

## SECTION 10 71 13

### EXTERIOR SUN SHADES

USE THIS SECTION WHEN SPECIFYING C.R. LAURENCE CUSTOM FABRICATED SUN SHADE SYSTEMS. THE CRL CUSTOM FABRICATED SUN SHADE SYSTEMS ARE AVAILABLE IN MANY PROVEN DESIGNS, OR CUSTOM DESIGNS TO MEET PROJECT REQUIREMENTS. CUSTOM FABRICATED SUN SHADE SYSTEMS ARE STRUCTURALLY ENGINEERED TO THE LOADING CONDITIONS REQUIRED FOR THE PROJECT. UNITS ARE SHIPPED ASSEMBLED FOR EASY INSTALLATION. UNITS COME PRE-FINISHED IN EIGHT STANDARD COLORS OF POWDER COAT FINISH. OVER 250 RAL OR NEWLAR COLOR POWDER COAT FINISHES ARE ALSO AVAILABLE, AS WELL AS KYNAR CUSTOM FINISHES.

THIS SPECIFICATION SECTION IS A MANUFACTURER SPECIFIC PRODUCT SPECIFICATION USING THE PROPRIETARY METHOD OF SPECIFYING APPLICABLE TO PROJECT SPECIFICATIONS AND MASTER GUIDE SPECIFICATIONS. THIS SPECIFICATION SECTION SHOULD BE EDITED TO MEET SPECIFIC PROJECT DESIGN CRITERIA BY A KNOWLEDGEABLE CONSTRUCTION SPECIFIER. OPTIONS ARE SHOWN IN BRACKETS [ ]. CHOOSE OPTIONS THAT MEET DESIGN CRITERIA, AND REMOVE BRACKETS AND UNUSED OPTIONS BEFORE PRINTING.

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Manufactured architectural exterior sun shades; custom fabricated to meet design criteria as indicated on Drawings and as Specified. Mechanically attached to exterior wall systems listed below: [select from list below to suit project requirements, delete wall systems that are not used]
  - 1. Aluminum curtain wall.
  - 2. Pre-cast concrete.
  - 3. Metal panel.
  - 4. Aluminum Storefront.
  - 5. Concrete tilt-up.

##### 1.02 RELATED REQUIREMENTS

- A. Section 05 40 00 - Cold-Formed Metal Framing: Backing Supports, attachment, clips, and blocking to receive sunshades.
- B. Section 08 44 00 Curtain Wall - exterior mounting surface to receive sun shades
- C. Section 07 42 13 Metal Wall Panels - exterior mounting surface to receive sun shades.

##### 1.03 REFERENCE STANDARDS

- A. AAMA 2605 - High Performance Organic Coatings on Architectural Extrusions and Panels. ASTM A 276 - Standard Specification for Stainless Steel Bars and Shapes.
- B. ASTM A 240 - Stainless Steel Sheet and Plate.
- C. ASTM A 276 - Stainless Steel Bars and Shapes.

- D. ASTM A 480 - General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
- E. ASTM A 666 - Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- F. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
- G. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- H. ASTM B 221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- I. ASTM D822 - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- J. ASTM D2244 - Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates.
- K. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- L. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test.
- M. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.

**Specifier's note: Article below includes submittal of relevant data to be furnished by Contractor before, during and after construction. Coordinate this Article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.**

#### **1.04 SUBMITTALS**

- A. Product Data: Sun shade manufacturer's data sheets on each product to be used, including:
  - 1. Finish manufacturer's data sheet showing physical and performance characteristics.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation instructions and recommendations.
  - 4. Specimen warranty for finish, as specified herein.
  - 5. Maintenance instructions.
- B. Shop Drawings: Show layout and elevations, profiles, styles, part numbers, dimensions and thickness of materials, finishes, connections, details and location of joints, method of anchorage, type of anchors and backing supports.
  - 1. Differentiate between shop fabrication and field installation.
  - 2. Indicate substrates and adjacent work specified in related sections with which the exterior sun shades must be coordinated.
- C. Samples: Submit samples of each component, and fasteners to be utilized in Sun shade assembly with appropriate finish.
- D. Structural calculations provided upon request. Provide engineering calculations for the sun shade system and mounting brackets, prepared by an engineer registered in the state the project is located.
- E. Warranty: Provide written warranty that sun shade products will be free of defective materials or workmanship for a period of one year from date of installation.

- F. Certifications: Manufacturer's certification that sun shade meets design criteria, Drawings and specification requirements.

**Specifier's note: Article below to include qualifications, prerequisites, standards, limitations, and criteria to establish the requirements for the level of quality for products and workmanship for the work of this section. Coordinate Article with Division 1 Quality Assurance Section.**

### 1.05 QUALITY ASSURANCE

- A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.
- B. Exterior sunshade Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with continuous experience of over [3] [\_\_\_][CRL to advise, and validate pertinent years of experience] years.
- C. Installer Qualifications: Experienced in performing work of the type specified in this section.
  - 1. With minimum 3 years of documented experience in installation of exterior sun shades system similar to the work of this section.
  - 2. Approved by sun shade manufacturer.
- D. Design Engineer's Qualifications: When required by building authority having jurisdiction, Design structural supports and anchorages under direct supervision of a Structural Engineer experienced in design of this type of Work and licensed in [insert job specific state, or location].
- E. For quality and delivery control, sunshades must be purchased from a single source. Sub contracting of shade assembly is not acceptable.

**Specifier's note: Retain paragraph below if mock-up assemblies; erected either on-site, or off-site, are required. Mock-ups can be used to establish standards of quality for workmanship, review of construction sequence/operation, and coordination of work of related sections. Coordinate with Division 1 Quality Control Section; Mock-up requirements.**

- F. Mock-Up: Provide a mock-up for evaluation of fabrication workmanship.
  - 1. Locate on project site [at remote location selected by Owner] as indicated on Drawings.
  - 2. Provide units finished as specified.
  - 3. Mock-up may remain as part of the Work.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
  - 1. Protect finishes by applying heavy duty removable plastic film during production.
  - 2. Package for protection against transportation damage.
  - 3. Provide markings to identify components consistently with drawings.
  - 4. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage.
- B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

## 1.07 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. See manufacturer for additional information on extended warranty periods for high performance coatings for aluminum sun shades.
  - 1. Powder coating - Spraylat Newlar – 10 -15 year.
  - 2. Powder coating - Duranar (70% Kynar or Hylar 5000 fluoropolymer resin) - 15 or 20 year

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. C.R. Laurence Co, Inc., P.O. Box 58923, Los Angeles, CA 90058-0923; Tel: (800) 421-6144 or (323) 588-1281 Ext. 7770; Fax: (866) 921-0532 or (323) 584-5226; Email: archmetals@crlaurence.com.
- B. Substitutions: No substitutions are permitted.

### 2.02 EXTERIOR SUN SHADE SYSTEM

- A. Basis of Design: C.R. Laurence Custom Fabricated Aluminum Sun Shades [C.R. Laurence Custom Fabricated Aluminum Sun Shades]. Factory fabricated and pre-finished aluminum;
- B. 36 [ ] [60 inch maximum] projection. Extended Projection to be evaluated for conformance.

**Specifier's note: Select components that meet design criteria from options below, delete options not used.**

- B. Components:
  - 1. Outriggers: 1/4 inch thick aluminum plate; ASTM B 209, 5052-H32 alloy; size: [fill in size to meet design criteria; 24 inch minimum size and 60 inch maximum size].
    - a. Square configuration]
    - b. Tapered square configuration]
    - c. Bullnose configuration]
    - d. Tapered bullnose configuration]
    - e. Custom \_\_\_\_\_ configuration]
  - 2. Mounting bracket options.
    - a. Wall mount bracket]
    - b. Curtainwall bracket]
    - c. Custom \_\_\_\_\_ bracket]
  - 3. Fascia: 1/8 inch thick aluminum extrusion; ASTM B 221, 6063-T5 alloy.
    - a. Square tube fascia; [3 inch] [ 4 inch]
    - b. Channel fascia; [1 x 3] [ 2 x 4]
    - c. Round tube fascia; [ 3 inch][ 4 inch]
    - d. Bullnose fascia: [6 inch]
  - 4. Blade options: [12 ft - 2 inch is stock length] [ ] length unless noted otherwise on Drawings:
    - a. Airfoils; Extruded aluminum airfoil shape; ASTM B 221, 6063-T5 alloy; size: [4] [6] [8] [10] inch.
    - b. Flat bars; ASTM B 209, 5052-H32 alloy; size: [3/4] [ 1] [1-1/4] [1-1/2] [1-3/4] [2] [2-1/4] [ 2-1/2] [3] [4] [5] [6] inch.
    - c. Z blades; Extruded aluminum "z" shape; ASTM B 221, 6063-T5 alloy; size: [3] [4] inch.
    - d. Round tubes; Extruded aluminum round shape; ASTM B 221, 6063-T5 alloy; size: [1] [1-1/2] [2] [3] [4] inch diameter.

- e. Rectangular tubes; Extruded aluminum rectangular shape; ASTM B 221, 6063-T5 alloy; size: [1 x 2] [1 x 3] [1 x 4] [1 x 6] [2 x 8] inch.
- f. Square tubes; ; Extruded aluminum round shape; ASTM B 221, 6063-T5 alloy; size: [1] [2] [3] [4] inch square.
- g. Egg crate grid; ASTM B 209, 5052-H32 alloy; 1/8 inch x 2 inch bars in square grid; size grid: [ 24 inch x 72 inch] [ 36 inch x 72 inch] [ \_\_\_\_\_ ]
- 5. Panel: 16 ga. stainless steel sheet; ASTM A 240; [304] [316] [\_\_\_\_] alloy. Aluminum Alloy 5052-H32
  - a. Perforation patterns: [1/8 inch] [1/4 inch straight] [ 1/4 inch staggered] [1/2 inch] [ 2 inch] [ Octagon Cane] [square 200] [ lattice] [ Grecian]
  - b. Custom laser/water cut panel patterns: [ \_\_\_\_\_ ] [ \_\_\_\_\_ ].
- 6. Back plate (optional): 1/2 inch thick by 8 inch wide aluminum bar; ASTM B 209, 6061-T6 alloy; continuous for full length of unit for mounting to structure.
- 7. Cover plate (optional): 1/16 inch thick; ASTM B 209, 6061-T6 to conceal mounting hardware.
- 8. Anchors and Inserts: Use non-Ferrous metal or hot dip galvanized anchors and inserts for installation and elsewhere as required for corrosion resistance. Use stainless steel or lead expansion bolt devices for drill-in place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
- 9. Fasteners: Fasteners shall be stainless steel bolts, studs, sheet metal screws, and other types of size and spacing as recommended by manufacturer for specific installation conditions and as detailed on approved shop drawings.

### 2.03 FABRICATION

- A. Provide fixed sun shades and accessories of design, material, sizes, depth, arrangement, and thickness as indicated on Drawings and as required for optimal performance with respect to strength; durability; and uniform appearance.
- B. Outriggers are mechanically fastened to aluminum fascia and blade extrusions and mounting brackets. Components are packaged and shipped for field assembly.
- C. Corners: Miter sunshade units at corners as indicated on shop drawings.
- D. Fabrication tolerances: Maximum allowable tolerances.
  - 1. Bow: + - 1/4 inch.
  - 2. Dimensional width or length: + - 1/8 inch.
  - 3. Squareness: + - 1/8 inch.

### 2.04 FINISHES

- A. Standard finish is powder coat: Metallic Silver. [ select from colors listed below, or specify custom color]
  - 1. Color options.
    - a. Sky white gloss
    - b. Oyster white gloss
    - c. Agate gray gloss
    - d. Beige gray gloss
    - e. Bronze matte
    - f. Forest green gloss
    - g. Black matte
    - h. Silver metallic
    - i. Mill Finish
    - i. \_\_\_\_\_ ]

**Specifier's note: Paragraph above is CRL standard finish. Paragraphs below are optional finishes available from CRL. Select desired finish and delete finishes not used.**

- B. High performance powder coating: Spraylat Newlar thermosetting powder coating; exceeds the performance requirements of AAMA 2605. Corrosion protection: Meets 4000 hr. salt spray when tested in accordance with ASTM B117.
- C. High Performance PVDF coating: Duranar contains 70% Kynar 500 or Hylar 5000 fluoropolymer resin; exceeds the performance requirements of AAMA 2605.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Examine substrate conditions in areas to receive the work. Verify dimensions, tolerances, and interface with adjacent work. Do not proceed until any unsatisfactory conditions have been corrected.

#### **3.02 PREPARATION**

- A. Prior to fabrication, field verify required dimensions.
- B. Coordinate sun shade installation with provision of [exterior wall system] [window framing system] [curtain wall system] to ensure proper structural support is provided, attachment of sun shades is compatible with substrate, and weathertightness of exterior envelop is maintained.

#### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's written instructions and recommendations for installation of the work.
- B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designed, fabricated and fitted to the structure.
- C. Anchor Sunshade to building substructure as indicated on drawings, shop drawings and as specified.
- D. Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.
- E. Do not erect warped, bowed, deformed or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.
- F. Set units level, plumb and true to line, with uniform joints.
- G. Outrigger installation:
  - 1. Verify centerline dimensions.
  - 2. Install the two outer most outriggers plumb and level to the substrate.
  - 3. Then, shoot a line from outrigger to outrigger to find the depth dimension of the outer line.
  - 4. Proceed with the installation by attaching the middle outrigger, shimming as required.
  - 5. Shims: Non-ferrous, as recommended by manufacturer. Verify centerline dimensions after shims are installed.
- H. Fascia installation: Attach fascia to outriggers with stainless steel sheet metal screws recommended by manufacturer.
- I. In-fill panel installation: Attach in-fill panel to outriggers with stainless steel sheet metal screws recommended by manufacturer.
- J. Erection Tolerances:
  - 1. Variation from level: [+/- 1/8 inch] [\_\_\_\_\_] maximum in 20'-0" runs, non-cumulative.

2. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line:ne: [ +/- 1/32 inch] [1/16 inch].
3. Do not field cut or trim units. Cut and trim component parts during erection only with the approval of the manufacturer or fabricator, and in accordance with his recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly as directed.

#### **3.04 CLEANING**

- A. Remove site cuttings from finish surfaces.
- B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.
- C. Clean aluminum surfaces in accordance with recommendations found in AAMA 609 and 610. Do not use aggressive alkaline, TSP, acid cleaners, or abrasive cleaners on aluminum surfaces.
- D. Clean stainless steel surfaces with non-abrasive detergents, soap, ammonia and warm water; rinse with clean water.

**END OF SECTION**