

# Getting a handle on your materials



The Gillift from Telpro can be used not only to roll a completed piece around a work site, but can also lift it into position and hold it in place for installation.

Proper materials handling and organization will save you time and money

By Kim Carleton Graves  
with Masha Zager

**“W**ork like a weak man, not a strong man, and you’ll get more done.”

I learned that first lesson in materials handling in my teenage years, from a crusty old carpenter. Helping him build a deck one hot summer afternoon, I was struggling to off-load a truck by myself.

“Ask for help,” he said.

In “Go with the flow” (Woodshop News, Aug. 2002), I showed how to place your tools so they will be right where you need them as the materials move from intake through finishing. The other half of efficient work flow in the shop is moving the materials themselves through the process.

Paying attention to materials handling has several important benefits:

*It reduces complexity and risk.* Whether your project is a kitchen, a case, or a set of chairs, it has lots of parts that must be tracked from beginning to end. If you handle your materials well, tracking them will be simpler and you’ll be less likely to make the parts incorrectly, lose them or damage them.

*It increases accuracy and efficiency.* Simpler methods are more accurate and efficient. If you only have to set the fence once to make all your 12" rips, you save a lot of time. If you keep all the bookcase sides in one place, you can drill shelf pin holes without having to look for parts. And, if you make fewer mistakes, you won’t have to remake so many parts.

*It’s safer.* Working more efficiently is inherently safer. For example, using techniques and tools to lift, lower and move materials puts less stress on your body.

The general rule for materials handling is: Look for ways to handle materials as few times as possible. Every time you touch a part, there’s a chance you’ll damage it. If you touch the material twice while milling it into a useable part, and you only needed to touch it once, you’ve doubled the risk.

## Planning ahead

Woodworking is about taking in raw materials, cutting them into many smaller parts, and reassembling these into larger parts. It’s a manufacturing process with a beginning, middle, and end — a process that requires planning and control.

It’s a good idea to start thinking about materials



A lateral cart, like the one shown on the right from ShopCarts USA, allows panels to be arranged vertically, making them easier to access; ShopCarts USA’s Panel Handler can transport sheet stock vertically, and then be tilted flat to function as an infeed table at a machine.



Roller stands come in a variety of forms to help move material into and out of machinery. The rollers on the Shop Fox tilting roller stand can be set into a V-shape, as shown, or flat to better accommodate workpieces. HTC Products' portable conveyers can be placed at machines as needed for both infeed and outfeed chores.

handling at the very outset of a project, during the design stage. Once you've completed your drawing, you can make three lists: one for materials, one for parts, and one for the sequence of operations. If you take the time to make a drawing and these lists, you'll be way ahead of the game because you can avoid most mistakes just by changing the sequence of operations.

I like to put my cut list into a spreadsheet so I can sort it as many ways as I need to. If I have a bunch of 24"-wide parts, sorting the list can tell me how many rips I need to make so I won't miss any parts.

### Getting the goods into the shop

I'll use sheet goods in the following examples, because the problems they pose are so obvious. However, most of the principles illustrated apply to solid wood and other materials as well.

The first issue is getting panels from the curb into the shop. Panels are heavy — A 4x8 sheet of MDF weighs 96 pounds! — and awkward to maneuver. If you don't have to lift them, you shouldn't. At best you risk bumping and damaging them. At worst, you or one of your employees could be injured. A small



The Panel Skate from ShopCarts USA can carry several panels vertically. The large wheels go over bumps easily, and can be maneuvered by one person.

shop can put panels on carts or use products like Panel Skates, Trolls, or dollies to wheel them in the door. There are also products, essentially handles with extensions on them, designed to help you carry panels, but I don't recommend these. They still make you "act like a strong man."

For larger shops, specialized carts are available in prices ranging from \$100 to \$1,000. I use the Panel Handler made by ShopCarts USA, which can hold up to 10 panels at a time. The deck swivels to horizontal for unloading the truck, then swings back to vertical so you can transport the load through a crowded shop. In its vertical position, the Panel Handler fits through a 30" doorway. Since you can raise and lower the deck, the Panel Handler can double as an infeed table to a table saw, letting one person easily feed the saw.

Offload panels directly onto the carts you'll use to transport the materials into the shop. Make sure the panels are loaded in the reverse order of processing — digging through a pile of sheets to get the one you need can be a painful exercise. The panels should also be oriented the way you want them and, for sequenced-matched panels, the sequence should be correct. Lay the panels on the cart with the good sides up or down, as you need them (if they're heading for the table saw, the good side is usually up). Finally, check the materials against the materials list as you unload them. If you have an inventory control program, update the inventory.

If you need to store the materials before using them, maintain the order and orientation you've already established. However, it's better to avoid storage altogether. Just-in-time delivery is better for your cash flow and lowers your expenses. Also, the less time the material is in your hands, the lower the chance of damage or loss. Let your vendors store the materials until you need them.

