

Boxes, Boxes and More Boxes

by Diane M. Pikul, MLS

How many books fit in a box? How much does a box of books weigh? When confronted with these obscure questions, the typical response from a library mover: “How big is the box?” and “That depends...what type of books are in it?” Answering a question with a question provides the chance to segue into an overview of what can be termed the “fallacy of footage.” While architects and designers mean well, 10 books do not always = 1 foot. *Premise 1:* Unless they are identical copies, no two books are alike. Children’s picture books are roughly a quarter of an inch thick, so a standard legal size tote could potentially hold as many as 144 items. By the same token, law books could be 2 ½ inches wide, so perhaps only 15 might fit into that same box. Then, you have art books; they are often odd sized and certainly weigh more than regular fiction. *Premise 2:* Not all boxes are the same size. *Premise 3:* All libraries are different. *Premise 4:* For a more concrete idea of how many boxes are required to pack a library, measure the collections.

As you might suspect, there is no easy answer to either question and by now you’re probably “zoning out.” It’s much simpler to call a library mover and have them do a free site visit and cost estimate. But wait, two recent large-scale library projects have made these questions a little easier to answer. A new response to these age old questions would be... “funny you should ask....”

East Meets West: An Ancient Eight and An Ancient Civilization

Harvard University, one of the Ancient Eight, has long been a primary repository of knowledge in the Western Hemisphere. Their eighty plus libraries are always on the move, but none more so than the former Hilles Library. It’s no great surprise that real estate in Cambridge is at a premium, so in 2004, the decision was made to convert the Hilles Library into much needed student space. Hilles, in essence, duplicated much of what could be found in the University’s Undergraduate Lamont Library. As a byproduct of this decision, the building’s lower level was to be retained for Reserve Reading, along with a smaller collection of more heavily used materials. This newly fashioned entity was renamed Quad Library. The twist to this whole building program, however, was the fate of the Hilles Library collection. It was destined for the Ocean University of Qingdao (aka Sun Yat-Sen University) in China, a choice launched in part by professional contacts between librarians at both institutions. Hmmm... so, how many boxes does it take to ship approximately 160,000 volumes to Qingdao? The answer: 5,195 1.5 cubic foot boxes, 2 E-Containers (very large boxes) and 15 giant boxes better known as sea containers. How much does a box weigh? The answer: anywhere from 35 lbs. to 75 lbs., depending on the subject matter at hand. These are simply numbers though, and libraries are more than just numbers – there’s a fascinating story behind each.

While all library moves require preparation, this one was special. Harvard University’s Library System contracted with one of the top library movers in the country to ship Hilles to Qingdao by sea. International shipping involves customs and customs involves a lot of detail. Boxes needed to travel by sea container, had to be a certain size and could be stacked no more than four high to prevent crushing. Containers needed to be clean and free of odor since the books would be on the high seas for at least a month. With a tare weight of almost 5,000 lbs., each sea container was loaded with roughly 20,000 lbs of books, journals or microforms. Seal numbers and container numbers had to be recorded in multiple places and all paperwork demanded exactitude. All containers were required to be on the same vessel for customs clearance at destination. Just one little digit off and a container could conceivably end up in Chicago instead of China!

In addition, the packing had to commence as soon as graduation was over and be completed by the 6th of June. This left a window of five working days. Sufficient time to wrap up the building renovations and return the pared collection to Quad Library before classes resumed for the Fall Semester dictated this tight schedule. On May 31st of 2005, a crew of eighteen men and women descended upon Hilles and began to pack. As with most library moves, a routine quickly developed and the crew operated like a well-oiled machine. Boxes were constructed, boxes were packed, a sea container arrived and at least two staff members sniffed it for fish odor (most sea containers carry fish). Once the okay was given, boxes were weighed and placed on a conveyer belt running out an upper window. Boxes glided down the ramp at a steady pace until the sea container was loaded. Within an hour and fifteen minutes, a container was sealed, its paperwork processed, a bill of lading affixed and the twenty foot metal box was consigned to a holding area. The process continued with two to four containers loaded and dispatched per day. When all fifteen containers were completed, Department of Commerce regulations took over and requisite reports were generated, itemizing the commodity description, number of cartons in each category, estimated weight of cartons within that category and total weight in pounds and kilos. Only then were the giant metal boxes ready to begin their journey to the port of Quingdao. As the books sailed the high seas, more reports and a manual to re-assemble the library was compiled. Some time in July, the containers safely reached port, passed through customs with flying colors and were transported to the University for unpacking.



