Pro-Tek
FENCING SYSTEMS

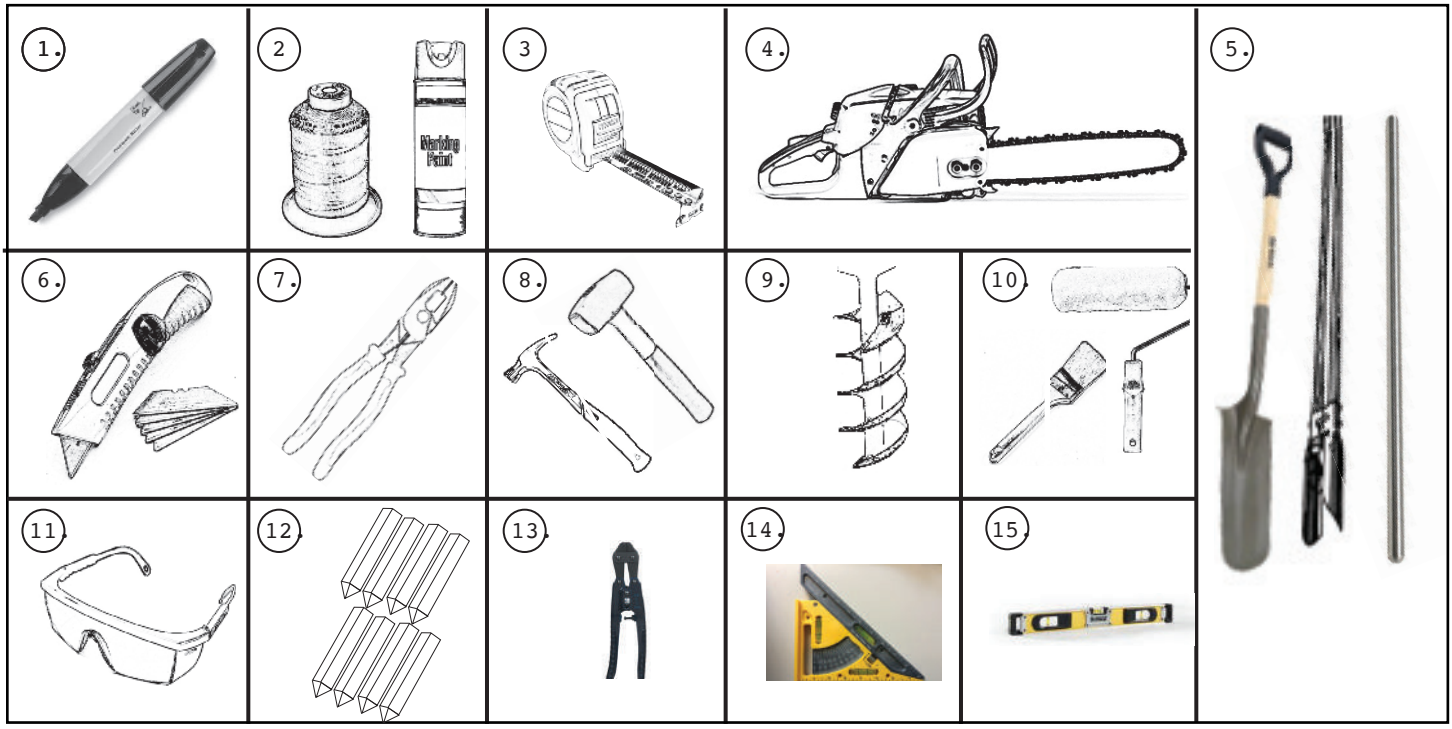
Braided Electric / Electric Rope Installation Manual

RAMM
Horse Fencing & Stalls

Trouble Shooting Hotline
1-800-878-5644

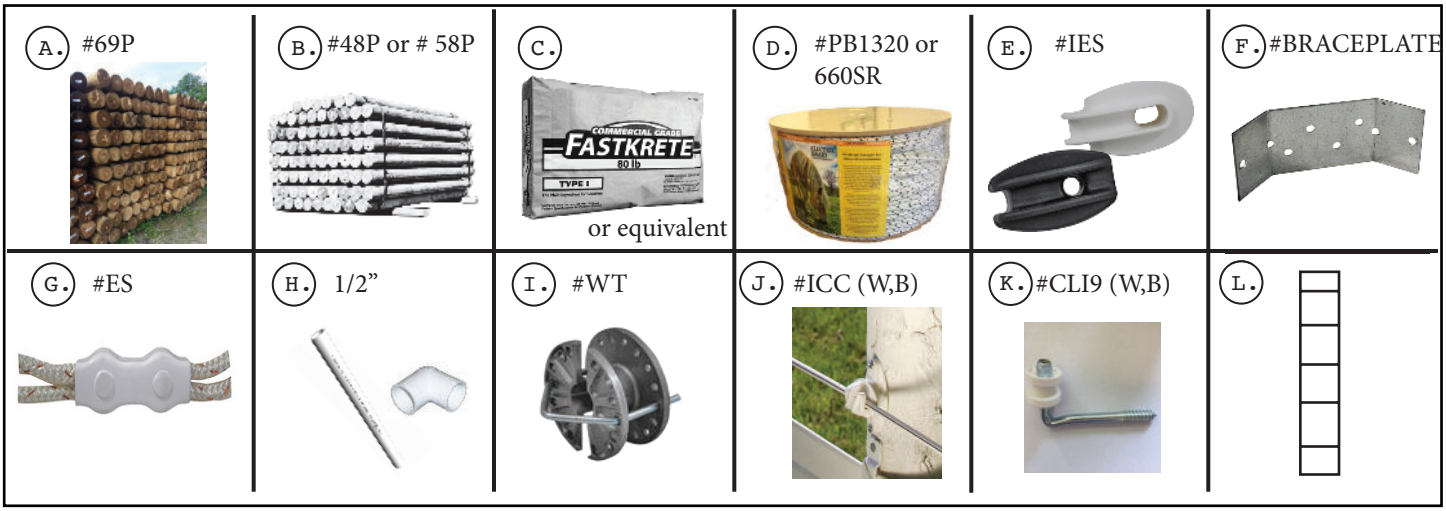
Tools, Equipment and Hardware

1. Marking Pen
2. String line and Marking Paint
3. Tape Measure-25ft Minimum
4. Chain Saw
5. Post hole digger, tamping bar and spade shovel
6. Utility knife and blades
7. Lineman Pliers (heavy duty)
8. Hammers (claw and 2lb sledge)
9. 12" auger (36"-48" as required)
10. Paint brush or roller for painting posts
11. Safety glasses
12. Stakes
13. High tensile wire cutters
14. Level



Fencing Components and Supplies

A. Corner/end posts #69P
B. Diagonal brace post #48P or #58P
C. Concrete
D. Rolls of Pro-Tek Braided Electric Fencing or Electric Rope
E. Corner/End Post Strainer #IES
F. Brace Plate #BRACEPLATE
G. Electric Rope or Braid Splice #ES
H. PVC pipe and elbows 1/2" (for Buried Electric line)
I. Wire Tightener #WT
J. Line Post High Impact Insulator #ICC (W,B)
K. Inside Corner Roller Insulator #CLI9 (W,B)
L. Homemade Template



