



BOOTSTRAP FARMER

DIY Shade Structure

Instructions & Owner's Manual

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Our team strives to provide quality products that are built to last. From all of us at Bootstrap Farmer, we thank you for putting your trust in us.

If you have any questions, please reach out. We are available 7 days a week by phone, email, and chat.

1(888)-406-1982 contact@bootstrapfarmer.com www.bootstrapfarmer.com

Please read ALL instructions before beginning your build.

Structure Layout

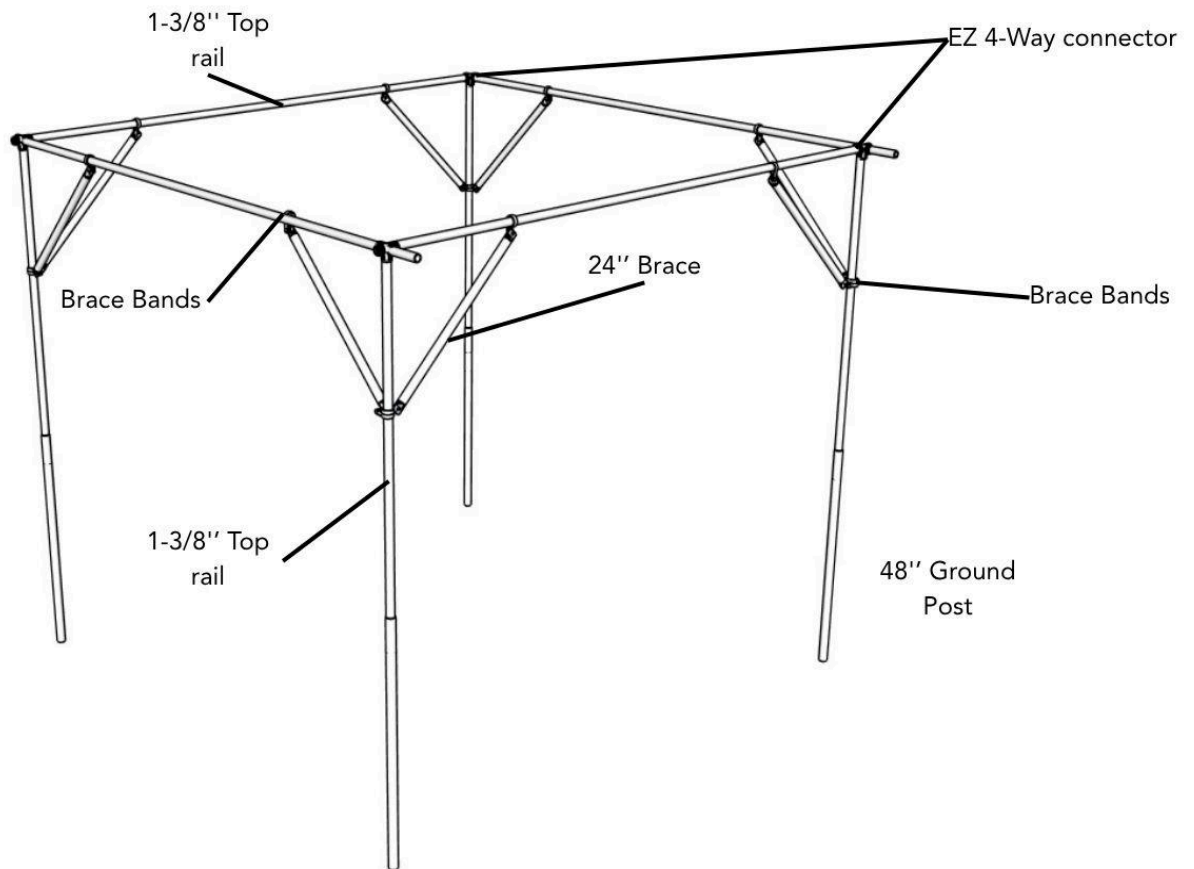
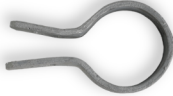


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Parts List - Kit Components

		
1 1/4" x 5/16" Carriage bolt	Brace band 1 3/8"	1 5/8" Ground Post driver

		
1/4" Lock washers	1/4" Nuts	2" x 1/4" HEX bolt

		
Pole 1 3/8" x 10'6"	Ground Post 1 5/8" x 48"	5/16" Nut

		
24" Flat to Flat Brace	Bungee Ball	4-way EZ Tee Fitting

Purchase Locally for 10' & 20' DIY Vertical Shade Structure						
HD Part	Lowes Part	Description	HD Price	Lowes Price	10' Long	20' Long
1005653972	103268	10 ft 1-3/8" top rail for uprights and horizontal bars	\$20.98	\$21.98	6	10
1004028096	552282	8 ft 1-5/8 in. line post for ground posts	\$23.98	\$28.68	4	6

Recommended Tool List

For your safety: Follow all necessary safety precautions when using power tools and building equipment. Personal protective gear, such as gloves, eye protection, earplugs, and closed-toe shoes, is recommended.

