

Model 1000 Project-Out AW-PG90-AP 1524 x 914 (60" x 36")

PART 1 - GENERAL



1.01 GENERAL PROVISIONS:

- A. The General Conditions 1 is hereby made a part of this Section.
- B. Coordinate work with that of all construction contractors affecting or affected by work of this Contract. Cooperate with such contractors to assure the steady progress of the Work.
- C. Pre-Bid Qualifications: All bids must be based on pre-qualified products; to qualify, the bidder must furnish one complete window unit and additional information as shown below ten (10) business days prior to bid date.
 - 1. This sample must be identical to the model of the window the bid is based on, with the finish being the only exception.
 - 2. Bidder shall also include, in his pre-bid qualification package, copies of the independent laboratory tests which certify that the proposed product meets or exceeds the AAMA/WDMA/CSA 101/I.S.2/A440-08 criterion for an AW-PG90-AP 1524 x 914 classification as specified herein and shall show continuing compliance by furnishing a Notice of Product Certification from an Administrator of a Certification Program. Test reports from an independent laboratory showing that the insulated glass, if any, has been tested to the CBA Level, will also be required.

1.02 RELATED WORK:

- A. Provide labor, materials and equipment necessary to complete the work of the window portion of the contract, and without limiting the generality thereof shall include: (edit following for either retro-fit or new construction)
 - 1. Removal of existing glass, sash, parting beads, stops and other accessories as required by the proposed replacement system.
 - 2. Removal of other existing construction work as required for the proper installation and operation of the new window system.
 - 3. Removal from site and legal disposal of all materials, debris packaging, banding and all other materials and equipment by jobs end.
 - 4. Provide new factory-glazed, thermally broken, aluminum frame windows, types as specified herein, together with necessary mullions, panning, trim, extenders, operating hardware, all installation hardware and all other accessories as may be required.
 - 5. Non toxic treated wood blocking, shims, fillers and nailers as required for a secure installation.
 - 6. Prior to Bid measurements of existing openings and relevant conditions.
 - 7. Bidders shall survey conditions of existing openings prior to bidding, mentioning any found deficiencies to Project Architect. Contractor shall be responsible for the replacement of portions of same that are deteriorated.
 - 8. Provide and chink fiberglass insulation between window frames and adjacent construction voids.
 - 9. Proper sealing of all panning or receptor joints within each window assembly, per AAMA 800-10.
 - 10. Sealing of entire exterior perimeter of window units after installation, per AAMA 851-09.
 - 11. Furnishing of any extra materials as specified herein.

1.03 ITEMS FURNISHED BUT NOT INSTALLED:

- A. Architect and/or Specifier should add any applicable requirements to this section, as he/she deems necessary.

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1.04 ITEMS INSTALLED BUT NOT FURNISHED:

- A. Architect and/or Specifier should add any applicable requirements to this section, as he/she deems necessary.

