

# The 12-Volt Solar Panel Powered Room Cooler (Home-Build)

(3. Cooler pad cut & installation)

A simple but effective way to cool a room using only sunshine.

This is a home build project that is fairly easy to build requiring minimal use of power tools and minimal wiring.

Measure the inside of your frame this should be 40  $\frac{1}{4}$  inches or it could be 40  $\frac{1}{2}$  inches. Use your measurements and add  $\frac{1}{4}$  " to the length and the width of each measurement.

Your use of the wire ties or ZIP ties will pull that extra  $\frac{1}{4}$ " and make it snug in the frame.

Here is a video of me measuring and cutting the cooler pad.

<https://www.youtube.com/watch?v=0x6ZpgCgRUk>

or

<https://rumble.com/v5740or-3.-measuring-and-cutting-the-cooler-pad-material.html>

or

<https://www.brighteon.com/5f1b946d-b143-4a99-9f31-9c390ca8662b>

Here is more info on hanging the cooler pad in the frame.



Note black marks that show where the water holes are drilled and the wire ties are between these marks.

For this build I use wire ties and ZIP ties although ZIP ties are much easier for attaching the sides of the cooler pads to the frame. They poke through the cooler pad much easier.

Also note the twist ends of the wire ties are turned below the top of the water outlet pipe.

Also use only 6 inch plastic coated wire ties. As the shorter ones will not work.

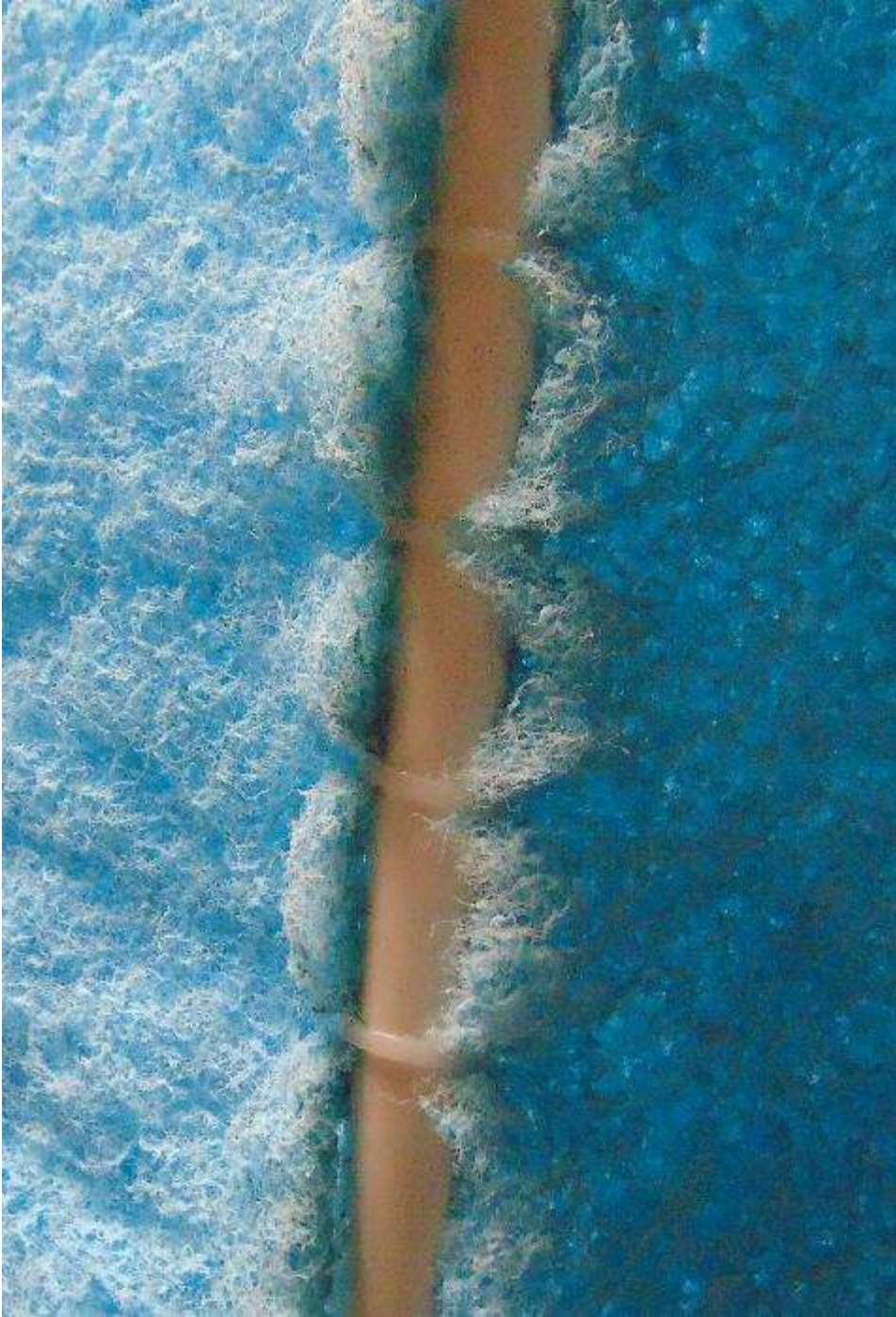
IF you use ZIP ties be sure to use 5 ½ inch ZIP ties, just be sure they are tight and the end of the ZIP tie is on the inside of the frame and NOT on the outside where it will show.



