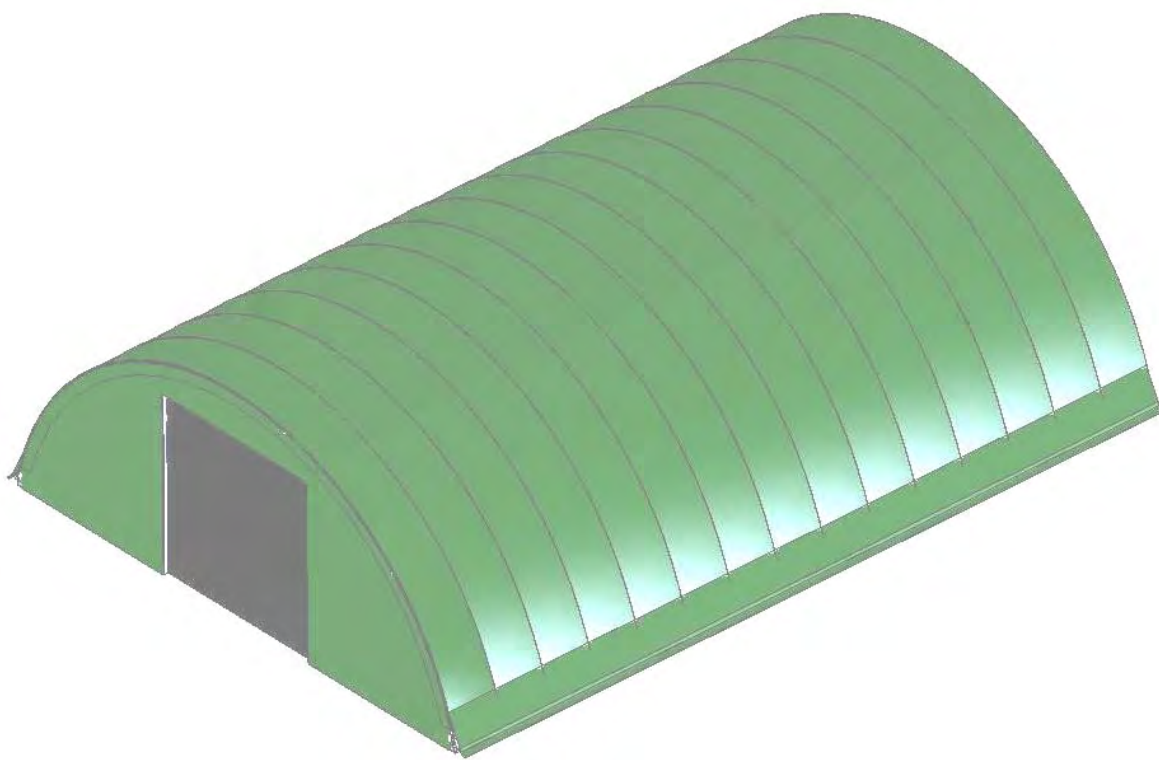




ClearSpan™ Storage Master SolarGuard™ 42' Wide



Length of the above shelter may differ from your shelter.

Use these instructions for the following building:

PB00230R4 (42' W x 17' 3" H x 48' L)
PB00232R4 (42' W x 17' 3" H x 60' L)
PB00234R4 (42' W x 17' 3" H x 72' L)
PB00236R4 (42' W x 17' 3" H x 96' L)

©2006 ClearSpan™

All rights reserved. Reproduction prohibited without written permission.

Revised: February 2006g

Introduction

Thank you for purchasing this ClearSpan™ structure. When properly assembled, the ClearSpan™ structure will provide years of reliable service. This instruction manual includes helpful hints and important information needed to safely assemble the structure. Please read this instruction manual **before** you begin. If you need assistance during construction, call us at 1-800-245-9881.

Safety Precautions

- Wear eye protection.
- Wear head protection.
- Wear gloves when handling metal tubes and cables.
- Use a portable GFCI 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 without proper ventilation.
- Provide proper ingress and egress to prevent entrapment.

Required Tools

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

- Tape measure or measuring device
- Marker to mark locations
- Electric drill and driver (Battery-powered drivers work best.)
- Metal-cutting saw or tool to cut cable to the required length
- Wrench set to tighten bolts
- Utility knife or scissors
- Ladders, work platform, and other machinery designed to work safely at the height of the building
- Rope or cable
- Adjustable pliers
- Lifts to set and hold rafters in place

Anchoring Instructions

Prior to assembling the structure, you must 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.

Location

Choosing the proper location is an important step before you assemble the structure. The following suggestions and precautions will help 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 building in a place 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 site must be level to properly and safely erect and anchor the structure.
- If the site is not level, use footings 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 must drain away from the site to prevent damage to the site, the structure, and contents of the structure.

ATTENTION: 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.

Unpack and Identify the Parts


The following steps will ensure that you have all the necessary parts *before* you assemble the structure.

1. Unpack the contents of the box and place them where you can easily inventory the shipment. Refer to the Bill of Material.
2. Verify that all parts listed on the Bill of Material are present. If anything is missing, contact customer service.

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

PART IDENTIFICATION


(All parts are not shown)



166S099
1.66" 99" PIPE
SWAGED




166P0XX
1.66" XX" PIPE
PLAIN




105118
4" STRUT


X's represent length
needed to reach the end
of the building.



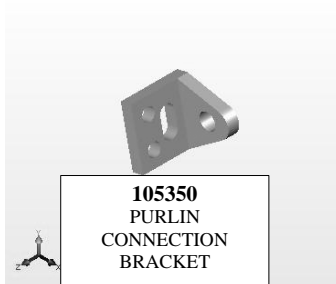
42R3501D
PIPE 3.50" DRILLED
RAFTER POSITION 1




42R3501
PIPE 3.50"
RAFTER POSITION 2



42R3502
PIPE 3.50"
RAFTER POSITION 3



105350 Bracket



105353
3' STRUT
(3' rafter spacing only.)



105242
3.50" PIPE FITTING W/BASE
(See diagram on next page.)



QH1061
1" x 4000-LB. RATCHET



QH1065
2" RATCHET



FALB08B
1/2"-13 NUT - ZINC



FALB04B
3/8"-16 NUT - ZINC



FA4482
#14 x 1" TEK SCREW



FAG355
HEX CAP 3/8"X 1"



105370
1/2" x 4 1/2" HEX CAP
BOLT



104188
1/2" x 5 1/2" HEX CAP
BOLT



AR1050
GALVANIZED
CABLE 3/16"



AS1003
3/16" CABLE CLAMP



AS1083
3/16" CABLE THIMBLE



104189
TURNBUCKLE 1/2" X 6" JAW/JAW
GALVANIZED



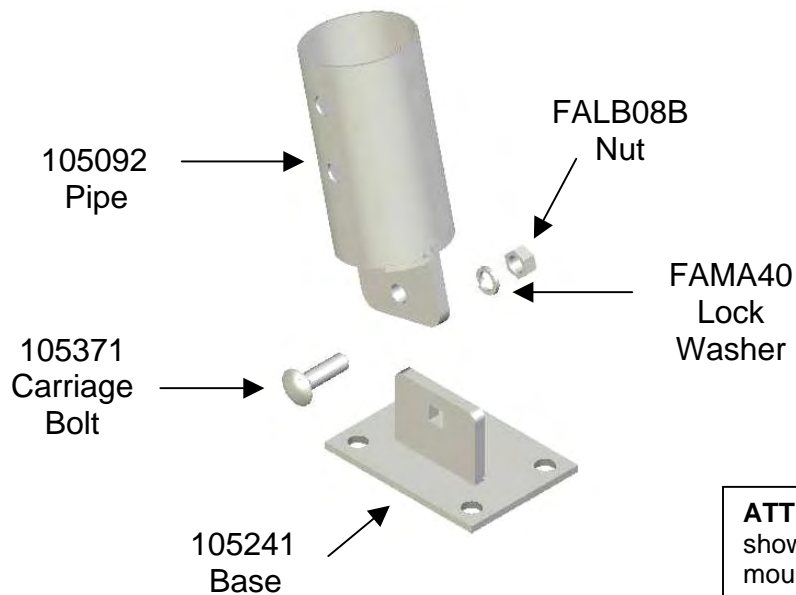
LJ7510
DUCT TAPE



100441
3/8" NUT SETTER

Rafter Foot Assembly

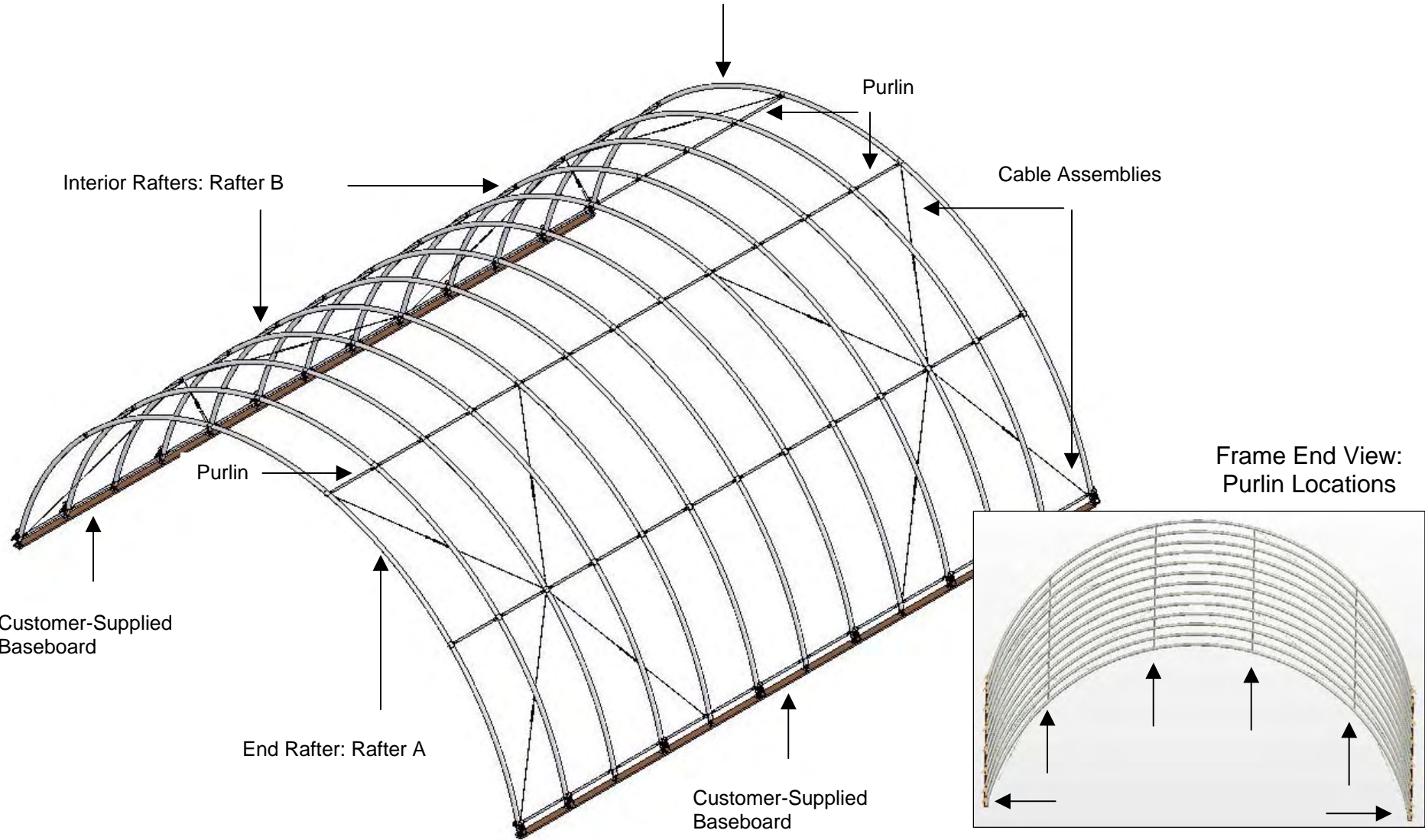
The rafter foot for each rafter leg must be assembled before it can be attached to the rafter. Use the following diagram and information when assembling each rafter foot.



ATTENTION: Assemble as shown, but do not tighten the mounting bolt at this time.

Frame Assembly Diagram

(Frame shown may be shorter than actual frame.)





Side View of Rafter Assembly

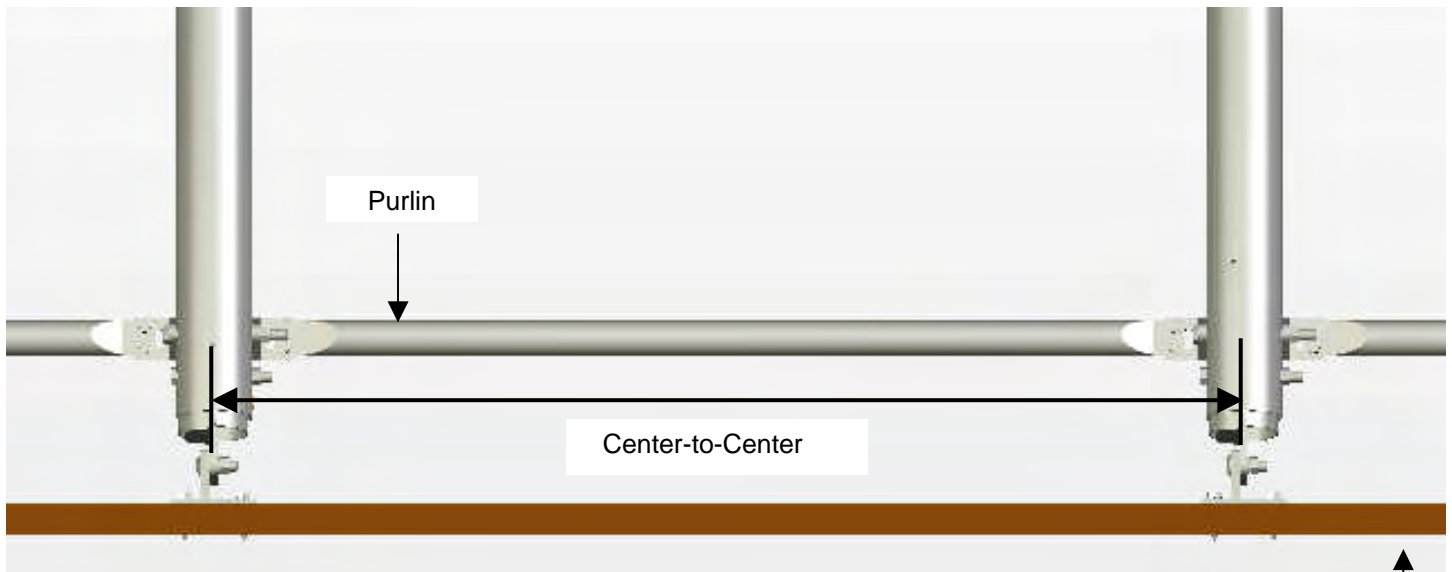


Diagram above shows the 4' on-center rafter spacing.

