

THE ENVIRONMENT

2.5 Protecting Paper and Book Collections During Exhibition

Exhibiting collections is an important part of the educational mission of many cultural heritage institutions. It is also an effective way to attract the attention and support of the public. There are preservation considerations with all exhibits, even the most modest, and measures should be taken to minimize risk or damage to collections. For example, an item can become distorted if it is improperly mounted; a display method that places even the smallest stress on an object may, over a long exhibition period, cause permanent damage; and fading and discoloration caused by light exposure is cumulative and permanent. It is essential that the planning of every exhibit include input from a staff member or consultant who is knowledgeable about these and other preservation concerns. The involvement of such a person can avoid costly mistakes and limit possible damage to the collection.

No paper or other organic object should ever be on permanent display. Very sensitive or fragile materials should be displayed with care or only displayed as facsimiles. Facsimiles are an effective strategy for protecting flat paper objects and are increasingly common for photographs and documents. Laser color copiers make facsimile documents that are almost indistinguishable from originals, and digital scanners not only can copy a photograph but allow curators to remove blemishes and evidence of physical damage from the digital image.

There are times, of course, when only the original can be exhibited. It must be protected from light, air, and touching by the public. Sealed frames or cases with preservation-quality components are essential, as is control of light, temperature, and relative humidity (RH) in the exhibit area.

Five Simple Rules for Display

1. Use copies or facsimiles whenever possible.
2. Do not display a valuable paper artifact permanently.
3. Keep light levels as low as possible.
4. Minimize exposure to ultraviolet light.
5. Insure that cases and frames are enclosed, sealed, and made of materials that will not damage their contents.

LIGHT

Light can be a serious problem for objects on display. Paper is one of the most light-sensitive materials, as are certain other writing and drawing media. Light can cause darkening of paper and fading of media and book covers. Damage by light goes beyond visual alteration by attacking the physical structure of the cellulose fibers in paper, causing weakening and embrittlement. Because light damage is cumulative, even low levels can degrade paper if the exposure is long enough. Conservators therefore recommend that no valuable artifact be permanently displayed.

All light is damaging. The higher the light levels, the greater the potential danger. Sources rich in ultraviolet (UV) radiation are especially hazardous.

Natural Light (Daylight)

Exposure to natural light is especially harmful because of its intensity and high UV content. Some acrylics and most types of glass filter little or no UV. Ordinary non-glare glass is not UV-filtering, although there are non-glare products with this feature. If there are windows in the exhibit area, they should be covered with blinds, shades, or curtains for as much of the day as possible.

In addition, ultraviolet filters should be installed to control this damaging component of light. UV-filtering panels can be used in windows, cases, or frames. They are available as plastic sheeting or as rigid panels. The sheeting, usually polyethylene terephthalate (PET) film, can be cut with scissors and applied directly to windows or cases. Tinted UV films will reduce the intensity of the light as well. Although film is less expensive than rigid panels, it is less attractive and may be difficult to remove later on. High quality UV-filtering films can remain effective for approximately 15-20 years, depending on geographic location. The only way to determine if the film is still filtering is to measure the transmitted light with a UV meter.

Filtering panels can also be used as secondary glazing on existing windows. If mounted inside in a manner similar to interior storm windows, filters give thermal control as well as UV filtration. If the budget does not permit this type of installation, hanging the sheets inside the windows from hooks is effective as long as the panels are larger than the window glass so that all light from outside is filtered. Before using acrylic panels as window glazing, check that they do not violate local fire regulations.

UV glazing can also be added to glass or acrylic by the manufacturer. When choosing such glazing, check the product information to make certain the UV-filtering capacity is greater than 90%.

White paint containing titanium dioxide on the walls and ceiling of a room will absorb a certain amount of ambient UV radiation; however, other measures to control UV are still necessary.

