



## SUREFIRE STRATEGIES FOR SETTING UP SHOP

Here's what you need to know to set up a hard-working workshop in any of three different areas in your home.

People trying their hand at woodworking for the first time often have a lot of questions — and for good reason. There's a lot to learn. The first questions are almost always the same: Which tools should I buy, and where should I set up shop?

Choosing tools might seem intimidating because of the many choices that exist. But, for the most part, tools are easy to get your hands on. Manufacturers offer tools for most every task and budget. (We'll talk about the specific tools you should have in the next issue.)

Shop space, on the other hand, is tougher to come by. We all dream of having the perfect shop building — one that's custom-made for woodworking and big enough to hold every tool we want. But in the real world, we usually have to carve out shop space somewhere within the confines of the property we have.

For most of us, that means setting up shop in either the basement or garage. The luckiest among us may

# WORKSHOP NECESSITIES



**SPACE.** Your shop has to hold all your tools and supplies with floor space to spare for work areas. Think about headroom, too, because low ceilings and long boards don't always get along. If your shop lacks adequate space, consider whether areas nearby could be annexed for storage or jobs like assembly and finishing.



**WORKSURFACES.** You can't get much done without sturdy places to set your work. A traditional cabinetmaker's bench might be the ideal, but a basic folding workstation or solid-core door laid on sawhorses will work. Building a top for the table saw even makes it a suitable work surface, and a few clamps can "pinch hit" for a vise.



**ACCESS.** Shops have unique access needs. You have to get heavy, bulky tools in, as well as long boards and plywood sheets. A straight route in and a large doorway simplify this. Don't forget, either, that those projects you build will have to find their way out.



**LIGHTING.** Quality work requires good lighting. Fluorescent lamps provide economical shop lighting that doesn't cast harsh shadows. In specific work areas, add incandescent or halogen task lighting. For safety's sake, put lighting on its own circuit.



**POWER.** Woodworking tools use a lot of electricity. Big routers may draw as many as 18 amps, which will max out a 20-amp circuit. Table saws can draw even more. If you have only one shop circuit, you can't run another tool, like a dust collector, at the same time. You need at least two 20-amp circuits for outlets. Three is better. If your big tools (table saw, etc.) can be rewired to run on 220 volts, do it. They'll draw half the amps, leaving more power available to drive other tools.

have an outbuilding, or at least the space to erect one, that can serve as a dedicated workshop.

Each of these spaces comes with its own advantages. And, to be honest, there are some compromises. At right you'll find a quick overview of the pros and cons of each. In the next few pages, we'll talk in detail about specific considerations you'll face when setting up a shop in a basement, garage, or dedicated building.

Wherever it's located, your shop has to be equipped with some key necessities in order to function well for woodworking. A list of those appears above. Chances are that no prospective shop space will have all of these until you make some upgrades. Even a dedicated building may not offer everything you need, unless you've built it specifically as a woodworking shop. And you'll probably have to buy or build some items designed for the craft, like storage cabinets and a workbench. But that's half the fun of getting started in woodworking.



**STORAGE.** Shops quickly fill with stuff that takes over available work space. And without enclosed storage, everything gets lost or covered with dust. Storage doesn't have to be expensive. Use old kitchen cabinets or shop-built versions. Lumber requires solid racks to keep it flat and avoid damage from moisture.



**CLIMATE CONTROL.** Heating and air conditioning may sound like luxuries, but without one or both, you'll lose a lot of potential shop time. Plus, wide swings in temperature and humidity cause tools to rust and lumber to warp and crack. Cooling proves easy, but heating requires more care to guard against explosive fumes and dust that may get to a pilot light.



**VENTILATION.** Shop air also needs to be clean. Airborne dust can ruin wet finishes, not to mention your lungs. And some common shop solvents give off dangerous fumes. Windows are the easiest way to ventilate, or you can add an exhaust fan. Just make sure it has an explosion-proof motor.



**DUST COLLECTION.** The best way to create a clean shop is to capture dust at each tool, before it can escape to the floor or air. A shop vacuum works for some tools, but larger tools require a dust collector. You can roll a small collector from tool to tool. Or, run ducts to multiple tools and connect them to a central collector. Use a circulating air filter to get rid of tiny dust particles in the air.



**SECURITY/SAFETY.** A shop needs to offer a safe environment for those who use it and the tools it contains. Cut off power to tools if anyone besides yourself (kids especially) can get to them, and protect your investment with sturdy locks and adequate insurance.