Custom-Supplied
Baseboard



End View of Rafter

Layout the Building Site

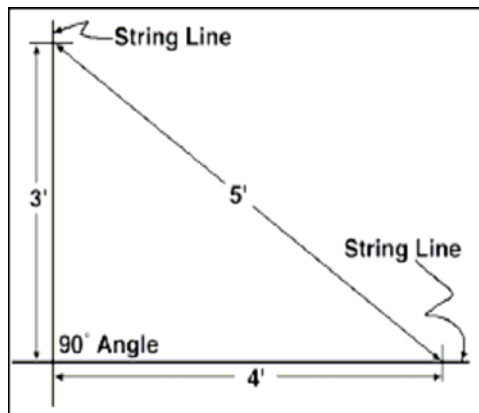
After the site is prepared, marking the ground where the building will be situated and identifying where the corners of the building will be placed helps square the frame after it has been assembled.

Taking these steps before assembling the building 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 building, its application, the footings, and the method used to anchor the building.

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. String 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. See the diagram below. 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 outline the base of the building.
4. Next, paint a line on the ground using the strings between the stakes as guides.

NOTE: There is no need to mark the rafter spacing. The purlins, when installed correctly, will maintain even rafter spacing throughout the length of the shelter.

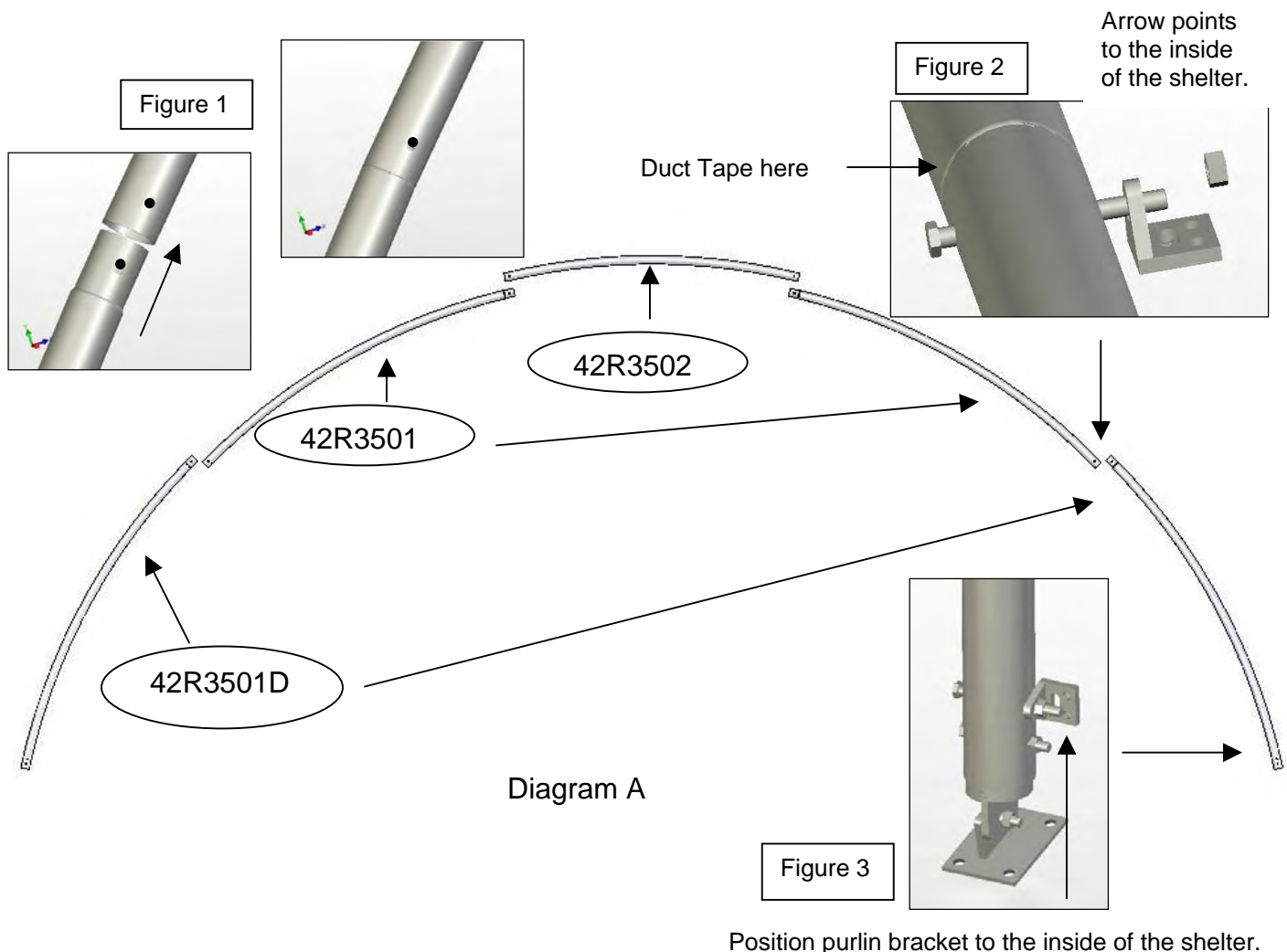
5. After marking the outline of the building, remove the strings and continue with the rafter and framework assembly instructions for the building.

Rafter Introduction

All rafters consist of the following five (5) pipes: 2 (42R3501D), 2 (42R3501), and 1 (42R3502). The two 42R3501D pipes include two drilled holes near the bottom to connect the rafter foot.

Assemble Rafter A (There are two (2) end rafters.)

1. Connect the pipes as shown in Diagram A below.
2. Assemble rafter on the ground; slide swaged section into plain section until 9/16" holes line up (Figure 1). Secure each pipe joint with one 1/2" x 5 1/2" bolt and a single Purlin Connection Bracket (Figure 2).
3. Insert one rafter foot (105242) into the bottom of the rafter and secure with (1) one 1/2" x 5 1/2" bolt and a single Purlin Connection Bracket in hole furthest from foot base. In hole closest to foot base, secure foot to rafter using 1/2" x 4 1/2" bolt (Figure 3).
4. Repeat Step 3 for the remaining rafter foot.
5. Repeat the above steps to assemble a second Rafter A.

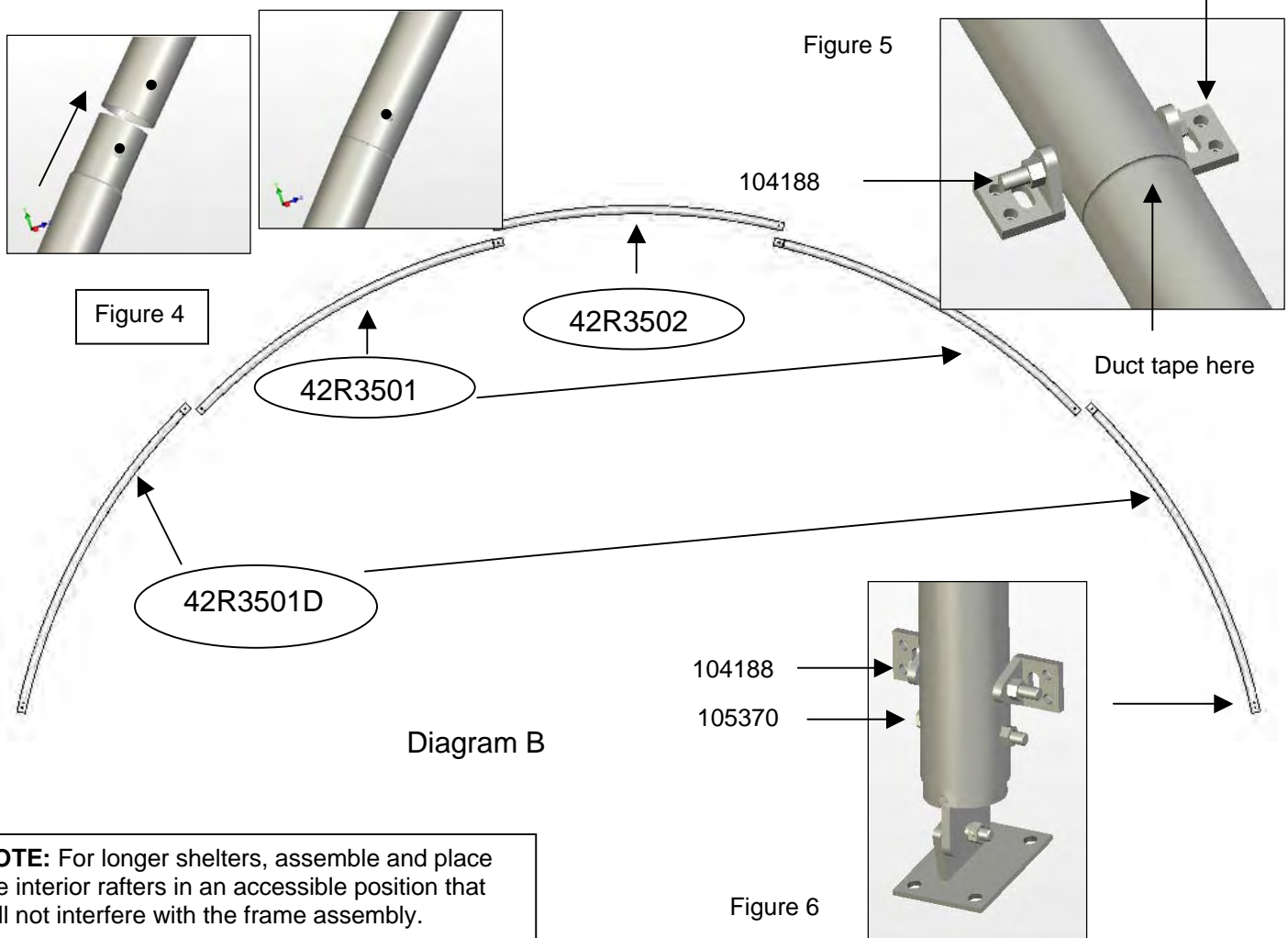


ATTENTION: Install all brackets and bolts so they do not interfere with the installation of the main cover. To protect the cover, tape all rafter joints with duct tape.

Assemble Rafter B (Interior rafters)

NOTE: The length of the shelter and the on-center spacing of the rafters determine the number of interior rafters. Locate the All Frame Diagrams near the end of these instructions to view the frame of your shelter.

1. Connect the rafter pipes as shown in Diagram B below.
2. Assemble rafter on the ground; slide swaged section into plain section until the 9/16" holes line up (Figure 4). Secure each pipe joint with one 1/2" x 5 1/2" bolt and two (2) Purlin Connection Brackets (Figure 5).
3. Insert one rafter foot (105242) into the bottom of the rafter and secure with (1) one 1/2" x 5 1/2" bolt and two (2) purlin connection brackets in hole furthest from foot base. In hole closest to foot base, secure foot to rafter using 1/2" x 4 1/2" bolt (Figure 6).
4. Repeat Step 3 for the remaining rafter foot.
5. Complete this entire procedure to assemble remaining interior rafters (Rafter B).



ATTENTION: Install all brackets and bolts so they do not interfere with the installation of the main cover. To protect the cover, tape all rafter joints with duct tape.

Frame Assembly: Standing the End Rafters

After all rafters are constructed and placed in an orderly fashion for frame assembly, proceed with standing the first end rafter. Forklifts and personnel booms are recommended for lifting and setting the rafters. Consult a construction professional if you are not familiar with construction techniques and erecting similar structures.

Stand and Secure the First End Rafter

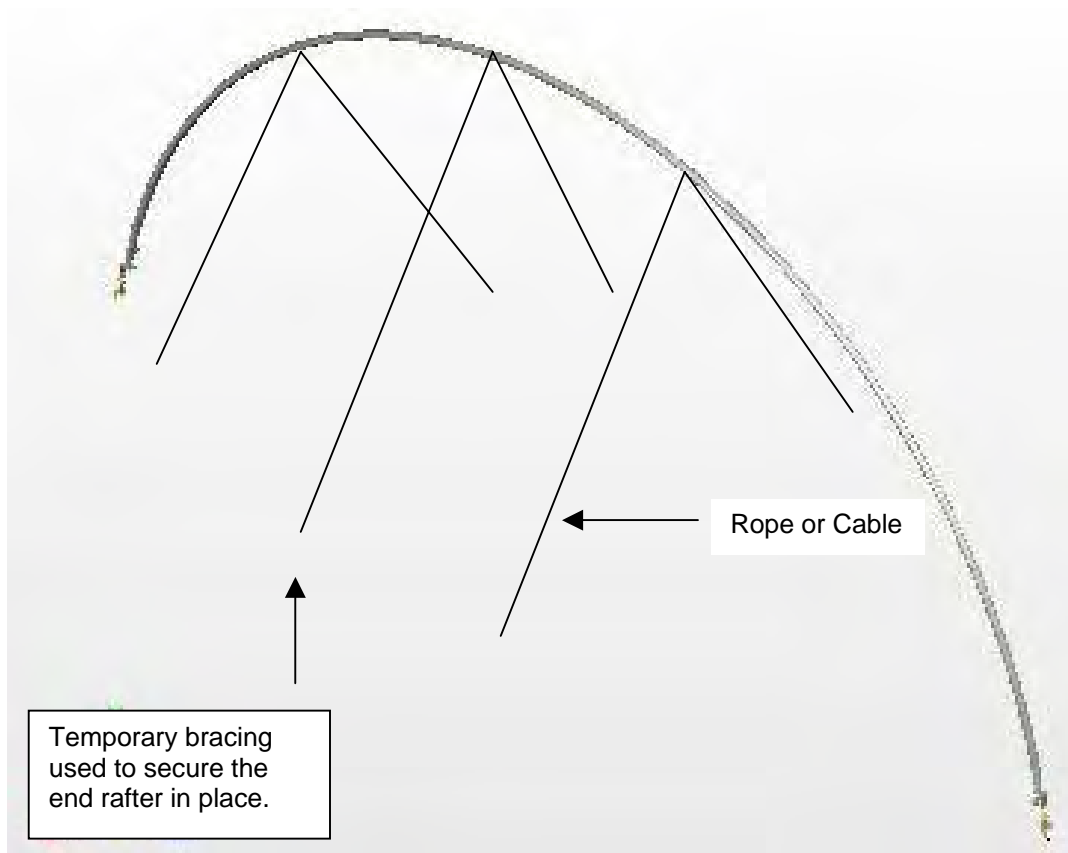
ATTENTION: Use the proper lifts. Rafter assemblies are heavy and awkward to handle.

1. Stand the first end rafter (Rafter A) and secure it using rope, cable, or some other form of bracing to hold the rafter in position. Use a level (or other leveling device) to plumb the end rafter.

NOTE: Plumbing the end rafter at this stage assists in placing the remaining rafters.

2. Secure the rafter feet to the site (or customer-supplied baseboards) to prevent the rafter from shifting.

NOTE: The use of a baseboard beneath the feet of the rafters is strongly recommended. The feet then can be secured to the baseboard using customer-supplied lag screws. Baseboard can be treated or plastic lumber. Contact Customer Service at 1-800-245-9881 for additional information.

