

ClearSpan™ Elite Greenhouse - Medium Frame



Photo may show a different but similar model. Door assemblies for the models listed below are single doors and not double as shown above and in some diagrams within these instructions.

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STK#	DIMENSIONS
104603	9'-1" W x 8'-3" H x 9'-9" L
104605	9'-1" W x 8'-3" H x 12'-2" L

Revision date: 06.23.08



YOU MUST READ THIS DOCUMENT BEFORE YOU BEGIN TO ASSEMBLE THE SHELTER.

Thank you for purchasing this ClearSpan™ greenhouse. When properly assembled and maintained, this product will provide years of reliable service. These instructions include helpful hints and important information needed to safely assemble and properly maintain the greenhouse. Please read these instructions **before** you begin.

SAFETY PRECAUTIONS

- Wear eye protection and gloves when handling panels and frame parts.
- Frame is metal. Use a portable GFCI when working with power tools and cords.
- Do not climb on the greenhouse or framing during or after construction.
- Do not occupy the greenhouse during high winds, tornadoes, or hurricanes.
- Provide adequate ventilation if the structure is enclosed.
- Do not store hazardous materials in the greenhouse.
- Provide proper ingress and egress to prevent entrapment.

ANCHORING INSTRUCTIONS

Prior to assembling this greenhouse, please read the **MUST READ** document included with the shipment.

⚠ WARNING: The anchor assembly is an integral part of the greenhouse construction. Improper anchoring may cause greenhouse instability and failure of the structure. Failing to anchor the greenhouse properly *will void the manufacturer's warranty* and may cause serious injury and damage.

IMPORTANT! INVENTORY THE PARTS

1. Open each box and use the Bill of Material included in each box to inventory of the contents of each bag.
2. Keep all parts from one bag separate from the parts in another bag after opening. Keep each numbered bag and its contents together for assembly.
3. Call Customer Service at 1.800.245.9881 to report any missing parts *before* you begin.

LOCATION

Choosing the proper location is an important step before you begin to assemble the structure.

The following suggestions and precautions will help you determine whether your selected location is the best location.

- Never erect the structure under power lines.
- Identify whether underground cables and pipes are present *before* preparing the site or anchoring the structure.
- Location should be away from structures that could cause snow to drift on or around the building.
- Do not position the greenhouse where large loads such as snow and ice, large tree branches, or other overhead obstacles could fall.
- *Always check local building codes before you begin.*

SITE

After choosing a location, proper preparation of the site is essential. The following site characteristics will help ensure the integrity of the structure.

- *A level site is required.* The site must be level to properly and safely erect and anchor the structure.
- **Drainage:** Water draining off the structure and from areas surrounding the site should drain away from the site to prevent damage to the site, the structure, and contents of the structure.

⚠ WARNING: The individuals assembling this structure are responsible for designing and furnishing all temporary bracing, shoring and support needed during the assembly process.

For safety reasons, those who are not familiar with recognized construction methods and techniques *must seek the help of a qualified contractor.*

ASSEMBLY NOTE

The assembly of this greenhouse is not complex; however, it does take time and additional assistance. *For best results, read through these instructions before you begin to get an overview of the entire assembly.* Then, follow these instructions as presented.

Examine all diagrams and photos and verify that you have selected the proper parts. Do not mix parts from different bags. When checking parts, place the parts and the numbered bag in a separate area to prevent mixing the parts and to aid in the assembly process.

ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your greenhouse. Failing to follow these steps may result in an improperly assembled and anchored greenhouse and may void all warranty and protection the owner is entitled to.

The steps outlining the assembly process are as follows:

1. Verify that all parts are included in the shipment. Notify Customer Service for questions or concerns.
2. Read these instructions and all additional documentation included with the shipment *before* you begin assembling the greenhouse.

Use these instructions and the Bill of Material (inside each box) when assembling the greenhouse.
3. Gather the tools, bracing, ladders (and lifts if applicable), and assistance needed to assemble the greenhouse.
4. Re-evaluate the location and site based on the information and precautions presented in the documentation included with the shipment.
5. Lay out the site (if this has not been completed).
6. Assemble the base frame (additional purchase required) and greenhouse components in the order they are presented in these instructions.
7. Anchor the greenhouse as instructed.
8. Read the greenhouse care and maintenance information at the end of these instructions.
9. Complete and return all warranty information as instructed.

REQUIRED TOOLS

The following list identifies the main tools needed to assemble the shelter. Additional tools and supports may be needed depending on the structure, location, and application.

- Tape measure or measuring device
- Metric and standard wrench set (or ratchet and socket set)
- Ladders and/or work platforms
- Caulk gun for silicone application
- Utility knife, tape or marker
- Carpenter's square or similar tool

GREENHOUSE PARTS

All greenhouse sections (e.g., roof, sides, end walls, etc.) are shipped in individually numbered bags within a larger box.


To prevent mixing the parts during assembly, select the bags as instructed and open that bag only and assemble its contents.

OPEN BAGS AS INSTRUCTED TO PREVENT MIXING OF THE CONTENTS.

NOTE: Some photos and diagrams throughout these instructions may show a greenhouse with slightly different dimensions, color, or design. The assembly procedures are identical regardless of these differences. Notable differences are addressed.

For a quick overview of this greenhouse, consult the diagrams in the Quick Start section near the back of these instructions.

Those not familiar with the assembly of similar structures and the use of common hand tools *must seek the assistance* of someone with such experience.

 **WARNING:** Do not allow the polycarbonate panels to remain in direct sunlight until they are installed. Doing so will cause the protective film to become difficult if not impossible to remove.

*Consult Page 34 for additional polycarbonate and how to use vent tape (additional purchase required) information **before** installing any polycarbonate panel.*

BAG CONTENTS

The following list identifies the *main components* of each bag. (The number of boxes varies with the shipment.) Use the following information during the greenhouse assembly.

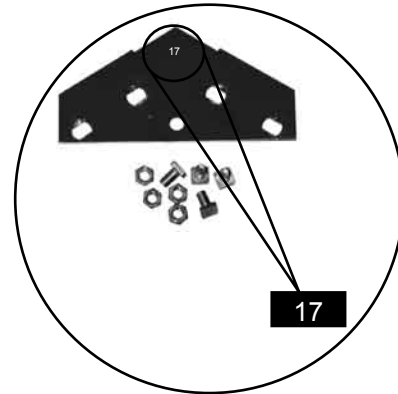
- Bag #1: End Wall (with door)
- Bag #2: End Wall (without door)
- Bag #3/4: Sidewall (2 identical bags with this number)
- Bag #5: Roof
- Bag #6: Door
- Bag #7: Vent (4 identical bags with this number)
- All lettered panels (may be shipped in multiple boxes)
- Boxes of plastic profile
- Sealant and 1 bag with gutter rail ends



ClearSpan™ Elite Greenhouses

PART IDENTIFICATION NUMBERS

All main parts include a stamped ID number. Use this number when selecting the required parts during the assembly.

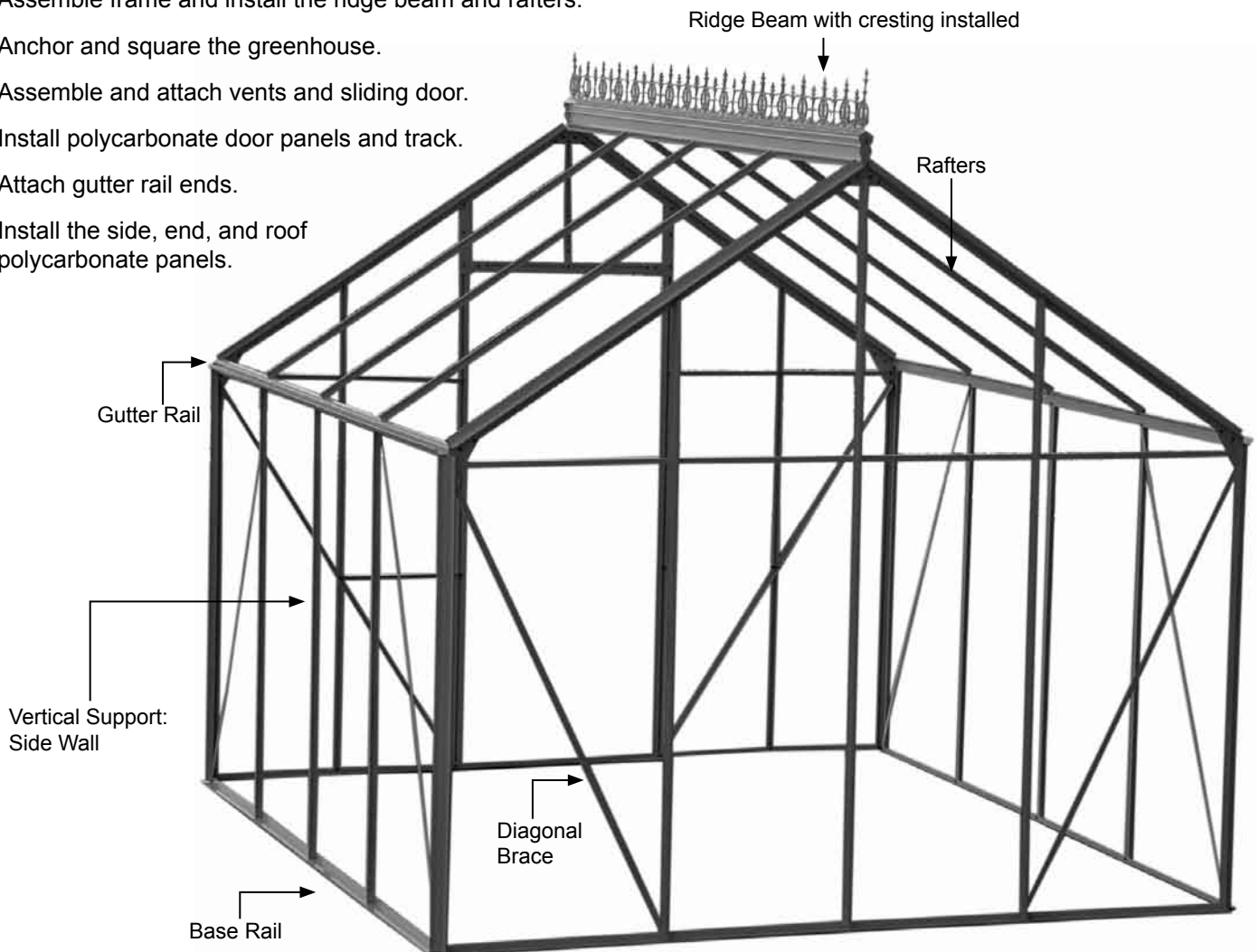


OVERVIEW

This section is an overview of the process for assembling your Elite Greenhouse. See illustration below to identify main parts of greenhouse.

1. Locate the required parts for each assembly procedure.
2. Preassemble the base frame (if used—additional purchase required), end walls, and side walls.
3. Assemble frame and install the ridge beam and rafters.
4. Anchor and square the greenhouse.
5. Assemble and attach vents and sliding door.
6. Install polycarbonate door panels and track.
7. Attach gutter rail ends.
8. Install the side, end, and roof polycarbonate panels.

NOTE: The locations of the part numbers on the components may vary. Refer to the Bill of Materials shipped within each box for a description of each part.



BASE FRAME ASSEMBLY (OPTIONAL PURCHASE)

The base frame assembly provides a level, square surface on which to set the greenhouse frame. *It is strongly recommended that you use this base.*

The optional base is assembled and squared and its posts are set into the ground. It is then anchored in place using ground posts or other approved anchoring methods described in these instructions.

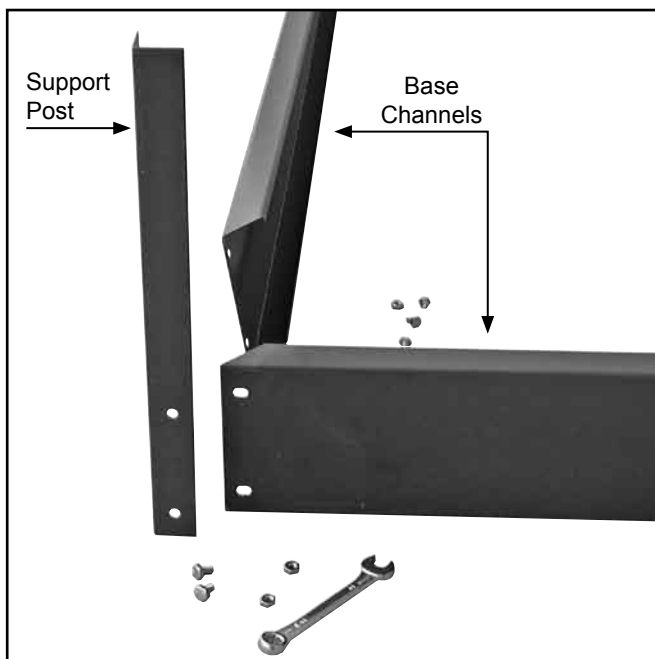
This base is an optional purchase. Contact your sales consultant at 1-800-245-9881 to purchase the base.

The following steps describe how to assemble the optional base frame for the greenhouse.

1. Unpack the base kit to identify the parts.

NOTE: The base is assembled upside down and then is flipped when it is positioned on the site.

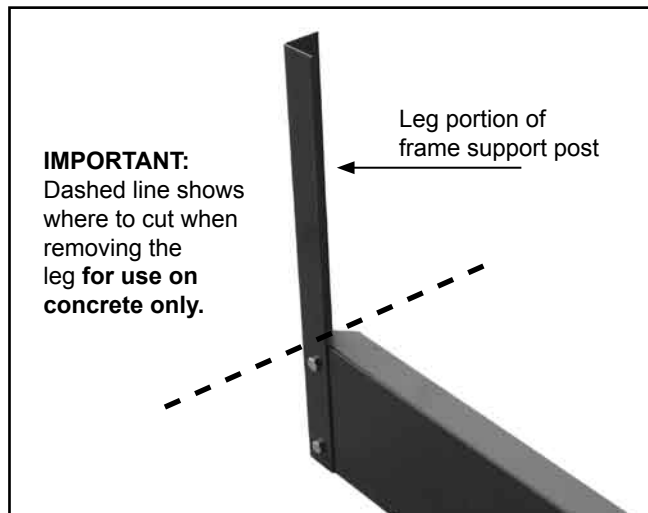
2. Identify the base channel lengths used for the ends (width) and the sides (length).
3. Select the first frame support post and the required nuts and bolts and place these at one corner of the base.



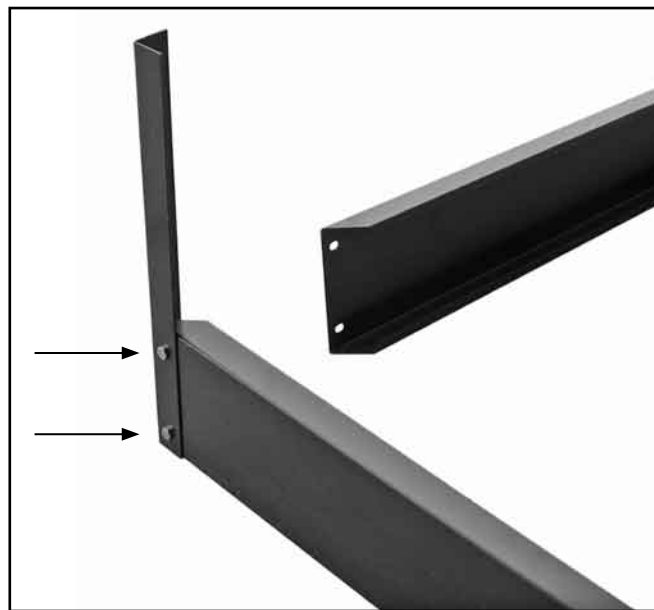
ATTENTION: If you plan to place the base on a concrete slab or patio, you must remove the "leg" portion of the frame support posts. Before you assemble the base as shown, cut the frame support posts so they are the same length as the base channel is wide.

See diagram in the Quick Start section near the back of these instructions for additional details.

Cut these only if you plan to place the frame, and ultimately the greenhouse, on a concrete slab.

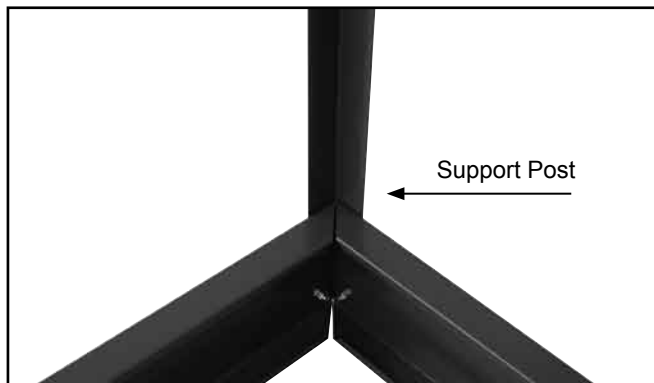


4. Insert two bolts through the pre-drilled holes in the post and one base channel.



NOTE: Do not tighten the bolts at this time.

5. Select the remaining bolts and repeat the previous step to attach the remaining base channel to the support post.

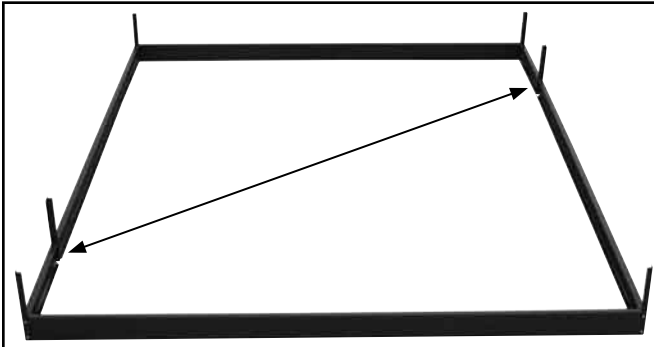


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BASE FRAME ASSEMBLY (CONTINUED)

Space below is reserved for customer notes.

6. Verify that the post is straight and tighten the bolts
7. Repeat the procedure to attach the remaining support posts to the base channels.



For strength, position short base sections (if equipped) diagonally from each other as shown.

8. After the frame is assembled and all bolts are tight, flip the base over and set it on the site.



9. Continue with the next procedure.

SQUARE THE BASE (if used)

Before the support posts of the base are driven into the ground and before the assembled greenhouse frame is set on and secured to the base, you must square the base assembly and anchor the base to the site.

ATTENTION: If you are setting the base and greenhouse on a patio or concrete slab, set the assembled base on the site and continue with the greenhouse assembly procedures that follow. *Do not square the base at this time.*

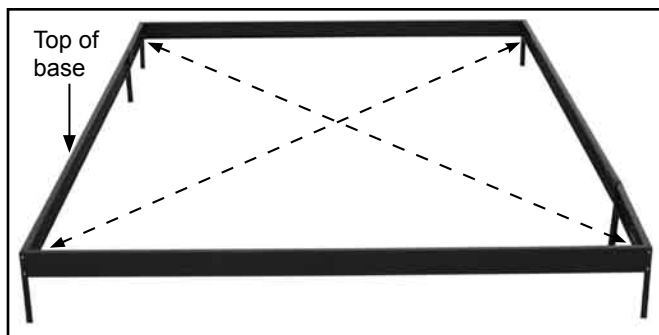
This base and greenhouse require a level site. Before setting the base or greenhouse frame (or both) in place, you must *level the site*.

The easiest way to square the base is to measure diagonally from corner to corner.

Complete these steps:

NOTE: The following procedure describes how to square the base on a prepared site and drive the base support posts into the ground.

1. Position the assembled base on the site as shown below.
2. Measure diagonally from corner-to-corner.



NOTE: The frame is square when both measurements are the same.

3. When the frame is square, tap the support posts into the ground to set the frame in place and recheck the measurements.

NOTE: Place a block of wood on top of the base channel and support post and hammer on the wood to protect the frame when driving the posts into place.

4. Continue to drive the posts to the desired depth.

NOTE: Use a level (or string a line) to verify that the base remains level when set into the ground

5. After setting the base on the site, continue with the greenhouse assembly.

ASSEMBLE THE END WALL FRAMES

The greenhouse has two end walls: one is the door end and one is the non-door end.

For the best results and to prevent mixing parts, *assemble each end wall separately* as described below.

NOTE: All bolt tracks in the frame members are installed *to the inside of the greenhouse*. All diagrams and individual photos shown in these end wall instructions show the inside surface of the frame unless otherwise noted.

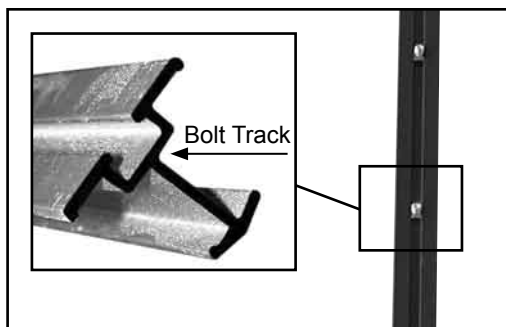


Photo shows vertical frame member for end walls. The bolt track is installed to the inside of the greenhouse.

IMPORTANT: To prevent losing parts, assemble all frame components on a flat surface. A concrete driveway or a garage floor works best. (Cover the surface to protect the finish of the greenhouse components during assembly.) As you assemble the frame sections, *the inside of the frame will face up* as shown in the photos that follow.

Complete the following steps to assemble the first end wall frame. Consult the End Wall Diagrams near the back of these instructions for part identification *before you begin*.

Assemble the door end first.

1. Open *Bag #1*. This bag includes the main parts to assemble the end wall frame where the door is installed. *Consult the End Wall Diagrams and those that follow for part identification*. Bolts and nuts are found in the main box of the shipment.
2. Locate the top bracket used to join the upper supports to each other at the peak of the end wall.

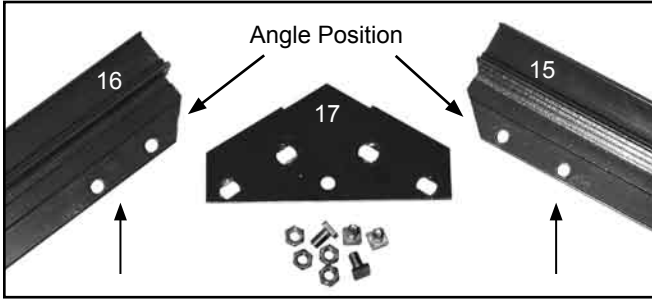


NOTE: The holes in the top bracket are oblong as shown.

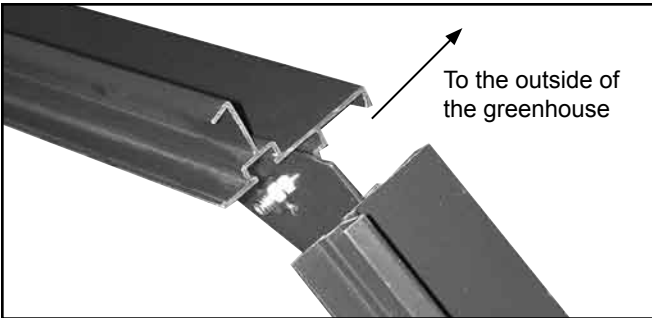
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ASSEMBLE THE END WALL FRAMES (CONTINUED)

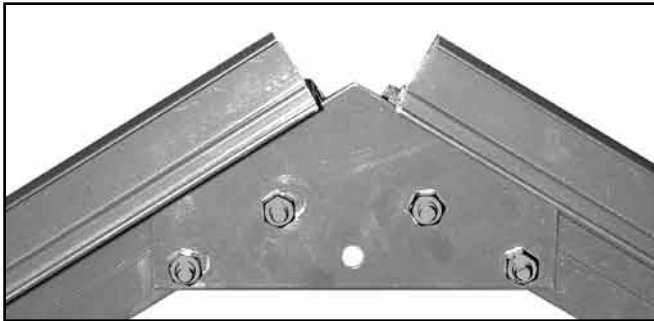
3. Locate the two upper supports for the end wall. The upper supports include pre-drilled holes, bolt tracks, and a beveled end.



4. With the upper supports positioned as shown, secure the bracket to the supports.

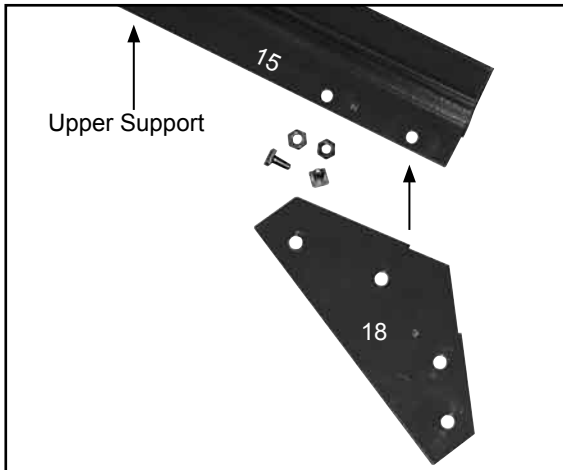


View looking down on the assembled upper supports.

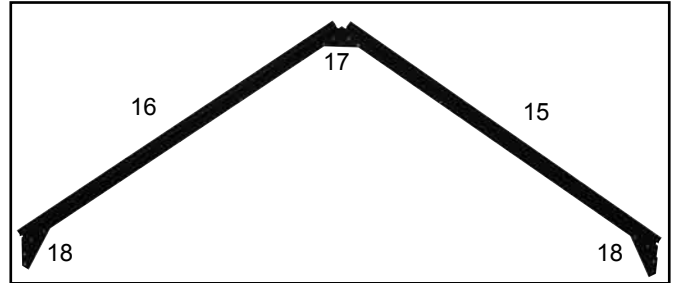


Joined upper supports as seen from the inside of the greenhouse.

5. Locate one of the remaining two angled brackets (18) and attach it to the end of one upper support. Tighten the mounting bolts.

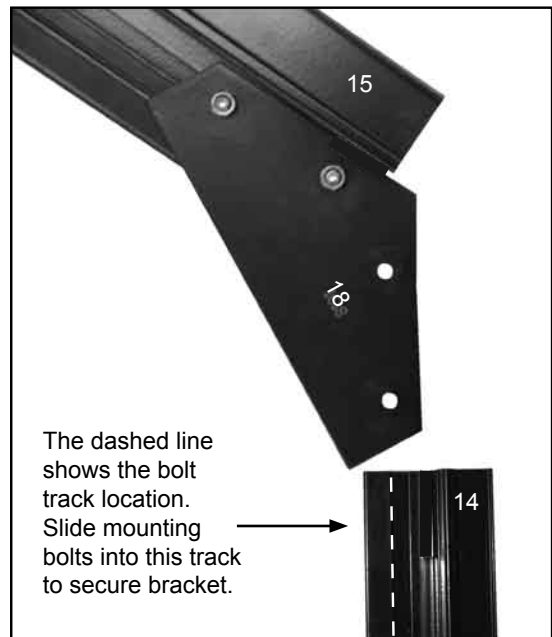


6. Locate the remaining angled bracket and repeat Step 5 to attach it to the end of the *other upper support*.

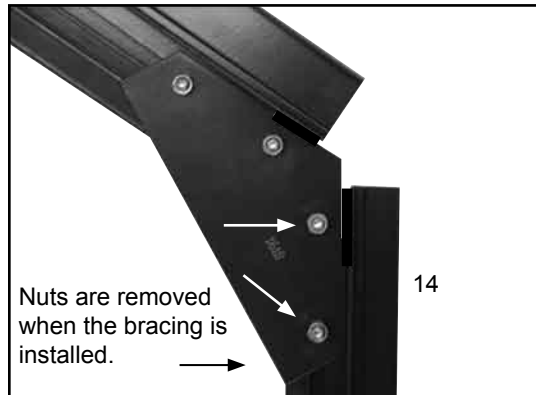


The assembled upper end wall frame (above) includes the top bracket, two (2) angled brackets, and two (2) upper supports.

7. Select one (1) #14 lower support and position it as shown below.



8. Slide *two (2) bolts* into the bolt track of the lower support (14) and attach bracket 18.



9. Slightly tighten the lower two bolts to hold the lower support in place. These bolts are loosened in a later step to install the end wall horizontal and diagonal bracing.

