

SECTION 08461 - SLIDING AUTOMATIC ENTRANCE DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Automatic sliding doors with operator and motion/presence sensor control device.

1.2 RELATED SECTIONS

- A. Division 8 Section "Glazed Aluminum Curtain Walls" for sliding doors installed within curtain wall system.
- B. Division 8 Section "Door Hardware" for hardware to the extent not specified in this section.
- C. Division 8 Section "Glazing" for materials and installations requirements of glazing for automatic entrance doors.
- D. Division 16 Sections for electrical connections including conduit and wiring for automatic entrance door operators.

1.3 REFERENCES

- A. ANSI Z97.1 - Safety Glazing Material Used in Buildings.
- B. ANSI/BHMA 156.10 - Power Operated Pedestrian Doors.
- C. ANSI/UL 325 - Door, Drapery, Gate, Louver, and Window Operators and Systems.

1.4 SYSTEM DESCRIPTION

- A. Doors Powered to Open Position:
  - 1. Doors powered by DC electric motor and mechanical gear assembly transmitted to active leaves by fiberglass-reinforced tooth drive belt for silent operation. Doors using roller chain, cable, or hydraulic devices shall not be accepted.
  - 2. Power door to open position by signals received by microprocessor from the actuation controls.
  - 3. The last portion of the opening cycle shall be controlled by a microprocessor generated signal that electronically reduces voltage to motor until door is fully open. Door systems that use microswitches shall not be accepted.
  - 4. To permit safe passage if an obstruction is detected between opening doors and surrounding walls or interior fittings, the doors shall immediately stop and after a delay go to the full closed position. Door systems that only monitor the door travel while closing shall not be acceptable.
- B. Doors Powered to Closed Position:
  - 1. The active leafs will only be powered to closed position when all actuating devices are cleared and after remaining in the open position for a preset time delay (per ANSI standards).
  - 2. The last portion of the closing cycle shall be controlled by a microprocessor generated signal that electronically reduces voltage to the motor until door is fully closed.
  - 3. To permit safe passage between closing doors, the doors immediately reverse to open position if an obstruction is detected, then resume their interrupted movement at low speed to check whether the obstruction has disappeared or not. Door systems that only monitor the door travel while opening shall not be acceptable.

C. Emergency Breakaway:

1. Full Breakout System: Interior sliding active leaves and sidelites swing out from any position in sliding mode.
2. Breakaway Pressure: Field adjustable to building code requirements and in accordance with ANSI/BHMA 156.10 maximum of 50 pounds.

D. Watchdog Monitoring:

1. Microprocessor Software: Constantly monitor drive train system operations.
2. Watchdog Control Circuit: Assume command of system and shut down automatic function by holding doors open, should door speed, motor function, or drive train operations deviate from design criteria ranges.
3. Secondary Supervisory Circuit: Monitor main Watchdog control circuit every 255 door cycles, ready to perform as a backup.

E. Energy Saving Device:

1. Switch: Recessed in interior header cover.
2. Door Opening Settings: Off, exit only, 2-way traffic, partial opening, and hold fully open.
3. Partial Opening Mode: Switch reduces total door opening to reduce conditioned air loss.
  - A. Microprocessor Programmed Intelligence: Door opening automatically resumes full-open position whenever traffic flow exceeds preset volumes.
  - B. Door returns to reduced opening mode when traffic subsides.
4. Heavy Weather Pile: Between doors and sidelites and between emergency breakaway hardware and door stiles.

## 1.5 PERFORMANCE REQUIREMENTS

A. General: Provide doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.

B. Compliance:

1. ANSI/BHMA 156.10.
2. ANSI/UL 325 listed.
3. Air Infiltration per ASTM E283-91 – Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across Specimen.
  - a. Full breakout: static pressure air infiltration conducted at 0.57 psf (15 mph) with a .07 cfm/ft<sup>2</sup> result and 1.57 psf (25 mph) with a 1.3 cfm/ft<sup>2</sup> result.
4. Structural Performance (wind load) per ASTM E330-07 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, Doors by Uniform Static Air Pressure Difference. Testing conducted at positive and negative loads.
  - a. Full breakout: 37 psf (120 mph)
5. Forced Entry Resistance per AAMA 1303.5 – Voluntary Specifications for Forced Entry Resistant Aluminum Sliding Glass Doors.