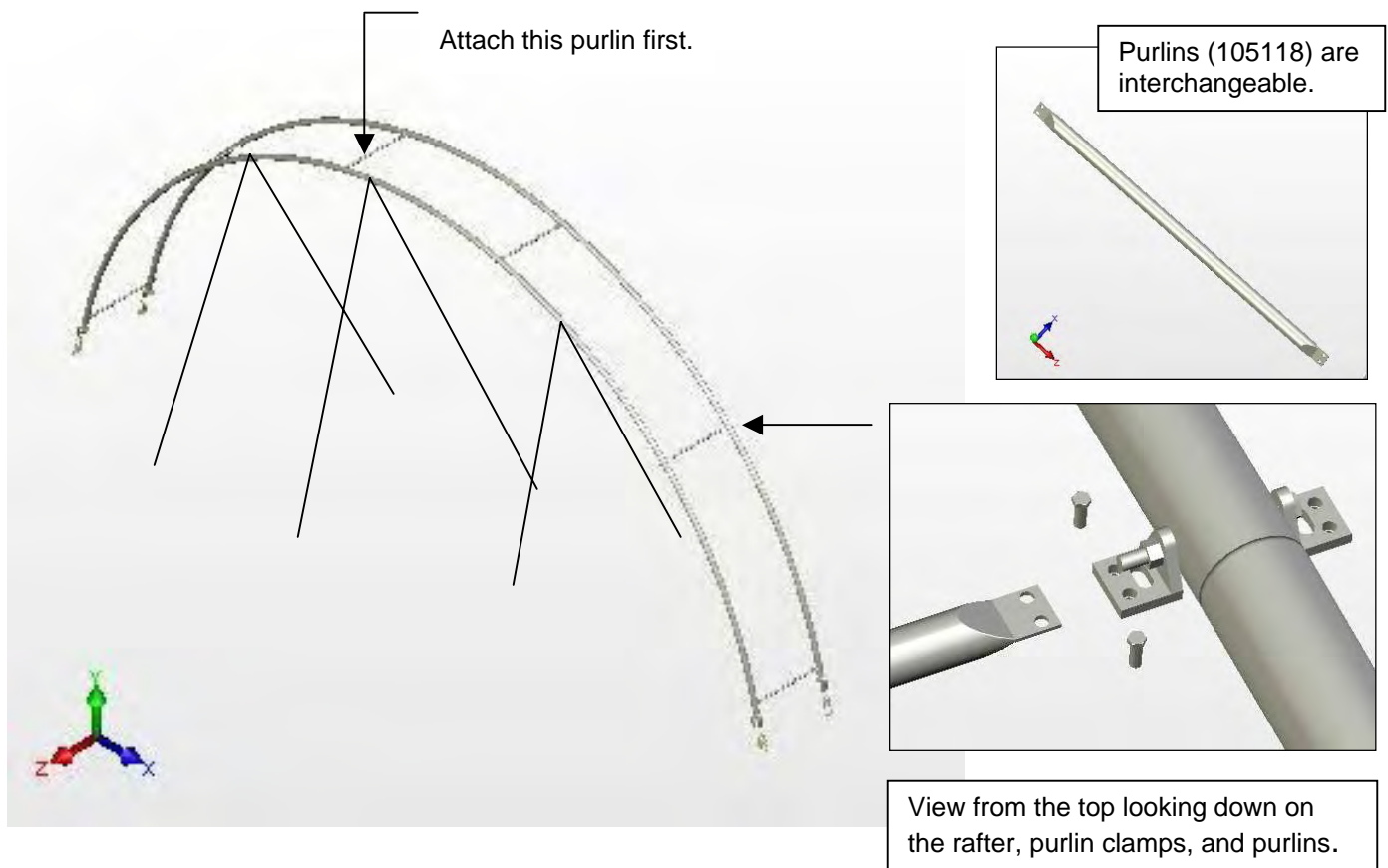


Frame Assembly (continued)

With the first end rafter standing, plumb, and properly secured, set the interior rafters in place.

Stand the Interior Rafters

1. Stand the second rafter (Rafter B) and secure the rafter feet as before.
2. While the lift or personnel are holding the rafter in position, start at the top-center of the arch and install a purlin. Each purlin pipe is attached using 3/8" x 1" Hex Cap bolts provided. Use two (2) bolts per connection point when attaching the purlins to the purlin clamps. (See insert below.)
3. With center purlin in position (arrow below), install the remaining purlins. There are six (6) purlins between each rafter. Consult the Frame Diagram shown earlier in these instructions for purlin location.
4. Repeat the process for the remaining interior rafters for the length of your building. (Align the rafter feet with the lines previously marked on the site if that method was used.)
5. After all interior rafters are in place and secure, install the final end rafter (Rafter A).
6. With all rafters in place, read the MUST READ document to anchor the frame. **You must anchor the assembled frame before continuing.**
7. After anchoring the frame, continue by installing the cabling for the structure.

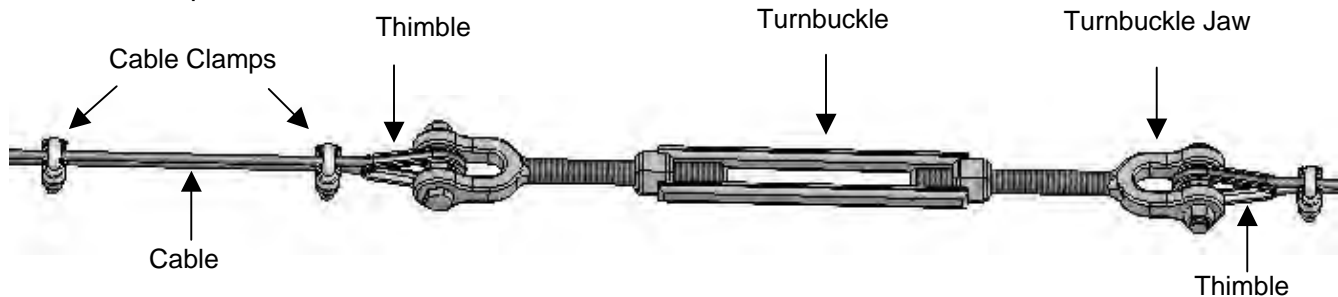


ATTENTION: As the purlins are attached, it may be necessary to tap the purlin brackets with a hammer to align the brackets with same brackets on the next rafter set in place. To protect the cover, tape all rafter joints with duct tape.

Cable Assemblies

Cable assemblies provide diagonal bracing for the building. Each cable assembly includes the following items:

- 2 lengths of cable cut at 100"
- 1 turnbuckle
- 4 cable thimbles
- 4 cable clamps



Typical of all Turnbuckles for this Building

NOTE: For each cable assembly, two (2) *additional* thimbles and four (4) *additional* cable clamps are used to attach the cable assembly to the purlin clamps. Consult the Cable Diagram on the following page and the All Frame Diagram for clarification and cable locations.

Cable Assembly Instructions

Complete the following steps:

1. Cut the cable to the proper length for each assembly. More than an adequate amount has been sent for the cabling application. (Cut two lengths at 100" and make a single assembly before proceeding to make all. This will allow a check to be sure a suitable length has been cut.) Make the necessary length adjustment if needed.
2. Place one cable thimble approximately 12" from the end of a cable section and wrap the cable around the thimble as shown in the above figure.
3. Grasp both sections of the cable near the thimble and position one cable clamp one inch away from the thimble as shown above.

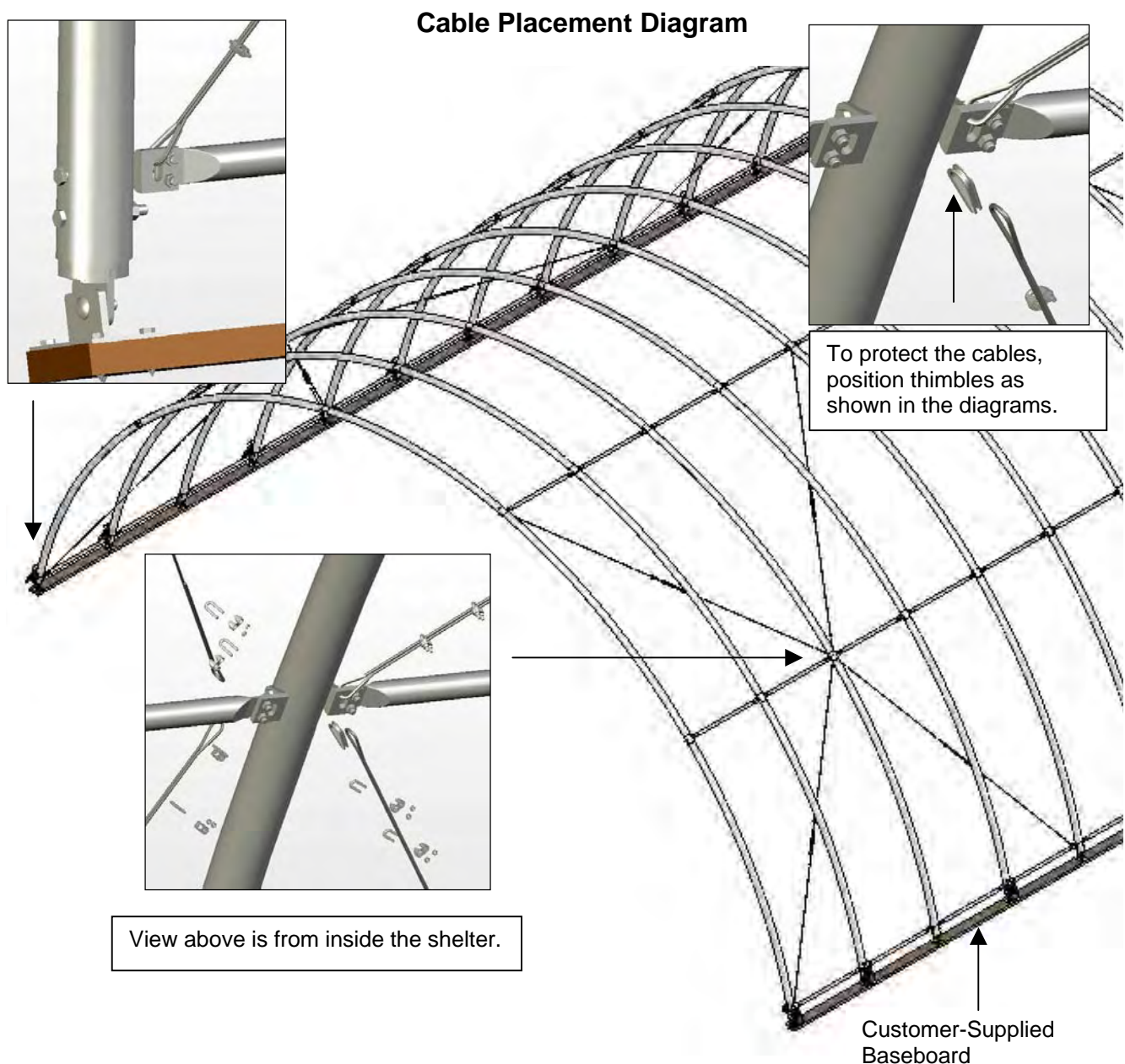
NOTE: The clamp must be positioned on the cable with its U-bolt portion over the short section of the cable.

4. With the saddle portion of the cable clamp in position, thread the nuts onto the U-bolt section of the clamp and tighten slightly to maintain the position of the clamp on the cable.
5. Install a second cable clamp on the cable six to eight inches from the first clamp.
6. Tighten both clamps.
7. Remove the bolt from the jaw of the turnbuckle and position the cable end with the thimble into the jaw of the turnbuckle.

8. Insert the bolt through the eye of the turnbuckle and the cable thimble, thread the nut onto the bolt, and tighten.
9. Repeat Steps 2-8 for the remaining length of cable for this assembly.
10. Open the turnbuckle to its longest position.
11. Repeat the above procedure for all remaining cable assemblies.

Cable Placement

The diagram and figures below identify the placement and proper way to attach the cable assemblies to the building.



Tighten the Cabling

The positions of the cable assemblies are identical for the opposite side and the remaining end of the building that are not shown in the previous diagram. For cable locations for your building, consult the All Frame Diagram.

1. After attaching all cable assemblies to the building frame, return to the first set of turnbuckles and tighten the cables.

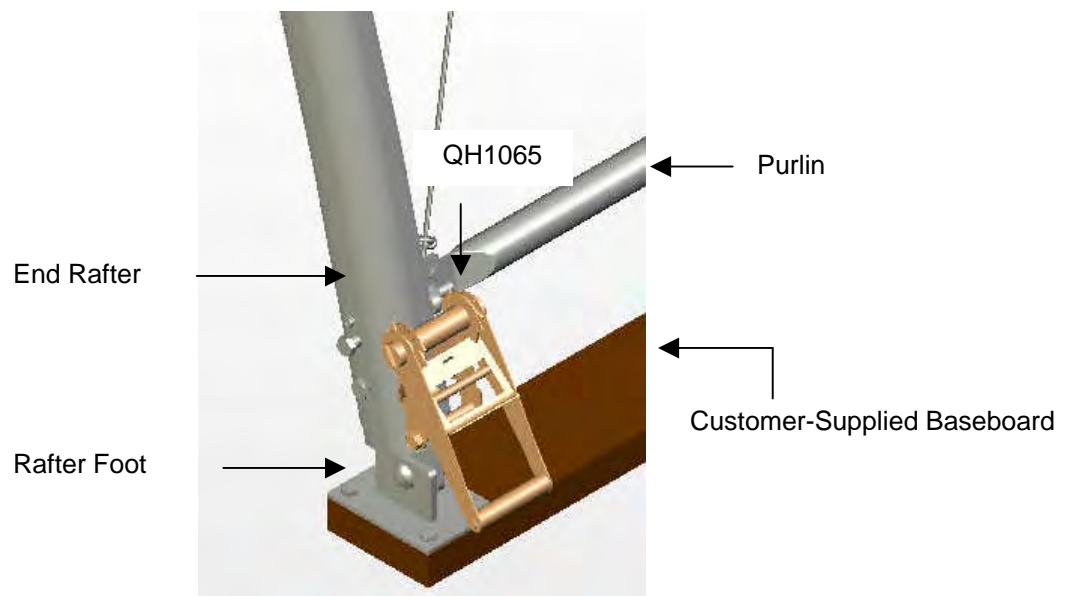
NOTE: Tighten the cables in each section evenly so that the frame remains plumb.

2. After one set of cables is tightened, move to another set and repeat the tightening steps.
3. Repeat this process until all cables are tight.
4. Continue with installing the ratchets for the main cover.

Install the Ratchets for the Main Cover

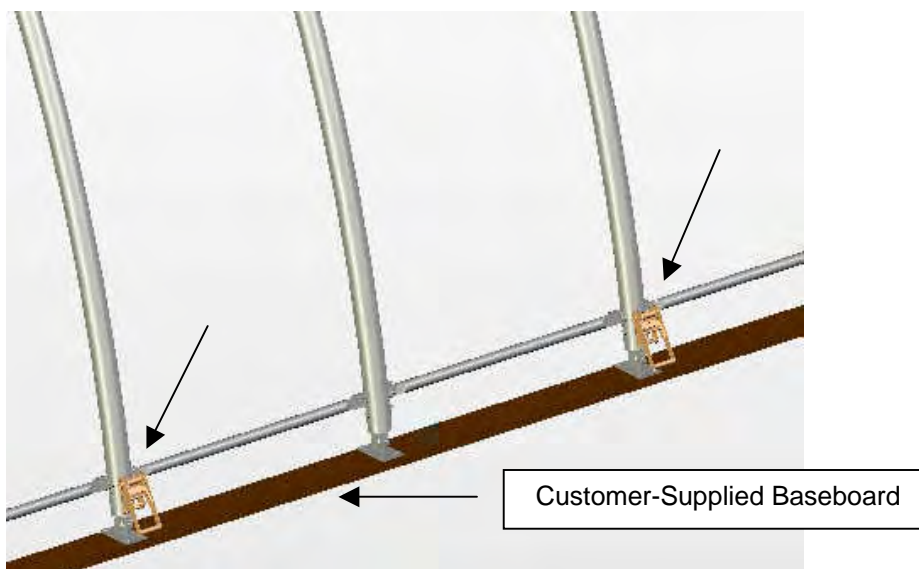
The side ratchets are attached to the legs of select rafters on the outside of the rafter leg. Complete the following steps to position and secure the ratchets to the rafter legs.

