

Basic preservation





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Basic preservation for library and archive collections

"The surest way to preserve your books in health is to treat them as you would your own children, who are sure to sicken if confined in an atmosphere which is impure, too hot, too cold, too damp or too dry."

William Blades, *The Enemies of Books*, London, 1880.

Blades' advice is sound, and as valid today as when it was written. Today, the Preservation Advisory Centre gives guidance and advice on the preservation of collections. This booklet provides a starting-point for those managing library and archive collections in all types of institution. Resources for further study are listed after each section and at the end of the booklet.

What is Preservation?

Preservation can be defined as 'all managerial, technical and financial considerations applied to retard deterioration and extend the useful life of (collection) materials to ensure their continued availability'¹. Preventive measures can considerably extend the useful life of collections, and are usually much more cost-effective than interventive measures taken to remedy damage after deterioration has taken place. The external causes of deterioration of collections include:

- poor handling or storage
- theft or vandalism
- fire and flood
- pests
- pollution
- light
- incorrect temperature and relative humidity(RH).

¹ Eden, P. et al., A model for assessing preservation needs in libraries, London: British Library Research and Innovation Centre, 1998

Deterioration due to natural ageing will continue but can be considerably diminished by minimising the effects of external causes of deterioration. Each can be tackled separately, but they do interact: for example, incorrect temperature and relative humidity can increase the risk of pest infestation, and poor storage may increase the risk of fire and flood damage. The nature of the collection must also be considered, since for acidic paper or for vellum and parchment, incorrect temperature and RH can have more serious and rapid effects than for some other materials. You should assess and control all the preservation risks which may affect your collections.

Handling and storage

In order to develop a culture of best practice in handling materials, it is important that staff, and ideally users, receive regular training in appropriate handling techniques, and that collection users are provided with the necessary aids and equipment (book supports and book snakes). If users cannot be given training, staff must be able and ready to intervene when harmful practice is observed. The Preservation Advisory Centre booklet *Using library and archive collections* should be consulted for more detailed advice.

Good storage will promote collection well-being by minimising the risk of infestation, mould growth, water ingress/leakage and electrical fire. Shelving should be of inert material, and appropriate to the size of its contents. Protection, such as boxes and other enclosures, should be of archival board or polyester and clearly labelled to identify the contents. The Preservation Advisory Centre booklets *Specifying library and archive storage* and *Damaged books* should be consulted for more detailed advice.

A good storage environment will also be clean, and the collections themselves should also be subject to regular cleaning as part of a regular maintenance programme. Shelves and books should be dusted regularly. Dust can be abrasive, may contain pollutants, and will foster mould growth and pest infestation. No water should be used near collection material. Books should be dusted using a soft brush, brushing away from the spine. A special vacuum cleaner fitted with a HEPA filter, a soft brush attachment and with adjustable suction may be used. If the material is particularly dusty, or if mould is present, protective equipment, such as gloves and masks should be used. The Preservation Advisory Centre booklets *Cleaning books and documents* and *Prevention and treatment of mould outbreaks in collections* should be consulted for more detailed advice.

Additional reading:

- Adcock, E., ed., IFLA Principles for the Care and Handling of Library Material, Paris: IFLA-PAC, 1998 www.ifla.org/VI/4/news/pchlm.pdf
- BS 5454:2000 Recommendations for the storage and exhibition of archival documents, London: British Standards Institution, 2000
- Cleaning books and documents, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/clean.pdf
- Using library and archive collections, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/handling.pdf
- Specifying library and archive storage, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/storage.pdf
- Prevention and treatment of mould outbreaks in collections, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/mould.pdf

Theft and vandalism

The way in which collections can be made secure will vary according to circumstance: for example a collection may be open-access, circulating, or in closed access or even in a strong room. British Standard BS 5454:2000 sets out the recommended standards. At the minimum, a storage area should have an intruder alarm and secure windows and doors.

