

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes the following types of automatic door operators:
 - 1. Exterior and interior, automatic door operators, low energy, with visible header mounting.
 - 2. Automatic door operators shall be configured for doors as follows: Simultaneous pairs.
- B. Related Requirements:
 - 1. Division 8 Section "Doors and Frames" for entrances furnished and installed separately in Division 8 Section.
 - 2. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished and installed separately in Division 8 Section.
 - 3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
 - 4. Division 26 Sections for electrical connections provided separately including conduit and wiring for power to, and control of, automatic door operators.
 - 5. Division 28 Section "Electronic Safety and Security" for systems not specified in this section.

1.02 DEFINITIONS

- A. AAADM: American Association of Automatic Door Manufacturers.
- B. Activation Device: A control that, when actuated, sends an electrical signal to the door operator to open the door.
- C. Double-Egress (Doors): A pair of doors that simultaneously swing with the two doors moving in opposite directions with no mullion between them.
- D. Double-Swing (Doors): A pair of doors that swing with the two doors moving in opposite directions with a mullion between them; each door functioning as a single-swing door.
- E. Safety Device: A control that, to avoid injury, prevents a door from opening or closing.
- F. For automatic door terminology, see BHMA A156.10 and BHMA A156.19 for definitions of terms.

1.03 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. Underwriters Laboratories (UL):
 - 1. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
 - 2. UL 10C - Positive Pressure Fire Tests of Door Assemblies
- C. American National Standards Institute (ANSI)/Builders' Hardware Manufacturers Association (BHMA):
 - 1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
- D. ANSI/BHMA A156.19: Standard for Power Assist and Low Energy Power Operated Doors.
- E. American Society for Testing and Materials (ASTM):

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- F. American Association of Automatic Door Manufacturers (AAADM).
- G. National Fire Protection Association (NFPA):
1. NFPA 101 - Life Safety Code.
 2. NFPA 70 - National Electric Code.
- H. International Code Council (ICC):
1. IBC: International Building Code.
- I. Building Officials and Code Administrators International (BOCA), 1999.
- J. International Standards Organization (ISO):
1. ISO 9001 - Standard for Manufacturing Quality Management Systems
- K. National Association of Architectural Metal Manufacturers (NAAMM):
1. Metal Finishes Manual for Architectural and Metal Products.
- L. American Architectural Manufacturers Association (AAMA):
1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
 2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

1.04 COORDINATION

- A. Coordinate sizes and locations of recesses in concrete floors for recessed control mats that control automatic door operators. Concrete, reinforcement, and formwork requirements are specified elsewhere.
- B. Templates: Distribute for doors, frames, and other work specified to be factory prepared and reinforced for installing automatic door operators.
- C. Coordinate hardware for doors with operators to ensure proper size, thickness, hand, function, and finish.
- D. Electrical System Roughing-in: Coordinate layout and installation of automatic door operators with connections to, power supplies, remote activation devices, electric door latching hardware, and security access control system. See Division 28 Section "Electronic Safety and Security" for systems not provided under this section.
- E. System Integration: Integrate automatic door operators with other systems as required for a complete working installation.

1.05 PERFORMANCE REQUIREMENTS

- A. General: Provide automatic door operators capable of withstanding loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
- C. Opening-Force Requirements for Egress Doors: In the event 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" (25 mm) from the latch edge of the door.

- D. Break Away Requirements: Automatic door operators shall breakaway with no more than 30 lbf (133 N) applied at 1" (25 mm) from the latch edge of the door.

1.06 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.07 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for automatic door operators.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: For automatic door operators.
 - 1. Include plans, elevations, sections, hardware mounting heights, and attachment details.
 - 2. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Indicate locations of activation and safety devices.
 - 4. Include diagrams for power, signal, and control wiring.
 - 5. Include plans, elevations, sections, and attachment details for bollards.
- C. Samples: For each exposed product and for each color and texture specified, manufacturer's standard size.

1.08 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of automatic door operator.
- C. Field quality-control reports.
- D. Sample Warranties: For manufacturer's special warranties.

1.09 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For automatic door operators, safety devices, and control systems, to be included in Owner's Operations and Maintenance Manual.
- B. Warranties: included in Owner's Operation and Maintenance Manual.

1.10 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer with a certificate issued by AADM, for installation and maintenance of units required for this Project and who employs a Certified Inspector.
- B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001.
 - 1. Maintenance Proximity: Not more than one hour' normal travel time from Installer's place of business to Project site.
 - 2. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.

