Particular Specifications for Welded Wire Mesh Fence System

Single Fabric, Gauge PVC Coated, Standard Panel Widths of 3.0 Meters

1.1 Scope

This specification defines the requirements for a complete galvanized coated welded wire mesh fence system, including materials, gates, accessories, and installation guidelines.

1.2 Reference ASTM Documents

Reference	Description
ASTM A307	Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile (414 MPa).
ASTM A853	Standard Specification for Steel Wire, Carbon, for General Use.
ASTM C94	Standard Specification for Ready-Mix Concrete.
ASTM F567	Standard Practice for Installation of Chain Link Fence.
ASTM F626	Specification for Fence Fittings.
ASTM F900	Specification for Industrial and Commercial Swing Gates.
ASTM F1043	Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
ASTM F1916	Standard Specification for Selecting Chain Link Barrier Systems with Coated Chain Link Fence Fabric and Round Posts for Detention Applications.

1.3 General Specifications

A. Strength Requirements for Posts
Posts must conform to ASTM F1043. The product of the yield strength and section modulus must meet or exceed the requirements for pipe conforming to ASTM F1083.

B. Product Standards
All materials must be new and sourced from reputable manufacturers with a minimum of two years of experience.
Reused, re-rolled, or re-galvanized materials are not acceptable.
C. Welded Wire Fabric

Fabricated from low-carbon steel wire and electronically welded to form a specified mesh size.
D. Wire Specifications
Conforms to ASTM A853, Grade AISI 1006.
Minimum tensile strength: 70,000 PSI (485 MPa).
After welding, the fabric is hot-dipped galvanized with a minimum of 1.0 oz zinc/ft², followed by a 10 mil (0.25 mm) PVC coating.

Coating Process

PVC coating is thermally fused and adhered to a primer, which is thermally cured onto the galvanized steel core wire.
Coating is applied through a continuous process.

Fabric Heights

Standard heights: 8–16 feet, or as required.
Typical panel size: 7'-2" wide x required height.

1.4 Framework Specifications

Framework Strength and Coating
Grade A Pipe: Hot-dipped galvanized Schedule 40 pipe conforming to ASTM F1043, Group 1A.
Grade B Pipe: Manufactured by cold rolling and radial frequency welding. Steel must conform to ASTM F1043, Group IC, with a minimum yield strength of 50,000 PSI (344.0 MPa).
"C" Posts: Cold-formed, conforming to ASTM F1043, Group II, with a minimum yield strength of 60,000 PSI (413.7 MPa). Size: 3¾" x 2½" x 0.130" wall thickness.
Wind Load Requirements
Posts must withstand a minimum wind load of 70 MPH.

Fittings and Accessories

Component	Description
Post Tops	Made from pressed steel or malleable iron, designed to enclose tubular posts. Not required for "C" posts.
Twisted Ties	9-gauge aluminized or galvanized ties for attaching fabric to rails.
Tie Spacing	- Top rail ties: Max intervals of 24". - Bottom rail ties: Max intervals of 12".
Line Post Brackets	Spaced at 15" intervals for securing welded mesh to posts.

2.1 Installation

A. Framework Installation
Components must be installed per ASTM F567 and as outlined in this specification. Larger corner posts are not required for welded mesh installations.

B. Welded Wire Fabric Installation
Follow the manufacturer’s recommendations. Tolerance for panel alignment: ±1 inch to accommodate grade changes, minor misalignment, and installation variances.

C. Site Preparation
Grading must provide a flat and level surface. Soil or stone fill must be thoroughly compacted.
Excavation must account for electrical and mechanical components. Existing utilities must be identified before starting.
Fence lines must be erected straight between angle points, and the framework must be grounded as specified.

D. Post Hole Dimensions

Post Diameter	Minimum Hole Diameter	Minimum Hole Depth
2.375" (60 mm)	10.0" (254 mm)	30" (762 mm)
2.875" (73 mm)	12.0" (305 mm)	36" (914 mm)
4.0" (102 mm)	16.0" (406 mm)	42" (1,067 mm)
6.625" (168 mm)	24.0" (610 mm)	48" (1,219 mm)
8.625" (219 mm)	32.0" (813 mm)	60" (1,524 mm)

Note:Posts depths shall be a minimum of 24",(610 mm)plus 3"(76 mm)for each 1-Ft.(.305 m)increase in the fence height over 4 ft.(1.2 m)(ASTM A 567)

E. Post Holes in Solid Rock or Concrete

Drill holes into solid rock or concrete ½ inch (13 mm) wider than the pipe diameter. For end, corner, and gate posts, drill to a depth of 18 inches (457 mm), and for line posts, drill to 12 inches (305 mm). Fill half the void with non-shrinkable grout and insert the post until it reaches the bottom of the hole, ensuring no voids are left. Crown the grout surface to shed water effectively. The use of sleeves is recommended for new concrete installations.

