

Workbench Cabinet

This space-saving underbench cabinet not only increases your storage capacity, but when full of tools its weight also adds extra strength and stability to the workbench.



Once the last coat of tung oil was dry on the Maple Workbench, I started building my first project on it: a storage cabinet that could fit underneath.

This underbench cabinet actually serves two purposes. Of course it keeps tools within reach and easy to put away. The other benefit is sort of a windfall. When the cabinet is filled with tools, it adds weight and stability to the bench.

PLYWOOD BOX. The cabinet is an open-front plywood box that's divided into two compartments. The left compartment is for storing bulky items like portable power tools. These are con-

cealed behind a flip-up door. The right compartment has five drawers for hand tools or hardware.

BOX JOINTS. One of my favorite parts of this cabinet is the box joints on these drawers. First of all, they just plain look good. They complement the larger box joints on the corners of the bench top as well as "show off" a little bit of my wood-working skill.

But they're also strong joints. And for a cabinet that's designed to hold heavy tools, that's important. When you're opening and closing the drawers all the time, the tools are constantly banging into the fronts and backs of the

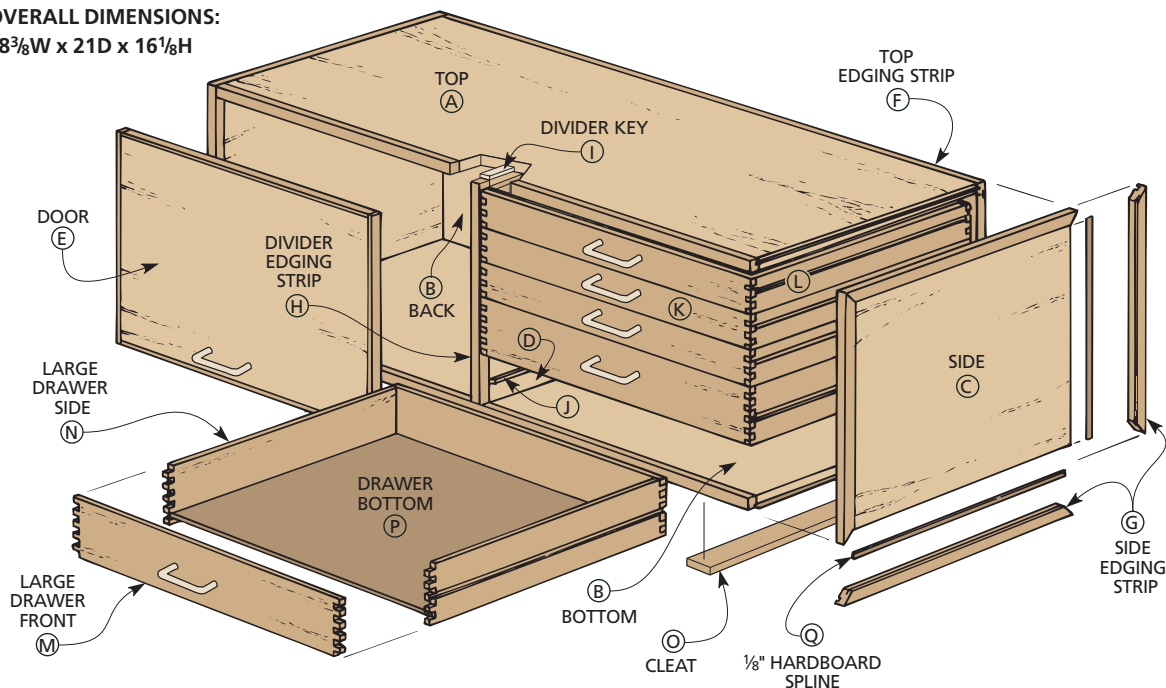
drawers. A strong interlocking joint with a lot of glue surface (such as a box joint) is what I'd recommend.

