



Conserve O Gram

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Storing Archival Paper-Based Materials

Significant portions of most archival and manuscript collections are typically made of paper. This *Conserve O Gram* provides basic guidelines for storing and preserving paper-based materials. See *Conserve O Gram* 19/16, Housing Archival Paper-Based Materials and *Conserve O Gram* 19/17, Handling Archival Documents and Manuscripts.

To Properly Store Your Archival Collections You Must Do This...	Don't Do This...
<p><i>Maintain a Proper Storage Environment</i></p> <ul style="list-style-type: none"> • Keep documents in secure dark storage in a space that is clean, food-free, and has minimal fluctuation in temperature and humidity. • Maintain constant low temperature (e.g., 20°C [68°F] ±2°) and relative humidity (e.g., 45% RH ±2%) to avoid mold, acidic decomposition, and cockling. • Control light intensity, proximity, and duration, avoiding unnecessary light because this causes fading and/or darkening. • Use the time-based monitoring system to compare the various storage spaces you might select for archival collections. (See James Reilly citation in <i>References</i>.) • Leave at least 18" of space between the boxes on the top shelf and any light fixtures, pipes, or sprinkler heads. • House items in folders, within archival boxes, on shelves of inert material, such as fused, powder-coated steel shelves or mobile heavy-gauge chrome-plated steel wire shelving. • Avoid oak shelving which is highly acidic. • Avoid damage by keeping paper away from acidic plywood or pressed wood board, wood slats, and frames. • Use folders and mapcases to house oversize materials, such as blueprints, architectural drawings, and maps. • Clean the archival storage space using bench brushes to brush off boxes; brooms and vacuums to sweep; and occasionally, non-volatile cleaners, such as soap flakes in water, to mop the floor. • Wait until furniture and carpeting have stopped outgassing (6 months after installation) before moving collections into new storage spaces. 	<ul style="list-style-type: none"> • Don't expose documents in storage or on exhibition to: <ul style="list-style-type: none"> -light levels over 100 lux (10 footcandles) for light sensitive media, such as photographs and friable material -temperatures over 24°C (75°F) -humidity in excess of 60% RH • Don't allow temperatures and humidity to fluctuate widely. • Don't use new furniture made of wood and wood composites, such as chip board, plywood, particle board, and masonite, because these materials may outgas fumes and/or may contain peroxide, formaldehyde, pitch, resin, and acidic lignin. • Don't use wooden file cabinets or rusting metal file cabinets which can damage archival materials. • Don't use harsh or strong cleaning chemicals, such as ammonia, bleach, peroxide, or anything that you can smell, for cleaning archival storage space.

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<p><i>Protect Materials from Light Damage</i></p> <ul style="list-style-type: none"> • Keep all materials in housing, such as folders and boxes, when not in use. • Use ultraviolet (UV) filters on lights and windows in archival reference, work, storage, and exhibit areas. • Remember that light damage is cumulative and permanent. • Keep light levels between 50-100 lux (5-10 footcandles) in archival storage and exhibit areas. • Monitor changes in appearance in materials that are frequently exhibited, photocopied, or used in reference. • Watch for changes in color dyes over time due to light damage or yellowing of paper. • Produce copies for duplication and reference of all frequently-used or vulnerable materials. 	<ul style="list-style-type: none"> • Don't allow frequent exhibition, xerographic copying, photographic copying, or other exposure to light levels over 100 lux (10 footcandles). • Don't allow materials that may experience fading or color shift to be used extensively under high light levels.
<p><i>Protect Materials from Mechanical and Structural Damage</i></p> <ul style="list-style-type: none"> • Establish handling and use policies. Train staff and researchers in how to properly handle and house archival paper materials. See <i>Conserve O Gram 19/16, Housing Archival Paper-Based Materials</i> and <i>Conserve O Gram 19/17, Handling Archival Documents and Manuscripts</i>. • Watch for signs of damage in materials that indicate a need for improved environments, such as cockling, rust stains, detached spines, and tears. • Store collections at least 4"-6" off the floor. • Avoid using attics and basements as storage spaces. • Keep paper in protective microenvironments (boxes and folders). • Provide supports, such as folders, boxes, and carts, when moving paper collections. • Use a support when handling wet paper because it is vulnerable to damage. • Store materials in frames only when you are certain that framed items have archival-quality mat and back boards. • Always label boxes before placing them on shelves. • Place collections on shelves so that boxes are not crowded and hard to remove. • Add the needs of the archival collection into your Emergency Operation Plan. 	<ul style="list-style-type: none"> • Don't allow inappropriate attachments to paper materials, such as: <ul style="list-style-type: none"> -paperclips -staples -Post-it notes -linen or pressure sensitive tape -plastic clips • Don't fold, roll, or trim documents. • Don't attempt to mend ripped or torn items with any kind of tape, including <i>archival</i> or <i>conservation</i> tape. • Don't place fragile, heavy, or oversize items or boxes on top or bottom shelves because they are awkward to access and move and easy to drop. • Don't house archival materials in fire proof file cabinets because they take up excessive space and are too costly; instead, house in boxes on shelves.

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<p>Prevent Biological or Chemical Damage</p> <ul style="list-style-type: none"> • Set up an Integrated Pest Management Program. • Watch for asbestos insulation or tiles, foxing, mold growth, insect or vermin accretions, and signs of humidity or microenvironment problems in storage spaces. • Monitor the environment 24 hours a day, 365 days a year to ensure that high temperatures (over 24°C [75°F]), high humidities (over 60% RH), poor air circulation, insects, vermin, mold, food preparation, and/or poor cleanliness are detected and corrected. • Install water alarms in spaces that are at risk of flooding; install fire alarms and sprinkler systems where there is a risk of fire. • Ensure that materials contaminated by mold, vermin, or insect damage, or that have other biological or chemical problems are stored apart from non-contaminated collections. 	<ul style="list-style-type: none"> • Don't use attics, basements, sheds, closets, garages, and environmentally uncontrolled spaces for archival storage. • Don't allow food, plants, pests, dust, and beverages in archival reference, storage, work, and exhibit spaces. • Don't store archival materials directly below water and sewage pipes or above active drains in case they leak.
<p>Recover Materials from Biological or Chemical Damage</p> <ul style="list-style-type: none"> • Work with a conservator to stabilize and preserve collections suffering from asbestos, mold, insect, or vermin contamination, either through cleaning, fumigation and/or freezing if necessary. • Wear appropriately-rated breathing apparatus, protective clothing, and latex gloves when working with contaminated materials. • Copy the materials after stabilization for use. 	<ul style="list-style-type: none"> • Don't work with contaminated materials without using appropriate protective devices and clothing.
<p>Secure and Protect Collections</p> <ul style="list-style-type: none"> • Establish guidelines for reference, handling, and reproduction of archival collections. • Enforce policies uniformly with all requestors, whether visitors or staff. • Ensure that staff and visitors use collections only with supervision. • Follow museum loan procedures for lending archival collections. • Ensure that archival collection storage spaces are protected by appropriate intrusion detection and fire detection and suppression systems. See <i>NPS Museum Handbook</i>, Part I, Chapter 9, Museum Collections Security and Fire Protection. • Ensure that spaces where archival collections are housed, processed, exhibited, or researched have fire and water alarms, sprinklers, and regular monitoring for leaks. • Ensure that the Emergency Operation Plan includes a list of collection salvage priorities. • Follow policies described in <i>NPS Museum Handbook</i>, Part II, Appendix D, Museum Archives and Manuscript Collections, Section U, for access and use restrictions. 	<ul style="list-style-type: none"> • Don't allow researchers to work in archival storage spaces. • Don't allow staff or visitors to make xerographic or other copies of archival materials unless they are working with labeled copies, not originals. • Don't allow staff or visitors to bring coats, containers, packages, extensive files, or equipment into the reference room. • Don't allow archival collections to be borrowed or circulated like library materials. • Don't store archival collections on structurally-insecure shelving. • Don't use mobile shelving for magnetic media or glass plates, negatives, and transparencies.

References

Reilly, James. *New Tools for Preservation: Assessing Long-Term Environmental Effects on Library and Archives Collections*. Washington, DC: Commission on Preservation and Access, 1995. (Available from Commission on Preservation and Access, 1400 16th Street, NW, Suite 740, Washington, DC 20036-2217.)

Ogden, Sherelyn, "Storage Methods and Handling Practices," Northeast Document Conservation Center Technical Leaflet. Andover, MA: NEDCC, June 1994.

Ogden, Sherelyn, "Storage Furniture: A Brief Review of Current Options." Northeast Document Conservation Center Technical Leaflet. Andover, MA: NEDCC, June 1994.

Van der Reyden, Dianne. "Paper Documents," *Storage of Natural History Collections: A Preventive Conservation Approach*. Pittsburgh, PA: Society for the Preservation of Natural History Collections, 1995.

Sources

See *NPS Tools of the Trade* (available only to NPS staff) for housing and interleaving materials and a list of vendors. Archival-quality materials can be purchased from suppliers, such as the following:

Conservation Resources International, 8000-H Forbes Place, Springfield, VA 22151; (800) 634-6932 or (703) 321-7730; Fax (703) 321-0629.

Gaylord Bros., Box 4901, Syracuse, NY 13221-4901; (800) 448-6160 or (315) 457-5070; Fax (800) 272-3412.

Light Impressions Corporation, 439 Monroe Avenue, P.O. Box 940, Rochester, NY 14603-0940; (800) 828-6216 or (716) 271-8960; Fax (716) 442-7318.

Metal Edge West, Inc., 2721 East 45th Street, Los Angeles, CA 90058; (800) 862-2228 or (213) 588-2228; Fax (213) 588-2150.

University Products, 517 Main Street, P.O. Box 101, Holyoke, MA 01041-0101; (800) 628-1912 or (413) 532-9431; Fax (800) 532-9281.

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