

NATURAL RESOURCES CONSERVATION SERVICE
VIRGINIA CONSERVATION PRACTICE STANDARD

FENCE

(Feet)

Code 382

DEFINITION

A constructed barrier to livestock, wildlife, or people.

PURPOSES

This practice may be applied as part of a conservation management system to facilitate the application of conservation practices that treat the soil, water, air, plant, animal, and human resource concerns in order to:

- Implement a prescribed grazing plan
- Provide better distribution of grazing animals
- Protect grazing animals from hazardous areas such as wetlands, streams and other water bodies, poisonous plants, sinkholes, and roads
- Protect areas such as new seedlings and plantings from grazing animals
- Regulate access to areas by predators
- Reduce erosion and water quality degradation through improved distribution of grazing animals

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any area requiring control or exclusion of livestock, wildlife, predators, or people. (May need fence to protect from natural barriers.)

CRITERIA

GENERAL CRITERIA

Fencing materials shall be of a quality and durability that meets the intended management objectives. Construction shall be performed in a manner that meets the intended management objectives. Wire and hardware will be new, galvanized material.

The landowner shall obtain all required permits prior to construction or any land clearing activity.

All fences shall consist of acceptable fencing designs to meet the intended purpose and life of the practice.

Height, size, spacing, and type of posts will be used that best provides the needs for the style of fence required.

Manufacturer's guidelines shall be adhered to during installation of each type of fence to ensure proper component assembly.

All fence construction shall comply with federal, state, and local fencing codes.

ADDITIONAL CRITERIA TO IMPROVE GRAZING MANAGEMENT

Improve resource management by locating fences to separate areas with differences in forage seasons of growth and palatability, use, topography, or production potential.

Pasture/paddock divisions shall be consistent with grazing needs as projected by a grazing plan

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

developed under Virginia Conservation Practice Standard *Prescribed Grazing, (Code 528A)*. Locate fences to allow livestock access to water and handling facilities.

CONSIDERATIONS

Any permanent fencing for grazing livestock should allow flexibility to facilitate implementation of the prescribed grazing plan and permit land management activities such as nutrient application, pest control, forage harvest, and other appropriate practices.

Safety is a primary concern. Wire that is over-stretched may break and recoil. Eye and hand protection should be worn. Follow all manufacturers' safety precautions for handling and installing fencing materials. Place warning signs on electric fences every 150 to 200 feet.

Wire should be attached on the side of posts that will receive the greatest pressure from animals.

Locate fences to facilitate maintenance. When possible, avoid irregular terrain, water crossings, and narrow corners. Where applicable, clear right of ways should be established and maintained to facilitate fence construction and maintenance.

Consider installing fences at least eight feet from wooded areas to allow for ease of maintenance.

When possible, install fences across slopes to improve grazing distribution, rainfall infiltration, and reduce soil erosion.

Locate fences to facilitate livestock management, handling, watering, and feeding.

Consider the movement needs of wildlife when locating fences. Fence wire height may require adjustments to repel predators or avoid entanglement.

PLANS AND SPECIFICATIONS

NON-ELECTRIC STANDARD WOVEN, BARBED WIRE, AND HIGH TENSILE SMOOTH WIRE FOR PERMANENT INSTALLATION

Wire

Fences will be constructed of at least four wires barbed, or at least six wires smooth, or at least five horizontal wires woven plus at least one wire either barbed or electrified smooth. Total height to the top wire of the fence is to be not less than 46 inches. Barbed wire shall be double strand 15 1/2 gauge or larger and smooth wire shall be 12 1/2 gauge or equivalent in strength. Woven wire shall be at least 39 inches high, have 11 gauge or larger top and bottom strands, 14 1/2 gauge or larger intermediate and stay wires, with stay wires spaced not more than nine inches on center. All wire shall be new galvanized or aluminum coated material.

In flood plain zones where the primary purpose of the fence is exclusion, woven wire is not recommended. Barbed wire is more subject to flood damage than smooth high tensile fence.

Staples

Staples shall be 9 gauge and a minimum of 1 1/2 inches long for softwood and a minimum of 1 inch long for hard wood such as locust. They shall be driven diagonally across the wood grain to avoid splitting. For high tensile fencing material, the staples shall not be driven into the post so deeply (including line, corner, gate, and brace posts) that the wire will not move when tightened or with expansion and contraction.

Line Posts

Wooden

Untreated posts of such species as cedar, locust or Osage Orange, or non-durable wood properly treated with a wood preservative may be used. Wood preservative should meet industry standard for "ground contact".

Steel

Standard "T" or "U" section steel posts may be used in lieu of wooden line posts. Wire shall be attached to the posts by wrapping with 12 1/2 to 14 gauge galvanized wire or by use of the manufacturer's specially designed clips. In rolling terrain, steel posts shall not be used exclusively as line posts. Every third or fourth post shall be wood.

Spacing

Line posts will be spaced at a maximum interval of one rod (16.5 feet) apart. For non-electrical high tensile fencing, the maximum spacing may be 30 feet with use of intervening spacers or batten.

Size

The length of posts must be a minimum of 6 1/2 feet and sufficient to provide for the construction of at least a 46 inch high fence, permit stapling of the top wire without splitting, and to allow the post to be set in the ground to a minimum depth of two feet in deep soils or 18 inches in rocky soils. The top diameter of wooden posts will be a minimum of 3 1/2 inches. When set in depressions or low places, posts should be anchored as shown in Figure 1.

Corner, Gate, and Brace Posts

Wooden

Untreated posts of such species as cedar, locust or Osage Orange, or non-durable wood properly treated with a wood preservative may be used. Wood preservative should meet industry standard for "ground contact".

Size

Length must be a minimum of eight feet and sufficient to provide for the construction of at least a 46 inch high fence AND permit setting the post at least 42 inches in the ground. Top diameter shall be at least 6 inches for corner and gateposts. Brace posts shall be no less than 5 inches at top diameter.

Bracing

Brace Assemblies

Bracing (two and three post brace assemblies and pull post assemblies) is required at all corners, gates, and at all definite horizontal or vertical angles in the fence. Braces shall be constructed as shown in Figures 2, 3, and 4.

