

DEPARTMENT OF THE INTERIOR
DEPARTMENTAL MANUAL

Museum Property Handbook
(411 DM, Volume I)

Chapter 9 Museum Property Storage

A. INTRODUCTION

Achieving good preservation conditions for objects housed in storage is possible. **Good storage is part of preventive conservation, and is the key to long-term preservation of museum property.** A well-planned and organized storage space will not only reduce the risk of object deterioration, damage, or loss because of improper storage techniques, poor handling practices, improper security measures, adverse environmental conditions, and biological infestation, but also will ensure that the objects are accessible.

Preserving museum property in storage requires establishing a comprehensive storage system. A storage system comprises the following three factors:

Facility

- ! The structure
- ! The spaces within the structure
- ! The infrastructure: mechanical, electrical, and utility

Museum Equipment (Furniture)

- ! Cabinets
- ! Shelving
- ! Specialized furniture

Containers and Enclosures

- ! Folders and sleeves
- ! Specimen trays
- ! Boxes
- ! Mounts and supports

Although museum property storage situations vary, the factors that need to be considered to properly house a collection remain the same. Each factor needs to be evaluated and adapted to meet the preservation and protection needs of each museum property collection. The storage system should address, in a practical way, the space available to house the collections as well as the cost, both in funds and staff

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time. Weaknesses or deficiencies of one factor of the storage system may be compensated for by increasing the quality or extent of coverage of other factors. For example, inability to keep all objects in dust-tight containers (e.g., acid-free boxes) may require that greater attention be given to housekeeping.

B. COMPONENTS OF MUSEUM PROPERTY STORAGE

The requirements necessary to meet the Departmental standards for storage of museum property are outlined in Appendix A, "Mandates and Standards," and in Appendix E, "Checklist for Preservation, Protection, and Documentation of Museum Property." This section provides guidance on those requirements. Section C of this Chapter provides guidance on how optimum protection of museum property might be attained even when all requirements, outlined in this section, cannot be met.

1. Dedicated Storage

Ideally, spaces designated for storing museum property are used solely for that purpose. Flammable liquids and materials must be kept outside the museum storage space. Curatorial supplies, audiovisual equipment, exhibit props, and other interpretive materials also should be kept out of museum storage spaces.

To the fullest extent possible, office, research, and work areas should be separated from areas used for museum property storage (411 DM 2.3D). Space planners who are unfamiliar with museum property management frequently include curatorial, work, or research areas within collection storage spaces. Combining storage with functions characterized by high levels of human activity is inappropriate for the following reasons:

- a. When people work in a storage area, air is exchanged within the space more often than otherwise would occur or be necessary for health reasons. Air exchanges can cause temperature and relative humidity to fluctuate more rapidly than normally is desirable,

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resulting in accelerated object deterioration. Increasing the rate of air exchange to maintain human occupancy standards exacerbates this problem.

- b. Higher light levels are required in work areas than in storage areas: increased light levels may cause accelerated damage to unprotected light-sensitive objects.
- c. Human activity and traffic are higher in work areas than in storage areas. Traffic in, out, and through work areas brings in and disperses soil and dust into the air. When work takes place in storage spaces, the amount of soil and dust imported into these areas will increase. Consequently, this increases the rate of deposition of dust on the surfaces of objects and storage equipment. Increases in deposition demand increased housekeeping efforts to reduce potential damage to objects.

Therefore, secure work and research areas should be adjacent or convenient to, but not included within, museum property storage spaces.

2. Storage Space Characteristics

- a. In accordance with Executive Order 11988, "Floodplain Management," May 24, 1977, (40 CFR 6030), the facility used to store museum property should not be located on a 100-year floodplain.
- b. If a building is located in an area subject to seismic activity, it should be designed and constructed to be resistant to earthquake damage and should comply with the seismic provisions of state and local building codes, if existing. Refer to "Seismic Design Guidelines for Federal Buildings," National Bureau of Standards Interim Report-87-3524, for guidance. (This publication is available from the National Institute of Standards and Technology [NIST], formerly the National Bureau of Standards.)