ASSEMBLE THE END WALL FRAMES (CONTINUED)

10. Repeat the steps to attach the other 14 lower end wall support.

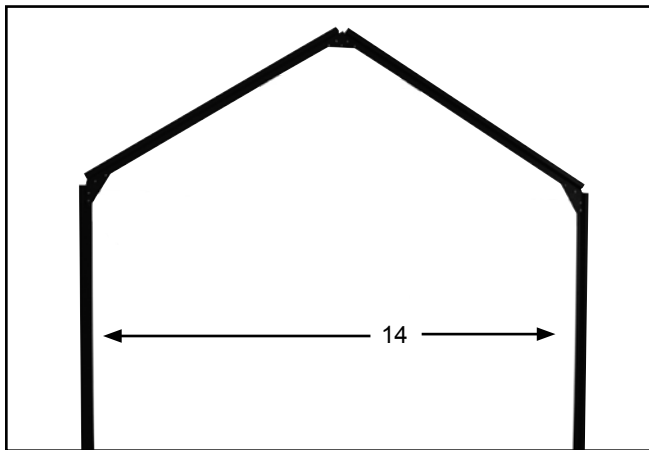
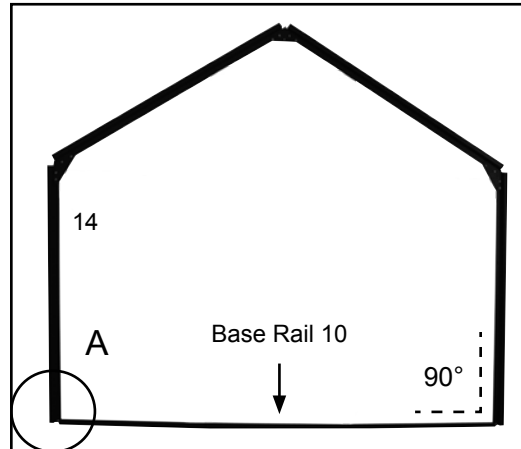
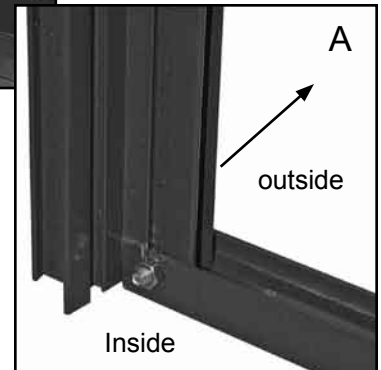
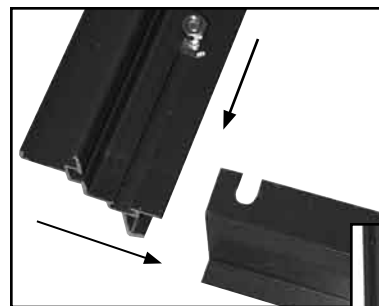


Photo above shows the assembled end wall up to this point. View shows the inside surface of the frame.

11. Locate the base rail (10) for the end wall and attach it to each of the lower supports as shown.

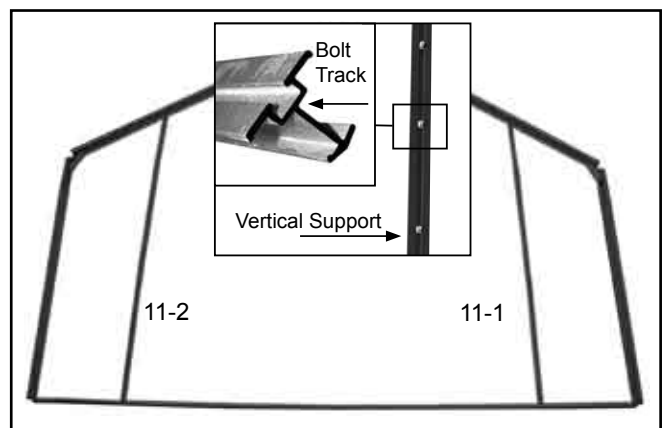


Use a carpenter's square or similar tool to square the end wall frame.



ATTENTION: Seat each lower support tight against the top surface of the base rail.

- 12. Verify that each lower-support-to-base-rail connection is square and tighten the bolts.
- 13. Refer to the End Frame diagram and select the two (2) end wall vertical supports shown below.

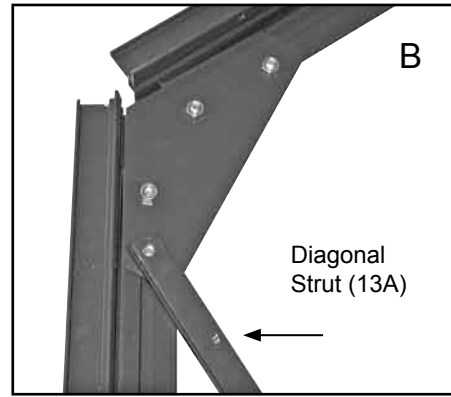


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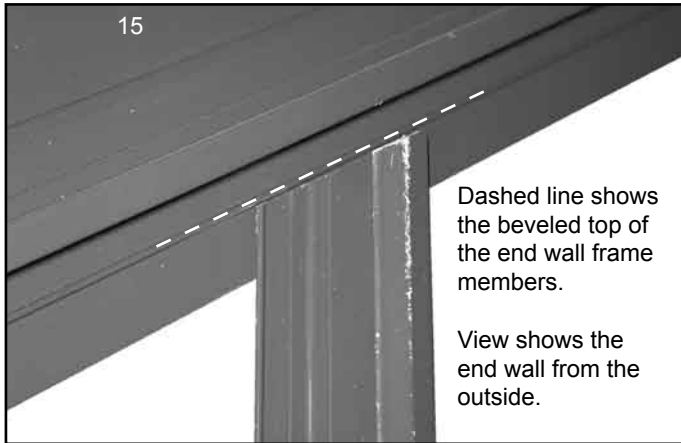
ASSEMBLE THE END WALL FRAMES (CONTINUED)

14. Slide *five (5) bolts* into the track of each vertical support and attach the top of each support to the upper end wall supports and the bottom of each support to the base rail. *Do not tighten these bolts at this time.*

ATTENTION: The remaining three (3) bolts in each vertical—those between the top and bottom bolts—are used to secure the short horizontal braces and the diagonal struts. See the End Frame diagrams if needed.

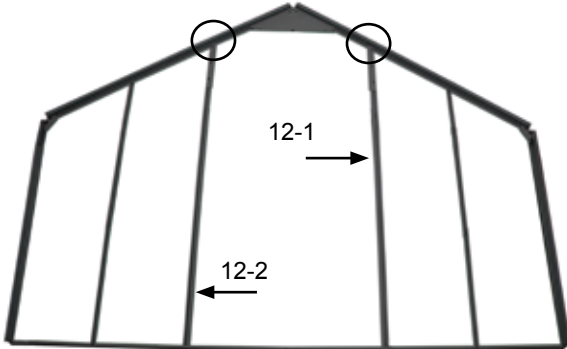


ATTENTION: Do not fully tighten the bolts at this time.

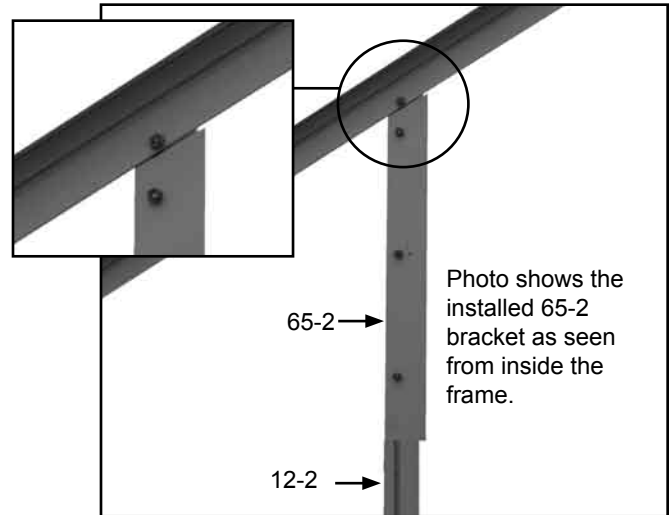


Install the beveled end of the frame member at the top and with the angle of the end wall upper supports.

15. Select the next two (2) vertical supports for the end wall and *insert eight (8) bolts* into the bolt track of each vertical. (Door end frame only.)

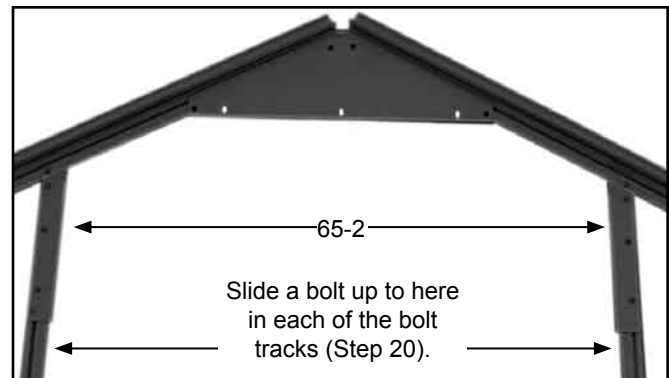


16. Attach each vertical to the upper supports of the frame. See the circles above. Do not tighten bolts.

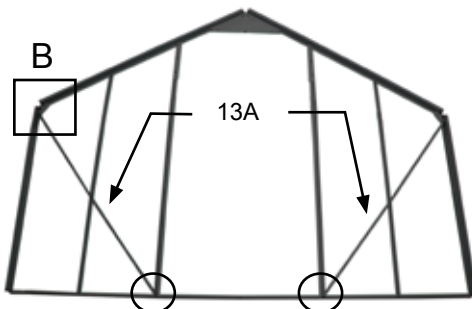


IMPORTANT: At this point, *three (3) bolts* should remain in each of the vertical frame members. These bolts are used in the next steps.

20. Slide the upper-most bolt of those remaining in the track up to the bottom of the 65-2 bracket. Repeat this step for the remaining vertical frame member.



Frame shown may differ slightly from the actual frame.

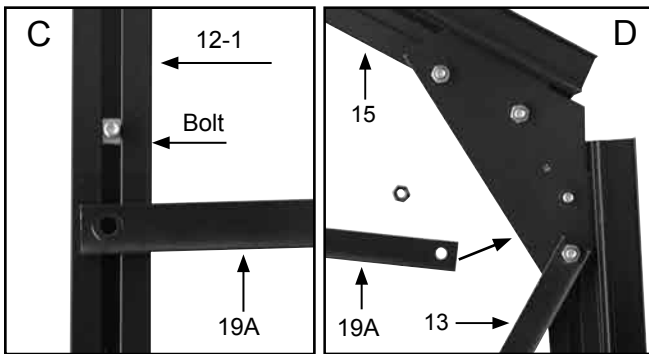
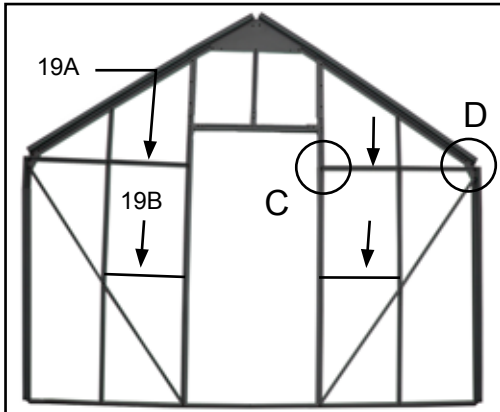


NOTE: After completing this step, each vertical from the previous step should be attached at the top and bottom and six (6) bolts should remain between the top and bottom bolts.

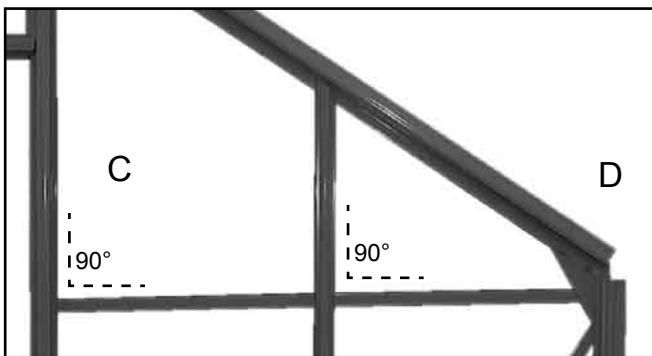
17. Add a diagonal strut to the frame and attach using the bottom bolts. See the circles above for bolt location.

ASSEMBLE THE END WALL FRAMES (CONTINUED)

21. Locate the horizontal braces and attach these to the end wall frame using the remaining bolts in the bolt track. *Do not use the bolt from Step 20.*



ATTENTION: Use a carpenter's square or similar tool to verify that a 90° angle is maintained at the point where the horizontal brace is attached to the vertical frame members of the end wall. See example below.



22. Tighten the bolts to secure the horizontal brace to the end wall frame.

23. Repeat the steps to install the remaining braces.

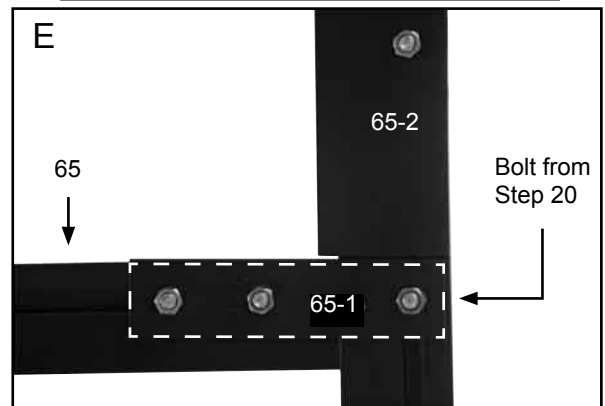
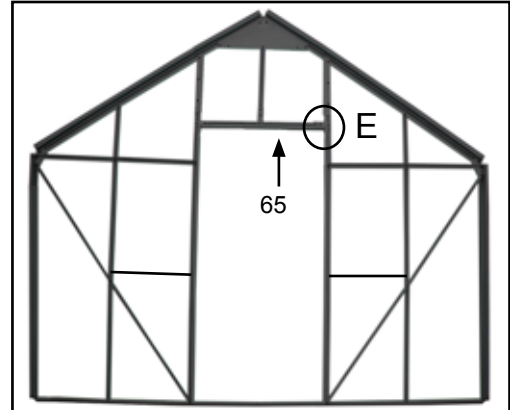
NOTE: At this point, one bolt should remain unused in each of the two frame members. This bolt is used to secure the door header (65) to the end wall frame.

Verify that one (1) bolt is present to secure each end of the 65 header. If you need to install or reposition a bolt, loosen the horizontal brace bolts as needed, make the necessary adjustments, and retighten.

24. Locate the 65 header and slide five (5) bolts into the bolt track of the header.

25. Attach a 65-1 flat bracket to each end of the 65 header. Do not fully tighten the bolts at this time.

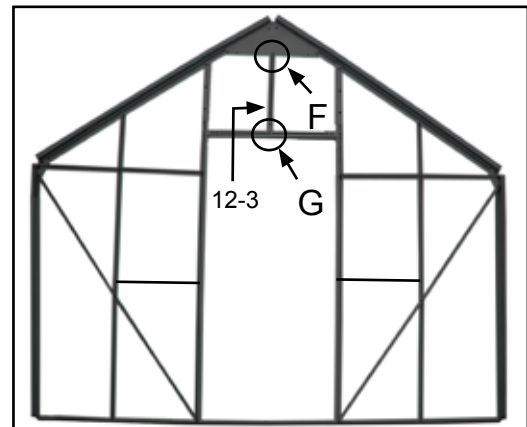
26. Attach the header and flat brackets between the vertical frame members as shown below.



NOTE: Use the final bolt (Step 20) in each of the vertical frame members to secure each 65-1 bracket.

Do not tighten these bolts at this time.

27. Locate the 12-3 vertical frame member and attach it between the header and the peak of the end wall.

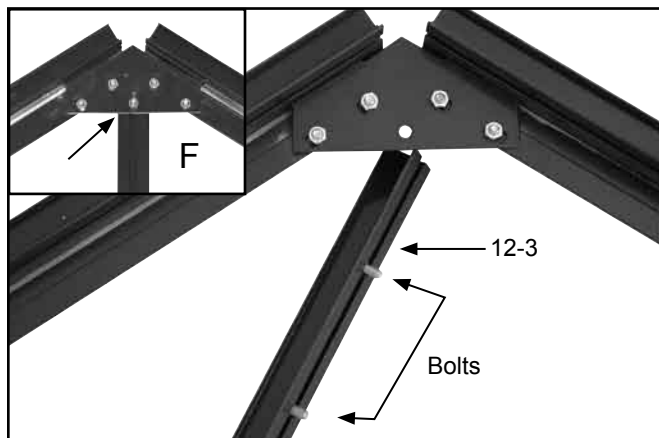


NOTE: Consult the photos on the following page for additional details.

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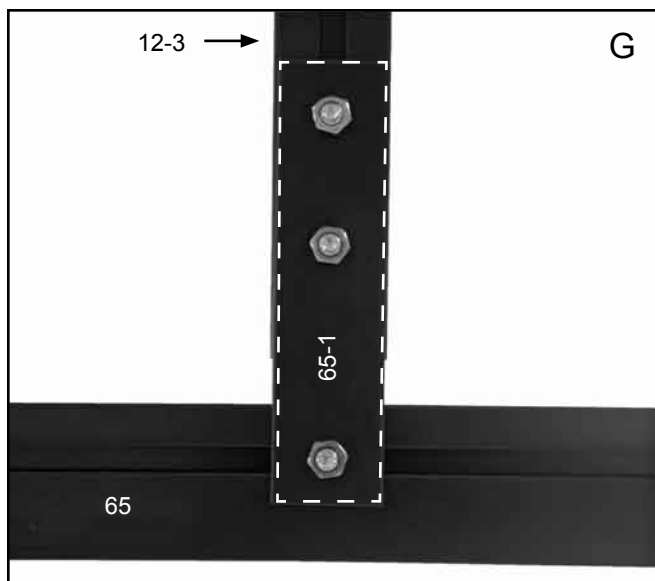
ASSEMBLE THE END WALL FRAMES (CONTINUED)

Space below is reserved for customer notes.



Gable bracket size may vary according to greenhouse.

Do not fully tighten the bolts. The header (65) and the vertical frame member (12-3) are adjusted and secured when the door is installed later in these instructions. Bolt should be snug to secure the header.



28. After completing the frame for the doors, consult the end wall diagram for the non-door end of the greenhouse and repeat the procedure to assemble that end wall frame.

ATTENTION: The remaining end wall frame does not include an upper door frame member. *In addition, the small horizontal braces of the first end wall frame have been replaced by a single, longer horizontal brace.* Keep these changes in mind as you complete the assembly of the remaining end wall frame.

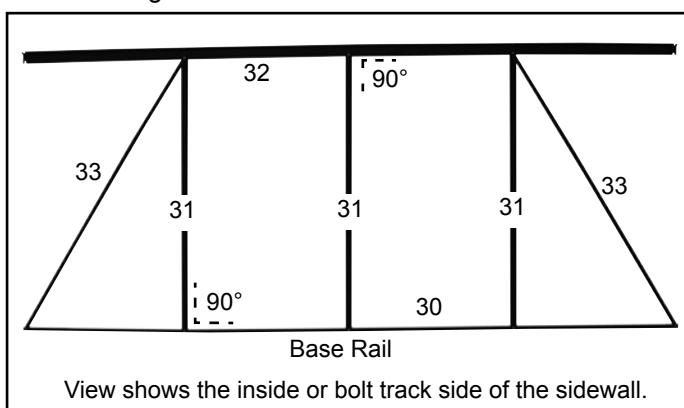
Consult the diagram near the back of these instructions to view the non-door end wall components.

29. After assembling the end wall frame for the non-door end, set both end wall frames aside and continue with the sidewall assembly procedure that follows.

SIDEWALL ASSEMBLY

After both end wall frames are assembled, locate the bags labeled #3/4—there are two (2) of these: one for each sidewall. *Open only one of these at this time* and assemble its contents as described below.

ATTENTION: Consult the Sidewall Frame Diagram below and in the Quick Start section for a description of parts. All vertical supports are installed with the bolt track to the inside of the greenhouse. The 104603 frame is shown.



Assembly Notes

- The two (2) sidewalls are identical and are assembled the same. Position the diagonal struts as shown above or angle them from the top corner down to the bottom of the vertical support. The top (or bottom) of the brace will remain loose until the assembled sidewall is attached to the corner of the end wall.
- Use a carpenter's square or similar tool to ensure a 90° angle between the vertical support (31) and the gutter rail (32) and the support and the base rail (30).
- Do not tighten the bolt where the diagonal brace (33) is attached until the sidewall is attached to the end wall.

These steps describe one way to assemble the sidewalls:

1. Unpack the parts for one sidewall and position them on a flat surface for assembly. The gutter rail is placed at the top of the sidewall and the base rail is positioned at the bottom of the sidewall.

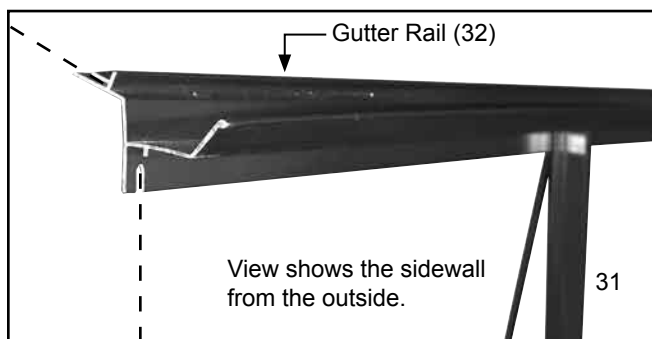


Photo shows the gutter rail as seen from *the outside*. The dashed line shows where to attach the end wall frame assembly.

2. Select the vertical supports (31) for the sidewall and *slide two (2) bolts* into the bolt track of each support.

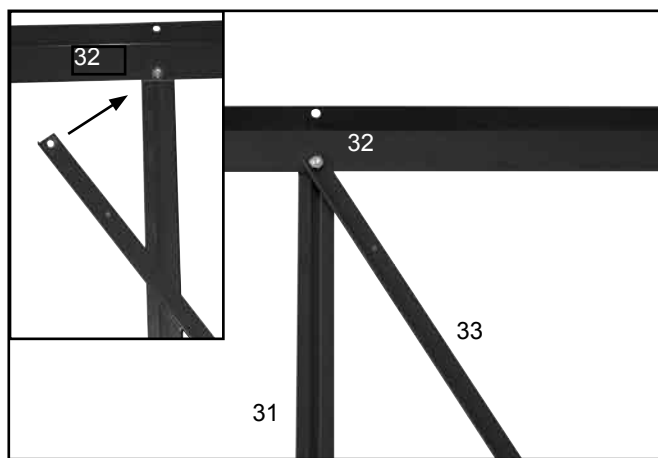
NOTE: One bolt is used to attach the vertical support to the gutter rail (32) and the other is used to attach the support to the base rail (30).

For the first vertical support at each end of the sidewall, the bolts are also used to attach the diagonal struts to the frame.

3. Attach each vertical support to *the gutter rail* by inserting the bolt through the pre-drilled hole in the gutter rail. *Do not tighten nuts at this time.*

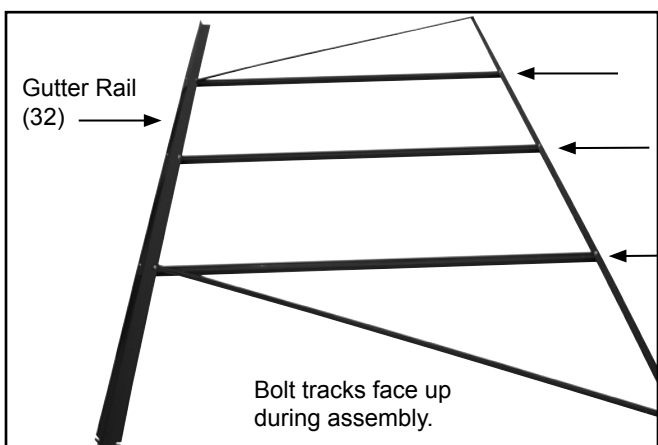
NOTE: The slotted hole at each end of the gutter rail is used to attach the end wall frame assembly to the sidewall. Use the diagram to position the first vertical support in the correct location.

For the end vertical supports, place a diagonal strut on the bolt and install the nut. *Do not tighten the nuts at this time.*



The photo above shows the vertical support and diagonal strut as *attached to the gutter rail* of the sidewall.

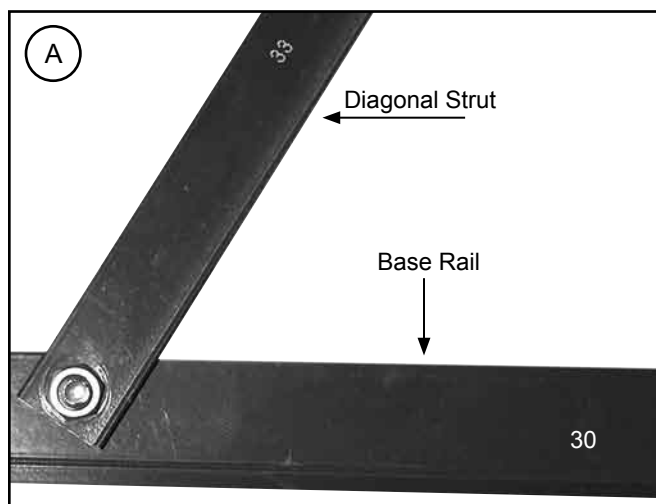
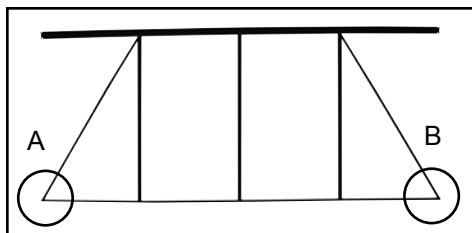
4. Insert the remaining bolts, located in the bolt tracks of the vertical supports, into the corresponding pre-drilled holes of the base rail. The 104603 frame is shown.



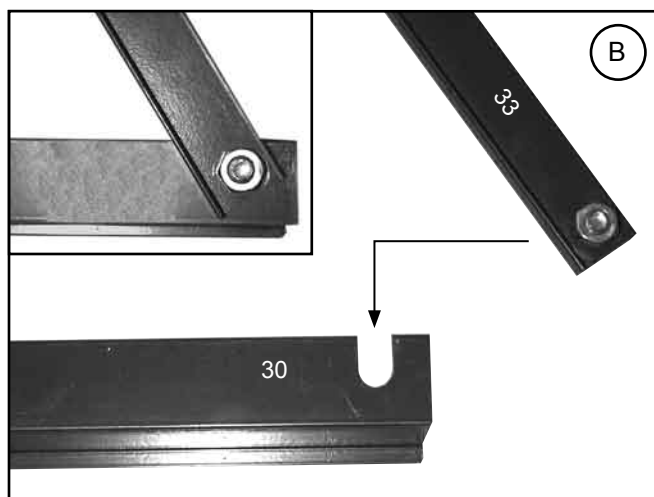
CLEARSPAN™ GREENHOUSES

SIDEWALL ASSEMBLY (CONTINUED)

- Loosely attach the remaining end of each diagonal strut (33) to the base rail as shown below.



Do not tighten the bolt shown above (and in the photo below) at this time. These are used to secure the end wall frame assemblies to the assembled sidewalls.



- Once all vertical supports are attached to the gutter rail and the base rail, tighten all bolts except for those shown in the photos above.
- Open the remaining Bag #3/4 and repeat the above procedure to assemble the remaining sidewall.
- After the final sidewall is assembled, continue with the frame assembly procedure.

FRAME ASSEMBLY

After assembling both end frames and sidewall frames, attach the assemblies to each other to construct the greenhouse frame.

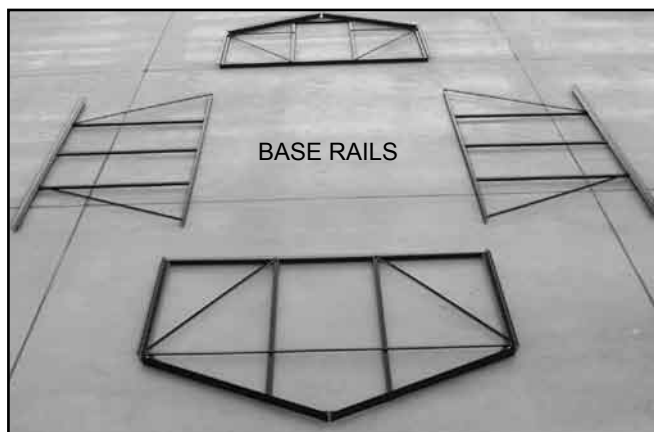
NOTE: Assemble the greenhouse frame on a clean, flat surface such as a driveway or patio. An uneven surface will not allow the sides and ends to join properly. In many instances and depending on size, the greenhouse frame can be moved to the site after it is assembled.

