



Designation: F 1916 – 98

Standard Specifications for Selecting Chain Link Barrier Systems With Coated Chain Link Fence Fabric and Round Posts for Detention Applications¹

This standard is issued under the fixed designation F 1916; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification provides the recommended criteria for specifying the construction of barrier systems for restricting access or ensuring human confinement, with the capability of defeating or seriously resisting any breaching attempts.

1.2 No recommendation is made or implied as to the merits of the product of any particular manufacturer. Choice of product components selection for the barrier system should be made by the writers of the project based on their own perception of the merits of products for this application.

1.3 The values stated in inch-pound units are to be regarded as the standard. The SI values stated in parentheses are provided for information only.

2. Referenced Documents

2.1 ASTM Standards:

- A 121 Specification for Zinc-Coated (Galvanized) Steel Barbed Wire²
- A 123 Specification for Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products²
- A 153/A 153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware²
- A 176 Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip³
- A 392 Specification for Zinc-Coated Steel Chain Link Fence Fabric²
- A 478 Specification for Chromium-Nickel Stainless and Heat-Resisting Steel Weaving and Knitting Wire³
- A 491 Specification for Aluminum-Coated Steel Chain-Link Fence Fabric²
- A 585 Specification for Aluminum-Coated Steel Barbed Wire²
- A 666 Specification Annealed or Cold-Worked for Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar³
- A 780 Practice for Repair of Damaged and Uncoated Areas

- of Hot-Dip Galvanized Coatings²
- A 824 Specification for Metallic-Coated Steel Marcellled Tension Wire for Use With Chain Link Fence²
- B 117 Practice for Operating Salt Spray (Fog) Apparatus⁴
- C 94 Specification for Ready-Mixed Concrete⁵
- F 552 Terminology Relating to Chain-Link Fencing²
- F 567 Practice for Installation of Chain-Link Fence²
- F 626 Specification for Fence Fittings²
- F 668 Specification for Poly (Vinyl Chloride) (PVC)-Coated Steel Chain-Link Fence Fabric²
- F 900 Specification for Industrial and Commercial Swing Gates²
- F 934 Specification for Standard Colors for Polymer Coated Chain-Link Fence Materials²
- F 1043 Specification for Strength and Protective Coatings of Metal Industrial Chain-Link Fence Framework²
- F 1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures²
- F 1184 Specification for Industrial and Commercial Horizontal Slide Gates²
- F 1345 Specification for Zinc-5 Aluminum-Mischmetal Alloy-Coated Steel Chain-Link Fence Fabric²
- F 1379 Terminology Relating to Barbed Tape²
- F 1910 Specification for Long Barbed Tape Obstacles²
- F 1911 Practice for Installation of Barbed Tape²
- F 1664 Specification for Poly (Vinyl Chloride) (PVC)-Coated Steel Tension Wire Used With Chain-Link Fence²
- F 1665 Specification for Poly (Vinyl Chloride) (PVC) Coated Steel Barb Wire Used With Chain-Link Fence²
- 2.2 Other Standards:
- NFPA No. 70—National Fire Protection Association
- NEC National Electric Code
- NESC National Electric Safety Code
- ANSI No. C2 American National Standards Institute
- CEGS 02831 (Corp of Engineers Guide Standard) Army Corp of Engineers Fencing Specification
- AISI American Iron and Steel Institute
- Uniform Building Code (Chapter 23 Section 2303 (d) Stress

¹ These specifications are under the jurisdiction of ASTM Committee F-33 on Detention and Correctional Facilities and are the direct responsibility of Subcommittee F33.02 on Physical Barriers.

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² Annual Book of ASTM Standards, Vol 01.06.

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 03.02.

⁵ Annual Book of ASTM Standards, Vol 04.02.

Increase for Wind Load

3. Terminology

3.1 *Definitions*—See Terminology F 552 for definitions of terms relating to chain link fencing and Terminology F 1379 for terms relating to barbed tape.

