

# FENCE

## PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 382



### FENCE

A fence is a constructed barrier to livestock, wildlife, or people.

### PRACTICE INFORMATION

This practice may be applied to any area where livestock and /or wildlife control is needed, or where access to people is to be regulated.

A wide variety of types of fencing has developed. However, fencing material and construction quality is always designed and installed to assure the fence will meet the intended purpose and longevity requirements of the project.

The standard fence is constructed of either barbed or smooth wire suspended by posts with support structures. Other types include woven wire for small animals, electric fence as a cost efficient alternative, and suspension fences which are designed with heavy but widely

spaced posts and support structures. Designs for most types of fences are available at the local NRCS field office.

Things to consider when planning a fence include the following:

1. For ease of maintenance purposes avoid as much irregular terrain as possible.
2. Wildlife movement needs should be considered.
3. State and local laws may apply to boundary fences.
4. Consider livestock handling, watering and feeding requirements when locating fences
5. Consider soil erosion potential and feasibility of fence construction when planning fences on steep or irregular terrain.

Additional information including designs and construction specifications are available in the local NRCS Field Office Technical Guide.



**7. SPECIAL PROVISIONS**

**8. SUPPORTING DRAWINGS**

LSK-0001	Staples and Wire Attachment
LSK-0012	3 Strand Standard Post and Wire Fence
LSK-0011	5 Strand Standard Post and Wire Fence
LSK-0010	4 Strand Standard Post and Wire Fence
LSK-0250	Wire Fence Braces – Brace Construction
LSK-0251	Wire Fence Braces – 1 Span End, 2 Span End, Gate Brace
LSK-0252	Wire Fence Braces – 2 Span Pull Assembly, Corner Brace
LSK-0020	Woven Wire Fence
LSK-0253	Wire Fence Braces – Rock Basket
LSK-0254	Woven Wire Fence Braces
LSK-0260	Figure-4 and Rock Jack

**9. OTHER SUPPORTING DOCUMENTATION PROVIDED**

<b>Client's Acknowledgement</b> (To be signed after Job sheet is completed and before practice installation.)	
By signing below, I acknowledge that I:	
<ul style="list-style-type: none"> <li>• have reviewed and understand the site specific design, installation specifications and operation/maintenance requirements in this Job Sheet and have an understanding of purposes and criteria for use of this conservation practice;</li> <li>• will install, operate, and maintain this conservation practice in accordance with the site specific Job Sheet.</li> <li>• will make no changes to the planned design and installation without prior written approval of the Natural Resources Conservation Service.</li> <li>• will obtain all necessary permits and/or rights, and comply with all ordinances and laws pertaining to the installation, operation, and maintenance of this conservation practice, prior to the start of installation; and</li> <li>• will assume responsibility for notifying all Utilities affected by the installation, operation and maintenance of this conservation practice.</li> </ul>	
_____ Signature	_____ Date

<b>Required Job Approval Authority or TSP Certification Category</b>			
<b>NRCS Job Approval Authority:</b> (Job Class required for design and installation). (I, II, III, IV, or V).			
<b>Design:</b>		<b>Installation:</b>	
<b>Practice Units / Description:</b>			
<b>Required Certification Categories for Technical Service Providers</b>		<b>Category for this Practice:</b>	<b>Grazing/Forages</b>

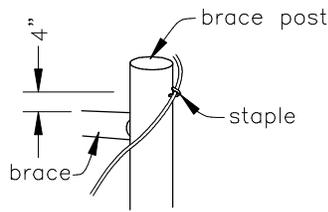
<b>Practice Design Certification:</b> (To be completed after Job Sheet is complete and before practice installation.)	
By signing below, I certify that:	
<ul style="list-style-type: none"> <li>• The conservation practice planning and design outlined in this Job Sheet Specification meet the purposes, associated criteria, appropriate site conditions and client objectives; and</li> <li>• I have the required Job Approval Authority or TSP certification required for this conservation practice design.</li> </ul>	
_____ Signature	_____ Date
_____ Print Name	_____ Title

<b>Practice Installation Certification</b> (To be completed after practice installation and check out)	
By signing below, I certify that:	
<ul style="list-style-type: none"> <li>• the practice has been installed according to the site specific installation requirements and specifications,</li> <li>• required operation and maintenance requirements are being met; and</li> <li>• I have the required Job Approval Authority or TSP Certification for this conservation practice installation</li> </ul>	
_____ Signature	_____ Date
_____ Print Name	_____ Title

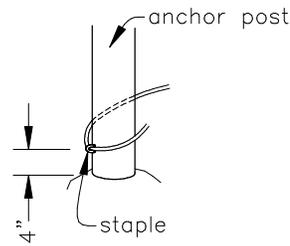
The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication program information (Braille, large print, audiotape, etc.) should contact the USDA Office of Communications (202) 720-2791.

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

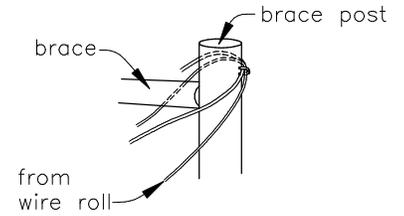
WIRE FENCE BRACES



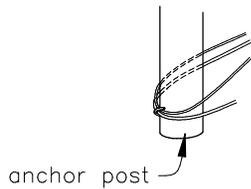
Drive staple about half its length into brace post about 4 inches above brace member on opposite side from brace.



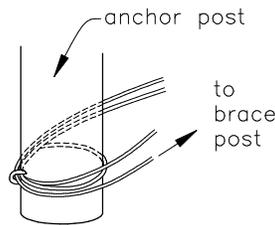
Drive staple in similar manner on anchor post about 4 inches from ground line opposite side of brace.



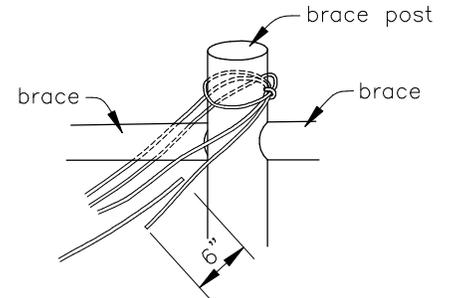
Unroll enough brace wire for two complete loops around anchor and brace post.



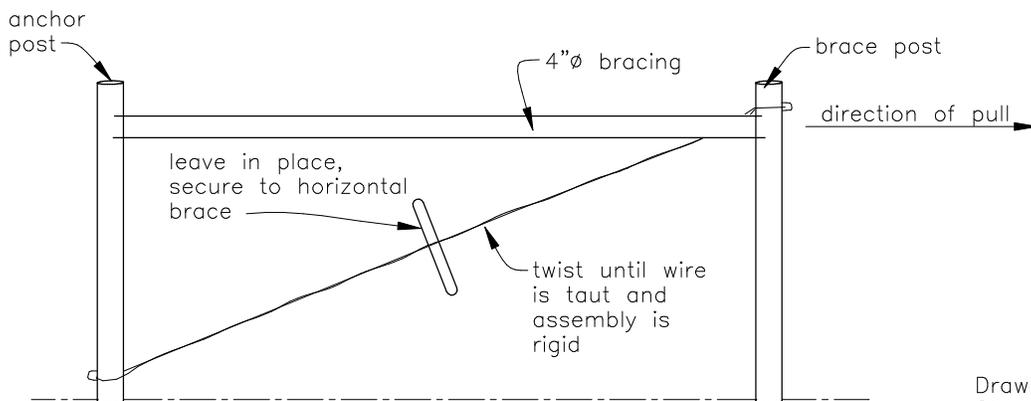
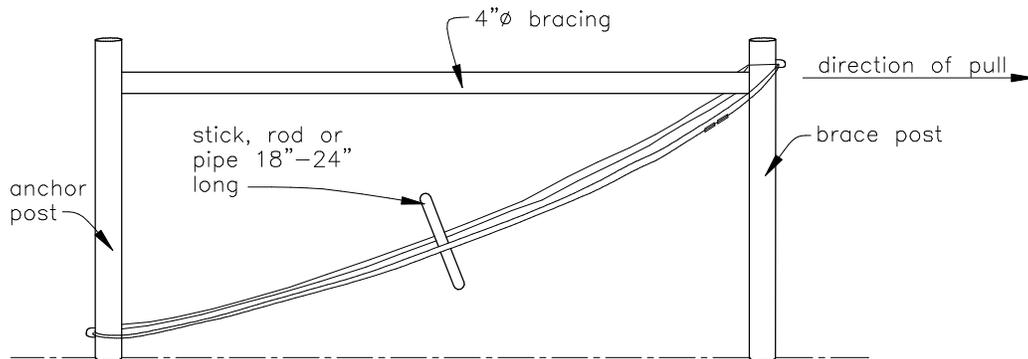
Thread end of brace wire through one staple and then through the other. Repeat to from three wire strands.



Wrap wire around anchor post and return toward brace post.



Cut brace wire from roll allowing enough wire to wrap around brace post and extend 6 to 12 inches past other wire end. Make splice.



BRACE

Drawing not to scale. Standardized drawing must be adapted to the specific site.

JOB CLASS

Date

CAD FILE NO.

Designed \_\_\_\_\_

LSK-0250.DWG

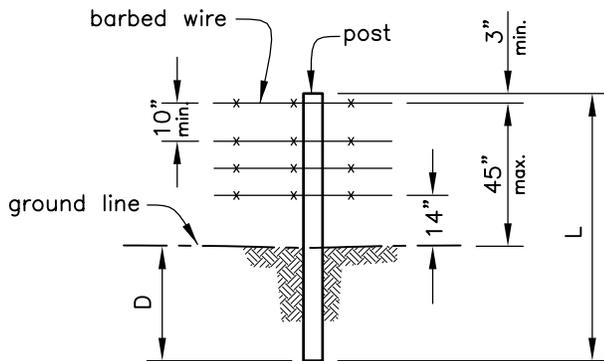
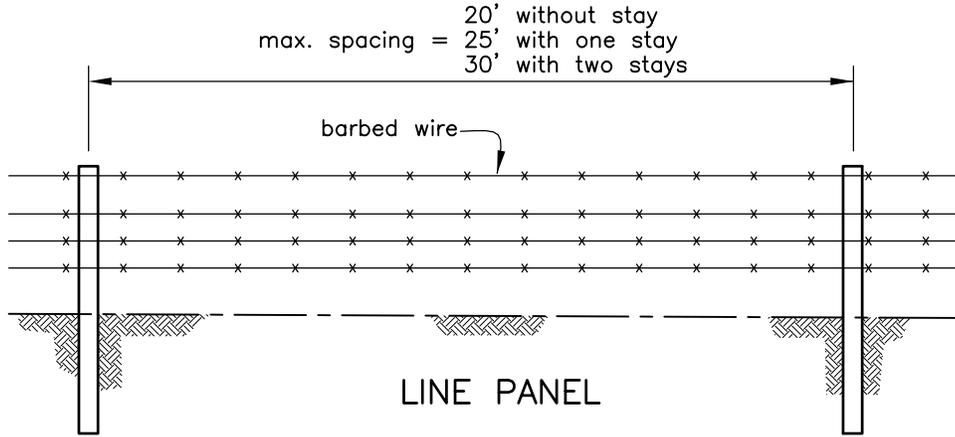
Drawn \_\_\_\_\_

SHEET OF

Checked \_\_\_\_\_

Approved \_\_\_\_\_

**4 STRAND STANDARD POST AND WIRE FENCE**



BARBED WIRE 12 1/2 gauge conventional or 15 1/2 gauge high-tension

2 twisted strands with 14 gauge or heavier two-point barbs on approx. 5 inch centers.

