LIBRARY OFF-SITE SHELVING

Guide for High-Density Facilities

Danuta A. Nitecki, Curtis L. Kendrick

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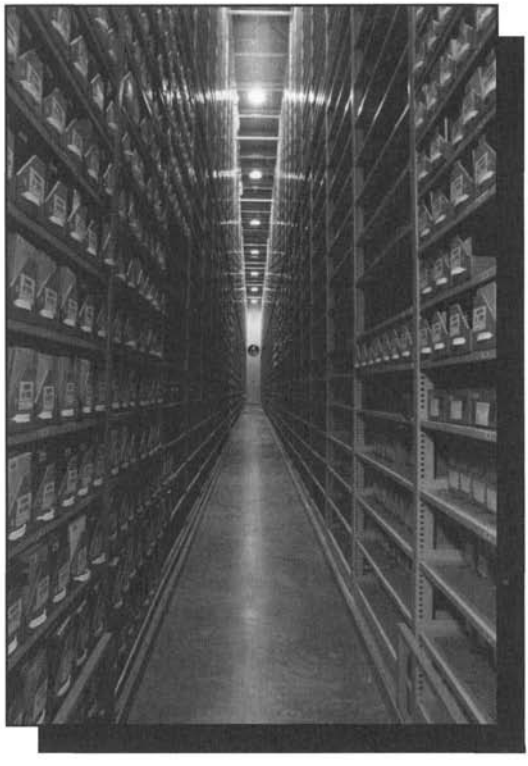
Danuta A. Nitecki
Curtis L. Kendrick

Editors



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List of Contributors

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Ken Carpenter worked from the early 1990s to select books from Widener Library for storage at the Harvard Depository. This work was carried out in consultation with Harvard faculty.

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Paul Conway was a member of the faculty committee that proposed a shelving facility at Yale University. He served on three of the planning committees (facilities, selection, processing) for the Library Shelving Facility and continues as a member of the LSF Coordinators Group.

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June L. DeWeese is the librarian who supervises the on-site staff who are responsible for the day-to-day operations of the UM Libraries Depository, a storage facility which houses materials for the four campuses of the University of Missouri system. She was involved in the planning and construction phases of the building, in choosing equipment and furniture, in writing the guidelines for operation and service level agreement, and was responsible for hiring the original staff. She was involved in the planning for the reconstruction of the facility following a tornado during the first year of operation. She has 26 years of experience as a professional librarian.

Reese Dill
Dill & Company
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Reese Dill started his own firm, Dill & Company, in 1981. Dill & Company is a consulting firm, which specializes in the design and implementation of material handling and storage systems for manufacturers, distributors, and institutions. In 1985, Harvard University retained Dill & Company as part of a team including staff from the Harvard Library to first survey the existing methods of off-site book storage and then propose a system for the most efficient off-campus storage of 1 million volumes. Dill & Company proposed a system that involved sorting books by size and placing them into specially sized corrugated trays that were stored up to 30 feet high. This system was selected by Harvard for its first storage module, which was constructed in 1986. Since then, Dill & Company has designed five more modules for Harvard and similar high-density book storage systems for 16 other universities or institutions.

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Joel Felber was a full-time systems analyst in Yale University's Library Systems Office. During the implementation and opening of Yale's Library Shelving Facility, he was a member of the Facility's Software Selection Committee and later became the Systems Office's coordinator for the Facility. He also contributed programming to the Facility, and acted as Systems Office liaison between the University and the Facility's multiple third-party hardware and software vendors.

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Lee Anne George currently holds the position of Publications Program Officer at the Association of Research Libraries. Previously, she was Librarian for Information and Document Delivery Services for the Harvard College Library at Harvard University. In that position she was responsible both for interlibrary loan and document delivery services in the 11 Harvard College libraries in the Faculty of Arts and Sciences and for coordinating the transfer of materials from the Widener Library stacks to the Harvard Depository off-site storage facility. She oversaw all aspects of the management of Harvard Depository Transfer and Linkage (HDTL) staff and worked closely with cataloging units to develop procedures and record entry policies to ensure HDTL staff compliance with cataloging standards.

