SECTION 08 42 29 - SLIDING AUTOMATIC ENTRANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following types of automatic entrances:
   1. Exterior and interior, single slide and bi-parting, sliding automatic entrances, heavy duty.

B. Related Sections:
   1. Division 7 Sections for caulking to the extent not specified in this section.
   2. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished and installed separately in Division 8 Section.
   3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
   4. Division 8 Section Glazing for materials and installation requirements of glazing for automatic entrances.
   5. Division 26 Sections for electrical connections provided separately, including conduit and wiring, for power to sliding automatic entrances.

1.3 REFERENCES

A. References: Refer to the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 – Accessible and Usable Building and Facilities
   2. ICC/IBC – International Building Code
   3. NFPA 70 – National Electrical Code
   4. NFPA 101 – Life Safety Code

B. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA).
   1. ANSI/BHMA A156.10: American National Standard for Power Operated Pedestrian Doors.
   2. ANSI Z97.1: Standards for Safety Glazing Material Used in Buildings.

C. Underwriters Laboratories (UL).
   1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

D. American Association of Automatic Door Manufacturers (AAADM).

E. American Society for Testing and Materials (ASTM).
   1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

F. American Architectural Manufacturers Association (AAMA).
   1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

G. National Association of Architectural Metal Manufacturers (NAAMM).
   1. Metal Finishes Manual for Architectural and Metal Products.

1.4 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
   1. Knowing act: Consciously initiating the opening of a power operated door using acceptable methods including wall mounted switches such as push plates and controlled access devices such as keypads, card readers and key switches.

B. Safety Device: A device that detects the presence of an object or person within a zone where contact could occur and provides a signal to stop the movement of the door.

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.
   1. Automatic sliding door assemblies shall include but not limited to, heavy-duty aluminum frame type automatic doors, sidelites, framing, operator, actuation system, safety beams, wiring, sealant, and other related accessories.
   2. Any parts, components, or sub-assemblies not specifically mentioned herein but necessary for a complete unit, ready for immediate usage, shall be included.
   3. All equipment and parts supplied shall be new and unused.
   4. Electric operating mechanism shall be belt driven by DC electric motor and mechanical gear assembly. Hydraulic, pneumatic, chain type drive, linear drive entrances shall not be accepted.
   5. Sliding automatic entrance doors shall be the Besam SL500 (Basis of Design).

B. Compliance:
   1. ANSI/BHMA A156.10 American National Standard for Power Operated Pedestrian Doors.
   2. UL 325 listed.

C. Automatic door equipment shall accommodate heavy pedestrian traffic.

D. Automatic Door equipment accommodates up to the following weights for active leaf doors:
   1. Bi-part doors: 300 lbs (136 kg) per active breakout leaf.
   2. Single doors: 300 lbs (136 kg) per active breakout leaf.

E. Operating Temperature Range: -30° F to 122° F (-35° C to 50° C).

F. Entrapment Force Requirements:
   1. Power Operated Sliding Doors: Not more than 30 lpf (133 N) required to prevent stopped door from closing.
   2. Sliding doors provided with a breakaway device shall require no more than 50 lpf (222 N) applied 1 inch (25 mm) from the leading edge of the lock stile for the breakout panel to open.

1.6 SUBMITTALS

A. Comply with Division 01 – Submittal Procedures.

B. Product Data: Submit manufacturer's product data sheets and standard details for automatic entrance doors, including installation details, fabrication, finishing hardware, operators, accessories, and other components of the work. Include rough-in diagrams, wiring diagrams, parts lists, and maintenance instructions, as well as certified test data (where required).

C. Templates and Diagrams: Furnish templates, diagrams, and other data to fabricators and installers of related work, as needed for coordination of automatic entrance installation.

D. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections and details, indicating dimensions, materials, and fabrications of doors, frames, sidelites, operator, motion/presence sensor control device, anchors, joint system, expansion provisions, hardware, finish, and other components not included in manufacturer's standard data. Include glazing details (where required).

E. Samples: Submit manufacturer's samples of aluminum finish and glazing.

F. Informational Submittals: Manufacturer's product information and applicable sustainability program credits that are available to contribute towards a LEED rated project certification.
   1. Credit MR 4.1 and 4.2: Manufacturer's or fabricator's certificate indicating percentage of post-consumer recycled content by weight and pre-consumer recycled content by weight for each Product specified under this Section.