Post Type	*Post Diameter	Length	Hole Depth (12” dia.)
Line	4”-6”	7’-8’-9’	24”-36”
Corner	6” min	8’-9’	36” or below the frost line
Gate and/or end	6” min	8’-9’	36” or below the frost line
*Diagonal Braces with Footers	4” min	7’	18” or below the frost line

Note: The post diameters are to be measured on the small end

* Or equivalent

CONCRETE FOOTER REQUIREMENTS

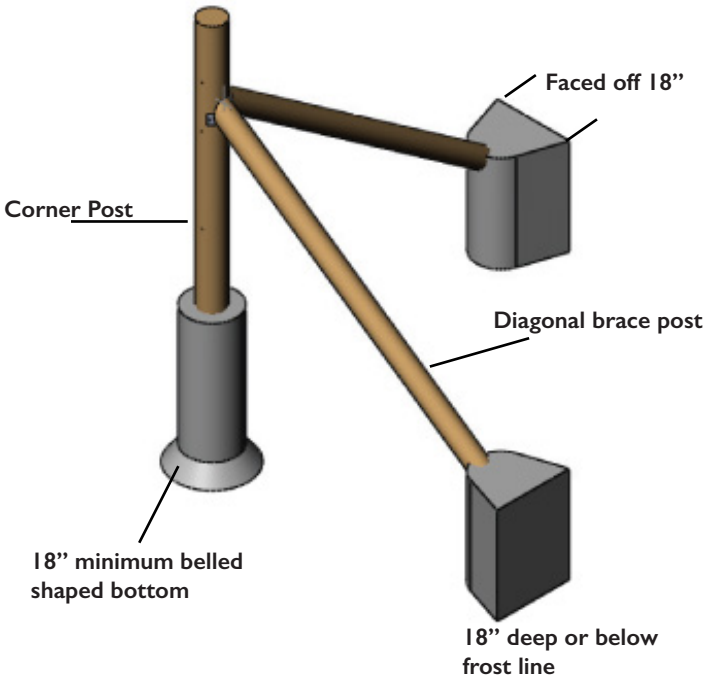
Mix each 80lb bag of concrete according to the concrete manufacturer’s methods found on the bag.

*All concrete footer depths must be below the frost line for your area.

* If frost line is unknown talk with your local extension office

Concrete volumes for post footers can very depending on hole size and soil conditions.

Northern states concrete requirements (approximate)
- (4) 80lb. bags for 6’ x 9’ corner/gate end posts.
- (2) 80lb. bags for each diagonal post.



Pro-Tek Braided Electric and Electric Rope Installation Guide

Types of Fencing described in this guide:

Pro-Tek Braid is a polyester and stainless steel wire braided together to create a very strong and Effective fencing product. Braid must be tensioned with a come-a-long or tensioning device, therefore the ends and corners posts must be braced. Follow steps outlined in this guide to build a proper bracing system.

Pro-Tek Rope is a combination of stainless steel wires and polypropylene to create an economical yet effective fencing system.

WARNING:

Braid and Rope when over-stretched, may break and recoil causing serious injury. Caution is advised when working with any tension fencing. Eye and hand protection should be worn when working with Braid and Rope fence systems.

BEFORE YOU START

Step 1:

Before you layout your fence call 811. An 811 representative will take info about your project and notify appropriate utility companies to come out and mark buried lines so that you can dig safely around them. 811 is not responsible to indicate any lines you or the previous owner have run under ground, for example: cable, septic etc. You are responsible for indicating where those lie.

Step 2:

Gather necessary tools-see page 2 for details.

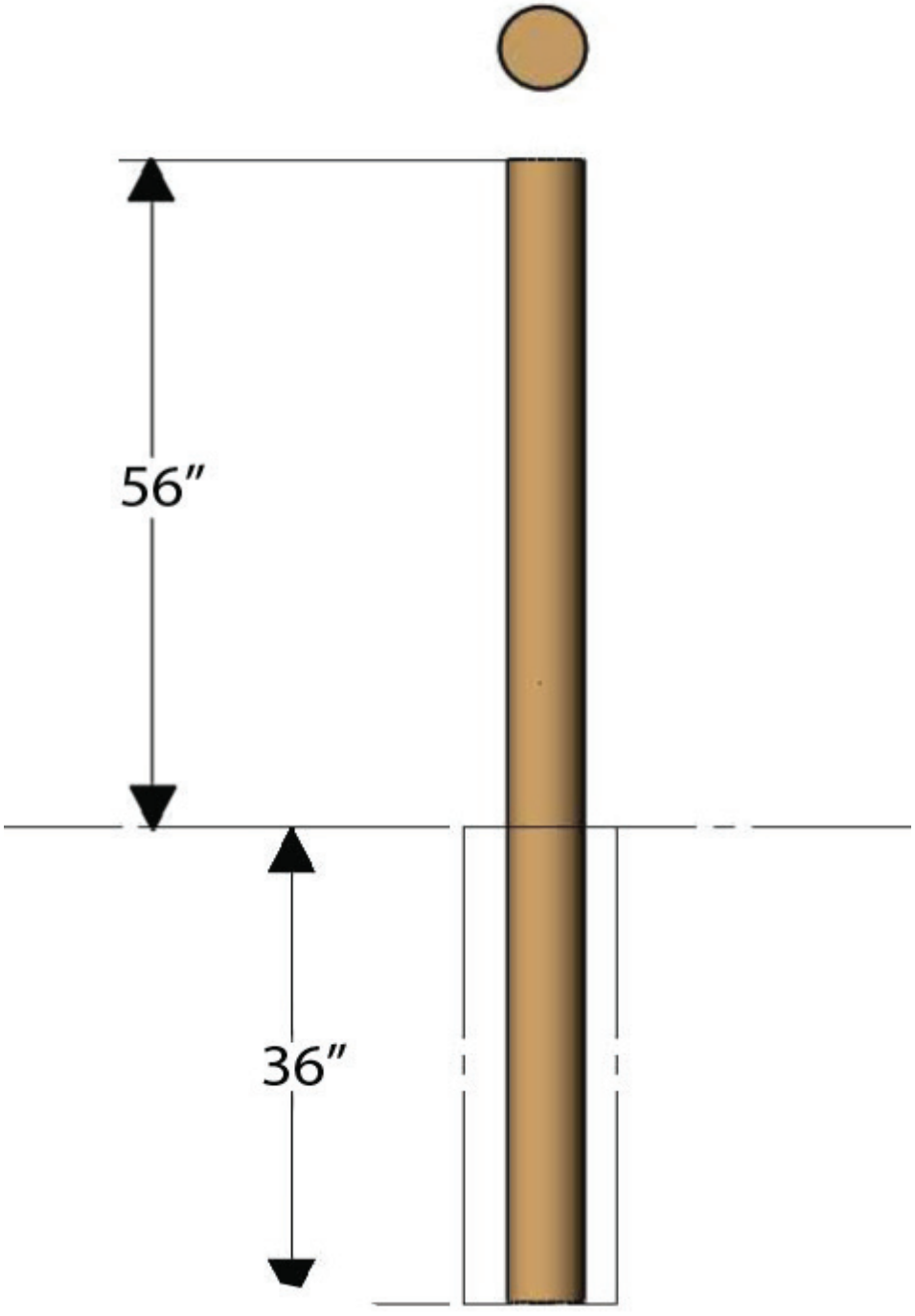
Step 3:

Typical Post Installation Specifics. See the diagrams on the following pages.

