Fine-Tune Designs Before You Build

Follow drawings with mock-ups to give your furniture ideas shape and substance

BY GARY ROGOWSKI

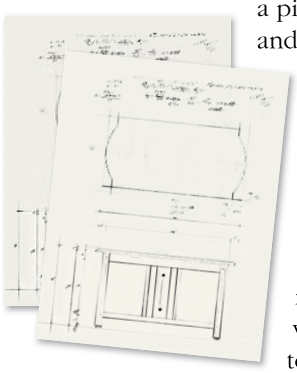
SEE IT BEFORE YOU BUILD IT

Models can help you work out design ideas for all types of pieces. They don't require much time or material to build, but they can save a lot of both in the construction of your furniture.

Photos: Steve Scott

Woodworkers, as we all know, love to roar into a weekend project. They can then spend weeks or months on it, as we also know, only to find out one sad day that the finished piece doesn't look quite right. It may in fact be a bit homely or ungainly. But didn't those plans look promising? Didn't that drawing seem right? You can avoid this dilemma with a simple and rewarding exercise: Build a scale model first. This is the advice I give my students; those who latch on to this technique never again build without it.

Don't get me wrong: Drawings and plans, whether full- or partial-scale, are very useful. But adding a three-dimensional model made with ordinary shop tools and available materials will help you learn more. The model will show you form, help you fix proportions, balance, and symmetry, even help you think about the best way to build a piece. In the end, you can save a load of time and money building the right design instead of one that may never feel quite right.



A drawing is only the start. *A model lets you see a piece in three dimensions and answer questions about its form and proportions.*

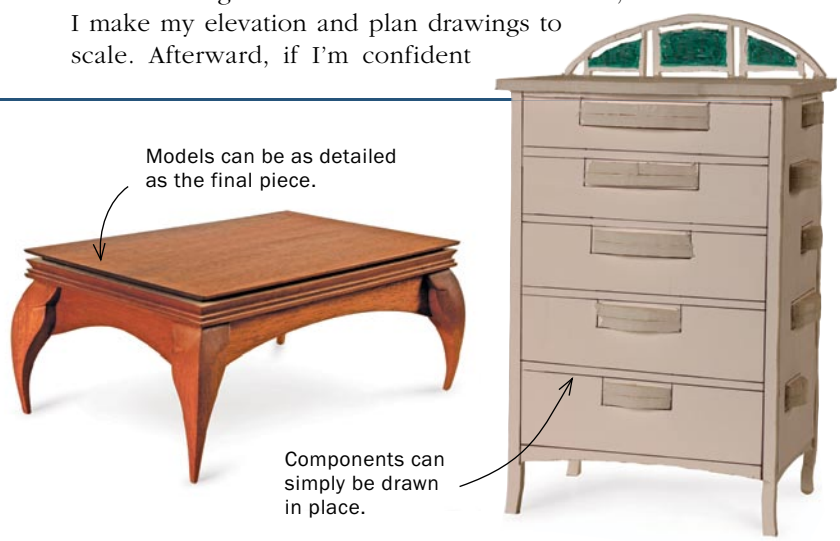
Start by drawing ideas in a sketchbook

Building a model will help you visualize and refine a new design, but it's best to launch the project on paper first. How do you get from an idea you saw once in a magazine or at someone's house to the point where you can build a model? I find it easiest to begin by sketching or doodling, without censoring my ideas. I do this in a notebook that I keep for future reference. You never know how the germ of one idea may give life to a totally new design later on.

This process usually yields several ideas that appeal to me for my current project. At this point, I establish basic outside dimensions and draw a box that represents the proportions of the piece. With this visual key, I now can sketch to general proportions so I don't end up with a great-looking cabinet design in my notebook and a squashed-looking shoebox in reality.

I narrow down my notebook sketches to three ideas and work up more detailed ideas on drawing paper. Then I let these ideas percolate for awhile. Finally I boil down the best elements in each to a single design and do a final sketch.

Once a design is sketched and I like its elements, I make my elevation and plan drawings to scale. Afterward, if I'm confident



Full-size or scale model? *Both are easy to make. Larger models give a greater sense of how the finished piece will occupy space; small mock-ups in wood can show remarkable detail while being portable and easy to store.*

MATERIALS ARE INEXPENSIVE

CARDBOARD

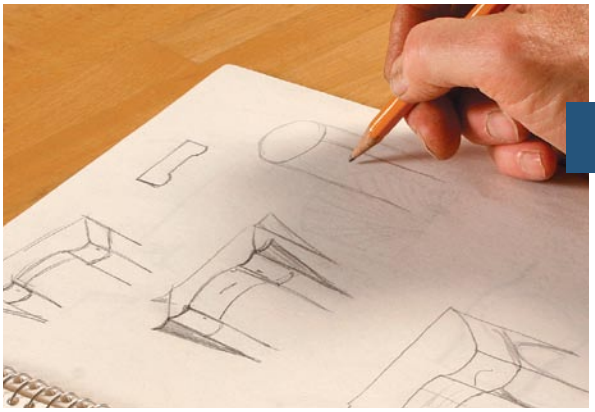
Commonly available and inexpensive, it's best for full-scale or half-scale models, and great for modeling full-size tabletops. Cardboard cuts easily with a bandsaw, a tablesaw, or a knife and straightedge, holds with yellow glue or hot-melt glue, and is sturdy enough for simple tenon joints. Details can be drawn or painted on the surface.

