

STORAGE AND HOUSING OF ARCHIVAL COLLECTIONS

Introduction

Proper storage and housing can greatly affect the life and health of your collections of books, documents and photographs. There are many different factors that need to be considered when deciding where and how a collection should be stored. These factors include the environmental conditions in the storage area, the types of storage furniture to be used, how the collection should be prepared or processed prior to storage, and what types of enclosures will be needed to protect the collection.

Environmental Conditions

Choose a storage area with a moderate, stable environment. There are several conditions that should be considered when choosing a storage area; the most important are temperature, humidity, light and environmental stability.

- Try to keep the temperature in storage areas below 70 degrees Fahrenheit.
 - ⇒ Cooler temperatures slow down the destructive chemical reactions inside paper.
- Try for a relative humidity between 35% and 50%.
 - ⇒ Humidity is the concentration of water in the air.
 - ⇒ High humidity levels increase the destructive chemical reactions inside paper.
- Choose a place that does not get too much light.
 - ⇒ Light, especially ultraviolet light, is very damaging to documents. Ultraviolet light comes primarily from sunlight and fluorescent lights.
 - ⇒ Light speeds up chemical reactions in paper.
 - ⇒ Light can also bleach paper, and cause colored papers and inks to fade.
 - ⇒ To minimize light exposure, cover the windows in your storage area with blinds or curtains.
 - ⇒ Turn off lights when the room is not in use.
 - ⇒ Light damage is cumulative, so every little bit helps.
- Choose an area with a stable environment.
 - ⇒ Widely varying temperature and humidity levels cause paper fibers to expand and contract. This causes internal stresses that can be very damaging to paper.
 - ⇒ For this reason, avoid places such as basements, attics, garages and laundry rooms for collections storage.

Storage Furniture

There are several different types of furniture or systems available for storing books and documents. Factors that will help you decide the best course to follow include the specific needs of the collection, the materials used in the manufacture of the item, and the physical placement of the furniture.

- Every collection has different needs.
 - ⇒ In general, it is best for the shelves to be as open as possible. Good air circulation helps prevent the build-up of moisture and acidic gasses.
 - ⇒ Store large maps, blueprints, and other documents flat whenever possible, instead of folded or rolled.
- Purchase storage furniture made with good quality, stable materials.
 - ⇒ Metal shelving is usually best, as long as it has a smooth, chemically stable finish.
 - ⇒ Avoid bare wood or wood composition shelving. Wood contains acids which can leach out and damage your collection. Oak wood is especially acidic.
 - ⇒ If wood must be used, seal it with a good quality, water-based polyurethane.
 - ⇒ After sealing the wood, allow it to cure for several weeks before shelving your collection. Wait until there is no longer an odor coming from the sealant. A chemical smell means that the finish is not yet safe for your collection.

- The placement of the storage furniture can be very important as well.
 - ⇒ Try not to place shelves or other storage units along exterior walls. These areas are subject to the temperature and humidity changes outside, which can lead to moisture buildup, condensation and mold.
 - ⇒ Leave a few inches of free space between the shelving unit and the wall to allow for air circulation.
 - ⇒ Avoid placing storage furniture directly under water or steam pipes.

Processing

Properly preparing or processing your documents prior to storage can save your documents from a lot of future damage. Issues involved in thoroughly processing a collection include good handling practices, fastener removal, and flattening.

