ClearSpan™
20' Wide Free-Standing Building

Photo may show a different but similar model.

<table>
<thead>
<tr>
<th>STK#</th>
<th>DIMENSIONS</th>
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<tbody>
<tr>
<td>107764</td>
<td>20' W x 12' H x 20' L</td>
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<tr>
<td>107765</td>
<td>20' W x 12' H x 40' L</td>
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</table>
YOU MUST READ THIS DOCUMENT BEFORE YOU BEGIN TO ASSEMBLE THE SHELTER.

Thank you for purchasing this ClearSpan™ shelter. 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 shelter. Please read these instructions before you begin.

If you have any questions during the assembly, contact Customer Service for assistance.

SAFETY PRECAUTIONS

- Wear eye protection.
- Wear head protection.
- Wear gloves when handling metal tubes.
- Use a portable GFCI (Ground Fault Circuit Interrupter) when working with power tools and cords.
- Do not climb on the shelter or framing during or after construction.
- Do not occupy the shelter during high winds, tornadoes, or hurricanes.
- Provide adequate ventilation if the structure is enclosed.
- Do not store hazardous materials in the shelter.
- Provide proper ingress and egress to prevent entrapment.

ANCHORING INSTRUCTIONS

Prior to assembling this shelter, please read the anchoring precautions and instructions included with the kit. Anchoring instructions are included in the MUST READ document. You must anchor the building after the frame is assembled and before the cover is installed.

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

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 shelter where large loads such as snow and ice, large tree branches, or other overhead obstacles could fall.

SITE

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

- The support structure must be level to properly and safely erect and anchor the frame.
- If the site is not level, use footing to provide a secure base for the structure. Pre-cast concrete blocks, pressure-treated wood posts, or poured footings are all acceptable when properly used.
- 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: Install Tek screws using a clutched drill driver running approximately 750 RPM while applying approximately 50 lbs of force.

Do not use an impact driver!
ASSEMBLY PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your shelter. Failing to follow these steps may result in an improperly assembled and anchored shelter and will 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, the Must Read document, and all additional documentation included with the shipment before you begin assembling the shelter.
3. Gather the tools, bracing, ladders (and lifts), and assistants needed to assemble the shelter.
4. Check the weather before you install the roof cover and any panels (if equipped). Do not install covers or panels on a windy or stormy day.
5. Re-evaluate the location and site based on the information and precautions presented in the documentation included with the shipment.
6. Lay out the site (if this has not been completed).
7. Assemble the frame components in the order they are presented in these instructions.
8. Assemble the frame including the bracing (if equipped).
9. Consult the Must Read document for anchoring comments and instructions.
10. Install, tighten, and secure the end panel (if equipped) and main cover. This applies to fabric covers that stretch over the frame assembly.
11. Read the care and maintenance information at the end of these instructions.
12. Complete and return all warranty information as instructed.

LIST OF WORDS AND PHRASES

Before you begin, it is important to become familiar with the words and phrases used in this instruction manual.

These words and phrases are common to most ClearSpan™ shelters and identify the different parts of the shelter. (Some are used in this document. Others may not apply to this particular shelter.) These terms describe the shipped parts and can also be found on the materials list/spec sheets included with the shipment. To aid in the assembly, read through the following definitions before you begin to assemble your shelter.

- **Conduit**: An assembly of pipes used to secure the main cover and end panels (if equipped). Purlins and some strut assemblies also consist of connected pipes to form a conduit. Each pipe joint of a conduit assembly is secured with a self-tapping Tek screw.
- **Coupler or Fitting**: A part of the frame assembly where legs, purlins and rafter pipes are inserted and secured. In most instances, 3-Way and 4-Way couplers are used. In some larger applications, couplers are used to secure the joints of the different rafter sections during the assembly of the rafters. Some shelters do not use couplers.
- **Base Plate**: The part attached to and found at the base of the rafter or leg of the shelter. Depending on the shelter, the base plate is an optional purchase. Some shelters do not offer this optional foot. Some use 1-Way connectors; others use ground posts.
- **Must Read Document**: This document includes building and shelter anchoring instructions, steps for end wall reinforcement, safety precautions, and notices and warnings. The Must Read document is sent with all shelters and buildings. If you did not receive a Must Read document, contact Customer Service to request one.
- **On-Center**: Term used to describe a measurement taken from the vertical center of the rafter or frame member to the vertical center of another.
- **Purlin or Angled (or Lateral) Bracing**: The pipe assemblies that run perpendicular to the rafters or framework that supports the main cover. These assemblies are found on the sides and roof areas of the assembled frame, are evenly spaced, and typically run from the front to the back of the shelter.
- **Plain or Straight Pipe**: A term used to describe a pipe that has the same diameter or width throughout its entire length.
- **Strut**: A strut is usually a length of pipe with two flattened ends and is used for diagonal bracing of the shelter frame. A strut is typically secured to the frame work by special brackets, bolts, and/or clamps.
- **Swaged End or Swaged Pipe**: The term "swaged" refers to the tapered end of the pipe or tube. Swaged ends of a pipe can be inserted into couplers and the straight ends of other pipes of the same diameter.
- **Tek Screw**: A self-tapping fastener used to secure pipe joints and to fasten brackets to rafters.
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
- Marker
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Wrenches or ratchet and socket set (recommended)
- Scissors or utility knife to cut cover material and strap
- Tool to cut cable to the required length
- Hammers, gloves, and eye protection
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the shelter
- Rope (or straps) for cover installation

UNPACK AND IDENTIFY PARTS

The following steps will ensure that you have all the necessary parts before you begin to assemble the shelter.

1. Unpack the contents of the shipment and place where you can easily inventory the parts. Refer to the Bill of Materials/Spec Sheets.
2. Verify that all parts listed on the Bill of Materials/Spec Sheets are present. If anything is missing or you have questions, consult the Pictorial Parts Guide and all shelter diagrams throughout these instructions for clarification, or contact Customer Service.

NOTE: At this time, you do not need to open the plastic bags containing the fasteners (if used).

QUICK START GUIDE

For a quick overview of this shelter and its components, consult the Quick Start Guide near the back of these instructions.

The pages of the Quick Start Guide show exploded views of all critical connections. Use the diagrams in the Quick Start section to assemble the frame of your building.

Consult the remainder of these instructions for important details that will help during the construction.

SPECIAL NOTE: Boards for Frame Assembly

These instructions recommend installing a board under the base plates along each side of the frame. The board runs from front to the back of the building.

This board is not included with the shipment and must be supplied by the customer. Treated lumber works best.

When installed properly, the board helps prevent the shelter from sinking into the ground when anchored. The board also provides a surface to attach base plates.

Consult these instructions, or contact Customer Service for additional information regarding the installation of these boards.
ASSEMBLY NOTE: Install Tek screws using a clutched drill driver running approximately 750 RPM while applying approximately 50 lbs of force.

Do not use an impact driver!
OVERVIEW

This section describes assembling your free-standing building. For details of each assembly procedure, consult the Quick Start Guide and the individual sections of these instructions. See illustration below to identify main parts of shelter.

1. Layout the site and identify the required parts for each assembly procedure.
2. Assemble all rafters.
3. Assemble and anchor the frame.
4. Prepare and install the main cover.

ATTENTION: Frame shown may differ slightly from actual frame.

ClearSpan™ Free-Standing Building

The instructions that follow describe assembling all rafters and then constructing the frame. Depending on the number of individuals assisting with the construction, it may be best and more efficient to have someone assemble the rafters and others assemble the frame as rafters are completed.

Other factors to consider during the assembly include:
- Amount of working area
- Available lifts and work platforms
- Number of assistants
LAY OUT THE BUILDING SITE
After the site is prepared, identify the location of the shelter corners to help square the frame after it is assembled.

