

IFLA Library Building Guidelines: Developments & Reflections

Edited by
Karen Latimer
Hellen Niegaard

K. G. Saur

IFLA Library Building Guidelines: Developments & Reflections

IFLA Library Building Guidelines: Developments & Reflections

Edited on behalf of IFLA

by

Karen Latimer

and Hellen Niegaard

K·G·Saur München 2007

Bibliographic information published by Die Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication
in the Deutsche Nationalbibliografie; detailed bibliographic data
are available in the Internet at <http://dnb.d-nb.de>



Printed on permanent paper

The paper used in this publication meets the minimum requirements of
American National Standard – Permanence of Paper
for Publications and Documents in Libraries and Archives
ANSI/NISO Z39.48-1992 (R1997)

© 2007 by K. G. Saur Verlag, München
An Imprint of Walter de Gruyter GmbH & Co. KG

Printed in Germany

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system of any nature, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher.

Printed / Bound by Strauss GmbH, Mörlenbach

ISBN 978-3-598-11768-8

CONTENTS

Prologue.....	7
Introduction: A New Tool for Planning Library Buildings	8
Hellen Niegaard and Karen Latimer (editors)	

I. DEVELOPMENTS & REFLECTIONS

1. The Top Ten Qualities of Good Library Space	13
Andrew McDonald, UK	
2. Reinventing the Physical Library: Libraries in a New Context.....	30
Hellen Niegaard, Denmark	
3. Investigating the Need for Space	47
Anders C. Dahlgren, USA	
4. Unlocking the Library:	
Library Design from a Marketing Perspective	55
Janine Schmidt, Canada	
5. Users and Public Space:	
What to Consider When Planning Library Space	68
Karen Latimer, UK	
6. Configuring Internal Staff Areas.....	83
Marie Françoise Bisbrouck, France	
7. How Was It For You? The Building Process in Practice	96
Andrew McDonald, UK	

II. GUIDELINES FOR PLANNING THE PROCESS

8. The Building Process Including How to Choose an Architect.....	119
Marie Françoise Bisbrouck, France	

Contents

9. A Practical Means of Estimating Library Space Needs	127
Anders C. Dahlgren, USA	
10. Interior Design Considerations and Developing the Brief	144
Cecilia Kugler, Australia	
11. A Library Project from an Architect's Point of View	172
Santi Romero, Barcelona Province, Spain	
12. Green Building Management and Sustainable Maintenance	203
Sean Wagner with contributions from Jeffrey Scherer, USA	
13. Reading Plans for Library Professionals	215
Olaf Eigenbrodt, Germany	
14. Renovating Historic Buildings	219
Santi Romero, Barcelona Province, Spain	
15. Site & Location	229
Hellen Niegaard, Denmark	
16. What to Look for: A Check List for Visiting Library Buildings.....	237
Marie Françoise Bisbrouck, France	

APPENDICES

National Standards – Introduction.....	247
France	248
Spain (Barcelona Province)	254
List of Contributors	258
Acknowledgements	259
Index	261

PROLOGUE

“As new media emerge and gain currency – the library seems threatened. The library stands exposed as outdated – at a moment when free access to knowledge is crucial.

The Library is no longer exclusively dedicated to the book and must change. From a book-fortress to a local community centre with lots of activities – *all* giving access to information and culture!”

Rem Koolhaas OMA – Office of Metropolitan Architects

When designing Seattle Central Library (2004)



Seattle Central Library. Photo: Office for Metropolitan Architecture (OMA)

INTRODUCTION: A NEW TOOL FOR PLANNING LIBRARY BUILDINGS

Hellen Niegaard & Karen Latimer, editors

This publication provides guidelines on the process of planning and designing library buildings and it also reflects on developments which should be considered when planning new library spaces. The guidelines provided are not a traditional set of recommendations to be rigidly adhered to since this would be unrealistic in today's fast-changing and international library world. Rather, key issues and stages in the planning process are identified and discussed. Library managers and architects should relate these to their own countries and circumstances and make the relevant local adjustments.

The recommendations given throughout this publication have been developed to inform, improve and stimulate the library building process. The focus is on planning with the intention being to assist library managers and architects to build "best-of-their-kind" libraries, to design tomorrow's top modern libraries and at the same time include the best traditions of yesterday's classic library buildings.

The publication is in two parts. Part I discusses general and current trends including changes in the concept of libraries. Part II gives more specific recommendations on how to proceed with the library brief and estimate space needs and looks at issues such as interior design, reading plans, renovating historic buildings and selecting a site. Appendices give some examples of national library building standards and some sample plans.

Although every effort has been made to avoid duplication there are major themes such as the growing role of libraries as social spaces and approaches to writing the brief for a new library building that recur throughout the various contributions.

Any recommendations given in any of the chapters reflect the opinion of the individual author and his or her country of origin. For specific professional issues it is recommended that the guidelines of the relevant IFLA Section be consulted.

Change in focus calls for new buildings

Three things have led to this publication. Firstly, the fact that designing and constructing a new library is an art most library directors and professional librarians only experience once or only very occasionally in their professional lives. The same is also often true for the architect. Secondly, the need for a publication which brings together in one place information required by library managers, planners and architects in any library building process. Thirdly, the context in which the physical library is undergoing a major transformation from collection-dominated to user-centred in line with changes in society and technology. At the beginning of the 21st century the concept of the library is shifting in focus – from collections to connections/communication and from storage to access in order better to respond to challenges posed by an increasingly digitised and networked information-based society.

The information or the knowledge society, also known as the electronic age, is about to change library buildings and their focus radically. In the years to come we will see an increasing development from book-and-shelving dominated libraries to hybrid libraries, a combination of physical and digital services.

Libraries must provide access to information not only via printed and other physical materials but also electronically. Increasingly encyclopaedias, dictionaries, non-fiction, articles, music, film and other multimedia materials will be provided *on a digital basis*. In addition these services will be available 24/7, (24 hours and 7 days) in your home, at your job, on campus or elsewhere via computers of various kinds including handheld devices like cell phones.

What will this development mean for the physical library building? What does it take to create the modern library building of tomorrow? Nobody seems to have *all* the answers to these questions but one thing is certain – all library stake-

holders, public authorities and universities, will have to re-evaluate not only their services but also their library buildings to ensure effectiveness and a sustainable library service.

It should be noted that these changes are also influencing library design in developing countries. However, in many regions, in particular in rural areas, just to run a modest library facility with a few stacks of books is still an achievement – though not the subject of this publication.

The Contributors

The work on guidelines and recommendations carried out by IFLA's Standing Committee on Library Buildings & Equipment stems from two sources. Firstly, the working group members themselves and their associates who are all experienced professionals – consultants, architects and library managers and who have all been involved in planning one or more libraries. Secondly, papers and debates from the three most recent Library Buildings & Equipment Section biannual pre-conferences on library buildings. The pre-conferences in Boston 2001, in Paris 2003 and in Helsinki 2005 were entitled *Future places: reinventing libraries in the digital age*, *Libraries as places: building for the 21st century*, and *The physical library and beyond: library as a place and library in cyberspace*. The proceedings of the pre-conference in Paris were published by K.G. Saur in 2004 (IFLA Publications 109).

List of authors – see Appendices.

Part I:

DEVELOPMENTS

& REFLECTIONS

1. THE TOP TEN QUALITIES OF GOOD LIBRARY SPACE

Professor Andrew McDonald

Director of Library and Learning Services & Head of Lifelong Learning Centres, University of East London, United Kingdom

This paper explores the ten most important qualities of good library space. These qualities help us define the key issues we should be considering throughout the planning process so as to enhance our creativity in designing wonderful new spaces to meet the changing needs of our users. The paper also reflects upon some of the trends we are seeing in the growing diversity of imaginatively-designed new libraries around the world and concludes by contemplating the future of the library building as a 'place' in the electronic age.

What's in a name?

While this paper concentrates on university libraries, the qualities presented are sufficiently generic to relate to the successful design of other sorts of libraries and, indeed, to learning space in general. Although the word 'library' is used, and this continues to be a strong brand in society, institutions have chosen a number of different names for their new buildings. There are new learning centres, learning resource centres, learning streets, learning hubs, learning malls, learning grids, research villages, idea stores, book bars, cultural centres and so on.

As an example, in the 1980s and 1990s, some regarded learning resource centres as a new building type with qualities distinct from traditional libraries (Higher Education Design Quality Forum, 1996). But now many forward-looking, new 'libraries' offer similar facilities and in practice are 'hybrid' services with, perhaps, a different balance of traditional collections, electronic services and reader places, whether in support of learning and teaching, or of research, or both (McDonald, 1996). There is currently considerable interest in the design and management of technology-rich learning and research spaces in general within both further and higher education (HEFCE, SMG, 2006; JISC, 2006; SFC, 2006).

More new buildings than ever

Despite some almost reckless predictions about the end of libraries and their book collections, due to the rapid growth in networked electronic information and the use of the internet, universities continue to build new libraries and refurbish existing buildings.

In the last twelve years there have been more than 120 new academic library projects in the UK costing an estimated £500 million (SCONUL, 2007). In the USA, 160 public library and 29 academic library building projects were completed in 2005/06 alone at a cost of \$900m and \$440m respectively (Fox, 2006). Each one of these designs represents a particular vision of what a new library should look like, both from the inside and the outside.

We are seeing growing interest not only in major new buildings, but also in much smaller projects designed to make better use of existing spaces within libraries.

TEN QUALITIES OF LIBRARY SPACE

It is recognised that good library space has ten important qualities and that, ideally, this new space should be:

- **functional**
- **adaptable**
- **accessible**
- **varied**
- **interactive**
- **conducive**
- **environmentally suitable**
- **safe and secure**
- **efficient**
- **suitable for information technology**

In addition, new library space should have

- **the ‘oomph’ or ‘wow’ factor**

1. The Top Ten Qualities of Good Library Space

These generic qualities help to define what planners should be striving for in their new libraries and indicate the key issues upon which the library director must have a view. They are the critical issues that should be addressed in the programme statement or brief and should be discussed by the planning team throughout the planning process, and they give us some criteria against which design solutions can be assessed. Indeed, they are the very qualities that taken together set libraries apart from other building types.

Clearly, the priority given to each of these qualities will depend on the mission, culture and aims of the library service. They are intended as an indicative set of qualities and should never be taken as a prescriptive set of solutions. Inevitably there are tensions and even conflicts between these qualities, as well as within each of them, and they all have resource implications.

These qualities are equally relevant to all space planning exercises: a new building or an extension, a refurbishment or an adaptation, making better use of existing space, or any combination of such projects. Clearly, design solutions vary considerably in different universities, in different higher education systems and in different cultures and climates. However, it is reassuring that the key considerations and design trends in all sorts of libraries are surprisingly similar all over the world.

Let us consider each of these defining qualities in a little more detail.

■ Functional – *Space that works well, looks good and lasts well*

We should aim to design libraries which are functional, easy to use and economical to operate. New space must enable the library to fulfil its role and facilitate the delivery of high-quality services. Functional interests should take priority over any purely aesthetic considerations, but our libraries should look really good too. The design should recognise the crucial importance of people, books and information technology, and the complex and dynamic relationships between them. In universities it should achieve a balance between the needs of the teaching, learning and research communities; in public libraries a balance be-

tween recreational and knowledge-seeking space. New space must also enable the service to respond to the changing needs of their communities.

Recent design trends emphasise a people-centred approach to planning (Wu, 2003). Planning new library space is essentially about people; or rather it is about creating the space in which people can interact with the collections, information technology and services they need. It is people who design libraries, people who deliver services and people who use them. Above all, the user should be at the centre of the whole process. As Dowlin (1997) confirms: “The magic of libraries is in connecting minds...and successful library buildings in the 21st century will enable those connections to happen”.

■ **Adaptable – flexible space, the use of which can easily be changed**

Future-proofing is a difficult art, but one fundamental question is how far ahead should we plan? As Stewart Brand (1994) reminds us: “All buildings are predictions. All predictions are wrong”. But any predictions about the size and nature of buildings required for the future will be influenced by our view on how library services will be delivered in the emerging information age. One library director reflects on this dilemma: “You can’t be sure how these spaces will be used. You are just creating the opportunities for things to happen” (JISC, 2006). Jones (1999) warns against planning for more than 15 to 20 years because of the pace of change in information technology, e-learning and higher education and in particular uncertainty about the impact of electronic storage on space. While others may prefer much longer planning periods, pragmatists might conclude that we should look as far ahead as we can, or perhaps as far as we can afford.

Paradoxically, one of the few certainties in planning new libraries is the almost guaranteed uncertainty about future use, particularly in relation to information technology, organisational structures and user behaviour. It is, therefore, important to achieve a high degree of flexibility in the building so that the use of space can easily be changed with the minimum of disruption, merely by rearranging the furniture, shelving and equipment. Achieving long-term flexibility can, however, be more costly than delivering short-term functionality, and planners are

1. The Top Ten Qualities of Good Library Space

now more pragmatic, seeking an appropriate balance between cost and adaptability requirements. For example, it is generally held that the floor loading should be sufficient for book stacks throughout the building. The growing use of information technology, often at the expense of book stacks, has challenged this view. Some learning resource centres, housing predominantly IT-based resources, have been constructed to office, rather than traditional library, floor loading standards. However, any potential savings should be carefully assessed against the loss of long-term flexibility.

■ Accessible – social space which is inviting, easy-to-use and promotes independence

The library is the central academic focus of the university and plays a strong social role in the learning, teaching and research processes within the institution. It should be as accessible as possible, encouraging and inviting people to make full use of the services it provides. It must cater for the growing number of increasingly demanding ‘customers’ and their diverse learning and research styles, and for both traditional and electronic modes of delivery.

Access should be as clear and straightforward as possible with a self-evident layout facilitating independent discovery and study: students should not have to understand how the library is structured in order to make use of its services. Great progress has been made in providing simple and attractive ‘way finding’ systems, and we are now seeing the use of digital signs, plasma screens and even audible clues.

The design of busy entrance areas is changing, particularly as many libraries have installed access control and self-service systems. The growth of 24/7 access requires attention to the security and robustness of the building and its collections, furniture and equipment, as well as to the safety of readers and staff.

The design must meet the current legal requirements for access by those with disabilities and learning differences, not least because good design for disabled people is generally good design for the able-bodied. An example of best practice

is considering the most appropriate lighting, colours and tonal balances of all surfaces for the partially sighted. The law in many countries requires institutions to make ‘reasonable adjustments’ to ensure access by disabled people and makes ‘discrimination’ against disabled people unlawful.

■ **Varied – with a choice of learning, research and recreational spaces and for different media**

We should provide a variety of study environments to suit the growing diversity of our users and their different styles of discovery and learning. Users should be encouraged to seek information at their own pace and in their own time, with provision not only for quiet study and independent learning, but also, increasingly, for group work and interaction. Indeed, the provision of social and collaborative spaces in which users can interact with each other is an important trend. The ‘hybrid library’ must, of course, provide access to both traditional and electronic resources, and an increasing amount space is devoted to IT services with associated information skills training and technical support.

The huge variety of reader places range from single-person to multi-person tables of various shapes, casual seating, study rooms and group study facilities. Some users like an ‘active’ or noisy social learning environment; others prefer a quiet study environment with good acoustic and visual privacy and this can be achieved to different degrees with various furniture designs, including table dividers, bookstands, mesh screens and carrels.

In some cases interiors are becoming more like an extension of the living room, providing the ‘emotional space’ for social interaction within the community. Trends in retailing suggest that designs will be influenced more by entertainment and technology and the need for ‘food with everything’, and planners in the USA have already explored the learning ‘theme park’ approach in public libraries. A variety of spaces can be created using different furniture, lighting, noise levels and even temperature zones. Indeed, zones or floors for different modes of study are increasingly common and these areas are differentiated by sound and visual clues, layout, style of furniture, and types of technology in dif-

1. The Top Ten Qualities of Good Library Space

ferent configurations (JISC, 2006). Semi-private or group study environments have been achieved within open plan spaces through interestingly-designed furniture, such as learning pods, screens and canopies (Watson, 2006). Views differ as to the most appropriate colours to influence the ways people use libraries, both in relation to the ‘hot’ colours required for lively interactive areas and the rather ‘cooler’ colours appropriate for quiet contemplative study. One design challenge is to create ‘inclusive’ spaces that reflect the growing diversity and ethnicity of our user communities. However, these are complex design issues, and there are some interesting tensions between creating flexible and well-defined spaces, and between creating personal and social spaces all within one building.

Many new libraries remain ‘standalone’ projects, but some have been planned as innovative ‘joined-up’ services. Several libraries incorporate a range of non-traditional activities into their building, such as learning cafés (Boone, 2003&2004), student support services and other social learning spaces. Some universities are providing integrated, one-stop student services, emphasising their role as the natural hub of the whole campus (Watson, 2006). Others are building joint facilities with partner bodies with whom they are working to broaden participation in learning throughout life. In the USA, some new facilities have been built with student services, health centres and other academic services (Fox & Jones, 1998).

Joint university and public libraries have been built in Scandinavia and the USA (Fox, 2005). Recent new public libraries in the USA have wonderful teen spaces and the buildings have combined with cultural centres, theatres, conference centres, schools, office blocks, service centres and cafés (Fox, 2006). In the UK, the Barking Learning Centre is a new learning place, providing joint public and academic library services together with classrooms for teaching courses for employment and one-stop local authority services. New learning centres in the UK have been created in companies, shopping malls, churches, football clubs and other places convenient for lifelong learners (McDonald, 2000a). Exciting new joint amenities are emerging from the closer working relationship between libraries, museums and archives. There are huge opportunities in planning these

multipurpose ‘places’, but also significant funding, political, cultural and organisational challenges.

■ **Interactive** – *well-organised space which promotes contact between users and services*

We must achieve an appropriate balance between the space for collections, services, readers and information technology. The well-organised library not only makes optimum use of the space available, but also promotes interaction between people, and encourages the use of its services. Indeed attitudes to the provision of services are changing. Designs are increasingly reflecting an integrated, customer-friendly approach (McDonald, 2002), moving away from what may be regarded as an overly complex, ‘silo’ model of service provision driven as much by supplier interests as those of customers (Watson, 2006).

The main counter, enquiry points, group study spaces and information skills rooms are all key areas of interaction in modern libraries, and we are seeing new spaces for interactive and experience-based activities.

■ **Conducive** – *high-quality humane space which motivates and inspires people*

As the heart of its community, the library should convey a sense of quality, value and ‘place’. The ambience should be conducive to study and reflection, and should encourage and inspire its users. Readers, many of whom study for long periods and in increasing numbers, should feel comfortable and safe.

Imaginative architecture, exciting features and varied internal spaces all contribute to the ambience of the environment. This can be further enhanced by paintings, sculptures, stained glass, sensory gardens, and other ‘cultural artwork’. An investment in a high standard of furnishings and finishes will also create this sense of quality and will withstand heavy use over an extended period with the minimum of maintenance. The library should be much more than an unimaginative ‘swotting shed’ with high density regimented work places.

1. The Top Ten Qualities of Good Library Space

Noise, particularly from computer clusters and users themselves, is an increasing problem in libraries and planners are paying considerable attention to the management of sound in new buildings. Ironically, this is even more important in buildings where social learning and group work are encouraged, because effective noise management enables users to interact with each other without disturbing others unnecessarily. Acoustic consultants are now often part of the planning team. Established approaches include zoning activities and attention to floor and ceiling finishes. We have already touched on the influence of colour on user behaviour. One fundamental dilemma is the design of the staircases in the building. Some new buildings are designed around an open central staircase for transparent access and airflow considerations while in others planners have enclosed the staircases to contain the inevitable noise associated with readers moving up and down the building.

■ Environmentally suitable – with appropriate conditions for users, books and computers

Suitable environmental conditions are required, not only for the comfort of users, but also for the efficient operation of computers and the preservation of library materials. Ideally, temperature, humidity, dust and pollution levels should all be controlled. Natural or passive ventilation, now common in new buildings, provides an affordable, sustainable and a people-friendly solution, although some argue that global warming may necessitate greater control of environmental conditions in the future. Any building or energy management system fitted should be designed to accommodate the lowest common denominator of building management. Buildings should be environmentally appropriate and many current designs are required to be carbon neutral.

The ambient lighting, whether natural or artificial, should be sufficient both for book stacks and reader places, and must take account of the growing use of computer terminals by users and library staff. Task lighting or individual table lights have traditionally been used to upgrade the lighting at the reader's desk, but we must make sure the design does not get in the way of installing PCs. Large glazed areas mean that users can enjoy exterior vistas and natural day-

light, but double and even triple glazing, tinting, solar film, blinds or architectural shading are necessary to alleviate the worst effects of noise, solar gain and solar glare. Atria can introduce welcome light and natural ventilation to the centre of large buildings.

■ **Safe and secure –for people, collections, equipment, data and the building**

There are security risks associated with the building, its users, collections, equipment and data (Quinsee & McDonald, 1991). The design must conform to current health and safety legislation and particular attention should be paid to the ergonomic design of workstations, to securing IT equipment, and to operation during non-standard working hours. Unfortunately, good security measures can sometimes conflict with convenience, aesthetics and even safety.

■ **Efficient –economic in space, staffing and running costs**

Libraries must operate as efficiently and economically as possible and most universities will stress the need for minimum running and maintenance costs. In recent years space management, utilisation and efficiency (HEFCE SMG, 2006) and life-cycle costs have come under close scrutiny, and projects need to demonstrate value for money in relation to the large capital sums involved.

Universities may consider the economics and desirability of extending and refurbishing existing buildings as an alternative to constructing new libraries (Fox & Cassin, 1996; McDonald, 1993). Existing buildings may have a symbolic, emotional or architectural significance within the community and refurbishment may be consistent with established campus plans (Jones, 1999). Planners may also consider the economics and convenience of housing certain less used collections in mobile shelving or in on- or off-campus stores, often organised on a collaborative basis. At the same time, institutions are beginning to compare the relative life-cycle costs of electronic and traditional libraries.

1. The Top Ten Qualities of Good Library Space

■ Suitable for information technology – with flexible provision for users and staff

New space must allow the library and its users to benefit fully from rapid advances in information technology. Indeed, we should be planning buildings to reflect tomorrow's technologies rather than today's (JISC, 2006) and to surpass the demands of the internet generation (Fox, 2006). In designing spaces for effective, technology-rich learning, we must recognise the considerable challenges presented by trends in mobile learning, connected learning, visual and interactive learning and in supporting learning (JISC, 2006). Even though only about 24% of reader places in libraries in the UK have computers at the moment (SCONUL, 2006), the number of computers and peripheral devices continues to grow at a pace and readers are also bringing in their own portable machines. Nevertheless, the ultimate challenge is to have the capability to provide a fully networked computer at virtually any point in the building with an environment conducive to its use (McDonald et al., 2000). Wireless technology is enabling this to become a reality.

Effective planning relies on the combined wisdom and experience not only of architects and librarians, but also of computer experts and networking specialists who are increasingly becoming members of the planning team. A suitable proportion of the building budget, typically at least 15%, should be devoted to ICT provision to fund the cabling, active equipment, connections and hardware required, together with suitable safety, security and environmental measures.

A genuinely flexible IT support infrastructure is required with a blend of hard-wired, wireless and portable devices. Many new libraries are fully wired-up and provide cabling and trunking around the whole building with docking stations for readers to connect their laptops to the network. Wireless networking is now more commonplace as it becomes faster and cheaper, despite some earlier concerns about reliability and security, and enables users to turn any space in the building into an IT space.

Planners may choose to wire up all the study places, or they may economise by connecting only a certain proportion of them. Computers are often arranged on tables around the perimeter where they can easily be served from the wall, but are sometimes placed in the centre of the building to avoid problems of solar glare and gain. In many buildings, computers are simply placed on ordinary tables which gives the most flexible arrangement, but in others specially-designed computer furniture is used. Provision is made both for standing and seated users. In any case the design of workstations for users and library staff should respect the appropriate health and safety regulations and make suitable provision for wire management for both safety and aesthetic reasons.

The aim should be to arrange the PCs in an attractive way and provide a high quality electronic learning environment. We should compare the merits of distributed PC provision, close to the collections and other information sources, and separate clusters of machines with the benefit of centralised management and support. Machines can be arranged in separate areas or in open plan areas, and clusters often double up as teaching spaces. In designing the layout, there is an inevitable tension between providing the maximum number of machines and creating a conducive space for study. Large clusters generate considerable noise and heat, and care must be taken to ensure fire protection and security.

More space than ever before is now devoted to ICT services and support, and to information skills training. Self-issue and return systems can, meanwhile, radically change the way in which we design entrance areas and counters, since readers can undertake circulation transactions themselves virtually anywhere in the building. Smaller and lower, more informal counters can deal with those transactions which require staff help. RFID technology is increasingly common and the use of automated service kiosks, mechanical sorting devices and smart-card systems will also affect the overall design.

1. The Top Ten Qualities of Good Library Space

- **Oomph** – *inspirational space which captures the minds of users and the spirit of the institution*

The eleventh, and almost indefinable, quality is best described as the ‘oomph’ or ‘wow’ factor. Really skilful architects and expert planners will strike a clever balance between all these qualities to create inspiring buildings with exciting architectural features and enjoyable internal spaces which capture the minds of users and the spirit of the university.

The Library as a ‘Place’

The future of the library as a physical ‘place’ has been a matter of considerable professional speculation and debate. Despite some hasty predictions about the imminence and inevitability of the virtual library, universities around the world continue to create new libraries, often, as it happens, with growing printed collections. Rather than become replaced by information technology, the technology has moved in to the libraries.

Many new libraries are landmark buildings on campus with a strong ‘sense of place’, and they have facilitated a ‘step change’ in the support provided for learning, teaching and research in their institutions. These new buildings continue to provide the place where people can come together to undertake a number of important activities. They come in increasing numbers to study, learn and reflect, and, more and more, to meet, interact and exchange ideas. They consult the collections, retrieve information and use the computers provided. They seek the assistance and support of trained information professionals, and they make use of the whole range of managed services provided. The buildings are often the hub for distributing networked services to off-campus users and house growing collections and special collections of research and heritage materials. Importantly, these places help overcome the ‘digital divide’ by providing access to information for the information ‘have-nots’ in society.

Although the balance between these activities is certain to change, the library building remains the important ‘place’ where all these essential services can be

conveniently provided, even in the virtual age (Hurt, 1997). It is interesting that many of the most automated libraries in the world are still buildings and most often very pleasant ones too. While older buildings may have accommodated technology, today's new libraries are formed by it (Martin & Kennedy, 2004). It is likely that in the medium term physical and virtual space will be equally important and the main challenge will be in providing a blended service where the virtual and the actual spaces are complementary, influenced by the number and diversity of new technologies.

Libraries remain amongst the most socially-inclusive, enduring and well-used 'places' in modern society. Regarded as important 'third places', libraries are at the very heart of a community's social vitality: they are neither home nor work, but are places where people go for social interaction (Florida, 2000).

Creating good new buildings is critical, not only to the future of our universities, but also to the intellectual capital of our countries. We are witnessing unprecedented and dynamic change in society, higher education, technologies and management. These trends, and the considerable challenges they present to planners, are likely to continue at an ever-increasing pace. Tomorrow's libraries will look and feel very different 'places' from yesterday's buildings. An understanding of the essential qualities of good library space continues to inform the planning and design of successful new buildings which, as ever, encourage even greater use, often stimulating two- or three-fold increases in demand, inspiring future generations of learners and scholars.

"if you build it, he will come" (Field of Dreams, 1989)

Further reading and references

Bazillion, R.J. and Braun, C. (1994). Academic library design: building a 'teaching instrument'. *Computers in Libraries* 14(2), pp 12–16.

Brand, S. (1994) *How buildings learn: what happens after they're built*. New York : Viking-Penguin.

1. The Top Ten Qualities of Good Library Space

- Boone, M.D. (2003). Monastery to marketplace: a paradigm shift. *Library Hi Tech* **21**(3), pp 358–367.
- Boone, M.D. (2004). The way ahead: learning cafés in the academic marketplace. *Library Hi Tech* **22**(3), pp 323–328.
- Dowlin, K.E. (1997). San Francisco public library. In *Intelligent library buildings: proceedings of the 10th seminar of the IFLA Section on Library Buildings and Equipment*, The Hague, Netherlands, August, 1997, ed. Bisbrouck, M-F. and Chauveinc, M. München : Saur, pp 117–209.
- Faulkner-Brown, H. (1999). Some thoughts on the design of major library buildings. In *Intelligent library buildings: proceedings of the 10th seminar of the IFLA Section on Library Buildings and Equipment*, The Hague, Netherlands, August, 1997, ed. Bisbrouck, M-F. and Chauveinc, M. München : Saur, pp 9–31.
- Field of Dreams*. (1989). Directed by P.A. Robinson. Gordon Company, Los Angeles. Film written by W.P. Kinsella and P.A. Robinson, produced by B.E. Frankish, C. Gordon and L. Gordon.
- Florida, R. (2000). *The rise of the creative class: and how it's transforming work, leisure, community and everyday life*. New York: Basic Books
- Fox, B.-L. (2005). A storm rains on our parade. *Library Journal* **130**(20), pp 44–58.
- Fox, B.L. (2006). Betwixt and Be Tween. *Library Journal* **131**(20), pp 42–56
- Fox, B.-L. and Cassin, E. (1996). Beating the high cost of libraries". *Library Journal*, **121**(20), pp 43–55.
- Fox, B.-L. and Jones, E.J. (1998). Another year, another \$543 million. *Library Journal*, **123**(20), pp 41–43.
- Higher Education Design Quality Forum (1996). *Learning resource centres for the future: Proceedings of a conference organised by the Higher Education Design Quality Forum, Standing Conference of National and University Libraries, and Royal Institute of British Architects*. London : Standing Conference of National and University Libraries.
- Higher Education Funding Council for England, Space Management Group. (HEFCE, SMG) (2006). *Phase One and Two Reports*. London : HEFCE, SMG. <http://www.smg.ac.uk>. (23/5/2006)
- Hurt, C. (1997). Building libraries in the virtual age. *College and Research Libraries News*, **58**(2), pp 75–76, 91.

- Joint Information Systems Committee (JISC) (2006). *Designing spaces for effective learning: a guide to 21st century learning space design*. London : JISC.
http://www.jisc.ac.uk/uploaded_documents/JISClearningspaces.pdf (23/5/2006)
- Jones, W.G. (1999). *Library buildings: renovation and reconfiguration*. Washington : Association of Research Libraries, Office of Leadership and Management Services.
- Lang, B. (2001). Library buildings for the new millennium. In *Library buildings in a changing environment*: proceedings of the 11th international seminar of the IFLA Section on Library Buildings and Equipment, ed. Bisbrouck, M-F. München : Saur, pp 11–24.
- Martin, E. & Kenney, B. (2004). Library building 2004 – great libraries in the making. *Library Journal*, **129**(20), pp 70–73.
- Mason, E. (1996). Management of library building planning. *Journal of Library and Information Science*, **22**, pp 14–28.
- McDonald, A.C. (1993). The refurbishment of libraries – what should you be looking for? *Aslib Information*, **21** (1), pp 32–35.
- McDonald, A.C. (1996). Some issues in learning resource centre accommodation and design". In *Learning resource centres for the future*: proceedings of a conference organised by Higher Education Design Quality Forum and the Standing Conference on National and University Libraries, held at Royal Institute of British Architects, 1995. London : Standing Conference of National and University Libraries, pp 23–42.
- McDonald, A.C. (2000a). Lifelong learning and the University for Industry: the challenge for libraries in the United Kingdom. *Advances in Librarianship*, **23**, pp 207–238.
- McDonald, A.C. (2000b). Planning academic library buildings for a new age: some principles, trends and developments in the United Kingdom. *Advances in Librarianship*, **24**, pp 51–79.
- McDonald, A.C. (2002). Planning academic library buildings for customers and services. In *Building a successful customer-service culture: a guide for library and information managers*, ed. Mellings, M. and Little, Y. London : Facet Publishing, pp 143–165.
- McDonald, A.C. (2006). The ten commandments revisited: the qualities of good library space. In *LIBER Quarterly: The Journal of European Research Libraries* **16**(2),
<http://webdoc.gwdg.de/edoc/aw/liber/lq-2-06.html> (4/1/2007)
- McDonald, A.C., Edwards, V., Range, P. and Webster, D. (2000). *Information and communications technology in academic library buildings*. London : Standing Conference of National and University Libraries. (SCONUL Briefing Paper)

1. The Top Ten Qualities of Good Library Space

- Quinsee, A.C. and McDonald, A.C. (eds) (1991). *Security in academic and research libraries*. Newcastle upon Tyne : Newcastle University Library.
- Society of College, National and University Libraries (SCONUL) (2006). *Annual library statistics 2004–05*. London : Society of College, National and University Libraries.
- Society of College, National and University Libraries (SCONUL). (2007). *Library building projects database*. http://www.sconul.ac.uk/library_buildings/buildings/ (3/1/2007)
- Scottish Funding Council (SFC) (2006). *Spaces for learning: a review of learning spaces in further and higher education*. A report for the Scottish Funding Council prepared by Alexi Marmot Associates in association with HAA Design, 2006
http://www.sfc.ac.uk/information/information_learning/Spaces_for_Learning_report.pdf
(23/5/2006)
- Watson, L. (2006). The Saltire Centre at Glasgow Caledonian University. *SCONUL Focus 37* Spring, pp 4–11
- Wu, J. (2003). *New library buildings of the world*. 2nd ed., Shanghai : Shanghai Scientific & Technological Literature Publishing House.

2. REINVENTING THE PHYSICAL LIBRARY: LIBRARIES IN A NEW CONTEXT

Hellen Niegaard, Chief Consultant
Danish Library Association, Copenhagen, Denmark

The changing media landscape and ongoing technological innovation are influencing the physical library premises creating a communication-based library rather than a collection-based one. The information society implies new web-based library services, access to electronic resources and information-rich products that require new forms of mediation. This chapter describes that transformation and the need for modernization of the physical library building deriving from current developments and the implicit experience and learning focus. It also draws on examples of how Danish and other libraries are providing innovative physical premises and services. Finally, the chapter identifies issues and elements to be taken into consideration to ensure successful updating of the library as a building.

Reinventing the physical framework

Globalisation and information and communication technology have changed the classic library and its building, so familiar to users of both public and academic libraries over the past 100 years, forever. New library concepts are emerging and it is hoped that architects, politicians and library directors will be able to grasp the vision of the 21st century library and implement it in future library buildings for the benefit of their users' and society's development.

While some suggest that libraries as physical places are as good as "dead" because of increasing digital and web-based information – others are equally confidently planning and providing new facilities and services such as interactive library spaces and libraries without books. The perception of libraries and information resources in the 21st century is changing leaving both library professionals and "library owners" with a need to redefine and reorganise library services and in particular the physical library.

2. Reinventing the Physical Library: Libraries in a New Context

New library building projects are emerging in growing numbers in many countries, and certainly in all of Scandinavia, and they are trying to respond to the needs of the new era and the library of tomorrow. Not an easy task as a number of new buildings in recent years have shown. Two major barriers are seen: an adherence to traditional thinking and a lack of awareness as to what constitutes a future-oriented library. Too often rather conservative architects together with rather conservative politicians have apparently overruled directors, recreating their childhood book- focused library once more.

Somehow library managers, planners and architects seem fixated on the classic book-dominated library and have great problems in redefining libraries for the electronic age. Rem Koolhaas, Office of Metropolitan Architects (OMA), the architect behind one of the world's newer famous library buildings, Seattle Central Library (2004), notes that "As new media emerge and gain currency – the library seems threatened. The library stands exposed as outdated – at a moment when free access to knowledge is crucial. The library is no longer exclusively dedicated to the book and must change. From a book-fortress to a local community centre with lots of activities – all giving access to information and culture!"

Together with the city hall, the school and the hospital, the library as a building is considered one of society's central and basic public spaces. A building synonymous with knowledge *and* access to knowledge from the very beginning of time, the library is closely associated with wisdom and with mixing with one's peers. These are positive aspects valued throughout history and previously associated with powerful institutions such as the state, the church, monasteries and universities to name a few. Libraries should build on this reputation and heritage but need naturally also to reflect societal and technological developments.

TRENDS AND TENDENCIES

The change in media formats and the breakthrough of ICT (information and communication technologies) including access to online library and information services 24/7(24-hour and 7-day), have, together with the automation of manual handling and the emergence of extended self service points and sorting robots,

made it essential to change the way libraries are organised and layouted. It is time to rethink or reinvent the library's physical framework in order better to meet new needs and concepts. These changes encompass public and academic as well as school libraries – or indeed any kind of library.

Farewell shelving-dominated library space

The trend globally is to rethink the interior of the physical library including its "face-to-face services" in conjunction with the increasing range of digital services and create new public meeting and learning places for a fast developing e-society. Books and other printed/physical materials are still available but shelving no longer dominates the premises. Users and user facilities do.

Today's library functions as the citizens' 'house of the town' or as the campus's 'pivotal point' – a local meeting place providing opportunities for inspiration, dialogue, contemplation and study. Activities are available in several zones as stated by Karen Latimer in the text about users and public space. From the lively lounge with café and exhibitions and facilities that support activities such as conferences, concerts and theatre via information desks and large work-and-reading rooms to study rooms/cells. Naturally these buildings offer state-of-the-art ICT facilities some with walls but even some without as in the Sendai Media-theque (1988) by Toyo Ito, Japan. In short, a well-designed forward-looking library building should be the rallying ground for all citizens in a municipality or for students on a campus.

Two Danish libraries – Naestved Municipality (2004) and CBS Library Solbjerg Plads, Copenhagen Business School (2000) – are examples of recent library building projects focusing on users meeting, staying and working in the library rather than on books and collections. Layout and design key words are: easy access, oversight and flexibility.

Naestved library is from a Danish point of view on the absolute cutting edge in terms both of content, design and layout, which in the open-plan library consists of a number of zone-activities around a high-ceiled central hall and the access area. Storage practically is non existent, though those that exist, in the back

2. Reinventing the Physical Library: Libraries in a New Context

of the library collection area, are open to the public. All administrative working place is situated on the 2nd floor of the library (the 3rd of the building) in one large and open area, also including the management; approx. 8–10 m² per person including free space and meeting facilities etc.

Libraries are as stated experiencing a paradigm shift from collection focus to connection and library buildings must therefore be designed to reflect this. It is argued that the increasingly digital information and knowledge resources will transform the library over the next decade. Its services will in a few years time be based on, at a conservative estimate, 1/3 traditional services related to printed and other physical materials (of only modestly reduced dimensions compared to 2007) and 2/3 related to e-based information or services. What will it mean for the physical library?

There are currently many developments which will have an effect on the physical library as we have known it for more than hundred years. The following topics discussed below will give an indication of the factors to be taken into account when working on new library building projects. These issues should all be considered when investing in new and *future-oriented* library buildings today.

Focus on public access

In the last hundred years the industrialised democratic society opened libraries up and introduced them at a local level as *places of enlightenment* supporting access to knowledge and providing reading for all. Even at the end of the 20th century this trend has continued at a national level with national libraries in France – La Très Grande Bibliothèque de France, Tolbiac, in Denmark – The Black Diamond of the Royal Library and in the United Kingdom – the British Library at St. Pancras are all opening up to the general public in an attempt to promote a much broader access to cultural heritage as well as access to specialised and scientific information for all members of society not just for researchers and students.

A life-long learning community library

The libraries must be physical places of experience, where testing and playing with different types of media as well as forms of learning can take place in a way which supports citizens' innovation skills necessary in the e-society. The libraries must support citizens' use of self-serviced digital e-solutions (Library Policy of Aarhus, 2006–2009). The information society's life-long learning focus and ICT development have meant that libraries have had to extend their traditional reading-support to also include information-literacy services. In addition it has become obvious that there is a clear need for reshaping the physical library to include more working and instruction areas. Danish variants of this development are Library Home-Work cafés and targeted integration projects and facilities particularly in areas housing large numbers of 1st and 2nd generation Danes.

Idea Stores

In the UK, Idea Stores have, in the early 21st century, combined the best of traditional library and information services with first class lifelong learning opportunities in comfortable and friendly shopping mall environments. The plan is to create a series of bright, new buildings in local shopping areas; buildings promoting not only libraries and learning but also providing local "icons" and meeting places of significance. Through the new Idea Stores, Tower Hamlets Council in the London area is investing millions of pounds to create a network of adult education, library and information services in seven state-of-the-art buildings, all in local shopping centres. These buildings are more than a library or a place of learning. As well as the traditional library service, much valued by residents, they offer a wide range of adult education classes, along with career support, training, a crèche, meeting areas, cafés and arts and leisure pursuits.

Democracy and Citizen Service Centres

In Denmark public libraries are currently developing new partnerships with local authorities. A recent local government restructuring (Kommunalreformen 2007) process not only reduced numbers of municipalities to ninety-eight and replaced

counties with five large regions, it also meant new public services in public libraries. One is as a strengthened platform for local democratic development, another is Citizen Service Centre offering services that were dealt with previously by the city hall. These trends make a lot of sense. The libraries' activities are built on several hundred years of tradition and experience with conscientious and professional selection of information and cultural material. Librarians vouch for the quality of the products acquired or to which access is given. In addition one of the library's foremost competencies is to handle and promote information for all groups of citizens.

Another partnership aspect relates to the outsourcing of services and functionalities which may also affect the design of new buildings today. An example is Kolding Municipality's new main library (2006) which runs part of the library services in cooperation with private companies. One of these is the circulation service including the self service loan and return system. Staff from the private company run the system and carry out all everyday jobs in the library's public area and have their own private back-office in the library.

New libraries without books

CBS Porcelaenshaven, a campus library and the first without books in Denmark, ushers in a new epoch of library service and design. *Porcelaenshaven* is a branch of CBS Library, an institutional library serving scholarly research and educational purposes at the Copenhagen Business School. The branch, opened in 2006, offers students, researchers and the public all library facilities needed except for borrowing books and printed materials though you may use the library to pick up books ordered from other libraries. Services include access to online catalogues as well as to e-books, e-journals, indeed to all sorts of electronic resources, as well as to professional assistance and work facilities. If you have queries or comments concerning the library you may go there during opening hours. Alternatively you can access services with your personal computer, or by cell-phone via the Library Chat function, or use the Request a Librarian service or get in touch via the Ask the Librarian mail service.

The library is an open space area with seventy study and work places including an open office space for the Librarian. Only four workstations are equipped with a computer as most visitors bring their own laptop and take advantage of the wireless access. The premises also include a classroom with all the latest ICT equipment. Porcelaenshavnen should not be confused with an internet café with access for students, faculty and the public. It is a high-class library focusing on professional guidance, information competencies and research services.

Shaping the interactive experience library

Modern library services and buildings should focus on the user, on users' needs and behaviour. Today's lifestyle is closely related to communication and to convergence within digital media, internet, television, broadcasting and mobile phone services and the increasing use of general IT-support-elements in private houses and in public institutions; for example for energy controlling purposes, security and entertainment etc. These ICT-technologies contribute to establishing a new "digital lifestyle" in the public sphere, in private homes and elsewhere.

A new constructive dialogue between building structures, ICT-support software and users/citizens is slowly emerging creating new interactive facilities different from the traditional perception of interactivity as described by McDonald in the first chapter and relating to technologies such as RFID and pervasive positioning; the system identifies positions within a millimetre – outdoors or indoors. The system will be used for commercial products and in public areas and will create a completely new era for library services within physical premises.

There are already indications of what the library of that future will be like.

One example is Aarhus Public Libraries in Denmark with its preliminary plans for a large new main library construction on the harbour front – The Multi Media-House – due to be built in 2012. As described by Jens Lauridsen in "Nordic Public libraries in the knowledge society", the existing main foyer is constantly changing character in a dynamic interplay between the room, users, staff, physi-

cal objects and new technology stimulating interactive learning and experience and creating a veritable library laboratorium and experimentarium for all age groups.

Another but similar trend is being seen in the Cerritos Public Library in California which offers a user-centric service. The new Cerritos library features themed physical areas, with layers of information of different types and formats in every space, and interactive services. Modern technology has been incorporated throughout the new library and users love it.

WHY KEEP GOING TO THE LIBRARY?

Why go to the library when you can get anything you need from the internet? Citizens come to public libraries for the same reasons they always did – but they use them differently. They still come to find valid information and knowledge – for cultural experiences and they come for the face-to-face professional assistance. They use the library as a local point of departure in a personal lifelong learning process. And they come for contemplation and because the library is a neutral place for meeting and visiting cafés and exhibitions and a range of other activities.

And they keep on coming. Even though lending figures are declining, the library is being used – only in a different way. Access to knowledge and the availability of information is changing at an unprecedented rate as electronic and technological advances change the way society operates. Libraries have a new role not only in supporting reading and literature but also in supporting information literacy as access to public information and have become essential for the individual citizen and his or hers knowledge handling. One might say that the local public library is the local open forum for learning and in many ways represents the individual's own ‘university’ and centre for personal, lifelong learning and self-esteem.

Some of the patrons change their pattern of use; they only visit the physical library for picking up material they have reserved via the online catalogues – they

might be termed drive-in or take-away users. They might not ask much from the physical library but still their routine needs – coming in, picking up and leaving – should be thoroughly considered in the layout of a new library in particular in relation to plans for, and the siting of, the self service area.

The library as the meeting place

In line with current trends most libraries include a meeting place for their local community or campus. This is the concept of the third place, a space where citizens of all ages spend time apart from at home and at work/education, and also a place which is a centre for knowledge and ICT competence. What is really going to change physical space in central and branch libraries will be pervasive computing (ICT everywhere, for everyone, at all times), and use of the internet in the future. This implies a development where wireless and cheap electronics become a natural component in things other than the computer and the mobile phone, and are built into physical spaces, including the libraries. Most recent laptops have a built-in wireless net card, and in future this will probably be the case for all of them. Wireless communication and wireless networking areas and broadband with large capacity and increased speed will make net connection and even very heavy net files attractive. The library of the future is expected to offer a variety of interactive facilities and possibilities for ‘virtual reality’ (3D) experiences in connection with both cultural and knowledge mediation. Just as self-service for loan and returns is being streamlined thanks to the change from barcodes to chips, so will pervasive computing help streamline and simplify the library’s other activities. In what way exactly only the future can tell.

Today libraries compete with such places as restaurants, bookshops, shops, films and museums to offer opportunities for activities people find interesting and enjoyable. People meet at these so-called third places to discuss topics of interest and importance. This is not a new phenomenon. In the 19th century famous coffee houses in Vienna, Budapest and London were early examples of third places. There is competition for the role of a third place institution. Libraries will have to do much to secure their place as the key centre to get access to information – now and in the future.

LIBRARY BUILDINGS – NEW ARCHITECTURAL ICONS

Library buildings have recently gained a much higher profile, and therefore marketing value, for both their exteriors and interiors after many decades of bland design and self-effacing shapes and colours. Increasingly the buildings of both main/central libraries and branches are achieving iconic stature. New library buildings looking like sculptures attract broad attention and admiration. The library building's interior, with its focus on culture and knowledge, adds status to a local community. Unique architectural rooms are no longer reserved just for the elite or well-to-do communities. Design, fantasy, and the use of light and materials combined with new technology create new architectural attractions, often of international quality and standing.

The building envelope is, however, far from being the only way to market your services. According to Janine Schmidt, University Library Director at McGill University Canada, a marketing approach when designing library facilities might not only underline and support the services offered, it might also provide a more efficient and satisfactory library economy.

“The location, design and services offered by public libraries are changing in unprecedented ways, and will continue to do so in the future. After decades of gradualism and small-scale adaptation, the UK is now witnessing a radical step-change in thinking about public libraries, and how they are re-positioning themselves in the expanding educational and cultural networks of villages, towns and cities throughout the UK” is how author and writer on urban and cultural policy, Ken Worpole, describes the current situation seen from UK: “– education moves out of the institutions to affect the whole society”.

Library architecture of the 20th century went from the memorable designs of, for example, the Carnegie libraries in the UK and USA and the Asplund Public Library in Stockholm, Sweden, to an almost discreet library architecture putting functionality above all else. After decades of less striking architecture, another trend is gaining influence. Libraries are again being designed as icons in their local communities. Recent such examples of public libraries are Seattle Central

Library, Vienna City Library and KulturØen, Middelfart in Denmark, the Black Diamond – the Royal Library in Copenhagen – and for university libraries there is for instance the library of Delft University of Technology.

Finally, trends shared with most other public buildings include the creation of sustainable green library buildings and ones facilitating access for disadvantaged groups.

THE LIBRARY LANDSCAPE OF TOMORROW

The shape of the library landscape in the 21st century and the future is slowly emerging. The new landscape combines the physical and virtual public library service and this should eventually be reflected in the building layout and its design. Developments are occurring slowly but libraries are increasingly looking at helping users to move seamlessly between printed and electronic resources. Inspiration might be gleaned from Charlotte, Mecklenburg County, North Carolina, USA where the fantastic ImaginOn Building (library, theatre and interactive facilities) is combined with the related web site ImaginOn.org.

Another trend is a seamless library structure encompassing public and academic libraries. Future library structures will encourage cooperation between public and research libraries and might include joint services such as a national library portal, one national library catalogue and one reference service. Another trend is services based on national or local programmes in such areas as information literacy/handling of information, e-learning of various kinds, integration programmes and diverse forms of cultural experience as well as a number of services tailored to the individual citizen – child or adult.

THE ROAD TO SUCCESSFUL AND EFFICIENT NEW BUILDINGS

The alpha and omega of planning a successful new library building is to define clearly how it will operate and mediate between physical and digital resources. It might be said that this is no different from the approach of the last five to ten years but a strong and more concept-based vision is required to cope with the

new hybrid physical and virtual library environment. It should include self service issue and return services as prerequisites for the library's ability to develop and maintain both a high quality online information service and a face-to-face personal service based on professional librarians' help and advice.

A legitimate reason in the past for building a new library has been the need for more space as collections got bigger and bigger. Today, however, so much material is available electronically that this is no longer a valid reason. So the question, as discussed by Cecilia Kugler and Andrew McDonald elsewhere, is what else needs to be considered before the actual building process starts. It is, of course, important to look at users and user patterns, materials, services and technological developments. But that alone is not enough. An equally important prerequisite at an early stage is to decide how your new building will fit into the local scene in the future and what role it will play. All relevant service scenarios and their implications for library management should be considered and you should have a clear view about the future library profile and exactly what you want your library to achieve before you start.

Before starting the architectural building project, the following preliminary work and analysis should be carried out:

- Analysis of requirements for new services and functionalities
- Re-evaluation of existing service areas through user surveys and internal evaluation projects
- Defining future shelving needs including securing access to electronic archives
- Strategy for delivering information, particularly electronic resources, to the user taking account of changing patterns of use.

Tomorrow's functionality in relation to space

The libraries of tomorrow will, as mentioned before, no doubt include both printed materials and e-resources and services for many decades to come. However, we shall probably also increasingly see libraries without books and libraries focusing in their layout on one-to-one professional guidance as well as pro-

viding working space with access to all sorts of digital and web-based information. If the explosive growth of electronic resources continues and as more and more documents are born digital, virtual library services are bound eventually to overtake physical material and must be expected to make up a growing percentage of the collections.

Main Libraries

Also in the future the main library, of a municipality or a university, will function as the heart of the whole system with a high quality library building and a broad spectrum of activities including, for example, general administration, licensing and acquisitions. This is also where you will find the system's development department and an ICT centre for the system's virtual, digital net-library operation. The development department might include project and production rooms for members of staff working with net-borne information services and web-based services for the public. Then nearby might be an integrated, physical and virtual, common learning and ICT competence centre (with up-to-date library guidance from professional librarians with new skills and competencies) and maybe even a 24-hour information department.

Apart from housing the basic print collections, the central library must, in future, also act as the community's, or campus's, "third place" with attractive meeting facilities, exhibition spaces, project or group study rooms, listening and experiences space as well as individual work stations with PC search facilities to access online catalogues, electronic resources, web gateways and much more besides.

In public libraries, but perhaps also on some campuses, we shall be seeing more library branches like Porcelaenshaven (2006) the branch library of Copenhagen Business School, which has no books or printed materials but plenty of access facilities. Another model is the combination of physical and virtual services such as ICT-facilities and, for example, a newspaper area offering quick-reference and information retrieval, a café and cloakroom.

Library Branches

Library branch buildings, at least in Denmark, are slowly changing from the old ‘universal library’ concept to, for example, a new theme or partnership-oriented library. In the municipal library sector we now see branches in combination with Citizen Service Centre functions. Another model offers library services in connection with related local activities. These might be cultural centres or sports activities, or archives and museums and are expected, in addition to book mobiles, to be much more common in the future since partnerships and resource sharing is another currently favoured management trend in the new much larger municipalities with more inhabitants, and covering wider geographical areas.

A themed library, a physical local library, could be said to be reminiscent of the traditional branch library but it is designed and planned with a view to providing a service to either a specific user type, or to certain groups in the population. Each library will have its own professional profile based on local needs and user, or population, composition, and having a special thematic collection of physical materials and digital resources. In a municipal context there might be a family library (for families with small children), a youth library, an animation and film library, a sports and leisure library, an IT library etc. Haraldslund branch library in Aalborg, Denmark is a forerunner here. It functions as a local cultural centre with sports facilities, an internet café and a library offering news, sport and IT-collections. Another example is the Bochum Family Library, Germany which focuses on younger children and their families.

Theme branches may often include meeting places with a café and small exhibition facilities for local stakeholders, including facilities for wide-screen exhibitions, distributed via the central library or put up locally. The physical collections may be in two parts, a small basic general collection and the theme collection. There will also be a number of IT search facilities (catalogue and internet), multimedia work stations and a local IT learning centre with a couple of seminar rooms. The theme library will be close to other institutions, educational or leisure centres, or placed in larger local firms.

‘The hot spot library’, or the library without books, may look like an internet café serving light refreshments. It is, however, a local intelligent library space with only a few physical media, where access and professional assistance form the central service. In municipal public libraries, hot spot libraries will in addition have some magazines, newspapers and comics. In both places there must be web access and professional library help. In order to achieve the maximum effect, this type of library should be placed in busy neighbourhoods and areas and near places such as schools, sports grounds, public means of transport, town halls and shopping centres where many people congregate.

A smaller version of this type of library offers the same facilities but without a professional librarian’s in person. Instead professional assistance may be obtained via a ‘Cybrarian solution’ providing service to several “hot spot” libraries. Such a model can be seen in the Singapore SengKang Community based on a do-it-yourself concept.

Finally, a number of mobile units also form part of the public library landscape of the future. A public library system might include small and large book mobiles – or book boats when geography dictates this.

CONCLUSION

In summary one thing is certain – libraries cannot afford to do things the old way and this applies whether we are talking about building a new library or not. Clearly there are no simple standard solutions available for transforming a traditional collection-based book library into the library of the 21st century. However, in order to ensure an efficient and future-oriented library service, it is highly recommended that a detailed analysis of the context within which the library will have to operate in the near future and on a long-term basis be carried out. A strategy – devised for updating the physical library as well as for implementing the new services – should also be devised. Both tasks must be carried out before an actual building process begins so that you will have the optimal basis for investigating the need for space as described by Anders Dahlgren in the following chapter.

Further reading and references

- The Architecture of Information (1996). Venice biennale 1996: VI international exhibition of architecture by Michael Brawne, Norman Foster, Nick Grimshaw, Richard MacCormac, Colin St John Wilson, Published by the British Council: British Pavillon, BAS Printers, UK
- Berndtson, M. (2002). A space for the future – library buildings in the 21st century.
Scandinavian Public Library Quarterly, 35(4), 24–25.
- Biblioteksbygning 1984 (1984). En vejledning udgivet af Bibliotekstilsynet.
Bibliotekcentralens Forlag, Danmark
- Books and Buildings. Danish Research Library Architecture in the 1990s (1997). Ed. by Leif Loerring and Erland Kolding Nielsen, Forskningsbibliotekernes Chefkollegium, København
- Build, renovate or detonate. A seminar on the future of public library buildings (2000) by Department of Infrastructure, Melbourne, Australia
- Creating public paradise (2004). Building Public Libraries in the 21st Century. Biblion, NL
- Edwards, Brian; with Biddy Fisher (2002) Libraries and learning resource centres, Architectural Press, Oxford.
- Faulkner-Brown, H. (1993): The initial brief. IFLA Section on Library Buildings and Equipment, The Hague.
- Gehl, Jan and Lars Gemzøe (2004): Public Spaces – public life; Copenhagen Danish Architectural Press, Copenhagen
- Hapel, Rolf (2005): Library Policy, Aarhus Public Libraries 2006–2009. Aarhus Kommunes Biblioteker, Aarhus
- Library Buildings in a Changing Environment (1999). Proceedings of the 11th International Seminar of the IFLA Section on Library Buildings and Equipment (J. Wu and M-F. Bisbrouck, ed.). Saur, München
- New Library Buildings of the World (2003, 2nd edition). Ed. by Wu Jianzhong, Shanghai Scientific & Technological Literature Publishing House, Shanghai News 2000–2006, Newsletters of the IFLA Library Building Section
- Niegaard, Hellen (2003): Byens Hus. Foranalyse til Nyt Hovedbibliotek i København 2006
Kultur- og Fritidsforvaltningen, Københavns Kommune
- Niegaard, Hellen: various building related articles 1985–2007 in *Bibliotekspressen* and *Danmarks Biblioteker*.

Hellen Niegard

Nordic Public Libraries in the knowledge society. Edited by Jonna Holmgaard Laren et al,
Danish National Library Authority, 2006.

Pejlinger af dansk biblioteksbyggeri af Hellen Niegard In B'89. En artikelsamling (1989),
Bibliotekscentralens Forlag, DanmarkSchmidt, Janine Schmidt: Marketing your library –
IFLA Pre-conference, IFLA Boston Paper 2001

“Shaping the ‘Experience Library’”. By Joan Frye Williams. *American Libraries* – April 2002
(p. 70–72)

“Spaced out in the digital age” by Cecilia Kugler at the XII. IFLA Buildings Seminar: Future
places: Reinventing Libraries in the Digital age” August 15–17, 2001 at North-eastern
University in Boston, USA.

3. INVESTIGATING THE NEED FOR SPACE

Anders C. Dahlgren, Director
Library Planning Associates Inc., Illinois, USA

How to determine the need for library space? A formal assessment of space need should be the first step in planning an expanded or improved building. The primary purpose of a needs assessment is to define the overall, or gross, area the library will need to support the services and collections that will be necessary to meet future community needs – in public and academic libraries as in all other type of library.

Needs assessment in the context of a building project

Often the IFLA Library Buildings & Equipment Section is asked how to calculate space needs or where to find architectural data relating to library buildings. There are currently no internationally adopted standards for library space as local needs and services vary. However a formal needs assessment is possible.

By identifying the necessary size for an expanded library, a needs assessment will guide the thinking of library planners and lead to better, more informed decision-making. When the scope of the library's needs are identified through this assessment, local planners will be able to evaluate more thoroughly and more accurately whether the existing structure can reasonably be expanded to support a building of the size needed.

Library planners will be able to evaluate the adequacy of the existing site to support a building of the required size. If the existing site is too small, the needs assessment will help define how much additional property is needed. If the library needs a new site, the required size of the building will help determine how large a site should be acquired.

The scale of the project identified through the needs assessment will begin to direct thinking about the cost of the project, which in turn will begin to suggest the kinds of financing strategies that will be needed. The size of the building needed will also suggest something about the likely configuration of the building – whether single-level construction or multi-level construction would be advisable.

Without an initial needs assessment study, important decisions like these – which are often made early in a building project – will be little better than a guess and will likely lead to unsatisfactory results as the project proceeds.

Earlier methods of estimating a library's space needs

Planning models to determine a library's space need have been prepared from time to time by library associations and other agencies. In the past, for example, the Public Library Association and the Association of College and Research Libraries within the American Library Association have issued recommendations and standards for public and academic library space needs. The Library Association and national library agencies from the Nordic countries, various state library associations, and others have also issued such standards.

The prior standards tended to define space needs as a measure of floor space per capita. A library would determine the number of individuals it would serve at some designated future date, and a formula would then be used to determine that library's space needs.

These traditional formulas, while simple and convenient, did not account for service variations that naturally occur among communities and libraries. Using a traditional per capita measure of floor space, for example, every public library that serves 7,000 people would require a library building of the same size. But it is obvious that any two communities of 7,000 people would have different demographic, social, and economic characteristics and different capabilities to support library service.

3. Investigating the Need for Space

Comparing libraries world-wide, any two public libraries serving 7,000 will likely enjoy a different heritage and varying traditions regarding library service. Any of these factors can reasonably produce different service needs in two communities that serve a population of similar size, and these varying service needs will lead to varying space needs. For this reason, the use of a traditional, per capita standard for measuring space needs has fallen into disuse.

Any library's space needs are determined directly by the library's resource and service inventory goals.

An overview of how to estimate library space needs

In Part II there is a companion to this chapter, detailing a methodology for estimating a library's space needs based on its future resource and service inventory goals. The recommended methodology is an enhancement of a similar method published by the author while on the staff of the state library agency in Wisconsin (U.S.). A summary of that method can be found at <http://www.dpi.state.wi.us/dpi/dlcl/pld/plspace.html> (viewed 2007).

The methodology for estimating library space needs is founded on the notion that every library's space needs are determined by the inventory of things – collections, resources, and services – that the library should provide to meet community needs. Typically, the larger that inventory of things, the larger the library's building needs to be.

By examining the library's service needs in certain defined categories, planners can use basic formulas to calculate the corresponding space need. These categories include space for:

- collections and library materials
- readers and library users
- library staff
- meeting and programme functions
- other miscellaneous functions
- mechanical and support services

Two brief examples here will demonstrate the simple concept that forms the foundation of this assessment process.

- An academic library determines that it should provide an inventory of 500 reader seats to support general use of its collections and resources. Obviously, each one of these seats will occupy a certain amount of floor space. A specific space allocation for each seat will vary somewhat depending on the particular type of seat (a lounge chair versus a study carrel seat) and the specific setting where the seat will be provided (a reading hall versus an individual study nook within the stacks). On average, however, each seat will require 3.00 square metres. A library that requires an inventory of 500 reader seats should expect to provide roughly 1,500 square metres of floor space to support that particular seating goal.
- A public library determines that it should provide a meeting space to seat an audience of up to 125. Each one of those seats requires a minimum of 1.00 square metres of area. In addition, an allowance of up to 15.00 square metres should be made to support a speaker's area or a small stage at the front of the room. An initial space needs estimate for such a space combines 125.00 square metres for seating (125 seats x 1.00), plus 15.00 square metres for a small stage, for a combined area of 140.00 square metres.

Estimates of the space needed in each of these categories can be assembled into a combined estimate of the gross area needed by the library. This forms the core of a space needs assessment.

In an ideal setting, this methodology will be used to forecast a library's *future* space needs, based on the library's *future* collections and service goals. Often, it is recommended that planners try to accommodate a twenty-year need, if for no other reason than that building projects do not typically occur more than once in a generation. Local circumstances – a rapidly growing, rapidly changing service community, for example – may prompt local planners to consider a shorter forecast period.

3. Investigating the Need for Space

The methodology is presented in this publication in a simplified form, thereby making it easier to use. It does not seek to account for every possible kind of collection a library may house. Instead, the methodology deals in more general, generic terms, focusing on four types of collections that are found in most libraries today – book collections, periodical collections, media collections, and electronic resources. If a library has an extensive collection that falls beyond these four more general types of materials, users of the methodology are encouraged to make such pragmatic adaptations of the method as may be needed to fashion a realistic representation of a particular library's needs.

The methodology also does not presume to identify or recommend specific service or resource inventory goals. Appropriate service goals will vary by type of library, by the size of the service community, and from one geographic region to another. However, when a library defines suitable service and resource inventory goals, possibly using local, regional, or national guidelines, this methodology can then be used to calculate a corresponding space need based on those service goals.

Uses of the space needs assessment

As noted earlier, by defining the required scale of a project, an initial space needs assessment directs the thinking of library planners regarding the adequacy of the existing building, and the ability of the existing site to support a building of the necessary size. Site selection and site acquisition considerations are informed by the space requirements of the library building. The size of the building will also affect the funding needed to realize the project. Perhaps most importantly, the space needs assessment serves as a basis for developing a project brief, or a written building programme.

A project brief, or programme, is a written description of the parameters to be achieved through the design of the building. It is a guide to the spaces and qualities that are to be provided inside (and outside) the building so the library can meet its functional service goals. A brief is a set of directions to the architect, describing the spaces to be found within the expanded building, the functions

and furnishings that will be supported in each, and how each space needs to relate to the other spaces in the building for maximum effectiveness.

An initial needs assessment following the outline presented here is *not* a brief. It does not provide the level of analysis expected of a brief. The initial needs assessment defines the library's overall, or gross, space need – which by itself is extremely useful in support of an initial analysis of expansion options, site needs, and project costs – but it does not provide the degree of detail an architect needs to initiate design work.

To begin work on a design, an architect needs to know the overall scale of the library's needs, which is determined by the needs assessment, but the architect also needs to know how the overall space will be divided into departments and how departments will need to be divided into areas and rooms and offices. These particulars will be determined by the type of library in question and by the specific library's goals and operations and practices.

The architect will need to know what is expected to occur in each designated department, room, office, or area, and how large each of those individual areas will need to be. Again, this will be determined by the specific needs and practices of the individual library.

The architect will also need to know the preferred interrelationships and adjacencies among these internal departments and areas. What spaces need to be in close proximity in order to have a sound, functional relationship? Conversely, what spaces need to be far apart?

There are other, more specific layers of information that can and should be included in a brief or programme (lighting requirements, for example, or wireless network requirements), but the key elements to consider as a design process is initiated will be:

- how large does the building need to be?
- how should the building be subdivided into departments and areas and rooms?

3. Investigating the Need for Space

- what will occur in each room or area, and how large does each need to be?
- what rooms and areas need to be next to one another?

A needs assessment does not answer these crucial questions directly, but it forms the foundation for developing these answers.

For example, the needs assessment treats the library's entire book collection as a single block of space. While the typical library collection will not be presented as a single, consolidated collection, the needs assessment treats it as a single unit in order to simplify the initial calculations. A specific public library may forecast a collection of 100,000 volumes, and the needs assessment will direct that all together X square metres is needed for that collection, but in reality, that collection will be comprised of an adult collection and a children's collection. The adult collection will be further organized into a fiction collection and a non-fiction collection and a reference collection. Depending on the specific requirements of the individual library, additional collections and further subcollections may be defined.

In a similar way, other service resources that were treated more generically in the needs assessment will be allocated into more specific internal compartments as the brief is developed. The combined inventory for reader seating will be allocated among departments and areas. Staff work stations likewise will be distributed. By allocating resources in this manner, the space needs for each individual department, room, and area can be calculated, and a brief begins to emerge.

It is beyond the scope of this chapter to detail how a needs assessment is developed into a project brief, but it is essential to note that as a library prepares to work with an architect additional analysis of the library's service needs as expressed in the initial needs assessment will produce a detailed brief to guide the balance of the design process. In fact, by acting as the foundation for the brief, the library's needs assessment completes its most important service to the project.

Anders C. Dahlgren

An initial needs assessment is a critical early planning study in any building project. It defines essential service goals and sets the direction for a project in its early stages. Without a carefully considered service and space needs assessment, early project planning is little more than guesswork. Together with the project brief, the needs assessment is truly the key to success for any project.

4. UNLOCKING THE LIBRARY: LIBRARY DESIGN FROM A MARKETING PERSPECTIVE

Janine Schmidt, Trenholme Director of Libraries,
McGill University, Montreal, Canada

Marketing has unlocked the library. The librarian has become an information expert and the whole design of library buildings is being oriented to marketing concepts. Library design needs repositioning. The traditional library paradigm was matched by traditional library design and most library buildings were seen as intimidating and frequently unwelcoming. Marketing strategies emphasise that library design starts not from the collections but from the clients and the experiences they have in libraries. In designing the marketing mix and developing the marketing plan on which to base the design, the so-called 4Ps (Price, Product, Promotion & Place) are decisive.

If you've been to the library lately, even a small, turn-of the last-century Carnegie library with Ionic columns and a sporty dome, you know that things have changed. The stacks are still there, but they now hold videos, DVDs, audiotapes, even loaner laptops in addition to books. Computer terminals have replaced the card catalogue and the cozy study carrel has morphed into a chat room. Even Marion the librarian has become a techie, guiding the fearful and the bewildered onto the information superhighway. (Dillon, 2002)

Marketing as the driver

Classical library design focused on the collection, on its projected growth and on its protection. The library was a serious building for the storage of materials, the seating of readers and the provision of workspaces for library staff. Scholars, or users, went to such a building, an “edifice”, to obtain access to recorded knowledge, while librarians sat behind desks and helped users to find their way.

This traditional library paradigm was matched by traditional library design. Most library buildings were, and still are, large, intimidating and frequently un-

welcoming. Readers were quietly accommodated in neat rows at carrels with high sides which prevented social intercourse or at large tables where everyone kept their distance from each other. Library staff were positioned behind desks waiting to answer enquiries. While many beautiful buildings resulted, signage was poor, lighting frequently inadequate, colour was absent and services were focused on finding materials not on helping people use them.

In designing the appropriate marketing mix and developing the library's marketing plan, the so-called 4Ps (Price, Product, Promotion & Place) have become central to libraries. Any library using marketing techniques to develop its operations focuses on its products (including services) and the value they add to their clients; the price paid, which may be in money, time or energy in finding something as simple as the entrance to the library; the promotional strategies by which the library's services are made known to potential clients using flyers, merchandise or advertising; and the place where the product or service is made available as well as the distribution strategies by which services are provided. Consideration of each of these aspects impacts on library design as well as on the relationships that exist between the clients, the collections and the library staff. Relationship marketing reflects the mutual interests of libraries and the clients they serve. Marketing strategies emphasise that library design starts not from the collections but from the clients and the experiences they have in libraries.

In the last few years, the products and services provided by libraries have changed considerably. The challenges to library services from changes in educational approaches, from the impact of new information technology and new formats of information resources and from new methods of information provision have led to a greater emphasis on marketing in libraries. Marketing is now so basic that it cannot be considered a separate function. It is the whole business seen from its final results; that is, from the client's perspective. New promotional campaigns like the @your library approach adopted by both the American Library Association and the International Federation of Library Associations have emphasised the role of marketing in the future development of library services. Marketing has unlocked the library. Not only has the librarian morphed

into an information expert but the whole design of library buildings is being oriented to marketing concepts.

Who are the clients?

Different types of libraries have different client groups. In a university library, or a school, the clients are the students and the teaching faculty. In a public library, the clients are the members of the community ranging from small children to elderly citizens. In a special library, the clients are the members of the organization served by the library. Clients can be segmented in various ways; by level of education; disciplinary interest; profession; age; extent of library use; gender; cultural background; information need, to name but a few. Considering clients in this way is fundamental to library design. Designing buildings for those who use them frequently is vastly different from designing them for occasional use. A prime consideration these days is that many users visit the library virtually. Some never visit the physical library. However, many do so after first gaining details from the internet. These users know what they want when they arrive in the building itself.

The changing behaviour patterns of library users have been tracked by many organizations. The 2003 *OCLC Environmental Scan: Pattern Recognition* report was produced for OCLC's worldwide membership to examine the significant issues and trends impacting on libraries, museums, archives and other allied organizations, both now and in the future. The scan provides a high-level view of the information landscape, intended both to inform and stimulate discussion about future strategic directions. A second OCLC report in 2005 further highlighted the changes occurring in libraries. Today's young people think nothing of downloading music from the Internet or burning CDs. Older citizens are communicating with each other via email and building photographic archives on their home computers. As libraries face the future, the biggest challenges are developing information services and designing facilities that support the information needs of these new generations. Librarians and architects must understand what users, both old and young, want from the library today.

How do we know what clients want?

The simple way is to ask them. Surveys can be done, including those done via the web. Focus group interviews can be used to develop solutions to problem situations and investigate further the results of simple questionnaires and surveys. Complaints and suggestions can be analysed. Key visits can be made to significant clients. The library's numerous advisory committees can be consulted. After service delivery, immediate feedback can be sought. Many organizations have discovered they can find a great deal about their clients by simply asking their own staff. They, after all, are in constant contact with clients. Having asked clients about their needs, it is important to listen to what is said. Another approach is to watch what clients do. One can check visitation rates and times, observe behaviour in the library, analyse, flowchart the movement of clients, and log and analyse web use.

And what DO they want?

Overall, clients want basic services. They want competence, reliability, responsiveness, timeliness, honesty and a caring approach. They want everything to work properly and they want assistance with use. They want e-books and e-journals but they also want real books and real journals. They want library buildings to inspire them and to house them comfortably in a climate controlled secure environment. They want transparency in use and want to be able to find their way about without asking. They want a variety of seating – some in quiet spaces some in busy group settings. They want attractive modern spaces – and they want reflections of days gone by. They want light and they want spaces to be clean and well maintained. They want computers provided and they want to be able to bring in their own laptops. They want quality printing and copying facilities. They also want café and restaurant facilities – not to mention exhibition spaces for browsing. Above all, clients do not want to be sent from one enquiry point to another and would like services providing help and assistance to do so in an obvious place adjacent to the entrance with staff who are able to handle most of the enquiries. Most libraries conduct user surveys but sometimes

fail to translate requirements into library design specifications. Developing a prototype of a typical client can assist in understanding needs.

One approach to thinking about the client

In focusing design on the client, it is difficult to find buildings used in similar ways to libraries which can serve as sources of inspiration or guidance. Shops are similar to some extent; so are hotels. One analogy which can be used is that of a restaurant. How do clients use the library? Some like the “take-away”, “take-out” or “drive-in” method. They look up, locate, borrow, photocopy, print or return an item. They make quick visits. Others are looking for a leisurely “eat in” experience, borrowing, studying and working in-depth, individually or in groups. They might spend hours in the library. They choose the same place to sit and frequently make their visits at the same time and treat the library as a house or office. They are happy to “self serve”, or may want detailed help and guidance with “menu” choice. Many others now remain at home or in their offices and “order in” the information they require, using online resources available or checking details online before making personal visits.

In the light of these differing uses and needs, physical layout and design gain much from visits to service organizations like airports, banks, bookshops, supermarkets, restaurants, computer stores and internet cafés. They all provide alternatives for consideration. Banks provide sit-down consultation and office spaces away from stand-up enquiry points. Libraries should do the same. Airports provide express workstations for quick look-up and service and these can be emulated by libraries. Many libraries have implemented “self-serve” approaches but their layout and design are very different. Libraries have found it difficult to position auto-loan and self-service machines appropriately. Clients seem to prefer to deal with people in some instances but yet positioning self-service points near the exit appears to be where users want them. A service point nearby will help with provision of assistance where necessary. For those clients, particularly researchers, who spend long periods in the library and want the leisurely experience, the provision of specialist study spaces with lock-up desks is important and of course almost everyone wants coffee with everything. Libraries

are providing specialist services for their users, particularly training in the use of electronic resources. Training rooms for the delivery of such programmes are required. The new look and feel wanted by clients is friendly and fashionable. There are different kinds of spaces to appeal to different individuals and to different groups. Flexibility is the keynote and appropriate flows of people are the drivers.

Coping with collections

Against the marketing approach to library design, how does one facilitate thinking about the collections and their appropriate storage. In a digital environment, housing physical collections remains important. Libraries still have vast amounts of physical items. Their range has increased – printed volumes of varying sizes, DVDs, CDs, microforms, boxed materials, rare fragile materials that require specialized care, prints, maps, pictorial and manuscripts materials – the list is inexhaustible. All materials require appropriate storage. Metal shelving, drawers and cabinets tend to dominate with specialized sizes and types for each format. The marketing approach focusing on the client defines to some extent the type of storage. Lower shelving is being used by many libraries, for example, so that users can reach materials and find materials more easily. Display type shelving which resembles shelving in book shops is also being utilized, with some items laid flat. DVDs and CDs for example are often stored by libraries in similar ways to modes used in hifi and stereo stores. Materials used by children require storage which is low and easy to access. The marketing approach also determines some of the layout of the collections. Materials used heavily are placed in “prime real estate” adjacent to entry points. Less frequently used materials are located in remote sites and may be on compact shelving which would not be used for heavily used materials, thereby saving valuable space which can be used for more heavily used services. Some form of automation may be possible for high density storage of seldom-used material.

As many materials formerly known as “reference”, that is material which was available for quick consultation and frequently consisted of encyclopedias, dic-

tionaries and fact-finding sources, are converted to online formats and consulted online then the spaces previously dedicated to housing them are shrinking.

A marketing approach would emphasise that all book stacks should be open to users for browsing and easy access. This may not be possible for space reasons but closed stacks should be reserved for low use material. A client emphasis means that materials are integrated in their location as much as possible. Users find multiple sequences arranged by such criteria as format, size, age or type of use extremely confusing. Again space considerations may outweigh client perspectives but careful consideration should be given to the matter.

Providing and supervising appropriate security remains important. A marketing emphasis will mean that security is obvious without being intrusive. Nevertheless, protection of the collections remains a significant component of storage considerations and cameras as well as security gates may be necessary. Improved design of gates and new approaches involving combined tattle tape and barcode systems, and in some cases RFID (Radio Frequency Devices) have led to significant improvements in security. Rare and valuable materials will continue to be stored in more secure environments to ensure their safekeeping.

Heavily used materials are frequently shelved separately in secure areas particularly in libraries serving universities or schools. Such areas should be clearly visible to users and arranged for easy access. Some libraries have separate walk-in areas for heavily used materials and use additional security checks. Others distribute such materials from behind desks at secure locations. From a marketing perspective, today's users mostly prefer to help themselves.

Storage perspectives

Preservation of collections continues to be significant. Appropriate environmental conditions with proper climate control provide the most important means of ensuring the longevity of collections. Air conditioning remains significant both for the collections and the clients. The protection and repair of rare collections is a highly specialized subject and beyond the scope of this publication.

Expert advice on topics such as fumigation or climate controlled storage should be sought.

Most libraries access their online collections at remote locations. However, some libraries store online collections in disc formats locally or on a server locally. Significant considerations for online storage involve availability of back-up and alternative sources of supply as well as appropriate environmental conditions, including temperature and humidity, which differ from those for printed materials. Security of access is also significant.

All scientific and technological material is being produced currently in electronic formats. Print versions do continue to be acquired, usually for current use, but many libraries are making decisions to discard print versions rather than retain them. The impact on storage is still being determined. Many libraries are now replacing long-held collections of printed materials with online versions and long runs of journals are being purchased in electronic format. Libraries are faced with decisions of placing material they know will be little-used, if ever, in remote storage or discarding them entirely. Libraries in various regions are storing material cooperatively. The development of shared facilities for remote storage is becoming more significant. International agreements are also emerging. A consideration of all of these issues means that library design which was once focused on the collections is changing its emphasis dramatically and quickly. Engineering considerations for long-term storage of materials may no longer be relevant. Flexibility is the keynote as all spaces should be viewed as having the potential for, for example, either storage of collections or use as computer laboratories.

Most libraries have traditionally provided separate storage for recently acquired materials which are placed on display. The marketing focus emphasises the need for up-to-date material which is easily accessed. Layout should place recently received materials adjacent to the entry and using appropriate display techniques. As libraries focus on their clients, they are also using more “broadcast” techniques focusing on displays and exhibitions. Such spaces need to be large and flexibly designed with facilities resembling those of retail establishments.

Poster boards which can be easily changed are just one example. Some commercial organizations are developing display stands which can be purchased but many libraries are providing specially designed spaces and mechanisms made to local design. Libraries can learn from museums and galleries in this regard.

Suitable seating

Re-thinking library seating from a marketing perspective sets significant challenges. People at different ages and stages of life, with varying interests and types of library use, require different kinds of accommodation in libraries. The library must provide appropriate seating for individuals and for groups of varying sizes, with quiet spaces and busy areas. Formal seating and casual seating are both needed. Individual carrels still dominate but provide low separation rather than high sides in the modern library. Many users like to be near each other, but still retain a modicum of privacy. Glass or perspex dividers can provide appropriate separation. Ottomans, particularly in different shapes, have proved popular with users and tub chairs can provide for more relaxed comfortable seating. Narrow tables are more efficient than large ones and are usually popular with users. Booths or banquettes such as those used in restaurants can be more effective for group study than separate rooms – insulation can provide for sound separation. Group study rooms remain popular with users in all types of libraries. Observing user behaviour in current seating options provides guidance in devising future marketing-based options.

Accommodating the digital reader

The impact on storage of library collections which are transforming themselves to digital formats has been noted. However, clients themselves are now also “born digital”. Providing appropriate facilities in libraries for clients accessing digital resources and for clients who behave digitally is a significant issue. Marketing the digital library and providing appropriate design around it require different treatments from those focusing on the collections.

Libraries are providing computers for their users. It is almost at the stage where every place for a user should also have a place for a computer. Computers can be located easily around the walls or in spinal formations coming out from the walls to facilitate power and network access. Circular configurations with centralised cabling and networking have been found to be effective as well as linked desks in a staggered configuration. Cabling and power supply can be placed on columns and brought down from the ceiling or up from the floor. Many clients need assistance in using computers. Work is still being carried out on what is the appropriate configuration of computer provision to facilitate easy provision of help. Some libraries have specially designated areas known as information commons, learning centres, information arcades, e-zones, collaborative or interactive learning centres or computer laboratories. Considerable work has been done on the most appropriate design of such facilities. Computer stores like those provided by Apple's iPod stores use stand up facilities and provide wonderful examples to follow.

Many libraries have specialized rooms used for training in computer use. The work of Educause in the development of client-focused approaches to the design of computer facilities in educational establishments has been significant and is of benefit to libraries as well. The marketing approach emphasises the needs of the learner. Spaces are designed to suit learner-centred teaching. Spaces which normally function as pathways or hallways are now being used as collaborative learning spaces. Marker boards, overhead projectors, LCD or plasma screens must all be provided. Studio settings in circles may well be better than serried rows.

Most libraries are now designed around wireless solutions. However such solutions are not powerless. Provision of appropriate power as well as network access, either cabled or wireless, are early considerations in the design process and cause particular challenges in refurbishment projects. Consultants are required to ensure appropriate capacity of network configurations for both cabling and wireless.

4. Unlocking the Library: Library Design from a Marketing Perspective

How many computers should one have in a library? One can never have enough. All client surveys reveal dissatisfaction with the computer provision in libraries. However what must be considered is the ratio of hard-wired computers to laptop use. Users may bring their own laptops or libraries may lend them. Libraries making provision for users who bring in laptops must ensure power access and network access – and sometimes wireless or other cards. Many libraries are also lending laptops to their users. Special facilities for storing laptops and ensuring they are charged are required. One solution used by some companies is to lend a pedestal which contains a laptop and some other equipment for use. Clients merely wheel them away to appropriate spaces for use. Some libraries lend computer jacks as well as locks for people with their laptops. Security is a major issue.

Today's generation, both young and old, depend on mobility and the cell/mobile phone has caused huge difficulties in libraries. Many libraries are now following the example of airport lounges and providing separate zones where mobile phones can be used.

Wayfinding

Signage, or wayfinding, is particularly important when design focuses on marketing to the client. The colour, shape, positioning and wording of signs should replicate print publications as well as the design of the Library's home page and website. Spaces should be designed to avoid having to depend on signage by using clues like carpet and furniture layout. Separate directional (i.e. where one is going to) and positional (i.e. where one is) signs have been used, with lettering placed directly on the walls, as well as hanging from the ceiling. Supermarket approaches to signage provide invaluable assistance. In general, most libraries provide too many signs which merely confuse users.

Common layout and “branding” help users find their way and the information they want in the library. Some libraries have branches. These should have the same look and feel, with the same facilities. The same colours should be used throughout. Companies like McDonalds which focus the presentation and design

of both their cafés and their food offerings on a marketing approach, use similar approaches worldwide. The golden arches are clearly visible worldwide as the symbol of the company and all facilities have a similar layout anywhere in the world. Each library, particularly those that are part of a larger system, should be similar. There are many common features which make use easy. Each library has an enquiry desk, a loans point (including auto-loan), a high use area, photo-copying/printing facilities, computers in either individual, group or stand-up settings, study areas which include individual and group facilities and formal and casual seating areas in a secure environment. Clear descriptions of the layout are vital to achieve the client-centred approach.

Many libraries are now using large plasma or LCD screens for the purposes of wayfinding. The content can be constantly changing. Interactive approaches are also possible. Individual components of the library can all be located in this way. The appropriate location of such screens is usually adjacent to the library entry.

Re-positioning library design

Marketing approaches have proved effective in assisting the library to adjust to changes in its client base and have ensured that services delivered continue to meet needs. The products and services provided by the library range from knowledge access and research support to computing and printing services and the provision of information skills, supported by excellent individual service delivery, in person, by phone and online. Strategies examining the distribution and delivery of services and their successful promotion ensure that those who need information obtain it. Designing the physical facilities of the library around this marketing focus will ensure that libraries thrive and survive, providing much-needed community facilities.

Further reading and references

<http://www.ala.org/ala/pio/campaignamericas.htm>

AmericanLibraryAssociation@yourlibrary (viewed 12th August, 2006).

4. Unlocking the Library: Library Design from a Marketing Perspective

Dillon, David, (2002) “Turning over a new leaf”, *InteriorDesign*, vol. 73, p.319

Gupta, Dinesh K., Koonz, Christie, Massimo, Angels and Savard Réjean, eds. (2006)

Marketing library and information services: international perspectives. Munich: K.G. Saur.

<http://www.ifla.org@yourlibrary/index.htm>. International Federation of Library Associations (viewed 12th August, 2006).

Kapitzke, Cushla and Bruce, Bertrand, eds.(2006) *Lib@ries: changing information space and practice*. Mahoney, N.J. Laurence Erlbaum).

Kotler, Philip.(2003) *Marketing insights A-Z: 80 concepts every manager need to know*. (Hoboken, N.J. : Wiley.

Kotler, Philip. (2002) *Marketing Management*, 11th ed. Toronto: Prentice Hall.

Oblinger, Dina G., ed. (2006) *Learning spaces*. Washington, D.C.: EDucause. Also availbe as an e-book:

(<http://www.educause.edu/books/learningspaces/10569>) Viewed 11th August, 2006.

OCLC. *Environmental scan: pattern recognition*, membership report, 2003.

<http://www.oclc.org/reports/escan/default/htm> (viewed 23rd March, 2006).

OCLC. *Perceptions of libraries and information resources*: membership report.

2005 <http://www.oclc.org/reports/2005perceptions.htm> (viewed 23 March, 2006)

Schmidt, Janine and Wilson, Hamilton.(1998) “Designing the real virtual library.” In *Robots to Knowbots: the wider automation agenda*. Melbourne: Victorian Association for Library Automation. pp. 123–135.

5. USERS AND PUBLIC SPACE: WHAT TO CONSIDER WHEN PLANNING LIBRARY SPACE

Karen Latimer, A&FS Librarian, Library Services & Research Support – Information Services, Queen’s University Belfast, UK

User space needs to be well-planned, welcoming and attractive as the role of the physical library and the needs of users change in the 21st century. Public spaces should be accessible to all, flexible and able to cater for a wide range of users with a variety of information needs and reasons for using the library. The needs of users should be at the centre of the planning process and key users groups should be consulted at an early stage. As well as the design and interrelationship of traditional user spaces, library planners should consider including cafés and exhibition space and using art in public spaces to create a pleasant ambience and a sense of place.

Introduction

The Roman architect, Vitruvius, claimed in the 1st century BC that the essential qualities of a good building were “utilitas, firmitas et venustas”. Sir Henry Wotton, 16th century diplomat, writer and collector, translated this as “commodity, firmness and delight.” Five centuries later these qualities remain valid as indicators of good building design for libraries just as much as for other building types. Indeed it is the last of these three – delight, perhaps more accurately and powerfully translated as dramatic quality – that is increasingly important. The role of libraries is changing as more and more material becomes available electronically and their traditional users no longer have to come to the physical building to get the information they need. It is, therefore, more important than ever to design lively, desirable spaces that engage with users. Kent and Myrick (2003) are adamant that the “future of libraries lies in making them places where people want to be.”

5. Users and Public Space: What to Consider When Planning Library Space

Much has been written about the changing role of libraries and about the impact of electronic resources upon the way information services are delivered and on the design of modern libraries, both public and academic. There have been dire prognostications about the demise of the physical library and the declining role of professional librarians. Fortunately, these gloomy predictions do not seem to be coming to fruition. Dancik and Jobb (2004) note that “Today, in fact, buildings are hot.” They go on to say that “libraries that are most successful in attracting both in-person and electronic users are those with refurbished, up-to-date buildings having a variety of seating and functional spaces, lots of computer stations, spaces for groups, teaching and social activities, and pleasing aesthetics.”

If in the future, indeed in the near future, those seeking information will not *have* to come to the library building then they must *want* to come. Andrea Rose, who commissioned the British pavilion featuring library design for the 1996 Venice Biennale, commented that the library of the 21st century would have to “provide spaces that serve both as a social stimulus as well as offering havens of privacy.” This is equally true for academic or public libraries. Library spaces must be attractive, welcoming and flexible. The phrase “library as third place” (home and work being the other two places) has been coined recently to underscore the importance of the library as a meeting place, as a place to stimulate creativity and learning or indeed simply as a place to which one can escape.

Francine Houben of Mecanoo Architecten and architect of the much praised Delft University Library was the keynote speaker at a conference organised by Helsinki City Library in 2002 on *A space for the future – library buildings in the 21st century*. She stressed the importance of both function and ambience and of approaching the design of library space from the different needs of its customers. Customers, she claimed, should enjoy the best and most beautiful spaces in the building and she described a library as “at once a school, a home, a workplace, a church, a theatre and many other things besides.” It is even more crucial than ever in designing spaces for users to ensure that different needs are catered for, that subtle clues in layout, acoustics and design help users to adjust their behaviour according to the purpose of the space. A good meeting place should

facilitate social interaction and enhance professional interaction between library staff and library users.

There are many obvious factors to be taken into account when designing new spaces for users, or indeed refurbishing existing spaces. 21st century users tend to have a very individualistic approach to using libraries and library resources. Increasingly, they like to find their own way through the system but to have highly professional and supportive guidance on hand when they need it. Users tend to be familiar with the internet and electronic resources and want to get online access to the library and its resources from a distance. However, this does not necessarily prevent them from visiting the library – indeed it often brings previous non-users to the library building. It is important, therefore, to have a clear idea of the types of user for whom you are designing and, in particular, their pattern of use. Whatever type of library it is, there will be a mixed population of users as traditional distinctions become blurred. It goes without saying that all public spaces in the library should be easily accessible to users with disabilities. Bold and creative thinking will be required in the planning of services, and user spaces will need to be as flexible as possible to accommodate future, and inevitable, change. There will, of course, be different factors to be taken into account in the planning of, for example, a large academic library as opposed to a children's area in a small public library. Nonetheless, the fundamental principles hold true for both.

Writing the brief

In a later chapter, Andrew McDonald stresses the importance of the library manager providing a good brief to the architect. This certainly holds true for the design of public spaces as it is vital to have a clear understanding of library users', and potential users', needs and aspirations. Shill and Toner (2003) stress the importance of understanding "the purposes for which libraries are used and the conditions under which they are being used." Many libraries face a real challenge in reaching out to potential users who would not normally darken their doors. Users' needs must be at the centre of the planning process and it is important to consult with user groups and appropriate stakeholders before the actual

work of designing the building begins. The extent of such consultation will vary according to the local situation but it should not be omitted. As well as eliciting ideas and guidance, such an approach has the added advantage of bringing users along with you so they have a vested interest in ensuring the building is a success.

It is at this early stage that the library manager will communicate the vision for the new building to the paymasters, users and colleagues. In thinking of public space, the ambience envisioned is all important. Much has been made of the “wow” factor in buildings or, as McDonald has it, the “oomph” factor meaning “space which captures the minds of users and the spirit.” Good design quality of public space is a *sine qua non* but how to achieve it or, as the library manager, how to ensure it is achieved is the issue. It is too easy as a project progresses to get embroiled in detail and financial considerations and the spirit and ambience of the public spaces can get lost.

GENERAL CONSIDERATIONS

Ambience

Public space should be welcoming and attractive whatever the function of the particular library. Have a clear idea as to what first impression you want to create. Very often a new building gives the organization the opportunity to re-brand library services so it may be a chance to send a message that this is a friendly, sociable place to visit rather than a slightly formal, impressive and dignified institution that has to be approached with due deference and respect. Or it could convey the message that this is a high-tech building moving boldly into the future by, for example, the use of plasma screens at the entrance. The positioning of help desks and other staffed points establish the culture of customer care and support of users’ needs. It is important when thinking of public space to be clear what impression is to be created and then to think how best to achieve this. The use of colour, lighting, interior design and artwork play a big part in creating a particular ambience as does the architecture of the building itself. Even in this electronic age, most libraries will hold collections of printed material and these, too, contribute to the overall effect.

Flexibility

Too often flexibility has been seen as a means of avoiding having to make clear decisions about use of space. Certainly a balance has to be struck between rigid inflexibility/ high decisiveness and complete flexibility/total indecision and if anything is certain in the 21st century, as McDonald also notes in discussing adaptability as one of his top ten qualities of good library space, it is that nothing is certain and change will continue to occur. Flexible space is important therefore. We need to ensure designs will accommodate change. The JISC publication “*Designing Spaces for Effective Learning*” states that, “Spaces are themselves agents for change. Changed spaces will change practice.” As early as 1994 the architect of the Sendai Mediatheque, Toyo Ito, made the decision to keep internal walls to a minimum and introduced the idea of free-flowing curtains to divide up space when required. More recently Glasgow Caledonian University has developed an igloo that can easily be moved to create an enclosed space as required. High-specification wireless networks have had a liberating effect on space planning for users. Until recently the library café was regarded with horror certainly in many academic libraries but now is welcomed as a highly utilised informal working and learning area for staff and students alike and a positive asset. As the services which libraries provide expand and change, the design of libraries is more likely to take the form of freestyle floor plans and adaptable internal configurations of space. Adaptability will continue to be a key factor in building layout and design and the majority of spaces must be capable of adjusting to changes in use.

Zoning and spatial relationships

One of the major challenges in designing a library is handling conflicting demands particularly in the age of 24/7 opening when issues of staffing levels and security add complexity to the layout of public spaces. Conflicting demands for quiet places and noisier ones, solitude and interaction, accessibility and security, self-service and staffed areas all have to be resolved. Public space has to be provided both for the solitary reader and for those who want to spend time with others. Core service functions have to be available at all times while other areas are closed.

An increasingly used solution is to create zones for different activities such as children's areas and study areas in public libraries and group study areas and individual learning spaces in academic libraries. Each zone should have its own sense of place and be clearly identifiable for what it is. Consideration should be given to appropriate furniture, lighting, use of colour, signage and acoustics for each zone. The relationship of one zone to another is also a key factor in good design. Users want visible service points, a barrier-free environment and an obvious traffic flow. Phone zones, if they exist, should be far from quiet areas whereas activity areas should be in close proximity to each other.

SPECIFIC PUBLIC AREAS

Anders Dahlgren in an earlier chapter refers to methods of estimating space needs and these are valid for public and circulation spaces also. In addition national standards are available in some countries. A selection of these standards is given in the appendix on National Standards. Dahlgren has also given guidance on calculating space requirements for various library areas and for the supporting M & E services. What follows, therefore, is a brief summary of factors to take into account when planning user-focused public space rather than specific spatial calculations.

Collections

In recent years, the focus of library services has shifted from the traditional collection-oriented approach to a user-oriented approach. Libraries are developing into what are variously called hybrid libraries, e-libraries or the comprehensive library. Most new library buildings will have both to house printed material and provide access to digital resources. Library planners need to consider what type of material their users need and then how best to store, display and provide access to it. Collection space planning is no longer as simple as it once was with the advent of electronic journals and, increasingly, electronic books. Decisions need to be taken on the percentage of traditional printed material, both books and journals, that is to be available at all and then what percentage of it will be on open access traditional shelving, on display shelving in the case of journals

and magazines, on accessible compact shelving or on closed access compact shelving.

Material needs to be accessible to all and the trade-off of maximum and minimum shelving heights vis-à-vis number of volumes to be shelved needs to be considered. Good lighting should be provided and, ideally, should be flexible to allow for future changes in shelving and reading space layouts. Compact shelving used to be almost exclusively for staff use but increasingly libraries use this type of shelving in open-access areas and soften the warehouse effect by surrounding it with various kinds of seating. Automated storage and retrieval systems can be used on site but for libraries with serious space problems an institutional policy on off-site storage will have to be considered and this will have an impact on allocating space for a library's collections.

Most libraries will also have collections of non-print material including CDs, DVDs, videos, cassettes and other special collections. The underpinning considerations for this type of material as opposed to specific space requirements are not that different from a user perspective than those for printed material. Users want to find material quickly and easily, have room to browse and appropriate places, furniture and equipment readily available where items can be consulted once they have been located. The relationship between collection space and reading space is, therefore, highly important.

User spaces

Not only are collections changing, so too are the users or, at least, the way in which they source and use information is changing. People of all ages are increasingly going online for personal banking, downloading music, reading the news, retrieving information for coursework and research, and much else besides. They may do this from home but, contrary to what was first predicted, they also move easily between the virtual library and the physical library. They want to come, alone or in groups, to attractive and welcoming library buildings to use them as meeting places, as a "third place" after home, work or school where they can study or socialise, interact with friends and colleagues and take

5. Users and Public Space: What to Consider When Planning Library Space

advantage of the library staff's expertise in sourcing information, providing tailored training, navigating the net and giving help and advice as required.

Until recently the growth of collections meant that user or reader space was constantly sacrificed in order to accommodate additional books and journals. The move to electronic resources has shifted the balance back in favour of the user and, when planning a new library, there now needs to be considerable thought put in to the types of seating and study spaces to be provided in various kinds of libraries. In taking an overview of the design issues to be taken into account when considering user space, it is important to be aware of the need to cater for different tastes. Library users today are highly individualistic and require both informal and formal seating arrangements. Some like 'active' learning environments and some like quiet and private spaces. A recent survey in the US A (Shill and Tonner, 2003) showed that "general seating expansion was a priority for most projects." They went on to say that the "consistent expansion of on-site seating capacity is an important finding because it reflects planner expectations that users will continue to come to the physical library." If as many, and as wide a variety of, users as possible are to be encouraged to come to the physical library then the prime consideration for library planners when thinking about seating is to provide as much choice as possible.

