SECTION 081216 - INTERIOR ALUMINUM DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Pre-finished aluminum door frames for interior use.
2. Pre-finished sound control aluminum door frames for interior use.
3. Pre-finished aluminum window frames for interior use.
4. Pre-finished aluminum framing systems for interior use.
5. Pre-finished aluminum doors for interior use.

B. Related Sections:

1. Division 01 Section “Sustainable Design Requirements” for additional LEED documentation and requirements.
2. Division 08 Section "Glazing" for glass view panels in interior aluminum doors.
3. Division 08 Section "Aluminum Entrances and Storefront" for glazed aluminum doors and framing used in exterior walls and vestibule enclosures.
4. Division 08 Sections "Flush Wood Doors", "Clad Wood Doors”, and "Stile and Rail Wood Doors" for wood doors used in interior aluminum frames.
5. Division 08 Sections "Door Hardware" and "Access Control Hardware" for door hardware used on interior aluminum doors and frames.
6. Division 26 "Electrical" Sections for electrical connections including conduit and wiring for door controls and operators installed on interior aluminum frames.
7. Division 28 Section "Access Control" for access control devices installed at interior aluminum frame openings and provided as part of a security access system.

C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. AAMA 603.8 - Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum.
2. AAMA 607.1 - Guide Specification and Inspection Methods for Clear Anodize Finishes for Architectural Aluminum.
3. AAMA 608.1 - Guide Specification and Inspections Methods for Electrolytically Deposited Color Anodic Finished for Architectural Aluminum.
4. AAMA 609 & 610-02 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum.

5. ASTM B221 - Standard Specification for Aluminum and Aluminum-alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
6. ASTM E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
7. ASTM E413 – Classification of Sound Rating Insulation.
8. NAAMM - "Metal Finishes Manual for Architectural and Metal Products'.
9. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
10. NFPA 252 – Standard Method of Fire Tests of Door Assemblies.
11. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
12. ICC/IBC - International Building Code.

1.3 SUBMITTALS

A. Submit under the provisions of Section 01300.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.

C. Templates: Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the interior aluminum door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.

D. Shop Drawings: Include the following:

1. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
2. Locations of reinforcement and preparations for hardware.
3. Details of each different wall opening condition. Include requirements for steel framing at partitions for fit and securing of frames, partition widths and tolerances, direction of framing members, clips and attachments.
4. Details of anchorages, joints, field splices, and connections.
5. Details of accessories.
6. Details of moldings, removable stops, and glazing.
7. Elevations of each door design.
8. Details of doors, including vertical and horizontal edge details and metal thicknesses.
9. Details of preparations for power, signal, and control systems.

E. Samples for Verification: Provide at the request of architect, prepared Samples as indicated below:

1. Framing Member: 12 inches long.
2. Corner Fabrication: 12-by-12-inch-long, full-size window corner, including full-size sections of extrusions with factory-applied color finish.
3. Aluminum chips in full range manufacturer’s standard finishes for architect’s color selection.

F. Interior Aluminum Door and Frame Schedule: Use same designations indicated on Drawings. Coordinate with Door Hardware schedule and glazing.

G. Informational Submittals

1. LEED Documentation: Submit manufacturer's environmental documentation and applicable sustainability program credits for MR-4 and that are specified herein. Submit manufacturer’s health product declaration (HPD) for products of this section.

2. Certificates of Compliance: Submit any product test report or information necessary to indicate compliance with this specification section.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain interior aluminum frames and doors through one source from a single qualified manufacturer.

B. Manufacturer Qualifications: A firm experienced in the manufacturing of interior aluminum framing systems and doors with a minimum five (5) years successful in-service performance providing product similar to those indicated for this project, including pre-engineering and pre-fabricating all components of aluminum framing systems and doors.

C. Installer Qualifications: An experienced installer with a minimum five years (5) experience who has completed aluminum framing systems and door installations similar in material, design, and extent to those indicated for this project and whose work has resulted in construction with a record of successful in-service performance.

D. Aesthetic Effects: 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.

E. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 (neutral pressure at 40" above sill) or UL 10C.

1. Provide labels permanently fastened on each frame or door within size limits established by NFPA and the testing authority.

F. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Label each individual glazed lite.

G. Smoke-Control Door Assemblies: Comply with NFPA 105.

H. Pre-Installation Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing interior aluminum frames and doors and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver interior aluminum frames and doors individually protective wrapped within cartons and marked for the corresponding scheduled opening. Do not bulk pack frames.

B. Inspect frames upon delivery for damage.

1. Repair minor damage to pre-finished products as recommended by manufacturer.
2. Replace frames that cannot be satisfactorily repaired.

C. Store interior aluminum frames and doors at Project site under cover and as near as possible to final installation location. Do not use covering material that will cause discoloration of aluminum finish.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of interior aluminum frame openings by field measurements before fabrication and indicate measurements on Shop Drawings submittals.

B. Do not install aluminum frames and doors until area of work has been completely enclosed and interior is protected from the elements.

