

ALUMINUM WINDOWS

GENERAL INFORMATION

- 1.1 Aluminum fixed and operable windows with structural thermal breaks.
- 1.2 Work includes glass and glazing; aluminum closures and trim; and reinforcement, anchorage, system and interface seals, hardware, and accessories necessary to complete installation.
- 1.3 The Aluminum Window Manufacturer shall be regularly engaged in the design and fabrication of window assemblies of the required kind and quality, to meet comparable performance requirements. They shall have the production skill and capacity to fabricate work to meet Project requirements and deliver it to meet the Project Construction Schedule.
- 1.4 The Aluminum Window Installer shall be experienced in the installation of comparable window assemblies meeting comparable performance and tolerance requirements.
- 1.5 Warranties: Furnish the following manufacturer's warranties, countersigned by installers and the Contractor. These warranties are in addition to, not in limitation of, other rights the Owner has under law and Contract Documents.
 - a. 10-year warranty against defective materials and workmanship.
 - b. 5-year warranty on structural adequacy and weather-tightness of installations, including air infiltration and water penetration.
 - c. 10-year warranty on thermal and physical integrity of insulating glass units and performance of total glazing system under normal use.

DESIGN REQUIREMENTS

- 2.1 Performance Requirements: Window assemblies shall be specified to meet or exceed requirements specified in this Article, as demonstrated by engineering calculations and tests on the size of units required for the project, or minimum size units specified in AAMA 101 for AW grade (whichever is larger).

DESIGN REQUIREMENTS

- 2.2 Shop drawings prepared by the window manufacturer shall show construction of all parts of the work, including metal and glass types and thicknesses; joining and sealing methods; and provisions for glazing, draining, venting, and accommodating thermal movement. Show dimensioned relation to adjoining construction, details of field connections and anchorage, and interface seals. Show glazing materials and methods; identify glass by type, thickness, temper, and maximum wind load it can accommodate. Submit aluminum finish and glass samples.
- 2.3 Provide structural calculations, signed and sealed by an engineer licensed in the State of New York. Calculations shall include number, type, size and location of fasteners and anchors.
- 2.4 Specify submission of glass manufacturer's wind load and thermal stress analyses of glass, as installed in windows.
- 2.5 Aluminum Window Fabrication: Assemblies shall be fabricated from commercial grade aluminum alloys and tempers required for strength and for appearance match after finishing. Principal window frame and vent members shall be a minimum of .125" thickness. Sash corners shall be mitered and sealed weathertight. Frame corners shall be mitered or coped and sealed weathertight. Where not otherwise specified, methods of fabrication and assembly shall be at the manufacturer's option, provided that:
- a. Exterior and interior visible architectural effects are not changed, strength or weathertightness are not reduced, and adjoining construction is not affected.
 - b. Lights are inside (factory) glazed with watertight, weather-resistant, UV-resistant dry glazing seals that are mechanically interlocked into surrounds to prevent displacement. Glazing materials are compatible with each other and insulating glass seals. Setting blocks and edge blocking are provided in sizes and locations recommended by FGMA Glazing Manual.
 - c. Weatherstripping is closed cell extruded dense EPDM, is secured mechanically, without need for adhesive, and is replaceable without removing ventilators or hardware.
 - d. Thermal barriers are constructed of low conductance poured-in-place polyurethane, and are not bridged or violated by metal hardware, fasteners, or anchoring devices.
 - e. Hardware is secured with corrosion-resistant machine screws and/or bolts that are accessible for adjustment/replacement from inside the building.
 - f. Aluminum Finish: Split-Finish (non-matching exterior and interior); Fluorocarbon colors to be selected by Architect.

DESIGN REQUIREMENTS

- g. Unfinished aluminum surfaces that will contact dissimilar metals (except stainless steel) or other dissimilar materials are factory-coated with zinc chromate primer that complies with FS> TT-P-645.
 - a. Other Aluminum Window Components shall be by the window manufacturer. These components include, but not limited to the following: thermally-broken aluminum mullions, sills/subsills, closure trim, limit stops, and insect screen.
- 2.6 Insulating Glass (unless otherwise directed by Facilities) shall be 1" o.a. (nominal) thick, complying with ASTM E774; IGCC-certified Class CBA and tested per ASTM E546, E576, and E773.
- a. Where safety glazing is required, glass shall be fully tempered and comply with ANSI Z97.1 performance requirements for safety glass.
 - b. Annealed glass shall comply with ASTM C1036 requirements for Type I, Q4. Heat-strengthened and fully-tempered glass shall comply with ASTM C1048 requirements for Kind HS and Kind FT, Condition A, Type I, Q4, Condition A.

CONSTRUCTION REQUIREMENTS

- 3.1 Environmental Requirements: Work areas and products shall be dry and free of ice and snow. Wind shall be light or still.
- 3.2 Field Measurements: Fabricate work to field dimensions where possible. Where field measurements cannot be made without delaying Work, the Construction Manager shall provide guaranteed dimensions and coordinate work of affected trades/Sections to assure proper execution of adjoining work.
- 3.3 Aluminum Window contractor shall examine Project for conditions that affect work. Do not begin installation until unsatisfactory conditions are corrected. Beginning installation implies acceptance of conditions. Defects caused by unsatisfactory conditions or untimely installation shall be corrected at no cost to the Owner.
- 3.4 Installation Sequence: Install assemblies that are representative of the entire work. When interface seals are installed and cured, hose test representative assemblies as in PART 3: FIELD QUALITY CONTROL. Correct deficiencies revealed by tests.

DESIGN REQUIREMENTS

- 3.5 Comply with manufacturer's installation instructions and approved shop drawings. Install Work in proper relation to adjoining construction, without racking or other distortion, and within allowable erection tolerances. Allowable Erection Tolerances: 1/8" per 12'-0", but not more than 1/2" total variation in any run, from plane or location shown on approved shop drawings.
- 3.6 Sills, Subsills, Closure Trim: Install continuously. Splice joints. Completely bed splices in fluid-applied sealant. Secure work with concealed fastenings where possible. Where exposed fasteners must be used (at locations clearly identified and approved on shop drawings), color-match fastener heads to aluminum finish.
- 3.7 Anchorage: Anchor work to support dead loads and satisfy performance requirements. Do not bridge thermal barriers.
- 3.8 Hardware and Weatherstripping: Install items not installed in the factory. Adjust work so hardware functions properly and ventilators operate freely, without binding or excessive weatherstripping wear.
- 3.9 Glazing: Install vision glass to satisfy performance requirements. Comply with recommendations of FGMA Glazing and Sealant Manuals and the following.
- 3.10 Contractor Field Testing: Hose-test installations in the presence of the Architect and/or Owner's Testing Agency/Consultant. Use AAMA 501.2 method. Inspect work for leakage, as defined in PART 1: DEFINITIONS, of this Section.
- 3.11 Owner's Field Inspection and Testing: The Owner may require inspections or additional tests to be done by his own Testing Agency/Consultant. The Contractor shall furnish incidental labor and facilities necessary to facilitate such inspections and tests, at no additional cost to the Owner.
- 3.12 Contractor shall correct nonconforming and damaged work. Replace work that cannot be satisfactorily corrected in place. Clean work as often as necessary to prevent permanent staining, etching, and other damage. Protect work from masonry cleaner, stains and damage. Do not put warning signs, tape or marks on glass.

REFERENCE

- 4.1 The applicable CSI Specification Section is 08 51 13.