Helen R. Goldstein
Access Services Librarian
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As Head of Access Services at the American University Library, Helen Goldstein manages the borrowing requests for material housed at the WRLC storage facility. She also oversees many summer projects involving processing the material to be sent to the storage facility. In addition, she is responsible for identifying material from the library's general collection in the areas of psychology and women's and gender studies to be sent to the WRLC storage facility.

Barbara Graham
Associate Director
Harvard University Library

Barbara Graham is the Associate Director of the Harvard University Library for Administration and Programs. Her responsibilities include the Harvard Depository, the University Archives, and the Weissman Preservation Center as well as administrative services, publications, and capital projects. In the mid-1980s she was part of the original design team for the Harvard Depository.

Steven J. Herman
Chief of the Collections Management Division
The Library of Congress

Steven J. Herman currently serves as Chief of the Collections Management Division at the Library of Congress, a position he has held since the Division was established in 1978. In this position, he manages the Library's general collections, which consist of 12 million books and bound periodicals, as well as other collections assigned to the division. He has been heavily involved with the Library of Congress's off-site storage program for more than two decades, and has, for the past five years,

worked on the development and plan for operation of the Library's soon-to-be-opened facility at Fort Meade, Maryland. In this context, he has led and participated in groups to determine: service policies, criteria for determining what collections will be transferred, preservation issues, design and procurement of equipment and supplies, and staffing requirements.

Jeffrey L. Horrell
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Harvard College Library

Jeffrey Horrell oversaw the planning for the 1998-2000 Harvard Depository-Push project and ongoing selection of materials for the Harvard Depository for the HCL administration.

Bruce Hulse
Director of Library Services
Washington Research Library Consortium

Bruce Hulse has been with the Washington Research Library Consortium since 1990. He was responsible for planning and implementing services at the WRLC storage facility, which began operations in April 1994, and continues to oversee the facility's daily operations. Mr. Hulse received his MLS from Columbia University.

Donald G. Kelsey
Library Facilities Planner
University of Minnesota Libraries

Donald is the Facilities Planner for the University of Minnesota Libraries and most recently completed the Elmer L. Andersen Library, a facility combining an archives research center with a 1.5 million-volume library storage center. His private consulting practice as a library planner also includes the planning and management of large-scale library moves.

Curtis L. Kendrick
Director, Access Services Division
Columbia University Libraries

As Assistant Director in the Harvard University Library, Curtis Kendrick was responsible for the management of the Harvard Depository. While at Harvard he oversaw two depository expansion projects, and the development of the Library Archival System inventory control system. Since coming to Columbia in 1998, he has played a lead role in the joint effort of Columbia, New York Public Library, and Princeton University to create a high-density shelving facility.

David F. Kohl
Dean and University Librarian
University of Cincinnati

David has been active in the development and ongoing function of the Southwest Regional Depository (SWORD), one of five Ohio depositories established in association with the OhioLINK project, since 1991.

Mary C. LaFogg
Chief Collections Management Archivist
Manuscripts and Archives
Yale University Library

Mary C. LaFogg served on the working group appointed by Yale's Provost and Vice President for Finance and Administration to consider the feasibility of a shelving facility, and the task force that formulated principles and guidelines for the selection of Library material for inclusion. She led the project implementation group that considered preparation issues for the transferal of material and services provided by the operation, participated in discussions regarding building design, and assisted in the choice of manager for the Library Shelving Facility (LSF), which opened in November 1998. As Chief Collection Management Archivist, she coordinated the efforts of Manuscripts and Archives in the transfer of two thirds of its holdings, over 68,000 items, to the LSF.

Ron Lane
Manager
Harvard Depository
Harvard University Library

Ron Lane left a position with a major records storage firm to assume management of the Harvard Depository in 1989. Since that time, he has presided over an eight-fold increase in both the size and activity of the collections in his charge. He was a major contributor to the redesign of the system software, and introduced many new techniques to the daily workflow. The influence of his operation can be seen in a multiplicity of shelving facilities throughout the country.