NOTE: The four (4) QH1061 ratchets used to secure the bonnet of the main cover are attached to the bottom frame tube of the end wall after the end wall and end panel are installed. Install only the larger QH1065 ratchets to the rafter legs along the side at this time. The steps are described below.

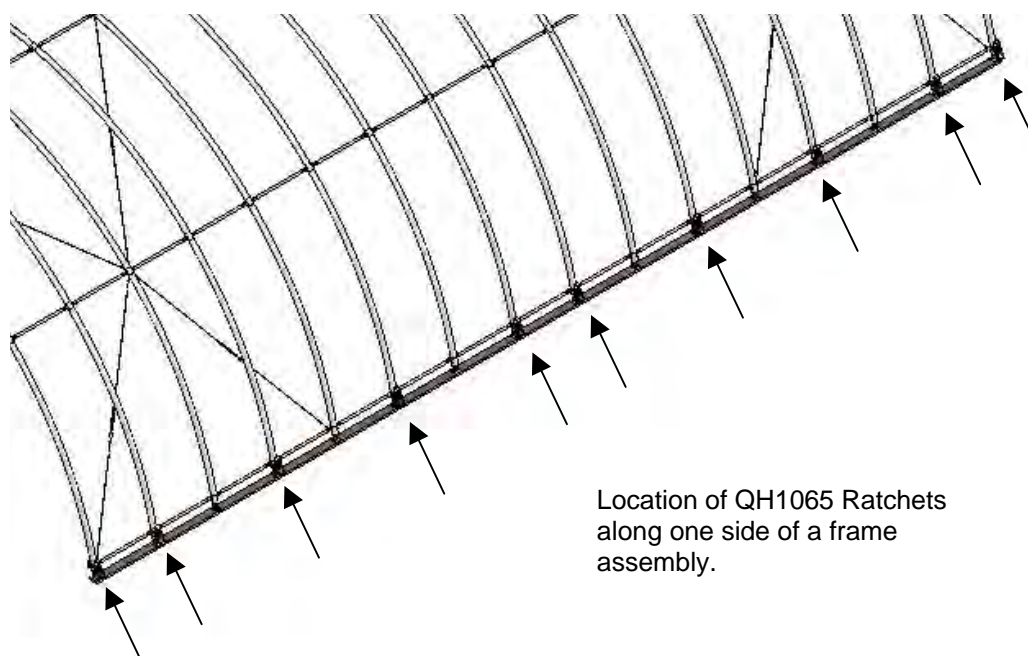


1. At each leg of each end rafter, attach one QH1065 ratchet on the outside of the rafter leg in the location shown above.

2. Select the remaining QH1065 ratchets and evenly space these along each side of the frame. The following is an example of where to attach the remaining ratchets.



NOTE: Depending on the length of your structure, you may not be able to install the ratchets on every other rafter as shown above. The main point is to space the ratchets as evenly as possible so you can stretch and secure the main cover. See the example below. Frame shown may be shorter than your frame.



3. After all side ratchets are installed, continue with the end wall and panel installation procedures.





END WALL INSTALLATION

Both end walls are identical in design. This allows for the installation of a second door kit if desired. Consult the end wall diagrams *before* you begin.

The general steps to install the end walls include the following:

1. Prepare and secure vertical posts for the door framing. (See End Wall Diagrams.)
2. Install remainder of door framing.
3. Assemble and attach all end wall framing.
4. Prepare and attach end panel.

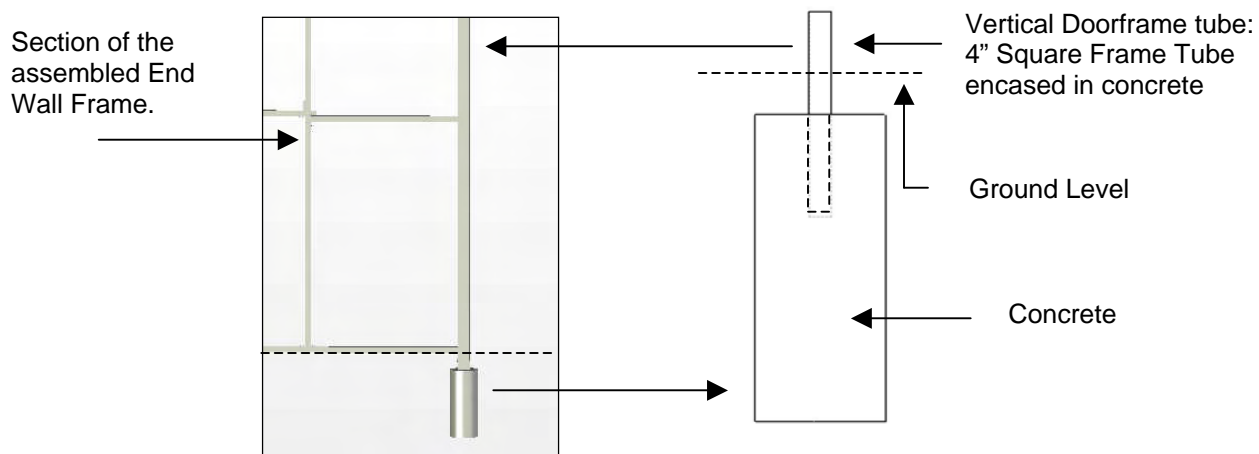
INSTALL THE DOOR FRAME

1. At ground level, measure between the legs of the end rafter to locate the center of the end wall. Use a plumb line to identify the center of the overhead rafter and mark that location on the ground, too.

NOTE: Mark the center of the end wall so multiple measurements can be made from it.

2. Using the dimensions shown on the diagram, locate the positions of the vertical frame members for the door framing.
3. Dig a 12" diameter hole at the locations found in previous step to a depth that is below the geographic frost line.
4. Assemble the vertical doorframe members and attach the upper ends to the end rafter. **ATTENTION:** Cut each tube to a length that will allow the bottom end to extend into the ground anchor holes so they can be cemented in place.
5. After the vertical doorframe members are in position, plumb, and the correct distance apart, secure the tubes in the ground holes. Use the diagram to space the vertical doorframe members.

NOTE: Concrete should remain at least 4" below ground level so that it does not interfere with construction and installation of other end wall components. Doorframe tubes must be square and plumb for the end wall.



ASSEMBLE THE END WALL FRAME

After the doorframe is assembled and anchored in place, assemble the remainder of the end wall.*

NOTE: Tek screws are used to fasten the following connectors:

- QH1330 Angle Bracket
- 104624 Square Tube Fitting
- 104075 1.75" x 1.75" Square Tube Connector

The 5" carriage bolts (105348) are used to secure the following brackets:

- 105351 4" Mounting Bracket
- 105243 Mounting Plate

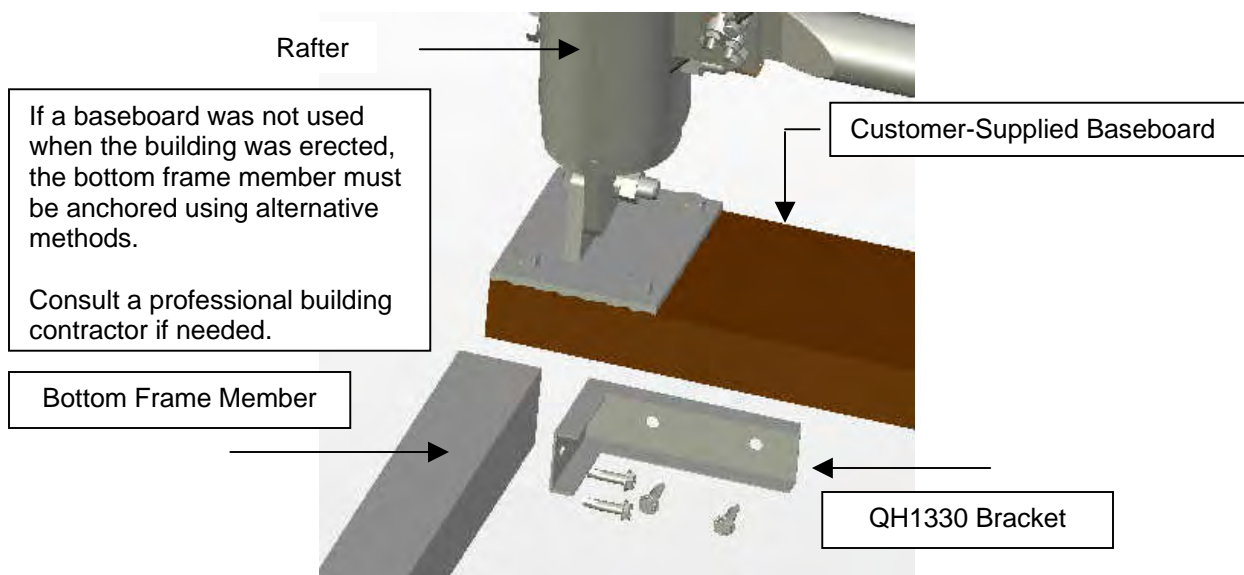
*Refer to the End Wall Diagrams for locations of additional pedestrian door framing and connecting hardware.

Complete the following steps:

1. Using the dimensions on the End Wall Frame diagrams and the 2" x 2" square tubing and related hardware and connectors, assemble the remainder of the end wall.
2. Consult the Exploded End Frame Diagram to properly position and connect the brackets.

NOTE: The end wall framing on either side of the large door opening is the same.

3. Repeat the steps to assemble the end wall framing for the remaining end of the building.
4. Attach the ends of the bottom end wall frame tube as shown in the following diagram.



5. After both end walls are assembled, continue with the End Panel Installation procedure that follows.



END PANEL INSTALLATION

Complete these steps to install the end panel.

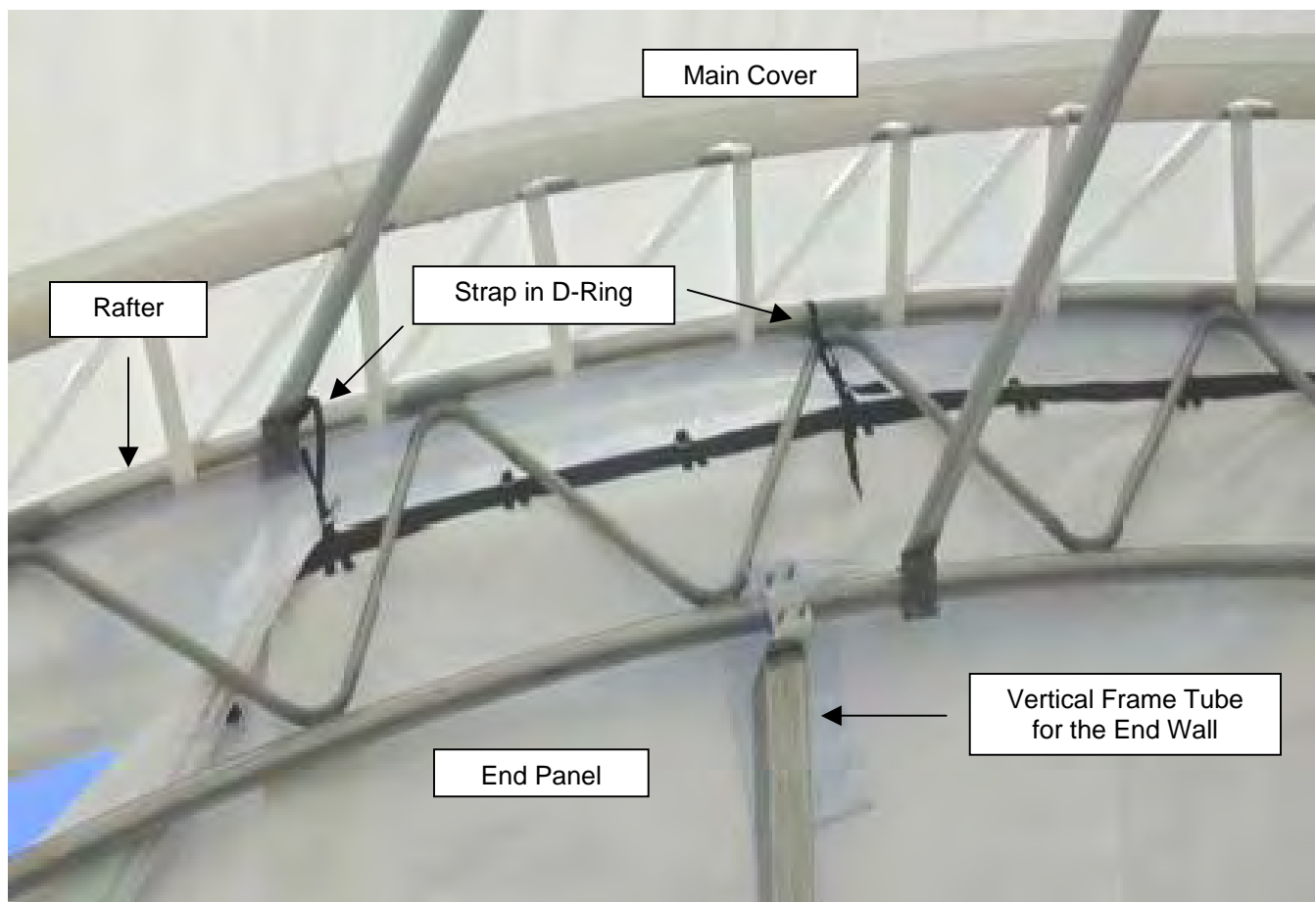
1. Position the panel flat on ground with the long edge against the bottom end wall frame member.
2. Locate the D-Rings, which line the top of the end panel, and insert a three-foot piece of black strapping into the center most D-Ring. Insert 2 additional straps on each side of the center D-Ring if needed. (Space these at every other D-Ring.)

NOTE: These straps are used to *temporarily* secure the end panel in place. Add more strapping if needed. To prevent personal injury or property damage, do not install end panel or main cover during stormy or windy conditions.

3. With the black strapping in place, raise the end panel to the end wall and secure to the end rafter using the D-Rings and strapping.

NOTE: Pull the top edge of the end panel to within 6" of the rafter. (Approximately 1 to 2 feet of the end panel material will remain at and run along the base of the end wall. In a later step, this can be wrapped under the bottom tube of the end wall frame, or remain as a skirt to direct water away from the shelter.)

The end panel must touch the ground after the top edge of the panel is secured to the rafter.



View is from the inside of the shelter looking at the end panel. Frame and rafter shown are different from your frame. The technique used to secure the end panel is the same however. Photo shows the main cover already installed.

