MANAGEMENT OF LIBRARY BUILDING PLANNING

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Abstract

This article suggests that library building planning must proceed through four phases, namely, the local decision and learning phase, the programming phase, the design development phase, and the construction phase. It is important for the librarian-planner to participate in all these phases to ensure the plan to be steered in a direction that fits the library needs. Good management of the library building planning will make the library a better building.

Librarians have a double problem in planning library buildings. First, they must make sure that the entire planning process is managed; second, they must make sure that they are in control of the management. They must be in charge, or have a large voice in the control, of every aspect of the planning. The physical arrangement, equipment, and relationships between functions in a library involve technicalities and a knowledge of library processes that only librarians understand. A room large enough to house the furniture, equipment, seating, and work desks of a Reference Department will not be a good Reference Area if it does not easily accommodate the movements the reference librarians make in their work, the efficient presentation of their materials, and seating placed in the right relationship to the collection. It is essential for the Librarian to be at the center of this planning process.

It takes a strong Librarian to insist on a central position of managing the planning, and if the Librarian is weak, it will be impossible to achieve a totally successful building. They are in a good position to assert their knowledge at the very beginning of planning, because no one else will
know the steps required to develop the planning process, which at first seems vague and indefinable. They can define the required steps of planning and the order in which they must occur. The planning must proceed through four phases.

1. The local decision and learning phase.
2. The programming phase.
3. The design development phase.
4. The construction phase.

Stage 1: The Local Decision and Learning Phase

At the very beginning, a local planning committee must be formed, in which the Librarian, backed by the appointing authority, has a very strong voice, ideally that of Chairperson. Its members should not represent special interest groups, but should be people who have valued and supported the library in the past. They must gather the needs of the library's various users, and communicate their preferences to the planning committee. They must also carry back to the constituents the progress of the planning as it unfolds. It is far more important for the committee to be effective than for it to be representative. Committee members must be decisive people, willing to learn and to work hard for a prolonged period of time.

All members must be informed in a memorandum, with copies to all other members, of what is expected of them on the committee. A time schedule of reporting to the appointing authority must be set up. This committee must then be designated as the only body to negotiate with the architects. More building plans have been weakened when architects go over the heads of the planning committee to get a decision in their favor than by any other factor. Any items brought to superior authority by architects must be referred back to the committee for decision, because no one outside of the committee knows all the detailed alternatives that have been sifted to reach any given stage of the plans. The formation of this committee and giving it authority to negotiate with the architects are among the most important decisions to be made in the entire planning process.

The next step is to hire a good library building consultant who is also a librarian. They are selected like any other skilled employee, by gathering recommendations from people whose judgment you respect,
and who have worked with them. You must contact the libraries they have worked with to find out (1) how well they work with the client, (2) how well they work with architects, (3) the range of their expertise (such as mechanical, lighting, interior design, provisions for electronic media, etc.), (4) their availability (can they easily arrange at short notice to come for a day or two?), (5) the success of the buildings on which they have consulted.

The consultant should be involved at the very beginning of the planning, when they can (1) discuss comparative advantages of different sites, (2) explain the steps involved in planning and how to prepare for them, (3) lead the committee to published information and buildings to study, (4) lift the vision of the planners to the unusual possibilities in a new library, (5) suggest architects to consider, and outline what the experience of working with architects is like, and (6) describe pitfalls in the planning process, and how to avoid them.

The consultant will relieve doubts and confusions about how to begin, by leading the planning team to the steps they must climb to achieve a good building. They are a critically important bridge between architects and academicians, who often use the same words, but with different meanings. The consultant can translate between the two, from their experience with both. Without their review, it is impossible to control the development of floor plans. Few on the planning team will be able to read architectural floor plans, and those who can will not understand library functions and the physical movements of librarians in performing any given task.

The architect should now be hired, from among firms with a proven record of building successful libraries. At least two of their libraries should be visited and studied by the planning committee to observe what is good and what is bad about them. You do not just hire an architectural firm, which is composed of many people. If it has built successful libraries, the same planning team, and the same job captain must be designated in the contract, if you are to profit from their previous experience. Libraries are second only to hospitals in their complexity and demands on the architects. Very few architects have built a successful library building on their first attempt.