Danuta A. Nitecki
Associate University Librarian
Yale University Library

Danuta A. Nitecki was responsible for transforming the concept of a high-efficiency, off-campus library shelving facility into a reliable and effective service operation at Yale University. She chaired the Implementation Committee that coordinated the design of operations for the Yale University Library Shelving Facility that opened in November 1998. The LSF continues to be a unit within her administrative scope as she joins campus facilities staff to plan the building of the second shelving module to be completed by August 2002.

Lizanne Payne
Executive Director
Washington Research Library Consortium

Lizanne Payne has served as Executive Director of WRLC since 1991, where she has overall responsibility for strategic planning and budgeting for all WRLC programs. She presided over implementation of the shared digital library system (now in its second generation), and oversaw design and construction of WRLC's off-site book storage facility in 1993. She is presently involved in planning for the likely expansion of the off-site storage facility sometime in the next few years.

Margaret K. Powell
Librarian
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Margaret Powell served as the coordinator for selection (1997-2000) for the Yale University Shelving Facility while in a previous position (Librarian for Literature in English and Commonwealth Studies, Sterling Memorial Library, Yale University).

Bruce M. Scott

Bruce Scott, of Russell Scott Steedle Capone Architects Inc., Cambridge, Massachusetts, was the architect for the Harvard, Yale, and Columbia/NY Public Library/Princeton Consortium off-site shelving facilities.

Deborah Slingluff
Head, Access Services
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Johns Hopkins University

Deborah Slingluff assumed responsibility for the Moravia Park Off-site Shelving Facility six months prior to its opening in November 1995. She continues to collaborate with University and Library personnel to oversee the renovation of the existing warehouse and to define and develop services, staff, and operations that support the shelving and retrieval needs of the University and its researchers.

Christine Weideman
Assistant Head
Manuscripts and Archives
Yale University Library

Christine Weideman directed planning retreat for the move of departmental holdings to the Library Shelving Facility and developed the project plan.

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1

The Paradox and Politics of Off-Site Shelving*

Danuta A. Nitecki and Curtis L. Kendrick

Many would consider off-site storage to be what economists call an inferior good. Who among us wouldn't prefer to build spacious new libraries with perfect climate control and adaptable infrastructure for future technological requirements right on campus? And once we adopt high-density off-site shelving the probability of ever seeing such libraries constructed on campus becomes remote.

Still, it is difficult to rationalize keeping books on campus that are used only once in a generation. Imagine a lecture hall or laboratory that was used only four times a century and it would seem like a waste of space. And yet, in our libraries, we have volumes that are used once every 25 years sufficient to fill countless labs and lecture halls. Housing for this type of material, it is increasingly being argued, can more effectively be provided in an off-site location where it is possible to provide better security and environmental controls that extend the useful life of our collections.

The contemporary approach to high-density storage was pioneered by Harvard in the mid-1980s. Other institutions soon followed, building on Harvard's experience and tailoring solutions to meet local needs; to name a few: Yale, Cornell, University of Pennsylvania, Johns Hopkins, Texas, Ohio, and the Library of Congress.

*There is no commonly held naming protocol for such facilities. We chose not to edit the terms used by contributors to this volume. For many these facilities are "storage" something—facilities, libraries, or warehouses. Some librarians feel that the naming of such facilities should avoid words that connote a warehouse role. Instead, some have assumed the strategy that this is another place to shelve library materials and hence use such names as the "shelving facility." The reader will find "storage" and "shelving" used interchangeably.

The elements of the program typically include:

- Store by size in stacks up to 30 feet high.
- Store in pH neutral trays—five sizes at two heights each.
- Access by bar code.
- Support operation with an inventory control system or modifications to library management system.
- Utilize order picker.
- Control climate—50 to 60 degrees, 35 to 50 percent relative humidity.
- Process to achieve near-zero error rate.

