1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 SUMMARY

A. This Section includes items of miscellaneous hardware or door hardware that are required for the following:

1. One-way swing automatic door operators.

B. Related Work Specified in Other Sections: Furnishing and installing Finish Hardware for the following items:

1. Section 07920, Sealants.
2. Section 08410, Aluminum Entrances and Storefronts.
3. Section 08710, Finish Hardware
4. Section 08800, Glass and Glazing.
5. Section 16000, Electrical.

1.3 DEFINITIONS

A. Automatic entrance door operators consist of powered door operators, controls, and accessories.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide automatic entrance door assemblies that comply with performance characteristics specified as demonstrated by testing the manufacturer’s corresponding stock assemblies according to the test method indicated.

B. Operator: Provide operators that will open and close doors and maintain them in fully closed position when subjected to a 20 mph wind velocity or the equivalent inward differential pressure.
C. Automatic door equipment accommodates medium to heavy pedestrian traffic and up to 300-pound (136 kg) weight of doors.

D. Operator capable of operating within temperature ranges of -20°F (-29°C) and 160°F (71°C).

1.5 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification sections.

B. Product data for each automatic door operator required, including the manufacturer’s standard details and fabrication methods and the following:

1. Date on operators, hardware, and accessories.
2. Roughing-in diagrams
3. Parts lists
4. Data on finishes and recommendations for maintenance and cleaning of exterior surfaces.

C. Submit shop drawings for the fabrication and installation of automatic operators and associated components of the work including:

1. Layout and installation details, including anchoring, hardware and relationship to adjacent work.

D. Wiring diagrams detailing wiring for power operator, signal and control systems differentiating clearly between manufacturer-installed wiring and field-installed wiring.

E. Maintenance Data: Submit manufacturer’s maintenance and service data for door operators and control systems including the name, address, and telephone number of the nearest authorized service representative.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: For installation of the automatic entrance doors, engage an experienced installer who is an authorized representative of the manufacturer for both the installation and maintenance of the type of units required for this Project.

1. Maintenance Proximity: The installer shall maintain offices and repair or service facilities not more than 2 hours normal travel time from the Project site.

B. BHMA Standard: Provide automatic entrance door units that comply with applicable requirements of ANSI A156.10 (BHMA 1601), Power Operated

1.7 PROJECT CONDITIONS

A. Field Measurements: Check openings by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.

1. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.8 SPECIAL WARRANTY

A. Written warranty, executed by the manufacturer agreeing to repair or replace components of the automatic entrance door system that fail in materials or workmanship for a period of 3 years from date of substantial completion.

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide automatic entrance doors from one of the following:

1. Besam, Inc.*
2. Dor-O-Matic, Division of Republic Industries, Inc.
3. Horton Automatics, Division of Overhead Door Corp.
4. Stanley Magic-Door, Division of the Stanley Works.

* Based on "Swingmaster" series 400 as manufactured by Besam, Inc.

2.2 MATERIALS

A. Aluminum Members: Alloy and temper recommended by the manufacturer for strength, corrosion resistance, and application of required finish. Comply with ASTM B 221 for aluminum extrusions; ASTM B 209 for aluminum sheet or plate; and ASTM B 211 for aluminum bars, rods, and wire.

B. Fasteners: Provide aluminum, non-magnetic stainless steel, or other non-corrosive metal fasteners compatible with aluminum components, hardware, anchors, and other items being fastened.

1. Reinforcement: Where fasteners screw-anchor into aluminum members less than 0.125 inch thick, reinforce the interior with aluminum or non-
magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in, splined grommet nuts.

C. Brackets and Reinforcements: Provide high-strength aluminum brackets and reinforcements. Where use of aluminum is not feasible, provide non-magnetic stainless steel or hot-dip galvanized steel complying with ASTM A 123.

2.3 AUTOMATIC SWING DOOR OPERATOR

A. Capacity: Provide operators of the size recommended by the manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance free operation under normal traffic load for the type of occupancy indicated.

