



# Ultimate

A woodworker's new space is a

**Look what blooms in a woodworker's garden.** Houck felt guilty about abandoning his basement shop every spring to enjoy the sunshine and blossoms of his home near the seashore. His new shop is located perfectly to solve that dilemma.



**Light and space.** With 13 windows and a full array of fluorescent fixtures, Houck's roomy shop is bathed in light from every direction. Extra-strength ceiling joists and under-floor dust collection allow an open floor plan with no support columns or hoses in the way.

# One-Man Shop

year-round haven for his favorite hobby

BY PHILIP HOUCK



**F**or several decades, from the time I started as a woodworker until very recently, I did almost all of my work in underground shops. My first workspace was in the basement of my parents' home. I was 9, and I made toys and useful objects for my family.

As a newlywed, my shop consisted of a vise mounted to the end of a 2x8, which I clamped to a rude table that doubled as

my desk. Over the years, the shops grew in size and equipment, but as a gardener and lover of the outdoors, I found that even a great basement shop could seem dismal on a beautiful day.

Every so often I tried open-air woodworking, setting up shop on my deck during the warm weather (I live near the ocean, in New England). That was better, but far from ideal. For one

thing, I found myself constantly in need of yet another tool, and I spent much of the day traipsing up and down the cellar stairs.

A few years ago, when I finally had enough saved to build the shop of my dreams, I was able to stop being a seasonal, subterranean woodworker. I wanted a year-round shop: cozy in the flying snow but not claustrophobic when the azaleas bloom. I wanted plenty of light, room, and storage. For a year, I researched and mulled over the design, and then I spent the next seven years building and fitting it out. I think my approach could help some of you, even if you already have a shop and are just making upgrades.

### Let there be heat

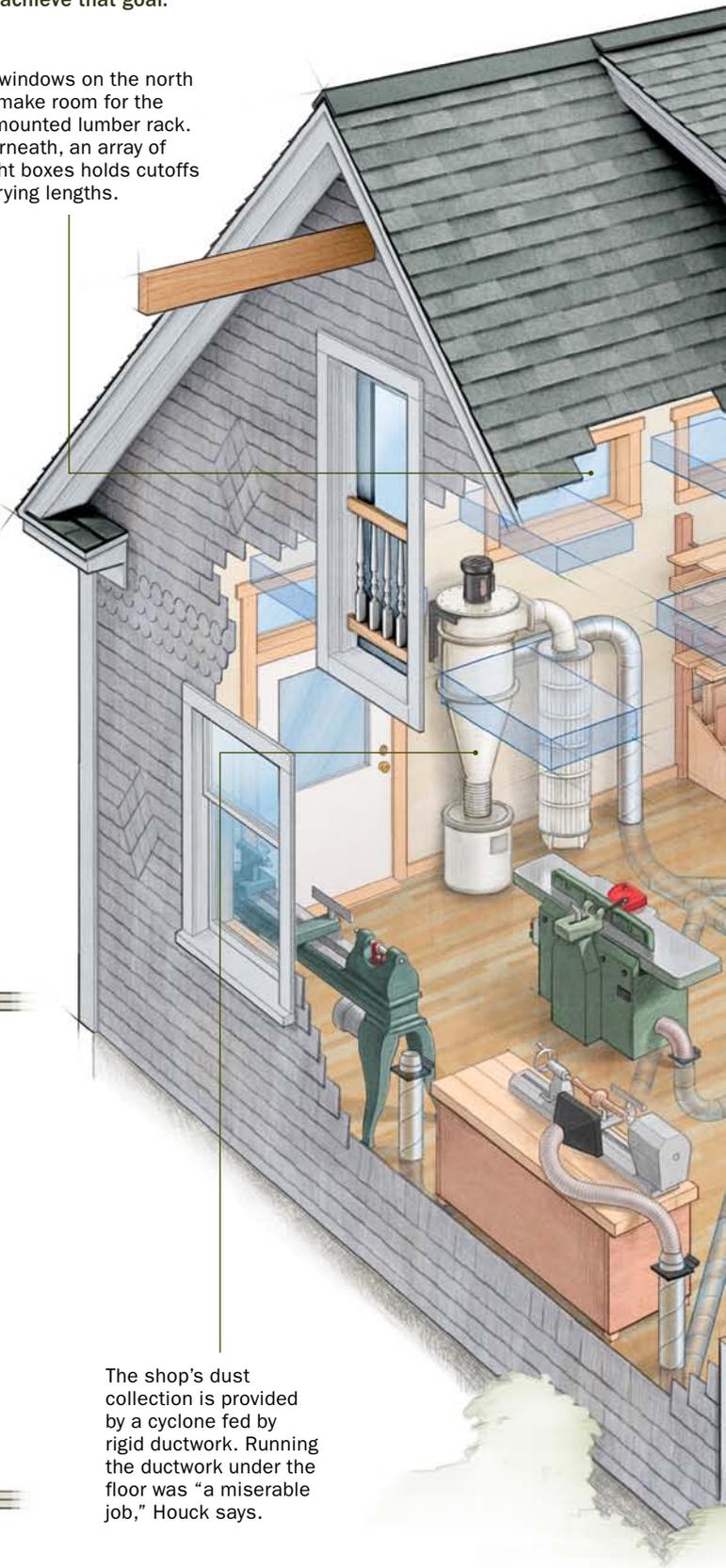
Ensuring that the shop was usable year-round meant making it affordable to heat through a New England winter. But I also wanted large windows—and plenty of them—to let in natural light and the view of the trees and two ponds.

