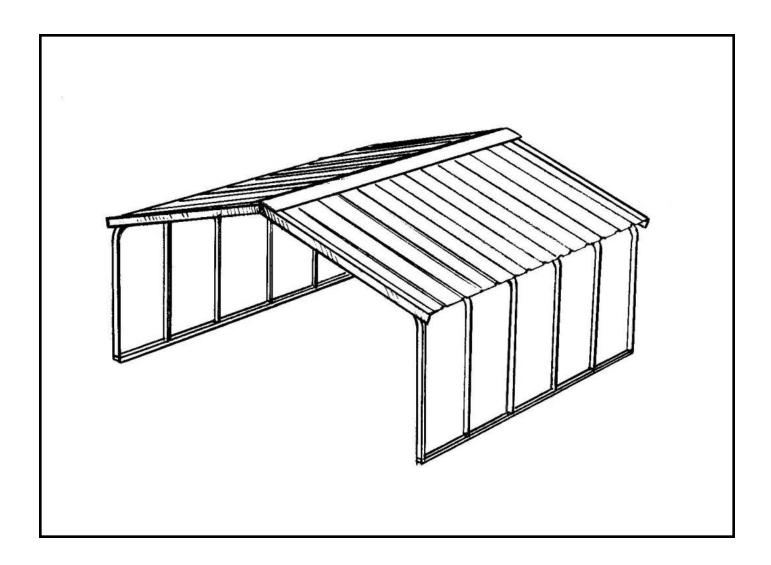


UNIVERSAL ASSEMBLY INSTRUCTIONS FOR VERSATUBE VERTICALLY SHEETED CARPORTS WIDTHS: 12', 20', 24' & 30'



Our unique assembly process quickly transforms the individual pieces into a finished structure that will give you years 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 AND HAZARD 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.

WARNING:

This structure and its manufactured components are engineered per the instructions and engineering plans provided by VersaTube Building Systems. The use of any framing components or materials in the erection of this structure that are not produced or provided by VersaTube could negatively affect the structural integrity and will negate any warranty provisions. VersaTube Building Systems and its authorized dealers are not responsible for any structural collapse or failure to perform resulting from additions, add-ons, or manipulation of non-VersaTube components and/or failure to follow approved instructions.

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:

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:

If the structure is moved once it has been installed, be certain to inspect all components and conditions and follow each and every step of these instructions to make certain that the structure is securely anchored, properly installed, and aligned. Failure to follow these steps could lead to collapse of the structure and may result in serious risk of injury.

WARNING:

In the event that your structure is 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 and the following all warnings and instructions of the manufacturer of the substance. 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.

WARNING:

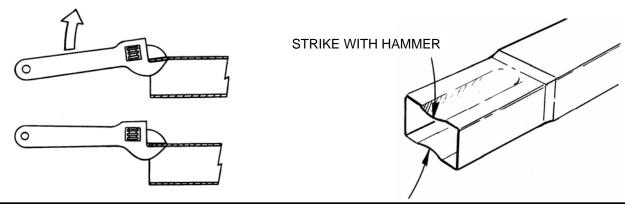
Always wear safety glasses or goggles when installing self-drilling screws.

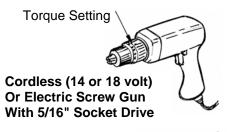
ATTENTION:

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.





What you'll need

Chalk Line and

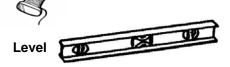
Mason Line or

Nylon String

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.







Shovel or **Post Hole** Digger

> Hammer Drill

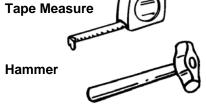


Work Gloves



And Felt Marker

Pencil/Marker



Tin Snips



Masonry

Drill Bit

1/2" x 8"

Vise grip or other quick clamp

Items you may need

Adjustable wrench



 $\neg m$ **Drill depth**

Wrench, 3/4" & 1/2"



(May be required to pull frame plumb.)

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BASIC CARPORT PARTS LIST

BASE RAILS

STARTER BASE RAIL, 2" X 3" X 98 1/2" rail with 3 welded vertical pins, QTY. 2, part #71-4783

8' BASE EXTENSION RAIL, 2" X 3" X 100 3/4" rail with 2 welded vertical pins, swaged 1 end. QTY. 2, part # 71-4782

4' BASE EXTENSION RAIL, 2" X 3" X 52 3/4" rail with 1 welded vertical pin, swaged one end. QTY. 2, part # 71-7020

NOTE: The length of the carport can be extended using 8' base extensions.

