



Conserve O Gram

June 1997

Number 4/10

Determining Museum Storage Equipment Needs

Determining the specialized storage equipment needed to adequately contain a collection is fundamental to planning your collection storage space. Properly contained museum objects are afforded basic preservation. Proper containment in specialized storage equipment also contributes to organizing, accessing, and securing the collection. Knowledge of equipment needs will help determine the space needed to store your collection.

This *Conserve O Gram* will guide you in making a reasonable determination of your collection storage equipment requirements; along with *Conserve O Gram* 4/11, Determining Museum Storage Space Requirements, these *Conserve O Grams* prescribe a two-part process useful in planning your collection storage facility. They are supplemental to storage planning guidance provided in the *NPS Museum Handbook*, Part I (Rev 9/90), Chapter 7.

Follow these steps to determine equipment needs:

1. Take a comprehensive look at the collection material types, quantities, and sizes.
2. Familiarize yourself with the equipment recommended by manufacturers for storing specific object types, such as herbarium materials, insects, garments, geology. Equipment manufacturers have developed cabinets, shelving units, and racks to store virtually any type of object or collection. Descriptions can be found in the company's product literature. See *Sources* for a list of equipment vendors. Parks can also refer to *NPS Tools of the Trade*, Release No. 3. See *Conserve O Gram* 4/1 for descriptions of common museum storage cabinets.
3. List the types of equipment needed to store the collection. This stage of the process can be relatively easy if the collection consists of a single type of object, such as herbarium specimens or small archeological objects. It can be more difficult if you have a wide variety of materials.
4. Use the following guidance to determine the number of similar objects that can be accommodated in each piece of equipment.

Small three-dimensional objects. A standard museum storage cabinet with a full complement of 16 drawers can accommodate 2,000-4,000 small objects stored in specimen trays. When using the full complement of drawers, the objects must not extend higher than the drawer (drawer height is 1 $\frac{7}{8}$ "") because clearance between drawers is minimal. Wardrobe cabinets equipped with a full complement of half-width drawers will hold four times the volume of a standard museum cabinet.

Medium- to large-sized three-dimensional objects. Those objects of exceptional value, significance, fragility or environmental sensitivity should also be stored in the standard museum cabinet. Larger objects will reduce the number you can fit into a cabinet; fewer objects will fit in a drawer and fewer drawers will fit into the cabinet. Be sure to allow enough distance between drawers to prevent the object from scraping against the bottom of the drawer above. Use caution when opening drawers.

Large, stable three-dimensional objects. These objects can be stored on steel shelving units. Select a representative sampling from

the sizes of objects to be stored, then estimate the number of objects in each size. Measure the footprint needed for each object's safe storage on a shelf. The footprint is the size of the object plus a cushion of space so adjacent objects don't touch. Calculate the total square footage (footprint multiplied by the number of objects in that size range). Divide that number by the square footage of a single shelf. Do the same for all size ranges.

An alternative method is to arrange a representative sampling of objects on a shelf, count the number of objects per shelf, and divide the total number of objects to be stored by the typical number of objects that will fit on the shelf.

Archeological materials. The record storage box (10" x12" x15") is used routinely to store archeological materials and has a volume of approximately 1 cubic foot. The volume of a standard museum storage cabinet is 12.4 cubic feet or approximately 12 record storage boxes of archeological materials.

Herbarium specimens. Each compartment of a herbarium cabinet holds approximately 80 pressed herbarium specimens on mounting sheets and in herbarium folders.

Firearms. Store all firearms in locked cabinets. Special gun cabinets provide secure storage for up to 30 longarms. Handguns can be stored in locked standard museum cabinets.

Garments. Hang garments in good condition on padded hangers in a wardrobe cabinet. Measure the thickness of the garments on the padded hangers and determine how many will fit into the 52¾"-width of the cabinet interior.

Fragile and smaller garments. When these require flat storage they can be stored in either doublewide or wardrobe cabinets. A

doublewide cabinet holds 16 drawers, each 52¾" by 30". A wardrobe cabinet fitted with full-width drawers has the same flat storage space dimensions but holds up to 40 drawers.

Furniture. Store furniture on open shelving. Although shelf size can vary, furnishings are commonly stored on shelves measuring 4' x 8' (the dimensions of a standard sheet of plywood). Typically 8 dining room chairs will fit per plywood shelf. Other furnishings vary greatly in size; you will need to measure the pieces to determine how many will fit on a shelf.

Paper documents. Individual paper objects are first contained in file or manuscript folders and then stored in either document or record storage boxes. Store the boxed material on steel shelving or in file cabinets. Estimate one linear foot of shelf or cabinet space to every 1600 individual paper items.

