

ClearSpan™ End Frame Kit 20' Wide x 16' High

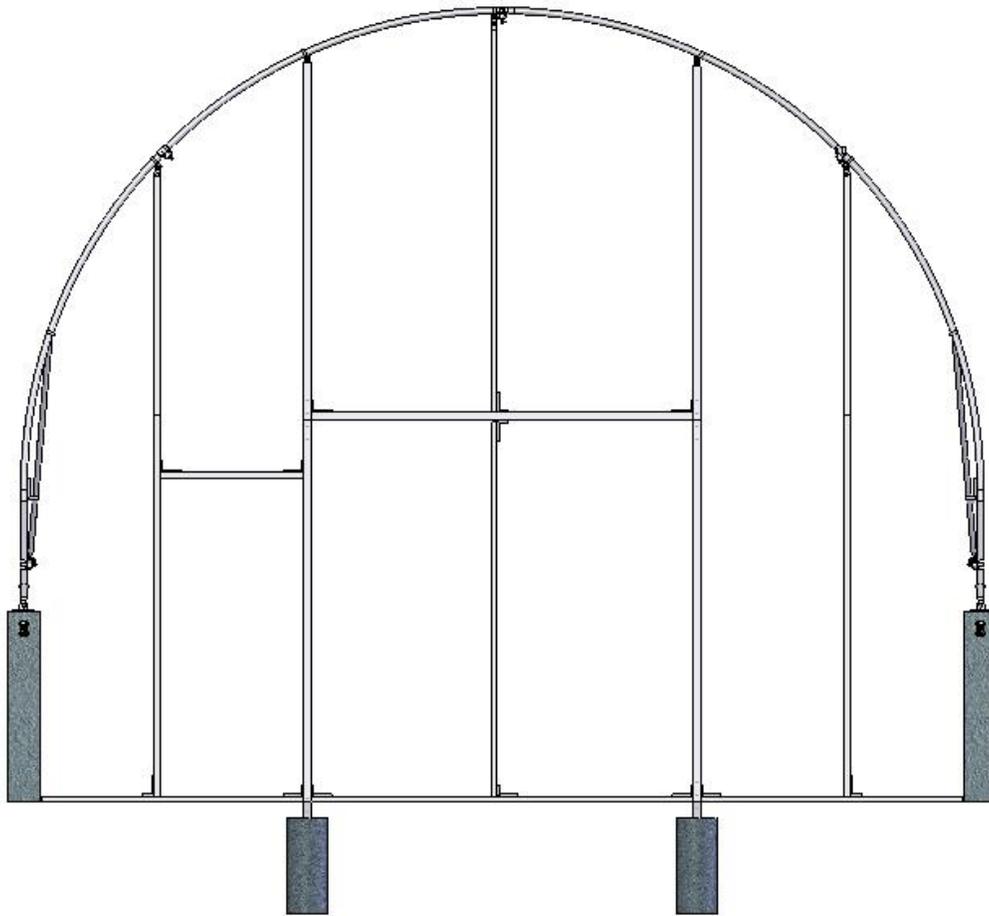


Diagram shows the end frame kit for an end wall without a door. (Door and end panel are purchased separately.) Rafter and struts shown in the above diagram are not included with kit.

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STK#	End Frame Kit
106627	

Revision date: 09.13.10



YOU MUST READ THIS DOCUMENT BEFORE YOU BEGIN TO ASSEMBLE THE END WALL KIT.

Thank you for purchasing this ClearSpan™ End Frame Kit. 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 end wall. 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.

⚠ WARNING: The individuals assembling this end frame 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 PROCEDURE

Following the instructions as presented will help ensure the proper assembly of your end wall. 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 end wall.
3. Gather the tools, bracing, ladders (and lifts), and assistance needed to assemble the end frame.
4. Check the weather **before** you install the end frame panel (if equipped). *Do not install end panels on a windy or stormy day.*
5. Assemble the end wall frame.
6. Read the care and maintenance information at the end of these instructions.
7. Complete and return all warranty information as instructed (if included).

REQUIRED TOOLS

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

- Tape measure or measuring device
- Fine point marker to mark the location on tubing.
- Variable speed drill and impact driver (cordless with extra batteries works best)
- Metal file and metal-cutting saw
- Wrenches and impact socket set
- Scissors or utility knife
- Hammers, gloves and eye protection
- Adjustable pliers and self-locking pliers
- Ladders, work platforms, and other machinery for lifting designed to work safely at the height of the building and end wall.

ATTENTION: Consult the services of a qualified, professional contractor if you are not familiar with the construction of similar frame structures.

UNPACK AND IDENTIFY PARTS

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

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 parts guide on the next page and all shelter diagrams for clarification, or contact customer service.

NOTE: At this time, you do not need to open the plastic bags containing smaller parts such as fasteners and clamps.



Space below is reserved for customer notes.

QUICK START GUIDE

For a quick overview of the end wall and its components, consult the Quick Start Guide at the back of these instructions.

Optional End Panel Installation (additional purchase)

In addition to the end frame installation steps, these instructions describe installing an optional end panel. (Additional purchase required.)

The components used to install the optional end panel are also described and shown during the procedure. Some components may differ from what is shown.

Contact your sale representative to purchase an end panel with end panel installation kit if desired.

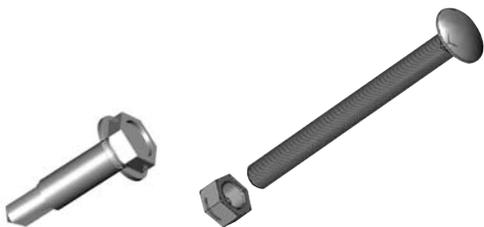
ATTENTION: Some of these instructions may not apply to your end wall and shelter. It is the customer's or contractor's responsibility to adapt these instructions as needed during the construction process.

These end wall kits are designed to attach to buildings with a specific rafter pipe dimension. Differences in pipe dimensions may require the purchase of additional components. If you are securing the end frame kit to an existing structure, verify that you have the required clamps to complete the installation. May not apply to your building.

CLEARSPAN™ END WALL FRAMING KITS

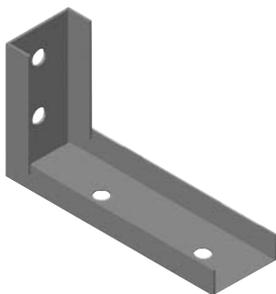


The following graphics and photos will help you identify the different parts. (Some parts are not shown.)

