

SECTION 08461
AUTOMATIC SLIDING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Automatic Sliding Doors and Sidelights.
- B. Operators and Control Devices for Automatic Sliding Doors.

1.2 RELATED SECTIONS

- A. Section 07900 - Caulking
- B. Section 08400 - Entrances and Storefronts: Aluminum doors and frames.
- C. Section 08462 - Automatic Swing Doors.
- D. Section 08710 - Door Hardware: Cylinder locks.
- E. Section 08800 - Glass & Glazing: General glazing requirements.
- F. Section 16120 - Electrical Supply and Termination.
- G. Section 16225 - Motors: Requirements for motors, NEMA MG1.

1.3 REFERENCES

- A. ANSI A117.1 - American National Standard for Accessible and Useable Buildings and Facilities.
- B. ANSI A156.10 - Power Operated Pedestrian Doors.
- C. ANSI-Z97.1.2 - Safety Performance Specifications and Methods of Test for Safety Glazing Materials Used in Buildings.
- D. ASTM A 36 / A36 M - Standard Specification for Carbon Structural Steel.
- E. ASTM A 924 / A 924M - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- F. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- G. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- H. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

- I. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls By Uniform Static Air Pressure Difference.
- J. ASTM F 842 - Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact.
- K. Aluminum Association Standard AA DAF-45 - Designation System for Aluminum Finishes.
- L. PA 201-94 – Large and Small Missile Impact Test. Dade County Code Compliance Protocols.
- M. PA 202-94 - Uniform Static Pressure Test. Dade County Code Compliance Protocols.
- N. PA 203-94 - Cyclic Wind Pressure Loading Test. Dade County Code Compliance Protocols.
- O. NFPA 70 – National Electric Code.
- P. NFPA 101 – Life Safety Code.
- Q. UL 325 - Door, Drapery, Gate, Louver, and Window Operators and Systems - (UL) listed.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Accessibility Requirements: Comply with requirements of Local building code, and Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities.
- B. System Design: Operate, hold open, and close doors under design wind and suction loads calculated in accordance with applicable building code.
- C. Operating Temperature Range: Minus 35 to plus 130 degrees F (minus 37 to plus 55 degrees C) ambient.
- D. Operators: Fully adjustable for opening and closing speeds, checking speeds, hold open time, and cancellation on activation of fire alarm and smoke detection system.
- E. Electrical: 120 VAC, 60 Hz, 5 Amp service provided to the header.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Operation and maintenance data.
- C. Shop Drawings: Indicate layout and dimensions; head, jamb, and sill conditions; elevations; components, anchorage, adjacent construction interface, recesses, materials, and finishes, electrical characteristics and connection requirements.

- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Manufacturers warranties.
- H. Contract Closeout: Submit
 - 1. As-Built Record Documents showing actual installation conditions and wiring.
 - 2. Manufacturer's Warranty.
 - 3. Parts lists and maintenance instructions including data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
 - 4. American Association of Automatic Door Manufacturers (AAADM) inspection form completed and signed by certified AAADM inspector prior to doors being placed into operation.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to have minimum five years documented experience in the fabrication of automatic doors of the type required for this project and be capable of providing field service representation during installation.
- B. Installer Qualifications: Installer to be experienced in the work of this section who has specialized in the installation of work similar to that required for this project.
- C. Certified Inspector: Copy of current AAADM Certification for AAADM inspector prior inspection.
- D. Mock-Up: Provide a mock-up for evaluation of installation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
 - 4. Accepted mock-up may become part of the Work.
- E. Automatic sliding door system shall be certified by the manufacturer to meet performance design criteria according to the following test standards: [select, if applicable]:
 - 1. ANSI A156.10.
 - 2. NFPA 101.
 - 3. Underwriter's Laboratories 325 (UL) listed.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Package hardware items individually with necessary fasteners and installation templates when necessary; label and identify each package with door opening code to match door schedule.
- B. Store products in manufacturer's unopened packaging until ready for installation.

- C. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- D. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 MAINTENANCE MATERIALS

- A. Provide special wrenches and tools applicable to each different or special hardware component.

