

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

(1. Frame & water supply line Build)

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.



You will first need ½ inch PVC water pipe, you will need 3 – 10 ft. lengths (or 5 – 5 ft. lengths). Plus the fittings shown in the photo.

You will need to measure **4 pieces of this PVC pipe at 40 inches long.**

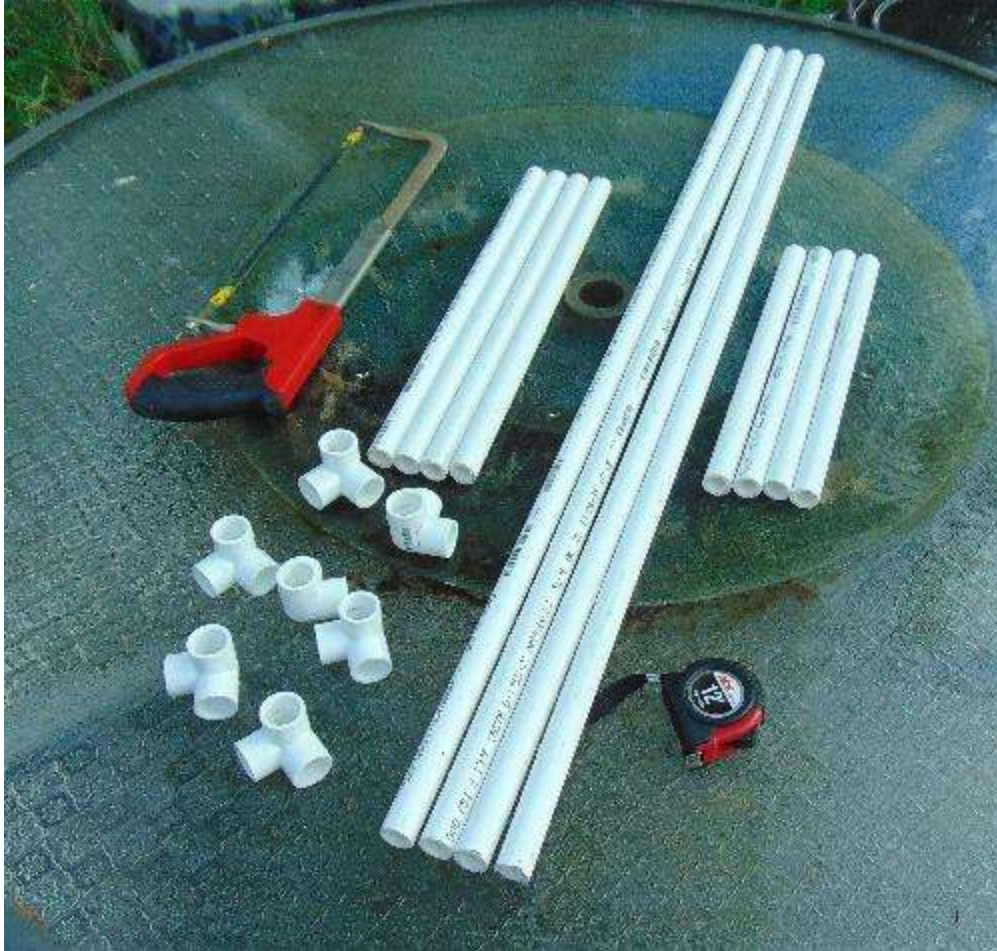
Then you will need to measure and cut **4 pieces at 16 inches long.**