When only brace assemblies are used (no intervening pull post assembly), a 2 post brace assembly (Figure 2) may be used if a stretch of fence (woven or non-high tensile) is 20 rods (330 feet) or less or a stretch of non-electrical high tensile is 40 rods (660 feet) or less. Stretches longer than these require an intervening pull post assembly as shown in Figure 3.

Three post brace assemblies (Figure 4) shall be no more than 40 rods (660 feet) apart for a stretch of fence (woven or non-high tensile) or no more than 80 rods (1,320 feet) apart for non-electric high tensile.

When a stretch of fence exceeds the above distances, a pull post assembly as shown in Figure 3 will be installed in the fence line at intervals not to exceed 40 rods (660 feet) for woven or non-high tensile wire or not to exceed 80 rods (1,320 feet) for non-electric high tensile wire.

The above distances for all fencing shall be reduced on rough terrain.

Brace and/or pull post assemblies shall be installed at sharp breaks in grade or at turns.

The brace wire shall be tightened to secure the brace and pull post assemblies. If a wide stream or gully is to be crossed, the fence section will be terminated on one bank with a brace assembly and a new section started on the other bank. A floodgate or water gap will be installed across the stream or gully to restrain livestock and constructed so as to minimize debris buildup and prevent structural damage to the line fence on either side during flooding events.

Brace Rails

Brace rails (horizontal brace) shall be either 2 inch diameter by 10 foot long galvanized steel tubing, or a 4 inch by 4 inch square eight foot long timber, or a 3 1/2 inch minimum diameter eight foot long round post or pole. Horizontal braces will be attached to posts using galvanized steel rods.

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NON-ELECTRIC FENCE FOR EXCLUSION FROM AREAS SUBJECT TO FLOODING

High Tensile Non-Electric – Exclusion

For horses and foals, six strands of high tensile non-electrified wire will be used. Spacing above the ground is 10", 20", 30", 40", 50", and 60".

THREE OR FOUR STRAND BARBED WIRE FENCES - EXCLUSION

For beef and dairy cattle and cow and calves, at least three strands barbed wire spaced 10"- 17", 20"-27", and 32"-38" above the ground will be used.

For sheep and goats, four strands barbed wire spaced 10", 20", 30", and 40" above the ground will be used.

Barbed wire will not be approved for use with horses.

Dimensions and quality of all materials, fence heights, and fence construction techniques shall be in accordance with the requirements set forth for barbed wire and woven wire fences, except as noted in the following items.

Wire

Wire must be at least three strands of new 15 1/2 gauge or greater double strand barbed wire or equivalent strength.

Posts

Corner and Gate Posts

Corner and gateposts shall be at least 5 inches in top diameter and at least eight feet long. Posts shall be set 42 inches deep.

Bracing

A two post brace assembly (as shown in Figure 2) will be used and placed as for non- electric fence. Brace posts shall be a minimum of 5 inches top diameter and at least eight feet long. Posts shall be set 42 inches deep.

Brace rails (horizontal) shall be either 2 inch diameter by ten foot long galvanized steel, or 4 inch by 4 inch square eight feet long, or a 3 1/2 inch minimum diameter eight foot long round post or pole.

Line Posts

A sufficient number of line posts must be used to maintain alignment and ensure a good fence. Wood posts must have a minimum 3 1/2 inch top diameter and be a minimum of six feet long and be of the same materials as for standard barbed and woven fences. Steel posts may also be used but every third or fourth post has to be wood.

HIGH TENSILE ELECTRIC FENCE

Wire

Wire shall be 12 1/2 gauge high tensile galvanized wire, not less than 900 pounds breaking strength.

Tension

Tension shall be at 200 to 250 pounds for each strand. Tension will be set with in-line wire strainers and tension indicator springs.

Tension Springs

Tension springs shall be used in the top one or two strands in areas where the fence is near trees or where animal pressure will be heavy, and may be used for all strands.

Strand Spacing for Interior Grazing Distribution (Non-Critical Confinement)

One Strand - 28 to 34 inches above the ground. One strand is recommended for interior use with mature cattle and horses only.

Two Strands - one wire at 17 to 22 inches and the second wire at 32 to 38 inches above ground for interior use with cows and calves and horses and foals.

Three Strands - wires at 10 to 17, 20 to 27, and 32 to 38 inches above ground for interior use with hard to hold cattle.

Strand Spacing for Boundary or Line Fence

Five Strands - wires at 10, 20, 30, 40, and 50 inches above the ground for boundary or line fence for sheep, lambs, and cattle. When predators are a concern, add a wire below the 10-inch wire. First and second wires up from the ground may or may not be electrified, depending upon conditions.

Strand Spacing for Exclusion in Areas Subject to Flooding

Beef and dairy cattle, cows and calves – at least 2 strands spacing 17"-22" and 32"-38" above the ground.

Horses and foals – at least 2 strands spaced 24" and 48" above the ground.

Sheep and goats – at least 3 strands spaced 10"-12", 20"-24", and 30"-36" above the ground.

Fastening

Wrap and twist or use crimping sleeves on end and gate panels. At self-insulating corner posts, wrap and twist a separate wire to form an 18 to 20 inch loop to support fence strands (Figures 5a and 5b) or a wrap around insulator may be used.

Wire clips used to hold wire in batten slots should allow the wire to slide freely (Figures 5a and 5b).

Electrical Fence Charger

The electric fence charger shall be a low impedance (0.0003 seconds or less pulse length), high voltage type charger. Capacity of charger shall be adequate to effectively electrify the system.

Insulators

If needed, these shall be UV stabilized (plastic) high density polypropylene Type W or Type S, high strain end and corner, tube insulator, or high strain porcelain corner Type O. Insulators must be strong enough to support long spans of wire and must allow the wire to slide freely (Figures 5a and 5b). Insulators must be used on all posts that are not self-insulating.

Ground Wires

Consider a fence earth return (alternating "live" and ground wires) for use in drought prone areas or in sandy soils.

Posts

Corner Posts and Gate Posts

Corner and gateposts shall be 4" x 4" x 8' long, sawed hardwood, or a minimum 5" diameter x 8 foot long round pressure treated softwood, or equivalent. Set posts three feet deep in the ground.

