Building and Using A Homemade Wood Kiln

The topic of building and using a homemade wood kiln is a common thing on the internet forums and woodworking magazines, especially those geared towards woodturning. The problem with many of these articles and discussions is that you need to be an electrician to hook them up and the methods of monitoring your progress are tedious at best. Around here, I like to keep things simple. To that end, here is my wood drying kiln. It's simple. It works.

The first you need is a refridgerator. Now guys, before you empty the one in the kitchen, stop and think. Are you single? Would you like to be? No, then don't use THAT one! Keep your eyes open on garbage day for one that your neighbour is replacing or go to the scrap yard and pick one up cheap. It does not have to be in working order but you do need the doors and the seals should be in decent shape. Shelves are good too but you could always add some wire ones if you had to. Other items you will need are a light fixture, a small desk fan, a 1/2" drill bit that can go through sheet metal and a few light bulbs. Later you will need a scale, a pen and paper.

The first thing to do is make sure the unit is not plugged in. Loop the cord around the grid on the back or cut it off entirely. Next, pop a few 1/2" holes near the top of the main compartment of the fridge. These will allow air and moisture to escape. Try to line these up close to the height of your fan, which will sit on the top shelf of the fridge. I put four holes in mine, all fairly close together and I haven't had a reason to add anymore.

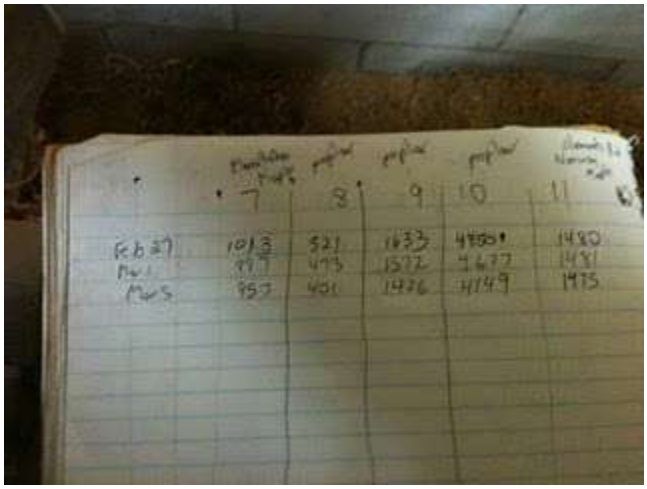
Are you tired and exhausted yet? We are in the home stretch. Seriously.

Next, take your light fixture and throw in a 40w bulb. Put the fixture on the bottom on the fridge. Run the cord through the door seal on the hinge side so it reaches an electrical outlet. Run the cord of the fan, which is sitting on the top shelf, in a similar fashion to the outlet. Turn both the fan and the light on. Your kiln is now operational. Here are pictures of my FHS (Fancy Heat Source or "light fixture") and my DACD (Deluxe Air Circulation Device, aka "the fan").

Yes, it really is this simple. No wiring involved (handy for those of us who do not speak "electrical"). No scrounging for old computer electrical fans and power supply units. No thermostats. Simple. Geez, why don't people go the simple route anymore? Ok, now for the good part...how to put this contraption to work in your workshop.

The first stage in my process occurs after I have roughed out a sufficient quantity of bowls, hollowforms and or spindle blanks (usually a mixture of all of these). First, I seal all of the end grain with Anchorseal. I have mentioned this stuff before and many of you are familiar with it. For the Anchorseal virgins in the audience, it is a wax emulsion used in the forest industry to seal wet or green wood. For our purposes, it helps to slow moisture loss from the end grain so it more closely matches the rate in which moisture leaves from the flat or side grain. In this way, the whole piece dries at roughly the same rate which eases the stress on the wood and helps reduces cracks and checks. Ask around at your next guild meeting for s source local to you. For folks in the Toronto area, John at[Woodchuckers](#) carries it. Give him a call.

Ok, you've sealed the end grain and the Anchorseal has dried so that it is no longer white and milky. Great. Now you need your scale and log book. Number each piece and weigh it, being sure to record the date. Here is my log book...



