SLIDING AUTOMATIC ENTRANCE DOORS

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Prepared by: [Signature]
Engineering Department
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Reviewed by: [Signature]
Quality Assurance Manager
Date: Oct. 20, 2003

Approved by: [Signature]
CEO
Date: Oct. 20, 2003
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SPEC FOR TEMPORARY IMPROVEMENT PART

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes automatic entrance door systems operating as follows:
   1. Single sliding operation.

B. Related Sections include the following:
   1. Division 8 Section “Aluminum Entrances and Storefronts” for entrances controlled by power door operators furnished separately from doors and frames.
   2. Division 8 Section “Glazing” for glazing requirements for automatic entrances doors.
   3. Division 16 Sections for electrical connections, including conduit and wiring.

1.3 DEFINITIONS

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

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

1.4. PERFORMANCE REQUIREMENTS

A. General: Provide automatic entrance door systems that have the following capabilities based on testing manufacturer’s standard units in assemblies similar to those indicated for this Project:

   1. 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.

      a. Temperature Change (Range): 180 deg F (100 deg C), material surfaces.

   2. Operating Temperature Range: Provide automatic entrance door operators capable of operating between minus 10°F and plus 120°F (minus 23°C and plus 49°C).
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3. Structural Performance: Provide automatic entrance doors capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

   a. Basic Wind Speed: 80 miles per hour at 33 feet (10m) above grade. Determine wind loads and resulting design pressures applicable to Project according to the following, based on mean roof heights above grade as indicated on Drawings:


4. Air Leakage: Not more than 1.25 cfm/sq. ft, (6.4L/s x sq. m) of door area when tested at an inward pressure differential of 1.57 lbf/sq. ft (75Pa) according to ASTM E 283.

5. Opening Force: Comply with the following maximum opening-force requirements:

   a. Exterior Doors: 15 lbf.
   b. Interior Doors: 5 lbf.

1.5 SUBMITTALS

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

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

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

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

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

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

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

F. Product Certificates: Signed by manufacturers of automatic entrance doors certifying that products furnished comply with emergency exit door requirements.
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G. Qualification Data: For firms and persons specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

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

I. Maintenance Data: For door operators and control systems to include in maintenance manuals specified in Division1. Include instructions on how to perform safety tests, and the name, address, and telephone number of nearest authorized service representative.

1.6 QUALITY ASSURANCE

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

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

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

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

C. Manufacturer Qualifications: A firm experienced in manufacturing systems similar to those indicated for this Project and with a record of successful in-service performance.


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

E. Product Options: Information on Drawings and in Specifications establishes requirements for system’s aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including pre-construction testing, field testing, or in-service performance.
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1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect’s approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.


H. UL Standard: Provide power door operators that comply with UL 325.

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

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify automatic entrance door openings by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.8 COORDINATION

A. Coordinate size and location of recesses in concrete floors for the following automatic entrance door components. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section “Cast-in-Place Concrete.”

1. Recessed sliding tracks.

1.9 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contracts and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of the automatic entrance door system that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:

1. Lateral deflection of glass lite edges in excess of 1/175 of their length or 3/4 inch (75mm), whichever is less.
2. Excessive air leakage.
3. Faulty operation of operators and hardware.
4. Deterioration of metals, metal finishes, and other Substantial Completion.

C. Warranty Period: Three years from date of Substantial Completion.
1.10 MAINTENANCE SERVICE

A. Maintenance: Beginning at acceptance by the contracting officer, provide 12 months’ full maintenance by skilled employees of automatic entrance door Installer. Include quarterly planned and preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper entrance door operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.

1. Engage an inspector certified by the American Association of Automatic Door Manufacturers to perform a safety inspection after each adjustment or repair, and at the end of the maintenance period. Submit the completed inspection form to Owner.

2. Perform maintenance, including emergency callback service, during normal working hours.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Single and Bi-parting Sliding Units:
   a. Besam Inc.
   b. Dor–O–Matic; an Ingersoll–Rand Company.
   d. KM Systems, Inc.
   e. Stanley Access Technologies; Div. Of The Stanley Works.