Class 1 (min. or equiv.) zinc-coating as per ASTM A-121.

**BARBED WIRE DETAIL**

LINE	Plastic:	L = 6 ft. min. D = 24 in. min. Dia. = 3-3/8 in. min.	Fiberglass:	L = 6 ft. min. D = 24 in. min. Dia. = 1-1/4 in. min.
	Wood:	L = 6 ft. min. D = 24 in. min. Dia. = 3 in. min.	Steel:	L = 5-1/2 ft. min. D = 18 in. min. Standard "T" or "U"; > 1.25 lbs/ft of length
CORNER OR GATE	Wood:	L = 7 ft. min. D = 3 ft. min. Dia. = 5 in. min.	Steel:	L = 7 ft. min. D = 3 ft. min. (set in conc.) Dia. = Round 2-3/8 in. O.D. or Angle iron 2-1/2 x 2-1/2 x 1/4 (in.)
	STAYS	Wood: 1-1/2 in. dia. min. of durable wood Fiberglass: Any manufactured for this purpose Wire: 9 1/2 gauge, zinc coated, twisted, manufactured for this purpose		

SPECIES for all wood: \_\_\_\_\_

SPECIAL INSTRUCTIONS

\_\_\_\_\_

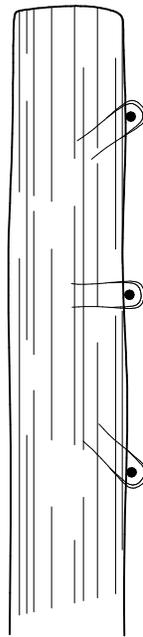
\_\_\_\_\_

\_\_\_\_\_

Drawing not to scale. Standardized drawing must be adapted to the specific site.

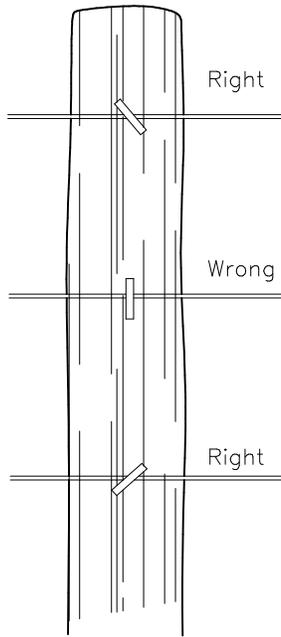
<b>U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE</b>	JOB CLASS	Date
	CAD FILE NO. LSK-0010.DWG	Designed _____
	SHEET OF	Drawn _____
		Checked _____
	Approved _____	

**STAPLES AND WIRE ATTACHMENT**

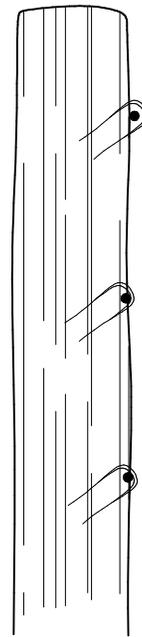


(WIRE PULL IS DOWN)

