



**SPECIFICATIONS: Series 2900 Vinyl Single Hung Windows
R50/R45/R35/R30 Performance for New Construction**

GENERAL

1. SECTION INCLUDES

1. All windows of the types and sizes as called for in this specification shall be furnished with all necessary hardware and miscellaneous equipment as herein specified and shall be manufactured by **Silver Line Building Products, Inc.**

2. RELATED SECTIONS

1. Section 01340 - Shop Drawings, Product Data and Samples.
2. Section 01610 - Delivery, Storage and Handling.
3. Section 01710 - Final Cleaning: Glass cleaning.
4. Section 07900 - Joint Sealers: Perimeter sealant and back-up materials.
5. Section 08800 - Glazing.

3. QUALITY ASSURANCE

A. General.

1. Provide Independent **Third Party Notice of Product Certification** showing products to be **in full compliance with AAMA/NWWDA 101/I.S.2-97** and the following:
 - a. Vinyl Single Hung Window to be Silver Line Series 2900 (insulated glass), H-R50 38 x 60, H-R50 36 x 62, H-R45 44 x 62, H-R30 48 x 84.
2. Test sequence is optional except air infiltration test shall precede water resistance test and uniform load structural test shall be performed at the end of sequence.

B. Test Units.

1. Perform all tests as listed below in accordance with AAMA/NWWDA 101/I.S.2-97.

C. Test Procedures.

1. **Air Infiltration Test** – by Independent AAMA Certified Laboratory (Manufacturer's Facility May Be Utilized).
 - a. With window glazed, sash closed and locked, mounted vertically, test in accordance with ASTM E283-91 at a static pressure of 1.56 psf (25 mph). Air infiltration shall not exceed maximum 0.1 cfm per square foot of window area.
2. **Water Resistance Test** - by Independent AAMA Certified Laboratory (Manufacturer's Facility May Be Utilized).
 - a. With window glazed, sash closed and locked, mounted vertically, test in accordance with ASTM E547-93 at the static pressure of 7.50 psf. There shall be no uncontrolled water leakage as defined in ASTM E547-93.

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3. **Uniform Load Test** – Design Wind Load Test by Independent AAMA Certified Laboratory (Manufacturer's Facility May Be Utilized).

- a. Test with window glazed, sash closed and locked, mounted vertically in accordance with ASTM E330-90.
 - b. There shall be no glass breakage, permanent damage to fasteners or hardware parts, or damage to make window inoperable when tested at a design load of positive and negative 50 psf for sizes up to 38 x 60" or 36 x 62".
 - c. There shall be no glass breakage, permanent damage to fasteners or hardware parts, or damage to make window inoperable when tested at a design load of positive and negative 45 psf for sizes up to 44 x 62".
 - d. There shall be no glass breakage, permanent damage to fasteners or hardware parts, or damage to make window inoperable when tested at a design load of positive and negative 30 psf for sizes up to 48 x 84".
4. **Uniform Load Structural Overload Test** – by Independent AAMA Certified Laboratory (Manufacturer's Facility May Be Utilized).
- a. With window glazed, sash closed and locked, mounted vertically test in accordance with ASTM E330-90.
 - b. When tested at positive and negative structural loads at 150% of Design Pressure, there shall be no glass breakage, permanent damage to fasteners or hardware parts, damage to make window inoperable, or permanent deformation of any main frame or ventilator section in excess of 0.4% of its unsupported span.
5. **Optional Glazing Configurations for Enhanced Sound Control Performance**
- a. Windows are to be tested by an independent outside testing laboratory per ASTM E90-97, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions" and classified according to designation ASTM E413-87 "Classification for Rating Sound Insulation" and ASTM Standard E1332-90 "Standard Classification for Determination of Outdoor-Indoor Transmission Class".
 - b. **Two glazing options** shall be made available for the choice of the purchaser for Sound Control Performance to various levels.
 - 1. When tested with 4mm glass outboard and 3mm glass inboard, the Sound Transmission Class rating shall be **STC 32** with a corresponding Outdoor-Indoor Transmission Class rating of **OITC 26**.
 - 2. When tested with 2.7mm/.060 PVB/2.7mm laminated glass outboard and 3mm glass inboard, the Sound Transmission Class rating shall be **STC 33** with a corresponding Outdoor-Indoor Transmission Class rating of **OITC 27**.

REFERENCES

D. American Society of Testing Materials (ASTM):

- 1. ASTM C 509-94 Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
- 2. ASTM B 633-85 Specification for Electrodeposited Coatings of Zinc on Iron and Steel.

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- 3. ASTM B 766-86 Specification for Electrodeposited Coatings of Cadmium.
- 4. ASTM B 456-94 Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- 5. ASTM C 1036-91 Specification for Flat Glass.
- 6. ASTM E 774-92 Specification for Sealed Insulated Glass Units.

- E. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 701-92 Voluntary Specification for Pile Weatherstripping.
 - 2. AAMA 800-92 Voluntary Specification and Test Methods for Sealants.
 - 3. AAMA 1302.5-1976 Voluntary Specification for Forced-Entry Resistant Aluminum Prime Windows.
 - 4. AAMA 902-94 Voluntary Specification for Sash Balances.