Kate Kerigan preps cartons for the packers

A New Ivy and A Newer Technology!

Meanwhile, back in a quaint, historic hamlet in the heart of New York State, one of the “New Ivies” was busy thinking inside the box – a *really* big box. Colgate University’s Case Library was about to enter the next phase of its renovation project. Work was being completed on an Automated Storage and Retrieval System (ASRS) with a vault footprint measuring 30’ wide x 115’ long x 40’ high. The windowless structure housed a robot with two “arms,” four workstations and 4,332 metal bins of varying sizes. It would be loaded with Colgate’s Library of Congress Book Collection, current journals and some government documents; all older material – Dewey Class and past journals – were to be stored offsite. The newly constructed unit would interface with the Library’s computer system and be capable of storing approximately 550,000 volumes. Here again, though, that quantity depended on the size of each volume and the size of the metal box! With this system, students would be able to make a request via computer and almost instantaneously, the item would be waiting for them at the circulation desk. Robotic arms, however, do not encourage browsing and this was considered only a stopgap measure during the renovation period.

One year later, the newly refurbished library was ready to be reassembled. But....within an ASRS System, books are placed in metal bins by size and the collection needed to be put back on the newly installed shelving units in correct Library of Congress order. Colgate decided to call upon the services of an experienced library mover and allowed them fifteen working days to empty the bins. The metal “boxes” needed to be serviced prior to a re-load with the older materials from off-site

storage. Much work had already been done by the Colgate Library staff prior to this massive undertaking. They had measured all the collections by call number before anything was loaded into the ASRS bins and in the interim, spent countless hours planning the final layout. The movers' mission was to bring order to "organized chaos," by placing materials on the Case Library's second and fourth floor shelving units in correct call number sequence and maintaining the fill rates determined by the Colgate Project Manager. Sounds easy enough....but a lot of planning and mathematics entered the equation and still more was needed. Colgate provided data in a Microsoft Access database and a chart indicating which bins had Dewey Class, Music, Video, Government Doc, Legal Reference, Periodicals, or Library of Congress materials. The mover had to determine the sequence in which the "metal boxes" would be unloaded. Simple counting showed that 2,193 bins contained books in LC Classification; it didn't mean other things weren't mixed in, though. Running subsets off the Microsoft Access program indicated how many items in a particular class (e.g. HD) were in a particular bin and how many items were in each broad classification (e.g. A, B, M, N, P, etc.). From there, a matrix was developed to show which bins held the greatest quantity of each classification. Those bins would be among the first on the pull lists given to the ASRS operators.

Now enters the human factor. With call letters A through H going to the 2nd floor and J through Z going to the 4th floor, it was time to allocate crew members and develop the daily pull list. This list had to account for the number of books in each classification, number of crew members assigned to sort and shelve that classification, number of books in each bin in that classification, the floor to which the books were heading and still one more thing – the placement of the bin in the vault. The two arms of the robot had to be given equal duty. Is your head spinning yet?? With a minimum requirement of 24,000 pulled items per day, the project commenced with one Project Manager, two Supervisors and thirty-nine sorters/shelvers. People, however, get tired from repetitious work whereas a robot's arms keep going. By the start of week two, the shelvers were begging for "The Great Online Database" to malfunction. The ASRS operators were pulling the contents of 150 metal bins per day. Not to worry, recognizing the tediousness element would soon kick in, the mover began



One of the metal bins in the ASRS System

adding qualified crew members. By the project's conclusion, the sorting/shelving team was 67 members strong and the ASRS bins had been emptied by the designated date. It took an additional five working days for the crew to interfile the last of the materials emptied from the robotic system. While the movers' mission was completed, there were additional stages left – HK Systems, supplier of the imposing materials handling system, sent a team to clean the metal bins and the library staff began the massive ingest of older materials into the ASRS System.

It's all in the numbers!

For more information on these and other moves, or to schedule a site visit/cost analysis for your own project, please call **1-800-48MOVES** or submit a request form via our website at www.nlrbookmovers.com.