

SECTION 08520 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes Heavy-Commercial Grade aluminum windows of the performance class indicated. Window types required include the following:
 - 1. Fixed windows to match overall dimensions & appearance of existing windows.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum windows engineered, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading without failure, as demonstrated by testing manufacturer's standard window assemblies representing types, grades, classes, and sizes required for Project according to test methods indicated.
 - 1. Design wind velocity at Project site is 70 mi./h.
 - 2. Test Procedures: Test window units according to ASTM E 283 for air infiltration, both ASTM E 331 and ASTM E 547 for water penetration, and ASTM E 330 for structural performance.
- B. Performance Requirements: Testing shall demonstrate compliance with requirements indicated in AAMA 101 for air infiltration, water penetration, and structural performance for type, grade, and performance class of window units required. Where required design pressure exceeds the minimum for the specified window grade, comply with requirements of AAMA 101, Section 3, "Optional Performance Classes," for higher than minimum performance class.
 - 1. Air-Infiltration Rate for Fixed Windows: Not more than 0.15 cfm/ft. of area for an inward test pressure of 6.24 lbf/sq. ft..

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of window required, including the following:
 - 1. Construction details and fabrication methods.
 - 2. Profiles and dimensions of individual components.
 - 3. Data on hardware, accessories, and finishes.
 - 4. Recommendations for maintaining and cleaning exterior surfaces.

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- C. Samples for initial color selection on 12-inch- long sections of window members. Where finishes involve normal color variations, include Sample sets showing the full range of variations expected.
- D. Test reports from a qualified independent testing agency indicating that each type, grade, and size of window unit complies with performance requirements indicated based on comprehensive testing of current window units within the last 5 years. Test results based on use of down-sized test units will not be accepted.

1.5 QUALITY ASSURANCE

- A. Product Options: The Drawings indicate sizes, profiles, dimensional requirements, and aesthetic effects of aluminum windows and are based on the specific window types and models indicated. Other aluminum window manufacturers whose products have equal performance characteristics may be considered provided deviations in size, profile, and dimensions are minor and do not alter the aesthetic effect. Refer to Division 1 Section "Substitutions."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Check window openings by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to guaranteed dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Fixed Windows:
 - a. Alenco Commercial Division.
 - b. Capitol Products Corp.
 - c. Custom Window Company.
 - d. DeSCo Windows.
 - e. EFCO Corporation.
 - f. Graham Architectural Products Corporation.
 - g. Peerless Products, Inc.
 - h. TRACO.
 - i. Wausau Metals Corporation.

2.2 MATERIALS

- A. Aluminum Extrusions: Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength and not less than 0.062 inch (1.6 mm) thick at any location for main frame and sash members.
- B. Fasteners: Provide aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.
 - 1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads or provide standard, noncorrosive, pressed-in, splined grommet nuts.
 - 2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.
- C. Anchors, Clips, and Window Accessories: Fabricate anchors, clips, and window accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel or iron complying with requirements of ASTM B 633; provide sufficient strength to withstand design pressure indicated.
- D. Sealant: For sealants required within fabricated window units, provide type recommended by manufacturer for joint size and movement. Sealant shall remain permanently elastic, nonshrinking, and nonmigrating. Comply with Division 7 Section "Joint Sealants" of these Specifications for selection and installation of sealants.

2.3 HARDWARE

- A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum and of sufficient strength to perform the function for which it is intended.

2.4 ACCESSORIES

- A. General: Provide manufacturer's standard accessories that comply with indicated standards.
 - 1. Screen Frame for jalousie window: Fabricate frames of tubular-shaped, extruded- or formed-aluminum members of 0.040-inch- minimum wall thickness, with mitered or coped joints and concealed mechanical fasteners. Finish frames to match window units.
 - a. Provide removable PVC spline-anchor concealing edge of screen frame.

2.5 FIXED WINDOWS

- A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class F-R15.
- B. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class F-HC40.

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2.6 FABRICATION

- A. General: Fabricate aluminum window units to comply with indicated standards. Include a complete system for assembly of components and anchorage of window units.
 - 1. Provide units that are reglazable without dismantling sash or ventilator framing.
 - 2. Prepare window sash or ventilators for glazing, except where preglazing at the factory is indicated.
- B. Thermally Improved Construction: Fabricate window units with an integral, concealed, low-conductance, thermal barrier, located between exterior materials and window members exposed on interior, in a manner that eliminates direct metal-to-metal contact.
 - 1. Provide thermal-break construction that has been in use for not less than 3 years, has been tested to demonstrate resistance to thermal conductance and condensation, and has been tested to show adequate strength and security of glass retention.
 - 2. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated.
- C. Preglazed Fabrication: Preglaze window units at the factory where possible and practical for applications indicated. Comply with glass and glazing requirements of Division 8 Section "Glazing" of these Specifications and AAMA 101.

2.7 FINISHES

- A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.
- C. Finishes to match existing.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Inspect openings before installation. Verify that rough or masonry opening is correct and sill plate is level.
 - 1. Masonry surfaces shall be visibly dry and free of excess mortar, sand, and other construction debris.

3.2 INSTALLATION

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- A. Set window units plumb, level, and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place.
 - 1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified under "Dissimilar Materials" Paragraph in appendix to AAMA 101.
- B. Set sill members and other members in a bed of sealant or with joint fillers or gaskets, as shown on Shop Drawings, to provide weathertight construction. Refer to Division 7 Section "Joint Sealants" for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the Work.

3.3 FIELD QUALITY CONTROL

3.4 CLEANING

- A. Clean aluminum surfaces promptly after installing windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.
- B. Clean glass of preglazed units promptly after installing windows. Comply with requirements of Division 8 Section "Glazing" for cleaning and maintenance.

3.5 PROTECTION

- A. Provide final protection and maintain conditions, in a manner acceptable to aluminum window manufacturer, that ensure window units are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08520