Line Posts

Line posts may be 2" x 1 1/2" x 6' long slotted, sawed hardwood or 3" diameter, 6 foot long round pressure treated softwood, or equivalent. Set posts 18 to 20 inches deep and space up to 150 feet apart (on smooth, level terrain only).

Installation of hold-downs is recommended in depressions (see Figure 1). Standard "T" or "U" steel posts may be used as line posts if the fence is 2 strands or less.

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Spacing between battens will be 35 feet maximum for five strands and 50 feet maximum for two and three strands. Use four foot (minimum height) posts (wood or steel) instead of battens for a one-strand fence.

All small diameter wooden posts shall be of pressure treated material.

Battens

Battens may be 1 1/4" x 1 1/4" x 3 1/2 feet long self insulating pressure treated, slotted hardwood or light duty fiberglass. Hold-downs are recommended in depressions (see Figure 6). Standard "T" or "U" steel posts with appropriate insulators may be used in place of battens.

Anchor Stakes for Battens

Anchor stakes shall be 2" x 2" x 18" long pressure treated wood installed as shown in Figure 6.

Guy Wire

Guy wire shall be 12 1/2 gauge, or stronger, high tensile wire.

Braces

Brace posts shall be a minimum of 5" top diameter and at least 8' long. Set posts at least 36" deep.

A two post brace shall be used for pulls up to 1,320 feet for three strands or less of high tensile electric fence. See Figure 2 for brace assembly specifications.

A three post brace shall be used for pulls up to 1,650 feet for three or less strands of high tensile electric fence. See Figure 4 for brace assembly specifications.

For small angles (no less than 120° inside angle) alternative bracing may be used (see Figures 7a and 7b).

Brace Rail (horizontal)

For turns less than 120° inside angle, brace rails shall be 2" diameter x 10' long galvanized steel pipe, or 4" square, 8' long timber, or a 3 1/2 inch minimum diameter 8' long round post or pole.

ELECTROPLASTIC TWINE (POLYWIRE) AND ELECTRIFIED RIBBON FENCING

Electrified twine and/or ribbon type fencing may be used as interior (cross) fencing to divide large pasture acreage into manageable units, to divide the paddocks of intensive grazing systems, or similar applications. Electrified twine (polywire) or ribbon type fencing shall not be used as perimeter or line fences or in applications where permanent livestock exclusion is involved.

Wire

New materials free of manufacturing or other defects will be used.

Spacing

One strand - place wire 28 to 34 inches above the ground.

Two strands - place wires at 17 to 22 inches and 32 to 38 inches above the ground.

Three strands - place wires 10 to 17, 20 to 27, and 32 to 38 inches above ground.

Insulators

When required for proper operation, the fence will be insulated from line and end posts using supplies provided by the manufacturer of the fence material.

Electric Fence Charger

The charger shall be a low impedance (0.0003 seconds or less pulse length) high voltage type and powerful enough to properly charge the entire fence.

PostsEnd Posts

When end posts are needed at each end of a cross fence, they may be untreated wood (cedar, locusts) or pressure treated softwood, or equivalent, with a top diameter sufficient to anchor the wire. Posts must be long enough to allow them to be set at least 18" in the ground.

Line Posts

Posts in a line of cross fence may be manufactured fiberglass, 48" long, or equivalent, set deep enough in the ground to withstand livestock.

Spacing

Line posts will be installed on a spacing necessary to control livestock. Closer spacing will be used as topographic conditions indicate.

WOODEN BOARD FENCE**Posts**

Untreated posts will be such species as black locust or red cedar. Pressure treated pine, or other wood of equal life and strength, are acceptable. Line posts will have a minimum top diameter of 3 inches and be of sufficient length to support the height of the fence and be firmly set or driven in the ground a minimum of 2 feet. Corner, gate end, and brace posts will have a minimum top diameter of 5 inches and be of sufficient length to support the height of the fence and be firmly set or driven in the ground a minimum depth of 3 feet.

Post Spacing

Posts shall be spaced a maximum of 8 feet apart to accommodate rail lengths of a maximum of 16 feet.

Rails

Unless painting is selected, lumber shall be treated with creosote or comparable preservative. If painting is desired, lumber shall be treated with an anti-fungal agent or a waterborne preservative

such as acid copper chromate or chromated zinc chloride.

The rails (horizontal boards) shall be a minimum of 1" x 6" (nominal) x at least 8' long.

A wooden board fence shall have a minimum of 3 and a maximum of 4 boards. The boards shall be spaced on 16-inch centers with the top board approximately 48 inches above the ground for a 3-board fence and 64 inches above the ground for 4 board fences. The bottom board shall be approximately 16 inches above ground level.

Each board shall be attached to each post with two 16d galvanized or cadmium nails.

DOCUMENTATION AND VARIATIONS

The completed work is to be checked and documented to verify that the practice is complete according to NRCS standards and specifications. Supporting data for documentation included those features of this practice that can be measured and observed such as:

- length of fence installed
- type of fence and materials installed
- signature of the performance checker

Variations from the above materials and installation specifications may be approved by the responsible technician provided it is determined that such variation would result in an installation that would equal or exceed a fence installed according to this specification.

Such variations will be recorded with the reasons why it will result in an installation that will meet or exceed one installed in accordance with the specifications.

Any fencing construction or equipment not covered in this specification must be reviewed and approved prior to use by the appropriate engineer. Tables 1, 2, and 3 summarize the information in this section.

OPERATION AND MAINTENANCE

Constructed fences should be inspected periodically (at least annually) for structural integrity. Fences located near trees should be

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inspected after severe weather. Needed maintenance should be performed in a timely manner. Worn or otherwise damaged sections should be repaired.

Encroachment of weeds, brush, and trees along fences should be controlled by mechanical or chemical methods to prevent them from damaging or otherwise impacting the life and function of the fence.

Insulators, chargers, and other components of electrified fences should be inspected frequently (and after lightning storms) for proper function. Worn, damaged, or otherwise nonfunctional components should be replaced.

Electric fences constructed in areas with human traffic should be clearly labeled or otherwise identified. Check all codes and follow them.

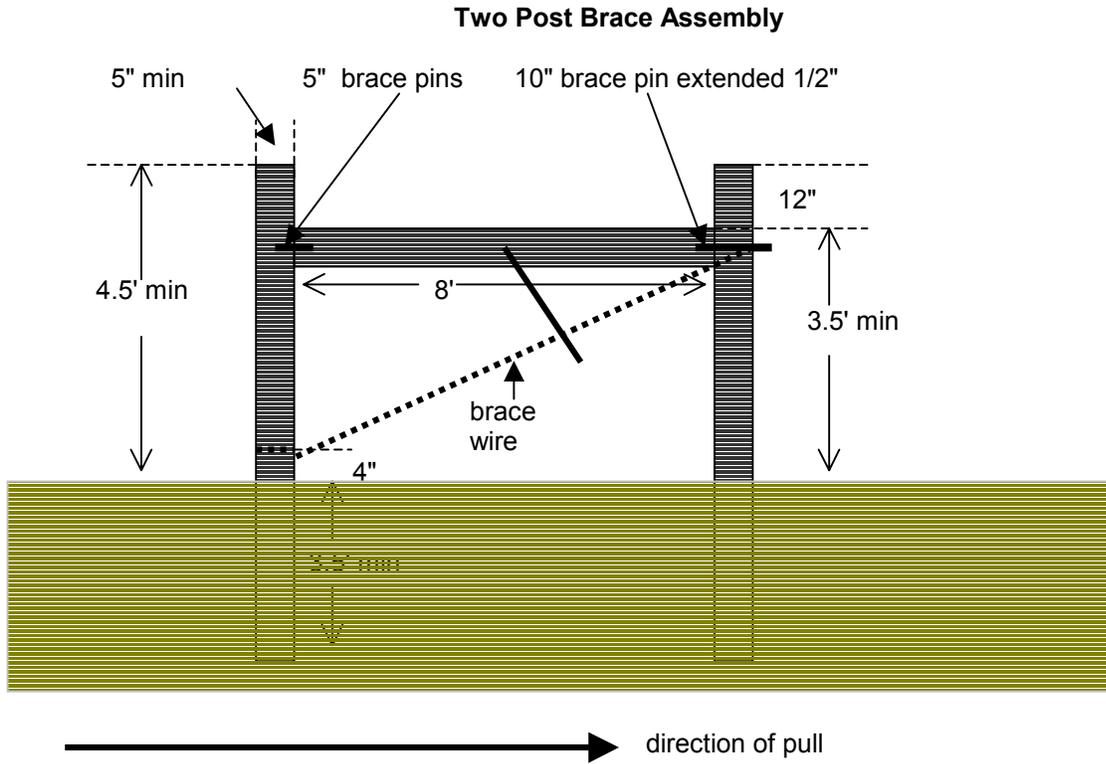
Fences in areas that flood require inspection after each storm event.

8. DARE High Tensile Fence System; Battle Creek, MI. 1997.
9. Mueller, J. Paul, J. T. Green, Jr., Fencing Fundamentals for Controlled Grazing Systems, NCSU Extension Publication.
10. Stafix Electric Fencing Manual, Kencove Farm Fence, 1998.
11. NRCS, Virginia Field Office Technical Guide.

REFERENCES

1. Sears, William J.; High Tensile Wire Fencing - Design, Construction, and Use; ASAE Summer Meeting, paper no. 87-4085, ASAE, Baltimore, MD. 1987.
2. Max - Fence Systems; MFB, West Virginia Fence Corporation, Lindside, WV. 1984.
3. Turner, L. W., C. W. Absher, and J. K. Evans; Planning Fencing Systems for Intensive Grazing Management; University of Kentucky, College of Agriculture, Cooperative Extension Service, Lexington, KY. 1986.
4. Planning Fences; American Association for Vocational Instructional Materials, 220 Smithonia Road, Winterville, GA. 30683-9527, revised 1997.
5. Building Fences; American Association for Instructional Materials, 220 Smithonia Road, Winterville, GA. 30683-9527, 1974.
6. Beef Housing and Equipment Handbook, Midwest Plan Service, Iowa State University, Ames, IA.
7. High Tensile Wire Fencing; Cooperative Extension Northeast Regional Agricultural Engineering Service, NRAES - 11, September, 1987.

Figure 2.



Note: one direction pull only

Use two post brace assembly for the following applications.

For pulls of:

- less than 330' for woven or barb wire
- less than 660' for 4 or more strands of high tensile (electric or non-electric)
- less than 1320' for 3 strands or less high tensile electric