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- c. Museum property requires suitable and sufficient space for proper storage. Suitable space means first-quality space. **First-quality space is planned space that has been evaluated for its adequacy for storing museum objects.** Barns, mills, closets, and unimproved basements and attics generally do not contribute to the preservation and effective use of a collection.
- d. The list that follows provides several characteristics of proper storage space for museum property.
- ! Space is environmentally adequate to maintain appropriate levels of relative humidity and temperature. Space is insulated and has a vapor barrier to help attain and maintain appropriate environmental conditions.
 - ! Space has as few exterior walls as practical, to minimize the chance of condensation on walls and windows during seasonal and diurnal temperature changes, to enhance security, and to increase energy efficiency.
 - ! Space has as few windows and doors as practical to enhance security and environmental control, but not so few as to cause any safety hazard in the event of fire.
 - ! Space is free of water and sewer pipes and valves that can burst or leak and cause damage. **NOTE:** Water lines associated with fire suppression systems are allowed. Spaces equipped with fire sprinkler systems should have adequate floor drain(s) with backflow check valve(s).
 - ! Space is free of electric junction boxes, gas and electric meters, and gas lines in order to limit the need for access by non-curatorial staff.
 - ! Space has a heating, ventilating, and air conditioning (HVAC) system capable of maintaining

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the environmental requirements of the types of objects housed in the space.

- ! Space construction, as practical as possible, is fire-resistant or fireproof.
- ! Space allows movement of personnel, equipment, and objects in and out without hindrances (e.g., avoid inadequately-sized doors, narrow, winding, or steep stairs, and passageways with low ceilings).
- ! Space is sufficient in size to accommodate the existing collection as well as projected growth needs. Space size should be adequate to allow use of proper storage equipment and techniques; incorporate proper width aisles between rows of equipment; and allow safe handling and movement of drawers, cabinet doors, and larger objects. An aisle width of at least 48" is recommended to accommodate staff management of carts and wheelchairs.

3. Protection Considerations

a. Physical Security

Entrances into the storage space should be equipped with metal or solid-core wooden doors that have dead bolt locks in addition to locking dead latches. The locks should have exclusive, non-mastered key cylinders. Keys to the storage area should be restricted to those staff members with direct museum property responsibility. Small, highly sensitive, and valuable objects and specimens (e.g., coins and currency, and type specimens) should be kept in museum cabinets with keyed locks or in safes. All museum cabinets routinely should be kept locked. Isolated locations that may not be accessible and easily patrolled should be avoided as potential storage sites.

Access to the locked storage area should be limited

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to the curatorial staff and those people who have a legitimate reason to enter. Researchers and visitors should not be given unrestricted access to storage, should be required to present identification before entering, and should be escorted while in the space. A visitor and researcher **sign-in log** must be established to record: visitor or researcher name, address, the date and time entered, the time left, and the reason for entering. When a researcher is working with objects, it is best that the objects be brought to a work area outside the storage space designated for the researcher. Refer to Chapter 11 of this Handbook for guidance on access to museum collections. Ensure that the needs of the collection are included in an Emergency Management Plan. Refer to Chapter 12 of this Handbook for guidance on museum property emergency planning.

The storage space needs to provide the collection with security from theft and vandalism. The storage area should have an intrusion detection system that is capable of alerting law enforcement and/or security personnel to ensure quick response in the event of unauthorized or unlawful entry.

b. Fire Protection

Museum property storage space needs the safeguard of early fire detection and suppression to guarantee the safety of the collection and the personnel who use and care for it. The storage space should have the appropriate number of fire extinguishers for the area's size and the appropriate type for the materials stored. These should be conveniently placed, clearly marked, and properly maintained for emergency situations. All staff who might be expected to use fire extinguishers should be trained in their use. Installation of a fire detection and suppression system that complies with the National Fire Protection Association (NFPA) guidelines will help ensure quick discovery and suppression by an extinguishing agent or rapid response by personnel. Refer to Chapter 11 for guidance on fire prevention,

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detection, and suppression systems.

