



# Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) with Variable Mesh Patterns or Meshes Greater than 6 in.<sup>2</sup> [3871 mm<sup>2</sup>] in Panels<sup>1</sup>

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 and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

A82/A82M Specification for Steel Wire, Plain, for Concrete Reinforcement (Withdrawn 2013)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

<sup>1</sup> 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.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

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)<sup>3</sup>  
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 Colors for Polymer-Coated Chain Link Fence Materials

### 2.2 ISO Standard:

ISO 2178 Non-Magnetic Coatings on Magnetic Substrates—Measurement of Coating Thickness—Magnetic<sup>4</sup>

## 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.

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

**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<br>Wire<br>Spacing<br>(nominal) | Horizontal<br>Wire<br>Spacing<br>(nominal) <sup>A</sup> | Wire Diameter<br>(Metallic-coated core: nominal) |              |            |              | Panel Height      |                               |
|------------------------------------------|---------------------------------------------------------|--------------------------------------------------|--------------|------------|--------------|-------------------|-------------------------------|
|                                          |                                                         | Vertical                                         |              | Horizontal |              |                   |                               |
|                                          |                                                         | in. [mm]                                         | in. [mm]     | 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           |

<sup>A</sup>Where 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                                      |              | Horizontal   |              |                   |                               |
|                                 |                                    | One (1) Wire                                  |              | Two (2) Wire |              |                   |                               |
|                                 |                                    | Gage                                          | in. [mm]     | Gage         | in. [mm]     | in. (approx.)     | mm (approx.)                  |
| 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. [mm]                                      | in. [mm]     | Gage       | in. [mm]     | Gage         | in. [mm]       |
| 1.75 [45]                                  | Variable                          | 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 |

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/ft<sup>2</sup> 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).

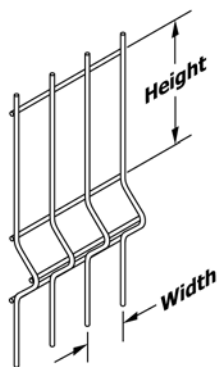
NOTE 2—A typical ordering description, with single wires in vertical and horizontal direction, would be as follows: 500 panels Model A: 6 in. by 2 in. mesh by 6 gage horizontal and vertical wires, then height by width (length) conforming to F2919-XX. Where single wires with different gage in vertical 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

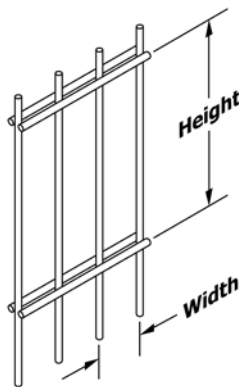
6.1 The wire used in the manufacture of welded wire mesh fence fabric shall conform to the specifications in 6.1.1 as appropriate for the type ordered, except the tensile strength shall conform to 7.1. The wire may be produced from any grade of steel listed in Specification A1064/A1064M or A853.

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).

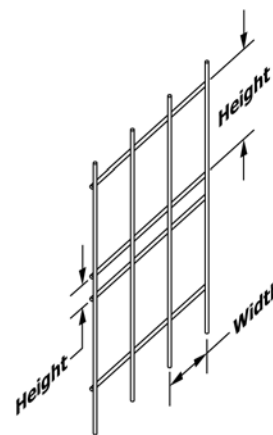
**Model A**



**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**