2.2 MATALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with standards indicated below:

1. Extruded: ASTM B 221 (ASTM B 221M)
2. Sheet and Plate: ASTM B209 (ASTM B 209M)
3. Welding Rods and Bare Electrodes: AWS A5.10.

B. Glazing: As specified in Division 8 Section “Glazing.”
C. Sheets and Joint Fillers: Refer to Division 7 Section “Joint Sealants” for joints at perimeter of entrance system.


E. Bituminous Paint: Cold–applied, asphalt–mastic paint complying with SSPC–Paint 12 requirements, except containing no asbestos: formulated for 30–mil (0.76–mm) thickness per coat.

2.3 AUTOMATIC ENTRANCE DOOR SYSTEMS

A. General: Provide manufacturer’s standard automatic entrance door system, complete with doors, operators, controls, activation devices, safety devices, and accessories as indicated. Comply with the following:

   a. Traffic Pattern: Two way.
   b. Emergency Breakaway Capability: Doors only.

B. Activation Devices: Activate doors by the following equipment:
1. Microwave–scanner motion detector.

C. Operator Safety Devices: Control door opening and closing by the following equipment:
1. Infrared–scanner presence detector.

2.4 COMPONENTS

A. Doors: Provide manufacturer’s standard 1–3/4-inch– (44.5–mm–) thick glazed doors with minimum 0.125-inch– (3.2–mm–) thick, extruded tubular stile and rail members. Fabricate corners with mechanically fastened reinforcing brackets of by welding. Incorporate concealed tie–rods that span full length of top and bottom rails.

2. Stile Design: As indicated on Drawings.
3. Rail Design: As indicated on Drawings.
4. Glazing: Glazing for exterior doors shall be 1” tempered clear insulated glass. Interior doors shall be glazed in 1/4” tempered clear glass.

B. Framing Members: Fabricate from extruded aluminum or formed–aluminum sheet or plate.

1. Main Extrusions: Minimum wall thickness of 0.125 inch (3.2mm).
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C. Headers: Fabricated from minimum 0.125-inch– (3.2-mm–) thick, extruded aluminum or formed–
aluminum sheet or plate. Conceal operator and roller track in header, providing access by means of
hinged or removable access panel to permit service and adjustment. Secure panel to prevent
unauthorized access.

1. Concealed: Fabricated header to match depth of framing and to extend full width of door opening.

2. Capacity: Capable of supporting doors up to 175 lb (79 kg) per leaf over spans up to 14 feet (4.3m)
without intermediate supports.
   a. Provide sag rods for spans exceeding 14 feet (4.3 m)

D. Carrier Assembly and Overhead Roller Track: Manufacturer’s standard carrier assembly that allows
vertical adjustment: consisting of nylon– or delrin–covered ball–bearing–center steel wheels operating
on a continuous roller track, or ball–bearing–center steel wheels operating on a nylon– or delrin–
covered continuous roller track. Support doors from carrier assembly by cantilever
and pivot assembly.

1. Rollers: Minimum two ball–bearing–center steel wheels and two ant rise rollers for each active leaf.

E. Sills: Manufacturer’s standard sill members and bottom guide system, with
stainless–steel ball–bearing–center roller wheels, and configuration indicated below:


F. Brackets and Reinforcements: Manufacturer’s standard: compatible with adjacent materials.
Provide non–staining, nonferrous shims for aligning system components.

G. Fasteners and Accessories: Manufacturer’s standard corrosion resistant, non–staining,
non–bleeding: compatible with adjacent materials.

