



BOOTSTRAP FARMER

14' & 20' Hoop House

INSTRUCTION & OWNERS MANUAL

Rev. Date 2023-1-02

Thank you for choosing Bootstrap Farmer for your farm's equipment needs. Our All-Metal Greenhouse Kit is manufactured with 100% American made steel and aluminum for maximum strength and durability.

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

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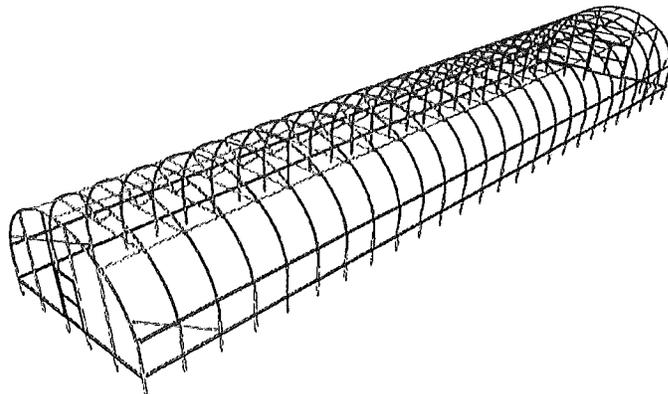
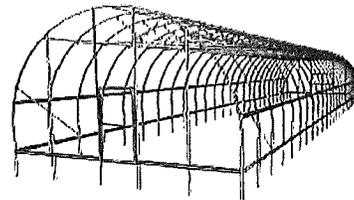
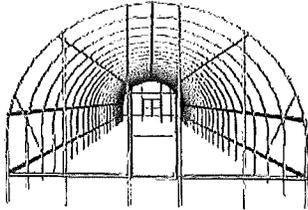
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Getting Started

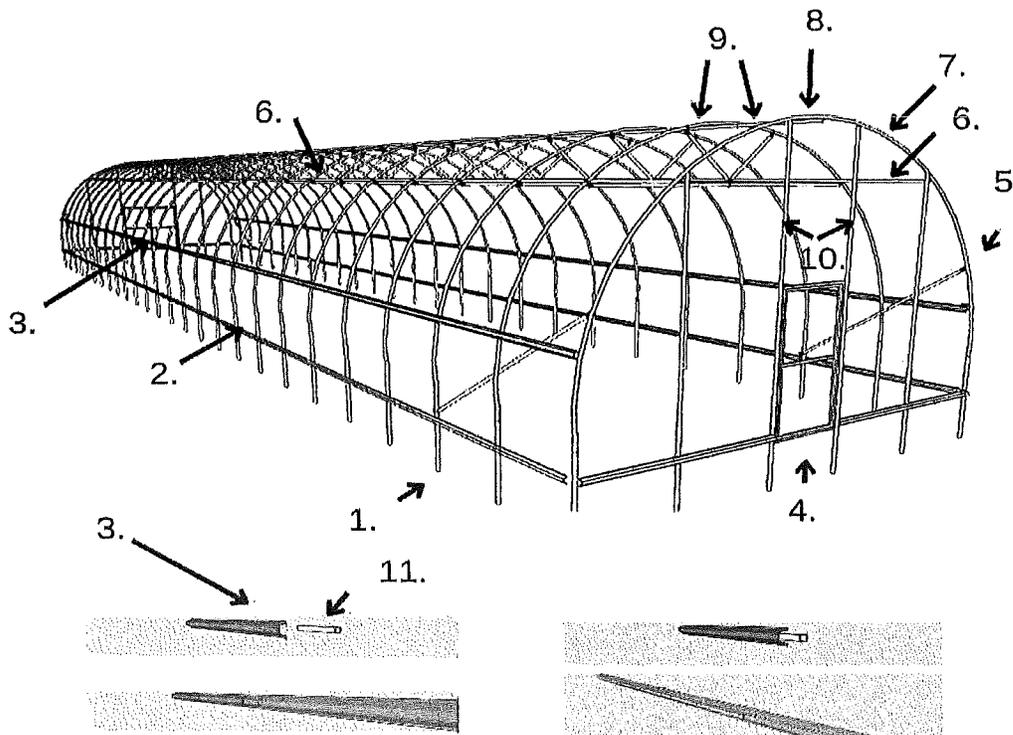
BEFORE BEGINNING INSTALLATION, PLEASE CAREFULLY READ THROUGH ALL INSTRUCTIONS. CONTACT OUR TECH TEAM WITH ANY QUESTIONS YOU HAVE BEFORE BEGINNING YOUR BUILD. WE ARE AVAILABLE VIA EMAIL, CHAT OR PHONE 7 DAYS A WEEK 888-406-1982 EXT. 1