Historically, the central focus of research libraries has been on building collections. Service has been a second-order consideration, typically delivered at the convenience of the service provider. The success of off-site facilities hinges on our ability to deliver service excellence that is user-centered. To compensate for the fact that we have inconvenienced users by not building a new library on campus, we have to provide service that is:

- Fast
- Reliable
- Economical
- Sustainable
- Convenient
- Accurate

It is not atypical for services established in support of an off-site facility to be the best or among the best that a library offers. This leads to the "Paradox of Off-Site." We take our least used collections and then we:

- Inventory them.
- Ensure online bibliographic access.
- Develop a convenient way for users to request material, usually through the online catalog or Web.

- Pull collections from stacks and deliver them to a centralized pick-up point.
- Provide free copying and faxing.
- Implement sophisticated inventory control and operational procedures.
- Provide better security.
- Provide a far superior preservation environment relative to open stack libraries on campus.

The decision to move collections to a high-density shelving facility represents a fundamental change in how research libraries operate. Off-site shelving is an enterprise-wide endeavor, affecting and involving all units within the library. It represents additional work. It represents change to how we do things. It is resisted.

Managing services typically has not been a priority for research libraries. Some resist taking a systemic view of how public services are provided. But a successful off-site program has service requirements that force us to change how we do business. Slowdowns in technical services processing, the protectiveness of selectors who embrace the notion of an off-site location only for *other* people's collections, the behavior of those frontline public service staff or students who are undertrained, misinformed, noncommunicative or surly—all these weaknesses in our traditional system of service support are exposed and become unacceptable. The off-site program's demand for precision and coordination cannot tolerate such shortcomings. Off-site shelving is an enterprise-wide initiative; it cuts across departmental lines. Moreover, as people start to realize the Paradox of Off-Site they begin to wonder why we can't provide a higher level of service for *all* of our collections, not just the materials stored remotely. The off-site program puts pressure on research libraries to improve services across the board, not solely in support of collections transferred to the high-density shelving facility.

Another form of resistance stems from the belief that off-site storage is misguided and that all of our collections should be in the same location. Arguments are advanced that transferring collections to a remote site destroys browsing and the wonder of serendipitous discovery. It is critical that discussions on these topics take place and involve librarians, administrators, and faculty because such conversations address the core issue of off-site storage being an inferior good. While it may take many forms, this is really the question, Why can't we build another library on campus? Until this issue is addressed and the decision made that the institution will not expand the library on campus, it will not be possible to gain widespread support for an off-site program. And the two main selling points in favor of off-site storage are the security and preservation benefit, and the excellent service that will be provided in support of the program.

What might be learned from the collective wisdom of those that have designed and managed an off-site shelving solution? That there are no single answers to questions about how to shelve library materials to best use space. That

there are no standards yet by which to compare productivity, costs, or services offered by these facilities. But some best practices are emerging from which we propose the following set of assumptions and values for colleagues planning or already operating such facilities:

- Start early. It always takes longer than you think it will or should. This is particularly vital if you are considering a multi-institutional initiative.

- Recognize that the planning effort requires a significant staffing commitment.

- Get help. There are people who have been through this before and people who offer specialized expertise. Talk to them; use them; hire them.

- Project focus. An off-site initiative will typically involve new money, and librarians can quickly come to resemble a bunch of politicians standing around a pork barrel. Mission creep can occur and you can recognize it if your project focus is on space, but you start spending a lot of time talking about de-duping collections, digitizing tables of contents, or microfilming brittle collections. All of these could be part of the project, but if you decide they are not, then don't let them creep into your budget planning and negotiations.

- Involvement. Librarians need to be part of the design and construction team. This means going to a lot of meetings where people are talking about things you may not understand. But it is important to be at the table both to learn about the capabilities of this new form of library space and to temper the designers' creativity with the librarian's practical sense of what works. Beware that architects and engineers may come up with such ideas as skylights over collections (they leak), mechanical systems on the roof (they destroy the roof membrane and create leaks), or putting the operations supervisors in a separate building from the facility's processing staff (the isolation assumes the wrong management style). Research and unique collections should be housed in environments fostering their long-term preservation.

