

SECTION 05 52 01

PEDESTRIAN RAILINGS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The Contractor shall furnish, fabricate and install railing segments and related accessories. Like items of materials provided hereunder shall be the end products of one fabricator in order to achieve standardization of appearance, maintenance, and replacement

1.2 REFERENCES

- A. National Association of Architectural Metal Manufacturers (NAAMM). Metal Finishes Manual
- B. American Institute Steel and Iron (AISI).
- C. American Society of Testing and Materials (ASTM)
 - A36 Standard for Carbon Structural Steel
 - A53 Pipe, Steel, Black and Hot-Dipped Zinc-Coated Welded and Seamless.
 - A90 Test Method for Weight of Coating on Zinc-Coated Galvanized Iron and Steel Articles
 - A123 Zinc (Hot-Dip Galvanized) Coated on Iron and Steel Products
 - A185 Specification for Steel Welded for Concrete Reinforcement
 - A780 Repair of Damaged and Uncoated Area of Hot-Dip Galvanized Coatings
- D. America Welding Society (AWS)
 - D1.1 Structural Welding Code - Steel.

1.3 SUBMITTALS

- A. Shop Drawings: Submit complete shop drawings prior to commencing any metal fabrication. Submit field erection details showing segment dimensions, material sizes, bend specifications, weld specifications and locations.
- B. Full Size Mockup: The Contractor shall provide a full scale example of the construction of the railing as shown on Drawings. The railing shall be a minimum of one (1) foot long and the pole shall be a minimum of two (2) feet tall.

1.4 QUALITY CONTROL

- A. Testing and Inspection: The Contractor shall engage an independent laboratory at the Contractor's expense and approved by the Engineer, to provide shop weld testing and inspection.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL

- | | | |
|----|----------------------------|---|
| A. | Structural Pipe
Sleeves | ASTM A53
ASTM A513 Type 2 |
| B. | Welding Materials: | AWS D1.1 Type required for material being welded. |

2.2 FABRICATION

- A. Fabricate all steel for railing in accordance with the requirements of the Specifications and as modified by the details shown on the Drawings. Identify all steel at the mill showing grade and yield points. Fabricate and assemble the steel segments in the shop to the greatest extent possible without detriment to handling, transporting and erection in the field. Field measurements shall be taken to verify the work of others.
- B. Fabrication: Fabricate components in largest practical sizes for delivery to site. Continuously seal joined pieces by intermittent welds and plastic filler continuous welds. 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.
- C. Any component dented, bent, broken, warped or otherwise damaged shall be immediately and satisfactorily repaired or replaced, as applicable, by the Contractor at his expense.
- D. Shop fabricate, pre-fit, assemble and connect steel work wherever possible and within practical limits. Where on-site installation is required, perform the work equal to the best shop standards. Workmanship of the best modern shop and trade practices apply to this work. Field corrections will not be permitted without the Engineer's approval.
- E. Railing assembly shall resist a lateral force of 200 pounds at any point without damage or permanent set.
- F. Welding. All welding shall be done by experienced and qualified welders in accordance with the standards and requirements of AWS D1.1. The Contractor shall provide suitable means for clamping or holding members during welding in order that warping or distortion of the structure shall be minimized. Lengths of welds noted on the details do not include allowances for craters. All welds shall have a 1/4-inch extra length at each end to allow for craters. Particular care shall be exercised to prevent undercutting or reducing the section of the material being welded. Grind the exposed welds smooth.

2.3 GALVANIZED METAL

- A. Galvanizing: All non-stainless steel metal work including equipment, fasteners, nails and bolts shall be hot-dip galvanized after fabrication per ASTM A123. No field cutting nor welding is to be allowed unless shown on shop drawings or specifically authorized by the Engineer and in such cases the field weld shall be ground smooth and treated as directed with field cold galvanizing ferroalloy Tin-East Fluid, or Heidt Engineering Company, "Galvalloy". It is emphasized that such welds will not be allowed to compensate for errors in planning, cutting, or fitting and hot-dip galvanizing will be required after any such modification. See Section 807 of DPW Standard Specifications.
- B. Touch-up galvanized items with zinc-rich paint, two coats, minimum two mils dry film thickness per coat conforming to Mil Specification P-21035 or ASTM A780 as required by Engineer.

2.4 GROUT

- A. Provide steel railing posts with a non-shrink grout.

2.5 FINISH/COLOR

- A. Provide steel railing systems with a special coating finish, as specified by the engineer.
- B. Color: Custom color as specified by the engineer.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Verify field conditions and dimensions and correlate them with existing and adjoining construction and materials.
- B. Ensure sleeves are clean and free of debris before installing railing and grout.
- C. Inspect railing for proper size and configuration prior to inserting railing posts into sleeves.

3.2 ERECTION

- A. Installation: Insert railing posts into sleeves ensuring post is centered in sleeve. Grout solid using a non shrink grout. Install components plumb, accurately fitted, free from distortion or defects.
- B. Field Assembly: Accurately assemble any unassembled portions of the railing to the lines and elevations indicated on the approved shop drawings. Align and adjust the various members of the railing system prior to fastening. Clean bearing surfaces and surfaces which will be in permanent contact prior to assembly.
- C. Errors: Errors in shop fabrication or deformations resulting from handling or transportation that prevent the proper assembly and fitting of parts shall be corrected by methods approved by the Engineer.

3.3 CLEANING

- A. Clean metal work by removing sealants, dirt and foreign materials, and restoring the finish. Perform cleaning using methods and materials recommended by the manufacturers of the materials used, and as approved.

END OF SECTION