

SPECIFICATIONS

SECTION 323113 CHAIN-LINK FENCING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to the work of this Section.

1.02 DESCRIPTION OF WORK

- A. Extent: Furnish all labor, material, equipment, tools, and incidentals necessary for the installation of Chain-link Fencing as shown on the Drawings and as specified in this Section.
 - 1. The work includes but is not limited to installation of framework, fabric, gates, related hardware and accessories, and associated concrete footings.
 - 2. Provide and install 1,150 linear feet of 6' high chain link fencing, as shown on the Drawings.
- B. Related work includes but is not limited to:
 - 1. Site Concrete

1.03 STANDARDS AND DEFINITIONS

- A. The State of California Department of Transportation (CALTRANS) Standard Specifications, except for measurement and payment requirements.
- B. Applicable ASTM International Standards (latest revisions) as they apply to this work and related test methods, including:
 - 1. A153 / A153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 2. F626 Specification for Fence Fittings
 - 3. F1043 Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework
 - 4. F1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

1.04 SUBMITTALS

- A. Product data: include mill certificates for each size and wall thickness of pipe required for the Project.
- B. Shop Drawings: of typical fence section and all gates. Show all locations, markings, quantities, materials, sizes, and shapes, and indicate all methods of connecting, anchoring, fastening, bracing, and attaching to the work of other trades.

PART 2 - PRODUCTS

2.01 FABRIC

- A. Chain-link, 9 gauge (GA) with a uniform square mesh measuring approximately 2" between its parallel sides, woven out of galvanized chain-link steel wire. Fabric heights as shown on the Drawings. Install one piece fabric widths for fencing up to 12' high.
- B. Acceptable manufacturers for Chain-link mesh or approved equal:
 - 1. Anchor Fence Co, Inc.
 - 2. Master Halco, Inc.
 - 3. Merchants Metals.

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2.02 PIPE

- A. Type-I Pipe: ASTM F1083 and ASTM F1043, Group-1A, Schedule 40 steel pipe. Minimum yield strength 30,000 psi (Regular Grade). Hot-dipped galvanized zinc exterior and interior coating at 1.8 oz / ft². See tables for pipe sizes.
- A. Type II Pipe: ASTM F1083 and ASTM F1043, Group-1C, Schedule 40, cold-rolled electric resistance steel pipe. Minimum yield strength 50,000 psi (High Strength). Hot-dipped galvanized zinc exterior and interior coating at 1.8 oz / ft². See tables for pipe sizes.
- C. Acceptable manufacturers for pipes, or approved equal:
 - 1. Allied Tube and Conduit
 - 2. Wheatland Tube Company
- D. Pipe sizes: per the tables below, unless specified otherwise in the Drawings:

Fences less than and including 6' height

Pipe location	Nominal Dia	Outside Dia.	Type-I Weight	Type-II Weight
Line Posts	1-1/2"	1.900"	2.72 lb/ft	2.28 lb/ft
Terminal (end, corner, & pull) posts,	2"	2.375"	3.66 lb/ft	3.12 lb/ft
Top & bottom rails, braces	1-1/4"	1.660"	2.27 lb/ft	1.84 lb/ft

Gates less than and including 6' height

Swing gate up to 6' wide: Posts	2-1/2"	2.875"	5.80 lb/ft	4.64 lb/ft
Swing gate 6'-12' wide: Posts	3-1/2"	4.000"	9.12 lb/ft	6.56 lb/ft
Swing gate 0'-12' wide: Frames	1-1/2"	1.900"	2.72 lb/ft	2.28 lb/ft

2.03 FRAMEWORK

- A. Posts: sufficient length to allow for installation to a depth of approximately 3'-0" below ground minimum, or as shown on Drawings if greater. See table for pipe sizes.
- B. Top Rail, Bottom, and Middle (Center) Rail:
 - 1. Install a continuous top and bottom rail for the full length. See table for pipe sizes.

