The Architectural and Interior Design Planning Process

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ABSTRACT

LIBRARIES' RESOURCES, SERVICES, AND PROGRAMS depend upon the space layout and installation of certain types of furniture and equipment. Operating costs depend in large measure upon how well the facilities are designed. This article explains the planning process and focuses upon library building requirements wrought by the advent of electronic information technologies.

AN OVERVIEW

Libraries are object-intensive facilities. Their resources, services, and programs depend on the installation of certain types of furniture and equipment. Without shelving to house hard copy, there would be no place to put books, journals, documents, and other artifacts of the print world. Without microcomputers or terminals, CD-ROM players, printers, microfilm readers/printers, and photocopiers, it would be difficult to provide online services, CD-ROM information, or hard copies of micro media. Staff need service desks, workstations, and work areas to perform their jobs. Patrons perusing hard-copy resources also need places to sit.

Of course, where patrons sit depends on their personalities and how in-depth their browsing will be. Some people prefer to read or study in an attractive area and others couldn't care less. In any event, lounge chairs and sofas and chairs at tables or carrels are important library items. Few people are willing to stand for more than a few minutes while leafing through a periodical, studying a

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reference book, or researching a specific topic. Chairs have also become essential aspects of a large percentage of the online public access stations being installed today.

When OPACs first appeared on the library market, library planners believed that patrons would stand while performing quick searches. Although many patrons do not mind standing, many more prefer to sit. Besides, today's terminals are constantly being loaded with host databases. Browsing through these takes such a long time that sitdown stations are showing up everywhere. It is not uncommon, for example, to find a large academic library's reference area outfitted with four stand-up and twenty-six sit-down OPAC stations.

The problem is that each additional chair costs money, and construction budgets tend to disregard this fact. Funds are often encumbered for construction only, and monies for "loose" furniture must be garnered elsewhere. The same is true for electronic equipment (e.g., microcomputers and CD-ROM players) and general supplies (e.g., wastepaper baskets, pencils, paper, and desk sets). The construction budget ignores these completely.

Where plans for construction of new facilities are concerned, knowledge of the architectural contract and the resulting contract documents (blueprints and specifications) is essential. It is imperative to know exactly what these do contain. In some instances, all "millwork" or custom built woodworking is to be designed and constructed under the architectural contract. Millwork often includes custom built service desks, built-in display cases, and similar aspects of interior design. On the same project, shelving may also be considered part of the architecture. This is often the case on very large installations; for medium to small installations it is not. Funding for shelving falls into the loose furniture category, which also includes all library technical furniture (tables, carrels, chairs, atlas stands, etc.) and office workstations and chairs. Surprisingly, carpeting is nearly always part of the architectural contract because it provides the finished floor.

Sometimes the budget contains all the items necessary to build and operate the facility—construction, loose furniture, supplies, and electronic equipment. The library administration and staff are informed that a certain amount of money is available, and it is up to them to divide the sum logically. If the renovation/new addition comes in over budget, there is less money to spend for other items.

Having enough money to spend on the proper furniture, supplies, and equipment is not enough, however. The idea is to be cost effective and maintain a low overhead once the project is complete. The building must be able to operate relatively efficiently. Here, the design of the interior architecture is extremely important. That is one of the reasons why library consultants are kept on projects beyond the programming stages. They critique the interior architecture and, later, the interior design space plan.

For example, a proliferation of dividing walls promises operational inefficiencies and thus more staff. Walls impede traffic flow which, in turn, forces employees to waste considerable time getting from place to place. Additional floors or more than one entrance also demand more staff. Too many libraries have had to add more service desks/control points—and employees—to prevent security problems.

It is logical to assume that the interior architecture affects any building's space layout possibilities. An old school converted into a library may have long corridors and a variety of cinderblock walls that once delineated classrooms. An award-winning public or academic library building may feature a vast central atrium, "flying" staircases, and many attractive but unusual areas. In both cases, interior architecture is rather inflexible and limits layouts. The spaces that are created within the envelope are usually characterized as fixed function; these tend to resist logical rearrangement.

