The Public Library Construction Process: From Problem Recognition To Ribbon Snipping

Fred Schlipf and John A. Moorman

This outline was originally prepared to accompany the authors' presentation at the 1999 PLA conference. It has been modified and expanded on a number of occasions since that time, most recently in 2009.

The outline focuses on the responsibilities facing library trustees and staff, and the space devoted to each topic in the outline reflects this concern rather than the actual amount of work to be done by hired experts and contractors.

Because this outline covers the construction process, it includes relatively little material on the extensive topic of what constitutes good and bad library design.

Table of Contents

1. Motivations 2
2. Building Consultants 2
3. Building Programs 4
4. Architects 5
5. Construction Options and Site Selection 9
6. Dysfunctional Design Concepts 13
7 Schematic Designs 14
8. Renderings and Models 16
9. Money 18
10. Design Development 19
11. Bid Documents 20
12. Bidding 21
13. Groundbreaking 22
14. Construction Management 23
15. Moving 26
16. Ribbon Cutting 27
17. Ten-Month Post-Occupancy Evaluation 28
18. Rewards for the Stressed-Out Librarian 29

1. Motivations

- **Some building projects occur because of unanticipated gifts, but most are the result of long-standing space, service and structural needs.**

- **Ideally, libraries will review the adequacy of their structures every few years and take quick steps to cure problems.**

- **However, most libraries struggle for years with inadequate buildings before they are actually able to meet their needs.**

- **Don't make the mistake of assuming that all you have to do is cure one or two obvious problems**. Solving problems one at a time is terribly expensive, and you may paint yourself into a corner in the process.

- **Start by forming a building committee with board and staff members.**

2. Building Consultants

- **To make sure that you have looked consciously at all the problems facing your building—rather than just one or two particularly painful ones—always start your project by hiring a building consultant.**

- **The job of a building consultant is to help you review your current building and options, and to convert your needs and long-range plans to architectural terms.** A consultant will also bring the perspective of a working librarian with special knowledge of how libraries occupy spaces.

- **A building consultant is not an architect or engineer.** Do not expect your consultant to evaluate your HVAC system, design your building, write bid specifications, estimate construction costs, or help administer construction.

- **Always hire a consultant before you hire architects.** And always hire architects before you hire a contractor.

- **There are many ways to find consultants, including word of mouth, recommendations of other libraries, and lists compiled by state agencies and associations**. But just because a consultant's name is on a list, it doesn't mean that he's the kind of person you want.

- **In order to maintain proper checks and balances, *it's important that the consultant NOT be an employee of the architects*.** The job of the consultant is to view the project as you would if you had more experience with buildings, and to provide you with opinions independent of your architects.'

- **Sometimes part of the job of a consultant is to convince local people that what their library staff and board have been saying all along is actually true.** That's just the sad part about experts—none of us is an expert at home.

- **Prefer a consultant with extensive (at least ten years) practical and fairly recent experience *working in real libraries*. If your consultant is a librarian with a strong background in library architecture, rather than an architect with experience designing libraries, you will have a far better balanced planning team.**

- **It's always reasonable to ask for an example of a prior building program.**

- **Make sure that your consultant is committed to following your project through to the end—or at least through the preparation of bid documents.** Clarify this, and check on follow-through costs.

- **Not all architects like working with consultants.** As a result, your architects may not suggest including your consultant at meetings or contend that there is "no time" to have your consultant review documents. It is the library's responsibility, therefore, to **be sure that your consultant is in attendance at most or all building planning meetings and receives copies of plans in time to review them.**

- **Whether you like the consultant personally is an important consideration**. Consultants are there to convert the needs of libraries into architectural terms. To do so successfully, they have to be people librarians and boards like. If a consultant gives you a major pain during the interview, hire someone else.

- **Always check references.** Ideally, speak with both staff and board members. Prospective candidates should be happy to give you lists of previous clients.

- **Questions to ask references include the following:**

    - Were you generally satisfied with the consultant?
    - Did you enjoy working with the consultant?

- Did your consultant have a wide range of experience with libraries and library buildings?
- Did your consultant listen to you?
- Did your consultant suggest all kinds of possibilities (even if you rejected most of them)?
- Was your consultant prepared to attend most (if not all) planning meetings with architects?
- If your consultant squabbled with your architects, who in retrospect was correct?
- Was your consultant regarded positively by the grant giving authorities?

- **Compared with other construction costs, consultants are very inexpensive.** If your consultant averts even one bad decision, you will probably have saved much more than the entire consulting fee.

- **When hiring professionals—both consultants and architects—*never* get involved in complex discussions with disappointed applicants about why they were not hired.** Say something to the effect that, "We hired the person we felt best met our needs," and do not let yourself be drawn out, just as you would not let yourself be drawn out when hiring personnel for your library.

3. Building Programs

- **The creation of a written "building program" is the first step in a building project.**

- **In almost every case, the library consultant is the person responsible for the preparation of the building program.**

- **The program specifies how much space of what kinds and in what juxtapositions your library needs.**

- **The program should also include a review of the existing facility (including a detailed list of its strengths and weaknesses), a statement of required equipment for each space in your new or expanded library, and information on the special architectural needs of libraries.**

- **Architects tend to view projects in terms of problems and their solutions.** From this perspective, programming consists of defining the problem.

- **While you are discussing your building program with your consultant, it's important to divorce yourself mentally from the service attitudes and procedures that are dictated by your current building rather than by current and long-term community needs.** It's also important to think about functional needs rather than what you might specifically do with your current building. This type of planning literally involves the old cliché, "thinking outside the box."

- **After the program is complete, use it as a yardstick for evaluating your current building and your various options for expansion or starting over.** Remember that until you know what you need, you can't evaluate what you have.

- **It's tremendously important that your program be in print and in detail.** As Francis Bacon said, "Truth emerges more readily from error than from confusion." Until the program is actually written, the board and staff members involved in your project may mistakenly assume that everyone agrees on everything simply because not every detail has been made clear. A program written in substantial detail helps people to recognize differences of opinion early in the project, at a time when resolving them involves changing a few words rather than a design or structure.