SIDE POST, 2" X 3" tube with a bend at one end. QTY. 12. Part # 71-5000 (7 1/2' eave height).

PEAK, 2" X 3" X 72" with one bend in the center. QTY. 6 Part # 71-6000

HEIGHT EXTENSIONS (optional) Height extensions are 2" x 3" tubes with a swage at one end. They come in net height increments (the height from the end to the swage) of 1' to 5'. Part # HE-1, HE-2, HE-3, HE-4, HE-5.

RAFTERS.

12' wide carport, 2" x 3" tube swaged both ends. Part #71-2000, QTY. (12)

20' wide carport, 2" x 3" tube swaged both ends. Part #71-8000, QTY. (12)

24' wide carport, 2" x 3" tube swaged both ends. Part # 71-8300, QTY. (12)

30' wide carport, 2" x 3" tube swaged both ends. Part #71-8400, QTY. (12)

8' HAT CHANNEL, Used for roof purlins. 8' long. QTY. 12' wide carports (12). 20' wide carports (16). 24' wide carports (20) 30' wide carports (24).

4' HAT CHANNEL, Used for roof purlins. 4' long. OTY. 12' wide carports (6). 20' wide carports (4). 24' wide carports (10) 30' wide carports (12).

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

FOAM CLOSURES, Grey foam strips contoured to the sheet metal panels, the closures go under the ridge cap trim. OTY. (14)

FRAME SCREWS, # 12 x 3/4" hex head, Self-Drilling screws. Come in 70 pack #71-9999 or 40 pack # 71-9999-A **SCREWS FOR ROOF METAL**, #12 X 1" painted screws with rubber washers.

VERSATUBE ANCHORS, REBAR ANCHOR, used with concrete in post hole. #4 x 30" rebar with welded top plate. Part # ANC-24 Use 1 per post. QTY. (12)

SHEET METAL PANELS, for 12' wide carport 6'-5" panels. QTY. (14). For 20' wide carports 10'-6" panels QTY. (14). For 24' wide carports 6'-6" and 7'-2" panels. QTY. (14 of each). For 30' wide carports 7'5" and 9'-5" QTY. (14 of each)

GABLE TRIM, for 12' wide carport 10' trim, QTY. (3). For 20' wide carport 10' trim, QTY. (5). For 24' wide carport 10' trim, QTY. (6). And for 30' wide carport 10' trim, QTY. (7)

RIDGE CAP TRIM, 10'-6" trim, QTY. (2)

TRUSS BRACES: No truss braces on 12' wide carports.

The truss brace consists of a 3 piece horizontal collar tie assembly with a vertical center support. See the part descriptions in the truss brace assembly portion of the these instructions.

SITE PREPARATION FOR CARPORTS

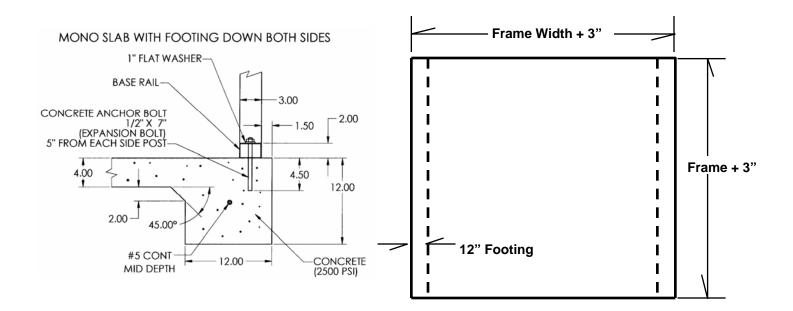
The Versatube carport frame is designed to be placed on a foundation that is level side to side and sloped about 1/8" per foot front to back or back to front. That foundation can be: **prepared ground** (leveled and re-compacted), **a concrete footing**, or a **concrete mono slab with built-in footing**. It is important that you create one of these conditions prior to your carport or building 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. If you extend the carport site about 3 or 4 feet on all sides, it will make it easier to position ladders for sheet metal installation.

SLAB WITH FOOTING OR FOOTINGS ALONE

If you will be pouring a slab for your carport, the slab should be 4" thick and have a footing down both sides. The footing should be 12" x 12" with a 45° blend between the slab and the footing. The slab should have a front to back or back to front slope of about 1/8" per foot. One run of #5 rebar mid-depth is recommended in the footing. Check with your local building official for details and requirements in your county. Some counties require the footing to extend down 1' below the frost line. The concrete should be 2500 to 3000 PSI. The 4" slab should have welded wire fabric (WWF 6/6/10/10) at mid depth for reinforcement or fiber reinforced concrete 3000 PSI.

The outside dimensions of the slab should be at least 3" larger than your frame dimensions. Example: if you have a 20' x 20' frame, the slab should be at least 20'-3" x 20'-3". This will allow the center of your anchor bolts to be 3" from the edge of the slab.

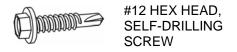
FOOTINGS: Footings alone should be 12" wide and 12" deep and can be positioned so the base rails are centered in the footing if you will be using wedge anchor bolts (not supplied) to anchor the base rails. The outside dimension of the footing will be the carport width plus 9". The basic carport 4' on center frame is 20'-2" long. Footings should be 3" longer than your frame. Footings should also slope 1/8" per foot front to back or back to front to allow water that might gather in horizontal ribs to flow over roof lap joints and off the roof.

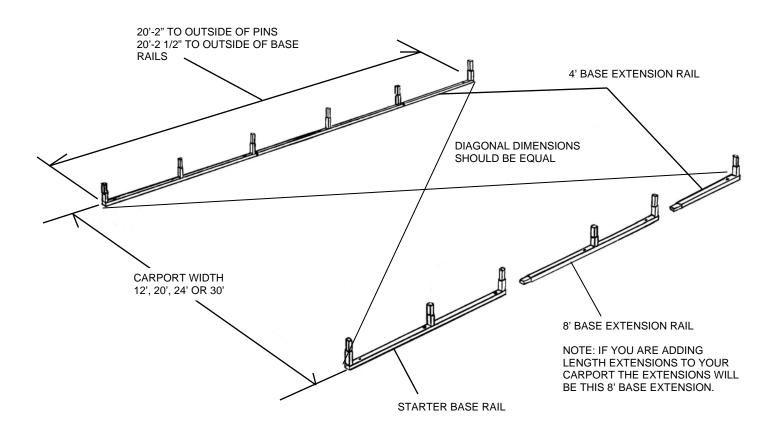


ASSEMBLING AND POSITIONING THE BASE RAILS:

Layout the base rails on your slab or footing or prepared ground. The base rails should be 12', 20', 24', or 30' apart (outside to outside) depending on the carport that you purchased. The length from the front to the back of the base rail assembly will be 1/2" longer than the frame length. The length of the basic base rail assembly will be 20'- 2 1/2" from the end of the front base rail to the end of the back base rail or 20'-2" from the front of the vertical pin the back of the back vertical pin.

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 x 3/4" hex head, self drilling screws per joint on top of the base rail. Place the Left and Right base rail assemblies 12', 20', 24', or 30' 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.





ANCHORING CARPORT BASE RAILS:

These instructions offer two anchoring methods: (1) To a concrete slab or concrete footings with concrete wedge anchor bolts. (2) To the ground with Versatube Rebar Anchors and concrete in post holes.

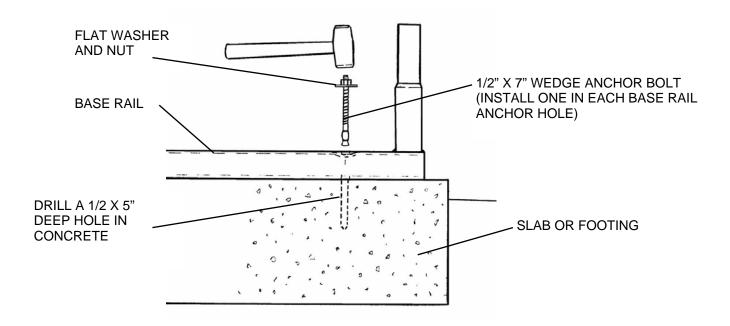
ANCHORING TO CONCRETE SLAB OR FOOTING WITH 1/2" X 7" WEDGE (EXPANSION) BOLTS

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.

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 5" into the concrete. The base rail is 2" thick, so the total depth from the top of the base rail will be 7".

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.



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 for 12' to 20' wide carports. For 24' and 30' wide carports, use a 12" diameter hole 21" deep or a 8" diameter hole 30" deep.