Place cardboard or a similar cover on the assembly surface to protect the finish on the frame assemblies.

Assembly Tip: When attaching the sidewall gutter rail (32) to the end wall corner connection, slightly loosen the lower bolts of the angle bracket (18) to get a better fit. Retighten the bolts after the sidewall frame is attached.

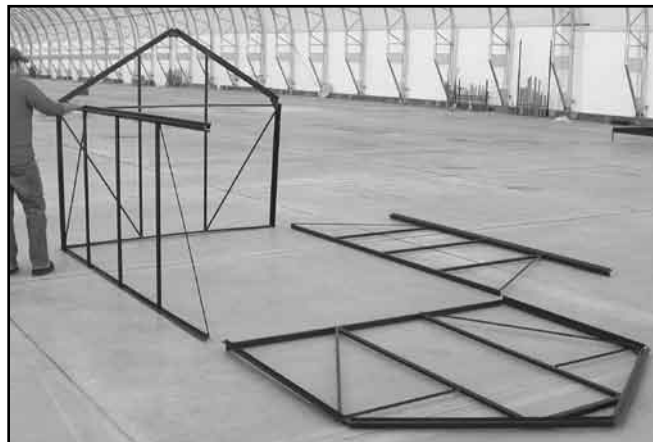
Complete the following steps.

- Position the assembled frame sections as shown below.



All inside (bolt track) surfaces are facing up in the above photo for the frame assembly.

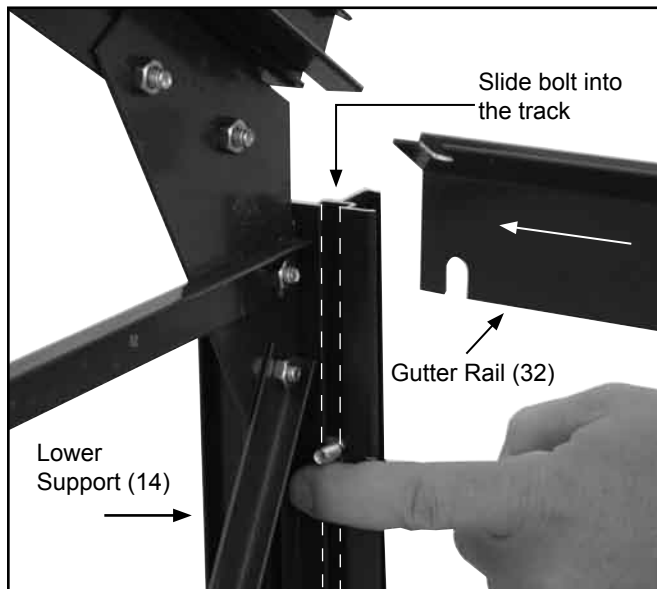
- Lift one end wall and one sidewall frame into position.



NOTE: Frame shown may differ slightly from the actual frame. Additional assistants are needed for the frame assembly procedure.

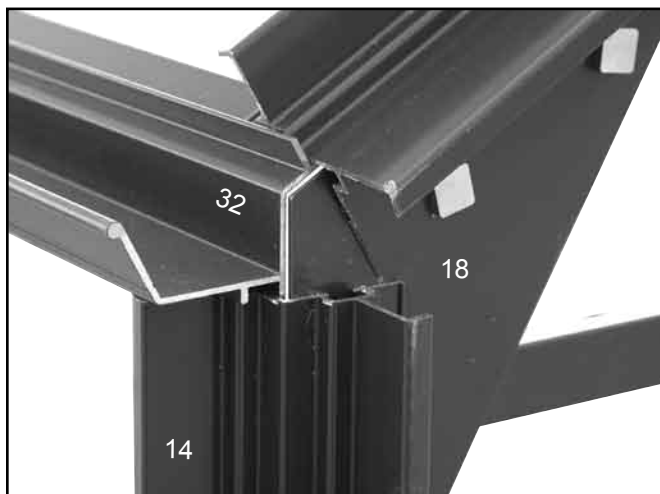
FRAME ASSEMBLY (CONTINUED)

- At the top of the end frame lower support (14), *slide* a bolt into the bolt track. Photo below shows a corner different from the sidewall shown in the previous photo.



NOTE: Use a small piece of tape to keep the bolt near the top of the bolt track if desired. Place the tape below the bolt to keep it from sliding down the track.

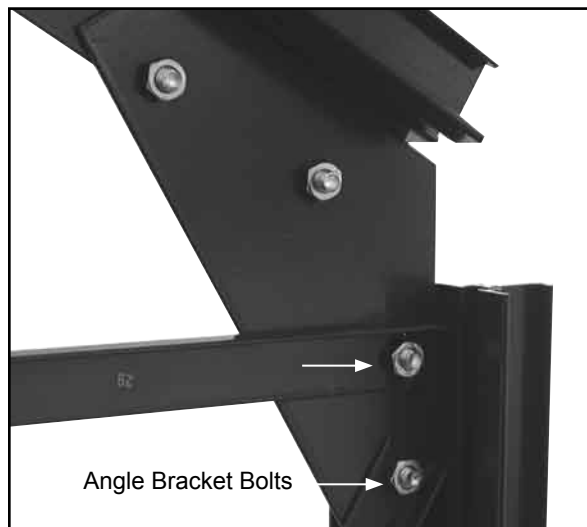
- Once the bolt is in the track, seat the gutter rail of the sidewall into the corner of the end wall frame as shown.



View is from the outside of the greenhouse frame and shows the gutter rail (32) as seated into the corner.

DO NOT FORCE THE GUTTER RAIL INTO POSITION. Review all diagrams and photos and install as shown. *Loosen*—do not remove—the bolts as needed to fit the gutter rail to the end wall.

NOTE: If you are unable to seat the gutter rail completely into the end wall frame as shown, loosen the angle bracket (18) bolts. This will allow the frame components to move when the rail is seated in position. See the photo below.



- After seating the gutter rail in position, retighten the angle bracket bolts (if needed) and *slide* the bolt shown in the next photo into position and tighten.



- Place a bolt into the end wall *upper support bolt track*, and let it *slide* it down to the gutter rail of the sidewall.

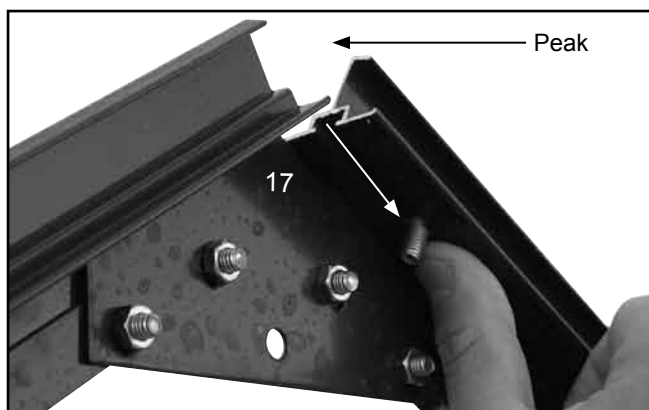


Photo shows sliding the bolt into the track at the *peak of the end wall frame* where the upper supports connect to the top bracket (17).

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FRAME ASSEMBLY (CONTINUED)

7. With the bolt in place, add a nut and tighten all bolts in the location shown below. *Do not overtighten.*



8. Move to the lower corner of the two assembled frame sections (the end and sidewall), remove the bolt from the sidewall diagonal strut, *slide the bolt* into the bolt track of the *end frame lower support*, and attach the diagonal strut to the bolt.

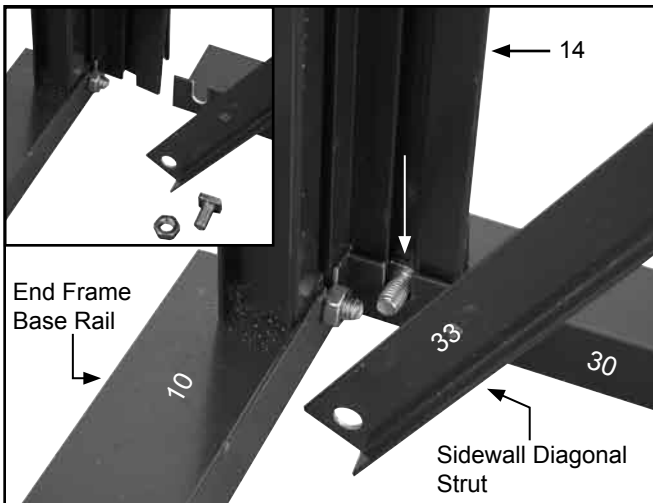


Photo above shows the corner as seen from the inside of the greenhouse frame assembly.

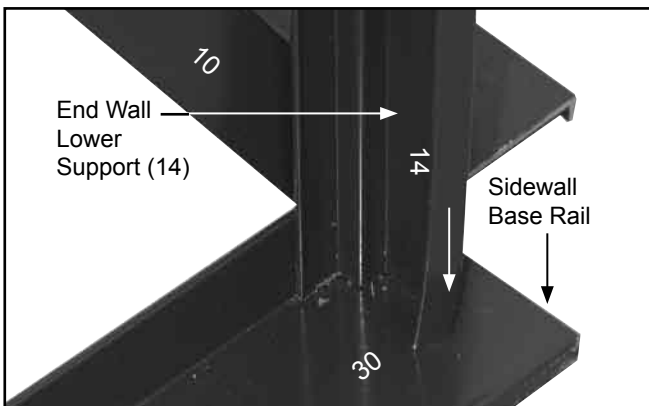
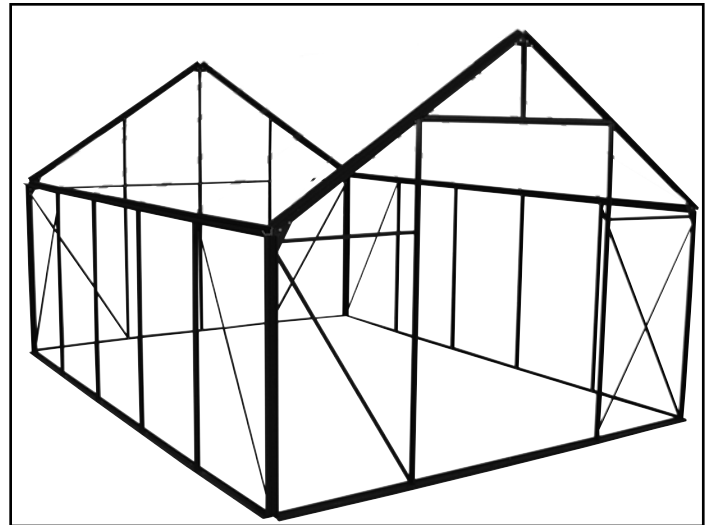


Photo above shows the corner of the greenhouse as seen *from the outside*. End wall support (14) is tight to the top of the sidewall base rail (30).

9. Verify that the end wall lower support is seated to the top of the sidewall base rail.
10. Tighten the bolt to secure the sidewall base rail to the end frame lower support.
11. Recheck all bolts to verify they are tight.
12. Repeat the procedure to connect the remaining sidewall gutter rail ends to the end wall frame of the greenhouse to complete the assembly of the greenhouse lower frame.



NOTE: To this point, all sidewall connections are secured to the end wall frame assemblies and all angle bracket bolts are tight.

Frame shown above may differ from actual frame. Door opening may be larger.

13. Continue with installing the ridge beam of the roof.

RIDGE BEAM ASSEMBLY AND INSTALLATION

The ridge beam connects the two end wall frame assemblies at the peak. Because it is the main support of the roof framing, the ridge beam is installed *before* the roof rafters are installed. The ridge beam and roof rafters are packaged together in Package #5.

NOTE: Some photos may show a different frame. The procedures are the same.

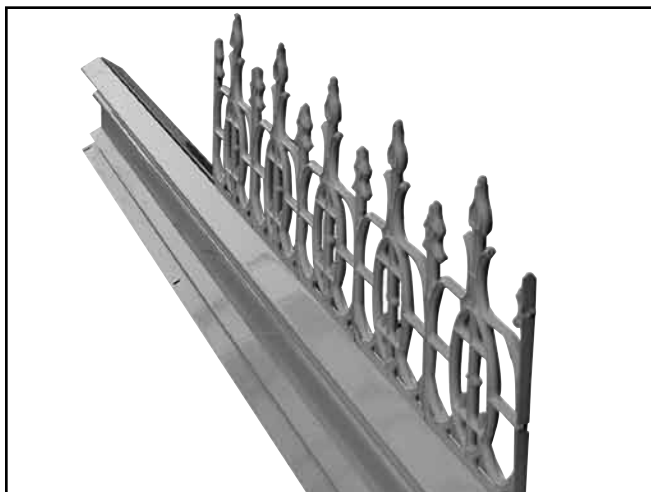
Cresting can be installed before or after installing the ridge beam. The procedure that follows describes installing the cresting before the ridge beam is attached to the frame. (Apply a light film of clean oil if the cresting binds during installation.)

Complete the following steps to install the decorative trim:

1. Locate the ridge beam (50) and position it on a piece of cardboard to protect the finish.
2. Take the first section of decorative cresting and slide it into the ridge beam.

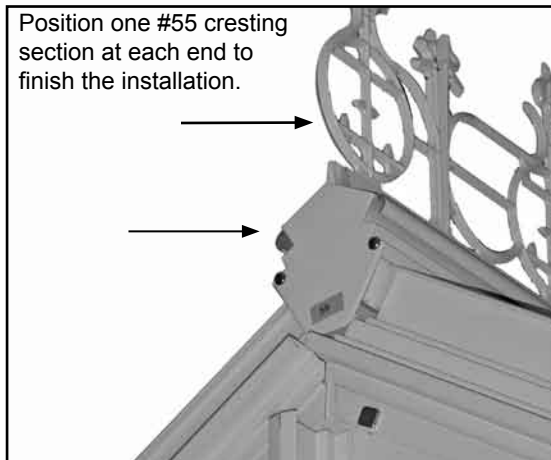


3. Continue adding the cresting until all sections are installed.



4. Finish the ends using the #55 end sections. See the photo at the top of the next column.

5. With the cresting in place, locate the ridge beam end caps (57) and attach them as shown below.



NOTE: To keep the cresting in place, install the end caps *before* lifting the ridge cap into position on the assembled frame.

Do not lift the ridge cap into position without first attaching the end caps as shown above.

End caps can be removed if needed to install the vent frame later in these instructions.

6. After installing the end caps, continue with the ridge beam and rafter installation procedures that follow.

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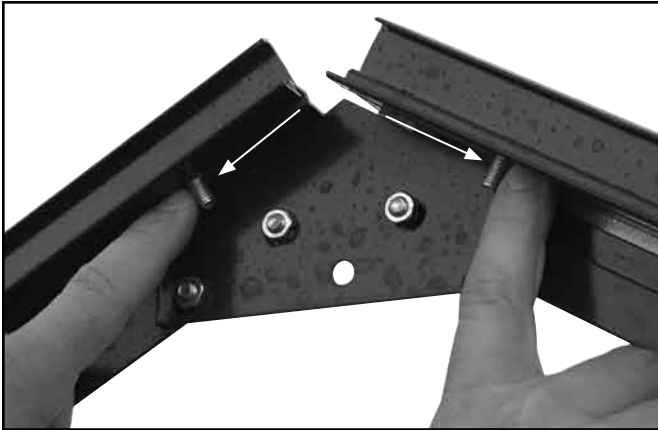
RIDGE BEAM AND RAFTER INSTALLATION

The ridge beam connects the two end wall frame assemblies at the peak. Because it is the main support of the roof frame, the ridge beam is installed *before* the roof rafters. *Ridge beam shown differs from actual beam.*

Open Bag #5 for the roof rafters (51) and gable brackets (53) to complete the frame assembly.

Complete the following steps to install the ridge beam.

1. Choose two (2) bolts and *slide one (1) into each bolt track* of the upper supports for one end wall.

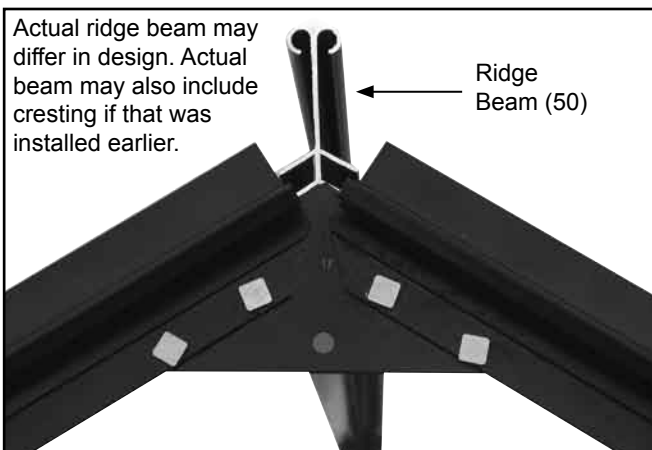


NOTE: Bolts will *slide* to the bottom of the track. Use a small piece of tape (or loosely install the nuts) to keep bolts near the peak where they are needed.

2. Locate Bag #5 and unwrap the different roof parts.
3. Select the ridge beam (50) and with assistance position it between the end wall frames at the peak.

REMEMBER: Photos show the inside of the greenhouse unless otherwise noted. All bolt tracks are positioned to the inside of the greenhouse.

Consult the next photo for the correct position of the ridge beam.



View shows the ridge beam as seen from the outside looking at the end wall frame.

Ridge beam to the right is shown installed without crestring. Greenhouses with crestring are equipped with a similar ridge beam. End cap is not installed.

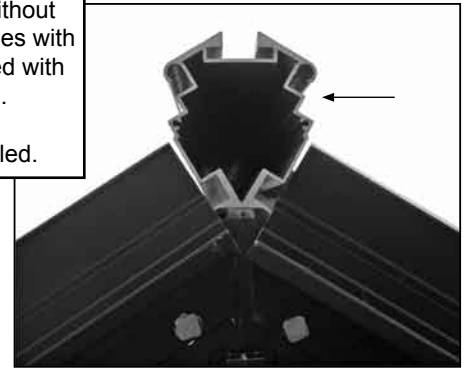
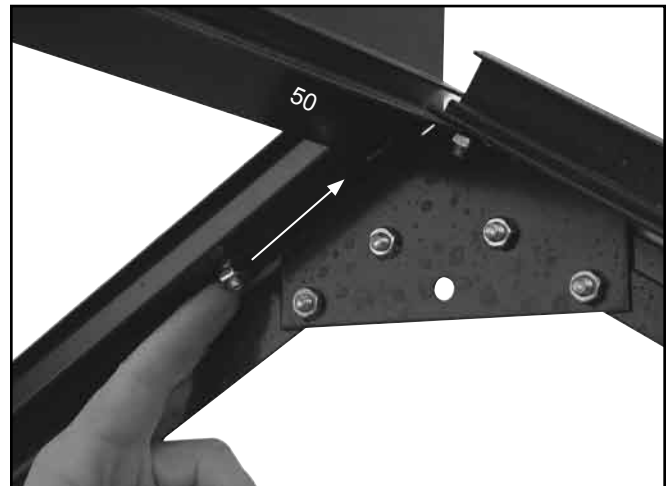
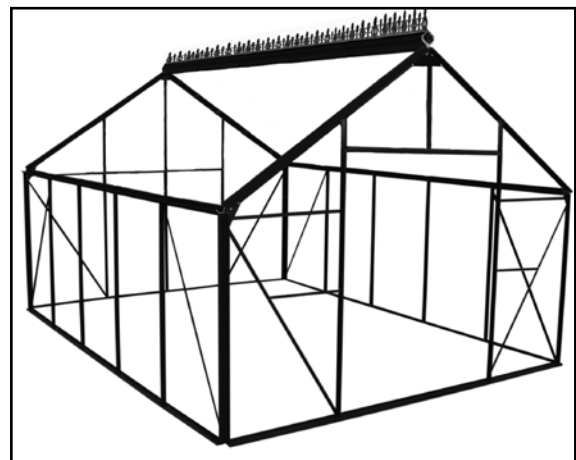


Photo above shows a similar ridge beam without the crestring installed. View below shows a different ridge beam as seen from the inside looking at the peak of the end wall frame. *Bolts are slid into the pre-punched mounting slots in the ridge beam.*



4. Add nuts to the bolts installed in Step 1 (if needed) and *slide each bolt* toward the peak and into the mounting slot of the ridge beam.
5. Verify that the ridge beam is seated properly and tighten both bolts.
6. Repeat the procedure to secure the remaining end of the ridge beam to the end wall frame.



7. With the ridge beam in place, install the roof rafters.

INSTALL THE ROOF RAFTERS

Install the roof rafters (51) with the bolt tracks to the inside of the greenhouse. Remember the following when attaching the rafters to the frame:

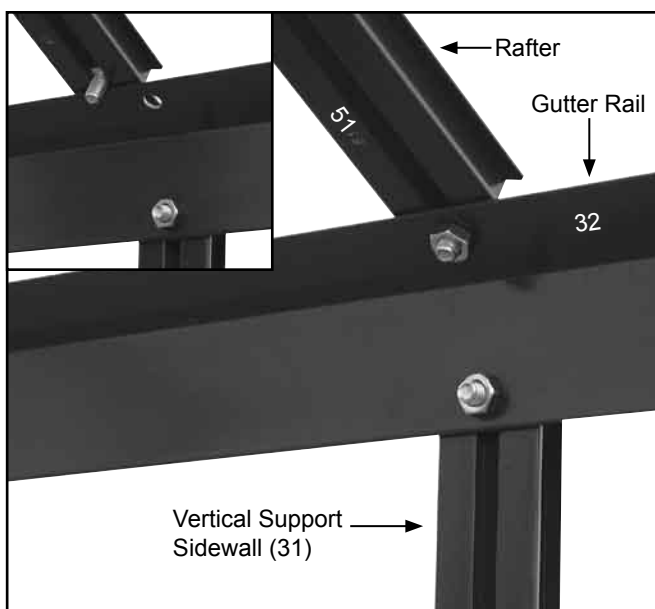
- Three (3) bolts are slid into the bolt track of each rafter: one (1) bolt is used to attach the rafter to the ridge beam; one is used for the rafter-to-rafter brace; the remaining bolt is used to attach the lower end of the rafter to the pre-drilled hole in the gutter rail.
- In addition, three (3) bolts are installed *into the bolt tracks of the rafters used to secure the roof vents to the frame*: one (1) bolt in one rafter and two (2) bolts in the adjacent rafter. This is explained in the procedure that follows.

The following steps describe one way to install the roof rafters (51) for the 104605 frame length. See the *Bolt Location and Roof Frame diagrams for details in the Quick Start section for this and the 104603 frame length.*

NOTE: Rafters (51) are installed beginning at the front (door end) of the greenhouse and working toward the back along one side. The steps are repeated to install the rafters for the other side of the roof beginning at the back and working toward the door/front.

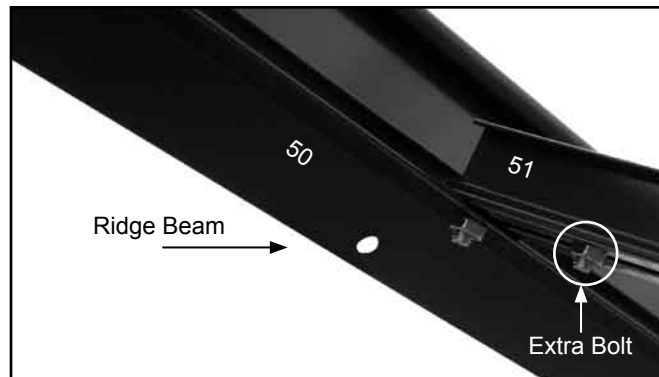
Consult the Bolt Location diagram for your greenhouse.

1. Move all rafters (#51) to the inside of the assembled greenhouse frame and locate the bolts and nuts.
2. Working from the front, move to the first rafter position on one side, *slide one (1) bolt* into the bolt track, and attach the rafter to the gutter rail by inserting the bolt through the pre-drilled hole in the gutter rail. *Do not fully tighten the bolt at this time.*



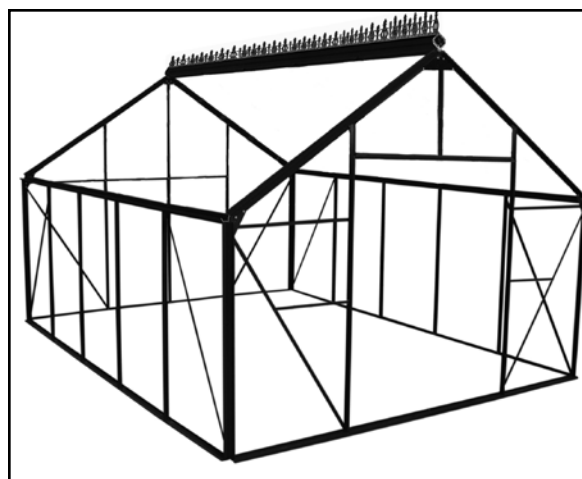
View is from the inside the greenhouse.

3. Slide *three (3) additional bolts* into the bolt track and use one of them to attach the other end of the rafter to the ridge beam. Tighten both rafter mounting bolts to secure the rafter to the frame.



NOTE: One "extra" bolt is used to mount the vent between the rafters when it is installed; the other is for the rafter-to-rafter brace. See circle above.

4. Select the next rafter (51) and attach it to the gutter rail as described in Step 2.
 5. Slide *four (4) additional bolts* into the bolt track of the rafter and use one of these to attach the rafter (51) to the ridge beam (50).
- NOTE:** *The 3 "extra" bolts are used to secure the rafter cross member (75) when it is installed between the first two rafters and to secure the vent support arm Z bracket (77) and the rafter-to-rafter brace.*
6. Choose the next rafter for the first side (104605) and repeat Steps 2 to attach the rafter to the gutter rail.
 7. Repeat Step 3 to add bolts and to attach the rafter to the ridge beam. *Frame shows a different door design.*



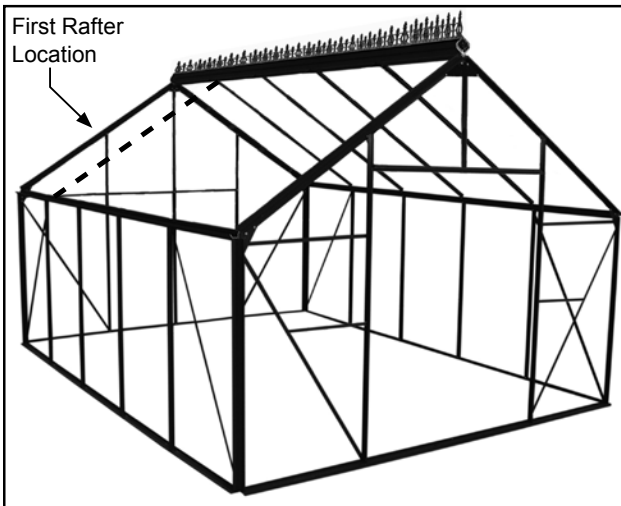
8. Using the Bolt Location diagram for your greenhouse, repeat the above steps as needed to install the remaining rafters *for the first side.*

NOTE: Remember to slide additional bolts into the tracks of the rafters as instructed.

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INSTALL THE ROOF RAFTERS (CONTINUED)

9. Move to the other side of the greenhouse and, beginning at the non-door end, install the first rafter.



NOTE: The dashed line in the above photo shows where to install the first rafter for the remaining side of the greenhouse frame. Consult the Bolt Location diagram to determine how many bolts to add to the rafter during installation.

