SECTION 08 32 13
ICU SLIDING GLASS DOORS

SPEC WRITER NOTE:
1. Delete text between // // not applicable to project. Edit remaining text to suit project.
2. Use Section 08 44 13, GLAZED ALUMINUM CURTAIN WALLS for glazed openings/assemblies in behavioral health, psychiatric, dependence rehabilitation areas.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior, single slide, manual or automatic sliding ICU/CCU entrances; tracked or trackless for individual special-care rooms.
2. // Entrances shall be rated as an effective barrier limiting the passage of smoke //.

1.2 RELATED WORK

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

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

B. Section 09 06 00, SCHEDULE FOR FINISHES Door Finish and Color.

C. Section 08 80 00, GLAZING. Glass and Glazing:

D. Section 08 71 00, DOOR HARDWARE: Hardware.

E. Section 08 71 13, AUTOMATIC DOOR OPERATORS: Automatic Door Actuators.

F. Section 09 06 00, SCHEDULE FOR FINISHES: Aluminum Finish and Color.

1.3 COORDINATION

A. Field Measurements: Verify actual dimensions of openings to receive ICU/CCU entrances by field measurements before fabrication.

B. Templates: Distribute for doors, frames, and other work specified to be factory prepared for installing ICU/CCU entrances.

1.4 APPLICABLE PUBLICATIONS

A. Comply with references to extent specified in this section. Refer to the version year adopted by the Authority Having Jurisdiction or the latest edition.

B. American Welding Society (AWS):

D1.2/D1.2M-2014.....Structural Welding Code - Aluminum

C. ASTM International (ASTM):

B209-14.....Aluminum and Aluminum-Alloy Sheet and Plate

B209M-14.....Aluminum and Aluminum-Alloy Sheet and Plate (Metric)

B221-14.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

B221M-13.....Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)

D. National Association of Architectural Metal Manufacturers (NAAMM):

AMP 500-04.....Metal Finishes Manual for Architectural Metal Products

E. National Fenestration Rating Council (NFRC):

500-17.....Determining Fenestration Product Condensation Resistance Values

F. National Fire Protection Association (NFPA):

NFPA 70-20.....National Electric Code

NFPA 105-19.....Standard for the Installation of Smoke Door Assemblies

G. Underwriters Laboratories UL:

UL 1784-20.....Air Leakage Tests for Door Assemblies

1.5 PREINSTALLATION MEETINGS

A. Conduct preinstallation meeting // at project site // minimum 30 days before beginning Work of this section.

SPEC WRITER NOTE: Edit participant list to ensure entities influencing outcome attend.

1. Required Participants:
   a. Contracting Officer's Representative.
   b. // Architect/Engineer. //
   c. Contractor.
   d. Installer.
   e. // Manufacturer's field representative. //
   f. Other installers responsible for adjacent and intersecting work, including // _____ //.

SPEC WRITER NOTE: Edit meeting agenda to incorporate project specific topics.

2. Meeting Agenda: Distribute agenda to participants minimum 3 days before meeting.
   a. Installation schedule.
   b. Installation sequence.
   c. Preparatory work.
   d. Protection before, during, and after installation.
   e. Installation.
   f. Terminations.
   g. Transitions and connections to other work.
   h. Other items affecting successful completion.
3. Document and distribute meeting minutes to participants to record decisions affecting installation.

1.6 SUBMITTALS

A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Submittal Drawings: // Minimum 1 to 2 (half size) scale. //
1. Show size, configuration, and fabrication and installation details.
2. Show anchorage and reinforcement.
3. Show interface and relationship to adjacent work.

C. Manufacturer's Literature and Data:
1. Description of each product.
2. Doors, each type.
3. Entrance and Storefront construction.
4. Installation instructions.
5. Warranty.

D. Samples:
1. Door Corner Section: Minimum 450 mm x 450 mm (18 x 18 inches) for each specified door type, showing head rail and hinge stile, // door closer reinforcement, // and internal reinforcement.
2. Aluminum Anodized Finish: // Provide sample extrusions minimum 150 mm (6 inches) long for each specified color in sets of three showing maximum color range. //
3. Aluminum Paint Finish: // Provide sample extrusions minimum 150 mm (6 inches) long for each specified color. //

E. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

1. Recycled Content: Identify post-consumer and pre-consumer recycled content percentage by weight.

F. Test reports: Certify // each product complies // products comply // with specifications.

G. Certificates: Certify // each product complies // products comply // with specifications.

1. Certify anodized finish thickness.

H. Qualifications: Substantiate qualifications comply with specifications.

1. Manufacturer // with project experience list //.
2. Installer // with project experience list //.
3. Welders and welding procedures.

