

Trends in Academic Library Facilities

NANCY R. McADAMS

Introduction

NEARLY TWENTY-FIVE YEARS AGO, futurist Alvin Toffler wrote in a publication directed toward architects and academic administrators:

Some argue forcefully that the library and the book itself are mere relics of an inefficient past, that the job of storing, retrieving, and transmitting information will, in the future, be accomplished without either. They point out that there is nothing inviolable about the book or its storehouse, that cuneiform tablets gave way to papyrus rolls, that medieval manuscripts gave way to books, and that books are already sharing the job of communicating information with other carriers. Already most libraries store records, tapes, films, slides and other non-book materials. The rise of the computer and the development of a whole new technology of information, these prophets charge, will inevitably transform the role of the book in modern society.¹

Toffler raised the question of the impending demise of the book while standing on the threshold of "a library-building boom of unprecedented scope and thrust," amounting to 121 new campus libraries constructed between 1958 and 1961 with another 504 predicted between 1961 and 1965. In fact, the boom continued through at least 1971 when Jerrold Orne, compiler of the annual *Library Journal* survey of library construction,² reported in a statistical cumulation that 445 library buildings had been completed in the five-year-period 1967 to 1971, at a

Nancy R. McAdams is President, McAdams Planning Consultants, Inc., Austin, Texas.

total cost of nearly \$1 billion.³ (By way of comparison, the number of academic library building completions reported in subsequent five-year periods totaled 202 for 1972-76, 143 for 1977-81, and 133 for 1982-86.)

The 1960's surge in library construction represented only one aspect of mushrooming growth in academic facilities of all kinds throughout the country, resulting from a bulge in the college-age population coupled with increased access to, and demand for, higher education. Supported by massive federal and state funding, institutions were experiencing not only growth but change—i.e., modernizing old subjects and adding new ones, expanding junior colleges into colleges, converting colleges into universities, and forming regional and state-wide systems.

In 1963 there were just over 4 million students enrolled in American colleges and universities and it was projected to reach 8.5 million by 1975,⁴ an increase averaging 8.5 percent per year. By 1985 the number of students had reached 12.25 million,⁵ slowing the average annual increase to 4.4 percent for this ten-year period. During the first half of this twenty-two-year period, library collections grew at exponential rates, but growth leveled off after about 1973, at least for the member libraries of the Association of Research Libraries (ARL).⁶ Since library planners of the 1960s were advised by the experts of the day to build for at least twenty years after occupancy,⁷ it is not surprising that the driving principle of library planning during this period was flexibility of interior space.

In his 1976 essay on American academic library buildings,⁸ Orne characterized their development in three stages: (1) the "primitive" period before 1900 when most libraries shared a building with classrooms, administrative offices, or other uses; (2) the "evolutionary" period of 1900 to about 1945 with its separate buildings designed in historical styles for fixed library functions; and (3) the "postwar" period (i.e., World War II), when ornamentation and monumentality were eschewed in favor of flexible modularity. The latter period and the attendant problems of its transition from simple uncluttered "boxes" through the "romantic module" to the complex shapes of the 1980s were described in 1984 by David Kaser in "Twenty-Five Years of Academic Library Building Planning."⁹ A decade earlier Kaser wrote:

[a] review of the literature of academic library buildings leads one, foolhardedly perhaps, to speculate that the profession may be approaching the end of an era in building design. Just as few really new concepts were incorporated into academic library buildings for three decades following the opening of World War I, so has there been little that is truly innovative in the three decades since World War II.

Trends in Academic Library Facilities

Just as the former period was one of refinement and perfection of the concept of service areas wrapped one-on-two around multi-tier structural stack cores, so has the latter period been one of finding the best way of utilizing the loft space made available by flexible, modular construction. Some excellent buildings have now been built in both styles—so good, in fact, that substantive improvement in library building quality may now have to await the conceptualization of a whole new revolutionary theory of interaction between library function and structure. It is challenging and tantalizing to ponder just what that might be.¹⁰

As if in response to Kaser, Orne wrote in late 1977 that the new concepts, rather than being physical planning concepts, might be service concepts—library as learning center, library as information utility, the sharing of resources, all working together to change the emphasis from collection space to user space. Orne also anticipated new architectural expressions deriving from new building materials, better engineering, and respect for the environment.¹¹

Instead, the recent decade has brought a regression to architectural historicity, to reinterpretations of traditional forms which, by their shapes and materials, allude to the surrounding structures and environment and are distributed around an internal organizing element which defines the spatial composition.¹² At their best, such structures lend a dignity and importance to the library building which the plain “boxes” of the 1960s failed to provide. In less skillful hands, the quasi-traditional forms and spaces intimidate the user and constrain library functions as severely as their 1930’s collegiate Gothic predecessors did.