1.10 COORDINATION

- A. Coordinate work with other directly affected components involving manufacture or fabrication of reinforcement for door hardware and recessed items.
- B. Coordinate work with other directly affected components involving electrical wiring and components.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: DORMA Automatics, Inc. as distributed by National Door Systems, 715 Auburn Road, Pontiac, MI 48343 (248) 332-0255.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 COMPONENTS

- A. Extruded Aluminum: ASTM B 221; 6063 alloy, T5 temper typical, 6061 alloy, T6 temper for extruded structural members.
- B. Sheet Aluminum: ASTM B 209, 5005 alloy, H15 or H34 temper.
- C. Sheet Steel: ASTM A 924/A 924M; galvanized to minimum G90.
- D. Steel Sections: ASTM A 36/A3 6M; shaped to suit mullion sections, galvanized.
- E. Glass: Glass shall be in accordance with Safety Glazing standard ANSI-Z97.1.2.
 - 1. Single pane of fully tempered select glazing quality clear float glass, safety glass, minimum 1/4 inch (6 mm) thick, conforming with requirements in Section 08800 - Glazing.
 - 2. Single pane of laminated glass, minimum 1/4 inch (6 mm) thick laminated glass.

3. Sealed double pane units, consisting of fully tempered select glazing quality clear float glass, safety glass, total thickness 1 inch (25 mm), conforming with requirements in Section 08800 - Glazing.
- F. Glazing Materials: Entrance manufacturer's standard types to suit application and conforming with requirements specified in Section 08800.
- G. Weatherstripping: Entrance manufacturer's standard types to suit application.
- H. Fasteners: Stainless steel or corrosion resistant steel.

2.3 AUTOMATIC SLIDING DOOR SYSTEM

- A. Automatic Sliding Door System: DORMA ESA300 (full breakout design) consists of aluminum door(s) with sidelite(s). Door opening restrictor arms shall be provided for all panels to control and limit the opening angle of the door(s) as they swing in the direction of egress. Provide to dimension heights and widths indicated on the Drawings.
 1. Sliding Aluminum Doors:
 - a. Narrow stile.
 - b. Glazing 1/4 inch (6 mm) tempered glass.
 - c. Intermediate muntin 3.25 inches (83 mm) including glass stops.
 - d. Bottom rail 7.5 inches (190.5 mm) including glass stops.
 - e. Bi-part sliding door system includes a two-point lock: one secured at the lead edge(s) of the door panel(s) and the other to the carrier assembly above the locking stile.
 - f. Door package includes interlock clips that latch the sliding panel(s) to the sidelite panel(s) when the door system is in the fully closed position.
 - g. Active sliding door provided with a maximum security hookbolt lock, with provisions for a key cylinder on the exterior and a thumb turn on the interior in accordance with NFPA 101.
 2. Door Operation: Slide panel(s) shall slide open and position to provide egress at any point in the door's movement or position in compliance with NFPA 101.
 - a. Bi-part slide.
 - b. Slide panel(s) allow "breakout" to the full and open position providing egress at any point in the door's movement or position. Automatic operation is discontinued when any panel is in the "breakout" mode by way of a non-contact cut-off switch, or self-closing device.
 - c. Size door(s) and sidelite(s) and positioned to provide a minimum 0.75 inch (19 mm) finger protection to prevent pinch points at the meeting stiles when fully opened.
 3. Aluminum Frame and Extrusions:
 - a. Door panels 1.75 inches (44 mm) deep.
 - b. Framing materials including jambs and header shall be 4.5 inches (114mm) deep.
 - c. Structural sections shall be .125 inches thickness.
 - d. Bi-part transom packages contain one vertical transom tube centered in the opening.
 4. Sidelites:
 - a. Provide sidelite door panel(s) to dimension height(s) and width(s) as indicated on the Drawings with corresponding glazing.
 - b. Sidelites provided with standard intermediate 3.25 inch (82.5 mm) overall muntin.

