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Information and documentation — Document storage requirements for archive and library materials

Information et documentation — ~~Prescriptions~~ — Exigences pour le stockage des documents d'archives et de bibliothèques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 46, *Information and documentation* Subcommittee SC 10, *Requirements for document storage and conditions for preservation*.

This third edition cancels and replaces the second edition (ISO 11799:2015), which has been technically revised.

The main changes are as follows:

- updated content to reflect ISO standards/technical reports published after the second edition, including ISO/TR 19814:2017 and ISO/TR 19815:2018;
- increased detail and guidance on facility requirements and considerations.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Archives and libraries are institutions established to collect, preserve and make ~~available~~ materials intended for consultation available.

Archive and library collections, wherever they are stored, normally contain a wide variety of materials and formats. These are mainly documents on paper, parchment, palm leaves, papyrus and generally also include photographic, audio-visual documents and digital formats on diverse types of carriers (mechanical, photographic, magnetic, optical). All these materials ideally require specific storage conditions to ensure their long-term preservation and access. Note that separation by media type is rarely possible in archive and library storage settings, and that most collections will include a variety of materials.

NOTE See ~~the Bibliography for~~ ISO 18934^{[4][3]} and ISO 18911^{[4][1]} on storage of specific materials.

In a number of fields, national or local building regulations can encompass such matters as construction, safety and security for public buildings and buildings in which valuable objects are stored (fire precautions, emergency exits, security against earthquakes, theft, burglary, terrorist acts, etc.), as well as services and equipment in professional use. This document therefore avoids detailed rules and regulations in these fields, except when recommending what can be added to these requirements.

This document presents some facts and general rules to be considered when a purpose-built repository is designed, when an old building originally designed for another use is converted, or when a building already in use as repository is renovated, with respect to energy efficiency and sustainable development. The same applies for underground storage facilities which are intended to function as or are already in use as storage facilities.

This document applies to the long-term storage of archive and library materials. It takes into account that the materials are stored and must allow active usage as well. Note that this document is about the design and construction requirements for archive and libraries storage spaces. ISO/TR_19814^{[7][7]} and ISO/TR_19815^{[8][8]} serve as companion documents which guide program activities and operations once the physical structure of the store is in place. As such, this document also does not specifically address the design or construction requirements of support spaces to collections storage areas (e.g. supplies storage, receiving areas, and quarantine spaces). Throughout this document, the term “repository” is used to refer specifically to a collection’s storage space, as opposed to a broader facility which may include a repository as well as other support spaces.

Depending on the climate and economic situation of individual institutions, it can be difficult to create and maintain optimal conditions for the long-term storage of archive and library materials. In these cases, it is expected that the institution will choose a path that meets the most appropriate compromise given needs and resources. Information that factors into these decisions should be documented with overall project documentation (see 5.3)^{5.3} to inform future professionals as to the decisions made and why.

Information and documentation — Document storage requirements for archive and library materials

1 Scope

This document specifies the required characteristics of repositories used for the long-term storage of archive and library materials. It covers the siting ~~and~~, construction and renovation of the storage facility, and the installation and equipment to be used both within and around the building.

This document applies to all archive and library materials held in repositories, where mixed media can be stored together with paper-based materials. It does not preclude the establishment of separate areas or compartments within individual repositories, where the environment can be controlled to create conditions suitable for the needs of specific archive materials.

This document does not specify exhibition or display guidelines.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— — ISO Online browsing platform: available at <https://www.iso.org/obp><https://www.iso.org/obp>

— — IEC Electropedia: available at <https://www.electropedia.org/><https://www.electropedia.org/>

3.1

archive and library material

all types of documents kept in archives and libraries regardless of their physical format, mainly books, manuscripts, files, maps, graphic collections and other documents consisting of paper, but also parchment, papyrus, films, photographic materials, audiovisual recordings, magnetic and optical media, as well as bindings and protective material

3.2

building fabric

materials that enclose the interior of a building, separating the interior from the exterior (walls, floor and roof) and includes a number of different materials that collectively form the external envelope of the building

3.3

document

recorded information or material object which can be treated as a unit in a documentation process

3.4

environmental monitoring

recording and analysis of various environmental conditions -- including temperature, relative humidity, light, vibration, or other factors – which impact the long-term preservation of collections materials

3.5

hazard

source of potential harm to collections; ~~broad examples may include events such as earthquakes, fires, theft, or others~~

Note 1 to entry: Broad examples may include events such as earthquakes, fires, theft, or others.

[SOURCE: ISO 21110:2019^{t4}, 3.7, modified — Collections was specified in the definition; Note 1 to entry was replaced.]

3.6

integrated design

collaborative method for designing buildings which emphasizes viewing the building as an interconnected and interdependent whole rather than an accumulation of its separate components

Note 1 to entry: For cultural heritage, this includes the involvement of collections and facilities specialists as part of the design team.

3.7

life expectancy

~~the~~ length of time that information is predicted to be retrievable in a system under extended storage conditions.

Note 1 to entry: Life expectancy designation (LED) is a rating in years for the life expectancy of records, e. g., LE-1000, indicates that the records are expected to be usable for ~~1000~~1 000 years.

