Small professional theater companies and up-and-coming civic theaters eventually reach the point where a few painted flats onstage no longer adequately serve the theater's artistic vision. Improved production values always enhance the audience experience, but a scenic design will only be as good as the tools available to make it come to life. A modest investment in a theater scene shop can increase quality, encourage safe practices and allow shop volunteers and technical staff to participate more fully as artistic professionals in the creative process. Although we may always look back fondly on the days when scenery was built piecemeal by an eager volunteer core with tools from home, theater organizations will appreciate the benefits of taking that first big step toward professional scene shop operations. The suggestions outlined here are based on a shop staff of four to six people working together, and do not include scenic painting needs.

Choosing between essential equipment and less necessary "toys for technicians" can be difficult, and budget issues usually complicate the scene-shop planning process. The versatility and smooth operation of some higher-priced items are well worth additional investment, while other equipment might wait until a later shop upgrade is more practical. Although expenses will vary from place to place, discount tool distributors online (www.tonsoftools.com, www.maxtools.com and www.amazon.com) offer competitive prices with free shipping for large orders, and contractor discounts are often available for nonprofit organizations at building supply dealers.

**Basic Tools**

Simple hand tools are the foundation of any well-planned scene shop. Scenery construction may not require the superior equipment used by today's high-tech automotive mechanics, but a good theater technician wants to avoid poorly manufactured tools. Middle-of-the-road choices are adequate for stagecraft and are less costly to replace when tools are lost between shop use, scenery load-in activities and onstage repairs. However, avoid cut-rate merchandise when choosing layout tools, such as levels, squares and measurement devices.

If money is especially tight, choose specific tools in frequent use over the attractively priced packages featuring equipment the shop will never need. For example, a budget-conscious shop manager may notice how scenery construction rarely calls for the extensive selection of wrenches available in some prepackaged kits, but very frequently requires 7/16", 9/16" and 1/2" sizes. The selection of hand tools on the list of essentials contained in the sidebar on page 51, should get a new scene shop started for about $500 to $700.

**Handheld Power Tools**

A financially comfortable theater company can easily stock many helpful timesaving devices from the countless small power tools on the market, but more conservative budgets require careful choices. Several reasonably priced items are virtually indispensable for quality stagecraft. Cordless drills are an absolute must for fastener installation and efficient drilling, and a 14-volt size offers adequate strength in a good size for easy handling while climbing ladders and crawling under odd-sized platforms. A cordless drill with
a charger and dual batteries allows almost continuous use when batteries are repeatedly swapped during long load-in or construction days. A corded 3/8” hammer drill with a side handle is less convenient but helpful for steel drilling and heavy-duty applications.

A shop can sometimes get by with only two electric hand saws: a good 7-1/4” circular saw for straight cuts and a construction-grade scrolling saw or jigsaw for curved cuts and detail work. The tools necessary for finishing work before painting include an oscillating palm sander and a 3” belt sander. A small router is ideal for making sheet goods flush to their frames and splinter-free. A router can also cut floor grooves for tracking scenery and, when mounted to a simple shopbuilt router table, opens up possibilities for creating custom molding and other decorative items. The collection of handheld power tools described here will cost between $800 and $900.

**Stationary Power Tools**

A few stationary power tools will bring new levels of efficiency and accuracy to the shop. Stationary tools are the most expensive individual items of a shop upgrade, but this is one area where extra expense will be rewarded many times over by product quality and performance.

Home-size or hobbyist table saws should be avoided for scene shop use. Select a
durable contractor-grade model with a 10-inch blade and five-horsepower motor, and if possible, choose a left-tilt blade to prevent material tearing out or binding during cutting. A professional five-horsepower table saw and accessories may cost between $2,000 and $2,500. Although three-horsepower table saws are less expensive by about $500, five-horsepower models are much safer and more efficient for cutting lengths of 2x4 and other thick lumber.

