

More Library for Your Building Dollar: The University of Maryland Experience

ON FEBRUARY 14, 1956, bids were opened for a library building to be constructed on the College Park campus of the University of Maryland. In the Baltimore-Washington area the winter months of 1956 were favorable for putting a building out for bids: general construction work had slowed down, and contractors were anxious to obtain commitments for work to be started the following spring and summer.

Sixteen contractors submitted base bids that ranged from \$2,354,200 to \$2,519,000. The comparatively small difference (only \$164,800) for a building of this size between the low bid and the high bid indicated that all the contractors had made serious bids: they clearly needed the work to fill in their schedules. It is interesting to note that the value of building construction in Baltimore decreased from \$87,551,000 in 1955 to \$64,750,000 in 1956. Similarly, in Washington, D. C., a drop of \$21,082,000 was experienced in the value of building construction in 1956.¹ In addition to the cost figure on the University of Maryland library each contractor stipulated in his bid the number of days that would be required to complete the work. These ranged from a low of 420 days to a high of 700 days. The successful bidder submitted the figure of 425 days to complete the work.

¹ U. S. Bureau of the Census, *Statistical Abstract of the United States, 1958*. (Washington: U. S. Government Printing Office, 1958), p. 756-57.

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To be assured that bids could be reconciled with appropriated funds, eleven alternates were included in the bidding in the form of possible deductions from the base bid. One alternate in the form of a possible addition to the base bid was also included. The deductions covered bookstacks, metal partitions, interior painting, asphalt tile, wall around a parking lot, finish in one reading room (the Maryland and Rare Book Room), service desks, loan desk, acoustical tile, screens and screen doors, and water coolers. The one possible addition was for metallic waterproofing in the basement. Because of the limited funds available at the time, alternates of the bookstacks and the wall around the parking lot had to be deducted from the base bid and not included initially as a part of the general contract. The State Legislature later appropriated funds for the bookstacks, which were added to the general contract.

General construction conditions and climatic conditions (i.e., the best building season in the particular locality) are important factors in the final determination of the cost of a building. If a contractor is able to begin construction early in the spring, he will be able to get his building under roof by the time inclement weather of the late fall and winter sets in—with the result of fewer work stoppages and lower costs to him. For the Maryland building these factors were significant in keeping the square-foot and cubic-foot costs low. But it is seldom possible to select deliberately a period of low construction activity or

even a particular season of the year in which to let a bid; there are, however, in the *planning* of a building various means of keeping costs down over which one does have some control.

From preliminary considerations in planning the University of Maryland Library it was obvious that in order to meet the board requirements of the program—accommodations for at least 2,000 readers and 1,000,000 volumes—it would be necessary to plan a very economical building. Various shapes, various ways of achieving flexibility, and the possibilities of modular-type construction were tried on the drawing board.

It was soon determined that a rectangular building approximately 120' by 240' would best meet functional requirements, would be most suitable for the proposed site, and would be most economical to construct. As desirable as flexibility is, it was decided that to allow for complete interchangeability of reader space and book space was not feasible; books can be very conveniently and suitably housed in areas not necessarily comfortable for large numbers of readers. The number and size of columns, heights of ceilings, placement of electrical outlets, and types of wall construction, floor coverings, lighting, and heating systems are among the factors to be considered in comparing construction costs of reader areas with book areas. Fortunately, in smaller library buildings where flexibility is more essential than in larger libraries the cost of allowing for it is relatively low. In larger library buildings some concentration of book storage and some concentration of reader accommodations are significant economy measures.

The educational implications of a close relationship between books and readers were recognized and studied in developing the Maryland plans. To make books easily accessible was a major objective. It was therefore decided to plan

a central stack core that would be surrounded on three sides by reading areas. The exterior wall at the rear of the building would enclose the fourth side; on this fourth side future additions to the building could be constructed. The stack areas were to be immediately adjacent to the reading areas; in fact they were actually to extend into the reading areas, as will be explained below.