And you will need to measure and cut **4 pieces at 12 inches long.**

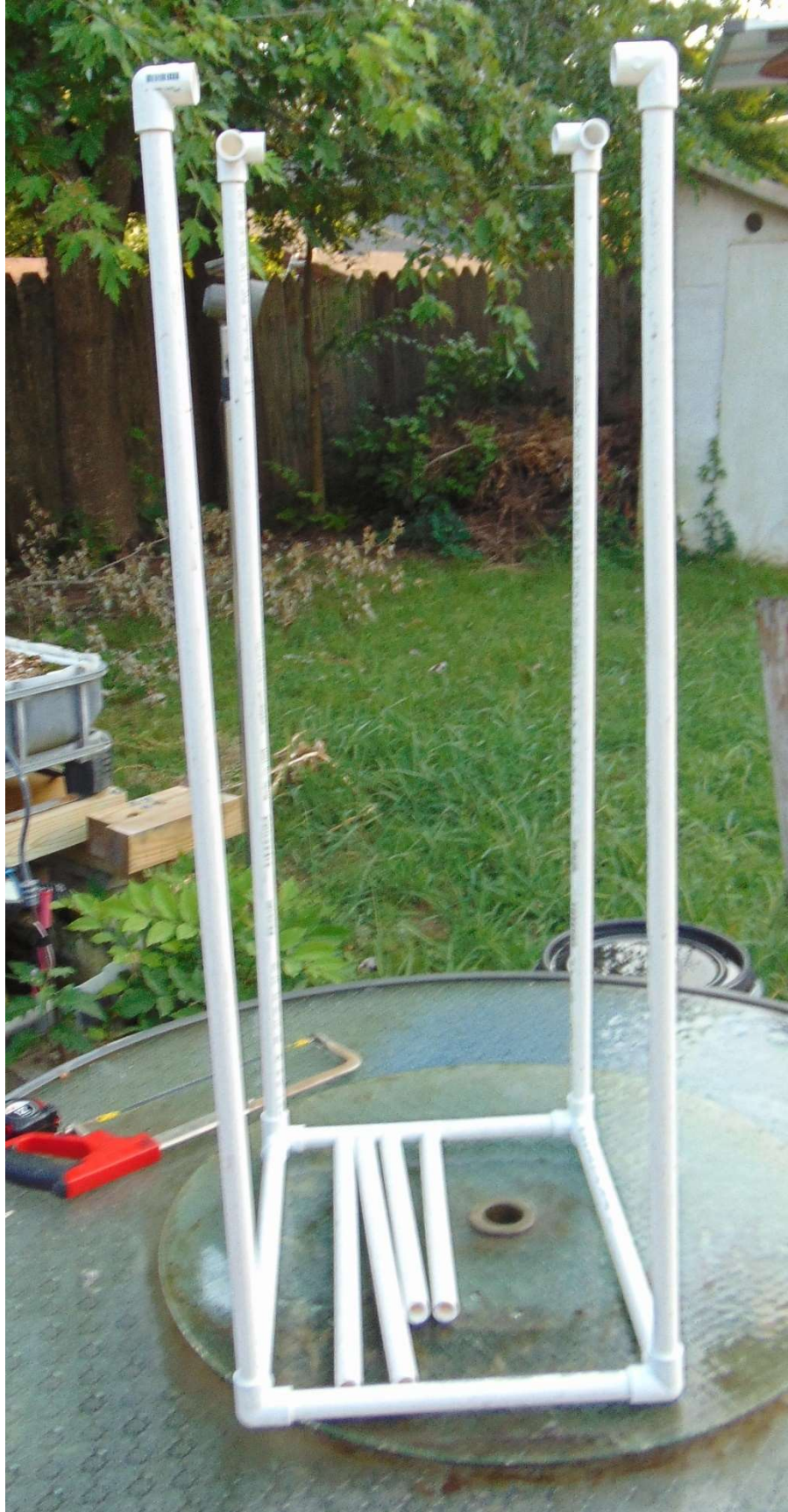
After you make your cut you will need to scrape off the rough cut edges to remove loose cuttings so they will not clog up your water pump or your holes on your top soaker pipes.

You should stand all 4 pieces of each length together on a flat surface and IF you have one or more that are taller than the others, you need to re-measure and either cut any excess off OR you will need to recut a new pipe (to replace any short ones)

Sorry but all 4 pieces of EACH length need to be the same length. (IF it is 1/16 to 1/8 inch that may work, BUT ½ inch definitely will not work)
You need to measure, mark your spot for each cut and cut on your mark.



When you have all 4 pieces of each measurement all cut the same length, you can proceed.





Assemble the 4 long PVC pipes into the elbow corners, and then attach the 16-inch PVC pipes into the elbows and attach the 12-inch PVC pipe into the elbows until you have a box structure that looks like the example above.

DO NOT GLUE ANY PARTS NOW!

When you have a box structure that looks like this example stand it up and into the tote, to make sure it will fit easily on the bottom of the tote. IF not you need to remeasure and recut to make it fit. If you bought the recommended tote this should fit.

If you used a tote you had lying around then you can adjust your measurements to fit your tote.

But that will throw off the measurements for the top and you will have to adjust that as well. It is better to follow instructions and get a working cooler and experiment later.

Here is an example of the frame sitting down in the bottom of my tote.



When I do this I will flip the frame upside down in the tote to make sure it fits with BOTH ENDS.

Next you will need to attach the water feed pipe. This is where your water pump will attach and pump water up the frame to the top of you cooler and out the soaker pipes around the top of the frame. (We will get to that next).



I cut a one-inch section out of the long 16-inch PVC pipe. You can place this cut about anywhere, I prefer the 16-inch pipe and anywhere in the middle, just be sure to measure to make sure you ONLY cut out a (one inch section) of this PVC pipe, so it looks like the photo above.

NOW I attach my T – fitting and attach my 3 inch of PVC pipe to the side of that as that is where the water pump will attach.

NOTE: there is a 30 to 45 degree angle to this fitting per example.



After you make this connection this becomes the bottom of the frame.

This way the plastic pipe that you get to make the connection from this PVC pipe to the water pump will have a natural curve in it from the factory. As it turns out we need this curve to come off this PVC pipe and curve down toward the bottom of the tote. This will keep your water pump near the bottom, so it will not run dry.

NOTE: when attaching the water pump to this fitting be sure the water pump is sitting where the intake to the pump is NOT against the bottom of the tote. This will severely restrict water flow. When attaching the water pump just be sure the pump is turned to the side so the intake can NOT come in contact with the bottom of the tote.