Artificial Light

Lighting in areas where paper materials are on exhibit must be maintained at low levels. Good lighting designers know how to light exhibits effectively with low to moderate levels of light. If lighting is diffused rather than direct, for example, less light is needed, and visual interest can be created without subjecting a collection to intense spot lights.

Lights should be turned off when visitors are not in the room. This can easily be achieved with the addition of motion sensing lights. If items are exhibited in areas where the lights must remain on throughout the day (e.g. in a hallway or lobby),

timers can be added to ensure that the lights are turned off at the end of the day.

Some institutions put cloth covers on cases containing especially valuable or light-sensitive objects. This provides protection from light when the items are not being viewed.

It cannot be stressed enough that illumination must always be kept as low as possible. Lamps that give off little or no UV should be used.

- **Light Emitting Diodes (LED) Lamps.** LEDs do not emit UV or IR radiation, and the light does not generate heat (although the conductor box does). If using LEDs inside an exhibit case, be sure they are rated for use in an enclosed space. LEDs use less energy and have a longer lifespan than other light sources. There is a wide variance in color temperature and CRI, and the intensity of the light can diminish over time.
- **Fluorescent Lighting.** Although fluorescent lamps are common in most institutions, they have decided disadvantages in exhibit areas. Fluorescents must be modified in order to be dimmed, and most emit UV radiation. There are many brands of fluorescent lamps, however, and they vary greatly in the amount of UV they produce, from 0.5% to 12%. Purchase those with low UV output, not more than 2% UV.¹ For added safety, cover all fluorescent tubes with UV-filtering plastic sleeves. Be sure the sleeves are long enough to cover the ends of the tube, where much of the UV is emitted.
- **Incandescent (Tungsten) Lamps.** Because these can be used with dimmers and because they give off little or no UV, incandescent lamps are suitable for exhibition. The ordinary household light bulb is an example of a tungsten lamp. This type of light does generate heat, however, and must be placed well away from objects and never inside cases. Tungsten sources should be equipped with dimmers.
- **Tungsten-Halogen (Quartz-Iodine) Lamps.** This type of lamp can be dimmed but gives off significant amounts of UV and heat. Tungsten-Halogen sources should be used with the UV filters made for this type of lamp. Because this type of lamp generates a significant amount of

heat, it is not recommended for use in enclosed spaces or inside an exhibit case.

How Much Light?ii

The intensity of light and the length of time the materials will be on display are the primary factors and need to be considered together. Most collection materials can be on exhibit for three to four months at 50 to 150 lux and show no fading. (Light can also be measured in footcandles or lumens; one footcandle [lumen] equals approximately 11 lux.) A level of 50 lux is similar to the lighting in a home living room in the evening. For comparison, standard office lighting is around 400 lux and direct sunlight measures 30,000 lux. Rooms lit at 50 lux may seem very dim, especially to someone who comes inside on a bright day. The eye does adjust, however, and good lighting design helps a great deal. A sign explaining the reason for the low levels usually mollifies the public.

Lower light levels are necessary for light-sensitive materials such as watercolors, photographs, and prints. Materials without color (printed text, black and white photographs, carbon black ink manuscripts, etc.) can be exhibited at up to 150 lux. It is acceptable to adjust the intensity of light up or down within this range depending on the sensitivity of materials.

If the light levels are to be higher than 50-150 lux, the length of time on exhibit needs to be decreased accordingly. When making the decision about time on exhibit and light levels, be aware that low light levels for extended periods of time cause as much damage as high light levels for short periods. We can measure the damage to materials in direct proportion to the light level multiplied by the time of exposure (lux hours (lx h)). For example, an object lit for 10 hours a day at 50 lux for 100 days would have a light dosage of 50,000 lx h.

When considering how much and how often an item is to be on display, always keep in mind that light damage is cumulative and irreversible. Ideally, light-sensitive materials would only have an annual exposure of 50,000 lx h, regardless of whether they will be displayed annually or not. If an object is lit for 10 hours a day at 50 lux, the limit of 50,000 lx.h is reached in 100 days (50 lux x 10 hours x 100 days). At 100 lux the limit is reached in 50 days. The higher the light level the shorter the exposure time.

