Subject: Library and Information Science

Production of Courseware
e-Content for Post Graduate Courses

An MHRD Project under its National Mission on Education throught ICT (NME-ICT)

Paper No : 06 Management of Libraries and Information
Centres and Knowledge Centres

Module : 18 Space Planning

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MODULE 18

SPACE PLANNING IN LIBRARIES

I.   Objectives

The objectives of the unit/module are to:

- Describe the various components of physical resources of libraries;
- Explain the need for a well-designed library building, furniture and fittings, etc.;
- Distinguish the various equipment required for a public library;
- List the various functional areas of a library; and
- Give estimate of space requirements of libraries in the electronic era.

II.   Learning Outcomes

After going through this unit/module, you would learn various components of physical resources of libraries, the need for a well-designed library building furniture and fittings, etc. You would also learn about the various equipment required for a library, various functional areas of a library, and estimation of space requirements of libraries in the electronic era, etc..

III.   Structure

1. Introduction

Library buildings play an important role in provision of library operations. They should be designed to reflect the functions of the library services, be accessible to all the users of the community and be sufficiently flexible to accommodate new and changing services. Besides being easily accessible, they should be located close to other essential activities of the concerned parent organization. The library collection and services too should also be available for all categories of users. Librarians should, therefore, ensure that library buildings are used and managed effectively to make the best use of the facilities for the benefit of the whole community.

When we design a library building, we need to keep in mind not only its functions but present and future needs too. The building should provide a conducive environment for the use of the resources and at the same time, facilitate efficiency and economy in administrative functions. A library building is expected to perform the following functions: (Kaula, p. 55)

a) Effective technical operations of the library;

b) Efficient and rapid production of information and material on demand;

c) The provision of quiet, comfortable and attractive areas for study;

d) The provision of individual and collective studies for the users doing intensive research work;

e) The provision of facilities for developing reading habit;

f) The provision to facilitate the contact of users with the contents of the library;

g) The storage and preservation of reading materials; and

h) The accessibility of the reading materials to users without the loss of time.

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2. **Preliminary Research**

Designing the library is an art and most of the librarians get the opportunity to design the library building once or very occasionally in their professional lives. However, one can benefit from the experience of others. Therefore, much before the actual designing starts, one important activity is to visit as many new library buildings as possible which would give a better perspective. One can learn from the successes and failures of others by visiting recent library buildings. The librarian has to identify the right kind of libraries for the visit. Besides, the librarian has to observe the various features, use of technology, experience of the users, and experience of the staff too.

Another way of conducting research is by conducting a survey of the present users of the library in order to get their views on what features are required in the new library building. A focus group meeting with the users will also be of help.

3. **Library Space Planning : Who Does What ?**

Library is planned from inside out. The external shape of the building, color, designs, orientation, etc. will be decided after the interior functional areas are meticulously planned by the librarian. The librarian has to specify all the functional areas of the library envisioning the future, space requirements for each functional area as per professional standards, other specifications for each functional area, movements and traffic circuit and inter-relationships between the different areas. Librarian has to do the planning keeping in view the growth of the library for the next 20 years. Once the functional areas are fully described to the architect, the finer aspects of plans should include aspects like internet, ventilation, window details, cooling, heating, internal fittings, prevention of direct sunlight into the library, acoustics, aesthetics, etc. The architect translates the librarian's ideas into graphical form, which, at the later stage, gets implemented by the engineers. In some countries of the west, a Library Consultant who has rich experience in designing libraries is also appointed. The job of the library consultant is to not only make available his experience but also suggest innovative ideas without getting influenced by the way the library functions at present. In order to get a better perspective, the library consultant may meet the library users, senior administrators of the organization and if necessary, conduct a survey seeking views of all stakeholders. The close interaction of librarian, library consultant and the architect continues till the final designing and drawing stage is complete. Once the designs and drawings are approved, the architects, engineers and contractors take over the works and the role of librarian and the library consultant is

to make periodic inspections and provide guidance to the construction team whenever required.

3.1 Planning a library building

While planning a library building, the librarian and governing body should consider the following elements:

- Function of the library
- Size of the library
- Design features
- Designated spaces
- Accessible shelving space
- Signage posting
- The ambience of the library
- Space for electronic and audio-visual equipment
- Safety

3.2 The size of the library

The amount of floor-space required by a library depends on such factors as:

- Unique needs of the individual library
- Functions of the library
- Level of resources available
- Size of the collection
- Space available and the proximity of other libraries.

Because these elements will vary significantly from place to place and depend on kind of library, it is not possible to propose a standard on the space required for a library. Library buildings exist to support library services needed by their users. Therefore, libraries must be designed to support a particular library's service program. There are, however, some traits that all libraries should have in common: libraries should be attractive, functional, efficient, flexible, barrier-free and expandable. Additionally, libraries must be designed around the needs of users but with staff efficiency in mind as expenditure on staff is the major expenditure of libraries.

Library services continually evolve. When planning a new building or expanding and renovating an existing one, the design must be flexible enough to accommodate changes

in services and technology. Long-range planning that responds to identified community needs and anticipates change is an essential part of the design.

4. Principles of Planning Libraries

Important principles of planning libraries are :

a) Functional aspects of the library get a priority over the appearance and aesthetic aspects;

b) The building should provide economy in administration and operations;

c) The study areas should be close to the active book collection;

d) The building should represent simplicity and user-friendliness;

e) Future requirements in terms of functions, stock and services be given due consideration;

f) There has to be provision for expansion of the building, if the need arises in future; and

g) Adequate provision has to be made for the physical conveniences for the staff.

5. Location

Location of the library has to be, as far as possible, be central or most easily accessible to the largest number of users. If a hall is to be chosen for the library in a multi-storied building, the ideal place will be ground floor rather than the basement or the upper floors. In a university campus which houses several buildings, the site which is near the academic block has to be chosen for the library rather than the one which is at the far end of the campus. For a city central library, a site right in the heart of the city is preferred rather than a site located in the city outskirts, though it has scenic beauty around. The traditional thinking that the library has to be necessarily located in a quiet place conducive for study is to be discarded. On the other hand, the ideal place is the one which attracts the maximum number of users. It is possible to build an environment conducive for study even amidst busy surroundings, but it will be a challenge to ensure good use in a place which is not convenient for the library users to visit.

6. Functional Areas in Libraries

6.1 Interior of the library

In a library building, space is required for storing reading material, users to sit, read and consult material, staff activities, services and for amenities to be provided to users. Thus

while planning the library building, provision for space for the following activities/divisions is to be made.

a) Reception/Entrance Hall
b) Reading Room
c) Children's Reading Room (in public libraries)
d) Study carrels (in university libraries)
e) Meeting/Conference/Exhibition Hall/Room
f) Computer room
g) Librarian's Room
h) Staff Rooms
i) Acquisition Section
j) Technical Services Area
k) Administrative and Finance Section

6.2   Design of the library

The need for an attractive library building should not be underestimated. A comfortable and welcoming atmosphere is a critical part of providing excellent, modern library services. Friendly and pleasant surroundings encourage most of the community to use the library and to regard it as an essential part of the community. Libraries that are inaccessible, shabby, dirty, and unattractive dissuade library users as unimportant. The design of every public library should encourage users to visit, use the library, read and learn.

Broadly speaking, the following are the functional areas in the libraries:

- Entry/Exit gates
- Cloak room(s)
- Circulation Desk
- Display area for new books, notices, etc.
- Card catalogues or OPAC terminals
- Reference/Information desk
- Periodicals/newspapers display
- Reference sources such as dictionaries, encyclopedias, etc.
- Reserved books (Textbooks) area
- Stacks

- Reading tables and carrels
- Discussion rooms
- Special collection such as rare books/art books/archives
- Toilets for men and women
- Cafeteria
- Rooms for Librarian and Deputy Librarian
- Technical processing rooms
- Multi-purpose halls for lectures/meetings or exhibitions
- Audio-visual hall
- Digitization laboratory
- Room for computer servers, UPS, etc.
- Desks for library office staff, such as clerks
- Temporary storage area for back issues, old newspapers, weeded out books, etc.
- Book repairs and bindery
- Photocopying facility
- Computer terminals for browsing, printing, scanning, etc.

The above list must not be taken as an prescriptive model as the functional areas depend on the type of library, its objectives and activities and requirements of the users. For instance, in a small library, various functions including technical processing, book repairs, administrative works, digitization and even computer servers can all be accommodated in one room, while in a big university library, even the rare book collection might demand several halls.

6.3   *Space requirements for different functional areas*

Space requirements for different functional areas can be worked out on the basis of Indian Standard, *Design of library buildings – recommendations relating to its primary elements* (Second Revision) (IS 1553: 1989). Originally it had been brought out in 1960 by Indian Standards Institution (now renamed as Bureau of Indian Standards) with the title, *Code of Practice relating to Primary Elements in the Design of Library Building* (IS: 1553 – 1960). The original standard had been prepared by the Sectional Committee on Library Buildings, Fittings and Furniture under the Chairmanship of Prof. S. R. Ranganathan. The standard was revised in 1976 and 1989. Though the standard was primarily meant for university and college libraries, a large part of its content can be applied to other libraries too, such as

public libraries and special libraries. Some important recommendations from IS 1553: 1989 are reproduced below :

(i)   Each floor of the library building shall be at one single level to facilitate the movement of book trolley from one part to another. Thresholds shall not be provided anywhere inside the building. (Ref : 9.1)

(ii)   The rooms shall be arranged in such a way that the staff other than those servicing the reading room shall not have to pass through the reading room disturbing the readers.(Ref : 9.1.2)

(iii)   Entrance to library building and exit from it shall be only through the counter enclosure in the general reading room at the point of entrance from the entrance lobby. (Ref : 9.2)

(iv)   Gangways are not only essential for efficient functioning of the library but also to allow easy access/passage to firemen to various parts of a room/building. The minimum clear width of gangways shall be as follows (Ref : 11.1):
-   Longitudinal gangway not less than 1 meters;
-   Cross gangway not less than 1.35 meters;
-   End gangway (between the end wall and nearest row of racks/reading tables) not less than 1.325 meters).

(v)   Dimensions of stack room should be as follows (Ref : 11.2):
-   Each unit book rack 2 meters long may be assumed to house 700 to 750 volumes and 1sq.metre of stack room area may be assumed to house 150 volumes.
-   Center-to-center distance between consecutive racks is 1.80 meters (on the basis of 0.45 meter of rack depth plus 1.35 meters of cross gangway width).
-   The distance from an end wall of the stack room to the center of the nearest row of racks is 1.55 meters (on the basis of 1.325 meters of the end cross gangway plus 0.225 meter of half rack depth).

(vi)   Reading room (Ref : 11.3):
-   The average area per reader in the reading room should be 2.33 sq. meters and the size of the reading table is 2.4 meter x 0.6 meter. The centre-to- center distance between two consecutive rows of reading tables is 1.8 meters. (It has to be noted that the BIS Code recommends narrow reading tables and the chairs are kept only on one side of the table in order to prevent cross talking. (Fig. 2).

(vii)   Size of other rooms (Ref : 11.4):

	For use of	Area in sq. meters
a)	Librarian and Deputy Librarian	30
b)	Classifier, Cataloguer, Accession Librarian and Maintenance Librarian	9 per person
c)	Secretary to Librarian	9
d)	Visitors' room	15
e)	Administrative and professional staff not at service points and other than those mentioned in (b)	5 per person
f)	Group discussion room	2 per person
g)	Conference room	2 per person
h)	Seminar room	2 per person
i)	Committee room	2 per person
j)	Cubicles	7 per person

(viii)   For details of principles and practices governing good lighting of libraries, reference can be made to IS : 2672: 1966 which also recommends the levels of illumination to be achieved by general principles of lighting. For day lighting, reference can be made to IS 7942 : 1976. (Ref : 14.1).

(ix)   Internal noise consisting generally of conversation, frictional noise (chairs scrapping the floor and the impact of heels on hard floor) and mechanical noises (from book hoists and typewriters) shall be controlled effectively, for example, by using noise absorbing materials in ceiling, walls, floors and partitioning surfaces (Ref : 15.1).

(x)   All legs of movable furniture should be provided with rubber shoes. The book trolleys should be with rubber tires. (Ref : 15.1.1).

(xi)   The maximum acceptable noise level in a library should be 40 to 45 dB (Ref: 15.2).

(xii)   For details of methods for achieving noise reduction and sound insulation, reference shall be made to IS 1950: 1962 (Ref : 15.3).

(xiii)   Provision for air conditioning to maintain uniform temperature of 22±1 degree Celsius and relative humidity at 50±5 percent round the clock throughout the year for at least the storage space where rare books, manuscripts and similar irreplaceable materials are stored, shall be made. (Ref : 16.1).

The IS 1553 : 1989, though comprehensive, does not provide guidelines for facilities required for ICT applications such as computer terminals, Wifi, Server rooms, cabling, electric points, etc. which are essential part of modern libraries. Separate standards related to these applications are available and may be consulted by the library planning team.
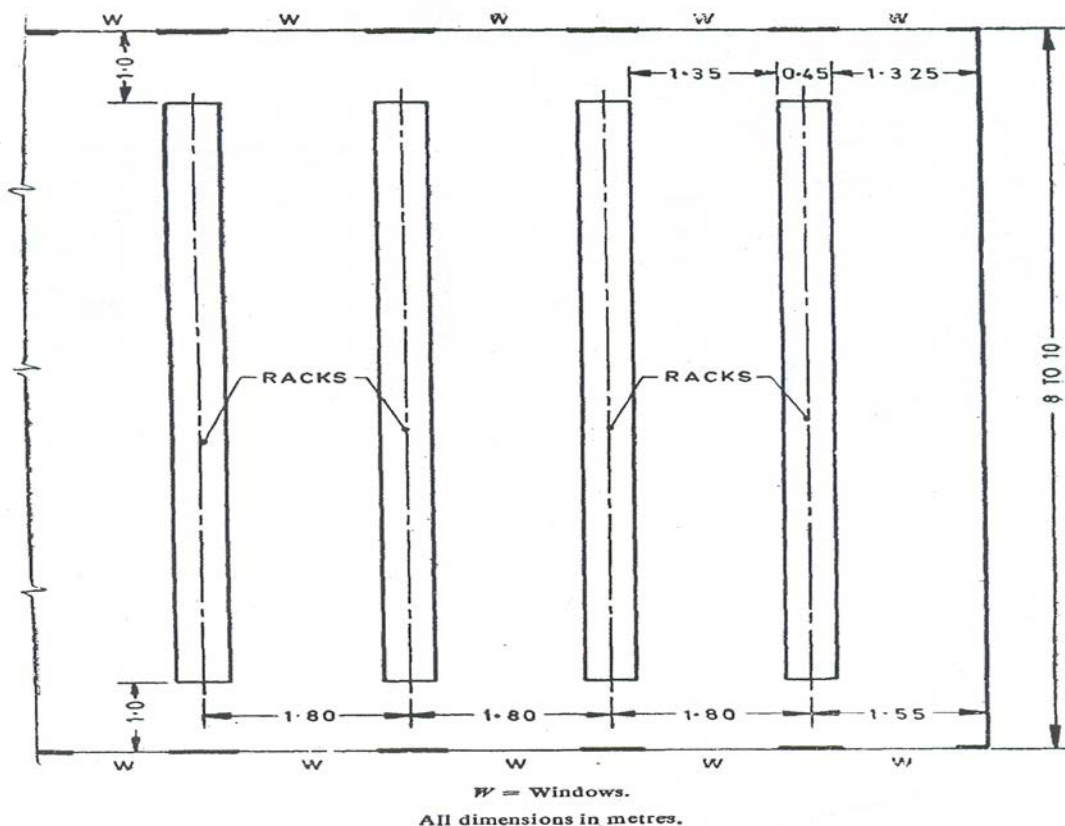
IS 1553 : 1989

W = Windows.

All dimensions in metres.

FIG. 1   PART LAYOUT OF STACK ROOM (ILLUSTRATIVE)

(Source : IS 1553 : 1989)
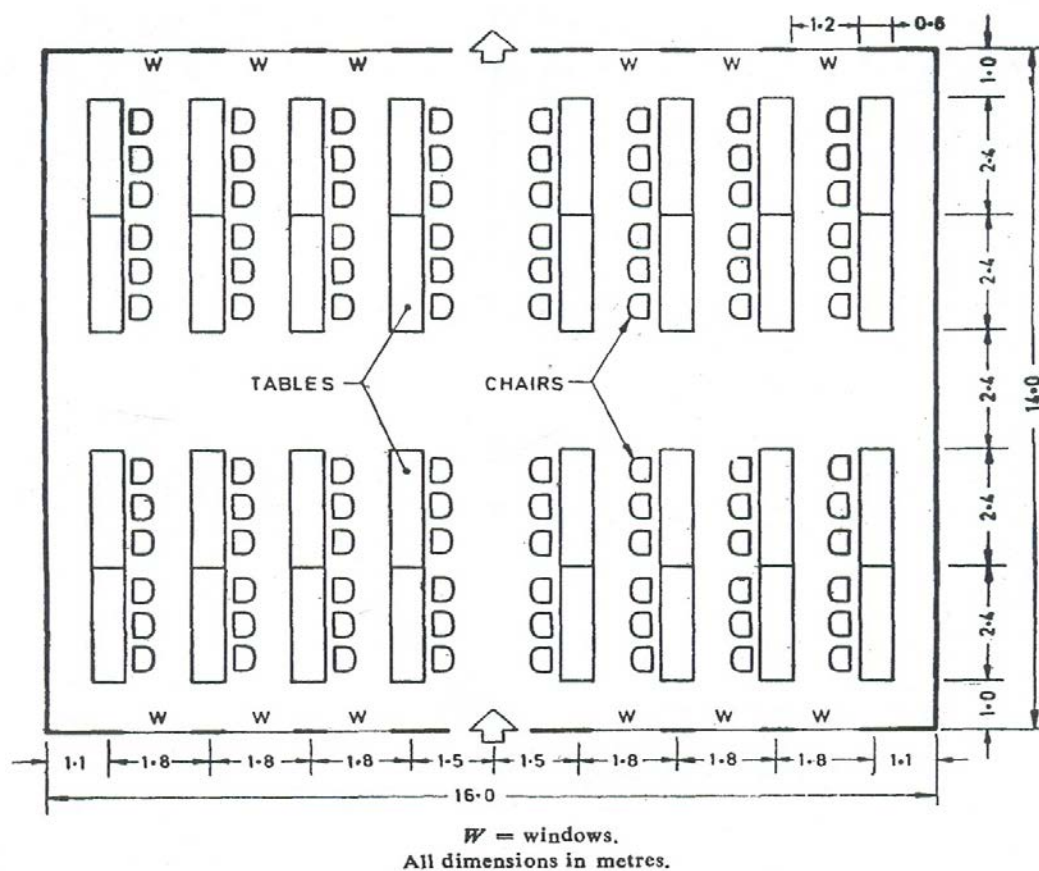
W = windows.
All dimensions in metres.
FIG. 2 ILLUSTRATIVE LAYOUT OF READING ROOM

(Source : IS 1553-1989)

6.4 Relative position of functional areas

a) Near the entrance/exit gate: Cloak rooms. (In bigger libraries, it is advisable to have only one gate for entrance and one gate for exit while in smaller libraries, there can be one gate for both entry and exit. Library should not have any additional entry/exit points).

b) Lobby area : Issue Desk, Reference and Information Desk, OPAC terminals, Catalogue cabinets, New book Displays, Notice boards

c) Middle of the library, but away from the stacks and reading areas: Librarian, Deputy Librarian, Technical Processing, Clerical staff, Computer server room

d) Middle of the library but away from the library staff area: Stacks, Periodicals section, Reserved books section, Reading tables and carrels, Audio-visual hall, Photocopying, Internet terminals/scanning (It is essential that reading areas have to be near the stack areas. If they are to be provided in the stack hall itself, the reading tables may be placed near the windows in order to ensure natural light and air).

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e) Far end of the library: Book repair and binding, Digitization lab, Cafeteria, Discussion rooms, Special collections, Toilets, Multi-purpose halls for Seminar/conferences/exhibitions halls,.

6.5 *Secondary collection*

As the collection grows, it will be a good practice to categorize the collection into two sequences, namely, the active and secondary collection. The active collection consists of the recent additions and the collection from where the books regularly move. On the other hand, the secondary collection consists of older editions of books, not-so-relevant and obsolete materials. Secondary collection can be kept in upper floors or in compact shelving described in the following paragraph. The purpose is to make the active collection attractive by retaining latest and relevant books. Developing a secondary collection facilitates the old and not-so-relevant books move to a less prime location and they can be weeded out depending on the policy.

7. Compact Shelving

Compact shelving, also called as high density shelving, is a shelving system that rides on moveable carriages over floor-installed rails. The rails are mounted on the concrete floor. Compact shelving is available both manually and electrically operated. There are safety devices which can stop the movement in case it makes contact with an object such as book trolley or human being. The main advantage of compact shelving is that it reduces the shelf space drastically by eliminating the aisles. Less used books and reading materials can be shelved in compact shelving. Also, in some institutions where the library has to be used as a multi-purpose hall too, such compact shelving is used.

Fig. 3 : Compact shelving system

7.1 *Multi-tier stack systems (MTSS)*

Multi-tier stacks (MTSS) are steel shelving systems which are assembled as two or more tiers of shelving sections in which the bottom shelving is the support for the upper level floor. In this system, shelf uprights or columns and floor decks are self-supporting. Each level of stack supports the level above. In this system, the shelves cannot be moved easily. Because of lack of flexibility, MTSS are less preferred than the freestanding modular bookshelves. Nevertheless, MTSS can be used for storage of secondary collection books.

Fig. 4 : Multi-tier stack system (MTSS)

7.2 *Weeding out policy*

Libraries need to have a policy for weeding out reading materials. Extra copies of old books, grey literature, outdated material, mutilated volumes, old CDs, DVDs, floppies, etc. add to the maintenance cost besides occupying large space in libraries. Also, of late, because of the migration to e-books/e-journal format, a large number of print materials remain unused. A policy for weeding out has to be evolved and it should specify what type of books and journals or electronic objects can be weeded out and the procedure. The weed-out activity has to be a continuous process. Weeding out books and journals will make space available for new additions, which, otherwise, demand building extensions.

7.3 *Digitization of old materials*

In the electronic era, digitization of less used and old books helps in space saving provided the library complies with the copyright laws. Many libraries have digitized too old materials and built digital libraries. It is common to find own publications of the parent organization and theses submitted to the universities being digitized and made available either through intranet or for a wider public through internet.

7.4 *Noise prevention*

Library has to be designed so as to provide maximum noise-proof area which is required for serious study. Prevention of noise can be done by installing sound absorbing material and reducing sound reflecting surfaces in the library. Sound absorbing surfaces include soft false ceiling, wall to wall carpeting for the floor, curtains for windows, providing cork or rubber/linoleum covering for the floors, etc. Concrete walls, floor, ceiling, etc. reflect the noise. Rooms such as offices, bindery, cafeteria, etc. be provided spring doors so that the noise does not reach the reading areas. Book trolleys need to have rubber wheels. Chairs and tables be provided rubber or cushion-padded legs.

8. Space Requirements in Electronic Era

One of the important implications of information technology is the decrease in the use of print resources. While the use of printed textbooks and general reading materials has not severely been impacted yet, the use of print journals and reference sources such as directories, handbooks, almanacs, yearbooks, etc. has gone down drastically. While reading for pleasure continues in all kind of libraries, new gadgets such as e-book readers, laptops, tablets, desktops and mobile phones are steadily slowing down the use of the printed books. In research libraries, most of the reading by scientists is done by accessing e-resources rather than from print materials. Reading has become more need based and less as a habit. One noticeable phenomenon has been the disappearance of reading habits for current awareness. While libraries have taken up the challenge and try to woo the readers by various marketing techniques, the onslaught on the print materials is definite and irreversible. Therefore, storage area may not grow as it used to be in the previous era. This has to be taken note of while planning the library buildings. Some of the libraries have converted a part of the reading space into rooms in order to provide discussion rooms.

8.1 *Air-conditioning*

Air conditioning has become almost a necessity for libraries. Apart from providing a comfortable study area and increasing staff productivity, air conditioning prevents physical deterioration of reading materials. Burchard and his associates observe that 'air conditioning in the strict sense means the simultaneous control of eight factors, viz., temperature, humidity, air motion, air distribution, dust, bacteria, odors and toxic gases. Air conditioning also produces a noise-free environment.

8.2 Facilities for the physically challenged

It is necessary that the library provides facilities for the physically challenged persons to use the library. There has to be a ramp entrance in order to facilitate readers with wheel chair or walkers or crutches. None of the doors in the library should have thresholds since they hinder the movement of wheel chairs. Besides, special toilets with wide door are to be provided so that a person with wheel chair or walker can use them. If the reading materials are located in more than one floor, lifts are to be provided. Besides, library staff need to be sensitized to the needs of physically challenged readers and manual assistance be made available either to locate a book or move the reader with a wheelchair or evacuate the physically challenged persons in case of emergency.

8.3 Fire safeguards

Libraries contain reading materials which contain the legacy of the past. A major part of our book collection are irreplaceable and therefore, fire safeguards have to be kept in mind at the planning stage itself. The conduit electricity wiring, plug/socket points have to be of good quality. The false ceiling materials, if used, are to be fire-proof. Electric circuit breakers be made available in each hall of the library in order to cut off the supply in the event of electricity overload or fire. Adequate fire extinguishers have to be made available in all halls of the library and staff be trained to use them in emergency. In big libraries, fire sensors and hooters are installed in order to provide automatic warnings in the event of fire. Besides, there has to be an exclusive emergency exit gate for evacuation in case of emergency.

8.4 Parking

Many users travel to the library in own vehicles. For this, there should be sufficient parking space either at or close to the library. Provision should be made for four and two wheeler vehicles. There should be separate parking provision for the library staff.

8.5 Wash rooms

In the building of every library, there should be provision for toilets - both for men and women. It is however, advisable to place the toilets a little away from the main library and be connected via an open space or a corridor. Besides these, there should be water coolers too installed so that users need not go out of the library for water while working or reading in the library.

8.6   Green surroundings

It is advisable to have greenery or plantation around the library. This not only makes the library attractive but also lends grace to the place. Trees and plants around the library frees the atmosphere from dust as air turns moist and makes the dust to settle.

9.   Summary

The library should have adequate space to implement the full range of library services that are consistent with the library's strategic plan that meets local or national standards/guidelines. A library cannot exist without a proper building, furniture and equipment. So the construction of a library building is of first and foremost step for planning a library or information centre. The building should be well equipped and must be free from dust, dirt, cobwebs and also should be water proof, theft proof and equipped with noise prevention measures, the provision of drinking water, heating and cooling machine (air conditioned) and proper lighting.

The basic aim of the design of a library building should be to achieve flexibility by using the modular system. The library building has to demonstrate a remarkable ability to grow, to adapt to changing conditions to meet new demands and to implement new technologies. If these aspects are taken care of then one need not give much weight age to the predictions made about their future expansion and existence. The space estimates for the library staff, documents, services, users and for other purposes, i.e., corridors, entrances, lobbies, toilet, etc. should also be prepared.

The library building has to comply with building, fire, safety, sanitation and other applicable government and legal requirements. There should be proper budget allocation for various physical resources and provision for the maintenance of the building, library collection and equipment. Lastly, the above mentioned aspects are to be taken into consideration keeping in view the number of users, variety of users, rate of annual growth every year and requirements with regard to access, convenience and comfort of the library users.

10 References

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