The numbers across the top match the marks on each blank and the weights are in grams. At the risk of offending my American friends, use the metric system! It is far more accurate and easier to see percentage of weight lost (what even is the next lower measurement unit after ounces anyway?) Ok, pro-Canadian rant switched to off... Do this for each piece you are going to load up.

Load up your kiln being sure that there is space for air to flow into and around the pieces. Take a look at this picture...

Notice how the bowls are sort of standing on edge and not sitting inside one another? That's what you are after. Also, take a look at the very bottom, beside the FHS (light). That is a small tub of water I add for the first round of the drying process. What you want right now is to get the humidity up high and keep the heat on the low side (that's why we are using a 40w bulb). It is not uncommon for my pieces to GAIN moisture at in the first few days. Don't worry about it.

Relax. In a couple of days, take each piece out of the kiln, get your handy log book and scale and weigh each piece. Record what you find (and the date) even if it is only a few grams difference. Put everything back in the kiln. Wait another couple of days and do this again and repeat until you notice the weight loss slowing down. I usually find this happens in a week or two. When that happens, move on the the next stage...

Remove the tub of water (it may well be empty) and change the light bulb on your FHS to a 60 or 75 watt bulb (allow the 40 watt bulb to cool first. C'mon, lets use our heads). Wait a day or so and repeat the weigh and log process. Wait another couple of days and do it again. Are you seeing a pattern here? Again, when it looks like weight-loss is slowing considerably, (a week or two) switch to a 100w bulb.

You are now in the penultimate stage of this exciting adventure. Go through the weigh and log procedure for a week or two. The loses will start to really slow but I usually keep the kiln going for two weeks at this point. Once you feel you have reached the limits of the 100w bulb you move to the final stage... Unplug the FHS and the DACD and remove your pieces. Stack them on a wire shelf in your shop, not too cold, not too warm. Let them sit there for a week or two to get acclimated to your environment. Then, they are ready to go back on the lathe and be finished.

So, in around 4-8 weeks you have gone from a pile of roughed out bowls which are months, if not years, away from being ready to finish to a pile of blanks ready to finish turn and enjoy. I suppose you could further speed the process with additional fans or lights, higher wattage bulbs, etc etc. But really, why bother? Seriously? Relax. While they kiln is running rough out a fresh pile of logs or finish turn the pieces you took out last time and never got around to. If you are so fast in your turning and your work sells quick enough that this system is not up to your speed, add a second kiln. I certainly hope to need one some day.

It should be noted that there are a couple of other options besides an old refridgerator to use as a kiln. Lots of folks are happy using old dishwashers as the top can become a storage shelf or finishing bench. An upright freezer would be awesome because it could hold more pieces. That might be a reason to add another light or fan. I know I would think about it but for now, my old fridge works great.

I want to briefly discuss moisture content in wood. I have a pretty simple view of the matter and that is that is doesn't matter. Really. Once the pieces in your kiln stop losing weight (moisture), they are dry enough to finish turn. That is the bottom line. End of story. If they will not give up any moisture under the pressure of a 100w bulb in a small enclosed box where the temperature can reach 60 degrees Celsius, then they aren't going to. I am talking about bowls and hollowforms here. I have limited success drying 3" and 4" diameter spindle blanks for peppermills, rolling pins and candlesticks but that is because the wood is so thick. A roughed out bowl may be between 3/4" and 1-1/2" thick and that is a huge difference. I have no idea if the bowl blanks exiting my kiln are at 20% moisture content, 12% or 8%. For all I know they are at zero. I have had bowls come out and gain moisture from the environment clearly indicating that they were too dry.

In my opinion, any woodturner who is cramped for space and cannot store a lot of wood or a woodturner who does a few shows each year and needs to be able to dry wood quicker than Mother Nature will do on her own should seriously look into a refridgerator kiln. I have tried the liquid dish soap approach and while I lost no bowls to checks or cracks, it was no faster than Mother Nature. I briefly played with the denatured alcohol method of drying and it was quick but not overly faster than the fridge. Plus, who wants to add another chemical to their shop? Seriously, that stuff is nasty and an accident waiting to happen. Get an old refridgerator and keep it from hitting the landfill. Re-use it as a kiln and give it a second life.