Taking these steps before assembling the shelter saves time and ensures that the structure is positioned as desired. The following procedure is a suggested method. Its use depends on the size of the shelter, shelter application, the footings, and the method used to anchor the shelter.

SQUARE THE SITE
1. Identify a corner where a building rafter will be positioned, drive in a stake, and string a line the exact width of the building and stake in place. (Width of the rafter is measured from center-to-center of the rafter legs.)
2. Sting a line at least as long as the building from the first stake at 90°.
   **NOTE:** A transit can be used to ensure an accurate 90° angle, or the 3-4-5 rule can be used. Refer to diagram. Using multiples of 3-4-5 such as 6-8-10 or 12-16-20 helps to maintain an accurate 90° angle.
3. After squaring the position of the building and placing a stake at all corners, string a line between the stakes to mark the base of the building.
4. Next, paint or mark a line on the ground using the strings between the stakes as guides.
5. After marking the outline of the building, continue with the rafter assembly instructions.

**NOTE:** Setting customer-supplied boards on the site in the correct positions is another way to prepare for frame assembly.

**NOTE:** If a board is used, drill holes through the board at evenly-spaced intervals along the length of the board. Drive a rod through each hole and into the site to prevent the boards from shifting and to maintain the on-center width of the building.

The boards can be "pinned" in place using rods driven into the site (non-concrete) through evenly-spaced holes drilled in the boards. This prevents shifting during assembly.

**Building width is measured on-center.**
ASSEMBLING THE RAFTERS

NOTE: Assistance is required to assemble rafters.

Gather parts:
- Round pipe: rafter position #1 (#20R1601)
- Round pipe: rafter position #2 (#20R1602)
- 27" leg extension (pipe #166S027D)
- End clamps and band clamps (#QH1402)
- Base plate (#104301), Bolts (#FAG336B) & Nut (FALB02B)
- Tek screws and magnetic nut setter (3/8" x 2-9/16")

ATTACH BASE PLATES

1. Attach a base plate (104301) to each 166S027D pipe using a 5/16" hex head bolt (FAG336B) and a nut (FALB02B).

2. Repeat step to attach all remaining base plates to the 166S027D rafter pipes.

3. Continue with RAFTER ASSEMBLY instructions.

RAFTER ASSEMBLY PROCEDURE

Each rafter assembly consists of six (6) rafter sections: two (2) curved rafter pipes (for the top), two (2) side pipes that connect to upper center pipes, and two (2) leg extension pipes with base plates attached from previous procedure.

ATTENTION: Set four (4) of the above rafter pipe and base plate assemblies aside to be used for end rafter assembly shown on the next page.

1. Select the six (6) pipes needed to assemble a rafter and arrange these on a flat surface as shown below.

2. Slide swaged portion of each rafter pipe into plain end of pipe as shown.

3. With main rafter pipes seated at each joint and the rafter positioned on a flat surface, secure each joint using a single self-tapping Tek screw. Position Tek screw approximately 1" from pipe joint.

ATTENTION: Install screws so they will not touch cover once it is installed. When attaching the base plate and pipe assemblies, ensure base plates align with each other on the same rafter.

Remember to set two (2) rafters aside for the next procedure: END RAFTER ASSEMBLY.

4. Assemble rafters as described and continue with the assembly of the two (2) end rafters.
RAFTERS ASSEMBLY (CONTINUED)

END RAFTER ASSEMBLY

In addition to the steps in the previous procedure, complete the following steps for two (2) end rafters only.

1. Take one of the remaining assembled rafters and place it on a flat surface.

2. Slide five (5) end clamps (102856) and two (2) band clamps (QH1402) onto the rafter in the locations noted below. (Clamps are repositioned during frame assembly when purlins are added.)

