SECTION 08460 - SLIDING AUTOMATIC ENTRANCES

PART I – GENERAL

1.01 SUMMARY

A. WORK INCLUDED: Furnish complete automatic aluminum door system, as specified, that has been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

B. RELATED WORK:
1. Concrete: Division 03, applicable sections.
2. Masonry: Division 04, applicable sections.
3. Thermal and Moisture Protection: Division 07, applicable sections.
5. Openings: Division 08, applicable sections.
6. Electrical: Division 26, applicable sections.

1.02 REFERENCES

A. AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA) 101: Appendix Dissimilar Materials.

B. AMERICAN ASSOCIATION OF AUTOMATIC DOOR MANUFACTURERS (AAADM).

C. AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA) 1303.5: Voluntary Specifications for Forced-Entry Resistant Aluminum Sliding Glass Doors

D. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
1. ANSI Z97.1: Safety Glazing Materials Used in Buildings - Methods of Test.
2. ANSI A156.10: For Power Operated Pedestrian Doors; Sliding Doors section.
3. ANSI A156.5: Standard for Auxiliary Locks and Associated Products

E. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM);
1. ASTM B221: Aluminum-Alloy Extruded Bars, Rods, Shapes and Tubes.

F. BUILDING OFFICIALS AND CODE ADMINISTRATORS INTERNATIONAL (BOCA)

G. INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS / UNIFORM BUILDING CODE (ICBO/UBC)

H. INTERNATIONAL CODE COUNCIL / INTERNATIONAL BUILDING CODE (ICC/IBC)

I. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 101:
1. NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
2. NFPA 70: National Electrical Code (NEC).

J. THE ALUMINUM ASSOCIATION (AA) Aluminum Finishes Manual.

K. UNDERWRITERS LABORATORY, INC. (USA & CANADA) UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.

1.03 SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for automatic entrance doors.

B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other Work.

1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
2. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring.

C. Hardware Schedule: Organize schedule into sets based on hardware specified. Include name of item and manufacturer, and complete designation of every item required for each automatic entrance door.

D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.

E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below and of same thickness and material indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

1. Size: 12-inch- (300-mm-) long sections of extrusions or formed shapes.

F. Product Certificates: Signed by manufacturers of automatic entrance doors certifying that products furnished comply with emergency exit door requirements.

G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current automatic entrance door systems comply with requirements.

I. Maintenance Data: For door operators and control systems to include in maintenance manuals specified in Division 1. Include instructions on how to perform safety tests, and the name, address, and telephone number of nearest authorized service representative.

J. CLOSEOUT SUBMITTALS: Submit the following:

1. Owner’s Manual.
2. Warranty document as specified herein.
3. AAADM inspection compliance form completed and signed by certified AAADM inspector prior to doors being placed in operation as proof of compliance with ANSI A156.10.

1.04 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

A. INSTALLERS QUALIFICATIONS: An experienced installer who is an authorized representative of the automatic entrance door manufacturer for both installation and maintenance of units required for this Project.

1. Certified Inspector: Installer shall employ an inspector certified by the American Association of Automatic Door Manufacturers.

2. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of automatic entrance door systems that are similar to those indicated for this Project in material, design, and extent.

C. MANUFACTURER'S QUALIFICATIONS: Manufacturer to have minimum (15) fifteen years successful experience in the fabrication of automatic doors of the type required for this project. Manufacturer capable of providing field service representation during installation, approving acceptable installer and approving application method.
1. Company Certificate: Issued by the American Association of Automatic Door Manufacturers.

D. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.

E. Source Limitations: Obtain automatic entrance doors through one source from a single manufacturer.

F. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, or in-service performance.

