

In a woodworking shop, counter and storage space are a lot like clamps: You can never have too much. That's why when I built my new basement shop, I reserved an entire wall for a long work counter with storage beneath it. I intended to build and install this counter by myself, so I designed a countertop and base that I could make and install without help. My other goal was to minimize the amount of material needed to build them.

This counter was not going to be built like the floor cabinets in a kitchen. The big plywood boxes used in kitchens require a lot of plywood and are heavy and cumbersome—a bad combination for a one-man crew. So instead of boxes beneath the counter, I decided to use legs. But legs carry their own problems: They can be tricky to level on a sloped floor (and many shops have one), and they need aprons to support the countertop, which requires joinery of some sort.

To overcome these challenges, I devised a simple plywood leg shaped like an inverted U. This shape works because it gives you a pair of legs with a horizontal edge to support the countertop without the need to cut any joinery. Hex-head lag



Clever

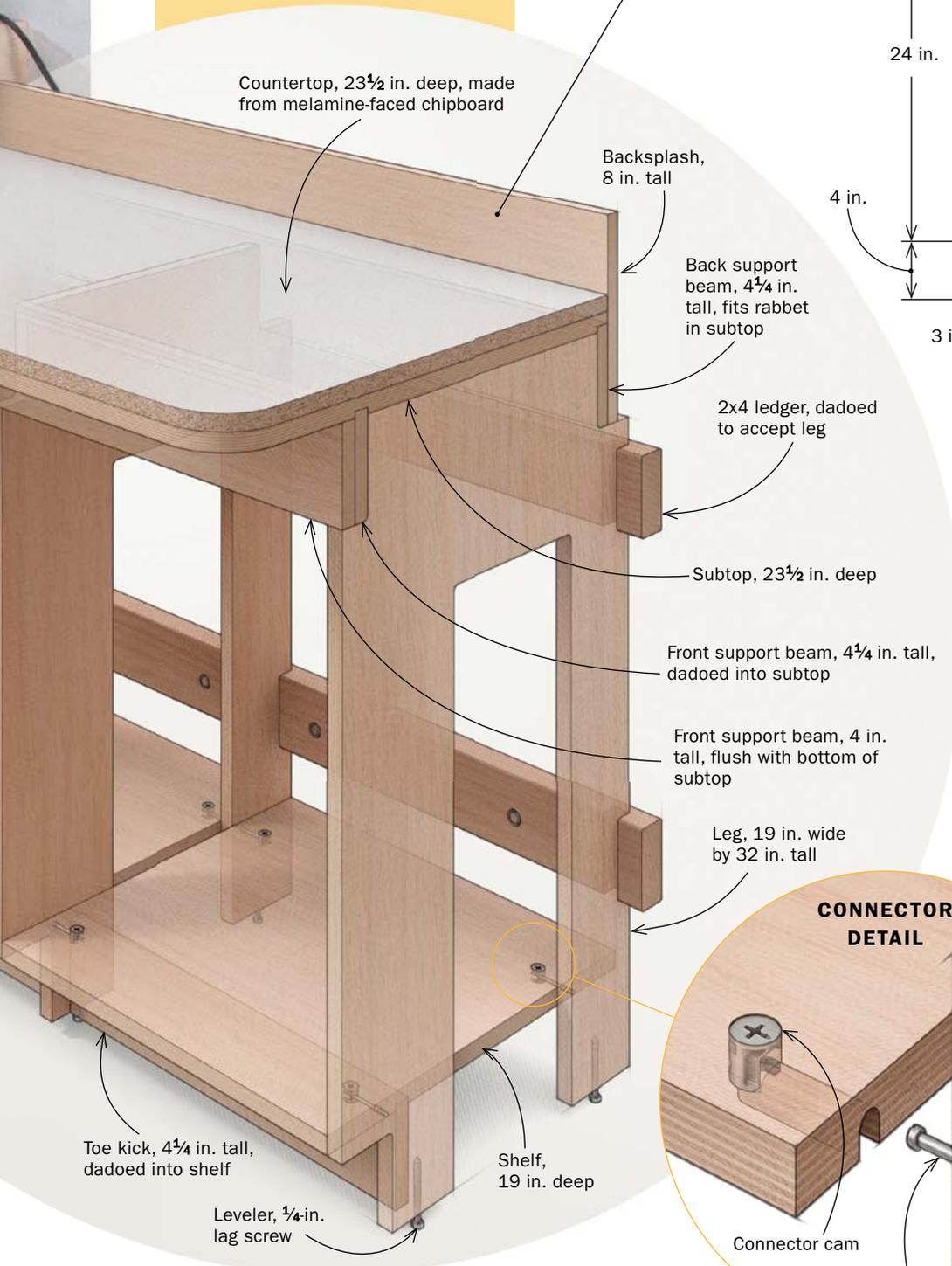
Countertop

Smart design reduces clutter and expands your work area

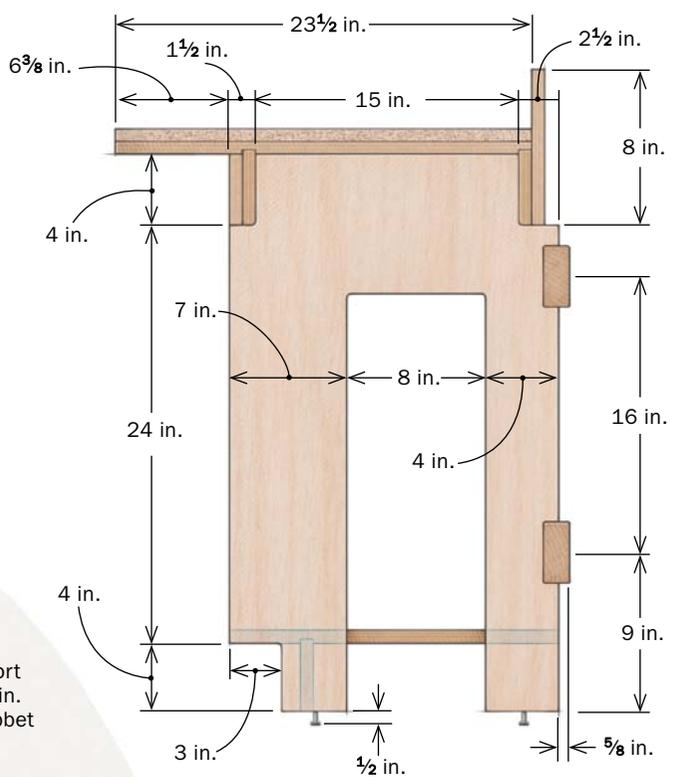
BY DOUGLAS CAMPBELL

Smart use of plywood

Beneath a spacious top is a clever leg design that maximizes the yield from a sheet of plywood and minimizes how much muscle it takes to install the countertop.



Unless noted, all parts are made from ¾ in. plywood.



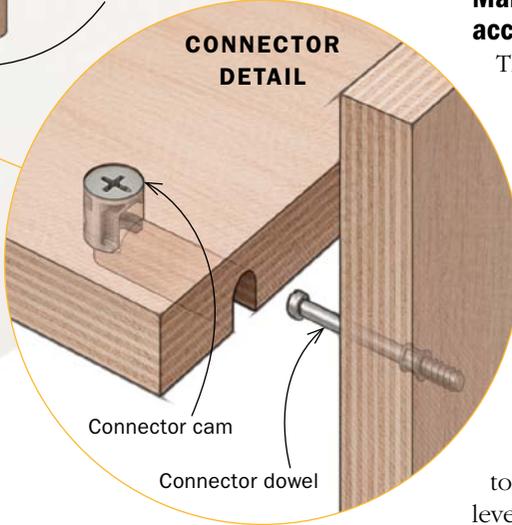
screws driven into the bottom of each foot allow the legs to be leveled individually.

The bays between the legs are the perfect blank canvas for storage. You can add shelves or drawers to them, or even leave them open to make room for bins, toolcases, and other bulky items. On top of it all is a dead-simple countertop made of melamine-faced chipboard—a tough but affordable surface.