To combat the cold, I supplemented the cellulose wall insulation with two layers of rigid foam and a ¾-in. barrier of trapped air behind the drywall. The ceiling over the second floor has 16 in. of cellulose and the roof has another 8 in. of insulation between the rafters. The framing contractor thought I was going overboard, but he wasn't going to pay the heating bills. The extra care paid

## ALL THINGS CONSIDERED

Philip Houck spent a year designing a shop that is easy to heat, with plenty of light and an open floor plan. Beefed-up framing, extra insulation, and an under-floor dust collection system helped him achieve that goal.

High windows on the north side make room for the wall-mounted lumber rack. Underneath, an array of upright boxes holds cutoffs of varying lengths.



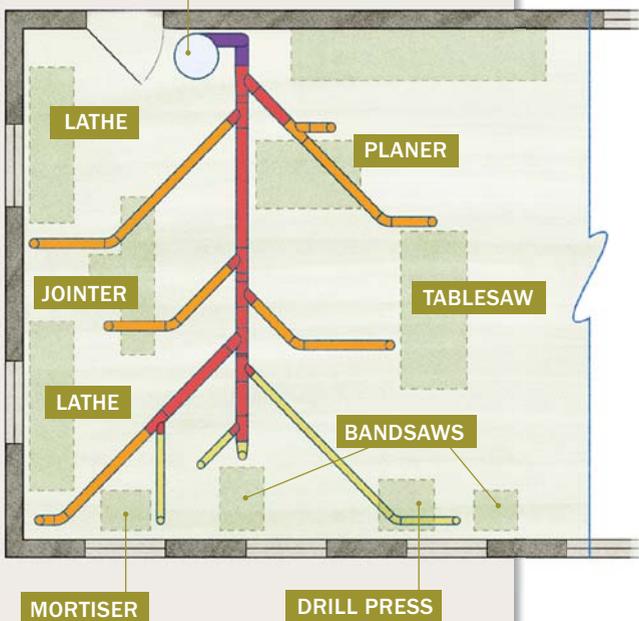
### Whole-shop dust collection

**Smart use of crawl space.** A network of rigid ducts mounted under the floor carries dust from each machine to a cyclone collector.



DUST COLLECTOR

By going under the floor, Houck was able to keep his duct runs as short as possible for efficient airflow. For even more efficiency, each branch feeds into a larger main trunk.



