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TIPS FROM THE NATIONAL MUSEUM OF THE AMERICAN INDIAN COLLECTIONS MOVE

Rachael Perkins Arenstein, Colleen Brady, Norine Carroll, Jennifer French, Emily Kaplan, Angela Yvarra McGrew, Ashley McGrew, Scott Merritt, Leslie Williamson

[Editor’s note: Originally a tongue-in-cheek PowerPoint presentation titled “NMAI LIVING: Moving à la Martha (with apologies to Martha Stewart)”, the presentation has been re-formatted by the authors for this publication.]

Barcode Tracking System

The barcode tracking system developed for the move by NMAI registration department staff without question greatly facilitated the efficiency, safety, and accuracy of the move. The move process started with the Registration team, which located and pulled the objects from the storerooms and associated a barcode tag. The museum uses a Sato thermal transfer printer with M-230 wax resin ribbon by Dainippon Printing Co. to print barcodes on Kimberly Clark type number C-64438 Kimdura® labels (a Tyvek®-type of synthetic sheeting). These products passed Oddy tests conducted by NMAI in 1999. The labels are waterproof and have proved to be durable throughout the move process, in which they receive a good amount of handling.

After investigating various options the museum decided that it would not be necessary to physically attach barcode labels to the objects. The labels have a perforation, which accommodates a twill tape or string tie, but the barcode labels are usually placed next to each object as it passes through the move line. The labels rarely get disassociated even with the high volume of material being moved, and if one does get disassociated another can be easily printed.

Carts

For this move project, metal wire baker’s carts made by Nexel are used along with the Rubbermaid® carts commonly used in museums. The baker’s carts, with their adjustable multi-tier shelving, increased the flow of objects through the move line and prevented accidents that could be caused by hand carrying.

Custom shelf extensions were used for oversized objects. The extensions, made from wood, Coroplast™, electrical conduit and screws, added another three feet of shelf space and slide away when not in use (Fig. 1).

These carts come with modular ledges for the shelves, but an easier, more flexible way to insure that items are not pushed off the shelves is to make shelf sides and backs with polyethylene (linear low density) stretch wrap (available from Preferred Plastics). Binder ring clips and plastic sheet protectors are useful for holding signs and labels (Fig. 2).

Supports

The damage incident rate through this project was less than 0.1% of the collection moved.
Most of the problems occurred as objects were handled during move preparations, rather than during transit. In order to minimize handling and reduce accidents, most objects were placed in a tray or other support once they were removed from their storage location.

Nine standard sized trays ensured efficient storage and fit safely on the carts. The three-sided cardboard tray design allowed flat or delicate items to be smoothly slid out using a Tyvek® slip sheet. Rolls of Tyvek® were pre-cut in-house with a table saw (Fig. 3). Taping the roll tightly at the desired cut line ensured a clean edge. Cutting tray blanks on a saw, and scoring the sides with a homemade press for easy folding, speeds mass production.

All of these supports were produced to standard sizes designed to fit cart and storage shelves. Materials used for these supports include round and triangular polyethylene foam backer rod (Figure 4) which comes in several diameters and has a soft finish so that it can be placed in direct contact with objects. Both are manufactured by Nomaco and are available from Granite State Log Homes or Gaylord Bros, and Kenseal respectively. Regular (non acid-free) cardboard was often used for temporary supports: objects are not in contact long enough for acid migration to be a problem. Variations using acid-free board would work well for longer-term re-housing projects.

A grid pattern was drawn onto some pallets (Fig. 5) so that, by placing one object per square, one may quickly verify the count for large object groupings. To save space these are designed to be stackable with an interlocking design.

Inexpensive beanbags made with polypropylene pellets (available from PolyOne Distribution) and washed Tyvek® were useful for objects needing weights or soft, flexible supports (Figure 6). Tyvek is used rather than cotton stockinette (which is a good alternative) because it has a slick surface that will not snag, can easily be wiped clean, and can be both heat sealed and sewn.

Every one of these supports can be fully produced in less than five minutes and some much more rapidly. Please see “NMAI Good Tips: Application and Bulking of Cyclohexadecane, and Mass Production of Supports” elsewhere in this Postprints volume for a detailed description.

Conservation

Once the objects were properly supported they were sped along to the conservation team. About 6,000 objects passed through the move line each week. Every one was examined for stability, cleaned to remove dust, and assigned a pest eradication method. A proactive stance on pest control was planned for moving into a new building, but at the beginning of this project it was not expected that this would mean freezing almost the entire collection. While a CO₂ bubble was used for objects too large to fit into a freezer, investigations have shown freezing to be safe as well as time efficient, and compatible with the care and handling concerns held by some Native American constituents. See Carrlee 2003 for a thorough explanation of methods used at NMAI.

