Granville Haworth's experience with drying wood.

Drying of wood, a much discussed topic within the woodturning fraternity and we all want to know the best or most successful way of drying wood to eliminate cracks. So I will explain my experience and tested methods.
Before I explain the methods, it is good to understand why wood cracks. Wood contains two types of water one is free water the other is bound water. Free water is the first of the moisture to leave the wood and does not cause cracking; the other, bound water is that which is contained in the cell walls. The removal of this water is the moisture that has to be controlled. The bound water moves from the middle of the wood to the outside and evaporates; this movement is very temperature dependant. If the evaporation from the surface of the wood is greater than the rate of movement from centre this is how the cracks appear due to the surface drying too quickly. This is why a sealer controls this evaporation.

One instrument that is essential if you are to dry wood successfully is a moisture meter.

My first method is what the majority of wood turners do and that is to seal their blanks with a recognised sealer. PVA glue thinned with water is another substitute and cheaper or just wrap them up in newspaper and put them under the bench, or a cool place for a year per inch of thickness. Before doing the above check the moisture content and write this on the blank together with the date. Periodically check both these points and record them on the blank, some people weigh their blanks and record this as well. The aim is to get down to a moisture content of between 12 and 15 %.

My second method: I put the blank in a plastic bag and then into the freezer for 48 hours. From the freezer I put the blank still in the plastic bag but with it open into the fridge. Everyday, I removed it and dried the plastic bag and blank before returning to the fridge. I soon stopped this method as my wife did not appreciate my wood in the fridge. The example of how the wood dries is if you put a piece of meat in a fridge uncovered, within days it will have dried out.

For my third method: I converted a fridge into a drying cabinet. I removed the compressor and all the other components then installed two 20 watt light bulbs in the space. I then drilled two 2" diameter holes both at the bottom and top of the fridge compartment, this allowed the warm air to rise and circulate. It is important to fill the fridge with wood which creates a humid environment and reduces the evaporation rate and hence the chance of cracking. It is advisable to have a thermometer in the fridge and keep the temp about 24°c, if it goes above this remove one of the bulbs.
It is important to carry out the checking as outlined above in the first method and this goes for all methods of drying processes.

My fourth method: I built a cabinet about 1 metre square by 2 metres long fully insulated with a sealed lid. Into the cabinet I put in a domestic dehumidifier at one end and connected a pipe from the condensate outlet to the outside of the cabinet and into a measuring jug. I measured and graphed the amount of water discharged daily. This generally took a straight

line, after a while, generally a few months the water discharge started to level out then reduce, this indicated the wood was getting down to the required moisture content. I always filled the cabinet with wood.

My fifth and final method: I built a custom built drying room 2metres long x 1.8 metres high and 1.2 meters wide, complete with slatted shelving and self- sealing door, fully lined and insulated, sealing the inside to prevent any mould build up. I Installed a custom designed wood drying dehumidifier made by Ebac in Scotland complete with heater and control box. The box mounted on the outside of the drying room controlled the temperature, the humidity and daily operating frequency. The dehumidifier discharge was connected via a pipe to the outside. I monitored and graphed the discharge as previous. I always filled the drying room with wood, if I had spare capacity this was taken up by other members of the club with a nominal charge to help with the power. This proved the ideal set up, it was cheap to run and provided crack free timber with no degradation.

Note: Before all processes I sealed the blanks.

If any club member wants any advice I am more than happy to provide this.

Granville Haworth.

Granville is a semi professional woodturner and demonstrator. Living half the year in England and half the year in New Zealand, he brings beautiful Maori influence in his turning and carving. [Editor]