CAD DRAWINGS



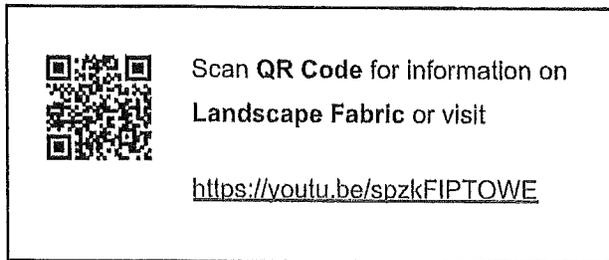
Labeled CAD Drawings

1. 48" 1.66 drilled ground post
2. Base brace (hat channel)
3. Hip brace (hat channel)
4. Single door / door frame
5. Optional corner brace
6. Optional purlins
7. Endwall hoop
8. Ridge pole
9. Optional truss kit 36" flat flat bar with tension bands (2)
10. Vertical uprights (36" extension & 78" Ridgepole)
11. 10" Splice channel



Ground Posts

Optional: Install landscape fabric prior to installing ground posts. It is recommended that you line the perimeter of the greenhouse 1' inside and 3' along the outside with landscape fabric, so you will prevent erosion from the water the greenhouse sheds and so you don't have to mow or weedeat next to your greenhouse! Accidentally throwing debris through your greenhouse plastic!



Tools

Every kit we sell comes with a specialized tool called a ground post driver. It is placed on the top of the post to keep it from mushrooming when you hit it with a sledge hammer.



You will also need:

- Sledge hammer/double jack
- Single jack (a smaller sledge hammer with a handle under 2' in length)
- Tape measures; ideally at least one that will measure the entire length of the diagonal between corner posts.
- Levels; a line & magnetic level.
- Mason line
- Stakes
- Pencil, paper, and a calculator

Parts

- 48in 1.66 Drilled Ground Posts

* Quantity of posts dependent on kit size.

Squaring Your Structure

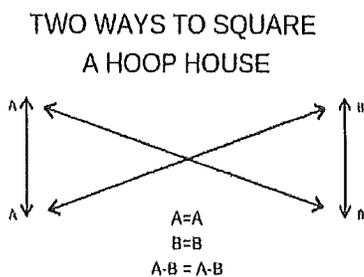
Making sure that your first four corner posts are squared will provide you with a base to work from to ensure the rest of the posts are easy to install plumb and level.

Using one of the following methods, set your corners.

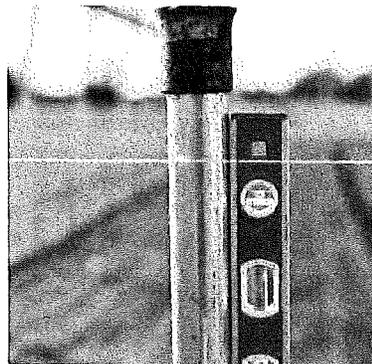
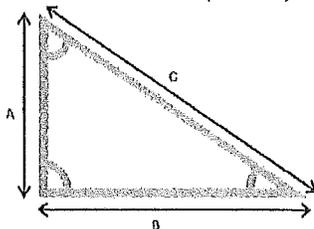
Measure Method - First measure length to length. Then mark width, it should be 14' or 20' depending on your kit. Then measure diagonally, making sure the diagonal measurements are equal to each other. Double check that all length, width and diagonal measurements are equal and install stakes. This ensures your greenhouse will be square.