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[SOURCE: NISO TR01-1995^{t34}] <https://standards.iso.org/standards/iso/05204cca-90fe-4587-8878-3db636580e75/iso-fdis-11799>

~~3.78~~

long-term storage

storage, for a period of undefined length, of material kept for permanent retention

[SOURCE: ISO/TR 19815:2018^{t4}

, 3.822]

3.9

maintenance

actions of prevention or correction to support long-term functionality of repositories and the systems that support them.

[SOURCE: EN 13306:2010^{t4}]

3.910**repository**

building, room, or space designed or arranged and used specifically and exclusively for long-term storage of *archive and library materials* (3.1)(3.1)

3.1011**risk**

effect of uncertainty on objectives; the potential for damage occurring to collections materials from a particular hazard based on likelihood, frequency, or progress

Note 1 to entry: Adapted from ISO 21110:2019^{[4][4]} and *Preventive Conservation: Collection Storage*^{[5][51]}

4 Sustainability — Collections storage and preservation**4.1 General**

Conserving archival and library heritage for generations to come includes sustaining protective storage that presents very low risks to collections. Understanding and minimizing the running costs, energy use and carbon emission potential of maintaining collections in good condition indefinitely is essential to their long-term conservation, in order not to contribute to wider ecological and environmental hazards which themselves would threaten to undermine the practice and purpose of conserving collections. Institutions should strive to invest in building structures that will last for a minimum 100+ years, while recognizing that internal systems (mechanical, lighting, sustainable technologies) will by necessity require reinvestment on ~30 year cycles. This reinvestment cycle also allows for the inclusion of new technologies and new scientific knowledge on a periodic basis.

4.2 Specifying storage spaces/conditions

In setting out to design or review the qualities of a storage facility intended to hold archival and library materials, the nature and use of these materials shall be defined and the range of safe storage conditions shall be identified accordingly. Note that recent research has shown that many archival materials can tolerate certain seasonal ranges of environmental conditions without adversely affecting longevity (see [Annex B](#)-[Annex B](#)). Using these environmental ranges, in conjunction with proper housing/packaging for materials (such as archival quality boxes, folders, and sleeves where appropriate) can reduce the overall energy consumption, and improve the long-term sustainability, of the storage facility.

Temperature-sensitive materials that profit from or require storage at especially low temperatures (e.g. cellulose acetate film and colour media) and acutely moisture sensitive materials that require dry microclimate packaging (e. g. polyester-base magnetic tape) shall be identified, packaged and stored accordingly in microenvironments so that there is no need for the constant operation of specialized environments throughout the year for the entire archive and library collection. Please note that this standard does not address specific design requirements for frozen collections storage facilities, but that envelope and mechanical specifications for these environments will differ from standard storage construction. Frozen storage facilities for long-term preservation shall always be kept separate from frozen environments for quarantine (pests, mould, etc.) purposes.

An organization planning a new or renovated collections storage facility shall explore the potential for designs which incorporate the following characteristics:

- —envelope designs and site/facility layouts which mitigate or buffer the majority of external energy loads;

- ~~the~~ possibility for a non-mechanically-controlled (or primarily non-mechanically-controlled) environment that can maintain appropriate conditions throughout the course of a year (whether in a seasonal or steady climate);
- ~~a~~ high material volume percentage storage design (~~ie,i.e.~~, an efficient storage design where the volume of material in the space is significantly higher than free air volume);
- ~~the~~ use of uninsulated ground-contact floor slabs which provide a heat/energy sink that mitigates energy loads on an upper structure;
- ~~appropriate~~ and effective vapor control layers or seals in all structural elements.

5 Design planning

5.1 Identify design participants

All construction projects involving the storage of archives and library collections shall utilize an “integrated design” approach that includes:

- ~~the~~ participation of staff from the organization, including preservation and/or collections management staff and facilities/operations staff;
- ~~applicable~~ external experts in the design and operation of collections preservation environments (beyond the general architecture/engineering team);
- ~~relevant~~ architectural and engineering disciplines to the specific project.

This team involvement should initiate as part of predesign and establishment of program requirements and continue through to construction and final building/mechanical commissioning.

The nature and needs of collections storage facilities, whether new facilities, renovation projects, or adaptive reuse, require careful consideration of appropriate design requirements for both collections and sustainable operation; while this standard provides general requirements and guidance, these cannot be applied universally. Relevant staff and external experts, who are intimately familiar with any existing conditions as well as future needs for collections objects, shall be included to inform the appropriate balance between facility design for preservation, sustainability, historic preservation concerns, or other factors.

Note that the design of a storage space ~~will~~ is often ~~be~~ subject to local regulatory body review and approval.

5.2 Establish design priorities

Design priorities for archive and library storage facilities will vary depending on the institution and its specific needs and resources. Before jointly addressing design specifications as a team, the institution shall carefully define its expectations relative to a series of factors to guide the design and construction process. Those factors should include:

- ~~Available~~ available budget or budget limitations;
- ~~Expected~~ expected preservation quality/collection longevity;
- ~~Need~~ need for specialized storage environments (frozen, dry, high security, etc.);
- ~~Size~~ size/extent of collections to be stored in each storage environment;