4. Significance and Use

4.1 The user of this specification should select product components affording the degree of protection needed for various levels of security, and is encouraged to contact various producers of fence materials for advice in this respect.

4.2 This specification is not intended to define the minimum or maximum degree of protection needed, nor to guarantee that the resulting barrier system will resist or defeat any or all breaching attempts.

5. Submittals and Samples

5.1 Provide shop drawings, catalog cuts, and other submittals illustrating application of the material components to the project. Include installation instructions where applicable.

5.2 Prior to shipment, provide representative samples of material components as follows:

5.2.1 *Chain Link Fabric*, 12-in. (305-mm) square sample of each type and size.

5.2.2 *Barbed Wire*—12-in. (305-mm) length.

5.2.3 *Barbed Tape*, 12-in. (305-mm) length of each type. Barbed tape segment sample shall contain a minimum of three barbed clusters.

5.2.4 *Tension Wire*, 12-in. (305-mm) length.

5.2.5 *Posts and Horizontal Rails*, 12-in. (305-mm) length of each type and size.

5.2.6 *Post Top Extension Arms*, One of each type and size.

5.3 *Certification*—When specified in the purchase order or contract, the purchaser shall be furnished certification samples representing each lot have been either tested or inspected as directed in this specification and the requirements have been met. When specified in the purchase order or contract, a report of the test results shall be furnished.

5.4 *Contractor Experience*—Contractors shall show proof of experience for barbed tape installation.

5.5 *Warranty*—Provide warranty certificates within manufacturer's guidelines.

6. Material

6.1 Select chain link fabric coating type from one of the following:

6.1.1 *Zinc*, coated in accordance with Specification A 392 Class 2 coating.

6.1.2 *Aluminum*, coated before weaving in accordance with Specification A 491.

6.1.3 *Zinc-5 % Aluminum-Mischmetal Alloy-Coated*, in accordance with Specification F 1345, Class 2 coating.

6.1.4 *Poly (Vinyl Chloride) (PVC) Coated Steel*, in accordance with Specification F 668, Class 2b.

6.1.5 If PVC-coated fabric is selected, select Class 2a or 2b coating, and type of metallic coating on core wire from Specification F 668. Select color from Specification F 934.

TABLE 1 Terminal Post Sizes

Fabric Height in ft	Nominal size, in.		Wall Thickness, in.		Wt/Ft lbs	
	IA ^A	IC ^A	IA ^A	IC ^A	IA ^A	IC ^A
Grade						
≤ 6	2 1/2	2.375	.154	.130	3.65	3.12
7–8	2 7/8	2.875	.154	.160	5.79	4.64
9–12	3 1/2	3.500	.216	.160	7.58	5.71
13–16	4	4.0	.226	.160	9.11	6.56
17–18	6 5/8	6.625	.280		18.99	
19–20	8 5/8	8.625	.322		28.55	

^AIA and IC refers to post conforming to Specification F 1043.

6.1.6 Select fabric mesh, wire diameter, height, and type of top and bottom salvage from Specifications A 392, A 491 or F 668, and F 1345.

6.1.7 *Performance*—For historical data on actual atmospheric corrosion performance of aluminum-coated and zinc-coated chain link fabric from 1961 to 1993 at seven test sites within the United States, refer to Data Series 65.⁶

NOTE 1—6-gage, 0.192-in. (4.88-mm) diameter metallic coated wire is recommended for security applications where cutting through is a threat. Smaller mesh sizes with reduced wire diameters near the top of the fence also are recommended to thwart climbing where limited amounts of barbed tape are used.

NOTE 2—Fence fabric hot-dipped zinc-coated (galvanized), after weaving, in accordance with Specification A 392, Class-2, should not be specified when fence sensors are an integral part of the perimeter fence. Only zinc pre-coated fence fabric, aluminum coated, or zinc-5 % aluminum-mischmetal, should be specified in conjunction with fence sensors.

