During the course of building a project, the top of my workbench can get pretty cluttered. It’s a real challenge keeping the tools I need close at hand and preserving a clear work area at the same time.

The solution turned out to be right under my nose. Taking advantage of the large, open space in the base of my workbench, I created a modular system of drawers and shelves that you see here.

The key is that each component is easy to make and simple to add to the bench a piece at a time — like building blocks. The reward for spending a little time assembling this system is more than matched by the organization and storage it adds to your shop.

△ Versatile Drawers. The centerpiece of this system is the bank of four drawers.

This easy-to-build modular system helps you turn unused space into valuable storage.
Exploded View Details

OVERALL DIMENSIONS: 24 1/8"D x 53 5/8"W x 16"H

Materials & Hardware

A Panel Sides (4) 16 x 23 - 3/4 MDF  • (42) #8 x 1" Fh Woodscrews
B Runners (8) 1/2 x 23 1/2 - 21 1/4  • (6) #8 x 2 1/2" Fh Woodscrews
C Case Back (1) 16 x 19 1/4 - 1/4 Hdbd.  • (66) #8 x 1 1/2" Fh Woodscrews
D Panel Edging (1) 3/4 x 1 1/2 - 130 rgh.  • (8) Shelf Supports
E Cross Rails (2) 1 1/2 x 3 1/2 - 23
F Cleats (4) 3/4 x 1 1/16 - 23
G Small Drawer Sides (4) 3 x 22 3/4 - 3/4 MDF
H Small Drawer Ft/Bk. (4) 3 x 17 1/2 - 3/4 MDF
I Drawer Bottoms (4) 17 1/2 x 17 1/2 - 1/4 Hdbd.
J Drawer Pulls (4) 3/4 x 1 1/8 - 18 1/2
K Large Drawer Sides (4) 4 1/4 x 22 3/4 - 3/4 MDF
L Large Drawer Ft/Bk. (4) 4 1/4 x 17 1/2 - 3/4 MDF
M Large Shelf (1) 18 3/4 x 18 3/4 - 3/4 MDF
N Small Shelf (1) 12 1/2 x 18 3/4 - 3/4 MDF
O Small Dwr. Dividers (8) 2 x 17 1/2 - 1/4 Hdbd.
P Large Dwr. Dividers (8) 3 x 17 1/4 - 1/4 Hdbd.

> Before. This storage system can be adapted to fit (and make better use of) just about any workbench that has an open shelf below the benchtop.
To begin with the **Case**, the first task on the list is to create a foundation to support the drawers and shelves. For that, I made a three-sided case. The two side panels and back divide the space below the benchtop into three compartments.

The trick is installing these pieces in a completed bench. My solution is flexible enough to work with just about any bench design.

In the drawings on these pages, you’ll see the dimensions that suit my workbench. You may need to tweak things to fit your bench.

**Material Choices.** Altering the sizes of parts isn’t the only way to make this project work for you. I used Douglas fir construction lumber and MDF to build these components because it matched the bench. But you’re free to use materials that suit your needs.

**The Case.** The project begins with making two vertical panels, as you can see in Figure 1 above. The panels slide into place over cleats installed in the bench. The panels “borrow” the underside of the benchtop and shelf below to create a case. Each panel consists of two layers of MDF glued together.

**Joinery Details.** There are a few details to take care of before gluing up the side panels. A rabbet cut on each end of the pieces creates a groove for the cleats that I mentioned earlier.

The inner layer of each panel has a series of grooves cut in it. These hold hardwood runners that the drawers slide on.

It can be tricky gluing up panels like this. So I use screws to pull the parts together while the glue dries. I installed the screws in the bottoms of the runner grooves so they wouldn’t be visible, as shown in Figures 1 and 1b.

**Shims.** Use wood shims to position the drawer runners along the lower edge of the groove.
Runners. The runners that fit the grooves in the side panel are up next. I want to point out a couple things. First, they’re cut slightly narrower than the grooves. This way they won’t bind on the drawers.

Second, the runners are installed flush to the edge of the rabbet at the back, leaving a gap at the front (Figures 1b and 1c, page 3). In the photo on the previous page, you can see how shims keep the runners level.

