Cindy Drozda
"The Fine Art of Woodturning"
P.O. Box 19065 – Boulder, CO 80308 – voice: 303-449-7170 – fax: 720-306-3829
cindy@cindydrozda.com - www.cindydrozda.com

CD's Low-Tech drying kiln

To dry my rough-turned vessels, and blanks for smaller projects, I have made a drying kiln out of a recycled chest freezer. The Freon has been removed and the chest freezer is standing up on end. A couple of 2x4s underneath space it off the ground and allow the door to work properly. The material to be dried is placed on "flow through" shelves made from salvaged oven racks.

The freezer has holes in the sides at top and bottom, and a couple of 60 watt bulbs inside at the bottom. Convective airflow is the key, and no fan is necessary. The bulbs heat the air, the hot air rises, air is drawn in through the holes in the bottom and flows out through the holes in the top. The relationship between the number of holes (airflow volume) and size/number of light bulbs (watts of heat) can be adjusted to give a temperature inside the kiln of about 85 degrees F. More heat without more airflow volume seemed to result in more cracking and "case hardening" of the roughouts. This "kiln" dries wood in about 1/3 of the time that it would take to dry out in the shop at the same air temp because of the dry-air-flow.

I have had good success drying roughed out vessels, bowls, and boxes. And I have success, also, with drying solid blanks up to about 3" thick for pens and small projects. The outside of rough vessels, and all surfaces of solid blanks, is coated with "Anchorseal" type end grain sealer. There is sometimes some cracking of solid blanks, depending on species, natural features, and what the moisture content of the blank was when I put it in the kiln. If a species is known to be "crack prone", and the material is very wet, I will sometimes put the waxed blanks in a cardboard box for a couple of months first.

The first drying kiln that I made was 2" blue construction foam held together with PL400 adhesive. The foam was easy to drill for the vent holes, and I made shelves by drilling holes through the sides of the box and running ¾" x ¾" oak pieces through the holes. The door was just a slab of foam held in place with a bicycle inner tube around the whole box. Plywood sheathing was not necessary; this kiln lasted for years until I wanted a bigger one. The foam box is the easiest way by far to make a drying kiln. The freezer was a lot more work to drill and mount shelves.

When I first started using the drying kiln, I did some tests with a scale to see how quickly the blanks would dry in the kiln. A ¾" thick x 6" diameter, open bowl blank, of Honey Locust, with sealer on the endgrain was weighed every day. It lost all the weight it was going to in about 6 days. After being in the shop for another couple of days, the bowl gained back some weight. From this experiment, I am guessing that the dry air inside the kiln is evaporating out the cellular moisture from the wood. Then when the wood is exposed to the air in the shop it is absorbing atmospheric moisture. Remember, I live in Colorado – a very dry climate. And most of what I dry is roughed out vessels and small project blanks of burl material. Other parts of the country (or the world), and other sizes/shapes/species of wood, might have different results.

The difficulty is in knowing when the blanks are completely dry. A "pin type" moisture meter needs to have a freshly cut surface, and a "pinless" meter needs a flat surface. Weighing each blank every day is incredibly time consuming, and requires a good quality (expensive) scale. I don't have a high-tech solution to this problem. My approach is to gauge the dryness of vessel blanks by how much they have distorted, or by past experience with that species, or "just give it plenty of time". For small project blanks, I will cut them square before drying (as opposed to rounding them off). Then after the blank has been in the kiln for awhile, I will cut off one corner and check the moisture content with a meter. A square blank gives me 4 chances to check.

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