



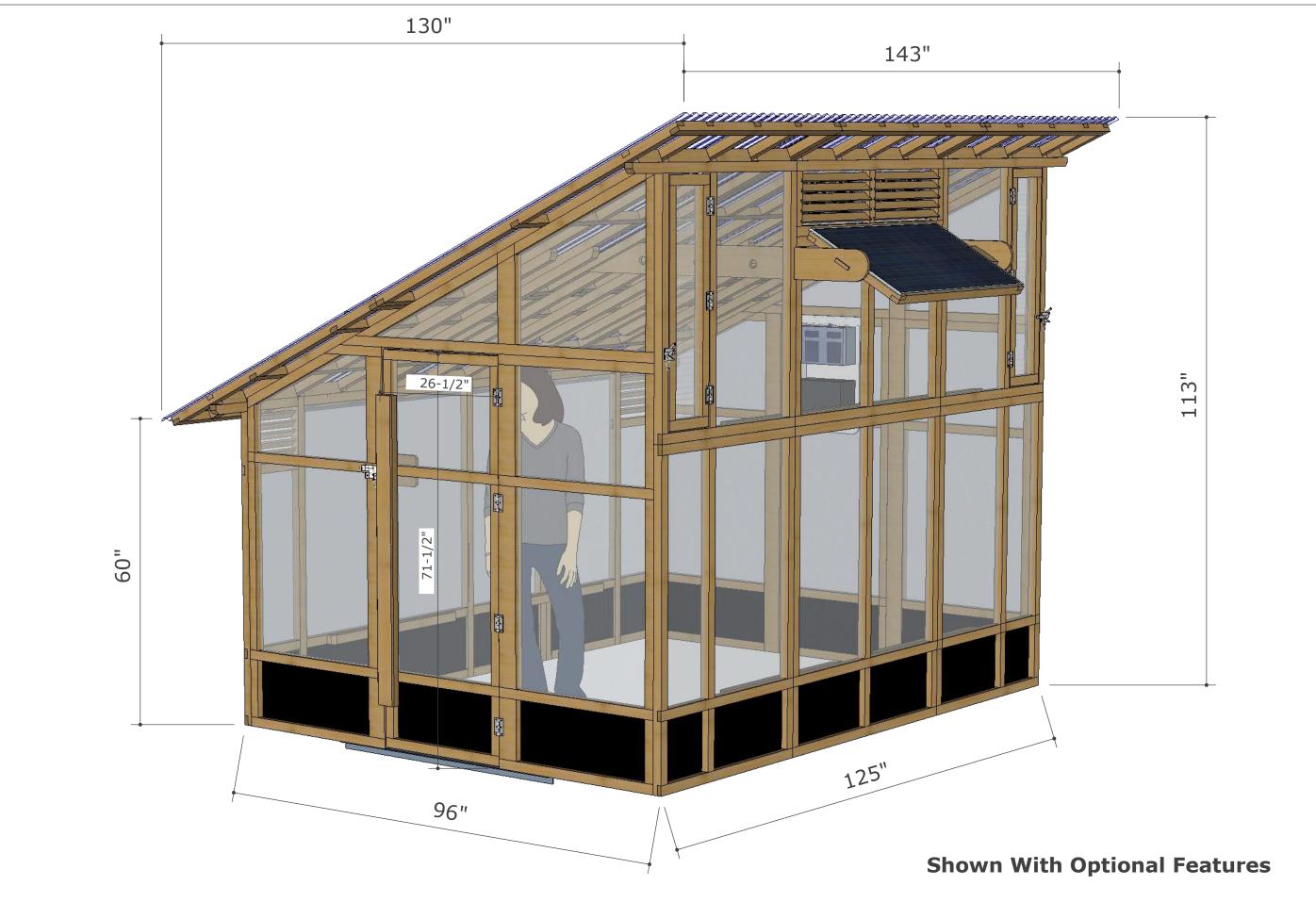


Assembly Support ext 3

**Assembly Overview...** 



**Standard Model Shown** 





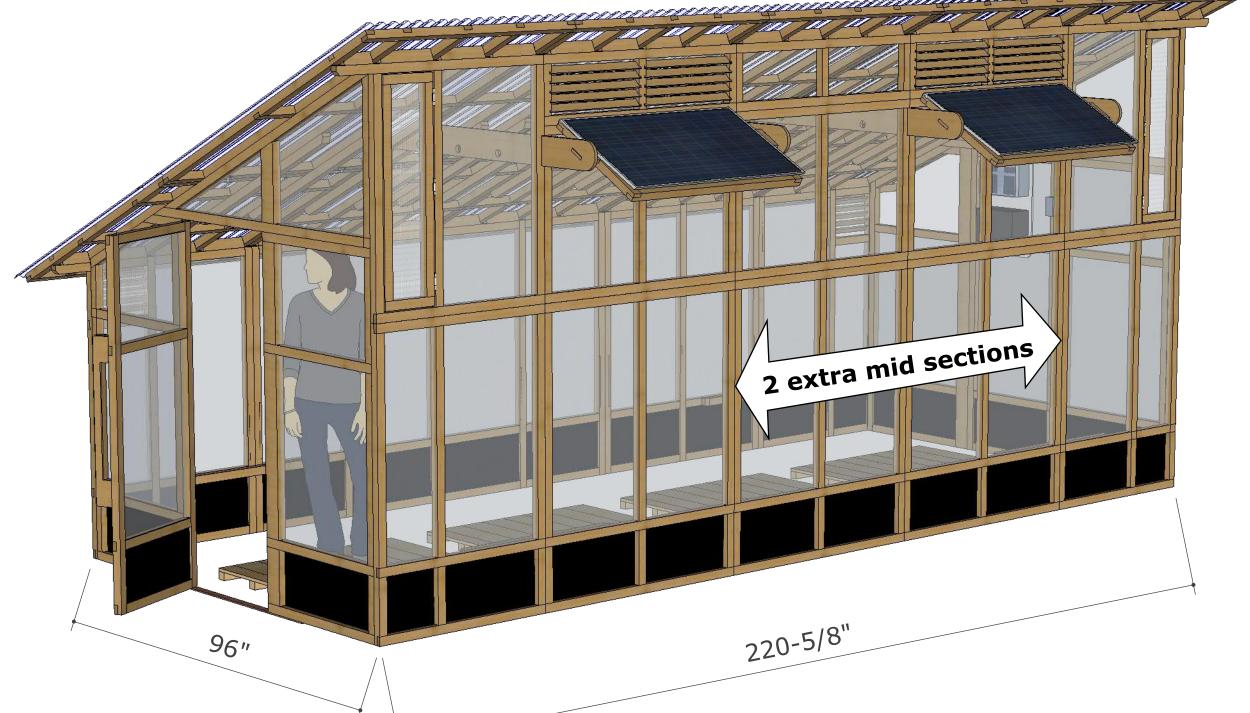
**Assembly Instructions**Slant-Roof Greenhouse™
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Dimensions Standard Model



Assembly of the XL Model is identical to the Standard Model but for the addition of two more middle sections.

XL Model notations will be in yellow circles.

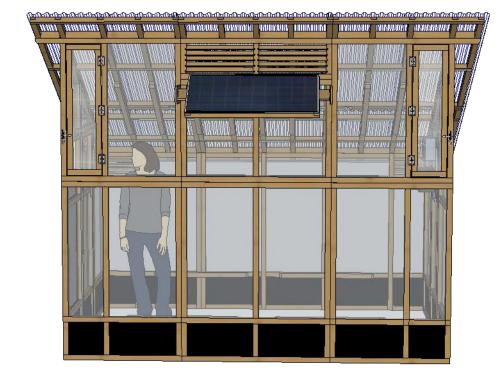


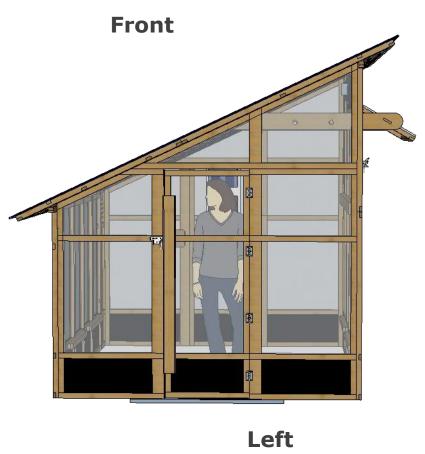


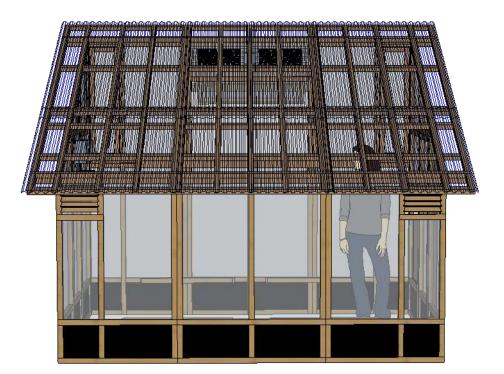
Pg 02

**Shown With Optional Features** 











Right

# Reading this will help you...

Understanding these concepts / conventions will help guide you through the instructions.

- Mating edges of parts to be flush and tight (when called for) will keep measurements in tolerance as the greenhouse grows in size. By flush we mean to align edges.
- Having a flat area is required for the greenhouse to assemble properly. Any humps will telegraph into wall straightness.
- We estimate about 12 man hours (6-8 hours for 2 people) of ordinary skills to assemble. Two strong people are required for several steps.
- You will need a drill (preferably cordless) a tape measure and a hammer. Everything else is provided.
- Drive screws only deep enough to hold parts tight and not bury the heads too deeply as water will sit in the divots and it may cause softening of the wood and prematurely loosen screws. It will also greatly decrease your ability to easily disassemble a part if needed.
- You may end up directly driving in a screw. The provided screws are very aggressive and will drive with no pre-drilled hole. Keep screw entry points in the meat of the wood and not too close to edges. Screws in knots or close to edges should be pre-drilled.
- Rough cedar may have knots, cracks or frays that are normal. We cull and cut around most imperfections we deem structurally problematic during fabrication. If you get a piece that you feel is not beautiful, please let us know so we can address your concern. Cedar naturally varies quite a bit.
- We hand fabricated your greenhouse with human carpenters.
   We work really hard to not make mistakes. On the rare occasion that we either misfabricated a part, a part was damaged in shipping, or we forgot to package a needed part, contact us and we will ship out a replacement part for you at no cost.
- It is common for rough cut cedar to vary in size by up to 1/8 inch and to shrink and swell by up to 1/8 inch when wet and dry. It is normal for edges to not perfectly line up and shrink and swell during periods of heavy rain or snow cover.





# Please Be Careful

tx2

**Designed to be assembled by two strong people of ordinary skill.** 



Any building material can have sharp edges. We attempt to knock off sharp edges when possible during fabrication. You must be the final determiner of sharp edges. A standard file from your hardware store, or snips can be used to make edges to your standards. You may choose to wear a pair of work gloves while assembling this product for extra protection. Wood, being what it is, can also have splinters.



Spending the time up front to identify all the parts and lay them all out will pay off in the long run and make assembly go more smoothly. The instructions are intended to be read in page order as the information builds in that way, then referenced during assembly. Pre-reading the instructions will help immensely.



Be careful not to get caught inside your greenhouse. Children should not play in the greenhouse. If you decide to install some inside closure device, keep children in mind.



The roof has been load tested with more than #1000 of weight and a #200 man. But we do not intend on you being up on the roof. It will not reach its full strength until after full assembly and at 25° it is extremely steep. We use a unique preassembled scissor style folding roof design that allows you to place the roof from the ground. It will take two strong people... maybe 3 if you're not comfortable working with weight. If you decide to work from a ladder, be mindful of your balance and weight load.



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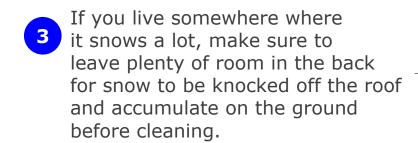




For optimal light transit time you want your greenhouse situated East to West from side to side.



If you bought the AVM Solar Ventilation System then the solar panel is optimally facing South with clear unobstructed view of the sun.



The more room you leave around your greenhouse, the more light that can come in through the sidewalls.

This orientation guidance is for optimal results. If you cannot position greenhouse like this, it can still function adequately.



**Assembly Instructions** Slant-Roof Greenhouse™ V4.1 Spring 2023

Orientation





M6

Position

Approximately

10" Overlap

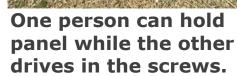
L1

**B3** 

Make Bottom Flush

Bigger ledge

goes out.



Threshhold & Back Left Corner



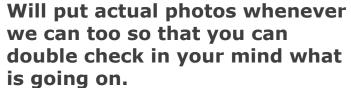
Pg 07

## It will make sense soon!

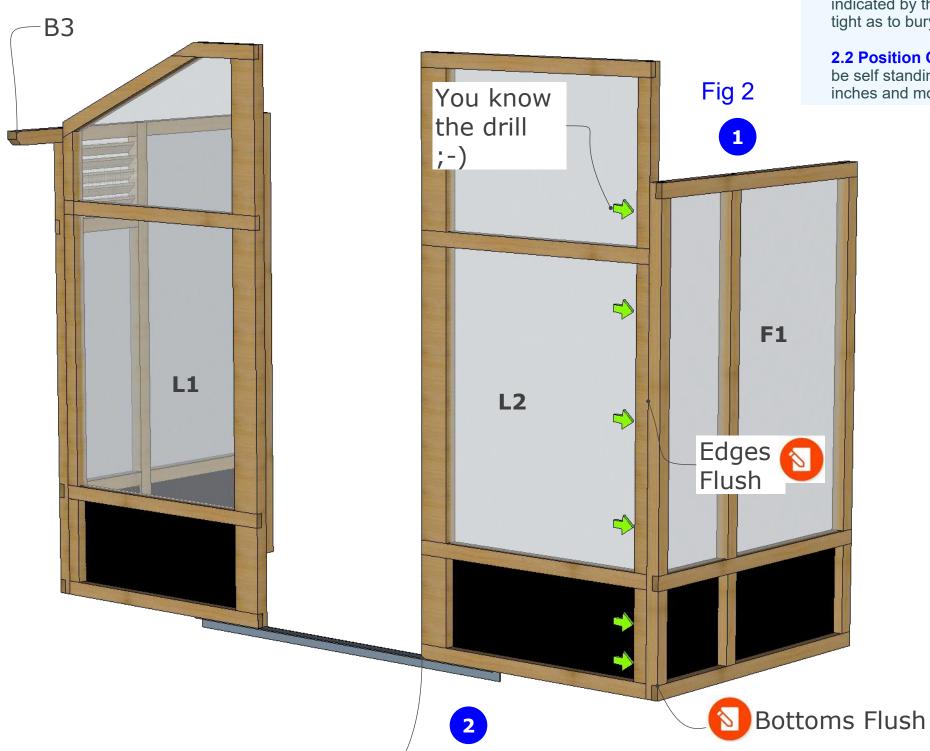
**2.1 Assemble Front Left Corner:** Using provided E1 3" T-25 screws, your drill and the provided T-25 bit in provided bit holder, assemble the front left corner L2 to F1 as shown in FIG 2.

Focus on making bottom and side edges flush and then drive screws as indicated by the green arrows only tight enough to secure the pieces and not so tight as to bury the screw head too far. (swear not to repeat this again :-)

**2.2 Position Over the Threshold Stabilizer:** The assembly should be able to be self standing. Generally position over the stabilizer overlapping about 10 inches and move on to the next step.







About 10" of overlap

Flush

# We're about to find out how flat your ground is...

**3.1 Install Left Triangle Panel:** Place the L4 triangle panel on top of L2 and L1 as illustrated and the using E1 3" T-25 screws, screw down L4 panel tight to L2 and flush in the order of the 1-3 green arrows as shown.

3.2 Position Over L1: Line up L4 over the top of L1 making flush as shown in FIG 3A and then install screws 4 & 5 drawing the seam tight.

If the ground is not level and the tops of L2 and L1 are significantly off it will become apparent in this step. Let the screws draw the assembly tight and remove or add soil under L1 & L2 as needed to support the assembly.





**Assembly Instructions** Slant-Roof Greenhouse™ V4.1 Spring 2023

Left Side Triangle Panel





# The one time you'll use a tape measure... sorry :-(

**4.1 Verify Door Top Opening:** Take a measurement in the door opening at the top. It should be pretty much 26½ inches. If it's more than 1/4 inch off then verify front edge of L4 to L2 are flush and that trailing edge of L4 to L1 angle is aligned. See FIG 4A.

**4.2 Pin Left Side of L1 Door Frame:** Line up back edge of L1 Panel to the M6 stabilizing strip back edge and using the provided 5/32 drill bit drill down through the bottom rail of L1 through the aluminum strip. Fig 4B Note: Take care not to move when you withdraw the drill so the holes stay lined up. Insert an E1 screw into the hole you drill and drive the screw SLOWLY through the bottom rail into the aluminum bar so as to lock the bottom edge to the bar. If the screw resists too much, reverse out, and slowly repeat going in until the screw seats into the aluminum.

**4.3 Pin Right Side of L2 Door Frame:** Line up back edge of L2 Panel to the M6 stabilizing strip back edge. Move in or out the bottom of the L2 Panel as needed to make the bottom opening the same as the top opening. Using the drill bit, repeat the procedure you did to pin the left side of the door, and pin in place the right side of the door.

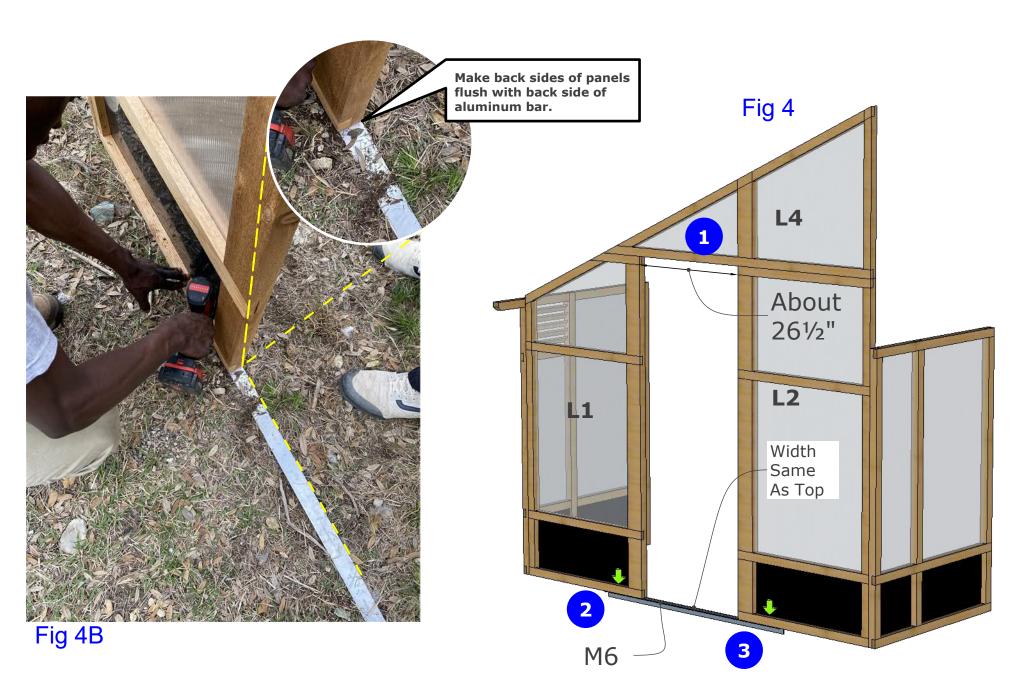




Fig 4C

5/32 Drill Bit



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Set doorway...

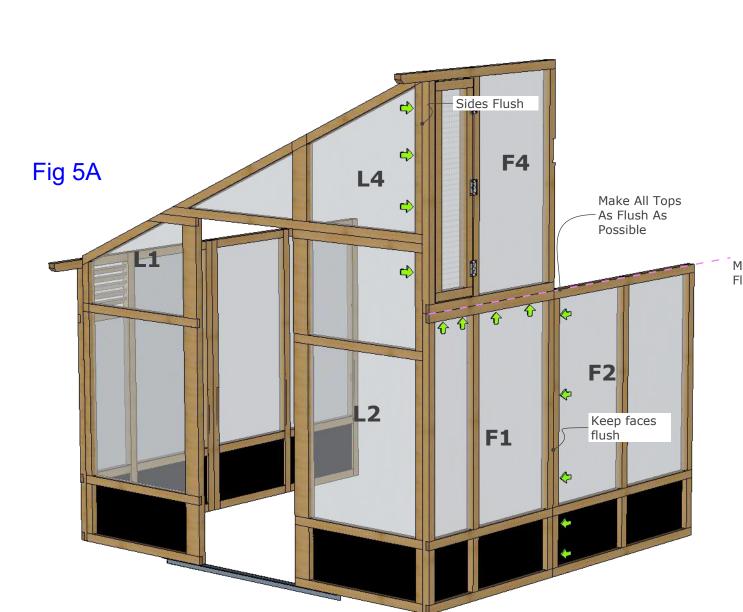


# Lets get this done... 3 panels at once!

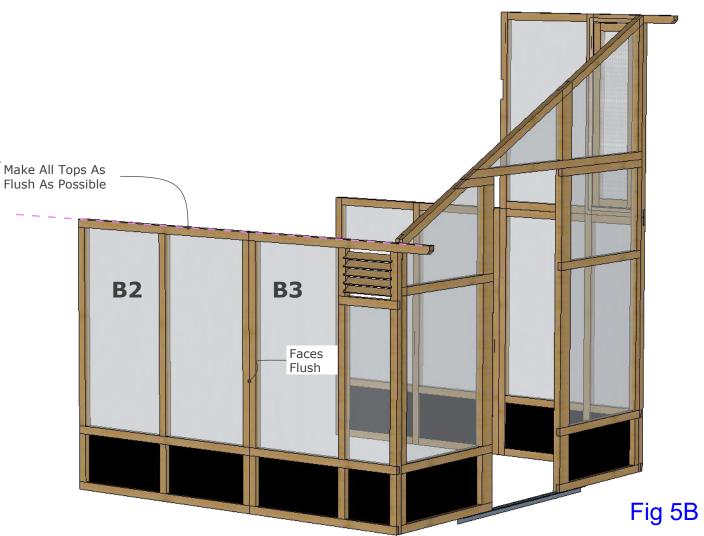
**5.1 Install Bottom F2 Panel:** You know the drill. Using the provided T25 screws where indicated by the green arrows, attach F2 to F1 keeping top edge & faces as flush as possible. See FIG 5A.

**5.2 Install F4 Panel:** Place panel F4 on top of panel F1 making sure bottom edges and side edges where F4 meets L4 & F1 are as flush as possible. Attach using T25 screws as indicated by the green arrows. See FIG 5A.

**5.3 Install B2 Panel:** Aligning faces and top edge of panel B2 to panel B3, install T25 screws as indicated by the green arrows in FIG 5B.









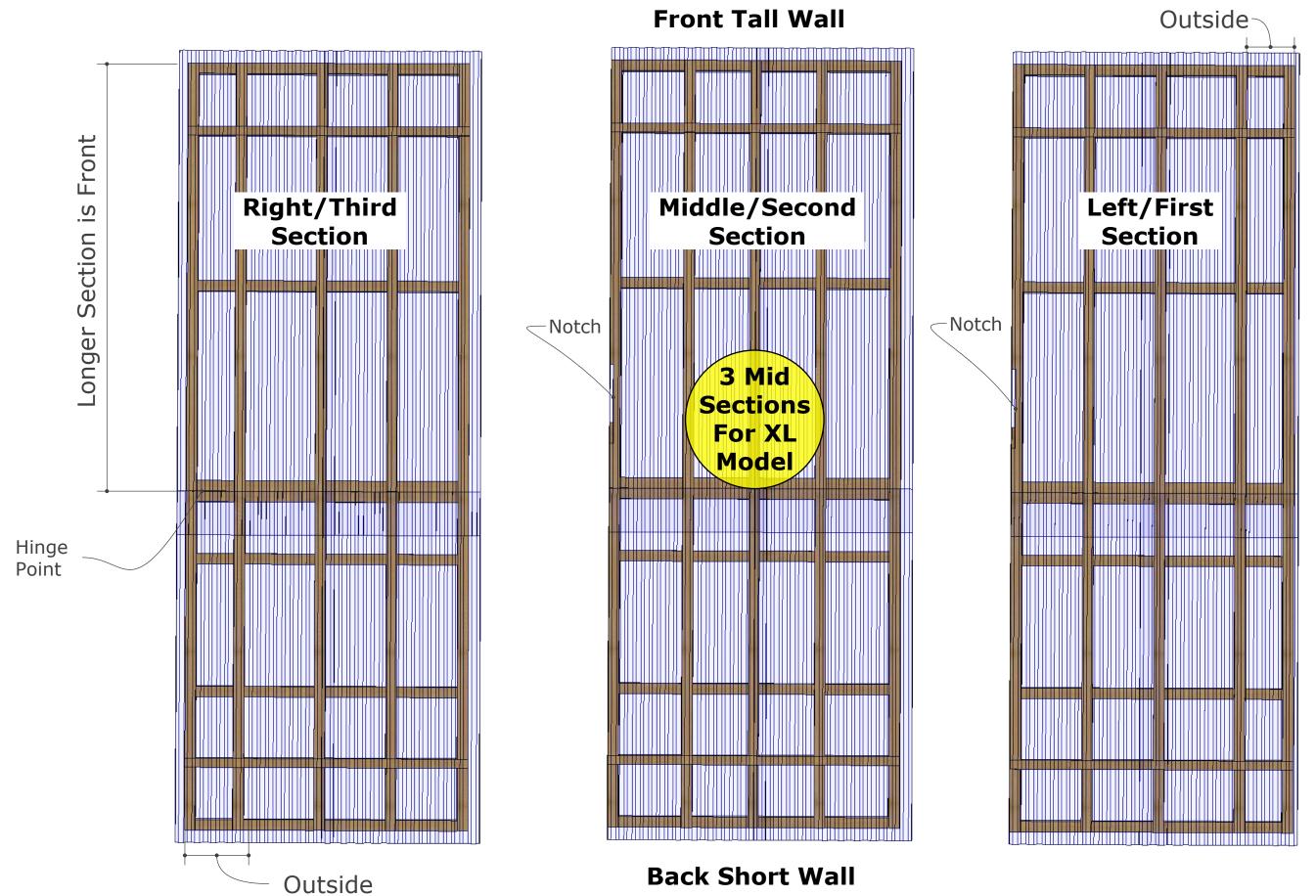
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Panel Push

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Looking down aerial view.





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Roof Section ID



# The concept of the pre-assembled scissor roof...











Maybe 3 People If You Aren't Comfortable With Weight

# We didn't want you crawling up on the roof...

General procedure... instructions on next page.

- **1. Stage Roof Section:** Carry the roof section into the open end of the partially assembled structure. positioned with the hinged end going in first and the shorter side of the roof assembly facing the back of the greenhouse.
- **2. Stand Up & Fold Open:** The first person in stands their end up and the short side is folded over the back side of the greenhouse while the long side is straightened out over the front.
- **3. Slide Over Into Position:** After unfolding, slide the roof up and into position over the triangle side of the side wall. You will use the side triangle as a ramp and to hold some of the load.
- **4. Slide Up & Over The Top:** While lifting a little to take weight off, LIFT & SLIDE the assembly up and over the front wall of the greenhouse.

This procedure is repeated for all roof sections.

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**2** 

The polycarbonate roof is very, very flexible and will not break if you rest weight on it.

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**Assembly Instruction**Slant-Roof Greenhouse™
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Roof Section 1 Unfold & Placement









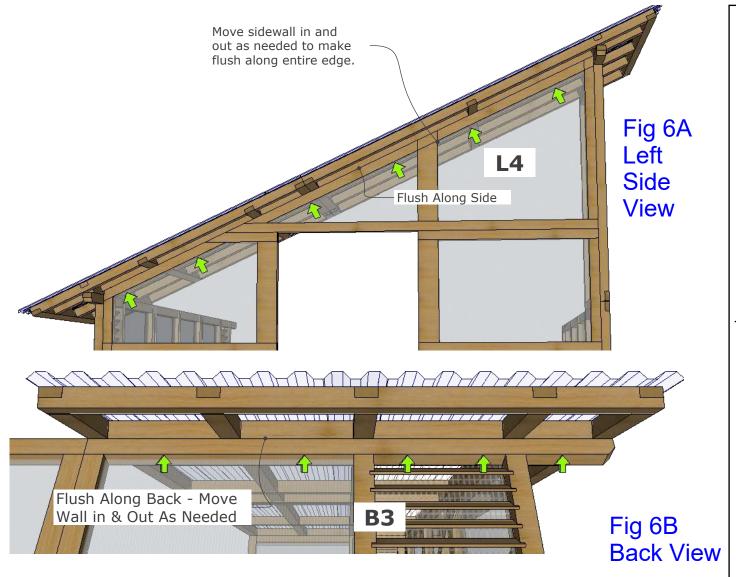


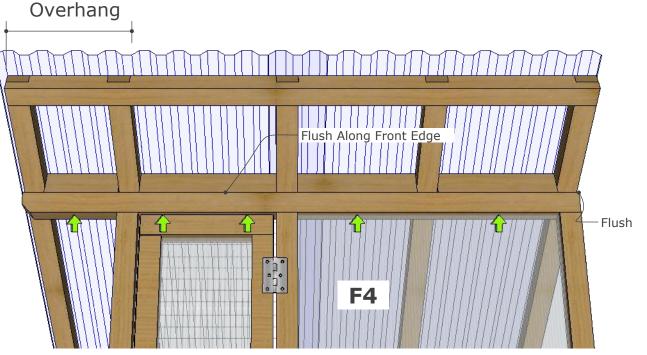
**6.1 Slide Side & Back Into Place:** Refer to instructions on page 11 for placement procedure and put in place Roof Section 1 as illustrated onto left end of greenhouse.

**6.2 Square Back to Left Side:** By moving the roof section and pulling in or out back walls and left side wall, make the back edges and the side edges of walls flush with the roof frame as indicated in illustrations. Place 3" T25 Screws in back B3 panel and left L4 and L1 side panels as indicated by green arrows in FIG 6B.

**6.3 Align Front Edge:** By moving the front wall in or out, align top of the F4 panel with the beveled front roof frame piece making the edges flush and install T25 screws as indicated by green arrows in FIG 6C.

Refer to figures and photos 1-4 to orient yourself to the task.







**Assembly Instructions**Slant-Roof Greenhouse™
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Roof Section 1 (Left Side) Attachment



**Front View** 

Fig 6C



Assemb Slant-Ro

AVM Otional Parts II



Take Note...

Even though these parts look different in the coming steps if you ordered the AVM option, assembly is the same but is only shown for the standard model.