3. After installing clamps, attach base plate and pipe assemblies. Align base plates during installation.

4. Repeat procedure to assembly final end rafter.

5. Continue with next procedure.
CLEARSPAN™ POLY BUILDINGS

FRAME ASSEMBLY

Gather the parts:

- All rafter assemblies (Base plates are not shown.)
- Purlin pipe 1.315” x 75” swaged (131S075)
- Purlin pipe 1.315” x XX” plain pipe (#131P0XX)
- Band clamps (#QH1400) and cross connectors (#102548)
- Struts (#QH1308) and Tek screws

**NOTE:** The XX” represents the remaining length required to reach the end of the shelter. Consult the Spec Sheet and Side Profile diagrams (Quick Start) for pipe identification.

Frame Assembly Procedure

1. Stand one end rafter. The end rafters include the end clamps. Be sure to position the bolt side of end clamp to the inside of the frame when setting the rafter in position. See the diagram below.

2. Check that the rafter is standing straight (plumb) and brace it in place.

3. Using the on-center, rafter-to-rafter spacing, set an inside rafter in position. (Additional assistants are required to hold the inside rafter in position.) See Side Profile diagrams for the correct rafter spacing.

4. Install the upper cross connector on the inside rafter and insert the plain end of a purlin pipe through the connector and through the upper end clamp at the top of the end rafter. See circles above.

5. Verify that both rafters are plumb and properly spaced on-center and tighten the upper clamps.

**CAUTION:** To prevent cover damage, the ends of the purlins should extend no more than 1/2” past the end clamp. See diagram that follows Step 1. Do not allow purlin to extend beyond the edge of the end rafter.

6. Move to the lower clamp positions and repeat Step 4 to install the purlin pipes in those locations. See the diagram above.

7. Slide a band clamp (#QH1400) on each of the two bottom purlins between the second and third rafters. Position the head of each band clamp bolts toward the outside of the shelter.
FRAME ASSEMBLY (CONTINUED)

8. Move to the lower end of the rafters, verify that the position of the purlin is approximately 8" above the finished grade, and tighten the lower clamps and connectors.

9. Install the remaining two (2) cross connectors and purlins. Verify that the rafter spacing is on-center for the shelter and tighten the connectors. See circles below.

10. Continue adding rafters and purlins until the frame is nearly complete.

   **NOTE:** Remember to add band clamps to the lower purlins between the second and third rafter at the remaining end of the frame for the installation of the struts. Review Step 1 to set the final end rafter.

11. Finish each purlin with a plain pipe and use the final end rafter to complete the assembly.

   **NOTE:** To prevent cover damage, DO NOT allow the purlin to extend beyond the end rafter.

   If the last end rafter is plumb and the purlin run extends beyond the end of the rafter, cut the last section of purlin pipe to the required length.

   Typically purlin pipes do not require cutting. Verify that the finished purlin run has the correct plain pipe before cutting any pipe. Consult the Side Profile diagrams in the Quick Start section for pipe identification.

   **CAUTION:** To prevent cover damage, the ends of the purlins should extend no more than ½" past the end clamp. Position the bolt side of the end clamps to the inside of the shelter as shown.

Strut Installation Procedure

1. After the rafter assembly is complete, verify that the band clamps are in the proper location. See diagram below.

   **NOTE:** Positions of band clamps depend on the rafter spacing and may differ slightly from what is shown.
FRAME ASSEMBLY (CONTINUED)

2. Remove the bolts and attach a strut between the band clamp on the purlin and the band clamp on the end rafter. Position the strut so that it forms a triangle as shown below. Actual strut and position may vary.

NOTE: Verify that the bolt heads are to the outside of the shelter and tighten the nuts.

3. Install the remaining struts and tighten all band clamp bolts.

4. Secure each band clamp to the purlin and rafter using a Tek screw for each connection.

5. Return to each purlin joint and secure using a Tek screw.

ANCHOR THE FRAME

Once the frame is anchored properly, continue with these instructions.

