

SECTION 08550

WOOD WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following aluminum-clad wood-framed window types:
- B. This Section includes the following wood-framed window types:

1.2 PERFORMANCE REQUIREMENTS

- A. General: Provide wood windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified and that are of test size indicated below:
 - 1. Minimum size required by AAMA/WDMA 101/I.S.2.
 - 2. Minimum size required by gateway performance requirements for determining compliance with AAMA/WDMA 101/I.S.2 for both gateway performance requirements and optional performance grades.
 - 3. Size indicated.
- B. AAMA/WDMA Performance Requirements: Provide wood windows of the performance class and grade indicated that comply with AAMA/WDMA 101/I.S.2.
 - 1. Performance Class and Grade:
 - a. Awning Windows: C 40.
 - b. Casement Windows: C 40.
 - c. Fixed Windows: C 40.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of wood window indicated.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other Work, operational clearances, and the following:
 - 1. Mullion details, 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. Window cleaning provisions.
- C. Samples for Selection: Submit color samples with factory-applied color finishes.

- D. Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency, for each type, grade, and size of wood window. Test results based on use of down-sized test units will not be accepted.
- E. Maintenance Data: For operable window sash, operating hardware, weather stripping, and finishes to include in maintenance manuals.
- F. LEED Submittal:
 - 1. Credit MR 2.1 and 2.2: Comply with Division 1 Section "Construction Waste Management."

1.4 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 - 1. Failure to meet performance requirements.
 - 2. Structural failures including excessive deflection.
 - 3. Water leakage, air infiltration, or condensation.
 - 4. Faulty operation of movable sash and hardware.
 - 5. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 6. Insulating glass failure.
- B. Warranty Period: 10 years from date of Substantial Completion.
- C. Warranty Period for Glass: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Aluminum-Clad Wood Windows:
 - a. Marvin Windows and Doors.

2.2 MATERIALS, GENERAL

- A. Wood: Clear ponderosa pine or another suitable fine-grained lumber; kiln-dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch (0.8 mm) deep by 2 inches (51 mm) wide; water-repellent preservative treated.
 - 1. Provide exterior and interior mahogany where indicated.
- B. Aluminum Extrusions and Rolled Aluminum for Cladding: Manufacturer's standard formed sheet or extruded-aluminum cladding, mechanically bonded to exterior exposed wood members. Provide aluminum alloy and temper recommended by wood window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength, and not less than 16,000-psi (110-MPa) minimum yield strength.

1. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 2. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
 3. 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.
 - a. Fluoropolymer Two-Coat System: Manufacturer's standard two-coat, thermocured 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 2605.
 - 1) Color and Gloss: As selected by Architect from manufacturer's full range.
- C. Wood Trim and Glazing Stops: Material and finish to match frame members.
- D. Clad Trim and Glazing Stops: Hollow extrusions or Clad-wood material; material and finish to match clad frame members.
- E. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with wood window members, cladding, trim, hardware, anchors, and other components.
 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.
- F. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- G. Reinforcing Members: Aluminum, nonmagnetic stainless steel, nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- H. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action, and completely concealed when wood window is closed.
 1. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA 101/I.S.2.
- I. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.
 1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material.
- J. Replaceable Weather Seals: Comply with AAMA 701/702.

2.3 GLAZING

- A. Glass: Manufacturer's standard factory-glazing system of Clear, insulating-glass with low-e coating or film, argon-gas filled units. Tempered where required by Code.
- B. Laminated Glazing: Provide laminated glazing panel at Workroom G11.
- C. Plywood Panels: Provide marine grade mahogany plywood panels where indicated. Provide exposed mahogany veneer at exterior and interior of panels.

2.4 HARDWARE

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with wood and aluminum cladding; designed to smoothly operate, tightly close, and securely lock wood windows and sized to accommodate sash or ventilator weight and dimensions. Do not use aluminum in frictional contact with other metals. Where exposed, provide die-cast zinc with special coating finish.
- B. Locks and Latches: Designed to allow unobstructed movement of the sash across adjacent sash in direction indicated and operated from the inside only.
- C. Gear-Type Rotary Operators: Comply with AAMA 901 when tested according to ASTM E 405, Method A.
 - 1. Operation Function: All ventilators move simultaneously and securely close at both jambs without using additional manually controlled locking devices.
- D. Four- or Six-Bar Friction Hinges: Comply with AAMA 904.
 - 1. Locking mechanism and handles for manual operation.
 - 2. Friction Shoes: Provide friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.

2.5 INSECT SCREENS

- A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Locate screens on inside of window and provide for each operable exterior sash or ventilator.
- B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.
 - 1. Aluminum Tubular Framing Sections and Cross Braces: Roll-formed from aluminum sheet with minimum wall thickness as required for class indicated.
 - 2. Finish: Baked-on organic coating in color selected by Architect from manufacturer's full range.
- C. Glass-Fiber Mesh Fabric: 18-by-14 (1.4-by-1.8-mm) or 18-by-16 (1.4-by-1.6-mm) mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration in the following color. Comply with ASTM D 3656.
 - 1. Mesh Color: Charcoal gray.

2.6 ACCESSORIES

- A. Simulated Divided Lites: Not used.

2.7 FABRICATION

- A. General: Fabricate wood windows, in sizes indicated, that comply with AAMA/WDMA 101/I.S.2 for performance class and performance grade indicated. Include a complete system for assembling components and anchoring windows.
- B. General: Fabricate wood windows, in sizes indicated, that comply with requirements and that meet or exceed AAMA/WDMA 101/I.S.2 performance requirements for the following window type and performance class. Include a complete system for assembling components and anchoring windows.
 - 1. Awning Windows: C.
 - 2. Casement Windows: C.
 - 3. Fixed Windows: C.
- C. Fabricate wood windows that are reglazable without dismantling sash or ventilator framing.
- D. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator, unless otherwise indicated.
 - 1. Double-Hung Windows: Provide weather stripping only at horizontal rails of operable sash.
- E. Factory machine windows for openings and hardware that is not surface applied.
- F. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- G. Factory-Glazed Fabrication: Except for light sizes in excess of 100 unites inches (2500 mm width plus length), glaze wood windows in the factory where practical and possible for applications indicated. Comply with requirements in Division 8 Section "Glazing" and with AAMA/WDMA 101/I.S.2.
- H. Glazing Stops: Provide nailed or snap-on glazing stops coordinated with Division 8 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.
- I. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

2.8 WOOD FINISHES

- A. Factory-Primed Windows: Provide manufacturer's standard factory-prime coat on exposed interior pine surfaces.

- B. Provide unfinished interior surfaces where mahogany is indicated.

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; rough opening dimensions; levelness of sill plate; coordination with wall flashings, vapor retarders, and other built-in components; and other conditions affecting performance of work.
 - 1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2. 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.
 - 3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components; Drawings; and Shop Drawings.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/WDMA 101/I.S.2.

3.3 ADJUSTING

- A. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.4 PROTECTION AND CLEANING

- A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION