



Conserve O Gram

June 1997

Number 4/11

Determining Museum Storage Space Requirements

One of the more daunting aspects of planning a museum collection storage facility is determining how much space is needed to store the collection. This *Conserve O Gram* will guide you in making an estimate of your storage space requirements. It supplements information on museum collections storage planning provided in the *NPS Museum Handbook*, Part I (Rev 9/90), Chapter 7.

To plan collection storage space you must:

1. Determine the storage equipment requirements for the collections. See *Conserve O Gram* 4/10, Determining Museum Storage Equipment Needs.
2. Develop a layout for the equipment within the storage space.
3. Calculate the space occupied by the storage equipment.

This process should be useful to park and museum staff responsible for resolving museum storage space and equipment issues and who find themselves in one or more of the following scenarios.

Scenario 1. There is no centralized storage area for the museum collection. Objects are stored haphazardly in a variety of places: on the floor, on top of file cabinets, on multipurpose shelving and in cabinets with non-museum items. You make a decision to establish a dedicated space where the collection can be consolidated and properly stored. *How much space will be required? What special equipment is needed?*

Scenario 2. Your collection storage area was developed without the benefit of a preconceived

layout. Storage equipment was purchased as objects were moved into the room. Objects of different sizes and types are stored together in a variety of equipment. Aisles are irregular making the movement of objects difficult. You make a decision to reorganize the room so the objects are properly stored and more accessible. *How do you go about rearranging the space?*

Scenario 3. Your site has an established collection storage area. Additional materials have been added to the collection over the years. The storage room now is overcrowded. You evaluate other spaces at the site. If no on-site space is acceptable, a new facility will be constructed. *How do you establish the current and future requirements for space? Do you need additional equipment?*

When planning for collection storage space, the following options are usually considered:

- developing new space in a dedicated building
- adapting another space or building
- upgrading the space currently used to better meet the needs of the collection

Developing a Layout

Develop one or more layouts of your storage equipment within the proposed storage space. Keep in mind the following as you arrange the space:

- allow for safe movement of objects and staff throughout the space
- provide adequate access to the stored collections

- consider the location of structural features (such as posts, beams, and pilasters) and the impact they would have on the layout
- consider access to light switches, electrical outlets and panel boxes, fire and intrusion detection sensors

When you develop a layout, use scale drawings of storage equipment. Accurate dimensions for equipment can be found in the vendor's product literature. Park staff can refer to NPS *Tools of the Trade*, Release No. 3. Arranging the space to scale will illustrate spacial relationships between the equipment and the space and allow workable layouts of the equipment to be planned.

Use one of the following methods for drawing the space to scale:

- The most accurate method is the use of a computer-assisted-design (CAD) software program. CAD programs are readily available from software manufacturers and dealers. Most brands should work acceptably. One commonly-used brand is AutoCAD® developed by Autodesk, Inc., 111 McInnis Parkway, San Rafael, California 94903.
- An alternate method is to cut out scaled drawings of the equipment from graph paper. Make sure the cut-outs are accurately scaled to a drawing of the storage space that can be on graph paper as well. The use of graph paper and scaled cutouts is inexpensive, non-technical, and requires no familiarity with computers and CAD programs. However, this method may be more time consuming to create and use.

A template is provided on page 4 that depicts commonly used museum storage equipment drawn to the scales of $1/4" = 1'0"$, $1/8" = 1'0"$ and $1/16" = 1'0"$. Photocopy or trace the storage units you require and arrange them on graph paper scaled to the size of your space.

(If you photocopy the templates, make sure your copier will reproduce the original size-for-size.)

Calculating the Storage Space

Experiment with various equipment layouts on a model floor plan. This will help you determine the size space to consider for a new storage area. Measure the square footage of each layout and average them. Use this calculation for comparing other spaces that you may be considering. Keep in mind the following as you work with various arrangements:

- Allow a minimum of three feet between rows of cabinets. Four-foot aisles are recommended in order to open cabinets, access objects, and allow safe movement of objects through the aisles. Aisles between rows of large shelving units require four feet; however, six-foot aisles are recommended because furnishings and larger objects require considerable space to maneuver them onto the shelving units.
- Arrange the same types of equipment together (for example, all shelving units together). This helps organize the collection and allows objects with similar requirements to be stored together.
- Locate bulkier, heavier objects nearest the largest access doors. This requires less handling and maneuvering within the storage space. The more maneuvering of large, hard-to-handle objects the greater the likelihood of damage.
- Place frequently-accessed objects nearest the reference room, workroom, or office.
- Stack counter-height cabinets two units high. To avoid confusion as you make your drawing, use specific designators in the legend of the drawing to indicate the difference between stacked cabinets and single cabinets.