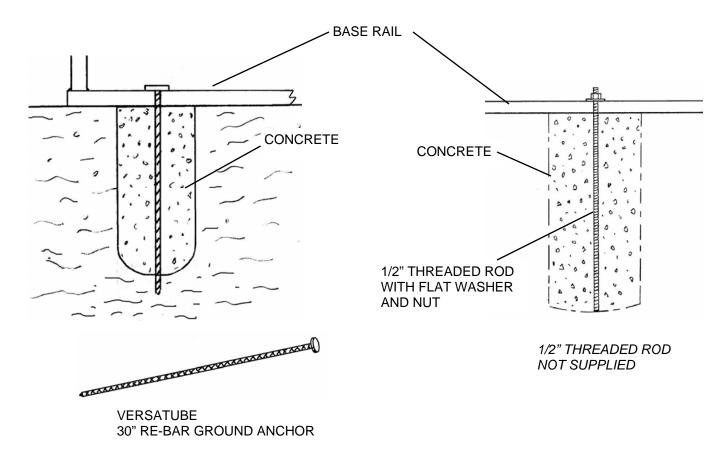
ANCHORING

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 into each anchor hole. A 24" threaded rod could also be used (not supplied). 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.



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.

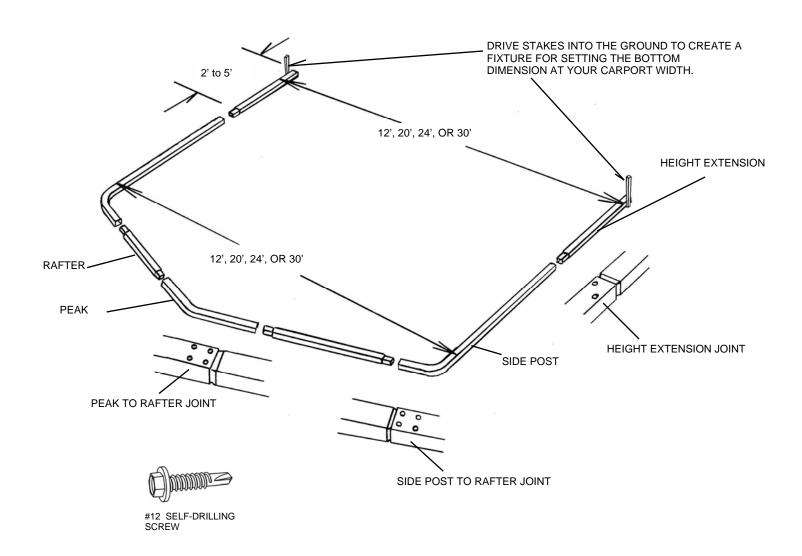
ROOF/WALL FRAME ASSEMBLY

On the ground, assemble (1) peak, (2) rafters, (2) side posts, and (2) height extensions if required.

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 building. (12', 20', 24', or 30') 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 building 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" self-drilling screws. 4 screws in the peak to rafter and side post to rafter joints and 2 screws in the height extension joints. See details below.

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



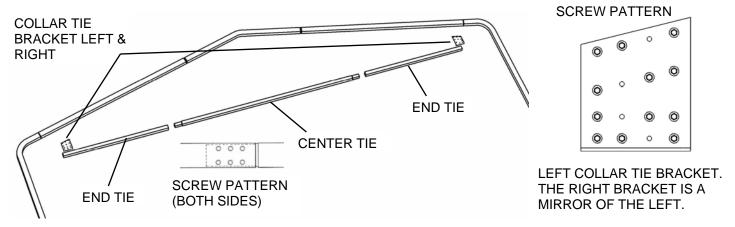
TRUSS BRACING:

Bracing on carports is determined by the width of the frame. 12' wide carports do not require a truss brace. 20', 24' and 30' wide carports require a truss brace.

COLLAR TIE ASSEMBLY:

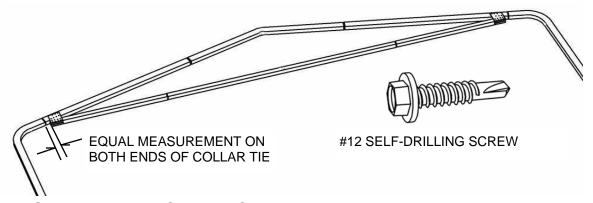
The Collar Tie is made up of 3 parts: (1) Center Tie 2" x 2" x 111" long swaged (reduced) on both ends and (2) end ties. End Ties are 2" square tube. On 20' wide buildings 50 1/2" long. On 24' wide buildings 74 1/2" long. On 30' wide buildings 111" long.