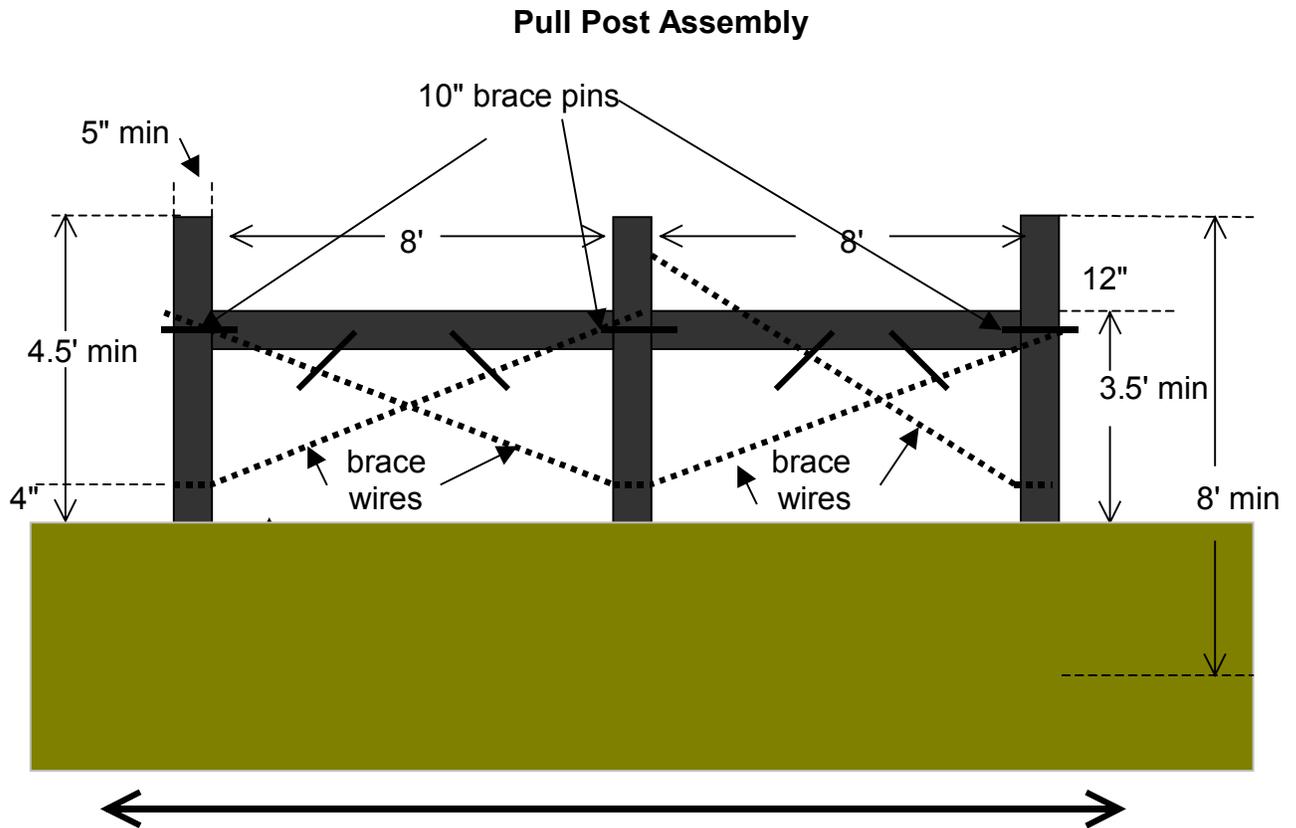
Posts: 5" minimum top diameter
 8' length
 36" deep for electric high tensile; 42" deep for all other uses

Brace Rail: 2" minimum diameter x 10' long galvanized steel pipe or
 4"x4" x 8' long timber or
 3.5" minimum diameter x 8' long post or pole

Brace Wire: 2 strands 9 gauge or 4 strands 12.5 gauge smooth high tensile wire

Brace Pins: galvanized 3/8" diameter steel rod, 10" and 5" long

Figure 3.



Note: direction of pull in both directions

Use pull post assembly for stretches of fence that exceed the maximum for the other braces. Install in the fence at intervals not to exceed 40 rods (660') for woven or non high tensile wire or not to exceed 80 rods (1320') for high tensile wire.

Posts: 5" minimum top diameter
8' length
36" deep for electric high tensile; 42" deep for all others

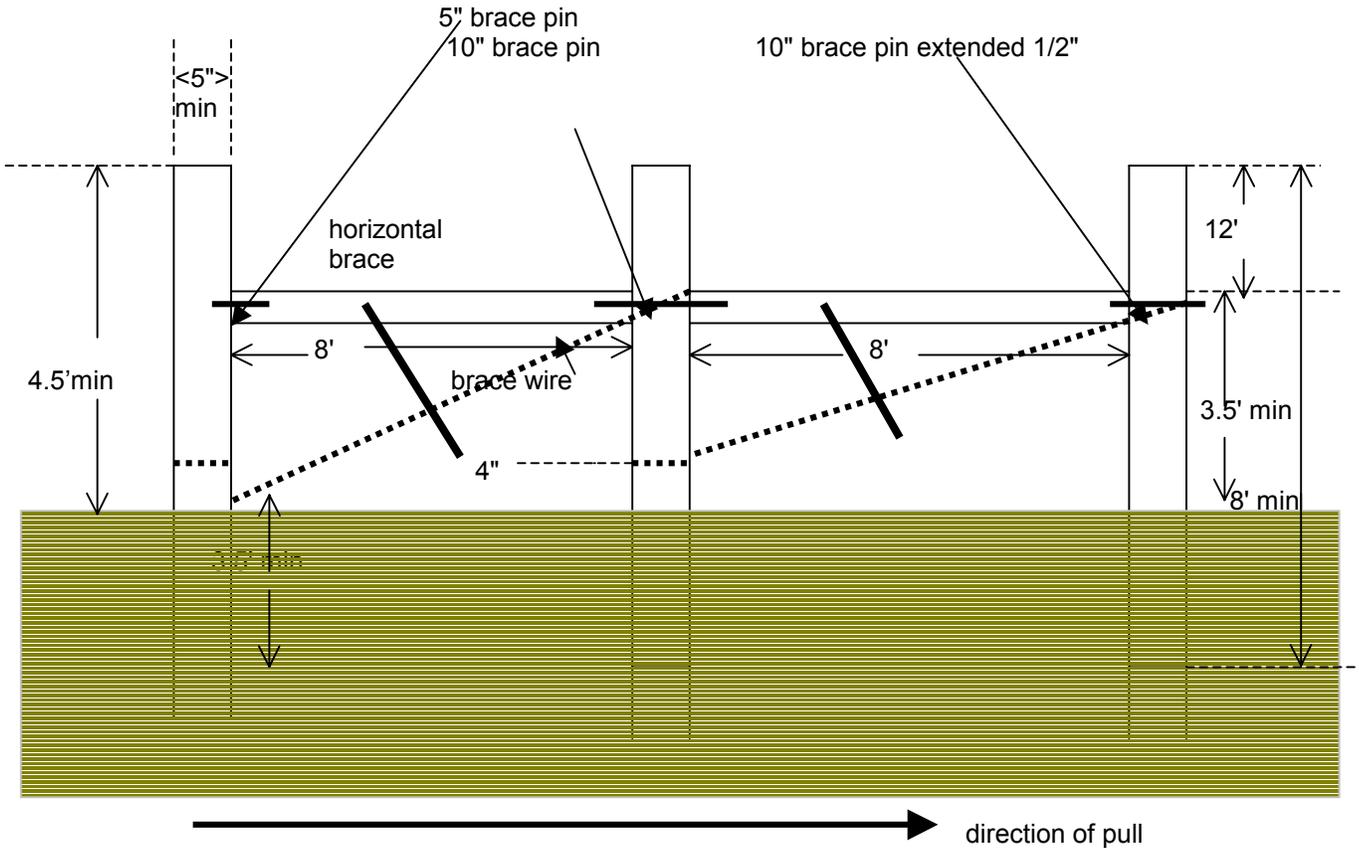
Brace Rail: 2" minimum diameter x 10' long galvanized steel pipe or
4"x4" x 8' long timber or
3.5" minimum diameter x 8' long post or pole

Brace Wire: 2 strands 9 gauge or 4 strands 12.5 gauge smooth high tensile wire

Brace Pins: galvanized 3/8" diameter steel rod, 10" long

Figure 4.

