

Environmental Conditions for Exhibiting Library and Archival Materials

Abstract: This standard establishes criteria to minimize the effect of environmental factors on deterioration of library and archival materials on exhibit. Specific parameters are recommended for exposure to light, relative humidity, temperature, gaseous and particulate contaminants, display techniques, and case and support material components. The standard is intended as a guide for librarians, archivists, exhibition designers, and others involved in preparing library and archival materials for exhibition.

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Foreword

(This foreword is not part of the American National Standard Environmental Conditions for Exhibiting Library and Archival Materials, ANSI/NISO Z39.79-2001. It is included for information only.)

This standard addresses environmental factors that should be considered in planning and mounting an exhibit of library and archival materials. The NISO Standards Committee that developed this standard has sought only to establish control parameters that minimize the potential for damage in an exhibition environment. In presenting these control parameters, the Committee has used phrasing established for NISO standards. Therefore, practices that the Committee agrees are mandatory are phrased as a "shall" statement. Practices that the Committee agrees are desirable but not mandatory are phrased as a "should" statement.

Sections 1 and 2 of the standard describe its scope and purpose, and define technical terms used in the standard. Sections 3 through 6 establish the environmental standards for light exposure, relative humidity, temperature, and pollutants. Sections 7, 8, and 9 establish standards for case and display materials and construction. Appendix A provides supplementary information as a foundation for the criteria presented in each of the preceding sections. Appendixes B and C list materials generally recognized to be safe and not safe in the construction of exhibit cases, and physical supports or restraints for exhibiting library and archival materials.

This standard was processed and approved for submittal to ANSI by the National Information Standards Organization. It was balloted by the NISO Voting Members November 23, 1998 - January 4, 1999. It will next be reviewed in 2006. Suggestions for improving this standard are welcome. They should be sent to the National Information Standards Organization, 4733 Bethesda Avenue, Suite 300, Bethesda, MD 20814. NISO approval of this standard does not imply that all Voting Members voted for its approval. At the time it approved this standard, NISO had the following Voting Members:

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Environmental Conditions for Exhibiting Library and Archival Materials

1. Scope and Purpose

This standard is designed so that the user is required to select specific limits for a particular exhibition situation. A number of options may be used to meet the standard. This choice will depend in part on (a) the types, characteristics and condition of material being exhibited, (b) local climatic conditions, (c) considerations of human comfort, (d) available technology for environmental control systems, (e) constraints of existing exhibition areas and exhibit cases, and (f) cost considerations. The limits chosen should fall within the range of limits recommended in the standard.

1.1 Scope

The standard establishes criteria for the environmental factors that contribute to the deterioration of library and archival materials that are on temporary exhibition, i.e., for a period of time lasting no longer than 12 months. Exhibitions of a longer duration or permanent exhibitions fall outside the scope of this standard, although many aspects of the standard may be applied to exhibitions of longer duration. Specifically, the standard recommends values or ranges for light, relative humidity, temperature, and pollutants. It also recommends acceptable components and techniques for the construction and use of exhibit cases and supports.

1.1.1 Library and Archival Materials Included

This standard relates to individual bound volumes in various binding styles and composed of various materials, printed ephemera, flat paper, and vellum items (manuscripts, art on paper, etc.), and photographs.

1.1.2 Library and Archival Materials Excluded

This standard does not relate to textiles, sculpture, decorative art objects, art on canvas, or other items not based on paper or vellum that may be found in libraries and archives.

1.1.3 Environmental and Physical Conditions Included

This standard addresses environmental conditions, including exposure to light, relative humidity, temperature, and pollutants, that directly affect exhibited items. These include the microenvironment (within the exhibit case or frame), the macroenvironment (outside the exhibit case but within a room), and the relationship between the macroenvironment and the environment within new or existing exhibit cases. In addition, the method of support of exhibited items is addressed.

1.1.4 Environmental and Physical Conditions Excluded

This standard does not address environmental or physical conditions for library and archival materials in transit, or physical supports that are to be used for long-term storage at the conclusion of an exhibition.

