



Workshop on a wall

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Workshop on a wall

This compact workbench gives you tons of storage with a spacious foldaway worktop

by David Radtke

Don't let a lack of space keep you from building projects, doing repairs or getting into a hobby. This foldaway workbench is built for tight spaces. When it's closed, you hardly know it's there, but when it's open, it gives you a 3 x 4-ft. worktop. You also get easy access to your tools from shelves on both sides and a double-sided pegboard door.

The workbench sets up in less than a minute. All you do is pull the legs up from the recesses under the top and fasten them with the four steel braces held in place with threaded knobs. Once the legs are secured, you just release the bolt latch and lower the worktop and you're ready to work.

Best of all, you don't have to be a master cabinet-maker to build it. This is an easy project designed for fast assembly, so you can spend more time doing the things you actually need a workspace for. All it requires are basic circular saw skills and the ability to drive nails and screws. The cost is reasonable too. You only need two sheets of 3/4-in. birch plywood, some hardwood boards (like maple or oak) and basic hardware. This added up to about \$140 from a local home center and a hardware store. To save money, you could use BC grade fir plywood, but because it's not as flat and has more surface defects, it's a bit harder to work with.



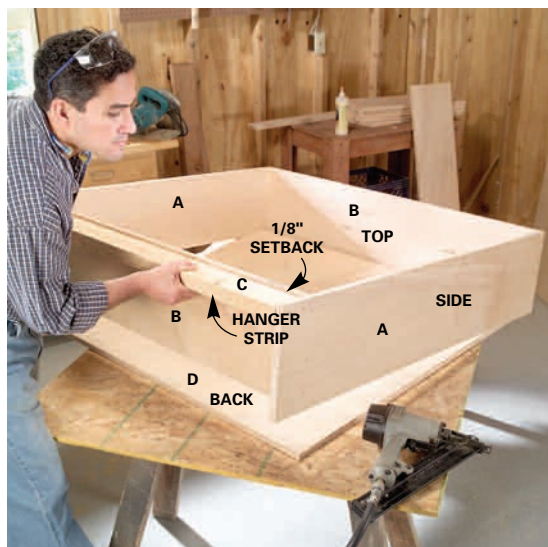


Cut everything with your circular saw

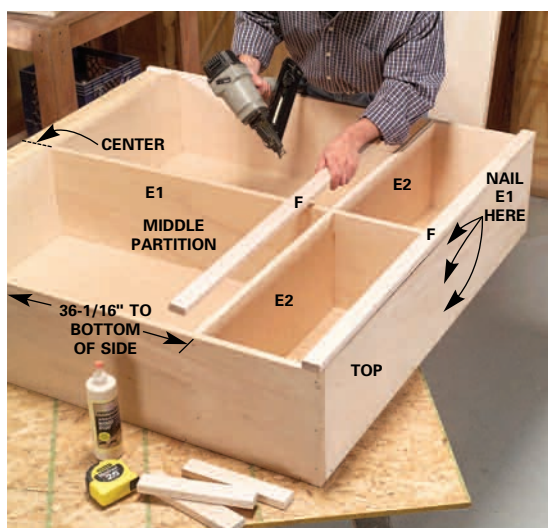
When you buy your supplies, get a thin-kerf, 40-tooth carbide blade (about \$16) for your circular saw. This blade will give you clean cuts without splintering. You'll also need a store-bought rip guide for making long straight cuts lengthwise and a large Speed Square (**Photo 1**) for precise 90-degree crosscuts. To cut the legs and struts, you can use the standard rip guide that came with your circular saw. Follow the Cutting List on p. 62 and cut all your pieces to size.

1 Cut the 3/4-in. plywood to the dimensions given in the Cutting List. Use a straightedge guide or table saw to cut the pieces to width, then use a large square as a guide to cut the pieces to length.

2 Glue and nail the plywood side pieces (A) to the top and bottom (B) with 1-3/4 in. finish nails every 6 in., then glue and nail the front hanger strip (C) to the bottom and sides. Lift this assembly over the back and nail through the sides, bottom and top, making sure the back is flush all around.