If you now have a strong librarian at the center of control of the planning, an able and dedicated planning committee, a good, broadly experienced architect, with their planning team that has designed successful
libraries, and a good library building consultant, you are in fine managerial condition. I have seen a planning group brought together at this level only eight times, in my more than one hundred and forty building consultations over the past thirty-five years.

You are now ready to begin the planning. Gathering new knowledge is the next step in the management process. Everyone on the team should participate in developing a common core of information, to which to refer as the plans develop. The American Library Association has a useful bibliography of books and articles on library building planning. After basic reading, at least three successful libraries, similar to yours in size and purpose, should be visited, together with the architects if possible. It takes at least one full day to survey all the details and discuss the advantages and shortcomings of the building with its library staff. My published reviews of library buildings indicate the kind of information to be gained by such a study.

Stage 2: The Programming Phase

The writing of the building program, which begins now, will solidify ideas that have been accumulating throughout the gathering of information. The importance of the program is indicated by the fact that its emergence as an important element in library planning by the 1960s established the supremacy of American library building in the world, although Americans by no means have a monopoly on the best architects.

The program should be written by the librarians, not by the architect. It must state what is required to meet the needs of librarians. If the architect writes the program, it will contain factors desirable from the point of view of architects, which minimize the librarians' needs. The architect's contribution to the building is best supplied when they respond, in floor plans, to the requirements stated by the librarians without regard for architectural concerns. As the plans develop, the two needs are brought together into the best possible combination. If one of them is excluded from the beginning, the results will be inferior.

This phase will be largely in the hands of the Librarian and their staff, with the advice and consent of the planning committee. It also requires constant interaction with the consultant. Program sheets should be written by the librarians and reviewed by the consultant, because this process
forces each department to examine carefully what it is doing, what could be done better with new physical conditions, and what changes must be anticipated for the future. The consultant will review each program sheet for its adequacy, suggest alternatives for consideration, pose questions that have not been answered, and advise fully about areas in which the committee lacks experience. When these ideas are incorporated into the second draft of the program sheets, they should be near completion. Based on the furniture and equipment included in each area, the consultant can estimate accurately its net square foot requirements. Program sheets must list every item of furniture and equipment that requires floor space, so the architect can understand why the area requested is needed, and can arrange the items in a logical furniture layout plan. The validity of the thinking contained in the program sheets, including area estimates, shows the architect the level of expertise of their clients. The higher the expertise, the more willing they will be to meet the planning committee's demands for changes and adjustments in the plans as they develop.

**Stage 3: The Design Development Phase**

This phase involves the interaction of two different kinds of expertise, as the client and the architect respond to each other's product (library program and architect floor plans). By interaction, the plans are refined into the best combination of library function and architectural excellence. Compromises must be made at this stage, and choices made between alternatives. It is therefore important not to make these compromises in the program, before plans are designed.

The architect will produce floor plans that represent their understanding of what is required by the program. These plans must be reviewed in minute detail, compared with the program to see where they do not meet its requirements (sometimes entire rooms are missing), measured for each area's square footage, and the furniture and equipment counted for accuracy. A written critique is made, listing in detail all the changes that must be made to improve the building's ability to meet library needs. This critique is presented at a meeting of the architects with the planning committee. Committee members must arrange to remain through the entire meeting, to be informed of the thought that goes into the details of the building as they develop.
This meeting will discuss point by point all items in the critique, with explanations by the architects of the reasons for their design. Solutions to the unmet library needs will be proposed by the architects, and a detailed list must be made of all the remaining unmet needs to be resolved in the next set of floor plans. The next meeting with the architects must begin with a review of this list, to determine which of the items have been met in the plans, and which remain to be met. It is of the greatest importance to keep track from meeting to meeting of what progress has been made on this list, since the large number of details involved in a building's plans makes it difficult for librarians and architects to remember what has been discussed and agreed upon, but not yet done.

Architects often insist on details in a building as necessary to achieve beauty, even though it may be bad for good library functioning. They must be reminded that beauty is achievable in an infinite number of forms, and that the great skill of architects can meet the library needs while still achieving beauty.

