

**NATURAL RESOURCES CONSERVATION SERVICE
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. Typical purposes include:

- Excluding livestock or big game from areas that should be protected from grazing,
- Confining livestock or big game within an area,
- Controlling domestic livestock while permitting wildlife movement,
- Subdividing grazing land to permit use of grazing systems,
- Protecting new seeding and plantings from grazing, and
- Regulating access to areas by people, preventing trespassing or controlling for purposes of safety.

CONDITIONS WHERE THIS PRACTICE APPLIES

This practice may be applied on any area where livestock and/or wildlife control is needed, or where access to people is to be regulated. Fences are not needed where natural barriers will serve the purpose.

CRITERIA***General Criteria***

Fencing materials shall be of a high quality and durability, and the construction performed to meet the intended management objectives.

Fences shall be positioned to facilitate management requirements.

Standard or conventional (barbed or smooth wire), suspension, woven wire, or electric fences shall consist of acceptable fencing designs to control the animal(s) or people of concern and meet the intended life of the practice.

Height, number, and spacing of wires will be installed to facilitate control and management of the animal(s) and people of concern.

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

Location and construction of all fences shall comply with all local, state, and federal laws, rules, or regulations.

When the intended use of the fence is to protect people and animals from safety hazards, the fence shall be a minimum of 60 inches above grade and not allow passage of a 6 inch sphere between any fence member. All openings shall have gates that can be shut and fastened.

Fasteners:

- Staples shall be 9 gauge galvanized wire with slash cut points and have a minimum length

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of 1½ inches except 1 inch minimum will be permitted for very hard wood posts.

- Wire fasteners or clips shall be 12 gauge or heavier galvanized wire.

Grounding:

- All non-electric fence must be grounded to provide livestock protection against lightning. All strands of the fence shall be securely fastened with galvanized wire ties to grounding electrodes at intervals of not more than 150 feet for dry, rocky soil and not more than 300 feet for moist or damp soils. Fence built with metal posts set into the earth provide adequate lightning protection.
- Electrodes for grounding fences shall be driven into firm earth to a minimum of three feet. They shall be either standard galvanized steel posts or ¾ inch galvanized steel pipe. The continuity of wire fences should be broken at maximum intervals of 1000 feet through the use of insulators or other similar methods to break the flow of electrical energy.

Specific Criteria

Barbed Wire, Woven Wire or Board

Barbed Wire fence will be constructed of at least three wires, total height and number of strands shall not be less than indicated in Table 1.

The strands of a barbed wire fence shall be spaced approximately equal distances apart. The bottom wire shall be approximately 14-18 inches above the ground level. The barbed wire shall be two twisted strands of 12½ gauge or heavier wire, with 14½ gauge (or heavier) two point (or more) barbs on approximately 5-inch centers. The wire and barbs shall be galvanized.

Woven Wire fence less than 32 inches high shall have at least two barbed wires or electrified smooth wires above the woven wire. Fences with woven wire 32 inches or higher must have at least one barbed wire or electrified smooth wire above the woven wire. The top and bottom wires in the woven wire fence shall be 11 gauge or heavier,

and stay wires shall be 14 gauge or heavier. All wires shall be galvanized. The wire above the woven wire fence shall be the same as specified for Barbed Wire Fence or Conventional Electric Fence.

Table 1

Primary Use	Height (Inches)	Number of Strands
Cattle	44	3 or 4
Mix Livestock	44	3 or 4
Hogs	32	(a)
Sheep	39	4
Goats	39	4
Horses	48	(b)
Deer	94	(b)
People	48	5(c)

- (a) One strand of barbed wire below woven wire fabric
- (b) Generally not applicable
- (c) Each strand shall be installed 4, 12, 24, 36, and 48 inches off the ground respectively.

Woven Wire fence, as a minimum shall meet the gauge for top and bottom strands as specified in Table 2 and the bottom of the fence shall be 2" above the ground.

Table 2

Primary Use	Height (Inches)	Stay Spacing (inches)	Gauge (a)
Cattle	44(c)	6 or 12	11
Mix Livestock	44(c)	6 or 12	11
Hogs	32	6 (b)	9
Sheep	39	6	9
Goats	39	6	9
Horses	48	6 or 12	11
Deer	94	6 bottom & 12 top	9
People	48 (c)	6	11

- (a) Minimum gauge top and bottom strand of fabric
- (b) One strand of barbed wire below woven wire fabric
- (c) Woven wire shall be greater than 32 inches high and one strand of barbed wire shall be installed above the top strand of woven wire.