- Materials should be readily accessible for use by eligible readers.

- Browsing is a highly valued activity among researchers and the perception of it may even be more highly valued.

- No library has sufficient resources to address all its responsibilities and most seek to maximize the effectiveness of its resource allocations, including capital expenditures.

- The increased reliance on off-site shelving is an emerging theme in a shift in how readers think about sources of materials. This shift includes increased use of Inter-Library Loan, the World Wide Web, and Document

Delivery Suppliers. This shift is also predicated on our perception of our reader's diminished expectation that everything readers need will be under one roof and increased expectation that everything they need can be requested easily, reliably supplied, and delivered to a convenient array of locations or via a useful array of technologies.

- The requirements for the success of such facilities include zero tolerance for error, accuracy of placement and inventory control, and high user-focused service standards. These service standards typically include next day or quicker delivery, high availability rates, an ease of placing requests, and convenient communications for the user to be aware of the status of requests (e.g., ready for pick up, delayed delivery).

- To support these service standards, changes in library operations are required. These changes require integration of many activities—selection, system design, collection preparation, bibliographic controls, user assistance, retrieval services, and transport.

- While space is the catalyst for building facilities, off-site storage presents other opportunities beyond mitigating space problems. Chief among these collateral opportunities is a relatively low-cost option for extending the useful life of collections, buying time until solutions that are more comprehensive are technically and fiscally possible. In addition, the establishment of large-capacity stores of collections provides what may be a necessary piece of infrastructure in order for the promise of shared collection development to reach full fruition.

This volume addresses the planning, construction, and operating issues relating to such high-density library shelving facilities. In this collection of practical reports, our intent is to codify folklore into reference information for those planning or beginning to operate such facilities, as well as to explore with colleagues the opportunities for service improvements this collection management approach offers. We aim to capture in one volume some answers, both facts and opinions, to the more frequently asked questions about building and operating a library shelving facility. All authors contributing chapters write from experience and with expertise in some aspect of planning, designing, or operating such facilities.

The volume covers essential topics that address issues relating to the building, its operations, and serving the collections. It begins with a collection of five case studies discussing governance issues and cost models. Barbara Graham was instrumental in the planning and design of the original Harvard Depository Library, and continues to provide administrative direction and support to its operation. From this excellent historic perspective, she describes a client–owner model for off-campus shelving that may be unique in its cost-recovery objective. Deborah Slingluff reviews how the Johns Hopkins University library has conceived and operates its facility to serve a single university with multiple libraries. Two consortia models are described. David Kohl records how libraries in Ohio

developed and now operate a state-funded program of off-site shelving and Lizanne Payne reports on the efforts of a voluntary association of libraries in the District of Columbia area to support and operate the Washington Regional Library Consortium. Finally to this section, Steven Herman introduces some of the early planning principles and issues addressed by the Library of Congress as it embarks on a program to consolidate several of its distributed off-site collections and build the first of a projected 13 modules at Fort Meade, Maryland.

Design and construction issues are addressed by three experts who first worked together to develop the Harvard Depository and since have continued to have direct experience designing other facilities, streamlining workflow designs, and creating necessary management infrastructures. Bruce Scott presents invaluable insights from an architect's perspective on the design and construction process. Reese Dill, an operations engineer who has consulted extensively in designing commercial warehouses and library shelving facilities, pairs with Ron Lane, the on-site manager of the Harvard Depository to describe operational issues that should be considered when designing a facility or trying to improve an existing one.

Off-site facilities provide an excellent opportunity to improve conditions for the preservation of library collections. Paul Conway assembles some of the profession's theory and research that influenced planning of the environment for the Yale University Library Shelving Facility, as well as insights gained from this experience.