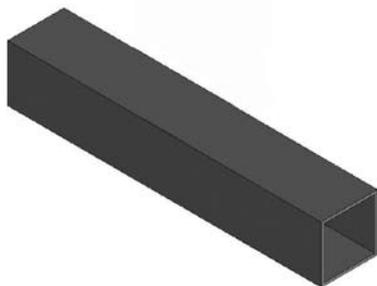


FA4482B
Tek Screw

FALB32B & FAH320B
Nut and Carriage Bolt



QH1330
Angled Bracket



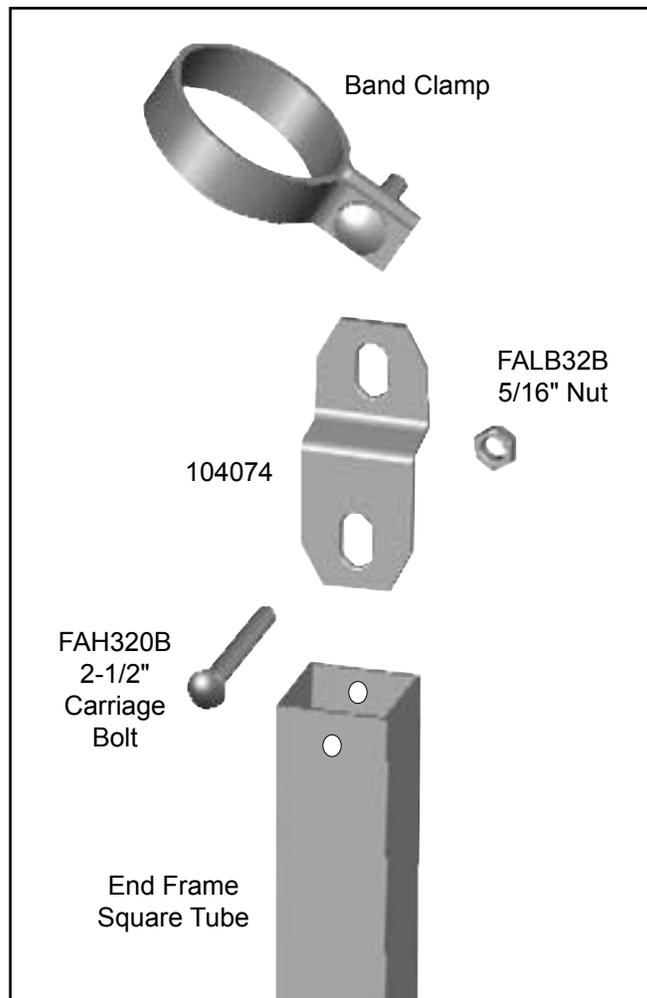
104075
1.75" x 1.75" Square Tube



CC6213
Fabric Clip



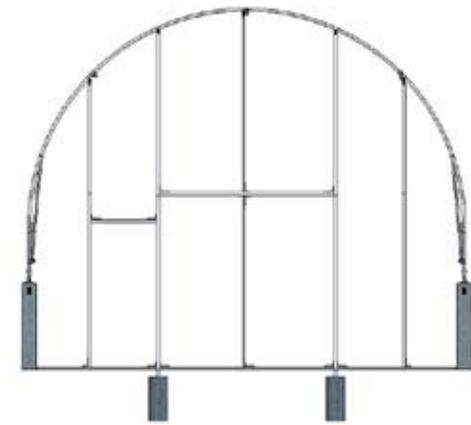
104074
Square-to-Round Tube
Bracket



End Frame-to-Rafter Exploded View

ClearSpan™ End Frame Kit

ATTENTION: End frame spacing depends on the door sizes and may differ from what is shown in these diagrams. Consult the Front Profile diagrams in the Quick Start section for pipe identifications and locations.

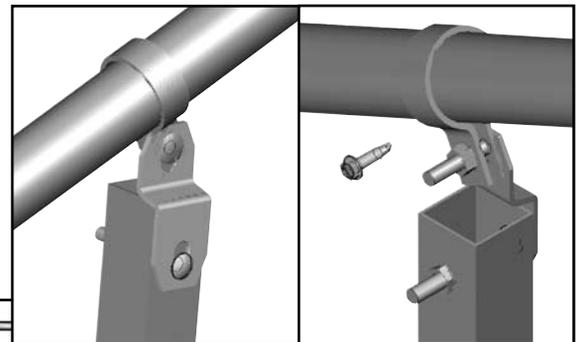


OVERVIEW

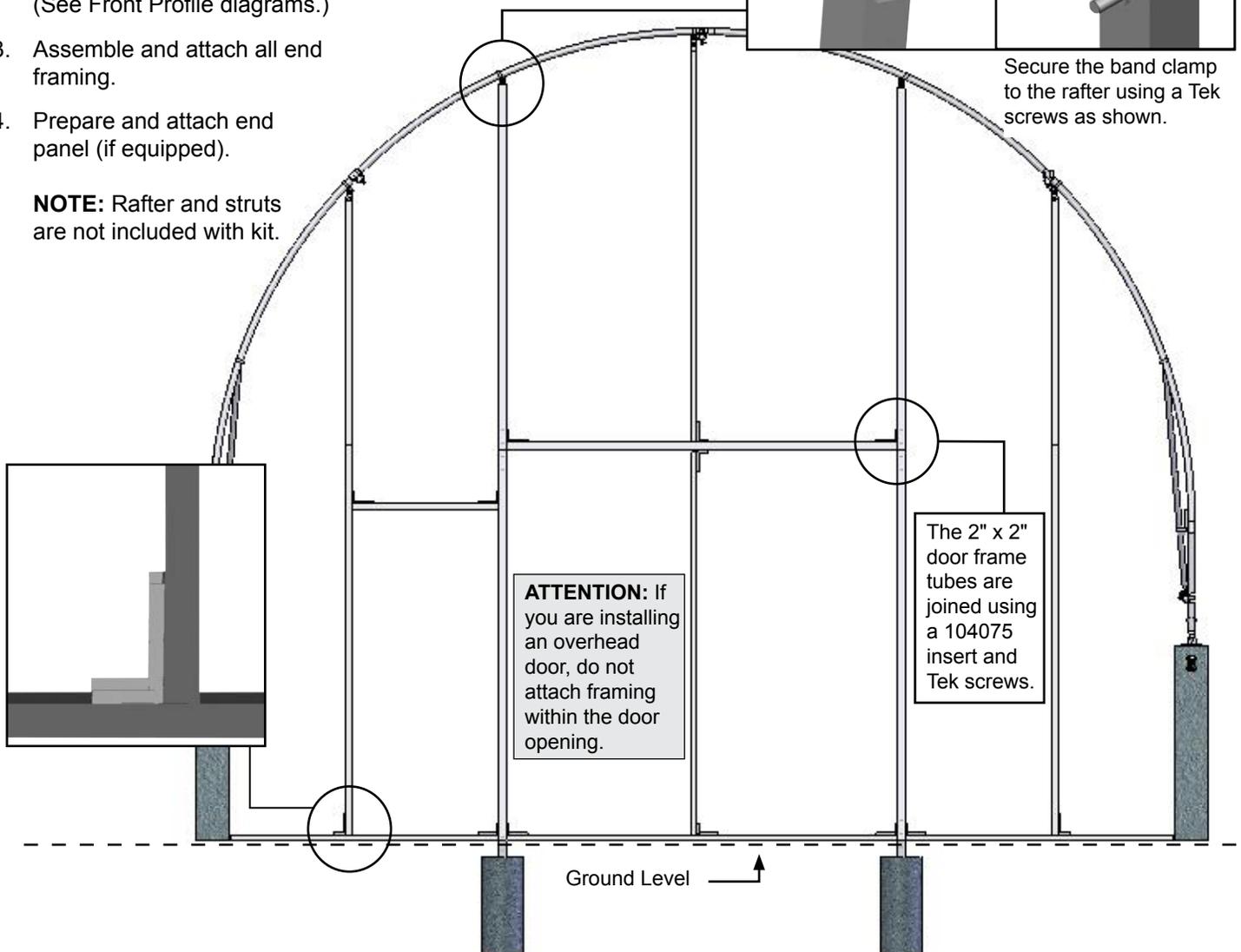
This section describes assembling your end frame kit. For details, please see section "Assembling the End Frame Kit Components." See illustration below to identify main parts of end frame kit.

1. Locate the required parts for each assembly procedure.
2. Prepare and secure posts for the door framing.
(See Front Profile diagrams.)
3. Assemble and attach all end framing.
4. Prepare and attach end panel (if equipped).

NOTE: Rafter and struts are not included with kit.



Secure the band clamp to the rafter using a Tek screws as shown.



CLEARSPAN™ END WALL FRAMING KITS

ASSEMBLING THE END FRAME KIT COMPONENTS

Consult the end wall diagrams in the Quick Start section of these instructions *before* you begin.

ATTENTION: If the main cover is installed, loosen the two (2) main cover bonnet ratchets at the end of the shelter where the end wall will be installed. If an end panel is to be installed, remove the ratchets to install the end panel frame. The ratchets are reattached *after* the end frame is installed.