- C. Certified Inspector Qualifications: Certified by AAADM.
- D. Certifications: Automatic door operators shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
 - 1. ANSI/BHMA A156.10 and A156.19.
 - 2. NFPA 101.
 - 3. UL 325 Listed.
 - 4. UL 10C Listed.
 - 5. IBC 2012
- E. Source Limitations: Obtain automatic door operators through one source from a single manufacturer.
- F. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of swinging doors equipped with automatic door operators and are based on the specific system indicated. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- G. Power Operated Door Standard: ANSI/BHMA A156.19.
- H. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- I. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for swinging automatic entrance doors serving as a required means of egress.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of automatic door operators that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty or sporadic operation of automatic door operator, including controls.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering or use.
 - 2. During the warranty period a factory-trained technician shall perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.
 - 3. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Stanley Access Technologies; Magic-Force TM Series automatic door operator.
 - 2. Or approved equal.
- C. Source Limitations: Obtain automatic door operators, including activation and safety devices, from single source from single manufacturer.

2.02 AUTOMATIC DOOR OPERATORS, GENERAL

- A. General: Provide operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for occupancy type indicated; and according to UL 325. Coordinate operator mechanisms with door operation, hinges, and activation and safety devices.
 - 1. Wind Load: Provide door operators on exterior doors that will open and close doors and maintain them in fully closed position when subjected to wind load of 30 lbs. / sq. ft..
- B. Hinges: See Section 087100 "Door Hardware" and Section 084113, "Aluminum Framed Entrance and Storefronts" for hinge type for each door that door operator shall accommodate.
- C. Housing for Overhead Concealed Operators: Fabricated from minimum 0.125-inch- (3.2-mm-) thick, extruded or formed aluminum and extending full width of door opening including door jambs to conceal door operators and controls. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
- D. Header Case: Fabricated from 0.125-inch- (3.2-mm-) thick, extruded aluminum; continuous over full width of operator-controlled door opening; with enclosed end caps, provision for maintenance access, and fasteners concealed when door is in closed position. Header case shall not exceed 6" (152 mm) square in section and shall be fabricated from extruded aluminum with structurally integrated end caps, designed to conceal door operators and controls. The operator shall be sealed against dust, dirt, and corrosion within the header case. Access to the operator and electronic control box shall be provided by a full-length removable cover, edge rabbeted to the header to ensure a flush fit. Removable cover shall be secured to prevent unauthorized access.
- E. Brackets and Reinforcements: Fabricated from aluminum with nonstaining, nonferrous shims for aligning system components.
- F. Door Arms: A combination of door arms and linkage shall provide positive control of door through entire swing; units shall permit use of butt hung, center pivot, and offset pivot-hung doors.
- G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- H. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.03 LOW-ENERGY DOOR OPERATORS

- A. Standard: BHMA A156.19.
- B. Performance Requirements:
 - 1. Opening Force if Power Fails: Not more than 15 lbf (67 N) required to release latch if provided, not more than 30 lbf (133 N) required to manually set door in motion, and not more than 15 lbf (67 N) required to fully open door.
 - 2. Entrapment-Prevention Force: Not more than 15 lbf (67 N) required to prevent stopped door from closing or opening.
- C. Configuration: Operator to control pair of swinging doors.
 - 1. Traffic Pattern: One way.
 - 2. Mounting: Overhead Surface.

- D. Operation: Power opening and power-assisted spring closing. Provide time delay for door to remain open before initiating closing cycle as required by BHMA A156.19. When not in automatic mode, door operator shall function as manual door closer, with or without electrical power.
- E. Operating System: Electromechanical self-contained unit powered by a minimum 3/16 horsepower, permanent-magnet DC motor; through a high torque reduction gear system.
1. Operation: Power opening and spring closing.
 2. Operator Type: Low energy; readily convertible to full energy; no tools required to change type.
 3. Handing: Non-handed; no tools required to change handing.
 4. Capacity: Rated for door panels weighing up to 350 lb (159 kg).
 5. Mounting: Visible
 6. Features:
 - a. Adjustable opening and closing speeds.
 - b. Adjustable opening and closing force.
 - c. Adjustable back-check.
 - d. Adjustable hold-open time between 0 and 30 seconds.
 - e. Reverse on obstruction.
 - f. Closed loop speed control with active braking and acceleration.
 - g. Variable obstruction recycle time delay.
 - h. Optional Switch to open/Switch to close operation.
 - i. Optional push to activate operation.
 - j. When operators are provided in pairs, adjustable features are independently adjustable for each operator.
- F. Field Adjustable Spring Closing Operation: The operator shall close the door by spring energy employing the motor, as a dynamic brake to provide closing speed control. The closing spring shall be a helical compression spring, adjustable for positive closing action. The spring shall be adjustable, without removing the operator from the header, to accommodate a wide range of field conditions.
- G. Independent Adjustable Closing and Latching Speed Control: The operator shall employ a rheostat module to allow for independent field adjustment of closing and latching speeds using the motor as a dynamic brake.
- H. Field Adjustable Open Stop: The operator shall provide a field adjustable open stop to accommodate opening angles from 80 to 135 degrees without the need for additional components.
- I. Consistent Cycle: The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door fully open. Additionally, the range of the force shall be field adjustable to accommodate a wide range of on-site conditions.
- J. Quiet Performance: The operator shall be designed to output audible noise ratios less than or equal to 50dba.
- K. Manual Use: The operator shall function as a manual door closer in the direction of swing with or without electrical power. The operator shall deliver an even, consistent open force across the entire transition from door fully closed to door fully open.
- L. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