Additional Reading:

BS 5454:2000 Recommendations for the storage and exhibition of archival documents, 5.7.1–5.7.6 London: British Standards Institution, 2000

Collections security: access versus protection, International Preservation News, no. 45, Paris: IFLA PAC, 2008 <http://archive.ifla.org/VI/4/news/ipnn45.pdf>

Security in museums, archives and libraries: a practical guide, London: Resource, 2003 www.collectionslink.org.uk

Fire and flood

Fire and water damage are often considered together since the quenching of a fire usually results in water damage. Disaster/emergency planning generally focuses on the assessment and minimisation of risk in order to prevent events which could damage the collections. The planning process covers preparedness for such events, creates plans to

enable rapid and effective reaction, and sets priorities and procedures for salvage. Effective emergency planning will require considerable work to ensure liaison between the organisation and the emergency services and salvage facilities. Within the organisation it will require collaboration between collection managers and building managers, possibly between different departments which are not normally required to work in this way. Once the plan has been written, it should be regularly tested by 'dry runs' and amended as necessary. Designated staff must be trained in the agreed procedures, and all processes and documentation regularly reviewed and updated. 'Mock' emergencies can be a useful means of verifying the effectiveness of call-out procedures and the locations of supplies.

In many cases water damage can be remedied locally, e.g. a book which is not completely soaked can be dried by standing it upright, fanning the pages and allowing an electric fan to blow cool air between the pages. This is best done in a plastic wind-tunnel. Material which is very wet is best frozen. Later, it can be freeze-dried or defrosted for air-drying. It is important that material is either dried or frozen within 48 hours of inundation, as mould can be expected to grow after this time. Some material types must be dealt with differently, e.g. clay-loaded ('art') paper will dry to a solid block if the pages are not separated while the book is wet, and wet microfilm should be kept wet in a bucket of clean water until it can be sent for specialist treatment.

Additional reading:

- Prevention and treatment of mould outbreaks in collections, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/mould.pdf
- Disaster preparedness and response (list of online resources), Conservation Online <http://cool.conservation-us.org/bytopic/disasters>
- McIlWaine, J. IFLA disaster preparedness and planning: a brief manual, Paris: IFLA PAC, 2006 <http://archive.ifla.org/VI/4/news/ipi6-en.pdf>
- Selected resources on disaster management, IFLA PAC <http://archive.ifla.org/VII/s19/usefulresrcs.htm>

Pests

Insects, rodents and birds can all damage collections, but insects are probably the most common. In the UK, major insect infestations are rare, but small-scale

occurrences are relatively common. Integrated Pest Management (IPM) programmes are designed to prevent pests getting into storage areas by monitoring for their presence, and undertaking appropriate control measures. Sticky traps can be used to detect insect presence, and pheromone traps will attract and kill them. New acquisitions should be examined for infestation, and quarantined if necessary.

Additional Reading:

- Pest management (list of online resources),
Conservation Online <http://cool.conservation-us.org/bytopic/pest>
- Pinniger, D., Pest management: a practical guide, Cambridge: Collections Trust, 2009
- Pinniger, D., Pest management in museums, archives and historic houses,
London: Archetype Publications, 2001
- Pinniger, D. and Winsor, P., Integrated pest management: a guide for museums, libraries and archives, London: Museums and Galleries Commission, 1998

Pollution

Particulate pollutants may enter the library or archive from external sources such as roads, industrial sites, building works. Dust and soot may also arise from internal sources, such as smoke or cooking by-products. Gaseous pollutants may arise from the same sources, or may be generated inside the library or archive as products of material decay, by wooden shelving or certain types of paint. Collections can be protected by filtering external air entering storage areas, or if filtration is not possible, by preventing the intrusion of external pollutants through the use of effective window and door seals. You should also take care to minimise the sources of internal pollutants. The use of archival board boxes will provide considerable protection from pollutants.