For example, if a school was designed as a classroom facility, only activities that fit into 400 square feet segments will function properly. Few library collections have logical breaks which enable them to fit neatly into spaces that are just that size. An award-winning building's central atrium can be an important aesthetic. Its primary function is to bring a sense of grandeur to the interior. One can look up and see through to the next story or look down and view the floor below. Unfortunately, a central atrium creates a "ring around the rosey" effect. Patrons and staff must walk in circles to get from here to there.

For the budget conscious, it is important to note that atriums are also nearly as expensive to heat, ventilate, or air condition as the full floors they replace. Furthermore, buildings with atriums are very difficult to balance mechanically. Service calls that require fixing such gadgets as malfunctioning vents, fans, circulators, pumps, and blowers become a constant fact of life.

Filling in a central atrium is always a solution, but it is one thing to tear down the interior walls of a 1950s school building and another to deck over the glorious atrium of an award-winning building. In both situations, the expense may cause a public furor, but the protests are bound to rise to untenable heights whenever political forces believe that bureaucrats are about to destroy a precious work of art. Similarly, if the school building was erected at the turn of the century, it immediately becomes a historic structure. Should it be replete with special details and fine appointments, resistance to any architectural changes could be defended by an equally ferocious political battle.

Old school buildings are not the only historic structures. Libraries with historical significance seem to be everywhere. There are any number of seventy, eighty, and ninety year old structures still functioning, and they house a variety of libraries—public, academic, governmental, and private. These buildings evoke great affection, even those that have not been well maintained and, thus, have deteriorated. Communities may have ignored their existence, but once one of these structures enters the spotlight, it is amazing how many people profess kinship. The populace tends to view the structures as examples of a gentler age and something they wish to return to—even if they were never there.

Indeed, some of these structures feature architectural details that are either too expensive to fund today or literally against the law. For example, old buildings tend to have impressive exterior stairs that were built without regard to barrier-free environments and, of course, do not comply with Americans With Disabilities Act (ADA) guidelines. Sometimes a stair leads to a very handsome entrance flanked by difficult to open heavy wooden doors. Not only are these doors phenomenally expensive to replace, they also are incompatible with ADA guidelines.

Once inside one of these old buildings, the interior architecture and related interior design all too often limit the ability to conduct state-of-the-art library services. An imposing but inflexible teak and granite circulation desk may take up far too much room. In order to add terminals and other details of automated circulation services, makeshift work areas have been created behind and to the side of it. In close proximity to the desk are one or two wood paneled reading rooms whose floors were not constructed to bear the 150 pound per square foot live loads that library bookstacks presently require. Since the majority of the collection was not expected to be open to the public, it was placed in a once closed and now open access metal self-supporting stack whose small entrance is located to the back of the facility. Within the stack, the only access to the second and third tiers is via a narrow metal stair.

The inflexibility of this building's design implies that there is only one way to perform library service—and, at the time it was erected, that probably was the case. Its architect wanted to create an important work of art that could support processes that were clearly defined.

Of course, library services have changed dramatically over the ensuing years. Now their facilities are expected to house a wide variety of activities, some which came into existence just recently, perhaps only yesterday. Indeed, radical changes in library missions and goals are occurring daily, but the buildings that are expected to support these activities are still being designed with century old rules in mind. The result? A host of new structures that are quickly becoming outdated. The situation is so common that library consultants often receive urgent telephone calls late into the night from harried librarians administering inflexible, barely relevant, buildings that are less than five years old.

Until ADA went into effect, any number of new buildings were constructed with the older models in mind. Too many buildings were designed with requisite impressive exterior stairs that led to equally impressive but hard to open front doors. Administrators now find that they must scurry to find places to add exterior ramps or elevators as well as inexpensive ways to install automatic doors.