Assembly: Place an End Tie on both ends of the Center tie and fasten each joint with (6) #12 self-drilling screws. Place screws on one side of the assembly as shown. Note: make sure the assembly is straight



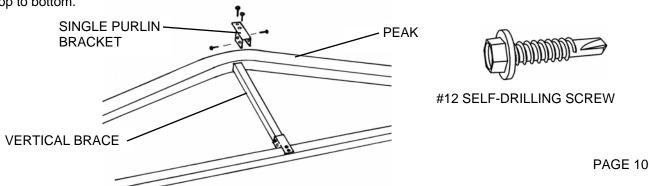
ASSEMBLY OF COLLAR TIE TO ROOF/WALL FRAME:

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



INSTALLING VERTICAL BRACE

The Center Vertical Brace is 1 1/2" square x 25 1/4" long on 20' wide buildings, 31 1/4" long on 24' wide, and 40 1/4" long on 30' wide. 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. Make sure that the Collar Tie assembly is straight before you fasten the brace to the Collar Tie and Peak. Place all parts in the assembly and adjust before installing any screws. The vertical brace may not touch the peak and collar tie. It should be centered top to bottom.



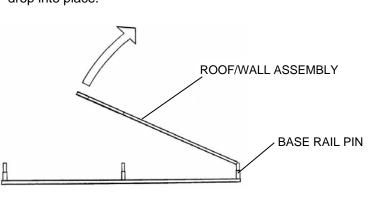
INSTALLING ROOF/WALL FRAMES TO BASE RAILS

NOTE: This assembly will require at least two people. 24' and 30' frames may require more.

Start at one end of the building and place a Roof/Wall assembly, with no truss brace, on the first base rail vertical pins. Fasten joints with two screws each.

Repeat this assembly until all Roof/Wall assemblies are installed. (Remember, no Truss Braces at the ends of the carport)

Place bottom of side posts on base rail pins at an angle. Raise frame section and drop It onto pins at the same time on both sides of the carport. Tap lightly on the side post with a hammer if parts do not drop into place.

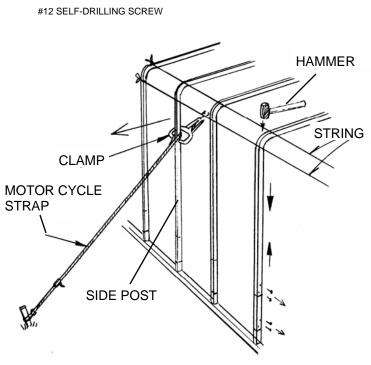




Before you install sheet metal panels, you may want to check the Roof/Wall assemblies to make sure they are square and that the height of each side post is equal. To do this, first check the front and back Roof/Wall sections to make sure that they are square with the frame. If adjustments must be made, you can drive a wooden or metal stake into the ground about 8' from the building and use a Motor Cycle strap or Ratchet strap to pull the side post into plumb. Place a clamp on the side post as shown and attach the strap above the clamp.

When the front and back sections are plumb (side to side) tie two strings from the front side post to the back side post at the bottom and top of the bend radius as shown. These strings will let you see which sections are high, low or out of plumb. If the side posts are high or low, remove the joint screws and raise the low posts and hammer down the higher posts as much as possible. Reinstall the screws in a new location. Check the height of the side posts on both sides of the building. The straps should remain in place until the roof purlins are installed.

Note: this is not a critical step, but it may improve the appearance of your building. If side posts are out of plane with the other side posts more than 1/4" it may be visible.



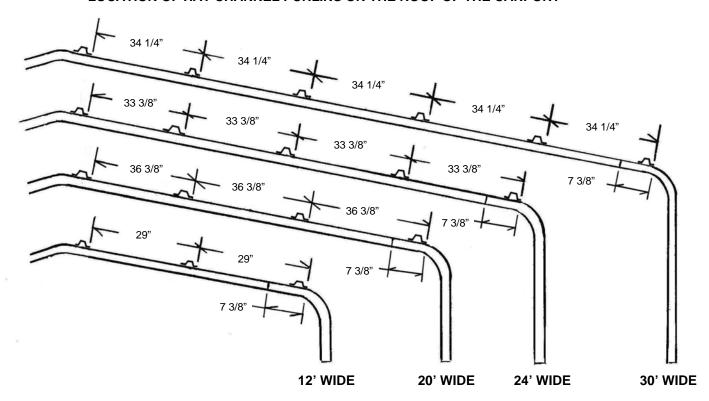
INSTALLING HAT CHANNEL ON ROOF

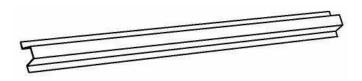
The purlins on the roof are **Hat Channel**. The hat channels are 8' and 4' long.

See the chart below for the location dimensions for the Hat Channel on the roof .

You can measure and locate each hat channel as you go or mark the locations of all the channels on the front and back frame sections and snap a chalk line the length of the building to mark the hat channel locations on all of the interior frame sections.

