SECTION 08461

SLIDING AUTOMATIC ENTRANCE DOORS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This Section includes the following:

1. Exterior and interior biparting-sliding, automatic entrance door assemblies with operator and Morion/Presence sensor control device.

B. Related Sections include the following:

1. Section 08411 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS for entrances controlled by automatic door operators furnished separately.
2. Section 08710 - DOOR HARDWARE for hardware to the extent not specified in this Section.
3. Section 08800 - GLASS AND GLAZING for materials and installation requirements of glazing for automatic entrance doors.
4. Division 16 - ELECTRICAL for electrical connections including conduit and wiring for automatic entrance door operators.
5. Division 7 – Perimeter sealants, insulation.
6. Division 4 - Masonry

1.2 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.

B. Safety Device: Device that prevents a door from opening or closing.

1.3 PERFORMANCE REQUIREMENTS

A. 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.

B. Thermal Movements: Provide automatic entrance doors 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, ambient; 180 deg F, material surfaces.

C. Operating Range: Minus 20 deg F to 130 deg F.

D. Air Infiltration: Maximum air leakage through fixed glazing and framing areas of 1.25 cfm/sq. ft. of fixed entrance system area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft..

E. Opening-Force Requirements:

1. Egress Doors: Not more than 50 lbf required to manually set door in motion if power fails, and not more than 15 lbf required to open door to minimum required width.
2. Accessible Interior Doors: Not more than 5 lbf.

F. Closing-Force Requirements: Not more than 30 lbf required to prevent door from closing.

G. Emergency Egress: Slide-swing panels can swing out 90° from any position of slide movement and require no more than 50 lbf. of force applied at the lock stile to open.

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 and swing-out sidelites shall include intermediate horizontal rail.
4. Units with emergency egress feature are UL listed as an exit way and are compliant with NFPA 101.

1.4 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: Power, signal, and control wiring.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

E. Product Certificates: For each type of automatic entrance door, signed by product manufacturer.

F. Qualification Data: For Installer.

G. Field quality-control test and inspection reports.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for automatic entrance door assemblies.

I. Maintenance Data: For door operators and control systems to include in maintenance manuals.

J. Warranties: Special warranties specified in this Section.

K. AAADM inspection compliance form completed and signed by certified AAADM inspector as proof of compliance with ANSI A156.10.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation and maintenance of units required for this Project and who employs a certified inspector.

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

B. Certified Inspector: Certified by AAADM.

C. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.

D. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.

E. 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."

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.

F. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code--Aluminum."

G. Power-Operated Door Standard: BHMA A156.10.

H. 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.

I. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

J. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

K. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to automatic entrance doors including, but not limited to, the following:

1. Review structural load limitations.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review required testing, inspecting, and certifying procedures.

1.6 PROJECT CONDITIONS

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

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating automatic entrance door assemblies without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to established dimensions.

2. Delivery Storage and Handling: Comply with factory’s ordering instructions and lead times. Delivery shall be in factory’s original unopened undamaged containers with identification labels intact.

3. Storage and Protection: Provide protection from exposure to harmful weather conditions and other damages.

1.7 COORDINATION

A. Coordinate size and location of recesses in concrete floor. Concrete, reinforcement, and formwork requirements are specified in Division 3.

B. Templates: Obtain and distribute, to the parties involved, templates for doors, frames, and other work specified to be factory prepared for installing automatic entrance doors. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.

C. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplieS.

1.8 WARRANTY

A. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of automatic entrance door assemblies that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including, but not limited to, excessive deflection.
b. Faulty operation of operators, controls, and hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal use.

2. Warranty Period: Three years from date of Substantial Completion.

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: Subject to compliance with requirements, provide products of the following:
1. Horton Automatics; Div. of Overhead Door Corporation.
2. Besam Automated Entrance Systems, Inc.
3. Nabco Industries.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221, Alloy 6063-T5.
2. Sheet and Plate: ASTM B 209.
3. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

B. Sealants and Joint Fillers: Refer to Section 07920 - JOINT SEALANTS.

C. Nonmetallic, Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout; complying with ASTM C 1107; of consistency suitable for application.

D. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos; formulated for 30-mil thickness per coat.

2.3 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. Manufactured door units shall include operator, header and track, jambs, sliding door panels, and sidelites. Units can be mounted within rough opening with sliding panels sliding along interior breakaway sidelite.
1. Structural Header Sections: Minimum 3/16" thickness.
2. Structural Frame Sections: Minimum 1/8" thickness.
3. Structural Panel Sections: Commercial grade.

B. Operator: The electric operating mechanism shall be Belt Drive Type. High efficiency, energy efficient DC motor. Mounted and concealed within the header.

1. Drive belt to be steel reinforced nylon, 3/4" (19 mm) wide. Idler pulley to be reinforced, metallic material.
2. Microprocessor Master Control shall have on-board diagnostic display. The control shall have programmable parameters including those functions required by ANSI A156.10. Control shall include separate day and night modes of operation with security over-ride. Adjustable Reversing Circuit will reopen door unit if closing path is obstructed. Maximum force required to prevent sliding panel from closing = 28 lbf.
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: Automatic lock: Automatically locks slide function of door when in closed position. Additional power supply for autolock not acceptable.