Make legs quickly and accurately with a template

The U-shape of the leg is advantageous when it comes to materials, too. The shape allows you to get two legs out of a piece of plywood 24 in. wide by 48 in. long with very little waste. That's eight legs from a full sheet, and a smart way to maximize your materials.

For the countertop to go together easily, square, and level, it's important that all the



Plywood legs made in bunches

With this design, you can cut eight legs out of one sheet of plywood. To ensure uniformity from leg to leg, Campbell used a template and routed each leg to it.



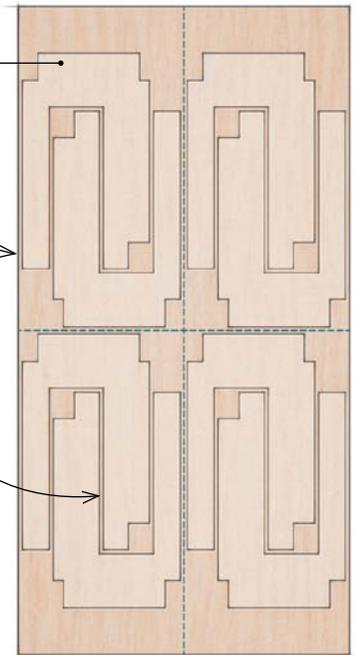
Screw the template to the plywood. This guarantees the template is in the same location when you trace it and then rout the leg flush to it. Inset the template $\frac{1}{4}$ in. from the edges of the plywood.

NESTING LAYOUT SAVES MATERIAL

Eight legs per 4x8 sheet of plywood

$\frac{1}{4}$ -in. clearance at edge

$\frac{1}{2}$ -in. clearance between parts



Double up to reduce waste.

Each pair of legs comes from a 2-ft. by 4-ft. section of plywood. Mark the first leg (right), remove, flip, and reattach the template (below). There should be $\frac{1}{2}$ in. separating the two legs.



Split the difference. Cut down the middle between the two legs. Holes drilled at the inside corners allow you to cut out the leg with a single, continuous jigsaw cut.



Trim them flush. After reattaching the template, rout the leg flush with a pattern bit.

Make way for the shelf fasteners

Shelves that drop in after the legs and subtop have been installed make construction less complicated. Knock-down hardware makes this possible.



A hole for the cam lock. Use a Forstner bit (15mm) and a drill press—and its depth stop—to get flat-bottom holes of the correct depth (left). Rout a slot to fit over the pin using $\frac{3}{8}$ -in.-dia. core-box bit (center). It needs to be centered on the cam lock's hole. You also need to drill a hole in the leg to hold the pin (right).

