ASTM Specifications (June 2017)  www.astm.org

A53/A53M-12 Schedule 40 & Schedule 80 Pipe: “Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless” Schedule 40, schedule 80 and heavier pipe used for utility applications, hydrostatic and mechanical test requirements. Sometimes a specifier incorrectly specifies A53 schedule 40 for fence framework. Caution, A53 can be considered equal to F1083 schedule 40 fence pipe, based on how the A53 spec is presented F1083 may or may not be substituted. Wheatland Tube is a prime manufacturer of A 53 in the United States.

A121-13 Barbed wire: “Specification for Metallic-Coated Carbon Steel Barbed Wire” A121 lists all types of barbed wire; that used for chain link fence is listed as follows: Design number 12-4-5-14R manufactured using 12 gauge twisted strand wire, 4-point, 14 gauge barbs spaced 5 inches on center Design number 12-4-3-14R requires the barbs to be 3 inches on center. Coating Type A – Aluminum coated Coating Type Z - Class 3 – Galvanized coated strand 0.80 oz/ft² Coating Type ZA – Zinc-5% aluminum-mischmetal alloy (probably not available in the market at this time)

A392-11a (2017) Galvanized chain link fabric: “Specification for Zinc-Coated Steel Chain Link Fence Fabric” (zinc coated after weaving or woven from zinc coated strand) Class 1 - 1.2 oz/ft² Class 2 - 2.0 oz/ft²

A491-11 (2017) Aluminum coated, “aluminized”: “Specification for Aluminum-Coated Steel Chain Link Fence Fabric” 6 gauge - 9 gauge -10 gauge specifies a 0.40 oz/ft² coating 11 gauge specifies a 0.35 oz/ft² coating 11 ½ gauge specifies a 0.30 oz/ft² coating
A817-12  “Specification for Metallic-Coated Steel Wire for Chain-Link Fence Fabric and Marcelled Tension Wire” The metallic coated wire specification for the wire used in the manufacturing of pre coated metallic chain link fabric and tension wire.

A824-01(2017)  

Coil spring wire - 7 gauge: “Specification for Metallic-Coated Steel Marcelled Tension Wire” The specification lists only 7 gauge wire, metallic coatings are listed in A817 as follows:
Type I - Aluminum coated 0.40 oz/ft²
Type II - Galvanized/zinc coated
  - Class 3 - 0.90 oz/ft²
  - Class 4 - 1.20 oz/ft²
  - Class 5 - 2.00 oz/ft²
Type III Zinc-5% Aluminum Mischmetal (”galvinal”, “galfan”)
  - Class 60 - 0.60 oz/ft²
  - Class 100 - 1.00 oz/ft²

Aluminum Pipe: “Specification for Aluminum-Alloy Extruded Structural Pipe and Tube”


Chain Link Terminology: “Standard Terminology Relating to Chain Link Fencing”

Chain link installation: “Standard Practice for Installation of Chain Link Fence”

Chain link fittings: “Standard Specification for Fence Fittings”

**F668-17**  
**Color coated fabric:** “Specification for Polymer Coated Chain Link Fence Fabric”  
Important to note! The steel core wire is the specified wire gauge not the outside diameter of the polymer-coated wire.  
- Type 1 Extruded  
- Type 2a Extruded and adhered  
- Type 2b Fused and adhered  
Polymer coating can be PVC or Polyolefin

**F900-11**  
**Commercial swing gates:** “Specification for Industrial and Commercial Swing Gates”  
Eight foot rule; no member horizontally or vertically should be greater than eight feet apart.

**F934-96(2013) Standard colors of coated chain link systems:** “Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials”  
Black - Olive Green – Brown – Dark Green

**F964-13**  
**Rigid PVC Profiles:** “Specification for Rigid Poly (Vinyl Chloride) (PVC) Exterior Profiles Used for Fencing and Railing”

**F969-11(2016) Tennis court fence:** “Standard Practice for Construction of Chain Link Tennis Court Fence”

**F1043-17a**  
**Commercial and Industrial Framework:** “Specification for Strength and Protective Coatings of Steel Industrial Chain Link Fence Framework”  
Heavy Industrial Fence Framework requirements:  
- Group IA - Schedule 40 F1083 hot-dip galvanized pipe  
- Group IC - Wheatland WT 40 type product  
- Group II - Roll-formed C post  
- Group IV - Performance criteria future products

**F1083-16**  
**Schedule 40 and schedule 80 Pipe:** “Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures”  
Hot-dip galvanized pipe having a zinc coating of 1.8 oz/ft² outside and 1.8 oz/ft² inside,  
Regular Grade Sch 40= Yield Strength - minimum 30,000 psi.  
High Strength Grade Sch 40 = Yield Strength - minimum 50,000 psi.

F1184-16 Slide gates: “Specification for Industrial and Commercial Horizontal Slide Gates”
  Type I - Overhead slide
  Type II - Cantilever slide
  Class 1 - Steel or aluminum frame using external rollers
  Class 2 - Steel or aluminum frame using internal rollers
  Important safety requirements! Roller covers and fall over guideposts are required for the Class 1 external roller gates.

