

SECTION 107114

METAL SUNSHADES

******* OGi Architectural Metal Solutions manufactures several basic construction materials including steel, stainless steel and aluminum bar gratings, safety gratings, stair treads, and fiberglass gratings. OGi Architectural Metal Solutions also manufactures several types of metal sunshades.**

This guide can be used to specify various metal sunshades. Metal sunshades can be specified as a separate section or as part of another building element. For the later, paragraphs from this guide would be inserted into the section specifying the element constructed with aluminum gratings.

The specifier will need to edit this product specification to reflect the options and applications being used. Most editing can be accomplished by deleting unnecessary requirements.

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Modular, shop fabricated, metal sun shades to mount on exterior [[window framing](#)] [[building walls](#)] [_____].
- B. Related sections:

******* List other specification sections dealing with work directly related to this section such as the following. *******

- 1. [[Section 03 40 00 - Precast Concrete](#)] [[Section 04 20 00 - Unit Masonry](#)] [[Section 07 42 13 - Metal Wall Panels](#)]: Exterior wall surfaces to receive sun shades.
- 2. [[Section 08 41 00 - Entrances and Storefronts](#)] [[Section 08 44 00 - Curtain Wall and Glazed Assemblies](#)]: Metal window framing to receive sun shades.

1.2 REFERENCES

****** List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. ******

- A. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM A1011/A-04, A572, A578 Standard Specification for Steel Sheet and Strip
 - 2. ASTM A36 - Structural Steel.
 - 3. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

4. ASTM A526 - Sheet Steel, G-90 Zinc-Coated (Galvanized) by the Hot-Dip Process.
5. ASTM A792 - Steel Sheet, Aluminum-Zinc Alloy-Coated (Galvalume) by the Hot Dip Process.
6. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
7. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
8. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
9. ASTM D822 - Tests on Paint and Related Coatings Using Filtered Open-Flame Carbon-Arc Exposure Apparatus.
10. ASTM D3363 - Test Method for Film Hardness by Pencil Test.

1.3 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 - Submittal Procedures:
 1. Product data for sun shade components and finish.
 2. Shop drawings showing layout, dimensions, spacing of components, and anchorage and installation details.
 3. Calculations for support system.
 4. Sample: 10 by 10 inches minimum size sample of sun shade panel illustrating design, fabrication workmanship, and selected color coating.

1.4 QUALITY ASSURANCE

- A. Design structural support framing components for sun shades under direct supervision of professional structural engineer.
- B. Installer qualifications: Approved by manufacturer for installation of sunshade system.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. OGi Architectural Metal Solutions (800.321.9800) custom fabrication of required components, or equal as approved by architect.
- B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 63 00 - Product Substitution Procedures.

2.2 MATERIALS

***** Edit this article to indicate if sunshade is fabricated from galvanized steel or aluminum. *****

- A. Steel bar stock: ASTM A1011

- B. Steel bar stock: ASTM A36.
- C. Steel tubing: ASTM A500, Grade B.
- D. Steel sheet: ASTM A526 galvanized or ASTM A792 Galvalume.
- E. Extruded aluminum: ASTM B221, Alloy 6063 T-6, 6105-T5.
- F. Sheet aluminum: ASTM B209 6063, Temper T-6.

2.3 SUN SHADE SYSTEM

***** OGi Architectural Metal Solutions provides two types of sun shades: bar grill and fixed louver. Typically sun shades are mounted with outriggers. Edit the following paragraph to indicate material and type of sun shade being specified. *****

- A. Type: [Aluminum] [Galvanized steel] sun shades consisting of modular framed panels with [bar grill] [louver] infill and outriggers for mounting on [window framing] [exterior wall surfaces]; Sunshades as manufactured by OGi Architectural Metal Solutions.
- B. Sunshade panel: Modular panel with perimeter frame.

***** Various panel sizes can be fabricated. Size is determined by structural and wind loads, seismic conditions, and degree of shading required. Maximum panel length for bar grill sun shades is 10 feet and for louver sun shades is 12 feet. Contact OGi Architectural Metal Solutions for assisting in determining layout and size of sun shade panels and designing structural connections. *****

- 1. Panel size: [[_____] by [_____] inches.] [As indicated on Drawings and approved shop drawings.]

***** OGi Architectural Metal Solutions provides four standard styles of bar grill type sun shades each providing 70 degrees incident angle of sun shade.

- 11SG4x1:** 1 by 1/8 inches [rectangular] [LiteBar] bars on 11/16 inch centers.
- 19SG4x1.5:** 1-1/2 by 1/8 inches [rectangular] [LiteBar] bars on 1-3/16 inches centers.
- 38SG4x2.5:** 2-1/2 by 1/8 inches [rectangular] [LiteBar] bars on 2-3/8 inches centers.
- 32EC2x2:** 2 by 1/8 inches rectangular bars on 2 inches centers.
- 14PL21x1.25:** 1-1/4 x 14 gauge rectangular bars in 7/8 inches center

***** Include the following paragraph if bar grill type sun shade is required and indicate style and corresponding dimensions. *****

- 2. Panel infill: Bar grill type consisting of flat, vertical bars connected with cross bars; Style [11SG4x1] [19SG4x1.5] [38SG4x2.5] [32EC2x2] [14PL21x1.25] as manufactured by OGi Architectural Metal Solutions.
 - a. Incident angle of sun shade: 70 degrees.
 - b. Main bars: [_____] by [_____] [inches] [mm] bars on [_____] [inches] [mm] centers.