The hundreds of academic libraries constructed during the building boom of the 1960s and 1970s are now nearly full or overfull. Their staffs have typically coped with growth and change by expanding collections into user space and imposing automated functions on spaces intended for manual operations. Many institutions missed out on the building boom, and their libraries still occupy pre-World War II buildings which are incapable in every respect of meeting contemporary library standards. Having endured for so long, typically by ignoring needs and dispersing collections to other facilities, many institutions are now trapped in their obsolete structures. For librarians in both situations, library planning now involves seeking ways to intensify space use, finding short-term solutions to the most immediate problems, and in a few cases projecting long-term requirements in hopes of new space.

Seven Trends

American academic libraries serve widely diverse constituencies that encompass community and junior colleges, technical schools, private and public four-year colleges, universities, and research institutions. They are rural and urban, small and large, rich and poor, but most fall somewhere in between—small-to-medium-size moderately funded libraries in smaller cities. Their diversity of purpose makes it difficult to characterize the library building. An urban community college with 20,000 or more students may have fewer than 100,000 volumes; its library is primarily a place to accommodate people. A prestige research university with millions of volumes may enroll only a few thousand students; the bulk of its library space holds collections. Generalizing about academic libraries, and more specifically about changes in their buildings, is therefore problematic. Certain of the trends in academic library buildings discussed later may be more pronounced for large research libraries than for smaller settings, and some trends will have more impact on new construction than on existing space, but each of the trends applies to the whole realm of academic libraries in varying degrees.

The perceived trends in academic library building planning can be expected to affect the overall size, the physical form, or the architectural character of the facility. The most significant changes in academic library facilities planning might be categorized as:

- Differentiation of storage and user space.
- Retention of existing facilities.
- Incremental growth.
- Tighter programming.
- Increased protection of life and property.
- Dispersal of special formats and equipment.
- Accommodation of nonlibrary functions.

These categories are not exclusive; rather they are often highly interdependent and sometimes contradictory.

Differentiation of Storage and User Space

A major objective of the modular buildings developed after World War II was interchangeability of space use—i.e., maximum flexibility in the placement of library functions. Floor plans were made as open as possible, clustering permanently enclosed building elements at the outer edges so that interior space delineators could be changed as needed. Floors throughout the building were constructed to carry book-

Trends in Academic Library Facilities

stack loadings so that stacks could be used anywhere. Lighting and air conditioning systems were made uniform throughout the building so that users or staff could be located anywhere.

Modular planning developed partly out of the prevailing belief in open-ended growth for all libraries but partly as a reaction to the rigidity of older fixed-function buildings with central multitier book-stack structures surrounded by high-ceilinged reading rooms and offices. The open arrangements of modular libraries continue to meet established educational objectives of easy access to materials as well as library management objectives of response to changing needs. However, these buildings present structural and operational problems because they compromise between optimum conditions for books and people. Constructing an entire building for bookstack loading when only part of it will be used for that purpose is uneconomical just as lighting an entire building to reading levels is wasteful of energy and destructive of books. The lighting excesses are compounded in larger buildings containing masses of infrequently used materials, and the structural excesses are greater in those libraries with large seating requirements and small collections such as community colleges. Consequently, in programming new facilities for libraries with extensive collections of older materials, consideration is again being given to the separation of collection storage and user space so that the appropriate conditions for each can be constructed and maintained at more reasonable cost. An outstanding example is provided by the Walter Royal Davis Library at the University of North Carolina with its very conventional reading/reference room at entry level, and a six-story stack element with clustered studies articulated on the exterior of the stack floors.¹³

Libraries which continue to occupy traditional library buildings with multitier stacks have had to recognize the essential vulnerability of these structures to fire, water, air pollution, and earthquake hazards. For many libraries, the provision of alternative collection storage space to replace these unsafe structures is an urgent problem for which there is no immediate solution. Some of them are even caught between conflicting conservation goals—preservation of library collections, preservation of historic architecture, and conservation of natural resources—which make it impossible to stay in the building and equally impossible to leave.

Retention of Existing Facilities

Most academic functions are accommodated effectively in rectilinear buildings designed around stacked layers of double-loaded

corridors—i.e., windowed rooms of varying sizes arrayed along both sides of lengthwise halls linked vertically by elevators and stairs. This configuration works well for classrooms, offices, laboratories, and dormitories but not for functions requiring larger spaces such as auditoriums, gymnasiums, dining halls, museums—and libraries. Most library buildings, therefore, are difficult to convert to other academic purposes. Open modular library structures typically have more interior space than perimeter space, a forest of interior columns, relatively low ceilings, and few external openings. Partitioning them for office or instructional uses can result in many windowless interior rooms and a maze of corridors. Older library buildings with fixed-function stack towers and monumental lobbies and reading rooms are suitable for almost no other academic purposes except perhaps records storage in the stacks and exhibition halls in the public rooms.

This inability to recycle the library building has become a major deterrent to consideration of new facilities for the growing academic library. When the library building is also historically important because of genuine architectural merit, local significance, or institutional sentiment, there may be additional pressures, even preservation mandates, to keep the library in the historic facility.

Other factors which may prevent serious consideration of a new library building include: (1) the lack of an appropriate and available site; (2) competition from other academic entities for space and funds; (3) uncertainty about the course of institutional development; (4) continuing debt from previous construction including libraries built in the 1950s and 1960s;¹⁴ (5) diversion of capital funds to building repairs or renewal; (6) inability of campus utilities to support additional buildings; and (7) constraints intended to foster campus dispersal.¹⁵

In general, library administrators lack an understanding of the property investment aspects of institutional management partly because such matters tend not to be discussed outside the central administration. Widening the gap in understanding, academic administrators form their opinions of the future of the library from publications which address it in the larger context of academic planning. The questions raised by Toffler in 1963 about “the death of the book” are still unanswered, but every college president knows that it will happen—someday soon. The widely distributed 1984 research report *Academic Libraries: The Changing Knowledge Centers of Colleges and Universities* concludes with four recommendations:

1. All libraries should be planning now for the changes that will be necessary to meet the demands of the information age.

Trends in Academic Library Facilities

2. Both faculty and administration should assist in this planning if it is to be successful.
3. Universities must be willing to make the financial commitment necessary to allow libraries to retool.
4. Institutions of higher education should support the efforts of academic libraries to join in more cooperative ventures.¹⁶

It is significant that none of these recommendations deals with facilities, but taken together they suggest that change—not growth—will occur. This might easily be interpreted by an academic administrator to mean that the physical growth of libraries, much to the administration's relief, is at an end.

Incremental Growth

Given the difficulty of exchanging obsolete and/or outgrown library buildings for new ones, large and small libraries are settling for expansion of existing facilities. The concept of incremental growth is certainly not new; many libraries constructed during the building boom, especially on evolving campuses, were designed for planned expansion. One example is the library built in the early 1970s at North Texas State University with a multistory central element equipped structurally and mechanically for lateral extension to each side as populations and collections grew. More recent examples differ in that the addition typically is smaller than the original building. Examples illustrated in the architectural press include the 12,000 square foot below-grade reading room added to the historic Uris Library at Cornell,¹⁷ the 17,000 square foot wraparound addition at Gwynedd-Mercy College,¹⁸ and the 11,000 square foot upward expansion and refurbishing of the 1959 library at Grinnell College.¹⁹

Incremental growth at the larger scale of the research library is currently being planned for the central libraries of the University of California campuses at Berkeley and Davis, both driven by required demolition of their hazard-prone multitier bookstacks, and at the University of Washington, which constructed previous additions to its original 1925 Gothic-style building in 1937 and 1963.

Tighter Programming

During the period of the library building boom, it was generally accepted that libraries should plan for at least a doubling of the collection and at least twenty years' occupancy. At that time, the typical academic library was adding materials at a geometric rate which would indeed double its size in eighteen years. Many library planners followed

Metcalf's advice to allow for continual growth of collections, anticipated growth in enrollment, and a percentage factor for unanticipated change over a twenty-five-year period.²⁰ As a result, many of these libraries were less than half filled at occupancy time, and many continued to have empty space for another decade.

At today's construction costs and energy rates, this planning approach is not acceptable. Administrators and funding agencies are challenging all the library's planning premises and promises concerning: (1) efficiency in staffing, (2) number of user stations, (3) effective use of collection storage space and equipment, (4) alternative locations for existing collections, (5) alternative formats and their relative costs, and (6) participation in networks and shared resource systems. For institutions with predictable futures and established missions—such as private liberal arts colleges—library planning often requires negotiation of an acceptable “cap” to collection size which is appropriate to the institution's long-range planning for enrollment and programs. For medium-size institutions with more volatile futures, like state-supported sunbelt schools, library programming must take into account the probability of change but be politically defensible. For those libraries in state systems with legislated space standards imposed by funding agencies, programming for new space requires creative manipulation of the amounts of space allowed by state guidelines.

