SECTION 08461

AUTOMATIC SWINGING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aluminum doors and frames.

B. Automatic door operators, actuators, and safeties.

1.2 RELATED SECTIONS

A. Section 03300 - Cast-in-Place Concrete: Recess in concrete slab for mat-type actuators.

B. Section _____ - _____: Aluminum doors and frames.

C. Section 08211 - Flush Wood Doors.

D. Division 16 - Electrical: 115 VAC, single-phase wiring in conduit between operator enclosure and building power supply and low voltage wiring between enclosure and actuators and safeties.

1.3 REFERENCES

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

B. 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: Manufacturer's catalog data, detail sheets, and specifications.

C. Shop Drawings: Prepared specifically for this project; show dimensions of doors, operators, and interface with other products.

D. Operating and Maintenance Data: Operating and maintenance instructions, parts lists, and wiring diagrams.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Factory-trained, with minimum 3 years experience.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturer: Provide products made by Dor-O-Matic, 7350 West Wilson Avenue, Harwood Heights, IL 60656-4786. ASD. Tel: (708) 867-7400 or (800) 543-4635. Fax: (708) 867-0291.

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

C. Substitutions: Not permitted.

D. Provide all door operators from a single manufacturer.

2.2 DOORS AND FRAMES

A. Doors and Frames: Extruded aluminum.
   1. Finish: Natural anodized aluminum.
   2. Finish: Dark bronze anodized aluminum.
   3. Finish: Black anodized aluminum.
   4. Finish: _____.

B. Doors and Frames: Specified elsewhere; see drawing for configuration.
   1. Operator: Overhead, surface mounted.
   2. Operator: Overhead, between jambs mounted.
   3. Operator: Overhead, concealed.
   4. Actuator: Motion detector.
   5. Actuator: Push plate.
   6. Actuator: Mat-type.
   7. Actuator: _____.
   8. Safety: Overhead-mounted infrared safety sensor.
   9. Safety: Door-mounted infrared safety sensor.
   10. Safety: Rail-mounted infrared safety sensors.
   11. Safety: Mat-type.

2.3 OPERATOR COMPONENTS

A. Door Operators - Operation: Electric power open with spring and power boost closing and holding; comply with ANSI A156.10 and UL 325.
   1. Close and center door against stop after each cycle, and hold against drafts, winds, and stack pressure.

2. Spring-close closing force: 9 lb-force (40 N).
3. Manual switch between spring-close-and-hold and power-boost-close-and-hold.
4. Power-boost-close-and-hold: Electronically increase door closing force to 18 lb-force (80 N).
5. Provide adjustment by microprocessor control for:
   a. Opening speed.
   b. Back check.
   c. Hold open speed, from 2 to 30 seconds.
   d. Closing speed.
   e. Opening force (torque limiting).
   f. Acceleration during opening and recycling, for soft start.
6. Factory-set door hold-open voltage.
7. Manual "On-Off-Hold Open" switch.
8. Fail safe: In event of power failure, make door operate manually with controlled spring close as though equipped with a manual door closer, without damage to operator components.

B. Door Operators - Construction: Completely electro-mechanical; comply with ANSI A156.10 and UL 325.
   1. Gear box operator: Self-contained cast aluminum housing, with precision-machined gears and bearing seats and all-weather lubricant, mounted on vibration isolators.
   2. Gears: Manufactured by door operator manufacturer specifically for operators.
   3. Motor: DC permanent magnet motor with shielded ball bearings. Stop motor when door stops or is fully open and when break-away is operated.
   4. Door operating arm: Forged steel, attached at natural pivot point of door; do not use slide block in top of door.
      a. Exposed arms: Factory polished and finished to match operator enclosure.
   5. Microprocessor control: 115 VAC. Do not use microswitches. Mount control in snap-in type control box.
   6. "On-Off-Hold Open" switch: Three-position toggle or rocker type.
   7. Control circuits for actuators and safeties: Low voltage, NEC Class II.
   8. Service conditions: Satisfactory operation between minus 30 degrees F (minus 34 degrees C) and 160 degrees F (71 degrees C).
   9. Power supply required: 115 VAC.