- Clamps
- Drill & drill bits
- Extension cord
- Ground post driver (included)*
- Levels (long, magnetic & string line)
- Roll of mason line
- Metal file
- Metal saw (reciprocating, chop, or hack saw)
- Grinder
- Slip joint pliers
- ¼ inch allen wrench
- Sledgehammer
- Pencil/Marker
- Center punch
- Socket set & adjustable wrench - (1/2" ratchet or nut driver)
- Stakes/marker flags
- Step ladders (at least one tall enough to reach the top of your structure).
- Tape measure

* Every kit we sell comes with a specialized tool called a ground post driver (pictured to the left). It is placed on the top of the post to keep it from mushrooming when you hit it with a sledgehammer.

The Build Process

Landscape fabric

Optional: Install landscape fabric (sold separately) before installing ground posts. Line the perimeter of the shade structure 1' inside and 3' outside with landscape fabric, to prevent erosion from the water the shade structure sheds. This also eliminates mowing and weed-eating next to your shade structure and prevents debris from accidentally being thrown through your shade structure covering.

If needed, you can also cover the entire area with landscape fabric before you build. Alternatively if you will plant or pave the area, you can skip this step.



Scan **QR Code** for information on **Landscape Fabric** or visit

<https://youtu.be/spzkFIPTOWE>

Cutting Ground Posts

*Not required with Ground Post Add-On

To expedite the setup process for your shade structure, prepare all ground posts in advance. You'll need 1 5/8" fence line posts for this project, which are readily available at large hardware stores and may be listed as terminal posts. You can also buy pre-cut 16-gauge ground posts at 48" length, pre-drilled for easy upright attachment.



Scan the **QR Code** for information on **Ground Posts** or visit <https://www.bootstrapfarmer.com/products/ground-post>

Preparing the Ground Posts:

- Cut each post into two 48-inch sections to serve as ground posts.
- After cutting, mark a point 2 inches from the top on each ground post to drill a 1/4 inch hole all the way through. This hole is for attaching the uprights to the ground posts.

Tools and Tips for Cutting:

- We recommend using a reciprocating saw or a circular saw equipped with a metal cutting blade for efficient cutting.
- Secure the posts with a vice or clamps to ensure they remain stable while you cut.
- This preparation should take around an hour. While a hacksaw can be used in place of a reciprocating saw, it will significantly increase the time required for this step.

Installing the Ground Posts

First, measure out your build area with temporary stakes by squaring the shade structure's outline.

Tools

- Ground Post Driver (Included)
- Hammer
- Stakes to mark corners
- Tape Measure
- Bubble Level
- Mason line