LOCATION OF HAT CHANNEL PURLINS ON THE ROOF OF THE CARPORT





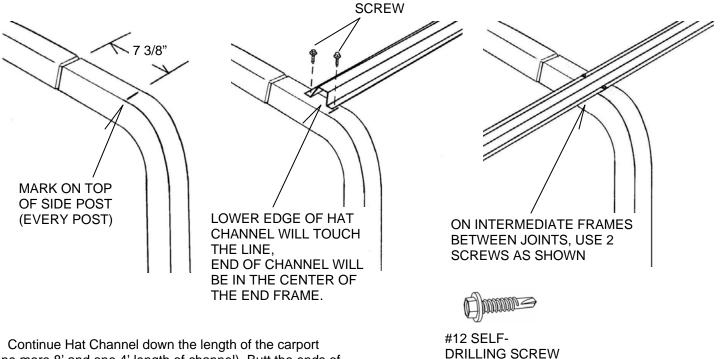
HAT CHANNEL 8' LONG AND 4' LONG.

ONE RUN DOWN THE BUILDING IS (2) 8' HAT CHANNELS AND (1) 4' HAT CHANNEL.

ATTACHING HAT CHANNEL TO CARPORT FRAME

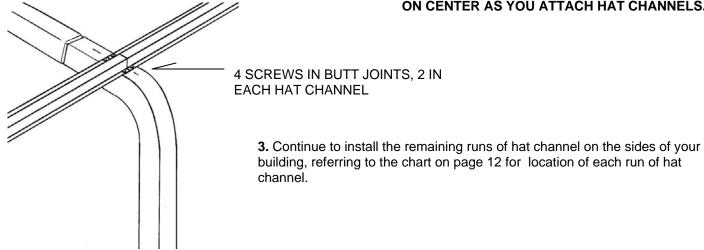
As you install hat channel the carport frame will gain stiffness and strength. It is important that you check the frame sections to be sure they are square to the base rails as you install each hat channel. You may want to clamp a corner diagonal brace to the frame at the front or back of the building on both sides to hold the first frame section square. Measure from the first frame section to get the remaining sections square. (The dimension should be 4' center to center)

Install the first hat channel at the eave of the carport on top of the side post bend. (front or back of the carport) Measure down from the end of the side post 7 3/8" on each side post and put a mark on each side post. Line the lower edge of the hat channel up with the marks on the side post. The end of the hat channel should be centered on the end side post. The other end will be centered on the third side post. Fasten the channel to the frame with #12 self-drilling screws, one in the top flange and one in the bottom flange at each side post. Be sure to keep the frame sections plum and 4' on center as you install the hat channel.



2. Continue Hat Channel down the length of the carport (one more 8' and one 4' length of channel). Butt the ends of the channels together and attach with screws as shown below. The end of the last hat channel in the run should be centered on the side post at the other end of the carport.

REMEMBER TO KEEP THE VERTICAL POSTS 4' ON CENTER AS YOU ATTACH HAT CHANNELS.



INSTALLING SHEET METAL PANELS ON ROOF

Panel lengths: If you have a 12' wide carport the roof panels will be 6'-5" long.

If you have a 20' wide carport the roof panels will be 10'-6" long.

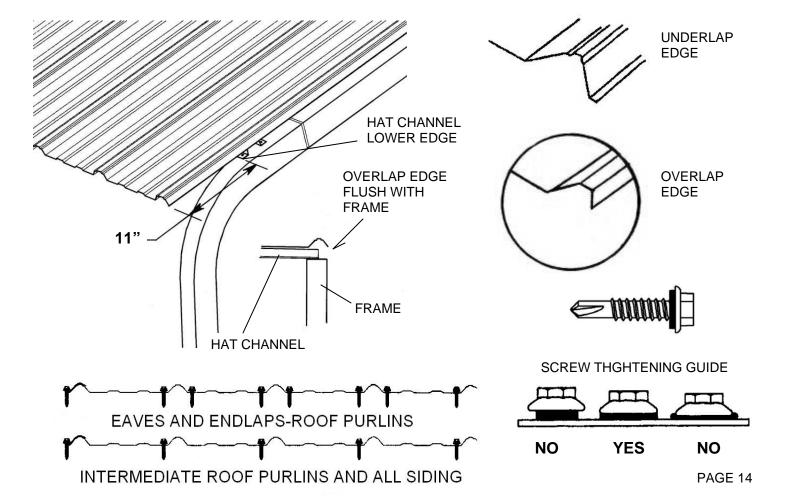
If you have a <u>24' wide carport</u> you will have an upper and a lower roof panel. The upper roof panels are 6'-6" long and the lower roof panels are 7'-2" long.

