



What are Standard, Non-Electric Wire Fences?

Standard, non-electric wire fences are the most common fence type used for controlling all types of livestock. They are suitable as permanent fences in areas that receive moderate to heavy pressure from livestock. They are typically barbed wire, double strand or single strand smooth wire.

Suspension Fences are a low cost variation of the standard post and wire fence and can be used as either boundary or interior cross fencing. They are typically used on large pastures with level terrain. They can be either barbed wire or smooth wire. The fence design allows it to sway (move) in the wind and when contacted by animals.

Purpose

This practice facilitates the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles.

Applying the practice

The fencing materials, type and design of fence installed shall be of a high quality and durability and

installed to meet the management objectives and site challenges.

Fences shall be positioned to facilitate management requirements. Ingress/egress features such as gates and cattle guards shall be planned.

Where applicable, cleared rights-of-way may be established which would facilitate fence construction and maintenance. Avoid clearing of vegetation during the nesting season for migratory birds.

Fences across gullies, canyons or streams may require special bracing, designs or approaches.

Fence design and location should consider ease of access for construction, repair and maintenance. Where practical, in order to minimize maintenance and installation costs, avoid areas such as rough and irregular terrain, excess trees and brush, areas with long-standing water and water crossings

Fence construction requiring the removal of existing unusable fence should provide for the proper disposal of scrap materials to prevent harm to animals, people and equipment.

Operation and maintenance

Regular inspection of fences should be part of an ongoing maintenance program. Inspection of fences after storms and other disturbance events is necessary to insure the continued proper function of the fence. Maintenance and repairs will be performed in a timely manner as needed, including tree/limb removal and water gap replacement.

Remove and properly discard all broken fencing material and hardware. All necessary precautions should be taken to ensure the safety of construction and maintenance crews

Specifications

Specifications included in this job sheet are prepared in accordance with the NRCS Field Office Technical Guide, Oklahoma Fence (382) practice standard.

This job sheet provides general design criteria, material specifications and installation requirements.

Any variations in materials and installation from those provided in this job sheet must be discussed and approved by the responsible planner at the time of planning and prior to installation. Failure to do so could result in the practice not being certified.

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PERMANENT FENCE CONSTRUCTION DATA SHEET – Standard, Non-Electric

Cooperator: _____ Field Office: _____

Plan No: _____ Field No: _____ Location: _____

Planned by: _____ Title: _____ Date: _____

Purpose / Livestock Type: _____

Planned Fence Type (Table 1 of Fence Standard): Standard Fence Suspension

Length of Planned Fence (if more than one fence is planned, with the same materials, components and installation requirements number each fence and provide planned length for each.)

Fence # _____ Length _____ Fence # _____ Length _____ Fence # _____ Length _____

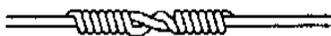
COMPONENTS – MATERIAL SPECIFICATIONS AND INSTALLATION (Check/Complete Applicable Items)			
WIRE TYPE – Based on Planned Fence Type. All wire must be new and meet requirements for proper gauge, galvanization and strength.	# Wires	Top Wire – Minimum Height	Bottom Wire – height above ground
<input type="checkbox"/> Barbed Wire - Standard (Malleable): 12 ½ gauge; Class I galvanization; Min. 70,000 psi; barbs will be minimum 14 gauge, 2 point spaced 4-6 inches apart.			
<input type="checkbox"/> Barbed Wire - High Tensile: min. 15 ½ gauge; Class III galvanization, heat treated high tensile; Min. 170,000 psi; barbs will be minimum 14 gauge, 2 point spaced 4-6 inches apart.			
<input type="checkbox"/> Smooth - High Tensile: 12 ½ gauge; Class III galvanization, heat treated high tensile; Min. 170,000 psi			
<input type="checkbox"/> Smooth - Standard (Malleable): Single strand, (9 gauge), or double strand (12 ½ gauge); Class I galvanization; Min. 70,000 psi			

Wire Spacing: Heights of top and bottom wire will be as specified above. All other wires should be equally spaced between the top and bottom wires unless there is a combination of livestock, such as cattle and sheep, in which case the lower wires shall be designed for the smaller animal and overall height will be for the larger animal.

Installation: 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). Wherever possible, wire will be attached to fence post on side receiving most pressure, at top wire heights based on intended use. **For suspension fences**, wire tension is critical and wires should be stretched to allow no more than 3 inches of sag between posts set at 100 feet and 1.5 inches for posts at 50 feet

Wire Splices: When wire splices are needed, specific splicing methods should be used depending on type of wire. The following splice will be used:

Standard, Malleable wire types – **Western Union** splices are the preferred method and shall have a minimum of 8 wraps on each side of center tightly wound and closely spaced. **Mechanical splices**, such as crimping sleeves or the Gripple Splice, designed specifically for the planned wire type may be used. An accepted alternative for standard barbed wire fences is the **“double loop knot” splice** where the wire has a minimum of 8 wraps on each side of the loops.



WESTERN UNION SPlice



b) Double Loop Knot

High Tensile Wire – **Mechanical splices** are the preferred method for HT Wire. Mechanical splices must be specifically designed for HT wire fence materials and have a tensile strength of at least 80% of the wire strength. Examples of mechanical splices include crimping sleeves (Micropress) and Gripple splices. **The “Figure – 8” splice** is an alternative method for HT Wire. Install by overlapping wires 2 inches, looping each wire over and back through, and then pulling together. As the fence is stretched the splice will tighten.





Figure-8 Splice

In-Line Strainers (only for permanent, high tensile steel, smooth wire fences). Used to maintain tension. Install on each wire between each pull assembly at a distance not to exceed 4,000 feet for straight line stretches and 1200 feet for uneven terrain or non-straight stretches.



LINE POSTS - Minimum lengths of all posts will allow for required setting depths and fence height plus at least 2 inches of post above the top wire. Post diameter sizes are minimums.

Post Type and size	Materials / Installation Specifications
<input type="checkbox"/> Wood - 3" diameter (round posts only)	<p>Must be new, sound and free from decay. Except for red cedar, mesquite, Osage orange, catalpa, and black locust, all wood posts shall be treated with a preservative which is approved by either Federal Specification TT-W-571 or the American Wood Preservers Association (AWPA)</p> <p>Attaching wire to Posts: Staples - 9 gage steel, length of 1 ½ inches for soft woods and 1 inches for hardwoods. Drive staples diagonally to the wood grain at a slight downward angle (upward if pull is up) to avoid splitting the post. Space will be left between post and staple to allow free movement of wire and to avoid damage to zinc coating.</p>
<input type="checkbox"/> Steel Pipe - 2" OD Schedule 40	<p>Posts may be new or used of good quality, free from rust and pitting, and painted or galvanized for rust resistance. Posts will have the top permanently capped to prevent rainfall from entering post.</p> <p>Attaching wire to Posts: Use 12-12 ½ gauge galvanized wire or wire clips. When using 12 - 12 ½ gauge wire on steel pipe posts, make sure wire is wrapped tightly to hold wire to specified heights and prevent movement up and down the post.</p>
<input type="checkbox"/> Standard "T" Min. 1.25 lb per foot	<p>Will be galvanized, enameled and baked, or painted with weather resistant steel paint. Will have an anchor plate and be studded, embossed or punched for wire attachment.</p> <p>Attaching wire to Posts: Manufactured Wire Clips</p>