2.04 ELECTRICAL CONTROLS

- A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position. Systems utilizing external magnets and magnetic switches are not acceptable.
- B. Performance Data: The microprocessor shall collect and store performance data as follows:
 - 1. Counter: A non-resettable counter to track operating cycles.
 - 2. Event Reporting: Unit shall include event and error recording including number of occurrences of events and errors, and cycle count of most recent events and errors.
 - 3. LED Display: Display presenting the current operating state of the controller.
- C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
 - 1. Automatic Reset Upon Power Up.
 - 2. Main Fuse Protection.
 - 3. Electronic Surge Protection.
 - 4. Internal Power Supply Protection.
 - 5. Resettable sensor supply fuse protection.
 - 6. Motor Protection, over-current protection.
- D. Soft Start/Stop: A "soft-start" "soft-stop" motor driving circuit shall be provided for smooth normal opening and recycling.
- E. Obstruction Recycle: Provide system to recycle the swinging panels when an obstruction is encountered during the closing cycle.
- F. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be a software driven handheld interface. The following parameters may be adjusted via the configuration tool.
 - 1. Operating speeds and forces as required to meet ANSI/BHMA A156.19.
 - 2. Adjustable and variable features as specified herein.
 - 3. Firmware update.
 - 4. Trouble Shooting
 - a. I/O Status.
 - b. Electrical component monitoring including parameter summary.
 - 5. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer's internet site. Software shall be compatible with the following operating system platforms: Palm®, Android®, and Windows Mobile®.
- G. Emergency Breakout Switch: A cam actuated emergency breakout switch shall be provided to disconnect power to the motor when an in-swinging door is manually pushed in the emergency out direction. The operator will then automatically reset and power will be resumed.
- H. Control Switch: Automatic door operators shall be equipped with a three position function switch to control the operation of the door. Control switch shall provide three modes of operation, Automatic, Off, and Hold-Open.
- I. Power Switch: Automatic door operators shall be equipped with a two position On/Off switch to control power to the door.

2.05 ACTIVATION DEVICES

- A. Activation Device: Push-plate switch on each side of door to activate door operator.

- B. Low-energy doors are not required by BHMA A156.19 to have auxiliary safety devices. If auxiliary safety devices are required, insert requirements here.
- C. Push Plates: Provide push plates with UL recognized SPDT switch. Face plates and mounting studs shall be stainless steel. Face plates shall be engraved with the international symbol for accessibility and "Push To Open".
 - 1. Interior push plates shall be jamb style, 1 3/4 inch by 4 3/4 inch (44 mm by 121 mm), surface mounted in formed, ABS plastic boxes, and hardwired to door operator controls.
 - 2. Exterior push plates shall be 4 3/4 inch (121 mm) square, post mounted and hardwired to door operator controls.
 - 3. Where mounting posts are required provide 6 1/4 inch by 4 1/4 inch (159 mm by 108 mm) steel tube, black ABS plastic cap, and SS mounting plate. Post finish shall be powder coat inside and out. Post shall be 42 inch (1067 mm) high configured for switch mounting.
- D. Activation Control Module: Provide microprocessor controlled module as required for timed activation of door operators integrated with electric locking. Module shall comply with the following:
 - 1. Power Supply: 12-24 VAC/VDC.
 - 2. Inputs: 4 Dry Contacts, 1 Wet @ 5-24 VAC/VDC.
 - 3. Outputs: 2 Dry Relays @ 3 A, 1 Dry Relay @ 1 A, 1 Wet Relay @ 1 A
 - 4. Unit shall be suitable for mounting in automatic door operators headers.
 - 5. Activation control module shall be equal to or better than BEA Br3.

2.06 ALUMINUM FINISHES

- A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
- B. Class II, Clear Anodic Finish: AA-M12C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
 - 1. AAMA 607.1
 - 2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

2.07 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Extrusions: ASTM B 221 (ASTM B 221M).
 - 2. Sheet: ASTM B 209 (ASTM B 209M).
- B. Fasteners and Accessories: Corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

2.08 CONTROLS

- A. General: Provide controls, including activation and safety devices, according to BHMA standards; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for occupancy type indicated. Coordinate activation and safety devices with door operation and door operator mechanisms.