G. Product Options: Drawings indicate size, profiles, and dimensional requirements of automatic entrance doors and are based on the specific system indicated. Other manufacturers' systems with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

H. CERTIFICATIONS: Automatic sliding door systems and options shall be factory certified to meet performance design criteria in accordance with the following standards:
1. ANSI A156.10: For Power Operated Pedestrian Doors; Sliding Doors section.
2. NFPA 101: Code for Safety to Life from Fire in Buildings & Structures.
3. UL 325: Electrical Door, Drapery, Gate, Louver, and Window Operators and Systems.
4. BOCA: Means of Egress, Power Operated Doors
5. ICBO/UBC: Egress Through Lobbies
6. ICC/IBC: Egress Section

I. FORCED ENTRY RESISTANCE: Sliding doors shall meet requirement of AAMA 1303.5.

J. OPERATING RANGE: -30° F to 130° F (-34° C to 54° C)

K. OPENING FORCE REQUIREMENTS FOR EMERGENCY EGRESS:
1. Slide-swing panels shall require no more than 50 lbf. (222 N) of force to swing open. Slide-swing panels shall be capable of swinging out 90° from any position of slide movement.
2. Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.

3. If power fails, slide panels can be manually slid open with no more than 15 lbf (222 N) of force.
4. Units are UL listed as an exit way and are compliant with NFPA 101.

L. CLOSING FORCE REQUIREMENTS: Maximum force required to prevent sliding panel from closing = 28 lbf. (124.5 N) Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.

M. HEADER CAPACITY: Header shall be capable of supporting:
1. Biparting: Up to 250 lbs. (113.4 kg) per slide panel over spans up to 16'-0" (4877mm) without intermediate supports.

1.05 WARRANTIES

A. MANUFACTURER'S WARRANTY: Units to be warranted against defect in material and workmanship for a period of three years from the Date of Substantial Completion. Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.

B. DISTRIBUTOR'S WARRANTY: Three year warranty: Labor & transportation charges for defective parts replacement.

1.06 PROJECT CONDITIONS

A. FIELD MEASUREMENTS: Verify actual dimensions/openings by field measurements before fabrication and record on shop drawings. Coordinate with fabrication and construction schedule to avoid construction delays.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating automatic entrance doors without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.07 DELIVERY, STORAGE AND HANDLING

A. ORDERING AND DELIVERY: Comply with factory's ordering instructions and lead time requirements. Delivery shall be in factory's original, unopened, undamaged containers with identification labels intact.

B. STORAGE AND PROTECTION: Provide protection from exposure to harmful weather conditions and vandalism.

PART II – PRODUCTS

2.01 MANUFACTURER

A. BESAM INC.
B. DOR-O-MATIC; AN INGERSOLL-RAND COMPANY.
C. GYRO TECH ENTRANCES; DIV. OF LANSON INDUSTRIES INC.
D. HORTON AUTOMATICS; DIV. OF OVERHEAD DOOR CORPORATION.
E. KM SYSTEMS, INC.
F. ROTOSWING; DIV. OF EFCO CORPORATION.
G. SIERRA AUTOMATIC DOORS, INC.
H. STANLEY ACCESS TECHNOLOGIES; DIV. OF THE STANLEY WORKS.

2.02 EQUIPMENT

A. MANUFACTURED DOOR UNITS: Shall include operator, header with roller track, carrier assemblies, framing jambs, sliding door panels, sidelites, activation, safety devices and accessories required for complete installation.
   1. Configuration: Biparting
   2. Mounting Type:
      a. Perimeter mounted within rough opening with sliding panels sliding along sidelite.
   3. Door Type:
      a. Type 310: Slide-swing panels ‘SX’ shall slide along interior side, unit has Swing-out sidelite ‘SO’.

