



SHAKER WORKBENCH

Design, Construction Notes and Techniques

"Don't make something unless it is both necessary and useful; but if it is both necessary and useful, don't hesitate to make it beautiful." –Shaker Dictum



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· INTRODUCTION & DESIGN ·

“Whatever perfections you may have, be assured people will find them out, but whether they do or not, nobody will take them on your word”

Canterbury, New Hampshire, 1844

When I first laid eyes on the workbench at the Hancock Shaker Museum in Pittsfield, Massachusetts I had a pretty good idea of the configuration of my next workbench. I think it would be safe to say that I was inspired. However, designing a workbench that is inspired by a Shaker icon can be intimidating as well. I had to do justice to the original and keep in mind what might be considered acceptable. Luckily, most are aware that the Shakers were quite accepting of new technologies that could be practically applied, so this did allow a fair amount of leeway in regards to using more recent workholding devices on this bench. In the end, I did want the look to be very representative of the Shaker Ideal.

“Tis a Gift to Be Simple” is an over used Shaker pronouncement, however I often think it’s meaning is misinterpreted. I believe it means having freedom from making things unnecessarily complicated. There is a certain vanity in ability. The inclination to use complicated techniques in order to boast abilities, especially in the context where a simpler method is adequate, is frowned upon in the Shaker view. Therefore, when I set about designing this bench I wanted it to contain only what was necessary to make a good, solid woodworking tool and I did not want it to showcase complicated elements that were unnecessary to it’s function.

My goal was to design a bench that could be built using case-good skills that most woodworkers posses, and could be constructed using readily available materials in lieu of sourcing large amounts of seasoned thick timbers. I also wanted the techniques used to build the movable parts of the bench, cabinet doors and drawers, to be quick work and not require a great investment of time. After all, when one is building a workbench this encroaches on the time available to build the objects that the workbench will assist in creating.

In this endeavor simpler is better, and if I met my goal I would set the plan for a project that would have met the approval of a Shaker cabinetmaker who was frugal with his time. So as you set about this project remember:

“The shortest answer is doing the thing”

–Henry C. Blinn, Canterbury New Hampshire

–Ron Brese, May 2011

· CONSTRUCTION NOTES & TECHNIQUES ·

Building a project of this size requires knowledge and skill in basic to intermediate woodworking processes and techniques that fall beyond the scope of these notes. It will be assumed throughout these instructions that you are familiar with a range of woodworking terms and techniques. If you are just getting started in woodworking or do not have basic to intermediate skills, get some experience under your belt first by taking some classes, or learning from a friend or local club. Please feel free to contact us at info@benchcrafted.com if you have any questions about the plans or the bench.

· Important Note About Safety ·

With any woodworking project using hand or power tools, your own personal safety should be your first concern, and is your own responsibility. Under no circumstances should you perform an operation or technique if you feel unsafe or unsure of yourself. Use guards and safety measures at all times. Keep in mind that the parts for the bench, once assembled, are very large and very heavy and take a bit of effort and strength to move around the shop and process through machines. Get help if you think you'll need it, and make your physical well-being your first priority. You are responsible for how you work, and what happens in your shop.

· Additional Resources ·

In order to keep these instructions concise we've intentionally left out certain techniques that apply generally to installing our vises. This information, and much more, is available on the FAQ page on our website. Please read through the FAQ before starting your build.

· Each To His Own ·

When designing the carcass joinery for the Shaker bench we decided early on that it would be impossible to include every joinery technique for creating strong cases. Instead, we've designed the plans to reflect the dimensions of each component as if it were constructed with simple butt joints. We made this decision in order to simplify the process for woodworkers who may be familiar with a wide

range of carcass construction materials and techniques. Traditional woodworkers may want to build up the elements using solid wood frame-and-panel elements, while others may be more comfortable working with high-quality plywoods. The range of joinery techniques and equipment available today is quite broad and everyone has their preference. Using biscuits, dowels, dominoes, pocket holes, splines or even screwed butt joints, we've designed the carcass to be robust and monolithic once assembled. Using strategic layout of components, the carcass assembles quickly and easily, building up strength as each component is added. And once the enormously strong solid-wood half-lapped face frame is glued and nailed in place, the carcass becomes extremely rigid, in effect taking on the properties of a massive torsion box. This bench, like many extant Shaker benches, should last for generations with proper use. Nevertheless, in order to provide at least one construction method, we'll be describing how we built the prototype in detail.

