



## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Factory-assembled extruded aluminum-clad wood casement 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 specifications in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-08
- 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 12.0 psf (69 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.
- D. Window units shall withstand positive and negative pressures of 60.0 psf (153 mph) acting normal to the plane of the window. (optional configurations up to 105 psf (202 mph)) Units shall have no permanent deformation in excess of 1/175 of its span when tested in accordance with ASTM E 330.
- 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: 0.34 Cardinal E270 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: 0.27 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 Casement 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.
- 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 0.060" extruded aluminum, mitred. Wood corners exposed mortise and tenon and secured with metal fasteners. Sash thickness: 1-7/8" (48mm). 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, laminated and triple glazing 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: Thermoplastic alloy, (TPA) filled polypropylene with Arloc™ slip coat compression seal for enhanced resistance against compression set and air leakage. Secondary seal to be a Polypropylene Leaf weatherstrip. Weatherstrip meets or exceeds standards required by AAMA 702-04.

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

- E. Insect Screen: [Full] 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] 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].
- J. Between-the-Glass Blinds: Mini-Blind system is concealed between the insulated glass unit and a removable interior glass panel (triple Glazed). Finish for slats to be of epoxy paint with polyester UV high resistant finish. Slat finish to be [white], [sand]. Uses magnetic slide and helix assembly for easy tilt operation.



### 2.03 HARDWARE

- A. Operator: Window operators will have removable cover with folding handle that nests in the operator cover when retracted. The operator must be constructed of E-Gard® coated components. High-pressure die-cast zinc operator base, crank, handle and knob.
- B. Hinges: The hinge must provide a washable space between sash and side jamb when open 90° or the hinge must provide egress access when opened 90° (optional). Hinges will be of slide and pivot design, which uses a low friction slide shoe and stainless steel track. Sash arms are to be constructed of E-Gard® components to provide enhanced corrosion protection. The hinges shall provide a means of adjustment for sash drag.
- C. Locks: The lock must incorporate a multi-point locking feature that sequentially locks the window from bottom to top. The lock must provide for a removable handle and escutcheon for ease in color changes and/or for ease of site finishing. The locking drive and tiebar system shall be constructed of stamped steel protected with E-Gard® and high quality engineered plastics.

### 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.

## 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