- Safe handling of materials is basically a matter of common sense. All that is necessary is to be constantly aware that the documents that you are dealing with are often old, fragile, and irreplaceable!
 - ⇒ Clean hands are very important. Dirt and oils on your hands can cause permanent damage to a document that you may not notice until years later.
 - ⇒ Photo emulsions are especially sensitive to fingerprints and oils. White cotton gloves should always be worn when handling photos.
 - ⇒ Avoid eating, drinking or smoking when handling your collection. Paper will absorb cigarette smoke, food crumbs can attract pests, and a spilled drink can easily be a disaster.
- Remove fasteners such as rubber bands, staples and paper clips before storage, if doing so will not damage the documents. Also remove extraneous materials such as pressed flowers and newspaper clippings.
 - ⇒ Rubber bands can leave residue on the documents and tear them.
 - ⇒ Metal fasteners can rust and leave permanent stains on the document.
 - ⇒ Fasteners can also tear and bend the paper.
 - ⇒ To keep groups of documents together after a fastener is removed, you can make a “folder” out of a piece of good quality paper and place the documents inside.
 - ⇒ Any additional materials such as pressed flowers, locks of hair and newspaper clippings should be removed and stored separately from the other materials.
 - ⇒ Newspaper clippings are often highly acidic, and this acid can migrate to other documents and cause staining.
 - ⇒ The best way to save the information on newspaper clippings is to photocopy them onto a good quality paper.
 - ⇒ Avoid using tape of any kind on documents when preparing them for storage. Tape adhesives can sink into and saturate the paper. They can also ooze out from under their carriers, sticking to and staining nearby documents. If a document is badly damaged, it is best to sleeve or encapsulate it as it is.
 - ⇒ Even the so-called "archival" tapes will degrade over time and are not recommended for use on valuable or permanent records.
- Paper should be stored flat whenever possible.
 - ⇒ If the paper is flexible enough, unfold and gently flatten documents prior to storage.
 - ⇒ Sometimes a document will be so stiff and brittle that it cannot be unfolded or unrolled without seriously damaging the item. In that case you have three choices:
 - Leave it folded.
 - Seek the services of a professional conservator. For help finding and selecting a conservator in your area, you can contact the American Institute for Conservation at (202) 452-9545 or visit their website at <http://aic.stanford.edu/>. More information on selecting a conservator can be found in Jan Paris' *Choosing and Working With a Conservator* at <https://www.nedcc.org/free-resources/preservation-leaflets/7.-conservation-procedures/7.7-choosing-and-working-with-a-conservator>.
 - Try humidifying the document so that it will relax and open. For further information, please see our Conservation Note on *Humidification and Flattening of Documents* at <https://www.sos.mo.gov/CMSImages/LocalRecords/HumidificationandFlattening.pdf>.

Enclosures

Document enclosures will help you organize your collection. Good quality, well-chosen enclosures will also help minimize damage from handling, temperature and humidity fluctuations and dirt, and can have a significant effect on how long a collection will survive. Some factors to consider when selecting enclosures are the types of enclosures available, the materials used in the manufacture of the enclosure, and the specific needs of each item to be stored.

- There are many different types of enclosures available for document storage, such as boxes, folders, sleeves and envelopes.
- ⇒ Please see our Conservation Note on Conservation Terms (Enclosure Formats) at <https://www.sos.mo.gov/CMSImages/LocalRecords/ConservationTerms.pdf> for definitions of some of the different styles available.
- Document enclosures can be made of any number of different paper or plastic materials, some good and some not.
 - ⇒ Good quality materials are very important, as poor quality enclosures can actively damage the documents stored inside them.
 - ⇒ It is safest to buy enclosures for archival collections from reputable dealers who understand and address the issues involved in records preservation.
 - ⇒ Please see our “Archival Supplies” page on our Vendor List at https://www.sos.mo.gov/CMSImages/LocalRecords/Vendors_Information.pdf for a list of some possible suppliers.
 - ⇒ Also check out our Conservation Note on Conservation Terms at <https://www.sos.mo.gov/CMSImages/LocalRecords/ConservationTerms.pdf> for definitions of some of the terminology used to describe the different materials used to make archival enclosures.
 - ⇒ Paper or paperboard enclosures should be made of good quality, non-acidic paper with an alkaline reserve or buffer. It is also desirable that the paper be low-lignin or lignin-free.
 - Acidity causes paper to become weak, brittle and discolored.
 - Acid can migrate from poor quality enclosures to your documents.
 - An alkaline reserve or buffer in paper enclosures can help neutralize acids.
 - Lignin is a substance in wood that breaks down into acid compounds as it ages. The lignin can be removed from wood fiber papers to produce a better quality paper.
 - ⇒ Not all plastics are created equal! Some can actively damage the materials stored inside them.
 - Plastics made with polyvinyl chloride (also called PVC or vinyl) can be very harmful.
 - PVC can emit hydrochloric acid as it ages.
 - The plasticizers often used with PVC can separate from the plastic as they age and sit on the surface of the enclosure in the form of a film or droplets, creating a sticky mess.
 - Inks, both manuscript and printed, can stick to the sleeve and detach from the document stored inside.
 - Plastic films that are suitable for manufacture of “archival” enclosures include polyester, polyethylene and polypropylene.
 - Even these “good” plastics need to be made to preservation standards in order to be safe.
 - They must contain no harmful additives, such as surface coatings, dyes or unstable plasticizers.
 - If you are not sure what a plastic enclosure is made of, it is best not to use it, as it may be harmful.
- Every document or collection of documents has different needs, and it is important when purchasing enclosures to give serious thought to what is best for each situation.
 - ⇒ It is usually a good idea to place documents inside folders, then place the folders inside a box or other rigid enclosure.
 - ⇒ All of the folders within a box should be of a uniform size, regardless of the size of the documents inside them.
 - ⇒ Letter or legal sized folders can be packed in upright or flip-top boxes.
 - Upright boxes should be packed just full enough that the documents inside are well supported.