Additional Reading:

- Hatchfield, P. B., Pollutants in the museum environment: practical strategies for problem solving in design, exhibition and storage, London: Archetype, 2002
- Tetreault, J. Airborne pollutants in museums, galleries and archives,
Ottawa: Canadian Conservation Institute, 2003

Light

Exposure to light causes fading of dyes, inks and pigments, and can contribute to the ageing and embrittlement of paper, cloth and leather. The most obvious example of this is the way in which a newspaper left in daylight or artificial light will turn yellow within days, while a similar paper kept out of the light will not. What must also be appreciated is that the damage cannot be reversed and is cumulative. All kinds of light are dangerous, but ultraviolet radiation is particularly damaging. Damage can be minimised by providing ultraviolet screening film on windows, by pulling curtains or blinds, by fitting UV filters on artificial lighting, by switching lights off when areas are unoccupied, and by storing material in boxes. Light levels in exhibition cases or other displays must be measured and controlled. The Preservation Advisory Centre booklet *Guidance for exhibiting archive and library materials* should be consulted for more detailed advice.

Additional reading:

- BS 5454:2000 Recommendations for the storage and exhibition of archival documents 8.1, London: British Standards Institution, 2000
- Guidance for exhibiting archive and library materials, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/exhibition.pdf

Temperature and relative humidity (RH)

Relative humidity is a ratio (expressed as a percentage) of the amount of water vapour actually held in a specific amount of air compared to the maximum amount of water vapour that same amount of air could hold at the same temperature and pressure. The higher the temperature, the more water vapour the air can hold. When saturated the relative humidity of the air is 100%. When the air is cooled, it can hold less water and relative humidity rises. As relative humidity is dependent upon temperature, these two factors should be considered together.

Control of temperature and relative humidity is critical in the preservation of library and archive collections because an unacceptable level of either contributes significantly to the breakdown of materials. Heat accelerates deterioration. The rate of most chemical reactions is approximately doubled with each increase in temperature of 10°C. High relative humidity provides the moisture necessary to promote harmful chemical reactions in materials and, in combination with high temperature, encourages mould growth and

insect activity. Extremely low relative humidity, which can occur in winter in centrally heated buildings or in very dry climates, may lead to desiccation and embrittlement of some materials.

Fluctuations in temperature and relative humidity are also damaging. Library and archive materials are hygroscopic, readily absorbing and releasing moisture. They respond to diurnal and seasonal changes in temperature and relative humidity by expanding and contracting. Dimensional changes accelerate deterioration and lead to such visible damage as cockling paper, flaking ink, warped covers on books, and cracked emulsion on photographs. In some situations materials can be protected from moderate fluctuations. Mild changes appear to be buffered by certain types of storage enclosures and by books being packed closely together. More detailed information can be found in the Preservation Advisory Centre booklet *Managing the library and archive environment*. BS 5454:2000 recommends the following parameters for the storage of paper and parchment.

- For frequently-handled material, temperature should be kept at a fixed point between 16°C and 19°C with a tolerance of 1°C on either side, for example, between 16°C and 18°C, or 17°C and 19°C
- Infrequently-handled material, which will be less subject to movement from storage areas to reading rooms and search rooms, should be kept at a fixed point between 13°C and 16°C with a tolerance of 1°C on either side
- Relative humidity should be at a fixed point between 45% and 60% with a tolerance of 5% on either side. Rapid changes should be avoided.

It may be difficult to attain these standards without the installation of an air conditioning system, but it is important to aim for stability in both temperature and RH, at levels as near to these parameters as possible.

Additional reading:

- BS 5454:2000 Recommendations for the storage and exhibition of archival documents 7.3, London: British Standards Institution, 2000
- Kitching, C. et al., DISC PD 0024:2001 Guide to the interpretation of BS 5454:2000 Recommendations for the storage and exhibition of archival documents, London: British Standards Institution, 2001
- *Managing the library and archive environment*, London: Preservation Advisory Centre www.bl.uk/blpac/pdf/environment.pdf

Conservation

Conservation is the treatment of artefacts by interventive procedures. It should be seen as one option in a programme of collection care. In the first instance, preventive measures should be employed. Conservation work must be undertaken with care and in accordance with certain principles, in order to maintain the integrity and authenticity of the artefacts. It should be very carefully considered and undertaken only after consultation between curatorial and conservation experts.