If you have a <u>30' wide carport</u> you will have an upper and a lower roof panel. The upper roof panels are 9'-5" long and the lower roof panels are 7'-5" long.

INSTALLING THE FIRST PANEL

Place the first panel at the back of the roof. If you have a 24' or 30' wide carport start with the lower roof panel length. (7'-2" for 24' wide and 7'-5" for 30' wide) Position the overlap edge of the panel to the rear flush with the carport frame. The lower edge of the panel should be positioned 11" from the lower edge of the first hat channel. (See the illustration below) Clamp the panel in place once you have it in position. Attach the panel to the hat channel with painted #12 x 1" self-drilling screws with rubber sealing washers. Using your drill driver, install one screw about 1" from each major panel rib. Along the eave of the carport install a screw on both sides of each major rib. (Do not over tighten the screws. See the quide below, right)

If you have a 24' or 30' wide carport, do not install screws into the hat channel at the top of the lower panel until the upper panel is in place. With the first lower panel screwed in place position the upper panel flush with the frame edge and the bottom end of the panel overlapping the lower panel 14". Now, attach the upper panel. (upper panel length: 24' wide carport 6'-6" long. 30' wide carport 9'-5" long) If you install the screws at the bottom and top of each panel, you can get on to the roof after all the panels are in place to install the remaining screws. (You will get on the roof later to install the ridge cap trim)



PANEL INSTALATION CONTINUED

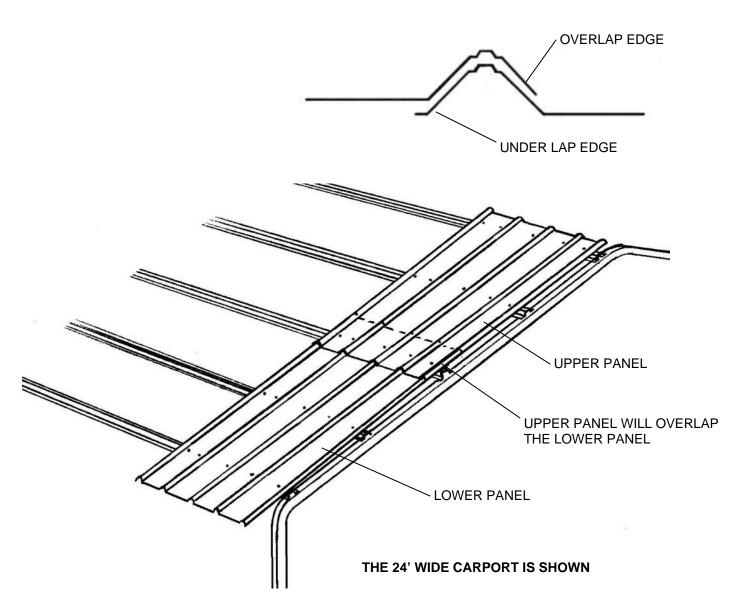
Attaching the remaining panels.

If you have a 12' wide or 20' wide carport you will have installed one roof panel. If you have a 24' or 30' wide carport you should have installed one lower panel and one upper panel. Now, continue installing panels as you did the first panel or set of panels. Each additional panel should be positioned with the overlap edge of the panel over the under lap edge of the previously installed panels. The bottom edge of the panel should be flush with the previously installed panel. Screw the panels to the hat channel with the same screw pattern as the first panel/panels.

When you get to the other end of the carport you will need to trim the last panel/panels to be flush with the frame at that end. Repeat the assembly for the other side of the carport.

Trimming the last panels:

If your carport has a 20'-2" frame (no length extensions) you will have to trim the last panels to be flush with the front of the carport frame. You will trim about 11" off the last panels. Place the last panels on the roof and mark the under side of the panel using the carport frame as a guide. The easiest way to cut the panels in the rib direction is to use a circular saw with a blade for use with ferrous metals. You can find these blades at you local hardware or home center. Place the panel face down to make the cut. Be sure to wear you safety glasses and ear protection. Electric metal sheers will also make a good cut.



