SECTION 085113 – ALUMINUM WINDOWS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Fixed Window Units - ENERGSAVE Architectural Peerless G241

B. Fixed Thermal Aluminum Windows

1.2 RELATED SECTIONS

A. Section 06 10 00 – Rough Carpentry

B. Section 07 90 00 – Joint Protection

C. Section 08 80 00 – Glazing

1.3 REFERENCES

A. AAMA - American Architectural Manufacturers Association:

1. AAMA/ WDMA/CSA 101/I.S.2/ A440-08 "Standard/Specification for windows, doors, and unit skylights".
2. AAMA 502-12 "Voluntary Specification for Field Testing of Newly Installed Fenestration Products".
3. AAMA 701/702-11 "Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals".
4. AAMA 901-10 "Voluntary Specification for Rotary & Linear Operators in Window Applications".
5. AAMA 902-07 "Voluntary Specification for Sash Balances".
6. AAMA 904-09 "Voluntary Specification for Multi-bar Hinges in Window Applications".
7. AAMA 910-10 "Voluntary - Life Cycle- Specifications and Test Methods for AW Class Architectural Windows and Doors".
8. AAMA 920-11 “Specification for Operating Cycle Performance of Side-Hinged Exterior Door Systems”.
9. AAMA 1304-02 “Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems”.
10. AAMA 1503-09 "Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections".
11. AAMA 2605-13 "Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels"
12. AAMA CW-10-12 "Care and Handling of Architectural Aluminum from Shop to Site"
13. AAMA 501.8-12 “Standard Test Method for Determination of Resistance to

Human Impact of Window Systems Intended for Use in Psychiatric Applications".

14. AAMA 513-12 "Standard Laboratory Test Method for Determination of Forces and Motions Required to Activate Operable Parts of CW and AW Class Operable Windows, Sliding Glass Doors and Terrace Doors in Accessible Spaces"

1.4 SUBMITTALS

A. Product Data: test reports or waiver from an AAMA accredited laboratory; manufacturer's specifications.

B. Shop Drawings: Window location chart; typical window elevations; details of assemblies, hardware and glazing details for units glazed by the window manufacturer.

C. Samples: each specified finish for aluminum; other samples as requested.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Skilled craftspeople who have demonstrated a successful history of installing windows for five years.

B. Product Requirements:

1. Acceptance will be by addendum only as no verbal approvals will be allowed.
2. Submit bid on prequalified products in prebid written addendum. Bidder must identify manufacturer and model of product on which the bid is based.
3. Furnish a valid AAMA "Authorization for Product Certification" or waiver indicating the windows for the project conform to AAMA/WDMA/CSA 101/I.S.2/A440-08.
4. Furnish visible, permanent SGCC certification labels indicating conformance with ANSI Z97.1-09 and/or 16 CFR 1201 on tempered glass lites, if included on the project, and laminated glass lites, if included on the project.
5. Furnish visible, permanent IGCC certification labels indicating compliance with ASTM E 2190-10 on the insulating glass units.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store Products in manufacturer's unopened packaging until ready for installation.

B. Handle and protect windows and accessories in accordance with AAMA CW-10-15 until project completion.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Manufacturer's Warranties:
   1. Windows: Manufacturer shall warrant for one year against defects in material and workmanship under normal use.
   2. Insulating Glass Units: Glass manufacturer shall warrant seal for ten years against visual obstruction from film formation or moisture collection between internal glass surfaces, excluding that caused by glass breakage or abuse.
   3. Powder Paint Finish: Finish conforming to AAMA 2605 shall be warranted for twenty years against checking, cracking, chalking or fading.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Peerless Products, Inc., which is located at: 2403 S. Main St.; Ft. Scott, KS 66701; Toll Free Tel: 866-420-4000; Tel: 620-223-4610; Fax: 620-224-3107; Email: request info (adowell@peerlessproducts.com)

B. Web: http://www.peerlessproducts.com.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 FIXED WINDOW UNITS - ENERGSAVE ARCHITECTURAL

A. Product: Peerless G241 Fixed Thermal Aluminum Windows
   1. AAMA Certification: Conformance with FW-AW90.

B. Configuration:
   1. Fixed; glass plane in line with the window exterior plane.

C. Construction:
   1. Aluminum Extrusions: extruded by the window manufacturer from commercial quality 6063-T5 alloy; free from defects impairing strength and durability.
   2. Window Frame: Extruded aluminum with integral structural thermal break installed by the window manufacturer in the frame members; exterior and interior finishes applied by the window manufacturer; frames assembled by the window manufacturer.
      - Frame Depth: 3 1/4 Inches (83 mm).
      - Fabricated with equal-leg frame.
   3. Frame: Double tubular head, sill, and jambs miter cut and fastened with two zamac corner gussets per corner; corners sealed by window manufacturer with sealant conforming to AAMA 800-10.
   4. Integral Mullions: Double tubular integral mullion fastened with two Zamac gussets per frame member without penetrating the frame member with fasteners; joints sealed by window manufacturer with sealant conforming to AAMA 800-10.