- c. Sidelites shall swing out and allow the sliding doors to break away to the full open position for egress at any point in the door's movement per NFPA 101.
5. Header: 4.5 inches wide by 7.5 inches high (114 mm wide by 190.5 mm high) with a minimal wall thickness of .125 inch (32 mm), capable of supporting door panels of 220 lbs. (100 kg) single slide or 190 lbs. (86 kg) bi-part slide.
 - a. Header contains the door operator and door mounting components.
 - b. Provide header cover with a continuous self-locking hinge design and open flush with the top of the header.
 - c. Roller track shall be a separate extrusion from the header and sound dampened by separating the track from the header with an extruded EPDM rubber gasket.
 - d. Operator components are factory assembled within the header. Minimal field wiring is required. Door functions provided in accordance with ANSI A156.10.
 6. Door Hanger Wheels: 1.5 inches (38 mm) diameter Delrin wheels with self lubricating sealed ball bearing cores. Sliding door(s) stabilized on the track by 1.4 inches (36 mm) diameter anti-riser wheels. Assembly shall allow the sliding doors to freely swing outward for emergency egress. Door height shall have an upward or downward adjustment of 3/16 inches plus or minus (5 mm).
 7. Threshold Track:
 - a. Track is required adjacent to the Sidelites and panels.
 - b. Provide with continuous threshold is available.
 8. Door Operator and Controller: DORMA ESA system with an electro-mechanical operator and microprocessor controller. Components consist of a DC permanent magnet motor, a self lubricating drive system and a wear-free digital rotary encoder all linked to a fully integrated digital microprocessor controller.
 9. Microprocessor Controller: DORMA microprocessor controller is a fully integrated digital design that is self-learning and self-monitoring.
 - a. Performance parameters shall not exceed applicable ANSI A156.10 and/or UL standards.
 - b. Controller shall continuously monitor all critical door functions and safety sensors.
 - c. All door functions such as opening speed, closing speed, check locations, partial open dimensions, etc., shall be fully programmable without the use of limit switches by utilizing a portable hand terminal connected to the microprocessor controller.
 10. Threshold Sensors: Self-monitored active infrared safety sensors. Sensors shall be self-contained and fully functioning during the opening and closing cycle of the door.
 11. Activation Sensor: Motion sensor utilizes K-band frequency (24.125 GHz) for improved detection of slow-moving pedestrian traffic, and shall be switchable between bi-directional and uni-directional operation. Circuitry is included to eliminate Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI). Relay hold time is adjustable from 0.5 seconds to 9 seconds.
 - a. Mount motion sensor to the header at 120 inches (3,048 mm) maximum above the finished floor. Using the adjustable antenna the detection pattern is semi-circular.
 - b. When installed at a height of 96 inches (2,438mm) and set at the highest sensitivity, the sensor can provide a "wide pattern set-up" of approximately 12 feet wide by 6 feet 6 inches deep (3,658 by 1,981 mm) or a "narrow pattern set-up" of approximately 6 feet 6 inches wide by 8 feet deep (1,981 by 2,438 mm).

- c. Location of the detection zone shall be adjustable by moving the antenna. Vertical antenna adjustments are possible from 0 degrees to 90 degrees in 15 degrees increments and lateral adjustment from 30 degrees left to 30 degrees right and anywhere in between.
 - d. Power is provided by the microprocessor control. Electrical adjustments can be made with a universal coded infrared remote control.
12. Accessories: ESA 300 automatic sliding door system shall include the following accessories to reduce energy loss:
- a. Track-in pile weather-stripping on the bottom of sliding door(s).
 - b. Track-in double pile weather-stripping on the sliding door lead edges.
 - c. Track-in single pile weather-stripping between the carrier and the header on the sliding door(s).
 - d. Track-in double pile weather-stripping at the interlock rails between sliding door(s) and sidelite door(s).
 - e. Track-in neoprene weather-stripping between sidelite door(s) and jamb(s).
 - f. Track-in vinyl weatherstripping: For clean room applications, weather-stripping shall be Sanoprene.
 - g. Interior side jamb mounted program switches consisting of:
 - 1) Main Switch = AUTO- CLOSE -OPEN (operates door in fully automatic mode or turns it off or keeps it fully open).
 - 2) Exit Only Switch = OFF – ON (only the exit side motion detector will initiate door opening).
 - 3) Partial Open Switch = OFF – ON (reduces the opening width according to weather and traffic conditions).

2.4 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Section 16150 - Wiring Connections: Requirements for electrical characteristics.
- B. Electrical: 120 VAC, 60 Hz, 5 Amp service.
- C. Section 16225 - Motors: Requirements for motors, NEMA MG1.
- D. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.

2.5 FACTORY FINISH

- A. Provide aluminum finishes in accordance with Aluminum Association Standard AA DAF-45. Dark Bronze Color Anodized Aluminum Surfaces: 313-R1 Class-I Dark Bronze anodized aluminum coating.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that other trades are complete with their required work before installing the automatic swing door operating system.

- C. Mounting surfaces shall be plumb, straight and secure; substrates shall be of proper dimension and material; material which door is anchored to shall be capable of supporting the automatic door system and associated loads.
- D. Verify electric power is available and has correct characteristics.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and installer must be an AAADM certified technician.
- B. Set all units plumb, level and secure.
- C. Provide all fasteners required for installation of the automatic sliding door system.
- D. After repeated operation of the completed installation, inspect door operators and controls for optimum operating condition and safety.
- E. Adjust door equipment for correct function and smooth operation.
- F. Clean all metal surfaces promptly after installation.
- G. Remove temporary protection, clean exposed surfaces.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's representative to verify that installation of doors and controls are in conformance to the manufacturer's recommendations.
- B. Installation of doors and controls shall be inspected and certified by an AAADM Certified Inspector prior to doors being placed into operation.
- C. Provide a completed AAADM inspection form signed by a certified AAADM inspector after the door system is completely installed and tested including glazing.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION