

SPECIAL SPECIFICATION

SECTION 13038S

CLEANROOM DOORS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work of this Section includes but is not limited to the following:
 - 1. Aluminum doors and frames, including hardware.
 - 2. Aluminum Sliding door and frame with electronic controls
 - 3. Operator housing guide rollers, door carrier
 - 4. Glazing
- B. Types of Operation (Sliding doors only): Overhead concealed, single slide. Refer to construction documents.

1.02 RELATED WORK

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Requirements of the following Project Specification Sections apply to this section:
- C. Section 01110S – Clean Construction Protocol
 - 1. Section 01111S – Cleanroom Construction And Cleaning Procedures
 - 2. Section 01112S – Cleanroom Certification And Acceptance
 - 3. Section 13015S – Cleanroom Access Flooring
 - 4. Section 13036S – Cleanroom Wall System
 - 5. Section 13063S – Cleanroom Ceiling System

6. Section 16001 – Electrical Work

- D. CAUTION: Use of this Section without including all of the above listed items will result in omission of basic requirements.
- E. In the event of conflict regarding cleanroom door requirements between this section and any other section, the provisions of this Section shall govern.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and standard details for automatic entrance doors, including fabrication, finishing, hardware, operators, accessories and other components of the work. Include roughing-in diagrams, wiring diagrams, parts lists, and maintenance instructions, as well as certified test data, where required.
- B. Templates and Diagrams: Furnish templates, diagrams and other data to fabricators and installers of related work, as needed for coordination of automatic entrance installation.
- C. Shop Drawings: Submit shop drawings for the fabrication and installation of automatic provisions, hardware, and other components not included in manufacturers standard data. Include glazing details.
- D. Provide certified test results from an independent testing agency for particle
- E. Counts measurements.

1.04 QUALITY ASSURANCE

- A. BHMA Standard: Provide automatic entrance doors complying with applicable requirements of ANSI A156.10 (BHMA 1601), Power Operated Pedestrian Door Standard.
- B. UL Standard: Provide powered door operators complying with UL 325, Electric Door, Drapery, Gate, Louver and Window Operators and Systems.
- C. Egress/Exit Doors: Provide automatic entrance doors complying with requirements for doors serving as exit components in the means of egress as defined by NFPA 101 and as certified by the manufacturer of the application shown.
- D. The sliding door package shall be installed by factory authorized and trained personnel. The work shall be done in strict compliance with the manufacturer's recommendations and according to approved shop drawings.

- E. Service Life: Provide automatic entrance doors capable of operating without failure of any component, for not less than 300,000 open and close cycles, with normal maintenance as defined in manufacturer "standard operating manual." Provide a minimum 5-year guarantee against defects in materials and workmanship for the controller.
- F. Particle Count: Provide automatic entrance capable of operating at better than Class 100 conditions about 0.2 micron particle size.
- G. Each kind of door and hardware components shall be provided by a single sole source manufacture.
- H. Hardware products shall meet grade 1 or the highest level of cycle test requirements of the applicable ANSI standards.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and Project Site storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames in an environmentally controlled area at building site under cover. Place units on minimum 4 inches high wood blocking. Avoid use of nonvented plastic or canvas shelters, which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide ¼ inch spaces between stacked doors to promote air circulation.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to all requirements for materials and performances specified [herein, provide doors by the following:](#)
 - 1. Besam
 - 2. Stanley Door Operating Equipment Div.; Stanley Works

3. Horton

B. Manufacturers: Subject to all requirements for materials and performances specified [herein, provide hardware by the following:](#)

1. LCN

2. Von Duprin

2.02 MATERIAL AND ACCESSORIES

A. Aluminum Extrusions: Alloy and temper as recommended by manufacturer for strength, corrosion resistance, application of required finish control of color, but not less than 22,000 psi ultimate tensile strength. Provide main extrusions of not less than 0.125 inch wall thickness, except as otherwise indicated.

B. Provide extruded glazing stops and other applied trim extrusions with minimum wall thickness of 0.062 inch.

C. Aluminum Sheets: Alloy and temper as recommended by manufacturer for strength, corrosion resistance, abrasion resistance, application of required finish, and control of color. Provide sheets of not less than 0.062 inch thickness, except as otherwise indicated.

D. Fasteners: Aluminum, nonmagnetic, stainless steel, or other noncorrosive metal compatible with the items being fastened.

E. Do not use exposed fasteners except where unavoidable for the assembly of units, and unavoidable for the application of hardware.

F. Steel Reinforcement and Brackets: Manufacturer's standard units with 2.0 oz hot-dip zinc coating, ASTM A 123, applied after fabrication.

G. Compression Weather-stripping: Manufacturer's standard replaceable stripping, either molded neoprene gaskets or molded PVC gaskets. Compression gaskets include collapsible finger guards at pivot jambs as well as bumper-type gaskets at doorstops and laps.

H. Sealants and Gaskets: Use sealants and gaskets in the fabrication, assembly and installation of the work, which are recommended and guaranteed by the manufacturer to remain permanently elastic, nonshrinking, nonmigrating, and without effect of outgasing.