Although the interior arrangements of the library were planned before the exterior, it may be well in explaining an economical use of space to view the building as an empty shell—no partitions and no floors, but rather 1,974,569 cubic feet of space enclosed by exterior walls and a roof. Then the problem that presents itself is how to make the best use of the cubic space available.

In a library are many activities that can be comfortably accommodated in areas with low ceilings. A floor to ceiling clearance of eight feet or less is suitable for bookstacks and for such smaller rooms as offices, seminars, studies, conference rooms, toilet facilities, and closets. Higher ceilings are desirable in large areas where there is to be a concentration of readers. The higher ceilings are especially essential in these areas when air conditioning is not a possibility, and they are also thought desirable by many people because of psychological factors involved. It must be mentioned in passing, however, that many new libraries have been constructed recently with reading rooms of ceiling heights of eight to eight and one-half feet that are pleasant, comfortable and completely acceptable to their users.

On the second floor of the Maryland library, the main operating floor, are included two large reading areas, each measuring 108' x 52' and located at the north and south ends of the building. On three sides of each area are balconies that extend seventeen feet on one side and eighteen feet at the ends into the



McKeldin Library

room. The balconies in the two rooms provide 5,616 square feet of floor space—sufficient space for almost 225 readers or for approximately 56,000 volumes. The area under the balconies is suitable for books or readers. Accommodations for informal furniture or for current periodical shelves in these low-ceilinged areas give these large rooms a more attractive, informal appearance than one might expect.

The balconies of the two rooms are the north and south extremities of a mezzanine floor which extends through the building. This mezzanine floor is a part of the bookstack core of the building, i.e., the stack floor extends into the reading rooms to form balconies.

On the third floor a similar pattern is followed: a large reading area (with balconies) at either end of the building. The fourth floor is similar, but there are no balconies as the reading areas are somewhat smaller than on the lower floors. This floor does include a high-ceilinged auditorium seating 160.

In areas with seven and one-half feet clearance from floor to ceiling throughout the building are located all offices, fourteen seminar rooms of various size, open carrels, faculty studies, receiving room, and bookstacks. In the low-ceilinged area on the second floor are located the card catalog, bibliography area, technical services, offices, conference rooms, and toilets. The loan desk and card catalog are under low ceilings but are immediately adjacent to a foyer and hall respectively with fifteen-foot ceilings.

Because a rather high percentage of activities in a large university library can suitably be accommodated under low ceilings, it is economical to use this kind of space for them. The Maryland library has four floors, three intervening mezzanine floors and a basement. Each mezzanine floor has at least three-fourths as much floor space as has one of the main floors. The combination of main and mezzanine floors gives the library well over fifty per cent more floor space than the main floors alone could provide.

Thus by using low ceilings in bookstacks, work areas, etc., and high ceilings in large reading areas it is possible to use both efficiently and economically the cubic footage that a building provides.

As indicated above, the decision in regard to ceilings and to the relative positions of stacks and reading areas called for a low-ceiling core in the building. This core is made up of 12' x 13½' modules. Modules of these dimensions are less costly to construct than large modules such as those measuring 22½' x 22½': higher gauge steel can be used in the supporting uprights and in the steel reinforcements of the concrete. The 12' x 13½' dimensions are suitable for book shelves and aisles: the 12' dimension will accommodate four sections of shelving, and the 13½' dimension will accommodate two single-face and two double-face ranges of shelving as well as three three-foot aisles. The type of construction of the core is reinforced concrete. Bookstacks are anchored to the floor and ceiling, thus eliminating the need for lateral and diagonal sway bracing, except where the core extends into the reading areas (here, free standing stacks are used). The core area is flexible to the extent that the intermediate upright supports of the bookstacks are not supporting members of the building. The anchoring of bookstacks to the floor and ceiling makes changes from stack space to reader space somewhat difficult and costly, but in a library of this size it seemed highly doubtful that any large conversion would ever take place.