WARNING: Securing the rafter base plates to boards set on the site is not a substitute for properly anchoring the shelter. You must anchor the shelter as described in the MUST READ document.

FAILING TO PROPERLY ANCHOR THE SHELTER WILL RESULT IN DAMAGE TO THE SHELTER AND MAY CAUSE PERSONAL INJURY.

READ THE MUST READ DOCUMENT TO PROPERLY ANCHOR THE SHELTER.

After anchoring the frame, check the frame for rough edges as described in the following procedure.

FINAL FRAME CHECK

1. Return to all frame connections and verify that bolts are tight, including all base plate bolts.

2. Verify that each purlin splice is secured with a Tek screw.

3. Verify that each purlin is secured to the end clamp and cross connector and that each cross connector and end clamp is secured to the rafter. See diagram below.

ATTENTION: Rafter shown may differ from the actual rafter. Steps to secure the purlin to the connector and the connector to the rafter are the same. Position the Tek screws so they will not touch the cover once it is installed.

4. Inspect the frame for sharp areas that could damage the cover. If found, file smooth and cover with layers of duct tape to protect the cover.

5. Verify that all bolts are positioned with the heads to the outside of the frame. Tape the bolts and rafter joints before installing the cover.

6. Continue by installing the main cover.
PREPARE MAIN COVER

Gather the parts:

- Ratchet (1")
- Pipe 1.315" x 75" swaged (#131S075)
- Pipe 1.315" x XX" plain (#131P0XX): Consult the Side Profile diagrams for cover conduit pipe identification.
- Cover and Tek screws

Assembly Procedure

The main cover is attached to the shelter sides using straps and ratchets.

The main cover ends (front and back) are secured at each corner using a ratchet attached to the end rafter leg. The straps to secure the ends of the main cover come pre-installed in the cover bonnet.

**NOTE:** When handling the main cover and setting it in position, do not pull on the end straps. They will pull out of the cover.

**WARNING:** To prevent damage to the cover and to prevent serious personal injury, **DO NOT** attempt to install the main cover on windy days.

1. Fasten a ratchet to the end rafter leg using a Tek screw as shown below. Position the ratchet as low as possible that still allows free operation. Repeat this step at all remaining corners.

2. Assemble two main cover conduits. Start each conduit assembly with one plain pipe and add swaged pipes to arrive at the correct length. Secure each pipe joint with a Tek screw and wrap the joint with duct tape.

ATTACH MAIN COVER

Gather the parts:

- Main cover (with conduits inserted)
- Ropes long enough to reach over the frame (provided by customer)
- Ratchets (1") and Tek screws
- Box cutter or utility knife

Assembly Procedure

1. To pull the cover over the frame, attach ropes to both ends of the cover conduit. Wrap the rope around the conduit a few times to prevent it from slipping off.

2. These cover conduits are inserted into the pockets sealed to the main cover. The cover conduits are used to tighten and secure the main cover.

3. After assembling the cover conduits, locate the main cover and unfold it on a clean, smooth surface near the frame.

**NOTE:** Unfold the main cover with the inside surface facing up.

4. Locate the cover ends with strapping and align with the front and back of the shelter. **Do not insert any conduit into a cover pocket that includes an installed strap.**

5. Insert the cover conduits into the side pockets of the main cover.

**NOTE:** Shelter shown above may differ from actual frame in length or design.
PREPARE MAIN COVER (CONTINUED)

NOTE: Depending on the length of the cover it may be necessary to attach additional ropes to the cover conduit between the end ropes by cutting a small opening in the cover pocket and tying the rope around the conduit. DO NOT cut through the main cover. Cut through the conduit pocket only.

5. Divide the remaining number of ratchets in half. Place the ratchets on the ground next to the rafter where they will be attached.

NOTE: Evenly space ratchets along each side of the shelter and directly across from each other on the same rafter assembly. Ratchet locations are identified by the arrows in the following diagram and on the Side Profile diagrams in the Quick Start section.

