**SECTION 08 51 13**

**ALUMINUM WINDOWS**

Window Technologies Inc. dba WinTech

Out-Swing Casement Impact Window

Series 320i PG80-C

**PART 1 – GENERAL**

1. **SUMMARY**
	1. Section Contents
		1. Factory glazed aluminum windows complete with hardware and related components
	2. Related Sections
		1. Glass and Glazing – Section 08800
		2. Sealant and Caulking – Section 07900
	3. Single Source Requirement
		1. Glass and glazing for aluminum windows are required as work for this section. All aluminum window are to be factory glazed by the window manufacturer
2. **TEST AND PERFORMANCE REQUIREMENTS**
	1. Test Units and Test Criteria
		1. Test units should follow the requirements set forth in ASTM E283, ASTM E330, ASTM E331, ASTM E1886, ASTM E1996, TAS 201, TAS 202, and TAS 203
		2. Testing shall be performed by an AAMA qualified independent testing agency
	2. Performance Requirements
		1. Air Infiltration
			1. Not to exceed .10 cfm/SF of unit per ASTM E283 and TAS 202 at static air pressure different of 6.24 PSF (300 Pa)
		2. Water Resistance Test
			1. No uncontrolled water leakage per ASTM E331 and TAS 202 at static air pressure different of 15 PSF
		3. Uniform Load Deflection Test
			1. No member shall deflect more than L/175 of its span per ASTM E330 and TAS 202 at 80 PSF positive and negative pressure
		4. Uniform Load Structural Test
			1. No glass breakage, permanent damage to fasteners, hardware parts, support arms, or actuating mechanisms, nor any other damage that would cause the unit to be inoperable per ASTM E330 and TAS 202 at 120 PSF positive and negative pressure
		5. Large Missile Impact Test
			1. No penetration of 8’-3” 9 pound projectile at missile level D per ASTM E1996-14 and TAS 201
		6. Uniform Load Cyclic Test
			1. No penetration after large missile level D testing per ASTM E1886-13 and TAS 203 cyclic load testing at 80 PSF both positive and negative
		7. Condensation Resistance Factor Test (CRF)
			1. Condensation Resistance Factor (CRF) shall not be less than 60 (Frame) when glazed with .24 center of glass U-Factor when tested in accordance with AAMA 1503-09
		8. Condensation Resistance Test (CR)
			1. Condensation Resistance (CR) shall not be less than 41 when glazed with .24 center of glass U-Factor when tested in accordance with NFRC 500-2014
		9. Thermal Transmittance Test (Conductive U-Factor)
			1. U-Factor shall not be more than .49 BTU/hr●ft2 ●F⁰ when glazed with .24 center of glass U-Factor when tested in accordance with NFRC 102-2014
3. **SUBMITTALS**
	1. Product Data
		1. Submit manufacturer’s specifications and certified test reports from an AAMA accredited laboratory
		2. Submit standard aluminum window details
		3. Included information for glass and glazing components, accessories, and hardware
	2. Shop Drawings
		1. Submit shop drawings including floor plans, window elevations, detail sections with dimensions, glazing details, and sealant application. Also show anchors, hardware, and other components as applicable.
	3. Samples
		1. Submit finish samples
		2. Submit samples of anchors, fasteners, hardware, corner sections, or other components if required by the architect.
4. **DELIVERY, STORAGE, AND HANDLING**
	1. Store windows in a vertical position off the ground
	2. Protect window units and other accessories against damage from construction and other hazards prior to, during, and after installation
5. **WARRANTIES**
	1. Window Material and Workmanship
		1. Submit a written warranty against defects in material and workmanship for one (1) year from date of final shipment
	2. Finish
		1. Anodic Finish
			1. Warranty period will be for one (1) year from the date of final shipment
		2. Organic Finish
			1. Warranty period will be for ten (10) years from the date of final shipment for all organic finishes meeting the AAMA 2604 standard
			2. Warranty period will be for ten (10) years from the date of final shipment for all organic finishes meeting the AAMA 2605 standard
	3. Insulated Glass
		1. Submit a written warranty for visual obstruction of vision due to dust, film formation, or moisture on the internal glass surfaces caused by defects in material and workmanship for ten (10) years from the date of final shipment

