

## SECTION 02820

### VINYL COATED CHAIN LINK FENCING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. PVC-coated chain link fencing and accessories for [commercial] [and] [industrial] use.

##### 1.02 RELATED SECTIONS

- A. Section 02500 - Paving and Surfacing
- B. Section 03300 - Cast-In-Place Concrete
- C. Section 04200 - Unit Masonry

##### 1.03 SUBMITTALS

- A. Changes in specifications may not be made after the bid date.
- B. Shop drawings: Layout of fences and gates with dimensions, details, and finishes of components, accessories, and post foundations.
- C. Product data: Manufacturer's catalog cuts indicating material compliance and specified options.
- D. Samples: Color selection for PVC finishes. If requested, samples of materials (e.g., fabric, wires, and accessories).

#### PART 2 PRODUCTS

##### 2.01 MANUFACTURER

- A. Products from qualified manufacturers having a minimum of five years experience manufacturing thermally fused chain link fencing will be acceptable by the architect as equal, if approved in writing, ten days prior to bidding, and if they meet the following specifications for design, size gauge of metal parts and fabrication.
- B. Obtain chain link fences and gates, including accessories, fittings, and fastenings, from a single source.
- C. Approved Manufacturer: Iron World Manufacturing LLC, Laurel, MD  
Phone (301) 776-7448 Fax (301) 776-7449

##### 2.02 CHAIN LINK FENCE FABRIC (see index for selections and other information)

- A. PVC or polyolefin elastomer coating, 7 mil (0.18mm) thickness, thermally fused to zinc-coated steel core wire: Per ASTM F668 Class 2b. Core wire tensile strength 75,000 psi (517 MPa).
- B. Size: Helically wound and woven to height of \_\_\_\_\_ feet (\_\_\_\_\_mm) [as indicated on drawings] with \_\_\_\_\_ (\_\_\_\_\_mm) diamond mesh, \_\_\_\_\_ gauge, with a core wire diameter of \_\_\_\_\_ " (\_\_\_\_\_mm) and a breakload of \_\_\_\_\_ lbf (\_\_\_\_\_N). Color \_\_\_\_\_ ASTM F 934. Choose color - [Woodland Green] (olive), [Ensor Green] (green), [Brown] or [Black].
- C. Selvage of fabric \_\_\_\_\_ at top and \_\_\_\_\_ at bottom.

### 2.03 STEEL FENCE FRAMING

- A. Steel pipe - Type I: ASTM F 1083, standard weight schedule 40; minimum yield strength of 25,000 psi (170 MPa); sizes as indicated. Hot-dipped galvanized with minimum average 1.8 oz/ft<sup>2</sup> (550 g/m<sup>2</sup>) of coated surface area.
- B. Steel pipe - Type II: Cold formed and welded steel pipe complying with ASTM F 1043, Group IC, with minimum yield strength of 50,000 psi (344 MPa), sizes as indicated. Protective coating per ASTM F 1043, external coating Type B, zinc with organic overcoat, 0.9 oz/ft<sup>2</sup> (275 g/m<sup>2</sup>) minimum zinc coating with chromate conversion coating and verifiable polymer film. Internal coating Type B, minimum 0.9 oz/ft<sup>2</sup> (275 g/m<sup>2</sup>) zinc or Type D, zinc pigmented, 81% nominal coating, minimum 3 mils (0.08 mm) thick.
- C. Formed steel ("C") sections: Roll formed steel shapes complying with ASTM F 1043, Group II, produced from 45,000 psi (310 MPa) yield strength steel; sizes as indicated. External coating per ASTM F 1043, Type A, minimum average 2.0 oz/ft<sup>2</sup> (610 g/m<sup>2</sup>) of zinc per ASTM A 123, or 4.0 oz/ft<sup>2</sup> (1220 g/m<sup>2</sup>) per ASTM A 525.
- D. Steel square sections: [ASTM A 500, Grade B] Steel having minimum yield strength of 40,000 psi (275 MPa); sizes as indicated. Hot-dipped galvanized with minimum 1.8 oz/ft<sup>2</sup> (550 g/m<sup>2</sup>) of coated surface area.
- E. PVC-Coated finish: In accordance with ASTM F1043, apply supplemental color coating of 10 to 15 mils (0.254 - 0.38 mm) of thermally fused PVC in \_\_\_\_\_ color to match fabric.
- F. End and Corner Post \_\_\_\_\_ od (\_\_\_\_\_ mm) \_\_\_\_\_ lbs/ft (\_\_\_\_\_ kg/m)  
OR  
End and Corner Post \_\_\_\_\_ sq (\_\_\_\_\_ mm) \_\_\_\_\_ lbs/ft (\_\_\_\_\_ kg/m)  
Line (intermediate) Post \_\_\_\_\_ od (\_\_\_\_\_ mm) \_\_\_\_\_ lbs/ft (\_\_\_\_\_ kg/m)  
OR  
\_\_\_\_\_ "C" (\_\_\_\_\_ mm) \_\_\_\_\_ lbs/ft (\_\_\_\_\_ kg/m)  
Rail and Braces \_\_\_\_\_ od (\_\_\_\_\_ mm) \_\_\_\_\_ lbs/ft (\_\_\_\_\_ kg/m)

### 2.04 GATES

- A. Chain link swing gates as specified in Section 02820C.
- B. Chain link cantilever slide gates as specified in Section 02820D.
- C. Chain link vertical lift gates as specified in Section 02820E.
- D. Chain link overhead slide gates as specified in Section 02820F.

