

SECTION 601 - CHAIN LINK FENCE AND GATE

601.01 DESCRIPTION

This work shall consist of furnishing and erecting chain link fencing, including fabric, posts, footings, framework, hardware and gates (as required).

601.02 REFERENCE STANDARDS

ASTM F 1083 – Pipe, Steel, Hot-Dipped Zinc-Coated Welded, for Fence Structures
 A 500 – Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
 A 123 – Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products
 F 1043 – Strength and Protective Coatings on Steel Industrial Fence Framework
 F668 – Polymer-Coated Steel Chain Link Fence Fabric, Class 2B
M-NCPPC Section 513 – Portland Cement Concrete

601.03 DEFINITIONS

Not Applicable.

601.04 MATERIALS

The material supplier shall submit certification to the M-NCPPC that all materials meet or exceed all stipulated specifications.

A. Fence Fabric:

Thermally fused vinyl coated steel fabric shall meet requirements of ASTM - F668 Class 2B. Core wire shall be 9 gauge (.148"), and shall be galvanized to meet a minimum weight of zinc coating of 0.30 oz./sf. The thickness of the fusion bonded vinyl coating shall be 7 - 10 ml., color as specified. All fabric shall have both selvages knuckled top and bottom. There shall be no splices in the fabric between the posts

1. General purpose fence fabric: Core wire shall be 9 gauge (.148") in a 2" mesh.
2. General purpose fence fabric for fences 8 (eight) feet or taller will be a minimum of 6 gauge (.162")
3. Tennis Court fence fabric: Core wire shall be 9 gauge (.148") in a 1-3/4" mesh.
4. Backstops panels: Core wire shall be 6 gauge (.162") in a 2" mesh.
5. Backstop hoods: Core wire shall be 9 gauge (.148") in a 2" mesh.

B. Galvanized Steel Framework

1. Schedule 40 Steel Pipe - Standard weight schedule 40 steel pipe shall conform to ASTM A-1083 and be hot-dipped galvanized with the zinc coating weighing not less than 1.8 oz./sf and shall be thermally fused and bonded. Color shall match the fence fabric.
2. Cold rolled high strength steel pipe (SS 40) - Pipe shall be manufactured from steel conforming to ASTM A569 cold rolled, welded, and have a minimum yield strength of 50,000 psi. Corrosion protection shall consist of a hot dipped zinc coating providing a coverage of 1.8 oz./sf inside and out and shall be thermally fused and bonded. Color shall match the fence fabric. Minimum pipe weights are as follows:

INDUSTRY O.D.	O.D. (INCHES)	WALL (INCHES)	WEIGHT (#/FT)
1-5/8"	1.660	.111	1.83
2"	1.900	.120	2.28
2-1/2"	2.375	.130	3.11
3"	2.875	.160	4.64
4"	4.000	.160	6.56

3. Steel square sections shall conform to ASTM A 500, Grade B with a minimum yield strength of 40,000 psi. Corrosion protection shall consist of hot dipped galvanized zinc coating weighing not less than 1.8 oz./sf and shall be thermally fused and bonded. Color shall match the fence fabric.
4. All hardware (tension bands, tension bars, post caps, loop caps, sleeves, truss rods, turnbuckles, end clamps, corner boulevards, tension wire, ties, hog rings, hinges, latches, hold-backs, etc.) shall be hot dipped galvanized pressed steel or aluminum. The galvanized coating shall have a minimum weight of 1.2 oz./sf. Color shall match the fence fabric.

C. Vinyl Coated Framework

1. Steel pipe shall conform to B.1, B.2 or B.3 above. (Exception: clear acrylic overcoat in B.2 shall be waived.) Hardware shall be as in B.4 above.
2. In accordance with ASTM F 1043, PVC shall be applied to the pipe and hardware by the fusion bonding process (thermally fused and adhered to a primer that is thermally cured to the galvanized steel) to produce a vinyl thickness of 10-14 ml. Test for adhesion shall be bond of vinyl coating to substrate will be greater than cohesive strength of the vinyl itself.

D. Gates. The fabric used for gates shall be identical to the fencing fabric. The gate frame and other hardware shall meet the requirements of this section. Movable fittings shall be field coated with a PVC coating specifically prepared for this purpose.

E. Concrete Footings: Refer to Section 420, Portland Cement Concrete Structures, in the 2001 MSHA Specifications, and to the plans.

601.05 SUBMITTALS

The Contractor shall submit the manufacturer's certification as specified in TC-1.03 (MSHA Section 914 – Chain Link Fence). A sample of the fence fabric shall be submitted with the fabric certification.

601.06 QUALITY ASSURANCE

The Contractor must supply evidence of having performed installation of fencing of the type specify for a period of 5 (five) years.

601.07 CONSTRUCTION

A. General Requirements

1. Install all posts plumb. Maintain All posts should be uniformly spaced unless specified otherwise in the drawings.
2. Use post lengths that accommodate the fabricated width of the fence fabric without stretching or compressing the fabric and that provide the required spacing below the bottom of the fabric. Space from surface to the bottom of the fabric should be 2 (two) inches, unless specified in the drawings.
3. Install terminal posts at all ends, abrupt changes in grade, and at changes in horizontal alignment greater than 15 degrees.
4. Install horizontal brace rails with diagonal truss rods and turn buckles at all terminal posts. Supply sufficient braces to provide complete bracing at each terminal post to the adjacent line posts.
5. Install post caps on all round line, terminal, and corner posts.
6. Tie the fabric to the brace rails at intervals not exceeding 2 (two) feet and to posts at intervals not exceeding 12 (twelve) inches. Attach stretcher bars to terminal posts by connectors equally spaced at not more than 16 (sixteen) inch centers. Place top and bottom connectors as close as possible to the ends of the fabric.

B. Footing. Place posts in the center of concrete footings. Thoroughly compact the concrete around the post by rodding or vibrating. Trowel the top surface to a smooth finish slightly above the ground line or mow strip and uniformly sloped to drain away from the post. Do not disturb the post within the 72 hours after the individual post footing is completed.

601.08 MEASUREMENT AND PAYMENT

Payment will be full compensation for all material, labor, equipment, tools and incidental items necessary to complete the work. Payment shall be made on a unit rate or lump sum basis as shown in the bid proposal.