But there's something to keep in mind with these box joints: since they're built in increments (you don't want half a finger), the overall height of each drawer is set. So we had to design the final height of the cabinet by starting with the drawers and working out.

ANOTHER OPTION. If you're not interested in drawers, and want larger storage areas, take a look at the Designer's Notebook on page 6. There you'll see a simpler door system that takes on a completely different look.

EXPLODED VIEW

OVERALL DIMENSIONS:
48³/₈W x 21D x 16¹/₈H



MATERIALS LIST

WOOD

A	Top/Bottom (2)	3/4 ply - 19 1/2 x 46 7/8
B	Back (1)	3/4 ply - 14 5/8 x 46 7/8
C	Sides (2)	3/4 ply - 14 5/8 x 19 1/2
D	Divider (1)	3/4 ply - 14 5/8 x 19 1/2
E	Door (1)	3/4 ply - 13 15/16 x 22 1/2
F	Top/Btm. Edging (4)	3/4 x 3/4 - 46 7/8
G	Side Edging (8)	3/4 x 3/4 - 21 rough
H	Divider Edging (1)	3/4 x 3/4 - 16 rough
I	Divider Keys (3)	1/4 x 3/4 - 21 rough
J	Drw. Runners (10)	3/8 x 1/2 - 19 1/2
K	Sm. Drw. Fr./Bk. (6)	1/2 x 2 1/4 - 22 15/16
L	Sm. Drw. Sides (6)	1/2 x 2 1/4 - 19 3/4
M	Lg. Drw. Fr./Bk. (4)	1/2 x 3 3/4 - 22 15/16
N	Lg. Drw. Sides (4)	1/2 x 3 3/4 - 19 3/4
O	Cleats (2)	1/2 x 2 - 15 3/8
P	Drw. Bottoms (5)	1/4 hbd. - 19 3/16 x 22 3/8
Q	Splines*	1/8 hbd. - 7/16 wide

* Approximately 30 ft. of 1/8" hardboard is needed for the splines.

HARDWARE SUPPLIES

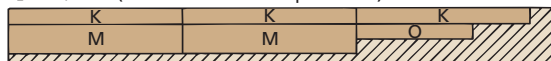
- (2) No. 8 x 1" Fh woodscrews
- (2) 1/2"-dia x 1/2"-long dowels
- (2) 1/4"-dia. x 3/4"-long dowels
- (6) 7/16"-dia. x 3 3/4"-bore wood pulls

CUTTING DIAGRAM

3/4 x 5 1/2 - 72 (2.7 Bd. Ft.)



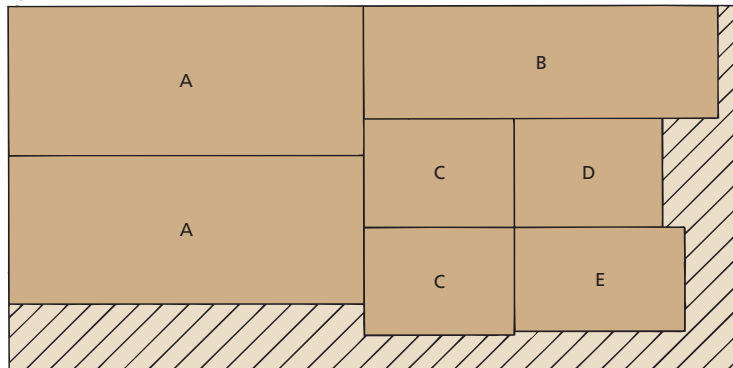
1/2 x 7 1/4 - 72 (Two Boards @ 3.6 Sq. Ft. Each)