**PART 2 – PRODUCTS**

1. **MANUFACTURERS**
	1. WinTech Series 320i Impact Out-Swing Casement Window manufactured by WinTech, Inc., Monett, MO
	2. Alternate Manufacturers
		1. Products of alternate manufacturers will be considered upon written authorization from the architect. Their product information, test reports documenting compliance with Section 1.2, and a sample window must be submitted fifteen (15) days prior to project bid date.
2. **MATERIALS**
	1. Aluminum Extrusion
		1. 6063-T6 alloy and tempered
		2. Extrusion tolerances should be in accordance with the Aluminum Associations “Drafting Standards for Aluminum Extruded and Tubular Products”.
	2. Thermal Barrier
		1. Provide manufacturer’s standard thermal barrier construction that has been in use a minimum of five (5) years.
		2. Thermal barrier is to be continuous around the frame and sash perimeter
		3. Thermally broken frames should be “stacked” during the pour and debridge process
	3. Fasteners
		1. Provide aluminum, stainless steel, or other corrosion resistant material as warranted by the manufacturer. Fasteners should be compatible with aluminum
		2. Provide concealed fasteners wherever possible
	4. Hardware
		1. Provide stainless steel cam locks and strikes
		2. Provide five knuckle aluminum butt hinges
	5. Weather-Strip
		1. Provide weather-stripping that is compatible with aluminum, ultraviolet degradation resistant, and weather resistant.
	6. Sealant
		1. Provide sealant product that complies with AAMA 800
		2. Sealant is to be appropriate for window application and approved by the window manufacturer
		3. Refer to Division 7 for perimeter sealants between window units and surrounding conditions
	7. Insect Screens
		1. Provide 18x16 Choose an item. mesh
3. **FABRICATION**
	1. General
		1. Aluminum window and accessories shall be provided per the manufacturer’s standard fabrication and comply with specifications.
	2. Aluminum Window Material
		1. All aluminum window frame and sash extrusions will have a minimum wall thickness of .090”
		2. Any mechanical fasteners, components, and/or hardware should not bridge the thermal barrier
		3. Frame depth should not be less than 3-1/4”
	3. Aluminum Window Frame
		1. Frame members are to be mechanically fastened
		2. Frame joints should be coped and joined neatly
	4. Aluminum Window Sash
		1. Sash extrusions are to be tubular
		2. Sash components are to be mechanically fastened
	5. Screens
		1. Screen frames are to be extruded aluminum or roll formed aluminum
		2. Screen mesh is to be aluminum or fiberglass
	6. Glazing
		1. Fixed and operable sash should be interior glazed with aluminum glazing stops.
			1. Typical insulated glass thickness = 1”
		2. Wrap around or marine glazing is unacceptable
	7. Weep System
		1. Provide method of drainage for water which may collect in sill
4. **ACCESSORIES**
	1. Receptors
		1. Provide extruded jamb and/or head receptors made from 6063-T6 aluminum
		2. Receptors to be finished to match window system
		3. Receptor system should have weather-strip to prevent receptor to window system metal contact
		4. Receptor system must be subjected to same test requirements and performance as the window as outlined in Section 1.2 Letter B.
	2. Subsills
		1. Provide extruded subsills made from 6063-T6 aluminum
		2. Subsills to be finished to match window system
		3. Subsills to be provided with means to weep water to the exterior
		4. Subsills must be subjected to same test requirements and performance as the window as outlined in Section 1.2 Letter B.
	3. Mullions
		1. Provided extruded mullions made from 6063-T6 aluminum
		2. Mullions to be finished to match window system
		3. Mullion clips and covers to be provided as required to complete window to window connections
		4. Mullions must be subjected to same test requirements and performance as the window as outlined in Section 1.2 Letter B.
5. **ALUMINUM WINDOW FINISHES**
	1. Anodic
		1. Provide Class I Choose an item. anodize finish to all exposed surfaces of aluminum window units.
		2. Finish must meet AAMA 611
	2. Paint
		1. Provide manufacturer’s standard polyester powder coating to all exposed surfaces of aluminum window units.
		2. Finish must meet AAMA 2604
		3. Color: Choose an item. (Custom colors available upon request)
	3. Paint
		1. Provide manufacturer’s standard two-coat 70% fluoropolymer resin based coating to all exposed surfaces of aluminum window units.
		2. Finish must meet AAMA 2605
		3. Color: Choose an item. (Custom colors available upon request)
	4. Paint
		1. Provide manufacturer’s standard polyester powder coating to all exposed surfaces of aluminum window units.
		2. Finish must meet AAMA 2605
		3. Color: Choose an item. (Custom colors available upon request)

**PART 3 – EXECUTION**

1. **INSPECTION**
	1. Job Conditions
		1. Verify all window openings are dimensionally within allowable tolerances, plumb, level, and clean. Provide solid anchoring surfaces in accordance with the approved shop drawings.
		2. Verify all window openings are the correct size to allow for installation of new windows per the manufacturer’s installation instructions
		3. Do not install windows into unsatisfactory openings
2. **INSTALLATION**
	1. Install windows using only skilled tradesmen in exact accordance with the approved shop drawings
	2. Plumb and align window faces in a single plane for each wall plane. Erect windows square and true. Adequately anchor window units to maintain positions permanently when subjected to normal thermal movement, specified building movement, and specified wind loads.
	3. Perimeter Sealing
		1. Seal joints at perimeters in accordance with approved shop drawings to provide a watertight installation.
		2. Wipe excess sealant and leave all exposed surfaces and joints clean and smooth
3. **ADJUST AND CLEAN**
	1. After installation, windows and glazing should be inspected and adjusted to provide smooth operation and a weathertight window.
	2. After installation, leave windows clean and free of labels, dirt, sealant, etc.
	3. Initiate all protection and precautions to ensure window units will be without damage.

**END OF SECTION**