TYPICAL POST INSTALLATION SPECIFICS

*** See the diagram below and on the following pages**

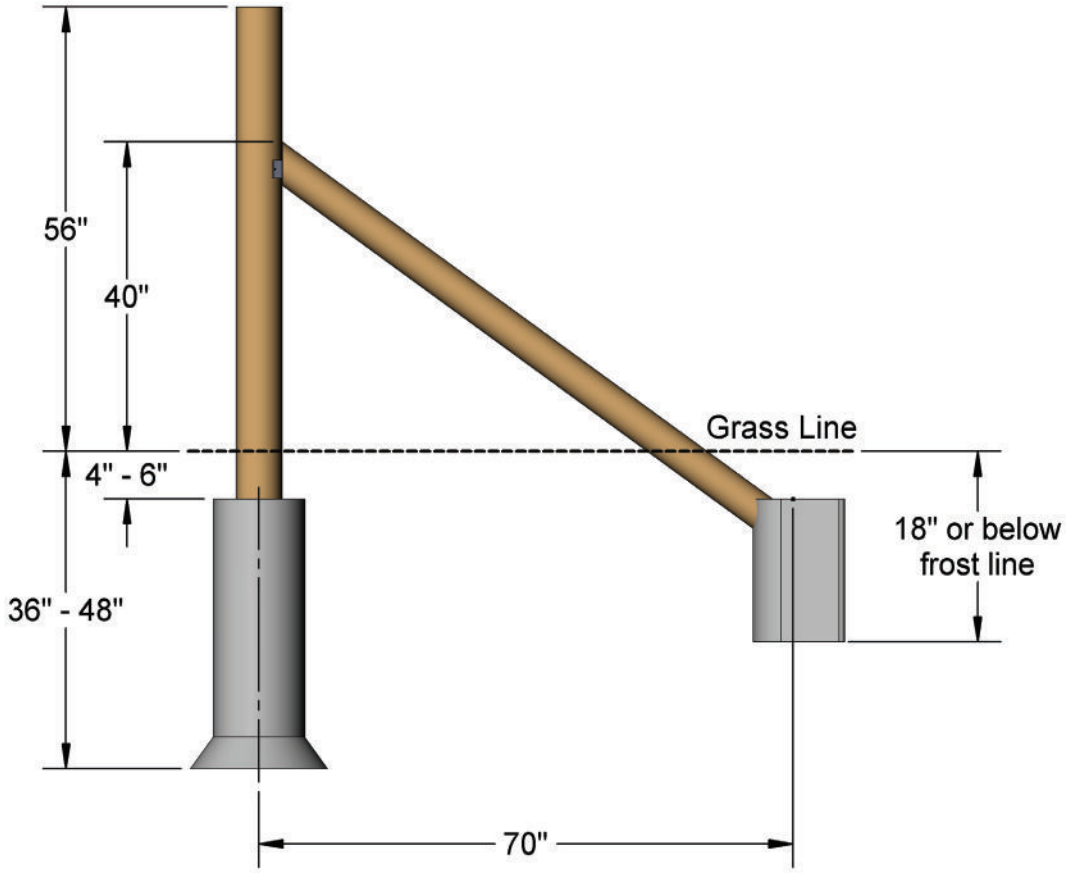
3A. Line Post



TYPICAL POST INSTALLATION SPICIFICS

*** See the diagram below and on the following pages**

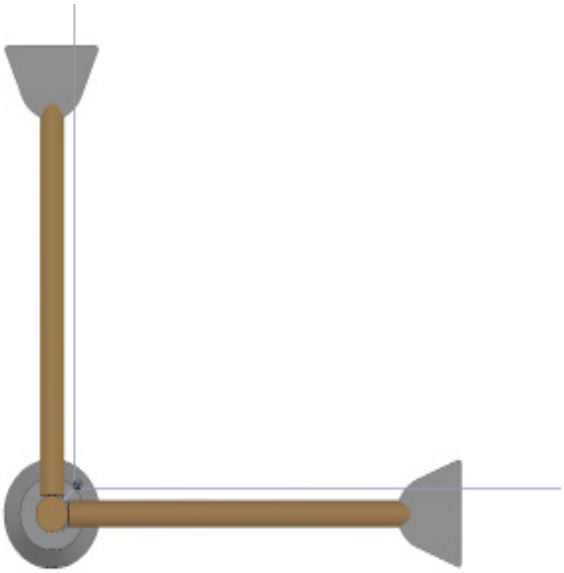
3B. End Post

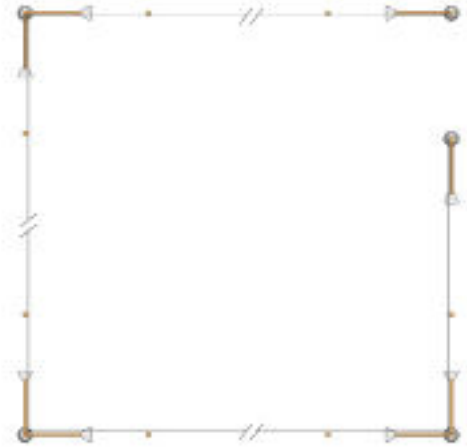


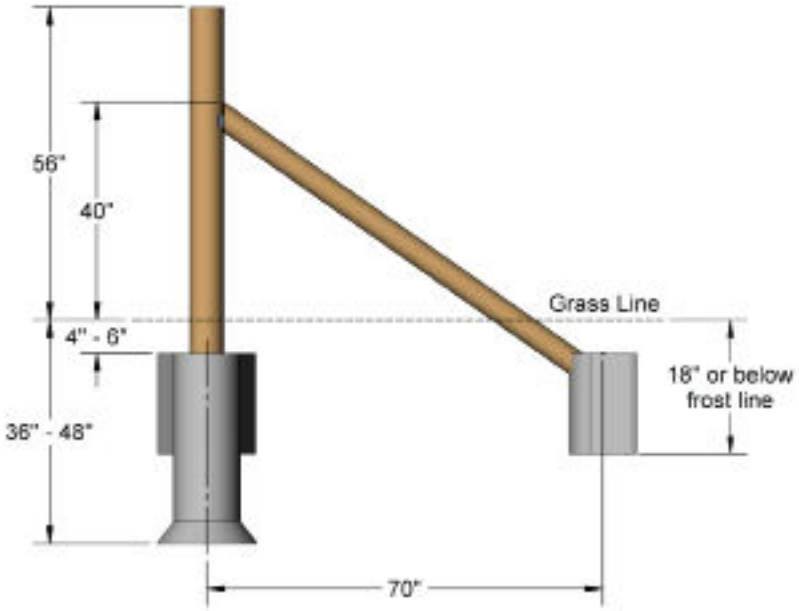
TYPICAL POST INSTALLATION SPICIFICS

*** See the diagram below and on the following pages**

3C. Corner Post







Step 3 Continued...