The consultant should participate in these meetings with the architect, as an information resource for any questions that may arise, and as an ambassador-on-the-spot to make sure that the client does not minimize aesthetics and the architect does not minimize function. A good library will contain both. Any architect that refuses to make changes to meet the library's needs should be dismissed: they are hired specifically to meet the library's needs. The time when building planning was placed entirely in the architects' hands, with only occasionally a nod in the direction of the client, came to an end about 1960, when buildings became so complex that the architect could not possibly have expertise in their use.

Clients often make two basic assumptions that are not true in these negotiations with the architects. They assume that details in floor plans agreed upon after discussion will be retained in all future plans. Because of changes in the architect's staff that work on drawings, and the impossibility of keeping clearly in mind the thousands of details in floor plans, desirable details are often changed from plan to plan. Sometimes details are dropped from sets of plans after they have been agreed upon, when the librarians have stopped checking on them.

From actual experience such changes can be of this magnitude: the elimination of thirty-two group study rooms, by the change of a single wall line; the disappearance of twenty percent of the book stacks, after
months of constant capacity as programmed; the change of lines on the library's facade, in nearly final drawings, that radically diminished its appearance. These changes occurred in good architects' offices. The irrationality of such changes often terrifies the client. But until the bids are let and foundations poured, the plans are merely marks on paper, which can be converted to satisfactory solutions if they are detected in time. Management of the drawing stage therefore must depend on one central Librarian-planner, who will review every detail in the drawings as though they had never seen the plans before. They must make sure they have retained everything accepted in former plans, and have improved everything discussed as a problem at the last meeting with the architects.

The second mix-assumption is that alternatives clearly discussed and accepted at the meetings will appear in the next set of floor plans. Because of the great number of details, and work patterns in the architect's office, it is unusual for a sequential set of plans to include all changes agreed upon previously. The chairperson of the planning committee, or someone designated to do so, must make meticulous notes of all changes discussed at each meeting, and send a written list to each member of the committee. The next meeting with the architects must begin with a review of this list to see what has been accomplished. Any items not completed must begin the list for review at the beginning of the next meeting. The chairperson of the planning committee must make sure that such constant and meticulous follow-up is maintained throughout the planning process, or much that is desirable and well-thought will be lost.

The consultant must review each set of floor plans, and present written comments on them to the planning committee before it meets with the architects. But it would be very expensive to hire them to do the detailed counting and checking for details that must be made. A sophisticated learning process must take place between the consultant and the Librarian-planner in reviewing the early sets of plans. The Librarian-planner must develop the ability to read floor plans accurately, to judge the size of spaces, and to ask intelligent architectural questions. Because the Librarian-planner is involved personally in the building's success, they will be unusually motivated to be thorough. Management of the entire development phase will depend on the Librarian-planner and the consultant who will recommend what needs to be negotiated, and on the library planning team for negotiating with the architects.
The development phase goes through two stages—the development of floor plans, and the development of working drawings. These two essential stages require special attention. Early, at the first or second presentation of schematic floor plans, the shape of the building is fixed. After study of the program the architects will define the minimum space required for the most demanding floor of the library, often the main floor. This basic requirement will determine how the library can be layered, usually as a multi-level building. They will present two or three general shapes the building could take. Careful consideration of the potential of each shape to meet the needs of library spaces and relationships is critically important before approval is given to a shaping of the library. If it is unclear how the building will look, the architect should be asked for simple, not perspective, line drawings of the exterior, or for a simple model. Anything more elaborate will involve extra costs, and sophisticated models can be extremely expensive. These should be made only if necessary for the client to decide which of the alternative shapes they prefer.

The second step is review of schematic drawings, which the architects will present on a small scale, to show in general how the spaces for the library functions could be arranged floor by floor, and what relationships could be achieved between them. It is important to test the square footage of each area to be sure it conforms to the program estimate, and to carefully assess how well the relationships achieved between areas will serve library functions. Once these drawings are accepted the shaping and massing of the building are fixed.

The third step involves requiring the architect to lay out accurately, and to scale, all the furniture and equipment for each area of the building in drawings twice the size of preliminary drawings. This is why each area of the program must detail all of the space-requiring furniture and equipment that it must accommodate. Only a furniture layout can show what human movements and furniture relationships can be achieved in a given space of fixed shape, and whether they can be arranged for efficient library work. In addition, the furniture layout is the basis to which is related a range of electrical and mechanical services, as discussed below. Furniture layouts are critical in determining whether a space can accommodate a library function, and the work tasks it must perform.

