CASE STUDY:

NATIONAL ARCHIVES II

College Park, MD

Storage Solved®

Spacesaver compacts 2.3 million cubic feet of material for the world's largest archival facility

Archives II, in College Park, Md., uses Spacesaver mobile systems to store the nation's most precious historical documents, motion and still pictures, microfilm, and cartographic materials. The 1.7 million square foot state-of-the-art facility was approved for construction in 1991 to supplement the original National Archives, located in Washington, D.C. It is now known as the world's largest and most technically advanced archival facility.

Marvin Shenkler, project manager in charge of the Archives II construction project, selected Spacesaver compact shelving to save 1,000,000 square feet and meet his facility space goals at the time of construction. Without compact shelving, traditional shelving would have required a 2.7 million square foot building, which would have been too large and too expensive to construct and maintain.

NATIONAL ARCHIVES

NATIONAL HISTORICAL PUBLICATIONS & RECORDS COMMISSION

The compact 33-acre site, which was donated by the University of Maryland, limited the footprint of the building. "We had space limitations from the beginning," Shenkler recalled. "To meet our initial storage capacity requirements of two million cubic feet and make room for administrative and research areas we would have had to add floors to the building. Budget and land constraints prevented us from constructing a bigger facility. Without mobile storage we wouldn't have met our original capacity goals." The decision was made to select a compact storage solution that realized the facility's capacity and budget requirements.

The National Archives and Records Administration (NARA) underwent a careful analysis to select a storage supplier that could meet the strict quality and technological goals outlined for Archives II. Spacesaver was the manufacturer selected and is now noted as providing the world's largest mobile installation, totaling 520 miles of shelving and more than 2,000 mobile carriages in 692,572 square feet of space.

"After evaluating technical qualifications, capabilities and price of many mobile suppliers, we awarded Spacesaver the project because they offered the greatest value for the government's money," Shenkler noted.

Five years later, with Spacesaver mobile shelving actively in use in 25 stack areas of the building's five floors, Archives II needed even more space. "The original capacity was projected to last until the year 2007," said Shenkler. "But with records transferring from the downtown Archives during its renovation project and additional records coming from Washington National Records Center and other federal records centers, we needed an immediate 245,000 cubic feet."

He worked with Spacesaver to devise a solution to utilize more vertical space in the mobile systems and much of the space around the perimeter of each stack area. The end result of the expansion project was an additional 245,000 cubic feet of storage space.

An additional 165,000 cubic feet of space was gained throughout the building by adding a row of upright extensions to each mobile range. Each extension added one shelf height.

The extensions were carefully placed in areas that provided clearance from overhead utilities and still allowed ample room for proper sprinkler operation and lighting illumination. The extensions were bolted to the carriage tops with clearance underneath for the existing electrical wiring and power pantographs.

"These carefully designed storage expansions have allowed Archives II to add the necessary storage capacity," Shenkler claimed. "If we hadn't so creatively solved these immediate storage needs within the confines of the building, an expansion would have been required."

Archival storage of all types

The 2.3 million cubic feet of materials stored at Archives II are located in numerous stack rooms throughout six floors. Spacesaver mobile and pull-out compact systems are used in every stack area and use a range of shelving and cabinetry types that accommodate unique storage needs in each area.

In several vault rooms, textual documents are stored in Hollinger boxes, Federal Records Center boxes and leather-bound books. Each shelf was spaced at a 12" height, and 40" width with 38" clearance to maximize the shelf capacity of the record boxes.

Two full stack areas house more than 10,000 map cases, the world's largest installation, for storing cartographic materials such as maps, drawings and overhead images, some dating back as far as the 1700's.

Archives II also stores film reels on everything from highly sensitive military films to the 1909 Wright brothers flight and the Henry Ford Collection. Motion picture film is stored very carefully to maintain its longevity, including flat stacking to provide even weight distribution and varying degrees of temperature-controlled environment. Black and white films, which have a polyester-based emulsion, is stored in cool storage of 65 degrees Fahrenheit. Color film with acetate-based emulsion are stored in 25 degree cold storage to minimize its more rapid deterioration. Mobile systems in cold storage use stainless steel wire racks to minimize moisture on and around the film.

Mobile carriages also hold art racks for storing hanging materials; microfilm cabinets for storage of microfilm, microfiche and aperture cards; and roller drawers for storing photographic negatives.

Each archival storage area was designed near its research room for convenience in pulling and re-filing documents used by researchers. The Motion Picture, Sound and Video Research Room uses a mobile system for storing all of the movie index files used in locating films and self-service copies of some materials.

MOBILE SYSTEM FACTS

- Stored **2 MILLION** cubic feet of material
- Utilized **692,572** square feet
- Saved **1,000,000** square feet
- Installed more than **2,000 CARRIAGES**
- Used **80,000** feet of rail
- Required **520 MILES OF SHELVING**:
  - » **80,000** sections of **textual records**
  - » **1,600** sections of **cold storage**
  - » **500** sections for **light-duty storage**
  - » **15 miles** of **recessed rails**

Technical Concerns and Protection Covered

Protection of the records is a primary concern of NARA and it has stringent requirements for particulate and other airborne pollutants, excessive temperature and humidity.

Gases in the stack areas are regulated to parts per billion and all storage materials were tested to ensure an optimal environment for safe storage longevity. Spacesaver was required to provide samples and documentation about off-gassing to guarantee that all shelving and parts met these specifications. It was determined that Spacesaver's standard paint system of electrostatically applied powder coating eliminates the greatest potential hazards to archival materials. Since silicone and petroleum were prohibited, Spacesaver designed its carriages using shielded bearings. Each component of the Spacesaver System was chemically tested to assure compliance with NARA's strict requirements.

The programmable electric was the type of mobile system selected over manual or mechanical assist because of the many safety features it offers, key to protecting the one-of-a-kind items it houses. It also was chosen for its ability to power heavily loaded and extra-long carriages. The system's DC electric motor drives provide ultra-smooth, gradual starts and stops, especially important for moving delicate collections sensitive to vibration and jarring.

"One of the important things I look for in a supplier is responsiveness and problem solving," Shenkler concluded. "I think that Spacesaver is easy to work with and they have a good understanding of how to solve storage problems. I know that I can call anytime of the day to get an answer and that they can help me solve my problem."

Marvin Shenkler
Project Manager, Archives II

A "fire park" feature is automatically tied into the building's fire management system and is programmed to space the shelving ranges uniform distances apart during the night or if fire breaks out. This allows optimal sprinkler range, reaching even bottom shelves, and minimizing fire spread from one unit to another. It is also beneficial to allow air circulation in and around stored materials.

The system also interfaces with the building's lights and are programmed to shut off after predetermined intervals to minimize utility requirements and fluorescent exposure to materials. Another key feature of the electric system is its safety sweep, which automatically shuts down all movement of a range when anything is detected in an aisle. Additionally, infrared aisle entry detectors identify activity into an aisle and prevents carriage movement.

Spacesaver also worked with the engineers at the time of construction to help solve structural concerns. The structurally sound floors were designed to support 350 pounds per square foot. Mobile carriage lengths average 13 to 70 feet and a minimum weight of 1000 pounds per foot.

An Enduring Partnership

For more than 45 years, Spacesaver has been a trusted partner in helping archivists, architects, administrators, and others understand the complexities involved in planning and designing effective collections care systems. Our network of local distributors offers space planning services, product installation, and ongoing service and maintenance by factory-certified technicians.

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