Three Post Brace Assembly



NOTE: one direction pull only

Use a three post brace assembly for the following applications

For pulls of:

- over 330' to 660' for woven wire or non high tensile
- over 660' to 1320' for 4 or more strands of high tensile (electric or nonelectric)
- 1320' to 1650' for 3 strands or less high tensile electric

Pulls longer than the above categories require an intervening pull post assembly (see figure 3)

Posts: 5" minimum top diameter
8' length
36" deep for electric high tensile; 42" deep all other

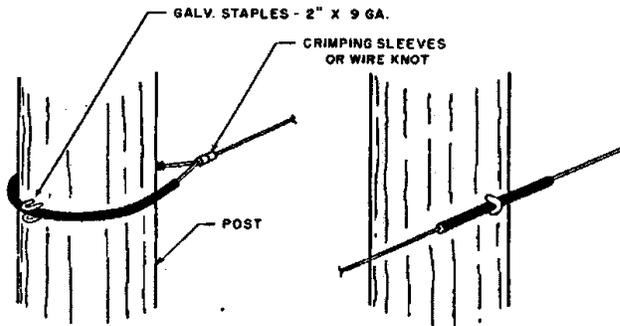
Brace Rail: 2" minimum diameter x 10' long galvanized steel or
4" x 4", 8' long timber or
3.5" minimum diameter, 8' long pole or post

Brace Wire: 2 strands of 9 gauge or 4 strands of 12.5 gauge smooth high tensile wire

Brace Pins: galvanized 3/8" diameter steel rod, 10" and 5" long

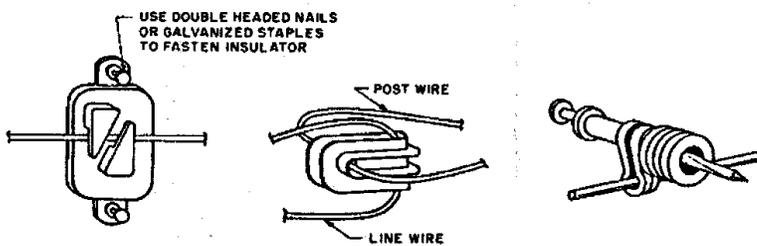
Figure 5a.

Insulators and fasteners.



wrap around insulator

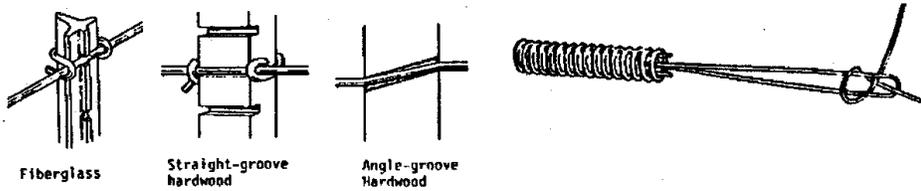
tube insulator



wood post insulator

corner and end insulator

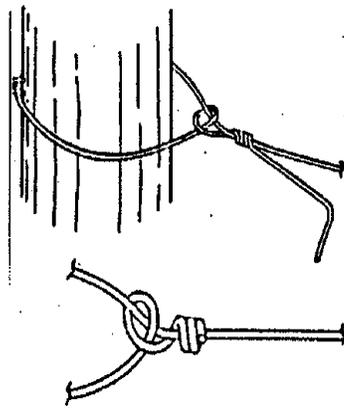
nail insulator



batten and post clip attachments

spring tie knot

Figure 5b



end post slip knot

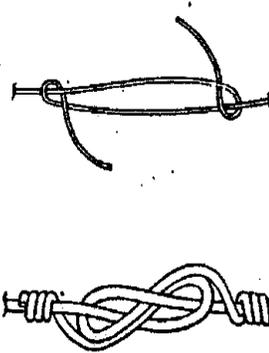
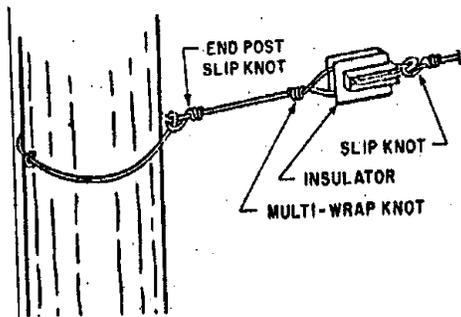
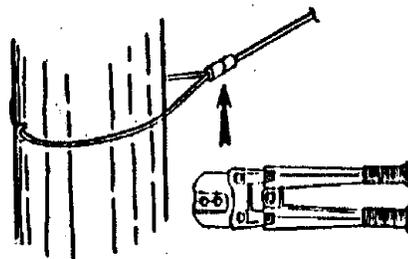


