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SECTION 08 71 13 – AUTOMATIC DOOR OPERATORS

PART 1 - GENERAL

1.1 SUMMARY

NOTE: Edit this specification as required for the project

NOTE: This specification is for automatic door operators complying with ANSI/BHMA A156.19 for power assist and low energy door applications.

- A. This section includes the following types of automatic door operators:
 - 1. Low energy and power assist door operators for swinging doors.
- B. Related Sections:
 - 1. Division 7 Sections for caulking to the extent not specified in this section.
 - 2. [Division 8 Section “Aluminum-Framed Entrances and Storefronts” for entrances furnished separately in Division 8 Section.]
 - 3. [Division 8 Section “Sliding Automatic Entrances” for single and bi-parting sliding automatic entrance doors with sidelites.]
 - 4. [Division 8 Section “Door Hardware” for hardware to the extent not specified in this Section.]
 - 5. Division 26 and 28 Sections for electrical connections including conduit and wiring for automatic entrance door operators and access control devices.

1.2 REFERENCES

- A. References: Refer to the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. CUL – Approved for use in Canada.
 - 4. NFPA 70 - National Electrical Code.
 - 5. NFPA 80 - Fire Doors and Windows.
 - 6. NFPA 101 - Life Safety Code.
 - 7. NFPA 105 - Installation of Smoke Door Assemblies.
- B. American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA).
 - 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.

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- C. Underwriters Laboratories (UL).
 - 1. UL Listed R-9469 Fire Door Operator with Automatic Closer.
 - 2. UL 325 Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems.
 - 3. UL991 Listed - Tests for Safety-Related Controls Employing Solid-State Device.
- D. American Association of Automatic Door Manufacturers (AAADM).
- 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 Architectural Manufacturers Association (AAMA).
 - 1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
- G. National Association of Architectural Metal Manufacturers (NAAMM).
 - 1. Metal Finishes Manual for Architectural Metal Products.
- H. International Code Council (ICC).
 - 1. [IBC: International Building Code.]
 - 2. [CBC: California Building Code.]

1.3 DEFINITIONS

- A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to activate the operation of the door.
 - 1. 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.
- B. 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.
- C. Double Egress Doors: A pair of doors that swing with the two doors moving in opposite directions and no mullion between them.

1.4 PERFORMANCE REQUIREMENTS

- A. Automatic door equipment accommodates medium pedestrian traffic.

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- B. Opening Force Requirements: Doors shall open with a manual force, not to exceed 30lbf (133N) to set the door in motion and 15 lbf to fully open the door applied at 1" (25 mm) from the latch edge of the door. The force required to prevent a stopped door from opening or closing shall not exceed 15 lbf (67 N) measured 1" (25 mm) from the latch edge of the door at any point during opening or closing.
- C. Closing Time:
 - 1. Doors shall be field adjustable to close from 90 degrees to 10 degrees in 3 seconds or longer as applicable per ANSI/BHMA A156.19 standards.
 - 2. Doors shall be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, fabrication, operational descriptions and finishes.
- B. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections and details, indicating dimensions, materials, operator, motion /presence sensor control device, anchors, hardware, finish, options and accessories.
 - 1. Indicate required clearances, and location and size of each field connection.
 - 2. Indicate locations and elevations of entrances showing activation and safety devices.
 - 3. Wiring Diagrams: For power, signal, and activation / safety device wiring.
- C. Samples: Submit manufacturer's samples of aluminum finish.
- D. Manufacturers Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA after completion of installation.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the work of this section in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the operators and their nearest service representatives. The final copies delivered after completion of the installation test to include spare parts list.
- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

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1.6 QUALITY ASSURANCE

- A. **Manufacturers Qualifications:** Engage qualified manufacturers with a minimum 10 years of documented experience in manufacturing of doors and equipment of similar to that indicated for this Project and that have a proven record of successful in-service performance. Manufacturer to have a company certificate issued by AAADM.
- B. **Installer Qualifications:** Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing and maintenance of units similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. **Certified Inspector Qualifications:** Certified by AAADM.
- D. **Source Limitations for Automatic Door Operators:** Obtain each type of door, frame, operator and sensor components specified in this Section from a single source, same manufacturer unless otherwise indicated.
- E. **Certifications:** Operators shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards.
 - 1. ANSI/BHMA A156.19 American National Standard for Power Assist and Low Energy Operated Doors.
 - 2. NFPA 101 - Life Safety Code.
 - 3. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
 - 4. UL Listed R-9469 Fire Door Operator with Automatic Closer.
- F. **Emergency Exit Door Requirements:** Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

1.7 COORDINATION

- A. **Coordinate door operators with doors, frames and related work to ensure proper size, thickness, hand, function and finish. Coordinate hardware for automatic entrances with hardware required for rest of the project.**
- B. **Electrical System Roughing-in:** Coordinate layout and installation of power door operators with connections to power supplies and access control system as applicable.

