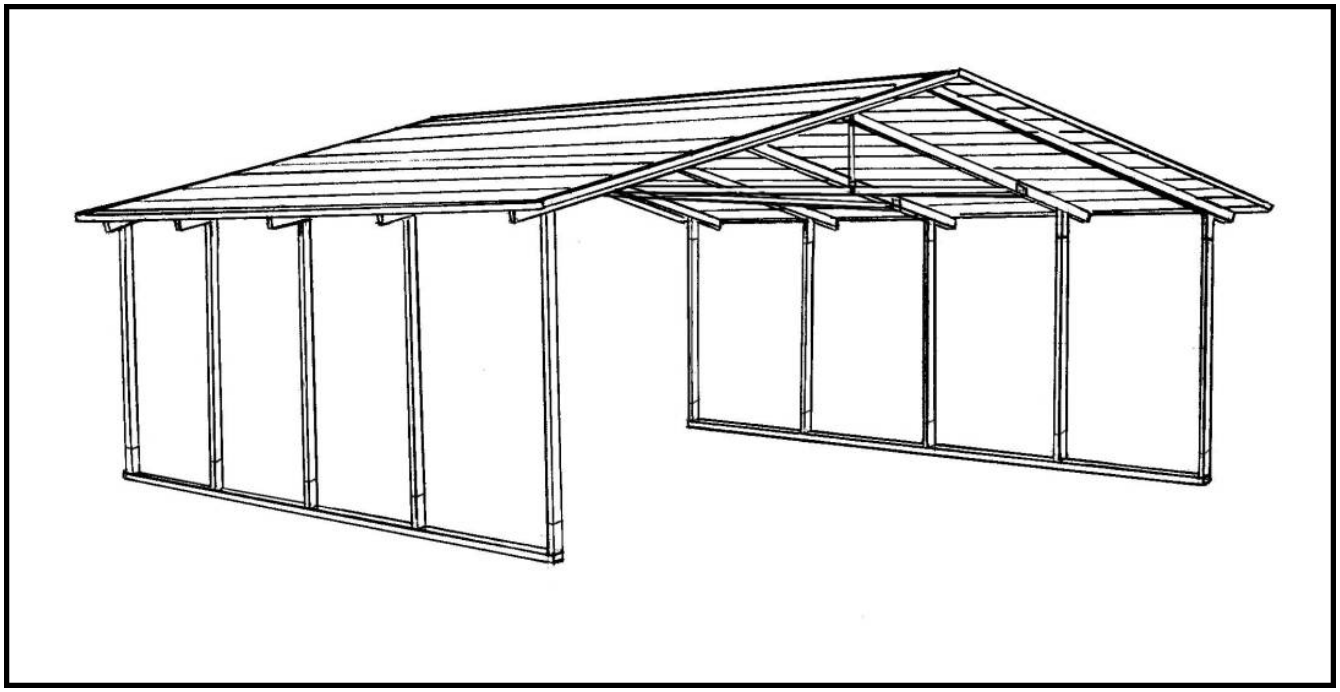
INSTALLATION INSTRUCTIONS

SUBURBAN SERIES CARPORT
25’ X 20’ X 6’

LENGTH CAN BE EXTENDED IN 4 1/2’ INCREMENTS
HEIGHT CAN BE EXTENDED IN 1’ INCREMENTS

BASIC FRAME SIZES (NO EXTENSIONS): 25’-1/2” X 18' x 6’ EAVE (2” X 3” TUBING)



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.

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
Becoming 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.

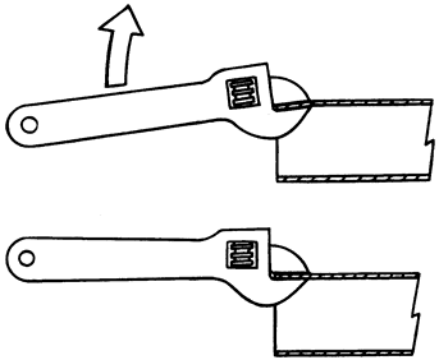
NOTE:
The VersaTube Building System is an all domestically produced galvanized tubular steel framing system. Maintenance is required twice annually on particular areas of the framing system i.e. ''weld seams" and "cut or raw ends". This maintenance is performed by applying any "Zinc coated" silver spray 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.

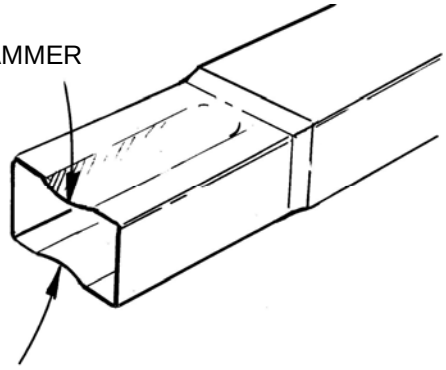
ATTENTION:

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

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.

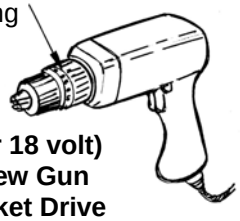


STRIKE WITH HAMMER



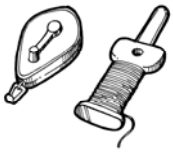
What you'll need

Torque Setting



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

Chalk Line and Mason Line or Nylon String



2 Step Ladders

One must be able to comfortably reach the peak of the building 10' to 16' high depending on building width and height. An extension ladder can also be helpful when installing sheet metal.

Safety Goggles Or glasses

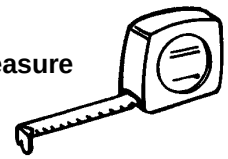
Level

Shovel or Post Hole Digger

Work Gloves

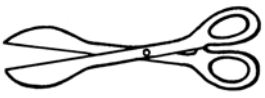
Pencil/Marker And Felt Marker

Tape Measure



Hammer

Tin Snips

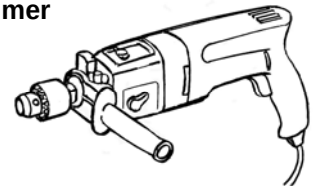


Items you may need

Adjustable wrench

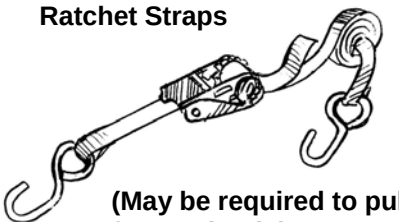
Masonry Drill Bit 1/2" x 8" Drill depth

Hammer Drill

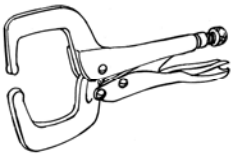


Wrench, 3/4" & 1/2"

Motor Cycle or Ratchet Straps



Vise grip or other quick clamp



(May be required to pull frame plumb.)

BASIC CARPORT PARTS LIST

END BASE RAIL 2” x 3” x 83 3/4” rail with 2 welded vertical pins, swaged one end. QTY. (4), part # 71-4802

CENTER BASE RAIL, 2” X 3” X 56” rail with 1 welded vertical pin in center. QTY. (2) part # 71-4801

SIDE POST, 2” x 3” x 64 3/4” tube swaged at one end. QTY. 10 on 18’ frame, 2 for each 4 1/2’ extension. Part # HE-5

HEIGHT EXTENSIONS 1’ TO 5’, swaged 1 end. QTY. 10 on 18’ frame. Part # HE-1, HE-2, HE-3, HE-4 & HE-5

EAVE CORNER, Welded Eave Corner. QTY. 10 on 18’ frame, 14 on 27’ frame, Part # 716-EC25

PEAK, 2” x 3” x 72” with one bend in the center. QTY. (5) on 18’ frame, 1 for each 4 1/2’ extension. Part # 71-6000

RAFTERS, 2” x 2” x 76 1/4” tube swaged both ends. QTY. 10 on 18’ frame, 2 for each 4 1/2’ extension. Part # 716-8000

ROOF SIDE EDGE TRIM, J-TRIM 10’ long, QTY. 4 pc on 18’ frame, 5 pc on 22 1/2’ frame, 6 pc on 27’ frame, 7 pc on 31 1/2’ frame, 8 pc on 36’ frame, 9pc on 40 1/2’ frame, 10 pc on 45’ frame.

ROOF FRONT & BACK EDGE TRIM, Angle Trim 2” x 2” x 10’ long. QTY. 6

BUTYL TAPE, Length will change depending on the size of the carport. Part # 71-9401

PLASTIC END CAPS, QTY. 10 on 18’ frame, 2 additional caps for each 4 1/2’ of extension. Part # 9901-EC

FRAME SCREWS, # 12 X 3/4” hex head, Self-Drilling screws. 70 pack #71-9999 & 40 pack #71-9999A .