- **When in doubt, involve more rather than fewer people in programming.** Seek inputs widely. And the more people who read drafts of your program, the more likely you are to catch errors and omissions. (Remember that shelvers and custodians see the world in terms of the difficult of doing **their** jobs, and that their problems matter.)

- **When you are hiring architects, make sure that firms know they will be quizzed on your program at the time they are interviewed.** This helps you make sure that they read the entire program and not just the page summarizing square footages.

- **It's a good idea to devote your first meeting with your architects to a review of the program with the consultant present.** If the architects disagree with some aspects of the written building program, the only good time to work this out is in a general meeting with everyone present.

- **The program will be modified during the design phase of the project, but insist that the architects indicate up front where and how they wish to modify it, and then discuss the change as a group with the building consultant present.**

- **Always require that all floor plans proposed by your architects be accompanied by tables comparing programmed square footages with plan square footages.**

4. Architects

- **Avoid the dangerous temptation to go straight to a contractor for any library construction project, whether it's a new building or just a bunch of new windows.** Design is almost always more complex than it appears, and if bidding is required under law, bid documents must be prepared professionally. ***Good architects are always a good investment. For any library project bigger than a woodshed, good architects are an absolutely essential investment.*** In fact, in many cases you won't be able to get a building permit without plans stamped by licensed architects or engineers.

- **You can locate possible firms in many ways.** Among these are recommendations of other libraries, advertising, looking through building issues of library publications, and talking with your state library or other agencies. (Most firms are always seeking commissions, and once word gets out that you're thinking of hiring architects, architectural firms will find you.)

- **Request information from at least half-a-dozen firms.**

    - Ask them for lists of prior projects, including for ***each*** project (a) specific work undertaken, (b) references, (c) specific information on ***what percentage the project*** was their firm's responsibility, (d) the current status of the project, and (e) the project architect.
    - Many firms will list projects that were studied but never built, in which they played extremely minor roles, or that were built by a different branch of the firm in a faraway city.) Ask for a list of ***completed*** projects consisting of new buildings or of major expansion and remodeling work, in which the firm was the only architect or the lead architect.
    - Ask them to list the key personnel of their firms. If not all services are provided in house, who will provide them?
    - If the firm has done a number of libraries, ask specifically which staff member was the project architect for each library. .It's frustrating to find out too late that the firm's library expert has moved on.
    - Many excellent architectural firms hire outside structural engineers, mechanical engineers, electrical engineers, cost estimators, and so on. The decision of these firms not to provide these services in-house is not a failing, nor does it lead to poorer work.

- **Request specific information on the library design experience of the individual members of the team each firm is proposing for your job.** This is particularly

important in the case of large firms or merged firms, where the number of library projects can be large but the actual library experience of the proposed team very limited.

- **Call prior clients.** There are many important questions to ask architects' previous clients.

  - **A**re they satisfied now that the job is completed?
  - Do they like the ***building***, independently of whether or not they like the architects?
  - Were the architects responsive to their needs?
  - Did they listen to the board and staff and respond?
  - Did they abandon concepts when requested to do so, or did they keep trying to talk you into something you didn't want?
  - Did they work well with the building consultant?
  - Did the architectural firm's staff members who began your project continue through to the end?
  - Did the building come in on time and under budget?
  - Did the architects do a good job overseeing construction?
  - How did the architects respond when things went wrong during construction?
  - How many change orders were due to architect errors and omissions? If an architectural error cost you money to correct, did the architect take fiscal responsibility? (Ask your consultant to help you determine what constitutes an "excessive" number of change orders. Also bear in mind that the blame for many change orders can be laid on fickle clients who changed their minds mid stream, or on hidden conditions that no architect or engineer could reasonably have been expected to determine in advance.)
  - Have the architects been back since the ten-month post-construction building checkup to see whether the building continues to function satisfactorily?
  - Are there any aspects of the building that cause functional problems? Do you have trouble changing light bulbs? Keeping an eye on back corners of the library? Rearranging furniture and equipment to cope with changing needs? Figuring out how to expand the building?
  - Would you hire them again?
  - You can learn more if you ask your department heads to call their counterparts at other libraries. For example, if your head of maintenance calls the heads of maintenance in other libraries, he may hear very different things.

- **Visit sites of previous work.** Talk to staff while you're there—preferably not just the director and board president who were there when the library was built,

because they have a lot of ego involved in the project and often cannot (or will not) recognize errors.

- **Review the team the architects propose for your job.** It should specify the "project architect" (who will be in charge of the process) and outside consultants, such as engineering firms. Most engineers will be firms the architects work with on a regular basis, but the civil engineer should be a reasonably local firm with knowledge of local soil and drainage conditions. Watch out for situations where architects propose professional library building consultants other than your own, or where the organizational chart for the project shows your consultant reporting to the architects rather than to the board of trustees.

- **Interview a limited group of architectural firms**—up to three or four. Insist that the person who will be project architect be present at the interview and play an active role. (Some large firms have sales architects and working architects. You want to interview the architects with whom you will work.) Spend about two hours interviewing each of a very few firms rather than running many architects through a revolving door. Try to conduct all interviews on a single day, or on an evening and the following day. If you spread out interviews or try to interview more than about four firms, you'll have a hard time getting all your board or building committee members to every interview, and you'll be unfair to the firms applying for your work, since it costs them a surprising amount to make presentations.

- **Some architects will arrive at interviews with drawings of "your new library." This is an advertising device that you should ignore.** Architects can't provide drawings of your library until they have completed extensive study and design work.

- **Whether you like the architects personally is a valid consideration.** Working with people you dislike is never a good idea. (However, architects you like personally can still design buildings you dislike.)

- **After the interviews you will have follow-up questions.** Feel free to call architects back for clarification, call their previous clients one more time, or visit additional libraries the architects have designed.

- **Be sure you know any state laws affecting how you hire your architects.** In general, professionals are not hired by low bid. (Your state may have a QBS—Qualifications-Based Selection—law that provides basic rules for hiring professionals.)

- **When hiring architects—as in the case of hiring consultants or library employees—never get involved in discussions with disappointed applicants about why they were not hired.** Some applicants for architectural services can be extremely aggressive when requesting explanations concerning hiring decisions, and **you need to stand absolutely firm**.

