

CONSTRUCTION SPECIFICATION

NATURAL RESOURCES CONSERVATION SERVICE

FENCE - BARBED WIRE

(Ft.)

CODE 382

1. Scope

The work shall consist of furnishing and installing barbed wire fences, including gates, posts, braces and fittings in accordance with the Conservation Practice Standard, Fence, 382, this construction specification and as shown on related drawings.

2. Wire Spacing and Strands

Barbed wire fences shall have a minimum of four wires for farm borders. A minimum of three wires shall be used for cross fencing or excluding larger livestock from special areas such as wildlife, forested, or other special use areas. Wires shall be spaced approximately an equal distance apart. For large animals the top wire shall be at least 42 in. high and placed 2 in. below the top of post on wood posts and 1 in. below the top on steel posts. For sheep or goats the top wire strand will be at least 36 in. above ground. The bottom wire shall be 4 to 6 in. above ground for small animals like goats or sheep, and 12 to 18 in. above ground level for large animals like cows or horses.

For sheep and goats use at least five strands of barbed wire.

3. Type of Wire

Each line wire shall consist of two twisted strands of 12 ½-gauge wire or high tensile strength wire of 15 ½-gauge. Attach wires to the side of the post closest to the livestock. On corners or in curves, place wire on outside of posts.

4. Pull Assemblies

Two posts with braces shall be spaced at intervals not to exceed 1,320 ft. in straight, level sections of the fence. Wires must be kept tight.

5. Post Spacing, Length, and Depth

Set posts 12 ft. to 16 ft. apart unless stays are used between posts, and then the spacing shall not exceed 30 feet. Space stays about 15 ft. apart or closer.

For suspension fences, place posts up to 100 ft. apart. Evenly place stays 33 ft. to 50 ft. apart and do not allow them to touch the ground.

Wood line posts must have a minimum of 3 in. top diameter and a length of 6 ft. and be set or driven to a minimum depth of 24 inches. When posts are set thoroughly tamp backfill around posts. Steel posts shall be driven minimum of 18 in. deep, using standard "T" or "U" shaped steel posts minimum of 5.5 ft. 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 steel post are recommended to use in cracks between rocks. Concrete in posts where possible. Rock bits are available in some areas for drilling rock. Use stays to maintain wire spacing. Post set in a 5-gallon bucket of concrete may be used as a line post when proper setting post in soil is not an option. Bury bucket as deep as possible. Use live trees as post where needed, see **5. Live Trees as Line, Bracing, and Corner Posts.**

6. Line Posts and Stays

The following may be used:

- a. Australian ironwood (eucalyptus), 1 x 1.5 in., length and width.
- b. Fiberglass and polyvinylchloride solid round sucker rod of at least 5/8 inches in diameter.
- c. Fiberglass T-posts and stays of at least 1 inches in width.

For the above posts, attach wire to posts by loose clips or by running through holes in posts. Attach to stays with tight clips to hold in place.

- d. Use wood posts of black or honey locust, red cedar heartwood, Osage Orange, catalpa or mulberry, pressure treated pine, or other wood of equal life and strength. At least one-half of the diameter of the red cedar posts shall be heartwood. Pressure treatment shall conform to the American Wood Preservers' Association standard, U1-06, UC4A.

| <u>Treatment</u> | <u>Retention lb/ft³</u> |
|-----------------------------|------------------------------------|
| Creosote coal tar | 10 |
| Pentachlorophenol | .5 |
| Amoniacal copper arsenate | .4 |
| Chromated copper sulfate | .4 |
| Alkaline copper quat (ACQ)* | .4 |

*Do not use aluminum fasteners or metals with ACQ treated wood because of corrosion.

- e. Line posts shall be at least 3 inches in diameter.

Steel posts may be "T" or "U" posts that are a minimum of 1.25 pounds per linear foot.

7. Live Trees as Line, Bracing, and Corner Posts

Live trees used for corner, bracing, and line posts shall have a diameter (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 will not be fastened directly to trees. When using live trees, protection will be provided between the tree and wire. Fiberglass, a rigid plastic strip or treated 2 x 4 wood that meets American Wood Preservers' Association UC3 standard. Do not attach wire to high value timber species or short lived species such as elm. Do not use fast growing trees as end post.

8. Corner, Gate, End or Pull Assembly, and Brace Posts

Braces and end assemblies are required at all corners, gates, and for all angles up to 150 degrees in the fence line. Refer to Fence Drawing AL-ECS-382-07. Tying off wires at the corner post will lessen stress on the corner post. No brace assembly is required for angles between 150 and 180 degrees; however, do use a 5 in diameter post as a corner post. Lean the corner post 2 in. or more away from the direction of pull.

Braces for corners, gates, and end or pull assemblies will be either H-braces, a series of H-braces, a combination of H+N braces (refer to Fence Drawing AL-ECS-382-20) or a floating angle brace

assemblies. Posts will be 5-in. nominal wood or 2.5-in. nominal steel pipe (capped). Steel posts shall be set in concrete. Wood posts will be sufficient length for the construction of at least a 42 in. high fence and permit driving or setting the posts at least 36 in. deep. Thoroughly tamp earth backfill around posts. If concrete is used, set the posts a minimum of 30 in. deep in a hole at least 12 in. in diameter.

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

Posts other than wood shall be at least 1 in. higher than the top wire of the fence.

9. Bracing

The brace member shall be the equivalent of a 4 in. top diameter post or standard weight galvanized steel pipe of 2 in. diameter installed at least 3 ft. above ground or between the top two wires, whichever is higher. Place brace at least 8 in. below the top of post. The brace member shall be at least 6 ft. long or 2.5 times the height of the top wire (i.e., 42 in. x 2.5 = 105 in. or 8.75 ft.).

Wooden brace members shall be attached to wooden posts with either 3/8 in. metal pins or nails that penetrate to the middle of the post. Nail holes will be pre-drilled if the nail size is such that splitting of the brace member will occur.

Brace wire composed of number 9-gauge smooth wire or 12½-gauge high tensile strength smooth wire shall be used. Twist sticks or inline strainers will be used to tighten brace wire.

10. Staples and Wire Fasteners

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

Wires will be attached to steel posts by use of manufacturer's clips or by two turns of 14-gauge galvanized wire.

Do not allow aluminum fasteners or uncoated metals to be used with ACQ treated wood because of corrosion.