This also holds true for the provision of work places – tables, carrels and work-stations. Once again flexibility in design is important as needs may change over time, particularly in relation to ICT developments, and the different requirements of users should be catered for. The use of table dividers in various configurations, or screening, should be considered. Another option is to provide stools on castors that can be wheeled up to a table so that users can work together when required or apart when privacy is preferred.

Access to electronic resources

The growth of electronic resources has been referred to above. Added to this, ownership of personal computers has also grown greatly in recent years and it has concomitantly become increasingly important for libraries to provide access to networked resources in general seating areas as well as in dedicated spaces.

Library users want to be able to work and study anywhere in the library using a combination of print and e-resources. A mix of formal and informal seating is required and the mix will depend on the type of library and local circumstances. Today's libraries must offer sufficient clusters of computers, IT workstations and plug-in facilities for users' own laptops as well as wireless areas throughout the library.

Changes in methods of teaching and learning have meant that the need for group study areas is particularly relevant to academic libraries. It is increasingly important to offer spaces and places for people to come together to utilise new technologies, to share ideas and work collaboratively. This is the idea behind the increasingly popular information commons, where users come to share technology and study spaces and to get access to as much scholarly information (usually electronic full text) as possible. A demand for group study and meeting rooms is also on the increase especially as libraries market themselves as "the third place."

Meeting rooms, group study rooms and multipurpose facilities

There is always a demand in public and academic libraries alike for meeting, group study and seminar or conference space. Depending on the size of the building being constructed these can be combined, zoned or separate spaces but, given the emphasis on collaborative learning and social networking, there is a definite need for such facilities – community spaces as they are sometimes called. Sliding, or pocket doors, can add to the flexibility of such spaces. Multi-media and IT facilities for various types of presentations and collaborative working are essential requirements. Particularly in public libraries, but not exclusively so, there is great potential for hiring out, or providing, meeting and multi-use space as it is another way of providing a community service and drawing people into the library including previous non-users. As well as separate rooms, zoned learning areas should be provided. The location of meeting and multi-purpose rooms varies but it is an advantage if access to them is possible when the library is closed. In Peckham Library and Media Centre, for example, the meeting rooms are housed in a separate 'pod'.

Learning facilities

Academic libraries in particular are under pressure to provide space which encourages and supports student-centred learning. The design of the library building must reflect the shift from teaching to resource-based learning and this requires provision of space and services that enable users to combine use of printed and e-resources with the act of evaluating them and writing, or typing, up. In other words, students need to be able to combine the use of electronic resources and equipment with the more traditional desk-based research tools. They need such things as interactive whiteboards, wireless networks, digital resources and access to virtual learning environments (VLEs). Many librarians have highlighted the problem with noise in open plan learning areas and issues such as location, relationship with quiet study areas and the provision of sound barriers such as the book stacks themselves need to be discussed at the planning stage.

The overriding consideration, however, should be to inspire and support users and enable them to achieve their potential through productive, interactive and independent learning. JISC infoNet has recently (2007) launched an inspiring infoKit on *Planning and Designing Technology-Rich Learning Spaces* which is packed full of suggestions about the importance of good design in learning spaces. It covers such topics as colour, furniture, flooring, lighting, acoustics and much more besides. A more informal type of learning space is the learning café which is a modern descendant of the those referred to by Hellen Niegaard in Chapter II where she discusses the historical role of cafés as places to share ideas and learning. These types of learning spaces are described briefly below.

Non-traditional library spaces: learning and internet cafés

Boone (2004) has pointed out that for libraries in the 21st century, and in particular university libraries, the “duality of monastery/marketplace is a helpful conceptual tool for getting a handle on the dramatic changes occurring in the form and function of university libraries”. Learning cafés, he argues, can be a “potential reconciliation site between the monastic mission of academic libraries and the commercial realities they face”. Learning cafés are now running successfully in many institutions and are excellent and congenial spaces to let imagination and creativity have a free hand. Students can get together in groups in a relaxing

atmosphere and work on projects. The café concept emphasises shared use and collaboration and the integration of information services and support with technology. An early example of mixing social and learning space was Glasgow Caledonian's Learning Café. Another UK university library that took this approach was Northumbria University whose Director of Library and Learning Services, Jane Core, quotes one of the students as follows, "the learning café arrangements suits me much better now...I bring my own laptop. Before I didn't feel comfortable because you couldn't eat and drink at the machines. Now I stay longer and get on with it."

In addition to learning cafés, many libraries of all types now provide internet cafés where students or the members of the public can check their email and carry out quick web-based searches. Again these are areas where users can relax together and share information in an informal setting.

Non-traditional library spaces: exhibition and other spaces

It is highly desirable to factor in some space for displays and exhibitions in the user space allocation. It is often in such spaces that artwork can be displayed and opportunities for internal collaborative projects with, for example, academic schools in universities as well as external collaborations with other organizations can occur. Also, exciting and stimulating exhibitions can very often attract people who might not otherwise visit the library to come in through the doors. And they are a good marketing tool since it is a place where the library can display its wares. Exhibition areas need to be well positioned in an attractive area close to the entrance where the footfall is high. Other issues that need to be taken into account are security, environmental conditions and lighting.

Another facility that is increasingly found in libraries is some kind of retail space. This can either be used to sell the sort of material students require – such as stationery or books – or items of more general interest in, for example, a community or branch library. The inclusion of such public user space in any plans for a new building will very much depend on the local and financial context and vision for the library.

Public service areas

The changes in the way the public and academic communities use libraries have implications, too, for the ways in which library staff deliver services and, therefore, for the design of staff areas. Librarians are assuming new roles and developing new skills and competencies particularly in the realm of training and ICT development. They are literally and metaphorically coming out from behind the information and issue desks. They are increasingly working in interdisciplinary teams and on a project basis with both internal and external colleagues and partners. Marie-Françoise Bisbrouck in the following chapter looks in detail at “Configuring internal staff areas” and addresses the impact of development and changes in organisation and work methods on staff areas and facilities.

However, in the design of today’s library there is some overlap between user and staff areas which will be dealt with here. The service areas, such as issue desks and information points, are where the library staff and library user interact. They are both staff and public areas. It is in these spaces that users can meet face-to-face with the experts who can help them to navigate the virtual world in a physical setting. From a user’s point of view these areas need to be centrally located, clearly signposted and welcoming. In planning these areas it is important to make decisions about the number and type of service points to be provided and the ratio of self-service to serviced points. The driver should be the users’ needs and how best to serve them in a modern library environment. If library staff are to roam around the library providing help where it is needed then high tables and “bar-stools” judiciously placed throughout the building might be the best solution. If, however, more substantial information points are chosen, then the design needs to fit in with the overall image for the library. Staff shortages, longer opening hours and technological advances are leading inexorably to an increased reliance on self-service and certainly to the avoidance of duplicating service points if at all possible.

The siting and space implications of self-service issue and return machines need to be considered. The siting of such facilities is strongly linked to their usage and decisions must be made as to whether they are to be located at the entrance to the library or distributed throughout the building. Fully automated units re-

quire plenty of circulation space around them for users to congregate and to set down library materials and other items. Dewe (2006) points out that “Library design may need to be rethought to deal with self-service security issues, especially as regards counters, exits and entrances”. There is less need for large counters/issue desks although there is likely still to be a need for some sort of information desk or help point to act as a focus for users. Some libraries, however, are moving away altogether from fixed information points and instead library staff rove around the building providing help and advice as required.

Another development that is having an impact on both user space and library staff areas is that of automated or robotic sorting. These systems vary in complexity and it is very much a developing field but they are a means of handling returned items, moving them from the return point and often sorting them automatically before sending them to their final destination. The important thing from the library planner’s point of view is to make decisions about such automated systems early in the planning process as there will be a design implication.

Learning spaces have been discussed above but when planning a new library building the role of the library staff as educators should not be forgotten and facilities from enquiry points to fully equipped lecture and seminar rooms should be provided both for library training and support sessions and for internal staff training. The increasing emphasis on information literacy, independent learning and the need to exploit often expensive electronic resources to the full mean that the provision of customised teaching and learning spaces is ever more crucial.

CONCLUSION

There is no one blueprint for designing public spaces for users. Good architects alone cannot produce good buildings; good clients alone cannot create good buildings but the possibility of good architects and good, even inspired, clients working together opens up wonderful opportunities. One writer, King (1998), however, strikes a warning note when pointing out that “the library’s need to maximise flexibility and functionality is sometimes at odds with the architect’s

5. Users and Public Space: What to Consider When Planning Library Space

desire to make the building an architectural statement.” All library managers embarking on a planning project will have their own vision of the sort of library they want to produce. They will have to consider their own institutional approach and users’ wants and needs and share their ideas with other members of the design team. The important thing is not to lose sight of the initial vision. The symbolic aspect of library design cannot be overemphasised.

There are some guiding principles as indicated above and topics that should be aired with colleagues and users alike before the design stage begins. What does appear to be certain is that the physical library still has a major part to play in our information rich world. Bernard Frischer (2005) in his paper on the future for research libraries in the digital age entitled “The ultimate Internet café” concluded that “the architectural space of the library itself must be reconceptualized to express and leverage its main advantage over the Internet: the centripetal, community-building power of real physical presence over the alienating, community-rending effects of mere virtual presence.” Exactly how that physical presence will manifest itself remains as much a major challenge for library managers and colleagues as ever. One enticing suggestion comes from Carlson (2001) who holds that the best library space would have the “studious quality of an academic portal, the friendly welcome of a public library and the exciting coffee-aroma-filled hubbub of a retail bookstore.”

Further reading and references

- Berndtson, M. (2002). A space for the future – library buildings in the 21st century. *Scandinavian Public Library Quarterly*, **35(4)**, 24–25.
- Boone, M. (2004). The way ahead: learning cafés in the academic marketplace. *Library Hi Tech*, **22(3)**, 323–327.
- Brawne, M. (1996). *The architecture of information*. The British Council, London.
- Carlson, S. (2001). The deserted library. *Chronicle of Higher Education*, **48(12)**, A35–38.
- Dancik, D. and Jobb, P. (2004). Bricks AND clicks. *Feliciter*, **6**, 231–232.
- Dewe, M. (2006). *Planning public library buildings: concepts and issues for the librarian*. Ashgate, Aldershot.

- Frischer, B.(2005). The ultimate Internet café: reflections of a practicing digital humanist about designing a future for the research library in the digital age. In *Library as place: rethinking roles, rethinking space*. Council on Library and Information Resources, Washington. 41–55.
- HEFCE. (2006). *Designing spaces for effective learning: a guide to 21st century learning space design*. HEFCE, London.
- Houlihan, R. (2005). The academic library as congenial space: more on St Mary's experience. *New Library World*, **106**(1208/09), 7–15.
- JISC infoNet (2007) *Planning and designing technology-rich learningsSpaces* <http://www.jiscinfonet.ac.uk/infokits/learning-space-design>.
- Kent, F. and Myrick, P.(2003). How to become a great public space. *American Libraries*, **34(4)**, 72–74,76.
- King, M. (1998). Academic library buildings for the next century: insights from the united States. *LASIE*, **29**(1), 21–31.
- Powell, M. (2002). Designing library space to facilitate learning: a review of the UK higher education sector. *Libri*, **52**, 110–120.
- Shill, H.B. and Tonner, S. (2003). Creating a better place: physical improvements in academic libraries, 1995–2002. *College and Research Libraries*, **64**(6), 431–466.

6. CONFIGURING INTERNAL STAFF AREAS

Marie-Françoise Bisbrouck, Director of the Library
University Paris-Sorbonne, Paris, France

This chapter describes writing that part of the brief that deals with staff areas. The areas are defined and alternative organizational approaches are discussed. Functional requirements and specific needs are set out.

Definition of internal staff areas

All library premises or areas not accessible to the public correspond, de facto, to “private space”, that is, areas set aside for the activities of staff engaged in the management and operation of the establishment. A large number of tasks are performed in such areas, which may be organised into several groups or sub-groups, depending on the size of the library:

- tasks associated with the library collections: document selection and acquisitions; delivery, receipt and recording of collections; cataloguing; processing of stock for loan or storage; bookbinding where required etc.;
- tasks associated with public-oriented activities, but needing to be performed in a library internal area: preparation of exhibitions or events of a cultural or commercial nature; participation in symposia etc.; organization of activities aimed at specific client profiles (children, the elderly, the handicapped, school groups etc.); reception of specific members of the public or library partners participating in one or other of the library’s activities etc.;
- tasks associated with the administrative and financial management of the establishment, including library-personnel management & administration.

The term “internal department” includes a whole range of areas such as storage rooms for materials and supplies; staff meeting rooms; amenities (toilets, cloakrooms, kitchenette, and perhaps a sick bay or a staff room etc.).

Certain library operators also include rooms housing collections not accessible to the public; however, considering the special nature of these areas, notably in terms of functionality, they are not discussed in this chapter.

Given such a plethora of functions and applications, it is reasonable to suppose that the surface areas devoted to a library's internal departments, and the functional organization of same, will be closely related to the size of the department in question, and the type of population to serve.

In a small library with a very small staff performing many and varied tasks, the preference will be to locate staff work areas in close proximity to the library's public areas. However, in a larger library with a larger and often more specialised staff, another mode of organization might be preferred with, for example, most of the library staff areas having no direct interface with the public areas. The flow of circulation will obviously be taken into account, to ensure the simplest and fastest transit from the respective areas (staircases, elevators, ramps, doors etc.).

It will therefore immediately be appreciated that the precise configuration and planning of these internal library-department areas is extremely important, both in terms of the actual physical areas allocated, and also their functional organization (layout, proximity or remoteness of certain areas or rooms in relation to others, possible nuisance factors etc.).

Organisational considerations and strategies

How these internal staff work areas are organised will depend largely on an analysis of how work is organised in the library. While the building of a library from scratch is unfortunately quite a rare event, it is not at all rare to have to re-configure library areas, rebuild a library, or build an extension onto an existing library – all such projects requiring much thought, particularly regarding numbers and grades of staff required for the various tasks and to support defined user-service levels.

6. Configuring Internal Staff Areas

At this stage library planners should also be considering the organizational strategy for work areas. There is a current trend in many parts of the world towards working in open plan areas wherever possible and this has an impact on the design. Provision of quiet and private spaces, for consultations and project work for example, has to be considered. Guidance on space requirements for open plan areas is given by Dahlgren in Part II

One particularly sensitive factor concerns the determining of staffing to ensure operable service levels. Staffing is directly proportional to the establishment's public opening hours (in terms of daily, weekly and yearly opening levels), and staff working time over the year. These quantities will have a direct impact on the size of the staff's own working space.

Moreover, a precise analysis of known problems in existing libraries can very often provide indicators for future library layouts. This in turn presupposes a re-examination of work patterns and a willingness to accept a full review of the work organization.

Three main approaches to internal work-organization exist in libraries:

- division by function,
- division by document type,
- division by specific sectors.

Using the first approach, services are divided functionally according to the stage of the document processing cycle (for example, acquisitions, cataloguing, communicating with public etc.). The second document-based approach is also based on a functional order, but one employing an initial division of services into large "document categories" (such as books, periodicals, maps, iconographic documents, official publications etc.). The third approach employs the notion of academic discipline.

An organization employing the functional approach (cataloguing pool, for example) essentially satisfies rational requirements related to work-distribution

and economy of means: combining of personnel employed on identical tasks; savings of scale; lower operating costs.

Organising by specialised departments seems the best approach for incorporating and managing change (for example, development of user-oriented services), or coping with the increasing number of publications and/or managing under tight budget conditions. However, this mode of organization is only suitable in libraries of a certain size.

In any event, irrespective of the internal work-organization approach, once the latter has been identified and accepted by the various players, the next step is to determine an efficient document processing circuit; that is, one allowing a maximum of tasks to be performed in minimal time, obviating useless expending of energy and providing conditions of maximum comfort.

The tasks constituting the document processing flow in a library are many and varied: locating documents within a commercial distribution system; completion of order forms for publishers, distributors and booksellers; receiving of orders; “intellectual processing” of documents (descriptive record, inclusion of an “address” allowing users to locate the document on the shelves); budget- and accounts-management operations; summary of documents ordered but not yet procured for various reasons; specific tasks relating to bibliographic searching, loan, repair, bookbinding for improved conservation, microfilming, photocopying or text-digitising, and so on and so forth. The processing chain comprises various types of operations but the essential factor is to ensure continuity between the operations or else functions such as document availability and administrative operations will be delayed.

The above-mentioned analytical approach serves to demonstrate that for libraries of a certain size, the document-processing circuit must be segregated from the public. This implies having two library entrances – one for the public, and one for staff and deliveries. Staff and users obviously do meet at reception desks and information points, and in other public areas.. For a well structured organization ensuring harmonious work-organization, staff must be free to concentrate

6. Configuring Internal Staff Areas

on their work, whether this involves remaining in the public areas for several hours, or working privately in one's own office, or collectively in a shared office or other area.

It goes without saying that for small libraries operating with a small staff fulfilling a wide range of tasks, the stated layout approach will not necessarily be applied on a hard-and-fast basis. In such cases, the solution might be to provide a certain number of partially glazed offices, judiciously sited and opening directly onto the public areas, which may, at certain times, be "privatised" by the simple operation of blinds or shutters.

SPACE REQUIREMENTS AND SPATIAL ORGANISATION OF INTERNAL STAFFING AREAS

Work areas

From the preceding discussion, it will be obvious that all work areas dedicated to the library staff will be divided into two major groups, one comprising the traditional administrative offices (essentially acquisitions and cataloguing; budget- and accounts-management; personnel management; relations with institutional administrative authorities etc.), and the other comprising provision for sorting, handling and preparation of the document collection(s); exhibition-preparation space etc. Some of these areas must be contiguous with, or at least in close proximity to, the public areas, and enjoy easy access from same; others will not have such a proximity requirement. Each task must therefore be carefully analysed as regards its relationship or otherwise with the public areas.

In all cases however, it will be noted that in a library, the average work area per full-time employee is appreciably greater than for a "standard" administrative office (that is, 10 to 12 useful square metres per employee), to take account of the space required for storage of collections awaiting processing. In effect, the average area should be around 15 useful square metres per workstation, not including circulation (access to offices). However, this figure does not apply to all library personnel but solely to those working on acquisitions and scientific or

technical processing of documents, or those performing tasks such as handling (taking delivery of parcels; unpacking of deliveries; preparation of documents for loan; preparing bookbinding), since all of the said tasks require room to work efficiently in correct conditions.

There are many other types of staff employed in libraries to carry out the numerous tasks required. This will vary from country to country and institution to institution. Staff not requiring an office as such, may perhaps need at least a desk to sit at, with an individual drawer unit for work effects, and a locker for personal effects. They must also be included in the overall headcount of the library personnel, on the basis of their quota of attendance time, for all related amenity areas (kitchenette, training room, toilets and cloakrooms, sick bay etc.). Such workstations should be included in the programming phase for library staff areas. The related areas should therefore be calculated on the basis of 5 to 6 square metres per part-time staff member.

Apart from processing the printed and online collections, the library will be managing numerous day-to-day tasks and working with many outside organizations. To this end, the library must have very well-organised reception and work areas: not only reception, offices and meeting rooms, but also appropriate store-rooms. Any “traditional” administration offices, will require approximately 10 to 12 square metres per employee.

The functional organization of work areas should not be prejudged. Some will prefer work areas to be organised on an open-plan basis, while others will consider separate offices necessary, accommodating one, two or three people depending on requirements.

Where open-plan offices are preferred an area of at least 10–15 square metres per employee is required. In order to compensate for the negative effects of stress and noise generated by this type of layout up to 15 sq metres might be desirable. Decisions have to be made as to the need for department heads and other staff managers to be included in the open-plan approach. Matters such as confidentiality and privacy need to be taken into account.

Common areas

The so-called “common areas” house various functions or activities such as: staff training; internal meetings; photocopying, ICT, preparation rooms (for exhibits, conferences, symposia etc.); various stores (for supplies and materials etc); building maintenance (cleaning and housekeeping), staffrooms, kitchen facilities, toilets, cloakrooms and showers. These areas must be located in such a way as to ensure a smooth flow of traffic throughout the building.

A library must have an area devoted to training and staff meetings. Depending on the size of the establishment, these activities may be centralised into a single area, or divided over several rooms. An ideal layout may be at the point of convergence of the library’s document-processing and general administration areas, insofar as information and staff training are functions applying to everyone.

Practically every library requires a photocopying area including provision for faxing, scanning, photocopying and producing leaflets for example. This space must have adequate electrical power supplies, excellent ventilation (since the equipment generates significant heat), be of suitable size (4 to 7 square metres per machine, depending on dimensions and technical specifications), and large enough to take tables or shelves for such things as storing documents for photocopying or sorting.

In all libraries above a certain size, a preparation area should be provided for organising exhibitions, conferences or other events. Its dimensions should be sufficient to ensure that displays can be prepared in proper conditions of comfort and safety – 20 to 25 m² should suffice. The area should also include a small storeroom for materials and supplies, and a water supply with sink and draining board. The preparation room should give easy access to the library’s exhibition or demonstration space ensuring appropriate vertical and horizontal circulation allowing trouble-free movement of materials.

In any library, one or more easily accessible spaces for storing supplies, materials and equipment (including furniture awaiting repair or removal) is indispen-

sable. If the library departments are located over several floors of the building, then it would be ideal if there was such a room on each floor. Provision of space for housekeeping and standard maintenance of the building is also essential and should again be on every floor in order to facilitate cleaning operations.

With regard to fast food preparation and staff rest and common rooms, it is essential for a library to have a kitchenette, even if the library staff has access to a restaurant or cafeteria open to other employees or the public. The kitchenette should be equipped with standard domestic appliances to develop a user-friendly environment where the staff can meet and relax. As a social focal point and a place of rest and enjoyment, it also obviates the need for a plethora of coffee-makers, teapots, dishes and foodstuffs in individual staff offices.

Regarding toilets, cloakrooms and lockers, there is little to add other than that fit-outs (in terms of number and types of appliances) are governed by the health and safety standards in force in various countries. It is simply necessary to ensure that their location within the internal areas is convenient for all personnel. Finally, showers will be necessary if the staff is regularly required to perform certain dirty operations.

Taken collectively, these common areas represent a non-negligible proportion of the library's internal staff areas. Where a very precise idea exists as to their number and respective sizes, they may be calculated function by function and area by area. If such details are not known (for example, because the responsible authority has left insufficient time for producing the exact answers to such questions), a relatively precise rule of thumb may be used to calculate the overall areas in question, namely, 6 to 7 square metres per employee. Another general principle to recognise is that every part of the building must be easy to access, be functional (that is, of sufficient size), be heated, have excellent ventilation, and where necessary, excellent natural lighting. It should never be a question of simply "employing residual space".

6. Configuring Internal Staff Areas

For example:

- a library operating with 15 staff should have a gross useful area in the order of 105 m² of common areas, divided into: meeting/training room (20 m²); kitchenette (20 m²); toilets, cloakrooms, shower (15 m²); cleaners' and maintenance room (10 m²); duplication, reprography, photocopies (15 m²); miscellaneous storage (one or two rooms – 25 m²);
- similarly, a library operating with 25 staff should have a total of 150 m² of common areas divided into: meeting/training room(s) (30 m²); kitchenette (25 m²); toilets, cloakrooms, showers (25 m²); housekeeping/maintenance area (15 m²); duplication, reprography, photocopies (20–25 m²); miscellaneous storage (several rooms – 30–35 m²).

Particularly in establishments of a certain size, there may also be additional space requirements for, for example, a caretaker, additional building security (security room, plantroom for centralised building management system etc.). In general these spaces have standards dimensions meeting local regulations.

The following table summarises recommended overall surface areas per employee and by activity type. In all cases, the area shown is the useful area, that is, that required for performing the activity in question, independently of circulation (such as the passageway leading to an office etc.). It is again emphasised that the stated area must be fully “habitable”, that is, functional: for example, an office of 12 m² is effectively habitable if its interior dimensions are around 3 x 4 metres, or 3.35 m x 3.60 m, but not if they are 5.50 m by 2.20 m! Similarly, the shape of the room, particularly for restricted areas such as offices, workshops, storerooms etc. must be basically orthogonal (that is, walls and partitions intersecting at right angles), rather than following some strange contour (such as acute or obtuse angles or ellipses, which are difficult to furnish). In all cases, priority should be given to simple shapes and volumes that can be modified to cater for changing user-needs.

Activity/Requirements	Useful Area	Circulation (add to useful area) (percentage)
Cataloguing and processing of collections, including storage of collections awaiting processing:	15 m ² per full-time employee	+ 40%
Receipt of document deliveries; unpacking of boxes; preparation of collections for loan, including storage of documents awaiting processing:	15 m ² per full-time employee	+ 40%
Workshops (binding, reprography): bulky materials, storage of supplies; water supply; draining board...:	15 to 20 m ² per full-time employee	+ 40%
Multi-function hardware/systems (photocopiers, scanners, fax etc.):	4 to 7 m ² per machine	+ 40%
Finance, accounts, personnel management, secretaries etc.:	10 to 12 m ² per employee	+ 40%
For all part-time staff, irrespective of their function(s) within the organization	5 to 6 m ² per part-time employee	+ 40%
“Common areas”: meeting rooms, staff training room, kitchenette, reprography, various storerooms (other than those for collections not accessible to public), cleaners’ room, toilets, cloakrooms and showers etc.:	7 m ² per employee (whether full- or part-time), up to 15 staff (6 m ² beyond 15 staff)	+ 40%

Quality of internal spaces

The overall quality of staff areas can be appraised in various ways. Apart from the need for rationally configured areas and suitably sized rooms, as specified above, their location in the building must be defined for the greatest possible functionality. As already stated, it is essential for a library to have a separate entrance for staff and documents and supplies entering the building, to avoid diffi-

6. Configuring Internal Staff Areas

culties in organising circulation, such as intersecting traffic (members of the public, materials or objects).

It is also necessary to study the effectiveness of horizontal and vertical circulation, where possible allowing dedicated circulation for internal traffic, documents and supplies, thereby allowing optimal delivery times between various points of the building: office to office, office to workshop or store, office or public space to store, workshop to final store at the end of the collection processing chain. It is therefore important to have sufficiently wide access and clearly identified passageways avoiding steps, and also vertical traffic areas (staircases, elevators and load lifts, even automatic document conveyors), in sufficient number and judiciously situated to ensure optimal servicing of the building. The number and dimensions of all lifts and elevators must be determined so as to provide the best possible service without overburdening the operating budget of the library through excessive maintenance costs.

Emphasis must also be placed on the quality of spaces dedicated to the library staff: noise control; aesthetics and comfort of areas and furniture; human-factors aspects of work stations; need for adequate wiring of rooms; special attention to lighting (natural and artificial) in rooms; solar protection; natural ventilation and colour schemes of premises.

Furthermore, the functional organization of internal staff work areas does not necessarily mean that the said areas will always remain completely hidden from the public eye. Once again, it is necessary to find a balance between staff privacy and staff visibility.

In certain cases, provided that criteria have been precisely defined, one part of the staff's offices may have a direct view onto the public areas (which does not necessarily mean direct access), thereby reinforcing the feeling of belonging to the community formed by users and staff.

Finally, it is imperative to ensure that these internal areas can evolve over time to accommodate future change. They should have the same live-load bearing

capacity as the user spaces and storage areas. This is not always recognised by contracting authorities since they have a tendency to apply live-load bearing capacity standards corresponding to different usages, for example, 500 kg/m² for public rooms containing certain document collections; 600 kg/m² for stores with fixed shelving; 250 kg/m² for staff offices. Should ever the day arise when a relocation of the library departments is required, such as an extension (or even a reduction in some cases), requiring heavy transformation or adding of premises for example, then a single and uniform live-load standard of 600 kg/m² – irrespective of the internal functions of the building – will be the only workable solution (excluding stores housing moving shelving, which require 1200 to 1500 kg/m²). This precautionary measure is not of itself expensive, compared with the overall cost of the building.

Allowing for later modifications to a building is an absolute imperative, since while the building may in principle have been designed to last just twenty or thirty years, in practice the chances are it will still be standing a hundred years later or more.

Further reading and references

- La Bibliothèque dans la ville: concevoir, construire, équiper. Ministère de la Culture.
Direction du Livre et de la Lecture. Paris, Editions du Moniteur, 1984. 400p. (*a summary of French construction practice as applied to public libraries*).
- Construire une bibliothèque universitaire: de la conception à la réalisation. Sous la direction de Marie-Françoise Bisbrouck et Daniel Renoult. Paris, Editions du Cercle de la Librairie, 1993, 304 p. (Collection Bibliothèques).
- Les Bibliothèques dans l'université. Sous la direction de Daniel Renoult. Quatrième partie, chapitre IV: “Les bâtiments des bibliothèques universitaires”, pp. 177–190 et Sixième Partie, chapitre I “A propos des bâtiments des bibliothèques universitaires allemandes. Quelques impressions de voyage...” pp. 295–298. Paris, Editions du Cercle de la Librairie, 1994. 360 p. (Collection Bibliothèques).
- “Le Choix d'un architecte en France et la procédure des concours”, article produced by Marie-Françoise Bisbrouck for the 62nd IFLA General Conference (Section on Library Buildings and Equipment) – Beijing (China). August 1996. 15p.

6. Configuring Internal Staff Areas

Ministère de l'Education nationale, de la Recherche et de la Technologie. Direction de l'Enseignement supérieur. Sous-direction des Bibliothèques et de la Documentation. "Bibliothèques universitaires: nouveaux bâtiments ... nouveaux services". Ed. Marie-Françoise Bisbrouck. (bilingual French/English). Paris, 1998, 3 sections, 1–28p., 1–36p., 1–32p.

Ministère de l'Education nationale, de la Recherche et de la Technologie. Direction de l'Enseignement supérieur. Sous-direction des Bibliothèques et de la Documentation. "Bibliothèques universitaires: évaluation des nouveaux bâtiments", Ed. Marie-Françoise Bisbrouck. Paris, La Documentation française, 2000. 150 p.

"Why and how to programme a library building: the French experience over the past decade"
In: Library buildings in a changing environment. Proceedings of the Eleventh Seminar of the IFLA Section on Library Buildings and Equipment. Shanghai, China, 15–19 August 1999. Edited by Marie-Françoise Bisbrouck. K.G. Saur, München, 2001. (IFLA Publications 94).

From concept to commissioning; The Library: Scheduling, Programming, Phasing, by Marie-Françoise Bisbrouck, LIBER Quarterly (ISSN 1435-5205), Volume 14 (2004), N° 1–4, K.G. Saur, Munich, pp.218–231.

7. HOW WAS IT FOR YOU? THE BUILDING PROCESS IN PRACTICE

Professor Andrew McDonald
Director of Library and Learning Services & Head of Lifelong Learning Centres, University of East London, United Kingdom

This paper explores the nature of the managerial challenge faced by the library director who has been given the exciting responsibility for a new building project. As well as outlining the planning and design process, the paper discusses the diverse team of professionals involved and the sorts of information required in the all-important programme statement or brief. It concludes with some reflections and 'health warnings' on the building and design process in practice.

INTRODUCTION

Planning a successful new library building is a substantial and complex managerial challenge, arguably the biggest and most important professional challenge the library manager will face. Many library managers may only have one opportunity to plan a new building in their career and even though large capital sums are involved, they will almost certainly have had little experience or training for managing such a project. For these reasons, it is important to understand the process of planning and designing new buildings and to appreciate the range of professional players involved in this complex and creative process. Throughout the project, the library manager will be working with new colleagues in new ways.

Although the emphasis is on new buildings, the principles can equally be applied to extensions, refurbishment and remodelling exercises, and projects involving making better use of existing space, or, indeed, a mixture of these. The discussion focuses on the generic issues involved and so is just as relevant to college and university libraries as it is to national, public and special libraries. Clearly, the emphases, priorities and processes will vary considerably with different libraries of various sizes around the world.

THE MANAGEMENT CHALLENGE

Leadership

The library manager must play a leading role throughout the whole planning and design process. Planning libraries is simply good management and, as Mason (1996) reminds us: “good management of the library building planning will make a better building”. He goes further and emphasises that library managers “must make sure they are in control of the management”.

Vision

Library managers must have a strong vision for the new library and they have the important responsibility of communicating their vision to all those involved in the planning and design process. Indeed, this vision should actually inspire the design process (Bazillion and Braun, 1994). This is an opportunity to reflect on the vision for the library service and to review its strategic aims and even to consult stakeholders on developing a new ‘brand’.

Planning new libraries is about creating the physical environment necessary to facilitate the mission and aspirations of the institution, and this should be driven by the vision, ethos and strategic aims of the institution. The library manager has a unique responsibility to ensure that the outcome of the planning process is a good building which is capable of delivering high-quality services to generations of users. Indeed many librarians are planning buildings and important collections for posterity. As well as inspiring the process with an imaginative vision, library managers must pay considerable attention to detail throughout the entire project.

Strategy

Space is a precious and expensive resource that should be planned and managed within a strategic framework for the development of the library service as a whole. Unfortunately, it has sometimes received less professional attention than

staffing, collection development, information technology, finance and the other resources which the librarian manages. Quite simply, good well-planned space enables the library to fulfil its mission, and underpins the development of all other library resources. On the other hand, poor space often conflicts with what users and library staff are trying to achieve, and inhibits the library's ability to fulfil its aims in an efficient way. More seriously, poor space can constrain the development of the service.

Like all project management, space planning involves taking decisions, normally a large number of them, within a finite time scale and within the resources available. It is not primarily about architecture and taste, or about bricks and mortar, but it is about the responsible library manager seeking to create an attractive new library that works very well and lasts a long time. The new library must be delivered on time and within budget, and it must be affordable both in capital and recurrent costs. The new building should enhance the work of the institution and enable the service to be responsive to change.

Communication

A major building project is a massive communications exercise. Library managers must influence all the other professionals and stakeholders involved in this creative process, many of whom they will come across for the first time in their careers. These include the parent organisation; the governing body; estates professionals; the architect; the contractor; the library building consultant; library users; and, not least, library staff themselves. Influencing the early part of the planning and design process is critical since this is when many of the key decisions are made, but library managers must also extend their influence throughout the whole design, construction and occupation phases of the project.

Change

Planning new space is about creating and managing a great deal of change in order to develop an entirely new service that can deliver better quality, greater efficiency and improved responsiveness. The library manager must provide the

leadership and direction necessary to manage library staff and users through this period of considerable change. On the one hand, this is about managing creativity and ideas, and on the other, it is about dealing with the effects of disruption and uncertainty. New buildings provide the manager with a unique opportunity to change the culture and organisation of the library and to influence attitudes and behaviour within the community of users.

Risks

There are considerable political, professional and financial risks involved in leading a major project. It is the library manager who will have the responsibility for providing services to users in the new building, and it is the library manager's name that is invariably linked with the success or failure of the project. Well-planned new buildings stimulate demand for library services sometimes by as much as fivefold (Jones, 1999), and these new levels of usage must be sustained. Poorly-planned space will attract criticism from both the user community and other stakeholders, and will have a profound effect on the morale of library staff.

Creativity

Planning new space is also an enjoyable and creative process which, inevitably, has its 'creative tensions'. It is a complex human process about which not everyone will or should agree. There are no prescribed solutions in planning library buildings: no one knows all the answers and no two projects are the same. Indeed, different architects and planners will often develop very different design solutions to a particular set of requirements. But, as a rule, the best libraries emerge when there has been a strong shared vision and good communication between all those involved in the process, especially between the architect and the librarian.

The building and design process

Planning and designing a new building is a complex process and one which is rarely as straightforward as it appears in the literature. However, a number of helpful guides have been published. One of the best was produced by Holt (Dahlgren, 1990) in which he sets out five basic steps: concept, planning, architectural implementation, construction and occupation. He goes on to expand these in to thirteen sub-steps (Figure 1).

Dahlgren (1992) developed a variation, suggesting a ten-step process: literature review/self-education, needs assessment, building programme statement, architect selection, site selection, schematic design, design development, bidding and negotiation, construction and moving in, and dedication. These correspond more or less to the steps suggested by Holt as shown below.

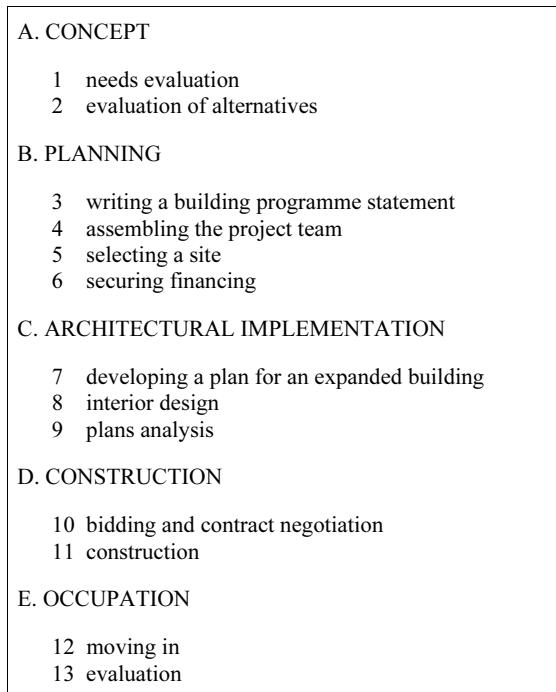


Figure 1. Building Planning Process Outline

Source: adapted from Wisconsin Library Building Project Handbook

We will now look at these in a little more detail.

CONCEPT

The concept phase involves two activities: needs assessment and the evaluation of alternatives, but, beforehand, Dahlgren (1992) suggests undertaking a literature review and self education process. In what is likely to be an unfamiliar field, it is useful to gain an awareness of basic space planning issues and current trends by reading some of the sources in the literature, by checking portals and by attending relevant conferences. Visiting recent new buildings and networking with other managers who have recently planned buildings or who are in the process of doing so can be invaluable. Even if you have been involved in planning projects in the past, it is useful to review trends and developments because building projects are invariably as different as they are unpredictable.

Needs assessment

The library's long-term needs should be established in relation to its mission and aims. Needs assessment, which is described in detail by Dahlgren in this publication, involves projecting the library's, or rather the users' needs into the future as best we can. The assessment poses two important questions: how much space and what sort of space will be required to meet the service demands of the user community in the future? Here the library manager may use any space norms of planning guidelines that are available within the sector to support the case, particularly if these are established norms or have been agreed nationally. A building programme will be prepared detailing space needs, functions, adjacencies, and unique functions and features of the proposed building. Estimates of the growth of the collections, seating requirements, technology and staff will be made in relation to the library's budgetary horizons.

Evaluation of the alternatives

Using the findings of the needs assessment, alternative solutions are evaluated before an implementation strategy can be agreed.

The needs assessment may have suggested a variety of alternatives for consideration and these should be evaluated in relation to their effectiveness, practicality, feasibility, cost and other factors.

The alternatives might include a new building, extending the library, refurbishing and reallocating existing space, converting a building for library use, or a mixture of these. It may be, for example, that the need for space for continued collection growth could be met by establishing an off-site storage facility for infrequently used materials. At this stage the library manager might reconsider the library's mission and service aims, or rethink the project requirements altogether.

PLANNING

In the planning phase there are a number of steps: writing a programme statement, assembling the project team, selecting a site, and securing financing.

Programme statement

A good programme statement or brief is a crucial starting point for discussion in a project (Faulkner-Brown, 1993; Revill, 1996) and many regard it as the key to success (see detailed introduction by Cecilia Kugler). The programme statement is simply the library's instructions to the architect: a written document which provides the architect with the library's vision and detailed practical information about the library's requirements for the new building. The library's space needs are described in as much detail as possible, identifying functional areas and the interrelationships between them.

At its best, the programme statement is a strategic as well as a descriptive document and it is generally held that the central focus should be upon service to users. (Lushington, 2002) Traditionally written by the director, the statement is now more likely to arise from consultations with staff and interested committees and groups and it also serves to communicate requirements to users, companies and other stakeholders.

7. How Was It For You? The Building Process in Practice

In developing the statement, the library manager needs to consider several key issues. One fundamental question is ‘future proofing’ – how far ahead we should plan? Another is the nature or qualities of the space required (McDonald, 2000, 2003 & 2006), and the library manager (Figure 2) must decide the extent to which the new space should be:

functional – space which works well, looks good and lasts well

adaptable – flexible space, the use of which can easily be changed

accessible – social space which is inviting, easy-to-use and promotes independence

varied – with a choice of learning environment and for different media

interactive – well-organised space which promotes contact between users and services

conducive – high-quality humane space which inspires people

environmentally suitable – appropriate conditions for readers, books and computers

safe and secure – for people, collections, equipment, data and the building

efficient – economic in space, staffing and running costs

suitable for information technology – with flexible provision for users and staff

‘oomph’ – space which captures the minds of users and the spirit of the institution

Figure 2. The qualities of library space – above

Snyder (1992) suggests the programme statement will usually include the following key elements shown in Figure 3:

- A. Description of the project
- B. Needs of and contribution to the community of users
 - Description of libraries including mission, strategic aims, service points, functions, collections, e-services, resource sharing, funding, initiatives, future plans and challenges
 - General distribution of space requirements:
 - Collection space needs
 - User space needs
 - Service space needs
- C. General building considerations
- D. Space relationships often presented as bubble diagrams
- E. Individual area descriptions such as reference services and preservation department
- F. Appendices including background information, detailed charts and graphs

Figure 3. Key elements of the programme statement

Current programme statements must have a major section covering the library's information technology plans and requirements. As well as articulating the institution's adaptability and flexibility needs, the statement may also refer to its approach to project management, environmental sustainability, maintenance, running costs and value for money.

Assembling the project team

Here the individuals and groups who will participate in the project are brought together. A number of professionals need to be involved to ensure appropriate advice, communication and expertise, and it is important to have a broad mix of expertise, skills and power in the team (Carmack, 1992). Sometimes referred to

7. How Was It For You? The Building Process in Practice

as the project coalition, this temporary but close-knit group is required to deliver a successful building.

The key players are the library manager, institutional managers and estates professionals, the governing body, the library building consultant, the architect (including the interior designer), the contractor and other engineers, library staff, and library users.

Library manager

We have discussed the unique responsibilities of the library manager. At this point we can add another: the library manager should take a lead in determining the make up of the planning and design team, wherever possible influencing selection and ensuring the necessary communication within the team. It is important to become the focal point of the whole project, influencing each stage in the process, ensuring the design delivers the required vision, and checking the details involved at key times. As the representative of the parent body, the library manager must manage the project responsibly, ensuring a good balance between imaginative solutions, hard-nosed decisions, pragmatic financial management and appropriate compromises.

The managing or governing body

The precise responsibilities will depend on the nature of the library, but in general these will include: assisting with the politics and decision making within the project; helping to sell and fund the project; appointing architects, consultants and other members of the planning team; and dealing with any issues and difficulties that arise from users or other stakeholders. The managing and governing body should also support the library manager throughout this challenging period.

Estates managers

Charged with responsibility for developing and managing the estate, estates managers and professionals will also take a leading role in ensuring an appropri-

ate building consistent with institutional strategy, policy and finance, and with current legal and technical requirements. Significantly, a senior member of the managing body, the Estates Director, often acts as the client. A project manager is sometimes appointed to liaise between the client and the designers.

Library building consultant

A building consultant can contribute to the process in several important ways. Often appointed early in the planning process, the consultant will lend considerable knowledge and expertise to the whole process and will ensure the right questions are asked and answered and will keep the lines of communication open. The role is about ensuring the right decisions are taken rather than taking the decisions themselves. Important attributes for a consultant are relevant experience and personal characteristics, and good communication and political skills.

The contribution may include making the case for more space; educating and guiding the team through the process; assisting in fact-finding; helping draft the programme statement; helping to sell the project; working with the architect to ensure the vision and requirements are delivered; helping manage creativity and change; and serving as a mediator in resolving questions and disputes.

The architect

The architect's role is "to translate the dreams and hopes of the library project team (as expressed in the programme statement) into reality" (Carmack, 1992). The architect is the crucial professional who is responsible for creating an imaginative design that incorporates form, function and environment into a structure that will be pleasing, comfortable, effective and economical for both users and library staff. The architect's approach is outlined in Part II by Santi Romero.

Selecting a good architect is key and the library will have a preference as to when this happens: in some projects the architect is appointed once the pro-

7. How Was It For You? The Building Process in Practice

gramme statement has been agreed. Further information on this process is given in Part II by Marie-Françoise Bisbrouck.

Both architect and librarian must bring their vision and respective skills to this creative process. Architects, particularly famous ones, tend to have a strong vision about the ‘artistic interpretation of space’ (Rockwell, 1989). The librarian must have an equally distinctive view about what is required, and must articulate this clearly to the architect and all those involved in the project, and must make sure the design delivers what is required.

Communication is vitally important and “there is no reason why an architect who is willing to listen to his client cannot design an efficient, technologically-sound building that is also a credit to its creator.” (Bazillion and Braun, 1994).

Library staff

The accumulated wisdom of library staff should not be overlooked: their experience and expertise can be invaluable throughout the process. Seeking information and advice from library staff and communicating progress and developments to them helps to achieve the participation and ownership necessary for a successful project. Library staff deserve to have some say in their destiny.

Library users

End-users can bring a refreshing and challenging perspective to the design of the library building. How and the degree to which they are involved remains a matter of local interest and tradition, particularly if their views relate only to previous experiences, but excluding users from the process can be detrimental politically.

Other players

There are a host of other players, including engineers, interior and exterior designers, legal experts and building planners. Increasingly information technol-

ogy and networking experts are assisting with planning effective integrated electronic environments, and acoustic specialists are advising on ways of managing the growing problem of noise in libraries. Designers and consultants may be called upon to assist with interior design, colour, artwork, signage, furniture, lighting, disability access, security, health and safety, environmental control, green issues, transport, landscaping, and preservation and conservation needs.

Selecting a site

The site is selected before the building itself is designed. It is normally held that a library should be located on a site which is both accessible and visible to the clientele, with complementary uses in the surrounding vicinity. The site must be large enough to support the new building and should allow for any future expansion proposed.

Securing financing

This is one activity that does not often occur at one discrete point in the process. Securing funding, whether from public and private sources, may begin much earlier and may be an unfamiliar world for some library managers. The extent of the fund raising required will be determined by nature of the new building chosen and the method of financing will affect the way in which the various members of the project team work together.

ARCHITECTURAL IMPLEMENTATION

The design phase involves developing a plan for the new building, interior design and plans analysis.

Developing a plan for a new building

Working from the programme statement, the architect translates the library's requirements and service aims into a preliminary graphic design. The library

manager should assess whether the proposed design solution meets the requirements set out in the programme statement.

An architect may first develop conceptual or relationship diagrams, which then evolve into a schematic design. The schematic design shows interior and exterior doors and walls and windows, and provides enough information for the other members of the planning team to assess whether sufficient space has been devoted to the various functions of the library and whether all the spaces have been arranged in an appropriate way.

As the schematics are approved, the design phase moves into design development during which the architect fills in the mechanical, structural and other engineering details. Detailed working drawings and specifications are then prepared, and it is from these detailed plans that the building is built.

Interior design

This usually overlaps with the development of the architectural plan. The structural plan and the furnishings plan are developed together in a coordinated way to ensure, for example, that ceiling heights are appropriate for bookstacks and that lighting fixtures and outlets are placed where they will be needed. New furnishings to be acquired will be selected and any existing furniture to be retained and moved to the new building can be identified.

Plans analysis

In practice this runs parallel with the various architectural design steps and beyond. The analysis provides the opportunity to test the architect's and interior designer's plans against the library's service requirements. Questions might include: are the type and range of spaces appropriate to need; is there sufficient shelving; are related functions adjacent; is the lighting appropriate; has sufficient provision been made for electrical and data cabling? Although the review is part of the architectural implementation, it continues into construction when changes to the original plans may have to be considered.

CONSTRUCTION

This phase includes bidding and contract negotiation and construction itself.

Bidding and contract negotiation

The way in which the bidding and negotiation phase is conducted will be determined by institutional, national and even international procurement regulations. It involves soliciting bids and inviting prospective builders to review the plans and submit estimates of the cost to build the proposed building. Once agreed contracts are signed.

Construction

The contractors then build the new library in accordance with the agreed working drawings. The architect typically monitors construction as the library's official representative, but it is very important for the library manager to monitor progress as well, not least to make sure that the building delivers the vision and requirements for the project. Construction can be fraught with often unforeseen difficulties, and it is important to make sure that variations are made with the best interests of the library and its users in mind.

OCCUPATION

Occupation involves moving in and evaluation.

Moving in

Using the best qualified and most capable movers should ensure the move goes smoothly (McDonald, 1994). Maintaining services during a major move or a phased building programme can be challenging. The opening ceremony itself is often organised some time later. Having almost reached the end of complex and challenging process, the manager should feel a huge sense of pride as the successful new library building begins to be used, admired and celebrated.

