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NEW LIBRARIES IN OLD BUILDINGS

CREATIVE REUSE

Edited by Petra Hauke, Karen Latimer and Robert Niess



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Edited by
Janine Schmidt

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Volume 180

New Libraries in Old Buildings

Creative Reuse

Edited on behalf of IFLA by Petra Hauke, Karen Latimer
and Robert Niess

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About IFLA

www.ifla.org

IFLA (The International Federation of Library Associations and Institutions) is the leading international body representing the interests of library and information services and their users. It is the global voice of the library and information profession. IFLA provides information specialists throughout the world with a forum for exchanging ideas and promoting international cooperation, research, and development in all fields of library activity and information service. IFLA is one of the means through which libraries, information centres, and information professionals worldwide can formulate their goals, exert their influence as a group, protect their interests, and find solutions to global problems.

IFLA's aims, objectives, and professional programme can only be fulfilled with the co-operation and active involvement of its members and affiliates. Currently, approximately 1400 associations, institutions and individuals, from widely divergent cultural backgrounds are working together to further the goals of the Federation and to promote librarianship on a global level. Through its formal membership, IFLA directly or indirectly represents some 500,000 library and information professionals worldwide.

IFLA pursues its aims through a variety of channels, including the publication of a major journal, as well as guidelines, reports and monographs on a wide range of topics. IFLA organises workshops and seminars around the world to enhance professional practice and increase awareness of the growing importance of libraries supporting their communities and society in the digital age. All this is done in collaboration with a number of other non-governmental organisations, funding bodies and international agencies such as UNESCO and WIPO. The Federation's website is a prime source of information about IFLA, its policies and activities: www.ifla.org

Library and information professionals gather annually at the IFLA World Library and Information Congress, held in August each year in cities around the world. IFLA was founded in Edinburgh, Scotland, in 1927 at an international conference of national library directors. IFLA was registered in the Netherlands in 1971. The Koninklijke Bibliotheek (Royal Library), the national library of the Netherlands, in The Hague, generously hosts IFLA's headquarters. Regional offices are located in Buenos Aires, Argentina; Pretoria, South Africa; and Singapore.

Preface

Sustainability and environmental awareness are key issues globally and the library world is committed to playing its part in protecting the planet. Implementing sustainable strategies is now well established in many libraries but the new book published on behalf of IFLA's Environment, Sustainability and Libraries Section (ENSULIB) together with IFLA's Library Buildings and Equipment Section (LBES) takes the concept one step further. Sensitively transforming existing historic buildings into exciting, functional and beautiful libraries is both challenging and fulfilling.

Introductory essays on the sustainability of reusing historic buildings and on the building types that lend themselves to transformation into 21st century libraries are followed by case studies of both public and academic libraries from all over the world. A key feature of the book is that the projects are discussed from the perspective of both architects and librarians.

A wide range of creative adaptations is discussed covering a broad diversity of building typologies and constructions and different historical epochs. All case studies demonstrate that the reuse of existing buildings contributes to a mix of social and urban renewal and sustainability and also constitutes an undeniably effective and successful way of designing attractive and efficient modern libraries. The descriptions of combinations of historic buildings with innovative interventions for targeted final use as thoroughly modern libraries provide new insights into building reuse.

What Ton van Vlimmeren, Director of the Utrecht Public Library and President of the European Bureau of Library Information and Documentation Associations (EBLIDA), noted in an interview in June 2020 is pertinent and relevant beyond the Netherlands:

In the Netherlands, more and more libraries are re-locating to already existing buildings, which are restored and adapted to new needs. The trend is no longer to create stand-alone facilities but to include fresh new constructions in the centre of cities. I am referring to important experiences in the new libraries of Groningen, Arnhem, Amsterdam and Rotterdam, without forgetting Tilburg. Another trend is to work with external partners and volunteer organisations. When libraries liaise with other organisations, their activities are factors of attraction for the public and reinforce library image and action. (<https://mailchi.mp/c49ed69117ea/eblida-newsletter-4193293#tvv>)

The book is divided into three main parts. The first part provides overviews of creative building reuse and outlines the challenges and issues. The second part provides case studies of public libraries which have emerged from buildings with multiple former uses. The third part provides details of academic libraries created

from buildings no longer serving their original purposes. An appendix contains a review of selected documents about reuse of buildings for libraries as a question of sustainability.

The first part introduces readers to the concepts, challenges, considerations and concerns associated with creative building reuse. Perspectives are provided by two architects with longstanding experience in library design and a person with both library and architecture experience. Robert Niess addresses the architectural perspective; Santi Romero examines the typology of historic buildings and associated issues in repurposing them as libraries; and Karen Latimer focuses on sustainability issues in reusing buildings.

Case studies on successful projects developing new public libraries from buildings with a chequered and varied past present examples from Australia, Canada, China, Finland, Germany, Spain and the Netherlands. They showcase the transformation of buildings with wide-ranging previous roles and include a hospital, two abandoned fire halls, a traditional Chinese courtyard house, 17th century barns, former industrial buildings and factories, a locomotive shed, a grocery store and a post office.

Case studies from academic libraries include examples from Belgium, Colombia, France, Germany, Italy and the United States. Buildings previously functioning as factories, a research institute, cattle market, Rococo castle, locomotive factory building, university restaurant, slaughterhouse and chapel demonstrate outstanding examples of creative and adaptive reuse as libraries.

The final Appendix offers a review of some selected documents and the book includes a list of contributors.

The editors thank everyone involved in this book for their effort and hard work which made the project possible: particularly the authors of the chapters but also the photographers for providing their contributions.

We thank the IFLA Library Buildings and Equipment Section for willingly accepting and indeed drawing under their umbrella one more ENSULIB publication on sustainable, green libraries.

A big thank you goes to Claudia Heyer and the publishing house De Gruyter Saur, for encouraging us to realise the publication and including it in their programme.

Last but not least, ENSULIB and the editors thank IFLA, especially Janine Schmidt, the IFLA Publication Series Editor, for her encouragement and checking of the text; and the Professional Committee for supporting publication of *New Libraries in Old Buildings: Creative Reuse*. In particular, we thank the Professional Committee for the decision to provide funding to enable open access publication which constitutes a first for the IFLA Publication Series and provides wider access to the content.

It is hoped that the book will provide inspiration and guidance for others to follow.

Petra Hauke, Karen Latimer and Robert Niess
Berlin and Belfast, April 2021

Part 1: Creative Building Reuse: Challenges and Responses

Provides a general overview of the issues to be considered in reusing buildings for alternative uses as libraries

Robert Niess

1 Exceptional Libraries and Distinctive Architecture: Celebrating Reuse

Abstract: This chapter traces some of the origins, developments and newer tendencies in reuse architecture from the perspective of the architect. Furthermore, it examines possible sustainability issues and qualities, beyond the obvious recycling aspect, inherently rooted in the practice of reuse architecture. The chapter also provides insight into some of the practical aspects of conversion and adaptive reuse from the planning stage at the drawing board to the reality of the building site, while maintaining a theoretical underpinning of this praxis, which the author considers to be a genre of its own. Accompanying the theoretical and practical overview, the chapter casts a critical eye over the relationship of formalised historic preservation methods and traditions in relation to the growth and popularity of reuse architecture and questions its future trajectory.

Keywords: Library buildings; Buildings – Protection; Buildings – Remodelling for other use; Sustainability

Introduction

Formerly seen as a menial architectural task, adaptive reuse has come into its own. It is no longer a secret, and certainly no longer a novel idea, that the architecture of adaptive reuse is, in terms of architectural creativity, beauty and importance, in no way inferior to designing and building a brand-new building (Hauke and Werner 2011).

Architecture incorporating existing structures has been experiencing an enormous boom and an increase in prestige for some time, and as claimed in this chapter, has become an architectural genre of its own. Preservation has traditionally been the driving factor for maintaining historic structures. Until recently, the reuse of existing buildings almost always meant dealing with historically listed buildings. These days adaptive reuse of older structures is not only in vogue but makes up a major part of the current construction industry's business. Surprisingly, such projects are to a large degree no longer using only historical listed buildings. What has changed?

Continuity and Sustainability

For investors, clients and architects. the large increase in construction projects using existing fabric certainly owes much of its success to the growing number of inspiring architectural examples of reuse architecture. The attention attracted by these projects has increased the acceptance of reuse and in turn the market. Small and large architectural firms, as well as clients from the private and public sector, municipalities and cities, have found the strategy of adaptive reuse successful on several levels.

It can be said with certainty that the combination of old and new creates an unmistakable identity and radiates uniqueness. Not only has the acceptance of reuse design increased, the socially relevant trends for sustainability have become dramatically important and are reflected in the desire for reuse architecture. People like to carry bags made from used truck tarpaulins and they like to live and work in buildings with history and patina.

This however goes beyond trendy fashion. The preservation and reuse of buildings represent an urban and social continuity which in an increasingly demographically fluid society is becoming progressively more important. Not only maintaining the appearance of an old building in the city, but the singular quality of the interior spaces, possessing a strong architectural identification, represents a valuable anchor and counterpoint to the increasingly virtual spaces of our everyday work. This is especially true in library design. The spread of the digitised virtual world, exponentially heightened forced by the corona crisis, certainly underlines the phenomenon of an inner desire for a real space. Differing from a virtual space, a room with history can be experienced simultaneously with all the senses. The number and divergent ages of users that enjoy the quality and identity these strong spaces exude, indicate that their real and haptic qualities are important to everybody.

In addition to perceptual or soft values, the aspect of economic efficiency in the maintenance or even conversion of existing buildings should not be overlooked. It is no longer the case that demolishing and rebuilding are less expensive than maintaining and reusing. Many project developers have successfully facilitated cost reductions. The previous creed of *tabula rasa* has long been off the table. The increased demolition and disposal costs of building rubble, especially the disposal costs of contaminated building materials, have become not only dramatically greater but ecologically questionable. With ecology and economy in mind, a new reality of perceiving an energy balance in the built environment has emerged. The new reality is clearly represented by the increasing recognition and consideration of total energy consumption including grey energy. Grey energy consists of the sum of energy expended in the initial creation plus the

energy expended through demolition and disposal as well as the energy needed to rebuild. The holistic consideration of energy consumption has become the relevant energy factor and argument for reuse.

Finally, thanks to new insulation materials and clever building physics solutions, reused old buildings no longer must have a lower energy performance than a new building, provided that the architect and client understand their craft well and are able to implement the necessary planning considerations successfully.

Understanding an Existing Building

For the success of a reuse project, it is essential that the architect studies and understands everything about the existing building and its history down to the smallest detail. Here is where the design path between new construction and reuse strategies clearly diverges. A sensible investment in reusing an existing building cannot afford to omit the in-depth understanding and documenting of the existing structure in a multifaceted and detailed manner.

To create a thorough and accurate investigation of the existing building, it is necessary to analyse the entire structure, including the changes over time. The examination requires, for example, an in-depth study of the intellectual origin and related art and architectural history, the past uses and their impact, the structural and technical systems and their possible alterations, the construction materials used and the geometric shape and possible deformations of the building as well as a thorough damage and contamination assessment. It is ultimately completely irrelevant whether the existing structure is an architectural landmark, a historic monument, or an ordinary building. Of course, a historic building is usually more complex to investigate, but historic building or not, only from a deep understanding of the built material is it possible to create a successful and cost-efficient reuse project and avoid possibly serious difficulties.

The sometimes costly and time-consuming but necessary examinations, which often need special experts, are best done at the very beginning of the project. Unfortunately, many clients shy away from these investments, thinking that they can save money. This is almost always a fallacy, and in the long run one that can be expensive and risky. Architects are often hesitant to request their clients to contract the studies up front, mostly out of concern that the uncertainties, time and cost will act as a deterrent from the outset and possibly endanger the project. Nonetheless, unforeseen costly investments can only be best identified and averted by thorough studies and analyses at an early stage.

Furthermore, the profound understanding of the existing building is a prerequisite before the architect even begins to design. Unfortunately, some architects may approach a reuse design task with un-reflected formal wishes and personal tastes from the outset, without really understanding the existing structure. Such a design procedure can lead to superfluous interventions that quickly become unnecessarily complex and costly. Once the course is set, there is often no way back. The approach needs to be different. From the very beginning, the designer needs to perceive the existing building as an ally, not as a foe that needs to be subjugated! The true task is about working with the structure, not against it.

It seems self-evident that an existing building did not simply sprout out of the ground or fall from the sky; it has a past. When considering an old building, it needs to be understood that at some distant time in the past someone had the need or dream of building a structure on that very spot, at that very time for purposes that they clearly understood. The existing structure therefore represents a manifestation of those thoughts, anchored in time and place. These things all form an inner logic that flowed into the design and ultimately the realisation of the building. The existing building substance is therefore evidence of the original structure, ground down by use and stained by time to become the present entity. Perhaps the combination of all factors contributes what should be considered to be the true structure.

Finally, when designing within an existing building, it is necessary for the architect to understand how to develop an architectural synthesis from all the information gathered in order to arrive at a good design. This requires not only an understanding and respect for the existing structure including its constraints, but the necessary architectural talent, expertise and skill.

Constraints

As well as the many qualities worth maintaining, old buildings present many constraints, restrictions and difficulties. It is simply a fact that not every type of new use is compatible with an old structure. The possibilities and advantages but also the disadvantages and difficulties need to be carefully considered beforehand.

In the design for a conversion or reuse of an old building, it is not the form follows function mantra that dictates the strategy, but the existing structure itself. By definition, a building legacy already exists prior to the new design or changed usage. The sequence of design is all about integrating the new functions into the existing fabric, not the other way around. Often modern building requirements and needs must be adapted to comply with the existing structure.

Sometimes new functions need to be redefined to become compatible. Initially that sounds restrictive, and sometimes it is. First impressions, however, are often deceptive. It seems a contradiction, but often good ideas are made possible as a result of overcoming seemingly inflexible restrictions.

When dealing with an old building, it is always necessary to define the approach on a case-by-case basis. The simple fact is that no two old buildings are alike. Careful study is needed to determine just how much new insertion is compatible with the old. On the other hand, it is important to establish that much of the contemporary is required to breathe new life into the old. A careful, step-by-step approach does not mean that the new has to play an inferior or a secondary role. The degree and intensity of change and intervention need to be carefully researched and tested.

A typical problem, especially when it comes to library construction, is the structural capacity of old floors. The timber beam is a typical floor construction of older buildings. Unfortunately, timber floors have only a limited load-bearing capacity and are often deformed from years of use. The prescribed load capacity to carry the heavy bookshelves required for library usage can quickly become a problem for a wooden structure. It is possible to reinforce timber beams or even replace them with a steel or concrete construction. In listed buildings, however, this is not usually permissible. An alternative can be to arrange areas in such a way that those with limited load-bearing capacity are not used for heavy loads and thus preserved. Areas with heavy load requirements can be moved to less historically sensitive zones, or areas with a modern construction.

Material deficiencies in older structures can be of major concern. Wood rot and insect infestation are common problems with wooden components. In old masonry structures, damp walls and mildew are not uncommon, often due to a lack of proper waterproofing. Cracks from settlement or brick damage due to a lack of frost resistance are further typical masonry problems. Contamination has become a growing and complex problem. Well-meant renovations in the 1970s and 1980s with toxic wood preservatives have caused dangerous chemical contamination. Added insulation for energy conservation, with carcinogenic micromineral fibres as well as asbestos in cladding, and fillers are also not uncommon. Furthermore, soil contamination from previous polluting uses can lead to costly correction.

Another important consideration is the effect of new use on the existing building's time-tested internal microclimate. A new and different use for a building, as well as modern insulation and increased wind and waterproofing, causes the building's physical nature to change dramatically. Older buildings are traditionally less airtight and less insulated. Modern energy saving demands with hermetic construction standards create a completely different environment within the building. It has become ever more important that correct understanding of

building physics, at the outset and planning stage, is necessary for a successful renovation and a healthy future for the building.

Last but not least, fire protection often presents an all-encompassing difficulty especially with timber floors or wooden construction. A change in use frequently causes the loss of former rights, in which case the old building must comply with modern building codes and restrictions. Especially in an historically listed building, modern fire regulations can sometimes be met only through special exceptions and limitations which in some cases might be prohibitive.

All issues, however, can be solved if identified early on and creatively and intelligently dealt with. The unexpected puts a strain on the budget and scheduling. One thing is certain when dealing with old structures. Unexpected things always happen.

Respect for the Old

As well as a deep understanding of the old structure, the client and the architect need to respect the existing materials, the original intentions of the builder, and the traces of time, uses and events.

Unfortunately, in the world of real estate investment, it is not uncommon to use an old façade as a *feel nice* image while gutting the interior and replacing it with a new building meeting modern standards and expectations. Gutting a building's interior is like a lobotomy in that it erases the past and reduces history to a thin veneer in the streetscape. Fortunately, overall, approaches are more enlightened today. Investors are discovering the power and marketability of existing buildings as a contextual whole.

It is not just the handsome architectural styles, the noble room heights, the decorative stucco, sculptural mouldings or haptic materiality that make an old building special. It is to a great extent the atmosphere of the old building, with its own inner life and story to tell that exude an other-worldly value of age. All of these make an old structure individual and unique. The ageing of materials is a product of all the events that have occurred in and around the building over time. Like archaeological strata, the accumulation of transformations creates the layers of the building's history that are structurally and temporally interrelated. The building's historical aura or story, however, is not always one of harmony, rather the opposite. The test of time often erodes the original clarity and well-tempered design. Ad hoc changes and unforeseen events gnaw at the intactness of a structure. The narrative power of an old building is a treasure that has a lot to give, but unfortunately can easily be fleeting.

The aura of age is like a venerable but gnarled, scoured and leathery bubble that has endured the passage of time, weather and use. It is also, however, a delicate and sensitive bubble that bursts and collapses into nothingness when poked at too much, and once lost it can never be regained. Here is where the architect needs to tread with care and discipline.

An old building is simply not a new building. It is better to accept this from the start. It does not mean that restoration, improvements and changes are not possible or even necessary. However, an attempt to convert an old building into a new one or to impose unnecessary new building standards can do more harm than good. It is easy to understand, that having invested in the purchase and renovation of a building, an owner may want it to acquire a new splendour. Too much face-lifting can lead to the destruction of the unique charm of an old building. Slick perfection destroys the emotional and historical characteristics that make the original so special. This has to do with the authenticity of the building and its material which is expressed through the patina of time and the story of its use. If original characteristics are cleaned up, the authenticity is irretrievably lost. The vision and insight of critics such as John Ruskin (1819–1900), who in the 19th century argued that only authentic built material contains true artistic value and its removal or alteration destroys it completely, have validity to this day (Ruskin 1849).

To become historically listed, a building must be determined by the responsible authorities to have a heritage value worthy of protection by elevating it to listed status. Because heritage value is also a cultural value, the goal of historic preservation is to maintain the listed building for society for as long as possible. The term architectural heritage refers to the inheritance of a built environment accompanied by a responsibility for maintenance and preservation. But not all special, wonderful and beautiful buildings are listed. Are unlisted buildings necessarily of a lesser value? Such buildings together with less obvious, ordinary structures are often very much worth saving and maintaining. The lack of recognition of architectural heritage is not a denial of the value of preservation. The historian and preservation specialist, Alois Riegl, determined that listed historic buildings all possessed special values to differing degrees (Riegl 1903). These he determined as “historical value, artistic value, age value, commemorative value, use value, and newness value”. Even if a structure is not listed, it still possesses architectural value as well as the other values already discussed.

In maintaining or reusing an old building, its intrinsic values can only continue to exist if the architect and the investor pay adequate attention and respect to conserving them. That is what makes a successful reuse project special; everything else is purely recycling.

Fresh Approaches to Tradition

Not only does the old need to be respected and its story told; the new also has a story to tell! To do this, the new needs to be able to meet the old at eye level. Respect does not mean subservience. In 1964, the Venice Charter for the conservation and restoration of monuments and sites aimed to establish international standards and guidelines in the conservation and restoration of historic monuments (https://www.icomos.org/charters/venice_e.pdf). Within the charter, conservation professionals agreed that new extensions or alterations need to be clearly distinguished through separation or contrast. An architectural distancing of old and new was thus put into practice and is a mantra to this day. Since then, there have been many important charters, amending and extending universal understanding and practice of historic preservation, but without a doubt the Charter of 1964 remains a keystone of modern historic preservation. After years of practice however, distancing, like the Charter itself, has become rather dogmatic. Standard solutions, such as glass links separating old and new, emerged early on, and have become so customary that their appropriateness is almost no longer questioned.

Another way of distinguishing between old and new is the use of modern materials. The honesty of steel and glass construction, as a contrast to the old, was for many years an accepted method. If a strong visual contrast was deemed to be too dominating, then the opposite happened and too often the new architectural work was expected to be subservient to the old and barely seen; it therefore lacked confidence and pandered to the old. The results were often uncomfortable combinations and historical anomalies. Times have changed and modern reuse architecture has come of age. In the search for a distinction of old and new, a certain casual, but healthy disrespect has emerged. Misbehaving with an appropriate, well-researched impishness could perhaps summarise the success of new, self-confident approaches, which are in no way based on ignorance or naivety. Through a thorough understanding of the existing structure, they combine new building requirements and modern design with the old, without any destruction of original material. The result is a modern form of contrast, based on a holistic combination of old and new which reads as a new entity. To summarise Aristotle, the whole is greater than the sum of its parts.

All of this is not new at all. As Georg Dehio, one of the most important thinkers in historic conservation in Europe, explained in 1905:

... if the needs of the new era necessitate a change or an addition, it is really not clear for what purpose and with what right one should hide this origin. Showing false antiquities is neither true art nor true historic preservation. (Dehio 1914)

Dehio went on to say, however, that “a clear, healthy and modern German architecture needs to be developed”.

Dehio’s view of a nationalistic architecture from a current point of view is dubious and certainly outdated, but his call for a side-by-side context of old and new has given rise to a wide range of successful reuse architectural solutions with a new, readable, creative diversity and an attitude of self-confident *Weiterbauen*/further building. *Weiterbauen* is a design attitude that likens stacking epochs upon or next to one another. It empathetically adapts to the existing building with respect but without an inhibiting reverence. It is a method which preserves the old by retaining it within the new.

Perhaps with the demise of postmodernity and the abandonment of deconstructivism, a path is open for innovative solutions which will further stimulate conservation and preservation along with the development of new methods for dealing with the ever-increasing range of new types of existing buildings worth keeping.

An Archaeological Way Forward?

Anyone who knows anything about history and architecture knows that there is practically no such thing as stylistic purity. All through history, buildings have been destroyed, rebuilt, modified, expanded and reused. Some structures were used as quarries for other buildings and many were supplemented and modified with materials harvested from other buildings. It is guaranteed that if one looks closely at an old church or castle, there is a conglomerate of different ages, building materials and architectural styles. Reuse, recycle and remodel are perhaps trendy terms, but they describe an ancient architectural practice. The question is, was the end result better?

In this book, the wide range of reused buildings, of all ages and types, which have become successful, vital and fascinating new libraries answers that question with an emphatic yes. It is not important if the building was a former grocery store, barn or precious monument, all have great potential and offer a sustainable trajectory for a social and ecological form of building.

Under new economic and ecological pressure, a growing number of buildings, or parts of structures, are being reused. High-rise buildings, schools and office buildings are being partially maintained and recycled through the dismantling of the shell and refitting with modern energy-efficient claddings. This not only represents a huge volume of construction in the near future, but it also represents new design options. The established historic preservation authorities for

the most part are neither involved with this type of reuse nor do they seem to see it as an area worth investigating.

In his essay *In Hülle und Fülle / In Abundance*, Andreas Hild describes the traditional tried-and-tested goals of historic preservation as “making history tangible, keeping tradition alive and preserving substance” (Hild 2013). However, based on ecological and financial conservation criteria, Hild states that the new and sheer “abundance of potential monuments” creates a wholly new framework, altered conditions and thus also new challenges for historic preservation. The future requires that historic preservation authorities be able to “within a social discourse, form majorities to formulate requirements for the appropriation and also the adaptation of our building stock” (Hild 2013).

It remains to be seen whether building protection policies and processes can meet the new requirements. The ecological and social necessity to convert cities’ vast amounts of outdated building stock, especially from the post-war period, to a healthy and viable future use is clearly increasing. There is great potential and strength in seizing the opportunity to form a new approach, an architectural acceptance of the many-layered nature of architectural heritage across time.

Conclusion

The importance of reusing existing buildings is being increasingly recognised as outlined above. Key to a successful reuse project is finding an appropriate new occupant for the building and the projects described in this book show the adaptability of libraries, particularly in the digital age with less dependence on print. Libraries are places of learning, culture and community and, furthermore, have embraced the sustainability agenda enthusiastically. They are a perfect fit with old buildings. Such buildings are often strategically located, they encapsulate the history of their community and reusing them supports the three pillars of sustainability: economic, environmental and social.

The future of libraries, and in particular libraries subscribing to the ethos of reuse architecture, combining the new with the old, seems secure. When I look at Étienne-Louis Boullée’s famous drawing of the interior of his public library for the Bibliothèque du Roi in Paris (1785), said to be inspired by Raphael’s fresco *The School of Athens* (1509/1511), I do not see a reverent and quiet space with silent people studying alone at desks, but rather I see an active and social place with an incredible spatial identity. It is a place for meeting, discourse and interaction as if on the stage of urbanity. No wonder the image is almost iconographic for library space. It is less well known but perhaps no coincidence that Boullée’s

library design was also an example of reuse architecture; it transformed the old Royal Library while maintaining most of the structure and converting the exterior courtyard to form the main interior space.

It is time for a paradigm shift back to the older more sustainable attitude of maintaining and reusing. Reuse architecture must be the first choice and demolition and new construction seen only as a second option. In working with the built heritage and historic buildings in general, the old needs to be respected and maintained but enhanced with a confident and lively relationship, both as a definition of the past and an opportunity for the future.

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Santi Romero

2 Using Historic Buildings to House New Libraries: Prerequisites and Conditions for Successful Revival

Abstract: This chapter discusses the advantages and disadvantages of the rehabilitation of historic buildings for library use. The architectural characteristics of different types of historic buildings are examined to ascertain which are the most suitable for new use as a library. A work methodology is also proposed to help assess the suitability of housing new libraries in historic buildings, diagnosing the conservation status and precisely determining the actions to be followed. Finally, the factors that should come together before accepting the proposal to create a library in a historic building are listed. Examples provided are taken from projects in Spain.

Keywords: Library buildings; Buildings – Protection; Buildings – Remodelling for other use; Public libraries – Spain

Introduction

Many countries have important architectural heritages and libraries often provide an ideal opportunity for the reuse of heritage buildings no longer serving their original purposes. Many people like the idea, but others are alarmed and negative to the prospect of reuse of old buildings. Rigour is required when analysing the pros and cons of reuse library projects.

Advantages and Disadvantages of Building Renovation

Renovation of heritage sites has obvious advantages but is surrounded by technical, functional, financial and sometimes aesthetic pitfalls. These vary according to the nature of the building and take on more or less importance depending on how the final result is envisaged.

Advantages

What are the main advantages of converting a historic building into a library?

- The location, given that historic buildings often occupy extremely suitable sites
- The symbolic value of the building in the community. An example is the public library Biblioteca Marta Mata/Marta Mata Library in Cornellà de Llobregat (<https://bibliotecavirtual.diba.cat/es/cornella-de-llobregat-biblioteca-marta-mata>; <https://bibliotecavirtual.diba.cat/documents/347861/0/CORNELLA+DE+LLOBREGAT++Biblioteca+Marta+Mata-.pdf/e8711c6e-7219-42a2-a6b9-3bc27b39268d>). It occupies a former iconic movie theatre of significant value to the community, which was expanded to accommodate the library (Figure 1)
- The architectural interest of an historical structure as shown in the public library Biblioteca El Molí/El Molí Library in Molins de Rei, (<https://bibliotecavirtual.diba.cat/en/molins-de-rei-biblioteca-el-moli>; <https://bibliotecavirtual.diba.cat/documents/348654/0/Molins+de+Rei++El+Mol%C3%AD/e349ea70-1cfb-4472-89e8-9b8ec50f9c59>) which exploited the features of one part of the ground and two upper levels of a former textile factory which was of considerable architectural significance (Figure 2)
- The preservation of the building, which otherwise will inevitably deteriorate if left in disuse.



Fig. 1: Biblioteca Marta Mata/ Marta Mata Library, Cornellà de Llobregat. Architect: Antonio Montes. © Oscar Ferrer, ago2.



Fig. 2: Biblioteca El Molí/El Molí Library, Molins de Rei. Architect: Antonio Montes. © Imma Sabater.

Disadvantages

What might be the main obstacles to overcome?

- The typology of the building, which could have:
 - An extremely rigid and fragmented distribution of spaces
 - Floor level changes that make it difficult to meet regulatory requirements on architectural barriers
 - Façades with few windows that restrict the interior-exterior visual relationship so vital to a library
 - An entire structure needing reinforcement to bear the weight of the bookshelves
 - Problems adding lifts and staircases that meet accessibility, fire or other regulations
- The level of heritage protection afforded to the building, which can sometimes lead to retention of features which are impediments to achieving a functional library
- The complexity of the works, given that it is generally more difficult to rehabilitate an old building than build a new one
- Almost always, the cost of the works.

Typological Considerations of Converting Buildings

The typology of a historic building can make it more or less difficult to insert a library. Examples of reuse of various types of buildings are provided in the following.

Manor Houses

Single-family manor houses tend to be problematic as they generally have small surface areas with spaces fragmented and distributed on several levels. As a result, they may be suitable for specialist libraries with small numbers of visitors. The Biblioteca El Castell/El Castell Library in Vacarisses provides an example of such use (<https://bibliotecavirtual.diba.cat/es/vacarisses-biblioteca-el-castell>; <https://bibliotecavirtual.diba.cat/documents/351824/0/P1%C3%A0nols+i+fotos+de+la+biblioteca+El+Castell/3e62c49d-8830-456d-beda-be69a742a798>) The public library occupies a former manor house built on the ruins of an old castle. It was

necessary to add a new extension to accommodate the entire library programme (Figures 3 and 4).



Fig. 3: Biblioteca El Castell/El Castell Library, Vacarisses. Architect: Xavier Guitart Tarrés, GAA SLP. © Santi Romero.



Fig. 4: Biblioteca El Castell/El Castell Library, Vacarisses. Architect: Xavier Guitart Tarrés, GAA SLP. © Santi Romero.

Palaces and Castles

Palaces and castles provide opportunities for transformation into effective contemporary libraries, with large interior spaces to ensure flexibility. They tend to be in the city centre or in areas linked to parks and can be good locations for certain types of libraries. The public library Biblioteca La Cooperativa/ La Cooperativa Library in Malgrat de Mar (<https://bibliotecavirtual.diba.cat/es/malgrat-de-mar-biblioteca-la-cooperativa>; <https://bibliotecavirtual.diba.cat/documents/348283/0/MALGRAT+DE+MAR-Biblioteca+La+Cooperativa.pdf/ef4739c3-1f80-4ab4-b6d2-c34a832fd9a5>) is a good example of a rehabilitation project, since it was possible to clear a large part of the previous structure, raise the roof without its being visible from outside the building, and put in a large picture window in the rear façade (Figures 5, 6 and 7).



Figs. 5 and 6: Biblioteca La Cooperativa/La Cooperativa Library, Malgrat de Mar. Architect: Josep M^a Romaní. © Montse Martínez.



Fig. 7: Biblioteca La Cooperativa/La Cooperativa Library, Malgrat de Mar. Architect: Josep M^a Romaní. © Montse Martínez.

School Buildings, Hospitals and Convents

Buildings formerly functioning as schools, hospitals and convents are adaptable because they tend to be large and composed of spaces with diverse characteristics. They can be comparatively easily modified to suit the purposes of a library. The Biblioteca Sant Pau-Santa Creu/Sant Pau-Santa Creu Library in Barcelona (<https://bibliotecavirtual.diba.cat/es/barcelona-ciutat-vella-biblioteca-sant-pau-i-santa-creu>; <https://bibliotecavirtual.diba.cat/documents/347084/0/BARCELONA+CIUTAT+VELLA-Biblioteca+Sant+Pau+i+Santa+Creu.pdf/95970a7d-e433-4620-b6de-40ddd51e870b>) occupies part of the former Hospital de la Santa Creu, one of the oldest hospitals in the world, which ceased to serve as a hospital in the early 20th century. The facilities were reorganised and refurbished in 2010 to feature the building's splendid origins and today form a single public library with different sections to cater for all users (Figure 8).



Fig. 8: Biblioteca Sant Pau-Santa Creu/Sant Pau-Santa Creu Library, Barcelona. Architect: ARQ FORUM S. L. © Ignasi Bonet.

Convents sometimes have courtyards or cloisters and the façades tend to have regular openings that provide good natural light which can be optimised in pro-

jects reusing the buildings for libraries. The public library Biblioteca Joan Triadú/ Joan Triadú Library in Vic (<https://bibliotecavirtual.diba.cat/es/vic-biblioteca-joan-triadu>; <https://bibliotecavirtual.diba.cat/documents/351872/0/VIC-Biblioteca+Joan+Triad%C3%BA.pdf/8287a430-575d-4f0b-adc0-f164813898e1>) occupies the cloister and one half of the former Convent del Carme, capitalizing on the light available, with the remainder of the building occupied by a museum (Figures 9 and 10).



Fig. 9: Biblioteca Joan Triadú/ Joan Triadú Library, Vic. Architects: Bosch-Cuspinera Associats. © Oscar Ferrer, ago2.



Fig. 10: Biblioteca Joan Triadú/ Joan Triadú Library, Vic. Architects: Bosch-Cuspinera Associats. © Oscar Ferrer, ago2.

In buildings formerly operating as schools and hospitals, layouts using a central corridor with classrooms or dormitories on either side mean that large spaces can be liberated for alternative use. Conversely, a layout with a lateral corridor which is separated from the rooms by load-bearing walls offers only continuous spaces which are difficult to convert.

The public library Biblioteca Nou Barris/Nou Barris Library in Barcelona (<https://bibliotecavirtual.diba.cat/es/barcelona-nou-barris-biblioteca-nou-barris>; <https://bibliotecavirtual.diba.cat/documents/346997/0/Pl%C3%A0nols+i+fotos+de+la+biblioteca+Nou+Barris/888d7f24-611a-4843-aff-134afb144b87>) occupies part of the former Institut Mental de la Santa Creu/Santa Creu Mental Institute. In the refurbishment, it was possible to locate the staircase and the lift at the intersection of two areas at right angles to each other (Figure 11). Redistribution of spaces for parts of the Library were facilitated (Figure 12).



Fig. 11: Biblioteca Nou Barris/Nou Barris Library, Barcelona. Architects: Ricard Pèrdigo and Tomàs Rodríguez. © Santi Romero.

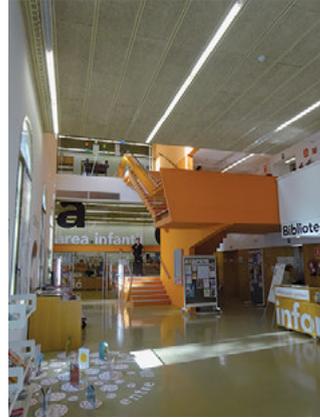


Fig. 12: Biblioteca Nou Barris/Nou Barris Library, Barcelona. Architects: Ricard Pèrdigo and Tomàs Rodríguez. © Santi Romero.

Industrial Buildings

Industrial buildings are perhaps the most suitable for recycling as libraries, having initially been designed to be used by large numbers of people simultaneously. The structural system tends to be highly resistant to overloading and is distributed using pillars, which allows for flexibility.

Factories or warehouses generally have large, single-level spaces and the façades are likely to have large openings that let in natural light. These features have been used to good effect in the public library Biblioteca Can Manyer/Can Manyer Library which occupies one of the buildings of a former textile factory (<https://bibliotecavirtual.diba.cat/es/vilassar-de-dalt-biblioteca-can-manyer>; <https://bibliotecavirtual.diba.cat/documents/29951453/0/VILASSAR+DE+DALT++Biblioteca+Can+Manyer.pdf/d8ae7185-1fc9-47f2-8bd1-3fb56bfcf802>) in Vilassar de Dalt (Figure 13). In 2018, the public library Biblioteca Montserrat Abelló/Montserrat Abelló Library in Barcelona (<https://bibliotecavirtual.diba.cat/es/barcelona-les-corts-biblioteca-montserrat-abello>; <https://bibliotecavirtual.diba.cat/documents/346767/0/BARCELONA+LES+CORTS++Biblioteca+Montserrat+Abell%C3%B3+i+Soler+.pdf/fae73678-c46f-4278-95ab-32b839efa6f2>) opened in the former Benet i Campabadal factory. The factory was originally built in 1924 for the production of silk ribbon and in 1990 converted to a facility combining glassmak-

ing, industry and art. The library's design and impact result from the way natural light is used with open façades and skylights (Figure 14).



Fig. 13: Biblioteca Can Manyer/Can Manyer Library, Vilassar de Dalt. Architects: Xavier Fabré and Lluís Dilme. © Oscar Ferrer, ago2.



Fig. 14: Biblioteca Montserrat Abelló/ Montserrat Abelló Library, Barcelona. Architects: Ricard Mercadé and Aurora Fernández. © Mercè Millan.

The Biblioteca Central Tecla Sala/Tecla Sala Central Library in L'Hospitalet de Llobregat (<https://bibliotecavirtual.diba.cat/es/hospitalet-de-llobregat-l-biblioteca-tecla-sala>; <https://bibliotecavirtual.diba.cat/documents/348151/0/L%C2%B4HOSPITALET+DE+LLOBREGAT-Biblioteca+Tecla+Sala.pdf/72872342-9be8-449a-aac7-c09ff3cf1199>) occupies a former textile factory that was renovated to house a cultural centre comprising a public library and a museum of identical dimensions. Since both organisations wanted the best location inside the building, the architect opted for a Solomonesque solution, coming up with the idea of an exterior ramp to locate the entrance adjacent to both facilities in the geometric centre of the building. From there, the museum occupies half of the first floor and all the ground floor, while the library occupies the other half of the first floor and all the second floor (Figures 15 and 16).



Fig. 15: Biblioteca Central Tecla Sala/Tecla Sala Central Library, L'Hospitalet de Llobregat. Architect: Albert Viaplana. © Oscar Ferrer, ago2.



Fig. 16: Biblioteca Central Tecla Sala/Tecla Sala Central Library, L'Hospitalet de Llobregat. Architect: Albert Viaplana. © Oscar Ferrer, ago2.

Churches

Churches offer opportunities for transformation into libraries. They tend to be centrally situated in urban areas and have large spaces with no internal subdivisions. The disadvantage is that they are closed to the external environment and have little natural light to the interior. The large volume of internal space makes such structures difficult to heat or cool. The Centro de Documentación de las Artes Escénicas de Andalucía/ Andalusia Performing Arts Documentation Centre (<https://divisare.com/projects/300122-ssw-arquitectos-fernando-alda-centro-de-documentacion-de-las-artes-escenicas-de-andalucia>; <https://www.junta.deandalucia.es/cultura/redportales/cdaea/>) in Sevilla, was an adaptation project for the church of Santa Lucia for use as the Andalusia Performing Arts Documentation Centre. The 14th century church with its three naves separated by brick arches made a good home for the documentation centre but providing appropriate air conditioning proved challenging (Figure 17).



Fig. 17: Centro de Documentación de las Artes Escénicas de Andalucía/ Andalusia Performing Arts Documentation Centre, Sevilla. Architect: Miguel Bretones del Pozo (SSW Arquitectos). © Curro Casillas.

Markets

Markets no longer in use are types of buildings which can be transformed into libraries. They generally have central locations in an urban context and large spaces without internal subdivisions. Their structure meets the flexibility and strength requirements of a library, and ceiling heights allow floors to be added.

Working Methods

When the renovation of a heritage building for library use is considered, it is a good idea to analyse all the historic, architectural, technical and financial questions to assess the extent of the operation. The detailed results of the analysis will facilitate the decisions to be made in planning the project. A general overview and concept brief must be prepared and careful financial considerations borne in mind in determining aspects of the project.

The variety of different projects and types of historic buildings being used makes it difficult to generalize about a specific working method. However, any assessment of the overall project should include the following phases:

- Determination of the objectives of the new facility and the outcomes required
- In-depth study of the existing building and its surrounds, identifying any issues
- Diagnostic report.

Determining the Objectives of the New Facility

The first step would be to devise a quantitative and qualitative functional programme of outcomes, based on the library's needs as defined by examining documentation, surveys and consultation with stakeholders. The requirements for the new facility should be identified without considering that it will be housed in a historic building.

In-depth Study of the Existing Building

The next phase would be to study the building in detail, paying attention to:

- The general state of preservation of the building
- The most significant defects
- Strength of the walls, foundations and structure
- Historic building legislation identifying the features which must be retained and those which can be modified
- The surface area of the building and dimensions of the principal spaces
- The repercussions of adapting the building to accessibility, fire and other regulations.

Diagnostic Report

Finally, a report that includes the following aspects would be produced:

- A comparative study of the library's requirements covering the contents of the functional programme and the adaptation potential of the building
- An assessment of the complexity of the project
- An approximation of costs involved.

Summary and Conclusion

Leaving political and social interests and pressures aside, the following factors should come together before deciding to install a library in a historic building:

- Satisfactory location as demonstrated with the Biblioteca Joan Triadú/ Joan Triadú Library which occupies the cloister and one half of a religious convent in the historic centre of the city of Vic (Figure 18)
- Building typology suitable for the new purpose as shown with the Biblioteca Can Manyer/Can Manyer Library in a former textile factory (Figure 19)
- Surface area sufficient for the whole programme to operate on a small number of floors
- Favourable diagnosis of the state of the building
- Appropriate budget.



Fig. 18: Biblioteca Joan Triadú/ Joan Triadú Library, Vic. Architects: Bosch-Cuspinera Associats. © Oscar Ferrer, ago2.



Fig. 19: Biblioteca Can Manyer/Can Manyer Library, Vilassar de Dalt. Architects: Xavier Fabrè and Lluís Dilme. © Oscar Ferrer, ago2.

And finally, if the project goes ahead, it is important to accept two things:

- The library may not be as functional as it would be in a new building designed specifically for the purpose, because the functional programme may have to

adapt to the limitations of the existing building, for which the right solution will have to be found.

- The architect must enjoy a certain degree of creative freedom, despite the restrictions imposed by working on a historic building.

Reuse projects are often executed under the public gaze and a vote of confidence must be given to the architect who decides to echo the architectural language of the original building or, alternatively, chooses to mark new interventions by using a 21st century design.

In this chapter, the advantages and disadvantages of the rehabilitation of historic buildings for library use have been described; the architectural characteristics of the different building types analysed; and a work methodology has been proposed to help reach the appropriate decision when faced with specific situations. Further details can be found in Romero's book on library architecture (Romero 2008).

On many occasions the size of the building to be renovated is insufficient to house the library being planned and it is necessary to carry out a renovation and extension project. The difficulty of this type of project is finding the fit between the architectural solution adopted for the historic building and that for the proposed extension. The successful blending of old and new is complex and challenging and how to find successful solutions must be left for another day.

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Karen Latimer

3 The Reuse of Buildings: Libraries Behaving Sustainably

Abstract: The chapter takes a broad overview starting from the premise that reuse of buildings has obvious benefits in terms of recycling materials and retaining the embodied energy contained within the structure. It focuses on the opportunity for libraries to adopt a fully sustainable approach by locating in existing buildings in need of a new use which has the added advantage of creating a sense of place and community identity. Examples of old buildings that have been brought back into use as libraries are discussed as are the challenges of sensitively adapting listed buildings and blending old and new elements respectfully and imaginatively. Most of the examples discussed are drawn from the United Kingdom and Ireland although reference is made to other worldwide examples.

Keywords: Library buildings; Buildings – Remodelling for other use; Sustainability; Library buildings – United Kingdom

Introduction

Sustainability, it could be argued, is nothing new. Indeed, in the stimulating and exciting world of library design, sustainability is very much part of any discussion. The question to ask is, however, has the awareness of what sustainability constitutes been misplaced? In the quest for energy-efficient, environmentally friendly new buildings, is there a failure to recognise the legacy and value of old and historic buildings? Historic buildings are valuable because they are beautiful, rare, indeed often unique, and because they tell the story of the world's towns and cultures. What could be more sustainable than keeping buildings with the embodied energy existing within them, not to mention the skill and effort involved in constructing them in the first place. All the energy contained in a building, that is the energy used to produce the materials which make up the building, is wasted if the structure is demolished. None of this energy is wasted if the building is reused. An English Heritage report pointed out that the energy used in the construction of a typical Victorian terrace house is equivalent to the amount of energy that could drive a car five times round the earth (English Heritage 2004). Retaining and reusing existing building stock prevents that energy from being wasted.

Of course new buildings are needed but careful thought is also needed about their impact and the ever-increasing demands they put on an already overloaded infrastructure. Simon Sturgis, Chairman of the UK Royal Institute of British Architects Sustainability Group, has commented that, “The connection needs to be made between the climate emergency and all-glass buildings. But the connection hasn’t been made yet” (Tapper 2019). Glass is not the only building material causing concern. Concrete is now widely recognised as highly damaging to the environment. Some recent figures which might help to focus the mind are as follows:

- Approximately 8% of global CO₂ comes from concrete production (Watts 2019);
- 10% of all industrial water use goes to making concrete (Watts 2019);
- Every hour the global concrete industry pours enough to fill the Albert Hall in London four times over (Watts 2019);
- Concrete entombs fertile soil and biodiverse habitats (Watts 2019);
- “The design, construction, occupation, maintenance and demolition of the world’s built environment consumes about 50% of all the raw materials annually. In the UK we consume over 600 million tonnes of new products every year and generate over 200 tonnes of waste; 125 million tonnes of this is construction waste. Our industry creates 45% of UK CO₂ emissions” (Baker-Brown 2019).

As people dutifully recycle paper and plastic, glass bottles and aerosol cans and indeed building materials, they should reflect on the even greater impact of recycling buildings.

A Future for the Past

The architectural historian Nikolaus Pevsner was a great believer in the importance of architecture as it is all around, needing only to be noticed. The journalist Rachel Cooke commenting on recent listings of historic buildings by Historic England noted that when one looks at such buildings, “not only does the sweep of history wash over you in an invigorating wave; you picture, too, all those individuals, communities and experts who have campaigned long and hard for their cherished lido or lychgate to be protected and somehow it gives you hope.” She goes on to say, “The more we look, the more we see; the more we see, the happier we feel. Gaze only at the pavement and it will do your soul no good at all” (Cooke 2019, 57). She could easily have added libraries to her list, and indeed does mention them in her article. The subject of wellbeing and libraries is for another

book, but it is worth noting the connection between a sense of place, mental health and identity in the sustainability argument. The novelist, Ralph Ellison, has been credited with saying that if you do not know where you are you do not know who you are. Increasingly nowadays there is a growing awareness of the need to live sustainably and to preserve community identity, part and parcel of which is the need to retain architectural distinctiveness. Historic buildings shape individuals' memories and their sense of belonging.

The close link between community and sustainability has been starkly highlighted in recent studies on the demise of the High Street in the UK and the similar challenges of revitalising the Main Street in America. As shopping streets and town centres decline, there will be no shortage of buildings in search of new uses. Too often the solution to reviving a seemingly failing urban area is to build something big and bold such as a new leisure centre, sports arena or retail complex. Rather than necessarily being the shining beacons of a bright new future, these wonders can all too soon become less shiny white elephants as the wheel of fashion moves on to the next big thing. Small, too, can be powerful. Areas with older, smaller buildings are often more dynamic, diverse and lively than those with large new buildings. Authenticity matters in today's complex world. The value of uniqueness should not be ignored nor should the environmental, psychological and social power of historic assets. In the early sixties the American architectural journalist, Jane Jacobs, wrote a searing attack on the then current ideas about city planning and rebuilding in her book *The Death and Life of Great American Cities* (Jacobs 1961). She argued that large scale demolition and replacement of older, smaller buildings with large new structures drains the life and vitality from urban neighbourhoods. Much of what she said is as relevant today as it was when first written and it is an argument used powerfully by the team at Main Street America.

Ed McMahon, Chairman of Main Street America and Senior Fellow for Sustainable Development at the Urban Land Institute Washington DC, speaking at the 2019 Heritage Trust Network conference in Derry, Northern Ireland, said:

It is a mistake to think that economic revival is always about “the one big thing.” America's communities are littered with projects that were sold as the “silver bullet” solution to a city's economic woes. Whether it was a festival marketplace, a convention center, a casino, a new factory or a big box store out on the highway, locality after locality has followed the copycat logic of big project mania. However, successful economic development is rarely about the one big thing. More frequently, it is about lots of smaller things working synergistically together in a plan that makes sense. (McMahon 2019)

McMahon went on to point out the many challenges of the 21st century including changes in climate, demographics, energy, technology, health care and consumer

attitudes. He also stressed the importance of place in today's economy and highlighted the move from a traditional economic model which is product driven and cost sensitive to one which is knowledge driven and value sensitive. And what could be more relevant to libraries than that?

Libraries and Sustainability

Where, then, do libraries fit in? In recent years, spectacular new library buildings have grabbed the headlines and attracted public attention. These buildings are rightly proud of their sustainability credentials employing energy-saving approaches, sustainably sourced materials and approved fixtures and fittings. Nonetheless, new buildings inevitably make a demand on the environment and add additional strain on infrastructure. Two previous books in the IFLA Publications series look at green issues (Hauke, Latimer, and Werner 2013; Hauke, Charney, and Sahavirta 2018). Both focus on sustainable strategies and services in libraries rather than whole building recycling and a chapter in the 2013 work on sustainability as a tool to build community defines developing a green building as “the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from site selection to design, through construction, operation, maintenance, renovation and deconstruction” (Genovese and Albanese 2013, 41). The definition is based on the premise of a new building. A later chapter on the second-hand library, however, foreshadows the growing interest in the reuse of existing buildings. The authors note that, “the transformation of an existing building with a prior non-library function into a library brings the challenge and the opportunity for sustainable thinking in library planning” (Hauke and Werner 2013). They cited examples including a 1950s textile printing factory, an EXPO pavilion, a railway station and a post office mailing centre. An extremely useful discussion on the factors to consider when transforming old buildings into libraries is given in the IFLA Guidelines (Romero 2007) and by the same author in this book.

Libraries, whether they serve universities and colleges or the general public, lie at the very heart of their communities. At the centre of almost every city, town or village is an historic building in need of a new use. Surely it is not beyond the bounds of imagination to bring these two things together. Libraries are increasingly becoming one-stop shops for many services and community activities and librarians have long held an enviable reputation for providing help, support and advice with the skills and knowledge to access a vast array of information in many different formats. By retaining and innovatively reusing existing buildings,

libraries can highlight their cultural and social credentials; by aligning with their regional and local identity they can tap into vibrant communities who appreciate authenticity and create places where people want to be.

Putting Theory into Practice

The Society for the Protection of Ancient Buildings was founded in 1877 by William Morris, the English artist and craftsman. At the core of its manifesto was an emphasis on honesty in building fabric and respect for the layers of history; much of what Morris encouraged holds true today. When restoring and adapting an old building for a new use it is important that good new architecture complements and respects that which already exists. Successful schemes are those where the relationship between old and new elements is clearly understood and where there is a creative and imaginative approach as to how they will work together in the future.

Case studies of libraries which meet the above criteria and have breathed life into old buildings are presented in the second part of the book. In this more general overview a few examples, mainly from the UK and Ireland, which demonstrate the successful reincarnation of existing historic structures as libraries at the heart of their communities are briefly discussed. This can, of course, only be a selection and is based on the author's experiences as an inveterate visitor to library buildings old and new mainly as a member, and former Chair, of the IFLA Library Buildings and Equipment Section Standing Committee and as Secretary of the LIBER Architecture Group; a trawl through the literature will reveal many more projects that deserve to be lauded for their achievements. There are also many examples of existing libraries, such as the Weston Library at the University of Oxford, the Brynmor Jones Library at the University of Hull and several Carnegie libraries that have been skilfully refurbished but not being new uses they fall outside the scope of this book. Well worth a look, however.

