

**SECTION 05 52 13
PIPERAIL ALL APPLICATIONS**

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

- A. Section 03 30 00 - Cast-in-Place Concrete, Control Joints and Reinforcing: Placement of anchors in concrete
- B. Section 09 91 13 - Exterior Painting: Paint finish.
 - 1. REFERENCE STANDARDS
- C. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.
- D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.
- E. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- F. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.
- G. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2021.
- H. A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
 - 1. SUBMITTALS
- I. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- J. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, mounting plates and accessories.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All pipe rail shall be DOM (Drawn-over-Mandrel) cold drawn electric resistance welded steel tubing conforming to A.S.T.M. Specification A513 Type 5, sizes as shown on the Drawings. All curves and bends in the railing shall conform to the details on the Drawings. Steel mounting plates shall conform to ASTM A-36.
- B. Prior to fabrication, the Contractor shall make all measurements at the location of the fence installation in order to insure correct fabrication and installation. New pipe rail fence shall be bent to conform to curving curbs and walks in all cases where those curves have a radius of fifteen (15) feet or less.
- C. Pipe rail shall be formed into the shapes shown on the Drawings. Joints shall be completely welded with welds of proper size and shape. All welds shall be ground smooth to a neat finish. Steel mounting plates shall be fully welded to the posts as indicated on the drawings. A layer of non-shrink grout shall be placed between the mounting plate and the concrete curb, footing, slabs or wall.
- D. All fabricated pipe rail components shall be painted as per the Specification, "Exterior Painting". Metal must be thoroughly cleaned prior to prime coat.
- E. Non-shrink grout shall meet ASTM C1107 and CRD 621. It shall be mixed to a proper consistency for application. Contractor shall follow the Manufacturer's instructions and guidelines. Non-shrink General Purpose Grout, Product 1585-01 by Quikcrete Inc. or an equal product shall be used.
- F. Concrete shall conform to the Concrete Section of these Specifications.

PART 3 EXECUTION

3.01 INSTALLATION

- A. In locations where new pipe rail is to be installed, the existing pavement and/or soil shall be excavated as shown on the Drawings. The subgrade shall be thoroughly compacted. Forms for footings or curbs or walls shall be constructed true to line and grade and rigidly held in position so as not to move during the pouring and setting of the concrete. Forms for curved curbs shall be constructed on true radii.
 - 1. The top of curb/wall shall have a 1/4 inch pitch and the angle formed by the top and face of the curb shall be rounded off to a 1 inch radius. Footing top shall be 1 inch higher at the post at the center and shall pitch from the post downward to adjacent pavement and meet the pavement grades flush. Forms shall be left in place and no fence posts shall be erected until the concrete has hardened.
 - 2. In locations where new pipe rail is to be installed in an existing curb or wall in good condition that has a width of 8 inches or greater, new mounting plates shall be installed as per the Detail.
- B. In locations where new pipe rail is to replace an existing fence and the existing fence is in concrete footings, the contractor shall remove the existing fence including the footings before installing the new pipe rail fence in new concrete curb. If the existing fence to be replaced is in concrete curb 8 inches wide or greater that is to remain, the Contractor shall remove the existing fence with care, fill the remaining holes with concrete and finish the curb surface smooth and flush. Removed fencing shall remain the property of the Authority and shall be stored on the site or removed from the site by the Contractor as directed by the Development Superintendent.
- C. In locations where new pipe rail is installed in new concrete curbs, walls, or in footings as shown on the Detail Drawings, it shall be installed in steel mounting plates. Pipe rail fence posts shall in all cases be truly vertical, rails shall be parallel to the finished pavement grade. The steel mounting plate must be parallel to the supporting curb, cheek wall or pavement and the bolts for the steel plate shall be perpendicular to the curb, cheek wall or pavement.
- D. Where pipe rail handrails are to be attached to masonry construction, they shall be attached to masonry by bolting the brackets to the masonry and welding or bolting the handrails to the brackets as shown on the Drawings.
- E. Where pipe rail handrails are to be attached to a piperail fence or steel bar fence, handrails shall be attached to fence by welding brackets to posts and handrails to brackets, all as shown on the Drawings.
- F. After installation all chips, scrapes, and blemishes on the pipe rail shall be touched up with a final field coat of approved Paint. No paint shall be applied during damp weather or when the temperature is below freezing. During painting, all concrete work, paving, etc. shall be fully protected from stains. Any paint spots that may occur shall be removed immediately with an approved paint or stain remover.
- G. Any pipe rail not set plumb and true to line and grade shall be removed and replaced at the Contractor's expense. The Contractor shall maintain the pipe rail during the life of the Contract and shall repair and replace all members that are disturbed, damaged or destroyed.

END OF SECTION 05 52 13