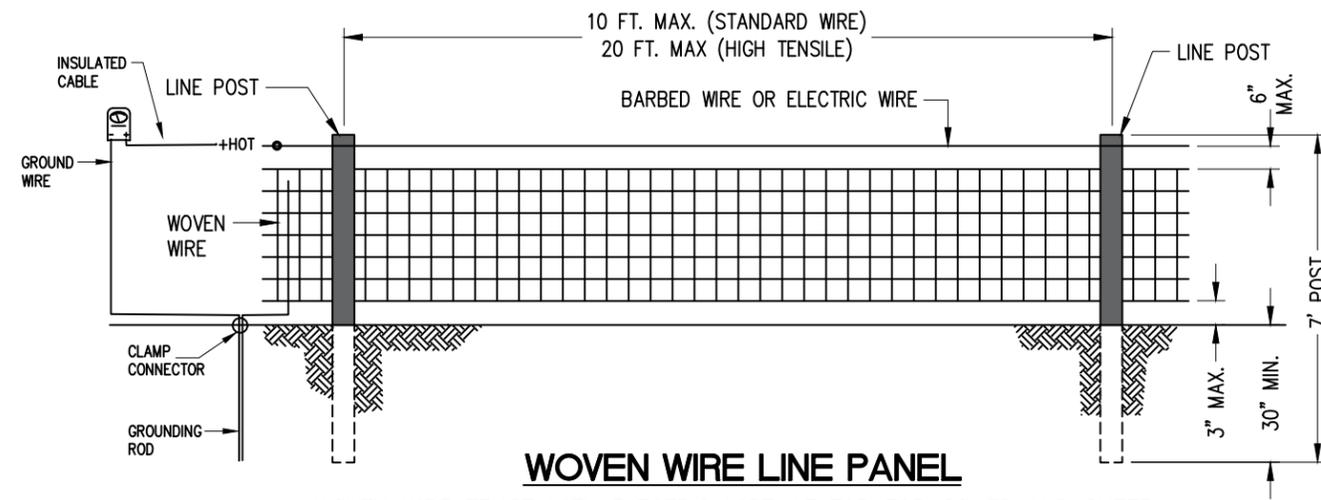


**NOTES:**

**Electrical Top Wire (optional)**

1. The electric fence charger is to be at least 5 kV min, 7 kV is recommended. The charger is to be low impedance, UL-approved, and is to include all the safety features required by the manufacturer.
2. A properly grounded lightning arrester and a "lightning choke" shall be installed to protect the energizer from lightning strikes. A voltage spike protector is also recommended.
3. Insulators are required on all posts that are not self-insulating. Insulators may be either: UV-stabilized high-density polypropylene Type W or Type S; high strain end and corner tube insulators; or high strain porcelain corner Type O.
4. Electrical fences shall be clearly labeled or identified with the appropriate warning signs spaced every 300 feet or where the public has access.
5. Household electrical wire must not be used for any part of the electric fence. Splicing wires of different metals often results in oxidation and corrosion which causes short circuits and poor conductivity.
6. Avoid placing electrical fences parallel with telephone or commercial power lines. Static fields can sometimes be created.
7. A voltmeter needs to be used to monitor and maintain electrical fences. A digital voltmeter is recommended, but not required.
8. Offset Brackets
  - 8.1. 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 a 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.
  - 8.2. Place offset brackets up to 40 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 4 inches from the non- electrified fence material.

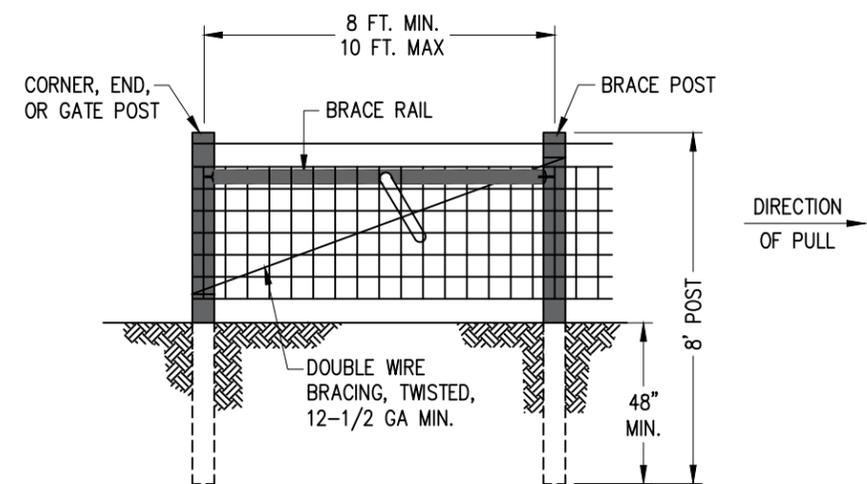


**WOVEN WIRE LINE PANEL**  
WOVEN WIRE FENCE WITH ELECTRIC WIRE AT TOP FOR GOATS AND SHEEP

MINIMUM FENCING REQUIREMENTS BY FENCE TYPE				
Fence type	Travel Lane	Interior	Exterior	Exclusion
42" Woven Wire plus one or more HT or barbed top wires to 48"	E	E	M	M
39" Woven Wire	M	M	NO	NO

