Choose one of the following sections for high or low energy swing operators, depending on what product you are writing

Section 08 42 29 Automatic Swinging Doors
Section 08 71 13 ADA Operators

Part 1 General

1.1 Section Includes

A. Aluminum doors and frames.
B.Work included: Furnish all labor, materials, equipment and services necessary for the proper installation of the record-usa 8100 swinging door system, choose one a High Energy Power Operated Door System as defined in ANSI/BHMA A156.10-2005 or a Low Power Operated Door System as defined in ANSI/BHMA A156.19-2002, and have an AAADM certified inspector on staff.

1.2 Related Sections

If aluminum doors and frames are not specified in this section, they may be specified in Section 08120 .Aluminum Doors, in Section 08410 - Entrances and Storefronts or in Section 08910 - Metal-Framed Curtain Wall or any number of other narrow scope sections. Verify method used for this project.

A. Section _____ – _____: Wood doors.
B. Section _____ – _____: Plastic laminate doors.
C. Section _____ – _____: Aluminum doors and frame
D. Section 08211 – Flush Wood Doors.
E. Division 16- Electrical wiring shall be as described in electrical section of the specifications. The Electrical Contractor shall provide 115V, 60 HZ, 1-phase, 15 amp dedicated circuit to the door header. Two conductor 18 AWG N.E.C. Class II low voltage wire cable shall be provided by the Electrical Contractor between the door header and all activation devices (buttons, switches, push plates).

F. Electrical wiring and connections by Electrical Contractor. Buttons and push plates at door locations provided by Door Operator Installer.

G. The general contractor shall provide adequate support for the door operating equipment.

H.The installer of the equipment shall inspect the condition of the support and shall notify the contractor if additional support is required. By installing his equipment, the installer accepts the support as adequate to properly support the equipment.

1.3 References

Choose one of the ANSI Standards depending on which spec you are writing

A. ANSI/BHMA A156.10-2005 American National Standard for Power-Operated Pedestrian Doors.

B. ANSI/BHMA A156.19-2002 American National Standard for Power Assist & Low-Energy Power Operated Doors.

C. UL 325 – Standard for Door, Drapery, Gate, Louver and Window Operators and Systems.

1.4 Submittals

A. Submit under provisions of Section 01300.

B. Product data: Within 15 calendar days after the contractor has received the owner's notice to proceed, submit:

1. Shop drawings showing exact dimension for each door unit including operator details, electric strike interface (if required) and wiring details. Also, show a plan indicating exact location of all activating devices.

2 .Manufacturer's specifications and other data needed to prove compliance with the specified requirements. Provide cut and data sheets on all parts being used.

1.5 Quality Assurance

A. The door operator shall be manufactured by an ISO 9001 registered company with a minimum of 5 years experience in producing electro-mechanical door systems.

B. Door operators and accessories shall be installed by a factory-trained contractor with a minimum experience of 3 years and in strict accordance with the manufacturer's recommendations. The installed equipment shall be subject to inspection and final acceptance by the Architect.

1.6 Product Handling

A. Comply with pertinent provision of Section 01640.

1.7 Warranty

A. The record-usa 8000 equipment and controls shall be warranted for two (2) years from the date of installation. Warranty paper(s) shall be given to the owner upon completion of the job.

Part 2 Products

2.1 Manufacturers

A. Acceptable manufacturer: Series 8100 Electromechanical Automatic Swing Door Operator as detailed shall be supplied by record-usa, Monroe, N.C. All equipment must meet the requirements of the American National Standard for High Energy Power Operated Doors, ANSI/BHMA A156.10-2005 and be adjustable to meet ANSI/BHMA A156.19-2002 Standard for Low Energy Power Operated Doors.

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

Delete paragraph above or below; coordinate with Division 1 requirements.

C. Provide all door operators from a single manufacturer.

2.2 Doors and Frames

Automatic swinging doors are available in complete packages including aluminum doors, frames, operators and actuators. For aluminum doors, dark bronze anodized and aluminum anodized are standard. Special paint finishes are also available.

Delete one of the following groups to specify doors. The first set is for doors furnished in this section.

A. Doors and Frames: Extruded aluminum.

1. Finish: Anodized aluminum.
2. Finish: Dark bronze anodized aluminum.
3. Finish: Paint.

B. Doors and Frames: Specified elsewhere; see drawing for configuration.

The following is an example of how to specify which operators and actuators are to be used, when more than one configuration is used on the project and the drawings do not call out such details. If this method is used, include the following paragraphs with either of the two sets of paragraphs above specifying the doors themselves.

