

My name is Matt and I live just outside Philadelphia, Pa. After coming across BuildItSolar I decided I wanted to create a similar system. Below is a quick overview.

**Tank:**



The tank is roughly 60Lx36Wx39H.



Probably the biggest pain during the whole project was getting the liner in. It wasn't necessarily difficult, just time consuming and HOT.



Here I'm beginning to get the folds in the corners.



Once I was finally happy with the folds, I put on the composite deck boards.



At this point I added additional insulation to the outside before closing up the sides.



I added some cheap wood panels to the outside for a more finished look. I may end up painting it or something but haven't decided yet.



Lid installed and controller/pump hooked up to Kill A Watt meter so I can see how much energy I'm using to run the system.

### Heat Exchanger:



I decided to go with copper since I had read in a few places online it was 4 to 5 times better at transferring heat than PEX. Whether that is accurate or not I don't know but I went with a total of 80 feet of ½ inch Type L soft copper.



I also added to temperature gauges (one just before the cold water enters the tank, the other right after it exits). At this point I ran some tests and did not see any noticeable difference on water pressure when drawing hot water through this additional length of copper.

### Pump and controller:



\$100 Controller from Sun-Pump.com.



I went with the U-Tube approach. The top yellow handle allows me to hook my hose up to the line to add water and prime the pump. Just to the left you can see the ball valve handle. This was a nice single piece that served both functions. I also have a ball valve on the other side of the pump so I can remove it easily if necessary.

#### Collectors:



Building the frame for the collector. It's made of 2x4s and  $\frac{3}{4}$  in plywood and painted with a few coats of exterior paint.



Dry fitting everything to make sure everything lines up where I want it.





It was a lot to solder but got it all done without any trouble.



Pressure tested both and no leaks!



I bought the absorbers and the clamps from U.P. Solar Solutions since I wanted a 90% wrap and for the price they charge, it isn't even worth doing it yourself in my opinion.

I also put the insulation inside the panel and the screws pass through the aluminum and insulation and securely screw into the  $\frac{3}{4}$  inch plywood.



First collector finished and pressure tested. No leaks...didn't think about the draining part in my living room. Oops!



Dry fitting to make sure everything will still line up when I attempt to connect the two collectors together on the roof.



Collectors in rails on roof before connecting everything together and closing them up. They sit about 3 inches off the roof.



Finally, everything is connected and sealed up on the roof. I'm very happy with the final look.

System just went live on 9/1/2012 and everything seems to be running well. A big thanks to Gary from Build It Solar and Tom from U.P. Solar Solutions for answering my questions along the way. Any questions feel free to email me at [mmarnien@verizon.net](mailto:mmarnien@verizon.net)