- If a box is only partially filled, a spacer should be used. Spacers are braces made of folded corrugated board that are used to fill the empty space in a box and provide the folders with even support.
- ⇒ Folders holding oversized documents should be placed in flat, shallow boxes.
 - Remember to allow space for safe access to the folders inside flat boxes.
 - Many of these boxes are made with one wall that flips down. These are called drop-front boxes or clamshell boxes.
- ⇒ If you do not have the space to store a large document flat, it would be better to roll the item on (not in) a rigid, alkaline buffered tube rather than fold it up.
 - After the document is rolled on the tube, you can wrap a piece of good quality paper around it to protect it from dust and handling.
 - This dust cover can then be secured with a flat cloth tying tape.
 - Make the tube long enough that the ties securing the dust cover can be placed to the sides of the document, not on the document.
- ⇒ Blueprints, diazo reproductions and color photographs can react adversely to alkaline conditions, and should not be stored in enclosures that are buffered.
- ⇒ Blueprints are also extremely susceptible to light damage, so opaque paper enclosures are a good housing choice.
- ⇒ Also choose paper enclosures for documents with loose media, such as graphite, charcoal or pastels. Static electricity can build up inside a plastic enclosure and cause loose media to detach from the document support.
- ⇒ Clear plastic enclosures are a good choice for fragile and/or frequently handled documents.
- ⇒ Get enclosures that fit properly.
 - Much damage can be caused by compressing items together in a too-small enclosure, or allowing a small item to rattle around in a large enclosure.
 - Be sure the edges of a document do not stick out past the edges of the enclosure, as this leads to tearing, soiling and loss of the edges of the document.
- ⇒ Label each enclosure with complete information about its contents to minimize unnecessary handling of the documents inside.
 - Use a No.2 pencil to place identifying information on the enclosures.
 - Felt-tipped pens and ball-point pens should never be used, even on enclosures, as these inks can bleed and permanently stain your documents.

Sources

- ◆ Ritzenthaler, Mary Lynn. *Preserving Archives and Manuscripts*. Chicago: The Society of American Archivists, 1993.

For further information

The conservation staff of the Local Records Preservation Program is available to provide additional guidance and support. Contact them at: P.O Box 1747, Jefferson City, MO 65102, (573) 751-9047, or local.records@sos.mo.gov.

The Local Records staff has compiled a list of preservation-related vendors, particularly those that provide supplies and services to Missouri citizens and government officials. It is available from the Local Records office or at http://www.sos.mo.gov/CMSImages/LocalRecords/Vendors_Information.pdf.

Published by the Local Records Preservation Program, Missouri State Archives, Office of the Secretary of State. The full set of Conservation Notes on this and other topics is available at <https://www.sos.mo.gov/archives/localrecs/conservation>.

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