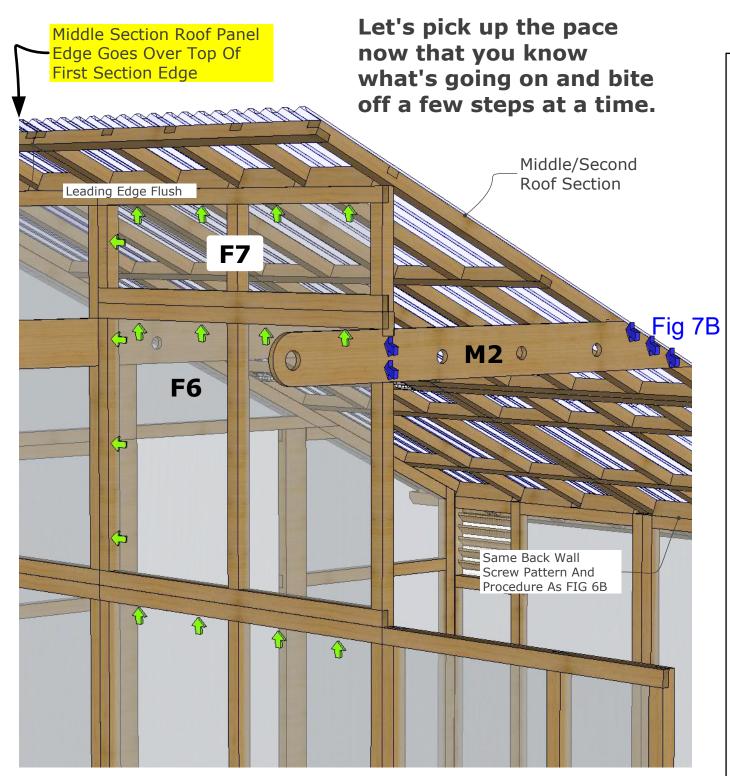


## Roof / Wall Support Bracket

**7.1 Install M2 Roof Support:** The M2 Bracket positions & stabilizes the front wall and provides some roof support. More roof support to come later. Position the M2 Bracket as illustrated in FIG 7A and using E2 T20 screws and provided bit, drive 5 screws through bracket as indicated by the blue arrows.

You will need to push the bracket into place in the direction of the aqua arrows making sure the front notch locks into the F4 panel as illustrated and the back edge of the M2 bracket is flush with the top edge of the roof frame.

This positioning will automatically lock the front wall and the roof into alignment for later strengthening.



# Big Bite very little instruction... but you know.

- **7.2 Install Panel F6:** Using T25 screws, install panel F6
- **7.3 Install Panel F7:** Using T25 screws, install panel F7 or louvred vent panel shown on prior page if you ordered the AVM Option.
- **7.4 Install Middle Roof Section:** Place middle roof section using the same procedure used in step 6 left section, and place then fasten to both front and back walls as indicated in FIG7B.

**7.5 Install Panel M2 Bracket:** Using T25 screws, and procedure in 7.1, install bracket M2 as indicated in FIG7B.

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**Assembly Instructions**Slant-Roof Greenhouse™
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M2 Brackets & Front Mid Section





**8.1 Attach Middle Roof Section To Left Side Roof Section:** Using T25 screws and provided bit, drive screws in the approximate locations as illustrated while pushing up on roof sections as needed to make sure bottom edges of each section are flush with one another. See FIG 8A. Holes are not pre-drilled. Drive screw towards the middles of the wood and their aggressive thread will self pierce.

**8.2 Front Leading Edge:** Using T25 screws and carefully standing on at least a 6 foot step ladder or similar... drive a screw in the approximate location as illustrated in FIG 8B while pushing up on roof sections as needed to make sure bottom edges of each section are flush with one another and the front leading edge looks straight.

**8.3 Back Trailing Edge:** Using T25 screws, drive a screw in the approximate location as illustrated in FIG 8C while pushing up on roof sections as needed to make sure bottom edges of each section are flush with one another and the back trailing edge looks straight.

Fig 8A



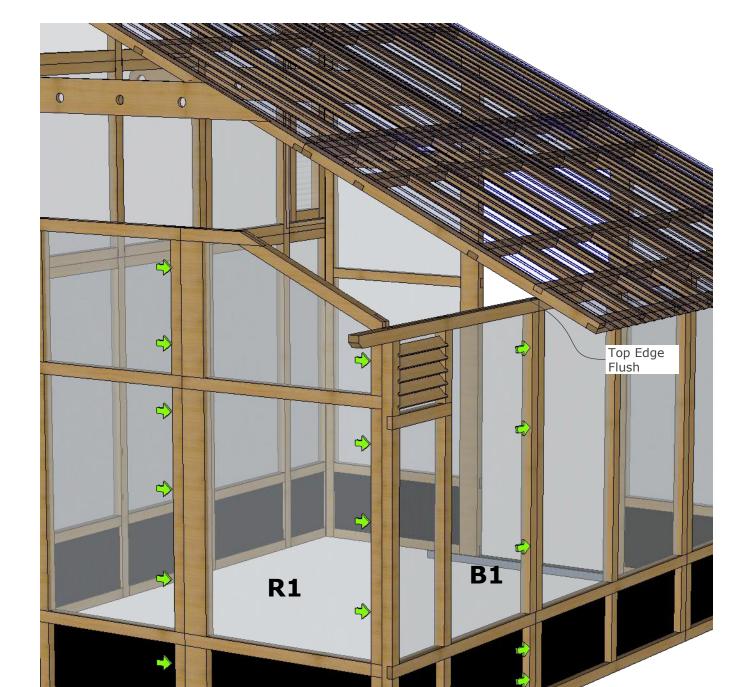
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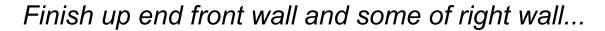
Screw Together Left & Middle Roof Sections





 $\forall$ 





← Flush Bottom

F5

F3

Flush Top Edge

**R3** 

Fig 9A

**R2** 

- **9.1 Install F5 Panel:** Using provided T25 screws install F3 & F5 panel as illustrated in FIG 9A.
- **9.2 Install R2 Panel:** Using provided T25 screws install R2 panel as illustrated in FIG 9A. Make bottom edge flush.
- **9.3 Install R2 Panel:** Using provided T25 screws install R3 panel as illustrated in FIG 9A making top edges flush.



Flush

**9.4 Install B1 Panel:** Using provided T25 screws install B1 panel as illustrated in FIG 9B making top edges flush and straight with other back panels.

**9.5 Install R1 Panel:** Using provided T25 screws insert and install the R1 Panel by first screwing from R3 into R1 with top edges flush and then making bottom corner flush, screw R1 into B1.

Doing so in this order will make the various panels fall into the right place and improve tolerances.

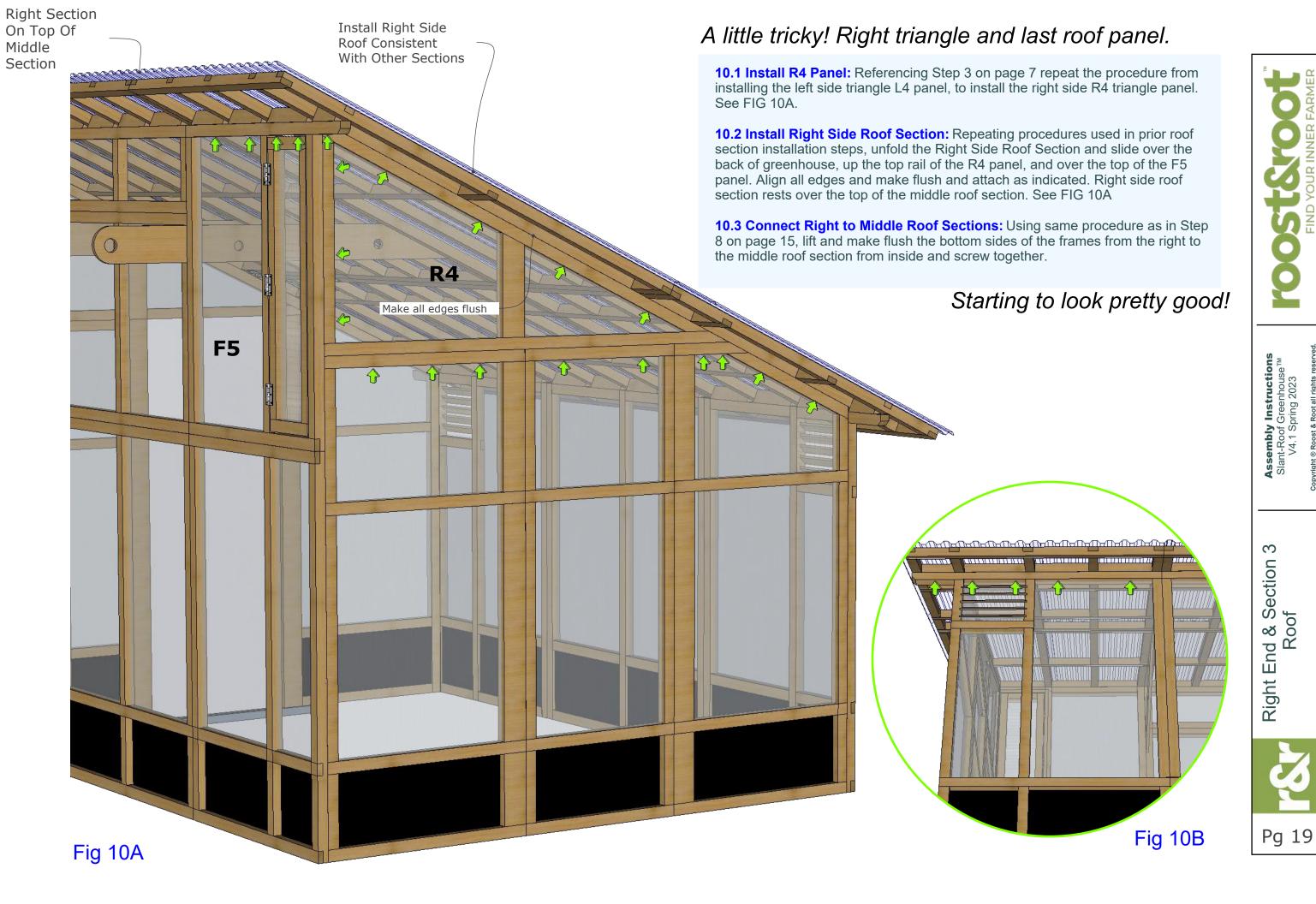
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Finish Front & Back Walls