Edging. The surface of the MDF is durable, but the edges are fragile. To cover these up, I made thick strips of edging (Figure 2). They’re chamfered on the leading edges to match the details on the workbench, as shown in Figure 2d. For now, glue the edging pieces on the front of the case and set aside the rear edging strips.

Installation. The panels are now ready to be installed in the workbench base. Before that can happen, though, the bench needs a little bit of prep work.

This involves adding a set of four cleats, as shown in Figure 2. The cleats need to be proud of any aprons or stretchers in order to engage the side panels. For example, on my bench, I needed to add a pair of cross rails to the underside of the benchtop (Figure 2a). The lower edges of the rails are flush with the top apron.

I cut the cleats so the panel slides smoothly into place. What’s important is that the cleats are square to the front and bottom of the bench and parallel with each other. Otherwise, you’re going to have trouble fitting the drawers.

On page 7, you can see how to use a spacer and a framing square to get the job done. (I positioned the cleats slightly off center. This results in two different size storage areas.) A little wax applied to the cleats eases the fit.

Wrap It Up. The front edging acts as a stop for the side panels, as in Figure 2d. But it won’t prevent the panels from being pulled out. That job falls to the rear edging. These two strips are attached with screws only. In addition to capturing the panels, the edging holds the back panel in place (Figure 2c).
adding the Drawers

The side panels provide the structure for the project. The next order of business is to build the drawers and shelves that add storage to make the most of the space.

Neither of these components is difficult to build, but there are some features of each that may not be obvious, so I’ll point those out as they come up.

Simple, Rugged Drawers. I made four drawers to fill the inside of the case. And as you can see in Figure 3, there are two sizes. However, the construction is the same. Building the drawers begins with making the sides.

The drawer sides (front and back, as well) are made from \( \frac{3}{4} \)" MDF. Begin by cutting a wide groove on the outside face to fit over the runners in the vertical dividers, as shown in Figure 3c. A dado blade in the table saw makes quick work of this. The groove is carried around the front edge of the sides to create a notch. This notch accepts the drawer handle.

While at the table saw, cut a pair of wide dadoes on the inside face (Figures 3 and 3a). These hold the drawer front and back. The dado for the drawer back deserves some mention. You’ll notice it’s positioned well forward of the rear end of the side, as in Figure 3. While it does reduce the capacity of the drawer, the upside is that it creates the effect of a “full-extension” drawer. And you can access the entire contents of the drawer without worrying about it falling out of the case.

One more thing. I located the dado for the back so the inside drawer opening is square in shape. This simple trick means the drawer divider pieces that are added later can all be identical.

Router Work. The rest of the joinery work takes place at the router table. First up is cutting a groove for the drawer bottom with a straight bit (Figure 3b). This isn’t a big deal on the front and back pieces. But on the sides, I didn’t want the groove visible. So this groove is a stopped cut, as shown in Figure 3.

The other joinery detail to address is the dadoes that hold the drawer dividers. Even if you don’t plan to make the dividers right away, it’s a good idea to cut the dadoes anyway. Then you can always add dividers later. You can find the dimensions in Figures 3 and 3d.

Chamfer. Swap the straight bit for a chamfer bit to add a little detail on the front end of each drawer side.
Again, it matches the profile on the rest of my bench. So you could use another profile, like a roundover, to suit your bench. The drawer can then be glued and screwed together.

**Wood Pull.** To complete the drawer, I cut a pull from Douglas fir. Then, I glued and screwed it to the front edge of the drawer. A cutout on the inside edge creates a handhold. And the long front edges of the piece are rounded at the router table.

**Quick Shelves.** The remaining components of this system are a pair of shelves. Since I positioned the drawer case off center, this allowed me to have compartments on either side of the drawer case that were of different sizes (Figure 4).

The shelves rest on shelf supports that fit into small holes drilled into the outside face of the case side and into the sides of the workbench, as shown in Figure 4b.

Here again, the design of your bench comes into play. You may need to make a filler panel in order to have a place to drill the holes for the shelf supports.

The shelves are made from MDF. A tongue on the front and back edge interlocks with wood edging, as in Figure 4a. The edging strips do more than just cover the MDF edges. They keep the shelf from sagging. Additionally, the edging locks over the shelf supports so that the shelf can’t get pulled off.

At last, you can load up the shelves and drawers. The added storage makes it much easier to keep your benchtop clear.