B. Exposed housing: Provide extruded or formed aluminum housing for operators of 0.062 inch thickness with fasteners concealed when door is in the closed position. Provide access for maintenance.

C. Adjustment Features: Operators shall be fully adjustable without removal of the doors. Provide adjustments for opening, closing, and checking speeds, as well as length of time the door remains open.

D. Provide the following type: Electro-Mechanical Operator for Swinging Doors: provide self-contained, overhead electro-mechanical door operator with power opening and either spring or power closing and speed control to provide checking in both cycles enclosed in a continuous surface-mounted aluminum header. Include connections for power and control wiring. Provide for manual operation that requires less than 20 pounds of force to open door for use when power is off. Provide operator action as indicated.

2. Hold-open Switch: Equip units with hold-open switch arranged to hold door open without continued use of power.

E. Electro-mechanical operator, powered by 1/4 hp motor. Completely assembled and sealed unit includes helical gear drive transmission and interconnected rack and gear system for compression of exterior replaceable heavy duty spiral spring, all contained within a die cast aluminum housing and filled with special lubricant for extreme temperature conditions. Drive shaft is minimum 15/16" (24mm) thick containing 14 tooth splines to maximize bearing surface contact with drive arm assembly to eliminate slippage and door latch drifting. Interfaced with the transmission system is a DC shunt-wound permanent magnet motor with sealed ball bearings. System operates from 120 VAC-60 cycle-1 phase power supply. The operator is mounted in the header case housing using vibration isolators to maintain quiet operation.

F. Coordinate all hardware prior to fabrication with the Owner’s Door Security requirements.
2.4 ACTIVATION DEVICE AND COMPONENTS

A. Activate doors by the following equipment:
   1. Wall push button switch
   2. Key switch

B. Components: Refer to Section 08410 for door construction and stile design.

C. Wall push button switch: Manufacturer’s standard surface mounted 4 by 4 inch door control switch, with one red button activator. Provide blue plastic cover engraved with international symbol of accessibility and “Press Button To Open” white lettered message.

D. Mounting: Refer to diagram for jamb locations of push button switches.

E. Door hardware: Refer to Division 8 Section “Door Hardware” for requirements for hardware items other than those indicated to be provided by automatic entrance door manufacturer.

F. Guide rails: Anodized aluminum bar stock, minimum 30” high, and projecting from face of door jamb for a distance not less than the width of widest door leaf.

G. Electrical interlocks: Unless units are equipped with self-protecting devices or circuits, provide electrical interlocks to prevent operation of the unit when operation of the door is prevented by lock and latch or door bolts.

2.5 OPERATOR HOUSING

A. Operator is completely contained in a 6” (152mm) wide x 6” (152mm) high side load extruded aluminum housing. All aluminum sections are 6063-T5 alloy and have a minimum thickness of .156” (4mm). The operator housing provides a seal against dust, dirt and moisture.

2.6 CONNECTING HARDWARE

A. Overhead concealed operator is connected to the door by means of an electroplated case hardened steel door arm. The door arm is secured to the top rail of the swing door using one piece threaded tubular inserts for aluminum doors. The door arm is broached for positive engagement with the splined drive shaft and requires no additional linkage, slide blocks or tracks. The top rail of the swing door shall be modified in order to attach the door arm.

2.7 POWER OPEN

A. The automatic door operator powers the door open by forces transmitted mechanically to the drive shaft and maintains a constant engagement throughout
the opening cycle. The operator is designed to counteract most normal exterior wind conditions and/or interior stack pressure without the need of additional power assist mechanisms. The automatic door system functions as a manual door closer in the event of a power failure. The automatic door system is electro-mechanical in design requiring no remote pumps or compressors.

2.8 SPRING CLOSE

A. Automatic door operator is spring closed. Spring is designed to counteract most normal wind conditions and return the door to full close. Closing forces are regulated by utilizing the motor and gear assembly as a dynamic brake. The spring is compression type to ensure longevity. Clock type torsion springs will not be allowed.

