
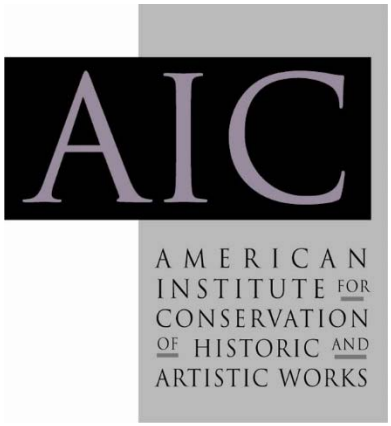


---

Article: Storage system for archaeological textile fragments
Author(s): Lisa Anderson, Dominique Cocuzza, Susan Heald, and Melinda McPeek
Source: *Objects Specialty Group Postprints, Volume Eight, 2001*
Pages: 181-189
Compilers: Virginia Greene and Lisa Bruno


Objects Specialty Group Postprints is published annually by the Objects Specialty Group (OSG) of the American Institute for Conservation of Historic & Artistic Works (AIC). A membership benefit of the Objects Specialty Group, *Objects Specialty Group Postprints* is mainly comprised of papers presented at OSG sessions at AIC Annual Meetings and is intended to inform and educate conservation-related disciplines.

Papers presented in *Objects Specialty Group Postprints, Volume Eight, 2001* have been edited for clarity and content but have not undergone a formal process of peer review. This publication is primarily intended for the members of the Objects Specialty Group of the American Institute for Conservation of Historic & Artistic Works. Responsibility for the methods and materials described herein rests solely with the authors, whose articles should not be considered official statements of the OSG or the AIC. The OSG is an approved division of the AIC but does not necessarily represent the AIC policy or opinions.

# STORAGE SYSTEM FOR ARCHEOLOGICAL TEXTILE FRAGMENTS

Lisa Anderson, Dominique Cocuzza, Susan Heald and Melinda McPeek

## Introduction

The holdings of the National Museum of the American Indian consist of approximately 805,000 archaeological and ethnographic objects from Native peoples of the Western hemisphere. NMAI is currently in the process of relocating and re-housing the collection from its Bronx, New York Facility to the new "state-of-the-art" Cultural Resources Center (CRC) located in Suitland, MD. As part of the relocation effort, the collections management and conservation departments have collaborated to devise a re-housing system for over 2,000 archaeological textile fragments in the collection. These textiles are currently stored in polyethylene bags in wooden drawers in the museum's Bronx storage facility (Fig. 1). This project focuses on concerns for re-housing smaller archeological textiles and fragments, within the constraints of the entire re-housing effort.

Figure 1. Storage at the Research Branch, Bronx, NY.

## Evaluation of Previous Techniques

Published and unpublished literature on the storage of archaeological textiles was reviewed. Commonly used mounting systems included variations of padded and unpadded sink mat folders, crepeline covered window mats that enclose the textile, Mylar encapsulation, and direct stitching of the textile to a fabric substrate such as linen. Mounting systems that did not allow the textile to be viewed from both sides or that prevented the textile from being removed from the mount were excluded as possible design candidates. A prototype of the crepeline covered window mat enclosure was constructed, but proved too time consuming to produce on a large scale and visually obscured the textile. The sink mat folder seemed to be the best suited for our needs.

## Criteria

Prior to the construction of prototypes, the following list of criteria was developed addressing re-housing requirements and availability of resources within the Collections and Conservation departments:

- both sides of the textile should be accessible
- the textile should be easily removed from the mount with minimal handling
- the system should be user friendly
- materials should be stable, non-abrasive, durable (& relatively static-free)
- the mount should provide a buffer from the environment
- sizes should be standardized
- mounts should be straight forward and easy to produce on a mass scale
- materials should preferably be already employed in collection rehousing, minimizing costs and standardizing the vocabulary of materials used collection wide.

## Evaluation of Prototypes

Various prototypes of sink mat folders were constructed using a variety of methods and materials. Each prototype was evaluated using a select group of textiles that were recently moved to the CRC.

Sink mats were made using archival mat board and corrugated blue board window mats, strips of blue board, and strips of Volara (cross-linked polyethylene foam sheet). Using strips of blue board to build up the sink proved to be more efficient, as it was quicker and would utilize scrap corrugated blue board.

We tested both padded and unpadded folders, and found that a padded surface helped to prevent the textile from shifting in the mount when flipped.

Muslin, Tyvek, and a Testfabrics polyester knit were used to line both interior surfaces of the folder and mock archaeological textiles were tested on each of the surfaces. The muslin seemed to cause less fiber loss than the polyester knit, while still holding the textile in place. Besides being difficult to work with, the openness of the polyester knit structure allowed fibers to become imbedded. Soft Tyvek worked well on the front cover of the folder as it provided a slick surface that would allow the textile to be easily removed from its mount, but was too slick to be used on both sides of the folder interior.

In order to minimize the amount of adhesive used, we decided against a linen tape hinge for the folder itself and instead scored the corrugated board to create the folder. Different types of adhesive systems were used to attach the fabrics, the sink mat, and ties to the folder. Polyester heat set webbing, ethylene vinyl acetate hot melt glue, and Tyvek™ tape with an acrylic adhesive were chosen to use in the mounts. The heat set webbing worked well to attach fabric, Tyvek, and twill tape ties securely to the blue board. The inner edges of the blue board strips forming the sink mat were covered in Tyvek tape to create a smooth surface, should the textile come into contact with the mat edge. Low temperature hot melt glue had a strong bond and worked well to attach the sink mat strips to the folder.

**The Design**

A design evolved which consists of a portfolio that can be flipped to view both sides of the textile (Fig. 2). The basic format includes a padded muslin-covered resting surface surrounded by a stationary sink mat, a Tyvek-covered opposing side, and cotton tie closures. These materials were chosen for their ability to minimize fiber loss and abrasion, while preventing movement of the textile by maintaining adequate grip. Innovations in the design include:

- a scored spine on the portfolio, that eliminates the need for a hinge
- a single stationary sink mat made of scrap corrugated archival board, which can be easily precut
- the use of two different surface linings that are integral to the operation of the portfolio
- a smooth Tyvek-lined viewing surface that enables the textile to be easily removed from

the mount

- a repositioning guide on the Tyvek-lined viewing side that ensures proper placement of the textile before closure
- inert heat-activated polyester webbing to adhere surface linings and cotton tie closures to the corrugated board

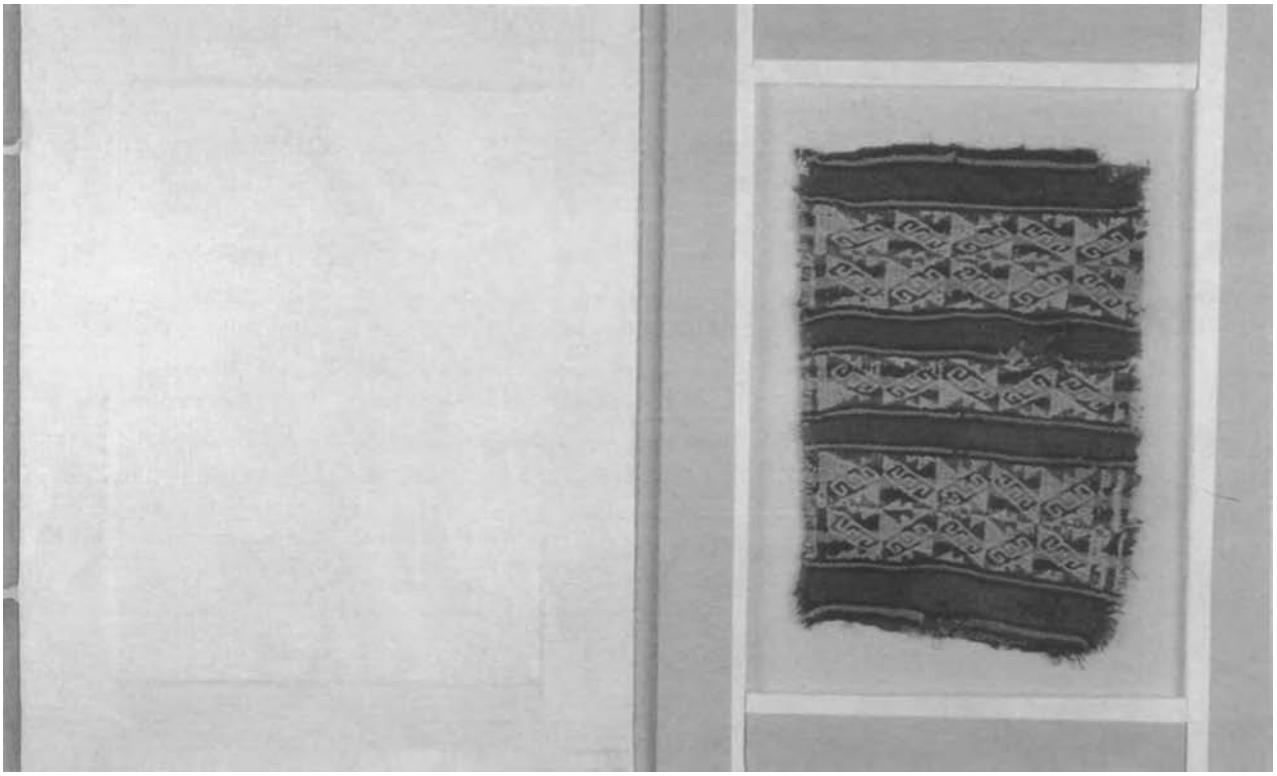

Figure 2. Archaeological textile in its portfolio.

## Testing of Adhesive Webbing

The conservation lab had a roll of thermoplastic adhesive web from Archivart that worked well to adhere the Tyvek to the board. However, Archivart no longer carries the product because the company that had manufactured it, Sharnet, had been sold to Bostik. Bostik was contacted for information about other available adhesive web products and a technical representative sent several samples that he thought would suit our purposes. Each sample looked and felt different

from the Sharnet adhesive web, and concern was raised regarding the chemical stability of all the products.

Three samples were submitted for testing at the Smithsonian Center for Materials and Education Research (SCMRE): Sharnet polyester adhesive web SH-4200 .8 oz. (formerly sold by Archivart), Bostik polyester web PE75, and Bostik polyolefin web PO90. Walter Hopwood, Organic Chemist, analyzed the samples using Fourier-transform infrared spectroscopy. The two polyester webs showed polyester absorption bands based on phthalic acids for the Sharnet sample and adipic acids for the Bostik PE75 sample. The Bostik olefin sample showed bands for olefin as well as polyvinyl acetate, suggesting that the material was actually a co-polymer. Based on the results, Hopwood suggested that the Sharnet SH-4200 was the most stable, the Bostik PO90 the least stable, and the Bostik PE75 of intermediate stability. The authors decided to use the available Sharnet adhesive web as economically as possible and hope that the amount stocked would be sufficient for the project.

## Conclusion

Providing a protective storage system for the museum's collection of archaeological textiles was considered a priority. Because of the prior poor storage conditions, the textiles had not been accessible to researchers. A user-friendly mount was important because of anticipated research interest in the collection. This pilot project enabled the authors to develop an efficient storage system and construction method utilizing relatively quick standardized production with materials that were already employed in the collection rehousing project. The staff foresees students and volunteers to assisting with portfolio production with the expectation that the fabrication process will be refined and adjusted as needed. There are limitations to this mounting system however: They are suitable only for smaller fragments where portfolios can be easily turned over; the mounts are not suitable for brittle, three-dimensional textiles or large textiles. The portfolios are space efficient and can be stored in closed cabinetry or layered in boxes on open shelving. In order to ensure proper handling, detailed instructions with digital images accompany each portfolio.

## Construction Method (Fig. 3)

Cut the single wall blue board to the appropriate size for the portfolio – twice the width + 1" X the height (the extra inch forms the spine of the portfolio.) For example the board for an 11x 14 portfolio would be cut 23 x 14. The corrugations in the blue board should run parallel to the width to maximize the strength.

Measure the width for the storage (right) side of the portfolio and score with an awl.

