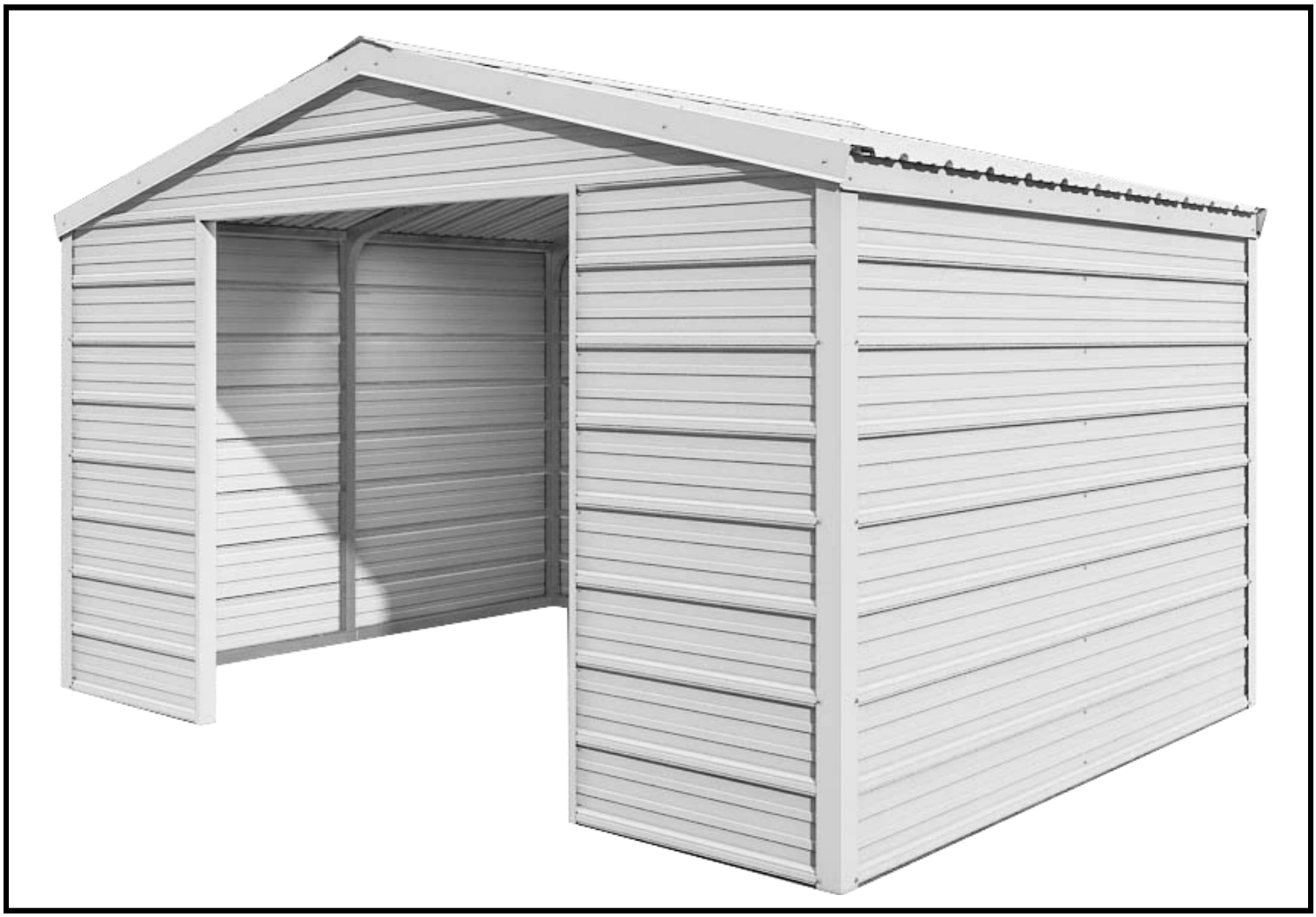
Frontier Utility Building
Instruction Manual

for 12’ x 9’2” x 6’2” covers



Our unique assembly process quickly transforms the individual pieces into a finished structure that will give you a lifetime of service. Great care has been taken to ensure complete satisfaction with your purchase. In the unlikely event that there are any missing or damaged parts, or if you simply need technical assistance, please call our Toll Free Hotline at 1-800-900-7222 and your questions will be addressed promptly. Thank you for choosing the VersaTube Building System.

ZINST-FRONTIER-UTIL

Contents

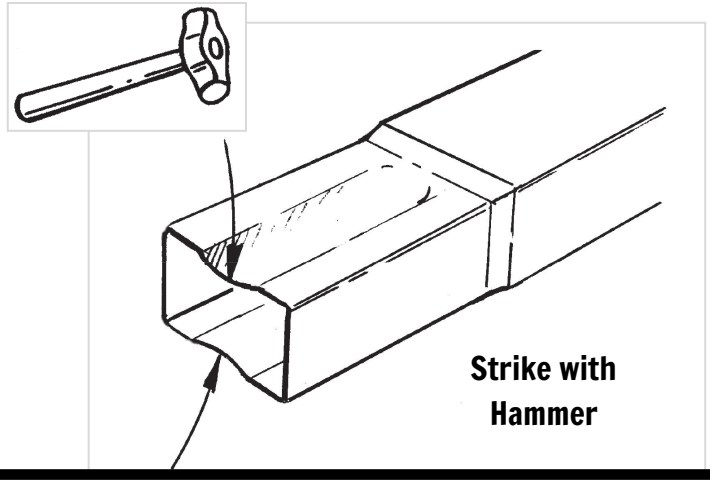
Safety, Hazard, and Maintenance Instructions

CAUTION	Read the following safety warnings and all instructions in their entirety prior to installation. If you have questions or are missing any parts, contact Mid-South Metal Products, Inc. (DBA, VersaTube Building systems) customer service at 1-800-900-7222 before proceeding.
CAUTION	VersaTube Building Systems designs and manufactures framing products to meet minimum load requirements in most areas. It is the buyer's sole responsibility to determine the specific building code requirements applicable in the city and/or county of the state in which this product is being erected, and to ensure the product is installed with sufficient materials and in such a manner as to comply with the codes.
WARNING	Metal parts may get hot when exposed to high heat or direct sunlight. Avoid contact with skin and wear protective gloves and clothing to prevent the possibility of burns.
WARNING	Standing or walking on the structure could cause damage to the sheet metal panels. If you must walk on the roof, step within 1' of a major frame member. The structure must be properly braced to support human weight. Collapse of the structure may cause serious injury do to weight of components.
WARNING	Avoid installation on windy days as wind may create hazards during the installation process. Wind may blow material or cause partially installed components to collapse prior to being secured or fully installed. The weight of the components or structure may cause serious injury if it should collapse.
WARNING	Metal conducts electricity and electrical shock hazards exist since the structure is made of metal. During installation or storage, keep the structure and all components away from electrical sources. Make sure that your selected location is away from power lines, underground cables, and any other source of electrical power. Serious injury or even death may occur if contact is made with electrical current.
WARNING	In the event that your structure is fully enclosed, be sure to provide proper and adequate ventilation and egress and ingress. Hazardous, poisonous or noxious substances should not be stored in the structures absent proper ventilation. Follow all warnings and instructions of the manufacturer of any substance stored in your building. Also, proper ingress and egress should be provided to prevent persons or children from being trapped inside the structure.
WARNING	If metal panels are selected to cover all or a portion of your structure, be careful of the sharp edges which may cause cuts or lacerations. Wear protective work gloves and suitable clothing for protection and always take care when handling metal parts.
NOTE	The VersaTube Building System is an all domestically produced galvanized tubular steel framing system. Maintenance is required twice annually on particular areas of the framing system i.e. ‘'weld seams" and "cut or raw ends". This maintenance is performed by applying any "Zinc coated" silver spray paint found at local mass merchant or paint store to these areas twice annually or every six (6) months.
NOTE	All sheet metal cladding applied to the VersaTube frame are attached with self drilling screws with a rubber washer. These screws produce small shavings when drilling through the cladding. If the shavings are allowed to sit on the sheet metal for an extended period, rust spots will form and promote deterioration. Metal shavings must be brushed after installation of the sheet metal. Claims reported against rust spots will not be honored by VersaTube Building Systems.

ATTENTION:

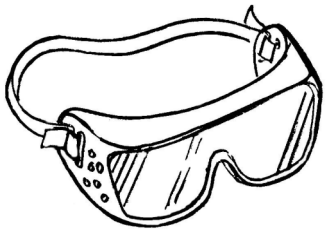
IT IS IMPORTANT THAT YOU READ THE FOLLOWING NOTE BEFORE STARTING THE ASSEMBLY OF YOUR SHELTER

NOTE: If during the installation process you have difficulty fitting frame components together, use an adjustable wrench to open the end of the receiving tube as shown below. Close wrench down around bent portion of tube and bend wall outward. It may also be helpful to hit the center of the swage at the end of the tube to create more of a lead.



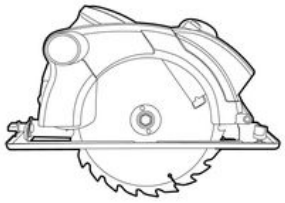
What you'll need

Work Gloves

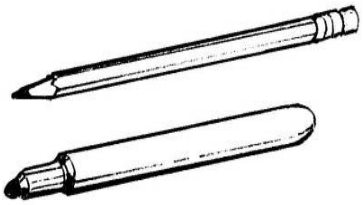


Safety Goggles Or glasses

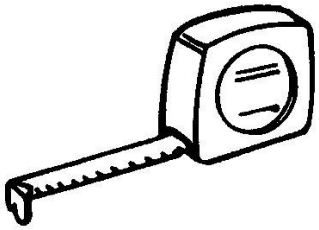
2 Step Ladders



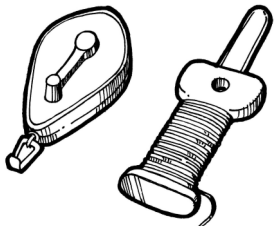
Circular Saw or Abrasive Cutting Disk



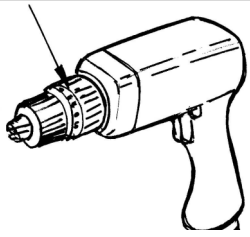
Pencil/Marker & Felt Marker



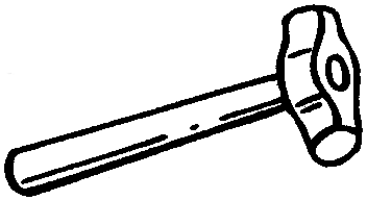
Tape Measure



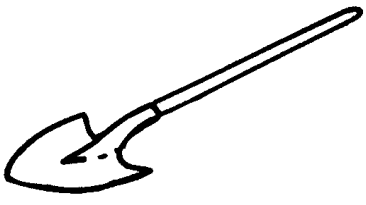
Chalk Line & Mason Line or Nylon String



Cordless (14 or 18 volt) or Electric Screw Gun with 5/16" Socket Drive



Hammer

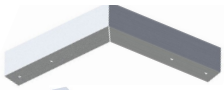
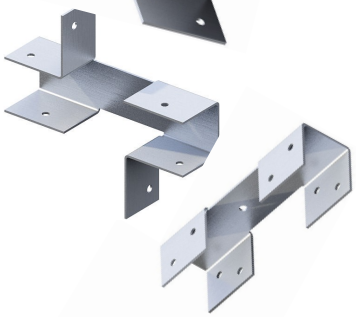


