

**ARCHITECTURE**

**SECTION 05530**

**GRATINGS**

**PART 1 - GENERAL**

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Heavy-duty metal bar grating at elevator sump pit.
  - 2. Metal frames and supports for gratings.

1.2 PERFORMANCE REQUIREMENTS

- A. Grating Structural Performance: Capable of withstanding the following structural loads without exceeding the allowable design working stress of the materials involved:
  - 1. Floors: Uniform load of 125 lbs/sq. ft. or a concentrated load of 2000 lbs, whichever produces the greater stress.
  - 2. Floors: 200#/sf at exterior grates subject to vehicle loading.

1.3 SUBMITTALS

- A. Product Data: For the following:
  - 1. Formed-metal plank gratings.
  - 2. Clips and anchorage devices for gratings.
- B. Shop Drawings: Detail fabrication and installation of gratings.

1.4 QUALITY ASSURANCE

- A. Metal Bar Grating Standards: Comply with applicable requirements in the following:
  - 1. NAAMM MBG 532, "Heavy-Duty Metal Bar Grating Manual."

1.5 COORDINATION

- A. Furnish Setting Drawings, templates, and directions for installing frames and anchorages, including concrete inserts. Deliver frames and built-in anchorages, including concrete inserts, to Project site as needed to make progress and avoid delays.

**PART 2 - PRODUCTS**

2.1 METALS

- A. Ferrous Metals:
  - 1. Galvanized Steel Sheet: ASTM A 653/A 653M, structural quality, Grade 33, with G90 coating.

2.2 GRATINGS

- A. Metal Bar Gratings:
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Alabama Metal Industries Corp.
    - b. All American Grating, Inc.
    - c. Harris Steel Ltd., Fisher & Ludlow Div.
    - d. Ohio Gratings, Inc.
    - e. Seidelhuber Metal Products, Inc.
    - f. Tru-Weld Grating, Inc.

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- g. Approved equal.
  - 2. Welded, Heavy-Duty Steel Gratings: W-30-4 (3 x 3/8) STEEL: 3-by-3/8-inch bearing bars at 1-7/8 inches o.c., and crossbars at 4 inches o.c.
  - 3. Traffic Surface for Steel Bar Gratings: Serrated.
  - 4. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. of coated surface.
  - 5. Fabricate removable grating sections with banding bars attached by welding to entire perimeter of each section.
    - a. Anchoring Method: Use not less than four weld lugs for each heavy-duty grating section.
    - b. Fasteners: Galvanized malleable-iron flange clamp with galvanized bolt for securing grating to supports designed to be installed from above grating by one person.
      - 1) Product: Struct-Fast Inc.; Grate-Fast.
  - 6. Fabricate cutouts in grating sections for penetrations indicated. Edge-band openings with bars of the same size and material as bearing bars.
- 2.3 PAINT
- A. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.
- 2.4 FASTENERS
- A. Fasteners: Provide Type 304 or 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, where built into exterior walls.
  - B. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488.
- 2.5 FABRICATION
- A. Fabrication, General: Provide material in size, thickness, and finish indicated or, if not indicated, as recommended by manufacturer for indicated applications and as needed to support indicated loads.
    - 1. Use connections that maintain structural value of joined pieces. Form from materials of size, thickness, and shapes indicated, but not less than that needed to support indicated loads.
    - 2. Shear and punch metals cleanly and accurately. Remove burrs.
    - 3. Fabricate toe plates for attaching in the field.
  - B. Grating Frames and Supports: Fabricate from structural steel of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Equip units with anchors for casting into concrete or building into masonry.
    - 1. Galvanize exterior frames and supports.
- 2.6 FINISHES
- A. Finish gratings, frames, and supports after assembly.
  - B. Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process complying with ASTM A 123.

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**PART 3 - EXECUTION**

3.1 INSTALLATION, GENERAL

- A. Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation.
- B. Fit exposed connections accurately together. Weld connections that are not to be left as exposed joints but cannot be shop welded. Do not weld, cut, or abrade surfaces of galvanized units that are for bolted or screwed field connections.
- C. Attach toe plates to gratings by welding.
- D. Metal Bar Gratings: Comply with recommendations of referenced metal bar grating standards.
  - 1. Attach removable units with clips and fasteners indicated.
  - 2. Attach non-removable units to supporting members by welding where both materials are the same; otherwise, fasten by bolting.
- E. Touch up surfaces and finishes after erection.
  - 1. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05530