NOTE 3—Testing data from the ASTM thirty-two year report does not include zinc-5 % aluminum-mischmetal alloy coated steel wire before weaving. This product was not in production when the atmospheric corrosion investigation began for aluminum-coated and zinc-coated steel products, however, both the aluminum-coated and zinc-5 % aluminum-mischmetal alloy have demonstrated the ability to withstand 1000 h of salt spray to a maximum of 5 % red rust when tested in accordance with Test Method B 117.

6.2 *Framework*—Posts, rails, and braces shall conform to strength requirements of Specification F 1083 and Specification F 1043, Group IA, IC. Coating requirements shall also conform to Specification F 1083 and Specification F 1043. Select post and rail sizes from Tables 1-5.

NOTE 4—If fabric with mesh size smaller than 2 in. is selected, consideration shall be given to the additional wind, snow, or ice loads placed upon the fence. Post sizes shall be increased or the post spacing decreased accordingly. Post spacing, size, and type of post shall be calculated by the local authority having jurisdiction. For additional wind load information, in normal soil conditions, see Appendix X1.

6.2.1 Uniform Building Code, Chapter 23, Section 2303(d) Stress Increases states that all allowable stresses and soil-bearing values specified in this code for working stress design, may be increased one-third when considering wind or earthquake forces either acting alone or when combined with vertical loads. No increase will be allowed for vertical loads acting alone.

⁶ Data Series 65, *Atmospheric Corrosion Investigation of Aluminum-Coated, Zinc-Coated and Copper-Bearing Steel Wire and Wire Products, a Thirty-Two Year Report*, PCN 05-15950-02 available from ASTM Headquarters.

TABLE 2 Rail Sizes

Rails Grade	Nominal Size		O.D. in		Wall Thickness		Wt/Ft/lbs	
	IA ^A	IC ^A	IA ^A	IC ^A	IA ^A	IC ^A	IA ^A	IC ^A
Size	1-5/8		1.660		.140	.110	2.27	1.82

^AIA and IC refers to post conforming to Specification F 1043.

TABLE 3 Line Post Sizes

Fabric Height ft	Nominal size, in.		O.D., in.		Wall Thickness, in.		Wt/Ft, lbs
	IA ^A	IC ^A	IA ^A	IC ^A	IA ^A	IC ^A	
Grade	IA ^A	IC ^A	IA ^A	IC ^A	IA ^A	IC ^A	
≤ 6	1 7/8	1.90	.145	.120	2.72	2.28	
7–10	2 3/8	2.375	.154	.130	3.65	3.12	
11–16	2 7/8	2.875	.203	.160	5.79	4.64	
17–18	3 1/2	3.500	.216	.160	7.58	5.71	
19–20	4.0	4.0	.226	.160	9.11	6.56	

^AIA and IC refers to post conforming to Specification F 1043.

TABLE 4 Gate Post Sizes

Gate Height, ft	Gate Width					
	6 ft	8 ft	10 ft	12 ft	14 ft	16 ft
≤8	2.875	3.5	3.5	3.5	4.0	6.625
9–10	3.5	3.5	4.0	4.0	6.625	6.625
11–12	4.0	4.0	4.0	6.625	8.625	8.625
13–14	4.0	4.0	6.625	6.625	8.625	8.625
15–16	4.0	4.0	6.625	6.625	8.625	8.625
17–18	6.625	6.625	8.625	8.625	8.625	
19–20	6.625	8.625	8.625	8.625		

TABLE 5 Post Hole Depths^A

Exposed Height of Fabric	Line Post, in.	Corner/End Pull Post, in.	Setting Depth, in.
6 ft	1.90	2.375	30 in.
7 ft	2.375	2.875	33 in.
8 ft	2.375	2.875	36 in.
9 ft	2.875	4.0	39 in.
10 ft	2.875	4.0	42 in.
11 ft	2.875	4.0	45 in.
12 ft	2.875	4.0	48 in.
13 ft	2.875	4.0	51 in.
14 ft	3.5	4.0	54 in.
15 ft	3.5	4.0	57 in.
16 ft	4.0	6.525	60 in.

