

## Making a Solar Powered Air Heater to reduce heating bills.

(and helping the earth or whatever)

### Shopping List:

- 1 2x6x16 board
- 1 2x6x8 board Both helpfully cut into 2x 36" and 2x64" pieces by lowe's
- 1 plywood board 3/8"x4'x8' cut into 36" x 64" shape
- 10 flex aluminum duct
- 2 pieces 30" x 36" again cut to be easier to handle
- 2 1/2"x4'x8' shiny insulation, cut in half to get into the car
- 1 box nails
- 1 can high heat rated black spray paint
- 3 tubes silicon sealer
- 1 12v solar panel
- 2 PC fans I already had around.

Total Cost: \$268.92

If I had waited to collect pop cans, it would be been about half the cost. But the work to make the holes in them might have not been worth it. If you have a couple hundred pop cans though, go for it.

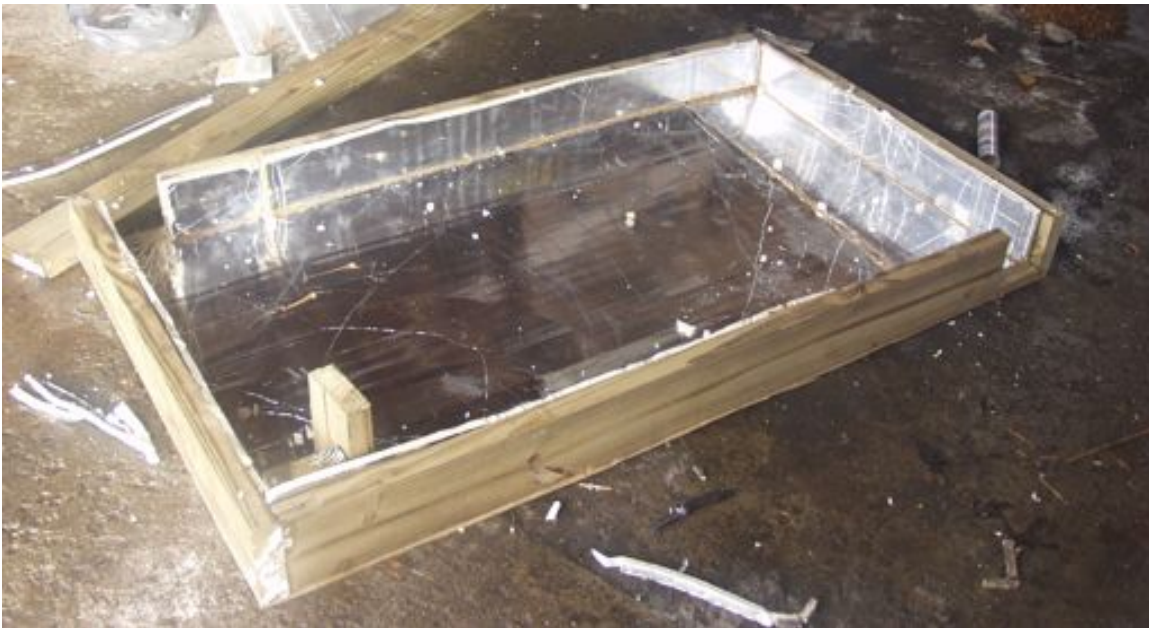
First, build a box using the wood. I had to cut a tiny piece off one end of my boards, oddly enough the "spare" board I thought I wouldn't use fit perfectly, because I forgot to take into account the thickness of the top and bottom piece in my measurements. Don't do that! This is the difference between scientists who think everything operates in a vacuum and has no friction or thickness or anything and engineering, where you have to worry about that stuff. I kid, I kid the scientists so much! So I now have a spare 64" long board left over. Hole cut in the top and bottom big enough for my fans to fit into.