Ireland

Rush Library, County Dublin

The problem of redundant churches has long been an issue in England but not so much in Ireland. Increasingly, however, churches are falling into disuse in

Ireland and new uses are being sought for them. One such example is the 19th century St Maur's Church in the small village of Rush in north County Dublin.



Fig. 1: Rush Library, Co Dublin: exterior.
© Ros Kavanagh.

The architects McCullough Mulvin have a deep understanding of Irish architectural history and experience of designing library buildings, so they were the ideal practice to transform the church into a public library for the town. The church is beside the sea and the architects chose to make a distinct intervention which they describe as like a clump of seaweed in plan to reference its marine location. In reaching a resolution the architects and clients debated the function of libraries and explored what an appropriate 21st century public space might be. They wanted to create a sense of place and forge a synthesis between old and new. Describing their approach to the project, the architects said:

And although great libraries use books to make the architecture, and books remain at the core of their meaning, libraries are not storehouses and must provide space for dreaming and thinking, and in modern libraries – discrete niches for a range of activities, for children, for older people, for groups, within a coherent whole. Increasingly (and especially in wet climates) they have a developing role as community public space – theatres of life and places for performance and observation. (McCullough and Ryan 2010, 14)

The dialogue between old and new is carefully nuanced so that glimpses of the old church blend with the new library requirements. The existing fabric is conserved and new spaces created so that old and new gain by proximity. Internally the intervention is quite major but externally it is minimal with the only significant change being a highly symbolic light box in the tower, a beacon of knowledge that can be seen far out to sea (Figure 1). The library entrance is through the

old west door leading into the adult library and services desk, the children roam throughout the transepts and the chancel is now an art space with other activities such as function and lecture rooms in the side chapels and galleries (Figure 2). The churchyard has become a garden retaining the spirit of the graveyard while creating a playground and a protected public space for future generations (<http://mcculloughmulvin.com/projects/rush-library>).



Fig. 2: Rush Library, Co Dublin: interior intervention. © Christian Richters.

McCullough Mulvin has also refurbished Carnegie libraries in Waterford and Blackrock, but these fall outside the scope of this book as the original buildings were designed to be libraries. However, their reuse of a terrace of typical Dublin Georgian houses as the new Dublin Dental School and Hospital which includes a new rooftop library picks up on the theme of converting spaces for a new use. Here a more radical approach has been taken to re-imagining the buildings. The rooftop is transformed by the addition of zinc pods containing a new library with light-well stalks forming niches and spaces around a corridor intervention linking the houses laterally.

Abbeyleix Library, County Laois

Another Dublin architectural practice which has transformed an historic building into a library is De Blacam Meagher at Abbeyleix, County Laois. Originally built as a market house in 1836, it was remodelled in 1906 as a fire station with a library on the first floor. It has now been transformed into a branch library on three floors. The entrance at ground floor level leads to the borrower services desk and art spaces; the first floor has adult lending, IT, reprographics and the librarian's office; the children's library, storytelling and craft areas are on the second floor (<https://laois.ie/departments/libraries/branch-libraries/abbeyleix/>).

Dublin City Library

An exciting project which has been in the mix for some time is that for a new Dublin city library to provide an inspiring place in which all can learn, create and participate. The high-level vision is to deliver a cultural quarter for Dublin at Parnell Square anchored by a city library. The proposed development will encompass work to eight Grade I listed Georgian houses with a significant new build to the rear and the development of a new public plaza along Parnell Square North (Figure 3). Phase 1 of the project is at planning application stage in 2021 and will deliver the new build and one of the Georgian houses at 27 Parnell Square with an estimated completion date of 2023/24. Further phases will see the conservation and reuse of the remaining seven houses and the completion of the public plaza.



Fig. 3: Dublin City Library: proposed Georgian house interior. © Grafton Architects/Shaffrey Architects.

The brief for the new library is visionary and is based on seven key concepts: learning at the heart of the library; an inspiring place for children, young adults and families; a civic meeting place; a Storyhouse (literature centre); an

Innovation Hub for business; a place for forging relationships, connections and collaboration; and a digital library (<http://parnellsquare.ie/about-the-project/city-library-services/>). Its location beside the existing acclaimed Dublin City Gallery in Parnell Square, the earliest of the Georgian residential squares, is of great cultural and civic significance. Most exciting in the context of a book about breathing new life into old buildings is the overlapping of the historic and the contemporary. As Grafton’s design statement states: “We overlap the contemporary with the 18th century, the great Library Hall as public room overlaps with the generous, domestic intimacy of the houses” (Grafton Architects 2018, 13).

Northern Ireland

Medical Library, Queen’s University Belfast

The main university library at Queen’s University is a purpose-built state-of-the-art 21st century building but the Medical Library (<https://www.qub.ac.uk/directorates/InformationServices/TheLibrary/Locations/MedicalLibrary/>) is in a late 19th century High Victorian warehouse (Figure 4). The Mulhouse Works opened in 1881 for the weaving, bleaching, printing and warehousing of linen goods. It is an impressive structure in terms of its massing and scale built to demonstrate to the public the value of the enterprise within. The exterior is rich in detail with ornamented windows and an imposing entrance door.



Fig. 4: Queen’s University Medical Library. © Queen’s University Belfast.

The weaving factory has been replaced by the library but the grand entrance door still welcomes the new users into the building. Inside, the building’s original spatial configuration can be read despite subsequent internal partitioning par-

ticularly in the library offices on the first floor, but much of its lavish detailing is still evident in the staircases, barley-sugar cast-iron columns and in wall and ceiling panelling. The building is of local historical interest, retaining much of its original fabric, and is of considerable social interest as it was once a major place of employment in the area. It is now a comparatively rare example of its type and has been converted very successfully to a practical library space with great character and ambience. Being a medical library much of the material is now available online with the historic collections shelved in compact storage at the back of the building and most of the space is devoted to zoned reading areas, group study rooms, teaching areas and library services.

Another remarkably successful example in Belfast is a school library created in a Greek Revival church building designed in 1833 by William Farrell. The building closed in 1993 and was burnt out in an arson attack in 1996 but restored as a library and IT centre for the Royal Belfast Academical Institution in 2002 (<http://rbai.org.uk/Page/RBAI-Library/4873/Index.html>).

England

Central St Martins Library, University of the Arts London

Another former industrial building that is now used as a library is the grain store, designed in 1851 by Lewis Cubitt, which is part of the Granary complex behind St Pancras and Kings Cross railway stations overlooking the Regents Canal in London. The library serves Central St Martins which was formed in 1989 through the merger of Saint Martins College of Art and Central School of Arts and Crafts. The library, which opened in October 2011, is located on the second and third floors and totals 1,800 m². Later a learning zone was created on the first floor and linked to the library by a staircase giving a total of 3,000 m² across three floors. The result is a flagship space that students regard as being welcoming and inspirational. It provides improved access to hybrid collections in a high-quality library environment with flexible study spaces catering for a wide range of activities. The library also provides state-of-the-art, self-service and Wi-Fi technology and valuable display space for exhibitions. Stanton Williams, architects for the Central St Martins complex, are currently working on another library in an historical context, the Clermont-Ferrand Metropolitan Area Library.



Fig. 5: Central St Martins, University of the Arts London.
© John Sturrock.

Pat Christie, the former Director of Libraries and Academic Support Services at University of the Arts London (UAL) has commented on the importance of the library as place underpinning the student experience and satisfaction levels at UAL. It is a place for inspiration as well as information, and a place for creative practice as well as scholarly research. Christie is realistic about the restrictions of locating a library in a 19th century listed building with solid walls and low ceilings, however, and cites environmental management, IT infrastructure and flexibility as major challenges. Despite the challenges, the success of the library is indisputable and the decision to preserve and celebrate the original features of the Granary Building fully justified particularly in the context of a creative institution (Figure 5). There has been a massive increase in usage levels and feedback has been overwhelmingly positive. It is a stunning building which works well and has the wow factor in abundance (<https://www.arts.ac.uk/colleges/central-saint-martins/student-life-at-csm/facilities/general/library>).

The University of Lincoln Library

The University of Lincoln's award-winning library is housed in the old Great Central Goods and Grain Warehouse built in 1907 and abandoned in 1998. The building is strategically sited in the heart of Lincoln next to the historic waterfront, an area revitalised by the growth of the university. It was sensitively restored in 2004 and is now a highly popular, fully functioning library with four floors and a mezzanine floor to give extra space; a variety of seating areas; meeting rooms; and IT labs. A key feature of the brief was to encapsulate a sense of interaction between the public and the student population (<https://www.visitlincoln.com/things-to-do/university-of-lincoln-library>).

The Storyhouse, Chester

Another building type which lends itself to new uses is the cinema. A successful example of a cinema transformed into a library and much more can be found in Chester, a historic city in northwest England, founded as a Roman fortress in the 1st century CE. The Art Deco Odeon cinema, designed by Robert Bullivant with Harry Weedon who was responsible for all the Odeons at the time, opened in the town in October 1936. In deference to its historic context close to the cathedral and Victorian town hall, it was designed in red brick rather than faced with ceramic tiles as was the case in other cities. The building was Grade II listed in 1989 but after many years as a cinema it closed in 2007 and remained unused until the Storyhouse project came to fruition in 2017. The £37 million project transformed the 1930s cinema into a theatre, cinema and library building with restaurants and bars and has won many awards including one for the best reuse of an existing building. It has brought a much-loved building back into use and transformed Chester's Northgate area.

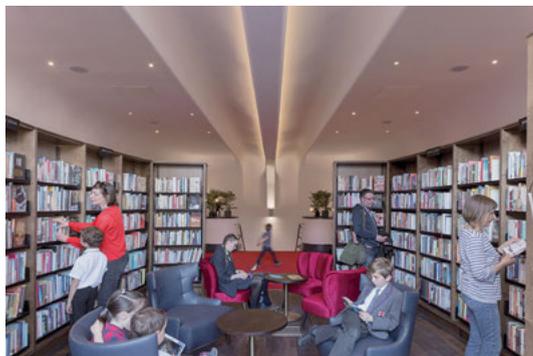


Fig. 6: Storyhouse library reading room, Chester.
© Peter Cook.

Storyhouse aims to connect people through storytelling and the library is central to that vision. It weaves its way across all three floors providing reading rooms, meeting and study spaces, over 700 m of shelving (Figure 6) and an exciting and creative children's library with opportunities for arts and crafts as well as storytelling in the Den and Storytelling Room. The library's website describes it as, "an inspirational place for adults and children alike, to keep, make, and share great stories and ideas." Demco Interiors were the consultants on the interior furnishings, shelving and fittings and they have cleverly echoed the Art Deco style by housing the steel Cantilibra shelving within a dark stained and lacquered plywood frame. The joinery used throughout the building also picks up on the Art Deco theme (<https://www.storyhouse.com/about/the-building>).

There has been some adverse comment about noise and cramped conditions, but this is far outweighed by recognition of the role Storyhouse has played in reviving library use in Chester and beyond. It is an attractive and inspiring space and the advantages of co-location, a recurrent theme in reusing historic buildings, include the opportunity to hold joint events and keep the library open for longer hours. As well as a vast increase in individual user numbers, there has been a significant uptake from community groups who use Storyhouse as their base. The *Library Planet* website description sums up the atmosphere of the building perfectly:

A place full of art, performance and wonder but where, magically-enough, the library collection itself – rather than finding itself lost in all of the excitement – now permeates every nook, corridor and corner. The cookbook section covers the restaurant walls, old card catalogue cabinets repurposed as tables sit in the study areas and quotes from poet Lemn Sissay are quite literally writ large on the walls in playful, bold typefaces (<https://libraryplanet.net/2019/09/04/the-storyhouse-chester-england-once-upon-a-time-there-lived-a-library/>).

Some Churches, a Brewery and a Swimming Pool

The former All Saints parish church in Oxford is a very important early Palladian building probably designed by Dean Henry Aldrich in 1701–10 and restored in the late 19th century in various phases with the hand of the famed architect Nicholas Hawksmoor also in evidence. The handsome church became redundant in 1971 and was offered to the College where it found a new use as the library for Lincoln College Oxford in 1975. It is not a recent project but it is certainly an inspirational example. The only major change to the interior was the raising of the original floor to provide space for a lower reading room and the Senior Library containing a collection of old and rare books was located beneath the east end of the church in a fine room with 18th century panelling. The upper reading room, the Cohen Room, has an impressive, plastered ceiling, decorated with the shields of the original major subscribers to the rebuilding. In addition, it must be one of the few examples of a library with a full peal of eight bells, and these are still rung regularly! (<https://lincoln.ox.ac.uk/student-life/learning-at-lincoln/library-and-resources>).

Another, more recent, restored church is the listed St Mary's at Lichfield in Staffordshire. Library design firm, Opening the Book, worked with local architects BHB Architects, who have significant experience in conservation work, to revitalise the space as the new town library on the ground floor and an events space and gallery on the first floor. The challenge was to create an attractive, functional

space while retaining the listed elements in the historic building. A great deal of thought went into the colour scheme and detailing to complement the existing stonework and architectural features. That the challenge was met can be seen in the vastly increased visitor and borrowing figures (<https://www.openingthebook.com/library-design/case-studies/church-public-library-refurbishment>).

One other project that can stand as an exemplar is the 2019 transformation of the brewhouse of the former Redruth Brewery, which stands at the heart of the Cornish Mining World Heritage Site, into an archive and library. Kresen Kernow houses the largest collection of information on Cornwall's people, places, history and culture from 1150. As well as holding some 1.5 million records, it has research rooms, exhibition spaces, learning rooms and digitisation and preservation suites. The very experienced architectural practice, Purcell Architects, led the design team for the whole complex with Demco Interiors working on the furnishing and library shelving for the library and archive areas. The result is a design which respects the heritage of the original building while providing a modern library and archive service. It achieves the holy grail of blending old and new in a sympathetic way (<https://kresenkernow.org/>).

In Warwickshire in the historic town of Royal Leamington Spa there is even a swimming pool that has been converted into a library. Library users are delighted to see the building back in use and fondly remember looking up at the roof while doing backstroke (<https://www.royal-leamington-spa.co.uk/leamington-spa-library/>).

Scotland

The Olympia Cinema, Glasgow

In Scotland, another example of a cinema reused as a library can be found in Glasgow. The Olympia cinema at Bridgeton Cross was a much-loved landmark building which opened in 1911 and served its community until the mid-1990s when it fell into disrepair. Responding to local wishes, the Olympia was bought in 2009 as part of a wider development and work began in 2011. Unlike other examples cited in this chapter much of the structure was demolished to accommodate multiple new uses, including the library and café on the ground floor but the B-listed façade was retained, which was crucial to the character of the area and sense of place. The Olympia, sensitively combining old and new under the skilful direction of Page and Park Architects, who worked on the restoration of the world-famous Charles Rennie Mackintosh building at the Glasgow School of

Art, was opened to great acclaim in 2012. The public library has an extensive collection in all media, PCs, community spaces, a children's area and Scotland's first Médiathèque. The number of users has tripled and the impact on the surrounding area has been immense (<https://www.glasgowlife.org.uk/libraries/venues/bridgeton-library>).

The Courthouse, Grantown-on-Spey

The other Scottish examples include a courthouse and another church. Grantown-on-Spey is a small town in the north of Scotland. Its new library is in the handsome, historic courthouse conveniently sited in the busy town square. The vision for the library, which is co-located with the Highland Council's Service Point, was to provide an up-to-date community hub alongside traditional library services. Thanks to its ideal location, historic connotations and its stylish interiors, created by library designers The Design Concept, the library has proved to be very popular both with locals and visitors to the Cairngorm National Park (<https://www.highlifehighland.com/libraries/grantown-on-spey-library/>).

Martyrs Kirk, St Andrews

Further south on the east coast in the historic university town of St Andrews is a postgraduate library located in the old Martyrs Kirk designed by Gillespie and Scott in 1928. The transformation into a library in 2014 was again carried out by



Fig. 7: Martyrs Kirk postgraduate library, St Andrews University. © Andrew Lee.

Page and Park with great sensitivity and respect for the original architecture. Client and architect alike were clear that this should not just be a case of putting a reading room into the empty volume of an old church; instead, using crafted desks and shelving carefully placed between the arches, they have created an intimacy within the greater volume and married the academic use with the ecclesiastical nature of the architecture (Figure 7). Further accommodation has been provided in the side halls with similar care and consideration (<https://www.st-andrews.ac.uk/library/contact/departmental/martyrs/>).

Wales

Holyhead Market Hall Library and History Centre

From Wales is another example of a market hall reuse. The Grade II listed market hall in Holyhead was built in 1855 but closed in 2000 and lay derelict until purchased under a Compulsory Purchase Order (CPO), a legal directive allowing certain bodies to obtain property without the owner's consent, in 2015. Work to transform it into a library finally started in early 2016 with the refurbishment of the original iron gates. The building opened to the public again in September 2019 as the Holyhead Library complete with a local history centre, a teen-focused area, meeting rooms, a commercial area and a coffee shop, event space and proposals for an extensive heritage interpretation in development. Again, architects Purcell and interior library designers Demco were involved in the project as at Redruth and again the goal was to create a functional, attractive interior that remained sympathetic to the heritage of the original building. An added challenge was the raked flagstone floor in the foyer and local history area which required bespoke furniture and shelving to take account of the change in floor levels (<https://www.anglesey.gov.uk/en/Residents/Libraries/Find-your-local-library/Holyhead-Library.aspx>).

Another Welsh project in the wings is the restoration of the Grade II listed Maesteg Town Hall in Bridgend. The plan is to turn the former indoor market on the lower ground floor into a modern library. It is another multi-use project which will include a heritage and volunteering centre, a café and workspaces (<https://www.maestegtownhall.com/>).

Some Examples from Around the World

Old buildings reused successfully as libraries can be found all around the world. It has been a privilege to visit many excellent examples in the role of library consultant but in this short chapter it is possible to mention only a couple of the most inspirational.

The University of Luxembourg Learning Centre, Belval Campus

The Luxembourg Learning Centre (LLC) (Figure 8) designed by Valentiny HVP is a spectacular example of an existing structure transformed into an innovative and inspiring learning centre for the students at the University of Luxembourg. It is part of an extremely ambitious project to regenerate the industrial site at Belval following on from a prolonged recession in the steel industry in the 1980s–90s culminating in the closure of the last of the blast furnaces in 1997. The Fonds Belval was created to construct the Cité des Sciences in 2002 and it was decided to make Belval the main campus of the newly formed University of Luxembourg in 2005.



Fig. 8: University of Luxembourg Learning Centre exterior, Belval. © Ignasi Bonet.

The LLC, which opened in 2018, was cleverly integrated into the steel structure of the old Möllerei beside the two remaining blast furnaces. The façade is both beautiful and functional; it echoes the design of the old factory windows and regulates the flow of light into the building. From the exterior it appears opaque but from inside it is permeable and creates an atmosphere of openness and character. The interior design continues the feeling of spaciousness with floating platforms on thin slanting columns and a prominent main staircase connecting the spaces from top to bottom (Figure 9). The interior is punctuated with colour thanks to

the brilliantly illuminated shelving and the bright colour-coded furniture distinguishing the different levels of the library. Acoustic panels and sound-reducing carpets help to combat noise levels. The LLC has over 1,000 seats including individual, group and meeting room spaces. It has 10,700 m of shelving as well as a café, conference centre and three garden areas at the top.



Fig. 9: University of Luxembourg Learning Centre interior, Belval.
© Ignasi Bonet.

It is a stunning building that captures the essence of the old whilst creating a bang up-to-the-minute learning centre for a 21st century university (<https://llc.uni.lu/en/>).

HTWG Library, Konstanz, Germany

One of the most atmospheric buildings visited is the library of the HTWG University of Applied Sciences in Konstanz (Figure 10). The library is located on the edge of Konstanz's old town and has stunning views of the lake and the Alps. The listed building was originally an abattoir built between 1877 and 1879 continuing in use until 1991. Work on transforming it into a library began in 1994 and it

opened in 1997 mainly supporting engineering and computer science students but also including material on business administration, design and architecture. The main structural elements were retained with the interior stripped out. The stunning main hall with its beautifully detailed cast-iron columns, elegant ironwork and heavy timber beams provides delightful workspaces and houses the main collection. The interior design and furnishings took their cue from the wood and steel of the original building. Study places can also be found in the side wings and journals reading room and a new area was created in 2017 to provide additional seating. Basements were created under the wings to provide space for toilets and building services.



Fig. 10: Abattoir building, HTWG University of Applied Sciences, Konstanz. © Ignasi Bonet.

Although most of the material is available online, visitor numbers are continually increasing which is not surprising given the atmospheric, and functional, surroundings (Figure 11). One of the slight disadvantages of working within the framework of the existing building was that the front and back offices are further apart than ideally desirable but this is a small price to pay for such a wonderfully evocative library (<https://www.htwg-konstanz.de/en/the-university/facilities/library/start/>).

Having described the grain store that is now the library for Central St Martins in London, it is perhaps pertinent to draw attention to another similar example, the Zwickau City Library in central Germany. Built in 1481 as a communal grain store, it opened as a storehouse of knowledge in 2014. It is one of the largest libraries in Saxony and houses a collection of approximately 15,000 items, a music library, a children's library, a computer area and public meeting space (<https://www.stadtbibliothek-zwickau.de/>).

It was a privilege to join an august body of architects and librarians to judge the competition for the conversion of the courthouse in Macao into the new central library. This splendid building in the centre of Macao was built in 1951 as



Fig. 11: Library interior, HTWG University of Applied Sciences, Konstanz. © Ignasi Bonet.

offices for the Portuguese government including the Judiciary Police headquarters and then became a courthouse. It is a designated structure of importance. While the project has recently been abandoned, it is an interesting example of a reuse proposal (<https://www.macaubusiness.com/new-central-library-project-at-old-court-building-abandoned/>) and pleasingly plans for a spectacular new Central Library in Macau have just been announced.

Conclusion

Examples abound of old buildings which have been successfully reborn as new modern libraries. Some work is better than others but that is the case with libraries built from scratch. Historic buildings in particular have to be updated sensitively, simultaneously respecting key architectural features and enabling the provision of modern-day services. There will always be debate about the balance between purist conservation and modern intervention and between authenticity and functional requirements and each case needs to be looked at individually.

New and existing spaces should speak to, and complement, each other. A library in a listed 15th century church poses different challenges from one in a 1950s office block. In any library project whether it be new build, refurbishment or reuse, there will be constant dialogue and modification as part of the design process.

That there are challenges with reuse of buildings cannot be denied. The holy grail of flexibility and futureproofing can be harder to achieve but is by no means impossible; environmental management and acoustics need to be carefully considered; IT provision with ubiquitous Wi-Fi may require creative solutions but modern technology is well able to cope. And the advantages are legion. Historic buildings tend to have character and ambience, be centrally located, come with a ready-made identity as loved landmarks and have impeccable sustainability credentials.

Finally, in the context of sustainability, reuse and transformation should surely be the default position and demolition and new build the option of last resort.

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Part 2: Case Studies: Public Libraries

Presents examples of public libraries across the world which have emerged from buildings with diverse previous roles ranging from a locomotive shed to a grocery store

Kim Small and Caroline McLeod

4 Patyegarang Place with a New Library and Pavilion Revitalizing a Hospital for Sydney's Inner West Community

Abstract: A new library and pavilion have been built for Sydney's Inner West community from an abandoned hospital building. Following on from an invited design excellence competition, the public was invited to vote for their favourite designs. The Inner West Council selected the design proposal by architects BVN for its originality and approach to blending the heritage-listed buildings with a contemporary structure. Situated on the old Marrickville Hospital, the development established opportunities for urban revitalisation by retaining and embracing the previously abandoned hospital building, adding to it a new building which transforms the site into a new community hub. The heritage-listed Marrickville Hospital building has been carefully refurbished internally and externally, forming the administration areas, small meeting rooms, collection and study areas with outdoor reading areas along newly reinstated verandas. Connected to the old hospital building is a new structure which provides open areas to meet, work, learn and socialise, including a foyer, café, function space, learning rooms, technology area and dedicated junior and youth areas.

Keywords: Public libraries – Australia; Library buildings – Design and construction; Hospital buildings – Remodelling for other use

Introduction

A new library and community hub has opened to the Inner West community in Marrickville, Sydney, Australia (Figure 1). Situated on the site of the old Marrickville Hospital, the development sought to maximise opportunities for urban revitalisation through the reuse of a building to create a new library. Not only was an older, disused building used to revitalise the area, but the design also referenced the site history. The previously abandoned hospital campus and ward block were reorganised and transformed into a new community hub, known as Patyegarang Place. Not only did the project involve the urban revitalisation of an old building, but it also re-examined library typology. Contemporary libraries have evolved to be about more than just books and silence. Libraries of today are places for communities to meet, work, learn and play. This chapter examines the transformation through providing an understanding of the local area, the history of the site, the



Fig. 1: Marrickville Library, Marrickville Road. © Tom Roe.

Facts and Figures

Name: Marrickville Library at Patyegarang Place

Address: 313 Marrickville Rd, Marrickville, Sydney NSW 2204, Australia

Website: <https://www.innerwest.nsw.gov.au/explore/libraries/new-marrickville-library>

Opening: August 2019

Builder: CD Commercial Projects for Mirvac

Architect: BVN Architecture <http://www.bvn.com.au/>

Gross floor area: 3,500 m²

Main floor space: 2,800 m²

Collection size: 80,000

Staff: 30

Workstations: 27

Building costs: AU\$23,000,000

urban contextual approach taken, the architectural response, sustainability and the public art strategy. Reflections on current library operations in relation to the transformation are also presented. Opened to critical acclaim in September 2019, over 50,000 people visited the library in its opening month. The visitation rates and the community's response to the facility confirm that the urban revitalisation of the site has successfully transformed not only the old hospital building but

also its surroundings into an innovative new library and civic hub for the community of Marrickville (Figure 1).

The Local Area – Sydney’s Inner West

Marrickville is located within the Inner West Council, a local government area on the western edge of Sydney’s central business district (<https://www.innerwest.nsw.gov.au/>). With a population of 192,000 people, Marrickville is a place of culturally diverse, progressive inner-city communities and neighbourhoods. The Inner West has a unique character and heritage reflecting waves of migrants with 34.4% of the population born overseas. The average household size is 2.35 people with a population density of 54.5 persons per hectare. An educated and creative community resides in the area, with 41.6% tertiary-educated and 8.8% of the workforce in the creative or performing arts industries (Inner West Council 2016).

Future challenges facing the Inner West community include a projected population growth of 20% over the next 20 years. Forecast population increases, combined with the previous population growth of 21,000 additional residents over the last ten years, are putting pressure on the number and size of dwellings in the local government area. A disproportionate number of residents are facing housing stress with households paying more than 30% of weekly income on housing. There are significant numbers of young people, elderly, people with disabilities, Aboriginal and Torres Strait Islanders, migrants and low-income workers who are experiencing problems. At the same time, a section of the community is becoming gentrified and affluent with a high proportion of people living alone, 30% compared to 23% in greater Sydney. Meeting multiple needs is difficult. Environmental challenges include demand for open green spaces, energy demands during heatwaves and high water use (Inner West Council 2016).

Public infrastructure including library and community facilities with areas for work, study, gathering and play are in critical demand. Spaces for children, families, individuals, students, the elderly and entrepreneurs are required to support the ever-growing community. The urban revitalisation and development of the former hospital site into a library, green space and housing were initiated to address some of the challenges facing the Inner West community by providing a civic hub to support the community and its needs.

History of the Site

The site selected for the new Marrickville Library was the intersection of Marrickville Road, Livingstone Road and Lilydale Street, marking the start of the civic town centre of Marrickville. The site has a rich history and has served many different purposes over the centuries.

Pre-1788

For over 60,000 years the area on and around the new library site was home to the traditional Indigenous Australian custodians of the land, the Gadigal and Wangal clans of the Eora Nation (Irish 2017). The site name Patyegarang Place refers to Patyegarang, a woman from the Gadigal people, who taught the language of her people to the early colonist, astronomer William Dawes, who was responsible for documenting an Indigenous Australian language for the first time in the late 1780s (Keneally 2009).

1788-1897

Following the arrival of the First Fleet from Great Britain in 1788 and early colonial settlement, the land was used for agriculture with settlers growing vegetables and keeping poultry and cattle. Marrickville became an important area for market gardens, orchards and dairies up until the late 1900s. In the late 1800s, Marrickville was ideally located for industrial expansion, with local quarries, brickworks, flour mills, wool and fabric industries (Cashman, Meader, and Carolan 1994). The area was labelled Kangaroo Grounds due to its large population of kangaroos.

1897-1991

Opened in 1897, the Marrickville Cottage Hospital was established to respond to the rising number of injuries that occurred at local factories and industrial sites. In 1922 the site became the Marrickville District Hospital (Figure 2), and by 1935, the hospital had 91 beds and treated up to 7,237 patients each year. The hospital



Fig. 2: Marrickville Hospital, Lilydale Street, 1936. © Inner West Council.

played an important role in the local community, supporting community health, prosperity, economies and growth of the area. Along with local wool and fabric industries, the hospital was pivotal in the transition of women from domestic duties to paid and volunteer work. By the 1970s, a series of funding cuts saw a declining use of the site and the hospital was closed in 1991 (Cashman, Meader, and Carolan 1994).

1991–2015

The hospital site was acquired by Marrickville Council in 1995 and used by a variety of community groups, private individuals and organisations for mainly non-commercial purposes. In 2011–2012, Inner West Council asked the community to contribute to the vision for a new library and community hub. Over 4,000 people participated, marking the largest community response for a Marrickville project. The community was clear; they wanted a diverse and accessible community space that demonstrated leadership in technology and sustainability through its design, programmes and services. Following almost 30 years of abandonment, the site became the focus for urban revitalisation for a new library and civic hub. The site's rich history has been embraced in the design of the library. References to the various historical aspects of the site are evident in the layout, programmatic features, materials used, conservation of the old hospital ward block, art selection and the final naming of the precinct.

The Urban Context

Positioned on the corner of two of Marrickville's busiest roads, Marrickville and Livingstone roads, Patyegarang Place, the site for the new library, has a significant street presence. Its prominent location meant that the urban revitalisation of the site needed to provide a place that contributed to the public realm and amenity to the community. The site masterplan needed to consider the reuse of the existing hospital building and use of the heritage structure in the context of a new library. The scheme was developed with sensitivity to the integration of the past and celebration of the new with the creation of a green space and restoration of Hospital Lane.

A Green Gateway to Marrickville Town Centre

Marrickville Road is the main street and civic heart of Marrickville. The bustling street is lined with shops, amenities, schools and prominent civic buildings such as the Town Hall. Given the significant civic nature of the site, its revitalisation needed to be sensitive to its surroundings while responsive to its urban context. The site of the new library not only brings new life to the area but also forms a new gateway to Marrickville's town centre.

Central to the design is the creation of green space for the public to enjoy. The garden mirrors the grassed forecourt of St. Brigid's primary school on the opposite side of Marrickville Road, creating a green gateway to Marrickville. The garden sits below the road level, with steps and ramps running through zones landscaped with native plants to a lawn area which offers respite from the surrounding busy streets. It has been designed as a central gathering space and provides an active area for families and community groups while creating space for the library to utilise for public programmes. A café which is accessible from both inside the library and externally at street level sits above the lawn. The lawn area is also able to support local markets, an outdoor theatre and a range of community activities such as tai chi.

The landscape design references the historical context of wellness from the former hospital, provides green space in a bustling urban area and is considered restorative and imperative to wellbeing (Figure 3).



Fig. 3: Garden and gathering space of Patyegarang Place.
© Brett Boardman.

Hospital Lane

The site masterplan is respectful of the heritage architecture and the historic fabric of the site. Adjacent to the old hospital building was a pathway referred to by past inhabitants as Hospital Lane. Hospital Lane was the well-worn path that led health practitioners to their quarters and provided a range of through-site links and access points. The pathway is of heritage significance as evidence of an earlier street network (Cashman, Meader, and Carolan 1994). The reconstructed Hospital Lane (Figure 4) establishes an organising spine through the site, leading the public from Marrickville Road to the library, pavilion complex, additional green space and on to the apartments beyond. Hospital Lane provides an important connection between Marrickville Road and the library to increase accessibility for visitors.

The area between Hospital Lane and the old hospital building now hosts the newly built section of the library. A roof canopy extends from the old hospital building, bringing together the old building with contemporary spaces and covering a section of Hospital Lane for added shelter and wayfinding for visitors. The re-establishment and extension of Hospital Lane demonstrates the use of an historic reference point as an opportunity for urban renewal in the design.



Fig. 4: Reinstated Hospital Lane.
© Brett Boardman.

The Architectural Response

Marrickville Library is a building created for the community by the community. The Council and architects approached the development of the new precinct as both a new library and a civic hub, a destination that would be embraced and loved by its community. The Inner West Council and architects BVN (<http://www.bvn.com.au/projects/marrickville-library/>) sought to create an architectural design, building form and outdoor space that incorporated the community's aspirations and integrated new build with the heritage structures.

Following extensive community consultation, the community determined that the new library should incorporate:

- books
- electronic media with free Wi-Fi inside and outside the library and be a place for:
- meeting and greeting
- listening and learning

- children to play
- historical research
- family time
- study and work
- events
- storytelling
- fun
- community groups
- being kind to the planet.

The project offered opportunities for urban revitalisation through building reuse and the addition of new spaces that honoured the heritage significance of the site. The design of the new Marrickville Library emphasised the importance of key heritage structures, adapting them to their new purpose as a library while successfully integrating a new architectural expression.

Treatment of the Old

The site of the Marrickville Hospital was listed as an item of local heritage significance, not only for the built form of the hospital structures but for the role the site played in the social history of the Marrickville area. Several buildings, including the old nurses' home constructed in 1909, the 1913 main entry building and the main hospital wards building from the 1920s were located on the site. The new library project had to work with the existing structures. Demolition was not an option given the importance of the site. All stakeholders were supportive of the retention and adaptation of the structures. The flexible reuse of the old hospital building ensures its cultural rehabilitation and represents a responsible and sustainable response to the environmental cost of new construction.

A two-storey brick building on the corner of Marrickville Road and Lilydale Street was previously the Marrickville Hospital Ward Building and originally housed four Nightingale wards and their associated support space and verandas. A Nightingale ward traditionally would have contained one large room housing 24 to 34 beds typically arranged along the sides of the ward, all observed from a central staff station (Figure 5) (David 2011, 11).



Fig. 5: Marrickville Hospital, women's ward, 1936. © Inner West Council.



Fig. 6: Quiet study room within the repurposed nightingale ward. © Tom Roe.

The spatial arrangement of the new library, particularly the roof and atrium, is intended to showcase the old hospital building, allowing it to resume a significant role in the life of Marrickville.

The new library has given the original ward spaces new life (Figure 6), transforming them into collection spaces, public work/study areas and workspaces for library staff. The original structure of the hospital is celebrated in the new spaces, with ceiling beams, windows and French doors either restored or with new elements kept true to the original features. The smaller support spaces, once bathrooms in the old hospital building, have been repurposed as places for group study, quiet reading rooms and offices. The external façades of the hospital building have been refurbished to reinstate the ward's old verandas. Enclosed for a period, the verandas have been restored both internally and externally, providing protected outdoor study spaces.

BVN worked with consultants GML Heritage (<https://www.gml.com.au/>) to ensure that the redesign of the spaces had minimal impact on the former hospital. The existing fabric was retained wherever possible and incorporated into the fit-out design. New finishes, joinery and furniture are contemporary in character and complement the heritage character. The design of the new spaces is sensitive to the old and has enabled the original 1920s architecture to remain visible. Careful restoration and adaptive reuse externally and internally were undertaken to remove all post-1920s alterations and additions, further restoring the heritage structure to its true form (Forbes 2016, 11).

The existing hospital building can still be seen externally from Lilydale Street, where the original façade remains, while internally its original western façade creates a backdrop to the new spaces within the library. The arrangement and scale of new buildings and spaces are intended to connect the old and new elements of the library and showcase the old hospital, ensuring the building can be appreciated in the round.



Fig. 7: Atrium and foyer space.
© Tom Roe.

The New Build

The design of the new library and community spaces creates a civic precinct with multiple spaces that extend beyond the traditional role of the library, providing first and foremost an inclusive and welcoming place for the community with a range of spaces and programmes to engage the diverse community of Marrickville. To create a welcoming place contextually appropriate to both its historical setting and its surroundings, the concept of a floating roof was adopted (Figure 1). It folds out from the pitched roof of the heritage building towards the lawn, bridging the gap between the old hospital building and Hospital Lane and marking a clear point of entry from Marrickville Road. Taking visual cues from the former hospital building, the floating roof also responds to the broader context of the built form of Marrickville's peaked roofs. Along Marrickville Road, the roof form creates a distinctive and memorable visual identity for the library and community. The exterior of the building provides an exclamation point to the eastern end of Marrickville Road's commercial and cultural strip, forming a memorable landmark for the suburb (Figure 8).

While the newly-built extension is prominent from Marrickville Road, the Lilyfield Street elevation is respectful of the old building, with some sections constructed using reclaimed brick from the original site. The new section of the building derives its size, scale, form and alignment from the existing ward building but adds modern touches such as oversized glass windows bridging the gap between the old hospital building and the new building additions.

Visibility from inside and outside of people using the library was important to the design to showcase the library's activities. Passers-by on Marrickville Road can see into the café and the main platform level of the library all the way



Fig. 8: Northern view from Hospital Lane. © Tom Roe.

through to the library forecourt, via floor to ceiling glass along the street edge. Clear sliding doors between the public lawn and pavilion building also provide views in and out for visitors. Transparency throughout the spaces creates a safe and dynamic environment. The new library design shapes several people pockets by orienting the library entrance and auditorium to the forecourt, creating a monitored presence to the outdoor zone.

The roof provides shelter and sanctuary from rain and sun while allowing the spaces beneath to remain light-filled and cool. Internally, the peaked roof and stretched fabric sections of the ceiling create draped scallops that scoop reflected sunlight into the library beneath. The building foyer is an open, triple-height atrium with views across all floors of the building (Figure 7). The foyer is framed by the old hospital building and wrapped by a series of verandas over three levels. The design is derived from the traditional Nightingale wards, places for healing, which were characterised by large internal spaces featuring tall windows and French doors leading out to open-air verandas for continued airflow throughout interior spaces. Light filters through the canopy roof of the new building to create bright and airy spaces that foster wellbeing. The new building encourages the circulation of fresh air, as cooling breezes are drawn through the louvred walls within the façade.

Timber-finished stairs, joinery, acoustic panels and furnishing details provide a warm and calming background to the buzz of activity in the library. Places for activity and retreat are woven throughout the building, complementing those housed within the ward building. They provide areas for reading, relaxing, information zones, borrowing and return points, library collections, public work and study areas, exhibition areas, children, youth, magazine and newspaper reading, a garden, a mezzanine for the art collection, a café, printing facilities, public computers, meetings and a conference centre.

All internal areas are visually linked to the old hospital building. Its brick façade, timber-framed windows and slate-covered slanting roof form the backdrop to the new spaces. Its character and presence give the community building a unique and quirky feel. The combination of the old and new create an environment that is tactile and special.

The regeneration of the site creates a public space that complements and enhances Marrickville's vision of the library and community hub of the future. It broadens the library vision to include the outdoors, nature and a children's garden. It upgrades public amenity by improving the surrounding streets of Marrickville, Livingstone Roads and Lilydale Street while continuing to utilise sustainable practices to create a world-class public amenity.

Sustainability

In response to today's concerns around climate change and the wellbeing of the planet, Marrickville Library is uncompromising with regards to sustainability, with recycled elements heavily integrated into the project and design features that result in a 25% reduction in energy use. The building is a true example of sustainable construction and ongoing operation, with an abundance of natural light, incorporation of natural and mixed-mode ventilation as well as the use of sustainable timber and recycled bricks. The library is a place of learning and the building itself also teaches. The large roof collects rainwater and the playful water collection tanks in the children's garden (Figure 9) are used to harvest rainwater for the surrounding landscaping.

Environmentally Sustainable Design (ESD) initiatives include:

- Controlled solar gain through roof overhangs augmented by external sun shading
- Natural ventilation and mixed-mode air-conditioning system
- Rainwater collection via the library roof with storage in above-ground rain tanks

- Raised floors in the elevated new levels allowing ducting of cool/warm air and power, delivering energy savings and future flexibility
- Refurbishment and adaptive reuse of existing heritage hospital buildings
- Renewable and recyclable materials, specifically recycled bricks and reclaimed sustainable timber
- Sculpted roof apertures allowing natural light into the library while minimising direct sunlight and glare.



Fig. 9: Children's garden, water tanks. © Brett Boardman.

The selection of building materials sought to maximise reuse, renewable and low embodied energy materials. The bricks of demolished inhabitable buildings on the site were recycled in the retaining walls and paving of the forecourt, providing a beautiful patina and history of site use. The use of brick also references the historical context of Marrickville and its brickworks. The primary structure and majority of façade glazing, and sun shading are all constructed using reclaimed timber, a natural and renewable building material. The use of timber also references the history of the site, as its first use following colonial settlement was to provide timber for the construction industry.

Sydney typically enjoys a mild climate. For a significant proportion of the year, the new library can operate in full natural ventilation mode, enabling significant energy savings. The multi-level atrium and lobby space of the library (Figure 7) is intended to be a non-conditioned air space, with localised cooling and heating provided in the warmer and colder months to the library floors and specific areas. Cool air, filtered by the lawns and trees of the sunken garden, enters the building at a low level through the main entry doorways and façade louvres on the ground and first floors. Large apertures in the roof are fitted with operable louvres that enable a stack effect, whereby warm air rises, generating airflow and drawing more of the cooler low-level air into the building. Clear openings to the west and

opening windows to the east of the original hospital building ensure that the cool garden air is drawn through both levels of the spaces.

In cooler and warmer weather, a mixed-mode system can be implemented. Raised floors in the elevated new levels allow for the ducting of cool or warm air within the floor void. While underfloor cool air systems are more costly to install than traditional ceiling-mounted systems, they are more energy- and cost-efficient to run and will provide the added benefit of future flexibility. Concrete slab and column construction on the raised floor areas allows for pre-cooling and heat absorption overnight. In cool weather, ventilation can be reduced by closing both low- and high-level doors, louvres and windows. Warmth is generated by in-floor ducted warm air running within the raised floor areas and via ceiling ducts in the old hospital building.

In the pavilion, similar measures are used on a smaller scale. Heat gain is minimised using primarily south-facing glazing, with north and west walls remaining largely solid. In open mode, low-level operable louvres draw cool and filtered air from the garden into the glazed south-facing atrium, or via the large sliding doors into the auditorium. Operable doors and windows encourage cross ventilation through the meeting rooms, multipurpose rooms and auditorium where ambient noise is not an issue. Where acoustic privacy or separation is required, rooms can be closed off and the cool and warm air supply systems used.

Solar gain or the increase in heat in a space due to direct sunlight is controlled via roof overhangs to the west and north, augmented as necessary by external sun shading. The roof apertures are sculpted to allow soft southern light and reflected northern sunlight into the library but minimise direct sunlight. Solar gain is not an issue in the orientation to the south and clear glass ensures excellent visibility into and out from the library onto Marrickville Road, engaging passers-by in the life and activity of the space.

The library roof provides a sheltered environment that is flooded with natural light. The sculpted forms of the internal ceiling in lightweight stretched fabric are designed to scoop reflected northern light and soft southern light into the space and along the ceiling surfaces. There is 10 km of timber used in the new library, all either recycled or The Forest Stewardship Council® (FSC) certified (<https://au.fsc.org/en-au/for-business/fsc-certification>). Timber is significantly lighter than steel, and combined with its embodied energy rating, around half that of steel, gives a CO₂ emission saving. Timber window framing was used for the façade rather than aluminium. With CO₂ emissions of 8.24 kg/tonne compared to 0.72 kilos/tonne for softwood, the argument for the consideration of timber windows is strong, notwithstanding the increase in maintenance. Over 27,000 bricks from the old hospital grounds were cleaned and reused in the new

building. Low maintenance planting in the green areas includes Jacaranda trees, Xanthorrhoea and Australian natives.

Public Art Strategy

To enhance community spirit and provide opportunities for public engagement, three specially commissioned artworks are on public display at the new library. The commissions not only support local artists within the community, but are integral to the design, historical context and urban revitalisation of the site, paying homage to the history of the site. The first art piece entitled *Navigating Culture*, represents the story of Patyegarang (Figure 10). The site-specific outdoor installation by Belinda Smith was a collaboration with Indigenous community members and spans the building edge on the corner of Marrickville Road and Lilydale Street. Constructed of softly polished laser cut stainless steel, the work references star maps and the terms used by the Eora people to describe the night sky, bringing together the shared knowledge systems of astronomy and language.



Fig. 10: *Navigating Culture* by Belinda Smith. © Tom Roe.

The Brickyards Night School by Ralf Kempken (Figure 11) takes its inspiration from the hospital's original purpose of servicing workers from the brickyards of the late 19th century. During the 1870s, children as young as six were removed from schools by their families to work as pugger-ups at Marrickville Brickyards. Historical records show that Mr Richard Guille, headmaster of a school in the neighbouring suburb of St Peters, became concerned that children working at the brickyards were not getting an education. He started a night school so that the children could learn to read and write and have a chance to move beyond the brickyards in their adult lives. Prominently located on the main landscaped wall

within the courtyard, the work reconnects visitors and passers-by to the history of the brickyards while looking ahead to the opportunities of tomorrow through education. The artwork made from steel stencil also pays homage to the street artwork commonly seen in Sydney's Inner West.



Fig. 11: *The Brickyards Night School* by Ralf Kempken. © Tom Roe.

The final art piece is the *Kangaroo* by Joanna Rhodes (Figure 9). The iconic, bright yellow, 3 m long, 1.7 m wide and 1 m high contemporary sculpture is of a lounging kangaroo. It is centrally positioned as the focal point inside the Children's Garden and used as a climbing apparatus for young people visiting the library. The much-loved artwork can be seen from many points within the library and pays tribute to the history of the site once known as the Kangaroo Grounds.

Library Operations

In the first three months of the library's operation, over 150,000 community members visited the library. The public's response to the library and its design has been extremely positive. Social media comments include:

The new Marrickville Library is absolutely fantastic! Everything a true public building should be. Generous, open, welcoming, uplifting and civic. In full use from day one! So impressive.

Great to visit Marrickville's new Library. Such a wonderful adaptive reuse of the former Marrickville hospital. Busy, busy with every spot taken.

Some particularly interesting feedback was received from a user who had completed her nurse's training at Marrickville District Hospital in the 1960s.

I was a trainee nurse at Marrickville District Hospital between 1962 and 1966. I reconnected with the hospital site through the building of the new library. The library that has been

created on the old hospital site is incredible. All care has been taken to preserve parts of the old hospital and butt it against the new structure.

When I entered the old part of the building and walked on the original floorboards it took me back to many memories of these boards being polished daily and the four years I walked on these boards. I was pleased to see the old windows, doors and rooms restored and utilised, the old mixture room, bathrooms, pan room that have now become offices, quiet rooms, and storerooms. The front entrance hall, the façade, terrazzo tiles a few of the front stairs and part of the wooden banister, a few of the original slate tiles these are all parts of the old that have been persevered.

The lane that we as nurses walked up and down each day has been utilised and named Hospital Lane.

The new library is an amazing structure which has been created for the community of today and the future with its natural light, ventilation, water storage, children's outdoor activities area which is built on the old children's ward suite. Obviously, a great deal of thought, consultation planning and consideration have been involved in building this magnificent library.

The new library is not just a library where people go to find a book. It is a place for the community to meet. A place for students to study and access computers, for children and families to enjoy the activities presented for them. It has many quiet nooks to find a peaceful place to read or just reflect.

The community is extremely fortunate to have this amazing building that has been constructed with great incite [sic!] for the up and coming generations of Marrickville and surrounding areas.

The library has opened to full capacity, and additional seating has been purchased to accommodate demand.

From an operational perspective, the library was designed to be welcoming and encourage the community to own the space. Its success is demonstrated in the occupancy statistics, with a 100% increase in the number of people visiting. There has been a change in the demographics of library customers and how the spaces are used. Examples include an increase in the number of customers aged between 16 and 30. Visitors in this age group are coming to the library to work or study and staying for longer periods of time. There has also been an increase in the number of community groups such as mothers' groups who are using the library and garden area as a meeting place.

Many groups transferred from the old library, including Mahjong, film club, art groups and children's rhyme and storytimes. They have found a new home within the new facility with their numbers growing as word of mouth spreads. Regular activities, public programmes and exhibitions have been delivered, or are planned, to highlight social and historical events of the library site, celebrate the community and encourage lifelong learning. Examples include free daily guided tours of the library, architectural talks, author talks, children's programming and Indigenous language presentations. All programmes and events have

been well attended, demonstrating the public's further interest and engagement with the facility. The library and pavilion will continue to introduce new amenities and activities to support community needs and respond to user demand. Future activities planned include the Australia Day citizenship ceremony and Mardi Gras celebrations.

From this early statistical analysis, the reuse of the Marrickville hospital building as a new library demonstrates successful urban revitalisation by its transformation into a lively community hub loved by the community of the Inner West.

Conclusion

The design for the site and the library extends beyond the traditional perception of a public library and caters to the varying needs of Marrickville's diverse community. The Library's success has been recognised in various awards including in 2020 two Australian Institute of Architects' National Architecture Awards: the prestigious David Oppenheim Award for Sustainable Architecture and joint winner of the Sir Zelman Cowen Award for Public Architecture, following winning of the prestigious NSW Premier's Prize at the 2020 New South Wales Architecture Awards and the Milo Dunphy Award for Sustainable Architecture. The Library also won the Australian Library and Information Association's Australian Library Design Awards for public libraries in 2021 and the Timber Design Award for 2020. The building has been designed to create a new civic heart, a place for all, combining the old with the new, adding depth and character to the precinct, celebrating the contribution of the hospital to the people of Marrickville and at the same time creating a modern space that acknowledges how libraries will forge their way into the future. Patyegarang Place provides places to learn, work, play and socialise both inside and out while contributing to the urban revitalisation of a key part of the Marrickville town centre. The library constitutes a dynamic contemporary landmark and a new entrance and western gateway to the commercial centre of Marrickville.

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Rebekah Mayer

5 A Fire Hall Reused for Windsor Public Library's John Muir Branch in Ontario, Canada

Abstract: In 2016, the Windsor Public Library Board (WPLB) purchased an abandoned historic fire hall and stable and through an extensive and challenging adaptive reuse project, opened the John Muir Branch in September 2019. Designed by architect, composer and heritage professional Jason Grossi, the space offers unique acoustics and modern aesthetics that honour the original character of the heritage building. The case study considers the challenges faced in revitalising the building and how the public library has provided an innovative space to support the needs of the community and 21st century library users.

Keywords: Library buildings; Fire stations – Remodelling for other use; Public libraries – Canada

Introduction

Library design is a constantly evolving discourse in library science and offers vast opportunities for re-imagining libraries and the ways in which customers interact within public spaces. With information access adapting to the digital age, public libraries are tasked with the challenge of discovering ways to move beyond perceiving the library as simply the third place. This chapter presents an experience-based case study of a Canadian library's daring response to the changing nature of public library spaces through adaptive reuse.

In 2016, the Windsor Public Library Board (WPLB) saw an opportunity for growth and revitalisation in an abandoned 1921 fire hall and mid-19th century stable on the city's west side, an area home to a diverse and changing community. Through an extensive and challenging adaptive reuse project, the WPLB opened the John Muir Branch in September 2019. Designed by architect, composer and heritage professional Jason Grossi, the space offers unique aesthetics and acoustics that honour the original character of the heritage building as it meets the needs of 21st century library users. Its conceptual design includes significant attention to detail, drawing inspiration from the original materials and architecture of the fire hall and stable (Figure 1). As a city with growing international student and new Canadian populations, Windsor, Ontario, is lacking in affordable and accessible public spaces and programmes. The John Muir Branch



Fig. 1: Exterior of Windsor Public Library's John Muir Branch. © Jason Grossi, Studio g+G inc.