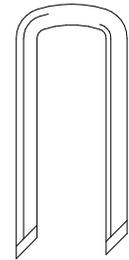
**DRIVE  
STAPLES  
AT ANGLE**



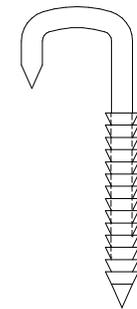
**DO NOT DRIVE  
STAPLES PARALLEL  
TO SIDE OF POST**



**LEAVE  
WIRE LOOSE  
IN STAPLE**

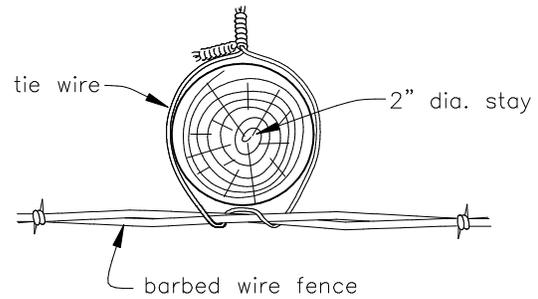
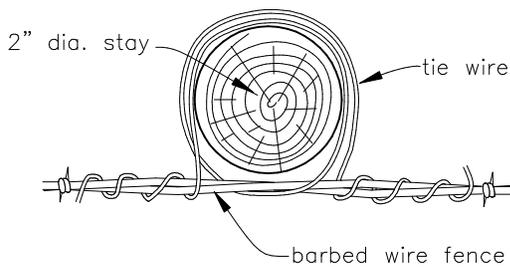


a) No. 9 gauge bright U-shaped staple, 1-3/4"

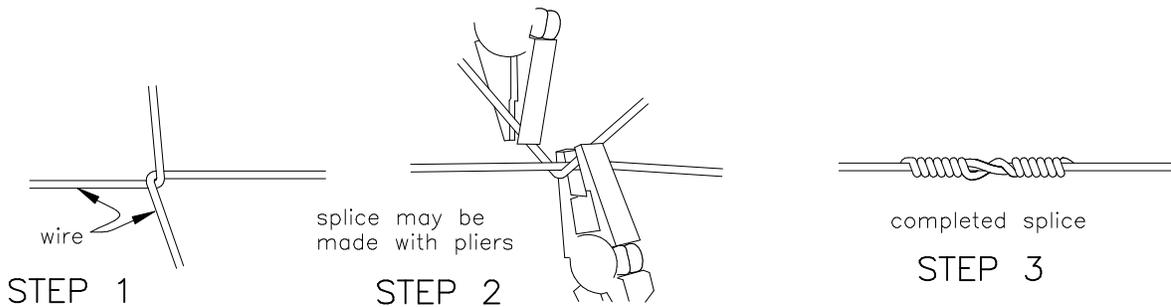


b) No. 9 gauge bright L-shaped deformed shank staple, 1-1/2"