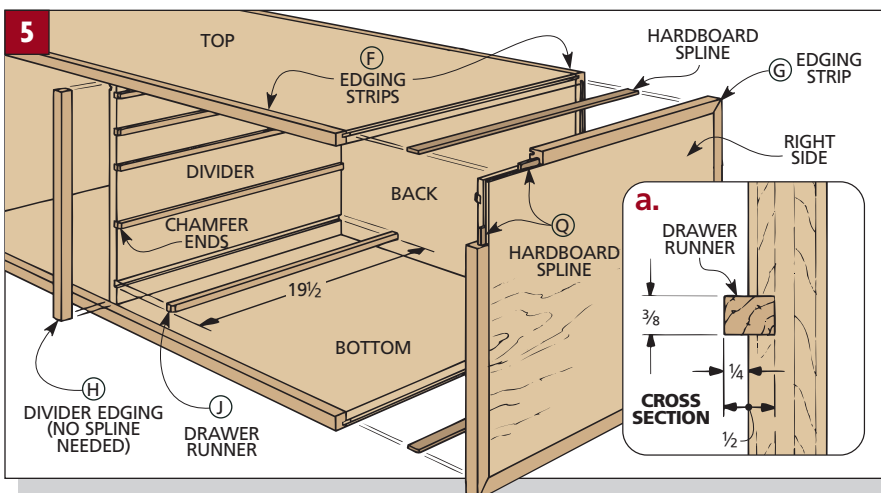
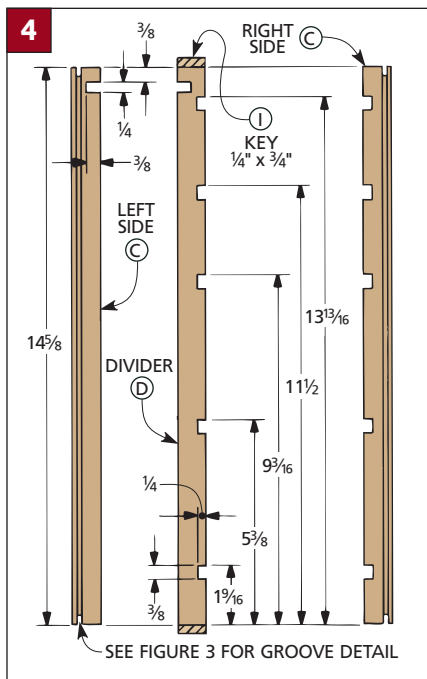
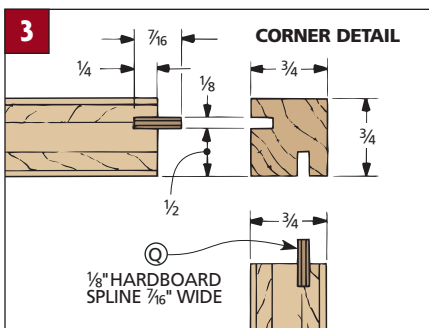
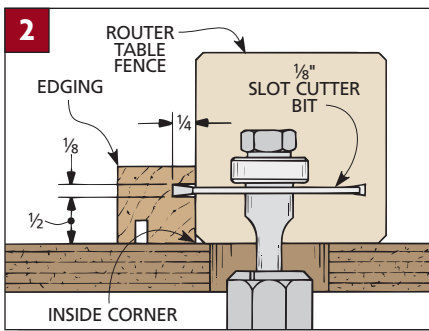
1/2 x 7 1/4 - 72 (Two Boards @ 3.6 Sq. Ft. Each)



3/4" PLYWOOD 48 x 96



NOTE: ALSO NEED 4" x 8" SHEET OF 1/4" HARDBOARD FOR DRAWER BOTTOMS (P) AND 1/8" HARDBOARD SCRAPS FOR 7/16"-WIDE SPLINES (Q) (APPROX. 30 FT. NEEDED)



Next glue the edging (F, H) to the

top and bottom panels and the front of the divider. (The top and bottom use splines; the divider doesn't.) Then saw the ends flush with the ends of the plywood.

DIVIDER KEYS. Finally, keys (I) are needed to fasten the divider into the other panels (*Figs. 1 & 6*). Glue them to the top, bottom, and back of the divider.