### Rough dimensioning

Cutting up sheet goods accurately is a serious challenge. First you have to get the panels up onto the machine. Then you have to support the panels as they're being processed. Finally, you have to get the workpieces off the machine again in a controlled manner.

Larger shops may use machinery designed to support full-sized panels such as CNC routers, beam saws and large sliding table saws. To feed the saws, they use either manpower, or something like the Panel Handler or a scissors-type lift.

The machines found in smaller shops need adequate infeed and outfeed surfaces to support the pan-

els as they're being cut. A small table or rollers are the most economical solutions for infeed. For outfeed you can either build your own table or buy aftermarket rollers.

American manufacturers are now beginning to offer aftermarket sliding tables to support panels on a 10" saw. Some of these tables lack the capacity to process a full sheet, and force you to remove the fence in order to rip. The poor man's alternative is a shop-made table saw sled.

As the dimensioned workpieces come off the saw, orient them properly and mark them for orientation and part number. High-end shops sometimes use bar-coded tags for parts-tracking and inventory control. The tags are printed as the workpieces come off the CNC machinery. Smaller shops can simply number their parts to make inventory and tracking easier.

For example, if you're building a kitchen you might number the cabinets No. 1 through No. X (where X is the total number of cabinets), then identify for each cabinet the left side, right side, back, bottom, top and shelves. I use a triangular witness-marking system that gives me that information at a glance (see sidebar). Keep a felt-tipped marker, lumber crayon or pencil in your pocket, and mark the workpieces one at a time as they come off the saw. Don't let a pile accumulate

## An easy marking system

To make a project with many parts you need a way to mark the parts so that you can see their orientation at a glance, and so you can track and inventory them without repeated measuring. There are a number of methods for marking parts, most of which I find difficult to remember. To make it easier, I use a system that involves drawing triangles on the faces of the workpieces. Triangles are easy to recognize, and you don't have to try and read your own or someone else's handwriting.

The rules of the system are simple: The triangle always points either up (for elevation view) or toward the back of the piece (for plan view); each workpiece must have at least two lines of the triangle on it.

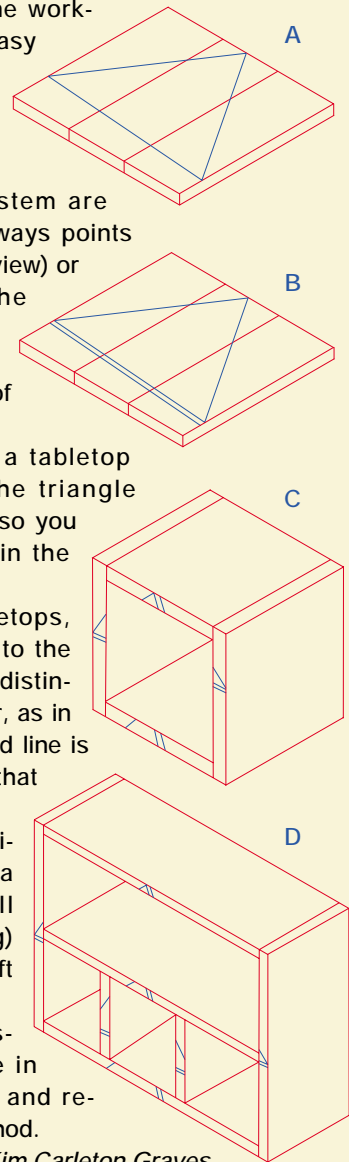
Diagram "A" shows a tabletop with three boards. The triangle spans all three boards so you can reassemble them in the order you want.

If you have two tabletops, just add a second line to the base of the triangle to distinguish one from the other, as in "B." Note that the second line is added next to the line that crosses all three boards.

Diagram "C" is a cabinet (the second one of a group, as you can tell from the double marking) with top, bottom, and left and right sides marked.

More complicated assemblies, like the one in "D," are easy to mark and re-assemble using this method.

— Kim Carleton Graves



A panel "Troll" from Telpro can help maneuver both panels and doors.



Author Kim Carleton Graves trims a panel using a Panel Handler as an infeed table (partially hidden) and outfeeding directly to a parts cart. Notice the cardboard used for protecting the panels. Storing panels vertically allows for one to be removed without disturbing the others.

and then try to mark them afterwards.

Arrange the workpieces on your cart so you can reach any one of them without disturbing the others. Stack panels vertically, like books on a shelf. This way you can take one out to work on it and replace it without moving the whole stack. Orient the pieces so they anticipate the next processing step. For example, if the next step is edgebanding, stack the pieces with their outside edges facing outward and tops facing up, and label them on top. This will protect the outside edges, make it easy for you to identify and inventory the parts, and save you from having to turn the piece around to find the edge you

want. This system will help you avoid mistakes. It also speeds up processing because it lets you handle each piece the same way.