Assistance is required to assemble the end wall. Lifts designed to reach the top of the end rafter are also needed. *Consult a qualified construction professional if you are not familiar with the construction of similar frame structures.*

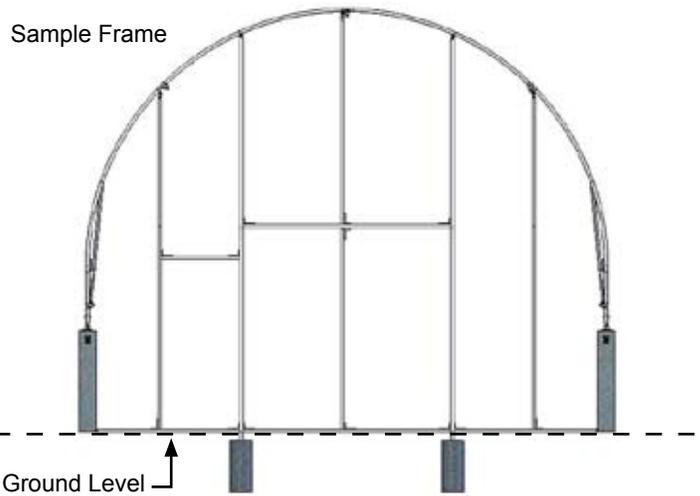
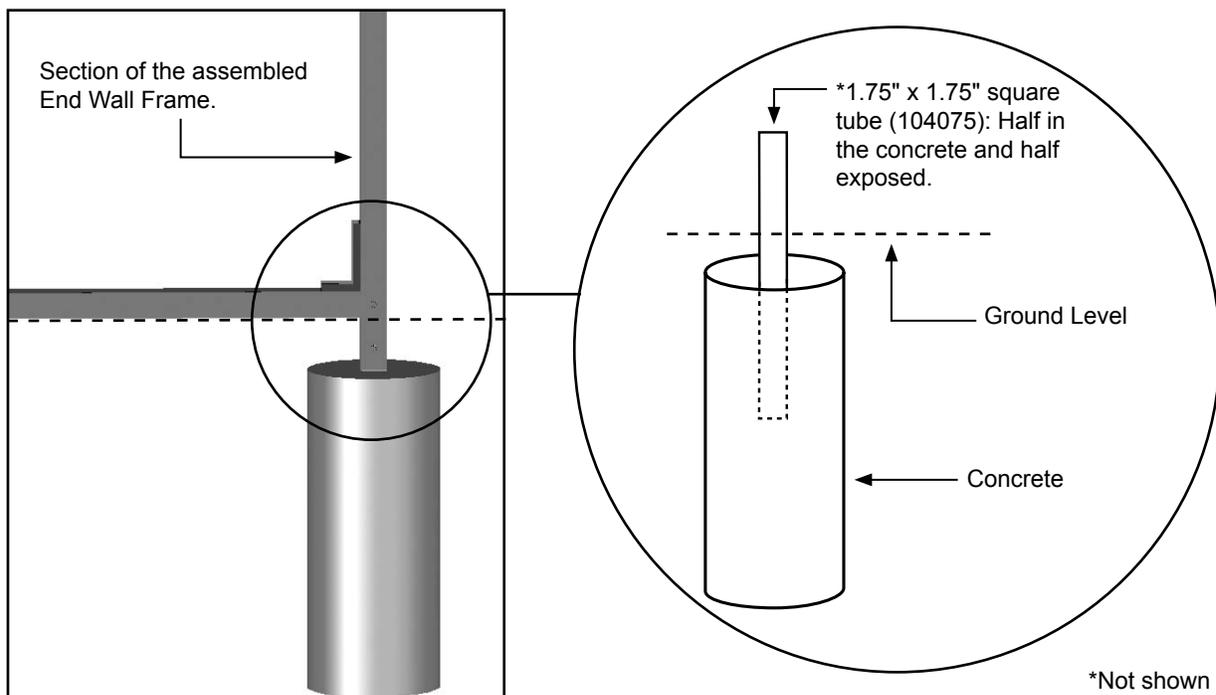
Install the Ground Posts for Door Frame (Jambs)

The following steps describe one way to set the ground posts for the door frame tubes.

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 as well.

NOTE: Marking the center of the end wall allows multiple measurements to be made as needed.

2. Using the dimensions on the Front Profile diagrams, locate the positions of the *door jambs* for the door (if equipped). The width of the door determines the frame dimensions for the door opening. *Consult the documentation sent with the door for the correct spacing of the door jambs.*
3. Dig a 12" diameter hole *at the locations found in previous step* to a depth that is below the geographic frost line.
4. Add concrete to the hole. Concrete should remain 1" to 2" below ground level so that it does not interfere with construction and installation of other end wall components.
5. Determine the required width of the door (if equipped) and insert one 1.75" x 1.75" square tube (104075) into the concrete approximately 8". See diagram below. Repeat the step and verify that the tubes are plumb and the correct distance apart. *End frame diagrams shown in these instructions may show a door opening with different dimensions.*



ATTENTION: If you are installing an overhead door, do not attach framing within the door opening.

Assemble the End Frame

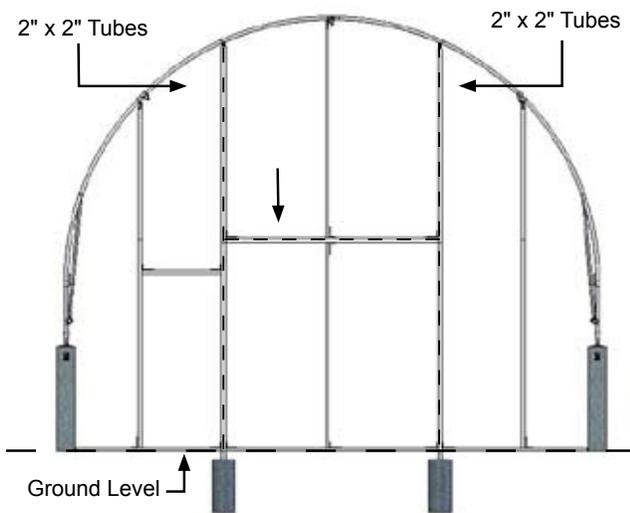
After the ground posts are set, assemble the remainder of the end frame.*

- Angled Bracket (#QH1330)
- Carriage bolts and nuts and Tek screws (#FA4482B)
- Band clamps and 104074 brackets
- 2" x 2" square tube (105328) and 104075 inserts
- 1.5" x 1.5" square tube (end wall frame)

*Refer to the Front Profile diagrams for door framing and hardware. *Diagrams are specific to a 8' x 8' overhead door. Adjust the dimensions as needed to account for different door sizes.*

Complete the following steps:

1. Using the dimensions on the Front Profile diagrams (or for the doors if equipped) and the 2" x 2" square tubing (105328), related hardware, and connectors, assemble the door frame of the end wall. Cut tubes to length as needed.



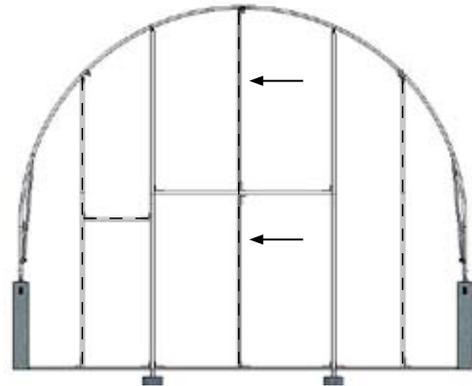
NOTE: The dashed lines above show where to install the 2" x 2" square tubes. Consult the Front Profile diagram to properly position and connect the brackets.

The lower end of each 2" x 2" main door frame vertical slides over a 1.75" x 1.75" ground post set in concrete. Secure the connection by installing Tek screws on the back or inside surface of the verticals.

Splice the joints of the 2" x 2" tubes using a 104075 (1.75" x 1.75") square tube insert for each splice. Install Tek screws to secure each splice.

Do not install Tek screws on surfaces where the end panel (if equipped) or overhead door (if equipped) are positioned. Consult the installation instructions that shipped with the door for additional information.

2. After 2" x 2" door framing is installed, repeat steps to assemble remaining end wall framing using 1.5" x 1.5" square tubing (102897) and the related connectors.