Pythagorean Theorem method - Starting at your first desired post location, sink a marking stake. Use your tape measure to measure and mark a line at 3 feet and a second line at 4 feet perpendicular to the first. Then place a line directly across both marks. The third line should equal 5 feet and give you a square corner.

From this triangle you can extrapolate out to the desired length and width to sink your second and third stakes for the corners. Use a plumb line from the second and third stakes to intersect at a right angle for the location for the final corner post. Check all measurements.



Pythagorean Theorem? $A^2 + B^2 = C^2$ (3 4 5 Rule)



Installing the Ground Posts

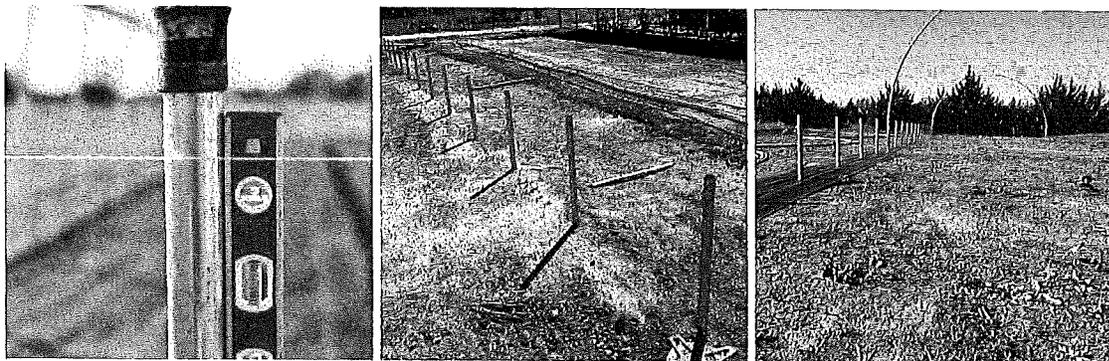
Once your area is measured out with temporary stakes in place. Install each corner ground post from the previous step. Place your posts where you had previously marked the corners and begin driving those into the ground.

While driving the posts into the ground you want to make sure the poles are plumb in all directions.

As you are driving the pole into the ground check for levelness on the front and sides and adjust as needed. The hole should be facing parallel to the length of the hoop house.

After the corner ground posts are installed, re-measure length, width and diagonals one last time. If you made a mistake it's not too late to fix it without too much work. Once you are satisfied, tie a string line around the outside of the corner posts.

This will help to keep all your ground posts in alignment so you don't get wavy hoops later on. Install ground posts every 4' on center following your line keeping approximately 2' into and 2' above ground.



Scan QR for info on
Installing Ground Posts or visit

<https://youtu.be/S0iSPnsYVi0>

Hoops

The hoops will come bundled together and you will need to construct them.

Tools

- Drill
- #8 Self Tap Screw

Parts

14' WIDE HOOP set contains:

- (2) 96in Swaged pole (bent)
- (1) 102.75' Pole (bent)

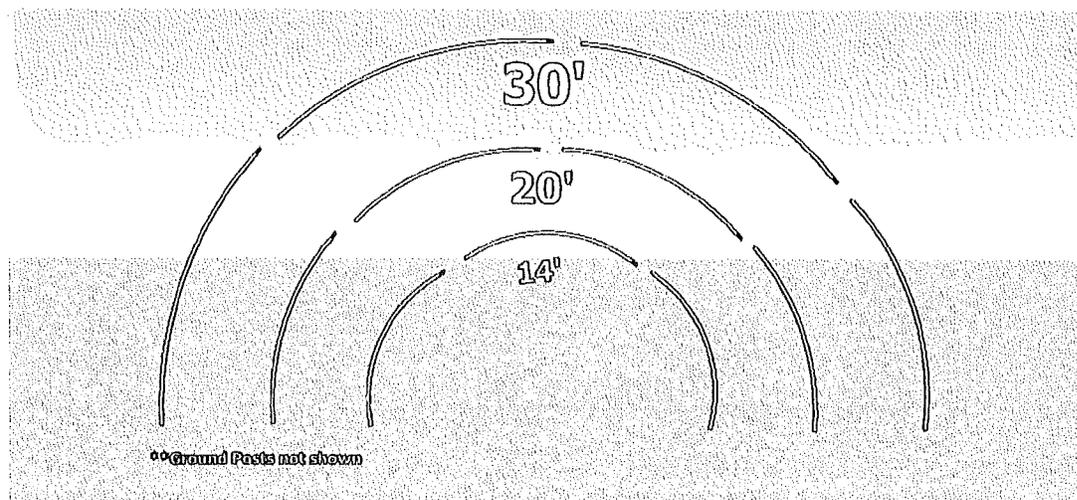
20' WIDE HOOP set contains:

