



Designation: F2919/F2919M – 12 (Reapproved 2018)

Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) with Variable Mesh Patterns or Meshes Greater than 6 in.² [3871 mm²] in Panels¹

This standard is issued under the fixed designation F2919/F2919M; 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 covers welded wire mesh fence fabric produced from steel wire or metallic-coated steel wire. The metallic-coated fabric may be polymer coated after fabrication.

1.2 Welded wire mesh fence fabric is produced in four types, based on the kind of coating, as described in Section 4.

1.3 This specification is applicable to orders in either inch-pound units or SI units. Values stated in either inch-pound or SI units are to be regarded separately as the standard. Within the text, the SI units are shown in brackets. The values in the two systems are not exact equivalents; therefore, each system shall be used independent of the other, without combining values in any way.

1.4 This specification references notes and footnotes, which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of this specification.

1.5 The following safety hazards caveat pertains only to the test methods portion, 13.4, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee F14 on Fences and is the direct responsibility of Subcommittee F14.35 on Architectural Metal Fence Systems.

Current edition approved March 1, 2018. Published March 2018. Originally approved in 2012. Last previous edition approved in 2012 as F2919/F2919M–12. DOI:10.1520/F2919_F2919M-12R18.

2. Referenced Documents

2.1 ASTM Standards:²

A82/A82M Specification for Steel Wire, Plain, for Concrete Reinforcement (Withdrawn 2013)³

A90/A90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

A123/A123M Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A185/A185M Specification for Steel Welded Wire Reinforcement, Plain, for Concrete (Withdrawn 2013)³

A641/A641M Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

A853 Specification for Steel Wire, Carbon, for General Use

A856/A856M Specification for Zinc-5 % Aluminum-Mischmetal Alloy-Coated Carbon Steel Wire

A902 Terminology Relating to Metallic Coated Steel Products

A1064/A1064M Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

B117 Practice for Operating Salt Spray (Fog) Apparatus

D1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics

F934 Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials

2.2 ISO Standard:

ISO 2178 Non-Magnetic Coatings on Magnetic Substrates—Measurement of Coating Thickness—Magnetic⁴

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

3. Terminology

3.1 *Definitions*—Refer to Terminology **A902** for general terminology relating to metallic-coated steel products.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *welded wire mesh fence fabric*—material composed of a series of longitudinal and transverse steel wires arranged substantially at right angles to each other, and welded together at the points of intersection by electrical resistance welding to form fabricated panels.

NOTE 1—See **Tables 1-3** for a list of typical standard mesh sizes. This list does not cover all options that may be available.

3.2.2 *wire*—referred to as plain wire and welded plain wire used in the fabrication of the fence panels.

4. Classification

4.1 Welded wire mesh fence fabric is classified according to coating as follows:

4.1.1 *Type 1*, consists of welded wire fabric made from wire which is zinc-coated, in accordance with **A641/A641M**, Class 3 minimum, before being welded into fabric, known as galvanized before welding.

4.1.2 *Type 2*, consists of welded wire fabric which is made from uncoated wire and the fabric is subsequently zinc-coated after fabrication, in accordance with Specification **A123/A123M**, Coating Grade 35, known as galvanized after welding.

4.1.3 *Type 3*, consists of welded wire fabric made from wire which is coated with zinc-5% aluminum mischmetal alloy (Zn-5Al-MM), in accordance with Specification **A856/A856M**, before being welded into fabric, known as zinc 5% aluminum mischmetal alloy-coated steel before welding.

4.1.4 *Type 4*, consists of welded wire fabric made from wire which is zinc-coated, in accordance with Specification **A641/A641M**, 0.3 oz/ft² minimum, before being welded into fabric, known as galvanized before welding, and subsequently polymer coated.

4.1.5 In agreement between buyer and supplier Types 1, 2, 3, or 4 can be subsequently polymer coated to produce polymer coated welded wire fabric.

4.2 Welded wire mesh fence fabric is classified in accordance with the method of fabrication, as follows:

4.2.1 *Model A*: Panels fabricated with single wires in horizontal and vertical direction. With horizontal reinforcing folds (beams). (See **Table 1** and **Fig. 1**).

4.2.2 *Model B*: Panels fabricated with two horizontal wires with a vertical wire placed between them. (See **Table 2** and **Fig. 1**).

