

**UNIVERSITY LIBRARY:
OAK STREET FACILITY**

PROGRAM NEEDS

December 15, 2000

University of Illinois at Urbana-Champaign

PROGRAM NEEDS

UNIVERSITY LIBRARY: OAK STREET FACILITY

University of Illinois at Urbana-Champaign

TABLE OF CONTENTS

Introduction	2
General Considerations	3
Summary of Programmed Spaces	5
Specific Space Requirements	6

PROGRAM STATEMENT
UNIVERSITY LIBRARY: OAK STREET FACILITY
University of Illinois Urbana-Champaign Campus

INTRODUCTION

Currently, the collections of the University Library exceeds 21 million items including 9.5 million volumes. For space calculations, this translates into a collection of approximately 11 million volume equivalents. With the exception of the Grainger Engineering Library Information Center, the Mathematics Library, and the under-construction ACES Library, Information and Alumni Center, library shelving capacity has surpassed the accepted fill capacity of 85%. Many locations in the stacks and several departmental libraries are rapidly approaching 100% capacity. Books in aisles and in boxes on top of shelving units attest to the severe shortage of space for collections within the University Library system. In addition, for the past fifteen years the collections have been growing at approximately 200,000 volume equivalents per year. While this number has diminished somewhat in the last two years, one can still anticipate long term growth at the rate of one million volume equivalents being added to the collection every 11 years.

To address these needs the University Library proposes a High Density Storage Facility, that would accommodate the collection storage needs in a timely and cost effective manner. Ideally, it would be constructed in modules of approximately 150ft. x 50ft. x 40ft. high to accommodate approximately 2 million volumes per module, on a 50,000 square foot site. The proposed new joint high-density facility for Columbia University, Princeton University, and New York Public Library has a module of 200ft. x 68ft. x 32ft for proposed storage of 2 million volumes. Because of the critical need to insure the preservation of the materials, the facility must be able to deliver a year round high performance HVAC system.

The following functions will be part of the High Density Storage Facility:

- **Storage Module:** The initial module will accommodate approximately 2 million volumes. The HVAC system will maintain even temperature controls throughout the year. The final structure is to accommodate 8 million volumes.
- **Staff Module:** This area will provide space for the staff to support the unit and a user area with seating, as well as space for a Preservation unit and Grant space.

GENERAL CONSIDERATIONS:

Access and Egress

Only one public entrance/exit is allowed, and it must be provided with an electronic security system. There should be appropriate provisions for wheelchair access. All other exits are to have exit door monitors/alarms.

Alarm System

A security alarm system is to be installed on all exits.

Artificial Lighting

All lights should be ultraviolet protected. The lighting level shall comply with library lighting standards. Lighting should be designed and fixtures selected and arranged to minimize glare. All lighting in staff and reader areas is to be indirect. Lighting for staff and reader space is to be 50ft candles. For the high-density shelving area foot candles for the bottom shelf should have a reading of 10ft candles.

Ceiling Height

Ceiling height for staff and reader spaces on both the first floor and the second floor must be at least 10 ft.

Electrical & Networking Requirements

The user, on a set of preliminary drawings, will determine the exact number and location of electrical and networking outlets. There should be electrical surge controls for the building.

Elevator

An elevator providing access to the second floor is required.

Fire Alarm System

There should be an ADA-compliant fire alarm system.

Fire Protection System

Caution should be used and consideration given to the amount of water released from sprinkler heads due to the quantity of water-sensitive materials to be housed in this facility, namely books. A dry pipe, pre-action system should be used.

Heating, Ventilation, & Air Conditioning

Public and Staff Areas: Will require a constant temperature of $70^{\circ} \pm 3^{\circ}\text{F}$ and relative humidity of $50\% \pm 5\%$ in summer and $40\% \pm 5\%$ in winter. Collection Area: Will require a year-round constant temperature of $50^{\circ} \pm 3^{\circ}$ and relative humidity of $35\% \pm 3\%$.

Humidity and temperature controls should be separate from each other. Overhead piping must always be adequately insulated (with a vapor barrier) to prevent condensation. The system should have contaminant absorbing filters.

Lavatories

Male and female lavatories are to be provided on the first floor. Their location should be such as to provide easy access to both the Reading Room and staff areas.

Mechanical Rooms

Should be isolated from book storage area with 4-hour fire walls. Should have emergency power generator and emergency lighting.

Parking

Parking will be provided. The preferred location is in front of the main entrance.

Signage

There will be a system of ADA-compliant signage in the public area.

Staircase

A staircase is to be located near the front entrance directly accessible from the Lobby, thus, allowing individuals who work on the second floor level to access their work areas without entering first floor staff or public areas. To secure this space a door on the first level is required. An additional staircase will be added if required by code.

Structural Requirements

Modular construction is to be used with modules as large as economically feasible. All areas must be protected from possible water leaks. Building materials must be cured in order to prevent off gassing. All storage modules must be designed with floor loading to handle the loads imposed by high-density book storage systems, and these loads increase with the height of the shelving, requiring 1 to 2 inches of additional floor thickness. The floor of the collection storage area must be superflat (100F), have good curing, hardening, sealing, and avoid cracking. Chemical solutions should be avoided in order to prevent off-gassing. Non-combustible materials must be used in construction. Floors, walls and roofs require vapor barriers. Roof design must ensure proper drainage. Designs, which could allow for the accumulation of water on the roof are not acceptable. The roof design should use membrane or similar type roofing. The building should be designed so that most future repairs can be made from the outside. The materials stored on the shelving should not be subjected to great environmental changes or off gassing from materials used to repair the building. Therefore, roofing and wall systems that cannot be replaced without opening up the building should not be used.

