

# Thoughts on Turning Green Wood



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## What is green wood?

Green wood is material that has recently been cut and still has very high moisture content. Because of the high moisture in the wood, it is easier to work than dry timber and offers more options than seasoned blanks.

## Why turn green wood?

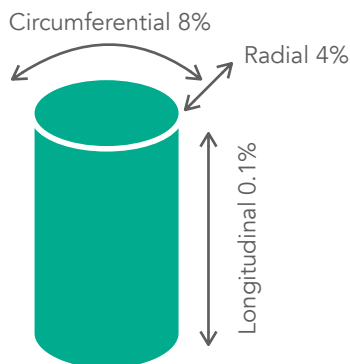
Working with green wood allows for creative freedom to control the process from wood harvest to finished object. The woodturner can choose what parts of the tree to use, how to orient the grain, control the drying process and find material in sizes and shapes that can't be found in commercial blanks.

Green wood is plentiful in most areas and allows a woodturner to use material that would otherwise be sent to a waste facility. Usually it can be had for little to no money, besides the cost involved in harvesting and processing the logs.

## Moisture

- *Free Moisture*: Contained within the wood cells.
- *Bound Moisture*: Contained within the fibers of the cell walls.
- *Equilibrium Moisture Content (EMC)*: the point at which drying stops and the moisture in the wood is equal to the atmosphere.

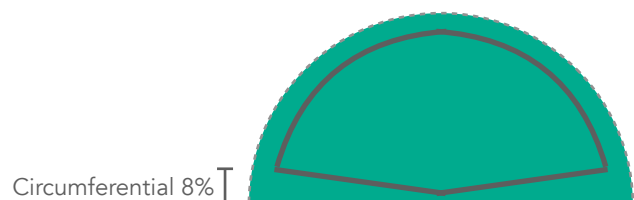
|                       |                |
|-----------------------|----------------|
| Fibre Saturation, 32% | Free Moisture  |
| Air-dry, 20%          | Bound Moisture |
| Kiln-dry, 12%         |                |
| Oven-dry, 0%          |                |



Direction of Movement in a Log

## Shrinkage, Distortion, stress and splitting

- *Longitudinal Shrinkage*: around 0.1%
- *Radial Shrinkage*: around 4%
- *Circumferential Shrinkage*: around 8%



Movement in a Half Log Section

## References:

- *Turning Green Wood* - By Michael O'Donnell
- *Turning Bowls with Richard Raffan* - By Richard Raffan
- *Bowl Turning Techniques* - By Glenn Lucas  
(Mastering Woodturning Series: No. 2 - DVD or Download)

## Thoughts on working with Green Wood

- *Harvesting Wood:* It can be as easy as picking it up off the side of the road. But usually a chainsaw and bandsaw come in handy when processing a log into blanks for woodturning.
- *Holding Material:* It's a good idea to use secure methods when working with green wood. Green wood is heavier than dry, since it's filled with moisture, and compresses more readily. You can turn pieces between centers, checking and tightening the tailstock regularly. A faceplate or screw chuck can also be used and it is recommended to use tailstock support for as long as possible.
- *Chucking Material:* Leave ample room for chucking and parting a piece off. The wood fibers will compress easily, so allow for movement and check to make sure jaws are secure. Vacuum chucks won't work until the material is fully dry. If you use a vacuum chuck too soon, you'll pull moisture into your compressor.
- *Sanding Wet or Dry:* Pieces turned thin will dry as you turn them and as long as the surface is reasonably dry, you can start to sand. In some cases it's better to wait a day to do initial sanding. I like to do the bulk of any sanding as soon as possible, before the piece has had time to warp. Then I'll finish sanding with my last 2 or 3 grits after the piece is fully dry. A sanding stick is handy to clean off sandpaper that's become clogged with wet wood fibers.

## Twice Turned Pieces

- Rough turn the piece to a wall thickness equal to about 10% of the diameter to allow for warping. E.g. a 10" bowl should have a thickness of about 1". While a 15" diameter bowl, 1.5" wall thickness. Be sure to include the tenon, you may need to slightly taper the wall thickness.
- Rapid drying can cause cracking of the material as the outside dries quicker than the inside. Create a "Microclimate" to begin slowly drying the piece. This may include sealing engrain with PVA Sealer or Wax Emulsion, putting the rough piece in paper bags with/ or without wet shavings or using the plastic bag method, changing every day. It usually takes about a year per inch of air drying to reach EMC.
- You can also rapidly dry rough turned pieces in a kiln. You can make a kiln out of an old refrigerator or other insulated box. There are tutorials and documents on doing this, although it may take some trial and error.
- Once dry and warped, you can put the piece back on the lathe and turn the piece to final thickness and finish as you would any other piece.

## Once Turned Pieces

- To maximize movement of the piece as it dries, turn the piece as soon as possible or store wet.
- Start sanding right away and preferably sand until your final grit or two. Any tool marks or torn grain won't be turned away later on, so make sure the surface is what you'd like it to be. Buff on a cotton wheel once dry.
- If the wood becomes stained from the metal of your tool, you can use Bar Keepers Friend, or it's active ingredient oxalic acid, to lessen or remove entirely. It can have a slight bleaching effect on the wood.
- Slowly dry the piece and weight daily until the weight becomes constant, EMC. I use paper bags to create a microclimate and allow the piece to equalize. Once the weight is steady, leave it out in open air for a week or two before finishing.