The dynamics of refining the floor plans to final acceptance have already been described. When they are completed, there must be a large,
general meeting of everyone concerned, for a formal acceptance of the plans, to avoid some hidden power dashing out of the organizational chart later on and reversing work already completed. To complete floor plans will take eight months to a year and a half, depending on the size of the building.

On the basis of these plans, the architects and technicians will develop working drawings that produce the layout and details of the electrical, plumbing, and engineering elements for a working building. There are four different sets of working drawings, produced by four different kinds of technicians, usually located in at least two different engineering firms. The space requirements of each must be reconciled with those of all the others. A dropped ceiling contains water pipes, electrical lines, lighting fixtures, and ducts and control boxes for the air handling system. This accident-prone combination is made even harder to control by the fact that the technicians are set to work on their plans before architectural drawings are completed. This is necessary to confirm that the floor plan will reasonably accommodate the electrical and mechanical requirements, and to get an early estimate of whether the cost of the building will be within the budget. But if every detail of the technical drawings is not adjusted exactly to changes in final architectural drawings, strange things appear in the course of construction, such as water faucets appearing on one wall and their sink on another. This has happened.

Each engineering specialty involves the client in a different way. Structural engineering firms tend to be good everywhere, luckily, because the client is almost entirely in their hands, not being able even to ask intelligent questions. There are important material choices these days involving considerable differences in building costs. Steel frame buildings are occasionally cheaper than poured concrete, which was never true ten years ago. The possibility of using pre-formed concrete structural elements instead of poured-in-place concrete, or a combination of both, must be considered in the course of planning structure. The client must depend entirely on the judgment of architects and structural engineers in these matters, which are critical in a building with 150 pounds per square foot live load floors, to accommodate book stacks. It is even more critical in libraries built for mobile compact book stacks, with a floor load of 300 pounds per square foot live load. The only contribution the client can make to this part of the planning is to encourage the development of the
largest spans possible between columns of the structural bays, spaced to fit multiples of the standard widths of book stacks.

In developing the heating, ventilation, and air-conditioning (HVAC) elements, the client must be involved in some important decisions. They must review and approve the size, location, and inter-relationships of the HVAC control zones, areas of the building that respond to a single temperature/humidity control. Zones must not be too large to produce comfort from a single control unit. They must not combine large, open areas with small, low-occupancy, enclosed rooms on the same control. The small expense involved in multiplying temperature controls pays large dividends in the increased use of libraries with comfortable temperatures, especially in countries with extreme variations in outside temperatures.

If fan-coil or air-induction units are used for air-tempering on the periphery of the building, the client must make sure they do not generate noise, which they will do if they have to operate at maximum velocity to meet control requirements. Have them oversized to produce the desired tempering at medium speed or medium velocity. Fan-coil units can be brought in and run at medium speed, to observe the noise level of their fans. If the HVAC system is dispersed in different parts of the building instead of centralized, the client must be sure that sound attenuators are used in the duct system, and that the walls and doors of their mechanical rooms are heavily insulated to prevent passage of noise.

Finally, when the HVAC plans are final, and before they are accepted, the client must request a review of these plans with the mechanical engineer who designed them, to pinpoint the location of each temperature control and its relationship to the areas it controls. Make sure it is not on a wall heated by any other factor (such as sun, a hot-air duct, an air-diffuser) except ambient air. Otherwise, it will not work accurately. Have the engineer define the entire zone that will be controlled by each control. Don’t be surprised to find the control on a different floor from the zone. For each zone, ask the engineer whether this is a satisfactory arrangement for comfort, or whether it should be upgraded. This simple review, which generally improves HVAC systems, is seldom required.

Electrical drawings are divided into separate sheets for each floor for power access and controls and for lighting fixture layouts. The client must supply the engineers with location schedules for services such as the following, which can only be done after furniture layouts are final: telephone
line outlets, electric clocks (avoid centrally controlled systems), electric outlets computer conduits, TV conduits, electronic security controls, inter-building communications.