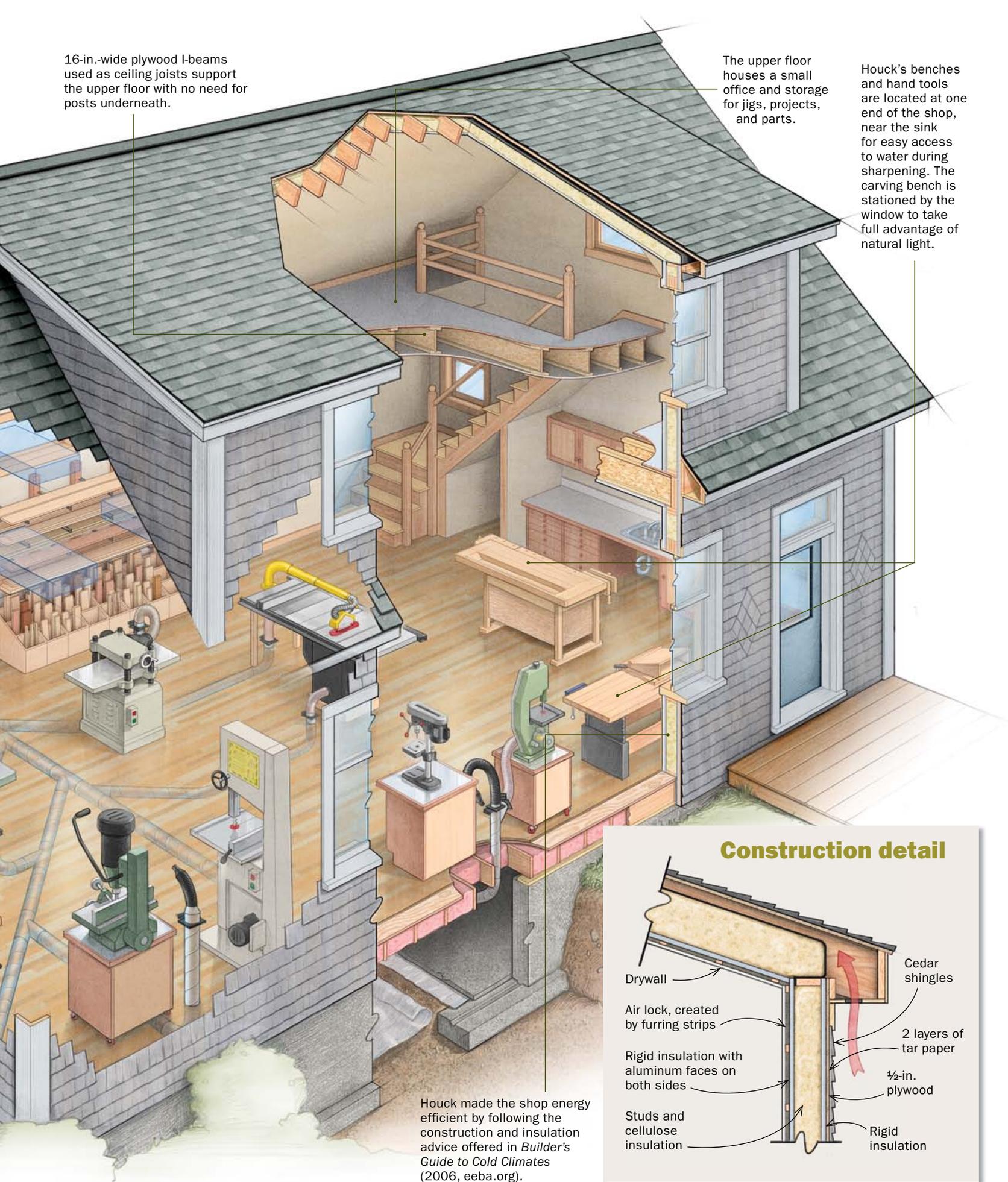
- 7 IN. DIA.
- 6 IN. DIA.
- 5 IN. DIA.
- 4 IN. DIA.

The shop's dust collection is provided by a cyclone fed by rigid ductwork. Running the ductwork under the floor was "a miserable job," Houck says.

