

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

**WOVEN WIRE FENCE
(Feet)**

CODE 382

MATERIALS SPECIFICATIONS

The work shall consist of furnishing **all new materials** and installing woven wire fence, including gates, posts, braces, and fittings in accordance with **Conservation Practice Standard- Fence (382), SC 382-Material and Construction Specification-Tables 1-9, and as shown on the attached standard drawings.**

Variations of what is presented in this document may be approved if alternatives will meet or exceed current specifications. Sufficient documentation must be presented to the SC NRCS State Resource Conservationist.

CONSTRUCTION SPECIFICATIONS

Fence-Line Clearing

Prior to construction, the fence line shall be cleared of any obstruction that would hinder fence placement and operation. Clearing along stream banks will be held to a minimum except as required for stream crossings. The soil surface along the fence line shall be relatively smooth such that placement of the bottom wire does not exceed the specified maximum wire spacing from the soil surface.

Setting posts

All post shall be set and maintained in a vertical position or leaning slightly (1-2 inches off vertical) away from direction of wire tension.

Posts in curves should be set approximately 4 inches off vertical. Posts set with a driver have about 9 times the holding strength of handset posts. If hand set, holes should be at least 6 inches larger than the diameter of the posts and all backfilled material will be thoroughly tamped in layers no thicker than 4 inches. The post hole shall be filled to the ground surface.

Line Posts

Refer to [Table 1](#) Permanent fence selection criteria for line post and stay spacing and [Table 4](#) Post type, size, and depth specifications.

Spacing will vary depending on terrain and pressure from livestock.

Metal pipe used as posts must be capped to prevent bird mortality.

Installation shall ensure that adequate fence height is maintained based on its purpose.

Installing Curves

Installing curves in woven wire fences is permissible as long as the change in direction from one post to the next does not exceed 20 degrees. Posts on curves shall be 5 inch minimum top diameter for changes

up to 14 degrees and 6 inch minimum top diameter for changes up to 20 degrees. Posts on curves should be driven 48 inches deep with 4 inches of lean to the outside of the curve and spaced no closer than 4 foot apart. (In an 8-foot long section, 14 degrees is approximately 24 inches off straight line and 20 degrees is approximately 35 inches off the straight line).

Line Posts – Stream Crossing

Anchor posts are required on both sides of a stream crossing. For crossings less than 16 feet wide, standard line posts set on both sides will be adequate. For crossings wider than 16 feet, or when non-electrified heavy flood gate is used, a single H-brace assembly or other suitable brace shall be used.

- Where needed, flood gates will be attached below bottom wire and will be designed to allow water and debris to pass and still control livestock. Some type of hinged or breakaway floodgate works best.

Posts that are set in low areas or gullies may need to be weighted or anchored to prevent lifting out.

Stays or battens between line posts

Stays or wire spacers or battens may be used to maintain desired wire spacing between line posts; note that specifications for post spacing differs with and without stays (Table 1). Stays shall be secured sufficiently to remain in position along wire line.

Offset Brackets

Offset brackets made of galvanized high tensile spring wire with an insulator of high density polyethylene with ultraviolet stabilizer or porcelain can be attached to standard barbed wire fence to provide transmission line and /or to protect a standard fence. Other corrosion resistant offset brackets with insulators that attach directly to the fence posts can also be used.

Place offset brackets up to 60 feet apart and attach to wires of standard fence next to post. If control of animals is desired, place offset brackets at 2/3 the height of the animals to be controlled. Make sure no wires of the old fence come in contact of the electric fence wire, as a short will occur. Use offset brackets that hold the electric wire at least 6 inches from the non electrified fence material.

Post Bracing

Refer to 382-Construction specifications [Tables 5 and 6](#), [Table 7](#), and [Table 8](#) for brace diameter, length, type, and spacing.

Corner braces are required at all points where the fence alignment has a change of 20 degrees or more and the pull is from two directions. (In an 8-foot long section, 20 degrees is approximately 35 inches off the straight line).

End braces are required where fence ends and on both sides of gate openings direction and has pull from only one direction.

In-line pull post assemblies are located in straight sections of the fence line and where there are sudden changes in elevations, such as at the bottom and top of slopes. Tie off all wires at in-line pull assemblies and start new wires for the next fence section. Posts that are set in low areas or gullies may need to be weighted or anchored to prevent lifting out.

Horizontal brace rails will be placed 4-6 inches below the top of the post.

