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SLIDING AUTOMATIC ENTRANCES BULLET RESISTANT

1. GENERAL  
   1. RELATED DOCUMENTS
      1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
   2. SUMMARY  
      1. This Section includes the following types of automatic entrances:
         1. Exterior and interior, bi-parting, sliding automatic entrances, bullet resistant.
         2. Sliding automatic entrances shall be UL rated Level 3 for bullet resistance.
      2. Related Sections:
         1. Division 7 Sections for caulking to the extent not specified in this section.
         2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
         3. Division 28 [13] Section “Electronic Safety and Security” for controls not specified in this section.
         4. Division 26 [16] Sections for electrical connections including conduit and wiring for power to, and control of, sliding automatic entrances.
   3. REFERENCES  
      1. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
      2. Underwriters Laboratories (UL):
         1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
         2. UL 752 – Standard for Bullet Resisting Equipment.
      3. American National Standards Institute (ANSI) / Builders’ Hardware Manufacturers Association (BHMA):
         1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
         2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
      4. 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
         3. 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
         4. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
         5. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
      5. American Association of Automatic Door Manufacturers (AAADM):
      6. National Fire Protection Association (NFPA):
         1. NFPA 101 – Life Safety Code.
         2. NFPA 70 – National Electric Code.
      7. International Organization for Standardization (ISO):
         1. ISO 9001 - Quality Management Systems
      8. National Association of Architectural Metal Manufacturers (NAAMM):
         1. Metal Finishes Manual for Architectural and Metal Products.
      9. American Architectural Manufacturers Association (AAMA):
         1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
         2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
         3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
   4. DEFINITIONS  
      1. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
      2. Safety Device: Device that prevents a door from opening or closing, as appropriate.
   5. PERFORMANCE REQUIREMENTS  
      1. General: Provide automatic entrance door assemblies capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
      2. Thermal Movements: Provide automatic entrances that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
         1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
      3. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
      4. Opening-Force Requirements for Egress Doors: Not more than 50 lbf (222 N) required to manually set door in motion if power fails, and not more than 15 lbf (67 N) required to open door to minimum required width.
      5. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.
      6. Sliding automatic entrances specified with automatic locking shall be designed to function as follows:
         1. Entrances shall be normally closed and locked by automatic locking system with exterior motion activation system disabled. Interior motion activation system to remain enabled; free egress.
         2. Upon signal from exterior secure activation device, sliding automatic entrances will unlock and open enabling motion activation system. Entrance will be held open as long as an object or pedestrian remains in the activation or safety zones.
         3. Once all activation and safety zones have cleared the entrance will close and re-lock, returning to normal state.
         4. At any time during the cycle emergency egress can be achieved by utilizing the emergency breakaway feature.
      7. Structural properties of sliding automatic entrances:
         1. Design Pressures:
            1. Positive (inward) design pressure of 45 psf (2155 Pa)
            2. Negative (outward) design pressure of 45 psf (2155 Pa)
         2. Deflection limitations
            1. The deflection of any framing member in a direction normal to the plane of the wall when subjected to the specified design loads shall not exceed l/175 of its clear span or 3/4 inch (19 mm) whichever is less.
            2. For cantilevers, the span shall be taken as two times the distance between anchor centerline and end of cantilever.
            3. The deflection shall not exceed 50% of the nominal joint width at sealant joints occurring between framing members and relatively stiff building elements, or less if required by sealant manufacturer.
            4. Upon reversal of load direction at magnitudes up to and including 1.5 times design pressures, slippage at fastened and/or clamped connections shall not exceed 1/8 inch (3 mm).
            5. Glass deflection at full design load shall not exceed 1/100 of its span, or 3/4 inch (19 mm) whichever is less.
            6. Metal panel deflection shall not exceed 1/90 of its span or 3/4 inch (19 mm) whichever is less. The span shall be taken as the lesser of the distances between the horizontal or vertical support members.