Maps, blueprints and large documents. Store in flat files. Calculate the number of pieces that will safely fit within a drawer. See *Conserve O Gram* 19/9 for guidance on placing these materials in folders and housing the folders in drawers. Divide the number of pieces for each drawer into the number of maps, blueprints, large documents in the collection. Blueprints require storage separate from other materials because they require an acidic environment. Store documents, prints, and unframed artwork sizes 11"x14" to 20"x24" in print boxes, then in cabinets or on steel shelving.

Paintings and framed artwork. These require special racks, either fixed wall panels, pull out panels in compressed storage systems, or in custom constructed slotted racks. Contact manufacturers to explore costs and appropriateness. Make square footage calculations by grouping artwork in several size categories and multiplying square footage of the size by the number of pieces in that category. Another method to

use with small numbers of artwork is to calculate square footage based on object dimensions taken from descriptions on catalog cards. Once the collection is converted into square footage, factor in a small percentage increase to accommodate the space separating artwork when on the rack.

5. When determining your equipment needs, take into account additional equipment needed to contain any expected growth of the collection.

NOTE: Cabinets, shelving units, and specialty racks that are on hand and in use (provided they are of the appropriate type and the objects are properly placed within them) can be used, optionally, as a basis for determining the number of storage units needed to house uncontainerized materials of the same type. Efficiently store the objects on the storage unit, then simply count the number of objects or determine the volume of objects contained in a single storage unit. You can then convert numbers or volumes of uncontainerized materials into a number of storage units.

Sources

Art Storage Racks and Panels

Charles J. Dickgeisser and Company, P.O. Box 475, Derby, CT 06418; (203) 734-2553.

Crystalizations Systems, 112 Cuba Hill Road, Greenlawn, NY 11740; (516) 261-2878.

Fire Resistive Files, Safes, Inserts

FireKing International, 101 Security Parkway, P.O. Box 559, New Albany, IN 47150; (800) 457-2424 or (812) 948-8400.

Kardex Systems, P.O. Box 171, Marietta, OH 45750; (614) 374-9300.

Schwab Safe Company, P.O. Box 5088, Lafayette, IN 47904; (317) 447-9470.

Sentry Group, 2166 Wisconsin Avenue NW, Washington, DC 20007; (202) 265-0246.

Gun Cabinets

Browning Prosteel, P.O. Box 977, Provo, UT 84601; (801) 373-2385.

High Density Storage Systems

Spacesaver Corporation, RR 3, Box 166, Fort Atkinson, WI 53538; (414) 563-6362.

White Storage and Retrieval Systems, White Office Systems, 50 Boright Avenue, Kenilworth, NJ 07033; (201) 272-8888.

Map and Blueprint Flat Files

Foster Manufacturing, 414 North 13th Street, Philadelphia, PA 19108; (215) 523-4855.

Jebco Inc., P.O. Box 112, Warrenton, GA 30828; (706) 465-3378.

Mayline Company, 619 Commerce Street, P.O. Box 728, Sheboygan, WI 53082; (414) 457-5537.

Museum Cabinets

Delta Designs, LTD., P.O. Box 1733, Topeka, KS 66601; (913) 234-2244.

The Interior Steel Equipment Company, c/o Viking Metal Cabinet Company, 5321 West 65th Street, Chicago, IL 60038; (708) 594-1111 (to order); (216) 397-0120 (for information).

Lane Science Equipment Co., 225 West 34th Street, Suite 1412, New York, NY 10122; (212) 563-0663.

Steel Fixture Manufacturing Co., P.O. Box 917, Topeka, KS 66601; (913) 233-8911.

Shelving Units

Federal Prison Industries, Inc., (UNICOR),
Metal and Wood Division, 320 First Street
NW, Washington, DC 20534; (202) 724-3006.

Interlake, 550 Warrenville Road, Lisle, IL
60532; (708) 719-7077.

InterMetro Industries, Thomas and Second
Streets, Wilkes-Barre, PA 18705;
(717) 825-2741.

Donald R. Cumberland, Jr.
Museum Specialist
National Park Service
Museum Management Program
Harpers Ferry, West Virginia 25425

The *Conserve O Gram* series is published as a reference on collections management and curatorial issues. Mention of a product, a manufacturer, or a supplier by name in this publication does not constitute an endorsement of that product or supplier by the National Park Service. Sources named are not all inclusive. It is suggested that readers also seek alternative product and vendor information in order to assess the full range of available supplies and equipment.

The series is distributed to all NPS units and is available to non-NPS institutions and interested individuals by subscription through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; FAX (202) 512-2250. For further information and guidance concerning any of the topics or procedures addressed in the series, contact NPS Museum Management Program, 1849 C Street NW, Washington, DC 20240; (202) 343-8142.