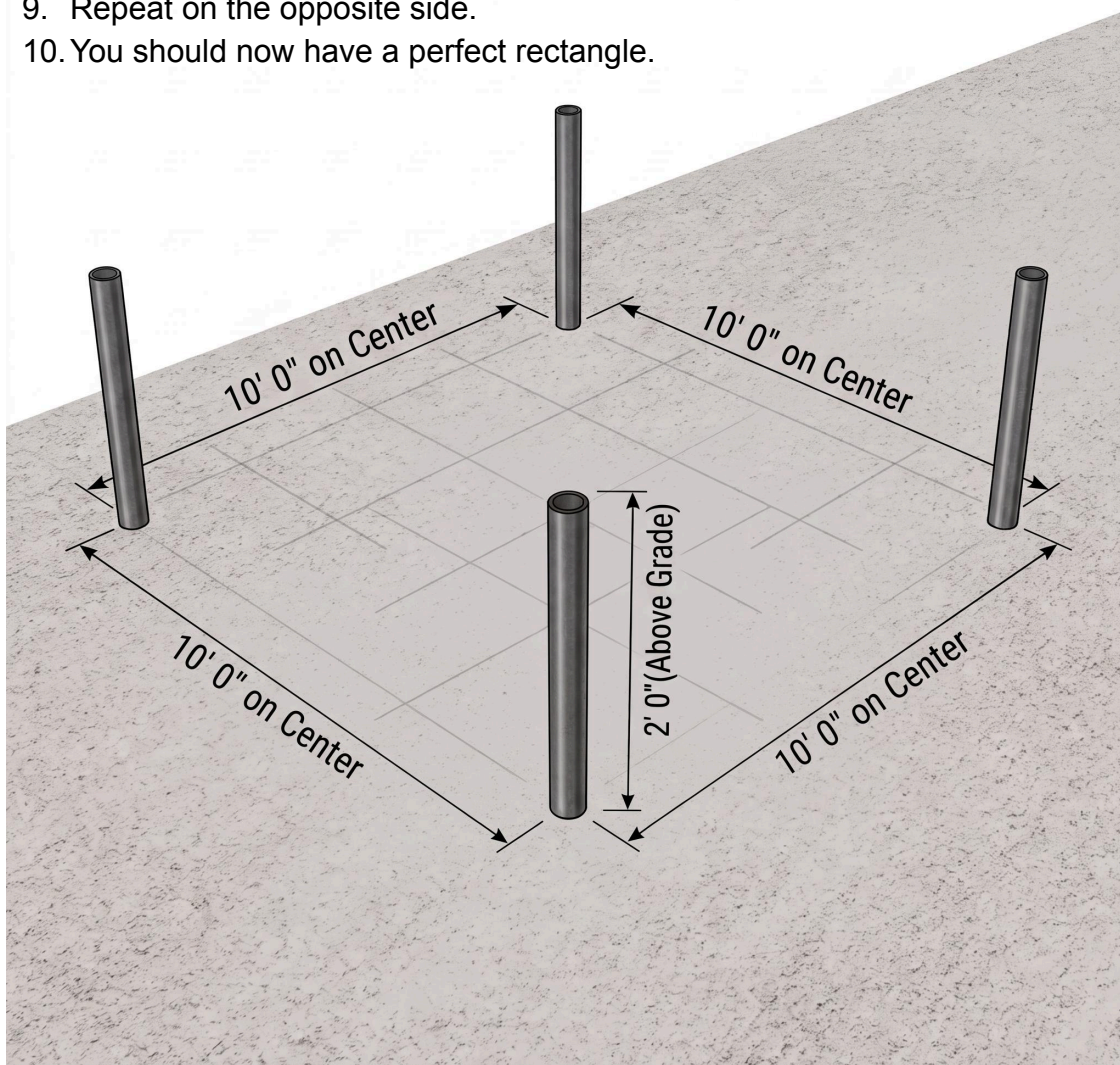
Squaring the outline for a 10'x10':

The final structure will have a long side and a short side. In order to fit inside the connectors properly, you will cut the swaged ends off of some of the pipes in a later step. (*swaged= smaller male section of pipe*)

1. Sink a stake where you want your first corner to be.
2. Measure 119" to the other corner for the first short side. Sink a stake.
3. Measure 124" on the long side, starting from one of the "119 inch" corners. Sink another stake.
4. Repeat steps 1 and 2, respectively, for the other 2 sides.
5. After measuring all four sides, check to make sure your structure has square (90-degree) corners by measuring diagonally across the center. 172" is the correct diagonal measurement from top left to bottom right and bottom left to top right corner.
6. If needed, shift your stakes slightly in order to get the correct side and diagonal measurements.

Squaring the outline for a 10'x20':

1. Sink a stake where you want your first corner to be.
2. Measure 119" to the other corner to mark the first post location on your long side. Sink a stake.
3. Measure 124" on the short side and sink another stake.
4. Repeat step 2 for the other long side.
5. After measuring all 4 sides, check to make sure your structure has square (90-degree) corners by measuring diagonally across the center. 172" is the correct diagonal measurement from top left to bottom right and bottom left to top right corner.
6. If needed, shift your stakes slightly in order to get the correct side and diagonal measurements.
7. Once your initial 10'x10' square is complete, set your final stakes on the long side.
8. Measure 238" from the first corner to the third corner location, sink a stake.
9. Repeat on the opposite side.
10. You should now have a perfect rectangle.



Sinking the Ground Posts:

Read each step before driving the ground posts into the ground.

1. **Position and Install Corner Posts:** Place the corner posts at your pre-marked spots. Start driving these posts into the ground, ensuring they're correctly positioned where you initially marked. Make sure the holes are at the top of the post before driving.
2. **Check for Vertical Alignment:** As each post is driven into the ground, continuously check to ensure it's perfectly upright (plumb) from all angles. Make adjustments as needed to keep the posts straight.
3. **Verify Measurements:** Once the corner posts are in place, re-measure the length, width, and diagonal distances to confirm accuracy. It's easier to correct any discrepancies at this point. (If your installing a 10x10 structure you ground posts are complete. If you're doing a 10x20 continue to step 4.)
4. **Use a String Line for Alignment:** Tie a string line around the outer side of the corner posts, positioning it 2 inches (4 inches for our premade ground posts) below the top. This string line will guide the installation of the remaining ground posts, ensuring they are all at a uniform height.
5. **Install Additional Posts:** Following the string line as a guide, install the remaining ground posts every 10 feet on center. Ensure each post is driven to a depth where its drilled hole aligns with the string line, achieving consistent post height. Each post should be roughly 2 feet in and 2 feet out of the ground.
6. **Maintain Post Orientation:** During installation, check each post for level and plumb on the front and sides, adjusting as necessary.