         3. Structural design criteria and testing requirements.
            1. The work shall be designed to withstand the design loads and pressures specified herein. Compliance shall be demonstrated by calculatons performed in accordance with accepted engineering practice.
            2. The work shall be designed to conform to ASTM E 330. Inward and outward acting test pressures shall be equal to 1.5 times the inward and outward acting design pressures to demonstrate a safety factor of 1.5 design pressures. Satisfactory performance at these loads shall mean no glass breakage, no permanent damage to fasteners or anchors, hardware, parts or actuating mechanisms; no malfunction of windows; no permanent deformation of main framing members in excess of 0.2% of their clear span.
      8. Air Infiltration: The work shall be designed to conform to ASTM E 283. Differential static pressure shall be 6.24 psf (299 Pa). Any chamber leakage shall be accurately determined, not estimated. Air leakage of the fixed wall area shall not exceed 0.06 cfm (1.7 l/m) per 1 sf (929 scm) of exterior surface.
      9. Water penetration
         1. The system shall be designed to conform to ASTM E 331 using a static pressure differential of 8 psf (383 Pa).
         2. Water penetration, in this specification, is defined as the appearance of uncontrolled water, other than condensation, on the indoor face of any part of the work.
         3. Provision shall be made to weep any water entering the system, other than condensation, to the exterior of the window.
      10. Light transmission & values of clear vision ballistic glazing (SP1250). The glazed vision areas should meet the following requirements:
          1. Light transmittance, average daylight: 67 clear
          2. Calculated shading coefficient: 0.90 clear
          3. Nominal thickness: 1 1/4 inch (32 mm)
          4. Unit Weight: 8.1 lbs/sf (39.6 Kg/sm).
      11. The glazed framing system and its anchorage shall be designed to withstand normal recognized testing criteria to accept seismic movement without structural failure or glass breakage.
      12. Ballistic Rating
          1. The complete system, framing, glazing and panels is designed to comply with Underwriters Laboratories UL 752 specification to provide complete ballistic protection up to a level 3 rating (.44 magnum lead semi-wad-cutter gas checked)
          2. Proof of certification will be made available upon request.
   6. SUBMITTALS  
      1. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.
      2. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.
      3. Engineering Calculations: When required by the architect, submit engineering calculations and supporting product data as required to confirm compliance with 1.05 Performance Requirements. Calculations shall be prepared in accordance with common, accepted engineering practice and shall conform to appropriate design rules of the referenced standards and building ordinances. All documents are to bear the seal of a licensed engineer. Calculations shall include:
         1. Material specifications and properties.
         2. The derivation of member properties.
         3. Analyses of stress and deflections for all structural elements, connections and anchorages.
         4. Dimensioned drawings of extrusion shapes where required to support calculations
         5. Safety Factors
      4. Color Samples for selection of factory-applied color finishes.
      5. Closeout Submittals:
         1. Owner’s Manual.
         2. Warranties.
   7. QUALITY ASSURANCE  
      1. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project.
      2. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.
      3. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
         1. ANSI/BHMA A156.10.
         2. NFPA 101.
         3. Underwriter’s Laboratories Listings:
            1. UL 325
            2. UL 752
      4. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.
      5. 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."
      6. 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.
      7. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.
   8. PROJECT CONDITIONS  
      1. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.
      2. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
      3. Other trades: General Contractor shall advise of any inadequate conditions or equipment.
   9. COORDINATION  
      1. 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.
      2. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies, remote activation devices, and security access control system. See Division 28 [13] Section “Electronic Safety and Security” for controls not provided under this section.
      3. System Integration: Integrate sliding automatic entrances with other systems as required for a complete working installation.
         1. Provide electrical interface control capability for operation of sliding automatic entrances by secure activation system on doors with electric locking.
   10. WARRANTY  
       1. Automatic Entrances 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 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.
       3. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.