Shovel or Post Hole Digger

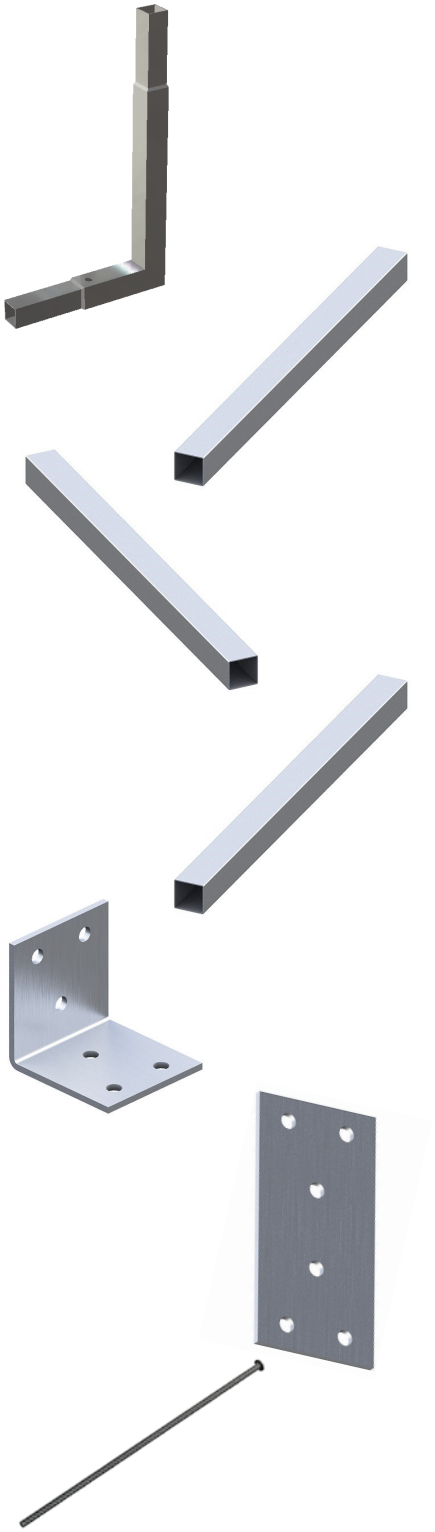
Items you may need

Hammer Drill, Masonry Drill Bit 1/2" x 8", vise grip or other quick clamp (to assist to plumb frame or clamp sheet metal), adjustable wrench and open ended wrench, 3/4" & 1/2"

SHELL PARTS LIST

	Part Number	Description	Quantity
	74-4950	Starter Base Rail	2
	74-7050	Extension Base Rail	2
	74-5062	Side Post	6
	74-2000	Rafter w/ (2) Swages	6
	74-6000	Peak	3
	BK-40	Eave Corner Bracket	6
	7500-05150	1 1/2” SQ. x 51 1/2” Purlins and Girts	12
	BK-30	Single Purlin Bracket	12
	BK-31	Double Purlin Bracket	4
	BK-31W	Wide Double Pur-lin Bracket	2
	ANC-24	30” Rebar Anchor	6
	71-9999	70pc. Bag of Framing Screws	4
	71-9999-PAN	Pancake Screws	28

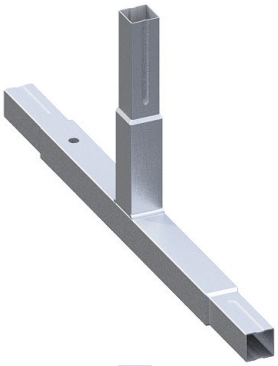
FRONT WALL PARTS LIST



Part Number	Description	Quantity
74-FE-L	'L' Connector	2
7400-2600	2" x 2" x 26" Base Connector	2
7400-6250	2" x 2" x 62 1/2" Door Jamb	2
7400-7200	2" x 2" x 72" Door Header	1
BK-10	Angle Bracket	4
BK-20	Flat Bracket	2
ANC-24	30" Rebar Anchor	2

USE (44) FRAMING SCREWS FROM THE (6) PACKS IN THE SHEEL PARTS LIST

BACK WALL PARTS LIST

	Part Number	Description	Quantity
	71-BE-T	'T' connector	1
	7400-5875	2" x 2" x 58 3/4" Base Connector	2
	7400-8150	2" x 2" x 81 1/2" Vertical	1
	BK-10	Angle Bracket	2
	BK-20	Flat Bracket	1
	ANC-24	30" Rebar Anchor	1

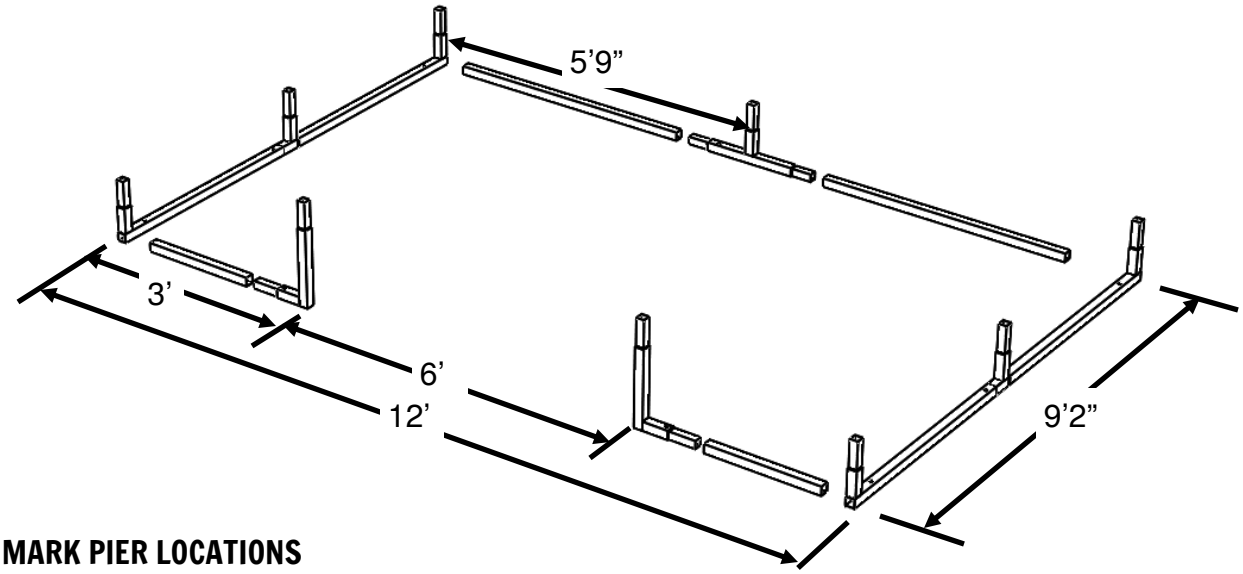
USE (24) FRAMING SCREWS FROM THE (2) PACKS IN THE SHEEL PARTS LIST.

Site Preparation for Utility Covers

The VersaTube shelter frame is designed to be placed on a foundation that is level side-to-side and sloped about 1" front- to-back or back-to-front. **Concrete Piers** are suggested for this structure.

STEP 1: BASE RAIL ASSEMBLY

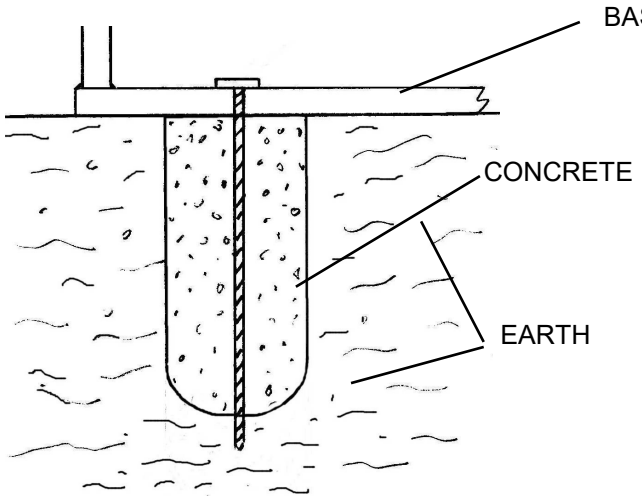
There are two runs of base rails on the sides as well as end wall pieces. Each eave run of base rails has a starter base rail with two vertical pins and base extensions with one vertical pin. Insert one extension base rail into one starter base rail. Set the overall length dimension from the front of the first pin on the starter base rail to the back of the last pin on the extension base rail at 9'-2". Now, fasten the joints on top with (2) framing screws. Repeat this assembly for the other run of base rails. For the back wall, take both 58 3/4" tubes and insert on to each end of the 'T' connector. Set the overall length for the back wall rail to 140" with the 'T' connector being centered (69" from each end). Fasten all joints with (2) framing screws. For the front wall, take both 26" tubes and insert on to the short side of each 'L' connector. Set the dimension for each base connect-or/'L' at 34". Fasten each joint with (2) framing screws. To connect all walls, set the eave base rails at 12' from outside-to-outside of each base rail. Check that the base rails are square and inline by measuring diagonally, making sure to get the same measurements. Attach each end wall assembly to the eave base rails with a BK-10 Angle Bracket and (6) framing screws. There should be a 6' gap between the (2) 'L' connectors on the front wall.



STEP 2: MARK PIER LOCATIONS

Mark the locations of the rails and the anchor holes on the ground. Move the base rails to one side and dig holes at each anchor point for concrete. You may want to rent a gas-powered post hole digger for this job. Many larger carports require larger piers. Hole size to be a Minimum of 10" in diameter and 24" deep. Size and depth varies depending on wind and snow loads for your area. Check with Local Building Officials for frost line depth to ensure the proper anchoring depth for your specific building. If you will be using piers, this is to be done at the same time as laying your base rails out.