- B. Presence Sensors: Self-contained, active-infrared scanner units; adjustable to provide detection field sizes and functions required by BHMA A156.10. Sensors shall remain active at all times.
- C. Push-Plate Switch: Momentary-contact door control switch with flat push-plate actuator with contrasting-colored, engraved message.
 - 1. Configuration: Square push plate with 4-by-4-inch (100-by-100-mm) junction box.
 - a. Mounting: As indicated on Drawings.
 - 2. Configuration: Rectangular push plate with 2-by-4-inch (50-by-100-mm) junction box.
 - a. Mounting: As indicated on Drawings.
 - 3. Push-Plate Material: Stainless steel as selected by Architect from manufacturer's full range.
 - 4. Message: International symbol of accessibility and "Push to Open."
- D. Electrical Interlocks: Unless units are equipped with self-protecting devices or circuits, provide electrical interlocks to prevent activation of operator when door is locked, latched, or bolted.

2.09 FABRICATION

- A. Factory fabricate automatic door operators to comply with indicated standards.
- B. Form aluminum shapes before finishing.
- C. Fabricate exterior components to drain condensation and water passing joints within operator enclosure to the exterior.
- D. Use concealed fasteners to greatest extent possible. Where exposed fasteners are required, use countersunk Phillips flat-head machine screws, finished to match operator.
- E. Provide metal cladding, completely covering visible surfaces before shipment to Project site. Fabricate cladding with concealed fasteners and connection devices, with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion, and with allowance for thermal expansion at exterior doors.

2.10 ACCESSORIES

- A. Signage: As required by cited BHMA standard for type of door and its operation.
 - 1. Application Process: Operator manufacturer's standard process.
 - 2. Provide sign materials with instructions for field application when operators are installed.

2.11 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering before shipping.
- B. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, door and frame preparation and reinforcements, and other conditions affecting performance of automatic door operators.
- B. Field Measurements: General Contractor shall verify openings to receive automatic door operators by field measurements before fabrication and indicate measurements on Shop Drawings.
- C. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
- D. Examine roughing-in for electrical systems to verify actual locations of power connections before automatic door operator installation.
- E. Examine roughing-in for compressed-air piping systems to verify actual locations of piping connections before automatic door operator installation.
- F. Verify that full-height finger guards are installed at each door with pivot hinges where door has a clearance at hinge side greater than 1/4 inch (6 mm) and less than 3/4 inch (19 mm) with door in any position.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install automatic door operators according to manufacturer's written instructions and cited BHMA standard for type of door operation and direction of pedestrian travel, including signage, controls, wiring, remote power units if any, and connection to building's power supply.
 - 1. Do not install damaged components. Fit joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.
 - 2. Install operators true in alignment with established lines and grades and door geometry without warp or rack. Anchor securely in place.
 - 3. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - 4. Set headers, arms and linkages level and true to location with anchorage for permanent support.
- B. Controls: Install activation and safety devices according to manufacturer's written instructions and cited BHMA standard for operator type and direction of pedestrian travel.
- C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.
- D. Access-Control System: Connect operators to access-control system provided by Owner's Security Vendor.
- E. Signage: Apply on both sides of each door as required by cited BHMA standard for type of door operator and direction of pedestrian travel.

3.03 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Test and inspect each automatic door operator installation, using AAADM inspection forms, to determine compliance of installed systems with applicable BHMA standards.
- B. Automatic door operators will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports. Provide an original copy of final approved test Report signed by the authorized factory representative. Incorporate additional copies into the O & M manual submission at Project Closeout.

3.04 ADJUSTING

- A. AAADM Certified Technician shall adjust automatic door operators to function smoothly, safe operation, tight closing and lubricate as recommended by manufacturer and in compliance with requirements of ANSI/BHMA A156.19.
 - 1. Adjust operators on exterior doors for weathertight closure.
- B. After completing installation of automatic door operators, inspect exposed finishes on doors and operators. Repair damaged finish to match original finish.
- C. Re-adjust automatic door operators and controls after repeated operation of completed installation equivalent to three days' use by normal traffic (100 to 300 cycles).
- D. Occupancy Adjustment: At two separate times requested by the Owner within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions.

3.05 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of automatic door operator Installer. Include monthly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 1. Engage a Certified Inspector to perform safety inspection after each adjustment or repair and at end of maintenance period. Furnish completed inspection reports to Owner.
 - 2. Perform maintenance, including emergency callback service, during normal working hours.
 - 3. Include 24-hour-per-day, 7-day-per-week, emergency callback service.

3.06 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain automatic door operators.

END OF SECTION