4. Once the end panel is temporarily secured, take the roll of black strapping and weave the end of the strap through the D-Rings and around the rafter pipe as shown below.

NOTE: Maintain an even space between the rafter and the top of the end panel. The end panel flap that extends beyond the D-Rings is tucked between the rafter and the main cover after the main cover is laced to the end rafter.

DO NOT attach the flap to the end rafter at this time.

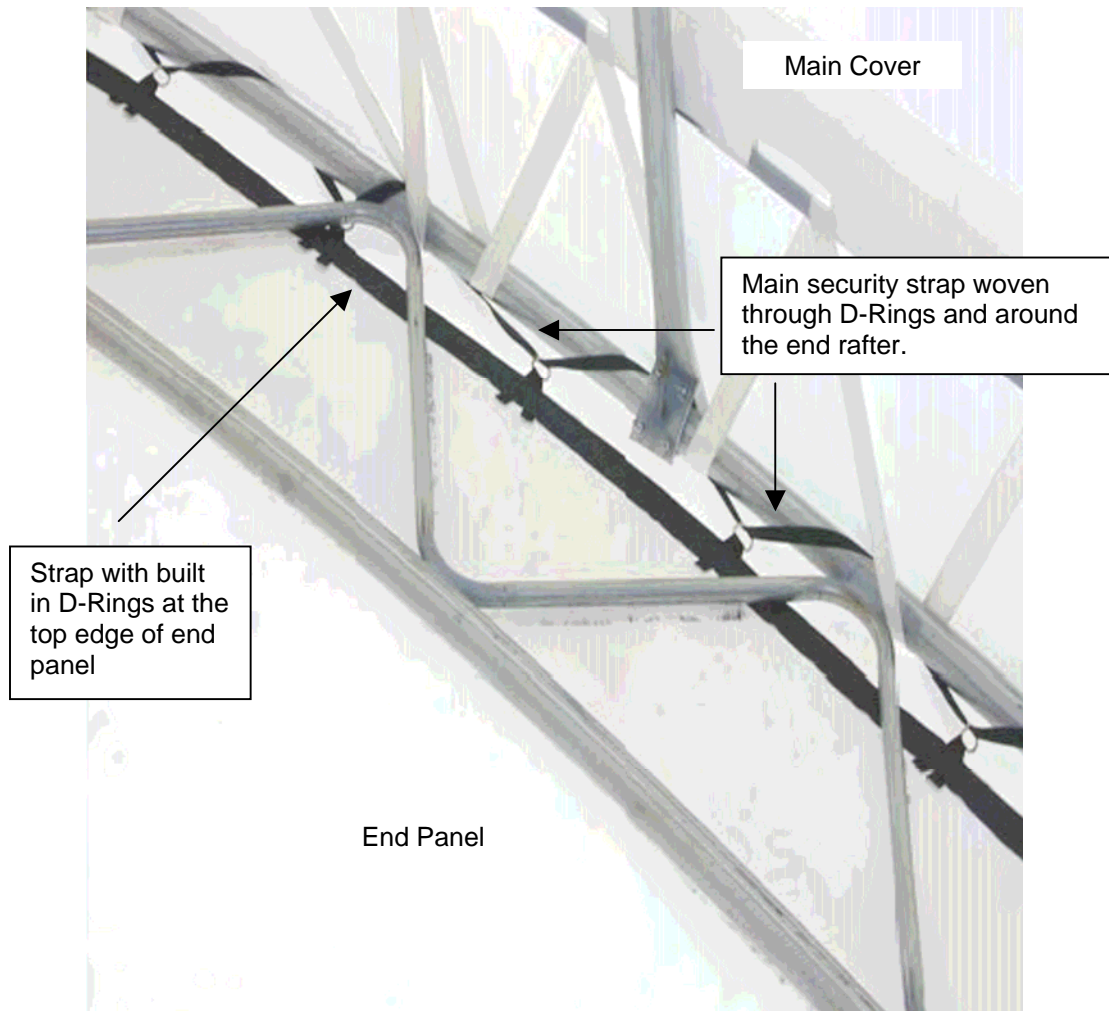


Photo above shows a building with the main cover already installed. View is from the inside looking up at the rafter and main cover.

5. Stretch the bottom of the end panel evenly out on the ground along the bottom frame tube of the end wall frame (if needed) and tighten the black strap at the top of the end panel. Top of end panel must remain as close to the rafter as possible.

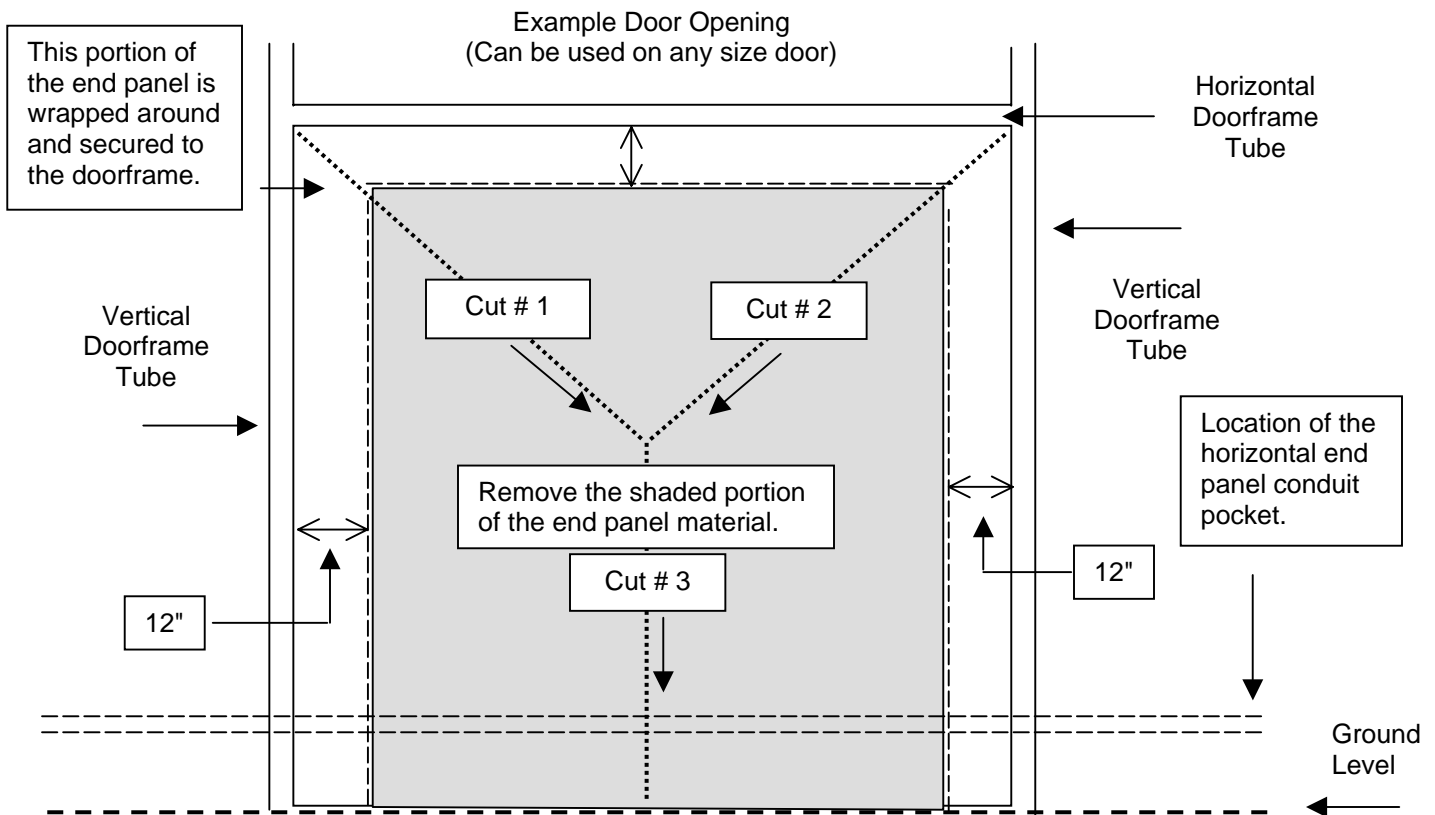
NOTE: Verify that the lower end of the panel remains on the ground as the top is tightened. If the panel begins to lift off the ground, loosen the top evenly along the radius of the rafter. (In a later step, the end panel is stretched from the bottom to pull the panel tight and into position using the end panel horizontal conduit, straps, and ratchets.)

6. With the top edge of the end panel secured, continue by cutting the opening for the door (or doors). If you are installing an end panel and no door openings are needed, skip to and continue with the End Panel Conduit Installation steps.

CUT DOOR OPENINGS

Follow these steps to cut a door opening.

1. To cut the opening, begin at either top corner of the doorframe and make a cut at a 45-degree angle from that top corner to the center of the panel where the opening will be located. (Consult the diagram below.)
2. Cut another (and equal) 45-degree angle from the opposite top corner to the end of cut #1.
3. From the ends of cuts #1 and #2, make a vertical cut to the ground (Cut #3). See diagram below.



4. After the (3) separate flaps are created (Cuts 1, 2, and 3), trim each flap so that 12" of end panel material remains around the door opening. These 12" flaps are wrapped around the door framing and secured to the inside of the doorframe *after* installing the end panel conduit.
5. Continue with the End Panel Conduit Installation steps that follow.



END PANEL CONDUIT INSTALLATION

Depending on size and design, some end panels include vertical and horizontal pockets on the inside surface of the panel. PVC tubes (vertical) and metal pipe (horizontal) are inserted into these pockets. The conduit then is secured to the vertical frame members of the end wall using straps and to the bottom end wall frame member using ratchets and straps.

These vertical and horizontal conduits help prevent the end panel from flapping against the end wall framing in the wind. Complete these steps to install the PVC conduit and the metal conduit.

Install The Horizontal End Panel Conduit

Required Pipe: 1.315" swaged pipe (131S075) at 75" each

This metal pipe is inserted into the horizontal pocket on the inside surface of the end panel. If door openings are present, cut the pipe to the correct length to properly fit into the pocket and to remove it from the opening.

1. Locate the 1.315" x 75" swaged pipe and assemble sections to achieve the required length. (Cut to length if needed.)
2. Secure each pipe joint with a Tek screw and wrap the joint and screw with duct tape to prevent damage to the end panel.
3. Insert the assembled conduit into the end panel horizontal pocket.
4. Locate six QH1061 ratchets, space them evenly on the inside bottom frame tube of the end wall, and attach these to the frame tube using Tek screws.

NOTE: For end walls with door openings, attach the ratchets in locations that will best secure and stretch the end panel. This may or may not be "evenly" spaced.

5. Once the ratchets are attached, make a horizontal slit (approximately 3"– 6" long) in the horizontal pocket containing the metal conduit directly above each ratchet.

WARNING: Cut only the end panel pocket. DO NOT cut through the end panel.

6. Locate the 1" black strapping and cut a section that reaches from the QH1061 ratchet, around the horizontal conduit in the end panel pocket, and back to the ratchet.

NOTE: Allow enough extra strap so you can insert both ends of the strap into the ratchet.

7. Thread one end of the strap in through the slit, around the conduit, and back to the ratchet.
8. Align the strap ends and insert both ends into the slot in the center hub of the ratchet.
9. Tighten slightly and repeat the steps for the remaining straps and ratchets.
10. After securing the horizontal end panel conduit, continue by installing the vertical PVC conduits.



Install the Vertical PVC End Panel Conduits

NOTE: The PVC conduits are attached to the vertical frame member closest to the end panel pocket in which the conduit is located. See photos below.

DO NOT ATTACH THE VERTICAL PVC CONDUIT TO ANY PART OF ANY DOORFRAME. Doing so will interfere with the installation of the door.

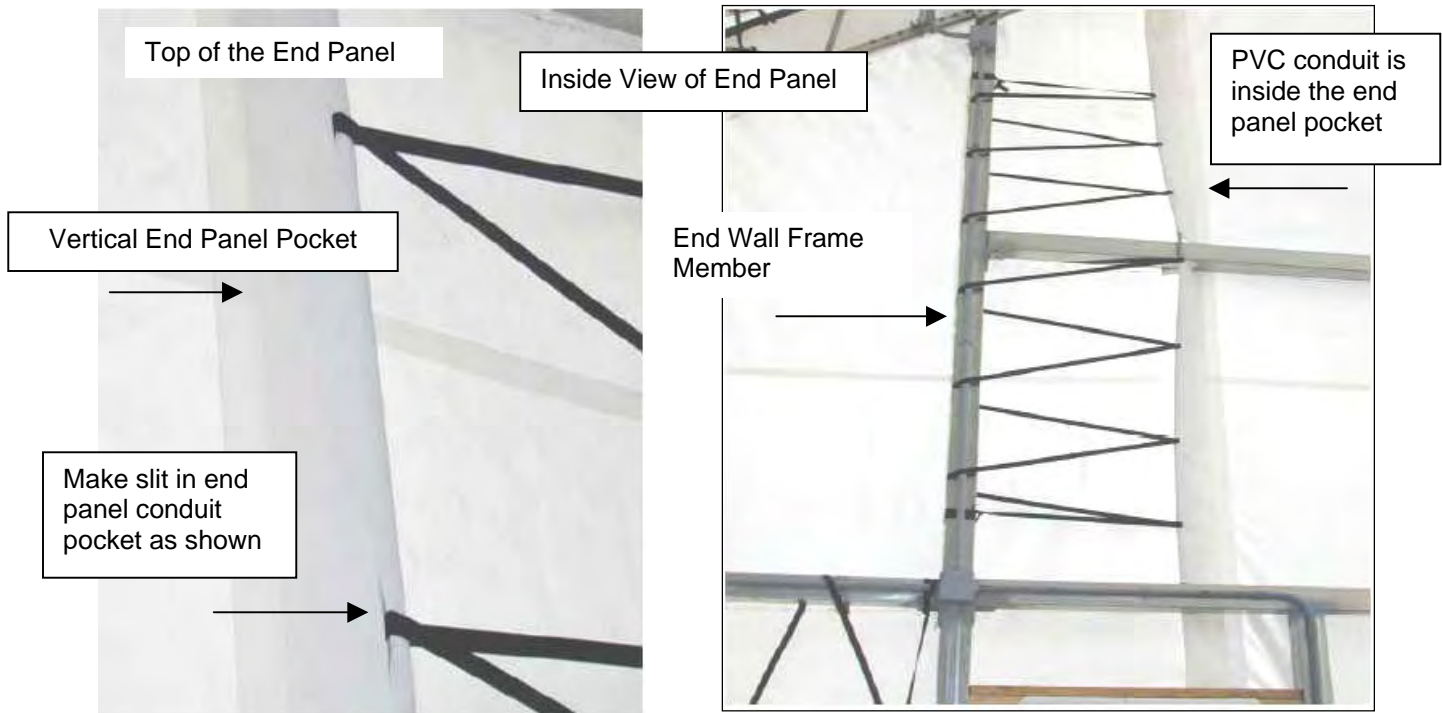
1. Take the PVC conduit and seat the separate conduit sections into one another to achieve the required length and secure the joint with a Tek screw, wrap with duct tape and slide the assembled conduit into one vertical pocket.

NOTE: PVC glue can be used to secure each PVC joint. PVC glue is not included. The PVC is flexible enough to feed up from the bottom and into the end panel pocket.