C. Maintain temperature and humidity in areas of installation within reasonable limits, as close as possible to final occupancy standards. If necessary, provide artificial heating, cooling and ventilation to maintain required environmental conditions.

1.7 WARRANTY

A. Provide manufacturer's written warranty against defects in materials and workmanship upon final completion and acceptance of Work in this section.

1. Warrant framing and door finishes against defects and excessive fading and non-uniformity in color for a period of 5 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Frameworks Manufacturing.
2. Raco.
3. Versatrac Frames, a Division of American Door Products Inc.
4. Western Integrated Materials, Inc.

B. Substitutions: Material from alternate interior aluminum framing system and door fabricators will not be accepted on jobsite without prior written and sample approval in accordance with requirements specified in Division 01 and at the discretion of Architect and their designated openings consultant.

2.2 MATERIALS

A. Extruded Aluminum: ASTM B 221 alloy 6063-T5 or alloy and temper required to suit structural and finish requirements.

B. Recycled Content of Aluminum Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.

C. INTERIOR ALUMINUM FRAMES

1. Provide interior aluminum framing components complying with dimensions, profiles, and relationships to adjoining work of components as indicated on Drawings. Provide frames that are adjustable for partition types and throat openings, or that are fitted to each partition type, meeting the throat opening and required clearances per frame manufacturer's recommendations. Reinforce for specified hinges, strikes, and closers.

2. Type I Framing System: Provide frames with the following characteristics:

a. Rectilinear design.
b. 1-1/2 inch face profile, 9/32 inch return.
c. .062 inch rabbet wall thickness.
d. Throat sizes (drywall partition thickness): 3-3/4", 4-7/8".

3. Type II Framing System: Provide frames with the following characteristics:

a. Rectilinear design.
b. 1-1/2 inch face profile.
c. Snap on trim:

1) 1-1/4 inch.
2) 1-1/2 inch.
3) 2 inch.

d. .062 inch rabbet wall thickness.
e. Standard throat sizes (drywall partition thickness): 3-1/2", 3-3/4", 4-5/8", 4-7/8", 5-1/4", 5-1/2", 6-1/8" and 7-1/4".
f. Adjustable throat frames expandable from 2-7/8" up to 8-3/8".

4. Glass Trim: Extruded aluminum, not less than 0.062 inch thick, designed for glass thickness indicated with removable snap-in casing trim, glazing stops, and door stops without exposed fasteners.

5. Fire Rated Frames: Fabricate frames in accordance with NFPA80, listed and labeled by a qualified testing agency. Maximum fire rating required is 20 minutes (without hosestream test).

D. SOUND CONTROL INTERIOR ALUMINUM FRAMES – FOR WOOD DOORS

1. Provide frames that are rated as STC35 and have been tested per ASTM E90 and ASTM E413. Provide interior aluminum framing components complying with dimensions, profiles, and relationships to adjoining work of components as indicated on Drawings.

Reinforce for specified hinges, strikes, and closers. Frames are only to be used in conjunction with wood doors.

2. Type II Framing System: Provide frames with the following characteristics:

   a. Rectilinear design.
   b. Double rabbet profile.
   c. 1-1/2 inch face.
   d. Snap on trim:

      1) 1-1/4 inch.
      2) 1-1/2 inch.
      3) 2 inch.

   e. .062 inch rabbet wall thickness.
   f. Throat sizes (drywall partition thickness): 3-1/2", 3-3/4", 4-5/8", 4-7/8", 5-1/4", 5-1/2", 6-1/8" and 7-1/4".

3. Sound Seals: Furnish all necessary sound seals required to meet rating requirements.

4. Fire Rated Frames: Fabricate frames in accordance with NFPA80, listed and labeled by a qualified testing agency. Maximum fire rating required is 20 minutes (without hosestream test).

E. INTERIOR ALUMINUM DOORS

1. General: Provide 1-3/4 inch doors of type and design indicated, not less than 0.062 inch thick material.
2. Aluminum Stile & Rail Type Swinging Doors: Door stiles and rails to have tubular design with the following characteristics:

   a. Stiles:

      1) Narrow Stile (2-1/8").
      2) Medium Stile (3-3/4").
      3) Wide Stile (5").

   b. Rails:

      1) 1-1/2" Top Rail.
      2) 3-3/4" Top/Bottom Rail.
      3) 6" Top/Bottom Rail.
      4) 9-1/2" Bottom Rail.

3. Snap-in stops with factory applied glazing gaskets for 1/4", 3/8", or 1/2" thick glass.

F. Aluminum Stile & Rail Sliding Type Doors: Subject to the same tubular design standards as Stile & Rail Type Swinging Doors with the following characteristics.

1. Sliding door track to be installed in properly blocked ceiling or wall above frame, or to header clip (by manufacturer) attached to the frame header. Sliding track to be provided with snap on covers.
2. Sliding Door Hardware:

    a. Tricycle Rollers: 2 each per panel. Maximum 1 each roller per 75 lbs.
    b. Provide bumper stops in track assemblies.
    c. Provide concealed door guide at floor (track assemblies are not allowed).

