

SECTION 05501

METAL PAN STAIR FABRICATIONS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes shop fabricated ferrous metal items, galvanized and prime painted; steel stair frame of structural sections, with pan to receive concrete fill stair treads and landings; and balusters and handrailing.

1.2 SYSTEM DESCRIPTION

- A. Design stair assembly to support uniform live load of 100 lb./sq. ft and concentrated load of 300 lbs. at any point with deflection of stringer or landing framing not to exceed 1/360 of span.
- B. Design railing, wall rails, and attachments to resist a concentrated load of 200 lbs. at any point and in any direction and a uniform lateral force of 75 lbs. horizontally and 100 lbs. vertically at any point without damage or permanent set.

1.3 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

1.4 QUALITY ASSURANCE

- A. Prepare Shop Drawings under direct supervision of a professional engineer experienced in design of this work and licensed in the State of Maine.

PART 2 PRODUCTS

2.1 COMPONENTS

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Plate: ASTM A283.
- C. Steel Tubing: ASTM A500, Grade B.
- D. Steel Pipe: ASTM A53, Grade B Schedule 40.
- E. Sheet Steel: ASTM A653/A653M, Grade B Structural Quality with galvanized coating.
- F. Bolts, Nuts, and Washers: ASTM A325 galvanized to ASTM A153/A153M for galvanized members.

- G. Handrail Fittings: Elbows, T-shapes, wall brackets, escutcheons; cast or machined steel.
- H. Nosings: Cast aluminum nosings with abrasive grain surface, 3" width by full length of treads.

2.2 ACCESSORIES

- A. Welding Materials: AWS D1.1.
- B. Shop and Touch-Up Primer: SSPC 15, Type 1, red oxide
- C. Touch-Up Primer for Galvanized Surfaces: SSPC 20 Type I Inorganic
- D. Concrete and Reinforcement for Treads and Landings: Mesh type, Portland cement, as specified in Section 03050.

2.3 FABRICATION

- A. General:
 - 1. Fit and shop assemble items in largest practical sections, for delivery to site.
 - 2. Continuously seal joined members by continuous welds.
 - 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
 - 4. Exposed Mechanical Fastenings: Flush countersunk screws or bolts, consistent with design of component.
 - 5. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication.
 - 6. Accurately form components required for anchorage of stairs, landings and railings to each other and to building structure.
- B. Pan Stairs and Landings:
 - 1. Fabricate stairs and landings with closed risers and treads of metal pan construction, ready to receive concrete.
 - 2. Form treads, landings, and risers with sheet steel stock.
 - 3. Secure reinforced tread pans to stringers with clip angles welded in place.
 - 4. Form stringers with rolled steel channels Weld facial plates to channels using steel sheet across channel toes.
 - 5. Prime paint components.
- C. Handrails:
 - 1. Fit and shop assemble components in largest practical sizes, for delivery to site.
 - 2. Grind exposed joints flush and smooth with adjacent finish surface.
 - 3. Accurately form components to suit stairs and landings, to each other and to building structure.
 - 4. Form infill panels of perforated sheet steel, welded to guardrail system.
 - 5. Form balusters of bar stock, with spacing not greater than 4", welded to guardrail system.
- D. Entire stair system shall be designed to conform with all applicable structural loading criteria set forth in BOCA 101.

2.4 FINISHES

- A. Prepare surfaces in accordance with SSPC SP 2
- B. Shop prime items with one coat. Do not prime surfaces in direct contact with concrete or where field welding is required.
- C. Galvanize to ASTM A123, exterior structural steel members; provide minimum 1.25 oz/sq. ft galvanized coating.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.2 PREPARATION

- B. Make provisions for erection loads with temporary bracing. Keep work in alignment.
- C. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

3.3 INSTALLATION

- D. Install items plumb and level, accurately fitted, free from distortion or defects.
- E. Provide for erection loads and provide temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- F. Field weld components indicated on shop drawings. Perform field welding in accordance with AWS D1.1.
- G. Obtain approval prior to site cutting.
- H. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

3.4 SCHEDULES

- A. The Schedule is a list of principal items only. Refer to Drawing details for items not specifically scheduled.
- B. Ledge and Shelf Angles, Channels and Plates Not Attached to Structural Framing: For support of masonry, galvanized finish.
- C. Lintels: As detailed; galvanized finish.
- D. Stairs 1 and 2: Pan stairs and landings, tubular handrail, primed finish.

...END OF SECTION 05501