

**SECTION 05 53 10
METAL GRATINGS AND FLOOR PLATES**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Formed floor, mezzanine, and stair tread.
- B. Perimeter closure

1.2 REFERENCES

- A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel
- B. ASTM A123/A123M - Standard Specification for Zinc (Hot Galvanized) Coatings on Iron and Steel Products
- C. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet, and Strip
- D. ASTM A510 - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel
- E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra High Strength
- G. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
- I. AWS D1.1/D1.1M – Standard Structural Welding Code Steel Bundled Set B
- J. AWS D1.2/D1.2M - Structural Welding Code - Aluminum
- K. AWS A2.4 - Standard Symbols for Welding, Brazing, Nondestructive Examination
- L. NAAMM MBG 531 - Metal Bar Grating Manual
- M. SSPC - Steel Structures Painting Council: Steel Structures Painting Manual
- N. FBC - Florida Building Code

1.3 DESIGN REQUIREMENTS

- A. Florida Building Code (FBC).
- B. Design Live (Pedestrian) Load: Uniform load of 100-lb/sq ft minimum; concentrated load of 300 lb force.
- C. Maximum Allowable Deflection Under Live Load is 1/240 of span; size components for single span.

1.4 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 - Submittals Procedures
- B. Product Data: Provide span and deflection tables.
- C. Shop Drawings: Indicate details of gratings, plates, component supports, anchorage, openings, perimeter construction details, and tolerances.
- D. Indicate welded connections using standard AWS A2.4 welding symbols and net weld lengths.
- E. Samples: Submit one sample, 12" x 12" in size illustrating surface finish, color, and texture.

1.5 SUBMITTALS FOR INFORMATION

- A. Section 01 33 00 - Submittals Procedures
- B. Manufacturer's Installation Instructions: Indicate special requirements of opening, perimeter framing.

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1.6 QUALITY ASSURANCE

- A. Design gratings and plates under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Florida.
- B. Welders' Certificates: Submit under provisions of Section 01 33 00, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.7 PROJECT CONDITIONS

- A. Section 01 31 00 - Coordination and Meetings
- B. Coordinate the Work with placement of frames, tolerances for placed frames openings.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Sheet Steel For Die Stamping: ASTM A653/A653M with raised lug pattern
- B. Formed Steel for Pressure Locking or Welding: ASTM A1011/A1011M of shapes indicated
- C. Aluminum For Pressure Locking: ASTM B221 extruded ASTM B210 drawn seamless tubular aluminum alloy, of shapes indicated
- D. Formed FRP: To shapes indicated, with raised lug pattern
- E. Welding Materials: AWS D1.1/D1.1M, type required for materials being welded
- F. Shop and Touch-Up Primer: SSPC 15, Type 1, red oxide
- G. Tough-Up Primer for Galvanized Surfaces: SSPC 20 Type I Inorganic zinc rich

2.2 ACCESSORIES

- A. Fasteners and Saddle Clips: Stainless steel
- B. Perimeter Closure: Of same material as grating

2.3 FABRICATION

- A. Fabricate grates and plates to accommodate design loads.
- B. Mechanically clinch Bolt or Weld Rivet joints of intersecting metal sections.

2.4 FINISHES

- A. Prepare surfaces to be primed in accordance with SSPC SP 2.
- B. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- C. Do not prime surfaces where field welding is required.
- D. Prime paint items with one coat.
- E. Galvanizing: ASTM A653/A653M to G90 weight
- F. Aluminum: Mill finish
- G. Stainless Steel: No. 4 finish
- H. Non-slip Surfacing: Aluminum oxide

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management and Coordination: Verification of existing conditions before starting work
- B. Verify that opening sizes and dimensional tolerances are acceptable.
- C. Verify that supports and anchors are correctly positioned.

3.2 INSTALLATION

- A. Install components in accordance with manufacturer's instructions.
- B. Place frames in correct position, plumb, and level.
- C. Mechanically cut galvanized finish surfaces. Do not flame cut.
- D. Anchor by welding or bolting through saddle clips.

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E. Set perimeter closure flush with top of grating and surrounding construction.

F. Secure to prevent movement.

3.3 TOLERANCES

A. Conform to NAAMM MBG 531.

3.4 CLEANING

A. Section 01 77 00 - Contract Closeout: Cleaning installed work.

B. Clean all welds and damaged coatings then apply one coat of touch-up primer.

END OF SECTION