2. PRODUCTS  
   1. AUTOMATIC ENTRANCES  
      1. Manufacturer: Stanley Access Technologies; Dura-Shield™ Ballistic High Security Series sliding automatic entrances.
      2. Substitutions: See Division 1, Section 01 25 00 [01250] Substitution Procedures.
   2. MATERIALS  
      1. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
         1. Headers, stiles, rails, and frames: 6063-T6, 6063-T5
         2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
         3. Sheet and Plate: ASTM B 209.
      2. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Sealants".
   3. AUTOMATIC ENTRANCE DOOR ASSEMBLIES  
      1. General: Provide manufacturer's standard automatic entrance door assemblies including doors, side lites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.
      2. Sliding Automatic Entrances:
         1. Bi-Parting sliding doors:
            1. Configuration: Two sliding leaves and two full side lites.
            2. Traffic Pattern: Two-way.
            3. Emergency Breakaway Capability: None; see 2.08, D. Fly Open Box.
            4. Mounting: Between jambs.
   4. COMPONENTS  
      1. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.
         1. Nominal Size: 2 1/2 inch by 6 inch (63.5 mm by 152.4 mm).
      2. Stile and Rail Doors and Sidelites: Manufacturer's standard 2 3/8 inch (60.3 mm) thick glazed doors with extruded-aluminum tubular stile and rail members. Incorporate concealed tie-rods that span full length of top and bottom rails or mechanically fasten corners with reinforcing brackets that are welded.
         1. Glazing Stops and Gaskets: Extruded-security aluminum stops and gaskets.
         2. Stile Design: Narrow stile; 2 3/4 inch (70 mm) nominal width.
         3. Top Rail Design: 2 3/4 inch (70 mm) nominal height
         4. Bottom Rail Design: Standard 8 1/2 inch (216 mm) nominal height.
         5. Muntin Bars: Horizontal tubular rail member for each door; 1 5/8 inch (41 mm) nominal height.
      3. Glazing: Provide glazing for sliding automatic entrances; UL Level 3 Bullet Resistant BALULN25 Glazing Material, unless otherwise specified.
      4. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
         1. Mounting: Surface applied to structural framing system.
         2. Capacity: Capable of supporting doors up to 400 lb (182 kg) per leaf over spans up to 14 feet (4.3 m) without intermediate supports.
      5. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted cantilever and pivot assembly. Minimum four ball-bearing roller wheels and two anti-rise rollers for each active leaf.
         1. Minimum Load Wheel Diameter: 2 1/2 inch (64 mm).
      6. Thresholds: Manufacturer's standard thresholds as indicated below:
         1. Standard extrusion track under side lites.
         2. All thresholds to conform to details and requirements for code compliance.
      7. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
      8. Signage: Provide signage in accordance with ANSI/BHMA A156.10.
   5. DOOR OPERATORS  
      1. 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 normal traffic load for type of occupancy indicated.
      2. Electromechanical Operators: Two (2) self-contained overhead units, 1/4 horsepower minimum, permanent-magnet DC motors with gear reduction drives, microprocessor controller; and encoder.
         1. Operation: Power opening and power closing.
         2. Features:
            1. Adjustable opening and closing speeds.
            2. Adjustable back-check and latching.
            3. Adjustable braking.
            4. Adjustable hold-open time between 0 and 30 seconds.
            5. Obstruction recycle.
            6. On/Off switch to control electric power to operator.
            7. Energy conservation switch that reduces door-opening width.
            8. Variable rate open/closed speed control.
            9. Closed loop speed control with active braking and acceleration.
            10. Variable obstruction recycle time delay.
            11. Self adjusting stop position.
            12. Self adjusting closing compression force.
            13. Optional Switch to open/Switch to close operation.
         3. Mounting: Concealed.
         4. Drive System: Synchronous belt type.
      3. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 10 amps.
   6. ELECTRICAL CONTROLS
      1. 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 two (2) operators per entrance system.
      2. Life Cycle Data Counter: The electrical control system shall incorporate a non-re-settable counter to track door operation cycles.
      3. 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. Software “Watchdog” protection in the case of software malfunction.
      4. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.
      5. Safety Search Circuitry: 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.
      6. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be software driven and shall be utilized via Palm® 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 2.05, B., 2.