2.3 ACCESSORIES

A. Fasteners: Aluminum, nonmagnetic, stainless-steel or other noncorrosive metal fasteners compatible with frames, stops, panels, reinforcement plates, hardware, anchors, and other items being fastened.

B. Door Silencers: Manufacturer's standard continuous mohair, wool pile, or vinyl seals.

C. Glazing Gaskets: Manufacturer's standard extruded or molded plastic, to accommodate glazing thickness indicated.

D. Glazing: Comply with requirements in Division 08 Section, "Glazing."

E. Hardware: As specified in Division 08 Section, "Door Hardware".

2.4 FABRICATION

A. FRAME CONSTRUCTION

1. Factory pre-engineer and pre-cut interior aluminum frame components to the greatest extent practical. Linear glazing components fabricated in the field are not allowed. Allow for 2 inches excess vertical length for scribing to suit floor conditions. Face trim to be pre-cut to match jamb lengths. Machine jambs and prepare for hardware, with concealed plates, drilled and tapped as required, fastened in frame with concealed screws.
2. Provide concealed corner reinforcements and alignment clips for precise joints at butt or mitered connections.
3. Hardware Preparation: Factory interior aluminum frames to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates as specified in Division 08 Section, "Door Hardware."

    a. Reinforce frames to receive surface mounted door hardware. Machine jambs and prepare for hardware, with concealed reinforcement plates, drilled and tapped as required and fastened within frame with concealed screws.
    b. Locate hardware as indicated.
    c. Coordinate locations of conduit, wiring boxes, and power transfers for electrical connections with Division 26 Sections.

4. Fabricate frames for glazing with removable stops to allow glazing replacement without dismantling frame.
5. Fabricate all components to allow secure installation without exposed fasteners.

B. DOOR CONSTRUCTION

1. Factory pre-engineer aluminum doors and components to the greatest extent practical.
2. Hardware Preparation: Factory interior aluminum doors to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates as specified in Division 08 Section, "Door Hardware."

    a. Reinforce doors to receive surface mounted door hardware. Machine and prepare for hardware, with concealed reinforcement plates, drilled and tapped as required and fastened within door with concealed screws.
    b. Locate hardware as indicated.
    c. Coordinate locations of conduit and power transfers for electrical connections with Division 26 Sections.

3. Clearances for Non-Fire-Rated Door Frames: Not more than 1/8 inch at jambs and heads, not more than 1/4 inch between pairs of doors. Not more than 3/4 inch at bottom.
4. Fabricate kits for glazing with removable stops to allow glazing replacement without dismantling.

2.5 ALUMINUM FINISHES

A. General: Comply with NAAMM’s "Metal Finishes Manual for Architectural and Metal Products' for recommendations for apply and designated finishes. Exposed surfaces to be free of scratches and other serious blemishes.

B. Factory finish extruded frame components so that any part exposed to view upon completion of installation will be uniform in finish and color.

C. Polyester Finish: Comply with AAMA 603.8; multiple-stage electrostatically applied thermoset polyester finish, baked to assure hardness.

1. Color: Custom paint color to match architect sample.
2. Color: Manufacturer’s standard bronze.
3. Color: Manufacturer’s standard gray.
4. Color: Manufacturer’s standard black.
5. Color: Manufacturer’s standard white.

D. Clear anodic coating: Comply with AAMA 607.1.

1. Class 2, AAM12C22A31 clear anodized coating, 0.4-.07 mill thickness minimum.

E. Color anodic coating: Comply with AAMA 608.1.

1. Class 2, AAM12C22A34 color coating electrolytically deposited, 0.4-0.7 mill thickness minimum.

    a. Color: Bronze anodized.
    b. Color: Black anodized.

2. Class 2, AAM12C22A44 color coating electrolytically deposited, 0.4-0.7 mill thickness minimum.

    a. Color: Bronze anodized.
    b. Color: Black anodized.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify wall thickness does not exceed standard tolerances allowed by specified frame throat sizes.

C. General Contractor to verify the accuracy of dimensions given to frame and door manufacturer for pre-cut openings.

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

3.2 INSTALLATION

A. General: Install and set interior aluminum frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

1. At fire-protection-rated openings, install frames according to NFPA 80.

B. Install frame components in the longest possible lengths with no component less than 48 inches.

1. Fasten to suspended ceiling grid at 48 inches on center maximum, using #6 sheet metal screws or other fasteners approved by frame manufacturer.
2. Use concealed installation clips to produce tightly fitted and aligned splices and connections.
3. Secure clips to extruded main-frame components and not to snap-in or trim members.
4. Do not use screws or other fasteners exposed to view when installation is complete.

3.3 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition.

B. Clean exposed frame surfaces promptly after installation, using cleaning methods recommended by frame manufacturer and according to AMMA 609 & 610.

C. Touch up marred areas so that touch up is not visible from a distance of 48 inches. Remove and replace frames that cannot be satisfactorily repaired.

3.4 PROTECTION

A. Provide protection as required to assure that frames will be without damage or deterioration upon substantial completion of the project.

END OF SECTION 081216