compensation: Allows for increases of forces to overcome mild stack pressures while compensating to lower manual push forces when door is used in manual mode, complying with ANSI/BHMA A156.19.
        3. Obstruction Control: Operator will stop and reverse door movement.
        4. Electric Lock Management: Internal module for electrified locking integration.

Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.

* + - * 1. Lock Retry Circuit: If fully closing door is unsuccessful, operator automatically reverse opens 10 degrees, and attempts to reclose door successfully.
        2. Electronic Controls: Microprocessor controlled unit with motor encoder controls the operation and switching of door operator. The microprocessor provides low voltage power supply for all means of actuation and electric lock management. Controls include time delay of 1.5 to 30 seconds for normal cycle.

Setup, Configuration, and Controlling Operator: To be done through an application on a smartphone or tablet.

Modes to be controlled through an app on a mobile device:

Off / Closed: Door is closed. Activation devices are inactive. Electromechanical locking is secured if present. Key impulse is active for card reader type security devices.

Exit Only: Door is closed. Swing operator is controlled by activation devices on interior side only. Electromechanical locking is secured when door is in closed position. Key impulse is active for card reader type security devices.

Auto: Door is closed. Swing operator is controlled by activation devices on interior and exterior sides of opening.

Hold: Door can be held at any position during open and close cycles.

Ratchet Feature: 1st Impulse to open, 2nd impulse to close. When selected, the inner impulse function changes to the ratchet impulse feature.

Microprocessor communicates with mobile device through Bluetooth interface.

* + - * 1. Control Switch: 3 position rocker switch mounted on end cap; On-Off-Hold.

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

* + - 1. Operator Interface: Safety sensor integration for door mounted reactivation safety sensors.

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

* + - 1. Activation by Fire Detection System: Coordinate with other required activation and safety devices with door operation and door operator mechanisms.
         1. Activation: Activation to operator by means of a normally closed maintained contact that opens and is maintained to control closing of door systems in event of an alarm condition. When alarm clears, contact is to revert back to a normally closed state.
      2. Activation Devices in Accordance with ANSI/BHMA Standards:
         1. For condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate activation and safety devices with door operation and door operator mechanisms.

\*\* NOTE TO SPECIFIER \*\* Delete knowing act activation devices not required and respective options or delete paragraph.

* + - * 1. Knowing Act Activation Device:

Sensor Plate Switch: Black polycarbonate with white letters. Microwave technology has an adjustable range of 2 to 24 inches (51 to 610 mm).

Touchless: 2-3/4 x 4-1/2 inch (70 x 114 mm).

Touchless: 4-1/2 inch (114 mm) square.

Push Plate Switch, Hard Wired: Stainless steel engraved with "Push to Open" with blue handicap logo.

Square: 4-1/2 inch (114 mm).

Square: 6 inch (152 mm).

Round: 4-1/2 inch (114 mm).

Round: 6 inch (152 mm).

Push Plate Switch, Jamb Mounted, Hard Wired: Stainless steel engraved with "Push to Open" with blue handicap logo.

Rectangular: 1-1/2 x 4-3/4 inch (38 x 121 mm).

Push Plate Switch, Radio controlled, Wirelass: Stainless steel engraved with "Push to Open" with blue handicap logo.

Square: 4-1/2 inch (114 mm).

Square: 6 inch (152 mm).

Round: 4-1/2 inch (114 mm).

Round: 6 inch (152 mm).

* + - * 1. Manual Operation:

\*\* NOTE TO SPECIFIER \*\* Specify power assist option for doors requiring ease of manual operation

Power Assist Function: Providing ease of operational forces.

Manual Push Force: Adjustable from 5 to 15 lbf (22 to 57 N) maximum.

\*\* NOTE TO SPECIFIER \*\* Consult Manufacturer for "push and go" operation option.

"Push and Go" Operation: Door opens automatically after activation by manually pulling or pushing on door.