- (3) 96in Swaged pole (bent)
- (1) 117' Pole (bent)

Pole Layout for Hoops

Our pre-bent poles come with (1) swaged end to decrease the diameter, similar to a pipe nipple. This enables you to connect poles without the use of fittings.

****Always drill on the side of the hoop so that the screw will end up parallel to the ground when the hoop is placed upright to protect the plastic from damage.****



Connect and Install Hoops

- Piece your hoop set together on a flat surface. For consistency, assemble all your hoops in the same spot, so they match.
- Using a #8 self tap screw, connect the hoop together to prevent twisting and separation. Screwing straight down while the hoop is lying flat will ensure the screw is parallel to the ground once you raise the hoop.
- When all of the hoops are connected, place them near the ground posts.
- With a partner, stand the hoops up and place one side into a ground post and then the other. For consistency, have the same person go first. At this point do not force the hoops down into the ground posts all the way. Adjustments will come on the next couple of steps.

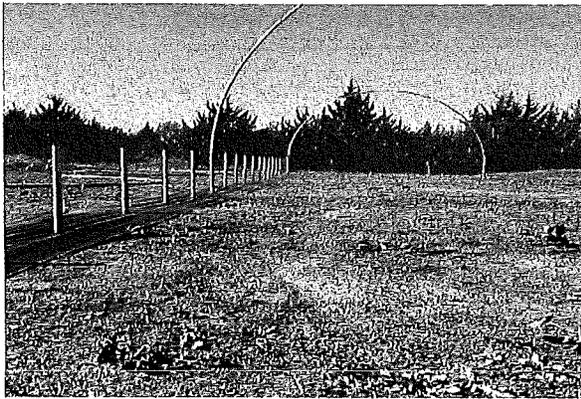


Scan QR for info on **Setting Hoops** or visit

<https://youtu.be/eXq7C5LAeVQ>

Installing Hoops to Ground Posts

1. While on a ladder, one person eyeballs the top of hoops as a partner adjusts the height of the hoops at ground posts. (20' has a center height of 11'-4". The 14' has a center height of 9'-4")
2. Adjust height and sides until they all line up and are level all the way along the structure.
3. When you are satisfied with the hoops being aligned, drill a 1/4" hole through the hoop at the hole in the ground post. Secure with 1/4"x2" bolt, flat washers, lock washer, and 1/4" nut.



NOTE: If you purchased optional bracing, installing on the ground posts now will be much easier. SKIP TO PAGE 34 for install instructions.

Do not stress out about the hoops looking uneven when in the ground posts at this point. Adjustments will come later.



Scan QR for info on **Installing Hoops to Ground Posts** or visit

<https://youtu.be/S0iSPnsYVi0>

Cross Connectors and Ridge Poles

Pictures on the following page.

Ridge poles and cross connectors work together to connect and stabilize the hoops. Optional purlins and additional cross connectors further stabilize and are installed the same way. (See page 33)

Tools

- Rope/ Stakes
- Drill w/ 1/4" bit
- Step ladder
- Saw
- Ratchet & Sockets
- Tape measure
- Cross Connector 1.375
- 75in Swage Ridge Pole
- 36in Extension Ridge Pole

