NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION

FENCING
(Feet)

CODE 382

HIGH TENSILE WOVEN WIRE FENCE (HTWWF)

High tensile woven wire fence (HTWWF) shall consist of 47-inch high woven wire with a single strand of high tensile smooth wire 2 inches above the top of the woven wire.

This type of fence can be for all animals or people.

1. Materials.

   a. Wire.

      All wire shall be new. The woven wire will be made from high tensile steel wire with class 3 galvanizing. The woven wire shall be 47 inches high with the top and bottom strands 10.5 gauge or heavier. The intermediate and stay wires shall be 12.5 gauge or heavier. The stay wires shall be spaced a maximum of 12 inches apart. There are 10 horizontal wires. (Design No. 1047-12-12.5).

      The high tensile wire will be new, smooth, and meet or exceed the following:

      Tensile Strength – 170,000 psi (minimum)
      Galvanizing – Class 3
      Gauge – 12.5
      Breaking Strength – 1,300 lbs. (minimum)

   b. Fasteners.

      (1) Staples shall be of 9 gauge class 3 galvanized steel or heavier with a minimum length of 1¾ inches for softwoods and a minimum length of 1 inch for close-grained hardwoods.

      (2) Manufacturer's clips or 14 gauge class 3 galvanized wire may be used to fasten wires to steel posts.

   c. Posts.

      (1) Wood.

         All wooden posts and brace members (except red cedar, osage orange, or black locust) shall be treated with a minimum of 0.40 lbs/cubic foot of chromated copper arsenate (CCA) type A, B, or C or ammoniated copper quat (ACQ) preservative by a method to ensure that complete penetration of the sapwood is obtained or have a 20-year warranty. All bark shall be removed from the red cedar, osage orange and black locust. At least half the diameter of red cedar shall be heartwood. Quality of treated wood shall provide sufficient strength and last for the expected life of the fence.

         All corner, end, and gate assembly posts shall be wooden with a minimum top diameter of 6 inches. Assembly posts shall be a minimum of 9 feet long for single H-brace assemblies and 8 feet long for double H-brace assemblies.

Wooden line posts shall have a minimum 4-inch diameter (2 ½ inch for osage orange). Wood line posts shall be a minimum length of 7 feet.

(2) Plastic.

Plastic line posts shall be at least 4 inches in diameter, able to accept and hold staples, and be durable for the life of the fence. Plastic line posts shall be a minimum length of 7 feet.

(3) Steel.

Steel line posts shall have the standard "T" section, nominal dimensions of 1 3/8" x 1 3/8" x 1/8" with anchor plate. The post shall weigh at least 1.25 pounds per foot of length and be painted with a weather resistant paint. The post shall be studded to aid in wire attachment. Steel line posts shall be a minimum length of 6 feet.

(4) Other.

Other materials may be used for line and assembly posts if they are of equal or greater strength and quality of above. They must be approved by the engineer.

2. Construction.

a. Post Installation and Spacings.

Live trees used for corner, bracing, and line posts shall have a diameter breast height (DBH) equal to or greater than those prescribed for normal wooden posts. Some alignment variation shall be allowed, but caution should be taken to minimize offsets and prevent excess fencing needs. Wire or insulators will not be fastened directly to trees. A board or boards will be placed on the tree to keep the wire from contacting the bark. Wire shall not be wrapped around the tree. A CCA treated 2" x 6" fiberglass strip, plastic strip, or an untreated red or white oak board with a minimum size of 1" x 4" must be securely fastened to the tree with at least three 40 lb. pole barn nails. The board must be long enough to accommodate the wire. The fence will be fastened to the board with staples.

b. Corner, End, and Gate Assemblies.

One of the following assemblies for all corners, ends, and gates shall be used:

(1) If the posts are to be set or driven to 4 feet below the ground line, a single H-brace assembly shall be used.

(2) If the posts are to be set or driven to 3 feet below the ground line, a double H-brace assembly shall be used.

Bracing is required at all corners, gates, and end assemblies.

All brace members shall be wood and the member centerline shall be 4-9 inches below top of post. Other brace material may be used with the approval of the engineer.

The brace member shall be a minimum of 4 inches in diameter and a minimum of 7 feet in length. A tension member composed of 2 complete loops of number 9 gauge smooth wire, 12 gauge double strand wire, or a single loop of 12.5 gauge high tensile strength smooth wire shall be used. One end of the tension member shall be at the height of the horizontal brace member and the other end shall be 4 inches above the ground line on the other post.

A corner assembly shall be used when the horizontal alignment changes more than 15 degrees and when vertical alignment changes more than 15 degrees.

3. Line Post.

Wooden and plastic line posts shall be set or driven 34 inches below ground line. If soil depth is less than 28 inches, use standard “T” section posts.

Steel line posts shall be set or driven 23 inches below ground line.

Post spacing for line posts shall be a maximum of 16 feet.

If posts are not driven, the backfill around the post shall be thoroughly compacted.

In areas where soil depth restricts the embedment depth, additional anchors or deadman applied against the direction of pull shall be used.

4. Fastenings.

The top wire shall be at least 2 inches below top of wooden post and 1 inch below top of steel post.

Tension – 200 - 250 lbs.

Staples shall be driven diagonally to the wood’s grain and at a slight downward angle, (upward if pull is up) to avoid splitting the post and loosening of the staples. Space should be left between the inside crown of the staple and post to permit free movement of high tensile wire. Barbed staples shall be used for pressure treated posts.

Wires may be attached to steel posts by use of manufacturer’s clips or by two turns of 14 gauge class 3 galvanized wire.

Wire shall be spliced by means of a Western Union splice or by suitable splice sleeves applied with a tool designed for the purpose. The Western Union splice shall have not less than 8 wraps at each end about the other. All wraps shall be tightly wound and closely spaced.

5. Grounding.

Non-electrical wire fences using wood posts shall be grounded at least every 1,000 feet. Ground rods should be driven not less than 4 feet into the ground. The rods shall be galvanized steel and a minimum of 0.50 inch in diameter. All line wires of the fence must be grounded. Alternate grounding material may be used with the approval of the engineer.

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