Rails for a Board Fence shall be a minimum of 1 inch by 6 inch (nominal) by at least 8 feet long. The rails shall be douglas fir, western larch, southern yellow pine, white oak , or other wood of equal life and strength. Rails shall be 0.22 pcf Chromated Coppor Sulfate (CCA) pressure treated lumber. Untreated lumber may be used if the rails are painted. Each board shall be attached to each post by two 10d common galvanized or cadmium nails. Board fences shall have a minimum of three rails spaced on 16" centers and be a minimum of 48 inches high. A 4 rail fence shall be 64" above the ground. Rails shall be installed on the side with the animals.

Posts and Braces

- Shall be constructed of wood, steel, concrete, or a combination of these. Untreated wood posts shall be of cedar or locust. All other species shall be pressure treated.
- Minimum post type, size and length shall be as shown in Table 9 for the particular fence required.
- Steel posts shall be hot dipped galvanized, with not less than two ounces per square foot of zinc coating or painted with high grade weather resistant metal paint.
- Steel line posts (1.33 lbs per foot) shall be studded or punched T, U, or Y shaped with anchor plates or acceptable alternative based on manufacture's recommendation.

Spacing and Installation Depth Maximum spacing shall be as follows:

- Line posts shall be no more than 16 ½ feet apart, unless wire stays are used between line posts. Then the maximum spacing can be increased to 20 feet.
- Brace posts shall be 660 feet apart on the level, closer on steep, irregular land.
- Brace posts on corners shall not be less than 8 feet from the corner.

Minimum post lengths shall be sufficient to support the height of fence and be firmly set or driven in the ground to meet depth requirements as shown in Table 9.

Bend Assemblies– Fencing shall be placed on outside of curve. Curve or contour fence shall have maximum post spacing shown in Table 3.

Curvature shall be measured using at least three stakes, spaced 14 feet apart along the fence line. A string is stretched between the first and third stakes, and the curvature measurement (in inches) is the perpendicular distance from the string to the second stake.

Posts shall lean outward from the curve approximately 2 inches at the top.

Table 3

Fence Curvature (Inches)	Post Spacing (Feet)
4 or less	14
5 – 6	12
7 – 8	10
9 – 14	8
15 – 20	7

Brace Assemblies– Bracing shall be required at all corners, gates, ends and all deflection angles of 15 degrees or more in the fence line. Pull post assemblies (brace assemblies) will be installed in a straight fence section at intervals of no more than 660 feet or at any point where the vertical grade changes in excess of 18 percent.

A single brace assembly will be used for typical barbed and woven wire fences. Double brace assemblies will be used for high tensile fences with greater than 6 wires.

The horizontal brace shall be located at the center of the top one-half of the brace post and the post being anchored. A tension member composed of two complete loops of 9 gage smooth wire shall extend from a point 4 inches down from the top of the brace post to near the ground level of the post being anchored. The two loops of 9 gage wire shall be twisted to secure the brace and provide needed rigidity.

As an alternative to a horizontal brace, a diagonal brace may be used where the diagonal brace is notched and nailed into the corner post, approximately 9 inches from the tip of the post with the other end of the diagonal brace notched and nailed into the brace post near the ground level. The two complete loops of 9 gage wire shall extend from the top of the brace post to near

ground level of the post being anchored and twisted as before with the horizontal brace.

Two loops of barbed wire (gauge as specified earlier) may be substituted for the 9 gauge smooth wire.

Non-Electric High Tensile Wire Fence

High Tensile Wire (HTW) fences will be constructed of at least five wires with the total height of the fence not less than 46 inches (50" for horses). See Table 4 for height and spacing requirements.

Table 4

Primary Use	Height (inches)	Wire Spacing (inches) (a)
Livestock (b)	46	4-4-4-4-5-5-5-5-5-5
Feedlot (c)	52	10-4-4-4-5-5-5-5-5-5
Cattle (d)	46	4-5-5-5-6-6-7-8
Cattle (e)	46	14-8-8-8-8
People (f)	46	4-5-5-5-6-6-7-8
Sheep	36	4-5-5-6-8-8

- (a) Wire spacing starting at ground
- (b) Multiple types of animals
- (c) Feedlot, working pens, corrals, etc.
- (d) Cattle with young stock
- (e) Cattle without young stock & interior fences
- (f) Shall be used around Ag. Waste Storage Facilities and other high hazard areas.