Protect your parts as you go. If you're working with woods, such as cherry, that can darken with exposure to the sun, cover the parts with a tarp or moving blanket.

When you design your shop, make sure you leave enough room for materials to flow between the workstations. If you don't, parts can be damaged in transport. Remember that you can move materials over and under obstacles as well as around them!

### Creating the parts

Every operation has an input and an output, so you'll need an input cart at the beginning of the process and an output cart at the end. As finished pieces come out of the process, arrange them on the output cart in a way that anticipates the next step. Carts also encourage you to do operations in a linear fashion — edgeband all the pieces; crosscut all the pieces; drill all the shelf pin holes. Repetition brings speed and efficiency.

If you don't have room in your shop for carts, or if you can't afford them, use other methods of organization. Once, making a set of chairs in a much smaller shop, I used some simple plastic garbage pails to organize my parts.

Carts come in all shapes and sizes, but I prefer parts carts that are at work height because I don't have to bend over to pick up the part. Low carts and dollies are better for moving finished pieces, because their center of gravity is low.

### Putting it all together

Once all the parts are created, as-



Moving equipment can sometimes increase efficiency for materials handling. This Shop Fox mobile base is adjustable to fit on a variety of ordinarily stationary machines.

semble them in a way that minimizes how much you have to move the finished piece. For example, when you're putting together kitchen cabinet boxes (assuming the materials are prefinished), first install the drawer slides and hinge plates. Then assemble the box, attach the doors, put in the drawers and shelves, install the drawer fronts, and move the completed box off the bench and onto a dolly. This way you only have to move the full weight of the cabinet once, and gravity is in your favor. Then you can wrap the cabinets with paper, install cardboard corners, and blanket-wrap before moving the cabinets off the bench, and they are protected while they await shipment.

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#### Moving finished work out the door

Use blanket wrap, bubble wrap, cardboard, crates or whatever you need to adequately protect your product before you move it. You have a lot invested at this point. Repairing damage is expensive in both time and money. Even if you're just moving the piece from the garage workshop into your front hall, protect it. Vans and panel trucks are better than open pickups for delivery.

Move the piece around on dollies. If it's already on the floor, you can't drop it any farther. Keep it protected as long as possible with blankets. If other work is going on at the installation site — plumbing in a kitchen, for example — schedule your installation at the last possible moment so the other trades won't damage your work. After installation protect the work from the other trades. Wrap your cabinetry in construction paper to keep it clean. Pad exposed corners so they won't be dinged.

Installing cabinetry and furniture is difficult. The pieces are heavy and fragile until they're set in place. Use lifts and jacks for cabinet installations. Tricks of the trade include putting up a temporary 1-by as a sill on which you can rest the bottom of uppers until they're secured to the wall. This is hard work to do alone. Many installers work in crews of two or even three, so they can "ask each other for help." ■

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The following sources were men-

tioned in this article:

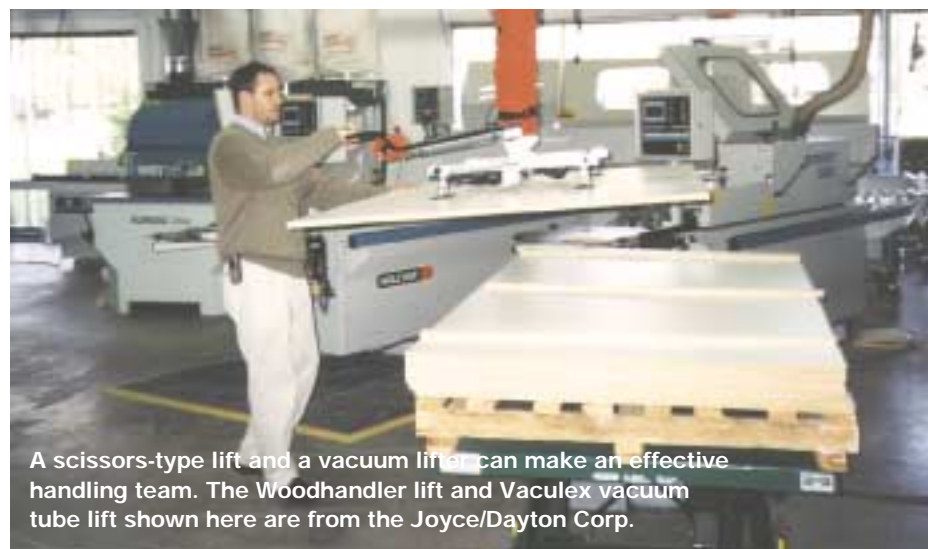
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ShopCarts USA, P.O. Box 5183, Topeka, KS 66605. Tel: 800-235-2302. [www.shopcartsusa.com](http://www.shopcartsusa.com)

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A scissors-type lift and a vacuum lifter can make an effective handling team. The Woodhandler lift and Vaculex vacuum tube lift shown here are from the Joyce/Dayton Corp.