

SECTION 08520 ALUMINUM WINDOWS

Peerless Products Series 4140 Thermal **H-HC55** Single Hung, Tilt Sash Windows

PART 1 GENERAL

1.01 Work Included

- A. Furnish and install aluminum architectural windows complete with hardware and related components as shown on drawings and specified in this section.
- B. All windows shall be Peerless Products, Inc. Series 4140 Thermal **H-HC55** Single hung, tilt sash windows. Other manufacturers requesting approval to bid their product as an equal must submit the following information ten days prior to the bid date.
 - 1. A sample window, .2' - 0" x 3' - 0" single unit, as per requirements of the architect.
 - 2. Test reports from an independent laboratory that certifies that the proposed product meets or exceeds the performance requirements of Section 1.02. The bidder shall show continuing compliance by furnishing a Notice of Product Certification from the Administrator of the AAMA Certification Program. Test reports from an independent laboratory are required that certifies the insulated glass to be supplied CBA rated.
- C. Glass and Glazing
 - 1. All units shall be factory glazed.

1.02 Testing and Performance Requirements

- A. Units shall comply with air, water and structural requirements as specified in AAMA/NWWDA 101/I.S.2-97 for type and classification of window units required.
- B. Test Procedures and Performance Requirements
 - 1. Windows shall conform to all AAMA/NWWDA 101/I.S.2-97 requirements for the type and classification of window units required. In addition, the following performance criteria must be met:
 - 2. Air Infiltration Test
 - a. With the window sash closed and locked, test unit in accordance with ASTM E 283 at a static air pressure difference of **6.24** psf.
 - b. Air infiltration shall not to exceed **0.3** cfm per square foot of crack.
 - 3. Water Resistance Test
 - a. With window sash closed and locked, test unit in accordance with ASTM E 331 & ASTM E 547 at a static air pressure difference of **8.25** psf.
 - b. There shall be no uncontrolled water leakage.
 - 4. Uniform Load Structural Test
 - a. With window sash closed and locked, test unit in accordance with ASTM E 330 at a positive and negative static air pressure difference of **82.5** psf.
 - b. There shall be no glass breakage, permanent damage to fasteners, hardware parts, support arms or actuating mechanisms or any other damage that would cause the window to be inoperable.
 - c. There shall be no permanent deformation of any main frame, sash, panel or sash member in excess of L/175 of its span.
 - 5. Condensation Resistance Factor
 - a. With window sash closed and locked, test unit in accordance with AAMA 1503-98.
 - b. Condensation Resistance Factor (CRF) shall not be less than **49** frame and **56** glass.
 - 6. Thermal Transmittance Test (Conductive U-Value)
 - a. With window sash closed and locked, test unit in accordance with AAMA 1503-98.
 - b. Conductive thermal transmittance (U-Value) shall not exceed **0.64** BTU/hr/ft²/F.

1.03 Quality Assurance

- A. Provide test reports from an AAMA certified laboratory verifying performance as specified in section 1.02.
- B. Provide test reports and window manufacturers letter of certification showing compliance with AAMA/NWWDA 101/I.S.2-97 for the appropriate window type.
- C. Test reports shall be no more than four years old..

1.04 Submittals

- A. Submit shop drawings, finish samples, test reports and warranties.
 - 1. Shop drawings shall indicate type of glazing, screen and window finish to be supplied.
 - 2. Additional samples may be requested if so directed by the architect.

1.05 Delivery and Storage

- A. Protect units adequately against damage from the elements, construction activities, theft and other hazards before, during and after installation.

1.06 Warranties

- A. Manufacturers Warranties
 - 1. Submit written warranties from window manufacturer for the following:
 - a. Windows: Windows furnished are certified as fully warranted against any defects in material or workmanship under normal use and service for a period of one (1) year from date of fabrication.
 - b. Finish: The pigmented organic finishes on windows and component parts (such as panning, trim, mullions, and the like) are certified as complying fully with the requirements of the AAMA **260X** specification and fully warranted against chipping, peeling, cracking or blistering for a period of **five (5) years** from date of installation.
 - c. Glass: The insulating glass units shall be warranted from visual obstruction due to internal moisture for a period of ten (10) years. The manufacturer shall furnish a test report and notice of product certification from an independent laboratory showing compliance with a CBA level of performance.

PART 2 PRODUCTS

2.01 Materials

- A. Aluminum
 - 1. Extruded aluminum shall be 6063-T5 or T6 alloy and tempered.
- B. Hardware
 - 1. Primary sash locking hardware shall of Zamac #3 alloy
 - 2. Tilt locking mechanisms shall be of sufficient strength to meet applicable structural performance. The pivot bars shall be of solid stainless steel. No substitute materials will be accepted
- C. Balances
 - 1. Balances shall be tested in accordance with AAMA 902, "Voluntary Specification for Sash Balances.
 - 2. **Balances shall meet all minimum Class 1 requirements for operating force.**
or
2. Balances shall meet all minimum Class 5 requirements for operating force.
- D. Fasteners
 - 1. Fasteners shall be aluminum, non-magnetic stainless steel or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components of the window units.
 - 2. Exposed fasteners shall not be permitted on exterior except where unavoidable for the application of hardware.
- E. Weatherstrip