         3. Reduced opening position.
         4. Fail Safe/Secure control.
         5. Firmware update.
         6. Trouble Shooting
            1. I/O Status.
            2. Electrical component monitoring including parameter summary.
         7. Entrance profile copy/paste.
         8. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer’s internet site.
   7. ACTIVATION AND SAFETY DEVICES  
      1. 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.
      2. 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.
      3. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.
   8. HARDWARE  
      1. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.
      2. Deadlocks: Manufacturer's standard deadbolt operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.
         1. Cylinders: As specified in Division 8 Section "Door Hardware."
         2. Hook Latch: Laminated-steel hook, mortise type, BHMA A156.5, Grade 1.
      3. Automatic Locking System: Provide automatic locking hardware on designated doors described as follows:
         1. System shall include a fail-secure electric solenoid locking device with a self contained solid state electronic control factory mounted inside the header.
         2. The automatic sliding door(s) shall self latch in the closed position preventing door panels from sliding manually, returning the system to its locked status.
         3. During a power interruption:
            1. The solenoid lock shall be engaged, preventing the doors from sliding manually.
            2. Means of egress shall be accomplished by standard emergency breakaway feature.
      4. Fly Open Box: Provide Fly Open Box on designated doors in accordance with the following:
         1. Fly Open Box shall be a fully integrated unit designed to fit within the door header and shall be UL listed for operation with the sliding automatic entrances provided herein.
         2. Upon main power interruption to the door:
            1. The Fly Open Box shall supply power to the operator of the sliding automatic entrance door.
            2. The Fly Open Box shall provide one open close operation.
         3. Fly Open Box shall be configured for connection to a fire alarm system such that a signal from the fire alarm will open doors until fire alarm signal is terminated.
      5. Control Switch: Provide manufacturer’s standard rotary switch mounted on the interior jamb to allow for full control of the automatic entrance door. Rotary switch shall be keyed on entrances with automatic locking. Controls to include, but are not limited to:
         1. Power On/Off
         2. One-way traffic
         3. Reduced Opening
         4. Open/Closed/Automatic
      6. 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.
      7. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.
   9. FABRICATION  
      1. 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.
            1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
            2. Reinforce members as required to receive fastener threads.
      2. 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.
      3. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
      4. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
      5. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
      6. 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.
   10. ALUMINUM FINISHES  
       1. 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.
       2. Paint Coating:
3. PPG Duranar with resin containing 70% fluoropolymer; thermosetting; alternative finishes will not be acceptable.
4. Quality standard: conforming to AAMA 2605-02
5. Pretreatment: five-stage; zinc chromate conversion coating.
6. Application: electrostatic spray and oven bake by approved applicator.
7. Coating quantity: minimum one primer coat and one color coat.
8. Dry film thickness: minimum 1.2 mils on exposed surfaces, except inside corners and channels.
   * 1. Class I, Clear Anodic Finish: AA-M10C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.70 mils and salt spray 3000 hrs. minimum complying with AAMA 611-12, and the following:
        1. AAMA 607.1
        2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.
9. EXECUTION
   1. INSPECTION  
      1. 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.
   2. INSTALLATION  
      1. General: Do not install damaged components. Fit frame joints to produce 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.
         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.
      3. Door Operators: Connect door operators to electrical power distribution system as specified in Division 16 Sections.
      4. Glazing: Glaze sliding automatic entrance door panels in accordance with, published recommendations of glass product manufacturer, and sliding automatic entrance manufacturer’s instructions.
      5. Sealants: Comply with requirements specified in Division7 Section "Joint Sealants" to provide weather tight installation.
   3. FIELD QUALITY CONTROL  
      1. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.
   4. ADJUSTING  
      1. Adjust door operators, controls, and hardware for smooth and safe operation, for weather-tight closure, and complying with requirements in ANSI/BHMA A156.10.
   5. CLEANING AND PROTECTION  
      1. 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.

END OF SECTION 08 42 29.53 [08460]