

SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 DESCRIPTION

This work consists of all labor, materials, and equipment necessary for furnishing and installing chain link fence and accessories in conformance with the lines, grades, and details as shown.

1.2 RELATED WORK

A. Section 01 00 00, GENERAL REQUIREMENTS.

1.3 MANUFACTURER'S QUALIFICATIONS

Fence and accessories shall be products of manufacturers' regularly engaged in manufacturing items of type specified.

1.4 SUBMITTALS

A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, furnish the following:

1. Manufacturer's Literature and Data: Chain link fencing and all accessories.
2. Manufacturer's Certificates: Zinc-coating complies with specifications.

1.5 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

A121-07.....Metallic Coated Carbon Steel Barbed Wire
A392-07.....Zinc-Coated Steel Chain-Link Fence Fabric
A491-11.....Aluminum Coated Steel Chain Link Fence Fabric
A817-07.....Metal-Coated Steel Wire for Chain-Link Fence
Fabric and Marcellled Tension Wire
C94-12.....Ready-Mixed Concrete
F567-11a.....Installation of Chain-Link Fence
F626-08.....Fence Fittings
F668-11.....Polyvinyl Chloride (PVC) and Other Organic
Polymer-Coated Steel Chain Link Fence Material
F1184-05.....Industrial and Commercial Horizontal Slide
Gates

F1664-08.....Polyvinyl Chloride (PVC) and Other Conforming
Organic Polymer Coated Steel Tension Wire used
with Chain Link Fence

F1665-08.....Polyvinyl Chloride (PVC) and Other Conforming
Organic Polymer Coated Steel Barbed Wire used
with Chain Link Fence

F2200-11b.....Automated Vehicular Gate ConstructionF900-11
Industrial and Commercial Swing Gates

F1043-11a.....Strength and Protective Coatings on Metal
Industrial Chain-Link Fence Framework

F1083-10.....Pipe, Steel, Hot-Dipped Zinc-Coated
(Galvanized) Welded, for Fence Structures.

C. Federal Specifications (Fed. Spec.):

FF-P-110J.....Padlock, Changeable Combination

PART 2 - PRODUCTS

2.1 GENERAL

Materials shall conform to the above referenced publications for ferrous metals, zinc-coated; and detailed specifications forming the various parts thereto; and other requirements specified herein. Zinc-coat metal members (including fabric, gates, posts, rails, hardware and other ferrous metal items) after fabrication shall be reasonably free of excessive roughness, blisters and sal-ammoniac spots.

2.2 CHAIN-LINK FABRIC

A. Steel Chain Link Fabric: 2 in. mesh, 9 gauge wire

1. Zinc-Coated Steel Fabric: hot dipped galvanized before or after weaving.

a. Class 2 - 2.0 oz/ft² (610 g/m²)

2. Fabric selvage: Standard fabric selvage for 2 in (50 mm) mesh 72 in. (1.8 m) high and over is knuckle finish at one end, twist at the other, K&T. Fabric less than 72 in (1.8 m), knuckle finish top and bottom.

2.3 STEEL FENCE FRAMEWORK

A. Round steel pipe and rail: Group IA Heavy Industrial Fence Framework, schedule 40 galvanized pipe. Exterior zinc coating Type A, interior zinc coating Type A. Regular Strength Grade ASTM F1083, Line post: OD, min. 1-7/8"

1. End, Corner, Pull post: OD, min. 2-3/8"

2. Brace rails, top, bottom, and intermediate rails, 1.660 in. (42.2 mm) OD, 2.27 lb/ft

2.4 TENSION WIRE

- A. Metallic Coated Steel Marcellled Tension Wire: 7 gauge (0.177 in.) (4.50 mm) marcellled wire
1. Type II Zinc-Coated Class 5 - 2.0 oz/ft² (610 g/m²)

