

SECTION 05520 - HANDRAILS AND RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Steel pipe handrails and fittings.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Attachment plates, angles, etc.
- B. Section 09900 - Painting: Paint finish.

1.3 REFERENCES

- A. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- B. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.
- C. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.
- D. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- E. ASTM B211 - Aluminum-Alloy Bars, Rods, and Wire.
- F. ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
- G. ASTM B241 - Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
- H. ASTM B483 - Aluminum and Aluminum-Alloy Drawn Tubes for General Purpose Applications.
- I. SSPC - Steel Structures Painting Council.

1.4 DESIGN REQUIREMENTS

- A. Railing assembly, wall rails, and attachments to resist lateral force designated by the State Building Code.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01330.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

- C. Samples: Submit two - 2 inch long samples of handrail. Submit two samples, of elbow, tee, wall bracket, escutcheon, and end stop.

1.6 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

PART 2 - PRODUCTS

2.1 STEEL RAILING SYSTEM

- A. Steel Tubing: ASTM A500, Grade B.
- B. Pipe: ASTM A53, Grade B, Schedule 40.
- C. Fittings: Elbows, T-shapes, wall brackets, escutcheons; cast or machined steel.
- D. Mounting: Brackets and flanges, with steel inserts for casting in concrete, and steel brackets for embedding in masonry, if any.
- E. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
- F. Splice Connectors: Steel concealed spigots or welding collars.
- G. Shop and Touch-Up Primer: SSPC 15, Type 1, red oxide, manufacturer's shop primer.

2.2 FABRICATION

- A. Fit and shop assemble components in largest practical sizes, for delivery to site.
- B. Fabricate components with joints tightly fitted and secured.
- C. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- E. Continuously seal joined pieces by continuous welds.
- F. 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.
- G. Accurately form components to suit ramps, stairs and landings, to each other and to building structure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry or placed in partitions with setting templates, to appropriate Sections.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects.
- C. For railing posts set in concrete, provide steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with steel plate forming bottom closure.
- D. Provide anchors, plates and angles required for connecting railings to structure. Anchor railing to structure.
- E. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.
- F. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.

END OF SECTION 05520