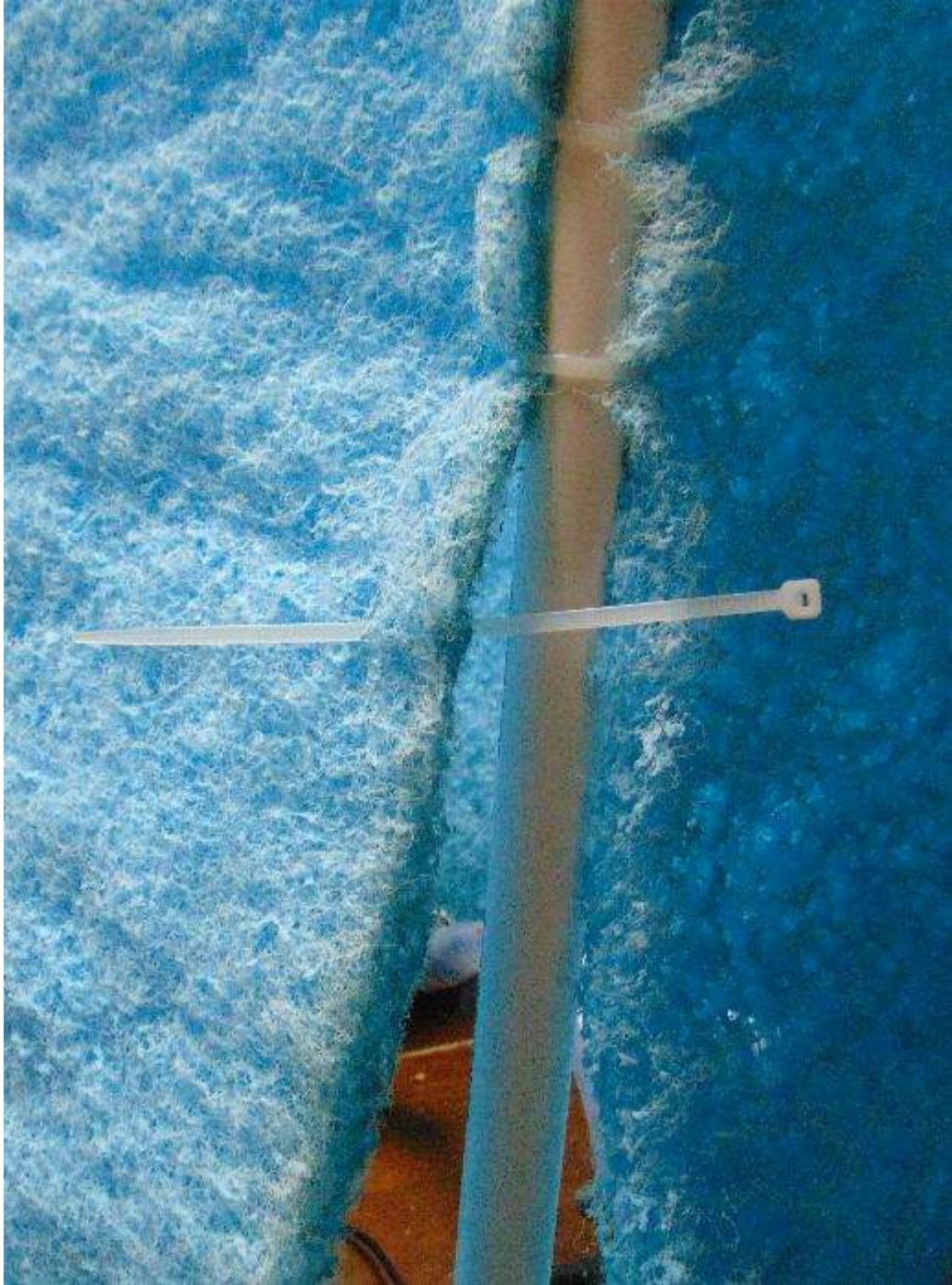
ZIP ties can be bought at any hardware, just be sure they are white or clear and 5 ½ inch and they are the small ZIP ties.