- **Be sure you have the assistance of an experienced attorney before you sign a contract for architectural services.**

- **Almost everyone uses standard AIA (American Institute of Architects) contract forms, but many issues are negotiable. Among the most important issues to settle in the contract are the basic percentage or flat fee, the portion of the total fee that will be billed at each stage of the project, and the acceptable additional charges.** The add-on charges can be extremely expensive, and your lawyer will need to clarify what extra charges will be made (for example) for preparation of grant-application documents, construction administration, grant administration, attendance at local public meetings, extra meetings to discuss owner concerns, and such "reimbursables" as travel and postage costs, bid copies of documents, renderings and models, and so on.

- **It's possible to contract with a team consisting of a local architectural firm and an out-of-town firm specializing in libraries.** Sometimes this approach works very well, but there are potential problems. The two firms may fail to work smoothly together, and you may have conflict between the out-of-town designers and the local people who prepare the bid documents and administer the project. It may also be more difficult to pin down responsibility for problems. (Teams consisting of architects and engineers, however, are standard.)

- **In your contract, you can specify that the project architect will stay with your project until it is completed.** This means that if that architect leaves the firm, the firm will have to hire the architect back to complete your project, or even that the architect may take your project with to his or her new firm. If your decision to hire a firm is based on the presence of a specific architect in that firm, this kind of agreement is particularly important.

- **The program is your instructions to your architects, and they should treat it as such.** ***Keep your consultant involved throughout the design process*** to be sure that this happens, and that the plans reflect good library practice. At the same time, it's important to remember that programs are living documents, and that

the full planning group (board, staff, architects, ***and consultant***) may decide to make useful changes during the design process.

- **Remember that at all times that you are the owner.** The building is yours, and the architects are your employees. You are paying all the costs, and you are the one that has to live in the finished library. Unless it's a matter of violating laws or legal regulations, you can always say "no" and stand your ground. (Bearing mind, of course, that you may possibly be wrong.)

- **Treat your architects fairly.** Do not let your architects waste their time continuing to develop plans you dislike. Do not expect them to do major extra work not called for in your contract without extra compensation. And do not expect them to create perfect construction documents that require absolutely no change orders.

5. Construction Options and Site Selection

- **These are often the most difficult decisions in a building project.**

- **Among the issues are choice of site and of construction type (expansion, new construction, or conversion of an existing building).**

- **If at all possible, involve your architects (and consultant, although the architects are more critical) in site selection.** Sites initially proposed for library use are frequently too small, and existing buildings may be far more expensive to convert than one initially expects. "Brown field" sites that once were occupied by other buildings may have hidden problems. The usability of sites is also affected by local zoning restrictions, soil bearing capacities, EPA concerns, and other technical issues that your architects will be prepared to evaluate.

- **If your current building is an historic one, that will limit your options.** Check with your state and local preservation agencies and with your local government before going too far with planning.

- **When it comes to site selection, try to avoid having your library become a pawn in local development or redevelopment.** Your library may be good for a neighborhood, but the neighborhood may be bad for your library and for its services to the community.

- **Renovating existing structures can sometimes (but by no means always) save money and be good for public relations, but be sure that you understand the**

true costs in terms of both conversion and long-term occupancy. In particular, be sure that the existing building has:

- **Floors strong enough to carry library weights**. Libraries must carry live loads of 150 pounds and up per square foot, and few existing non-library buildings can handle this without reinforcement. In areas where compact shelving is planned, additional weight and floor deflection are both important issues. (If floors are too flexible, compact shelving can roll downhill to the center of the sag.)

- **Ability to provide sufficient cable conduit and wiring.** (Even with wireless transmission, we still need widespread access to 110-volt current, particularly for laptop computers, and wireless transmission does not always work well in all old buildings. Providing wireless access to the staff side of the library's operating systems can make the library vulnerable to hacking.

- **Ability to provide restrooms in the proper locations.** (Most small and medium-sized public libraries place restrooms and program rooms off the entry foyer, so that meetings and programs can take place when the rest of the library is closed. Few existing commercial buildings are designed this way.)

- **Adequate ceiling height.** (Anything less than 10 feet between the floor and the suspended ceiling grid is a serious problem, for it makes it difficult or impossible to provide the reflected uplighting that works best in libraries. In practice, the need for 10-foot or higher ceilings means there can be no less than about 12 or 13 feet between one floor and the bottom of the floor or roof above.)

- **Absence of extensive bearing walls.** (Bearing walls support the structure and are consequently hard to alter or remove. If bearing walls force you to create more separate public spaces than you need, you may wind up with a building that is expensive to operate.)

- **Column spacing that works with book stacks.** New libraries are designed so that column spacing is in multiples of shelf aisle spacing, so that columns never end up in the middle of aisles.

- **Ease of meeting accessibility requirements.** (Many old restrooms and narrow hallways will not meet ADA requirements, and any variations in floor level can lead to problems.)

- **Large open spaces for easy supervision.** (Maintaining the best possible sight lines for your staff will reduce the long-term cost of library operation.)

- **Structural design that permits humidity control.** (It is completely reasonable to expect that your HVAC system will maintain relative humidity between 30 and 50 percent at all times. However, many older buildings present particular problems when it comes to maintaining adequate minimum humidity in the winter.)

- **No major costs of moving people between floors.**

- **No environmental problems, such as asbestos, lead paint, and underground fuel tanks.** All of these can be extraordinarily expensive to correct. Any building constructed before the mid-1970s may have asbestos in pipe lagging, floor tile, adhesives, etc.

- **An attractive exterior, or one that can be made attractive easily.**

- **In general, it is harder to convert existing buildings to libraries than to most other purposes.** Consider what universities do. Most new buildings are for science and engineering, for athletic functions, and for libraries. For very good reasons, the humanities, social sciences, and administration—which need primarily office and classroom space—get remodeled buildings.