A. Line Post

- Typical line post with tampered soil (ground level indicated by dashed line)
- The depth of the hole should be 24"-36" deep.
- Set your posts at 58" above ground level before flow is determined
- The post will be cut off after the flow of the fence has been determined (see diagram 3A)

B. End Post

- Typical line post with concrete illustrated (ground level indicated by dashed line)
- Note: End post should be set to lean approximately 1" away from tension to ensure level post after tension is applied. (See diagram Step 3B)
  ** All footers must be below frost line

C. Corner Post

- Typical corner with concrete illustrated (ground level indicated by dashed lines)
- Note end post should be set to lean approximately 1" away from tension to ensure level post after tension is applied. (See diagram Step 3C)
  ** All footers must be below frost line

Careful planning of your fence design and advanced preparation is the key to proper a installation and long term trouble free electric fence operation. The first step in the installation is laying out the site to be fenced. Below are a list of ground rules that may help you with your fence installation.

Number of Strands:

Determining the right number of strands to use and the height of your fence requires some evaluation. The type of horses and amount of property is first. If you ride as a casual past time and have a trail type, mature horse, 4 strands of rope or braid will be sufficient for pasture areas.

Rule of Thumb:

Stallions depending on their attitudes will require 6-7 strands, 5-6 feet tall. The average height of most installations is 56" to the top of the post and 54" to the top strand. If your using 5' long Safe-Tee-Sleeves over tee-posts you may go the full 5' or cut the bottoms to the height you desire. However you should NEVER exceed 15" spacing between strands. Boarding facilities should always out up a minimum of 4 strands at 5' high due to the prospect of new animals that may be unfamiliar with electric fence. It also adds atheistic value and a very secure appearance that your customers will value. Never use less than 4 strands for perimeter fencing or here property parallels a highway.

Soil:

Soil condition as is an issue that must be considered when installing electric fencing. Dry or sandy soil may require a fence charger with greater power that in moist areas where green foliage is abundant year round.

Expansion:

When choosing the fence charger it is recommended to not only consider the area being fenced, but to look ahead at fence to be added later. That way the right charger may be purchased the first time around.

Gates

Location of gates, type, and amount of traffic going through the area is an important consideration. Installing metal gates in high traffic areas and in corners make handling animals easier. Electric gates are great for pasture separations or implement traffic.

Location of Fence Charger:

Locate the fence charger close to or at the fence where 110 volt power is accessible. Placing the charger under cover is recommended as under the eve or inside of a building. If your power source is greater than 50' from the fence it is advisable to run underground 110 volt wire from the source to the fence and install a weather proof plug- in rather that run a long distance of high voltage burial wire. A certified electrician should be used for the installation of 110 volt wiring. When fencers are located on a corner or gate post, a small, rectangular, plastic waste can is an easy way to protect their fencer from direct rain. Cut a section out of one side of the waste can to clear the mounting screws and slide it upside down over the fencer. Solar chargers do not require a cover and should be placed in a position facing the equator.

Ground Rod Installation:

Installing a minimum of 3-6 foot long ground rods, 10' apart will insure maximum efficiency in the operation of your electric fence system. Inadequate grounding is the most common failure in electric fence operation. Consider that the grounding system of an electric fence is similar to the antennae on a television set, the larger the antennae, the greater the reception. Ground rods serve to collect the voltage as it passed from the fence, into the animals through the earth and returns to the fence charger completing the circuit. The animal will only feel the mount of power that returns back to the fence charger; therefore it is critical that the ground field, like the antennae, is larger enough to ensure the collection of available power.

Within 20' of the location of the fencer dig a 4"-6" deep trench 20' long. This should be in an area that is out of the way of animal or vehicle traffic. Drive a ground rod into the ground at each end of the trench and one in the middle. With the brass acorn ground clamps, attach the galvanized wire to the rods laying it in the bottom of the trench.

Attach the end of the wire to the negative or ground post of the fence charger. Attach high voltage shielded wire to the positive post of the fence charger and then to the fence. Do not use unshielded wire to make connections from the fencer positive post to the fence. IF there is any danger that horses may walk or run in the area of the ground rods we suggest that a coffee can be buried over top of the ground rod ends to reduce the possibility of injury.

CAUTION: Do **NOT** install ground rods within 50' of a utility ground rod, buried telephone line, or buried water line. Shock hazard may result.

REMEMBER TO CALL YOUR UTILITY COMPANIES BEFORE YOU START YOUR INSTALLATION.

Improving POOR GROUND system conditions. Dry or barren ground is a poor conductor of electricity. Voltage returning to the fence charger will decline substantially in these conditions. In arid regions or sandy soil areas it may be necessary to install grounding around the fence to achieve maximum fence efficiency. You may ground one of the strands of fence, or the best solution is to run bare galvanized wire just below the surface of the ground, attached to each post, for optimum functionality.

PROPER BRACING OF CORNER AND END POSTS IS THE KEY TO A QUALITY INSTALLATION.

Please note that all concrete footings need to extend past the frost line. All diagonally braced corner and end post footers should have a belled shaped bottom as shown in the diagrams and diagonal brace footers should be squared off as shown in the following drawings, or you can use the new all underground structure as outlined in this guide.

Post Requirements

Listed on the following page, are the post specification recommended for use with Braided Electric and Electric Rope fencing. Use round wood posts for all applications (ends, corners, lines).

Step 4: Layout Fence line perimeter (example below 600' x 600' perimeter)

A. Locate all corner and gate posts

B. Run string lines (dashed line) approximately 6' past corners and stake (solid black squares) into ground as shown in sketch below.