NOTE: The dashed lines identify the remaining end frame members to install. These are the 1.5" x 1.5" square tubes. (Cut tubes to length as needed.)

Secure each tube splice using a Tek screw. Install the screws in a position that will not interfere with the installation of additional end frame components, the end panel (if equipped), or door (if equipped).

Position center vertical between header and peak of end rafter as needed to avoid conflicts with the clamps and main frame components attached to the end rafter. See the Front Profile diagrams for a similar comment.

The end panel (additional purchase required) for this end wall includes a 12" vertical pocket centered in the end panel. If installing this end panel, do not install the center vertical end frame tubes until panel is installed.

The vertical frame tube is slid into a pocket of the end panel *after* the panel is partially installed. This frame tube is then secured to the end frame and end rafter as shown. See the arrows in the above diagram.

If an overhead door (additional purchase required) is to be installed, do not install the center vertical and the base rail *within the framed door opening*.

3. After assembling end wall frame (or frames), inspect frame for sharp edges and bolts that could damage end panel (if equipped) or main cover when it is pulled back into place. Tape over or file the sharp edges as needed.
4. Install the end panel if equipped. *(Additional purchase required for the end panels and doors.)*

NOTE: If you are covering the end frame with something other than an end panel, install that material now and then secure the main cover of the shelter.

ATTENTION: If attaching end framing to a concrete base (optional), skip to the *Attach End Framing to Concrete* section *before* installing end panel (if equipped).

CLEARSPAN™ END WALL FRAMING KITS

END PANEL INSTALLATION (if purchased)

The following procedure describes installing an end panel (additional purchase required). Some steps may not apply to your (or a custom) end panel.

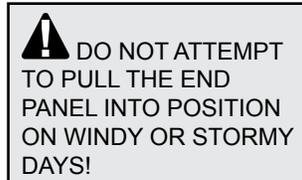
SPECIAL NOTE: Depending on their locations and the main shelter design, the ratchets used to secure the main cover bonnet at the ends of the building may need removed *before* the end panel is installed. These ratchets are reinstalled once the end panel is attached.

If you are installing an overhead door, do not install a base rail between the door jambs.

The end wall shown in the diagrams that follow may differ in design and size. The steps to install the basic end panel are the same despite these obvious differences.

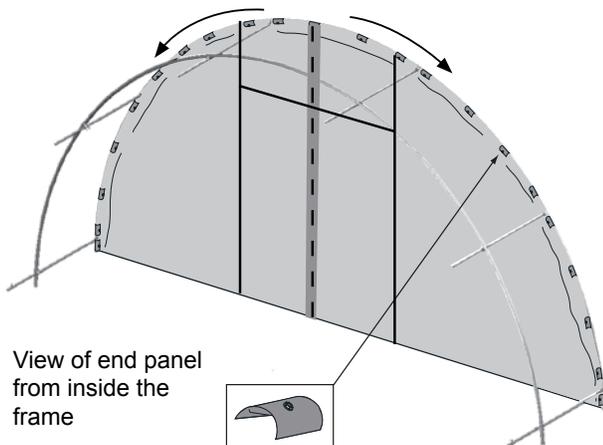
Required parts include:

- End panel and fabric clips
- FA4482B Tek screws
- FAMF01B Washers



Complete these steps to install a typical end panel:

1. Spread the end panel out on the ground (pocket side up) and center the end panel as needed.
2. With the proper lift (or ladders) positioned inside the frame and with assistance, pull the end panel up and over the top of the end rafter.



NOTE: Square the end panel on the end frame and verify that the bottom edge is in line with the base rail.

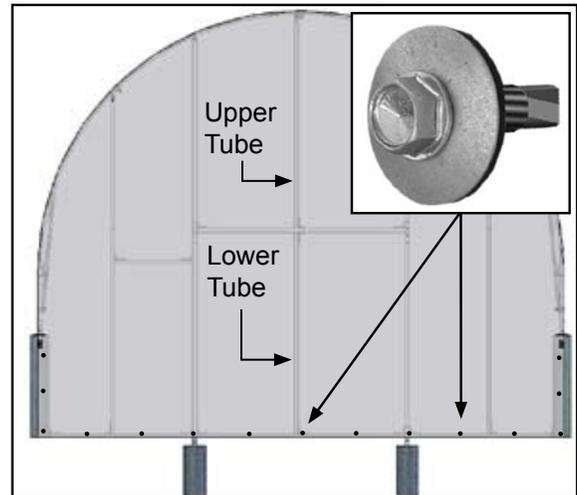
This procedure describes attaching the panel bottom to the base rail using Tek screws and washers (FAMF01B) installed from the outside.

The end panel can also be pulled under and secured to the inside surface of the base rail using the same fasteners. *That installation is not shown.*

3. With the lower edge of the end panel in position, secure the top end of the panel to the backside of the end rafter using a few fabric clips and Tek screws.

NOTE: These fasteners are used to temporarily hold the end panel in place while the lower edge is secured to the base rail.

4. With the top edge temporarily secured to the end rafter, move to the bottom of the panel outside the frame. Stretch and secure the lower panel edge to the base rail using Tek screws and washers.



NOTE: Space the fasteners evenly along the base rail at 16" to 24" intervals.

5. With the panel secured along the bottom, move to the upper edge and install the center end frame verticals in the pocket of the end panel and attach the frame members to the end wall frame. *See the diagram to the left and in the Quick Start section for locations.*

In the diagram (left), the shaded area represents the center pocket of the end panel. Vertical dashed line indicates the location of the end frame members as installed inside the end panel pocket.

NOTE: Trim the pocket material as needed to install the verticals and attach the frame members to the end rafter, header, and base rail. **DO NOT INSTALL THE LOWER TUBE IF YOU ARE INSTALLING AN OVERHEAD DOOR IN THE END WALL.**

6. Loosen the temporary clips (installed in Step 3 above) and stretch the end panel up and over the end rafter.
7. Attach the fabric clips to secure the end panel to the rafter. Evenly space the fabric clips at 24" intervals. *Keep the panel evenly stretched as you go.*

NOTE: Use Tek screws and washers to secure the end panel to the pony wall.

8. Install doors if equipped (additional purchase required) or reattach the bonnet ratchets and main cover.

Cut Door Openings (additional door purchase required)

ATTENTION: For best results and to keep the stretched panel in position, install Tek screws and washers *from the outside* around the door frame to secure the end panel to the door jambs and header. (See dashed lines Fig. 1.) *Do this before cutting the opening in the panel.* If you do not want to install screws through the panel, continue with Step 1.