- **Unfortunately, some people inevitably see libraries as the solution to derelict building problems.** A local government saddled with an abandoned building may see conversion to a library as a way out of the dilemma. Private owners who have been unable to sell empty office buildings, churches, or grocery stores may see the library as their last chance to cash in—sometimes for far more than the building is worth. (In some cases, private owners and their real estate agents have started whispering campaigns, accusing library boards that have rejected unsuitable buildings of doing so because board members would rather build expensive "monuments to their egos." Your architects and consultant can defend you in these situations.)

- **Be sure that your new or expanded building can be expanded again in the future.** People who want you to use inadequate sites will argue that the electronic revolution means that your library will never need to be expanded again. But they are wrong. Wrong, wrong, wrong.

- **Be sure your site is large enough.** If you will be providing on-site parking—and most libraries do—you will need a site a minimum of four times as large as the

total floor area of your library. Detention basins require even more space. (Obviously this may not apply to central business district libraries in large cities.)

- **Remember that the best public library sites are good commercial sites.** If it's not a nice place for a nice store, it's not a nice place for a nice public library. Among the less desirable sites are:

  - **Sites near homeless shelters.** Of all possible non-criminal neighbors, shelters are the greatest threat to the successful functioning of public libraries. Never build a library near a shelter, and try to make sure that zoning around your library excludes the creation of future shelters. Among other things, public libraries located near shelters usually end up having to remove all of their comfortable furniture.

  - **Sites directly next door to high schools or (especially) junior high schools.** If schools are at least two or three blocks away, students can reach the library easily, but it's not the first thing they find when they boil out the doors at 3:00 p.m.

  - **Sites in parks, unless the library entrance is directly off a well-lighted, busy street and facing commercial development.**

  - **Sites in areas citizens hesitate to visit after dark, or hesitate to have their children visit alone.**

- **Because good public library sites are good commercial sites, good public library sites aren't cheap.**

- **MOST IMPORTANTLY: To repeat points made earlier, the world is awash with surplus buildings and sites that are white elephants. Many are vacant or undeveloped for very good reasons.** ***Don't let people unload them on your library.*** Always keep in mind that converting an existing structure to a library can easily cost 2/3 as much as starting from scratch, and that architects have to charge a higher percentage of construction cost for remodeling work than they do for new construction.

6. Dysfunctional Design Concepts

- **Although this outline is concerned with the construction process rather than with design issues, there are a number of common design errors that are found constantly in public library buildings and are important to mention.**

- **Skylights.** Areas under skylights are too bright by day and too dark by night, and the glare from skylights interferes with reading and computer use. Areas under skylights are noisy. And many skylights leak.

- **Atriums.** Atriums are high-ceilinged spaces connecting two or more floors. They can be grand spaces, and they can help with user orientation within a building. But most librarians dislike them, often intensely. Atriums take up a lot of space, they waste energy, they transmit noise, they block internal movement, and they unnerve people with acrophobia.

- **Designer staircases.** Many libraries have impressively dysfunctional staircases. Watch out in particular for features (such as open or transparent risers or overly-long straight runs of steps) that bother people with acrophobia. Other dangerous features include oddly-shaped steps, railings that can be climbed like ladders, handrails that run diagonally to the run of steps, steps that are not enclosed at their ends, and floating staircases where users can bump their heads on the underside of the stairs.

- **Courtyards** usually cause trouble by interfering with logical internal circulation. Users going from point A to point B often have to circumnavigate courtyards, and courtyards tend to lead to beads-on-a-chain room arrangement. Maintaining courtyard plantings can become a major burden.

- **Water features**. Water and books are not a good combination. People throw things into water features, and they sometimes fall into them. Some libraries find that the persuasive sound of running water sends staff members constantly to the restroom.

- **Non-rectangular interior spaces.** Virtually everything in libraries is rectangular. Oddly-shaped spaces are hard to use effectively and hard to light effectively, and they often result in wasted space.

- **Downlighting.** The right way to light a library is to bounce the light off the ceiling. Any other form of lighting leads to uneven illumination and glare.

Among the many types of bad lighting that cause problems in libraries are recessed downlights and pendant downlights lights.

- **Insufficient electrical outlets.** WiFi has reduced libraries' reliance on data conduit, but electrical outlets are needed everywhere, both for opening day and for years to come, which furniture may be arranged and new equipment purchased. No place in a public service area should be more than six or eight feet from the nearest outlet.

- **Bad security,** including:

    - **Multiple public entrances** cause problems because each entrance needs to be watched by library staff members. Unstaffed security gates (with or without security cameras) are not sufficient.

    - **Dead-end stack aisles,** where users can be trapped.

    - **Internet computer screens facing away from staff service desks.**

    - **Single-user restrooms with locking doors.** Restrooms with stalls provide adequate privacy without facilitating vandalism.

    - **Bad sight lines.** Complex spaces that are difficult to supervise can cause many problems.

- **Inflexibility.** During the 50 to 200-year life of a library building, library services will change many times. Any time a library is designed to work in one way only, trouble results. Common sources of inflexibility are excessive built-in equipment and furniture, too many small spaces, and the use of soffits to define the location of desks or other furnishings.

- **Maintenance problems.** Perhaps the most common and avoidable maintenance problem in libraries is light bulbs that are difficult to reach. Always show your library plans to your custodians.

7. Schematic Designs

- **Schematic design is the first architectural step.** When this step is completed, you should have:

- **Floor plans** (including tentative furniture placement) **and elevations** (drawings of your building seen squarely from each side).

- **A site plan** (showing how your building will fit on your site) **and a vicinity plan** (showing how your site relates to your community).

- **Outline specifications.**

- **A cost estimate.**

- **A list comparing each space in the design with the space allocated for the same purpose in the program, and a similar table comparing furnishing in the design and in the program.**

- **Because mechanical systems (electrical, plumbing, HVAC, and so on) can represent from a third to 45 percent of the cost of construction, it's a good idea to have basic engineering concepts included in schematic designs.**

- **There are many methods of moving from the needs statements in your program to a schematic design, and different architects have different approaches.** But whatever approach is taken, the building design should evolve from a concern with the individual spaces needed and their relationships to each other.