DOOR PREPARATION. Before the cabinet can be glued together, the left side and the divider have to be prepared to install the door. The first step is to locate and bore holes for the $\frac{1}{2}$ " dowels that hold the door up when it's open (*Fig. 7*).

The door actually hangs on two glide pins ($\frac{1}{4}$ " dowels) that slide in the grooves already routed on the inside of the panels (*Fig. 6*). These grooves have to be extended into the front edging strip by notching out a small section with a chisel (*Fig. 7*).

ASSEMBLE CASE. Now the cabinet can be assembled by joining the corners with the edging strips and splines.

DOOR

After the cabinet is assembled, measure the opening to get the dimensions needed to make the door (*Fig. 8*). For the door to swing freely, allow for a $\frac{1}{8}$ " gap at the top, a $\frac{1}{16}$ " gap at the bottom, and a $\frac{1}{32}$ " gap on each side. Then, subtract an additional $\frac{1}{2}$ " from the width and height for $\frac{1}{4}$ "-thick trim strips that will be on the edges of the door.

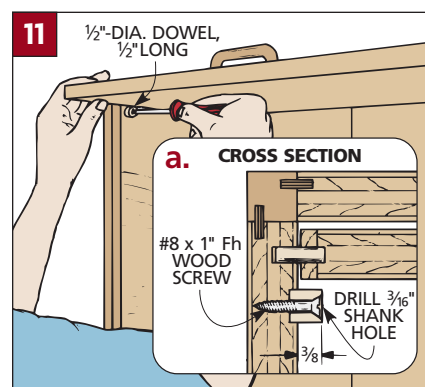
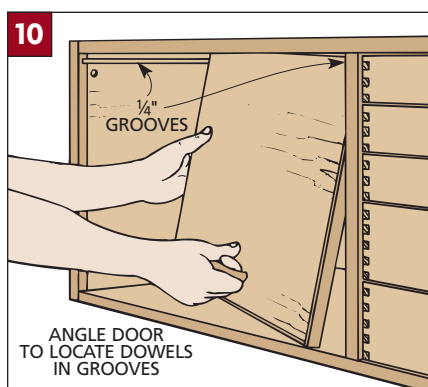
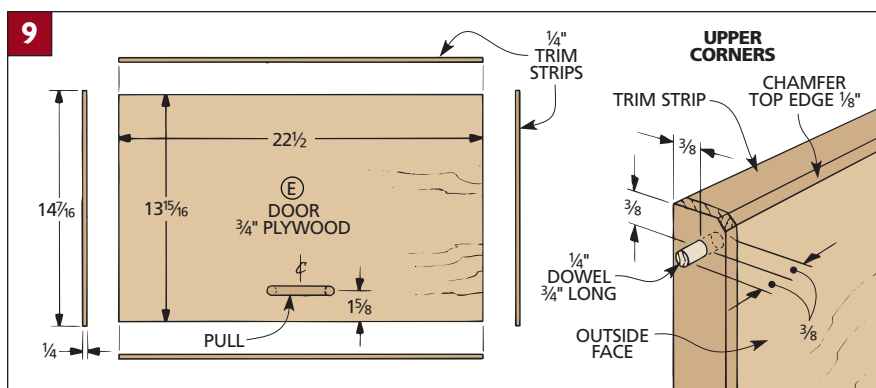
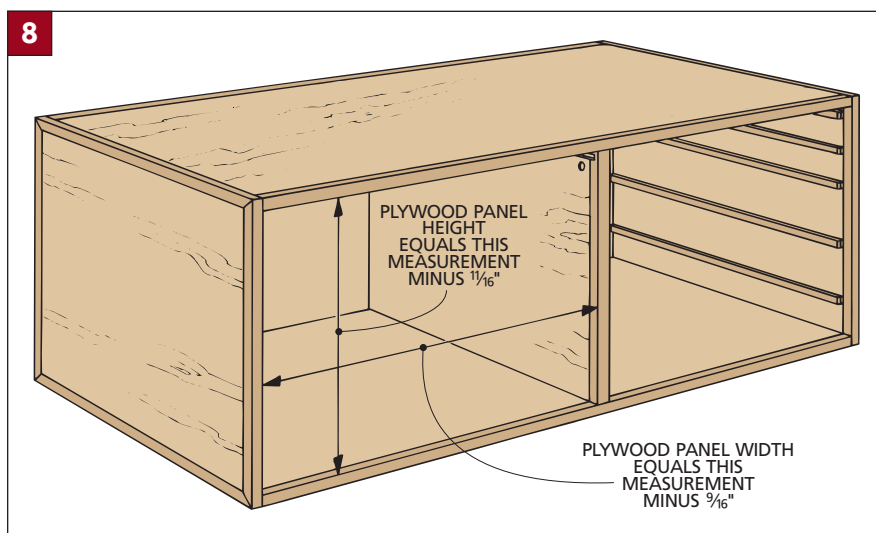
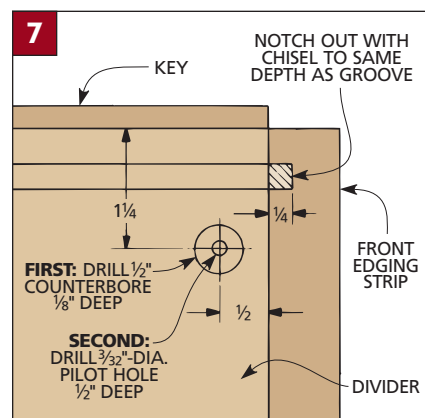
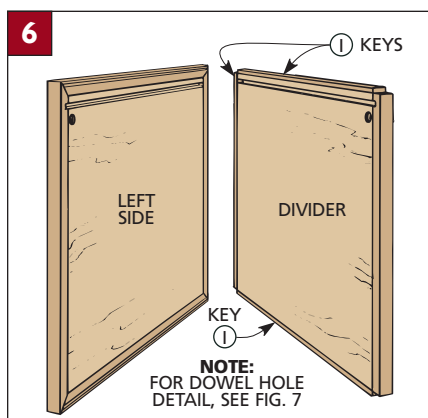
TRIM STRIPS. After cutting the plywood door to size, rip the trim strips and glue them onto the edges (*Fig. 9*).

