This paper discusses the design of flexible and intelligent library buildings. The first section addresses how flexibility, as one of the requirements of a library building, that has high priority in the planning process. Intelligent libraries are considered in the second section, and functionality is stressed. The third section examines conditions for buildings facing the next century, including the shortcomings of fixed standards and guidelines, new developments in computer and network technology, and changing user needs. Programming issues are discussed in the next section. The fifth section looks at planning conditions related to the preparation for a new city library in The Hague (Netherlands), including: main functions; teamwork; the architect's brief, which sets out the general philosophy and requirements of the library; and cost control. The role of the Programme Management Group during the planning process of the library in The Hague is described in the sixth section, followed by two sections that summarize the use of a "spacebook" and datasheets. The ninth section lists concerns that librarians will need to address in library planning. Examples of library buildings in the Netherlands that were designed to meet future needs are presented in the last section. Several related conclusions are offered. (MES)
Flexibility is that all?

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Abstract

Designing libraries to meet the future is questioning the conditions for designing buildings for library use today, tomorrow and in the coming decades. Basic question is, which services do library customers expect from their library and which qualities in the requirements of a library building have high priority. Designing flexible library buildings is not enough. Functional and intelligent buildings are other concepts of the necessary conditions for future planning.

Further approaches are team planning with specialists as architect, consultants, constructors and the librarian and its staff. The library staff itself must formulate in every detail its criteria and should have no fear indicating its priorities.

Designing a new library for the future always is a joint venture of several parties, including the library staff.

Paper

Introduction

The moment of completion of a new library building is one of great importance to the city, the university students and staff, its library staff and most of all for all its citizens, students, the end-users of all types of libraries.
It is not just the final culmination as the results of many, often, too many years of discussions and planning, with plans to look at and to be discussed and altered, but the city of the university finally gets the expected new and mostly greatly improved library to serve the clients of the library up to date.

Designing libraries to meet the future needs, is the general theme of this IFLA conference in Bangkok. In our meeting today we are facing this theme by questioning the conditions for designing buildings for library use to meet those future needs.

The basic question which has to be answered is: 'what do library customers in the future want from their library':

- in the coming years the library users are looking to libraries as more than a source of books, they want information in whatever form is available. Relevance and fast access are extremely important factors,
- the general user is more and more looking for human and social contacts, to do networking with others who share their interests, either business and education related as well as related to culture and recreation,
- the required information derived from the library has to be presented to the individual needs and interests. Anything that a library could do to provide this kind of personal information service would be most valuable.

Or to quote Marylyn Gell Mason from the USA: 'Libraries do many things. They collect, organize and preserve; they make knowledge accessible - not books, but knowledge. Knowledge requires organization, context'.

Flexibility than is just one of the different qualities in the requirements of a library building, but with high priority. Functional and intelligent library buildings are other concepts of the necessary conditions for future planning.

More than only describing the necessity of flexible, functional and intelligent library buildings it is essential for upkeeping the overall quality of the planning process, to identify and describe the key dimensions of the complex planning process from the librarian's point of view.

The librarian who is way ahead of all the specific building experts as for instance: architect, contractor, constructional, technical and acoustical consultants and all those others involved.

The large number of partners in the process of developing and creating the new library building, the long period of many years of preparation, and the long-term planning, are factors which make this process of building and planning quite complex to many persons involved, in any case to many librarians.

**Flexibility**

Since decades flexibility is one of the qualities in the requirements of a library building which has high priority in the planning process.

Library planning requirements have changed during this century slowly at first but more rapidly in the last thirty years of this century. Changing together with the needs of libraries and its users. We all know the desirable qualities of a modern library building described by Harry Faulkner-Brown in his so called - 'ten commandments': A library should be: flexible, compact, accessible, extendible, varied, organised, comfortable, constant in environment, secure and economic. (IFLA library building seminar, Bremen Germany, 1977).

In our program of requirements of 1986 we stated: 'It is essential that the building should be planned as far as possible to allow maximum flexibility of use, avoiding internal load-bearing
All load-bearing structure should be confined to columns, regularly spaced, using a grid to multiples of bookshelving systems (basic system 100 cm), and in 'cores' in which are concentrated stairs, lifts toilets and vertical service ducts'. Including the vision on new technologies: 'Considerable emphasis is placed on the growing importance of the development of information and communication technology'.

**Intelligent libraries**

Recently, there has been considerable fanfare advocating the merits of the intelligent building'. Numerous articles, studies and other publications have been presented and published, promoting this 'new-age'technology.

Admittedly, the concept is very enthralling: a state of the art library building while the latest and greatest in design and constructional technology, offering the clients systems that once only existed in the imagination of futurists.

It is a dream of engineers, designers and librarians, a forum to marry new technology with creative design applications and a heavily used library building.

Main criteria to qualify the building as intelligent is the fundamental objective meeting the needs of the end user: the visitors of the library. Meeting the needs for today and for the future.

Keyword therefore is functionality.

The definition of an intelligent building aims at the optimum between:

- the effective of its occupants
- effective management of resources and
- minimum lifetime cost.

The question which also has to be answered is the following one: «is an intelligent building automatically a functional library?» The only possible answer is: no.

An intelligent building is basicly necessary for a good library building. The specific contribution, in the longtime and complex planning process, from the intelligent owner and the intelligent preparation team (architects, technicians, consultants, librarians) can arrange an intelligent building into a functional library. A library as one that maximizes the efficient management of recourses with minimum of running costs.

Realise that demanding for a flexible, functional and intelligent building the library itself will not operate automatically as a library prepared for the future decades. The overall quality of the building and its organisation are fully depending on human factors: the positive and time consuming involvement of the staff of the library.

**Conditions for buildings facing the next century**

Standards do not fully help in the discussions since the functional model of a library we are always looking for, could be hardly described with standards. The main criterion for understanding is the interrelationship of areas and services, their mutual influence and connections. 'However we must not underestimate the psychological impact of standards'. It is only fair to state that standards or guidelines proved a useful tool for planning and design of library buildings. But standards or guidelines, are mostly fixed and applicable for a longer period of time. Changing societies with changing ideas and technological changing and circumstances for libraries can not be met with too fixed standards or guidelines.
Being ahead of answering questions as, which conditions we have to face in building libraries for the future century, technological changes are sweeping across the world, affecting societies, businesses at a speed and to a degree that certainly is without any precedent in history.

One of the most and major driving forces behind these changes are new developments in computer and network technology which are revolutionizing world-wide communications and the methods by which information is stored, accessed, communicated, published and applied.

Our library users are not looking on libraries not only as a source of books, but also a considerable source of information and education in all the newer forms. When looking at the future prospects of libraries, there is one thing that immediately comes to mind, the all-embracing computerization.

We all know that the supply of electronic information is increasing, but also that for the next decades printed material on paper, books, will still continue the most important data carries.

The technological development which has transformed the most aspects of our society has also transferred the libraries and will do so even more in the years to come. But the library will survive - as will the book. On the other hand don't overestimate the call for information technology in our libraries and their buildings, either underestimate - in planning your new library building - the basic value of a detailed program of requirements. Which includes the accessibility of knowledge: in written form as well as the new resources.

Programming

Every new library building has more or less the following basic assumptions:

- a repository for accumulated knowledge for all those users and students,
- an active information and resource center for business, trade and individuals,
- a prime receiving and distribution point for electronic information with links to all kind of libraries and other databases worldwide,
- a support center for education and lifelong learning,
- a hub of the library system, lending support to branches and other libraries.

The design of new library buildings mostly reflects the following concerns or issues:

- the building is welcoming, inviting in approach and non-intimidating,
- has highly visible service areas and promotes self-directed services,
- promotes the vast majority of the collection sources on open, or easily accessible shelving,
- is organised and designed to recongize long hours of public service,
- serves mostly as the nerve center of a large and growing library system composed by many buildings and services,
- accommodates the present and future teclogy needs not only in the building itself but also as the center for the library system in the community, university region or state,
- is potentially expandable,
- provides internal spaces which are easily adaptable to changing service patterns and changing library needs,
- architecturally: a firm and proud statement of a well-designed library that does not sacrifice aesthetics. It must be cost-effective in terms of operation and layout. It must finally be responsive to ever changing needs.

Planning conditions

In the preparation for the new city library in The Hague, we described firstly the main
functions of the central library, which were:

- a so-called background library for the network of libraries in the city, more specialised and with larger collections than the branches,
- for the residential area in the city close to the building it acts simply as a branch, albeit larger than the other branches,
- the function of a regional support library with scientific literature for greater The Hague,
- serves as a nerve center relating to technical services for the network. Acquisitions, cataloguing and automation including new media and IT headquarter of the organisation. Management and administration is carried out here. It also provides lending materials to special groups.

One of the most important planning conditions was and still is teamwork. Creating of a new library never is or was the work of one person, or one company. It requires the cooperation of a whole team, each member with his own contribution te make' 2

Planning new libraries is also seen as giving long-term policies further shape. It takes years, many years, sometimes decades from the first ideas for new premises for the library into the effective opening for the public.

The architect's brief, composed by the library staff and its consultants, is the necessary document for the successful start of the coming planning process. It order to take care of down to the last detail the essential information for the architect designing the building, including all those experts which are also involved in the project. The so-called 'building team' brings all in once all the expertise to all the partners of the project. The same information is, at the same time, available for all those partners in this process. Architect, contractors, vendors, consultants. A second advantage ensures the willingness for close cooperation. The better the preparation of this brief, the better the final result: a functional, well designed library building. The brief follows the first published feasibility study for the new building mostly prepared to convince the authorities for planning the new library building and secondly the initial brief.

This initial brief sets out the general philosophy and requirements of the library.

Its aim is to provide enough information to allow the overall needs of the library to be met at this stage of preliminary design, with the expectations of subsequently developing the updating of the original brief. Main reason for updating the original brief is the fact that it takes mostly years and years in preparation, for instance for finding the location of the building, the allocated money and selecting the architect.

In all those documents I've gone through during the last decades two main data strikes me nearly every time: the mostly missing information for the floor loading and the desired intensity of light. It is the library staff to provide the others involved with this information. In The Hague we asked for the intensity of light to be measured from the bottom shelf, ten to fifteen cm from the floor. Normally in The Netherlands the height which has to be measured is 75 cm from the floor. With that specific figure in our initial brief the miscalculations by the contractors where changed in time and without any extra costs for our library. It pays to prepare a detailed brief.

The better the planning conditions are the more positive effect it has on the running costs for the building. The basic rule for the control of the initial and later on the running costs is the following: When the library, as client, those costs of the project wishes to control, it is essential that on the right moments all those costs are fully monitored.

In the phase of programming for instance originates about 60% of the costs and in the design phase of the architect another 20%. At the moment of approval of the final design of the architect about 80% of all the buildingcosts are therefore tied up.
The initial stage of the planning process is for the control of the initial costs very, very important.

There are the coming cost for 80% 'created', but this period gives the library the optimum possibility to influence those costs. We all know that it will take sometime years in realising the so desired project, but never forget that influencing the initial and later on the running costs means: take your time as library and participate fully from the very first moment of the project.

Make decisions from that same very first moment on.

**Programme Management Group**

A positive side effect in writing and preparing the brief is the fact that the staff in a very early stage starts thinking about the new accommodation. This will always increase the involvement of all the members of staff in the forthcoming years of hard working for the so desired new building.

During the whole period of the building process in The Hague, many staff members have been actively involved.

Internally the consultations were organised as follows:

this main group, the so-called Programme Management Group, consisted of a small group of senior staff members. It regularly evaluated the results of all the different project teams. The decisions of this programme management group were mainly based on the information and advise of the a great variety of different project teams.

Those teams or working groups researched all kind of different subjects and recommended solutions to the management group, solutions based on inventories of possibilities. The most important working groups were: working group on security, on sighnposting, on collection building, documentation, information desks, infra-structure, furnishing, internal transport, on cleaning, the lending centre and on removal the old library into the new complex.

During the whole of the planning process, building, furnishing and removing, much information was given by means of informative meetings, a monthly report in the staff magazine and a special brief for the removal. The last brief was prepared in detail and fully based on a self developed and designed computer file.

**Spacebook**

Next in the process of planning for our library the arrangements for the library floors crystallized itselfs. In the very detailed 'Spacebook' the library described, per floor and per room, what activity should take place where, and what technical standards the space must meet.

Nearly everything was summarised: the functional relations of the room, the area, the internal transport, floor covering, floor loading, the required temperatures and humidities, the light intensity required and all the technical engineering data for the information technology and automation processes within the library and with all the data worldwide.

**Datasheets**

The next fase in the project was the interior lay-out of our library. After a year of considering, brain-storming, shoving around with virtual chairs, tables and shelves, modelling, detailing and testing, the lay-out of the new central library could be decided on.
During the process of preparing the very detailed lay-out of all public departments and the staff workrooms, together with the complete and very detailed product description we developed and have drawn up the next document, called «datasheets».

In connection with the detailed product description we added for instance all the exact measurements of all parts of the furnishing: counters, chairs, tables and all the shelving, including items as booksupport etc. To complete the datasheets we included also the specific technical descriptions of all the materials.

For the planning process of this part of the project it was very helpful and important. With the datasheets we could get a clearly structured and detailed overall view of all the materials to be delivered later in the process.

Trends

What are some of the existing, already well known concerns librarians will need to address as they plan libraries for the next decade and beyond?

1. Facilitation of full self-utilization by the general public, the users of the library. Through signage, organization, lay-out and design, the user should find libraries easy to use, without guidance by the staff.

2. Efficiency in staff utilization. The reverse of the first item is that libraries will have to do more with fewer staff so that the building must serve as the instrument to facilitate this economic requirement.

3. Security for users, facilities including collections. Security within libraries will be further more an increasingly critical issue. Security for users and staff and collections is costly with extra personnel and other facilities. The reduction of public access to a single point well controlled by electronic book detection systems or other means, the openness of planning to assist automatic overseeing of most public areas in the building, goes some way to reduce the loss of books and also to control the behavior of users in many instances, so that vandalism is reduced.

4. Wise investment in technology. Libraries have always been repositories for ideas. This hasn't changed. What has changed is the way ideas are stored, organized and presented. Much of the information generated today is digital. It emphasis is predominantly visual. In the past we spoke of reading something that interested us. Today we speak of having seen something that interested us.

5. More space, higher operating costs, lower budgets. Planners will have to work even harder with decreasing budgets to provide as much space as possible to accommodate both the traditional services and the new opportunities that libraries are providing.

Some examples of library buildings designed to meet future needs

The architectural design, construction and interior design of libraries are basic elements for user friendliness and have a lot to do with one another. For instance, the location of a library plays an extremely important role in appreciation by the library users.

This is particularly true for public libraries in cities, towns and villages, but it is as true of the architecture and interior design of all those premises. The atmosphere and form of presentation of the diverse range of facilities provided by libraries are of essential importance for the quality of the library organisation.

In The Netherlands many new libraries have been built during the last ten years. The following is a small selection of libraries coping - all in a different way - in a positive way the future trends.
**Groningen**

The central library of Groningen opened in 1992. This public library is situated in the centre of the historic inner city area, immediately adjacent to the university library, which was built in 1997. The 8.500 m² building was designed by the well-known Italian architect Giorgio Grassi.

The building is in perfect harmony with its historic surroundings and the architecture is characterised by sobriety and clarity.

**Almelo**

The Almelo public library dates from 1994. Clarity, openness, unusual architecture and a wealth of moods characterize this building. A prominent area is the grand cafe in modern high-tech styling with spacious restaurant facilities ranging from a cup of tea to plate service. This grand cafe serves as a reading room, but it is also intensively used for lectures, debates, concerts, and other cultural activities.

Another striking feature is the market-like information square that is the library's showcase, where the organisation puts on exhibitions to present itself to its users.

**Technical University Delft**

The location of the new university library in Delft is an intriguing one: right beside the colossal hall by the famous Dutch firm of architects Van den Broek and Bakema. The surrounding concrete setting was the inspiration for drastic change. The hall looks as though it has come from outer space and landed on a field. The field has been tilted upwards at one point to form the roof of the library. The new university library, which has a surface area of more than 10.000 m², was designed by Francine Houben from the Dutch Mecanoo firm of architects. The building is composed of glass and frass, making it a construction that is trying to be a landscape rather than a building. The roof of the library is one with the basement of the existing hall, so that the two buildings are inextricably linked.

**Eindhoven**

The central library of Eindhoven is housed in a former Philips factory; called 'The white Lady'. This public library, situated in the industrial part of the city, opened its doors at the beginning of 1998. It presents itself to the public there in a completely new way. All the emphasis of the public library in The White Lady is on its information function, and modern information and communication technology is fully deployed in the service of the user without neglecting the graphic materials. This is assisted by a large interactive vidiwall at the entrance, including the virtual ground plan with news and information.

The heart of this library is literally formed by a dynamic information centre which can and will cope with future trends.

This public library functions not only as a community recourse, serving the informational, educational and recreational needs of the users, but as a civic meeting point.

**The Hague**

Since September 1995 a popular building stands in the heart of the city, housing the new City Hall, the City Archives and the new Central Public Library of The Hague. This library is situated on spacious, well-organized floors in a dazzling white building by the famous USA architect Richard Meier. The new central library, with floor space of almost 15.000m², really is an eye-catcher. Most of the library is housed in the eight storey round form that stands majestically in the centre of The Hague. The library appears to twist itself around the gleaming white city hall, with which it is connected. The architect's design thus deliberately accentuates
the library. The building is compact, flexible, inviting and functions as a distinguished book and information centre for all. This building too is designed to meet future needs.

**Tilburg university library**

The strategy for the development of a digital library at Tilburg university is being developed in close connection with the overall strategy of the university. The university library is based on the importance of a well elaborated planning process. A close cooperation between the library and the computer centre in order to realize the goals which were set was one of the success factors. The involvement of staff can be identified as the most important factor.

When the building was opened in 1992, the direction for innovative services was set and various new and exciting facilities could be offered to users campus-wide. Since then these services have been renewed in such a way that the university still maintains a leading position in the innovation of scholarly information provision. The building was and is fully prepared to meet future trends and future needs.

**Conclusions**

1. The library - and this may well be the most important challenge within the whole process to the librarian and its staff - must have the courage to make decisions. Decisions towards all the parties involved in this complex planning building and design process: towards their own library organisation, as well as towards the decision-making authorities, the architect, consultants etc., even though there always remains a certain change of making mistakes. Success is by no mean certain, but the final result will only be improved in the described way.

2. Building the library, including the interior lay-out and the furnishing is not exclusively a task for specific experts, such as architects, contractors and consultants. The direct and intensive participation of the library staff, from the very first moment of the planning process, in all the different and complex aspects of the development of the program is essential for the functional, architectural and technical quality of this library.

3. The library staff itself must formulate in every detail its criteria and should have no fear to indicate its priorities. Consistent applications of those criteria will serve all the involved parties: such as for instance the architect, the designer of the interior of the library, but also the local or other authorities. Including the formulation of possible and sometimes necessary alternatives and compromises.

4. Designing a new library always is a joint responsibility of several parties. In addition to the architect, a large number of consultants, mostly employed by the architect and the construction firm, are participating within the process. They practiced for instance structural, civil, mechanical, electrical, acoustical, lighting, elevators, escatalors, kitchens, landscape, security and sometimes furniture and graphics.

5. The library is a cultural institution and has certain extra qualities like character and style. Its building and presentation of all the services is as wide as a department store.

6. Libraries have a splendid future. They will accommodate fewer books and an increasingly larger number of visitors. Users do not just want to sit alone in front of a computer but want also to be in a living environment together with other users. The library now and in the future is that lively cultural meeting place, that library 'department store' where people are looking for when visiting their library.

*Finally hard working craftsmanship of the staff of the library still is the main key for success in planning that new library building. Don't think that a functional, flexible, intelligent and
A high-tech building will operate automatically as a good library.

Notes:

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