

Newsletter

Volume 11 Issue 6

June 2011

The CMWA is a group of men and women from around the St. Cloud, Minnesota area who share a common interest in the art and business of woodworking. We meet monthly and share information, techniques and topics of interest in the area of woodworking.

Visit us at:

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Against the Grain by Roland Johnson

What the heck is EMC?

EMC, equilibrium moisture content, is a term that every serious woodworker should know about. EMC is the moisture content of a board at which the board is neither losing nor gaining moisture.



We know that changes in moisture content will change the dimensions of a board as the board shrinks or expands from changes in internal moisture content. What we often fail to take into account is that boards stored in different environments will have differences in moisture content (MC) and building a project with boards of varying MC can lead to problems such as split laminations, failed joints and a host of other movement related problems. Boards that have similar MC during construction will move at similar rates through seasonal humidity changes. A board with significantly different MC will move a different percentage (bigger or smaller dimensional change) than the rest of the wood in the project and can cause serious problems. If you have a few boards stored in a dry garage, a few more on a shelf in a damp basement and then add several boards freshly purchased from a lumber yard, you can have three different MC levels and the resulting differential wood movement can cause problems.

How to deal with EMC? Simple, buy a moisture meter (about \$100 new) and measure the MC of each board you are going to use in your project. When all of your boards measure the same MC you're good to go. Common practice for many woodworkers is to take all the wood for a specific project, stack and sticker the wood in the shop and let it acclimate for a few weeks before starting the project. This works fine but sometimes we need additional lumber and if we don't know the MC of the new lumber, or what it's supposed to be, we can run into problems.

EMC varies throughout the year as seasons change and humidity and temperatures fluctuate. Lumber that has been dried to furniture grade (6 to 8%) will gain or lose moisture and the correct MC will vary with the season. I've included a link to an EMC calculator that will take the guesswork out of determining what the correct EMC should be, given the climate conditions

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in your shop. A board that is at EMC in a July shop with a temperature of 85° F and a relative humidity of 65 % will measure 11.6% MC. Once you know what the EMC should be, a quick check with your moisture meter will tell you if your lumber is ready to work with.

<http://www.woodworkerssource.com/moisture.php>

May Meeting — gs

A few years back we met at Dave Blenkush's impressive shop for a demonstration on how to use vacuum to clamp and laminate. We returned to his shop last month for a review and to learn more about vacuum and its uses. A whole range of vacuum topics were discussed including types of vacuum pumps, vacuum bags, vacuum transfer materials, glues and various techniques for holding work pieces and for laminating boards of various shapes. For the do-it-yourselfers interested in obtaining more information about building your own vacuum system, one good website is: <http://www.joewoodworker.com/>. Another site that sells vacuum systems is <http://www.vacupress.com/index.htm>. Thanks Dave for sharing your knowledge and experiences.

Top photograph is of last month's meeting at Dave's shop. Bottom photos off the web show laminating demonstrations.



