

## A Quick Guide to the Preservation of Artifacts

The primary mission of history museums is to collect, preserve, exhibit, and interpret objects of historical significance. Over time, all objects will begin to deteriorate for a variety of reasons, such as environmental conditions, use, and natural decay. However, that deterioration can be mitigated by practicing proper preservation measures. Knowing how to handle, display, and store the artifacts in your museum's collection can add a significant number of years to the life of the objects.

In general, museum staff and volunteers can successfully and reasonably undertake most preservation practices. However, if an artifact requires repairs, major restoration, or major cleaning, or if basic preservation measures do not slow an artifact's rate of deterioration, the museum should contact a professional conservator. The American Institute for the Conservation of Historic and Artistic Works (AIC) (<http://aic.stanford.edu/>) as well as the Texas Association of Museums (TAM) maintain a list of conservators on their websites (<http://www.texasmuseums.org/conservation-lists.html>).

This document is meant as a brief introduction to the preservation of artifacts. [Click here](#) for a more detailed version of this document.

### Handling Historic Artifacts

- It is best to handle artifacts as little as possible. When you do need to do so, wear clean cotton or latex gloves. If the object could easily slip from gloved hands, use clean, dry, lotion-free hands.
- Avoid picking up an artifact by handles, straps, or other protruding components. Always pick up an artifact—never push, pull, or slide it. Use both hands and provide full support to the entire object, especially the base.
- To move furniture, grip the most structurally sound components such as the seat frame or base. For framed artwork, support the bottom and the side. Ideally, two or more people should help carry larger artifacts.
- To move paper items and textiles, place the artifact on a large, stiff piece of acid-free mat board.
- Use padded carts or trolleys when necessary. Make sure the artifacts in the cart do not touch one another.
- Before moving any artifact, make sure you have a clear place to set it. The work space should be clean and free of food, beverages, and sharp instruments such as pens, tools, paper clips, and keys. If possible, lightly pad the work surface with archival quality materials to reduce the risk of objects sliding or rolling off.

## Creating a Proper Environment

- **Light**
  - There are three types of light: ultraviolet (UV) light, infrared radiation and visible light. All three types are harmful to artifacts and the damage caused by all light is cumulative and irreversible.
  - UV light is the most harmful type of light. The most common sources of UV light are natural daylight and fluorescent lamps. Eliminate an artifact's exposure to natural daylight by covering windows. You can also off-set the effects of fluorescent light by purchasing UV filters for lights. These are available through archival supply companies.
  - Incandescent lights do not give off UV but they can emit a significant amount of heat. Therefore, incandescent lights should not be placed near or in exhibit cases.
  - Best practice is to turn off the lights as much as possible. This includes storage rooms and exhibit areas when they are not in use.
  - Rotate artifacts on display with sensitive objects on display for a maximum of 3 months.
  
- **Temperature and Relative Humidity**
  - Different artifacts can withstand different levels of humidity and temperature. A happy medium is a constant temperature somewhere around 68 to 72 degrees and humidity levels of approximately 45-55%.
  - One of the most important practices to preserve artifacts is to keep their environment stable. Large fluctuations of temperature and humidity are dangerous. Thus, a museum needs a functioning HVAC system.
  - Do not turn the system off for the night or holidays—this has the same negative impact as not having any climate-control at all.
  
- **Air Pollutants**
  - There are two types of air pollutants—particulates like dust, soot, and pollen and gaseous pollutants like ozone, peroxides, nitrogen and sulfur dioxides.
  - A quality HVAC system with good filters that are changed regularly can control pollutants.
  - Avoid storing artifacts near fireplaces, cooking places, or smoking areas. Keep windows and doors tightly closed.
  - General museum housekeeping also reduces pollutants. Use only mild cleansers and avoid harsh chemicals like bleach and ammonia. Vacuum floors with a quality vacuum cleaner with HEPA filtration and/or mop them with plain water.
  
- **Pests**
  - This category includes mold and mildew; insects such as moths, beetles, and silverfish; and vertebrates like birds and mammals.
  - Prevent pest infestation by maintaining proper temperature and relative humidity levels. Also, make sure doors and windows are tightly sealed, ensure the environment is dust free, and eliminate food, beverages, and outside plants from the storage area.

- Regularly monitor the museum for infestation. Place sticky traps in strategic locations to monitor what type of pests get into your building as well as how many.
- If an infestation is spotted, contact a professional exterminator. Choose an exterminator who is willing to work with the museum and its unique needs. Harsh chemical sprays and treatments should be avoided when possible. A professional conservator should be consulted to treat any damaged artifacts.

## Storage

- Every museum should have a collections storage area separate from the exhibit and office areas. This space should be used to house artifacts only.
- Temperature and relative humidity should be kept at a constant level and light should be kept to a minimum (turn lights off when no one is in the room).
- Museum specific storage units are preferred but can be costly. The next best option is sturdy steel shelving or cabinets coated with a synthetic polymer powder coating or anodized aluminum. Wood shelving is undesirable because it emits harmful acids and other substances. It is a good idea to line shelving with some sort of barrier, such as acid-free paper or barrier board.
- Artifacts should be stored in archival-safe, chemically stable material such as acid-free boxes, tissue, foam, folders and hangers. Vendors such as [Gaylord Archives](#) and [University Products](#) sell these products. If the museum cannot provide storage boxes or for large artifacts, drape the artifact in a cover made from undyed, unbleached, cotton muslin. Artifacts should not touch one another.
- Avoid storing artifacts on the ground if possible, as well as near or below windows, water pipes, water heaters, and HVAC units and vents.
- Limit access to storage to key staff only.
- Inspect artifacts periodically for any sign of deterioration or evidence of pest activity.