SCREWS FOR ROOF METAL, #12 X 1” painted self-drilling screws with rubber washers.
SCREWS FOR ANGLE TRIM, #12 X 3/4” painted stitching screws with rubber washers.

VERSATUBE ANCHORS,
REBAR ANCHOR, used with concrete. #4 x 30” rebar with welded top plate. # ANC-24 Use 1 per post. QTY. 10
For 18’ frames 2 additional anchors for every 4 1/2’ of extension.
Concrete Wedge Anchors 1/2” x 5 1/2” are not supplied.

ALL SHEET METAL PANELS ARE 29GA R-PANEL

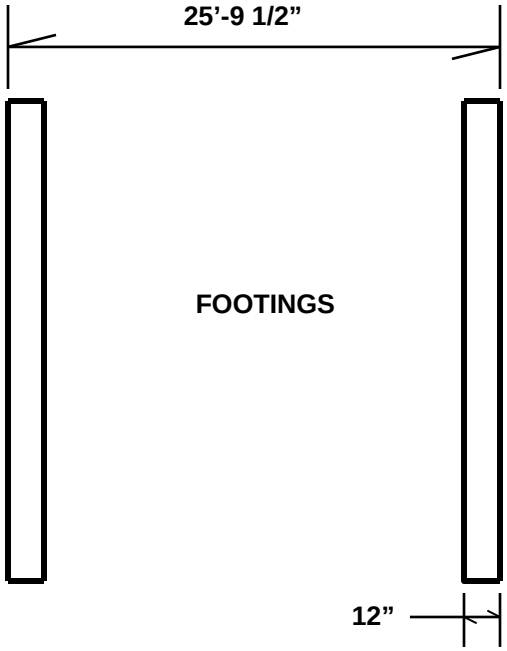
CARPORT LENGTH	PANEL LENGTH & QUANTITY			
20’	10’ (18)			
24 1/2	10’ (18)	4’-8” (9)		
29’	10’ (18)	9’-2” (9)		
33 1/2’	10’ (18)	4’-8” (9)	9’-2” (9)	
38’	10’ (18)	9’-2” (18)		
42 1/2’	10’ (18)	4’-8” (9)	9’-2” (18)	
47’	10’ (18)	9’-2” (27)		

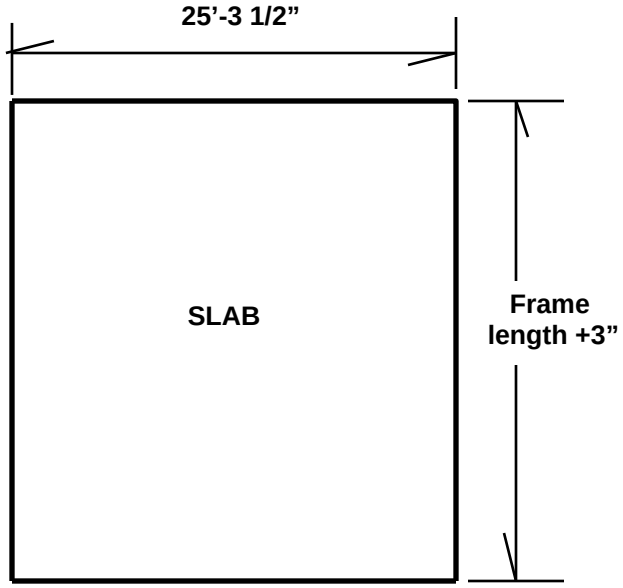
SIGHT PREPARATION FOR CARPORT

The Versatube carport frame is designed to be placed on the ground, concrete footings, or a 4" concrete slab. In ether case, the mounting surface should slope back to front or front to back 1/8" per foot (about 2 1/4" on a 18' frame). The slope will allow water to run over the roof metal lap joint and not gather on the roof. If water runs into the lap joint your roof may leak. It is important that you create one of these conditions prior to your carport installation. We recommend that you check with your local building official prior to starting your project to find out what is acceptable for foundations and anchoring in your county.

SLAB: If you will be pouring a slab for your carport, the slab should be 4" thick with 6/6/10/10 welded wire fabric reinforcement at mid-depth of the slab. The slab should slope 1/8" per foot back to front or front to back. The concrete should be 2500 to 3000 PSI.
The outside dimensions of the slab should be at least 3" wider and 3" longer than the frame. The slab should be at least 25'-3 1/2" wide x 18'-3" long for 18' long frames. This will allow the center of your anchor bolts to be 3" from the edge of the slab.

FOOTINGS: Footings should be 12" wide and 12" deep and should be positioned so the base rails are centered in the footing. If you center the base rails on the footing the outside dimension of the footing will be the carport width plus 9". The carport frame is 25'-1 /2" wide so the outside width of the footings will be 25'-9 1/2". The footings can extend 2" to 3" above grade (ground level). The footings should slope 1/8" per foot back to front or front to back.

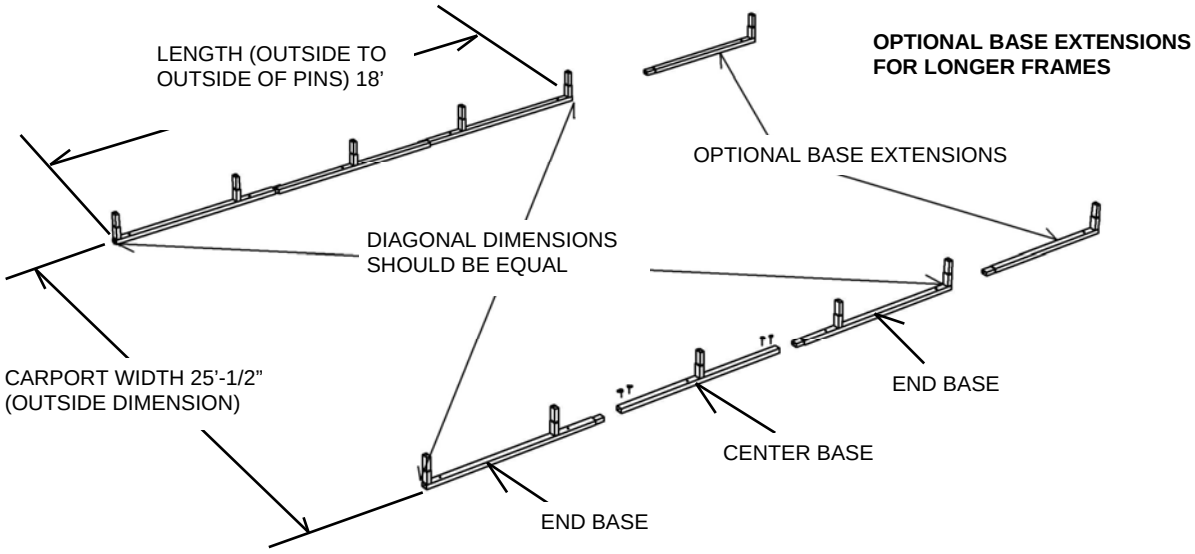




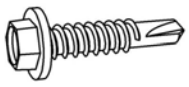
The frame length is 2' less than the carport roof length. Example: a 20' carport has a 18' long frame.

ASSEMBLING AND POSITIONING THE BASE RAILS:

Layout the base rails on your slab or footing or prepared ground. The base rails should be 25'-1/2" apart (outside to outside). The length from the front to the back of the base rail assembly will be 1/2" longer than the frame length. Example: If you have a 18' frame, the length of the base rail assembly will be 18'-1/2". The dimension from the front of the front vertical pin to the back of the back vertical pin will be 18'.)
Join all the base rail components as shown. Check the overall length of the assembly, keep the swage joints even in length and fasten the swage joints with (2) #12 hex head, self drilling screws per joint on top of the base rail.
Place the Left and Right base rail assemblies 25'-1/2" apart (outside to outside) and take a measurement across the diagonals of the frame to check it for square. Adjust the frame until the measurements are equal.
If you have <u>longer frame</u> you will need to add 4 1/2' base extensions to each side of the carport until you get to the length required. See optional base extensions below. The dimension from the outside of the front vertical pin to the back of the back vertical pin will be 22 1/2', 27', 31 1/2', 36', 40 1/2', 45', etc.
The diagonal dimensions should be equal.



BASE RAIL LAYOUT



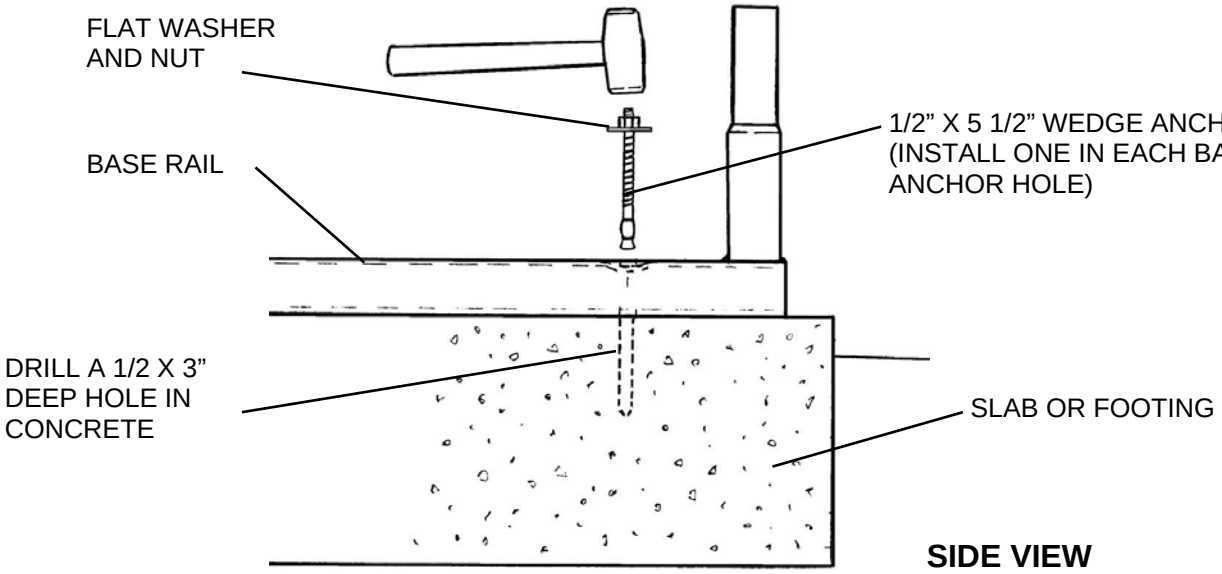
#12 HEX HEAD, SELF-DRILLING SCREW

ANCHORING CARPORT BASE RAILS:

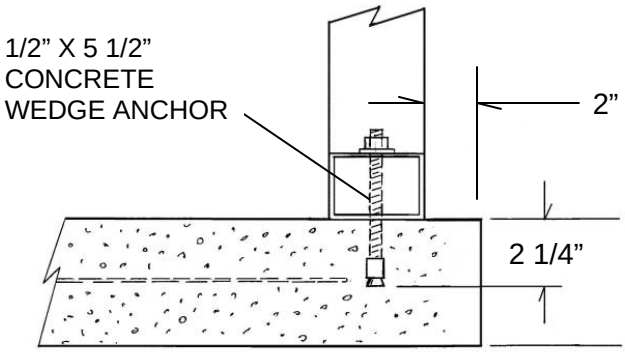
These instructions offer two anchoring methods: (1) To a concrete slab or concrete footings with concrete wedge anchor bolts (not provided). (2) To the ground with Versatube Rebar Anchors and concrete.

ANCHORING TO CONCRETE SLAB OR FOOTING WITH 1/2” X 5 1/2” WEDGE ANCHORS

After you have completed all measurements and have the base rails in place and squared, screw the joints together with 2 screws per joint on the top surface of the base rail. This will assure that the rails remain straight and do not vibrate apart when you drill the anchor holes in the concrete. Concrete should be cured.
To drill the anchor holes, you will need a hammer drill and a 1/2” x 8” or 12” concrete drill bit.
Hold the base rail in place with your foot, insert the drill bit through the anchor hole in the base rail and drill a hole 3” into the concrete. The base rail is 2” thick, so the total depth from the top of the base rail will be 5”.
Place a flat washer onto the anchor bolt and screw on a hex nut until about 2 threads are exposed above the nut. Now, place the bolt in the hole and tap it down with a hammer until the nut and washer touch the top of the base rail. Use a 3/4” wrench to tighten the nut. Tighten the nut until it is snug. Do not crush the base rail tube.
Place an anchor in each base rail anchor location (10 required).



SIDE VIEW



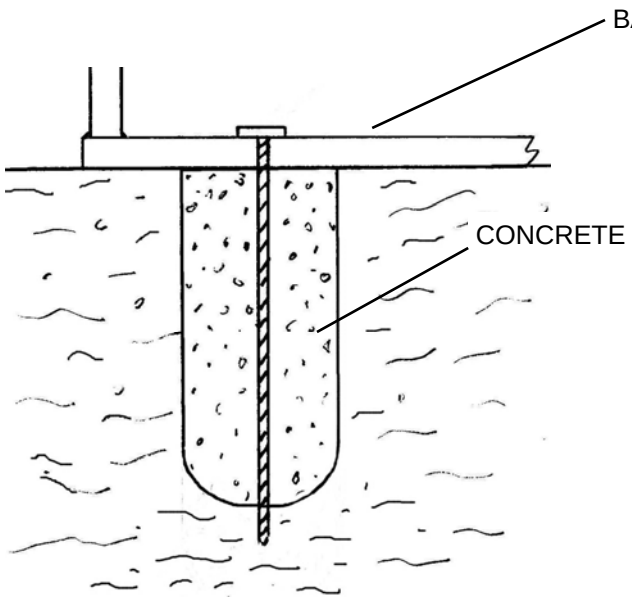
END VIEW

ANCHORING TO GROUND WITH CONCRETE PIERS

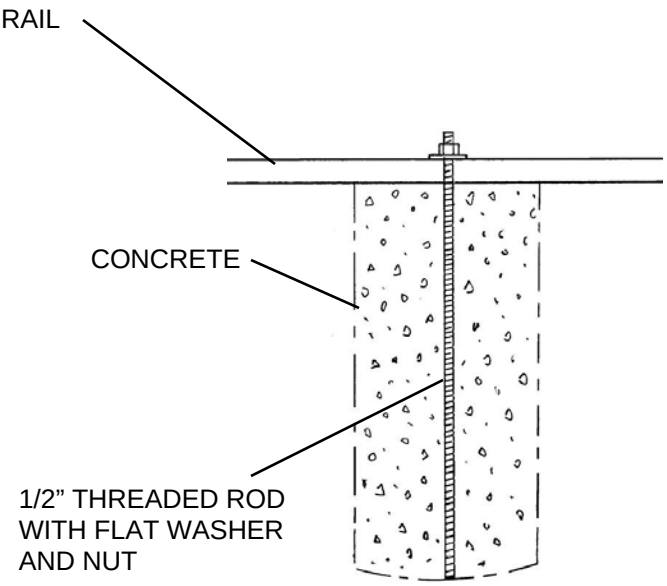
DIGGING HOLES FOR CONCRETE
Mark the locations of the rails and the anchor holes on the ground. Move the base rails to one side and dig holes at each anchor point for concrete. You may want to rent a gas-powered post hole digger with an 8" or 12" diameter auger for this job.
HOLE SIZE:
Counties with 70 or 80 mph Exposure C wind: Use a 12" diameter hole 14" deep or a 8" diameter hole 18" deep.

Counties with 90 mph Exposure C wind: Use a 12" diameter hole 18" deep or an 8" diameter hole 24" deep.

ANCHORING
Move the base rails back into position over the holes. Re-measure to make sure the rails are in the proper location (see layout on page 6).
Now drop or drive a Versatube 30" re-bar ground anchor or a 1/2" x 36" threaded rod with a flat washer and nut at the top (not provide) into each anchor hole. A 24" rod could also be used. Threaded rods are normally 3' long from your building center.
Mix up concrete and pour into holes up to ground level. You may want to rent a mixer for this job. 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 Roof/Wall assemblies.



VERSATUBE
RE-BAR GROUND ANCHOR

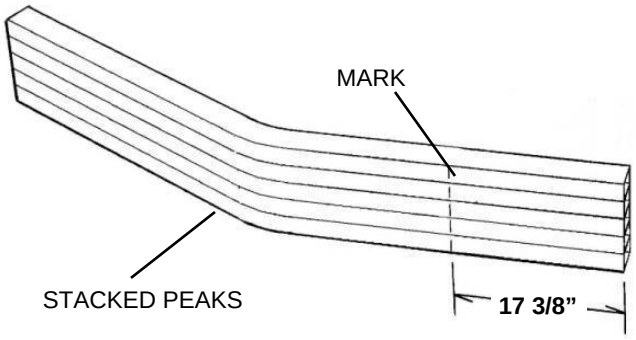


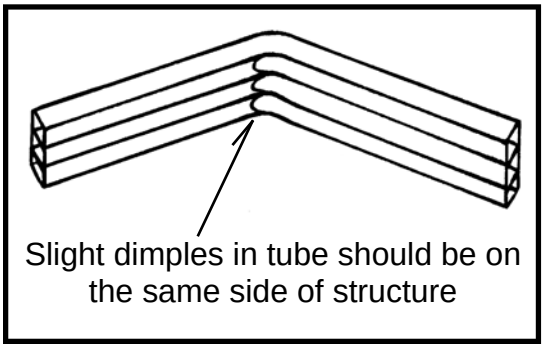
1/2" THREADED RODS
WITH FLAT WASHER
AND NUT ARE **NOT PROVIDED**

NOTE: If it is necessary to assemble and anchor the carport all in one work session, you can anchor the carport after it is complete. If you assemble the frame and install sheet metal before anchoring the base rails, it is important to have the site prepared and level. This will allow you to get the frame square and the sheet metal properly aligned with the frame.