\*\* NOTE TO SPECIFIER \*\* Consult Manufacturer for safety device recommendations. Safety sensors are not required by ANSI/BHMA A156.19 for low-energy operators. Retain if safety devices are required. Requires "safety sensor integration" option on power operator. Delete if not required or delete options not required.

* + - 1. Safety Devices:
         1. For condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.
         2. Safety Devices:

Door Mounted Presence Sensor (DMPS): ASSA ABLOY door mounted infrared presence safety device mounted at top of each door; adjustable detection field sizes.

Provide detection during the travel of the door.

Upon detection, sensor provides a signal to stop or reverse the door action.

Door Mounted Safety Sensor Devices: Mounted on approach; push side of door, 1 safety sensor per leaf, providing detection on one side of door only.

\*\* NOTE TO SPECIFIER \*\* Coordinate with Architect if electrical power transfer (EPT) is required in lieu of the standard door cord power transfer.

* + - 1. Power Transfer from Door Mounted Safety Sensor to Operator:
         1. Exposed door cord.
         2. Electrical power transfer (EPT) specified in Division 8 Section "Door Hardware".

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

* 1. IN GROUND, LOW ENERGY DOOR OPERATORS FOR SWINGING DOORS
     1. Basis of Design: SW200i-IG in ground, low energy automatic door operator; as manufactured by Besam ASSA ABLOY.
        1. Compliant with ANSI/BHMA A156.19.
        2. Configuration: Operator to control single swinging doors and pairs of swinging doors as indicated on the drawings and specified below:

\*\* NOTE TO SPECIFIER \*\* Select configurations required. Delete options not required.

* + - * 1. Pairs of Doors: Simultaneous swing.
        2. Pairs of Doors: Single leaf operation.
        3. Double Egress Doors: Simultaneous swing.
        4. Double Egress Doors: Independent operation.

\*\* NOTE TO SPECIFIER \*\* Select traffic pattern required. Delete option not required.

* + - * 1. Traffic Pattern: Two-way.
        2. Traffic Pattern: One-way.
      1. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
         1. Automatic operator shall be capable of operating and controlling up to a 700 pound (317.5 kg) door, 48 inches (1219 mm) in width.
         2. In-Ground Operator Enclosure and Drive Unit:

Cement case shall be 12 gauge minimum thickness steel, fully welded enclosure.

Corrosion Protection: 6 to 10 mill powder coat finish suitable for continuous protection when in contact with concrete and masonry.

Removable top case cover shall be 12 gauge minimum thickness steel with powder coat finish.

Cover shall be sealed to cement case by a neoprene gasket.

All penetrations including the operator drive shaft shall have seals to prevent water and moisture infiltration.

Drive Mechanism Assembly: Manufacturer's drive mechanism assembly designed to provide swing door operation from an in-ground automatic door operator.

Operator shaft shall be directly coupled to the pivot assembly.

Weight of door shall be fully supported independently through a pivot bearing support. Door weight shall not be supported by the operator or the gear box assembly.

Connecting hardware to door shall be a door arm attached to the bottom rail of the swing door.

\*\* NOTE TO SPECIFIER \*\* Select adapter required. Delete options not required.

Output shaft adapter and door arm shall allow for center-pivoted as indicated on drawings.

Output shaft adapter and door arm shall allow for offset pivoted installation as indicated on drawings.

Output shaft adapter and door arm shall allow for butt hinge installation as indicated on drawings.

Output shaft adapter and door arm shall allow for installation as indicated on the drawings and specified in Division 8 Section "Door Hardware".

\*\* NOTE TO SPECIFIER \*\* Select top pivot or hinges and how they will be supplied. Delete options not required.

Top pivot assembly shall be supplied by the operator manufacturer.

Top pivot assembly shall be supplied as indicated in Division 8 Section "Door Hardware".

Hinges shall be supplied by the operator manufacturer.

Hinges shall be supplied as indicated in Division 8 Section "Door Hardware".