GLIDE PINS. The door rides on pins that slide in the routed grooves. These pins are $\frac{1}{4}$ " dowels mounted in the side edges of the door (*Fig. 9*). (Don't glue in the dowels — they might have to be removed if the door needs trimming.)

INSTALL DOOR. To hang the door, begin by chamfering the front upper corner (*Fig. 9*). Then install the pull.

While holding the door in the compartment at an angle (*Fig. 10*), align the pins with the grooves and twist the door parallel with the front of the case.

SUPPORT DOWELS. The last step in installing the door is putting in the dowels that hold it horizontal when it's open (*Fig. 11*). Begin by cutting two $\frac{1}{2}$ " dowels $\frac{1}{2}$ " long. Next drill a shank hole through the center. Then swing the door up and screw the dowels in place. (Note: Don't glue in the support dowels. You may want to replace the glide pins.)



DRAWERS

After the door is installed, the five drawers can be made. First, rip the drawer pieces (K, L, M, N) to width from $\frac{1}{2}$ " stock (Fig. 12). Then cut them to length. The front/back pieces are $\frac{1}{8}$ " less than the width of the opening.

BOX JOINTS. Now cut the box joint fingers on each piece (Fig. 13).

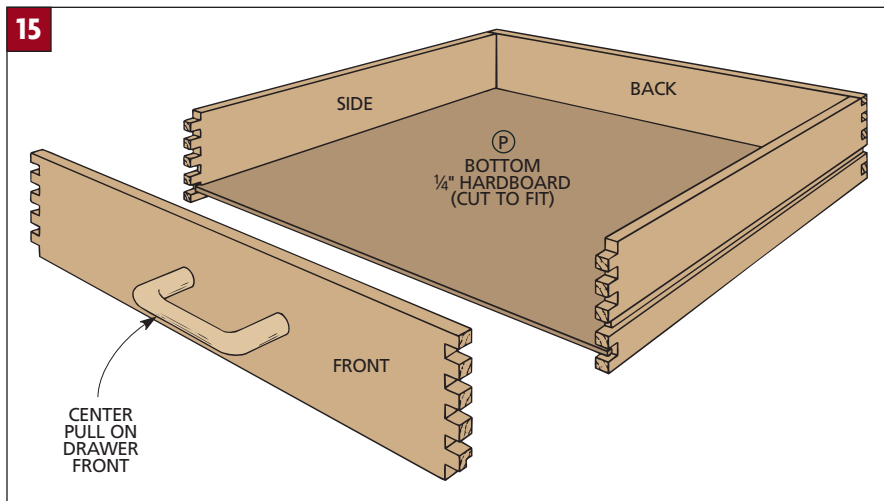
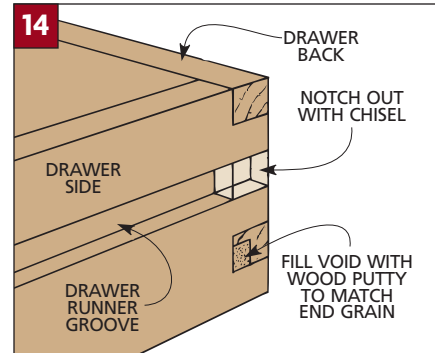
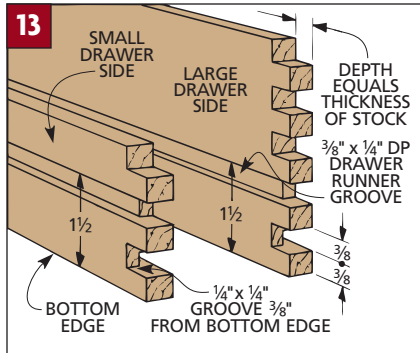
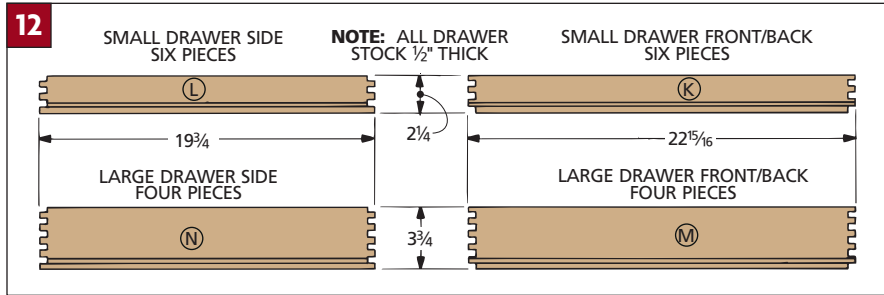
GROOVES. Once the box joints are complete, grooves need to be cut in the drawer parts for the runners and bottoms. The critical part of positioning these grooves is making sure they remain invisible from the front.

Start by cutting $\frac{3}{8}$ "-wide grooves on the outside of the drawer's side pieces (L, N) to fit over the runners. These grooves should align with the second box joint slot from the bottom (Fig. 13).

The second set of grooves are cut on the inside of *all* the pieces for the $\frac{1}{4}$ " hardboard bottom (P). To make sure these grooves are not visible from the front, align the dado blade with the bottom edge of the bottom slot (Fig. 13).

ASSEMBLY. Now, the drawers can be assembled (see Shop Tip below). Then chisel out the finger that blocks the rear of the runner groove (Fig. 14). And fill the void in the sides (created by the bottom groove) with wood putty.