Here are ZIP ties in use. The excess pad can be pushed back into place easily.



A different light showing ZIP ties being used.



The ZIP tie can more easily be pushed through the blue cooler pad making it easier to tie BOTH sides to the frame with the same ZIP tie. Just be sure your connections of the ZIP tie ends are on the inside of the frame for a cleaner neater look.



Top view of frame note, all twisted or ZIP tie ends are on the inside of the frame making the top water pipe as smooth as possible.

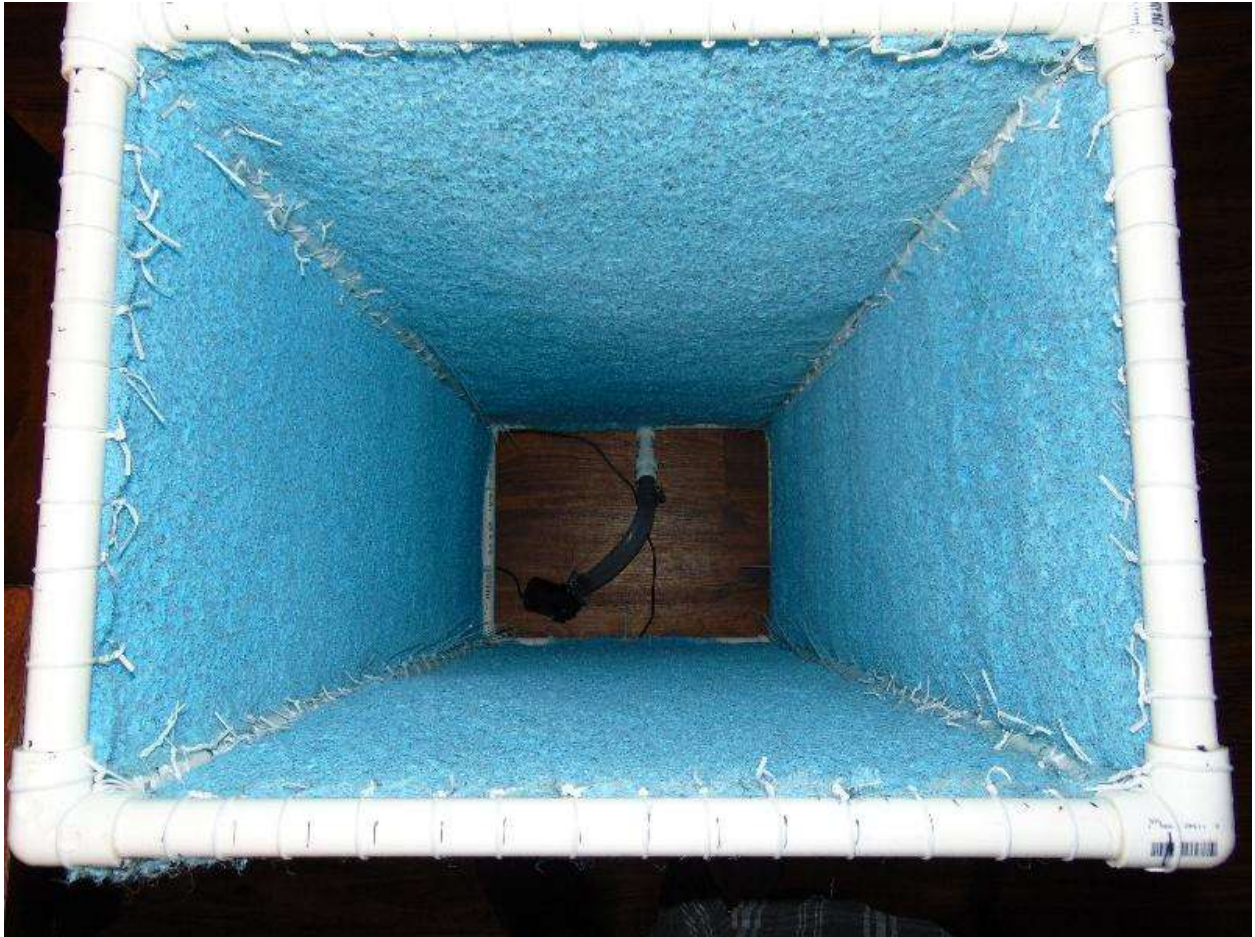




Another view showing top watering pipes and twist tie ends here.

NOTE: The sides are not connected to the frame yet.

Note in this photo all ZIP connections and wire twist connections are inside the frame.





The above photo shows the twist wire ties on the outside.

IF you do not care about looks this is a little easier to build.

But most people will opt to twist the wire ties on the inside or use ZIP ties with the connections on the inside for a cleaner look.



Above is the finished product in a tote.

This photo does not show the clean lines very well.

The idea is to stretch the cooler pad between the sides of the frame using ZIP ties or plastic coated wire ties.

The water runs down the cooler pad from the top watering pipes and keeps the pad wet. When the water reaches the tote at the bottom it is pumped back to the top and the cycle repeats over and over.

When water evaporates it cools the air flowing through the pads.

Thus you do not want any open gaps, holes in your cooler pad or between the frame and the pad.

You want to force the air through the cooler pad, through the water and that helps it evaporate and cool faster.