1. Reinforcement: Reinforce members as required to retain fastener threads.

2. Exposed Fasteners: Do not use exposed fasteners, except for hardware application.
   For hardware application, use countersunk Phillips flat–head machine screws finished to match
framing members or hardware being fastened, unless otherwise indicated.
2.5 DOOR OPERATORS

A. General: Provide operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated. Comply with the following:

1. Type: Power operated, complying with ANSI/BHMA A156.10.
2. Connections: Provide connections for power and control wiring.
3. Adjustment Features: Operators shall be fully adjustable without removing entrance doors, as follows:
   a. Adjustable speed, including opening, closing, back check, and latch check.
   b. Adjustable time delay for length of time door remains open.
      Automatic door re-open if stopped while closing.
4. Microprocessor Control: System that automatically defines and sets opening and closing parameters.
5. On/Off Feature: Provide on/off/hold-open switch to control electric power to operator.

B. Electromechanical Operators: Self-contained overhead units, with power opening and closing mechanism indicated below and with checking in both opening and closing cycles. Provide safety-release clutch for obstructed closing. Provide for manual sliding when power is off. Provide operator action as indicated.


2.6 ACTIVATION AND SAFETY DEVICES

A. Microwave–Scanner Motion Detector: Self-contained motion detector consisting of a microwave-scaner sensing device to activate door operator. Sensing device shall be adjustable to provide detection patterns and sensitivity equivalent to those required for control mats. Provide time delay for closing set at no less than 1.5 seconds. Provide metal or plastic housing with black finish for sensing device. Use on approach side.

B. Infrared–Scanner Presence Detector: Self-contained scanner detector consisting of an infrared presence-sensing device to active door operator. Sensing device shall be adjustable to provide detection patterns and sensitivity equivalent to those required for control mats. Provide metal or plastic housing with black finish for sensing device. Use on exit side.
2.7 HARDWARE

A. Heavy-Duty Hardware: Provide units as indicated in size, number, and type recommended by manufacturer for entrances required. Finish to match storefront hardware.

B. Emergency Breakaway Hardware: Provide release hardware that allows panel to swing out in the direction of egress to a full 90 degrees from any position in the sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt operation of breakaway panel operator while in the breakaway mode.

C. Deadlocks: Manufacturer’s standard mortise hook bolt with five-ply laminated steel, hook-shaped throw bolt, complying with ANSI/BHMA A156.5, Grade 1 requirements.

D. Push Bars: Match push bar and finish used for storefront doors.

E. Compression Weather Stripping: Manufacturer’s standard replaceable, compressible gaskets of molded neoprene complying with ASTM D2000 or molded PVC complying with ASTM D2287. Include bumper-type gaskets at door stops and laps.

F. Sliding Weather Stripping: Manufacturer’s standard replaceable weather stripping of wool, polypropylene, or nylon woven pile, with nylon-fabric or aluminum-strip backing, complying with AAMA 701. Sliding weather stripping includes stripping at jamb, head, and meeting rails where there is no stop or lap to receive compression weather stripping.

2.8 FABRICATION

A. General: Fabricate automatic entrance door system components to designs, sizes, and thickness specified and to comply with indicated standards.

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

1. Do not drill and tap for surface-mounted hardware items until time of installation at Project site.
2. Perform fabrication operations, including cutting, fitting, forming, drilling, and grinding of metalwork in manner that prevents damage to exposed finish surfaces. For hardware, perform these operations before applying finishes.
3. Form shapes with sharp profiles, straight and free of defects or deformations, before finishing.
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. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. 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 decaling or grinding.

D. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated according to GANA’s “Glazing Manual”.

E. Metal Protection: Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surface with primer or by applying sealant or tape recommended by manufacturer for this purpose.

F. Hardware: Install hardware, except surface-mounted hardware, at fabrication plant. Remove only as required for final finishing operation and for delivery to and installation at Project site.

G. Doors: Fabricate doors in profiles indicated. Reinforce as required to support imposed loads and for installing hardware. Factory assemble door and frame units.

   1. Exterior Doors: Provide compression weather stripping at fixed stops. At locations without fixed stops, provide sliding weather stripping retained in adjustable strip mortised into door edge.

H. Framing: Fabricate tubular and channel frame assemblies in configuration indicated, with welded or mechanical joints according to manufacturer's standards. Provide sub-frames and reinforcement of types indicated or, if not indicated, as needed for a complete system to support required loads.