^AThe depth shall be a minimum of 24 in. plus an additional 3 in. for each 1-ft increase in the fence height over 4 ft.

6.2.1.1 *Group IA*—Posts, rails, and braces shall conform to the strength and coating requirements of Specification F 1083 and F 1043.

6.2.1.2 *Group IC*—Posts, rails, and braces shall conform to strength and coating requirements of Specification F 1043, Type A-A, Type B-B, Type B-D, and Type B-C.

6.2.2 *Performance*—The product of the yield strength and section modulus shall not be less than that for post conforming to Specification F 1083.

6.3 Tension wire shall be in accordance with Specification A 824, Type I or Type II, Class 3 coating. Where specified, tension wire used in place of rails, or to support barbed tape shall be 0.177-in., (4.50 mm) ± 0.005 in. (0.13 mm) minimum diameter. PVC-coated steel tension wire shall be in accordance with Specification F 1664.

6.3.1 *Performance*—See 6.1.7.

NOTE 5—Top tension wire shall always be used if the fence has no top

rail. Bottom tension wire is not recommended for detention or correctional applications.

6.4 Barbed wire shall be in accordance with Specification A 121, Chain-Link Fence Grade, except that barb spacing shall be a maximum of 3 in. (76 mm), or in accordance with Specification A 585, Type II with 3 in. (76 mm) maximum barb spacing. PVC-coated steel barbed wire shall be in accordance with Specification F 1665.

6.4.1 *Performance*—See 6.1.7.

6.5 Barbed tape shall be of the type specified in accordance with Specification F 1910 fabricated from stainless steel conforming to Specification A 176 and A 666.

6.5.1 Tie wire for securing barbed tape shall be a minimum of 16-gage stainless steel.

6.5.2 Wire ring (hog rings) for securing barbed tape shall be a minimum of 12-1/2-gage stainless steel, depending on the application.

6.6 Fittings are to be in accordance with Specification F 626 except as modified herein. Miscellaneous hardware coatings shall conform to Specification A 153/A 153M, unless as modified herein.

6.6.1 *Tie Wire Options for Securing Chain-Link Fabric to Framework:*

6.6.1.1 *Option 1*—Tie wires shall be 9-gage steel 0.148 in. ± 0.005 in. (3.76 ± 0.13 mm) with tensile strength ranging from dead soft to ksi (517 MPa).

6.6.1.2 *Option 2*, 6-gage steel 0.192 ± 0.005 in. (4.88 ± 0.13 mm) with tensile strength, dead soft.

6.6.1.3 *Option 3*, 304 stainless steel wire, 9-gage only, cold-drawn annealed, dead soft.

6.6.1.4 *Performance*—See 6.1.7.

6.6.2 *Tie Wire Coating Options:*

6.6.2.1 *Option 1*, zinc-coating, 9-gage steel wire, 1.8 oz/ft² (549 g/m²).

