

STORAGE SOLVED

SITUATION: To protect rare and historic U.S. literary treasures against the ravages of time, a team of experts set out to rescue the irreplaceable collections at the State Library of Pennsylvania. Special considerations called for a unique storage solution that would take the protection and preservation of paper-based archives to new heights.

A BEACON FOR PRESERVATION

TECHNICALLY ADVANCED STORAGE SOLUTION AT STATE LIBRARY OF PENNSYLVANIA SAFEGUARDS PRICELESS U.S. LITERARY TREASURES



GAINING BACK CONTROL

When poor environmental conditions threatened the survival of some of the earliest recordings of U.S. history, officials built a new \$7.2 million library space based on a preventive conservation approach that incorporates the use of integrated and advanced technology.

At the newly created Rare Collections Library, the storage solution needed to:

- safely cradle materials and help stabilize and preserve the collections for future generations;
- dovetail with the scientifically rigorous conservation methodology – while integrating flawlessly with other systems designed to preserve history;
- address a unique need of collections in three distinct areas;
- accommodate thousands of materials with widely diverse sizes, despite limited space;
- make it easy to safely access and study materials; and
- exceed expectations set forth by leading experts in paper-based conservation.

Each Eclipse Storage System links with the facility's control system for environmental monitoring and control, as well as lighting, fire protection, and security systems.



With perforated end-panels and other components, the powered HDMS system facilitates air circulation – even when mobile carriages that house materials are closed and not in use.



Perforation helps eliminate stratification of highly filtered air – and allows for more precise environmental control. It also boosts the circulation of a clean-agent mist, and aids in extremely early detection of a potential fire.



The storage system's overhead LED lights supply a mere 1/2 to 3/4-foot candles of color corrected illumination with no ultra violet or infrared component of light to help protect materials yet also deliver a high level of visual acuity.

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Project architect Cornelius Rusnov partnered with Cheryl Micka of StorageTek, Inc., the local Spacesaver® representative and member of the nationwide Spaceaver Group of independent contractors, to plan and design a storage solution matched to the overarching conservation goals and exacting specifications of the collections.

Early on, officials needed assurance that powered High-Density Mobile Storage (HDMS) systems would protect and preserve the irreplaceable and fragile materials. With that, the Rusnov-StorageTek team took extra measures, including the creation of HDMS system mock-ups and a battery of tests, to validate the systems' capabilities. The systems passed the architect's examination with flying colors, as well as the scrutiny of a panel comprised of national and international experts in the field of paper-based conservation.

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At the touch of a button, the system's robust drive train components eliminate flexing to open and close carriages in perfect alignment.

Recessed rail systems add structural rigidity and evenly distribute weight to minimize floor deflection.



An infrared light beam is projected along the length of each carriage at the base to stop carriage movement when the light beam is broken, preventing carriages from contacting a person or an object.

Other features that minimize vibration and movement include:

- DC drive motors on each carriage to ensure smooth acceleration and deceleration;
- non-contact sensors that automatically control the distance between aisles; and
- dynamic breaking system prevents a carriage from moving when it shouldn't.

The Eclipse Powered System is configured to accommodate odd sizes and shapes of materials, including maps.

Planning led to a solution centered on specially designed HDMS systems. Each Eclipse Powered System™ built for the library incorporates a host of features that support the preservation of rare paper-based collections. The same attention to detail was paid to static shelving systems that house the rare materials. **The solution includes:**

- **Rare Books Vault:** Three Eclipse Powered Systems accommodate a diverse variety of book sizes and other odd-sized items, such as a rare collection of centuries-old maps. Drawers provide plenty of flat storage.
- **Historic Newspaper Repository:** Seven Eclipse Powered Systems house approximately six miles of extremely frail newspapers. Two banks of static, four-post shelving units make best use of remaining floor space.
- **Post 1861 Rare Collection:** Seven Eclipse Powered Systems, static shelving and specially designed worktables. The storage solution wisely uses limited space to allow for proper storage of the rare materials, while also supporting the needs of those who examine the collection.

Leaving nothing to chance, extra precautions were taken at every project phase as demonstrated by StorageTek technicians clad in clean-room suits throughout the installation and commissioning process to eliminate the potential for contamination.



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The project team accomplished its primary mission: to preserve and protect the historic and nationally significant collection for future generations.

Officials say powered HDMS systems are clearly suited to the irreplaceable paper-based collections at the state-of-the-art facility given the host of specially designed features found on the Eclipse Powered Systems. In particular, each unit links with the building's control system and is engineered to greatly minimize vibration and eliminate unnecessary movement. Shelving, uprights, and end-panels are perforated to facilitate optimal environmental control – and aid in fire-protection. If the building's fire system is activated, the system's aisles automatically open to aid in the circulation of a clean agent mist designed to snuff out the earliest stages of a fire. Overhead lights emit only extremely low and safe light, and automatically shut on and off to limit light exposure. Safeguards range from inert paint finishes to infrared lights beams to battery backup systems and anti-tip devices.

When all said and done, the State Library of Pennsylvania's Rare Collections Library serves as a beacon for the preservation of paper and book collections.



All storage systems feature inert paint finishes to help protect and preserve the historically significant materials.