10. Repeat the steps as needed to install the remaining rafters to complete the rafter installation.

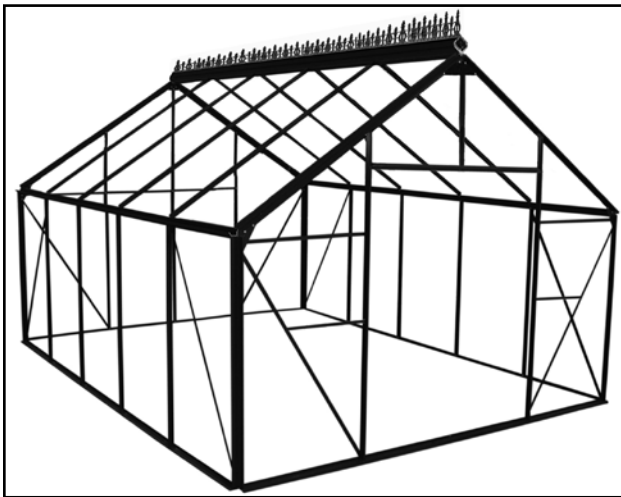
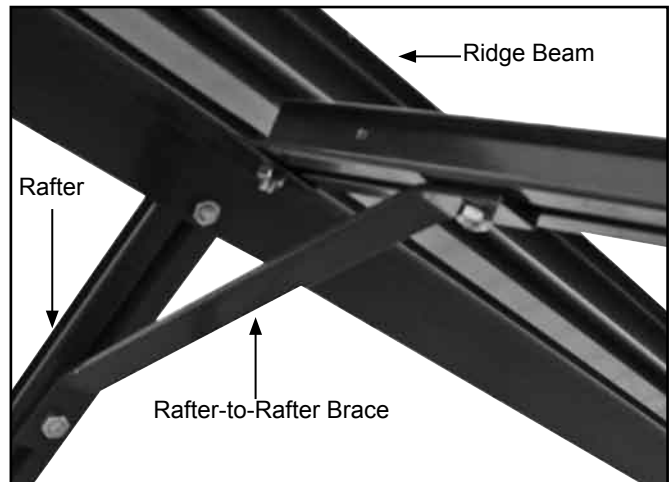


Photo above shows a greenhouse frame as long as the 104605 frame with all rafters installed. (Door design differs from actual frame.) The 104603 frame has fewer rafters. Consult the Quick Start diagrams for details.

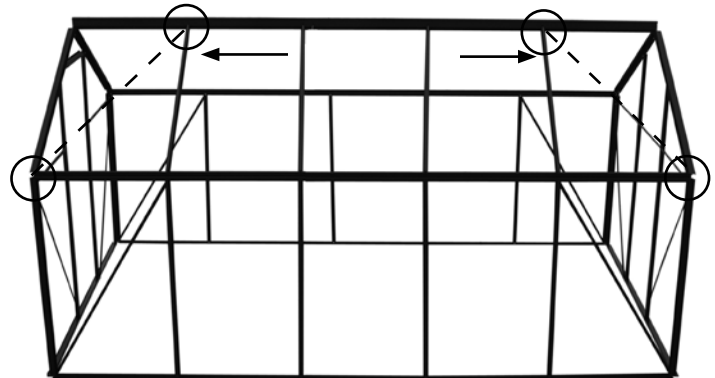
11. After all rafters are installed, locate the rafter-to-rafter braces (#53). These braces are installed on the inside of the frame at the peak between two adjacent rafters.

12. Using the uppermost extra bolt in each rafter, take one rafter-to-rafter brace and attach it as shown below.



View shows the brace as seen from inside the frame.

13. Repeat the step to install all remaining rafter-to-rafter braces.
14. Locate the four (4) diagonal roof supports (#52) and attach these in the locations shown on the Frame Diagram for your greenhouse.



NOTE: Loosen the mounting bolts as needed to install the diagonal braces. Once installed, retighten the bolts.

The above frame shows the location of the diagonal braces (dashed lines) for one side of the roof frame. Braces are install in the same locations on the other side of the roof. The circles show where to attach the braces on the inside of the frame. Consult the Roof Frame diagram for an additional view for your greenhouse frame.

15. Return to all rafter mounting bolts and verify that they are tight.

ATTENTION: Do not overtighten. Bolts can twist off if too much force is applied.

16. Continue with the assembly and installation of the vent frames.

ASSEMBLE AND INSTALL THE ROOF VENTS

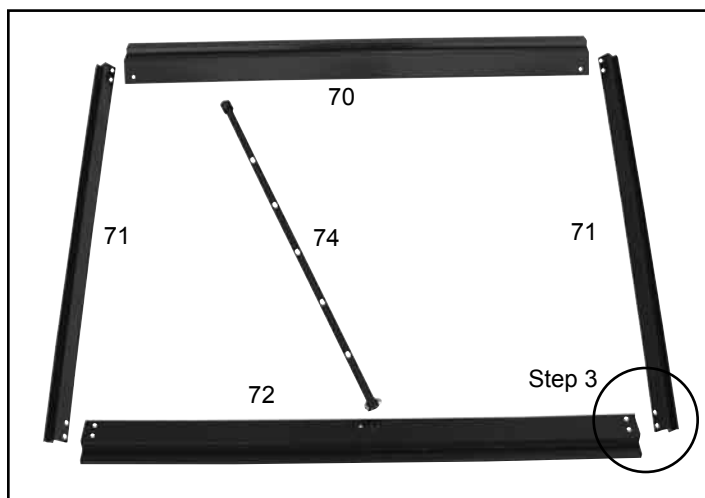
All parts for one (1) vent frame are located in Bag #7. There are four (4) #7 bags. (Door parts, which are assembled later, may be packaged separately or in Bag #6.) Complete these steps to assemble and install the roof vents.

NOTE: All photos show the vent frame with the inside (or underside) facing up. When installed, the vent frame surface shown in these photos will be seen from inside the greenhouse.

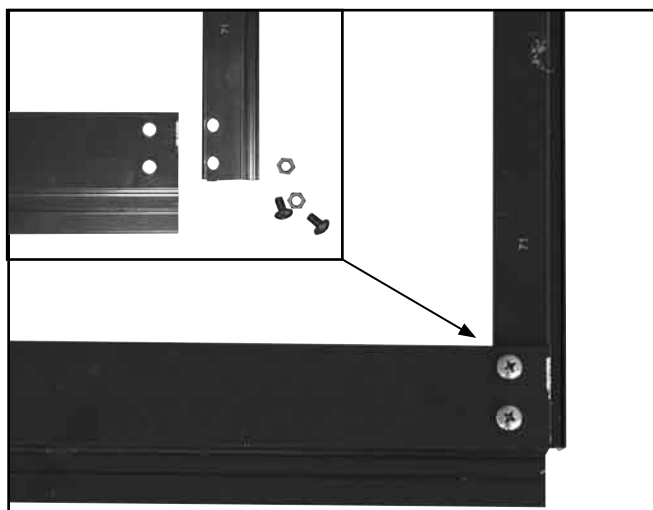
1. Locate and open one Bag #7 to begin assembling a vent frame.

NOTE: For some packaging, one Bag #7 includes the Phillips head screws and nuts for all vent frames. Locate and open that Bag #7 first to begin.

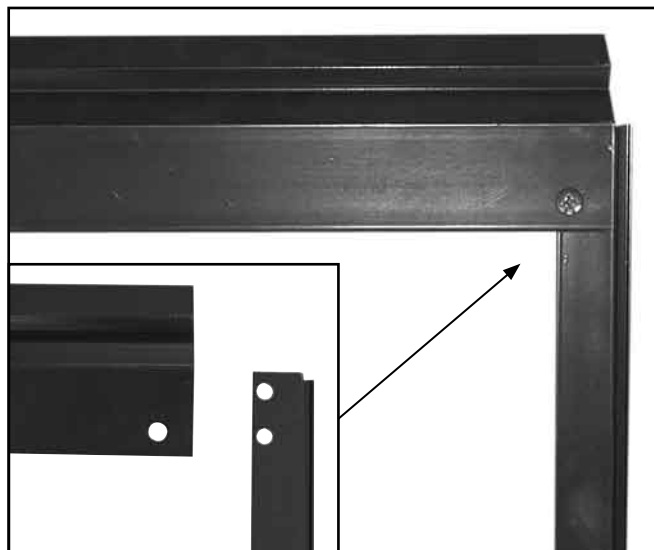
2. Arrange the parts as shown. See the Vent Frame Diagram for part identification if needed.



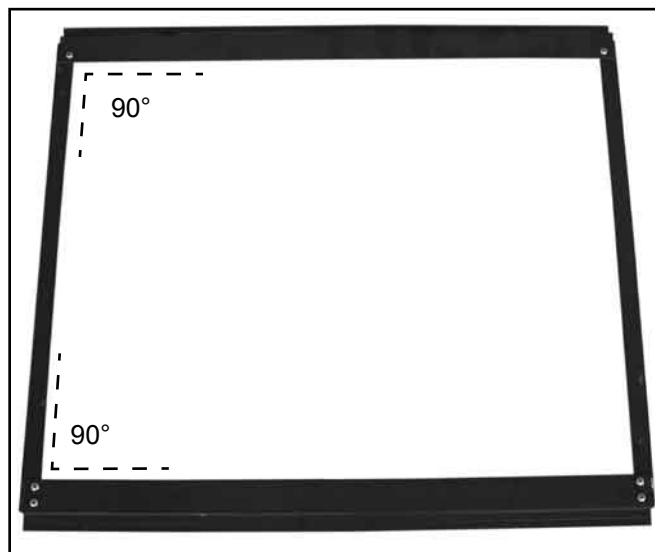
3. Using the small Phillips head bolts and nuts, attach the bottom rail to the side rails. *Do not tighten these at this time.*



4. Next, attach the top hinge rail (70) to the side rails (71) using the Phillips head bolts and nuts.



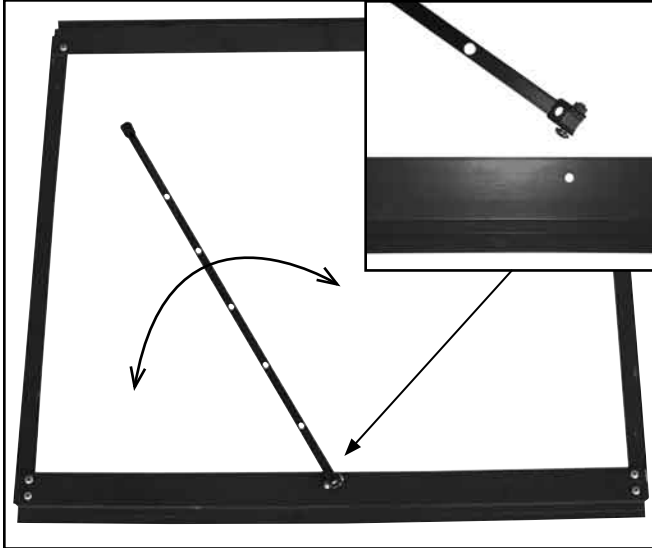
5. Using a carpenter's square (or other means), verify that the assembled vent frame is square and tighten the bolts.



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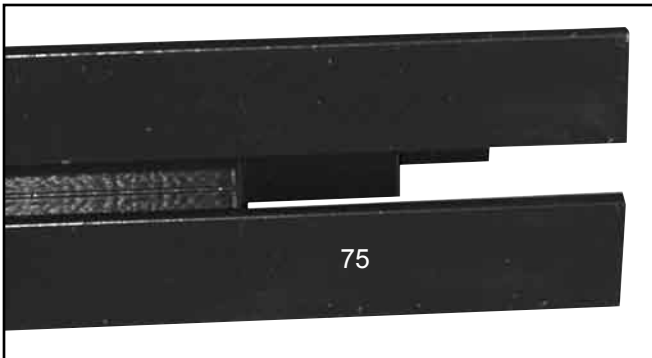
ASSEMBLE AND INSTALL THE ROOF VENTS (CONTINUED)

- Remove the bolt from the pre-assembled vent support arm (74), attach the swivel bracket to the bottom rail, and reattach the support arm to the bracket. If present, place the nylon washer *between* the swivel bracket and the vent frame. **DO NOT OVERTIGHTEN THE NUT.**

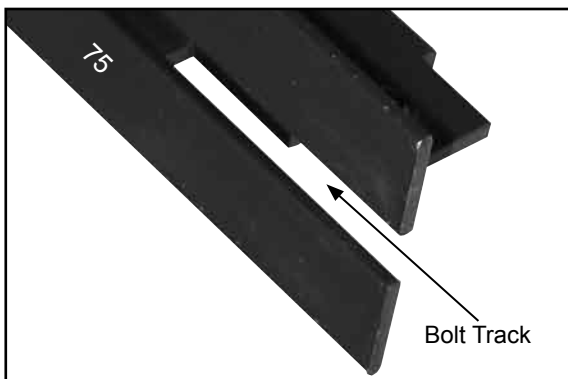


NOTE: The swivel bracket is attached to the bottom rail (72) using a small bolt and lock nut. *The bracket must be allowed to swivel on the bottom rail (72) to ensure that the support arm functions as designed.*

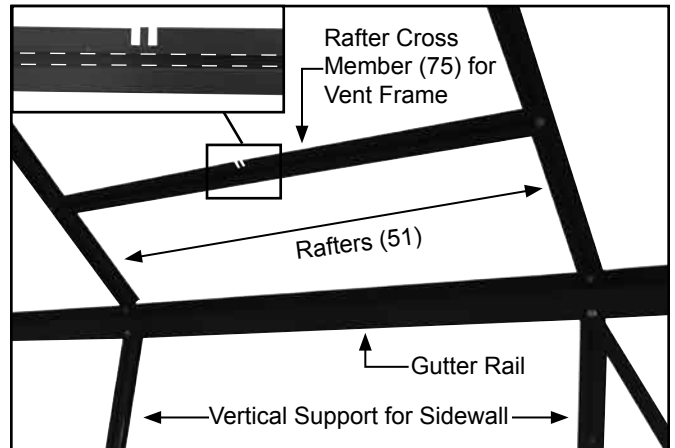
- Once the vent frame is assembled and squared, locate the rafter cross member (75).



Photos show the end of the cross member and the bolt track which is installed to the inside of the greenhouse.

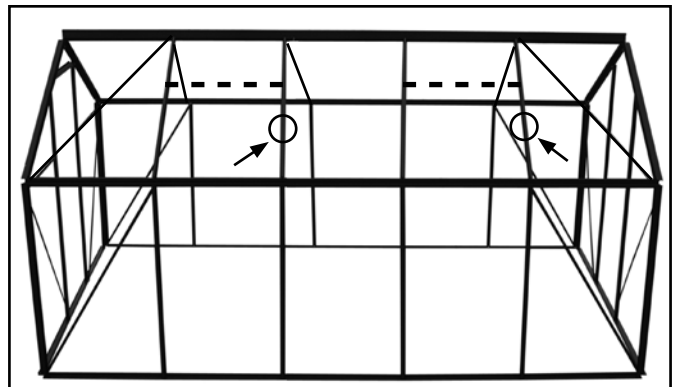


NOTE: The rafter cross member (75) is installed between the two rafters where the vent frame is installed. It functions as the lower vent frame support.



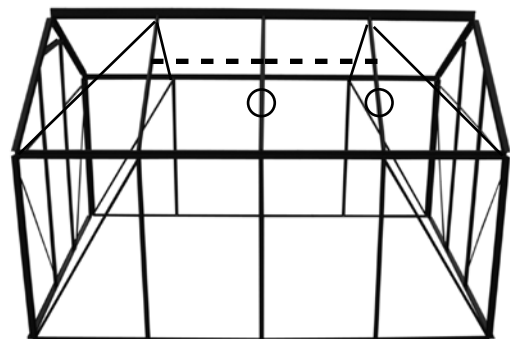
The bolt track is install *to the inside* of the greenhouse and the notch is installed "pointing" to the peak.

- Using the "extra" bolts in the bolt tracks of the first and second rafters, attach the cross member (dashed line below) between the two rafters. *Do not tighten the bolts at this time.* The 104605 greenhouse frame is shown.



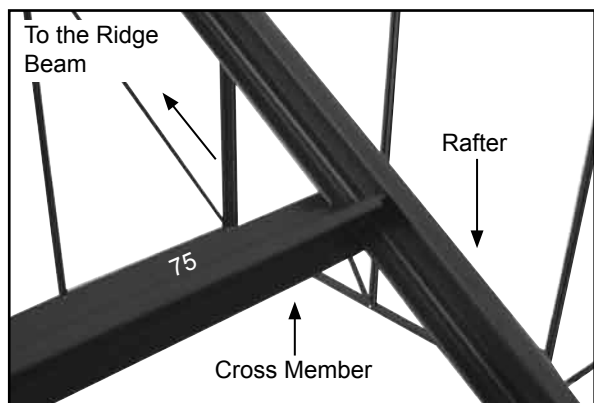
NOTE: The last "extra" bolt in the track of the second rafter must remain between the bolt used to secure the cross member (75) and the bolt used to secure the rafter (51) to the gutter rail (32).

See the circles in the above photo. This bolt is used to attach the Z-bracket (77) to the rafter. The Z-bracket holds the vent support arm (74) in place when the vent is closed. The 104603 frame is shown below.



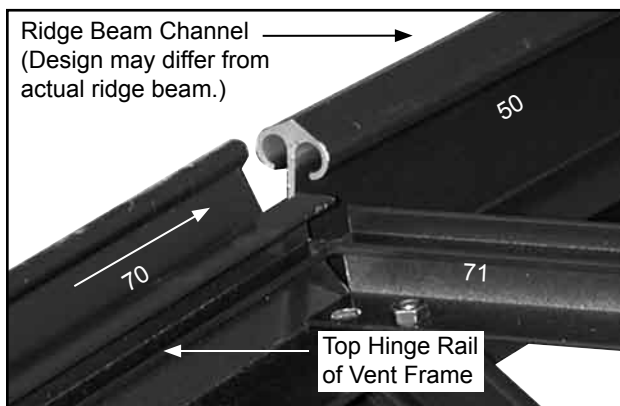
ASSEMBLE AND INSTALL THE ROOF VENTS (CONTINUED)

Photo below shows one end of the cross member (75) where it is attached to the rafter. The bolt is on the underside of the rafter (which is to the inside of the greenhouse).



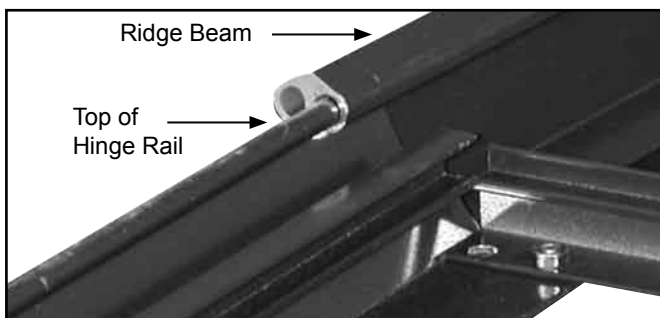
View is from the outside of the greenhouse.

9. After attaching the cross member (75), take the assembled vent frame and insert one end of the top hinge rail (70) into the channel of the ridge beam as shown in the photos that follow.



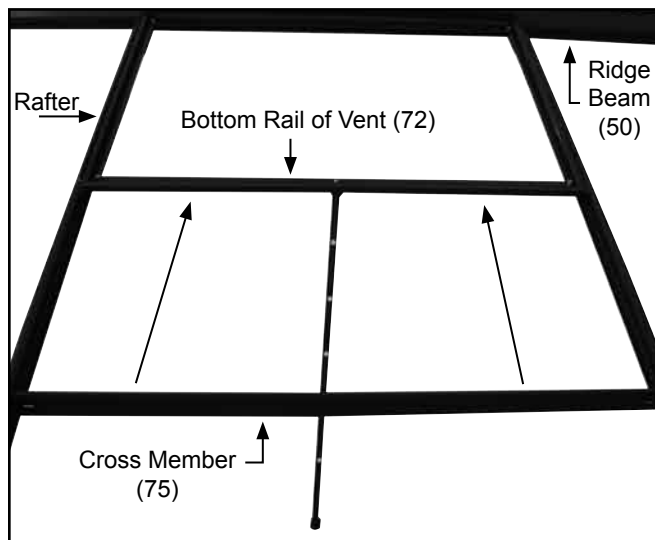
Slide the Top Hinge Rail (70) into the channel of the ridge beam as shown above and in the following photo.

The surface (underside) of the vent frame that was facing up during its assembly should now be facing to the inside of the greenhouse frame.

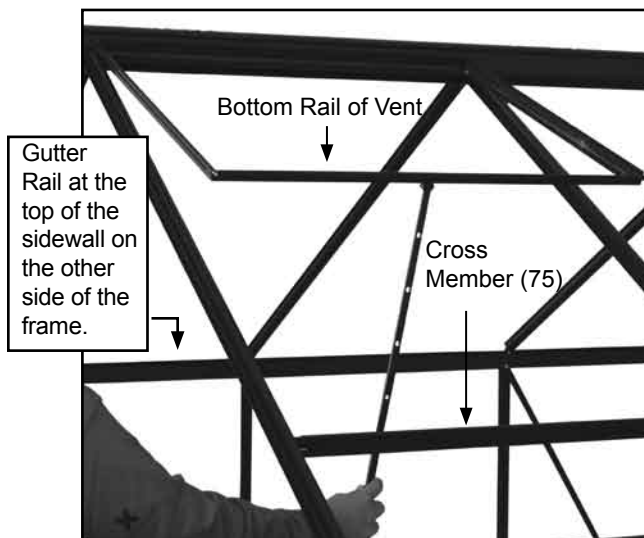


ATTENTION: Flip the assembled vent frame as shown to insert the rounded edge of the top hinge rail into the channel of the ridge beam.

10. Continue to slide the vent frame into the channel until the vent frame is aligned between the two rafters where the cross member was installed.
11. Once aligned, allow the vent frame to rest in the closed position between the rafters.
12. From inside the frame, slide the cross member up the two rafters until it touches the bottom rail (72) of the assembled vent frame. See the arrows in the following photo. View is from the outside of the greenhouse.



NOTE: Do not seat the cross member tight against the bottom rail of the vent frame. The frame will bind when attempting to open it. Allow a small gap for clearance.



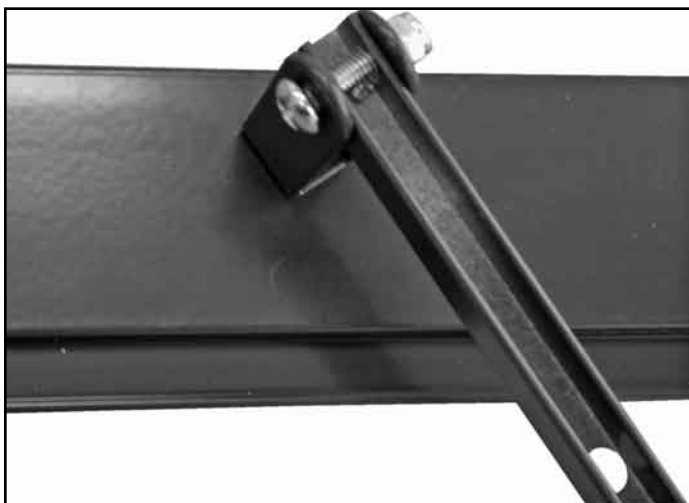
View is from the outside of the greenhouse.

13. With the cross member (75) in position, test the operation of the vent frame and tighten the bolts to lock the cross member in place.

CLEARSPAN™ GREENHOUSES

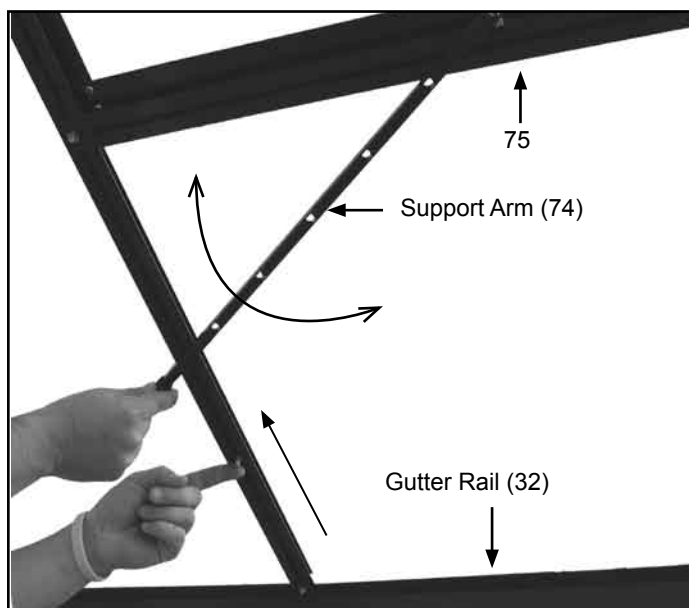
ASSEMBLE AND INSTALL THE ROOF VENTS (CONTINUED)

14. Verify that the support arm is installed as shown in the photo that follows. Remove mounting bolt and install support arm as shown if needed.



View shows the support arm as seen from inside the greenhouse frame.

15. Working from *inside the greenhouse*, close the vent and swivel the vent support arm down and toward the second rafter.



NOTE: This will be the rafter where the remaining "extra" bolt is located. If no "extra" bolt was installed, loosen the rafter at the gutter rail, *slide* a bolt into the bolt track, and retighten the rafter mounting bolt.

16. Slide the remaining bolt up to the support arm as shown above and attach the Z-Bracket (77).

17. With the Z-Bracket attached, lift the support arm out of the bracket and remove the vent frame from the greenhouse to install the polycarbonate panel.



NOTE: The polycarbonate panels for the vents can be installed with the vent frame attached to the greenhouse roof if desired. This procedure installs the polycarbonate panels with the assembled roof vents removed for easier accessibility.

18. Repeat the steps to assemble and install the remaining vent frame.
19. After all vents are assembled, installed, fitted in the frame, and removed, install the vent panels.

INSTALL THE POLYCARBONATE VENT PANELS

The steps below describe attaching the polycarbonate vent panels to the assembled vent frames. The panels are lettered for identification.

ATTENTION: Consult the polycarbonate panel installation information on Page 34 *before* you continue with this procedure.

The parts needed to complete the vent frame assembly include:

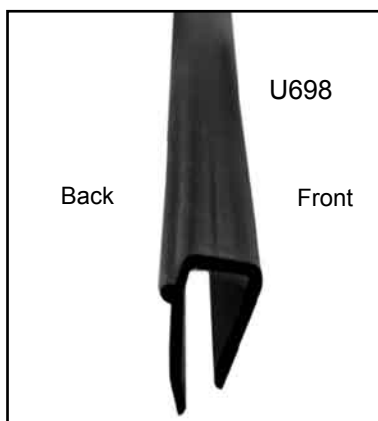
- Four (4) polycarbonate panels: Letter X
- U-profile (U698): See Sidewall and Roof Panel and Profile diagrams in the Quick Start section for profile quantity and location
- Silicone and customer-supplied caulk gun

NOTE: The plastic U-profile is precut. *You do not have to cut any plastic profile.* If it appears as though the plastic molding is the incorrect length, search through the remaining molding until you locate the correct length and continue with this procedure.

Complete these steps:

ATTENTION: Install the polycarbonate panels with the UV-protected side to the *outside of the greenhouse*. If you remove the protective film before installing the panels, mark the panel in a lower corner using a piece of tape so that the panel is installed correctly.

1. Locate the first Panel X and one piece of the U698 U-profile.

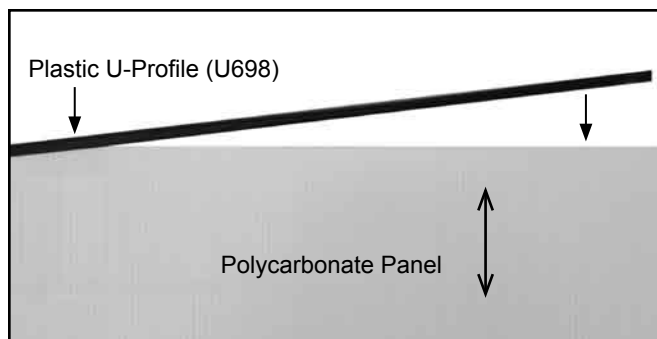


Plastic U-Profile

2. Carefully peel the protective film away from the edges where the open cells are located on both sides of the panel.

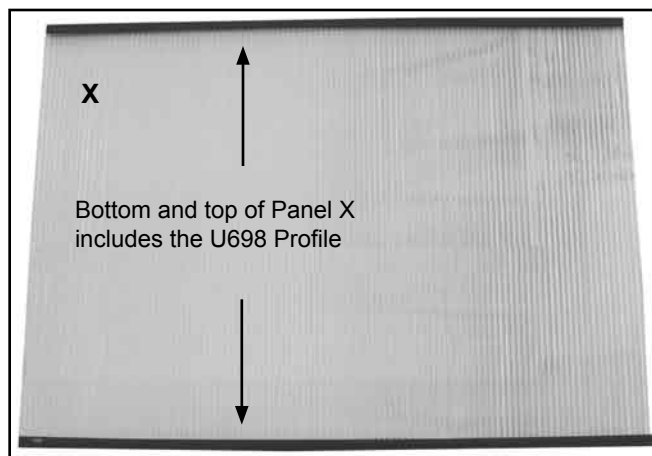
ATTENTION: To protect the panel, *do not* completely remove the protective film until you install the profile.

3. Take one profile section and install it on the top edge of the polycarbonate panel. Always install the polycarbonate panel with the cells running up and down (vertically).