## SHOP LOCATION PROS & CONS

	PROS	CONS
<b>BASEMENT SHOP</b>	convenient location, climate control, good security, easy access to electricity	restricted access, noise and dust get into house, can be damp, low headroom, dark
<b>GARAGE SHOP</b>	easy access, convenient location, isolated, ample space, storage options	requires electrical upgrades, shared space, reduced security, climate control issues
<b>DEDICATED SHOP</b>	can be customized, ample space, storage options, isolated	high cost, land availability, requires dedicated systems, may be hard to access

# BASEMENT SHOP

Some basements get finished and used as living space, but many are left unfinished and underutilized. If yours fits the latter description, it's filled with untapped potential. So why not turn at least some of it into a shop? After all, a basement comes already equipped with two of the most important — and most costly — necessities: climate control and electrical access. But a basement shop *does* pose a few unique challenges.



**Cramped Quarters.** Storage of household stuff eats basement space, as do “mechanicals,” such as the furnace and water heater. Plus ceiling heights are often 8' or shorter, which complicates material handling.

**Plenty of Power.** Most basements don't have enough outlets. But you can add them by tapping into your home's existing service panel. If no extra space exists in the panel, run a sub-panel to the workshop area.

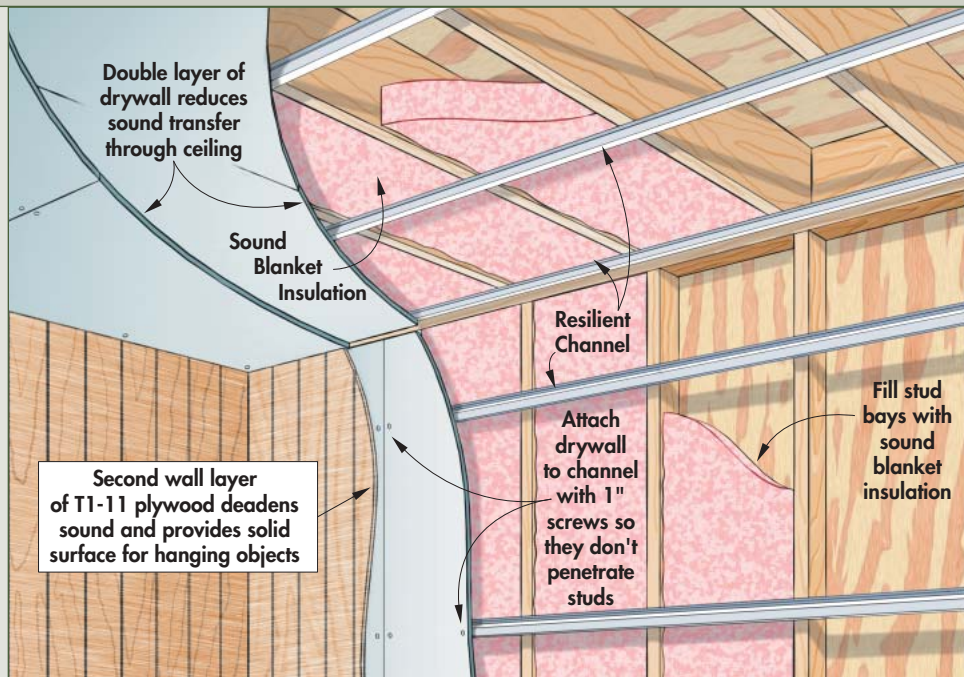
**High Security.** Few locations are more secure than a basement. The tools inside won't be seen by outsiders unless you invite them in.

**Awkward Access.** Getting tools and materials into and out of a basement shop is tough. Stairs are often steep with low clearance overhead. And they may be located well inside the home, meaning you have to negotiate corners just to get there. Walkout basements offer great access but may require you to trek through the yard to get to the shop.

**Low Airflow.** Because most basements have small windows, you should add an exhaust fan for effective ventilation. This is of primary importance in a basement, as dust and fumes can invade the rest of the home and pose a health risk.

**Comfortable Environment.** Most basements already have climate control from the home's existing system. To prevent dust and fumes produced in the shop from getting into the rest of the house, add filters to air-return vents in the shop.

**Keeping Warm AND Safe.** Dust and fumes that get into the house are annoying, but if they reach a furnace burner, they can be deadly. Don't build a shop in the furnace room unless the furnace is a “separated combustion” model that draws combustion air from outdoors. You may be able to enclose a standard furnace.



▲ Sound travels through walls as vibrations that can turn surfaces into giant loudspeakers. Layers and mass stop these vibrations from escaping.

## LOCK IN NOISE

A dust collector can keep chips and dust under control, but there's still no device that will suck up shop noise. Table saws, thickness planers, and shop vacuums often put out 80 or more decibels (dB) of sound.


This is a big problem in a basement shop because those noises invade living areas. Stopping them requires special measures.


To keep sound from escaping, install sound-deadening insulation in joist and stud bays. Then pad the studs or floor joists, or hang the drywall on metal “resilient channel” (see the *Illustration at left*). These methods isolate the drywall to stop vibrations from transferring through the wall.