figure "8" splicing knot



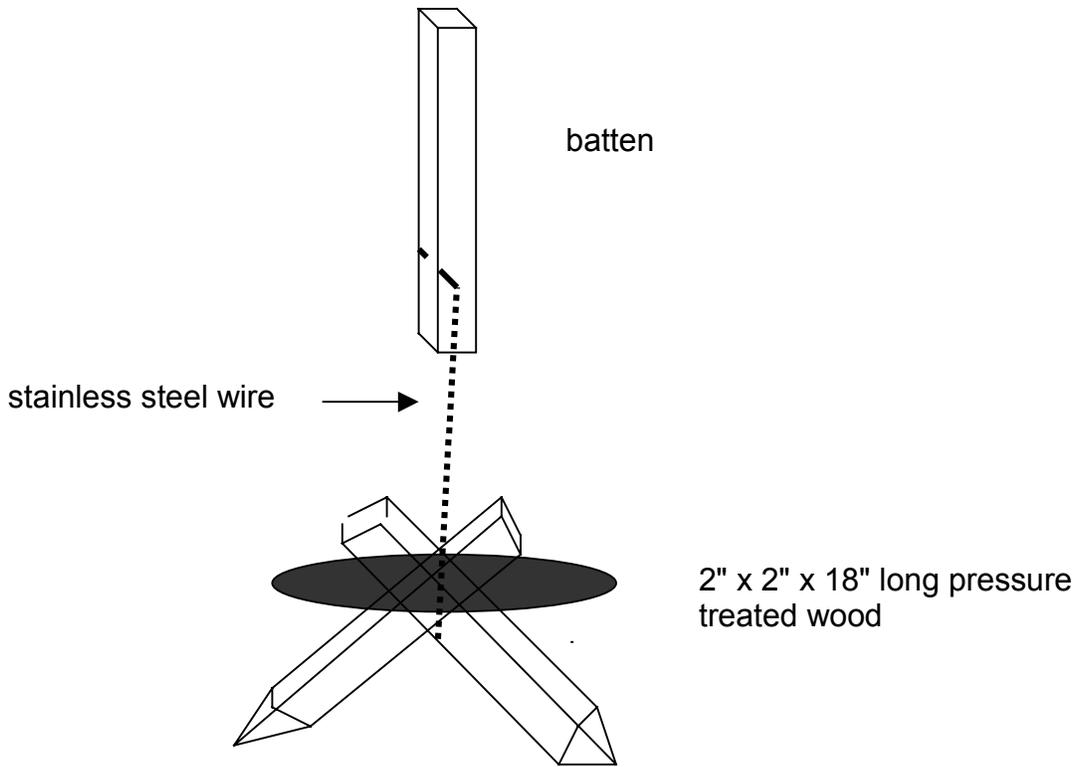
corner or end insulator hookup



crimping sleeves

Figure 6.

Anchor to hold battens down in low spots

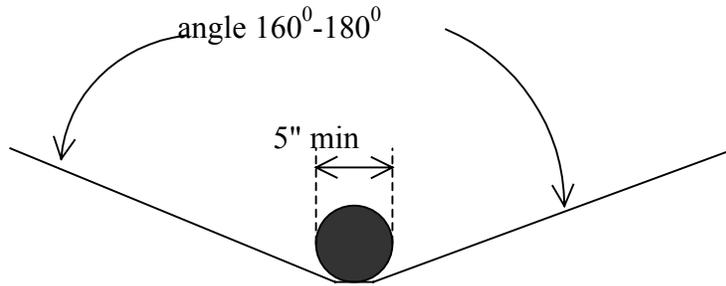


Frost heaving may occur in some areas

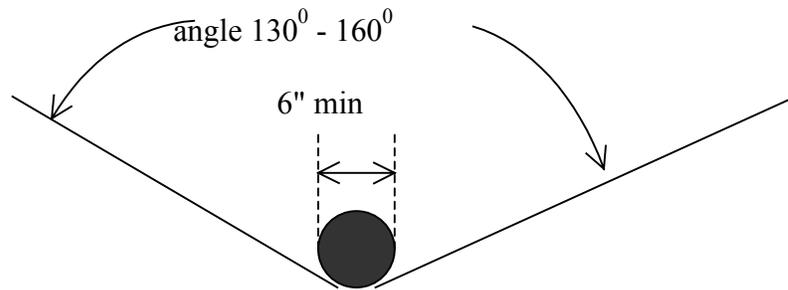
Figure 7a.

Bend Assemblies

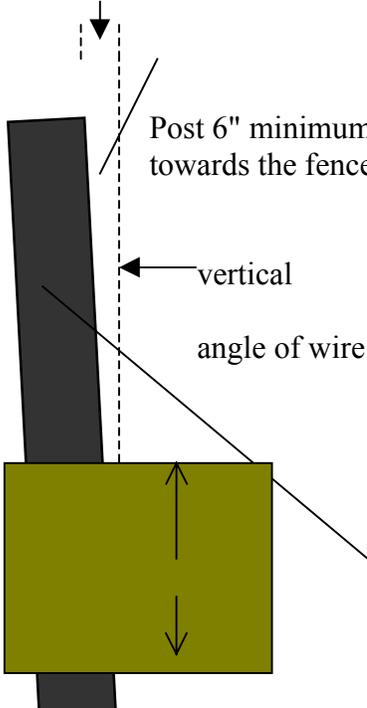
Top View



Post - 5" minimum top diameter, 8' long
Set 42" deep
Any number of strands
angle of wire must be the same on each side



2" lean into fence



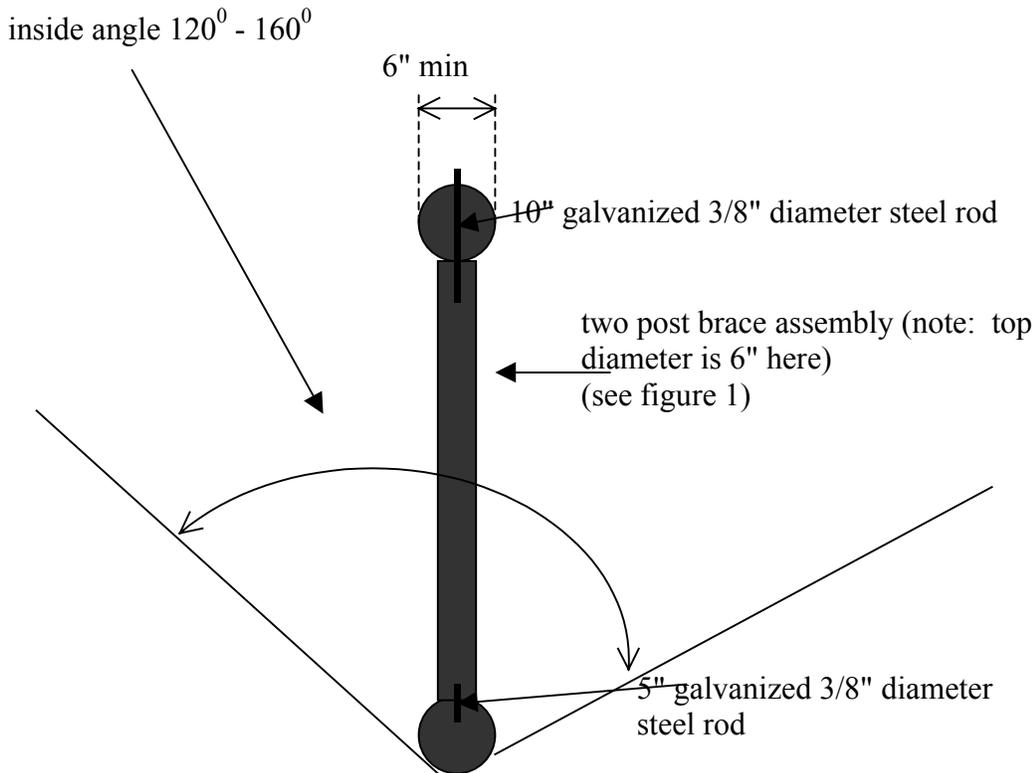
Post 6" minimum top diameter, 8' long, set 42" feet deep with a 2" lean towards the fence.