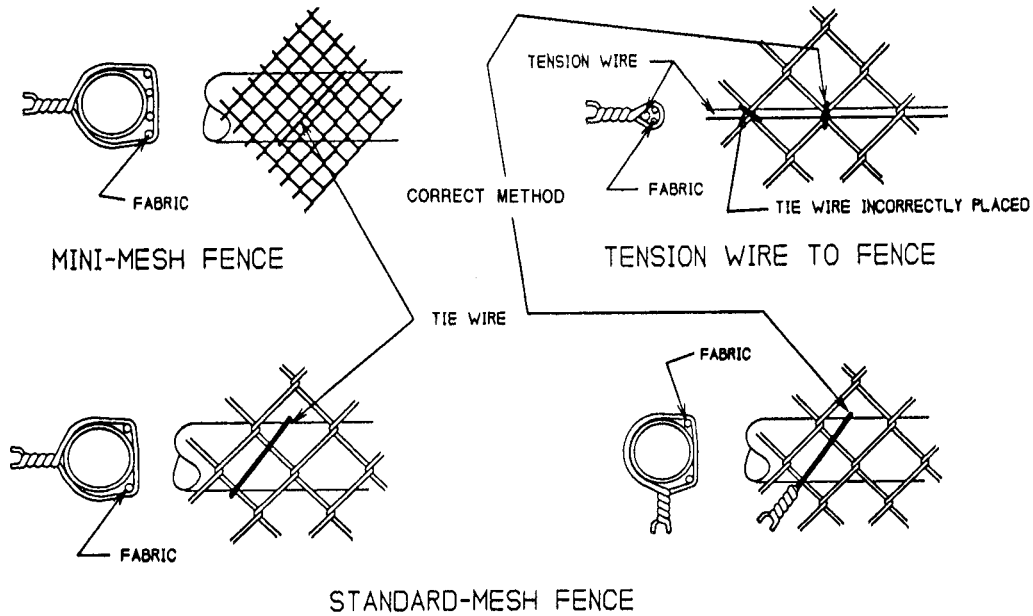
6.6.2.2 *Option 2*, zinc-coating, 6-gage steel wire, 2.0 oz/ft² (600 g/m²).

6.6.2.3 *Option 3*, aluminum coating 9- and 6-gage, 0.40 oz/ft² (122 g/m²).

6.6.2.4 *Option 4*, PVC-coating in accordance with Specification F 668, Class 2B, color to match fabric.

6.6.3 *Wire Rings (Hog Rings) or Tension Wire Tires*—Hog rings or wire ties used for securing chain link fabric to tension wires shall match the fabric coating selected. Wire diameter shall be 0.148 ± 0.005 in. (3.76 ± 0.13 mm). Where electronic detection is an integral part of the fence system, twistable wire tires are recommended in place of hog rings (see Fig. 1).

6.6.3.1 *Round Metallic-Coated Steel Tie Wires and Hog Rings*, shall withstand all forming or twisting operations without cracking or flaking of the coating to such an extent that any zinc or aluminum can be removed by rubbing with bare fingers. When specified, round metallic-coated tie wires and hog rings shall be polymer-coated to match the color of the chain link fabric, as selected from Specification F 934. The coating process and metallic-coating core wire material shall be as specified in Specification F 668. The tensile strength of the core wire constituting the tie wires and hog rings shall be suitable to accommodate a manual or power fastening process without causing damage to the metallic or polymer coating.



ORIGINAL TIE GENERAL SHAPE				
TIE SHAPE AS TWISTED ON POST				
TIE WITH TAILS REMOVED				
	MINI-MESH WIRE TIE	TENSION WIRE TIE	STANDARD-MESH WIRE TIE	STANDARD-MESH WIRE TIE ON SIDE

FIG. 1 Chain Link and Tension Wire Twist Tie Options

6.7 *Gates*, single and double swing gate panels shall conform to Specification F 900. The welded gate frame shall be constructed from 1.90 in. (48.3 mm) minimum o.d. pipe. Steel pipe conforming to Specification F 1043 Group IA or IC, shall be coated in accordance with Specification F 1083 or F 1043. Welded joints shall be coated in accordance with repair Practice A 780. Filler fabric fitting and tie wires shall conform to the specification.

6.7.1 *Swing Gate Hinges*, shall be malleable iron 180° hinge ball and socket type. All threaded ends of bolts shall be tack welded or peened.

6.7.2 *Single Swing Gate Latches*, shall be malleable iron gravity latch type. The latch pin shall be welded into the gate panel. Gate post receiver bolts shall be tack welded or peened.

6.7.3 *Swing Gate Locks*, may be furnished in lieu of swing gate latches. Consult with correctional lock manufacturer for lock specification information.

6.7.4 *Double Swing Gate Latch*, shall meet the requirements of Specification F 900. For gate heights 14 ft (4.3 m) and higher, provide a locking device attached to the transom, that will prevent gate leaves from being forced open.