F. Concrete for In-Situ Work

Concrete for in-situ work, including post foundations and upstand beams, shall comply with the general specifications for concrete work outlined in this document. It must conform to Grade 15 of BS CP 110 standards and be coated with bituminous paint, as indicated in the drawings.

G. Curing Requirements for Concrete
Allow concrete to cure for a minimum of 7 days before installing fence fabric or fittings. Ensure the top surface of the post footing is crowned to promote effective water shedding.

Note: Refer to relevant specifications for concrete works and ALBA Standard Specifications.

H. Post Spacing

Posts must be spaced equally along the fence line, with a maximum distance of 8'1" on center (2.4 m). Terminal posts larger than line posts are not required, except for gate posts. Welded mesh installations do not require stretching.

1, Ground Cover:
After the filter fabric is installed, cover the zone between fences with a 5-inch (127 mm) depth of crushed stone, consisting of 1-inch (25.4 mm) to 1½-inch (38 mm) #2 aggregate. The filter fabric and stone should extend 6 inches (152 mm) beyond the exterior fence and up to the interior fence.

J. Rails

Install rails as specified in the drawings and these specifications. All rails shall be installed on the protected side of the fence to minimize climbing access. Corner bracing is not required for welded wire fabric installations.

1,Top Rails:
Top rails, using 7-inch (178 mm) sleeves, shall run continuously through top caps or extension arms.

2,Bottom Rails:
Bottom rails shall be connected to line and terminal posts using boulevards or bands and rail ends. Attach bands with 5/16-inch (7.9 mm) x 1½-inch (38 mm) carriage bolts and nuts.

3,Boulevard Bolts:
Boulevard bolts shall have a minimum diameter of 3/8 inch (10 mm). Bottom rail locations must conform to the specifications and drawings.

4,Alternative Connections:
Two-way brace bands and rail ends may be used as substitutes for boulevards where applicable.

G.Welded Wire Fabric General

Welded wire panels are fabricated to match the specified widths and heights. The welded mesh panels are secured using a combination of brackets and tie wire, as detailed in the drawings.

Option 1: Continuous flat bar drilled at 12-inch (305 mm) intervals, running from top to bottom of the exposed fabric.

Option 2: Preformed 1-inch (25.4 mm) x 10-gauge (3.4 mm) thick two-piece brackets, zinc-coated, secured to the line post using 5/16-inch (7.9 mm) carriage bolts.

Terminal post connections consist of tension bands, spaced no more than 15 inches (381 mm) apart. Refer to the corner connection detail for proper securing of tension bands. The method using continuous punched "C" posts and flat bars is preferred over round posts.

K. Grounding to the Earth

1,Grounding and bonding of the perimeter systems shall be performed in compliance with the National Electric Code (NEC), National Electric Safety Code (NESC), and ASTM F1916, as specified herein.

Fences crossing power lines of 600 volts or more shall be grounded at or near the crossing point and at intervals not exceeding 150 feet (46 m) on each side of the

crossing. For fences integrated with electronic detection systems, grounding electrodes shall be installed at 200-foot (61 m) intervals along the fence line. (Refer to the electronic system manufacturer for further details.)

2,Grounding Electrodes:

Grounding electrodes shall be a minimum of ¾-inch (19 mm) diameter x 10-foot (3 m) long copper-clad rods.
Drive the rods into the earth until the top is 12 inches (305 mm) below grade.
Attach a No. 2 AWG bare stranded copper conductor to the ground rods using exothermic welding. Extend the conductor underground near the fence post.

3,Secure the grounding conductor to the post with 5/16-inch (7.9 mm) self-tapping galvanized or stainless steel bolts, along with approved copper compression terminal ends or clamps.

4,After completing the grounding connections, perform a ground resistance test in the presence of the Owner's Representative. The ground resistance must not exceed 25 ohms under normal dry conditions.

5, If resistance requirements are unmet, additional rods may be installed at intervals no closer than 6 feet (1.8 m) apart. No more than two additional rods should be installed at each location.

6, Notes
a) Contractors shall submit the manufacturer’s product data and test certificates to demonstrate compliance with specifications. This includes samples, shop drawings, and detailed descriptions of construction, location, and installation for consultant approval.

b) Contractors are required to submit and, if necessary, re-submit shop drawings, mock-up samples, and schedules per the work program and anticipated requirements.

c) Approval or feedback from the S.O. (Supervising Officer) shall be provided within a reasonable timeframe after submission or re-submission of shop drawings, mock-ups, and schedules.

d) Manufacturer catalogues or other printed technical information may be considered as shop drawings if they provide complete details on specific issues or designs.

e) All shop drawings, samples, and schedules must be clearly labeled and referenced with the product name, supplier or contractor details, and the date.

f) The Contractor shall bear all costs and responsibilities associated with shop drawings, samples, and schedules.

2.2 Cleaning

Upon completing the installation, remove all waste materials generated during fence construction to ensure a clean and orderly site.