SECTION 08 42 29 – SLIDING DOOR ENTRANCES

PART 1 GENERAL

* + - 1. RELATED DOCUMENTS
         1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      2. SUMMARY
         1. This section includes the following types of automatic entrances:

Exterior, single and bi-parting, large and small missile impact, sliding automatic entrance doors.

* + - * 1. Related Sections:

Division 7 Sections for caulking to the extent not specified in this section.

Division 08 Sections for “Aluminum-Framed Entrances and Storefronts” for entrances furnished and installed separately in Division 8 Section.

Division 8 Section “Door Hardware” for hardware to the extent not specified in this section.

Division 08 Section “Glazing” for materials and installation requirements of glazing for automatic entrances.

Division 26 and 28 Sections for electrical connections including conduit and wiring for automatic entrance operators and access-control devices.

* + - 1. REFERENCES
         1. References: Refer to the version year adopted by the Authority Having Jurisdiction.

ANSI A117.1 - Accessible and Usable Buildings and Facilities.

ICC/IBC - International Building Code.

NFPA 70 - National Electrical Code.

NFPA 101 - Life Safety Code.

* + - * 1. American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA).

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

ANSI Z97.1 Standards for Safety Glazing Material Used in Buildings.

* + - * 1. Underwriters Laboratories (UL).

UL 325 Standard for Safety for Door, Drapery, Gate, Louver and window Operators and Systems.

* + - * 1. American Association of Automatic Door Manufacturers (AAADM).
        2. American Society for Testing and Materials (ASTM).

ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.

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

ASTM E283 – Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls, Doors by Uniform Static Air Pressure Difference. Testing conducted for both positive and negative pressure.

ASTM F842 – Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact.

ASTM E1886, ASTM E1996 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.

* + - * 1. American Architectural Manufacturers Association (AAMA).

AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

* + - * 1. National Association of Architectural Metal Manufacturers (NAAMM).

Metal Finishes Manual for Architectural Metal Products.

* + - * 1. International Building Code (IBC).

IBC: International Building Code Building Code.

FBC: Florida Building Code.

* + - * 1. Florida Building Code
        2. Florida Administrative Code (FAC).

9B-72 – Product Approval.

* + - 1. DEFINITIONS
         1. Activation device: Device that, when actuated, sends an electrical signal to the door operator to initiate the door operation.
         2. Monitored Safety Devices: A tested system that works in conjunction with the automatic door control that detects the presence of a person or an object within a zone where contact could occur and provides a signal to stop the movement of the door.
         3. AAADM: American Association of Automatic Door Manufacturers.
         4. For automatic door terminology, refer to BHMA A156.10 for definitions of terms.
      2. PERFORMANCE REQUIREMENTS
         1. General: Provide automatic doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturers corresponding systems.
         2. Compliance:

ICC/IBC International Building Code

ANSI/BHMA A 156.10 American National Standard for Power Operated Doors Pedestrian Doors.

UL 325 Compliant

NFPA 70 National Electrical Code.

NFPA 101 Life Safety Code

CUL Approved for use in Canada

BOCA

Florida Building Code

Florida Administrative Code

* + - * 1. Automatic Door equipment accommodates medium to heavy pedestrian traffic.
        2. Automatic Door equipment accommodates up to the following weights for active leaf door:

Bi-Parting Doors: 220 lb (100 kg) per active breakout leaf.

Single Slide Doors 220 lb (100 kg) per active breakout leaf.

* + - * 1. Operating Temperature Range: Capable of - Minus 35 Degrees F to plus 130 degrees F (minus 37 C to plus 55 degrees C) ambient.
        2. Entrapment Force Requirements:

Power-Operated Sliding Doors: Not more than 30 lbf (133 N) required to prevent stopped door from closing.

Sliding doors provided with a breakaway device shall require no more than 50 lbf (222 N) applied 1 inch (25 mm) from the leading edge of the lock stile for the breakout panel to open.