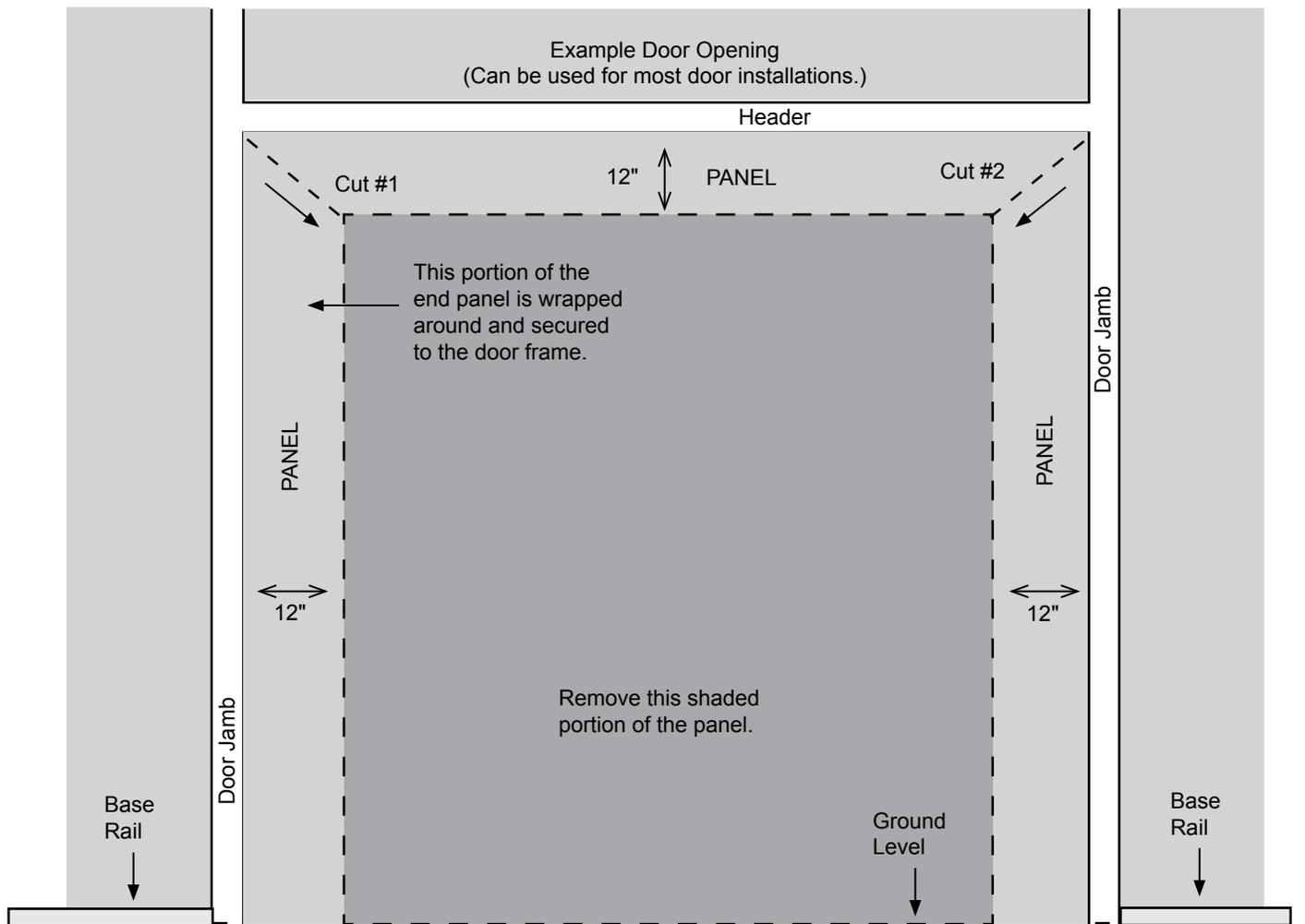
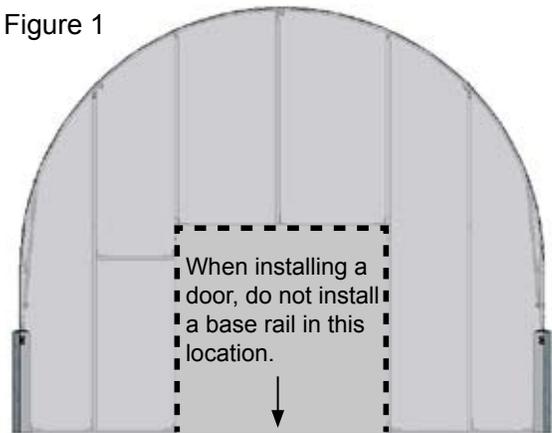
These steps describe one way to cut a door opening:

1. Working from inside the frame, mark a 12" border along the door jambs and below the header. (Consult the diagram below.) These 12" flaps are wrapped around the door framing and secured to the inside of the *door frame* once the final diagonal cuts are made.

NOTE: If a base rail is installed between the door jambs, remove the base rail and continue.

2. Using the diagram as a guide, cut the end panel to remove the section that is shaded.

Figure 1



View above shows the end panel as seen from inside the frame.

3. Make two (2) diagonal cuts in the end panel as shown above (Cut #1 and Cut #2) to create the 12" flaps.
4. Continue with the Secure End Panel to Door Frame instructions that follow.

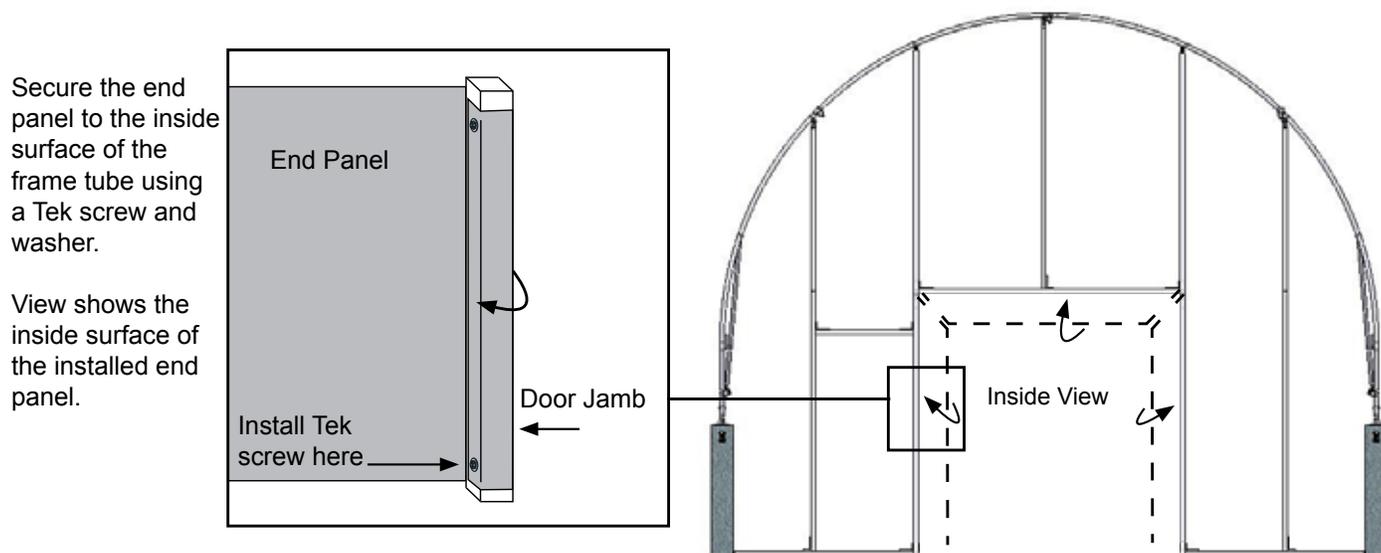
CLEARSPAN™ END WALL FRAMING KITS

Secure the End Panel to the End Frame

The frame shown in the following diagrams may differ from the actual frame. Installation steps are the same.

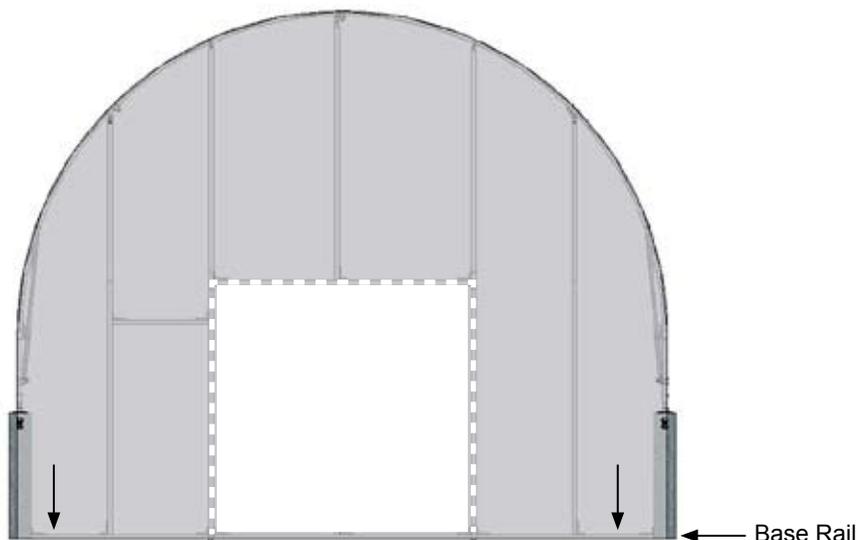
1. With door openings cut, secure the end panel to the door frame using Tek screws and washers. See diagram below.