**ATTACHMENT**



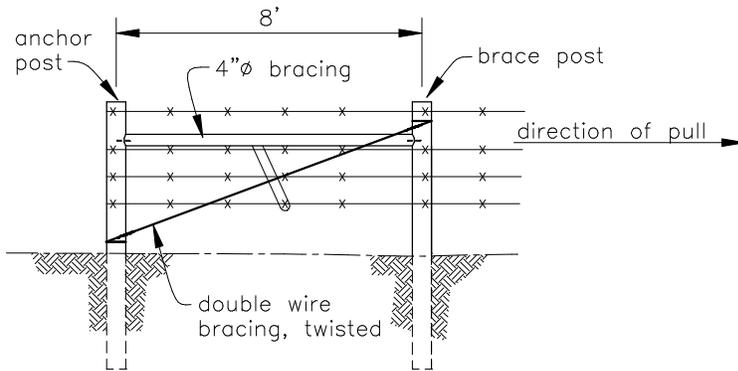
**STAPLES**



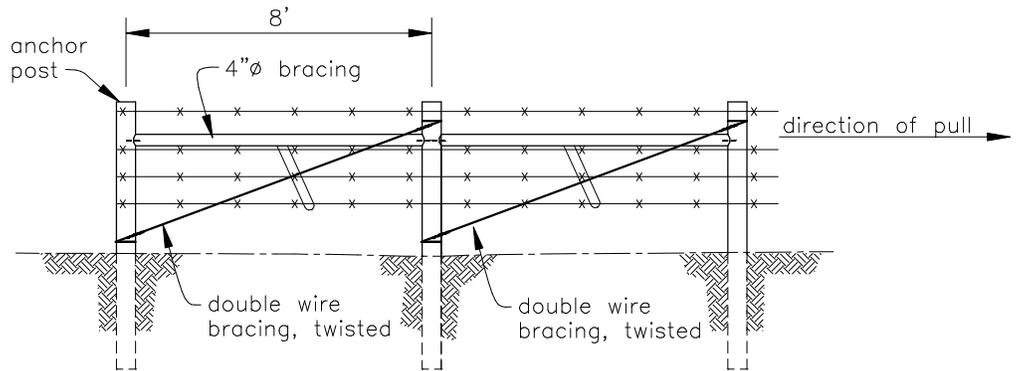
**"WESTERN UNION" SPLICE**

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE		JOB CLASS	Date
		CAD FILE NO. LSK-0001.DWG	Designed _____
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE		SHEET OF	Drawn _____
			Checked _____
			Approved _____

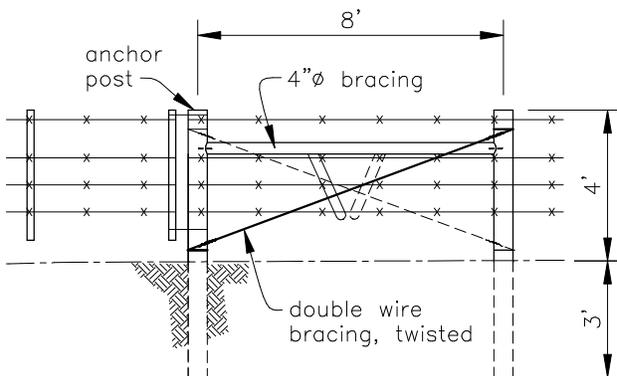
WIRE FENCE BRACES



1-SPAN END



2-SPAN END



GATE BRACE

1. Double wrap all bracing.
2. All brace posts to be 7' long, 3' embedment.
3. Dap braces into posts.
4. Spike braces to posts.

Drawing not to scale. Standardized drawing must be adapted to the specific site.

JOB CLASS	Date
CAD FILE NO. LSK-0251.DWG	Designed _____
SHEET OF	Drawn _____
	Checked _____
	Approved _____

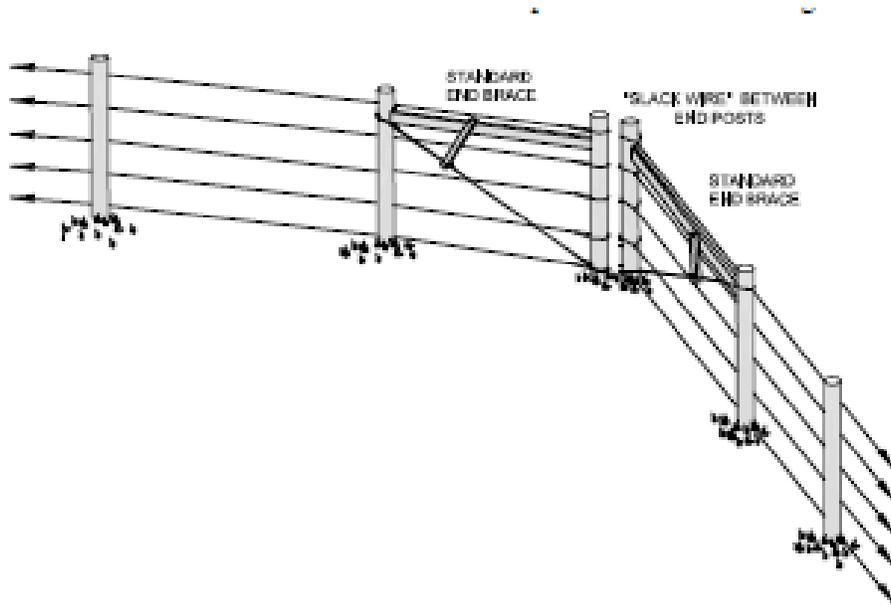
## BRACING AND ALIGNMENT

Brace posts shall not be set in muck, peat, or soils on which water stands.