* + - * 1. Design Pressures: Impact rated sliding automatic entrance systems shall be designed to withstand up to **+/-55 psf,** wind force in both the positive and negative direction, and be large and small missile impact rated in accordance with Florida Building Code

When optional panic hardware is used, maximum design pressure is **+/-45 psf**.

* + - * 1. State of Florida Approval Numbers:

Full Breakout, Large and Small Missile Impact – FL 21866.1 (ESA 200), FL 21866.3 (ESA 300).

* + - 1. SUBMITTALS
         1. Comply with Division 01 – Submittal Procedures.
         2. Product Data: Manufacturer’s product data sheets including installation details, material descriptions, dimensions of individual components and profiles fabrication, operational descriptions and finishes.
         3. Shop Drawings: For automatic entrances. Include plans, elevations, sections, details, hardware mounting heights, additional accessories and attachments to other work.
         4. Samples: color samples of exposed finish as required.
         5. Informational Submittals: Manufacturers product information and applicable sustainability program credits that are available towards a LEED rated product certification.

Credit MR 4.1 and 4.2: Manufacture’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.

* + - * 1. Manufacturers Field Reports: Submit manufacturer’s field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA A 156.10 after completion of installation.
        2. Operating and Maintenance Manuals: Provide manufacturers operating, owners and maintenance manuals for each item specified as required in Division 01, Closeout Submittals.
      1. QUALITY ASSURANCE
         1. Manufacturer Qualifications: 10 years minimum of documented experience in manufacturing door equipment similar to that indicated within this specification with a proven record of successful service performance. A manufacturer with company certificate issued by AAADM.
         2. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 5 years documented experience installing and maintenance of units similar in material, design, and extent to that indicated in this specification and whose work has resulted in construction with a record of successful in-service performance. Manufacturer's authorized representative who is trained and approved for installation and maintenance of units by AAADM required for this Project.
         3. Source Limitations for Automatic Entrances: Obtain automatic entrances from single source from single manufacturer.
         4. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
         5. Power-Operated Door Standard: ANSI/BHMA A156.10 Current year.
         6. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.
         7. Pre-installation Conference: Conduct conference at site or a mutually agreed site if required.
      2. PROJECT CONDITIONS
         1. Field Measurements: Verify actual dimensions of openings to receive automatic entrances by field measurements before fabrication.
      3. COORDINATION
         1. Coordinate sizes and locations of recesses in concrete floors for recessed sliding tracks that control automatic entrances. Concrete, reinforcement, and formwork requirements are specified in Division 03.
         2. Coordinate hardware with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish. Coordinate hardware for automatic entrances with hardware required for rest of project.
         3. Electrical System Roughing-in: Coordinate layout and installation of automatic entrances with connections to power supplies and access-control system.
      4. WARRANTY
         1. Automatic Entrance Doors shall be free of defects in material and workmanship for a period of One (1) year from the date of substantial completion.
         2. During the warranty period a factory trained technician shall preform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form submitted to the owner.
         3. During the warranty period all warranty work shall be performed during normal working hours.

1. PRODUCTS
   * + 1. MANUFACTURER
          1. dormakaba. • Reamstown, PA • 1-844-SPEC-NOW (1-844-773-2669) • Website: [www.dormakaba.us](http://www.dormakaba.us)

Choose the substitution clause applicable for the project select item ‘B” or “C”

* + - * 1. **[Substitutions: Requests for substitution and product approval in compliance with the specification must be submitted in writing and in accordance with the procedures outlined in Division 1, Section “Substitution Procedures”. Approval of requests is at the discretion of the architect, owner, and their designated consultants.]**
        2. **[Substitutions: Not Permitted.]**

Choose type or multiple type of door configurations for the project.

* + - 1. SLIDING AUTOMATIC ENTRANCES
         1. Model: dormakaba, ESA Series **[ESA 200] Large Missile Impact Resistant** Single Slide Fixed Sidelite automatic door. (Basis of Design)

Sliding Automatic Door Configuration:

Single slide, fixed sidelite door system.