Delete one of the following.

1. Operator: Overhead, surface-mounted.
2. Operator: Overhead, concealed.

Delete all but one of the following three numbers. Under some conditions, more than one actuator is appropriate for a single door.

3. Actuator: Motion detector.
4. Actuator: Push plate. Jamb mounted or wall mounted (2) recommended per opening
5. Actuator: _____.

For High Energy Operators: Delete one of the following numbers. Only one type of safety should be used for a single opening. (Safeties can be used for Low Energy Operators, but are not required by ANSI 156.19

6. Safety: Overhead-mounted infrared safety sensor.
7. Safety: Overhead-mounted infrared safety sensor with door-mounted infrared safety sensor.

2.3 Operator Components

A. Door Operators - Operation: Electric power open with spring and power boost closing and holding; comply with choose one: ANSI A156.10-2005, ANSI A156.19-2002 and UL 325.

1. The operator must be designed to handle swing doors up to a weight of 350 lbs. (113kg).

2. Close and center door against stop after each cycle, and hold against drafts, winds and stack pressure

Choose #3 for High Energy Operator and #4 for Low Energy Operator

3. Manual opening force: not to exceed 30 lbs. (133 N)
4. Manual opening force: not to exceed 15 lbs. (67 N)
5. The force required to prevent a stopped power operated swinging door from moving in the direction of closing shall not exceed a 30 lbf (133 N) measured 1 in. from the lock edge of the door at any point in the closing cycle.
6. Manual switch between spring close-and-hold and power boost-close-and-hold.
7. Power boost-close-and-hold: Electronically increase door closing force not to exceed 30lbs.
8. Provide adjustments by self-contained microprocessor control as listed below:

a. The microprocessor control shall be easily field adjustable to comply with ANSI A156.10-2005 Standard for Full energy Automatic Door Systems or A156.19-2002 Standard for Low energy Automatic Door Systems.

Code requirements:

1) Field adjustments for door opening speed, door opening force, door closing speed, and door closing force shall be standard within the unit and adjust independently from all other external requirements. The same unit will be able to be converted easily in the field from full energy to low energy without the necessitation of a new unit being provided.

b. Opening time to 80 degrees shall not be less than 1 ½ seconds as required in ANSI A.156.10-2005.

c. The force to prevent a stopped door from opening in the last 10 degrees of opening, or at any point in closing shall not exceed 40 lbs. (180 N).

d. Backcheck speed.

e. Hold-open: The door shall be field adjusted to remain fully open for not less than 5 seconds.

f. Door closing shall be by spring force and monitored by the microprocessor control, capable of providing limited power assist to insure the door closes.

g. Closing speed: Doors shall be field adjusted to close from 90 degrees to 10 degrees in 2 seconds or longer as required in Table 10.2.5 of ANSI A156.10-2005, dependent upon final door weight.

h. Doors shall close from 10 degrees to fully closed in not less than 1.5 seconds.

i. Door will safely stop and reverse if an object is encountered in the opening cycle

(Obstruction Shut Down).

j. Delayed activation to provide 1 second delay between reception of the activation signal and actual opening of the door.

k. Logic terminal for interface with accessories and sensors.

9. Factory-set door hold-open voltage.

10. Manual “Off/Auto/Hold-Open” rocker or key switch.

11. Fail safe: In event of power failure, make door operate manually with controlled spring close as though equipped with a choose one for high energy, manual door closer, for low energy #3 manual door closer without damage to operator components.

B. Display Board

1. Unit will provide the ability to determine diagnostic evaluation of problematic issues through a digitized display panel. When provided, the display will provide confirmation that the door is performing properly and also provide error codes when it is not. This same panel shall also provide systematic information such as counters for usage determination, and provide the installing contractor’s telephone number in the event of service requirements.

C. Door Operators - Construction: The door operating equipment must use the electro-Mechanical 8100 series drive system.

1. Unit must be non-handed, and able to operate as an in-swing or out swing unit with simple Field modifications.

2. The unit must be factory assembled, adjusted and tested.

3. Gear box operator: Self-contained cast aluminum housing, with precision-machined gears and bearing seals and all-weather lubricant, and not require vibration isolators. No exposed gears. The gear box shall use an adjustable compression spring engineered for maximum life. No electro hydraulic equipment shall be allowed.

