

## SECTION 087113 - AUTOMATIC DOOR OPERATORS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Power door operators for swinging doors.

#### 1.3 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. Safety Device: A control that, to avoid injury, prevents a door from opening or closing.
- D. For automatic door terminology, see BHMA A156.10 for definitions of terms.

#### 1.4 COORDINATION

- A. *Coordinate requirements and functions of exterior door operators and interior door operators. It is assumed the existing exterior door operators will remain, but will need to work in conjunction with the interior operators installed as part of this renovation project, including the timing of opening and closing to maintain function of the Vestibule.*
- 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 the following:

1. Power supplies.
2. Remote activation devices.

## **1.5 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.

## **1.6 INFORMATIONAL SUBMITTALS**

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

## **1.7 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: For automatic door operators, safety devices, and control systems, to include in maintenance manuals.

## **1.8 QUALITY ASSURANCE**

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer for installation and maintenance of units required for this Project.

## **1.9 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. Warranty Period: Two years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Besam Entrance Solutions; ASSA ABLOY.
  2. DORMA USA, Inc.
  3. Hager Companies.
  4. Horton Automatics; a division of Overhead Door Corporation.
  5. LCN; an Allegion brand.
  6. SARGENT Manufacturing Company; ASSA ABLOY.
  7. Stanley Access Technologies.
- B. Source Limitations: Obtain automatic door operators, including activation and safety devices, from single source from single manufacturer.

### **2.2 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 in accordance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation and safety devices.
- B. Electromechanical Operating System: Self-contained unit powered by permanent-magnet dc motor; with closing speed controlled mechanically by gear train and dynamically by braking action of electric motor, connections for power and activation-and safety-device wiring, and manual operation, including spring closing when power is off.
- C. Cover for Surface-Mounted Operators: Fabricated from 0.125-inch- thick, extruded or formed aluminum; manufacturer's standard width; with enclosed end caps, provision for maintenance access, and fasteners concealed when door is in closed position.

- D. Brackets and Reinforcements: Fabricated from aluminum with nonstaining, nonferrous shims for aligning system components.
- E. 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.

## **2.3 POWER DOOR OPERATORS FOR SWINGING DOORS**

- A. Standard: BHMA A156.10.
- B. Performance Requirements:
  - 1. Opening Force:
    - a. Power-Operated Swinging Doors: Not more than 30 lbf required to manually open door if power fails.
  - 2. Entrapment-Prevention Force: Not more than 40 lbf required to prevent stopped door in the last 10 degrees of opening from moving in the direction of opening; not more than 30 lbf required to prevent stopped door from moving in direction of closing.
- C. Configuration: Operator to control pair of swinging doors.
  - 1. Traffic Pattern: One way; existing exterior activation device opens right hand exterior and interior doors (when facing doors) in series, and new interior activation device opens right hand interior and exterior doors (when facing doors) in series.
  - 2. Operator Mounting: Surface.
- D. Operation: Power opening and spring closing. Provide time delay for door to remain open before initiating closing cycle as required by BHMA A156.10.
- E. Operating System: Electromechanical.
- F. Microprocessor Control Unit: Solid-state controller.
- G. Features:
  - 1. Adjustable opening and closing speed.
  - 2. Adjustable opening and closing force.
  - 3. Adjustable hold-open time from zero to 30 seconds.
  - 4. Adjustable time delay.
  - 5. Adjustable limit switch.
  - 6. Automatic door re-open if stopped while closing.
  - 7. On-off/hold-open switch to control electric power to operator; key operated.

- H. Controls: Activation and safety devices in accordance with BHMA standards.
  - 1. Activation Device: Push-plate switch on each side of door to activate door operator.
  - 2. Safety Device: Presence sensor mounted on door header to detect pedestrians in presence zone and to prevent door from closing.
- I. Exposed Finish: Class I, clear anodic finish.

## 2.4 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  - 1. Extrusions: ASTM B221.
  - 2. Sheet: ASTM B209.
- B. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness, in manufacturer's standard thickness.
- C. Fasteners and Accessories: Corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

## 2.5 CONTROLS

- A. General: Provide controls, including activation and safety devices, in accordance with 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 or push-button switch with 2-by-4-inch junction box.
    - a. Mounting: Surface mounted on storefront framing (match existing installation). Exterior push plate to remain.
  - 2. Push-Plate Material: Stainless steel.
  - 3. Message: International symbol of accessibility and/or "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.

## **2.6 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.

## **2.7 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.

## **2.8 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 unacceptable. Variations in appearance of adjoining components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

## **2.9 ALUMINUM FINISHES**

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

## **PART 3 - EXECUTION**

### **3.1 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. Examine roughing-in for electrical systems to verify actual locations of power connections before automatic door operator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION, GENERAL**

- A. Install automatic door operators in accordance with 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.
  - 2. Install operators true in alignment with established lines and door geometry without warp or rack. Anchor securely in place.
- B. Controls: Install activation and safety devices in accordance with manufacturer's written instructions and cited BHMA standard for operator type and direction of pedestrian travel. Connect control wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- C. Signage: Apply on both sides of each door as required by cited BHMA standard for type of door operator and direction of pedestrian travel.

### **3.3 ADJUSTING**

- A. Adjust automatic door operators to function smoothly, and lubricate as recommended by manufacturer; comply with requirements of applicable BHMA standards.
  - 1. Adjust operators on exterior doors for tight closure.
- B. After completing installation of automatic door operators, inspect exposed finishes on doors and operators. Repair damaged finish to match original finish.
- C. Readjust 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: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

### **3.4 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 087113**