

## Purlins

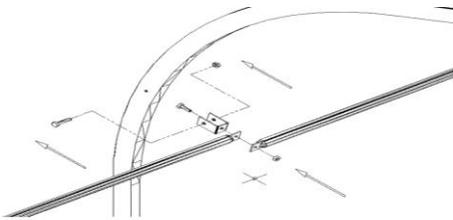
*Purlins* are the horizontal spacers in between the *hoops* used to maintain rigidity in the structure. They are usually 1 1/4" round with both ends flattened.

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). If they are installed on the **outside**, they will prevent snow from sliding off and also create drip lines.

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

Be sure that the structure is standing perfectly vertical before attaching the *purlins* (use level to determine if building is leaning)

**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*.**



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.



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

## Wind Bracing

Custom Wind  
Brace Diagram  
Here

(if missing please  
contact MSS  
immediately)

**\*\*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*.

**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.**

#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 1/2" 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*.



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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