G. Manufacturers Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA A156.10 after completion of installation.

H. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door opening installation in quantity as required in Division 1, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service representatives. The final copies delivered after completion on the installation test to include spare parts list.

I. Repair and Parts Manuals: Contractor shall provide all factory published literature that is related to the door units and associated components, shall include but not be limited to; fully illustrated parts list, installation and setup procedures, operation manual,

troubleshooting manual, AS BUILT schematics and diagrams, and factory repair manuals.

J. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 10 years documented experience installing and maintenance of units similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
   1. Certified Inspector Qualifications: Certified by AAADM.

B. Manufacturer Qualifications: Engage qualified manufacturers with a minimum 10 years of documented experience in manufacturing of doors and equipment of similar to that indicated for this Project and that have a proven record of successful in-service performance
   1. A manufacturer with company certificate issued by AAADM.

C. Source Limitations for Automatic Entrances: Obtain each type of door, frame, operator and sensor components specified in this Section from a single source, same manufacturer unless otherwise indicated. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.

D. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. Emergency Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.

1.8 PROJECT CONDITIONS

A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.9 COORDINATION

A. Coordinate sizes and locations of recesses in concrete floors for recessed tracks and thresholds if applicable. Concrete, reinforcement and formwork are specified in Division 03.

B. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrances to comply with indicated requirements.

C. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies and access control system as applicable.

1.10 INSPECTION

A. Contractor shall examine the areas and conditions under which automatic doors are to be installed and notify the LAWA designee in writing of conditions detrimental to the proper and timely completion of work. Upon final installation, Contractor shall provide inspection by a certified AAADM inspector. Inspection shall be verified with a checklist provided by the inspector to ensure compliance with applicable ANSI standards.

1.11 INSTALLATION WORKMANSHIP

A. Comply with manufacturer's specifications and recommendations.

B. Set track and operator plumb, level and true to line, without warp or rack of doors. Anchor securely in place. Isolate aluminum and other materials from sources of electrolysis.

C. Install complete door operator system in accordance with manufacturer's instructions, including drive mechanism, controls, and control switches.

D. All work shall be performed in a safe, professional workmanlike manner. Final adjustments of all components and safeties shall be made before contractor leaves the job site. The contractor shall certify that all safeties are adjusted and tested according to building and safety codes. All work shall be under the direction of the LAWA designee.

1.12 WARRANTY

A. Automatic Entrances shall be free of defects in material and workmanship for a period of one (2) year from the date of substantial completion. Contractor shall provide a full warranty covering all parts, service, materials and labor for the provided door(s). Warranty shall start at time of acceptance of the work by the Los Angeles World Airports designee, for each individual door installed.

B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.

C. Contractor shall respond and be onsite within four (4) hours of notification, for all warranty repair calls, on a 24-hours a day, seven days a week basis including all holidays, at no charge to Los Angeles World Airports. The contractor shall supply and maintain a 24-hour telephone number with the Los Angeles World Airports' Mechanical Repair Shop.

D. Service intervals shall be consistent with the manufacture's recommendations. Doors will have an AAADM inspection (by a certified inspector) and PM performed every 6 months during the service warranty period.

1.13 SPECIAL FINISH WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warrant does not include normal weathering. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: ASSA ABLOY Entrance Systems.

2.2 SLIDING AUTOMATIC ENTRANCES

A. Model: Besam SL500 sliding automatic doors. (Basis of Design):
   1. Biparting aluminum doors and frames with sidelites and active door leaves.
   2. Overhead concealed, electro-mechanical, microprocessor controlled, sliding door operator.
   3. Operator housing, guide system and door carriers.
   4. Door packages shall be single breakaway style, (O-SX-SX-O) unless specified otherwise.

2.3 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. General: Provide manufacturer's standard automatic entrance door assemblies including doors, sidelights, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

B. The sliding leaves shall convert to swinging panels and shall swing out from any point of slide travel to a position of 90 degrees or greater, when pressure is applied to the middle of the door at the leading edge stile. The leaves shall comply with NFPA Standard 101 and ANSI/BHMA A156.10.

C. The fixed side-lite panel shall be installed to the interior of the swing-slide panel.

D. The emergency breakaway function shall immediately disable the door operation until manually reset. A switch shall be installed in the side-lite to stop automatic operation when opened.

