

Storage Philosophy

The collection is the heart of the museum and its single greatest asset. Storage is the collection's safe haven and must be as secure and environmentally stable as possible. Proper storage should provide easy access to the collection while keeping objects safe and secure. The keys are adequate security, proper environmental conditions, appropriate storage fixtures and proper packing and support of artifacts in storage.

Storage areas should be clean, well ventilated and properly illuminated. Temperature and humidity levels and air quality must be maintained and monitored regularly. Appropriate fire protection should be installed. Illumination should allow access to the collection without causing damage. While stored, items should be in the dark at all times.

How objects within storage areas are packed, supported and stored can be either beneficial or harmful. Often, this is where museums fail. Storage isn't sexy, making upgrades to storage a hard sell to funding sources. Conversely, exhibits are visible, tangible and understandable.

Storage Philosophy

Storage areas provide collection preservation as well as access. Ideally, the area should have a controlled environment, be filtered for dust or have the artifacts covered to protect from dust, and include furniture and storage supports made of inert materials. A clean storage area with open aisles is critical for access. Since carts and large objects need to move through storage areas, using disability guidelines will help plan for smooth artifact movement in countries that don't legally require that spaces be accessible. Design storage areas to make access easy for staff and researchers. The design also should make inventory control easy and allow the collection to be moved with minimal trouble.

Phillip Ward in The Nature of Conservation: A Race Against Time writes:

"By definition, museums have four classic functions: They *collect*, they *preserve*, they conduct *research*, and they *present* or interpret their collections to the public in light of their research. *Preservation* is the most fundamental of these responsibilities, since without it, research and presentation are impossible and collection is pointless. *Conservation* is the technology by which preservation is achieved."¹

What is conservation? The American Institute of Conservation defines it as a range of practices designed to preserve and maintain cultural patrimony. The conservator is an individual trained in the science of preservation. A conservator attempts to preserve the

¹ Ward, Phillip. 1986. The Nature of Conservation: A Race Against Time. (Marina del Rey, CA: The Getty Conservation Institute)

MUSEUM 202: STORAGE FOR INFINITY: MUSEUM STORAGE FACILITIES AND FURNITURE
original object and the artist's intent as much as possible. A conservator observes material culture closely, examining its condition and the properties that led to damage. Observations are documented in writing and with imagery. The conservator may decide to treat the object to stabilize its condition or to restore its appearance (more common in art museums than in history and natural history collections). Documentation includes details of anything done to the object and the result of that treatment. Photographs of condition before, during and after treatment preserve the process of change. But most of the work done by a museum conservator is preventive conservation. Preventive conservation minimizes further deterioration or damage by stabilizing the causes of damage (These are given in detail in the next chapter).

The youngest museum discipline, the term conservation has only been applied to the preservation of cultural patrimony since 1930. Phillip Ward makes a distinction between "preservation philosophy" and "restoration philosophy." In preservation philosophy, "museologists no longer accept deterioration as inevitable, but rather seek to protect their collections against damage from any cause."² Museums without an in-house conservator have no one with the detailed knowledge to advocate for the collection. Thus, a restoration philosophy may prevail, where the expert conservator is only consulted when a problem occurs, instead of preemptively stopping the problem before it occurs.

In the United States, the most veteran conservators were trained through apprenticeship with other practitioners. Ensuing generations of conservators tend to have received training in graduate programs that emphasize a melding of studio art, art history, chemistry, physics, materials science, mechanical engineering, environmental science and biology. Conservators tend to specialize in certain materials. The most common fine art disciplines are paintings, three-dimensional objects and works of art on paper. There are also conservators who specialize in architecture, sculpture, textiles, books and documents, religious icons, ethnographic materials, archaeological materials, baskets, clocks, modern materials, furniture ... the list is as infinite as the objects we collect.