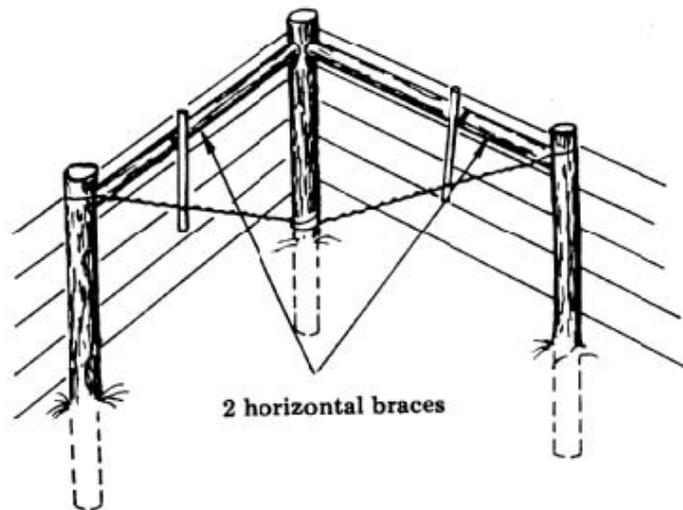
There is no maximum distance between brace spacing as long as means are available to stretch wires. A single 6-inch diameter brace post, buried 3 feet, spaced no greater than 1/4-mile apart is sufficient to stretch the wire. It is recommended not to exceed 1/2-mile between gates (braces) for ease of management.

Braces are required at all end corners, gates and definite angles of change (horizontal and vertical) greater than 5 degrees if bearing on a metal line posts, greater than 20 degrees if bearing on a sound wood post a minimum of 4 inches in diameter and embedded a minimum of 3 feet.

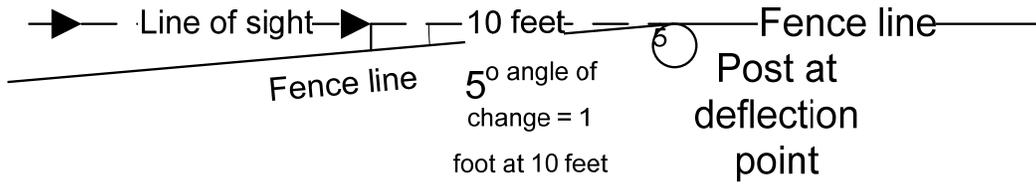
- Between 20 and 60 degrees angle of change use a 4 post brace (which is a double H that does not share a common post like the 3 post Standard H-brace) or a double diagonal floating or steel diagonal brace



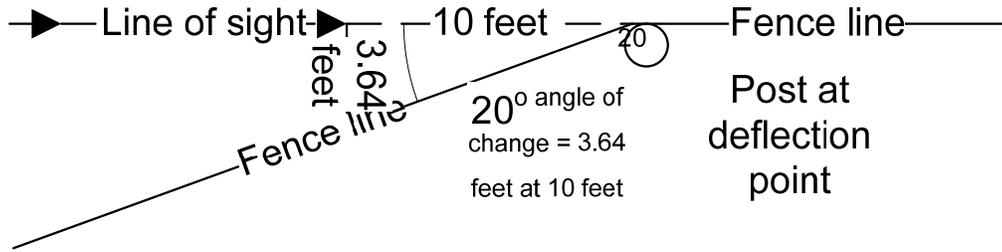
- Greater than 60 degrees angle of change a 3 post brace – horizontal (Standard H-brace) or a diagonal brace may be used