GROUND ANCHOR WITH CONCRETE PIER

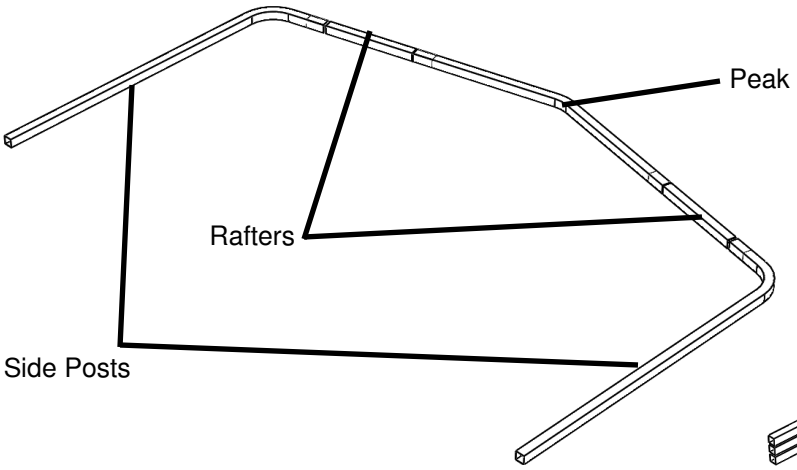


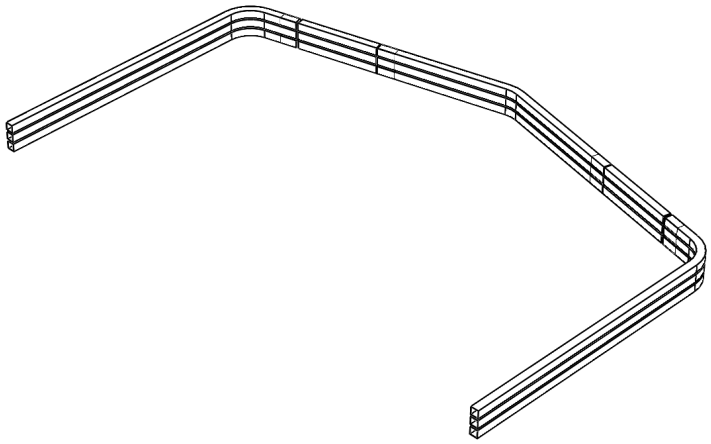
This instruction manual only covers rebar anchor installation into concrete piers. The customer is responsible for any other anchoring/foundation.

Frame Assembly

STEP 1: ROOF/WALL FRAME ASSEMBLY

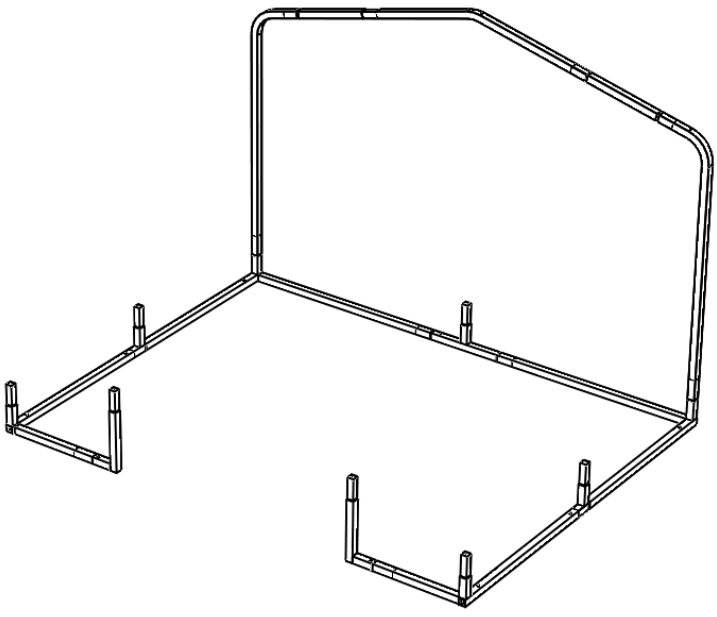
On the ground, assemble (2) side posts, (1) peak, and (2) rafters. Measure across the frame assembly at the top, just below the bends and at the bottom. Set the frame width at 12'. Try to keep the joints on both sides of the peak equal. With the dimension set at 12', attach the frame joints with (2) framing screws in each joint. Repeat this assembly for the remaining two frames. *TIP: Assemble the first frame, then use it as a template for the next two frames*.

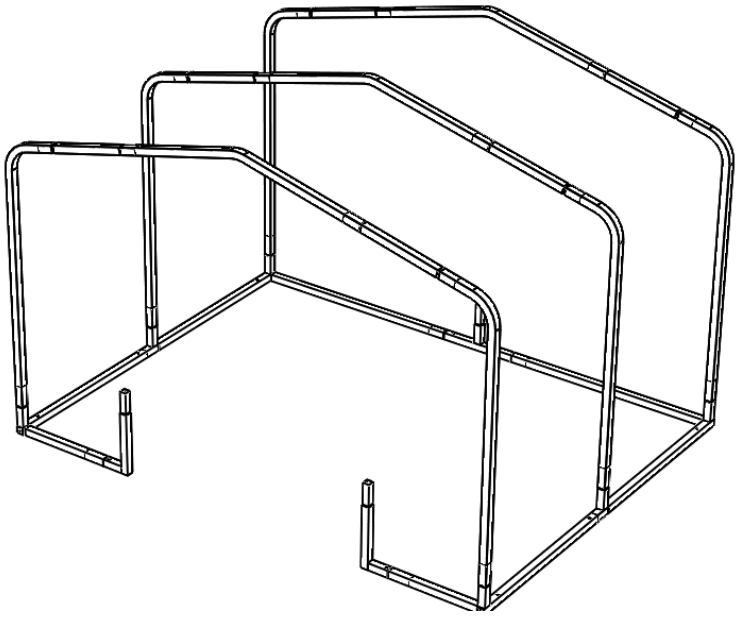




STEP 2: ATTACHING THE ROOF/WALL FRAME SECTIONS TO THE BASE RAILS.

Place the base rails in the location that you have prepared. Set the front of the base rail assemblies even and 12' apart outside to outside. Now, set the back dimension 12' apart. Set one roof/wall frame assembly on the vertical insert pins at the back of the cover. You may want to face the joint assembly screws to the back for a better appearance. Now, install the other two frame assemblies. Attach the side posts to the base rail pins with (2) framing screws on the back side of the assembly.

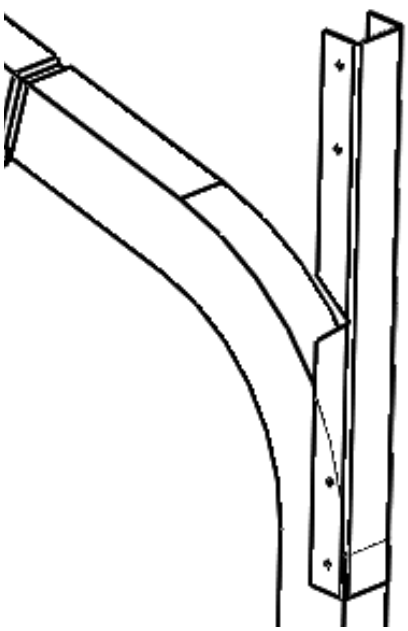


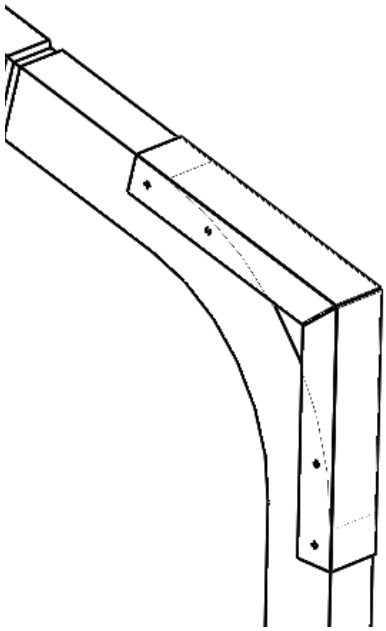


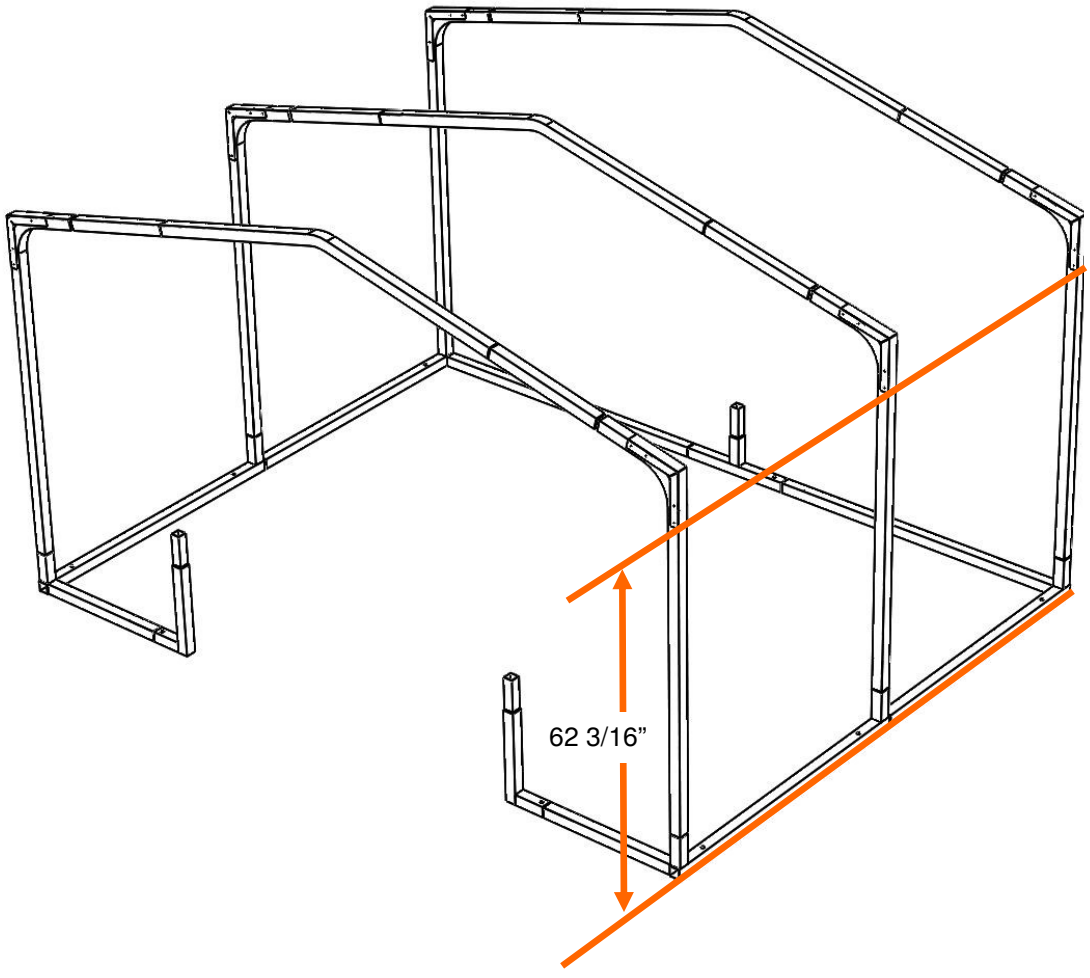
Frame Assembly (continued)

STEP 3: INSTALLING CORNER BRACKETS

Make a mark on each Side Post 64 3/16” from the top of your slab/footing. Attach the unfolded Corner Bracket with (4) Framing Screws. Fold over the Rafter and connect with (4) more Framing Screws. Repeat for all frames.