- **Much of the creative design work of the project takes place during schematic design.** Architects may correspondingly bill a substantial portion of their total fee at the completion of this stage. Although the AIA says that schematic design is 15 percent of the project, some architects bill much more than that. If done well, the schematic design phase consumes a tremendous amount of very expensive architectural time, and to be fair to your architects you need to recognize this.

- **For the vast majority of public libraries, it's important that schematic designs emerge in stages.** Libraries do not benefit from architects who work backwards from concept or appearance. If a full-fledged design is delivered at stage one, that's a bad signal. Beware of pretty boxes with muddled or uncertain interior arrangements.

- **Some libraries, however, are intended more to make dramatic architectural statements than to function in practical ways.** If this is your desire, it will alter your approach—and your selection of architects.

- **The evolution of a schematic design involves at least four essential parties: architects, library board, library staff, and consultant.** When design problems occur, one of best problem-solving approaches is to have representatives of these four sit down as a group and thrash out specific design issues.

- **Very few architectural firms will actively encourage you to include your consultant in schematic design meetings, but it is to your strong advantage to do so.** Make a point of asking your consultant to attend these meetings.

- **Owners and architects frequently have disagreements at the schematic design phase.** If your architects don't want to change an idea you don't like, insist on specific reasons and reject those reasons if they aren't relevant to your needs or wishes.

- **If you don't like a proposed idea, stop it as quickly as possible.** Unwanted concepts tend to take on a life of their own and need to be brought to a quick halt. You are not doing your architects a favor by failing to say "no" the minute you see something you genuinely don't want, since the longer they work on a design you don't want, the more of their limited time they'll waste. Saying "yes" when you are thinking "no" is unfair to your architects.

- **Be careful not to be sidetracked in arguments over minor points (such as the shape of a window) when there are major conceptual issues to resolve.** At the schematic design phase—particularly at the beginning—concentration on broad issues is important. That's why it's inappropriate to start with semi-finished floor plans.

- **In reviewing schematic designs, watch for the many functional problems that can occur in libraries.** Look for problems with security, awkward or confusing physical relationships between areas, bad sightlines, wasted space, lighting that is not evenly distributed and indirect, difficult maintenance, design spaces that fail to match program spaces in size and location, and so on.

- **Occasionally, when a library is faced with a number of different options on different sites, it will begin with a "feasibility study" to examine which options are suitable or unsuitable, before beginning work on a schematic design.**

8. Renderings and Models

- **Most library construction projects of any size will benefit from renderings and models.**

- **Renderings are artistic drawings of selected views of the inside and outside of the new library.** Unlike the elevation drawings, which are rather mechanical representations, renderings are sketches in perspective. They have all the extra details to which most viewers respond—trees and plantings, passing cars, users, and so on. Some renderings are simple black-and-white sketches, while others are full-color works of art.

- **Models are three-dimensional representations of the completed building.** Usually models are simplified, and frequently they are stylized. Models can vary from simple constructions showing little more than basic masses, to complex representations in color, with added trees, pedestrians, vehicles, and so on. Some models are exterior models only, while others have removable roofs and upper floors so that people can see the interior arrangement of each floor of the library.

- **Sometimes it's to your advantage to keep renderings and models somewhat vague and conceptual.** The more detail you give people up front, the more they'll expect to find that specific detail in the finished library. Since models are frequently built early in the project, details can change a great deal between then and the final bid documents.

- **Since very few people can read blueprints, renderings and models are an important way to show them what the completed building will look like.** In particular, voters and donors need to know what their tax dollars and donations will build.

- **The creation of architectural renderings and models is a highly skilled specialty, not something you can turn over to a friend who draws well or makes hobby models.** ~~Some~~ Modern CADD systems can actually rotate views of buildings in space, and these greatly simplify making renderings, but it can be expensive to input all the necessary data.

- **One major issue is accurate representation. Artists who create renderings of proposed buildings tend to gild the lily by omitting ugly mechanical details (such as air handling equipment or penthouses).** They also tend to improve on the surroundings by replacing adjacent used car lots with virgin forests, adding greensward for which there is no actual space, and so on. Sometimes even the client doesn't realize how things will actually look. You will have to decide whether selective artistic vision will hurt or help you in the long run, and make sure you and your architects settle this issue face-to-face before renderings are prepared.

- **Software exists to provide approximate images of your proposed building will look when it is completed, and to provide an animated impression of how it will feel to walk through it.** You may find this a useful promotional device, but remember that it's impossible to recreate the impression of moving through a three dimensional space on a computer screen.

- **Renderings and models are expensive.** The cost ranges from a few hundred dollars for a simple black and white drawing to many thousands for a complex scale model.

- **Study models, however, fall into a completely different category.** They are more rough-and-ready constructions used by architects to study massing or convey ideas to owners. Study models are part of the design process and should not require any additional fees.

9. Money

- **The single most important construction material is money.**

- **Few libraries have enough cash lying around to do the job.** It always helps if you have huge unexpected legacies, or atomic power plants in your taxing jurisdiction, but most libraries have to locate extra construction funds.

- **Before you can raise funds, you will need to know what your project will cost.** This is a job for your architects. Be sure the preparation of cost estimates is part of your contract. Frequently, estimates of costs are prepared at the end of each of the three major stages—schematic design, design development, and bid documents.

- **Be sure at all times that you understand whether your architects' estimates are for "construction costs" or "project costs."** When figures are quoted, always ask which they represent. Construction costs are the costs of erecting the building itself. Project costs are substantially higher. They include many additional costs you will have to pay, including site work, professional fees, furnishings, equipment, etc. In addition, you may have to cover moving, opening day collections, etc.

- **The cost of library construction projects usually startles people who are not involved in the planning efforts, and coping with public and political "sticker shock" is frequently a problem.** It helps to be able to point out what similar communities have spent on adequately sized new libraries. Frequently, groups in town that have little knowledge of library space needs or costs will propose clearly inadequate project costs by plucking project figures out of midair, and once proposed, these figures can take on a life of their own. Other groups will assume that whatever cost a library proposes is clearly excessive and will automatically propose a fraction of that cost. Even if the library is proposing a cheaply built, undersized building, someone is likely to refer to it as a "Taj Mahal." Dealing with sticker shock can be difficult; one way is through very public planning, frequent communication with the media and political leaders while planning is taking place, and printed reports.