ROOF/WALL FRAME ASSEMBLY

Before you start the assembly of the Roof/Wall sections, stack the Peak tubes, line up the ends and mark a line on the top of each peak 17 3/8" from one end. This will be the location of the edge of your first run of sheet metal panels on the roof of the carport.



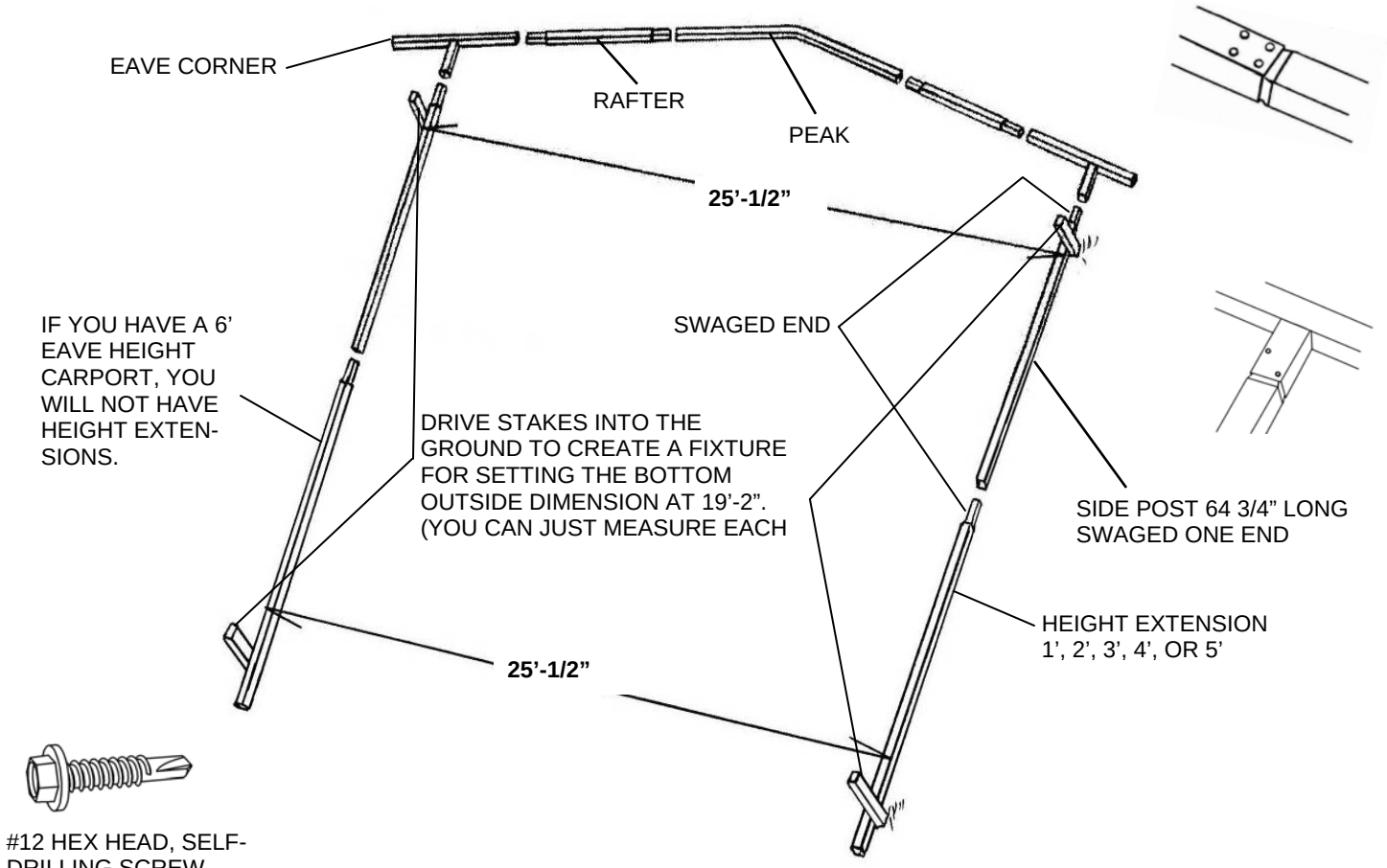


On the ground, assemble (1) peak, (2) rafters, (2) eave corners and (2) side posts. (2) height extensions for carports with eave heights over 6'.

Before you fasten the joints with screws, take a measurement across the top and bottom of the assembly as shown. This outside measurement is the outside size of your carport frame. (25'-1/2") Try to keep the joint spacing on both sides of the assembly equal. **It is very helpful to drive stakes into the ground at the width of the carport and use them to set the dimension at the bottom of the assembly. You should set the bottom dimension before you adjust and set the top dimension**.

Now, fasten the joints with #12 x 3/4" hex head, self-drilling screws. Use 2 screws in the leg to eave corner joints and the height extension to side post joint. Use 4 screws in all other joints. See details below.

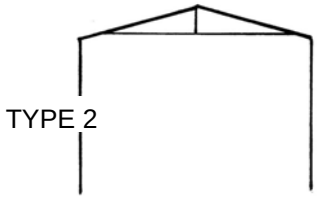
NOTE: You can use the first assembly as a template to assemble the remaining Roof/Wall Frames.



#12 HEX HEAD, SELF-DRILLING SCREW

TRUSS BRACING:
THE TRUSS BRACE IS A COLLAR TIE WITH A CENTER VERTICAL BRACE

NOTE: TRUSS BRACES ARE USED ON ALL INSIDE FRAME SECTIONS, NOT ON THE TWO END FRAME SECTIONS.

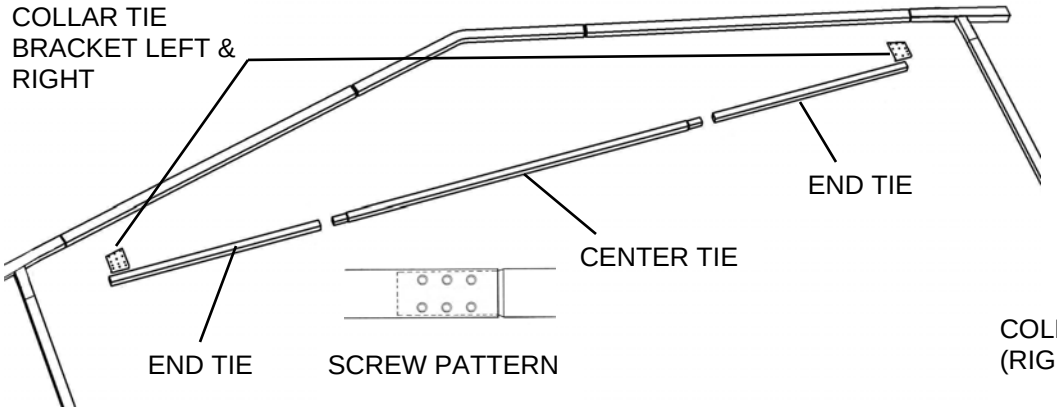


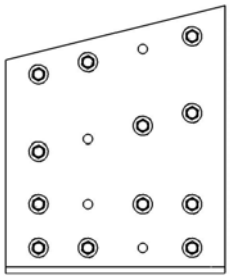
COLLAR TIE WITH
VERTICAL BRACE

COLLAR TIE ASSEMBLY:

Collar Ties are made up of 3 parts: (1) Center Tie 2" x 2" x 111" long swaged (reduced) on both ends (part #74-1110) and (2) end ties. End Ties are 2" square tube 74 1/2" long (part #7400-7450).

Assembly: Place an End Tie on both ends of the Center Tie and fasten each joint with (6) #12 hex head, self-drilling screws. Place screws on one side of the assembly as shown. Note: Make sure the assembly is straight when you install screws.
Install a left and right Collar Tie Bracket on both ends as shown. See pattern below, 12 screws per bracket.