Beyond inappropriate exterior access, another difficulty concerns the all too common confusing internal pathways. First time patrons complain that they cannot find the interior elevators or stairs. It is not uncommon to find disabled users being forced to traverse long distances before they reach the ramp that will lead them up or down a two step level. Of course the most universal inadequacies relate to insufficient collection and user spaces; nearly nonexistent electrical and telecommunications wiring; too few places to install equipment-dedicated seating; and inappropriate meeting, conference, or training rooms.

Because new construction or reorganization/renovation can be costly, it is not surprising that, in an era of tight money, academic, public, corporate, or governmental financial officers resist making any changes at all. Although librarians take it for granted that we are living in a global information economy, arguments may be forthcoming that it is not necessary to upgrade the building. In five years the book will disappear. With dial-in capabilities, everyone will have access to the virtual library. Or conversely, adding substantial electronics to a building is an expensive and unnecessary use of space. Spending money on hardware and software will diminish the book budget.

When money is tight, allocating resources does tend to be a zero sum game. Furthermore, whether books or electronic equipment are more attractive tends to be in the eye of the beholder. While too many funding authorities are finding it increasingly difficult to believe that hard-copy collections are still growing, in this age of high speed data, librarians still find ways to relegate microforms and microcomputers to small enclosed rooms in dreary basements or other dismal places.

The irony is that, while electronics are threatening to chase print-on-paper out of some facilities, hard-copy publications are still proliferating. Everyone thinks there will come a day when hard-copy collecting will come to an abrupt stop, but more than likely that event will occur far into the future. An increasing number of books and periodicals are being published in third world and developing countries, especially in the far east. Scientific subjects are multiplying and diversifying. New medical practices and innovative drugs command individual subclassifications. International law is becoming of interest to the ordinary person in the street. That is why few buildings are being erected without some place to install compact shelving.

Depending on the method of construction, the difference between a floor that has the loading capacity of 150 pounds per square foot live load or one with 300 pounds may only be a dollar or two more for each square foot erected. To minimize this cost on the upper floors, only one floor may be designated for compact shelving. In other situations, a quadrant slicing through the building's floors may have its columns and floors reinforced. In many cases, the most inexpensive method is to place compact shelving on the ground floor. This tactic usually requires only a thicker floor slab—provided, of course, the subsoil can support the weight of fully loaded compact stacks. The rails upon which these units slide can either be a part of the floor slab construction or added later. If the latter is the case, then the floor to ceiling height should be sufficiently high to take the addition that the track assemblies require.

At an overwhelming majority of libraries, an installation of compact shelving appears to go hand in hand with increasing reliance on electronic services. No one wants to stop collecting hard copy, but space must be created in the public service areas for online searching and CD-ROM workstations. After all, online services and local area networks promise to overcome the limits of architecture and, at the same time, put a cap on the number of renovations to be made. Within the telecommunications cabling, there will be streams of data that must be able to pierce ceilings, walls, and floors.

Here, a major consideration concerns the amount of electrical and telecommunications power that is brought to the building from the various utilities in the planning stage. It is important not to be too conservative. In the near future more is bound to be required.

A rough rule of thumb is that each piece of electric/electronic equipment requires five amps. For example, five times sixty pieces of initial equipment amounts to 300 amps, where those sixty include microcomputers, terminal printers, copiers, microform machines, and electric pencil sharpeners—and coffee pots, microwave ovens, toasters, and so on. Do not forget the substantial amount of electricity required to run all the mechanical and electrical building equipment—heating, ventilating and air conditioning (HVAC), and lighting. In a moderately-sized building, the HVAC and lighting needs may add up to more than three times the amount needed by information systems and workstation equipment. Although the former's requirements may stay static, the latter's will not. The number of electric/electronic devices is bound to keep on growing. It is only a small increase in cost to bring more electricity to the building in the initial planning. Larger cables may be all that is required. Once construction has been completed, bringing more power may require a large addition of money. Stringing cables is a labor-intensive process.

