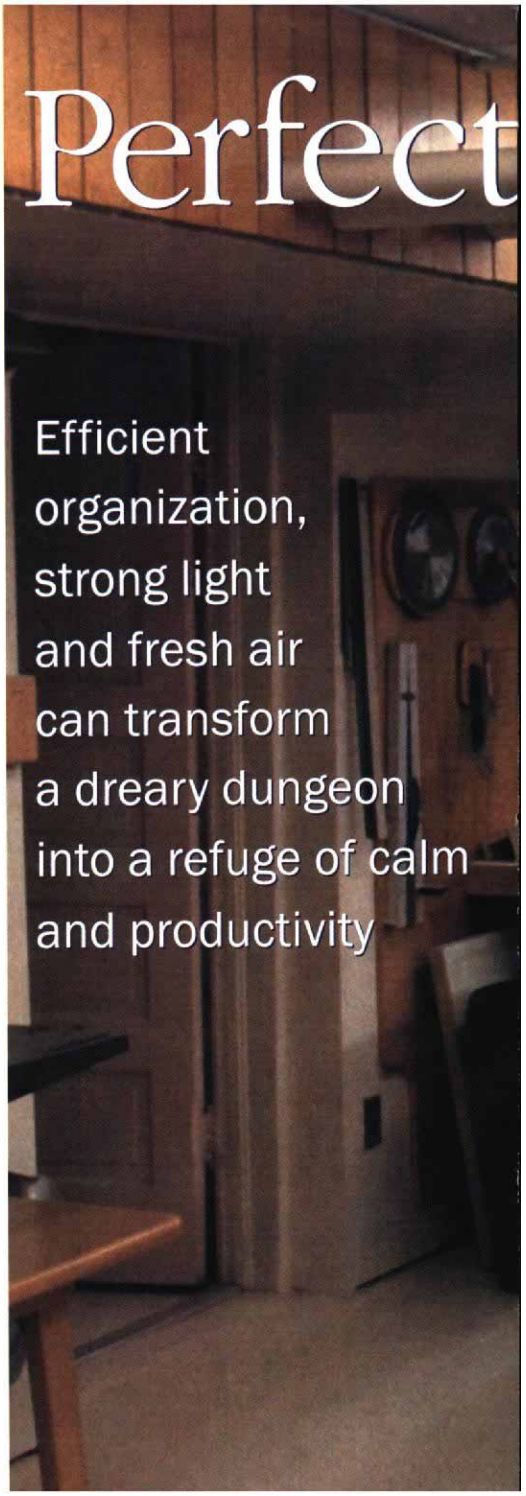
The Almost Perfect



BY JAN CARR

A basement is hardly the most desirable location for a shop. Yet, for many woodworkers, it's the only alternative. I live in a city, and even if expense were not an issue, there is simply no space for a separate outbuilding. Furthermore, living in a cold climate, a shop in the garage is problematic to say the least.

When my wife and I moved to Minnesota some years ago, we looked for a house that was a candidate for renovation. From my own point of view, I wanted a house with a good potential for setting up a shop. So when we found this house in St. Paul with a large basement sporting 8-ft. ceilings and a separate outside entrance, the rest of the structure looked pretty good to me. With all the renovation work looming, I chose to build the shop first. What follows is an account of what I did and why, with the hope that this discussion will help others develop a strategy that works for them.

A little research and The Rule of Five help make the space habitable

I am a researcher by inclination. When confronted with a problem for which I know of no clear-cut answers—for example, the best way to insulate basement walls—I try to confer with at least five people or sources for the answer. I look for a consensus, if there is any, but mostly use common sense to weigh the options toward a decision. Pablo Picasso supposedly said that all art is derivative, meaning that it's a by-product of others' ideas. That is certainly true in the case of my shop. Nearly every concept of shop design that I've incorporated into my own space came through a process by which I saw someone else's idea, then revised, adapted or tweaked it to meet my own needs.