· Materials ·

For our prototype bench, we used commonly available materials. Common to our neck of the woods that is. The point is, you don't need special material to build this bench. Our local hardwood dealer had some beech in stock from a large commercial project and agreed to sell it to us for a good price, so we chose to use this for the top, vises and accessories. Beech is the ultimate traditional bench wood, and for good reason. It's durable, uniform in color and texture, stiff, relatively inexpensive, and easy enough to work. If you can't get beech (and in many areas its hard to find) here's a list of woods we'd recommend for the top and accessories.

- Soft Maple

We built our original Split-Top Roubo bench from soft maple, and Ron Brese also built his Shaker bench using this inexpensive and widely available species. An excellent choice.

- Hard Maple

America's traditional bench wood. Hard, stiff, and heavy. Makes a great bench in every way. Well, almost. Its a bear to work due to its hardness and weight. And it can be expensive in some areas. A great wood if you can handle it.

- Ash

Lighter than hard maple, but quite stiff. A bit easier to work as well. You may not like the open pores if you work metal near your bench. Develops a nice color over time. Commonly available and inexpensive.

- Softwoods

Although you can build a completely functional bench from softwoods like yellow pine and fir, we think you should build your bench from one of the above choices. This bench has an aesthetic that calls for higher quality wood. Our top choices would be beech or one of the maples.

The carcass is made from commonly available sheet goods. We use American or Canadian-made softwood plywood with thick veneers for the carcass components. Under no circumstances should you buy plywood from Asia. It is complete junk, often filled with voids, stress, and who-knows what other foreign material. Do yourself a favor and never buy the stuff.

One advantage of using a softwood plywood is ease of handling. The stuff is light enough, but plenty strong enough once assembled. However, in the interest of overbuilding (never a bad idea) we would highly recommend using Baltic Birch plywood, or a comparable Russian or Finnish product. We are fortunate in that our local big-box store carries 4x8 sheets of the stuff. Call around, you might be surprised what you find.

The remaining elements of the cabinet (the face frame, doors, end panels and drawers) are made from solid wood. We used poplar for our bench, but soft maple would also be a fine choice. Yellow pine, if you can get it in your area, is also an excellent wood. Poplar is available anywhere and is always inexpensive. It's easy and fun to work with hand tools, and takes paint nicely.

· Ordering Lumber ·

You'll need about 35 board feet of 8/4 lumber for the top, including the dog hole strip and front laminate. The end cap, leg vise chop, leg vise leg, deadman and deadman rail take about another 10. These parts you can harvest from 12/4 stock,

but most will find it easier (and cheaper) to laminate 8/4 stock to get the thickness required. The face frame, drawers, end panel and shiplapped panel, and drawer fronts are all taken from 5/4 stock and planed down to full 1" thickness. This makes for a robust structure. 30+ board feet should get you there. A note on these numbers. These are all conservative estimates. You may have more or less waste depending on the width of your boards. Sit down with the plans and make yourself a cut list (this is the best way to familiarize yourself with the various parts--that's specifically why we don't include a cut list) so you know the best widths of boards to pick at the lumber yard. This will save you time and money. The foot that the cabinet rests on will take about 5 board feet, and you should make this out of a tough wood like hard maple. You'll need two sheets of 3/4", 4x8 material. You'll also need some 1/4" material (Baltic Birch highly recommended here) for the drawer bottoms if you elect to use sheet goods here instead of solid stock.

· Get Everything Together ·

Don't start to cut wood unless you have everything you need to finish the bench. This includes the entire Benchmaker's Package and any accessories you intend on adding to the bench after its built, like holdfasts for example. Also, read completely through the Glide and Tail Vise instructions (available on our website for free download) before starting the project. This bench, if built correctly, will last the rest of your life and those of future generations. Don't take any shortcuts, and don't rush it.

· Working From The Measured Drawings ·

The measured drawings are comprehensive and include some dimensions that you won't necessarily need, but are included for reference. For example, when you layout the dog holes in the top you should use the dimensions for reference, but do the actual layout with a set of dividers for the best spacing. Follow the sequence outlined in these notes, and in the vise installation instructions, and the reference dimensions will become apparent. Use the measured drawings to guide your build, but don't be a slave to them. It's always better to lay out joinery by transferring locations and sizes than by measuring. It sounds counter intuitive, but measure as little as possible and you'll make fewer mistakes. We recommend the use of story sticks as well. These are real thought and effort savers.

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