Another consideration revolves around the availability of cableways, ducts, and other aspects of wire management within the facility. Future retrofits can be expensive if horizontal and vertical power distribution has not been planned carefully. It is not necessary to run substantially more wiring than initially needed. Rather, it is wise to plan building details that will allow wiring and cabling to be added sometime in the future. Most people will think twice before they drill into a marble wall or through good oak molding. They will go to lengths (no pun intended) to avoid unsightly wires from being draped from one end of the room to another.

Knowledge of local codes is also important. Some codes restrict how wiring is run in the plenum above the suspended ceiling; ducts must be provided for that purpose. To bring the wiring down, channels may have to be cut in the plasterboard around columns or in walls. To run wiring along the floor, attractive and newly installed broadloom may have to be cut and spliced and the cement beneath chiseled to create trenches.

If the library designer chooses broadloom, then the option of using undercarpet cabling (flat wiring) closes. The fire code allows carpet tile but prohibits broadloom from hiding this form of wiring. Undercarpet cabling is an excellent retrofit device.

Obviously, the best suggestion is to prevent major wiring problems in the planning stage. During the planning process, ground rules should be created that minimize inflexibilities and thus future expenses. Architectural solutions should come first and interior design solutions second. An architectural solution may be a cellular floor and cable trays along upper walls, while interior design solutions may consist of furniture containing wire management. It is essential that these ground rules be followed during the design phases and not jettisoned the first time a schematic is displayed or opposition is voiced.

For example, since carpet tile costs about 20 percent more than broadloom, it is often hard to sell it to the powers that be. It is clearly the better choice, however. Not only can it act as a future retrofitting device, it is also easier to maintain. One can simply lift up a dirty tile and exchange it with a clean one—perhaps from attic stock or underneath a desk. Tiles in very active walkways can be replaced on a regular basis, perhaps every few years, without affecting any other areas.

Other suggestions to minimize inflexibilities concern the shape of the building's interior. Simply shaped spaces lend themselves to rearrangement whereas complicated ones do not. Whenever the spaces are simple, the resulting areas can be used in any number of ways. Complicated spaces, on the other hand, tend to define the activities that can and cannot be performed. For example, a large open area can house books, seating areas, service points, or instructional facilities, often by simple rearrangement, but an interior "street" that threads through alternately narrow and wide spaces may force the adjacent square footage to be used only as originally intended—as offices, group study rooms, storage areas, etc.

Another example of important guidelines concerns the roof and the suspended ceiling. Under no circumstances should either be dropped over the main stacks to minimize construction costs. This is a tactic used by many architects. In a single story building, initial costs can be somewhat lessened by reducing the total cubic area to be erected. In a multistory building, by dropping the suspended ceiling and letting the ducts run just above it, less interior space has to be finished which, in turn, minimizes costs. At first glance these tactics appear to have a second benefit—the possible reduction of utility costs as well. There is less space to heat, air condition, or light. Unfortunately, by dropping the roof or the suspended ceiling, spaces meant for human habitation in the public service area are created that are only seven and one half feet tall.

Although this is tall enough to accommodate nearly everyone—except perhaps one or two of this nation's basketball players—it can cause the feeling of claustrophobia. Most of us live in homes with finished ceilings about eight feet high, and we are conditioned to like public spaces with ceilings that are even higher. In a place of public accommodation, seven and one half feet is just too low.

Designers agree but argue that few people stay in the stacks for hours on end and reading areas with taller ceilings tend to be only steps away. But what will happen in the future is the primary concern. More than likely, in five, ten, or fifteen years a percentage of bookstacks will no longer be needed. The materials—perhaps bound indexes or periodical backfiles—will be removed and access to the resources will be substituted with online services or CD-ROM networks or some other form of networked micromedia. How can a library recycle public service space that is only seven and one half feet high?

The same question relates to self-supporting stacks. During the open access heyday, from the early 1950s through the late 1980s, purchases of hard copy grew geometrically decade after decade. To squeeze all this material into buildings with insufficient floor space, self-supporting stacks were installed in libraries all over the country. The height of three tiers amounted to about twenty-three feet. From slab to slab, even the lowest ceilinged building had two floors with about twenty-four feet. Thus, self-supporting stacks can be found in any number of "modern" buildings as well as those that are nearly a century old.