Facts and Figures

Name: Windsor Public Library – John Muir Branch

Address: 363 Mill St., ON N9C 1B1, Windsor, Ontario, Canada

Website: https://www.windsorpubliclibrary.com/?page_id=65805

Opening: September 2019

Builder: Intrepid General Ltd.

Architect: Jason Grossi, Studio g+G inc. <http://designstudiogg.com/>

Gross floor area: 7,400 sq ft

Main floor space: 4,000 sq ft

Collection size: 14,043

Staff: 4.5

Workstations: 6

Building costs: CA\$5,483,000

has the potential to pave the way for outreach to previously under-represented demographic groups by offering them a diverse and welcoming space. Since opening, the library has inspired innovative additions to Windsor Public Library's established programming. In reviewing articles and reports, and conducting interviews with the library staff, administration and the lead architect,

this chapter focuses on the challenges faced in revitalising the former fire hall and on how the design of the John Muir Branch is reshaping the future of spaces and programming at Windsor Public Library (WPL).

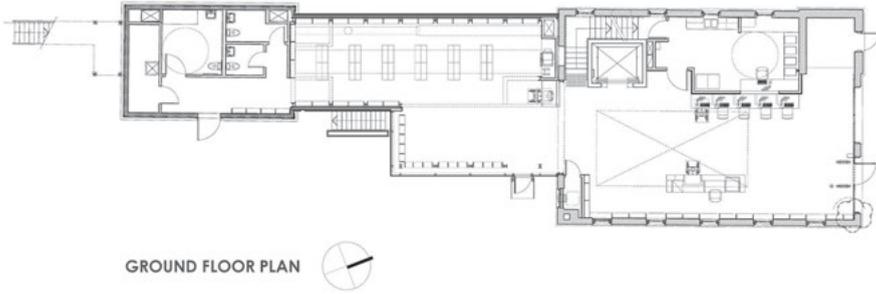


Fig. 2: Ground floor plan. © studio g+G architecture.

Windsor, Ontario and the Sandwich Town Neighbourhood

Windsor, Ontario is a mid-sized Canadian city bordering the United States. With 217,188 citizens, Windsor continues to grow annually from an influx of domestic and international students and individuals and families moving to Windsor for more affordable living. In addition to Canada's official languages of English and French, there are over 100 languages spoken by Windsor residents at home (Statistics Canada 2017). Windsor's population growth tops the national average, and the city is the third fastest growing in Canada (Statistics Canada 2019). Its population growth combined with population diversity has resulted in an amalgamation of demographic groups comparable to those of larger North American cities, and the fostering of unique neighbourhood communities. The WPLB operates nine branches. Sandwich is a historic neighbourhood within Windsor and is served by the John Muir Branch. Almost 30% of residents served by the John Muir library are 20–35 years old with a median age of 33.9, younger than the city's average of 41.2 (City of Windsor Planning Department 2018). The cost of living in the city centre remains high compared to other neighbourhoods and, as a result, students and young professionals are opting to live on the west side. More than half of the residents in Sandwich Town are renters, higher than the city's average of 36% (Statistics Canada 2017).

Sandwich experienced a period of decline with the exodus of key functions to alternative locations within Windsor in the latter part of the 20th century. Building vacancies became widespread leaving the area in a sorry plight and lacking in core amenities. Yet it has the potential to be a vibrant neighbourhood situated at the base of the Ambassador Bridge connecting Windsor and Detroit. The community prides itself on its culture and history. The WPLB's decision to take ownership of the neglected fire hall and stable was met with widespread support. The project demonstrated the residents' dedication to fostering connections and community building while respecting and supporting the existing culture in the neighbourhood.

Acquisition of Fire Hall No. 6 and the Stable

Windsor Public Library (WPL) has had an active presence in Sandwich Town for almost a century. The neighbourhood's growing population created a need for a larger library to serve the existing community while providing outreach opportunities to new residents. In 2013, the City of Windsor and WPLB announced the decision to reuse and adapt Fire Hall No. 6 in Sandwich Town for a new library. The branch would be named after lifelong library supporter and President of the Friends of Sandwich Library, John Muir, who advocated for a strong library presence in the area. The property included the fire hall, designed in the classical revival style by architect Gilbert J. P. Jacques and completed in 1921, and the stables at the back, believed to date back to the mid- to late-19th century (Figure 3). The buildings had served as Sandwich Town's fire station until 1964 and subsequently housed a variety of public and community programmes, including a detoxification centre and an art studio, before being abandoned. The building was offered to the WPLB by the City. Mayor Drew Dilkens saw a unique opportunity for the creation of a sustainable public library space through adaptive reuse and restoration.

From Old to New

Following the decision to use the building, WPL's CEO, Kitty Pope, recalls seeing the interior for the first time. "It was so dark, I got halfway into the building and all I could see was eyes staring back at me. There were raccoons everywhere." said Pope in an interview in 2019. It was obvious the branch could not be functional as a full, two-storey building. First, to maintain sight lines for staff and to

open up the space, a hole would need to be cut out of the second floor, creating a mezzanine. Second, because the stable was a significant distance from the fire hall itself, the two buildings needed to be connected in some way.



Fig. 3: View of Fire Hall No. 6 before renovations. © City of Windsor, Nancy Morand.

Because the fire hall and stables constituted a building site located within the Sandwich Heritage Conservation District, certain requirements had to be met to maintain the cultural and historical value of the buildings (City of Windsor 2012). A fire in 1941 destroyed a significant portion of the second floor and part of the hose drying tower but most of the building's original design was restored in 1945. The fire hall featured architectural styles that were characteristic of the period. Notable details include a hipped roof on the tower, two large bay doors at the front of the building and multipaned windows surrounding the building's second floor. Fire Hall No. 6 was important to Sandwich Town's history before it merged into the greater city of Windsor. It was the last fire hall and stable left in the city.

Jason Grossi of Studio g+G Architecture was selected by the city to redesign the heritage structures (Studio g+G Architecture 2020). Grossi sat down with the WPLB to discuss options for the branch, driven by his considerable experience with historic buildings and adaptive reuse projects. The plan was to design a building that could change over the next fifty years. Unlike some contemporary buildings, the fire hall was built to last. The adaptive reuse took this into consideration, creating a balance between the operational needs of a 21st century library and the shifting information needs of future generations.

In his architectural design, Grossi considered numerous aspects. Ultimately, he hoped to design a library that “did not intrude onto the stable and the fire

hall but rather explained the history of the buildings; a metaphysical link”, as he wrote in personal correspondence. The challenge existed in piecing together two buildings from different time periods with their own “stored memories and visual scars”. The resulting design journey was one where architectural ideology was enhanced by a flexible, multilateral process. Grossi’s dedicated approach established a successful shift from a neglected historic building to one that will have continuing use in the future. In piecing together the two buildings, Grossi successfully combined four different time periods to provide the community with a meticulously designed public space that offers limitless possibilities.

Experiences, Challenges and Lessons Learned

The early stages of the project progressed smoothly with the support of Windsor’s Mayor, Drew Dilkens. Without a viable use, the buildings risked falling further into decay, requiring significant maintenance in the future or demolition. The City Council supported the CA\$5,482,885 restoration project with Dilkens arguing, “If the city isn’t prepared to step up and save historic buildings, particularly in Sandwich Town, why would we expect others to do the same?” (Cross 2017).

It is difficult to understand the challenges of the John Muir Branch project fully without considering the commitment and passion of the project team during the planning and construction process. The adaptive reuse of an old building has obvious, predictable challenges, especially when the building had been neglected for years. While some challenges were expected, others resulted in significant changes to the WPLB’s original plans. However, as WPL CEO Kitty Pope commented when interviewed on the changes, “Good public library design is always a wise investment. It attracts customers and connects the community.” With the branch successfully opening and beginning operations in September 2019, members of the project team reflected on the challenges and lessons learned during the adaptive reuse project.

In retrospect, the project was extremely challenging for a building of its size: 7,400 sq ft on three levels. As already noted, the site was located within the Sandwich Heritage Conservation District, an area designated in October 2012 (City of Windsor 2012) under the Ontario Heritage Act (Ontario 2009). To preserve the historical and cultural value of the buildings, restoration or adaptive reuse must ensure the exterior of the buildings maintain any essential architectural characteristics of the period in which they were built.

The conceptual design process was complex; two buildings from different periods had to be connected by a contemporary architectural piece. Grossi’s

design approach was to “deeply investigate the site, the buildings, their history, and then allow the design process to evolve as if the buildings continue to graft themselves into the current time.” An additional challenge was designing a new space to fit within the fixed dimensions and varied foundation elevations of the fire hall and stable, much of which could not be changed due to the historic building designation. After careful consideration, the buildings were connected by a modern bridge (Figure 5). The floor elevation issue was resolved with the construction of a new foundation and the upper levels of the two buildings were linked with a suspended walkway on a slight incline. Grossi’s experience as a heritage consultant was instrumental to the success of the design approach.



Fig. 4: The design fused the two buildings with a modern addition. © Jason Grossi, Studio g+G inc.

The soil on the building site was sandy and of poor quality and haunted the team throughout the project. The lack of a basement, combined with the poor condition of the soil, had major implications for the installation of an elevator, required by law under the Accessibility for Ontarians with Disabilities Act, 2005 (<https://www.ontario.ca/laws/statute/05a11>). The foundation required underpinning and shoring to ensure proper support of the elevator shaft and structure, which added time and cost to the project. Taking these factors into account, the project went forward based on the city’s protocol for contracting services tenders. Three of Windsor’s major contractors put in a bid and Intrepid General Limited was selected. The bidding price was significantly higher than the original 2013 budget due to the unforeseen construction requirements caused by the soil conditions. With careful review of the added costs, City Council approved the additional funding for the John Muir Branch.



Fig. 5: The bridge linking the buildings. © Jason Grossi, Studio g+G inc.

Looking back on the experience, the project team acknowledged the difficulties that arose from the unique challenges but appreciated the considerable support and lessons learned. Jason Grossi’s architectural approach to the fire hall and stable provided the necessary flexibility which was integral to successful design and planning for the branch. The outcome would have been different without the support of everyone involved in the process, both directly and indirectly. The result speaks to the successful collaboration between the project team and city administration. When considering major lessons learned during an interview in 2019, WPL CEO Kitty Pope suggested that any time a heritage building is involved, “the budget should be doubled, really. It’s not about the cheap way out”. Renovating the heritage building for adaptive reuse was complex; managing expectations and being flexible when necessary were crucial to the success of the project. The WPL system will be going through more changes in the future and the experiences throughout the John Muir Branch project provide lessons for future projects. “Everything we’ve learned now will dictate how we approach the next project, whether it’s an adaptive reuse or a new building,” said Pope.

The Outcome

The John Muir Branch project took twenty months to complete. After overcoming the many challenges that arose during the planning and design stages, the foundation was secured, restoration completed, and the final touches were made to the exterior and interior. The finished space pays tribute to the original buildings with accurate restorations, innovative design and attention to detail. The exterior of the library maintains the character of the original structures based on guidelines provided by the Ontario Heritage Act (Ontario 2019). The stable includes the original roof, which was preserved during the restoration process. The frame and foundation of the stable, however, were found to be structurally unsound during the early stages of construction and were rebuilt. The exterior features white cedar shiplap siding coated in a limewash finish. The modern space connecting the stable to the fire hall uses glass, metal and wood accents, creating a strong architectural element that blends in with the two buildings (Figure 4).

The front of the library is glass, replacing the original bay doors that were used for fire engine access. The exterior walls of the front of the building preserved the original brickwork, using a unique method of mortar repointing to ensure the joints between the original bricks were properly repaired. Precision and care were taken in determining the appropriate mortar to use. When compared to other buildings in the neighbourhood, tests revealed that the previous mortar was made from a combination of sand and aggregates from the surrounding land plots. These materials were then collected from excavations during the restoration process and used to repair the brick exterior.

In mild weather, a new piazza provides an ideal collaborative and independent outdoor workspace, universally accessible via a long, cobble-covered ramp from the sidewalk (Figure 1). The multipaned windows used on the surrounding exterior walls are consistent with the period of the original buildings and framed in Douglas Fir. This type of wood was found in the fire hall during restoration and has been used throughout the new library space. The piazza is laid out with pavers made from reclaimed granite found behind the stable. It was later discovered by library staff that the cobbles were salvaged from the original entrance of the Ambassador Bridge in the 1920s. The bay windows give the illusion of the library spilling out into the piazza, bringing the inside and outside together, allowing the piazza to be a part of the library and its programming. The “outward urban expression,” as Grossi describes it, allows passers-by to interact with the library even before entering the interior space.

The interior of the building demonstrates the designer's attention to detail and ability to connect to the neighbourhood. The design fused the two buildings with a modern addition that speaks to the current period, representing a space

where new memories and connections can be made. The three different sections of the library contribute to the overall diversity of space that is evident throughout the building. As a small community library, the John Muir Branch was carefully designed with clear sight lines to allow the staff to monitor the entire space easily. From the early stages of planning, it was evident that part of the second floor would need to be removed for security purposes. This was achieved by placing an atrium in the centre of the building, surrounded by a handmade metal railing on the second floor. A moveable, custom-designed desk for library staff was placed in the main area of the library, allowing for easy access to reference and circulation services (Figure 2; Figure 8). The result was an open and spacious feeling to both floors.

On entering the branch, visitors are met with architectural and design details reminiscent of the 1920s. The ceiling features reproduced tin tiles based on the original tiles found in the fire hall. On sunny days, the building is illuminated by natural light from the windows and skylight. The salt-and-pepper concrete floors serve both aesthetic and acoustic purposes, enabling the movement of sound through certain areas of the library space. As a music composer, Grossi designed the library to have different acoustics to provide a diversity of space for user experience. The front section of the library is ideal for independent reading and a quieter library experience as the acoustics are more muted. The atrium, where sections of the second floor are visible, can be used as a collaborative or meeting space. Sound travels up to the second floor. The area features fully movable furniture including computer stations lining the wall, tables and chairs with floor outlets, and a custom-made circulation and reference desk on wheels. The elements provide the perfect space for music programmes despite the small footprint.



Fig. 6: Children's area in the contemporary addition. © Jason Grossi, Studio g+G inc.

The contemporary space on the first floor houses the adult, juvenile and children's fiction collections as well as children's nonfiction collections on movable bookshelves (Figure 6). Illuminated with natural and diffused light from the glass-covered eastern wall and skylights, the area has become a favourite space for children's storytime, colouring and board games. Picture books line the area near the window.

A bridge overhead (Figure 5) between the second floor of the fire hall and the stable can be seen from the space, providing a visual link between the two older periods and the present. The connection, both literal and metaphorical, highlights the imaginative approach to the project.



Fig. 7: Second floor and atrium. © Jason Grossi, Studio g+G inc.

The second floor is partly visible through the atrium in the centre of the main space, allowing for visibility while adding a cohesive element between the second and first floor (Figure 7). Accessible by elevator or an enclosed concrete stairwell with underlit railings and natural light, the second floor is a multi-use space with areas for both group meetings and independent study. The eastern wall is lined with bookshelves housing the nonfiction collection, with personal workstations in between each window. Smaller work areas mark changing user needs; individuals working on projects often need only a small space for a personal electronic device. A charred, exposed wooden beam is visible on the second floor, forming a connection between the refurbished space and the 1940s when a fire destroyed much of the second floor which had to be rebuilt. Across the atrium is a teen space which features the young adult fiction and graphic novel collections and includes a collaborative table and smart TV with a PlayStation console. Library staff are pleased to report that the seats in the area are rarely empty.

At the northern end of the second floor, a glass-enclosed room with drop-down screens, a sink and plenty of counter space allows for innovative programming and specialised use. It also provides access to the tower where fire

hoses were hung to dry. Visitors can now climb the stairs to observe the surrounding area of Windsor's west side through the glass-enclosed lookout. The former hayloft of the stable is at the southern end of the library, accessible via a walkway floored with original tongue and groove Douglas Fir boards (Figure 5). The wooden panels were reclaimed from the original hayloft and were left unfinished with paint splatter and imperfections to commemorate their original use. The walkway has a railing on both sides and is suspended by wires, all of which are visible from the fiction section on the first floor. The adapted stable area is designed to depict the 19th century period when the original stable was built and includes a small local history collection housed on heritage shelving.

Reimagining Library Spaces

In September 2019, the new John Muir Branch opened its doors and created outreach opportunities for the neighbourhood's unique user demographics through targeted programming and placemaking. Having a designated building to use as a space that provides both information and social infrastructure contributes to the feeling of community. The open concept gives a sense of warmth and inclusion, providing customers with opportunities to learn, engage in meaningful conversations and discovery, or concentrate on their own individual study. Since opening, traffic has increased, and programmes have been extremely successful. Most recently, library staff reached out to the growing 20-30+ population in the area with a speed friending event. The programme was so successful, it reached capacity.

Public library boards are tasked with the challenge of predicting how library spaces will evolve. For decades, libraries have been a third place for communities, spaces where individuals can gather outside of home and work. With lines between work, home and leisure blurring, public libraries are moving beyond the third place and into new territory as user needs change. Contemporary library spaces, like the John Muir Branch, provide the public with a space to meet personal, professional and social needs. The changing spaces have been inspired by new trends and issues in librarianship as identified by the American Library Association (2019), many of which already play an integral role in operations and planning at Windsor Public Library. Library user profiles and the ways in which people interact with library spaces have changed significantly as North American libraries experience an overall decline in print circulation and a growth of alternative library services.



Fig. 8: View of library from the front entrance. © Jason Grossi, Studio g+G inc.

WPL has responded by updating branches and services to reflect changing user profiles, while discovering new ways to measure its success throughout the library system. WPL's Customer Use Index (CUI) combines five indicators of user behaviour into one statistic that focuses on how library spaces are being used. The CUI produces an aggregated number that represents customer interactions based on gate count, circulation, in-house use, public service and website use (Windsor Public Library Board, 2019b). The move to understand how users interact with library spaces is a valuable planning tool for future developments. The changing nature of library use and the absence of a typical physical library user present opportunities for modern library design.

One of the most innovative design elements of the John Muir Branch is the previously described diversity of space proclaimed by Grossi. Visitors can choose how they use and interact with the space. The varying acoustics allow for differing uses from quiet, independent study to collaboration, networking and concerts. The new space is sustainable and maintains a flexible approach to library services based on lessons learned and a better understanding of future needs. The diversity of space also provides co-working opportunities. With more students and young professionals choosing shared living spaces over independent living, and the growing popularity of collaborative workspaces, the diverse library space offers multiple options for gathering. Groups can meet in the main space and move tables together to suit networking needs (Figure 8). For more private meetings, groups can book small rooms on the second floor. Co-working in a public library provides individuals and groups with an affordable and accessible collaborative space. The John Muir Branch was adaptively redesigned as a contemporary library space but holds great potential for future uses. With fully moveable shelving and furniture, fixtures in the building can change to reflect the needs of the community.

As the City of Windsor continues to diversify, its residents, both permanent and temporary, seek spaces to gather. The support of the Mayor and City Council ensured the John Muir project succeeded. It also demonstrated how Canadian library spaces are adapting to the unique and ever-changing needs of the communities they serve. It will be interesting to witness how the John Muir Branch and other branches in the WPL system respond (Windsor Public Library Board 2019a). The innovative design and diversity of space in the John Muir Branch create a sense of place in the neighbourhood while combatting potential negative consequences of revitalisation such as gentrification and displacement. A library space that offers inclusive and accessible programming and bridges the gaps between demographic groups can create a unique community culture and a renewed sense of neighbourhood.

Conclusion

The WPLB took a neglected building and created a new, diverse public space, demonstrating how public libraries can adapt for future generations. The unique situation in Sandwich facilitated the cooperation between the City of Windsor and the WPLB, which played a crucial role in the success of the adaptive reuse project. The project team learned valuable lessons during the process. Adaptive reuse projects are dependent on the support of passionate and committed library boards. In the case of the John Muir Branch, reaching out to interested politicians and decision makers during the early stages was essential. The project was expensive; the project team, however, understood that adaptive reuse can sometimes incur extra cost. Through open communication with board members and the community, the team sustained interest and confidence in the project.

On an average day, people visit the branch for various reasons including checking out and renewing library materials, using workspaces to complete projects, interacting with other library users in the common areas and attending storytime and other programmes. Visitors have quickly utilised the space for their unique needs. The positive customer response demonstrates the success of how the John Muir Branch reimagined the use of public spaces through neighbourhood revitalisation, placemaking and supporting the needs of the community. The efforts made throughout the project resulted in an innovative and diverse facility that presents considerable possibilities for the future. The diversity and flexibility of the space will foster resilience as library services adapt to changing information needs in the 21st century.

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Yang Li

6 Cultural Reconstruction of a Traditional Chinese Courtyard House into the Suochengli Neighbourhood Library

Abstract: Suochengli Neighbourhood Library is located in a traditional Chinese siheyuan/courtyard house in the back garden of the historic Zhang Ancestral Hall in the port of Yantai in the Shandong Province of China. Over the years, owners and occupiers of the courtyard added new buildings and, although the original complex had been compromised, the additional structures were all precious evidence of the development of the complex over time. The relationship between the old and the new became the focus of a renovation project to bring the courtyard back into use suitable for a modern lifestyle while respecting its heritage. The site comprises three bungalows and a cloister which reframed the courtyard into several smaller connected sections. The various structures had the capacity to accommodate all the functions required of a modern library, including an inviting entrance, reading area, café, gallery and toilet. The library reading room and courtyard are connected by a sliding door which increases the flexibility of the main floor space and enables a range of activities to take place.

Keywords: Public libraries – China; Library buildings; Buildings – Remodelling for other use; Courtyard houses; Sustainability

Introduction

Suochengli Neighbourhood Library is composed of three bungalows and a cloister framing a former siheyuan/courtyard house into several smaller connected sections. The small complex accommodates all the functions required of a library including an entrance, reading area, café, gallery and toilet. The reading room (Figure 1) and courtyard are connected by a sliding door which increases the flexibility of the main floor space and enables a range of activities to take place.

The library holds special collections of Yantai and Jiaodong (Shandong) Peninsula history and local culture and oral history collected from recording work carried out in the community. Book clubs, lectures, workshops, exhibitions, community entertainment and leisure activities are held regularly, both for residents and tourists. Within the library, a dialogue between the new and the old is cultivated, with the energy and vitality from local communities contributing to the



Fig. 1: Reading room of the Suochengli Neighbourhood Library. © Yang Li.

Facts and Figures.

Name: Suochengli Neighbourhood Library

Address: No. 12 Shiyan Street, Chefoo District, Yantai, China

Website: not available

<https://afasiaarchzine.com/2018/11/vector-architects-4/> provides details on the library building

Opening: July 2017

Builder: Yantai Chuangyuan Culture Communication Co. LTD

Architect: Vector Architects <http://www.vectorarchitects.com/>; Principal Dong Gong

Gross floor area: 323 m²

Main floor space: 323 m²

Collection size: 3,000

Staff: 1

Workstations: 3

Building costs: not available

Qing Dynasty. Subsequently the area declined, and the buildings fell into disrepair. The Zhang Ancestral Hall with its history covering nearly 300 years was awarded cultural heritage status within the Shandong Province in December 2006 and eventually its back garden became the site of the Suochengli Neighbourhood Library.

The Kwan-Yen Project

The Suochengli Neighbourhood Library is part of the Kwan-Yen Project, an urban renewal plan supported by the Yantai city government, focusing on Yantai's past, its specialist location and culture including its history, archaeology and folk traditions (Ling 2017). The project name comes from Guangren Road, which was formerly known as Kwan-Yen Road, the first street of Yantai Port constructed in the second half of the 19th century. On both sides of the road, parallel to the coastline, more than 40 historical colonial buildings covering a period of over one hundred years were constructed. As the city changed, most of the colonial buildings were rented and operated as high-end clubs, restaurants and bars. Most of the tourists and residents who came to the seaside seldom stayed in the area. The use of the colonial buildings declined, and many fell into disrepair (Figure 3). The government decided to commence urban renewal and commercial revitalisation and invited architects, designers, artists and other groups to bring life and activity to the historical area. The Kwan-Yen Project respects the complexity of the old district and the concept of civil society, paying attention to the importance of maintaining traditional street life and local culture, emphasising interpersonal interaction and integration into the community, and opposing plans to demolish the old road and historic district for redevelopment.



Fig. 3: Inside the courtyard before the renovation.
© Suochengli Neighbourhood Library.

As a historic conservation plan, the Kwan-Yen Project resulted in the redesign of the streetscape of the Guangren district and the restoration of historical buildings, accompanied by the reintroduction of cultural and artistic creativity. Simultaneously, the Chefoo Institute/Zhifu Academic Hall was established, and the historical district transformed into the Kwan-Yen Art District. The Chefoo Institute delivers public education services to the whole city of Yantai through satellite agencies. Suochengli Neighbourhood Library is its first satellite organisation providing services to local residents.

Design Focuses on Symbiosis of the New and the Old

As already outlined, the Suochengli Neighbourhood Library was created in a traditional Chinese courtyard house in Yantai's historic district. Before the renovation, there were three beautifully detailed rooms at the back of the courtyard. In 1950, the courtyard was rented to a woodcarving factory and the spaces became a workshop. Traditional architecture embodies historical memory. It is important to protect, repair and renovate a historic building from a sustainable perspective within its historical context to enable the building to demonstrate historic and cultural value and meet the functional requirements of modern life.

The architects for the Suochengli Neighbourhood Library were the well-known practice, Vector Architects, with the work led by Principal Architect Dong Gong (<http://www.vectorarchitects.com/en/projects/39>). Dong Gong (<https://www.archilovers.com/gong-dong/>) studied architecture at Tsinghua University in Beijing and the University of Illinois. His work has been exhibited at the Biennale-



Fig. 4: The contrast between the library and the surrounding modern buildings. © Yang Li.

Architettura/International Architecture Exhibition in Venice. In 2014, he designed the Sanlian Bookstore Seaside Public Welfare Library (Trendland 2017) in Qinhuangdao, which has attracted considerable attention and been called “the loneliest library in the world” (Snakesolidus 2017).

A primary focus of the Suochengli library renovation was the relationship between the new and the old, to ensure that the new form of the courtyard would meet the needs of a contemporary lifestyle at the same time retaining Suochengli’s unique city style formed by its hundreds of years of development and its important role in Yantai’s urban history (Gooood 2017). As a latecomer, the Suochengli Neighbourhood Library adopted an intervention strategy of integration and coexistence with the original buildings, without erasing the original historical traces. Through blending the new with the old, the library contributes to the urban context of Yantai (Figure 4) and displays an awareness of history and human spirit expressed through the form of architecture; this philosophy is transmitted to every resident in the community through the library. The original courtyard and the shape and materials of the original building were retained and a new cloister arrangement was introduced which connected the different spaces. The renovation of the Suochengli Neighbourhood Library has brought new life to the courtyard house. The library includes a reading room, children’s area, lecture hall and exhibition hall, as well as leisure space, and other functional areas and covers an area of more than 300 m².

The Design Process

At the start of the project, the architect carried out a systematic reorganisation and restoration of the original walls, doors, windows, roof trusses, flooring and other architectural elements. As a result, the original purlin and beams of the old structures were made visible and the interior space was increased to make the building layout more logical and easier to use. As well as retaining most of the original features and materials, the colour scheme is integrated with the green brick and black tile colour of the surrounding built environment.

The architect implemented a cloister organisation for the design dividing the courtyard into several smaller areas, including a multifunctional public space at the centre and three landscaped areas at the sides. At the entrance (Figure 5), the cloister opens out into the hutong/alley of the Suochengli neighbourhood and welcomes the public into the library. Within the courtyard, the cloister connects all the different functions, including the entrance, reading space, café, gallery and toilet, creating space for outdoor activities (Figure 6). The cloister also functions as shelter from the rain during bad weather.



Fig. 5: The entrance to the library. © Yang Li.

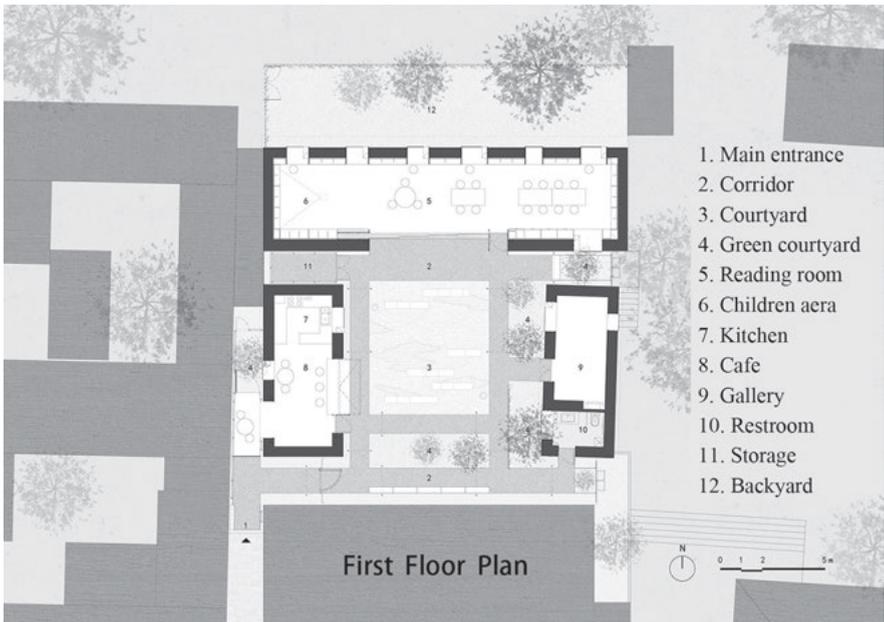


Fig. 6: First floor plan. © Suochengli Neighbourhood Library.

The Reading Room

The north wing includes a reading room (Figure 1), children's picture book area, study area and a staff workstation. The 86 m² space is flexible and can be used as an indoor or outdoor lecture space with an open inner courtyard where the library can hold book discussions and other activities. In the reading room, the wooden bookcase extending the full height of the wall is made of environmentally sustainable wheat straw. The unique sliding door design in the reading room creates four glass doors integrated into the wall connecting the interior and exterior spaces and allowing them to blend into each other, at the same time creating extra room and alleviating the restrictions of a small space.

A Leisure Space

The west wing is an open dining area and coffee shop with a broad window ledge where people can sit, relax and enjoy views over the courtyard (Figure 7). The east wing is designed as an exclusive space for art exhibitions where local and international artists are invited, from time to time, to exhibit their artworks to the community.



Fig. 7: Leisure space. © Yang Li.

Special Collections and Activities in the Library

Community is an important part of urban life and the quality of public space available is closely connected to the quality of life of the area's residents. The library is an important public space where people learn, think, discover information and

communicate with each other. It has a vital role to play in supporting community activity and enhancing community vitality. The Suochengli Neighbourhood Library is a place for local cultural research and knowledge sharing which contribute to community wellbeing. The library holds regular book discussions, lectures, exhibitions, entertainment, leisure and free parent/child activities.

The library is located within Yantai's historic community and the book collection must reflect a connection with the community. There are more than 3,000 books in the library, including literature and art books from all over the world and many special collections of Yantai and Jiaodong (Shandong) Peninsula history as well as local literature by Yantai writers. The Suochengli Neighbourhood Library carries out oral history recording in the community, collecting stories, photos, objects and books and preserves the material collected. There is a children's corner providing picture books and magazines.

Exhibitions

Suochengli Photo Studio (Suochengli Photoshop 2017) was the first exhibition after the new library opened. Zhang Xiao ([https://en.wikipedia.org/wiki/Zhang_Xiao_\(photographer\)](https://en.wikipedia.org/wiki/Zhang_Xiao_(photographer))), an artist from Yantai, was invited to create an interactive artistic work in the community. The idea for the exhibition came in response to various requests. For the local residents, who do not usually visit exhibitions, the displays are extremely valuable. Who is the target audience for community participation in arts and crafts? Can artists bring new ideas to the community and engage people's enthusiasm? The exhibition was aimed at shopkeepers, migrant workers and the long-time residents of Suochengli, and gave power of aesthetic choice to the residents. The artist designed a special online programme. Residents who came to the exhibition could upload photos of themselves to a background scene of somewhere they wanted to live, or travel to, by scanning a QR code. There was a choice of seascapes, the forest, a glacier or even outer space. Using photoshop technology, a new synthetic photo was generated.

Lectures

The Suochengli Neighbourhood Library provides residents with a variety of cultural activities. There are two types of free activities each weekend: historical culture and folklore. The library invites scholars, craftspeople and writers who understand the history and folklore of Yantai to talk about the local history and traditional customs to community residents. There are lectures and demonstrations

on local traditional skills like paper cutting and shadow play (Figures 8 and 9). The audience can participate and experience the techniques for themselves. A series of popular and influential lectures has been held giving the residents, especially children, a better understanding of their community and city and awakening their cultural spirit.



Fig. 8: Papercutting. © Suochengli Neighbourhood Library.



Fig. 9: Shadow play. © Suochengli Neighbourhood Library.

The Theory Behind the Practice

The Suochengli Neighbourhood Library exemplifies the aspirations of community libraries described in the literature. Scott (2011) provided concrete examples of how community libraries support their communities. They serve as a conduit to access information and to learn; encourage social inclusion and equity; foster civic engagement; create a bridge to resources and community involvement; promote economic vitality within the community. Little (2010) points out that the function of a community library is to transmit information, spread knowledge and promote the improvement of residents' cultural life. Alemanne, Mandel and McClure (2011) advocate that community libraries should explore cultural exchange activities, organise reading activities, encourage users to discuss various topics, promote participation particularly in community affairs, and establish a stable and harmonious community environment. Hendry (1990) believes that community libraries should provide reading opportunities, promote new interests and hobbies, and generally broaden the public's horizons. Through exchange of information, the community library can encourage cultural integration of its user groups, and thereby enhance the social value of the library. Regneala (2012) points out that the library service should have community cohesion at its core and promote the cultural exchange and harmonious life of the

local community. It can provide a free, comfortable place where, through various leisure and culture activities organised by library staff, users can relax and grow.

Community Empowerment and Cultural Renaissance

A library is an important part of urban culture. It is the organic fusion of the external appearance and internal spirit of a city. As an important public cultural institution, a community library not only undertakes the responsibility of disseminating knowledge and culture, but also plays an important role in cultivating community culture and improving the quality of life. The Suochengli Neighbourhood Library integrates the old and the new into the library through the transformation of the former buildings and the development of cultural activities which promote the renaissance of community and city culture.

Paying attention, and responding appropriately, to changes in society are important components of the public library mission. To embrace fully the function of the library as the third place, it is important to make the library the centre of the community (Oldenburg and Brissett 1982; Oldenburg 2001; Oldenburg 2007). Coleman and Hanley (2012) advocate the use of modern information technology to create contemporary reading spaces and the provision of public leisure areas in community libraries, such as flexible conference rooms and coffee shops.

A community library needs to understand its region, its residents and their traditions, and the availability of resources in the wider library network to identify the most fundamental and urgent issues facing citizens. The design of the library, its resources and services, can then be based on the understandings gained. The community library becomes much more than a space for reading. Through the dissemination of new knowledge and information, it promotes the building of community culture, cultivates an awareness of the wider urban culture, and improves the entire quality of life in the city.

Conclusion

The transformation of a residential building with a rich historical accumulation and cultural atmosphere into a community library involves the consideration of external environmental and internal spatial factors. The aim is to ensure that the building functions well in its contemporary new use while respecting the original

architectural elements and style. The architecture should give back to the city a building which both enhances the modern environment and retains a sense of the tradition and the memories and history it embodies. The Suochengli Neighbourhood Library continues Yantai's cultural tradition through the combination of the old and new and demonstrates the energy and spirit of its society and history through the architectural form. Through unique and novel design, the library has developed into a cultural landmark in the community and has also contributed to the cultural renaissance of the whole city.

The Suochengli Neighbourhood Library promotes the cultural vitality of the community and encourages community engagement by providing a place for reading and for residents to meet. The library and the community grow together, enhancing the residents' sense of belonging to the library, and providing a new path for the sustainable development of the library. New vitality has come to the historical district. As a cultural landmark, the library not only promotes the revival of community culture, but also improves the cultural image of Yantai and promotes the development of local tourism. In China, providing high-quality public cultural services for residents is the common goal of the government and social organisations and Suochengli Neighbourhood Library provides a great model. It is a shared place where dialogue between the new and the old is cultivated, and the energy and vitality from local communities is stimulated, further contributing to the creation and dissemination of knowledge.

Suochengli Neighbourhood Library echoes the lifestyle and pace of the local community, while representing the contemporary culture and aesthetics of modern society. While other future satellites of the Chefoo Institute/Zhifu Academic Hall will make their mark, the Suochengli Neighbourhood Library will continue to be at the core of community education and cultural activities ensuring that the vitality of the local region remains undimmed.

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Robert Niess and Jürgen Radzkowski

7 Converting and Extending a Historic Fire Station into a Library in Berlin, Germany

Abstract: The new central library in Treptow, Berlin, Germany is located in a listed, early 20th century fire station which had been in a state of neglect for many years. The building is in a historic area and is surrounded by other important listed buildings including a waterworks building and a school. The renovation and extension of the building provided the district with an exciting and well-located new library and restored a landmark building to its former glory. The project was challenging in many ways not least because of the importance of maintaining the integrity of the original building, which has several constituent parts, while ensuring that it worked with the new extension to form a cohesive new complex which functioned well as a library. Materials for the extension were selected with care to complement the old, particularly in addressing the new roofscape as a whole. The crux of the project was to retain a building which is a symbol of the past, but which also creates a new contemporary library.

The library is on three levels and the new extension connects to the historic building on the ground and first floors. The library is welcoming with a spacious entrance and a central information and service counter with a good overview of the whole space. In addition, the library is barrier-free, flooded with natural light and able to be used for events outside normal opening hours. The competition brief included specific requirements from the library staff which have been successfully met in the final design despite all the challenges posed.

Keywords: Library buildings; Public libraries – Germany; Fire stations – Remodelling for other use

Introduction

The historic town of Köpenick has been a protected area in Berlin since 1993. In Berlin's 2001 administrative reform, the borough of Köpenick was merged with Treptow to create the borough of Treptow-Köpenick. In 2007, Köpenick was designated as a redevelopment area, which included three new library projects. The three-part building programme was to be developed by renovating and converting two existing historic protected buildings and by constructing a new building for the public area.



Fig. 1: The finished project 2015. © Werner Huthmacher.

Facts and Figures

Name: Mittelpunktbibliothek Treptow Alte Feuerwache

Address: Michael-Brückner-Straße 9, 12439 Berlin, Germany

Website: [https://www.voebb.de/aDISWeb/app?service=direct/0/Home/\\$DirectLink&sp=SPROD11&sp=Sisl459](https://www.voebb.de/aDISWeb/app?service=direct/0/Home/$DirectLink&sp=SPROD11&sp=Sisl459)

Opening: April 2015

Builder: Bezirksamt Treptow-Köpenick von Berlin

Architects: Chestnutt_Niess Architekten BDA <http://www.chestnutt-niess.de/>

Gross floor area: 2,050 m²

Main floor space: 1,500 m²

Collection size: 75,000

Staff: 15

Workstations: 35

Building costs: €6,400,000

The first library design in the old town was realised in 2007/2008. The new library merged four district libraries, including their offices, with the storage area for the mobile library as well as two library administration sites. It was a success and created a positive mood that led to the planning and construction of the second library project in Treptow focusing on the Alte Feuerwache/Old Fire Station.

The Background

Treptow-Köpenick, at 168 km², is the largest district of Berlin and is located in the southeast of the city. Just over half of the district's area is made up of forest and water, which is equivalent to the area of downtown Berlin. The approximately 274,000 inhabitants (as of 2019) are spread across 15 localities, which are assigned to five district regions as city-wide planning areas. The social structure is characterised by a positive social index, high average age, low share of foreign nationals and citizens with a migration background, medium level of education, medium average income and low unemployment. Instead of a district centre, Treptow-Köpenick has only regional and local residential areas, which are often separated by forest and water.

The former library system used to reflect the locality structure, and in 2007 comprised 14 locations and a mobile library but no main library. This multi-library landscape was unique in Berlin. Limited service and a lack of demand caused a sharp decline in visits, lending transactions and participation in events. As a result, funds and staff were continually cut over the years. Berlin's budgetary difficulties since 2000 contributed further to the downward spiral. After much consideration, it was clear that a Stadtbibliothek/City Library as a recognisable urban entity and an exciting place was needed.

To consolidate the financial situation and realign the library system, changes including new objectives, were considered necessary by the district and the library. The creation of a structured plan was agreed upon, which would be evaluated and updated regularly within a specified timeframe. Strategic goals included the reduction of the number of libraries by merging several at new locations, combining resources, optimising work processes, innovative methods for promoting reading and information literacy, investment planning at the district and city-wide level for library buildings, introduction of RFID technology, digital media offers and individual projects relating to targeted needs.

The Long Journey to Finding the Right Location

With the decision to locate Treptow's new Mittelpunktbibliothek/Central Library in the Alte Feuerwache/Old Fire Station in the area called Niederschöneweide, an attractive but also challenging location was finally found. Niederschöneweide is located near the south bank of the river Spree, approximately in the centre of the old district of Treptow. Bus, tram, urban and regional railways form a highly frequented public transport hub. Road traffic is concentrated on the busy federal

road 96a, which crosses the district in a north-south direction and connects the City East with the new Berlin Brandenburg Airport (BER).

The surrounding area is formed by four districts on an area of 22 km² with around 75,000 residents. It corresponds to the social structure of the entire district, with the locality Oberschöneide, just across the river on the north side of the Spree as the only exception. University centres, start-ups and creative industries in the region result in a significantly younger average age among the population and a higher preponderance of foreign nationals and citizens with a migration background.

The entire catchment area used to have four libraries spread out in five buildings. All buildings were in remote locations. The available rooms were unsuitable for media presentations, on-site use, appropriate library operations and events, and were simply unattractive. The shortcomings could be remedied by merging the multiple locations on one new site in an attractive building. The responsible local authorities proposed an extension and reuse of the former town hall of Johannisthal, built in 1904/1905. The selected property had considerable disadvantages for the new library building because of its location on the outskirts of the district and poor access to public and private transportation.

Weighing the advantages and disadvantages very quickly demonstrated that an alternative location had to be found. The new selection was limited by the requirement that both property purchase and rental should be excluded for financial reasons. Therefore, the search was limited to properties and buildings in public ownership. The potential locations were either vacant buildings or buildings temporarily rented for external or non-public use. A suitable location was finally found with the former fire station, Alte Feuerwache (Figure 2), located since the beginning of the 20th century in an urban area which had been undergoing redevelopment since 1994. As of 2010, the planning for the construction project could begin in earnest with the transfer of the property from the general financial assets to the specialist assets of the Stadtbibliothek Treptow-Köpenick.

Finally – the Reuse of the Heritage Listed Old Fire Station

The fire station had been originally built in 1908 for a rural but rapidly growing community and had shaped the cityscape of the district. In the following decades, the volunteer and professional fire brigade and later the traffic police were based in the building. The structure suffered only minor damage in the second World War. The fire station was in use for much of the period of the German Democratic

Republic (GDR) from 1949 to 1990 but suffered long-term damage from improper construction work facelifting the elevation facing the street. From 1990 onwards, after the fall of the Berlin Wall, usage alternated from vacancy to various social uses by external associations and groups. The maintenance of the building was simply neglected and for many years left to decay. The interiors were changed significantly and the historic quality of the building suffered much damage through inappropriate and ad-hoc alterations. The Mittelpunktbibliothek Treptow project came at the right time to preserve and restore the listed historic building, which has been protected since 1994.



Fig. 2: The Alte Feuerwache/Old Fire Station before restoration ca. 2009. © Chestnutt-Niess Architekten.

The Building and its Surroundings

The original fire station building consisted of several parts: the main building, the carriage hall and the hose tower. Together with the new three-level extension, they form the new library. The Wasserwerk Johannisthal/Waterworks operate a pump station in the immediate neighbourhood. Other neighbouring historic listed buildings are the official's residence (1905), the pump station (1902) and the machine house (1922). They are located behind the library and can be viewed through a large north window. The most prominent neighbours are the elementary and secondary schools, designed by the architect Paul Egeling and built in 1898/1899. Both buildings are listed historic buildings. War damage and lack of building maintenance in East Germany were addressed with limited remedies

in the 1970s. In 2010, both the school buildings were extensively renovated, and the façades restored. The two-level Gymnasium/Secondary School and the fire station are built side by side on the street front (Figure 3).



Fig. 3: Site plan of the library. © Chestnutt-Niess Architekten.

Notes from the Architects

The Urban Concept

The listed historic Fire Station in Treptow, designed and built in 1907/08 by the Architect Karl Alfred Herrmann, is an intriguing and unusual building. Through its architectonic massing and stylistically differently proportioned volumes, the fire station has something distinctive and symbolic about it. It is a curious building typology that consists of a tectonic grouping of individual parts, including the fire engine hall, hose tower and administrative building. Not only are the fragmented parts clearly legible in themselves but they also fit together sculpturally into a singular cohesive design. The building composition brings together different construction methods, materials and decorative elements. The differ-

ences are demonstrated not only in the use of varying materials such as half-timbering and decorative masonry but also through contradictory building elements such as false bay windows and false balconies. In researching the building, it was discovered that the different constructional situations, forms and elements were designed to serve as simulations for exercise purposes for the firemen. The old building is in a way a functional stage set. One of the main architectural devices in the heterogeneous building is the multitude of roof shapes, which in their entirety create a roof landscape spreading over, and unifying, the entire ensemble.

The urban planning concept for the new extension to the old building focuses on shape, proportion and colour, as well as on function, spatial sequence and construction, with the aim of creating a new building ensemble comprising both old and new. The goal was to include as much of the old building as possible in the spatial experience of the new library and at the same time change as little as possible of the original structure (Figure 4).

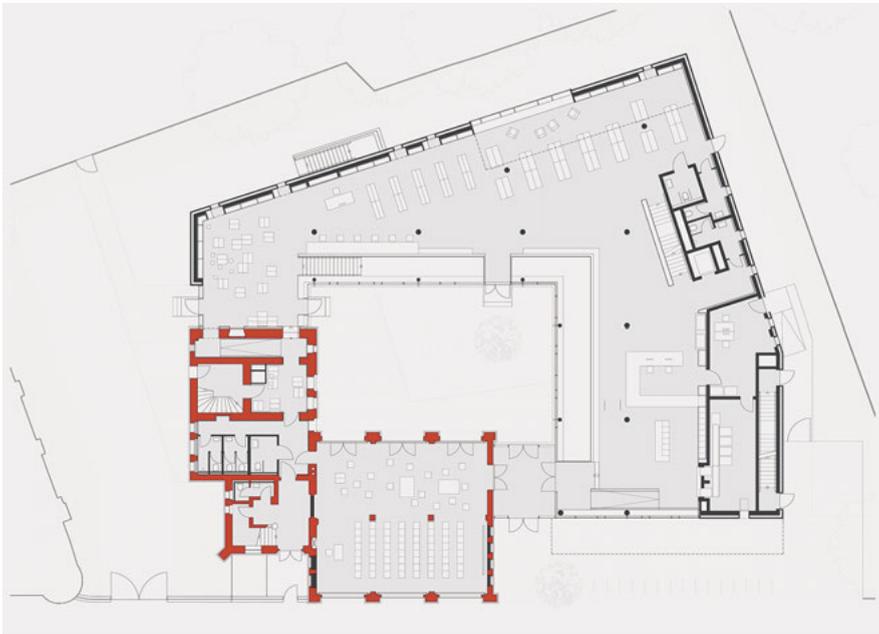


Fig. 4: Ground floor plan of the library with the existing structure shown in red and the extension in black. © Chestnutt-Niess Architekten.

The shape of the new building resembles a spiral that uses the former hose-tower of the fire station as its fulcrum (Figure 1). The architectural formulation of the defining roofscape was adopted and reformulated in the new design. The interior

and the roof shape of the new structure taper or enlarge and wrap around forming a noise-protecting courtyard for outdoor reading. The roof pitch of the new building drops down to the scale of the engine hall of the old building and emphasises both the old building and the courtyard as the centre of the complex. The shape of the spiral largely results from the building height in relation to the property boundary as an optimised shape. The new and old together create an ensemble that reinforces the symbolism of the past and presents itself as a free-standing public building, mysterious and inviting (Figure 5).



Fig. 5: The library courtyard and old fire engine hall. © Werner Huthmacher.

The Architectural Concept of the Library

The new library has three levels, a subterranean level, a slightly elevated ground level and an upper floor. Large cutouts in the floors and walls structure the spatial flow and create an interplay of views into, through and out of the building. The spatial juxtaposition between levels, between interior and exterior spaces and between new and historic spaces serves to create a connection on the one hand while promoting the uniqueness of different areas on the other. The new extension is connected to the old building on the ground floor and first floor which together with an elevator makes the entire structure fully barrier free and accessible for all users.

On the ground floor, the new building opens up to the courtyard allowing large amounts of natural light to penetrate into the subterranean level through the voids in the ground floor. In addition to the monastery-like slit windows with



Fig. 6: The entrance area of the library. © Werner Huthmacher.

small reading benches, three large windows are positioned on the upper floors in such a way that they allow a selected urban view and, in turn, direct natural light through the voids.



Fig. 7: View of a window seat. © Werner Huthmacher.

The entrance is spacious and easy to find (Figure 6). Bright and friendly the small foyer acts as a distribution area allowing access into the library or the event and seminar room in the former fire engine hall or the courtyard, regardless of the library's opening hours. The former fire engine hall is prominent, emblematic and designed to be used for events self-sufficient of the library. For independent usage, it has its own toilets and chair storage. The courtyard serves as the library's confined exterior space for reading and relaxing outdoors. The courtyard also provides the option to be integrated as an outside area for the event space (Figure 10).



Fig. 8: The library courtyard with the work of art "Imago Mundi" from Ricarda Mieth. © Werner Huthmacher.

In the library entrance area are lockers, a bench, an exhibition space with information material and an automated book return (Figure 6). For 24/7 book return, an external weather-protected book deposit is located nearby.

The information or service counter is prominently located directly at the entrance beside the security gates. Beyond the gates, an area for self-service lending machines, workstations and printers is provided. A staff back office has direct external access for deliveries and a connection to the automated book return and sorting area and is directly connected with the service counter.

At the service counter, a large opening with natural light from the courtyard enables visitors to see into the upper and lower floors of the new library thus pro-

viding a good overview and orientation throughout the whole building. Thanks to the spacious and open entrance area, the building offers a resounding welcome to its visitors.

Centrally located and easily visible from all points, a gentle and wide staircase provides for quick and direct access to all levels of the library. In addition to the stairs, an elevator provides access to all levels of the new and the old building. Visitor toilets suitable for those with disabilities are also centrally located here. Additional fire escape stairs are tucked away at the end of each wing.

Past the stairs, the youth and children's area is on the ground floor (Figure 9). The youth area for ages seven to twelve is up front near the service counter. The area for small children up to six is mainly in the rear with some space for children and their parents in the adjoining old building. An information point at the interface between the two areas ensures a good overview. An internal connection between the children's area and the former fire engine hall is possible for special uses. There is a secure outdoor play area on the western side with direct access from the neighbouring elementary school.



Fig. 9: The children's area of the library. © Werner Huthmacher.

An audiovisual area is located on the lower level, with a student study area in the eastern wing and the non-fiction collection in the southern wing. Reading places are provided throughout. Large openings in the ceiling direct the views to the outside and flood the lower level with natural light while subtly subdividing the areas through the spatial variety.

Magazines and fiction for adults and young adults are provided on the upper floor. A communication area with a coffee bar is located next to the stairs and close to the magazine reading area. In addition to the coffee bar, elevator and toilets, a closed copy/printing room is available. Free standing as well as built-in reading tables on the low walls bordering the voids create attractive spaces for concentrated study and group work (Figure 7).