### Drawer Dividers

The drawers add a lot of handy storage space. But they don’t necessarily keep things inside organized. To do that, I added simple dividers, as you can see in the drawing at right. These allow you to arrange the contents to suit your storage needs.

The dividers are made from ¼” hardboard and they’re cut to fit the dadoes in the drawer front, back, and sides. Since the drawer opening is square, the strips will fit in either direction. (Take note, though, that the strips are narrower than the height of the drawer.)

At the table saw, I cut notches along one edge. These allow the strips to overlap each other and create an interlocking grid.

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**Diagram Notes:**

- **Small Drawer Dividers:** (2” x 17½” - ¼” Hardb.)
- **Large Drawer Dividers:** (3” x 17½” - ¼” Hardb.)
- **Small Shelves:** (18 ¾” x 18 ¾”)
- **Large Shelves:** (12 ½” x 18 ½”)

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**Figure 4**

- Side View
- Side View

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**Figure 4a**

- Edging (1/8” x Width of Shelf)
- Note: Shelves are ¾” MDF

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**Figure 4b**

- Shelf Support
- Edge Support
- Chamfer

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**Figure 5**

- Small Drawer Dividers
- Large Drawer Dividers
- Note: Notches are 1½” Deep in Large Drawer Dividers
- Note: Drawer Dividers Slip Into Dadoes Without Glue

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When installing the drawer case under your workbench, there are a couple of things to note. First, the case sides should be square to the front and bottom of the bench. They also need to be parallel to one another. It all boils down to locating the mounting cleats accurately.

The first step is to locate one of the lower cleats, as in the main drawing above. Use a framing square to position it before fastening it to the shelf. To locate the second lower cleat, use a plywood spacer. Butt the spacer against the first cleat and attach the second cleat.

To locate the upper cleat and cross rail assemblies, see the drawing at right. The spacer and framing square come in handy for this task, too. Simply place the spacer against the lower and upper cleat while squaring it up. (You may need a helper.) Now you can install the drawer case.
Materials List

A Panel Sides (4)  16 x 23 - 3/4 MDF  K Large Drawer Sides (4)  43/4 x 223/4 - 3/4 MDF
B Runners (8)  1/2 x 21/2 - 213/4  L Large Drawer Ft/Bk. (4)  43/4 x 171/2 - 3/4 MDF
C Case Back (1)  16 x 191/4 - 1/4 Hdbd.  M Large Shelf (1)  181/8 x 181/4 - 3/4 MDF
D Panel Edging (1)  3/4 x 1 1/2 - 130 rgh.  N Small Shelf (1)  121/2 x 183/4 - 3/4 MDF
E Cross Rails (2)  11/2 x 3 1/2 - 23  O Small Dwr. Dividers (8)  2 x 17 1/2 - 1/4 Hdbd.
F Cleats (4)  3/4 x 11/16 - 23  P Large Dwr. Dividers (8)  3 x 17 1/2 - 1/4 Hdbd.
G Small Drawer Sides (4)  3 x 223/4 - 3/4 MDF  • (42) #8 x 1” Fh Woodscrews
H Small Drawer Ft/Bk. (4)  3 x 17 1/2 - 3/4 MDF  • (6) #8 x 2 1/2” Fh Woodscrews
I Drawer Bottoms (4)  17 1/2 x 17 1/2 - 1/4 Hdbd.  • (66) #8 x 1 1/2” Fh Woodscrews
J Drawer Pulls (4)  3/4 x 1 1/8 - 18 1/2  • (8) Shelf Supports

Cutting Diagram

3/8" x 7" - 48" MAPLE (2.3 Bd. Ft.)

1" x 6" - 96" DOUGLAS FIR (4 Bd. Ft.)

2" x 4" - 48" DOUGLAS FIR (2.7 Bd. Ft.)
NOTE:

PLANE

PARTS 'B' TO
!/2 " THICK

#/4 " x 7" - 48" MAPLE (2.3 Bd. Ft.)

2" x 4" - 48" DOUGLAS FIR (2.7 Bd. Ft.)

1" x 6" - 96" DOUGLAS FIR (4 Bd. Ft.)

48" x 96" - ¾" MDF

48" x 48" - ½" HARDBOARD

24" x 24" - ½" HARDBOARD