

## A layout kit for small shops



You're ready to lay out your new shop: You have the space built, outlets in the wall, lights hung, and a wood supply ready to turn into heirloom pieces for family and friends. You have most of the machines, benches, and cabinets, with plans to buy or build what you don't already own. You can't wait to get the shop in working order.

Don't rush into the process. The first layout is likely to remain in place until you move again. If any major workflow and dust-collection problems arise, they probably will just be tolerated. With careful planning, though, you can take advantage of the opportunity to get the layout right the first time.

I faced this situation recently when I moved my woodshop from a spacious two-car garage below my office into a smaller 10-ft. by 20-ft. space at home. Because of this downsizing, layout was more important than ever.

### A photocopier is all you need

To plan my shop, I used a modeling program on my computer, but you can use the drawings I created to plan an efficient shop on paper. Photocopy the images on the facing page and arrange them on graph paper to create a plan view of your shop. Take the time to work out the most efficient placement of benches, cabinets, and machines, taking into account infeed and outfeed zones as well as ducting for dust collection.

You don't have to go as far as I did, but I found it valuable to use three-dimensional modeling, which allowed me to plan my shop vertically as well—highlighting, for example, leftover wall space for mounting storage units, tools, and jigs. If you want to try the computer program, see the story on p. 24.

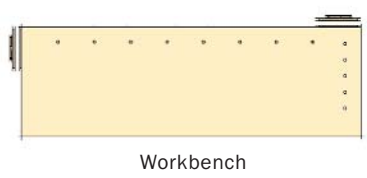
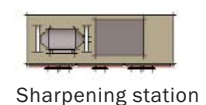
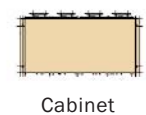
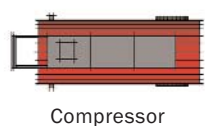
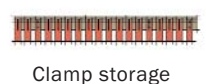
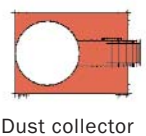
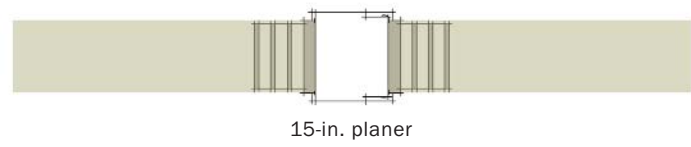
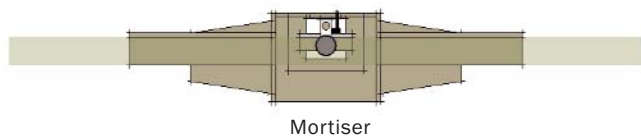
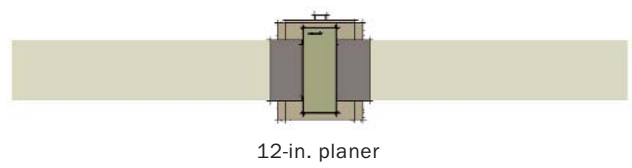
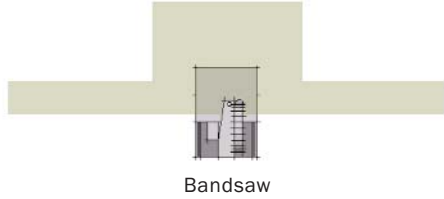
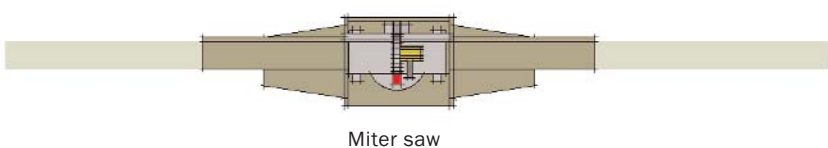
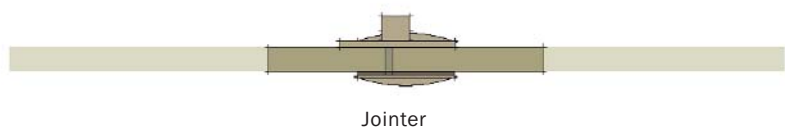
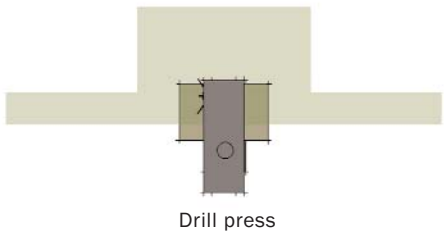
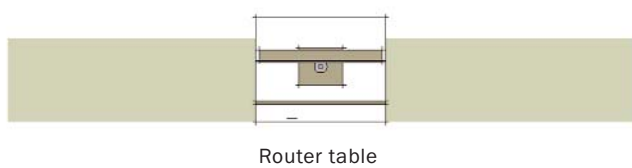
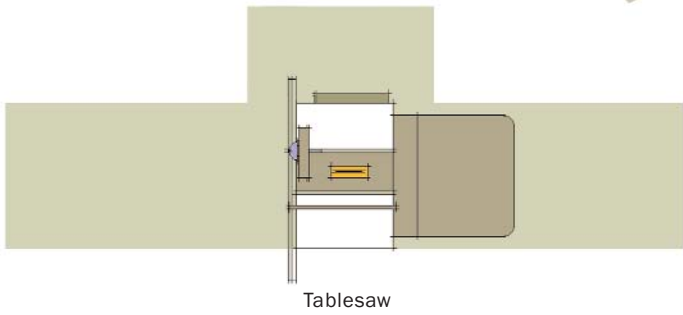
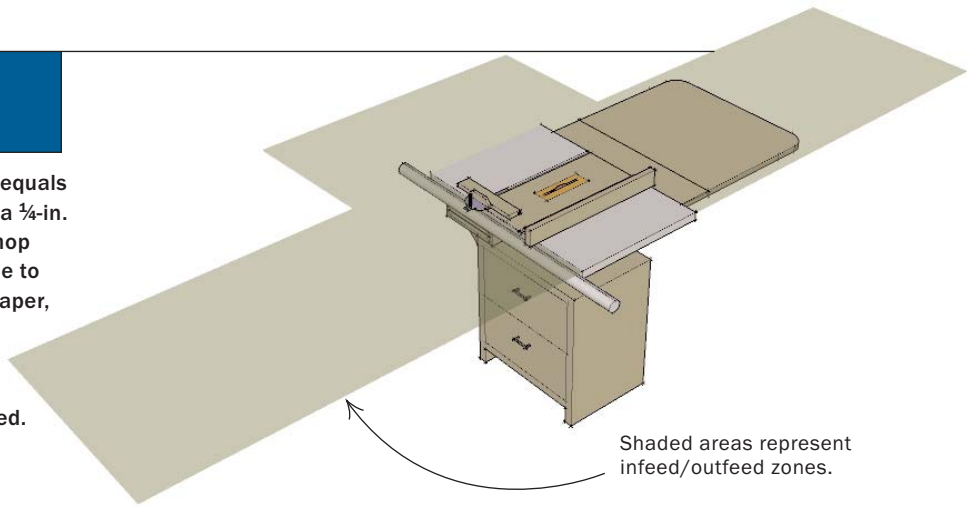
The drawing and paper shuffling were well worth the time. Woodworking in my small shop is now efficient and enjoyable. I've been able to make large projects such as