Evaluation

This is an important but frequently underestimated part of the process. Post occupancy evaluation provides a useful opportunity to assess whether the new building has indeed met the library's requirements and whether it is performing as expected and whether any changes have been necessary. This may involve asking the architect and other members of the planning team to return to the building to reflect on these issues and contribute to the evaluation.

CONCLUDING REMARKS

There are several 'health warnings' for library managers involved in a new building project. In making a compelling case for a new building, library directors often refer to any space norms or guidelines that are available for their sector. Although space allocation is a matter for individual institutions, these can provide a useful planning tool, particularly when the norms and guidelines have been agreed nationally. Unfortunately where they exist, relevant space norms and guidelines may either be rather out of date or represent unrealistic aspirations. Recent disability discrimination legislation in many countries has been crucial for improving access to libraries by people with disabilities and learning differences, but it has also had the effect of increasing space requirements in our buildings. McDonald (1996) gave a useful overview of the prevailing space requirements for academic libraries and learning resource centres in the United Kingdom, but the guidelines referred to were first agreed some 30 years ago. Each year, however, the Society of College, National and University Libraries publishes useful information about the range of space provision in university libraries in the UK and Ireland in its *Annual Library Statistics* (SCONUL, 2006). Details of recent university projects can be found on SCONUL's (2007) *Library building projects database*. The *Designing Libraries* website (2007), produced by the Museums Libraries and Archives Council & the Chartered Institute of Library and Information Professionals, is a database of descriptions and images of recent public library building projects as well as a library design portal providing advice and further resources.

In reality the planning and design process is not as linear as described, but is more of an inter-related matrix, often with unexpected changes and unmitigated risks and sometimes with unwelcome developments, but all of these have to be managed effectively within the project. For example, having floated several building options in the hope of attracting funders, you may have to rethink the desired option. Bids may come in over budget necessitating a redesign and scaling down of the project and a ‘value engineering’ exercise. A number of change orders may strain the contingencies budget. Unexpected site clearance, a strike by the building trade and bad weather are just a few factors that can slow progress. The construction industry is not always easy to understand and suffers from a less-than-favourable reputation in some countries. However, changes and new developments are inevitable within the duration of a major building project and these unplanned opportunities must be embraced enthusiastically for the library director to achieve a cutting-edge design.

The process and players described are very much based on the traditional approach to the planning and design of new buildings in the United Kingdom and colleagues from around the world and in different types of library will want to relate the process to their own particular situation. However, there have been some interesting developments in the UK recently.

Whilst the programme statement is acknowledged as a very important part of the process, it is increasingly regarded only as the starting point from which the planning team can develop their requirements in a flexible way in response to the opportunities and challenges that arise throughout the project. Some institutions now issue a series of memoranda of understanding to instruct the architect and planning team rather than rely on a single, formal briefing document.

Architectural competitions are often preferred for major prestigious projects and can be useful ways of exploring a number of different design solutions. Institutions may appoint a project manager at the beginning of the process to develop the concept and master plan and go on to appoint an architect at a later stage to lead the creative thinking. In some projects, several architects are engaged to lead the conceptual and pragmatic aspects of the process.



1. Docklands exterior



2. Docklands –
All floors visible

Photos from/by:
Library and Learning
Services, University
of East London
Docklands Campus,
United Kingdom

Illustrations to Chapter 1



3. Docklands – Library Learning Centre



4. Docklands – E-resource Centre

Illustrations to Chapter 1

5. Docklands – one of many study groups



6. Docklands – combined work station and study group



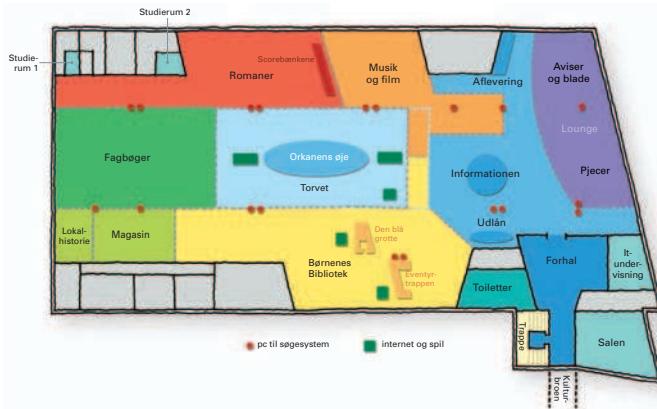


1. The Black Diamond, The Royal Library, Copenhagen, Denmark. Recent sculptural library building, 1999. Architects: Smith, Hammer & Lassen
Photo: Karsten Bundgaard, The Royal Library



2. Island of Culture, Middelfart, Denmark. Another sculptural iconic library building housing: new main library (3.000m² – 35.000 inhabitants), tourist office, restaurant, cafe, cinema and located near to city centre and marina, 2005. Architects: Smith, Hammer & Lassen.

Photo: Andreas Trier Moerch, The KASB Database, www.kasb.dk



Film and rose: Fiction. Green areas from left and down: Non-fiction, Pjecer/Class and Salen/Meeting hall while yellow is Children's area.

3. Open plan layout prioritising user space rather than shelving. Blue areas: Forhal/ Entrance, Torvet/ Marketplace including Oval area for studying, Informationen offers any professional guidance, Udlan and Aflevering/ self service loan and return/sorting facilities. Lounge including newspapers. Orange area: Music- Open storage, IT -



4. From Main Public Library, Naestved Municipality, Denmark: 4.500 m², 80.000 inhabitants, 2004. Architect: Jan Amby, AK83.
Photo: Danmarks Biblioteker



5. CBS Porcelainshaven opened 2006 – a campus branch library of Copenhagen Business School without books providing professional guidance and access to all net-based resources for students.
Photo: Jakob Boserup/CBS

6. CBS Solbjerg Plads – central library of Copenhagen Business School has all its collections downstairs, users everywhere else, 2000. Architect: Vilh. Lauritsen Architects A/S.
Photo: Jokob Boserup



1. Study carrel seating and lounge seating *Photos from/by: Ames Library at Illinois Wesleyan University in Bloomington, Illinois, USA by Anders C. Dahlgren*

2. These conventional book stacks are 2.2m tall, on an aisle 0.9m wide. Without using compact shelving, it would be difficult to store more volumes per m^{-2} in any other setting.



Illustrations to Chapter 3



3. Computer network stations for patron use.



4. Displays like this are an example of “other” spaces that might be found in a library.

1. The eZone, an electronic classroom, for individual use or teaching, Macdonald



2. Combination of variant forms of lighting and types of seating, Macdonald



3. Computers for stand-up quick consultation



Photos from/by Macdonald Campus Library, St Anne-de Bellevue, McGill University Library and Humanities and Social Sciences Library, McGill University – both Montreal, Canada.

Illustrations to Chapter 4



4. Display, which rotates to act as door when library is closed.



5. Computers, people and plants, Humanities and Social Sciences Library



6. Print journals, people and plants, Humanities and Social Sciences Library

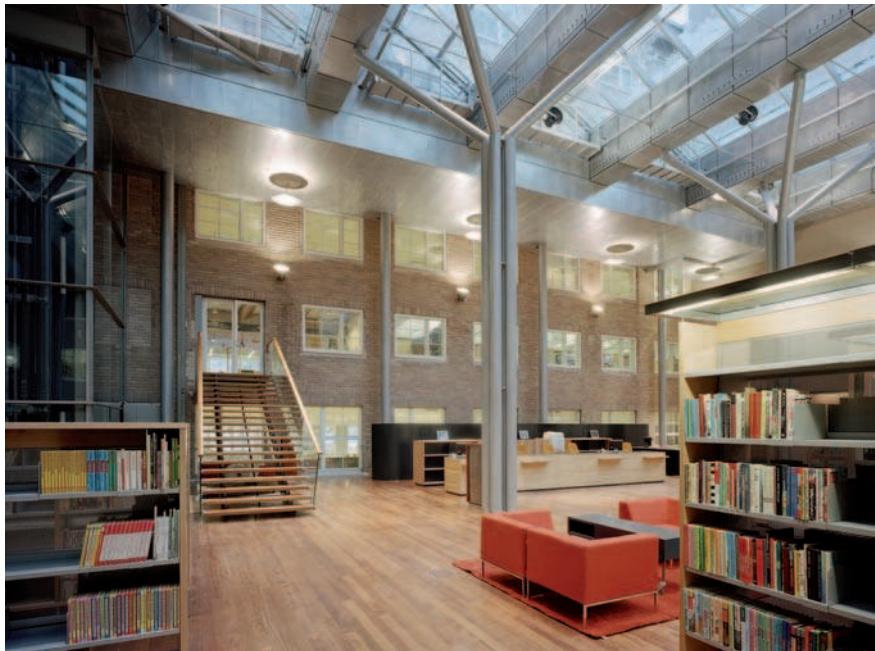


1. University Library
Göttingen, Germany.
Photo: Olga Sinitsyna



2. The Jubilee Library,
Brighton, UK.
Architect: Bennetts
Associates and Lomax
Cassidy & Edwards
*Photo: Lomax Cassidy
& Edwards*

Illustrations to Chapter 5



3. Aralis Library and Information Centre, Helsinki, Finland.

Photo: Jussi Tiainen



4. Self Service Issue & Return – Queen's University Belfast.

Photo: Sheila McGibbon

Illustrations to Chapter 5

5. Oak Park Public Library, Illinois – inside layout.
Photo: Winnie Vitzansky



6. Oak Park Public Library, Illinois – seating group.
Photo: Winnie Vitzansky



Illustrations to Chapter 6

Photos from the Library University, University of Saint-Quentin en Yvelines.
Architect: Ripault-Duhart. *Photos: Marie-Françoise Bisbrouck*



1. The Library seen from the outside

2. Reading hall – view to the park





3. ICT – access area

Public Library in Alcazar –
Marseille, France. Architect:
Adrien Fainsilber.
*Photo: Marie-Françoise
Bisbrouck*



4. Public areas seen from the
Atrium

Illustrations to Chapter 6



5. Magazine & Comics area



6. Plan of the library



7. IT area

7. How Was It For You? The Building Process in Practice

The traditional design and specification route for procuring a new building can be flexible but costly. An alternative is design and build, where the costs are fixed but flexibility and sometimes design quality are reduced. PFIs (Private Finance Initiatives) are an example of PPPs (Private Public Partnerships) and these are an alternative procurement route involving investment by private sector partners, therefore avoiding immediate recourse to the public purse (HM Treasury, 2007; Department of Health, 2007). This is a way of securing both capital and recurrent funding for the building and services from the private sector and, in so doing, transferring the risk from the public sector to whom the building is returned in 30 years. The philosophy behind the BOT process (build – operate – transfer) is to deliver better value for money over the longer term, but it is still based on a statement of functional requirements, and successful projects must have public sector comparators, technical advisers and appropriate payment mechanisms. PFIs bring the library director in to contact with an even greater variety of building, design, procurement and financial professionals. Communications, project management and managing partnerships become ever more challenging when planning multipurpose buildings in which services from a variety of providers and sectors are combined within one building.

Within this complex and creative building and design process, library managers often find they need to take a particularly determined and persistent approach to ensure the design delivers what is required. Compromises are often required, but these should always be taken with the interests of the library and its users in mind. There is a growing realisation that successful space projects are as much about managing people, culture change and creativity as they are about buildings, space and processes. Library managers need to be aware that people sometimes demonstrate irrational feelings and unusual behaviours about territory and power when it comes to space planning, design and entitlements.

During the testing time of a building project, the library director will experience a whole spectrum of managerial emotions: from exhilaration to exhaustion, from fun to frustration, and from satisfaction to insanity. A wide range of managerial skills will be tested: boldness and detail, politics and diplomacy, understanding and ego massaging, finance and standards, trouble-shooting and crisis manage-

ment, negotiation and compromise, and communication and collaboration. But it is particularly important to embrace and harness the creativity of others involved in the planning process within the context of achieving your particular vision for the new building.

A growing number of imaginatively-designed new libraries continue to be built around the world, confirming the enduring importance of libraries as physical ‘places’ within society (Lang, 2001), even at a time of rapid growth in information technology. In planning and designing these important new places, the library manager continues to play a leading role in the planning process. By communicating a clear vision of what is required to all those involved, the library manager enables the new building to play a full part in its community of users, whether this be education, scholarship, research, culture, heritage, economic development or regeneration. The buildings we create today will remain lasting tributes to the managerial vision, leadership and influence of the librarians involved in their planning.

Further reading & references

- Bazillion, R.J. and Braun, C. (1994) Academic library design: building a “teaching instrument”, *Computers in Libraries*, 14 (2), pp 12–16.
- Carmack, B. (1992). Outline of the building planning process: the players. *In Libraries for the future: planning buildings that work*, R.G. Martin ed. American Library Association, Chicago. (Library Administration and Management Association), pp 25–29.
- Dahlgren, A.C. (1990) *Wisconsin library building project handbook*. 2nd ed. Wisconsin Department of Public Instruction, Wisconsin.
- Dahlgren, A.C. (1992). Outline of the building planning process: or an overly simplified summary of what will be visited upon you when you build a building. *In Libraries for the future: planning buildings that work*, R.G. Martin ed. American Library Association, Chicago. (Library Administration and Management Association), pp 14–24.
- Department of Health. (2007). Public private partnerships.
<http://www.dh.gov.uk/ProcurementAndProposals/PublicPrivatePartnership/fs/en>
(4/1/2007)
- Faulkner-Brown, H. (1993). *The initial brief*. IFLA Section on Library Buildings and Equipment, The Hague.

7. How Was It For You? The Building Process in Practice

- HM Treasury. (2007). *Public private partnerships*.
http://www.hm-treasury.gov.uk/documents/public_private_partnerships/ppp_index.cfm
(4/1/2007)
- Holt, R.M. (1989). *Planning library buildings and facilities – from concept to completion*. Scarecrow Press, Metuchen.
- Jones, W.G. (1999). *Library buildings: renovation and reconfiguration*. Association of Research Libraries (Office of Leadership and Management Services, Washington. (Issues and Innovations in Transforming Libraries, SPEC Kit 244)
- Lang, B. (2001). Library buildings for the new millennium. In *Library Buildings in a Changing Environment*. Proceedings of the 11th International Seminar of the IFLA Section on Library Buildings and Equipment (J. Wu and M-F. Bisbrouck, eds.). Saur, München, pp 11–24.
- Lushington, N. (2002) *Libraries designed for users: a 21st century guide*. New York: Neal-Schuman.
- Martin, R.G. (1992). *Libraries for the future: planning buildings that work*. Library Administration and Management Association, American Library Association, Chicago.
- Mason, E. (1996). Management of library building planning. *Journal of Library and Information Science* 22, pp 14–28.
- Metcalf, K.D. (1999). *Planning academic and research library buildings*. 3rd ed. by P.D. Leighton and D.C. Weber. American Library Association, Chicago.
- McDonald, A.C. (1994). *Moving your library*. The Association of Information Management, London. (Aslib Know How Series).
- McDonald, A.C. (1996). Planning library buildings for the information age. *The New Review of Information Networking* 2, 133–148.
- McDonald, A.C. (1996). *Space requirements for academic libraries and learning resource centres*. Standing Conference of National and University Libraries, London. (SCONUL Briefing Paper).
- McDonald, A.C. (1997). Space planning and management. In *Resource Management in Academic Libraries*, edited by D. Baker, pp. 189–206. Library Association Publishing, London.
- McDonald, A.C. (2000) Planning academic library buildings for a new age: some principles, trends and developments in the United Kingdom, *Advances in Librarianship*, 24, pp 51–79.

- McDonald, A.C. (2003). Creating good learning space. In *Libraries with oomph: PFI for higher education libraries*. Papers delivered at a Seminar. Nabarro Nathanson, London, pp 4–8.
- McDonald, A.C. (2006). The ten commandments revisited: the qualities of good library space. *LIBER Quarterly: The Journal of European Research Libraries* 16(2),
<http://webdoc.gwdg.de/edoc/aw/liber/lq-2-06.html> (4/1/2007)
- Museums Libraries and Archives Council & Chartered Institute of Library and Information Professionals (MLA & CILIP, 2007).* Designing Libraries: the gateway to better library buildings.
<http://www.designinglibraries.org.uk> (23/4/2007)
- Revill, D. (1996). *Working papers on architects' briefs*. Standing Conference of National and University Libraries, London. (SCONUL Working Paper).
- Rockwell, E. (1989). The seven deadly sins of architects. *American Libraries* April 1989, p 307.
- Sannwald, W.W. (2001). *Checklist of library building design considerations*. 4th ed. American Library Association, Chicago.
- Snyder, C (1992). The building program statement (revisited). In *Libraries for the future: planning buildings that work*, R.G. Martin ed., American Library Association, Chicago. (Library Administration and Management Association), pp 40–43
- Society of College, National and University Libraries (SCONUL) (2006). *Annual library statistics 2004–05*. London : Society of College, National and University Libraries.
- Society of College, National and University Libraries (SCONUL). (2007). *Library building projects database*.
http://www.sconul.ac.uk/library_buildings/buildings/ (3/1/2007)
- Thompson, G. (1989). *Planning and design of library buildings*. 3rd ed. Butterworth Architecture, Oxford.

Part II:

GUIDELINES FOR

PLANNING THE PROCESS

8. THE BUILDING PROCESS INCLUDING HOW TO CHOOSE AN ARCHITECT

Marie-Francoise Bisbrouck, Director of the Library,
University Paris-Sorbonne, France

From Concept to Commissioning: Scheduling, Programming, Choosing the Architect, Phasing

Building, extending or restructuring a library building is a delicate thing. Therefore it is important to plan the project in a structured way and establish the exact roles and responsibilities of the various different partners in order to bring the building project to a successful and harmonious conclusion.

The first step is to write a programme, or brief, for the future building. That is to draw up a complex document that will contain information provided by librarians and others to a greater or lesser extent.

The programme is a document that must simultaneously address various requirements – the operational, the behavioural and the environmental. It must be drafted in terms that are comprehensible to the users, who have to validate it, and also be directly useful to the professionals, who will use it as a basis for their design and give it an architectural form.

Due to the dual nature of the requirements to be addressed, namely the qualitative and the quantitative, the programme includes descriptive parts, diagrams, functional diagrams, architectural and technical recommendations, and performance levels.

In functional terms, the programme follows a certain logical process:

- the defining of objectives, and determining of functions for meeting those objectives
- determining activities in order to service the necessary functions

- organising the said activities according to functional diagrams
- planning traffic routes
- expressing requirements associated with each activity
- stating the performance levels required of the building and its equipment in meeting the requirements.

This part of the programme is essentially managed by the library; the latter must, for each area providing one or more activities, determine the associated geometric characteristics: area, ceiling height, any recommended layouts etc. The library also has a role to play in terms of the internal environment of the building: admissible sound levels for various spaces, lighting levels (for reading areas in particular, including computer use), temperature, relative humidity (for book-storage and similar areas), equipment footprints, floor loads, power and utilities requirements, protection of property, access control etc.

In environmental terms, the programme describes the urban and site contexts, the role of the future building within the site and its immediate environment, links between activities within the building and those in the surrounding area. This part is the preserve of the contracting authority and related managers.

Drafting of such a programme is achieved in phases, each with an increasing level of detail, corresponding to the phases of the proposed design:

- the general programme provides the basis for establishing sketch plans and the preliminary design
- the specific programme provides information for the detailed design
- the definitive programme provides the data for the final design, also referred to as “the project”.

Harmonising the programme with the project ensures the success of each project phase. The role of the library is to provide constant monitoring, to ensure that the definition of requirements always remains in phase with the current project phase rather than ahead of it, therefore ensuring that the architect is not asked to produce overly detailed answers to any aspect of the project corresponding to a later phase of the programming. An example might be not asking for a door to

8. The Building Process Including How to Choose an Architect

be moved between offices (which would be part of the detail design) when the space distribution for the particular floors of the building is not yet complete (a task belonging in the preliminary design); the difficulty is always being able to stay just abreast of operations.

Programming, however, cannot be restricted to “simply” the building programme itself, since as soon as the preliminary design is complete and the general concept has developed into “building” and “systems”, the programme is subdivided according to the parties for whom it is intended:

- a building programme, for the architects and engineers
- an “equipment programme” for the architects and designers
- an “operations programme” for organization and management specialists, and finally
- an “environment programme” for urban designers.

It can clearly be seen that additional players come on board at various points and it is therefore difficult at times for library personnel to determine who is who and to handle co-ordination. An analogy would be with modern medicine, where no one physician has a full overview of a particular patient and numerous specialists are consulted.

In the long process required for developing drawings and technical documents, the library should ensure that, at each drawing stage, the functional needs of the library (areas, organization of services etc) are taken into account by the architect.

What is certainly most difficult of all for the library is to cope with are the ups and downs of the project: periods of deep inactivity interspersed with periods of feverish activity. It is difficult to know which is the hardest to put up with during these cycles! In “calm” periods, there is a risk that the library personnel lose their enthusiasm for the project because they have many other things to do including keeping their current users happy. And in the programme’s “feverish mode”, they have to come up with instant answers to each and every request by the architect, design office or the contracting authority; and answers requested

“on the fly” often lack precision or consistency, and may not be quite what was being sought.

Summary of the design & programming process – or who does what?

	Specialised Town planners	Users (Readers)	Users (Library)	Contracting Auth.						
Program-ming	Environ-ment crite-ria	Behavioural criteria	Opera-tional criteria	Cost and building-time criteria	Manufac-turing & mainte-nance criteria	Safety criteria				
	Where?	Why?	How?	How much and when?						
	Environmental re-quirements	Behavioural requirements	Opera-tional require-ments	Cost and delivery time requirements	Manufac-turing & mainte-nance re-quirements	Safety require-ments				
		Architectural and technical recommendations	Func-tional diagrams	Performance levels of building and equipment						
Design		Spatial organization		Building sub-systems	Equipment sub-systems	Imple-menting safety require-ments				
		Formalising of interior and outside areas								
Use	Commissioning									
	Modifications to operational and behavioural requirements									
		New spatial organization		Modifications to equip-ment sub-systems		New safety require-ments				

And now to the ARCHITECT

The architect is the main player in the operation: it is he or she who will design a coherent architectural space suited to the programme the library has developed. Without him/her, our building will not get off the ground! The library staff have great expectations of the architect: hence the necessity for choosing a good one which does not necessarily mean selecting a leading name in the architectural field.

We need to recognise that the difficulties sometimes encountered in communicating with an architect are the result of coming at a problem from two different perspectives – firstly that of the architect, who understandably wishes to create original art, secondly that of the librarian who, while not insensitive to the aesthetic nature of things, does not necessarily consider aesthetics to be the main consideration. The librarian above all requires that the future library will function correctly for both the users and the staff; that is, the library areas will be well organised, as easy to manage as possible considering the recurrent problems of understaffing, and that they should evolve over time according to the needs of the users.

The choice of architect is, therefore, fundamental, yet it is not facilitated by the way architecture juries are made up – least of all in France. Discussing this with colleagues from other countries, I have the impression that the French experience is not unique.

In most cases, the future users of the building are not represented on the jury: while this is the case for the representatives of a university or the city itself, it is even more true for the librarians; in the best scenario, only the library project manager is part of the jury, whereas there will be a large number of architects (five but more likely six or more), often making up over half of the jury members. It may be said, therefore, that rather than being judged by the future users of the building and those paying for the day-to-day operation of the building, architecture competitions are essentially judged by architects, who are neither the payers nor the users. Therefore, it is form rather than content that most often wins the day when it comes to the layout and functionality of the library areas.

As for the technical committees employed to look into the detailed design of the various competing projects, these will sometimes have one or two librarians, buried in a subcommittee called “Operations”, but experience shows that these librarians have little impact, and their recommendations and advice – proffered generally in the field of equipment functionality, choice of an architectural scheme, technical proposals, or the forecast cost of operations and maintenance of the future building – only very rarely influence juries in their choice.

Phasing and deadlines

If we turn to the time factor, we need to be aware that a building project takes many years to reach fruition, from the time that the need first arises, to the building of new premises, and finally to the date the building comes into service. Hence the necessity for a project manager who can stay the course!

But remaining optimistic, provided that things go according to plan, and discounting the various validation periods by the various powers and organizations (the library, the contracting authority, the city planning department, emergency services, independent surveyors etc), then a certain idea of timing may be gleaned from this table:

Operation	Duration (1)	Cumulative duration (1)	Scale of documents	Notes
Programme	6 to 12 months	6 to 12 months	-	Library visits Photography Creating reference-document base (standards) Set up working groups (2) Draft feasibility scenarios Sketch out fixtures, furnishings & equipment (FF&E) from onset of programme
Architecture competition	6 to 12 months	12 to 24 months	Sketches: 1/500 th - and 1/200 th -scale drawings	Library to be present in technical committee and jury

8. The Building Process Including How to Choose an Architect

Preliminary design Safety study Application for Building Permit	4 to 6 months	16 to 30 months	1/200 th - and 1/100 th -scale drawings	Extremely close involvement of Library in developing the preliminary design which corresponds to the organization of library areas (3)
Detailed design	4 to 6 months	20 to 36 months	1/100 th -scale drawings	Development of technical solutions (construction and operation of the building)
Project Sub-contracting File	4 to 6 months	24 to 42 months	1/50 th - and 1/20 th -scale drawings	Library often required to examine technical documents that are hard to read and interpret (4)
Tender negotiations	2 to 6 months	26 to 48 months		More library visits, specialised exhibits (library furnishings etc.)
Appointment of contractors; Signing of Agreements	2 months	28 to 50 months		Refining (by Library) of FF&E file
Site works	12 to 24 months	40 to 74 months		Detailed organization of collections and staff
Site handover, remedial works and snag-clearing	2 to 4 months	42 to 78 months		Creation of a photographic record showing progress of site
Installing fixtures, furnishings & equipment (FF&E)	2 months	44 to 80 months		Drafting description of building
Move in staff and services	1 to 2 months	45 to 82 months		Preparing to move in
				Publicising opening of the new building

Safety Committee report (allowing opening of building to public)				
Opening to public	(and HERE is where it really starts ...)			

- (1) Excluding time required for validating the various drawing stages by Contracting Authority and compulsory oversight committees
- (2) Working groups: Access to Collections, Information Technology, Conservation of Collections, Management, User Training, Communication, etc.
- (3) Traffic routes for users, staff and documents and supplies should be efficient at the outline design phase
- (4) The “heaviest” technical files are: Electricity, Building wiring systems, Telephony, Safety, Access control, Plumbing, Walls & Floor coverings, Ceilings etc.

During this lengthy testing time, experience shows that, psychologically rather than objectively, the hardest period to endure is that preceding the opening, since uncertainty is a factor continuously hanging over the effective conclusion of the building. At least once the building is opened, one can be 99.9% sure that it will be completed one day!

And HERE is where it all really starts.

9. A PRACTICAL MEANS OF ESTIMATING LIBRARY SPACE NEEDS

Anders C. Dahlgren, Director,
Library Planning Associates Inc., Illinois, USA

The Methodology

Space needs should be forecast to meet a future need, based on the library's future collections and service goals. The conventional time frame for this projection is twenty years, if for no other reason than the fact that library building projects do not occur more often than once in a generation. Sometimes, the life of a building will extend well beyond that optimum twenty-year period. There are many Carnegie library buildings around the world that are operating without significant expansion or change since they were opened. On other occasions, local circumstances will suggest that a shorter forecast period is appropriate. In a rapidly growing, rapidly changing service community, it may be impossible to fashion reliable projections as far ahead as twenty years.

This chapter introduces a specific methodology for estimating a library's space needs. The methodology is enhanced from a similar method prepared by the author while on the staff of the state library agency of Wisconsin (U.S.) and published at <http://www.dpi.state.wi.us/dpi/dlcl/plspace.htm>.

This methodology is founded on the notion that every library's space needs are determined by the inventory of things – collections, resources, and services – that the library should provide to meet community needs. Typically, the larger that inventory of things, the larger the library's building needs to be.

The methodology does not recommend specific service or resource inventory goals. Appropriate goals will vary by type of library, by the size of the service community, from community to community, and from culture to culture. The methodology does suggest some tools or strategies that may be considered in the

establishment of specific goals, but suitable service goals will be determined locally, on an individual basis. When a library defines its service and resource inventories, possibly using local, regional, or national guidelines, this methodology can then be used to define a corresponding space need.

Note that technology affects this methodology in two ways. First, technology is accommodated as part of the inventory of services and things that must be housed within the library. For example, a library may determine that it should provide space for 50 computer terminals for public use. Using this methodology will determine a suitable amount of space for that inventory of equipment. Second, technology is accommodated by its impact on other library services. For example, a library may determine that it will not need to retain back issues of magazines in paper format for as long a period because certain periodicals are now available electronically. In this case, a smaller inventory of periodicals will produce a smaller space need for that particular component of the library's service programme.

By examining the library's service needs in certain defined categories, planners can use basic formulas to calculate the corresponding space need. These categories include space for:

- collections and library materials
- readers and library users
- library staff
- meeting and programme functions
- other miscellaneous functions
- mechanical and support services

Space for collections

The basic concept for assessing the space needed to house a library's collection is quite simple: determine how large that collection will need to be in order to serve the library's community and how the library intends to house the collection, and a formula can be applied to make a rough estimate of how much area will be needed. The library's service goal – in this case, the size of the collection

9. A Practical Means of Estimating Library Space Needs

– will determine the corresponding space need. All things being equal, the larger the library's collection, the more space it will need.

Generally, a library's service goal relating to its collections will be determined by careful consideration of a variety of factors:

- growth (or changes) in the library's service population
- standards or guidelines from a state or national library agency or association
- accreditation requirements for a school, academic, or special library
- the library's recent experience, illustrated by its rates of growth in the collection – both gross additions and net additions
- comparisons with peer or exemplary libraries
- local and regional traditions and expectations

By taking these factors into account, library planners can identify collection service goals that are suitable and appropriate for their library. These service goals become the basis for the library's space needs.

This methodology considers book collections, periodicals, audiovisual materials, electronic resources (represented by computer terminals for library patron use), and special collections and conditions.

Books

Standards issued by a state, regional, or national library agency or association, if available, can be a useful starting point in defining a suitable goal for the development of the library's book collection. Often, such standards are presented in the form of a certain number of books to provide per capita. With an estimate of the library's future service population, it is a simple calculation to derive the recommended collection size, according to a particular service standard.

In a similar fashion, school libraries and academic libraries may have to meet certain accreditation standards. These are often presented in terms of volumes to provide per student. With an understanding of the number of students the library will need to serve in the future, the recommended collection size can be calculated.

Often, library standards and accreditation requirements should be supplemented by other considerations.

The library's recent growth rate can be examined as an indicator of its ability to meet a particular recommended service goal. If a library has added 2,500 volumes net per year over the last five to ten years, it might reasonably expect to add 25,000 volumes over the next 10 years, or 50,000 volumes over the next 20 years. If the difference between the library's current holdings and the recommendation drawn from a standard or an accreditation requirement falls within this range, it suggests that the library might realistically expect to achieve the recommendation within a reasonable time.

Be aware that the library's recent net rate of growth may not be a reasonable indicator of future growth. Sometimes, when it becomes necessary to study a library's space needs, one reason is that there's no available shelf space. In that situation, withdrawals are increased, and the resulting *net* rate of addition may be artificially low. With that in mind, it can be useful to examine future growth rates based on the library's *gross* rate of growth.

Another benchmark for determining future collection size is to compare the library with other "peer" institutions. For a public library, this might mean a comparison with other libraries in the country that serve a population of similar size. In some cases, the library may prefer to compare itself with a more localized or regional peer group. An academic library's parent institution may be part of a group of colleges from which may be drawn a useful point of comparison. A school library within a larger city school system might look at the other school libraries within the system. An examination of the kinds of collection resource provided by the library's peers can produce another useful tool to identify possible collection growth targets.

After careful consideration of any applicable state, regional, or national standards for library service, accreditation requirements and recommendations, recent net and gross rates of growth, and other factors, library planners can identify a goal for growth of the book collection. Ideally, this goal for collection

9. A Practical Means of Estimating Library Space Needs

growth will represent the estimated size of the collection at some future date – ten years or twenty years ahead. This in turn will determine the space needed to house the collection.

The space required for the projected book collection will be conditioned by the type of shelving environment that will be employed by the library. Note that this discussion assumes use of conventional library shelving deployed in traditional stacks. If the library intends to use compact, mobile shelving, that represents a specialized environment that falls beyond the range of this immediate discussion.

The floor space needed to house a particular collection will be determined by the physical conditions that describe the book stacks – the height of the shelving, the width of the aisle, and the type of material being housed.

If full-height shelving (up to 2.1m tall) is going to be used to house most of the collection, installed on an aisle 0.9m wide, a library could reasonably expect to house 140 volumes per square metre. To estimate the floor space needed to house the book collection in this example measured in square metres, divide the number of volumes to house by 140.

If the library elects to house its book collection in a manner that accommodates browsing by patrons – shorter shelves (as short as 1.6m), a wider aisle (up to 1.2m wide), with more face-out display – the library will be able to house fewer volumes per square metre, and the floor space required for the collection will expand. To estimate the floor space needed to house the book collection in this example measured in square metres, divide the number of volumes to be housed by 100.

If the library plans to house its book collection in a setting that combines some elements of each of the previous examples, the number of volumes housed per square metre should reasonably be something between 140 volumes per square metre and 100 volumes per square metre.

Be aware that in some communities, state and national regulations limit the height of library shelving throughout the library or in specific areas within the library, in the interest of improving accessibility to the collections. These limitations, if applicable, can affect the number of volumes per square metre that may be housed in a specific library.

Periodicals

Space needs for periodicals and magazines must consider two different shelving environments often employed in libraries: display shelving for current issues, and storage shelving for back issues.

After considering applicable standards, and library patron needs and interests among other factors, a library can determine a suitable goal for the collection.

To house periodicals in a setting that allows face-out display of a current issue, a library should allow one square metre for every 10 titles to be displayed. To estimate the space needed for current periodicals measured in square metres, divide the number of titles to be displayed by 10.

To house periodicals in a storage collection for back issues, consider both the number of titles to be retained in back issues and the average, or typical, number of years each will be held in back issues.

In a conventional shelving environment, one square metre of floor space will house one year of back issues for 20 titles. To estimate the space needed for storage of back issues, divide the number of titles to be held in back issues by 20, and multiply that by the average number of years to be held.

Audiovisual materials

Nonprint material includes media such as compact discs and audio cassettes, recorded audiobooks (on CD and cassette), DVDs, and videocassette recordings, to name just a few common formats.

9. A Practical Means of Estimating Library Space Needs

The same factors discussed above with regard to the book collection – any available and applicable standards or accreditation requirements, recent net and gross rates of growth, peer library comparisons – can and should be considered in determining a collection development goal for the audiovisual collection. Note that many libraries today are experiencing tremendous increases in the demand for this type of material.

Space needs for storing an audiovisual collection can vary tremendously, depending on the type of storage strategy employed. Some libraries opt to use conventional library shelving for their audiovisual collections. This has the advantage of increasing the consistency of the furnishings used in the library. Other libraries use special browsing units designed to display a specific kind of non-print format. This has the advantage of promoting the use of these collections through marketing and display but the disadvantage of requiring a larger floor area. Still other libraries use high-capacity storage cabinets. This has the advantage of reducing the amount of floor space a library might need, but the disadvantage of discouraging (or even eliminating) browsing in the collection.

A moderate approach – employing some cover-out display of non-print holdings, but not extensive cover-out display – will require one metre of space for every 120 items to be housed. To estimate the space needed to house an audiovisual collection measured in square metres, divide the number of items to be housed by 120. If the library intends to employ a storage strategy that emphasises display of audiovisual materials, the shelving and display will accommodate fewer items per square metre. The number of items in the collection should be divided by a smaller factor – 100, or even less, depending on how extensive the application of displays will be. If the library intends to employ a high-density storage strategy, it will be able to accommodate more items per square metre. The number of items in the collection should be divided by a larger factor – 150, or possibly more, depending on the specific storage strategy under consideration.

Computer stations for patron use

Electronic information resources have become an essential element of the collection in most libraries. While these electronic resources themselves require little or no floor space at all – after all, they’re housed in electronic bits and bytes on a computer server in some remote location and not necessarily even a part of the physical library proper – access to those resources is provided by way of computer network stations, and the inventory of these stations needs to be included in an inventory of the library’s service and space needs. Typically, a library will rely on current usage levels and recent changes in user demand for such equipment to project the number of computer network stations it will need. In many cases, authoritative standards or guidelines from official sources are out of date or nonexistent.

As was the case with other types of library collections, the actual space needed to house each computer network station for public use can vary. A specific allocation can depend on whether the station is intended for standing or seated use. It will depend on whether the station includes additional equipment such as a scanner or a dedicated printer. It will depend on the type of hardware used – newer, flat-panel monitors require less area than older “traditional” CRT monitors. Acknowledging these variations, the specific space needed for each computer network station will also vary depending on the number of stations to be installed. More stations installed in one location can take advantage of economies of scale in the layout of equipment, requiring a smaller area per station. In a small to moderate installation – up to 50 terminals – each terminal will require approximately 4.00 square metres. To estimate the space needed to house computer network stations for public use in this setting, multiply the number of terminals by 4.00. In larger installations, each terminal will require less space – approximately 3.25 square metres each. To estimate the space needed to house computer network stations for public use in this setting, multiply the number of terminals by 3.25.

Other collections / special conditions

Some libraries maintain large holdings in a format or type of material that doesn’t fall into the four categories above. An academic resource library or a

large public library may maintain a collection of microforms. An archival library may maintain large stores of manuscripts housed in files or archival storage boxes. A special library in a culinary school may have a collection of cooking utensils. If the library maintains a significant collection of some type of material not included here, a special allocation of space can be devised to accommodate that special collection.

In a very simple fashion, calculate the amount of space currently used to house that collection. Then consider the adequacy of the current shelving or storage strategy. If the current space houses the current collection well, consider future growth of the collection, determine the proportionate rate of growth, and apply that same rate of growth to the floor space currently supporting the collection. If the current space does *not* house the collection adequately, first estimate how much added space would be needed today to house the special collection. Then consider the future rate of growth of the collection, determine the proportionate rate of growth, and apply that rate of growth to the floor space that is needed today to house the collection.

An example: a special collection in a particular library might occupy 150 square metres today, but it is too crowded to be used effectively. A more suitable allocation of space to house the special collection today would be 180 square metres. If it is determined that the special collection will grow by 33%, a space allocation of 240 square metres can be included for this special collection ($60 \text{ m}^2 = 33\% \text{ of } 180\text{m}^2$; $180\text{m}^2 + 60 \text{ m}^2 = 240 \text{ m}^2$).

Compact, mobile shelving represents another alternative for storing collections that diverges from customary book stacks and has a significant impact on library space needs. As with conventional shelving, compact shelving's specific impact on library space needs will depend on the height of the shelving unit (which affects the quantity of material each shelving unit can house) and the width and depth of the shelving unit (which affects the specific space each shelving unit will occupy). Another important variable is the frequency with which cross aisles will be provided throughout the installation. Frequent cross aisles, which provide for a higher degree of access to the collection, will require a larger space

allocation per shelving unit in a compact shelving installation. Less frequent cross aisles trade off a greater limitation on collection access for a smaller space allocation per shelving unit. Acknowledging these variables, a generic space allocation for compact shelving can be 0.50 square metres per shelving unit.

Space for readers and library users

The number of places needed for readers and library users will depend on the mission of a particular library and the kinds of patrons the library serves. In an academic or research library, there may be a need for many seats to support researchers who are using the library's collections for extended periods of time. A different kind of academic library might cater to students who do not live on campus and who only attend school part-time. These students may not be able to spend large amounts of time in the library, preferring instead to select material and borrow it for use at home. Such a library may not need as many seats. The number of seats a library needs will also depend on how large a community the library serves. Typically, a larger community will demand more seating.

Of concern here is general, open reader seating: seating at tables, at study carrels, or in lounge settings. This inventory does not include places to sit that are associated with a specific library use – seats at computer network stations for patron use or at index tables are not part of this tally.

Some state or national library agencies or associations have suggested guidelines for the number of reader seats different kinds of libraries should provide. For example 40% of the number of visits per hour. One of the best tools to gauge how many reader seats a library needs is to examine use patterns over a period of time to document when and how often seating is full, or almost full. Another useful tool is to survey patrons on their preferences, or simply to listen to their comments from day to day.

Although the space needed for a reader seat will vary depending on the specific type of seat (a seat at a reading table will need less space than a seat at a carrel, and seats in a children's library scaled to a child's dimensions will need less

space than an adult-sized seat), on average a reader seat will require roughly 3.00 square metres each. To estimate the amount of floor space needed to house reader seats measured in square metres, multiply the number of reader seats by 3.00.

Space for library staff

Space for library staff will be provided throughout the library, falling largely into two broad categories:

- public service desks, where staff interact directly with the library's clientele
- workroom space and offices, where staff conduct administrative and support operations

The key to making an estimate of the space needed for library staff functions is to identify the number of places, or stations, within the library where the staff will need to perform a designated work routine. To some degree, this tally is connected to the general size of the staff – as the number of total staff grows, the number of work places or stations tends to grow as well, but there is not necessarily a direct, one-to-one correlation between total staff size and the number of work places or stations a library needs.

Some work places or stations may be shared by several staff members during a typical work week. A station at a public service desk is a prime example of one such “shared” station. Sometimes, a work station will be designated or assigned to a specific staff member. In still other cases, a single staff member might benefit from having more than one work place or station. In a small cataloguing department, staffed by just a single individual, that one staff member could benefit from having one work station for the cataloguing operation and a different station for the processing operation, because the physical needs in support of these two functions are so very different. It can be very difficult to make an accurate estimate of the number of staff work places or stations a library will need because staffing patterns can change dramatically as the library grows, and as use increases over time. A library that serves a rapidly growing community is likely to

require a very different staffing complement at the end of the twenty-year planning time frame than it has in place today.

Still, once a tally of the number of work places or stations has been identified, it can serve as the basis for an estimate of space need, allowing between 10,00 and 12.50 square metres per work place. The larger allowance of 12.50 square metres per work place may be used by a smaller library, while the smaller allowance may be used by a larger library. The larger library, with its larger inventory of staff work places or stations, is more likely to realise economies of scale in laying out those stations.

Space for programmes and meetings

For many libraries, space to accommodate programmes and meetings is an important service. Many public libraries provide meeting spaces that are available for use by community residents. A school library may provide an area where the librarian can make a presentation to visiting classes. An academic library may provide a room where staff can conduct bibliographic instruction or computer training classes. Other libraries may not provide any such space at all, if programmes and meetings are not a part of the library's mission. The type of meeting rooms, the number of meeting rooms, and the size of the audience each room should accommodate is a matter left to the priorities of each individual library. The preferred audience size will largely determine the space each meeting room will require.

Several different kinds of meeting room spaces may be considered: lecture / presentation space; conference space; instruction space; and other meeting spaces.

Lecture / event space

This can be considered a conventional meeting room – a space where a lecture might be given or a film might be presented. The seating may be moveable or fixed. The floor may be flat or sloped. There may be a fixed, raised stage, or not, and such amenities as a sound reinforcement system and elaborate, theatrical lighting may be provided. Once the preferred audience capacity of such a room

is determined, allow 1.00 square metres per seat (or 1.25 square metres per seat if using fixed seating). Allow an additional 10.00 to 12.50 square metres for a speaker's area or a small, modest stage at the front of the room. If the library plans to sponsor larger, more formal presentations and productions, a larger allocation for a more formal stage, possibly with open wings on either side, should be made.

Conference meeting space

A conference room is configured around seats at a large meeting table. At the option of the library, such a room may include space for an easel or a screen for presentations. It may include space for a small audience along one or more sides of the room. When the typical audience capacity is determined, allow 3.00 square metres per seat at the conference table. Allow another 5.00 square metres for a presentation area, if desired. Allow another 1.00 square metre per seat in a gallery.

Instruction space

Increasingly, instruction space in libraries relates to computer training or use of electronic resources. An academic library may provide a space where library staff conduct bibliographic instruction, or it may provide classroom space that can be booked by faculty for regular classes throughout the term. A public library may provide a space where staff offer training in how to use the internet. Such a room may support presentation technologies such as a wide-screen display of the contents of the instructor's computer monitor. Although the number of seats to provide in a computer training room is a matter for local choice, many trainers prefer to work with smaller student groups, and an audience of eight or ten or twelve is often the maximum. When the preferred audience capacity is determined, allow 3.00 square metres per seat. Allow another 7.00 metres for an instructor's station.

Other meeting spaces

A public library may wish to provide a space where staff can present children's story times. A larger library may wish to provide meeting space where an orientation video for new users of the library can be shown in a continuous loop.

There are many other types of meeting or presentation space that a library may wish to provide. In these cases, consider the audience capacity as well as any additional special needs for the space (projection equipment, storage, etc.) before making an allocation of floor space for the room or area. Draw the square metre allowance per seat from a comparison with the meeting and programme types described above: is the use of a meeting room where the library shows an orientation video more like that of lecture / presentation space or an instruction space?

Space for other library functions

The needs assessment must also provide space for other “miscellaneous” functions and operations that the library wishes to support. These might include small group study rooms, a photocopying centre, a library gift shop, or a café or refreshment centre. How extensive such features might be is, again, a local choice.

The most accurate means of estimating the space needed to support these “other” functions is to identify all such functions and furnishings and make a suitable space allowance for each. But when an initial space needs estimate like this is prepared, it may be too early in the planning process for planners to have identified all of these “other” functions. Or the initial estimate may need to be prepared too quickly for a careful and thorough examination of the library’s service needs in this area. Noting that space for these “other” functions often requires between 10% and 15% of the gross area of the building, a simple, although arbitrary, formula can be applied to make a reasonable initial allowance for these purposes.

To estimate an allowance for these “other” functions, add together the estimates for the spaces listed previously – space for collections, for readers and library users, for library staff and for programmes and meetings – and divide the total by a designated factor. If the total is divided by a factor of 6, it will produce an estimate of space need for these “other” purposes roughly equal to 10% of the eventual gross area of the building. If the total is divided by a factor of 5, it will

produce an estimate of space need for “other” purposes roughly equal to 12% of the gross area of the building. If it is divided by a factor of 4, it will produce a space estimate for “other” purposes equal to about 15% of the gross building area.

Space for mechanical and support services

If the library is to be housed in a stand-alone structure, an additional allocation will be needed to support mechanical equipment, structural space (for columns and walls and so on), restrooms, corridors, stairways, elevators, and the like.

The spaces estimated to this point – space for the collections, for readers and library users, for staff work areas, for meetings and programmes, and for “other” library functions – are classified as “assignable” spaces. That is, they can be assigned to the primary purpose of the building or structure, in this case a library. This final step involves making an estimate of the space needed for the “nonassignable” functions that are needed to support the “assignable” library space.

The specific needs for nonassignable space will be determined by applicable building codes and regulations (which typically define, for example, the type and number of restroom facilities needed – and as result the corresponding space need for this particular function) or by engineering requirements (which will dictate how large a furnace or an air conditioning unit needs to be, given the size of the building), or by some other factor that is not often within the library’s control. Nevertheless, these functions and the space they will require cannot be ignored, and even though the specific space needs for these functions will be determined by external factors, some general observations can be made in support of making a reasonable space allocation for nonassignable purposes.

Often, the amount of nonassignable space needed in any building will be affected by the overall size of the building, and whether the building is new construction or if it involves an existing structure (an addition or the adaptive re-use of a building, to cite two examples).

A smaller building generally needs to reserve a proportionately larger share of its total area for nonassignable purposes. A design for an addition or the adaptive re-use of a building will usually also reserve a larger share of the total building area for nonassignable purposes.

Nonassignable space can account for 20% to 25% to 30% of the gross area of the building, and sometimes more. The balance of the space between assignable space and nonassignable space can be taken as a measure of the efficiency of the design. A building that uses just 25% of its gross area for nonassignable purposes reserves the remaining 75% of the gross area for assignable, library functions and the design is said to be 75% efficient – a very commendable target. Any higher efficiency rating in a library design would be unusual.

To estimate an allowance for nonassignable space, add together the estimates for all of the spaces listed previously, and divide that total by a designated factor. Dividing by a factor of 4 will produce an estimate of space needed for nonassignable purposes that will be equal to 20% of the eventual gross area of the building. As noted above, this would reflect an unusually demanding expectation for the efficiency of the building design. Dividing by a factor of 3 will produce a nonassignable space estimate equal to 25% of the gross building area. Dividing by a factor of 2 will produce a nonassignable estimate equal to 33% of the gross building area.

A needs assessment for a smaller building or a project that involves an existing structure should prefer using a factor closer to 2, reserving a larger overall share of the gross building area for nonassignable purposes. A needs assessment for a larger building or a project that contemplates new construction may use a factor closer to 3, reserving a smaller share of the gross building area for nonassignable purposes.

Be aware that some libraries are housed in a space within a larger structure – a medical library within a hospital, or a primary school library within a school building – and in these specific cases the nonassignable space may reasonably and fairly be considered to be located “outside” the library’s space, and this ad-

ditional allocation for nonassignable space does not necessarily have to be calculated. If for any reason the calculation of nonassignable space is omitted from the assessment process, the result of the space needs assessment will identify the library's *assignable* space need only, rather than the gross building area. In this case, as the findings of the needs assessment are conveyed to the library's higher authorities or to the project designers, library planners should clearly communicate that the assessment is for the assignable needs only.

