



MOVING YOUR LIBRARY

← GETTING THE COLLECTION
FROM **HERE** TO **THERE**

**STEVEN CARL
FORTRIEDE**

Steven Carl Fortriede retired as associate director of the Allen County Public Library in Fort Wayne, Indiana, after more than forty years in the library profession. Fortriede received a BS in education from Ball State University and an MLS from Western Michigan University in 1971. A year later he was assigned, rather abruptly, to move his first library. Since that time he has directed, or consulted for, more than twenty moves for libraries ranging from a few thousand to nearly four million items. He has also been responsible for many space planning and library design projects.

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Selecting a Method

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Chapter

Early in the planning process, you must decide how you are going to transport your books. Detailed instructions for each method are included in later chapters. Here I provide a general overview to help you make your initial decisions.

At various times I have used five different methods to move library materials: stack movers, human chains, boxes, book carts, and move carts. The first two have specific, limited uses.

STACK MOVERS

Stack movers can be used to move an entire range of stack, without removing the books. Each mover consists of a vertical arm with a clamp at the top and wheels on the bottom. A stack mover clamps to each upright. A jack on each mover lifts the entire range just enough to clear the floor. The range can be moved, carefully, and jacked back down to allow the stack movers to be reused on another range. Stack movers are incredibly efficient but are limited to moves on a flat floor, with no doorways shorter than the stacks and no corners tight enough that the stack cannot be turned. They are most often used in recarpeting operations where the stacks are all moved out of the way, then returned once the new carpet is down.

Several companies can supply stack movers for rent. Some also supply an operator or foreman.

HUMAN CHAINS

For small, short moves, consider using a human chain. Line up a group of volunteers and pass the books down the line one handful at a time. I know of a church library (approximately 3,000 volumes) that moved into a new room about 200 feet away using this method. It took about forty volunteers and less than two hours.

I have used the method several times to get books up or down stairs where no elevator was available. We looked at all sorts of conveyors, sleds, temporary lifts, and many other “labor-saving” ideas. In the end, the human chain has always been the easiest and most reliable solution. By the time you buy or rent the equipment, pay someone to set it up and sometimes to run it, modify the building as necessary, get the books to the starting point, provide power or fuel, and deal with mechanical breakdowns or just unfamiliar equipment, the time, expense, and uncertainty can exceed any savings.

Turn on some music. Get up a pool and give a prize to the person who comes closest to guessing the fastest time the crew can move enough books to fill one cart or a stack of boxes. Encourage chatter. Call out when a book is extra heavy or slippery. Make it as much fun as you can, so it isn't boring beyond belief. I did one job bringing 50,000 books two flights down a circular staircase in a Victorian mansion. It took two and a half days, in August, with no air-conditioning. The camaraderie was incredible! At the end, the crew was begging for more.

The problem, of course, is that a chain, even the human kind, is only as strong as the weakest member. There is also the problem that the chain cannot operate at all if any one member is not present.

If the move is a large one and there is no elevator, you may have to use a lift, conveyor, or slide. The larger the move, the more cost-effective such assists can be. The cost of acquiring and setting up the equipment and any building modifications is spread over a larger number of books. If you use a lift, get someone familiar with its operation to set it up, certify its load-bearing capacity, and make any necessary building modifications.

A conveyor is more expensive than a simple slide, but it is a preferred option. A conveyor controls the speed of descent and can be run in reverse in case you have to move empty boxes back to an upper level. A conveyor can be used to move single books to be loaded onto a cart. Doing this with a slide is much slower; you cannot start one book down the slide until the previous book has been removed. To send boxes of books down a slide, you need a long, flat runout area at the bottom, or you can place a piece of carpet or other high-friction material at the bottom of the slide to slow the boxes. I have never tried a slide, but I have seen others do it.

BOXES

Simple, right? Just box up the books and move them. Let me try to talk you out of it:

- Carts are heavy to push, but boxes are heavy to lift. Over the course of a day, I can push much more than I can lift.
- You need to take extra care in planning the move to reduce the number of times you have to stack and restack boxes. Every restacking introduces the possibility that they will get out of order.

- Boxes are hard to come by, unless you need only enough for a small collection. If they are too big, they are hard to lift; if not all the same size, they won't stack well; if not strong and well made, they fall apart. If you buy good, strong boxes, they are relatively expensive.
- Boxes require hand trucks, dollies, pallet jacks, or some other conveyance to move them. It may be more difficult and expensive to assemble these items in sufficient quantity than to buy or rent carts.
- If you try to pack boxes full, the books get out of order; if you pack them with the books standing up, as they would be on the shelf, you have a lot of wasted space in each box.
- If you use volunteers or nonlibrarians to pack, it is relatively difficult to monitor how well they keep the books in order in the boxes.