E. An electrical power cut off device shall restore power to the operator when the sliding panel is reset. In addition, when the door is broken out, an audible piezo type alarm shall sound until the door is resort or power is shut off. A waterproof toggle switch shall also be installed to manually control the piezo alarm function.

F. Sliding Automatic Entrances:
   1. Bi-Parting Entrances:
      a. Configuration: Two sliding leaves and two full sidelights.
      b. Traffic Pattern: Two-way.
      c. Emergency Breakaway Capability: Sliding leaves only.
      d. Mounting: Between jambs.

G. All sliding doors (and sidelite panels with breakout) shall have hydraulic closers to return the door to the closed position after breakout. Door panels, when in the broken out position, must be capable of being reset without any upward lifting movement of vertical motion, and shall not touch the floor at any point from 0 to 90 degrees travel. Contractor shall demonstrate this function prior to acceptance of the work.

2.4 ALUMINUM DOORS AND FRAMES

A. Doors and Frames: Extruded Aluminum, Alloy 6063-T5. Sections shall be true to details and free from any defects impairing strength, durability or appearance.

B. All doors shall have horizontal door extrusions, including optional muntins with the design characteristics to nest or interlock into the intersecting vertical rails to restrict any twisting or movement of the horizontal member that can produce open sightlines and/or compromise the door leaf integrity.

C. Door panels and sidelite panels shall have a minimum 0.125 inch (3.2 mm) structural wall thickness including adjoining horizontal members and perimeter frames where applicable. Any additional sections shall have safety radius corners on all vertical rails.

D. Automatic sliding door assemblies shall include operator, header and track, jambs, sliding doors, threshold and sidelite if required.

2.5 COMPONENTS

A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.
   1. Nominal Size: 1-3/4 inch by 4-1/2 inch (45 by 115 mm)
   2. Concealed Fastening: Framing shall incorporate a concealed fastening pocket, and continuous flush insert cover, extending full length of each framing member.

B. Stile and Rail Doors and Sidelights: Doors and panels shall be supported by a minimum 1-3/4 inch manufacturer's standard 1-3/4 inch (45 mm) thick by 4-1/2 inch glazed doors with extruded-aluminum tubular stile and rail members. Incorporate concealed tie-rods that span full length of top and bottom rails. All corners, including intersections of stiles and rails or stiles and muntin bars, shall be welded secure.

1. Glazing Stops and Gaskets: Glass stops shall have 0.062 inch wall thickness. Exterior entrances shall have non-removable, security-type glazing bead to prevent unauthorized entry. Door utilizing removable exterior stops will not be accepted.
2. Vertical Rails: Door and panel vertical rails shall be medium stile, approximately 4 inches wide. Sliding door panels shall have a means for adjusting the height at which it travels above the floor.
3. Bottom Rail Design: Minimum 10 inch (254 mm) nominal height kick plates built into each door and sidelite leaf. Bottom rails shall be provided with an adjustable nylon sweep.
4. Muntin Bars: Horizontal tubular rail member for each door; 4 inch (108 mm) nominal width.
5. All panels shall include full weather-stripping. Weather-stripping shall be provided by means of replaceable heavy pile mohair. Complementing mohair weather-stripping shall be provided on joining vertical and lead edge stiles. Single pile weather stripping between the carrier and the header on the lead stile(s) of the sidelite(s) and the pivot stile(s) of the sliding door(s).

C. Glazing: Glazing shall be a minimum thickness of 1/4 inch (6 mm) tempered safety glass, insulated and hermetically sealed. Glazing tint shall match the adjacent windows.

D. Headers: A structural header capable of supporting the entire operator and door system in lengths of up to sixteen (16) feet when glazed with 1/4 inch glass without any additional center supports or tie bolts shall be provided. The header shall be able to support the glass and storefront above the doors where applicable. Header shall be fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Roller track shall be a replaceable aluminum track. Header shall be complete with continuous hinged or removable access panel with a mechanism to the access panel open during repair, service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
1. Size: 4-1/2 inches wide by 7 inches high. Header height including the replaceable sensor cap which spans the clear door opening width is 8 inches high.
2. Mounting: Concealed, with one side of header flush with framing.

E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch (3 mm); consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Each leaf shall have a minimum of four (4) 1-7/16” diameter Delrin ball bearing wheels with single journal, sealed oil-impregnated bearings and two (2) self-aligning anti-risers per leaf. Support panels from carrier assembly by load wheels and anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum load wheel diameter shall be 2-1/2 inch (64 mm); minimum anti-rise roller diameter shall be 2 inch (51 mm).