## Display of Collections

- Always maintain the proper environment for artifacts in terms of humidity, temperature, air pollutants and pest control. Heat and moisture can easily get trapped inside cases so be diligent.
- Wood cases can be altered to make them acceptable for displaying historic artifacts by sealing the surfaces with a quality, water-based polyurethane. Let the sealed shelves sit out for 3-4 weeks before using.
- Place a barrier between artifacts and wood surfaces. Appropriate materials include Mylar, Melinex, or acid-free buffered paper, tissue or barrier board. If the surface requires padding, use polyester batting, polyethylene foam, or unbleached, undyed cotton muslin.
- Do not use adhesives or sticky substances on artifacts. Original clamps, hooks, strings, straps, or handles already attached to an artifact should not be used for support or take weight off the artifact. The display technique you choose should put the least amount of stress on the artifact.
- As with the storage of artifacts, be mindful of their placement. Avoid windows, HVAC systems, and placing artifacts or cases in places they could easily be bumped or knocked over.

## Cleaning and Repair

- Any major cleaning of an artifact should be either undertaken by a professional conservator or at least with guidance from one.
- Routine cleaning tasks can be carried out by museum staff. Before dusting an artifact, inspect it carefully to see how sturdy it is. If it is not sturdy or is in bad shape, do not attempt to clean the artifact. Avoid using dusting sprays or polishes. The chemicals released by these products can be harmful to the artifact. A small amount of distilled water and a clean white cotton cloth can be used to remove dirt.
- Another way to clean artifacts is a special vacuum that was developed for museum use (do not use a regular vacuum). These vacuums allow the user to adjust the amount of suction depending on the type and condition of the artifact.
- A vacuum developed for museum use can be a good way to clean textiles in good condition. First, gently brush any dirt from the surface of the textile with a soft brush. Then vacuum using the low-suction setting. Vacuum both sides of the artifact.

## Access and Security

- Limit access to artifact storage to only key personnel. The storage room should be locked at all times.
- Monitor the visitors in an exhibit area. Exhibit cases should be lockable and only select staff should have keys. Do not allow visitors to touch artifacts. Objects not displayed in a case should have some sort of barrier between the artifact and the visitor.
- The museum itself should be secure. High-quality, heavy-duty locks on all windows and doors is a must. When a staff member leaves his or her job with the museum make sure they surrender any keys they may have.
- **Devise a system in which keys are assigned only to the personnel that need access to a particular secured area. Maintain a log that specifies who has which keys and make sure to keep track of when an employee either is assigned a key or returns a key.**
- Other measures to prevent the risk of theft or vandalism include after-hours security lighting, security guards or patrols, and automated alarm systems.
- Systems to detect heat, smoke and water should be in place in the museum.
- Ideally a museum has some sort of fire suppression system. Hand-held fire extinguishers are good for small fires, but for large or after-hour fires, a system is required that can alert the local fire station immediately. The five types of fire suppression systems are:
  - Wet pipe is the most common and cost effective. This method employs a sensor, that when melted, discharges water through pipes. The disadvantage is that a broken sensor can cause accidental discharge.
  - Dry pipe is more expensive than wet pipe but has a lower risk of accidental discharge. Dry pipe uses the same network of pipes as wet, but they are not filled with water until smoke or heat triggers an alarm that opens a valve, filling the pipes with water.

- Dual action system can be used with the wet or dry pipe method of fire suppression. Under this system, more than one sensor must go off in order for water to be discharged. This decreases the chances of accidental discharge of water but is more expensive than wet or dry pipe.
- Water mist system uses a fine mist to suppress fires. This system has two advantages: it uses less water than traditional systems, thereby limiting the amount of water damage to collections, and it can be retrofitted easier than other systems into historic structures. The disadvantages are that it is more expensive than other methods of fire suppression and is not always recognized as being fire code compliant.
- Inert Gas is the most expensive type of fire suppression system; however, it does not leave any residue, is nontoxic, and is considered environmentally sensitive. This method deploys a noncombustible gas that displaces the oxygen in the room. All museums should have a [disaster/emergency plan](#) in place so the staff knows what to do if disaster strikes.

## Record Keeping and Documentation

- Have a written [collections policy](#) that outlines the procedures for how artifacts are accessioned, deaccessioned, catalogued, loaned, and cared for in general.
- Proper museum records will document:
  - When, how, and from whom the object was acquired
  - When the object was accessioned, to what collection and with what accession number
  - A complete catalog entry including a full description of the object as well as a photograph
  - Details of any damage to the object
  - Results of periodic condition reports
  - Details of any conservation treatments
  - The exact location of the artifact
- Accession numbers should be well-secured (though not in a permanent manner) to your artifacts.
- Conduct periodic inventories to ensure all objects are still in your museum's collection
- Have more than one copy of an artifact's record. Store a copy in a fireproof cabinet and another off-site if possible.