NOTE: For the exposed corners of the door frame that remain, cut out a 16" x 16" piece of material *from the scrap end panel material* and secure the piece to the exposed corners using Tek screws and washers (if desired).



ATTENTION: *DO NOT* secure the end panel to the inside or backside of the door frame tubes. Some doors kits use this surface for tracks and brackets. Check the instructions that shipped with the door for additional details.

2. Repeat the steps to install the end wall and end panel for the remaining end of the building if equipped.



3. Install the door or doors according to the instructions included with those components.
4. After doors are installed according to the door manufacturer's instructions, reattach the bonnet ratchets and cover.

NOTE: The arrows in the above diagram shows where to reattach the end ratchets to secure the bonnet of the main cover. The ratchets are typically reattached through the end panel and to the end wall base rail. Pull the main cover bonnet back over the end rafter and use the bonnet straps as a guide to properly position each ratchet.

ATTENTION: If attaching ratchets to a concrete base (optional), skip to the *Attach Ratchets to Concrete* section on the following page.

5. Read the care and maintenance information that follows.

ATTACH END FRAME TO CONCRETE (optional)

Additional materials required to secure the end frame base rail or rails to the concrete base are not included and must be purchased by customer. Materials and frame shown in the following diagrams may differ from actual purchases.

Use the following information to determine the size of the anchor bolt that best applies to your purchase.

Length of Anchor Bolt equals (=):
 Thickness of material to be fastened
 +plus minimum embedment (see manufacturer recommendation)
 +plus 1" for nut and washer application.

1. Verify base rail is in the correct position. Determine where to install the first customer-supplied wedge anchor bolt. Drill a hole through both the base rail and concrete base according to the anchor bolt size.



IMPORTANT: DO NOT over-drill hole. Wedge anchor bolt will not work properly if hole is too deep.

2. Insert anchor bolt into drilled hole. Firmly tap with a hammer to secure wedge anchor into concrete.



NOTE: Depending on wedge anchor bolt, verify that the washer and securing nut are attached *before* driving the anchor bolt into concrete. Striking bolt may cause thread damage and prevent the nut installation.

3. Tighten the nut.



4. Repeat for each anchor bolt until base rail or rails are adequately secured to the concrete base.

NOTE: Evenly space each anchor bolt approximately every 4' or so.

ATTACH RATCHETS TO CONCRETE (optional)

Additional materials required to secure ratchets to a concrete base are not included and must be purchased by customer. Materials and frame shown in the following diagrams may differ from actual purchases.

Consult the boxed information to the left to determine the size of the anchor bolt that best applies to your purchase.

1. Determine where the first ratchet will be attached and drill the mounting hole according to the anchor bolt size.



NOTE: Hole needs to be deep enough that the anchor bolt will not interfere with ratchet operation.

2. With ratchet in the open position, insert anchor bolt through ratchet hole and into mounting hole. Firmly tap with a hammer to secure wedge anchor into concrete.



NOTE: Depending on wedge anchor bolt, verify that the washer and securing nut are attached *before* driving the anchor bolt into concrete. Striking bolt may cause thread damage and prevent the nut installation.

3. Tighten the nut.
4. Test ratchet operation. Cut excess if needed.
5. Repeat for each ratchet.

CLEARSPAN™ END WALL FRAMING KITS

SHELTER CARE AND MAINTENANCE

Proper care and maintenance of your ClearSpan™ building is important. Check the following items periodically to properly maintain your building:



Space below is reserved for customer notes.

- Regularly check 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 (if equipped). Tighten as needed.
- Check the cable (if equipped) to verify that it is not worn or wearing on a frame member.
- Frequently check the anchoring system and all components. Replace worn or damaged parts immediately.
- Check all fasteners frequently to verify that these remain tight and in good repair.
- Do not climb or stand on the building or frame at anytime.
- Remove debris and objects that may 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 main cover or to remain against the sides or end panels after it is removed from the main cover.*
- Check the contents of the shelter to verify that nothing is touching the cover or panels (if equipped) that could cause damage.
- Replace all worn or damaged parts.
- For replacement or missing parts, call 1-800-245-9881 for assistance.

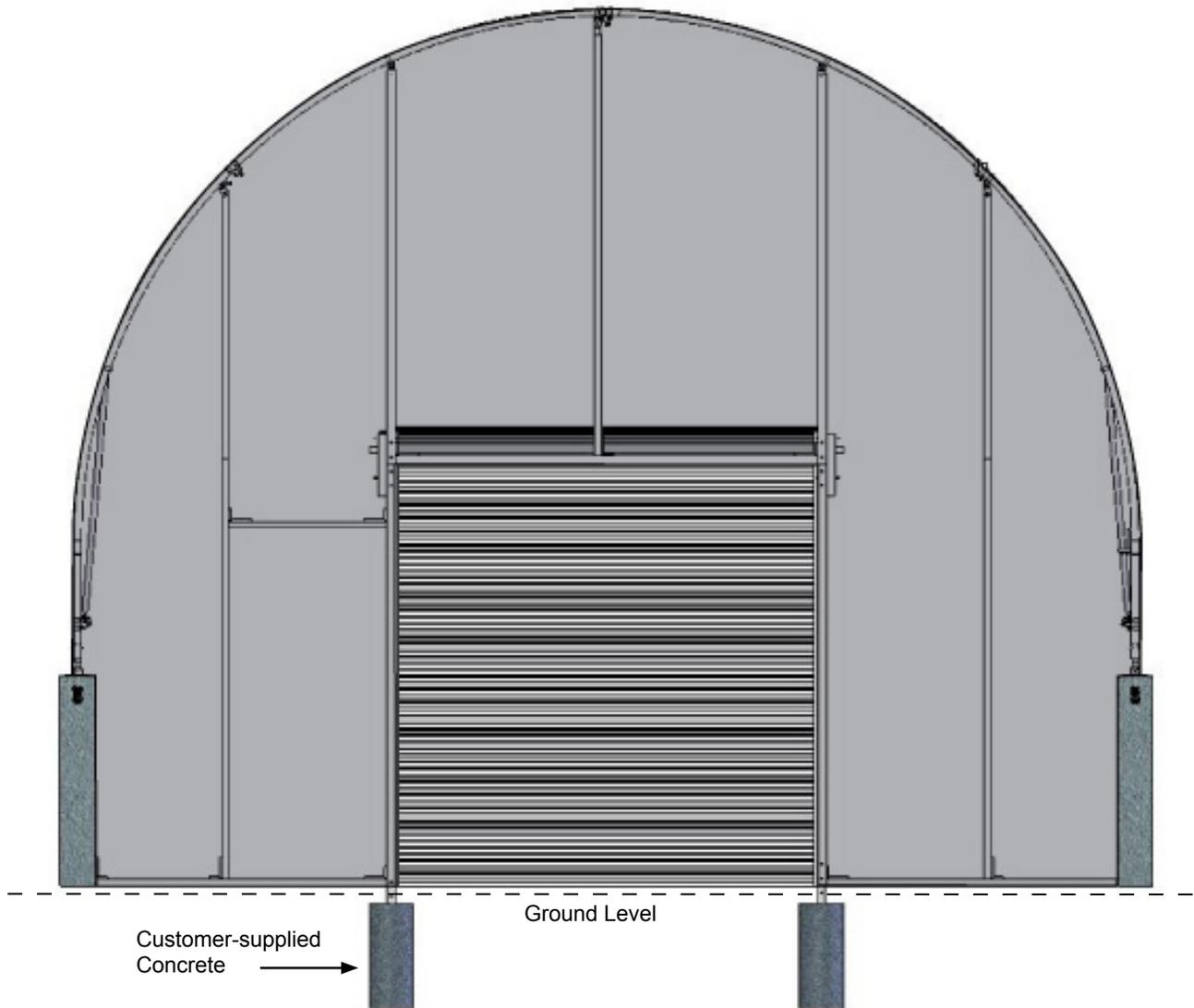
NOTE: With the exception of Truss Arch buildings, ClearSpan™ shelters and greenhouses do not have any tested loading criteria.