4.2.3 *Model C*: Panels fabricated with single wires in horizontal and vertical direction—flat in structure. (See **Table 3** and **Fig. 1**).

4.2.4 *Models A and B*: Panels may be bent along the length to form a bent section at 45 degrees. (See **Fig. 2**).

4.2.5 All panels have to be fabricated so that they do not exceed 4 in. on centers in one dimension (length, width, or height) so they meet the maximum permitted dimension between wires in one direction which is 4 in. on centers.

4.2.6 All panels have to be fabricated from wire with a minimum diameter of 9.0 gage (0.148 in. [3.76 mm] metallic coated core).

5. Ordering Information

5.1 Orders for material purchased under this specification shall include the following information:

5.1.1 *Quantity* (number of panels).

5.1.2 *Mesh Description*: Mesh spacing(s) and wire sizes (gages) in metallic core diameter for polymer coated panels.

5.1.3 *Panel size* (height by width).

5.1.4 *Type of coating* (Section 4), including the specific type to be furnished.

5.1.5 ASTM designation and year of issue.

5.1.6 *Any special requirements* (see Section 8).

5.1.7 *Certification*, if required (see 15.1).

NOTE 2—A typical ordering description, with single wires in vertical and horizontal direction, would be as follows: 500 panels Model A: 6 in. by 2 in. mesh by 6 gage horizontal and vertical wires, then height by width (length) conforming to F2919-XX. Where single wires with different gage in vertical and horizontal direction, then as follows: 500 panels Model A: 6 in by 2 in. mesh by 4 gage horizontal and 6 gage vertical wires; then height by width (length) conforming to F2919-XX. Where panels with double horizontal wires are required it would be: 500 panels Model B: 8 in. by 2 in. mesh, 2 by 0 gage horizontal wires with 4 gage vertical wires welded between them conforming to F2919-XX. Where panels with variable openings in height are required, it would be: 500 panels Model C: Variable mesh by 3.5 in. clear mesh, 4 gage horizontal, and 7 gage vertical wires conforming to F2919-XX. In each case the vertical mesh opening (height measured from top to bottom) is designated first, followed by the horizontal mesh opening (width measured from left to right).

6. Material and Manufacture

6.1 The wire used in the manufacture of welded wire mesh fence fabric shall conform to the specifications in 6.1.1 as

TABLE 1 Panel Sizes Model A—Single wire in each direction with horizontal reinforcing folds (or beams). (See Fig. 1, Model A)

NOTE 1—These are examples—Other meshes and wire diameters are available. These are acceptable providing they meet all the requirements of this ASTM specification and are acceptable to the purchaser and client. Not all panels have horizontal reinforcing folds (beams) as shown in **Fig. 1**, Model A, if mounted within a frame.

Vertical Wire Spacing (nominal)	Horizontal Wire Spacing (nominal) ^A	Wire Diameter (Metallic-coated core: nominal)				Panel Height	
		Vertical		Horizontal		in. (approx.)	mm (approx.)
		Gage	in. [mm]	Gage	in. [mm]		
2 [50]	6 [150]	6.0	0.192 [4.88]	6.0	0.192 [4.88]	48–60–72–96	1200–1500–1800–2400
2 [50]	4 [100]	7.0	0.177 [4.50]	7.0	0.177 [4.50]	42–48–60–72–84	1050–1200–1500–1800–2100
2 [50]	8 [200]	5.75	0.196 [4.98]	5.75	0.196 [4.98]	42–48–60–72–84–96	1050–1200–1500–1800–2100–2400
2 [50]	8 [200]	6.25	0.188 [4.80]	6.25	0.189 [4.80]	39–60–78–96	1000–1500–2000–2400

^AWhere panels have horizontal folds (beams) small spacing of horizontal wires may apply.

TABLE 2 Panel Sizes Model B—Single vertical wire. Double horizontal wire. (See Fig. 1, Model B)

NOTE 1—These are examples—Other meshes and wire diameters are available. These are acceptable providing they meet all the requirements of this ASTM specification and are acceptable by the purchaser and client.