- C. Automatic door equipment accommodates medium to heavy pedestrian traffic.
- D. Automatic door equipment accommodates up to following weights for active leaf doors:
  - 1. Bi-Part Doors: 220 pounds (100 kg) per active leaf.
  - 2. Single Slide Doors: 440 pounds (200 kg) per active leaf.
- E. Operating Temperature Range: -35 degrees F to 122 degrees F (-30 degrees C to 50 degrees C).
- F. Motion and Presence Detection System: Uses planar K-band microwave technology to detect motion and focused active infrared technology to detect presence, in a single housing.
- G. Systems With Transom Over 16'-0" (4,877 mm) or With Heavy Glass: System can span up to 16 feet without overhead support. Systems at 16'-0", with transoms, or with heavy glass shall install anti-sag rods through transom verticals and bottom rollers.

## 1.6 SUBMITTALS

- A. Comply with Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.
- C. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, materials, and fabrication of doors, frames, sidelites, operator, motion/presence sensor control device, anchors, hardware, finish, options, and accessories.
- D. Samples: Submit manufacturer's samples of aluminum finishes.
- E. Test Reports: Submit certified test reports from UL, CUL, and ICBO indicating doors comply with specified performance requirements.
- F. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.
- G. Manufacturer's Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA 156.10 after completion of installation.
- H. Operation and Maintenance Manual:
  - 1. Submit manufacturer's operation and maintenance manual.
  - 2. Include spare parts list.
- I. Warranty: Manufacturer's standard warranty shall be one year from date of installation.

## 1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 10 years successful experience.
  - 2. Member: American Association of Automatic Door Manufacturers (AAADM).
  - 3. Door, frame, operator, and sensor components from same manufacturer.
- B. Installer's Qualifications:
  - 1. Minimum of 10 years successful experience in installation of similar doors.
  - 2. Approved by manufacturer.

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site protected from damage.

- B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finish from damage during handling and installation.

## 1.9 MAINTENANCE SERVICE

- A. Manufacturer shall provide factory-owned central-dispatch system for maintenance service.
- B. The manufacturer shall maintain a company owned dispatch system that shall be available 24 hours per day, 365 days per year to insure proper service capability.
- C. A manufacturer's employee, not an answering service, shall obtain malfunction information and dispatch appropriate service agency to project location.
- D. Toll free phone number shall be prominently displayed on header of each operator.
- E. Outside contractors or answering services are not acceptable.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Besam Automated Entrance Systems, Inc., 1900 Airport Road, Monroe, North Carolina 28110. Toll Free (866) BESAM-US. Phone (704)290-5551.
  - 1. Basis of Design: Uni-slide OC2-16 overhead concealed, full breakout, narrow stile bi-part sliding door system as manufactured by Besam Entrance Solutions.

### 2.2 AUTOMATIC SLIDING DOORS

- A. Model: Unislide automatic sliding doors.
  - 1. Aluminum doors and frames with sidelite and active door leaves.
  - 2. Overhead-concealed electro-mechanical, microprocessor-controlled, sliding door operator.
  - 3. Operator housing, floor rollers, and door carriers.
- B. Dimensions:
  - 1. Clear Doorway Opening Width: 84 inches.
  - 2. Overall Frame Width: 192 inches.
  - 3. Active and Sidelite Leaf Width: 48 3/8 inches.
  - 5. Clear Door Opening Height: 8' - 7 1/2" ±.
  - 6. Overall Frame Height: 9' - 2 1/2" ±.
  - 7. Active and Sidelite Leaf Height: 8' - 7 1/2" ±.

### 2.3 ALUMINUM DOORS AND FRAMES

- A. Doors and Frames: Extruded aluminum, Alloy 6063-T5.
  - 1. Hydraulic dampers (optional): provide 90 degree stop and cushion door upon opening and closing during emergency breakout conditions.
- B. Glass:
  - 1. Glazing Material: ANSI Z97.1.
  - 2. Active Leaves: 5/8-inch glass insulating units.

3. Sidelites: 5/8-inch glass insulating units.
4. Field-glazed or preglazed.
- C. Door Carriers:
  1. Roller Wheels: 2 steel roller wheels, 1-3/4-inch diameter, per active door leaf for operation over replaceable Delrin track. Single journal with sealed oil-impregnated bearings.
  2. 2 self-aligning anti-risers per leaf.
- D. Vertical Jambs: 1-3/4 inches by 4-1/2 inches.
- E. Header:
  1. Span: Maximum 16'-0" (4,877 mm) without intermediate supports when using 1/4-inch glass.
  2. Size: 7-3/4 inches (187 mm) wide by 6-7/8 inches (175 mm) high.
  3. Hinge Point: Allows access for adjustments.
  4. Design: Closed header.
- F. Stiles: Narrow – 2-1/8”.
- G. Pivots: Top and bottom concealed pivots, extruded aluminum.
- H. Hardware: Breakaway.
- I. Exterior Glazing Stop Extrusion: Nonremovable, security-type glazing bead to prevent unauthorized entry.