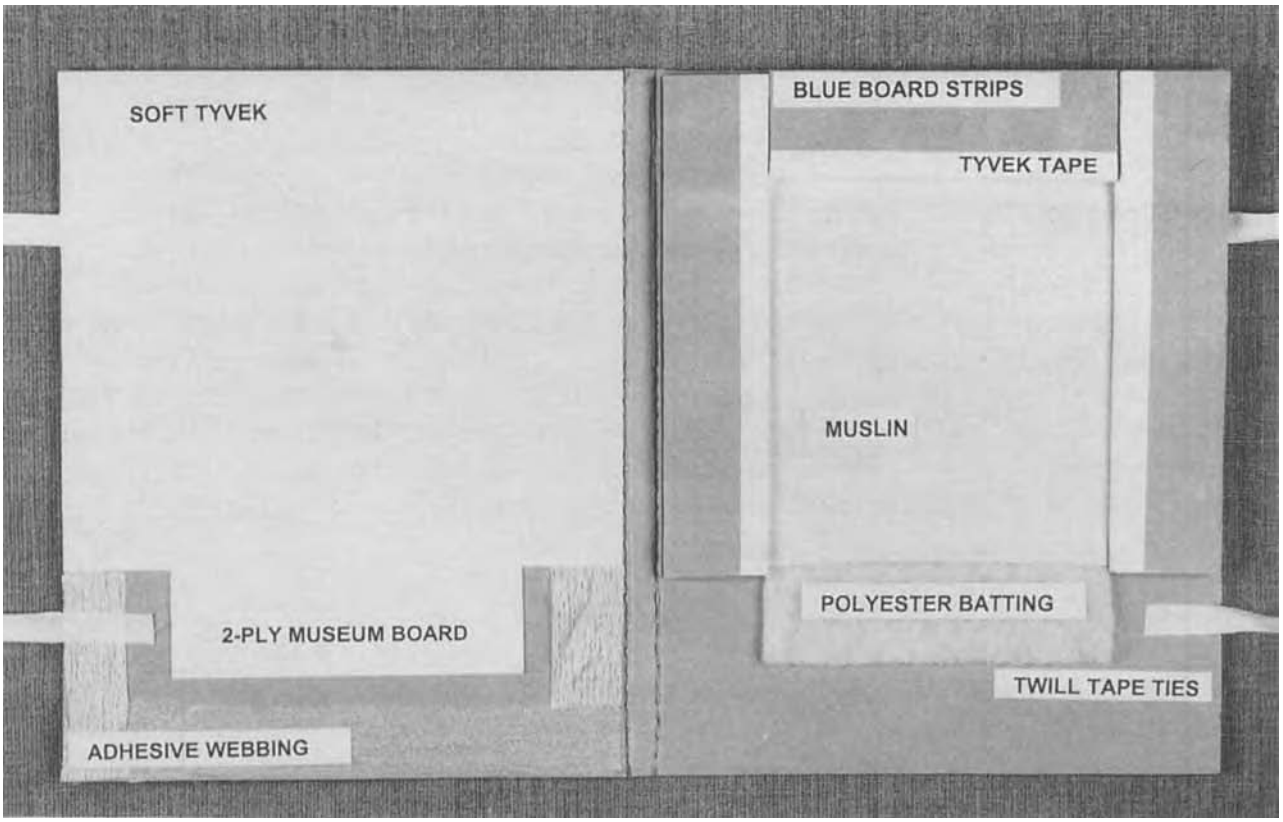


Figure 3. Construction of portfolio.

Cut the sink mat strips from double walled or single walled blue board (according to the height of the textile.) These will form the mat to enclose the textile on the storage side.

Cover the exposed inside edges of the blue board strips with Tyvek tape.

Position two twill tape ties approximately 1/3 of the height at top and bottom of the storage side (right hand side) of the portfolio. With a tacking iron or regular iron at low setting adhere the tapes to the board using small strips of polyester webbing. It is recommended that a piece of silicone release Mylar be used between the iron and twill tape.
Cut a piece of polyester batting to the exact size of the opening on the storage side. Measure and draw the opening with pencil and tack the batting down in the outline with a small piece of double-sided tape.

Cut a piece of muslin larger than the batting so that there is ample fabric to adhere to the board. Adhere the muslin to the board using either polyester webbing or hot melt adhesive. If hot melt

is used be sure to spread the glue thinly and evenly to avoid raised areas of glue under the fabric.

Attach spacers to the edges of the storage side of the portfolio with hot melt adhesive, again making sure the glue is spread flat and evenly to ensure the spacers lay flat.

Fold the front cover of the portfolio up at a 90 degree angle and mark off the height of the sink mat to obtain a spine measurement. With a straight edge placed just outside of the mark score the board with an awl and fold. It is useful to flatten the spine and score lines with a bone folder to obtain a flat cover for the portfolio. Next, cut the excess blue board from the front cover.

Adhere the twill tape ties to the front cover, making sure they match up with the ties on the storage side.

Cut a piece of 4-ply Museum board to the same size as the space within the sink mat on the storage side of the portfolio. This will serve as the positioning guide on the interior front cover of the portfolio. Matching the window opening, attach the board to the cover using a few pieces of ½" double-sided tape.

Cut a piece of soft Tyvek to the size of the front cover. Adhere the Tyvek over the positioning guide (with the smooth side up) using 1" strips of polyester webbing. The strips of webbing should be placed at the very outer edges of the Tyvek to keep the edges of the Tyvek™ flat and smooth.