Wire will be new smooth and meet or exceed the following:

- Tensile Strength – Minimum 100,000 psi
- Rust proofing or galvanizing – Type III or equivalent
- Minimum gauge – 14

Tension – shall be 150 to 250 lbs on each wire. Apply tension with an in-line stretcher and install an in-line strainer to maintain the tension. Install a tension spring on each wire to absorb the shock of animal impact with the fence.

Posts: All brace, corner and gate posts will be black locust, red or white cedar, pressure treated softwood, or other wood of equal life and strength. Line posts may also include standard fiberglass or steel “T” or “U” posts. Size and setting depth shall be as shown in Table 9.

Post Spacing: The maximum spacing between primary line posts is dictated by the topographic features of the land and whether battens or spacers are used. See Table 5.

Table 5

No. of Wires	Max Spacing (ft)		Max. Spacer Dist. (ft)
	w/spacers	w/o spacers	
6	100	33	33
8	66	33	33
10	30	10 -16	10

Fastening: At corner and gate braces wrap and twist wire or use crimping sleeves or wire anchors through posts for maximum strength.

Staple wires to post but do not drive staples tight. Angle staple to prevent splitting the post.

Angle notched posts do not need staples. Wire clips will be used to fasten wire to straight notched and fiberglass posts.

Brace Assemblies: A double brace assembly will be used for gate and end posts where five or more strands of wire are used. The following are minimum guidelines:

- Double brace posts and rail size, length and setting depth shall follow recommendations in Table 9.
- Brace post pins – 3/8 inch by 9 inch and 3/8 inch by 4 inch galvanized steel rods.
- Brace Wire – 12½ gauge high-tensile wire, two loops twisted with 1½ inch by 2 inch by 2 feet twist stick.

High tensile fences require special provisions for holding posts in depressions – otherwise posts will be pulled from the ground. The use of one or more “deadmen” per post may be required, or longer posts will have to be driven deeper and at a closer spacing on both sides of the depression.

Installation: Normal fencing construction techniques shall be followed, and the fence shall be constructed in a workmanlike manner.

Modification: The above criteria are provided for guidelines. Modifications to the above shall be based on Manufacturer's recommendations.

Electric High Tensile Fence

Perimeter fences will be constructed with a minimum of 2 wires and should meet or exceed the number of wires specified in the table 6 for the kind of livestock to be constrained. The minimum height of the top wire should not be less than 34 inches (50 inches for horses).

Wire will be (Type III) new, smooth zinc or aluminum coated for long life. The wire will be high tensile (100,000 psi) strength with a minimum gage of 14.

Interior Fences – Inside or subdivision fences may be constructed using electrified polywire, polytape, flexinet, or steel wire and moveable or permanent post and spacer combinations. One, two or three wires may be utilized depending on the needs of the grazing system. At least one wire must be electrified.

Table 6

Fence Description	No. Wires Electrified	Wire Spacing from Ground (in.)
2 Strand Cow/Calf	2	14-20 and 34-38
5 Strand Sheep/Goats	3	7, 13, 20, 28, and 38
7 Strand Horse/Bulls	3	12, 18, 24, 30, 36, 42, and 50

Sufficient tension is needed to assure proper suspension and maintain stability. Gates should be appropriate for the specific designed fencing system, based on the manufacturer's recommendations.

Where streams are involved, fencing systems will be specifically developed on a farm by farm basis. Generally, single strand high tensile electric may be appropriate to minimize the physical barrier exposed to flooding, depending on the type of livestock.

Posts – All posts shall be either pressure treated wood, or cedar or locust – or other suitable material based on manufacturer's recommendation.

All corner, brace or gate posts shall follow recommendations in Table 9.

See Table 7 for maximum spacing between primary line posts.

Table 7

Wires	Max. Line Post Spacing (ft)		Max. Spacers(ft)
	W/Spacers	W/O Spacers	
2	150	75	75
5	150	50	50
7	66	33	33

Battens shall be:

- Designed based on recommendations in Table 9.
- Maximum spacing between battens and line post will be such that wire spacing will be maintained.
- Hold downs may be needed in depressions.

Brace assembly – A double brace assembly will be required for gates, ends, and corners when greater than 5 strand of wire are used. A single brace assembly may be used with 5 or fewer strands of wire.