This is not to say that boxes don't work. They do, and for collections up to 10,000 volumes or so, that may be the way to go. I have moved many libraries with boxes, most of them much larger than 10,000 volumes.

There is one circumstance where I do recommend boxes: if you need to store books for a length of time, boxes, properly constructed and stacked, work effectively. See chapter 12 for suggestions for storage of books in boxes, including the specifications for a professionally engineered cardboard box storage system.

If you do decide to move with boxes, there are several things to think about:

Box Types

Boxes for moving books must be strong; easy to lift and carry; have a closed top; and, above all, be all the same size. The strength of a box comes from the cardboard material itself as well as the method of construction. The strength of cardboard is measured by its "crush weight." A box for moving books should have a crush weight of at least 230 lbs—enough to hold the weight of the books and allow the boxes to be stacked.

The method of construction also affects the strength. A box that is folded up and simply glued is least strong (figure 3.1, left). The flap can tear loose under stress. The figure shows the most common type. A box with the end panels glued and reinforced with heavy-duty staples is much stronger (figure 3.1, right).

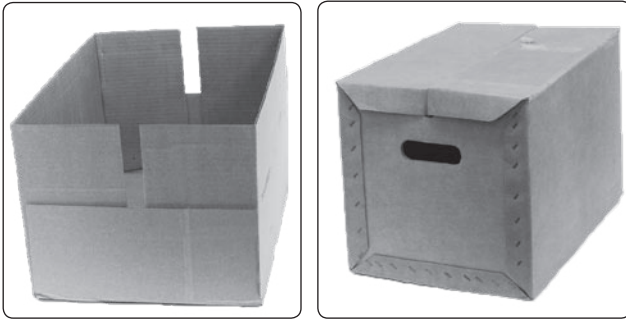


Figure 3.1 (left) Glued edge can be a weak point. (right) Stapled boxes are very strong.

Most boxes are made with either two or four hinged flaps for the top or bottom. Once you have formed the box, you fold in the bottom flaps and tape them to hold the shape of the box and provide strength. Use a good-quality plastic or thread-reinforced strapping tape for the purpose. Masking tape is not strong enough. Duct tape is expensive and tends to pull loose and roll at the ends.

The strongest boxes are simply folded, made with no tape or glue at all. These boxes have a double or triple end panel that takes the weight when they are lifted. The long side panels of these boxes can pull apart slightly, but they slip back into position when you add weight. The downside is that these boxes require a separate lid. The time you save folding the box is consumed by making the lid. The lids can be designed so that they can be folded together without tape. If you are borrowing boxes or having them donated, you must take what you can get. If you are having them made to order, this triple-wall, no-tape box is the one I recommend. Drawings are included in appendix A.

Boxes must be easy to lift and carry. Several things work together to make handy boxes. Size is one. You must be able to grasp the box comfortably at the ends. A box 16–20 inches long is about right. You get the most lifting power when your arms are shoulder-width apart. If you have to spread your arms to lift a longer box, you have to work harder to make the lift. If you are trying boxes on for size, remember, it's not the first one you need to consider, it's the five hundredth. Yes, you can lift a bigger box, but can you do it all day?

One dimension of the box should be at least 11½ inches, inside capacity; 12 inches would be better. The normal maximum height for books not considered oversize is around 11¼–11½ inches. You want the box that can enclose that size comfortably. The other dimension

can be as little as 9½–10 inches. If you have a choice, make the 11½-inch dimension the height of the box so that the books can stand on end.

If you do have a lot of oversize books, you may want to get some larger boxes. Keep the 16- to 20-inch length limit, but make the boxes up to 17 inches tall by 13 inches wide. You may have some books even larger than this, but we have other ways to move those.

Resist the temptation to use a larger box. When we load the boxes, we want one row of books, standing on end just as they are on the shelf. We don't fill up the rest of the space with loose books, because it takes far too long, and too much library knowledge, to sort them back into order.

A handle is another requirement. You can pick up a solid box under the bottom, but a handhold cut into each end makes the job much easier. You can also use the handhold to drag the boxes without lifting them. When the manufacturer cuts the handholds on single-wall boxes, the cutout piece is usually left attached, hinged at the top. You fold this piece back into the box as an extra layer of protection for your fingers. Die-cut cardboard is sharp. It can give you a paper cut that will make a slice from bond paper seem like a mere nick. This is why I recommend you buy leather gloves for the box makers.