4. Motor: DC permanent magnet motor with shielded ball bearings. Motor will stop when the door stops or is fully open and when breakaway is operated.

5. Door operating arm: Forged steel, and aluminum and shall be either linkage or a track type arm.

a. Exposed arms: 204-R1 Clear Finish.
b. Overhead concealed butt hung, provide concealing arm channel.

6. Microprocessor control: 115 VAC. Do not use microswitches.

7. "Off/Auto/Hold-Open" three-position rocker or key switch.

8. Control circuits for actuators and safeties: Low-voltage, NEC Class II.

9. Service conditions: Satisfactory operation between –40 degrees F (-40 degrees C) and 140 degrees F (60 degrees C).

10. Power supply required: 115 VAC (15 amp circuit breaker one per unit).

D. Operator Enclosure: Extruded header concealing all operating parts except arms and manual control switches.

Delete any of the following mounting types that are not required. If more than one mounting is required, be sure that drawings give enough information to determine mounting required for each door.

1. Surface Mounting: On surface of door frame/wall, mounting 1" (25.4 mm) above top of door.

2. Concealed Mounting: In ceiling or frame header, accessed through cutout; conceal door arm when door is closed.

3. Design for Interior and exterior application.

The size of the operator enclosure significantly affects the overall appearance.
If other sizes are not acceptable, please make a notation here..

4. Header Size: 4-1/2" (114 mm) high x 5" (127 mm) deep, by the width of the door panel(s) plus 3" (76mm).

Delete four of the following five. Anodized aluminum is the standard finish for exposed headers. Clad finish applies to storefront or curtain wall installations where the adjacent finish is bronze, stainless, or other metal finish. If coated finishes are specified, the color should be specified; especially if it must match the doors.

5. Finish of Exposed Headers: Match doors.
6. Finish of Exposed Headers: Anodized Aluminum CL204R1
7. Finish of Exposed Headers: Dark Bronze Anodized DB313R1
8. Finish of Exposed Headers: Factory-coated, Kynar.
9. Finish of Exposed Headers: Clad.

Delete all but one of the following six. If clad metal finish is specified, delete all color paragraphs.

10. Color: To match door.
11. Color: As selected from manufacturer's standard selection.
12. Color: Dark bronze.
13. Color: Aluminum.
14. Color: Black.
15. Color: _____.
16. Any exposed conduit shall match the header in color.

2.4 Actuators (For High Energy Operators)

Note the Actuators section listed below 2.4 A through F are to go with the High Energy Operator.

A. Motion Detectors: Header Mounted

1. Provide either unidirectional or bi-directional movement detection.

   a. Unidirectional Operation: Detects movement towards the swinging door package; however, it ignores movement away from the door package, allowing the doors to close faster and conserve energy.

   b. Bi-directional operation: Detects movement both towards and away from the swinging door package.

2. Adjustable sensitivity and time delay.
3. Housing: Black high-impact material.
4. Mounting: Flush against header/wall.
5. Operating unit: Adjustable for a narrow or wide traffic pattern.
6. Electronics: Unaffected by radio frequency interference, normal police, fire and ambulance frequencies, and other two-way radio frequencies; designed to eliminate line noise and surge current.
7. Service conditions: Satisfactory operation between -30 degrees F (-34 degrees C) and 160 degrees F (71 degrees C); unaffected by humidity or moisture.
8. Mats and Push Plates are also available as substitutes for motion detectors.

B. Push Plate Actuator: Formed metal plate with rounded corners, satin finish; approximately 5" (127 mm) square; with depressed marking.

1. Material: Stainless steel

Delete two of the following three.

2. Marking: “Push to operate door.”
3. Marking: Wheelchair symbol.
4. Marking: Plain face.

The safety sensor is a presence sensor that can be used for single doors and pairs. It can be combined with a safety “logic” beam (also infrared) that is mounted across the door opening beyond the door swing.

C. Presence Detector Infrared Safety Sensors: Header Mounted

1. Housing: Black extruded aluminum with ABS end caps.
2. Detection (safety) zone: Threshold and area of the door when door is open.
3. Door operator control: Microprocessor.

a. Safety beam blocked or inoperative: Prevent closed door from opening, prevent open door from closing.

b. Object detected in safety zone, door closed: Prevent door opening.

c. Object detected in safety zone, during door opening: Switch door operator to safety-slow/stop.

d. Object detected in safety zone, door open: Continue to hold door open.

e. Safety beam blocked during door closing: Allow door to close under spring power then return to overhead sensor operation.