Anchoring

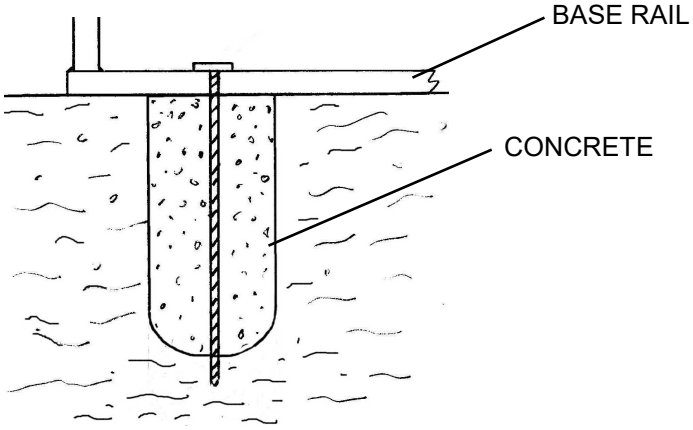
STEP 1: DIGGING HOLES FOR CONCRETE

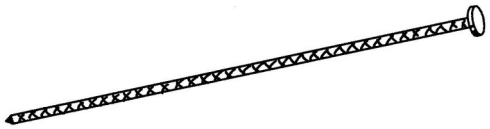
With the base rails in place, mark the locations of the rails and the anchor holes on the ground. Move the shelter to one side and dig holes to the appropriate depth at each anchor point for concrete (9 total).

STEP 2: ANCHORING

Move the base rails back into position over the holes. Re-measure to make sure the rails are in the proper location. (12'W apart outside to outside, 9'2"L from front to back). Measure diagonals to square frame. The diagonal measurements should be equal. Now drop a 30" rebar ground anchor into each anchor hole. Mix up concrete and pour into holes up to ground level. Before the concrete sets, re-check all your dimensions to make sure the frame is square and has the proper width. Let the concrete cure overnight before installing the sheet metal panels on the roof.

IMPORTANT: You must level and square the frame before you attempt to install sheet metal. Failure to support the frame in a square and level condition will result in crooked sheet metal and possible leaks when frame is shifted for anchoring later.



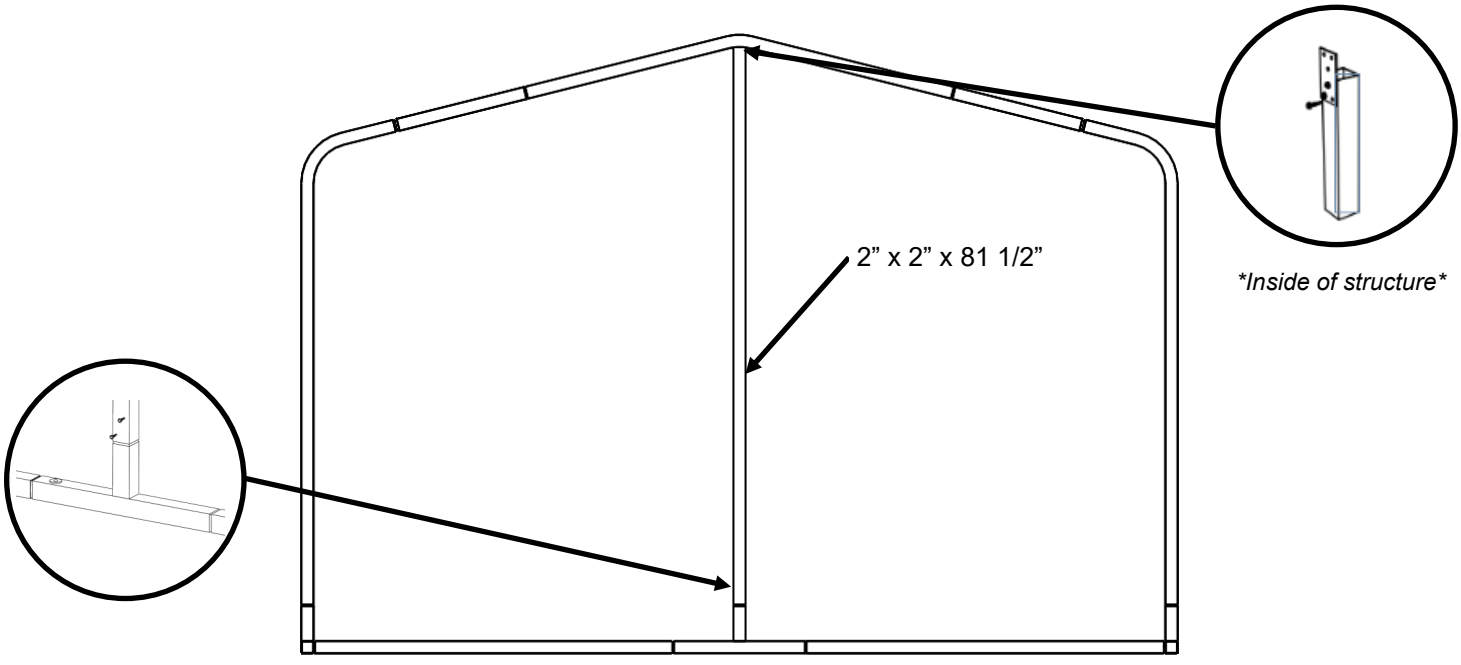


REBAR GROUND ANCHOR

Installing End Wall Components

STEP 1: FINISHING THE BACK WALL

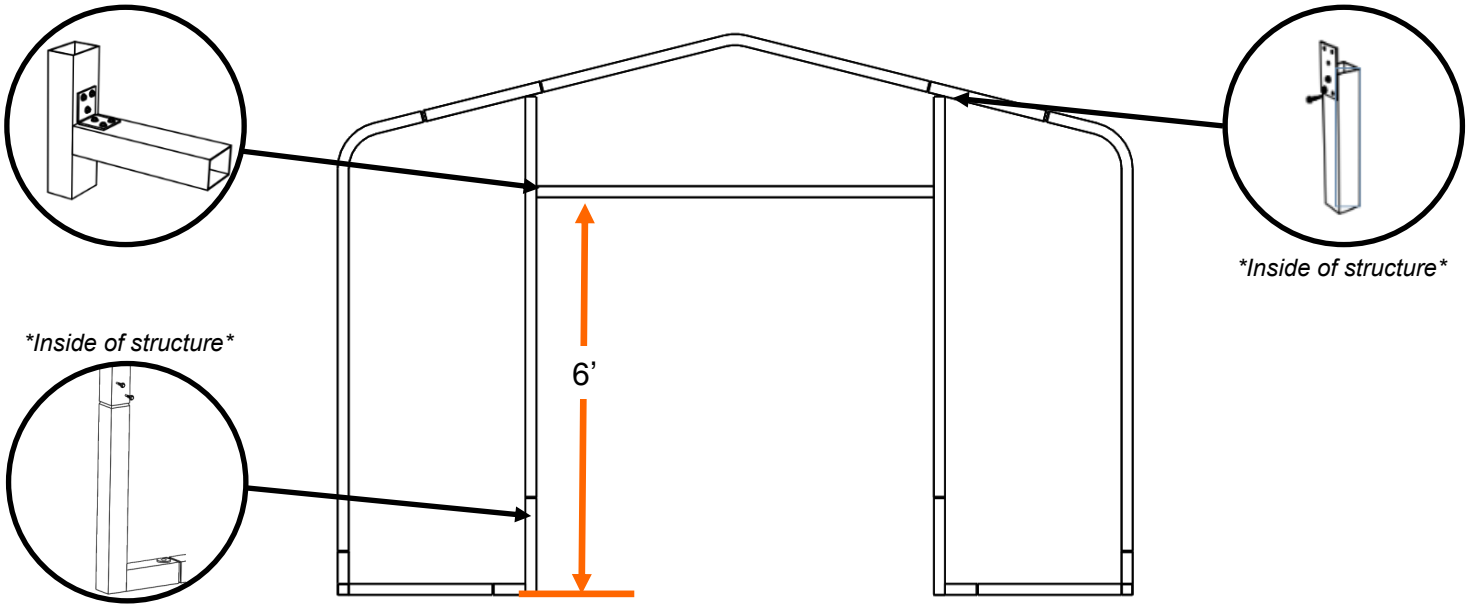
Slide the 2" x 2" x 81 1/2" tube on top of the T-Connector. Once the tube is plumb and level, use (2) framing screws to attach the tube to the T-Connector (install screws on interior of the building). Check the top of the vertical tube again for plumb and level, then use a BK-20 Flat Bracket and (6) framing screws to attach the tube to the peak.