vertical

for 3 strands or less only

angle of wire must be the same on each side

Figure 7b. Bend Assemblies



For 3 or more strands

Note: Inside angles less than 120° will require two or three post brace assembly (see figures 1 and 2)

Posts - 6" minimum top diameter, 8' long, set 42" feet deep

Table 1. Fencing Information By Type Of Fence

Type of Fence	Materials	Quality	Number of Strands	Minimum Height	Line Posts *	Line Post Spacing	Wooden Line Post Size
Non-electric	Barbed Wire	double strand 15 1/2 gauge or larger	4	46"	untreated cedar, locust, osage orange or non-durable wood treated with a wood preservative or standard "T" or "U" section steel posts with 12 1/2 - 14 gauge or manufacturer's specially designated clip	maximum of 16 1/2 feet	at least 6 1/2 feet with a top diameter of at least 3 1/2 "
	High Tensile Smooth Wire	12 1/2 gauge with at least 900 lbs breaking strength	6	46"	same as above	maximum of 30 feet with intervening spacers or battens	at least 6 1/2 feet with a top diameter of at least 3 1/2"
	Woven Wire	at least 39" high, 11 gauge or larger top and bottom strands, 14 1/2 gauge or larger intermediate and stay wires with stay wires spaced not more than 9" on center		39" woven wire with room for at least one wire at top (barbed or electric)	same as above	maximum of 16 1/2 feet	same as above
	Barbed Wire exclusion only	double strand 15 1/2 gauge or larger	3	46"	same as above	maintain alignment and ensure a good fence	with a top diameter of 3 1/2 inches
Wooden Board Fence	seasoned wood to prevent warping	rails - 1" x 6" nominal x 8'	3 to 4 rails	48" - 3 rails 64" - 4 rails animals	untreated black locust, cedar treated non durable wood	8' appropriate insulators	minimum top diameter of 3" and long enough to support the height of the fence and be firmly set at a depth of at least 2 feet
Electric	High Tensile Fence	12 1/2 gauge galvanized smooth wire with at least 900 lbs breaking strength	1 to 5 depending on use and animals	28 to 50 inches depending on use and animals	slotted sawed hardwood or untreated cedar, locust, or osage orange or pressure treated posts with insulators	up to 150 feet on smooth, level terrain only with battens or spacers or steel posts with appropriate insulators	6 feet long with at least a 3" diameter

* In rolling terrain, steel posts shall NOT be used exclusively as the line posts. Every third or fourth post shall be wood.

Table 2. Brace and Pull Post Assemblies Table

Fence Type	Interval 2 post horizontal brace	Interval 3 post horizontal brace		Interval pull post assembly	Posts	Post size	Brace
woven or barbed wire	20 rods (330') or less	20 - 40 rods (330' - 660')	if pull exceeds interval, then insert pull post assembly	40 rods (660') or less	untreated cedar, locust, osage orange or properly treated non durable wood	at least 8' length with at least 5" top diameter set at 36" depth for electric high tensile; 42" for all other	galvanized steel pipe, 2" diameter and 10' length or 4" x 4" x 8' square timber or 3 1/2" diameter x 8' length post or round pole
high tensile 4 or more strands electric or non electric	40 rods (660') or less	40 - 80 rods (660' - 1,320')	if pull exceeds interval, then insert pull post assembly	80 rods (1,320') or less	↓	↓	
high tensile 3 or less strands electric	80 rods (1,320') or less	80 - 100 rods (1,320' - 1,650')	if pull exceeds interval, then insert pull post assembly	100 rods (1,650') or less	↓	↓	↓

Table 3. Exclusion Fencing in Flood Plain Areas by Type of Livestock

Type of Livestock	High Tensile Electric *	Barbed Wire (not electrified)	High Tensile non electric
Beef and Dairy Cattle Cows and Calves	at least 2 strands spaced 17"-22" and 32"-38" above the ground	at least 3 strands spaced 10"-17", 20"-27", and 32"-38" above the ground	
Horses and Foals	at least 2 strands spaced 24" and 48" above the ground	not recommended	6 strands spaced 10", 20", 30", 40", 50", and 60" above the ground
Sheep and Goats	at least 3 strands spaced 10"-12", 20"-24", and 30"-36" above the ground	4 strands spaced 10", 20", 30", and 40" above the ground	

* Electrified fences require timely maintenance especially when solar chargers are used.

NOTE: Barbed wire is more subject to flood damage than an equivalent number strands of smooth high tensile.

The more strands of smooth high tensile, the greater the possibility of flood damage to the fence.

**NATURAL RESOURCES CONSERVATION SERVICE
VIRGINIA CONSERVATION PRACTICE STANDARD**

FENCE

Approved Practice Narrative

(Acre)

(CODE 382)

382 D1 Fence: Fence will be installed as indicated on the plan map and built according to the specifications provided by NRCS.

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