The library's administration offices are housed in the old building on the upper floor, above the former fire engine hall, and have direct access to the library lending area. In terms of design and construction, all additions were structurally separated from the existing building allowing for as little costly intervention in the existing structure as possible.

In the design of the new ensemble of old and new, it was quickly realised that the selection of materials for the new building was of great importance. The outer skin of the new building picks up on the originally dark patina of the tiled roof and reverses its solidity by the use of anthracite-coloured zinc sheet cladding. Large, glazed openings as cutouts serve as compositional elements of the new building and give the shape a lightness. With the cladding, the massive red brick old building is clearly centrally placed. The same metallic skin covers both the walls and the roof of the extension, creating a physicality that stands in dialogue with the tectonic structure of the old building. While the skin protects the construction of the outer walls like a raincoat, the inside of the new building is lined with a sea pine wooden sheathing of perforated sound-absorbing and lightly pigmented panels.

Challenges

The fire station is a registered architectural monument, which made the project a planning challenge. Only through close examination of the existing building could the real condition of the building, in parts quite seriously deteriorated, be determined. For example, destructive dry rot growing in the floor beams through the masonry joints between the first and second floors had to be extensively removed.

Due to the historic preservation status, a new staircase could not be created to provide for a second fire escape route for the upper floors of the old six-story

former hose drying tower. Since the tower could not be put to public use, visitor access was limited to the ground and first floor only. To make use of the areas not accessible to the public, the technical support spaces were located in the unused areas of the existing building instead of underneath the new extension, which would have been costly. For example, the bulky ventilation equipment was integrated in the upper levels of the tower. The spiral funnel shape of the new extension proved to be optimal to ensure low velocity of air movement through the new library up to the heat exchanger and discharge vent installed in the tower.



Fig. 10: The library's courtyard with the former hose drying tower and its false architectural elements used for fire brigade practice. © Werner Huthmacher.

A surprise was revealed through the investigation of the historic roofing material. During the design, it had been assumed that the dark bitumen shingles used in the GDR renovation of the 1970s, were reminiscent of a historical, black slate roof. However, close study of historic photos and recovered tile shards from the original roof, indicated that the former roof was not slate but rather beaver tail ceramic tiles, stained with a dark colour. However, further studies of the recovered shards

suggested that the dark colour was perhaps a patina caused by air pollution from the widespread coal heating used at the time. Together with the Office for the Preservation of Monuments, a hygroscopic red beaver tail tile was chosen in the belief that the typical dark patina will, over time, return and unify the concept.

In dealing with the half timber structure of the old building, traditional carpentry methods of the time were used as far as possible including leafed beams, wooden nails and mortise and tenon joints for example. Another surprise was that much of the wooden roof construction was found to be chemically contaminated because wood preservatives had been used in the seventies. Through careful restoration investigation and work methods, it was possible to restore the historic wooden staircase to its original state. During the façade renovation, great care was taken to ensure dirt and damage were removed from the bricks but not the patina. By leaving some of the wear and tear and much of the indications of ageing, it was possible to preserve not only the history of the monument but its dignity as well.

Notes from the Librarians

In the competition brief, the librarians specified the building requirements. The three areas of the former building, consisting of the main building, engine hall and hose tower, needed to be connected to the new building. An accessible courtyard for outdoor use and the conversion of the fire engine hall into an event room were required. Further general requirements included:

- Professional and operational needs, including RFID technology
- Public use in accordance with legal requirements and individual needs
- Demand-oriented, secure, expandable and innovative IT infrastructure for the entire building
- Individual building services requirements
- Separate planning and construction process for the design of outdoor facilities
- Public art budget integrated into the project (Figure 8)
- Secure financing of the entire project.

The requirements were successfully met by the architects in their design (Radzkowski 2016). The results were:

- Specialist and operational needs: the library occupies the three floors in the new building as well as individual rooms in the hose tower and the engine hall in the old building for public use; the new building, engine hall and

courtyard can be accessed through the central entrance zone; the roughly 75,000 items in the collection are assigned to specific floors according to use:

- Basement: fiction, audiobooks, film adaptations for adult literature on DVD
- Ground floor: picture books, books for children and adolescents, audiovisual media for adults, children and adolescents and board games
- Upper floor: non-fiction, newspapers and magazines, reference collection.

The architectural office of Chestnutt_Niess was also responsible for the interior architecture which included designing the wall-mounted, integrated shelving, reading tables, service counter, seating and the selection and modification of the free-standing shelves, audiovisual furniture and mobile picture book storage units (Figure 11). The furnishings were made by the company Paul Serafini based in Iserlohn (<https://www.serafini.de/home>).



Fig. 11: View from the lower level. © Werner Huthmacher.

Other outcomes were:

- The former engine hall includes event technology, accommodates 80 people and is used for events and projects to promote reading and information literacy, external programmes and courses.

- Staff workstations are on the upper floor of the engine hall and in the new building together with a conference room and staff toilets. The rooms in the old building can be reached directly via the historic staircase and a bridge between the old and the new building on the upper floor.
- The entire building, old and new, is barrier free. Ramps, floor markings, visual signs and acoustic messages are provided in the staircase and the elevator. On the ground floor of the new building and next to the engine hall, accessible toilets are available. The IT equipment is disabled-friendly.
- RFID technology for self-checkout and collection security are accommodated by three self-service checkout terminals on the ground floor, including one terminal with a cashless payment function, and a security gate next to the counter, which optically and acoustically alerts staff to material not checked out. In the entrance area of the library, two return systems were built into the wall and lead to a sorting system with five bins in a back room, where the container for the external return system can also be found. The system is available 24/7.
- IT infrastructure: The building is connected to the fibre-optic network, which serves all the staff and public desks providing functionality of the RFID equipment and services with associated libraries. Optional connections are available as is free Wi-Fi. The server and network administration are managed at a local and central level.

Conclusion

The long road to rationalise library services in the city district and merge into a new location has taken time to come to fruition but the impressive result has undoubtedly made the journey worthwhile. A historic landmark building has found appropriate new use and a library service in decline in visitor numbers and uptake of services has seen a revival. A clear sign of the success of the fire station restoration and extension is evidenced daily by the positive reactions of the local population who regularly and enthusiastically use the library.

The architects and librarians have risen to the challenge of combining old and new to create a welcoming, exciting new public library that works well, provides a multiplicity of facilities and is a place the locals want to visit. The character and ambience of the original building have been retained and a new extension, which echoes the architecture of the fire station while making its own clear statement and contribution to the urban cityscape, has been created. Both combine to create an extremely successful award-winning new entity (Architekturpreis

Berlin 2016). The key requirements of the competition brief including connecting the old and new parts of the building and ensuring a high level of professional services in an IT-rich environment were met, and a range of activities and events can be held in the building. Much more has been achieved (Lieschke 2016). The result is an exciting, contemporary library space retaining the embodied energy and memories of the original building; the old informs the new and a new chapter in the library service has begun.

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Petra Süppel, Willi Sutter and Angelika Manz

8 Building Community Through Transforming 17th Century Barns in Kirchzarten, Germany

Abstract: The renovated barns of Talvogtei, a former moated castle, in Kirchzarten in south-western Germany constitute compelling examples of the value of transforming historic buildings no longer in use for their original purposes to new meaningful public use. In the view of both users and visitors, the tension generated between the modern and the historic structural elements creates a strong aesthetic impact. The chapter discusses the conversion of the one-time barns into the Mediathek/Multimedia Centre/Library in Kirchzarten as one way in which municipalities deal effectively with their architectural heritage. The concept brief developed for the Kirchzarten Mediathek/Multimedia Centre/Library describes it as a third place (Oldenburg and Brissett 1982) in a community of 10,000 inhabitants.

Keywords: Public libraries – Germany; Library buildings – Design and construction; Barns – Remodelling for other use; Multimedia library services

Introduction

The issue of how to treat the built heritage in its entirety, particularly in rural areas, is more fundamental and more pressing today than it was only a few years ago. Climate change, incipient demographic changes, demands for affordable housing and the provision of sustainable local employment, to name just some of the challenges, are leading to rethinking the approach to the built heritage and innovative strategies for the future. Everyone bearing any responsibility for the architectural environment has a part to play. Conceptualising, developing and constructing an appropriate community for the future involve optimising the use of existing buildings, understanding their past and present uses and anticipating potential alternatives for the future. Protecting and celebrating heritage in a modern context and undertaking municipal development take dedication, diligence and passion.

A more sophisticated approach to developing the existing heritage is crucial if sustainable development decisions are to be taken. The cultural aspects of buildings need to be preserved along with the building materials themselves, bearing in mind the vital importance of grey energy considerations in managing



Fig. 1: The transformed Talvogtei barns viewed from the north with the Multimedia Centre on the right and administration centre and community hall on the left. © Willi Loba.

Facts and Figures

Name: Mediathek Kirchzarten

Address: Talvogteistraße 5, 79199 Kirchzarten, Germany

Website: <https://www.mediathek-kirchzarten.de/>

Opening: May 2017

Builder: Gemeinde Kirchzarten

Architects: Sutter KG³ <https://sutter3kg.com/>;

UKW-Innenarchitekten <https://ukw-innenarchitekten.de/>

Gross floor area: 501 m²

Main floor space: 420 m²

Collection size: 18,000

Staff: 2.5

Workstations: 5

Building costs: €2,800,000

responses to climate change. The term grey energy is variously used to refer to: the energy produced from fossil fuels; embodied energy, the total energy used to make something; energy produced from polluting sources in contrast to green energy from renewable, non-polluting sources; (https://en.wikipedia.org/wiki/Gray_energy); the energy hidden in a product, that is, the amount of energy re-

quired to extract that product from nature, or to cultivate, manufacture, package and transport it (<https://www.unescwa.org/grey-energy>); and the primary energy necessary to construct a building including energy used to extract materials, manufacture and process components, transport people, machines, components and materials to the construction site, install building components and dispose of them (<https://www.igi-global.com/dictionary/grey-energy/74537>).

Existing buildings deserve to be appreciated. They express regional building traditions and styles. They give character to towns and villages. They constitute design landmarks and through present and past use are woven into the fabric of the community.



Fig. 2: The barn before its restoration; view from the south.
© Sutter KG³ Kirchzarten.

Background

In September 2007, the Bundesstiftung Baukultur/Federal Foundation for Building Culture (<https://www.bundesstiftung-baukultur.de>) began as an independent organisation to pursue the goals of ensuring high quality and sustainable construction planning and implementation and raising the standard of building culture throughout Germany. Numerous networks and centres for improving building culture established at all levels, federally, state, supraregionally, regionally and locally, collaborate on issues and promote the over-arching goals.

The Initiative Baukultur/Building Culture Initiative operates as informal grouping of various initiatives and associations across Germany to emphasise the significance of an appropriately build environment as a valuable social and economic asset. In villages and rural areas, however, the initiative has made less headway than in the cities. It is essential to communicate more effectively and

publicly promote and discuss approaches to structures and sites worth preserving in villages and country areas. Why are historical buildings worth preserving, even if they are not listed? What makes buildings special for the community, and which features should be identified as important and how?

Documentary maker and author Dieter Wieland addressed the issue in his brochure, *Bauen und Bewahren auf dem Lande*/Building and Preserving in the Countryside, for the Deutsches Nationalkomitee für Denkmalschutz/German National Committee for Monument Preservation (<http://www.dnk.de>). Wieland pointed out that no building is eternal; all must be renovated at some point and need to be well maintained. Rather than large-scale elaborate makeovers, individual elements should be replaced as necessary.

And the old farmhouses are made for that. Those who built them were brought up to think providently and economically. Do not interfere with the structural elements. That will make it expensive! Above all, do not destroy your old house's greatest advantage, its age. Nothing can replace age. You don't adulterate old wine with young wine. Do not adorn your house with new building materials. An old house made to look young is a fraud. And it looks like one, too. (Wieland 2003, translated from German by Mara Huber)

Wieland went on to recommend that the scale and proportions of an old building be retained along with the window openings, sashes, glazing bars, shutters and doors. He concludes with an impassioned plea to retain everything that gives a building its irreplaceable character and enhances its contribution to its region.

Try to preserve as much as possible of the old material. A lot can be reused, even small details, carved door panels, handles, door and window fittings, maybe even the old, hand-blown glass. All of these are treasures you cannot buy anywhere. That no craftsman today can produce to such a high quality. Neither can you pay for it. But these are things that give the house its charm and its face. Nobody but you has a house like that. And that should be worth your effort. (Wieland 2003, translated from German by Mara Huber)

The Special Character of Talvogtei

Agriculture has long ceased in the centre of Kirchzarten, a small town of about 10,000 inhabitants in the heart of the Dreisam River valley, eleven kilometres east of Freiburg im Breisgau, on the edge of the Black Forest in south-western Germany. Some barns in the area survived and until recently were the venue of the annual village get-together. Talvogtei is a former moated castle and today serves as the town hall. Its barns are located in Kirchzarten's early settlement of Schalampi and are contained in two farm estates. Schurhammi comprised the former mill

with a farmhouse and barn and now houses a municipal administration centre of which the building authority is a part on the ground floor and a community hall on the upper floor for celebrations and cultural and official events. The second farm estate was Stöcklemühle which included the house at Talvogteistraße 4 and now houses the Mediathek or multimedia centre/library.

Since their construction around 1830, the barns remained largely unchanged in the centre of the scattered settlement or Haufendorf/enclosed village. When agriculture was discontinued in the Talvogtei area, the barns lost their purpose. They became storage buildings, left to decay (Figure 2). The architecture of the barns is an important example of the local building culture but they lay empty for some time. New life, new uses and a viable future were needed. In the 1960s, the municipality of Kirchzarten bought the barn which is now the multimedia library, and after discussion about other potential projects in the area, the second barn now containing the administration centre and the community hall was purchased (Figure 1).

Delivering the Desired Outcomes

In 2012, the municipality of Kirchzarten decided to adapt and renovate the two Talvogtei barns with the joint aims of preserving significant buildings of importance to the identity of the town and rejuvenating its village centre. Given the enormity of the ambitious task, one question that arose at the very beginning was how future users, architects, administrators and municipal authorities could cooperate to develop a successful project. How should a future-oriented project be designed? In Kirchzarten, the decision was taken to establish a project steering group with representatives of all stakeholders to obtain community views, input on needs and requirements and feedback on the various proposals and suggestions. All would work towards one shared goal.

The work undertaken on the Talvogtei barns provides an example of best practice in restoring historic buildings for an appropriate new public use. The view of both users and visitors is that the interplay between the modern and the historic structural elements creates the main dramatic aesthetic effect. Many ideas for new ventures in the historical area were considered during the collaborative process. Possibilities canvassed included tourism with a hotel and catering facilities, a museum and general community use, which is what has now been realised. Attention to the historical context was a key factor in all considerations. The site was, and is, a jewel in Kirchzarten; it embodies the town's history and identity and tracks the development and the decline of local agriculture. With all

potential projects, a primary focus of any new use was that the historical character had to be retained.

New uses and architectural design features had to be accommodated within the context of the former buildings and their structures. Interventions were to be kept to a minimum and the overall appearance changed as little as possible, presenting a significant challenge for a completely new and public use given the original function as an agricultural building.

The central question was not how the buildings should be changed to adapt to a new use but rather how could the architectural design focus on innovative outcomes with as little change as possible. Such an objective requires a high level of communication among all parties involved and the involvement of a public contractor made the process even more complex. Many factors had to be considered in addition to the functional requirements of the brief. Building conservation, structural engineering, fire protection, social inclusion, development funding and budget constraints had to be considered. Undertaking construction work in an existing context is always a journey into the unknown.



Fig. 3: New addition inserted with exhibition, cloakroom and information desk. © Jürgen Gocke.

In the case of the multimedia library, the various considerations triggered intense discussion. It was imperative to create an attractive entrance area with a staircase and elevator that could handle visitor traffic. The first idea of providing an extension to the barn was rejected because of its impact on the original structure and the accompanying alterations. Instead, the solution was to insert a new addition clearly differentiated by its exposed steel shell into the double-height part of the

barn where the hay carts used to enter (Figure 3). The addition projects beyond the original entrance and leaves the historical shape of the barn intact. The only change

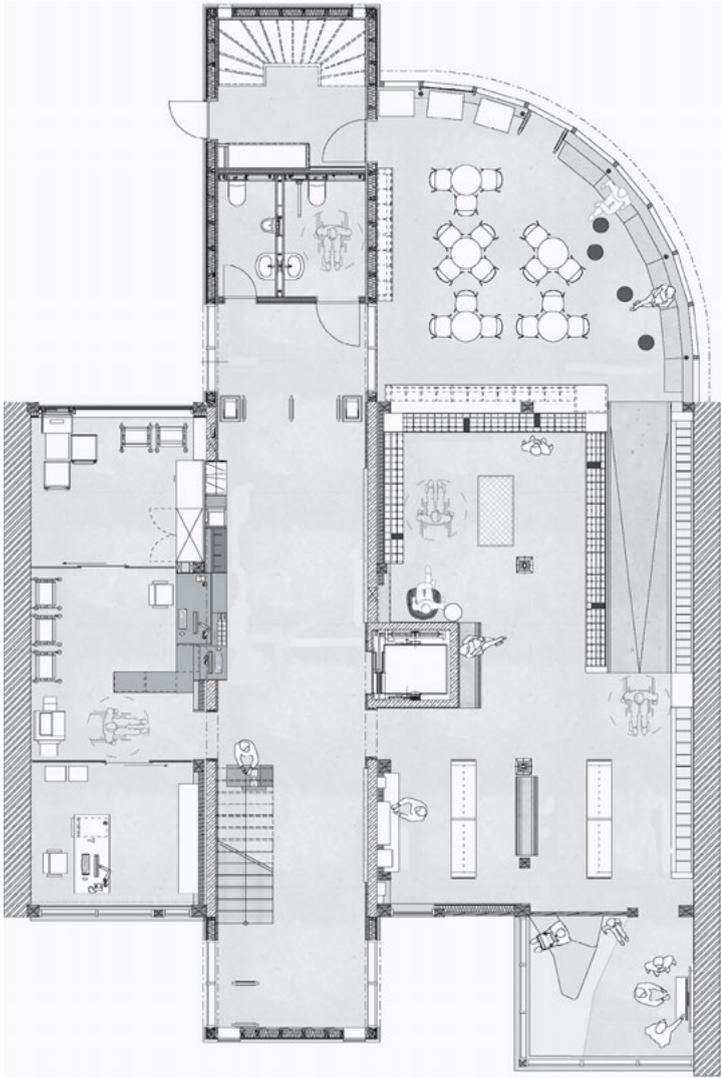


Fig. 4: Mediathek Kirchzarten, ground floor. © Sutter KG³ Kirchzarten.

to the structure of the building was the removal of the old doors at the entranceway. From the central entrance area, the visitor moves into the former stables and the hay storage areas with views of the original roof trusses, all preserved intact. And

thanks to the raw steel composition of the shell, the inserted addition itself will age and with time blend in effectively with the historical elements.

The issue of barrier-free access to the buildings was a particular challenge. Installing an elevator was not enough. Barriers had to be removed. If possible, there should be few, or no, doors that must be opened or which restrict access to areas. How do you guide visually impaired people, and how do you respond to the fact that many people are hard of hearing? The Talvogtei barns exemplify how these problems can be solved in an ideal way. Thanks to an intelligent fire protection concept connecting the two barns with a glass footbridge, the library was able to be designed as an open building, without internal doors, thereby allowing barrier-free movement between spaces. A second fire escape route was created across the glass footbridge between the two barns on the top floor.

Inside the buildings, the interplay between old and new is striking. Historical woodwork, worm-eaten and worn-down by the centuries, combines effectively with an exciting new interior design and exposed concrete. Drystone walls contrast with smooth open screed that replaces the old natural flooring. History and modernity are present together, complementing each other, accepting each other's value, standing side by side in friendly and respectful companionship. The visitor experiences the combination of things old and new not as a contradiction, but as a synthesis. The atmosphere is both stimulating and harmonious resulting in a space that is pleasurable, enjoyable and easy to experience. The space unites modern design and historical charm and authenticity.

The concept and the mood permeate the two barns as a recurring theme. Old historical doors, weathered plastering, antique transmission wheels, historical wall constructions, drystone walls and historical sandstone embrasures contrast with exposed concrete, glass and steel, as if the elements inevitably belonged together. The result is not awkward but harmonious. The old is not subservient to the new. It is where it always was, unchanged and aged, just the way it ought to be.

The Public Library as Third Place

The decision to convert one of the two barns of the Talvogtei into a modern multimedia library provided the opportunity to update the existing library service model to meet the present-day requirements of a modern public library.

Libraries which have been traditionally, places of learning, culture and information have acquired new functions. In addition to borrowing books, magazines, CDs, games and films, sometimes for a small annual fee, and to obtain informa-

tion, local residents visit the library for other purposes. As early as 1982, American sociologist Ray Oldenburg coined the term, third place, for a place where a person can spend time away from the home or work environment (Oldenburg and Brissett 1982). The library at Talvogtei fulfils this increasingly important function for its community.

Although Kirchzarten is a small community at the edge of the Black Forest, housing is expensive. The proximity to the university city of Freiburg and excellent transport connections make housing a scarce commodity, so that some students, families and senior citizens live in cramped conditions. The opportunity to spend time in a high quality, non-commercial environment close to home and the workplace quickly received a positive response from the local population.



Fig. 5: Youth lounge, ground floor. © Jürgen Gocke.

With new premises in the renovated barn, the library obtained its own building with 500 m² in the centre of town, barrier-free, and equipped with state-of-the-art library technology. An automatic check-out terminal and return shelf and the ability to return material outside the library's opening hours via an external book return slot speeds up borrowing procedures for library users and frees up library staff from routine procedures so that they can concentrate on customers' needs and offer personal consultation.

RFID technology provides access control as well as the self-service facilities outlined. One of the highlights is the library's *eCircle*, the library's online offer with digital media such as e-books and e-audios. Wi-Fi is available everywhere

in the building and can be used free of charge. The library is called a Mediathek, reflected on the website as Medi@thek because of its hybrid nature including both traditional library services and digital media along with online services. The term in French becomes médiathèque and is translated into English as multimedia/media centre/library. The concepts identified in the name emphasise the digital media being made available through the library and impinge on its design (Figure 6).

The building's structure, with spaces of various sizes on three levels, was considered in determining the collection and seating arrangement. 20,000 items had to be stored in shelves and display areas, organised by subjects and target groups. It is important that the presentation of the stock is flexible enough to accommodate future changes in activity without jeopardising the overall aesthetic impression.

The furnishing and design of the various areas were intended to enable users to navigate the building and find intuitively the services and spaces needed. There are spaces for concentrated reading and learning (Figure 7), such as the Lernkabinett/Learning Cabinet on the middle floor, places for relaxing and being with people, such as the Lesecafé/reading café and the Jugendlounge/youth lounge (Figure 5) on the ground floor and the Lesehöhle/reading den for the youngest children on the top floor. In addition to an experienced architectural design firm, interior planners were involved in the furniture layout and selection (Figure 4) which was extremely helpful and is evident in the end result.



Fig. 6: Audio-station in the digital media section.
© Jürgen Gocke.

The timelessness of the materials used, stone, wood and concrete, the masterly craftsmanship of their use, and the restrained use of colour in the entire building delight the visitors. From all three levels there are fascinating views: from the ground floor to the murmuring village stream; from the middle floor to the historical neighbouring buildings and squares; and from the top floor through the skylights to the church and the surrounding Black Forest hills. Carefully chosen seating with

a total of 94 seats invites visitors in all areas to stay awhile. There is room for spontaneous encounters or short conversations everywhere. For people who live alone, in particular, the Mediathek spaces become a home away from home.

Specialist equipment is provided for differently-abled users. For visually impaired persons, tactile guides were installed on the floor, and a personal computer with specific hardware and software is available. In the community hall, audio induction loops were integrated into the floor, allowing hearing-impaired people to listen directly via headphones. Finally, the outdoor surfaces are designed to be easy to use by people with wheelchairs or walkers, and the entrance doors open automatically. None of these measures detracts from the atmospheric quality of the building and it was not necessary to sacrifice historical details to introduce them.

The implementation of the UN Convention on the Rights of Persons with Disabilities is a central issue in Baden-Württemberg. The Impulse Inklusion/ Impulse Inclusion programme of the Ministerium für Soziales und Integration Baden-Württemberg/ Ministry of Social Affairs and Integration supports projects to promote inclusion in an innovative way, including work undertaken at the Mediathek Kirchzarten for the provision of a wide-ranging programme of events. Lebenshilfe (<https://www.lebenshilfe.de/>) one of Germany's largest organisations providing facilities for the disabled recognised Kirchzarten's outstanding outreach with an award in 2018.

Meeting people, enjoying the relaxed and informal atmosphere of the restored building or spontaneously having a cup of tea, coffee or hot chocolate, all make a visit to Kirchzarten's multimedia library a pleasant interlude and an opportunity to take time out from the everyday life of the community. Through a continuous emphasis on public relations work and a strong presence in the local press and on the Internet, the town's citizens are regularly updated on the services, programmes, events and activities of their new multimedia library.



Fig. 7: Reading lounge, ground floor. © Jürgen Gocke.

Conclusion

As Mayor Andreas Hall stressed at the opening ceremony for the building in early 2017, the Mediathek/multimedia library was designed not only as a central place of education in the community but also as a meeting point for all citizens and a vibrant event venue. The community has responded extremely positively to its new library. Designing the provision of services within the existing barns proved worth the effort! In addition to preserving the historical building characteristic of the town, a special atmospheric space has been created for a Mediathek/multimedia library in the town centre (Süppel 2019). The interplay of open-beam ceilings with drystone walls and open screed floors of silver fir makes the building, through its simplicity, an expression of authentic building culture in the region.

It is no wonder that the new facility in historical Talvogtei has been well received by Kirchzarten's citizens, and that it is popular among residents and visitors throughout the Dreisam River valley. Since the opening in May 2017, many readers have enthusiastically used the new spaces and services. Lending figures increased from 50,000 items in the former school centre location of the library to 64,500 items in 2019. The number of active users has almost doubled, from 960 to 1,700 with 25,000 yearly visits. A successful restoration project of the former barns has revitalised the town centre and provided an innovative Mediathek much appreciated by its users.

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Michael B. Frank and Canan Kadi

9 The Mössingen Library Emerges from the Pausa Tonnenhalle in Germany

Abstract: A barrel hall, designed in 1950/51 by the architect Manfred Lehbruck as a textile printing hall for the Pausa company and extended in 1962 into a larger industrial complex was listed as a historical monument after the company went bankrupt in 2004. In 2011, the structure found a new use as the Mössingen public library when the building was renovated and converted in accordance with listed building regulations. The philosophy, and the benefits and challenges of combining a new use with a historic building, are described from the point of view of the architect and of the librarian. The project architect outlines the context informing his strongly held belief in the importance of connecting places and buildings with their history. The solutions that met the requirements of both the new use as a library and the protection and preservation of a listed building are described. The librarian discusses the advantages and disadvantages of the conversion and the library's importance to users.

Keywords: Public libraries – Germany; Library buildings – Design and construction; Industrial buildings – Remodelling for other use

Introduction

The city of Mössingen, in the Tübingen area of southern Germany, has 20,000 inhabitants including those in the surrounding villages. The main public library branch in Mössingen, founded in 1981, moved to the listed Pausa Tonnenhalle in 2011. The industrial building was sensitively renovated in accordance with historic building legislation and converted into the Mössingen public library (Figure 1). The conversion retains clear traces throughout the building of the unique production history of the Pausa fabric printing works.

The area in which the barrel hall is located is known as the Pausa district. The administration building, boiler house and former canteen are located on the site. A café and Streuobst-Erlebniszentrum/Orchards Experience and Information Centre (<https://www.moessingen.de/de/Freizeit-Tourismus/Informieren/Infozentrum-Streuobstparadies>) have occupied the former canteen since 2018. The weekly market enlivens the square outside the library. The long ramp (Figure 9) and the elevator enable barrier-free access to the library, and the ramp is often

used as a runway for races between children! The library is a place where people meet, learn together, exchange ideas and spend time.



Fig. 1: The high ceilings, the many windows and the barrel-vaulted structure of the Mössingen library offer a very pleasant workplace. © Wolfram Janzer.

Facts and Figures

Name: Stadtbücherei Mössingen

Address: Löwensteinplatz 1, 72116 Mössingen, Germany

Website: <https://www.moessingen.de/de/Stadt-Buerger/Bildung-Familie/Stadtbuecherei>

Opening: January 2011

Builder: Stadt Mössingen

Architect: baldauf architekten gmbh; <https://baldaufarchitekten.de/>; Design and Project

Architect: Michael B. Frank <http://www.mb-frank-architektur.de>

Gross floor area: 4,500 m²

Main floor space: 810 m²

Collection size: 60,000

Staff: 5

Workstations: 4

Building costs: €11,200,000

The Architect's Philosophy: A Personal Perspective

A dominating conceptual approach to my work as an architect since the early 1990s, has been a consideration of how history might become an integral part of a project. How can history live on within a project? has been the common question and thread through many projects undertaken over the last thirty years. One of the key German theorists on architectural thinking, Dieter Hoffmann-Axthelm (1987) expressed the challenge in a collection of essays: *Wie kommt die Geschichte ins Entwerfen?* The ideas expressed made a significant impact on my understanding of architecture as a student in London at the Bartlett School of Architecture at University College London (UCL). Translating the title of the collection into English is almost as problematic as answering the question itself. How does history impact on architectural design? How can architectural design be linked to history? The crucial question has always been uppermost in my thoughts when commencing the design for a specific site.

Although the impact of history on design seems obvious in the context of architecture and urban design, it took me almost twenty years to develop the proposition initially conceptualised during study undertaken at the Bartlett School of Architecture, at the time led by Peter Cook. Peter Cook was one of the members and founders of the famous, or perhaps infamous, avant-garde Archigram group in the 1960s in London. The group drew inspiration from technology and sought to create a new anti-heroic and pro-consumerist reality for the future.

To work with the unseen, with the traces of history and, sometimes, their suppression became a guideline for my design approach and my claim as an architect. The refurbishment of the industrial complex originally built for the Pausa company provided the impetus and opportunity for ensuring that the history of the building would shape its future as a library for Mössingen. The original building was constructed in the 1950s and designed by the architect Manfred Lehbruck (1913–1992, son of the German sculptor Wilhelm Lehbruck). The Pausa company was a printing company which established itself worldwide and gained a reputation for exclusive and ambitious textile design.

The Context

Why and how did Berlin come to the small city of Mössingen and its library in south-west Germany? In 1990/91, I submitted a diploma thesis in the Bartlett School of Architecture entitled *SubBerlin: Ein Museum für Deutsche Geschichte*

(*SubBerlin: A Museum for German History as a Situationist, Urban Intervention/Installation in Central Berlin* (<http://www.mb-frank-architektur.de/referenzen/architektur/subberlin>). The thesis, which has continued to influence my approach to design throughout my career including the work at Pausa, dealt with topics that are usually beyond the realm of architecture and urban planning. The point is made that architectural design can contribute to the identification and interconnectedness of people to place through the deliberate and subtle incorporation of history into future planning. Good design reflects the physical manifestation and the soul of a place and includes all aspects, its wounds, suppressed trauma, love and hate.

The Historical Background

In Berlin, in 1990, most inhabitants wanted to bury the history of the Deutsche Demokratische Republik/German Democratic Republic (GDR) commonly known as East Germany, and in particular the so-called Todesstreifen/death strip which had divided the city in two. The border between the GDR and the Bundesrepublik Deutschland/Federal Republic of Germany (FDR) commonly known as West Germany, in place between 1949 and 1990 took various forms. Until 1956, the GDR officially designated the border as a demarcation line, then a border and from 1964 a state border; it was also called a death strip. Rather than a critical or conceptual debate about urban design, the overriding imperative after 1990 seemed to be the erasing of history and memory as quickly as possible. Indeed, the Berlin Wall was gone in an amazingly short time and reduced to rubble (Figures 2 and 3)!



Fig. 2: Wall-graveyard in Berlin-Pankow, January 1991. © Michael B. Frank.



Fig. 3: Wall-graveyard in Berlin-Pankow, July 1991. © Michael B. Frank.

Despite the elimination of many historical reminders, it is not possible to eradicate history from people's minds and hearts. At the historic time of German reunification in 1990, the following crucial questions were rarely asked:

- What connects people to a place?
- What do they identify with?
- What do they hate?
- What do they love?
- What offends them?

Fundamentally, it comes down to the question of the soul or, in a more profane sense, the essential character of a place or city, its *genius loci* or pervading spirit.

The thesis of SubBerlin is:

- Architectural design can contribute to the identification and inner connectedness of people with Ort/place through the deliberate and subtle incorporation of historical aspects into future use.
- Architecture and urban planning should not be solely concerned with functional, structural, technical and design issues, although they are undoubtedly important.
- An architect's work should involve the creation of a content-related milieu with a project-specific language, that enables dialogue with prospective users on a completely new level.

Form, space and materiality are the fundamentals of architecture, not in a narrow formalistic way but as the German artist and sculptor Joseph Beuys would have put it, as a material expression of the meaning, content and context of the building. The building should speak to people on a subliminal, intuitive level. Form does not exist detached from content, but as an expression of it. As already noted, it is sometimes appropriate to develop a project-specific language to express the story behind structure and material with an additional layer that might be regarded as fictional. In an ironic twist to the form follows function dictum grasped by 20th century modernist architects, it could be said that form follows fiction!

From Berlin to Mössingen

How does this relate to the refurbishment of the Pausa Tonnenhalle? For the small town of Mössingen, the Pausa is an icon similar to the Berlin Wall for Berlin or the Frauenkirche for Dresden. The Pausa company was founded during the Weimar Republic (1919–1933) by the Jewish entrepreneurs Artur and Felix Löwen-

stein from the village of Pausa in the Vogtland. The company was compulsorily sold to a local person, a so-called Aryan (term used by Nazis to describe a particular ancestry) textile entrepreneur following the workers' revolt against the rise of Hitler in 1933, coincidentally the only one at the time, which was supported by the Löwensteins. After the Second World War until it went bankrupt in 2004, the Pausa company earned a worldwide reputation and was the largest employer in Mössingen (Figure 4).

The way in which their Pausa was destroyed remained in the collective memory of the people of Mössingen. Jewish history and the rebellion against Hitler marked by the Deutsche Kommunistische Partei (DKP)/German Communist Party flag on the chimney of the Pausa, were collectively suppressed. After the closure of Pausa in 2004, the original deep connection, and perhaps also the love/hate relationship of the community towards its company, were followed by great bitterness and disappointment, which almost led to the demolition and extinction of the listed historic complex.



Fig. 4: Workers printing fabrics in the old factory hall. © Stadt Mössingen.

While teaching at the Technical University of Dresden in the 1990s, I witnessed heated discussions about the reconstruction of the Frauenkirche. The church was destroyed by bombing during the Second World War and the ruins retained for many years as a memorial and key example of the trauma caused by the war. It became the symbol of the effort to encapsulate the enormous loss the people of Dresden experienced and from which they still are suffering.

As a visitor, or newcomer, to Dresden, the notion of a collective post-traumatic mourning and even fear was palpable and almost tangible. The Trümmersteine/rubble stones of the Frauenkirche were catalogued and neatly stored on huge shelves (Figure 5) and the Trümmerberg-Mahnmal/rubble mountain memo-

rial became an anti-war memorial during the time of the GDR, creating a very impressive installation and a conceptually convincing image. It was, however, only the detailed reconstruction of the Frauenkirche completed in 2004 as the physical and symbolic centre of the city which brought peace to the hearts and souls of the Dresden people.

The old stones, blackened by the devastating fire, stand out in the rebuilt façade and serve as physical and conceptual reminders of the past. With the passing of time, the variation in patina will disappear, as perhaps will the trauma of loss. Dresden has successfully embraced the concept of trauma recovery, remaking the city and rebuilding community in a convincing, urbanistic and architectural way.



Fig. 5: Structural fragments stored in front of the ruins of the Frauenkirche in Dresden.
© Michael B. Frank.

The same approach cannot necessarily be duplicated at a similar scale or superficially transferred to other places. Although the Pausa may be a smaller and less symbolic project, it has its specific historic context, and for the people of Mössingen, is just as important.

The Tonnenhalle/barrel-shaped printing hall has been preserved and converted through the language of architecture at several levels. In addition to the functional, constructive, technical and formal aspects, the history of the building was preserved as a distinct layer. Today, Mössingen and its people have regained their Pausa and it could be said that they have made peace with its history. The building symbolises emotional growth and development and is today a popular and important public meeting place for the city. The new city library occupies the former Tonnenhalle and is located on the renamed Löwensteinplatz¹.

¹ While the Pausa project was in progress, a society celebrating the history of the Pausa was founded in Mössingen by Dr. Berner of the local Heimatmuseum. It was discovered that the daughter and son of Artur and Felix Löwenstein were still alive and had been living in London and Manchester since the late 1930s following their parents' escape from Nazi Germany. The

An Outstanding Achievement

Thanks to dedicated commitment and amazing craftsmanship of all involved, many details within the building were preserved along with evidence of past production. Clever intervention ensured that the old and new could be clearly seen side by side. The soul and spirit of the building were preserved for future generations.

The project has made a significant impact on Mössingen. People commemorate the past and reflect with pride on the history of Pausa. Pausa's achievements are celebrated and its failures and issues no longer suppressed. The Tonnenhalle conversion is not only a high-quality architectural project; it is also a first-rate example of urban renewal.

Putting into practice the thesis of SubBerlin, the Pausa complex, which had been viewed negatively because of its traumatic history, once again is connected with the city and its people in a dynamic way both on a practical and spiritual level. It makes a valuable contribution to urban renewal far beyond standard urban planning. The people of Mössingen intuitively feel new respect for the complex and express it through positive participation in its activities.

The aim of my work has always been to expose the many facets and layers of a city and of its buildings to ensure they speak to and connect with current and future generations who will identify with the specific aura of the place. Cities around the world are changing rapidly and becoming ever more indistinguishable. I would argue, perhaps a little controversially, that beneath the ubiquitous shopping malls, the unique stories, evidence and memories of the past lie buried, unheralded, unidentified and unknown.



Fig. 6: The upper floor before reconstruction. © Michael B. Frank.

most emotional moment in the seven years I was working on the project was when the two wonderful elderly people came to the opening of the Tonnenhalle and the official renaming of the street from the name of the Aryan company leader to Löwensteinplatz in February 2011.

An initial proposal for the construction of a Fachmarktzentrum/shopping mall with 150 parking spaces on the Pausa site would have led to the demolition of Lehmbruck's historic complex. It was successfully opposed and replaced by the current scheme.

A worldwide tendency to ignore the past leads to a loss of uniqueness and to alienation. It is generally accepted that identifying with a place and its buildings and embodied memories, both good and bad, keeps the community together and ultimately contributes to its wellbeing. It is essential to demonstrate that old buildings deemed unusable or uneconomic can be preserved and new uses found. New structures or spaces gain in value and relevance when connected respectfully with and integrated into a place, its past and its people. The new structures or spaces tell their own stories and gain in depth and power.

The Design Phase

The Voids

The five voids cut out of the Tonnenhalle do not point to the past like the thirteen holes, dug into the sand of the death strip of SubBerlin. They clearly and consciously point to the future and have clearly defined functions. The ceiling opening brings light and air into the building; the panoramic window looking out to the Swabian Alps lends distance to the view (Figure 7); the smaller bay window offers a more focused, telescopic view.



Fig. 7: Readers' bay window as a panoramic window. © Wolfram Janzer.



Fig. 8: The central element of the reconstruction work is a cut through the concrete ceiling.
© Michael B. Frank.

In the SubBerlin project, the cut made through the building instantly reveals its history and metaphorically represents the urge for insight in the sense of an archaeologist or a surgeon cutting the surface to find out what lies behind. It might even be seen as a subtle reference to breaking through conventional and authoritarian constraints, not least the taste and style authority of some architecture schools! In the Tonnenhalle, the idea of the surprising and “daring cut” (Remmele 2011) made it a living, imaginable and feasible project. The cut was like the liberating, life-giving effect of a tracheotomy (Figure 8). It brought light to the ground floor and enabled the installation of a generous access ramp.

The passage of time is inexorable; it can not stand still nor is it desirable for it do so. The only constant is change and the notion of the ramp as a conveyor belt can be interpreted as representing change. The ramp in the Tonnenhalle (Figure 9) leads the visitor on a deliberately lengthy path through almost the entire 80 m length of the building, past visible traces of the historic production work and the open, uncovered wounds of the new intervention, the ceiling cuts. The ramp is supported by only one V-support in the centre and is located as a new access element to the library.

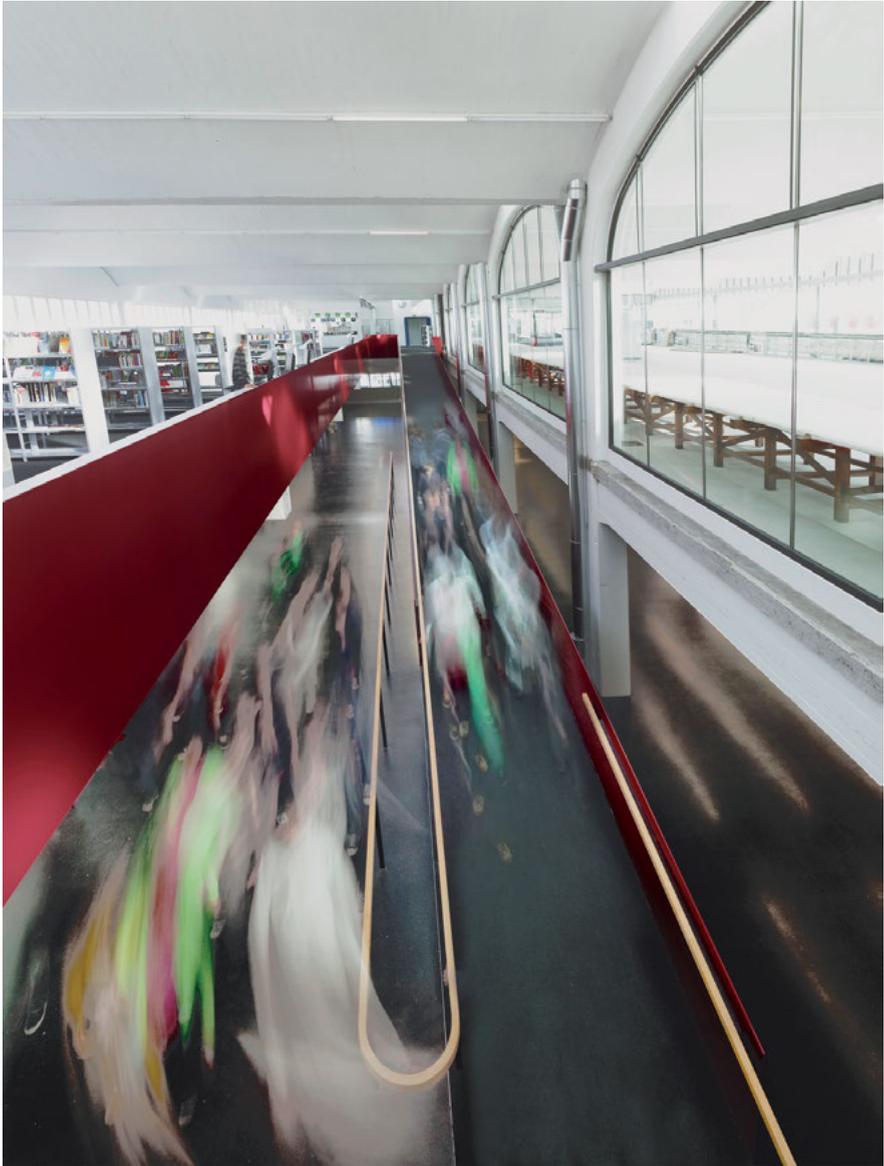


Fig. 9: In the light-flooded air space of the ceiling slit, the 38 m cantilevered ramp. © Wolfram Janzer.

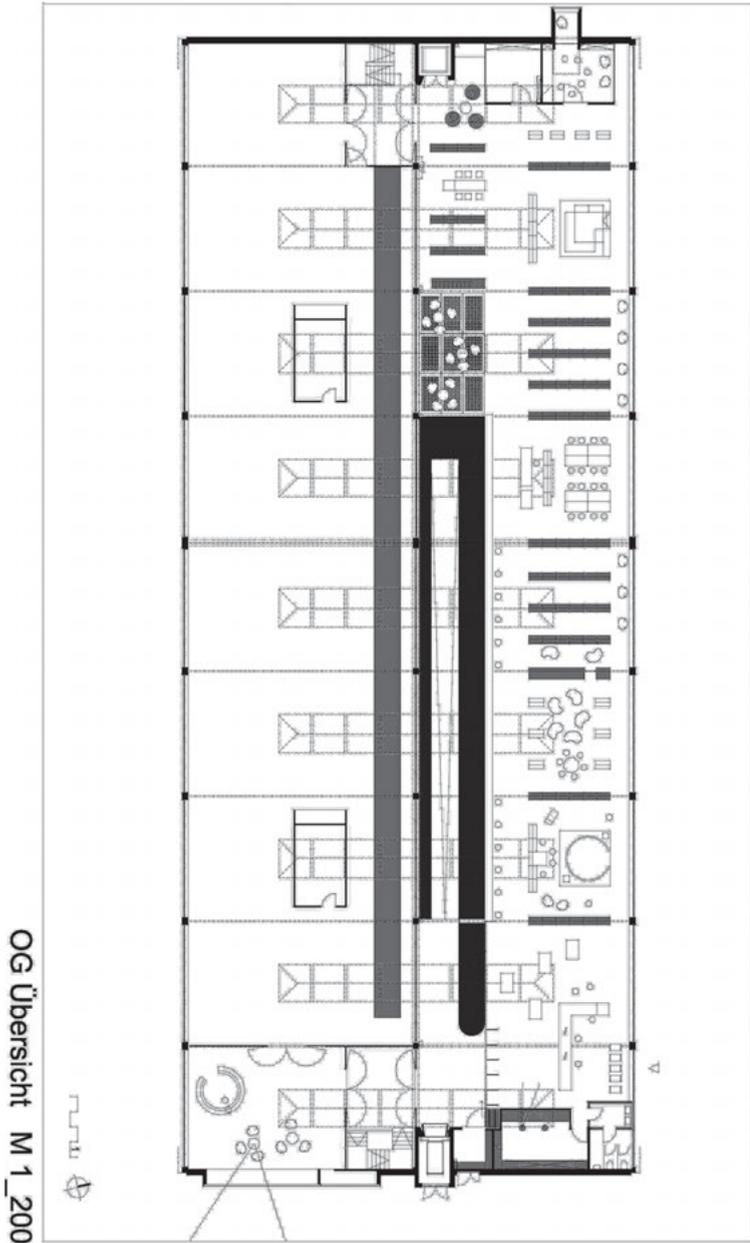


Fig. 10: The plan of the finished project. © baldauf architekten gmbh (Frank 2011).

The ramp constitutes a path (Figure 10) for those who appreciate the subtlety of the design, pause to absorb and experience the newly created spaces, and stroll through time and history. The ramp connects the past with the future of the Pausa Tonnenhalle at a creative, spatial, formal but also an imaginative level.

Evidence of the Past and Machine Aesthetics



Fig. 11: Machine aesthetic and traces. © Michael B. Frank.

At SubBerlin, the emphasis on machine aesthetics is a deliberately chosen reference to the popular avant-garde architecture of Sir Richard Rogers and to the concepts of the 1960s Archigram. At the Pausa, however, it translates into the authentic effect of the old industrial atmosphere in the former industrial plant (Figure 11). To identify and preserve the remains of past industrial activity, the concept of Intarsien/inlays, was fundamental to the architectural endeavours to which almost everything else was subordinated.



Fig. 12: The legacy of *Angelo* kept alive. © Michael B. Frank.

From rough surfaces, historical structures and materials to ancient remnants of past activity, old paint spots, amusing legacies of the workers (Figure 12) and time clocks, all the way to a whole production unit, the Farbküche/dyeing room (Figure 13), much could be kept as it was. Even with all the modern requirements of technology and users, history still lives in the building. The evidence of past use, much of it apparently archaic today, occupies its proper place and tells the young and future generations about the production processes in the old Pausa complex.



Fig. 13: The abandoned original dyeing room. © Wolfram Janzer.

The *Deutsche Bauzeitung* reported that “The Tonnenhalle presents itself today as a contemporary building with an industrial past, in which old and new coexist in an exciting, but always harmonious dialogue” (Remmele 2011).

Rudolf Schwarz, a German architect who designed highly regarded post-war churches sometimes using the rubble of almost totally destroyed churches, or building on their ruins, expressed a similar theory when he noted that architects should pay serious attention to existing structures, regarding them not as dead objects but enduring entities that live on amongst us. He emphasised the importance of entering into a dialogue with the original building, listening to what it has to say and responding in creative ways which imbue new life for the building (Peter and Wimmer 1998, 12)².

² Summarised from the original German: “Man sollte das alte Werk ganz und gar ernst nehmen, aber nicht als ein Totes, sondern als ein Lebendiges, das unter uns lebt – weiterlebt – und mit ihm eine Zwiesprache beginnen, lauschen, was es zu sagen hat, und sagen, was wir als lebendige Menschen zu antworten haben, und ihm so als einem Lebendigen ein neues Lebendiges einfügen“ (Peter and Wimmer 1998, 12).



Fig. 14: The library: the fitted glass walls allow a functional division of the old production hall without destroying the spatial context. © Wolfram Janzer.

The Librarian's View: Something Old – Something New

The Pausa Company was not just a factory. Many Mössingen inhabitants associate Nationalsozialismus/National Socialism/Nazism and the war with the factory. The decision to rename the square outside the library after the founders was an important political statement. The Pausa still has great importance for many inhabitants and some feel very connected to the building as becomes clear during guided tours and at exhibitions. Former Pausa employees often visit the library to look around and tell their stories.

Every day the librarians are reminded of the history of the company which was so successful in the past. Rather than finding the design of the old building an obstacle to their work, the staff have adapted their work processes to embrace the special features. Many elements of the former Pausa remain in the library which can, at first, seem a little strange but they add to the character and sense of

history. The library retains memorabilia from the old Pausa building with display cases containing fabric samples and pictures integrated into the counter and information desk. The most striking and frequently used heritage feature is the toilet, which has been faithfully preserved (Figure 15).



Fig. 15: The most striking and frequently used heritage feature serves today as toilet. © Canan Kadi.

Historic Building Preservation versus User-Friendliness

The listed building regulations for historic buildings have meant there are some restrictions on library design. An external book return box for users to drop off loans outside of opening hours was approved. Unfortunately, it was not possible to install a more modern return system because the façade is listed and no changes were permitted. The biggest disadvantage of a listed façade is, probably, the restrictions on library signage.

The windows reflect the charm of the former factory building. Unfortunately, due to their age, they are no longer completely sealed and in winter the library can be cold. In summer, conversely, the temperatures sometimes rise to 36 degrees Celsius, which does not encourage customers to linger for long. Library staff struggle with the heat resulting in a decision to introduce shorter working hours during the summer holidays.

The former Pausa building is incredibly special. The high ceilings, the numerous windows and the fact that it is a single-storey building provide a very pleasant workplace and the interplay of modern furniture and old factory elements gives the library its very own charm (Figures 14 and 16). Accessibility and openness are highly valued by visitors and users with disabilities have easy access.



Fig. 16: An island for the children. © Wolfram Janzer.

Conclusion

During the entire planning and construction period, the main goal was to respect the old in the context of the new and ensure both worked together in harmony. Vestiges of the building's past life as a factory ranging from paint splashes, machinery and fittings, to entire production units, are preserved in the public areas of the barrel hall. The raw surfaces and materials create the image of the new Pausa after the conversion. The industrial character is retained with the interventions clearly indicated, a simple lighting concept and the use of a limited colour palette and range of materials (Architektenkammer Baden-Württemberg 2011; Baus 2012; Frank 2011; mbfrankarchitektur 2011). All is achieved while meeting the requirements of a modern library and its users, and complying with relevant building standards and legal regulations. Added value is provided by the special aura created by the historical remnants of the former factory. The building is lively and exciting and communicates its history as an industrial production facility to future generations.