I. Exterior Framing: Fabricate component to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior. Provide anchorage and alignment brackets for concealed support of assembly from the building structure. Allow for thermal expansion of exterior units.

2.9 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. Finish aluminum automatic entrance door system components to match adjacent aluminum curtain wall or storefront.
D. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid–chromate–fluoride–phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers’ written instructions.

1. Fluoropolymer Two-Coat System: Manufacturer’s standard two-coat, thermo cured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight: complying with AAMA 605.2.

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.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Templates and Diagrams: Furnish templates, diagrams, and other data to fabricators and installers of related work, as necessary for coordinating automatic entrance door installation.

B. Recessed Sills: Level recess using non-shrink grout.

3.3 INSTALLATION

A. General: Comply with automatic entrance door manufacturer’s written installation instructions, unless more stringent requirements are indicated. Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints. Seal joints watertight.

B. Metal Protection: 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. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
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C. Entrances: Install entrance plumb and true in alignment with established lines and grades without wrap or rack of framing members and doors. Anchor securely in place. Lubricate operating hardware and other moving parts.

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

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

3. Install components to drain water passing joints and condensation and moisture occurring or migrating within the system to the exterior.

D. Door Operations: Install door operator system, including control wiring, as follows:

1. Refer to Division 16 Sections for connection to electrical power distribution system.

2. Refer to Division 15 Sections for connection to hydraulic distribution piping.

3. Refer to Division 15 Sections for connection to compressed–air distribution piping.

E. Activation and Safety Devices: Install control devices and wiring, including connections to door operations, as follows:

1. Microwave–Scanner Motion Detectors: Install scanners on both interior and exterior sides of each sliding automatic entrance door.

2. Microwave–Scanner Motion Detectors: Install scanners on approach side of each sliding automatic entrance door as indicated.

3. Infrared–Scanner Presence Detectors: Install scanners on both interior and exterior sides of each sliding automatic entrance door as indicated.

4. Infrared–Scanner Presence Detectors: Install scanners on both approach side of each sliding automatic entrance door as indicated.

5. Photoelectric Beams: Install beams on each sliding automatic entrance door jamb as indicated.

6. Wall Switches: Provide push plates on both siding of opening as indicated.

F. Glazing: Comply with installation requirements in Division 8 Section “Glazing”, unless otherwise indicated.

G. Sealants: Comply with requirements in Division 7 Section “Joint Sealants” for installing sealants, fillers, and gaskets.
1. Set continuous sill members and flashing in a full sealant bed to provide weather tight construction, unless otherwise indicated.

2. Seal frame perimeter with sealant to provide weather tight construction, unless otherwise indicated.

### 3.4 FIELD QUALITY CONTROL

**A. Inspection:** After completing installation, an inspector certified by the American Association of Automatic Door Manufacturers shall test and inspect each automatic entrance door for compliance with applicable ANSI/BHMA standards.

1. **Inspection Report:** Submit report in writing to Architect and Contractor within 24 hours after inspection.

**B. Repair or remove and replace Work that does not comply with requirements.**

### 3.5 ADJUSTING

**A. Adjust door operators, controls, and hardware for smooth and safe operation and for weather tight closure.**

**B. Readjust door operators, control after repeated operation of completed installation equivalent to three days’ use by normal traffic (100 to 300 cycles). Lubricate hardware, operating equipment, and other moving parts.**

### 3.6 CLEANING AND PROTECTION

**A. Clean glass 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 Division 8 Section “Glazing” for cleaning and maintaining glass.**

**B. Provide final protection and maintain conditions, including limiting construction traffic, that ensure automatic entrance doors are without damage or deterioration at time of Substantial Completion.**

### 3.7 DEMONSTRATION

**A. Engage manufacturer’s inspector certified by the American Association of Automatic door Manufacturers to train Owner’s maintenance personnel to adjust, operate, and maintain automatic entrance doors and operators.**

*(END OF SECTION)*