***** OGi Architectural Metal Solutions provides three standard styles of aluminum fixed-louver sun shades.

- VisiBlock:** Providing 100 percent direct visual screening.

VisiShield: Providing 75 percent direct visual screening.

VisiScreen: Providing 60 percent direct visual screening.

Include the following paragraph if louver type sun shade is required and indicate style and corresponding visual screening. *****

3. **Panel infill:** Inclined, flanged louvers pressure locked to cross bars; Style [[VisiBlock](#)] [[VisiShield](#)] [[VisiScreen](#)] as manufactured by OGi Architectural Metal Solutions.
 - a. Direct visual screening: [[60](#)] [[75](#)] [[100](#)] percent.
 - b. Main bars: [_____] by [_____] [inches] [mm] bars on [_____] [inches] [mm] centers.
4. **Support system:** Provide outriggers or other means for support of sun shade panel fabricated from same material as panel. System shall be designed to resist applicable dead, live, wind, and seismic loads.
 - a. Type: [[Tapered](#)] [[Modular](#)] [[Angled](#)] [[FlatIron](#)].
 - b. Construction: Welded fabrication consisting of attachment bracket and water-jet cut supports as detailed and dimensioned on Drawings and approved shop drawings.
 - c. Size: As required to provide sufficient structural support of panels.
 - d. Fascia: [[Square](#)] [[Rectangle](#)] [[Round](#)] [[Bull Nose](#)].
5. **Fasteners:** Stainless steel bolts, studs, and other types of size and spacing as recommended by manufacturer for specific condition and detailed on approved shop drawings.

2.4 FACTORY FINISH

- A. Sunshade panels, outriggers, and other components shall receive electrostatically applied colored polyester powder coating heat cured to chemically bond finish to metal substrate, or anodized finish as specified on drawings and approved shop drawings.
 1. Minimum hardness measured in accordance with ASTM D3363: 2H.
 2. Direct impact resistance tested in accordance with ASTM D2794: Withstand 160 inch-pounds.
 3. Salt spray resistance tested in accordance with ASTM B117: No undercutting, rusting, or blistering after 500 hours in 5 percent salt spray at 95 degrees F and 95 percent relative humidity and after 1000 hours less than [3/16 inch] [5 mm] undercutting.
 4. Weatherability tested in accordance with ASTM D822: No film failure and 88 percent gloss retention after 1 year exposure in South Florida with test panels tilted at 45 degrees.
- B. Polyester Powder Coat System:
 1. Epoxy pre-coat / Color Coat / TCI Polyester Powder Coat Finish.

Test Methods	Powder Properties	Requirement
(ASTM D5965-96,C	Specific Gravity	1.29 +/- 0.05
	Theoretical Coverage	1.49 ft 2/lb/mil

ASTM D3451-92, 13	Mass Loss During Cure	less than 1%
	Max. Storage Temp.	75 degrees F.

<u>Test Methods</u>	<u>Coating Properties</u>	<u>Requirement</u>
ASTM D523-89	Gloss at 60 percent	85+
DPC TM 10.219	PCI Powder Smoothness	8
ASTM D2454-95	Overbake Resistance,	Time 100%
ASTM D3363-92a	Pencil Hardness	2H
ASTM D2794-93	Dir/Rev Impact, Gardner	160/160in/lbs
ASTM D3359-97	Adhesion, Cross Hatch	5Bpass
ASTM D522-93a	Flexibility, Mandrel	1/8"dia. no fracture
ASTM B117-97	Salt Spray	3,000 hours

Application

Electrostatic Spray, 300 degrees F.	Cure Schedule (Time at substrate temp.)
Pretreatment: White Metal Blast (2mil. Min. etch) Substrate: 0.032 in. CRS	10 Min. @ 400f.

Film Thickness **2.0-6.0 Mils**

******* OGi Architectural Metal Solutions provides 10 standard colors. Custom colors are available for minimum size orders. Contact OGi Architectural Metal Solutions for information on custom colors. *******

B. Colors

*** *Note:* Color to be selected from the following standard colors. Select required color below – delete all color listing information not selected. (Specific color match or other colors are extra cost options) ***

Color Selection Indicated Below:

MESA TAN	9810-1049
SAFETY YELLOW	9810-1268
RUBY RED	9810-3042
OCEAN BLUE	9910-5054
IVY GREEN	9810-6046
SONNY ORANGE II	9810-2113
ELECTRIC GRAY	9810-7042
JET BLACK	9900-9000
SKY WHITE II	9910-9897
DARK SIENNA	9910-8036

ANODIZED	CLEAR – CLASS I
ANODIZED	CLEAR – CLASS II
ANODIZED	LIGHT BRONZE
ANODIZED	MEDIUM BRONZE
ANODIZED	DARK BRONZE
ANODIZED	BLACK
ANODIZED	COPPER

MILL N/A

PART 3 - EXECUTION

3.1 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.

3.2 INSTALLATION

- A. Install sun shades in accordance with manufacturer's installation instructions and approved shop drawings.
- B. Insulate dissimilar metals to prevent electrolysis with bituminous paint or non-absorptive gasket to prevent contact.
- C. Allow for thermal expansion and contraction of metal components.
- D. Install shade panels plumb, level, free from distortion, and aligned with building elements and adjacent shade panels.
- E. Do not install bent, bowed, or otherwise damaged panels. Remove damaged components from site and replace.
- F. Attach shade panels to outriggers with appropriate fasteners for secure, permanent installation.
- G. After installation, touch-up damaged finish with paint supplied by manufacturer and matching original coating.

END OF SECTION 107114