Install ratchets as shown attached to the outside of the rafter leg or on the inside of the rafter (not shown).

2. With all ropes attached to the cover conduit, lift the conduit and carry the cover toward the base of the frame.

3. Toss the ropes over the frame and pull the cover into position. One person is required at each rope.

4. Once the main cover is pulled into position, center the cover on the frame and remove the ropes. Loosely secure the ends of the cover to the ratchets attached to the front and back end rafters.

ATTENTION: Do not tighten the straps at this time.

6. Using the main cover conduit position and strap length as guides, attach the ratchets to the rafters at the proper height. Fasten ratchets to the outside or inside of these rafters using a Tek screw for each ratchet.
ATTACH MAIN COVER (CONTINUED)

7. Lift the cover skirt and cut a slit in the cover conduit pocket at the rafter position.

8. Insert a 3’ section of strap through the slit and around the cover conduit.

**NOTE:** DO NOT cut through the main cover. Cut through the conduit pocket only.

9. Thread the strap ends into the ratchet and slightly tighten.

**NOTE:** It may be necessary to remove excess strap if it binds up in the ratchet.

10. Repeat the steps for the remaining ratchets.

11. Using additional help (if needed) tighten the main cover beginning with the ratchets along the sides of the shelter frame.

12. After the side ratchets are tightened, return to the front and back end ratchets and tighten.

**NOTE:** Loosen the ratchets if needed to remove excess strap and retighten. Loosen all ratchets if needed to reposition the main cover on the frame and then retighten the ratchets.

13. Fold the skirt of main cover down to complete the installation.

14. Complete and return all warranty information.

15. Continue by reading the care and maintenance information.

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SHELTER CARE AND MAINTENANCE

Proper care and maintenance of your shelter is important. Check the following items periodically to properly maintain your shelter.

- Regularly inspect the main cover and panels (if equipped) to see that these remain tight and in proper repair.

- Check the cable turnbuckles and cable clamps to see that these remain tight. Tighten as needed. Check the cable to verify that it is not worn, wearing on a frame member, or touching the main cover or end panels (if equipped). Some shelters do not use cables.

- Check connections and all fasteners to verify that they remain tight.

- Do not climb or stand on the shelter at anytime.

- Remove debris and objects that accumulate on the shelter. Use tools that will not damage the cover when removing debris.

- Remove snow to prevent excess accumulation. Use tools that will not damage the cover when removing snow. NEVER ALLOW SNOW TO ACCUMULATE ON THE ASSEMBLED SHELTER.

- Check the contents of the shelter to verify that nothing is touching the cover, side panels, or the end panels that could cause damage.

- Check the anchoring system to ensure that all components are tight and in good repair.

- Review the MUST READ document for anchoring requirements.

- Inspect all building components regularly. Replace all worn or damaged parts promptly.

- If the shelter is disassembled and moved, inspect all parts and connections before reassembling.

- For replacement or missing parts, call 1.800.245.9881 for assistance.

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

20' Wide Free-Standing Building

Frame shown may differ in length from actual frame.
NOTE: CONNECT PURLINS TO THE ENDS RAFTERS USING END CLAMPS.
CONNECT PURLINS TO MID-RAFTERS USING CROSS CONNECTORS.
Rakes are attached to rafters labeled with R.

3'-11 5/8" center-to-center
20'-0" outside-to-outside

Purlin & Cover Conduit
CONNECTIONS

NOTE: Frame shown may differ in length from actual frame.
**CONNECTION - DETAILS**

**Note:** Strut connected to lower purlin in similar fashion with a 1.315 Band Clamp.

**Purlin - Mid Rafter Connection**
View 1

**Purlin - End Rafter Connection**
View 2

**Band Clamp - Strut Connection**
View 3

**Ratchet - Rafter Connection**
View 4