6.8 *Cantilever Sliding Gates*, when specified shall be furnished for fence heights of 96 in. (2440 mm) and lower. Cantilever sliding gates shall meet the requirements of Specification F 1184, Type 2 aluminum frame gates using internal rollers. Filler fabric shall meet the chain-link fence specifications.

6.9 *Vehicle Overhead Sliding Gate Frame*, shall be capable of withstanding a minimum gate panel weight of 3000 lb (1361 kg). Consult with correctional gate manufacturer for overhead beam, trolley and gate/door panel design assistance.

6.10 *Vehicle Sallyport Heavy—Duty Overhead Electrical Gate Operators*, or vertical lift gate systems may be utilized. Consult with correctional gate manufacturer for detailed operator specifications and security locking device information.

7. Installation

7.1 *Site Preparation (shall be by others)*—Prior to fence erection, all necessary grading and cleaning on both sides of fence line shall be done in such a manner as to provide a straight, flat surface. There shall be no gaps greater than 2 in. (50 mm) between the bottom of the fence and finished grade or grade beam. All finished grade, dirt fill shall be thoroughly compacted.

7.2 Erect fence in accordance with Practice F 567, except as modified herein.

7.3 Erect the fence in straight lines between angle points. Only two posts may be out of alignment at the base, a maximum of 2 in. (50 mm) in any 200-ft (60-m) run. All chain-link fence components shall be grounded as shown on the drawing and as specified in 7.25

7.4 *Post Hole Diameters*, minimum of 10-in. (254-mm) for 2.375-in. (60-mm) posts, 12-in. (305-mm) for 2.875-in. (73-mm) posts, 16-in. (406-mm) for 4-in. (102-mm) posts, 24-in. (610-mm) for 6.625-in. (168-mm) posts, and 32-in. (813-mm) for 8.625-in. (219-mm) posts.

NOTE 6—Intended use and soil condition shall determine post footing dimensions. Dimensions recommended within this specification are for normal soil conditions (see Practice F 567).

7.5 *Post Hole Depths*, see Table 5.

7.6 *Concrete Mix*, in accordance with Specification C 94 having a maximum stone aggregate of $\frac{3}{4}$ in. (10 mm), and a minimum compressive strength of 2.5 ksi (17.2 MPa) in 28 days. Thoroughly work the concrete mix into the post holes so as to leave no voids. Allow concrete to cure a minimum of seven days before erecting the rails and fabric. Trowel the concrete to a crown finish at the top to shed water.

NOTE 7—The use of sleeves preinstalled in new concrete is recommended as an alternative method, when posts are unusually shaped or conditions within the contract specify other extraordinary circumstances.

7.7 *Post Holes in Solid Rock or Concrete*—Drill holes into solid rock or concrete $\frac{1}{2}$ in. (25 mm) larger than post diameter, 18 in. (457 mm) deep for end, pull, corner, and gate posts, and 12 in. (305 mm) deep for line posts. Half fill the void with nonshrinkable grout and force the post to the bottom of the hole so as to leave no voids. Crown the grout to shed water (see Practice F 567).

7.8 *Post Spacing*—Space posts equal distance in the fence line to a maximum of 10 ft (3.05 m) on center.

7.9 *Post and Rail Spacing*, some types of electronic detection systems require additional support. In such cases fences 10 to 14 ft (3 to 4.2 m) in height, the unsupported area of lower panel shall not exceed 60 ft² (4.65 m²). For example, if the fence height is 10 ft (3.05 m) and post spacings are 10 ft (3.05 m), the fence must have a top, intermediate, and bottom rail.

The intermediate shall be placed 6 ft (1.8 m) above the bottom rail. If the fence heights are 15 ft (4.57 m) and greater and post spacings are 8 ft (2.44 m), the fence must have a top rail, intermediate rail, and bottom rail. The intermediate rail shall be placed 7.5 ft (2.29 m) above the bottom rail. Consult with the electronic system's manufacturer for additional information regarding their system.