Precise cross-cutting of board lumber and narrow pieces of sheet lumber requires more than a steady hand on a circular saw. Although radial arm saws are often used for cross-cutting lumber, many scenery technicians prefer the more versatile and considerably more precise sliding compound mitre saw. Radial arm saws require careful alignment to avoid the potential dangers of the blade binding in lumber, a far less likely problem for mitre saws. Many sliding compound mitre saws cut lumber up to 12" wide, with the added benefits of horizontal and vertical angle cuts made simultaneously if necessary. A good model might cost between $350 and $400, while a radial arm saw may cost two or three times as much.

Consider purchasing a drill press if the budget only allows a few stationary power tools. A floor-standing model with accessories should cost less than $500 and allows rapid, accurate drilling of wood and metal.

**Valuable Luxuries**

Other stationary power tools include a bench-mounted belt sander (a 1” belt sander is surprisingly versatile and relatively inexpensive), a band saw for delicate curves and a stationary grinder with a wire wheel. When financial resources allow, consider a commercial-grade air compressor and several pneumatic tools. A narrow-crown stapler and a framing nail gun can increase the speed and efficiency of platform and flat construction by 50 percent, and a pneumatic brad nailer can help with everything from lightweight props construction to parquet-style flooring. All three tools, air hoses with connectors and a 10-gallon air compressor will...
THEATER SCENE SHOP ESSENTIALS

HAND TOOLS
Four 24' tape measures
100' tape measure
Carpenter square
Combination square with 45 and 90 degrees
Snap chalkline
4' level
Small torpedo level
Claw hammers
Phillips and flat screwdriver sets
Hex key (Allen wrench) set
Nut driver set
Socket wrench set with extra socket wrench ratchet handles
Extra 7/16", 1/2" and 9/16" sockets (regular and deep sizes)
Two adjustable wrenches
Channel lock wrench
Combination wrench set
Large and small pliers, including needle nose pliers
Diagonal cutter
Locking gripping pliers of various sizes
Wood and metal file sets
Wood chisel, cold chisel and punch sets
Mat knives
Drill index with drill bits
Paddle drill bit set
Industrial staple gun
Flashlights
Hand saw
Hacksaw
Bar clamps, 5' and 9' sizes
Eight large and eight small C-clamps

STATIONARY POWER TOOLS
5-horsepower table saw
Sliding compound mitre saw
Drill press

HANDHELD POWER TOOLS
Two 14-volt cordless drills with dual batteries and chargers
Heavy duty corded hammer drill with side handle
Circular saw
Scrolling jigsaw
Router
Oscillating palm sander
3" belt sander

MISCELLANEOUS NECESSITIES
Industrial first-aid kit
Face shields or safety goggles
Adjustable height roller stands
6' folding ladder
12' folding ladder
Push broom and whisk brooms
Small bench broom
Dustpans
Rolling mop bucket and mop

cost about $800. If custom furniture construction is anticipated, a shop will need to invest in more expensive equipment such as a lathe, a planer and several quality finishing tools.

Although lumber and fabric continue to be the mainstays of scenery for small theater companies, steel has become an increasingly popular scenery construction material in the past few decades. A start-up welding equipment package includes a MIG welder (a flux core setup is usually less expensive to operate than a gas-shielded welder), a stationary abrasive saw, a handheld grinder, a welding helmet, gloves and a protective welding jacket. Although the total cost may equal up to $1,200, the strength, lightweight feel, flexibility and cost-effectiveness of steel construction may justify this expense if the technical staff or volunteer pool has welding experience.

When planning a scene shop upgrade, arrange a lockable storage cabinet or closet to protect your investments, as tools have an unsettling habit of wandering away if not secured at the end of every work shift. Make sure your annual budget includes funds for hardware, replacement parts and consumable materials, such as sanding belts, wood glue and power-screwdriver bits. Operating a professional scene shop will result in some ongoing expense, but when the audience and the theater company experience higher quality in scenery and operations, the old adage “you get what you pay for” becomes delightfully relevant.

Erik Vikers is assistant professor of theater and technical director at Susquehanna University, and a freelance production manager.