Fire planning should address pre-suppression emergency procedures such as the least destructive means of entering the facility; in what order of priority objects are to be removed if time is available to do so; what type of extinguishing agent is best to use to minimize damage to the collection; the location of the nearest fire hydrants and hoses, and the training of staff in the use of appropriate extinguishing equipment.

Museum objects on shelving should not be closer than 18 inches from the ceiling. The use of fire-retardant dust covers on open shelving and the containment of objects in museum specimen cabinets is recommended.

Flammable liquids should be stored in the storage area and, regardless of where stored, they need to be contained in approved flammable-liquids storage cabinets that have been properly vented. An exception may include natural history specimens that are preserved in a flammable liquid such as alcohol.

c. Health and Safety Concerns

Museum property collections may contain objects and/or specimens that without proper awareness and precautions pose a health and safety risk to curatorial staff and to the public (e.g., researchers). Biological specimens and ethnographic objects may contain arsenic, mercuric chloride, or other hazardous chemicals. Certain types of geological specimens and historic objects may emit radiation. Large collections of specimens preserved in fluids may pose a fire risk without appropriate ventilation. Aging cellulose nitrate film is highly flammable. Cellulose nitrate and diacetate films emit harmful gases.

An industrial hygienist and a safety engineer should

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be consulted to ensure that health and safety concerns are identified and that appropriate measures (e.g., installation of a ventilation system, construction of a dedicated space for housing a particular type of material, and preparation and implementation of policies and procedures for handling and storing known hazardous materials) have been included in the process of planning and designing a space for storing museum property.

4. Environmental Guidelines

Maintaining an environment conducive to museum object preservation is both achievable and cost effective in a storage space. Many objects will spend much of their existence in a storage space. A proper museum property storage environment is one that controls the range and reduces the fluctuations of temperature and relative humidity, prevents damage resulting from air pollutants and light, and eliminates biological infestations by insect and rodent pests. Refer to Chapters 5 and 6 of this Handbook for guidance on monitoring and controlling the museum collections environment and on establishing an Integrated Pest Management (IPM) Program to monitor potential pest activity.

5. Museum Equipment and Container Considerations

The use of specialized storage equipment and containers will aid the unit staff to preserve and effectively manage the museum collection. The use of proper storage cabinets, shelves, and racks will facilitate maximum use of the space and accessibility to the museum property collection. Refer to Section D of this Chapter for guidance on museum property collections storage equipment and on museum object containers.

6. Housekeeping

There is always the possibility of neglect for objects not constantly on view to the staff. Good housekeeping in storage spaces is essential to a unit's preventive conservation program. Smoking, eating, and drinking must

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be strictly prohibited in storage spaces. Storage needs to be routinely checked for signs of pest infestation. An Integrated Pest Management program should be in effect. The storage area including cabinets and shelving should be routinely dusted and vacuumed. Floors need to be vacuumed and mopped regularly to reduce levels of dust and soil. Refer to Chapter 7 for guidance on establishing a housekeeping program for museum property.

C. MUSEUM PROPERTY STORAGE PLANNING

Planning for museum storage is essential to ensure preservation and access to museum property. The process of collections storage planning may focus on the development of a new facility, the rehabilitation of an existing facility, or only on a specific aspect of museum property storage (e.g., determining equipment and space requirements for a collection or outlining specific techniques for housing museum objects on shelves or in cabinets). Consultation with a conservator specializing in environment is recommended. Regardless of the product, all or some of the topics discussed below should be incorporated into the planning process.