* + - * 1. Operator Temperature Range: Capable of operating within temperature ranges of minus 31 to 160 degrees F (minus 35 to 71 degrees C).
        2. Electrical Characteristics: Maximum power consumption is 300 watts (2.5 amps at 120 VAC), 50/60hz, built-in thermal overload protection.

\*\* NOTE TO SPECIFIER \*\* Digital cycle counter is optional. Delete if not required.

* + - * 1. Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.
      1. Door Operation:
         1. Opening Cycle: The adjustable speed operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle regardless of stack pressures or wind speed. Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1 inch (25 mm) from the latch edge of the door.

Manual push force shall be adjustable from 5 lbf to 15 lbf maximum.

* + - * 1. Hold Open: The operator shall stop and hold the door open at the selected door opening angle for an adjustable period of time (1.5 to 30 seconds).
        2. Closing Cycle: Spring close with speed controlled power assist.

Upon loss of power, dynamic braking will control the door insuring controlled closing.

Selectable Torque Control: Automatically adjusts torque without changing the closing speed of the operator.

When the torque control is activated, the closing speed shall remain constant regardless of stack pressures or wind speed.

Torque Cancellation: The torque control is deactivated whenever there is a signal received from door mounted sensors.

The torque control is disabled during manual use of the door.

* + - * 1. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.
        2. Stack Pressure Compensation: Operator shall counteract positive stack pressures, negative stack pressures, and sudden changes of stack pressures. The operator never allows the door to open or close faster than the speed control settings, regardless of pressures.
        3. Obstruction Control: The operator will stop and reverse the door movement.
        4. Electric Lock Management:

Internal module for electrified locking integration.

Electric Lock Output: Selectable 12 VDC, maximum 1200 mA / 24 VDC, maximum 600 mA.

Lock monitoring prevents operators from opening doors until release of electrified lock.

Operator pulls door closed before opening, automatically unjamming electric latch hardware.

Sequenced operation between operators for pairs of doors allowing lock release and astragal coordination.

* + - * 1. Lock Retry Circuit: If attempt to fully close the door is unsuccessful, the operator will automatically reverse open 10 degrees and reclose in an attempt to successfully close the door.
        2. Selectable Alarm Reset: The operator can be field set so that after receiving an alarm signal, the operator will not accept any activation impulses and will operate only as a manual door closer until manually reset.
        3. Electronic Controls: Solid state integrated circuit controls the operation and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. The controls include time delay (1 to 30 seconds) for normal cycle.
        4. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

3 position toggle switch remotely mounted (On-Off-Hold).

4 position rotary switch remotely mounted (On-Off-Hold- Special Function).

* + - 1. Operator Interface: Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.
    1. Floor Plate/Threshold: Manufacturer's standard threshold as indicated.

\*\* NOTE TO SPECIFIER \*\* Select option required. Delete options not required.

* + - 1. ADA compliant aluminum threshold extending the width of the door opening, 1/4 inch (6 mm) high.
      2. ADA compliant aluminum threshold extending the width of the door opening, 1/2 inch (13 mm) high.
      3. 3/4 inch (19 mm) terrazzo pan extending the width of the door opening.

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

* 1. ACTIVATION BY SMOKE EVACUATION SYSTEM
     1. General: Provide activation by the smoke evacuation system and/or fire detection system. Coordinate other required activation devices and safety devices with door operation and door operator mechanisms.
     2. Activation:Smoke evacuation system and/or fire detection system shall provide activation of the operator by means of a normally open maintained contact to control the opening and closing of the door systems in the event of an alarm condition. Doors are to be held open until the smoke evacuation/fire detection system is reset.
  2. ACTIVATION DEVICES
     1. General: Provide safety devices in accordance with ANSI/BHMA A156.10 standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.

\*\* NOTE TO SPECIFIER \*\* Select activation devices required. Confirm available options for operator selected. Automatic activation only available for ANSI/BHMA A156.10 operators. Delete options not required.