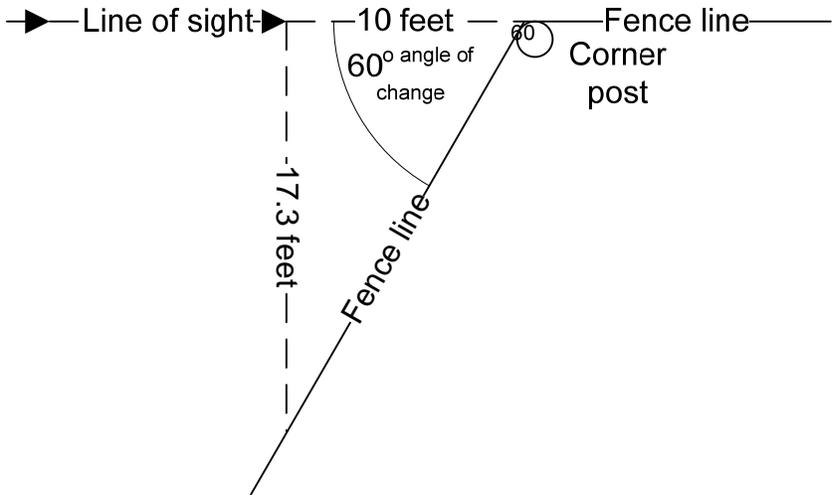
How to estimate a 5° angle



How to estimate a 20° angle

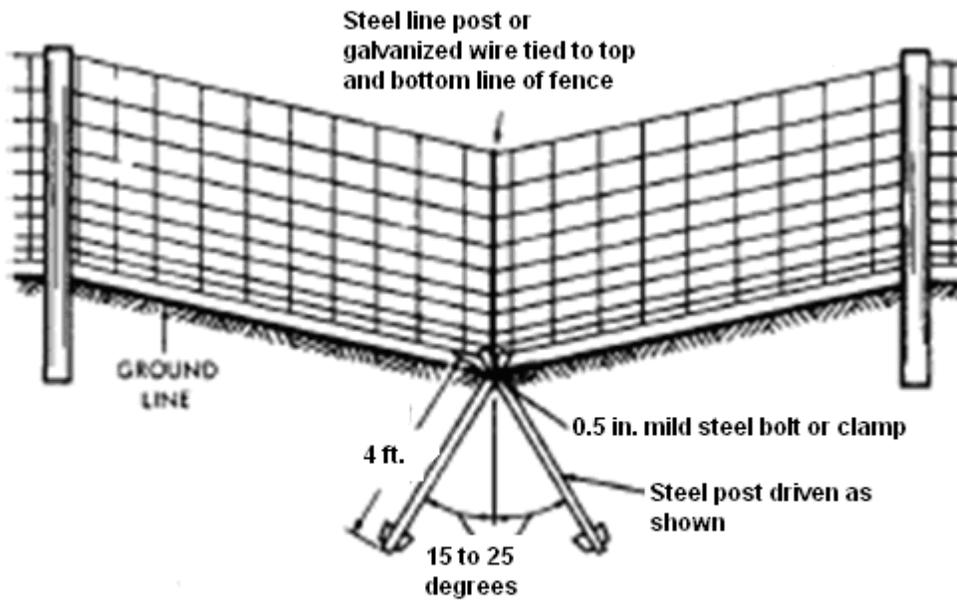


How to estimate a 60° angle



Specification WA382 (Standard Post and Wire Fence) - 10

Assembly at change in vertical alignment (dip anchor) shall anchor fencing with two steel fence posts, or equivalent, of at least 4-ft length, as shown below, where change in vertical-alignment exceeds 1 foot per 8 feet (1:8 slope) between line posts.



Assembly at change in vertical alignment

### SPLICING INSTALLATION REQUIREMENTS

#### Non-High Tensile Wire

When splicing of wire is necessary use "Western Union" splice or compression fittings.