5. Thermal Break: The thermal break separating the exterior and interior aluminum extrusions shall be a mechanical crimp-in-place system utilizing multi-directional glass fiber reinforced polyamide nylon ribbed struts with locking mechanical connections to the aluminum extrusions. The thermal break shall not be compromised by hardware or metal fasteners.
6. Glazing: exterior ExxonMobil Santoprene™ foam gasket; 1 inch (25 mm) insulating glass; two weep holes under each glass pocket for drainage with hooded weeps painted to match the window finish; foam backer rod and silicone heel bead forming an internal seal; interior Santoprene™ bulb gasket threaded into aluminum glazing beads; specified glass glazed by the window manufacturer.

D. Performance:

1. AAMA Certification: Conformance to AW-PG90-FW specifications in AAMA/WDMA/CSA 101/I.S.2/A440-08 when tests are performed on the prescribed 60 inches by 99 inches (1524 mm by 2515 mm) minimum test size with the following test results:
2. Air Infiltration: Not to exceed AAMA 101 standard of maximum 0.1 cfm/square foot when tested per ASTM E283-12 at a static air pressure difference of 6.24 psf.
3. Water Penetration: No uncontrolled water leakage when tested per ASTM E331-09 and ASTM E547-09 at a static air pressure difference of 15 psf.
4. Uniform Deflection: No more than L/175 when tested per ASTM E330-14 at a static air pressure difference of 90 psf.
5. Uniform Structural Load: No glass breakage or permanent damage to fasteners, and maximum .2% permanent deformation of the span of any frame member when tested per ASTM E330-14 at a static air pressure difference of 135 psf.
6. Forced-entry Resistance: Reasonable security against forced entry and the test window shall achieve a Grade 40 when tested per ASTM F588-07.
7. Thermal NFRC Simulation: Thermal computer simulation per NFRC 100-2010 on a 60 inches by 99 inches (1524 mm by 2515 mm) test size glazed with 1 inch (25 mm) insulating made with 1/4 inch (6 mm) soft coat low E coating on surface #2, argon gas in the airspace made with a stainless steel spacer, and 1/4 inch (6 mm) clear glass, with the following test result:
8. Standardized Thermal Transmittance to be maximum 0.297 btu/hr/sq.ft/degree F.
9. Thermal AAMA Testing: Per AAMA 1503-09, on a 47 inch by 59 inches (1194 mm by 1499 mm) test size glazed with 1 inch (25 mm) insulating glass made with 1/4 inch (6 mm) soft coat low E coating on surface #2, plain air in the airspace made with a stainless steel spacer, and 1/4 inch (6 mm) clear glass, with the following test results:
10. Condensation Resistance Factor: minimum 71 frame CRF and 72 glass CRF.
11. Thermal Transmittance: maximum 0.35 btu/hr/sq.ft/degree F U value.
12. Thermal NFRC Testing: Per NFRC 102-2010 on a 47 inch by 59 inches (1194 mm by 1499 mm) test size glazed with 1 inch (25 mm) insulating glass made with 1/4 inch (6 mm) soft coat low E coating on surface #2, plain air in the airspace made with a stainless steel spacer, and 1/4 inch (6 mm) clear glass, with the following test result:
13. Standardized Thermal Transmittance to be maximum 0.34 btu/hr/sq.ft/degree F.
14. Acoustical Testing: per ASTM E90-09 on a 46-1/4 inches x 59 inches (1175 mm x 1499 mm) test size glazed with 1-3/8 inches (35 mm) insulating glass made with exterior 5/16 (7.9 mm) laminated glass - 1/8 inch (3 mm) glass x .060 inch (1.5 mm) PVB interlayer x 1/8 inch (3 mm) glass - and 13/16 inch (20.6 mm) airspace and interior 1/4 inch (6 mm) laminated glass– 1/8 inch (3 mm) glass x .030 inch

(0.76 mm) PVB interlayer x 1/8 inch (3 mm) glass: minimum 40 STC and 31 OITC.