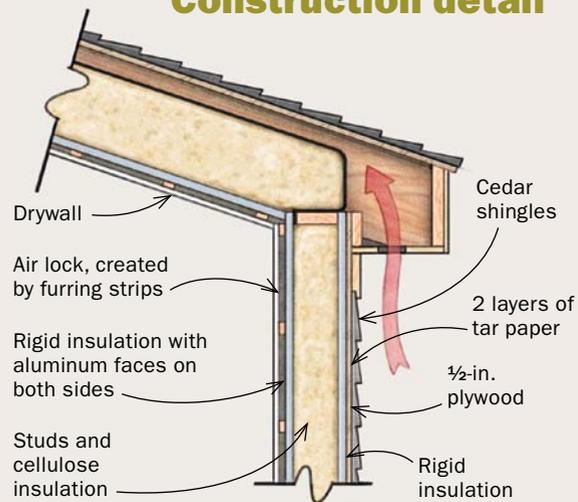
16-in.-wide plywood I-beams used as ceiling joists support the upper floor with no need for posts underneath.

The upper floor houses a small office and storage for jigs, projects, and parts.

Houck's benches and hand tools are located at one end of the shop, near the sink for easy access to water during sharpening. The carving bench is stationed by the window to take full advantage of natural light.



### Construction detail



Houck made the shop energy efficient by following the construction and insulation advice offered in *Builder's Guide to Cold Climates* (2006, eebea.org).

# Benches

**For handwork, plenty of elbow room.** The bench area, opposite the machines, includes two benches and lots of open countertops, with a sharpening station and sink. There is ample space to move around the main bench from all sides.



**The second bench is adjustable.** Houck varies the height of his Noden Adjust-a-Bench to accommodate a range of tasks including handplaning, routing dovetails (far left), and carving (left).

off: The propane used to heat the 960-sq.-ft. shop has averaged about \$180 per winter.

## The floor is open

The shop building is 24 ft. by 40 ft., large enough for three cars (or two and a boat) if a future owner ever wants to convert it. The first floor is supported by 2x10 pine joists.

The dimensions are generous for a one-man shop. To make the most of that space, I wanted an open floor for flexibility of layout and for elbow room. The design for the shop's ceiling called for joists made of 16-in.-wide plywood I-beams. Their rigidity allowed me to dispense with support posts, despite the large floor area.

## Wall storage



**Walls do more than keep out the cold.** Wall-mounted cabinets throughout the shop keep hand tools and hardware within easy reach. This large cabinet's hinged interior panels maximize storage capacity.

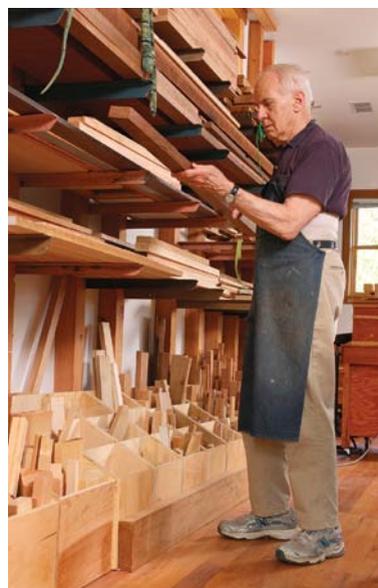
Another decision that helped free up space was to hang all of the dust ducts in the crawl space under the floor joists. This gave me greater freedom to move around, but it also tied down my big machines permanently. Think carefully before trying this approach.

The result is ample room for a full complement of large machines: a cabinet saw, a 20-in. bandsaw, a 12-in. jointer, and a 20-in. planer. All are positioned to handle stock at least 8 ft. long. There is also room for a pair of benches: a traditional European-style bench for joinery and an adjustable-height bench for carving. The two lathes are isolated at the far end of the room because they are seldom used in conjunction with other tools and are usually used for extended periods. The small tools used most frequently, a smaller bandsaw (on casters) and drill press, are closest to my workbenches. The mortiser is off in a corner, also on casters so I can move it out to accommodate long stock.

