

SECTION 08 4000

ALUMINUM-FRAMED FAÇADE SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes sliding aluminum-framed swinging doors, operable windows, and trim for exterior locations.
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Other Documents and Sections that directly relate to work of this Section include, but are not limited to:
 - 1. General provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections.
 - 2. Section 07 4213.16 - METAL PLATE WALL PANELS
 - 3. Section 07 4243 - COMPOSITE METAL WALL PANELS
 - 4. Section 07 4247 - HIGH PERFORMANCE GFRC WALL PANELS
 - 5. Section 07 9200 - JOINT SEALANTS
 - 6. Section 08 4113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS.
 - 7. Section 08 7100 - DOOR HARDWARE.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, and the following:
 - 1. Mullion details for fenestration combinations including reinforcement and stiffeners.
 - 2. Joinery details.
 - 3. Expansion provisions.
 - 4. Flashing and drainage details.
 - 5. Weather-stripping details.
 - 6. Thermal-break details.
 - 7. Glazing details.
 - 8. Accessories.
- C. Samples for Initial Selection: For each type of façade system indicated.
 - 1. Include similar Samples of hardware and accessories involving color selection.
- D. Warranty: Sample of special warranty.
- E. Maintenance Data: For finishes, weather stripping, doors, and operating hardware to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating façade systems that meet or exceed performance requirements indicated and of documenting this performance by inclusion in

lists and by labels, test reports, and calculations.

- B. Installer Qualifications: An installer acceptable to façade system manufacturer for installation of units required for this Project.
- C. Source Limitations: Obtain façade systems from single source from single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of façade systems and are based on the specific system indicated. Do not modify size and dimensional requirements.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- E. Fenestration Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440, "Standard/Specification for Windows, Doors, and Unit Skylights," for minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.
 - 1. Provide AAMA-certified, façade systems with an attached label.
- F. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.
- G. Preinstallation Conference: Conduct conference at Project site.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of façade system openings by field measurements before fabrication.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of façade systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection.
 - c. Water leakage or air infiltration.
 - d. Faulty operation of movable sash and hardware.
 - e. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - f. Deterioration of insulating glass as defined in Section 08 8000 - GLAZING.
 - 2. Warranty Period:
 - a. Sliding Door: Three years from date of Substantial Completion.
 - b. Glazing: 10 years from date of Substantial Completion.
 - c. Metal Finish: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Provide products of one of the following, or equivalent acceptable to the Architect:

1. Reynaer
2. Schuco
3. Fleetwood,

B. Basis-of-Design Product: Subject to compliance with requirements, provide products of Reynaers Aluminum, as follows:

1. Reynaers Slimline 38

2.2 MATERIALS

A. Aluminum Extrusions: Provide alloy and temper recommended by façade system manufacturer for strength, corrosion resistance, and application of required finish. Comply with AAMA/WDMA/CSA 101/I.S.2/A440.

B. Fasteners: Provide fasteners of aluminum, nonmagnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive for SC 3 severe service conditions and compatible with members, trim, hardware, anchors, and other components of façade systems. Comply with AAMA/WDMA/CSA 101/I.S.2/A440.

1. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

C. Anchors, Clips, and Accessories: Provide anchors, clips, and accessories of aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron for façade systems, complying with ASTM B 456 or ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Provide aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel reinforcing members that are noncorrosive for SC 3 severe service conditions and that comply with AAMA/WDMA/CSA 101/I.S.2/A440; provide sufficient strength to withstand design pressure indicated.

E. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action, and completely concealed when façade system is closed.

1. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA/CSA 101/I.S.2/A440.

F. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701.

1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 702.

G. Sealant: For sealants required within façade system, provide manufacturer's standard, permanently elastic, nonshrinking, and nonmigrating type recommended by sealant manufacturer for joint size and movement.

2.3 GLAZING

A. Glass and Glazing System: Comply with Section 08 8000 - GLAZING for glass and glazing requirements applicable to glazed façade systems.

- B. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal and complies with requirements for windborne-debris resistance.