Another advantage of the triple-wall, folded box style is that the additional thickness of the end panels provides a much stronger and less sharp handhold than a single-wall box.

Third requirement is the top. A good integral top requires four hinged panels, one from each side. The two end panels fold down first and provide some support for the side panels. If you have only the two side panels, they slide down inside the box and provide no support at the top. You do not need to tape the top of a four-panel box. It provides sufficient support with the tops just folded into place. For additional support you can interlock the top. Fold down one side panel—always start with a long side—then an end and the other side (figure 3.2). Then lift up the open end of the first side panel, fold down the last end panel, and tuck it underneath. This top may not be flat and may cause a stack of boxes to lean or topple.

Separate lids can be strong and are flat. They also have the advantage that, if a book sticks up slightly above the top of the box, the lid can ride up with it and still stay flat and provide support. On the other hand, the lids have to be made up separately, and every time



Figure 3.2 A box top folded like this is not flat. A stack of them may topple.

you reuse a box you have to return the lid as well as the box to the original building, effectively doubling the workload.

The fourth requirement is that all of the boxes must be the same size so that they stack and move easily and the stacks don't topple. Note, though, that for a very small library—7,000–10,000 volumes or less—you could just use whatever boxes you can find. The effort to collect identical boxes is not worth the return, and, if something gets out of order, it is not that much trouble to fix it.

Box Sources

Plastic milk crates work. They are a bit small, but they are enormously strong, have great handholds, and stack solidly if you do not overfill them. You might have to use some creativity to figure out how to put a card pocket on one. I've never used them, so I can't help you there.

You could save up the boxes from your book supplier. These are strong boxes, but they do not have handles and you have to do a lot of sorting to get enough boxes all the same size.

You might ask your book jobber to give you enough boxes for the move. Mention that your move is bound to attract publicity; newspapers and television love to show pictures of books being moved, and, of course, all of the boxes will have the jobber's name on them.

Think about local manufacturing and shipping companies. Most packing boxes are not heavy enough, so try

to think about a company that manufactures something or receives components that are fairly heavy for their size. Mention the publicity thing.

Several companies rent a form of plastic crate that is advertised for moving books (figure 3.3). I find these less than ideal. They work best in a situation where you are packing them full, without trying to keep the books in order. They leave too much empty space when you are packing books in a single row. The crates have sloping sides, so they stack easily, and molded-in braces add strength, but these features reduce the amount of space for books inside. The crates are much heavier than a box, even empty, so it takes extra effort just to recycle them for another load. They are also fairly expensive to rent or buy, at least compared to boxes.

Box-Moving Equipment

You have several options for moving the boxes. Two-wheel hand trucks work well and minimize stacking and restacking, but they are limited to four or five boxes per trip. Flat four-wheel dollies also work well, as do pallets moved with pallet jacks. They can carry many more boxes per trip, but they require more lifting and restacking of boxes and put a real premium on having a fool-resistant numbering system.

BOOK CARTS

Common library book carts work well, especially for moves within one building. They don't hold many books, so you need a lot of carts. On the other hand,



Figure 3.3 Several companies rent plastic move crates. I do not recommend them.

most libraries already have them, and it may be easy to borrow extras from neighboring libraries.

A major drawback with book carts is that they are difficult to transport between buildings. Many styles of cart cannot be forklifted in and out of a truck, forcing you to use ramps. Ramps work, but the heavier the carts are loaded, the more difficult and potentially dangerous it is to use them. Also, it is difficult to keep books from jarring loose during transport in a truck or over rough flooring. One way to keep books on the cart is to shrink-wrap each cart; this is effective, but it takes time to wrap and unwrap, and it is not cheap. If you have a choice, get carts that have slanted shelves to help hold the books in place.

If you do use book carts, you can attach a card pocket to one end of each cart and use the sequence card numbering system.

The number of book carts you need for each move crew depends on several different factors:

Capacity. Carts vary widely in size and number of shelves. The more books a cart holds, the fewer you need to keep a crew busy.

Distance to the new shelves. The quicker you can get empty carts back to the unshelvers, the fewer carts you need. If you are moving within one building, you need fewer than if you are transporting them between buildings, where you may have a backlog at the loading dock, carts tied up on the transport truck, and so forth.

