SECTION 08 53 13

ENDURANCE SERIES OUTWARD PROJECTING VINYL CASEMENT, AWNING, AND FIXED WINDOWS SPECIFICATIONS

Project Name:

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Factory fabricated tubular extruded plastic windows with fixed and operating sash
B. Factory glazed including infill panels
C. Operating hardware
D. Insect screens
E. Perimeter sealant

1.02 RELATED REQUIREMENTS

A. Section 07 90 05 - Joint Sealers: Perimeter sealant and back-up materials

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors; American Architectural Manufacturers Association; 2016.

B. NFRC 100-2017 – Procedure for Determining Fenestration Product U-factors.

C. NFRC 200-2017 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

D. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; American Architectural Manufacturers Association; 2016.

E. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2012.

F. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2002 (Reapproved 2010).

G. ASTM E 1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.

H. FS L-S-125 - Screening, Insect, Nonmetallic; Federal Specifications and Standards; Revision B, 1972.

I. ASTM E 547 – 00(2016) – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls, by Cyclic Static Air Pressure Difference.

J. NAFS (2011) – North American Fenestration Standard, as required by IBC 2016.

K. ASTM E 90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

1.04 PERFORMANCE REQUIREMENTS

A. Performance Requirements: As specified in PART 2, with the following additional requirements: (attach project specific requirements)

B. System Design: Design and size components to withstand positive and negative dead and live loads caused by wind pressure acting on the normal plane of the window.

1. Calculate fenestration design pressures in accordance with applicable code (ASCE 7-10).

C. Deflection: For CW Performance Class Limit member deflection to 1/175 of the longest unsupported span dimension. For LC Performance Class, all structural members must comply with the requirements of AAMA 101 9.3.4.3 Uniform Load Structural Test.

D. Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.

E. Thermal Resistance of Assembly: U value of 0.18* Triple Glaze, 0.27* Dual Glaze.

F. Air Infiltration: Limit air infiltration through assembly to 0.3 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57psf (for LC performance class) and 6.24psf (for CW performance class) as measured in accordance with ASTM E 283.

G. Condensation Resistance Factor: CRF of 60* when measured in accordance with AAMA 1503.

H. Water Leakage: None, when measured in accordance with ASTM E 547 at a pressure differential as required for specified design pressure.

I. System Internal Drainage: Pressure equalized water management system designed to drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

J. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound.

K. Thermal Movement: Design sections to permit movement caused by thermal expansion and contraction of plastic to suit glass, infill, and perimeter opening construction.

L. Design Temperature Range: 120° F.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meeting: Convene minimum of one week before starting work of this section.

1.06 SUBMITTALS

A. See Section covering Administrative Requirements for submittal procedures.

B. Product Data: Provide component dimensions, anchorage and fasteners, and glazing details. AAMA/NFRC certified testing data shall be provided for project configurations.

C. Shop Drawings: Indicate net frame dimensions, framed opening tolerances, Installation requirements. Drawing shall indicate compliance with codes and laws, including ADA reach range height.

D. Samples: Upon request submit two window and frame sections, 12 x 12 inch in size, illustrating window frame section, mullion section, screen and frame, and finished surfaces.

E. Upon request submit two samples of operating hardware.

F. Manufacturer's Certificate: Certify that products of this section meet or exceed project requirements. Manufacturer's certificate shall not supersede code or regulatory certification or requirements.

G. Warranty: Submit manufacturer warranty, ten year minimum.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in window installation, with minimum five years of experience. Architect and General Contractor shall qualify installation contractor.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect exposed glazing surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

B. Windows shall be stored in protected area on flat surface protected from weather. Refer to manufacturer's storage and handling instructions.

1.09 FIELD CONDITIONS

A. Install sealants per manufacturer's instructions.

B. Compatibility testing may be required for all envelope materials.

1.10 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Manufacturers standard 10-year warranty.

