



CSI MASTERFORMAT SECTION NUMBER	08 51 13
CSI MASTERFORMAT SECTION TITLE	ALUMINUM WINDOWS
SUN METALS SYSTEMS SERIES	SUN SERIES 400 (IMPACT/THERMAL) FIXED WINDOW SERIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Furnish and install Sun Metals Systems Architectural Aluminum Windows, complete with hardware and accessories as shown on shop drawings and specified in this section.
 - 1. Sun Metals Systems: **Sun 400 Impact/Thermal Fixed Aluminum Window System.**
- B. Related Sections:
 - 1. Sealants: Structural silicone sealant.
 - 2. Glass and Glazing:
 - a. Units may be factory and shop glazed.
 - 3. Single Source Requirement: All products listed below shall be by the same manufacturer.
 - a. Section 08 32 13 Sliding Aluminum-Framed Glass Doors.
 - b. Section 08 41 13 Aluminum-Framed Entrances & Storefronts.
 - c. Section 08 44 13 Glazed Aluminum Curtain Wall.

1.02 TEST AND PERFORMANCE REQUIREMENTS

- A. Performance Requirements: Windows shall comply with the following specific performance requirements indicated.
 - 1. Air Infiltration: Completed window systems shall have 0.002 CFM/FT² maximum allowable infiltration when tested in accordance with ASTM E 283-04 and TAS 202 at a differential static pressure of 1.57 psf.
 - 2. Water Infiltration: There shall be no uncontrolled water leakage when tested in accordance with ASTM E 547 and TAS 202 at a static pressure of 15 psf.
 - 3. Static Load: There shall be no damage to fasteners, hardware, accessories, or any other damage that would render the window inoperable when tested in accordance with ASTM E 330-02 and TAS 202 at a differential static pressure of ± 65 psf
 - 4. Large & Small Missile Impact: There shall be no signs of penetration, rupture, or opening after the impact test when tested in accordance with ASTM E 1886/1996 and TAS 201.
 - 5. Cyclic Load: Test to be done upon completion of missile impact test. There shall be no damage to fasteners, Hardware, accessories, or any other damage that would render the window inoperable when tested in accordance with ASTM E 1886/1996 and TAS 203.
 - 6. Thermal Performance: When tested in accordance with AAMA 1503 and NFRC 100, NFRC 200, NFRC 500:
 - a. Condensation Resistance Factor (CRF): A minimum of 67.
 - b. Thermal Transmittance U Value: 0.45 BTU/HR/FT²/°F or less.
 - 7. Forced Entry Resistance: Windows shall be tested in accordance with ASTM F588-04 and TAS 202 and meet the requirements of performance grade 10.

1.03 SUBMITTALS

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
- B. Quality Assurance/Control Submittals:
 - 1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
Substitutions: Whenever substitute products are to be considered, supporting technical data, samples and test reports must be submitted ten (10) working days prior to bid date in order to make a valid comparison.

1.04 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.
 - 2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction process.
- B. Mock-Ups (Field Constructed): Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner's and Architect's acceptance of finish color, and workmanship standard.
 - 1. Mock-Up Size:
 - 2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.
 - 3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.
- C. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.



1.05 PROJECT CONDITIONS / SITE CONDITIONS

- A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

1.06 WARRANTY

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by an authorized company official.
 - 1. Warranty Period: Manufacturer's Two (2) year standard warranty commencing on the substantial date of completion for the project provided that the warranty, in no event, shall start later than six (6) months from the date of shipment by Sun Metals Systems.

EDITOR NOTE: Longer warranty periods are available at additional cost.

PART 2 PRODUCTS

2.01 MANUFACTURERS (Acceptable Manufacturers/Products)

- A. Acceptable Manufacturers:
 - Sun Metals Systems**
 - 5008 Tampa West Blvd.**
 - Tampa, FL 33634**
 - Telephone: (813) 889-0817; Fax: (813) 881-0812**
- 1. Fixed Windows: **Sun 400 Impact/Thermal Fixed Aluminum Window System.**
- B. Windows:
 - 1. AAMA Designation: LC-65.
 - 2. Description: The windows shall be extruded aluminum; 4" frame depth; Horizontal frame members run through notched vertical members, butted and mechanically fastened with two stainless steel screws per joint; Factory assembled.
 - 3. Configuration: The windows shall be Fixed, Fixed by Fixed, or Fixed over Fixed.
 - 4. Glazing (Contact Sun Metals Systems for approved glass types):
 - a. Large Missile Impact: Exterior glazing tape with silicone cap bead; 1-1/16" insulated laminated units; Interior silicone compatible setting blocks & structural silicone sealant; Aluminum interior glazing beads; Factory or bench glazed.
 - b. Small Missile Impact: Exterior glazing tape with silicone cap bead; 1-1/16" insulated laminated units; Interior EPDM wedge gaskets; Aluminum interior glazing beads; Factory glazed.
 - 5. Thermal Barrier: Provide continuous thermal barrier by means of a poured and debridged pocket consisting of a two-part, chemically curing high density polyurethane which is bonded to the aluminum.