I. Delegated Design Drawings and Calculations: Signed and sealed by responsible design professional.

1. Show location and magnitude of loads applied to building structural frame.
2. Identify deviations from details shown on drawings.

J. Operation and Maintenance Data:

1. Care instructions for each exposed finish product.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Regularly manufactures specified products.
2. Manufactured specified products with satisfactory service on five similar installations for minimum five years.
   a. // Project Experience List: Provide contact names and addresses for completed projects. //

B. Installer Qualifications: // Product manufacturer. // Manufacturer authorized representative. //

1. Regularly installs specified products.
2. Installed specified products with satisfactory service on five similar installations for minimum five years.
   a. // Project Experience List: Provide contact names and addresses for completed projects. //

C. Welders and Welding Procedures Qualifications: AWS D1.2/D1.2M.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver products in manufacturer's original sealed packaging.

B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, // color, // production run number, and manufacture date.

C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

D. Store products indoors in dry, weathertight // conditioned // facility.

E. Protect products from damage during handling and construction operations.

1.9 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes Contractor's one year labor and material warranty.

A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction." Warranty Period for // One // Two // Five // years for but not limited to, the following: Structural failure including excessive deflection

1. Faulty operation of hardware
2. Excessive deterioration/failure of metals, metal finishes, glass and other materials.

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

B. Manufacturer's Warranty: Warrant painted finish against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products. AAMA 2605 painted finish is available with 20 year warranty.

1. Warranty Period: // 20 // years.

PART 2 - PRODUCTS

2.1 SYSTEM PERFORMANCE

A. ICU/CCU Entrance Assemblies

1. General: Provide manufacturer's standard ICU/CCU entrance assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, pivots, and accessories required for a complete installation. All components are to be from a single source from a single manufacturer.
2. Performance Requirements:

a. Opening Force: Not more than 5 pound force (22.2 N) to fully open door.

SPEC WRITER NOTE: Retain "Air Leakage" Paragraph below if required for smoke-

control or pressurized entrance assemblies. The IBC requires assemblies to comply with smoke-control requirements in smoke barriers and smoke partitions. Pressurized entrances may also be required in isolation rooms for control of airborne infections. Generally, retain first option; insert maximum air leakage if greater than that in NFPA 105 is required for all assemblies, or insert maximum leakage rate in ICU/CCU entrance paragraphs for specific assemblies. Verify which manufacturers have smoke-rated and/or pressurized ICU/CCU entrances and can demonstrate compliance.

b. Air Leakage: Entrance assemblies for // smoke control // // and // // pressurized rooms// shall be listed and labeled for smoke and draft control by qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and having maximum air leakage // according to NFPA 105 // // of ____cfm/sf // unless otherwise indicated.

SPEC WRITER NOTE: Retain "Electrical Components, Devices, and Accessories" Paragraph below for electrically powered devices such as electromagnet closers and electrochromic glass if required; grounding is not included.

c. 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.

3. Breakaway Hardware: Release hardware that allows indicated panels to swing out in direction of egress to full 90 degrees from closed door position.

SPEC WRITER NOTE: Option in "Maximum Force to Open Panel" Subparagraph below is typical; however, manufacturers can set force as low as 10 pound force (44.5 N). Force to initiate breakaway should be more than the maximum 5 pound force (22.2 N) required to slide door. Consult Owner or manufacturers for recommendations to suit Project.

4. Maximum Force to Open Panel: // 50 pound force (222 N)// // Insert value //.

SPEC WRITER NOTE: Verify availability of second option in "Release Position"

Subparagraph below with manufacturers. With trackless doors, panels must be in their fully open position to swing if sidelites also swing.

5. Release Position: // Sliding door fully open.// // At any point in sliding-door travel. //

B. Sliding ICU/CCU Entrances:

1. Configuration: As indicated on the drawings.
2. Performance: // Standard assembly // // Smoke-control assembly // // Pressurized-entrance assembly //.