1.05 TESTING AND PERFORMANCE REQUIREMENTS:

- A. Standards: Except as otherwise indicated, requirements for all aluminum windows, terminology and standards of performance and fabrication workmanship are those specified and recommended in AAMA/WDMA/CSA 101/I.S.2/A440-08 and applicable general recommendations published by AAMA and the AA.
- B. Performance and Testing: Except as otherwise indicated, comply with air infiltration tests, water resistance tests and applicable load tests specified in AAMA/WDMA/CSA 101/I.S.2/A440-08 for type, rating and classification of the window units required herein.
- C. Testing: Where manufacturer's standard window units comply with requirements and have been tested, in full size required, and in accordance with specified test's procedures, provide independent certification of such testing.
1. Test reports shall be no more than four years old.
 2. Sample submitted for tests shall be of manufacturer's standard construction and at least 1524 x 914 (60" x 36"). The sequence of tests shall be optional between manufacturer and testing laboratory except that in all cases, the air infiltration test shall be performed before the water resistance test.
- D. Specific Requirements: Windows shall conform to specified standards or those specified herein, whichever are the more stringent:
1. Air Infiltration Test: With the vent in a closed and locked position, the window shall be subjected to an air infiltration test in accordance with ASTM E 283-04. Air infiltration shall not exceed 0.15 L/s/m² when tested at 300 Pa (0.03 ft³/min/ft² at 6.24 psf).
 2. Water Resistance Test: The glazed unit shall be mounted in a vertical position, continuously supported around perimeter and with vent in the fully closed and locked position. The window unit shall be subjected to a water resistance test of 580 Pa (12 psf) in accordance with ASTM E547 and ASTM 331.00, both with and without insect screen.
 3. Use a system that shall deliver water uniformly at a minimum rate of 3.4 L/m²/min (5.0 US Gal/ft²/hr). Testing shall consist of four cycles of five minutes of water on, then one minute off, for a total of four cycles, 23 minutes minimum, followed by one 15 minute period. No water shall pass the interior plane of the window frame and there shall be no uncontrolled leakage.
 4. Uniform Structural Load Test: A minimum exterior and interior uniform load of 4320 Pa (90 psf) shall be applied to the entire surface of the test unit. At the conclusion of tests, there shall be no glass breakage, permanent damage of fasteners, hardware, or any other damage causing the window to be inoperable.
 5. Uniform Load Deflection: Per ASTM E 330, the sample shall be tested at a load equal to the design pressure for 10 second duration. Deflection shall be measured and reported in millimeters (inches). The load shall be applied both positively (inward) and negatively (outward).
 6. Thermal performance: The window shall be tested in accordance with NFRC standards and tests of thermal performance.
 7. Coefficient of Heat Transfer or "U-Value" shall be tested pursuant with NFRC Standards.
 8. Operating Force: The sash shall have been adjusted to operate, in either direction, with a force not exceeding 30 pounds, after the sash is in motion.
 9. Product shall meet Forced Entry Resistance per ASTM F 588 a, Grade 40.

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1.06 QUALITY ASSURANCE:

- A. Provide test reports from an independent laboratory certifying that the performance for air infiltration, water resistance, uniform structural load, and condensation resistance, has been met or exceeds the criterion as set forth herein.

1.07 REFERENCES:

- A. American Architectural Manufacturers Association (AAMA), American Society for Testing and Materials (ASTM), American National Standards Institute (ANSI), Aluminum Association (AA), Window & Door Manufacturers Association (NDMA).

1.08 SUBMITTAL REQUIREMENTS:

- A. General: Provide submittals pursuant with the following:
 - 1. Product Data: Submit manufacturer's specifications, any recommendations and standard Product details for aluminum window units, including independent laboratory certified test report as necessary to show compliance with requirements.
 - 2. Shop Drawings: Submit shop drawings, including typical unit elevations and showing full scale details of Product's head, jamb and sill being supplied and typical installation detail. Show anchor locations and other components not included in manufacturer's standard literature. Call out project specific glazing, any screening, and window finish that will be supplied.
 - 3. Samples: Submit samples as follows:
 - a) Three samples of each required finish, on a 3 inch long section of flat aluminum stock.
 - b) Additional samples, as may be requested by Architect, to show fabrication techniques, workmanship, type of component parts and the type, design or finish of hardware proposed.

1.09 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Store and handle windows, hardware and all related items in strict compliance with the manufacturer's instructions.
- B. Protect and insure windows and all accessory and related materials adequately against damage from the elements, construction activities and other hazards before, during and after installation.

1.10 PROJECT WARRANTIES:

- A. Manufacturer's Warranties: Submit written warranties from window manufacturer for the following:
 - 1. Windows: Windows furnished shall be certified as fully warranted against any defects in material or workmanship, under normal use and service, for a period of one year from date of fabrication.
 - 2. Finish: The pigmented organic finishes on windows and component parts shall comply fully with requirements of AAMA 2603, for pigmented organic coating and fully warranted against chipping, peeling, cracking and blistering for a period of one year.
 - a) Glass: Any insulated glass shall be warranted from visual obstruction, due to internal moisture, for a period of one year.

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PART 2 – PRODUCTS

2.01 GENERAL:

- A. Manufacturer: Subject to compliance with Contract Documents and specifications, provide one of the following:
 - 1. Model 1000 Project Out (AP), AW90 as manufactured by SEAL CRAFT (800-844-4486)
 - a) or;
 - b) or;
- B. Thermal Break Construction: Fabricate aluminum window units with an integral low-conductance polyurethane thermal barrier, located mid-frame between exterior and interior of the window, and in a manner, which eliminates direct metal-to-metal contact.
- C. Window Construction: Provide manufacturer's standard construction, which has been in use on similar window units for a period of not less than ten years, and has been tested to demonstrate resistance to thermal conductance and condensation and has been tested to show adequate strength for this purpose.