Planned locations of these utilities must be marked by special symbols on furniture layout drawings for use of the engineers, and exact copies of these drawings must be kept for follow-up on subsequent electrical drawings to make sure they appear in the same location, related to the equipment they service, every time.

Increased use of portable electronic devices of all kinds, especially portable computers, requires sensitive thinking about where to locate electric outlets, so wire will not be strung across walkways. The future will see greatly increased use of lap-top computers and personal computers in many locations of the library, for access to computerized services supplied by the library. Therefore, access to wiring to be run in parts of the library not foreseeable at the present time must be provided in the present physical building, for later development. The use of many small computers at the same time will require oversized components in the power system and the panel board that supplies them, to accommodate overheating produced by the unusual harmonics that they generate. Future computer demands in every function of the library require unusual planning now for wiring accessibility everywhere in the building.

Selecting lighting fixtures that provide good quality illumination of adequate intensity, and arranging their layout to allow maximum convertibility of the areas they light, is the most difficult task in the entire range of library building. Most architects and electrical engineers, illogical as it may seem, do not know how to choose good quality lighting fixtures for libraries. The fixtures they propose for the building must be defined early in the working drawings. They must be examined as early as possible, in a mock-up of at least four fixtures. These must be the exact model of the fixture proposed, each containing the same number of fluorescent tubes proposed, of the same color-tone and wattage to be specified. The tubes must be approved by the department that maintains the library's equipment as the tubes must be exactly the same to replace burned out tubes. Changes in color-tone or wattage of the tubes after the lighting is installed can produce greatly diminished quality in the illumination and in the library's appearance.
The fixtures must be hung in two rows, at exactly the same height, and spaced in each direction exactly as proposed by the architects. They must be observed from all possible angles to determine whether they produce uncomfortable glare. The forty-five degree angle from any direction is the most intense. If they are free from uncomfortable glare, you are the one out of five lucky clients, in my experience.

If they contain high glare, they must be rejected, and it may then become necessary for the client to propose the fixtures to be used in the building, by specifying the model number and manufacturer of one that supplies good quality illumination. You must determine this by observing the fixture in the kind of mock-up described above, in an electrical supply shop or in some other appropriate building. You can define good fixtures by consulting another library that is known for good illumination. It is important to understand that lower intensity, glare-free lighting is far preferable to higher intensity high-glare lighting.

If free-standing book stacks are used, the lighting troffers should run unbroken at right angles to the stack ranges, to allow changes in the width of stack aisles. This is especially important if mobile compact stacks are used. If fixed stacks are used, such as tier-built stacks, much cheaper lighting can be supplied by single-tube fixtures with a diffusing lens, hung above the aisle, parallel to the stacks.

It is extremely important to have your architect supply a transparent overlay of the lighting layout (the reflected ceiling plan), key to the furniture and equipment layout plan, on which it must be overlaid, to make sure that lighting is supplied where it is needed. Lighting at the walls of rooms, where single study carrels are located, often have scanty light, because lighting troffers, run at right angles to them, stop two feet short of the wall. In this case, a three-foot wide carrel set against the wall would have inadequate lighting, and supplementary light fixtures will be required. In all matters regarding lighting, the burden will fall on the Librarian-planner and the library building consultant. This puts a premium on hiring a consultant with lighting expertise.

Review of plumbing systems are far easier for librarians to handle. The installation of sprinkler systems should be avoided whenever possible, because water can do far more damage to books than fire. If forced by local ordinances to install fire sprinklers, make sure that the system use
dry-pipe sprinkler heads, with no water supplied to them until called for by an overheated sprinkler head. They must be divided into zones as small as possible, which will work independently of each other. It is important not to have any water pipes in the ceilings of rare book rooms and of work rooms that process library materials.

As the mechanical drawings develop and are reconciled with each other, changes may have to be made in floor plans that have been completed and accepted. Walls may have to be moved to fit into the structural elements, or to make possible the passage of pipes or ducts from one floor to another, or for other reasons. In reviewing each proposed change in floor plans, the Librarian-planner must make sure to retain as much as possible of whatever the original layout was intended to serve. To do so may require changes in the location of functions from the originally accepted plan.