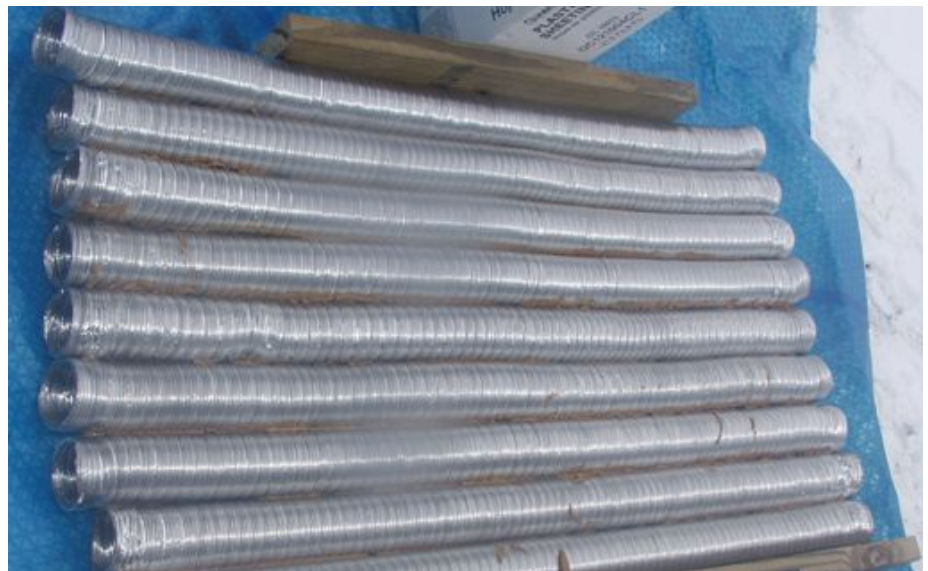
Next, lay insulation into place. This stuff cuts much easier.



Seal it up so it's nice and straight, and will hopefully stay in there when you stand it up.



While that cures, you can get your pipe ready. I was going to make a whole baffle solution to channel air out of extra insulation, but the stuff is just too darn brittle. Or maybe it's just me. Some use wood, which looks nicer, but I'm not sure it's really thermally necessary, and I don't have the tools for it, so I decided to just glue them together with the sealer.





Then while you wait for that to harden up, you can (optionally) paint the box. Maybe not optionally, it is going to be outside, after all.



Now, the hard drive bottoms there, yeah, let me explain. I was going to take my whole stack of them and put them in there to help absorb heat. But with my pipes glued together like they are, there's no air gap (or sun gap in this case) to do any extra absorbing. But I took the trouble to take them apart so I thought maybe they might help retain the heat a little better right by the intake and exit. So I stuck them there and nailed the piece of wood to keep them from just sliding down. So don't worry about that.

With the sealer sort of cured, I painted the pipes.



I put more black on them after this, too. Black is good in this case.

I tied them together with the rope there to help keep them together and hopefully to aid in carrying them. Didn't work out so well. To carry them I slid two boards underneath and carried the boards, and they came along for the ride. They even stayed mostly together!

I dropped them into the box!

Here it is tilted up. One snag I ran into was that, without the baffles there was nothing to hold the tubes in place! Crap! So I drilled a hole right by each pipe and put a nail down through, then sealed the nail on each side to keep it there. Should work, it's only going to be moved twice a year. I put some wood and more sealer on that bottom one that escaped to hold it in place while it sticks together.

I admit, it isn't the belle of the ball, but if it blows hot air, I don't have to look at it so who cares.

By now I was down to about a half of a tube on my second tube of sealant and everything looks good and cured in there so it's time for the glass. I put sealer on the wood and dropped the glass down onto it, making sure it fit tightly together.



.... is what I thought I would be doing. Then I realized there may be a situation, down the road, where I want to open it up. Having it sealed down like that would make it much more difficult. So I looked into aluminum tape, which would have cost a fortune. So I got regular outdoor duct tape, and slapped that on. I did seal the top one and the bottom one, mainly to hold them in extra tight and support the middle ones. And here it is, finished.



Interesting, the glass and tape seem to have de-uglified it somewhat. If that's a word? My glass did turn out to be somewhat shorter than I thought, I must have not had it on properly or looked at it closely enough when I put it on as the test before. I'll have to pay more attention no that next time. So the very bottom has a very tiny gap just filled in with the tape. So that's it. Next stop, electronics.