Typically, these structures depend on uprights that pierce each deck and support the stacks above. To demount even one stack, it is essential to start at the top; to do otherwise would cause the whole structure to fall down. Unfortunately, the space on the first floor is what everyone covets the most. The only way to make that space available but leave the upper tiers of the self-supporting stack intact, is to remove shelves and leave the uprights right where they are. The result is an unattractive area studded with posts every three feet. Because the problem is so endemic, there are any number of libraries that contain at least one such area. Witness seating in an academic library with three foot wide student carrels shoved between the uprights. At more than one major public library, workstations have been installed in the decks, and the staff forced to work in them often complain about the conditions vociferously.

The gist of the foregoing discussion is to avoid creating unpleasant spaces in public service areas. They will affect the library's future ability to function effectively. For small libraries or libraries with very long runs of bookstacks, for example, the floor to finished ceiling height should be a minimum of nine feet, while a better guideline is eleven and a half feet. It not only is less claustrophobic, it also enables better air circulation and light distribution—provided lighting runs either perpendicular to the stacks or is set in a nondirectional pattern on the ceiling. Further, the fire code requires eighteen inches from the top of an obstruction to the bottom of the sprinkler head. Although one can install sprinkler heads that are flush to the ceiling, in the less expensive installations they tend to protrude an inch or two below. This diminishes the required clear space above the stack canopies. In several well-publicized incidents, top shelves had to be removed by order of the local fire marshall. At one famous law school, the library had to move one-seventh of the collection elsewhere. Everyone knows that off-site storage is an expense they would rather not incur.

LIGHTING

Another suggestion to hold down capital and operating costs concerns the lighting system. Today, there are any number of wonderful modular systems on the market. Fluorescents come in a wide variety of shapes and sizes, some of which are high output and last for six years or more. Electronic ballasts, which do not drip or buzz and provide dimming and features heretofore unheard of, are widely available. Metal halide high intensity discharge lamps are perfect for very high ceilings or for indirect lighting. These can even be installed in fixtures that appear to be antiques.

Incandescent lighting, on the other hand, is to be avoided except for some exhibit areas. This form of lighting tends to be quite inefficient. In an ordinary bulb, approximately 90 percent of the electrical energy results in heat. One person described an incandescent bulb as a heating device that just happens to create light. Not only is the energy wasted, but it puts a load on the air conditioning system during its season of operation and thus escalates costs.

PLANNING FACILITIES

Designing lighting systems is in the purview of an electrical engineer, while designing mechanical systems falls under the jurisdiction of the mechanical engineer. An architect must work with civil, electrical, mechanical, and structural engineers, landscape architects, and cost estimators as consultants unless they are members of the same firm. Those companies employing both architects and engineers are known as A/E firms. Other specialists involved might be acoustical, audio/video, or computers/networking consultants. Somewhere between 40 and 45 percent of the architectural fee is paid to these consultants.

Regardless of whether the project is a renovation, renovation/addition, or new construction, the various phases of design are known as schematics, design development, construction documents, and contract administration. During the schematic phase, the architect presents the design concept for the project. Elevations—two-dimensional representational drawings of the exterior and interior—are provided as are block layouts of the interior. A model or three-dimensional drawings may be created, but this depends upon whether or not the project is large and/or they are specifically required by the contract. Drawings provided by the architect during schematics are typically used for fund-raising purposes. A rendering—a representational drawing of the exterior or interior—is usually considered a separate item (see Figure). Since it is a very desirable item, it should be budgeted.

