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SECTION 108204

ALUMINUM GRILLES

******* 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 grilles.**

This guide can be used to specify various aluminum bar gratings. These can be used for platforms, stairs treads and handrails, trench covers, sunscreens, fences and many other applications. Aluminum bar gratings 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 and steel 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.

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PART 1 - GENERAL

1. 1 SUMMARY

A. Section includes: Metal grille panels fabricated with aluminum extrusions pressure locked into, modular, open grille panels.

B. Related sections:

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 Standard Specification for Steel Sheet and Strip
2. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
3. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
4. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
5. ASTM D822 - Tests on Paint and Related Coatings Using Filtered Open-Flame Carbon-Arc Exposure Apparatus.
6. ASTM D1794 - Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

7. 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: Submit manufacturer's product specifications, standard details, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total system of grille panels.

2. Shop drawings showing layout, dimensions, spacing of components and anchorage and installation details.

3. Sample: 12 by 12 inches minimum size sample of fence panel illustrating design, fabrication workmanship, and selected color coating.

1.4 QUALITY ASSURANCE

A. Manufacturer: Obtain all aluminum grilles, framing and related accessories complete, from a single manufacturer. Provide accessory materials as recommended by manufacturer of primary materials. Manufacturer shall be regularly engaged in the design, fabrication and finishing of similar grilles.

B. Fabrication personnel shall be experienced and specialize in welding, fabricating and handling architectural aluminum products. Acceptable manufacturers:

OGi Architectural Metal Solutions (800.321.9800) custom fabrication of required components, or equal as approved by architect.

C. Installer: A firm with no less than 5 years of successful experience in installation of architectural grille systems similar to those required for this project and which is acceptable to or licensed by manufacturer of primary system.

D. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive system. Allow for trimming units where final dimensions cannot be established prior to fabrication.

1. Designs of grille panels are dimensioned to avoid necessity of cutting grilles at points other than whole grid modules. Notify Contracting Officer of any need to trim grilles off-module and do not proceed with panels in question until adjustments are made.

E. Shop Assembly: Coordinate field measurements and shop drawings with fabrication and shop assembly to minimize field adjustments, splicing, mechanical joints and field assembly of units. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

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. Manufacturers of equivalent products submitted and approved in accordance with Section 01 63 00 - Product Substitution Procedures.

2.2 MATERIALS

A. Extruded aluminum: ASTM B221, Alloy [6063 T-6] [6105 T-5].

B. Structural aluminum: ASTM B221, Alloy 6061 T-6.

C. Sheet aluminum: ASTM B209 6063, Temper T-6.

D. Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, and water reducing and plasticizing additives.

2.3 GRILLE SYSTEM

A. Type: Aluminum Egg-Crate Grille system consisting of modular open grille panels fabricated by pressure locking aluminum extrusions; OGi aluminum grille systems as manufactured by OGi Architectural Metal Solutions.

******* OGi Architectural Metal Solutions provides 5 types of aluminum egg-crate grilles. Refer to OGi product literature for illustrations of various patterns. *******

B. Grille panels: Fabricated from aluminum extrusions pressure locked to form an open grille pattern; [2x2] [3x3] [4x4] [2x4] [3x6] as manufactured by OGi Architectural Metal Solutions. Additional sizes available, consult with manufacturer for your specific needs.

2x2 Egg-Crate Grille: Aluminum architectural grilles shall be Egg-Crate Model. Bars shall be 1/8" thick and [1"] [2"] [3"] [4"] deep, as shown on drawings. Vertical bars to be 2" on center and horizontal bars shall be 2" on center, 0 degree of tilt. Bars shall be joined by means of a dovetail pressure lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

3x3 Egg-Crate Grille: Aluminum architectural grilles shall be Egg-Crate Model. Bars shall be 1/8" thick and [1"] [2"] [3"] [4"] deep, as shown on drawings. Vertical bars to be 3" on center and horizontal bars shall be 3" on center, 0 degree of tilt. Bars shall be joined by means of a dovetail pressure lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

4x4 Egg-Crate Grille: Aluminum architectural grilles shall be Egg-Crate Model. Bars shall be 1/8" thick and [1"] [2"] [3"] [4"] deep, as shown on drawings. Vertical bars to be 4" on center and horizontal bars shall be 4" on center, 0 degree of tilt. Bars shall be joined by means of a dovetail pressure lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