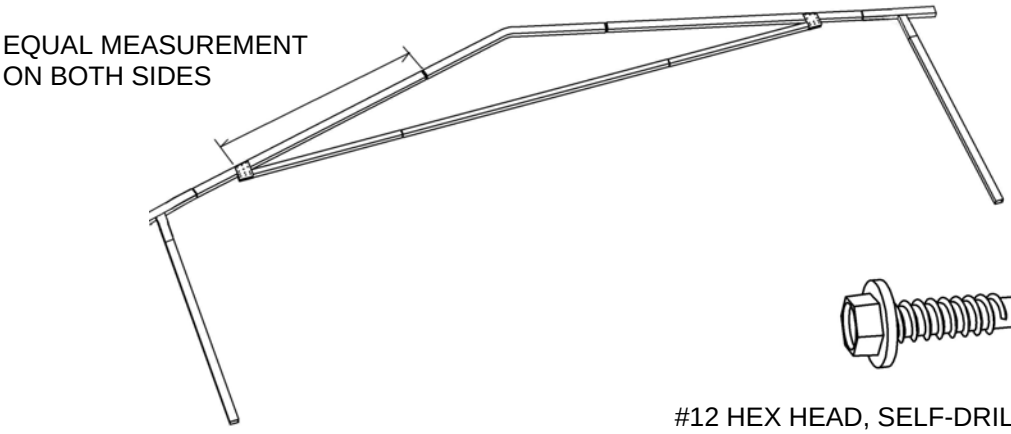




COLLAR TIE BRACKET, (LEFT)
(RIGHT) IS A MIRROR IMAGE.

ASSEMBLY OF COLLAR TIE TO ROOF/WALL FRAME:

The collar tie must be centered in the frame. Take a measurement from the end of the side post to the collar tie bracket on both ends of the truss brace. Adjust the brace side to side until the measurements are equal. Fasten the collar tie brackets to the rafters with (6) self-drilling screws on each side of the assembly.



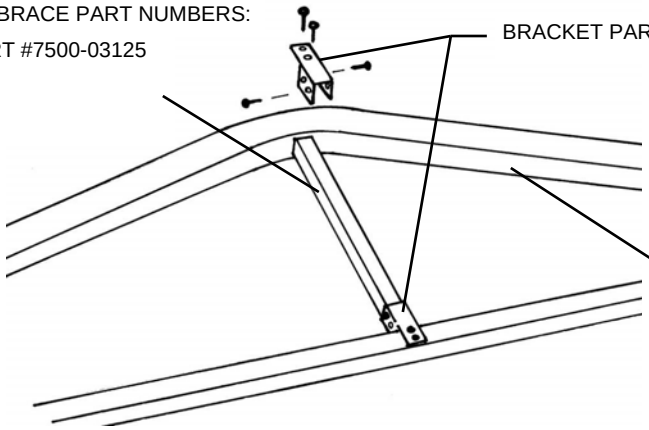
#12 HEX HEAD, SELF-DRILLING SCREW

INSTALLING VERTICAL BRACE FOR BRACE TYPE (2) TRUSS BRACE

The Center Vertical Brace is 1 1/2" square x 31 1/4" long. Fasten the brace to the Collar Tie and the Frame Peak with Single Purlin Brackets. Use two screws in the bracket tongue and one screw in each side flange as shown. Fasten the brackets to the vertical brace first. Place the assembly together and adjust the parts to fit before installing any screws. Make sure that the Collar Tie assembly is straight before you fasten the brace to the Collar Tie and Peak.

CENTER BRACE PART NUMBERS:

25W: PART #7500-03125



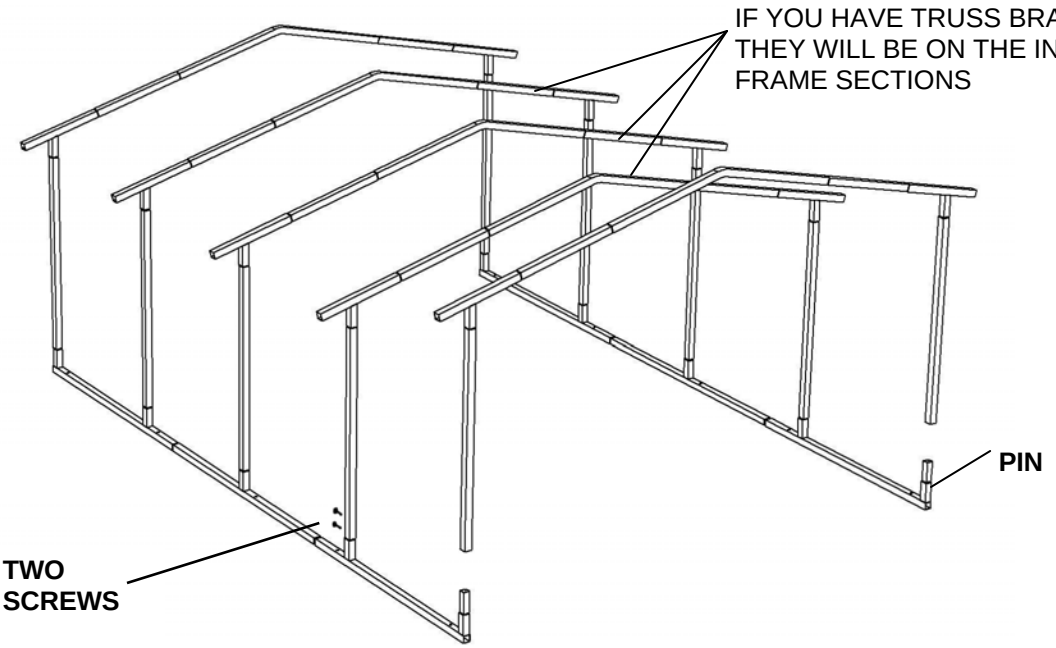
#12 HEX HEAD, SELF-DRILLING SCREW

ATTACHING ROOF/WALL ASSEMBLIES TO BASE RAIL SECTIONS

NOTE: This step will take at least two people to complete safely and easily. Lifting one complete Roof/Wall assembly, place each leg of the assembly over the corresponding pins on the base assembly as shown. Insert both upright wall sections onto the base rail assembly at the same time as nearly as possible to ease assembly. Firmly and completely place each section onto the corresponding pins.

Repeat with each roof/wall assembly section until all rough assembly is complete. Now, attach with 2 self-drilling screws at each connection. (See illustration below)

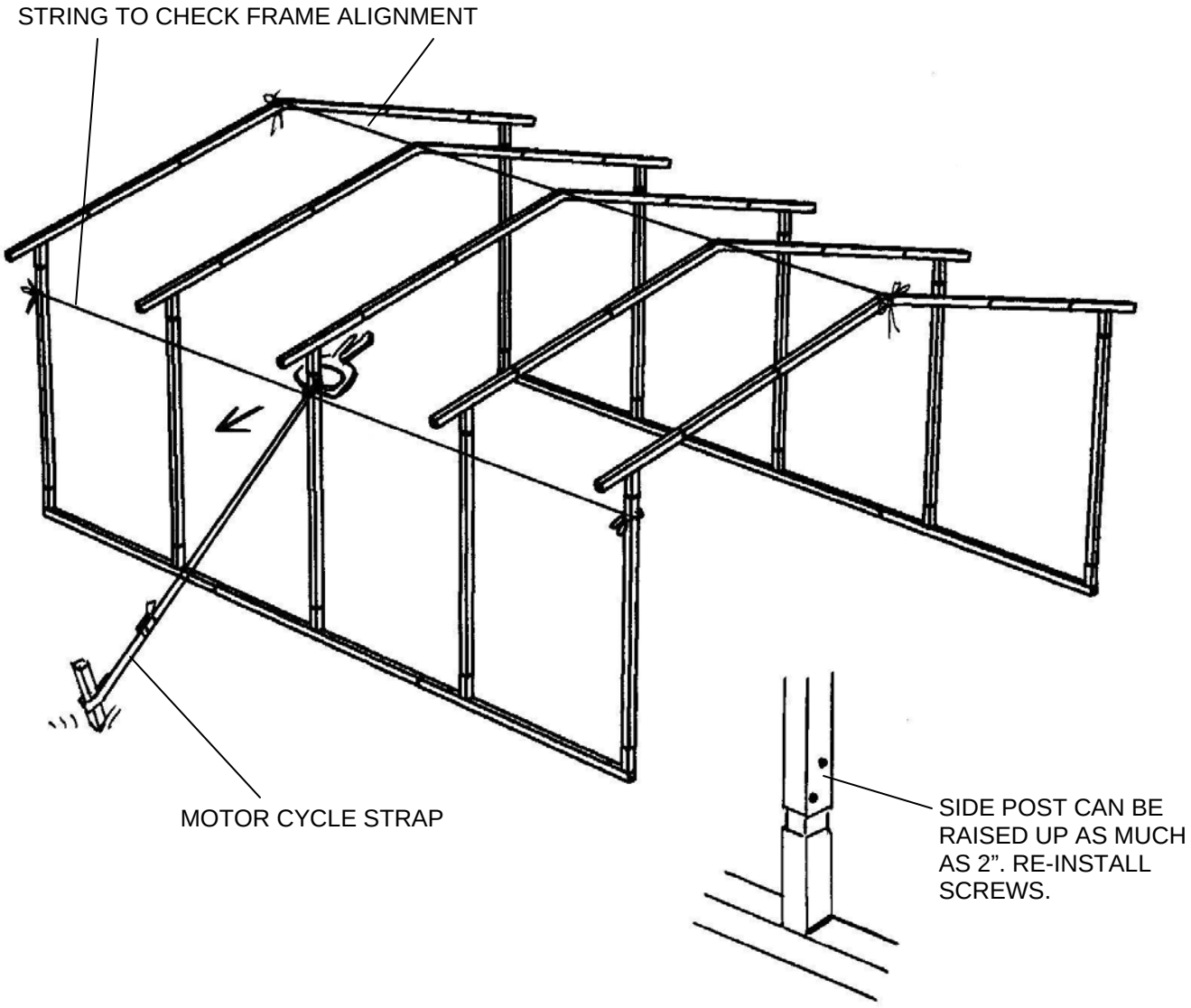
NOTE: Screws should be positioned on the side of the tubes.