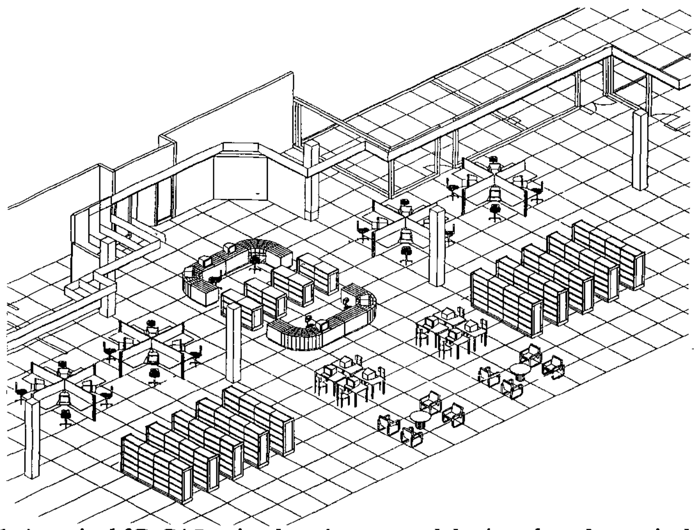

Figure 1. A typical 3D CAD wire drawing created during the schematic design phase

In the next phase, design development, the design is further refined and details are shown more fully. The work of all the consulting engineers is included in this phase. The last design phase is known as construction documents. This is the time during which the design is completed and the blueprints and specifications are sent out to bid. Once the bids are let, the drawings and specifications become part of the construction contract which explains the term contract documents. The last phase is known as contract administration. The architect provides interpretation of the documents for the contractor, acts as liaison to the owner, and generally, provides visits to the site and monitors the payment to the contractors. More in-depth coordination and inspection may be provided by a construction manager, still another professional service the library may retain.

The foregoing events outline a list of outside people with whom the librarian may meet and have to interface with during the project. Although some of these people may only meet with the librarian once or twice, they are working quite diligently in the background. For example, during the schematic design stage, the librarian may not even see the engineers, but they review the design concept's feasibility and probable costs. At this juncture, the engineers may also create drawings for the architect, but drawings will be similarly schematic.

Thus, at the schematic design presentation, a troubling aspect of the design should not be put off to a later date. Too many people are involved. Once sign-off is achieved, a problem that may have been minor rises in magnitude as the next phase, design development, begins.

In design development, the engineers produce rather detailed drawings just as the architects do. If the problem is not pointed out by the librarian to the design professionals until the middle or end of this phase, redrawing or otherwise making changes to yesterday's decisions will cost the architect money. The engineers will demand additional fees. That explains why so many architects become resistant to change as the design process flows toward completion.

Engineers typically charge on the basis of a flat fee for so many hours of work while architects usually charge a percentage of the construction costs. In other words, the amount of work the engineers are to perform for the architect is clearly described. Additional work means additional fees. The architect, on the other hand, acting as a major designer and coordinator of the entire project, does not really know the exact amount the client will pay until the project is completed. Therefore, a concerted effort is made to keep the consultants on a tight rein. Unnecessary redrawing is frowned upon and, once drawings are signed off on, attempts are made not to alter decisions.

Certainly, architects can charge the client a flat fee or an hourly rate to redraw, but usually the client resists that effort. Indeed, the architect's hourly rate may be put into the contract just in case extra work beyond the scope of the contract is necessary. Architects can also enter into a flat fee or hourly rate contract but most commonly sign contracts that pay on the basis of a percentage of the construction costs, often with minimum and maximum limits. For a project estimated at $5 million, the minimum fee may be $400,000 and the maximum, $450,000. On the low end, this protects the architect so that good work is not penalized. If the project comes in under budget, no less than 8 percent of the construction cost will be received. If costs escalate, the architect is not rewarded. Occasionally the contract contains a stipulation that enables the architect to receive a bonus if the project comes in far under budget. This rewards everyone for a job well done.

Although many people believe to the contrary, cost overruns may be no fault of the architect. Rather, they may relate to the client's requirements or unexpected difficulties encountered during construction. The client may believe that the architect's cost estimates are not in line with local conditions, or may demand an addition—such as a mezzanine—to the design. When the bids arrive, to the client's chagrin, costs per square foot are much higher than thought. Other unexpected expenses may arise. For example, although test borings were made, an underground stream may be found flowing right in the middle of the site once excavation begins. Extra funds must be quickly found to divert it. An underground stream may also cause the design to be substantially changed even though some construction has already occurred. Redrawing at such a late date will expand the scope of work and cause extras to be paid to the architects, engineers, and contractors.

