

TANGENT™

SPLIT-RAIL FENCE INSTALLATION GUIDE



THE INNOVATIVE LOW-MAINTENANCE
FENCE SOLUTION

INTRODUCTION

BEFORE YOU START

- Check to see if a permit/approval is needed in your city, HOA, or township.
- Check with your local utility companies to locate any underground utilities a week before your project or within a time where they are still valid through project completion.
- Be certain of the boundaries of your property and local easements.
- Read the instructions contained in this guide for this engineered fence system installation techniques that do not conform may void the warranty.

TOOLS REQUIRED

16'-25' & 100'-150' tape measures	Hammer and Sledge hammer
Post level (this allows you to check two planes of the post for plumb)	Circular saw *A carbide tooth blade is best
2 spools of nylon string and some "T" post stakes	Speed Square & Pencil or Paint Marker
Spray paint *Silver or fluorescent color is recommended for marking holes)	Hand post hole digger
Powered auger with no smaller than a 10"-12" bit, longer fencing project may call for a bigger equipment (Utility Vehicle or Skid Steer) to speed up hole digging	Drill with 1/8" drill bit (pre-drilling recommended) & Required Driver Bits Impact driver

THESE INSTALLATION INSTRUCTIONS APPLY TO:

- 2-Rail Fencing (KIT #15390, #15467, #15470)
- 3-Rail Fencing (KIT #15389, #15466, #15469)
- 4-Rail Fencing (KIT #15388, #15465, #15468)

*The Installation method is the same for each system, but rail spacing and post length will vary based on which kit is being installed. It is extremely important that the fencing system is installed correctly the first time. Because this is a durable and sustainable material, any mistake will be seen for generations to come.

** If you run into a rock and need to move the post, it is crucial that you're post to post spacing is 8' or less. If resulting center-to-center post spacing is greater than 8', an additional post will need to be purchased and installed at the center of any span that is greater than 8'. Additional 8' railing boards may also need to be purchased and cut to length. Tangent will not be held responsible for the additional costs or appearance concerns associated with improperly spaced posts.

FENCE COMPONENTS

POST SIZE - True 4" x 4" x 68" (2 rail), 84" (3 rail), 96" (4 rail)

POST SPACING - 96" (8') on center

RAIL SIZE - 5/4"x 6" x 95" or 191" (Height for 3 and 4 rail is 54" - 60" above grade)

- 2 rail spacing - 13.5"
- 3 rail spacing - 12.5"
- 4 rail spacing - 9.5"

RAIL SCREWS - each rail will require 2 outdoor rated 3"-3.5" #10 screws, we recommend Stainless Steel Trim Head #10 Deck Screws. Predrilling recommended for longest life and cleanest finish.

PREPARATION

HILLY TERRAIN

Cut the rails into 8' lengths to allow for changes in elevation. The more gentle the transition*, the better the fence will look, so there may be a need to spread the transition over several fence sections if the land abruptly goes from flat to sloped. *In extreme situations, there could be a need to place posts closer together to ease the transition or a different system such as wire fence. IF YOU ARE NOT A FENCE CONTRACTOR PLEASE CONSULT ONE FOR EXTREME TERRAINS.

*REMINDER: High Density Polyethylene (HDPE) fencing will expand and contract as the weather changes. The post slots are engineered to accommodate this movement. The fence rails MUST be installed with proper thermal expansion space between the board ends. Failure to follow these instructions may result in poor appearance or mechanical failure, and may void the product warranty. See warranty statement for details.

PLANNING THE LAYOUT

1. Draw a diagram of the job layout. Make sure to include the number of corner/end posts and middle(line) posts that will be needed. (Please see Hilly terrain section if you have significant elevation changes.)



2. Establish the fence line using strings and stakes. Identify where each post will be installed using spray paint to mark each location with an "X". *Note: Sticking with 8' lengths allow for changes in ground level and rounding corners where applicable.

A. String lines for setting your post heights and alignment are critical for a straight fence, and should remain in place throughout the post setting process.

B. Alignment String should be just off the edge (1-2") so there isn't interference.

C. Use a second height string line to follow the contour of the ground you may need to use multiple string line posts along your run of fence for height to create a smooth, flowing fence. This is subjective to installer and property owner, please step back and use line of sight for best judgment and best appearance.