3 Center the middle partition (E1) and glue and nail it to the top, bottom and through the back. Next, glue and nail the fixed horizontal shelves (E2) into place. Then attach the face frame pieces (F).



Assemble the wall cabinet

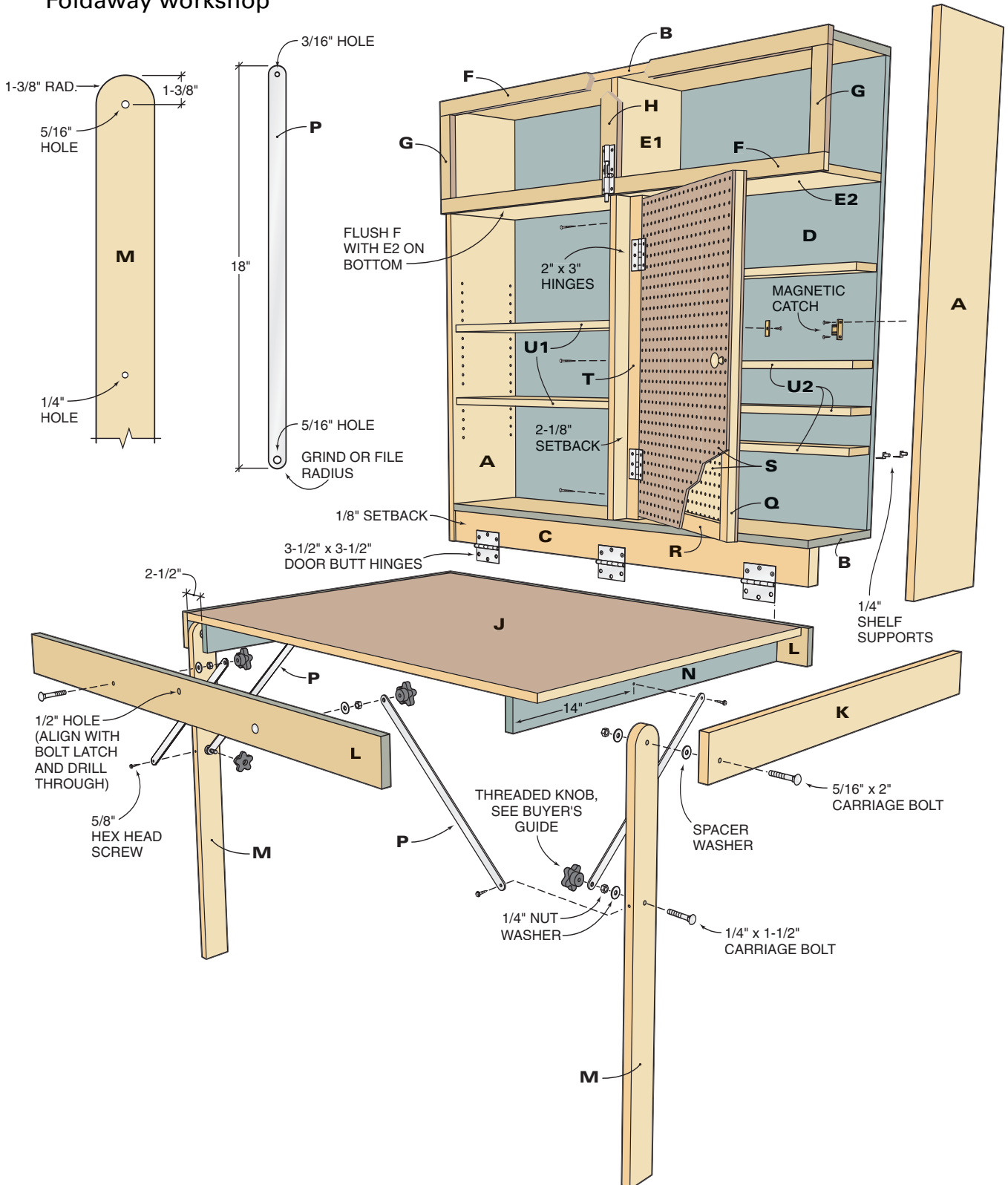
Find a flat work area to assemble the basic box (**Photo 2**). Glue and nail the sides to the top and bottom and then glue the hanger strip to the bottom and sides. Be sure to recess the hanger strip about 1/8 in. to make room for the hinges you'll be installing later. We used a nail gun to speed up the process, but you can also nail the project together with standard 6d finish nails. If you use regular nails, drill a 3/32-in. pilot hole each time to prevent splitting.

