

## SECTION 1014—STEEL BRIDGE RAILING

**1014.1 DESCRIPTION**—This work is the construction of a steel bridge railing.

**1014.2 MATERIAL**—Galvanize materials as specified in [Section 1105.02\(s\)](#). Before fabrication, submit shop drawings for review and acceptance.

**(a) Railing.**

- Steel Rails—Rails may be either pipe conforming to [ASTM A 53](#), Type E or S, Grade B; or tubing conforming to [ASTM A 500](#) or [A 501](#).
- Railing Posts—[ASTM A 47/A 47M](#), Grade 24018 (Grade 35018), or [ASTM A 536](#), Grade 60-40-18.
- Toggle Bolts—An acceptable, galvanized type, capable of supporting a 40 kN (9,000-pound) load in tension, when tested through a 25 mm (1-inch) round hole. Toggle bolts may be cadmium-plated to conform to the requirements of [ASTM B 766](#), Class 5, in place of galvanizing.
- Miscellaneous—Malleable iron wedges, shims, end caps, washers, and nuts of acceptable material

Certify as specified in [Section 106.03\(b\)3](#).

**(b) Anchor Bolts, Nuts, and Washers.** [Section 1105.02\(c\)2](#), galvanized as specified in [Section 1105.02\(s\)](#).

**(c) Caulking Compound.** [Section 705.8](#)

**1014.3 CONSTRUCTION**—As shown on the [Standard Drawings](#) and as follows:

**(a) General.** Before erection, use caulking compound to thoroughly coat surfaces of posts in contact with concrete. After erection and alignment, use caulking compound to seal openings between metal surfaces and concrete.

**(b) Assembly.** Remove blemishes and scratches from exposed surfaces. For areas that have been damaged, exposing base metal, paint with two coats Zinc Dust-Zinc Oxide Primer, Bulletin 26. Assemble the rail members to grade and the posts normal to grade.

Make cuts true, smooth, and free from burrs or ragged edges. Fillet-drill all re-entrant cuts, before cutting. As indicated, provide slotted holes for expansion.

The diameter of holes in the posts, for anchor bolts, may exceed the nominal bolt diameter up to 50%, with a maximum measurement of 12 mm (1/2 inch) greater than the nominal bolt diameter.

Place joints, as indicated.

At bend areas, do not vary the diameter of rail tubes by more than 5% of the outside diameter when rail tubes are bent to the radii indicated.

**1014.4 MEASUREMENT AND PAYMENT**—Meter (Linear Foot)

Measured from center-to-center of end posts. The Department will not deduct gaps at lighting pole foundations.