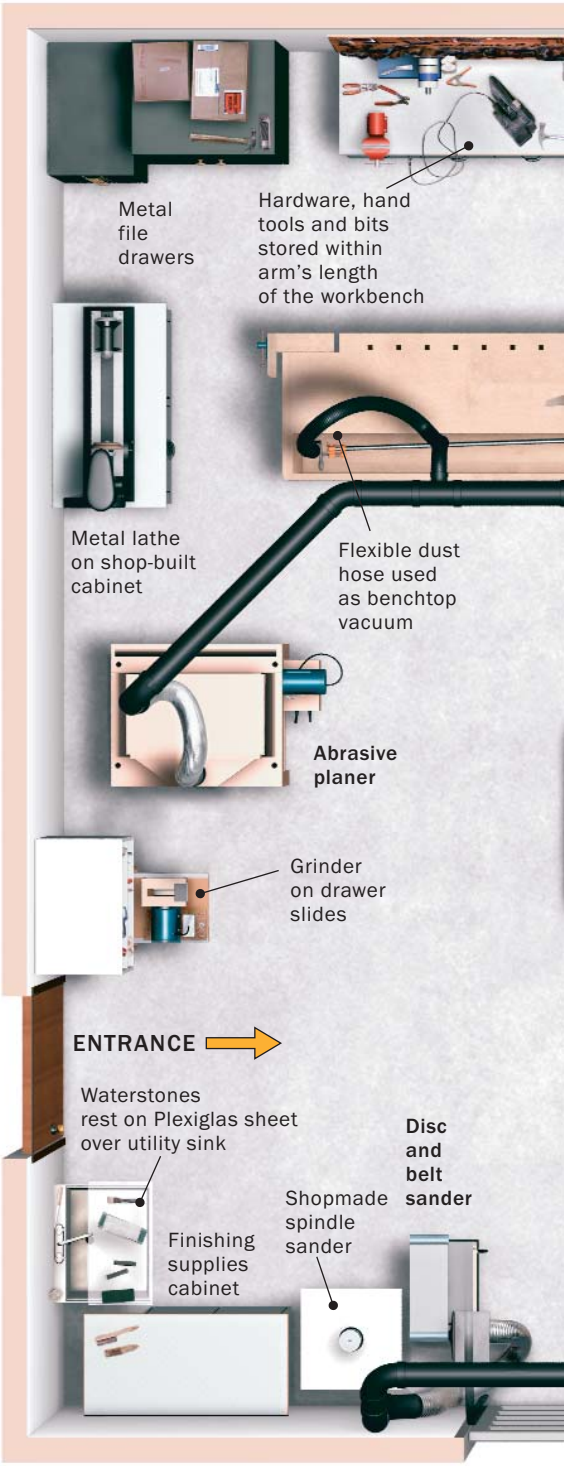
Great Shop

in a Two-Car Garage

Economy and ingenuity make the most of a modest space

BY CURTIS ERPELDING



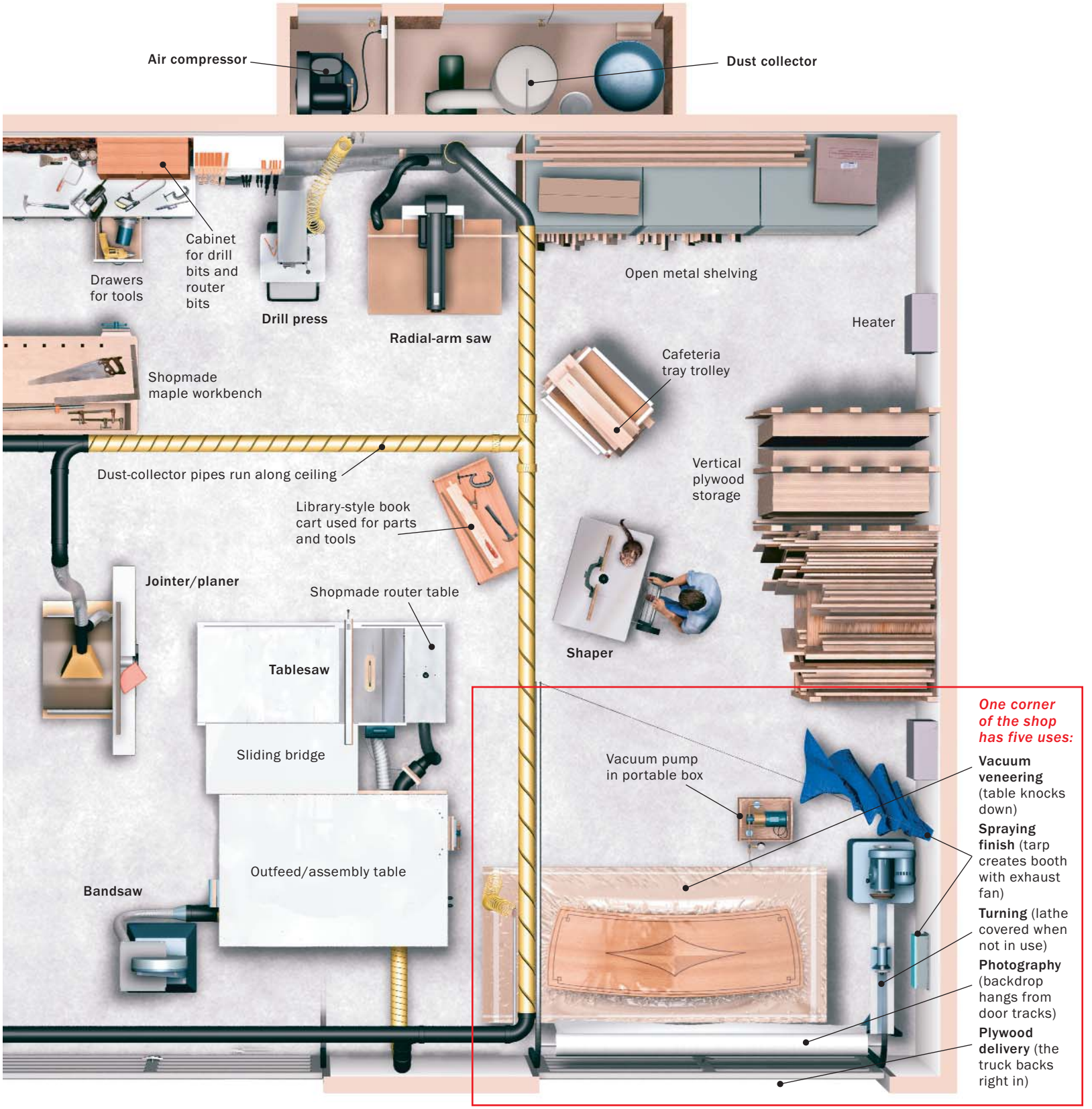
A workshop ought to be perfectly practical—just a place to work wood and to keep tools and materials dry and warm—but it never is. That's because it is also very personal. The problems you solve as you outfit your shop may be practical ones, but they arise for personal reasons: You make jigsaw puzzles as well as highboys; your shop is unheated in the winter and floods in the spring; you like to stand while drawing and sit down while cutting dovetails; you store your kayak for half the year suspended from the ceiling above your milling machines.

I've had six shops over the last 20 years, and I've found that improving a shop is a matter of learning about myself and the way I work, both in general and in each specific space.

In my first shop, which was the cleared-out end of a book-storage warehouse, I hung the few tools I had accumulated on the wall a good 10 paces away from my work table. It soon became apparent that constant trips between the wall and the work table were doing nothing for my productivity. I learned a specific lesson and applied it in my succeeding shops: Store drill bits by the drill press, sawblades by the saw, hand tools by the workbench, jigs and fixtures by the machines they were built for.

I also learned a more general rule of shop design: You'll rarely get it right the first time. It takes time and experience to create a well-functioning, efficient shop. All of the aspects of shop order—from tool and machine layout to work flow procedures and storage solutions—evolve over time.

My grinding setup is an example of Darwinism as it applies in the workshop. In that first shop, my grinding device was a hand-operated wheel clamped to the edge



of the table. It had all the disadvantages: It was slow, it took muscle, its minimal tool rest made it difficult to obtain a consistent edge and, being clamped to the work table, it was in the way. It didn't take too long to realize that if I was serious about making a living while using hand tools, I would have to find a better system.