* + 1. Automatic Activation Device: Motion sensors, self-contained, K-band-frequency, microwave-scanner unit; achieving both a narrow or wide sensing pattern, adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.
       1. Motion Sensors to offer three motion detection actions; bi-directional, uni-directional, and uni-MTF detection.
    2. Secondary Activation Device: Where activation is by a "knowing act" device, provide a secondary activation sensor as required by ANSI/BHMA A156.10.
    3. Knowing Act Activation Device:

\*\* NOTE TO SPECIFIER \*\* Select push plate or sensor plate required. Delete options not required.

* + - 1. Push Plate: Hard wired, 4-1/2 inch (114 mm) square stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.
      2. Push Plate: Hard wired, 6 inch (152 mm) round stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.
      3. Push Plate: Jamb mounted, hard wired, 1-1/2 x 4-3/4 inch (33 x 121 mm) , stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.
      4. Push Plate: Radio controlled, wireless, 4-1/2 inch (114 mm) square stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.
      5. Push Plate: Radio controlled, wireless, 6 inch (152 mm) round stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.
      6. Sensor Plate: Touchless, 2-3/4 x 4-1/2 inch (70 x 114 mm) activation senor plates, black polycarbonate with white letters. Microwave technology has an adjustable range of 2 inches to 24 inches.
      7. Sensor Plate: Touchless, 4-1/2 inch (114 mm) square activation senor plates, black polycarbonate with white letters. Microwave technology has an adjustable range of 2 to 24 inches (51 to 610 mm).

\*\* NOTE TO SPECIFIER \*\* Manual operation is for low energy models only. Delete if not required.

* + 1. Manual Operation:

\*\* NOTE TO SPECIFIER \*\* Select option required. Delete option not required.

* + - 1. Operator shall provide power assist function to the doors to provide ease of manual operational forces.

\*\* NOTE TO SPECIFIER \*\* Select first option below for SW100. Select second option below for SW200i and SW200i-IG. Delete option not required.

* + - * 1. Manual push force to be 15 lbf (66.7 N) maximum.
        2. Manual push force shall be adjustable from 5 to 15 lbf (22.2 to 66.7 N) maximum.
      1. Operator shall provide "push and go" operation allowing door to open automatically after activation by manually pulling or pushing on the door.
  1. SAFETY DEVICES
     1. General: Provide safety devices in accordance with ANSI/BHMA A156.10 standards, for condition of exposure and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.

\*\* NOTE TO SPECIFIER \*\* Select activation device required. Consult manufacturer for recommendations. Delete option not required.  
\*\* NOTE TO SPECIFIER \*\* Select following paragraph for maximum safety at the doorway. Delete if not required.

* + 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Premium Safety Sensor System A202, Door Mounted Presence Sensor Adaptable Field (DMPS-AF) as specified:
       1. Door Mounted Presence Sensor Adaptable Field (DMPS-AF): Door mounted combination activation motion sensor/safety presence sensor. Sensor shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 sensors per leaf).

\*\* NOTE TO SPECIFIER \*\* Select one of the following sensor technologies. First option is standard. Second option is an alternate option. Delete option not required.

* + - * 1. Sensor shall utilize active infrared presence technology with auto adapting field to detect moving or stationary presence of people or objects in the swing path of the door.
        2. Sensor shall utilize presence laser technology with auto adapting field to detect moving or stationary presence of people or objects in the swing path of the door.
        3. Presence detection shall always be active and remain active when the door is in motion. The sensor provides a full detection pattern that covers the entire swing of the door and also provides detection in the full open and full close position.
        4. The sensor has an auto adapting field which maximizes the sensor pattern tailored to the environment providing detection beyond the moving part of the door. The sensor provides detection to the wall and or guide rails ensuring maximum safety resulting in the door stopping much sooner (further) from the person using the doorway.
        5. Upon detection the sensor shall provide a signal to slow, stop, or reverse the door action depending on the situation.
        6. The sensor provides secondary activation as required for "knowing act" doorways.
        7. Since the infrared presence detection is always active, no overhead safety sensor is required.
        8. Motion/presence detecting sensors to be field installed and adjusted.