Installing End Wall Components *(continued)*

STEP 2: FINISHING THE FRONT WALL

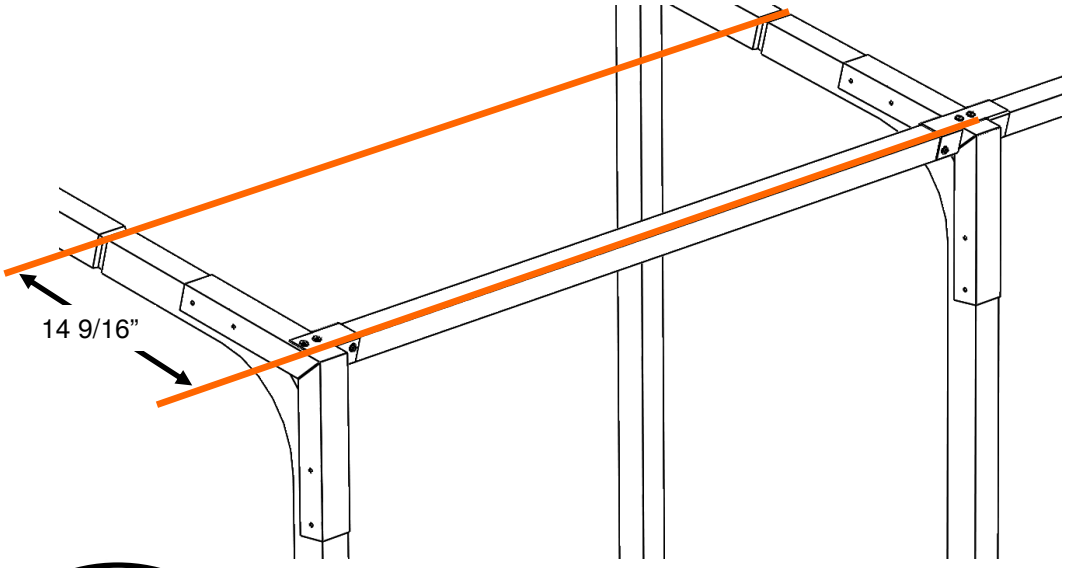
Slide both of the 2” x 2” x 72 1/2” tube on top of the L-Connectors. Once the vertical tubes are plumb and level, use (2) framing screws to attach the tubes to the L-Connectors (install screws on interior of the building). Check the top of the vertical tubes again for plumb and level, then use BK-20 Flat Brackets and (6) framing screws to attach the tubes to the rafters. Once your verticals are secure, measure up each vertical tube and make a mark at your desired height (72” height is standard, may raise or lower depending on the door purchased. Raise the 2” x 2” x 72” horizontally where the bottom of the tube is sitting on the height mark. Attach the horizontal header tube to each of the vertical tubes with a BK-10 Angle Bracket and (6) framing screws. The BK-10 Angle Bracket will be installed on top of the horizontal header tube.

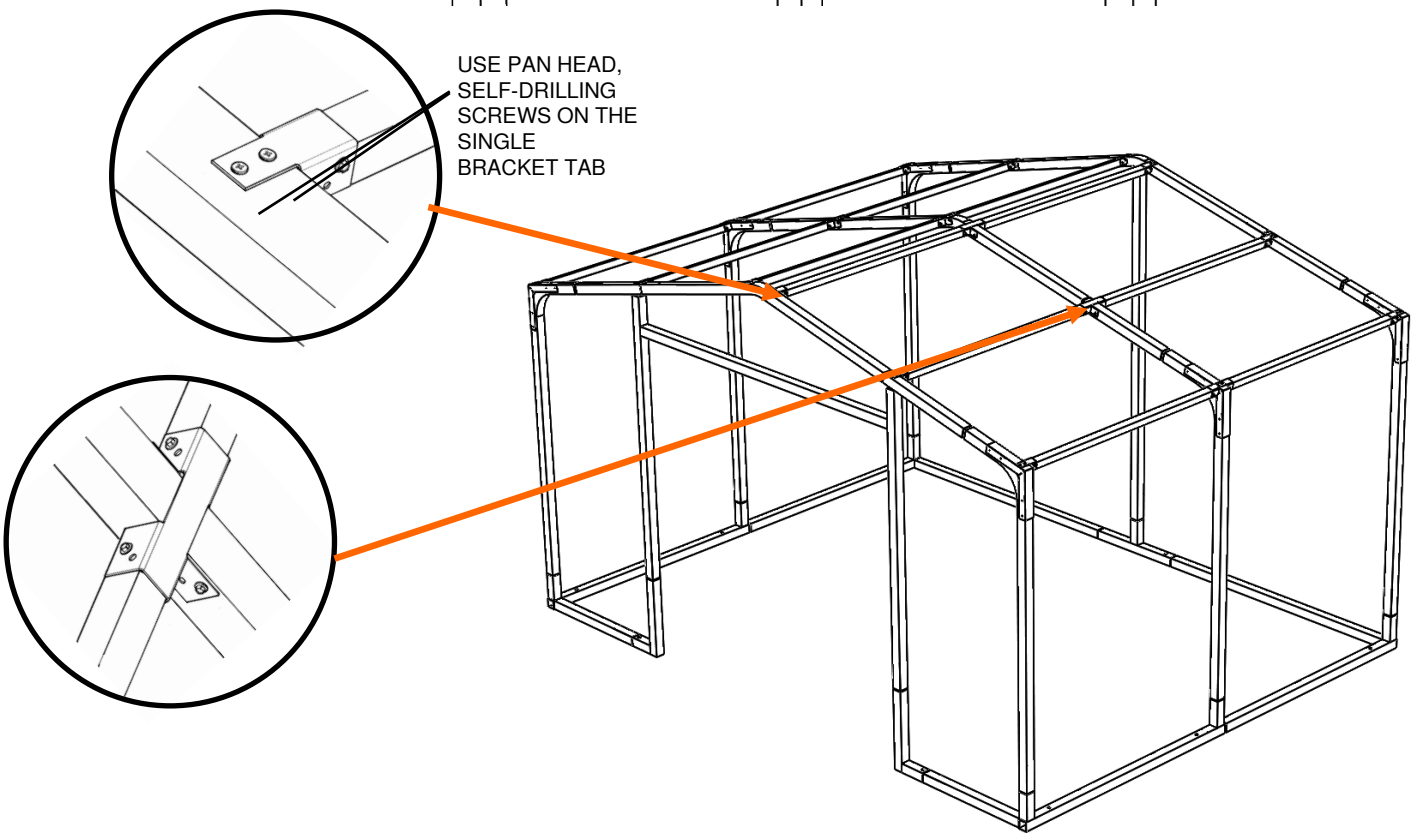


Installing Roof Purlins

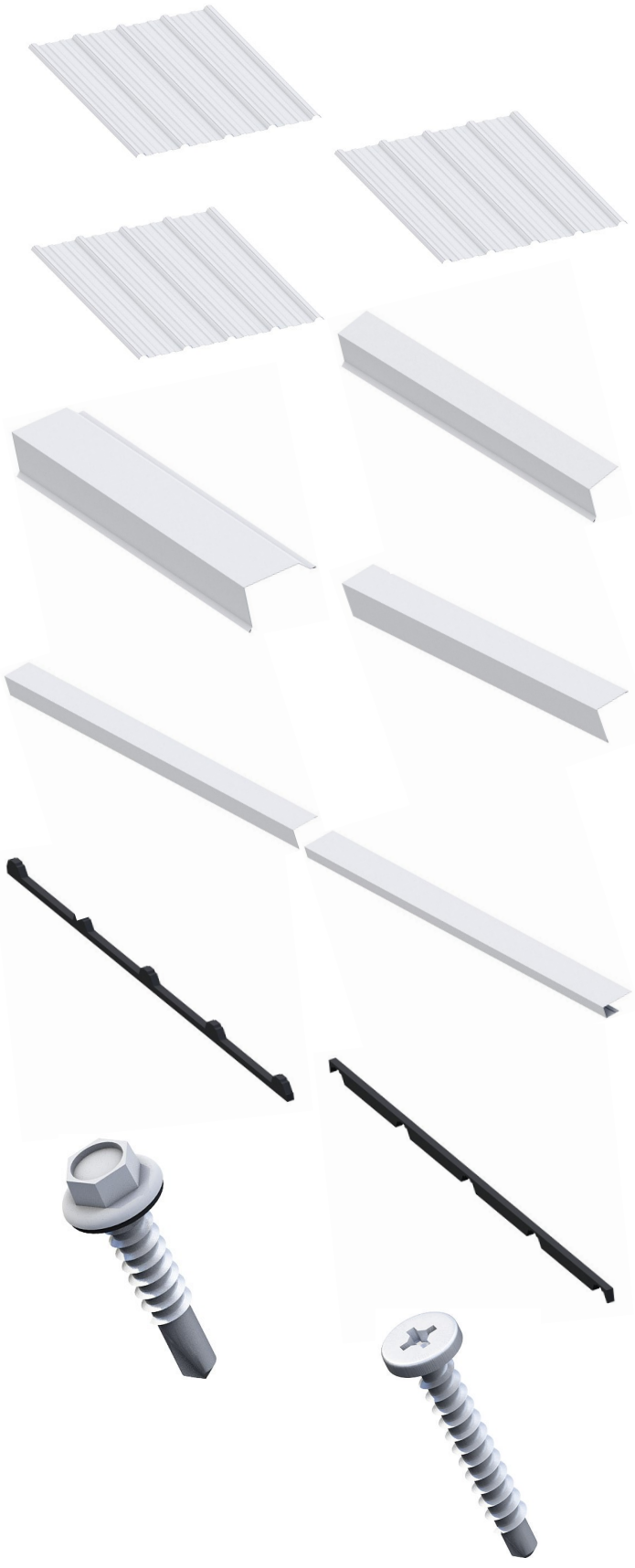
STEP 1: INSTALLING ROOF PURLINS

Gather (12) BK-30 Single Purlin Brackets, (4) BK-31 Double Purlin Brackets, (2) BK-31W Wide Double Purlin Brackets and (12) 7500-05150, 1 1/2" SQ. x 51 1/2". Make a mark 14 9/16" from the end of each side post (or 1" from the corner of the BK-40 eave bracket), then (2) marks going up each rafter line 34 5/16" from the first mark and 34 5/16" from the second mark. Make sure the marks from first to last side post are straight, or adjust your marks. Install the BK-30 Single Purlin Brackets at those marks on the first and last frames on each side, lining up the horizontal openings with the marks. Use (2) Pancake screws per BK-30 to attach to the vertical posts. Install the BK-31W Wide Double Purlin Brackets on the center side post on the marks at the eave corner (use (2) Pancake screws per BK-31W to attach to the vertical posts) and BK-30 Double Purlin Brackets for run 2 and 3. Insert the (12) 51 1/2" tubes between the brackets, attaching the tubes to the brackets using framing screws.