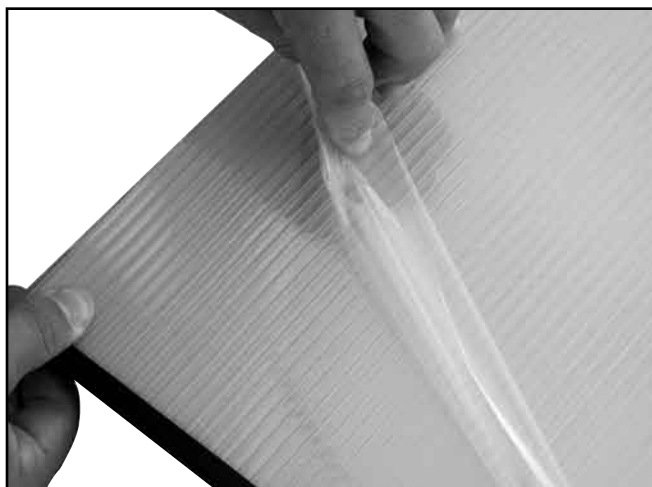


NOTE: The top and bottom edges of each panel show the hollow cells inside the panel. When installing the plastic molding, rest the panel on cardboard or other material to protect the edges and surface of the panel

4. Take the remaining U-profile section and attach it to the bottom edge of the panel.



5. With the profile installed, remove the protective film.

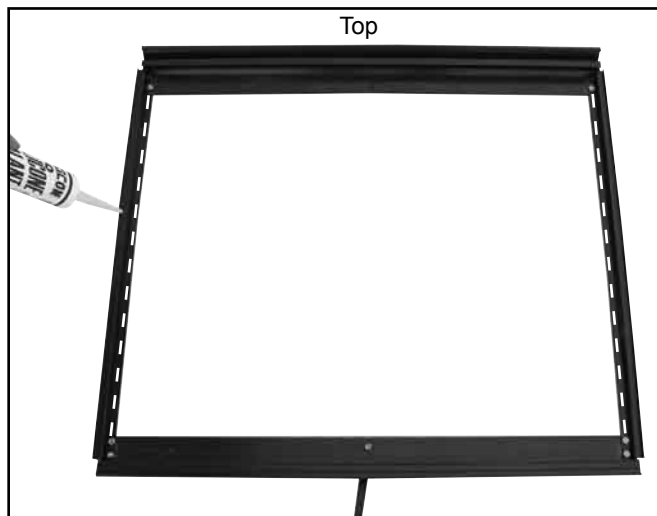


6. Mark the UV-protected side with a piece of tape or a marker and set the panel to the side.

CLEARSPAN™ GREENHOUSES

INSTALL THE POLYCARBONATE VENT PANELS (CONTINUED)

7. Move to the assembled vent frame and apply a small bead of silicone along the sides of the vent frame. A *one-eighth inch bead is sufficient.*



ATTENTION: The vent frame is positioned with the *outside facing up*. The dashed lines show where to apply the silicone.

8. With the silicone applied, take the prepared panel and set it in the vent frame with the UV-protected side facing up to the outside.

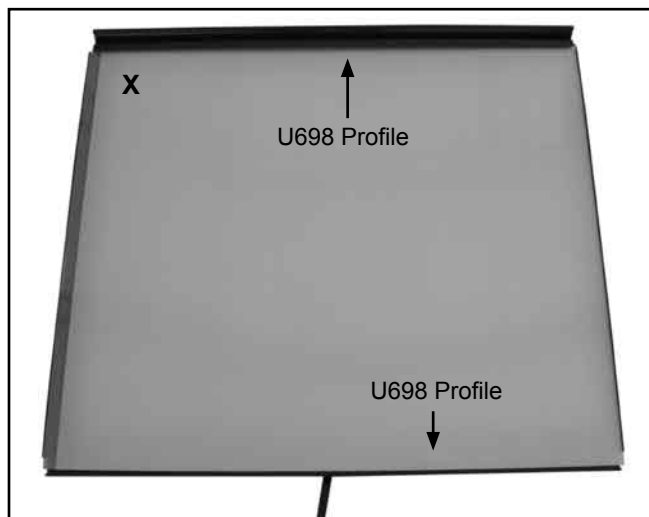


Photo shows the polycarbonate panel as installed in the vent frame. (In the photo, the protective film was not removed to better show the panel in the frame.)

9. Repeat the above steps for the remaining vents.
10. After the silicone sets, reattach the vents to the assembled greenhouse frame (if they were removed to install the polycarbonate panels).
11. Read the anchoring instructions and information that follows and then continue with the door assembly procedures *after you anchor the greenhouse frame.*

ANCHORING INSTRUCTIONS

To prevent serious personal injury and property damage, you must anchor the assembled greenhouse frame before continuing.

Failing to properly anchor the greenhouse frame will void all warranties.

If you did not purchase one of our recommended anchoring systems and want to now, contact your sales representative at 1-800-245-9881.

Consult a professional and qualified contractor for anchoring suggestions if you have not decided how to anchor the greenhouse.

Read the anchoring information that follows and anchor the assembled greenhouse frame.

ANCHOR THE GREENHOUSE

The site and whether the optional base is used determine the recommended anchoring methods for the greenhouse.

⚠ WARNING: You must anchor the greenhouse (and the base if used) to the site and before installing the panels. Failing to do so may result in property damage and personal injury.

The information below identifies the recommended anchoring methods for your greenhouse. There are four basic scenarios when anchoring the greenhouse. Choose the one that matches your particular application.

If none of the following anchoring suggestions is applicable to your greenhouse, *you must seek the advice of a professional and qualified contract* to anchor your greenhouse to the site.

ATTENTION: Since different applications require different anchoring methods, you must contact your sales representative for the parts required to anchor the greenhouse and frame. Contact Customer Service at 1-800-245-9881 to purchase additional anchoring parts.

Continue with the following anchoring information on the following page.

ANCHOR THE GREENHOUSE (CONTINUED)

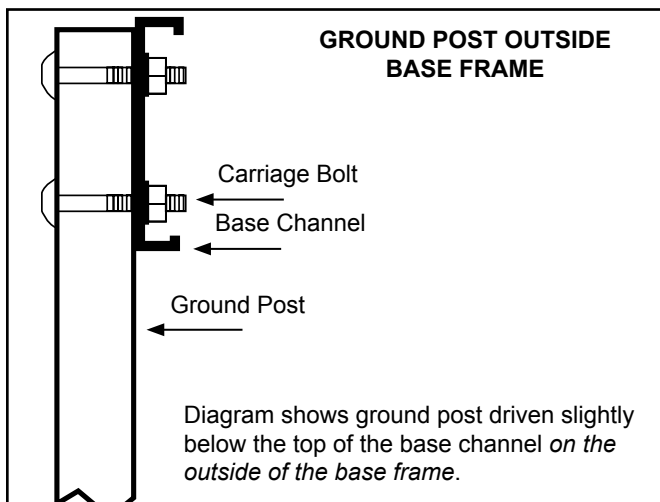
SCENARIO #1: Base Frame On Soil (or Gravel) Site

Ground posts are used to anchor the optional base to the site before the assembled greenhouse frame is set on the base.

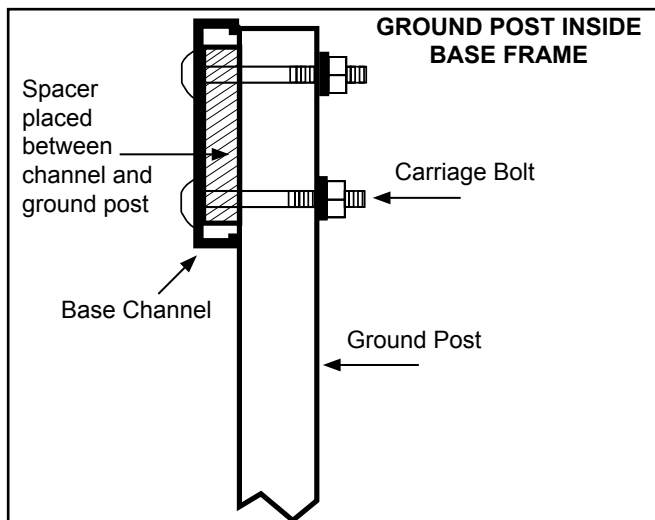
1. After squaring the base and driving the support posts into the ground (see the Base Assembly instructions presented earlier in this packet), select the *ground posts for the anchoring system*.
2. Determine whether you want the ground posts on the inside or outside of the base assembly.

NOTE: Ground posts are driven into the site near each corner of the assembled frame. *You must order the ground posts. They are not included with the greenhouse.*

3. Using the following diagrams, drive each ground post into the site slightly below the top of the base channel.



NOTE: When the ground post is *on the inside of the base*, use as spacer placed between the base channel and ground post to prevent crushing the channel when the bolts are tightened as shown below.



4. With the ground posts driven into place, use the holes in the ground post as a guide, drill a hole through the base channel, and attach the base to each ground post as *shown in the previous diagrams*.
5. With the base secured, set the assembled greenhouse frame on the anchored base.
6. Attach the greenhouse frame to the anchored base using self-tapping screws driven through the base rail and into the base channel.

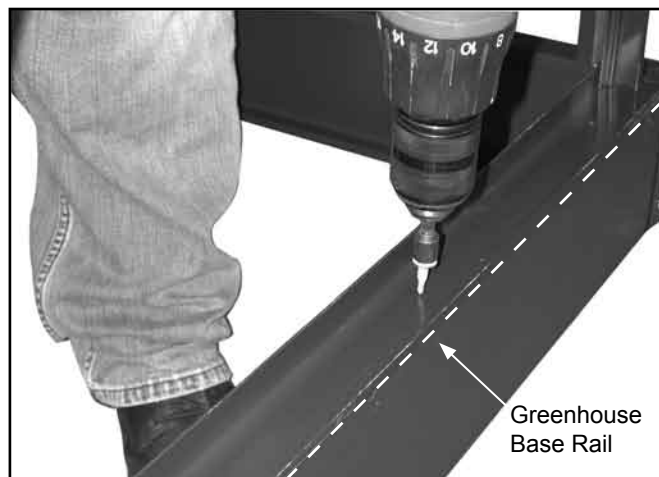


Photo is used for illustration purposes only. The dashed line shows the lip of the base rail of the greenhouse.

NOTE: Place screws evenly around the perimeter of the frame between each vertical support.

7. Continue with the greenhouse assembly procedures as instructed.

CLEARSPAN™ GREENHOUSES

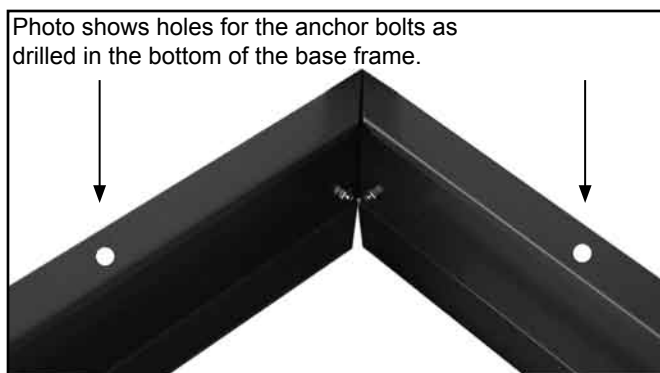
ANCHOR THE GREENHOUSE (CONTINUED)

SCENARIO #2: Base Frame On Concrete (Slab or Patio)

Concrete anchor bolts are used to secure the base to the concrete slab before the assembled greenhouse frame is set on the base.

1. After the base is assembled and the frame support posts are cut to the proper length (see the Base Frame Assembly instructions) position the base on the site with the *bottom edge of the base facing up*.
2. Using a drill bit the same diameter as the concrete anchor bolts, drill holes through the edge of the base channel.

NOTE: Use 24" spacing when drilling the holes. You must use concrete wedge anchors for this application.



3. After all holes are drilled, flip the base frame and reposition it on the site.
4. Square the frame as previously described in the Base Assembly procedure.
5. Using the holes drilled in the base channel (Step 2) as guides, take a marker and mark the hole location on the concrete.
6. Remove the frame, drill the holes in the concrete using the proper bit, and install the anchor bolts in the concrete.
7. Reposition the base frame over the anchor bolts in the concrete and anchor the base to the site using the anchor bolts.
8. Anchor the assembled greenhouse frame to the base as shown in *Step 6 of the previous anchoring instructions* and continue with the greenhouse assembly procedures as instructed.

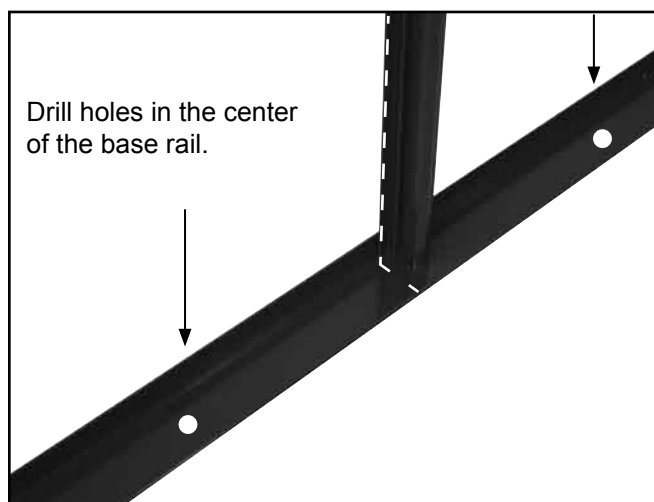
SCENARIO #3: No Base Frame: Greenhouse Is On Concrete Slab (or Patio)

If the greenhouse frame is assembled and no base frame is used, the greenhouse is anchored to the concrete using anchor bolts as previously described.

ATTENTION: Placing a perimeter foundation of treated wood or similar material between the concrete and the metal greenhouse base is strongly recommended.

If a perimeter base is used between the concrete and the metal base of the greenhouse as suggested, anchor bolts must run through the greenhouse base, the treated wood base, and into the concrete.

1. Position the assembled greenhouse on the site and *square the greenhouse* using the technique described in the Base Assembly instructions presented earlier in this packet.
2. After squaring the assembled greenhouse frame, drill a hole through the base rail of the sidewall of the greenhouse frame and install a concrete anchor bolt.



NOTE: Holes for the anchor bolts are drilled through the base rail and into the concrete between each of the vertical supports. Photo above shows the greenhouse frame as seen from the outside of the greenhouse.

3. Move to the opposite side of the frame and repeat the previous step to anchor the frame to the site.
4. Continue by repeating the above steps until the greenhouse frame is anchored.
5. After anchoring the greenhouse frame, continue with the greenhouse assembly instructions.

SCENARIO #4: No Base Frame: Greenhouse Is On Soil (or Gravel)

To anchor the assembled greenhouse frame to a non-concrete site without the optional base frame, *you must use a treated-wood base frame to set the greenhouse on.*

Ground posts are then driven into the ground on either the inside or outside of the treated-wood base frame. The wood frame is anchored to the ground posts using lag screws inserted through the ground post holes and screwed into the wood.

After securing the treated-wood frame to the ground posts, the assembled greenhouse frame is placed on the wood base, squared, and anchored to the wood base using lag screws inserted through pre-drilled holes in the base rail of the greenhouse frame and screwed into the wood. Use the diagrams below to anchor the greenhouse to a non-concrete site when the optional base frame is not used.

Diagram shows lag screws installed through the ground post and into the 4" x 4" treated wood base frame. *The dashed line shows where to install the lag screw when a 2" x 4" or 2" x 6" treated-wood frame is used.*

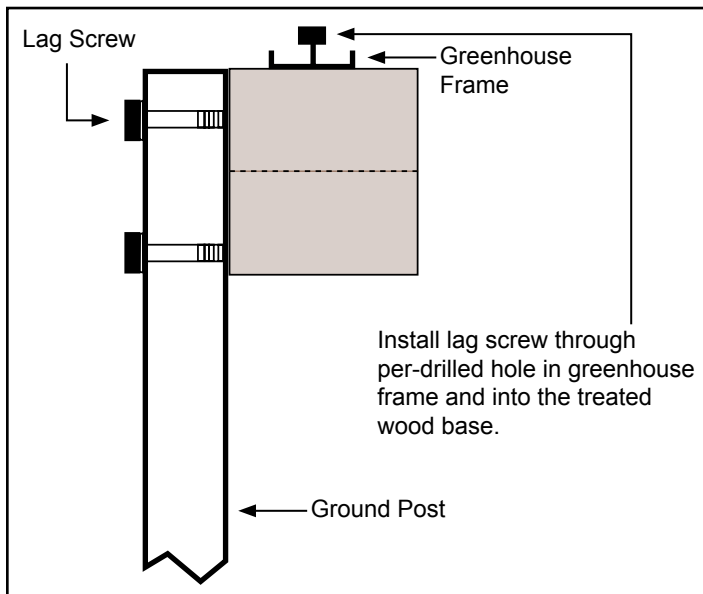


Diagram may not be to scale.

NOTE: Only the top hole in the ground post is used when a 2" x 4" or 2" x 6" treated-wood base is used.

In all instances for the wood base, the ground posts are driven flush to the top of the wood base as shown.

After anchoring the treated-wood frame to the site and the greenhouse frame to the wood frame, continue with the greenhouse assembly instructions that follow.

ASSEMBLE AND INSTALL THE DOOR

The following photos may show a door of a different color or slightly different design. The assembly and installation procedures are the same for all similar doors and applications.

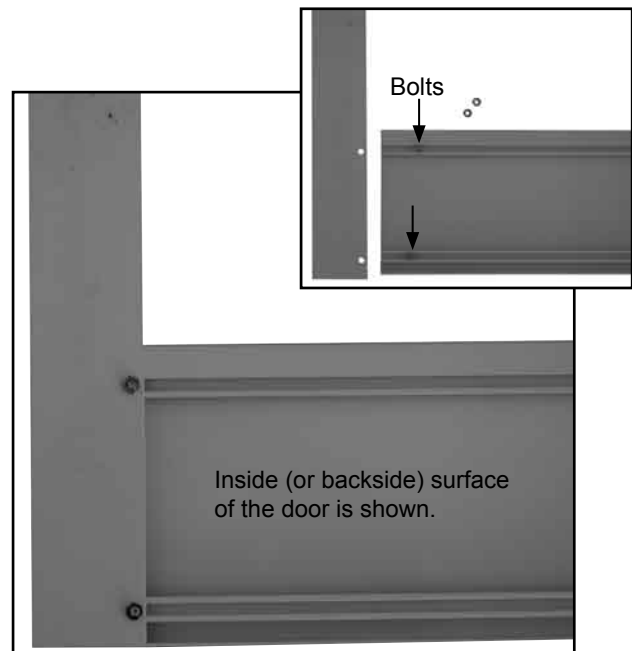
Complete these steps to assemble and attach the door to the greenhouse frame.

1. Locate all door parts and assemble them on a clean surface. (Place and assemble the parts on cardboard to protect the finish. Frame shown below may differ slightly from actual frame.)



See the Door Frame Diagram for parts identification.

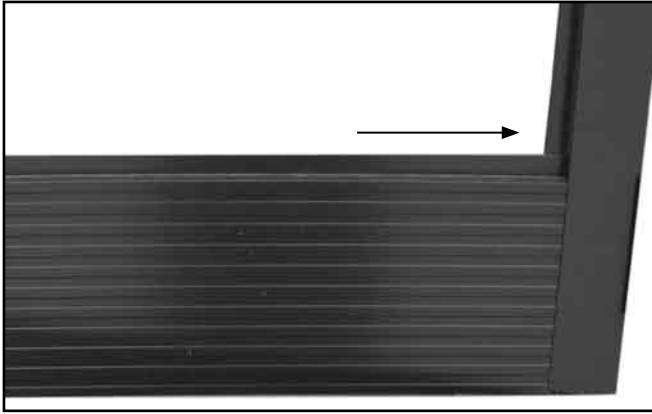
2. Slide the bolts into the bolt track of the door cross members and attach the cross members to the vertical side members of each door frame.



CLEARSPAN™ GREENHOUSES

ASSEMBLE AND INSTALL THE DOOR (CONTINUED)

- 3. Verify that the side members are seated tight to the cross member to maintain the proper width of the door. View shows the outside of the door frame.



- 4. Continue connecting the door components until all door frames are assembled.
- 5. Locate the doorstop frame member and *attach it to the inside top of the lower door frame*. (For many applications this is part #640.)

NOTE: This doorstop provides a back for the upper door frame, preventing it from swinging into the greenhouse.



The dashed line (below) shows the location of the frame member shown in the photo above.



Photo shows the inside surface of the assembled door.

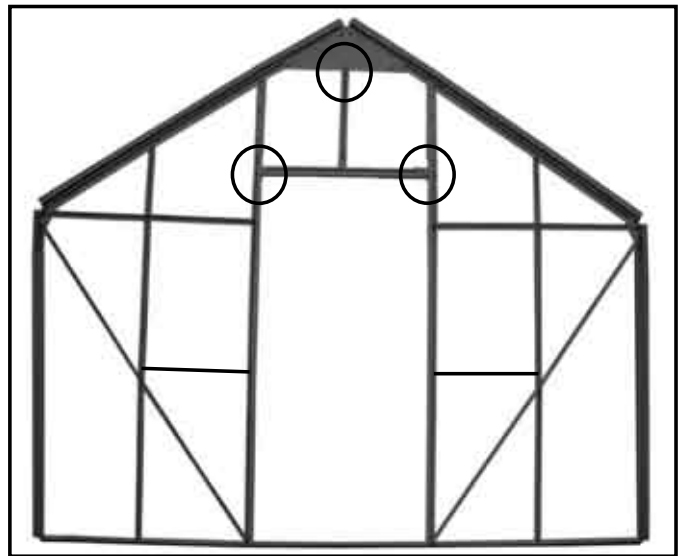
- 6. Secure the assembled door frames to the greenhouse end wall frame.

This procedure describes attaching the assembled doors to the end wall framing and then installing the polycarbonate panels for the door.

If you want to install the panels before the doors are hung, skip to that section and install the panels. Then return to this step to attach the doors to the end wall frame.



ATTENTION: Loosen and adjust the header of the end wall if needed to install the door.



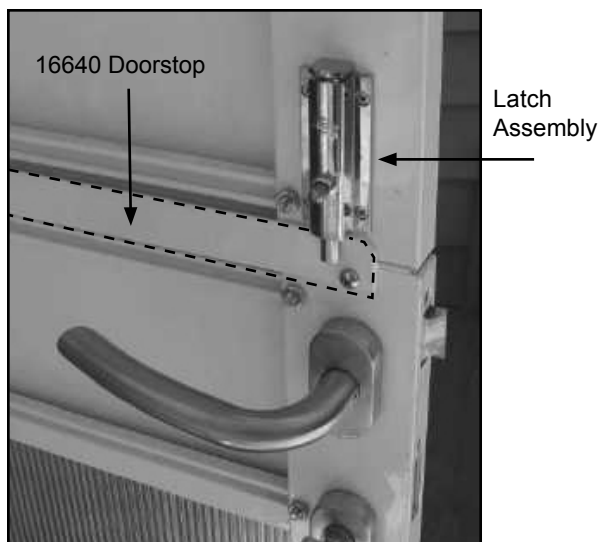
To adjust the header, loosen the bolts only in the locations identified by the circles in the above diagram, close the door, adjust the header as needed, and tighten the header mounting bolts.

For best results, allow space between the top of the door and the header. The door should operate freely.

ASSEMBLE AND INSTALL THE DOOR (CONTINUED)

Space below is reserved for customer notes.

7. Attach the latch to the inside of the upper door as shown below. *Some latches come pre-installed.*



8. Once the door is assembled and installed, open and close the door and test all components.
9. Adjust the header as needed to get a proper fit.
10. After all adjustments are complete, prepare and install the polycarbonate door panels.

CLEARSPAN™ GREENHOUSES

INSTALL THE POLYCARBONATE DOOR PANELS

The steps to prepare and install the polycarbonate panels for the doors are similar to those described in the vent panel installation procedure. The door panels are lettered for identification.

NOTE: The protective film has not been removed in the following photos. *You must remove the film as instructed during the assembly process.* Consult the polycarbonate panel installation information on Page before you continue with this procedure.

The parts needed to complete the door frame assembly include:

- Two (2) Y panels (top/bottom frames)
- Four (4) precut lengths of plastic U-675 plastic profile
- Silicone

NOTE: The plastic U-strips are precut and are as long as the polycarbonate panel is wide. *You do not have to cut any plastic molding.*

If it appears as though the plastic molding is the incorrect length, search through the remaining molding until you locate the correct length for the panels.

Complete these steps:

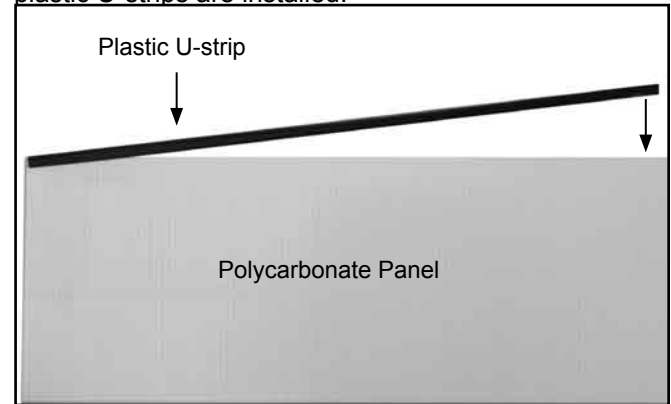
ATTENTION: The polycarbonate panels *must be* installed with the UV-protected side to the *outside of the greenhouse*. If you remove the protective film before installing the panels, mark the panel in a lower corner so that the panel is installed correctly.



Plastic U-Strip Profile

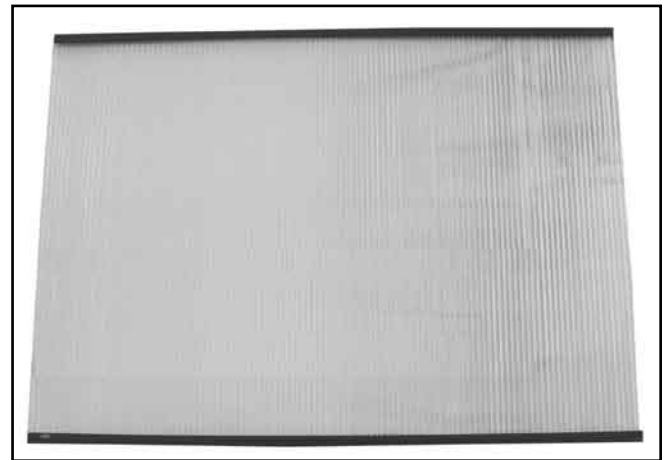
1. Locate the first Y panel and two lengths of the U-675 plastic profile for that panel.
2. Carefully peel the protective film away from the edge on both sides of the panel.

Do not completely remove the protective film until the plastic U-strips are installed.



3. Take one U-strip length and install it on the top edge of the polycarbonate panel.

NOTE: The top and bottom edges of each panel show the hollow cells inside the panel. When installing the plastic molding, rest the panel on cardboard or other

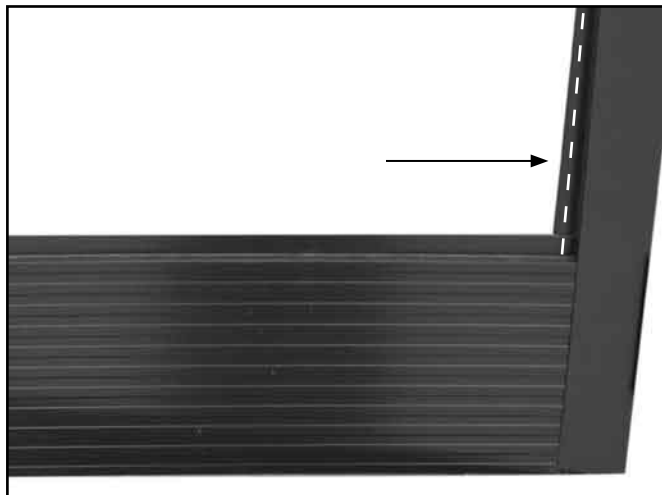


material to protect the edges and surface of the panel.



INSTALL THE POLYCARBONATE DOOR PANELS (CONTINUED)

4. Take the remaining U-strip and attach it to the bottom edge of the panel.
5. With both lengths of the plastic U-strip installed on the panel, peel the protective film from the panel.
6. Mark the UV-protected side with a piece of tape or a



marker and remember that it is installed to the outside.

7. Lift each door frame off the hinges and place the frames (inside surface down) on cardboard to protect the door frame finish.

