



SERIES 100 DOUBLE-HUNG VINYL WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Replacement Windows.
 - 1. Double hung windows

1.2 RELATED SECTIONS

- A. Section 05450: Cold Formed Metal Framing.
- B. Section 06100: Rough Carpentry.
- C. Section 06200: Finish Carpentry.
- D. Section 07460: Siding.
- E. Section 07920: Joint Sealants.

1.3 REFERENCES

- A. AAMA/WDMA/CSA 101/I.S.2/A440-17 North American Fenestration Standard / Specification For Windows, Doors, And Skylights.
- B. AAMA 902-14 - Voluntary Specification for Sash Balances.
- C. ASTM E 283-04 (2012) - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.
- D. ASTM E 330-14 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.
- E. ASTM E 2190-10 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.
- F. NFRC 100-2020 – Procedure for Determining Fenestration Product U-Factors.
- G. NFRC 200-2020 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Submit the following documents for each type of window.
 - 1. Manufacturer's technical data, product descriptions and installation guides.
 - 2. Elevation for each style window specified indicating its size, glazing type, muntin type and design.

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3. Manufacturer's head, jamb and sill details for each window type specified.
- C. Verification Samples: Provide operating units of each style window specified.
 1. Verification samples may be operating scaled-down mock-ups of actual-size units.
 2. Operating hardware such as balances, sash locks and weather-stripping.
 3. Verification samples will be returned to manufacturer's representative at project closeout.
- D. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum ten (10) years producing vinyl (PVC) windows.
- B. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size.
- C. Provide window units independently tested and found to be in compliance with AAMA/WDMA/CSA 101/I.S.2/A440-17 performance standards listed above.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship and color are approved by Architect.
 3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver windows to project site in undamaged condition; handle windows to prevent damage to components and to finishes.
- B. Store products in manufacturer's unopened packaging, out of direct sunlight or high temperature locations, until ready for installation.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

- A. Submit manufacturer's standard warranty against defects in workmanship and materials.
 1. Limited Lifetime Limited Transferable warranty on extruded solid vinyl member and component parts. Insulated glass is warranted against material obstruction of transparency resulting from film formation or dust collection on the interior glass surfaces for a period of twenty (20) years. Consult warranty for complete details.
 2. The warranty period for commercial project work such as apartments, housing authorities and other buildings not used by individual homeowners is 10 years, covering all vinyl, glass and component parts. Consult warranty for complete details.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Crystal Window & Door Systems located at: 31-10 Whitestone Expressway, Flushing, NY 11354; Tel: 718.961.7300; Fax: 718.460.4594; Email: marketing@crystalwindows.com ; Web: www.crystalwindows.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- D. Substitutions must be submitted to Architect two weeks prior to bid opening.

2.2 DOUBLE HUNG - CRYSTAL SERIES 100 (Replacement)

- A. Performance:
 - 1. AAMA Rating: Class R-PG30-H when tested according to AAMA/WDMA/CSA 101/I.S.2/A440-17 at the size 39" x 63"
 - 2. Thermal Transmittance: The following values are in accordance with NFRC 100
 - a. With Single Low-E / Argon: U-Factor - 0.30
- B. Operation: Sash shall be counterbalanced to remain in any place during operation. Both sashes shall tilt in for cleaning exterior glass surface.
- C. Materials: All vinyl extrusions shall be rigid 100% virgin PVC. The frame, mullion, rails shall have a main wall thickness of 0.070". Side jamb section shall have eleven tubular hollows for strength and thermal efficiency. Head and sill section shall have two tubular hollows.
- D. Frame construction: All corners shall be butt-joined mechanically fastened with two stainless screws per corner. Frame depth shall be 3.25". Frame shall either be fitted with a head expander and sill extension or accept a factory-applied nailing fin.
- E. Sash construction: All sash corners shall be mechanically fastened with one stainless screw per corner. There shall be integral interlock at the meeting rail. Width over 40" shall have internal steel reinforcements at top and bottom rails.
- F. Glazing: Both sashes shall utilize 7/8" thick insulating glass consisting of two sheets of 3/32" thick clear annealed glass and a desiccant filled metal spacer system (intercept insulating unit). A butyl sealant shall be extruded around the entire perimeter of the spacer to achieve a seal. Sash shall be dual-durometer with the glass unit set in the sash rails.
- G. Screen construction: Standard screen shall be a half screen. The screen frame shall be roll formed of aluminum with all corners keyed. The screen mesh shall be charcoal fiberglass held-in-place with a flexible spline.
- H. Hardware: Sash balances shall be factory calibrated constant force balances. Balance coils shall be inserted into the slot of the shoe which locks in place once sash is tilted in. Sash lock shall be cam type and finished to match the vinyl extrusion color. Sash lock shall be fastened at the lock rail by two sheet-metal color matched screws. Double locks will be standard on window widths over 24". Two vent locks shall be located on upper sash for opening the window partially.

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- I. Weatherstripping: High-density woven pile shall be used in combination with continuous polyethylene rigid seal to minimize air infiltration.
- J. Finish: Shall be solid vinyl in white.
- K. Options: Grids – Colonial, Georgian, Applied, Prairie (Flat) and Diamond aluminum in-glass in white are available. Glazing – Duralite spacer glass units, obscure wire, clear wire, frosted, Low-E, Argon filled Low-E and special tempered glass can be used. Rollformed and extruded full screen, field mullied units, and oriel/ cottage windows are available. Nailing fin can be used for new construction.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Contractor must verify rough opening size is of sufficient size to receive window unit and complies with manufacturer's requirements for opening clearances.
- B. Confirm that sill plate is level.
- C. Architect must be notified of unacceptable conditions before proceeding with installation.

3.2 INSTALLATION

3.3 Contractor must install window unit in accordance with manufacturer's printed instructions.

- A. Apply sealant around perimeter of window unit between nail fin and exterior sheathing of wall.
- B. Install window unit level and plumb. Center window unit in opening and secure window unit by nailing through nail fin and screw through jambs as indicated in manufacturer's instructions.
- C. Flash window in accordance with AAMA's "Standard Practice for Installation of Windows with a Mounting Flange in Stud Frame Construction".
- D. Insulate between window frame and rough opening with suitable insulation.

3.4 ADJUSTING

- A. Installer must adjust units for smooth operation without binding or racking.
- B. Installer must adjust sash locks and screens for smooth operation.

3.5 CLEANING

- A. Clean soiled surfaces and glass prior to substantial completion.

3.6 PROTECTION

- A. Protect window unit from damage until substantial completion. Repair or replace damaged units.

END OF SECTION