\*\* NOTE TO SPECIFIER \*\* Select one of the following power transfer options, if required. Delete option not required.

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an exposed door cord.

\*\* NOTE TO SPECIFIER \*\* Coordinate the following with Division 8 Section "Door Hardware".

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an EPT (electrical power transfer) specified in Division 8 Section "Door Hardware".

\*\* NOTE TO SPECIFIER \*\* Select following paragraph for safety at the doorway, compliant with ANSI/BHMA A156.10 requirements. Delete if not required.

* + 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Flex Safety Sensor System A102, Combination of an Overhead Presence Sensor (OPS) and Door Mounted Presence Sensors (DMPS) as specified:
       1. Overhead Presence Sensor (OPS): Header mounted, overhead presence sensor utilizing infrared technology for detection; adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10. Unit to provide the following two independently adjustable patterns of detection:
          1. The door closed position covering the area on the swing side of the door.
          2. The door open position including an area of detection that reaches through the threshold toward the non-swing side of the door.
          3. The unit is not active during the door closing cycle.
       2. Door Mounted Presence Sensor (DMPS): Door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.
          1. The door mounted presence detector shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 sensors per leaf), providing detection on both sides of the door.
          2. Unit to provide detection during the travel of the door.
          3. Upon detection the sensor shall provide a signal to stop or reverse the door action.

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

* + - * 1. Door mounted presence sensor shall be monitored, providing a supervisory circuit to the operator.

\*\* NOTE TO SPECIFIER \*\* Select one of the following power transfer options, if required. Delete option not required.

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an exposed door cord.

\*\* NOTE TO SPECIFIER \*\* Coordinate the following with Division 8 Section "Door Hardware".

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an EPT (electrical power transfer) specified in Division 8 Section "Door Hardware".

\*\* NOTE TO SPECIFIER \*\* Select following paragraph for safety at the doorway, compliant with ANSI/BHMA A156.10 requirements. Delete if not required.

* + 1. Presence Detection Systems and Safety Devices: ASSA ABLOY I-Adapt Flex Safety Sensor System A101, Combination of an Overhead Presence Sensor (OPS) and Door Mounted Presence Sensors (DMPS) as specified:
       1. Overhead Presence Sensor (OPS): Header mounted, overhead presence sensor utilizing infrared technology for detection; adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10. Unit to provide the following two independently adjustable patterns of detection:
          1. The door closed position covering the area on the swing side of the door.
          2. The door open position including an area of detection that reaches through the threshold toward the non-swing side of the door.
          3. The unit is not active during the door closing cycle.
       2. Door Mounted Presence Sensor (DMPS): Door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.
          1. The door mounted presence detector shall be mounted on the swing (pull) side of the door (1 sensor per leaf), providing detection on one side of the door only.

On "knowing act" double egress doorways, the door mounted presence detector shall be mounted on the approach (push) side of the door (1 sensor per leaf).

* + - * 1. Unit to provide detection during the travel of the door.
        2. Upon detection the sensor shall provide a signal to stop or reverse the door action.

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

* + - * 1. Door mounted presence sensor shall be monitored, providing a supervisory circuit to the operator.

\*\* NOTE TO SPECIFIER \*\* Select one of the following power transfer options, if required. Delete option not required.

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an exposed door cord.

\*\* NOTE TO SPECIFIER \*\* Coordinate the following with Division 8 Section "Door Hardware".

* + - 1. Power transfer from the door mounted safety sensor to operator shall be through an EPT (electrical power transfer) specified in Division 8 Section "Door Hardware".

\*\* NOTE TO SPECIFIER \*\* Select following paragraph for low energy operators. Delete if not required.

* + 1. Safety Devices:
       1. Door Mounted Presence Sensor (DMPS): Shall be the ASSA ABLOY door mounted infrared presence safety device (mounted at top of each door); adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10:
          1. Unit to provide detection during the travel of the door.
          2. Upon detection the sensor shall provide a signal to stop or reverse the door action.
       2. Door Mounted Safety Sensor Devices: Safety sensor devices shall be door mounted as specified.