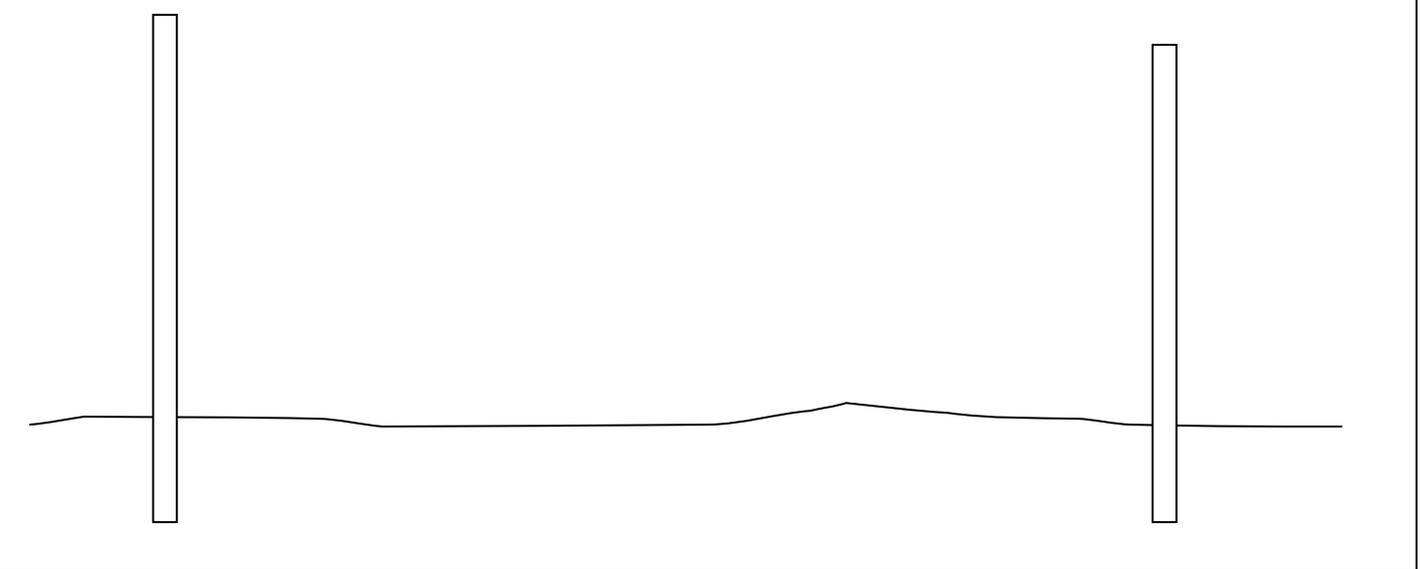
LINE POSTS INSTALLATION - Installation shall ensure that adequate fence height is maintained based on its purpose. Line posts will be set in as straight a line as possible between corners or turns. When fencing along curved lines, use straight sections with appropriate in-line bracing.

Minimum Setting Depth (inches) Rocky Soils - 18" Sandy Soils - 30" All Other - 24"
 "T" Posts - Anchor plate must be fully into ground. (15-18")

Line Post Spacing (based on livestock type and fence type. Refer to Table 1 in Fence Standard) Stays will not be used Maximum spacing between line posts _____ Ft.
 Stays will be used**

** Stays shall be evenly spaced between line posts at no more than 15 foot intervals between posts. Stays will be constructed of durable materials designed for this purpose.

FENCE DIAGRAM (items may include post spacing, wire spacings, stays, post depth, etc. as needed)



ADDITIONAL REQUIREMENTS:

PERMANENT FENCE CONSTRUCTION DATA SHEET

Fence Layout and Location Diagram: The following diagram indicates fence location, length, alignment and bracing requirements. Bracing locations and types are indicated in order to assist with proper selection of brace assemblies based on soils, length of pulls, changes in direction / elevations and fence types. An aerial photograph with the same information may also be used.

BRACING:

Materials and installation requirements are included in the attached brace diagrams. The table below indicates brace types needed and reference to the appropriate brace diagram. Indicate on the map the brace locations (signify with a #), and planned lengths of pulls. Attach the appropriate brace assembly specification sheets.

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. **End braces** are required where the fence ends, on both sides of gate openings and for water gaps / crossings greater than 20 feet. **In – Line Pull Post** assemblies are located in straight sections of the fence line with pulls in both directions and where there are sudden changes in elevations, such as at the bottom and top of steep slopes. Best used in long stretches where fence has no corners or ends and can be used to tie off wire and stretch.

Corner Braces		End / Gate Braces		In-Line pull assemblies	
Brace #	Brace Type	Brace #	Brace Type	Brace #	Brace Type

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