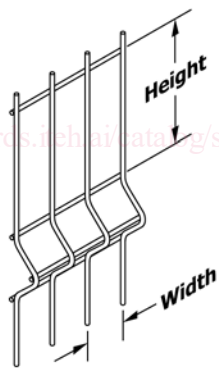
Vertical Wire Spacing (nominal)	Horizontal Wires Spacing (nominal)	Wire Diameter (Metallic-coated core: nominal)				Panel Height	
		Vertical One (1) Wire		Horizontal Two (2) Wire		in. (approx.)	mm (approx.)
		Gage	in. [mm]	Gage	in. [mm]		
2 [50]	8 [200]	4.0	0.225 [5.72]	4.0	0.225 [5.72]	48–72–96	1200–1800–2400
2 [50]	8 [200]	4.0	0.225 [5.72]	0.0	0.303 [7.70]	48–72–96	1200–1800–2400
2 [50]	8 [200]	5.75	0.196 [4.98]	3.5	0.236 [6.00]	42–48–54–66–72–84	1000–1200–1450–1650–1800–2000
2 [50]	8 [200]	3.5	0.236 [6.00]	00.75	0.315 [8.00]	42–48–54–66–72–96	1000–1200–1450–1650–1800–2400

TABLE 3 Panel Sizes Model C—Single wire in each direction. Flat construction and variable wire spacing in panel height. (See Fig. 1, Model C)

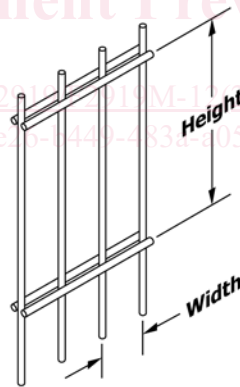
NOTE 1—These are examples—Other meshes and wire diameters are available. These are acceptable providing they meet all the requirements of this ASTM specification and are acceptable by the purchaser and client.

Vertical Wire Clear Mesh Spacing (nominal)	Horizontal Wire Spacing (nominal)	Wire Diameter (Metallic-coated core: nominal)				Panel Height	
		Vertical		Horizontal		in. (approx.)	mm (approx.)
		Gage	in. [mm]	Gage	in. [mm]		
1.75 [45]	9.0	9.0	0.148 [3.77]	9.0	0.148 [3.77]	48–60–72	1200–1500–1800
1.75 [45]	Variable	6.0	0.192 [4.88]	6.0	0.192 [4.88]	48–60–72	1200–1500–1800
3.50 [45]	Variable	4.0	0.255 [5.72]	6.0	0.192 [4.88]	48–60–72	1200–1500–1800
3.50 [45]	Variable	2.0	0.262 [6.67]	6.0	0.192 [4.88]	48–60–72	1200–1500–1800

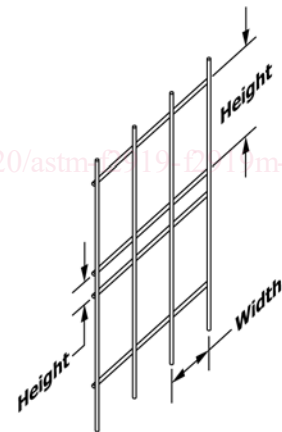
Model A



Model B



Model C



NOTE 1—Model A panels normally have horizontal reinforcing folds (or beams) to increase horizontal rigidity. Number of folds (beams) increase with the height of the panel. Generally two folds for panels shorter than 5 ft [1525 mm], three folds if shorter than 6 ft 6 in. [1980 mm] and four folds for taller panels up to 8 ft [2430 mm].

NOTE 2—Model B panels have vertical wires sandwiched between two (2) horizontal wires.

NOTE 3—Model C panels have straight wire in both directions. Panels have variable wire spacing in panel height.

FIG. 1 Examples of Model A, B, and C Panels

appropriate for the type ordered, except the tensile strength shall conform to 7.1. The wire may be produced from any grade of steel listed in Specification A1064/A1064M or A853.

6.1.1 Type 1 welded wire fabric shall be manufactured from zinc-coated steel wire conforming to Specification A641/A641M, Class 3 coating (minimum). Type 2 welded wire fabric shall be manufactured from uncoated steel wire conforming to Specification A82/A82M or A853, and the fabric

subsequently zinc-coated by the hot-dip process, conforming to Specification A123/A123M, Coating Grade 35 (minimum). Type 3 welded wire fabric shall be manufactured from zinc-5% aluminum-mischmetal coated steel wire conforming to Specification A856/A856M, Class 80 coating (minimum). Type 4 welded wire fabric shall be manufactured from zinc-coated steel wire conforming to Specification A641/A641M—0.3 oz/ft², minimum weight coat.