- Reduce the square footage required to store the collection by using high density storage systems that compress aisles. Reduced square footage requirements must be weighed against increased cost and heavier floor load requirements.

The process of space planning for your museum storage facility need not be difficult. The goal is simple: develop the equipment layout that works for the collection and the staff, a layout that is safe for both objects and people, meets your access needs, and contributes to the care and preservation of the collection.

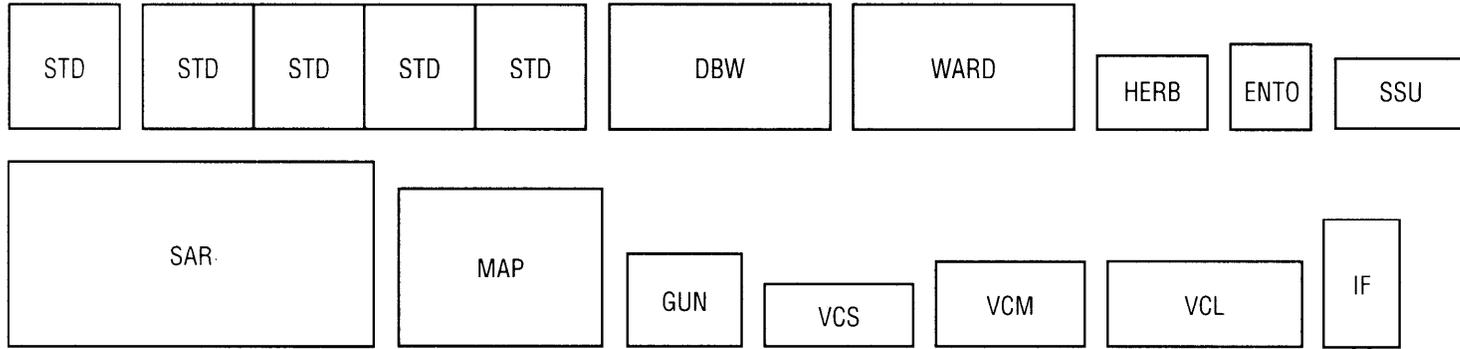
Donald R. Cumberland, Jr.
Museum Specialist
National Park Service
Museum Management Program
Harpers Ferry, West Virginia 25425

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.

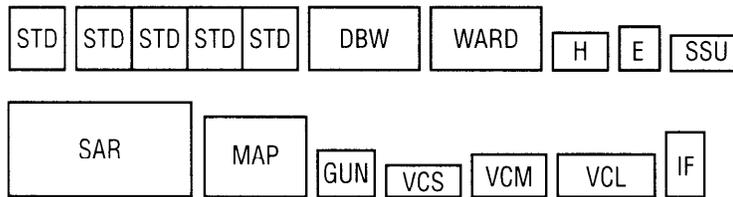
The series is distributed to all NPS units and is available to non-NPS institutions and interested individuals by subscription through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; FAX (202) 512-2250. For further information and guidance concerning any of the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

Museum Storage Equipment Template

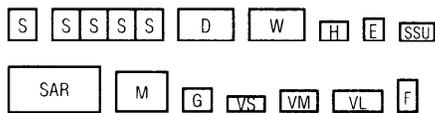
SCALE OF FEET: 1/4" = 1'0"



SCALE OF FEET: 1/8" = 1'0"



SCALE OF FEET: 1/16" = 1'0"



- STD/S = NPS Standard Museum Cabinet - 29" x 32"
- DBW/D = NPS Doublewide Museum Cabinet - 58" x 32"
- WARD/W = NPS Wardrobe Museum Cabinet - 58" x 32"
- HERB/H = NPS Herbarium Museum Cabinet - 29-1/8" x 19-1/8"
- ENTO/E = NPS Entomology Museum Cabinet - 21-3/4" x 22-3/4"
- SSU = Steel Shelving Unit - 18" x 36"
- SAR = Slotted Angle Rack - 96" x 48"
- MAP/M = Map Cabinet - 53-3/4" x 41-7/16"
- GUN/G = Gun Cabinet - 30" x 24-1/2"
- VCS/VS = Small Visual Storage Case - 39-1/2" x 16-5/8"
- VCM/VM = Medium Visual Storage Case - 39-1/2" x 22-5/8"
- VCL/VL = Large Visual Storage Case - 51-1/2" x 22-5/8"
- IF/F = Insulated File (Fire-resistive File) - 20-3/4" x 32-15/16"