7.10 *Terminal Posts*—Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Terminal posts are used at the beginning and end of each continuous length of fence, or for changes in direction of 15° or more, and for any abrupt change in grade. Pull posts are located at intervals not greater than 500 ft (152 m). For runs over 500 ft (152 m), space pull posts equal distance between corner or end posts. On long curves, space terminal posts so that the strain of the fence will not bend the line posts. Bracing for corner and pull posts shall be in both directions. Brace rails shall be of the same material as specified for the other horizontal rails.

7.11 *Concrete Walls*—When specified, the top surface of any concrete wall shall have a crowned finish to shed water, unless field conditions require sloping in one direction for water runoff. Refer to 7.16.2, 7.16.3, and 7.16.4 for alternative methods of security and erosion control along the bottom of the fence. Serious erosion problems shall be engineered to direct water runoff away from the fence.

7.12 *Post Tops and Extension Arms*, used on fences having electronic detection devices shall be tack welded or attached to the posts by other suitable means to prevent any degree of mechanical noise that would cause a nuisance alarm. Recondition damaged surfaces caused by welding etc. with rust preventive coatings in accordance with Specification A 780.

7.13 *Rails, Braces, and Truss Rods*, shall be installed on the outside of the fence away from the inmates.

7.14 *Top Rail*—(with sleeves), shall run continuously through the top caps or extension arms. Straight runs of top rail exceeding 500 ft (152 m) or more, and require a minimum of one expansion sleeve. Carriage bolts used for attachment at terminal posts shall be placed with the threaded ends on the outside of the fence, away from the inmates.

7.15 *Intermediate and Bottom Rails*, shall be connected to terminal posts with brace bands and rail ends, and the line posts with brace bands and rail ends or boulevard clamps. Carriage bolts shall be placed with the threaded ends on the outside of the fence away from the inmate. Bottom rails on fences where a grade beam is specified shall be anchored to the grade beam with a $\frac{3}{8} \times 1\text{-}1/2$ -in. (9 × 38-mm) galvanized steel bar and $\frac{3}{8}$ -in. (9-mm) diameter galvanized U-bolt. This anchor is located one-half the distance between posts. Threaded ends of U-bolts shall be on the outside of the fence away from the inmate. Where a grade beam is not specified, the rail shall be anchored in a similar manner to a footing as shown in Fig. 2.

7.16 *Fabric*—Fabrics on perimeter fences are placed on the inmate side of the secure enclosure. Maintain a $1\text{-}1/2 \pm 1/2$ -in. (38 ± 13-mm) maximum clearance above finish grade unless otherwise specified.

7.16.1 *Terminal Connections*—Fabric shall be attached to end, corner and pull posts with tension bands and tension bars. Spacing between tension bands shall not exceed 12 in. (305