2.5 FITTINGS

- A. Tension and Brace Bands: Galvanized pressed steel, minimum steel thickness of 12 gauge (0.105 in.) (2.67 mm), minimum width of 3/4 in. (19 mm) and minimum zinc coating of 1.20 oz/ft² (366 g/m²). Bands supplied with 5/16 in. (7.94 mm) or 3/8 in. (9.53 mm) galvanized steel carriage bolts.
- B. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: Pressed steel galvanized after fabrication having a minimum zinc coating of 1.20 oz/ft² (366 g/m²).
- C. Truss Rod Assembly: 3/8 in. (9.53 mm) diameter steel truss rod with a pressed steel tightener, minimum zinc coating of 1.2 oz/ft² (366 g/m²), assembly capable of withstanding a tension of 2,000 lbs. (970 kg).
- D. Tension Bars: Galvanized steel one-piece length 2 in. (50 mm) less than the fabric height. Minimum zinc coating 1.2 oz. /ft² (366 g/m²).
1. Bars for 2 in. (50 mm) and 1 3/4 in. (44 mm) mesh shall have a minimum cross section of 3/16 in. (4.8 mm) by 3/4 in. (19 mm).
2. Bars for 1 in. (25 mm) mesh shall have a cross section of 1/4 in. (6.4 mm) by 3/8 in. (9.5 mm).
3. Bars for small mesh 3/8 in. (10 mm), 1/2 in. (13 mm) and 5/8 in. (16 mm) shall be attached (sandwiched) to the terminal post using a galvanized steel strap having a minimum cross section of 2 in. (51 mm) by 3/16 in. (4.8mm) with holes spaced 15 in. (381 mm) on center to accommodate 5/16 in. (7.9 mm) carriage bolts which are to be thru bolted thru the strap the mesh and thru the terminal post.

2.6 TIE WIRE AND HOG RINGS

Tie Wire and Hog Rings: Galvanized minimum zinc coating 1.20 oz/ft² (366 g/m²) 9 gauge (0.148) (3.76 mm) steel wire. Polymer coated; match the coating, class and color to that of the chain link fabric.

PART 3 EXECUTION

3.1 FRAMEWORK INSTALLATION

- A. Posts: Posts shall be set plumb on concrete wall per drawings. Line posts installed at intervals not exceeding 10 ft. (3.05 m) on center.

- B. Top rail: When specified, install 21 ft. (6.4 m) lengths of rail continuous thru the line post or barb arm loop top. Splice rail using top rail sleeves minimum 6 in. (152 mm) long. The rail shall be secured to the terminal post by a brace band and rail end. Bottom rail or intermediate rail shall be field cut and secured to the line posts using boulevard bands or rail ends and brace bands. Fences 12 feet (3.66 m) high or higher require mid rail.
- C. Terminal posts: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m) and higher and for fences 5 ft. (1.5 m) in height not having a top rail.
- D. Tension wire: Shall be installed 4 in. (102 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (102 mm) down from the top of the fabric. Tension wire to be stretched taut, independently and prior to the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to the chain link fabric with a 9 gauge hog rings 18 in. (457 mm) on center and to each line post with a tie wire. Install the top tension wire through the barb arm loop for fences having barbed wire and no top rail.

3.2 CHAIN LINK FABRIC INSTALLATION

- A. Chain Link Fabric: Install fabric to outside of the framework. Attach fabric to the terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. (8 mm) carriage bolts spaced no greater than 12 inches (305 mm) on center. Small mesh fabric less than 1 in. (25 mm), attach to terminal post by sandwiching the mesh between the post and a vertical 2 in. wide (50 mm) by 3/16 in. (5 mm) steel bar using carriage bolts, thru bolted thru the bar, mesh and post spaced 15 in. (381 mm) on center. Chain link fabric to be stretched taut free of sag. Fabric to be secured to the line post with tie wires spaced no greater than 12 inches (305 mm) on center and to rail spaced no greater than 18 inches (457 mm) on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 inches (457 mm) apart.
- B. Excess wire shall be cut off and bent over to prevent injury. The installed fabric shall have a ground clearance on no more than 2 inches (50 mm).

3.3 NUTS AND BOLTS

Bolts: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence. All bolts shall be peened over to prevent removal of the nut.

3.4 CLEAN UP

Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

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