

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.

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- D. Anchor by welding or bolting through saddle clips.
- 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