4. Provide separate input for safety stop function for door operator.

a. Safety-stop: Immediately stop until signal clears obstruction, then continue to full open position at creep speed.

5. Safety Beam Mounting - Manufacturer's standard guide rail with beam.

Delete three of the following four.

a. Anodized aluminum extruded bars, color to match operator enclosure; surface-mounted.

b. Stainless steel round tubing, satin No. 4 finish, recessed post foot.

c. Stainless steel round tubing, bright No.7 finish, recessed post foot.

d. Textured infill panels.

The following sensor is contained in a horizontal housing mounted on each side of the door. Depending on whether the door is open or closed, each sensor can act as a safety. It has a short range actuating function that is usually supplemented by a motion detector for medium- and long-range actuation.

D. Door mounted infrared safety sensor: provide on both sides of swinging door.

1. Housing: Extruded anodized aluminum with end caps.

2. Detection (safety) zone: Area of door swing.

3. Door Operator Control: Microprocessor.

a. Inoperative: Prevent closed door from opening, prevent open door from closing; allow manual opening.

b. Object detected on active side, door closed: Open door.

c. Object detected on safety side before door starts to open: Prevent door opening.

d. Object detected in safety zone, during door opening: Switch door operator to safety-slow/stop.

e. Object detected in safety zone, door open: Continue to hold door open.

4. Provide safety-slow/stop function for door operator, with manual switch between options:

a. Safety-slow: Immediately slow down to creep speed and continue to full open position.

b. Safety-stop: Immediately stop for 6 seconds, then continue to full open position at creep speed.

E. Provide guard rails complying with ANSI A156.10 and applicable codes.

F. Signs: Provide signs complying with ANSI A156.10 and applicable codes.

1. Approach side: Black arrow on white background inside green circle.
2. Reverse side: “DO NOT ENTER” in white letters on a red circle.
3. Traffic in both directions through same door: Yellow circle with “AUTOMATIC DOOR” in black letters and “CAUTION” across the middle in yellow letters on black.

2.4 Actuators (For Low Energy Operators)

Note the Actuators section listed below 2.4 A through H are to go with the Low Energy Operator.

Delete any of the following activators that do not apply. Other activators are optional.

A. Jamb-Mounted Push Button Switch 619H: No. 9730100; two recommended per opening.

B. Wall-Mounted Push Button Switch 59H: No. 9730087; two recommended per opening

Choose one of the following two push plate materials.

1. Material: Stainless steel.
2. Material: Powder Coat.

Choose one of the following four push plate markings.

3. Marking: “Press to operate door.”
4. Marking: Wheelchair logo.
5. Marking: Plain face.
6. Marking: “Push to Open.”

D. Wireless Remote Switch: _____.

E. Motion Detector: _____.

F. Key Switch: _____.

G. Card Reader: By others.

H. Doors shall be equipped with a sign(s) visible from either side, instructing the user as to the operation and function of the door. Signs or stickers should include the following:

1. PUSH TO OPERATE
2. PULL TO OPERATE
3. AUTOMATIC PUSH SWITCH TO OPEN
4. CAUTION – AUTOMATIC DOOR

Part 4 Execution

4.1 Surface Conditions

A. Examine the areas and conditions under which work of this section will be performed. correct conditions detrimental to timely and proper completion of the work. Do not proceed until existing unsatisfactory conditions are corrected.

4.1 Examination

A. Verify that door openings and doors are properly installed and ready for installation of automatic door equipment.

B. Verify that electrical service is available, properly located and of proper type.

4.2 Installation

A. Install in accordance with manufacturer's instructions; comply with choose one ANSI A156.10-2005 and ANSI A156.19-2002.

B. The general contractor shall provide adequate support for the door operating equipment so that equipment is secure and located in the proper position.

C. Coordinate as required with the other trades to assure proper and adequate provision in the work of those trades for interface with the work of this section.

D. Verify that electrical connections are made correctly and with dedicated grounding.

4.3 Adjust and Clean

B. Adjust doors and operators for proper operation, without binding or scraping and without excessive noise.

C. Clean Glass.

D. Supply Owner/Contractor with AAADM Certified Daily Safety Check.

E. Supply Owner/Contractor with keys if required.

F. Supply Owners Manual.

End of Section