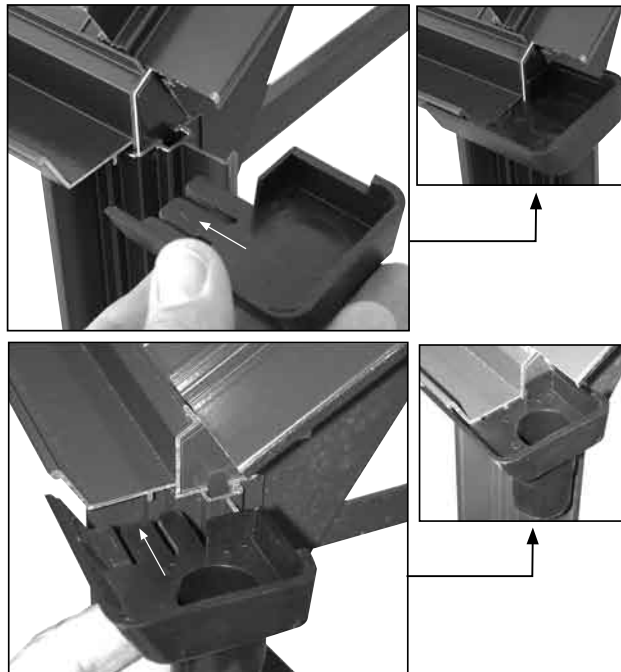
Photo shows the lower-right corner of one door frame. Dashed line shows where to apply silicone.

8. Apply a bead of silicone to the sides of the door frame where the panel is positioned.
9. Place a prepared panel into the door opening. Verify that the *UV-protected surface is to the outside*.
10. Repeat the previous steps to attach the remaining polycarbonate panels to the remaining door frames.
11. After the silicone sets to secure the panels, the doors can be installed, or you can wait until the remaining panels are installed on the greenhouse frame.
12. Continue with installing the ends for the gutters.

INSTALL THE GUTTER RAIL ENDS (84)

Before installing the remaining polycarbonate panels, install the plastic gutter rail ends as shown below.

1. Locate one plastic gutter rail end and one gutter downspout end and install these on the desired gutter rail ends as shown.



2. Repeat the steps to install the remaining gutter rail ends.
3. Continue with installing the side, end, and roof polycarbonate panels.

CLEARSPAN™ GREENHOUSES

INSTALL THE POLYCARBONATE PANELS

Consult the panel diagrams in the Quick Start section to install panels. For best results, follow these basic instructions when installing all polycarbonate panels:

1. Consult the panel installation and profile diagrams in the Quick Start section of these instructions.
2. Do not cut any profile or panel!
3. Dry Fit: Place the panel in the frame to see if it fits *before* you apply silicone to the frame member. If the panel does not fit, verify that you have the correct panel.
4. Do not allow panels to remain in direct sunlight until all protective film is removed and the panels are installed.
5. Wipe all frame surfaces with alcohol or other residue-free solvent in locations where silicone will be applied.

NOTE: Use solvents or alcohol as directed by those manufacturers. Ensure adequate ventilation.

6. Always rest panels on a clean surface when installing. Do not allow the panels to rest on the ground.
7. Always install the UV-protected side to the outside.
8. Do not install during windy or wet conditions. Protect the installed panels from the elements to allow the silicone to set.
9. If desired, seal the open cells *at the top edge of each panel* with tape or with silicone *before installing the profile* to prevent dirt from entering the cells.

NOTE: Do not seal the bottom of any panel with silicone. These cells must remain open and free of debris to allow condensation to drain from the panel cells. (See Item 10 for optional vent tape purchase.)

10. Vent tape (additional purchase required): If vent tape was purchased, apply this tape at the bottom of each polycarbonate panel *before* installing the profile. Vent tape is not required but helps keep dirt from inside the cells and allows condensation to drain from the cells.
11. Purchase additional silicone if needed. The size of the bead of silicone used determines the amount of silicone required to secure and seal the remaining panels. Purchase additional silicone locally to complete the panel installation if needed.

NOTE: An 1/8" bead is typically sufficient to seal and secure a panel to the greenhouse frame.

12. Consult the previous panel installation steps to review the basic installation steps.
13. Refer to all diagrams and photos as needed during the panel installation. Verify that you have selected the correct panel and profile.

INSTALL THE FIRST SECTION OF PANELS

The remaining panels can be installed in any order. For these instructions, the sidewall panels are installed next, followed by the end panels, and finally the roof panels.

The following plastic molding is needed to complete the installation of all remaining polycarbonate panels:

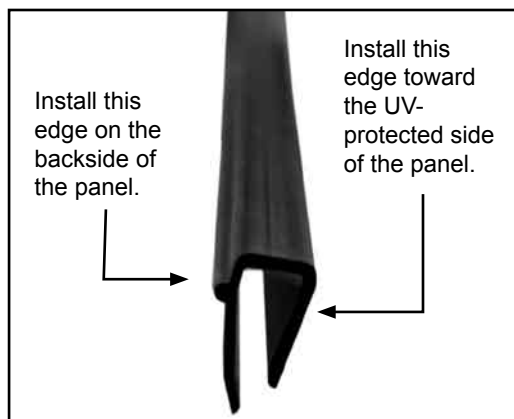


U-Strip: This plastic molding is installed on the top and bottom of each panel.

Do not cut any plastic molding. To prevent damage or injury, DO NOT install panels on a windy or stormy day. Consult the diagrams in the Quick Start section to begin.

ATTENTION: Install the polycarbonate panel with the UV-protected side to the outside of the greenhouse. If you remove the protective film before installing the panel, mark the panel in a lower corner so that the panel is installed correctly.

1. Locate the first sidewall panel from the box identified in the table and the U-profile for that panel and prepare the panel as previously described.
2. Carefully peel the protective film away from the edge on both sides of the panel.



Do not completely remove the protective film until the plastic U-strips are installed.

3. Take one section of U-profile and install it on the top edge of the polycarbonate panel. If desired, you can seal the top edge of the panel before the U-profile is installed. (See Item 9 in previous column for details.)

NOTE: The top and bottom edges of the panel show the hollow cells inside the panel. When installing the plastic molding, rest the panel on cardboard or other material to protect the edges and surface of the panel.

INSTALL FIRST SECTION OF PANELS (CONTINUED)

- Take another section of U-profile and attach it to the bottom edge of the panel.

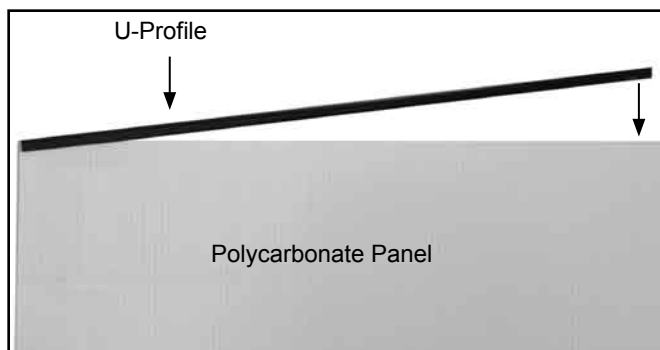
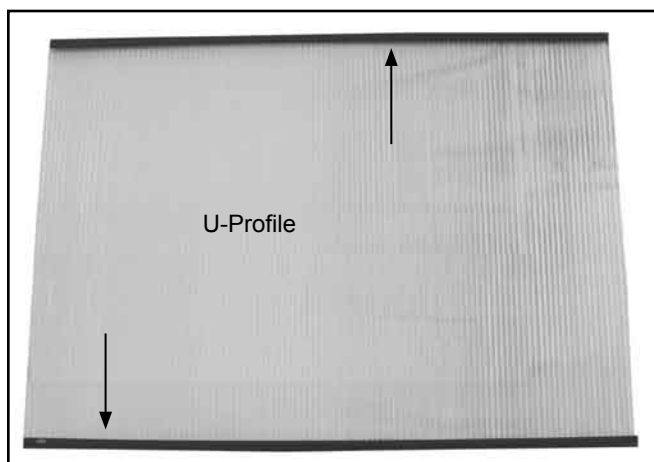


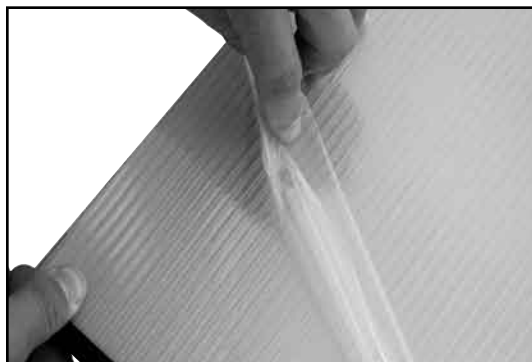
Photo is used to illustrate the location of the U-profile. *The panel size may differ from the actual panel.*



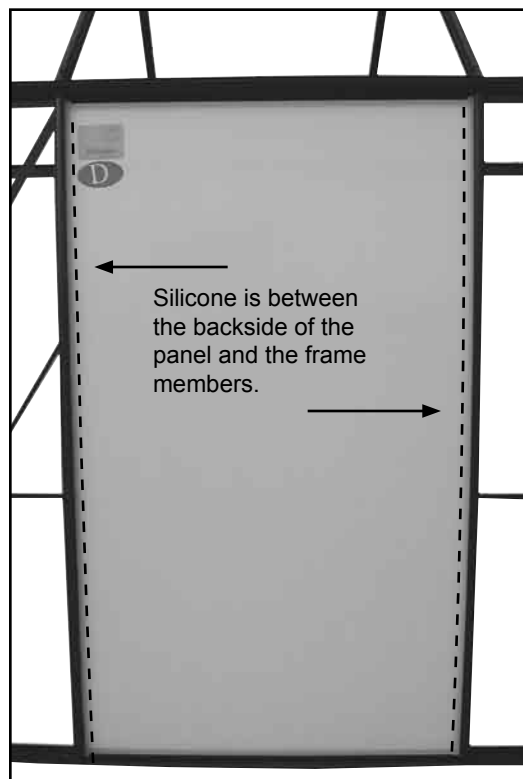
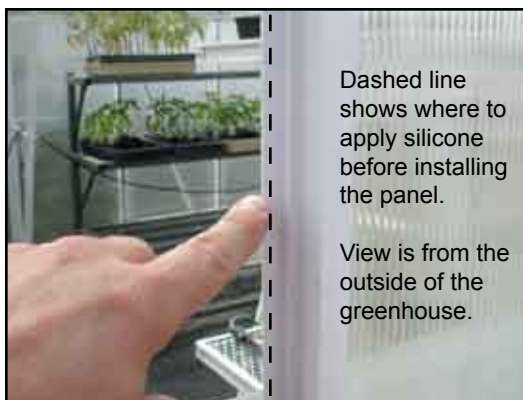
- Move to the frame where the panel will be installed and clean the surfaces where the silicone will be applied.

NOTE: The surface for the silicone on the frame must be free of oil and dirt for best results. See the profile and panel diagrams and photo to the right for silicone location. Consult Item 5 on previous page.

- With the plastic U-strip installed and the surface cleaned, dry fit the panel to verify that it fits between the frame members.
- Remove the protective film from the panel and mark the UV-protected side with a piece of tape or a marker and set the panel aside.



- Move to the frame and, standing outside the frame, apply a bead of silicone *in the channel of each frame member* in the areas shown below by the dashed lines.



ATTENTION: Panel is shown in place to better show the location of the silicone, which is applied *before* the panel is set in the frame.

- After the silicone is applied, take the prepared panel and set the panel into position as shown above. *Panel as seen from the outside.*

NOTE: Protective film has be left in place to better show the panel.

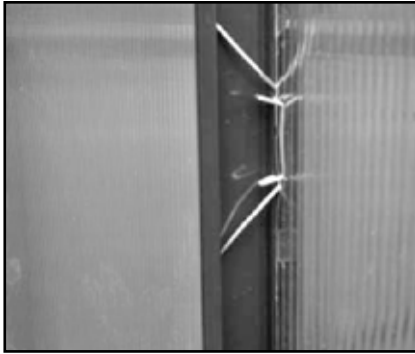
- Firmly press the panel against the silicone on the rafter. Panel will sit between the frame members.
- Continue by installing the metal clips to secure the panel to the frame.

CLEARSPAN™ GREENHOUSES

INSTALL WIRE SPRING CLIPS

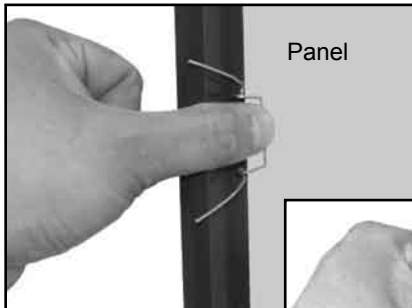
Wire spring clips are used to secure the panels to the frame (82). CONSULT THE SPRING CLIP DIAGRAMS NEAR THE BACK OF THESE INSTRUCTIONS FOR PROPER INSTALLATION LOCATIONS.

Continue with the following steps to install the clips on the *outside of the greenhouse*.

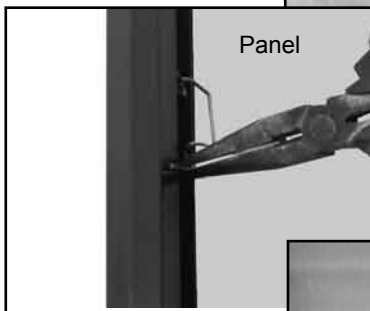
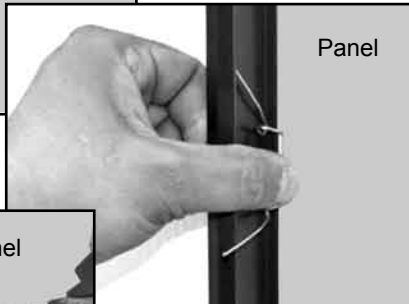


CAUTION: Wear eye protection when installing and working with the wire clips.

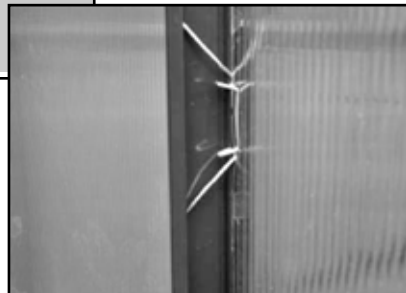
1. With the panel in place, take a spring clip and place it against the sidewall vertical support and panel.



Place wire clip into position as shown.



Use a pliers if needed to clip the spring in place.



2. Clip the free ends of the wire spring behind the lip of the frame member and press into place.

NOTE: Refer to the diagrams to position and space the wire springs.

3. After securing the first polycarbonate panel to the frame, repeat the steps to prepare and install all remaining sidewall panels.
4. After installing all sidewall panels, continue by installing the end wall panels.

INSTALL THE END WALL PANELS

The end wall panels are installed and secured in the same manner as the sidewall panels. Consult the diagrams in the Quick Start section for panel identification and wire spring locations.

For the *door end* of the greenhouse, locate these panels: Two (2) angled panels (Panel A1), two (2) angled panels (Panel B1), and two (2) C panels. The C panels are installed above the door opening.

For the *non-door end* of the greenhouse, locate these panels: Two (2) large, angled panels (Panel A) and two (2) angled panels (Panel B).

NOTE: When installing the panels, always install the UV-protected side *to the outside of the greenhouse*. Consult the panel diagrams for panel location and identification.

Silicone Application: Silicone is applied from the outside along the lip of each vertical support before the panels are pressed into place. *See the dashed lines on the panel diagrams in the Quick Start section.*

End Panel Installation

1. Locate the required panels and install these as described in the previous sidewall panel installation steps.
2. After end wall panels are installed, continue with the installation of the remaining roof panels.

INSTALL THE ROOF PANELS

Install and secure the roof panels in the same manner as the previous panels. Roof panels consist of the following:

- Long, rectangular panels: Panel E
- Short, rectangular panels: Panel F – These panels are installed to cover the opening *below* the roof vents.

ATTENTION: Remember to install all panels with the UV-protected surface to the outside.

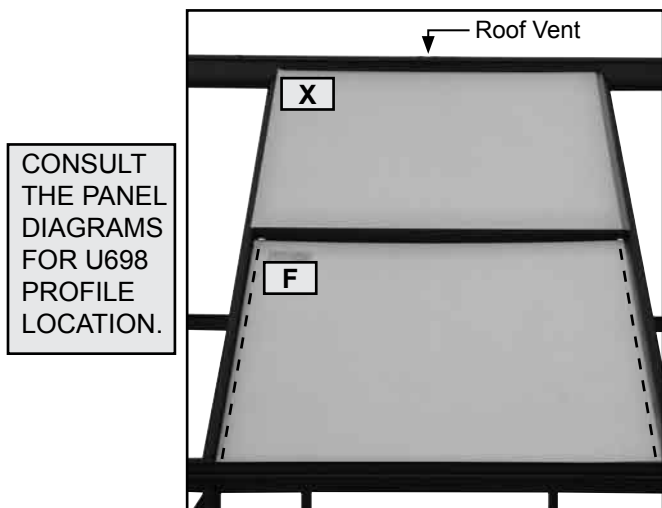


Photo shows the roof vent with the installed panel (Panel X) and the adjacent, lower roof panel (Panel F). The dashed line (above) shows where to apply the silicone.

NOTE: Vent Panel X was installed earlier in these instructions. *It is secured using silicone only.*

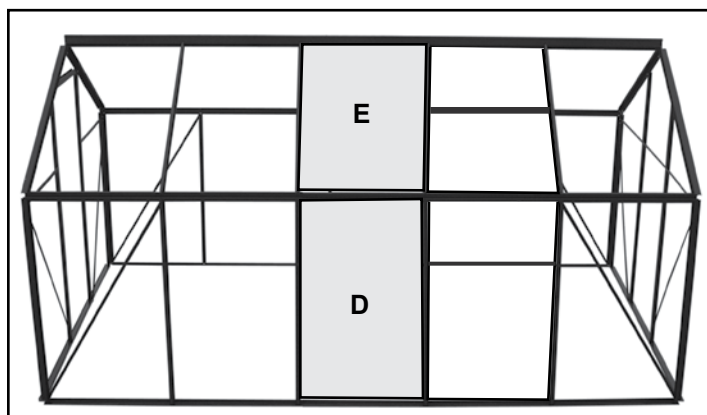
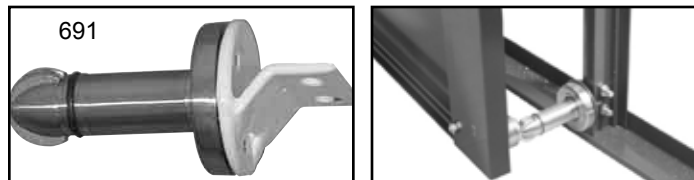


Diagram shows Panel (E) for the roof and Panel D for the sidewall. See the diagrams in the Quick Start section for silicone application.

Apply silicone along the lip of each roof rafter *before* setting the prepared panel into place and securing it with the wire spring clips. Actual panel locations may vary for your greenhouse. Consult diagrams for details.

ATTACH MAGNETIC DOORSTOPS TO THE FRAME

A magnetic doorstop is attached to the assembled frame for each of the door sections.



Complete these steps:

1. Locate the required doorstops and related brackets.
2. Attach the magnetic stop to the vertical support by inserting the mounting bolts through the pre-drilled holes in the vertical support.

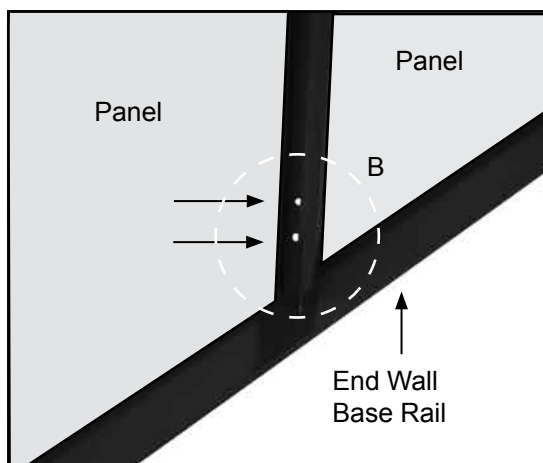
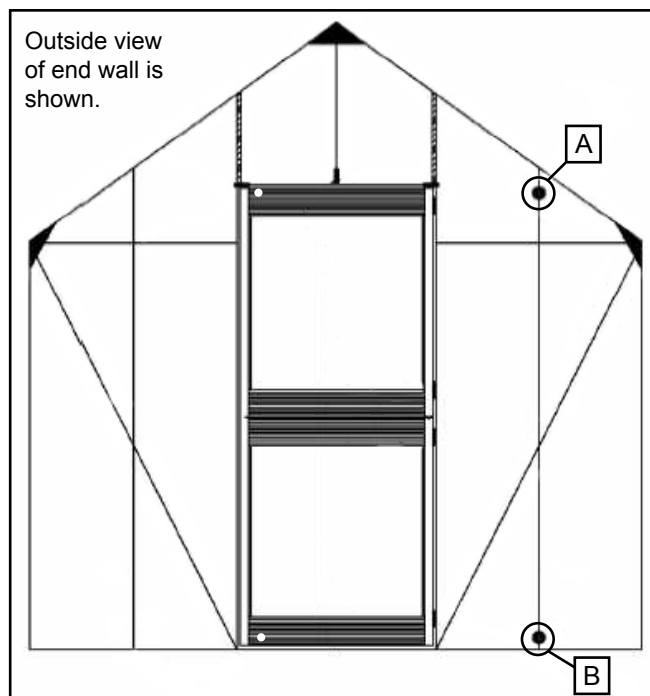


Diagram below shows the doorstop locations. The vertical support where doorstops are installed has pre-drilled mounting bolt holes. Location may be opposite from what is shown below for your greenhouse.

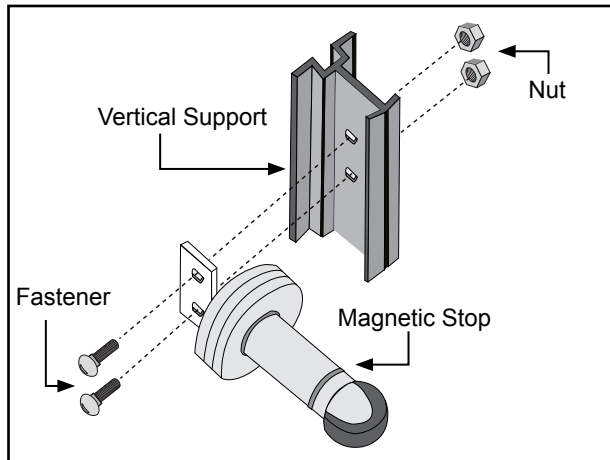
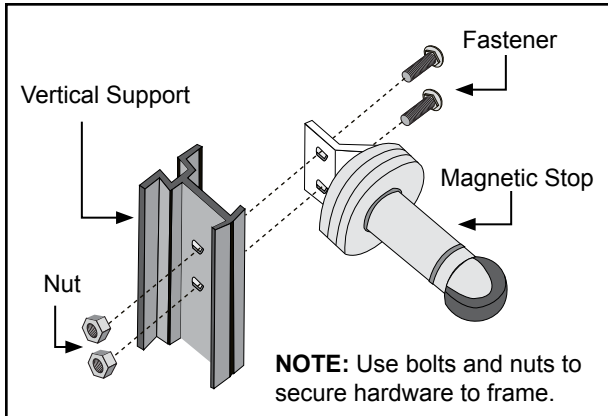


Outside view of end wall is shown.

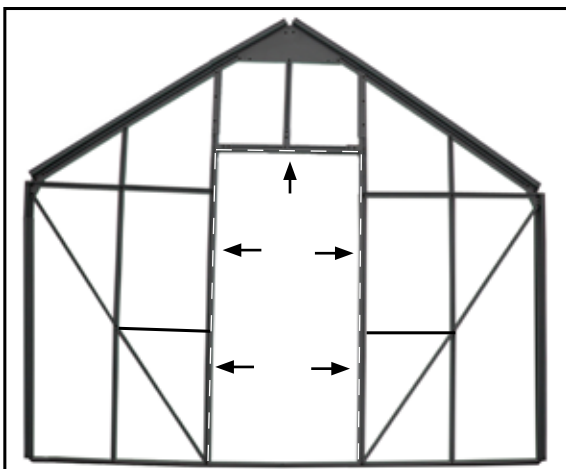
CLEARSPAN™ GREENHOUSES

ATTENTION: Attach the doorstop to the vertical support as shown below. Verify that the stop is aligned with the *mating bracket attached to each door frame before* you secure the magnetic doorstop to the frame member.

Use the door as a guide to attach the stop on the correct side of the vertical frame support.



3. Repeat the steps to attach the remaining doorstop.
4. After the doorstops are in place, locate the weatherstripping and attach it to the door frame of the end wall. See the dashed line and arrows below.



5. After the doorstops are in place, continue by reading the care and maintenance information.

CARE AND MAINTENANCE

Proper care and maintenance of the greenhouse will help to ensure years of service. The following items identify areas that should be periodically checked to ensure that your greenhouse is maintained properly:

- Check connections and all fasteners to verify that they remain tight.
- Check the anchor system regularly. Tighten all bolts and nuts and related hardware (if needed and if applicable).
- Do not climb or stand on the greenhouse at anytime.
- Remove debris and objects that can accumulate on the greenhouse. Use tools that will not damage the greenhouse when removing debris.
- Remove snow to prevent excess accumulation. Use tools that will not damage the greenhouse when removing snow.
- Check the contents of the greenhouse to verify that nothing is touching the sides that could cause damage.
- Depending on the contents and greenhouse location, the potential for condensation exists. ClearSpan™ offers several items that can help to alleviate a condensation condition. Please contact a ClearSpan™ representative for additional information at 1-800-245-9881.
- Consult the instructions included with the solar vent openers for proper care and maintenance of these openers (if equipped).
- Check the solar vent opener mounting brackets and screws to see they remain secure (if equipped).
- Replace damaged panels.
- For replacement or missing parts, call 1-800-245-9881 for assistance. For the solar vent openers, consult the documentation included in the packaging of the opener.

NOTE: With the exception of Truss Arch buildings, ClearSpan™ shelters and greenhouses do not have any tested loading criteria.