Bid drawings, which control what the contractor will build, and written specifications, which define the kind and quality of the building elements and machinery, are the final documents produced in the design development phase. Do not assume that they accurately contain everything that has been developed in previous plans. Almost certainly their hundreds of thousands of details will contain errors. They must be examined critically in great detail. This is not the time to relax caution, but to increase it. The consultant must be hired to review these drawings and specifications critically. Every previous set of drawings could be revised by asking the architects to change them. Changes made after the bids have been accepted are time consuming and very costly.

This review therefore will take time and great concentration, and the Librarian-planner should move to a remote work location to do it. Meanwhile, the authorities will be anxious to let bids, and the planners will be under great pressure to accept these documents. This pressure must be resisted long enough to make an exacting review of the documents. Then a written list of the corrections must be made, with the agreement of the architect. Supplementary correction sheets for drawings and specifications will be issued, and the Librarian-planner must make sure they are accurate and complete. They are often still wrong to some extent.

The specifications are highly technical but it is possible by a close reading to detect where changes must be made in parts of them, especially in the book stack specifications. Both the Librarian-planner and the consultant should review the specifications, reading those sections that
are clear to a non-technician, and asking questions about anything that defies logic.

**Stage 4: The Construction Phase**

This phase involves the client only in the physical examination of the building. The best possible manager for this stage is a superb “Clerk of the Works,” one skilled in construction methods and experienced in supervising construction work. They will work full time to make sure that the construction conforms to the drawings and specifications of the building. If they have a record of superior performance, their salary will be the best money you spend on the building. In the sequence of work by construction crews that follow one another, it is possible for very bad work to be covered up (sometimes by concrete) by the work that follows, unless it is detected in time. On one of my consultant jobs, a telephone conduit intended to run in a corner of one floor, from one wall to another, actually ran seventy five feet straight down through the building, as the installer’s probe revealed.

Job meetings are held weekly by the contractor, the construction workers, the Clerk of the Works, and sometimes the architect, to resolve problems in interpreting the drawings and specifications of the building, and to work out changes required by the existence of what has already been constructed. (Such as, “We can’t run that two-inch electrical conduit through that four-inch plumbing drain.”) Sooner or later, these decisions will make changes in the building’s original plans, usually wall changes, or in the comfort level or appearance of rooms. These meetings also provide opportunity for the client to correct undetected esthetic horrors, such as a drain pipe in the shape of a crooked elephant’s leg visible in a rare book reading room I once saw.

It is therefore necessary for the Librarian-planner to be present at these job meetings, to steer any changes to the original plan in a direction that fits library needs. Many things discussed will be far over their head, but they will be able to understand many things easily, especially when it involves changes in library layout. These meetings are of great anthropological interest, in what they reveal about the language, habits, beliefs, and morality of construction-world inhabitants.
If these four stages are performed well, the management of the building planning has been as complete as possible. The contribution that can be made through good management to the building's excellence through its planning has been maximized. It has made the library a better building than it otherwise would be. How well you have succeeded depends on the intelligence, talent, and dedication assembled in the library planning committee.

NOTES

1. One prominent American university library was planned under ideally bad conditions. The Librarian was competent, but had a personality that alienated his faculty, and the library planning committee distrusted his judgment. The committee Chairperson was using their position to run for Dean of the college. Only a few committee members were really interested in the library. The "planning" involved free-form brainstorming, in which each member got into the building an architectural feature that they liked. Worst of all, the head architect-designer was related to the Vice-president of the university, and could override the committee's decisions at any time. The building is extremely unsatisfactory.


3. Mason on Library Buildings Metuchen & London, The Scarecrow Press, 1980. 333 pages. In addition to extensive information on all aspects of the planning process, this book contains detailed analytical critiques, from both a functional and esthetic viewpoint, of six of the most important libraries built during the golden years of librarianship: The Beinecke Rare Book Library, Yale University; The Rockefeller Library, Brown University; The Countway Library of Medicine, Harvard University; Dalhousie University Library, Nova Scotia, Canada; The Robarts Library, University of Toronto, Canada; Sedgwick Undergraduate Library, University of British Columbia, Vancouver, Canada. This book is out of print, but it can be borrowed on interlibrary loan.