2.02 MATERIALS

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T6 Aluminum Alloy.
 - 1. All members shall have minimum wall thickness sufficient to meet the specified structural requirements.

2.03 ACCESSORIES

- A. Manufacturer's Standard Accessories:
 - 1. Fasteners: All fasteners shall be AISI 300 series (except for self-drilling, which are to be series 400) stainless steel.
 - 2. Weather-stripping: All weather-stripping shall be Tremco or equivalent.
 - 3. Glazing Materials: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; glazing gaskets in accordance with ASTM C 864.
 - 4. Glazing Adhesive: Structural silicone sealant.

2.04 RELATED MATERIALS (Specified In Other Sections)

- A. Glass: All windows shall be factory glazed in accordance with manufacturer's standards.
 - 1. Insulated glass type and thickness shall be in accordance with manufacturer's recommendations for design pressure.

2.05 FABRICATION

- A. Frame:
 - 1. Horizontal frame members run through notched vertical members, butted and mechanically fastened with two screws per joint into integral screw splines; Meeting rail notched at each end, butted and mechanically fastened with two screws per end into integral screw splines.
 - 2. All framing joints shall be sealed with quality grade sealant meeting AAMA 803.3 to ensure water tight joint.
- B. Exterior Panning & Trim:
 - 1. Exterior panning & trim shall be extruded aluminum of profile and dimensions as detailed on approved shop drawings.
 - 2. All joints shall be sealed with quality grade sealant meeting AAMA 803.3 to ensure water tight joint.
- C. Mullions:
 - 1. Mullions shall be of extruded aluminum of profile and dimensions as detailed on approved shop drawings.
 - 2. Mullions must provide adequate structural properties to resist wind pressure as specified herein.



2.06 FINISHES AND COLORS

- A. Anodized Finishing: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:
 - 1. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612-02. Aluminum extrusions shall be produced from quality controlled billets meeting AA-6063-T6.
 - a. Exposed Surfaces shall be free of scratches and other serious blemishes.
 - b. Extrusions shall be given a caustic etch followed by an anodic oxide treatment and then sealed with an organic coating applied with an electro deposition process.
 - c. The anodized coating shall comply with all of the requirements of AAMA 612-02: Voluntary Specifications, Performance Requirements and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum. Testing shall demonstrate the ability of the finish to resist damage from mortar, salt spray, and chemicals commonly found on construction sites, and to resist the loss of color and gloss.
 - d. Overall coating thickness for finishes shall be a minimum of 0.7 mils.
- B. High Performance Organic Coating Finish:
 - 1. Fluoropolymer Type: Factory applied two-coat 70% Kynar resin by PPG or 70% Hylar resin by Duanar, fluoropolymer based coating system, Polyvinylidene Fluoride (PVF-2), applied in accordance with Sun Metals Systems procedures and meeting AAMA 2605 specifications.
 - 2. Colors: Selected by Architect from the following:
 - a. Standard coating color charts.
 - b. Custom coating color charts.
 - c. Color Name and Number:
- C. Finishes Testing:
 - 1. Apply 0.5% solution NaOH, sodium hydroxide, to small area of finished sample area; leave in place for sixty minutes; lightly wipe off NaOH; Do not clean area further.
 - 2. Submit samples with test area noted on each sample.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS/RECOMMENDATIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, installation instructions, and product carton instructions. The latest installation instructions are available per request.

3.02 EXAMINATION

- A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions.

3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage during product installation.

3.04 INSTALLATION

- A. General: Install manufacturer's system in accordance with shop drawings, and within specified tolerances.
 - 1. Protect aluminum members in contact with masonry, steel, concrete, or dissimilar materials.
 - 2. Shim and brace aluminum system before anchoring to structure.
 - 3. Completed windows must allow water to be wept to the exterior; Verify weep holes are open and weep caps are installed correctly.
 - 4. Seal metal to metal window system joints using sealant recommended by system manufacturer.

3.05 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Upon request, provide manufacturer's field service consisting of site visit for inspection of product installation in accordance with manufacturer's instructions.
- B. Field Test: Conduct field test to determine water tightness of window system. Conduct test in accordance with AAMA 502-02 at locations selected by Architect.

3.06 ADJUSTING AND CLEANING

- A. Adjusting: Adjust operating items as recommended by manufacturer.
- B. Cleaning: The General Contractor shall clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance, and remove construction debris from project site. Legally dispose of debris.
- C. Protection: The General Contractor shall protect installed product's finish surfaces from damage during construction.

END OF SECTION