Fig 9B





#### Flatten out the roof...

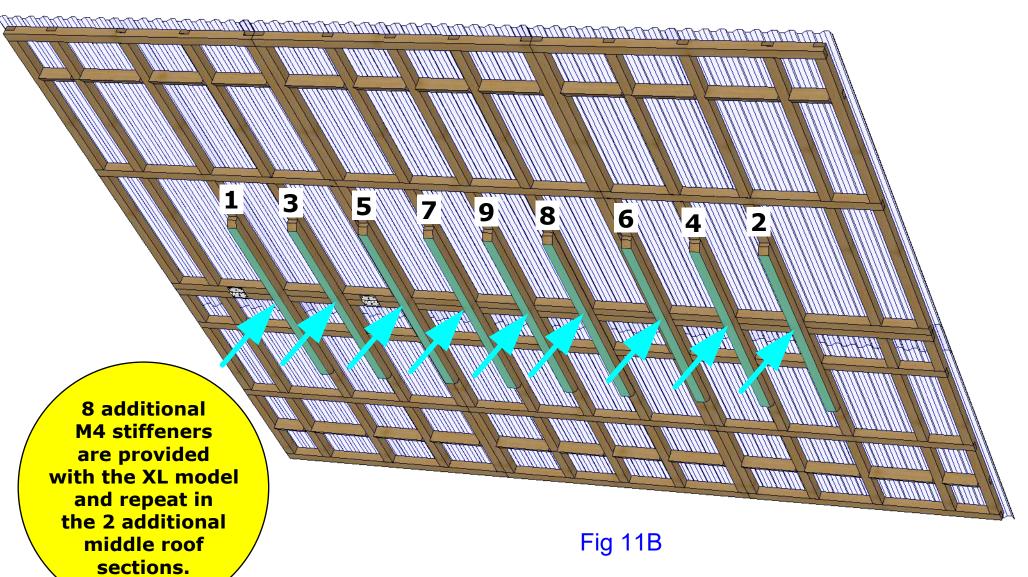
**Install Roof Stiffeners:** From inside the greenhouse, you'll be installing 9 roof stiffeners onto the underside of the roof frame in the positions as indicated in FIG 11B.

- **11.1** Starting off at the left end, place the stiffener along the indicated longitudinal frame member (beveled ends facing down) where the middle of the stiffener is approximately along the middle of the hinge line (see FIG 11A)
- **11.2** While pushing up on the stiffener to make it flat against the roof frame, drive T25 screws through the stiffener into the roof frame starting from the middle of the stiffener and working your way out. See FIG 11A for pattern. Repeat this until all screws for the stiffener are tightly screwed in. The stiffener should be flush against roof line.
- **11.3** Now go to the right end of the greenhouse and repeat the process for the stiffener in that position. Now start switching back and forth from end to end until you get all 9 installed. Roof will remain flexible to be able to absorb load of snow or wind pressure, but stiffeners will keep it flat.



While it's not super critical that you follow the exact pattern, it will in fact yield the best result. If you get off, it will not affect the structural integrity.

#### 9 M4 Roof Stiffeners 6 T25 Screws In Each

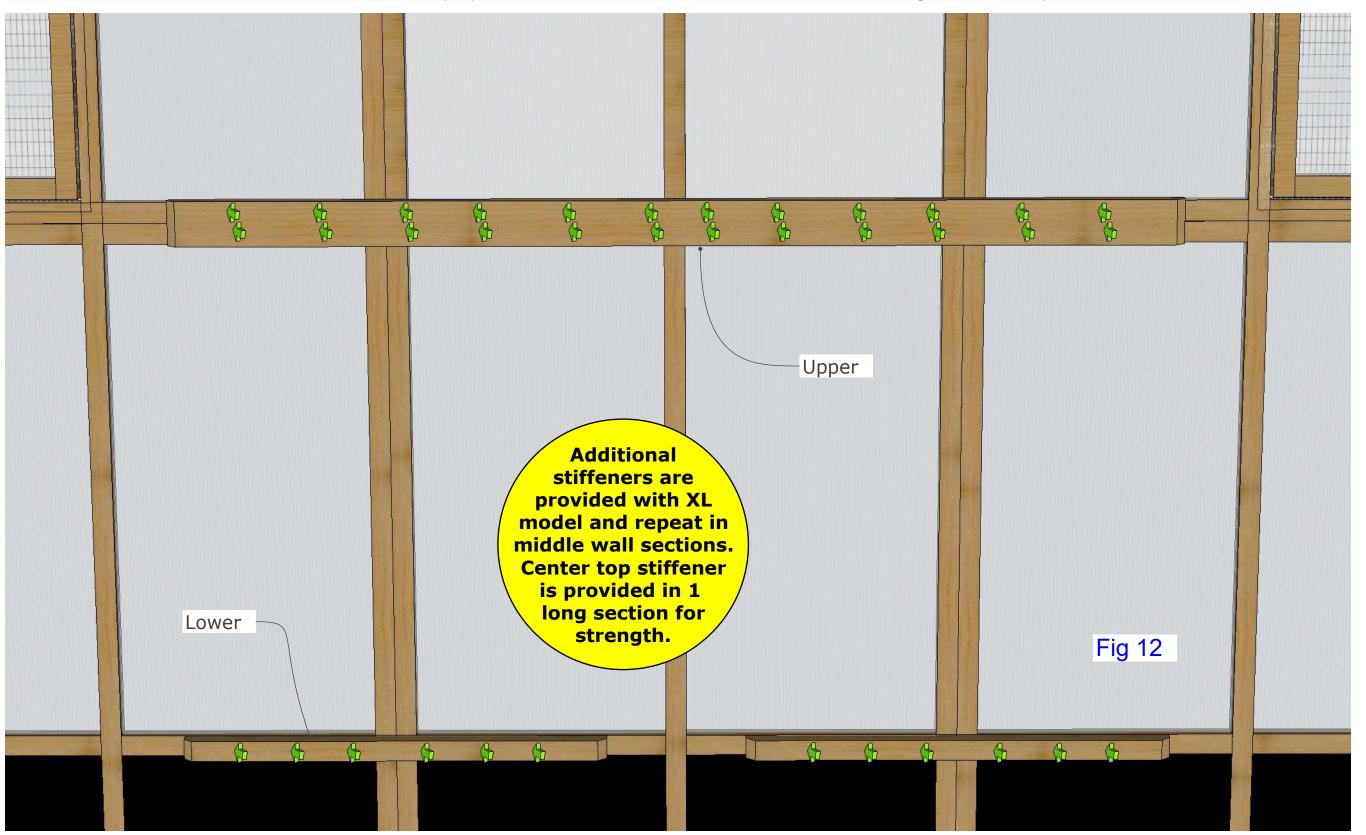


## Strengthen the front wall...

**Install Front Wall Stiffeners:** From inside the greenhouse, you'll be installing 2 wider and two of the narrower wall stiffeners on the front wall of the greenhouse. The position of the stiffeners is indicated in FIG 12.

**11.1** Position one of the narrower wall stiffeners centered over the lower wall seam (left or right) with beveled ends facing out, and attach to wall using T25 screws as indicated in the illustration. Push the wall from the inside, or have a helper push the wall from the outside to make the wall flat while affixing the stiffener. Repeat for other side.

**11.2** Position one of the wider wall stiffeners centered over the upper wall seam (left or right) with beveled ends facing out, and attach to wall using T25 screws as indicated in the illustration. Push the wall from the inside, or have a helper push the wall from the outside to make the wall flat while affixing the stiffener. Repeat for other side.



**Install Back Wall Stiffeners:** From inside the greenhouse, you'll be installing 2 of the narrower wall stiffeners on the back wall of the greenhouse. The position of the stiffeners is indicated in FIG 13.

11.1 Position one of the narrower wall stiffeners centered over the lower wall seam (left or right) with beveled ends facing out, and attach to wall using T25 screws as indicated in the illustration. Push the wall from the inside, or have a helper push the wall from the outside to make the wall flat while affixing the stiffener. Repeat for other side.





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Only tighten screws just enough to make snug and don't spin them and strip out the wood. Go slowly, or if your drill has a "clutch" setting, use the lowest number that will still tighten the screws.

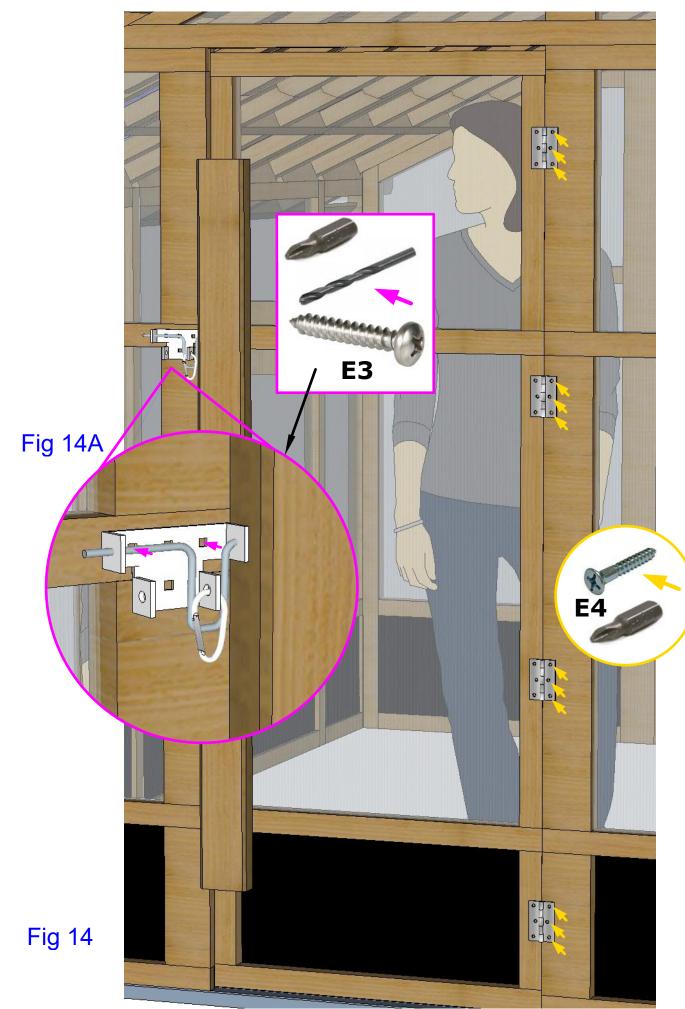
14.1 Install Entry Door: The entry door has the door side half of the hinges pre-installed for you and the holes on the door frame side pre-drilled. Start at either the bottom or the top and using E4 Bevel Head screws and included phillips bit attach 4 hinges with three screws each into the pre-drilled holes. Wedging something under the door to hold it at the proper height is helpful. See FIG 14.