C. Warranty period begins on the date of installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Tubular Plastic Windows:

1. Manufacturer; VPI Quality Windows, Endurance Series
2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 COMPONENTS

A. Windows: Extruded, hollow, tubular, ultra-violet resistant polyvinyl chloride (PVC) with integral color; factory fabricated; with vision glass, related flashings, anchorage and attachment devices.

1. Performance Requirements: AAMA/WDMA/CSA 101/I.S.2/A440 CW-PG70. Multi panel configuration: Double and triple wide config-CW-PG70, Triple wide double tall CW-PG40.
2. Configuration: Operable, outward opening, side hinged, and fixed.
3. Color: Color as selected from manufacturers standard colors.

B. Frames: 2-9/16 inch wide x 3-1/2 inch deep profile; chambered glaze bead.

C. Mullion: 4-1/4 inch or 5-7/8 inch wide x 3-1/2 inch deep profile.

D. Sills: 2-9/16 inch nominal thickness, with pressure equalized drainage system.

E. Insect Screens: Woven fiberglass mesh; 14/18 mesh size.
   1. Color: Gray.

F. Operable Sash Weather Stripping: extruded; permanently resilient, profiled to effect weather seal.

2.03 GLASS AND GLAZING MATERIALS

A. Glass and Glazing Materials: As described below.
   1. Glass in Exterior Lights; 3mm minimum thickness Cardinal Low-e; Glass interior 3mm minimum.

2.04 IGU SEALANT MATERIALS

A. Perimeter Sealant and Backing Materials: Dual seal; Hot melt PIB backed with silicone.

2.05 HARDWARE

A. Sash lock: Lever handle with concealed multi-point lock.

B. Operator: Roto-gear handle fitted to projecting sash arms, limit stops available.

C. Projecting Sash Arms: Cadmium plated steel, friction pivot joints with nylon bearings, removable pivot clips for cleaning.

D. Finish for exposed hardware: Color matched baked enamel.

2.06 FABRICATION

A. Fabricate framing, mullions and sash members with fusion welded corners and joints, in a rigid jig. Supplement frame sections with internal reinforcement where required for structural rigidity.

B. Form sills in one piece.

C. Form snap-in glass stops, closure molds, weather stops, and flashings of extruded PVC for tight fit into window frame section.

D. Form weather stop flange to perimeter of unit.

E. Fabricate components with uniform fit and finish, including gasketed seals at inter-connecting joints. Minimize clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

F. Arrange fasteners to be concealed from view.

G. Permit internal drainage weep holes and channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through weep holes.

H. Assemble insect screen frame, miter and reinforced frame corners. Fit mesh taut into frame and secure. Fit frame with four spring loaded steel pin retainers.

I. Triple weather-strip operable units.

J. Factory glaze window units.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

3.02 INSTALLATION

A. Install window units in accordance with manufacturer's instructions.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

D. Provide thermal isolation where components penetrate or disrupt building insulation, per building details.

E. Coordinate attachment and seal of perimeter air and vapor barrier materials.

F. Install operating hardware.

G. Install perimeter sealant and backing materials in accordance with building details.

3.03 TOLERANCES

A. Maximum Variation from Level or Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.

3.04 FIELD QUALITY CONTROL

A. Test installed windows for compliance with performance requirements for water penetration, in accordance with ASTM E 1105 using uniform cyclic pressure at 2/3 pressure difference as specified for laboratory tests.

1. Test one window of each type, as directed by Architect.
2. If any window fails, test an additional window at Contractor's expense.

B. Correct or replace windows that have failed field testing and retest until performance is satisfactory.

C. General contractor is responsible for complete installation and adjustment in accordance with construction documents and manufacturer's installation instructions prior to conducting field testing.

3.05 ADJUSTING

A. Adjust hardware for smooth operation and secure weather-tight closure.

3.06 CLEANING

A. Remove protective material from pre-finished surfaces.

B. Wash surfaces by method recommended and acceptable to sealant and window manufacturer. Rinse and wipe surfaces clean.

C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

*May vary with glass package.

END OF SECTION