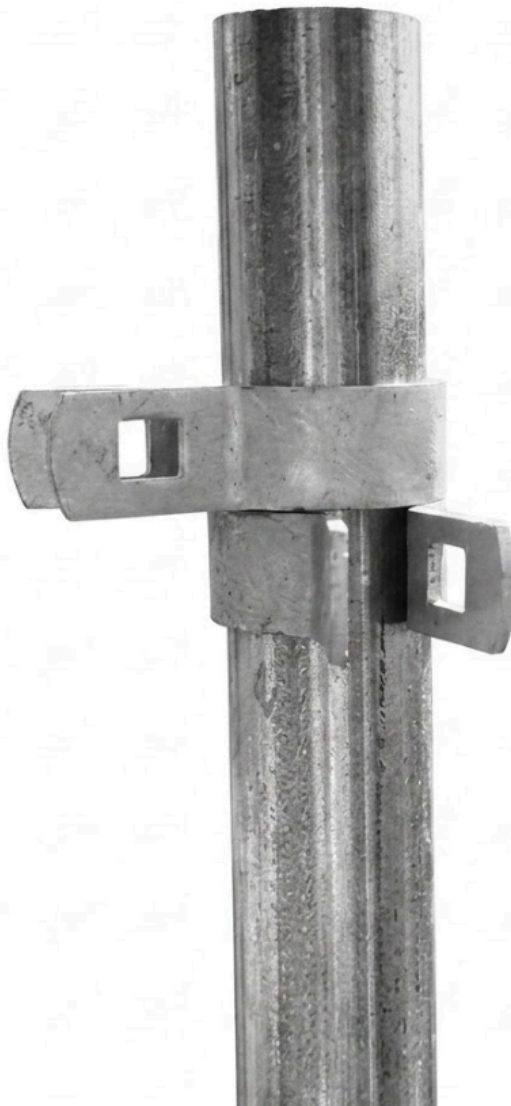
Upright installation

1. Determine your desired height - we recommend 5' 1 ½". This allows 2 legs from each 10' 3" piece of 1 ⅜" pipe. You can leave the swage on, but don't count that as part of the measurement. Build height is 6'-10" as displayed. You can build it to the height you want, but the taller you make it the smaller your shade foot print will be! (If you leave the swage on, that end will go into the ground post)
2. Cut pipes to length
3. Mark each upright at 4" (don't count the swage in this measurement)
4. Insert the upright 4" into the ground post
5. Use a clamp to hold the upright at the correct height as you drill it.
6. Drill a hole all the way through the ground post hole you made earlier.
7. Using a ¼"x 2" bolt, lock washer, and nut. Bolt the upright to the ground post.
8. Repeat this process for all ground posts and uprights.



EZ Connector installation on uprights

1. Before placing the EZ connector on the pipe, install two brace bands on each upright (to be used for the corner bracing).
2. Slide an EZ Connector over the top of each upright with dual set screws on the bottom side, but don't tighten it.
 - a. If building a 10'x20' the center two uprights will need 3 brace bands. Do not place EZ connectors on the two center uprights for the 10'x20' at this point.



Horizontal pipe installation

1. Cut the swages off of four of your pipes if building a 10'x10'.
 - a. For a 10'x20' cut the swages off of five of the pipes.
2. Slide two brace bands on each of the horizontal bars. Place them roughly 15" from each end.
 - a. For the 20' side you will install a brace band on each end of the swaged pipe and on each end of the non-swaged pipe.



For the 10'x10' Horizontal Bars

You will have four 10' 3" pipes with the swages cut off. Two sides will pass through the EZ connector while the other 2 sides butt up against the pipes that pass through the EZ connector.

