

**SECTION 08 71 13
AUTOMATIC DOOR OPERATORS**

SPEC WRITER NOTE: Delete text between
// _____ // not applicable to project.
Edit remaining text to suit project.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Automatic operators for // swinging // and // sliding doors //.

1.2 RELATED REQUIREMENTS

SPEC WRITER NOTE: Update and retain
references only when specified elsewhere
in this section.

- A. Aluminum Frames Entrance Work: Section 08 41 13, ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS.
- B. Revolving Door Operators: Section 08 04 33, REVOLVING DOOR ENTRANCES.
- C. Door Hardware: Section 08 71 00, DOOR HARDWARE.
- D. Access Control Devices: Division 28, ELECTRONIC SAFETY AND SECURITY.
- E. Electric General Wiring, Connections and Equipment Requirements: Division 26, ELECTRICAL.

1.3 APPLICABLE PUBLICATIONS

- A. Comply with references to extent specified in this section.
- B. ASTM International (ASTM):
 1. B209-14 - Aluminum and Aluminum-Alloy Sheet and Plate.
 2. A1008/A1008M-15 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Baked Hardenable.
- C. Builders Hardware Manufacturers Association (BHMA):
 1. BHMA A156.10-11 - Power Operated Pedestrian Doors.
- D. National Fire Protection Association (NFPA):
 1. 101-15 - Life Safety Code.
- E. Underwriters Laboratories (UL):
 1. 325-13 - Standard for Doors, Drapery, Gate, Louver, and Window Operators and Systems.

1.4 SUBMITTALS

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submittal Drawings:
 - 1. Show size, configuration, and fabrication and installation details.
- C. Manufacturer's Literature and Data:
 - 1. Description of each product.
 - 2. Installation instructions.
 - 3. Warranty.
- D. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

- 1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.
- E. Test reports: Certify each product complies with specifications.
- F. Qualifications: Substantiate qualifications comply with specifications.
 - 1. Manufacturer // with project experience list //.
 - 2. Installer // with project experience list //.
- G. Operation and Maintenance Data:
 - 1. Care instructions for each exposed finish product.
 - 2. Start-up, maintenance, troubleshooting, emergency, and shut-down instructions for each operational product.

1.5 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 - 1. Regularly manufactures specified products.
 - 2. Manufactured specified products with satisfactory service on five similar installations for minimum five years.
 - a. Provide contact names and addresses for completed projects when requested by Contracting Officer's Representative.
- B. Installer's Qualifications: Experienced installer, approved by the manufacturer.

1.6 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

- B. Manufacturer's Warranty: Warrant automatic door operators against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products.

- 1. Warranty Period: Two years.

PART 2 - PRODUCTS

2.1 SYSTEM PERFORMANCE

- A. Comply with requirements of BHMA A156.10. Unless otherwise indicated on Drawings, provide operators that move doors from fully closed to fully opened position in // three // five // seven // seconds maximum time interval, when speed adjustment is at maximum setting.
- B. Equipment: Conforming to UL 325. Provide key operated power disconnect wall switch for each door installation.
- C. Electrical Wiring, Connections and Equipment: Motors, starters, controls, associated devices, and interconnecting wiring required for installation. Equipment and wiring as specified in Division 26, ELECTRICAL.

2.2 PRODUCTS - GENERAL

- A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.

SPEC WRITER NOTE: For existing buildings or additions to existing buildings, door operators are to be by manufacturer of existing equipment, if possible. Coordinate with VA personnel.

- B. Provide door operators from one manufacturer.

- C. Provide one type of operator throughout project.
- D. Sustainable Construction Requirements:

SPEC WRITER NOTE:

1. Specify products containing greatest recycled content practicable to maximize material recovery. See EPA Comprehensive Procurement Guidelines (CPG) for guidance about individual products and available recycled content. Section 01 81 13 sets overall project recycled content requirements.

2. Steel recycled content depends upon furnace type. AISC reports industry wide 32 percent for basic oxygen furnace and 93 percent for electric arc furnace.

- 1. Steel Recycled Content: 30 percent total recycled content, minimum.

SPEC WRITER NOTE: Aluminum Association (AA) reports 2008 industry average 85 percent recycled content for aluminum in building construction industry.

- 2. Aluminum Recycled Content: 80 percent total recycled content, minimum.

2.3 SWING DOOR OPERATORS

A. General:

- 1. Type: Institutional type.
- 2. Size: As recommended by manufacturer for door weight and sizes.