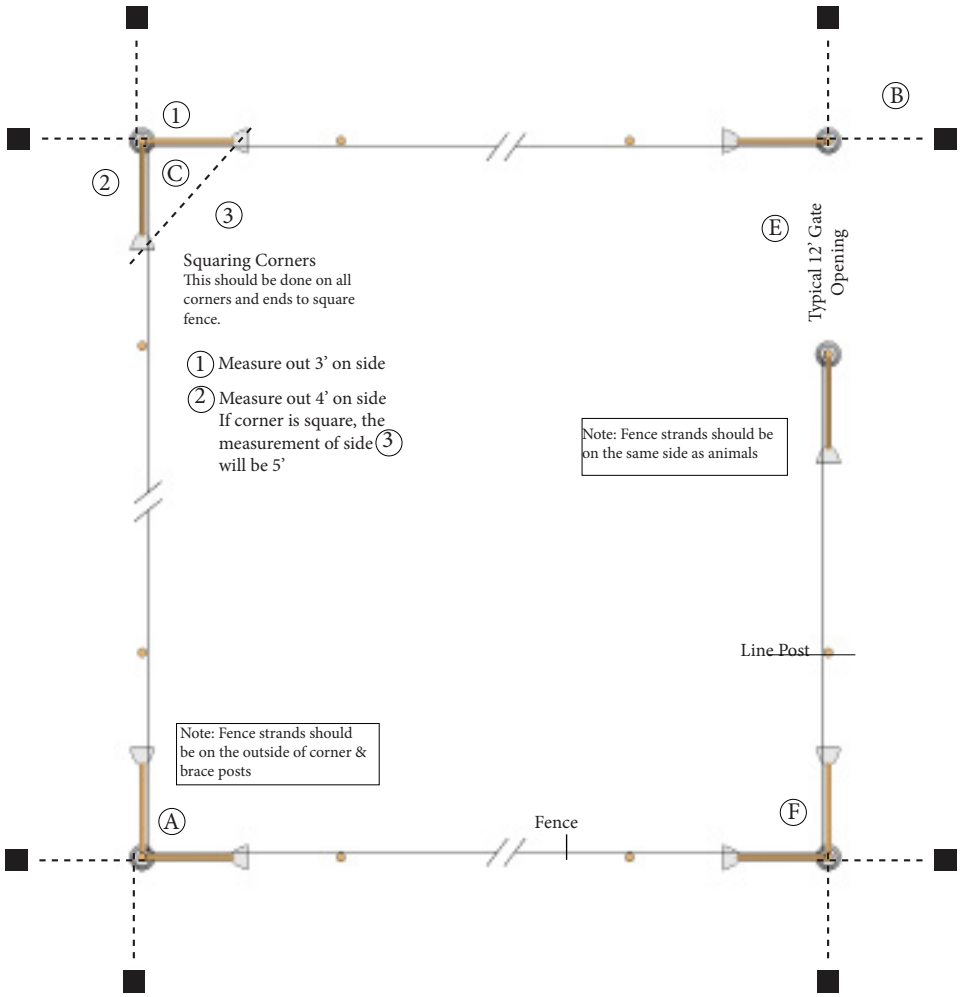
C. To assure square corners use the 3'4'5' triangle method corner (as shown in sketch below.)

D. Use marking paint to mark each post location with an "X" this should include all gate/end,corner,diagonal brace and line post locations. (Line post spacing recommended 12'apart.)

E. When placing a gate in the corner set the corner post to the outside of string line as shown in corner

F. When running rails to the inside of an area, make sure the corner and end posts are in set so the rail can be run around the outside of these posts. This will allow the rail to run next to and past each line post. (As shown in the sketch below.)

Example Paddock Layout



Step 5: Post Installation & Diagonal Bracing System

A. Dig all holes using a 12' auger

B. The use of Concrete

The corner and end post need to be set in concrete as shown in diagrams on pages 4-6.

**Make sure all concrete is cured prior to tightening the rails.

C. Set line posts

- Place line posts into line post holes, which at 24"-36" deep along the string line.
- Level posts in both directions then add some dirt
- Tamp soil around line posts. Do this by adding 3"-6" segments of soil (tamp soil between segments).
- Continue tamping process until hole is filled to ground level around line posts.

Step 6: Establish Post Top Line for Proper Flow of Fencing

A. Mark on the side of the post a small line at 54" from the ground using a tape measurer. Do this on all posts.

B. Starting at the gate/end post using a thick and visible string wrapping it tightly around every post.

C. Make sure it is tight between each post

D. Site over the string line and you will see abrupt changes in the flow. By raising and lowering the string line you can make the flow smooth from post to post.

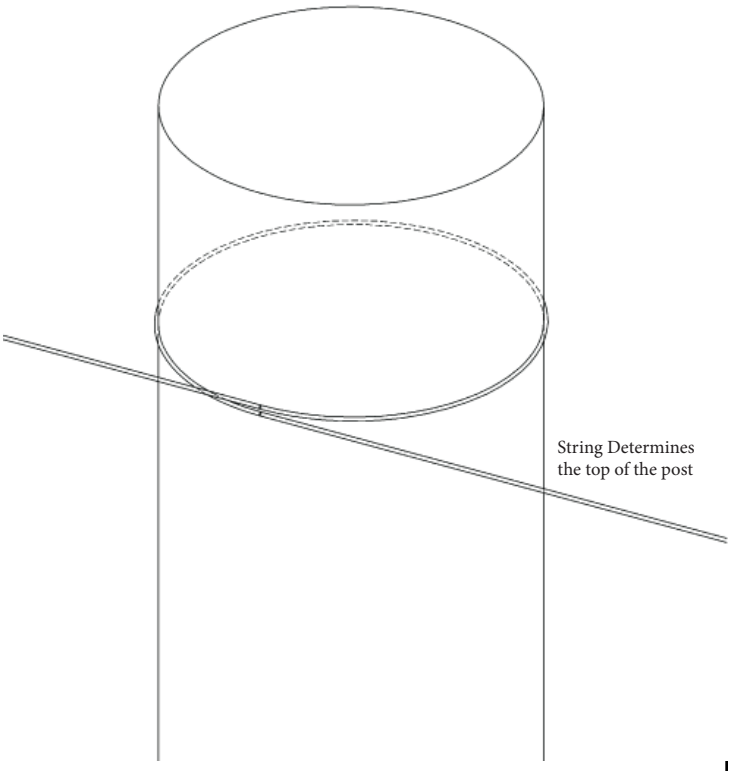
E. Keep the corner/gate/end posts string at the 54" mark, so not move the string line on them.

F. You are looking for the average height of your fence over the entire length. Step back 30'-40' and make sure your satisfied with the flow of the fence.

G. Make sure you are satisfied with your flow of he string line because it will influence the over all appearance of the fence itself. Take your time. A proper flow makes for a beautiful fence.

H. Look at your string line from various directions.

I. More than one opinion is helpful.



Step 7: Insulator Installation / Ends and Corners

Fig 7B End Post

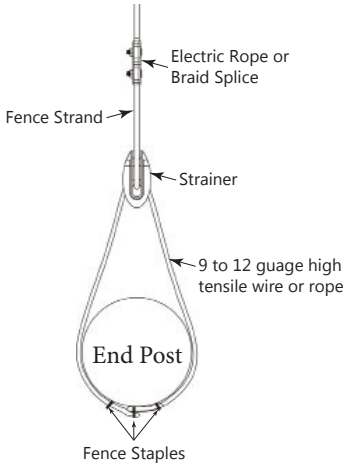
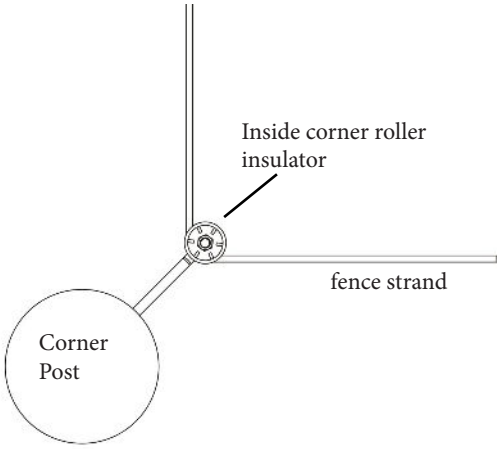