2x4 Egg-Crate Grille: Aluminum architectural grilles shall be Egg-Crate Model. Bars shall be 1/8" thick and [1"] [2"] [3"] [4"] deep, as shown on drawings. Vertical bars to be [2"] [4"] on center and horizontal bars shall be [2"] [4"] on center, 0 degree of tilt. Bars shall be joined by means of a dovetail pressure lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

3x6 Egg-Crate Grille: Aluminum architectural grilles shall be Egg-Crate Model. Bars shall be 1/8" thick and [1"] [2"] [3"] [4"] deep, as shown on drawings. Vertical bars to be [3"] [6"] on center and horizontal bars shall be [3"] [6"] on center, 0 degree of tilt. Bars shall be joined by means of a dovetail pressure lock at each intersection and welded in a neat manner where recommended by the manufacturer, for adequate structural performance.

******* Grille panels are provided in standard heights and widths. Available sizes vary with grille pattern. Refer to OGi product literature for available sizes. Custom sizes can also be obtained as a special order. *******

******* Include the following section for all grille panels' height up to 120 inches and widths up to 66 inches. *******

1. Panel height: [_____] inches. [As indicated on Drawings.]
2. Panel Width: [_____] inches. [As indicated on Drawings.]

C. Fastenings: Use same material as items fastened, unless otherwise indicated. Fasteners for exterior applications may be stainless steel or aluminum. Provide types, gages and lengths to suit unit installation conditions. Use **Phillips flat-head** machine screws for exposed fasteners, unless otherwise indicated. For exterior installations and elsewhere as required for corrosion resistance. Use steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

E. Bituminous Paint: **SSPC Paint 12** (cold-applied asphalt mastic). Use to separate dissimilar, corrosive metals or metal front concrete.

2.4 GENERAL FABRICATION

A. Provide Grilles & Accessories of design, materials, sizes, depth, arrangement, and metal thickness indicated, or if not indicated, as required for optimum performance with respect to strength, durability, and uniform appearance.

B. All fabrication will be completed prior to application of finish, leaving no edges, screw holes, or other portions of the grille without finish.

C. Fabricate Frames to suit adjacent construction with tolerances for installation, including application of sealants in joints between grilles and adjoining work where required.

D. Include Supports, anchorages, and accessories required to achieve a complete assembly.

E. Provide Grille Framing of type and at spacings indicated but not further apart than recommended by manufacturer.

F. Join Frame Members to one another by welding, except where indicated otherwise or where field bolted connections between frame members are made necessary by size of panels. Maintain equal blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

G. Accessories: Except as indicated as work of another specification, provide components required for a complete system, including trim, copings, fascias, stops, corner units, clips, flashings, fillers, closure strips and similar items. Match materials/finishes of panels.

2.5 FACTORY FINISH

******* Except for large gate panels, factory applied finish for aluminum fencing is a polyester powder coating. Large gate panels will receive a factory applied durable polyurethane coating. Contact OGi Architectural Metal Solutions for gate size limitations. *******

A. Aluminum grille panels shall receive [polyester powder coating] [anodized] [mill finish].

B. Polyester powder coating: Electrostatically applied colored polyester powder coating heat cured to chemically bond finish to metal substrate.

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.

******* Include the following paragraphs if a polyurethane coating is required for large gate panels. *******

C. Apply Bituminous Coating or other permanent separation materials on concealed surfaces where such would otherwise be in direct contact with substrate materials which are non-compatible or could result in corrosion or deterioration of either material or finishes.

******* OGi Architectural Metal Solutions provides 10 standard paint colors and 7 standard anodized options. Custom colors are available for minimum size orders. Contact OGi for information on custom colors. *******

D. Color:

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

Selected by Architect from manufacturer's standard color range
Custom color as selected by Architect

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 INSPECTION

A. Inspection: Contractor and his installer must examine the supporting structure and other elements of the substrate and conditions under which the aluminum grille work is to be performed and notify the Architect in writing of unsatisfactory tolerances which exceed specified limits in other work adjoining aluminum window and grille wall work, and other conditions detrimental to proper and timely completion of the work. Do not proceed with erection until unsatisfactory conditions have been corrected in a manner acceptable to the Architect.

3.2 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions and directions for installation of anchorages which are to be embedded in concrete

3.3 INSTALLATION

A. Install grille 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 grille panels plumb, level and free from distortion, and aligned with building elements adjacent grille panels.

E. Do not install bent, bowed, or otherwise damaged panels. Remove damaged components from site and replace.

F. Attach grille panels to supports 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