Brace post pins shall be .375 by 4 inches and .375 by 9 inch galvanized steel rods. Brace wires shall be 14 gage high-tensile wire, double wrapped. Brace wire twist sticks shall be hardwood and be a minimum of 1½ inch by 2 inch by 2 feet in length.

Anchoring Post or battens in Depressions

High tensile fences require special provisions for holding posts in depressions, otherwise posts will

be pulled from the ground. The use of one or more "deadmen" per post may be required, or longer posts will have to be driven deeper and at a closer spacing on both sides of the depression.

Fastening and Insulators – Use preformed corner insulator hangers, crimping sleeves or approved knots for corner and end posts. Use clips or equivalent on self insulating post and battens. Select posts of dry hardwood and pressure treated hardwood may be used without additional insulators. Insulators must be used if posts are pressure treated softwood, salt treated hardwood, cedar or locust. Insulators will be high density, molded black plastic ultra violet light resistant (polypropylene) type S, type double U and H tube, nail types. Insulators must be strong enough to support long spans of wire and must allow the wire to slide freely.

Energizers – Low impedance, high voltage electric energizers or power fence controllers must be adequate to maintain output for controlling the type of livestock, based on manufacturer's recommendations. They must be UL approved or equivalent.

Fence energizers may be solar, 120 volt, or battery powered and must be installed as per the manufacturer's recommendations. Chargers shall be grounded and protected from lightening. Installation shall include safety features recommended by the manufacturer. Warning signs will be placed on the electric fence as recommended by the manufacturer.

Conventional Electric Fence

Permanent electric fence shall have a least two strands of smooth or barbed wire, with at least one wire electrified. Posts and spacing of posts are the same as for non-electric fences. Corners are to be braced with installation of brace posts as described for non-electric fences.

Fence chargers are to be used which are approved by Underwriters Laboratories (UL) or the U.S. Bureau of Standards, or other International standards with notice of approval printed on controller nameplate. Fence chargers may be powered by solar, 120 volt current or by batteries. Installation of the charger will be according to manufacturer's instructions. Homemade fence chargers are not acceptable or recommended for

use with fencing. Chargers shall be grounded and protected from lightening according to manufacturer's recommendations.

Wire for use with electric fences will be 12½ gage for barbed wire and 12 gage for smooth wire. Manufactured fence insulators are to be used to fasten electric wire to the posts. Non-electric wires do not need to be insulated by the fastening system. Wire fasteners made of 12 gage or heavier galvanized wire may be used to fasten wire to insulators.

PVC (polyvinyl chloride) Posts – PVC posts may be used with electric fence. Lengths and spacing shall be the same as for wooden posts. Installation shall be according to the warranty issued by the manufacturing firm.

Temporary Electric Fence is constructed with the intent of being left in place for only a short time period. The fence is not constructed as an equivalent of a permanent fence. Therefore, the criteria for temporary fence requires materials, design, and construction that will accomplish the intended purpose and last for the time period planned with no more maintenance than desired.

The number of wires and spacing will be designed to accomplish the desired result of the fence. See Table 8 for guidance on number of wires and spacing.

Table 8

Wires	Animal	Fence Height (in)	Spacing from ground
1	Cattle	26 to 32	26 to 32+
1	Hogs	12	12+
2	Cattle	24 to 36	18-24+/-, 24-36+
2	Cattle, sheep, Goats	20 to 30	8-10+, 20-30+
2	Hogs	18	6+, 18+
3	Cattle w/calves, Division Fences	34 to 44	11-18+/-, 23-30-, 34-44+
3	Sheep, Goats	32	10+, 20+/-, 32+
3	Cattle, Horses	46	20+, 34+/-, 46+
3	Hogs	18	6+, 12+, 18+

+ = energized wire; - = ground wire; +/- = energized or ground wire

Many companies provide portable fence systems that use such materials as polyethylene wire and tape with steel or aluminum wire woven into them, aluminum wire, plastic and fiberglass post, reels

to roll up wire, and portable battery operated energizers that are high voltage, low impedance that can produce sufficient voltage to turn livestock. A minimum of six strands of steel or aluminum wire should be woven into the poly-wire or poly-tape.

Temporary fences may be attached to permanent fences to further subdivide pastures. Follow manufacturer's directions for construction, use and operation.