1. Provide double weather-stripping using silicone-coated woven pile with polypropylene fin center complying with AAMA 701.
- F. Thermal Barrier
1. All exterior aluminum shall be separated from the interior aluminum by an integrally concealed, low-conductance structural thermal barrier in a manner that eliminates direct metal-to-metal contact.
 2. Thermal barrier de-bridge space shall not be less than 3/16".
 3. Thermal barrier shall be poured-in-place two-part polyurethane that has been in use on similar units for a period of not less than two years and has been tested to demonstrate:
 - a. Resistance to thermal conductance and condensation.
 - b. Adequate strength and security of glass retention.
- G. Glazing Tape and Glazing Beads
1. Expanded cellular glazing tapes shall conform to AAMA 810 specification.
 2. **Glazing beads shall be rigid PVC and conform to ASTM D 4216-83.**
or
2. Glazing beads shall be extruded aluminum and have sufficient strength to retain the glass.
- H. Sealant
1. Sealant shall be non-shrinking, non-migrating elastomeric type conforming to AAMA 803 and AAMA 808.
- I. Glass
1. **Insulated glass shall be () CBA rated and certified as manufactured by Peerless Products, Inc consisting of () exterior, () air space and () interior.**
OR
1. Glass shall be 1/8", 3/16" or 1/4 " monolithic.

2.02 Fabrication

- A. General
1. Units shall be able to be re-glazed without dismantling the master or sash frame.
 2. All aluminum frame and sash extrusions shall have a minimum wall thickness of 0.062". Sill of master frame shall have a minimum wall thickness of 0.094"
 3. Mechanical fasteners, welded components and hardware items shall not bridge thermal barriers. Thermal barriers shall align at all frame and sash corners.
- B. Frame
1. Master frame shall be no less than 4".
 2. Frame components shall be mechanically fastened.
- C. Sash
1. Sash frame shall have a minimum wall thickness of 0.062".
 2. Sash frame horizontal extrusions shall be of tubular design.
 3. Sash corners shall be mechanically fastened.
- D. Screens
1. Screen frames shall be of extruded aluminum.
 2. Screen mounting holes shall be factory drilled.
 3. Screen mesh shall be fiberglass or aluminum.
- E. Finish
1. **Organic**
 - a. **Finish all exposed areas of aluminum windows and components with organic coating of type and color as selected by the architect.**
 - b. **Finish shall be certified by the manufacturer to meet or exceed AAMA 2603, 2604 or 2605 specification.**
- OR**
2. **Anodic**
 - a. **Finish all exposed areas of aluminum windows and components with electrolytically deposited color in accordance with Aluminum Association Designation AA-M10-C22-().**

AA Description	Description	Arch. Class	AAMA Spec.
AA-M10-C22-A41 or A31	Clear Anodized	I or II	611-98
AA-M10-C22-A44 or A34	Color Anodized	I or II	611-98

PART 3 EXECUTION

3.01 Inspection

A. Job Conditions

1. Verify that openings are dimensionally within allowable tolerances, plumb, level, clean, provide a solid anchoring surface and are in accordance with the approved shop drawings.

3.02 Installation

- A. Work to be completed in accordance with the approved shop drawings and specifications by skilled tradesmen.
- B. Set units plumb and level in a single plane for each wall plane without warp or rack of frames or sash. Adequately anchor units in place separating aluminum and other corrodible surfaces from sources of corrosion or electrolytic action.
- C. Adjust window units for proper operation after installation.
- D. Furnish and apply sealants to provide a weather tight installation.
- E. Leave all exposed surfaces clean, smooth and free of debris.

3.03 Anchorage

- A. Adequately anchor to maintain permanent position when subjected to normal movement and loading.

3.04 Cleaning and Protection

- A. After completion of installation, units shall be inspected, adjust and promptly cleaned to prevent damage to finish or glazing.
- B. Remove excess sealant, labels, dirt and other substances.
- D. Initiate all protection and other precautions required to insure that units will be without damage or deterioration at time of acceptance.

3.05 Field Testing

- A. Windows shall be field tested in accordance with AAMA 502-90, "Voluntary Specification for Field Testing of Windows and Sliding Glass Doors". Test 3 windows immediately after installation.
- B. Optional Requirements
 1. Test the greater of one additional window or 2% of the window installation for air and water infiltration.
 2. Air infiltration tests shall be conducted at a uniform static test pressure of **X.XX** psf. the maximum allowable rate of air leakage shall not exceed **0.XX** cfm per foot of sash crack length.
 3. Water penetration tests shall be conducted at a static test pressure of **X.XX** psf.
 4. Costs for all successful tests, both initial and retests, shall be paid by the owner. All unsuccessful tests shall be paid by the responsible contractor.
 5. Testing shall be performed by an AAMA accredited testing agency selected by the architect and window manufacturer and employed by the responsible contractor.