Continuing dependence on developing and maintaining large print collections has compelled many large academic libraries in the United States to address chronic shelving overcrowding and the growing need for learning spaces. There are numerous examples of the diverse storage solutions applied by universities and large public libraries.

A thorough investigation of these possibilities in the last few years has shown that the University at Buffalo Libraries' dire space needs are best served by leasing an off-campus, made-to-order, compact storage facility from a commercial building developer. A report by a SUNY-hired, library space planning expert has corroborated this position.

This new facility is now a reality. Following the general guidelines that Harvard and other institutions have used to build high-density storage facilities, the UB libraries Annex has been constructed and is located on Rensch Road across Home Road near UB’s North Campus.

To relieve overcrowding of book stacks in all of the UB Libraries, and to provide minimal space for continuing growing of collections, the new high-density center will house about 1.5 million volumes. The Annex also included a reading room, a document delivery center, staff work areas and parking.

Moving materials to the Libraries Annex will provide some opportunities to redesign existing library space to enhance study facilities, computer areas, and learning spaces. However, transferring 1.5 million volumes to the Libraries Annex provides about 10 years of essential growth space for print collections which will continue to require over 75 miles of shelving.

Hours
Monday-Friday, 8:30am to 5pm

Location
The Annex is located close to both UB campuses, on Rensch Road across Sweet Home Road from UB’s North Campus.

FAQs
Document Delivery Service Policy Statement
Collections used less frequently or requiring controlled-environment storage are housed outside the library and are retrieved weekdays, upon request.

**Retrospective Research Collections Center**

KSL's Retrospective Research Collections Center houses older materials and/or materials that are used infrequently enough to be stored outside of the library, thus making more space available in the library for new or heavily-used materials. Retrospective Research Collections Center currently houses approximately 150,000 volumes which appear on catalog as "UL Storage."

Collections at the RRCC include:

- older bound periodicals
- brittle books
- government documents
- Case doctoral dissertations
- Case masters' theses 10+ years old (sciences, engineering, management)
- Case masters' theses 20+ years old (humanities, social sciences)
- less frequently-used monographs.

Materials are brought back by request from the Retrospective Research Collections Center to the Kelvin Smith and Kulas Music Libraries every weekday afternoon.

Additional information and an online request form is available for weekday retrievals from the RRCC to the Kelvin Smith Library.

**Visiting the Retrospective Research Collections Center**

Researchers also may make appointments to visit the Retrospective Research Collections Center to use materials and have staff assistance. Circulation services, photocopy equipment, and a study room are also available. Visitation is by appointment: 216-368-4319

Retrospective Research Collections are located at the Case Cedar Service Center, 10620 Cedar Avenue, one block west of the intersection of Stokes Blvd. and East 107th Street. Visitors are welcome, by appointment. (216-368-4319)

**Iron Mountain Collections**

Collections that require more controlled storage are housed in the Iron Mountain/National Underground Storage facility, and are retrieved weekdays if...
requested by 2:00 p.m. Books retrieved from Iron Mountain may circulate unless the condition of the book warrants in-library use only. Copies of Iron Mountain journal articles may also be requested.

Case students, faculty, and staff may find additional information and complete an online request form for weekday retrieval of Iron Mountain materials to the Kelvin Smith Library.

Last updated on 8/19/2005
The Library Annex

The Library Annex is a high-density storage facility for low-use library materials. The transfer of such materials to the Library Annex increases the space available for users in the main campus library buildings and provides conservation-level environmental controls for books and journals, archives and manuscripts, and rare and fragile materials. All materials in the Library Annex are represented in the Library catalog and may be requested for use. The Library Annex is located on KU’s west campus and designed on the Harvard model. It will have an initial capacity of 1.6 million volumes.
STORAGE FACILITIES

Because the University of Kentucky Libraries' collections have outgrown the space available in its campus libraries, the Libraries utilizes space in two storage facilities, one located on the Lexington campus and the other located off campus. Lesser-used monographs, older journal runs, some materials managed by the University Archives & Records Program and some materials held by the Libraries' Special Collections are among the materials housed in storage.

Electronic Availability

Some of the materials in storage are also available electronically. Check the Libraries' E-Journals Database for information on electronic availability and connectivity.

On Campus Storage

Library materials stored on campus are located in closed stacks within the King Library Addition. Cataloged items that are stored at this location appear in the Libraries' online catalog, InfoKat, with the location designated as 'King Storage Retrieval'. Requests for items stored in the King Building may be made in person at the International Documents and Research Collections service desk, room 310E, King Building during regular library hours, or requests may be submitted electronically any time using the Storage Retrieval Form.

Off Campus Storage

Library materials stored off campus are housed in a commercial storage facility owned by Kentucky Underground Storage, Inc., located in Wilmore, Kentucky. Cataloged items that are stored in this location appear in the Libraries' online catalog, InfoKat, with the location designated as 'Off Campus Retrieval'. Requests for items stored in this location may be made in person to staff in the Young Library Interlibrary Loan Department during working hours, or may be submitted electronically any time using the Storage Retrieval Form.