\*\* NOTE TO SPECIFIER \*\* Select mounting location required. Delete options not required.

* + - * 1. The door mounted safety sensor devices shall be mounted on both the swing (pull) side and the approach (push) side of the door (2 safety sensors per leaf), providing detection on both sides of the door.
        2. The door mounted safety sensor devices shall be mounted on the swing (pull) side of the door (1 safety sensor per leaf), providing detection on one side of the door only.
        3. The door mounted safety sensor devices shall be mounted on the approach (push) side of the door (1 safety sensor per leaf), providing detection on one side of the door only.

\*\* NOTE TO SPECIFIER \*\* Select power transfer option required. Delete option not required.

* + - * 1. Power transfer from the door mounted safety sensor to operator shall be through an exposed door cord.
        2. Power transfer from the door mounted safety sensor to operator shall be through an EPT (electrical power transfer) specified in Division 8 Section "Door Hardware".
  1. ACCESSORIES

\*\* NOTE TO SPECIFIER \*\* ANSI/BHMA A156.10 requires guide rails for power operated swing doors unless the door is located adjacent to a wall. Select first paragraph below to describe guide rails in this Section Select second paragraph below if guide rails will be detailed on Drawings. Delete options not required.

* + 1. Guide Rails: Minimum 30 inches (762 mm) high, and finished to match doors unless otherwise indicated; positioned and projecting from face of door jamb for distance as indicated, but not less than that required by ANSI/BHMA A156.10 for type of door and direction of travel; with filler panel.

\*\* NOTE TO SPECIFIER \*\* Select material required. Delete options not required.

* + - 1. Material: Anodized aluminum.
      2. Material: Painted aluminum.
      3. Material: Stainless steel.

\*\* NOTE TO SPECIFIER \*\* Select fabrication required. Delete option not required.

* + - 1. Fabricated from bars.
      2. Fabricated from tubing.
      3. Filler Panel:

\*\* NOTE TO SPECIFIER \*\* Select material required. Delete option not required.

* + - * 1. Material: Expanded aluminum mesh.

\*\* NOTE TO SPECIFIER \*\* Select orientation required. Delete options not required.

Orientation: With long dimensions of diamonds parallel to top rail.

Orientation: With long dimensions of diamonds perpendicular to top rail.

Orientation: With long dimensions of diamonds horizontal.

Orientation: With long dimensions of diamonds vertical.

* + - * 1. Material: Polycarbonate plastic.

\*\* NOTE TO SPECIFIER \*\* Select color option required. Delete options not required.

* + - * 1. Color: To match guide rails.
        2. Color: Clear.
        3. Color: \_\_\_\_\_.
        4. Color: As indicated on Drawings.
        5. Color: To be selected by Architect.

\*\* NOTE TO SPECIFIER \*\* Select mounting required. Delete options not required.

* + - 1. Mounting: Jamb and floor.
      2. Mounting: Floor, freestanding.
    1. Guide Rails: As detailed on Drawings.
    2. Guide Rail Finish:

\*\* NOTE TO SPECIFIER \*\* Delete finish types and finish options not required.

* + - 1. Anodized Finish:
         1. AAMA 611, Clear, AA- M12C22A41, Class I, 0.018 mm.
         2. AAMA 611, Dark Bronze, AA-M12C22A44, Class I, 0.018 mm.
         3. AAMA 611, Color anodized, \_\_\_\_\_.
         4. AAMA 611, Color anodized, color as indicated on Drawings.
         5. AAMA 611, Color anodized, color to be selected by Architect.
      2. Painted Finish:
         1. Powder coat painted, \_\_\_\_\_ color.
         2. Powder coat painted, color as indicated on Drawings.
         3. Powder coat painted, color to be selected by Architect.
         4. Kynar finish, 2 coat, \_\_\_\_\_ color.
         5. Kynar finish, 2 coat, color as indicated on Drawings.
         6. Kynar finish, 2 coat, color to be selected by Architect.
         7. Kynar finish, 3 coat, \_\_\_\_\_ color.
         8. Kynar finish, 3 coat, color as indicated on Drawings.
         9. Kynar finish, 3 coat, color to be selected by Architect.
      3. Stainless Steel Finish: Satin finish.
      4. Finish:
         1. \_\_\_\_\_.
         2. As indicated on Drawings.
         3. To be selected by Architect.
  1. ALUMINUM FINISH
     1. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

\*\* NOTE TO SPECIFIER \*\* Select finish options required. Verify availability for system selected. Delete options not required.