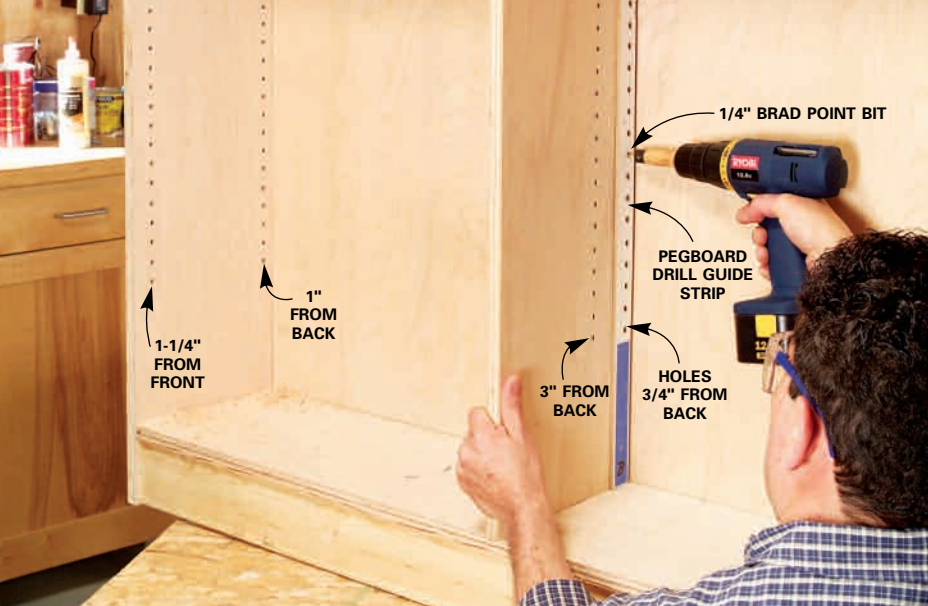
As soon as you attach the sides to the top and bottom, lay this assembly over the plywood back and nail it flush along the entire perimeter every 6 in. Hang the edge over the work area as you nail to make sure you're flushing the edges.

With the back nailed in, glue and nail the middle partition (E1) into place from the top, bottom and through the back of the cabinet. Next glue and nail the fixed shelves (E2) into position (**Photo 3**). The first one you install can easily be nailed from both sides, but for the second shelf, you'll need to carefully toenail through the middle partition into the end of the shelf.

With the plywood box now assembled, glue and nail the upper and lower face frame pieces (F) to the front edge. Align the upper piece flush with the top and the lower piece flush with the underside of the fixed shelves (E2). Next measure and cut the outer face frame pieces to fit snugly, then glue and nail them into place. You'll notice the center face frame piece is 1/2 in. wider than the outer pieces to accommodate the width of the bolt latch.