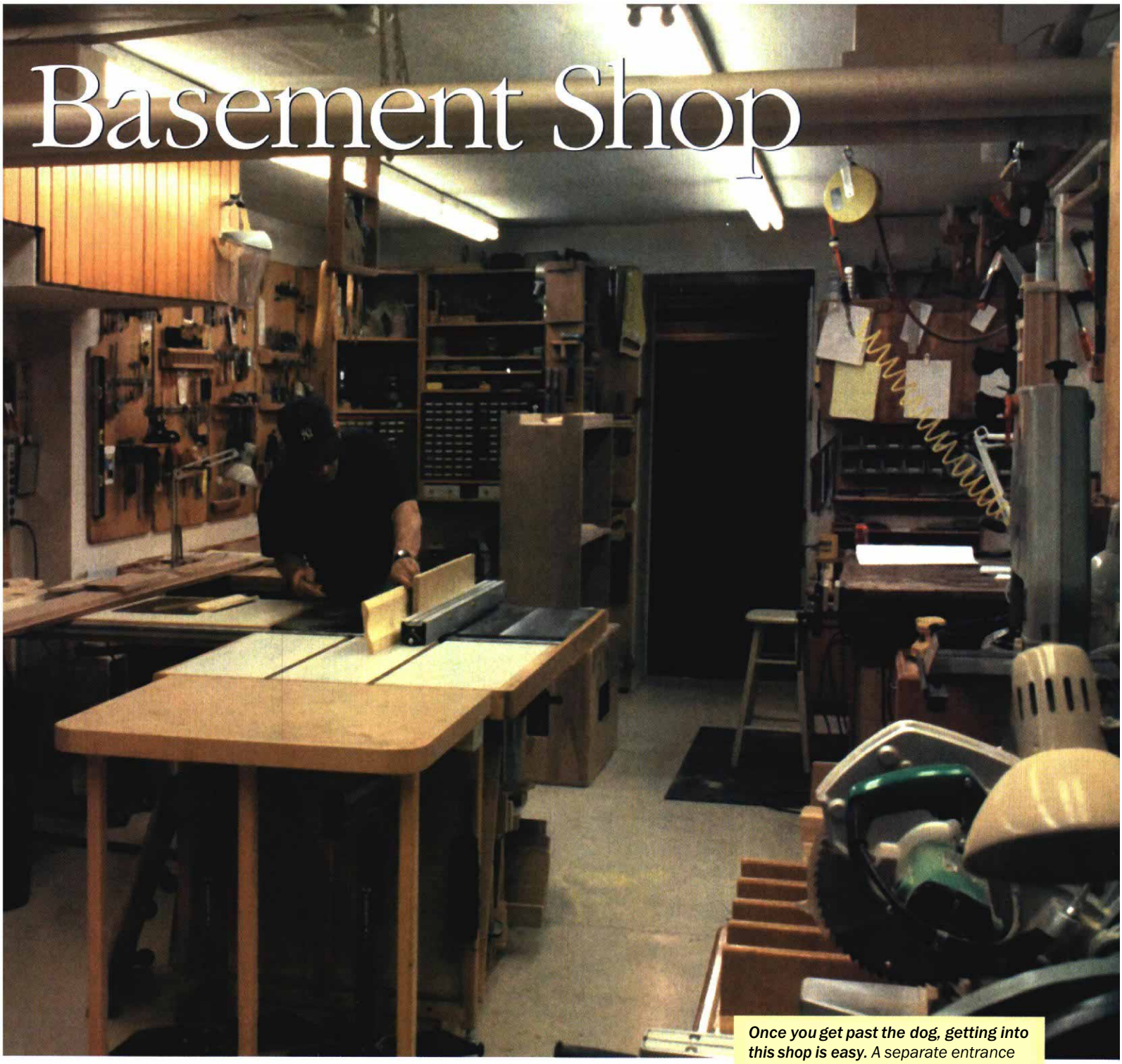
Before moving to St. Paul, we lived in a loft space in New York City, where I appropriated a finished bedroom for shop space. Though it was small, that shop was extraordinarily comfortable. Once in Minnesota, we spent our first year in a rented house, where I set up shop in a dark, dank, thoroughly depressing basement. Those two experiences convinced me to do whatever was necessary to make this new shop as pleasant as possible. That meant erecting insulated stud walls, installing ceilings, and painting floors and walls. Birch plywood was available for about $30 per sheet at the time, so I hung my tools on stained and varnished birch panels and built simple birch cabinets that were tailored to my storage needs.

Dealing with moisture and ventilation—Any basement with stone or concrete walls will be cold in the winter and damp in the summer, at least in the northern tier of North America. Most states and many localities have some sort of energy-information center that will help you solve the problems common to your area. The energy people here gave me very detailed guidelines for erecting insulated stud walls with a continuous vapor barrier, which I did on all of the exterior walls. That alone made a substantial dent in our heating bills and rendered the space very comfortable through the notoriously cold winters.