- **Primary sources of funds include sale of bonds, direct allocations from local governments, mortgages, state construction grants, money set aside from operating funds for future construction, and private fundraising.** Unfortunately, with the conversion of LSCA to LSTA, federal construction funds for public libraries ceased to be available. (LSCA is the Library Services and

Construction Act of 1964. LSTA is the Library Services and Technology Act of 1996.)

- **Bonds can be issued by citizen vote or by direct government action.**

- **Once you know construction costs and available government funds, you will know how much you need to raise privately.**

- **Some basic points about private fundraising:**

  - **Private fundraising requires an incorporated friends group or foundation with federal 501(c)(3) tax status.** Obtaining this status is not difficult, but the paperwork is initially intimidating. You will need the help of an attorney. (Library boards can also raise funds directly. The problem is that people have read too many stories about private fundraising leading to the transfer of tax money to other projects. Donors may fear that even elected boards with funds that cannot be attached by any higher level of government may spend funds for totally different projects if new board members are elected.)

  - **Professional fundraising consultants are available, and some specialize in libraries.** Even if you do most of your own work, it's helpful to have initial advice and planning assistance from an experienced person. Hiring a consultant is much like hiring any other professional; feedback from previous clients is particularly important.

  - **If you have a major fundraising campaign, you will probably want to hire someone to run it.** Fundraising can take a great deal of time. It's unreasonable to assign your fundraising to your current staff unless you hire someone else to do their regular work.

  - **Fundraisers should always be paid by the hour or by the job, never a percentage of the funds raised.**

10. Design Development

- **The best time to spend the money on design development is after you have the necessary funding for your project.**

- **Design development is the process of expanding the schematic design to include full information on how the building will be constructed.** At this point you will get details on casework (built-in furniture), ceiling plans, locations of all

mechanical and electrical elements, detailed furniture location information, and so on.

- **Some decisions made at this point are critically important to the successful functioning of your library.** Among the ones that should concern you and your consultant most are lighting, data conduit, electrical wiring, telephone systems, service desks, etc.

- **The importance of these topics makes it vital that <u>all four players</u> in the library plan—architects, staff, board, and consultant—be involved.**

11. Bid Documents, aka Construction Documents

- **Bid documents are the package of materials necessary for contractors to make careful estimates of the cost of a project.** They have two primary components: drawings and project manuals.

  - **The drawings (blueprints) show the structural, plumbing, mechanical, and electrical components of the project.**

  - **The project manual is an accompanying narrative text that includes all the specific requirements of the project, including specifications for the types and qualities of all components.**

- **Most bid documents include a few "add alternates" in addition to the "base bid."** Add alternates are additional items or features that you would like to have included in the project if the base bids are sufficiently low. By asking for prices on these items as part of the bid process, you will obtain better prices than you would by negotiating prices later with your contractor. (There are also "deduct alternates," but the conventional wisdom is that add alternates lead to lower prices.)

- **Accurate and complete bid documents are of critical importance.** The nature of the low-bid process required for most government work means that contractors will base their prices on the very least that the documents allow them to do. If critical items are omitted from the documents, you won't get them in your library. They will then have to be supplied through change orders, and they will cost much more than they would if they had been properly listed in the bid documents. ***Bid documents are a job for professionals; do not try this at home.***

- **Many details of room finishes, electrical receptacle locations, door types and hardware, etc., will appear for the first time in bid documents.** This makes such documents extremely important to review.

- **Bid documents are complex and detailed, but do your best to review them to be sure that they include what your want**. If you are uncertain about the appearance of any item, such as a light fixture or door handle, ask your architects for a copy of the manufacturer's "cut sheet" for that item.

- **Having your consultant review your bid documents is an extremely good idea.** Almost any error or omission detected—even the most minor—will cost vastly more to correct than you will pay your consultant for a full, final review. (To give your consultant adequate time to review the documents, and to leave time for corrections and questions, send your consultant the 90 percent set in addition to the final version.)

12. Bidding

- **Your architects and attorney will be involved throughout the bidding process.** Each state and locality has specific rules for bidding on public construction jobs, and failing to observe the rules can lead to major problems. Both your architects and your attorney will examine the bid documents, and they will be present when bids are opened to be sure that all legal requirements are met.

- **The bidding process includes:**

    - **Advertisements announcing that the project is ready to bid.** An advertisement will include a date and place when bid documents will first be available, a date for a pre-bid meeting, and a date and time for receipt of bids.

    - **Formal opening of bids after the deadline for their receipt has passed.** Late bids—even if they are just minutes late—are rejected unopened. Bidders use forms supplied by the architects, certifying that they are bidding on all required components of the project, certifying that they have the necessary bonding, etc.

    - **Customarily, the bid goes to the lowest bidder, but there are exceptions to this rule.** Consult with your architects and attorney.

- **The library always reserves the right to reject all bids and start over.** This right is important, particularly if all bids are too high and it becomes necessary to redesign the project.

- **The pre-bid conference is important.** By answering any questions in front of all bidders, the architects try to make sure that no bidders can later claim that they were not party to basic information. Minutes are kept and distributed to all bidders. In many cases, the architects will state at the conference that all oral responses are non-binding, and that the written response to questions (in the form of an addendum to the specifications that is distributed to all bidders) is the only binding response.

- **Most bid documents include addenda issued after the pre-bid conference to clarify questions raised at the conference or other questions raised later.** These addenda are a routine part of the bidding process and should not be interpreted as a failure of your architects to do things right the first time.

- **Because of the importance of formal addenda, it's a good idea to warn your staff not to comment informally to prospective bidders when they visit the library.** Ask you staff to show bidders anything they want to see, but to refer all questions to the architects.

13. Groundbreaking

- **Groundbreaking is an important occasion.** Take advantage of its positive benefits.

- **Although the groundbreaking takes place out of doors, it's a great deal easier to entertain people indoors at the end of the ceremony.**

- **If you will be having speeches out of doors, you will need a PA system.** Many speakers cannot be heard out of doors, and many people with bad hearing cannot hear any unamplified speakers.