Figure A
Foldaway workshop

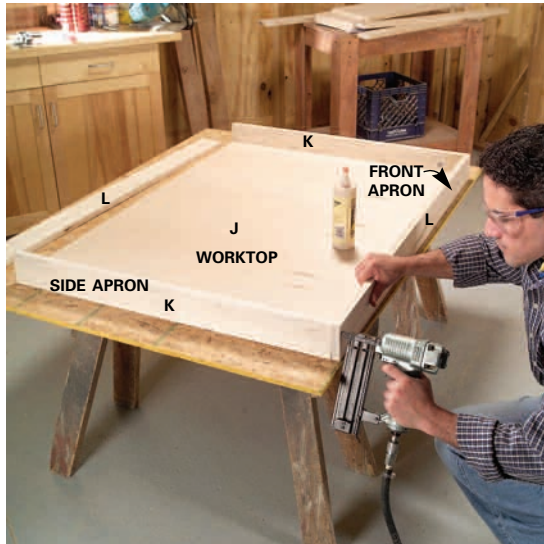




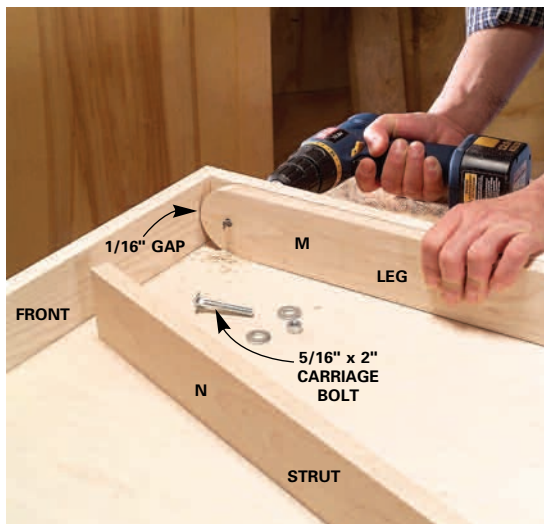
4 Cut a strip of pegboard to use as a drill guide for making the 1/4-in. shelf pin holes 1/2 in. deep. Use a stop on the bit to prevent the bit from punching through the opposite side.



5 Glue and nail the side (K) and front (L) aprons to the worktop, making sure they're flush with the top.



6 Cut a radius on the top of each leg with a jig saw and then drill through the side into the leg. Insert the carriage bolt and place a washer between the leg and the side apron, then another washer and nut to hold the leg to the apron. Snug the nut but don't tighten it. Glue and nail the strut to the front and back aprons (Figure A).



Complete the wall cabinet by cutting a strip from your pegboard and masking off the holes 7 in. from each end (**Photo 4**). The tape is a visual reminder not to drill holes in those areas. Mark a top and bottom to this piece to make sure all the holes you'll drill will be aligned. Tack the strip into place with small wire nails to keep it from drifting as you drill the shelf pin holes. Use a 1/4-in. brad point bit outfitted with a stop collar for drilling the shelf pin holes. I've been burned by stop collars before because they can slip and allow the bit to punch through the other side. You can easily stop this from happening by using a short section of a dowel or any piece of wood as a backer to ride against the collar and the drill chuck as shown in **Photo 4**.

Select straight wood for your worktop aprons

The best way to maintain a flat worktop is to select straight boards to skirt your worktop. Cut the aprons to size and glue and nail them to the 3/4-in. plywood top. Make sure the edges are flush as you nail the aprons to the sides of the top. Once the aprons are nailed to the sides, cut the legs and struts to width and length, then cut a 1-3/8 in. radius curve on the top of each leg. Set the leg inside the apron as shown in **Photo 6**, then mark the location for the 5/16-in. carriage bolts as shown in **Figure A**. Drill through the apron into the leg and then, in order, insert the carriage bolt, a washer, the leg, another washer and the nut.

Now it's time to make the steel leg supports. Cut your 1/8-in. x 3/4-in. steel strap into 18-in. lengths and drill a 5/16-in. hole in one end and a 3/16-in. hole in the other. Radius the ends with a file or bench grinder and be sure to ease the sharp edges with your file followed by 100-grit sandpaper.

Next place a mark 14 in. from the front edge of the strut (N) and down 1 in. from the bottom edge, and screw the steel leg support to the strut (**Photo 7**). It's best to do this before you glue and nail the strut because it's easier to get at then. Now glue and nail the strut to the front and rear apron and to the worktop. Lift the leg to a vertical

position using your Speed Square as a guide to square the leg to the worktop. Drill a 1/4-in. hole in the center line of the leg at the square position. Insert the carriage bolt into the leg and secure it with the washer and nut. Next, use a hex screw to attach the other steel support to the front edge of the leg even with the carriage bolt as shown in **Photo 7**. Square down to the front apron, drill a 1/4-in. hole for the front carriage bolt at this position, insert the carriage bolt and secure it with a washer and nut. You can now attach the braces with the threaded knobs. Do the same with the other side.