1. Museum Property Storage Plan

A museum property storage plan is designed to evaluate the condition of the unit's existing storage spaces, compare the existing conditions with the Departmental standards and requirements for proper storage, identify various alternatives for meeting the standards, and recommend the alternative that best satisfies the requirements. The specific nature of the museum property collection and the availability of funding and staffing are significant factors to consider when selecting an alternative. The plan also addresses specific techniques for housing museum property within the space and the museum equipment.

2. Writing a Museum Property Storage Plan

The following components are included in a Museum

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Property Storage Plan. Preparing this plan requires assessing the museum property and the facility and spaces housing the museum property.

a. Assessment of the Nature of the Museum Property

Examine the entire collection with emphasis on objects and/or specimens designated for storage, but consider all those objects that eventually may be placed in storage. Describe the types of objects, the quantities of each object type, the relative sizes and needed volumes for storage. An example of relative size is as follows: Two types of historical wood and metal composite objects are a hammer and a wagon. Both fit into one major category of history; however, each object type has different storage requirements and containment needs. Describe object types by discipline and material makeup. Note and list types of objects that are extremely sensitive to the environmental influences of temperature and relative humidity, light, and air pollution.

Identify the types and approximate quantities of possible future acquisitions of objects and/or specimens. Study the unit's approved Scope of Collection Statement for this information. Possible future acquisitions of objects and/or specimens may

increase the amount of space needed for museum property storage.

b. Assessment of the Storage Facility

1) Describe the existing structure(s) and space(s) within each structure that are used for museum property storage. Information in this section includes:

! describe the structure's construction and fabric (e.g., wood or masonry; two-story or one-story);

! record the overall dimensions of the space and

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the ceiling height and type (e.g., 8' dropped ceiling);

! describe the number and size of access doors (e.g., measure all doors that objects will pass through);

! determine, with the assistance of an architect or engineer, if the structure will safely withstand the loads associated with the collections to be stored; this is especially important for second and higher floors in a structure. **NOTE:** ceramics, metals, paper, glass, and wood objects in great volumes produce a great deal of weight;

! describe any characteristics of the structure that would hinder the movement of objects or equipment. Stairs may make the movement of objects difficult, and may also increase the risk of accidental breakage;

! describe sizes and directional orientation of windows, and note types of glazing (e.g., glass or plexiglas);

! describe any electrical service and plumbing fixtures and determine if existing electric service has capacity for add-on functions such as air-conditioners, humidifiers, dehumidifiers, and additional lighting;

! describe wall coverings (e.g., dry wall, plaster, brick, or paneling); and,

! describe type and location of light fixtures (e.g., incandescent, fluorescent, or a combination).

2) Illustrate the use of existing space

Prepare a floorplan that illustrates the existing space. Refer to Appendix G for guidance on floor

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plans.

c. Assessment of Storage Conditions

1) Assess physical security for the space.

This information should be included in the plan as an appendix to facilitate restriction of its distribution for security purposes. Planners may want to refer to the Security Survey Checklist included in Appendix I.

- ! Describe the intrusion alarm system (e.g., type, location of sensors, nature of monitoring, who responds, and response time).
- ! Describe the construction and locking system of door frames and the doors (e.g., metal, solid-core wooden, or wooden hollow core, and presence or absence of dead bolt locks).
- ! Describe how windows are secured (e.g., latches or covered with plywood or bars).
- ! Identify the staff who have keys and access to storage areas. Indicate whether staff from other offices need to enter or pass through the area to access service utilities and mechanical systems or to access custodial supplies and equipment.
- ! Describe any other functions that occur in the storage space.
- ! If applicable, describe any areas in the storage space where security is compromised because of easy access from an adjoining space (e.g., dropped ceiling).
- ! Note if a visitor and researcher log is used and maintained.