Every library planner should expect today's proposals for library facility improvements to receive sharper scrutiny and be met with informed questions about “needs” and “wants,” sophistication about options such as compact storage or electronic formats, and awareness of the higher costs to construct, equip, operate, and maintain the “smarter” buildings which libraries now require. Despite the greater need to justify the library's space projections, however, there is still little guidance for the library planner by way of accepted norms or standards for many now-commonplace library space uses. The revised ACRL “Standards for College Libraries”²¹ provides a formula approach for determining the basic space needs for traditional print collections, readers, and overall staff space. However, there are no comparable aids to determine space requirements for audiovisual media collections, user stations, or staff support areas; for online catalog stations; for networked technical services activities; for staff service points with or without computer terminals; for dedicated terminal stations for electronic reference tools; for self-service copiers; or for archives, manuscripts, map, or microform collection storage. The library planner is forced to derive his or her own space allowances from measurement of existing conditions, observation

Trends in Academic Library Facilities

of other libraries, guesswork, or imagination, none of which carry much credence with funding authorities.

Increased Protection of Life and Property

Library buildings constructed in the first half of this century considered the secure storage of library materials as a primary concern. Access to collections was limited, egress from the building was channeled past a central control point, and public spaces were large and open so that staff could monitor activity. Libraries were regarded as "safe" places to be, and there was little concern for hazards of any kind: fires, windstorms, floods, earthquakes, toxic air, explosions, vandalism, or crimes against persons. Times have of course changed, and the reported incidence of such events has resulted in greater awareness of risk followed by increased regulation of the techniques for limiting such risks in buildings.

The library planner of twenty years ago, following Metcalf's carefully phrased advice,²² was more concerned with the disastrous effects of water than of fire and sought to provide fire protection without the use of sprinklers. Preferred alternatives such as fire-resistive construction, detection systems, gaseous fire suppression equipment, and separation of building elements tended to protect the building and its contents more than its occupants. However, developments in the recovery of water-damaged materials have lessened librarians' fear of sprinklers at the same time that more stringent building codes, life safety codes, and insurers' conditions have sometimes made sprinklers a requirement and not an option.

Another aspect of life safety which is still a problem for libraries is rapid egress from the building which conflicts with the library's need to control departures for prevention of theft of library property. Libraries have tried to protect emergency exit doors with a variety of silent and audible alarms, delayed-action locks, television cameras, and other devices, but an effective control mechanism has not been found. The electronic linking of door alarms with computerized monitoring of the building's environmental systems can provide better records of illicit exit activity but does not contribute to the prevention of such events or to the recovery of lost materials.

The provision of access to facilities by the handicapped population has by now become a given in library planning. Virtually all existing library buildings have been modified, or services provided, to permit participation in library programs by handicapped individuals. However, the requirements for minimum dimensions for building features

and equipment clearances are by no means uniform nationally. In planning new space, these clearance dimensions can be a determinant in the spacing of library bookstack ranges, a spacing which in turn may determine the dimension of the structural module for the entire building. The long-established "standard" range spacing of fifty-four inches center-to-center is no longer viable in some jurisdictions.

Dispersal of Special Formats and Equipment

As libraries have become more and more mechanized and equipment has become less "foreign" to their operations, such equipment has tended to be decentralized instead of being concentrated in special rooms or areas staffed by technicians. Microforms and their readers and printers have been integrated into the reference rooms, periodicals stacks, documents areas, or technical services offices to which their content and use related. Similarly, computer terminals and microcomputers have migrated out of systems staff offices to administrative and reference offices, to acquisitions and cataloging workstations, into card catalog areas and online search rooms, and onto public service desks and counters everywhere. The next few years will probably see the conversion of many public typing rooms into word processing stations, as well as further movement of public-use computer equipment into general reader seating and collection storage areas. An exception may be the treatment of CD-ROM access devices and data discs which will probably be located near staffed service points until their costs are significantly lower.

Accommodation of Nonlibrary Functions

The redefinition of academic libraries into broader-based information centers as suggested by Battin, Moran, and others may result in the physical integration of the library and the campus computing center.²³ Indeed, such a partnership can be an incentive to the development of a new facility for the improvement of both agencies.²⁴ Other libraries may find themselves fulfilling broader roles of a more traditional nature however. Community college libraries are sharing their facilities and in some cases assuming direct responsibility for such instructional support functions as classroom media production and delivery, tutoring, testing, career guidance, and language laboratories. College libraries on small campuses may find themselves involved in the merchandising of textbooks, supplies, and software, or the management of duplicating services. Larger libraries sometimes are responsible for institutional records management or provide space or support for such development

Trends in Academic Library Facilities

activities as fund-raising, cultural programs, promotional publications, and student or faculty recruitment. The variety of experience, knowledge, and skills represented by library staffs constitutes a resource which institutions can utilize in many ways. Incorporating such nonlibrary functions into the library can introduce unexpected factors and priorities into library management as well as into space planning for existing or new library facilities.

