

NON-RESTRICTIVE SPECIFICATIONS FOR CHAIN LINK FENCE

SECTION 02831

CHAIN-LINK FENCES AND GATES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Fence framework, fabric and accessories
- B. Gates and related hardware
- C. Installation

1.02 SCOPE OF WORK

- A. *Summary:* This section covers the work necessary to complete the chain link fence and gate installation.
- B. *General:* All major components including, but not limited to the framework and the chain link fabric shall be manufactured in the U.S.A. from steel melted and produced in the U.S.A.
- C. *Delivery, Storage and Handling:* Deliver material to the site in an undamaged condition. Material should be stored off the ground to provide proper protection against oxidation caused by ground moisture.

1.03 SUBMITTALS AND MILL CERTIFICATION

- A. *Shop Drawings:* Include complete details of fence and gate construction, fence height, post spacing, dimensions and weights of framework and concrete footing details (*or mechanical driven depth in lieu of concrete set for "C" section line posts only.*)
- B. *Product Data:* Provide manufacturer's catalog cuts with printed specifications. Manufacturer shall provide certification of compliance with material specifications. Actual samples of the fence components shall be supplied if requested.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. *Acceptable Manufacturers:*
 - 1. Gregory Industries (roll-formed)
4100 13th St. SW
Canton, OH 44710
 - 2. Wheatland Tube (tubular)
 - 3. Allied Tube (tubular)

B..*Framework*: Line posts and Rails shall conform to Standard Specification ASTM F1043 Group II, Roll-formed, Galvanized (Heavy Industrial) for both strength (50,000 psi) and zinc coatings (4.0 oz/ft 2, total both sides.). Line Post size shall be as follows:

GROUP II -Roll-formed "C" sections:

1.625" x 1.25"	1.35 lbs per foot (rails)
1.875" x 1.625	2.40 lbs per foot
2.25" x 1.70"	2.78lbs per foot
3.25" x 2.50"	4.50 lbs per foot

Tubular (Round)

<u>Pipe size</u>	<u>Group1A</u>	<u>Group 1C</u>
<u>Outside Diameter</u>	<u>Weight lbs/ft</u>	<u>Weight lbs/ft</u>
1-5/8"	2.27	1.84
1-7/8"	2.72	2.28
2-3/8"	3.65	3.12
2-7/8"	5.79	4.64
3-1/2"	7.58	5.71
4"	9.11	6.56
6-5/8"	18.97	-----
8-5/8"	24.70	-----

C. *Fabric*: Aluminized fabric shall be manufactured in accordance with ASTM A491 and coated before weaving with a minimum 0.4 ounces of aluminum per square ft of surface area. The steel wire and coating shall conform to ASTM A817. Fabric to be 9 gauge woven in a 2 inch diamond mesh. Top selvage to be twisted and barbed. Bottom selvage to be knuckled unless otherwise specified.

Zinc-coated fabric shall be galvanized after weaving with a minimum 1.2 ounces of zinc per square foot of surface area and conform to ASTM a392, Class 1. Fabric to be 9 gauge wire woven in a 2 inch diamond mesh. Top selvage to be twisted and barbed. Bottom selvage to be knuckled unless otherwise specified.

2.02 CONCRETE MIX

A. Concrete conforming to ASTM C94, having a minimum compressive strength of 3,000 PSI at 28 days.

2.03 COMPONENTS

A. Fence line (intermediate) posts:

<u>Fabric Height</u>	<u>GROUP II -Roll-formed "C" sections:</u>	
8 ft and under	1.875" x 1.625	2.40 lbs per foot
10 ft and under	2.25" x 1.70"	2.78lbs per foot
12 ft and under	3.25" x 2.50"	4.50 lbs per foot

<u>Group 1A or 1C</u>		
<u>Fabric Height</u>	<u>Line Post O.D.</u>	<u>Terminal Post O.D.</u>
Under 6'	1-7/8"	2-3/8"
6' to 9ft	2-3/8"	2-7/8"
9' to 12'	2-7/8"	4"

B. Swing Gate Posts:

<u>Single Gate Width</u>	<u>Double Gate Width</u>	<u>Post O.D. Group 1A or 1C</u>
Up to 6'	Up to 12'	2-7/8"
7' to 12'	13' to 24'	4"
13' to 18'	25' to 36'	6-5/8" Group 1A
Over 18'	oOver 36'	8-5/8" Group 1A

C. Rails and Braces:

Group II – Roll-formed sections 1.625" x 1.25"
 Group 1A or1C – 1 5/8" O.D.

