

## Part 642 – Specifications

### Chapter 3 – National Standard Material Specifications

#### Material Specification 591—Field Fencing Material

A. Scope

This specification provides the minimum quality requirements for the material used in the construction of field fences.

B. Wire Gauge

When the size of steel wire is designated by gage number, the diameter must be as defined for U.S. Steel Wire Gauge.

C. Fencing

Fencing material must conform to the requirements of ASTM A121 for barbed wire, ASTM A116 for woven wire, ASTM A390 for poultry fence or netting, and ASTM A854 for high-tensile wire. Barbed wire and woven wire must be class 3 zinc coated as specified in ASTM A641 unless otherwise specified. High-tensile wire must have type I zinc coating unless otherwise specified.

D. Stays, Fasteners, and Tension Wire

Stays and fasteners must conform to the requirements of the appropriate ASTM for the fencing material specified unless otherwise specified. Tension wires must have a tensile strength not less than 58,000 pounds per square inch. Stays, fasteners, and tension wire must have class 3 zinc coating as specified in ASTM A641 unless otherwise specified.

E. Wood Fence Posts and Braces

- (1) Unless otherwise specified, wood posts must be naturally rot resistant, preservative-treated, or other wood of equal life and strength. At least half the diameter or diagonal dimension of naturally rot resistant posts must be in heartwood. Provide new wood posts that are sound, free from decay with all limbs trimmed substantially flush with the body. All posts must be substantially straight throughout their full length.
- (2) Make tops convex rounded or inclined. Provide posts free of ring shake, season cracks more than a quarter-inch wide, splits in the end, and unsound knots. Pine must be pressure treated in conformance with Material Specification 585, Wood Preservatives and Treatment. Wood braces must be of wood material equal to or better than construction grade Douglas fir. Wood braces must be pressure treated in conformance with Material Specification 585.

F. Steel Fence Posts and Braces

Steel fence posts must conform to the requirements of ASTM A702. Posts with punched tabs for fastening the wires must not be installed. Bracing pipes must conform to the requirements of ASTM A53 except that the A53 requirements for hydrostatic test will not apply.

G. Concrete Fence Posts

Concrete fence posts must be manufactured to the specified requirements of size, shape, and strength.

H. Panel Gates

Panel gates must be the specified types, sizes, and quality and include the necessary fittings required for installation. Gates must be of rigid construction free from sag or twist. The fittings must consist of not less than two hinges and one latch or galvanized chain for fastening. Latches must be of such design that a padlock may be used for locking. All fittings must not be of lesser quality than the gate manufacturer's standard.

I. Wire Gates

Wire gates must be the type shown on the drawings, constructed in accordance with specifications, at the locations and to the dimensions shown on the drawings. The material must conform to the kinds, grades, and sizes specified for new fence and must include the necessary fittings and stays.

J. Staples

Staples required to secure the fence wire to wood posts must be 9-gauge galvanized wire with a minimum length of 1.5 inches for soft woods and a minimum length of 1 inch for close-grain hardwoods.

K. Galvanizing

All iron and steel fencing material, except as otherwise specified, must be zinc coated by the hot dip process meeting the requirements of Material Specification 582. Clips, bolts, and other small hardware must be protected by hot-dipped galvanizing, electro-deposited zinc, or cadmium coating.