SPEC WRITER NOTE: Electromagnet closer and alarm interface for smoke-rated doors are available for some models by manufacturers.

a. Alarm Interface: Equip entrance with electromagnet closer that closes door when alarm is triggered.

3. Breakaway Capability: Sliding panels and sidelites, from fully open position.
4. Mounting: // Between jambs // // Surface//.
5. Floor Track: Trackless across sliding-door opening and //at sidelites (trackless), // //recessed, pin-guide track system at sidelites // //surface-mounted, roller guide track system at sidelites //.
6. Stile Design: // Narrow stile; 2-1/8-inch (55-mm) nominal width // // Medium stile; 3-1/2-inch (90-mm) nominal width // // Wide stile; more than 4-inch (100-mm) nominal width // // As indicated on Drawings //.
7. Top Rail Design: // 3-1/2-inch (90-mm) nominal height // // 5-inch (125-mm) nominal height // // As indicated on Drawings] <Insert requirement //.

SPEC WRITER NOTE: Third option in "Bottom Rail Design" Subparagraph below is a high bottom rail that may be required for accessible swing doors. Verify requirements of authorities having jurisdiction. See the Evaluations.

8. Bottom Rail Design: // 3-1/2-inch (90-mm) nominal height // // 5-inch (125-mm) nominal height // // 10-inch (255-mm) nominal height // // As indicated on Drawings // // Insert requirement // with weather sweep.
9. Muntin Bars: // On doors// // None //.

10. Glazing Stops and Gaskets: // Beveled // // Square//.

SPEC WRITER NOTE: Revise "Glazing" Subparagraph below to suit Project. ICU/CCU entrances are generally field glazed unless specialty glazing, such as second and third options below, is required.

11. Glazing: Clear tempered.

    a. Glazing: As specified in //Section 088000 "Glazing."// //Section 088853 "Security Glazing."//

SPEC WRITER NOTE: Retain "Electrochromic Glazing" or "Miniblind Glazing" Paragraph below, or both if required; revise to suit Project. These glazing types are generally factory installed; consult manufacturer for recommendations and available technologies before retaining.

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

SPEC WRITER NOTE: Retain "Factory Glazing" Paragraph below if required; revise to suit Project.

    c. Factory Glazing: Install // electrochromic // // and // // miniblind // glazing at the factory.

SPEC WRITER NOTE: Revise "Finish" Subparagraph below if different finish is required for components of ICU/CCU entrances. Class II, clear anodic finish and Class I, dark-bronze, color anodic finish are standard with many manufacturers. However, manufacturers indicate that custom finishes, if specified, are available; verify availability of other aluminum finishes with manufacturers. If more than one finish is required, indicate location of each on Drawings, in schedules, or by inserts.

12. Finish framing and door(s) with // Class I, clear anodic finish // // Class II, clear anodic finish // // Class I, color anodic finish // // Class II, color anodic finish // // baked-enamel or powder-coat finish // // high-performance organic finish (two-coat fluoropolymer) // // high-performance organic finish (three-coat fluoropolymer) // //metal cladding // // Insert finish //.

SPEC WRITER NOTE: Retain "Color" or "Metal Cladding" Subparagraph below; delete both for clear anodic finishes. First three options in "Color" Subparagraph are advertised by manufacturers for color anodic finish in "Finish" Subparagraph above and may vary in color range and availability among manufacturers. Architect/Designer shall coordinate frame finish with Medical Center staff.

a. Color: // Light bronze // // Dark bronze // // Black // // As indicated by manufacturer's designations // // Match Architect's sample // // As selected by Architect from full range of industry colors and color densities // // Insert color //.

SPEC WRITER NOTE: Retain "Metal Cladding" Subparagraph below only for metal-clad finish. Verify availability of metal-clad finishes with manufacturers before specifying.

b. Metal Cladding: // No. 4, directional-satin-finish stainless steel // // No. 8, mirror like reflective, nondirectional-polish-finish stainless steel // // Satin brass // // Polished brass // // Satin bronze // // Insert finish //.

C. Delegated Design: Prepare submittal documents including design calculations and drawings signed and sealed by registered design professional, licensed in state where work is located.

1. Minor deviations to details shown on drawings to accommodate manufacturer’s standard products may be accepted by Contracting Officer's Representative when deviations do not affect design concept and specified performance.