IF you see a gap anywhere in the pad & the frame add an extra ZIP tie to that spot.

IF that does not cure your problem you may need to get some clear silicone glue and glue the air gap.

Also if you have any holes where your ties go through your cooler pad (or if your cooler pad came with a hole in it or was damaged you can also apply a dab of silicone glue to the hole to seal; the air leak.

A tiny hole is fine, I am talking about a larger hole that will let a lot of air pass through IT and thus avoiding going through the cooler pad.

NOW this cooler pad material is supposed to be very porous, you can literally see tiny holes all through the material these tiny holes are suppose to be there to let air pass through and to aid in the evaporation of the water going through the pads.

When this cooler is running it is normal to add 2 to 3 gallons of water every 8 hours of operation.

I normally fill my tote to within 5 to 6 inches of the top of the tote and then run it all day and by the end of the day it is usually 3 or 4 inches below the half way mark.

- NOTE: DO NOT let this cooler run dry as it will damage the water pump and then you must replace it.

\*\* NOTE: IF you must leave this cooler unattended please disconnect it from its power source to be safe. (turn it off).

At the very least you should never let the tote run below 5 inches of water.

**Please note: that I am not responsible for any damages or injuries caused by your building this device. This information is only provided as reference and educational material ONLY.**

**Sorry but I must include a disclaimer (it is the times we live in).**

God Bless

Tony Lamb

Copyright 2024 by Tony Lamb