Some institutions keep exposure histories for their most valuable or light-sensitive materials. Using lux hours to track light exposure provides useful and concrete information on how bright exhibition lighting should be by clearly showing that the same amount of expected damage occurs with brighter light and short time as dimmer light and long time. In order to use this principle effectively, good records of exhibition durations and actual light levels must be kept.

Ultimately, every institution must decide on an acceptable upper limit of exposure (i.e., a certain number of lux hours per year) for exhibited objects, which may differ for different parts of the institution's collection.

Light is measured with a light meter. Lacking this, the built-in meter of a single-lens reflex camera can be used. UV meters measure the proportion of UV in visible light, expressing it in microwatts per lumen. Paper collections should never be exposed to UV in amounts exceeding 75 microwatts per lumen. If your institution does not have access to a dependable UV meter (they are expensive), you can safely assume that all daylight and most fluorescent or tungsten-halogen sources will contain unacceptable amounts of UV. Such light sources should have UV filters.

Flat Paper Objects

Most printed materials can be exhibited safely; however, long-term exposure to light can cause paper to discolor. Some materials are more sensitive to light than others – exhibition time should be limited for materials such as blueprints, diazotypes, hand colored illustrations, illuminated manuscripts, botanical specimens, and some types of photographs. It is advisable to use facsimiles of these materials. When a facsimile cannot be used, consider rotating items on exhibit.

Books

Pages displayed in open volumes may be overlaid with facsimiles to protect the opening from light exposure. When facsimiles cannot be used, consider rotating items on exhibit or turning the pages on a regular schedule. Although exhibiting a volume closed instead of open is less stressful to the book, remember that most book cover materials will be damaged by long-term light exposure. Therefore, even closed volumes should be shown for limited periods of time with low light levels.

CASES

Paper materials should always be displayed in cases or in frames. If made of appropriate materials and properly sealed, cases and picture frames will protect against a variety of airborne pollutants as well as physical contact by the public. These enclosures also reduce the effects of temperature and humidity fluctuations on a daily basis, if not on a long-term basis. Monitoring the temperature and humidity inside exhibit cases should be incorporated into your institution's environmental monitoring program. Bluetooth or Wi-Fi enabled dataloggers allow for data to be collected without opening exhibit cases. More information on environmental monitoring can be found in NEDCC Preservation Leaflet [2.2 Monitoring Temperature and Relative Humidity](#).

Controlling Humidity

Controlling the environment in the exhibition space with 24-hour air conditioning and dehumidification is the most effective way of protecting an exhibit from seasonal periods of high humidity. That said, it is not possible to prevent moisture from entering cases during such times, and silica gel will help stabilize the RH in a case if the latter is well sealed. Silica gel is a crystalline material that acts as a desiccant. In exhibit cases, frames, packing crates, and other micro-environments, silica gel can be used as a buffer to maintain a specified RH. Prior to use, the gel must be conditioned to the desired relative humidity. (To do this, follow the supplier's instructions.) Once conditioned, the gel will absorb moisture when the RH is too high and will release moisture when the micro-environment becomes too dry.

There are two types of silica gel. Regular silica gel is white, and indicating gel is colored. Indicating gel is especially useful because it shows when it has reached the saturation point by changing color. Indicating gel is much more expensive, but you can save money by purchasing a small amount of indicating gel and mixing it with the regular type. Once saturated, silica gel can be dried and reused by heating it in a 300 degrees F oven for three hours. Art-Sorb and Artgen are high performance silica gels that can absorb five times as much as regular silica gel. These come in the form of sheets, beads, fiber cassettes filled with beads, or tiles. These can be

inserted into frames and small boxes as well as into cases.