The first improvement was to motorize. I salvaged an old washing-machine motor that ran at a convenient 1,725 rpm and fitted it with a white vitrified wheel. Then I went about finding a better approach to the tool-rest problem. One drawback of most tool rests is that they don't fully support the blade being sharpened. Another problem is that they force you to hold the tool or blade at an unnatural angle. I built a tool rest in the shape of an open-sided box around the grinding wheel. The wheel emerges through a slot in the top of the box the way a tablesaw blade emerges through the throat plate. This enables me to grind tools while they are lying flat and fully supported

Drawings: Design Core

TABLESAW AND ASSEMBLY TABLE LINKED AT THE HEART OF THE SHOP

With all the room a tablesaw requires for infeed, outfeed and support on either side of the blade, its placement is the logical starting point for laying out a shop. The author decided to make his outfeed table do double duty as a fixed-in-place assembly table. A sliding bridge connects the saw with the assembly table.

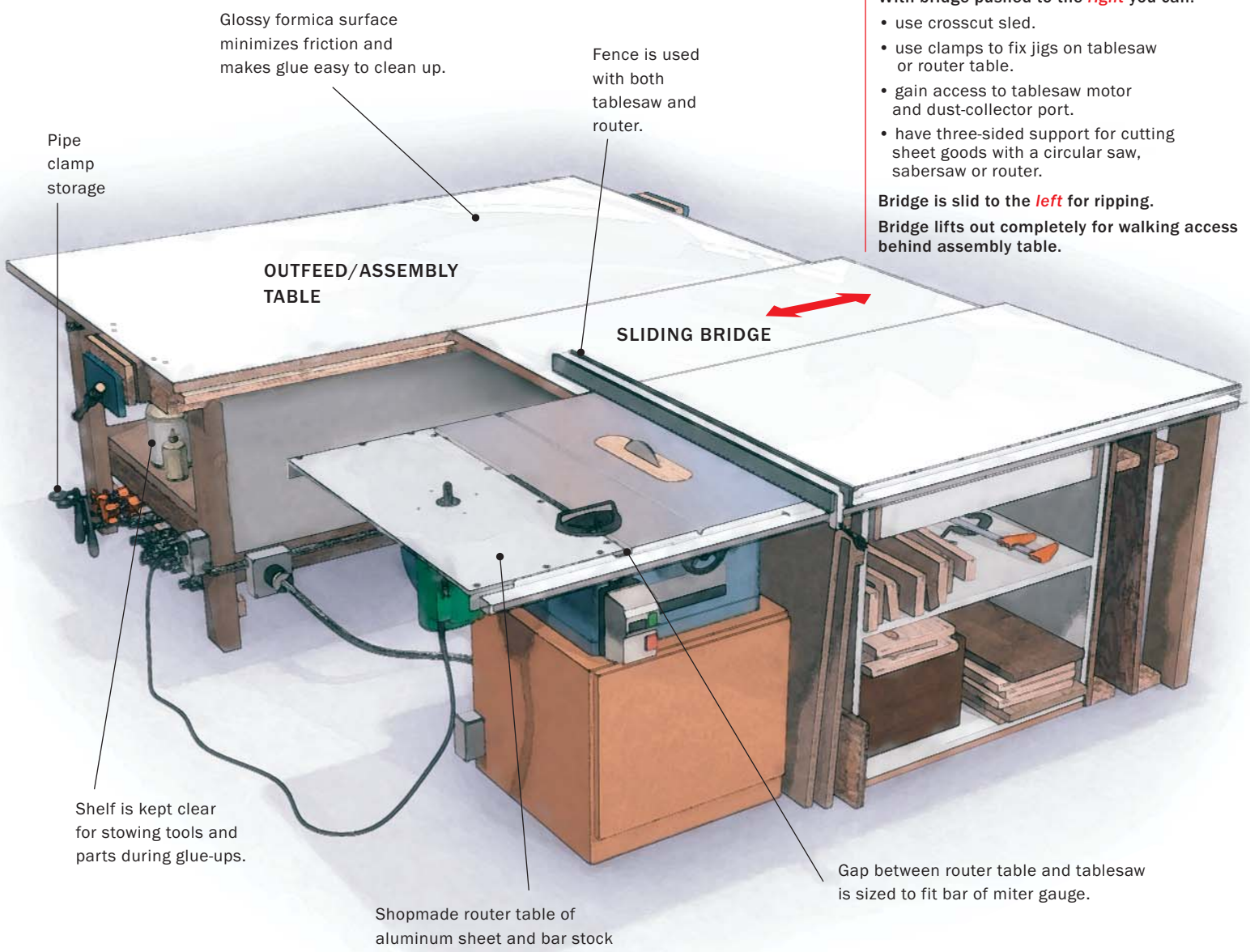
BRIDGE IS THE KEY TO THE SYSTEM

With bridge pushed to the *right* you can:

- use crosscut sled.
- use clamps to fix jigs on tablesaw or router table.
- gain access to tablesaw motor and dust-collector port.
- have three-sided support for cutting sheet goods with a circular saw, sabersaw or router.

Bridge is slid to the *left* for ripping.

Bridge lifts out completely for walking access behind assembly table.



on the top of the box (see the photo at left on p. 55). Even spokeshave irons and small marking knives can be precisely ground without the need for positioning fixtures. With the motor mounted on a hinged board, I can adjust the grinding angle by raising or lowering the motor. That was my second sharpening setup, permanently mounted at the end of a wall bench. My current arrangement has the same grinder, but the box is now mounted on the wall at a comfortable height for grinding. The whole mechanism is on drawer slides and is pulled out of the box for use. This saves space but also keeps dust, debris and stray tools from ending up on the grinder.