By defining appropriate service goals for a library, planners identify an inventory of services and resources that will need to be housed within the library building. This inventory of services and resources can be translated readily into an estimate of how much floor space will be needed to house all of this material.

The initial estimate derived by following this needs assessment methodology will define the overall scale of the optimum building project. This estimate will allow local planners to consider options in an informed manner and make intelligent choices. For example, given the size of the building required, how large a site does the library need? Can the existing building and the existing site support an expansion of the necessary size? If not, on what site could such a library be built? How much would the project cost, and what financing strategies are available to secure funding? Is it realistic to pursue a project of the suggested scale, or should the project be planned in stages?

The needs assessment is a key planning tool that can be used to gather initial support for the project among funding authorities. As that support grows, the needs assessment becomes the foundation for a more detailed and thorough description of the library space needs, presented in a library building programme or brief.

10. INTERIOR DESIGN CONSIDERATIONS AND DEVELOPING THE BRIEF

Cecilia Kugler, Principal, CK Design International,
Sydney, Australia

Interior Design Brief

A brief is a document that outlines all aspects of the project. In its most basic form, a brief is just a list of requirements generally outlining quantity and type such as a list of furniture, shelving, office and meeting room necessities etc. The role of the interior design brief is to inspire, to give direction and to ensure the required outcome is achieved. In defining the qualities of the interior spaces, the brief does not have to be prescriptive, but it needs to be suggestive; for example it should not specify the colours to be used, unless it is essential to maintain a certain branding or corporate image. Rather it should convey a description of the general look and feel required; for example, warm and welcoming (the most common request), or high tech and fast paced. Whichever qualities are chosen, they need to support and enhance the overall vision of the library.

A good design brief should not only address these requirements but also consider the following:

- Context – within the organization, within its community
- Current technological, social and service trends
- Users and flow
- Stakeholders – who is driving the project and why?
- Desired outcomes – quantity and quality

A greater awareness of design, improved levels of service, changing business and marketing models and advances in technology have all created a demand for variety and a new level of consumer expectation. In addition we are seeing a growing desire for social interaction and community spirit.

10. Interior Design Considerations and Developing the Brief

These changing levels of expectation in our society must be acknowledged, understood, and accommodated if libraries are to provide services that can successfully compete with other institutions, both public and private, for patronage and funding.

Once this changing environment has been assessed the following essentials need to be addressed when creating a brief:

Essential 1: Creating a vision

Essential 2: Establishing an inclusive and cooperative process

Essential 3: Defining a user profile

Essential 4: Quantifying and qualifying requirements

Essential 5: Defining interior space, layout and signage

ESSENTIAL 1 – CREATING A VISION

A vision is a view of a realistic, credible and attractive future; an image of a possible and desirable future state for the organization. This vision could be as vague as a dream or as precise as a goal or a mission statement.

It is essential to identify a vision during the briefing process; it will go beyond being a mission statement and become an important decision-making tool at many stages of the design development. (For example two design options may address all the requirements but one will probably emphasise better the overall vision and goal, therefore assisting in the decision making process). Some of the aspects to consider when formulating a vision:

- What do you want to communicate?
- What defines your library service?
- What do you want to achieve?
- What would make your library a success?
- What measures of success will be used?
- Is there a theme or identity already associated with the library or community?
- How are you different from your competitors?

- What do you want people to remember you for?
- What is the context for the library?
- What trends should be taken into account?
- Who is the building for and who is paying for it?
- Who are the key stakeholders?
- What outcomes are required in terms of quantity and quality?

Vision benefits and killers

Many people question the need to go beyond the typical list of requirement and overlook the many benefits of developing a vision. There is a danger in allowing external influences to prevent the development of a vision. Some of the most common vision killers are listed below:

- Tradition
- Fear of ridicule
- Stereotypes of people, conditions, roles and governing councils
- Complacency of some stakeholders
- Fatigued leaders
- Short-term thinking
- “Naysayers”

Creating your vision

In creating a vision, it is important to distinguish the aspects that make your library unique, in the present and in the future. One way of doing this is to carry out a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis which should extend to every part of the organization. This could include the building itself, the collection, staffing, furniture and fittings, funding, market share and client base. Current perceptions and the social, political and geographical contexts should also be considered.

In many cases the same situation can be both its strength and its weakness. For example, a library within a heritage building may be less flexible than its modern counterparts but its historical character, building style and quality of internal

spaces can also be its strength – being a landmark and acting as an integral part of the community's cultural heritage. These strengths and weaknesses can also be weighted to assist in establishing a clear direction in the development of the design brief and subsequent project and, in conjunction with the vision, assist in setting priorities and maximising outcomes.

Strengths could include well-used collections, skilled staff, a landmark building and location. Weaknesses might be poor location, out-of-date furniture and equipment, high turnover of staff and lack of funding. The kind of opportunities that might present themselves would be the redefining of space needs, the creating of a new positive image and improved services. Threats could encompass social problems, changes in demographics and an uncertain political climate. A clear understanding of the strengths, weaknesses, opportunities and threats together with a clear list of objectives will assist in developing a vision that communicates the future clearly and will establish priorities.

The next essential aspect in developing an interior design brief is an inclusive and co-operative process fostering ownership and teamwork.

ESSENTIAL 2 – INCLUSIVE AND CO-OPERATIVE PROCESS

There are two interconnected processes that are critical to the success of a library refurbishment or construction project; the first is the process of developing the design brief, and the second is the development and implementation of the design brief throughout all stages of design – construction through to occupation.

It is important to identify who will be the main stakeholders in both the writing of the brief, and in controlling the funding. All identified stakeholders should be consulted and briefed on a regular basis. Often the brief is developed either without consulting the users at all, or as a once-only consultation process.

Open and clear communication is crucial throughout the project, not just during the development of the design brief. For instance, the designer / architect should

talk through each area and explain verbally and with as many visuals as possible how the place will look. This will ensure the client is clear about the overall provisions. All aspects of the construction documentation must be explained to, and approved by, the client prior to tendering.

When following an inclusive and co-operative process, the development of a design brief is a circular and systematic procedure of quantifying and qualifying requirements through consultation. This continuous consultation of stakeholders (staff, users, council, facilities managers, the community) fosters ownership and creates a successful team-like environment where members feel valued and knowledge is shared and areas of expertise respected. For instance, as well as the formal consultation sessions, some libraries carry out surveys for feedback on the most general issues and on the most specific and detailed. This feedback is later assessed and sorted to establish priority and desirability. It should be clearly stated to all members that the responses will be considered but inclusion in the final design brief is not guaranteed.

It is essential that everyone is clear as to their roles and responsibilities and that these are defined for all members of the planning and design team. There should be clear reporting lines and the decision-making process and priorities should be set out from the beginning. A co-operative team culture should be encouraged. There are very definite time and cost benefits in allocating adequate resources at the consultative and design stages.

This process may reveal remarkable differences in the way people view the aims and objectives of the project and even the organization. In that case, it is worthwhile contrasting these discrepancies with the vision to help define it further thus assisting in the decision making process, setting of priorities and a consistent approach.

The Design Process

Continuity of the project membership and a consistent process will have a major effect on the development of the design brief and the successful implementation

of the project. To ensure there is continuity and consistency, the design brief should also include a detailed description of the required procedures to ensure the consultative and inclusive process continues throughout subsequent stages, maintaining the previously earned ownership and cooperation of stakeholders.

In brief the project stages are:

- Project brief
- Appointing consultants/ professional team.
- Brief development and sketch design stage.
- Design & documentation
- Implementation strategy
- Tendering
- Contract administration (implementation)
- Construction
- Occupation /review / adjustments

ESSENTIAL 3 – USER PROFILE

Aspects to consider when drawing up a user profile are:

- Who are your users – age group, cultural and socioeconomic backgrounds?
- Who is not visiting/ using the library?
- What environments do users feel comfortable with?
- How do they behave?
- How do you want them to behave?
- Visiting habits – why do they come and how do they get here?
- Is some market research required?

In contrast to academic libraries, public libraries are characterized by the wide range of users for whom they cater. Defining user profiles is essential to provide spaces where all behaviours and preferences are taken into account. A variety of different and distinctive spaces is likely to address a wider variety of user preferences and encourage a sense of ownership in individuals.

Regarding users' choice for lounging areas, some kinds of behaviour are predictable but others are not. For example, older users prefer higher and sturdy tub chairs to soft loungers. Children prefer to lie on the floor, others create a pile of books to sit on, whilst others prefer to sit with their carers. Young adults prefer not to be associated with the children's area so their dedicated area needs to be placed as far as possible from it. In general terms, young adults prefer lounging areas where they can arrange furniture to suit their needs perhaps using cushions or ottomans around book stacks while fixed or heavy furniture could end up being underused.

By understanding the current users, and clearly identifying those who are underusing the library, the design brief can establish a desired usage pattern. The new internal design can provide adequate spaces to encourage, or discourage, the desired behaviour (e.g.: minimize vandalism). The interior design strategy can also generate an increase in new users by providing inviting and specially designed areas for the targeted audience.

A sense of place is paramount for libraries to ensure that their users feel safe and comfortable. Although the advances in technology are changing the current cultural landscape, behaviour and levels of expectations, they do not change the relationship between the individual and the information source, whether it is a book, microform, computer or other forms yet to be invented.

The most common and effective way to create personal spaces, or group spaces, is by the use of structures, furniture, lighting levels, materials and degrees of openness and closure. At the micro level, seating is the most commonly used furniture to achieve this. (We don't generally sit on benches unless with people we know). Different types of seating give the individual a further choice of personal spaces, and this choice is one of the most sought after qualities in a library.

McKay (2002) considers isolation and alienation as the result of "Herd Instinct" in the human animal becoming "frustrated". This helps explain why people are turning to activities that create a sense of community or belonging. This same social segmentation is evident in the proliferation of book clubs, cooking

classes, and walking clubs and other group activities amongst all age groups. These emerging needs for social interaction and reawakening of community spirit must have a focal point. Secular institutions like libraries can provide such focal points, through developing both physical and virtual digital communities.

ESSENTIAL 4 – QUANTIFY AND QUALIFY REQUIREMENTS

This has been the most traditional approach in defining the design brief. Although the emphasis in the past has been to quantify requirements without clearly specifying attributes for each one, the most current practice is to place equal emphasis on qualitative descriptions. The brief needs to include information on the number of all quantifiable elements such as service points, collections and equipment but also the attributes they should have or the end result desired. Functional requirements should be clearly stated and workflow patterns and adjacencies set out.

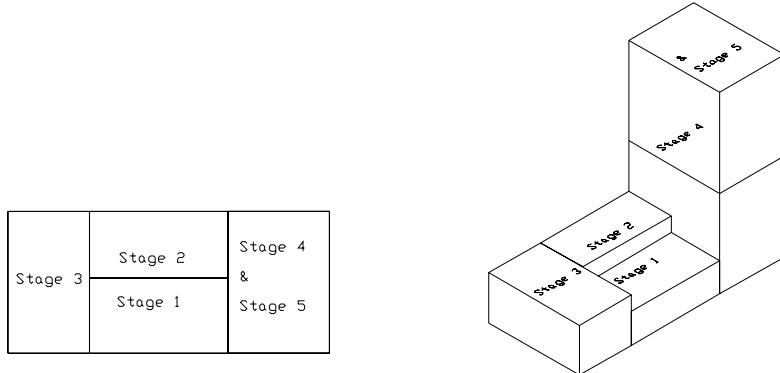
A detailed list of requirements, stating the quality and quantity of each, is the backbone of a good design brief. In Essential 5 the quality of the overall space is dealt with primarily while this section illustrates some of the more common qualities and some of the tools commonly used.

Flexibility

One of the most common qualitative attributes requested by librarians is flexibility as mentioned by McDonald and Latimer in earlier chapters. There are many ways of defining flexibility but in its broadest sense it is the ability to change, or to be modified with a minimum of effort, so as to suit a multitude of needs and purposes. Flexibility is one of the key words in every project programme. In most cases, however, the client does not clearly define what level of flexibility is required for a particular area, item or material. Flexibility incurs costs, so it is imperative to define the type of flexibility, and over the period of time it needs to be considered.

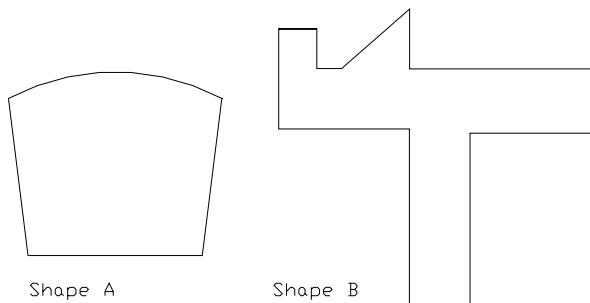
Flexibility of the building envelope and internal spaces refers to the ability of the space to be configured in a variety of ways including, and largely applying

to, the shelving and associated public and staff / service areas. It also applies to the ability of the building envelope to be extended, either in part or in its entirety, in both vertical and/or horizontal dimensions.



**Diagram illustrating extendibility similar to the stages
in the construction of Baillieu library**

The shape of the building perimeter, its internal configuration, the location of permanent structures, and the connection of those spaces all affect the flexibility of a building. In general terms, very segmented footprints like star-shapes or other exaggerated shapes, such as long thin plans, are less flexible than the equivalent amount of square metres in more regular shapes such as a square or a large continuous space.



Equal areas – Different shapes

Regular shapes like A would be more flexible than B although they both cover the same internal area

Another consideration is the adequate provision of structural floor loadings. It is preferable to allow for a consistent distribution throughout the floor to increase the number of shelving layout options possible. Depending on the type of library, it is also preferable to provide adequate structural floor loadings for the future installation of high-density compact shelving. The flexibility of the internal spaces is generally defined or affected by the space between supporting structures (columns, load bearing walls, etc) and the size of the structural elements; in general terms, flexibility increases as the number of columns / walls decreases. As the most common library buildings have a skeletal frame construction, it is preferable that the structural building grid maintains a consistent/uniform spacing and that the spacing is as large as possible within the economic and structural constraints.

The design, location, and extendibility of services can also affect the level of flexibility of the built environment. One of the most important issues in relation to flexibility is the distribution and reticulation of electrical services. The even distribution of lighting rather than shelving-specific lighting, the establishment of cabling grids and the allowances for excess capacity on all distribution systems are all associated with flexibility.

Architectural features such as atriums, bulkheads, changes in floor levels, etc, can greatly restrict the long-term flexibility of a space. However, these features can form part of the most memorable and defining architectural gestures, creating a sense of place or identity, not often achieved by cosmetic applications. A balance has to be struck.

Flexibility of finishes and furniture

The mostly limited lifespan of the applied finishes and furniture should be considered, along with the ease of replacement and refurbishment. The most common problem is the selection of broadloom over modular carpet systems. Broadloom carpet can hinder the flexibility of space definition and refurbishment because often-large areas of carpet must be replaced (and all contents relocated)

when in fact there are only small areas of wear. Flexibility and character can be achieved by working with the life cycle of a product. The look can be easily changed once the carpet becomes dated and worn. The flexibility of furniture can be assessed in many ways but the most important consideration is the need to reflect different requirements over a given period of time. Issues to be taken into account include:

- Who will be using it? (Who will be moving/ changing it?)
- Can it be dismantled and re-erected elsewhere? (Over an area, a library or across whole library system?)
- Are the sizes modular? (Can the units make up a larger whole?)
- Are the surfaces height-adjustable?
- Can the furniture be refurbished? (Re-upholstered? Re-painted?)
- Does it need to be wired?

Design professionals can assist in achieving flexibility with furniture and finishes, but most importantly the client must clarify his/her definition and expectation of flexibility. There is a danger in striving for a totally modular and flexible building that it becomes bland, uninspiring and loses all sense of location and identity. Areas and aspects to look at when considering flexibility include the building structure, the interior layout – walls and ceilings, the finishes and the furniture.

TOOLS TO QUANTIFY AND QUALIFY

Area Summary Calculations Table

The following table shows, as a practical case study, one of fifteen functional spaces outlined in the original brief for the *Joint Theological Library*. It shows current and proposed quantities for each space type, itemizing the subsections of a larger functional area, and a total of square metres per area, based on number of points and square metres allocated per point. In this case the data shown refers to the reference facilities, including the collection, seating and study areas and all related services.

10. Interior Design Considerations and Developing the Brief

JOINT THEOLOGICAL LIBRARY

Area Calculations

JOINT THEOLOGICAL LIBRARY			CURRENT			PROPOSED		
Item	Area		Number of Points	Area per Unit	Current Total Allocation	Number of Points	Area per Unit	Proposed Total Allocation
	global	m2	global	m2	m2	global	m2	m2
4 CIRCULATION AREA								
4.1	Loans and reference desk				0.00			
4.1.1	Workpoints					2	6	12.0
4.1.2	Shelving or Trolley					3	1.2	3.6
4.1.3	Checkout / Returns					1	4	4.0
4.1	Total Loans and reference desk				0.00			19.6
4.2	Reserve Collection	14	0.66	9.22	9.22	14	1.7	23.8
4.2	Total Reserve Collection				9.22			23.8
4.3	Queuing & Traffic Flow					10	2	20.0
4.3.1	Just Returned Display					3	1.2	3.6
4.3.2	Express / self checkout					1	3	3.0
4.3.3	Display					1	5	5.0
4.3	Total Queuing & circulation area				0.00			31.6
	TOTAL CIRCULATION AREA				9.22			75.0
5 REFERENCE FACILITIES								
5.1	Reference tools					1	15	15.0
5.1.1	OPACS & Internet					9	3.7	33.3
5.1.2	Card Catalogues					4	4	16.0
5.1	Total Reference tools				0.00			64.3
5.2	Reference Collection	33	0.73	24.24	24.24	90	1.25	112.5
5.2	Total Reference Collection				24.24	90.0		112.5
5.3	Study Area	14	1.91	26.72	26.72			
5.3.1	Study Carrels					10	3	30.0
5.3.2	Study Tables					5	3	15.0
5.3.4	Casual Seating					4	3	12.0
5.3.5	IT access points (OPACS)					0	3.7	0.0
5.3	Total Reference Study Area				26.72			57.0
	TOTAL REFERENCE FACILITIES				50.96			233.8

Area Summary Calculations Table for the Joint Theological Library

SPACE DATA SHEETS

Space data sheets are created for each area or space (e.g. circulation area, photocopying room,) where all requirements related to that specific area are listed, quantified and qualified. Examples are given in the data sheet below.

The table below is only an extract from the complete space data sheet for space 4.1 (Circulation Area) for the Joint Theological Library. The following aspects are addressed in the remaining section not reproduced here: technical data: environmental (temperature, humidity, lighting, acoustics), electrical services, plumbing and drainage, communications, security, fire detection, special requirements (e.g.: floor loadings), levels of flexibility, signage, user profiles, special events, and any other specific requirements.

JOINT THEOLOGICAL LIBRARY	OCCUPANTS	DIVISION	CIRCULATION AREA	SPACE No.
BUILDING PROGRAMME	AREA M ²	SPACE NAME	Loans and reference desk	4.1
	19.6			
Physical Space requirements				
Sub Area Number	Description	# of Points	Area Per unit	Proposed Total per activity m ²
4.1.1	Workpoints	2	6	12
4.1.2	Shelving or Trolley	3	1.2	3.6
4.1.3	Checkout / Returns	1	4	4
Activity description	Customer service - Lending and information - checking out and checking in books as they are returned. Providing change for the photocopiers, issuing borrowers cards. Currently stand up situation. In future a low section would be useful for disable or sit-down for longer reference inquiries.			
Relationship	Major - Reserve Collection 4.2, Queuing & Circulation area 4.3, Library entrance 3.1, direct line of sight to reference facilities 5.1 particularly ref tools, Staff workroom 11.2			
Design Character	Must be easily identifiable as a service point, with either architectural character to be seen from a distance.			
Ceilings	Some sort of sound absorption to reduce noise emission from conversations and service activities.			
Floors	Soft underfoot treatment that also allows for easy gliding of trolleys. Carpet tiles are the recommended floor finish throughout the library for long term flexibility of maintenance and replacements and variety of design options.			
Walls				
Doors	Wide for trolley access			
Windows	With window treatments to reduce glare. Natural light highly desirable.			
Finishes	Stone preferred for benchtop. Timber or High pressure laminates on MDF or Particleboard also flexible. Timber			
Furniture and Equipment	Circulation desk 900mm high, at least 900 d with recessed disensitiser, 2 x mobile drawer units with lockable drawers. Desk must have fedge for resting bags on the customers side. Back of PCs must be shielded to disguise cables, etc. Circulation desk to incorporate book return 'dump trolley' equal or similar to Raeo's economy or prestige dump trolleys 790h x 630 w x 557 d. 2x Ergonomic arm for flat screen monitor and ergonomic high chairs .			
	3 x Bays Sorting shelves for non stack item. (eg. General collection, reference, periodicals, pamphlets) located near the check in area-must be able to check in items and place on sorting shelves without trolley. Sorting shelves must have trolley access.			
Technical Data - Environmental				
Temperature, Air changes				
Humidity				
Lighting				
Acoustics				
Technical Data - Engineering				
Electrical services				
Plumbing and drainage				
Communications	1x phone, 2 x PC Networked			
Security	Disensitiser recessed or below circulation desk benchtop. Distress button under bench. Security system for books to be connected to door exit activation. Locks to drawers.			
Fire detection				

Prepared by Cecilia Kugler
CK Design International

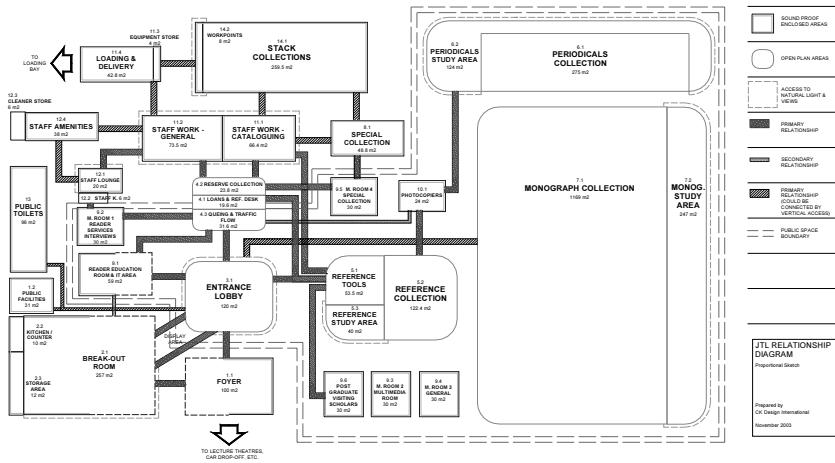
Page 1 of 2

6/05/2007 5:11 PM

Space Data Sheet for Joint Theological Library

Relationship / Bubble Diagrams

The relationship diagram addresses levels of physical adjacency and each area is represented in proportion to the square metres required. This helps to see at a glance the massing of each functional area.



Relationship Diagram for Joint Theological Library

ESSENTIAL 5 – DEFINING INTERIOR SPACE, LAYOUT AND SIGNAGE

The design of the interior is particularly important in libraries as the service is “consumed” within the premises and this acts as an extension of its management style, its corporate image, and is an integral part of its marketing.

Aspects to consider:

- What do you want to communicate?
- High tech/earthy? Boutique or supermarket? Personal service or self service?
- What do you want the space to be? Welcoming, open, transparent service?
- Is this in keeping with your vision?
- What is your point of difference?

- What sort of feel, smell, sound, look is desirable?
- Any themes?
- Do all the libraries around your area look the same?
- What message are you sending out? Functional performance
- Clear orientation, flexible
- Clear identity

The interior should reflect or at least be sympathetic to the essence of the vision. For example in the West Ryde Library Project, the client clearly stated "...we don't want to look like a traditional library... not regimented and static...". They explained the look was more of a coffee shop, or bookshop – comfortable so that makes you want to stay.

In their original SWOT analysis it was recognised that, although the existing library was very small and cramped, people associated this scale with a more domestic and cosy feeling. They clearly stated they were afraid that they would lose that quality in a new library five times the size of the old. The interior design solution was deliberately to break up the large footprint into zones, with their own distinct character, achieving a more domestic scale. In those areas the ceilings were treated differently and sometimes lowered to emphasise further the original intention of the brief.

LAYOUT AND FLOW

The configuration and manipulation of a space largely contribute to the success or failure of the physical function of the library, and as research has indicated (Bitner 1990, 1992), impact on the success of service delivery and the way that service is perceived. In retail terms, one of the main objectives of the internal design is to expose the maximum number of services and amount of stock to the maximum number of people. Some of the essential aspects of successful space planning in libraries are listed below, and are largely derived from retailing principles that are based on an understanding of, and address, human behaviour.

Shape and flow

In general, the best layouts are in libraries where the plan is either square or rectangular and the entrance is in the middle of the longest side. If this is not possible, then every attempt needs to be made to create a central square forming the focal point of the library from which all user activities radiate. The location of a vertical connection in a multistorey building is generally located in this central zone.

Certainly in Australia, consumers intuitively flow in a clockwise direction, generally veering left as they enter a building, and then working their way round to check out counters on the right. Although this may not always be possible, an uninterrupted and easy flow between areas is critical.

Hot property

Showcasing the library to the exterior is an excellent way to maximise exposure of services and facilities. Areas adjacent to the street, or to a main traffic area inside a shopping centre, act as the interface between interior and exterior. Much like restaurants do, these are best used for people spaces such as lounging or study areas, activating and highlighting the "life within". Display of high profile items can also be successfully incorporated in this "shop window". These people spaces help connect library users to the exterior and the greater context / environment.

First impressions

As the first impression of a library is formulated in the first 10 seconds, the entrance to the library (and the approach to it) is one of the most important elements to set the scene and orientate customers. A poor entrance not only confuses the library users, it may also predispose them to an unfavourable view of the services provided.

Sense of entrance

It is important to create an impact on entrance, whether by a separate foyer or an internal lobby. Upon entering the library, the lobby/ foyer must be large enough to take in the whole space, and the main activity zones should be visible. This

entry space must set the mood as defined by the brief. This might be high tech or traditional, relaxing or exciting or many other possible variations.

High visibility of service points

From the entrance, the key service points, or at least the main one, should be highly visible with a clear traffic path providing access to it. At the very least the circulation desk should be facing oncoming traffic or, failing that, side on to it.

Functional area groupings

A well-developed plan / building should be made up of a family of spaces, each with its own identity, whether it is defined by walls or furniture, but all related to form part of a whole. Initially, it is best to use a "bubble" diagram to explore functional relationships. Each bubble should be relative in size to the space it represents, and the resulting distribution is the overall planning "skeleton".

Architectural / environmental assets

Although historic architectural detailing, or environmentally undesirable oversized windows with skyline city views, can sometimes be considered obstacles, it is imperative to identify them and work with them to maximum advantage. In many occasions, these can add character and be a point of difference in the library experience. Particularly in heritage buildings where the plan can be very segmented, and quite inflexible, it is important to match space types with functional requirements using smaller spaces for small boutique type collections and spaces that need a "cosy" feel.

Massing

Although too much consistency can become monotonous and monolithic in larger libraries, it is preferable to control and, if in doubt, minimize height variations and directional changes. It is best to keep higher elements in an attempt to create variety and to make a design statement, some libraries (particularly smaller ones) suffer from too many height and directional changes in shelving. This is best avoided unless the arrangement is a powerful one; for example a continuous radial arrangement with a focal activity in the centre.

Domestic scale

The need for shelter is one of the top three basic human requirements. In some large libraries, human scale is lost and the interior becomes a "where-house" – a vast expanse of shelving on one side and seating on the other, without any sense of personal space or personal scale. In all libraries, and particularly in such cases, maintaining a domestic scale is highly desirable. In its most simple form, it is best achieved by breaking up large runs of shelving with areas for study or lounging.

INTERIOR DESIGN

As an extension to planning, the design of the interior is pivotal to creating a visual hierarchy to assist in reading the space. Contemporary library interior design is characterised by variety and flexibility, but its success relies heavily on achieving simplicity and clarity.

Simplicity and clarity are critical in the organization of visual information, and are very important in the effective navigation of any space. In a complex environment such as libraries the interior must *minimize information overload* and speed up the identification process, to enable instant recognition of the main functions, to locate what is needed and show how to obtain it. If we compare it with organizing written information, it is the same as using various fonts and formats like **bold**, *italics*, CAPITAL LETTERS, underlining, colored lettering or flashing backgrounds. These variations create a hierarchy of importance to punctuate information from start to finish.

In the "vertical plane" clarity and hierarchy can be achieved most effectively by the use of appropriate design elements such as colour, contrast, texture, scale, form etc, so as to create a visual hierarchy with families of "visual information".

Space definition (function self-explanatory)

A well-designed library should be able to operate almost without directional signage. Interior elements should be self-explanatory particularly if the space is large or complex. Floor, walls, furniture, size and placement of things should

emphasize and/or distinguish the different functions and activities within the total space: their beginning and their end. For example, a large wall in bold colour behind the circulation desk with further emphasis provided by a contrasting floor pattern in the immediate area should make this service point obvious and visible from a distance without relying on signage. As most libraries are open plan and spaces defined by the location of furniture, the treatment of walls and ceiling becomes even more important in the definition of spaces/ functional areas.

Variety

As society is marked by an ever-increasing range of choices, so new libraries must provide for the variety of user preferences. As a minimum, new libraries must provide a variety of space types tailored for each user profile and group needs such as individual and group study areas; a variety of seating arrangements to meet the different learning styles and user comfort should also be provided.

Lighting in libraries is often bright and uniform throughout. Modern libraries recognize that varying the level of lighting can assist in defining activity areas and the quality and number of lights have a tremendous impact on visual comfort. In some cases, localized lighting is more effective than flooding large areas with very high and consistent lighting levels.

Hierarchy

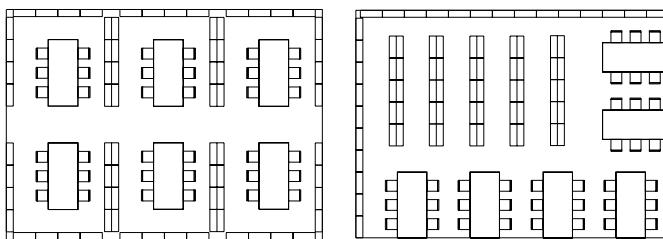
As discussed above, creating a visual hierarchy helps separate the various levels of information and helps the patron read the space. Floor, walls, furniture, size and placement of things should emphasize and/ or distinguish the different functions and activities within the total space and their different levels of prominence.

Personal territory

Behavioural scientists recognize that humans have a sociological and psychological need to establish territory while belonging to a greater whole. Personal and group territories must have a clear definition and identity so that users feel

safe, valued, and comfortable. For example in following figure the same space is shown with the same furniture, but very different layouts. The first shows a series of alcoves common in many libraries of the early 1900s. This provides strong demarcation of group territory but it is not as flexible as the second layout. One of the common problems with this arrangement is the sense of *invasion* while browsing, retrieving and re-shelving material and limited options for collection flow.

The second layout shows the tables grouped along the perimeter and the collection in one corner. This provides a more impersonal arrangement but is a more common layout in recent decades because of ease of wiring, retrieval and re-shelving. It is best suited to more modern buildings with large perimeter glazing.



Same space, same furniture, different layouts

Lighting

Staff areas must have access to natural light. Although they sometime compete with public spaces for this, placing staff close to sources of natural light and external views should be a priority. They tend to spend more hours within the same space and their location is usually fixed as hot-desking is not yet generally used in libraries.

Sound

Noise control is one of the most common problems in libraries, in particular around circulation areas and reference study rooms. Although sound can be used to magnify the sense of space, hard surfaces and high ceilings can be a problem if not treated correctly. Also atriums and other openings tend to carry sound vertically through the building. Noisy areas are of course not encouraged but areas that are too quiet can have the effect of magnifying the little sound there is –

particularly conversation. With the trend in education for group study, it is wise to allocate some spaces where groups can talk and study collectively.

Temperature

Although the temperature is generally kept constant, area controls could aid in fine tuning comfort levels by zone. It is sometimes an issue for users that although the temperature outside is very high, and users are wearing very little clothing, the interior is too cold even though it may be at the recommended level. The same can be said for cold temperatures, where patrons have generally more clothing and the sensors are set at the same temperature as in summer.

Minimum cost maximum impact

This can be achieved by the re-distribution of existing furniture and re-upholstering of existing seating if appropriate. Re-spray metal cabinets and shelf ends, paint walls and, if the budget allows, buy new furniture, change the carpet/floor finish and add new signage.

Air quality

Maintaining good air quality is essential whether from natural and mechanical ventilation systems. Minimise off gassing by using bitumen rather than PVC backing on carpet tiles, and using low emission paints. Scents appeal directly to the emotions and some libraries now use the aroma of flowers or coffee to create a sense of peace or harmony.

Style & fashion

Style and fashion are part of popular culture, and as much as we would like libraries to be visually current for as long as possible it is inevitable that the interior will date; there can even be beauty in that.

The influences on the levels of expectation of library users are changing as they experience an ever-increasing repertoire of interiors. New models of combined spaces, such as bookshops with laundrettes and cyber cafés with music shops, as well as the increasing quality of commercial and public interiors raise the cultural expectation of library interiors.

There are different approaches to dealing with the issue of dating interiors. The first option is to accept that the interior will date and perhaps look ‘tired’ after 5 or more years. Following this approach the library may decide to buy less expensive furniture and replace it with more ‘current’ furniture. The second option is to adopt a restrained style. The issue of style is largely dependant on the visual clues from the community it is serving, as well as fashion.

In a rural setting, the interior may adopt a more rustic style, which is likely to date less than the latest high tech look for a new city library. Other points to note are that the use of natural materials such as light timbers tend to date less than the latest colours that are in fashion once every two decades or so. In general one of the best materials to use is paint. It can be used boldly with the latest strong colours, then when the fashion changes, the paint changes.

Furniture is best kept light, with chrome or black / gunmetal detailing. Also conservative looking furniture tends to date less. Classical styles generally have a longer shelf life. In summary simple designs tend to last longer. And of all styles, perhaps the simple Scandinavian-type styles of light timbers, light colours, and lots of natural light tend to be the most successful long term.

Older-style buildings (pre 1950s) are often regarded as very inflexible and sometimes wasteful of space. However, they may still have a strong popular appeal. This quality is sometimes absent in more modern and highly flexible buildings, which are commonly described as lacking in “character” to the extent of being impersonal.

SIGNAGE AND WAY FINDING

As previously noted, a well-designed library should be able to operate almost without directional signage. Building navigation must be self-explanatory and work mainly at an intuitive level, through visual clues in the design. In the most successful cases the building itself expresses its function and the stronger the external identity of the library, the better it achieves its main objective of bring-

ing people in. The same principles of simplicity, clarity and hierarchy apply to signage.

Branding

The deliberate creation of an identity is closely related to the marketing and long-term strategic plans of the library and the image it wants to project to the local community. In some cases identity is provided by the character of an inherited building, or a collection of furniture. The cultural significance of a building can in itself be the anchor for marketing strategies. If there is no strong corporate image, then the signage must be integrated with the interior design. For example, in the West Ryde library the signage was developed to maintain the interior theme using the same materials and colours but in a contrasting fashion.

Consistency

If a strong corporate image exists, it is imperative to use it effectively in the signage and maintain consistency throughout every visual communication, from letterheads to collection signage.

Temporary signs

Inevitably all libraries, no matter how much design work has been carried out, produce their own in-house signs for temporary notices or items that change regularly such as opening hours or collection runs. If this is acknowledged and incorporated into the overall signage strategy, the designer can create a series of templates in MS power point or other easily available software and an appropriately flexible system installed. The signs can be as simple as colour A4 or A3 signs on perspex sleeves.

Contrast and colour

If there is no corporate image or interior design concept in place, then the background colour of the sign must contrast with the background on which it is perceived. Many libraries opt for black letters on white background. Although this achieves maximum contrast within the sign, it merges with the overall background if the walls are also white. Signage is best if a little on the bold side and less discreet.

Another consideration is the use of colour for geographical location as in assigning a colour to each floor and then consistently representing it in directory boards, on literature and on the actual floor. Colour coding different types of signs also helps distinguish directional signage from information signs – in the same way that road signs are green for directions, brown for places of interest and yellow for warnings or safety. Collections can also be colour coded and named by general subject area (as bookshops do) to assisting with way finding.

Less is more

Minimize signage as too many signs add more confusion. Typically, a variety of design elements such as texture, colour, form and lighting are used to define activity areas. Signage works best when used sparingly to confirm what is perceived intuitively and also to provide additional information. The use of symbols is also very effective as the brain processes colour and shape before it processes words. This is particularly so in situations where there is an international component in the user population.

Mood and text

Image driven signage is used extensively and effectively in retail and now also in libraries. These signs consist of an image to engage the viewer and convey a certain product or mood, with additional text to confirm the function and add information.

LED screens

Signage is moving from being static to being interactive and up to the moment. Like some major retailers, some libraries already use LED screens and increasingly these include with moving pictures. It will not be too long before most signage is an integrated screen. For example end panels with Dewey sequence numbering may be programmed to suggest different titles within the range (like Amazon.com). Even if this is the case, the principles of design, will still apply.

Clarity and explanation

A very popular style of signage is the placing of a large word in bold that will attract attention, and then having much smaller text explaining the detail of the

service or product. This technique has been used widely by retailers to raise awareness and inform and this soft sell approach can be particularly effective in libraries as well.

Navigation.

In summary, the essentials of effective design for way finding and navigation, are that the interior should be visible from the outside, the entrance should make an impact and provide a focal point for all other spaces allowing for a visual hierarchy of spaces and requiring a minimum of signage. Remember too many signs is a bad sign!

CONCLUSION: LESSONS LEARNED

It is during the design development and construction stages, that the effectiveness of the design brief and process gets tested. Below are some valuable lessons gained through experience in recent library design projects.

Decision making

Clarity of vision and detailed aims and goals assist in the decision making process. For example, two layout options meeting the same physical requirements could address your vision to a different degree, so it is of extreme importance to use your clarity of vision and goals as tools to assess design options.

Objectivity v. personal choice

The client representative must be detached enough to represent a common objective (the vision stated in the brief) and a wider audience rather than personal choice. For example, in West Ryde Library, the client preferred cool colours, but a warm palette was approved based on interior design intent and overall vision.

Decisiveness

Although the process is inclusive, there should not be too many parties involved in making the more detailed decisions, such as the choice of joinery and finishes, as there is a danger of never coming to a final decision. Note that not all decisions will be unanimously accepted.

Time and money – importance of a very detailed brief

The more detail that is included in the brief, the more accurate the preliminary budget estimates will be. Qualitative comments inform the budget. The quantity surveyor needs to know the intended quality of the space and hence the importance of allocating an adequate unit cost and affecting the overall accuracy of the budget. (For example a desk can cost from \$100 to \$3000).

Staging

It is important not to be limited by constraints during the creation of the brief. Once the overall requirements and vision are established, then the implementation can be staged to meet time and money constraints.

Design and budget

Design elements respond to, and communicate, your vision and aims. A clear vision can assist in prioritizing expenditure. When faced with budget constraints it is vital to refer back to the design brief (vision and aims) and reassess all design elements in the way they represent the vision and overall aims. For example, if there is a choice between changing the carpet selection to reduce the sqm price and the deletion of a feature bulkhead defining an area, then maintaining the bulkhead would be a priority. The carpet's performance may not be so compromised by the change while having a bulkhead assists in defining the functional area, thus maintaining the qualities outlined in the vision.

Function v Style v Cost

There is a perception in some library circles that a well-designed interior, although desirable, will cost more. Interior design is seen as a luxury rather than a necessity. Another perception is that clients must choose between style and function. This is not true. The essential function should never suffer to meet a style requirement. Functionality is a given. Style and function can be achieved through an effective use of design. The same project cost can communicate your vision and values to a different degree. The design could be meeting a function but not a vision.

Timeless quality

A very common request is “we want a timeless interior, we don’t want it to date”. This is not possible: everything dates. The real questions are:

- Are your service and vision timeless?
- Are you operating the same way as you were 30 years ago?
- Will you still be operating the same as you are now?
- Will your organizational aims be the same if your context changes?

An interior can belong to a design period and still meet the function and aims of the original design. For example the Boston Public Library’s style of architecture belongs to another era and this defines part of its identity. Timeless does not equal “not dating”. Although masterpieces can be timeless, they still belong to a period.

Environmentally Sustainable Design (ESD)

The design brief needs to define in detail the ESD principles to be applied, in what specific area of the project, and to what degree. For example, what aspects of ESD are to be included in the construction or building design? Is the aim to reduce energy consumption and other running costs and, if so, over what period of time. Issues such as thermal comfort, acoustics, maintenance and solar control need to be considered. The level of dedication to sustainability may vary from a total commitment supported by adequate resources, research and development, to a partial commitment, adequate to meet only the minimum requirements. As the market is still small, sometimes there are cost implications in applying ESD principles, partly due to additional labour and more costly products. There is also a limited variety of products and choice of suppliers.

Further reading and references

Bitner M.J (1992) ‘Servicescapes: The impact of Physical surroundings on consumers and employees’ in *Journal Of Marketing*, April, 1992, Vol.56 Issue 2, p.57–71

Bitner M.J (1990) ‘Evaluating Service Encounters: The Effect of Physical Surroundings and employee responses’ in *Journal Of Marketing*, April, 1990, Vol.54, p69–82

Bolan, K (2006), Teen Spaces: *The Step-by-Step Library Makeover*, ALA.

Brown, Carol R (2002), Interior Design For Libraries, *Drawing on function and appeal*

10. Interior Design Considerations and Developing the Brief

- Deasy C.M & Laswell T.E. (1985) *Designing Places For People, A Handbook On Human Behaviour For Architects, Designers, And Facilities Managers*, Whitney Library of Design, New York, USA
- Dewe, M (2006), Planning Public Library Buildings: *Concepts and issues for the librarian*, Ashgate.
- Heather Nesbitt Planning in association with Bligh Voller Nield, People Places: *a guide for public library buildings in New South Wales* second edition Sydney, Library Council of New South Wales 2005.
- Kiely A. (1999) 'Directions In Retail Design' in *Corporate Design*, May, 1999, p16–22
- Langmead, Stephen, Beckman, Margaret (1970), *New Library Design: Guidelines to Planning Academic Library Buildings*, Wiley
- Leadbeater, Charles (2003), *Overdue – how to create a modern public library service*, Demos.
- McCabe, GB and Kennedy, JR (2003), *Planning the Modern Public Library Building*, Libraries Unlimited.
- McKay, Hugh (2002) Australian Library and Information Association Conference (ALIA) 'Australia at a Turning Point'. *Australian Library Journal*, 51(4), p.1070.
- Pierce, William S (1980), *Furnishing the Library Interior*, Dekker.
- Sannwald, William W (2001), *Checklist of Library Building Design Considerations*, ALA.
- Webb, Terry D (2004), *Building Libraries for the 21st Century : The Shape of Information*. McFarland & Co.
- Weingand, DE (2001), *Administration of the Small Public Library*, 4th ed., ALA.

11. A LIBRARY PROJECT FROM AN ARCHITECT'S POINT OF VIEW

Santi Romero, Architect and Head of Construction Unit,
Library Service – Diputación de Barcelona, Barcelona, Spain

This chapter looks at the stages involved in designing a library from the architect's perspective. The specification, detailed design and on-site stages are discussed. The basic concepts of library architecture including the need for flexibility, accessibility, extendibility, organization, and sustainability and maintenance are also covered. The author draws on Spanish examples although the essential process holds good for any country or type of library.

Introduction

It is generally accepted that to design a beautiful and functional library building, architects and librarians should work together. The architecture should be able to create in physical form the various functions and aspirations of the library. Clearly, there is no single solution that will be appropriate in every situation. Nor is it possible to combine all the optimum recommendations in a single building since, to give but one reason, they may contradict one another. To achieve a good result, architects must evaluate all the factors that condition the project and, using the tools at their disposal, opt for the best solution.

There is, and always has been, a healthy debate about what new libraries should be like amongst professional librarians and there is currently a trend to move away from the image of a “temple of culture” with majestic entrances, grand staircases and opaque circulation spaces which might discourage users from coming into the building. Instead there has been a move towards facilitating access through openness to the street, with simple internal organization and free circulation for the public. Adaptation to the local surroundings and integration into the urban fabric in order to integrate the library into the social fabric, too, is also highly important.

Some architects have disagreed with professional librarians who they feel take function before form to extremes seemingly rejecting architecture and the architect's work. However, a good interrelationship between the two disciplines is the ideal and has resulted in libraries demonstrating a high quality of architecture that work well.

Architecture has a lot to say and the influence of the architect on the building is of key importance. The proposals are based on functional requirements but they are also based on an architectural choice that can be approached from two, very different, directions:

- One is to produce a building that stands in its own right, is indifferent to its surroundings and lacks visual dialogue with the exterior. The idea that dominates is that of a route, and this affects the entire building as a unit and in such a way that it has an exterior-interior, top-to-bottom, noise-silence structure.
- The other is based on transparency, the interior-exterior relationship and large access areas. The dominant features of the interior are the view of the different areas and the fact that the collections are located where space allows rather than on a sequential route through the various sorts of information. The library has a vocation as a social space that invites as many users as possible to enter.

Although at the present time there is much debate about what libraries should be like, the final result has to be a building in which the organization of space can respond to constantly changing needs. A number of considerations must therefore be borne in mind.

- The presence of different sorts of users, each with different information requirements and therefore needing more clearly demarcated reading areas than in the past.
- Since time is of the essence, ease of orientation, clear routes and adequate signage are very important.
- The flexibility demanded by possible changes in both the number of users and their needs requires a type of building that is adaptable.

- These functional requirements are valid for libraries large and small, but in the case of small libraries a greater emphasis on function and the variety of functions is required.

Stages of the architectural process

The process of creating a library involves several technical, administrative and financial stages. These are as follows:

Drawing up the project

- Initial scheme
- Pre-project
- Execution project
- Furnishing project

Carrying out the works

- Tenders
- Contract with the construction company
- Erecting the building
- Hand-over of the works
- Installation of the furniture

The time frame for each of these stages is depends on two factors. Some stages require calm consideration, execution and consensus with the monitoring team while the length of other stages is determined by legislation, and subject to time-limits for the administrative procedures and approval. Hence, the entire process may take a considerable length of time. Although it is desirable to avoid hasty decisions and not to impose a rigid schedule for such an important investment, it is also desirable to ensure that no time is wasted in the various stages of the process.

Specifications for the project (Schedule of Accommodation)

After an in-depth study of the client's specification of requirements, most usually in the form of a detailed design brief or programme, and of the possibilities

offered by the site on which the building is to be constructed, the architect develops an architectural solution.

It may be that the architect involved in the project is not familiar with the characteristics required of certain types of library. This imposes an obligation on those responsible for library services to provide the necessary information about buildings of this type. Furthermore, architects must research the subject through specific technical publications and visits to other libraries in order to attain the best possible architectural solution in functional, cultural and financial terms.

The specification of requirements is not simply a list of spaces and their required dimensions. It is important that it should communicate the key idea behind the project, define the challenges, define the different spaces and determine the desired quality standards. However, the information thus presented must not predetermine the architectural solution: that is the task of the architect.

Regardless of the structure of each specification of requirements, the architect needs information about the following:

- The characteristics of the site
- A description of the spaces
- Technical requirements
- Cost forecast

Characteristics of the site – From the architectural point of view, the information about the site must include the following:

- Location
- Area
- Development restrictions
- Town planning
- Planning regulations
- Topographical definition
- Geotechnical characteristics

Description of the space – The architect needs the following information about each “area of activity”:

- Usage characteristics
- The description should help the architect understand and become familiar with the various things that must take place in each space
- Position within the building and relationship with other areas
- Specified area in square metres
- The number of documents in different formats plus the range of electronic resources that are to be accommodated, and a forecast of future growth
- The number and nature of fixed points for the public and for the staff for the different consultation systems
- Table summarising the specified areas by surface area and the approximate size of the total built surface area

A note on areas – The figure attributed to the surface area of a library may lead to confusion if it is not clear which sort of area is being considered. Although the gross area is the real figure from which all the financial data concerning a project can be obtained, it is advisable to define what is meant by the area of a building so far as libraries are concerned.

Specified area – This is the area given by the specification of requirements and refers to the net area that can be used in each zone of activity, without including circulation space or any other architectural consideration.

Useful area – This is obtained by adding the following spaces to the specified area:

- Circulation spaces between the different zones
- Toilet facilities
- Space for use by cleaners
- Installation rooms
- Effect of stair-wells and lifts
- Effect of ventilation wells, overhangs, terraces and arcades

Gross area – This is obtained by adding the space occupied by constructional elements to the useful area. The fact that there is a linear relationship between the gross area and the cost of the works means that it is necessary to attribute an approximate figure to it in the specification of requirements. In spite of the difficulty of defining it without knowing the architectural solution to be adopted, several studies recommend applying a 35% increment to the specified area.

Technical building requirements

- Recommendations on the most suitable materials (flooring, roofing material, etc.)
- Environmental requirements (air conditioning, artificial light, acoustic conditions, etc.)
- Description of the specific installations for library use (voice and data, audiovisuals, anti-theft system, etc.)

Forecast cost – It is important to establish the forecast cost of the works, which is in keeping with the technical requirements imposed on the building.

Investment costs

- Civil engineering
- Professional fees
- Furnishing and equipment

Maintenance costs – It is also recommended that a forecast of maintenance costs be included, both for the building and the library service. This forecast will help the library's owner to determine an annual budget for subsequent operation.

- Building (cleaning, consumption, insurance, etc.)
- Service (collections, staff, activities, etc.)

Drawing up the project

The logical evolution of a building takes the form of a chain of stages ranging from the general concept to the specific details. The formal grouping of these stages into phases has the following advantages:

- Monitoring of the project's progress by the representatives of the various bodies with responsibilities for the new library
- Analysis of the functioning of the building at each stage to ensure it is suited to the real needs of the specification of requirements
- Incorporation of modifications in each phase without reopening aspects on which a consensus has been reached in previous stages

Phases of the project:

- Initial scheme (sketch plans)
- Pre-project
- Execution project (working drawings and specifications)
- Furniture specification

Initial scheme (sketch plans) – This is the initial architectural response to the specification of requirements provided by the client and contains the following information:

- The volume, inserted in the urban context
- General organization of the building and realisation of the different functions defined in the specification, and how these are articulated and related to one another
- Surface area of the different zones and number of floors
- Constructional system in general terms

Since this is a proposal that has undergone little development, modifications concerning the basic aspects of the specifications can still be introduced. It is desirable that the group driving and monitoring the library building project (the tracking group) analyse this initial scheme closely and interpret the basic concepts. Once this scheme has been accepted, the architect can work on more specific aspects.

Pre-project – This is a study that is developed in tandem with the initial scheme, but may differ from it in significant respects, due either to modifications to the specifications or to the inclusion of a parameter that had not been considered at the previous stage. It provides the following information:

- The functioning of the building: deriving from the library programme and fully representing the spaces required with details and dimensions
- External appearance, interior circulation spaces and definition of the main materials used in the finishes
- Main technical aspects, such as the type of foundation and structure and the air-conditioning system
- Estimate of the schedule for the works and the cost

The tracking group, as described above, may at this stage propose amendments that would not, however, prejudice the basic concept of the proposal.

Execution project (working drawings) – This is a technical definition of the building, with the information necessary to carry out the works. Basic documentation includes:

The plans needed to site, lay out and construct the building

- Descriptive memoranda (characteristics of the site, compliance with regulations, table of areas, etc.)
- Constructional memoranda (specifications of the materials, conditions and time limits for execution, etc.)
- Survey information
- Technical and administrative conditions for tender
- Prices

The working drawings are not always easily understood by those who are not versed in architecture or engineering. The level of the information is such that it is impractical to introduce modifications, and it is important to stress the need to develop the project while it is being evolved in the stages mentioned above. With the working drawings in hand, the relevant permission can be sought to begin construction of the building.

The law is such that, in some countries, execution projects/working drawings are valid indefinitely although planning laws vary from country to country. It is

therefore desirable that they be reviewed and updated if the contract for the works is actually awarded a long time after initial planning.

In the case of a library that is being promoted by the public administration itself, the administrative stages the project has to undergo are as follows, within the time period defined by law:

- Public information
- Definitive approval
- Construction permit

The total time taken by the initial project, the pre-project and the execution project may vary. In spite of the difficulty of completing certain phases that require time for thought and for a consensus to be reached, one may think in terms of twelve months for this process.

Furnishing project

Organising the furnishing in a library is highly complex. It is one thing to draw up plans for shelving and tables in the first stages of organising the spaces, but it is another matter to define a specific arrangement for all the large variety of furniture that is needed. This is a fundamental issue because the physical space of a library makes no sense without furniture; it is the element that most affects both the resources and the user, and that adapts the space to its function. It is therefore recommended that advice be sought from the following:

- Professional librarians who are those who best know the activities in a library facility as well as the systems for organising and displaying the collections.
- Specialists in library furnishing.

The advantages of entrusting furnishing to the architect who designed the building range from the possibility of conceiving the whole facility in an integrated way to the ease of optimally relating the building and the furnishing.

The disadvantage of such an approach is evident when we turn to real examples. Often, a good arrangement can compensate for inappropriate resolution of the spaces. On the other hand, a good architectural solution may turn into a bad library through poor organization of the furniture.

In reality, several problems often occur:

- When the surface area for a particular section does not meet what was defined in the “specification of requirements”, it is very difficult for it to contain all the resources and work stations
- In some projects, the furniture installation stage is overlooked, and no financial provision or completion dates are made for it; however, it then becomes an important, urgent issue at the end of the works
- The pressure imposed by other commitments (date of official opening, etc.) make it necessary to complete this stage with shortfalls in services that make short-term modifications inevitable

The cost of the operation is also considerable. If there is a commitment to quality, it may represent a fifth of the total cost of the works.

Desirable phases:

Layout of the furniture – The arrangement of the furniture should be included in the execution project, in view of the fact that this is helpful for the design and for the calculation of the following aspects:

- Artificial lighting:

Although it is recommended that this be independent of the furniture, lighting calculated to give a certain intensity of illumination may cause shadows and other problems if it is designed without taking account of the furniture (continuous rows of tables, isolated spaces with specific lighting requirements, etc.)

- Specific installations:

Computers, audiovisuals and other installations are fed by a cabling system that ends at the desk at which the user sits. Although it is recommended that the routes provided for the cabling should be flexible, awareness of the distribution of the furniture is helpful when designing the installation

- Overall coherence: Harmony of the materials and colours used in the equipment, the finishes and the furnishings, without prejudicing strictly functional considerations
- Full furnishing project (see “Carrying out the work”)
- Award of contract (see “Carrying out the work”)
- Installation.

Carrying out the work

There are five phases of the work: tenders, contract with the construction company, construction of the building (with the drawing up of the full furnishing project and the award of the furnishing contracts), hand-over of the project and furniture installation.

Tenders – The execution project, or the working drawings, is an administrative document that contains the information the construction companies need in order to estimate the cost of the works and participate in a call for tenders.

Having analysed the tenders the promoter will award the works according to the selection system defined by law. Very often the prices given in the estimates differ from the ones set in the call to tender. This difference is usually related to the state of the construction market. Whether the estimate is higher or whether there are significant reductions, it is necessary to keep an eye on the quality of the materials and the construction systems proposed. It may sometimes happen that the tender stage follows much later than anticipated at the working drawing stage. In such cases it is recommended that the functional characteristics are reviewed at the time of the tendering procedures. If this is not done, there is a danger of building a library that is unsuited to real needs.

Contract with the construction company – the construction of a building takes place under the terms of a contract based on the project documentation. When the contract is signed the parties agree, amongst other things, to the terms of payment, the deadlines for carrying out the work and the penalties incurred if the latter are not met.

Erecting the building – once the contract between the owner and the construction company is signed, work starts according to the schedule set out in the contract. The site manager will monitor the execution of the work with the appropriate technical representatives. The architect who drew up the project should be involved in the entire process. In this way, continuity between the building as designed and the building as constructed can be ensured. The number of decisions that have to be taken on site, even if the execution project is very detailed, means that it is desirable for library representatives to be available. As the future users of the building, they can influence aspects related to the optimal functioning of the facilities.

The complexity of the construction process may require actions that modify the project, and consequently the price that had been agreed. These variations make the work more expensive as they imply complementary contracts, which the site manager must agree with the construction company. This is a situation that brings home the need to analyse the project in the phases prior to the execution project.

Approximate duration of the works – in a construction process unimpeded by external factors, and depending on the size and complexity of the building, it can be expected that the construction work will take from 12 to 24 months from the final award of the tender until completion.

Drawing up the full furnishing project – It is recommended that this be done once the structure and roof of the building are completed. At this time it can be seen how long the works will take to complete. Under normal conditions, this period of time will make it possible to dovetail the furnishing project with the tendering, manufacture and final installation. If it is done sooner, it may be the case that delays make the project and the estimate obsolete and that they have to be done again as the works eventually draw towards the end.

The starting point is based on the arrangement defined in the execution project or working drawings. The relevant modifications are made in accordance with

the library's current needs. It is recommended that the project take account of the following:

- Detailed technical specifications to enable companies to make accurate estimates.
- Inclusion of all the items necessary to fully furnish the building.
- Provision for unforeseen expenses that may be incurred as a result of changes (differences between the dimensions in the project and the real ones, suiting the modules defined in the project to those used by the company awarded the contract, etc.).

Approximate duration: from 1 to 3 months.

Award of the furnishing contract – This phase runs parallel with the progress of construction work on the building. It is recommended that the tender be awarded with the following criteria in mind:

- The selection system should prioritise quality, functionality and ergonomics over price. The guarantee, after-sales service and experience with facilities of this type should also be taken into account.
- Analysis of the different offers with advice from specialists in library furnishing. The large number of suppliers, and the tendency to copy the same models with only slight differences, make it difficult to evaluate the positive and negative aspects of each offer at first sight.

It is recommended that there should be a detailed analysis of the composition and dimensions of each item and of the materials used in the finishes. It is also very helpful to have samples to help in the evaluation.

Hand-over of the works – once the construction work is finished the building is handed over, and the site manager certifies that the work has been carried out in accordance with the contractual documentation. This is a legal document certifying that the building complies with the conditions required and is ready for use. At this point the owner should be given a Maintenance programme for the building. This document may be required by the applicable legislation. If this is not the case, it is desirable to include this requirement in the contracts with the architect and the construction company.

Whatever the structure of this document, it must include the following information:

Plans as built. During the construction, modifications are usually introduced with respect to the original project. It is therefore necessary to make new drawings that reflect the real state of the building as erected. This documentation must cover the aspects that might affect the use and maintenance of the building:

- Structural calculation indicating the loads each zone is designed for.
- Exact location of the routes taken by services.
- Most significant constructional details.

Instructions for use. The way the users are to treat the building is specified, with indications regarding use and function, cleaning and evacuation in case of emergency.

Maintenance instructions. Lists the essential preventive measures to be taken for the building to remain in good condition for use and function.

Installation of the furniture – Once the building is finished and cleaned, installation of the furniture can begin. At this stage it is recommended that the connections for those specific services that relate to a piece of furniture are installed, in accordance with the project.

Approximate duration: from 15 days to 2 months.

THE BASIC CONCEPTS OF LIBRARY ARCHITECTURE

An architect who designs a library must base his or her work on a series of criteria which, without interpreting them as precise standards and rules, are closely linked to architecture and are present throughout the creative process. These criteria relate closely to those listed by McDonald in Part I:

- Flexibility
- Accessibility
- Extendibility
- Organization
- Sustainability and maintenance

Flexibility

It is difficult, if not impossible, to know how these buildings will evolve in the future. The only thing we can be sure of is that they will evolve. Advantages of designing a flexible building:

- An open, flexible library facilitates saving on staff: it is easier to oversee and attend to users on a floor with unrestricted views than it would be if the space were fragmented.
- The librarian can easily make modifications and try new experiments: all that needs to be done is to change the position of a few pieces of furniture.

Measures to obtain flexibility:

- Structure and constructional systems.
- Organization of the spaces and circulation space.
- Installations.
- Furnishing.

Structure and constructional systems – the structural elements of the building must not create difficulties for the installation of the different items of furniture:

- Rectangular bays with generous spans are more advisable than an irregular or curved distribution of load-bearing elements.
- Solid internal walls adversely affect the flexibility of the spaces as well as visual control of them. The possibility of achieving a variety of arrangements is much more feasible if they are reduced to a minimum and concentrated around immovable parts of the library, such as the stairs and lift shafts, the toilets and the vertical installation ducts.
- It is best if other internal divisions, where they are essential for reasons of security or privacy, are not structural and if the constructional system employed will allow them to be dismantled easily.
- In view of the variety of ways the library may be organised during the course of the useful life of the building, it is recommended that the whole structure is calculated on the basis of a uniform live-load of 500–600 kg/m².

- Only the areas with high-density book-stacks have different structural requirements. The load is much greater than in the rest of the library, and in this case the oversizing of the structure makes it advisable to abandon considerations of flexibility. Hence, the definitive location of these areas needs to be decided during the earliest phases of the project.
- Since the density of paper ranges from 600 to 1,000 kg/m³, the calculation must be based on the type of shelving and the height of it. However, the following live-loads can be expected:
 - High-density stacks 150 cm high: 1,000 kg/m²
 - High-density stacks 225 cm high: 1,500 kg/m²

Organization of the spaces and circulation space – Grouping the toilets and the vertical communication together frees up the remainder of the space.

It is desirable for the floors to be entirely on a single level, without steps or ramps that would impede the free movement of equipment as well as of users.

Consultation areas should not be designed according to a fixed specification; rather, it should be possible to combine them and also to separate them.

Installations – The installations must be adaptable and must allow for a degree of mobility of the different zones and functions.

- Air-conditioning that is capable of adapting to readjustments without this having an adverse effect on environmental comfort.
- Artificial lighting, bearing in mind the advantages of installing it independently of the furniture.
- A uniform lighting system may be chosen, or different types of source may be installed to provide environmental diversity.
- In the latter case, a good solution is to install a grid of lighting track. This allows both the type of sources and their location to be changed, with a consequent increase in flexibility and the variety of lighting conditions.
- Installations fed by a cabling system that allows for readjustment.
- The system must be dimensioned so as to leave enough space.
- Vertical circuits present few problems as they occupy little space and can be grouped together around the vertical communications.

- The organization of the horizontal network, on the other hand, is more complex. The most flexible solutions are achieved if the installations pass beneath a raised access floor or over a false ceiling, which can be readily dismantled in either case. Another option is to provide for a network of conduits, generally embedded between the paving and the floor-slab, with a series of inspection covers.

Furniture – A type of furniture should be selected and arranged to allow for mobility and adaptation to new needs.

Accessibility

When an architect undertakes the design of a library, the site for the building and subsequent management are matters beyond his or her control. Nonetheless, there are a number of factors to be borne in mind in order to plan a library that is as accessible as possible. Accessibility measures are:

General criteria:

Library located at street level, with access connected to the main routes followed by users.

An organization of the openings in the façade that creates a visual relationship with the interior and the exterior of the building so that the more public of the activities going on inside are visible from outside.

Absence of architectural barriers. When we refer to architectural barriers, what generally comes to mind are the problems that face users with reduced mobility but there is a significant percentage of the population who suffer from disabilities that most legislation does not cover, such as blindness, deafness or other physical problems that impedes access to libraries and these should also be taken into account. Since access for all is considered so important, special attention needs to be paid to this group of users when creating a library. The suitability of the spaces and the information provided as well as the systems available to retrieve such information need to be considered.

Others in a situation which incapacitates them or reduces their mobility who need to be accommodated include:

- The elderly.
- Users with push-chairs or shopping trolleys.
- Pregnant women.
- People who have suffered accidents.

There are ways in which the architecture and equipment of a library can help to integrate these sections of the public. It is worth considering some of these:

- The increased cost of adapting a building to their needs is not significant when it is considered right at the beginning of the project.
- Very many disabilities do not imply total incapacity. Hence, simple but effective solutions can be incorporated for a high percentage of them.

Exterior of the building:

An attractive, easily-identifiable building. Whether the library is to have the appearance of commercial premises, or whether it is conceived monumentally, the public nature of the building and the fact that it is a library service that is open to everyone must be reflected in its external appearance. This is a characteristic that must be insisted on when the library forms part of a larger complex in which other activities take place.

An inviting entrance. There are several aspects that can help to make the building seem accessible:

- External space connected with the library for parallel activities.
- Benches and other items of street furniture forming an area for rest and social interaction.

Interior of the building:

The reception areas, such as the lobby and the social spaces, form a gateway to the library. As such, they have to have the dimensions and symbolism that these public buildings need.

An arrangement of the building that allows immediate understanding of the main spaces from the access lobby. This “visual unity” to a large extent determines the circulation spaces and the functioning of the whole library.

The user must interpret the library as a service to which access is unrestricted, with the only control in the lobby. This solution means that as people

move around the library they do not encounter sudden changes in the environment or feelings of restriction.

Special emphasis on the concept of “passage”. The user must be able to use the library freely, and the building must allow circulation between the different areas in a natural way.

Absence of obstacles and convenient communication both vertically and horizontally.

Furnishings that facilitate vision and access to the stock, as well as comfortable and easy means of searching for information.

Possibility of extension

There are those who say that a library is a living organism: if it does not grow it dies. The brief must contain information about future expansion plans: it is desirable to state the surface area it will need at a future time and the approximate date of any possible extension. Options for growth are very closely related to the choice of site and phase-by-phase execution.

Choice of the site – If the site allows for it, the architect should make provision for extending the building horizontally and vertically (including the incorporation of basement spaces). This operation should be possible without serious architectural complications, unnecessary expense or serious disruption of the library service. Hence, it is advisable for the library project to include a study of the organization and space requirements that can one day serve as the basis for an extension project.

Phase-by-phase execution – Quite often an architect is commissioned to provide a library which is to be executed in phases. The usual reason for this is the desire to open a library on a budget that allows only for the construction of a building with the minimum necessary surface area. Even if there is a schedule for works that calls for a continuation of the construction of the remaining phases, it is desirable for the architect to resolve each phase as a unit – as an apparently completed building. Otherwise, any excessive delays will result in a library that is

frozen in time, with a constant atmosphere of temporariness that will adversely affect the functioning of the service.

Construction systems and types of furnishing should be considered when planning for an extension.

Choice of construction systems

- Materials: the materials used on the exterior and interior should be such as to make extension relatively easy. *A priori*, there are advantages in using a modular system but in any possible extension it is important to choose materials that respect the integrity of the original design.
- Structure: if it is expected that the height of the building will be increased, the structure should be designed to anticipate increased loading. If it is to expand horizontally, a modular solution would be appropriate.
- Mechanical and electrical services: the services for the building itself, as well as those which are specific to the library service, must be extendable. This chiefly affects the size and accessibility of the areas through which services pass and where they are centralised.

Type of furnishing

- Shelving for books and other media must be designed so that it can either be added to or the same type of shelving can be used again.
- The furniture layout should be designed for future growth.

Most of the above recommendations mean an increase in the cost of the works. Nonetheless, the final cost of the extended building will clearly be lower if the initial phases have been designed with a future extension in mind.

Organization

The library should bring users and the information resources together. The multiplicity of items on offer can cause the user to suffer visual fatigue. Legibility is important and therefore the spaces, furniture and collection should be well organised. It is desirable for the architect to bear the following recommendations in mind.

Arrangement of the spaces:

- Promote spatial fluidity between all the areas.
- Make it possible to alternate functions and enable independent usage at different times.

Vertical communication cores:

- Stairs and lifts identifiable by users.
- Vestibules on the various floors that enable users to relate well visually to the spaces and which avoid unnecessary detours.
- Clear differentiation of areas for the public and those for internal services.

Location of toilet facilities:

- Accessible from all parts of the library, particularly from areas that might also be used in a different way and at different times from the main library service.

Number of floors:

- When the site allows for it, the advantages of organising the various functions on a single level are evident:
 - Improved accessibility
 - Flexibility in organising the circulation.
- When the dimensions of the site make it necessary for the facilities to occupy more than one level, there is a series of criteria that must be borne in mind:
 - The spaces that are most compatible with noise, those that are most attractive and which are more frequented by the public should be located on the ground floor.
 - Organization of the floors according to activity, so as not to disturb readers with noise caused by users moving around.

Organization of the furniture:

Different items of furniture are used to define the areas: the shelving for lending, the reading areas, etc.

The number and location of the information desks are a direct consequence of the architectural solution. A wise organization of the spaces should make it possible to:

- Reduce the number of information desks to the minimum in order to optimise the work of the library staff.
- Facilitate surveillance of all the spaces.
- Position the desks where they are visible and accessible to the public from anywhere.

Sustainability and maintenance:

The basic characteristics of the materials that make up a building change over time, either in relation to their initial shape or their physico-chemical structure, and sooner or later they lose their original specifications.

Degradation can occur at different stages of the construction process. The percentages are as follows:

- Project: 40%
- Manufacture of the materials: 15%
- Installation on site: 35%
- Maintenance: 10%

Hence, 75% of cases of degradation occur because of professional error, shared almost equally between those who design the building (40%) and those who actually construct it (35%).

STRATEGIES FOR A SUSTAINABLE ARCHITECTURE

Strategies related to architectural decisions:

Understanding of the climate at the site in order to decide on the materials and constructional systems. Water and temperature changes are factors that are present in almost all cases of degradation.

Energy control: energy is a key aspect in sustainability. Given that 50% of the energy consumption in Western countries takes place in buildings, we need to think about making them more energy-efficient.

Energy-saving measures:

- Systems to control high exposure to the sun

- Natural cooling techniques
- Incorporation of renewable energies
- Low-consumption artificial lighting.
- Water-saving systems (use of rainwater and grey waters for WC cisterns and for irrigating the area round the library, timer taps, mechanisms to regulate consumption in the WCs, etc.).
- Provision of a system for cleaning the windows.

There must be a direct relation between the cleaning system for all the windows and the resources of the body that owns the library. Buildings that are hermetic or that have inaccessible openings make it necessary to contract specialised companies to do the cleaning. The financial cost of this is often reflected in a lack of cleanliness.

- Maintenance.

30% of problems can be avoided through preventive measures. It is desirable to have the *Maintenance Programme* available; amongst other things, it contains information about the use, functioning, cleaning and maintenance of the building. Possession of this document helps the owner establish an annual maintenance budget.

THE BRIEF OR PROGRAMME FOR A PUBLIC LIBRARY

The architect in order to design a high quality library building must have clear directions from the client. This process of defining the new facility is known as the brief or the programme. An example of what is required by the architect is given below.

During the programming process basic aspects are decided and defined, such as:

- The library's mission, its functions and its strategic aims.
- The services the library is to provide, whether basic—common to all libraries—or specific, that is, adapted to meet the needs of the surrounding area.
- The definition, dimensions, distribution and functionality of the various spaces that make up the facility, in accordance with the type of library to be built and the services which it aspires to offer.

- The role of the facility within the libraries network and/or system of which it forms part.
- The synergies between the various services in the area, to avoid an exclusively neighbourhood relationship.
- The characteristics of the initial investment and the annual operation.

There are several stages in the programming process:

Stage 1: Setting up of the working committee and organisation of the work.

Stage 2: Gathering information about the local setting and the context of which the library will form part.

Stage 3: Analysis of the information and study of the community's specific needs.

Stage 4: Establishment of the characteristics of the service and facility on the basis of the prior study.

Stage 5: Financial estimate and specification of aspects of operation.

Stage 6: Writing the document (the brief or programme).

STRUCTURE AND CONTENT OF THE BRIEF

The brief is the document resulting from the programming process. It details the main characteristics of the future service and is the document on which the architectural project is to be based.

Content of the BRIEF :

- 1) Introduction
- 2) Analysis of the local setting
- 3) Functions and services of the library
- 4) Collections
- 5) Organisation of the service's areas and spaces
- 6) Human resources and timetable of service
- 7) Financial estimate
- 8) Scheduling of the processes

1. Introduction

The introduction should describe the aims of the programming process and a description of it.

2. Analysis of the local setting and the existing library situation

Description of the main characteristics of the community where the library is to be built, which will determine the configuration of the services, adapted to the specific existing and future needs of the users. It will include demographic and socio-economic data, information about the pattern of demand for information and culture, the local administrative policies and the bodies with which possible partnerships and co-operation can be established as well as information about the current library situation.

3. Functions and services of the library

The library's functions and services will in large measure be determined by the directives of international library bodies and by local cultural and information policies. This section will specify the functions and services related to the needs of the local area and accord with the library's role, if it forms part of a library network and/or system.

4. Collections

The size and distribution of the collection will be determined by the standards for libraries, the type of library to be built, the services it is intended to provide and their adaptation to the characteristics and needs of the community in accordance with the library's role within the library network or system of which it forms part. This section must specify the size of the collection, by main areas of service and document type. This will determine the size of the physical space needed to accommodate the collection and to draw up the financial estimate.

It is interesting to note the difference between the existing collection and the predicted final collection.

Documentary collection		
General area	Inicial	Final
Information and reference	750	1,100
General lending collection (books & DVDs)	6,400	10,700
Specialised collection (books & DVDs)	500	800
Music (books & DVDs)	400	700
Music (CDs)	800	1600
Local collection	400	600
Children's area		
Knowledge (books & DVDs)	1,250	2,000
Fiction (books & DVDs)	1,500	2,500
TOTAL (free access)	12,000	20,000
Store	2,000	4,000
Periodicals (titles)	110	110

Figure 1. Example of a table summarising the collection

5. Organisation of the service's areas and spaces

The characteristics and dimensions of the spaces will be determined by the services to be offered by the library, the size of the collection that is to be housed and the expected number of users. As in the previous sections the starting-point is the library directives and standards that must be adapted to local needs and to the library's role in the network and/or system of which it forms part.

This section will describe the basic characteristics and equipment needs of each of the spaces according to the services to be provided and the activities to take place in them. Also, a diagram will be included showing the organisation and distribution of the spaces and the relationship between them. It will also be necessary to set out guidance on the following: reader places distributed around the service areas, computer work-stations, the linear metres of shelving needed to accommodate the collection, information desks, the building's technical equipment (eg security), equipment for public use (photocopier, audiovisual reproduction equipment), etc. This will provide the basis for drawing up the architectural project and the future functionality and usage of the different spaces.

Useful surface areas by department	
Reception and promotion area	170 m²
Vestibule and access	80 m ²
General information and lending point	
Multipurpose space	90 m ²
Meeting room	80 m ²
Store	10 m ²
General Area	560 m²
Magazine area	80 m ²
Information area	130 m ²
Local and specialised resources	
General collection area	280 m ²
General lending collection	220 m ²
Music and image space	60 m ²
Support space	40 m ²
Multi-media space	30 m ²
Children's area	215 m²
Knowledge collection area	95 m ²
Imagination collection area	100 m ²
Small reader's space	
Support space	20 m ²
Internal work area	70 m²
Management office	20 m ²
Work space - store	40 m ²
Staff rest area	10 m ²
TOTAL programme surface area	1,015 m²
TOTAL built surface area	1,320 m²

Figure 2. Example of table summarising surface areas by department

The **programmed area** refers to the free, usable space for each area of activity, not including circulation space or any other architectural consideration.

The **built area** is the total area of the building, including the space occupied by structural elements. On average, the built area will be 35% greater than the programmed area.

11. A Library Project from an Architect's Point of View

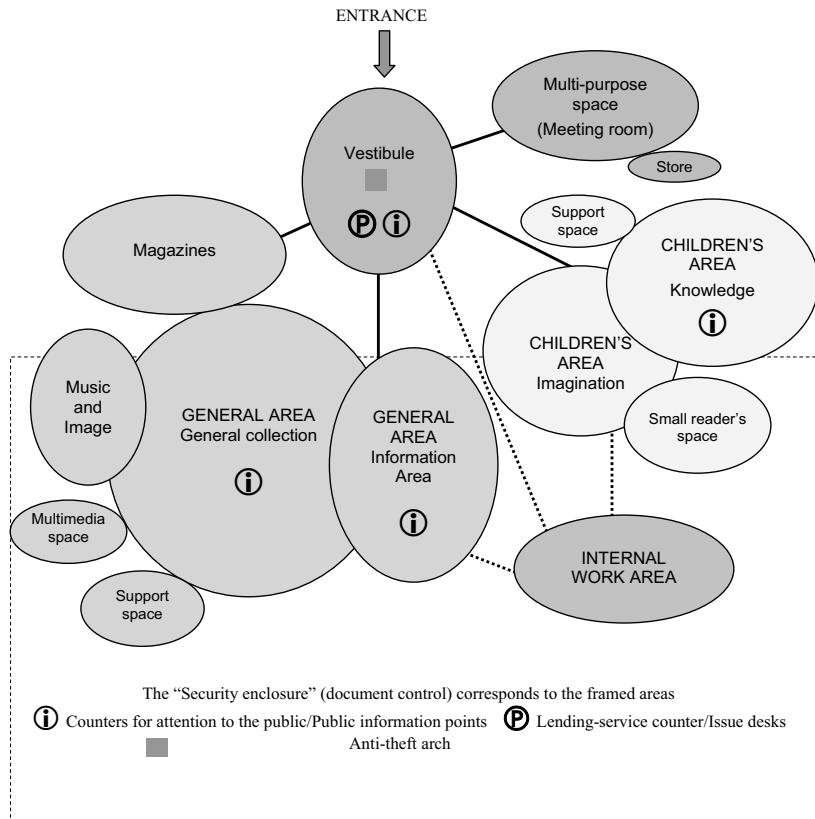


Figure 3. Example of functional organisation

6. Staffing and service requirements

The requirements for the service will be determined by service standards, the role of the library in the network or system of which it forms part, the services offered, the area served and the expected number of users, and the resources it will provide. Staff numbers will be based on the above factors as well as on the number of public service points.

7. Financial estimate

The brief must include an estimate of the financial cost of the project including the initial investment and the annual operation.

Factors to be considered with regard to initial investment:

- Construction
- Equipment (furnishing, audiovisuals, anti-theft, IT, etc.)
- Initial collection

Factors to be considered with regard to annual operation:

- Human resources
- Collection maintenance and subscriptions to periodical publications
- IT maintenance
- Maintenance of building and energy consumption
- Marketing activities

8. Scheduling of the processes

At the conclusion of the brief/programme there will be a schedule of the different stages in the process from writing the programme to the opening of the library. In total, this will take from 31 to 37 months. The programming stage, from starting to write the brief until its approval by the appropriate body, lasts from 4 to 5 months. For the initial project stage, which includes the drawing up and approval of the initial project and the production of working drawings, 6 to 8 months are needed. The construction stage will last between 15 and 18 months. During the final stage of construction, the furnishing and equipment stage starts, including drawing up the furnishing and equipment specification and purchase. In total this will take about 3 to 4 months. Once the works are finished, the installation and set-up stage begins. This will last 3 months and include the installation of the furniture, the moving and organisation of the collections, the installation of signage, IT and audiovisual equipment

Finally, 2 months before the opening, preparations will begin for organizing and publicizing the opening ceremony.

CONCLUSION

The word “freedom” is one that springs to the lips of a user when asked to describe an ideal service. Freedom to move around, to read, to look things up. Users want to do this when they like, how they like and for as long as they like.

In the reading areas they also like to feel comfortable and protected from aggressive or indiscreet behaviour.

The spaces must flow logically and they should be conducive to browsing and chance discoveries but not be impersonal spaces in which people may feel lost.

Security, flexibility, fluidity, intimacy, ability to accommodate large numbers of the public, silence, proximity to the collections. All this is asked of architects but they must use their judgement to help them prioritise some concepts above others in each specific situation in order to design a successful, functional and architecturally pleasing building.

Further reading and references

- Bailac Puigdellivol, Assumpta; Omella Claparols, Ester. *La biblioteca pública a la província de Barcelona: un servei en xarxa*. Barcelona: Diputació de Barcelona. Servei de Biblioteques, 2002.
- Benedito, Josep; Orteu, Santi. “Solucions arquitectòniques per al disseny d’arxius”. *Lligall: Revista Catalana d’Arxivística*, num. 20 (2003), p. 27–34.
- Bertrand, Anne-Marie; Kupiec, Anne. *Ouvrages et volumes. Architecture et bibliothèques*. París: Éditions du Cercle de la Librairie, 1997.
- Chapon, Yves. *Introducció a la programació*. Barcelona: Diputació de Barcelona, 1993. (Papers de Gestió, 3).
- Directrius IFLA/UNESCO per al desenvolupament del servei de biblioteques públiques*; drawn up by a group led by Philip Gill at the behest of the Secció de Biblioteques Pùbliques. Barcelona: Col·legi Oficial de Bibliotecaris-Documentalistes de Catalunya, 2002. 115 pp. ISBN 84-86972-14-0.
- Faulkner-Brown, Harry. “Diseño de grandes edificios para bibliotecas”. En: *Informe mundial sobre la información 1997–1998*. Madrid: Unesco/CINDOC (1997), p. 272–283.

- Libraries as places: buildings for the 21st century: proceedings of the Thirteenth Seminar of IFLA's Library Buildings and Equipment Section together with IFLA's Public Libraries Section.* Edited by Marie-Françoise Bisbrouck ... [et al.]. München: Saur, 2004.
- Mauduit, Philippe; Olivret, François; Chapon, Yves. *La programació d'edificis públics.* Barcelona: Diputació de Barcelona. Oficina Tècnica de Cooperació, 1995.
- Muñoz Cosme, Alfonso, "Colecciones y conexiones. El espacio de la biblioteca a través de la historia". *Arquitectura Viva*, num. 63 (1998), p. 20–27.
- Recull d'informació bàsica. Equipament bibliotecari.* Barcelona: Diputació de Barcelona. Oficina Tècnica de Cooperació, 1994.
- Romero, Santi. *La Arquitectura de la Biblioteca. Recomendaciones para un proyecto integral.* 2a ed. Barcelona: Col·legi d'Arquitectes de Catalunya, 2003.
- Rovira Fontanals, Josep Lluís; Casado Martínez, Imma. *Guia de l'edificació sostenible.* 2a ed. Barcelona: Institut Ildefons Cerdà, 2001.
- Vidulli, Paola. Diseño de bibliotecas. Guía para planificar y proyectar bibliotecas públicas. Gijón: Trea, 1998.

12. GREEN BUILDING MANAGEMENT AND SUSTAINABLE MAINTENANCE

Sean Wagner, AUA, LEED AP with contributions from
Jeffrey Scherer, FAIA of Meyer, Scherer & Rockcastle Ltd. USA

Much has been published on issues of sustainable building design and construction. Sustainable practices, however, should be applied in all phases of the life cycle of a building including building operation and management. This chapter introduces the range of aspects to be considered to obtain green building management and sustainable maintenance

Developing Sustainable Operation and Maintenance Programmes for Libraries

A sustainable building operation and maintenance (O&M) programme can not only enhance the operating efficiency of HVAC (heating, ventilating and air conditioning), lighting, and other energy-using systems, it can also reduce the long-term ecological footprint of the building. It will serve as an indispensable tool for library boards, directors and facility managers to solve more effectively ongoing building problems, improve overall building performance, and maintain and improve performance throughout the life of the facility. It is equally important to remember that these concepts can reduce the cost streams associated with building operations, reduce environmental impacts, and create healthier and more productive employee workspaces.

A properly designed sustainable building O&M plan includes specific provisions and procedures for the upkeep of the HVAC and building systems so that energy efficiency targets are met throughout the lifecycle of the building. It also addresses goals for recycling, pollution prevention, the reduction of hazardous materials, and elimination of the use of ozone depleting substances.

General considerations

In newly constructed buildings, a standard building O&M plan might lay out the procedures necessary to achieve the intent of the original building design team so that building systems operate efficiently. A sustainable building O&M plan, however, will provide specific goals for energy efficiency, resource conservation, and pollution prevention to optimize the comfort, health, and safety of the building occupants. Information generated by the design team including Basis of Design and Building Programming documents created by the architects, engineers, and library planners will provide baseline information that will be used to generate these environmental performance goals.

For existing facilities, it will be necessary to conduct an inventory and assessment of the major building systems, facilities operations, and management policies. It will be necessary to monitor and record performance data over a period of several months to track actual performance against expectations. Without adequate or correct information to assess day-to-day performance, environmental and energy saving opportunities may be lost.

Furthermore, establishing Benchmark Performance Standards and comparing the criteria to actual performance data gives the ability quickly to identify when systems and procedures are not operating efficiently and to take corrective action. Benchmarking data can be obtained by examining the original system design criteria, working with maintenance staff, and from published information for comparable equipment and building types.

Peer comparison information, benchmark standards, and actual performance data can then be analyzed to begin formulating specific policies and achievement goals for the plan. The sustainable building O&M plan should incorporate the following:

- Specific and aggressive performance goals. Establish procedures to revise performance goals on a annual basis;
- Establish a facility-wide team to evaluate and improve on O&M practices;

12. Green Building Management and Sustainable Maintenance

- Integrate strategies to address indoor environmental quality (IEQ), energy efficiency, and water conservation into established policies and procedures;
- Educate and empower staff members with the information and tools necessary to achieve the goals by providing regular professional development and training;
- Measure actual performance against goals, and recognize success;
- Make adjustments to adapt to occupant needs by modifying the HVAC, lighting, electrical, telecommunications, safety, housekeeping, and building automation control systems;
- Re-commission building systems to ensure that they are optimized;
- Extend the useful service life of materials and equipment through scheduled maintenance, repair and upgrades; and
- Incorporate environmentally-protective features into all contracts, maintenance, and procurement practices.

In developing the plan, look for outside funding sources and grants to help defray development costs. Public utilities, universities, governmental agencies, and energy assistance programmes may provide matching money to address energy performance. Equally important is the wealth of knowledge and expertise they can provide in providing benchmarking data, plan development, and experience with alternative technologies. There are also building certification programmes that provide a specific set of goals and achievement standards for sustainable building operations. In the United States, the US Green Building Council's Leadership in Energy and Environmental Design Existing Building (LEED-EB) programme is one example.

As with other procedural and planning documents, the library should incorporate goals for sustainable building operation into its long-term strategic plan. This will increase overall awareness by the library board and staff members of how sustainable O&M supports the strategic plan by reducing operating costs while maintaining facility assets. Libraries may want to consider hiring or appointing a facility manager with experience in sustainable operations who would be

charged with implementing the sustainable O&M programme to ensure that all aspects of the plan are developed and carried out.

SPECIFIC CONSIDERATIONS

Grounds and Site

Parking lot, grounds, walkway maintenance and snow removal have significant environmental impacts. Chemicals, equipment, and cleaning and maintenance scheduling can affect the environmental quality of the building site, the neighbourhood, and the surrounding watershed. Facility managers should plan fertilizing, ploughing and sweeping tasks for times when exterior areas are least used to avoid potential air quality issues and interior contamination. Cleaning and maintenance should also be considered when upgrading or reconfiguring parking lots, walkways, stairs, and landscaped areas. Consider runoff from parking lots and landscaped areas; snow storage and the path of snow-melt; and where chemicals might travel.

When undertaking landscaping of site improvements, implement best practice standards for soil erosion control. Consider reducing the amount of impervious paving as a method of reducing the amount of stormwater generated by the site. Adding non-turf landscaping will improve the property's ability to manage site generated stormwater, reduce grounds maintenance costs for mowing and snow removal, reduce the amount of potable water used for irrigation, and provide valuable habitat for wildlife.

Water use reduction

Potable water use in buildings is generally grouped into interior and exterior use. For exterior water use reduction, consider the use of high-efficiency irrigation technology. Retrofitting existing irrigation equipment with modern control equipment, high efficiency irrigation heads, and drip irrigation can drastically reduce potable water consumption. If your facility is located in areas with irrigation water use restrictions, check with local agencies for additional information on your upgrade. Libraries may also want to consider the use of captured rain water in lieu of conventional water supplies.

Interior and building process water use can be reduced with high efficiency equipment upgrades and routine building maintenance. Waterless urinals, motion sensitive fixtures, low-flow faucet aerators, dual-flush toilets, and process water recovery systems will all reduce potable water consumption below standard levels. Many municipalities and public utilities have retro-fit and upgrade programmes to assist library staff in determining the amount of savings. Some water conservation districts in drier areas even provide financial incentives for measurable water use reductions.

Energy management

An effective energy management plan generally consists of three elements: (1) purchasing energy at the lowest cost, (2) operating equipment efficiently, and (3) replacing older building systems with more efficient technologies. The second element is the most underrated and least understood, yet has high potential for savings with little or no capital outlay.

Use an energy accounting system to locate savings opportunities and to track energy-efficiency strategies. Without information on past and current energy use, demand, and cost, it is impossible to understand or communicate any measurable progress being made. Most modern buildings are equipped with Building Automation Systems (BAS) or Energy Management Systems (EMS) to monitor and control HVAC equipment, and have the capacity to track and record relevant data.

Train O&M staff in energy-efficient activities. Modern building systems and controls are more sophisticated and complex than ever. Staff members who are not properly trained will underutilize the capability of these systems and will make decisions that are contrary to optimum energy efficiency.

Require service contracts to support energy-efficient building operation. When hiring outside service contractors, it is important that the contracts address efficient building operation. This should include methods to track operating changes, improvements, and deficiencies over time. This documentation provides critical information for gauging equipment and system performance.

Acknowledge energy-efficient operation as a cross-functional activity. Library staff, IT managers, volunteers, custodians, and patrons all use energy-consuming equipment such as lights, HVAC equipment, and office equipment. Educating these users by providing easy to understand information on efficient operation is imperative, particularly in the case of new equipment and controls.

Perform a comprehensive O&M tune-up assessment. The first step in a tune-up process is to understand why building systems are operated and maintained the way they are, and what improvements are most beneficial and cost effective. An O&M assessment focuses on low-cost changes in O&M practices that improve building operation. Many improvements, such as control strategies or schedules may be implemented in a matter of hours. Implementing the initial O&M tune-up improvements allows the building to perform to its fullest potential before more extensive and costly energy-efficiency projects are considered.

Maximize the use of automatic controls to optimize efficient operation. Most systems are underutilized. Many energy management control systems can be programmed to accomplish energy-efficient control strategies beyond the ordinary time-of-day scheduling control. It is important to remind staff to operate equipment only when needed. Because occupant needs and schedules are constantly changing, operating schedules and strategies need to be continually adjusted. Equipment may be operating very efficiently, but when it's "on" and nobody is at home, the only thing happening is energy waste.

Redefine preventive maintenance to include activities critical to energy-efficient operation. Typically, the primary goal of preventive maintenance is reliability and increased equipment life. Including procedures to check for efficient operation should enhance the primary goal as well as eliminate unnecessary energy waste.

Recycling and pollution prevention

Library and staff policy should address waste reduction and recycling. Such a policy should consider source reduction, eliminating the use of hazardous materials, as the first step in an overall waste reduction strategy. Once this is accom-

plished, materials that can be recycled should be favoured. This can be a difficult challenge because recycling involves everyone.

Conventional recycling programmes target waste streams created by office paper, cans, glass, etc. Advanced municipal recycling programmes now include fluorescent lamps, batteries, carpet and ceiling tile take-back programmes, and recycling of electronic equipment. Effective recycling programmes rely on communication and education to make building occupants aware of both the need and the opportunity to recycle. Waste recycling programmes require the placement of convenient recycling receptacles for paper, plastics, glass and metals, and receptacle monitoring, emptying, and proper disposal of the collected materials must become part of a regular cleaning programme.

Overall pollution prevention goals can be achieved by eliminating the volume of pollution through changing library staff and patron consumption habits, recycling, and the substitution of non-hazardous or less hazardous materials.

Indoor Environmental Quality (IEQ)

Acceptable IEQ is often easiest to achieve if “source control” is practiced, not only during building construction, but also over the life of the building. In new construction, the architect may have selected building products that do not produce noxious or irritating odours; it is equally important that the library and maintenance staff also avoid creating IEQ problems. For example, the facilities manager should monitor and verify that pressure differentials are in fact maintained from restrooms, kitchens, parking garages, copy rooms, etc. to other occupied spaces to avoid the undesirable flow of contaminants. Understanding and managing building pressure and air flows can also be the first line of defence in controlling moisture and mould growth in buildings.

Green cleaning entryway systems

Green cleaning entryway systems specifically refer to internal and external floor mats, grills and grates to mitigate dirt, dust, pollens and chemicals from being tracked into a building. Maintaining the systems — making sure mats are frequently changed, and catch trays under grates are cleaned – in combination with

managing sand, salt, fertilizers, and other chemicals applications near building entries, will significantly affect entryways and overall building IEQ.

Procurement

The library should institute purchasing policies that promote resource efficiency and toxicity reduction. One example might be instituting a lamp purchasing programme that specifies that lamps contain less than 80 picogrammes of mercury per lumen hour of light output. Third party certification services such as Green Seal have standards for operations and maintenance criteria for green facilities, for industrial/institutional and household cleaning products, and for floor care products, which set performance, environmental, and packaging requirements. Scientific Certification Systems (SCS) provide product testing for specific environmental attributes, to verify the accuracy of specific environmental claims such as biodegradability. Product listings and their attributes are provided according to construction specification categories, facilitating use in specifications.

- Seek less toxic substitutes that have been proven to do the job.
- Products labelled “WARNING”, “CAUTION”, “DANGER”, “FLAMMABLE”, “POISON”, “REACTIVE” should be avoided, unless there are compelling reasons for their use.

Sustainable Cleaning Products

There are many environmentally preferable substitutes for most chemicals. Most major product suppliers now have a line of environmentally preferable products that are priced to compete with traditional products. Today, environmentally preferable cleaning products work as well as traditional chemicals, provide a safer work environment, and contribute to improved indoor environmental and air quality for building occupants.

Most building service companies and in-house facility operations already use microfibre dust cloths that cut down on the need for surface cleaners, improve IEQ, and increase productivity.

Steam cleaning is another process change that can be used for many degreasing situations with clear water replacing harsh chemicals.

- Work with maintenance staff to determine the types of cleaning agents needed. Conventional cleaning supplies often contain harsh, irritating chemical ingredients that, especially in concentrated form, can cause harm to employees. Seek less toxic substitutes that have been proved to do the job.
- In the case of flooring, it may not be critical to use a disinfectant; a mild detergent at neutral pH may suffice. Consult the flooring manufacturer for low environmental impact cleaning recommendations.
- Products labelled non-toxic, non-petroleum based, water-based, free of ammonia, phosphates, dye or perfume, readily biodegradable, and using recyclable containers, are options to consider.
- Consider use of appropriate portion control devices such as mechanical dispensers for safe mixing of cleaning solutions, to reduce worker exposure to chemicals, save packaging, and reduce chemical consumption.
- Pump sprays should be favoured over aerosol cans that contain ozone-depleting propellants.
- It should be noted that most cleaners are water-based and the issues of concern are often related to the extreme pH of the cleaner, or respiratory irritancy, rather than VOC content.

Low environmental impact cleaning

Green cleaning is not as simple as eliminating chemicals. Training is always the key to success. Building service companies and in-house facilities managers must constantly adjust and improve training programmes to increase skill levels, improve worker safety, and increase efficiency. Workers need to be properly trained in mixing chemicals, and need to know how to apply them correctly. Many chemical vendors offer training programmes for supervisory and cleaning staff on how to use their products. However, green cleaning is a day-in, day-out affair that requires onsite supervision, regular reporting, and frequent refresher training.

Consider methods for reducing the environmental impact of cleaning equipment. As with chemicals, there has been tremendous progress made with environmentally preferable cleaning equipment. LEED-EB has specific requirements with

respect to floor vacuum particulate size (capture 96 percent of particulates 0.3 microns in size) and extraction equipment (dry in less than 24 hours). LEED-EB requirements also specify limits for sound (less than 70 decibels) and ergonomic design, to protect workers and decrease fatigue. In addition, full maintenance logs should be kept for each piece of equipment, to ensure that it is properly maintained.

Low environmental impact pest management

Low environmental impact Integrated Pest Management (IPM) takes a holistic view of the problem and generally includes a written pest management plan with Material Safety Data Sheets (MSDS) and Technical Bulletins on all pest control products. The O&M plan should detail barriers, traps, and the use of baits or chemical application techniques. A key feature would be a schedule that balances frequency with risk and enforces the timely application of preventive measures. Facilities should also keep a comprehensive log of all pest management activities, and all toxic materials must be properly handled, stored and registered. A well-designed and ongoing training programme is an additional must.

Further reading and references

Architect's and Engineer's Guide to Energy Conservation in Existing Buildings. Vol. 2 of Energy Conservation Opportunities by U.S. Department of Energy. Washington, D.C.: GPO, 1990.

ASHRAE Guideline 4: Preparation of Operating and Maintenance Documentation for Building Systems. Atlanta, GA: ASHRAE, 1993.

Building Air Quality Guide: A Guide for Building Owners and Facility Managers by U.S. Environmental Protection Agency and National Institute of Occupational Safety and Health. EPA/400/1-91/033. Washington, D.C.: GPO, 1991.

Energy-Efficient Operation of Commercial Buildings by Peter Herzog (McGraw-Hill 1997).

Glossary of Terms Related to Health, Exposure, and Risk Assessment by U.S. Environmental Protection Agency. EPA/450/3-88/016. Washington, D.C.: GPO, 1989.

Green & Clean: The Designer's Impact on Housekeeping and Maintenance by Stephen Ashkin in Environmental & Economic Balance: The 21st Century Outlook. Washington, DC: The American Institute of Architects, 1998.

12. Green Building Management and Sustainable Maintenance

Greening Federal Facilities: An Energy, Environmental and Economic Resource Guide for Federal Facilities Managers, Section 8: The Role of Operations and Maintenance by U.S. Department of Energy. Washington, DC. 1997.

How Buildings Learn: What Happens After They're Built by Stewart Brand. Viking Press. 1994.

HVAC Characteristics and Occupant Health by W.K. Sieber, M.R. Petersen, L.T. Stayner, R. Malkin, M.J. Mendell, K.M. Wallingford, T.G. Wilcox, M.S. Crandall, and L. Reed. ASHRAE Journal, September 2002.

