How to Arrange Museum Storage Arias

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Introduction

The Heart of the Museum is its ‘collections, Therefore we should pay our highly attention storage arias in the museum. This workstudies about environmental, temperature, relative humidity and visible lighting in the museum storage arias.

A museum’s storage area is a vital part of any museum and generally contains the larger part of the collection. It also plays an essential role in the development of a museum and its programmes as it is closely linked with other activities, such as research, consultation, exhibitions, conservation. The storage area guarantees the preservation of and accessibility to the collection, and as a result the proper care and management of collections in storage is an important challenge for museums if they are to maintain their roles as centres of knowledge, research and inspiration.

Preventive Conservation and Storage Management

The proper care of the collections while in storage and the correct management of the storage area are integral parts of preventive conservation for museum collections. Preventive conservation refers to measures and actions aimed at avoiding or minimizing future deterioration or loss, and good management of the storage area is the first defence against the deterioration of a collection. In a well - planned and well-run

storage environment, most forms of deterioration will be either slowed or avoided. Costly and complicated conservation treatments are of little use if the objects treated are kept in an unsuitable storage space. (*National Park Service: 1999)*

Environmental Conditions

Environmental conditions are highly controllable in most indoor situations. They include the temperature, relative humidity, light levels present in a collection space on any given day, and contaminants. Some flexibility is naturally built into most collections when it comes to the temperature and humidity changes they can bear, allowing for conditions to vary somewhat in response to the outdoor environment of a location.

Two types of light offer potential decay to cultural heritage: ultraviolet (UV) light and visual light (light that can be perceived by the human eye). Although they can be affected simultaneously by removing light sources, reducing overall intensity, or increasing the distance between a light source and an object, best preventive practice treats these types of light separately due to their differences *(Druzik, and Bent Eshoj: 2007)*. Contaminants can come in many forms including naturally occurring chemical breakdowns in certain compounds, particulate pollutants, and accidental human contamination. Protecting collections from contaminants can be as simple as creating barriers to prevent abuse or as complicated as taking preventive actions to protect an object from its own chemical breakdown.

Temperature

Any storage or display situation must take into consideration the temperature at which collection permanence can be

optimized, and systems should be in place that aim to meet that standard, ideally in conjunction with efficient use of energy and funds. Different materials react to temperature in different ways. For example, ceramics are vulnerable to direct heat on a mechanical level, but many organic materials are at greater risk of undergoing phase transition if the temperature becomes excessively cold. One rule of thumb applies across the board: the rate of chemical reactions is dependent upon temperature in such a way that higher temperatures reduce the activation energy and hasten chemical degradation processes. *(Jimbo: 2012, 23-37)*

Human comfort levels must also be considered. Storage areas can often get away with slightly lower temperatures than display areas since they are not accessed as often, and it is most likely that those who do enter the space will be prepared for the conditions. In galleries, however, viewers must feel comfortable enough with the temperature to spend time there, otherwise the collection will simply not be viewed and lose its purpose in being on display.

Relative Humidity

In recent decades, it has become understood that even delicate organic materials have some elasticity in their response to relative humidity (RH) fluctuations, allowing the materials to swell or contract as necessary. This phenomenon is naturally reversible within a range of 50% ± 15% RH.[i4] Destructive chemical and mechanical processes, such as hydrolysis at high RH and embrittlement and cross-linking at low RH, can be held to a minimum within a similar range for a general museum collection.. *(Tumosa: 1999, 69–74)*

Moisture has strong effects on nearly all cultural heritage materials, with ceramics and glass being exceptions to these

effects in most cases. Metals face the risk of corrosion as RH increases, a risk which is enhanced by surface contaminants and emphasizes the need for proper housing. Additionally, mold growth is far more likely as humidity increases, which not only could cause allergic reactions for viewers but it also weakens the collections afflicted and attracts other pests.[i6] In contrast to this requisite for dry conditions, if the atmosphere is not humid enough wooden objects could crack or warp, and many organic materials face embrittlement below 40% RH. *Charles S. (Tumosa: 1999, 69–74)*

Although minor and gentle fluctuations in RH can reasonably be withstood by most collections, quick or drastic shifts can be harmful. Anistropic materials such as wood and ivory are especially responsive to humidity changes, and RH issues are compounded when they are attached to inorganic materials such as a metal. The metal acts as a restraint, hindering the organic materials' ability to expand and contract as needed. Thus, cultural heritage objects composed of highly responsive materials or a combination of organic and inorganic materials should ideally be in carefully controlled climates and buffered against the atmosphere by their display or storage housing.

Visible Light

Visual light, measured in lux or foot-candles cannot be eliminated, as it is required both to view collections in detail and to move safely in the presence of collections. Unfortunately, this means that harmful oxidation effects which visual light makes possible also cannot be eliminated, but merely reduced to the amount necessary for the task at hand.

The effects of visual light began to be studied by artists and color manufacturers as early as the 18th century, but it was not until the mid - 20th century that the chemical damage caused

by different lighting situations was researched in depth. In recent decades the cumulative nature of light degradation has become better understood by conservation science. Comprehensive studies began to emphasize long-term effects and allow for short-term variation in light levels depending on the specific situation: standard viewing, viewing by the aged, complex study or treatment, and observation of low contrast details all may have different requirements. Practical compromise between protection of cultural heritage and allowing the artifacts to fulfill their visual purpose means there is an allowance of some physical risk. *(Allman: 2010, 24)*

Even with this flexibility, light interaction should be limited to moments when an object is on view or undergoing study, and the level of lighting should be chosen accordingly. According to Museum Registration Methods, 5th edition, the suggested light levels for certain types of objects is as follows,

The traditional recommended light level for sensitive materials - including textiles, botanical and zoological specimens, pigmented objects, works on paper, and organic materials such as feathers, furs, and skins - is no more than 50 lux or 5 fc. Moderately sensitive materials, such as oils and acrylics on board and composite inorganic objects, should be exposed to light levels of not more than 150 lux or 15 fc. The traditional levels recommended for the least light-sensitive materials, such as stone, ceramics, metals, and glass, are not more than 300 lux or 30fc. Because lighting effects are cumulative, any limit in exposure – whether in time or in intensity – prevents material degradation. A period of intense or lengthy light exposure should be balanced out with periods of low exposure *(Allman: 2010, 30)*.The management of a cultural heritage object serves to identify the staff members responsible for care and maintenance of the collection, and establish proper management technique guidelines. Records management

should take place when an object enters a collection, when it is moved or shipped, during regular collection inventories, and throughout any conservation treatment as per established collection management policy standards.[i22] Records management of a cultural heritage object often takes place in the form of photographic documentation combined with written reports designed to provide a visual reference for future professionals, revealing the original condition and any successive states of the condition. These records are sometimes digitized and stored in computer databases using collection cataloging software. One aspect of records management designed specifically for sustaining these digitized records and documenting digital collection materials is known as digital preservation. This technique is used to reformat or duplicate an original object so as to preserve a piece of digital material for as long as possible. Combining strategic planning with conservation actions, digital preservation aims to maintain continued access to digital objects that would otherwise become obsolete. *(Allman: 2010, 30)*

References

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