  Class 1 - 0.6 oz/ft²
  Class 2 - 1.0 oz/ft²


F1553-11 “Standard Guide for Specifying Chain Link Fence”

F1664-08(2013) Polymer coated tension wire: “Specification for Poly (Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence”
  Two gauges, 9 & 7, three classes of coatings, same as F668.

F1665-08(2013) Polymer coated barbed wire: “Specification for Poly (Vinyl Chloride) (PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used with Chain-Link Fence”
  Strand wire has three classes of coatings, same as F668


F1999-14  **Installation of Rigid PVC profiles:** “Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Fence Systems”

F2000-10  “**Standard Guide for Fences for Baseball and Softball Fields**”

F2049-11  **Play area fencing:** “Safety Performance Specification for Fences/Barriers for Public, Commercial, and Multi-Family Residential Outdoor Play Areas”

F2200-14  **Electrically operated gate safety and design:** “Specification for Automated Vehicular Gate Construction”

F2408-16  **Ornamental galvanized steel tube fence:** “Standard Specification for Ornamental Fences Employing Galvanized Steel Tubing”


F2453-14  **Welded wire mesh fence fabric:** “Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) for Meshes of 6 in² or Less, in Panels or Rolls, with Uniform Meshes”

F2548-12  **Expanded metal for security applications:** “Standard Specification for Expanded Metal Fence Systems for Security Purposes”

F2589-16  **Ornamental tubular steel fence:** “Standard Specification for Ornamental Fence Employing Tubular Pickets”


F2919/F2919M-12 Welded wire mesh panels “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 Panels”


F3000-13 Chain link privacy slats “Standard Specification for Polymer Privacy Insert Slats for Chain Link Fabric and Privacy Chain Link Fabric Containing Pre-Installed Privacy Slats”

Chain Link Manufacturers Institute Product Manual
The Chain Link Fence Manufacturers Institute does not write specifications. The CLFMI Product Manual references current ASTM specifications.

Federal Specification RR-F-191K/ GEN
(Basically follow ASTM standards)

RR-F-191/1F (2008) Chain Link Fabric (specification lists 6, 9 and 11 gauge)
Type I - Zinc-coated 1.2 oz/ ft² unless 2.0 oz/ft² is specified
Type II - Aluminum-coated, 0.40 oz/ft² coating for 6 and 9
gauge, 0.35 oz/ft² coating for 11 gauge
Type III – Aluminum Alloy, alloy 6061, temper T94
Type IV – PVC coated, gauge specified is the core wire (the
coating type is not listed in separate classes; specifier is to
take into consideration type of coating to meet
environmental conditions)
Type V – Zinc-5% Aluminum-Mischmetal Alloy-Coated
Steel Wire

RR-F-191/2E (2006) Chain link gates, all types
Gates are to be constructed using round pipe or square
sections per RR-F-191/3E. Swing gates ASTM F900, slide
gates ASTM F1184. External cantilever rollers shall be
enclosed. Electrically operated gates must comply with
ASTM F2200.

RR-F-191/3E (2006 & 2007 Amendment) Fence posts and rails
Class 1 - Steel pipe
Grade A- ASTM F1083, hot-dipped galvanized schedule 40 pipe
Wheatland Tube Co. is a prime U.S. manufacturer
Grade B- ASTM F1043 Group IC, Wheatland WT-40
Class 2 - Aluminum alloy schedule 40 pipe
Class 3 – ASTM F1043 Group II Formed steel “C” sections
Class 4 – Steel H-sections (no longer available)
Class 5 – Aluminum alloy H-sections
Class 6 – Steel square sections
Class 7 – Aluminum square sections
A schedule lists post size based on the fence height
RR-F-191/4F (2008) Chain link fence accessories
   Fittings, barbed wire, tension wire, basically all per ASTM standards

AASHTO M-181 (American Association of State and Transportation Officials) AASHTO follows ASTM specifications and standards however there may be some differences because AASHTO does not update their specifications as quickly as ASTM

AASHTO Designation: M 181-10-UL Standard Specification for Chain Link Fence

Chain link fabric
Type I Galvanized chain link fabric (zinc-coated steel)
   Class C - 1.2 oz/ft²
   Class D – 2.0 oz/ft²
Type II – Aluminized chain link fabric (aluminum–coated steel)
Type III – Aluminum alloy chain link fabric, alloy 6061-T89 or T94
Type IV – PVC coated and other polymer coated steel chain link fabric
   (gauge is the core wire)
   Class A – Extruded or extruded and adhered to
   Class B – Thermally fused and bonded

Framework
Grade 1 – ASTM F1083 Schedule 40, 1.8 oz/ft² zinc coating inside and outside Wheatland is a prime U.S. manufacturer of galvanized sch 40
Grade 2 – ASTM F1043 Group IC, Wheatland WT-40 type product

FAA (Federal Aviation Administration) AC 150/5370-10G (updated 2016)
Item F-162 Chain-Link Fences
Follows ASTM Specifications