Fig 7C Concrete Post



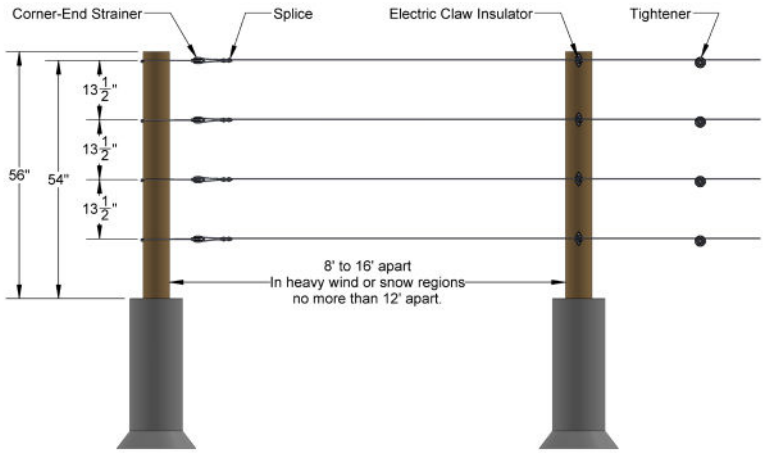
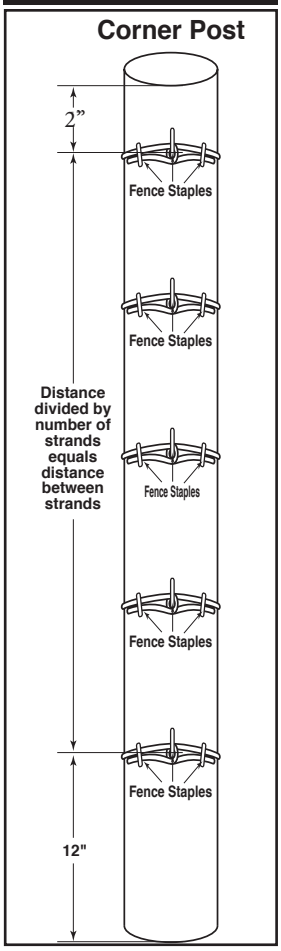


Fig 7A



Before you can install your insulators you must determine the number of strands of your fence will require. See page 7 for a guide to aid you in this decision.

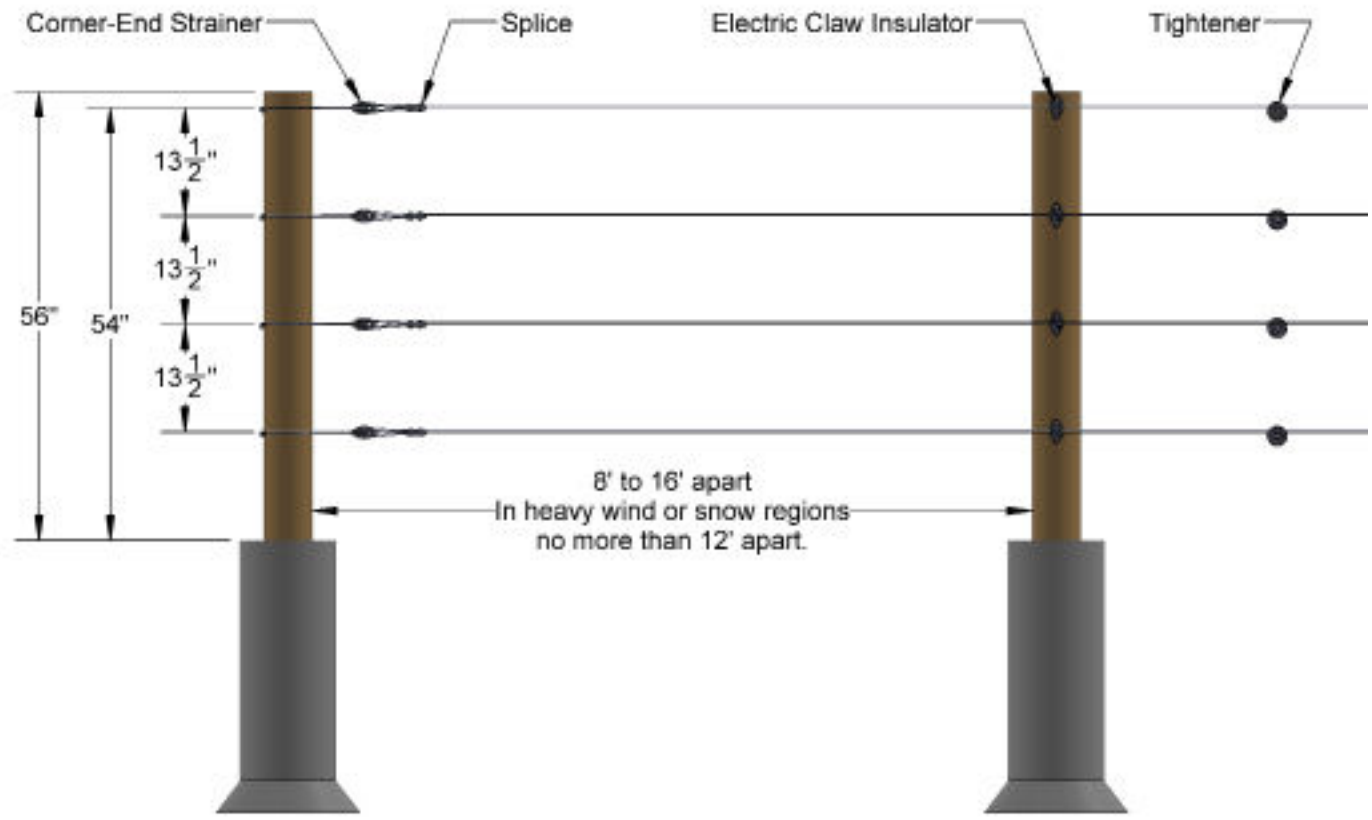
1. With the number of strands now decided. layout your corner and end posts as follows:
   - The center of the top strand is usually placed 2" from the top of the post.
   - The bottom strand is usually placed 12" from the ground
   - Measure the distance between these marks and divide by the number of strands. This will give you your spacing between your strands. (See figure 7A)