- **Plan groundbreakings for nice weather, and have contingency plans for rain.**

- **Be sure to invite all the right people.** Politicians thrive on library projects because they are great non-controversial photo ops. Also be sure to invite all current and prior board and staff members, all donors, the contractors and other businesses involved with the project, and the consulting professionals on the

project (architects, engineers, and consultants). Invite local school groups, clubs, chambers of commerce, etc.

- **Invite the news media.** Send out invitations in advance, and call or fax them the day before the event to remind them. When they arrive, provide fact sheets listing important names, dates, building features, etc.

- **Groundbreakings offer fewer photo ops than ribbon cuttings because there's no new building to see.** Provide an attractive substitute, such as young children participating in the ceremony.

- **Be sure to prepare the ground in advance.** Untouched ground frequently has the consistency of concrete. It's embarrassing to watch a major donor struggle to turn a teaspoonful of soil. Spade the ground up thoroughly and smooth it out the day before the ceremony.

- **Give everyone a chance to turn a spadeful of soil.** Libraries are egalitarian institutions, and many people want to feel a part of the process.

- **Don't count on speakers to cover the right subjects without being coached.** Among the things to be sure someone covers are:

    - **Recognition of all politicians** (even those who—very frankly—didn't do anything at all).

    - **Recognition of donors.** You may want to point out certain really major gifts, but be careful not to offend those who gave smaller amounts.

    - **Recognition of all board members,** including those who served during the planning process but whose terms expired before groundbreaking.

    - **Recognition of important support groups,** such as your library foundation, library friends, etc.

    - **Recognition of the hired folks,** including the architects, contractors, consultant, etc.

    - **General remarks on the important role of the library in your community and on the features of the new building.**

- **Consider finding an indoor space for post-groundbreaking snacks.** This is a good time to display floor plans and renderings away from the weather. (It's

also a good time to display in a delicate sort of way brochures asking for funding for specific pieces of equipment or brochures for inscribed bricks for a future plaza.)

14. Construction Management

- **Construction management insures that the building is constructed according to specifications, that work is carried out expeditiously, that the necessary coordination of various contractors takes place, and that problems that arise are dealt with rapidly and effectively.**

- **In many cases, the architects and the project manager provide this service.** This needs to be spelled out in the contracts between the library and the architects and general contractor. Among other things, you may wish to specify a minimum number of hours per week during which a representative of the architects will be present. The project manager may be an employee of the general contractor, or he or she may be hired as an independent.

- **Some libraries hire a professional construction management firm to represent the library during the construction process or to actually construct the building.** The use of such firms seems to be increasing, but you will need to have the respective roles of the architects, the construction manager, and the contractors clearly defined. This is important because some roles proposed by construction management firms are traditionally those of architects or general contractors. If you're not careful, you could end up paying twice for some services, or buying services that you may not need.

- **The project team will consist at a minimum of the architects, the hired project manager or construction manager (if you employ one), the contractors and subcontractors, a representative of the library, and a representative of the owner if the library is part of a larger organization.** The library representative can be the director, or a member of the staff to whom the project is assigned. That person's presence is essential.

- **Bear in mind that many large construction firms have relatively few employees.** They work by bidding, organizing, and supervising projects, not by providing their own employees to do the actual construction work.

- **The architects (or construction manager or general contractor) will work with the contractors and sub-contractors to establish a construction schedule.**

- **During the project, there will be regular weekly or biweekly meetings of the project team to be sure that work is progressing on schedule, to coordinate the work of all the contractors and subcontractors, to deal with problems, to answer questions, and to make decisions not requiring action by the full library board or other owner.** If the library board or staff have concerns, it's important that they be taken up immediately at these meetings.

- **The contractors submit pay requests (usually monthly).** These are accompanied by "lien waivers" for work done by subcontractors for the prior pay requests. A waiver of lien from a subcontractor assures you that the contractor paid the subcontractor the subcontractor's proper share of the contractor's last pay request, and that the subcontractor now waives the right to file a mechanic's lien for that amount against your library.

- **Normally the library holds back a portion of each request (typically 10 percent) to be paid only after all work by that contractor has been completed to the full satisfaction of the owner and architects.**

- **All projects involve "change orders," which occur when unforeseen problems arise, the owners change their minds, or problems with the bid documents are discovered.** All owners try to avoid change orders, because they are expensive. With change orders, costs are arrived at by negotiation rather than by low bid, and the result is inevitably more expensive. One economical way to help avoid change orders is to do the most thorough review possible of the bid documents before the project is put out for bid.

- **Because most projects involve change orders—particularly in expansion or conversion projects, where unforeseen problems can be discovered—every project needs contingency funds.** Typically, libraries set aside at least 10 percent extra for projects involving remodeling and at least 5 percent for new construction projects.

- **Be careful to establish and follow the proper chain of command.** In the normal chain of command, the subcontractors report to the contractors and the contractors report to the architects. If you see a contractor doing something you don't like, or you want to make a change, the proper thing to do is usually to contact your architects. In particular, do not make remarks to contractors or workers that may be construed as requests for additional services.

- **Occasionally a contractor will make a mistake and suggest issuing a credit to the owner rather than undoing the mistake.** Agreeing to something like this is tempting, particularly because doing things properly may delay the project, but

by accepting such offers some libraries have permanently limited the effectiveness of their buildings in return for relatively minor compensations. This is a good time for a review by both your architects ***and*** your consultant.

- **Some remodeling and expansion projects are conducted in two phases, with the library continuing to operate in the building the entire time.** Construction in phases is a tangled undertaking. Bids are higher because the contractor will not have access to the entire building at all times, and because the contractor will have to work around staff and library users. Users and staff will in turn be subjected to months or years of noises, dust, limited access, bad smells, and other undesirable problems. Two-phase construction will take a great deal longer than single-phase construction. Before electing two-phase construction, always explore the option of moving out and the comparative costs of two-phase vs. single phase construction.