FOAMCORE

Sold at art-supply houses in ⅛-in., 3⁄16-in., and ½-in. thicknesses, its higher price makes it a better choice for small-scale models or full-size mock-ups of small pieces. Any saw or sharp knife will cut it. Use pins, glue, or even packing tape to hold it together. Advantages are its stiffness, light weight, and white color, which forces you to concentrate on the shape of the piece. Its surfaces can be painted, inked, stenciled, you name it.

WOOD

Material can come from the shop scrap barrel, typically ⅛-in. or ¼-in. resawing offcuts or other scraps. Working in small scale makes parts easier to handle and the design easier to see. Wood scraps can be cut with saws and joined with a variety of glues.



The process starts with a sketch. *Rogowski keeps his design doodles in a notebook for future reference. That way, the germ of one idea can give life to a totally new one later on.*

For safety, use a zero-clearance insert when cutting small parts at the tablesaw. *A piece of scrap (below) can be fashioned as a tapering jig for bandsawing model table legs.*

WORKING SMALL

Small-scale models are easy to build and transport, and they take up little space. They also can be made from the same stock as the full-scale piece. Nothing beats a wooden model for selling a furniture design to a client or spouse.

First, mill the stock to whatever thickness you need. Cut lengths using a tablesaw crosscut sled or chopsaw. Be cautious in cutting these smaller parts. Sometimes a pencil eraser end is a better and safer grip than your fingertip for holding things in place. Simple joints can be made on this scale, but most pieces are just butt-jointed together and glued. Strengthen where needed with gussets and corner blocks.

about the elements of the piece, I can do full-scale drawings. But if I still have questions about the form or proportions, I might want another level of information. That's when I make a model.

From sketchbook to model

First, decide on scale. Are your questions about the design primarily about the rightness of its basic proportions? Do you need to transport the model and show it to clients? A small-scale model will probably answer. Or do you need to live with the piece for a while, to see how it casts shadows and fits into its intended space? If so, full-scale is probably your best bet.

When I built library tables for the Oregon State Archives project, I made a ⅛-scale model for several reasons. One was to impress the selection jury with my design, giving them something tangible to see and discuss. I built the model in cherry, the same as the tables would be, but I sketched in the inlay details with a pen. The other advantage? It forced me to walk through the stages of building the piece and led me to resolve key questions about construction. Which parts would I put together first? What steps had to be completed before moving to the next phase? Would this design hold up over time, or did I need to modify the structure?

For my Greene and Greene table (see *FWW* #171, pp. 36-41), I worked full-scale

Glue-up is easy. *Be sure to reinforce joinery. Hot-melt glue works, but it can be messy with a lot of squeeze-out. Yellow glue works if your gluing surfaces are clean and flat. Cyanoacrylate works well, too.*

Try out inlay ideas. *Working in small scale makes it convenient to draw—and erase—decorative details directly on the model's surface.*

with cardboard. I made up hollow table legs that were 1½ in. thick by 2½ in. wide by slicing up parts on the saw and hot-gluing them into elongated boxes. Having a leg that doesn't collapse when you walk by is great. I cut apron pieces to length and made up a top with drawn-in breadboard ends. I made simple mortise-and-tenon joints and used corner blocks on the inside corners for strength. Now here was something to walk around and examine.

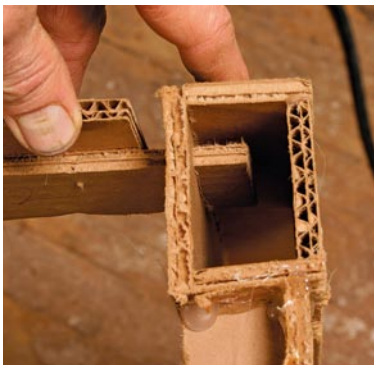
At this point in the process, you can congratulate yourself for building the model, but then let it rest for a couple of days. Let it sit in a corner of your shop or in the place where the finished piece will finally live. Then come back to it and see how it feels. Your gut will tell you a lot about whether you got it right. If it's not right, then you'll need to start figuring out where to cut and where to add. I tell my students that planning at this stage may feel like it's slowing you down, but in the end it can save you time as you build with confidence, knowing you have a design that works, fits the space, and looks great. □

Gary Rogowski, a contributing editor, runs The Northwest Woodworking Studio in Portland, Ore.

WORKING BIG

When you want to see how a piece will take up space and work with other furniture around it, build a full-scale model. Cardboard works best for full-scale or half-scale models. In just a few hours, Rogowski can create models as large as 2 ft. by 7 ft. with moving parts to help clients see how something might fit or look. Draw in door stiles and rails, or stack one layer of cardboard on another to create depth and texture. Use a sheet of single-wall cardboard and glue on an edge to give it thickness. Spray-paint the cardboard if you want to look at another color besides tan. Use white if you simply want to concentrate on the form of the piece.

The material cuts easily. *Components for a full-scale table model can be made in minutes. Just slice up cardboard parts on the tablesaw and glue them together.*



Cardboard is sturdy enough for mocked-up joinery. *Rogowski glues a loose tenon to the inside of a rail and knifes a mortise into a cardboard leg.*

Hot-melt glue works great on cardboard. *With the base constructed, it's easy to experiment with a variety of tabletop sizes and designs.*