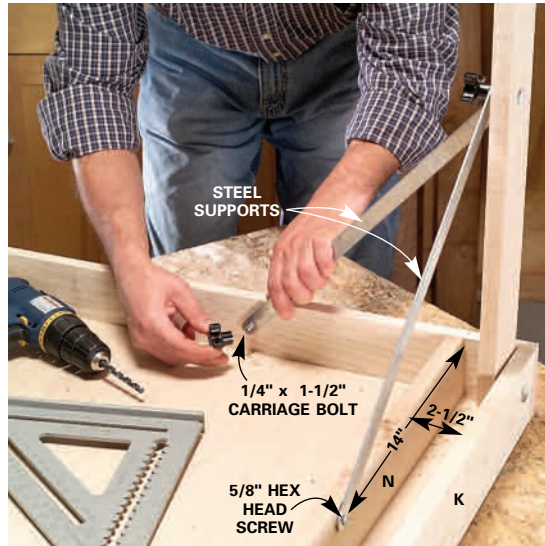
To finish the worktop assembly, screw the three door butt hinges to the back apron as shown in **Figure A** and **Photo 8**.

Make a hinged pegboard door for tool storage

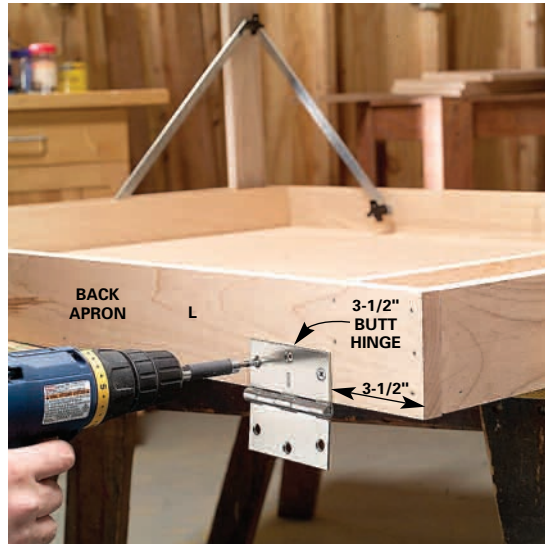
Cut the door stile and rails (Q and R) and then nail them together with 2-in. finish nails. This frame will seem a bit flimsy until you glue and nail one side of the pegboard to it. With this side fastened to the pine frame with 18-gauge wire nails, flip it over (**Photo 9**) and glue and nail the other pegboard piece to the other side of the frame. Now cut the hinge-mounting strip (T) to length and set it next to the pegboard assembly. To get the pegboard assembly level with the thicker mounting strip, shim it up with some pegboard scraps (let T hang 1/4 in. below the pegboard) and then face-mount the hinges with the screws provided in the package. With the mounting strip fastened to the pegboard door, align this prehung assembly with the cabinet as shown in **Photo 10** and drive screws into the mounting strip through the backside of the center partition.

Mount the cabinet assembly to the wall first

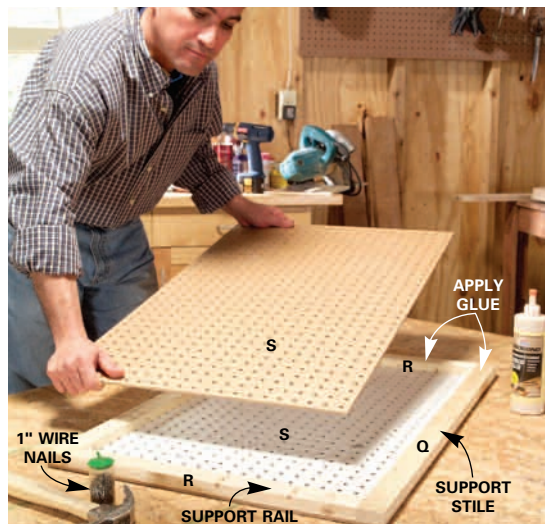
Grab a straight 2x4 about 5 ft. long to use as a temporary support while you screw the cabinet to the wall. Level the 2x4 support 35-1/2 in. above the floor (**Photo 11**) and screw it through the wall covering into the studs with 3-in. screws (three screws are adequate). Now transfer the stud locations to marks on the back of the wall cabinet.