B. OPERATOR: The Electric Operating Mechanism shall be ProSlide® Series 2003 Belt Drive. The operator shall be mounted and concealed within the header.
   1. Operating force shall be accomplished through a 1/8 HP DC permanent magnet motor with worm gear transmission and 1800 RPM working with drive belt, attached door hangers, and idler pulley. Maximum current draw shall not exceed 3.15 amps. Drive belt to be steel reinforced nylon, 1/2" (13 mm) wide. Idler pulley to be reinforced, metallic material.
   2. Master Control shall be 16 bit microprocessor controller with dual on-board seven-segment alphanumeric diagnostic display and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. The control shall have minimum of 28 programmable parameters including the following functions as required by ANSI A156.10:
      a. Adjustable opening and closing speeds.
      b. Adjustable back-check and latching.
      c. Adjustable braking.
      d. Adjustable hold-open time between 1 to 30 seconds.
      e. Adjustable Reversing Circuit will reopen door unit if closing path is obstructed.
      f. Separate day and night modes of operation with security over-ride.
   3. Finger Safety: When unit slides open, strike rail of sliding panel will stop short of adjacent sidelite; resulting opening is net slide.
   4. On/Off Switch shall be supplied. When switched OFF, unit reverts to free manual operation (likewise during electrical power failure).

C. SECURITY AND SAFETY POWER FAIL OPTIONS:
   1. Automatic lock: Automatically locks slide function of door when in closed position. Additional power supply for autolock not acceptable.
      a. Autolock Fail Secure: If power fails the lock engages.

D. PROSLIDE® HEADER: Shall be 6" (152 mm) deep by 6" (152 mm) high aluminum construction with removable face plate for service and adjustment of operator and controls. Header mounts flush to one side of framing jambs.

E. CARRIER ASSEMBLIES AND HEADER ROLLER TRACK: Carrier assemblies shall support door panels with four rollers per panel. Rollers will be non-metallic, high quality ball bearing wheels 2" (51 mm) diameter. Anti-Derailing shall be accomplished by means of two additional adjustable rollers per panel. Overhead header roller track shall be continuous aluminum and replaceable.

F. SLIDING PANELS AND SIDELITES: Shall be aluminum, 1-3/4" (44 mm) deep with medium stile rails. An intermediate, horizontal rail (muntin bar), 2 1/4” (57 mm) wide, shall be furnished for safety and division of glass. Medium stile bottom rail shall be 6-1/2" (165mm) tall. Sliding panels shall have concealed bottom guides to stabilize slide travel.

1. Weather-stripping to be along perimeter of sliding panels and swing-out sidelites. Weatherstripping material captured in extruded aluminum door panel. Surface applied self-adhesive weatherstripping not acceptable. Adjustable spring-loaded double astragal weather-stripping at lead edge, double mohair at interlock rails
2. Standard glazing prep to be for 1/4" (6 mm) glass.
3. Sliding Panel and Sidelite Options shall be:
   a. Medium stile construction: 3 3/4" (95mm) wide vertical rails with 6 1/2" (165mm) tall bottom rail. Note: Medium stile construction will reduce slide opening.

G. BREAKOUT PANELS: Slide-swing panels can swing out 90° from any position of slide movement and require no more than 50 lbf. (222 N) of force applied at the lock stile to open. Slide-swing panels and swing-out sidelites shall utilize spring loaded ball detent.
   1. Slide-swing panels and swing-out sidelites shall have torsion spring designed to re-close panel if pushed open in the direction of egress.
   2. Breakout mechanism shall provide support across full width of the door, in normal operating mode. In breakout mode, torsion assembly shall support weight of the door to minimize drop during emergency egress.
   3. Slide-swing panels shall include intermediate horizontal rail.
   4. Units with breakout feature are UL listed as an exit away and are compliant with NFPA 101.

H. JAMBS/FRAME: Shall be aluminum. Jamb dimensions to be:
   1. 1 3/4" (44mm) deep by 4" 1/2" (114mm) wide.

I. THRESHOLD: Not required

J. HARDWARE:
   1. Hardware Options to include
      a. Fail secure electronic locking .
      b. Surface mounted Panic Exit Device for door type 310.
      c. Key switches with day night mode

2.03 RELATED EQUIPMENT

BASIC SENSOR SYSTEM: Shall be 24 VDC, class ll circuit and shall be adjusted and installed in compliance with ANSI A156.10. System shall include the following:

A. ACTIVATION SENSORS: Microwave or active infrared sensor shall be header-mounted each side of door unit for detection of traffic from each direction.

