SECTION 05530
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 - Structural Steel
B. ASTM A123 - Zinc (Hot Galvanized) Coatings on Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars, and Strip
C. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate
D. ASTM A510 - Wire Rods and Coarse Round Wire, Carbon Steel
E. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
F. ASTM A569/A569M - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality
G. ASTM B210 - Aluminum and Aluminum-Alloy Drawn Seamless Tubes
H. ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
I. AWS D1.1 - Structural Welding Code
J. AWS D1.2 - Structural Welding Code - Aluminum
K. AWS A2.0 - Standard Welding Symbols
L. NAAMM A202.1 - Metal Bar Grating Manual.
M. SSPC - Steel Structures Painting Council: Steel Structures Painting Manual.
N. Florida Building Code.

1.3 DESIGN REQUIREMENTS

A. Florida Building Code.
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: 1/240 of span; size components for single span.

1.4 SUBMITTALS FOR REVIEW

A. Section 01300 - Submittals: Procedures for submittals
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 A2.0 welding symbols. Indicate 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 01300 - Submittals: Procedures for submittals

B. Manufacturer's Installation Instructions: Indicate special requirements of opening, perimeter framing.

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 01300, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.7 PROJECT CONDITIONS

A. Section 01040 - 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 A525 with raised lug pattern.
B. Formed Steel For Pressure Locking or Welding: ASTM A569/A569M 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, 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 in direct contact with concrete or where field welding is required.
D. Prime paint items with one coat.
E. Galvanizing: ASTM A525 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 01040 - Coordination and Meetings: 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.
E. Set perimeter closure flush with top of grating and surrounding construction.
F. Secure to prevent movement.

3.3 TOLERANCES

A. Conform to NAAMM A202.1.

3.4 CLEANING

A. Section 01700 - Contract Closeout: Cleaning installed work.
B. Clean welds and damaged coatings and apply one coat of touch-up primer.

END OF SECTION