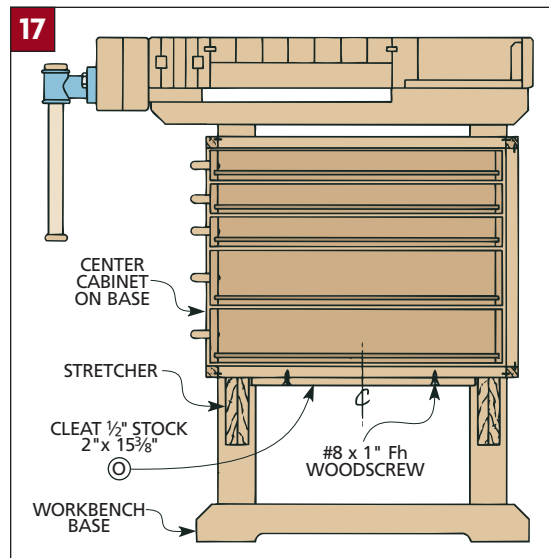
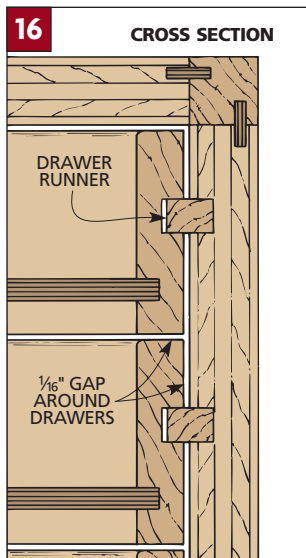
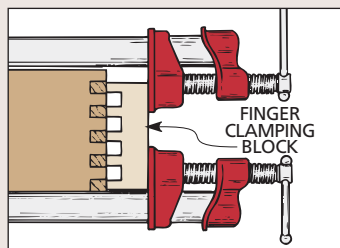
CLEATS. The last step is to screw two cleats to the bottom of the cabinet. These prevent the cabinet from sliding off the stretchers (Fig. 17).



SHOP TIP

Clamping Blocks

To apply pressure only on the fingers of a box joint, make special clamping blocks. I use the box joint jig to make these blocks.