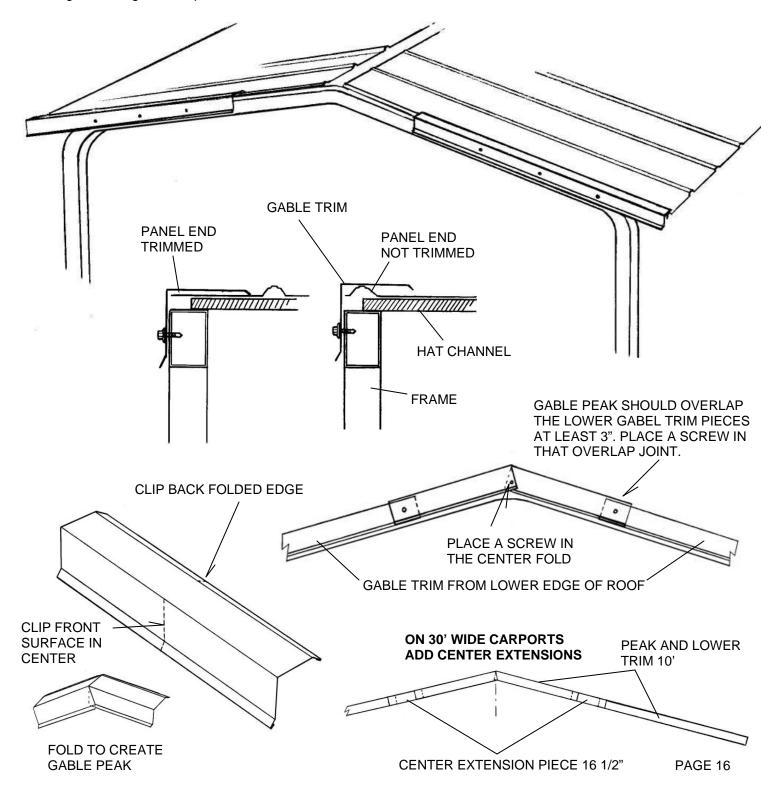
INSTALLING THE GABLE TRIM

Gable trim will trim up the gable ends of the carport roof. You will use two pieces of trim on each side of the peak starting at or flush with the eave of the roof. You will then cut and fold a piece of trim in the center to create a piece of peak trim. The peak trim will overlap the lower pieces of trim about 3".

If you have a 12' wide carport: Cut two pieces of 10' trim in half. These 5' pieces of trim will be the lower gable trim pieces for the front and back of the carport. Now, from the last piece of 10' trim cut two pieces 42" long to cerate the peak trim pieces. Clip each piece in the front center up to the corner and then clip the back flange to the bend. Then bend the trim to create a gable peak piece of trim. See the illustration below left. Fasten the trim to the frame with the same screws that you used for the roof panels. Place a screw about every 24" into the front surface of the trim.

The length of the lower trim pieces for 20', 24' and 30' wide carports is 10'. On a 30' wide carport only, you will need center extension pieces 16 1/2" long. See illustration lower right.

The lengths of the gable trim peaks are: 42" on 12' wide, 20" on 20' wide, 69" on 24' wide and 10' on 30' wide.



INSTALLATION OF RIDGE CAP

RIDGE CAP WILL COME IN 10'-6" LENGTHS. YOU WILL OVERLAP PIECES 6" UNTIL YOU GET TO THE OTHER END OF THE CARPORT WHERE YOU WILL TRIM THE LAST PIECE TO FIT. THE RIDGE CAP SHOULD OVERHANG THE GABLE TRIM 1/2" AT BOTH ENDS OF THE BUILDING.

Place a piece of Ridge Cap on the peak of the carport starting at the back. Center it and make a mark at the lower edges at the end of the carport. Do the same thing at the opposite end of the carport 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.

Apply a bead of Butyl Sealing Tape to the roof panels the full length of the building 3/4" up from the chalk lines on both sides of the roof. Now, press Outside Foam Closure strips to the Butyl Tape all the way down the carport on both sides of the roof. The edge of the Closure should be 1/4" up from the chalk line.

Install the first piece of Ridge Cap on the peak at the back of the carport. Let the Ridge Cap overhang the Gable Trim by 1/2". Fasten with 1" Painted, Self-drilling Screws through the edge flange and into the top of every other major rib. Run two beads of butyl tape at the end of the first piece of ridge cap to seal it to the next overlapping piece of Ridge Cap. If you have a 20' long carport you will not cut the 10'-6" long ridge cap. The second piece of ridge cap will overlap the first about 9" in the center of your carport. If you have added length extensions to the carport you will have to measure and cut the last piece of ridge cap to overlap the first piece at least 6" and to overhang the other end of the carport gable trim 1/2".

Lap the next piece of Ridge Cap 9" over the first, press the seam together and attach with screws. so on down the carport. The last piece should overhang the Gable Trim at the other end of the carport 1/2".