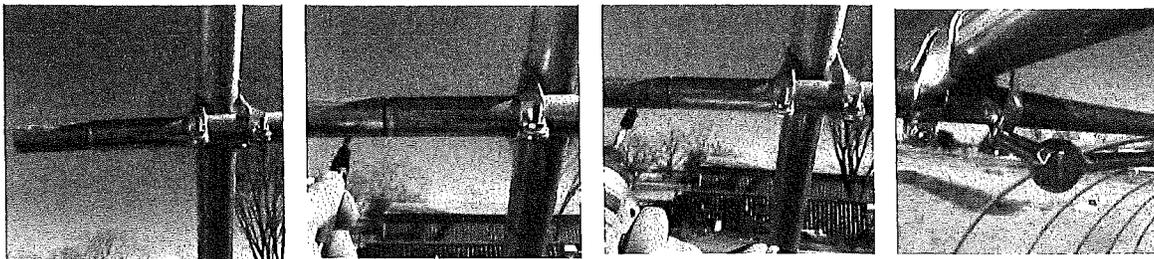
- wrench

Parts (PER 20FT)

- 1/4 x 2" bolt galv. (15)
- 1/4 nut galv. (15)
- 1/4 split lock washer galv. (15)
- 1/4 flat washer galv.(30)
- End Wall Band Clamp 1.375"
- #10 self tap screw

Install Ridge Pole and Connectors

1. Loosely place cross connector on the top of the rest of the hoops.
2. Starting at one end wall carefully ensure that the end wall is still plumb.
3. Connect the ridge poles together with #8 self tap through from the bottom or on the side at the swaged connection.. Insert the pole into the end wall cross connector and the next hoop cross connector. Continue adding ridge poles until the other endwall is reached.
4. Center the loose assembly on the very top and center of the hoop, double check the plumb of the end wall and tighten the bolt on the connector using a ratchet.
5. Measure 4' on center from 1st tightened connector to the next connector and secure at that point.
6. Repeat this process for each hoop as you make final plumb adjustments while keeping cross connectors 4' apart. Depending on the length of your greenhouse, you will use a 36" extension on the end of the ridge pole, or a full 75" ridge pole and cut off the excess.



Scan QR for info on RidgePoles or visit

<https://youtu.be/AfTKTvcqw20>

Hip & Base Braces

All Metal Kits use 16 gauge hat channel. Hat channel is the same material for both the hip board and baseboards where lumber would typically be used.

The hip and base braces are made exactly the same way and is a layering process between hat channel, hat splice, and lock channel.

These steps are not complicated but do require your understanding of the process before you start. Please read all steps in this section, view pictures, and consult our video on the build process. Hat splice seams will get close but not fall directly on hoops. When you are assembling, understand that you slide the next hat channel inside of a space between the hat splice and lock channel as you butt up to the previously installed hat channel. Begin with the base and then the hip brace. Keep the base brace as close to the ground and level as possible.

Tools

- Drill & Drill Bits
- Clamps
- Metal Saw
- Bubble Level

Parts

- #8 self tap
- #10 self tap
- lock channel
- 78" hat channel
- 10" hat splice

*Save time by laying out the lock channel, hat channel and splice ahead of beginning installation

Installing the Hip and Base Brace

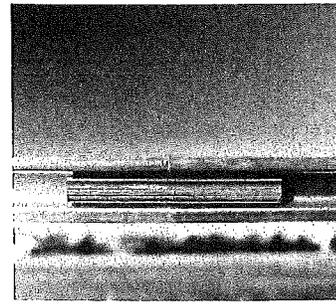
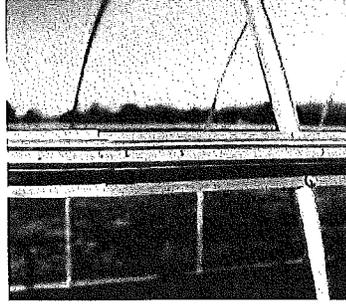
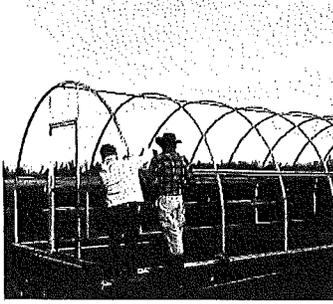
1. Begin on the same end you installed the ridge pole. Using #10 self tap screws attach base hat channel level and even with the end wall hoop as you secure to the second hoop.