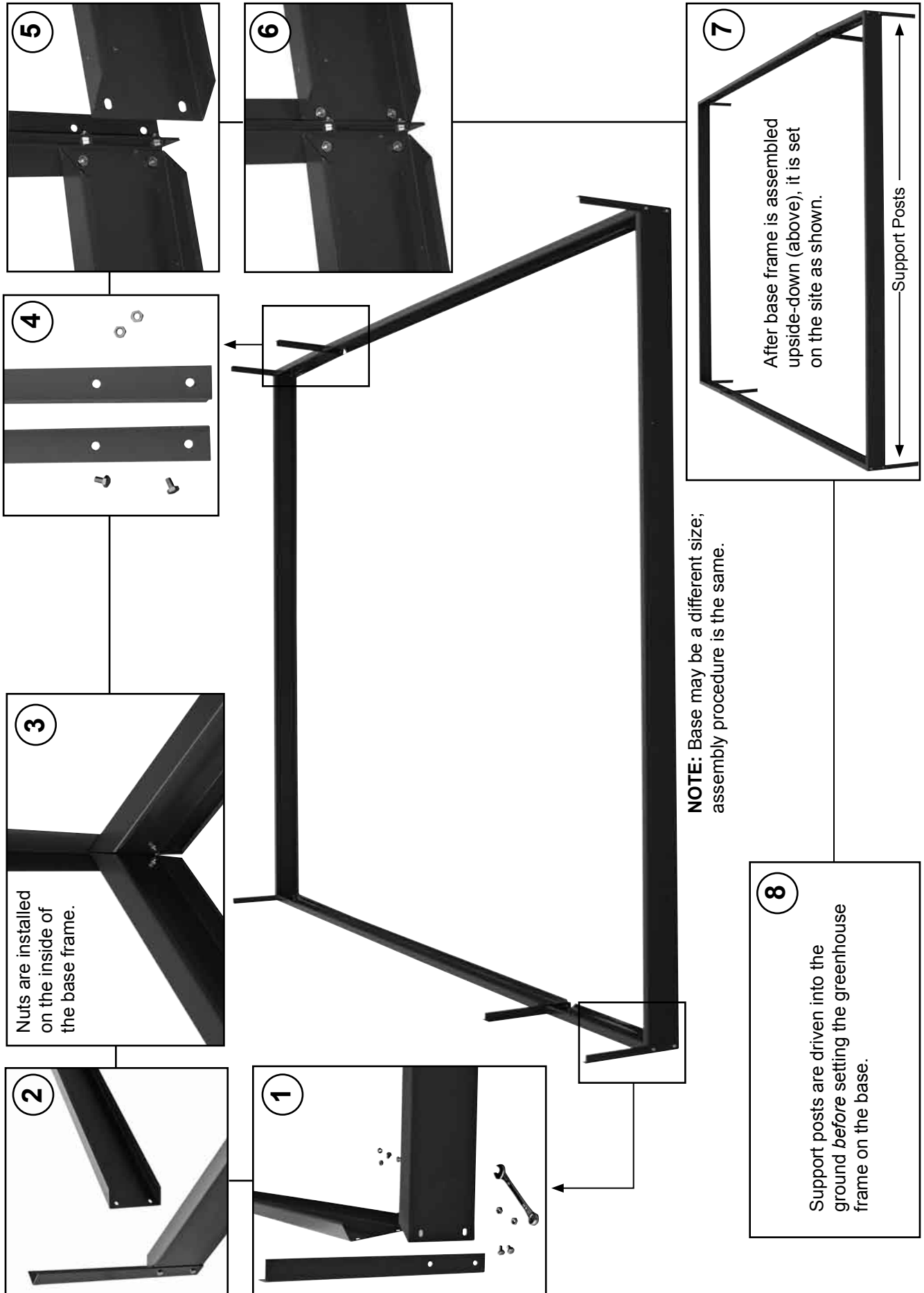
QUICK START GUIDE

Elite Greenhouse (Medium Frame)



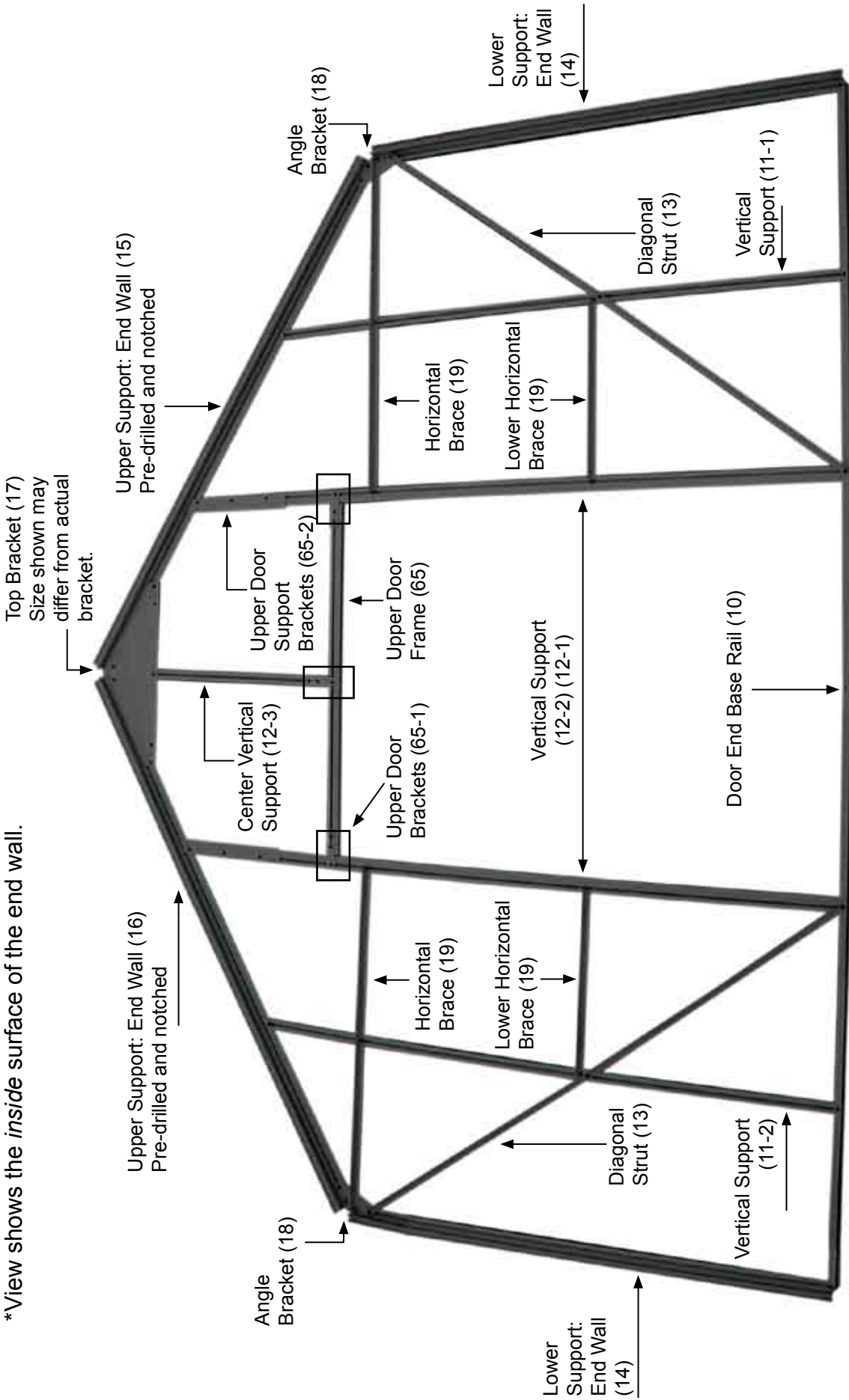
*Photo may show a different but similar model.
Door assemblies for the models listed below are single doors and not double as shown above.*

OPTIONAL BASE ASSEMBLY



END FRAME DIAGRAM - DOOR END

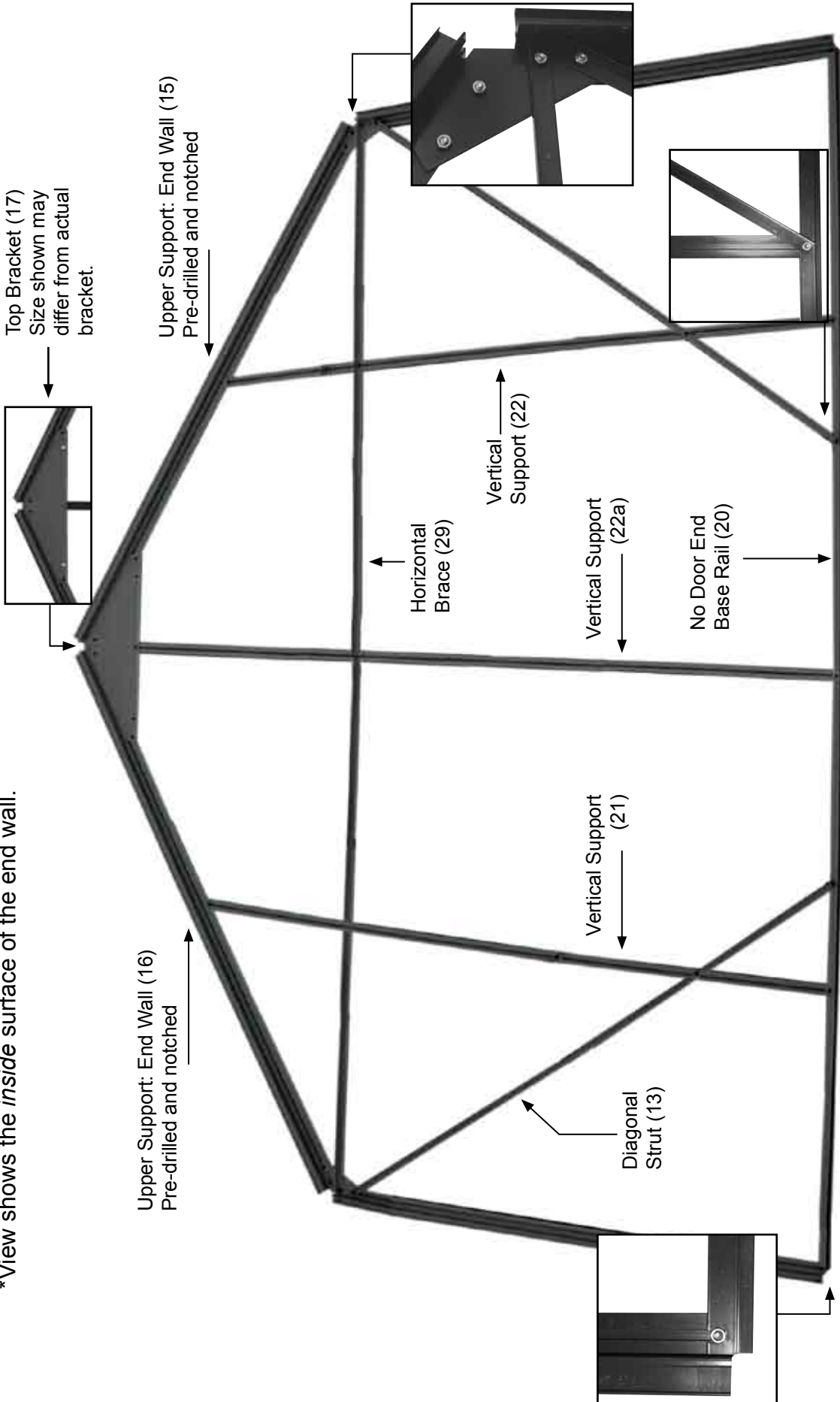
*View shows the *inside* surface of the end wall.



ATTENTION: Numbers in () are stamped on the part.

END FRAME DIAGRAM - NO DOOR

*View shows the *inside* surface of the end wall.

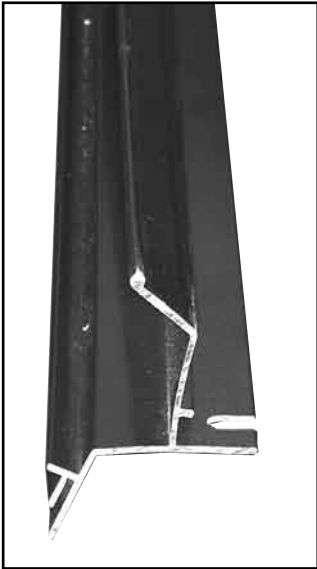


ATTENTION: Numbers in () are stamped on the part.
The parts that are not identified above have the same numbers as those shown on the End Frame Diagram: Door End.

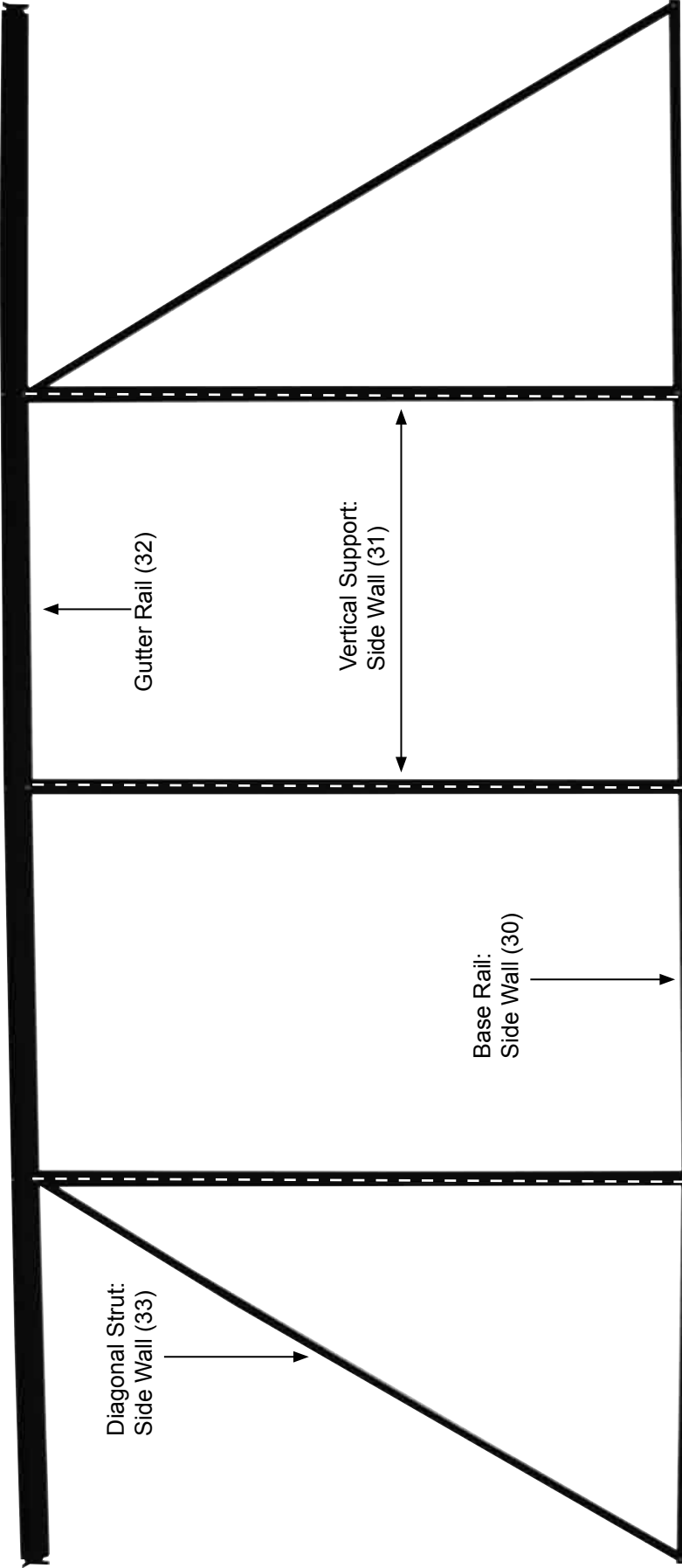
SIDEWALL FRAME DIAGRAM

REMEMBER: Vertical supports are always installed with the bolt track to the inside of your greenhouse.

NOTE: The sidewall diagram shows the assembly as seen from the inside of the greenhouse. The dashed line identifies the bolt track in each vertical support.

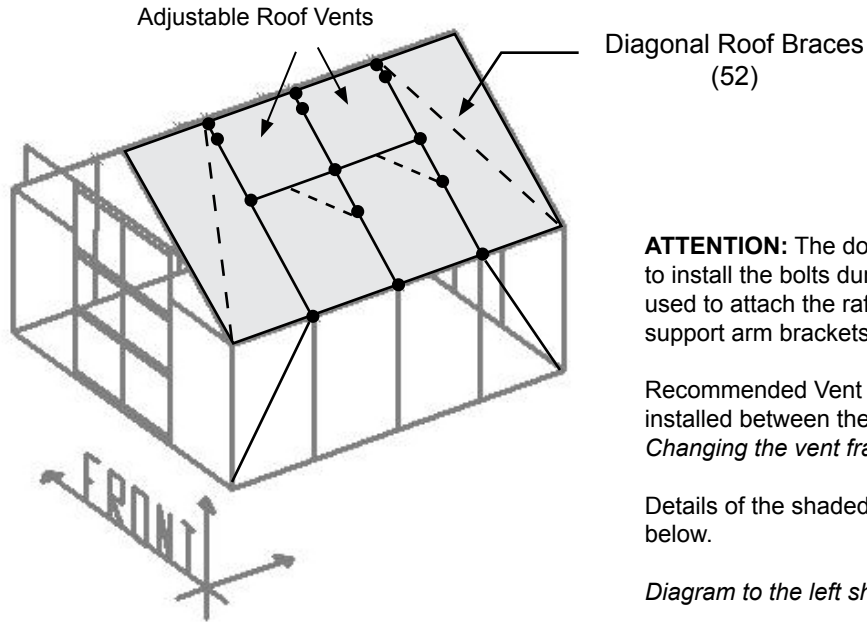


ATTENTION: The gutter rail photo (left) shows the outside view of the gutter rail. The diagram below shows the back or inside surface of the gutter rail as the sidewall is assembled on a flat surface.



ATTENTION: The sidewall shown above may be shorter than the sidewall for your greenhouse. The parts are the same. Longer walls will have additional vertical supports. The placement of the diagonal struts is the same for all greenhouse lengths. The 104603 frame length is shown above as an example.

BOLT LOCATION AND ROOF FRAME DIAGRAMS - 104603

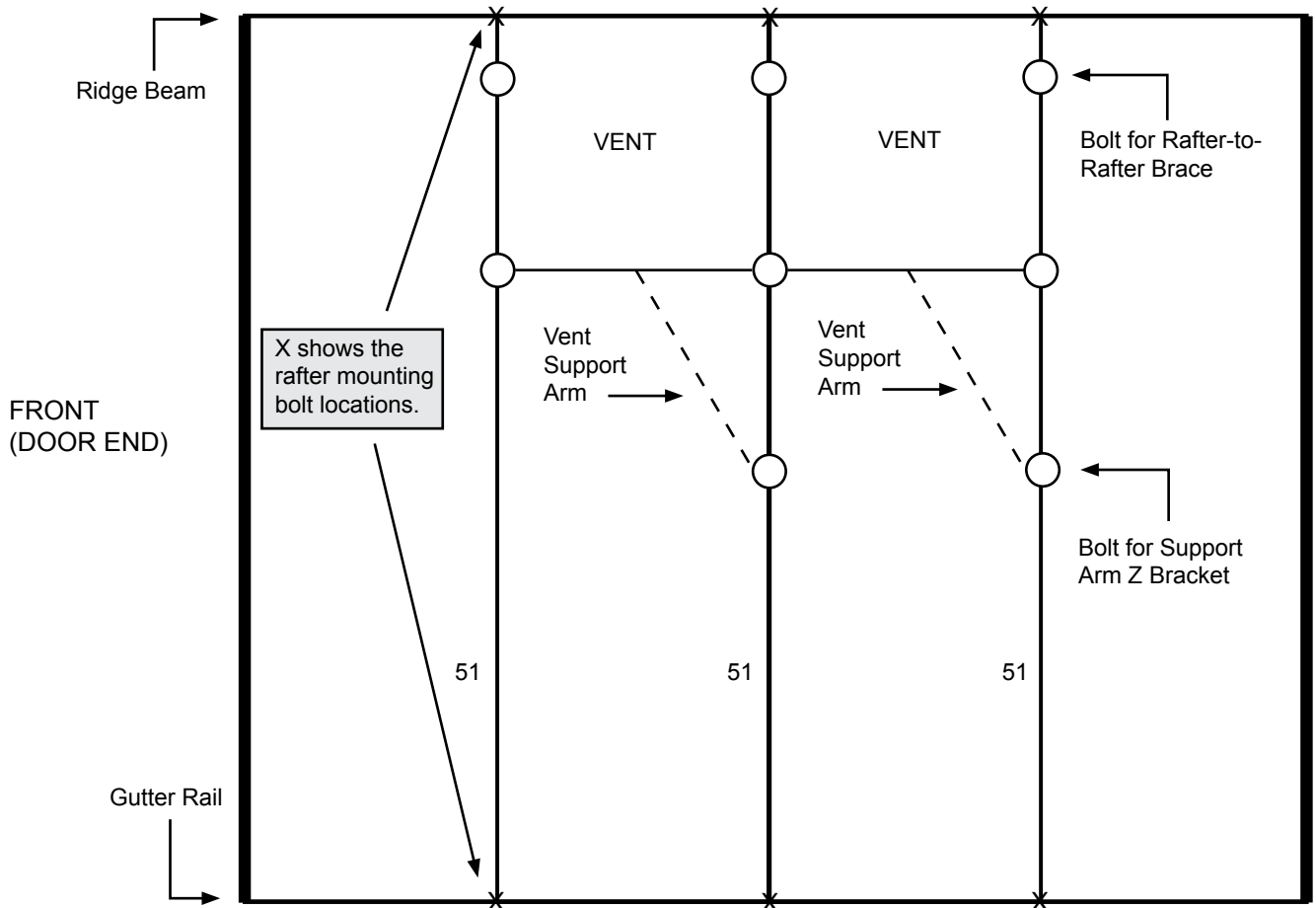


ATTENTION: The dots (left) and circles (below) identify where to install the bolts during the roof assembly. These bolts are used to attach the rafters to the frame and the vent frames and support arm brackets to the roof rafters.

Recommended Vent Locations: This example shows the vents installed between the first and second rafters from each end. *Changing the vent frame locations will change the bolt locations.*

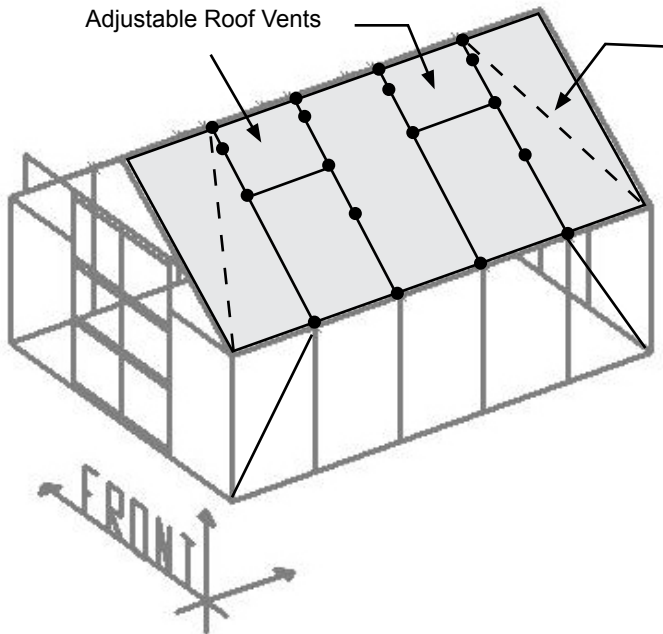
Details of the shaded area (left) are shown in the line diagram below.

Diagram to the left shows a frame with a different door design.



Greenhouse #104603

BOLT LOCATION AND ROOF FRAME DIAGRAMS - 104605



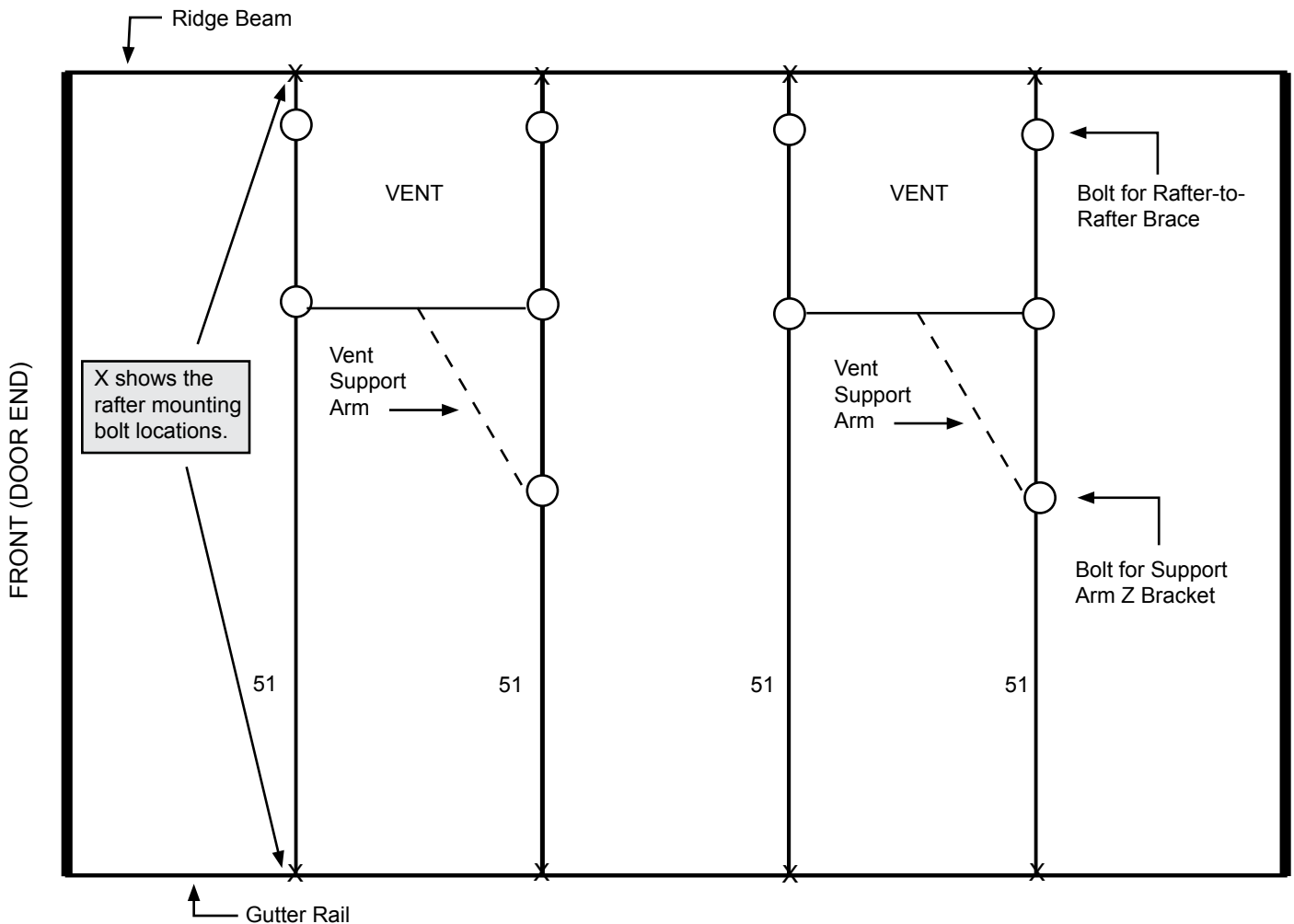
Diagonal Roof Braces
(52)

ATTENTION: The dots (left) and circles (below) identify where to install the bolts during the roof assembly. These bolts are used to attach the rafters to the frame and the vent frames and support arm brackets to the roof rafters.

Vents can be installed between any of the roof rafters. This example shows the vents installed between the first and second rafters from each end. *Changing the vent frame locations will change the bolt locations.*

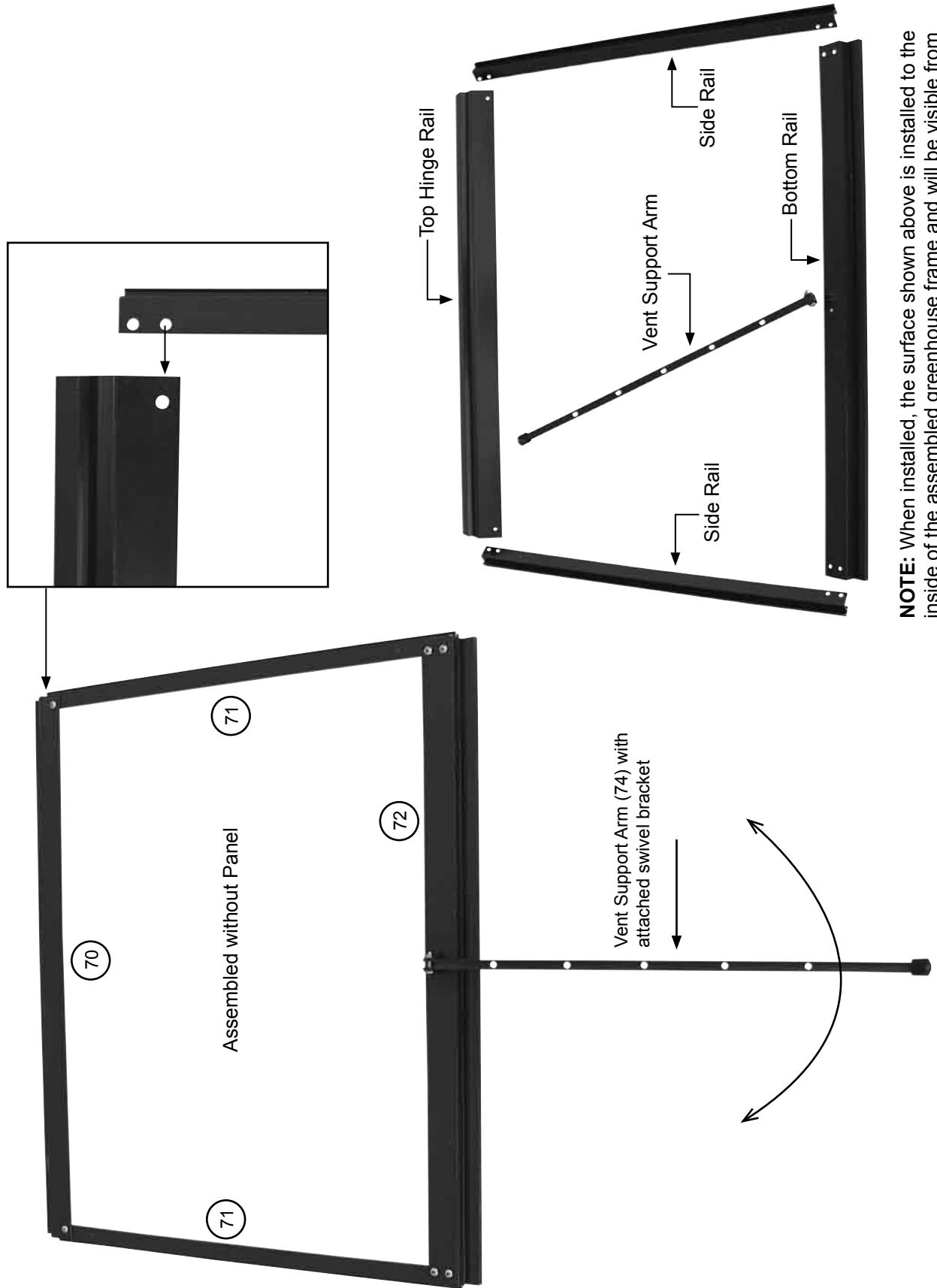
Details of the shaded area (left) are shown in the line diagram below.

