



# A Shop Inspired by School Memories

This well-lit workspace features an open floor plan organized for efficient workflow

BY MARK BELLONBY

**M**y introduction to woodworking took place in a high-school arts building during the late 1960s. The building included a large, first-floor woodshop with a high ceiling and tall, Gothic windows that provided plenty of natural light and cross ventilation.

Space between machines and benches in the shop was plentiful, and the tools were stored in beautiful, enclosed oak cabinets. Eventually, I had a key to the building, and I sometimes would work until the early hours of the morning, completely lost in the craft of making furniture.

That bright and airy school shop became the standard against which all of my later shops were measured. For many years, I had little choice but to cope with workshops located in dark, dusty, and confined basements or garages. I hoped someday to have a workplace that offered the many advantages of that wonderful school shop.

## Must-have design considerations

Two years ago, I finally got the opportunity to design my own free-standing shop. The obvious deficiencies I'd put up with for so long made it easy to come up with a list of goals for the new space.

An architect by profession, I produced the design and drawings using a computer-aided design (CAD) system. The builder, Martin Jarvis, helped keep costs in line, and he was frequently consulted during the design process. He encouraged me to consider a simple building shape and to use standard windows and skylights. He also helped me find cost-effective materials, like the base-grade, strip-oak flooring I ended up using.

To allow room for machinery and work in process, it was most important for me to have a generous amount of floor space. High

## PLANNING PAYS OFF

In designing his dream workshop, Bellonby placed a premium on having lots of light, ventilation, and elbow room. Equally important, however, was having work zones arranged in a logical fashion.

**Design room offers additional work-space.** The large desk in the office is a perfect surface for laying out veneer.



**Divider adds storage.** A freestanding partition provides a sturdy wall for storing tools and accessories, and the shelves can be used for wood storage.



**Workbench is centrally located.** The most convenient location for the workbench proved to be approximately in the middle of the shop.



**Tools within easy reach.** A freestanding hand-tool cabinet occupies a corner of the shop not far from the workbench.



**Converting stationary to portable.** Several tools can be moved around the shop on shopmade mobile bases.

ceilings were a priority, and the floor plan had to be flexible to allow for rearranging machines.

Like my school shop, I wanted mine to be bright and airy, almost an extension of the outside. Evenly distributed natural light was going to be critical to the design, as well as excellent ventilation. That meant the shop had to have large windows and skylights, all located to provide maximum light and quick air changes.

Several other design objectives also were important. I wanted to minimize noise from the air compressor and dust-collection system. Also, the building had to be energy efficient. And, should the need ever arise, I wanted a building that could be converted to an alternate use with relative ease.

A separate finishing room would have been nice, but I figured it would take up too much space. At some point in the future, a nearby outbuilding has the potential to become a finishing room.

### A smart, flexible floor plan

Using a scale model for guidance, I sited the shop 20 ft. from an existing farm outbuilding. That allowed me to use part of the outbuilding for storage. A concrete slab between the two buildings is easily accessed through large doors in each building. This small courtyard is protected somewhat by the buildings and nearby trees, and I often use the area to plane or sand when I want to enjoy the outdoors or keep messy operations out of the workshop.

Also, in an open area against one of the walls, I included a deep sink that's handy for cleanup of all sorts.

### Separate work zones in the shop room

Using the CAD computer software, I placed drawings of each machine onto the floor plan of the shop room and moved them around. I considered a number of arrangements before finding one that looked best. This process proved most helpful when it came time to add the real machinery to the shop. However, in the course of using the shop for about a year, I have occasionally reshuffled the machines to fine-tune the layout.

The shop machinery is organized into four general work zones: two machine-tool areas, a hand-tool area, and an assembly area. Because the shop room is a relatively small area, most of the machines are on shopmade mobile bases so that they can be moved around to create more floor area as needed. The heavy tools, however, like the tablesaw, wood lathe, and metalworking lathe, are stationary.

### Wood and wood storage

Wood-storage areas often take up a lot of space. They also provide an attractive habitat for all kinds of animals and insects. To minimize such problems, I put my lumber racks, sheet-good storage, and veneer-storage crates in the adjacent outbuilding, along with a 12-in. sliding miter saw for cutting boards to rough length.

Solid wood goes into the shop as it is needed. So only a limited amount of wood is stored in the main building. Full-size plywood and other sheet goods are either cut to rough size in the courtyard or run through the tablesaw. In the future they will be done on a panel saw I plan to add in the outbuilding.

### Convenient accessories

I arranged floor-mounted dust-collection ports and power outlets adjacent to each other, creating a series of utility stations of sorts.

## ONE SHOP, TWO WORKSPACES

The two primary areas of the building are a shop room to the west and a design/multipurpose room to the east. Between them are a small bathroom and two closets—one housing the air compressor and one containing the dust-collection system. Because the compressor and dust collector are enclosed, Bellonby hears just enough noise to know that they're running.

### OFFICE

The design/multipurpose room has a 9-ft. ceiling with a storage attic containing a pump unit for heating and cooling. The attic is easily accessed via a ladder in the shop room.

### DUST COLLECTION

A central dust-collection system was designed with help from Oneida Air Systems. Starting the collector simply is a matter of opening the blast gate at the machine and then using a remote-control switch to start the system. The ducts run under the floor in the crawl space.

### WORKBENCH

The workbench is the center of activity for cutting and milling. It is placed in a relatively central location to allow easy access to the hand-tool cabinet, the router table, and the belt/disc sander. Near the workbench are wall-mounted racks for hardware and sanding supplies.

Whenever possible, I tried to locate the stations in areas that always would be likely places to put machinery, even if it all was rearranged some day. In general, this approach has worked out pretty well, although the stations can become obstacles when machinery is wheeled out of the way.

The compressed-air system was designed to include a port within 20 ft. of each machine. A port also is located at the dust collector and outside the building in the courtyard. That outside port gets a lot of use, as I prefer working alfresco for certain woodworking tasks, such as sanding. All of the pipes slope to a drain in the crawl space. It's important for the pipes to slope, because any water that collects at a low spot can wreak havoc with certain air tools.

The generous upper wall spaces, courtesy of the cathedral ceiling, are good places to put speaker mounts. And a television on a high shelf is welcomed at break time. □

Mark Bellonby is an architect and woodworker living in northern Virginia.

### WOODSTOVE

A small woodstove provides all the heat necessary for the shop room. For safety, the stove is not lit when Bellonby is using finishes or other flammable products.

### CEILING FANS

Four ceiling fans help move the air. Each one is mounted 10 ft. above the floor, so there is plenty of overhead clearance.

### AIR CLEANER

A centrally located air cleaner, suspended from the ceiling, helps remove airborne dust.

### LIGHTS

In the shop room, Bellonby opted for four large incandescent fixtures with enclosed housings.

### ROOF

The roof is a simple rectangle set on a framed wall. In the shop room, the roof rafters are supported at the ridge by a steel I-beam. Support for the I-beam is provided by a concealed steel column.

### SKYLIGHTS

Four skylights on each side of the roof let in lots of evenly distributed, natural light.

### PARTITION STORAGE SPACE

A 7-ft.-high partition next to the tablesaw provides convenient hanging space for tools and accessories as well as shelf space for wood storage.

### TABLESAW

The tablesaw is angled slightly to face the doors, which can be opened to accommodate the occasional extralong board that requires ripping.

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For a virtual tour of the shop, go to  
[www.finewoodworking.com/  
toolsandshops](http://www.finewoodworking.com/toolsandshops).