Configuration: Single slide one sliding leaf and one fixed panel.

Traffic Pattern: Two –Way

Emergency Breakaway Capability: Exterior sliding leaf only.

Mounting: Between jambs

* + - * 1. Model: dormakaba ESA Series **[ESA 200] Large Missile Impact Resistant** Bi Parting Fixed Sidelite Automatic Doors (Basis of Design)

Sliding Automatic Door Configuration:

Bi-Parting, fixed sidelite, door system.

Configuration: Two sliding leaves and two and two fixed panels.

Traffic Pattern: Two –Way

Emergency Breakaway Capability: Exterior sliding leaves only.

Mounting: [**Between jambs] [Surface applied]**

* + - * 1. Model: dormakaba, ESA Series **[ESA 300] Large Missile Impact Resistant** Single slide full breakout Automatic Door. (Basis of Design)

Sliding Automatic Door Configuration:

Single Slide full break out door system.

Configuration: Single slide One sliding leaves and one operable panel.

Traffic Pattern: Two –Way

Emergency Breakaway Capability: Interior sliding leaf and sidelite.

Mounting: **[Between jambs]**

* + - * 1. Model: dormakaba ESA Series **[ESA 300] Large Missile Impact Resistant** Bi Parting full breakout with two operable sidelites Automatic Door (Basis of Design)

Sliding Automatic Door Configuration:

Bi-Parting, full breakout door system.

Configuration: Bi-parting, Two sliding leaves with Two breakaway sidelites.

Traffic Pattern: Two –Way

Emergency Breakaway Capability: Interior sliding leaves and sidelites.

Mounting**: [Between jambs]**

* + - * 1. Dimensions: Confirm door package dimensions as indicated on architectural drawings.
      1. ALUMINUM DOORS AND FRAMES
         1. Doors and Frames: Extruded Aluminum, Alloy 6063-T5

Door panels shall have a minimum .125 inch (3.2 mm) structural wall thickness throughout entire extrusion length.

Door construct shall be by means of interlocking corner shear block cross bolted.

The sliding door system shall include two interlocks securing the leading stile of the sidelite and the butt stile of the sliding door together.

Vertical Stiles shall be: Medium Stile 4-1/2 inch

Bottom Rails shall be standard size: **[6 ¾ inch] [10 inch]** nominally.

Intermediate Muntin shall be 3-¼ inch

Weather stripping shall meet AAMA 701-11 Class A, slide in type, replaceable nylon retained by the aluminum extrusions to reduce energy loss. The following types of weather-stripping are required: nylon pile weather stripping on the door bottoms; dual pile weather-stripping at sliding door lead edges; weather-stripping between the carrier and header on the sliding doors; dual pile weather-stripping at the interlock rails between the sliding door and sidelites; dual pile weather-weather-stripping between the sidelites doors and the door jambs.

* + 1. Glazing: Performed under Division 8 Section “Glazing” in accordance with product approvals and the following:
       1. Glass: 9/16-inch-thick Large Missile Impact Resistant laminated safety glass comprised of two (2) 1/4-inch-thick glazing quality clear float glass lites, laminated to each side of a clear 0.090-inch-thick polyvinyl butyral (PVB) interlayer in accordance with ASTM E1996. Clear or tinted according to Drawings.
       2. Glazing: Outboard stop with approved structural tape
          1. Glazing Installation: Review Division 8 Section for glazing requirements.
       3. DOOR OPERATORS
          1. Sliding Door Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment; consisting of delrin-covered, ball-bearing-center wheels operating on a continuous roller track. Support doors from carrier assembly by adjustable cantilever and pivot assembly.

Rollers: Minimum of two ball-bearing roller wheels and two antirise rollers for each active leaf.

* + - * 1. Operator and Controller: a system with an electro-mechanical operator and microprocessor controller. Components consist of a DC permanent magnet motor, self-lubricating drive system and a wear-free digital rotary encoder all linked to a fully integrated digital microprocessor controller

Features:

Power opening and closing.

