Micom Americas, Inc.
1-905-851-8688

[INSERT PROJECT NAME] ***[SW800 LOW ENERGY OPERATOR]***
[INSERT ARCHITECTURAL FIRM] ***[INSERT DATE]***

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 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 “All-Glass Entrances and Storefronts” for entrances furnished separately in Division 8 Section.]
4. [Division 8 Section “Sliding Automatic Entrances” for single and bi-parting sliding automatic entrance doors with sidelites.]
5. [Division 8 Section “Door Hardware” for hardware to the extent not specified in this Section.]
6. 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.

C. Underwriters Laboratories (UL).

1. ANSI/CAN/UL325 Standard for Safety for Door, Drapery, Gate, Louver and Window Operators and Systems.
2. UL991 Listed - Tests for Safety-Related Controls Employing Solid-State Device.
3. UL10C – Positive Pressure Fire Tests of Door Assemblies.

NOTE: Delete the following if not applicable

D. [Canadian Standards Association (CSA).]

1. CAN/CSA-C22.2 NO 08 – Safety Functions Incorporating Electronic Technology
2. CAN/CSA-C22.2 NO 247 – Operators and Systems of Doors, Gates, Draperies, and Louvers.

E. American Association of Automatic Door Manufacturers (AAADM).

F. 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.

G. American Architectural Manufacturers Association (AAMA).

1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

H. National Association of Architectural Metal Manufacturers (NAAMM).

1. Metal Finishes Manual for Architectural Metal Products.

I. 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 to continuous duty pedestrian traffic.

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.

NOTE: The following is only applicable to the SW800 overhead concealed operator with center pivots – Delete if not required

C. [Break Away Device: Swinging automatic entrances shall require no more than 50 lbf (222 N) applied 1" (25 mm) from the latch edge of the door. When the door(s) is opened in the breakout mode, powered operated components excluding spring power shall not operate the doors.]

D. 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.

1.6 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 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.

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. Certifications: Operators shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards.

1. ANSI/CAN/UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
2. UL10C - Standard for Safety Positive Pressure Fire Tests of Door Assemblies
3. UL991 Listed - Tests for Safety Related Controls Employing Solid-State Device
4. ANSI/BHMA A156.19 American National Standard for Power Assist and Low Energy Operated Doors.

E. 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 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 three (3) years from the date of substantial completion.

C. During the warranty period the owner shall engage a factory authorized and trained technician to perform service and affect repairs. An inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the owner.

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

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: Micom Americas, Inc, 220 Viceroy Road, Unit #15, Concord, ON L4K3C2, Canada. Phone: (1) 905-851-8688. Website www.micoamericas.ca

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-T6.

2.3 SWING DOOR OPERATORS

A. Model: Micom SW800 low energy automatic door operator for Exterior and Interior Doors (Basis of Design):

B. Model: Micom SW800C clutched low energy automatic door operator for Interior Doors only with no wind or stack pressure issues, *not available with latch assist or power close functions*. (Basis of Design)

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, 1/4 hp motor. Operator shall be adjustable to compensate for different manual push forces as required.
   a. 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: Select the type of operator mounting and operator housing option required for the project – Consult Factory for an operator mounted above the ceiling

b. [Surface Mounted Operator:]

NOTE: Select either side access operator housing or bottom load operator housing – side access operator housing is the most common

NOTE: If side access operator housing is required, select the size of operator housing

1) [Side Access Operator Housing: Operator is contained in 4-1/2"" (114 mm) deep x 5-1/2"" (140 mm) high extruded aluminum housing with a removable cover.] [Bottom Load Operator Housing: Operator is contained in a 4-1/2" inch (114 mm) x 5-5/8 inch (143 mm) high, extruded aluminum housing with removable bottom cover.]
2) Surface Mounted Housing: 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) UL10C Listed Fire Tests for Door Assemblies (surface mounted operator).

NOTE: Select the following Overhead Concealed Operator for doors that are either offset pivoted or hinged

NOTE: Emergency breakaway is not available with offset pivoted or hinged doors

c. [Overhead Concealed Mounted Operator :]
1) Side Access Operator Housing: Operator is contained in a 4-1/2 inch (114 mm) deep x 5-1/2inch (140 mm) high extruded aluminum housing with a hinged cover.
2) Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.
3) 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.