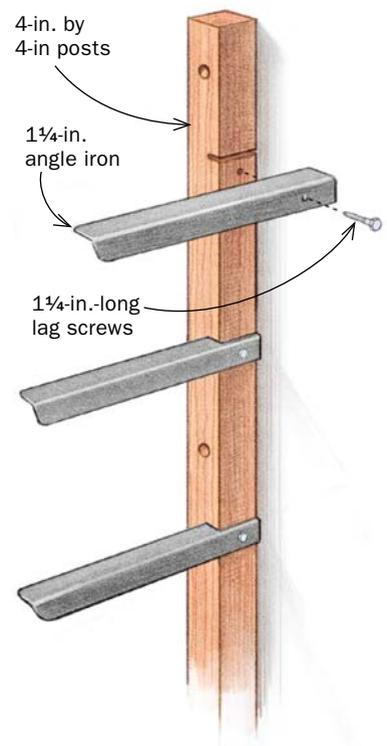
Two “invisible” time savers are my scrollsaw and spindle sander, which live beneath one lathe and the small bandsaw, respectively. When I need one of them, I set it on a stock cart and wheel it wherever I choose.

### A place for everything...

Near my main bench, I built and installed a series of storage cabinets that house 67 drawers filled with supplies and tools,



**Lumber storage.** Houck's wall-mounted lumber rack uses space efficiently because the angle-iron requires no bracing. A graduated set of boxes underneath keeps scrap organized and accessible.



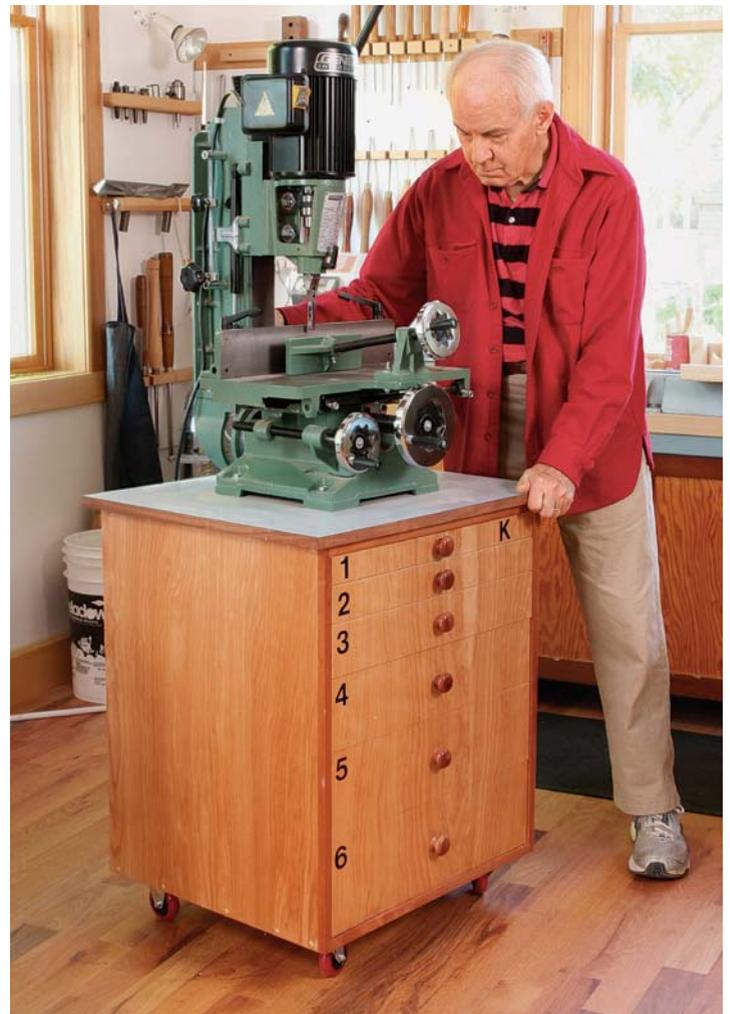
# Cabinets



**Clutter under control.** A bank of under-counter storage lines the wall behind Houck's bench. For these and other cabinets throughout the shop, Houck built a total of 67 drawers.