B. THRESHOLD PRESENCE SENSORS:
   1. Header mounted sensors shall provide active infrared presence detection on each side of the door unit and shall remain active throughout the entire door opening and closing cycle.
   2. Hold-open beams: Two pulsed infrared photoelectric beams to be mounted in vertical rails of sidelite or in jambs. Sender/receiver arrangement parallels door opening.

C. Operation: Provisions for secured exit portal will be to allow for one way traffic with security maintained for the Opposite direction. Detectors will be in night mode to allow for exit only traffic. Electronic auto locks and exit Devices will be provided to prevent forced entry from the secured side.

2.04 RELATED WORK REQUIREMENTS

A. ELECTRICAL: 120 VAC, 50/60 cycle, single phase, dedicated 20 amp circuit per operator. Non-North American voltages can be 240 VAC 50/60 cycle (operator must have 240 volt power supply).

B. GLASS AND GLAZING: Glass stops, glazing vinyl and setting blocks for field glazing as per Safety Glazing standard ANSI Z97.1.2. Contractor to coordinate acquisition of glass in thickness and type in accordance with manufacturer's recommendations for prescribed design.

2.05 MATERIALS, FINISHES AND FABRICATION

A. EXTRUDED ALUMINUM: ASTM B221, 6063-T5 alloy and temper, anodized:
1. Structural Header Sections: Minimum 3/16" (5 mm) thickness.
2. Structural Frame Sections: Minimum 1/8" (3 mm) thickness.
3. Structural Panel Sections: Commercial grade.

B. FINISHES (for all exposed aluminum surfaces): Shall be one of the following:
1. 313-R1 Dark Bronze Class 1 Anodized Coating.

C. PANEL CONSTRUCTION:
1. Corner block type with 3/16” steel backup plate construction, mechanically secured with minimum of four hardened steel screws. Sash consists of snap-in glass stops, snap-in glazing beads and vinyl gaskets.
2. Slide-swing doors to be supplied with adjustable glass setting block to allow for adjusting of door to meet site conditions eliminating the need for additional shims.

D. FRAME CONSTRUCTION: Butt joints, mechanically secured with screws and formed alum. corner brackets.

E. OPERATOR CONSTRUCTION: Electromechanical, modular type construction.

PART III - EXECUTION

3.01 EXAMINATION

SITE VERIFICATION OF CONDITIONS: Installer must verify that base conditions previously installed under other sections are acceptable for product installation according to with manufacturer's instructions. Notify the Contractor in writing of conditions detrimental to the proper and timely completion of work. Do not start work until all negative conditions are corrected in a manner acceptable to the installer and manufacturer.

3.02 INSTALLATION

A. GENERAL: Installer shall be factory trained, certified by AAADM, and experienced to perform work of this section. Install door units plumb, level and true to line, without warp or rack of frames or sash with manufacturer's prescribed tolerances. Provide support and anchor in place.

B. DISSIMILAR MATERIALS: Comply with AAMA 101, Appendix Dissimilar Materials by separating aluminum materials and other corrodible surfaces from sources of corrosion or electrolytic action contact points.

C. WEATHER-TIGHT CONSTRUCTION: Install header and framing members in a bed of sealant or with joint filler or gaskets. Coordinate installation with wall flashings and other components of construction.

D. ELECTRICAL: General or electrical contractor to install all wiring to operator on a separate circuit breaker routed into header. General or electrical contractor also to install all necessary power and low voltage wiring for proper operation of associated security systems.

3.03 CLEANING, ADJUSTMENT AND PROTECTION

A. CLEANING: After installation, installer to take following steps:

1. Remove temporary coverings and protection of adjacent work areas.
2. Remove construction debris from construction site and legally dispose of debris.
3. Repair or replace damaged installed products.
4. Clean product surfaces and lubricate operating equipment for optimum condition and safety.

B. ADJUSTMENT: AAADM certified technician to inspect and adjust installation. Comply with ANSI A156.10.

C. ADVISE CONTRACTOR: Of precautions required through the remainder of the construction period, to ensure that doors will be without damage or deterioration (other than normal weathering) at the time of acceptance.

END OF SECTION