

SECTION 08 54 13
FIBERGLASS WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Factory fabricated fiberglass 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 06 10 54 - Wood Blocking and Curbing.
- B. Section 07 25 00 - Weather Barriers.
- C. 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; 2011.
- B. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.
- C. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).
- D. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2009).
- E. ASTM E1105 - 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; 2000 (Reapproved 2008)

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Pre-installation Meeting: Convene at least two weeks before starting work of this Section.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component dimensions, anchors, fasteners, glass, and internal drainage details.
- C. Performance Validation: Provide specified performance validation before submitting shop drawings or starting fabrication.
- D. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, installation requirements.
- E. Samples:
 - 1. Submit full range of finish samples for selection.
 - 2. Submit samples of operating hardware
- F. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
 - 1. Evidence of AAMA Certification.
 - 2. Evidence of WDMA Certification.
 - 3. Evidence of CSA Certification.

4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.
- G. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section, with not less than ten years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.
- B. Jig, brace, and box the window frame assemblies for transport to minimize flexing of members or joints.

1.08 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F.
- B. Maintain this minimum temperature during and after installation of sealants.

1.09 WARRANTY

- A. See Section 01 78 00 - Project Close-out, for additional warranty requirements.
- B. Provide ten year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same. Include coverage for degradation of color finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Fiberglass Windows: **Basis of Design Windows Have a U-Factor ranging from 0.29-0.33.**
 1. **Basis of Design: Integrity Windows by Marvin Windows; Product All Ultrex.**
 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 WINDOW UNITS

- A. Fiberglass Windows: Hollow, tubular, multi-layer fiber reinforced material; factory fabricated; with vision glass, related flashings, anchorage and attachment devices.
 1. Configuration: As indicated on drawings.
 2. Color: As selected by Architect from manufacturer's full range.
 3. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
 4. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
- B. Performance Requirements: Provide products that comply with the following:
 1. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
 - a. Performance Class (PC): R.
 2. Performance Validation: Windows shall comply with AAMA/WDMA/CSA 101/I.S.2/A440 performance requirements as indicated by having AAMA, WDMA, or CSA certified label, or an independent test report for indicated products itemizing compliance and acceptable by authorities having jurisdiction.
 3. Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of window.
 - a. Design Wind Speed, Importance Factor and Exposure: See Structural Drawings.
 4. Design Pressure (DP): In accordance with applicable codes.

5. Deflection: Limit member deflection to 1/200 of the longer dimension with full recovery of glazing materials.
6. Assembly: To accommodate, without damage to components or deterioration of seals, movement between window and perimeter framing, deflection of lintel.
7. Air Infiltration: Limit air infiltration through assembly to less than 0.3 cu ft/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ASTM E283.
8. Vapor Seal: No vapor seal failure at interior static pressure of 1 inch, 72 degrees F, and 40 percent relative humidity.
9. Water Leakage: None, when measured in accordance with ASTM E331.
10. System Internal Drainage: Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.
11. 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. Position thermal insulation on exterior surface of air barrier and vapor retarder.
12. Thermal Movement: Design sections to permit movement caused by thermal expansion and contraction of fiberglass to suit glass, infill, and perimeter opening construction.

2.03 COMPONENTS

- A. Frames: 3-3/32 inch wide x 1-3/8 inch deep profile.
 1. Type: Nailing flange (for new windows).
- B. Sash: 15/16 inch thickness.
- C. Jamb Extensions: 2 inch standard.
- D. Mullion(s): Interior and exterior mullion cover per manufacturer standards.
 1. Reinforcement: Steel plates and accessories as required per manufacturer design standards for applications and sizes indicated on the drawings.
- E. Insect Screens: Woven fiberglass mesh; 14/18 mesh size.
 1. Color: Charcoal.
- F. Weatherstripping: Single Hung: Foam filled vinyl bulb at sill; rigid vinyl with flexible seals at jambs and meeting rail; foam tape at stationary top sash. Awning: extruded foam filled bulb all sides at frame and PVC hollow extrusion on sash
- G. Operable Sash Weather Stripping: Wool pile; permanently resilient, profiled to effect weather seal.
- H. Fasteners: Stainless steel.

2.04 GLASS AND GLAZING MATERIALS

- A. Glass in Exterior Lights: Argon filled, Low E-180 Type, 11/16" thickness insulating panels, IGCC certified.

2.05 SEALANT MATERIALS

- A. Perimeter Sealant and Backing Materials: As specified in Section 07 90 05.
- B. Foam Insulation Sealant: As specified in Section 07 21 00.

2.06 HARDWARE

- A. Casement and Awning Sash: Zinc die-cast steel worm-gear operator with Painted finish.
 1. Jamb hinges with stainless steel track and injected molded hinge shoe and coated hinge arm. Single point lock at each jamb.
- B. Double and Single Hung Sash: Coil spring block and tackle balances; bottom sash tilt-in latch hardware; zinc die cast meeting rail cam-lock and keeper
- C. Finish For Exposed Hardware: Match window finish.

2.07 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. Slope sills for wash.
- C. Form snap-in glass stops, closure molds, weather stops, and flashings for tight fit into window frame section.
- D. Form weather stop flange to perimeter of unit.
- E. Fabricate components with minimum 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. Double weatherstrip operable units.
- J. Factory glaze window units.

PART 3 EXECUTION

3.01 EXAMINATION

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

3.02 INSTALLATION

- A. Install 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. Foam insulate in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

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 ADJUSTING

- A. Adjust hardware for smooth operation and secure weathertight closure.

3.05 CLEANING

- A. Remove protective material from pre-finished surfaces.
- B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

END OF SECTION