To further deaden sound, add a second layer of wall material. This adds mass, which reduces vibration.


# GARAGE SHOP


In most homes, you won't find a better spot for setting up a woodworking shop than the garage. The garage's potential comes from its loads of open space and isolation from living quarters. Garages also have plenty of wall space on which you can build storage and work surfaces. Because the garage is a multi-use space, you will likely have to build in storage space for non-shop items and make tools mobile in order to park cars inside.


 **Wide Open Spaces.** Garages have loads of open area, and many feature ceiling heights of 9' or more. Of course, tools have to share the space with cars, but you can make even big tools portable by following the advice in the *Sidebar* at right.


 **Easy Access.** The overhead door makes access easy because you can back your load up to (or into) the shop. Add a passage door so you can get in and out easily, too.


 **Vast Ventilation.** Once again, a large door proves its worth by allowing unlimited ventilation. Since you may not want the door open at times, though, add windows.

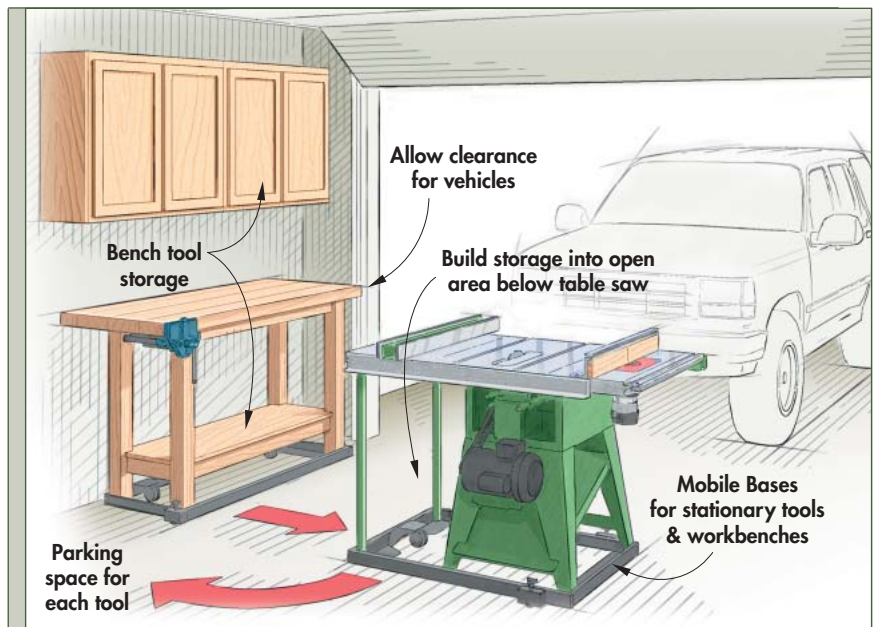
 **Full View.** An overhead does compromise security by showing all of your tools to every passerby whenever you open the door, especially if your garage sits close to the street. Protect your shop with sturdy locks and blinds.

 **Access To Power.** Many attached garages house the electric service panel for the home, so you can tap into it to add shop circuits. If your service panel is full, located elsewhere, or the garage is detached, then run a feed line to the garage, and install a sub-panel to power the shop.

 **Few Outlets.** Garages (detached especially) have minimal electric capacity. You'll have to run wires from the service panel to power outlets and tools. Be sure to use heavy-gauge wire and high-quality 20-amp receptacles.

 **Add Lighting Easily.** Most garages are lit with just a bare bulb or two, but you can easily swap those fixtures for fluorescent units that will fully light the space. In cooler climates, make sure to get fixtures with electronic ballasts that will still work at low temperatures.

 **Control the Climate.** Even an attached garage may not be heated or cooled. A window air conditioner makes cooling easy, but heating requires more care. For safety, any gas heater in the shop should have separated combustion. Or use an electric unit. See the *Sidebar* on page 5 for more information about shop heating.



▲ You can have a fully functional shop and garage in one building. Make tools and shop fixtures mobile, then designate "parking" space for each one.

## MOBILITY BRINGS **VERSATILITY**

When woodworking tools move into a garage, cars, yard equipment, and bikes often get evicted. Or those items take over and bury the tools.

But putting a woodworking shop in the garage doesn't mean you have to clear everything else out. I've had a garage shop for years that functions very well and still allows space for all the other stuff. No, I don't have a huge building. I simply have wheels under many of my tools, as shown in the *Illustration*.

With these wheels, I can "park" tools around the perimeter of the garage, and roll them into place when needed. I take over both stalls for elaborate projects, or use just one and keep my wife's car in the other.