14.2 Install Sliding Door Latch on Entry Door: Using E3 Larger Pan Head Screws, position sliding gate latch as indicated in FIG 14A such that the sliding bolt goes into the hole in the door handle when it is in the closed position. Slide back and forth to confirm smooth operation.

While holding the gate latch in place, use the provided drill bit and your drill to make a small pilot hole in the two positions as indicated and then attach using the E3 screws. The gate latch only requires the 2 screws provided.

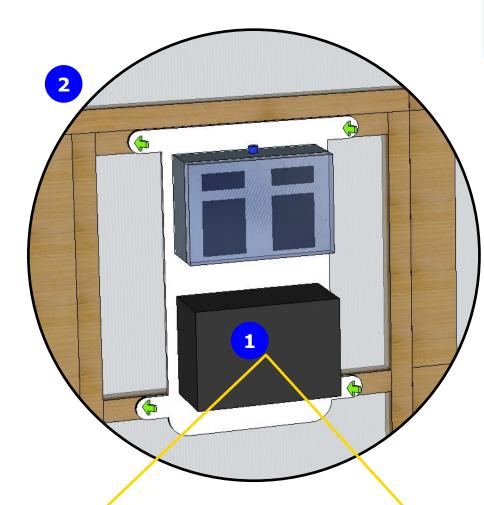
**14.3 Install Gravity Latch On Vent Doors:** Using E5 **Smaller** Pan Head Screws, position gravity gate latch as indicated in FIG 14B and screw into pre-drilled holes. Repeat for other side.





# **Optional AVM System Panel Mounting Instructions**







Hardware & Control Cable Are Inside SOCKIT Box

15.1 Unpack Hardware & Cable: Open the SOCKiT box and retrieve the controller cable and the bag of hardware.

**15.2 Mount Controller Board:** On center right inside wall, mount controller board using 4 screws as indicated. Be careful, board is deceptively heavy because of the SLA batteries.

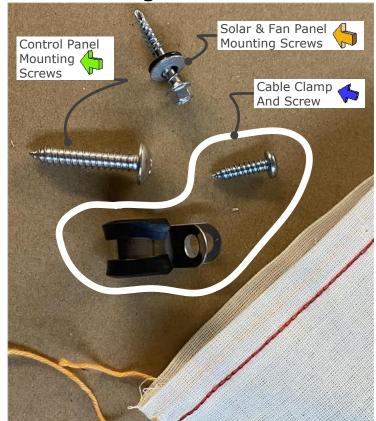
**15.3 Mount Fan Panel:** Taking care to protect fan blades... mount the fan panel as indicated using E6 rubber washered screws as illustrated. Don't crush plastic. Only tight enough to hold panel in place. Screws are self piercing.

**15.4 Connect (+) Battery Leads:** Activate the fan panel by opening the latches on the controller box and connecting the positive battery terminals. Controllers will energize to thier factory settings.

There are 2 fan panel by overtightening the screws.

There are 2 fan panel sections if you ordered the XL AVM optional for an XL model Greenhouse. Simply repeat mounting of fans in other section.

#### **Hardware Bag Contents**





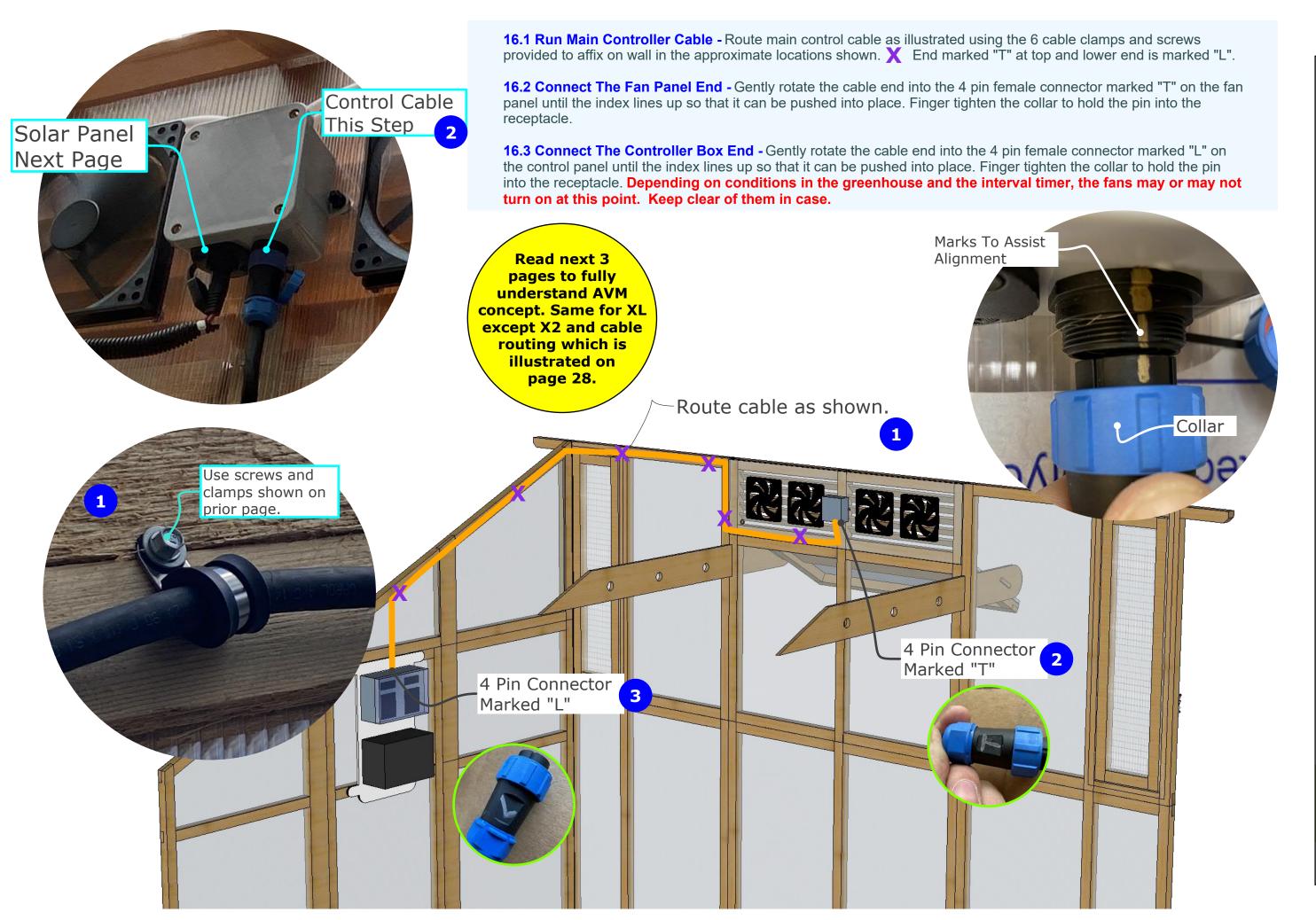
Hook up positive lead RED on both batteries. Controllers will activate

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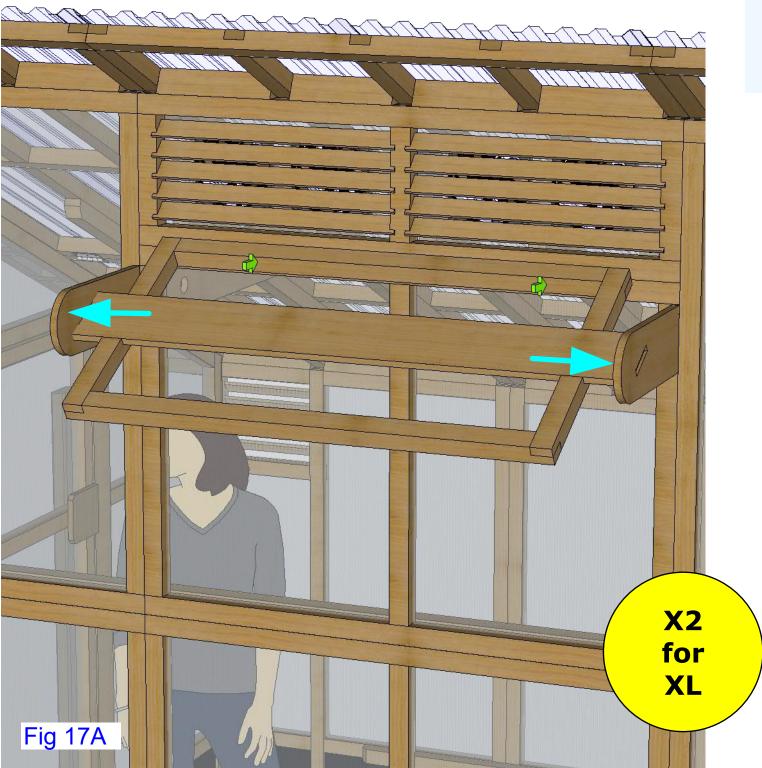
Option: AVM Panel Mounting





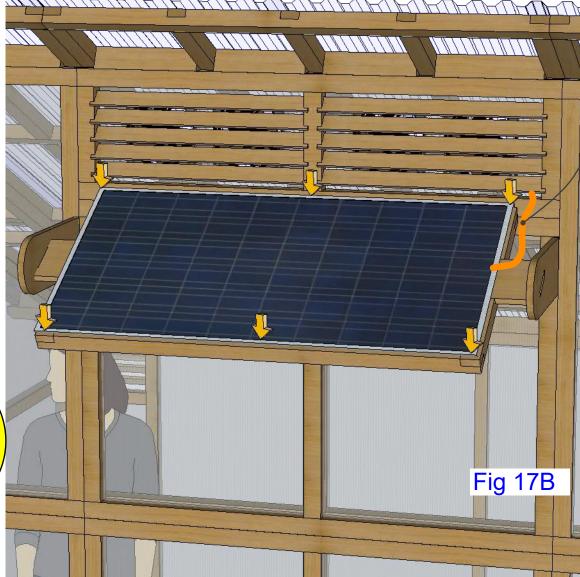


After its in position, use two T25 screws and screw through the backside of the solar panel bracket into the front wall of the greenhouse to stabilize the bracket.



**17.2 Install Solar Panel:** Position solar panel as indicated in FIG 16B and using 6 of the E6 neoprene washer screws, attache the solar panel to the bracket. Only tighten screws enough to pin panel into place. After installed, route solar panel wire as indicated in the illustration.