2.02 FABRICATION:

- A. Aluminum Extrusions: All extruded sections shall be of 6063-T5 aluminum alloy and temper recommended by window manufacturer for strength, corrosion resistance, and application of required finish. Shall meet 22,000 psi ultimate tensile strength, yield of 16,000 psi.
- B. Fasteners: Aluminum, stainless steel, or other materials warranted by fastener manufacturer to be non-corrosive and compatible with aluminum window members, and related components of window units.
 - 1. Do not use exposed fasteners, except where unavoidable.
 - 2. Provide stainless steel Phillips flathead machine screws for any exposed fasteners, where required, or tamperproof fasteners.
 - 3. Locate all fasteners so as not to bridge the thermal break.
- C. Anchors, clips and window accessories, depending on strength and corrosion-inhibiting requirements, fabricate such items of aluminum, stainless steel or hot-dip zinc coated steel or iron, complying with ASTM A 123-89a or ASTM B 633-85.
- D. Glazing with cured rubber tape, expanded cellular glazing tape or units may be wet glazed with a high quality bedding compound. Both fixed and operable vents shall be glazed using aluminum glazing beads.
- E. Provide weather-stripping using silicone coated woven pile with polypropylene fin center complying with AAMA 701/702-11.
- F. Sealant: Unless otherwise indicated for sealants required within fabricated window units, provide elastomeric type as recommended by window manufacturer for joint size and movement, to remain permanently elastic, non-shrinking and non-migrating. Provide product complying with AAMA 800-10.

2.03 WINDOW CONFIGURATION:

- A. General: The following defines operating arrangements for types of vents required in window units and specifies the minimum provisions for each type. Project Drawings will show which vents operate.

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- B. AW-PG90-AP 1524 x 914 (60" x 36") Project Out aluminum window, with out-swing vent, requiring 4 bar hinge assemblies complying with AAMA 904-09 and as appropriate to hold the vent in a stationary position when opened to any distance. Hinges shall be accessible and replaceable.
- C. Provide integral "putty glazed" vent frame. (Keep this option only if Project requires muntin grid)

2.04 FABRICATION AND ACCESSORIES:

- A. General: Provide manufacturer's standard fabrication and accessories that comply with specifications indicated. Include complete system for assembly of components and anchorage of window units prepared completely pre-glazed from factory.
- B. Window Members including any muntin bars shall be of aluminum. Secondary members such as friction shoes, vent stops, weather-stripping etc. shall also be of aluminum or a compatible material.
1. Mainframe and vent members shall have aluminum thickness as allowed by AAMA/WDMA/CSA 101/I.S.2/A440-08 and suited to meet load requirements called out herein. The standard wall thickness tolerance as defined by the Aluminum Association shall apply.
 2. The master frame shall be no less than 63.5mm (2 ½ inches) in depth. The vent shall have hollow extruded sections and incorporate a functional thermal break.
- C. Thermal Break: The thermal barrier shall provide a continuous uninterrupted thermal break around the entire perimeter of the frame and vent, and shall not be bridged by conductors, such as fasteners.
- D. Hardware having component parts, which are exposed, shall be of aluminum, stainless steel or other non-corrosive materials and compatible with aluminum. Cadmium or zinc-plated steel, if used, must be in accordance with ASTM Specification A-164 or A-165.
1. Vent locks shall be cam with keeper type, of white bronze alloy, no die cast locks will be permitted. On vents over 40" in width, provide two locks.
- E. Frame and sash shall be assembled in a secure and workmanlike manner to perform as specified herein. All joints of mainframe shall be of butt type, coped and neatly joined by means of cadmium plated or stainless steel screws anchored in an integral boss. Vents shall have mitered corner joinery and assembled with staked corner gussets. Mainframe and vent shall be sealed with joint sealant per AAMA 800-10.
- F. Structural Members: When mullions occur, whether they are joined by integral imposts, or independent mullions, or by a combination of frame members, the resulting members must be capable of withstanding the specified design pressures herein and to a maximum deflection of L/175 of its span. When integral or independent mullions are used to join windows, evidence of compliance may be by mathematical calculations.
- G. Glazing:
1. All vent glass shall be glazed at the factory as follows:
 - a) All units shall be glazed to withstand the Design Pressure called out above.
 - b) Exterior lite of clear 3 mm or of sufficient strength to meet loading and applicable Codes.
 - c) Dehydrated air space with either gray or black spacer. (Argon gas is optional)
 - d) Interior lite of clear 3mm or of sufficient strength to meet loading and applicable Codes.
 - e) All washrooms shall have obscure glass of sufficient strength to meet loading and applicable Codes. Pattern # 62 is hereby pre-approved.
 2. The vent shall bead glazed, with reusable wedge and bead.

