

SECTION 05530
METAL GRATINGS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
 - a. A36/A36M, Standard Specification for Carbon Structural Steel.
 - b. A510, Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel.
 - c. A525, Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
 - d. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - e. A1011/A1011M, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra- High Strength.
 - f. B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. MBG 531, Metal Bar Grating Manual.
 - b. MBG 532, Heavy-Duty Metal Bar Grating Manual.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
 - a. Grating: Show dimensions, weight, size, and location of connections to adjacent grating, supports, and other Work.
 - b. Product data for grating, grating clips, anchors, accessories, and other manufactured products specified herein.
 - c. Manufacturer's specifications, including coatings, surface treatment, and finishes.
 - d. Catalog information and catalog cuts.
 - e. Manufacturer's specifications, to include coatings.

B. Informational Submittals:

1. Special handling and storage requirements.
2. Installation instructions.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Insofar as is practical, factory assemble items.

- B. Package and clearly tag parts and assemblies that are, due to necessity, shipped unassembled.

PART 2 PRODUCTS

2.01 FOOT TRAFFIC GRATING

A. Design:

1. Uniform Service Load: 100 psf minimum, unless otherwise shown.
2. Maximum Deflection: 1/4 inch, unless otherwise shown.
3. Space bearing bars at 1-3/16-inch center-to-center.

B. Material:

1. Welded Steel Bar Type Grating: rectangular design, as manufactured by Ohio Gratings (19W4).

C. Surface: Smooth or Serrated Grating Bars.

D. Stair Treads:

1. Material and Type: Same as grating material and grating type as furnished for connecting walkway or work surface.
2. Nosings: Integral ribbing and serrated edge on one long axis of tread, or nonslip abrasive on each tread along one long edge.
3. Carrier Plate or Angle: Furnish at each end for connection to stair stringers.

2.02 ACCESSORIES

A. Embedded Frames:

1. As indicated on Drawings and as specified in Section 05 50 00, Metal Fabrications.

B. Grating Clamps:

1. Use at flanged beam and bolted angle frame supports.
2. Removable from above grating walkway surface.
3. Provide hat bracket, recessed bolt, and bottom clamp of same material as grating.

2.04 FABRICATION

A. General:

1. In accordance with NAAMM MBG 531.
2. Conceal fastenings where practical.

3. Drill metalwork and countersink holes as required for attaching hardware or other materials.
4. Cutouts:
 - a. Fabricate in grating sections for penetrations indicated.
 - b. Arrange to permit grating removal without disturbing items penetrating grating.
 - c. Edge band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.
5. Do not notch bearing bars at supports to maintain elevation.
6. Field measure areas to receive grating. Verify dimensions of new fabricated supports, and fabricate to dimension required for specified clearances.
7. Section Length: Sufficient to prevent section from falling through clear opening when oriented in the span direction and one end is touching either the concrete or the vertical leg of grating support.
8. Minimum Bearing: 1 inch for grating depth up to 2-1/4 inches and 2 inches for grating depth greater than 2-1/4 inches.
9. Banding and Toe Plates: Same material as grating and welded to bearing bars in accordance with requirements of NAAMM MBG 531 and NAAMM MBG 532.

C. Supports:

1. Same material as grating, except that supports which are to be embedded in concrete shall be Type 316 stainless steel, unless part of an extruded aluminum system.
2. Coordinate dimensions and fabrication with grating to be supported.

PART 3 EXECUTION

3.01 PREPARATION

A. Electrolytic Protection:

1. Protect aluminum surfaces in contact with dissimilar metals, or embedded or in contact with masonry, grout, or concrete as specified in Section 09 90 00, Painting and Coating.
2. Allow paint to dry before installation of material.

3.02 INSTALLATION

- A. Until grating sections are securely fastened in place, area shall be appropriately barricaded or flagged to alert people working in the area of potential fall hazard.
- B. Install manufactured products in accordance with manufacturer's recommendations.

- C. Install supports such that grating sections have a solid bearing on both ends, and that grating sections will not rock or wobble under design loads.
- D. Install grating supports plumb and level as applicable.
- E. Install sections of welded frames with anchors to straight plane without offsets.
- F. Field locate and install fasteners to fit grating layout.
- G. Anchor grating securely to supports using minimum of four fastener clips and bolts per grating section.
- H. Each grating section shall be easily removable and replaceable.
- I. Completed installation shall be rigid and neat in appearance.
- J. Protect painted surfaces during installation.
- K. Repair damaged coatings as specified in Section 09 90 00, Painting and Coating.

END OF SECTION