Who May Borrow?

Material housed in either storage facility may be requested for retrieval by any library patron at no cost. Certain materials such as material in microform formats (microfiche, microfilm and microcards) and periodicals may be restricted to in-house use after retrieval. After retrieval, patrons will be notified of availability for pick-up at the library.

Request Form

Use this form to request retrievals from either storage facility.

When Will the Materials be Available for Use?

Items requested before 4:30 pm. Monday - Thursday are usually available at Young Library by 2:00 p.m. the following day. Items requested after 9:00 a.m. Friday and over the weekend are usually available at Young Library by 2:00 p.m. the following Monday.

For more information about storage materials, contact Young Library Document Delivery Services.

Last update: 2006-03-16 10:38:59
NCSU LIBRARIES SATELLITE SHELVING FACILITY

Requesting Materials (NCSU) | Requesting Materials (Non-NCSU) | Visiting the Facility

The Satellite Shelving Facility (SSF) is a closed-stack, 20,000 square-foot building on the main NC State campus that provides high-density, environmentally controlled shelving for books, audio-visual, microform, and Special Collections materials. Over 90 percent of the SSF collection is made up of bound journals that ceased publication or whose subscriptions were cancelled prior to 1995. Other materials housed there include archival and manuscript materials from the Libraries' Special Collection Research Center, and low-use microforms.

Contact / Staff

(919) 513-7190
(919) 513-7186
satellite@ncsu.edu
2731 Sullivan Drive
Raleigh, NC 27695

Michael Wallace, Supervisor
Johnnie Pippin
High Density Storage

About High Density Storage

The Penn Library's High Density Storage facility opened in July 1998 to house low-use research materials from the Penn Library collection. The facility, just a few blocks from the main campus, is located at 3001 Market Street, opposite 30th Street Station. This facility will hold up to 2 million volumes and is expected to accommodate the Library's shelving needs for twenty years, allowing less-used materials to be removed from core collections in the 15 Penn Libraries, and ensuring space for new acquisitions.

Two full-time staff manage the extensive day-to-day operations at the facility, including retrieving requested material, photocopying articles, shelving newly processed materials, and assisting members of the public.

High density facilities emphasize shelving efficiency. Materials are sorted and shelved by size on specially designed units that stand 18 feet high. We use a special lift to retrieve volumes stored on the high shelves. Because of this, the storage portion of the facility is not open to the public. Instead, requested materials are delivered twice a day to Van Pelt, and once a day to the other Penn Libraries.
ReCAP
The Research Collections and Preservation Consortium

Location
Shelving
Occupancy
Hours, Directions, Virtual Tour
Inventory Control
Design and Construction
Fire Suppression

Size and Description
Capacity, Statistics
Staff
Processing
On-Site Visits
Environmental Controls
Security System

The Research Collections and Preservation Consortium (ReCAP) is located at 400 Forrestal Road, on Princeton University’s Forrestal Campus in Princeton, New Jersey. ReCAP is a high-density, environmentally-controlled shelving facility jointly owned and operated by Columbia University, The New York Public Library and Princeton University. ReCAP was designed and constructed to provide high-density shelving for library items, an excellent environment for preserving items and an inventory and retrieval system for easy and sure access to items for library users. ReCAP's environment is ideally suited for the shelving of all low use items, paper based and sensitive media formats. Most individual items are sorted by size and placed in open-top trays which are stored on an appropriate-sized shelf, in order to store the maximum number of items in the minimum floor area. ReCAP's four modules can accommodate approximately seven million volumes using a high density shelving system. The sophisticated inventory control system keeps track of item locations and produces picking lists for requested items. Items housed at ReCAP will be identified in the local catalogs with a direct web link to a request form. After a request is received, items will be delivered next day to consortium members.

Size and Description
ReCAP planning began in February 1999. Ground was broken August 2000 for the state-of-the-art book depository style building with steel frame tilt-up concrete walls, floors of “very flat” construction, and steel roof. ReCAP's initial phase consisted of three separate modules for storing items, a processing area and office area. Module 4 came online in 2005. There are 5 receiving docks, two for van access, three for semi truck deliveries. The total building footprint is 84,296 square feet. Each high-density library shelving module is approximately 210 feet long, 70 feet wide and 38 feet high, 14,588 square feet. The modules have no windows. ReCAP's second phase consisted of an additional module of the same size as those in the first phase. The processing area is 151 feet long by 130 feet wide or 18,736 square feet. The office area is 4,181 square feet. The ReCAP facility is modular by design, so additional shelving modules can be added as needed. The site will allow for the eventual construction amounting to 218,820 square feet of storage space for 37.5 million items.

