

SECTION 108204**STEEL 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 steel bar gratings. These can be used for platforms, stairs treads and handrails, trench covers, sunscreens, fences and many other applications. Steel 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.

PART 1 - GENERAL**1.1 SUMMARY**

- A. Section includes: Metal grille panels fabricated with galvanized flat bars 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, A572, A578 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 steel 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 steel 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. Steel bar stock: ASTM A1011
- B. Steel bar stock: ASTM A36.
- C. Steel tubing: ASTM A500, Grade B.
- 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: Ornamental steel PressLock fencing system consisting of modular open grille fencing panels fabricated by pressure locking flat steel bars, supported by steel posts and gates and gate hardware; OGi PressLock Steel Fence System as manufactured by OGi Architectural Metal Solutions..

***** OGi Architectural Metal Solutions provides 8 open grille fence panels. Refer to OGi product literature for illustrations of various patterns.

- B. Grille panels: Fabricated from galvanized steel flat bars pressure locked to form an open grille pattern; [\[Urban\]](#) [\[Guardian\]](#) [\[Perimeter\]](#) [\[Palladium\]](#) [\[Screen\]](#) [\[SafeGuard\]](#) [\[Modular\]](#) [\[Tuscan\]](#) as manufactured by OGi Architectural Metal Solutions.

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

***** Include the following paragraph for PressLock URBAN fence panel. *****

1. Vertical main bars: 1 inches by 12 gauge (0.1046 inches) flat bars spaced at 2-3/16 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 5-1/4 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [\[36\]](#) [\[48\]](#) [\[60\]](#) [\[72\]](#) [\[84\]](#) [\[96\]](#) inches.
5. Panel width: Up to 72 inches.

***** Include the following paragraph for PressLock GUARDIAN fence panel. *****

1. Vertical main bars: 1 inches by 12 gauge (0.1046 inches) flat bars spaced at 2-3/16 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 2-5/8 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [\[36\]](#) [\[48\]](#) [\[60\]](#) [\[72\]](#) [\[84\]](#) [\[96\]](#) inches.
5. Panel width: Up to 72 inches.

******* Include the following paragraph for PressLock PERIMETER fence panel. *******

1. Vertical main bars: 1 inches by 14 gauge (0.0747 inches) flat bars spaced at 1-3/4 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 1-3/4 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

******* Include the following paragraph for PressLock PALLADIUM fence panel. *******

1. Vertical main bars: 1 inches by 14 gauge (0.0747 inches) flat bars spaced at 1-3/4 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 5-1/4 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

******* Include the following paragraph for PressLock SCREEN panel. *******

1. Vertical main bars: 1 inches by 12 gauge (0.1046 inches) flat bars spaced at 7/8 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 7/8 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

******* Include the following paragraph for PressLock SAFEGUARD panel. *******

1. Vertical main bars: 1-1/2 inches by 12 gauge (0.1046 inches) flat bars spaced at 2-3/16 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 5-1/4 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

******* Include the following paragraph for PressLock MODULAR fence panel. *******

1. Vertical main bars: 1 inches by 12 gauge (0.1046 inches) flat bars spaced at 3-15/16 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 3-15/16 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

***** Include the following paragraph for **PressLock TUSCAN** fence panel. *****

1. Vertical main bars: 1 inches by 12 gauge (0.1046 inches) flat bars spaced at 4-13/16 inches.
2. Horizontal cross bars: 3/8 inches by 16 gauge (0.059 inches) flat bars spaced at 5-1/4 inches.
3. Top and bottom perimeter bars: 1 by 1/8 inch flat bars.
4. Panel height: [36] [48] [60] [72] [84] [96] inches.
5. Panel width: Up to 72 inches.

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

- A. Steel grille panels and frames shall be hot-dip galvanized to 1.25 ounces per square foot minimum zinc coating in accordance with ASTM A123. Standard size components shall receive polyester powder coating.
- 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 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.

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

C. Color:

*** *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

Selected by Architect from manufacturer's standard color range

Custom color as selected by Architect

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