B. Function:

- 1. Provide operators, enclosed in housing, permitting opening of door by energizing motor and stopped by electrically reducing Voltage and stalling motor against mechanical stop.
- 2. Door to close by means of spring energy, and closing force controlled by gear system and motor being used as dynamic brake without power, or controlled by hydraulic closer in electro-hydraulic operators.
- 3. Opening and Closing Speeds: Field adjustable.
- 4. Operators with checking mechanism providing cushioning action at last part of door travel, in both opening and closing cycle.
- 5. Operators capable of recycling doors instantaneously to full open position from any point in closing cycle when control switch is activated.

6. When automatic power is interrupted or shut-off, permit doors to easily open manually without damage to automatic operator system.
- C. Connect hardware with drive arm attached to door with pin linkage rotating in a self-lubricating bearing. Prevent doors from pivoting on shaft of operator.
- D. Operator Housing:
1. ASTM B209, Type 6063-T5 aluminum alloy, 112 mm (4-1/2 inches) wide by 140 mm (5.5 inches) high by 3.2 mm (0.125 inch) thick, aluminum extrusions with enclosed end caps for application to 100 mm (4 inches) and larger frame systems.
- E. Power Operator:
1. Completely assembled and sealed unit including gear drive transmission, mechanical spring and bearings, located in aluminum case and filled with special lubricant for extreme temperature conditions. Rubber mounted units with provisions for easy maintenance and replacement, without removing door from pivots or frame.
- F. Motors:
1. Provide with interlock to prevent operation when doors are electrically locked from opening.
- G. Electrical Control:
1. Self-contained electrical control unit, including necessary transformers, relays, rectifiers, and other electronic components for proper operation and switching of power operator.
 2. Connecting Harnesses: Interlocking plugs.
- H. Accessories:
1. Metal mounting supports, brackets and other accessories necessary for installation of operators at head of door frames.
- I. Microprocessor Controls:
1. Multi-function microprocessor control providing adjustable hold open time (1-30 seconds) with fully adjustable opening speed, LED indications for sensor input signals and operator status and power assist close options. Control capable of receiving activation signals from any device with normally open dry contact output.
 2. Hold doors held open by low Voltage applied to the continuous duty motor.
 3. Controls:

- a. Adjustable safety circuit that monitors door operation and stops opening direction of door if obstruction is sensed.
- b. Recycle feature that reopens door if obstruction is sensed at any point during closing cycle.
- c. Standard three position key switch with functions for ON, OFF, and HOLD OPEN, mounted on operator enclosure, door frame, or wall, as indicated on drawings.

2.4 SLIDING DOOR OPERATORS

- A. Operator Function:
 1. Electric motor pulling door from closed to open position, stopping door by electrically reducing Voltage and stalling door against mechanical stop.
 2. Opening and Closing Speeds: Field adjustable.
 3. System permitting manual control of door in event of power failure.
- B. Power Operator:
 1. Completely assembled and sealed electromechanical operating unit including 95 W (1/8 hp.) DC shunt-wound permanent magnet motor with sealed bearings, located in aluminum case and filled with special lubricant for extreme temperature conditions. Rubber mount units with provisions for easy maintenance and replacement, without removing door from pivots or frame.
 2. Opening and Closing Cycle: Field adjustable.
- C. Operator Housing:
 1. ASTM B209, Type 6063-T5 aluminum alloy, 150 mm (6 inches) wide by 200 mm (8 inches) high by 3.2 mm (0.125 inch) thick, aluminum extrusions with enclosed end caps for application to 100 mm (4 inches) and larger frame systems.

2.5 SLIDING DOOR UNITS

- A. Provide door panels in compliance with NFPA 101, allowing "breakout" to full open position to provide instant egress at any point in door's movement.
 1. Door Panels: ASTM A1008/A1008M, steel sheet, Type B, cold-rolled, reinforce frame structure, minimum 1.1-mm (0.043 inch) thick steel shapes.
- B. Sliding Door Hardware Guide Rollers, Door Carrier:
 1. Rollers: Steel or plastic rollers with sealed bearings with each door having two support rollers and one anti-rise roller.