Deciding what should be shelved in a separate off-site facility is not a simple task; it should be responsive to the attitudes and traditions of the community served. Insights from two different approaches to this important step are described. Kenneth Carpenter and Jeffrey Horrell report on the approach taken by the Widener Library at Harvard University, while Margaret Powell shares insights from the Yale University experience.

Once items are identified by intellectual content for transfer to an off-site shelving facility, they begin a transformation to be treated as valuable objects of a given dimension. Lee Anne George summarizes an important set of issues regarding bibliographic controls and physical handling in her essay on preparation for transfer, and Donald Kelsey and Curtis Kendrick describe the logistics of transporting materials to and from a facility. Joel Felber discusses the automation support developed to facilitate the inventory control, location, and retrieval of accessioned objects through essential computer equipment, peripheral tools, and software design. June DeWeese summarizes insights from experiences among several facility managers in her essay about accessioning and managing issues. Bruce Hulse highlights common service practices to retrieve and deliver items from a shelving facility and also reports initial findings of new services evolving from such facilities including the robotic retrieval and digitizing project underway at the Johns Hopkins University. Archivists Christine Weideman and Mary LaFogg take a collective view of operating issues from selection, through preparation, to retrieval, as they address concerns they have heard raised among their colleagues who manage archives and special collections in off-site environments.

Our intent is to present this volume as a reference book, knowing that we cannot answer all the questions readers might have when thinking about shelving materials off-site. In the tradition of excellent reference work, we hope to have also offered contacts and plenty of information for those interested in pursuing a topic further and to get more up-to-date data. Helen Goldstein has created a helpful bibliography of other relevant readings as well as Web sites to other dynamic sources of information. We encourage readers to pursue those sources that are of interest.

We hope that this collection of essays will be helpful to our colleagues who are faced with the challenge of planning and operating high-density shelving facilities. Our contribution as editors is relatively minor. Appreciation for all that is useful and good from this collection is owed to the individual authors of contributed chapters. We also wish to thank our institutions and their administrators not only for supporting our efforts to prepare this collection, but also for entrusting us with assignments to implement and administer shelving facilities from which we gained the experience that led us to this project.

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October 2000

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II. Governance Issues and Cost Models: Case Studies

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The Harvard Depository

Client–Owner Model

Barbara Graham

Introduction

The Harvard Depository (HD) and its operation have exceeded the expectations of Harvard's library and university administrators on several counts, including its scale, intense use, and effectiveness. Harvard settled on a client–owner model as a logical extension of its decentralized management environment. The HD is funded for every aspect of its operation through fees paid by the libraries and departments of the University system that choose to use it and thus constitute its client base. Wholly owned as a subsidiary of the University and devoted to its library, archive, and records management needs, the HD is currently administered by the Harvard University Library, a department of the University's Central Administration. The administrative model has evolved since its inception in 1986, but its fundamental principles remain intact.

The 1984 decision of the Harvard University Library Director and the University's Central Administration to create an economical, preservation-conscious facility to meet the storage needs of Harvard's distributed library system was far-sighted. On an urban campus, critically constrained by a paucity of land and bound by certain scholarly traditions, the valence of geopolitics is often a defining variable in the equation. The issue of proximate access to the collections is not only a tradition ineluctably linked to research at Harvard, but a perceived *sine qua non* for vital research in many fields where the multiplicity of language, the age of materials, limited cataloguing, and the lack of indexing may combine to make information difficult to retrieve without the physical volume at hand. The reality of creating an unbrowsable and remote facility would mean that great attention to detail, accuracy, timely delivery, and consistent service would have to become the Depository's mandates.