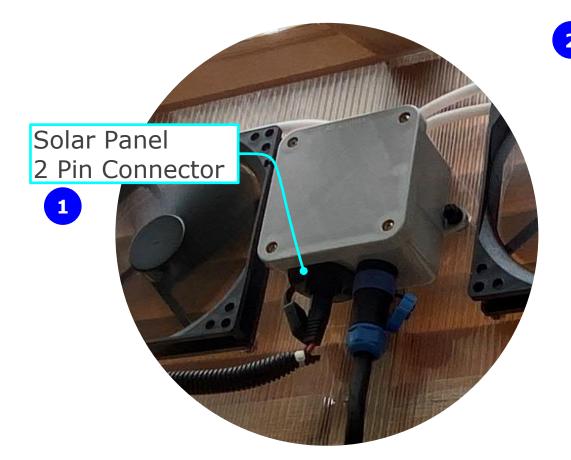


Solar Panel Wires Feed Under Bottom Louvre Slat In Corner

Cut a small slit with a knife in the bug screen where wire passes through the hole in the fan panel.



18.2 Zip Tie Solar Panel Wire: You can zip tie the solar panel wire to the main controller cable in a couple of places so that it is held in place.





100% completely operational just as it is set now...

**OR** 

Full operational instructions For the AVM can be found by scanning the QR code on the control box.

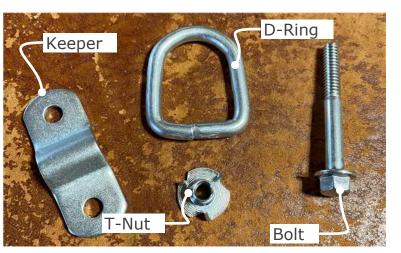




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XL Option: AVM Cable Route





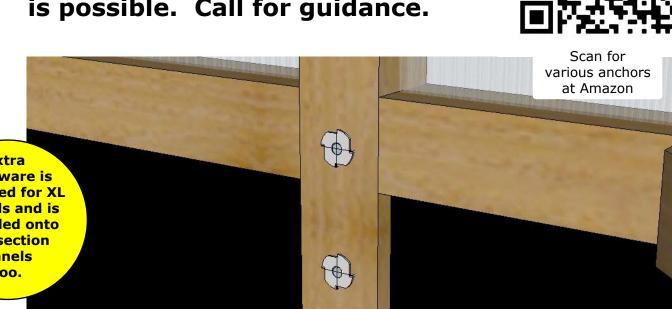
19.1 Drill Holes: Using provided 1/4" drill bit and your cordless drill... position D-Ring "Keeper" in suggested positions as indicated in the illustrations and drill holes through the cedar wood 2x2's.

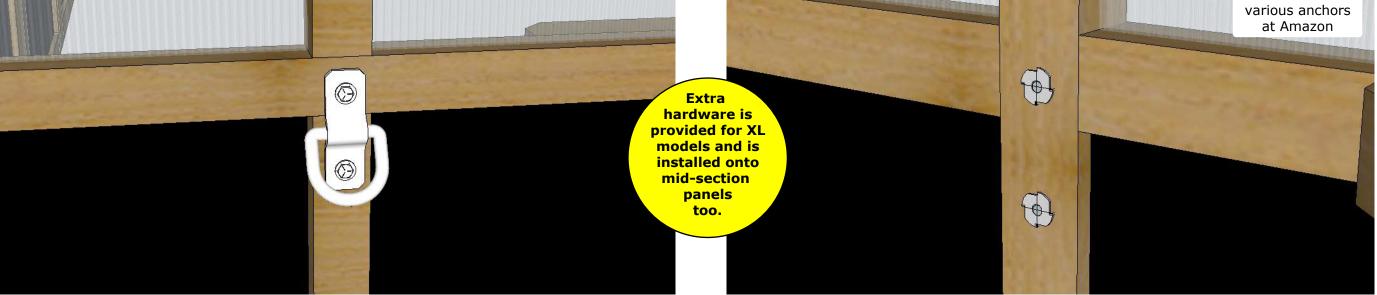
19.1 Install the D-Rings: Using the keeper to capture the D-Ring, insert a bolt through the keeper, through the wood and place a tnut onto the back side. Using a wrench or socket, tighten the bolt until the T-Nut is seated into the wood.

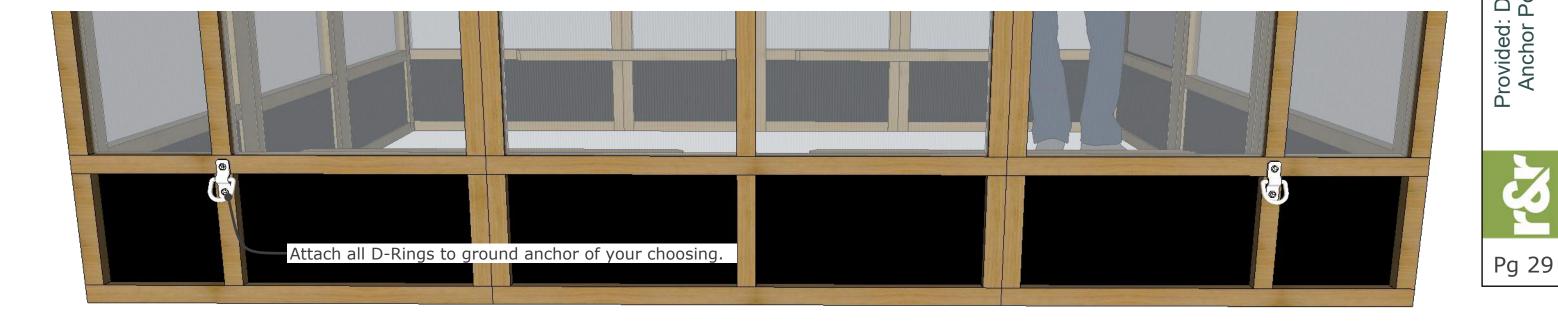
Repeat for the additional D-Rings in the illustrated suggested locations.

Winds that are tropical storm force or greater (about 40 mph) can topple an un-anchored structure without warning.

You will have to choose a ground anchor type suitable for your soil conditions. Custom anchoring is possible. Call for guidance.





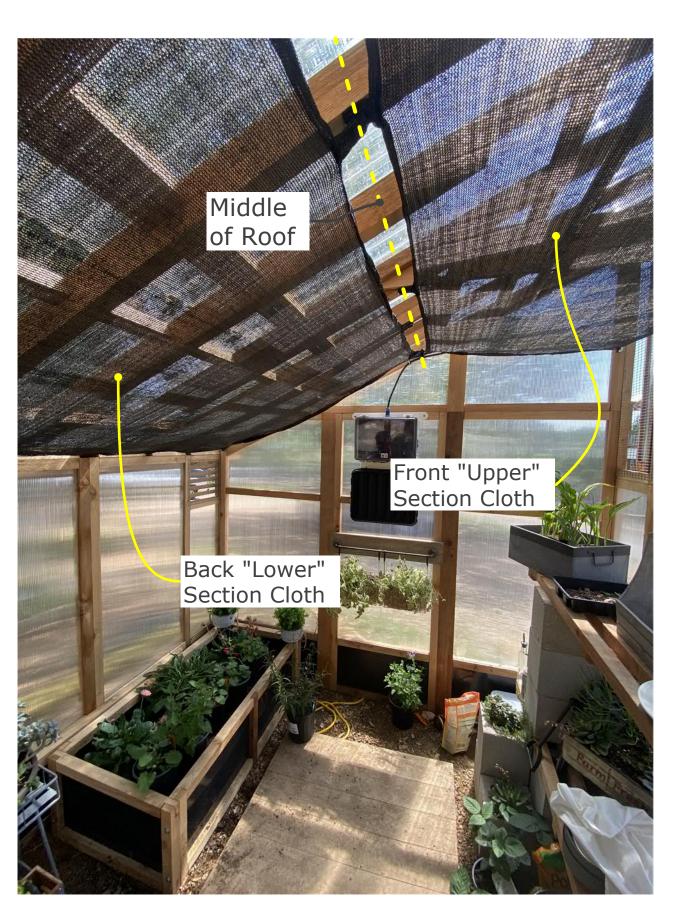


# **Optional Shade Cloth 2 Piece System Installation Instructions**

Reading all pages to the shade cloth install will help get it into your head before starting. It's held in place by cup hooks and grommets in the corners, and magnets attached to metal washers that you will install up into the roof frame along edges.



**Photo: Back right corner** 



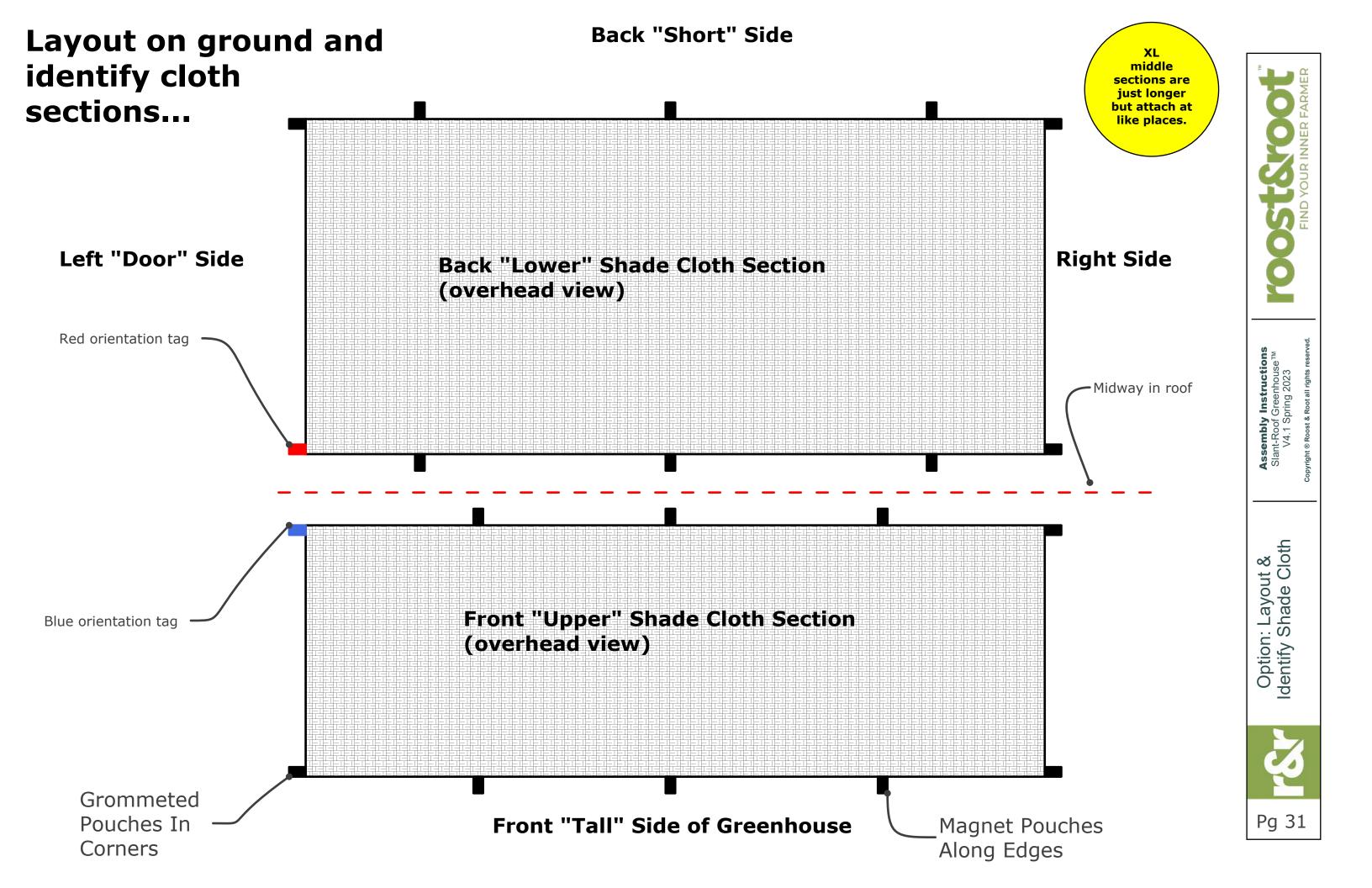
Left side looking right from doorway.