NOTE: Select the following Overhead Concealed Operator for doors that are center pivoted

d. [Overhead Concealed Mounted Operator:]
1) [Side Access Operator Housing: Operator is contained in a 4-1/2 inch (114 mm) x 5-1/2 inch (140 mm) high side access, extruded aluminum housing with a hinged cover.]
2) Overhead Concealed Mounted Housing: Mounted between door jambs, continuous for full width of door.
3) 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: Select the following option if inswing center pivoted doors require breakaway for egress – verify compliance with the building code

a) [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.]

e. 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.

f. Operator Temperature Range: Capable of operating within temperature ranges of -1° F to 122° F (-18° C to 50° C).

g. Electrical Characteristics: Maximum power consumption is 100 watts (3.0 amps at 100VAC-240VAC), 50/60hz, built-in thermal overload protection.

h. [Battery Backup 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.]

4. Door Operation:

a. Opening Cycle: The separately adjustable speed control and force output settings on the operator mechanically powers the drive shaft and the torque control maintains constant speed throughout the opening cycle.

1) Adjustable back check speed and position during opening cycle.

2) Operator shall allow manual door operation with operational forces as indicated to fully open the door applied at 1” (25 mm) from the latch edge of the door.

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

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: Spring close with separately adjustable force and speed-controlled power settings.

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

2) Adjustable latching speed and position during close cycle.

d. Electronic-Stop Positioning: allows setting the fully open position up to 135° without the need for a floor stop.

e. Wind Force Dampening: The operator electromechanically counteracts wind forces, slowing down the door movement to safely open or close the door.

f. Stack Pressure Compensation: Operator shall counteract positive stack pressures with selectable power close and latch assist closing.

g. Obstruction Control: The operator will stop and reverse the door movement upon encountering an obstruction in both directions.

1) Selectable Hold or Crawl safety speed is adjustable when presence safety sensors are connected.

h. Power Close: Selectable power close activates using the motor to assist spring closing when in the programmed latching area to ensure door is positively closed.

1) Power Close Force: Adjustable closing force allows increased or decreased the amount of Closing Force needed to fully close the door.

i. Electric Lock Management:

1) Internal module for electrified locking integration with selectable Fail Safe and Fail Secure options.
2) Adjustable electric lock time delay between activating the electronic lock and the start of the opening cycle
3) Electric Lock Output to include connections for a 12 VDC and 24 VDC.
4) Selectable latch assist before open that pulls the door closed before operator opening, automatically unjamming electric latch hardware.

j. On Board Power Supply: To include both a 12 VDC and 24 VDC power supplies available at the same time: 12 VDC with a maximum 1000 mA and 24 VDC, with maximum 500 mA

k. Direct Impulse Signal Connection: Wet input terminal connection for 12 VDC and 24 VDC accessories providing impulse signals to the control board without complex relays.

l. Extendable Spindle: Easily drop the spindle up to 3” without additional components allowing for a flexible installation height of the operator to accommodate a higher mounting position as needed.

m. Door Open/Closed: Status dry contact is used for monitoring door position for integration in a Smoke Evac/Fire Detection system.

n. Hold on Manual: Selectable and will hold the door open when manually operated by pedestrian for adjustable time of 1-5 seconds.

o. 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.

p. Activation Switch Failure: Disregards Activation signal after 10 minutes of continuous engagement, usually caused by malfunctioning actuator switches.

q. Control Switch: Automatic door operators shall be equipped with the following type of multi-position function switch:

NOTE: The following control switch options are only available with surface mounted operators

1) [3 position rocker switch mounted on end cap (On-Off-Hold).]
2) [2 position rocker switch mounted on end cap (On-Off).]

NOTE: The following control switch options are available with both surface mounted and overhead concealed mounted operators

3) [3 position toggle switch remotely mounted (On-Off-Hold).]
4) [4 position rotary switch remotely mounted (On-Off-Hold- Special Function).]

5. Operator Interface:
   a. Safety Sensor Integration for overhead presence safety device and door mounted reactivation safety sensors.

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 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, 1-3/4 inch x 4-1/2 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 senor plates, black polycarbonate with white letters. Infrared Modulation technology has an adjustable range of 1.5 inches to 12 inches.]

NOTE: Manual door operation is a standard feature of the door operator

C. Manual Operation:

1. [Operator shall allow manual door operation with operational forces adjustable from 5 lbf to 15 lbf maximum.]

NOTE: Consult Factory 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 Factory 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

NOTE: Suggested use of safety sensors for ANSI/BHMA A156.19 for low energy operators include door openings subject to elderly or patient use, door openings with gurney or equipment traffic, door openings where people constantly piggy-back through the door, etc.

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

B. Safety Devices:

1. Door Mounted Presence Sensor: Shall be door mounted presence safety devices; 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 Factory 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 #628, AA-M12C22A41, Class I, 0.018 mm.]
   b. [AAMA 611, Black #711, AA-M12C22A44, Class I, 0.018 mm.]
   c. [AAMA 611, Custom anodized to match architect's sample.]
2. [Painted Finish:]
   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.

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 trained and authorized dealer to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the door.

END OF SECTION