The Depository's unusual stack configuration, which includes volumes stored by size, uncomfortably low temperatures, and 30-foot-high shelving racks, and its distance from the Harvard Yard, coupled with its structure as a client–owner model, unfolded a complex of operational issues which were impossible to calculate at the outset. Although in absolute terms, the Depository's overhead expense remains well below the cost of traditional library operations due to its efficiencies, small staff, and lack of on-site professional librarians, many challenges exist:

- the ability to predict the need in an accurate and timely manner for new modules in order to be prepared for transfers while not assuming new capital debt prematurely;
- the need to establish channels for client communication and the ability for the Depository to develop responsive service strategies;
- the "value engineering" in order to control costs and "commissioning" in order to ensure the quality of new construction;
- the consistent maintenance of the complex physical plant and its mechanical systems over time;
- an understanding of the constantly evolving operational and physical plant issues affected by scale, the unpredictability of client needs, and variability in the need for labor and its supply;
- the challenge of integrating, developing, and recognizing staff at an isolated site with the staff of the central campus;
- the development and implementation of emergency preparedness and recovery plans;
- the precautions needed to avoid "maximum foreseeable loss" events;
- the assistance for library and archives clients with cost projections in an effort to support their management of expenses which accrue to their budgets;
- the provision of accurate accounting of recovered costs and for brokered services on behalf of the clients.

Added to these operations management concerns is the need for Depository administrators to engage in the University Library System's efforts to enhance intellectual access, to provide a robust preservation program, and to develop new services in order to accommodate the logistics of having a growing proportion of the University's collections at a significant distance from campus.

Origins

The idea of a new facility was preliminarily discussed in early 1984. However, key responsibility for advancing the idea and the project was undertaken by the Director of the University Library and Carl Pforzheimer University Professor, Sidney Verba. Professor Verba and Harvard's Planning Group explored storage options in consultation with senior faculty librarians. These deliberations established the principles that were to serve as the underpinnings of the new facility. Synchronous with University deliberations, a study of library space had been commissioned by the Faculty of Arts and Sciences (FAS). The study was intended to examine various storage options, to project collection growth, and to estimate the time and costs involved in transferring collections, as well as to establish criteria for their selection for transfer for FAS libraries. This report concluded that though the complexity of scholarly needs and the demands of various disciplines would require a combination of responses such as compact shelving and proximate storage in some cases, a single, high-density facility promised the optimal long-term solution. Soon thereafter, Harvard's Planning Office identified a viable site outside of Boston. The facility's design benefited from the insightful advice of its early consultants—shelving experts drawn from the commercial storage field—as well as from visits to other institutions and storage facilities, most notably the Library of Congress, the National Archives, and the University of California's Richmond facility.

In spring 1985, a small Harvard team visited the University of California's Northern Regional Facility in Richmond, California. This site visit resulted in several key decisions related to the design of integrated shelving, the use of shelving containers both to avoid abrasion to the materials and to optimize storage density, and the integration of seismic design to ensure the facility's overall structural integrity.

Following the construction of its first unit, Professor Verba said:

> There is no single, simple solution to the major dilemma facing research libraries, that collections continue to grow while facilities do not. Yet the Harvard Depository, thoroughly researched and innovative, designed to provide the best possible environment for the secure preservation of materials, and with a mandate to be responsive to the needs of libraries and users, is a very welcome step toward housing safely and accessibly all of the University Library's collections.[1]

As new research findings emerged, the benefits of lower temperatures and humidity were confirmed. With advances in the technology of both building design and HVAC, the facility's climate moved away from seasonally cycled ranges to set points for temperature and humidity. Technology was also brought to bear on extending the life span of library materials. Harvard's intention was to create an aggressive preservation environment for its collections while working to keep costs reasonable for the libraries and archives using the facility.

Once plans were in place for the first module, the University's Central Administration provided funding to support development and construction. From the start, however, Harvard's libraries were advised that the cost of the facility would be borne by its users. The pricing schedule would account for both the amortized capital expense of the building and the cost recovery for its operation and a portion of its management. The facility would add a new budget line to many libraries, but the debt was to be mitigated through a multiyear subvention by the Central Administration in an effort to ease the transition and to encourage libraries to make use of the facility.