The three key steps in collections management, as discussed by Robert Waller in his risk assessment workshops, are collection use, collection development, and collection preservation. All of these affect the collection. Collection use includes exhibits, research, and education programs. Collection development includes acquisitions and conservation treatment. Collection preservation covers activities that slow collection deterioration, including facilities upgrades, staff training, implementing preservation procedures, care about materials used to house the collection in storage, and stabilizing environmental fluctuations. Collection preservation is a key part of every museum staff person's position description. All staff, whether working daily around collections or not, should have annual training in collection preservation concepts. Why is this critical? Because the director determines budget allocations and develops the institutional long

² Ibid.

MUSEUM 202: STORAGE FOR INFINITY: MUSEUM STORAGE FACILITIES AND FURNITURE range plan, the public relations staff field inquiries about low gallery light levels, the cleaning staff mop floors in areas with artifacts and artwork, and the museum gift shop personnel talk to nearly every visitor touring the exhibits. Preservation will not occur if the museum depends on only one person to be responsible for it. Everyone must be aware of the importance and fragility of the collection held in trust by the museum.

While working in the paintings storage vault a facilities staff person's ladder went through an abstract expressionist painting worth more than his entire working life salary. He had never been trained in object handling. The painting did not have a rigid backing. Maintenance panels should not have been located in the storage area. Thus, a combination of poor planning, poor training, and poor collections maintenance resulted in damage to the painting.

When one considers that as much as 95 percent of a museum's collection may be in storage – with only 5 percent on display, storage is the key component of a museum's ability to preserve its collection. Smaller museums may have a larger percentage of their collection on display. However, a major proportion of the collection is, or will eventually be, in storage. Because most items spend the majority of their time in storage, safe collection housing significantly increases their useable life.

Planning Storage

How much of your structure should be designated for storage? A general rule of thumb is 40:40:20. The space in the ideal museum is allocated 40 percent for exhibits: 40 percent for storage: and 20 percent for other functions (education, theater, corridors, staff offices). In general, museums that balance storage and exhibit space equally find it easier to store the collection without causing damage. More precise measurements are given later in the chapter on **facilities** under the heading **planning**.

When planning a storage area, calculate the size of the collection today and in 20 years based on annual donation and acquisition levels. Then calculate storage furniture needs today and in 20 years. Location is critical. Think about staff, public and object movement. Think about environmental risks. Consider handling frequency and its purpose. Do you access collections regularly for exhibits or research?

Storage Room Basics

Collection storage rooms need good air circulation and stable temperature and relative humidity. Storage rooms should be accessible to disabled staff and visitors. The storage area should be negotiable by wheelchairs as well as carts full of artifacts. In the United States, one can't discriminate against hiring people with disabilities. Because storage is a semi-public area, it must meet the requirements of the Americans with Disabilities Act (ADA). They must be made secure by limiting access and issuing only a small number of keys. Storage rooms also should be easy to clean. Place items on rolling pallets or store off the floor to make cleaning easier. Lifting everything 3 to 6 inches (5 to 10 cm.) off the floor also lessens the possibility of insect and water damage to the collection. Finally, the storage room floor must be strong enough to bear the load of artifacts.

SECTION ONE: STORAGE PHILOSOPHY

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Store collections separately from non-collections material. Exhibit props, freezers, museum store items, publications, cleaning supplies, paints, lumber, trash cans, lawn mowers and gas cans need their own storage location far from the museum's collection. Food, live animals and dermestid colonies do not belong in storage either. New acquisitions should be placed in an isolation room and examined for pest infestations before entering the storage area. If infested, they will need to be treated. Finally, staff should not be housed in storage areas. Place staff offices outside secure storage areas, rather than inside them.

Arranging Storage

How should you arrange storage? A collection may be stored according to environmental requirements. Metal, for instance, needs a dry environment. Organic materials need higher relative humidity. Or you can store items by security. Gold would go in a vault; archeological stone waste flakes in less secure drawers. Other options include curatorial classifications such as natural history, size (all large items in a barn, small items in the main building), or by storage systems such as costume cabinets. From a preservation standpoint, environmental considerations are primary when determining storage arrangements. Within each environmental area, store like objects together for ease of retrieval and comparative research.