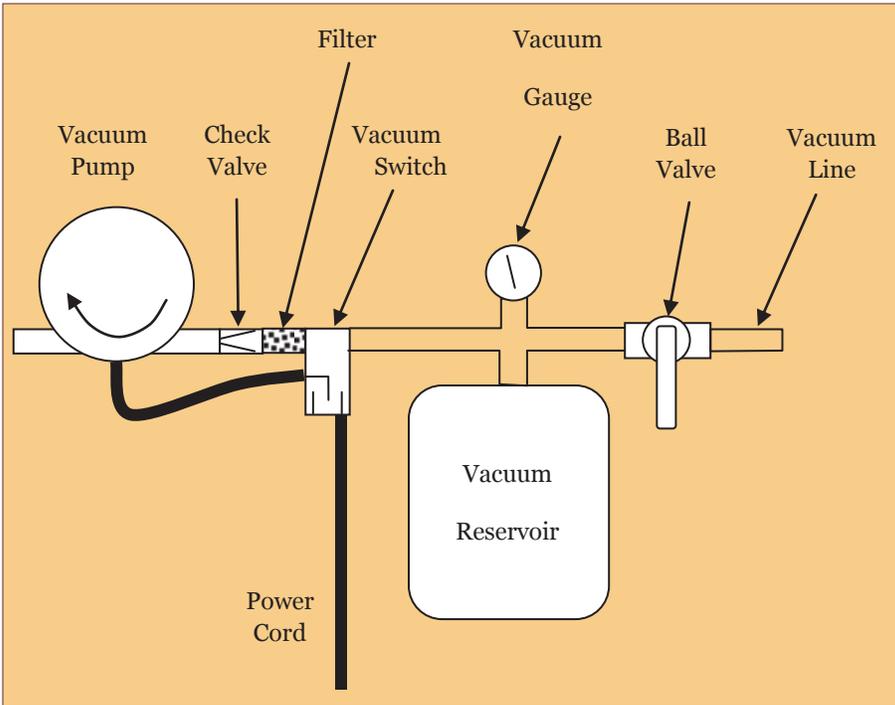
Vacuum System — gs



- ← Vacuum Gauge
- ← Ball Valve
- ← Vacuum Switch
- ← Check Valve and Filter

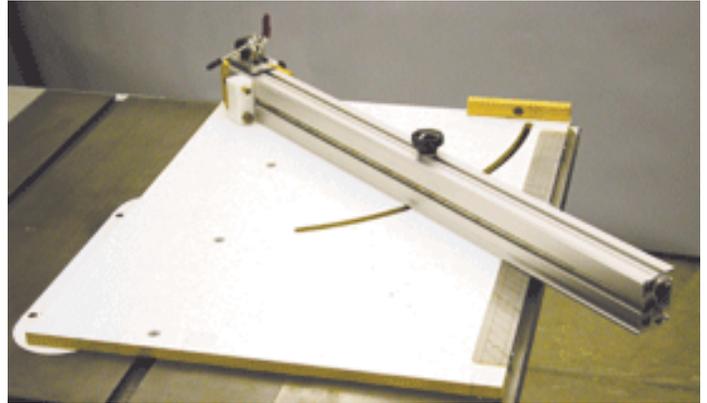
I have been laminating 1/4" flat panels for cabinet doors using a vacuum. I originally used a fractional horse power diaphragm vacuum pump. It drew and held ~16 inHg. However, with the slow leaks in the system, the pump ran continuously for three hours as the glue set. This meant the pump got extremely hot—so hot you couldn't touch it without burning your fingers. So, it was time to come up with a better pump and a system that eliminated all or nearly all leaks.

I bought a used Welch high vacuum pump from the Macalester College Physics Department. After replacing the main seal and its aged electric motor, I had a high quality vacuum pump that could easily and quickly create >27 inHg of vacuum. I first tried running the motor continuously, but after ~30 minutes its thermal breaker tripped. So, I added a vacuum reservoir (propane tank) to increase the time it took to lose vacuum. I added a vacuum switch that turned the pump off when the vacuum reached 26 inHg and back on when the vacuum dropped to 22 inHg. This, combined with a urethane vacuum bag that sealed well, prevented the pump from running more than a minute or so each hour. Parts from local hardware stores and <http://www.joewoodworker.com/> finished the system off. The system and its schematic are shown to the left.



Several years ago as I was first setting up my wood shop, a couple old timers strongly recommended that one of my first tools be a Dubby Crosscut Sled from In-Line Industries (http://www.in-lineindustries.com/single_dubby.html). After their encouragement and seeing it demonstrated at the Wood Working Shows, I bought one (<\$140). I smile each time I use it. It is a simple tool. Once properly set up, it gives you nearly perfect angled cuts repeatedly. It is just one of those tools that you appreciate every time you use it because the developer thought through every detail. I have yet to find a quirk. I use it most often to make sure I have perfectly square cuts. For example, I use it to cut off my rails and stiles so that when I assemble my face frames and door frames, the assembly ends up being square. I liked my left hand Dubby so much that last year I bought a right hand Dubby. The only limitation I've run into with them is that you can only cut 22-24" long boards.

When I become an old timer I plan to pass on the same sage advice to the youngsters of adding a Dubby to their workshops.



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Calendar

JUNE

15th— June's CMWA meeting *at the Paramount*, 7 pm. The topic is hand applied shellac finishes.

24-26th— The American Association of Woodturner's annual event is being held in St. Paul this year, and it should be a great time. This year is the 25th anniversary and it will feature a bunch of top name turners who will be giving seminars all three days of the show. The event will be held at the St. Paul River Centre, June 24 – 26. The Instant Gallery, Trade Show and Special Exhibits are open to the public. A fee of \$300 (\$360 for non-members) is the cost to attend all the seminars and special events. The Gallery and the Trade Show alone are worth taking a day and venturing to the Cities.

DECEMBER

2-4th— The Wood Working Shows, Canterbury Park, 1100 Canterbury Road South, Shakopee, MN.

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