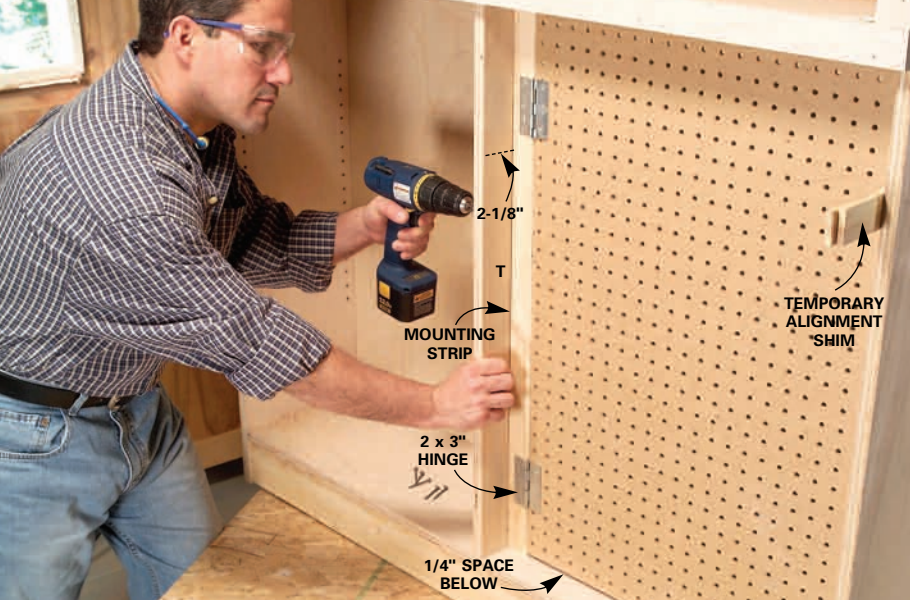
7 Cut the steel supports from 1/8-in. x 3/4-in. steel. Round the edges with a file or grinder and then drill holes as shown in **Figure A**. Attach the supports to the strut and the front apron, making sure the leg is square to the aprons both ways.



8 Screw three door hinges to the back apron, aligning the barrel of the hinge with the edge of the back apron (L) as shown.



9 Glue and nail the door stiles (Q) and rails (R) to the front and back pieces of pegboard. Let the glue set, then install the hinges on the pegboard assembly and the mounting strip (T); see **Photo 10**.



10 Position the pegboard door assembly against the middle partition (T) and screw it into the mounting strip from the middle partition with four 1-5/8 in. wood screws. Add a magnetic cabinet latch and a door pull to the door at this time.

11 Screw a temporary 2x4 to the wall and then locate and drill pilot holes in the back of the assembly over the wall studs. Lift the assembly onto the wall cleat, position it and then drive the lag screws through the back into the studs. Use six lag screws.



12 Shim the worktop so the barrel of the hinges aligns with the bottom edge of the front hanger strip. Drill pilot holes and secure the hinges to the hanger strip with No. 10 x 1-1/2 in. screws.



Drill 1/4-in. holes through the back. Then lift the cabinet into place, making sure your holes are aligned with the studs, and mark through these holes onto the wall. Set the cabinet aside and drill 3/16-in. holes into the studs at your marks. Now outfit your drill with a 7/16-in. hex driver, lift the cabinet back into place and drive the 1/4-in. x 3-in. lag screws into the studs. Be sure you use at least six lag screws to fasten the cabinet to the studs. With the cabinet secured, unscrew and remove the temporary support.

Join the worktop to the wall cabinet

Set up a pair of sawhorses as shown in **Photo 12** to support the backside of the worktop as you screw the hinges to the front hanger strip of the wall cabinet. Be sure to align the cabinet and shim the back of the worktop so that the barrels of the hinges butt up to the bottom of the hanger strip. Drill pilot holes for the screws and drive No. 10 x 1-1/2 in. screws through the hinge holes into the hanger strip. You'll notice that the hinge flange against the hanger strip has the

