Compact Storage Reduces Footprint at the Canadian War Museum

In May 2005, the Canadian War Museum (CWM) marked its 125th anniversary by moving into a spectacular new building in downtown Ottawa. Designed by Moriyama & Teshima Architects, the 40,860-square-meter (440,000-square-foot) facility features cutting-edge conservation laboratories and storage facilities to ensure preservation of CWM's national treasures.

"Compact storage was chosen early in the planning to reduce the footprint of the building," said John Corneil, head of collections information. "We would have needed two-and-a-half to three times as much footprint for storage space with the conventional row, aisle, row, aisle method. We also saved on construction costs and management costs of the facility long-term."

CWM's storage challenge was immense and complex with 500,000 pieces, ranging in size from buttons and insignia to tanks and airplanes, in the various collections. Requirements for optimizing storage and preservation differed for every collection. Working closely with Spacesaver's local museum storage specialist and Mr. Chris Yen, the system designer from Moriyama & Teshima, the CWM was able to customize storage solutions and environmental controls for each collection's specific needs.

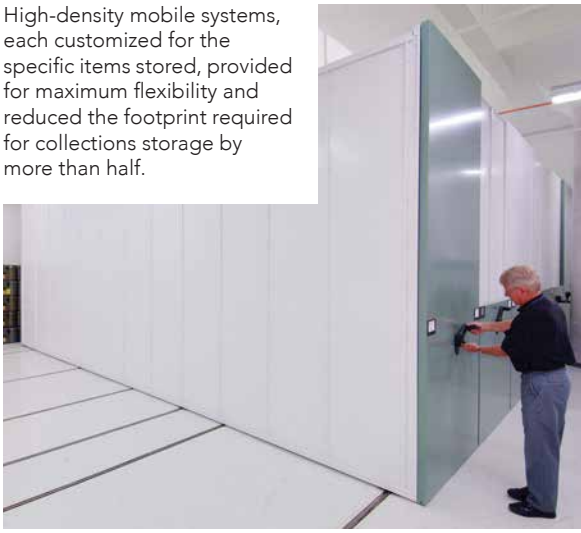
The transport and artillery collection, which contains everything from tanks and vehicle components to cannons and munitions, is stored on a Mechanical Assist mobile system featuring synchro drive in the Equipment Vault. Eighteen-foot-high pallet racks accommodate forklift-accessible crates, while maximizing vertical, as well as horizontal space. "Without the mobile system, we would have needed a room three times larger," said Corneil.

In the Paintings Vault, 90 movable Art Racks nest together on double rails for maximum storage of the 1,300-piece collection. Works too large for the racks are unframed, removed from stretchers and rolled on large-diameter tubes to prevent cracking. Tubes are stored on specially designed, cantilevered units that are accessible by crane arm to assist handlers.

The Secure Arms Vault features a mobile system with storage units and racks, each customized for type of weapon stored. Racks are adjustable with drawers beneath to allow the 4,000 long arms and 2,000 handguns to rest at the proper angle in proximity

(Above) Tall pallet racks on a Mechanical-assist mobile system maximize vertical as well as horizontal space in the Equipment Vault. (Left) Mobile Art Racks nest together on double rails for optimal compression in the Paintings Vault.

High-density mobile systems, each customized for the specific items stored, provided for maximum flexibility and reduced the footprint required for collections storage by more than half.



to their components and attachments. Long artifacts, such as pike and pole-type weapons, are stored on wall-mounted racks. "Everything was designed as flexible as possible to meet our needs," said Corneil.

The Arms and Armor Vault houses military models, helmets, body armor, swords and other edged weapons, both functional and ceremonial, in a wide-span mobile system. Shallow drawers hold items like toy-soldier collectables once used for military planning. Adjustable shelves further compress the collection of various-sized artifacts.

The Dress and Insignia Vault features several mobile systems with a complex combination of doors, drawers, hanging cabinets and shelving that are fully adjustable and can be easily expanded in the future. Eight-foot drawers hold rolled textiles as well as items like flight and chemical suits. Rolls can be suspended in the drawers, which have removable bottoms for maximum adaptability. Huge cabinets on casters with slide-out Plexiglas cases conserve 17th and 18th century regimental and battle flags and can be moved around to double as work surfaces. Viewing windows in this area allow visitors in the gallery beyond a peek behind the scenes.

The mobile system in the Living History Vault, which is a cross-section of all other vaults, had to be securable due to its small firearms collection. It was designed as a self-sealing system, which compresses against one wall, with lockable end unit to comply with the Canadian Fire Arms Act. Compact mobile systems also saved footprint space in the 3D Map Archives, Photo Archives, Paper Archives and Research Library.

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