2. At approximately every 2 feet, cut a 6" vertical slit in the vertical conduit pocket of the end wall.

ATTENTION: DO NOT cut the end panel. Cut only the conduit pocket.

3. Beginning at the bottom of the conduit pocket, take the 1" black strap and weave the strap through the slit, around the PVC conduit, and around the closest vertical end wall frame member that is not part of the doorframe.



Frame shown above is different from your frame. End panel is attached in a similar manner however.

4. Move to the next slit and repeat the process and work up the conduit and pocket.
5. Once the strap is in place, tie the upper end to the vertical end wall frame tube.
6. Slightly tighten the end panel by working the vertical strap between the conduit and vertical end wall frame tube.

NOTE: Do not tighten completely at this time.

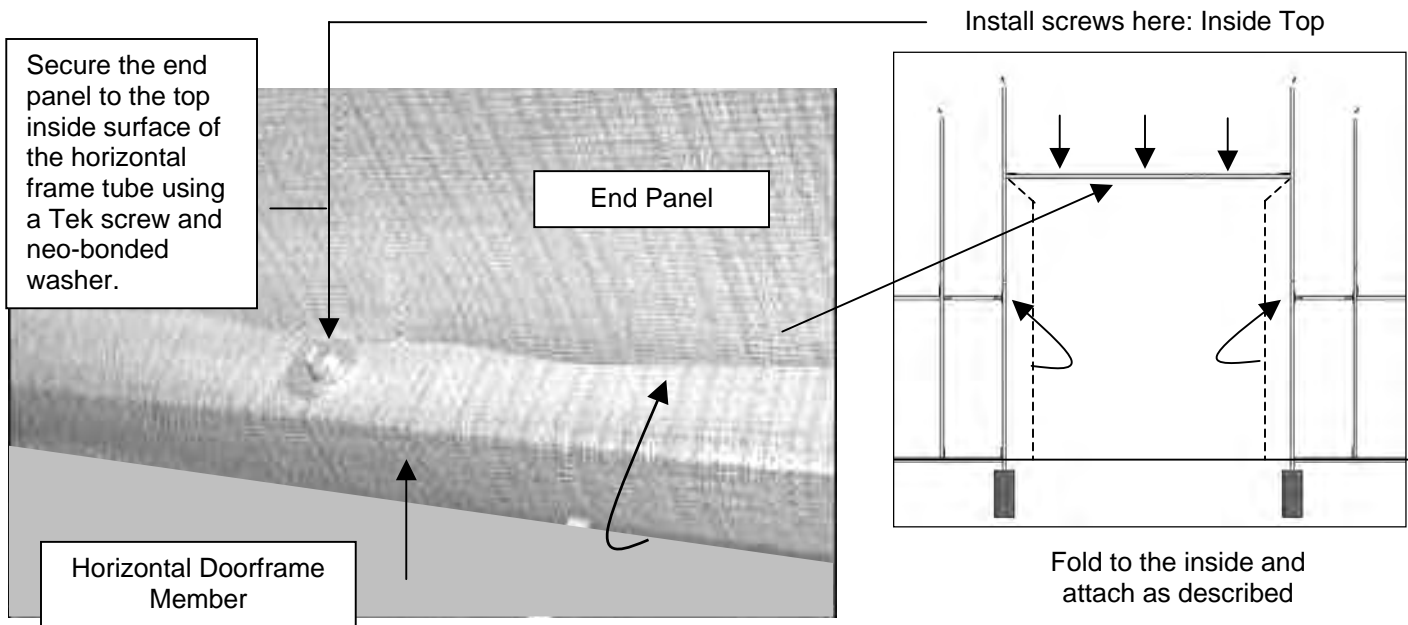
7. Cut (if needed) and tie the remaining (lower) end of the strap to the end wall frame.

8. Repeat the steps to install the strap for the remaining vertical end wall PVC conduit.
9. With both PVC vertical conduits in place and slightly tightened, return to the ratchets installed earlier and evenly tighten the horizontal end panel conduit to stretch the end panel.

ATTENTION: The end panel with no large door has three (3) vertical PVC conduits that are used. If the strap "builds up" inside the ratchet, loosen the ratchet, remove the excess strap, and retighten.

10. After the bottom conduit is tightened, move to one vertical PVC conduit and tighten the strap.
11. Repeat the steps to tighten the remaining vertical PVC conduit.
12. With all conduits tight, secure the end panel to the doorframe (or doorframes). See the diagram below.

NOTE: For the exposed corners of the doorframe that remain, cut out a 16"x16" piece of material from the scrap end panel material and secure the piece to the exposed corners using Tek screws and neo-bonded washers.



Inside Views of the End Wall

ATTENTION: DO NOT secure the end panel to the inside or backside of the doorframe tubes. Some doors kits use this surface for tracks and brackets.

13. After securing the end panel around the doorframes, install the door or doors according to the instructions included with those components.

NOTE: If desired and depending on the application, the bottom portion of the end panel can be pulled under the bottom end wall frame tube and secured to the tube as shown above. Or, as mentioned, the bottom edge of the end panel can be allowed to run along the end wall to help direct runoff away from the building.

14. After all doors are installed according to the door manufacturer's instructions, install the main cover.

ATTENTION: Do not pull the end panel flap up and over the end rafters at this time. The flap is pulled in place *after* lacing the main cover to the end rafter.



Main Cover Installation

WARNING: To prevent personal injury and damage to the structure and main cover, **do not** attempt to install the main cover on a windy or stormy day.

Assemble Cover Conduits

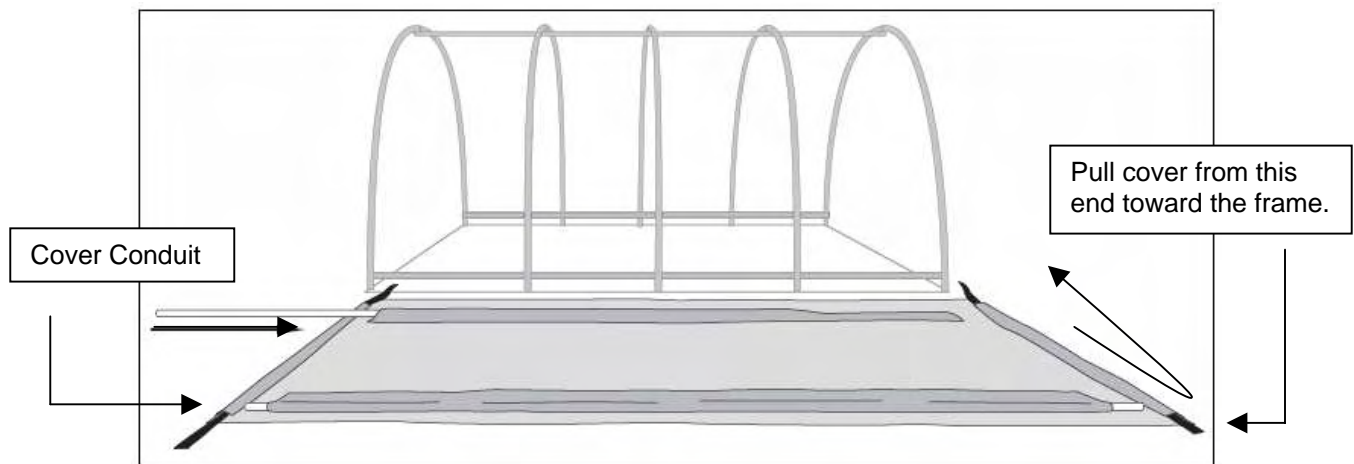
Cover conduits are pipe assemblies that are slid into pockets sewn into the bottom edge of the main cover. These conduit assemblies consist of the following pipes:

1.66" Cover Conduit (Quantity 2): 99" (166S099) Swaged pipe
 XX" (166P0xx) Plain pipe (Use this pipe last to end the run of pipe.)

The X's represent the length needed to reach the end of the cover. Locate the cover conduit pipes and assemble them. The conduits can be assembled at once or in short sections. Secure each joint with a Tek screw and use duct tape to tape the joint and screw to protect the cover.

Install the Main Cover

1. Unpack the main cover and unfold it with the inside surface facing up. (The pockets for the cover conduits should be visible when the cover is unfolded.) See the example below.
2. Locate the ends of the main cover with the strapping and align the ends with the front and back of the frame assembly.



Frame shown is to illustrate the location of the cover during installation.

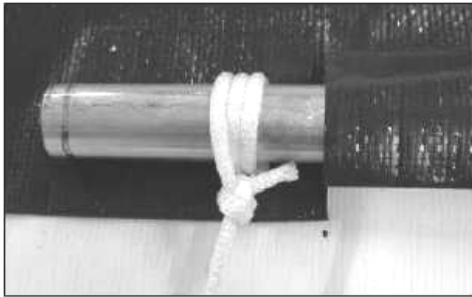
3. Slide one of the 1.66" cover conduits into the hem opening and repeat this step using the other 1.66" cover conduit and the remaining hem opening. Remember to secure the conduit joints with a Tek screw and to tape the joint with duct tape.
4. Grasp each end of the cover conduit and carry the main cover toward the frame assembly and place on the ground along the frame side.

ATTENTION: Do not use the black straps in the main cover to pull the cover into position. They will pull out of the cover hem and must be rethreaded to properly secure the cover.

5. With the cover in position near the edge of the frame, attach ropes to both ends of the cover conduit.

NOTE: For long shelters, attaching ropes at every rafter position where a ratchet is located is recommended. If needed, a small slit can be made on the inside of the sleeve that holds the conduit, which will allow the use of

additional ropes. This slit can be used later when the straps for the ratchets are installed. **DO NOT cut through to the outside of the main cover.** Cut only the sleeve in which the conduit rests.



6. With all ropes tied securely to the conduit, toss the free ends over the frame assembly and pull the cover over the assembly and into place.

NOTE: Use lifts and additional assistants (if needed) to help pull the cover up and over the frame.

7. Once in place, center the main cover on the frame. Center the cover side-to-side and end-to-end.

WARNING: To prevent damage and injury, do not leave the cover unattended if it has not been properly secured. The ropes can be used to temporarily keep the cover from blowing off the frame.

8. Along the sides, lift the main cover skirt, locate the QH1065 ratchets attached to the rafters, and make a slit in the cover conduit sleeve at these locations.



NOTE: If ropes were used at these locations when the main cover was pulled in place, a slit may already be present.

9. Select one of the 5' tie down straps that shipped with the building and insert one end of the strap through the sleeve opening, around the cover conduit, and back through the opening.
10. Feed both ends of the strap through the slot in the ratchet and tighten slightly.

Photo shows a different shelter with a similar ratchet and cover design. The procedures to secure the main cover are identical despite the differences in the frame assembly.



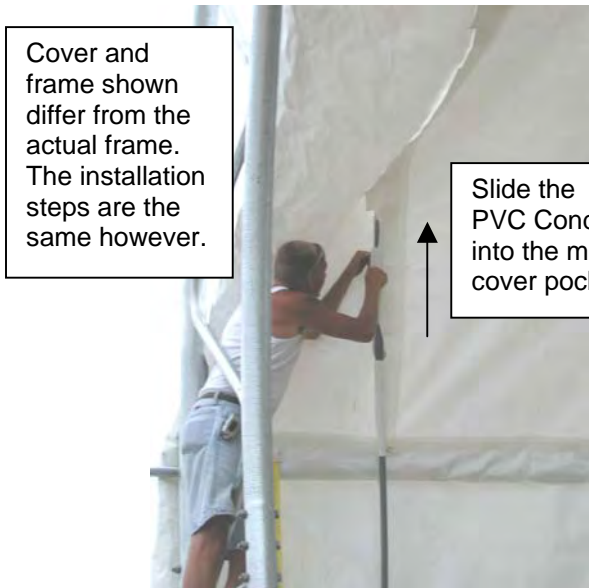
NOTE: Do not fully tighten the strap at this time.

11. Repeat Steps 9 and 10 for the remaining straps.
12. After all side security straps are in place and slightly tightened and the cover is centered evenly on the frame, complete the following steps to install the PVC cover conduit as described in the following procedure.

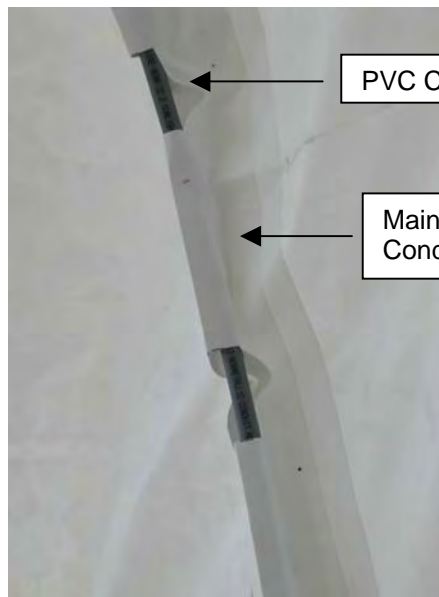
Installing the Main Cover PVC Conduit and Tightening the Main Cover

To better secure the main cover on longer buildings, PVC conduits are used near the ends of the cover to provide an additional tie-down position. Complete these steps to assemble and install the PVC conduits.

1. With the main cover in position on the frame, locate the pocket for the PVC conduit near the end of the main cover and insert one length of the PVC pipe (smooth end first).
2. Select another piece of PVC, feed it into the pocket of the main cover and into the bell end of the first piece of PVC. Use duct tape (or PVC glue—not provided) to secure each PVC joint.
3. Continue feeding the PVC conduit into the cover pocket in this pattern until the PVC conduit is completely assembled and inserted for one end of the shelter. Repeat these steps for the other end of the main cover.

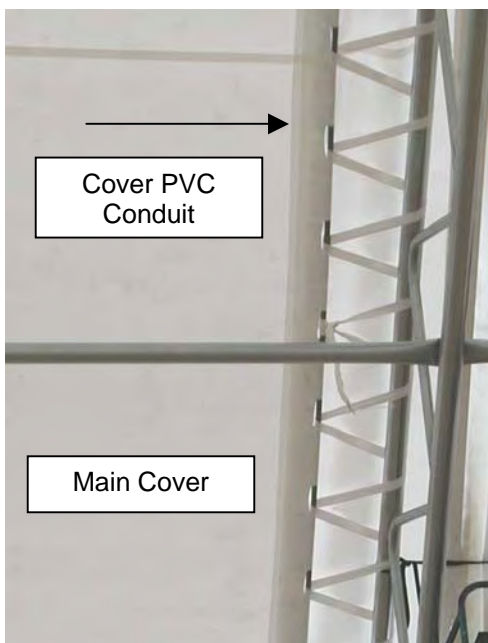


Slide the PVC Conduit into the main cover pocket.



4. Once the conduits are assembled and installed, fold the main cover bonnet back to expose the end rafter.
5. Using the 1" strapping provided, start at the base of the building and lace the strap around the PVC conduit that shows through the open notches of the main cover and tie the strap end to the rafter.
6. From this point, lace the strap as shown below and work up and around the end rafter.

Do not fully tighten the end strapping until the straps for both ends are in place.