### 2.05 ACCESSORIES

- A. Chain link fence accessories: [ASTM F 626] Provide items required to complete fence system. Galvanize each ferrous metal item and finish to match framing.
- B. Post caps: Formed steel, cast malleable iron, or aluminum alloy weathertight closure cap for tubular posts. Provide one cap for each post. Cap to have provision for barbed wire when necessary. "C" shaped line post without top rail or barbed wire supporting arms do not require post caps. (Where top rail is used, provide tops to permit passage of top rail.)
- C. Top rail and brace rail ends: Pressed steel per ASTM F626, for connection of rail and brace to terminal posts.
- D. Top rail sleeves: 7" (178 mm) expansion sleeve with spring, allowing for expansion and contraction of top rail.

- E. Wire ties: 9 gauge [0.148" (3.76 mm)] galvanized steel wire for attachment of fabric to line posts. Double wrap 13 gauge [0.092" (2.324 mm)] for rails and braces. Hog ring ties of 12-1/2 gauge [0.0985" (2.502 mm)] for attachment of fabric to tension wire.
- F. Brace and tension (stretcher bar) bands: Pressed steel. At square post provide tension bar clips.
- G. Tension (stretcher) bars: One piece lengths equal to 2 inches (50 mm) less than full height of fabric with a minimum cross-section of 3/16" x 3/4" (4.76 mm x 19 mm) or equivalent fiber glass rod. Provide tension (stretcher) bars where chain link fabric meets terminal posts.
- H. Tension wire: Thermally fused vinyl (Permafused) applied to metallic coated steel wire, 7 gauge, [0.177" (4.5 mm)] diameter core wire with tensile strength of 75,000 psi (517 MPa).
- I. Truss rods & tightener: Steel rods with minimum diameter of 5/16" (7.9 mm). Capable of withstanding a tension of minimum 2,000 lbs.
- J. Barbed wire: Thermally fused PVC-coated steel wire double-strand, 13-3/4 gauge, [0.083" (2.10 mm)] twisted line wire with galvanized steel, 4 point barbs (without PVC finish) spaced approximately 3" (76.2 mm) on center.
- K. Barbed wire supporting arms: Pressed steel arms with provisions for attaching 3 rows of barbed wire. Arms shall withstand 250 lb. (113.5 kg) downward pull at outermost end of arm without failure.
  - 1. Provide [45°] [3 strands, single arm] [and] [6 strands double "V" arms].
  - 2. Provide intermediate arms with hole for passage of top rail.
- L. Nuts and bolts are galvanized but not vinyl coated. Cans of PVC touch up paint are available to color coat nuts and bolts if desired.

## **2.06 SETTING MATERIALS**

- A. Concrete: Minimum 28 day compressive strength of 3,000 psi (20 MPa).
- OR
- B. Drive Anchors: Galvanized angles, ASTM A 36 steel 1" x 1" x 30" (25 mm x 25 mm x 762 mm) galvanized shoe clamps to secure angles to posts.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify areas to receive fencing are completed to final grades and elevations.
- B. Ensure property lines and legal boundaries of work are clearly established.

### **3.02 CHAIN LINK FENCE FRAMING INSTALLATION**

- A. Install chain link fence in accordance with ASTM F 567 and manufacturer's instructions.
- B. Locate terminal post at each fence termination and change in horizontal or vertical direction of 30° or more.
- C. Space line posts uniformly [at 8' (2438 mm) on center] [at 10' (3048 mm) on center].
- D. Concrete set [terminal] [and] [gate] posts: Drill holes in firm, undisturbed or compacted soil. Holes shall have diameter 4 times greater than outside dimension of post, and depths approximately 6" (152 mm) deeper than post bottom. Excavate deeper as required for adequate support in soft and loose soils, and for posts with heavy lateral loads. Set post bottom 36" (914 mm) below surface when in firm, undisturbed soil. Place concrete around posts in a continuous pour. Trowel finish around post. Slope to direct water away from posts.

- E. Drive Anchor [line] posts: With protective cap, drive post 36" (914 mm) into ground. Slightly below ground level install drive anchor shoe fitting. Install 2 diagonal drive anchors and tighten in the shoe.
- F. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.
- G. Bracing: Install horizontal pipe brace at mid-height for fences 6' (1829 mm) and over, on each side of terminal posts. Firmly attach with fittings. Install diagonal truss rods at these points. Adjust truss rod, ensuring posts remain plumb.
- H. Tension wire: Provide tension wire at bottom of fabric [and at top, if top rail is not specified]. Install tension wire before stretching fabric and attach to each post with ties. Secure tension wire to fabric with 12-1/2 gauge [0.0985" (2.502 mm)] hog rings 24" (610 mm) oc.
- I. Top rail: Install lengths, 21' (6400 mm). Connect joints with sleeves for rigid connections for expansion/contraction.
- J. Center Rails (for fabric height 12' (3658 mm) and over). Install mid rails between posts with fittings and accessories.
- K. Bottom Rails: Install bottom rails between posts with fittings and accessories.

### **3.03 CHAIN LINK FABRIC INSTALLATION**

- A. Fabric: Install fabric on security side and attach so that fabric remains in tension after pulling force is released. Leave approximately 2" (50 mm) between finish grade and bottom selvage. Attach fabric with wire ties to line posts at 15" (381 mm) on center and to rails, braces, and tension wire at 24" (600 mm) on center.
- B. Tension (stretcher) bars: Pull fabric taut; thread tension bar through fabric and attach to terminal posts with bands or clips spaced maximum of 15" (381 mm) on center.

### **3.04 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.
- C. Barbed wire: Uniformly space parallel rows of barbed wire on security side of fence. Pull wire taut and attach in clips or slots of each extension.

### **3.05 CLEANING**

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