SECTION 08520 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DESCRIPTION OF WORK

A. Commercial grade aluminum single hung window.

1.03 RELATED SECTIONS

A. Section 07279 - Fluid-Applied Weather Resistant Barriers
B. Section 07900 - Joint Sealants

1.04 REFERENCED CODES AND STANDARDS

A. AAMA - American Architectural Manufacturers Association
C. AAMA 1302.5-76, paragraph 3.1.1 Test A through 3.1.5 Test B “Voluntary Specifications for Forced-Entry Resistant Aluminum Prime Windows”
D. ANSI - American National Standards Institute
E. ANSI/AAMA 101-93 "Voluntary Specifications for Aluminum and Poly Vinyl Chloride PVC Prime Windows and Glass Doors"
F. ASTM - American Society for Testing and Materials
G. ASTM C 1036-91 "Standard Specification for Flat Glass"
H. ASTM E 283-91 "Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors"
J. ASTM E 331-86 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference"
K. ASTM E 547-86 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential"
M. FBC - Florida Building Code 2007
   1. Chapter 16-Structural, SBCC SSTD 12-99 Large Missile Impact criteria, including tests for Wind Loading, Water & Air infiltration, and Cyclic Loading.
1.05 **SYSTEM DESCRIPTION**

A. Configuration: flange construction single hung (single vent).

B. Frame Depth: 2.710-inch frame depth

C. Glazing: exterior glazed, with aluminum glazing bead, 7/16” minimum thickness laminated glass with PVB interlayer, factory glazed. Increase lamination total thickness as may be required to comply with criteria of testing referenced in “Performance Requirements” article of this specification Section.

D. Muntins: lites defined by double applied muntins/bars in colonial configuration (raised external muntin, interior flatbar) -see drawing.

1.06 **PERFORMANCE REQUIREMENTS**

A. Impact Resistance: When tested according to Miami-Dade County test protocols, meets the design pressures stated in the Miami-Dade County Notice(s) of Acceptance for this product. When tested per FBC Ch.16, meets SBCC STD 12-99 Large Missile Impact Criteria for wind loading at Project values as determined by Structural Drawings and Structural Notes, water and air infiltration, and cyclic loading.

B. ANSI/AAMA 101: When tested according to requirements, conforms to or exceeds an SH-C65 rating using 7/16” laminated glass.

C. Air Infiltration: .03 cfm/sq.ft. maximum when tested per ASTM E 283 at a 1.57 psf static air pressure difference.

D. Water Resistance: no water leakage when tested per ASTM E 547 at a static air pressure difference of 15% of the positive design pressure.

E. Uniform Load Structural: after testing per ASTM E 330 with a load equal to 150% of the positive design pressure, the unit must be operable, with a maximum permanent deformation in any member of 0.4% of the member's length.

1.07 **SUBMITTALS**

A. Submit according to provisions of Section 01300.

B. Product Data: provide manufacturer's standard details, specifications and catalog information, recommendations, and installation instructions.

C. Shop Drawings: include unit elevations, details of all aluminum window sections, typical installation details, type of glazing and window finish, and interface with other products. Shop drawings shall bear original signature and impressed seal of specialty engineer licensed by State of Florida, indicating that anchorage of window assemblies to substrate is in compliance with wind loading and impact resistance testing requirements referenced in “Codes and Standards” article in this specification Section.

D. Engineering calculations bearing original signature and impressed seal of specialty engineer licensed by State of Florida, demonstrating window assemblies as detailed in shop drawings are in compliance with requirements of project structural design requirements as specified.

E. Manufacturer's Certification: Provide Florida Product Approval Number.

F. Finish Samples: manufacturer's available colors.
G. Unit Samples: if required by Architect, provide scaled-down size operating samples of each unit type, to demonstrate design and construction of the unit and hardware.

1.08 QUALITY ASSURANCE

A. Manufacturer Qualifications: minimum five (5) years documented experience in the manufacture of aluminum windows as required for this project.

B. Installer Qualifications: workmen properly trained and skilled in the installation and handling of aluminum windows as required for this project.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Store and handle windows and accessories in accordance with the manufacturer's instructions.

B. Protect the products from damage due to the elements, construction traffic, or other hazards, from the time of arrival through the completion of the project.

1.10 WARRANTY

A. Manufacturer: warrant material and workmanship on all products for a period of three (3) years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: PGT Industries, Inc. Wingard SH-700 single hung windows for Station #46 and CA-740 casement windows for Station #11, refer to drawings. Equal products must be proposed for approval by Architect no later than 10 days prior to bidding. Acceptance will be by Addendum.

2.02 MATERIALS

A. Main frame members: extruded from 6063-T5 alloy, nominal 0.062" wall thickness. Meeting Rail: extruded from 6063HS-T54 aluminum alloy.

B. Sash members: extruded from 6063-T5 aluminum alloy, nominal 0.062" wall thickness. Top Rail extruded from 6063HS-T54 aluminum alloy.

C. Hardware: Two spiral torsion spring balances. Steel and tin-lead-zinc alloy cam lever sash lock on vent locking behind groove in meeting rail.

D. Weatherstripping: compressed finned vinyl bulb on vent bottom, and two fin seal weatherstrips on top and sides of vent.

E. Glazing attachment with silicone adhesive.

F. Screens: tubular aluminum frame with fiberglass screen cloth, vinyl spline, two plastic screen pull tabs and two compression retention springs per screen.

G. Muntins: extruded aluminum 6063-T5 alloy, tube construction (flat bar used for interior surface of double applied muntins)
2.03 **FABRICATION**

A. Main frame and sash joints constructed with butt joint fit, assembled with phillips pan head screws, and factory sealed with Parabond sealer.

B. All hardware factory installed.

C. Insect screens constructed and installed in unit prior to shipment.

2.04 **FINISHES**

A. Finish: White - PC-518, high-speed rotary atomizer applied or electrostatically sprayed, 1.0 mil dry film thickness minimum; supplier Alumax or equivalent.

**PART 3 - EXECUTION**

3.01 **EXAMINATION**

A. Verify that openings provide an acceptable anchoring surface, being clean, level, plumb, and dimensionally within the manufacturer's tolerance of clearance spacing.

B. Correct unacceptable openings as required prior to installation.

C. Verify that installer of fluid-applied weather resistant barrier has completed installation of products specified under that section per manufacturer's recommendations.

3.02 **INSTALLATION**

A. Install windows and accessories in accordance with approved shop drawings, engineering requirements, and manufacturer's recommendations.

B. Securely fasten frames, and set units level, plumb, and square with respect to the surrounding structure, without twist or bow.

C. Place insulation materials around shim spaces as required to ensure continuity of the thermal barrier of the structure.

D. Apply sealant continuously at perimeter of frame, between aluminum frame and structure, ensuring that a continuous airtight and watertight perimeter seal results. Leave exposed surfaces clean and free of sealant.

3.03 **ADJUSTING AND CLEANING**

A. Ensure that units freely operate in a normal fashion, and that vents make proper contact with weatherstripping perimeter seal. Adjust frame, vent, or hardware as needed.

B. Leave units thoroughly clean and free of dirt, fingerprints, markings, trade literature, or other construction residue.

C. Completely remove all adhered materials from view.

D. Wash glass surfaces, interior and exterior, prior to Final Acceptance by Owner.

**END OF SECTION 08520**