

SECTION 05 53 00
Metal Fabrications – Metal Gratings – Swage-Locked

Specifier Note: Any text that is red indicates there are options to select. Please choose the appropriate option for this project and delete the other(s). Call Nucor Grating for clarifications of these options: US 800.334.4514 Canada 800.268.6277. Other requirements not needed can also be deleted.

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawing and general provisions of the Contract, including General and Supplementary Conditions and Divisions 01 Specifications, apply to this Section.

1.2 SUMMARY

- A. Section Includes
- B. Aluminum Swage-Locked Bar Grating
- C. Attachment Method and Hardware
- D. Stair Treads and Nosing

1.3 RELATED SECTIONS UTILIZING BAR GRATING

- A. 05 12 00 Structural Steel Framing
- B. 05 51 19 Metal Grating Stairs
- C. 05 51 36 Metal Walkways and Ramps
- D. 05 55 00 Metal Stair Treads and Nosing

1.4 REFERENCES

- A. ANSI/NAAMM MBG 531 - National Association of Architectural Metal Manufacturers, Metal Bar Grating Manual
- B. ANSI/NAAMM MBG 533 - National Association of Architectural Metal Manufacturers, Welding Standards for Fabrication, Steel, Stainless Steel and Aluminum
- C. ANSI/NAAMM MBG 534 - National Association of Architectural Metal Manufacturers, Metal Bar Grating Engineering Design Manual

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's literature including load and deflection tables for each product submitted.
- B. Shop Drawings: Submit shop drawings for all grating materials and fabrications as required.
 - 1. Placement Drawings: Include plans, elevations; sections showing construction, installation and fastenings.
 - 2. Method of joining grating materials.

1.6 DESIGN CRITERIA

- A. Design of grating including the engineering analysis shall be provided by the owner's professional engineer meeting the required performance and design criteria.
- B. Limit deflection to [L/240] [L/360] [Limit deflection of 1/4 - inch]

1.7 QUALITY CONTROL

- A. Grating manufacturer shall have documented quality control processes in place to assure meeting ANSI/NAAMM, National Association of Architectural Metal Manufacturers standards.
- B. Grating manufacturer shall comply with ANSI/NAAMM, National Association of Architectural Metal Manufacturers standards.

1.8 PACKING AND IDENTIFICATION

- A. Piece mark each fabricated piece as noted on drawings

1.9 SITE CONDITIONS / REQUIREMENTS

- A. Contractor shall verify actual locations of walls and any other construction adjoining the grating work by field measurements and communicate via approved drawings to manufacturer prior to the start of order fabrication.

PART 2 PRODUCTS

2.1 GENERAL

- A. The grating materials shall be fabricated to meet the drawings and specifications as manufactured by Nucor Grating (Fisher & Ludlow) or engineer approved equal. www.nucorgrating.com – US 800.334.4514 Canada 800.268.6277
- B. Grating shall be Nucor Grating Swage-Locked Bar Grating as manufactured by Nucor Grating or approved equal.
- C. Bearing Bars: Material shall be aluminum alloy as specified and shall be spaced 1 3/16" on center, close tolerance punched to accept a tight fitting cross bar. The bars may be of rectangular shape or may be of an "I" bar shape and be of an appropriate depth and thickness for the required load. Other available centers include 15/16", 11/16" and 7/16" and may be specified at the discretion of the Architect/Engineer. The aluminum used in the Bearing Bars shall be either alloy 6061-T6 or 6063-T6 conforming to ASTM B221.
- D. Cross Rods: Material shall be aluminum alloy as specified, square in shape and Swage-Locked in to place at right angles to the bearing bars under high hydraulic pressure. They shall be placed on 4" centers or 2" centers as selected by the Architect/Engineer. The aluminum used in the Cross Rods shall be alloy 6063-T5 conforming to ASTM B221.
- E. Surface: The bearing bars shall have a [smooth] [serrated][striated (I-Bar)] surface for the application as determined by the Architect/Engineer.
- F. Finish: To be determined by Architect/Engineer from the following.
 - 1. Mill Finish
 - 2. A-41 or A-43 Anodizing
- G. All bearing bars and cross rods shall be made in North America from domestically produced metals.

2.4 FASTENING SYSTEMS

- A. Stainless Steel Saddle Clips
- B. Stainless Steel G-Clips
- C. Aluminum Weld Lugs and Threaded Fasteners
- D. Welding
- E. Or, Approved Fastener System as Specified

2.5 FABRICATED CUTOUTS

- A. Fabricate cutouts in grating sections for penetrations as shown on drawings.
- B. Edge-banding shall be full height of grating.
- C. Edge-band openings in grating that interrupt four or more bearing bars using the same size material as bearing bars.

2.6 REMOVABLE GRATING SECTIONS

- A. Fabricate sections welding banding to entire perimeter of each section.
- B. Provide fasteners, hinges and handle as noted on drawings or recommended by manufacturer.

2.7 METAL BAR GRATING STAIR TREADS

- A. Stair Tread grating type: Aluminum Swage-Locked Bar Grating per section 2.1 above.

- B. Tread end plates shall be [pre-drilled for direct attachment] [without holes and welded] to the stair tread stringer.
- C. Do not leave exposed fasteners on top of treads or platform surfaces.
- D. Nosing: [Corrugated Angle] [Cast Abrasive] [Checker Plate] [Or Other Approved Abrasive Nosing By Specifier]
- E. Provide [open] [closed flat metal] risers for stairs as shown on drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Confirm location of work.
- B. Verify sizes and dimensions.
- C. Verify the location of all grating penetrations.

3.2 ERECTION TOLERANCES

- A. Conform to NAAMM MBG 531.
- B. Maximum Space Between Adjacent Sections: 1/4 inch.
- C. Maximum Variation from Top Surface Plane of Adjacent Sections: 1/8 inch.

3.3 INSTALLATION, GENERAL

- A. Install grating in accordance with shop drawings and standard installation clearances as recommended by ANSI/NAAMM MBG-531-09 Metal Bar Grating Manual.
- B. Set and secure structural framing for grating in the correct location, plumb and level.
- C. Perform job site cutting, drilling and placement of panels required for installation.
- D. Mechanically cut finish surfaces. Do not flame cut.
- E. Set panels and secure in location, align in relation to walls and other construction work free of rack.
- F. Attach removable sections using type and size of fasteners indicated or by grating manufacturer.
- G. Attach non-removable sections to same material support members by [welding] [fasteners indicated above].

3.4 STAIR TREAD INSTALLATION

- A. Perform job site welding and bolting as specified for shop fabrication.
- B. Set stairs and other members in position and secure to structure as shown.
- C. Install stairs plumb, level and true to line.
- D. Provide steel closure plate to fill any gap between the stringer and surrounding shaft wall. Weld and finish with prime and paint finish of adjoining steel.

END OF SECTION