



**Chain Link Fence Manufacturers Institute**

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# **FIELD INSPECTION GUIDE**

**FIG 2445**

**CHAIN  
LINK  
FENCE  
MANUFACTURERS  
INSTITUTE**

## **THE PURPOSE OF THIS MANUAL**

The purpose of this manual is to aid field inspectors of chain link projects in their task of assuring compliance to specifications. Laboratory tests are needed to assure compliance on some items such as the weight of zinc, zinc-5% aluminum alloy or aluminum coatings, following procedures in ASTM A-90, or ASTM A-428.

This manual is produced in conjunction with CLFMI Product Manual CLF 2445, which references all current ASTM material specifications and test procedures applicable. The standard dimensions listed are in inch-pound units with metric values given in parenthesis for information only.

(Note: For complete material specification requirements on this project, refer to standards referenced in the project specifications.)

## **SUGGESTED INSPECTION PROCEDURES**

### **Certifications:**

Original manufacturer's material Certification of Compliance should be supplied by the contractor. Certification should:

1. Be written on original manufacturer's letterhead
2. Reference specific project by number and/or name
3. Reference ASTM standard used in project specification
4. Be signed by an appropriate official of the manufacturing company
5. Be notarized

### **Site**

The owner's representative should determine that all fence lines are accurately marked for the contractor. Particular attention should be directed to gate locations, underground utilities and property lines.

### **Post Settings:**

Periodic on-site inspections should be made during framework installation. Compliance checks for post settings and spacings should include:

1. Measure hole diameter
2. Measure hole depth
3. Check post embedment
4. Validate post spacings

**Framework:**

After the fence lines and gate locations have been verified, the framework material should be inspected for compliance to plans and specifications. To verify the wall thickness of framework members, a micrometer with ball tips should be utilized.

Compliance checks for vinyl coated framework:

1. Measure diameter of vinyl coated framework
2. Measure galvanized steel framework after stripping the vinyl coating
3. Calculate the vinyl coating thickness
4. Determine the adhesion of the vinyl coating

The quickest way to check framework members is to weigh them. A weight per foot is normally referenced in the specifications.

**CAUTION-** Remember the acceptable tolerances when a nominal thickness and weight is specified. Check appropriate specifications.

Overall post length should be verified before installation. Posts should be at least the height of the fabric, plus the required post embedment depth, depending on the post type.

The ends of all framework items should be plain, i.e. no threads or couplings.

Welded posts are usually not permitted except for special applications requiring posts longer than available manufacturer's standard mill lengths.

All framework materials should be reasonably straight and free from defects. The coatings should be free of voids or excessive roughness.

Field compliance checks:

1. Measure framework materials
  - a. outside diameter
  - b. wall thickness
2. Weight measures
3. Measure post lengths before setting

**Fabric:**

Mesh - measure the minimum clear distance between the wires forming the parallel sides of the mesh, taking the average of two measurements at right angles to each other. Normal tolerance is plus or minus 1/8" (3.2mm). See the following table.

Height – measure from tip to tip of fabric selvages. Tolerance is plus or minus 1" (25mm).

Metallic coated wire size – two measurements are needed. Take the average of two readings (preferably with a micrometer) at right angles to each other on a straight portion of wire to the nearest 0.001" (0.025mm). Normal tolerance is plus or minus 0.005" (0.127 mm).

Popular gauge decimal equivalents are:

11 gauge is 0.120" (3.05mm)

9 gauge is 0.148" (3.76mm)

6 gauge is 0.192" (4.88mm)

Vinyl coated wire – There are three types of vinyl coated fabric, ascertain from the specifications if the fabric is extruded, extruded and adhered to, or fused and adhered to. The gauge of vinyl coated wire is determined by the core wire diameter. To measure the core diameter it will be necessary to strip off the vinyl. Vinyl thickness can be determined by actually stripping off a piece of vinyl and measuring its thickness or scraping the coating from one side of the wire, then measuring the reduced diameter.

Vinyl adhesion tests should be conducted on any vinyl extruded and adhered to, or fused and adhered to, products by the method described in ASTM F-668.

Diamond count – Typical diamond count for each standard height is shown (see chart). Other diamond counts are permissible, providing they are consistent within a lot.

#### **Fabric Workmanship:**

Galvanized – reasonably free of excessive roughness, blisters, flaking and frozen joints.

Zinc-5% aluminum alloy and aluminum coated-reasonably free of excessive roughness, flaking, and heavy machine scars in bends.

Vinyl coated – fabric shall be without cuts, breaks, or voids of any kind which reveal the core wire.

#### **Selvages:**

Knuckles – loop closed or nearly closed to a measurement less than the diameter of the wire.

Twists – wire beyond the twist at least ¼" (6.4mm) 1-1/2 machine turns.