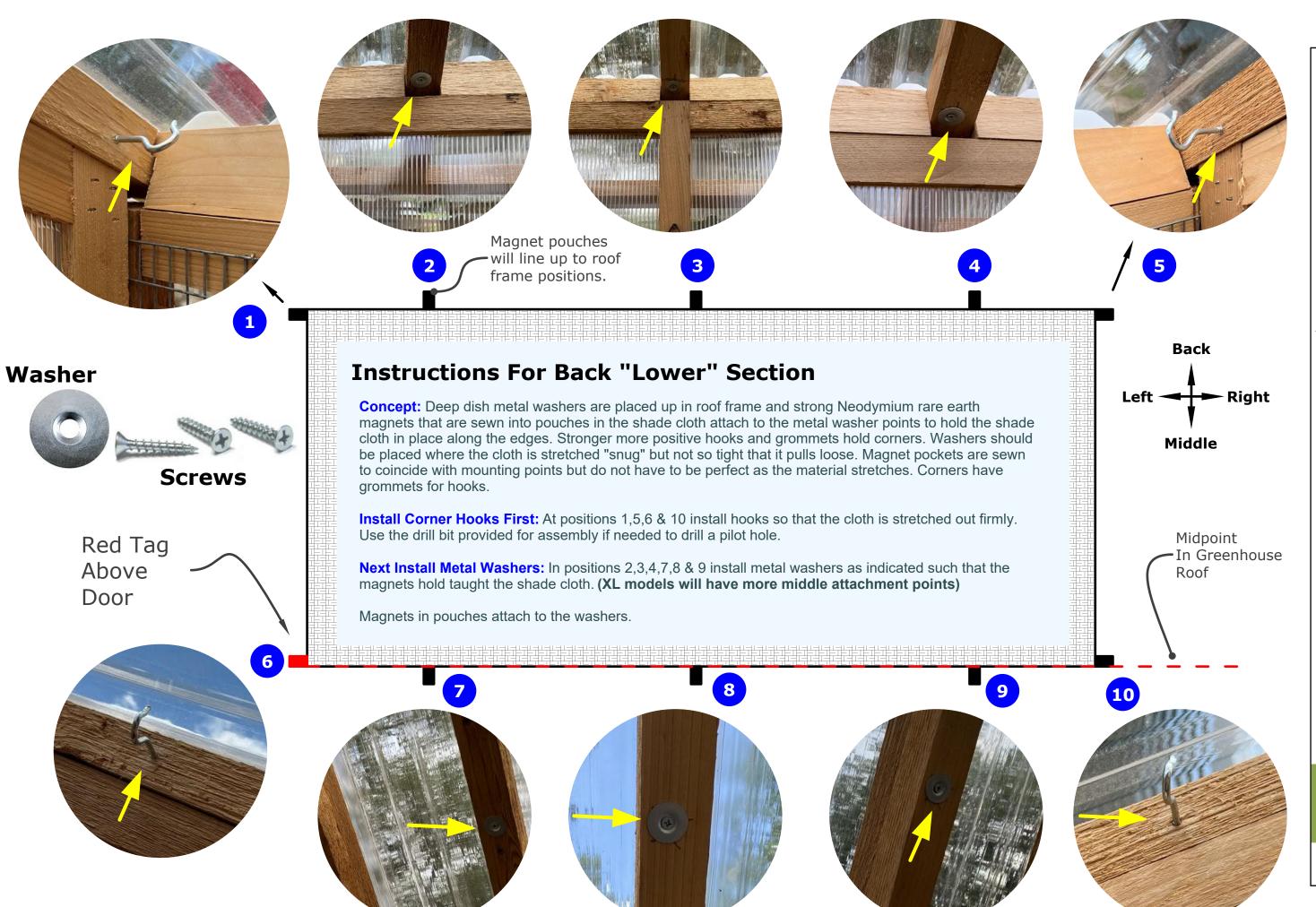


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Option: Shade Cloth Photos After Installed



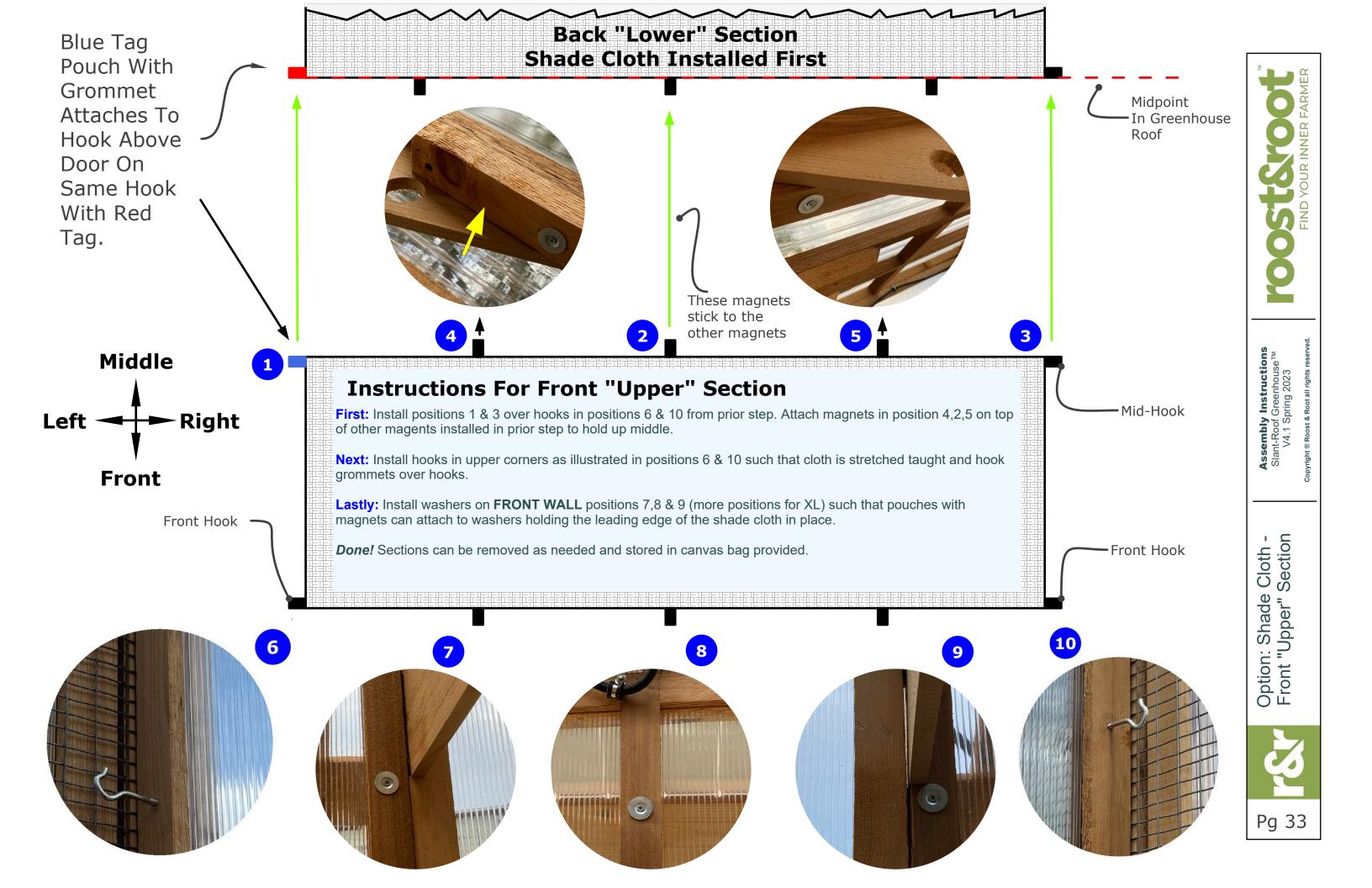




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Cloth -Section Option: Shade ( Back "Lower" S





### **Optional Magnet Door Screen**

21.1 Top: Using the provided thumbtacks center the screen over the door opening and at top of the door frame and tack into place. Using the shorter of the 5 cedar furring strips (30" long) attach the seamed edge of the screen to the top door frame by screwing screws through the furr strip in the pre-drilled holes and into door frame... capturing the seamed edge tightly.

**21.2 Side:** Using the provided thumbtacks align left side going down straight and use two of the longer cedar furring strips to attach the seamed edge down the side using the same procedure as in step 1.

**21.3 Side:** Repeat for the other side making sure to leave screen loose enough for the magnets in the center to easily "click" shut. Discard thumbtacks safely when complete. They are used only to position screen during the installation.

#### 4 351/2 Inch 1 30" **Side Strips Top Strip**

# **40 Small Gold Screws**

with countersink side facing out.