The proper quantity of silica gel for the volume of the case must be carefully calculated based on the duration of the exhibit and the size of the case. For example, a temporary exhibit requires 300 grams of silica gel per 3.0 cubic feet, while a permanent exhibit requires 300 grams of silica gel per 1.5 cubic feet.ⁱⁱⁱ

Exhibit Case Materials

Materials used for case construction should be chosen carefully. Woods, wood sealants, paints, adhesives, gasketing materials, and display fabrics can give off harmful gaseous emissions. These volatiles, often acidic in nature, build up in sealed cases. Although they cause obvious damage to materials like silver or lead, they attack paper in more subtle ways.

Exhibit cases and mounts should be constructed using materials that are chemically inert and are not known to offgas. The American Institute for Conservation maintains [a database](#) of materials that have undergone Oddy testing.^{iv} Materials that have failed Oddy testing should be avoided.

Some conservators recommend ventilation holes in cases; however, free air exchange would subject the case contents to dust and external pollutants. High-tech cases have been developed, including some with filtered air exchange, but at this stage they are beyond the means of most institutions. It is more practical to use cases built with safe materials.

Wood and Wood Products

Wood is often used for cases because it is readily available, easy to work with, and attractive; however, all wood will generate volatile acids that can damage paper. If wood must be used, choose a type that is comparatively low in harmful emissions. Certain softwoods, notably poplar and basswood, are recommended. One hardwood, mahogany, is also low in volatiles, but true African mahogany must be used. Oak, frequently found in older cases, is the most acidic wood and potentially the most dangerous. If the budget allows, one can avoid use of wood in new case interiors. Anodized aluminum or properly manufactured coated steel frames are available but are expensive. Cases can also be designed without a wooden floor, with the frame on the outside of a Plexiglas or glass box.

Because they are both strong and economical, plywood and other wood composites (fiberboard, particle board) are frequently used for case construction. These can be even more problematic than solid wood because they may be fabricated with adhesives or resins containing formaldehyde, which oxidizes to formic acid. Offgassing from formaldehyde causes paper to become yellow and brittle, can cause metal objects to corrode, and can promote the formation of crystals on glass.^v

Of the composites, exterior plywood bonded with exterior glue, a phenol formaldehyde adhesive, is recommended.^{vi} Phenol formaldehyde is more stable (i.e. offgasses less) than urea formaldehyde, which is common in wood composite products. The American Plywood Association (APA), which creates standards and specifications for the industry, endorses only products bonded with phenol formaldehyde resins,^{vii} and these bear the APA stamp. A particle board that does not give off formaldehyde, such as Medite II, is also acceptable.^{viii} The composition of MDF (Medium Density Fiberboard) and MDO (Medium Density overlay board) products should be reviewed before use to ensure that they do not contain the more harmful resins.^{ix}

Most important, collection materials should never be placed in direct contact with wood. Barriers should be used in between (see next section).

Barrier Materials

All wood surfaces in both new and old cases should be covered with appropriate barrier materials. This protection is especially important with cases made of wood composites or oak. Sealing the wood before the barrier material is installed will further reduce gaseous emissions.

Barrier materials can be active or passive. Passive barriers that are chemically stable and relatively impermeable include polyester film (e.g. Mylar), 4-ply 100% ragboard, and polyethylene foam sheeting (e.g. Ethafoam or Volara). Marvelseal, an adhesive-free laminate of aluminum foil, polyethylene, and polypropylene, is especially recommended because it is the one product that is totally impermeable to gases and moisture. In addition, Marvelseal is a flexible sheet that can bend and wrap.

A well-known example of an active barrier is MicroChamber, which is used for storage containers and is also available in sheets. The active ingredients

in MicroChamber products are activated carbon and zeolites. These "scavengers" react chemically with polluting gases, trapping them and removing them from the enclosure.

Barriers should cover the sides of cases as well as the floor. They can be attached to the sides with double-sided tape. Marvelseal is heat sensitive on one side and can be ironed onto many wood surfaces.