2. Mark these measurements all the way around on all corners and end posts ONLY. 1.

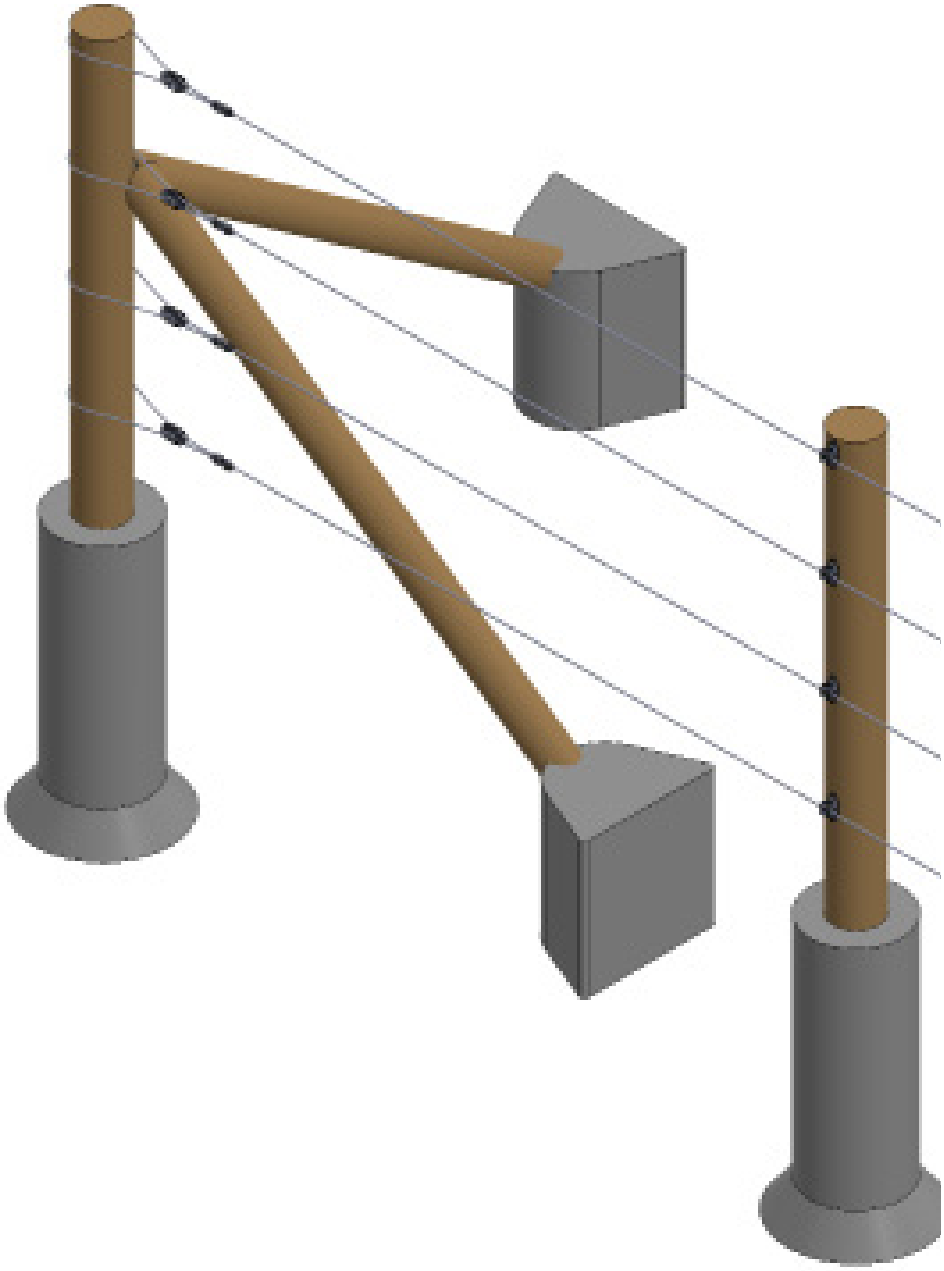
3. After setting setting all corner, end and gate posts and correctly bracing them, you are ready to fasten insulators. Since wood conducts electricity, you must use insulators on all posts including brace posts, to eliminate electric shorts.
   - Use #CL19 Corner roller insulator which is spicifically enginerred to eliminate friction when tensioning.
   - Measure and mark the location of each of your planned strands of braided electric or electric rope on one of yor end posts then make a jig to help you mark your other posts. (A jig is simply a stick on which you indicate the position of each insulator so you dont have to measure at every post)