## STANDARD SIZES OF CHAIN LINK FABRIC

(mm)	Nominal Height of Fabric/Diamond Count									Size of Mesh		Specified Dia./Coated Wire		
	(910)	(1070)	(1220)	(1520)	(1830)	(2130)	(2440)	(3050)	(3360)	In.	(mm)	In.	(mm)	Gauge
Inches Diamond Count	36	42	48	60	72	84	96	120	144					
	10 ½	12 ½	13 ½	17 ½	20 ½	24 ½	27 ½	34 ½	41 ½	2	(50)	0.192	(4.88)	6
Inches Diamond Count	36	42	48	60	72	84	96	120	144					
	10 ½	12 ½	13 ½	17 ½	20 ½	24 ½	27 ½	34 ½	41 ½	2	(50)	0.148	(3.76)	9
Inches Diamond Count	36	42	48	60	72	84								
	10 ½	12 ½	14 ½	17 ½	20 ½	24 ½				2	(50)	0.120	(3.05)	11
Inches Diamond Count	36	42	48	60	72									
	9 ½	11 ½	13 ½	16 ½	19 ½					2 1/8	(54)	0.113	(2.87)	11 1/2
Inches Diamond Count								120	144					
								39 ½	47 ½	1 3/4	(44)	0.120	(3.05)	11
Inches Diamond Count								120	144					
								39 ½	47 ½	1 3/4	(44)	0.148	(3.76)	9
Inches Diamond Count	36	42	48	60	72	84	96	120	144					
	20	23	27	33	39	45	53	67	79	1	(25)	0.192	(4.88)	6
Inches Diamond Count	36	42	48	60	72	84	96	120	144					
	20	23	27	33	39	45	53	67	79	1	(25)	0.148	(3.76)	9
Inches Diamond Count	36	42	48	60	72	84	96	120	144					
	20	23	27	33	39	45	53	67	79	1	(25)	0.120	(4.88)	11

See appropriate ASTM chain link fabric specifications for mesh sizes less than 1 inch (25mm). Chain link fabric specifications vary slightly in Canada. Consult the current Canadian specification CAN-2-138.1-H80.

**Barbed Wire:**

Compliance checks for barbed wire:

1. Number of points on barbs
2. Spacing of barbs
3. Wire size
  - a. Line wire
  - b. Barbs
4. Coatings type and class

**Tension wire:**

1. Measure wire size, 7 gauge –  $0.177" \pm 0.005"$  ( $4.50\text{mm} \pm 0.13\text{mm}$ ) unless otherwise specified
2. Check hog ring spacing.
3. Coating type and class

**Fittings and Accessories:**

Fittings and accessories should be checked for compliance to the plans and specifications. Common requirements are tension bar size, band width and gauge, tie wire sizes and barbed wire arm strengths.

**Gates:**

Gates should be checked for workmanship and dimensions. Gates should be reasonably level, plumb and aligned. In absence of project specifications, ASTM F-900 for swing gates and ASTM F-1184 for horizontal slide gates are recommended as standards.

**Workmanship:**

Gates shall be produced in accordance with good commercial practice. Defects in welds, chain link fabric, bracing and truss rods, and accessories shall be noted and, if present shall provide basis for rejection.

*CLFMI recommends that material found not in compliance be replaced with materials which meet specifications. Price adjustments after installation result in inequity for the purchaser and establish trends for noncompliance action on future projects.*

**INSTALLATION:**

ASTM standard practice F-567 on installation of Chain Link Fence is a proper guide covering installation practices, unless modified or amended by project specifications.

## GUIDE FOR FENCE INSPECTION

Date \_\_\_\_\_ General Contractor \_\_\_\_\_

Project \_\_\_\_\_ Fence Contractor \_\_\_\_\_

	Spec	Actual	Approved
Site Inspection – Before installation	_____	_____	_____
Fence Line Marked	_____	_____	_____
Underground Utilities Marked	_____	_____	_____
Specification Compliance			
Hole Diameter	_____	_____	_____
Hole Depth	_____	_____	_____
Post Embedment	_____	_____	_____
Post Spacing	_____	_____	_____
Framework – Post & Rails			
Outside Dimension	_____	_____	_____
Wall Thickness	_____	_____	_____
Weight	_____	_____	_____
Vinyl Thickness (if applicable)	_____	_____	_____
Fabric			
Mesh	_____	_____	_____
Height	_____	_____	_____
Wire Size	_____	_____	_____
Coating	_____	_____	_____
Diamond Count	_____	_____	_____
Selvages	_____	_____	_____
Barbed Wire			
Points on Barbs	_____	_____	_____
Barb Spacing	_____	_____	_____
Line Wire Size	_____	_____	_____
Coating and Class	_____	_____	_____
Tension Wire			
Hog Ring Spacing	_____	_____	_____
Wire Size Coating & Class	_____	_____	_____
Fittings	_____	_____	_____
Gates	_____	_____	_____

Comments \_\_\_\_\_  
 Items Not in Compliance \_\_\_\_\_

By \_\_\_\_\_  
 Date \_\_\_\_\_

Acceptance Report or Rejection Report given to General/Fence Contractor  
 Name of Party Advised \_\_\_\_\_ Date \_\_\_\_\_