D. Design aluminum framed entrances and storefronts complying with specified performance:

1. General: Provide ICU/CCU entrances 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. Fixed Framing Air Infiltration Resistance: ASTM E283; 0.30 liter/second/square meter (0.06 cubic feet/minute/square foot), maximum at 300 Pa (6.24 psf), minimum, pressure differential.

2.2 MATERIALS

A. Aluminum:

1. Sheet Metal: ASTM B209M (ASTM B209), minimum 1.6 mm (0.063 inch) thick.
2. Extrusions: ASTM B221M (ASTM B221).
   a. Framing: Minimum 3 mm (0.125 inch) wall thickness.
   b. Glazing Beads, Moldings, and Trim: Minimum 1.25 mm (0.050 inch) thick.
3. Alloy 6063 temper T5 for doors, door frames, // fixed glass sidelites // and transoms //.
4. Color Anodized Aluminum: Provide aluminum alloy required to produce specified color.

B. Stainless Steel: ASTM A240/A240M; Type 302 or Type 304.

2.3 PRODUCTS - GENERAL

A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.

B. Provide aluminum framed entrances and storefronts from one manufacturer // and from one production run //.

SPEC WRITER NOTE: Retain single source requirement when aluminum entrances are installed within other framed openings.

C. Provide aluminum entrances, // storefront, // windows, systems from same manufacturer.

D. Sustainable Construction Requirements:

SPEC WRITER NOTE:
1. Specify products containing greatest recycled content practicable to maximize material recovery. See EPA Comprehensive Procurement Guidelines (CPG) for guidance about individual products and available recycled content. Section 01 81 13 sets overall project recycled content requirements.
2. Aluminum Association (AA) reports 2008 industry average 85 percent recycled content for aluminum in building construction industry. Retain 50 percent when specifying anodized aluminum.

1. Aluminum Recycled Content: // 80 // 50 // percent total recycled content, minimum.

2.4 FRAMES

SPEC WRITER NOTE: Include thermal break option when insulating glass is specified in Section 08 80 00, GLAZING.

A. Framing Members: Extruded aluminum.

B. Stops: Provide integral fixed stops and glass rebates and snap-on removable stops.

C. Provide concealed screws, bolts and other fasteners.

D. Secure cover boxes to frames in back of lock strike cutouts.

2.5 STILE AND RAIL DOORS

A. Stiles and Rails: Extruded aluminum.

1. Thickness: 45 mm (1-3/4 inch).
2. Stiles and Head Rails: 90 mm (3-1/2 inches) wide.
3. Bottom Rails: 250 mm (10 inches) wide.

B. Glass Rebates: Integral with stiles and rails.

C. Glazing Beads: Extruded aluminum, 1.3 mm (0.050 inch) thick. Integral with stiles and rails or applied type, snap-fit secured.

D. Stile and Rail Joints: Welded or interlocking dovetail joints between stiles and rails.

1. Clamp door together through top and bottom rails with 9 mm (3/8 inch) primed steel tie rod extending into stiles and having self-locking nut and washer at both ends.
2. Reinforce stiles and rails to prevent door distortion when tie rods are tightened.
3. Provide compensating spring-type washer under each nut for stress relief.
4. Construct joints to remain rigid and tight when door is operated.

E. //Weather-stripping: Replaceable type

1. Compression Type: ASTM D2000, molded neoprene or ASTM D2287, molded PVC.
2. Sliding Type: AAMA 701/702, wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing or vinyl holder.
3. Make slots for applying weather-stripping integral with doors.
4. Apply continuous weather-stripping to heads, jambs, bottom, and meeting stiles of doors and frames so doors move freely and close positively. //

F. Headers: Fabricated from minimum 0.125-inch- (3.2-mm-) thick, extruded aluminum, and extending full width of ICU/CCU entrance units to conceal carrier assemblies and roller tracks. Provide hinged or removable access panels for service and adjustment. Secure panels to prevent unauthorized access.

1. Capacity: Capable of supporting doors up to [100 pounds (45 kg) per leaf over spans up to 14 feet (4.3 meter)] <Insert load and span> without intermediate supports.
2. Provide sag rods for spans exceeding 14 feet (4.3 m).