M = Meets Minimum Requirement  
E = Exceeds Minimum Requirement  
NO = Does Not Meet Requirement

POST SPACING		
Type	Minimum Height of Top Wire (inches)	Line Post spacing
High Tensile Woven Wire (only)	39	10, HT-20
Woven Wire plus one or more HT or barbed top wire	42 plus high tensile or barbed wire at 48"	10



**SINGLE SPAN END BRACE ASSEMBLY**

AT CORNERS, ENDS, OR GATES WHERE FENCE RUN IS LESS THAN 330 FEET

Designed \_\_\_\_\_  
Drawn \_\_\_\_\_  
Checked \_\_\_\_\_  
Approved \_\_\_\_\_

WOVEN WIRE FENCE FOR GOATS AND SHEEP

Operator: \_\_\_\_\_  
Sheet: \_\_\_\_\_  
Project: \_\_\_\_\_  
Twp/Co: \_\_\_\_\_

United States Department of Agriculture  
**USDA**  
Natural Resources Conservation Service

File No. SHEEP-WW

Drawing No. \_\_\_\_\_

WOVEN WIRE NOTES:

Woven wire to have a minimum of five horizontal wires. All wire to be new ASTM Class 3 galvanized or aluminum-coated material. High tensile smooth wire to be 12-1/2 gauge and 170,000 psi tensile strength. Wire to be attached to the side of the fence that will receive the greatest pressure from animals. Place wire on the outside of posts on curves and corners. Tension to be set with in-line wire strainers and/or tension indicator springs to prevent sag. Wrap and twist wires or use crimping sleeves on end and gate posts.

Woven wire is not permitted in flood prone areas.

Installing Wire

- a. Woven 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).
- b. In warm weather, wire shall be stretched until 1/3 of the height of the "tension curve" is removed. In cold weather, remove 1/2 of the tension curve. Fixed-Knot High Tensile Woven Wire -The tension crimp should be 1/2 the size of an un-tensioned crimp.
- c. Determine amount of wire needed to fully wrap around post once then remove enough vertical stays to provide that length. The wire ends are then attached as described in previous paragraph. All lines are stapled to the post.
- d. Fixed-knot woven wire fence shall be stapled to wood post or fastened to steel post at every horizontal wire using manufacturer recommended wire clips.
- e. Woven wire and fixed-knot woven wire fencing shall be attached to posts at the top 3 and bottom 3 strands on every posts and then alternate every other line making sure you attached to the missed lines on the next alternating line post
- f. Woven wire shall be spliced by means of a western union splice or by suitable compression sleeves applied with a tool designed for the purpose.
- g. When stretching woven wire stand on the opposite side of the post from the wire and stretcher unit.

REQUIRED FENCE POSTS SIZES (WOOD)			
POST LOCATION	ROUND	SQUARE	LENGTH
Corner, End & Gates	6 inch	6 inch	7 feet
Brace Posts	5 inch	5 inch	7 feet
Horizontal Rails	4 inch	4 inch	7 feet
Line Posts	4 inch	4 inch	6 feet

POST NOTES:

Wooden posts to be the minimum size as shown in the table. Untreated posts may be red cedar or black locust. All other wood posts must be pressure treated.

Steel posts may be 'T', 'U', or 'Y'-shaped with anchor plates with a minimum weight of 1.3 lbs per foot. Steel posts to be painted or hot-dipped galvanized with 2 ounces of zinc coating per square foot. Steel line posts shall be driven into the ground to the top of the anchor plate. A wooden post shall be used for every third or fourth steel line post.

Steel, 1.25 lbs/ft (excluding anchor plate) and at least 18" in the ground

T post, 1-3/8" x 1-3/8" x 1/8" thick

U post, 2" x 1-1/4" x 3/32" thick

L post, 2" x 2" x 1/4" thick

Galvanized steel post/pipe, at least 2" diameter

Where posts cannot be set to the minimum depth specified, line post holes must be at least 12 inches deep, and all other posts must be at least 24 inches deep. All shallow post holes are to be three times the post diameter and backfilled with concrete.

Fencing with wooden posts to be grounded as per charger recommendations to protect livestock from lightning strikes.