2.4 HARDWARE

- A. General: Provide manufacturer's standard hardware, fabricated from a corrosion-resistant material compatible with aluminum complying with AAMA 907 and designed to smoothly operate, tightly close, and securely lock façade systems. Do not use aluminum in frictional contact with other metals.
 - 1. Hardware Finish: Manufacturer's standard.
- B. Roller Assemblies: Provide movable panels with adjustable-height roller assemblies, complying with AAMA 906, consisting of self-lubricating, dual tandem manufacturer's standard nylon or steel ball-bearing rollers; with two roller assemblies per panel.
- C. Threshold and Sill Cap/Track: Provide extruded-aluminum threshold and track of thickness, dimensions, and profile indicated; designed to comply with performance requirements indicated and to drain to the exterior; with manufacturer's standard finish.
- D. Door Pulls: Provide manufacturer's standard extruded-aluminum pull grips.
- E. Lock: Install manufacturer's keyed cylinder lock and locking device on each movable panel, lockable from the inside and outside. Adjust locking device to allow unobstructed movement of the panel across adjacent panel in the direction indicated.
- F. Door Operator: Door operator shall integrate with phone control/app compatible with owner's Ubiquiti equipment.

2.5 FABRICATION

- A. Fabricate façade systems in sizes indicated. Include a complete system for assembling components and anchoring doors.
- B. Fabricate façade systems that are reglazable without dismantling panel framing.
- C. Trim and Sills:
 - 1. Custom Extrusions:
 - a. Provide custom extruded aluminum trim, factory welded and ground smooth at locations indicated.
 - b. Provide custom extruded aluminum sill extensions in profiles shown, with upturned end dams.
 - 2. Brake metal shapes will not be acceptable.
 - 3. Minimum wall thickness shall be 0.050 inches.
- D. Thermally Improved Construction: Fabricate façade systems with an integral, concealed, low-conductance thermal barrier; locate between exterior materials and door members exposed on interior side, and in a manner that eliminates direct metal-to-metal contact.
 - 1. Provide thermal-break construction that has been in use for not less than three years and has been tested to demonstrate resistance to thermal conductance and condensation and to show adequate strength and security of glass retention.
 - 2. Provide hardware with low conductivity, or provide nonmetallic material for hardware bridging thermal breaks at frame.

- E. Weather Stripping: Provide operable panels with a double row of sliding weather stripping in horizontal rails and single- or double-row weather stripping in meeting or jamb stiles. Provide compression-type weather stripping at the perimeter of each movable panel where sliding-type weather stripping is not appropriate.
 - 1. Provide weather stripping locked into extruded grooves in door panels or frames.
- F. Weep Holes: Provide weep holes and internal drainage passages to conduct infiltrating water to exterior.
- G. Factory-Glazed Fabrication: Glaze façade systems in the factory where practical and possible for applications indicated. Comply with requirements in Section 08 8000 "Glazing" and with AAMA/WDMA/CSA 101/I.S.2/A440.
- H. Glazing Stops: Provide snap-on glazing stops coordinated with Section 08 8000 "Glazing" and with glazing system indicated. Provide glazing stops to match panel frames.

2.6 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

- A. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 - 1. Color: Dark bronze.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.
 - 2. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
- B. Verify rough opening dimensions, levelness of threshold substrate, and operational clearances.
- C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight façade system installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing doors, hardware, accessories, and other components.
- B. Install façade systems level, plumb, square, true to line, without distortion, warp or rack of frames and panels, or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing, vapor retarders, air barriers, water/weather barriers, and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, to provide weathertight construction.
- D. Install façade systems and components to drain condensation, water penetrating joints, and moisture migrating within doors to the exterior.
- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials according to ASTM E 2112, Section 5.12 "Dissimilar Materials."

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Lubricate hardware and moving parts.
- B. Adjust operating panels and screens to provide a tight fit at contact points and weather stripping for smooth operation, without binding, and a weathertight closure.
- C. Adjust hardware for proper alignment, smooth operation, and proper latching without unnecessary force or excessive clearance.
- D. Clean aluminum surfaces immediately after installing sliding doors. Comply with manufacturer's written recommendations for final cleaning and maintenance. Avoid damaging protective coatings and finishes. Remove nonpermanent labels, and clean surfaces.
- E. Clean glass immediately after installing façade systems. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
- F. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- G. Protect sliding door surfaces from contact with contaminating substances resulting from construction operations. During construction, monitor sliding door surfaces adjacent to and below exterior concrete and masonry surfaces for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact façade system surfaces, remove contaminants immediately according to manufacturer's written instructions.
- H. Refinish or replace façade systems with damaged finishes.
- I. Replace damaged components.

END OF SECTION