G. Carrier Assemblies and Overhead Roller Tracks: Assembly that allows vertical adjustment; consisting of nylon- or polyoxymethylene (POM)-covered, ball-bearing-center steel wheels operating on a continuous roller track or of ball-bearing-center steel wheels operating on a nylon- or POM-covered, continuous roller track. Support doors from carrier assembly by cantilever and pivot assembly. Provide minimum of two ball-bearing roller wheels and two antirise rollers for each active leaf.

H. Brackets and Reinforcements: High-strength aluminum with nonstaining, nonferrous shims for aligning system components.

I. Fasteners and Accessories: Corrosion-resistant, nonstaining, nonbleeding, flush fasteners and accessories compatible with adjacent materials.

2.6 COLUMN COVERS AND TRIM

A. Column Covers and Trim: Sheet aluminum fabrications shown from sheet aluminum of longest available lengths.

B. Provide concealed fasteners.

C. Provide aluminum stiffeners and supporting members shown on drawings and as required to maintain component integrity and shape.

2.7 DOOR OPERATORS

A. General: Where door operators are specified 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 and per the requirements of 08 71 13 AUTOMATIC DOOR OPERATORS.

B. Opening and closing actions of doors shall be actuated by controls and safety devices specified and conform to ANSI 156.10. Controls shall cause doors to open instantly when control device is actuated; hold doors in open positions; then, cause doors to close, unless safety device or reactivated control interrupts operation.

2.8 ACTIVATION AND SAFETY DEVICES

A. Touchless Activation Switch: Where scheduled, provide touchless activation switches for primary activation of automatic sliding ICU/CCU

entrances. Face plates shall be high impact polycarbonate or stainless steel, engraved with waving hand logo and "Wave To Open" text.

1. Switches shall be jamb style, 1 3/4 inch by 4 ½ inch (44 mm x 114 mm), frame mounted hardwired to door operator controls.
2. Units shall incorporate active infra-red to detect all motion in the detection zone. Detection zone shall be adjustable from 1 inch to 28 inch (25 mm to 711 mm).
3. Relay shall be rated at 3 A at 30 VAC/VDC.
4. Relay hold time adjustable from 0 to 60 sec.

B. Combined Activation and Safety Sensors: Combined activation and safety sensors shall, in a single housing, detect motion and presence in accordance with ANSI/BHMA A156.38. Motion shall be detected using K-band microwave technology, presence by active infrared reflection technology.

1. Mounting Height: Up to 11.5 feet (3.5 m) above finish floor
2. Temperature Range: Between -31°F and 131°F (-35°C to 55°C) in all environmental conditions
3. Relays: Form C, 50V at 0.3A for both activation and safety. Hold time of less than 0.5 seconds.
4. Detection Pattern: When detection is made in the activation zone, and the entrance opens, the safety zone shall extend through the threshold on each side; creating an X-pattern. When activation and safety zones are cleared and the entrance closes the sensor will ignore the X-pattern safety zones.
5. Sensor activation shall be secondary to all knowing act activation.

C. Presence Sensor Monitoring: Sliding automatic entrances control system shall include a means to verify the functionality of all active presence sensors in accordance with ANSI/BHMA A156.10. A detected fault shall cause automatic operation to cease until the fault is corrected.

2.9 HARDWARE

A. General: Provide units in sizes and types recommended by ICU/CCU entrance and hardware manufacturers for entrances and uses indicated. See Section 08 71 13, AUTOMATIC DOOR OPERATORS. Where exposed fasteners are required use countersunk Phillips flat-head or Allen flat-head machine screws, finish to match adjacent material.

B. Breakaway Feature: Provide release hardware that allows sliding panel and sidelites to swing out in direction of egress to full 90 degrees, only from the fully open position.

1. Latching system shall allow both panels to swing out after disengaging semi-automatic flush bolt from a single release point.
2. When returning panels from breakaway position, panels shall self-latch.

C. Positive Latch: Manufacturer's standard non-keyed, spring loaded, latch and strike that can secure sliding door panels to adjacent panels or jambs. Strike shall mount flush to surface of framing. Latch shall engage by closing action of door.
1. Dead latch hook bolt shall be concealed to prevent snagging.
2. Handle shall be circumferential design without exposed edges or open ends.
3. Handle action shall be linear, unlatching in the direction of slide.