Because everything evolves, being flexible is another inflexible rule of organization. Try not to make any feature of the shop permanent. The arrival of new tools, new types of work or simply better ideas will demand a new arrangement.

Having machines that are movable is particularly advantageous in a small shop. In my own shop spaces, I've kept my machinery small. One of the advantages of having small, lightweight machines is that you can

IN A SMALL SHOP, MOST THINGS SHOULD BE MOVABLE

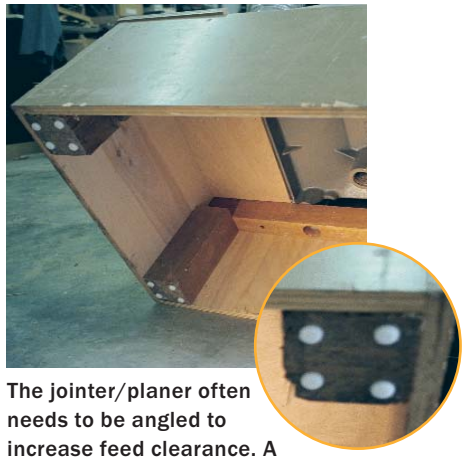
TILT AND ROLL

Stationary disc and belt sander has wheels just off the floor, so you can tip it back and move it like a wheelbarrow. Offset, non-swivel casters are key.

LIFT AND ROLL

A pair of non-swivel, heavy-duty casters make the shaper movable, and a pair of adjustable glides keep it level and stable. For a long move, a hand truck helps. The cat provides good ballast.

LET IT SLIDE



The jointer/planer often needs to be angled to increase feed clearance. A simple plywood box with nail-in glides at the corners makes a stable, slidable base.

easily move them, even by yourself. With my 14-in. bandsaw, for example, I don't have room for the optimal 8 ft. or 10 ft. of clearance on the outfeed side. In good weather, I increase outfeed clearance by opening the garage door. In poor weather, I simply pivot the machine. With heavier machines, I improvise. I mounted two non-swivel casters and two adjustable glides inside the base of my shaper. They raise the machine ⅛ in. or so, without compromising its stability. I can move it short distances by lifting the side with the glides and pushing or pulling. For longer trips, I use a hand truck to lift and push the side with the glides. I could have bought a mobile base for the shaper, but I didn't want to raise the shaper significantly because I use it as a side support when I crosscut long pieces on the tablesaw.