***Note:** you do not need a splice on the end wall hoops.

2. Cut a piece of lock channel to 2' and secure it to the hat channel on the outside face of the first hat channel nearest the endwall with #8 self tap screws. This allows seams to stagger.
3. Using a clamp secure a hat splice spaced evenly (5 in.) between the butt joints of the hat while sandwiching a full (6 '6") piece of lock channel. Secure all three pieces (lock channel/hat channel/and hat splice) with #8 self tap screws.

Note: that you are only securing half of the hat splice. (Pre drilling through the lock channel and hat channel can make this easier and prevent breaking screws)

4. Next, slide a new piece of hat channel between the space left by the previous half hat splice and the lock channel. Secure seam with #8 self tap screws (no washer) through lock channel/hat channel/ and hat splice.
5. Secure new hat channel to next hoop (using #10 self tap screws) and repeat the process until the end.
6. Cut off excess hat and channel at the end of the hoop house flush with the end wall.
7. The very bottom of the hat may be difficult to reach when installing bottom #10 self tap. Use an extension or dig out a little hole to get the screw in.



Scan QR for info on

Installing Hip and Base Braces or visit

<https://www.bootstrapfarmer.com/blogs/building-a-greenhouse/installing-hip-and-baseboards-on-a-hoop-house>

Note On Installing the Hip Brace-

Begin on the same end you installed the ridge pole.

The hip brace will be installed between 3-1/2' and 6' above the base brace. Mark this height on each of your endwalls and run a line level to guide your hip board installation.

If your line is not level, move your lower side up until you find the level line.

This will give your roll up sides a large opening to cross ventilate and will also work with the optional Insect Netting and the appropriately sized shade cloth for your structure.

Keep the hip board level and check hoops for plumb as you go.

End Walls

Pictures on the next page.

Tools

- Ladder
- Mason Line
- Drill
- Ground Post Driver
- Bubble Level
- Tape Measure
- Clamp

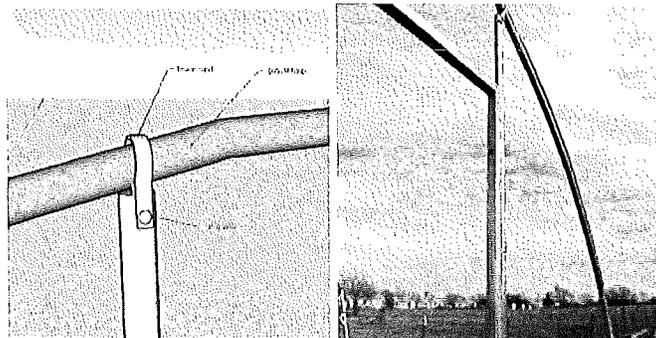
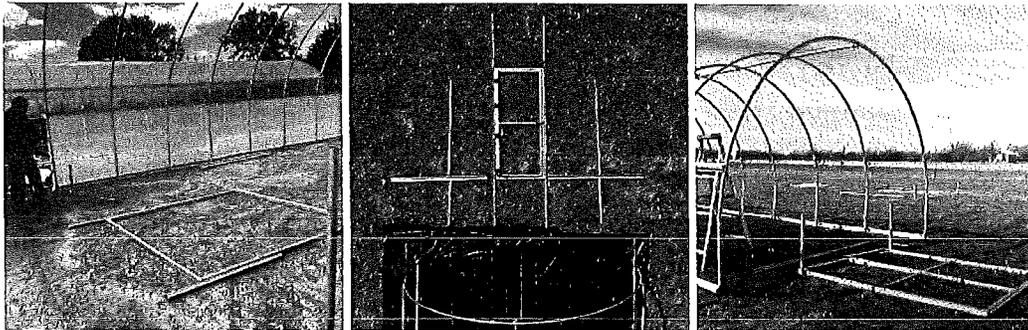
Parts

- Ground Post
- Lock Channel
- Ridge Pole
- Endwall Hardware Kit
- 1 3/8 Tension Bands

Installation of End Wall

1. Run a mason line across the end hoop on the outside of the building.
2. Center door frame in the middle of the hoop.
3. Install ground post inside of line and immediately to the left and right of door frame - 2' in ground / 2' above.
4. For 20' houses, center additional vertical supports 1/2 way between hoop and door and install ground posts.
5. Attach hat channel as base board with #10 self tap screws level along ground to all ground posts - cut off excess. There will be no baseboard across where the door frame is to be installed in the next section.