F. Concealed guides shall stabilize bottom of door. Door construction shall be by means of an integrated corner block with 3/8 inch all-thread through bolt from each stile.

G. Thresholds: Manufacturer's standard thresholds as indicated below:
1. Thresholds, where required, shall be 1/2 inch high by 4-1/2 inch width continuous aluminum threshold.

2. Shall span the entire width of the sliding door header, and fit between the vertical framing members.
3. Threshold design shall allow for optional extruded ramps to securely interlock to flat section to meet ADA requirements.
4. All thresholds to conform to details and requirements for code compliance.

H. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.

I. Signage: Provide signage in accordance with ANSI/BHMA A156.10. The doors shall be clearly marked with a sign reading "IN EMERGENCY PUSH TO OPEN."

2.6 DOOR OPERATORS

A. General: Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under heavy traffic load for type of occupancy indicated.
1. The entire door operating mechanism shall be totally removable as a unit from the door header. The operating mechanism shall include the motor, gearbox, electronic circuitry, and transport system.
2. Doors shall be capable of opening within 3 seconds and closing within 4 seconds with an adjustable hold open time of 0 to 60 seconds minimum, speeds shall be field adjustable.

B. Electromechanical Operators: Besam electro-mechanical controlled unit utilizing a high-efficiency, energy efficient, DC motor requiring a maximum of 3 amp current draw, allowing 5 door systems on one (1) 20 amp circuit. The supplied system shall have the capability to operate at full performance well beyond a brown out and high line voltage conditions (85V – 265V) sensing changes and adjusting automatically. The operator shall allow an adjustable hold open time delay of 0 to 60 seconds and have internal software to incorporate a self-diagnostic system.
1. Operation: Power opening and power closing.
2. Features:
    a. Adjustable opening and closing speeds.
    b. Adjustable back-check and latching.
    c. Adjustable braking.
    d. Adjustable hold-open time between 0 and 30 seconds.
    e. Obstruction recycle.
    f. On/Off switch to control electric power to operator.
    g. Energy conservation switch that reduces door-opening width.
    h. Closed loop speed control with active braking and acceleration.
    i. Adjustable obstruction recycle time delay.
    j. Self-adjusting stop position.
    k. Self-adjusting closing compression force.
    l. Onboard sensor power supply.
    m. Onboard sensor monitoring.
    n. Optional Switch to open/Switch to close operation.
3. Mounting: Concealed.
4. Drive System: Synchronous belt type.

C. A clutch shall be provided to regulate the closing force to a maximum of 30 lbs. as required by ANSI rules and regulations.

D. The operator shall include an electronic sensing device that will reverse the door from closing when a maximum force of approximately 30 lbf (as required by ANSI/BHMA A156.10) is exerted to prevent the door from closing. The reverser shall be field adjustable to meet conditions.

E. Besam factory-adjusted configuration, with opening and closing speeds set to comply with ANSI/BHMA A156.10 requirements. Should the drive train operations deviate from design criteria ranges, Watchdog Control Circuit Monitoring will assume comment of the system and shut down the automatic function allowing a secondary supervisory circuit to perform as a backup.

F. Door Cycle Counter: The units shall have an electronic re-settable cycle counter, with the capacity to count up to one million (1,000,000) cycles. Counter shall have the ability to retain cycle data memory in the event of an electrical interruption. It shall be mounted in the header area for service reference and not be visible or accessible to the general public.

G. Electrical service to door operators shall be provided under Division 26 Electrical. Minimum service to be 120 VAC, 5 amps.

2.7 ELECTRICAL CONTROLS

A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable. A single controller shall be capable of controlling up to 2 operators per entrance system.

B. Performance Data: The microprocessor shall collect and store performance data as follows:
   1. Counter: A non-resettable counter to track operating cycles.
   2. Event Reporting: Unit shall include event and error recording including number of occurrences of events and errors, and cycle count of most recent events and errors.
   3. LED Display: Display presenting the current operating state of the controller.

C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
   1. Automatic Reset Upon Power Up.
   2. Main Fuse Protection.
   3. Electronic Surge Protection.
   4. Internal Power Supply Protection.
   5. Resetable sensor supply fuse protection.
   6. Motor Protection, over-current protection.

D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.