1.8 WARRANTY

- A. **General Warranty:** Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run

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concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

- B. 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.
- C. During the warranty period a factory-trained technician shall perform service and affect repairs. An inspection shall be performed after each adjustment or repair.
- D. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal business hours.
- E. Manufacturer shall have in place a dispatch procedure that shall be available 24 hours a Day, 7 Days a week for emergency call back service.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturer

Entrematic Canada Inc.
221A Racco Parkway
Vaughan, Ontario, L4J 8X9
Phone: 1-877-348-6837

Entrematic USA Inc.
1900 Airport Rd
Monroe, NC, 28110
Phone: 1-866-901-4284

NOTE: Revise the following substitution clause as required by project requirements. Select either Item "B" or "C"

- B. [Substitutions: Requests for substitution and product approval in compliance with the specifications must be submitted in writing and in accordance with the procedures outlined in Division 1, Section "Substitution Procedures". Approval of requests is at the discretion of the architect, owner, and their designated consultants.]
- C. [Substitutions: Not Permitted.]

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, as indicated below:
 - 1. Extruded Aluminum, Alloy 6063-T5.

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2.3 SWING DOOR OPERATORS

NOTE: The HA9 swing operators are recommended for interior openings with a maximum door weight of 200 pounds

A. Model: Ditec Entrematic HA9 low energy automatic door operator (Basis of Design):

NOTE: Select the following options as required for the project

1. Reference Standard: 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:
 - a. Traffic Pattern: [One way.] [Two way.]
 - b. [Pairs of Doors: [Simultaneous swing.] [Single leaf operation.]
 - c. [Double Egress Doors: [Simultaneous swing.] [Independent operation.]
3. Automatic Door Operator: Electro-mechanical, non-handed operator, powered by 24 volt, 1/8 hp motor. Spring shall be adjustable to compensate for different manual push forces required on varying door widths.
 - a. Automatic operator shall be capable of operating and controlling up to a 200 pound (91 kg) door, 48 inches (1219 mm) in width.
 - b. Surface Mounted Operator:
 - 1) Side Access Operator Housing: Operator is contained in 5-1/8" (130.2 mm) deep x 4 5/16" (110 mm) high extruded aluminum housing with a removable cover.
 - 2) Surface Mounted Housing: [Standard Width.] [Continuous for full width of door.]
 - 3) Connecting Hardware: Surface mounted operators to have a steel arm from the operator, mounted to the top face of the swing door.
 - 4) UL Listed R-9469 Fire Door Operator with Automatic Closer (surface mounted operator).
 - c. Operator Temperature Range: Capable of operating within temperature ranges of -20°F (-29°C) and 160°F (71°C).
 - d. Electrical Characteristics: Nominal current draw 75 watts (.625 amps at 120 VAC), built-in thermal overload protection.
 - e. [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.]
 - f. [Digital Cycle Counter: Battery powered, 7 digit LCD cycle counter with a reset feature to track door usage cycles.]
4. Door Operation:
 - a. Opening Cycle: The adjustable speed operator shall control the door opening to the back check position, where the opening speed is reduced.
 - 1) Manual door operation with operational forces of 15 lbf maximum to fully open the door applied at 1" (25 mm) from the latch edge of the door.

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- b. 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).
- c. 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.
- d. 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.
- e. 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.
- f. Obstruction Control: The operator will stop and reverse the door movement.
- g. Astragal Coordinator: Sequenced electronic operation between operators for pairs of doors allowing astragal coordination.
- h. 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.
- i. 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.
- j. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

NOTE: Select one of the following control switch options if required

- 1) [3 position rocker switch mounted on end cap (On-Off-Hold).]
- 2) [2 position rocker switch mounted on end cap (On-Off).]
- 5. [Operator Interface:]
 - a. [Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.]
 - b. [Electric Strike Integration: To interface operator with electrified door hardware.]

2.4 [ACTIVATION BY SMOKE EVACUATION SYSTEM]

NOTE: Delete this entire option if not required – Review operation with Architect

- A. 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.
- B. 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

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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.