Because each shop presents unique problems, it makes sense to make your own shop fittings and furniture. But that doesn't mean you can't find ready-made solutions. I have an old large metal cabinet full of drawers. It was originally used for storing Addressograph printing plates, and

Photos: author

NEARBY DRAWERS IMPROVE THE BENCH

The author worked for years with his bench against a wall. Moving the bench away from the wall and building a cabinet with drawers behind it made him far more productive.

1. Pulled away from the wall, the bench can be used from both sides, and workpieces can extend from it in all directions.
2. With counter space and tool storage within arm's length, the workbench stays uncluttered.
3. Cabinet is used for router bits and drill bits.
4. Countertop with laminate surface and integral splash is available in various lengths at home centers. This 8-ft. section cost about $50.
5. Deep drawers run on heavy-duty, full-extension slides and hold routers, drills, sanders and air tools.

it was free for the hauling. I spent a couple of hours modifying the drawer interiors, and it is now brimming with neatly segregated screws, sandpaper, hardware and glue. All sorts of card file cabinets are obsolete as a result of the computer revolution. The cabinets range from the fine wooden ones with dovetailed drawers that libraries used for their card catalogs to standing metal cabinets and two- or four-drawer desktop cases.

Used office-furniture stores are a good place to haunt. Metal file-drawer cabinets in legal or letter size make fine storage for mid-sized items, and used ones can be had quite cheaply. And at a bankruptcy sale, I bought a metal storage rack for $20 that would have cost me at least a day of labor and $100 in materials to duplicate in wood.

Being a frugal sort, I like the idea of adaptive reuse. Two of my roll-around carts are sturdy aluminum trolleys that used to carry cafeteria trays. I bought them for $50 apiece at a scrap-metal yard. I scrubbed them down and cut pieces of ½-in. particleboard to use as shelves where the trays once went. These 6-ft.-high carts, with their footprint of 1½-ft. by 2½-ft., can hold an enormous number of furniture parts that would otherwise be scattered over tables

GLIDING GRINDER

This grinder slides out of a box for use. For rigidity, two pairs of drawer slides are used: one pair side-mounting, the other bottom-mounting. The open box around the grinding wheel is the tool rest, which enables the author to grind blades while holding them flat. The blades ride on a steel wear plate. The motor mount is hinged, and changing its height adjusts the grinding angle.

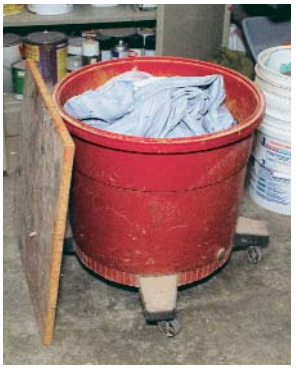
SAVVY RETROFIT AND REUSE

FROM THE LUNCHROOM TO THE WORKSHOP

For $50, the author bought an aluminum trolley for cafeteria trays. A good scrubbing and some ½-in. flakeboard shelves turned it into a parts cart.

PUMP HOUSE

A quick plywood box, with cutout handles and a slide-in lid, makes a snug mobile home for the author's vacuum-veneering pump. When not in use, it is stored on a shelf.



REVIVE-A-VAC

The bottom half of a dead shop vacuum makes a rolling rag bin, trash can or a barrel for cutoffs. A scrap of flakeboard placed on top turns it into a utility table for mixing finishes.

or benchtops or spilling onto the floor.

Like all shops, mine is a stage for the eternal battle between order and chaos. And true to thermodynamic law, chaos has the edge. As years go by, I collect more jigs and fixtures that somehow can't be thrown out, extra material from each job begins to add up and, of course, I can't resist that extra piece of equipment. The more I try to squeeze in, the more chaos threatens to take over. At some point, after all the space-saving devices have been deployed, the issue becomes paring back (perish the thought) or expanding the space. This spring, after working in a two-car garage for six years, I am remodeling the shop, nearly doubling the working area. I have a pretty good idea how I'll use this added space—a dedicated finishing room, a fold-up table for vacuum veneering, a place where the lathe is more accessible. Whether these ideas will work out as planned I don't know. But I am certain that over time my needs will change, my accessories will increase, the new space will evolve to accommodate them and chaos will slowly regain its lost ground. □

Curtis Erpelding is a furniture maker living in Port Orchard, Wash.