I. Glazing:

1. PVC base material
 2. Conductivity: 10^6 to 10^8 Ohms (grounded to wall system)
 3. Color:
 - a. Clear Transparent (at non-photo areas)
 - b. Amber, with transmittance of $x < 500$ nm wavelength (at photo areas, refer to door and window schedules)
 4. Thickness : 1/4"
- J. Standard Hardware:
1. Passage Set (lever)
 - a. Polished Aluminum handle
- K. Closers:
1. Provide concealed closers
 2. Closers shall be independently certified to a minimum of 10,000,000 cycles, in accordance with ANSI testing procedures.
- L. Door Stops:
1. Provide door stops in jamb
- M. Pivots:
1. Clear Anodized Aluminum
 2. Hinges shall be ball bearing with non-removable pins sufficient throw to clear the door trim or wall construction.
 3. Provide additional hinges as required by door height in accordance with the manufacturer's recommendations.
- N. Exit Device (Panic Hardware)
1. Non-handed with latch bolt dead locking

2. Full reversible mortise lock
3. Hex key dogging

2.03 FABRICATION

A. General:

1. Sizes and Profiles: The required sizes for door and frame units, and the profile requirements are shown on the Drawings.
2. Prefabrication: Except as otherwise indicated, provide each continuous unit of framework, doors, side lights, transom panels, hardware, and all accessory items, as a “packaged entrance” unit. Complete the fabrication, assembly, finishing, application of hardware and all other work, before shipment to the project site, to the greatest extent possible. Disassemble only to the extent necessary for shipment and installation.
3. Complete the cutting, fitting, forming, drilling, and grinding of all metal work prior to cleaning and finishing. Remove arises from cut edges and ease edges and corners to a radius of approximately 1/64 inch.
4. Weld by methods recommended by AWS to avoid discoloration at welds. Grind exposed welds smooth and restore mechanical finish.
5. Provide Conceal fasteners.
 - a. Maintain continuity of line and accurate relation of planes and angles. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members.
 - b. Reinforce the work as necessary for performance requirement, and for support to the structure. Separate dissimilar metals with bituminous paint or preformed separators, which will prevent corrosion. Separate metal surfaces at moving joints with nonmetallic separators to prevent “freeze-up” of joints.

B. Aluminum Finishes:

1. Provide Clear Anodized Finish: NAAMM AA-M21C22A32, (minimum thickness 0.4 mils).

2.04 GENERAL DOOR OPERATOR REQUIREMENTS

- A. Capacity: Size as recommended by manufacturer's published data for the door size, weight, movement, and condition of exposure, for long-term maintenance-free operation under normal traffic load for the type of occupancy indicated.
- B. Exposed Housing for Operators: Extruded or formed aluminum 0.062 inch minimum thickness, with provisions for maintenance access, with fasteners concealed when door is in closed position.
- C. Adjustment Features: Provide operators with fully adjustable opening speeds, closing speeds and checking speeds, as well as length of time door remains open.
- D. Manufacturer's standard electric-mechanical drive unit, self-contained with connections for power and control wiring, power opening and either power or spring closing with safety release clutch for obstructed closing; and with checking for both opening and closing cycles. Provide for manual sliding when power is off.
 - 1. Operator Action: Single-slide.
 - 2. Provide overhead concealed operators.
 - 3. Provide emergency breakaway swing feature (ANSI Standard 156.10 and BHMA 1601 Protection Standards).
 - 4. Provide power disconnect switch.
 - 5. All openings and seams in the electric motor housing shall be sealed, with silicone sealant (non-off-gassing, VOC compliant).

2.05 DOOR OPERATOR CONTROLS AND ACCESSORIES

- A. Door control buttons must be mounted in aluminum jamb framing (1-3/4 inches by 4-1/2 inches) on each side of door at 42" above finish floor. Include wiring between door control and operator (for Sliding doors only).
- B. Provide hardware schedule for each cleanroom door.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations.
- B. Set units plumb, level and true to line, without warp or rack of frames or doors. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points with other materials.
- C. Install complete door operator system in accordance with manufacturer's instructions, including controls and control wiring.
- D. Set tracks, header assemblies, operating brackets, rails, and guides level and true to location, with adequate anchorage for permanent support.
- E. Install thin metal foil conductor at each corner of glazing panel to make electrical connection between face of glazing and metal doorframe. Foil shall be sandwiched between the glazing and the glazing stop material. Cut excess foil exposed to view.

3.02 ADJUST AND CLEAN

- A. After repeated operation of completed installation equivalent to 3 days use by normal traffic (100 to 300 cycles), readjust door operators and controls for optimum operating condition and safety. Clean exposed surfaces.
- B. Clean aluminum surfaces promptly after installation, exercising care to avoid damage of the protective coating (if any). Remove excess glazing and sealant compounds, dirt and other substances. Exercise extreme care in cleaning glazing. Follow manufacturer recommendations.

END OF SECTION