

## Purlins

*Purlins* are the horizontal spacers in between the *hoops* used to maintain rigidity in the structure. They are usually 1 ¼” round with both ends flattened.

**IMPORTANT**  
wind braces are the longer pipes, purlins are the shorter ones



The holes drilled in each end are spaced at the same spacing as the *hoop* spacing. The tabs with the holes of 2 *purlins* overlap and are bolted to the underside of the *hoop* (structure).



**DO NOT** install on the outside, they will prevent snow from sliding off and also create drip lines.

Be sure that the structure is standing perfectly vertical before attaching the purlins. Do not tighten completely at first until entire building is framed (use level to determine if building is leaning)

**STEP SEVEN:** Before you can attach the *purlins* you must insert the 1” carriage bolt into the center hole of the *Purlin Clip* (1-1/2” C. bolt if there will be a cross-tie). The square shoulder of the C. bolt should nest squarely in the square hole of the bracket. This prevents the bolt from turning when you are installing the lock nuts.

**STEP EIGHT:** Then attach all the *purlin clips* to the *hoops* with the 1-1/2” Hex Bolt and lock nuts.



fasten a purlin to the arches for stabilization

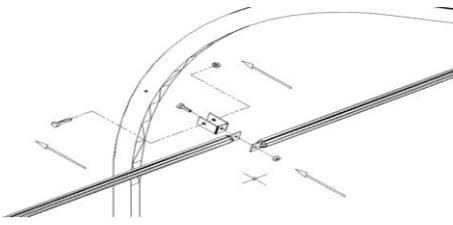


purlins fastened with purlin clips to the arch

If your structure has 2 rows of purlins and cross ties, do not tighten the upper purlin clip at this time. You may need some wiggle room to make the cross tie fit

**Notes:** The smaller structures have 1 run of *purlins* per side and the larger structures have 2 runs per side. One run of *purlins* is sometimes eliminated if you are using *roll-up sides*.

PLEASE NOTE: Any italicized words in this document are words that are listed in the glossary.



If your building has *cross ties* which are installed on the *purlin clip*, leave the *purlin clip* loose so that you will have a little more “wiggle” room for installing the *cross ties* later.

Long *cross ties* or *cross ties* in heavy load areas will require mid support and lateral bracing.

Keep in mind that adding a *cross-tie* decreases the usable height of your building, usually by 24-36 inches.

**STEP NINE:** When the complete structure is standing, ensure the building is straight, not leaning, and secure all of the base fasteners and purlins tight.

## Wind Bracing

**\*\*SEE YOUR INSERT, (and how to video online) FOR ADDITIONAL CLARIFICATION\*\***

*Wind braces* look like *purlins* except they are about 50% longer.

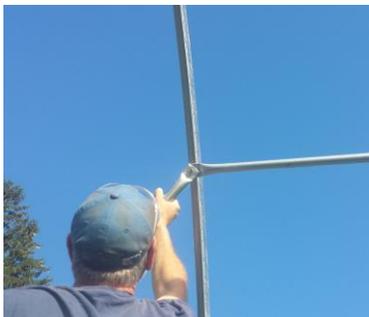
They are installed diagonally in all four corners **AFTER** the *purlins* have been secured.

### A note about the length of the wind braces

You will not likely end up perfectly at the base or the next row of *purlins* (in the case of multiple rows of *purlins*). You can cut and re-flatten the *brace* if it is too long. It is equally OK to fasten it near the base or *purlin* if the last *brace* is a bit too short. It is acceptable to secure the bottom end of the last *brace* to the base, rather than the *hoop* if this fits better

The quantity of *braces* depends on the structure size and certain construction details. Usually the small structures have 1 per corner, mid-sizes have 2 per corner and larger structures have 3 or 4 per corner. **When building on a wall or in a very windy location, it may be advisable to double up on the *braces*.** Structures with 3' *hoop* spacing will have more, shorter *braces*.

**STEP TEN:** Attach all the wind bracing, paying attention to your insert for the number of braces and placement. Read following instructions through fully **FIRST** to ensure proper order of installation is completed



connect wind braces into the same purlin clip as the purlins



The bottom end of one wind brace is tied to the top end of the next wind brace using the purlin clip already there

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The starting point for each row of *braces* is the connection point of the *purlin* to the last *hoop*.

Each brace will aim down to the next hoop at approximately 45 degrees  
If you have 2 or 3 rows of *purlins*, you repeat the process for EACH row.



secure the purlins along the line before completing wind brace fastening



complete the second row of purlins



tighten all fasteners to attach the wind braces



Complete wind brace fastening



wind brace lining up, not perfect, where it lands, THAT'S OKAY

Repeat this process for each diagonal line of *purlins* in all four corners.

**Unless your building is PERFECTLY level with the hoops PERFECTLY square, the braces will look different at the two ends (this is acceptable).**

If your building has 2' *hoop* spacing, you will be attaching to alternate *hoops*... i.e., cross over and attach to the next *hoop*.

You may also need to slightly twist the bottom tab of the wind brace with a vice grip to get it to sit flat. This is normal.

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#1 – Take the lock nut off the 1” C. bolt and put on end of the *brace* on this bolt and replace the nut, loosely.

#2 – Secure a *purlin clip* on the other side of the *brace* with a 1” C. bolt and aim it downward to the next *hoop*. Wherever it slips over the *hoop* is where you install the *purlin clip*. Drill the rib and insert a 1 ½” hex head bolt through the *hoop*. You will need a vice grip to slightly twist the end of the *brace* to make it sit more flat to the *purlin clip*.

Repeat #1 and #2 for each *brace* to complete the line of *braces*.



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