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Ricard Mercadé Rogel, Aurora Fernández Grané and Jordi Gual Nevado

10 Rehabilitating a Textile Plant for Barcelona's Les Corts Neighbourhood Library

Abstract: The Montserrat Abelló library is the most recent public library to be opened in the city of Barcelona. The library occupies a former textile plant built in 1924. The project gives new life to a symbolic building in the Les Corts neighbourhood and evokes its history. An industrial building is designed to be a self-contained complex operating independently within its environment. Its operation is the opposite of what is required of a public library, which should relate closely to its surroundings and its neighbourhood. The assignment of a new use to an industrial building in the city enables the structure to continue, despite its location. Rehabilitation and reuse should respect the building's values and key features and ideally correct any shortcomings, without changing its essential character. Establishing a clear connection between the interior and the exterior was one of the major challenges of the project. The project was carried out with a sustainability and energy efficiency agenda including gaining BREEAM Certification.

Keywords: Public libraries – Spain; Library buildings – Design and construction; Textile factories – Remodelling for other use

Introduction

The Barcelona Libraries Plan 1998–2010 (<https://ajuntament.barcelona.cat/biblioteques/en/canal/pla-de-biblioteques>; https://ajuntament.barcelona.cat/biblioteques/sites/default/files/pla_0.pdf) and its 2010 update, the Barcelona Libraries 10 Years+ Plan (http://www.bcn.cat/biblioteques/docs/bib10anys_eng.pdf; <https://ajuntament.barcelona.cat/biblioteques/en/canal/pla-de-biblioteques>), were the strategic documents that guided the deployment and location of the city's network of library facilities. Twenty years after its initial approval, the plan has been implemented as follows: 23 new libraries have been opened; 15 more have been refurbished; and some adaptations have been carried out in another 40 facilities, with a total of 65,767 m² devoted to library services. The Biblioteca Montserrat Abelló/Montserrat Abelló Library, which opened on 28 January 2018 (Figures 1, 13), was the last major rehabilitation project although some work



Fig. 1: Les Corts Neighbourhood Library. © David Cardelús.

Facts and Figures

Name: Biblioteca Montserrat Abelló

Address: Carrer Comtes de Bell-Lloc, 192–200, 08014 Barcelona, Spain

Website: <http://www.barcelona.cat/bibmontserratabello>

Opening: January 2018

Builder: UTE Ferroviál-Deco

Architect: Ricard Mercadé Aurora Fernández arquitectes SLP <http://mercadefernandez.com/>

Gross floor area: 3,760 m²

Main floor space: 1,687 m²

Collection size: 42,000

Staff: 14

Workstations: 40

Building costs: €10,013,000

remains to be done and work is underway on new facilities still to be opened in some of the city's neighbourhoods.

The Montserrat Abelló Library located at Carrer Comtes de Bell-lloc is the central library of Barcelona's Les Corts neighbourhood, serving a potential population of 82,182 residents. The investment to carry out the work totalled 10.013 million euros, including equipment and furnishing. The library's name is a tribute to the poet and translator Montserrat Abelló Soler (https://en.wikipedia.org/wiki/Montserrat_Abell%C3%B3_i_Soler) who was born in Tarragona in 1918 and died

in Barcelona in 2014. She was awarded literary prizes over the course of her long career and active in feminist movements from the 1970s. Her name was chosen for the library by Les Corts Women's Panel to commemorate the centenary of her birth.

The library occupies a former textile plant Gabriel Benet Campabadal built in 1924 (Figure 2). It was subsequently used by the Glass Centre Foundation. The design work on the site's reuse was carried out by the architects Ricard Mercadé and Aurora Fernández.

The library and Les Corts L'Ateneu de Fabricació digital/Digital Manufacturing Athenaeum or Fab Lab, a creativity and training space linked to new technologies and especially to 3D digital modelling and software, are both located within an area of a little over 4,000 m². The floor space is considered appropriate since it complies with the plans agreed on during the project phase and meets all functional requirements. The purpose of the space is to encourage residents to develop ideas into products useful to society. The library and the Athenaeum provide access to information and knowledge; they share premises, resources and equipment and cooperate and conduct joint projects, thereby increasing the potential of each.

The Montserrat Abelló Library has holdings of 42,000 items: 34,700 books, 7,300 audiovisual items and 150 periodical subscriptions. The library specialises in maker culture, has a specialist collection of material focused on social inclusion and recently opened the Asimov Collection specifically devoted to science fiction.

Towards a New Library Model

The programming and planning phase prior to the start of the new project involved a process of reflection on the library model with the participation of professionals from different libraries. Various sessions were held to discuss, based on accumulated experience, what some of the spaces should be like and what uses were envisaged for the years to come. As a result, some changes were made to what had been foreseen in the initial functional brief. Changes could be implemented because the furniture plans had not been drafted and the final layout could still be modified. The aim was to focus on uses and users, seeking to ensure that everyone found his/her own space in the library.

Perhaps the most significant change was the reduction of shelving and the size of the collection with the initial holdings decreasing from 60,000 to 40,000. The reduction enabled space to be freed-up for use by people, and for events and group activities. It also made it possible to provide many more spaces where the collections could be better displayed. Another notable outcome was that the

new furniture layout provided greater flexibility. Although a conference room, two support spaces and a classroom with computers for delivering digital literacy courses were already envisaged, it was considered desirable to hold some activities in open areas. To enable this, flexible furniture was sourced that would permit the spaces to be configured easily in different ways.

The introduction of the modifications did not entail radical change to the earlier plans but marked a move towards a new library model in which social exchange and the active participation of users would acquire greater prominence. Uses are changing their habits gradually but the demand for books and for places to study, read newspapers or connect to the Internet continues to exist and more traditional uses should still be kept in mind when designing new libraries or remodelling existing ones.

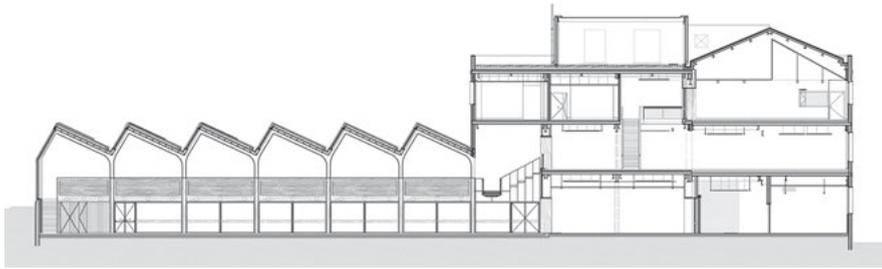


Fig. 2: Longitudinal section plan. © Ricard Mercadé Aurora Fernández arquitectes.

New libraries should continue to be what they have always been: spaces of discovery and learning with reading and access to knowledge as the fundamental pillars. In the modern world, however, they also need to be places for community participation where people can create, share and disseminate knowledge. These ideas formed part of the planning phase of the project and the architectural result successfully embraces the approach, fulfilling all requirements and allowing for the diversity of needs and uses of which libraries must be cognisant in the 21st century.

Layout of Spaces

The rehabilitation project provided the library with a net area of 3,368 m² distributed between an entrance hall, a mezzanine and two upper floors, with special spaces for children and for young people. On the ground floor there is a welcome-

ing entrance and reception area, shared with the Digital Manufacturing Athenaeum, where users can borrow or return material using the self-service facilities. The reception area leads to a large open adult area displaying fiction, music and film collections and providing areas for group activities. The children's area, with access to an outdoor terrace, is also on the ground floor (Figure 3).

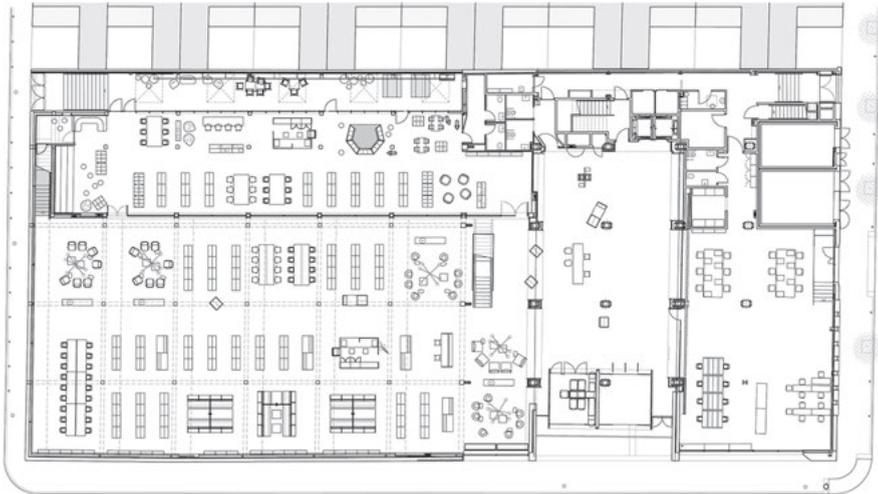


Fig. 3: Ground floor plan. © Ricard Mercadé Aurora Fernández arquitectes.

The building programme considered the need to provide a special transition space for young people, with an offering distinct from that of other areas. The 200 m² of the mezzanine were used to provide a specific fit-out for young people, combining an area with collections attractive to young people including comics, manga, teenage fiction and fantasy and anime cinema, with spaces for studying and working in groups. The first floor of the library, which is the site of the non-fiction holdings, is perhaps the quietest place in the whole building for silent study and peaceful reading (Figure 4).

On the second floor is the conference room with a capacity for 100 people and two support spaces for activities and workshops with a smaller capacity accommodating 20–30 people. Also located on this floor are the administration and staff work areas, and a CD storeroom with a capacity for 17,000 items. One of the project requirements was that the conference room should remain open when the rest of the library is closed. Movable partitions in the entrance hall allow direct access from outside the building to the second floor.

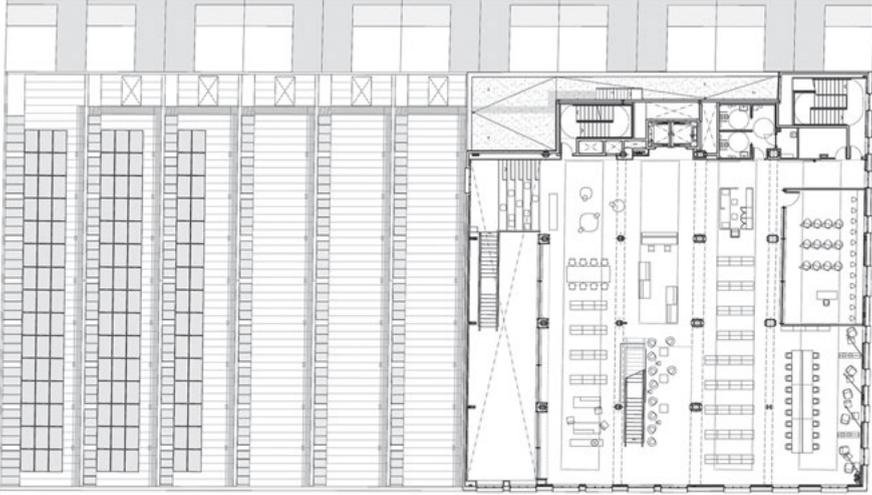


Fig. 4: First floor plan. © Ricard Mercadé Aurora Fernández arquitectes.

Historical Note

Les Corts neighbourhood was originally a mainly rural municipality adjacent to Barcelona. The advent of electricity in the interwar period led to its industrial development. One of the most important factories to be installed was that of Gabriel Benet Campabadal (Figure 5), which housed some one hundred power looms that wove a broad range of products such as bobbin lace and silk ribbons (Figure 6).



Fig. 5: Benet Campanal factory.
© Antoni Pons article from Col·legi d'Arquitectes de Catalunya (COAC) Historical archive X.

The factory's original design, dating from 1924, was by Antoni Pons I Domínguez. It comprised a building with a sawtooth roof, where production took place, and a corner building for offices (Figure 5). In the industrial building, the architect

applied modernism and eschewed the Noucentista (<https://en.wikipedia.org/wiki/Noucentisme>) classicist ornamentation, which was popular at the time, to create a modern plant using innovative structures and materials, such as reinforced concrete and glass. He did this without the traditional Catalan vault (https://en.wikipedia.org/wiki/Catalan_vault) or thin tile-vaulting, using reinforced concrete in the repeating structures instead. The factory was one of the first buildings in which reinforced concrete was used. The corner building underwent many transformations over the years, with rooftop additions and extensions that impaired its original appearance.

By the 1950s, Les Corts neighbourhood had been fully annexed by the city of Barcelona. Industrial activities that could be harmful to people began to be controlled, which led to the closure of most of the existing industrial facilities, including the Benet Campabadal factory. The revaluation of land for the construction of housing caused many industrial facilities to be replaced by residential complexes. The few factories that remained are those which changed their use, one of them being the Benet Campabadal factory which as noted above was occupied by the Barcelona Glass Centre Foundation with the industrial building, the most emblematic part of the complex, becoming a municipal warehouse in 1990.



Fig. 6: Workers making ribbons in the old factory (1930). © Municipal archive of Les Corts District.

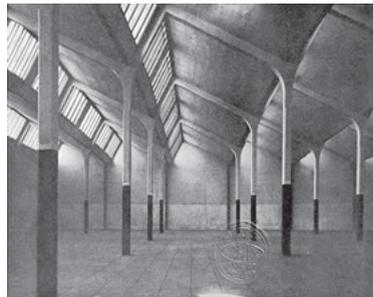


Fig. 7: Interior before rehabilitation. © Antoni Pons article from the Architects Association of Catalonia (COAC) Historical archive.

The Beginning of the Rehabilitation Project

The rehabilitation of the former factory (Figures 7, 8, 12) began with the commissioning of the project through an open tender sent out by the Barcelona City Council in 2010. It turned out to be a long process, with the work being completed at the end of 2017.



Fig. 8: Initial building. © Ricard Mercadé Aurora Fernández arquitectes.

On the first visit to the site, the building was surveyed to establish how it had deteriorated over the years in order to understand what needed to be done and to highlight the qualities of the original structure (Figures 7, 8, 12). Due to several interventions, the building was in a sorry state by the time the project got underway. The corner building was of little architectural value and the quality of its construction poor. There were mezzanines as well as rooftop additions built to take advantage of the available space, and the original front façade had been disfigured by various alterations. The corner building's structure was of inferior quality and in a poor state of repair.

The outstanding value of the complex lay in the industrial building itself and specifically in its structure, which had been designed by Robert Maillart, a renowned Swiss engineer. Six bays defined a structure formed by a grid of very slender poured-in-situ concrete columns which, where they reached the roof, adopted a Y shape, dividing into two parabolic beams. Built on a rectangular plan, the building had an area of approximately 1,000 m² and a free height of 6.20 m. The roof formed by a saw-tooth structure with continuous skylights presented a northern exposure, providing natural lighting free from glare, deemed very appropriate for the building's use as a library.

If a new building had been designed to house the library, such a tall space, originally conceived to accommodate the factory's big looms, would not have been envisaged, but it is the graceful proportions of the former factory with its elegant elongated shape that make a great impression on visitors and were advantageous in installing the library in an existing industrial building. The decisions that were made in the process of designing the building were taken with a view to enhancing the positive features of the existing structure and to adjusting the elements that were not so favourable for the new use. The impressive size of the space is one of the building's foremost qualities.

Conceptually and functionally, industrial buildings constitute self-contained inward-looking structures, the opposite of what is required of a public building, which should relate to its surroundings and neighbourhood. The creation of a clear connection between the interior and the exterior was one of the major challenges of the project, and several different approaches were taken to achieve the desired outcome. Firstly, it was necessary to provide the new building with a main entrance, since there was previously only a small door for factory staff access.

The new entrance is in the corner building and forms a large opening thanks to the underpinning of the whole façade, achieved by installing a large post-tensioned concrete girder. The result is a clearly visible entrance to the library, complemented by glazed enclosures that act as display windows, allowing what happens inside to be seen from outside. Both the beam and the walls that support it are made of *béton brut*/raw concrete with a prominent surface texture produced by board marking that contrasts with the lime stucco of the façade, evidencing the fact that it is a new intervention which does not mimic the original structure (Figure 9).



Fig. 9: Textured *béton brut*.
© David Cardelús.

Secondly, an intervention was carried out at the rear of the industrial building, which had a blind wall devoid of architectural interest. It involved opening the whole façade to the exterior, replacing it with a glazed enclosure in the form of a curtain wall, which is perceived as an extension of the skylight on the roof. By eliminating the sense of a walled-in space, a direct outdoor-indoor visual connection is achieved and people walking up from Carrer Comtes de Bell-lloc can see what is happening inside the library (Figures 10 and 11).



Fig. 10: Opening the whole façade to the exterior.
© David Cardelús.



Fig. 11: A direct outdoor-indoor visual connection.
© David Cardelús.

Thirdly, some minor interventions were carried out. For example, the round oeil-de-boeuf windows on the longitudinal façade overlooking the street were replaced by elongated windows that follow the curved contours of the beams. The windows provide a view of the outside from everywhere in the building, while highlighting on the façade the original structure's graceful proportions and formal beauty.

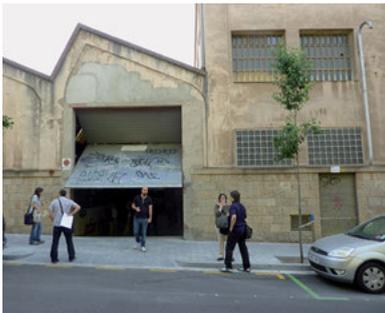


Fig. 12: Original building. © Ricard Mercadé Aurora Fernández arquitectes.



Fig. 13: Completed project. © David Cardelús.

Another challenge was to link the various floors and spaces of the building. The intention was to make them easily accessible to users both physically and visually, so that the building could be understood from the entrance hall. The intervention involved transforming the loading bay adjacent to the corner building

into a vestibule in which the visual and spatial connection is made apparent. The building's main entrance is located in the vestibule and it became the hub of the project through the creation of a double-height light-filled space featuring an open stairway. The entrance hall guides visitors to the upper floors. In the open spaces, a sculptural stairway has been designed with the *béton brut* striated texture, clearly identifying it as part of the new intervention (Figure 14).

To accommodate the entire functional programme, it was necessary to increase the net area of the structure by building a mezzanine that occupies two bays of the industrial building parallel to the party wall. The elevated position is of great interest since it offers a new view of the industrial building and a different perception of the space located near the saw-tooth roof. Beneath the mezzanine lies the children's space, which is separated by a glazed enclosure and is connected to a new exterior courtyard where outdoor activities can be held.

Rehabilitating Without Interfering

Flexibility is essential in the conception and design of any building, but even more so when a public facility is involved. Such a building must be a living structure, capable of adapting itself to various users and uses, to changes of layout, and to technological advances. Indeed, changes today are occurring faster than ever before.

Regarding layout, the building's flexibility and adaptability are ensured by keeping the floors as unencumbered, open and light-filled as possible with the enclosed areas arranged in a compact group abutting on the party wall. The enclosed spaces include lifts, stairs, toilets and storage areas for equipment and facilities. Equipment and facilities should also comply with the need for flexibility. Technically it was not feasible to install a raised services' floor since it would not then have been possible to provide underfloor cooling/heating. Consequently, a distribution network of electrical and data wiring was designed with uniformly distributed outlets to allow adaptation to future changes.

One of the major difficulties of rehabilitating an old building whose use is to be changed, lies in the non-invasive integration of new technical, regulatory and structural requirements. The intention of the project was to achieve harmonious integration while maintaining and enhancing the character of the various spaces.

The existing structure did not have the necessary capacity to meet the new requirements for use particularly because of structural problems with the corner building. It was decided to strengthen the building with a free-standing metal structure like an exoskeleton that embraces both the columns and the beams

(Figure 15). Allowing the visual identification of the original structure helps to preserve the historical memory while giving the reading spaces a unique character.



Fig. 14: Sculptural stairway with textured béton brut. © David Cardelús.

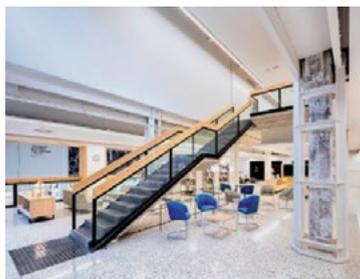


Fig. 15: Structural reinforcement of the columns. © David Cardelús.

The project was particularly complex, mainly because the aim was to avoid filling the ceiling with electric cableways and trays that would impair its appearance. An added complexity was the ceiling height, which tended to produce a stratification of the air, making it hard to achieve the required comfort temperature throughout the space. The problem of providing the building's heating and cooling system appropriately was resolved by installing radiant flooring, which provides both cooling and heating. In addition to being the least visually invasive solution, the system ensures the comfort of users, and is more efficient since it operates only when it is really needed. The difficulty lay in juxtaposing the circuit on the layout of the electrical and IT wiring, which was designed to lie under the flooring. It was necessary to implement an experimental solution with two layers of installation ducts and a uniform network of connection boxes containing the outlets, which are distributed with a sufficient density to ensure flexibility of layout and versatility of space use.

There is a more conventional solution for the rest of the building: the air conditioning is distributed through the ceiling. Even so, care was taken to ensure that the ceiling does not touch the original structure in order to keep old and new elements separate. Free-standing panels with sound-absorbing acoustic qualities were chosen.

Rehabilitating Involves Imbuing the Future with History

The assignment of a new use to an industrial building in the city is what allows the structure to continue to exist, despite its location in an urban setting. The rehabilitation should take advantage of the building's assets and correct any shortcomings, without changing its essential character. It may be necessary to consider experimental solutions to overcome budgetary difficulties or the misgivings of technical experts.

The reuse of historic buildings on the grounds of sustainability alone may be difficult to justify. If the decision is based only on budgetary considerations and time available, then it is likely that there will be a different outcome. There are, however, intangible factors such as the preservation of the historical memory and the continued existence of exceptional buildings and spaces that tip the balance in favour of regeneration and reuse.

In this case, sustainability and energy efficiency were key to the whole project, hence the decision to obtain BREEAM certification, a prestigious and demanding international system that assesses environmental impact (<https://www.breem.com/>). Sustainability and energy efficiency are more difficult to implement in rehabilitated buildings than in new structures. Steps taken included improving the envelope of the building with insulation and the avoidance of thermal bridges, together with the use of efficient heating/cooling and energy production systems; the production of energy by means of photovoltaic panels installed on the saw-tooth roof; the use of rainwater for the watering of indoor plants; monitoring energy consumption; and the incorporation of low-energy regulated lighting systems. Indeed, lighting systems of this type of work especially well in this industrial building. Thanks to the large quantity of northern light entering through the skylights in the roof and the detector system that automatically regulates the lighting, the artificial lighting system does not operate for much of the day. The day-to-day functioning of a cultural facility necessarily involves the consumption and maintenance of considerable resources, which must be rationalised and optimised to establish an environmentally sustainable management model.

The materials and colours used in the building were limited, with a small palette of colours to avoid drawing attention away from the space itself. They were chosen not to mimic the existing elements but to preserve the structure's industrial character. White was the main colour used, because of its clean and luminous appearance, with black on the metal elements and clear varnish on the woodwork to lend warmth and create a comfortable ambience for users. Béton brut with the texture of the wooden boards of the formwork was also used. The

elements in the new intervention create a dialogue with, and a counterpoint to, the lightness of the metal structure.



Fig. 16: Special racks and display units designed for the library. © Eva Guillamet.

The furnishings include many pieces expressly designed for the library with two objectives: to support different ways of using the building apart from reading, studying or working at tables; and in the large spaces to provide more intimate private areas at a human scale. The materials used in the furnishings all follow the same style using black-painted iron and natural wood, providing a unified overall image. In the main building, for example, there are spaces for meeting and working in groups, with seats and tables arranged to evoke the atmosphere of compartments of old-time train carriages. Surrounded by bookshelves, they have their own lighting to add to the feeling of shelter and privacy and have sound-absorbing panels to avoid disturbing other nearby users.

Books are not only to be found on the shelves. To catch the attention of readers and arouse their interest, books are clearly visible on specially designed racks and display units (Figure 16). Some units are in the reading areas, creating spaces with a domestic feel and featuring soft lighting to provide extra warmth.

Urban Revitalisation

The key design feature introduced to connect the library building with the city was the broadening of the pavement along Carrer Comtes de Bell-lloc, increasing its width from 2.9 metres to 5 metres. The broader pavement raises the profile of the public space, which is what the facility requires. In a second phase of the project a future urban redevelopment of the whole street is envisaged, with the

creation of a public space of suitable quality in front of the library, entailing a major urban improvement scheme and an increase of pedestrian areas.

Conclusion

A restoration project can be considered a success if, on completion, the architect and the whole planning and construction process, no matter how complex, recede into the background and the building and its users come to the fore. The building should be self-explanatory with the original elements and the new interventions clearly identifiable and working together to form a harmonious whole. Success lies especially in meeting two goals which may seem rather obvious but are important: firstly, the building should function well at the time of opening while also being capable of adapting to future needs; and secondly, users should feel the building belongs to them and they should have a sense of wellbeing when entering the library.

The Montserrat Abelló Library project has encompassed the restoration of a building which embodies the history of Les Corts neighbourhood. After two years of operation and an analysis of the key indicators monitoring use, it can be confirmed that the opening of the new library has been a complete success. A comparison of 2018 data with that of 2019 shows a clear upward trend. The library is open from Monday to Saturday for a total of 56 hours and, with 14 staff, has recorded 429,401 visits, an average of 1,413 visits a day compared to 1,200 in 2018 in its second year of operation. Other statistics include: 6,337 new users registering since the library opened; connections through Wi-Fi services coupled with those on the 40 public use computers totalled 61,892 Internet uses; and 126,404 loans, an average of 416 loans per day, in 2019. A large part of the success is due to the library's well-chosen and varied cultural programme. In 2019, there were: 186 cultural and reading events with 3,649 participants; 136 digital literacy courses with 938 participants; 28 reading club sessions; and 35 school visits with 859 pupils involved.

The outcomes are incredibly gratifying for all who helped make the project a reality and confirm the potential value and usefulness libraries continue to have today as community-oriented neighbourhood facilities.

Nina Kuikka

11 Repurposing a Grocery Store for the Joutsa Public Library in Finland

Abstract: In 2004, the new Joutsa Public Library moved into a renovated former grocery store. Everyone benefitted. The library found a perfect location in the middle of the municipal service centre, which was spared one more sad, empty building. The preparation phase was long and complicated having commenced in 1995. But the renovation phase was quick and took only six months. The building dates from the late 1970s. Few major structural changes were needed to improve the appearance, safety and usability. The result is very flexible with much-appreciated creative shelving solutions and space arrangements. Skilful architects did an excellent job, and the customers find it difficult to believe the origin of the building. The use of the library has increased with greater numbers of customers, increased loans and enhanced event participation justifying the approach taken and demonstrating its success.

Keywords: Library buildings¹ – Design and construction; Public libraries – Finland; Sustainability; Grocery trade – Remodelling for other use; Supermarkets – Remodelling for other use

Introduction

Joutsa is a rural district of 4,400 inhabitants in Central Finland. Joutsa is the central town of the region, which means that the inhabitants of the neighbouring municipalities also use the services. The first library in Joutsa was established by a civil servant responsible for bridges, Aksel Lehtinen, in 1864. The library was not publicly available for everyone but only to the thirty-seven members of a cooperative society. The library was at Lehtinen's home and consisted of some thirty books, mostly on religious topics. Since its establishment, the library has operated in six different places, one being in a church vestry. The new location is the eighth home for the library in Joutsa. And Aksel is still alive today, in the form of a library elf guarding the library from the main desk.

¹ Mika Mustikkamäki has contributed significantly to the preparation of the content of this chapter.



Fig. 1: The Joutsa Public Library moved into a renovated former grocery store from the late 1970s. © Eero Peltoniemi.

Facts and Figures

Name: Joutsa Municipal Library

Address: Länsitie 6, 19650 Joutsa, Finland

Website: <https://www.joutsa.fi/vapaa-aika/kirjasto>

Opening: October 2004

Builder: Frenta Oy, Jyväskylä

Architects: Kauko Lahti and Jukka S Lehtonen

Gross floor area: 669 m²

Main floor space: 586,5 m²

Collection size: 40,000

Staff: 5

Workstations: 5

Building costs: €1,030,000

The Planning Phase

Planning the new library was a process that commenced in 1995 and took several years as there were many options to be considered. One possibility was to renovate the old library; another concerned the renovation of a larger building; a third alternative was to build a new cultural and sports centre beside the school. The old library was too small for its renovation to be a seriously considered option and the decision to construct a new building was taken by the majority of members of the municipal council. The ground was bought, an architectural competition organised, and the winning plan chosen. The new municipal council, however, overruled the decision and put the plan on hold. It was thought to be too expensive and the location of the library distant from the municipal centre. The customers meanwhile petitioned the decision makers to locate the library in the centre of Joutsa and the final political decision was to reuse the former grocery store (Figure 2). The location was perfect. An additional advantage was that the building gained a new lease of life. The demise of village centres and even those of smaller towns is an increasing problem worldwide in the 21st century as populations change and services decrease.



Fig. 2: The former grocery store built in 1978. © Markku Parkkonen.

The grocery store, a flat-roofed, single-storey building with a basement, was built in 1978. In the same building there was also a bank. The architects for the transformation were selected through a call for tenders. The building and its surroundings offered the opportunity to create a pleasant and busy library with the additional advantage of bringing life to the village centre. Various factors had to be considered: the impression on approaching the building from different directions; how easily the purpose and idea of the building could be grasped; and the need for an obvious, welcoming entrance that fitted into its surroundings. First impressions on entering the building are extremely important. Is it attractive, accessible, bright, functional and easy to use? Does it create a pleasant atmo-

sphere and a desire for users to stay? Many factors contribute to wellbeing and a sense of place and were used in planning the conversion of the building.

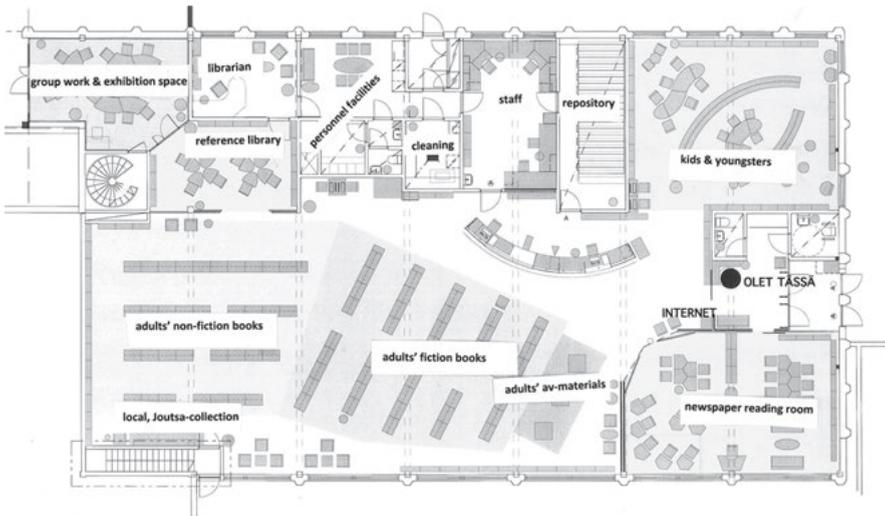


Fig. 3: The floor plan for the new library. © Joutsu Municipal Library.

Structural Changes

The grocery store had two entrance doors, the main door at the front and the loading bay door at the back. Moving the main entrance into a safer place on a side street off the main street was the biggest exterior structural change. The new entrance was designed both for functional and aesthetic reasons to be welcoming and to connect with the passing pedestrian area. Extensive excavation was required before the entrance could be relocated to the new position (Figure 4). Another significant external change was to build a low wall and create a garden area between the building and the pavement to improve and soften the appearance of the flat, rather featureless building (Figure 1).

The interior of the grocery store was in good condition. The sewer and sub-surface drains had to be checked and repaired as well as the slope of the site. The lack of a decent yard and parking area was problematic and a plan to repair the existing area of the centre came to nothing. However, behind the library is a small apple orchard belonging to a hotel and the library is permitted to use it for different events which eases the situation.



Fig. 4: The biggest external structural change: the main entrance relocated to a safer location in the side street.
© Eero Peltoniemi.

A new door was provided in the main library area to provide a fire exit and easy access to the basement. A separate staff entrance was created. The storage rooms of the grocery store were converted into staff work areas. Numerous new windows were needed as the former large grocery store windows covered only one wall facing the street. The side and the back walls had no windows. The new windows dramatically changed the appearance of the building, making it lighter and more approachable.

The original street-facing large windows made the interior light and it was possible to install dark shelves which created a warm atmosphere in the large space (Figures 5 and 6). The windows were problematic. Surprisingly, the existing air-conditioning system was not included in the purchase deal and was removed before selling the building to the municipality. The canvas awnings were too small to give the necessary protection against the summer sun and heat, and venetian blinds covering the whole window area were needed. The blinds do not provide the best solution in terms of design and appearance but a better one has not yet been found. It took a couple of years before the new cooling system was installed.



Fig. 5: Newspaper reading room with dark shelving providing warmth in the bright interior.
© Eero Peltoniemi.

The inside was completely renovated. Only the floor and the lovely big windows were retained from the former grocery store. The interior was successfully transformed into a warm, welcoming open space for everybody. In this case, it was positive that all evidence of former use was removed as the demands of a grocery store are somewhat different from those of a library; for example, the grocery store was more clinical and less uplifting for soul and spirit. While the building's past use might not have made the best beginning for a library, it offered, even with its disadvantages, a reasonable starting point for a good library solution.

The floor is made of a durable stone and dates to the building of the store in the 1970s. It has worn well and is easy to maintain. The pattern is timeless and the colour light.

The floor plan gives a clear picture of the functions and the room arrangements (Figure 3). Although the main space is large at 315 m² and has no partitions, the different functions are separated in an innovative way. The shelves are grouped in different zones for adult fiction and non-fiction areas and the main desk area is indicated by a beautiful ceiling finish that gives the interior architectural character (Figure 6).



Fig. 6: The main desk area is indicated by a beautiful ceiling.
© Eero Peltoniemi.

The furnishings in the children's and young adults' department differ from that elsewhere in the library (Figure 7). They are brightly coloured and playful and the arched shelf in the middle is a special and effective divider. Arched forms are a typical motif in the work of the architect Kauko Lahti and have also been used at the main desk.

The newspaper reading room is separated from the rest of the library by glass walls and wide sliding doors (Figure 5). The separation was initially functional because the newspaper area opened earlier than the rest of the library. It is no longer necessary because the whole library has longer opening hours. The

room was an entrance area to the former grocery store but when the entrance to the library was moved elsewhere, the freed-up space was available to form the reading room. The marketplace is on the opposite side of the street and people reading newspapers feel connected to the life of the street outside.

The loading bay area was turned into an exhibition space. The conversion of the space was an additional expense outside of the original state grant. The local art society was contacted for support and the outcome was that an exhibition room was deemed necessary because there was no suitable venue for the purpose in the centre of the village. The state accepted the additional application and the grant was awarded for the whole area. The exhibition room houses exhibitions which change monthly and are mostly by local artists, amateurs and school classes. Every now and then nationally known travelling exhibitions by bigger names are also shown. The area is situated at the farthest point when viewed from the main entrance which can be seen as either advantageous or problematic. It is advantageous when someone wants to see only the exhibition but must walk through the library and therefore visit it in its entirety. It is problematic however if someone thinks the exhibition is too difficult to find and leaves without visiting it. In the old library, the exhibition room was near the main entrance and more like a gallery space. The space also serves as a meeting room for different groups. Not all problems with reuse can immediately be solved. While the new exhibition space has its own entrance, it cannot easily be used after library opening hours because management of the security system and controlling access in and out of the building are deemed too complex for this option.

The Client Perspective

The previous library was in an old building formerly used by the Civil Guard and built in 1940. The building was wooden, cosy and beautiful in a traditional way. It embodied valuable cultural history with past functions including a bus station, cinema and the council chambers.

Many library customers, especially holidaymakers from cities, felt quite sad when they heard that the library would get new facilities. They liked the atmosphere, the history and the appearance of the old library. After seeing the new facilities however, nobody continued to long for the old premises. When asked opinions for this chapter an active customer said: “Oh, but I don’t remember the old library anymore...”. Another regular user had initially preferred the idea of building the new library near the school but now is happy that it did not eventu-

ate. The new modern library building has enabled the library service to develop so that today's generation can use it in a way that is appropriate and functional for new needs. In other words, it is fit for purpose in the 21st century.

As well as the larger floor space, the bookshelves and the books have more space. The collection can be displayed in a much better way which matters a lot to the customers. Being able to present books by placing them in a front-facing position showing the covers entices the customers to borrow more. There is also more space for computers which has resulted in increased use. Cosy reading corners and comfortable surroundings ensure that customers enjoy visiting the library and stay longer. Many services are still unknown to the wider public. One elderly lady, after an introductory visit to the library with her group, said: "I feel like Alice in Wonderland!"



Fig. 7: Children's and young adults' department has different furnishings from elsewhere in the library. © Eero Peltoniemi.

When the library moved into the new building, there was a supermarket in the neighbouring building. People visiting it passed the library and dropped in without planning to do so beforehand. Parents could easily leave children in the library while shopping. After a few years, the supermarket moved which caused a new challenge because the street beside the library became less busy and the number of casual customers decreased.

The Librarians' Perspective

Two members of library staff worked in the previous library building for some 20 years. The space was complicated with small rooms for different functions and different floor levels. Functional areas were located on two floors connected by a narrow and steep staircase and the staff facilities lay behind locked doors far

from the library entrance. The new library has spacious staff facilities with even a changing room! Previously lockers were in the corridor and the cramped storage room offered some privacy for changing. Now there is a sink near the main desk and a storage space behind, not on the next floor. The new layout facilitates staffing the library with one person only.

The staff area, including kitchen, staff facilities, storeroom, offices and cleaners' store was entirely redesigned as a new floor plan was needed. The new offices and the cleaners' room are spacious. The location of the cleaners' room in the middle of the staff area is essential for incorporating the cleaning staff with the rest of the library staff. In the future, as staff numbers inevitably decrease, the head librarian's office can be incorporated into an open plan office and the private room can be used for other purposes. For example, telecommuting space can be offered for holidaymakers and those who want to move away from cities but keep working for the same employer.

Both the staff and the customers find it helpful that one to two years of back issues of magazines are easily available in customised shelving in the newspaper reading room (Figure 6). Magazines are widely borrowed and there is a good selection available. Finally it is possible to obtain full benefit from the magazine collection.

Audiovisual materials have an improved space allocation. In the old library the audiovisual material was little used as it was not obvious to users and the selection was poor. In the new library, the material is housed in movable towers which allows for more options as music, movies and audiobooks increasingly move into electronic formats.

The library space is flexible. For example, a new self-service point will soon be opened and no structural changes will be needed. Arranging different events such as authors' visits, nature photo shows or second-hand book sales is easy. After moving into the new library, the number of events and the participants in them have increased significantly as well as the number of customers in general. An ongoing second-hand book sale is a new service that can be provided within the new space.

The valuable Joutsa special collection of 640 items by local authors and musicians finally has a prominent, highly visible location. Previously, the collection was in cardboard boxes in the store so that the public did not even know that it existed. The availability of the collection has increased the appreciation of local talent.

The basement offers additional useful space for storage and houses part of the heating, ventilation and air conditioning system, with the rest in the attic. The additional space proved useful for housing the special collection of literary sports materials, donated to the Joutsa municipality by a local collector. The donation

was made some years after the library moved into the new building and was not anticipated during the renovation project. The collection consists of 2,570 books, maps, newspapers, magazines and smaller items such as sport-themed stamps, letters and posters. Part of the collection is unique, for example posters of past local sports events. A meeting room for local organisations is also located in the basement.

New demands on the branch library are easy to accommodate within the new building. Secure and quiet spaces are available where private transactions such as registration can be carried out as well as new services required following digitisation and the increase of online information. E-learning classes and, for example, lessons on teaching the elderly how to use audiobooks are regularly held in the new meeting areas.

Cooperation between the architects and the library staff was excellent and functionality was prioritised from the very beginning. Barrier-free access was achieved throughout the building with automatic door and toilet access, ample space between the shelves and a ramp outside for wheelchair use.

Further Reflections on the Outcomes of the Renovation

According to a nationally conducted assessment of library spaces in 2009, the space occupied by library services, as well as the condition of those spaces, had been improving from 1999 to 2009 (Länsi- ja Sisä-Suomen aluehallintovirasto 2010). Still, there was variation between the municipalities. The availability of library service was limited by restricted opening hours, and a general reduction in service points. The library services were accessible only when the library staff were present. On a more positive note, the proximity of other services, both public and commercial, as well as cooperation between different sectors was an efficient way to increase the use of the library spaces. The main factors seen as in need of improvement were safety and physical accessibility of library spaces.

The recommendations given to the municipalities by the regional state administration consisted mainly of considering the needs of citizens and building cooperative networks between sectors to make the use of library space as efficient as possible. Advice was also given to monitor the status of building services closely, and to fix any defects quickly to prevent health hazards and, in a more bureaucratic economic sense, save tax-payers' money in construction and repair costs.

At the time of the assessment, there were 27 municipalities in Central Finland, with 116 m² of library space per thousand people. From 1999 until 2009 there had been a 4.2% decrease in library service points in the whole of Western and Central Finland, as well as a 15.4% decrease in the number of bookmobiles. Opening hours had decreased by 3.7% during the same period. Nationally, library service points had decreased by 9%, bookmobiles by 23.6% and opening hours by 8.8% from 1999 to 2009.

In Joutsa, the recommendations mentioned above were implemented. During the planning phase, cooperation between different sectors was undertaken and organisations and associations contacted and opinions and information sought. Particular attention was paid to physical accessibility and the organisations representing elderly people and those with disabilities were contacted. With the new building, opening hours increased which bucked the trend when compared to the situation of the whole country. And now, after 16 years, the opening hours will continue to increase as the self-service point will soon be opened.

Conclusion

Today, even after 16 years, the new library feels modern which shows that the architecture and design were successful. It is functional, open, warm and cosy and welcomes all kinds of customers.

The library puts the municipal strategy into practice. Joutsa is a lifelong partner of its citizens and everybody is taken care of. That is exactly what the library is about: it does not matter if one is young or old or unemployed or busy. Among modern trends is the desire to be less materialistic and another is to value the environment. Again, the library meets these aims and makes books, and much more, freely available for all to share. The building is sustainable, being both well-planned and constructed. The library tangibly supports the strategic objectives of the municipality such as community spirit by providing space for communal activities, and welfare and wellbeing by lending sports equipment and offering information. Libraries have always tried to anticipate social problems by providing safe spaces where people can connect, communicate, create or even just be together alone. An attractive, welcoming and functional building makes it possible to turn grand goals into reality.

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Jeske Boemaars

12 Creating a Library from a Locomotive Shed in Tilburg, the Netherlands

Abstract: The LocHal is both an imposing and inviting public meeting place located in the Spoorzone district in Tilburg in the south of the Netherlands. A former locomotive shed constructed in 1932 has undergone an intensive and splendid conversion involving excellent collaboration of several architectural firms and designers. It houses the Bibliotheek LocHal/LocHal Library of the Midden Brabant region which consists of six municipalities in the centre of the province of Noord-Brabant, and several other organisations. The new library has redefined its functions and provides a wide range of opportunities for users, not only facilitating access to information, but also ample opportunity for the creation of new knowledge and information as well as interactive and engaging activities. In addition to various areas for lectures and events, the library has a series of labs focusing on topics ranging from food to words where visitors can learn experientially and gain new skills. The LocHal library offers a unique learning and working environment where everyone is challenged to think outside the box, deviate from the beaten path, meet new people, learn and experiment. The new facility has proved popular with everyone and has been described as the beating heart of the district.¹

Keywords: Library buildings – Design and construction; Public libraries – Netherlands; Engine houses (Railroads) – Remodelling for other use

Introduction

Tilburg is a city of approximately 220,000 inhabitants in the south of the Netherlands. The renovation and reopening of the LocHal complex (Figure 1) in 2019 catalyses the redevelopment of the 75 ha Spoorzone (<https://www.bdp.com/en/projects/projecten/n-z/Spoorzone-Tilburg/>) in Tilburg, an area in the middle of the city previously used by NedTrain for the production and maintenance of trains. The building's design is the result of close collaboration between Civic Architects, Braaksma & Roos Architectenbureau and Inside Outside, while the

¹ The chapter draws heavily on the publications listed in the References and the content has been used with the permission of the authors.



Fig. 1: The LocHal Library in a former locomotive shed. © Ossip Architectuurfotografie.

Facts and Figures

Name: Bibliotheek LocHal

Address: Burgemeester Brokxlaan 1000, 5041 SG Tilburg, Netherlands

Website: <http://www.lochal.nl>

Opening: January 2019

Builder: Binx Smartility

Architect: CIVIC architects <https://www.civicarchitects.eu/>; Braaksma & Roos

Architectenbureau <http://www.braaksma-roos.nl/bureau-braaksma-roos-architectenbureau/>; Inside Outside <https://www.insideoutside.nl/>; Mecanoo <https://www.mecanoo.nl/>

Gross floor area: 11,000 m²

Main floor space: 6,000 m²

Collection size: 164,000

Staff: 50

Workstations: 320

Building costs: €31, 458,000

engineering consultancy Arup advised on aspects such as sustainability, reuse and acoustic design. Mecanoo Architects was responsible for the interior design of the library spaces, various laboratories, the café and offices (Lomholt 2020).

In addition to the library, three other organisations are located in the LocHal: Kunstloc Brabant, Seats2meet Tilburg and CAST. Kunstloc (<https://www.kunstlocbrabant.nl/>), is an advocate for art and culture in the province of Brabant and is in charge of curating the exhibition space. Seats2meet (<https://www.seats2meet.com/en/locations/1213/Seats2meet-Tilburg-LocHal>) rents out spaces for conferences and meetings. CAST is Tilburg's centre for architecture and town planning (<https://www.castonline.nl/>). The library and other tenants worked closely together with the municipality of Tilburg and the architects in the design and conversion process.

The Locomotive Origins

Nederlandse Spoorwegen/Dutch Railways (NS) was of great importance in the growth of the city of Tilburg at the beginning of the 20th century. The LocHal occupies one of the original buildings, the locomotive shed constructed in 1932 (Figure 2) in the former railways yard which is now part of the urban renewal project in the Spoorzone. The locomotive shed is where the locomotives were built and maintained.



Fig. 2: The locomotive shed before restoration. © Rijksbouwmeester Atelier.

The large railways workshop employed many residents of Tilburg and played a crucial role in defining the city's profile. Tilburg is still known as a working-class city. The railyard was completely closed to the public until it ceased operations

in 2011. Stories about the great trains and engines, the work undertaken, the machines, the sounds and even the smells have circulated through local families for generations. As the main workshop building, the LocHal (Figure 3) is the emblem and icon representing the past glory of the railways.

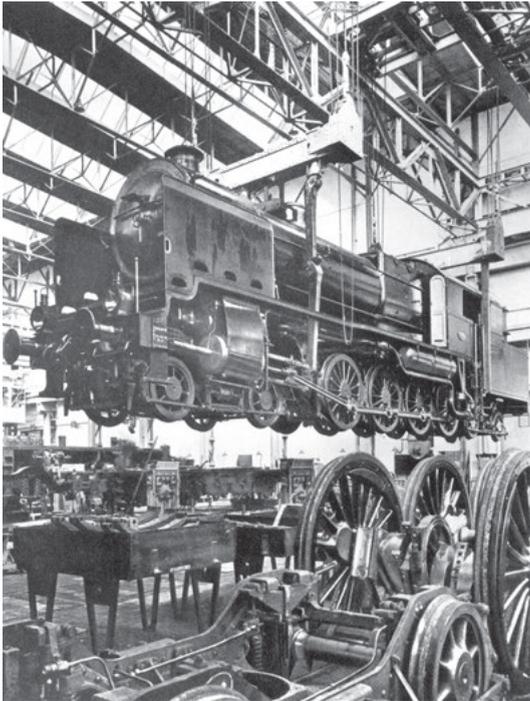


Fig. 3: LocHal as the main workshop building of the Dutch Railways.

The conversion of the locomotive shed into a public library has rendered it the living room of the city (Stephens 2019). The library, as one of the few community facilities freely open to all, has optimised its role and become the epicentre of the city, at the same time creating spaces for people to learn, interact with knowledge and each other, study, work and engage with the past. The building's previous story of blood, toil, tears and sweat is evoked and preserved for future generations. What has defined the city and its people has now become the heart of public life in a new form and can again define the development of the city in the next era.

The building connects and activates the surrounding infrastructure. Its location in the middle of a public transport node and the splendour of its construction have transformed the building into an attractive hub for engaging the community and sharing knowledge and information for the entire region.

A Public Place

The sheer size of the new LocHal is its most impressive feature. It stands as a magnificent glass structure looming over the area. With a footprint of 90 x 60 m (295 x 197 ft) and a height of 18 m (59 ft), it is both commanding and welcoming. Accessibility, ease and transparency of use were the keynotes of the design with the central hall in the form of a covered city square leading and inviting users into the various areas. Imposing public reading tables double as a performance stage with an exhibition area and café. Wide staircases can be used to seat hundreds of spectators. With the customisable wooden seating elements, people can design their own spaces, forming group meeting places or quiet places for contemplation or undisturbed work. The huge glass façades expose the interior, attract all who pass by and allow for plentiful daylight (Figures 4 and 5).

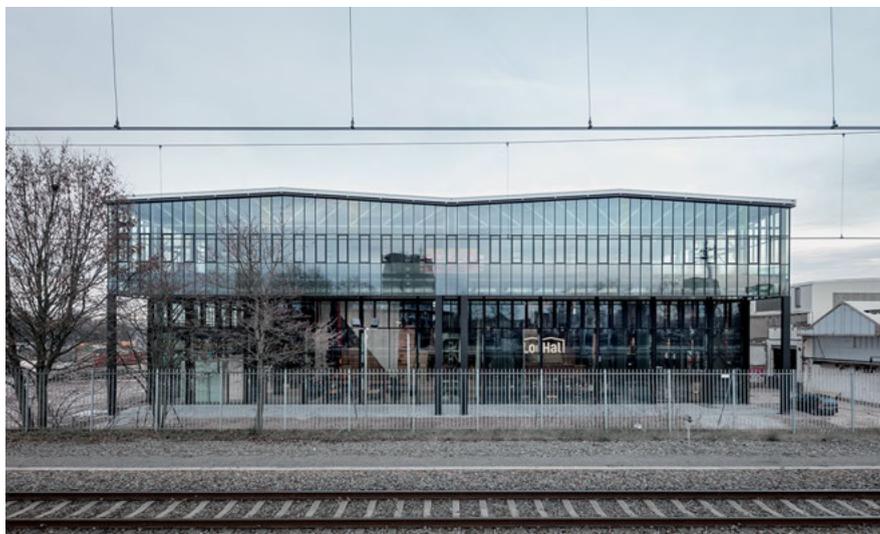


Fig. 4: LocHal library front view. © Stijn Bollaert and Civic Architects.

On the second floor, the gallery and stairways allow closer inspection of the historic glass walls as visitors browse the bookcases or make use of the quiet reading areas. One floor higher is a large balcony offering a panoramic view of the city (Lomont 2020). The history of the building is made tangible in the interior design. Characteristic historical elements are combined with contemporary oak and steel additions. The warm colour palette of reds and oranges enhances the interior and builds on past historical associations.