1.2 Purpose

This standard is intended to set parameters for environmental and physical exhibit conditions that minimize the potential for damage to library and archival materials on display. The standard is intended to serve as a guide for librarians, archivists, exhibition designers, exhibition preparators, and others involved in the design and preparation of exhibitions of library and archival materials.

2. Definitions

air contaminants. Any unwanted gaseous, liquid, or particulate matter in the atmosphere. The principal outdoor contaminants include particulate matter, sulfur dioxide, oxides of nitrogen, and ozone. Some contaminants from indoor sources may include nitrogen oxides, mineral acids, aldehydes, sulfides from proteinaceous materials and rubbers, and acetic and formic acids.

angle of display. The angle formed by a horizontal surface and the plane of the text block and spine of the volume.

angle of opening. The angle formed between the front and back cover of an open bound volume.

backing shoulder. The ridge formed as the back edges of the sewn sections are hammered over to create a right angle into which the boards are seated before covering.

bound volume. Any structure of gathered sheets of paper secured by stitching or tying, and protected by stiff (hardback) or flexible (paperback) boards on the exterior.

cradle. A framework constructed of plastic, paperboard, or other material that serves to support a bound volume.

cumulative light exposure. The total amount of light an object has been exposed to for a given period of time.

drift. A gradual change of value of temperature or relative humidity over a long period of time, usually following seasonal changes.

encapsulation. A protective housing that can be used to support an exhibited item. It consists of two or more pieces of polyethylene terephthalate (PET) film larger than the item. These are placed behind and in front of the item and are sealed in the margins projecting beyond the item to form a protective supporting envelope.

fluctuation. Rapid changes of value including measurements such as temperature or relative humidity which are generally cyclic in nature. Typical causes are infiltration of unconditioned air, cycling of HVAC equipment, and thermal heat load variations.

fly leaf (leaves). A leaf or leaves at the beginning and end of a bound volume, being the leaf or leaves not pasted to the boards, or covers, of the bound volume.

footcandle. See Photometric terms.

fore edge. The edge of the bound volume opposite the spine, sometimes called the "front edge."

friable. Easily abraded, especially referring to layers of design media that are susceptible to being cracked or broken.

glazing. A protective transparent layer such as acrylic or glass (a) over the front of an object housed within a frame, or (b) covering the front, top, or sides of an exhibited item to protect it while allowing it to remain visible.

gouache. Pigment with a gum binder which is water soluble and generally applied in thick, opaque layers which can be vulnerable to cracking.

gutter. The adjoining inner margins of two facing pages, i.e., the margin at the sewn fold of a section of a bound volume.

hinge. Internal juncture of the pastedown and fly leaf of a bound volume.

impasto. Thick areas of paint applied to canvas or other support to form ridges, peaks, and other features that produce a raised surface texture.

incident light. Light that reaches the surface of the object.

infrared radiation (IR). Electromagnetic radiation lying in the wave-length interval from about 800 nanometers (nm) to an indefinite upper boundary sometimes set at 10,000 nm.

joint. The exterior juncture of the spine and covers of a bound volume.

leaf support. A sheet of archival paper or card stock that acts as a barrier between the displayed item and a suspect surface, or that adds support to or protects the edges of a bound page or unbound sheet of paper.

leather. A material made from animal skins by one of several procedures in which a tanning agent combines with the active sites in the protein (collagen) to form a material that is strong and durable, but not necessarily permanent. Used for centuries as a covering for bound volumes.

lux. See **Photometric terms.**

macroenvironment. (1) The general environment within a room or large area. Within such an area there are inevitable variations in temperature, relative humidity, dust concentrations, air flow, etc. (2) The space, or spaces, in an exhibition setting, not otherwise enclosed, such as an exhibit case or an item glazed and framed.

methyl cellulose. A cellulose ether made by the chemical alteration of cellulose fibers so that methyl groups are substituted for hydroxy groups on the cellulose molecule. This modification renders the material soluble in water. Methyl celluloses can have different physical properties (viscosity in solution, etc.), depending on how they are made.

microenvironment. (1) The environment in a confined, proximate area, such as that in a case or directly surrounding an object. The microenvironment within a properly designed case will have smaller variations and be more easily controlled than the macroenvironment in the room. One of the primary functions of a case is to moderate changes in the environ-