I. 20-25' spacing for post height string line supports help capture gradual terrain contours.

II. The height line should be centered over the posts/holes as best as possible.

3. Make sure the boards are on site at least 24 hours before installation. For best results, boards should be at the ambient temperature at the time of install.

A. Confirm material amount & post length for your system - 2, 3, or 4 Rail.



INSTALLATION

INSTALLING THE SECTIONS

1. Drill holes 30-48" deep (check with local codes & frost lines) with the powered auger at each spray-painted marking and clear the holes with the hand post hole digger. For 4"x4" posts, use a 10"-12" auger to allow for proper spacing and alignment. Make sure the auger is plumb when drilling as this can negatively affect the installers ability to correctly position posts.

A. A hole depth plus a few inches for adjustment is a helpful tip when dealing with varied ground elevations.

I. Concrete added to the bottom of the hole will allow for deeper applications.

B. Not following local Frost Line recommendations can result in frost heave.

2. Place posts in the holes and place out 2 - 60lb. bag of premixed QUIKRETE® cement at each hole depending on hole depth. If the soil is extremely sandy (similar to beach sand), use 3 - 60lb. bags per hole. It is recommended to use 3-4 - 60lb. bags at the corner/end posts as well. (Sand mix easier to work with than gravel mix.)

A. Check each post height for consistency with other posts. (String line.)

I. Local codes may have short hole requirements which may require you to cut some of the post bottom off.

II. Hole size and depth will determine ultimate concrete usage, it is best to fill at least $\frac{3}{4}$ of the hole, but do not overfill and form a "mushroom" top.

Helpful Tip:

If the post is too high, use a hammer and a block of wood to tap the post in deeper for slight adjustments. Hammering too hard or without a block could cause deformations. If the post is too low, adjust the post to the correct height and allow gravel/sand or cement to fill in the void underneath the post. When installing gate posts, use a larger footing and more concrete, depending on the type of soil. Gates may require larger posts (6"x6" or 8"x8")



3. Setting Posts, pour a couple of quarts of water in the hole with the post, empty the bag of QUIKRETE® into the hole, then put a couple of quarts of water on top and agitate the mix with a thin spade or metal rebar to blend as much as possible; repeat as needed for additional bags. A thicker mix of concrete is best for holding the post in place. Let it settle for a few minutes and then backfill the hole with dirt. Check the plumb of the post as the hole is backfilled with dirt. There may be a need to adjust the post closer or further from the string line always use footing at the base of the post. Don't push or pull at the top of the post.

A. Post depth is crucial for level rails, as your thru holes are all prefabricated, make sure the posts are set at the right depth by checking the tops of the posts, and double check with a thru hole as well. It is recommended to set reference posts first and gradually adjust to them to account for irregular terrain.



INSTALLATION

4. Finish Posts and let set over night before moving on to the rail installation.

5. Installing the rails after posts are set is suggested, this will limit number of installers needed and limit chances for post shifting.

A. The 95" rails will meet each other in each post. The slotted hole in the post should be enough to carry two rails with roughly a 1. 5" ledge(each) and a 1" gap for expansion. Check each gap as post position may have drifted while setting or you repositioned because of a rock while digging, this maybe require you to cross cut your rails on that section of fence.



B. 3" Retainer screw should be installed on the backside of the post at $\frac{3}{4}$ " from the edge of the post, pre-drilling recommended. Drive screw head into skin of the post.

- I. Retainer screw should only be installed into one end of each 8' rail. The other end of the rail is unconstrained to allow the rail to expand and contract.
- II. Installing retainer screws on each end of an 8' rail will void warranty.
- III. For 16' long rails, install retainer screws in only the center post, located at the center of the 16' rail. This will constrain the center of the rail and allow each end of the rail to expand/contract when in service.

The suggested height of the reference posts is:

Kit #15390, #15467, #15470 - 2 Rail: 30" in-ground, 38" above ground.
Kit #15389, #15466, #15469 - 3 Rail: 30" in-ground, 54" above ground.
Kit #15388, #15465, #15468 - 4 Rail: 36" in-ground, 60" above ground.





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