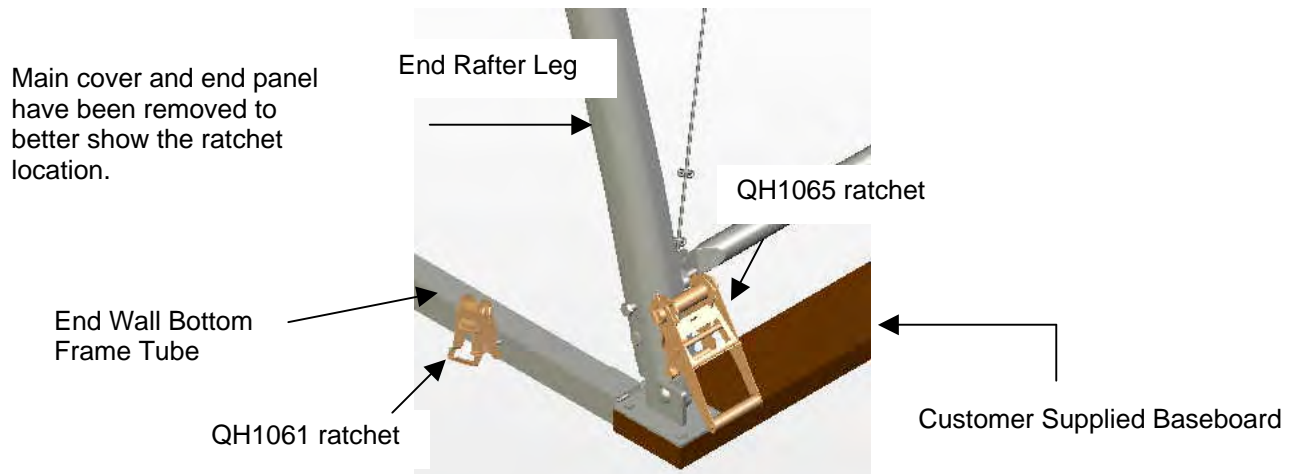
View to the left shows the main cover as seen from inside the shelter.

Frame shown differs from your shelter. The steps to secure the cover are similar however.

7. Repeat the steps to lace the strap for the remaining end of the main cover.

NOTE: When fully laced, the PVC conduit should be even and run parallel with the rafter at both ends of the building.

8. Tighten the straps for both PVC conduits. Keep the cover (and straps) even as the straps are tightened.
9. Pull the main cover bonnet back into position and over the end rafters.
10. Take two QH1061 ratchets, measure approximately 6" in from the end rafter legs along the bottom frame member of the end wall framing and attach the ratchets to the bottom frame member as shown.



NOTE: Install the QH1061 ratchet so it lines up with the strap in the bonnet of the main cover.

11. Repeat the steps to install the QH1061 ratchets to the remaining end of the building.
12. With all ratchets installed, insert the bonnet straps into the QH1061 ratchets and tighten slightly. If strap buildup in the ratchet is too great, loosen the strap and trim off the excess as needed and retighten.
13. Move to the top of the end rafter and tuck the *end panel flap* over the top of the end rafter at both ends. The end panel is tucked between the rafter and the main cover.

NOTE: This flap can be secured in place by using Tek screws and neo-bonded washers. Attach the screws to the backside of the end rafter so it does not touch the main cover.

14. Move to the side QH1065 ratchets and tighten and stretch the main cover.

TIP: For easier tightening of the main cover and to get a uniform appearance, multiple individuals can be used to complete this procedure.

15. After the cover is properly tightened and secured along the sides, return to the QH1061 ratchets at the end and tighten the bonnet of the main cover.

16. Read the Care and Maintenance information that follows.





Care and Maintenance

Proper care and maintenance of your ClearSpan™ building helps to ensure years of service. The following items identify areas that must be periodically checked to ensure that your building is maintained properly:

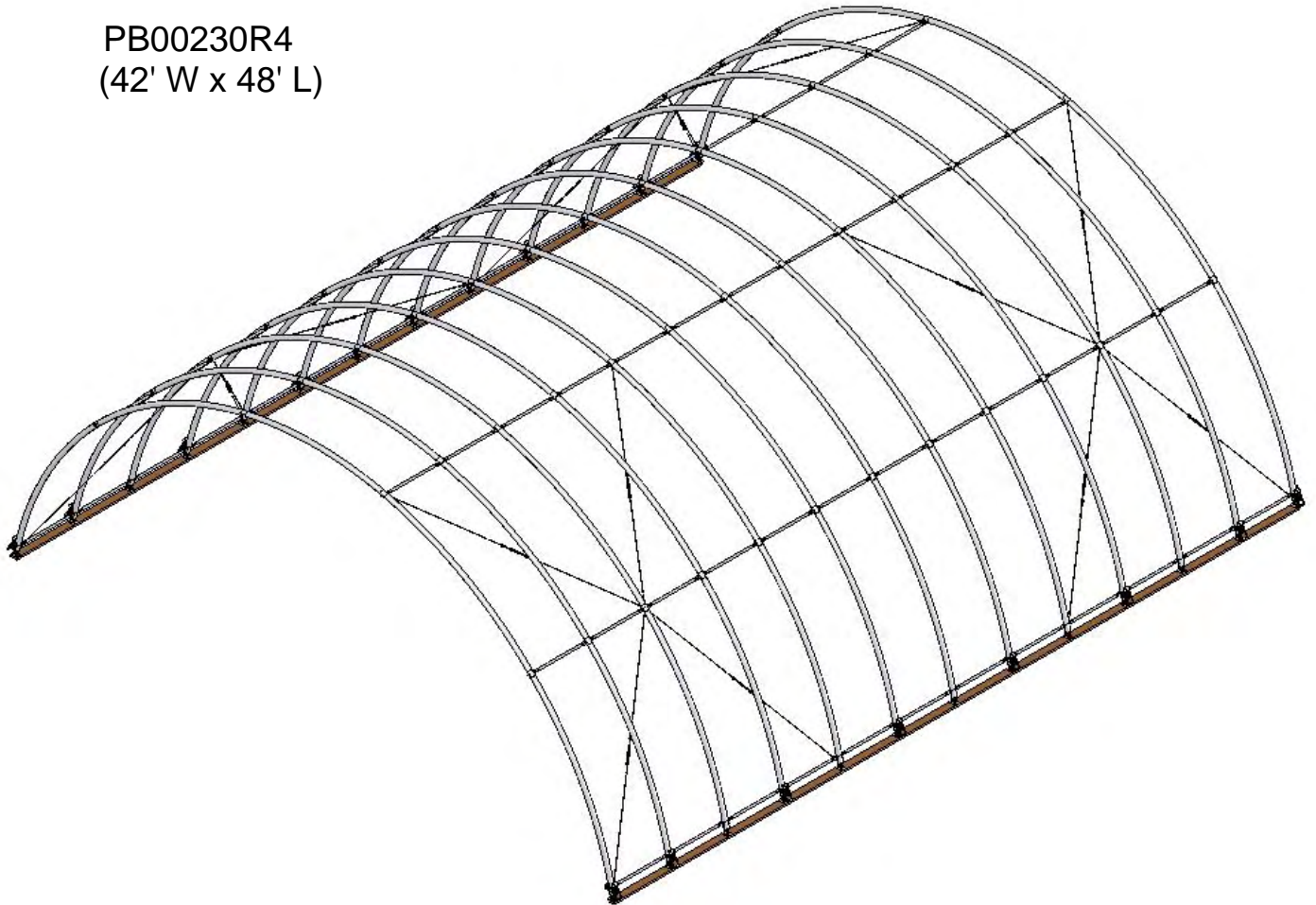
- Regularly check the cover to see that it is tight and in proper repair. Tighten and adjust the tension as needed to prevent damage and wear.
- Check the cable turnbuckles and cable clamps to see that these remain tight. Tighten as needed. Check the cable to verify that it is not worn or wearing on a frame member.
- Check connections and all fasteners to verify that they remain tight.
- Do not climb or stand on the building at anytime.
- Remove debris and objects that can 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.
- Check the contents of the shelter to verify that nothing is touching the cover that could cause damage.
- If the shelter is moved, inspect all parts and connections before using.
- Depending on the contents, construction of the shelter, shelter materials, and shelter location, the potential for condensation exists. ClearSpan™ offers several items that can be used to alleviate a condensation condition. Please contact a ClearSpan™ representative for additional information.
- 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.

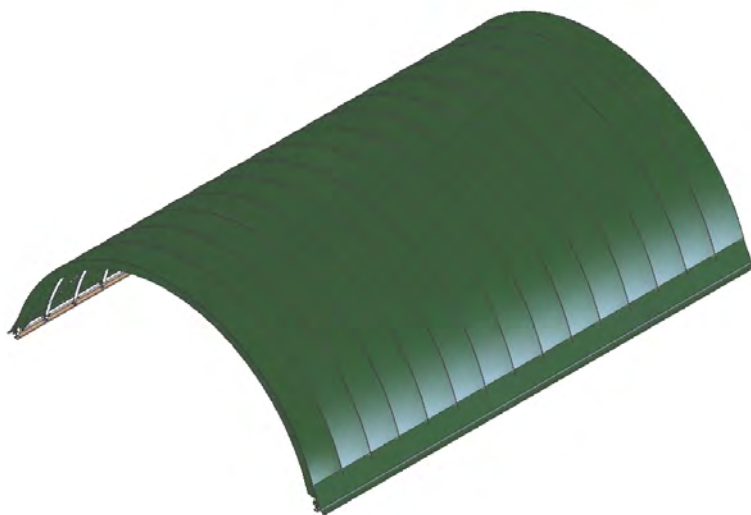
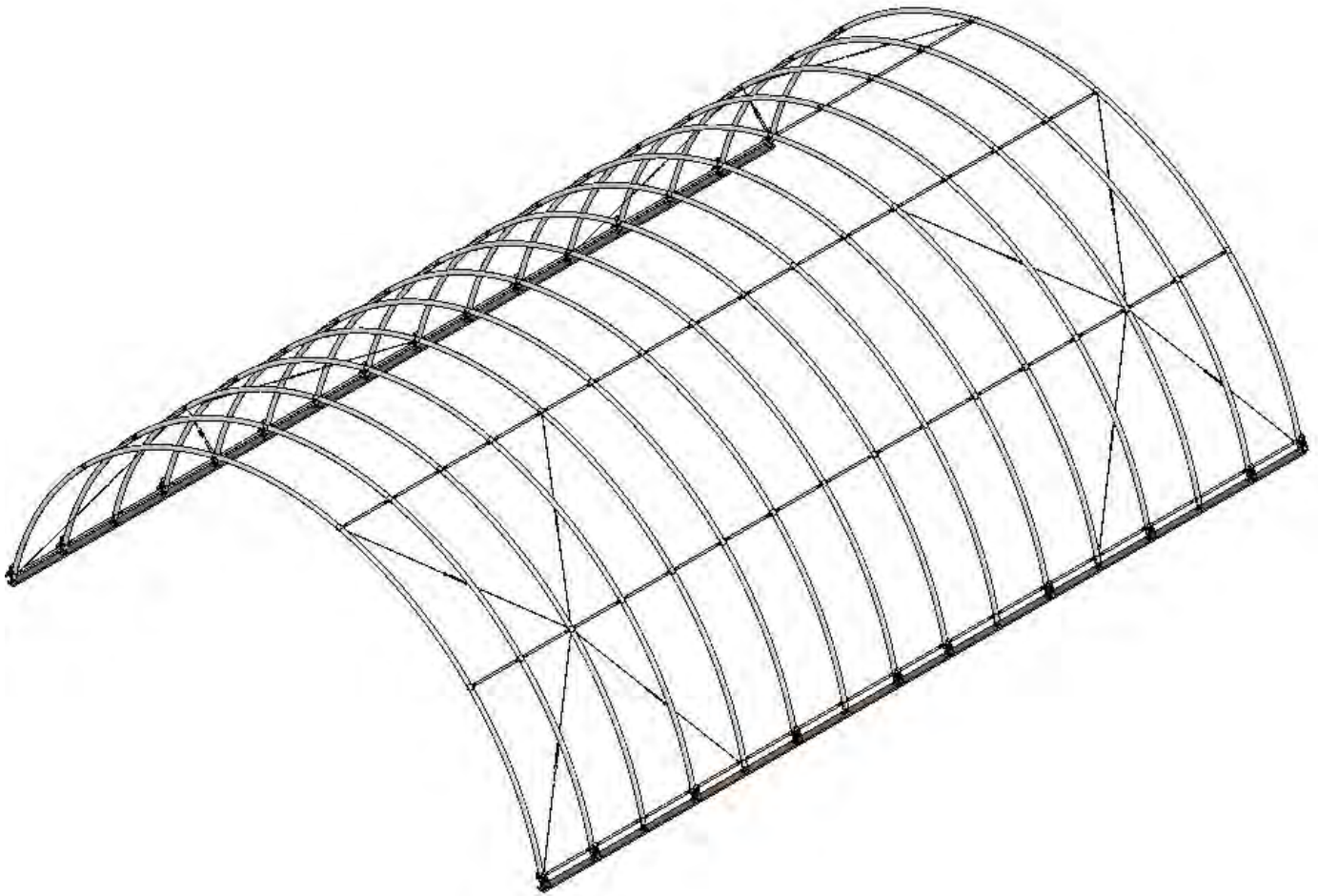
Storage Master SolarGuard™: All Frame Diagrams

(End Wall Frame is not shown.)