**Materials**

EVA Low temperature hot melt glue, Polygun LT Glue applicator
Tape Systems, 460 East Sanford Boulevard, Mount Vernon, New York 10550, (914) 668-3700

100% rag 4-ply museum board, Corrugated acid-free paper board, 2 1/4" pressure sensitive Tyvek™ tape with acrylic adhesive, 3M™ double-sided tape, ½"
University Products, 517 Main Street, P.O. Box 101, Holyoke, MA 01041-0101 (413) 532-3372

Silicon release Mylar™
Talas, 568 Broadway, New York, NY 10012, (212) 219-0770

"muslin" - unbleached cotton print cloth, style 400U, polyester 1/8" Polyfelt, no resin
Testfabrics, 415 Delaware Avenue, West Pittston, PA 18643, (570) 603-0432

Polyester based polymer adhesive web (SPE 107)
Bostik, 211 Boston Street, Middleton, MA 01949-2128, (978) 777-0100

Soft structure Tyvek™ with Corona anti-static treatment
Fall River Paper, 701 State Road, Suite A, Philadelphia, PA 19136- 1460
(215) 708-1460

**References**

Burnham-Staehli, E. 1974. Mounting archeological textiles. In *Archeological textiles: Proceedings, Irene Emery roundtable on museum textiles.* Washington DC: The Textile Museum. 52-53.

Collins, S, M. Mecklenberg and M. Ballard. 1989. Fabric selection and its relationship to dimensional changes in support systems for constrained fabric mounting devices. In *International perspectives on textile conservation: Papers from the ICOM-Committee for Conservation Textiles Working Group Meetings*, ed. A. Timar-Balazsy and D. Eastop. London: Archetype Books. 162-169.

Commoner, L. 1992. Storage Containerization for Textile Collections. In *Conservation concerns: A guide for collectors and conservators*, ed. K. Bachman. Washington: Smithsonian Institution Press. 91-96.

Greene, V. 1992. Adaptation of Standard Matting Folders. In *Storage of natural history collections: Ideas and practical solutions*, ed. C.L. Rose and A.R. de Torres. Pittsburgh: Society for the Preservation of Natural History Collections. 149-152.

Love, N. 1999. Unpublished guidelines for constructing archaeological textile mounts. 1999.

McClintock, C. 1990. A method for mounting and storing archeological textiles. In *Archeological textiles occasional papers.* London: United Kingdom Institute for Conservation. No.10. 59-61.

Morrison, L. 1987. The treatment, mounting and storage of a large group of archeological textile fragments. ICOM Committee for Conservation preprints vol. 1, 8th triennial meeting, Sydney, Australia. Los Angeles: Getty Conservation Institute. 391-396.

Newton, C., M. Segal and J. Vuori. 1989. Development of archeological textile mounts at the Canadian Conservation Institute. *Journal of the International Institute for Conservation-Canadian Group.*14:3-11.

Peacock, E. 1987. Anthropological textiles: A mounting solution. ICOM Committee for Conservation preprints vol. 1, 8th triennial meeting, Sydney, Australia. Los Angeles: Getty Conservation Institute. 407-411.

Piechota, Dennis. 1978. Storage containerization: Archeological textile collections. *Journal of the American Institute of Conservation.*18:10-18.

Segal, M. and J. Vuori. 1984. The treatment of archaeological textiles. International Institute for Conservation Canadian Group abstracts, 10th annual conference, Peterborough, Ontario. 20.

Smithsonian Center for Materials Research and Education. Report # 5751. W. Hopwood. Three Adhesive Webs. April 16, 2001.

Vuori, Jan. 1984. A method for putting crepeline onto mats. *Textile Conservation Newsletter.* 11-14.

Wolf, S. J. 1985. Housing for Archeological Textile Fragments. Conservation Notes 12 (April):1-4.

**Authors' Addresses**

Lisa Anderson, Collections Department, Smithsonian National Museum of the American Indian, Cultural Resources Center, 4220 Silver Hill Road, Suitland, MD 20746-2863, (301) 238-6624 x6306 (andersonl@nmaicrc.si.edu)

Dominique Cocuzza, Assistant Conservator, American Museum of Natural History, Anthropology Department, 79th Street and Central Park West, New York, NY 10024 (212) 769-5434

Susan Heald, Head Textile Conservator, Smithsonian National Museum of the American Indian, Cultural Resources Center, 4220 Silver Hill Road, Suitland, MD 20746-2863 (301) 238-6624 x6317 (healds@nmaicrc.si.edu)

Melinda McPeek, Collections Department, Smithsonian National Museum of the American Indian, Cultural Resources Center, 4220 Silver Hill Road, Suitland, MD 20746-2863 (301) 238-6624 x6306 (mcpeekm@nmaicrc.si.edu)