- **At the completion of work, "punch lists" are prepared.** The architects and owner inspect the project with care, preparing lists of items that must be completed or corrected before the building can be considered complete. When the items on the punch list have been completed to the owner's and architects' satisfaction, the project is considered complete and the retainages are paid to the contractors. It is often a good idea to get assistance with punching your library, because both the architect and contractor may be wearying of the entire process and not eager to note all the remaining problems.

- **Some contractors will put extreme pressure on owners to pay all but minor amounts of retainages before all punch list items have been totally corrected.** ***It is essential that you resist these pressures.*** Once you have paid off all but a very small portion of the money due, contractors will tend to concentrate on large new projects rather than wrap up small details on old ones. The fact that you are holding back far more than the actual cost of making final corrections is the primary leverage you have to be sure that all the last minor items are fixed.

- **Before signing off on a project, the owner should receive:**

    - **A full set of operating manuals for the building and its equipment, a detailed walk-through of the building for all relevant library staff, and full training ("commissioning") on the operation of complex systems.**

    - **A set of "as-built" drawings for the building.** These are drawings modified to indicate all situations where actual construction details differ from the original plans. As-built drawings are essential for future repairs and

alterations, and they should continue to be modified whenever changes are made. Protect them fiercely.

- **Unless your as-built drawings are a freshly printed CADD set with all changes indicated, you will also need a clean set of drawings in a permanent medium.**

- **CADD discs are not an acceptable substitute for actual physical prints.** Anyone working on your building at a later time will want to see full-sized drawings, and CADD systems change so frequently that your discs are unlikely to be usable when you finally need them.

- **Library directors typically find that the construction process consumes a vast amount of their available time.** Boards should be prepared to provide extra staff funding if it becomes necessary to hire additional help for the director during construction.

15. Moving

- **Moving can be done by hired movers, by staff and volunteers, or by a combination of the two.**

- **Many issues will affect your choice.** How far do you have to move? What will the weather be like? Are you moving inside a building, where you may be able to move fully loaded bookstacks with stack-moving equipment? Do you have a labor union with complicating contractual agreements?

- **Small library moves are often done with staff and volunteers.** The main challenge is good procedural planning, particularly developing a method for knowing where each container of books goes on the new shelving.

- **Large libraries are often better off hiring professional movers.** Some companies specialize in library moves. You will probably need to bid this service, so a detailed RFP is necessary.

- **The most important components of a successful move are a detailed plan and a single person in charge.** Be sure your plan includes the current and new locations for each piece of furniture and for all portions of the collection.

- **Don't underestimate the complexity of relocating computer services.** Reestablishing a 100-microcomputer network is a major undertaking.

- **Moving takes more time than you might expect.** Since your library will be closed during most or all of your move, your announced timetable matters. Be sure not to blithely promise overly ambitious reopening dates.

16. Ribbon Cutting

- **Ribbon cuttings can be wonderful occasions if you plan them properly, but they can be sources of real embarrassment if things go wrong.**

- **Inevitably you'll need to move in and start using the building before everything is finished.** For this reason, don't plan to keep citizens out of the new building until the ribbon cutting takes place. When moving day is over, there are almost always items of furniture that have not arrived, punch list items that have not been completed, and workspaces where staff are just starting to unpack.

- **Libraries, like new stores, are therefore wise to have "soft" openings, providing public access and service for a few weeks before scheduling a major event.** When the time comes, unveil (for example) the building plaques and the donor plaques rather than the entire building.

- **It's usually a bad idea to do much out of doors.** Weather is undependable and outdoor acoustics are uncertain. If you want to cut the ribbon at the door and then have everyone troop into the new library, be prepared to cut the ribbon first and have speeches indoors afterwards. If you have outdoor presentations, you will need a good PA system and a contingency plan for rain or heavy winds.

- **Plan ribbon cuttings for nice weather.** Midwinter is often a poor time. Out-of-town participants will have a difficult time traveling to the ribbon cutting, and elderly donors may slip on the ice. People will need to enter the library the moment they arrive.

- **Be sure to invite all the right people.** These include politicians, board members (including those whose terms ended mid project), staff members, contractors and other businesses involved with the project, the consulting professionals on the project (architects, engineers, and consultants). And invite all of the citizens of the community.

- **You may want to have a special event for donors, but don't make it the main ribbon cutting.** The entire community needs to feel involved.

- **Speeches should be brief.** Among the important things to cover are:

  - **Recognition of the key people present.** These may include politicians, donors, board members (including those whose terms ended mid-project), and hired people who worked on the project.

  - **The locations of plaques and other forms of recognition.**

  - **Special functional features.** Building aesthetics are usually very visible, and you don't need to say much about them. Instead have someone dwell on convenience, services, efficiency, good functional design, and so on—all of which may not be intuitively obvious to non-librarians.

17. Ten-Month Post-Occupancy Evaluation

- **Most construction projects carry a one-year warranty.**

- **During the first year of occupancy, keep a careful log of problems that develop and what the contractors did to correct them.**

- **About ten months after the building is completed and accepted, conduct a thorough evaluation.** The key people in this evaluation are your architects, your construction management firm (if you have one), your library staff, and even your consultant if you want a completely independent opinion. Of all of these people, your staff members will have the best day-to-day knowledge of where problems exist.

- **If anything is not working correctly or proves to have been done wrong, it is *extraordinarily important* that this fact be noted and transmitted to the contractors before the warranty expires.**

- **This is your final chance to have many things done at no charge.** (Certain components of the building, such as the roof or some pieces of equipment, may have longer warranties, but don't take any chances.)

- **As with the punch list, insist that the corrections be made on a timely basis and to your standards.** Never let a vendor sweet-talk you into accepting something that is not quite right.

- **If your project will be conducted in phases, warranties on the first phase may have expired before subsequent phases are completed.** Unfortunately, some

problems are hard to see when work is continuing. If your project has more than one phase and will last more than a year, you may wish to require your contractor to provide a warranty on the entire project that extends for one year after the total completion of the project. This is particularly important for systems like HVAC that operate in both halves of the building.

18. Rewards for the Stressed-Out Librarian

- **At the end of your project, your library director will deserve a long vacation.** Depending on circumstances, he or she may also deserve a major bonus in pay.