1. Autolock Fail Secure: If power fails the lock engages.

D. Header: Shall be 6" deep by 6" high aluminum construction with removable face plate.

E. Header Track: Shall be aluminum and replaceable. Rollers will be non-metallic, high quality ball bearing wheels 1-3/4" diameter. Anti-Derailing shall be accomplished by means of a separate adjustable roller. Telescoping doors will have two separate tracks for two-speed sliding panels to travel.

F. Sliding Panels and Sidelites: Shall be aluminum, 1-3/4" deep with narrow stile construction. Weather-stripping to be along perimeter of sliding panel and swing-out sidelite. Concealed guides to stabilize bottom of sliding panel. Standard glazing prep to be for 1/4" glass. Telescoping panels to have synchronizing cable and speed regulating mechanism.

G. Jambs/Frame: Shall be aluminum. Jamb dimensions to be 1-3/4" deep by 4" wide.

H. Threshold: Shall be aluminum, 1/2" tall by 7" wide.

I. Hardware: Refer to section 087109 for door's sequence of operation. Refer to 2.4.G for activation and safety.

J. 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. Refer to Section 08800, GLASS AND GLAZING for requirements.

2.4 FABRICATION

A. General: Factory fabricate automatic entrance door assembly components to designs, sizes, and thicknesses indicated and to comply with indicated standards.

1. Form aluminum shapes before finishing.
2. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
3. Use concealed fasteners to greatest extent possible. Where exposed fasteners are required, use countersunk Phillips flat-head machine screws, fabricated from stainless steel.

    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.

4. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.

B. Framing: Provide automatic entrance doors as prefabricated assemblies. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to Project site.

1. Fabricate tubular and channel frame assemblies with manufacturer's standard welded or mechanical joints. Provide subframes 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.
6. Fabricate exterior components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.
7. Provide anchorage and alignment brackets for concealed support of assembly from the building structure.
8. Allow for thermal expansion of exterior units.

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

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

E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated, according to GANA's "Glazing Manual."

F. Hardware: Refer to section 08710 for door’s sequence of operation. 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. Cut, drill, and tap for factory-installed hardware before applying finishes.

1. Provide sliding weather stripping, mortised into door, at perimeter of sliding doors and breakaway sidelites, at exterior doors.

G. Activation and Safety Devices: Factory install devices in doors and headers. Refer to section 08710 for door’s sequence of operation.

1. Install photoelectric beams in vertical jambs of sidelites, with dimension above finished floor as follows:

a. Top Beam: 48 inches.
b. Bottom Beam: 24 inches.

Non-Secured Hours: (Clinic open for service)
Motion sensors located on both sides of the exterior vestibule door will actuate the door for two-way pedestrian traffic.

The interior vestibule door will not automatically actuate via motion sensor for incoming pedestrian traffic; the receptionist will actuate the door via remote push button. The interior vestibule door will automatically actuate via motion sensor for existing pedestrian traffic at all times.

Secured Hours: (Clinic closed for service)
The operation of the interior sliding door will remain unchanged.

The exterior vestibule door will be physically locked to incoming pedestrian traffic via an electric lock and standard panic devices, the motion sensors will be deactivated. The electric lock secures the slide motion and the panic device secures the swing motion. This door will be switched to 'secured mode' by a key switch, toggle switch or computer/timer relay.

Refer to interior vestibule door for sliding door in non-vestibule situations.

At all times (secured or unsecured and in the event of a power failure) emergency panic egress will be permitted.

2.5 ALUMINUM FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

C. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

1. Color: Dark bronze.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrance doors.

1. 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 hairline joints free of burrs and distortion. Rigidly secure nonmovement joints. Seal joints watertight.

1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape recommended by manufacturer for this purpose.
2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

B. Entrances: Install automatic entrance doors 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. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
4. Level recesses for recessed thresholds using nonshrink grout.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Section 16150 - ELECTRICAL.

D. Activation and Safety Devices: Adjust devices to provide detection field and functions indicated.

E. Glazing: Install glazing as specified in Section 08800 - GLASS AND GLAZING.

F. Sealants: Comply with requirements specified in Section 07920 - JOINT SEALANTS to provide weather tight installation.

1. Set framing members, thresholds, bottom-guide track system, and flashings in full sealant bed.
2. Seal perimeter of framing members with sealant.

G. Signage: Provide caution signs on each automatic entrance door, visible from both sides of door. Mount caution signs with centerline 58 inches above finished floor.

1. Emergency Breakaway Panels: Provide emergency breakaway sign visible to egress side of each automatic entrance door and sidelite that has emergency

breakaway capability. Mount signs adjacent to lock stile with centerline between 36 and 60 inches above finished floor.

3.3 ADJUSTING

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

B. Lubricate operating hardware and other moving parts.

C. Readjust door operators and controls after repeated operation of completed installation equivalent to 3 days' use by normal traffic (100 to 300 cycles). Lubricate hardware, operating equipment, and other moving parts.

3.4 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.

1. Comply with requirements in Section 08800 - GLASS AND GLAZING for cleaning and maintaining glass.

3.5 DEMONSTRATION

A. Engage a certified inspector to train Owner's maintenance personnel to adjust, operate, and maintain automatic entrance doors and door operators.

END OF SECTION