CHECKING THE FRAME SECTIONS FOR ALIGNMENT

You can be sure that your frame is aligned properly by tying two strings to the frame on one side to the front and back frame sections. Tie one string below the eave corner and one at the peak of the frame. The strings should be pulled tight.

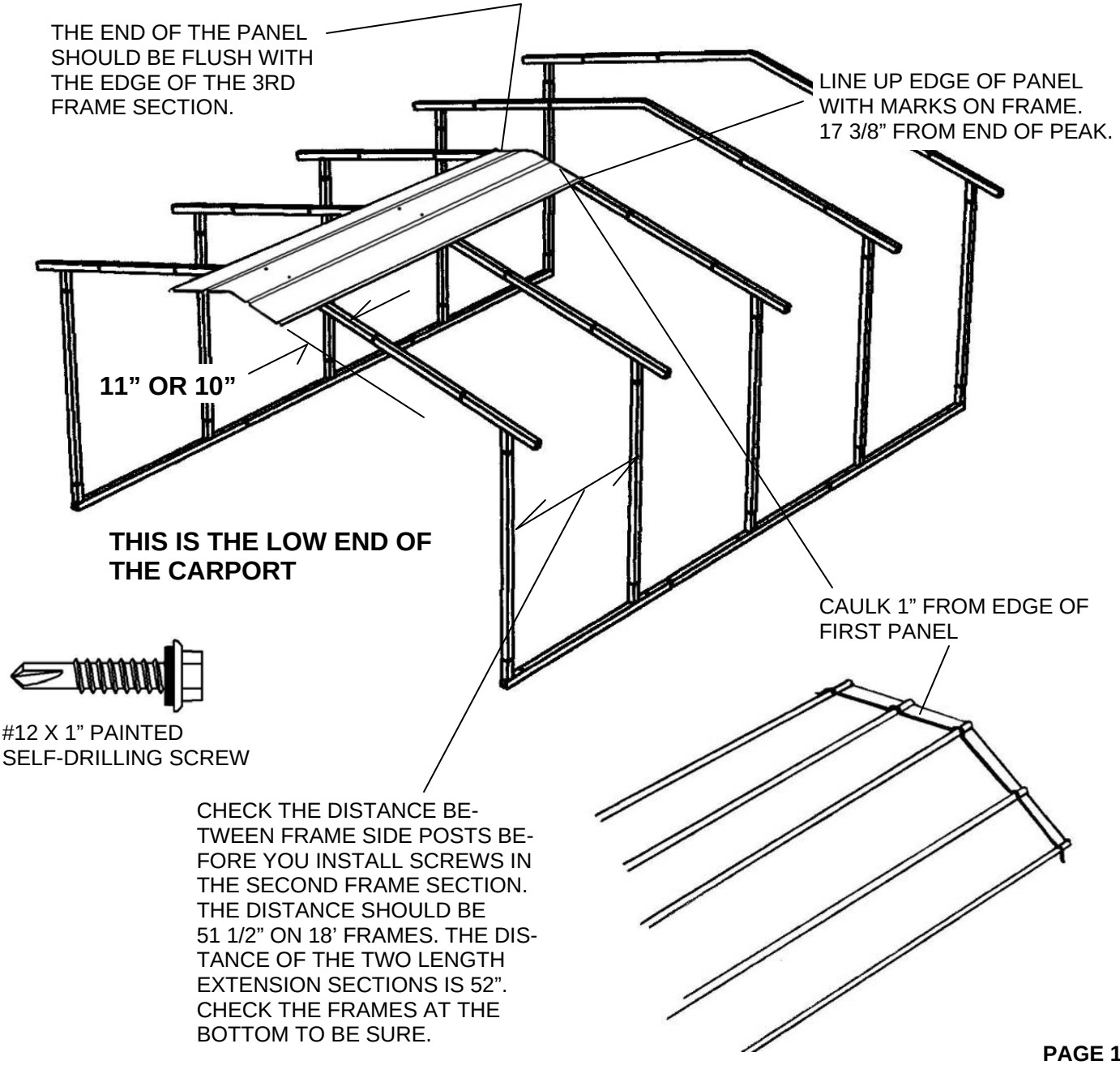
The top string will show you if the frames are all at the same height and the side string will tell you if they are all in line down the side. If you need to adjust the height of any of the frames you can remove the screws in the side posts at the pins and raise up the lower frame sections. Reinstall the screws. If you need to move a fame section to one side or the other you can use a motorcycle strap and a clamp to pull the frame from one side. Place the clamp near the top of the side post and hook the strap above the clamp. Drive a stake in the ground at an angle about 5' from the carport and attach the other end of the strap to the stake. Ratchet up the strap until the frame is aligned with the other frames. Leave the strap in place until at least the first course of sheet metal is on the roof.



INSTALLING SHEET METAL ROOF PANELS

INSTALLING THE FIRST COURSE OF PANELS:

The first course of sheet metal panels on the roof will be centered on the peak of the building. It is critical that you get the first course located properly. The first course will act as a guide for all the remaining courses.
As you were assembling the frames you marked the peaks on one side 17 3/8" up from one end of the peak. This line will be your guide to locate the edge of the first course of panels. If you did not mark the peaks you can do that at this time.
Install the first panel at the low end of the carport. Place the panel on the roof with one edge lined up with your marks on the frame peaks (Note: sometimes the panel edges are not equal. Clamp the first panel in place and check to see if it is centered in on the frame. Measure up from both ends of the peak. The measurements must be equal on both sides). The panel end should overhang the frame **11"** on 18' frames, **10"** on longer frames at the end with the 4 1/2' length extensions). When the panel is lined up install painted self-drilling screws in the pattern shown in the illustration below. Do not place screws above the panel edges or the high end of the panel at this time.
Run a bead of butyl caulk across the upper end of the panel 1" from the end on the panel. Let a small amount of caulk extend over the edges.