Drive System: belt

Adjustable opening and closing speeds.

Adjustable hold-open time between 0 and 30 seconds.

Obstruction recycle.

Intergraded access control capabilities.

Door Switches: Interior side mounted program switches consisting of:

Main Switch-Auto-Close-Open, operates door in fully automatic mode, turns door off, or keeps it fully open.

Exit Only Switch: on/off, only exit side activation device will initiate door opening.

Partial Opening Switch: on/off Energy saving opening mode limits the width opening.

Switch: **[rocker] [keyed]**

Controller shall provide a means to verify presence sensor functionality and the connection between the controller and sensor(s) as required by the ANSI 156.10 standard. This closed loop monitoring system, upon detection of fault in the sensor or wiring shall cause automatic operation to cease.

* + - 1. ACTIVATION AND SAFETY
         1. Provide controls in accordance with ANSI/BHMA standard for condition of exposure and for long-term, maintenance-free operation under normal traffic load. Only safety systems (sensors) that have been tested and approved should be used in conjunction with manufacturer systems and products.
         2. Monitored Combination Motion/Presence Sensors: Self-contained units; consisting of both motion and presence sensors in a single housing; adjustable to provide detection field sizes and functions required by ANSI/BHMA A156.10.

Motion Sensor: K-band-frequency, doppler effect radar.

Provide capability for switching between bidirectional and unidirectional detection.

For one-way-traffic entrances, sensor on egress side shall not be active when doors are fully closed.

Presence Sensor(s): Active infrared sensor shall provide two over lapping zones that provide presence detection in the threshold while the door is in the open position

Select additional activation devices for the sliding Door Operations.

* + - * 1. Activation Device:

**[Push Plate:  Hard wired, [4-3/4 inch square]  [6 inch round] stainless steel push plate engraved with "Push to Open" with a blue handicap logo.]**

**[Push Plate:  [Hard wired] [Wireless], 36 inch x 6 inch stainless steel push plate engraved with "Push to Open" with a blue handicap logo.]**

**[Push Plate:  Jamb mounted, hard wired, 1-1/2 inch x 4-3/4 inch, stainless steel push plate switches engraved with "Push to Open" with a blue handicap logo.]**

**[Push Plate:  Radio controlled, wireless, [4-1/2 inch square]  [6 inch round]   stainless steel push plate engraved with "Push to Open" with a blue handicap logo.]**

**[Touchless Wave Plate:  [2-3/4 inch x 4-1/2 inch]  [4-1/2 inch square] activation senor plate in [white] [black] [cream].  Microwave technology has an adjustable range of 2 inches to 24 inches.]**

**[Access control activator: as selected by architect.]**

*The*California Building Code*requires two push-plate actuators at each actuator location—one mounted between 178 and 203 mm (7 and 8 in.) from the floor to the centerline, and the other mounted between 762 and 1118 mm (44 in.) above the floor. Vertical actuation bars may be used in lieu of two separate actuators, with the bottom of the bar at 127 mm (5 in.) maximum above the floor and the top at 889 mm (35 in.) minimum above the floor.*

* + - * 1. Safety beams are not acceptable.
      1. ELECTRICAL
         1. Electrical 120 VAC, 60 Hz, 5 Amp service.
         2. **[Battery Back-up]: (if required)** Concealed in the door header case and capable of full operation including sensor capabilities for 200 cycles.
      2. HARDWARE
         1. General: Provide manufacturers standard hardware as required for proper door operation.

Break away hardware are integral parts of the door design and are supplied by the manufacturer to comply with applicable codes.

**[ESA 200HP]** has an ITS 96 concealed Hydraulic door closer to return the door to its original position.

**[ESA 300HP]** has a limit arm on all break away panels to prohibit doors from opening past 90 degrees.

Choose locking hardware. Consult SPEC NOW for more information

* + - * 1. Locking Hardware:

Deadbolts: Laminated-steel hook, mortise type, BHMA A156.5, Grade 1.

