

SECTION 08 51 69 - METAL STORM WINDOWS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Factory glazed windows complete with perimeter frames, reinforcing, shims, anchors and attachment devices for installation outside existing prime windows.
 - 1. Exterior Storm window system (2000 ALX).
 - 2. Exterior Storm window system (2000 ALX-P).

1.2 RELATED REQUIREMENTS

- A. Section 07 92 00 "Joint Sealants:" Perimeter joint sealants.

1.3 REFERENCES

- A. Architectural Aluminum Manufacturers Association (AAMA):
 - 1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
 - 2. AAMA 1801 – Voluntary Specification for Determining the Acoustical Performance of Windows, Doors, Skylight, and Glazed Wall Systems.
 - 3. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- B. ASTM International (ASTM):
 - 1. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM C 834 - Standard Specification for Latex Sealants.
 - 3. ASTM C 1036 - Standard Specification for Flat Glass.
 - 4. ASTM C 1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
 - 5. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass.
 - 6. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- C. Consumer Product Safety Commission (CPSC):
 - 1. CPSC 16 CFR Part 1201) - Safety Standard for Architectural Glazing Materials.
- D. Lawrence Berkley National Laboratory (LBNL):
 - 1. LBNL THERM 6.3 / WINDOW 6.3 - NFRC Simulation Manual.

1.4 PREINSTALLATION MEETINGS

- A. Conduct pre-installation meeting minimum two weeks before starting installation.
 - 1. Required Attendees: Contractor, installer, **[other affected subcontractors]** **[Architect]** **[Owner]**.
 - 2. Agenda: Review work restrictions for building, work area access, materials movement, installation conditions, limitations, and details.

1.5 SEQUENCING

- A. Coordinate Work with other contractors affecting or affected by work of this Section. Cooperate with other contractors to ensure efficient progress of the Work.

1.6 ACTION SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Submit data for each specified product
 - 1. Frame Materials: Show materials, profiles, sizes, construction, and finishes.
 - 2. Glass and Glazing Materials: Show materials, thickness, construction, and performance.
- C. Shop Drawings: Submit drawings for each window configuration and mounting condition.
 - 1. Show installation details and relation to existing prime window and adjacent wall construction.
 - 2. Show field measurements for existing windows.
 - 3. Indicate clearances and tolerances required to accommodate existing construction.
 - 4. Show window assembly component profiles and sizes.
 - 5. Show mounting hardware types and locations.
 - 6. Include operating hardware when specifying hinged windows.
 - 7. Include design narrative with table of contents, assumptions listing, and cross references coordinated with design calculations and shop drawings.
- D. Selection Samples: Submit samples for color selection.
 - 1. Frame and Sash Materials: Submit **[two]** color chip sets showing manufacturer's **[standard anodized colors]** **[standard paint colors]** **[custom paint color range]**.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
 - 1. Frame and Sash Materials: Submit **[three]** frame and sash samples minimum **6 inches (150 mm) long** showing selected finish.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Submit [**manufacturer**] [**and**] [**installer**] qualifications.
 - 1. Verify years of experience.:
 - 2. Submit list of similar completed projects. Include project name, location, reference names and phone numbers.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5years experience manufacturing specified products.
- B. Installer Qualifications: Minimum 2 years experience installing specified products [**certified by manufacturer**].
- C. Mock-Up: Provide mock-up to show fabrication, existing opening preparation, and installation for [**typical window**] [**typical window of each type**].
 - 1. Size: [**Selected by Architect.**] <Insert size.>
 - 2. Location: [**Selected by Architect.**] <Insert location.>
 - 3. Request Architect review and approval of product and workmanship.
 - 4. Accepted mock-up may remain as part of Work.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging identified with manufacturer and product name.
- B. Store materials protected from environment as recommended by manufacturer.
- C. Prevent damage to glass and glass coatings.
- D. Handle products to avoid damage.

1.10 FIELD CONDITIONS

- A. [**Coordinate with Owner to maintain**] [**Maintain**] work area environmental conditions within limits recommended by manufacturer.