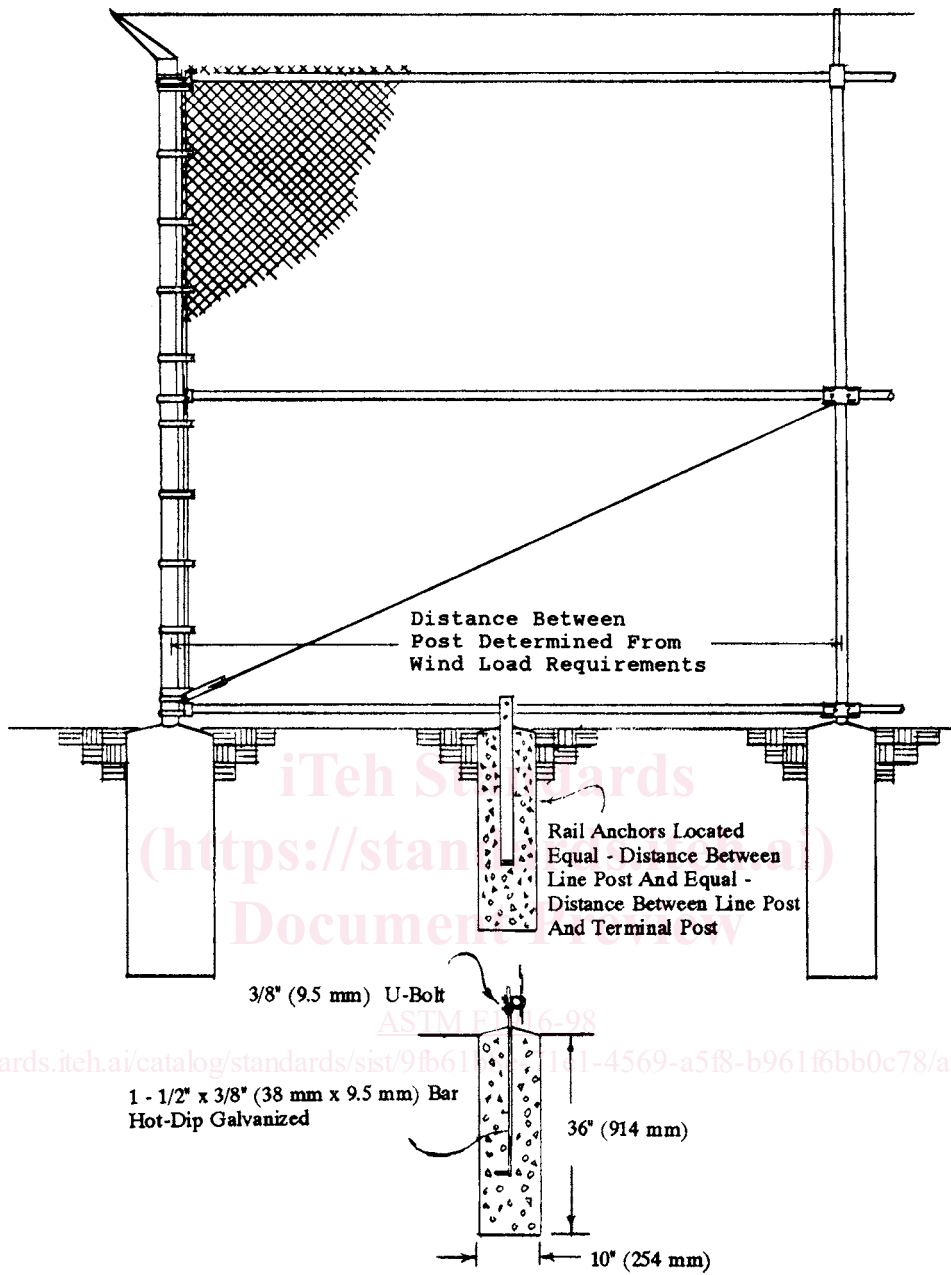


FIG. 2 Corner Bracing and Bottom Rail Anchor

mm). Carriage bolts on tension bands shall be placed with the threaded ends on the outside of the fence away from the inmate.

7.16.2 *Buried Fabric*—If the fence design calls for fabric to be buried below grade, provide a separate piece of PVC-coated fabric (for additional corrosion protection) 18 in. (457 mm) wide extending 12 in. (305 mm) into a trench and overlap the above-grade fabric by 6 in. (152 mm). The overlapping sections of fabric shall be secured to a bottom rail with tie wires as specified in 7.16. Back fill and thoroughly compact the soil around the buried section of the fabric. If the buried fabric option is selected, then the bottom of the buried fabric shall be the new subgrade line. The specified depth of the post footing

shall be measured from that point. A separate piece of buried fabric provides unlimited access to the fence panel for repairs or restretching

NOTE 8—Buried fabric is not recommended in areas affected by frost.

7.16.3 For those areas affected by frost, install a 4-in. (101-mm) minimum thick by 36-in. (914-mm) wide concrete slab (sidewalk) adjacent to the base of the interior or exterior fence. Maintain $2.0 \pm \frac{1}{2}$ -in. (25 ± 13 mm) clearance between concrete slabs and fence structure. In areas where frost may occur, increase clearance as needed to prevent any physical contact between the slabs and fence structure. Locate the slab