Shopping List

DESCRIPTION	QTY.
3/4" x 4' x 8' sheets of hardwood plywood	2
1x4 x 14' maple	2
1x2 x 10' maple	1
1x2 x 10' pine	1
2x2 x 4' pine	1
2x4 x 10' pine	1
1/4" x 4' x 4' pegboard	1
6d finish nails	1 lb.
Magnetic door catches	1
Door pull	1
Carpenter's glue	1 pt.
1/8" x 3/4" x 18" steel	4
Threaded knobs (see Buyer's Guide)	4
1/4" x 3" lag screws	6
No. 10 x 1-1/2" screws	9
Shelf pins	28
5/16" x 2" carriage bolts	2
5/16" washers	4
5/16" nuts	2
1/4" x 1-1/2" carriage bolts	4
1/4" washers and nuts	4 ea.
No. 6 x 5/8" hex head screws	4
Bolt latch	1
3-1/2" x 3-1/2" door butt hinges	3
2" x 3" hinges	1 pr.



Don't want uninvited guests in the shop? Add a padlock to the latch bolt.

countersink tapers on the wrong side. This will cause the screwheads to protrude slightly but don't worry—that's part of the reason the hanger strip is recessed 1/8 in. back from the face of the wall cabinet.

The finishing touches

Now mount a bolt latch to the center face frame piece (H). Mount it whichever way allows the bolt to travel the farthest. This will ensure that the bolt will fit down through the front apron at least 1 in. Mount the latch so the bolt (when in the raised position) sits about 1/16 in. above the lower edge of the lower face frame (F). Drill pilot holes and screw it into place.

Now you'll need to drill a corresponding hole in the front apron of the worktop to mate with the bolt on the latch. Hold the worktop closed and unbolt the latch. Hit the bolt with your hammer to dent the front apron of the worktop to locate the hole exactly. Lower the worktop onto the floor and then drill a 1/2-in. hole for the bolt.

The easiest finish to apply is two coats of polyurethane. It's tough and will stand up to years of abuse. Once the finish is dry, install your shelves and load them up with your tools. For safety, periodically check your hinges to make sure the pins are secure. If you need to protect your floor, apply self-stick felt to the bottom of the legs. 

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Photography • BILL ZUEHLKE
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Project Design • DAVID RADTKE

Buyer's Guide

Buy threaded knobs (1/4 in. x 20; part No. 27R13; \$1 each) at Woodcraft Supply on-line (woodcraft.com) or call (800) 225-1153. Be sure to order four knobs.



Need a space for doing crafts and hobbies? This cabinet is attractive enough to install inside the house too.

Cutting List

KEY	PCS.	SIZE & DESCRIPTION	KEY	PCS.	SIZE & DESCRIPTION
A	2	3/4" x 10-3/4" x 47-3/4" plywood sides	K	2	3/4" x 3-1/2" x 34-1/2" side aprons
B	2	3/4" x 10-3/4" x 46-1/2" plywood top and bottom	L	2	3/4" x 3-1/2" x 48" front and back aprons
C	1	1-1/2" x 3-1/2" x 46-1/2" hanger strip (pine)	M	2	3/4" x 2-3/4" x 34-1/4" legs
D	1	3/4" x 46-1/2" x 42-3/4" plywood back	N	2	3/4" x 2-3/4" x 34-1/2" worktop struts
E1	1	3/4" x 10" x 42-3/4" plywood middle partition	P	4	1/8" x 3/4" x 18" steel leg supports
E2	2	3/4" x 10" x 22-7/8" plywood fixed shelves	Q	2	3/4" x 1-1/2" x 31-1/8" pegboard door stiles (pine)
F	2	3/4" x 1-1/2" x 48" upper and lower face frames	R	2	3/4" x 1-1/2" x 18-1/8" pegboard door rails (pine)
G	2	3/4" x 1-1/2" x 8-11/16" outer face frames	S	2	1/4" x 21-1/8" x 31-1/8" pegboard pieces
H	1	3/4" x 2" x 8-11/16" center face frame	T	1	1-1/2" x 1-1/2" x 31-13/16" mounting strip (pine)
J	1	3/4" x 46-1/2" x 34-1/2" plywood worktop	U1	3	3/4" x 9-1/2" x 22-11/16" shelves
			U2	4	3/4" x 3-1/2" x 22-11/16" shelves