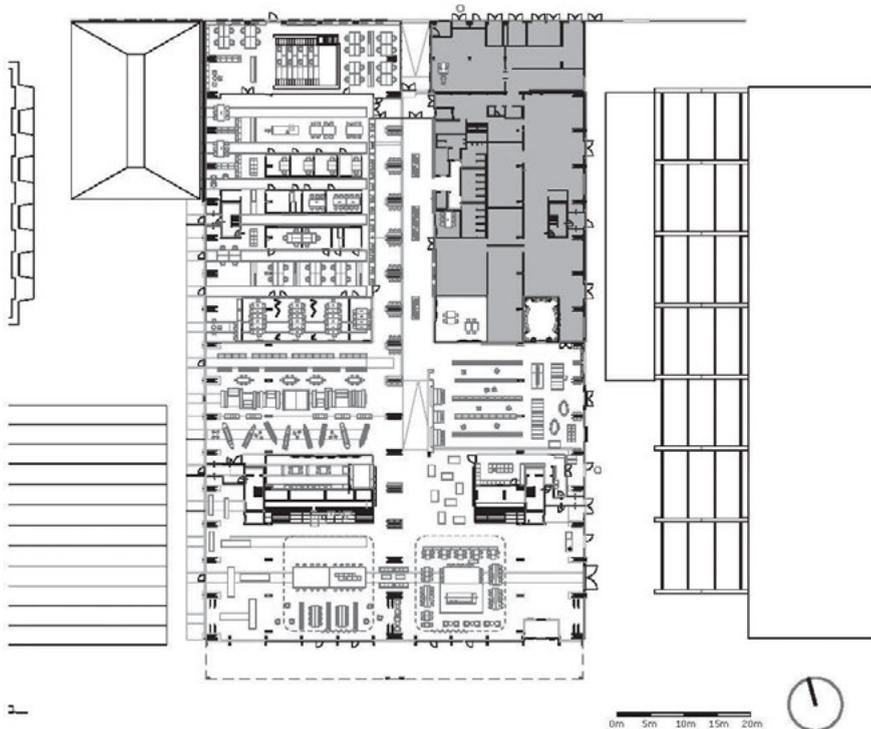


Fig. 5: Ground floor plan. © Braaksma & Roos architects.

The new role of the LocHal has been much applauded and admired. “Traditional visitors, new visitors, students, entrepreneurs, people who come for lectures and for music; a real living room for everyone [...] You see and feel here what culture can do in the city and why it is so important,” said Marcelle Hendrickx, City Councillor of Culture, Tilburg (Civic Architecture 2019, 23).

Versatility Achieved by Textile Screens

Amid all the openness, some events and activities may require privacy or a smaller space. Inside Outside designed six huge textile curtains which extend to ceiling height. They accentuate the scale of the building and at the same time provide the means of dividing the building into smaller defined separate areas and improving the acoustic properties (Figure 6). The ability to reconfigure spaces creates a range

of different atmospheres supporting use of space for larger meetings, smaller collaborations and individual focused work. The interior layout and design ensure that the collection, the facilities and the manner in which they are used can be adapted to meet changing requirements.



Fig. 6: Huge textile curtains.
© Stijn Bollaert and Civic Architects.

The curtains can be remotely repositioned and moved to separate the meeting areas from the higher library floors, or across the staircases to create a small, semi-private auditorium. The largest curtain can be used to conceal the café or create the perfect backdrop for it.

When positioned in front of the windows on the south side of the building, the curtains soften the light that floods through the tall glass façades onto the central square. As the sunlight strikes the transparent surfaces, the curtains turn into tall cascades, becoming an integral part of the spacious interior landscape.

A Library in the 21st Century

Not only has the building been transformed but the library itself has changed as well. In 2014 the library opened a greenfield or new project, called KennisMak-erij/Learning or Knowledge-making (<https://www.lochal.nl/werken-ontmoeten/ruimtes/kennismakerij>). It became a creative space where the library worked on innovative ways of sharing knowledge and stories alongside the traditional form of books. The experiences gained were incorporated into the new LocHal library concept.

Public libraries have been subject to evolution since they were first founded. They have been functioning as democratic organisations to educate people and fight illiteracy and as places for opinion sharing, public debate, leisure and artis-

tic expression. In the age of digitisation and global information exchange, new approaches are needed which go beyond the introduction of new media and the fact that a library is a public place for gathering.

LocHal redefines the function of a library in today's digital era. The new library provides ample opportunity for the creation of new knowledge. The building's design inspires visitors to discover something unexpected and to have meaningful encounters. Curatorship has become as important as the books themselves: interactions with real life experts offer deeper, richer ways to acquire knowledge and obtain information. The new role is facilitated by the architecture. The LocHal offers a unique learning and working environment with workplaces in the public area, private study rooms for one or two people or rooms for meetings. In addition to various areas for lectures and public events, the library has a range of labs where visitors can learn and gain new skills. The thematic labs, with their remarkable design, can be found throughout the building: a FoodLab, WoordLab/WordLab, DigiLab, GameLab, TijdLab/TimeLab and FutureLab.

The many library events held reflect the city and its residents and are initiated by the library itself but more frequently by the library's visitors and partners. The activities take place in the open space, in the KennisMakerij/Learning or Knowledge-making area, or the StemmingMakerij/Dialogue or discussion forum (<https://www.lochal.nl/werken-ontmoeten/ruimtes/stemmingmakerij>) or in one of the six labs. Experimentation is encouraged and celebrated. People work together, learn from each other and develop ideas. Traditional roles like those of student or teacher are set aside as a participant may be a student one moment and a teacher the next. The library's event programmers support and facilitate the access to knowledge and actively connect communities and individuals.

IFLA President Christine Mackenzie has commented on the concepts developed in the LocHal Library.

LocHal in Tilburg in The Netherlands had its official opening last weekend ... 5,000 people came through the door. I was there on Sunday, and there were 1,800, so it must have been really busy on Saturday. The City provided the Library service, Bibliotheek Midden-Brabant, with an historic building, but not your normal hand me down – this was a railway locomotive workshop – a huge great shed with heavy duty cranes that were used to lift the locomotives to repair them. Other unique features are floors with the railway lines still there, massive steel beams, a lot of windows as well as an excellent position right next to the railway station. The quality of the work is obvious – but the thought that has gone into the way the spaces are programmed is what blew me away. Where this library really breaks new ground is with the 8 labs within the building². They are the DigiLab, GameLab, FutureLab,

² More correctly, there are six labs: DigiLab, GameLab, FutureLab, FoodLab, TimeLab and WordLab and two additional spaces, the Kennismakerij/LearningLab and Stemmingmakerij/DialogueLab

Mobile FoodLab, LearningLab, TimeLab, DialogueLab, and WordLab. These are spaces to share, to learn, to think, to talk, to imagine. Each of the labs has a dedicated staff member to program the space, build partnerships and deliver programmes. What was obvious was that these labs just didn't spring up from the new building. Like Aarhus, they have been planning, designing, prototyping these concepts in their old library, but now they are able to make them visible and more accessible (Mackenzie 2019).

Peter Kok, Director of the Library in Tilburg has said:

Traditionally, the book and collection have been at the center of libraries, then came the time when everything revolved around the customer, but now we mainly want to connect people, facilitate interaction and the sharing of knowledge and stories in order to make a difference. That is why we want as few thresholds as possible (Civic Architects 2019, 33).

The Labs at LocHal

The labs at LocHal are particularly innovative and support the library's aims of engagement, inclusion, interaction with knowledge, creativity and learning. In the DigiLab, young and old experiment with new media and the latest hi-tech hardware and software, editing photos and videos, programming robots, having virtual reality experiences or creating games. There are 3D printers and cutting-edge facilities like a green screen for photography and film. The DigiLab is for innovators as well as digital illiterates.

The GameLab is an open space for gamers, e-sporters and supporters. In the oval futuristic space, the newest consoles and PCs are available alongside retro equipment and a diverse collection of board games. The GameLab offers space for table-top games and roleplaying games. Gamers can improve their skills, organise events, learn about design, collaborate and inspire each other. Besides leisure and learning, the lab offers gamers, their parents and professionals, information on responsible gaming and educational opportunities.

The FoodLab is for food lovers, local entrepreneurs and innovators, and suits all tastes. There is always something to taste, smell, see or feel. But there is also food for thought. During food events people can learn about what is being served, including nutritional value, origin and the innovative technologies behind its creation.

The FutureLab provides the opportunity for Tilburg residents to talk and think about the city ten years from now. Together with experts they can design and participate in citizen science projects focused on technological and social innovation, climate issues and sustainable living. A large digital screen spanning

the entire width of the wall shows environmental and civic data about the city which can lead to discussion and action.

In the TimeLab, the past, present and future of the city of Tilburg are presented. Not only does this space hold the library's special Tilburg Collection, but it also displays objects, photographs and films about the city's heritage. Local traditions and rituals are demonstrated, discussed and celebrated.

The WordLab is an incubator and meeting place for lovers of language, literature and creative writing. The walls and ceiling are crowded with books and the intimate space at the top of the LocHal houses the extensive linguistics and literature collection.

Special Spaces

The role of the KennisMakerij/Learning or Knowledge-making area (Figure 7) in the former library in generating ideas and approaches for the new LocHal has already been mentioned. It continues in LocHal on the first floor and features two performance stages built from old books stacked in varying heights and topped with an oak platform. During gatherings, lectures or performances, people can sit on the staircase connecting the first and second floors with the open seating facilitating discussion during presentations and debates.



Fig. 7: KennisMakerij/Learning or Knowledge-making area.
© Lieselotte Port.

The StemmingMakerij/Dialogue or Discussion forum space is for people who want to make their voices heard. The quirky round benches accommodating sixty people can be configured in different ways. A curtain of strings as colourful as the rainbow itself is hung on the acoustic and glass walls and symbolises soci-

ety's diversity. The café can easily be spotted by passengers in passing trains and houses a distinctive bar bearing a large, illuminated LocHal logo.

The LocHal tracks are still visible in the concrete floor and have gained a new lease on life in being used to move three large tables, each supported by an old train chassis. A single table can become the extension of the bar in the café; the tables when placed together form a stage or catwalk; they can be moved outside along the tracks to form a stage for events on the square. Kunstloc Brabant and the library work together on a programme to display the works of local artists and to bring art and culture to the attention of visitors.

An interior street crosses the building drawing attention to the historic industrial columns which retain vestiges of their past life. The columns are fitted with wooden tables and lighting, becoming places for reading and studying. Bookcases flank the street and mobile display units present specific book collections shelved with covers facing out as in a bookshop. Books are borrowed on the street with a large bookcase forming a wall for the office and providing a balance between privacy and connection.

The nearby Efteling theme park is the source of inspiration for the children's library (Figure 8). Bookcases resemble coloured pencils and rulers, and giant fairy tale books line a walkway and encourage play. Small children read at tables shaped like mobile phones or listen to storytelling sessions while lying on a giant open book. Seating features playful letters in the form of fairy tale animals.



Fig. 8: Children's library.
© Ossip Architectuurfotografie.

Sustainability

The LocHal design optimises the features of the existing building. The motto adopted was “Work with what you have”. The adaptive strategy applied to the architecture, the structural system, climate control and energy use. Much of the elegant industrial building was conserved. The new design is a contemporary reinterpretation of the late-industrial building and builds on the logic of the original design. The new structure is a hybrid system. The full load-bearing strength of the original floors and beams, designed to support heavy locomotives, is used for the new floors. Climate control also follows a hybrid model with the degree to which an area in the building has artificial climate control depending entirely on its function. Adjusting to the people not the space was the principle applied. An ingenious system of five separate climate zones ensured that physical adaptations could be kept to a minimum, transforming the LocHal building into one large usable volume with efficient energy usage.

Conclusion

The LocHal has been applauded by many (Van Leeuwen 2019) and won multiple awards. It was shortlisted for the IFLA/Systematic Public Library of the Year award and winner of the World Building of the Year 2019 at the World Architecture Festival. LocHal has won many other awards for creative reuse, best building, liveability and social cohesion, interior design, habitat, rebirth and conservation from various professional associations and organisations.

The LocHal is a perfect match for the people of Tilburg, reflecting the community and its needs. Tilburg is an entrepreneurial city, where people work, create and innovate. It is a city where bottom-up initiatives are stimulated and supported. The LocHal invites all individuals, entrepreneurs, innovators, creators and makers to share their knowledge, stories and ideas so that others can become inspired, learn and contribute. LocHal has been described as the living room of the city (Stevens 2019). One columnist has taken the analogy even further: “For Tilburg residents, it’s also becoming the dining room, the kitchen, the garden shed and the corridor — that’s what happens when, through insider nods and spatial flexibility, people develop a sense of ownership of their social spaces” (Messina 2019). LocHal is a unique learning and working environment, where both young and old are challenged to take new roads, to make unexpected connections, and to experiment, think and act freely. LocHal is a place where community members translate worldwide societal issues, like the UN Sustainable Development Goals,

into their own environment and contribute locally to find solutions. LocHal is a place where Tilburgers live a life rich in knowledge and inspiration, together.

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Jan van Grunsven, Bart Kellerhuis and Ton van Vlimmeren

13 Converting the Utrecht Post Office into the Neude Library

Abstract: In 2014, the city council of Utrecht decided not to proceed with building the new library that had been planned for sixteen years, arguing that reuse of an existing building would be the preferred option. Reuse of the privately owned main post office was the alternative presented, leading to the opening of the Neude Library in 2020. To implement the proposal successfully, the architects were obliged to connect the historic building into the fabric of the city. Another challenge was to create logical, navigable public spaces in a building designed originally for people who never went beyond the magnificent main hall. In the building, work and study places, the collection and rooms for activities competed for the available space. The Neude Library has not only a wonderful main hall for events and exhibitions but also a movie room, theatre, café, brasserie and lobby for the theatre and meeting rooms, and a lab for modern technology. The post office was built as a Gesamtkunstwerk (<https://en.wikipedia.org/wiki/Gesamtkunstwerk>) with different forms of art added to the architecture. During the whole process the citizens of Utrecht were kept informed and engaged in the process through tours, think tanks and a series of 21 short movies on the building process.

Keywords: Public libraries – Netherlands; Library buildings; Post office buildings – Remodelling for other use; Citizen engagement; Sustainability

Introduction

In 1998 the city of Utrecht was growing quickly; the existing Central Library building lacked functionality; and other cities in the Netherlands were demonstrating how new libraries could boost services. While considering possible new locations for the library, the library director contacted the owner of the main post office. The space needed for telecommunications technology was reducing and large parts of the post office were empty. However, nothing came of the approach at the time.

Some time later, de Bibliotheek Utrecht/Public Library of Utrecht invited captains of industry, educational partners, politicians, representatives of cultural institutions and other stakeholders to discuss the need for a new central library. One of the key questions was whether building a new central library posed a risk similar to building a new cathedral. Would the city end up with a beautiful

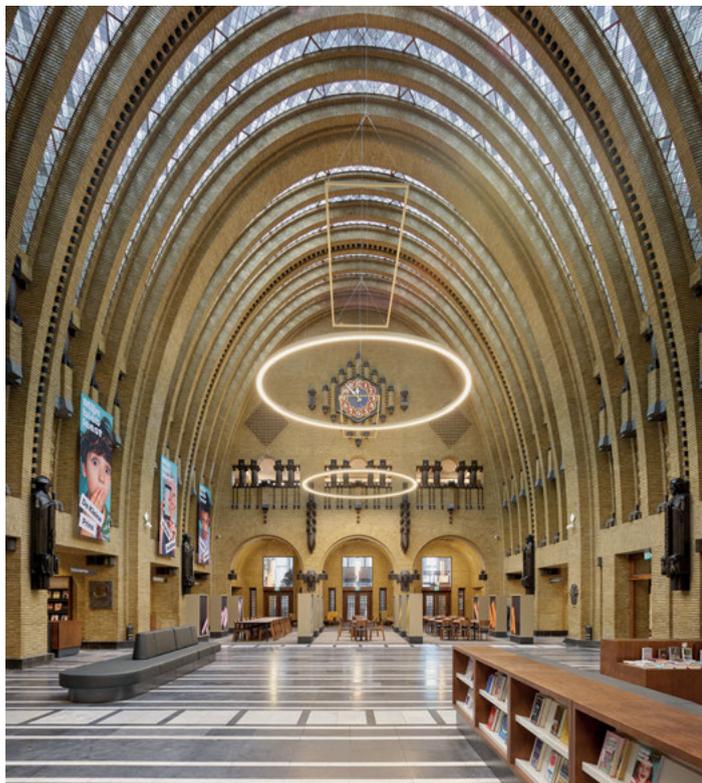


Fig. 1: The main hall of the Neude Library. The library got its cathedral. © Kees Hummel.

Facts and Figures

Name: De Bibliotheek Neude de Bibliotheek Utrecht

Address: Neude 11 3512AE Utrecht, Netherlands

Website: <https://www.bibliotheekutrecht.nl/neude.html>

Opening: May 2020

Builder: 1920: unknown; 2019: Jurriens B.V.

Architect: 1920: J. Crowwel; 2020: Rijnboutt <https://rijnboutt.nl/> and Zecc <https://www.zecc.nl/nl/>

Gross floor area: 9,450 m²

Main floor space: 400 m²

Collection size: 163,000

Staff: Utrecht Public Library: 160; this branch 47

Workstations: 800

Building costs: n.a.; Finishing and interior €14,000,000

iconic building that might soon lose its original purpose? Were libraries here to stay?

The advice to the library from those gathered was clear; a better library was needed in Utrecht in the 21st century! Twenty-two years later, the new central library has finally arrived. It is not a new building but in the 95-year-old former main post office. Looking into the main hall, it can be seen that the library got its cathedral anyway (Figure 1).

A Very Long Journey

The process of acquiring the new library was a long and bumpy journey. The first step along the road was to plant the seed for a new library in the heads of those in charge. The next step was to ascertain the size that the new building should be. The accepted building standards of the time, written by the former director of the Public Library of the Hague, indicated a size of 21,000 m².

Presentations were made to the city council, including one by Deborah Jacobs and Joshua Prince Ramus, who were then involved in developing the new central library in Seattle. The library published a booklet, *A Dream of a Library*, which contained interviews with users, examples of leading libraries from around the world and a summary of the requirements.

Funding was an issue. The alderman responsible for libraries and some library staff visited the UK to find out about public private partnership (https://en.wikipedia.org/wiki/Public%E2%80%93private_partnership) as a possible way to raise the necessary resources. Prior to the local elections in 2006, the library staff intensively lobbied for the library, as far as civil servants can. As a result, some political parties included the building of a new library in their election programme. When the new city government was constituted after the elections, building the library was on the agenda. By 2007, the city government had made decisions about the budget and the site where the library would be built.

The process for the selection of the architect commenced. Five architects were selected to present proposals for the new library and citizens were encouraged to express preferences. A jury of experts made the final decision. The procurement department of the city, however, made an error in determining which architect would get the job, leading to a chain of events which brought the project to crisis point. In 2007 and 2008, valuable time was taken in court proceedings as architects disputed the outcome of the selection process. Momentum was further lost by the ensuing global financial crisis. There is an unwritten rule that plans for a

new library should be made in economic bad times in order to be ready when the economy recovers, but for Utrecht the opportunity was missed.

In 2010, the election for a new city council again took place and the political parties who had opposed the library building came into power. They then had to make the switch from opposing the library to being responsible for it and bringing it to a successful conclusion. The project lacked real support at the highest political level. The library staff as part of the city administration governed by the city council were not allowed to mobilise the support of partners and citizens in favour of the project. The new library project became a target for attacks and was framed in the media as a megalomaniac project that was too expensive in a time of very tight budgets. Still the process went on. A Gateway Process (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/639894/ogc_gateway__process_review_0_strategic_assessment.pdf) showed that the project was well thought out and that all risks had been assessed and managed. The city council, despite the debate, voted in favour of continuing the project a total of six times at key milestones during the process.

In 2013 the plan was ready, and building could begin (Figure 2). Behind the working title Bieb++, denoting a library with additional extras, there was an ambitious programme for the library of the future. The six-storey complex near the central railway station combined a new central library of 14,000 m² with an arthouse movie centre, space for other media partners, a car park and 90 apartments above the building. The creation of an accessible, unrestricted space for information, knowledge and development garnered attention. Smakkelaarsveld, an almost uninhabitable area near the railway station, would become an attractive place to live on the edge of the inner city. It would be a green space where people could meet and enjoy life outdoors and where a public building would include private apartments on the upper floors. The plan for the six lower floors of the building included a meeting place where people could come to study, borrow books, game, surf the web, go to the movies or attend a lecture.

The contract with the builder was signed with one last restriction: a final positive vote from the city council. However, the Greens withdrew their support and the number of votes in the city council in favour of the plan went down from 34 out of 45 votes to 23, a majority of one! At a special meeting of the city council in early January 2014 for a final vote on the project, one council member changed his mind. The project was voted down 23 to 22. It seemed to be the end of 16 years of work and the end of a plan that had cost 15 million Euro to prepare. The city of Utrecht later decided to make a documentary about the process as learning material for new civil servants.

The Green party's reason for withdrawing its support was that the city did not need new concrete buildings and that existing buildings should be reused more

often. The day after the plan had been voted down, a director of asr, an insurance company, tweeted that if the library was to be housed in an existing building, they had one on offer: the former main post office, right in the heart of the city (Figure 3). Within one week, contact was made; a viewing of the building was held to see if it was a realistic option; and within ten days library staff were sitting at the table of Rijnbouwt architects in Amsterdam to prepare plans for a library in the post office.



Fig. 2: The proposed new library designed by Rapp+Rapp Architects. © Rapp+Rapp.

Two months later, in March 2014, the library staff and the owner of the building presented a plan to the city. Once again, elections for the city council were in train. The reception of the plans was positive but there was no commitment as parties awaited the formation of a new city government. Two months later the new city government presented its programme. Unfortunately, the budget available for the investment and operating costs of the new library was cut to pay for new ambitions. Only 6.1 million Euro remained for investing in the new library, a small sum for the creation of a modern library in the fourth city of the country. The plans were adjusted accordingly. The size, already decreased from the original 21,000 m² in the 2001 programme of requirements to 14,000 m² for the new building near the railway station, was further reduced to 9,500 m² in the old post office. Part of the post office would be developed as a shopping area and commercial rents would help pay for the building. The cost for the library, which would use commercially obsolete spaces such as the attic, arrived at an acceptable level.

In June 2015, the building owner and the library signed an agreement to commence development of the library in the post office. In 2016, the tender for builders took place. The long-lasting financial crisis was just over. Due to the crisis, there had been a drop in the building market in 2014 and 2015 and costs had been exceptionally low, which was when calculations and estimates for the library

building had been made. In 2016 the market was up again and costs for building were booming. Some prices were 50% above the calculations! It took considerable financial engineering and the support of the city, the building owner and



Fig. 3: The main post office was built as a Gesamtkunstwerk. © Utrecht Archives.

some twenty foundations sponsoring the library to increase the budget available from the initial 6.1 million Euro to the over 14 million finally spent.

Finally, in March 2018, the building process commenced. There was some delay while archaeologists carried out interesting excavations in the former courtyard. An old watercourse under the building kept flooding the pits for the elevators. After almost 22 years, the library finally opened in 2020 (Figure 4).



Fig. 4: The Neude Library 2020. © Utrecht Public Library.

Conceiving a Library in a Historic Building

Immediately after the city council voted down a new building for the library, the staff made an inventory of possible alternatives. The former post office was a favourite but at the time too expensive. None of the 15 other possible locations had the space, the authenticity and the love of the citizens that the post office had. The 1924 building designed by architect J. Crouwel senior in the style of the Amsterdam School was situated in the central square in the city.

Although the location and the building were different in almost every aspect from the proposed new building near the railway station, the library in its role as client did not want to give up on its ambitions. Only if it could be demonstrated that the library of the future would fit fully into the existing building with guaranteed functionality could there be a match. Otherwise, the search for an alternative would continue. Rijnboutt in Amsterdam, the architectural practice founded by former government architect Kees Rijnboutt, was asked to carry out a design study. The architects knew the building and had already prepared plans for the owner to reuse the building for retail and hospitality. However, the design was not appropriate for a big library in the building. The total project was extended to include a café, a brasserie, a theatre, study rooms and more library functions in addition to shops.

A public library is a public building. It is not only public because of its function or because it is a destination with a recognised address in planning terms with its formal anchoring in the city but also, and most of all, when it connects with the people for whom it is intended. A building is public when it fulfils its most important goal: to be a vehicle for, and a destination of, a shared need for collectivity. That raises questions about the relationship of the building to the city. The brief to Rijnboutt architects was clear: the historic building must engage with the urban fabric of the city.

Originally the main post office had two different elevations: one with a main public entrance on the Neude square and a back elevation with a yard for logistics and business operations on the Oudegracht, the main canal. The approach was taken not only because of the building's function as a post office, but because it also aligned with the concept of urban planning made by the famous architect Hendrik Petrus Berlage in 1917 (Singelenberg 1972). The plan focused on limiting activities along the Oudegracht and transferring them to the Lange Viestraat, the main street passing over it, and passing the post office. For Berlage, Lange Viestraat was an important traffic vein with Neude square as a public link. Contrary to this vision, the Oudegracht developed into one of the more important shopping areas in Utrecht. The back elevation of the post office with the operations in the yard became a gap in the continuity of the street and city life, a dead

space amidst the shopping area. To give the historic building a place in the active life of the city, the library had to open on to the Neude square and it needed a second façade and a formal address at the former distribution yard (Figure 5).



Fig. 5: The new rear elevation of the Neude Library. © Utrecht Public Library.

Space Allocation and Connection

The first challenge was to sort out the functional adjacencies. Where in the building would the different activities be located? The monumental public hall and entrance on the Neude square was suitable for the newspaper and magazine collections as it provided a meeting point in an informal relaxed atmosphere. The attic was eminently suitable to house the City Study Room, for silent study and work. Other library requirements, including study carrels, training and function rooms and the collection of more than 160,000 books, were grouped around the main hall using the whole building from basement to attic.

The shops were located logically at the Oudegracht, on the main canal. Due to the limited space, there was only one possible location for the theatre: above the shops in the new part of the building in the former distribution yard. To make room for the brasserie, which is also the theatre lobby, the theatre was moved up one floor. The final layout, from the bottom to the top floor was shops, brasserie and lobby, and above that the theatre (Figure 7).

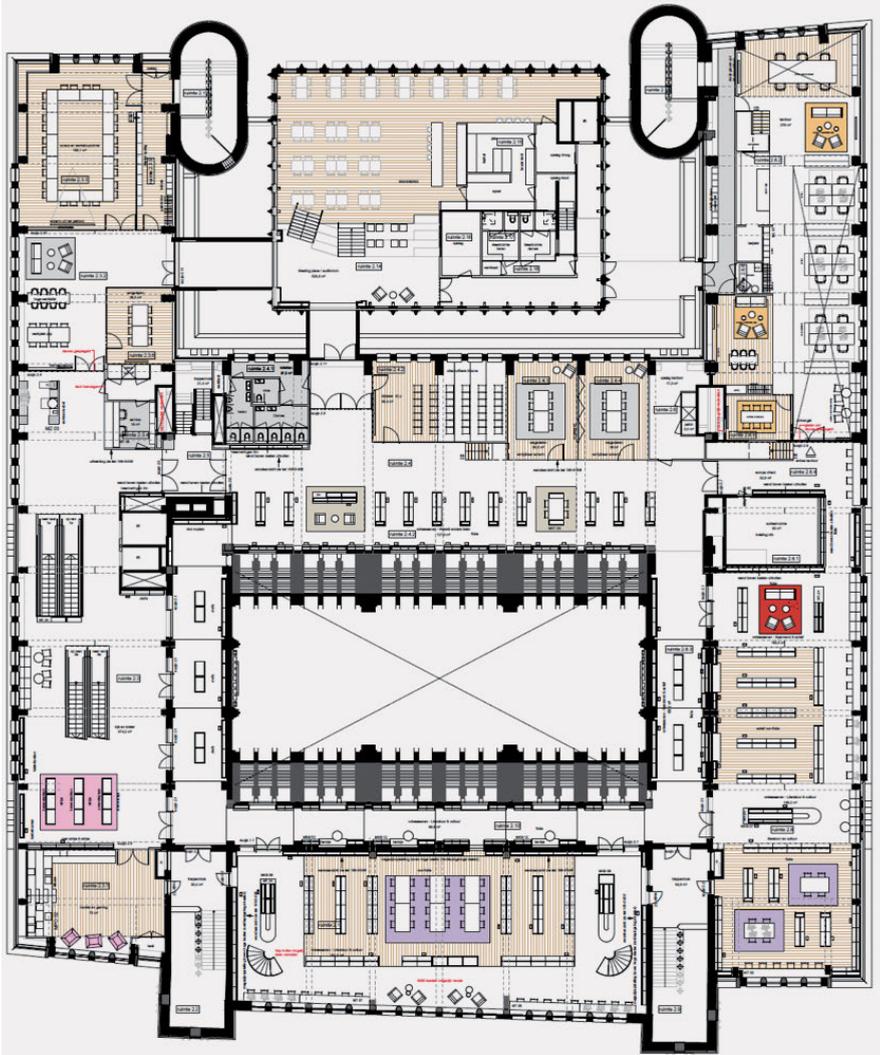


Fig. 6: Floor plan. © Rijnboult and Zecc.



Fig. 7: Section through the building. © Rijnboutt.

A primary design question was how to create an appropriate relationship between the new building in the former yard and the surrounding historic construction. For the architects, the size and volume of the new building were such that a contrasting solution would have resulted in a fragmented scheme lacking coherence. Instead, they sought a solution where the new would have its own character but would have elements in common with the existing building. The connection between old and new was established through a respectful, but different, interpretation of the façade using vertical controlling lines, a similar ratio of solid to void, and an interplay of horizontal lines, ornamentation and relief work.

The new roof, designed to conform to the hierarchy of those of the existing building, created the most important connection between the two buildings. In collaboration with Royal Tichelaar, a Dutch pottery company, a modern glazed ceramic was developed for the new façade.

The Library and the City

How does the library work? Coming from the Neude square, visitors enter the main hall that serves as a living room for the city. Next to it is a waterfall of escalators which both visually and physically connects all the spaces right up to the City Study Room at the very top. At the other end of the building is the theatre with the brasserie and lobby providing an entrance.

Connection is the credo: all parts of the library flow seamlessly into one another, with breakthroughs in floors for escalators and stairs and in the walls to create a continuous visual relationship with the main hall as a central point of

orientation. The building has never been used so intensively. Elevators and escalators take care of the normal routing through the building. Additional stairs and corridors provide escape routes in the event of fire and address the required levels of safety. All naturally fit into the structure dictated by the building. The former main post office is in the heart of Utrecht and in the middle of the historic fabric of the city. The renewed building with its two façades addressing the Oudegracht canal and the Neude square can be seen from around the city.

But does the relationship also work the other way around? Does the library interior also connect with the city? Taking the theatre as an example, certain misconceptions can be dispelled. Theatres do not have to be dark. A lot of activities for the public take place in the theatre: reading poetry, storytelling for kids, book presentations or debates. What is taking place inside the library is also taking place in the heart of Utrecht. The theatre has a big window with a view onto the Oudegracht canal, the city castle Oudaen, and a former 1930s recently renovated department store. From the outside, walking along the canal or on the street, there are views into the theatre and library. Everywhere in the building there is a visual connection with the surrounding city and the converse is also true; the city is connected to the activities in the building. A virtual guided tour (in English) is available on the library website: <https://www.bibliotheekutrecht.nl/guidedtour/neude.html>.

Designing an Interior that Connects People

Rijnboutt Architects was responsible for the overall design of the building, and the library selected Zecc Architects to carry out the interior design. Zecc was a relatively small, young and promising practice in Utrecht with an excellent track record. They considered the reuse of one of the most striking buildings in Utrecht, and the transformation of the former post office into the new central library for the city, as a dream assignment. For the citizens of Utrecht and those from the region, the nationally listed building is one of the major icons of the city. It is not only the monumental exterior of the building with its special architectural significance as an example of the style of the Amsterdam School, but also the phenomenal character of the central hall (Figure 1). The former post office is of overwhelming beauty with a richness of light, form and craftsmanship in the use of materials. The Zecc architects felt a responsibility to produce work of great quality appropriate for such a building.

A new use such as a public library requires some radical changes while still respecting the integrity of the original building. Previously the main hall of 400 m²

was the only public space in the building. The library required about 9,000 m² public space so that most of the building would be accessible to the public. The vision for the reuse and orientation of the building had to include ways of making visual connections by creating openings and vertical accessibility with escalators (Figure 8). The core task of the architect was to design interventions that opened up the building and enhanced its character without destroying it.

A building characterised by a series of large individual rooms around a main hall is not the ideal layout for a modern public library where an overview of the spaces is important. The first thing the interior architects did was to maintain the simple layout of the original floor plan and where possible enhance it by removing unnecessary or insignificant elements. Every floor was organised in the same way around the central hall. A series of openings created views on to the main hall helping visitors in their orientation through the building. New openings were also created on the ground floor under the arcades and above the doors. The openings draw the eye to the light created and invite visitors to discover the building. By creating windows above the existing doors like skylights, a new transparency was created combining old and new and respecting the monumentality of the hall.

On the upper floors, the respective rooms were visually connected by creating new wide openings in the corners of the rooms and by adding large sidelights beside the doors, making the building more transparent. The spatial quality of the rooms was retained, and the orientation and accessibility were improved. Glass fire-resistant room dividers help to improve the readability of the building. The rooms were kept as spacious as possible to maintain flexibility for the future and to prevent further fragmentation.

For the old city centre the former post office has an exceptionally high floor to ceiling ratio which made it possible to insert floors, create stages and use built-in furniture. The additions provided more functionality and enhanced spatial experiences. The architects aimed to connect the design of the furniture with the existing building. The ambience of the room and the sightlines were maintained by placing low shelving in the middle and higher shelving along the walls. The colour of the wooden finish of the shelves changes from dark to light higher up the building. It relates to the historic detailing on the ground floor and changes gradually to pick up the colour of beams in the attic. Daylight penetrates the building as the shelves have been erected wherever possible perpendicular to the windows in the façade.

The height of the panelling in the historic part of the building was used as a standard to create human scale throughout the library. It is reflected in the height of the shelves and the painting. The aim was for the interior design to complement the architecture of the listed building.

In the transformation of a historic building, the way new interventions are designed is of great importance. Modern public buildings face strict requirements on climate and safety. The architects wanted to keep the interior space simple and uncluttered and stress the height of the rooms by avoiding false ceilings and making some of the installations visible. The new lighting in the building, for example, was used to create a visual ceiling with a feeling of restfulness and intimacy.

The escalators go all the way to the attic which had not been used by the post office. It has become one of the most surprising and dramatic spaces in the building with its distinctive original wooden beams and large roof windows that offer a great view over the historic inner city of Utrecht. Accessible by elevators and escalators, the attic has been transformed into a fully functioning part of the library.

The public library is all about connecting people, just like the post office was, in a different way. In the old days, the connection between people was made by the telephone exchange and the sorting and distribution of letters. Now the post office has become a special meeting place for the citizens of Utrecht where knowledge can be created and shared in one of the most iconic buildings of the city: the Neude Library.



Fig. 8: Openings and escalator.
© Kees Hummel.

A Library in a Historic Building

No matter how beautiful a building like the former post office might be, the architecture dictates the way the library is organised within its walls. The Seattle Public Library has a continuous collection winding up its famous spiral floors. The Neude Library has a fragmented collection with items in different rooms and corridors (Figure 9). It was a big challenge for the staff to create a logical

flow for the collection that made sense given all the different rooms, corridors and corners. Another challenge was the allocation of space for the competing demands of the collection and the increasing demand for study and workplaces, and activities and programme delivery.

The trend in the Netherlands is for libraries to be co-located with other partners to create a kind of village with complementary facilities resulting in the whole being greater than the sum of the individual parts. In Neude Library there is no room for other partners. The building is so deeply embedded in the heart of Utrecht and its citizens, that there are many groups and stakeholders who want to organise activities in the building as if they lived there.



Fig. 9: Collections in the corridors. © Utrecht Public Library.

Sustainability

Sustainable development is a priority for the library and the aim was to make the building as sustainable as possible. Some goals were easy to achieve such as good insulation, LED lighting, underfloor heating and effective waste management. Others were impossible. A ground source water-based system for heating and cooling the building was rejected because of archaeological considerations. Heating is provided by the district heating system. The National Board for Cultural Heritage at first did not approve solar panels on the roof of the historic building. Yet now they are planned to be installed in 2021. The furniture in the old library was worn out after more than 45 years intensive use and almost all the furniture in the library is new. The old furniture was recycled and some reused.

Citizen Engagement

From the beginning, the citizens of Utrecht were very much engaged in the project to locate the new library in the former post office. Even before the final decision was taken the interest of the general public was high. When the politicians hesitated about the plan, an action group called Library @ Neude collected more than 14,000 signatures in a couple of weeks. That helped!

Before the construction began, the library organised an open house for the city. In four hours more than 3,200 people visited the building and gave ideas for the new library on post-its, idea cards and in the video booth. The library organised five follow-up think tanks to develop the most promising ideas. The library also scheduled a series of round tables to talk with immigrants, as they were not well represented in the think tanks. Metropolis Film captured significant moments in the transformation process from post office to library from start to finish. Twenty-one short movies were posted on the website of the library to inform the public and keep them updated and are available on the library website. The first two have English subtitles.

Metropolis Film made two documentaries that were broadcast on local television to give updates on the process. At the end of the project, a longer documentary covering the whole process from the beginning to the opening of the library was produced. Most of the budget for the activity came from joint efforts to raise money from foundations.

At different times during the building process, the library organised on-site tours. The tours were free of charge, but people had to register, and they were sold out in minutes as many people were interested. When the time came to move the collection from the old building to the Neude Library, 500 children formed a long chain between the buildings and transferred the first part of the children's collection by hand (Figure 10). It was a rainy and stormy day, but the children remained motivated until the last book arrived at the Neude Library. The posts on social media put up by the parents and the library staff received many views and likes and much attention.

To make sure that the building would be inclusive, the library engaged the association representing people with disabilities at an early stage to discuss the plan. When the building process was coming to an end, tours for people in wheelchairs were carried out to test accessibility in the building.



Fig. 10: Great book movement by kids. © Anna van Kooij.

Works of Art

With its architecture, stained-glass window and statues in the main hall the building was created as a Gesamtkunstwerk/total artwork (Figure 3). The architects sought to create the building as a work of art that makes use of all or many art forms in harmonious interplay. The library created a consortium of six foundations that invest in art. Jointly they raised a budget of almost 300,000 Euro to commission five new works of art. An arts committee comprising practising artists, the director of the local museum and the director of the local art school was set up. A long, and then a short, list of promising local artists was drawn up, and three draft proposals for every one of the five works to be commissioned was received. All five were selected; one still awaits completion. The intention is to continue the approach in the years to come and add more artworks to the building (Figure 11). Temporary exhibitions will also be held in the main hall to contribute to the role of the library in bringing the arts closer to the general public.

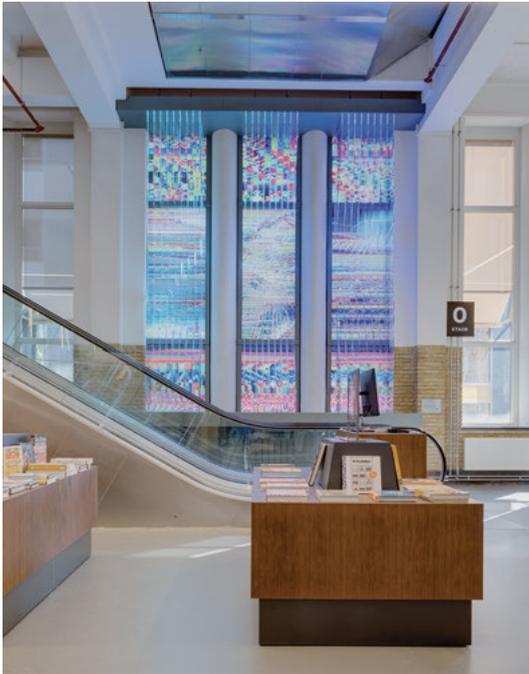


Fig. 11: Artwork of Jop Visser and Vorstenbosch. © Utrecht Public Library.

The Opening

The official opening for the Neude Library was planned for Friday, 13 March 2020, by her Royal Highness Princess Laurentien of the Netherlands. More than 70 trained volunteers were ready to guide people on tours of the building. In the two weeks following the opening, the library had planned an extensive programme with 150 events including workshops, lectures, presentations, interviews and talk shows. However, due to the Covid-19 crisis the grand opening did not take place. The Dutch government announced the closure of all public facilities one day prior to the official opening. The library remained closed until 11 May 2020 when book circulation started. By 1 July 2020, the library was fully operational with events, and reading and study spaces available albeit with limited visitation rates due to social distancing.

Conclusion

The case of the Neude Library in Utrecht demonstrates that building a library can be a long-term process, with a need for resilience and perseverance and a potentially quite different final outcome from that expected at the outset. It also shows that architects can be highly creative allies in difficult situations, including urban planning, the listed heritage status of a building and the challenges of working with a complex building. Creating a modern library with good sight-lines and orientation in a building that was designed as a series of rooms and corridors, is a considerable achievement (Shiell 2020; Van Vlimmeren 2020). The Utrecht Library had little experience in fundraising but managed to assemble the funds required to make the library happen, including additions such as a cinema, a book about the history of the area and the building, and new art. With a budget of around 14 million Euros, compared with the hundreds of millions some new libraries around the world have cost, it is still possible to do with less money something interesting and of value for a city. The library staff learned from the initial experience with the lack of support for the original new build library when communication and public engagement was restricted by the city fathers and made sure that information was available to the public throughout the project and afforded plenty of opportunities for engagement in various ways. There was a great vibe and excitement in the city when the library finally opened in May 2020.

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Part 3: Case Studies: Academic Libraries

Describes innovative academic libraries which have been built into structures with diverse previous uses including a castle, a cattle market, a slaughterhouse and a chapel.

Paul Buschmann, Anne-Lise Van der Meulen and
Raf Van Den Berghe

14 The Conversion of a Science Institute to a Faculty Library in Ghent, Belgium

Abstract: The Faculteit Letteren en Wijsbegeerte/Faculty of Arts and Philosophy of Universiteit Gent/Ghent University held 50 different library collections, containing 670,000 books, which were scattered over 222 different locations in the city of Ghent. The dispersed collections were a legacy of the former seminar instruction method favoured by many professors in the past and no longer met the needs of academic research and education in the 21st century. A masterplan was developed to bring the collections together. Central to the plan was the renovation of the historic neoclassical building known as the Institut des Sciences/Institute for the Sciences dating from 1892. The project included both the renovation of the building and the amalgamation of all 50 collections under one roof. A primary concern during the renovation process was finding the appropriate balance between the requirements of historic building conservation and the needs of a modern library. After more than ten years of preparation, planning, restoration and relocation, the large new faculty library was opened with much celebration in 2018. The new library in its historic building, with 13 km of bookshelves, 8,000 m² and 1,000 study places, showcases the spirit of the faculty.

Keywords: Academic libraries – Belgium; Library buildings – Design and construction; Historic buildings – Remodelling for other use

Introduction

Ghent University is one of the major universities in Belgium. Established in 1817 by King William I of the Netherlands, it had a faltering start with the 1830 Belgian revolution and two world wars. The original four faculties of the university were Humanities, Law, Medicine and Science which were consecutively taught in Latin, French and Dutch. The democratisation of higher education by means of the 1954 *Nationaal Studiefonds*/National Study Grant Fund was instrumental in the development of the university into a socially committed and pluralistic institution with more than 44,000 students and 15,000 staff members, 6,000 of whom work at the Universitair Ziekenhuis Gent/ Ghent University Hospital. The university currently ranks 66th in the Academic Ranking of



Fig. 1: The Institut des Sciences built in neoclassical style. © UGent, Hilde Christiaens.

Facts and Figures

Name: Faculteitsbibliotheek, Faculteit Letteren en Wijsbegeerte, Universiteit Gent/ Faculty Library, Faculty of Arts and Philosophy, University of Ghent

Address: Rozier 44, 9000 Ghent, Belgium

Website: <https://www.ugent.be/lw/nl/diensten/bibliotheek>; Faculty library of arts and philosophy ([ugent.be](https://www.ugent.be))

Opening: September 2018

Architect: 1883: A. Pauli; 2018: Projectbureau UGent (R. Van Den Berghe), Architectenburo Ro Berteloot (part of <https://www.arch-teco.com/nl>)

Gross floor area: 7,835 m²

Main floor space: 6,953 m²

Collection size: 700,000

Staff: 26

Workstations: 50

Building costs: €8,950,000

World Universities, also known as the Shanghai Ranking, and takes as its motto “Dare to Think” (<https://www.ugent.be/en/ghentuniv/principles/dare-to-think>) to encourage a critical approach. In 2017, Ghent University celebrated its 200th birthday and commemorated many eminent alumni such as Nobel Prize winners Corneille Heymans and Maurice Maeterlinck, Internet pioneer Robert Cailliau,

astronaut Dirk Frimout, virologist Peter Piot and the former Chairman of the International Olympic Committee Jacques Rogge.

The university today hosts eleven faculties and five doctoral schools and offers over 230 academic courses in most scientific disciplines. The Faculty of Arts and Philosophy is one of the main faculties with 5,000 students and offers a wide range of Bachelor and Master programmes within the humanities cluster, including Art, Philosophy, History, Languages and Literature. The Arts Faculty is typically the paper- or book-based faculty in any university and usually associated with a large library collection (Danniau 2017).

The university library comprises a network of nine faculty libraries and two departmental libraries around the Boekentoren/Book Tower (Figure 2) which functions as a central library and repository with closed stacks for research use only. The other libraries have open stacks and everyone including the general public has free access to all libraries within the network. To borrow books, a student, staff or library card is required. The aim of the library network is to facilitate open knowledge creation through four areas of focus: user-driven, web strategy, information literacy and sustainability. The library has a hybrid collection with both print and digital sources of over three million works that are retrievable through an online catalogue.



Fig. 2: Campus Boekentoren with University Library and the Institut des Sciences. © UGent.

History of the Institut des Sciences

The Institut des Sciences/Institute for Science was built in the neoclassical style between 1883 and 1890 and designed by the architect Adolphe Pauli. When it opened, it housed the offices for professors and research staff, reading rooms,

classrooms and laboratories for the science departments which included physics, chemistry, geology and palaeontology, and the technical schools of Ghent University. The design of the building was based on the common layout of the German polytechnic schools at the time with different wings of the building sited around one or more enclosed gardens (Figure 1).

For over a hundred years the building was repeatedly extended and adapted, and the original layout became ever less visible. The enclosed gardens became untidy stone courtyards housing 20th century buildings which blocked the view of the historic façades and contributed to the loss of the original design and ground plan. Up to the 1990s, Ghent University continually altered the building and its interior. Partition walls were erected; corridors were closed; and in several places intermediate floors were constructed in the six-metre-high rooms. By the end of the 20th century, the Institut des Sciences housed many different research groups, departments and spin-offs, and each had its own needs and vision for the use of the building. The Institut des Sciences became a mass of unrelated corridors and rooms. The link with the original design was further eroded due to the use of a wide variety of materials.

In 1994 the complex was designated a historic building worthy of protection because of its artistic, historical, industrial, archaeological and scientific heritage value. Ghent University changed its view of the protected building and it became clear that a thorough renovation was needed. Because of the enormous floor space of over 35,000 m², the funding required was not immediately available.

The restoration of the building and its use presented Ghent University with many architectural challenges. The size of the building together with its multiple functions meant that the building could not be closed in its entirety for a long period of time. Any restoration had to be phased.

It was not until 2010–2016 that the refurbishment of the exterior walls marked the first step towards the renovation of the building. A key factor was the departure of a major spin-off company occupying a large part of the building which led to discussion about a new future for the building and the beginning of the story of the new Library for the Faculty of Arts and Philosophy. Ghent University was looking for a location for the Library and the renovation of the interior of the southern part of the complex provided the solution. Funding for the renovation of the northern part of the Institut des Sciences was allocated in the university's 2016–2028 investment plan.

The renovation study immediately highlighted that the many alterations and expansions to the building and its interiors had destroyed the clear layout of the original building turning it into a maze in which orientation was extremely difficult. It was decided that the original design could be reconstructed from the 19th

century plans and the plans for the 20th century expansions, thereby disentangling the multiple architectural knots.

Along with the new Library for the Faculty of Arts and Philosophy, a second library was set up in the northern part of the building, the Faculty Library of Engineering and Architecture. The design work by the internationally renowned Office Kersten Geers and David Van Severen demonstrated that the heritage building still had much to offer particularly when historical context and contemporary architecture combine to produce a successful new use.

History of the Libraries of the Faculty of Arts and Philosophy

The libraries of the Faculty of Arts and Philosophy of Ghent University have a chequered history described by Defoort and Mantels (2017). At the beginning of this century, there were 50 separate library collections with each serving a particular discipline, research unit or academic programme. The different collections covered diverse subject areas and reflected the varied academic life of the faculty.

The collections were spread over a total of no fewer than 222 different locations in the city of Ghent. Each location had its own opening hours and frequently library regulations resulting in a situation foreign to the expectations of most 21st century students and researchers. Some collections were partly housed in classrooms; others could be found in the offices of professors or research units; and some were in small departmental libraries that could be freely visited. To make things even more complicated, only about half of the collection was catalogued in the university's central library system. With no library management at the faculty level, each of the 50 library collections had its own idiosyncratic classification system. A student who needed a specific book was confronted with an almost impossible task. It was not uncommon for a student of the Faculty of Arts and Philosophy to take a train to Brussels or Leuven to borrow a book from another university's library rather than to try to find it at his or her own institution.

The situation of the libraries at Ghent University was not uncommon and will probably be recognised by colleagues from other older universities. In the 19th century, the humanities adopted a different scholarly approach to its various subject fields. In an analogy with the sciences, researchers created the equivalent of the scientific laboratory: a room equipped with a specialised collection of journals, reference works and textbooks providing a readily available collection. The concept of book laboratories for research in the humanities is a 19th century ideal that got completely out of hand in the 20th century at Ghent with 50 different

collections at 222 locations, 50 different classification systems, 50% of the books uncatalogued, no central loan system, demotivated staff and desperate students and researchers. It became clear that it was time to act to bring the faculty's libraries into the 21st century and a masterplan was prepared.

The Masterplan: Heated Debates

One of the key factors that led to the masterplan was a project to reorganise the entire structure of all the libraries of Ghent University. The plan was conceived and written in 2003 by Lars Björnshauge, the director of the University of Lund (Björnshauge 2003). In the plan, the Book Tower would operate as a closed stack and storage library and focus on the development of the digital library and the overall management of the library organisation. The decentralised units, specifically all the departmental libraries, had to meet minimum criteria to become part of the university library network and subsequently gain access to the services of the Book Tower and central system.

A second factor in drawing up the masterplan was the restructuring of the faculty itself. The number of departments within the faculty was drastically reduced and a reallocation of classrooms and offices followed. The rationalisation of departmental libraries was part of the restructuring.

A third and final factor incorporated in the new masterplan was the decision to completely renovate the Institut des Sciences, which had become vacant as its former science departments moved elsewhere across the city. The empty building provided the ideal opportunity for the relocation of all the separate library collections to one historic building in the centre of Ghent close to the offices of the research units and professors, the auditoria and classrooms of the faculty. It seemed like a perfect fit.

The masterplan was the subject of heated debate in the faculty with supporters of the plan lining up against those who opposed the abolition of the seminar or departmental libraries. The main argument against the proposal was that specialised research collections would no longer be within easy reach. Not surprisingly, professors or research units that had developed their own collections with great care over many years, feared the changes the most. But the advantages of scaling-up were undeniable:

- Lars Björnshauge's report made it clear that faculties with numerous departmental or seminar libraries offered shorter opening hours than a merged facility. The average opening hours of smaller libraries was under 30 hours per week.

- The Björnshauge report highlighted that the fragmentation of library service led to the payment of hundreds of duplicate journal subscriptions by Ghent University. The financial gain from amalgamation was obvious.
- Many of the smaller departmental or seminar libraries did not meet the minimum standards set by the central university library, making access to the central loan system impossible. As a result, many books went missing.
- Scaling-up and combining available resources would facilitate the provision of new services such as library support for research or education previously unimaginable. If information literacy training existed within the study programmes, it was implemented without the knowledge and experience of the library staff.

One telling anecdote demonstrates the problems associated with the chaotic library set-up and relates to knowing what is in the collection. The chief librarian of the Book Tower received a phone call from a frantic professor. A student who took his class on *Ulysses* by James Joyce had brought, as requested, a copy of the book to be discussed. The copy of *Ulysses* was a first edition. The student had found the priceless collector's item in a small open stack departmental library. Better management of the collection was undoubtedly needed.

Eventually, the faculty accepted that the amalgamation of all the 50 library collections would result in a faculty library with longer opening hours, better trained and motivated staff, a rationalisation of the collections and acquisition procedures, the development of a digital library and the introduction of new services that would support education and research at the faculty. It would also enable all the collections to be catalogued and an automated loan system to be provided.

An Academic Centre of Knowledge and Wisdom in the Heart of Ghent

When selecting a site for the new Faculty Library of Arts and Philosophy, the most important criteria were its size and location in Ghent. The former Institut des Sciences met both requirements. The building not only had enough floor space to house 13 km of books, but it was also situated beside the faculty's main building. Moreover, the Book Tower is located across the street and holds over 40 km of books and valuable documents in closed stacks. The storage library, which was built to the design of Henry van de Velde, was undergoing a complete and ongoing restoration during the same period as the new faculty library. The two

libraries in the same street, one characterised by an imposing neoclassical façade and the other by a modernist tower, would create an academic centre of knowledge and wisdom in the heart of Ghent.

In 2006 the Project Office of the University's Department of Infrastructure and Facility Management was asked to draw up a design for the Faculty Library of Arts and Philosophy. The renovation of the exterior walls, led by the Architekturburo Ro Berteloot, had already commenced.

In the interior (Figure 4) it was important to restore the relationship between all the different corridors and rooms of the building. The renovation process began with dismantling all the walls and mezzanine not part of the original layout. With the removal of the later additions, the large spaces that once contained laboratories and reading rooms, could be restored to their former glory.

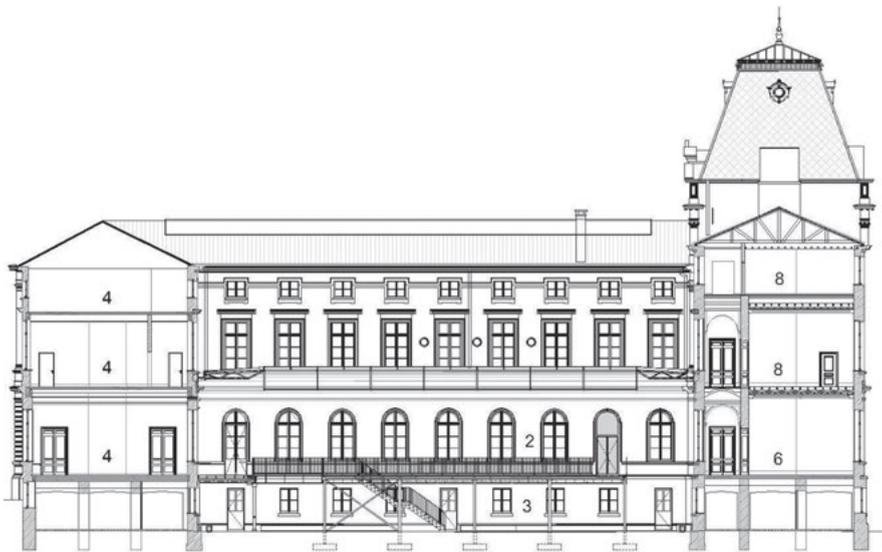


Fig. 3: Section through the atrium with glass roof and floating platform containing the entrance and the reading room. © Architekturburo Ro Berteloot.

Some original walls had to be removed to make 3 x 3 m openings to combine smaller rooms into larger spaces. The open plan approach provided a good overview of the library. The readability of the whole building was strengthened by the restoration of the original circulation space to facilitate orientation. The three interventions, namely the removal of non-original walls, the creation of new openings and the restoration of circulation, returned the building to a logical and well-organised whole.



Fig. 4: Situation before the renovation was started. © UGent.

More Than Just Collections of Books and Journals

When entering the northern part of the building complex, the visitor can take a corridor to the left or to the right. Each leads to one of two wings of the Library, the Loveling wing or the Magnel wing.

The two wings are designed along the same lines. At the entrance is an information desk to welcome visitors. Next to the desk, the user will find workplaces where the library catalogue can be consulted. Print collections are shelved in open access stacks beyond the entrance, a compromise reached to gain agreement to the relocation of collections from the seminar and departmental libraries. The open access stacks allow students and researchers to browse the collections, gain inspiration and make serendipitous discoveries. The decision to operate an open access library meant that shelving takes up a large part of the ground floor. The location of consultation and workspaces had to be carefully considered. Many workspaces were placed throughout the library beside the collections so that the books could be consulted, and the desks used for study purposes. The workspaces are long tables against the walls beneath the windows, optimising the use of natural daylight. The collections are within easy reach of users and, a sense of privacy is afforded to users who have their backs to the shelves (Figure 5).

It goes without saying that a 21st century academic library should be more than a collection of books and journals. New services to address the needs of modern-day students and academics were incorporated in the library. Each wing has its own group workspaces and a library lab where meetings can be held, workshops given, or information sessions delivered. Quiet study space is in high demand and the library provides two silent reading rooms which are heavily used by students.



Fig. 5: Workspaces are long tables against the walls beneath the windows. © Project-bureau_UGent.



Fig. 6: View of the mezzanine. © Christophe Van der Eecken.

A smaller reading room with almost forty desks is located on the first floor of the Magnel wing, which includes a mezzanine (Figure 6). Although the intermediate mezzanine floor is not original, part of it was preserved, but to respect the original historic structure and ensure good lighting, it was set back from the walls. The mezzanine was created to provide additional reader spaces and to offer a good overview of the collections on the first floor.

For the creation of the second reading room, a more drastic architectural intervention was required. The architecture firm Architekturburo Ro Berteloot designed a fully glazed roof above one of the inner courtyards thereby creating an atrium with a floating platform on which the service desk and consultation spaces are located at ground level (Figures 3 and 7). The space underneath the platform on the basement level was turned into a large reading room with over 100 workspaces. The floating platform with its glazed roof enables visitors to reap all the benefits of natural light while studying (Figure 8).



Fig. 7: One of the inner courtyards creating an atrium.
© Hilde Christiaens.

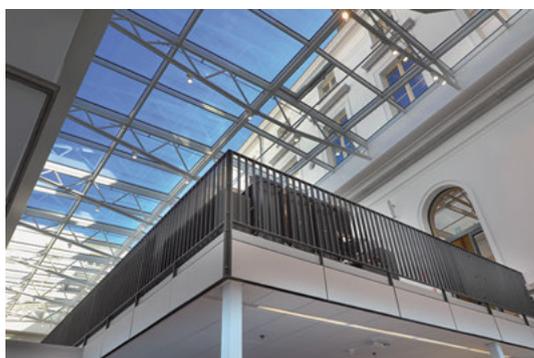


Fig. 8: The glass roof and the atrium in which a floating platform was placed. © Hilde Christiaens.

One of the benefits of locating the large reading room in the former courtyard is that the surrounding rooms and halls can be used to the maximum for stacks holding the book collections. The atrium can be completely closed off from the rest of the library so that this stunning feature of the new library can be easily used as a venue for receptions, exhibitions or talks.

The new library with its two wings has a combined floor space of 8,000 m², a collection of 13,000 m of books and journals in open stacks, almost 1,000 reading and study spaces, two multimedia rooms or library labs and eight group meeting rooms that can be reserved.

For the interior design, the architects drew heavily on the original interior. Original decorative elements have been conserved and/or restored. The original colour palette was researched and is reflected in the current colour scheme. As is often the case with historic buildings, solutions had to be found to meet requirements concerning accessibility, fire safety and the conservation of the cultural heritage. For example, the wooden floors were fitted with fire-resistant plates without damaging or touching the stucco on the ceilings underneath. A solu-

tion for the combination of fire-resistant doors with the original wooden doors was also realised. The installation of two elevators, where the architecture of the building allowed, made wheelchair accessibility possible.

Furniture chosen opted for a neutral, simple and plain style. The plain black bookcases and chairs contrast with the neoclassical style of the building and the historic colours of the walls (Figure 9). The arrangement of the shelving bays in continuing rows throughout all the rooms, together with the new openings in the partition walls, ensures that the many different rooms are experienced as a whole and impart a strong sense of uniformity throughout the library. Small but effective interventions turned the vision for the library into reality: a 21st century hybrid library in a 19th century building with print and digital collections and a variety of working, reading and consultation spaces and services. The meticulous restoration of the historical details provides a pleasant and inspiring library atmosphere regaining the magnificence originally conceived by Adolphe Pauli.



Fig. 9: Plain black bookcases and chairs contrast with the neoclassical style of the building and the historic wall colours.

© Hilde Christiaens.

The academic library is continually evolving and new functions and services will continue to develop. The future of libraries will no longer revolve around mere print collections. More attention will be given to study spaces and alternative meeting places such as a library lounge, library garden or book café may well be needed. Space will have to be found for these and other new functions. The library staff together with the architects will continue to evaluate the use of space and to reconsider the choices made to ensure that the library remains welcoming to users, adapts to new needs and, ultimately, survives and thrives.

Library Reorganisation and the Future

In 2009, a faculty librarian was appointed together with an assistant who was responsible for keeping the library catalogue up to date. They formed the nucleus of the library team at the Faculty of Arts and Philosophy and were not attached to one departmental library. They took an overview of library services and drew up a step-by-step plan with priorities. Working with the architect for the renovation work, the decision was taken to combine all library collections in a three-phase project.

In the first phase in 2012, the first floor of the Magnel wing of the Institut des Sciences was renovated and all the literature collections relocated to it. In the second phase in 2014, the ground, first and second floors of the Loveling wing were renovated for the philosophy, history and art collections. A third and final phase was completed in 2018 when the remaining floors of the Magnel wing were renovated and the linguistics and languages and cultures collections were brought to the new faculty library.

Moving collections is not a simple task. Bringing together all the books and journals from the many different locations was difficult and frustrating work. Often significant parts of a collection surfaced at a later stage and were offered to the library after the collection move to the new location was complete. When all the different parts of a collection were brought together, a retrospective cataloguing project was undertaken. The project involved adding missing catalogue records. Since almost half of the books had no record, over a period of nine years almost 350,000 books were catalogued. Together with the retrospective cataloguing project, the classification systems were rationalised with the added complication that manuals explaining the classification were often missing. And, last but not least, the library team and the academic staff responsible for the collection, had to select 25% of the items for transfer to storage in the Book Tower.

The intense time pressure and the complexity of moving many different collections, often twice with interim and final locations meant that some activities were postponed. Reclassification was a challenge. Strategically it was important to keep the books in each collection together and to give each collection its own place in the new faculty library to ensure that the bond between a department or research group and its collection would survive the move. Yes, the emotional attachment of users to their books was something that had to be considered when reorganising the library.

After the last 22 collections were moved in the summer of 2018, the faculty library was able to devise a new library policy. One of the overriding emphases in the new policy was the concept of the library as place, as a home for the faculty, as a sacred place (Hahn and Jackson 2008) and as a meeting place.

Conclusion

In the beautifully renovated building in the centre of Ghent within walking distance of the offices and classrooms of most of the academic staff, the new library has become the standard bearer of the faculty. To position the library as the real home for faculty life, the new library is proud to host such activities as the annual new year's reception, facilitate exhibitions set up by departments or researchers, and offer a place to host international workshops and readings. The latest initiative which has built a bridge between the library and faculty life is the opening of a Knowmadic Workplace. The library turned a group working space into an office that can be temporarily used by a researcher who needs a quiet and private place to work for a few days or weeks. It is the library's strong belief that although the position of an academic library as the provider of scholarly information is rapidly changing, the library as a sacred place is still one of its strengths. It is the very special position held by the library on a campus that makes the library a so-called heterotopia (Radford, Radford, and Lingel 2015). In a competitive academic world and in a digital environment running at an ever-increasing pace, the library offers a quiet meeting place, a place for reflection and a place for inspiration.

The project is not complete: the renovation of the various courtyards of the building complex and the integration of one courtyard with the library still await. The landmark modernist Book Tower, the university's central library across the street, will also be completely renovated by 2022. The street that connects both library buildings will become a pedestrian-only zone and serve as a book square where students and locals meet. The street, with its two libraries, one open stack and one closed, in two significant buildings from different architectural periods will tell a unique story of the university. And finally, it is hoped that the auditorium on the first floor that separates the two library wings, can be integrated into the library itself to create a physical connection between the two parts of the library with the additional benefit of creating a much-wanted library lounge and coffee corner.

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Katharina Regulski

15 A Cattle Market Becomes a University Library in Germany

Abstract: The Hochschule Düsseldorf/University of Applied Sciences Düsseldorf (HSD) moved to a completely new campus in Düsseldorf Derendorf in 2016. The site had been formerly used as a municipal slaughterhouse. The library is in a heritage listed building, an old cattle market hall. This chapter describes the history of the buildings including their original use as municipal slaughterhouse and cattle market hall and their abuse during the Nazi regime in the 1940s as a gathering place for people being deported. The historic context demanded sensitive reuse and provided the impetus to establish a memorial within the building that has now become the Hochschulbibliothek/University Library. The planning process for the reuse of the building is outlined from the viewpoint of the library, and the technical infrastructure, architecture and interior design are described. The historical preservation of the building, the history of the building itself and the requirements regarding the new use influenced the design decisions and provided special challenges to all groups involved in the planning process.

Keywords: Academic libraries – Germany; Library buildings – Design and construction; Buildings – Remodelling for other use; Slaughtering and slaughter-houses – Remodelling for other use

Introduction

In 2016, the Hochschule Düsseldorf/University of Applied Sciences Düsseldorf (HSD) moved to a completely new campus in Düsseldorf Derendorf, Germany. The campus was completed in 2018. The new site had been formerly used as a municipal slaughterhouse. The area features an ensemble of several modern buildings and two listed for preservation. The library is in one of the listed historic buildings, an old cattle market hall.

The first part of the chapter describes the history of the building and its uses until its re-opening in 2016. The second part is dedicated to the design principles that were applied by the architects in the refurbishment process and represents the architects' view on the project. The last part focuses on the needs of the library relating to the use of the building and new opportunities for services that emerged from the architectural design.



Fig. 1: The former cattle market transformed for library use: iconic architectural characteristics featuring a red brick façade. © Chantal Schlenker.

Facts and Figures

Name: Hochschulbibliothek, Hochschule Düsseldorf/University Library, Düsseldorf

University of Applied Sciences

Address: Münsterstraße 156, 40476 Düsseldorf, Germany

Website: <http://bib.hs-duesseldorf.de>

Opening: February 2016

Builder: Bau- und Liegenschaftsbetrieb NRW Niederlassung Düsseldorf

Architect: Nickl & Partner Architekten <https://www.nickl-partner.com/>

Gross floor area: 2,600 m²

Main floor space: 2,200 m²

Collection size: approx. 150,000 print, 400,000 electronic

Staff: 32

Workstations: 250

Building costs: €170,000,000 (whole Campus)

The History of the Cattle Market

During the years 1896–1899, a new abattoir in Düsseldorf Derendorf was planned and built by Georg Osthoff and Carl Peiffhoven. The former location of the abattoir, opened in 1876 in Düsseldorf Pempelfort, lacked a connection to the railway

line and the facility was too small. From 1887 to 1900 the population of Düsseldorf grew from approximately 120,000 inhabitants on 462 ha to 214,000 inhabitants on 996 ha (Huneke 1928; Peiffhoven 1901; Wessing 1904). Around 1900, the boundaries of the city incorporated Gladbacher, Suitbertus and Feuerbach Street, the railway line at Volksgarten, Kettwiger und Ronsdorfer Street, Grafenberg station and the Grafenberg mansion district, the zoological garden, the abattoir, the north cemetery and Homberger Street (Huneke 1928). The increasing population of the city led to a higher demand for meat products and the facility no longer met modern hygiene requirements or technical standards of the time (Peiffhoven 1901).

Georg Osthoff was town councillor for spatial planning and traffic in Berlin and had completed a similar abattoir in Breslau (1894–1896) (*Der städtische Viehmarkt und Schlachthof zu Breslau* 1897). He published several articles and books on the planning and construction of abattoirs meeting the technical standards of the time (Osthoff 1887; Osthoff 1888). He died in 1898, before the abattoir in Düsseldorf was finished. Carl Peiffhoven also worked in the municipal building department of Düsseldorf as town councillor for spatial planning and traffic and was responsible for expanding the abattoir site.

Between 1925 and 1932, the city infrastructure of Düsseldorf developed rapidly. The airport was opened for civilian travel; the routing of the railway line and the main station were modernised; and state-of-the-art factories were established. New architectural styles emerged. In 1927, the population of the city reached over 400,000 inhabitants (Huneke 1928; *Vorsorge für das physische Leben* 1928). To meet the growing demand for food following the first World War and the subsequent occupation of the Rhineland, an extension to the cattle market hall was built in 1930 (Heimeshoff 2001). The new part of the hall shows the iconic architectural style known as *Neue Sachlichkeit*/New Objectivity of the era and features a sober red brick façade (Figure 1), visible concrete cornices, concrete structure and an absence of ornamentation. In this period, the use of red brick was synonymous with hygiene, purity and naturalness and deemed most fitting for a place for food production (Kuhn 2001).

Between 1941 and 1944, the cattle market was shamefully used by the Nazi regime as a collection camp for about 6,000 Jewish men, women and children from Düsseldorf and the surrounding regions prior to deportation. The people were registered, robbed of their property and sent to ghettos in occupied Eastern Europe: Łódź, Minsk, Riga, Izbica and Theresienstadt, now known as Terezín (Lutz 2020). The ghettos were often intermediate stations on the way to concentration camps and extermination sites.

During World War II, numerous buildings on the site of the abattoir were destroyed to a varying extent, some losing up to 90% of the original built sub-

stance. The existing, now listed, historic buildings which were the cattle market hall and the equine slaughterhouse, lost some 20% of their original composition and were rebuilt between 1945 and 1949. During that time, the slaughterhouse operated on a makeshift basis (Gemeindewirtschaftspflege 1949). In the 1950s, the demand for meat products grew as the purchasing power of the city's inhabitants increased, and funding was obtained to reconstruct and modernise the abattoir (Gemeindewirtschaftspflege 1951). In 2002 the abattoir went bankrupt, was closed and virtually abandoned (Figure 2) (Redaktion fleischwirtschaft.de 2002).



Fig. 2: Exterior before restoration. © Robert Niess.

Architectural and Design Principles

The underlying design principles for today's refurbished building are based on three key elements: the industrial character of the original building; the contrasting interventions built during the 1940s refurbishment; and concepts of openness and connectedness for a modern university facility. An essential design feature in the reuse process was to keep the industrial character of the original building. For the new architectural elements such as the staircase enclosure to the upper floor and the upper floor galleries, exposed concrete was used for the construction. The new elements were designed to be purely functional and the technical infrastructure such as ventilation, sprinklers and electrical systems were installed in an open and visible manner.

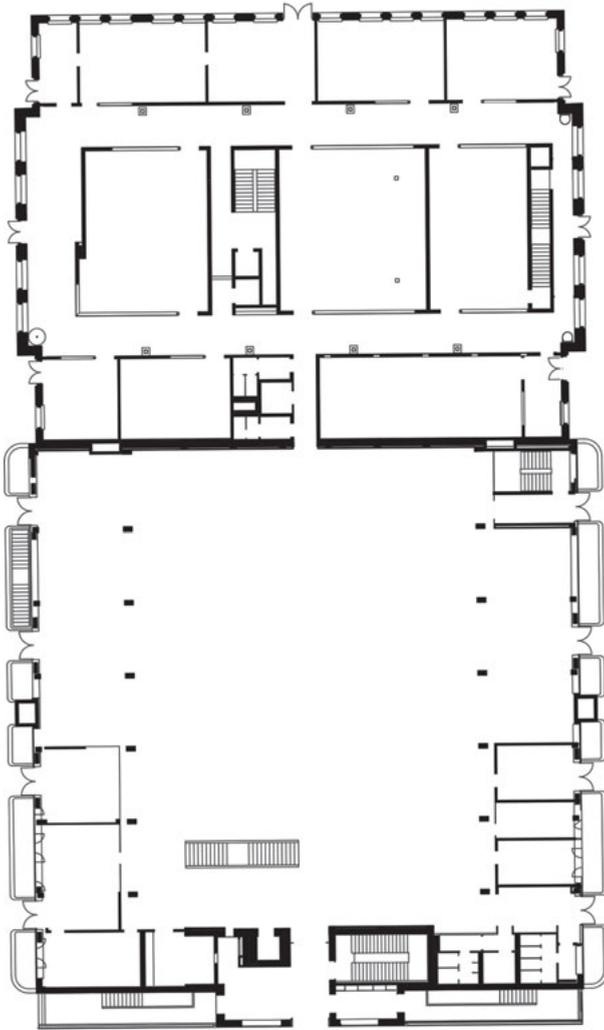


Fig. 3: Ground floor plan. © Nickl & Partner Architekten.

To make the building a pleasant place in which to study, subtle contrasts to the functional design were introduced through the choice of materials and colours. For the fixed furniture, natural and warm materials were used. The worktops have a robust brown-red linoleum surface, and the flooring was made of industrial light oak parquetry (Figure 6).



Fig. 4: All floors are visually connected and a visitor can experience the overall expanse of the hall. © Chantal Schlenker.

The concept of openness was achieved by making a rectangular opening between the ground floor and the basement level as well as adding galleries to the top floor. All floors are visually connected, and a visitor can experience the overall expanse of the hall (Figure 4). From outside, a sense of openness was created by redesigning the entrance of the building to provide an inviting, showroom-like area with two windows to the foyer inviting the visitor into both the library and the Alter Schlachthof/Old Slaughterhouse Memorial Centre which commemorates the deported Jews of Düsseldorf and its surrounding region. The Centre is in the former side entrance of the building. All changes were made in accordance with the requirements for the protection of the historic building. The redesign of the listed building was undertaken within the context of the newly designed buildings forming the new Campus Derendorf. Integrating the old and the new structures was a driving principle.

Vision and Demands of the Library

The vision was to establish an open, communicative space that promotes discussion and interdisciplinary exchange and at the same time provides quiet areas with high amenity for learning, seeking information and concentrated study. The new library building brought together collections and users from three former branch libraries in Düsseldorf Golzheim and Düsseldorf Oberbilk. The new location had to be an attractive place for different types of users with varying needs. A user survey conducted in 2013 showed that depending on the faculty of the respondents and the semester of study, the use of the library ranged from short visits for borrowing books to long stays for discussion and intensive learning.

Free and unlimited access to resources was noted as an important requirement allowing users to browse all physical items without restriction. Other requirements were easily discoverable electronic resources and flexible workplaces that could be adapted for a variety of needs with easy-to-move furniture. A long-term goal was to create a modern and forward-looking academic library that would adapt to the future.

Commemorating the Past

Moving into a listed building brought the added responsibility of commemorating its past. The Alter Schlachthof Memorial is an integral part of the building. It is located at the entrance, which was the former cattle market reception ramp, and was designed by the architects as an exhibition area. The former cattle ramps have been augmented by two metal staircases forming a circular route through the exhibition. The large glass fronts and roofs covering the ramps provide a view into the exhibition area which includes documents and photographs (Figure 5). The educational and exhibition area was developed by University staff and students in conjunction with the University's Forschungsschwerpunkt Rechtsextremismus und Neonazismus (FORENA)/Centre for Research in Right-wing Extremism and Neonazism and is aimed at university students, teenagers, interested members of the general public and knowledge mediators who seek to learn and share their knowledge with others (Lutz 2020). The permanent exhibition documents the crimes committed and reconstructs the lives and stories of the people of the region who were deported to ghettos and extermination camps. In a digital archive, historical documents, biographical information and photographs portray the victims, perpetrators and profiteers. A stone cattle-feeding trough in the library bears witness

to reports of parents who placed their children there to protect them from cold and dirt during the night preceding deportation.



Fig. 5: Alter Schlachthof Memorial: entrance and cattle market reception area redesigned for an exhibition area. © Chantal Schlenker.

Space, Noise, Ergonomics and Technical Infrastructure

Key issues to be addressed in designing the library were layout, noise containment, ergonomics and technical infrastructure. To understand the challenges involved in meeting the issues, it is important to understand the layout of the building. The library has three storeys: a basement floor, a ground floor and an upper floor. All floors are connected visually for good orientation and overview. They are accessible for users via two separate staircases and barrier-free with an elevator. The basement floor has a large ceiling opening to the ground floor with a wooden surround in which shelving for current journals is integrated. The ground and basement floors have parquet wooden flooring; the upper floor is carpeted. Both flooring types are exceptionally durable. On the upper floor, two former feed storage areas were converted into office spaces and group study rooms. On the ground floor are the service desk, the information office, copying facilities, workstations, current journals, the multiple copy textbook collection and a major part of the main stack (Figure 3). The bound journal volumes, the second part of the main stack, more workstations and study booths are located on the lower level. The lower floor houses a training room used for courses run by the library.



Fig. 6: The open aspect is enhanced by the hall character of the building. © Katharina Regulski.

The open and communicative concept is reflected in the hall-like character of the building (Figures 3 and 6). Having been constructed as a cattle market, the building is wide, airy and well-lit by windows in the shed roof and in the eastern and western walls. However, wide and open spaces present noise containment problems and separating quiet areas from communication zones in the library is challenging. To help delineate the different zones and to add some noise protection, deep-pile red carpets have been installed in the central study zones on the upper and basement floors (Figure 6).

Variety of Workspaces

The new library aimed at providing a variety of workspaces and areas of the library on the ground and basement floors are equipped with sofas and stools to create an informal and relaxing atmosphere. For quiet research, long workbenches are permanently installed underneath windows on the ground and basement floors, and along the gallery on the upper floor forming carrel-like workplaces. In some

areas of the library, smaller arrangements of chairs and desks form separate learning environments for quiet study. Four study rooms for individual users are in the basement and there are eight group study rooms on the upper floor. Workplaces without direct daylight access are equipped with task lighting.

Extensive shelving was required for books and journals and competed with the need for more open spaces, casual areas and study places. Space for both the collection and users was needed in the building. Reusing an existing building meant that space available was limited and restricted by the existing structure. Despite the proliferation of e-books and e-journals, housing and expanding the physical collection was still relevant especially for the arts and humanities faculties. Accommodating the collections carried equal weight in the planning process as creating new workspace scenarios for users.

To make room for study areas and to house the entire physical collection, different shelving options were discussed. The poor condition of the old concrete floor prevented the use of compact shelving on the ground floor as the load was simply too great. Locating heavy compact shelves on the basement floor to house bound volumes less frequently used was investigated, but the idea was dismissed as accessibility to the journals was deemed more important. To provide more space for study areas, shelving on the ground floor was increased to a height of seven shelves. Due to the structural limitations, a few of the additional shelving ranges are currently excluded from use.

The group study rooms were furnished at the beginning in different configurations with easy-to-move poufs instead of desks and chairs to provide more creative spaces. Experience has shown that rooms with chairs and desks are preferred by users and subsequently all group study rooms were adapted accordingly.

Mobile furniture is crucial to facilitate reconfiguring of spaces for events such as exhibition openings, readings and lectures. Robust and lightweight, couches and poufs can be moved and stored with little effort, to create large and open areas.

With long-term flexibility in mind, shelves and lighting were designed using a modular system. Sections of shelving can be permanently removed to respond to future requirements such as a need for more specialised workspaces or a decline in the number of items in the physical collection. For the shelves, a standardised product was selected to ensure the continuing supply of add-ons and spare parts. The dark grey metal surface complements the industrial character of the building.

Some of the initial design decisions concerning the interior turned out to be impractical and were later revised. In the first draft plans, all suitable spaces for workspaces or shelves were considered. On the upper floor, chairs and desks were placed in corridors beside the group study rooms. The workplaces conveyed a feeling of seclusion, but the corridors are open to the library and encouraged discussions between groups of students causing constant noise and disturbance

to others working in the library. Some workplaces were consequently removed or reduced to individual user workplaces. The same problem with noise control occurred in a reception area on the upper floor which had a sofa and casual seats.

The service counter was designed as an item of fixed furniture and follows the shape and style of the building, adopting the characteristic design of linear, rectangular shapes which reflects the atmosphere of the building and supports the industrial theme. From an occupational health and safety point of view, the desk was perceived by the staff to be less ergonomic than the round model used at the former location, despite its being adjustable in height.

The location of offices in the former animal feed stores on the upper floor posed occupational health and safety challenges due to the limitations that come with listed building status. In the original design, the areas did not have proper windows but only small slits in the upper portion of the outer walls three metres in height. Fortunately, the historic protection representatives permitted the windows to be extended to provide more daylight. Glass panes were placed in front of the new windows to preserve the original look. To create a spacious feeling and to avoid confined spaces, two large offices were created in place of the numerous small cells. The spaces are open to the corridor and convey a feeling of openness. The larger spaces enable a workable arrangement of desks, lighting and cross ventilation. Simple lighting using additional daylight lamps produces a diffused natural light. The downside is noise control. In an office area occupied by six to eight people, noise created by phone calls, keyboard clicking, conversations and people walking by makes concentrated work difficult. Mobile acoustic barriers were installed to create more privacy, especially near the corridors.

Retrofitting Implications and Issues

Many factors were considered when refurbishing the building. The design featured large industrial warehouse windows on the east and west side of the hall and gable skylights on the roof. To respect the original industrial character, new doors and windows were constructed to match the originals. Technical infrastructure like the newly added elevator had to fit existing preconditions within the building. As a result, some items were custom-built and have been more costly to maintain. The newly added glass panes were manufactured with UV protection.

The positive effect is the vast amount of natural light in the building which is great for studying and learning. The effects of glare and high temperatures especially during summer can be a problem. According to the architects, the building is equipped with a ventilation system that draws pre-cooled air from the outside.

Windows can be opened manually for ventilation. The positioning of the workbenches renders the windows difficult to reach without disturbance to users. To avoid glare and to keep the temperature lower, blinds are installed both at student workplaces and in the offices.

The refurbishment and the requirement for barrier-free access led to an unusual approach for the multi-purpose social space. The designated room was originally accessible via a short stair. As part of the refurbishment, the floor was raised about 70 cm and levelled which meant that the original windows were at ground level. The solution was to brick-up the windows leaving a silhouette on the exterior façade to indicate their original positions. New windows were added to the east and west side of the room. The new space is now elongated in shape and provides plenty of room for meetings and social events.

The library's location in its own building with separate toilet facilities and an independent technical infrastructure brought new responsibilities for the library staff who work closely with, and report technical and hygiene issues to, the facility management team.

There have been implementation issues with the technical infrastructure. The plans included enough well-distributed power outlets at the workplaces and via floor connectors. However, the distribution of the power connectors was not evenly implemented leaving some workplace areas well-appointed but others poorly equipped. There were insufficient floor connectors which is particularly problematic when holding events as extension cables are unsightly and pose a risk of tripping. Some technical items chosen have proven less than ideal for use in a library. For example, part of the electronic door lock system uses an acoustic signalling when activated which produces additional noise.

Conclusion

The library has become an extremely popular learning environment and is open seven days a week due to requests from students in 2019. Events such as exhibitions and guided tours take place on a regular basis, with as many as ten events held in 2018. Members of all faculties ask to present student work, lectures and other material in the library which promotes interdisciplinary exchange. By moving into its own building with unique characteristics, the library and its services have become more visible. The profile of the library has improved for both the users and staff. The building demands responsiveness to its past and its current and future use, and a responsibility to its previous occupants and current users, making it a place of commemoration and learning.

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Michael Knoche, Hilde Barz-Malfatti † and Karl-Heinz Schmitz

16 Integrating New Functions into the Historic Herzogin Anna Amalia Bibliothek in Weimar, Germany

Abstract: Despite a fire in the library, the Herzogin Anna Amalia Bibliothek in Weimar opened its extension in February 2005 on schedule. The new Study Centre covers an area five times larger than the corresponding rooms in the old library and offers readers 120,000 volumes on open access. The new underground stacks constructed at the same time offer good preservation storage conditions for up to one million volumes. It is a great advantage that an underground connection integrated the new build with the old and eliminated any potential division of the library. The new Book Cube with its clear geometry is the centre of the diversely proportioned group of buildings and a modern counterpart to the Rococo hall of the original green palace. The four internal walls of the Cube are designed as multi-storey bookshelves with galleries above and below ground. A sequence of underground rooms connects the Cube to the historic library building. It has been possible to create an integrated entity combining the new and the old, not by imitation, but by treating the whole ensemble.

Keywords: Academic libraries – Germany; Research libraries – Germany; Library buildings – Design and construction; Castles – Remodelling for other use

The Context

The Herzogin Anna Amalia Bibliothek/Duchess Anna Amalia Library (HAAB) is one of the most famous libraries in Germany. It was founded in 1691 and transferred to its present domicile, the Grünes Schloss/Green Palace, by the Duchess Anna Amalia in 1766. Nowadays, it is a publicly accessible research library of European literary and cultural history with a particular focus on the era between 1750 and 1850. In keeping with the tradition of a ducal library, its holdings contain collections dating back to the 10th century which are continuously expanded, catalogued and made accessible with current research literature. The library with its famous Rococo Hall is part of the Classical Weimar UNESCO World Heritage site and is associated with many famous German cultural figures including Johann Wolfgang von Goethe. On the evening of 2 September 2004, a devastating fire occurred at a time when an extension building, providing a new Study Centre



Fig. 1: Herzogin Anna Amalia Bibliothek Book Cube: The four interior walls are designed as multi-storey bookshelves with galleries. © Klassik Stiftung Weimar. Ulrich Schwarz.

Facts and Figures

Name: Herzogin Anna Amalia Bibliothek

Address: Platz der Demokratie 1, 99423 Weimar, Germany

Website: <https://www.klassik-stiftung.de/herzogin-anna-amalia-bibliothek/>

Opening: February 2005

Builder: Klassik Stiftung Weimar

Architects: Hilde Barz-Malfatti and Karl-Heinz Schmitz http://www.schmitz-architekt.de/pro_haab_sa.html

Gross floor area: 14,000 m²

Main floor space: 7,130 m²

Collection size: 800,000

Staff: 85

Workstations: 130

Building costs: €21,100,000

with underground storage, was under construction and nearing completion. A few months later, the books would have been safely stored and avoided fire

damage. At the time of the incident, the historic building with the Rococo hall still contained about one-fifth of the book stock of one million volumes. Four-fifths were stored in temporary storage facilities and had to be brought to the reading area for use. Fortunately, the distribution of the collections ensured that the fire did not completely rob the library of its riches.

The planned extension, which librarians had wanted one hundred years earlier, provided the opportunity to develop further the concept of a research library that had been a goal for many years. The new building complex was opened on 4 February 2005.

The new Study Centre extension reused the adjacent historic building complex called the Red and Yellow Palace, which is significant for the history of Weimar (Figure 2). As early as 1630, the Red Palace was the home of the book collection of Duke Wilhelm IV of Sachsen Weimar and was partly incorporated into the later ducal library. The palace complex is an assemblage of different buildings from different eras ranging from early Renaissance through, Baroque to post-war remodelling. It was last used as a municipal office. The construction challenge was to renovate the historic buildings according to appropriate conservation principles along with the careful addition of new building components.



Fig. 2: The library extension in the Red and Yellow Palace building complex.
© Hilde Barz-Malfatti and Karl-Heinz Schmitz.

It was a great benefit for the Herzogin Anna Amalia Bibliothek that a division of the library was avoided by including the neighbouring building. The one library concept was physically realised, as the various buildings are connected underground (Figure 3). In the short term, it would have been more cost-effective to construct a new building on a greenfield site in addition to the historic building rather than to integrate new functions into an existing building group under strict monument protection regulations. In the long run, however, the cost of operating a library across two sites would have been considerable and the opportunity of providing an attractive facility for readers, researchers and the citizens of Weimar

would have been lost. Nonetheless, there were influential advocates of the green-field solution.

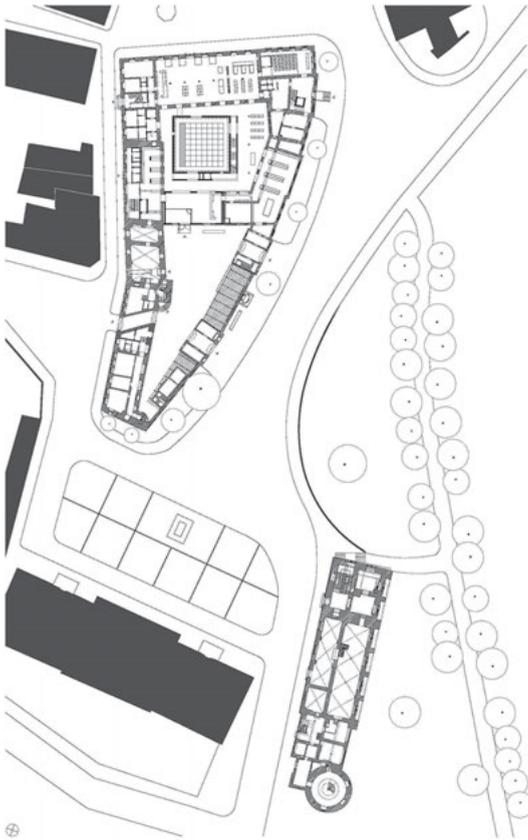


Fig. 3: Several existing buildings, grouped around two courtyards, were converted to accommodate library spaces.
© Hilde Barz-Malfatti and Karl-Heinz Schmitz.

Apart from the issue of location, the financing of the project was the biggest problem to be solved. On 26 November 1997, the Board of Trustees of the Klassik Stiftung Weimar/Classical Foundation Weimar gave a generally positive decision on the proposed library extension in the Red and Yellow Palace building complex. The Federal Government of Germany and the state of Thuringia government were prepared to invest seven or eight million DM annually from 2000 onwards, but the property still belonged to the city of Weimar. Only after lengthy negotiations, which threatened to fail several times, could the purchase contract, including the option for an underground storage facility below the Platz der Demokratie, be signed on 22 September 1999. Some time before, the *Frankfurter Allgemeine Zeitung* newspaper, under the banner “The cradle of German classicism becomes

the grave for 900,000 books – if you don't help", had pushed for private support for the library refurbishment.

The Competition and Winning Design

In autumn 1999, a few weeks after Goethe's 250th birthday, a Europe-wide architectural competition was launched. 280 applications were submitted for examination by an independent jury, chaired by Karljosef Schattner. On 28 April 2000, the jury unanimously awarded the first prize to the architects Hilde Barz-Malfatti and Karl-Heinz Schmitz in Weimar, who were joined by the experienced office of Rittmannsperger from Erfurt.



Fig. 4: The new entrance building set a new accent in the castle complex. © Klassik Stiftung Weimar. Ulrich Schwarz.

The winning design was characterised by the sensitive handling of the historic building fabric and a high degree of functionality. With a new entrance building, it provided a new focal point in the castle complex and carefully created a wide variety of visual relationships (Figure 4).

The Book Cube (Figure 1) with its transparent roof inserted into the former inner courtyard represents the core of the new complex. Its clear geometry gives the ensemble of differently proportioned structures a centre and forms a modern counterpart to the Rococo hall of the historic library building. The four interior walls are designed as multi-storey bookshelves with galleries above and below ground.



Fig. 5: Former entrance building, which was replaced by the new building (Figure 4). © Klassik Stiftung Weimar. Claus Bach.

The Librarian's Perspective

For the Herzogin Anna Amalia Bibliothek librarians, it was crucial that the service concept formulated for the library was translated effectively into any new building. The librarians envisaged a reader walking through the building in the following sequence: after entering the library courtyard through one of the three portals, followed by the main entrance in the new gatehouse, the first point of contact would be a service counter for information, registration and borrowing. The approach was implemented. Also located on the ground floor are the media library with a workstation for the visually handicapped, the photo archive with images on the cultural history of Weimar, a lecture hall with 48 seats, a reading café run by the Studentenwerk/Student Affairs and an open area in the Cube that can be equipped with 100 chairs for events. Reference works and bibliographies, card catalogues and computers with access to electronic resources are available. The ground floor of the Study Centre is designed as an information area with straightforward entry and accessibility to all parts of the building (Figure 6).

The two upper floors form the main reading zones and can be entered only with a library card. They contain more recent academic literature with a focus on literary and cultural history and the content is freely accessible by browsing the subject areas. The reader can access about 120,000 systematically arranged books and journals. Previously less than one-tenth of the collection was directly accessible. The range of electronic services is constantly being expanded in parallel with the print collections.



Fig. 6: All parts of the building are accessible from the ground floor. © Klassik Stiftung Weimar. Ulrich Schwarz.

There are workplaces between the shelves, especially near the windows, for readers who want to work with only research literature and not with the historic book collections with 800 current periodicals displayed on the first floor. Previously, less than one tenth of the periodicals was directly accessible.



Fig. 7: The reading room with a view towards the historic library building. © Ulrich Schwarz.

The heart of the new premises is the reading room with 32 seats, where the historic book holdings can be studied (Figure 7). No other books are shelved here. The books are either handed out at the reading room counter or brought in by

readers from the open access area. Due to its height and location above the entrance hall, the reading room is situated at a key point in the building complex with a view towards the historic library building. At the front of the reading room there is a huge photograph of the Rococo hall by Candida Höfer. In an area facing the park on the Ilm river, there are six work studios or carrels available for long-term library stays.

Readers entering the library's basement via the main staircase or the elevator will find on the lowest level of the Book Cube a fiction collection which can be borrowed. It contains individual copies of fiction that the library has acquired and the publishing production of the Suhrkamp group, which was donated to the library after the fire by the publisher Ulla Berkéwicz in memory of Siegfried Unseld. The establishment of a fiction collection might be considered unusual in a research library. The aim is to encourage reading beyond academic work. Scholarly editions of poets and writers are classified with the relevant subject area.

In the basement below the southern courtyard of the castle complex and the street is the reading area, which is lit by windows onto the park on the river Ilm. Older journal volumes are shelved in the basement.

For conservation reasons, the library's historic collections are stored in the underground stacks up to nine metres below ground. The capacity of the compact shelving system is one million volumes. A book conveyor system transports books from the underground store to readers in the Study Centre within 60 minutes.

The library user can choose between different study areas:

- The reading room on the first floor with excellent working conditions for studying the historic book collections
- Carrels
- Reading places near the windows in the open access area of the Yellow Palace
- Work and research stations in the photo archive on the ground floor of the Yellow Palace
- Comfortable armchairs in the Cube
- Reading places near the fiction collection in the basement of the Book Cube, or
- Seating in the underground area adjacent to the park.

The historic library building can be reached via the basement reading area. The library's usable area including its 130 reading places is five times larger than the area available previously.

A conference room with 22 chairs is available for meetings and small events on the second floor of the new entrance building (Figure 4). Some staff rooms are in the Yellow Palace, but most are in the Red Palace, an area little affected by structural changes due to its value as a designated historic monument.

The Architectural Perspective

The new Study Centre of the Herzogin Anna Amalia Bibliothek took five years of planning and construction until its completion. A major challenge was to integrate the extensive extension, in a restrained manner, into the Weimar palace district, which is protected as a world cultural heritage site. To this end, several existing buildings grouped around two courtyards were converted to accommodate library space and, where additional space was needed, subterranean structures were added to house open and closed stacks.

An amalgamation of buildings from five centuries reflects the history of the site and it was one of the architects' primary intentions to retain and strengthen the existing historic setting. Only one building dating back to the early 19th century was removed (Figure 5) to make way for a new entrance building (Figure 4). In conjunction with the prestigious original library building, the refurbished neighbouring complex reinforced a special identity and created a strong presence in the centre of Weimar. Concealed under the Platz der Demokratie are open stack areas and a two-storey storage area, which can hold one million books. The underground spaces connect the original library building with the Study Centre. The subterranean structure appears partially as a built edge of the park.

One of the courtyards of the old complex was converted into an atrium with 16 glazed skylights; with its clear geometry it now forms the core of the new facility giving the existing heterogeneous structure a calm and stable centre. With its contrast between the rough exterior constructed of exposed concrete and the fine wooden shell interior with surrounding book galleries, the atrium is reminiscent of the Rococo hall of the Herzogin Anna Amalia Bibliothek. The central space can be used for lectures, readings and other events. Surrounding the atrium on various levels are carrels, bookstacks open to the public and reading spaces. As already mentioned, the visitor has access to an information centre on the ground floor level. On the upper floor of the new building is a high reading room (Figure 7) with 32 reading places and visual reference to the main building.

The alternation of low and high rooms and of natural and artificial light creates different atmospheric moods in the various reading areas depending on the time of day and the season (Figure 8). Despite the introverted nature of the facility, eye contact with the outside world is possible from most of the reading areas.

Functions were largely distributed in alignment with the existing structure with smaller spaces used for group or individual study rooms, and activities requiring more space accommodated in parts of the building less sensitive to interventions. High ceiling loads were allocated in areas where the original building fabric was of less significance in relation to the preservation of historical



Fig. 8: The alternation of natural and artificial light creates different atmospheric moods in the various reading areas. © Klassik Stiftung Weimar. Ulrich Schwarz.

monuments, for example in the interior of the Yellow Palace, which was given a completely new supporting structure. In addition to extensive changes to floor levels, the structural interventions carried out included three new staircases and the associated reactivation of the historic entrances.

The open access and storage areas are air-conditioned for book preservation purposes. There is floor heating and cooling. Mechanical rooms and plants had to be distributed over the various sections of the building. Duct and cable routing in continuous shafts, floors and suspended ceiling areas ensure retrofittable electrical and data cabling throughout the complex. Smoke detectors in all parts of the building, differentiated smoke extraction devices, motion detectors and book security systems were installed. The underground store is equipped with a sprinkler system. A book conveyor system transports books from the book storage area to the lending counters, the reading room and the book processing area in the new building.

The extensive technical equipment is concealed and has been integrated into many fixtures and furniture. The main public area consists of different rooms and to provide a consistent and calming ambience, limited types of materials and a restricted colour palette were used. Canadian maple was used for the shelves, built-in cupboards, carrels, counters, tables, stairs and the ceiling in the cube. The floors are mainly dark apart from the atrium floor and the main stair where cherry was used. Walls and ceilings, where they are not exposed concrete, are painted white.

The original competition design retained the open courtyard, albeit in a new architectural design. Fortunately, the librarians indicated immediately after the competition that they wanted more space for user interaction and for the collections instead of a courtyard. Responding to new requirements led to the development of the courtyard into the Book Cube within the central interior of the Study Centre. In contrast to some libraries, where the entire book stock might be held in closed access storage and the user's contact with the book occurs only after

specifically requesting a copy, the books shelved openly in the Book Cube at Herzogin Anna Amalia Bibliothek are the focus, not only functionally but also symbolically.

Conclusion

A major theme in the extension to the Herzogin Anna Amalia Bibliothek project was the issue of working in the 21st century with historic buildings constructed many years ago. There has long been debate about the best approach to adapting a historic building for new use and the conflicting ideas were evidenced in submissions to the competition design in 2000. One approach is to take a conservative line and ensure that minimal intervention with any new building components largely imitates the existing structures. The second approach is more radical and takes the view that any necessary renewal should be clearly identified as such. New forms and structures inevitably compete with the old, with the results demonstrating the contrast between the new additions and the old structures.

A third approach, which was favoured in this instance, is based on the desire to achieve an integrated whole between the new and the old, not by imitation, but by treating the existing building as a growing organism. No attempt was made to change the spatial types or the overall form of the historic complex. Although the new entrance building is clearly modern and has, unlike the older buildings, a flat roof, it has become part of the existing structures by completing the sequence of the whole complex. An integral unity between the old and new buildings was achieved through avoiding an over-emphasis on form. The widely distributed labyrinthine network of old and new spaces does not, as might have been expected, pose problems of orientation for the user, as each major space has its own identity. The central Book Cube, the main reading room, the carrels overlooking the park and the collection areas adjacent to the park have distinct characteristics so that visitors have no difficulty in remembering each location within the whole complex.

The new library complex was awarded the Thuringian State Prize for Architecture in 2006. It has been much described and applauded in the literature (Grunwald, Knoche, and Seemann 2007; Kleefisch-Jobst 2005; Knoche 2006). From an architectural and library functional point of view, the new building meets all the expectations of its clients. The Study Centre, underground stacks and the renovated historic library building, which was reopened in 2007, together form an outstanding research library.

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Robert Niess and Frank Seeliger

17 From Locomotives to Libraries at Wildau Technical University, Germany

Abstract: The Hochschulbibliothek/Library of the Technische Hochschule Wildau/Technical University of Applied Sciences Wildau (TH Wildau) is housed in Hall 10, a former locomotive shed constructed in 1920 and located on the former industrial site of the Schwartzkopff factory south of Berlin, Germany. The complexity and demands of accommodating the multiple functions of the library along with the historic protection of the building made the project especially challenging. The University required a 21st century academic library combined with a canteen and café housed in a listed building. The underlying philosophy for the architects was to retain the character, spatial quality and structural integrity of the original building while creating a new, interpretive architectural expression for the extension and renovation. New materials and techniques echoed and complemented the old. Inexplicably the final bay of the former locomotive shed was never completed and the new project a century later was able both to return the building to its original length and symbolically mark the new use as a library. The library moved from uninspiring and inadequate quarters to a stunningly restored building in an imposing site that was full of character and had an ambience that was a great draw for users. For the librarians, the project provided the opportunity to raise the library's profile, introduce new services through the exploitation of innovative technologies, and embrace a whole range of state-of-the-art uses, events and cooperative ventures. Advantages and drawbacks of the project are discussed and the benefits of reusing a historic building for a modern academic library are highlighted.

Keywords: Academic libraries – Germany; Library buildings – Design and construction; Engine houses (Railroads) – Remodelling for other use

Introduction

The town of Wildau, south of Berlin, was established in 1900 through the construction of the Schwartzkopff-Werke, a large factory area for locomotive construction which included a new town with an urban infrastructure and housing for its staff and workers. Since then, it has continued to grow and develop despite the traumatic effects of two World Wars and east German socialism. From the second half of the century, a new use as a site for academic training and its associated infrastructure has emerged. The campus of the Technische Hochschule



Fig. 1: Hall 10 as the new library. © Werner Huthmacher.

Facts and Figures

Name: Hochschulbibliothek/Library, Technische Hochschule Wildau/Technical University of Applied Sciences Wildau

Address: Hochschulring 1, 15745 Wildau, Germany

Website: <https://www.th-wildau.de/hochschule/zentrale-einrichtungen/hochschulbibliothek/>

Opening: 2007

Architects: Chestnutt_Niess Architekten BDA <http://www.chestnutt-niess.de/>

Gross floor area: 4,265 m²

Main floor space: 2,320 m²

Collection size: 100,000

Staff: 8

Workstations: 150

Building costs: €9,000,000

Wildau/Technical University of Applied Sciences Wildau (TH Wildau) is located on a small part of the large industrial site of the former Schwartzkopff factory.

Hall 10, a former locomotive shed, was transformed into a library for the university (Figure 1). A great deal has been written about the transformation (Mosig and Seeliger 2008; Niess 2016; Seeliger et al. 2011; Seeliger 2011). This chapter provides a critical review and analysis of various aspects such as spaciousness, accessibility, flexibility and usage. It also addresses the inadequacies as well as the phasing of service development in the library. The intention is to present colleagues and interested readers a report which might be used as stimulus and inspiration for other comparable projects. Open spaces with maximum flexibility herald the future for

libraries, but the reuse of buildings opens up unexpected potential for atmospheric space utilisation with great appeal to users. In particular, the experience at Wildau shows how a distinctive ambience with a strong character enables librarians and users alike to identify with the space and appreciate it as a high-quality library.