QUICK START GUIDE

20' Wide x 16' High End Frame Kit

The end frame kit does not include the rafter, struts, concrete, or overhead door as shown in the diagram.

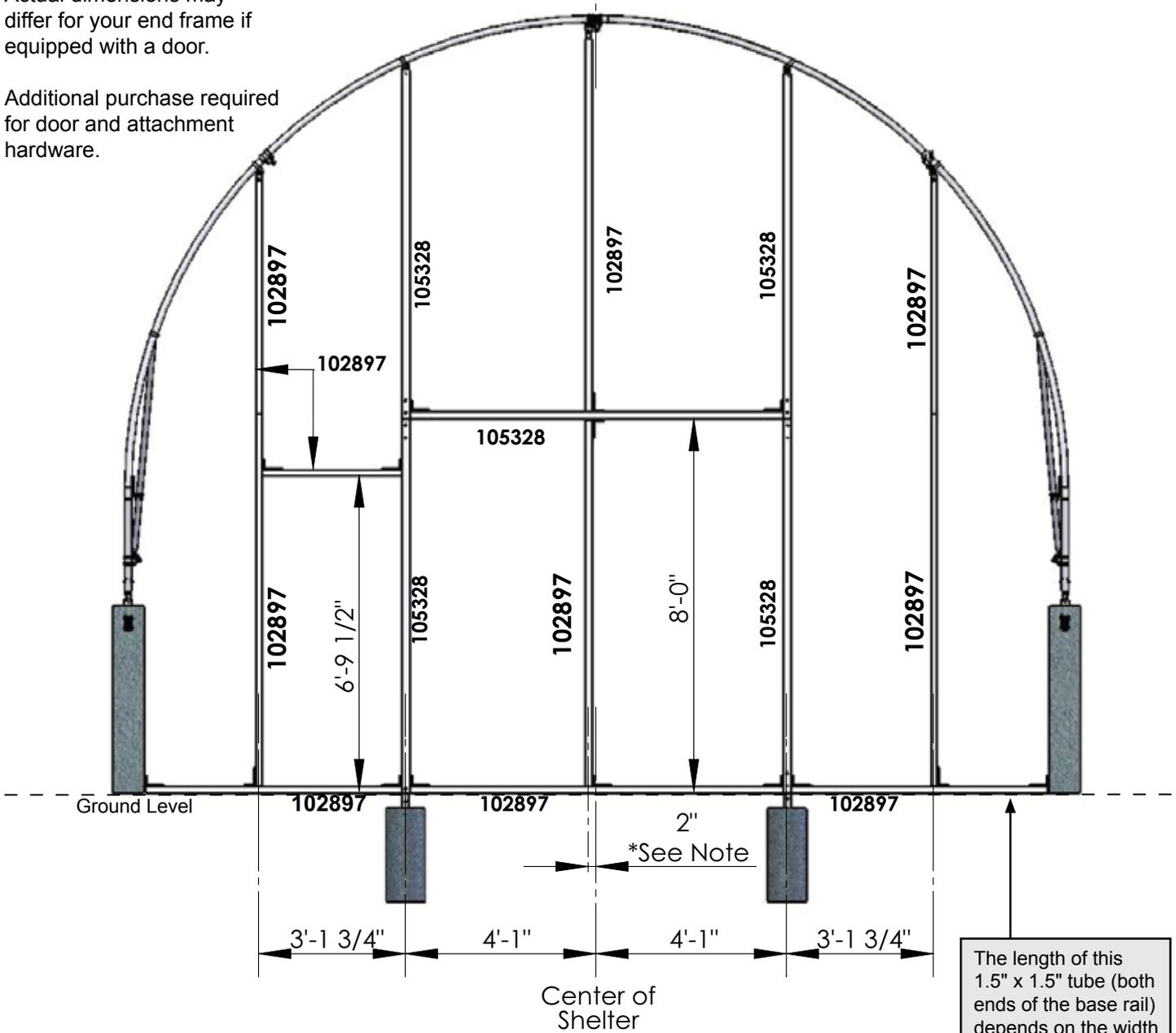


End frame shown may differ from the actual end frame. Rough door dimensions depend on the door that will be installed if equipped. Consult the information that ships with the door to accurately set the rough door framing.

FRONT PROFILE (A)

Frame shows dimensions for an 8' x 8' overhead door. Actual dimensions may differ for your end frame if equipped with a door.

Additional purchase required for door and attachment hardware.



The above diagram shows where to install the 2.0" x 2.0" square (105328) tubing and the 1.50" x 1.50" square tubing (102897). These frame tubes are sent in full lengths. Cut the upper sections to the required length when constructing the end framing. Allow room to install the band clamps and the square-to-round tube brackets (104074) at the top of each vertical frame tube.

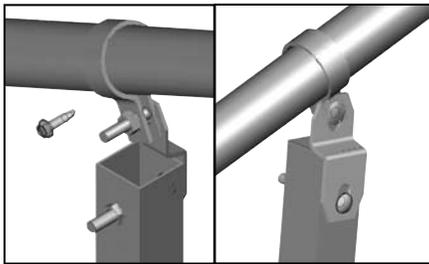
ATTENTION: SECURE EACH 2" X 2" DOOR FRAME TUBE USING TEK SCREWS AND THE 1.75" X 1.75" (104075) SQUARE TUBE INSERTS. BE SURE TO INSTALL THE TEK SCREWS IN A LOCATION THAT WILL NOT INTERFERE WITH THE INSTALLATION OF THE END PANEL OR OTHER COMPONENTS IF EQUIPPED. CHECK THE DOOR INSTALLATION INSTRUCTIONS THAT SHIPPED WITH THE DOOR FOR ADDITIONAL DETAILS.

The length of this 1.5" x 1.5" tube (both ends of the base rail) depends on the width of the shelter.

Cut to the required length and secure using QH1330 brackets and Tek screws.

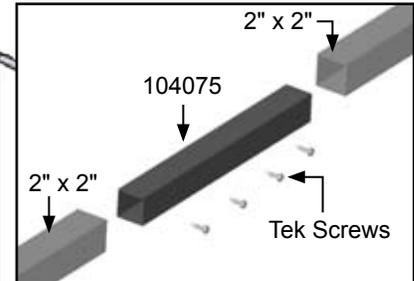
If Tek screws do not work for your application, purchase the required fasteners locally.

FRONT PROFILE (B)



