

SECTION 02800

STATION FENCE AND RAILING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes requirements for steel fencing and railing at station platforms, including center fencing, handrailing and platform edge railing.

1.02 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM International):
 - 1. A36 Specification for Carbon Structural Steel
 - 2. A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 3. A153 Standard Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware
 - 4. A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 5. A787 Standard Specification for Electric-Resistance-Welded Metallic Coated Carbon Steel Mechanical Tubing

1.03 SUBMITTALS

- A. Submit shop drawings showing plan layout, grid, spacing of components, accessories, fittings and hardware.
- B. Submit manufacturer's product data.
- C. Submit manufacturer's installation instructions.
- D. Submit manufacturer's color palette to the Engineer for approval.

1.04 DELIVERABLES

- A. Submit manufacturer's certificates of compliance for fence materials.
- B. Qualifications: Submit name, business address and telephone number of fabricator's field representative.
- C. Furnish certificate of inspection stating that the material has been sampled, tested and inspected per ASTM A653.

1.05 QUALITY ASSURANCE

- A. Obtain the services of fencing fabricator's field representative to provide advice and assistance on the installation of the fence panels, fasteners, and repair work.

1.06 EXTRA MATERIALS

- A. Furnish the following extra materials for center fence, and for platform edge railing as follows. Securely fasten the panels and posts on wooden pallets, and the hardware in plastic container clearly marked "Station Fencing/Railing", and deliver them to the Engineer's warehouse located within 25 miles of the project site.
 - 1. For station center fence: 2 panels including 2 posts, and all necessary hardware.
 - 2. For station platform edge railing: 4 panels including 4 posts, and all necessary hardware.

PART 2 - PRODUCTS

2.01 FENCE AND GATES

- A. Fence panel width, other dimensions, and details including spacing of pickets, rings, posts, details of post caps, fasteners, etc.: see Caltrain Standard Drawing or Contract Drawings.
 - 1. Finished center fence height shall be 6 feet from top of rail of higher adjacent tracks.
- B. Posts, rails and hardware:
 - 1. Posts and post caps: Galvanized, square steel tubular members conforming to ASTM A787 and G90 zinc coating.
 - 2. Horizontal rails: Galvanized, square steel tubular members conforming to ASTM A787, 50,000 psi yield strength and G90 zinc coating. Attach rails to posts with tamper resistant fasteners.
 - 3. Hardware (Base Plates, Anchor Bolts, Gate Hardware and Miscellaneous Hardware): ASTM A36.
 - 4. Nuts and Washers: Nuts and washers shall conform to Caltrans Standard Specifications, Section 55-2, Materials.
 - 5. Epoxy Grout: Epoxy grout shall conform to Section 03150, Concrete Accessories.
- C. Gate Hardware: Hinges, latches, drop rods, as needed, shall be hot dip galvanized steel in accordance with ASTM A153 and sized to assure proper gate operation.

2.02 CONCRETE

- A. A. Concrete: Concrete shall conform to the following:
 - 1. Portland Cement: ASTM C-150, type 2 or 5 (Low alkali)
 - 2. Aggregates:
 - a. coarse aggregates: crushed rock, max 1-1/2 inch, #200: 2% maximum

- b. Sand: 3/8 inch maximum, #200: 2% maximum
- 3. Compressive strength (minimum): 2,500 psi @7 days, 4,000 psi @ 28 days
- 4. Slumps: 2 to 4.5 inches
- B. Footing hole shall be clear of roots or other organic materials. Moist hole prior to concrete pour. No water standing at bottom of hole.
- C. Consolidate concrete to remove air pockets.

2.03 SHOP FINISHES

- A. Galvanizing: Hot dip galvanize fence panels, rails and all associated hardware after fabrication in accordance with ASTM A123. Coating Thickness: Minimum 90 microns, and,
- B. Powder Coat: Powder coat all parts of fence including hardware after galvanizing and in accordance with coating manufacturer's instructions. Powder coat: O'Brien TGIC-Polyester or Engineer approved equal. Color: Black.

PART 3 – INSTALLATION

3.01 INSTALLATION

- A. Concrete Footings: Drill or dig holes for post footings in firm, undisturbed or compacted soil or ballast. Towel tops of footings and slope or dome to direct water away from posts. For railing, flush the epoxy with the platform.
- B. Field Joints: Field joints shall be kept to a minimum and concealed to the greatest extent possible. Field joints shall be strong, rigid, watertight and flush with hairline fit. Ease sharp corners.
- C. Adjust fence for uninterrupted visual continuity and tight, non-rattling connections.
- D. For station center fence: Restore ballast to flush with the top of ties.

3.02 REPAIR

- A. Welded and abraded areas of galvanized surfaces shall be wire brushed and repaired with 2 coats of cold galvanized compound.
- B. Repair abraded or damaged powder-coated per manufacturer's instructions.

END OF SECTION