- D. *Gates:* Frame assembly of 1-7/8" O.D. pipe Group1A or 1C with welded joints. Weld areas repaired with zinc-rich coating applied per manufacturer's directions. Fabric to match fence. Gate accessories, hinges, latches, center stops, keepers and necessary hardware of quality required for industrial and commercial application. Latches shall permit padlocking.

E. *Fittings:*

Post caps – Pressed steel, cast iron or cast aluminum alloy designed to fit over posts. Supply dome style caps for terminal posts and loop type for line posts. All fittings to conform to ASTM F626.

Rail and Brace ends – Pressed steel, cast iron or cast aluminum alloy, made to accept rail ends and brace rails at terminal ends.

Top Rail Sleeves – Minimum 7" long expansion type to join lengths of top rail.

Tension Bars – Steel strip, 5/8" wide x 3/16" thick.

Tension Bands – Pressed steel, 14 gauge thickness x 3/4" wide.

Brace Bands – Pressed steel, 12 gauge thickness by 3/4" wide.

Truss Rods – Steel rod, 3/8" diameter with turnbuckle.

Barbed Wire Arms – Pressed steel, cast iron or cast aluminum alloy fitted with slots for attaching strands of barbed wire.

Tension Wire: - Marcellled 7 gauge steel wire with minimum coating of 0.80 ounces of zinc or 0.40 ounces of aluminum per square foot of wire surface and conforming to ASTM A824.

Tie Wires – Aluminum, 9 gauge, alloy 1100-H4 or equal.

Hog Rings – Steel wire, 11 gauge, with a minimum zinc coating of 0.80 ounces per square foot of wire surface.

Barbed Wire – If required, commercial quality steel, 12 1/2 gauge, two strand twisted line wire with 4 point barbs at 5 inch spacing. Coating shall consist of a minimum of 0.80 ounces of zinc per square foot of wire surface conforming to ASTM A121 or a minimum 0.30 ounces of aluminum per square foot of wire surface conforming to ASTM A585.

Barbed Tape: (If required, options are available in ASTM F1910 Tables 1 and 2.)

PART 3 – EXECUTION

3.01 INSTALLATION

- A. *General:* Installation to conform to ASTM F567.
- B. *Height:* Provide height as indicated on contract drawings.
- C. *Post Spacing:* Space line posts at intervals not exceeding ten feet.
- D. *Post Setting:* Set terminal, gate and line posts plumb in concrete footings. At the Engineer's discretion, the roll-formed "C" section may be mechanically driven 3 ft deep in lieu of a concrete set.
- E. *Bracing:* Brace gate and terminal posts back to adjacent line posts with Horizontal brace rails and diagonal truss rods.
- F. *Top Rail:* Install through line loop caps or loops on barbed wire arms connecting sections with rail sleeves to form a continuous rail between terminal posts.
- G. *Top Tension Wire:* When top rail is omitted, stretch tension wire through loop caps or through "J" notch option on roll-formed "C" section posts and fasten to terminal posts.
- H. *Bottom Tension Wire:* Stretch between terminal posts 6" above grade and fasten to line posts with tension wires.
- I. *Fabric:* Pull fabric taut with bottom selvage 2" above grade. Fasten to terminal posts with tension bars threaded through the fabric mesh and secured with tension bands at 15" maximum intervals. Tie to line posts and top rails with tie wires spaced at maximum 12" on posts and 24" on rails.. Attach to bottom tension wire with hog rings at maximum 24" intervals.
- J. *Barbed Wire:* Anchor to terminal post barbed wire arms, pull taut and firmly install in Slots on line post barbed wire arms.
- K. *Gates:* Install gates plumb, level and secure for full opening without interference. Anchor center stops and keepers in concrete.

- L. *Fasteners:* Install nuts for fittings, bands and bolts on inside of fence.

3.02 COMPLETION

- A. The area of installation shall be left free of debris caused by the installation of the fence.