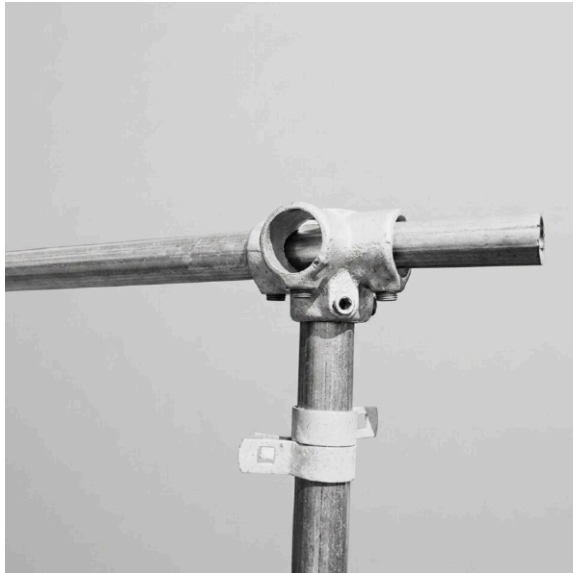
1. On the 119" side you will install the 10' 3" pipe all the way through the EZ connectors on both sides. The ends should be flush with the outside edge of the EZ connector.
2. Install the pipes on the 124" side by sliding them into the EZ connector until they butt up against the pipes you installed in step one.
3. Once both sides are in the connector and the connector is placed on the upright, you can tighten the set screws with a ¼ inch allen wrench.

For the 10x20 Horizontal Bars

You will need five of 1 ⅜" pipes with the swages cut off and two with the swages still on.

1. Slide an EZ connector on to the swaged pipe with the allen head set screws on the bottom from the swaged end.
2. Install a pipe with no swage to the swage end of a pipe with the swage.
3. Attach with two #8 screws over the swage.
4. You will do this for both pipes with the swage ends. This will create your full 20-foot edge. This side is approximately 238" total.
5. Starting at one corner slide the pipe through one corner EZ connector.
6. Then place the center EZ connector on the center upright.
7. The third fitting will be slipped on the other end. (The screws connecting the 2 pipes prevent you from being able to slide the full pipe through all 3 fittings from one side.)
8. Tighten the set screws on the EZ-connect fittings on each end of the pipe, right at the very end of the pipe.
9. Align the center EZ connect fitting on the upright and tighten the set screws to lock into place both on the upright and the horizontal bar.
10. Install the 3 horizontal pipes between the long sides. One on each end and one in the middle.
 - a. It may be easier to loosen the set screws on the upright so the fitting sits loose for ease of installing the horizontal pipe.
11. Once all of the horizontal pipes are installed, check each connection and make sure ALL your set screws are tight.

See photos on the following page.



Installing Diagonal Braces

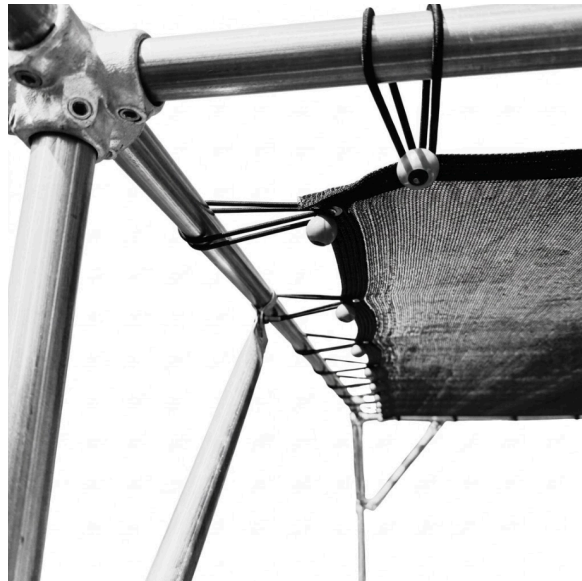
1. Brace bands - should already be installed on both the uprights and horizontal bars.
 2. Using the 24" flat to flat pipes, install one to each brace band on the horizontal pipes using the 5/16" carriage bolt and nuts.
 3. Slide the brace bands side to side on the horizontal pipes and up or down on the uprights to achieve a 45-degree angle.
 4. Once you have achieved roughly a 45-degree angle, attach the 24" flat to flat with the brace band on the upright using the 5/16" carriage bolt and nut.
- *Photo on previous page.

Installation of shade cloth

1. Slide the bungees through the grommets before installing the shade on the horizontal bars. Slide each cord up through a grommet so the ball is on the underside of the shade cloth.
 2. Start with the 4 corners first. Wrap the bungee cord over and around the horizontal bar.
 3. Once the corners are attached, work your way down each side to wrap and attach all of the cords around the ball securely.
 4. Relax and enjoy the shade!
- *See photos below.



Go You!



Maintenance

We recommend taking down the shade cloth in areas that receive any snow. Make sure your shade cloth and bungee cords are completely dry before storing in a pest-proof tote during the off-season.