

SECTION 08550

WOOD WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes fixed and operable wood-framed windows of the following type:
  - 1. Casement
  - 2. Operable Awning
  - 3. Sliding Door Units

1.3 DEFINITIONS

- A. Performance class designations according to AAMA/WDMA 101/I.S.2/A440-08:
  - 1. AW
  - 2. CW
  - 3. LC
  - 4. R.
- B. Performance grade number according to AAMA/WDMA 101/I.S.2/A440-08:
  - 1. Design pressure number in pounds force per square foot used to determine the structural test pressure and water test pressure.
- C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.
- D. Minimum Test Size: Smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 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, installation details, and the following:
  - 1. Flashing and drainage details.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
  - 1. Include similar Samples of hardware and accessories involving color selection.
- D. Samples for Verification: For wood windows and components required, prepared on Samples of size indicated below.
  - 1. Window Corner Fabrication: 12--by-12-inch- long, full-size window corner including full-size sections of window frame with factory-applied color finish, weather stripping,
- E. Product Schedule: For wood windows. Use same designations indicated on Drawings.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of wood window. The size shall be at least as large as the largest unit of each type in the project.
- G. Maintenance Data: For operable window sash operating hardware weather stripping and finishes to include in maintenance manuals.
- H. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating wood windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.
- B. Source Limitations: Obtain wood windows through one source from a single manufacturer.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of wood windows and are based on products supplied by Pella Corporation. Refer to Division 1 Section "Product Requirements." 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.

- D. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/A440-08, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
  - 1. Provide AAMA/WDMA Hallmark-certified wood windows with an attached label.
- E. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.
- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to wood windows including, but not limited to, the following:
  - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 2. Review, discuss, and coordinate the interrelationship of wood windows with other exterior wall components. Include provisions for structural anchorage, glazing, flashing, weeping, sealants, and protection of finishes.
  - 3. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
  - 4. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

## 1.6 PROJECT CONDITIONS

- 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating wood windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

## 1.7 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.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure to meet performance requirements.
    - b. Structural failures including excessive deflection, water leakage, air infiltration
    - c. Faulty operation of movable sash and hardware.
    - d. Deterioration of wood, metals, vinyl, other materials, and finishes beyond normal weathering.
    - e. Failure of insulating glass.
  - 2. Warranty Period:

- a. Window: Ten years from date of Substantial Completion.
- b. Insulating glass Twenty years from date of Substantial Completion.
- c. Laminated Glass: 5 years from date of Substantial Completion.
- d. Metal Finish (Baked Enamel): Ten years from date of Substantial Completion.
- e. Labor: Two Years from Substantial Completion

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- 1. Aluminum-Clad Wood Windows: The following windows will be considered
  - a. Pella Windows Architect Series
  - b. Anderson E Series
  - c. Eagle
  - d. Anderson A Series
  - e. Unilux
  - f. Marvin Ultimate

### 2.2 MATERIALS

- 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 deep by 2 inches wide; water-repellent preservative treated.
- 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 ultimate tensile strength, and not less than 16,000-psi minimum yield strength.
  - 1. Baked-Enamel Finish for Extrusions and Sheet: Manufacturer's standard baked enamel complying with AAMA 2604 and paint manufacturer's written specifications for cleaning, conversion coating, and painting.
    - a. Color: as selected by Architect
      - 1) Color and Gloss: As selected by architect from manufacturer's full offering.
  - 2. Baked-Enamel Finish for Coil: Manufacturer's standard baked enamel complying with AAMA 2604 and paint manufacturer's written specifications for cleaning, conversion coating, and painting.
    - a. Color: as selected by Architect
- C. Wood Trim Material and finish to match frame members.

- D. Clad Trim Hollow extrusions Roll-formed sheet 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, Nail Fins, 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, or nonmagnetic stainless steel, or 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 for complete concealment when wood window is closed.
  - 1. Weather-Stripping Material: Dual weather stripping, consisting of continuous, flexible polyvinyl chloride material in dual durometer design. Vent units have welded corners, compressed between frame and sash for positive seal on all four sides. Secondary polyvinyl chloride leaf-type weather strip between edge of sash and frame.
- 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.
- J. Replaceable Weather Seals: Comply with AAMA 701/702.
- K. Nail Fins: Folding aluminum

## 2.3 WINDOW

- A. Window Type: Architect Series, single hung, fixed casement and operable awnings.
- B. AAMA/WDMA Performance Requirements: Provide wood windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/A440-08
  - 1. Performance Class and Grade: Single Hung = LC 50, Fixed Casement = R 50, Awning = R 50.
  - 2. U-Factor: 0.30 Btu/sq.ft.

3. Windows must comply with guidelines set forth in Maine Housing's Green Building Standards.

C. Solar Heat-Gain Coefficient (SHGC): Provide wood windows with a whole-window SHGC maximum of 0.21 (11-16" Sun Defense Low-E IG with argon with 2.5 mm glass).

## 2.4 GLAZING

A. Glass and Glazing Materials: Refer to Division 8 Section "Glazing" for glass units and glazing requirements applicable to glazed wood window units.

B. Glass Insulating-glass units, with low-E coating argon gas filled, with sputtered on second surface, manufactured by Cardinal complying with Division 8 Section "Glazing."

C. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

D. 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 to the exterior, provide stainless steel.

E. Counterbalancing Mechanism: Comply with AAMA 902.

1. Sash-Balance Type: Concealed, spring-loaded, block-and-tackle type, of size and capacity to hold sash stationary at any open position.

F. Gear-Type Rotary Operators: Comply with AAMA 901 when tested according to ASTM E 405, Method A.

G. Limit Devices: Provide limited open devices designed to restrict sash or ventilator opening.

1. Safety Devices: Limit clear opening to 4 inches for ventilation..

## 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. Fabricate insect screens to fully integrate with window frame. Locate screens on inside or outside 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 or corner extrusions, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.

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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 manufacturer's standard color.
- C. Glass-Fiber Mesh Fabric: 18 by 18 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: Black.
- D. High Transparency Mesh Fabric: 21-by-17 PVDF mesh with minimum 78 percent visible light transmission screen cloth complying with FS L-S-125B and SMA 1004 or SMA 1201 that is resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration; black.

### 2.6 ACCESSORIES

### 2.7 FABRICATION

- A. Fabricate wood windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator, unless otherwise indicated.
- C. Factory machine windows for openings and for hardware that is not surface applied.
- D. 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.
- E. Factory-Glazed Fabrication: 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/A440-08.

### 2.8 INTERIOR WOOD FINISHES

- A. Interior finish to be hardwood.

## 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. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
  - 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 of opening.
  - 2. 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 windows, hardware, accessories, and other components.
- 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. Install windows to be weather-tight and freely operating.
- D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.
- E. For fin method of attachment, integrate window system installation with exterior weather-resistant barrier using flashing/sealant tape. Apply and integrate flashing/sealant tape with weather-resistant barrier using watershed principles in accordance with window manufacturer's instructions.
- F. Place interior seal around window perimeter using insulating foam sealant to maintain continuity of building thermal and air barrier.
- G. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.
- H. Leave window units closed and locked.

### 3.3 ADJUSTING, CLEANING, AND PROTECTION

- 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.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

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- 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.
- E. 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.

END OF SECTION