A system of standardized tags, stickers and notes was developed to convey procedures, condition concerns and handling directions to staff throughout both facilities. These were attached with a plastic paper clip to the barcode label, making a bundle that was easy to find and read before anyone ever touched the objects.
Stabilization Treatments

This move provided an excellent opportunity to deal with minor stabilization problems but conservators have had to be judicious as there was only time to treat less than 1.0% of the collection. The right tools and techniques facilitated minimally interventive treatments.

Beadwork Stabilization

While many objects with condition problems can travel safely, pieces with loose beadwork need stabilization. To save time securing loose beadwork, three techniques, sometimes used in conjunction, were developed (Fig. 7). When the damage or loss is substantial, such as with loomed beadwork, loose beaded strands were rethreaded and anchored to surrounding stable areas. This is reversible but time consuming. Where there is enough existing thread or sinew at the end of a broken strand the fastest technique is to secure it with a simple knot of Teflon® floss or white cotton thread. This is quick, unobtrusive and entirely reversible. When there is not enough thread or sinew at the end of a strand, a dot of Acryloid B-72® is applied to anchor the end bead to prevent further loss.

Ceramic Stabilization

Short-term stabilization methods to ensure safe transport can be used for unstable crumbling or spalling ceramic objects. Cyclododecane has proved to be ideal. A wide range of application tools was investigated, as were techniques for temporarily filling unstable open cracks. Please refer to Arenstein et. al. 2003 for a detailed exploration of the merits of the various tools.

Wheat Starch Paste

Wheat starch paste is the preferred adhesive for plant material and basketry repairs but making it, even with an electric saucier, can be time consuming. To minimize time spent making the paste, a technique borrowed from paper conservation was used. Paste kept in syringes with the air squeezed out will last far longer than when stored in a jar (Fig. 8). In tests, paste stored in syringes lasted up to 20 days even at room temperature, whereas the jar was moldy in just five days. Refrigerated syringes last twice as long. Depending on the consistency of the paste it can be sucked up, paddled in with a spatula, or dispensed with a disposable pastry bags. Note that syringes cannot be reused. They are impossible to get truly clean, and lingering mold spores will cause mold re-growth in a matter of days.

Teflon® tape

Teflon® tape (available from Saint Gobain and McMaster Carr among other vendors) is available in several sizes and thicknesses, from the width of a thread (such as Glide brand dental floss) to 27 centimeters (Fig. 9). It has worked well for temporary stabilization and for securing loose elements that might move in transit. Most of the time the Teflon® is removed once the object is rehoused, but sometimes it will stay on in storage until a better, more permanent solution is found.
Digital Documentation

Digital imaging was used extensively to speed the move conservation process. A digital asset management program called Extensis™ Portfolio, commonly used in the graphic design field, has been useful to keep track of the over 10,000 conservation images created during the course of the move project. This is a database that allows one to easily view thumbnails, use pull down menus to associate metadata with images and to search on materials, condition issues, and other keywords. With this organizational tool it is easy to find pictures to illustrate presentations for training and conferences.

Packing

During the course of this project packing systems have become more standardized and largely reusable. As the packing, transport and unpacking processes are carried out in-house, packing does not have to be over-designed for every contingency. However, these ideas would work well for many travel situations.

Wave packing proved to be a good solution for stable objects, such as lithics, that are of similar size and weight (Fig. 10). Long strips of bubble wrap were doubled over to create walls or ‘waves’ to separate objects. To save space while moving, it may be possible to place several objects in the same ‘trough’. Variations using polyethylene foam sheet or Tyvek® may also work well as a re-housing technique for crowded drawers.

Reusable padded boards were made of double-wall cardboard with polyester batting on one side, covered by wide strips of Teflon® sheet (Fig. 10). This makes pillows with a soft and flexible surface that conforms to the shape of the object and provides evenly distributed pressure. This is a good solution for flat artifacts with moveable parts such as beads, fringe or metal tinklers. The object is sandwiched between the pillows and held in place with stretch wrap (linear low-density polyethylene sheet).

The ring packing technique worked well for baskets and ceramics (Fig. 10). The objects were first loosely wrapped in high-density polyethylene sheet, and then each was compartmentalized in the box with a ring of single-face corrugated paper. The area between each ring was then carefully stuffed out with tissue.

Another successful method involved the use of stretch wrap over a high-density polyethylene cover sheet to gently secure lightweight objects directly onto a pallet (Fig. 11). Wrapping the pallet is more efficient if the object is raised off the workstation with risers made from two pieces of cardboard tubing screwed onto a piece of plywood.