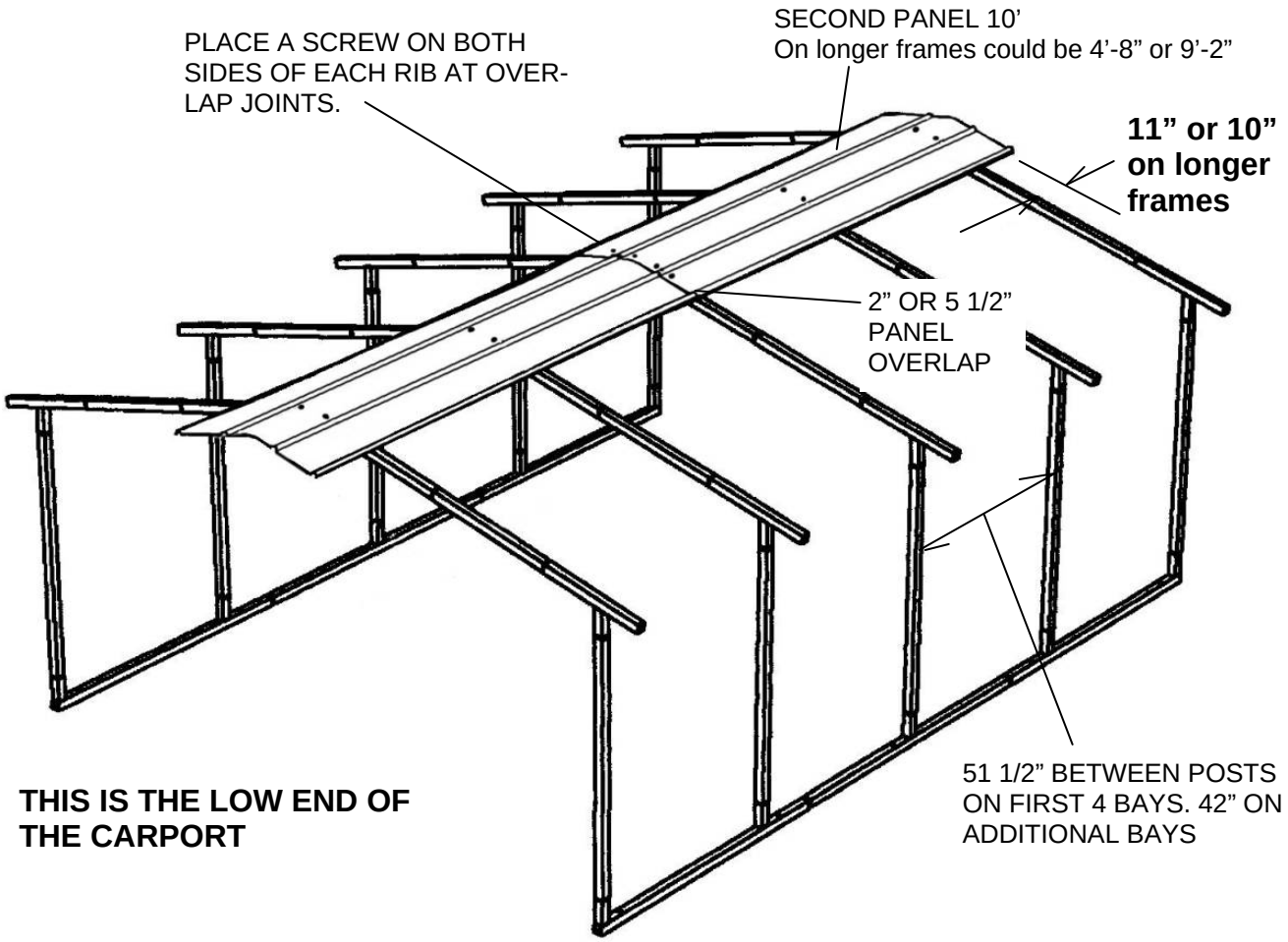


INSTALLING THE SECOND PANEL IN THE FIRST COURSE

The second panel on a 20' carport (18' frame) will be 10' long. If your carport is longer the second panel will be 4'-8" or 9'-2". See the list below for panel layout for your carport length.

20' carport: panel order 10', 10' 24 1/2' carport: panel order 10', 4'-8", 10' 29' carport: panel order 10', 9'-2", 10'
33 1/2' carport: panel order 10', 4'-8", 9'-2", 10' 38' carport: panel order 10', 9'-2", 9'-2", 10'
42 1/2' carport: panel order 10', 4'-8", 9'-2", 9'-2", 10' 47' carport: panel order 10', 9'-2", 9'-2", 9'-2", 10'

The lower end of the second panel in the first course will overlap the first panel 2".
Place the second panel on the roof with the lower end of the panel overlapping the first panel 2" . The edge of the panel should be lined up with the marks on each frame section peak or centered on the frame. With the panel in place, remove the protective paper on the caulk and press the end with the caulk together tightly and attach with screws in the pattern shown on the illustration below. The end of the panel should hang 11" over the end of the other end of the frame for 18' frames. If you have a longer frame the end of the panel will be flush with the upper side of the next frame or the second frame from the end of the previous panel. Continue installing panels down the length of your carport using the guide above for the order of panel installation. Don't forget to install a bead of butyl caulk at the lower end of each panel as you go. Note that the last panel to be installed on any carport length is a 10' panel. This 10' panel will overhang the last frame 10".
Important: check the distance between the frame sections at the top before you install screws in the panels. The distance between frames should be 51 1/2"for the first 4 bays and 52" for additional bays. (No screws above the lower edge at this time) Place one screw on both sides of ribs at the overlap joint. *To be sure you have the distance correct, check the distance between frames at the bottom where the posts meet the base rails.*



