NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATIONS

FENCE - WOVEN WIRE

(Ft.)

CODE 382

SCOPE: The work shall consist of furnishing and installing, woven wire fences, including gates, posts, braces and appurtenances in accordance with the Conservation Practice Standard, Fence, 382, this construction specification and as shown on related drawings. Electrified high tensile woven wire fences are included in these specifications.

1. Woven Wire

(Also refer to Fence drawings)

2. Wire Placement

The base of the woven wire shall be placed near the ground surface. Adjust placement of the wire according to the purpose for the wire. If there are wildlife concerns the fence may be raised or lowered as needed to assist in wildlife movement. Additional strands of barbed wire or smooth high tensile electric wire may be needed near the bottom of the fence to deter unwanted animals such as coyotes, feral swine or dogs.

One or more strands of wire are to be placed on top of the installed non-electrified woven wire. They should be spaced about 4" to 6"apart. High tensile electric wire should be used. Barbed wire may be used; however, do not electrify barbed wire and do not use with horses.

Use at least two top wire strands above 32-inch high woven wire.

3. Wire Type

Top and bottom strands of standard woven wire shall be 12½-gauge or heavier and 14½-gauge or heavier wire for intermediate strands.

High tensile woven wire may be used as well. Follow manufacturer recommendations for posts, bracing/pull assemblies and installation. This wire may be electrified. In-line post spacing will be ≤ 50 feet apart when electrified, otherwise post spacing will be ≤ 25 feet apart. Also refer to the construction specifications for electrified high tensile wire fence.

Additional wire strands may include barbed wire or high tensile wire. Do not electrify barbed wire strands. Barbed wire includes class III galvanized 12.5 gauge wire or 15.5 gauge high tensile wire. Smooth strands of wire may include 12.5 gauge class

III galvanized or aluminized high tensile wire. These wire strands will have at least 170,000 psi minimum breaking strength.

4. Pull Assemblies

Use H, N, H+H, H+N or floating angle braces for corner post assemblies or in line pull assemblies. In-line pull assemblies will be placed ≤ 660 ft. apart in straight sections of the fence. Shorter intervals should be used when terrain is irregular or fence directions change. Wire must be kept tight. After installation, wire tensioners may be needed to finalize wire tension. (Refer to Fence Drawing AL-ECS-382-20),

Use wooden corner/pull anchor posts that are at least 5 inches in diameter or steel posts that are at least 2 7/8" diameter.

5. **In-line Post Spacing, Length, and Depth**

Install in-line posts in dips and rises before pulling fence wire. Secure posts that are located in dips to keep them from pulling up. Dead man support bracing is recommended.

Standard woven wire fences shall have a maximum post spacing of 16 feet. Maximum post spacing for high tensile woven wire is 25 feet when not electrified and 50 feet when electrified.

Wood posts must have a minimum length of 6 feet and set or driven to a minimum depth of 24 inches. When posts are set, thoroughly pack earthfill around posts. Wooden line posts shall have a nominal 3-inch top diameter.

Steel posts shall be driven at least 18 inches deep. Use standard "T" or "U" shaped steel posts that are a minimum of 5.5 feet long. Set posts deeper in sandy or moist soils.

Post spacing in areas that are shallow-to-rock may vary based on availability of post sites. Check area with a rock probe to determine desirable post sites. Steel pipe and steel post are recommended to use in cracks between rocks. Use concrete around posts where possible. Rock bits are available in some areas for drilling rock. Use stays to maintain post spacing. Posts set in 5 gallon buckets of concrete may be used as line posts. Completely bury the bucket if possible. Use live trees as post only when necessary. Also refer to section 7.

6. Line Posts

All wooden posts (except red cedar, osage orange, or black or honey locust or catalpa or mulberry) shall be treated to meet the American Wood Preservers' Association (AWPA) U1-06, UC4A standard, or later.

	Retention (lb/ft3)
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 or metals on ACQ treated wood due to corrosion. Use hot-dipped, galvanized staples or wires. Do not use landscape wood products for fence construction.

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 at least 1.25 pounds per linear foot.

In-line fiberglass or plastic+wood composite posts may be used per manufacturer specifications for electrified high tensile woven wire fence. These posts have a higher potential for fire damage than steel or treated posts. Refer to the construction specifications for electrified high tensile wire.

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

Avoid using live trees if possible. If necessary they may be used for corner, bracing, and line posts and 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's, fiberglass, or a rigid plastic strip).

8. Corner, Gate, or End Assembly

Brace assemblies are required at all corners, gates, and changes in the fence line alignment. On all corner posts, lean the corner posts 2 inches or more away from the direction of pull. Refer to Fence Drawing AL-ECS-382-7.

Use H, N, H+H, H+N or floating angle brace assemblies. Anchor posts will be at least 5-inch diameter nominal wood or 2 7/8-inch diameter nominal steel pipe

(capped). Steel pipe shall be set in at least 30 inches of concrete. Wood posts will be sufficient length for the construction of at least a 42-inch high fence and permit driving or setting the post at least 36 inches deep. Earth backfill shall be thoroughly tamped. If concrete is used, set the posts a minimum of 30 inches deep in a hole at least 12 inches in diameter. Dead man supports are recommended on pull assemblies for woven wire.

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

9. Bracing

The brace cross-member shall be the equivalent of a 4-inch top diameter wood post or standard weight galvanized steel pipe of 2" diameter installed at between the top two wires, 8 – 12 inches below the top of the fence post. The brace member shall be at least 8 feet long.

Wooden brace members shall be attached to wooden posts with either 3/8” metal pins or nails that penetrate passed 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.

The brace tensioning wires shall be 9 gauge galvanized or 12.5 gauge high tensile smooth wire. Metal twist sticks, treated wood or inline strainers will be used to tighten brace wire.

10. Staples and Wire Fasteners

Staples shall be of 9-gauge or heavier, hot-dipped, galvanized or stainless steel 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 softwood posts. Drive staples 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.

Fences may be attached to fiberglass or composite posts by use of carter clips, manufacturer’s clips or by at least two turns of ≥ 14-gauge galvanized wire.

On electrified systems, use high quality porcelain or u.v. protected plastic insulators as needed to connect fence and wires, especially when attaching to metal posts.

Do not use aluminum fasteners or metals with ACQ treated wood due to corrosion. Instead use hot-dipped, galvanized or stainless steel staples or wires.