As a matter of principle, minimum intervention should be used to support and stabilise materials which have artefactual value. The techniques and materials used during treatment should not harm the item, and repairs should be capable of being reversed without damaging the item. All materials used in the conservation of library and archive collections should be of archival quality, i.e. they should contain no substances which will harm the artefact, and should have long-term stability.

Conservation is a skilled activity, and should not be undertaken by untrained personnel. If a library or archive does not have its own conservation staff, it should aim to employ a conservator who is accredited by Icon, the Institute of Conservation or the Archives and Records Association. Accreditation ensures that a conservator has achieved an appropriate level of competence verified by the relevant professional body. The Conservation Register www.conservationregister.com holds detailed information on conservation practices in the UK and Ireland.

Additional reading:

- Guidelines for choosing and working with a conservator, London: Icon, 2006
www.conservationregister.com/picon-workingwithaconservator.asp

Online resources

Canadian Conservation Institute 'Preserving my heritage'

www.preservation.gc.ca

Conserve-o-grams

www.nps.gov/museum/publications/conserveogram/cons_toc.html

Collections Link

www.collectionslink.org.uk

Conservation Online

<http://cool.conservation-us.org>

Icon, the Institute of Conservation

www.icon.org.uk

International Preservation News

www.ifla.org/en/publications/international-preservation-news

Northeast Document Conservation Center 'Preservation 101' online course

www.nedcc.org/education/online.php

Oxford University Library Services, Conservation and collection care

www.bodley.ox.ac.uk/dept/preservation

Preservation Advisory Centre, Caring for collections (e-induction)

www.bl.uk/blpac/induction.html

reCollections: caring for collections across Australia

www.collectionsaustralia.net/sector_info_item/3

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Edwards, E. and Hart, J. (eds), *The National Trust manual of housekeeping: the care of collections in historic houses open to the public*, Oxford: Butterworth-Heinemann, 2006

Kitching, C. et al., DISC PD 0024:2001 Guide to the interpretation of BS 5454:2000 Recommendations for the storage and exhibition of archival documents, London: British Standards Institution, 2001

Matthews, G. and Feather J. (eds), *Disaster management for libraries*, Aldershot: Ashgate, 2003

Matthews, G. and Eden, P., *Disaster management in British libraries. Project report with guidelines for library managers*, London: British Library, 1996 (Library and Information Research report 109)

Ritzenthaler, M.L., *Preserving archives and manuscripts*, Chicago: Society of American Archivists, 1993

Swartzburg, S.G., *Preserving library materials*, 2nd ed., Metuchen, N.J. & London: Scarecrow Press, 1995

Thompson, J.M.A. et al. (eds), *Manual of curatorship: a guide to museum practice*, 2nd ed. Oxford: Butterworth-Heinemann, 1992

Preservation guidance booklets

The following booklets can be downloaded free of charge at www.bl.uk/blpac/publicationsleaf.html.

Free printed copies are also available.

Basic preservation for library and archive collections

Building blocks for a preservation policy

Cleaning books and documents

Damaged books

Guidance for exhibiting library and archive materials

Managing the digitisation of library and archive materials

Managing the library and archive environment

Managing the preservation of library and archive collections in historic buildings

Packing and moving library and archive collections

Photocopying of library and archive materials

Preparing funding applications for preservation and conservation projects

Prevention and treatment of mould outbreaks in collections

Preservation of photographic material

Specifying library and archive storage

Understanding and caring for bookbindings

Using library and archive collections

The Preservation Advisory Centre promotes the benefit of good preservation practice and provides support in the form of information services, training and preservation management tools.

www.bl.uk/blpac

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