

SECTION 05510 - METAL STAIRS

PART 1 GENERAL

1.01 WORK INCLUDED

Provide and install of:

- A. Steel stair frame of structural sections, with open and closed risers as called out on plans.
- B. Pan to receive concrete fill stair treads and landings.
- D. Balusters and handrailing.
- E. Steel ladder to roof access hatch.

1.02 REFERENCES

- A. ANSI A202.1 - Metal Bar Grating Manual for Steel and Aluminum Gratings and Stair Treads.
- B. ASTM A36 - Structural Steel.
- C. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- D. ASTM A307 - Low-Carbon Steel Externally and Internally Threaded Fasteners.
- E. ASTM A352 - High Strength Bolts for Structural Steel Joints.
- F. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.
- G. ASTM A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot- Dip Process, Physical (Structural) Quality.
- H. ASTM A500 - Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- I. ASTM A501 - Hot-formed Welded and Seamless Carbon Steel Structural Tubing.
- J. AWS D1.1 - Structural Welding Code.
- K. FS TT-P-31 - Paint, Oil: Iron Oxide, Ready Mix, Red and Brown.

- L. FS TT-P-641 - Primer Coating, Zinc Dust - Zinc Oxide (for Galvanized Surfaces).
- M. FS TT-P-645 - Primer, Paint, Zinc Chromate, Alkyd Type.

1.03 STRUCTURAL REQUIREMENTS

- A. Fabricate stair assembly to support live load of 100 lb/sq. ft. with deflection of stringer not to exceed 1/240 of span.
- B. Railing assembly, wall rails, and attachments to resist lateral force of 50 lbs. at any point without damage or permanent set.

1.04 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01300.
- B. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, openings, size and type of fasteners, and accessories.
- C. Include erection drawings, elevations, and details where applicable.
- D. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
- E. Prepare shop drawings under seal of a Professional Structural Engineer registered in the State of New York.
- F. Submit samples under provisions of Section 01300.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Steel Section: ASTM A36.
- B. Steel Tubing: ASTM A500, Grade B.
- C. Sheet Steel: ASTM A446, Grade B, structural quality with galvanized coating.
- D. Bolts, Nuts, and Washers: ASTM A307.
- E. Welding Materials: AWS D1.1; type required for materials being welded.

- F. Primer: FS TT-P-31, brown; for shop application and field touch-up.
- G. Touch-up Primer for Galvanized Surfaces: FS TT-P-641.
- H. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of structure.

2.02 FABRICATION - GENERAL

- A. Verify dimensions on site prior to shop fabrication.
- B. Fabricate items with joints tightly fitted and secured.
- C. Fit and shop assemble sections in largest practical sizes, for handling through building openings.
- D. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius. At exposed to view locations, place plastic filler between welds; sand flush.
- E. Make exposed joints butt tight, flush, and hairline.
- F. Accurately form components required for anchorage of stairs, landings and railings to each other and to building structure.

2.03 FABRICATION - PAN STAIRS AND LANDINGS

- A. Fabricate stairs with risers and treads of pan construction to receive concrete.
- B. Form treads and risers from minimum 16 gage sheet stock.
- C. Secure tread pans to stringers' clip angles, welded in place.
- D. Form stringers of rolled steel channels, 12 inches deep. Weld fascia plates to channels using 14 gage steel sheet stock across channel toes.
- E. Form landings from minimum 20 gage metal decking. Reinforce underside with angles to attain design load requirements.
- F. Prime paint components.

2.04 FINISH

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Do not prime surfaces in direct contact bond with concrete or where field welding is required.
- C. Prime paint items specified with one coat.

PART 3 EXECUTION

3.01 ERECTION

- A. Erect stairs level and plumb, free from distortion or defects detrimental to appearance or performance.
- B. Provide anchors, plates, angles, hangers, and struts required for connecting stairs to structure.
- C. Verify alignment with adjacent construction. Coordinate related work.
- D. Do not field cut or alter members.
- E. Field bolt and weld to match standard of shop bolting and welding. Hide bolts and screws whenever possible. Where not hidden, use flush countersunk fastenings.
- F. Mechanically fasten joints butted tight, flush, and hairline. Grind welds smooth and flush.

PROPOSED FIREHOUSE PROJECTS
TAPPAN FIRE DISTRICT
TAPPAN, NY

METAL STAIRS
DIVISION 5- METALS
SECTION 05510