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- 2) Describe the current fire detection and/or suppression systems.
 - ! Describe existing fire detection systems, including nature and locations of detectors and manual pull stations, the type of control, and the type and locations of alarm indicating devices.
 - ! Describe existing fixed fire suppression systems (e.g., water sprinklers, Halon 1301 or CO₂ total flooding systems, and foam systems).
 - ! Determine the nature of fire alarm monitoring and response: how and where are alarms monitored, reliability of the remote alarm communications system, the party responsible for response, and the response time.
 - ! Check to ensure that the Fire Plan clearly identifies approved pre-suppression actions for the responding authorities (e.g., how to enter the storage space, how to suppress a fire with minimal collateral damage to museum property and equipment, and how and under what priorities to evacuate threatened objects and records).
 - ! Identify the number, types, and locations of hand-held fire extinguishers.
 - ! Identify the closest water supply available to suppress a fire, include the type of water supply and the size and location of fire hoses.

- 3) Assess environmental monitoring and control.
 - ! Include the following information: readings for temperature, relative humidity, and light levels of the existing space.

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- ! Note and describe levels of dust and possible sources of dust. Obtain from the Environmental Protection Agency or a local agency measurements for sulfur dioxide, hydrogen sulfide, and oxides of nitrogen.
- ! Note any history of or present evidences of biological infestation.
- ! Note the type and location of the environmental monitoring equipment (e.g., hygrothermograph or hygrometer).
- ! Check to ensure that environmental monitoring equipment is properly calibrated and maintained.
- ! Examine the data recorded on temperature and relative humidity, light, and pests within the space. In particular note the following information:
 - ! the annual maximum and minimum temperature readings and relative humidity levels;
 - ! the monthly maximum and minimum temperature readings and relative humidity levels;
 - ! the maximum diurnal (24-hour) fluctuation for temperature and relative humidity on a monthly and an annual basis;
 - ! do the records indicate the maintenance of a proper environment because of climate control systems (e.g., heating, ventilating, and air-conditioning [HVAC])?;
 - ! do the records indicate diurnal changes if HVAC equipment is turned off after working hours?;

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- ! the data on visible and UV light levels in the storage space. **NOTE:** If there are windows in the space, have readings been recorded for both winter and summer months?;
- ! if appropriate, examine data available on pollutant readings from a number of years. Note any trends;
- ! describe the space's air-handling system (e.g., type of system: heating and air-conditioning, oil-fired furnace, heat pump, or central air). Note whether the system is dedicated to controlling the space's environment, the location of the thermostat, the location of discharge and return registers, and how the air is filtered. Obtain manufacturers data on the equipment (e.g., operating manual and/or other literature), and determine the maintenance history and requirements of the equipment;
- ! determine if portable dehumidifiers, humidifiers, or air-purifiers are used in the space, and analyze the records to determine if the equipment has had any impact on improving conditions;
- ! describe type of dust covers used to protect objects stored on open shelving (e.g., plastic or muslin);
- ! check fluorescent lighting to ensure that light filters are installed. **NOTE:** Use a UV monitor to ensure that filters are controlling ultraviolet radiation levels;
- ! if there are windows in the space, check to see if blinds, curtains, or light filters have been installed; and,

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! check to ensure that an Integrated Pest Management program is in effect. Ensure that data have been recorded on the types of pests that have been observed in the traps.

d. Assessment of Existing Museum Equipment

! List the types of existing storage equipment (e.g., museum specimen cabinets, map cabinets, file cabinets, shelving, painting racks, and/or high density storage systems).

! Note the manufacturer and model number of each type of equipment and, if the equipment is non-standard, its size (e.g., width, depth, and height).

! Note the condition of the equipment (e.g., operation of locks, condition of gaskets, and evidence of rust, dents, holes, or scratches).

! List any equipment that needs to be replaced.

! Indicate additional museum equipment that is or will be needed to properly store the existing collection and accommodate future growth in the collection.

! Determine if any specialized equipment or adaptations to equipment are needed to house specific types of objects, (e.g., additional space might be provided by installing a high density storage system or by installing racks to store objects on a wall).