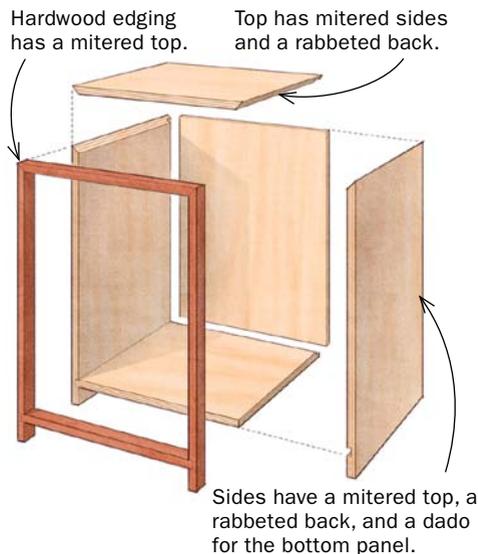
**Satellite storage.** Similar cabinets are located throughout the shop. Drawers of varying heights accommodate a variety of tools and supplies. The system of numbered drawers and lettered cabinets helps Houck return tools to their proper places.



**Cabinets on wheels.** The mortiser and drill press sit atop rolling cabinets with plenty of drawer storage for bits, accessories, and other tools.

## MITERED CASEWORK

On the storage cabinets, Houck used the method of mitered carcass construction detailed by Steve Latta in *FWW* #129. In plywood, the miters provide a surprising amount of long-grain glue surface, making for a strong and attractive joint. The miters are cut on the tablesaw.



**Tools to go.** Shallow boxes, packed with everything needed for a particular task (sandpaper and sanding blocks, for instance), can be easily lifted out or replaced as needed.



**Behind the doors, more drawers.** Shallow trays on heavy-duty drawer slides provide easy access to handheld power tools and other bulky items.

each having its own, dedicated space. I made the cabinets using Steve Latta's method of mitering the plywood tops and sides ("Strong, No Clamp-up Corner Joints," *FWW* #129). I could not foresee just how and where I would want every tool, so I built the first few cabinets with drawers of varying heights and started organizing. Later editions became more specific to my needs as I added dados to the drawer sides to house dividers.

Much of what doesn't fit in the drawers has a place on the walls. Behind the main bench is a wall cabinet (courtesy of Jan Zoltowski's "Quick-to-Make Tool Cabinet," *FWW* #188) that is a marvel of simplicity and efficiency. Since so much fits in the drawers below, I use this cabinet strictly for tools that can be hung. As a result, the internal doors almost double its storage area. On the wall next to the cabinet are shelves holding an array of small drawers for nails, screws, and other fasteners.

Rather than rummage through boxes of drill and router bits, I built a separate wall cabinet to hold all of my power bits except for the boxes of twist drills, which are in drawers beneath the press. On the door to the cabinet are charts giving the decimal size of "number" twist drills and which sizes to use for threading metal and wood.

Unlike some woodworkers, I cannot hold a pencil behind either ear, and no matter how many I put in my pocket, they all vanish. My solution was to mount a pencil block to every window casing. The problem is not limited to pencils: I seem to lose calipers and squares with the same frequency, so I have additional blocks to hold them in several places as well.

The wood rack is the brainchild of my friend Don Regier, a Maryland woodworker. It's a model of efficiency and it is cheap! The lumber rests on angle-iron bars (salvaged from bed frames at the local dump) set into kerfs in a series of 4x4 posts. The design requires no space-robbing braces, and it can hold a *lot* of lumber. □

*Philip Houck makes furniture and enjoys the sunshine in his shop near the New England coast.*



**A gem of a detail.** Houck cut and installed shaped shingles for decorative touches like this diamond pattern near the shop's main entrance.

## Custom touches, inside and out

The shop is just steps away from my house, so I wanted it to look good. The siding is cedar shingles, of which 1,100 are decorative semi-circular or diamond patterns that I cut myself using shopmade jigs. Mounting the diamond shingles was too fussy for the siding contractor, so I wound up installing them. It was a chore, but the work was truly satisfying.

Inside the shop, my wife asked if I planned to ornament the face stringer on the stairs, and I told her: "It's just a shop."

"No," she replied. "It is *your* shop!"

I was easily persuaded. Just cutting the blocks and fairing them took all day, but I appreciate them every time I see them.

—P.H.



**Taking stairs to a new level.** The decorative stringer faces, bandsawn to shape, lend a personal touch.