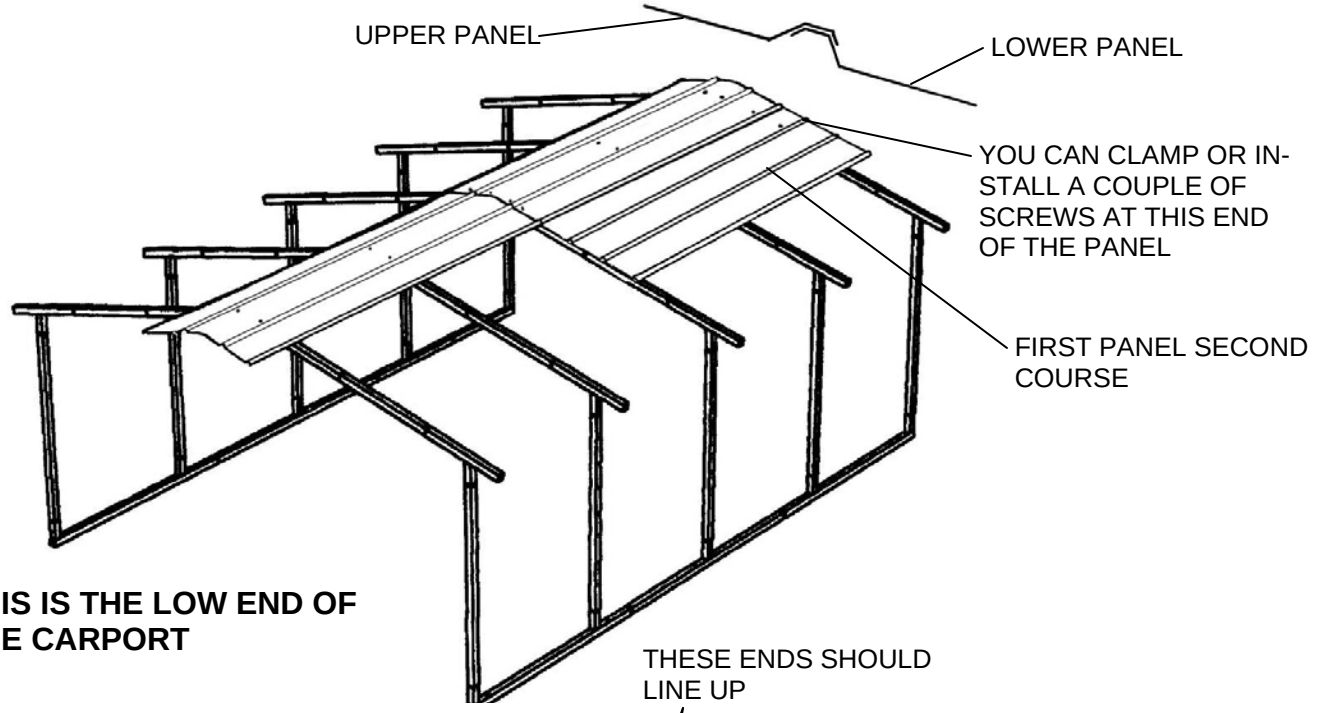
INSTALLING THE SECOND COURSE OF PANELS

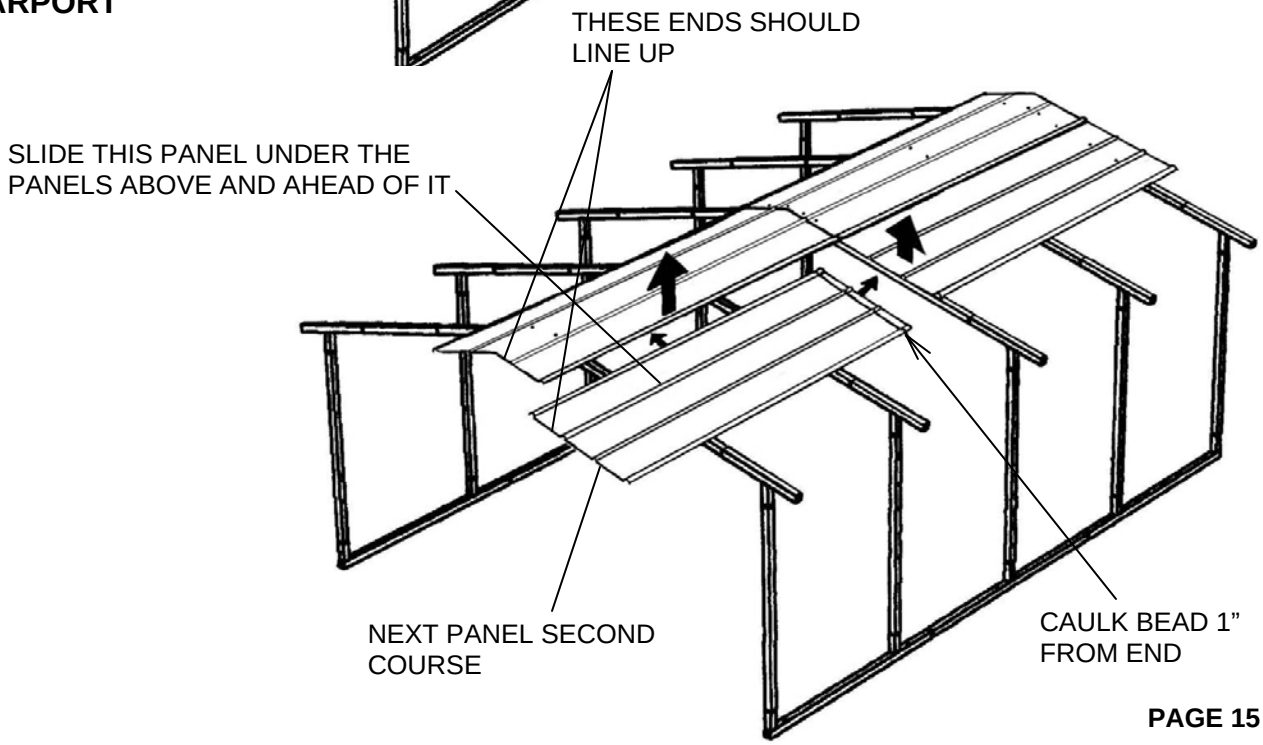
Place the first panel of the second course of panels on the roof with the upper edge lapped under the second panel or end panel of the first course of panels. You may want to clamp the panel in place at the end of the carport or install one or two screws at that end. Do not install screws at any other point at this time.

INSTALLING THE NEXT PANEL:

On the next panel install a bead of caulk 1" from the end of the panel. Set the panel on the roof as shown. Lift up the edges of the panels above and the first panel of the second course and slide the next panel under the panels above and ahead of that panel. Remove the protective paper on the caulk and press the joint together.

Now, attach the first panel of the second course with screws above each major rib (not the lower rib at this time). If you have a 20' long carport you should line the end of the panel up with the panel above and install screws above all major ribs and screws above and below each rib at lap joint. Do not install screws above the lower edge of the panels until the next course of panels is installed. If you carport is longer than 20' you leave enough screws out of each panel as you go to allow you to lift the panel and slide the next panel underneath.

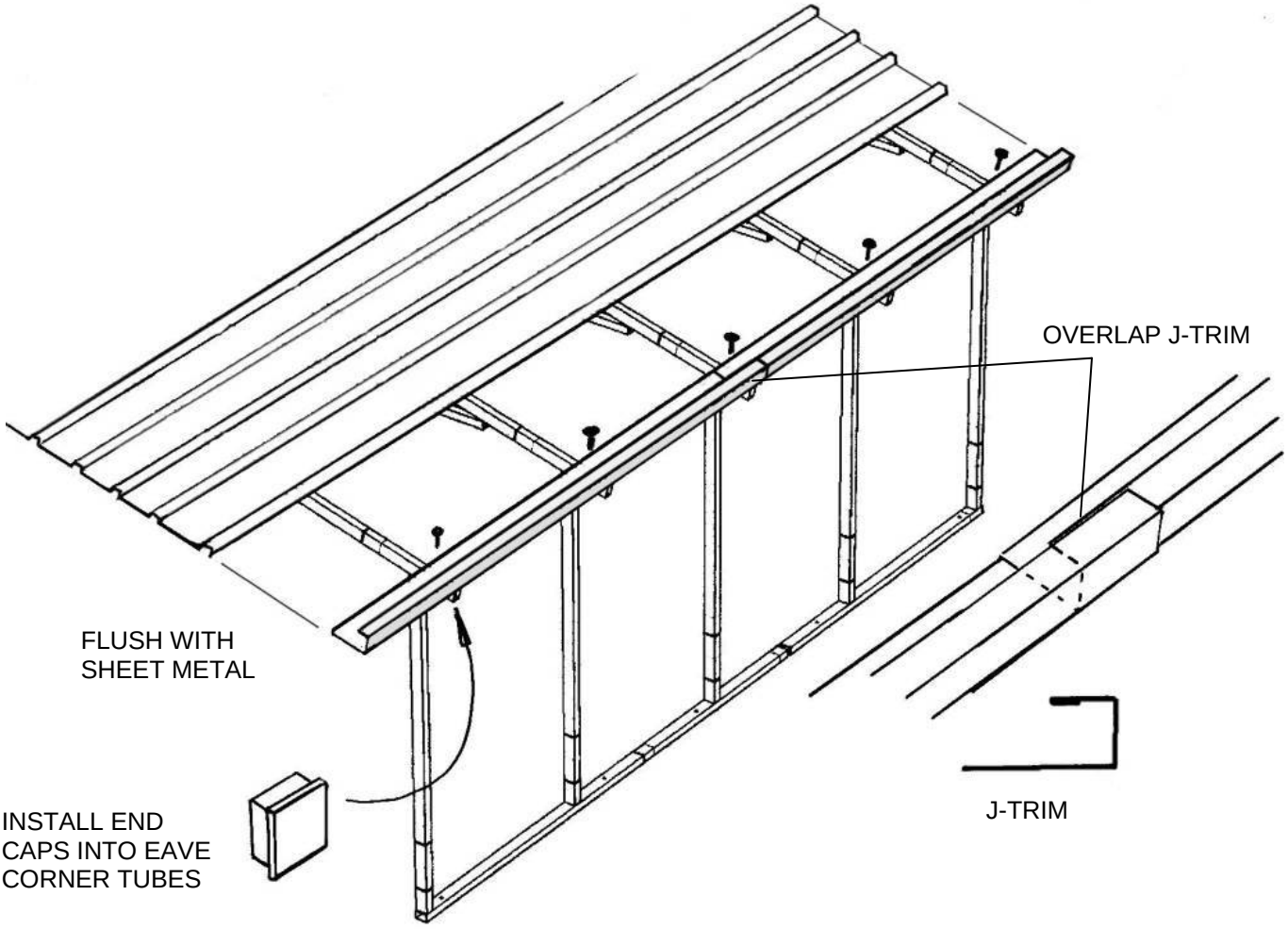




INSTALLING THE REMAINING PANELS

Install the next two lower courses of panels as you did the second course. Do not install the last course of panels until you install a run of J-Trim along the eave of the carport.

Install J-Trim along the edge of the eave as shown below. Trim the J-Trim to length as needed on longer carports to allow at lease a 3” overlap at a frame section. J-Trim on 20’ carports will not need to be trimmed. The last piece of J-Trim on longer carports will not need to be trimmed.
The J-Trim should over hang the ends of the carport frame the same distance that the sheet metal panels overhang the frame (11” or 10”). Measure the distance that the last course of sheet metal is overhanging the frame and use that measurement to set the J-Trim overhang. Screw the J-Trim in place flush with the eave corner ends using the same screws you are using to attach the sheet metal panels to the frame.



INSTALLING THE LAST PANEL COURSE AT THE EAVE

When you install the lower or last course of sheet metal panels you must lift the edge of the panels above, slide the last course under the course above and then slide the lower edge into the J-Trim. Match up the panel edge ribs with the course above and attach as you did the previous courses with one screw above each rib and screws above and below the ribs at front to back seams.

INSTALL PLASTIC END CAPS Install one plastic end cap in each eave corner tube.

Repeat assembly on the other side of the roof.

IMPORTANT: to prevent rust stains on your roof, sweep or wash all metal shavings from the self-drilling screws of your roof.

INSTALLING 2”x 2” ANGLE TRIM ON FRONT AND BACK OF CARPORT ROOF

You will have 6 pieces of 2” x 2” angle trim in your kit.
Start at one corner of the carport roof and place one pieces of the angle trim on the roof panel. Let about 1/8” to 1/4” of the trim to extend past the J-Trim that you just installed on the roof side edge. Fasten the trim to the roof panel with the same painted screws. Screws can be installed into every other rib starting one rib up from the corner. Do not place screws in the roof ribs where panels overlap. See screw locations on the illustration below. Repeat assembly for all 4 corners.

Take the other two pieces of angle trim and use your snips to cut one wall from the edge to the corner in the center of the part. This will allow the trim to fold in the center. Fold the trim and place it on the roof with the fold point centered in the peak.
The ends will overlap the trim that you just installed on the roof front corners.