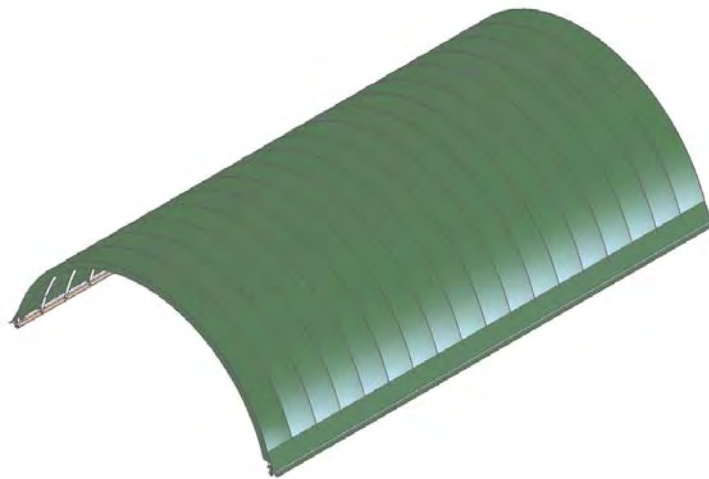
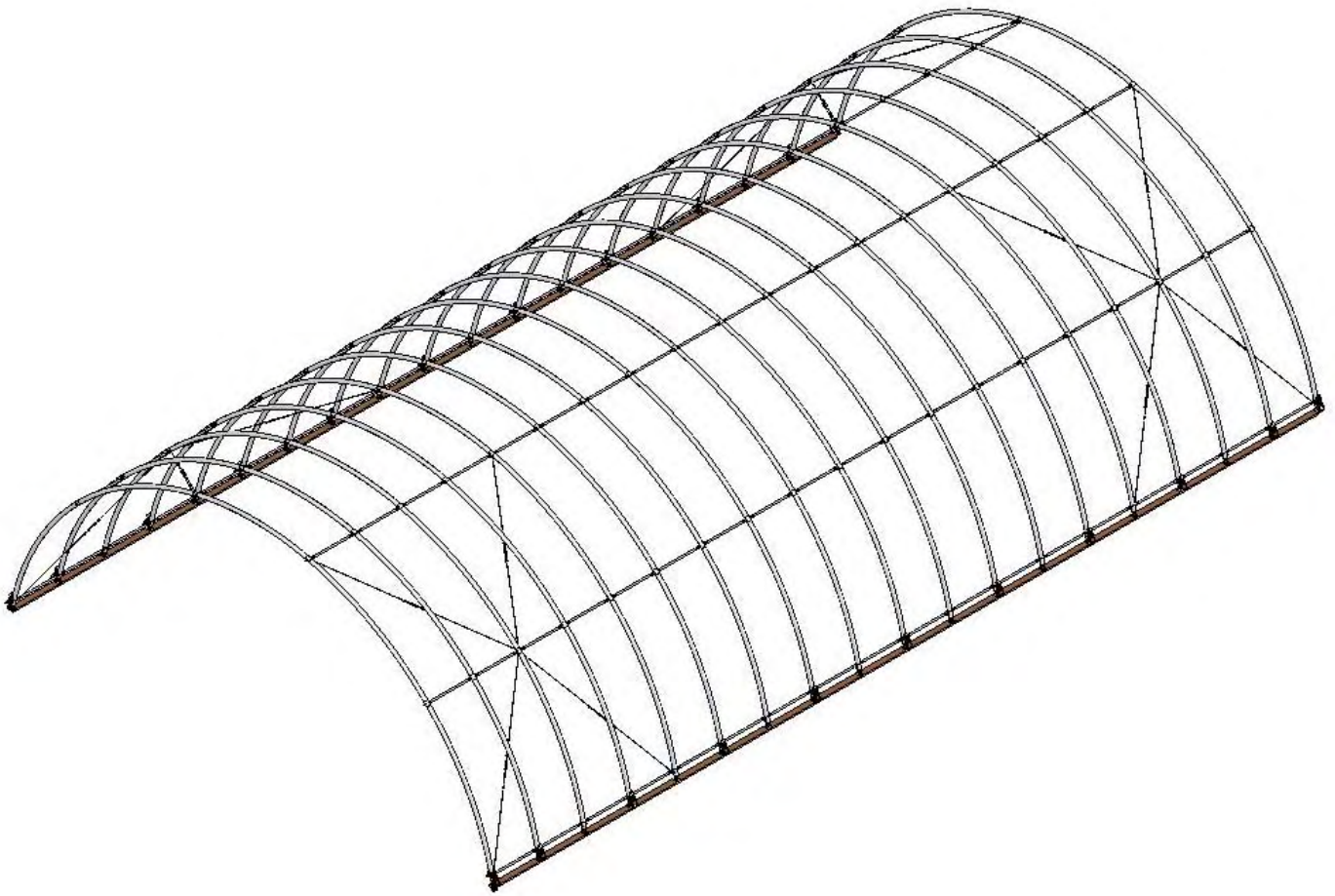
PB00230R4
(42' W x 48' L)



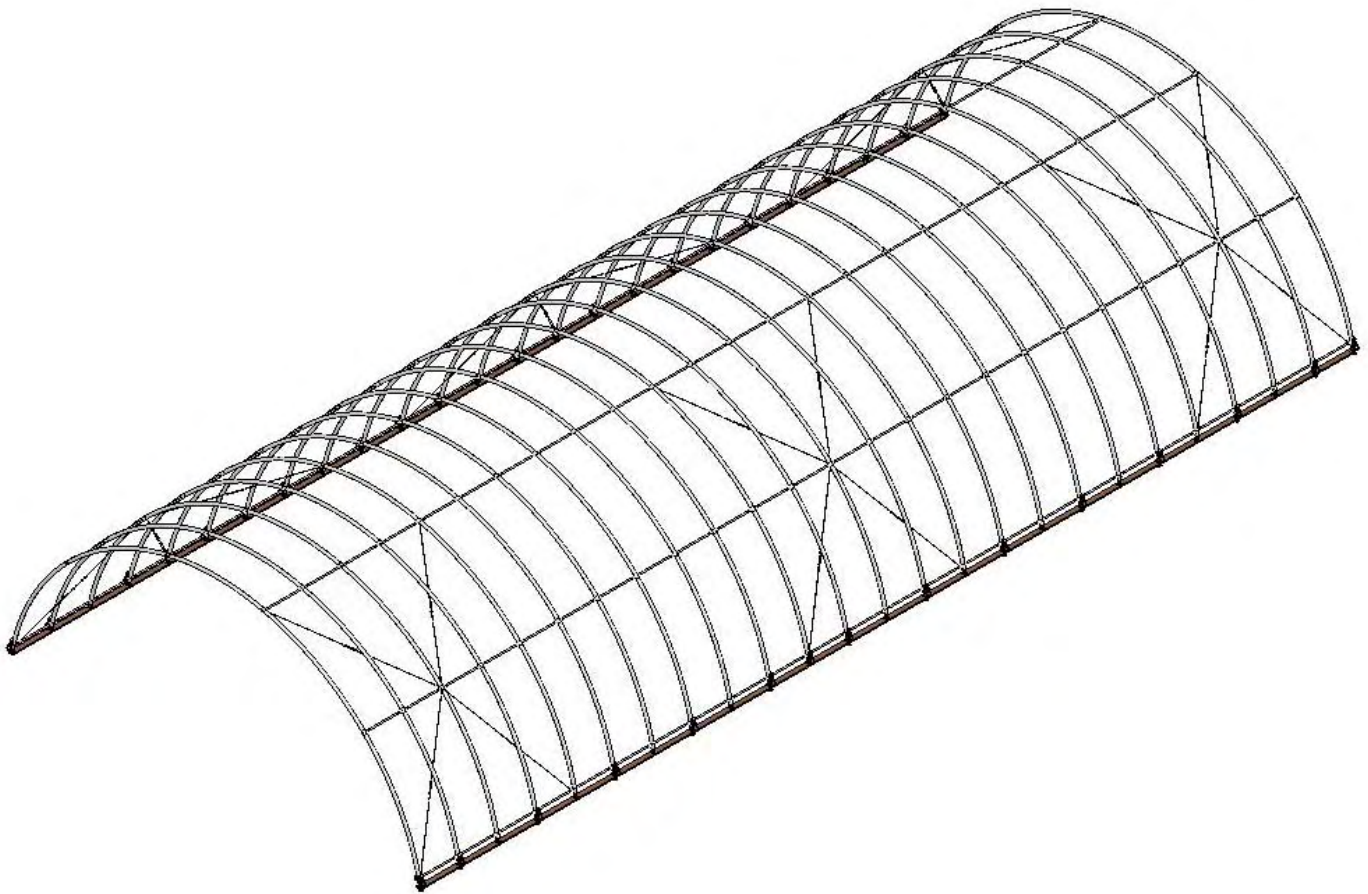
PB00232R4
(42' W x 60' L)

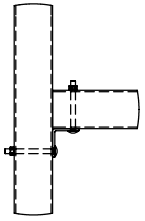


PB00234R4
(42' W x 72' L)



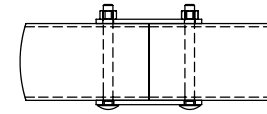
PB00236R4
(42' W x 96' L)



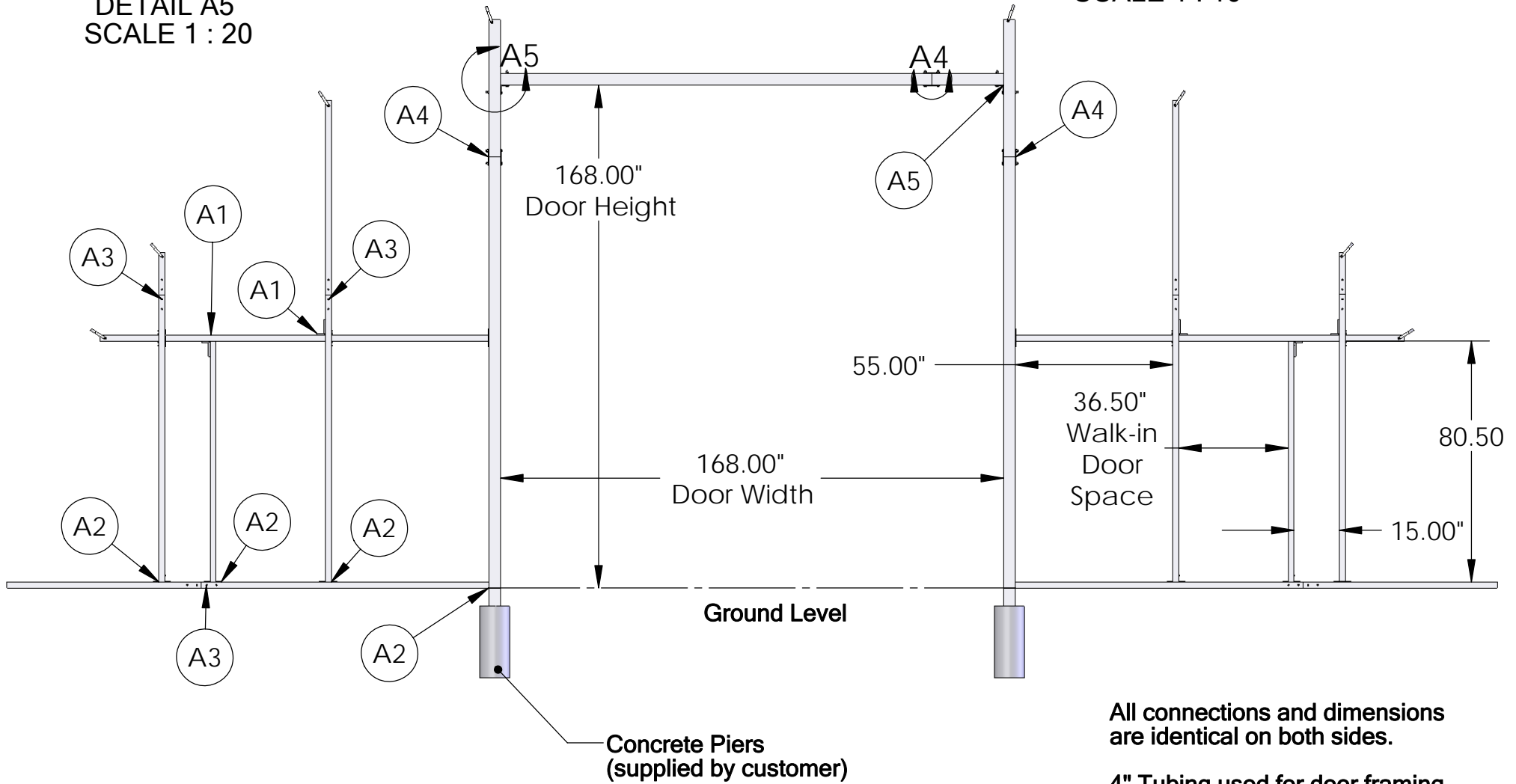


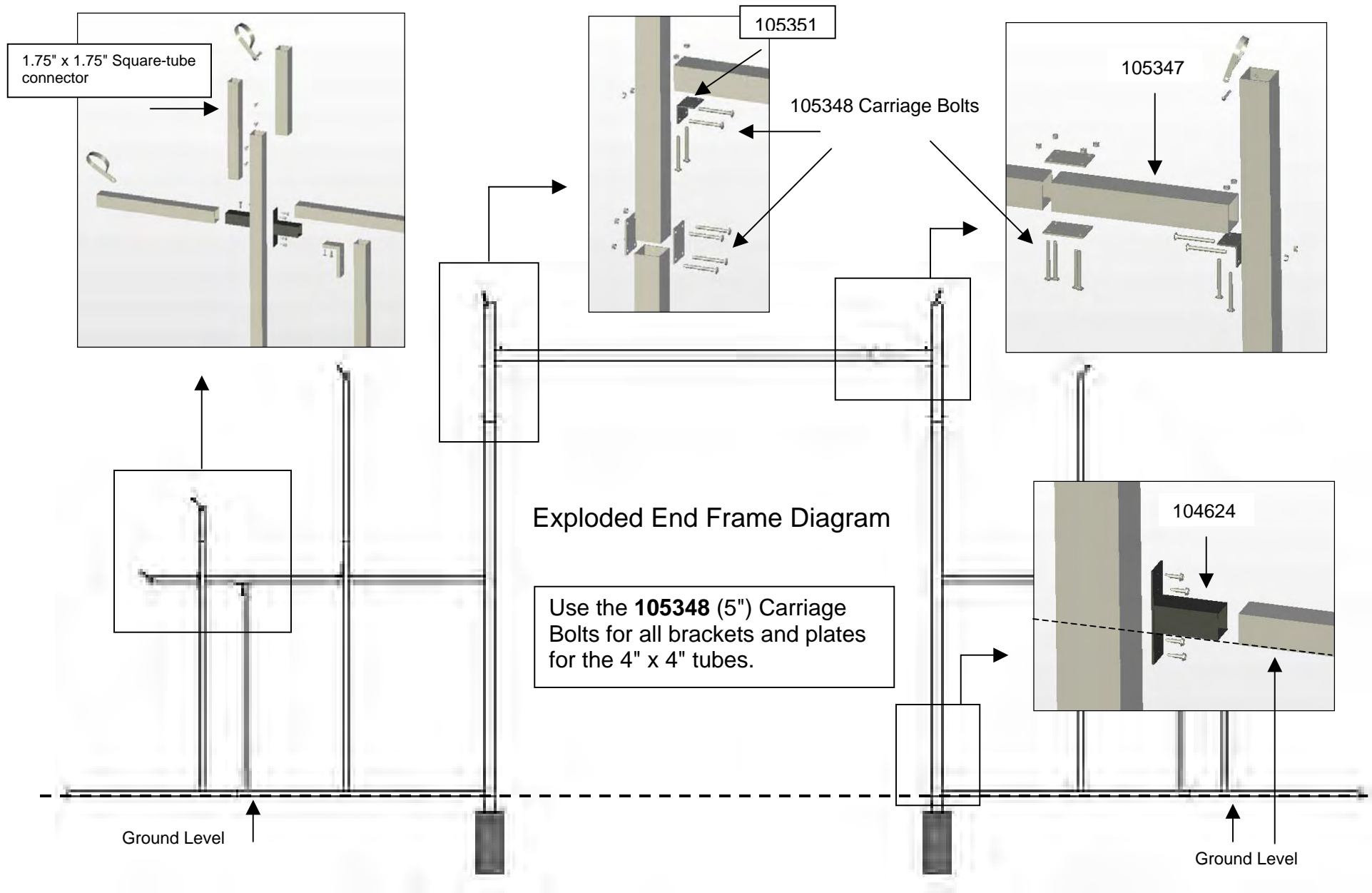
DETAIL A5
SCALE 1 : 20

- A1 = QH1330 bracket
- A2 = 104624 connector
- A3 = 1.75" sq. tube connector
- A4 = 105243 4" plate
- A5 = 105351 4" bracket



DETAIL A4
SCALE 1 : 10





End Wall Diagram: Special Notes

42' Wide End Wall

The conduit in the center vertical pocket of the end panel is secured to the vertical frame tube.

When no door is installed in the end wall, additional frame members are attached in the opening.

Use QH1330 brackets to install the frame members. These frame members can be removed if a door is installed later.