6. A. Insert ridge poles into newly installed ground posts (with swage facing up).
B. Insert 36" ridge pole extender onto ridge pole (door uprights only) and secure with #8 self tapping screw, through the side of the swaged connection.
7. Install a tension band over the endwall hoop. Slide ridge pole up to bottom of hoop and secure with a #10 self tap through the tension band. (Pre-drill a pilot hole in the end of the vertical pole for ease of attachment)



Scan QR for info on
Building End Walls or
visit

<https://youtu.be/zJ34EQjeBMU>

End Wall Lock Channel

For the hoops

On the end walls, install the lock channel from baseboard to baseboard going over the outside/top of the hoop.

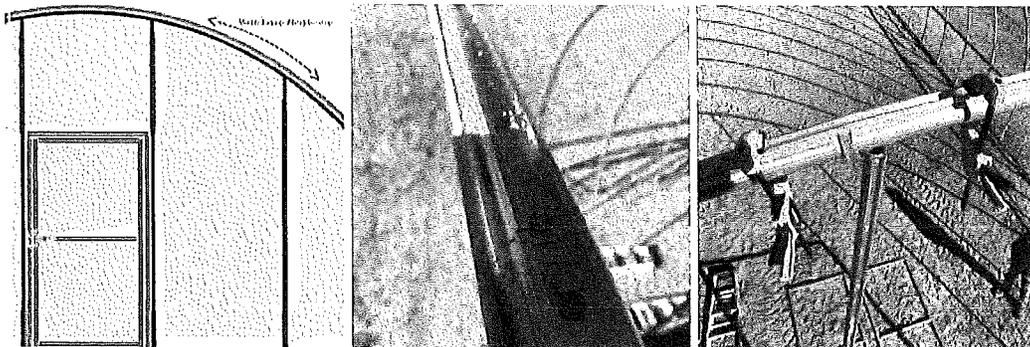
The channel will bend with the curve of the hoop with **ZERO modifications, Do Not Notch the Channel.**

Keep your clamps at the ready to assist with bending and holding the channel as you use the #8 self tap screws directly in the center of the channel. (Use the grooves in the Lock Channel to keep your screws centered)

At the hip brace, cut off the lock channel and continue on the other side of the hip brace to the bottom base brace on both sides.

For the end wall uprights

Attach the lock channel to all vertical end wall supports from the base brace up to 12" below the top of your hoops.



Optional Upgrades

If you did not order any of the additional upgrades you can skip to the section on attaching your plastic starting on page 40. Many upgrades are installed before the plastic or this affects the installation steps.

Purlin Kit (Optional)

****The Purlin Kit is installed the same way as the ridge poles.****

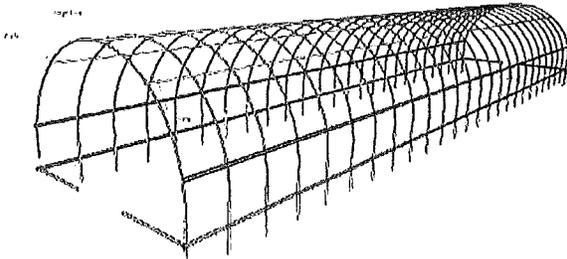
Tools

- Drill w/ 1/4" bit
- Step ladder
- Saw
- Ratchet & Sockets

Parts

- Cross connector 1.375" (2 per hoop)
- 75in swaged ridge pole (# dependent on length of kit)
- 36in extension ridge pole (2)
- End wall cross connectors

Installing Purlins



Purlin poles will be installed approximately on the 50° mark. Half way between the ridge pole and your hip braces. Depending on your end wall options it may or may not fall in line with vertical end wall supports. This is okay as they are not dependent on each other.