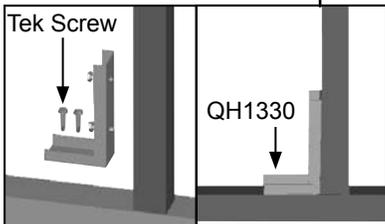
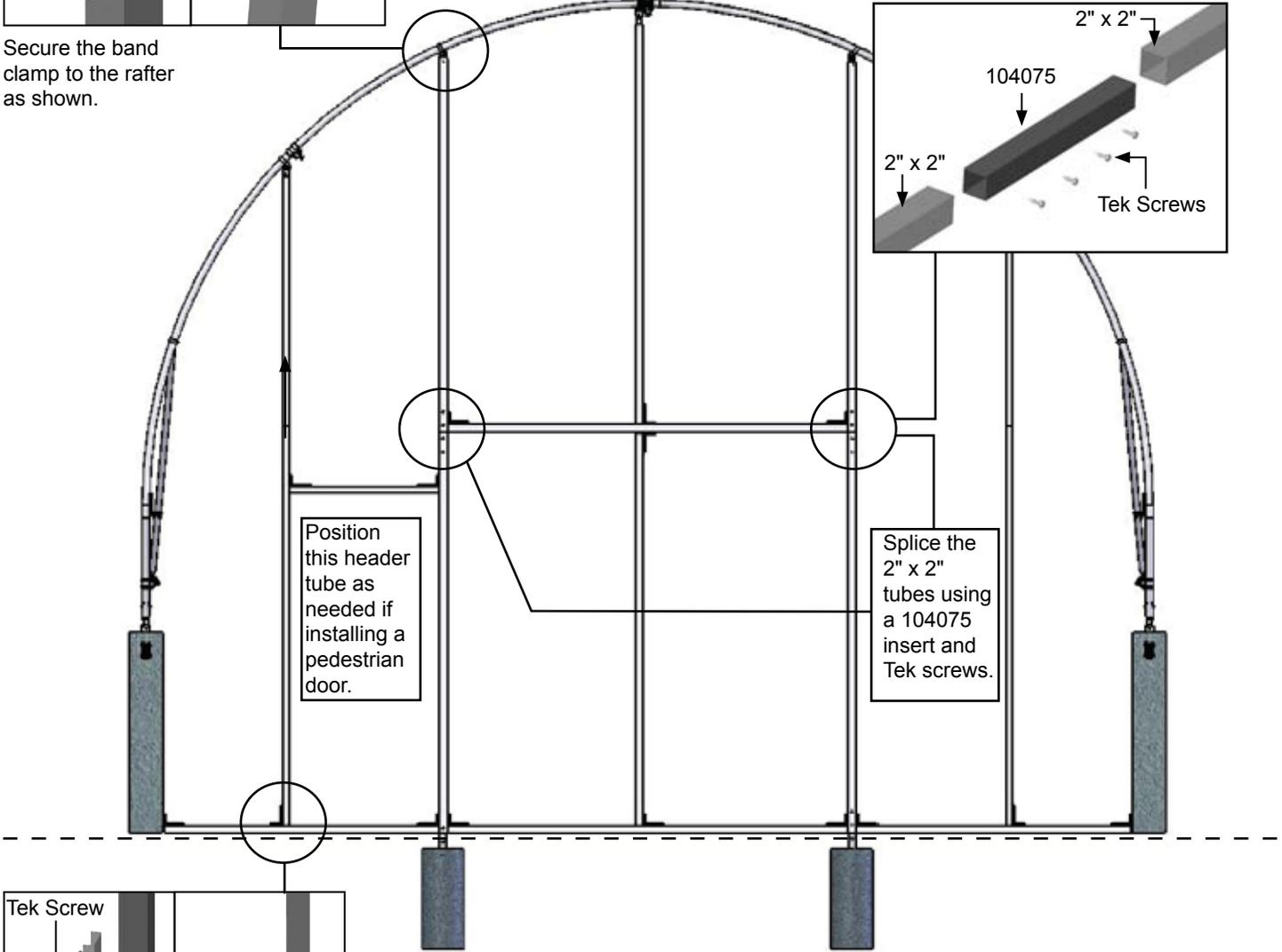
Secure the band clamp to the rafter as shown.

This location of the main frame purlin connection may not apply to your building. Install end framing as needed to avoid conflicts with the components of the main frame.



Splice the 2" x 2" tubes using a 104075 insert and Tek screws.

Position this header tube as needed if installing a pedestrian door.



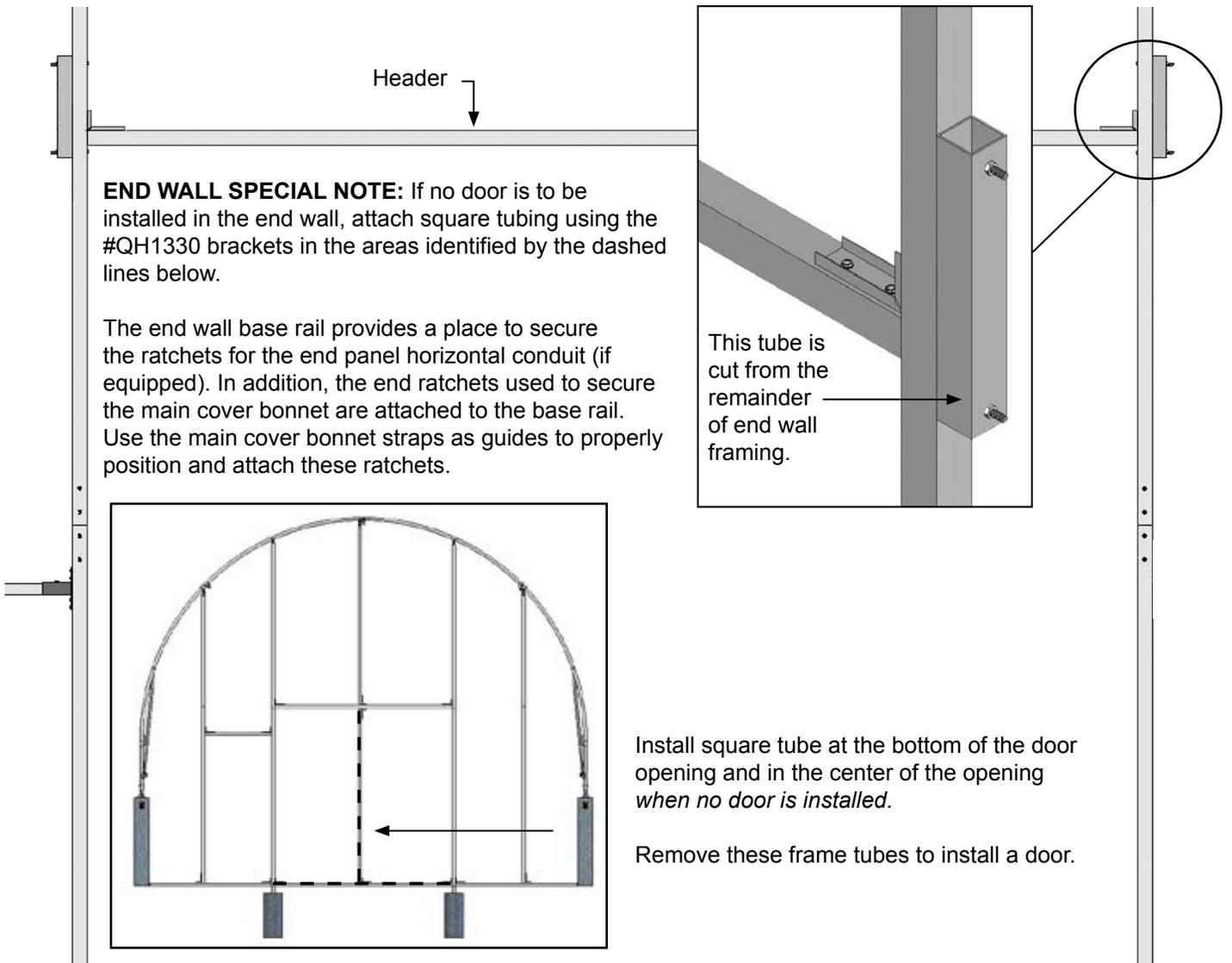
ATTENTION: The spacing shown above may differ from the spacing of the actual end wall. The spacing of the individual end frame members and the size of the door opening depends on the door (if equipped). If doors are to be installed, frame the end wall as needed to accommodate the door or doors. (Additional parts may be required for door installation.)

The verticals installed above and below the door header are installed slightly off-centered to avoid conflicts with the hardware attached to the end rafter for the main frame of the shelter. Position these as needed to avoid frame component conflicts.

DOOR FRAME DIAGRAM: SPECIAL NOTES

Doors are not included with the end frame kit. Additional purchase is required.

ATTENTION: For some doors, the upper brackets are mounted wider than the actual door frame. In those instances, cut a 16" section of stock door frame tubing and mount it to the outside of each vertical door frame using the supplied carriage bolts and nuts in the locations shown in the diagram below.





Space below is reserved for customer notes.