The brace post and anchor posts should be fastened to the compression brace using galvanized screws, nails, or steel dowel pins (drilled through vertical post and into end of horizontal brace, 4 inches deep).

The longer the brace rail the stronger the brace. **A single H brace with a 10 foot brace rail is strong enough to take the place of a double 8 foot H brace.**

Diagonal floating brace assembly can be substituted for other brace types. The brace rail for the diagonal floating brace must be installed below the top wire and be at least 2.5 times the length of the height of the top wire. Brace blocks will have a minimum of 100 sq. inches of top surface area and can be made of a flat rock, solid concrete block, or a paving stone.

Adjoining Fences

A fence adjoining an existing fence must terminate in the adequate brace assembly.

Trees

Trees will only be used in situations where the use of posts is technically infeasible.

No more than 20% of posts shall be trees. Live trees used for corner, bracing, and line posts shall have a diameter breast height (DBH, 4.5 feet aboveground) equal to or greater than those prescribed for normal wooden posts.

Wire will not be fastened directly to trees. When using live trees, protection will be provided between the tree and wire (CCA treated 2 x 4's, fiberglass, or rigid plastic strip).

When using live trees as an end post, attach wire to a 3/8 inch lag eye bolt in the tree.

Tension of Brace (Guy) Wires

For guy wires use two complete loops of 12 1/2 gauge High tensile wire or barbed wire or one loop of 9 gauge wire.

For horizontal braces, brace wire will be double wrapped and stapled to the brace post a height of 4-6 inches above the brace member and to the anchor (pull) post at a point 4 inches above ground level.

Brace (Guy) wire will be tightened using a wire tightener or strainer.

Another suitable method is to use a twist stick of 18-24 inches approximately midway along the brace wire to provide moderate tension and remain in place.

Wire

Refer to [Table 1a](#) and [Table 1b](#) Fence Selection Criteria and [Table 3](#) Fence Wire Specifications.

Total height and spacing between wires will be determined on a site specific basis depending on the terrain and livestock species.

Fence wire will be stretched to sufficient tension prior to being fastened to posts. Temperature variations must be considered. Wire will tighten in cold weather and expand in hot weather.

In warm weather, wire will be stretched until 1/3 of the height of the "tension curve is removed. In cold weather, remove 1/2 of the tension curve. For Fixed-Knot High Tensile Woven wire the tension crimp should be half the size of an un-tensioned crimp.

The base of the woven wire shall be placed near the ground surface. The top wire will be at least 42" above ground level and 2" below the top of posts on wood posts and 1 inch below top of steel posts.

Fences constructed with woven wire less than 39" in height will have at least two wire strands evenly spaced above the woven wire.

Fences constructed with woven wire 39" or higher will have at least one strand of wire above the woven wire.

Do not use barbed wire as an electric wire.

Top and bottom strands of woven wire will be 10 gauge or heavier and 12.5 gauge or heavier wire for intermediate strands. The wire specifications for the barbed wire will be the same as for a barbed wire fence. High tensile wire may also be used.

Woven wire for sheep and goats should have vertical wire wide enough (9 inches to 12 inches) or narrow enough (<4") to minimize catching their heads. Otherwise use an electric offset wire to keep animals away from woven wire that may "entangle" them.

Woven wire attachment to anchor (pull) posts. Determine amount of wire needed to fully wrap around post once then remove enough vertical stays to provide that length.

Woven wire fencing will be attached at a minimum to alternate horizontal strands.

Wire will be placed on the livestock side of line posts and on the outside of curves and bends.

Woven wire will be spliced by means of western union splice or by suitable compression sleeves.

Staples and fasteners

Woven wire will be attached at each post with 9 gauge steel minimum 1.5 inch staples driven diagonally across the grain of the wood and at a slight downward angle to allow free slippage of wire.

For steel line posts, the fencing shall be fastened with either 2 turns of 14 gauge galvanized steel wire or the post manufacturer's special wire clips. For all other types of posts, attach as specified by manufacturer.

Gates

Gates will be constructed of durable material that equals or exceeds the quality of the adjoining fence.

Heavy metal or wood gates more than 6ft. wide will be attached to the pull post of an H-brace.

Gates weighing less than 100 lbs may be hung from a single end post properly installed.

Stream Bank Protection

Permanent fencing will be placed at least 10 feet from the top of the stream bank and should allow for more area in meanders and in areas with bank erosion to minimize corner bracing.