2.9 EMERGENCY BREAKAWAY

A. All IN swing doors, which are required exits, are equipped with an emergency breakaway switch that internally cuts power to the operator. No external power switch will be allowed. The breakaway feature allows doors to swing in the direction of egress with forces that comply with current ANSI/BHMA 156.10 American National Standard for Power Operated Pedestrian Doors. For OUTswing operators, following emergency breakaway the doors return to the full closed position and electrically reset automatically.

2.10 ELECTRICAL CHARACTERISTICS AND COMPONENTS

A. Electrical Characteristics: Electrical is 120VAC, 60 Hz, 10 amp electrical power supply to the operator. Provide two low voltage 18 gauge stranded wires from automatic operator to each remote (50 feet max.) activation devices.

2.11 ELECTRONIC CONTROLS

A. A self-contained, solid state integrated circuit controls the operations and switching of the swing power operator. The electronic control provides low voltage power supply for all means of actuation. No external or auxiliary low voltage power source will be allowed. The control includes adjustable time delay (1 to 30 seconds) for normal cycle, as well as, the following built in features:

1. Torque limiting for controlled forces on opening.
2. Acceleration control for smooth starts and recycle.
3. Special circuitry for reducing power to the motor when door is in HOLD-OPEN mode, extending longevity and assuring reliability.
2.12 FABRICATION

A. General: Fabricate automatic entrance door system components to designs, sizes, and thicknesses indicated and to comply with indicated standards.

2.13 FINISHES

A. General: Comply with NAANN “Metal Finishes Manual” for recommendations relative to application and designations of finishes.

B. Finish designation prefixed by “AA” conform to the system established by the Aluminum Association for designating aluminum finishes.

C. All exposed aluminum surfaces to be selected by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrance doors.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Templates and Diagrams: Furnish templates, diagrams, and other data to fabricators and installers of related work, as necessary, for coordination of the automatic entrance door installation.

3.3 INSTALLATION

A. General: Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.

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

2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
B. Install complete door operator system in accordance with manufacturer’s written instructions and specifications, including controls and control wiring.

C. Set units plumb, level, and true to line without warp or rack of frames or doors. Anchor securely in place. Separate aluminum and other corrodeable metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

D. Door Operators: Connect door operators to electrical power distribution system as specified in Division 16.

E. Activation and Safety Devices: Install and adjust devices to provide detection field and functions indicated.

F. Glazing: Install glazing as specified in Division 8 Section "Glazing."

G. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants" to provide weathertight installation.

H. Signage: Apply signage on both sides of each door and breakaway sidelight as required by referenced door standards.

I. Wiring within Automatic Entrance Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's written limitations on bending radii. Provide and use lacing bars and distribution spools.

3.4 FIELD QUALITY CONTROL

A. Inspection: Engage Installer's certified inspector to test and inspect automatic entrances and prepare test and inspection reports.

1. Certified inspector shall test and inspect each automatic entrance to determine compliance of installed systems with applicable BHMA standards.

2. Inspection Report: Certified inspector shall submit report in writing to Architect and Contractor within 24 hours after inspection.

B. Work will be considered defective if it does not pass tests and inspections.

3.5 ADJUSTING

A. After repeated operation of completed installation, equivalent to 3 days use by normal traffic (100 to 300 cycles), readjust door operators and controls for optimum operating condition and safety and for a weathertight closure.

B. Adjust door operators, controls, and hardware for smooth and safe operation and for weathertight closure; comply with requirements in BHMA A156.10 and BHMA A156.19.
C. Lubricate operating hardware and other moving parts as recommended by manufacturer.

3.6 CLEANING AND PROTECTION

A. Clean glass and metal surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish.

1. Comply with requirements in Division 8 Section "Glazing" for cleaning and maintaining glass.

3.7 DEMONSTRATION

A. Engage a certified inspector to train Owner's maintenance personnel to adjust, operate, and maintain automatic entrances.

END OF SECTION 08720