! Determine if a rearrangement of the equipment will better use the existing space.

! List the types and numbers of equipment used to

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monitor temperature and relative humidity, and types of portable equipment used to achieve appropriate environmental levels.

! Note the type of equipment that is used in the housekeeping program for the space (e.g., vacuum cleaner, mops, buckets, brooms, and dust mops).

e. Assessment of Object Storage Techniques

! Determine if the space within the existing museum equipment is effectively used.

! Examine the space utilization and make recommendations for more effective use of existing shelving and cabinets.

! Identify any material that is not part of the museum property collection and recommend its removal from the storage space. Refer to Chapter 3 and Appendix A of this Volume.

! Evaluate techniques to house the objects (e.g., containers, enclosures, mounts, supports, and appropriate storage materials). Recommend methods for improving techniques.

f. Identification and Discussion of Storage Space Alternatives

Consider all alternative locations for museum property collections storage. Visit and examine each possible location and record pertinent data. Indicate capability of each alternative space to satisfy Departmental storage standards.

This section of the plan needs to address the approaches to storing museum property. Several approaches are outlined below.

1) No change in the existing storage space and a listing of possible consequences.

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- 2) Modification of existing storage space. Provide details of the appropriate changes. Describe how existing conditions can be corrected to conform to Departmental standards.
- 3) New storage locations in the unit and a description of the actions needed to adapt space(s) to conform to Departmental standards. Consider the following approaches. In each instance, gather and record the pertinent information needed to assess the appropriateness of the space.
 - ! Different spaces in the same structure
 - ! Different structures in the unit
 - ! New space in a new structure (e.g., visitor center, research center, or repository)
 - ! Specialized structures (e.g., prefabricated insulated buildings) or a new or retrofitted facility.
- 4) Storage in an existing facility outside the unit (e.g., repository in another unit of the bureau or a non-bureau repository).

For approaches 1-3, prepare a new floor plan that indicates arrangement of museum equipment (e.g., cabinets, shelving, and racks), windows, doors, electrical outlets, and lighting. Refer to Appendix G for guidance on floor plans.

g. Discussion of the Specific Recommended Alternative

The recommendations for the storage space should be made on a priority or weighted basis for the various alternatives. For each alternative, indicate the reason or justification for this choice. Indicate the most acceptable approach to improving the storage conditions.

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Consider phasing the project to allow improvements to occur as funding becomes available (e.g., rehabilitate the space one year; install environmental control equipment and security and fire protection systems in a second year, and purchase replacement and new equipment in the third year). Once an alternative is chosen, prepare and incorporate a project statement in the appropriate planning and programming documents.

Consideration should be given to storing museum property collections off-site during construction

projects. Preparation and planning can prevent unnecessary movement of museum property.

h. Appendices Containing Technical Information

Include in this section proposed storage configurations, environmental monitoring data, and illustrations for constructing specialized equipment. Consult the regional offices, headquarters, other bureaus (e.g., National Park Service) and museums for assistance in gathering material for appendices. Refer to Appendices G and J for additional information.

3. Alternate Storage Locations

There are circumstances when museum property may be stored in an off-site repository. When there is no acceptable space to house objects safely and when there is no qualified curatorial staff to provide care for the collection, it may be necessary to house museum property in non-bureau repositories that can provide these necessities. Institutions should be selected that meet Departmental standards and requirements for museum object preservation and protection. Guidance for selecting repositories to house archeological collections may be found in 36 CFR Part 79, "Curation of Federally-owned and Administered Archeological Collections." Guidance for selecting repositories for other materials may be found in discipline-specific publications available from

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professional organizations.