2.3 INSTALLATION ACCESSORIES

A. Material: Extruded aluminum; nominal .062 inch (1.6 mm) wall; with exposed surfaces finished to match window color and finish performance; concealed fasteners; required weather seals; designed for unrestricted expansion and contraction.

B. Mullions:
   1. Vertical three-piece mullion with polyamide strip thermal break

C. Sill angle.

2.4 INSULATING GLASS UNITS

A. Materials:
   1. Spacer: tubular stainless steel.
   2. Spacer color: Stainless metal color.
   3. Primary seal: polyisobutylene.
   4. Secondary seal: Silicone.
   5. Airspace Fill: Argon filled.

B. Performance:
   1. Dual-seal durability: AAMA Certification: Conformance with ASTM E 2190-10; visible, permanent IGCC certification label.

C. Glazing:
   1. Type: 1” Insulating Glass.
   2. Exterior: 1/4" (6.35mm) Clear Tempered
   3. Interior: 3/16” (5mm) Clear Annealed / 0.090” (2mm) Sentry Guard Plus Ionoplast / 3/16” (5mm) Clear Annealed.

2.5 FINISH ON EXTERIOR ALUMINUM EXTRUSIONS

A. Application: on clean extrusions free from objectionable surface blemishes; on exposed surfaces visible when installed product's operating sash is closed. Electrostatic spray by an Approved Applicator and appropriate oven bake process.

B. Coating: Superior Performance Powder coating: One-coat dry system with resin containing fluoropolymer; thermosetting; alternative finishes will not be acceptable.

C. Quality Standard: Conforming to AAMA 2605-13, including 10 years Florida exposure. [AAMA 2604-13, including 5 years Florida exposure.]

D. Pretreatment: Mechanically clean and chemically pretreat fabricated items in accordance with coating manufacturer's requirements and AAMA requirements with a Chrome Free Treatment.

E. Coating Quantity: One single color coating, additional coating quantities will not be accepted. This includes, but is not limited to barrier coats, primers and clear coats.

F. Dry Film Thickness: Eighty percent of measurements on primary exposed surfaces shall exceed 1.9 mils with a standard thickness range of 1.9 to 3.14 mils, except inside corners and channels.

G. Environmental Factors: Less than 3% harmful VOC's (Volatile Organic Compounds) emitted during powder coating application process.

H. Color: Chosen from manufacturer's standards.

2.6 FINISH ON INTERIOR ALUMINUM EXTRUSIONS

A. Application: on clean extrusions free from objectionable surface blemishes; on exposed surfaces visible when installed product's operating sash is closed. Electrostatic spray by an Approved Applicator and appropriate oven bake process.

B. Coating: Superior Performance Powder coating: One-coat dry system with resin containing 70% fluoropolymer; thermosetting; alternative finishes will not be acceptable.

C. Quality Standard: Conforming to AAMA 2605-13, including 10 years Florida exposure. [AAMA 2604-13, including 5 years Florida exposure.]

D. Pretreatment: Mechanically clean and chemically pretreat fabricated items in accordance with coating manufacturer's requirements and AAMA requirements with a Chrome Free Treatment.

E. Coating Quantity: One single color coating, additional coating quantities will not be accepted. This includes, but is not limited to barrier coats, primers and clear coats.

F. Dry Film Thickness: Eighty percent of measurements on primary exposed surfaces shall exceed 1.9 mils with a standard thickness range of 1.9 to 3.14 mils, except inside corners and channels.

G. Environmental Factors: Less than 3% harmful VOC's (Volatile Organic Compounds) emitted during powder coating application process.

H. Color: Chosen from manufacturer's standards.

2.7 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

2.8 PREPARATION

A. Prepare openings to be in tolerance, plumb, level, provide for secure anchoring, and in accordance with approved shop drawings.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

2.9 INSTALLATION

A. Install windows in accordance with approved shop drawings and window manufacturer's recommendations with skilled craftspeople who have

demonstrated a successful history of installing windows for a specified number of years. Provide required support and securely fasten and set windows plumb, square, and level without twist or bow. Install in proper relationship with adjacent construction.

B. Apply sealant per sealant manufacturer's recommendations at joints, wipe off excess, and leave exposed sealant surfaces clean and smooth.

2.10 ADJUSTING

A. Adjust windows as necessary for smooth and weathertight operation.

2.11 CLEANING

A. Peel the Preserve protective film from the window or door glass surfaces when the window or door installation is complete, leaving these surfaces ready for use without the need for glass cleaning.

B. Leave the installed windows and doors clean and free of construction debris.

2.12 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 085113