1.11 WARRANTY

- A. Manufacturer's Warranty: Provide [**five**] year warranty against defective materials.
- B. Installer's Warranty: Provide two-year warranty against defective workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Therm-O-Lite, LLC.
 - 1. 1330 High Street.; South Bend, IN 46601.
 - 2. Telephone: 574-234-4004.
 - 3. Fax: 574-234-4005.
 - 4. Website: <http://www.thermolitewindows.com>.
 - 5. Email: info@thermolitewindows.com
- B. Substitutions: **[Not permitted.] [See Section 01 25 00 "Substitution Procedures."]**

2.2 PERFORMANCE REQUIREMENTS

- A. Thermal Performance: LBNL Therm 6.3/Window 6.3 computed center of glass values, in combination with prime window.
 - 1. Single Pane Glass:
 - a. Minimum R-Value: [2.7] sf•h•degree F/Btu.
 - b. Maximum U-Value: [0.37] Btu/sf•h•degree F.
 - c. Maximum Solar Heat Gain Coefficient: [**0.66**].
- B. Air Infiltration Resistance: ASTM E 283; maximum **0.1 cfm/sf (0.5 L/s/sq. m)** at **6.24 psf (300 Pa)**, in combination with prime window.

2.3 EXTERIOR STORM WINDOW SYSTEM – 2000 ALX

- A. Basis of Design: Therm-O-Lite LLC.; 2000 ALX.
- B. Windows: Exterior Aluminum framed, fixed sash with 1/4 inch. **[tempered] [Low E]** glass and integral slotted jamb extrusion; removable from exterior for regular maintenance and cleaning. Placed on outside of existing window.
 - 1. Aluminum Deep track, shallow track and angle jambs.
 - 2. Aluminum tube frame at jambs and head. Aluminum angle at sill with weeps.
 - 3. Frame thickness: 2 inches.
 - 4. Sash sightline: 7/8 inches.
 - 5. Q-Lon weather strip.
 - 6. Align frames with existing prime window framing to preserve **[historic]** appearance.

2.4 EXTERIOR STORM WINDOW SYSTEM – 2000 ALX-P

- A. Basis of Design: Therm-O-Lite LLC.; 2000 ALX-P

- B. Windows: Aluminum framed, fixed sash with 3/16 inch **[tempered]** **[Low E]** glass and integral slotted jamb extrusion; removable from exterior for regular maintenance and cleaning. Placed on outside of existing window.
 - 1. Aluminum extruded sub frame surround with compressible perimeter bulb seal gasket.
 - 2. Frame thickness: 1 inch.
 - 3. Sash sightline: 5/8 inches.
 - 4. Header angle drip cap.
 - 5. Q-Lon weather strip.
 - 6. Align frames with existing prime window framing to preserve **[historic]** appearance.

2.5 FRAME AND SASH MATERIALS

- A. Aluminum Extrusions: ASTM B 221; alloy and temper required for specified performance; compatible with specified finishes.
- B. Steel Shapes: ASTM A 36/A 36M, size and shape required for application.
- C. Magnetic Seals: Manufacturer's standard to retain sash within perimeter frame.

2.6 GLASS AND GLAZING MATERIALS

- A. Flat Glass: Clear, thickness required for specified performance.
 - 1. Heat Strengthened Glass: ASTM C 1048, **[fully tempered]** **[CSPC 16 CFR Part 1201 safety glass]**.
- B. Low E Coated Glass: ASTM C 1376; type required for specified performance.
- C. Security Glass: Laminated glass clad polycarbonate construction meeting specified performance.
- D. Glazing Sealant: Dow 995 structural sealant.
- E. Glazing Splines: Marine type, continuous.

2.7 FABRICATION

- A. Fabricate frames and sashes to sizes and configurations shown on Drawings.
- B. Assemble and factory glaze sashes with specified glass.

2.8 FINISHES

- A. Anodizing: AAMA 611 Class II; **[clear]** **[black]** **[bronze]** **[champagne]** color.

- B. Painting: AAMA 2603; powder coated.
 - 1. Color: [**White.**] [**Black.**] [**Custom, as selected by Architect.**]

2.9 ACCESSORIES

- 1. Fasteners: Aluminum, stainless steel, or other non-corrosive material compatible with window components and substrate materials.
- B. Anchors:
 - 1. Anchors: Corrosion resistant, concrete, wood, steel, and epoxy anchors, to suit application with no additional structural reinforcement required.
- C. Joint Sealants: ASTM C 834; latex for joints between dissimilar materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Field measure existing windows to permit window fabrication to sizes matching existing windows.

3.2 PREPARATION

- A. Prepare openings to be in tolerance, plumb, level and provide for secure anchoring.
- B. Verify openings are in accordance with approved shop drawings.
- C. Clean existing frames and glass.

3.3 INSTALLATION

- A. Install windows according to manufacturer's instructions.
- B. Set units plumb, square and level without warp or rack of frames.
- C. Securely anchor windows to existing windows or surrounding substrate.

3.4 ADJUST AND CLEAN

- A. Adjust windows for tight air seals [**and proper operation**].
- B. Leave windows clean and free of construction debris.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION