

GENERAL DESIGN GUIDELINES

TABLE OF CONTENTS

SUBJECT	Page
Access, General.....	2
Acoustical Treatment.....	2
Aisle Width.....	2
Alarm Systems.....	3
Building Design, General.....	3
Ceilings.....	3
Communication Wiring – See Wiring, Communication / Electrical	
Control.....	4
Drinking Fountains.....	4
Electrical Wiring – See Wiring, Communication / Electrical	
Energy Conservation.....	4
Exhibit Space.....	4
Exterior.....	5
Floor Coverings.....	5
Floor Loading Capacity – See Building Design, General	
Glass Treatments.....	6
Heating / Ventilation / Air Conditioning Systems – See Mechanical Systems	
HVAC Systems – See Mechanical Systems	
LEED Certification.....	6
Lighting.....	7
Mechanical Systems.....	8
Parking.....	9
Shelving, Metal.....	10
Signage.....	10
Slotwall Display Units.....	11
Wall Coverings.....	11
Window Treatments.....	11
Wiring, Communication / Electrical.....	11
LEED Certification.....	11

GENERAL DESIGN GUIDELINES

ACCESS, GENERAL

A small to medium size library should have only one main entrance which serves everyone entering the building, including pedestrians from the street and library users entering from the parking lot.

The public entrance should be highly visible and inviting. It is important that the entrance be easily accessible for all persons, including children, senior citizens, and persons with disabilities. For this reason, it is desirable not to have steps leading to the entrance.

Use a double door vestibule to prevent drafts and heat loss. Doors must be easy to open and clearly marked "ENTRANCE" and "EXIT".

Any secondary exit should preferably be located so that it is visible from the circulation desk. All secondary exits should be equipped with door alarms that signal when the doors are opened. (See additional notes under ALARM SYSTEMS)

ACOUSTICAL TREATMENT

Sound control in a library is an important aspect of the building. Efforts should be made to minimize disturbing noises as much as possible for the benefit of people who are merely browsing through the collection as well those who are staying for longer periods reading or studying.

Sound control can be achieved in part through special attention to the selection of materials for walls, ceilings, floors, and windows. It can also be effected in the general layout of various areas, traffic through these areas, and the arrangement of furnishings.

Special Attention should be given to sound proofing certain areas, such as restrooms, photocopying areas, conference and meeting rooms, shipping and receiving areas, and mechanical equipment rooms. A special effort should be made to locate mechanical equipment rooms away from reading/studying areas, conference rooms, or workrooms and offices.

AISLE WIDTH

Minimum clear aisle width between stacks is 36", with a preferred width of 42" where possible. Shelf height in stack areas is unrestricted. If a person in a wheelchair must make a turn-around, the minimum required clear width is 42".

Minimum clear aisle space at magazine displays shall be 36" wide. Maximum reach height is 48". The minimum low forward reach is 15 inches.

GENERAL DESIGN GUIDELINES

ALARM SYSTEMS

Heat and smoke sensing devices are required. It is preferable that the system be directly linked to the nearest fire department. The control panel should be located in the vicinity of the circulation desk area.

All secondary exits should be equipped with door alarms that signal when the doors are opened. Because of the time it will take for a staff person to get to an exit once an alarm has sounded, consider equipping the door with a delay mechanism which will prevent it from being opened immediately. An alternative would be to place a video camera at each secondary exit with the capability of videotaping a person exiting through the door. If this is done, at least one monitor should be located at the circulation desk.

BUILDING DESIGN, GENERAL

Flexibility is the key word in library building design. The library must be as totally flexible in space use as possible. Like the society it serves, it must be able to adapt and adjust to meet the changing needs of that society.

In physical terms this means a design that is modular with as few permanent walls as is functionally possible. Where walls are required, it is preferable that they be modular and easily removable.

Library book stack sizes should be taken into consideration when determining the location and size of columns. Columns should be located with multiples of 3'6" between them (3' for stacks; 4' for end uprights and panels; 2" for irregularities in pouring).

Floor loading should be 150 pounds/square foot live load for normal usage and 300 pounds/square foot for microforms and compact shelving.

A flexible design also means being able to accommodate all present and future technology for at least the next 20 years. The building design must include a wiring plan which will enable power and communications to be easily provided to any area of the facility. (See WIRING, COMMUNICATION / ELECTRICAL)

CEILINGS

A suspended ceiling, using 2' x 2' acoustical ceiling tiles, is recommended for use throughout most of the library. A white or off-white color tile and framework is recommended.

A painted wallboard ceiling is recommended for use in the restrooms and the custodial closet. An epoxy paint should be used.

COMMUNICATION WIRING – See WIRING, COMMUNICATION / ELECTRICAL

GENERAL DESIGN GUIDELINES

CONTROL

Because there will be times when staffing is minimal, one or two employees, easy control must be possible throughout the building.

Entrances, exits, and restrooms should be in easy view of staff workstations.

At some point the library may use an electronic theft detection system to prevent the unauthorized removal of library materials. Such a system would be installed near the main entrance to the library.

DRINKING FOUNTAINS

A drinking fountain should be located in the area of the restrooms. Be sure to note ADA requirements regarding drinking fountains.

ELECTRICAL WIRING – See WIRING, COMMUNICATION / ELECTRICAL

ENERGY CONSERVATION

Energy conservation is an important consideration for the library, especially in terms of long term operational costs. Special attention should be given to the following: adequate insulation; a minimum of high heat loss areas; thicker walls and roofs to provide insulation; a limited flow of cold and hot water at lavatory taps; use of light-reflecting wall surfaces; adequate number of zones of temperature control so areas are not overheated or overcooled; and a control system which can be set to automatically adjusted to hours of operation. See also LEED Certification requirements.

EXHIBIT SPACE

The library should be able to accommodate a variety of exhibits, including wall hanging exhibits and freestanding exhibits. Exhibit space should also be provided for the display of posters, announcements, etc.

Picture hanging molding is to be provided in the meeting room and in any other areas designated by the staff. The preferred type of molding is that which permits hanging with wires using “S” hooks as well with tacks.

A lighted display case with showcase windows is to be provided for exhibiting freestanding displays. The display case is to be located in the vestibule.

Vinyl covered bulletin boards, of varying sizes, are to be provided for displaying various items, which can be tacked to the surface.

GENERAL DESIGN GUIDELINES

EXTERIOR

The library should be architecturally distinctive, yet compatible with the immediate area. The site should be planned to afford safe, well-lighted, easy access for persons of all ages at any time.

The library should be inviting in approach with minimal impediments to easy access. Plan only one public entrance point and a single, controlled exit point. Use wide walkways that avoid the use of steps and steep inclines.

All exterior building materials should be of permanent or durable finish, requiring minimal painting or staining.

The major electrical service into the building should be underground.

Exterior lighting should be provided to allow easy night-time access and also as a deterrent to vandalism. The exterior lighting should be on time switches so it will automatically turn on and off.

Weatherproof outlets for water and electricity should be located on all major exterior sides of the building. They must be of vandal-proof design.

Attractive landscaping and ground plantings should be provided. Easy maintenance is a primary factor to consider when planning the landscaping. Every effort must be given to simplify the care of the grounds, including mowing grass and removing snow. See also LEED Certification requirements.

An easily accessible book return built into the building is generally preferred, though freestanding units are sometimes more practical. The return should be highly visible to library users. Serious thought should be given to the anticipated number of materials which will be returned during hours the library is closed so return will be large enough to handle the volume of materials returned. Consideration should also be given to fire deterrence and other acts of vandalism, especially in situations where returns are built into the building.

A bicycle rack for a minimum of six bikes should be provided. It should be convenient to the public entrance.

FLOOR COVERINGS

Floors should be carpeted in all public and staff areas except where specified otherwise. Consideration should be given to the carpet's acoustical performance, wearing performance, color fastness and texture, fire resistance and non-allergenic qualities, installation and recommended maintenance.

The use of carpet tiles is strongly recommended because of the tremendous flexibility they afford. Most importantly, they will accommodate under carpet cabling for electrical and communication wiring. Also carpet tiles can be replaced relatively easily; they can even be switched with tiles from other areas of the building where traffic has been minimal.

GENERAL DESIGN GUIDELINES

FLOOR COVERINGS (continued)

Ceramic tiles are recommended for use in the restrooms and the custodial closet. Traffic mat tiles are recommended for the vestibule.

There should be no thresholds or doorsills because they interfere with the movement of book trucks within the library.

All furnishings and equipment requiring casters should be specified to be equipped with carpet casters.

FLOOR LOADING CAPACITY – See BUILDING DESIGN, GENERAL

GLASS TREATMENTS

Some use of glass is desired. Consider using double-glazed, tinted, heat-absorbing glass as a way of reducing solar heat gains. In areas where shelving is located, windows should be positioned at a height which will not overlap with the shelving.

For ventilation purposes, a portion of the glass area should include windows that can be opened and closed. However, the windows should be lockable, so they can be opened only by staff.

HEATING / VENTILATION / AIR CONDITIONING SYSTEMS – See MECHANICAL SYSTEMS

HVAC SYSTEMS – See MECHANICAL SYSTEMS

LEED CERTIFICATION

The new joint library is to be LEED-NC Silver Certified. The LEED green building rating system was designed by the U.S. Green Building Council to provide a benchmark for architects and the construction industry to evaluate the sustainability of building designs. LEED-certified buildings have reduced operating costs, healthier occupants, and conserve our natural resources.

The LEED rating system is point-based. Points are earned for building attributes which are considered environmentally friendly or beneficial. LEED has quantified its green credits in most cases.

LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality

A total of 69 points covers the five topic areas. Each area has goals for building design incorporation.

GENERAL DESIGN GUIDELINES

LEED CERTIFICATION (continued)

Site Development: The architect is encouraged to design the site in a way that minimizes storm water run-off. In addition the site should be designed for easy pedestrian and bicycle access. Plans for a bus stop should also be considered.

Water Efficiency: The architect should design a facility that reduces water consumption. Xeriscaping to eliminate site irrigation should be considered.

Energy Efficiency: The architect must design a facility that is very energy efficient. The use of natural lighting is encouraged.

Material Selection: The use of recycled and renewable construction materials is essential.

Indoor Environmental Quality: Indoor lighting, air quality, and ventilation are areas that must be considered by the architect. Use of low off-gassing materials is important in this area.

Designers, architects, and contractors can choose credits that are most appropriate to the project to achieve a desired rating. LEED has developed four ratings for credit.

26 to 32 points: Certified

33 to 38 points: Silver

39 to 51 points: Gold

52 to 69 points: Platinum

See <http://www.usgbc.org> for more information about LEED ratings

LIGHTING

Library lighting should be matched to the various experiences encountered while using the library, commonly referred to as “lighting for events.” For example, the lighting level for a stack area is different than that needed for the circulation desk.

Recommended lighting levels are readily available in various architectural and engineering design standards, such as those published by the Illumination Engineering Society. For instance, corridors and stairways generally function with as little as 20 footcandles (fc) of light; reading areas and non-critical writing areas function at 50 fc; regular office areas and assembly areas can need as much as 100 fc; and detailed/inspection areas can demand 200 fc.

The difficulty in designing lighting systems is in producing comfortable lighting. This effort is influenced by the combination of illumination level, reflection of light, contrast, and glare. A balance of each of these factors is imperative in order to achieve the objective of comfortable lighting. In planning for the lighting needs of the building, the architect should seek a suitable combination of natural and artificial lighting to provide uniformly distributed, shadowless, glare-free light.

Some other important considerations in designing a lighting system include energy efficiency and maintenance. It is absolutely necessary that the library have a lighting system that

GENERAL DESIGN GUIDELINES

LIGHTING (continued)

it can afford to operate. The system should also be easy to maintain, keeping the number of different types of lighting fixtures to a minimum and selecting fixtures in which lamp replacement is relatively easy.

Lighting of stack and seating areas is particularly difficult. It is important to provide even and adequate lighting without defining specific furnishing arrangements. Some effective solutions include using a lighting pattern along diagonals with evenly spaced fixtures and using lighting reflected off the ceiling. Another effective lighting option for stack areas is canopy lighting which forms an integral part of the bookstack unit. This latter option may be somewhat expensive.

Task lighting is recommended for staff workstations and other areas where specific tasks will be regularly performed. In such locations the lighting can be focused on the required task surface at the proper intensity. Task lighting can often be accommodated as a component of the furniture, thereby affording the ability to move the lighting with the furniture.

An important consideration regarding task lighting is that it not reflect off equipment screens, such as computer terminals. Usually fixtures controlled by dimmers will provide the ability to properly balance light volumes, thereby minimizing glare.

Lighting multipurpose areas requires a system which can produce a wide range of footcandles, depending on user demands. Use of such areas may range from watching performances (0-50 fc) to participating in seminars (50-100 fc) to quilting (150-200 fc).

In planning for the lighting needs of the building, the architect should consider using indirect lighting (i.e. lighting that reflects off other surfaces and is diffused to task level) and natural lighting. Consideration should also be given to the advantages of using different types of lamps, including incandescent, fluorescent, mercury vapor, metal halide, and high-pressure sodium. Besides producing sufficient lighting, certain lamps can be used to create desirable moods and effects. Remember, however, that in smaller libraries it is generally recommended that the number of different types of light fixtures be kept to a minimum.

MECHANICAL SYSTEMS

Designing mechanical systems, also referred to as HVAC systems (Heating, Ventilation, Air conditioning) for libraries requires providing environmental control of space temperatures and humidity throughout the building within the limits that protect the building's contents from environmental extremes while supplying "creature comfort" for library users and staff. Objectively, this is easy to target: human comfort is reached at 74 degrees fahrenheit (plus to minus 2 degrees) at 50 percent humidity (plus 10 percent); books, paper materials, films and film media are also protected within these same limits. Rare papers and special collections merit closer scrutiny.

The difficulties arise in the subjective nature of providing creature comforts. A mechanical design is considered one hundred percent successful if people do not realize the system exists. In other words, the mechanical system operates invisibly.

GENERAL DESIGN GUIDELINES

MECHANICAL SYSTEMS (continued)

Most people will notice the following types of problems: noise; hot spots, cold spots, or drafts; humidity; and service/maintenance access (staff concern).

Noise problems can be attributed to delivering too much air through too small a duct system. A designer's objective when minimizing cost is to move as much air through as little duct as possible before reaching the point of generating intolerable noise levels. Designers should be encouraged to provide a safer "margin of error" in controlling noise in areas where staff and users must talk or concentrate. Such areas would include the circulation and reference desks, reading areas, and staff workstations. Stack areas, storage areas, toilets, corridors, and stairs are less crucial.

Location of cyclical and other heavy mechanical equipment should be positioned in mechanical rooms isolated from library program areas. This type of equipment not only makes noise, but is frequently the source of rhythmic noise; at best this is annoying and at worst it may set up reverberations that disturb the entire library.

Solutions to hot spots, cold spots and drafts are more difficult to address. The design intent is to deliver air evenly over the entire building. A multitude of factors complicates this objective. These factors include the building's own structural framing; numbers of people within a space; the level of physical activity; and the building's exposure to the sun. Shelving may also hinder the efficiencies of an HVAC system's air distribution.

Humidity can adversely affect a library's collection. Too much moisture contributes to mildew and fungus growth and too little moisture will overly dry pages and deteriorate glue. Specific dehumidification equipment will usually not be required. Basement and below grade areas will be more susceptible to moisture and consequently demand closer scrutiny in the design to determine if any specific dehumidification equipment is necessary. The addition of moisture when conditions become too dry will require the addition of humidification equipment to the basic HVAC system. The issues of moisture are more critical to collections than to staff or users, aside from persons with allergies.

Finally, the ease of maintenance must be considered as an element in the design of the mechanical system. This is a frequently forgotten issue in library design, resulting in equipment being difficult to access for routine maintenance or repair. At a minimum, the architect, engineer, and staff should thoroughly review the anticipated service requirements of any proposed HVAC system. See also LEED Certification requirements.

PARKING

The library should have adequate parking spaces to accommodate the maximum number of library users and staff, taking into consideration use of the meeting room.

A bike rack should be provided for parking of at least six bikes.

Be sure to note ADA requirements regarding parking spaces.

GENERAL DESIGN GUIDELINES

SHELVING, METAL

Steel library shelving, using a welded frame construction, is recommended. Freestanding shelving units will be used primarily, though some wall shelving may also be used. The freestanding units are to be spaced to accommodate the addition of wall shelving at a later date.

