

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 and exclusion purposes (excluding larger livestock from special areas such as wildlife, forested or other special uses). Three or more wires shall be used for cross fencing

Wires shall be spaced approximately an equal distance apart. For large animals the top wire should be at least 42 inches above the ground and placed 2 inches below the top of post on wood posts and 1 inches below the top on non-wooden posts.

For sheep or goats the top wire strand should be at least 36 inches above ground. The bottom wire shall be 4 to 6 inches above ground for small animals like goats or sheep, and 12 to 18 inches above ground level for large animals like cows or horses.

For sheep and goats use at least five strands of barbed wire for boundary or interior fences.

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

Use at least two posts with braces in straight, level sections of the fence. They shall be spaced at intervals: not to exceed 1,320 ft. with 15 ½-gauge high tensile barbed wire; or 660 ft. using traditional 12 ½-gauge wire. Use additional bracing or pull assemblies when landscape, direction and fence boundaries dictate. 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 nominal top diameter of 3 inches 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. Standard "T" or "U" shaped steel posts that are at least 5.5 ft. long shall be driven a minimum of 18 inches deep.

Post spacing in areas shallow to rock may vary based on availability of post sites. Check with a rock probe to determine desirable post sites. Steel pipe and steel post are recommended to use in cracks between rocks. Place posts in concrete 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 of post in soil is not an option. Bury bucket as deep as possible. Avoid using live trees if possible. See **7. Live Trees as Line, Bracing, and Corner Posts.**

6. Line Posts and Stays

The following may be used:

- a. 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 and equal to the designed treated post diameter. Pressure treatment shall conform to the American Wood Preservers Association standard, U1-15, UC4A or later.
- b.

	Retention (lb/ft ³)
Wood Preservative Treatment*	UC4A (general use)
Creosote coal tar	8
Pentachlorophenol	0.4
Copper naphthenate	0.055
Ammoniacal copper zinc arsenate*	0.4
Chromated Copper Arsenate	0.4
Alkaline copper quat (ACQ)*	0.4
Copper azole, type B (CA-B)*	0.21
Copper azole, type C (CA-C)*	0.15
Dispersed copper azole (ESR reports)	0.15

* Do not use aluminum fasteners with these treatments because of corrosion. Do not use landscape wood products for fence construction.

- c. Line posts shall have a nominal diameter of at least 3 inches Steel posts may be “T” or “U” posts that are a minimum of 1.25 pounds per linear foot.
- d. Do not use landscaping wood products for fence as they typically do not meet wood preservative requirements.

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

Avoid using live trees if possible. However, when necessary, live trees may be used judiciously for corner, bracing, and line posts. Trees 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 will not be fastened directly to trees. When using live trees, protection will be provided between the tree and wire such as fiberglass, a rigid plastic strip or treated 2 x 4 board 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

Appropriate brace, pull or end assemblies are required at all corners, gates, and for all angles greater than 30 degrees from the fence line alignment. 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 less than 30 degrees; however, do use a 5 inches diameter post as a corner post. Lean the corner post 2 inches or more away from the direction of pull.

Use brace assemblies such as H-braces, a series of H or H+N braces (refer to Fence Drawing AL-ECS-382-20) or floating angle brace assemblies when tying off wire ends or changing directions or when landscape dictates their use. Posts will be at least 5 inches nominal wood or 2.5 inches 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 inches high fence and permit driving or setting the posts at least 36 inches deep. Thoroughly tamp earth backfill around posts. If concrete is used, set the posts a minimum of 30 inches deep in a hole that is at least 12 inches 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 inches higher than the top wire of the fence to prevent splitting.

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

9. Bracing

The cross brace member shall be the equivalent of a 4 inches top diameter post or standard weight galvanized steel pipe of 2 inches diameter installed between the top two fence wires, 8” – 12” below top of post. The cross brace member shall be at least 8 ft. long. As a minimum, cross brace members shall be treated with preservatives meeting the UC4A, general use criteria.

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

Use bracing wire composed of 9-gauge galvanized smooth wire or 12½-gauge high tensile strength smooth wire. Double stranded barbed wire or smooth wire may be used. Barbed wire is not recommended for horse fencing. Use twist sticks of metal or suitable treated wood material or inline strainers 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 inches for softwoods and a minimum length of 1 inches 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 or upward if wire pull is up such as in low places. This will help 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.