Extras are to be expected on most projects. For smaller buildings, it is hoped, those that occur are limited in scope. For larger buildings, there is always something—perhaps minor—that requires additional money. For example, people in systems management make a decision to purchase a new library information system and it needs to be wired according to the equipment manufacturer's specifications. Unfortunately, those specifications vary from those detailed on the electrical engineer's drawings. Or the new building inspector refuses to let the compact shelving operate unless additional security devices are installed. Professionals in the built environment design field nearly always attempt to build in contingency monies into their cost estimates. A contingency of 10 percent is considered reasonable, but people interested in the bottom line try to reduce this. Some, unfortunately, try to eliminate it entirely.

Extra expenses also occur when the process is slowed by the arcane methods of bureaucracies and ferocious battles—sometimes over personality problems—that often occur in the political arena. For a new building, from genesis in the mind of the librarian to actual opening day may be as short as two and one half years. The average is five years. Some projects have taken fifteen years to be completed. A minor renovation may take a year to a year and a half, while a major renovation will take as long as constructing a new building.

During the predesign phase, long before the architect is hired, a library consultant may be retained to perform site selection or write the building program. Here, a request for proposal (RFP) must be sent, consultants interviewed, and the work performed. From beginning to end, the time span for this aspect of the process is at least six months. For a new addition or brand new building, test borings must be performed, or the land surveyed, and so on and so forth, which requires other professionals to send in proposals, be interviewed, and then selected and retained. Before an architect is hired, it usually takes at least three months to advertise, interview a sufficient number of firms, choose one, and then sign the contract. Unless fast tracked, the entire design process takes a minimum of nine months to a year. Often it takes longer because approvals must make the rounds. Unless also fast tracked, construction can take a minimum of another year. If problems occur or the building is sufficiently large, it obviously will take longer.

Once the architect begins to work, an interior design firm may need to be retained. Many architectural firms can provide interior design, and some clients prefer to use them because it allows the librarian to deal with only one set of people. Other clients believe that it is better to use interior design firms because they are more knowledgeable about furniture, colors, and textures. After all, they concentrate their efforts in the field.

Just as architects have professional societies, such as the American Institute of Architects (AIA), so do interior designers. Their most well-known society is called the American Society of Interior Designers (ASID) and, similar to the AIA, it confers certification. ASID members know how to interface their work with that of the architect so that lighting falls over tables and carrels in the reading areas and hanging cabinets mount on walls that can bear their weight.

One of the first tasks any interiors person should perform is to test the building program within the building envelope—even if this task has already been performed by the architect or library consultant. All major pieces of furniture should be placed in the plan to make certain they fit. The test acts as a reality check. Does the program call for more shelving than the building can hold? Is there enough room for the workstations specified for the work areas? Once this is done, the designer can go about the business of space planning all the areas, designating which furniture requires lighting and telephones, electric receptacles, and data utility jacks; visiting the showrooms with the client; choosing the furniture—colors and textures—and ultimately creating a set of interior design contract documents.

For a library, the documents are typically divided into three—library technical furniture, shelving, and office furniture. Sometimes the first two are combined, but this limits the number of bidders. There are times, however, that furniture is not procured by bid but rather by state contract. Occasionally, one vendor will be given the entire job on a cost plus profit basis.

The following table provides sample furniture prices that were actually received for a court library. Unit prices are obtained so that different items can be added or deleted at will.