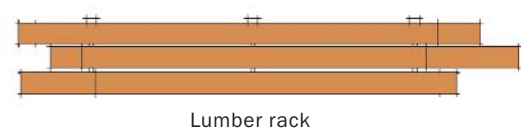
**A little planning makes a big difference.** By setting up his shop first on paper, Yurko fit all of his essential hand and power tools into a 10-ft. by 20-ft. space.

# USE THESE TEMPLATES TO ARRANGE YOUR SHOP

Start by laying out your shop to  $\frac{1}{24}$  scale (or  $\frac{1}{2}$  in. equals 1 ft.), which should work well on graph paper with a  $\frac{1}{4}$ -in. grid. Then photocopy these models of common shop fixtures, enlarging them to 200% (or from  $\frac{1}{48}$  scale to  $\frac{1}{24}$ ). When cutting them out to arrange them on paper, be sure to include the infeed and outfeed zones. Note that slight adjustments to adjacent fixtures can bring worksurfaces to the same height, allowing them to share space for infeed and outfeed.



Scale:  $\frac{1}{4}$  in. = 1 ft.





## Use computer modeling for paper-free planning in 3-D

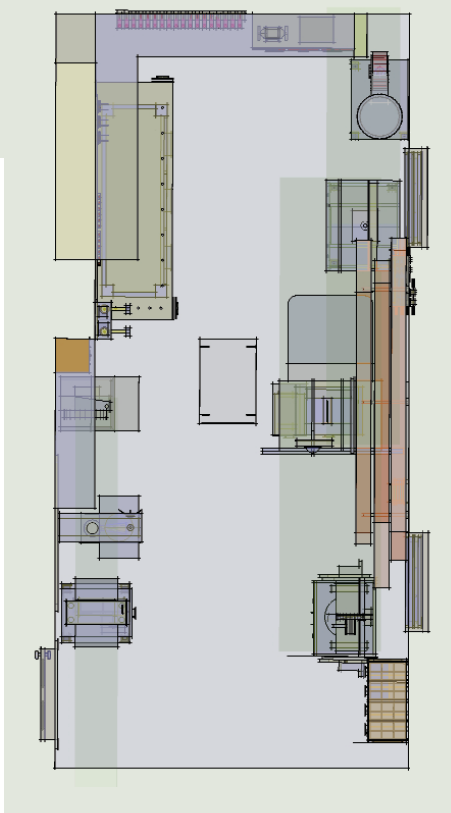
You have a few options for planning your shop space: The first is simply to photocopy the two-dimensional models provided on p. 23 and use them to create a scale layout of your shop floor. You also can go to my Web site ([www.yda-online.com/shopmodels.htm](http://www.yda-online.com/shopmodels.htm)) and download two-dimensional images of each tool to be used either on paper or on the computer. As a third alternative, you can download the same modeling program I used, and create three-dimensional plans.

The program is called Sketchup 4.0 (a demo version is available at [www.sketchup.com](http://www.sketchup.com), which allows 8 hours of free use). The program is easy to learn and use, even for a computer novice. If you download and learn Sketchup, feel free to go to my Web site and download my 3-D models for your own use, or use Sketchup to create your own.

By the way, I have used Sketchup to design every piece of furniture and cabinetry I've built over the last few years, even working out joinery details and making color choices on the computer. And I know of many other woodworkers across the country who have discovered Sketchup and put it to good use.



**Go three-dimensional for the ultimate plan.** Creating his own three-dimensional CAD models allowed Yurko to plan vertical space as well as floor space, helping him locate spots for essential lumber, accessories, shelves, and cabinets.



cabinets and a king-size bed with few compromises in workmanship or speed.

### What I learned

I've seen many shops that are similar in size to mine, and most make serious compromises on machines yet still are choked with stuff. A typical solution is settling for bench tools or omitting some machines altogether. But I was determined not to settle, nor to lose my ability to mill rough lumber to custom sizes.

When I began to arrange my shop on paper and on the computer screen, I realized that, in a small shop, moving wood is easier than moving machines. So I ignored the idea of setting up the space for workflow—for example, creating adjacent, sequential zones for lumber storage, rough dimensioning, final dimensioning, joinery,

and so on. That workflow concept is more appropriate for larger or commercial shops.

My first priority was to fit essential machines and fixtures in the space, including a tablesaw, miter-saw station, drill press, bandsaw, benchtop planer, benchtop disk/belt sander, compressor, router table, and workbench. My second goal was to keep them as stationary as possible.

It was immediately apparent that the key to this design challenge would be infeed and outfeed space for each machine. These spaces can overlap, but it takes careful planning to make sure nothing gets in the way.

Basically, I created a linear outfeed area, which includes the miter-saw station with folding wings, tablesaw with folding outfeed table, and my large router table, all in a line along the 20-ft. wall and set at the

**Everything within arm's reach.** Using two- and three-dimensional CAD models, Yurko crafted a bench area that packs in hand tools, air tools (and a compressor), a sharpening station, and hardware storage.



same height. The miter-saw station converts easily for use with a mortiser—with workpiece support on both sides—and it also accepts a minilathe. I even planned a location for all of the tools, blades, and jigs used with the tablesaw: on the operator side, for easy access.

Along the opposite long wall are the planer, combination sander, drill press, bandsaw,

workbench, and compressor. Each tool has dust-collection hookups and storage space to keep the relevant tools, bits, blades, and fixtures nearby. The planer is the only tool I have to roll out into the middle of the room to use, which takes about a minute, including connecting the dust-collection hose.

Using the three-dimensional models, I also realized that even though the band-

saw's table must be higher than the adjacent workbench, I can support large pieces with a shopmade roller support clamped in the bench's front vise.

## Pros and cons of a small shop

For all of my planning, I must admit there simply was no room in my shop for some tools. I struggled to find a place for my wide jointer and eventually decided against shoehorning it in, instead making a fixture for my router table that joints edges quite well. My scrollsaw, the bulk of my wood supply, and some storage cabinets didn't make the cut either. These remain in a nearby room.

In many ways it's more enjoyable to work in a small space. Because most everything is only a couple of steps away, I'm much less fatigued after an evening of woodworking. The hours I spent planning have already saved me many hours of precious shop time. □

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*John Yurko is an architect and hobbyist woodworker in Asheville, N.C.*