Ends and Corners

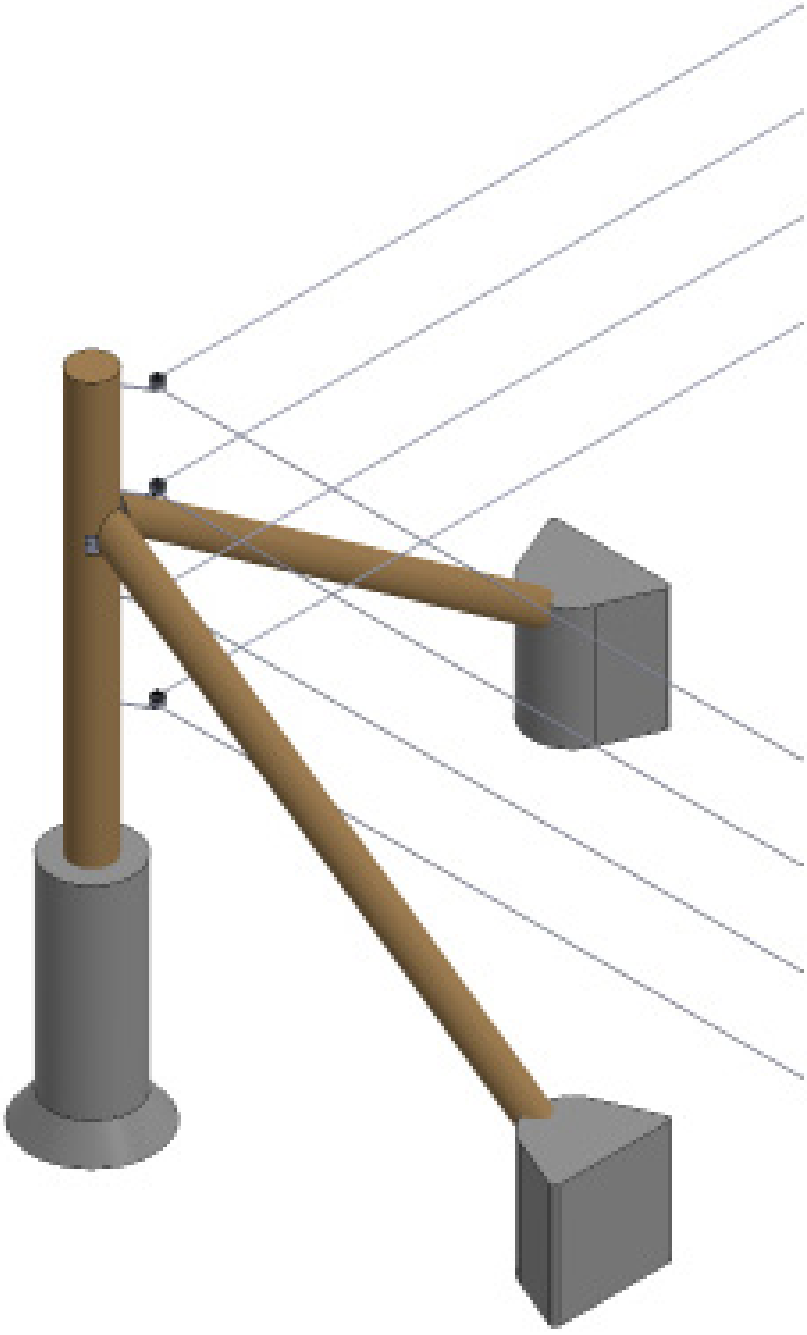
A. LINE POST

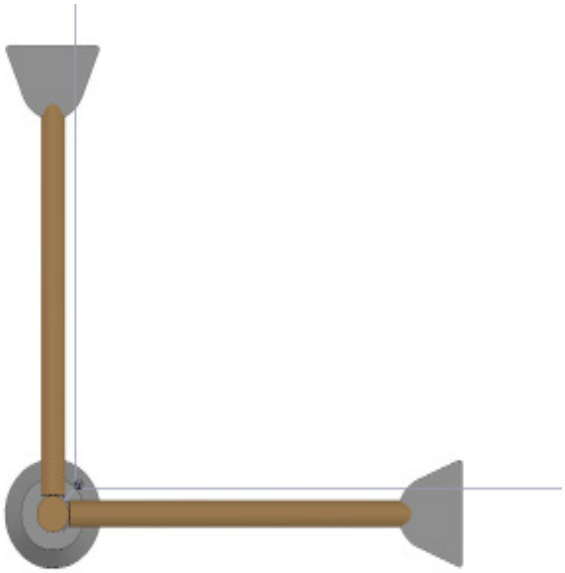


B. TERMINATION/END POST

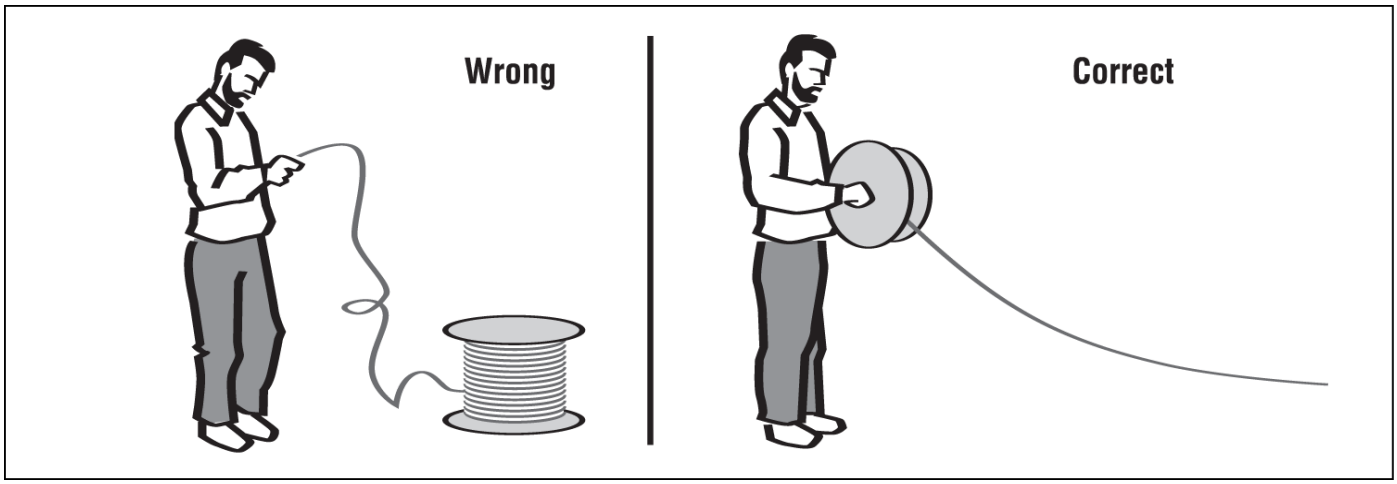


C. CORNER POST





Step 8: Stringing Your Fence



A. Pick up the reel and walk your fence line. At each line post, fasten the strand of Braided Electric/Electric Rope to each insulator.

B. DO NOT take the Braided Electric/Electric Rope off one end of the spool. It could kink and become damaged.

C. Continue unreeling the fence until you come to an end post where the strand will terminate. End the strand by attaching it to the end post insulator just as you did when you started the strand.

D. Pull the fence taught to remove as much slack as you can before you apply the tensioning device.

Step 9: Terminating Your Fence

When you end one reel of fence and start another, you will have to splice the two reeks together. Simply overlap the two ends about 4" then use an electric splicer #ES to secure them together. Ensure there is a direct contact between the copper stands in each strand. Make sure you tape and singe both ends.

Step 10: Tensioning Your Fence

To tension the strands the use of a come-a-long is required.

A. First fasten the come-a-long with a chain or strong cable to the brace post of the "H" bracing system as close to the strand that you are working on as you can.

NOTE: Be very careful not to damage any of the insulators that you have already installed.

B. After you feed the strand through the end strainer pull as much slack out of the fence line as you can.

C. Then place a U-type connector on the fence line as you did at the other end but **DO NOT** tighten yet.

D. Attach the free end of the fence strand to the other end of the come-a-long using a loop in the strand and U-type connector.

WARNING: Braid and Rope when over-stretched, may break and recoil causing serious injury. Caution is advised hen working with any tension fencing. Eye and hand protection should be worn when working with Braid and Rope fence systems. Please keep all small children and animals away from fence lines when tensioning any fence.

E. Work the come-a-long until the fence line is straight and taut between all the posts. When the desired tension is reached tighten the U-type connector. NOTE: Before disconnecting the come-a-long complete step F first.

Tensioning Your Fence Continued....

F. When the top strand is completely installed and tensioned stand back about 50' to 100' from your fence to get a good view of all the fence line. Check to see it has a smooth easy transition from post to post. (It is much easier to make any adjustments to one fence strand then multiple strands.)

CAUTION: If you have to make any adjustments to the fence line, reduce the tension first.

G. If everything is good cute the fence strand about 6" from the U-type connector and tape the end with electrical tape to prevent fraying. Once you are happy with the look of the fence line, continue with the installation of the insulators on the line posts using the top strand as a guide for the other strands.

H. Repeat steps all steps until all of the fence lines are completed.

Step 11: Connecting Power

It is vital that the energizer you choose has sufficient power to meet your needs.

A. First decide where to locate your charger. You can use a solar powered charger or an AC powered charger. However, an AC charger is more reliable. Your AC charger should be mounted on a wall indoors, away from flammable material and out of reach of children.

B. We recommend a minimum of three 8' or 6' copper clad ground rods spaced at least 10 feet apart in a triangular configuration. Look for soil that is wet or moist year round. to place your ground rods.

C. Ground rods should be placed close to your energizer and near the fence line, but at least 50' away from any building, underground piping, cable or any other grounding. system. A ground rod closer than 50' from the waterline may cause signal interference in your home computer, phone, radio or TV. Ground rods closer than 25' from the energizer may damage the energizer during electrical storms.

D. Remember to attach clamps BEFORE driving ground rods, as the end of a ground rod may mushroom from pouding, making it impossible to slide a clamp over the end.

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