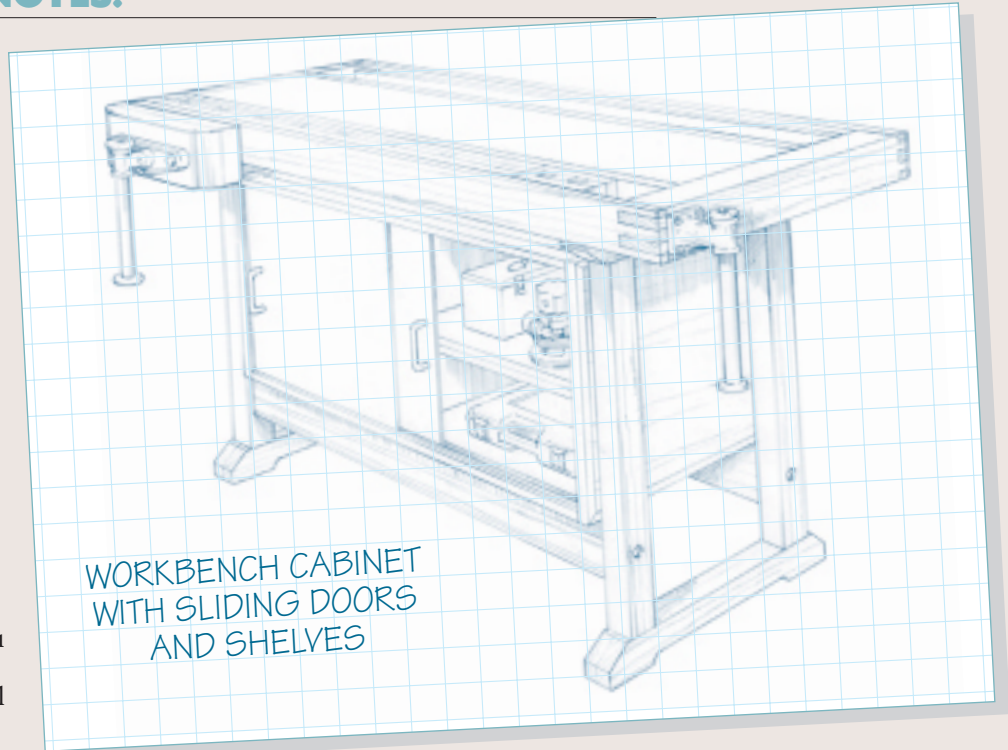


DESIGNER'S NOTEBOOK

Adding sliding doors and shelves actually makes this version of the cabinet simpler to build. It also provides more storage space for larger objects or portable tools.

CONSTRUCTION NOTES:

- The joinery for this version of the cabinet is similar to the original, but to allow for sliding doors, some of the measurements change.
- Cut the top and bottom plywood panels (A) $\frac{3}{4}$ " narrower ($18\frac{3}{4}$ "") than in the original.
- The top/bottom edging (F) at the front of the original cabinet is replaced by upper (R) and lower (S) door tracks. Cut these tracks $1\frac{1}{2}$ " wide (Fig. 2).
- Cut two $\frac{5}{16}$ "-wide grooves in each of the tracks for the doors (Fig. 2). The grooves in the upper track are deeper ($\frac{7}{16}$ "") than those in the lower ($\frac{3}{16}$ "").
- Glue the tracks with splines (Q) to the top and bottom panels.
- Cut the divider (D) to size. You won't need the divider keys (I).
- If you want to add shelves, drill $\frac{1}{4}$ " shelf support holes in the sides (C) and divider (D).
- Glue and assemble the case.
- Add a $\frac{1}{4}$ "-thick edging strip (H) to the front edge of the divider (Fig. 2).
- Cut $\frac{3}{4}$ " plywood shelves (T) and edge with $\frac{1}{4}$ "-thick edging (U).
- Glue small $2\frac{1}{2}$ "-long door stops (V) into the back groove at the left end of the lower door track and the front groove at the right end (Fig. 1).



- Cut two overlapping sliding doors (W) from $\frac{1}{4}$ " hardboard $\frac{3}{8}$ " higher than the cabinet opening (15") (Fig. 2).
- Screw a wood pull onto each door.
- Slip each door into position by raising it all of the way up into the groove in the upper track and then lowering it into the lower track.

CHANGES TO MATERIALS

CABINET WITH SLIDING DOORS

A	Top/Bottom (2)	$\frac{3}{4}$ ply. - $18\frac{3}{4}$ x $46\frac{7}{8}$
D	Divider (1)	$\frac{3}{4}$ ply. - $15\frac{1}{8}$ x 19
F	Top/Btm. Edging	Only Need Two
H	Divider Edging (1)	$\frac{1}{4}$ x $\frac{3}{4}$ - 16 rough
R	Upr. Door Track (1)	$\frac{3}{4}$ x $1\frac{1}{2}$ - $46\frac{7}{8}$
S	Lwr. Door Track (1)	$\frac{3}{4}$ x $1\frac{1}{2}$ - $46\frac{7}{8}$
T	Shelves (2)	$\frac{3}{4}$ ply. - $18\frac{1}{2}$ x $22\frac{15}{16}$
U	Shelf Edging (2)	$\frac{1}{4}$ x $\frac{3}{4}$ - $22\frac{15}{16}$
V	Door Stops (2)	$\frac{3}{16}$ x $\frac{5}{16}$ - $2\frac{1}{2}$
W	Sliding Doors (2)	$\frac{1}{4}$ hdbd. - 15 x $23\frac{3}{4}$

Do not need parts E, I, J, K, L, M, N, P

HARDWARE

- (8) $\frac{1}{4}$ " shelf supports
- (2) $\frac{7}{16}$ "-dia. x $\frac{3}{4}$ "-bore wood pulls