The Inside Story—A Guide to Indoor Air Quality by U.S. Environmental Protection Agency and U.S. Consumer Protection Safety Commission. EPA/400/1-88/004. Washington, D.C.: GPO, 1988.

New York City High Performance Building Guidelines. 1999. Part Three, Chapter on Operations and Maintenance.

O&M Best Practice Series by Portland Energy Conservation, Inc. Includes fifteen O&M best practices for energy-efficient buildings, stressing management, teamwork, and resource-and energy-efficiency.

Pennsylvania Green Building Maintenance Manual by the Commonwealth of Pennsylvania in partnership with Green Seal and Department of General Services' Property Management, 2002.

Protecting the Built Environment: Cleaning for Health by Michael A. Berry, Chapel Hill, N.C.: Tricomm 21st Press, 1993.

Standard Guide on Stewardship for Cleaning Commercial and Institutional Buildings, E1971-98 by ASTM International.

Sustainable Building Technical Manual, Section VI: "Operations and Maintenance" by U.S. Department of Energy and U.S. Environmental Protection Agency. Washington, DC: 1996.

Waste Reduction and Recycling: A Guide for the Workplace by Wisconsin Department of Natural Resources.

Relevant links:

Clean Air Solvent (CAS) Certification Programme
<http://www.aqmd.gov/rules/cas/index.html>

Database of Environmental Information for Products and Services
<http://yosemite1.epa.gov/oppt/eppstand2.nsf>

Sean Wagner/Jeffrey Scherer

Energy Ideas Clearinghouse

<http://www.energyideas.org/>

European Union Eco-label Programme

http://ec.europa.eu/environment/ecolabel/index_en.htm

Fundamentals of Indoor Air Quality (IAQ) in Buildings

http://www.epa.gov/iaq/largebldgs/i-beam_html/ch1-fund.htm#F1.3.3.1

Green Seal Programme

<http://www.greenseal.org/>

IAQ and Energy Efficiency

http://www.epa.gov/iaq/largebldgs/i-beam_html/ch4-iaqe.htm

IAQ Maintenance and Housekeeping Programmes

http://www.epa.gov/iaq/largebldgs/i-beam_html/ch3-pm.htm

integrated pest management (IPM)

http://www.state.ma.us/dfa/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

Managing for IAQ

http://www.epa.gov/iaq/largebldgs/i-beam_html/ch7-mana.htm

Scientific Certification Systems (SCS)

<http://www.scs1.com/>

USGBC-LEED for Existing Buildings

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=221>

13. READING PLANS FOR LIBRARY PROFESSIONALS

Olaf Eigenbrodt, Baureferent, Universitätsbibliothek
der Humboldt-Universität zu Berlin, Berlin, Germany

Introduction

Plans and good communication are crucial to successful library buildings so it is very important to understand all the information supplied.

For the librarian, building libraries is not so much about concrete or bricks as about communication. Architects can sometimes tend to design their buildings not with the eventual users in mind but for themselves. This may seem to be a simple matter of establishing roles in the planning process but it is one of the central issues to discuss with all parties at the outset. Only when librarians are accepted as important partners will they be allowed to have full access to the relevant documents.

Librarians may find they are treated not as the client but as some subordinate user of the finished building especially when the municipality, university or relevant government agency (as is common in Germany) has the role of the building owner,. In the worst case scenario, they will only be involved in the preliminary planning and perhaps be shown some CAD views of the design and be taken on a guided tour around the building site. Nobody will seem to take the views of the librarian into account. The prevention of this situation is the first step the librarian should take at the beginning of the project.

The first thing about plans: go and get them!

Establish your role and involvement in the whole planning process with the relevant bodies before the architect is appointed. It is important that you are introduced to all parties involved as the person responsible for functional topics. Make sure that you are going to be invited to the regular meetings and that you get a copy of all the relevant documents.

What kind of plans are there?

Most important are the construction plans. You need floor plans and sections to really understand what is going on during the planning process. There are different planning stages during the design and construction of the building, depending on legal requirements (a matter you will certainly have to become familiar with) and the size of the project.

First are the plans which are presented in a competition or in response to an advertised bid. From these you can find out the architect's main concept and idea for the building in general and the arrangement of space. These plans will be realistic but also idealised because the goal is to convince the client, or jury, of the specific qualities of the project. To be accepted the plans need to provide the required information. If you are part of the jury as an expert, you can influence the decision by focusing on the functional requirements of the library. Aesthetic matters are important but if you concentrate on them to the exclusion of other aspects, you may be seen as an aesthete but not as an authority in library planning. So don't concentrate on the attractive CAD views or the model, showing the library as a landmark in the urban or campus environment, but rather study the floor plans and try to get an appreciation of the layout and space.

The next step in the planning process is preliminary planning. It is based on the comments of the jury concerning the design presented in the competition and on the advice of the engineers responsible for construction, building services (electrical engineering, air-conditioning etc) and fire protection. At this stage the discussion of the layout of the library space takes place. The arrangement of the different areas within the building is finalised to a large extent in accordance with the preliminary plan. Next a construction document, or working plan, is prepared which will be used by the builders on site. Details may be able to be changed now but the major form of the building is fixed. This is the right time to discuss the final plan for the interior construction. The definitive design of the interior is often made during the construction of the shell.

As can be seen in this schematic description of the planning process, there are different kinds of plans and different aspects to concentrate on. Make sure that you always get the up-to-date documents to work with.

How do you read the plans?

Some hints on reading and understanding floor plans

- Training: work with floor plans of existing buildings with which you are familiar (maybe your present library), walk around with the plans and correlate them with the spaces you see.
- Learn the language of plans: a key is frequently used on the plan to describe different notations and symbols. What is the difference between shaded and bold lines? How do the architects illustrate different materials like concrete, glass, wood etc? Which abbreviations do they use for the components of the construction? If you don't understand something, ask the architect.
- What scale are the plans? The most common scale for the study of plans is 1:100 that means that one centimetre on your plan is one metre in reality. Plans of this scale are mostly detailed enough to see the important things but not too large to handle. Final plans or construction documentations are often at a scale of 1:50, sometimes 1:10 to show all the important details like connection elements or sealings. They are designed for the specialists to discuss and work with but are not usually suitable for studying a whole area.
- Orient your plan: which façade faces in what direction? Do you have a site plan of the building? How does it relate to the existing buildings?
- Explore the building through the plans: sort your set of floor plans from the ground-floor upwards. Make a round tour of the building starting at the main entrance and taking in the different floors. Take a look in the

basement. Where are the staircases and elevators? Wandering about in this virtual library you may discover illogical connections, missing doors and windows, problems in the arrangement of space etc. Look at the plans from the perspective of the library user. Is the way into and through the library complex or self-explanatory? Is it possible to reach the most important facilities without a guide or signage? Try to do this at regular intervals in order to become familiar with the layout.

- Keep control: compare the plans to the requirements you stated at the outset. Are the measurements correct? Does every room you need exist? Is it associated with the appropriate rooms? Is there daylight where it is needed? Who needs to be located near elevators, doors etc? Which rooms need communicating doors? Do this floor by floor and then again department by department. Possibly use colour to differentiate between diverse functions of areas.
- Insight through communication: discuss the plans with colleagues, experts (e.g. for facilities for the disabled, ergonomics or learning environments) and other people. Presenting of the plans and discussing them with these audiences is not only important for the acceptance and the development of the project; it also forces you to look at the plans through the eyes of others. Furthermore those people are not as deeply involved with the plans as you are and are therefore unbiased. Maybe they will see problems or mistakes that have been overlooked.
- Optimisation: don't be afraid to draw on the plans. It helps to visualise improvements and to become familiar with the design. Plotting out a new set of plans is easy to do.

As can be seen, there are different strategies for dealing with the floor plans of your building project. Becoming adept at interpreting plans helps the librarian to identify with the project and gain credibility in the planning team.

14. RENOVATING HISTORIC BUILDINGS

Santi Romero, Architect and Head of Construction Unit,
Library Service – Diputación de Barcelona, Barcelona, Spain

Library architecture is very complex. When starting with a greenfield building site, what is required is sufficient surface area, a good orientation and an absence of changes in level. When the starting point is an existing building, it is helpful if the plan form facilitates conversion. Heritage buildings with their special characteristics present an additional challenge to the already complex and specialist field of library architecture.

INTERVENTION IN THE ARCHITECTURAL HERITAGE

The standard philosophy underpinning the retention of heritage buildings is that things of value are preserved by one generation and left as a legacy for future ones. Also such buildings create a sense of place and cultural identity.

With regard to architectural heritage there has been, over recent years, a consolidation of a culture oriented towards restoration and re-use and this has been echoed by public opinion which has demanded re-use for social purposes.

Because of its role as a regionally-based cultural service, the library has become a main focus of attention within this conservation policy.

ADVANTAGES AND DISADVANTAGES

Refurbishing historic buildings brings many advantages but it also presents many technical, functional, financial, and sometimes aesthetic difficulties and these vary according to the nature of the building and acquire greater or lesser importance according to the criteria used to evaluate the final result.

Advantages

In general terms the main factors in favour of heritage buildings are:

- Location
The library is a fundamental part of urban design and it should be a very important centre of attention. A well-chosen location enhances all aspects of its influence on the community, a poor location limits its capacity to serve the community.
- Many heritage buildings are located in prime locations such as town centre areas where land is not readily available or is exorbitant in price.
- Symbolic value
The historical prestige with which the community regards the building.
- Architectural interest

Suitable refurbishment may incorporate the following positive features:

- Rediscovery of the municipality's identity.
- Conservation and maintenance of built heritage.
- Enhancement of the building by providing it with a new use.
- Urban renewal and regeneration:
In some cases it can be the starting point for the refurbishment of the surrounding area.
- Final cost:
Depending on the condition of the building and the magnitude of the intervention, the costs can be lower than those of a new building.

Disadvantages

The following are the main difficulties in converting a heritage building into a library:

Plan form of the building.

- Distribution of space:

Fragmented distribution does not lend itself to the rational organization of the library service and leads to the expected standards being lowered considerably.

- The opposite problem is posed by buildings which are too big with spaces that make it difficult to create the varied ambiences required by the library programme.
- Changes in level:
These are an obstacle to flexibility and are a disadvantage with regard to compliance with regulations concerning the elimination of architectural barriers.
- Vertical communication cores:
When regulations require the original stairs to be maintained, their location and dimensions can have a negative effect on the organization of interior circulation.
- On the other hand, the new facilities will require compliance with fire and access regulations with the incorporation of new stairways and lifts.
- Façades:
Buildings with blind façades, or with a very rigorous composition of openings, can make it difficult to incorporate the elements necessary to enhance the relationship between the interior and the exterior of the library.

Type of construction.

- Load-bearing elements:
As a general rule it is recommended that the entire structure bear a uniform live-load of 500 kg/m².
Heritage buildings, however, demand more accurate study since most historic buildings will not bear such a load and require consolidation, or substitution, of the original structure.
The structural capacity of the existing floor-slabs, columns and foundations will influence the use spaces can be put to and that means each element should be analysed to decide what action needs to be taken. From a very generic point of view, the following recommendations can be made:
 - A real uniform live-load for all structural elements of 300 kg/m².
 - Additional live-load for each linear element of the uni-directional floor-slabs: 500 kg per linear metre.
 - Reinforcement in compression in the floor-slabs: 5 cm thick.

Spaces intended for high-density shelving require specific study given that the load is much greater.

- Service installations:

The need to install all the services.

When considering air conditioning, the volume of some spaces, the kind of materials used for the façade and the kind of roofing may present problems in insulating the building and therefore in calculating the capacity and location of the equipment.

When a building is converted into a library, the problems tend to be:

- The rigid organization of space.

In many cases, the poor dimensional optimisation of the space results in inefficient use of the surface area and this has financial consequences for both construction and efficiency of use.

- The difficulty of extension

The reorganisation and extension needs of current library systems are in conflict with the rigidity of most heritage buildings.

- The building's identity

Some heritage buildings are of a plan form that does not easily allow for conversion into library facilities and a building sacrificed to its new function is as undesirable as having the library service subordinated to the building's original style of construction.

- Complexity of the operation

To the architectural difficulties inherent in any library project must be added the technical, spatial and financial complications, amongst others, involved in the conversion of a pre-existing building.

- Costs

In the vast majority of cases the final cost of a converted building is greater than that for a new building so it is unadvisable to propose the conversion of heritage buildings on the basis of some supposed financial saving.

BUILDINGS THAT LEND THEMSELVES TO CONVERSION

The advantages and disadvantages of the most usual kinds of buildings can be summarized as follows.

Palaces and castles

These kinds of buildings tend to be located in town centres or in peripheral areas associated with parks or development areas. Such a location can be ideal for certain kinds of library.

Large interior spaces make it possible to create large areas that are suitable for collective use while ensuring a certain flexibility in use.

Churches

Positive aspects:

- Central location in residential areas.
- Availability of large spaces without internal subdivisions.

Disadvantages:

- Lack of natural light.
- Disproportion of the spaces:

The height presents a problem for air conditioning and makes it difficult to create an atmosphere suitable for concentration and study.

Markets and other such buildings

Positive aspects:

- Central, urban location
- Availability of large spaces without internal subdivisions
- Internal heights that enable more floors to be added
- Structures suited to the load-bearing and flexibility requirements of a library
- Good, natural illumination, generally through the roof.

Schools, hospitals and convents

- These are, in many cases, located in urban areas and are provided with open spaces, sometimes cloisters and large courtyards, making outdoor activities possible.
- They are large buildings having spaces with different characteristics, many of which are perfectly adaptable to library use as archives, study rooms, etc.
- They have good natural light and the regular composition of their façades enables openings to be made to enhance certain relationships with the building's exterior.
- With regard to the volume occupied by classrooms or wards, the determining factors are the type of organization and the structural solution. Layouts with large central passages and rooms on either side enable large spaces to be opened up. In contrast, organizations with lateral passageways, separated from the rooms by structural walls, create elongated spaces which are difficult to convert.

Industrial buildings

Positive aspects:

- They are buildings intended to be used simultaneously by many people.
- They cover large areas without changes in level.
- Internal heights are such that more floors can be added.
- Structures suited to the load-bearing and flexibility requirements of a library.
- Façades and roofs with large apertures allowing the flow of natural light.
- Technical installations that lend themselves to conversion such as goods lifts and air conditioning.

Disadvantages:

- Fire regulations often require the cast-iron columns many of these buildings have to be covered with the consequent loss of one of their most attractive features.



1. Carpets can hinder flexibility – West Ryde Public Library with and without carpets

Photos: Cecilia Kugler

2. Circulation Desk – West Ryde





3. ACU lobby before

ACU lobby after





4. Children's Area – West Ryde



5. Youth Area – West Ryde

Illustrations to Chapter 10



6. Attractive and inviting lounge area – West Ryde

7. Signage and way finding – simple solutions





1. District Library
from the outside

District 6 Public Library –
Terrassa, Barcelona, Spain
Architects: Màrius Quintana
and Joan Àrias, 2006.

*Photo: Ignasi Bonet and Toni
Espadas*



2. Seating



3. Childrens' Area

4. The library building

Jaume Fuster Public Library – Barcelona, Spain.
Architects: Josep Llinàs and Joan Vera, 2005.
Photo: Rafa Zuza (CDI – COAC) and Santi Romero



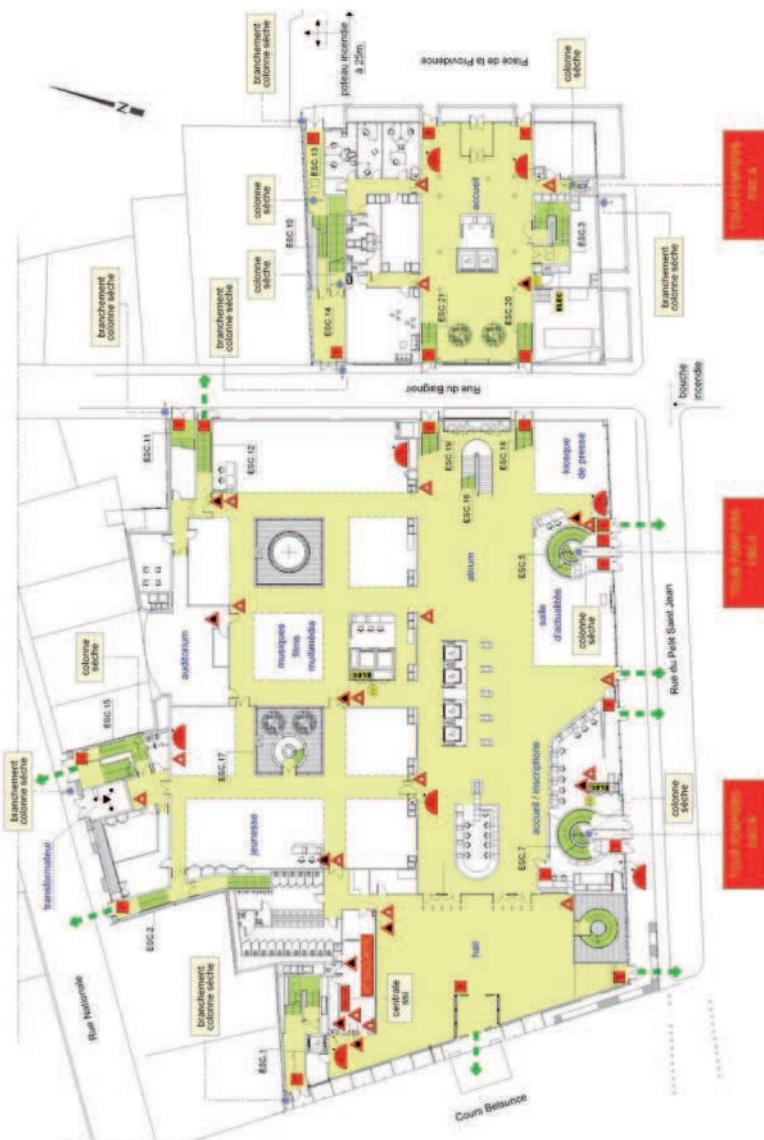


5. Reading Hall

6. ICT-area



National Standards – France. Introduction by Marie-Francoise Bisbrouck, Paris, France
Alcazar Public Library, Marseille Libraries, France, 2005.
Architects: Adrien Fainsilber et Didier Rogeon.



1. Alcazar Public Library – Ground Floor

Illustrations to Appendices



2. Alcazar Public Library – First Floor



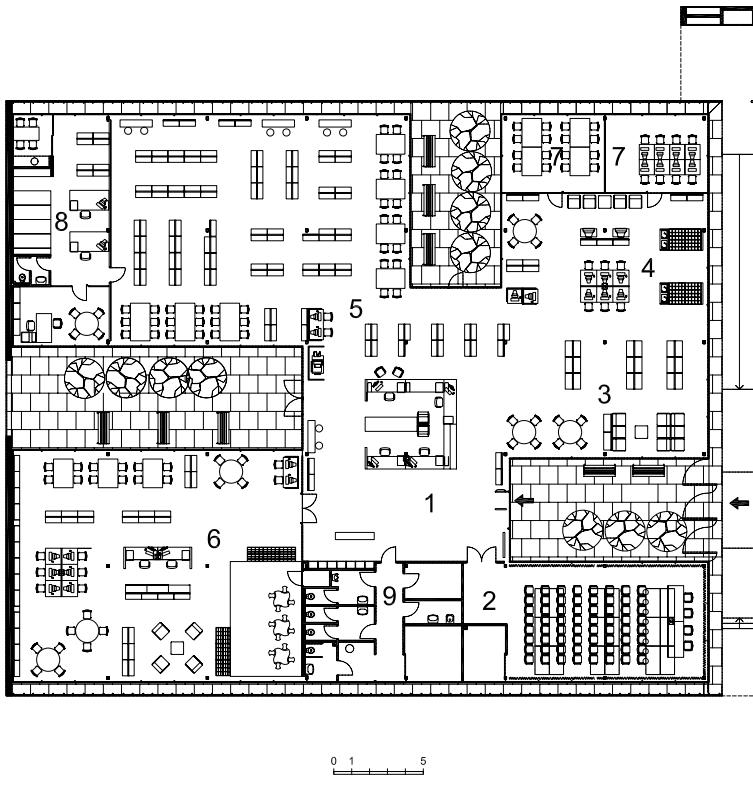
3. Alcazar Public Library – Second Floor

Illustrations to Appendices



4. Alcazar Public Library – Third Floor

National Standards – Barcelona Province, Spain – Santi Romero



Ground Floor

- 1 Vestibule
- 2 Multi-purpose room
- 3 Periodicals area
- 4 Music and image space
- 5 Information and general collection area
- 6 Children's area
- 7 Support space
- 8 Internal work area
- 9 Toilets

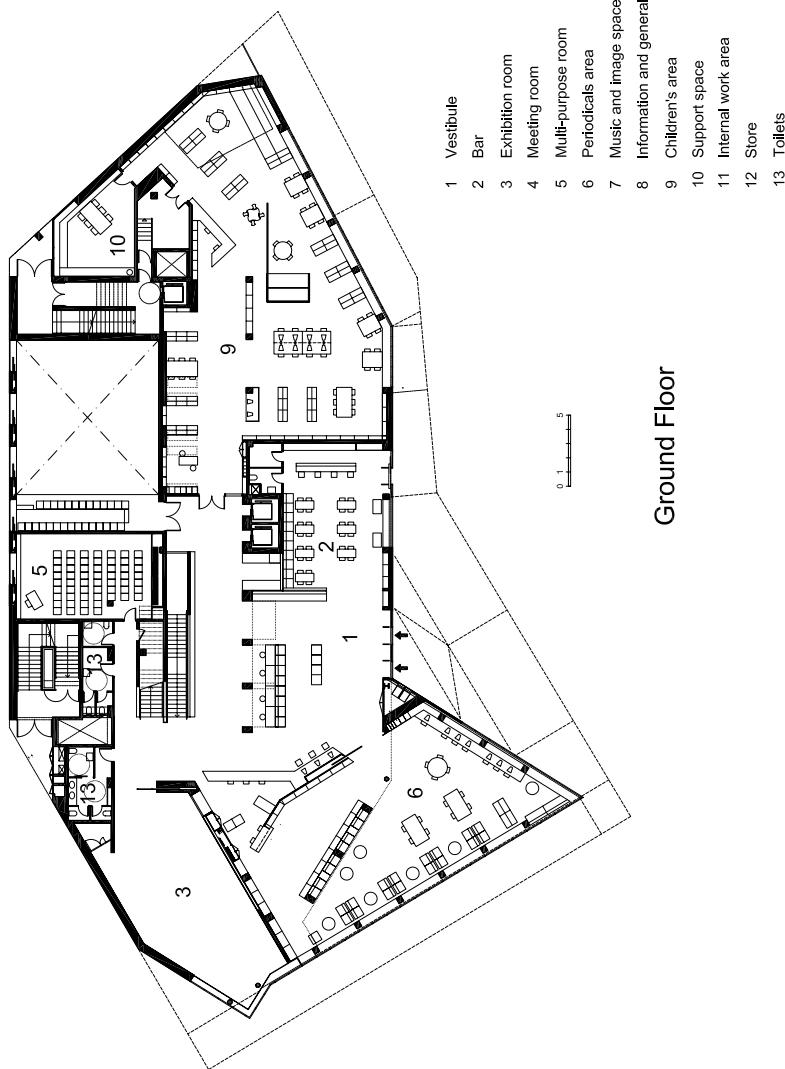
District 6 Public Library – Terrassa, Barcelona, Spain, 2006.

Architects: Màrius Quintana and Joan Àrias.

Useful library area: 1,001 m², built area: 1,223 m².

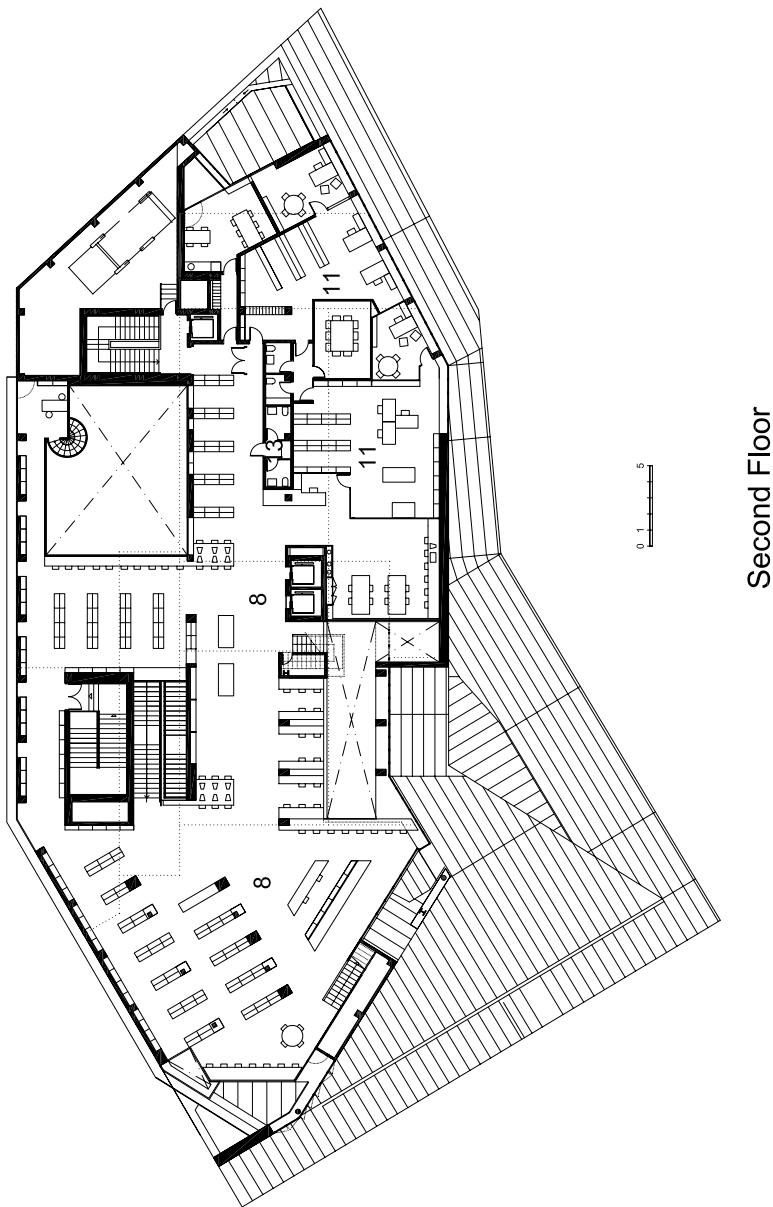
Contact: bibliotecadistricte6@terrassa.cat. www.terrassa.cat/biblioteques.

Jaume Fuster Public Library - Barcelona (Spain)



Jaume Fuster Public Library – Barcelona (SPAIN), 2005.
Architects: Josep Llinàs and Joan Vera.
Useful library area: 4,268 m², built area: Library: 5,217 m².
Contact: b.barcelona.jf@diba.cat. www.bcn.es/biblioteques/.

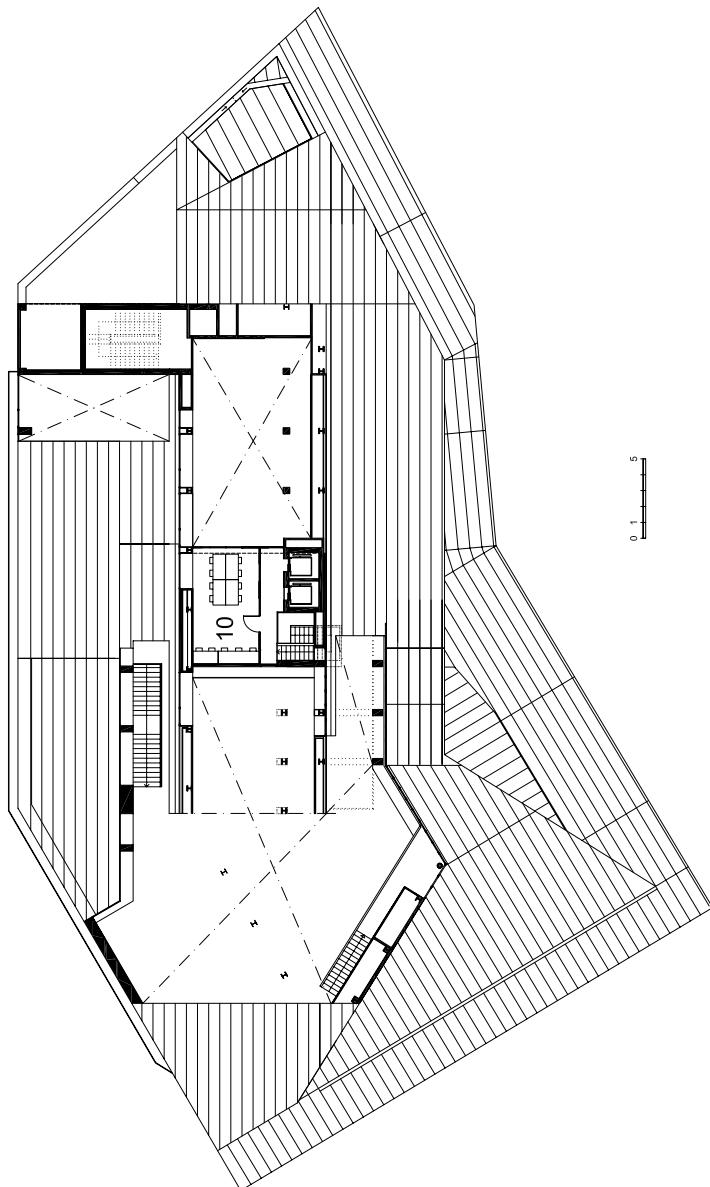
Jaume Fuster Public Library - Barcelona (Spain)



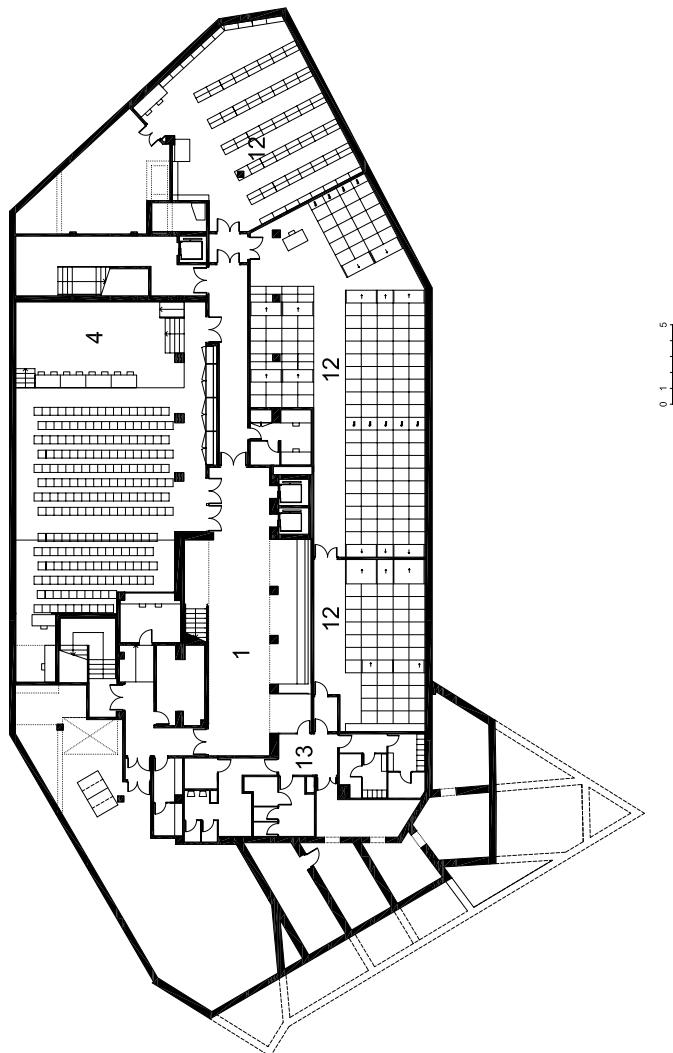
Second Floor

Jaume Fuster Public Library - Barcelona (Spain)

Third Floor



Jaume Fuster Public Library - Barcelona (Spain)



Basement

Family houses

- In general these are buildings that cover little area and they have fragmented spaces distributed over two or three floors.
- They may be suitable for specialised libraries with few visitors.
- Nevertheless, they present problems of circulation, access and staff monitoring.

WORKING METHODOLOGY

When plans are being made to convert a heritage building into a library, it is advisable to analyse all the historic, architectural, technical and financial aspects to evaluate the scope of the intervention. This information will provide an overall view that will make it easier to decide on the kind of intervention and apply financial rigour.

The diversity of factors makes it difficult to define a working methodology. Nevertheless, the evaluation of the issues involved should include the following stages:

- Definition of the aims of the new facilities
- Detailed study of the building
- Diagnosis.

Definition of the aims of the new facilities

The drawing up of a qualitative and quantitative library programme without considering the characteristics of the building to be converted.

Detailed study of the building

A heritage building needs to be viewed in two ways: as a historic document and as an architectural object.

Preliminary research:

- Location and basic features regarding accessibility
- General state of conservation and most characteristic features

- Possibilities for adaptation to the library programme
- Analysis of the legal issues concerning the building as a historic monument and the regulations concerning the possibilities for conversion (extension, addition of floors, incorporation of openings, etc.).

Historical and archaeological analysis:

- Chronology of the various construction phases
- The logic of the construction used during each intervention, be it as a consequence of structural defects or of conversion for new uses
- Determining the elements to be conserved.

Physical examination:

Architectural characteristics:

- Available area
- Dimensions of the main spaces and their location on the various levels of the building
- Free height between floor-slabs
- Horizontal and vertical accessibility
- Problems concerning the choice of the installations necessary for the new use (lighting, heating, lavatories, complying with fire regulations, etc.).

Construction characteristics:

- Façades and roof
- Foundations, floor-slabs, load-bearing walls and structure, with a calculation of acceptable live-load
- Infrastructures and facilities
- Building materials and finishes.

Diagnosis

- Comparative study of the requirements specified for the new facility and the building's possibilities for conversion.
- Evaluation of the complexity of different types of intervention.
- Approximate cost of the intervention.

TO CONCLUDE

Conversion can be recommended when the following factors are present:

- Satisfactory location
- Typology of building suited to the new use
- Area available enables the programme to be put into effect over few levels
- Favourable diagnosis on the state of the building, its capacity for conversion, and the urban, architectural and social interest of the reuse
- Professionals specialised in the various disciplines
- Appropriate budget.

Even so, sometimes the decision is made to convert unsuitable buildings. This is generally for two reasons:

- Lack of building space.
- Political and social will. The facts on the ground are a determining factor in evaluating the heritage interest and viability of the project.

Sometimes, librarians tend to focus their attention on the shortcomings of the new facilities without making an allowance for the compromises necessary for the conservation and adaptation of the building.

It is inadvisable to give priority to considerations of historical conservation in preference to requirements concerning the organization of space but this is not always possible if the building is a protected structure.

In this kind of intervention it is not realistic to expect the same level of efficiency as would be expected from a new building. No matter how much a building is transformed, the result is never optimally organised and dimensioned spaces. It is not the building that has to adapt to the new functions but the new functions that have to be compatible with the existing building.

When the decision is made to convert a heritage building, the architect should enjoy creative freedom. The architectural and historical reasoning employed in the design of the project will provide a range of solutions from imitative reconstruction to a contemporary intervention using modern methods and techniques. This will give new life and significance to the heritage building.

Further reading and references

- Benedito, Josep; Orteu, Santi. "Solucions arquitectòniques per al disseny d'arxius". *Lligall: Revista Catalana d'Arxivística*, num. 20 (2003), p. 27–34.
- Gonzàlez Moreno-Navarro, Josep-Lluís; Casals Balagué, Albert; Falcones de Sierra, Alejandro. *Les claus per a construir l'arquitectura*. Barcelona: Generalitat de Catalunya: Gustavo Gili, 1997
- Isasi, Justo, "Lecturas canónicas. Tres bibliotecas de maestros: Estocolmo, Viipuri y Exeter". *Arquitectura Viva*, num. 63 (1998), p. 28–33.
- Libraries as places: buildings for the 21st century: proceedings of the Thirteenth Seminar of IFLA's Library Buildings and Equipment Section together with IFLA's Public Libraries Section*. Edited by Marie-Françoise Bisbrouck ... [et al.]. München: Saur, 2004.
- Muñoz Cosme, Alfonso, "Colecciones y conexiones. El espacio de la biblioteca a través de la historia". *Arquitectura Viva*, num. 63 (1998), p. 20–27.
- Muñoz Cosme, Alfonso. *Los espacios del saber. Historia de la arquitectura de las bibliotecas*. Gijón: Trea, 2004.
- Recull d'informació bàsica. Equipament bibliotecari*. Barcelona: Diputació de Barcelona. Oficina Tècnica de Cooperació, 1994.
- Romero, Santi. *La Arquitectura de la Biblioteca. Recomendaciones para un proyecto integral*. 2a ed. Barcelona: Col·legi d'Arquitectes de Catalunya, 2003.
- Vidulli, Paola. *Diseño de bibliotecas. Guía para planificar y proyectar bibliotecas públicas*. Gijón: Trea, 1998.

15. SITE & LOCATION

Hellen Niegaard, Chief consultant,
The Danish Library Association, Copenhagen, Denmark

The geographical location and the site of the library premises as well as the resolution of access are crucial to the attraction and success of the library and can not be underestimated when planning a new library building. Access and accessibility are fundamentals of any library.

The library as a building type is many thousands of years old and valued as one of society's central buildings. Despite the current change in concept from the traditional book library into the combined physical and virtual (digital) library of the 21st century, the geographical location of the physical library premises is still crucial to the attraction and success of the library.

The main considerations when selecting the site for a library are almost always twofold. The need for a central location has to be balanced with need for adequate space. A central location will provide high visibility in the local area or on the campus which it will serve and is, like significant architecture, invaluable in marketing the library to both users and non-users alike. Furthermore the renewed interest in the library as a meeting place means a central and pleasant location in its community is more important than ever for the library of today.

Another important consideration for a library which is a public building serving all its members without discrimination is that the site should be conducive to architectural openness, easy access and the provision of an efficient service.

The choice of location and site is influenced by the need to have enough internal and external space as well as attractive surroundings.

General considerations

The starting point for any new library project is often when the need for more, or new, space is recognised by the public and/or library stakeholders – or when authorities need the premises for other purposes. At this stage a rough space estimate is needed (see Dahlgren Chapter). This will then feed into a proper building programme for the proposed library building based on the overall vision and current strategy for providing library services.

Once the space required has been estimated, or at the latest when the building programme has established the kind and amount of space needed, selection of the site may begin. The approach described here relates to a major public or university library but may be adapted to any library type.

The ideal situation is, of course, when there are no restrictions and the choice of site is entirely open so that the optimal location within the area to be served can be chosen. Very often, however, the choice of site is predetermined but the following considerations and recommendations may still provide guidance on points to be taken into account at this early but crucial stage.

Specific “city-planner” considerations

Locating a new public library in the city centre often ties in with the goal of politicians and city planners to provide a livelier and more positive environment in city centres which may become empty and deserted outside normal work hours. There are several reasons for this as also stated in earlier chapter by Romero.

Public libraries function as public meeting places and houses of information and culture. Cities remain the great demographic magnets of our time because they provide employment and are the seedbeds of our cultural development. And Gemzøe and Gehl (2004) in trying to identify the essence of the city as a phenomenon state that “Cities are complex centres of communication, learning and commercial enterprises; they house huge concentrations of families; they focus and condense physical, intellectual and creative energy. They are places of

hugely diversified activities and functions: exhibitions and demonstrations, bars and cathedrals, shops and opera houses.” Libraries should, therefore, be found in the very heart of any city and not somewhere in the outskirts.

As Edwards (2002) stresses: “Libraries are part of the civic infrastructure of towns. Aristotle defined a city as a collection of buildings where “men live a common life for a noble end” and no building embodies this ideal better than the library. The library has a key role to play in realization of the “common life” – socially, economically and culturally. Placed in this context, the library becomes part of the web of civic facilities embracing education, art, administration, justice and sport. The library is an important element in the ensemble because it addresses access to knowledge and wisdom; its natural neighbours are the art gallery, college and town hall.”

A central location on campus is equally important to a university library. In short, libraries may create a much desired lively and attractive city/campus environment though sometimes a central position may be sacrificed in order to gain more space in a less favourable location.

A central location

As the location of libraries reflects the position and role of libraries in society, it is of vital significance for the library’s contact with all potential users, that it is not located in an isolated or a “hidden” position, according to Danish recommendations of 1984. A library in the city centre will always have the largest footfall because it will be visited both by the local population and by visitors passing through the city on a daily basis.

The decentralised location

It is often not possible to obtain large enough sites in the city centre which leaves no other choice than to go for a location on the fringes of the city. This might, however, have one advantage for large-scale library buildings as it may be possible to go for a larger footprint requiring fewer floors and enabling the design of more spacious facilities than might be the case when building in the heart of a city.

Co-locations

A substantial number of libraries have over past decades been built in conjunction with other cultural institutions such as local museums, galleries, cinemas etc. And this is again a trend, certainly in Denmark, as it brings advantages such as the sharing of meeting and ICT facilities, joint caretaking and maintenance functions as well as having a greater impact from a marketing perspective.

There have been several interesting approaches recently in Helsinki city centre in Finland. One is *Library 10*, a state-of-the-art library opened in 2005 which acts as a living room and cultural and information centre open to all. The library is situated in the main post office building in the heart of Helsinki between the railway station and Mannerheimintie, the capital's main thoroughfare. It is a location thousands of people walk past every day on their way to and from work. And around 4,000 people drop by every day. Another is *Arabianranta Library* established in 2004 – a branch library in the centre of Helsinki and in the same building as the university library demonstrating the growing closer cooperation between public and research libraries.

Many public libraries – main libraries and branches – are located in shopping malls; the advantage of such a location is that it is a good way to market the library to non-users. The success of the Idea Store model from Tower Hamlets, London indicates that such a location, combined with a less traditional library design and more retail-based interior, does reach out to the community and is capable of attracting non-users in big numbers.

The integrated library

The public library combined with the school library at the local school premises has been considered outdated by library professionals for many years as the school aspects seemed to “overrule” public library service initiatives. However, there is a new trend in Denmark. *Combi Libraries* with joint services actually integrated and situated in a common building, centrally located in local communities – in rural or suburban areas. A prerequisite for that kind of institution is a shared vision and shared targets and strategies according to Buchhave (2006) in order to make a real difference and make $1 + 1 = 3$. Buchhave also finds that the

integrated library does not necessarily confine itself to collaboration between public and school libraries – many more institutions can be considered. “For example via small library satellites in shops, sport centres, railway stations etc.”

An independent, free-standing location is however a preferred solution for many libraries both large and small. The reason for this is that it ensures greater visibility, offers a better sense of identity and provides space for expansion or building in phases, as underlined by Michael Dewe (2006).

BASICS

The most effective location for a public library will be one that takes into account where people are to be found in the community, how they move around, and the character of the surrounding built environment, both existing and planned, according to Michael Dewe (2006). The same might be said about the university library in relation to the campus.

Once all sites of an appropriate size have been identified, they must be weighed against each other using a number of criteria relating to the future positioning of the library building. Of those criteria, a number are fundamental. These are:

Visibility of the library itself

If possible the building should stand alone rather than be surrounded by neighbouring buildings. The exception to this would be when the library is part of a multipurpose complex which might include for instance the city hall or a cultural centre, a museum, a cinema, learning facilities etc.

There are sound reasons why we see ever more glass-walled new library buildings. With the new type of self-cleaning glass it should be possible to see inside the building from outside and there should also be a good outlook from the interior – thus using the library activities themselves as marketing devices and inviting passers-by to come inside.

Accessibility considerations

Either distance from the urban centre or distance from the primary user group can be defined as the market area, which according to Coughlin (1972) ranges from 0.6 – 2.0 km for children, from 0.9 – 2.4 km for youth and from 0.8 – 3.0 km for adults when planning branches. For main (city) libraries and for university libraries closeness to the natural centre is essential, according to Edwards (2002), stipulating, “A good location is one which integrates the library into the civic and cultural life of the town or municipality”.

Any library should be centrally located allowing equal access to the library services for all potential users groups from a geographic as well as a demographic point of view. And it should promote real interaction with the surrounding environment including easy access for disabled users.

Easy access should be available for all users whether they are coming by bicycle, car and public transportation or walking as well as meeting the special needs of the disabled, elderly, young children and parents with children. Michael Dewe (2006) stresses that access for the disabled is not limited to the building itself but also “physical barriers, such as a busy road, even where tunnels, bridges and crossings are provided, may deter users from visiting the library”.

Exterior spaces

Sufficient exterior space is an important factor. Parking lots for the public, 1 per 50–100 sq metres, depending on access to public transport and other local facilities. Free space (+15–25%) for purposes such as establishing access and ramps for deliveries, book mobiles etc., waste disposal facilities and bicycle-parking for staff.

Landscaping – the relationship between the building and its surroundings should be harmonious. Often the library space is extended to the city space itself by adjoining squares, parks or green areas.

Future oriented location

The chosen site should of course offer sufficient and better space for current services and future extensions. Danish recommendations suggest +60–70% pos-

15. Site & Location

sible extension (Biblioteksbygningen, 1984); which would be reasonable for a new building in the suburbs but which seem rather unrealistic in city centres.

How to proceed: checklists

Various library manuals and publications provide advice about the phases of library planning including site selection. One such which is suitable for large or small projects and, although aimed at public library buildings, is also of relevance for academic libraries, is the American Library Association's "Checklist of Library Building Design Considerations" (Sannwald 2001). It also includes aspects such as cost efficiency. Some of the general guidelines given are:

- A. Is the site appropriate for a library given its function and clientele?
- B. Is the site conveniently located to the population served by the library?
- C. Are there existing structures on the site that must be demolished?
- D. Will the site provide visibility of the building and its function from the street?
- E. Will the site provide adequate traffic flow and safe access for all vehicles plus pedestrians?
- F. Will a library be an appropriate use of the land parcel in question?
- G. Are there liabilities or nuisance factors to adjacent properties and their activities?

Further reading and references

Berndtson, Maija (2005): A new physical library in Finland – p. 4–5 in Nordic Libraries and their organisations in the 21st Century, Danmarks Biblioteksforening in cooperation with the Nordic Library Organisations

Biblioteksbygning (1984). En vejledning udgivet af Bibliotekstilsynet. Bibliotekcentralens Forlag, Danmark

Buchhave, Bente (2006): New Perspectives for the merging of public and school library, – p. 20–23, Scandinavian Public Library Quarterly (SPLQ) 1.

Coughlin, Robert E. (1972): Urban analysis for branch library system planning.
(Contributions in librarianship and information science. 1), Greenwood Press

Dewe, Michael (2006): Planning public library buildings: concepts and issues for the librarian. Ashgate, Hampshire

Hellen Niegaard

Edwards, Brian with Biddy Fisher (2002) Libraries and learning resource centres,
Architectural Press, Oxford

Gehl, Jan and Lars Gemzøe (2004): Public Spaces – public life; Copenhagen Danish
Architectural Press, Copenhagen

Sannwald,W ed (2001) Checklist of Library Building Design Considerations. 4th ed. ALA,
Chicag

16. WHAT TO LOOK FOR: A CHECK LIST FOR VISITING LIBRARY BUILDINGS

Marie-Françoise Bisbrouck, Director of the Library,
University Paris-Sorbonne, France

Visiting other libraries is a central part of any new library building project in order to gain inspiration and to learn from the successes and failures of others.

Areas to focus on include:

- the organization of the collections and the public spaces,
- the flow of both users and materials housed in the building,
- the organization of staff areas,
- the architectural treatment of the building, including general environmental factors (volumes, comfort, lighting, ventilation, use of colour etc.),
- estimation of required areas and volumes for each space or function,
- the different types of furniture and their adequacy with regard to required functions
- solutions, tricks and practical hints obtained from the profession or colleagues, to ease potential sticking points

Prior to the visit prepare a check-list to ensure that nothing is left out (such as one's tape measure!).

It is important to reflect on general impressions gained during the visit, and to remain constantly alert; keep the exercise "active" by posing numerous questions, rather than simply being "along for the ride". In most cases, there will be no chance of a repeat visit to the building so make absolutely sure enough time is allocated for the visit in the first place.

It is also essential that any complete and in-depth visit to a building includes note-taking, and the photographing of general and detailed views, in order to provide a precise record of what was seen. Moreover, it is often useful not to visit alone but to go with one or two colleagues: no two people ever see pre-

cisely the same thing as each has his or her own way of viewing things and observing details that another might miss.

Finally, it is important at all times to try and adopt the viewpoint of the user (or rather the various types of users), and also of the library staff (and even the collections!), in order to understand fully the likely operation of the site, and any potential errors or dysfunctions.