Installing Sheet Metal

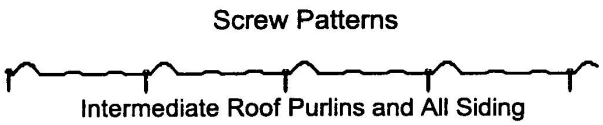


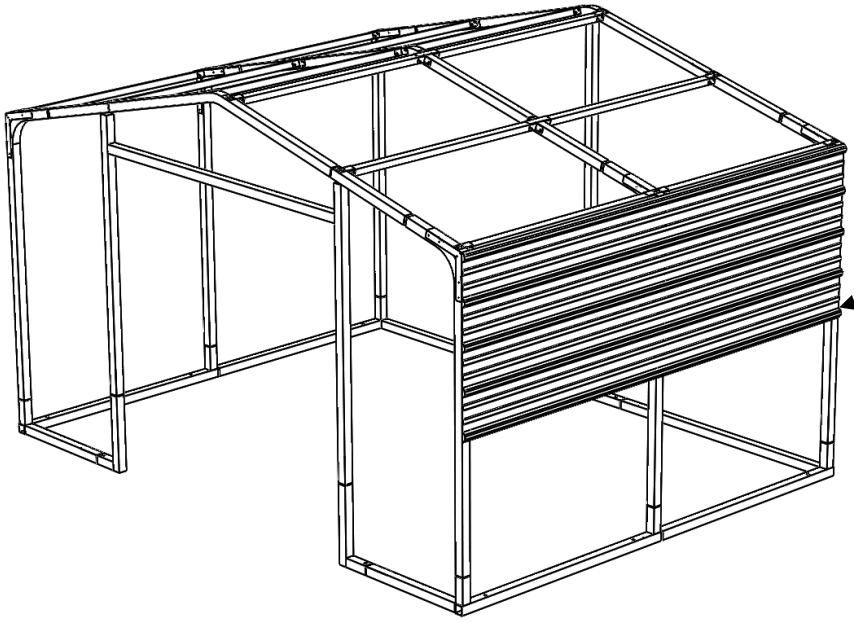
Description	Quantity
6’ 5” Roof Panel	6
9’ 2” Eave Side Panel	6
12’ 0” Gable End Panel	6
10’ 6” Eave Trim	2
10’ 6” Gable Trim	4
10’ 6” Corner Trim	4
10’ 6” Angle Trim, 1 1/2” x 2”	3
10’ 6’ J-Channel Trim	3
Inside Closure Strip	6
Outside Closure Strip	22
250pc. Bag of 1 1/4” Roof Painted Sheet Metal Screws	1
250pc. Bag of 1 1/4” Side Painted Sheet Metal Screws	1
Pancake Screws	20

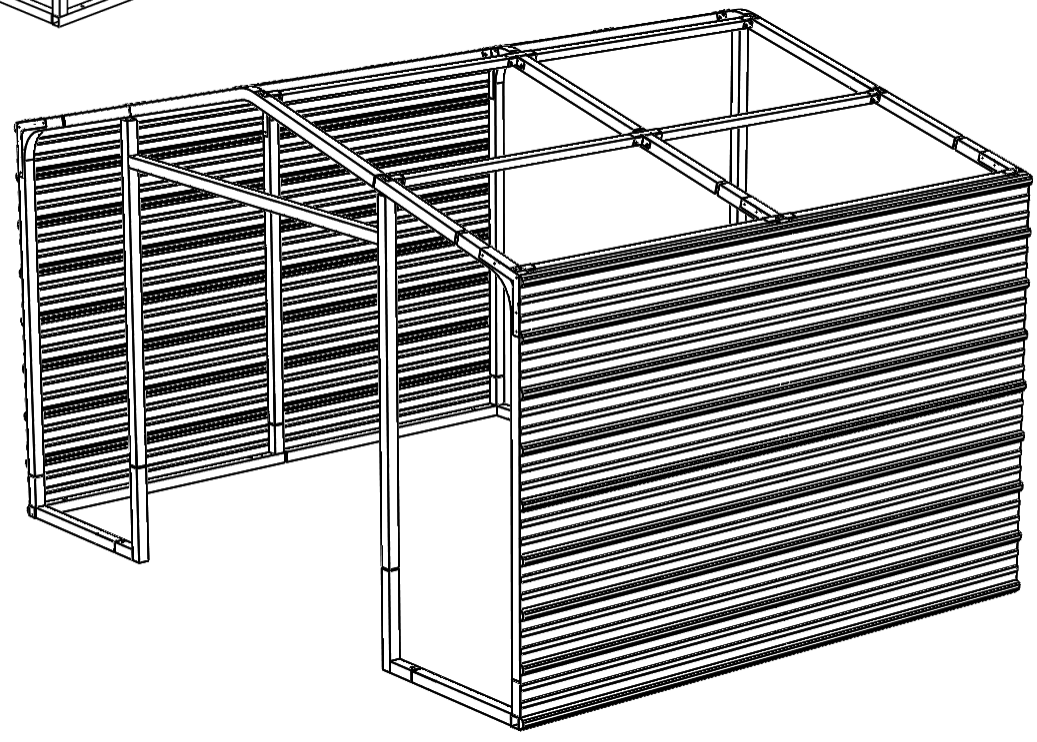
Installing Eave Sheet Metal

STEP 1: INSTALLING SIDE WALL PANELS

Starting at the front corner, place the Underlap end (shown below) of the 9’ 2” sheet metal panel flush with the front wall and level with the eave corners running the ribs horizontal with the ground. It is important to get the first panel plumb and level. Clamp the panel in place, then attach with 4 of the 5 painted screws needed, leaving the lowest rib loose. Install the screws next to the major ribs. Install lower panel in the same manner as the first, assuring plumb and level. For the lower panel, slide the underlap edge under the overlap edge of the upper panel then screw the panels down. Repeat the pattern down the other 9’ 2” side wall.



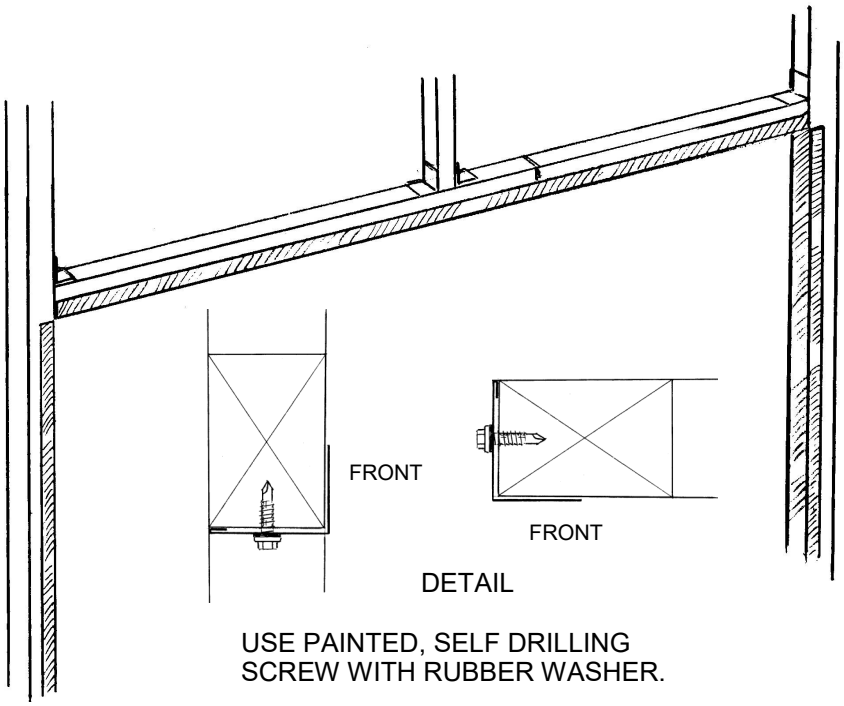




Installing Angle Trim

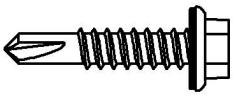
STEP 1: INSTALLING SIDE WALL PANELS

There will be (3) 10’6” pieces of 1 1/2” x 2” angle trim for the door opening. Cut all three pieces of Angle Trim to fit 6’ (6’ for each side and 6’ for header). Fasten the Angle Trim with Painted Sheet Metal Self-Drilling Screws with Rubber Washers every 2’.

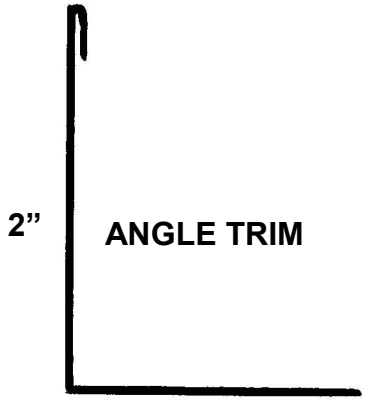


DETAIL

USE PAINTED, SELF DRILLING SCREW WITH RUBBER WASHER.



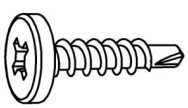
#12 X 1” PAINTED, SELF-DRILLING SCREW WITH RUBBER WASHER



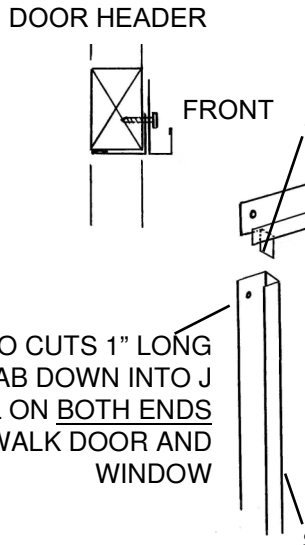
Installing J-Channel Trim

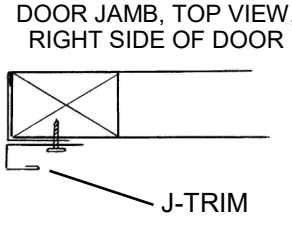
STEP 1: INSTALLING SIDE WALL PANELS

There will be (3) 10’6” pieces of J-Channel trim for the door opening. Cut two pieces of J-Trim to fit from the ground to the top of the door jamb (bottom of the door header, 6’). This will be the side J-Trim. For a 6’ wide door, cut a piece of J-Trim 74” long and cut two 1” slits in both ends as shown in detail. The slits will create tabs that will fold down into the door jamb Side J -Trim. See illustration. Attach the Side J-Trim first at both ends and two additional places equally spaced from top to bottom with Pan Head Self-Drilling Screws. See illustration below for location of Side J-Trim. Place the Top J-Trim on top of the Side J-Trim along the door header. Fold the end tabs down into the J-Trim channel and attach the at both ends and two on three places down the length with Pan Head, Self-Drilling Screws.