RTA Connectors

www.hardware.com

Titus Series 5 cam
(T5653 ZN), 29 cents

Dowel (T9424 ZN), 28 cents

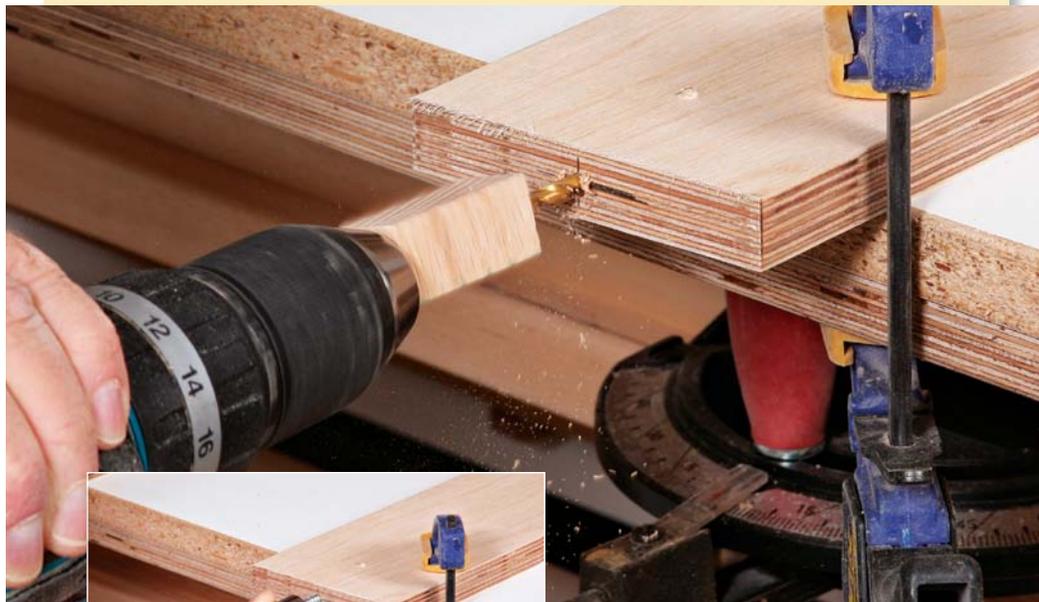


legs beneath it are identical. Variations in the notches for the subtop support beams, for example, could throw the top out of level or make it wavy instead of flat. This is why I used a template to lay out each leg (screw it to the plywood before tracing).

After laying out the legs—two nestled in each quarter sheet of plywood—you can cut them out with a jigsaw. The template helps with the cutting, too. Just split the waste between legs, screw the template back to the leg, and rout it flush to make identical legs.

The rest of the countertop components are straightforward to make. But note that the hole and slot for the cam-lock hardware in the shelf must be cut precisely so that the hardware goes together smoothly during assembly. Take your time when setting up the drill press for the hole and the router table for the slot, and you'll be fine.

SIMPLE LEG LEVELERS



Two-step installation. Drill a pilot hole for the bolt, centered on the leg's bottom edge, using a block of wood over the bit as a depth stop (above). Take care to keep it square. Then drive in the bolt with a socket wrench (left). A drill or impact driver might strip the threads.

Installation is a one-man show

The countertop is assembled in place, one piece at a time, which means you don't need to call a friend for help and you won't strain your back, either.



Hang the ledgers. After cutting dados for the legs, drive lag screws (with washers under the head) through pilot holes and into the studs. Counterbores allow you to sink the screw heads beneath the ledger's surface.



Stand the legs in place. Do not attach them at this point. The dados will hold them up for now.



Drop on the subtop. Screw the back splash and front support beam to the subtop, then place the assembly on the legs.



Level the legs. Turn the lag screw with a wrench, keeping an eye on a level resting on the subtop.



Screw the legs to the ledger. Campbell uses drywall screws, toenailed through the ledger, to lock the legs in place.

You should also take care when cutting the dados for the toe kick and subtop support beams. Dados that are too wide will affect the assemblies' overall strength. Plywood is always slightly thinner than its nominal thickness, so adjust your dado set accordingly.

No need for help with this installation

After making all of the individual parts, you can begin building the countertop. This is where the leg and countertop design really pays off, because you can do the entire installation by yourself.

Start by making and hanging the ledger boards, which attach to the wall studs and help support the counter. After they are in place, stand up the legs in the dados cut into the ledger boards, leaving them loose so that they can be adjusted for level.

The subtop is supported by two beams. The front one is made from two layers of plywood, glued and screwed together. Attach the beams to the subtop, then place the subtop assembly on top of the legs. Put a level on the subtop and adjust the legs with the lag-screw levelers. Check for level front to back and along the subtop's length. Now use drywall screws to secure the legs to the ledger boards and the subtop to the legs.

The shelves go in next, and this goes quickly because all you have to do for each shelf is rotate four cam locks a quarter-turn with a screw driver. After rounding out the corners on the melamine countertop, put it in place and screw it to the subtop from below. Finally, rout the corners of the melamine countertop flush to the subtop below.

Now you can load up the bays with power tools and storage bins, or even make and hang drawers (screw the drawer slides directly to the legs). Then you can go right to work. □

Douglas Campbell, a retired architect, is an avid woodworker in Asheville, N.C.



Put the shelf in place. The toe kick and cam locks are already in place. The four dowels should fit into the router slots, supporting the shelf.



Lock it in. As you turn the cam in the shelf, the pin and leg are pulled tight, creating a rigid base for the top.



Add the countertop. After roughing out the corner radius of the countertop, screw it to the subtop from below, then rout the chipboard top flush to the subtop.