Two-Point Locking for Sliding Doors: Mechanism in stile of active door leaf that automatically extends second lock-bolt into overhead carrier assembly.

Thumb turn Interior key exterior. **[Keyed both sides]** Lock indicators if required by code.

* + - * 1. Automatic Locking for Sliding Door: Electrically controlled device mounted in header that automatically locks door against sliding when in closed position. Use battery back up to insure enhanced level of security.

Include concealed, vertical-rod exit devices, UL 305, with latching into to overhead carrier assembly and released bySurface Mounted full-width panic barand that prevent emergency breakaway doors from swinging and that permit emergency egress.

Consult SPEC NOW for custom thresholds

* + - * 1. Threshold:

Sliding Door Threshold: **[ESA 300HP]** Manufacturer’s standard threshold members and bottom-guide track system, with a 3/8”diameter pin in a polyethylene covered slot.

Sliding Door Threshold: **[ESA 200HP]** Manufacturer’s standard threshold members and bottom-guide track system, with a surface mounted bottom guide system with a 1” diameter ball-bearing roller wheel.

* + - 1. ALUMINUM FINISHES
         1. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
         2. Anodized Finish:

**[Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm].**

**[Dark Bronze Anodic Finish: AAMA 611, AA-M12C22A44, Class I, 0.018 mm].**

**[Color Anodic Finish: AAMA 611, AA-M12C22A44, Class I, 0.018 mm]. [To match architects sample]**

* + - * 1. Painted Finish:

**[Powder coat painted to match architects sample] [Manufactures standard colors]**

**Kynar paint finish, [2 coat] [3 coat] [to match architects sample]**

* + - * 1. Clad Finish: Cladding shall be factory finished at manufacturers facility using .36 thick metalcladding panel surface utilizing tesa® 4965 tape. Heat and humidity resistant, the specialized adhesive tape is comprised of a polyester backing coated on both sides with a transparent modified acrylic adhesive and a tensile strength of 20 N/cm. tesa® 4965 is recognized per UL standard 969. UL file: MH 18055.

**[Stainless Steel with No. 4 Satin Finish]**

**[Stainless Steel with No. 8 Mirror-like Finish]**

**[Bronze with Satin Finish]**

**[Bronze with Polished, Non-directional Finish]**

**[Brass with Satin Finish]**

**[Brass with Polished, Non-directional Finish]**

Consult SPEC NOW Center for customized finish options.

EXECUTION

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine doors and frames with Installer present, for compliance with requirements for installation tolerances, wall and floor construction and other conditions affecting performance of automatic entrances.
          2. Examine roughing in for electrical source power to verify actual locations of wiring connections.
          3. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION
          1. General: Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.
          2. 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.

Install surface-mounted hardware using concealed fasteners to greatest extent possible.

Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

* + - * 1. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.
        2. Glazing: Install glazing as specified in Division 08 Section Glazing according to automatic door manufactures instructions.
        3. Sealants: Comply with requirements specified in Division 07 Section "Joint Sealants" to provide weathertight installation.
        4. Signage: Apply signage on both sides of each door and each sidelight as required by ANSI/BHMA A 156.10
      1. FIELD QUALITY CONTROL
         1. Manufacturer’s representative shall provide technical assistance and guidance for installation of automatic doors.

Factory trained and AADM certified representative shall test and inspect each automatic door to determine compliance of the installed system to ANSI/BHMA A156.10

* + - 1. ADJUSTING
         1. Adjust door operators, controls, and hardware for smooth and safe operation and for weathertight closure; comply with requirements in ANSI/BHMA A156.10
      2. CLEANING AND PROTECTION
         1. Clean glass and metal 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 08 Section "Glazing" for cleaning and maintaining glass.

* + - 1. DEMONSTRATION
         1. Engage a factory authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of automatic entrances.

END OF SECTION 084229