Growth

The first module began operation in 1986 and the second one was completed in 1991. By 1995, a third unit and a high-rise storage vault, suitable for film and other media, were added. The fourth module followed closely in 1996 and, like the others, reached capacity before its projected fill date. Each of these early modules had an area of 8,500 square feet and held between 2 and 2½ million volumes or their equivalent. The two newest modules, completed in 1999, adopted a new expanded design that was initiated at Yale and added a combined 27,000 square feet of storage. Each of these 13,500-square-foot modules is capable of storing from 3 to 3½ million volumes or their equivalent. In addition to scaling up the units, Harvard also chose to follow Yale's decision to adopt a turnkey environmental system for the latest modules. By fall 1999, the Harvard facility had grown to approximately 62,500 square feet of intensely used library and archival storage. Investments in on-site infrastructure, including upgrades in electrical capacity, a fire road, and a stored water supply, were also undertaken in the course of the unprecedented two-module expansion that almost doubled the facility's overall size in the course of one nine-month period.

Even in the midst of a fast-paced but disruptive construction project, the Depository staff accessioned and shelved over 600,000 items and retrieved over 100,000 items in 1999. Growth has averaged more than 20 percent in the past decade. HD's growing acceptance by the faculty is attributed in part to reliable daily service, virtually error-free retrievals of materials stored, and the promise of extending the life span of scholarly resources through climate control.

Organization and Administration

Harvard University's organizational structure is complex, and the Library system is no exception. Within Harvard's federalist arrangement, each major faculty library derives its budget through its faculty dean. The Harvard University Library is the name given both to the system of more than 90 libraries across the faculties of the institution and to the Central Administration department devoted to coordinating them and to providing a cadre of centralized services. It is headed by a senior faculty member who holds the Pforzheimer University Professorship in tandem with the title of Director of the University Library.

Moreover, the Director of the University Library is considered the official steward of the Library system's collections on behalf of the Harvard Corporation. Among the purposes of the Central Administration department called the Harvard University Library is to anticipate systems and services that libraries will need and to provide those services cost effectively.

In addition to the Harvard Depository and a core of administrative services including publications and institutional statistics, HUL programs include the Office for Information Systems, which administers and develops the HOLLIS (integrated library system) and the Library Digital Initiative; the Weissman Preservation Center and Special Collections Conservation Program; and the University Archives and Records Management Programs. In this latter capacity, the HUL not only administers the Harvard Depository but is also one of its major depositors. These programs are each aimed at adding value to scholarly research resources in terms of enhancing access, providing reliable and effective service to the libraries and their constituents, and ensuring the well being of the collections in perpetuity. Moreover, the programs are also engaged in asset and risk management on behalf of the University's library collections.

The Harvard Depository administration was the province of the Vice President for Administration in its early years. In the past several years, its management was assumed by the University Library in recognition of its core mission to steward the collections. As the centrality of the Depository has grown, the level of management assigned to it has also increased commensurately. In recent years, the Associate Director of the University Library for Administration and Programs has been responsible for the Harvard Depository's administration including its finance, planning efforts, capital projects, and operation. Within this office, the Assistant Director of the Harvard University Library for the Harvard Depository[2] focuses on daily HD operations and transfer planning, the inventory control system development, customer and new information services, assistance in budget preparation, and human resource management. The Assistant Director is the initial interface with all library clients and supervises the Depository facility manager,[3] whose core responsibilities include workflow design, inventory control, and supervision of the warehouse staff as well as an administrative staff member for customer service whose office is in Cambridge in proximity to the majority of clients.

There are 18 staff members based at the Depository with approximately eight to ten devoted to operations, four serving as couriers to drive or accompany two vans, an additional four to provide processing support and record keeping, and one for general office support. All but three of the on-site personnel are support staff and none is a professional librarian. The on-site staff is responsible for day-to-day function of the facility, including such duties as accessioning new materials, setting and loading warehouse shelves, retrieving and delivering materials to clients, refiling items to their shelves, and generating client activity and cost reports.

Client input is solicited though various means including periodic meetings of the major Harvard library participants within the HD Council and meetings with the head of the Records Management Program within the University Archives. The HD Council meets approximately four to six times a year to discuss