IF your plastic water line is to long you can cut it to the length you need. Just be sure you do not have to much length so that it will not flex and push your water pump up and possibly out of the water.

And if it is to short that built in flex in the plastic line will pick up the water pump and possibly hold it up out of the water (if the water gets low) It is always better to have an inch to much and wire it down in place than have it an inch to short.

Sometimes I use a wire tie and I will tie the pump to the opposite side of the frame holding it in place.

(The pump comes later).



Here is a top view of this water pump connection attached in the tote.

* (Remember the 30 to 45 degree angle up from the bottom of the tote of this PVC water pump connection (THIS IS IMPORTANT))

PLEASE DO NOT GLUE ANYTHING YET.

Next you need to make the soaker pipes around the top of the cooler

I use the markings already printed on the PVC pipes to keep the drilled holes straight, in line and all drilled in the right direction.

I suggest you use these preprinted markings on your PVC pipe as well.

Take the 2 – 12 inch and the 2 – 16 inch top straight PVC pipes and run a tape measure down the middle of the printed marks on your PVC pipe.

Take a black marker and mark in the middle of their printing down the pipe every one inch. See my example below. This way you can keep your line straight and your drill holes centered.



NOW, we drill, I use 1/8 inch drill, to small of a hole restricts the flow of water and to big of a hole may produce dry spots in your cooler pad as not all the water is getting to all the holes IF you use to large of a water hole.

See example below:



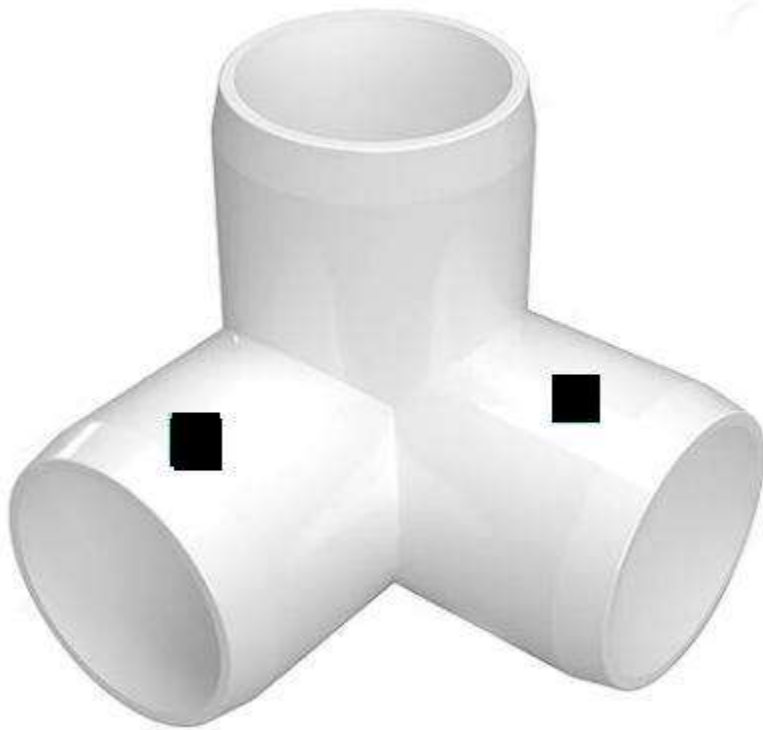
NOTE: I assembled the top of the frame making it easier to drill the holes.

ALSO NOTE: I drill my holes ON my mark but I also drill in the center of their printing on the PVC pipe. Making all my drilled holes consistent and centered.

I also drill my first hole in every elbow (into the fitting itself) so that way I get good coverage even at the edges. See the photo, note the square

black boxes is about where I drill my first holes through the elbow fitting and through the inserted PVC pipe as well.

This way you are assured of good water coverage even to the edge of the pad.





Top soaker assembly drilled & ready to install.

NOTE: that each corner elbow fitting is drilled per example.

Be sure all these holes line up and are all facing (in a down centered direction when assembled).

IF you do NOT glue this top assembly you can manually twist each soaker pipe to adjust the water flow exactly where you want it.

(Remember this is low pressure), so you should not have a blow-out. IF you find this does happen you can glue these top soaker pipes in place later.

When you finish this part, you should have this:



With the top soaker pipes assembled and in place and the water feed pipe attached. The frame and the water lines are assembled.

Now we move on to the next part of the assembly of this project.

The finished product is ugly, but it does work and when the power goes out you will be so thankful you have this little Solar Panel Powered Room Cooler.

I know I am.

Here is the link to the video: 1. Cooler Frame Build:

<https://www.youtube.com/watch?v=AP5KrL1TFYk>

or

<https://rumble.com/v55ew05-1.-cooler-frame-build.html>

or

<https://www.brighteon.com/2a0531ee-9d88-4a18-8ceb-210f7b298a36>

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

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