Sealants and Paints

One must choose a finish that does not give off problematic volatiles of its own. Volatile organic compounds (VOCs) can pose a threat to collections as well as human health. In general, avoid all oil-based and alkyd-based products. Products labeled "Low VOC" or "No VOC" are preferred. Proper safety precautions must be taken during application and drying, and all paints and finishes should be allowed to cure for at least three weeks after application.

If a case is to be painted, use 100% acrylic paint. Avoid latex paints, which can become tacky in humid conditions. Wood should always be sealed prior to painting.

Cloth, Gaskets, and Adhesives in Cases

Other case components such as fabric linings, adhesives, and the gaskets used to seal the case must also be chosen with care. Fabrics made of silk are acidic, and those made of wool emit sulfur compounds and are therefore not recommended. Undyed cotton, linen, polyester, or cotton-polyester blends are acceptable. All fabrics should be washed before use to remove any sizing or purchased from a provider that guarantees no additives. If it is necessary to use a dyed fabric, and the wash water shows color, continue to wash until the dye stops running. As an added precaution, allow no object to come in direct contact with the fabric.

For gaskets, acrylic, silicone, or Teflon should be used instead of rubber. The best adhesives for use in cases are acrylics and hot-melt glues rather than protein glues or cellulose nitrate. For attaching linings, Scotch #415 tape is preferred over other commercial tapes.

Placement within Cases

Flat Paper Objects

If the case is well sealed, objects inside need not be glazed or otherwise covered. Unless they are matted

or encapsulated flat paper-based objects should be attached to sheets of ragboard or other archival material cut slightly larger than the size of the object. This mount not only adds another barrier between object and case but provides support when the object is moved. For appearance, exhibit designers often specify that the edges of the object be flush with the edges of the ragboard mount. A larger mount, however, gives better protection to the object. In the design of an exhibit, preservation concerns such as this must be addressed.

Flat paper objects should be attached securely to the mounts. They may be mounted in window mats (see below) or onto ragboard backings. They can be hinged or attached with corner supports. Edge strips may be used if the edges of the object are covered by a mat. Strips and corner supports are popular because adhesive need not be applied to the object. For non-adhesive mounting, commercially available archival paper or polyester photo corners will work on small documents or photographs. Larger objects ~~artifacts, however,~~ require the more substantial support of corner strips. These can be made of archival paper, polyester film, or woven polyester. Finely woven polyester is both transparent and matte and therefore less conspicuous than polyester film.^x For further information about mounting systems, see NEDCC Preservation Leaflet [4.10 Matting and Framing for Works on Paper and Photographs](#).

Objects that do not have friable media may be encapsulated in polyester film, which will protect and support the object during and after the exhibit. Encapsulation involves sealing all edges of the film ultrasonically, with heat, or with double-sided tape. Research at the Library of Congress, however, has shown that acidic papers deteriorate more rapidly within polyester envelopes and other closed systems.^{xi} Since most old, untreated papers are acidic to some extent, they should be professionally deacidified or at least washed prior to encapsulation. If such treatment is not possible or advisable due to the type of media, an alkaline sheet inserted behind the object will slow the acid degradation. Microchamber sheeting material is especially recommended.

A potential problem with encapsulation is slippage. If positioned vertically, large or heavy objects encapsulated in enclosures with double-sided tape may slip and become embedded in the tape seal.

The adhesive of aged tape may also seep and become adhered to the edges of the object. When possible, encapsulation should be done with ultrasonic or heat seals, which are also more attractive.

