



PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Factory-assembled extruded aluminum-clad wood hung windows
- B. Glass and glazing
- C. Weatherstripping, hardware, [insect screens],[muntin bars]
- D. Anchorages, attachments, and shims

1.02 RELATED SECTIONS

- A. Section [04200 – Unit Masonry]: Units in Masonry
- B. Section [0610 – Rough Carpentry]: Framed openings
- C. Section [07210 – Building Insulation]: Batt insulation at window perimeter
- D. Section [07900 – Joint Sealers]: Perimeter Joint Sealant and Backer Rod
- E. Section [09900 – Painting]: Finishing interior wood, including removable grilles

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM C 1048-04 – Specification for Heat Treated Float Glass-Kind HS, Kind FT Coated & Uncoated.
 - 2. ASTM C 1036-06 - Specification for Flat Glass
 - 3. ASTM E 1300-09 -Standard Practice for Determining Load Resistance of Glass in Buildings
 - 4. ASTM 2188-02 – Test Method for Seal Durability of Insulating Glass Units
 - 5. ASTM E 2190-08 – Standard Specification For Insulating Glass unit Performance & Evaluation
 - 6. ASTM E 283– Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen
 - 7. ASTM E 330– Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference
 - 8. ASTM 547– Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential
 - 9. ASTM F 588– Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing
- B. Window and Door Manufacturers Association (WDMA)
 - 1. WDMA I.S.-2 – Industry Standard for Wood Windows
 - 2. WDMA I.S.-4– Industry Standard for Water Repellent Preservative Non-Pressure Treatment for Millwork
- C. American Architectural Manufacturers Association (AAMA)
 - 1. AAMA 701-04 & 702-04 – Combined Voluntary Specification for Pile Weatherstripping and Voluntary Specification for Replacement fenestration Weatherseals.
 - 2. AAMA 2603-02 – Voluntary Specification for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
 - 3. AAMA 2604-Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
 - 4. AAMA 2605-Voluntary Specification Performance Requirements and Test Procedures for Superior Organic Coatings on Aluminum Extrusions and Panels
- D. National Fenestration Rating Council (NFRC):
 - 1. NFRC 100-2004 – Procedure for Determining Fenestration product U-Factors
 - 2. NFRC 200-2004 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient at Normal Incidence

1.04 PERFORMANCE REQUIREMENTS

- A. Window units shall meet Rating H-R30 specifications in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05, except where more stringent requirements are specified. (Optional Rating: H-R45, H-R50)
- B. Window unit air leakage, when tested in accordance with ASTM E 283 Shall be 0.30 cfm/ft• of frame or less.
- C. No water penetration beyond the interior face of the window when tested in accordance with ASTM E 547 under static pressure of 4.5 psf (42 mph) after 4 cycles of 5 minutes each separated by 1 minute with pressure released, with water being applied continuously, at a rate of 5 gallons per hour per square foot. (Optional Pressure of 7.5 psf (54 mph) for more stringent requirements)
- D. Window units shall withstand positive and negative pressures of 45.0 psf (133 mph) acting normal to the plane of the window. Units shall have no permanent deformation in excess of 1/175 of its span when tested in accordance with ASTM E 330. (Optional Pressure of up to 75psf (172 mph) for more stringent requirements)
- E. Window shall comply with Forced Entry Resistance requirements for a Level 10, when tested in accordance with ASTM F 588.
- F. Window units shall be rated, certified, and labeled in accordance with NFRC 100-2004. U-Factors: 0.33 Cardinal E270 LowE glass (Specific glazing options and values may be obtained from the Product Data Sheet on the web)
- G. Window units shall be rated, certified and labeled in accordance with NFRC 200-2004. Solar Heat Gain Coefficient: 0.29 Cardinal E270 LowE glass (Specific glazing options and values may be obtained from the Product Data Sheet on the web)



1.05 SUBMITTALS

- A. Submit in accordance with conditions of Division 1 requirements and the contract.
- B. Product Data: Submit Manufacturers product data.
- C. Shop Drawings: Typical jamb, head and sill details showing layout and installation of typical and composite members, necessary dimensioning, hardware and muller unit details. Submit elevations indicating location and type of glazing material.
- D. Samples: Provide (1) complete window assembly for approval of color, glazing systems and Quality of construction.

1.06 QUALITY ASSURANCE

- A. Provide proof of compliance with AAMA/WDMA/CSA 101/I.S.2/A440-08, ASTM 2190-08 rating for Seal Durability of Insulating Glass Units

1.07 PROJECT CONDITIONS

- A. For renovation projects, all actual window openings will be checked by accurate field measurement before fabrication.
- B. Coordinate window fabrication schedule with construction progress to avoid delays.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site in manufacturers packaging undamaged, complete with installation instructions.
- B. Store windows and accessories off ground, under cover, protected from weather and construction activities.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. SunClad USA Double Hung units as manufactured by Sun Windows, Inc., Owensboro, Kentucky: Factory-assembled extruded aluminum-clad wood window with sash installed in the frame.