Another feature of the core construction that resulted in efficient use of space was the employment of a so-called star column as the structural upright member in the module. It is star-shaped, with four points, rather than H-shaped, as is usual. This star shape allows for the erecting of sections of shelving between structural columns with virtually no loss

of space because of supporting columns. In order to use load-bearing columns in this way all column center-lines must be held within a tolerance of $\pm 1/8$ ", as standard shelving must fit between the columns in one direction. A good contractor can meet this requirement. The additional shelf space allowed by the star column is an important factor in allowing for a maximum amount of usable floor space in a given area.

The modular core of the building is surrounded on three sides by a steel-skeleton type of construction. This type of construction allows large reading areas free of columns. The combining of the reinforced concrete (as in the core) and steel-skeleton methods seems to present no special problems in construction.

The proximity of bookstack areas to reading areas is important functionally. The fine arts area, for example, includes not only the reading room where reference materials and current journals in music, art, architecture, photography, theater, and recreation are housed, but also the adjacent core or stack area where listening facilities and a piano (in sound-proof rooms provided for those studying recordings and scores), and all related materials in the main collection are located. Similarly the social science area is a center of information in the fields of economics, education, history, law, political science, sociology, travel, and customs and folklore: in the room itself reference materials of all kinds and current periodicals are readily available to readers; in nearby stack areas are shelved the library's holdings in these fields. A student who is working in zoology will find all his books and journals in the technology and science room or in the bookstacks immediately adjacent to the room. Similarly, users of the general reference and humanities rooms will find related materials in readily accessible areas.

Materials used in the construction of

the building include Alabama limestone and red colonial brick on the exterior. The roof is of gray slate. Interior walls, with few exceptions, are finished in plaster. Wainscots of Norwegian rose marble are used in main lobbies and halls. Hardware, stair rails and balcony rails of satin aluminum give the building a modern, clean appearance. The Maryland and Rare Book Room is colonial in design with painted wood paneling and ornamental windows. Floors are of asphalt tile, terrazzo, and ceramic tiles. Air conditioning is provided in only about 5 per cent of the building; convectors will allow air conditioning in an additional 10 per cent of the building. The bookstack area has forced ventilation and humidity control.

The building will accommodate 2,000, and in addition fourteen seminar rooms will seat 360 and a small auditorium will seat 160. There are 57 studies, 130 open carrels, and 400 lockers. Two elevators service the building, and 34 display cases

ranging in size from 4'6" high x 10' wide x 2'2" deep to 3' x 4' tack boards behind sliding glass doors. The book capacity is a million volumes.

The total cost of the building, including architect's fees and bookstacks, was \$2,467,227. Floor space totals 190,839 square feet, constructed at a cost of \$12.93 a square foot; cubic feet of space totals 1,974, 569, constructed at a cost of \$1.25 a cubic foot. Compared with costs of other library buildings constructed in today's building market, these figures are low. The cost of new furniture and equipment, and of refinishing old furniture was \$200,000.

The University of Maryland accepted the library building on December 15, 1957. During the following three weeks and a day all materials, equipment and furniture were moved from the old library building to the new. When students and faculty returned to the campus from Christmas vacation the doors of a functional, attractive, and economically constructed library were open to them.

Retrospective Catalog Cards for the Short Title Catalog Microfilm Series

A number of libraries have expressed an interest in obtaining a set of catalog cards for the titles in the *Short Title Catalog* microfilm series. These titles have been cataloged by the University of Michigan Library in Ann Arbor. Up to the present time approximately 11,000 catalog cards, representing some 9,000 titles, have been produced.

Through the cooperation of the University of Michigan Library, these cards will be made available for reproduction by the Xerox-Copyflo process, using regular catalog card stock. A copy of every catalog card produced for titles filmed through 1957 will be furnished. This project will not continue beyond 1957, as current cards are available on a subscription basis from the University of Michigan Library.

If a sufficient number of libraries are interested, University Microfilms, Inc. will reproduce the cards for five cents each, or approximately \$550 for the 11,000 cards.

Please write to James E. Skipper, Assistant Librarian, Michigan State University Library, East Lansing, if your library is interested in this project. A firm price will be established before libraries are asked to place their formal orders.