## 2.4 SLIDING DOOR OPERATOR

- A. Operator:
  1. Overhead-concealed or surface-applied, electro-mechanical, microprocessor-controlled.
  2. Motor: High-efficiency, energy-efficient, DC motor.
  3. Mechanical drive assembly.
  4. Microprocessor System: Sets opening and closing speeds based on factory-adjusted configuration settings.
  5. Mechanical Limit Switches: Not acceptable.
  6. Adjustable Hold Open Time Delay: 0 to 60 seconds.
  7. Software: Incorporates self-diagnosing system.

## 2.5 AIR INFILTRATION

Weatherstripping: All active door panel weatherstripping shall be concealed, “finned-pile.”

## 2.6 STRUCTURAL PERFORMANCE (WIND LOAD COMPLIANCE) AND FORCED ENTRY RESISTANCE

- A. Locking shall be independent 2 pt- locking system in each active leaf and include exterior key cylinder and interior thumb turn.
- B. Threshold shall be aluminum, 1/2” x 4-1/2” running full width of package. Lead-up: optional.

## 2.7 MOTION AND PRESENCE SENSOR CONTROL DEVICE

- A. Model: The BEA Wizard Sliding Door Sensing System
  2. Uses planar K-band microwave technology to detect motion and focused active infrared technology to detect presence, in a single housing. The focused active infrared presence technology overlaps the motion pattern.

3. The active infrared is comprised of 96 spots of detection made out of four rows of 24 spots of detection each (two rows on each side of the door). The focused presence technology never shuts off during closing cycle of the door.
  4. The Wizard is self-monitoring (motion and presence sensor) and has the capability to make adjustments with a universal remote control.
  5. The self-monitored Wizard communicates with the Unislide through a monitoring connection. The self-monitoring connection allows the door to go into a failsafe mode in the event of a sensor failure.
  6. Operating temperature range of  $-30^{\circ}$  F to  $131^{\circ}$  F.
- B. Switches and Sensor: Field installed and adjusted.

## 2.8 ELECTRICAL

- A. High-Efficiency DC Motor: Maximum of 3 A current draw, 20 A line.
  - C. Power: Self-detecting line voltage capable control. 120 V through 240V, 50/60 Hz, 3 A incoming power with solid-earth ground connection for each door system.
  - D. Wiring: Separate channel raceway free from moving parts.
  - E. Brown out/high voltage capability: System has capability to operate at full performance well beyond brown out and high line voltage conditions (85V – 265V) sensing changes and adjusting automatically.
- E. Convenience Battery: Shall be concealed in header and capable of full operation with blackout conditions, including sensor capabilities for typically 100 cycles.

## 2.9 ALUMINUM FINISHES

- A. Anodized: [Dark Bronze, AA-C23A44] [Clear, AA-C22A31].

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine and measure areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent utilization of doors. Do not proceed with installation until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Ensure openings to receive frames are plumb, level, square, and in tolerance.
- B. Ensure proper support has been provided at operator header.
- C. Ensure floor is level and smooth.

### 3.3 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions and ANSI/BHMA 156.10.

- B. Install doors and beam plumb, level, square, true to line, and without warp or rack.
- C. Anchor frames securely in place.
- D. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
- E. Install exterior doors to be weathertight in closed position.
- F. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- G. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

#### 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services:
  - 1. Manufacturer's representative shall provide technical assistance and guidance for installation of doors.
  - 2. Before placing doors in operation, AAADM certified technician shall inspect and approve doors for compliance with ANSI/BHMA 156.10. Certified technician shall be approved by manufacturer.

#### 3.5 ADJUSTING

- A. Adjust doors for proper operation in accordance with manufacturer's instructions and ANSI/BHMA 156.10.

#### 3.6 CLEANING

- A. Clean doors promptly after installation in accordance with manufacturer's instructions.
- B. Do not use harsh cleaning materials or methods that would damage glass or finish.

#### 3.7 PROTECTION

- A. Protect installed doors and finish to ensure that, except for normal weathering, doors and finish will be without damage or deterioration at time of substantial completion.

END OF SECTION