2.02 COMPONENTS

- A. Frame: Select kiln dried Western Pine, water-repellent, preservative –treated in accordance with WDMA I.S. 4. Interior exposed surfaces clear Western Pine; all exterior surfaces clad with 0.050" extruded aluminum at head, jamb, and sill and incorporate an integral aluminum nail fin as part of the extrusion. Overall frame depth: 6" (153 mm) for a wall depth of 4-9/16" (116 mm). Optional factory applied jamb extensions available up to 7-9/16" wall depths. Jambliner shall be high impact, Exterior weathering grade polyvinyl chloride with locking clutch balance shoes.
- B. Sash: Select kiln dried Western Pine, water-repellent, preservative –treated in accordance with WDMA I.S. 4. Interior exposed surfaces clear Western Pine; all exterior surfaces clad with 0.045" extruded aluminum, mitred. Wood corners lap-jointed, glued and secured with metal fasteners. Sash thickness: 1-3/8" (35mm). Glass shall be set to the sash frame using an AAMA approved silicone glazing material and secured with interior profiled wood stops.
- C. Glazing System: Sealed insulating glass shall be produced using quality float glass complying with ASTM C-1036-06. [clear/clear], [clear/argon filled, Low-E II coated]. Various tints, obscure, tempered and laminated options are also available. Dual sealed insulating glass will have a 1/2" air space with the revolutionary Duralite™ Warm Edge I.G. Spacer. Insulated glass meets or exceeds standards required by ASTM E 2190-08.
- D. Weatherstripping: rigid dual wall parting stop with flexible hinge at head and custom dual durometer bulb at sill: Polyvinyl chloride leaf style with flexible urethane hinge set into upper sash for tight contact at checkrail. Secondary dual durometer, foam weatherstrip at bottom sash at sill. Secondary fin-seal weatherstrip at head. PVC jambliner at sides of sash with fin-seal pad at checkrail. Weatherstrip meets or exceeds standards required by AAMA 702-04.

The following five paragraphs specify optional products sold separately. Consult manufacturer and edit accordingly.

- E. Insect Screen: [Full] [Half] size with charcoal vinyl-coated BetterVue® mesh fiberglass screen cloth, set in 0.020" roll form aluminum frame fitted to inside of window, supplied complete with all necessary hardware. [optional: UltraVue® mesh]
- F. Extruded Insect Screen: [Full] [Half] size with charcoal vinyl-coated BetterVue® mesh fiberglass screen cloth, set in 0.050" extruded aluminum frame fitted to inside of window, supplied complete with all necessary hardware. [optional: UltraVue® mesh]
- G. Interior Removable Wood Grilles: [1" profile], [1-1/4" profile] removable solid wood bars dado and notched at joints and fitted to sash with clear plastic slide latch with steel pin. Surfaces unfinished [optional: white], ready for site finishing.
- H. Grilles- Between- Glass (GBG): [3/4" contour profile], [1/4" profile] Roll form aluminum bars fitted between the panes of glass in the specified insulated glass unit. 3/4" internal contour grille (GBG) finish shall be baked enamel, 1-color options [white], [sand], [bronze], [vanilla], and [special]. 2 color options [white/sand], [sand/white], [bronze/white], [white/bronze].
- I. Simulated Divided Lite Grilles (SDL): Exterior muntin bars shall be 1/8" thick by 1" wide [optional 1-1/4" wide] [optional: 2-1/4" wide] profile, solid extruded aluminum bars. Bars shall be adhered to exterior glass surface with black VHB acrylic adhesive tape and will align with interior muntin, Interior muntin bars shall be of 1" [optional 1-1/4" wide] [optional: 2-1/4" wide] Wood grilles with acrylic adhesive tape application. Exterior surfaces finished to match window cladding. Interior surfaces unfinished, ready for site finishing, [optional: white].



2.03 HARDWARE

- A. Balance System: Spring balances connected to sash and concealed within the jamb liner. Incorporates locking pivot shoe when tilted 90°.
- B. Locks/Keepers/Finger Latches: High-pressure, corrosion resistant, die cast zinc recessed sash lock/keeper factory installed. Two sash locks on units with 32" frame width or greater. Recessed finger latches for restraining lower sash. Finish shall be baked enamel. Locks meet or exceed requirements by AAMA 1302.5.

2.04 CERTIFICATIONS

Sun Windows are certified to the following programs, using Independent Testing Laboratories.

- A. WDMA Hallmark Certification Program
- B. NFRC (National Fenestration Rating Council)

2.05 FINISH

- A. Exterior Finish: Finish shall meet specifications in accordance with AAMA 2604. As selected by customer from manufacturer's full range.
- B. Interior Finish: Unfinished and ready for site finishing. (Optional White)

PART 3 EXECUTION

3.01 INSTALLATION

- A. Inspect window openings prior to beginning installation. Verify that the openings are level and plumb and that the minimum opening dimension (width or height) is 1/4" larger than the window unit. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Install window units in accordance with manufacturer's recommendations, installation & Finishing Instructions and approved shop drawings.
- C. Secure assembly to framed openings, plumb, level and square, without distortion. Provide proper support and anchor securely in place.
- D. Place batt insulation in shim spaces around window perimeter to maintain continuity of building insulation. Do not use expanding foam insulation.
- E. Apply sealant and related backing materials at the exterior perimeter of the window units.
- F. Leave window units closed and locked.

3.02 PROTECTION AND CLEANING

- A. Clean window frames, sash and glass promptly following installation. Avoid damaging protective coatings and finishes. Remove excess sealants, dirt and other substances.
- B. Protect window surfaces and hardware from contact with contaminating substances, such as masonry cleaning solutions. Contact with certain substances can cause damage to the glass surface and/or could cause seal failure of the insulating glass unit. These substances could also cause discoloration or damage to painted surfaces. Clean contaminated surfaces immediately after contact.
- C. Remove nonpermanent labels from glass surfaces per manufacturer's installation finishing instructions.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded or damaged during the construction period.

END OF SECTION

Specifications subject to change without notice