

## **19-W-4 Carbon Steel Heavy Duty Gratings**

Model Specification for type 19-W-4 Carbon Steel Heavy Duty Gratings as Manufactured by Ohio Gratings, Inc.™ 5299 Southway St. SW, Canton, Ohio 44706 or approved equal.

NOTE: The specifier will need to edit this specification to reflect the options in this document shown in **Red**. Some editing can be accomplished by deleting unnecessary requirements.

### **SECTION 05 53 00 Metal Fabrications – Metal Gratings**

#### **Part 1: General**

##### **1.1 Section Includes**

- A. Prefabricated heavy duty carbon steel bar gratings
- B. Prefabricated Support Frames for gratings
- C. Miscellaneous installation hardware and accessories

##### **1.2 References**

- A. ASTM Grade-36 Carbon Steel
- B. ASTM A -510 Carbon Steel Wire Rods
- C. ANSI/NAAMM- MBG-532-09 Heavy Duty Metal Bar Grating Manual
- D. ANSI-NFSI B101.3-2012 Test Method for Measuring Wet Dynamic Coefficient of Friction (Wet DCOF) of Common Hard-Surface Floor Materials

##### **1.3 Action Submittals**

- A. Product Data: The contractor shall submit the manufacturer's catalog pages including load tables, anchor details and standard installation details.
- B. Shop drawings: The contractor shall submit for approval shop drawings for the fabrication and erection of all gratings, based on construction drawings of current issue. Include plans, elevations, and details of sections and connections as required. Show type and location of all fasteners.
- C. Samples of Grating and Anchorage system shall be submitted for approval.

##### **1.4 Quality Assurance**

- A. Manufacturer Qualification: A company specializing in the manufacture of metal bar gratings with not less than 10 years of documented experience.
- B. Fabrication tolerances shall be in accordance with applicable provisions and recommendations of ANSI/NAAMM 532-09 Metal Bar Grating Manual.

## Part 2: Products

### 2.1 Source Requirements:

Design is based upon use of gratings as manufactured by Ohio Gratings and terminology used herein may include reference to the specific performance or product of this manufacturer. Such reference shall be construed only as establishing the quality of materials, operational features and workmanship to be used under this Section and shall not, in any way, be construed as limiting competition.

### 2.2 Manufacturers:

Acceptable Manufacturers include Ohio Gratings, 5299 Southway St. SW, Canton, Ohio 44706, 800-321-9800 [www.ohiogratings.com](http://www.ohiogratings.com) , or approved equal.

### 2.3 Manufactured Units:

- A. Description:** Grating: Type **19-W-4** Heavy Duty Carbon Steel Grating with **Galvanized** finish. Fabricated by welding heavy duty cross bars perpendicular to heavy duty main bearing bars.
1. Main Bearing Bar Spacing: **1-3/16"** on center.
  2. Bearing bar thickness: **1/4"** (or 5/16" or 3/8") as shown on the drawings.
  3. Main Bearing Bar depth is to be based on loading requirements and the clear span shown on the drawings.
  4. Cross Bar Spacing: **4"** on center.
  5. Top of main bearing bars are to be **smooth** or **serrated** or **with OnGrip™ Spray Traction Surface**, as shown on the drawings.
- B. Fabrication:** Load Band ends of grating with bars of same thickness as the main bearing bars. Weld banding flush with the top surface of the grating. Depth of banding to be 1/2" less than the depth of the main bearing bars as shown on the drawings. **Include welded anchor blocks 1/4" from the bottom surface with hole to accept washer and attachment bolts.**
- C. Steel Frames:** Carbon Steel ASTM Grade-36 frames shall be provided as shown on the contract drawings to support and attach the gratings. **Include anchors as shown for locking frame into concrete as shown on the plans. Galvanize frames after fabrication per ASTM A123.**
- D. Design Criteria:**
1. **Loading:** Unless shown otherwise on the contract drawings, gratings shall be designed and manufactured to meet the live load conditions of **AASHTO HS 20 with 30% impact factor**. Main Bearing bar depth shall be as shown on the contract drawings or as recommended by the manufacturer to meet the loading requirements, and clear span conditions.
- E. Materials:** Main Bearing bars and rectangular cross bars are to be type ASTM Grade - 36 Carbon Steel. Round Cross bars are to be per ASTM A-510. Banding is to be Carbon Steel type ASTM Grade -36.

**F. Fabrication Tolerances** shall be in accordance with ANSI/NAAMM MBG 532-09 Metal Bar Grating Manual.

**G. Finish:** Gratings and frames shall be **Hot-Dip Galvanized per ASTM A123 (or powder coat painted black as shown on the drawings)**.

**2.4 Accessories:**

Provide appropriate fasteners for type, grade, and class required for the approved anchorage system. **Include lifting devices as shown on the drawings.**

**Part 3: Execution**

**3.1 Field Verification:** Contractor is to provide field measurements prior to preparation of final shop drawings and fabrication where required to ensure proper fitting of the work.

**3.2 Installation**

**A.** Prior to grating installation, contractor shall inspect supports for correct alignment and conditions for proper attachment and support of the gratings. Any inconsistencies between contract drawings and supporting structure deemed detrimental to grating placement shall be reported in writing to the Engineer, Architect or owner's agent prior to placement.

**B.** Install grating in accordance with shop drawings and standard installation clearances as recommended by ANSI/NAAMM MBG-532-09 Metal Bar Grating Manual.

**3.3 Grating Attachment:** Use approved attachment system and fasteners to secure grating to supporting members as shown on plans.