PAN HEAD, SELF-DRILLING SCREW

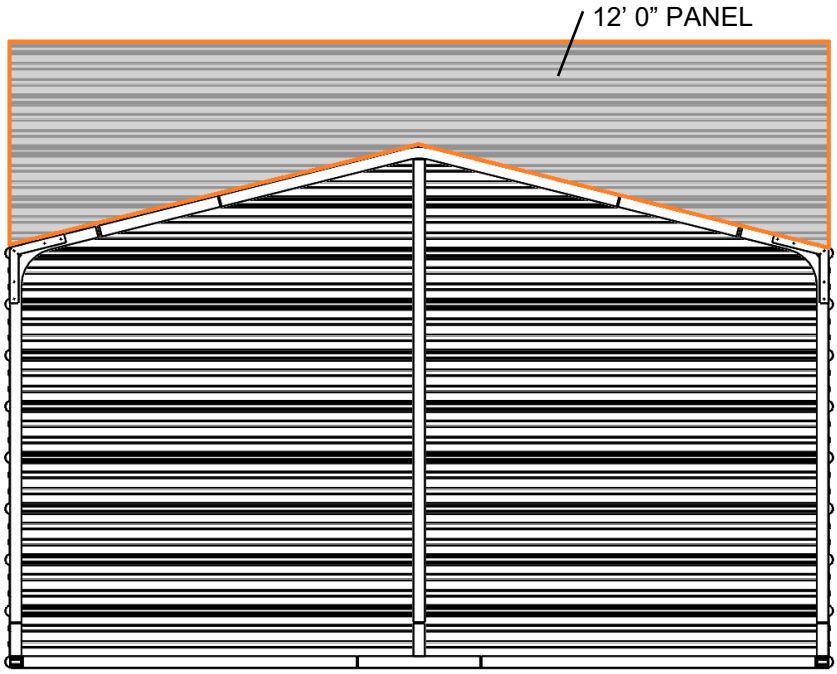


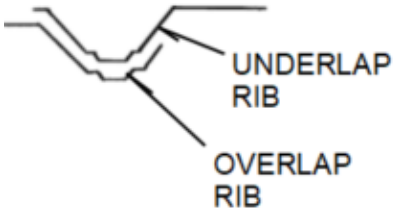


Installing Gable Sheet Metal

STEP 2: INSTALLING BACK GABLE END PANELS

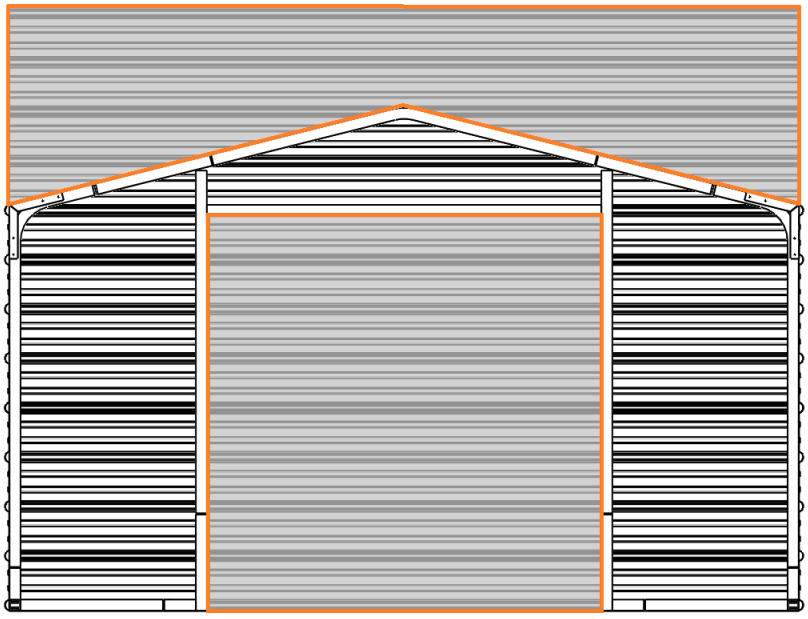
Gather (3) 12’ 0” panels. The panels will be installed in a similar manner as the eave sides, starting from the 6’ 2” eave height with the underap edge. Once the first and lower panels are installed with 5 painted screws for every frame intersection, place the third panel on the frame. Attach with painted screws at center vertical and along the rafter lines. Once installed, use the rafter or a straight edge to mark a cut line. Trim excess sheet metal from the top and discard.

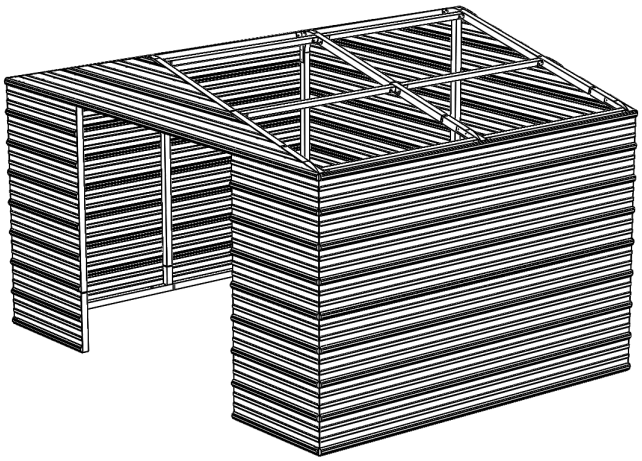




STEP 2: INSTALLING FRONT GABLE END PANELS

Gather (3) 12’ 0” panels. The panels will be installed in a similar manner as the eave sides, starting from the 6’ 2” eave height with the underap edge. Start by cutting (2) of the 12’ 0”panels into (4) 3’ 0” panels, discarding the rest of the panel. Install in the normal fashion, making sure the panel is horizontal and in the J-trim. Repeat for the lower panel. Place the third panel on the frame. Attach with painted screws at center vertical and along the rafter lines. Once installed, use the rafter or a straight edge to mark a cut line. Trim excess sheet metal from the top and discard.

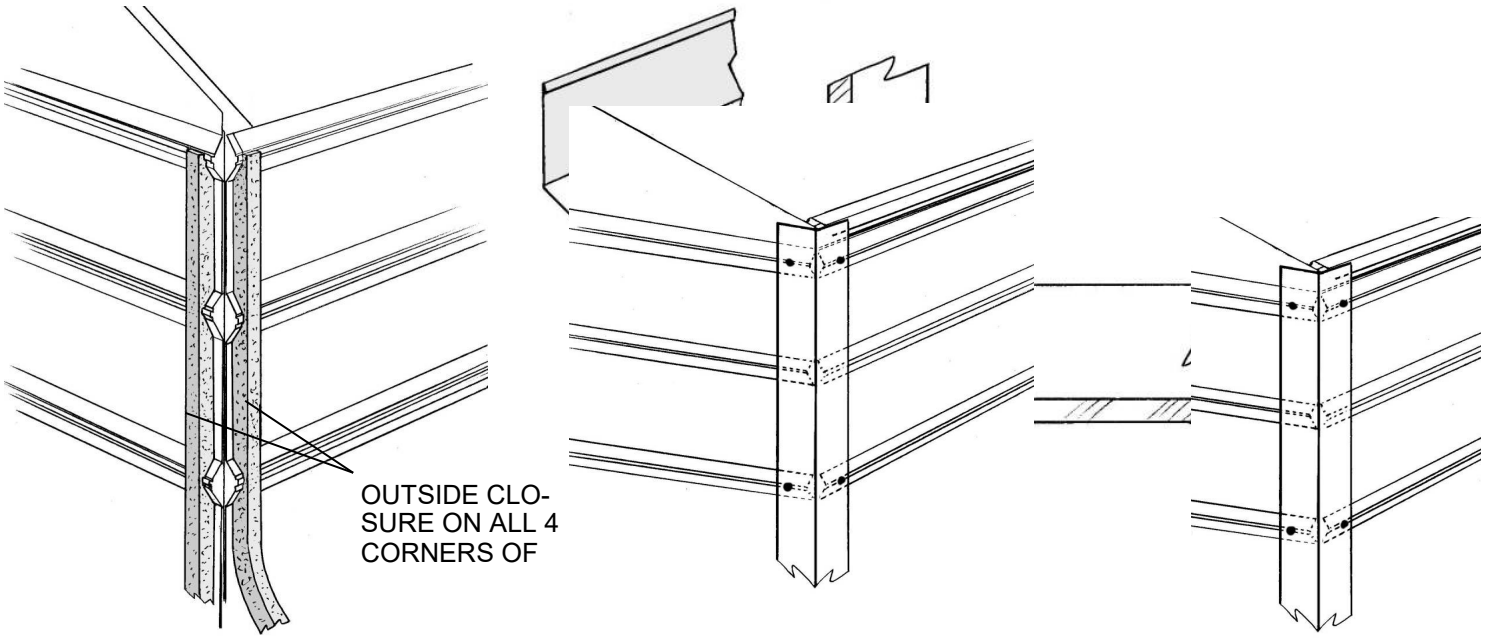




Installing Corner and Eave Trim

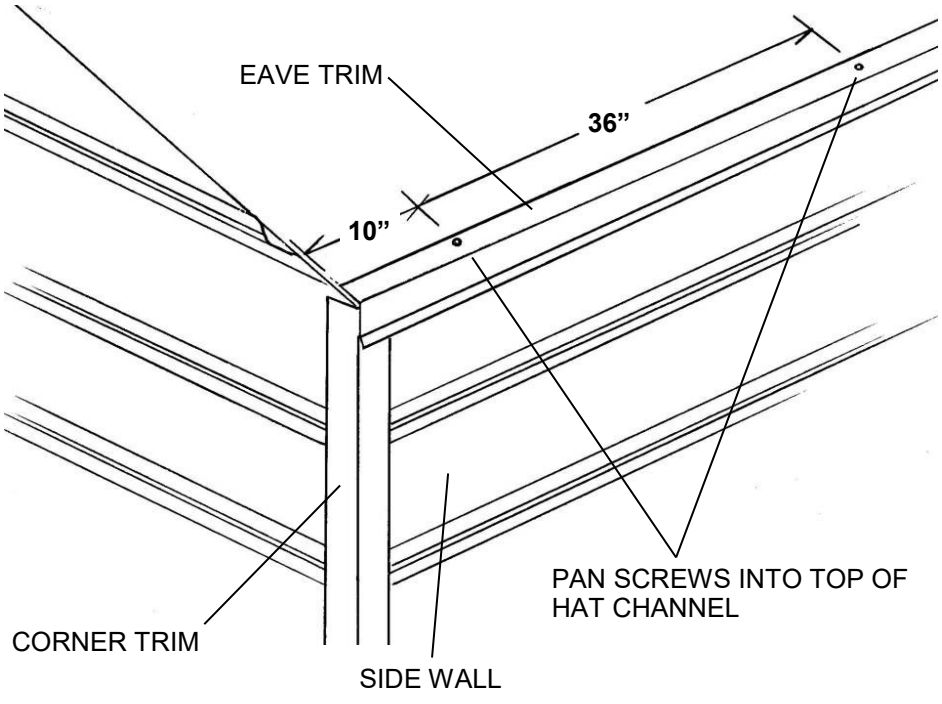
STEP 1: INSTALLING CORNER TRIM

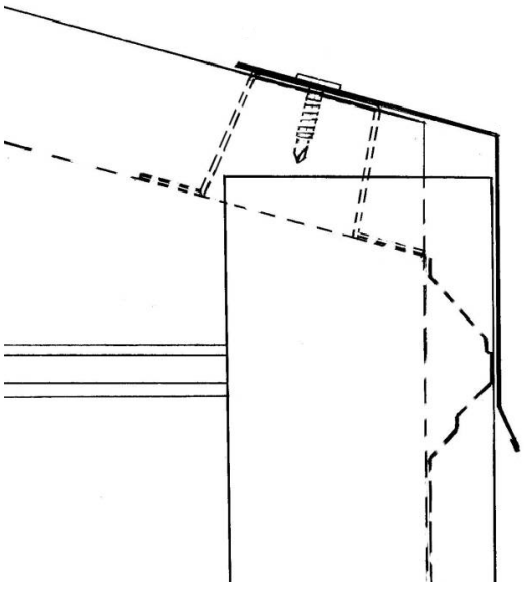
Before installing the corner trim, install Outside Foam Closures. The foam closured are foam strips with notches cut out to match the contour of the outside of the sheet metal panel ribs. The closures have an adhesive strip on one surface. Peal off the protective paper and install the strips to the sheet metal panels in the corners of the building as shown. The corner trim is angle trim 3” x 3” x 10’ 6” long. Cut the corner trim to the eave height (6’2”). Screw the trim to the building with painted screws (same color as trim). Place the screws in the trim to hit the center of every other major rib in the sheet metal panels.