Diagram to the left shows a frame with a different door design.



Greenhouse #104605

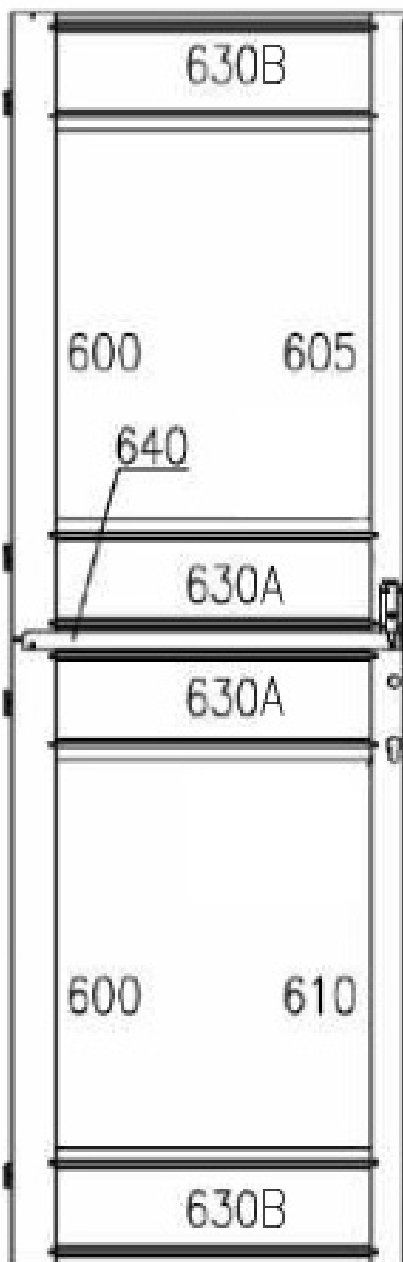
VENT FRAME DIAGRAM



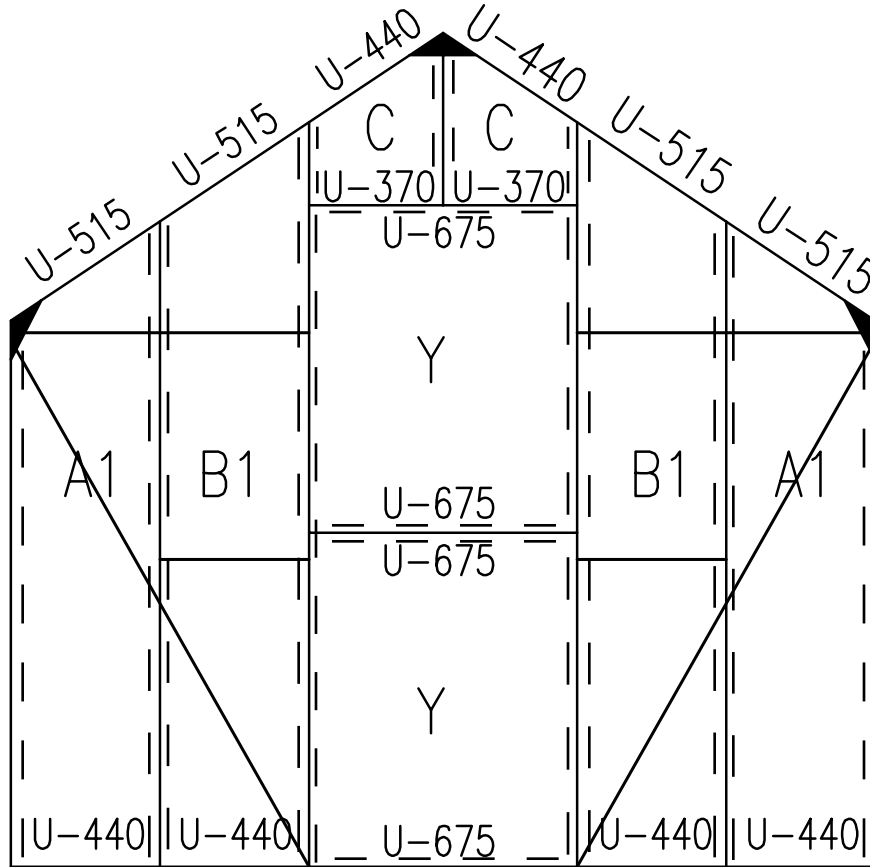
NOTE: When installed, the surface shown above is installed to the inside of the assembled greenhouse frame and will be visible from inside the greenhouse.

DOOR DIAGRAM

*View shows the back of the doors as seen from inside the greenhouse.
Some parts may come pre-assembled on the door frame.



END WALL (Door) PANEL and PROFILE DIAGRAMS - 104603 and 104605

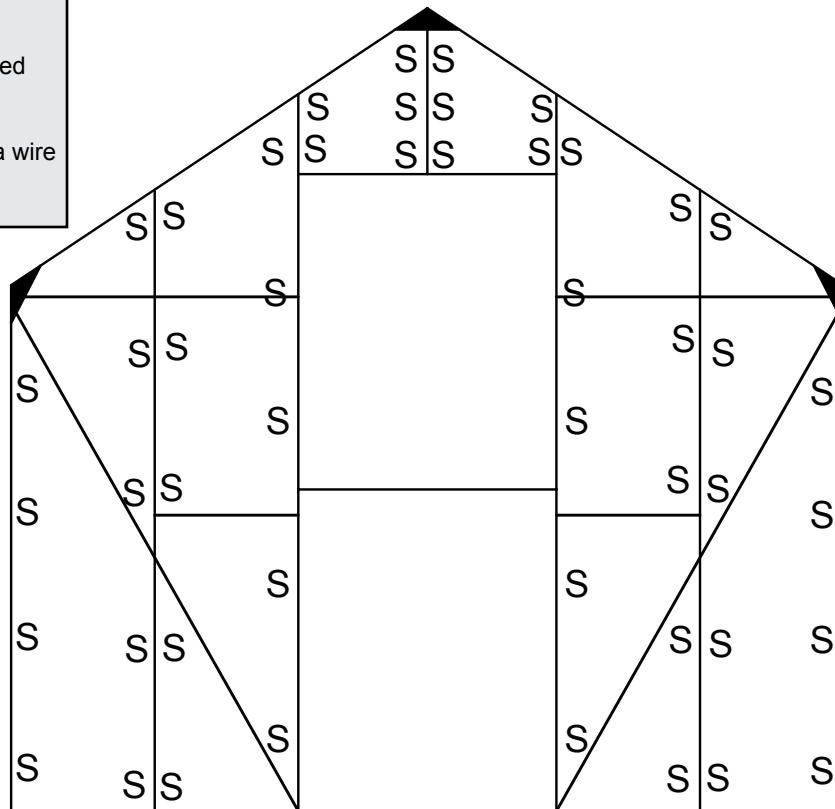


FRONT END WALL (DOOR END) DIAGRAM

ATTENTION: The dashed lines show where to apply the silicone *before* the panels are set in the frame and secured using the spring retainers.

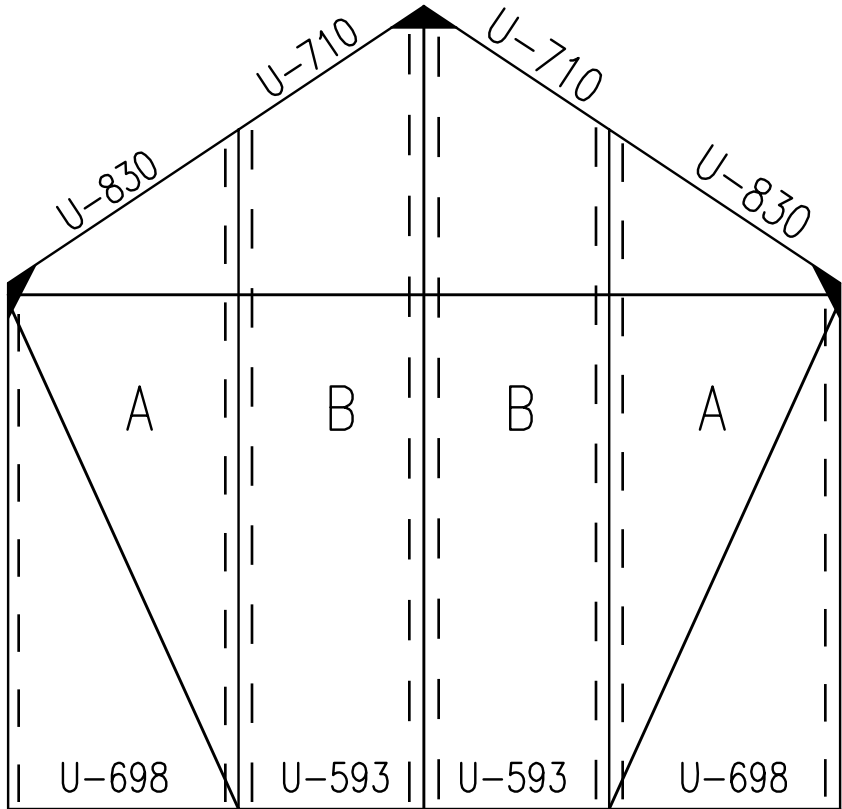
The letter "S" shows where to install a wire spring to secure the panel.

Install all remaining springs along the edges of the longer panels as desired for added security.



SPRING LOCATION DIAGRAM

END WALL (No Door) PANEL and PROFILE DIAGRAMS - 104603 and 104605

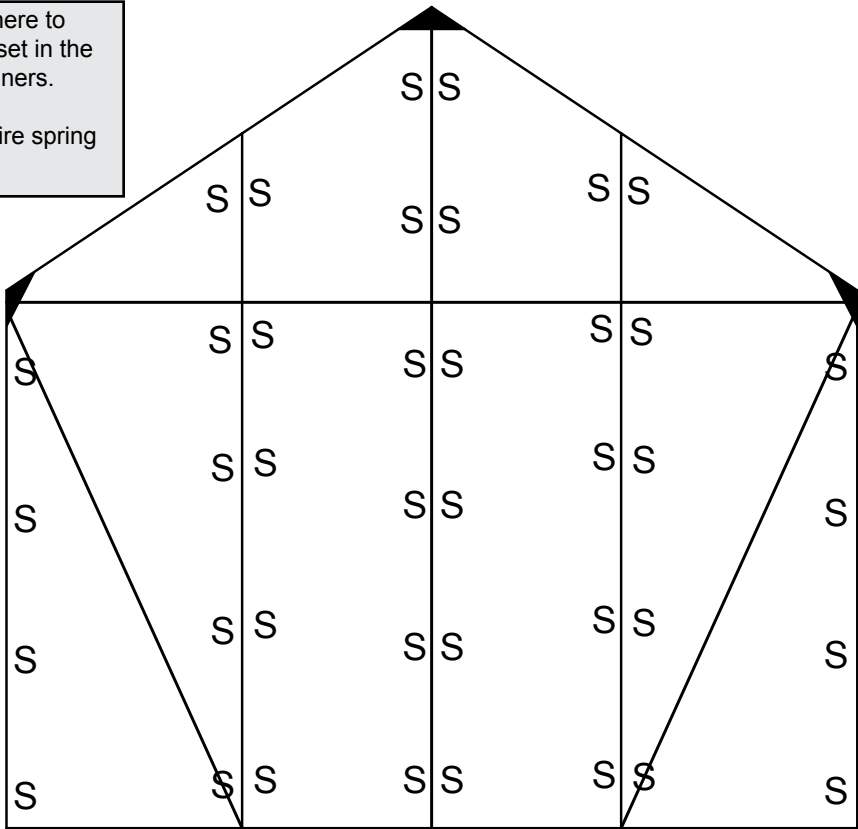


BACK END WALL (NO DOOR) DIAGRAM

ATTENTION: The dashed lines show where to apply the silicone *before* the panels are set in the frame and secured using the spring retainers.

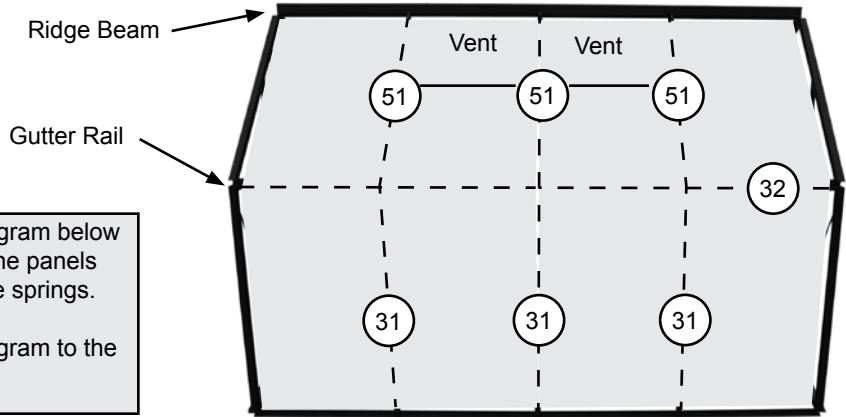
The letter "S" shows where to install a wire spring to secure the panel.

Install all remaining springs along the edges of the longer panels as desired for added security.



SPRING LOCATION DIAGRAM

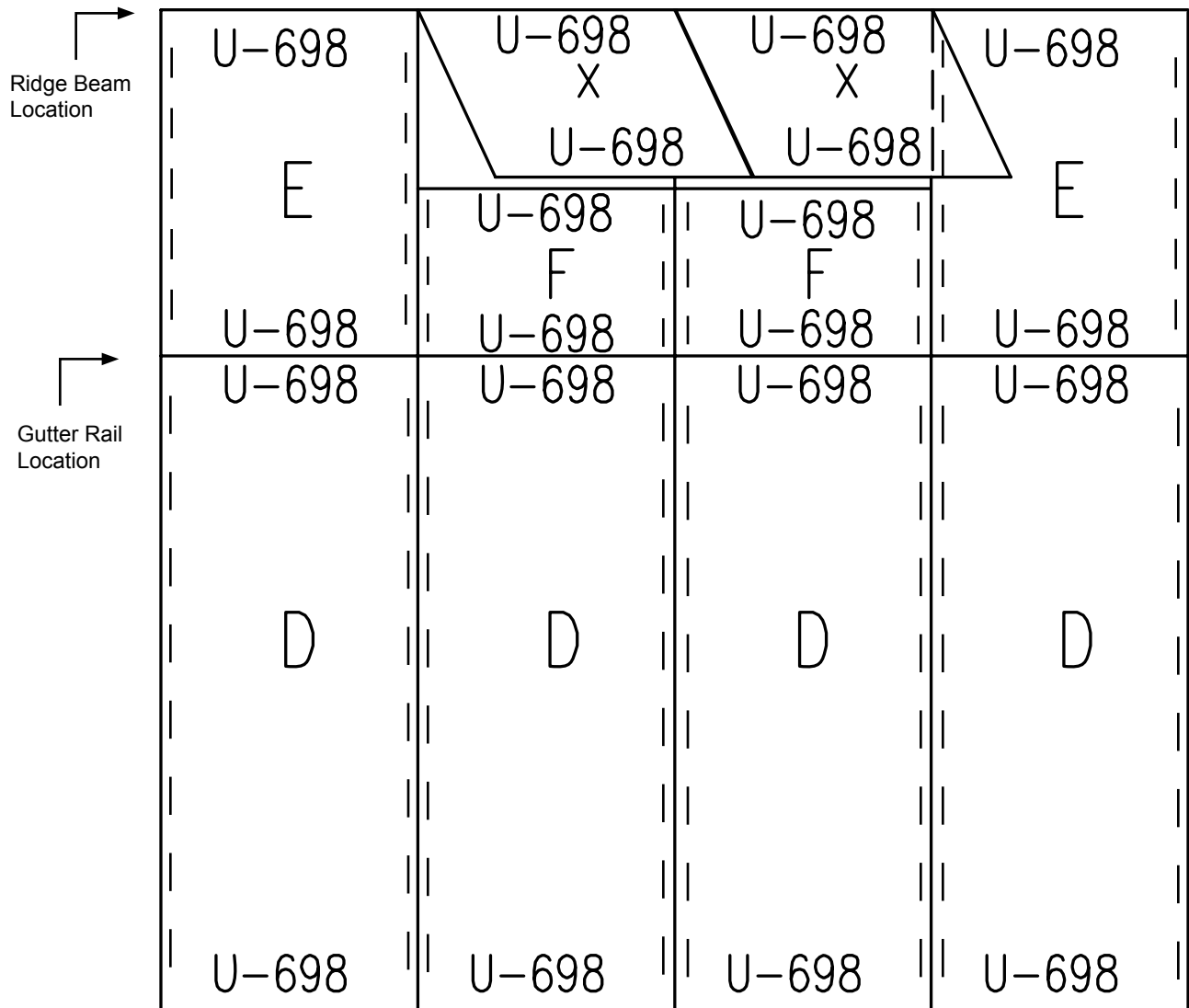
SIDEWALL AND ROOF PANEL and PROFILE DIAGRAM - 104603



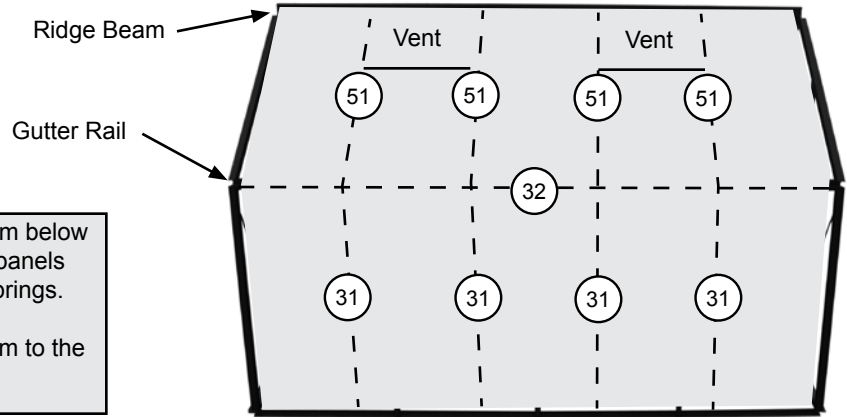
ATTENTION: The dashed lines in the diagram below show where to apply the silicone *before* the panels are set in the frame and secured with wire springs.

The details for the shaded area in the diagram to the right are shown in the diagram below.

SIDE VIEW OF THE ASSEMBLED GREENHOUSE



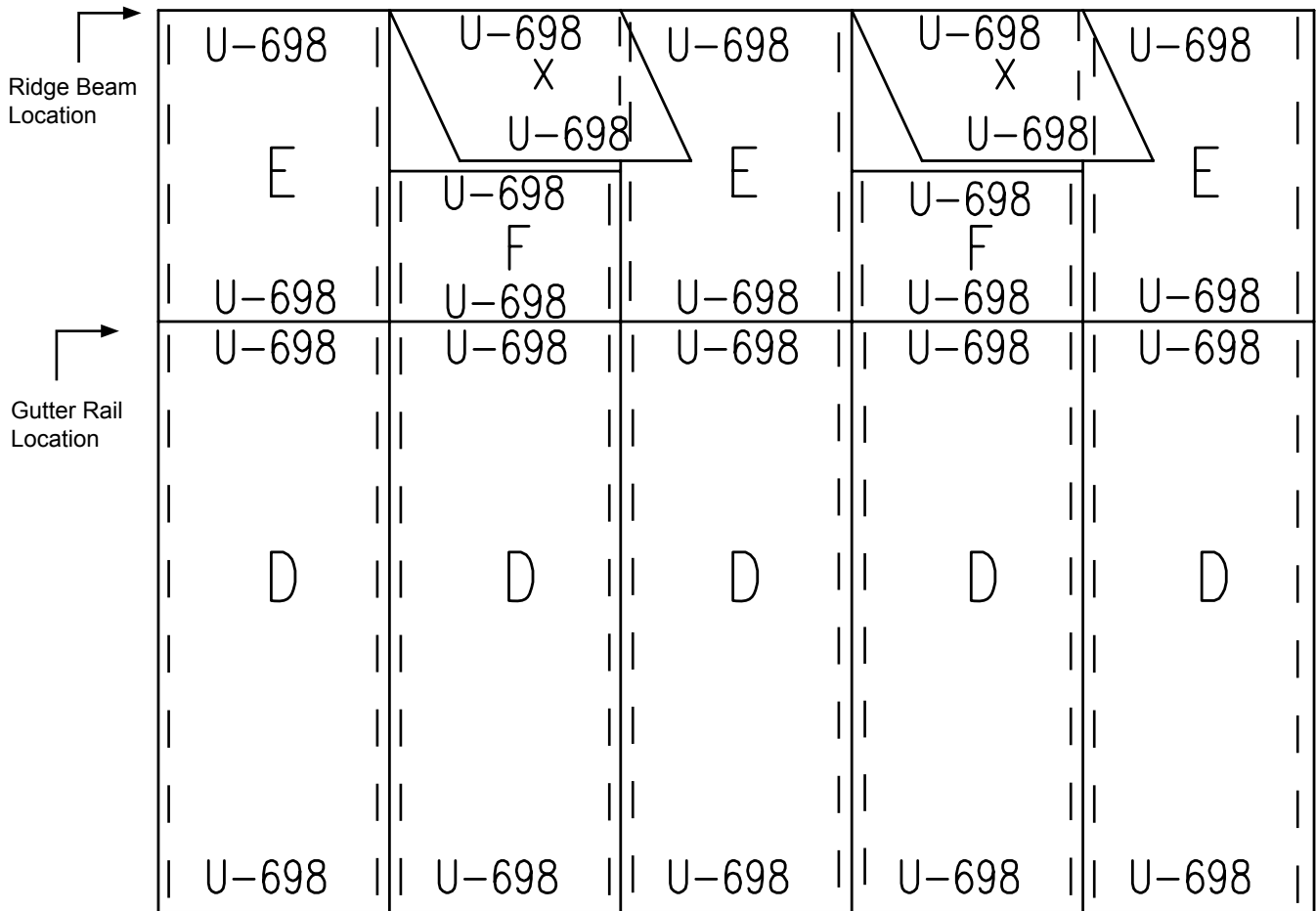
SIDEWALL AND ROOF PANEL and PROFILE DIAGRAM - 104605



ATTENTION: The dashed lines in the diagram below show where to apply the silicone *before* the panels are set in the frame and secured with wire springs.

The details for the shaded area in the diagram to the right are shown in the diagram below.

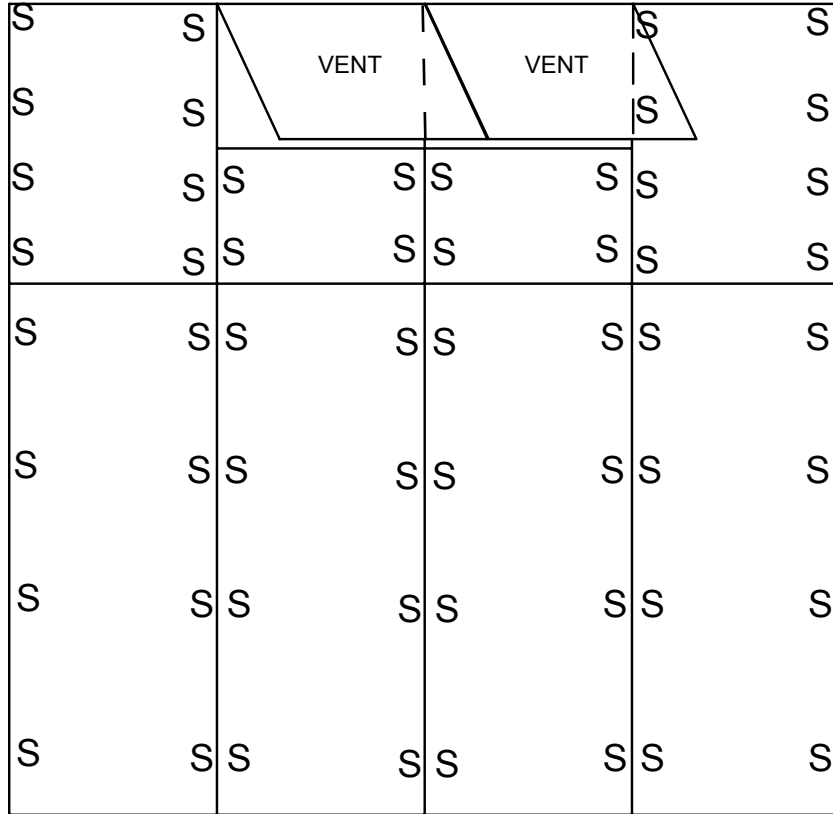
SIDE VIEW OF THE ASSEMBLED GREENHOUSE



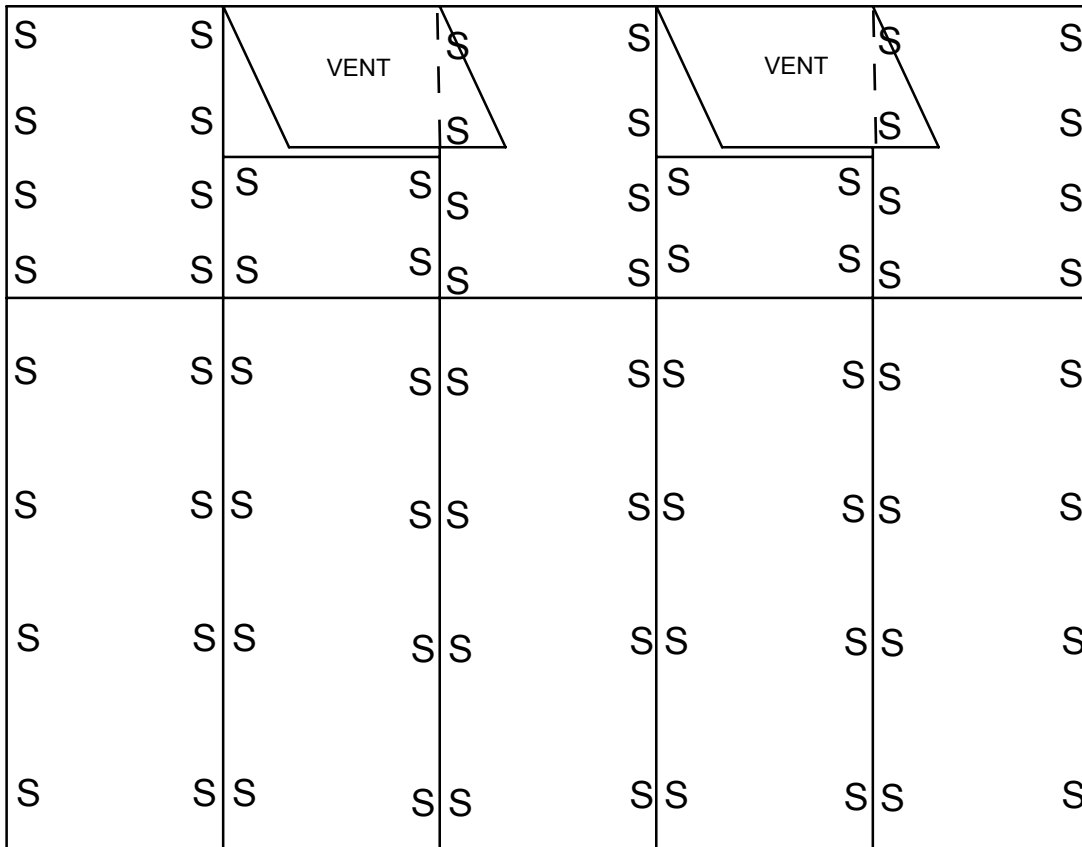
SIDEWALL AND ROOF SPRING LOCATION DIAGRAMS - 104603 and 104605

Install all remaining springs along the edges of the longer panels as desired for added security.

ATTENTION: The vent panels are secured using silicone only. No wire springs are needed.



104603 - SPRING LOCATION DIAGRAM



104605 - SPRING LOCATION DIAGRAM



Space below is reserved for customer notes.