- a. Vertical Adjustment: Minimum 9 mm (0.35 inch) with positive mechanical locks.
- b. Include two urethane covered oil impregnated bearing bottom rollers attached with 5 mm (3/16 inch) thick formed steel guide brackets at each door.
- c. Door Carriers: For each door carrier supporting door leaf, include vertical steel reinforcing member to prevent sagging when door is swung under breakaway conditions.
 - 1) Carbon Steel Brackets And Fittings: Corrosion resistant.

C. Locking Hardware:

- 1. Locking hardware at interior doors not requiring physical security is not required.
- 2. Doors with flush concealed vertical rod panic hardware integrated into doors where physical security is required and free egress is required at all times.
- 3. Doors with manufacturers' standard hookbolt lock (keyed both sides) where physical security is required and free egress is not required at all times.
 - a. At doors with access control devices specified in Division 28 - ELECTRONIC SAFETY AND SECURITY, provide doors with electronic deadbolt locking to prevent doors from manually sliding open.

D. Door Closers: Breakout or swing-out panels with door closers concealed in top rail of door.

2.6 POWER UNITS

- A. Self-contained, electric operated and independent of door operator.
 - 1. Capacity and size of power circuits according to automatic door operator manufacturer's specifications and Division 26 - ELECTRICAL.

SPEC WRITER NOTES: Provide schedule for safety devices selected on drawings.

2.7 DOOR CONTROLS

- A. Control Devices: BHMA A156.10; control opening and closing functions.
- B. Open doors when control device is actuated; hold doors in open positions; then, close doors after a // set // adjustable // time period //, unless safety device or reactivated control interrupts operation.
- C. Manual Controls:

1. Push Plate Wall Switch: Recessed type, stainless steel push plate minimum 100 mm by 100 mm (4 inch by 4 inch), with 13 mm (1/2 inch) high letters "To Operate Door-Push" engraved on face of plate.

SPEC WRITER NOTES: Do not use control mats.

D. Motion Detector:

1. Mounting: Surface or concealed.
2. Detection Area: 1500 mm (60 inches) deep and 1500 mm (60 inches) across, plus or minus 150 mm (6 inches).
3. Response Time: 25 milliseconds, maximum.
4. Control Power: 24 Volt DC.
5. Design units to be unaffected by cleaning material, solvents, dust, dirt and outdoor weather conditions.

2.8 SAFETY DEVICES

A. Sliding Doors:

1. Two photoelectric beams mounted at heights of 600 mm (24 inches) and 1200 mm (48 inches) in door frame.
2. Overhead safety presence sensors at door head on both sides of opening.
3. Recycle doors to full open position when beams are interrupted.
4. Motion detector mounted on both sides of door for detection of traffic in both direction.

B. Swing Doors: Install presence sensor on pull side of door to detect any person standing in door swing path and prevent door from opening.

1. Time delay Switches: Adjustable between 3 to 60 seconds and control closing cycle of doors.

C. Install decal signs with "In" or "Do Not Enter" on both faces of each door where shown.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for product installation.

1. Verify door opening is correctly sized and within acceptable tolerances.

B. Protect existing construction and completed work from damage.

3.2 INSTALLATION

- A. Install products according to manufacturer's instructions and approved submittal drawings.
 - 1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.
 - B. Coordinate door installation with other related work.
 - C. Install manual controls and power disconnect switches recessed or semi-flush mounted in partitions.
 - D. Secure operator components to adjacent construction with suitable fastenings.
 - E. Conceal conduits, piping, and electric equipment, in finish work.
 - F. Install power units in locations shown.
 - 1. Where units are mounted on walls, provide metal supports or shelves for units.
 - 2. Ensure equipment, including time delay switches, are accessible for maintenance and adjustment.
 - G. Ensure operators are adjusted and function properly for type of expected traffic.
 - H. Synchronize each leaf of pair doors to open and close simultaneously. Permit each door leaf to be opened manually, independent of other door leaf.
 - I. Install controls at positions shown and ensuring convenience for expected traffic.
- SPEC WRITER NOTES: Only include mounting height when not indicated on Drawings.
- J. Push Plate Wall Switches Mounting Height: 1000 mm (40 inches) maximum, unless otherwise approved by Contracting Officer's Representative.

3.3 DEMONSTRATION AND TRAINING

- A. Instruct VA personnel in proper automatic door operator operation and maintenance.
 - 1. Trainer: Manufacturer approved instructor.
 - 2. Training Time: // 2 hours // 4 hours // minimum.
- B. Coordinate instruction to VA personnel with VA Contracting Officer's Representative.

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