If unframed artifacts are displayed vertically, a safe and visually acceptable method of securing them must be found. Some institutions use hot-melt adhesives to attach ragboard mounts to vertical surfaces. These can be used in small amounts, and they hold well. Like other materials, however, the adhesives must be chosen with care and applied only to the back of the mount. Research by the Canadian Conservation Institute indicates that colorless hot-melt adhesives based on ethylene vinyl acetate, polyethylene, polyurethanes are the least problematic.^{xii}

Books

Books and pamphlets have their own exhibition requirements. Volumes should be displayed horizontally or at a gentle angle to prevent damage and should be supported so that the binding is not under strain. If a volume is shown open, open it only as much as the binding will comfortably allow—most books will not lie flat when opened and should not be forced into this position. Fully support the binding using a cradle or other support. Custom book cradles that have been made to fit each volume are recommended. Such cradles can be ordered from mount makers or made in-house; instructions are available in the conservation literature. Cradles should always be large enough to support the whole book. If the pages do not remain open naturally, a strip of polyester or polyethylene film can be looped around each side of the open book and closed with double-sided tape. Even with the use of a cradle, keeping a book open for long periods can damage its structure

Commercially-made molded acrylic cradles or wedges, available in different sizes and angles from conservation suppliers, offer an alternative to custom cradles. These cradles can easily be modified to suit most items and provide an economical and accessible solution.

FRAMING

Framing plays an important role in exhibition. Use of stable framing and mounting materials is especially important since the objects may remain in the frames after the exhibition is over.

Glazing is a must with paper objects. The glazing should not come in contact with the object, so the use of a window mat or spacers is critical. Ultraviolet-filtering glazing is recommended especially if the room has sources of UV radiation. Note, however, that acrylics are not always appropriate for use in frames since these plastics carry a static charge that can dislodge pastel and other friable media. In such cases, ultraviolet-filtering glass can be used.

The mounting materials inside the frame must adhere to conservation standards. Conservators recommend use of mats and mounts that are pH-neutral or slightly alkaline (buffered), depending on the type of object and its media. (For example, blueprints and diazotypes are very sensitive to alkaline conditions and should be mounted with pH-neutral mats or supports.) Hinges or the non-adhesive systems described in NEDCC Preservation Leaflet [4.10 Matting and Framing for Works on Paper and Photographs](#) should be used to attach the objects to the mount. If hinges are used, a high-quality, strong paper such as Japanese kozo must be used with an appropriate strong but reversible non-staining adhesive such as starch-based paste.

Emissions from wooden frames can damage the edges of paper objects. One frequently encounters "burned" edges on old prints or other artifacts that have been framed for many years without a separation between the object and the rabbet of the frame. Visible damage seems not to occur if the object is a quarter inch or more away from the wood. If for historical reasons it is necessary to keep an artifact in its original frame and the sheet extends to the wood, line the wood with strips of Marvelseal, polyester film, or ragboard. Sometimes Marvelseal can be ironed onto the frame rabbet with a small tacking iron. Unless the artifactual value of the frame prohibits alteration, the rabbet might be enlarged slightly with a router. If this is done, the inside of the frame should still be sealed and lined.

The back of the frame should contain backing layers of archival cardboard that are thick or dense enough to protect the object. Frames should be well sealed and hung securely. Avoid hanging items in damp areas such as on uninsulated outside walls, which can collect moisture during winter or periods of high humidity. If it is necessary to exhibit on an outside wall, a moisture barrier of polyester film or Marvelseal can be inserted between the backing

layers or over the back of the frame. The frame should be deep enough so that its back is recessed, allowing a space for air circulation between the frame and the wall. Frames can also be held away from the wall slightly by small rubber bumpers or by push pins attached to the reverse of the frame.

The exhibition of very large modern artworks presents a new challenge. The modern exhibition aesthetic and often the request of the artist may call for the exhibition of artworks directly against a gallery wall without the protection of framing. Non-traditional methods of attachment may include rigid support panels, non-aqueous and/or pressure sensitive adhesives, staples, pushpins, Velcro, cleat systems, and magnets. Such exposed exhibition of a paper-based object should not be permanent because it creates a greater risk for damage by adverse environmental conditions and by the viewing public. A conservator should be consulted when considering such an exhibition.