2.5 ACTIVATION DEVICES

NOTE: Select the type of activation devices and safety devices required for the project

- A. General: Provide activation devices in accordance with ANSI/BHMA standards, 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: Select the type of knowing act activation devices if required for the project

- B. [Knowing Act Activation Device:]
1. [Push Plate: Hard wired, [4-1/2 inch square] [6 inch round] stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.]
 2. [Push Plate: Jamb mounted, hard wired, 1-1/2 inch x 4-3/4 inch, stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.]
 3. [Push Plate: Radio controlled, wireless, [4-1/2 inch square] [6 inch round] stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.]
 4. [Sensor Plate: Touchless, [2-3/4 inch x 4-1/2 inch] [4-1/2 inch square] activation sensor plates, black polycarbonate with white letters. Microwave technology has an adjustable range of 2 inches to 24 inches.]

- C. [Manual Operation:]

NOTE: Specify the power assist option for doors requiring ease of manual operation

1. [Operator shall provide power assist function to the doors to provide ease of manual operational forces.]
 - a. Manual push force to 15 lbf maximum.

NOTE: Consult SpecDesk for "push and go" operation option

2. [Operator shall provide "push and go" operation allowing door to open automatically after activation by manually pulling or pushing on the door.]

NOTE: Consult SpecDesk for safety device recommendations – safety sensors are not required by ANSI/BHMA A156.19 for low-energy operators

NOTE: Retain the following if safety devices are required for the project – requires "safety sensor integration" option on power operator

2.6 [SAFETY DEVICES]

- A. 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

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load for type of occupancy indicated. Coordinate safety devices with door operation and door operator mechanisms.

B. Safety Devices:

1. Door Mounted Presence Sensor (DMPS): Shall be the 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.
 - a. Unit to provide detection during the travel of the door.
 - b. 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: Select one of the following mounting options for door mounted safety sensor devices

- a. [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.]
- b. [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.]
- c. [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: Coordinate with the Architect if an EPT (electrical power transfer) is required in lieu of the standard door cord power transfer – EPT specified in Division 8 Section “Door Hardware”

- d. Power transfer from the door mounted safety sensor to operator shall be [through an exposed door cord] [through an EPT (electrical power transfer) specified in Division 8 Section “Door Hardware”].]

2.7 [ALUMINUM FINISHES]

NOTE: Consult SpecDesk for custom finish options

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Automatic Door Operator Enclosure:
 1. [Anodized Finish:]
 - a. [AAMA 611, Clear, AA- M12C22A41, Class I, 0.018 mm.]
 - b. [AAMA 611, Dark Bronze, AA-M12C22A44, Class I, 0.018 mm.]
 - c. [AAMA 611, Custom anodized to match architect's sample.]
 2. [Painted Finish:]

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- a. [Powder coat painted to match architect's sample.]
- b. [Kynar finish, [2 coat], [3 coat], to match architect's sample.]
3. [Clad Finish (protective coatings by others):]
 - a. [Stainless steel with #4 satin finish.]
 - b. [Stainless steel with #8 mirrorlike, reflective, non-directional finish.]
 - c. [Bronze with a satin finish.]
 - d. [Bronze with a polished, non-directional finish.]
 - e. [Brass with a satin finish.]
 - f. [Brass with a polished, non-directional finish.]
4. [To match architects sample.]

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, wall and floor construction, and other conditions affecting performance of swinging power operated doors.
- B. Examine roughing-in for electrical source power to verify actual locations of wiring connections.
- C. Proceed only after such discrepancies or conflicts have been resolved.

3.2 INSTALLATION

- A. Do not install damaged components. Fit joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.
- B. Operators: Install automatic door operators 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.
- C. Door Operators: Connect door operators to electrical power distribution system [including smoke evacuation system and/or fire detection system] as specified in Division 26 Sections.
- D. Sealants: Comply with requirements specified in division 7 Section "Joint Sealants" to seal between the operator housing and the adjacent surfaces.

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- E. Signage: Apply signage on both sides of each door and sidelite as required by ANSI/BHMA A156.19 and manufacturers installation instructions.

3.3 ADJUSTING

- A. Adjust automatic door operators, controls and hardware for smooth and safe operation and for weather tight closure. Adjust doors in compliance with ANSI/BHMA A156.19.

3.4 FIELD QUALITY CONTROL

- A. Before placing doors into operation, AAADM certified technician shall inspect and approve doors for compliance with ANSI/BHMA A156.19. Certified technician shall be approved by manufacturer.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by automatic door operator installation.
- B. Clean metal surfaces promptly after installation. Remove excess sealants, compounds, dirt and other substances. Repair damages and finish to match original finish.

3.6 DEMONSTRATION

- A. Engage a factory-authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the door.

END OF SECTION