

SECTION 02821 - CHAIN LINK FENCES AND GATES (BUILDING RELATED)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Building related chain link fence.
 - 2. Chain link gates.
 - 3. Plastic screening slats.
- B. Related Requirements:
 - 1. Section 03310 - Structural Concrete and Exterior Concrete Slabs: Concrete anchorage for posts.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A 392 - Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
- C. Chain Link Fence Manufacturers Institute (CLFMI): Product Manual.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Fencing system and installation engineered to withstand windload as indicated on Drawing assuming 50 percent coverage with hanging plastic banners and signage.

1.4 QUALITY ASSURANCE

- A. Chain link fabric, posts, and components, and installation shall conform with the requirements of the CLFMI Product Manual unless otherwise shown or specified.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with minimum 3 years documented experience.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Posts: Type I or II or roll formed "C" Section steel conforming to CLFMI and as specified hereinafter.
- B. Fabric: No. 9 gage galvanized steel wire in 2 inch mesh; ASTM A 392, height as shown.
 - 1. Fabric height less than 72 inches: Top and bottom selvages knuckled.
 - 2. Fabric height 72 inches and greater: Top selva twisted, bottom selva knuckled.

2.2 COMPONENTS

- A. End, Corner, and Pull Posts: Minimum sizes and weights as follows unless otherwise shown.
 - 1. Up to 13 Foot Fabric Height: Type I or II in accordance with CLFMI Product Manual.
 - 2. 13 foot and over Fabric Height:
 - a. Type I Posts: Round; 4.0 inch outside diameter pipe, 9.10 lbs/lin ft.
 - b. Type II Posts: 4.0 inch outside diameter pipe, 6.56 lbs/lin ft.

- B. Line (Intermediate) Posts: Minimum sizes and weights as follows unless otherwise shown.
 - 1. Up to 8 Foot Fabric Height: Type I, II, or "C" Section in accordance with CLFMI Product Manual.
 - 2. Over 8 Foot Fabric Height:
 - a. Type I Posts:
 - 1) Round: 2.875 inch outside diameter pipe, 5.79 lbs/lin ft.
 - 2) Square: 2.5 inch x 2.5 inch outside dimension, 5.10 lbs/lin ft.
 - b. Type II Posts: 2.875 inch outside diameter pipe, 4.64 lbs/lin ft.
- C. Gate Posts: Type I or II in accordance with CLFMI Product Manual unless otherwise shown.
- D. Top, Bottom, and Intermediate Rails: Manufacturer's longest lengths.
 - 1. Type I or II in accordance with CLFMI Product Manual.
 - 2. Couplings: Expansion type, approximately 6 inches long.
 - 3. Attaching Devices: Means of attaching top rail securely to each gate, corner, pull, and end post.
 - 4. Do not install bottom rail at truck well fence which shall receive tension wire instead.

2.3 ACCESSORIES

- A. Sleeves: Galvanized steel pipe with inside diameter not less than 1/2 inch greater than outside diameter of fence posts. Provide steel plate closure welded to bottom of sleeves of width and length not less than 1 inch greater than outside diameter of sleeve.
 - 1. Up to 6 Foot Fabric Height: Provide sleeve not less than 12 inches long.
 - 2. Over 6 Foot Fabric Height (Not for Partitions Tight to Roof Deck): Provide sleeve not less than 24 inches long.
 - 3. Fabric Installed Tight to Roof Deck (Posts Braced to Roof Structure): Provide sleeve not less than 12 inches long.
- B. Tension Wire: 7 gage steel, metallic-coated coil spring wire, located at bottom of fence fabric.
- C. Wire Ties: 11 gage galvanized steel.
- D. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Use same materials as top rail for brace, and truss to line posts with 0.375 inch diameter rod and adjustable tightener.
- E. Post Tops: Galvanized steel, weather tight closure cap for tubular posts, one cap for each post. Furnish cap with openings to permit passage of top rail as required.
- F. Stretcher Bars: Galvanized steel, one piece lengths equal to full height of fabric; with minimum cross section of 3/16 x 3/4 inch. Provide one stretcher bar for each gate and end post, one for each top rail in Automotive and Tire areas only, and two for each corner and pull post.
- G. Stretcher Bar Bands: Manufacturer's standard.
- H. Gate Cross-Bracing: 3/8 inch diameter galvanized steel adjustable length truss rods.
- I. Gate Hardware:
 - 1. Swinging Gate Hardware:
 - a. Hinges:
 - 1) Size and material to suit gate size; offset to permit 180 degree gate opening. Provide 1-1/2 pair of hinges for each leaf over 6 feet nominal height.
 - 2) TLE Service Area Gate: Hinges shall be Tru-close self closing round post gate hinges by D&D Technologies USA, Costa Mesa, CA (800) 716-0888.
 - b. Latch:
 - 1) Exterior: Forked type or plunger-bar type to permit operation from both sides of gate, with padlock eye.