Schedule. The more time there is to do the move, the fewer carts you need. You can afford some inefficiency. Fewer crews can be used simultaneously, which allows you to control the flow of materials more closely.

For a move within a single building, with limited time to do the work, I would have a minimum of eight to ten carts for each crew for most efficient use. If it is necessary to transport the carts between buildings, that number increases to at least fifteen per crew. It may be possible to have too many carts, but it is much, much better to have too many than too few.

I have done quite a few moves using book carts, including moves between buildings. In the largest of these, we moved about 600,000 books over a weekend, all within one building. We had thirteen crews working simultaneously and 150 3-foot, two-shelf book carts. It was not too many carts.

One decision to be made is how to load the carts. There are two options:

1. Treat each cart like a mobile shelf. Load one side top to bottom and left to right. Then spin the cart and load the other side. With this option, you need to identify the side you loaded first. I put a piece of easily visible tape over the top of one end of the cart and always start loading or unloading from the taped end. I prefer black tape. I also always put the card pocket on the taped end, for no good reason other than consistency.
2. Load the entire cart from one side. Most carts hold two rows of books. In this method you load one row on the top shelf; and then put another in front of, or behind, it; then do the same on the other shelves, working top to bottom. This method is fast to load, but not as fast for the reshelvers who have to keep reaching through to get the first row of books before the second row. Alternatively, the loaders can put the first row of books closest to the unshelver and reach through to load the second row. This speeds up the reshelving process at the expense of the loaders.

Whichever method you use, pick one and *stick to it*. If the reshelvers have to check the call number on each row of books, their speed suffers and they make more mistakes. Don't get halfway through and let someone decide they have found "a better way."

MOVE CARTS

Quite frankly I believe move carts (figure 3.4) are the best way to move a lot of books in a hurry with minimum (although still a lot of) effort and maximum efficiency. They are specially designed and constructed to hold a large quantity of books, to be moved over many kinds of surfaces, and to be forklifted on and off of trucks for transport.

There are several national companies that rent move carts at a—sort of—reasonable rate. You can build or have someone build carts for you at a—sort of—reasonable price. Appendix B includes complete plans for my version of a move cart. My version includes several custom modifications I have not yet seen on the commercially available carts, including color-coded ends for



Figure 3.4 Move carts are designed for efficient library moves.

easy orientation, card pockets and numbering systems to keep them in order, and detachable side panels to keep the books from shifting in transit. I also have a packaging and transport system to move microfiche and film on the same carts.

These carts are typically built of plain plywood and are rugged rather than pretty. They have three or four shelves a side and may be from 30 inches to 4 feet long. A 32-inch cart holds about 250 books; a 4-footer holds close to 400. A loaded cart may weigh from 700 lbs to nearly a ton. With the proper wheels under them, they are easy to push on a flat surface.

My carts are designed so that one end is identified with black tape. All loading starts from the TOP with the BLACK end to the LEFT so that unshelvers and reshelvers always know where to start.

These carts all have a central keel, which means they must be loaded one side at a time, then spun around and the other side loaded. For this reason, the length of the cart should be sized to the width of your aisles. This is an important point if you rent carts. You want to be able, at least, to roll the cart down the aisle perpendicular to

the stacks so that you can load or unload it easily. Ideally you would be able to spin the cart in the aisle. This is where you may have to compromise a bit. If your aisles are the ADA minimum of 36 inches clear, the cart can be only about 32 inches long if it is to be spun in the aisle (yes, a 32-by-24-inch rectangle will not spin in a 36-inch aisle, but the cart spins on the wheelbase, which is smaller).

The major drawback with move carts is that you cannot use ramps to load them on or off a transport truck; you have to forklift them. You *can* push them up or down a ramp that is no steeper than an ADA handicap ramp, but you must be careful. The problem is that the carts are designed to roll easily. Going downhill, they can get away from you. Going uphill, they are just heavy and hard to push. It is absolutely *not* safe to roll a loaded cart up or down a ramp from a U-Haul-type truck. On the other hand, forklifting them is quick and easy and much safer.

If you are moving within one building, you need six or seven move carts per crew to keep a constant flow going. If you are moving between buildings and may have a backlog at the loading dock, carts held up in the transport truck, or other delays, you need ten to twelve carts per move crew for smooth workflow. It may be possible to have too many carts, but it is much, much better to have too many than too few.