Storage design should incorporate an area, just outside storage, where gloves, padding materials, aprons, footstools, carts, acid-free papers and boxes, and tags can be stored. Storage also should include areas with padded examining tables. Aisles and doors should be large enough to allow easy passage of carts and people carrying objects.

Plan for Disasters

Finally, consider what you would do if the unthinkable happens and disaster strikes. The Detroit Institute of Arts tries to plan storage areas so they can be emptied within 15 minutes. Large sculptures are strapped to pallets and forklifts are readily available. Items are containerized so that boxes or groups of boxes, drawers or trays can be moved in units. If you use cabinets, are items secure within them? Can the entire cabinet be moved without damaging its contents? If you are in a seismic zone, such as California, then everything you do to the collections must consider that an earthquake could happen in the next minute. Thus, collections in storage are braced and have their centers of gravity lowered with sandbags. This occurs even for objects taken out of their storage units that are temporarily sitting on a padded table. Shelves are cross-braced and secured to floors, walls, ceilings and each other.

Evaluate Current Storage

Most museums have storage areas. The question is, how well do they preserve the collection? John Hilberry has developed an eight-page storage design checklist.³

³ John Hilberry and Associates, Inc. "Appendix: Storage Design Checklist" in Storage of Natural History Collections: A Preventive Conservation Approach, pp. 115-122.

MUSEUM 202: STORAGE FOR INFINITY: MUSEUM STORAGE FACILITIES AND FURNITURE

Evaluating your storage begins with an overall assessment of environment, security and emergency preparedness. In the following chapter, the nine agents of deterioration will be discussed, with guidelines for how to minimize their effect on stored collections. The chapter on **facilities** details how to plan, design and maintain a storage facility.

Location

As with any good piece of real estate, location is important. Older museums often were designed without storage areas; the collection would all be out on display, of course. When collections outgrow display space, storage is found in little used areas such as unheated attics or leaking basements. Some new museums put storage in these areas because people think that is where it belongs. It is time to reassess storage priorities.

Because collections are made from material that would deteriorate under normal conditions, their life span is directly linked to the quality of storage environment. Stored collections need a location where there is no smoking or food, relative humidity and temperature are controlled, light levels are low, and access is controlled.

Many museums use off-site storage for overflow or oversized, bulky items such as furniture, machinery and vehicles. Off-site storage often becomes "off mind" and these areas suffer from limited staff presence, poor environmental conditions, and pest infestations. It is best if all storage is in the museum itself. This may necessitate rearranging space within the building to accommodate more storage. Consider your display areas. Are they taking up most of your museum space? Can you tell the same story in less space? Can you convert some of your display space into secure, clean storage?

If off-site storage is the only alternative (and this really should be a last resort), then choose a site as close as possible to the main museum, ideally on the grounds, so it can be easily monitored. Damage is most likely to occur during movement of the collection from storage to the main museum. Consider how this will occur in every type of weather. Can transport maintain environmental stability and avoid vibration and bumps? If "off-site" also means "not close," make sure the storage area has the same high standards as storage within the museum building. There should be an environmental control unit to stabilize relative humidity and temperature, filtration for dust, security alarms and, ideally, a guard who regularly patrols the area. The same precautions and procedures used in on-site storage areas, such as regular sticky trap monitoring, cleaning, and exams of susceptible objects, should occur in off-site storage (see "Pest Control" in the chapter on **Facilities**).

The Illinois State Museum in Springfield, Illinois removed all of its collection storage to a separate storage facility – constructed from an old shopping mall. The storage facility houses collection staff offices, facilities staff, research areas, and three environmentally controlled storage pods with no exterior walls. This space provides significantly improved environments and access than the storage available in their historic museum building.

SECTION ONE: STORAGE PHILOSOPHY

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With as much as 95 percent of the collection in storage, and storage generally an afterthought slotted into an undesirable part of the museum, it is easy to see why so much of our heritage is imperiled. Imperiled, but not lost. By implementing a preservation philosophy, and altering our storage to match this approach, we can ensure our heritage lasts into the distant future.