2.04 FITTINGS

- A. General: ASTM F626, galvanized iron or steel, zinc coated in accordance with ASTM A153, with zinc weights per Table I. All threaded parts: coated in the field with a vinyl base compound after installation.
- B. Wire ties: 9 GA [0.148"] galvanized steel wire for attachment of fabric to line posts. Double wrap 13 GA [0.092"] for rails and braces. Hog ring ties of 12-1/2 GA [0.0985"] for attachment of fabric to tension wire.
- C. Post Tops: Weather tight pressed steel not lighter than 14 GA, wrought iron or malleable iron with openings to accommodate top rail or tension wire where required. Post tops: simple cane type without ornamentation.
- D. Tension and Stretcher Bars: Hot-dip galvanized steel with minimum length 2" less than full height of fabric, minimum cross-section of 3/16" by 3/4" and minimum 1.2 ounce zinc coating per square

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foot of surface area. Provide one bar for each gate and end post, and 2 for each corner and pull post, except where fabric is integrally woven into posts.

- E. Tension and Brace Bands: Minimum 3/4" wide hot-dip galvanized steel with minimum 1.2 ounce zinc coating per square foot of surface area.
 - 1. Tension Bands: Minimum 14 GA thick.
 - 2. Brace Bands: Minimum 12 GA thick.
- F. Truss rods & Tightener: Steel rods with minimum diameter of 5/16". Capable of withstanding a tension of minimum 2,000 lbs.

2.05 SETTING MATERIALS

- A. Concrete: Minimum 28 day compressive strength of 3,000 psi (20 MPa). Premixed blends Concrete must use 1/2" aggregate size, submit documentation.

2.06 GATES

- A. General: as shown on the Drawings, joined at the corners by specially designed corner fittings, or welded at corners. See table for pipe sizes. Fill gate frame with chain-link fabric of the same gauge (GA) and finish as the fence.
- B. Frame: shown on the Drawings. See table for pipe sizes. In addition:
 - 1. Install two truss-rods diagonally on each gate leaf unless otherwise noted.
 - 2. Install a middle rail on gates 6' height and above
- C. Fabric: fasten the fabric to the frame on all sides by means of fasteners and tension rods.
- D. Hinges: install galvanized gate frame and gate post hinges of adequate strength for the gate size specified and to allow 180 degree swing.
- D. Single gate hardware: include the following, unless otherwise noted on the Drawings:
 - 1. Galvanized fulcrum latch type padlocking device
- E. Double gate hardware: include the following, unless otherwise noted on the Drawings:
 - 1. Fixed leaf: install the following:
 - a. Drop rod with fork latch and lock bar.
 - b. Drop rod catch in concrete base.
 - c. Hold-open stop in concrete base.
 - 2. Free leaf: install a cane bolt, with a hold-open stop in concrete base.

PART 3 - EXECUTION

3.01 FRAMEWORK

- A. Space all posts in line of fence approximately 10' apart, unless otherwise noted on the Drawings. Install terminal posts at all corners and changes in direction.
- B. Set both line and terminal posts in cylindrical concrete footings. Excavate hole for the full depth of the post, not less than 12" in diameter.
- C. Install the top rail through openings provided in the post tops and couple each length with sleeve couplings or by a 3-inch long swagged end.

3.02 FABRIC

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- A. Fabric: Install fabric, top and bottom selvage knuckled, and attach so that fabric remains in tension after pulling force is released. Leave approximately 2" between finish grade and bottom selvage. Attach fabric by a double wrap of fabric of wire ties to line posts, rails, braces, and tension wire spaced at intervals of maximum 16" on center.
 - 1. Install fabric on the inside for play courts and fields. Verify with Owner.
 - 2. Attach fabric on gates to the frames by means of tensions strips.
- B. Tension (stretcher) bars: Pull fabric taut; thread tension bar through fabric and attach to terminal posts with bands or clips spaced maximum of 16" on center.

3.03 ACCESSORIES

- A. Tie wires: Bend ends of wire to minimize hazard to persons and clothing.
- B. Fasteners: Install nuts on side of fence opposite fabric side for added security.

3.04 CLEAN-UP

- A. Clean up debris and unused material, and remove from the site.

END OF SECTION