4. SUBMITTALS

- A. Shop Drawings: Submit shop drawings under provision of Section 01340 (as required).
- B. Product Data: Submit product data under provision of Section 01340 (as required).
- C. Samples (as required):
 - 1. Submit full window sample under provisions of Section 01340.
 - 2. Include glazing system, quality of construction and specified finish.
- D. Quality Control Submittals (as required):
 - 1. Certification: Submit performance test results reported by independent laboratory or manufacturer's statement of qualification indicating compliance with specified performance and design requirements.

5. DELIVERY, STORAGE AND HANDLING

- A. Comply with provisions of Section 01610.
- B. Store units in an upright position in a clean and dry storage area.
- C. Protect finish surfaces with wrapping or strippable coating. Do not use adhesive papers or sprayed coatings, which bond when exposed to sunlight or weather.

7. WARRANTY

- A. The installer shall assume full responsibility that the installation is in accordance with the specifications, contract documents and manufacturer specifications.
- B. All sealed insulated glass shall be warranted by the manufacturer against failure of the air seal for a period of ten (10) years from date of manufacture.
- C. All window frames and sashes shall have a ten (10) year warranty by the manufacturer stating that the product is free from defects in material and in workmanship and will not materially rot, rust, crack, pit, corrode, peel or blister.

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- D. Hardware: All screens and moving parts shall be warranted by the manufacturer against defects in material and workmanship for a period of two (2) years.

PRODUCTS

1. MATERIALS

- 1. The vinyl extrusions used shall be of commercial quality and of proper formulation for window construction, free of defects impairing strength and durability.

1. COMPONENTS

A. MAIN FRAME AND SASH:

- 1. Mainframe shall have a nominal wall thickness of not less than .062".

B. WEATHERSTRIPPING:

1. Materials used within this window must be only of high quality, proven to be capable of meeting the environmental exposure and performance requirements of the application. When the following materials are used, they should meet the specification indicated.
2. Woven pile weatherstrip shall conform to AAMA 701-92.
3. Weatherstrip of closed cell elastomer shall meet ASTM C509.
4. Weatherstrip of dense elastomer shall meet ASTM C 864-90.

C. FASTENERS:

1. All screws and other miscellaneous fastening devices incorporated shall be of aluminum, stainless steel, or other non-corrosive material compatible with the vinyl extrusions. Cadmium or zinc plated steel, where used, shall be in accordance with ASTM B 766-86 or ASTM B 633-85. Nickel or chrome plated steel, where used, shall be in accordance with ASTM 456-94 type SC.

D. INSECT SCREENS:

1. Insect screens frames shall be of tubular roll formed aluminum or extruded aluminum and be manufactured in accordance with Silver Line Building Products approved design. Insect screen frames will be color matched to the window color. The screens will incorporate fiberglass screen cloth of 18 x 16 mesh held in the frame by vinyl screen spline.
2. Aluminum screen cloth of 18 x 16 mesh with vinyl screen spline shall be optional.

E. GLASS AND GLAZING MATERIALS

1. INSULATED GLASS:

- a. The assembled insulated unit shall be 5/8" high performance. Assembly shall conform to ASTM E 774-92, level A.
- b. Tempered glass shall conform to ASTM C 1048-91.
- c. Annealed glass shall conform to ASTM C 1036-91.

2. GLAZING MATERIALS:

- a. The insulated glass units will be secured to the window frame by a silicone ductile bedding compound.

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F. HARDWARE

1. Hardware having component parts which are exposed shall be aluminum, stainless steel or other non-corrosive material compatible with the vinyl extrusions. Cadmium or zinc plated steel, where used, shall be in accordance with ASTM B 766-86 or ASTM B 633-85. Nickel or chrome plated steel, where used, shall be in accordance with ASTM 456-94 type SC.

G. SINGLE HUNG WINDOW COUNTER BALANCE MECHANISMS:

1. Primary double hung balances shall be of appropriate size and capacity to hold the sash stationary in any open position. Sash balances shall be of the block and tackle type and easily accessible for repair or replacement in the field. Balances shall be in accordance with AAMA 902-94

H. SINGLE HUNG WINDOW LOCKS:

1. Sashes shall be capable of being locked by installed cam-type locks meeting AAMA 1302.5 forced entry specification. Locks will be color keyed to the window's interior color and attached to the sash with color-keyed screws anchored through the locks into the sash

EXECUTION

1. EXAMINATION

A. VERIFICATION OF CONDITIONS:

1. Before installation, verify that openings are plumb and square and of proper dimension. Report frame defects or unsuitable conditions to the General Contractor before proceeding.

B. ACCEPTANCE:

1. Beginning of installation means acceptance of existing conditions.

2. INSTALLATION

- A. The window will be secured in the rough opening in accordance with the manufacturer's instructions and/or accepted industry practice. All windows are to be installed level and plumb. A permanent weather tight seal must be applied between the window nailing fin and the building exterior sheathing at the time of installation. The windows are to be secured to the opening with 1½" or larger fasteners, as is standard practice, applied through the window mainframe members.

- B. Install sealant and related backing materials at perimeter of assembly in accordance with Section 07900 Joint Sealers. Do not use foam sealant.

3. ADJUSTING AND CLEANING

- A. Adjust operable sash to work freely with all hardware functioning properly. Readjust at completion of the project if directed.

- B. Remove all visible labels except permanent identification on labels per manufacturer's recommendations.

- C. Leave windows in a job-clean condition. Final cleaning of glass will be per section 01710.

4. PROTECTION

- A. Cover windows during spray painting or other construction operations that might cause damage.