STEP 2: INSTALLING EAVE TRIM

The eave trim for your building is 10’ 6” long. Start the application of eave trim at the front of the building. Place a piece of trim at the eave of the building as shown below, square the trim to the building and attach it to the top of the hat channel with pan screws. Place the first screw 10” from the end of the trim and additional screws every 36”. Check as you go to keep the trim square and flush with the sheet metal side panels. Trim the length of eave trim to fit the length of the structure. Repeat on the other side of the building.



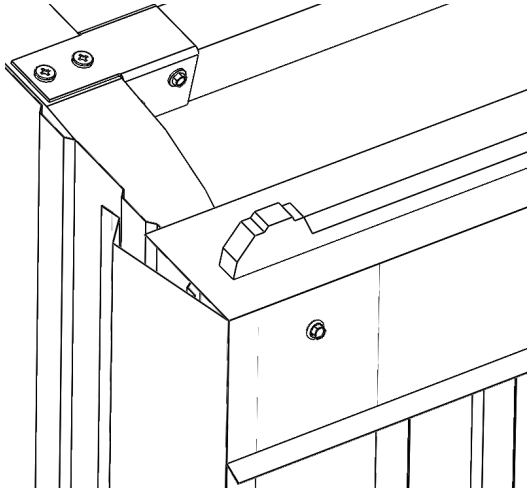

END WALL VIEW

Installing Roof Sheet Metal

STEP 1: INSTALLING INSIDE CLOSURE STRIPS

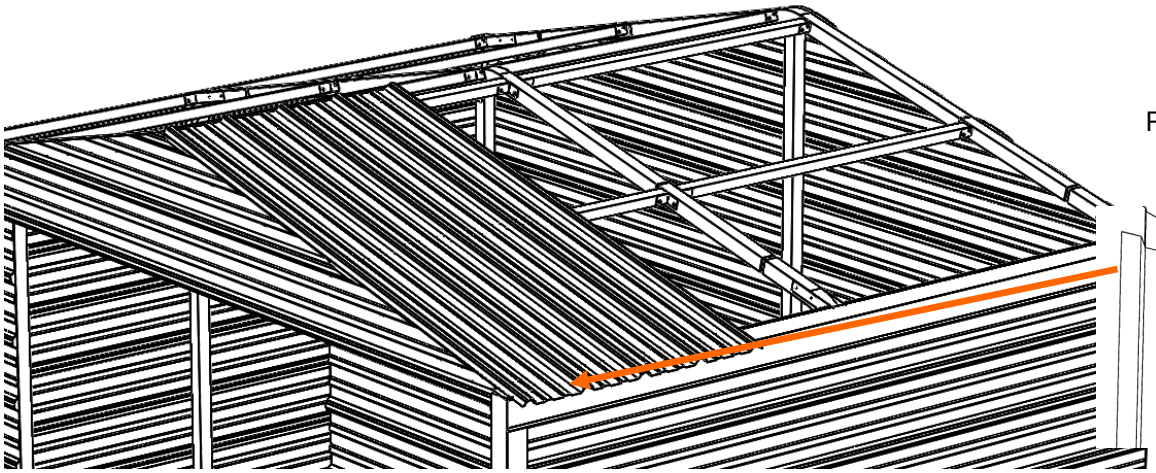
SUGGESTED AT LEAST TWO PEOPLE TO INSTALL ROOF SHEET METAL PANELS

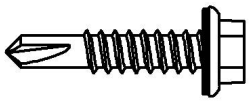
One person will be on a tall step ladder, extension ladder, or scaffold inside the building at the building peak and the other on the outside of the building at the eave. Before installing roof panels, install inside closure strips on top of the eave trim. Place the end of the inside closure strip approximately 7/8" from the end of the eave trim (closure strip should be in line with front wall frame) and 1" from the eave side. Peel backing and stick in place. Continue down each side in the same manner.



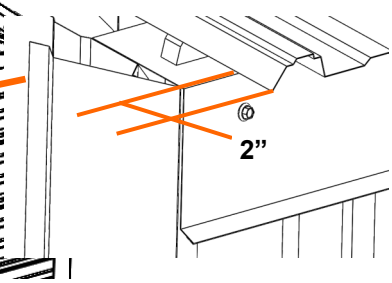
STEP 2: INSTALLING ROOF SHEET METAL PANELS

The 6'5" roof sheet metal panel is sized to allow a 2" overhang at the eave, from the outward facing profile of the eave trim to the end of the roof panel. Make a mark on the under side of the sheet metal panel at 2" to help align the sheet metal when installing. Place the first sheet of roof sheet metal at the front or back edge of the roof flush with the outside of the building frame *(not outside of sheet metal or trim)*. You should start on the same end of the building that you started the side metal. Place the Overlap edge of the panel flush with the end of the building frame. At the upper end, the panel edge must line up with the edge of the building. At the lower end, the panel edge should line up with the building frame. Check the mark on the under side of the panel and attach the edge of the panel to the lower roof purlin with a painted self-drilling screw with rubber washer. Attach the edge of the panel flush with the end of the building. Measure the distance from the center of the first rib to the center of the last rib. Set the distance at 36" and attach that edge of the panel to the lower purlin. Then, take a measurement from the underlap edge of the panel to the next Roof/Wall Frame Section and set the top edge at the same distance to attach the top edge of the panel to the top roof purlin. This will assure the panels at the top and bottom will come out even with the other end of the building. Install remaining screws into top and bottom roof purlins. Use the method used on the sides of the building to keep the screws straight and make sure to hit the purlins with the screws. At the eave or lower end of the roof panel place one screw on both sides of each major rib. Place the overlap edge of the next roof panel over the underlap edge of the previous panel. Line the panel up with the string at the top and attach that edge at the top and bottom of the panel. Now, take the same measurements that you did on the first panel. 36" between the center of the first and last rib. Attach at the bottom, measure to the next frame section, set the top edge at the same dimension and attach the top of the panel. Place one screw in remaining roof purlins at the edge of the panel. Repeat this installation method down the length of the building and on the opposite side.





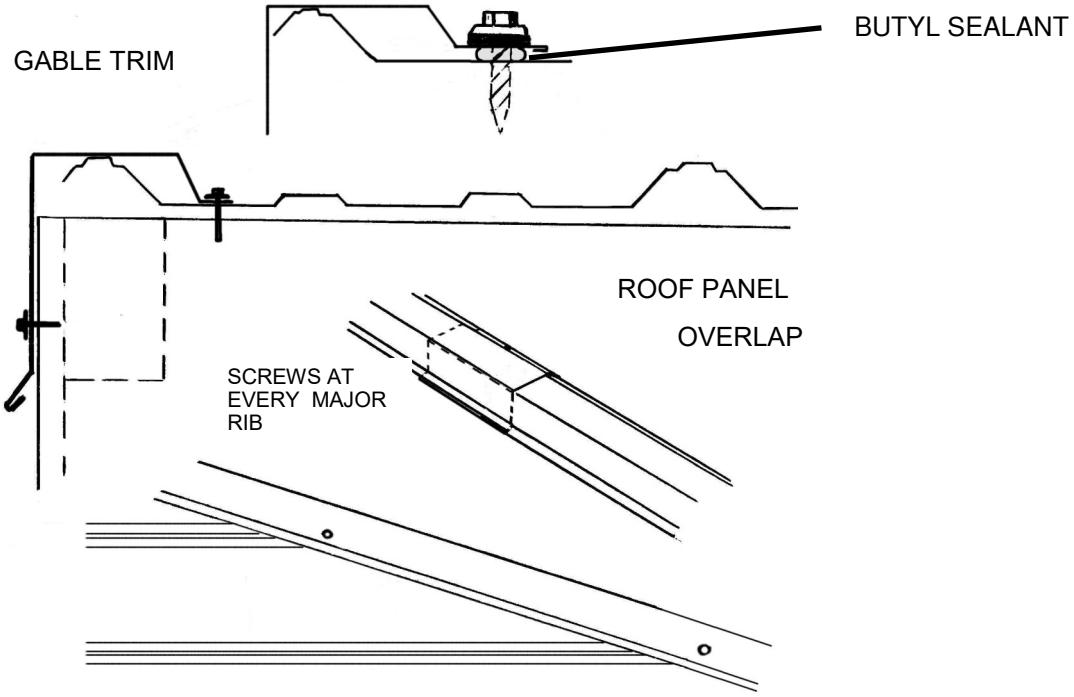
PAINTED SELF-DRILLING SCREW



Installing Gable Trim

STEP 1: INSTALLING THE GABLE TRIM

Before you install the Gable Trim, run a bead of Butyl Sealant down the major rib of the end roof panels. Place the Butyl Sealant just to the inside of the center of the rib. Run the bead the full length of each gable end roof panel. There are (4) 10' 6" pieces of Gable Trim; (2) for each end. Take each piece and cut the trim to (2) 4' 4-3/4" pieces. The Gable Trim can be angle cut on the end that will be at the peak (if desired). Place a painted sheet metal screw about every 24" into the front surface of the trim as well as a screw on top at each roof purlin. Repeat on each end.



Installing Ridge Cap

STEP 1: INSTALLING CLOSURE STRIPS AND RIDGE CAP

The Ridge Cap will cover the Gable Trim plus 1/2", making the length approximately 9'-4 3/4" (field check measurement). Place the 10'6" ridge cap on the peak of the building, checking the actual length needed. Remove ridge cap and cut. Center it and make a mark at the lower edges at the end of the building. Do the same thing at the opposite end of the building and snap a chalk line between the marks. This will make the ridge cap easier to line up and provide a measuring point for locating butyl sealing tape and outside foam closure strips. The edge of the closure should be 1/4" up from the chalk line. Install the ridge cap on the peak at the back of the building. Let the ridge cap overhang the gable trim by 1/2". Fasten with painted screws through the edge flange and into the top of every other ma-