Designed \_\_\_\_\_  
 Drawn \_\_\_\_\_  
 Checked \_\_\_\_\_  
 Approved \_\_\_\_\_

Operator: \_\_\_\_\_  
 Sheet: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Twp/Co: \_\_\_\_\_  
 WOVEN WIRE FENCE FOR GOATS AND SHEEP



File No. SHEEP-WW-2

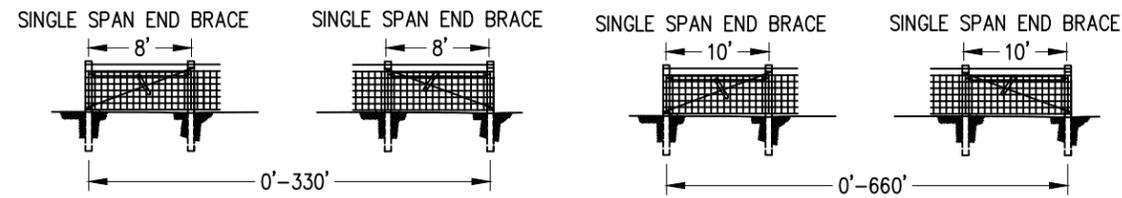
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**Installing Curves**

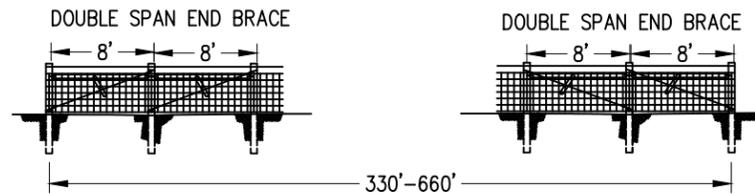
- a. Installing curves in woven wire fences is permissible if the change in direction from one post to the next does not exceed 20 degrees. Posts on curves shall be 5-inch minimum top diameter for changes up to 14 degrees and 6-inch minimum top diameter for changes up to 20 degrees.
- b. Posts on curves 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 approx. 35 inches off the straight line).

Brace assemblies are required at all corners, ends, gates, and at fence runs less than 330 ft. Double brace assemblies are required on runs greater than 330 feet (unless 10' brace), alignment changes greater than 20 degrees, and on uneven terrain. Brace wires to be double wrapped and tightened with a twist stick or in-line tightener. Fasteners for wood posts to be 9-gauge galvanized wire staples, 1-1/4 inches long. Staples to be driven diagonally to wood grain with a space to permit wire movement.

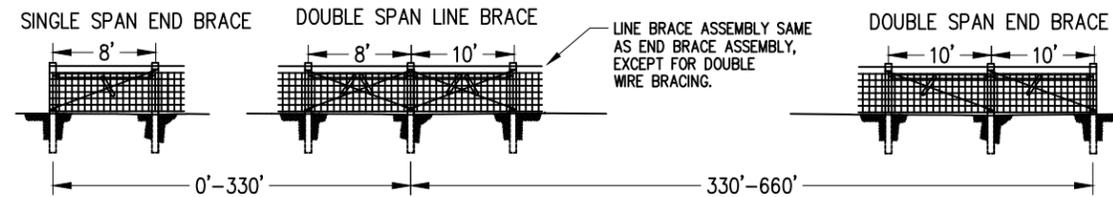
**SPACING FOR BRACE ASSEMBLIES**



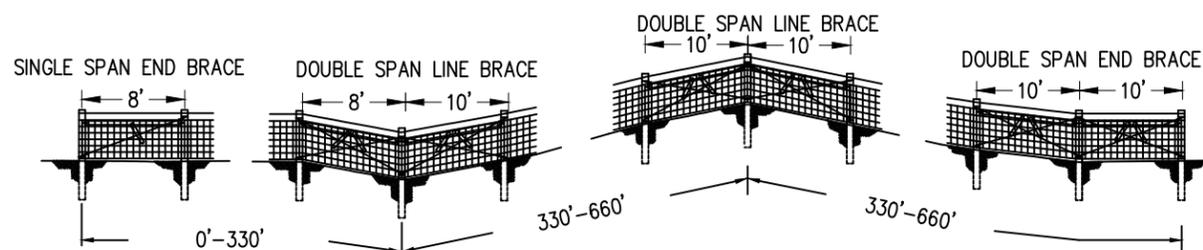
1. USE 8'/10' SINGLE SPAN BRACE ASSEMBLIES FOR RUNS OF FENCE THAT ARE LESS THAN 330/660 FEET BETWEEN CORNER, END, AND/OR GATE POSTS.