How you mobilize is up to you. Commercial mobile bases are available either custom-sized for particular tools or in "universal" styles that you customize. You can fit a mobile base to a workbench or other hard-to-move shop fixtures, though you may have to modify the base.

Shop-built mobile bases present another great option. Designing your own bases lets you customize them to meet your needs. When possible, build in storage to keep related tools and accessories together.

# DEDICATED SHOP

Every woodworker dreams of having a stand-alone shop building where he can work on projects without interference. If you're lucky enough to have an extra building lying around, or if your property offers space for one, you can build a shop with fewer compromises than one located in the basement or garage. Building a dedicated shop takes a larger investment, though, because it requires dedicated systems and more construction or finish work.



**Single-Use Space.** A dedicated shop offers more than space — it allows you to position your tools for efficient work flow, and leave them and your projects undisturbed.

**Storage Options Abound.** I haven't talked much about storage, simply because you'll have to build it in wherever your shop is located. But a dedicated shop allows the most freedom for building in storage.

**Controlled Access.** Dedicated shops accept overhead and passage doors, giving you many access options. The site will dictate whether you can reach the building with a vehicle.

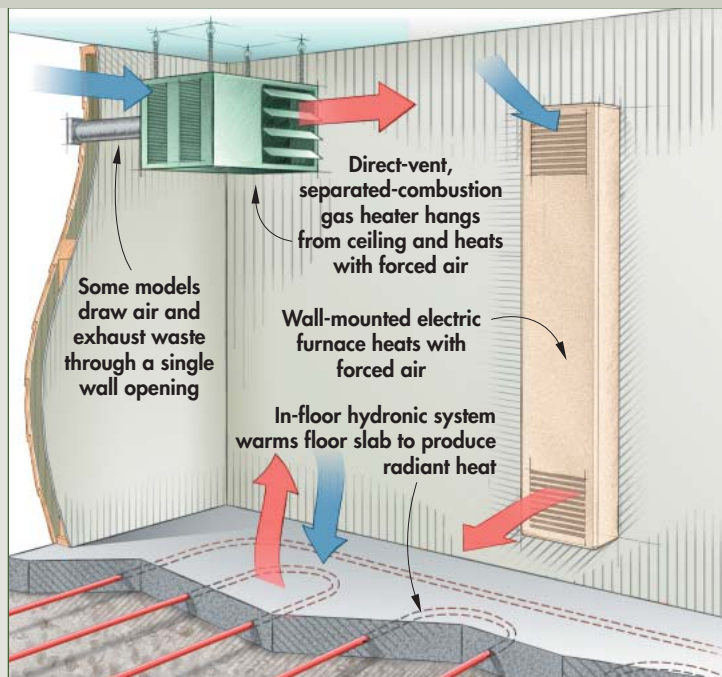
**Sort Out Security.** It's tougher to monitor a shop that's not located in or next to your house. So install strong doors and windows secured by good locks. An inexpensive alarm system adds peace of mind.

**Make It Bright.** Install windows to allow natural light in your shop. Then add fluorescent overhead lights and incandescent task lights. Put lights on their own circuit, so they won't shut off if a tool trips a breaker.

**Climate Control Adds Cost.** A dedicated building requires its own heating and cooling systems, which increase construction costs. Cooling a

shop is easy — just use a window air conditioner. Heating gets more involved, but a variety of systems exist that work very well in a shop environment (see the *Sidebar below*). Be sure to seal all gaps, insulate, and install vapor barriers to make the climate control system efficient.

**Ducts Control Dust.** Locating tools "permanently" makes dust collection more efficient. That's because you can run rigid duct to tools and rely less on suction-robbing flexible hose. Plan for dust collection as you plan your shop layout to ensure adequate capacity and ducting without too many twists and turns.



▲ In-floor hydronic heating systems provide great shop heat, but have to be built in. The others retrofit easily.

## WHAT'S COOL IN HEATING

Winter has long been designated "woodworking season." So you'll need a heating system if you don't live in a warm climate. A space heater may be adequate, or you may have to install a more powerful system.

I've known many woodworkers who heated their shop with a wood-burning stove, often stoked with scrap wood and "mistakes." But you have to tend the fire while using the shop and are left with no heat at all when the shop isn't in use. Plus, you usually have to increase insurance coverage if you have a wood-burning stove.

Thankfully, gas and electric heating systems well-suited to workshops are commonly available. Both types come with compromises.

A gas system requires that you run lines or install a propane tank. This increases construction costs. But gas heat is efficient and usually cheaper than electric. Electric heaters cost more to run, but cost less to install. **Note:** 220-volt heaters are more efficient than 110-volt units.

Whichever system you choose, add a thermostat, so you can heat the shop just enough to keep the interior above freezing when the shop isn't in use.