Chain Link Fence

Fencing fabric shall be 4 feet, 9 gage wire woven into a 2 inch diamond shape in which the individual pickets are helically wound and interwoven to form a continuous link fabric. Galvanized, after weaving, by the hot dipping method to give a minimum of 2 ounces of zinc per square foot of wire surface evenly distributed over the entire fabric as per ASTM A392, Class II. The minimum breaking strength shall be 1290 pounds. The fabric shall be twisted top and bottom. All chain link fabric shall carry the manufacturer's tag bearing product description.

Posts – shall be manufactured and zinc coated in accordance to ASTM A120 and shall be as shown in Table 9.

Fabric shall be attached to posts and top railing by means of bands and links at a maximum spacing of 2.0 feet on center.

Gates – shall be 1.90 inch O.D. standard weight, 2.72 pound per foot with heavy malleable iron corner fittings. Gates shall be equipped with drop rods and guides, gate holdback, locking collars and center gate stops. When deemed necessary gates shall be equipped with an additional locking collar located at the top of the gate to prevent opening by small children.

Top rail, Braces, and Tension bars:

- Top rails and braces shall be designed as specified in Table 9.
- Tension bars shall securely fasten fabric to all terminal posts and shall be a minimum of ¼ inch by ¾ inch steel bar.

Post Footings – Line and terminal posts shall be set in cylindrical concrete foundations instead of with drive anchors. For concrete footings, a hole

shall be excavated for the full depth of the post as noted in Table 9 and not less than 8 inches in diameter for line posts and 10 inches in diameter for terminal posts. Gate posts shall be set in a 12 inch diameter concrete footing. The concrete shall be made in proportions of 1-3-5 using portland cement, clean sharp sand and gravel, or broken stone. Footing top shall be sloped for positive drainage away from the post and shall be smooth finished in appearance.

Installation – Fencing shall be installed on the outside of the post and framing. Fencing shall be installed to the lines, grades, and dimensions as indicated on the plans. The Chain Link Fencing fabric shall be secured to posts and rails by means of bands, and links on 24-inch centers minimum. Tie wires shall not be permitted unless spacing is reduced to 12-inch centers.

Fence Installed at Top of Concrete Wall or Curb

Embedded Post – Fence posts, for any type of fence, to be installed on the top of concrete walls or curbs shall be constructed of steel, aluminum, fiberglass, or other non-deleterious materials.

- The post shall be anchored to the top or side of the wall using anchor bolts, brackets, or other approved devices.
- Hollow posts shall have caps installed on top or other devices to prevent water accumulating inside the post, unless mounted on the side of the wall.
- Fences installed on concrete manure storage facilities will have a minimum combined height of 60 inches from ground to top wire.

The preferred option for mounting the post is on the side of the concrete wall as opposed to on top of the wall due to freeze damage issues.

Fences for Deer Enclosures:

For protection of areas up to 30 acres in size, install a 5-foot high, 6-wire vertical or slanted high tensile electric fence. For protection of areas

larger than 30 acres, install a 4-foot high, 7-wire slanted, high tensile electric fence.

For the 5-foot high, 6-wire fence, the wire spacing starting from the ground shall be 8, 8, 8, 8, 12, 12 (inches).

Completely enclose the area to be protected with fence. Install according to the requirements under High Tensile Electric Fence. The energizer shall be capable of maintaining a minimum charge of 3500 volts throughout the fence (greater than 4000 volt capacity is more effective).

The wire spacing must be maintained uniformly throughout the fence using anchored battens and posts as deer will crawl under the fence in depression areas. Maintain an open area at least 6-8 feet wide around the perimeter of the fence. The area under the fence and one foot either side should also be maintained in a vegetation free condition to prevent grounding.

All wires must be maintained charged at all times except during the winter. Since snow acts as an insulator, alternating wires should be energized starting with the first wire above the snow level. The other wires should be grounded.

CONSIDERATIONS

Consider installing fences in locations that will facilitate maintenance avoiding irregular terrain and/or water crossings.

Consider wildlife movement needs when locating fences.

Consider livestock management, handling, watering and feeding when locating fences.

Boundary fences shall comply with state laws and standards for construction.

Where applicable, clear right-of-ways will be established which will facilitate fence construction and maintenance.

Consider soil erosion potential when planning and constructing a fence on steep slopes.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for specific field sites based on the NRCS National and State Fence Standards and appropriate state or local statutes or laws.

OPERATION AND MAINTENANCE

Regular inspection of fences should be part of an on-going management program. Inspection of fences after storm events is needed to facilitate the function of the intended use of the fence.