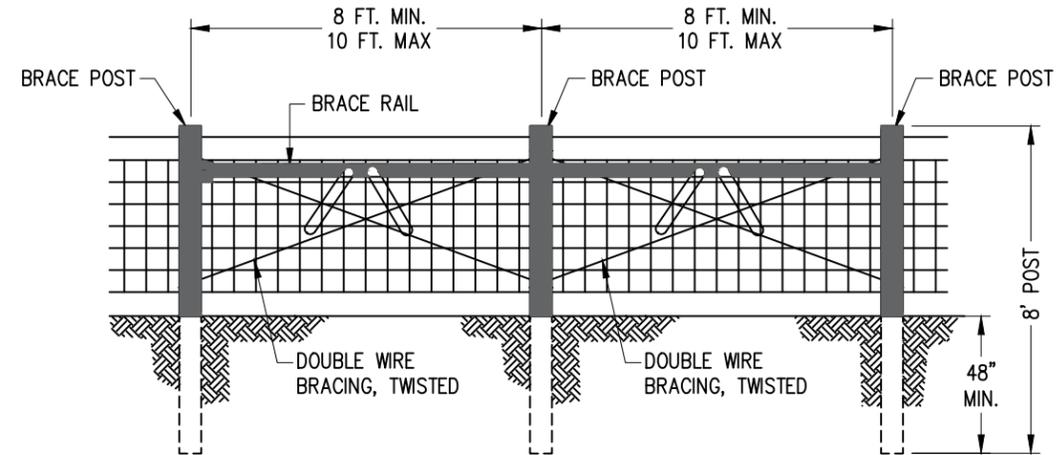
2. USE DOUBLE SPAN BRACE ASSEMBLIES FOR RUNS OF FENCE THAT ARE 330 TO 660 FEET BETWEEN CORNER, END, AND/OR GATE POSTS.



3. USE LINE BRACES TO DIVIDE FENCE LENGTHS WHERE RUNS OF FENCE ARE MORE THAN 660 FEET LONG. A RUN IS THE DISTANCE BETWEEN A CORNER, END OR GATE POST AND THE NEXT CORNER, END, OR GATE POST. LINE BRACE ASSEMBLY CONSTRUCTION IS THE SAME AS END BRACE ASSEMBLY, EXCEPT FOR DOUBLE WIRE BRACING.

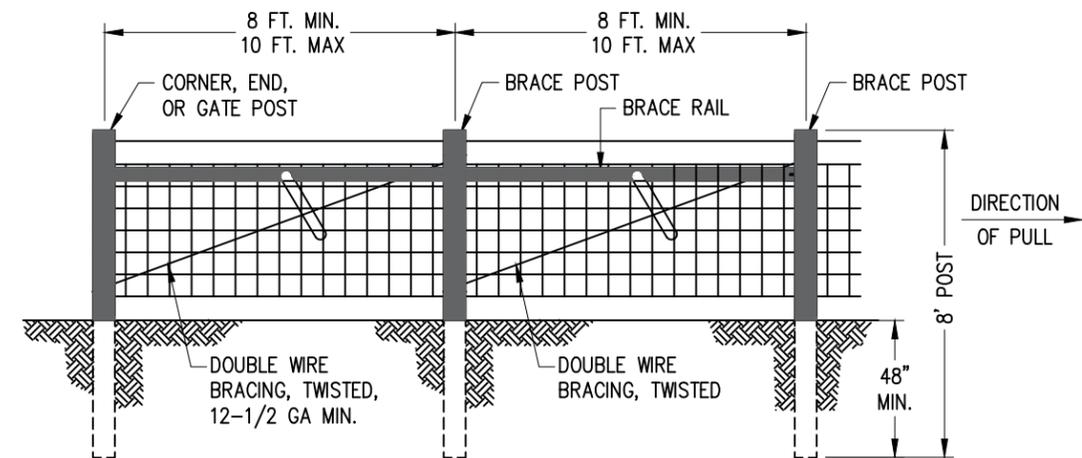


4. ON UNEVEN TERRAIN, LOCATE LINE BRACES AT THE TOP AND BOTTOM OF EACH HILL.



**DOUBLE SPAN LINE BRACE ASSEMBLY**

FOR FENCE RUNS GREATER THAN 330 FEET AND ALIGNMENT CHANGES GREATER THAN 20 DEGREES



**DOUBLE SPAN END BRACE ASSEMBLY**

REQUIRED AT CORNERS, ENDS, OR GATES WHERE FENCE RUN IS GREATER THAN 330 FEET

Designed \_\_\_\_\_  
Drawn \_\_\_\_\_  
Checked \_\_\_\_\_  
Approved \_\_\_\_\_

WOVEN WIRE FENCE FOR GOATS AND SHEEP

Operator: \_\_\_\_\_  
Sheet: \_\_\_\_\_  
Project: \_\_\_\_\_  
Twp/Co: \_\_\_\_\_

United States Department of Agriculture  
**USDA**  
Natural Resources Conservation Service

File No. SHEEP-WW-3

Drawing No. \_\_\_\_\_

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