C. Operator Enclosure: Overhead header concealing all operating parts except arms and manual control switches.
   1. Surface Mounting: On surface of door frame/wall, maximum of 1/8 inch (3 mm) above top of door.
   2. Between Jamb Mounting: Between door frame jambs, taking the place of frame header/transom bar; conceal door arm when door is closed.
   3. Concealed Mounting: In ceiling or frame header, accessed through cutout; conceal door arm when door is closed.
   4. Size: 5-3/4 inches (146 mm) high by 4-1/2 inches (114 mm) deep by full door width.
   5. Provide access door on bottom of enclosure for access to controls and removable components without removal of door or operator.
   6. No exposed fasteners.
   7. Finish of Exposed Surfaces: Match doors.
   8. Finish of Exposed Surfaces: Anodized aluminum.
   9. Finish of Exposed Surfaces: Factory coated, Kynar 500(tm).
   10. Finish of Exposed Surfaces: Clad to match door frame.
   11. Color: To match door.
   12. Color: As selected from manufacturer's standard selection.
   13. Color: Dark bronze.
   14. Color: Natural aluminum.
   15. Color: Black.
   16. Color: _____.

2.4 ACTUATORS

A. Motion Detectors: Dor-O-Matic "Astro-Scan".
   1. Operation: Detect movement within adjustable zone near door and activate operator; deactivate operator upon no movement.
   2. Operation: Detect approaching movement within adjustable zone near door and activate operator; deactivate operator upon no movement or departing movement.
   3. Adjustable sensitivity and time delay.
   4. Housing: Black Lexan.
   5. Lens: Red Lexan, sealed to provide weather- and dust-proofing.
   6. Mounting: Flush against header/wall.

7. Operating unit: Gimbal-mounted oscillator allowing pattern adjustment.
8. Electronics: Removable printed circuit board with gold-plated contacts; 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.
9. Service conditions: Satisfactory operation between minus 30 degrees F (minus 34 degrees C) and 160 degrees F (71 degrees C); unaffected by humidity or moisture.

B. Push Plate Actuator: Formed metal plate with rounded corners, satin finish; approximately 5 inches (127 mm) square; with depressed marking.
   1. Material: Stainless steel.
   2. Material: Brass.
   3. Marking: "Push to operate door", filled red.
   4. Marking: Handicapped symbol, filled blue.

C. Mat-Type Actuator/Safety: Manufacturer's standard rubber mat type.
   1. Frame for recessed mounting in floor slab.
   2. Frame for surface mounting, with transition strips.
   3. Color: As selected from manufacturer's standard selection.
   4. Color: _____.

D. Overhead-Mounted Infrared Safety Sensors: Dor-O-Matic "Swing-12" with safety beams.
   1. Housing: Black extruded aluminum with ABS end caps.
   2. Detection (safety) zone: Area of door swing plus most of the threshold area 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 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.
5. Safety Beam Mounting - No wall available: Manufacturer's standard guide rail.
    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 acrylic infill panels.
6. Wall-Mounted Safety Beam: Manufacturer's standard wall-mounted rail.

E. Door-Mounted Infrared Safety Sensors: Dor-O-Matic "Super-Nova"; provide on both sides of swinging door.
1. Housing: Extruded anodized aluminum with ABS 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.

F. Rail-Mounted Infrared Safety Sensors: Dor-O-Matic Sensor-Rail.

1. Anodized aluminum extruded bars, color to match operator enclosure; surface mounted.
2. Stainless steel round tubing, satin No.4 finish, recessed post foot.
3. Stainless steel round tubing, bright No.7 finish, recessed post foot.
4. Textured acrylic infill panels.

G. 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.

PART 3 EXECUTION

3.1 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.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions; comply with ANSI A156.10.

B. Install mat-type actuators in recesses in floor, level, and grout securely.

C. Verify that electrical connections are made correctly.

3.3 ADJUST AND CLEAN

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

END OF SECTION