D. Locking Hardware:
1. Locking hardware at interior doors not requiring physical security is not required.
2. Doors with flush concealed vertical rod panic hardware integrated into doors where physical security is required, and free egress is required at all times.
3. Doors with manufacturers’ standard hook bolt lock (keyed both sides) where physical security is required and free egress is not required at all times.
   a. At doors with access control devices specified in Division 28 - ELECTRONIC SAFETY AND SECURITY, provide doors with electronic deadbolt locking to prevent doors from manually sliding open.

E. Door Closers: Breakout or swing-out panels with door closers concealed in top rail of door.

F. Automatic Latching System: Provide automatic latching hardware on sliding automatic entrances as follows:
1. System shall include a fail-secure electric strike mounted in the jamb specifically designed for use with the specified positive latch.
2. The automatic sliding entrance(s) shall electrically latch in the closed position preventing door panels from sliding manually.
3. During a power interruption the positive latch can be disengaged allowing doors to slide manually.

G. Control Switch: Provide manufacturer’s standard jamb mounted two-position rocker switch to allow for full control of the automatic entrance door.

1. Automatic
2. Manual

H. Power Switch: Sliding automatic entrances shall be equipped with a two position On/Off rocker switch to control power to the door.

I. Smoke Seal Components: Provide manufactures standard smoke and draft control components as required to meet performance specifications. Components included but are not limited to:

1. High temperature seals.
2. Stiles shall be slotted for seal mounting.

2.10 FABRICATION

A. Form metal parts and fit and assemble joints, except joints designed to accommodate movement.

B. Welding:

1. Make welds without distorting and discoloring exposed surfaces.
2. Clean and dress welds. Remove welding flux and weld spatter.

C. Prepare and reinforce doors and frames for hardware and accessories.

1. Coordinate preparation with specified hardware. See Section 08 71 00, DOOR HARDWARE.
2. Fabricate reinforcement from stainless steel plates.
   a. Hinge and pivot reinforcing: Minimum 4.5 mm (0.179 inch) thick.
   b. Lock Face, Flush Bolts, Concealed Holders, Concealed and Surface Mounted Closers Reinforcing: Minimum 2.6 mm (0.104 inch) thick.
   c. Other Surface Mounted Hardware Reinforcing: Minimum 1.5 mm (0.059 inch) thick.
3. Where concealed hardware is specified, provide space, cutouts, and reinforcement for installation and secure fastening.

D. Factory assemble doors.

2.11 FINISHES

A. Aluminum Anodized Finish: NAAMM AMP 500.

1. Clear Anodized Finish: AA-C22A41; Class I Architectural, 0.018 mm (0.7 mil) thick.
2. Color Anodized Finish: AA-C22A42 or AA-C22A44; Class I Architectural, 0.018 mm (0.7 mil) thick.
3. Clear Anodized Finish: AA-C22A31; Class II Architectural, 0.01 mm (0.4 mil) thick.
4. Color Anodized Finish: AA-C22A32 or AA-C22A34; Class II Architectural, 0.01 mm (0.4 mil) thick.

B. Aluminum Paint finish:

SPEC WRITER NOTE: AAMA 2603 is rated one-year South Florida exposure and is appropriate for interior use. AAMA 2604 is rated five-years exposure and AAMA 2605 is rated ten-years exposure. Both are appropriate for exterior use.

1. Baked Enamel or Powder Coat: AAMA 2603; polyester resin, minimum 0.4 mm (1.5 mil) film thickness.
2. Fluorocarbon Finish: AAMA 2604; 50 percent fluoropolymer resin, // 2-coat // 2-coat mica // 3-coat metallic // system.
3. Fluorocarbon Finish: AAMA 2605; 70 percent fluoropolymer resin, // 2-coat // 2-coat mica // 3-coat metallic // system.

SPEC WRITER NOTE: Delete following if antimicrobial finish is not required.

C. Antimicrobial silver-based ion, baked-on enamel finish on all exposed surfaces including door pulls, door extrusions, rails and header.
   1. Antimicrobial finish must permanently suppress the growth of bacteria, algae, fungus, mold and mildew by the controlled release of silver ions that attack microbes and inhibit the growth on the treated surfaces.
   2. Coating to be EPA registered resulting in a safe and non-toxic finish; chlorinated or synthetic chemical finishes will not be accepted.

2.12 ACCESSORIES

A. Dielectric Tape: Plastic, non-absorptive, with pressure sensitive adhesive; 0.18 to 0.25 mm (7 to 10 mils) thick.

SPEC WRITER NOTE: Retain barrier coating to separate dissimilar metals and to separate metals from cementitious materials.