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- H. Screens: If drawings indicate screens, supply wicket type insect screens for interior of operable vents in accordance with manufacturer's standard product. Provide 16 x 18 aluminum (or fiberglass) screen cloth.
- I. Accessories: If needed to facilitate installation shall be as indicated on drawings and of extruded aluminum, finished to match windows, and;
1. Panning extrusions shall be site assembled, secured at the corners with cadmium plated steel screws in integral screw boss with the joints back sealed per AAMA 803.3-92. Exposed fasteners are not acceptable on the exterior of pan system.
 2. Interior trims: Shall be as depicted on drawings and provided in extruded profiles only. No break form shapes are permissible without prior approval.
 3. Exterior mullion covers, when they occur, shall be of extruded profiles, finished to match window system. No break form shapes are permissible without prior approval.
 4. Receptor Systems, if indicated on drawings, shall be a two-piece snap-lock receptor system and shall serve to anchor windows in place. The receptor shall be extruded and finished to match window with polyurethane thermal break. The receptor system shall be at head and jamb or head only, as is indicated on the drawings. An optional extruded aluminum subsill may be called for on the drawings and must offer thermal break design. No break form shapes are permissible without prior approval.

2.05 ALUMINUM FINISHES:

- A. Provide organic coating of type and color indicated or selected by Architect. Comply with AAMA 2603 Standard. Application of finish shall be by window manufacturer for all components to ensure match.
1. Manufacturer's power coat finish in standard color(s) as selected by the Architect and applied over manufacturer's standard substrate preparation including cleaning, degreasing, and appropriate pre-treatments.

High performance finishes per AAMA 2604 and 2605 Standards and/or Class I and Class II anodic finishes are also available for architectural selection. Please contact Seal Craft or your Sales Representative with any questions concerning finish options.

PART 3 – EXECUTION**3.01 - PREPARATION**

- A. Prepare openings and chink with insulation, if necessary, to avoid excessive air infiltration from wall cavity; and to be in tolerance, plumb, level, and block as necessary to provide for secure anchoring in accordance with industry standards and the approved shop drawings.

3.02 - INSTALLATION

- A. Install windows in accordance ASTM E 2112, per approved shop drawings and using skilled craftspeople that have demonstrated a successful history of installing commercial window systems for at least five years. If units are to be installed in EIFS veneer, it shall be the General Contractor's responsibility to insure that openings are properly back-wrapped, prepared per EIMA guidelines and current procedures prior to window installation.
- B. Installing window contractor shall provide required treated blocking and support, securely fasten and set windows plumb, square, and level without twist or bow. For project out units, care must be taken to insure that jambs are not twisted, bowed inward or outward. Block jambs to insure that they remain in tolerance, plumb and that vents lock and operate correctly.

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- C. Apply sealant per AAMA 800-10 and pursuant with sealant manufacturer's recommendations, at all exterior joinery. Wipe off any excess sealant and tool all sealant leaving exposed surface clean and smooth.

3.03 - FIELD TESTING

- A. After 10% of the windows are installed, test installed units in conformance with AAMA 502-11 for air and water infiltration. Offer adequate notice to insure presence of window manufacturer, contractor, architect and/or owner's representative during testing.
- B. Select openings to be tested as directed by the owner's representative and use an independent laboratory, as provided by the owner or contractor.

3.04 - ADJUSTING AND CLEANING

- A. Installing contractor shall clean all aluminum surfaces promptly after installation, following either AAMA 609 and 610-09 Standards. Comply with AAMA CW-10-04. Report any shipping damages, in writing, to window manufacturer and General Contractor with 72 hours of receipt.
- B. Installing contractor shall make all final adjustments to vents and/or other hardware, to insure proper operation and weather-ability, and shall touch up any minor blemishes.
- C. Installing contractor shall clean glass, after installation, remove any labels, excess glazing compound or other sealant and any other foreign substances. Initiate protection and precautions as required insuring that windows are not misused or abused by other Trades until inspection and/or acceptance by Architect.

END OF SECTION