General considerations

- Status of the library: municipal/ academic/ other?
- Type of project: construction/ extension and restructuring of an existing building/ remodelling?
- Owner: state/region/local authority/university board/other?
- Name of architect(s)
- Projected date on which library staff move into the building
- Opening hours of library and possible existence of a reduced-service operation at certain times (in particular, early morning or late evening)
- What types of public will be frequenting the building?
- Location of library: within the city or on an academic campus/ proximity of public transport/ sited on heavily used routes used by the public/does the building “proclaim its vocation”?
- Is the building dedicated solely to library-use or will it be shared with other users (museum, archives, town hall, theatre, cultural centre, learning establishment etc.)? If it is shared between multiple uses, is the library entrance easy to find?
- Architectural insertion of the building within its environment
- Is the library visible from the outside (public entrance, façades, lighting, signage leading directly to the building entrance)?
- Is building very visible at night (special lighting)?
- How does the building present itself from the outside: is it a “flagship” in the city or on the campus? Description of façades: ratio of full to glazed bays? Quality of façades? General aesthetics? Dimensions of the building with regard to the immediate environment?

- Is it possible from the outside to detect even a partial idea of what the building may house? Is there a certain legibility concerning the various functions?
- General geographical disposition of the building, sunlight, green spaces.
- Surface area of the library, and layout by functions and groups of functions (public services, internal departments, stores etc.); respective sizes of useful areas and circulation.
- Total number of floors? Number of floors for the public/for the staff/for storage?
- Number of reading rooms/ open access collections (in linear metres or in volumes)/ collections held in store (in lm or in volumes)? Available room for collections upon opening of building to the public? Growth-potential?
- Proximity of parking (cars, bicycles...)

Library public areas

Organization of spaces and collections:

- Public entrance and lobby: how are they treated? Are volumes, colours and surface areas welcoming and attractive? Do they ensure immediate orientation within the building, and comfortable siting of the various areas? Is there provision for public racks for clothes or belongings (motorcycle helmets, sports-bags etc.)?
- Positioning of staff workstations: reception, borrower service desks, information desks, reader-assistance etc.; staff mobility, corridors, passageways and access to internal departments and stores?
- Is there provision for self service machines? How are they positioned in the areas (grouped at the exit or dispersed around several areas?). Did the installation require inclusion of a conveyor system to transfer returned material back to the book stacks?
- Siting of antitheft system? Mode of surveillance available to library staff?
- Computerised access to library catalogue: number and location of computers?
- Access to databases? Dedicated computers? Internet café?

- Organization of open-access collections: ratio of open-access collections to overall resources of the library? Collections comprising a “mix” of different types, or classified by major media types? Display of periodicals (Last issue only? Last year only? All years?); Storage of special documents (maps, plans, drawings, audiovisuals etc.); Room/areas provided for on-line access? If so how arranged? Existence of computer workspace? Language laboratories? Exhibition space? Conference room? Open-access stores? Existence of special collections requiring specific services or spaces (theses, manuscripts, medals, numismatics etc.).
- Special attention should be paid to IT facilities – number of screens, location (centralised or dispersed), presence of dedicated user-support staff; means of consultation (standing, seated); collective or individual use; accessibility of printing etc.
- Organization of reading spaces: workrooms in traditional reading rooms? Individual rooms (in closed carrels? Dispersed around the public areas?), Reading lounge? Workrooms for groups? Organization of open-access collections within reading spaces?
- Existence of amenities: areas comprising armchairs, coffee tables, cushions; cafeteria? Bookshop? Possible disturbance sources (noise, waste etc.)
- Organization of spaces according to potential noise generated by public activities?
- Organization of public circulation: staircases enclosed or open, escalators, elevators. Good legibility for public circulation? Does staff circulation bisect public circulation? Disturbance due to noise?
- Location of photocopiers, printers: are they grouped or located in various spaces/areas? Are they well isolated acoustically? Are they well ventilated, either naturally or by mechanical means?
- Disabled access: is it comfortable, harmoniously integrated into general circulation of rest of public?

User comfort

- General legibility of public spaces with regard to other areas? Will users know easily where they are?

16. What to Look for: A Check List for Visiting Library Buildings

- Are ceiling heights compatible with the surface areas of the various spaces?
- What are the overall impressions afforded? Pleasant spaces? Good use of areas and spaces? Areas having little relation to intended functions? Hijacking of areas for uses other than those intended?
- Is furniture in harmony with the various areas and spaces? Is it ergonomic? Is it comfortable? Is it aesthetically pleasing? Does it allow various types of use – group-working, individual work, relaxation, discussion, meetings? Do choice and positioning of furniture promote user-friendliness/comfort?
- Is signage clear and legible (general signage and local signage including to the collections)?
- Do users have access to a cafeteria? A fast-food outlet? A smoking area? Rest areas?
- Are toilet and cloakroom layouts suitable?
- Are areas for various other activities suitable?
- Quality of lighting: natural lighting/ artificial lighting?

Circulation and internal staff areas

Circulation

- Specific entrance for the library staff? For collections and supplies?
- Routing of deliveries (supplies, documents, materials etc.) within the building. Location with regard to staff work areas?
- Transfer of materials to reading rooms (by trolleys/conveyors/elevators/goods lift/booklift/staircase?)
- Proximity or otherwise of certain book-processing areas to reading spaces or stores?
- Layout of technical and scientific staff workspace (on one or several levels?)

Work-organization

- General organization of internal spaces: split or combined offices? For which functions? Number of floors? Links to intended public spaces?

- Siting and organization of library management and administration services
- Siting of the receiving and sorting room: documents, mail, materials, supplies etc.
- Organization of the collection processing chain: by type of documents (books, periodicals? etc.), common to all documents?
- Organization of cataloguing: pooled or individual offices?
- Shared office policy?
- Processing of documents (antitheft, loans etc.)
- Repair of documents, preparation of documents for outside bookbinding
- Exhibition preparation area?
- Does the library have various storage rooms for furniture, supplies, boxes, display boards, cleaning materials & equipment?
- Are the surface areas intended for various activities suitable?
- Availability of meeting spaces?

Staff comfort

- General human-factors aspects of the premises
- Furnishings, fixtures and equipment
- Sanitary fit-out (toilets, showers, cloakrooms)
- Kitchen and rest-room
- Meeting room, staff training room, professional library spaces,

Storage facilities

- Open-access stores: for what types of collections? Siting with regard to reference areas?
- Closed stores, not accessible to the public? Special protection for certain collections?
- Storage organised over how many floors?
- Check ceiling heights, width of circulation areas,
- Type of shelving: free-standing? Mobile? Constant spacing? Height standard or to measure? Full-height stores (special construction above 3m), automated/computerised storage?

16. What to Look for: A Check List for Visiting Library Buildings

- Collection transfer means between stores and reference areas: trolleys /staircases/ conveyors/ lift / service lift / booklift?
- Layout of circulation in stores: outside of stores/legibility/easy access?
- Fire-prevention means: sprinklers/ smoke detectors/other?
- Central or area lighting? Existence of detectors for automatic lighting by zone?
- Signage for collections in stores

Building techniques

- Understanding load bearing factors of buildings (locating of walls, posts/columns)
- Natural lighting, artificial lighting (background lighting and area lighting, lighting-control etc.); lighting of building over night?
- Heating, ventilation, air-conditioning: climatic quality of environment
- Are floor/wall/ceiling coverings suitable?
- Quality of sanitary tapwork
- Acoustic quality of the building: with regard to external environment; inside of building (intra-public-service areas, intra-internal departments, between public services and internal departments etc.)
- Electrical installation: power sockets for cleaners; extensive computer connections; audio-visual equipment power sockets
- Wiring of building; wifi support,
- Security of collections: antitheft protection system, emergency exits connected to fire detection & sprinkler systems etc.
- Personnel security: treatment of emergency exits, alarm system, fire safety, special security measures in the event of late-opening of building etc.
- Centralised building management system?

Other aspects

- What provisions for cleaning of façades? Full bays? Glazed bays?
- What provisions for extension of the building?

Summary: general impression at end of visit

Your overall impression: select three or four more-positive points and three or four less-positive points concerning the visited building, from the different aspects of visibility, accessibility, diversity, organization, flexibility, comfort and other human-factors, safety and ... aesthetics!

APPENDICES

NATIONAL STANDARDS – INTRODUCTION

Library representatives from several IFLA member states have time and time again asked IFLA's Building Section for standards on library buildings. Examples from France and Spain including plans (see photo section) are given here for guidance and inspiration.

Note that the standards from Spain refer to the Province of Barcelona, regional standards of Cataluna and Murcia are available as a pdf-file at http://travesia.mcu.es/documentos/pautas_servicios.pdf (seen 2007).

It should also be noted that DIN (Deutsches Institut für Normung) in Berlin is updating its Fachbericht 13 on standards for research library buildings. It was last revised in 1998.

The ongoing revision will include standards for public library buildings as well. The revision is expected to be carried out within a year or two. The intention is to have the standards ISO-certified later.

To obtain current and future DIN-standards, see <http://www2.din.de/>.

THE NOTION OF “STANDARD SURFACE AREA” AND CONSTRUCTION OF FRENCH LIBRARIES

Marie-Françoise Bisbrouck, December 2006

There is no obligation in France to provide libraries for the inhabitants of any municipal structure; and while no-one contests the advantage of having a library for the students of a university, there are, on the other hand, no standards relating to the number of documents held, the number of reading places provided, or the size of areas for a given student population.

Furthermore, France does not have any real construction standards for its libraries, whether public or academic, such as might be obligatory and enforceable by any local authority or institution wanting to build or renovate a library.

All that exist are “recommendations”, conceived for academic libraries, in 1993 (Bisbrouck 1993) and slightly remodelled in 2000 after an assessment campaign involving close on 10 years’ worth of building construction experience (Bisbrouck 1992-2000). For public libraries, similar “recommendations” were promulgated in 1975, and confirmed and developed in 1983, and again in 1996 (Grunberg 1996). Thus, the recommendations in terms of university printed collections are for a minimum of 150,000 volumes (which is derisory), and for reading places, a total of one per 10 students, or better still, one for every five or six students, the surface-area recommendation being 1.50m^2 per student. It should be noted that a figure of even one square metre per student is very rarely achieved, such that the national average stands at around 0.70m^2 per student. This figure today appears difficult to increase despite the large number of construction projects undertaken since the beginning of the last decade (itself due to the very high growth in student numbers over the same period).

As regards local authority libraries, the recommendation is for a minimum useful area of 0.1m^2 irrespective of the population, and 0.009 reading places per capita for towns of less than 20,000 inhabitants, and 0.007 reading places per

capita for towns greater than 20,000 inhabitants, central libraries and branch libraries on the one hand, with no distinction being made between adult sections and children’s sections.

For both types of libraries, the stated “recommendations” or “requirements” were promulgated by the respective central administrations (Ministry of Culture for public libraries, and Ministry of Education for academic libraries), there never having been any desire to transform them into obligations for the respective local authorities or institutions.

The recommendations relating to surface areas to be incorporated into the programming of various parts of new library buildings do not differ very much between municipal libraries (excluding children’s libraries) and academic libraries. The following table shows those used for academic libraries, including the modifications applied in 2000 in the light of recommendations submitted by the “Evaluation of New Buildings” working group.

Type of area	Useful area per unit	NOTES	% of circulation to add to useful area
RECEPTION AREAS Public Section ➤ Lobby ➤ Toilets Staff Section ➤ Information desk ➤ Circulation desk	5% of the public-accessible space 3.5 m ² per toilet 15 m ² per workstation 15 to 20 m ² per workstation	Accessible public spaces = documentation + reading places + toilets. For libraries with less than 1.200 places, the figure is generally nearer 1 m ² for 3 reading places 1 toilet for 60 workstations (including handicapped toilets) This indicator is variable depending on the organisation This indicator is variable depending on the organisation	+ 25%
EXHIBITION SPACE	60 m ² minimum	Depends on size of library	+ 25%
CONFERENCE SPACE	Depends on university equipment		+ 25%
REFERENCE AREAS Reading places ➤ Single reading station ➤ Reading places with a computer station ➤ Individual work booth (carrel) ➤ Reading places with audio-visual equipment ➤ Reading places for large-format documents ➤ Group work area	2.70 m ² per person (average) 3.50 m ² per person (average) 4.30 m ² per person 4 m ² per person (average) 3.50 m ² per person (average) 2 m ² per person	Circulation between tables = 0.80 useful m in each direction (excluding chair footprints) 2.50 m ² per person for 4 opposite-facing places; 3. 40 m ² per person for 2 opposite-facing places Worksurface dimensions: 1m x 0.70m 3.15 m ² per person for 4 opposite-facing places; 3.85 m ² per person for 2 opposite-facing places Worksurface dimensions: 1. 25 m x 0.70 m Desktop = 1.50 m x 0.80 m. Door giving on to circulation 3.70 m ² per person for 4 opposite-facing places; 4.40 m ² per person for 2 opposite-facing places Worksurface dimensions: 1.30 m x 0.82 m 3.40m ² per person for 4 opposite-facing places; 4.20 m ² per person for 2 opposite-facing places Worksurface dimensions: 1.20 m x 0.90 m. Room without documents	+ 25% on average Adjust to + 35% or + 40% for very small spaces (group, workstations, carrels, photocopy areas)

Free-access documentation	<i>Titles</i>			+ 25% on average	
	> Free access for most commonly consulted documents	3.5 to 4 lm/m ²	25 items per lm: 5 to 6 shelves per shelving unit; circulation between shelving: 1.80 m		
	Area for 10,000 items	107 m ²			
	Number of items per m ²	88 to 100 documents			
	> Free access for least commonly accessed documents and free-access stores	5.5 to 6 lm/m ²	30 items per lm; 5 to 6 shelves per shelving unit; circulation between shelving: 1 m		
	Area for 10,000 items	58 m ²			
	Number of items per m ²	165 to 180			
	<i>Bound periodicals</i>				
	> free access for most commonly consulted documents	See "Titles"	1 year's subscription = 4 titles on average (but depends on discipline in question)		
	> free access for least commonly accessed documents and free-access stores	See "Titles"		+ 25% on average	
Grouped periodicals	<i>Grouped periodicals</i>			+ 25% on average	
	> Free access for most commonly accessed documents	2 lm/m ²	Documents front-facing; 4 shelves per shelving unit; circulation between racks = 1.80 m		
	Area for 1,000 titles	125 m ²			
	Number of periodical titles per m ²	8 titles			
	> Free access for least commonly accessed documents and free-access stores	2.9 lm/m ²	Documents front-facing; 5 shelves per shelving unit; circulation between racks: 1 m		
	Area for 1,000 titles	85 m ²			
	Number of periodical titles per m ²	12 titles			

Reprography ➤ Standalone photocopier ➤ Banked photocopiers	9 m ² per photocopier 7 m ² per photocopier 4.5 m ² per place	The required number of photocopiers depends on the library's intended public(s); area per photocopier includes one side-table per machine.	+ 35% to + 40%
Virtual-information research room (teaching places)		The percentage of circulation to add to the useful area must be adjusted to 30%	+ 30%
STORES Traditional storage ➤ Area for 10,000 items ➤ Number of items per m ²	7.5 to 8 lm/m ² 36 to 38 m ² 263 to 280 volumes	35 volumes per linear metre 6 shelves on average per shelving unit; circulation = 0.75 to 0.80 ms between shelving and 1.60 m for the main circulation between groups of shelving	+ 20%
Storage on mobile shelving ➤ Area for 10,000 items ➤ Number of items by m ²	12 to 12.5 lm/m ² 23 to 24 m ² 420 to 438 volumes	6.5 shelves on average per shelving unit; 1 width-modifiable circulation of 0.90 m for 6 shelving elements	
INTERNAL DEPARTMENTS Staff work areas Common areas (meeting rooms, kitchenette, reprography area, storage room for supplies and materials, cloakrooms, toilets, showers etc.)	15 m ² per person 10 to 12 m ² per person 5 to 6 m ² per person 7 m ² per person 6 m ² per person	For library permanent staff (acquisitions, cataloguing etc.) working full-time For administrative staff (budget, personal, secretariat etc.) working full-time For part-time staff, irrespective of function within establishment Up to N = 15 staff members Beyond N = 15 staff members	+ 40% on average
PLANT ROOMS		Occupying ever-greater proportions of buildings, these areas (boiler room, ventilation, centralised building management centre, security room etc.) must be taken into account in the useful area. They may represent 5 to 10% of the useful area of a building.	+ 40%
VERY IMPORTANT RECOMMANDATION	LOADBEARING MUST BE EXACTLY THE SAME FOR ALL PUBLIC AND STAFF AREAS , FOR TRADITIONAL STORAGE AND FOR CIRCULATION : 600 KG PER SQUARE METER FOR MOBILE SHELVING, LOADBEARING MUST BE: 1.200/1.500 KG PER SQUARE METER		

References and further reading

“Building a University Library – From Design to Build”. Edited by Marie-Françoise BISBROUCK & Daniel RENOULT. – Paris : Editions du Cercle de la Librairie, 1993 (Collection Bibliothèques), 304 p. – ISBN 2-7654-0518-2.

University Libraries: Evaluation of New Buildings (1992-2000). Edited by Marie-Françoise BISBROUCK. – Paris : Ministère de l’Education nationale, Direction de l’enseignement supérieur, sous-direction des bibliothèques et de la documentation. Paris : La Documentation française, 2000, 152 p. – ISBN 2-11-004575-2

Libraries and The City: A Technical and Statutory Working Guide. Edited by Gérald GRUNBERG with the collaboration of Direction du Livre et de la Lecture. – Paris : Le Moniteur, 1996, 452 p., ISBN 2-281-12217-4

LIBRARY STANDARDS IN THE PROVINCE OF BARCELONA, SPAIN

Santi Romero, February 2007

These standards have been drawn up by the Library Service of the Diputació de Barcelona: <http://www.diba.cat/biblioteques>.

The Library Service's mission is to advise and support local councils on the creation and development of library services. To this end, the Service leads the Municipal Libraries Network of the province of Barcelona in order to provide territorial balance and quality of library service, offering equality of access for all members of the public to information, knowledge and culture.

The Diputació de Barcelona's tradition of support for libraries goes back a long way, but it was in 1989 that this mission to cooperate with and to serve the local authorities with regard to library matters acquired its greatest impetus.

The Library Service initially set standards for public libraries in the late 1980s, and since then they have undergone updating and revision. The IFLA's public library guidelines include as an appendix the standards that were used by our institution from the 1990s until 2001.

The current working version is that of December 2001.

At present, work is in progress to revise the current standards, and we hope to have new, revised, standards available by the end of 2007.

The current standards take account of our country's Library System law (1993), which makes it obligatory for all municipalities with a population of over 5,000 to have a permanent public library. Nonetheless, the standards require the provision of a permanent public library where there are more than 3,000 inhabitants.

In the case of rural areas, a mobile library service is to be provided in municipalities whose populations range from 300 to 3,000.

To summarise, the requirements are as follows:

- Municipalities with 300 to 3,000 inhabitants. Mobile library service
- Municipalities with 3,000 to 5,000 inhabitants. Permanent facility. Branch libraries.
- Municipalities with 3,000 to 30,000 inhabitants. Single facility.
- Municipalities with more than 30,000 inhabitants. Local network. The law establishes that municipalities with over 30,000 inhabitants may have a network, in accordance with their urban structure.

The current standards include parameters that define the library facility needed by a municipality, according to its population, along with the number of square metres per department, the items in the collection, the equipment, the staff, and the minimum hours of service.

The current standards were, and the new standards will be, the basis for drawing up the Library Map of the Province of Barcelona, which defines the deficits that exist in the public library system and priorities for investment, as a tool to plan and prioritise the necessary investment.

Below:

Basic Public Library Standards in the province of Barcelona and a Programme for a Public Library

Basic public library parameters

Page 1/2

	Branch library	Local library		Urban central			District central			
	municips. of 3,000 inh.	municips. of 5,000 inh.	municips. of 10,000 inh.	municips. of 20,000 inh.	municips. of 30,000 inh.	municips. of 50,000 inh.	municips. of 70,000 inh.	< 30,000 inh.	municips. of 30,000 inh.	municips. of 100,000 inh.

Documentary resources

Documentary resources initial - final	300- 450	500- 750	750-1,100	1,200-1,650	1,500-2,000	1,900-2,500	2,500-3,200	1,300-1,750	1,700-2,300	2,600-3,300
Information (reference volumes)	300- 450	500- 750	750-1,100	1,200-1,650	1,500-2,000	1,900-2,500	2,500-3,200	1,300-1,750	1,700-2,300	2,600-3,300
General (documents)	2,500-4,750	4,400-8,000	7,700-12,800	12,800-27,150	16,500-34,500	24,000-51,500	34,000-73,300	14,200-29,950	18,000-37,950	36,000-76,700
Children (documents)	900-1,700	1,600-2,750	2,750-4,500	4,400-8,000	5,500-10,500	8,600-15,000	12,000-21,000	4,700-8,800	6,000-11,250	12,000-22,000
Music (CDs)	300- 600	500-1,000	800-1,600	1,600-3,200	2,000-4,000	3,000-6,000	4,000-7,500	1,800-3,500	2,300-4,500	4,400-8,000
TOTAL	4,000-7,500	7,000-12,500	12,000-20,000	20,000-40,000	25,500-51,000	37,500-75,000	52,500-105,000	22,000-44,000	28,000-56,000	55,000-110,000
Periodicals (titles)	45-50	90-100	100-110	160-180	200-220	220-240	240-260	150-170	220-240	240-260

Note:

In municipalities where there are 2 or more libraries, the distribution of the collections by type of library may mean a reduction in the final collection of the central library of about 10%.

Urbancentral	Urbancentral
Final: -10% aprox.	Final: -10% aprox.
Local library:	Local library 1:
Initial: 10,000	Initial: 10,000
Final: 18,000	Final: 18,000
Local library 2:	Local library 2:
Initial: 10,000	Initial: 10,000
Final: 18,000	Final: 18,000

Central Comarcal	Central Comarcal
Final: -10% aprox.	Final: -10% aprox.
Local library:	Local library 1:
Initial: 10,000	Initial: 10,000
Final: 18,000	Final: 18,000
Local library 2:	Local library 2:
Initial: 10,000	Initial: 10,000
Final: 18,000	Final: 18,000

Furnishing

Reading points (*)	12	16	20	24	28	40	46	24	30	50
Periodicals area	20	30	44	52	80	106	150	52	84	176
Information and general collection area	3	4	5	6	7	8	10	6	7	10
Music and image space	14	20	26	32	36	40	44	32	38	48
TOTAL	49	70	95	114	151	194	250	114	159	284
Multi-purpose space	40	50	60	70	90	100	140	70	96	160

Computer work-stations	2	3	4	6	7	8	9	6	7	10
For public access										
Catalogue consultation	2	3	4	6	7	8	9	6	7	10
Internet	2	4	5	6	7	9	11	6	7	12
For internal use										
Work stations (administration)	3	5	7	8	10	14	16	8	10	18
Multi-mediaspace	---	---	---	5	6	7	8	5	6	10

Shelving (linear metres) (**)	209	348	558	1,115	1,422	2,091	2,927	1,227	1,564	3,067
-------------------------------	-----	-----	-----	-------	-------	-------	-------	-------	-------	-------

Displays for CDs- 225 CD/module- 60x90 cm	2	3	4	8	10	15	19	9	12	20
---	---	---	---	---	----	----	----	---	----	----

Self-loan equipment (***)	---	---	---	---	---	---	1	2	---	1	2
---------------------------	-----	-----	-----	-----	-----	-----	---	---	-----	---	---

(*) Support, multi-media and work spaces are not included.

(**) The figure is for the number of linear metres needed to house the final free-access collection. Storage requirements must also be considered.

(***) This list is for reference. At the time of establishment of the service the expected number of daily loans must be assessed.

Basic public library parameters										
 Diputació Barcelona xarxa de municipis Àrea de Cultura Sservei de Biblioteques		Page 2/2								
Revised December 2001										
Branch library	Local library	Urban central	District central							
municips. of 3,000 inh.	municips. of 5,000 inh.	municips. of 10,000 inh.	municips. of 20,000 inh.	municips. of 30,000 inh.	municips. of 50,000 inh.	municips. of 70,000 inh.	municips. of < 30,000 inh.	municips. of 30,000 inh.	municips. of 100,000 inh.	
Building (en m ²)										
Reception and promotion area										
Vestibule	40	60	80	110	140	160	250	110	150	260
Multi-purpose space	50	70	80	90	110	130	180	90	120	200
Store	10	10	10	10	15	20	20	10	20	25
Periodicals area	50	60	80	100	120	180	220	100	130	250
Information area and general collection										
Information and reference area	60	75	130	150	210	250	350	150	220	400
General collection area	80	125	220	300	490	700	1,050	300	500	1,300
Music and image space	30	50	60	70	100	140	160	70	110	200
Support spaces	---	25	40	40	60	120	120	40	60	125
Multi-media space	---	---	---	20	25	30	40	20	25	40
Children's area										
Knowledge area	40	60	95	120	150	175	200	120	160	215
Imagination area	40	60	110	135	120	135	150	135	130	175
Small readers' space	---	---	---	---	50	65	75	---	50	75
Support space	---	20	20	25	30	50	65	25	50	70
Internal work area										
Management office	15	20	20	20	15	15	15	15	15	15
Meeting room	---	---	---	---	15	20	20	15	20	20
Work space	15	35	45	65	20	25	35	20	30	50
Store (*)	---	---	---	---	75	100	120	65	90	150
Staff rest area	---	10	10	15	15	25	30	15	20	30
Total programmed area	430	680	1,000	1,270	1,760	2,340	3,100	1,300	1,900	3,600
Total built area	581	918	1,350	1,715	2,376	3,159	4,185	1,755	2,565	4,860
(*) In stores of more than 100 m ² the viability of compact stacks should be considered. This would affect the surface area of the store, as well as the suitability of the structure.										
(**) Includes logistic areas and space occupied by the structure.										
Staff										
Human resources										
Library manager	---	1	1	1	1	1	1	1	1	1
Librarians	---	---	---	1	2	2-3	3-4	1	2	4-5
Auxiliaries (*)	1	2-3	3-4	4	5-6	7-8	9-11	4	6	12-14
Service assistants	1	---	---	1	1	2	2	1	1	2
Weekly hours of service	25	30	34	34	40	45	50	34	40	60
Note: This provision for staff is conditioned by the size of the library and its distribution. The calculations are based on a working week of 35 hours.										
(*) In the case of a branch library, the auxiliary will be responsible for the library's management.										

LIST OF CONTRIBUTORS

Current positions of all contributors plus mail addresses (May 2007).

Marie-Francoise Bisbrouck, Director of the Library, University Paris-Sorbonne (Paris IV), France; Marie-Francoise.Bisbrouck@paris4.sorbonne.fr.

Anders C. Dahlgren Director, Library Planning Associates Inc., Illinois, USA; anders@libraryplan.com.

Olaf Eigenbrodt, Baureferent, Universitätsbibliothek der Humboldt-Universität zu Berlin, Berlin, Germany; olaf.eigenbrodt@ub.hu-berlin.de.

Cecilia Kugler, Principal, CK Design International, Sydney NSW, Australia; cecilia_kugler@ckdesign.com.au.

Karen Latimer, A&FS Librarian, Library Services & Research Support, Information Services Queen's University Belfast, UK; k.latimer@qub.ac.uk.

Andrew McDonald, Professor and Director of Library and Learning Services & Head of Lifelong Learning Centres, University of East London, United Kingdom; a.mcdonald@uel.ac.uk.

Hellen Niegaard, Chief consultant and editor of the periodical *Danmarks Biblioteker*, The Danish Library Association, Copenhagen, Denmark; hn@dbf.dk.

Santi Romero, Architect and Head of Construction Unit, Library Service – Diputación de Barcelona, Barcelona, Spain; romerogs@diba.cat.

Janine Schmidt, Trenholme Director of Libraries, McGill University, Montreal, QC, Canada; director.libraries@mcgill.ca.

Sean Wagner, AIA, LEED AP with contributions from Jeffrey Scherer, FAIA of Meyer, Scherer & Rockcastle, Ltd. (MN), USA. Sean Wagner; Sean@msrltd.com and Jeffrey@msrltd.com.

ACKNOWLEDGEMENTS

The IFLA Library Building & Equipment Section Committee expresses its warm thanks to Sjoerd Koopman, IFLA Headquarters, and Manfred Link, SAUR Verlag, for supporting and publishing the Library Building Guidelines.

Thanks also to all contributors currently or previously members of IFLA Library Building & Equipment Section and its Committee.

Thanks also go to architect Sean Wagner from Jeffrey Scherer, FAIA of Meyer, Scherer & Rockcastle for contributing to the publication.

The authors and editors warmly thank all IFLA Library Building Section Committee members from 2001–2007 for their support of the project.

Finally special thanks to:

- Various libraries and library agencies throughout the world for making this publication possible by giving information about their own libraries.
- A long list of libraries and library professionals, architects and others who provided photographs of library exteriors and interiors for the publication.
- David Houston, Queens University, Belfast – for photographic assistance.

Karen Latimer & Hellen Niegaard, editors

May 2007

INDEX

Emboldened page ranges refer to chapters; italicised page numbers indicate illustrations. All entries refer to libraries unless otherwise indicated.

- 24/7 opening 72
- Aarhus Public Libraries 34, 36
accessible space 17, 103
 architects' perspective 188–90
 and electronic resources 75–6
adaptable space 16, 103
administration and management 83, 88, 92,
 242
- air-conditioning 187
- air quality 164
- aisles, cross 135–6
- Alcazar Public Library (France) *xv, xvi*
 ground floor plan *xxiv*
 first floor plan *xxv*
 second floor plan *xxvi*
 third floor plan *xxvii*
- ambience 71, 221
- Amby, Jan *v*
- amenity areas 88, 240
- American Library Association 48, 56
- Aralis Library and Information Centre (Helsinki) *xii*
- architects 52, 80–1, 106
 how to choose 123–6, *see also* competitions, architectural
 perspective on library projects **172–202**
- architectural icons, libraries as 39–40
- architectural process
 specifications 174–5, *see also* brief, project
 drawing up 178–80
 furnishing project 180–2
- Area Summary Calculations Table 154–5
- Àrias, Joan *xxi, xxviii*
- Asplund Public Libraries (Sweden) 39
- assignable spaces 141–3
- @your library 56
- audiovisual materials 132–3
- Australian Catholic University library *xviii*
- Barking Learning Centre (UK) 19
- Bennetts Associates *xi*
- bidding and contract negotiation 110, 125
- Bisbrouck, Marie-Françoise 79, **83–95**, 107,
119–26, 248
 on check lists **237–44**
- Bitner, M.J. 158
- Black Diamond library (Denmark) *iv, 33, 40*
- Bochum Family Library (Germany) 43
- book mobiles 43, 44
- books
 libraries without *vi*, 35–6, 41, 44
 space for 129–32
- book stacks *vii, 61*
- Boone, M.D. 19, 77
- BOT (build-operate-transfer) process 113
- branding of libraries 65–6, 97
 and signage 166
- Brand, S. 16
- Braun, C. 97, 107
- Brazillion, R.J. 97, 107
- brief, furnishing 183
- brief, project 8, 51, 52, 70–1, 112
 architects' perspective 194–200
 elements of 103, 120–1
 interior design **144–71**
- British Library, St. Pancras (UK) 33
- bubble diagrams *157, 160, 199*
- budgets 169
- building process **96–116, 119–26**
- building techniques 243
- cabling 181, 187
- cafés 19, 72, 77–8, 140
- Carlson, S. 81
- Carmack, B. 104, 106
- Carnegie libraries 39
- carpets *xvii, 153*
- Cassin, E. 22
- cataloguing 92
- Cerritos Public Library (California) 37
- check lists **237–44**
- children's spaces *xix, xxii, 139*
- circulation desks *xvii*
- circulation, internal 93, 187, 240, 241
- Citizen Service Centres 34–5, 43
- cleaning products and equipment 210–12

- clients 57, 59, *see also* users
climate control 61
codes, building 141
collections 73–4, 197, 240
 vs. connection 32
 layout of 60
 and needs assessment 53
 online 62
 space for 128–36
 special 134–6
 staff activities regarding 83
 storage of 60–3
College, National and University Libraries, Society of (SCONUL) 14, 23, 111
colour 19, 93
comfort 93, 240–1
communication during building process 98, 147
community spaces 76
competitions, architectural 112, 123, 124, 216
computers *viii*, *ix*, *x*, 64–5, 134, 239, *see also* ICT (information and communication technologies); IT (information technology)
conducive space 20, 103
conference rooms 139
consistency of design 160, 166
construction phase 110, 125, 183
consultants, building 106
consultation 70–1, 102, 148
conversions, building 223–5
cooperative libraries 40
Copenhagen Business School *vi*, 35–6, 42
Core, Jane 78
costings 164, 177
Coughlin, Robert E. 234
creativity in a building project 99
'Cybrarians' 44, *see also* virtual reality experiences
- Dahlgren, Anders C. **47–54**, 73, 85, 100, 101
 on estimating space needs **127–43**
Dancik, D. 69
Delft University of Technology 40, 69
deliveries, receiving 92
departments, organising space by 86, 198
Designing Libraries website 111
design phase 108–9, 125, 148–9
Dewe, Michael 80, 233, 234
digital lifestyle 36, 151
digital readers 63–4, *see also* IT (Information Technology)
Dillon, David 55
disabilities 17, 70, 111, 188–9, 240
displays *viii*, *x*, 62–3
District 6 Public Library (Barcelona) *xxi*
 ground floor plan *xxviii*
document processing 86–7
Dowlin, K.E. 16
dramatic quality, *see* inspirational space
duration of building works 183
- East London, University of - Docklands Campus *i*, *ii*, *iii*
Educause 64
Edwards, V. 23
efficiency ratings 142
efficient space 22, 103
Eigenbrodt, Olaf **215–18**
electrical services 153, 191, *see also* cabling
energy management 207–8
entrances 86–7, 92–3, 159–60, 239
 green cleaning entryway systems 209–10
environmentally suitable space 103
Environmentally Sustainable Design (ESD) 170, 193–4
estates managers 105–6
estimating space needs 90–1, 92, **127–43**
evaluation of alternatives 101–2
evaluation, post-occupation 111
exhibition spaces 78
extendibility 152, 190–3
exterior of building 189
eZone, MacDonald campus library (Montreal) *ix*
- façades 221
face-to-face assistance, *see* personal service
Fainsilber, Adrien *xxiv*
Faulkner-Brown, H. 102
finance, project 108, 113
fire prevention 243
fixtures, furnishings, and equipment (FF&E) 125, 153–4, 180–2
flexible space 62, 72, 75, 151–3, 221
 architects' perspective 186–8
 and live-load bearing capacity 93–4

- floor space 48–9, 131
Florida, R. 26
Fox, B.-L. 14, 19, 22, 23
functional space 15, 41, 103
and interior design 169
function, organising space by 85–6
furnishing contract 184
furniture installation 185
future-proofing 16, 94, 103
- Glasgow Caledonian University 72, 78
Göttingen, University Library (Germany) *xi*
governing body 105
green buildings **203–14**
green cleaning entryway systems 209–10
grounds 206
group study rooms 63, 76
growth, rate of 130
Grunberg, G. 248
- hand-over of works 125, 184
Haraldslund branch library (Denmark) 43
Health, Department of 113
HEFCE (Higher Education Funding Council for England) 13, 22
heritage buildings 160, **219–28**
Higher Education Design Quality Forum 13
Higher Education Funding Council for England (HEFCE) 13, 22
HM Treasury 113
Houben, Francine 69
housekeeping 90, *see also* maintenance programme
Hurt, C. 26
- ICT (information and communication technologies) 31, 36, *see also* IT (Information Technology)
access area *xv*, *xxiii*, 18
pervasive computing 38
- Idea Stores 34
IEQ (Indoor Environmental Quality) 209,
see also air quality
- ImaginOn Building (North Carolina) 40
information commons 76
inspirational space 25, 68, 70–1
instruction areas 34, 139
interactive space 20, 36–7, 103
interior design 109, **144–71**
- inventories 49, 127, 143
Island of Culture (Denmark) *iv*
IT (information technology) 23, 76, 103, 240, *see also* computers; ICT (information and communication technologies)
access area *xvi*
Ito, Toyo 32, 72
- Jaume Fuster Public Library (Barcelona) *xxii*
ground floor plan *xxix*
second floor plan *xxx*
third floor plan *xxxi*
basement plan *xxxii*
JISC (Joint Information Systems Committee) 13, 16, 19, 23
infoNet 77
Jobb, P. 69
Joint Theological Library 154–5, 157
Jones, E.J. 19
Jones, W.G. 22, 99
journals *x*, 62, 132
Jubilee Library (Brighton) *xi*
- Kenney, B. 26
Kent, F. 68
King, M. 80
kitchenette 90
Kolding Municipality (Denmark) 35
Kommunalreformen 2007 (Denmark) 34–5
Koolhaas, Rem 7, 31
Kugler, Cecilia 41, **144–71**
KulturØen (Denmark) 40
- landscaping 206
Lang, B. 114
Latimer, Karen **68–82**
Lauridsen, Jens 36–7
layouts, spatial *xiii*, 85, 157–61, 163
furniture 181
leadership 97
learning facilities 77
learning, life-long 34, 37
learning resource centres 13
learning spaces 64
lecture space 138–9
LEED-EB (Leadership in Energy and Environmental Design—Existing Building) 205, 211–12

- libraries
branch 43–4, 65–6
'hot spot' 44
main 42
public 149–51
themed 43
without books *vi*, 35–6, 41, 44
- Library Associations, International Federation of 56
- Library Building Projects database* 111
- lighting 21, 74, 93, 162, 163, 181
artificial 187
- MacDonald Public Library *ix*
- literacy, information 37, 80
- live-load bearing capacity 93–4, 153, 186–7
and heritage buildings 221–2
- Llinàs, Josep *xxii, xxix*
- lobbies *xviii*, 189–90, 239
- local government 34–5
- Lomax Cassidy & Edwards *xi*
- Lushington, N. 102
- M & E (mechanical and electrical) services
73
maintenance programme 184–5, 194
sustainable 203–14
- managers, library 105, 113
- marketing libraries 39, 55–67, 159
- Martin, E. 26
- Mason, E. 97
- McDonald, Andrew 36, 41, 70, 72
on the building process 96–116
on good library space 13–29
- McGill University Library *ix*
- McKay, Hugh 150
- mechanical and support services 141–3
- meeting places, libraries as 32, 38
- meeting rooms 50, 76, 138, 242
- mobile units 43, 44
- moving in 110, 125
- multipurpose facilities 76
- Myrick, P. 68
- Naestved Municipality Library (Denmark)
v, 32
- National Standards 73, 247
Barcelona, Spain 254
standard surface area (France) 248
- needs assessments 47–54, 101, 143
- networked resources 75–6
- new buildings 70
- Niegaard, Hellen 30–46, 77
- noise 21, 77, 93, 163–4, 240
- nonassignable spaces 141–3
- non-print materials 74
- Northumbria University 78
- Oak Park Public Library (Illinois) *xiii*
- OCLC Environmental Scan: Pattern Recognition* 57
- offices, separate 88, 137, 241
- opening hours 72, 85
- open plan areas *v*, 85, 88
- part-time staff 92
- 'passage' 190, *see also* circulation, internal
- Peckham Library and Media Centre (UK)
76
- periodicals *x*, 62, 132
- personal service 37, 41, 44
desks *xvii*, 137
- personal space 162–3
- pest management 212
- PFIIs (Private Finance Initiatives) 113
- phases, project 124–6, 200
- photocopying areas 89, 92, 140, 240
- 'place', library as 25, 30–1, 114, 150, *see also* 'third place'
- plans
analysis 109
how to read 215–18
- pollution prevention 208–9
- Porcelaenshaven (Denmark) *vi*, 35–6, 42
- PPPs (Private Public Partnerships) 113
- preparation areas 89
- Private Finance Initiatives (PFIIs) 113
- private space 83, 85
- professional assistance, *see* personal service
- programme phase 124, *see also* brief, project
- programme statement, *see* brief, project
- project team 104–8, 148
- public access 33, *see also* accessible space
- public-oriented activities 83
- public space *xv*, 68–82
- purchasing policies 210

Index

- Queen's University (Belfast) xii
Quinsee, A.C. 22
Quintana, Màrius *xxi*, *xxviii*
- Range, P. 23
reading spaces *xiv*, *xx*, *xxiii*, 240
recycling 208–9
reference materials 60–1
refurbishing existing buildings 22, 70, 219–22
regulations, building 141
relationship diagrams 157, 160, 199
retail spaces 78, 140
Revill, D. 102
RFID (radio frequency identification) technology 24, 36, 61
risks in a building project 99
Rockwell, E. 107
Rogeon, Didier *xxiv*
Romero, Santi 106, **172–202**, 254–5
on heritage buildings **219–28**
Rose, Andrea 69
- safe and secure space 22, *see also* security
Safety Committee report 126
Saint-Quentin en Yvelines, University library (France) *xiv*
scale, domestic 161
Scherer, Jeffrey **203–14**
Schmidt, Janine 39, **55–67**
SCONUL (Society of College, National and University Libraries) 14, 23
Scottish Funding Council (SFC) 13
screens, plasma or LCD 66, 167
seating, readers' 50, 53, 63, 74, 75, 150
District 6 Public Library (Barcelona) *xxi*
lounge type *vii*
MacDonald Campus Library *ix*
Oak Park Public Library (Illinois) *xiii*
Seattle Central Library 7, 31, 39–40
security 61, 65, 72, 91, 103
antitheft 239
self service *xii*, 41, 59, 79, 239
Sendai Mediatheque (Japan) 32, 72
service goals 129, 143
shape of space 91, 159, 186
shared facilities 62
shelving 32, 41, 60, 74, 131, 242
mobile 135
- Shill, H.B. 70, 75
shopping malls 34
showcasing the library 159
signage and wayfinding *xx*, 65–6, 157–61, 165–8
Singapore SengKang Community 44
site handover 125
site selection 47, 51, 108
size, building 51, 52
Smith, Hammer & Lassen iv
Snyder, C. 103
social spaces 8, 150–1
solar protection 93
Solbjerg Plads library, Copenhagen Business School *vi*, 32
sorting, automated 80
space, desirable qualities of **13–29**, 103
accessible space 17
adaptable space 16
conducive space 20
efficient space 22
functional space 15
inspirational space 25
interactive space 20
planning 97–8
safe and secure space 22
shape 91
varied space 18
space needs, estimating 90–1
data sheets 155–6
dpi.state.wi.us/dpi/dlcl/pld/plspace.html
49
spaces, assignable/nonassignable 141–3
special collections 134–6
staff
comfort 242
as educators 80
part-time 92
on project team 107
surveys of 58
work areas 53, 79, **83–95**, 137–8
stairs and lifts 21, 93, 221
stakeholders 147–8
storage 60–3, 74, 89–90, 242
off-site 102
study spaces *iii*, *vii*, 75, 76, 140
style and fashion 164–5
sub-contracting 125

Index

- tables 63
technical committees 124
technology 127
temperature 164
tenders 182, *see also* bidding and contract negotiation
'theme park' approach to learning 18
'third place' 38, 42, 69, 74, 76, *see also* 'place', library as
toilets and cloakrooms 90
Tolbiac library (Denmark) 33
Tonner, S. 70, 75
Tower Hamlets Council (London) 34
training and staff meetings 89
Très Grande Bibliothèque de France 33
- users 162
individualistic approaches 70
needs 36, 41
profiling 149–51
on project team 107
and public space **68–82**
spaces for 74, 136–7, *see also* 'third place'
surveys 58
- varied space 18, 103, 162
ventilation 93
Vera, Joan *xxii, xxix*
Vienna City Library 40
virtual reality experiences 38, 40, 41, 42
visibility of service points 160
vision 97, 145–7
visitation rates and times 58
visual hierarchy 161, 162
- Wagner, Sean **203–14**
walls, internal 72, 153, 186
water use reduction 206–7
Watson, L. 19, 20
Webster, D. 23
West Ryde Public Library *xvii*, 158, 166, 168
children's spaces *xix*
reading spaces *xx*
windows 194
wireless solutions 64, 72
wiring 93
Wisconsin Library Agency 127
Wisconsin Library Building Project Handbook 100
work areas 53, 79, **83–95**, 137–8
lighting 163
positioning 239
size of 87–8
workshops 92, 137
Worpole, Ken 39
'wow' or 'oomph' factor 103
Wu, J. 16

IFLA Series on Bibliographic Control



Barbara B. Tillett / Jaesun Lee /
Ana Lope Cristán (Ed.)

■ IFLA Cataloguing Principles: Steps towards an International Cataloguing Code, 4

Reports from the 4th IFLA Meeting of
Experts on an International Cataloguing
Code, Seoul, Korea, 2006

2007. Approx. 676 pp. Hc.

€ 128.00 / *US\$ 179.00

IFLA members: € 98.00 / *US\$ 137.00

ISBN 978-3-598-24281-6

(*IFLA Series on Bibliographic Control, Vol. 32*)

■ ISBD: International Standard Bibliographic Description

Recommended by the ISBD Review Group. Approved by the
Standing Committee of the IFLA Cataloguing Section

2007. 322 pp. Loose-leaf with ring binder.

€ 84.00 / *US\$ 118.00

IFLA members: € 64.00 / *US\$ 90.00

ISBN 978-3-598-24280-9

(*IFLA Series on Bibliographic Control, Vol. 31*)

Marie-France Plassard (Ed.)

■ UNIMARC & Friends: Charting the New Landscape of Library Standards

Proceedings of the International Conference Held in Lisbon,
20–21 March 2006

2007. 133 pp. Hc.

€ 68.00 / *US\$ 95.00

IFLA members: € 48.00 / *US\$ 67.00

ISBN 978-3-598-24279-3

(*IFLA Series on Bibliographic Control, Vol. 30*)



de Gruyter
Berlin · New York

www.saur.de

*For orders placed in North America
Prices are subject to change



Journals for Library and Information Professionals

■ LIBER QUARTERLY

The Journal of European Research Libraries

Edited by Trix Bakker on behalf of the Ligue des Bibliothèques Européennes de Recherche (LIBER)

1 print volume p. a. Online quarterly. ISSN 1435-5205

Liber Quarterly offers in-depth reports on the practical aspects of library management and expert analysis of current developments within the information world. It helps library managers to improve services, to understand new developments and to keep their professional skills right up to date.

■ Libri

International Journal of Libraries and Information Services

Edited by Nancy R. John, Ian M. Johnson and Svend Larsen

4 issues p. a. Print and Online. ISSN 0024-2667

Libri examines the many functions of libraries and information services from a historical, cultural and political angle and looks at the role of information in cultural, organizational, national and international developments. For information specialists who want to see the larger picture, *Libri* opens up a wealth of new perspectives.

■ Microform & Imaging Review

Edited by Ken Middleton

4 issues p. a. Print and Online. ISSN 0949-5770

This quarterly publication deals with practical and theoretical aspects of microform and digital imaging. Each issue also contains critical reviews of new microform and imaging projects, valuable resources when making acquisition decisions.

■ Restaurator

International Journal for the Preservation of Library and Archival Material

Edited by Helmut Banska

4 print issues p. a. ISSN 0034-5806

Restaurator reports on the latest advances in restoration technique from around the world. The journal keeps its focus firmly on specifics, favouring articles which give a clear and detailed presentation of technical procedures.



de Gruyter
Berlin · New York

www.saur.de

Please ask for our current journals pricelist.

IFLA Publications



■ World Guide to Library, Archive and Information Science Education

New, completely revised edition
2007. Approx. 600 pp. Hc.
Approx. € 168.00 / *US\$ 179.00
IFLA members:
Approx € 148.00 / *US\$ 207.00
ISBN 978-3-598-22035-7
(*IFLA Publications, Vol. 128/129*)

Roswitha Poll /
Peter te Boekhorst /
Sebastian Mundt (Ed.)

■ Measuring Quality. Performance Measurement in Libraries

2nd revised edition
2007. Approx. 250 pp. Hc.
€ 78.00 / *US\$ 109.00
IFLA members: € 58.00 / *US\$ 81.00
ISBN 978-3-598-22033-3
(*IFLA Publications, Vol. 127*)



de Gruyter
Berlin · New York

www.saur.de

Ann Ritchie / Clare Walker (Ed.)

■ Continuing Professional Development: Pathways to Leadership in the Library and Information World

2007. Approx. 319 pp. Hc.
€ 78.00 / *US\$ 109.00
IFLA members: € 58.00 / *US\$ 81.00
ISBN 978-3-598-22034-0
(*IFLA Publications, Vol. 126*)

James L. Mullins (Ed.)

■ Library Management and Marketing in a Multicultural World

Proceedings of the 2006 IFLA Management and Marketing Section, Shanghai,
16–17 August, 2006
2007. XVI, 366 pp. Hc.
€ 128.00 / *US\$ 179.00
IFLA members: € 96.00 / *US\$ 134.00
ISBN 978-3-598-22032-6
(*IFLA Publications, Vol. 125*)

Alli Mcharazo /
Sjoerd Koopman (Ed.)

■ Librarianship as a Bridge to an Information and Knowledge Society in Africa

2007. 248 pp. Hc.
€ 78.00 / *US\$ 109.00
IFLA members: € 58.00 / *US\$ 81.00
ISBN 978-3-598-22031-9
(*IFLA Publications, Vol. 124*)

*For orders placed in North America
Prices are subject to change

