

## NATURAL RESOURCES CONSERVATION SERVICE

### CONSTRUCTION SPECIFICATIONS

#### FENCE - WELDED WIRE PANEL

(Ft.)

#### CODE 382

#### VI. Welded Wire

same length as the panel, 16' or 20'. If two boards are used, stagger them.

(See Standard Drawing Number FEN-382-PAN.)

#### B. Type Wire and Board

#### A. Wire Spacing

Wires shall be welded at every intersection and coated with galvanized zinc coating. Use a minimum of 6 gauge wire. The wire specifications for the barbed wire shall be the same as for a barbed wire fence.

The base of the panel shall be placed near the ground surface. The top wire of the panel shall be at least 42 inches above ground level and 2 inches below the top of posts on wood posts and 1 inch below top of steel posts. Horizontal wires in panel shall be 6" or less. Fences constructed with panels less than 39 inches in height shall have at least two barbed or smooth electric wires above the woven wire. The spacing between the woven wire and the first barbed wire shall be a maximum of 4" or 6" if smooth electric wire. The spacing between wires shall be 8" or less. Do not use barbed wire as an electric wire!

Lumber shall be bald cypress, oak, eastern or western red cedar, or redwood, or be treated with creosote or comparable preservative. If painting is desired, lumber shall be treated with an anti-fungal agent or a waterborne preservative such as acid copper chromate or chromate zinc chloride.

Fences constructed with woven wire higher than 39 inches shall have at least one barbed or smooth electric wire. The spacing between the woven wire and the barbed wire shall be a maximum of 4" or 6" if smooth electric wire. A 1" x 6" treated board may be substituted for top wire. In areas of high livestock concentration (i.e., corrals and lanes), construct with a middle and top 1" x 6" board. Place wire and board on the side of posts with most livestock pressure. Typically, board length should be the

#### C. Pull Assemblies

No pull assemblies are required; however, 6" posts will be installed at all corners, ends, and gates. Brace assemblies will be installed on the hinge side of gates.

#### D. Post Spacing, Length, and Depth

First, install posts in dips and rises. For 16' panels, the maximum post spacing is 8 feet. For 20' panels, post spacing is 10 feet. Every other post shall be wooden spaced at least every 16 feet and 20 feet, respectively. Steel posts shall be spaced

between wooden posts. Use all wood posts when boards are used.

Wood posts must have a minimum length of 6 feet and set or driven to a minimum depth of 24 inches. When set, earthfill placed back around posts shall be thoroughly tamped. Wooden line posts shall have a 3-inch top commercial size (2½ inches for Osage Orange).

Steel posts shall be driven a minimum of 18” deep. Use standard “T” shaped steel posts a minimum of 5.5 feet long.

Post spacing in areas shallow to rock may vary based on availability of post sites. Probe with a rock probe to determine desirable post sites. Steel pipe and posts are recommended to use in cracks between rocks. Where possible, concrete in posts. Rock bits are available in some areas for drilling rock. Use stays to maintain post spacing. Stays should not be used more often than every other post. Posts set in a minimum of 8” x 30” of concrete or equivalent may be used as a line post. Bury as deep as possible. Use live trees as posts only where soils are shallow (See section F).

**E. Line Posts**

All wooden posts (except Red Cedar, Osage Orange, or Black Locust) shall be treated according to use category UC4A of the American Wood Preservers Association (see Table 1):

Table 1: Minimum treatment rate for selected preservatives.

Use Category	Minimum Retention Rate (pcf)			
	CCA	ACQ	CBA-A	CA-B
UC3	0.25	0.25	0.20	0.10
UC4A	0.4	0.4	0.41	0.21

Excerpted from AWWPA Standards 2004

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.

Steel posts shall be rolled from high carbon steel and have a protective coating either galvanized by the hot dip process, painted with one or more coats of high-grade weather resistant steel paint, or enameled and baked. Steel posts shall be studded, embossed, or punched to aid in the attachment of the wire. Steel posts shall weigh not less than 1.25 pounds per foot of length.

**F. Live Trees as Line, Bracing, and Corner Posts**

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.

Wire or insulators will not be fastened directly to trees. When using live trees, protection will be provided between the

tree and wire or insulators (UC3 treated 2" x 4", fiberglass, or rigid plastic strip).

### G. Corner, Gate, or End Assembly

Brace assemblies are required at all gates on the hinge side. Six-inch posts are required at ends, corners, and angles up to 150 degrees in the fence line.

Wood posts will be sufficient length for the construction of at least a 42" high fence and permit driving or setting the post at least 36" deep. Earth backfill shall be thoroughly tamped. If concrete is used, set the posts a minimum of 30" deep.

Posts of equivalent strength may be substituted, if they have suitable means of attaching wires and boards. Wood posts will be at least 2 inches higher than the top wire of the fence to prevent splitting.

Posts of other materials shall be at least 1 inch higher than the top wire of the fence.

### H. Bracing

**(See Standard Drawing Number FEN-382-BR1 and BR2.)**

Bracing is not required for board fence; however, if wire is run in addition to boards, follow applicable standard for wire. Brace posts used for hanging gates.

The brace member shall be the equivalent of a 4" top diameter post or standard weight galvanized steel pipe of 2" diameter installed at least 3 feet aboveground or between the top two wires, whichever is higher. Place brace at least 8 inches below the top of post.

The brace member shall be at least 6 feet long or 2.5 times the height of the top wire (i.e., 42 inches x 2.5 = 105 inches or 8.75 feet).

The brace wire shall be number 9 gauge smooth wire or 12-1/2-gauge high tensile strength smooth wire. Twist sticks or inline strainers will be used to tighten brace wire.

### I. Staples and Wire Fasteners

Staples shall be of 9-gauge steel or heavier with a minimum length of 1½ inches for softwoods and a minimum length of 1 inch for close-grained hardwoods. Barbed staples shall be used for pressure treated posts. Drive staple diagonally to the wood's grain and at a slight downward angle (upward if pull is up) to avoid splitting posts and loosening of staples. Space should be left between staple and post to permit free movement of 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 or heavier galvanized wire.