Maintenance and repairs will be performed as needed to facilitate the intended operation of the installed fence and meet original design specifications.

Encroachment of brush and trees along fence lines should be controlled by mechanical or chemical methods to prevent damage or impact the life and function of the fence.

Table 9

Fence Type	Post Type	Size	Total Length (ft)	Embedded (ft)
Permanent: • Standard (Barbed Wire, Woven Wire, or Board)	Wood (line)	3" Diam. (treated) 1/ 4" Diam. (untreated)	6.5 (10 for Deer)	2
	Wood (corner, gate, brace, end)	5" Diam. (treated) 1/ 6" Diam. (untreated)	8.0 (See Deer Fence below)	3.0
	Wood (horizontal or diagonal bracing)	3" Diam. (treated) 1/ 3.5" Diam. (untreated)	8 to 10	---
	Wood (line or corner, gate, brace, end) <i>(Deer Fence)</i>	6" Diam. 1/	11.5	3.5
	Steel (line) 1.33 lbs/ft	"T", "U", or "Y"	5.5 to 6.0	1.5 to 2.0
	Steel (corner or gate)	2 1/2 " Diam. or 2 1/2 "x 2 1/2 " x 1/4 " L iron	8.0	3.5
	Steel (brace)	1.62" O.D. pipe or 2" x 2" x 1/4 " L iron	8 to 10	---
• High Tensile Wire – Non-Electric	Wood (line, corner, gate, brace, end, and bracing)	Same as Standard Fence		
	Steel (line, corner, gate, bracing)	Same as Standard Fence		
	Batten or Spacer (wood)	1 1/2 " x 1" x 40 to 48" notched	---	---
	Batten or Spacer (fiberglass)	3/8" Diam. x 40 to 48" notched "T"	---	---
• High Tensile Wire –Electric	Wood (corner, gate, brace, end)	5" Diam. (treated) 1/	8.0	3.5
	Wood (line)	3" Diam. (treated) 1/	6.5	2
	Wood (horizontal or diagonal bracing)	3" Diam. (treated) 1/	8 to 10	---
	Fiberglass	5/8 " Diam. notched "T"	5.5 to 6.0	1.5 to 2.0
	Other Types	Manufacturer's Recommendations	---	---
	Batten or Spacer (wood)	1 1/2 " x 1" x 40 to 48" notched	---	---
• Conventional Electric Fence	Batten or Spacer (fiberglass)	3/8" Diam. x 40 to 48" notched "T"	---	---
	Wood (line, corner, gate, brace, end, and bracing)	Same as Standard Fence		
	Fiberglass	5/8" Diam. notched "T"	5.5 to 6.0	1.5 to 2.0
• Chain Link Fence	PVC (polyvinyl chloride)	5/8" Diam. notched	5.5 to 6.0	1.5 to 2.0
	Steel (line)	1.9" O.D., 2.72 lbs/ft, T1	6.0 to 6.5	2.0' in concrete
	Steel (End and Corner)	2.375" O.D., 3.65 lbs/ft, Type 1	6.5 to 7.0	2.5 to 3.0' in concrete
	Steel (Gate) 4' - < leaf width	2.375" O.D.	6.5 to 7.0	2.5' in concrete
	4' - 10' leaf width	2.875" O.D.	7.0 to 7.5	3.0' in concrete
	10' - 18' leaf width	4.0" O.D.	7.0 to 7.5	3.0' in concrete
• Fence at top of Concrete Wall or Curb	Steel (rails)	1.66" O.D., 2.27 lbs/ft, T1	8.0 to 12.0	---
	Steel (line)	Same as Chain Link	5.0 to 5.5	0.8' in concrete
Temporary: • High Tensile Wire – Electric	Steel (end, corner, and gate)	Same as Chain Link	5.0 to 6.0	1.0' in concrete
	Steel (line)	1/2 inch Diam.	4.0 to 5.0	1.0 to 1.5
	Fiberglass	5/8" Diam. notched "T"	4.0 to 5.0	1.0 to 1.5
	PVC	5/8" Diam. notched	4.0 to 5.0	1.0 to 1.5
• Polyethylene wire or tape – Electric	Same As Above			

1/ - Minimum Diameter is measured on the smallest end of wooden posts.

Note: When manufacturer's recommendations exceed the minimum sizes and lengths noted above in the table, follow the manufacturer's guidance.