Some systems functioned for both packing and storage. Kachina figures are a good example (Fig. 12). The figures are on wooden bases, which slide smoothly onto a high-density nine pound polyethylene foam mount cut with a band saw and router. This foam proved to be an excellent alternative to Medex® (a wood based particle board), which was originally intended for these mounts but failed recent Oddy tests. The base can then be easily blocked in for stable travel, and the kachinas are re-housed simply by placing them in trays for permanent storage.
Crating

Boxed objects were shipped in Kiva-Pak™ units, an off-the-shelf reusable pallet system from Kiva Plastics, also called Uni-Pack™ and available from Shuert Industries. These units have a plastic top and bottom and locking corrugated plastic sleeves (Fig. 13). All parts of the system, including standardized cushioning made from Coroplast™ sheets and polyurethane foam, can be stacked for compact storage so they are out the way when not needed. This is a good substitute for expensive wood crates that eat up valuable storage space and are often not reusable.

Rehousing

While it may be preferable to reuse packing supports for storage, for the most part this has not been efficient for this particular move. Packing supports, pared down and designed for reusability, were often not compatible with storage needs mandated by the thirteen-foot high compactor units at the museum’s permanent storage facility.

Trays have been more successful than simple pallets for storage supports. Trays serve to reduce handling, contain fragments and keep the objects stable when the compactor units are moved. Where possible, custom die-cut and scored Coroplast™ trays which do not require adhesive were used, in other cases custom trays were made from acid free board. Two-part nylon mini rivets (#27MRF12 and #27MRM125187 from Micro Plastics Inc.) were used for extra security on large trays or those that contained heavy objects.

Tyvek® pillow supports (Fig. 14) were used for most moccasins. A small pillow was made for the toe and a second to fill out the instep and heel area. The Tyvek® was heat sealed to form a three-sided case, turned inside out and stuffed with polyester batting. The fourth side, left open to adjust the filling as needed, is tucked in at the end.

For ceramics, die cut polyethylene foam rings lined with Volara or Tyvek were often used. For custom fits, wedges of Minicel® (cross-linked polyethylene foam manufactured by Voltek and available from Foam Fair or Reilly Foam) were used (Fig. 15). This material is smooth; precluding the need to cover abrasive polyethylene foam cut surfaces with a layer of Volara®. It is best to cut Minicel® with very sharp carving knives or knives with snap-off blades rather than traditional foam knives.

Rolled and flat textile storage, designed based on the work of many textile conservation colleagues (Fig. 16) included six standard acid-free tube and conduit sizes. With Mylar® (polyester film) covering the roll it is easy to see the weave structure without having to handle each textile. A color image can be included so that the whole design can be seen at a glance.

Garments and flat textiles that cannot be rolled were placed on a sheet of Tyvek® for easy handling. If the textile was large enough to require folding, a length of smooth round backer rod (made by Nomaco and sold by Kenseal) was used to avoid creases over time, rather than crumpled tissue that loses its shape and could catch on quillwork or other decoration. Round backer rod also works well for winding long sashes and belts (Fig. 17).

The challenge of moving and re-housing on such a large scale required constant problem solving. No two collections or institutions are similar enough that move procedures can be translated exactly. Nonetheless it is hoped that lessons learned from this particular move will be useful for others.
Suppliers

Coroplast, 700 Vadnais, Granby, Quebec J2J IA7, Tel (800) 361-5150, Fax (450) 378-0835, www.coroplast.com

Extensis, Inc, 1800 SW First Avenue, Suite 500, Portland, OR 97201, Tel (503) 274-2020, (info@extensis.com), www.extensis.com

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Gaylord Bros., Box 4901, Syracuse, NY 13221-4901, Tel (800) 345-5330, Fax (800) 595-7256, www.gaylord.com

Kenseal Construction Products Corp, 10501 Tucker Street, Beltsville, MD 20705, Tel (301) 595-4044, Fax (301) 595-3261, http://www.kenseal.com/

Kiva Plastics Inc., 1402 S. 40th Ave, Post Office Box 6770, Phoenix, AZ 85005-6770, Tel (800)722-KIVA (722-5482), Fax (888) FAX.KIVA (329-5482), www.kivaplastics.com

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Reilly Foam Corp., 1101 Hector Street, Conshohocken, PA 19428, Tel (610) 834-1900, Fax (610) 834-0769, www.reillyfoam.com

St. Gobain PPL Corp., P.O. Box 642625, Pittsburgh, PA 15264-2625, Tel (877) 402-7357

Shuert Industries, Inc., 6600 Dobry Road, Sterling Heights, MI 48314, Tel (586) 254-4590, www.shuert.com
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