Shelving
The four modules consist of six aisles with 37 ladders (vertical shelving sections) on each side of the aisle. Each ladder incorporates 30-foot high adjustable shelving; the individual shelves measure 56 inches by 36 inches. Items are reached with a mechanical fork lift or "order picker" typical of warehouse operations. Guide rails around shelving provide for automatic steering
of the order picker. Custom magnets have been installed at the end of aisles to automatically slow down the order picker before entering the main thoroughfare of the facility. The shelving vendor is Morgan Marshall of Chicago Heights, Illinois. The Raymond order pickers were purchased from Arbor Material Handling, Inc. in Willow Grove, Pennsylvania.

**Capacity**

The four modules will collectively house approximately 7 million volumes or book volume equivalents. Items are sorted by size, both width and height and stored in trays made from acid-free cardboard to prevent deterioration of items. Trays are stored on appropriately-sized shelves to achieve the highest storage density. Trays are manufactured by Temple Inland Packaging Company, Binghamton, New York. ReCAP has 16 different size trays. Items at ReCAP are not arranged in call number order, but are shelved according to size. For book collections, this means each book's physical size dictates where it gets shelved, not its subject matter or author. All items must arrive at ReCAP barcoded, clean, and either in good condition or in an appropriate preservation container. Since access to items stored at ReCAP is exclusively through bar code identification, adequate records to identify items by other means must be created and maintained by and at the owning library.

**ReCAP Statistics**

**Occupancy**

January 2, 2002.

**Staff**

Staff consists of an Executive Director, Supervisors, an Administrative Assistant and 10 Processing Assistants. Staff are full time Princeton University employees.

**Hours and Directions**

ReCAP service hours are Monday to Friday, 7:45 am to 8:00 pm.

[Princeton University holiday schedule.]

[Directions to ReCAP]

[Virtual tour of ReCAP]

[Links to other shelving facilities]

For Additional Information:

Phone: 609-258-3388
Fax: 609-258-7633

or contact Eileen Henthorne, Executive Director, 609-258-1517 or Orla Mejia, Administrative Assistant, 609-258-7622.

rev. 081606
Library Materials in ARCC and RDL

Overview: In addition to its role as the home of the University Archives and the Regional and Special Collections, the Archives and Research Collections Centre (ARCC) and The Research Depository Library (RDL) hold a large number of low and medium use print journals and monographs in a high density environment. These items are stored in specially designed book trays and placed on a high density shelving system that is approximately 30 feet high. The items are retrieved by the ARCC resource support staff using an orderpicker (modified lift truck).

Access to Materials: Library materials, (materials with the catalogue location codes "ARCC Delivery Loan", ARCC Delivery Lib Use Only", "RDL Delivery Loan", RDL Delivery Lib Use Only") are requested by students, faculty and staff at Western through an online form in the Shared Library Catalogue. Read explanation of the location codes.

Items are pulled and sent to a pick-up location, selected by the requestor, within 2 business days.

Monday - Friday, all year: processed requests are delivered to the Weldon circulation desk once a day, by 10am. Shipments to other libraries leave the ARCC by truck by 9:30am (please note that this schedule could be affected by statutory holidays).

Saturday and Sunday, summer term: requests for material are not processed on the weekend. Requests received after mid-Friday are processed on Monday morning.

Saturday and Sunday, fall and winter terms: requests for material received after mid-Friday are processed on Sunday. There is one delivery to the Weldon circulation desk, by 11am for material where "Weldon Library Circulation Desk" is the selected pick-up location.

To learn more about requesting material, please click: How do I Get Materials from ARCC or RDL.

Please note that Library items may not be requested through the public reading room in the ARCC. They must be requested through the Shared Library Catalogue. If you are interested in requesting Regional or Special Collections items, please read Reading Room Requests (PDF).

Electronic Document Delivery: The ARCC and RDL also provide an Electronic Document Delivery service (EDD). EDD allows individuals to choose journals in the Shared Library Catalogue and request specific articles. The articles are scanned by ARCC resource support staff and placed on a server. Requestors are sent an email containing a link to the article as well as a password and PIN. To learn more about EDD please click on How Do I Request Electronic Document Delivery. Please note that a valid Western ID is required for this service. This service is not to be confused with document delivery through Interlibrary Loans.

Explanation of Location Codes

<table>
<thead>
<tr>
<th>Location Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>ARCC Delivery Loan</td>
<td>Location codes for low and medium use library materials stored in the high density module. These items are retrieved through the Shared Library Catalogue for delivery to pick up locations throughout Western Libraries. Materials with these descriptions may not be requested through the Reading Room. To access these items, press the &quot;Request Item&quot; button in the catalogue and enter name, University ID and pick up location.</td>
</tr>
<tr>
<td>ARCC Delivery Lib Use Only</td>
<td>Location codes for material found in closed stacks. To access these items either telephone: 519 661-2111 ex. 81111, send an email to Western Archives, or come to the Reading Room in person and request that the item be retrieved. Plan ahead as these items take at least 2 hours to retrieve.</td>
</tr>
<tr>
<td>RDL Delivery Loan</td>
<td>Location codes for material found in the ARCC Reading Room. These materials can be used only in the Reading Room during the hours of opening.</td>
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