- 2) Interior: Forked type to permit operation from both sides of gate. Omit any type of padlock device and substitute standard pin bracket for attachment of forked latch (gates are not to be padlocked).
 - 3) TLE Service Area Gate: Butterfly gate latch No. 17307 by Master-Halco or No 5552 by Merchant Metals.
2. Double Gate Hardware: In addition to the above, provide gate stops for double gates, consisting of mushroom type flush plate with anchors set in concrete to engage center drop rod or plunger bar. Configure for use of one padlock to lock both gate leaves on exterior gates.
- J. Plastic Screening Slats (Exterior): Tubular plastic slats designed for use in 2 inch mesh fabric, for vertical installation. Feather Lock Slat by PrivacyLink, Hyde Park, UT (800) 574-1076.
- 1. Color: Gray.

2.4 SETTING MIXES

- A. Concrete: See Section 03310.
- B. Grout: Premixed, factory-packaged, non-staining, non-corrosive grout. See Section 03310. Provide type especially formulated for exterior application.

2.5 GATE FABRICATION

- A. Fabricate gate frames of min. 1.90 inch outside diameter galvanized steel pipe. Provide horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space frame members maximum 8 feet apart.
- B. Assemble gate frames rigidly by welding or with special fittings and rivets. Use same fabric as specified for fence. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to frame at not more than 15 inches on center. Install diagonal cross-bracing on gates as required to ensure frame rigidity without sag or twist.
- C. Attach hardware to provide security against removal or breakage.

2.6 FINISH

- A. Fabric and Framing: Zinc coated in accordance with CLFMI Product Manual.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install chain link fence in accordance with CLFMI Product Manual unless otherwise specified herein.
- B. Space line posts 10 feet on center maximum, except as otherwise indicated.
 - 1. Space line posts at 8 feet on center maximum if plastic slats are indicated to be installed in fence fabric.
 - 2. Space interior line posts 8' feet on center maximum.
- C. Set posts as close to building walls as practical. Gaps greater than 1 inch between wall and posts shall be closed with a metal closure panel attached full height to post with Tek screws as shown. Hem edges and corners of sheet metal to eliminate sharp or rough edges.
- D. Methods for Setting Posts:
 - 1. Grade-Set Posts:
 - a. Drill or hand excavate to a depth approximately 3 inches lower than post bottom. Set post bottom at depth indicated on Drawings.
 - b. Excavate each post hole to 12 inch diameter, or not less than four times diameter of post.

- c. Hold post in position while placing, consolidating, and finishing concrete.
 - d. Post shall be set plumb within ¼ inch in 10 feet.
- 2. Sleeve-Set Posts In Slabs: Anchor posts in concrete by means of pipe sleeves preset into concrete to depth not less than 24 inches below finish slab, and anchored into concrete. Insert posts into sleeves and fill annular space between post and sleeve solid with grout. Mix and place grout in accordance with manufacturer's published instructions.

- E. Intermediate Rails: Provide center and bottom rails where indicated. Install in one piece between posts and flush with post on fabric side, using offset fittings where necessary. Place intermediate rails a maximum of 6 feet on center.

- F. Brace Assemblies: Install braces so posts are plumb with rod in tension.

- G. Tension Wire: Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than 6 gage galvanized wire. Fasten fabric to tension wire using 11 gage galvanized steel hog rings spaced 24 inches on center.

- H. Fabric: Space between bottom of fabric and finish grade shall be not greater than 2 inches. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so fabric remains in tension after pulling force is released.

- I. Stretcher Bars: To secure end, corner, pull, and gate posts, thread through or clamp to fabric 4 inches on center and secure to posts with metal bands spaced 15 inches on center.

- J. Tie Wires:
 - 1. Use U-shaped wire conforming to diameter of pipe to which attached, clasp pipe and fabric firmly with ends twisted two full turns. Bend wire ends to minimize hazards to persons or clothing.
 - 2. Tie fabric to line posts with wire ties spaced 12 inches on center. Tie fabric to rails and braces with wire ties spaced 24 inches on center. Manufacturer's standard procedure will be accepted if of equal strength and durability.

- K. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

- L. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

- M. Install plastic slats vertically to manufacturer's instructions where shown on Drawings.

3.2 ERECTION TOLERANCES

- A. Maximum Variation from Plumb: 1/4 inch.
- B. Maximum Offset from True Position: 1 inch.

END OF SECTION