In the summer I put screens on the windows and use some cheap 8-in. box fans to provide cross ventilation. Also, I run two 40-pint dehumidifiers during the summer. These devices are expensive to operate—each about equal to what a refrigerator costs to run—but they keep the shop dry and comfortable. I have never had any problems with rusted tools or warped boards, so the dehumidifiers seem well worth the expense to me.

Lights: incandescent vs. fluorescent—Take an informal poll, and you'll find that hardly anyone prefers the look of fluores-

Basement Shop



Once you get past the dog, getting into this shop is easy. *A separate entrance (above left) into the basement from the street level facilitates bringing lumber and plywood into this organized and comfortable workspace.*

cent light to incandescent, but you simply can't beat it on cost and output. I wanted a shop with bright, shadowless illumination, a factor of increasing importance to those of us with the diminishing eyesight that comes with advancing years.

I haven't had good luck with the so-called shop lights available from most home centers for about $8, because they're too noisy. So I bought standard 4-ft. two-bulb fixtures at about twice that price. You can eliminate the ubiquitous hum of the fixtures by going with electronic ballasts (at about $37 per fixture). However, an electrician friend of mine suggested that I return any of the standard fixtures that hummed, because the quality control over ballasts is pretty abysmal. I found about one in three to be defective. As a result, my shop lights are reasonably quiet.

Bulb selection is also important. A lighting expert I talked with suggested the best bulbs for accurate color rendition should be rated at about 3,500° on the Kelvin scale. That's what I installed in the shop, even though each bulb cost about $2.50 at a local electrical-supply house. The result is a very pleasant light that to me is infinitely preferable to those cool-white bulbs you can pick up for a buck apiece.

Keep the noise down—Unless you want to outfit other members of your family with ear protection, you probably need to think

Photos: William Duckworth

MAKING THE SPACE WORK

Blessed with a large basement to begin with, the author improved its efficiency by ganging together specific areas for tool storage and work flow.

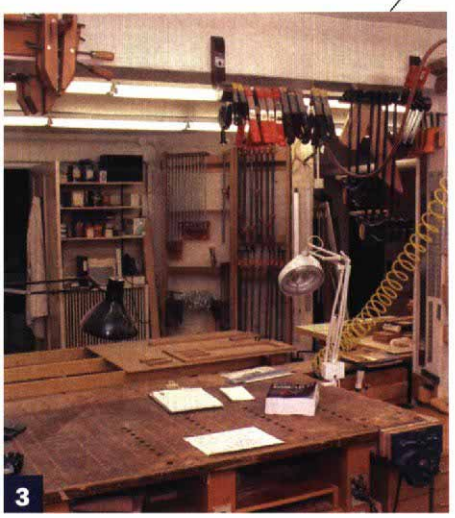
1. Every tool has its place. *The author chose birch plywood over Peg-Board to make wall panels and storage cabinets for all of his tools.*

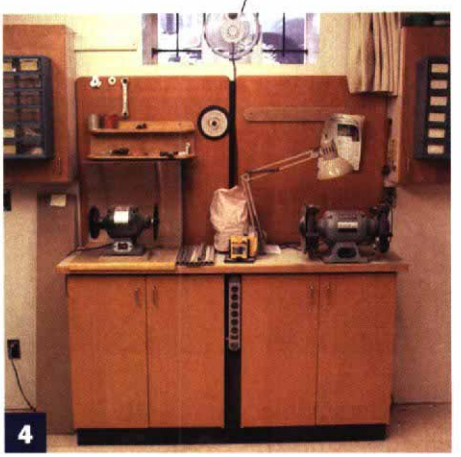
2. Clearly a shared space. *Laundry-room walls double as storage space for brushes and detergent.*

3. There are few shadows on this workbench. *A stickler for having plenty of light, the author ran 4-ft. fixtures continuously along the ceiling in closely spaced rows. All told, he spent about $650 for 26 fixtures and color-correct bulbs.*

4. Small fans throw plenty of air. *This window fan, mounted above the sharpening station, exhausts air blown in by a fan on the opposite wall. The two small fans keep the air from getting stale.*

5. Dehumidifiers help prevent rust on tools. *Two of these devices run continuously from June through August to keep the space dry during humid weather, This one doubles as a support for a chopsaw workstation.*





about shop noise. There are any number of measures you can employ to inhibit sound transmission, but most are rather elaborate and expensive.

I decided to take the simplest route, which was to stuff conventional fiberglass insulation between the rafters and use resilient channels (sometimes available from home centers but always from drywall suppliers) to attach the ceiling drywall. This will certainly not stop all of the sound from drifting upward, but it does bring the roar of machines and tools down to a more tolerable level.