If the budget permits, consideration should be given to using display shelving in certain areas. This type of shelving angles the lower two or three shelves to afford easier viewing of books or other materials stored on the shelves. Display shelving may require a greater base shelf depth than regular shelving, possibly 28" to 36" deep, depending on the manufacturer.

Shelving heights generally vary from 42" to 66" to 84" to 90". The height varies according to the type of library user, i.e. young children, older children, adults, and the need for visual control over certain areas. The average number of shelves per double faced unit are as follows; 42"H – 4 shelves plus base shelf; 66"H – 8 shelves plus base shelf; 84" and 90"H – 12 shelves plus base shelf. The number of shelves will vary according to the types of books or other materials being stored.

The base depth of the shelving units will be 20" to 24" for double faced shelving and 10" to 12" for single faced shelving.

Shelf ranges must be arranged to facilitate shelving the collection in a logical numerical and alphabetical sequence of the material. The aisle width between ranges must be at least 36"; if collection storage space is not at a premium, the preferred aisle width is 42" (See "AISLE WIDTH").

End panels are generally provided for each range of shelving. They are often constructed of high pressure plastic laminate. If affordable, consider using some slotwall display panels in lieu of traditional end panels. Such panels provide a variety of attractive display options. To reduce the cost, slotwall panels should be used on the more visible ends of the shelving ranges and traditional panel could be used on the less visible ends.

Metal, or plastic laminate canopies are to be provided for all 42" and 66" high shelving.

Be sure to note ADA requirements regarding library shelving.

SIGNAGE

An attractive and consistent system of directional and informational signage should be an integral part of the interior design of the library. The signage should serve to announce the library's services and to orient and guide people to all areas within the building.

Use a lighted outdoor sign to readily designate the library. Consult local building codes regarding restrictions on outdoor signage.

Be sure to note ADA requirements regarding signage in public facilities.

GENERAL DESIGN GUIDELINES

SLOTWALL DISPLAY UNITS

Slotwall (also known as slatwall) display units can be used to create very effective display areas and provide attractive visual breaks among the rows of metal shelving. It is available in wall units (standard size: 4' x 8' panels) and freestanding units, which come in a variety of shapes and sizes. The A-frame unit (standard size: 5'H x 4'W x 1 ½'D) is commonly used in bookstores and video stores for displaying merchandise.

There are a variety of display shelves which can be used with slotwall units to accommodate any type of audiovisual material and create a very effective display area.

Slotwall can also be used as end panels. Besides being very attractive, they can be used for displaying a variety of library materials at the ends of shelving ranges.

WALL COVERINGS

The guiding criterion in the selection of all materials and finishes is the need for minimal maintenance.

Wall surfaces should either be painted with a high grade, washable paint or covered with a medium to high grade vinyl wallcovering. If paint is used in restrooms and high traffic areas, it should be an epoxy paint. Vinyl wall covering is especially recommended for staff work areas.

WINDOW TREATMENTS

Drapes and/or blinds may be used for an aesthetic purpose and/or as a means of controlling noise and/or light. If noise control is desired, drapes are preferable. Drapes and/or blinds may not be required, or even desired, in some interiors. If they are needed, they should be included as part of the general construction contract.

WIRING, COMMUNICATION / ELECTRICAL

The library must have the flexibility to provide ready access to communication and electrical wiring throughout all parts of the building. It must be possible to provide wiring not only to designated initial points, but also to undesignated future points.

Flexibility can be afforded through a variety of cabling systems. If carpet tiles are used throughout the building, consider using a system of under carpet cables (flat wire). This system will enable wiring to be provided anywhere it is needed, as well as be easily re-located when necessary.

If carpet tiles are not used throughout the building, consider running cabling through the ceiling area, using power poles to bring the cabling down from the ceiling.

In addition to under carpet cabling or running cabling through the ceiling, consideration should also be given to using duplex communication outlets throughout the building. These outlets will provide easy connections for both voice and data transmission.

GENERAL DESIGN GUIDELINES

WIRING, COMMUNICATION / ELECTRICAL (continued)

In general, electrical outlets should be placed at least 20-25 feet apart; in offices and work areas outlets should be located on every wall.

All furnishings requiring communication and electrical wiring should be specified with raceway systems to facilitate such wiring.