* + 1. Anodized Finish:
       1. AAMA 611, Clear, AA- M12C22A41, Class I, 0.018 mm.
       2. AAMA 611, Dark Bronze, AA-M12C22A44, Class I, 0.018 mm.
       3. AAMA 611, Color anodized, \_\_\_\_\_ .
       4. AAMA 611, Color anodized, color as indicated on Drawings.
       5. AAMA 611, Color anodized, color to be selected by Architect.
    2. Painted Finish:
       1. Powder coat painted, \_\_\_\_\_ color.
       2. Powder coat painted, color as indicated on Drawings.
       3. Powder coat painted, color to be selected by Architect.
       4. Kynar finish, 2 coat, \_\_\_\_\_ color.
       5. Kynar finish, 2 coat, color as indicated on Drawings.
       6. Kynar finish, 2 coat, color to be selected by Architect.
       7. Kynar finish, 3 coat, \_\_\_\_\_ color.
       8. Kynar finish, 3 coat, color as indicated on Drawings.
       9. Kynar finish, 3 coat, color to be selected by Architect.
    3. Clad Finish:
       1. Stainless steel with #4 satin finish.
       2. Stainless steel with #8 mirrorlike, reflective, non-directional finish.
       3. Bronze with a satin finish.
       4. Bronze with a polished, non-directional finish.
       5. Brass with a satin finish.
       6. Brass with a polished, non-directional finish.
    4. Finish:
       1. \_\_\_\_\_.
       2. As indicated on Drawings.
       3. To be selected by Architect.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
      2. Install 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 surface mounted hardware using concealed fasteners to greatest extent possible.
         2. Set headers, carrier assemblies, tracks, operating brackets and guides level and true to location with anchorage for permanent support.
         3. Where aluminum will contact dissimilar metals, concrete, or masonry, protect against galvanic action and corrosion.
      3. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

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

* + - 1. Connect door operators with smoke evacuation system and/or fire detection system.

\*\* NOTE TO SPECIFIER \*\* Electrician is not required for plug-in power supply. Delete if not required.

* + 1. Door Operators: Plug-in the power supply for the door operators into an electrical outlet.

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

* + - 1. Attach power cable between swing operator and power supply to baseboard or wall.
      2. Attach wire mold to wall. Route power cable from swing operator to power supply through wire mold.
    1. Glazing: Glaze swinging automatic entrance door panels 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.
    2. Sealants: Comply with requirements specified in division 7 Section "Joint Sealants" to provide a weather tight installation.
       1. Set thresholds, bottom guide and track systems and framing members in full bed of sealant.
       2. Seal perimeter of framing members with sealant.
    3. Signage: Apply signage on both sides of each door and sidelite as required by ANSI/BHMA A156.10 and manufacturers installation instructions.
  1. ADJUSTING
     1. Adjust alignment of entrances and hardware for smooth, safe operation with minimum air infiltration.
     2. Adjust door operators, controls and hardware for smooth and safe operation and for weather tight closure.
     3. Verify installation and alignment of all entrance gasketing as required for minimum air infiltration and compliance with specified standards.
  2. FIELD QUALITY CONTROL
     1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.
     2. Before placing doors into operation, AAADM certified technician shall inspect and approve doors for compliance with ANSI/BHMA A156.10. Certified technician shall be approved by the manufacturer.
  3. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturer's recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.
  4. DEMONSTRATION
     1. Engage a factory-authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the door.

END OF SECTION