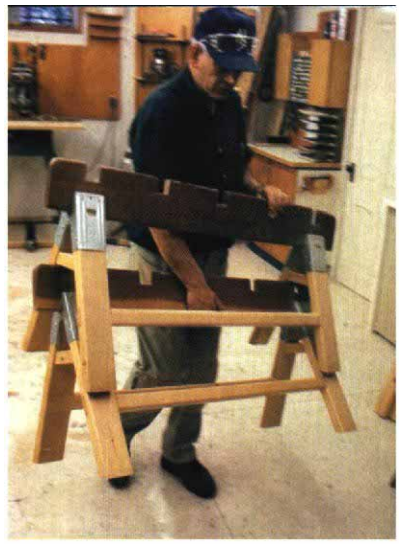
Organizing for efficiency

After you've finished whatever decorating you've chosen to do, the sometimes daunting process of organizing your space begins in earnest. Most experts will tell you to think about work flow in setting up your space. That's difficult advice to follow in a basement, given the fixed obstructions-chimneys, support columns, heating and plumbing fixtures, etc. As a consequence, you are often forced to organize around these various obstructions and give sec-

Drawing: Design Core

A knockdown utility table that sets up in no time

Two sawhorses and three lengths of 2x4s provide me with a quick, no-fuss worktable when I need one. I use it for cutting panels, assembling casework and as a drying rack for finishing. Half-lap joints make this table easy to put together and take apart. It stores readily out of the way (see the photos at right).—*J.C.*



ondary consideration to the logical flow of work. I knew that most of my shop time would be devoted to renovation tasks such as stripping doors and moldings and building case goods. With that in mind, I located the tablesaw first so that there would be adequate space to cut sheet goods and maintain an open area for stripping.

It makes sense to draw a simple floor plan of the available space. I've found it useful to make scale drawings of the machines, as well as some of the materials you expect to work, such as 4x8 sheets of plywood. You can then move your machines around on the floor plan to determine which placement gives you the most space to work the materials.

Layout, cockpit style—From my days in an office, I came to favor what I think of as a cockpit work environment—sitting at a desk with my necessary office machines and work materials in a U shape around my back and sides. I took that same idea to the shop. As I work at the tablesaw, my workbench is to my left, the tool wall is to my right, and necessary hardware and portable power tools are right behind me (see the floor plan on the facing page). For 90% of my work in the shop, everything I need is within two steps. I left enough room in the middle of this space to assemble cabinets.

Keep the space flexible—Given the obstructions and space limitations of most basements, you have to consider making as many items movable as you can. In my shop, everything can be broken down or moved, with the exception of the benches and the tablesaw. The challenge with machines, of course, is to make them movable, and then—when in use—immobile. I've tried a variety of devices over the years, but my current favorite is the universal mobile machine base made by Delta (available for about $50).

One of the most adaptable devices in the shop is what I call the cutting rack (see the story above). It's simply a knockdown table, consisting of two horses and three 2x4s, with half-lap joints between the top of each horse and each 2x4 to hold it all together. I use this rack for cutting up sheets of plywood, as an assembly bench and, with a sheet of plywood on the top, as a general utility table. And if I need the floor space, the whole thing can be pulled apart and moved aside in about 10 seconds.

Match bench heights to fit—You also need to think about the height of your machines. The top surface of my tablesaw is 34 in. off the floor, which, in turn, determined the height of nearby benches, so I can slide a sheet of plywood over the bench onto the tablesaw. Conversely, the jointer/planer sits at a lower height so that pieces of lumber will slip under the saw's extension table.

The shop as a work in progress

In many respects, designing and building a shop will be the most complicated project most woodworkers will ever undertake. As such, it can be fairly intimidating, if you are as compulsive as I am and want to get it right the first time. However, somewhere along the line, it dawned on me that a shop should be treated more as a work in progress than as a project to be completed. Thus liberated, I felt more comfortable in trying some new arrangement or idea and discarding it if it didn't work as well as I had originally hoped. Any number of my friends seem to find use for my rejects, and there have been many.

All of which is to suggest that you don't spend too much time or effort trying to devise the ideal shop. Start somewhere and just accept the inevitable reality that you will reconfigure again ... and again ... and again. Even now, on my drawing board I'm trying to come up with another arrangement that would accommodate a dust collector, a 20-in. bandsaw and a shaper. □

Jan Carr builds cabinets and restores the three-story, turn-of-the-century home he shares with his wife in St. Paul, Minn.