D. HOUSING MUSEUM OBJECTS

1. General Considerations

- a. In planning for cabinets and shelving, examine all objects in the collection. To the extent possible, organize objects by material type and size rather than by provenience or accession or catalog information.
- b. Ideally, do not install cabinets and shelving units against exterior walls. This situation may lead to condensation.
- c. Ensure that museum cabinets are free of rust, have gaskets intact to provide good sealing action, have smoothly operating doors, and have working keyed or combination lock mechanisms. Early museum specimen cabinets used polyurethane foam gaskets that deteriorate over time. These gaskets should be replaced.
- d. Keep loads in museum cabinet drawers below the manufacturer's recommended weight capacity. Ensure that museum cabinets are not stacked more than two high. Ensure that museum cabinets and shelving units are raised off the floor at least two inches, if on casters or appliance rollers, or at least four inches, if stationary. Raising cabinets reduces the chances of damage to objects in case of flooding and facilitates the cleaning of floors and inspection for pest problems.
- e. Ensure that closed cell polyethylene foam is used in museum cabinet drawers and on shelving to cushion objects. Ensure that objects in museum cabinets are placed in specimen trays, padded, or otherwise prevented from sliding or shifting when drawers are opened and closed.

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f. Selecting a method to facilitate locating museum property in storage depends on how the objects and specimens are arranged. One method for facilitating the location of museum property is to assign and affix a unique number to all shelving units, individual shelves, cabinets, and individual cabinet drawers. Natural history scientific/collections are usually arranged according to an established or clearly stated variant of an established phylogenetic system in which the identification of the specimen determines its storage location. Secondary considerations for installing or arranging additional specimens of the same taxon usually rely on some combination of phylogenetic (e.g., subspecies), geographical, or numerical sequence.

2. Museum Storage Equipment

A wide variety of museum cabinets and shelving are available for storing all types of museum objects. See Appendix G for information about the types of available storage equipment. Specialized museum cabinets have synthetic gaskets that create an interior microenvironment that buffers temperature and relative humidity fluctuations, prevents insect and vermin infestations, and prevents damage caused by light, dust, and pollution. Shelving units are used to store objects too large or heavy to fit within museum storage cabinets. Special racks will accommodate hard-to-store objects.

The most commonly-used types of cabinets form a modular system that facilitates efficient organization and access to the objects. These three cabinets are as follows: a standard museum cabinet, a double-wide museum cabinet, and a wardrobe cabinet. In addition, there are entomology and herbarium cabinets, map cabinets, large flat storage cabinets, utility cabinets, as well as customized cabinets.

Several types of shelving are available. Slotted angle racks are particularly useful. These storage racks are constructed using slotted metal angle that can be custom cut. They can be specially configured and constructed

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for extra large artifacts or for objects with specific support or space requirements. Shelving can be made from metal panels or with plywood coated with a two-component epoxy paint.

A prefabricated building system can be assembled inside a building or outside to create a collection storage facility that is economical, efficient to operate, and effective in creating appropriate environmental conditions. The building system is made of superinsulated, Foam-core® metal-sheathed panels.

3. Museum Storage Containers and Enclosures

Within the museum property storage space environment, the immediate environment for many objects and specimens is the container and/or enclosure (e.g., folders, sleeves, specimens trays, boxes, mounts, and supports) in which they are housed. Containers and enclosures facilitate the organization of collection materials, provide some protection from abrupt changes in relative humidity, provide a safe method for transporting objects, and protect materials from dust and other particulates. Because a container and/or enclosure is designed to be in prolonged and direct contact with an object, **it is critical that containers and enclosures be made of "museum or archival quality material."** Museum or archival quality means that all materials should be as chemically inert and stable as possible.

Using archival or museum quality materials is particularly important for housing environmentally sensitive materials (e.g., paper, textiles, leather, wood, feathers, fur, unstable ceramics and metals, and unstable stone and glass). However, using these materials is also important for the housing of materials less sensitive to the environment (e.g., stable ceramics and stone). The packing materials should be of high quality **to ensure the longevity** of the containers and/or enclosures housing the museum property. See Appendix J for information about the types of available containers and enclosures and for a list of sources.

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