To sum up:

- Use stack movers if you are recarpeting or just rearranging the stacks without rearranging the books on the shelves.
- Use a human chain to move books short distances and up or down stairs if there is no elevator. In a cart move, you may also use this method to get books from the shelf to the cart if you cannot get the cart down the aisle to the books.
- Use boxes for small moves or for storage.
- Use book carts for smaller moves or moves within one building if you can assemble enough carts to do the job efficiently.
- Use move carts for most moves between buildings.

Time is the most important consideration in the choice of method. If you have more time to make the

move, you can use boxes or book carts. If time is short, you should give greater consideration to move carts. Time is money, and move carts may save you more in staff cost than they add in rental or construction cost.

The key to efficiency is size. It takes much less time and fewer people to move a whole range, still fully loaded, with a stack lifter than to move the same number of books with a human chain. Move carts require fewer people and resources than book carts, and book carts are more resource-penurious than boxes. The cost of efficiency is planning and preparation time. The smaller the move, the more the cost-benefit curve tilts toward the less efficient, but less costly, methods.

TWO OTHER WAYS TO MOVE

At least two other move methods are often referred to in the literature and in casual accounts of moves. I do not recommend either of them:

Checkout-and-Return Method

This is a simple concept. Get your patrons to check out all of the books at the old building and return them at the new. Problem solved. Not really.

Rarely can you get people to take all of the books; you still have to move most of them. Then, some people check out books and return them late, return only part of them, or not return them at all. And you still have a reshelving problem when people do return the books. You have spread the reshelving over the period of a few days, but you have added a major interfiling problem and probably lost any advantage you might have gained by using waypoints to avoid shifting.

Walk-in-Line Method

In this move, you recruit some volunteers, staff, and other workers. Someone directs the move at the origin building with another supervisor at the destination. The first worker takes a handful of books, walks to the destination, and puts them on the shelf. The second worker

follows behind with the second handful, and so on. If you have more books than workers, everyone cycles back to the origin for another load.

There are variations where every worker carries a box of books or pushes a cart. In another variation, the library builds trays similar to those I recommend for sorting and two workers carry each tray, in line, to the new building.

An advantage of this system is that it is incredibly simple. I have never used it, but it could work for a very small library moving over a very short distance.

The potential problems are legion: The load of books I accepted was fine at first, but it is unacceptably heavy two blocks and two flights of stairs later. If I drop a load of books, do I put them back in the right order or just pick them up and go on so I don't lose my place in line? If I step out of line to walk with my friend who is a few spots ahead of me, will I remember to step back into place, or will I follow the instructions of the reshelving supervisor who doesn't know I jumped the line and just put my books next to my friend's? The problems are just multiplied when the loads are larger in trays or boxes.

I can think of one good use for the walk-in-line method. Recruit community volunteers. Invite the mayor, local dignitaries, your board of trustees, kids pulling little red wagons, mothers with strollers. The media, of course. Get a fire truck up front with sirens going and a police escort. Load up a few hundred books and parade them over to the new building. Make it a major media event. Talk to the reporters. Pose for pictures. Tell all about your new building, your great collections, your fabulous staff. Thank all the construction workers, your great contractors, your fabulous architects. Mention all of the people who will help with the move, your great move team, your fabulous move coordinator. Then, when everyone goes home, go move the library with carts.

I had this all set up one time. Human chain for five blocks. Two streets and a bridge closed, 450 volunteers. Everybody who was anybody. For two glorious weeks *Good Morning America* was scheduled to broadcast on site. Then GMA bailed and we chucked the whole idea. Only reason to do it was the publicity.

Note: Illustrations are indicated by the page number followed by *f* (e.g., 72*f*).
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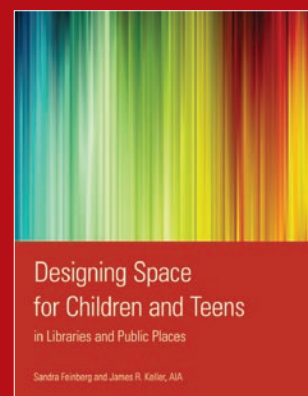
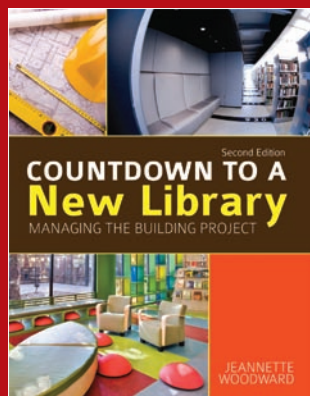
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