B. Barrier Coating: ASTM D1187/D1187M.

C. Welding Materials: AWS D1.2/D1.2M, type to suit application.

D. Fasteners:
   1. Aluminum: ASTM F468, Alloy 2024.
   2. Stainless Steel: ASTM F593, Alloy Groups 1, 2 and 3.
   3. Install surface mounted hardware using concealed fasteners to greatest extent possible.

E. Anchors: Aluminum or stainless steel; type to suit application.

F. Galvanizing Repair Paint: MPI No. 18.

G. Touch-Up Paint: Match shop finish.

H. Magnetic Hold-Open Devices: Connect magnetic hold-open devices to the building fire alarm/sprinkler system as specified in Division 26 and Division 28 Sections.]

1. Holding force not to exceed 30 pounds for manual door release.

I. Switchable Privacy Glass: Connect switchable privacy glass to electrical power distribution system as specified in Division 26 Sections.

SPEC WRITER NOTE: Make material requirements agree with applicable requirements specified in the referenced Applicable Publications. Update and specify in both only which applies to the project.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for product installation.

1. Coordinate floor closer installation recessed into concrete slabs.
2. Coordinate anchor installation built into masonry and concrete.
3. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
4. Other trades: General Contract shall advise of any inadequate conditions or equipment.

B. Protect existing construction and completed work from damage.

C. Clean substrates. Remove contaminants capable of affecting subsequently installed product's performance.

D. Apply dielectric tape or barrier coating to aluminum surfaces in contact with // dissimilar metals // and cementitious materials // to minimum 0.7 mm (30 mils) dry film thickness.

3.2 INSTALLATION - GENERAL

A. Project Conditions

1. Field Measurements: Verify actual dimensions of openings to receive ICU/CCU entrances by field measurements before fabrication and indicate on shop drawings.

B. Coordination

1. Coordinate sizes and locations of recesses in concrete floors for recessed tracks and thresholds if applicable. Concrete work is specified in Division 03.

2. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing ICU/CCU entrances to comply with indicated requirements.
3. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

C. Install products according to manufacturer's instructions // and approved submittal drawings //.
1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

D. Install aluminum framed entrances and storefronts plumb and true, in alignment and to lines shown on drawings.

E. Anchor frames to adjoining construction at heads, jambs and sills.

F. Provide concealed aluminum clips to connect adjoining frame sections.

G. Install door hardware and hang doors. See Section 08 71 00, DOOR HARDWARE.

H. // Install door operators. See Section 08 71 13, AUTOMATIC DOOR OPERATORS. //

I. Adjust doors and hardware uniform clearances and proper operation.

J. Level recesses for recessed floor tracks using shrinkage-resistant grout.

SPEC WRITER NOTE: Retain "Air Leakage" Subparagraph below if required for smoke-control or pressurized entrance assemblies.

K. Air Leakage: Install entrance assemblies for // smoke-control // // and // // pressurized rooms // according to NFPA 105 and as indicated.

L. Touch up damaged factory finishes.
1. Repair galvanized surfaces with galvanized repair paint.
2. Repair painted surfaces with touch up primer.

M. Tolerances:
1. Variation from Plumb, Level, Warp, and Bow: Maximum 3 mm in 3 mwtwe (1/8 inch in 10 feet).
2. Variation from Plane: Maximum3 mm in 3.65 meter (1/8 inch in 12 feet); 6 mm (1/4 inch) over total length.
3. Variation from Alignment: Maximum 1.5 mm (1/16 inch) in-line offset and maximum3 mm (1/8 inch) corner offset.

4. Variation from Square: Maximum 3 mm (1/8 inch) diagonal measurement differential.

3.3 PROTECTION, CLEANING AND REPAIRING

A. Clean exposed aluminum and glass surfaces. Remove contaminants and stains.

B. Protect aluminum-framed entrances and storefronts from construction operations.

C. Remove protective materials immediately before acceptance.

D. Repair damage.

3.4 ADJUSTING

A. Adjust alignment of entrances and hardware for smooth, safe operation with minimum air infiltration.

B. Verify installation and alignment of all entrance gasketing as required for minimum air infiltration and compliance with specified standards.

3.5 DEMONSTRATION

A. Engage a factory-authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of the door.

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