Conclusion

The foregoing price list does not indicate the time spent detailing furniture specifications: height, sizes, surface finishes, upholstery, edging, wire management, drawers, cabinets, and so on. Because the

SAMPLE FURNITURE PRICES

Area	*Unit Number*	*Price in dollars*	*Subtotal in dollars*
1. Circulation Desk			
Chairs, swivel, castered	8	326	2,608
42" H, SF shelving	7	115	805
Book trucks	6	326	1,956
Desk counter, 55' long	1	18,150	18,150
2. Circulation Work Area			
Terminal workstations	6	1,725	10,350
Files	8	788	6,304
90" H shelving DF	16	296	4,736
3. Circulation Librarian Office			
Desk	1	1,200	1,200
2 Drawer files	2	645	1,290
Guest chair	2	240	480
4. Staff Lockers and Mail Area			
Lockers	10	375	3,750
Mail counter 6' long	1	1,500	1,500
Bulletin board	1	105	105
5. Staff Lunch Room			
Lounge chairs	2	350	700
Sides tables	1	325	325
Dining tables	1	300	300
Dining chairs	4	150	600
Bulletin board	1	105	105
Magazine/newspaper holder	1	100	100
6. Freight Staging Area			
80" H industrial shelving	6	240	1,440
90" H SF shelving	6	187	1,122
Flat dolly	1	220	220
Two-wheeled dollies	2	150	300
Book trucks	2	326	652
7. Current Periodicals			
90" H DF periodicals display shelving	21	618	12,978
42" H newspaper shelving	6	500	3,000
Lounge chairs	16	350	5,600
Side tables	6	325	1,950
4' × 6' Reading tables	2	870	1,740
4' × 7' Sloped-top tables	2	870	1,740
Readers chairs	16	240	3,840
8. Back Periodicals			
66" H DF compact shelving	50	320	16,000
90" H DF shelving	20	296	5,920
Microform files	24	900	21,600
Counter 9' long	2	2,250	4,500
Swivel castered chairs	3	326	978
9. Reference Area			
2'-6" × 6' OPAC tables	4	800	3,200
4' × 7' Index tables	2	1,409	2,818
4 Drawer lateral files	10	788	7,880
Atlas cases	2	668	1,336
Computer stations 2'-6" × 4'-0"	8	1,000	8,000

SAMPLE FURNITURE PRICES *(Continued)*

Area	*Unit Number*	*Price in dollars*	*Subtotal in dollars*
Reading tables 4' × 6'	6	870	5,220
2' × 4' Carrels	14	625	8,750
Reader chairs	58	240	13,920
90" H DF shelving	36	296	10,656
42" H DF shelving	36	350	12,600
10. Rare Books			
2' × 4' Carrels	37	625	23,125
Readers chair	37	240	8,880
11. General Collection & Study Area			
90" H DF shelving	182	296	53,872
4' × 6' Reading table	12	870	10,440
4' Round table	4	490	1,960
Readers chair	64	240	15,360
2'-6" × 4' OPAC table	1	800	800
Window seating 18' long	2	3,000	6,000
12. Court & Personnel Work Area			
4'-6' Tables	2	870	1,740
Reader chairs	8	240	1,920
13. Public CALR			
Terminals workstation	9	1,500	13,500
Swivel castered chair	11	326	3,586
2'-6" × 3' Table for typewriter	2	450	900
14. Microforms Area			
Reader chair	12	240	2,880
4' × 6' Table	2	870	1,740
Magazine collection towers	8	1,015	8,120
Total			$368,120

bidding process tends to be inexact and similar products of one manufacturer differ from another, the installation phase is fraught with a variety of potential problems. The winning bid's double face shelving may be outfitted with end panels that protrude an inch too far into each aisle. One range is lost for every six installed. This is the type of field condition that causes librarians stress. Where similar problems eventually solved by the architects or their engineers generally pass unnoticed, they occur with great fanfare here. Librarians understand the nuances of furniture, and it is just this understanding that can cause the greatest difficulties. The designer has several ways to deal with the situation. An obvious one is to reject the end panels and withhold payment. Another, perhaps more judicious, tactic is to see if the interior designer can redesign the area so that the dimensions are not critical.

Here the point to be made concerns letting professionals do their jobs. A wise librarian should keep tabs on the entire process—from architectural design through furniture installation once the ribbon is cut and the doors open wide. It is up to the library staff to operate efficiently and maintain a job well done.