Conclusion

Whether concerned with existing space or new, library planning continues to follow the well-established principles of centrality of the library to its clientele, access to services and collections, protection of library materials through environmental and egress control, spatial and operational efficiency, and accommodation of growth and change. Of equal importance to current planners is compliance with governmental and regulatory requirements (codes and standards) and fiscal prudence. For those libraries fortunate enough to be planning new, expanded, or upgraded facilities, these principles are expected to continue as primary determinants even though their expression and interpretation in building forms will inevitably change in response to changing library services and roles and changing institutional policies.

References

1. Toffler, Alvin. "Libraries." In *Bricks and Mortarboards (A Report from Educational Facilities Laboratories, Inc. on College Planning and Building)*, p. 71. New York: Educational Facilities Laboratories, 1963.
2. *Library Journal* annual architectural issues (Dec. 1 issue for each year from 1967 through 1983, and the Dec. issue for years 1984 to date).
3. Orne, Jerrold. "The Renaissance of Academic Library Building 1967-1971." *Library Journal* 96(1 Dec. 1971):3947-52.
4. Morrisseau, James J. "Foreword." In *Bricks and Mortarboards*, p. 7.
5. "Fact-File: Fall 1985 Enrollment." *Chronicle of Higher Education* (15 Oct. 1986):42 [table].
6. Molyneux, Robert. "Growth at ARL Member Libraries, 1962/63 to 1983/84." *Journal of Academic Librarianship* 12(Sept. 1986):211-16.
7. Metcalf, Keyes D. *Planning Academic and Research Library Buildings*. New York: McGraw-Hill, 1965, p. 262.
8. Orne, Jerrold. "Academic Library Buildings: A Century in Review." *College & Research Libraries* 37(July 1976):316-31.
9. Kaser, David. "Twenty-Five Years of Academic Library Building Planning." *College & Research Libraries* 45(July 1984):268-81.
10. _____. "A Century of Academic Librarianship as Reflected in Its Literature." *College & Research Libraries* 37(March 1976):123.

11. Orne, Jerrold. "Library Building Trends & Their Meanings." *Library Journal* 102(1 Dec. 1977):2397-2401.
12. For recent examples see "A Sensitive Storehouse for Burgeoning Knowledge." *Architectural Record* 171(Aug. 1983):86-90; "Domesticating a Behemoth." *Architectural Record* 173(Aug. 1985):88-93; "A Question of Context." *Architectural Record* 173(Aug. 1985):94-97; and Dillon, David. "Combining Adventure and Respect." *Architecture* 74(May 1985):174-81.
13. "Domesticating a Behemoth," pp. 88-93.
14. Callnan, Michael T., and Collins, J. Stephen. "A Clear Challenge for the Future: Capital Asset Management and Planning at Colleges and Universities." *Planning for Higher Education* 14(no. 3, 1985-1986):30-38.
15. Fink, Ira, and Walker, Dorothy A. "Campus Dispersal: Planning for the Location and Relocation of University Facilities." *Planning for Higher Education* 13(Fall 1984):1-18.
16. Moran, Barbara B. *Academic Libraries: The Changing Knowledge Centers of Colleges and Universities* (ASHE-ERIC Higher Education Research Report No. 8). Washington, D.C.: Association for the Study of Higher Education, 1984, pp. 79-82.
17. Dean, Andrea Oppenheimer. "Library Addition Inserted into a Hill." *Architecture* 75(Feb. 1986):50-53.
18. "A Wrap-Around for the Quad." *Architectural Record* 173(March 1985):106-07.
19. "Collegiate Comfiness." *Architectural Record* 173(March 1985):108-11.
20. Metcalf, Keyes D. *Planning Academic and Research Library Buildings*. New York: McGraw-Hill, 1965, p. 12.
21. "Standards for College Libraries, 1986." *College & Research Libraries News* 47(March 1986):197-98.
22. Metcalf, *Planning Academic and Research Library Buildings*, pp. 215-19.
23. Battin, Patricia. "The Library: Center of the Restructured University." *College & Research Libraries* 45(May 1984):170-76; and Moran, *Academic Libraries*.
24. Ottervik, Eric V., and Corallo, Anthony L. "Integrative Planning for a New Library/Computing Center." *Planning for Higher Education* 12(Summer 1984):15-25.