E. Obstruction Recycle: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.

F. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be a software driven handheld interface. The following parameters may be adjusted via the configuration tool.
   1. Operating speeds and forces as required to meet ANSI/BHMA A156.10.
   2. Adjustable and variable features as specified in 2.6.
   3. Reduced opening position.
   4. Fail Safe/Secure control.
   5. Firmware update.
   6. Trouble Shooting
      a. I/O Status.
      b. Electrical component monitoring including parameter summary.
   7. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer's internet site. Software shall be compatible with the following operating system platforms: Palm®, Android®, and Windows Mobile®.

2.8 MOTION DETECTOR

A. Motion Sensors: Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions. Detectors shall be a "BEA" Wizard II motion and presence detector. Detectors located on the outside shall be NEMA 4 rated for all weather conditions.

B. Presence Sensors: Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.

C. Photoelectric Beams: In addition to the threshold sensor, each sliding door unit shall include a minimum of two (2) doorway photoelectric beams mounted in the vertical rails of the sidelite at heights of 24" and 48". Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting. Beams shall be

monitored by electrical controls for faults and shall fail safe.

2.9 HARDWARE

A. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.

B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
   1. Emergency breakaway feature shall include at least one adjustable detent device mounted, in the top of each sliding breakaway panel, and in the top and bottom of each non-sliding breakaway panel, to control panel breakaway force.
   2. Wind Resistant Damper: Provide factory installed concealed gas dampers in sliding or non-sliding breakaway panel to protect door panels from wind damage. Dampers shall be designed to slow panel movement after breakout.

C. Deadlocks: No locking required.

D. Control Key Switch: A five way control key switch using a Schlage A 126 keyway shall be installed at all locations with the following options:
   1. Off position
   2. Hold open position
   3. Two-way traffic
   4. One way traffic
   5. Partial Opening energy saving option allowing door to automatically adjust opening width based on amount of usage, that is, full open during high use and partial open during low use. The control for this setting is programmable allowing adjustment to both the usage setting and the opening width.

E. Power Switch: Sliding automatic entrances shall be fitted with a water-resistant toggle switch on the upper right hand side of the interior door header that disables the door operator and allows for manual movement of doors.

F. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

G. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.10 FABRICATION

A. General: Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
   1. Form aluminum shapes before finishing.
   2. Use concealed fasteners to greatest extent possible.
      a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.

b. Reinforce members as required to receive fastener threads.

B. Framing: Provide automatic entrances as prefabricated assemblies.
1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
3. Form profiles that are sharp, straight, and free of defects or deformations.
4. Prepare components to receive concealed fasteners and anchor and connection devices.
5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.

C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

D. Welding: Comply with AWS A5.10/A5.10M - Specification for Bare Aluminum and Aluminum-Alloy Welding Electrodes and Rods.

E. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.

F. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.

G. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

H. Specialty Tools: Contractor shall supply all specialty tool sets that may be needed for maintenance, service and repairs to the completed units supplied.

2.11 ALUMINUM FINISHES

A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.

B. The exposed surfaces of the doors shall be anodized to match the surrounding storefront finish. Anodized finishes shall comply with AAMA 611, AA-M12C22A41, Class I, 0.018 mm thick for clear anodizing or AAMA 611, AA-M12C22A44, Class I, 0.018 mm thick for color anodizing.
1. AAMA 606.1
2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

C. Two (2) coat industrial painted coating may be required to match the surrounding finish. Finish will consist of one (1) coat of primer and one (1) coat of industrial coating per LAWA request. Aluminum extrusions to receive a painted coating shall be mill finish

aluminum, painting over anodizing or pre-painted material will not be acceptable (see Special Finish warranty in Warranties).

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrances. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.

B. Entrances: Install automatic entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
   1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
   2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

D. Glazing: Performed under Division 8 Section "Glazing" in accordance with sliding automatic entrance manufacturer’s instructions.

E. Sealants: Comply with requirements specified in Division7 Section "Joint Sealants".

3.3 FIELD QUALITY CONTROL

A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.4 ADJUSTING

A. Adjust door operators, controls, and hardware for smooth and safe operation, for tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.5 CLEANING AND PROTECTION

A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section “Glazing”, for cleaning and maintaining glass.

3.6 TRAINING

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain Sliding Automatic Entrances. Provide minimum of 4 hours each (2 day shifts) of classroom and hands on training to LAWA Facilities and Maintenance personnel.

END OF SECTION 08 42 29