Windows

Windows must be provided on both floors of the public and staff space. Because of the nature of work performed in these areas, special attention must be paid to controlling glare and ultraviolet light, as well as the placement of the windows. There are to be no windows in the collection storage area.

SUMMARY OF PROGRAMMED SPACES:

The High Density Storage Facility will provide space to accommodate approximately 10,000 net assignable square feet (NASF) of collection storage space and 10,200 of staff and patron space. These figures serve as general guidelines within the exact footprint of the building and the configuration of the high-density shelving

SUMMARY OF PROGRAMMED SPACES:	
Space	NASF
High Density Storage	10,000
First Floor Staff and Public Space	
Storage Management Space	3,000
Grant/Project Space	1,000
Reading Room	800
Lobby	200
Subtotal	5,000
Second Floor Staff Space	
Preservation and Conservation Space	5,000
Subtotal	5,000
TOTAL LIBRARY	20,000

SPECIFIC SPACE REQUIREMENTS:

Collection Storage

Area (NASF): 10,000ft²

Use: Provides space, using high-density shelving, for a collection of approximately 2 million volume equivalents.

Occupancy: 2 transient.

Utility Requirements: To be determined.

Furnishings: High density shelving at a height between 35 and 40 ft. Shelving units are 54 inches x 36 inches double sided. Books and other materials stored in trays and boxes, with capacity of 180 volumes per shelf and one shelf equaling one foot. The ability to achieve the desired storage capacity at shelving of 35 ft. is preferred in order to minimize the height required by the order-picker. The picker requires an aisle width of 66 inches and 15 ft. of maneuvering space at the end of each aisle.

Technical Equipment: Man-aboard order-picker such as Raymond Model 152-OPC30TT

Collection Management

Area (NASF): 3,000ft²

Use: This area will accommodate space for a limited staff working with the collections. The purpose of this operation is to insure that staff is on site in the facility at all times during working hours.

Utility Requirements: To be determined.

Special Requirements: Must be adjacent to front door as the unit oversees the facility. A reception window is needed to greet visitors. A surveillance camera is needed to monitor the Reading Room and Loading Dock entrances. Components of this area should include.

- Vacuum room (200 NASF).
- Processing area for materials (1,800 NASF).
- Staging Area (300 NASF).
- Office (200 NASF).
- Covered loading dock (? NASF).
- Recharging space for order picker (200 NASF).
- Break room for staff (200).
- Storage (200 NASF).

Grant/Project Space

Area (NASF): 1,000ft²

Use: This area will accommodate space for grants and other projects. The space will be a single room. Projects will be segregated through the use of office landscaping. None of this space will be given over to permanent occupancy.

Occupancy: Approximately 8 staff.

Utility Requirements:

- 10 4-outlet electrical
- 10 network connections

Lobby

Area (NASF): 200ft²

Use: This should be the only public entrance and exit for the Oak Street Facility, except for emergency exits. Because this is the point of entry for patrons and visitors, it is essential that the area is inviting. A service window is required to provide general information regarding use of the reading room and circulation of the collection.

Adjacencies: The Lobby must present users with a clear path to the service desk. It will be adjacent to the Reading Room and lavatories. The Lobby will be an access point for Preservation and Grant staff, therefore, the stairs to the second floor must be adjacent to the Lobby but secured from Public access. In addition, the Grant area should be in close proximity.

Special Requirements: Service desk must have a lockable service window and a door immediately next to the Service Desk, which connects the Collection Management area, and the Lobby.

Occupancy: 1–2 transient

Technical Equipment: Security camera to monitor the Reading Room. Front door requires a door buzzer and security lock that can be released at service desk.

Reading Room

Area (NASF): 800ft²

Use: Provides space for up to 20 patrons to use materials from the high-density storage unit.

Occupancy: Up to 20 transient

Utility Requirements:

- 2 4-outlet electrical
- 2 network connections

Preservation and Conservation Services

Area (NASF): 5,000ft²

Office

Subtotal: Area (NASF): 200ft²

Use: A separate office is to be provided for the Head of Preservation and Conservation. Provide privacy, space, and equipment for library work and research. Seating is to be supplied for meetings with staff, faculty, students, visitors, and the public, individually.

Occupancy: 1 with up to 6 transient.

Utility Requirements:

2	4-outlet electrical
2	network connections

Work Area **Subtotal: Area (NASF): 4,800ft²**

Use: Screen, repair, treat, and preserve library materials.

Occupancy: 4 staff plus student assistants

Utility Requirements:

10	4-outlet electrical
3	network connections

Environmental Requirements:

Outside venting for:

- spray deacidification booth
- slot ventilation (fume hood anticipated)

Laboratory Sink (40" x 40")

Standard sink for cleaning equipment, washing hands.