You may notice the hoops may still need adjusting as you work your way down. Use a clamp to help pull the Purlin to the hoop so you can install the cross connectors.

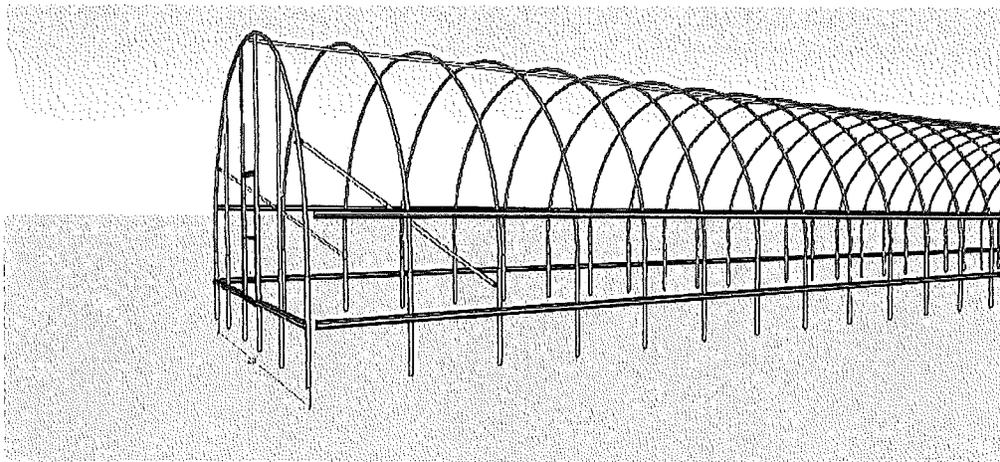
Corner Brace Kit (Optional)

Tools -

- Ladder
- Tape Measure
- Drill
- Saw
- Ratchet & Sockets

Parts - (hardware included)

- 1 $\frac{3}{8}$ " Tension Band
- Flat Swage 36in Brace
- Flat Open 78in Brace
- 1 $\frac{5}{8}$ " Tension Band



Carriage bolt threads will be situated toward the inside of the hoop house.

Installation of Corner Brace

1. Insert swaged end of 36" into the 78" and connect with #8 screw. Make sure that the flats are in line with each other, before screwing together.
2. 1 $\frac{3}{8}$ " Tension bands wrap around endwall hoops and secure with bolts through tension band and hole in flat end of the brace pole.
3. 1 $\frac{5}{8}$ " Tension bands go around the third hoop's ground post and are secured with bolts through tension band and hole in the flat end of the brace pole.
4. Repeat steps for each corner.

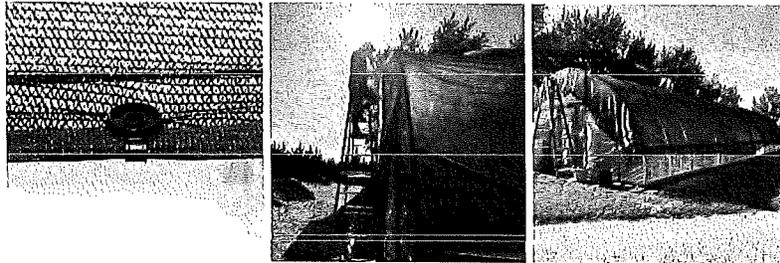
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Shade Cloth (Optional)

Installation

- Shade Cloth Clips - A plastic clam shell with spikes that grip the shade cloth with a hole in the middle to strap with rope, strap, or other securing line. This works best if your shade cloth doesn't reach your hip board. Clips should be installed at least every 24" and we suggest extra at the corners. If you are using clips you can just secure the sides. Wind will pass through the knit so you do not have the same wind loads as greenhouse plastic.
- Spring wire into the same channel as your plastic. Follow the same instructions as you would for a double layer. End wall hoop from back to front and hip to hip.



Scan **QR** for info on
Shade Cloth or visit

<https://youtu.be/KIJ0sz6FJJE>