SECTION 087113
AUTOMATIC DOOR OPERATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes the following types of automatic door operators:
   1. Exterior and interior, automatic door operators, low energy, with visible mounting.
   2. Automatic door operators shall be configured for doors as follows:
      a. Simultaneous pairs, out swing, in swing, or double egress.
      b. Simultaneous pairs, with single operator, out swing or in swing.
      c. Single doors, out swing or in swing.

1.02 RELATED SECTIONS

A. Division 8 Section “Doors and Frames” for entrances furnished separately in Division 8 Section.

B. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished separately in Division 8 Section.

C. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.

D. Division 16 Sections for electrical connections including conduit and wiring for power to, and control of, automatic door operators.

1.03 REFERENCES

A. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.

B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

C. BHMA A156.10 - Power Operated Pedestrian Doors; 2017.

D. BHMA A156.19 - Power Assist and Low Energy Power Operated Swinging Doors; 2019.

E. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

F. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work. Indicate wiring for electrical supply.

C. Color Samples for selection of factory-applied color finishes.

D. Closeout Submittals: Provide the following with project close-out documents.
   1. Owner’s Manual.
   2. Warranties.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative, with certificate issued by AAADM, who is trained for installation and maintenance of units required for this Project.

B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001.

C. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.

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 A156.19.
   2. NFPA 101.
   3. UL 325 Listed.

4. UL 10C Listed.

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 automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

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.

1.06 PERFORMANCE REQUIREMENTS

A. Provide automatic door operators capable of withstanding structural 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 (29 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 applied at 1” form the latch edge of the door.

D. Break Away Requirements: Automatic door operators provided with a breakaway device shall require no more than 50 lbf applied at 1” from the latch edge of the door.

1.07 PROJECT CONDITIONS

A. Field Measurements: General Contractor shall verify openings to receive automatic door operators by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: General Contractor Advise of any inadequate conditions or equipment.

1.08 COORDINATION

A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic door operators to comply with indicated requirements.

B. Electrical System Roughing-in: Coordinate layout and installation of automatic door operators with connections to, power supplies, remote activation devices, and electric door latching hardware.

C. System Integration: Integrate automatic door operators with other systems as required for a complete working installation. Where required for proper operation, provide a time delay relay to signal automatic door operator to activate only after electric lock system is released.

1.09 WARRANTY

A. Automatic door operators shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.

B. During the warranty period the Owner shall engage a factory-trained technician to 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.

C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Stanley Access Technologies; Magic-Access™ Series automatic door operator.

B. Dor-O-Matic; 9221 E. Baseline Road, Ste. 109-263, Mesa, AZ 85209. custsvc@autodoorandhardware.com.

C. Substitutions: See Section 01 6000 - Product Requirements.

D. Provide all door operators from a single manufacturer.

2.02 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
   1. Headers: 6063-T6.
   2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
   3. Sheet and Plate: ASTM B 209.

B. Sealants and Joint Fillers: Refer to Division 7 Section "Joint Sealants".

2.03 COMPONENTS

A. Header Case: Header case shall not exceed 6-1/8 inch x 4 inch in rectangular 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 rabbetted to the header to ensure a flush fit. Removable cover shall be secured to prevent unauthorized access.

B. Door Arms and Linkage Assembly: 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.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.

D. Signage: Provide signage in accordance with ANSI/BHMA A156.19.

2.04 SWINGING DOOR OPERATORS

A. General: Provide door 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 type of occupancy indicated.

B. Operators: Self-contained units powered by a minimum fractional horsepower, permanent-magnet DC motors.
   1. Electro-mechanical Operator: Transmit power from operator to door through reduction gear train, splined spindle, door arm, and linkage assembly. Drive train shall have positive constant engagement.
   2. Operation: Power opening and spring closing.
   3. Capacity: Rated for door panels weighing up to 125 lb.
   4. Mounting: Visible
   5. Features:
      a. Adjustable opening, open check, and closing speeds.
      b. Adjustable opening force.
      c. Adjustable hold-open time between 0 and 30 seconds.
      d. Reverse on obstruction.
      e. Push to operate activation.

C. 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 adjustable for positive closing action at a low material stress level for long spring life.

D. 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.

E. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

2.05 ELECTRICAL CONTROLS

A. Electrical Control System: Electrical control system shall include a solid state controller with quick connect plugs.

B. Controller Protection: The controller shall incorporate the following features to ensure trouble free operation:
   1. Main Fuse Protection.
   2. Electronic Surge Protection.
   3. Internal Power Supply Protection.
   4. Motor Protection, over-current protection.

C. Program Dip Switches: The controller shall have program dip switches to allow selection or change of activation options; standard activation or push-to-operate.

D. Power Switch: Automatic door operators shall be equipped with a two position On/Off switch to control power to the door.

2.06 ACTIVATION DEVICES

A. Push Plates: Provide 4 ½ inch (114 mm) square SPDT push plates with UL listed 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”. Push plates shall be wall mounted in single or double gang electrical boxes and hardwired to door operator controls.

2.07 ALUMINUM FINISHES

A. 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.]

PART 3 EXECUTION

3.01 INSPECTION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of swinging automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

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

B. Mounting: Install automatic door operators/headers plumb and true in alignment with established lines and grades. Anchor securely in place.
   1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
   2. Set headers, arms and linkages level and true to location with anchorage for permanent support.

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

3.03 FIELD QUALITY CONTROL

A. Testing Services: Factory Trained Installer shall test and inspect each swinging automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.04 ADJUSTING

A. Adjust door operators, controls, and hardware for smooth and safe operation, for tight closure, and complying with requirements in ANSI A156.19 by AAADM Certified Technician.

3.05 CLEANING AND PROTECTION

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

END OF SECTION