

**Bending Wood Without Steam: Introduction to Compressed Hardwood**  
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**General Woodworking Safety**

- No dangling hair/jewelry/neckties, etc.
- Use safety goggles/glasses/faceshield/hearing protection when wise
- Always have a good light source
- Use lung protection around sawdust always: good dust mask or respirator
- Work toward good shop dust control: desktop or lap dust collector, ambient dust collector in shop for fine particles
- Always work with focused attention (not tired, impaired, emotional wreck, etc.)
- Listen to your body. Take breaks, stretch, get a good chair, do your physical therapy exercises

**What is Compressed Hardwood?**

It is hardwood that has undergone a thermo-mechanical process that allows it to be bent easily while at room temperature. No chemicals, glue or other funky stuff are added. The wood is compressed using heat (steam) and mechanical pressure.

"It is indistinguishable from clear, straight-grained hardwood because that's what it is," [www.PureTimber.com](http://www.PureTimber.com)

- Great article about using compressed hardwood: Zander, Malcolm. "Compressed Wood Can Expand Your Horizons." *American Woodturner*. Dec. 2014: 25 – 29.
- Another useful article: Lucas, John. "Bending Alternatives." *American Woodturner*. Dec. 2014: 22- 24.

**Source for Compressed Hardwood**

- **Pure Timber, LLC. Cold-Bend™ hardwood** – Gig Harbor, USA  
[www.puretimber.com](http://www.puretimber.com)
- **Cold-Bend™ hardwood** is most commonly made from 5 North American hardwoods:  
    Ash, Red Oak, White Oak, Cherry and Maple
- Example of a package of Cold-Bend hardwood from PureTimber.com suited to small-scale sculptors and turners:
  - Sample Pack: 10" to 20", ~15 lbs
  - Contains ~15 lbs of compressed hardwood in mixed species(~5 bd ft). This short sample pack is useful for craft projects and wood turners. Most of the planks in this bundle will be too short and too thick to bend as is...

**Working with Compressed Hardwood**

- Compressed wood behaves like all wood with respect to sawing, turning\*, carving, sanding, painting, staining and finishing

- \* Compressed wood is more prone to wobbling than regular wood when turned to a small diameter on the lathe (< ½ inch). May have to hand carve
- If carving or turning compressed hardwood on a lathe, let wood dry, then turn and carve, then soak overnight before bending
- Planing or routing compressed wood along its length may lead to fuzzing, tearing and can be dangerous
- The moisture content of fresh compressed hardwood is too high to cut with a SawStop table saw (fresh compressed wood is at 20 – 25% moisture) unless the skin sensor is disconnected
- No reason to bend slowly. You can manhandle compressed hardwood
- 5X board thickness is minimum radius target for open-grain species (Ash, Oak)  
E.g.: a 1 inch thick board should bend to a radius of 5"
- Maple and Beech (clear/closed-grain) bend less well (maybe 1:6 ratio)
- Sand before bending if possible. Much easier to sand flat wood
- Finish with a water-impermeable finish. Will be stable in bent shape
- Expect 0.5 – 1% shrinkage in length upon drying

### **How to Shape and Bend Compressed Hardwood**

- Hand bend
- Bend and clamp (protect wood with scraps to avoid clamp marring).
  - Types of clamps: standard, strap clamps, parachute cord, rope, your hands (= the dreaded human clamp), duct tape
- Make/use jigs: rigid foam, wood, cans, pipes, nails or screws connected to a backer board, etc.
- May need mechanical leverage to bend thick pieces (e.g. clamp one end, slide pipe down other end, use pipe to help bend)

### **Things I've Learned From Using Compressed Hardwood for over Ten Years**

- Most bend failures result from grain runout. Make sure to cut and shape pieces of wood with long, straight grain
- Soak an elderly piece of compressed hardwood in tap water overnight to revive its bendability
- Old compressed hardwood sometimes bends unevenly along its length. Soak old wood overnight before using in hopes of reviving it
- If compressed hardwood does split due to age or overbending, can't sand out the mess. Patch the frayed area with Bondo
- Can speed up drying process with a hair dryer, heat gun, putting near a woodstove
- Mix compressed wood with regular wood to keep costs down (e.g. turn vessel of regular hardwood and use compressed wood to make finial)
- If compressed wood gets moldy/mildewy, just scrape or sand off. Shouldn't happen if you wrap well with plastic wrap to keep oxygen out of package
- If laminating strips of compressed wood, use waterproof glue, because might need to soak wood before bending
- Can use CA glue, PVA glues, 2-part epoxy – anything you would use with any hardwood