LOANS

Lending objects from their collections is a standard practice for many institutions. Although loans promote the collection and the institution, exhibition at remote sites involves additional risk. Potential dangers can be minimized, however, with an appropriate loan policy and procedures.

All lending institutions should establish a formal policy governing loans for exhibition. The Rare Books and Manuscripts Section (RBMS) of the Association of College and Research Libraries (ACRL) has developed a set of guidelines for the loan of materials between institutions.^{xiii} These guidelines can aid you in developing your own institution-specific loan policy and will be helpful in negotiations with prospective borrowers.

It is important to establish in advance that conditions at the borrowing institution are reasonably safe. A visit to the site is recommended if possible. It is the responsibility of the borrower to submit a loan agreement and a facility report. The lender should review these and negotiate amendments as necessary. The Association of Museums (AAM) has developed a General Facility Report (an updated version of the 1988 Standard Facility Report^{xiv}) that can be used to assess an institution's ability to safely exhibit an item.^{xv} This in-depth reporting form covers all aspects of an

institution's operation that could affect exhibition safety: security (fire and theft), light levels, case materials, environmental controls in the building as a whole, shipping and receiving facilities, and personnel and insurance coverage.

When shipping is necessary, pack objects well^{xvi} and use a reliable shipper. Framed materials should be glazed with acrylic rather than glass. If the framing can be done at your institution prior to the loan, an additional measure of control is gained.

CONSULT A CONSERVATOR

Do not ignore the risks of exhibiting paper and books. A conservator or other collections-care

professional should be involved with the exhibit from the earliest stages of planning. Preservation concerns must not be overlooked in favor of other priorities such as exhibit design.

The field of collections care is changing rapidly as scientific research deepens our understanding of materials and the mechanisms of deterioration. New products are being introduced, and existing products are subject to change. A preservation professional is best able to keep up with changes in this increasingly complex field. If your institution's staff does not include a specialist on collections care, then developing an ongoing relationship with such a person is essential for responsible collections care.

SUGGESTED FURTHER READING

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ENDNOTES

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^x Kathy Ludwig, National Archives and Records Administration. Personal communication.

^{xi} C.J. Shahani, "Aging of Paper Sealed within Polyester Film," in *Accelerated Aging of Paper: Can it Really Foretell the Permanence of Paper*. Preservation Research and Testing Series No.9503. Washington, D.C.: Library of Congress, November 1995. <https://www.loc.gov/preservation/resources/rt/AcceleratedAging.pdf>

^{xii} Jean Tétreault, "Products Used in Preventive Conservation – Technical Bulletin 32," Ottawa: Canadian Conservation Institute, modified 2020-07-21. <https://www.canada.ca/en/conservation-institute/services/conservation-preservation-publications/technical-bulletins/products-used-preventive-conservation.html#a3a>

^{xiii} Association of College & Research Libraries, "ACRL/RBMS Guidelines For Interlibrary And Exhibition Loan Of Special Collections Materials," 2012. <http://www.ala.org/acrl/standards/specialcollections>

^{xiv} Registrars Committee of the American Association of Museums, "Standard Facility Report – United States," 1988. <https://static1.squarespace.com/static/58a5dc6cb3db2b9edd19c676/t/590e3923414fb521f0402aba/1494104356487/1998StandardFac.pdf>.

^{xv} Summary available from ACRL/RBMS, "ACRL/RBMS Guidelines For Interlibrary And Exhibition Loan Of Special Collections Materials, Appendix II: AAM General Facility Report," 2012. <http://www.ala.org/acrl/standards/specialcollections#standard>

^{xvi} For more information about packing, see NEDCC, "Preservation Leaflet 4.5 Packing and Shipping Paper Artifacts," 2020. <https://www.nedcc.org/free-resources/preservation-leaflets/4.-storage-and-handling/4.5-packing-and-shipping-paper-artifacts>



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