The design for the conversion of Hall 10, the disused locomotive shed, into a university library with a canteen and café was based on an architectural strategy of *Weiterbauen*/building continuity. The approach is not based on a false romanticism of ruins of a building or overpowering intervention characterised by fashion trends or expressions of functionalism. *Weiterbauen* focuses on discovering the inherent structural and conceptual underpinning, which define character and meaning, and allows the building's origins, coupled with new requirements, to lead to further growth.

The Wildau Library: The Architect's Perspective

The Schwartzkopff extensive manufacturing works, built around 1900, was logistically located on the river Dahme and consisted not only of industrial halls for the production of railway tenders and locomotives but also accommodation for the workers, administrators and directors along with buildings for leisure and community facilities. Although the respective buildings were adapted to their functions, almost all, whether industrial or residential, were created in a richly structured brick architectural style with decorative plastered inlays (Figures 1 and 2).



Fig. 2: The exterior of Hall 10 in 2002.
© Robert Niess.

Hall 10 stands on perhaps the most prominent site of the former manufacturing facility. It was placed on the urban edge formed between the railway line and the housing estate and at the factory's railway station forming a transverse axis. The

profile of the urban edge is characterised by the large, decorative gables of the workshops, giving the factory a visible and stylistic character. Together with the large administration building, Hall 10 formed a gateway at the train station and was the formal entrance to the factory grounds for workers and visitors (Figure 2).

The original design of Hall 10 dating from 1919/20, was of seven bays although inexplicably only six were realised. The building was never fully completed, and a thin temporary wall was built on its eastern end as weatherproofing. The important gable façade on the urban edge was omitted and the building left faceless.

The longitudinal façades, defined by bays with pillars, cornices and three tripartite tiered windows, suggest on the outside a three-storey structure. Inside, however, was one large space (Figure 6) indicating that the architectural expression of the building was more focused on the tectonic volume and formal façade structuring and less on the content or function of the building. The large open interior is illuminated by the stacked side windows and a large skylight, imparting a special, almost sacred character. Atypical for a production building, the whitewashed walls and a floor made of fine end grain wood pavers are witnesses to the unusual function of the building as a loading hall. The completed locomotives and tenders were disassembled, packed and loaded to be shipped for worldwide export.

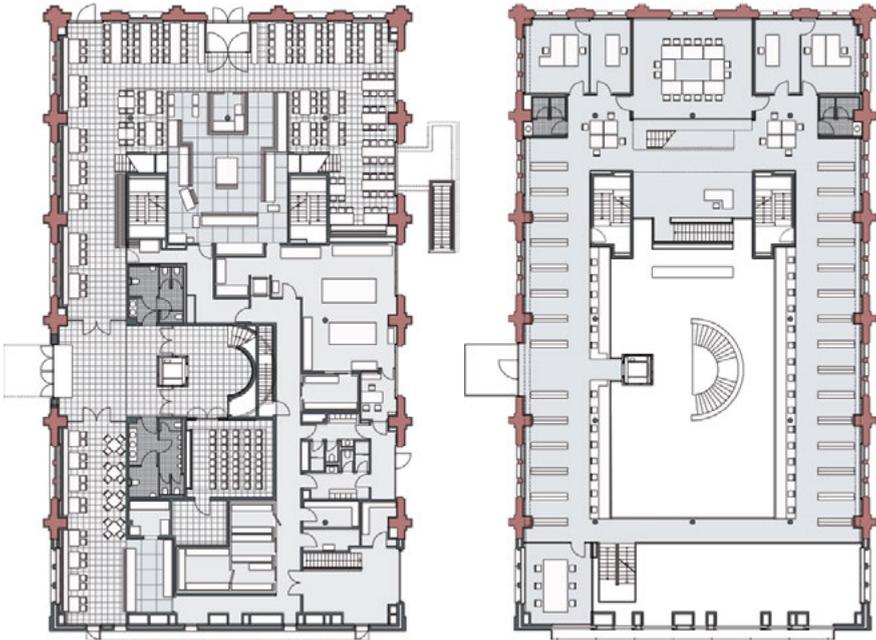


Fig. 3: The ground floor (left) and 3rd floor (right) of the new library. © Chestnutt_Niess Architects.

The Architectural Concept

Designing an academic library combined with a canteen and café for the university in an existing, listed building was an unusual and complex challenge because several functions not usually expected to be together under one roof were blended.

The design task was viewed as an opportunity for the building to be finally completed, undergoing a metamorphosis almost a century after its original construction. The proposal was to extend the existing building architecturally returning it to its original planned length along with a new gable façade. The gable as an urban face would express the building's new function along the urban edge of the railway embankment.

The architectural language of *Weiterbauen*/building continuity reflects the original structural ideas behind the existing building and interpretively continues them using modern materials and design. The extension with its new gable were especially designed to give the building an inherent but new architectural expression. The spatial quality, inside and outside, arises from the interplay of its structural epochs and the materials used.

The modern construction consists of a coloured, smooth-surfaced concrete, which, together with the modelling of pillars, cornices and window reveals and extends the previous architectural expression into the present. The coloured concrete was used inside and outside as a visible unifying material and the outer walls were constructed as a sandwich with insulation in-between. A warm-coloured blast furnace cement, dyed with an iron oxide pigment (Bayferrox), was chosen. The light red, slightly brownish colour blends harmoniously with the historic brick architecture and the rust-discoloured surfaces of the railway environment. At the same time, the building is unmistakably articulated as a modern construction. Due to the lively colour, which was created by pouring the dyed concrete on-site, and the smooth, large-format formwork, the raw concrete surfaces appear unusually imposing. The precise demands of the exact in-situ construction of the exposed concrete posed a particular challenge for the small local construction company. Although the craftsmen had little experience in producing such demanding concrete surfaces, there was great interest and understanding of the design requirements, which was shown in the high level of commitment and excellent execution of the work.

Designing the Library

The original large space of the locomotive shed served as the basis for the organisation of new functions. Maintaining the ability to perceive and read the original volume of the former space enhanced the historic preservation concept as a duality of old and new. Interestingly, the Renaissance painting *St. Jerome in his Study* by Antonello da Messina served as an inspiration for conceiving the space. The former large inner space of Hall 10 was seen as a huge house comprising many spaces and rooms, all serving the university. The intention was that the library space would be the innermost room of the campus; the place that remains in memory from student times. It was decided that the innermost room should serve additional purposes beyond the everyday functions of the library.

The canteen and café, served by a common kitchen, as well as a multitude of adjoining spaces were located on the ground floor for logistical reasons (Figure 3). The delivery area was situated on the north side and the common public entrance for both canteen and library oriented to the campus on the south side. The location of the main entrance is the result of an older intervention in the façade constituting both evidence of functionality and witnessing the changes over time.

The library is accessible via the southern entrance and located above the canteen and café on the first floor. A generous curved stair leads the visitor upwards to the main floor of the library, a *piano nobile* whose orientation provides a view over the campus. An elevator at the entry provides barrier-free circulation for the entire library.

The large library space is arranged on several levels with an atrium underneath and around the opening of the old skylight (Figure 7). The main reading area is on the *piano nobile* and located on the new gable façade. Lockers, computers and the large information counter are also located on the main floor. The upper floor contains bookshelves, rooms for group work, offices and carrels and reading spaces, orientated towards the atrium (Figure 9).

The central skylight was perhaps the most important source of light for the locomotive hall. It dominates and forms the space and gained significance and symbolic quality in the transformation to the library. Originally following the slope of the roof, the skylight was redefined into a perceptible volume as a generously glazed lantern. The lantern illuminates the interior with natural daylight and shines out in the evening as a symbolic landmark of the library. Also symbolic in an urban context is the architectural expression of the new gable façade. Old plans did not show how the façade was intended, leaving its original design up to speculation and providing an opportunity to expose the library. The new gable includes a large, glazed opening with views into and out of the library (Figure 4). The large opening is divided by several visible supply shafts, the technical nature

of which was integrated into the new façade like a display case paying homage to the technical nature of the university.



Fig. 4: The extension to Hall 10.
© Werner Huthmacher.

The Wildau Library: The Librarian's Perspective

The key requirements underlying the design concept from the library point of view were:

- The library should be a prestige landmark project which would attract attention;
- Users should identify with the building through revisiting its history;
- Choice of location for the new library should emphasise integration into the environment, upgrading the surrounds where necessary;
- Consideration of the pros and cons of reusing a historic building;
- Potential to obtain funding;
- Functionality from a library and user perspective including space allocation, user journeys through the building and climate control.

The library team moved into its new quarters on time for the start of the 2007 winter semester and was immediately impressed with the quality of the new space. It had an instant impact raising the profile of the library and giving the

staff a new feeling of value and sense of appreciation. The new presence of the library in the listed factory building enhanced an awareness within the university and the general public of just how vital and important an information facility is.

With the new library space and all its possibilities, the library was able to reinvent itself. New beginnings do not appear from nowhere and appear in a different light if one takes into account previous situations. In the sense of Hans-Georg Gadamer, the future defines recognition rather than the past: “Future is origin”.

The beginnings of the university library originate with the founding of the Wildau Business School, later Engineering School, in 1949. The school facilities were divided between two locations within the extensive industrial area. The early period of the library, up through German reunification and into the first years after the founding of TH Wildau in 1991, was characterised by temporary locations in spare rooms and different locations.



Fig. 5: On the left is the former reading room in Building No. 7 and on the right is shelving in Building No. 13. © Frank Seeliger.

The library was divided and located in Buildings 7 and 13 on two campus locations, about two kilometres apart. Part of the library was in a former chemical factory building for methanol and acetone, nicknamed the Essigbude/Vinegar shed, and comprised a complicated network of small-scale rooms, previously offices, with precarious lighting conditions. The cramped overflowing shelves and linoleum flooring exuded negative charm and were unattractive as places for study and work. Both branches of the library were hidden away in buildings with different functions and largely invisible.

The library team and the faculty were full of hope and anticipation in advance of the move into the new library. The new perspective led Frank Seeliger to accept the position of Director of the new library. With high expectations for the new library, the first question to be addressed before moving into the renovated his-

toric building, was how to take care of the library and especially how to manage the library over three levels.

To initiate the project, the university compiled a brief, listing all required spaces as well as the need for the building to serve two quite different functions: a large canteen and café for the university as well as the new library. In 2000, planning began for the adaptive reuse of the derelict factory building Hall 10 (Figures 2 and 6), originally built in 1921. The state of Brandenburg hired the office of Chestnutt_Niess Architects, who had experience in designing projects in a historic context, for the prestigious and complex project. The design called for the canteen and café for serving up to four thousand students and staff to be placed on the ground floor and the library to be located on the upper floors.

When the new Director assumed office, the overall planning and most of the construction had already been completed. This was regrettable, as the opportunity to influence the project and change some of the required spaces, for example, to create more storage space in the counter area, was no longer possible. It did, however, mean that input into detailed possibilities and options could be accommodated. Luckily delays in construction provided a welcome opportunity to plan the logistics of the move and to integrate RFID technology which had become available as a security option for the library collections but had not been included in the original planning requirements.



Fig. 6: The interior of the existing building, Hall 10 in 2002. © Robert Niess.

The Beginning Began with the Place

The librarians longed for the opening of the new library, to furnish it and make it their own. Metaphorically it was akin to making a new cuvee wine, aged in old oak barrels, as an event that calls for special joy and celebration. For the opening celebration, two events, a concert of *Carmina Burana* and a video installation were performed in the presence of two state ministers. The video, as an art installation, was designed especially for the library space. Titled *Just Talk, No Action*, it was composed by the New York-based artist Chris Hopkins and performed twice in the library.

The impact of the transition from an inconspicuous makeshift library to a ballroom with cloister-like galleries and private offices was immense. With the doubling of bookshelf capacity and usable space, it felt like climbing onto a prize winner's podium. The destination had been reached, but what now? High expectations come with attaining an overwhelming goal and gaining such a treasure. Do the team and the services on offer fit with an innovative temple of knowledge and live up to its demands? A library strategy that included implementing new measures and taking advantage of all the options available had not been developed. Suddenly, there were spacious aisles between the bookshelves and ample shelf space so that books no longer had to be stacked on top of each other. There was a multitude of modern workplaces and group study rooms, bright offices, a modern information counter, self-service check-out machines based on RFID technology and security gates. What was new and highly significant was that the library occupied the most central and dominant building on campus. Stepping out of the city train arriving from Berlin, the first building encountered is the new library and café in

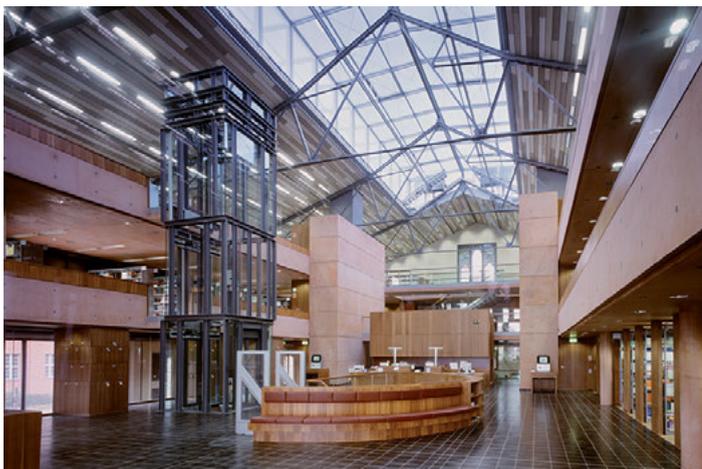


Fig. 7: The central space of the library.
© Werner Huthmacher.

Building 10. It is a landmark building with a large glass façade and skylight illuminating the night sky. It is more than attractive; it is magnetic and radiates symbolism and strength. The successful architectural design of a library, both in terms of aesthetics and function, creates a crucial first impression, a calling card. The first impression determines whether a person decides to step inside – or not.

The Space as an Enabler

Library staff have seen that the library space works effectively and attracts people. Approximately 100,000 visitors, users and customers flock to the temple of the library every year. Contributing to the high usage figures is the fact that the young town of Wildau, a municipality since 2013, offers limited venues for cultural events. Another advantage is that the library is located next to the local train station. There are bus stops nearby and plenty of parking on campus. The team at the canteen and café offers catering at the location. Barrier-free access via the elevator is seen as an advantage, especially for customers with mobility issues. The library has initiated a series of exhibitions of drawings, photographs and other artwork, music events such as the New Year's Day Concert put on by the Lions Club, book presentations and readings as well as special events and much more (Figures 8a, 8b). The library is in high demand for cultural events, but the demand is just as high for scientific and other academic activities.

New colleagues at the university visit the library on induction tours and in preparation for their semester planning. The friendly atmosphere of the library interior quickly wins people over and sparks ideas for future collaboration. Project work demanding close cooperation from all areas of education and research with the library team has become commonplace and includes such activities as producing publications, internship ventures, management of final theses and applications for third-party funding.



Fig. 8a: Concert in the library. © Frank Seeliger.



Fig. 8b: Sleepover in 2012. © Marcus von Amsberg.

The library's most frequent project initiator visited the space for the first time over ten years ago after an interview with the search committee for a professorship. The inspiring space of the library impressed her so much that she has worked on projects with the library ever since with successful exchanges of information. It is unlikely that the successful collaboration would have occurred while the library was based in its previous quarters.

A Space Full of Nooks and Crannies

Events of all types are held on the *piano nobile* of the library and, similar to the famous Teatro alla Scala in Milan, can be viewed from the two upper floors with excellent visual and acoustic quality. The constellation of stage and spectators is only one option. The main floor offers a total of four further spatial combinations. The spatial variety constantly surprises event organisers because the large spiral staircase situated in the middle of the room is initially perceived as a drawback. The flexibility is particularly appreciated because of the large variation of size and diversity of the audiences. It is possible to create a pleasant atmosphere for an event, whether there are 30 people or over 100 attendees. The special spatial effects would not be possible in a classic auditorium or lecture hall.

Hosting cultural events and festivals is usually a trademark of public libraries rather than academic libraries but the Wildau library has a predestined event location. The library hosts five to ten events every year outside its regular opening hours. Annually there is at least one private viewing of photographs and drawings with easels set up on all floors to present the collected works. Whether it is a performance of Thomas Mann's *Confession of the Imposter Felix Krull* or *A Christmas Carol* by Charles Dickens or something else, the combination of stage and scene with accompanying sound and lighting technology is a permanent fixture on the *piano nobile* of the library.

One event which differs from customary concerts or book readings is the Schmökerabend/Sleepover (Figure 8b) which has taken place several times, with up to one hundred people, predominantly children and teenagers, setting up their beds for the night between the shelves and in various other cosy corners to read favourite children's or teenagers' books. That description tells only half the tale, because the sleepover also feels like an indoor playground, with a paper airplane contest from the upper tiers to boot.

Extraordinary Usage

The magnetic appeal of the library space has led to its adoption as the university's living room. The library is used at times by people simply looking for an agreeable indoor atmosphere which sometimes hinders the library's fulfilment of its primary role and core task of being a collection-focused place of learning and a workplace for students. Nonetheless, discussion evenings such as the series *In Conversation with Leading Politicians*, Brandenburg state receptions on occasions like the International Aerospace Exhibition, receptions of leading private sector companies, information events, television recordings, chess tournaments and other similar events are inspirational and make the library a vital part of the university and the community.

It is a credit to the university management and library staff that the extraordinary uses of the library have enhanced both the library and the university but have not become the norm. It has remained possible to maintain the library space essentially free for its intended use as the central learning and research space for the university.

The Disadvantages of a Heritage Building

There are some limitations in the use of the library space. Even though three hundred people could easily fit into the library, the largest number permitted at any given time is limited to 199. The library was not designed to meet the strict building code for large public gatherings. Furthermore, the large and open central space which is suitable for events and provides an atmosphere conducive to social learning, does not support the quiet learning atmosphere which might be expected in the classic academic reading room. The hard flooring of the *piano nobile* amplifies the ambient noises from the information desk, discussion between users and noise from the locker area. Many people find the background noise during rush hour at lunchtime disruptive. The disadvantage is partially offset by the provision of a limited number of group study rooms.

Another challenge is the large skylight. The glass roof spans the entire central courtyard area and allows for good lighting conditions all year round (Figure 7). Unfortunately, not all the planning aspects, which called for an indirect light reflective system in the glazing, were implemented. During the hotter months of the year when the weather is sunny, compromises must be made in relation to the information desk and the workstations on the north side of the building that are directly in the sun in the morning and subject to glare. There is a strong contrast

between light and dark surfaces. After twelve years and a plethora of discussions with all involved, as well as expert opinions and reports, the only apparent solution is to redesign the glazing system as originally planned.

The last problem is the indoor temperature which, due to noticeably warmer summers, has increased in recent years. The library does not have air conditioning, and the originally planned cooling integrated in the concrete was deleted from the project during the construction phase as a cost reduction. As a result, temperatures of well over 30 and even up to 40 C have been measured on all three floors and in the offices from June onwards. Automated cross ventilation at night has helped, but the air turnover is extremely low due to the small outlet openings.

One last important point relates to the upkeep of the facility. Although the facility has been thoroughly and regularly cleaned and maintained since its opening in 2007, wear and tear are evident in several areas despite regular repairs and touching up. It is important to maintain the image. Users stay an average of four hours daily in the Wildau library and to continue to attract people and encourage them to stay within the building, the library must be clean, modern and fresh with everything in tip-top condition. Modernisation and alterations, which are necessary to maintain a cutting-edge library, represent a constant bureaucratic challenge. As an example, a new library desk, designed in 2014 by the architect in cooperation with the library team, is scheduled for implementation in 2022!



Fig. 9: The upper levels of the library. © Werner Huthmacher.

Managing and Organising Change

The use of the library has changed tremendously. Four key aspects are:

- Reduction in the number of printed books on the open shelves
- New information technology requiring new infrastructure
- Growth in staff numbers
- Unrestricted use regardless of official opening hours or staff presence.

Except for certain specialist libraries, the importance and presence of printed works has declined, due to the increased availability of e-books, e-journals and databases. Multiple copies of book titles or editions are disappearing and most journals and periodicals are offered only online. The changes have affected the library at TH Wildau. For example, bookshelves holding the textbook collection on the *piano nobile* were removed in 2019. The space, with parquet timber flooring and wooden dividers, is being changed into a reading lounge. In the foreseeable future, as print collections are reduced further, more shelving can be removed and additional learning and workspaces provided.

In the early days the library was proud of its forty computers equipped with thin clients and other devices. Today, users tend to bring their own devices. Not only do the devices need to be recharged at electrical outlets, but the positioning of Bluetooth, wireless and other ICT devices is complex. Maintaining rechargeable batteries in a mobile newspaper shelf using RFID technology to count the number of users taking newspapers from the shelf is challenging. The demand for a flexible power supply has increased tremendously. If there were more wall or in-floor outlets, a master key system including chip or smart cards for the lockers could be integrated. Moreover, through the analysis of the chip card and potentially the RFID readers, real-time usage could more accurately be determined, and fluid and unrestricted library usage could be optimised. Large touch screens could be made available close to the information desk and in one of the group rooms. Wireless internet is ubiquitous, and people can access the internet from almost anywhere, but sometimes a connection to a power supply network is rare.

In the beginning, the library was well provided with staff workspaces. There were four offices accommodating two to three people in each, a front desk with three work areas and a small kitchen. Now the offices are crowded, even though staff can telework. An increased number of staff and positions due to part-time work, project work, trainees, student assistants and internships has meant that some employees overflow into the media centre.

The last major change introduced was in May 2018 with faculty, students and staff able to use the open space of the library 24/7. There was a learning curve before the service could be implemented. Approximately 700 people, mostly stu-

dents, signed up and were instructed by a humanoid robot who enabled them to enter the library independent of opening hours using individual chip cards. Use of the library as a learning resource centre has increased. It is very seldom that no one is in the library, and during exam periods and at weekends, there are hundreds of users in the library.

Conclusion

The great success of the TH Wildau Library is undoubtedly due to its astonishing architecture. The peak was reached in 2012 when it won the German Library of the Year Award. After over ten years of hard work, the library staff can justifiably say that they turned the jewel of a library into something even more special. With the services on offer, everyone can proudly say that justice has been done to the fantastic building. Perhaps library staff went above and beyond expectations knowing that they were blessed with a totally reliable asset: the wonderful library space.

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Samuel Lespets and Rémy Marciano

18 Reviving the Hexagon for the University Library on the Luminy Campus of Aix- Marseille University

Abstract: The Hexagone Bibliothèque Universitaire de Sciences de Luminy, Aix-Marseille Université / Hexagon University Library at the Luminy campus of the Aix-Marseille University is located near the entrance to the Calanques National Park on the outskirts of Marseille in France. The Hexagon was the university restaurant from the early 1960s and regarded as the heart of the campus. It was closed early this century when a new restaurant was built. It became famous for its graffiti and housed many stunning murals. Opération Campus, a national programme for campus redevelopment, retained the Luminy campus for its research potential and the development plan included use of the hexagonal building to house the new library and several other services to the university community. A local architect was chosen to reinterpret the Hexagon and adapt its reuse to the highest international standards. Following constructive dialogue between librarians, the architect and the university consulting architect, the new Luminy Hexagon Library was designed and opened in September 2018. It combines the comfort of a social place on campus with the latest equipment for supporting learning, teaching and research. The chapter describes how librarians and architects worked together to reactivate the Hexagon as the heart of the campus.

Keywords: Library buildings – Design and construction; Restaurants – Remodelling for other use; Academic libraries – France

Introduction

The Hexagone Bibliothèque Universitaire de Sciences de Luminy, Aix-Marseille Université/Hexagon University Library at the Luminy campus of the Aix-Marseille University (Figure 1) is located in the south of Marseille, the second largest city in France. Located at the gates of the magnificent Calanques, the Luminy campus contains amongst other treasures an old country house, seat of the Centre International de Rencontres Mathématiques (CIRM) and is renowned for the beauty of its hills and bushland. The history of the Luminy estate began around 1005. Paul Cyprien Fabre became the sole owner in the 20th century, and he renovated the park, replanting trees and opening a road giving access to the waterways. In 1945, Luminy became public property with various uses until 1966



Fig. 1: View of the Hexagon in Luminy. © Takuji Shimmura.

Facts and Figures

Name: Hexagone Bibliothèque Universitaire de Sciences de Luminy/Hexagon University Library Luminy, Aix-Marseille Université

Address: Case 901, 172 Avenue de Luminy, 13009 Marseille, France

Website: <https://bu.univ-amu.fr/bu-luminy>

Opening: September 2018

Builder: Bouygues Bâtiments Sud Est <http://www.bouygues-batiment-sud-est.fr/>

Architects: 1966: René Egger; 2018: Rémy Marciano Agence Rémy Marciano _ Architecte <http://www.remy-marciano.com>

Gross floor area: 7,000 m² (building)

Main floor space: 2,500 m² (library space)

Collection size: 53,000

Staff: 11

Workstations: 700

Building costs: €18,500,000

and the creation of the Luminy university campus with a science faculty and a university residence, to cope with the development of new disciplines and the significant increase in the number of students.

Today, the Luminy campus is the site for the science and technology faculties of Aix-Marseille Université (AMU): sports sciences, life sciences, chemistry and physics, as well as a polytechnic and an institute of technology which come under the AMU umbrella. AMU is the largest multidisciplinary French-speaking university, with 80,000 students and nearly 8,000 staff on 5 large campuses of international standards. Connected to AMU are many of the largest French research organisations, including the Institut National de la Santé et de la Recherche Médicale (INSERM), Centre National de la Recherche Scientifique (CNRS), and others. Not part of AMU is the Kedge Business School connected to the chamber of commerce and industry of Marseille, the École Supérieure d'Art et de Design de Marseille Méditerranée (ESADMM), and the École Nationale Supérieure d'Architecture de Marseille (ENSAM) connected to the French Ministry of Culture. There are approximately 5,000 AMU students, staff and researchers on the site, but when the other educational organisations are taken into account, the potential number of users rises to approximately 15,000. To complete the picture, Luminy is the gate of the Calanques National Park, one of the main tourist attractions in the area. People come to the library to relax and read a newspaper after hiking in the Calanques.

The New Hexagon

The Hexagon was one of the first buildings on the Luminy campus in 1966. It was designed by the architect René Egger to accommodate the university restaurant and located close to the university student residences (Figure 2).

The first library was situated near the teaching and research buildings. The campus layout changed considerably over the years. Many teaching and research buildings emerged with the development of new academic disciplines and were built mainly on the northern part of the campus. A new restaurant was built closer to the central campus and the teaching facilities and the Hexagon housed offices until it was closed in 2010.

From 2008, the French government launched the national programme Opération Campus to create large university centres, to accelerate their development and to assist French universities to progress in the Shanghai and other similar international rankings. The Luminy campus was selected for its potential in research in the life sciences and sports disciplines. The university recruited a consulting architect to develop a master plan for the campus which would connect all the networks and buildings with both new construction and restoration. A project to create a new Library and Learning Centre to replace the old library and bring

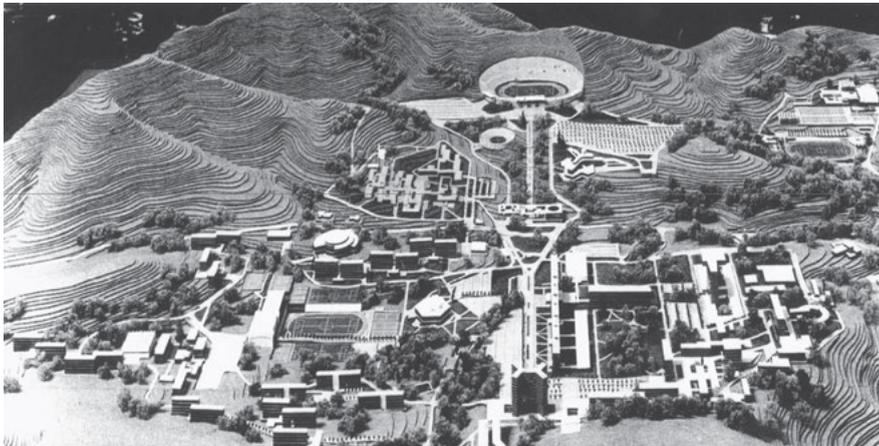


Fig. 2: Model of the Luminy campus project. © René Egger.

together resources and support services for students and teachers alike emerged from the process. The decision to keep and restore the Hexagon was made as it was deemed an iconic building of René Egger.

The Hexagon formerly contained the restaurant and an amphitheatre. Former students, some of whom became teachers, researchers or staff, remember past times nostalgically and constitute the living memory of the campus. Numerous festivals, concerts and celebrations were organised over the years in the Hexagon making it of key importance to students as the heart of the campus. Lack of use led to a slow and long demise for the Hexagon which became dilapidated (Figure 4). Some areas of the ground floor continued to be occupied by offices linked to the Centre Régional des Oeuvres Universitaires et Scolaires (CROUS), the organisation responsible for management of university housing, but the main areas were closed and walled up. The youth of the southern districts of Marseille turned it into a graffiti mecca. Can the quality of the frescoes be explained by the immediate proximity of the School of Fine Arts? The fact is that many huge frescoes gradually covered the walls of the abandoned building (Figure 3). The place was also used by squatters and resulted in a tragic event. A student from the School of Fine Arts fell from the roof of the building that was closed to the public, during what seems to have been a drunken clandestine party. The University administrators asked the fire brigade at Luminy to take over the management of the building and to secure it. The firefighters used the building, which was particularly complex in its spatial organisation and circulation, to carry out their rescue exercises and training. The situation continued until rehabilitation work began in the spring of 2017.



Fig. 3: One of the frescoes that covered the Hexagon before its restoration. © Bertrand Mallet.

Preparation for the New Library

Firstly, with the help of the consulting architect, a library team prepared an initial brief with a list of requirements taking into account the defects of the old library and perceived student needs particularly regarding group work. The library team carried out surveys of users and collection needs. The aim of the work was to prepare and organise the services for offer in the new library. The specific goals were to:

- Gain a better understanding of the actual and potential users of the library to fit out the future library and offer services in the Hexagon that would meet users' expectations
- Improve the way users are welcomed to the library
- Accustom the team to the concept of the library as a learning centre with up-to-date facilities and equipment including RFID technology, self-service machines, automated room bookings and electronic devices.

Different initiatives were launched:

- A user study. 200 observations were conducted by the library staff over six months. The main outcome was that space use was diverse with varying types of use on different occasions. Students worked in the study areas mainly on their own materials, alone or in small groups although they also relaxed. Some students were comfortable with noise; others used noise-cancelling devices. In the informal spaces, some work activities were carried out. More photocopiers and PCs were required. Between 50% and 70% of users worked individually on computers; the rest worked in groups of two. The five group

- study rooms in the old library were clearly insufficient and more whiteboards and flipcharts were needed.
- Analysis of the booking management system for group rooms. It revealed that 75% of bookings were for four people or fewer.
 - Interviews and focus groups which enabled users to define the ideal library. Users wanted: quiet study spaces, numerous group study rooms, sufficient power outlets, a wide-ranging collection and long opening hours.
 - An online survey of circulation desk activity. It showed the number and distribution of transactions daily and weekly, and whether library staff needed to leave the desk to provide assistance (33% of instances) and identified the purpose of the interaction. The following major areas of need were identified:
 - 21% devices or photocopying
 - 16.5% information retrieval
 - 12.5% lending of electronic devices
 - 11.5% orientation on campus (the library was located next to the main entrance)
 - 11.5% services.

The library team concluded that there was a need for well-maintained photocopiers and computers, a more central location for the library on campus, a new service offering electronic devices for loan and a relocation of the information and circulation desk. Other activities supplemented the various studies undertaken. Public presentations were made on the project; whiteboards were placed in the library and sought unrestricted and innovative expressions on library needs; and an academic study carried out by a colleague investigated student perceptions of librarians' work.



Fig. 4: The Hexagon before restoration. © Bertrand Mallet.

The wide-ranging approach made it possible to refine and improve the brief of requirements by understanding the expectations of users and integrating suggestions received and conclusions drawn from the surveys. The entire library team

was involved in the preparatory work and each team member was able to imagine her/himself in the new building and to prepare for new service provision. Lastly, it enabled the public, whose opinions were widely solicited, to become better acquainted with the project and to express their expectations and wishes.



Fig. 5: Architect's view after restoration. © Rémy Marciano.

The Sequence of Events

A brief was prepared outlining the various requirements but there was no concrete expression in space. The preparatory work was carried out by the library in parallel with other departments that would come together in the Hexagon, with the consulting architect and his team playing the role of coordinators in the project. The different activities planned for the future building were a language learning centre, the international relations service, the university counselling service, the sports service and the student experience and disability office. Several meetings brought out the need to make room in the future library and learning centre for student activities, in particular through spaces to hold student events, facilities for student associations and work areas accessible without reservation. The entire student area has been compartmentalised to allow 24-hour access, even when the rest of the building is closed. The campus has been complemented by a snack bar, a photocopy centre and offices for visitors or staff working from home. Various facilities were intended to host large-scale events, whether cultural or academic in nature. They included an auditorium with video and audio capability, a video-conference room, a shared meeting room for services integrated into the learning centre, an exhibition area and a common kitchen – a highly strategic place! In summary, the programme was built around three notions: a place for resources, a hub for services and an area for training.



Fig. 6: Lobby and bleachers/tiers.
© Takuji Shimmura.

The full details of building requirements were finalised during 2014 and called *Campus Core*. A tender was put out based on the brief. Competitive dialogue and exchanges began with the various consortia that had responded to the tender. For a year and a half, the consortia submitted proposals for the development of the Hexagon at regular intervals, including plans and architectural views. For each submission, the University's consulting architect's team brought together all the stakeholders, including library staff, to contribute their opinions and comments on the proposals.

The teams did not know the candidates' names, but all could see that between the beginning and end of the workshop sessions, some consortia had changed architects, demonstrating appropriate responses to the feedback given in the workshops. In February 2016, the partnership contract was signed with the selected consortium, Bouygues Bâtiments Sud-Est, by the President of the University. Following the signing, a final improvement phase of the project continued until spring 2017, when construction work began on the Hexagon. Work continued at an intense pace until the opening of the Hexagon in its new form in September 2018. Following finalisation of the partnership contract, the exchanges with the chosen architect, Rémy Marciano, became both more direct and concrete. Rémy Marciano is a local architect and had been a student user of the former university restaurant. Undoubtedly, his background helped him to understand the project issues and make the most of the building's strengths and weaknesses (Figure 5). Following a constructive dialogue between the librarians, the selected architect and the university consulting architect, the new Luminy Hexagon Library and Learning Centre was opened in September 2018 (Figure 6).



Fig. 7: The patio. © Takuji Shimmura.

Collaboration and Impact of the Building

The collaboration between the librarians and the architect was extremely productive. The dialogue was contained within the framework of the architectural programme signed with the builder, which served as a contract. Within the framework, and through the intermediary of the consulting architect, Rémy Marciano was receptive to the suggestions and comments of the library team. Three significant examples can be cited.

One of the first building layouts offered three distinct areas: collections, study areas and relaxation areas. Following the team's request to combine the different spaces, the architect reworked the plan to propose a balance between shelving and study tables and more comfortable seats, such as armchairs and sofas. The result is an orderly and harmonious blending and integration of the spaces.

The librarians' observations on the use of group study rooms led them to propose rooms that vary in capacity from two to sixteen people with a variety of seating ranging from comfortable low seats for a long stay through classic seats for study periods to high stools for short meetings. The library team suggested a range of equipment including interactive screens, simple screens or whiteboards with no screens. The architect noted the requirements and was able to take advantage of the space to arrange the group study rooms to make the most of the available surface area and the light and its orientation.

Finally, the choice of furniture was based on a fluid exchange between the architect and the library team. The library team used Pinterest boards to provide the architect with a range of furniture choices. Various exchanges led to a selection of furniture that was both functional and elegant and perfectly integrated into the new library. Some emblematic and spectacular elements, such as hex-

agonal honeycomb-shaped alcove walls, were designed by the architect and custom-made (Figure 8).



Fig. 8: Hexagonal honeycomb-shaped alcove walls relate to the building landscape. © Takuji Shimmura.

A Libqual satisfaction survey, conducted throughout the university library network at the end of 2018 highlighted the high level of user satisfaction with the new library. To evaluate the reception of the building by users, and its impact, objectively and independently, a student trainee curator conducted a study using User Experience (UX) design tools, including observations of library users and short interviews with users. The study in the spring of 2019 confirmed the excellent feedback from users on the library and contributed to an accurate picture of how users use the library. The most commonly undertaken activities were found to include working on personal print materials, using a computer, relaxing and chatting. The most frequented areas were the study carrels in semi-open spaces for individual or paired work, and the group study rooms. The conclusions of the survey reflected the findings of the earlier studies done in preparation for the renovation, namely, that the most frequent activity in the study spaces was working with personal print materials. However, the area includes relaxation spaces and surprisingly, while the areas were most frequently used for chatting, over one third of activities undertaken related to work.

The survey revealed room for improvement: one bone of contention was noise, about which many users complained, despite the availability of group study rooms elsewhere in the building. There are 20 group study rooms in the library and 20 in other parts of the building. Following the survey, a working group was established to examine the noise issue. As a result, the introduction of clear signage and the reorganisation of library spaces establishing a silent zone where chatting is not tolerated, and a quiet zone where it is possible to talk at a moderate level, partially resolved the problem.

The library offers 700 workstations supporting different ways of working: 140 are located in small work areas accommodating two people; 20 group study rooms of varying sizes accommodate groups of up to 16 people; 150 workstations for individual use are located at the periphery with a view onto pine trees; 160 are located at large library tables; 250 are placed with informal seating of sofas and comfortable chairs; and a training room can host 25 people.

The Hexagon library and learning centre combines the comfort of a living room and a social place on campus and it has become the central focus of the campus, with equipment for supporting learning, teaching and research. It received in November 2018, three months after it opened, the award of Grand Prix Livres Hebdo de l'espace intérieur from the main national book industry's professional magazine. Attendance increased by 30%. Much has been written about the transformation (Feil 2020; Schoof 2019; Shimmura 2019; Wu 2019). The Hexagon has truly reverted to the campus heart it had been when it was built as a university restaurant.



Fig. 9: Study carrels, patio and view of Mount Puget. © Takuji Shimmura.

The Architect's Approach

The project was developed from the competition phase under a Public Private Partnership through Bouygues Construction. The relationship with AMU was excellent throughout the operation: the stakeholders contributed as volunteers to discussions throughout the planning and construction phases and have been a driving force in the life of the completed building.

Renovating the Hexagon was an ambitious project from the outset. Providing a variety of uses was hindered by the depth of the structure that prevented

sufficient lighting with only the second and top floors having the capacity to be put to worthwhile use. The recess in the central patio (Figure 7) and a breakout connecting the high and low halls provides a breath of fresh air and creates a momentous space in the building. The central, outdoor, open space is a natural and playful extension. Organised with bleacher or tiered seating in line with the natural topography of the site, the space can become an agora, a place for gathering and relaxation with the recess providing the necessary light for the different areas of the building (Figure 6).

Clearing part of the first slab in the lower part of the ground floor enabled the provision of a more generous space in line with the project goals. Some functions are provided in a ring around the existing building and in a more simplistic way. Rather like crowns, the functional strips form a strong connection to the topography and create, above them, terraces to be occupied by the students.

The architects conceived the transformation of the Hexagon into a learning centre as a flexible and attractive building for the Aix-Marseille university campus of Luminy. It would become a contemporary place for students to live, exchange and share with the informality of the spaces encouraging ownership. It is a sublime, rocky and sculpted site where the wild landscape of the Calanques invites itself into the campus and offers a setting conducive to reading and day-dreaming with the enchanting scent of a pine forest.

The project constituted a major transformation of the former university restaurant into a library. The intention was to show and stage the transformations of the building with remnants of the former building, including the re-casting and underpinning. The Hexagon was composed of six building sections each separated by a loadbearing wall. The piercing of the patio and the extension on three sides of the building allowed a structural girdle and the elimination of loadbearing walls. Modern archaeology and the 1960s concrete of the existing building, preserved and transformed, reveal traces of the past, the hand of man and the passage of time. The materials used are rediscovered and imbued with new meaning. A milky white skin envelops the Hexagon and its extensions and creates a new landscape sculpted in and echoing the nearby limestone rock, where porosity and transparency let light generously penetrate the spaces. The topography of the site is restaged in a stepped stratification from the reception area to the patio in the heart of the building (Figures 7 and 10).

The spaces are generous and can be appropriated by all. The Hexagon is a place of study, but above all a place of life, of knowledge-sharing, of communication, of sociability and of openness to the world. The Hexagon includes a large university library, a projection room, an open space, a café and student services. The transitional spaces, patios, terraces, steps and corridors are designed as real places of welcome, meeting and relaxation (Figures 6, 7 and 9). The more informal spaces



Fig. 10: The plan of the finished Hexagon project. © Marciano Architecture.

encourage students to take ownership of the building and enjoy the natural continuity of a generous landscape at the gates of the Calanques (Figure 11).

The design emphasises that the Hexagon is a place which can be explored with many ways to walk through the building at different levels. The entrance is reached from a forecourt, which is an extension of the central walkway. It continues in a series of terraces arranged on the natural slope of the site (Figure 10). A walk from the forecourt level allows one to walk through the open space on the ground floor, or to go out onto the central patio to reach level one on the same level as the upper part of the grounds. The secondary hall is a second access that provides a simpler connection from the south of the campus.

Because of the building's open and criss-crossing character, it offers a path through the entire campus. To study, research, meet, share, create, relax and build one's social life through diversified paths in the building, such is the goal of the spaces provided. The routes specific to students and those of the public are designed to allow for encounters but also to avoid inappropriate crossflows.

Its porous façades, like the limestone rocks of the Calanques, composed of white sunbreakers with a vertical rhythm, converse directly with the exceptional nature of Luminy. The sunbreakers are positioned and orientated according to the course of the sun. Metal mesh made of perforated aluminium is used. A peripheral window ensures a constant connection between the library and the landscape. Large frames provide a privileged and connecting relationship with the views of the Calanques (Figure 11).

Open to the learning and exchange modes of today and tomorrow, the spaces are adapted to new learning behaviours including nomadic study, e-learning and MOOCs, particularly in relation to the use of digital technologies. The Library and Learning Centre offers unique spaces, which adapt not only to different ways of studying and different postures, but also to the climate, through the patio and terraces. Different group sizes are accommodated with rooms for people working in teams or support bubbles. Bubble rooms are small glass rooms where one can isolate oneself to work while remaining visually connected with others. They are extremely popular with students, and the glass façades make it possible to maintain transparency in the spaces and to benefit from natural lighting while providing users with the calm they need to concentrate. The rooms are available in sizes adapted to the use and location and could be installed externally to offer other work configurations in connection with the landscape. The university library, open to a 360° view of the landscape, offers a high quality of comfort with consultation areas benefiting from natural light shaded by the sunbreakers and a terrace for outdoor reading enthusiasts!

Flexibility was a keynote and the Hexagon's arrangement was designed to offer possibilities for adaptation and evolution and was intended to mediate changing approaches to learning and the dissemination of knowledge in multiple scenarios. The idea is that all users can organise and adapt the spaces to suit their individual needs and ways of working. The Library and Learning Centre is designed to be flexible both inside and out, enabling changes to be accommodated and guaranteeing an evolving future for the building. The ability to move equipment around provides flexibility throughout the day, making it possible to adapt to the rhythms of students, researchers and administrative staff, and to offer access to certain parts of the building 24 hours each day. Functions have been compartmentalised to avoid the constraint of using the entire building. The Hexagon is a success for the campus and, according to AMU, a success with users.



Fig. 11: Informal space in the library, with terrace at the back.
© Takuji Shimmura.

Showcase for the Campus

Facing the central walkway, the Library and Learning Centre forms a new heart for the campus, connecting its component parts. The porous building, punctuated by large windows, tells the story of a relationship with the site and the large area of the Calanques, with many framed views of the landscape and layers that reveal the richness of activities. It is welcoming, offers multiple entrances, and is ensconced in the surrounding landscape. The façades of the building, through the stacking of levels emphasised by successive and rhythmic vertical elements, suggest the shelves of a large library, a subtle reference to the use of the building (Figure 12). The varieties of seating indoors and the outdoor spaces provide opportunities to meet and exchange ideas in a place that encourages concentration and imagination.



Fig. 12: Front detail view.
© Takuji Shimmura.

The design fits into the topography of the land on which the Hexagon building was built and is staged and integrated into the landscape. The stratification evokes both the landscape into which it is integrated and the different entities of the university and their roles in sharing knowledge and culture. The Hexagon, the heart of the Luminy campus, becomes a connected building, as much by its integration as by its technology.

The Hexagon has regained its status as a landmark and focal point on the campus as a:

- physical expression recreating a relationship with the topography and the different levels and accesses to the site, and
- symbol whose design while strong, dynamic and fluid, reveals generous, desirable and luminous spaces.

Conclusion

The Hexagon had gradually lost its function as the heart of the campus despite its strategic position at the centre of the site. The new designed spaces offer numerous possibilities for use, development, evolution and occupation by students or researchers. The decision was taken to amalgamate several spaces and to increase the surface area of some of them. The ground floor offers from the entrance an open space with a volume high enough and spacious enough to accommodate multiple types of events. The area is connected to the sequence of the forecourt, entrance hall, exhibition room and patio.

Through a complete reconfiguration, the Hexagon has become a showcase for innovation and exchange, an extraordinary place in which students want to work, collaborate, share and forge their destiny. Spaces conceived as flexible and evolving spatially and pedagogically have become attractive places of innovation and a driving force for the whole campus. The Hexagon creates links between the building, the context and campus activities and asserts its status as a structural element weaving new associations between the landscape and the building, inside and outside, skin and structure, and the location and its flexibility.

A year and a half after its restoration, the Hexagon has found its audience. Not only students, teachers and university staff, but also hikers from the nearby park, tourists and users of the site's sports facilities come to visit and use it. A real dynamic has been set up between the various services available within the Hexagon. Workshops initially set up by the library around bibliographic tools and soft skills like public speaking, making successful presentations, creating a poster to present one's research and organising one's ideas with mind-mapping have expanded in collaboration with the Counselling Service and include creating and updating one's CV and writing a cover letter along with topics like introduction to LaTeX and website creation.

From an architectural point of view, the building is a real success. The architect was able to make the most of the Hexagon's assets including its surface area, its strategic location, through site integration and the surrounding landscape,

through further enhancement and emphasis. At the same time the weaknesses that time had revealed, including the lack of natural light in central spaces and complexity in the circulation of spaces, were solved by new inclusions like the patio and diverse paths through the building with differing levels. Perhaps the only regret is that the frescoes which covered the building while it was no longer in use could not be preserved. They remain in memory, and the functional efficiency of the building and the pleasure of using it daily make up for their loss. The Hexagon has embarked on a second phase in its life and the people who work in it will do their absolute best to ensure that it is exploited to the full.

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Jorge F. Sosa and Lia Kiladis

19 The American University of Paris Library in the Student Life and Learning Commons

Abstract: The American University of Paris (AUP) is a private liberal arts institution with an urban campus in the 7th arrondissement of Paris. AUP had been searching for some time for an appropriate building to house its library and expanded student services. The AUP Library commenced in the 1960s in the basement of the American Church in Paris, located on the Quai d'Orsay. In 2017, the University purchased a generic 10-storey office building on the Quai d'Orsay, directly in front of another AUP building and a few metres from the American Church. The renovation and extension of the building focused on linking all student services including the library. The combined Student Life and Learning Commons incorporating the library opened in March 2019. The design of the new spaces entailed three main elements: restructuring the office building, including updates for fire codes and accessibility; constructing a link to the existing AUP building behind it; and an interior fit-out that would spatially express the identity of an institution evolving to meet the challenges of 21st century higher education. The story of the transformation of a 1950s office building into a dynamic, student-centred library and learning commons is the subject of this chapter.

Keywords: Academic libraries – France; Library buildings – Design and construction; Office buildings – Remodelling for other use

Introduction

The American University of Paris (AUP) is a private liberal arts institution with an urban campus in the 7th arrondissement of Paris. The American College of Paris, as it was first called, was established in 1962. The library and classrooms were located at the time in the basement of the neo-Gothic American Church in Paris on the Quai d'Orsay, a major thoroughfare along the left bank of the Seine River lined with prominent French institutions such as the Ministry of Foreign Affairs and the Musée d'Orsay/Orsay Museum. The basement looked out onto an attractive compact courtyard, giving the space the feel of a convent library. The library served the small anglophone population in a location just two doors down from its new location at number 69 Quai d'Orsay.

In addition to the small library, students and faculty of the American College of Paris had access to the American Library in Paris, an independent lending



Fig. 1: View of AUP Learning Commons from the Quai d'Orsay. © Mauro Davoli.

Facts and Figures

Name: The American University of Paris (AUP) Library in the Learning Commons

Address: 69 Quai d'Orsay, 75007 Paris, France

Website: <http://library.aup.edu/>; <https://www.aup.edu/academics/learning-commons>

Opening: February 2019

Builder: AEQUO Construction <http://www.aequo-construction.fr>

Architects: Baillon-Henrion Architectes <http://www.baillon-henrion.fr/> and Lia Kiladis <http://www.liakiladis.com>

Gross floor area: 2,050 m² for entire learning commons

Library floor space: 580 m² (excluding hallways, corridors, stairs, elevator space)

Collection size: 42,000 books, 500,000 e-books

Staff: 9.5

Workstations: 142

Building costs: €28,000,000, incl. property purchase €18,000,000 and renovation €8,000,000

library several blocks away. In the early 1970s, the AUP Library moved into a larger space within The American Library in Paris, in the shadow of the Eiffel Tower, which provided a strong visual marker for the two institutions. The American Library in Paris had purchased and combined the ground floors and basements of two buildings located back-to-back. For three decades, the AUP Library expanded within the walls of the host library. An independent entrance was created and the AUP Library evolved over the years to meet changing priorities.

By the early 2000s it was evident that more appropriate space was needed, closer to the rest of the campus. The collection had reached more than 76,000 items, which occupied a significant amount of floor area, reducing the space dedicated to study. For more than a decade, 19,000 books were kept in a remote depot in a far-off suburb, generating additional costs for storage and delivery services. To recover floor area for activities rather than storage, books that no longer matched the curriculum were removed, while the budget for online resources was increased dramatically.

The ten-member library team understood that on a deeper level it was not a simple question of floor area; real change would occur only when the Library was integrated with other university services. In the meantime, incremental changes were introduced into the existing space: two large group study rooms, a snack area, a small exhibit area and lounge seating were created. Wireless connections, computers and printing services were provided in abundance. The efforts to improve the services and ultimately the frequency of visits were well-received but ultimately had limited effect. It was time to rethink the organisation of the Library, renew its focus, optimise the use of technology and bring it back to the heart of the campus.

It became clear that the new AUP Library would need to metamorphose into a learning commons maintaining core library functions and integrating other support services to create a more holistic approach to studying and learning, while at the same time providing informal spaces for spontaneous activities. A new location was acquired. In developing the concept of a refreshed library in a new space and reflecting the centrality of the student to life at AUP, the new AUP Library would be accommodated in a Learning Commons with other student-centred services and linked to other related student services (The American University of Paris 2019b). The Student Life and Learning Commons is an ensemble of three buildings, united to centralize the services delivered to students at AUP. In this greater structure there is the generic Learning Commons, which is also known as the Quai Learning Commons because of its location on the Quai d'Orsay.

A Brief History of the Quai d'Orsay

The south bank of the Seine River between what is now the Eiffel Tower and the *Invalides* Esplanade was for centuries a marshy land on the outskirts of town. Starting in the mid-19th century, it served as the site for the successive Paris World Fairs. In the early 20th century, the land mass was consolidated, divided up into smaller lots, and sold on the private market. A prestigious *hôtel particulier*/large town house was erected on the parcel of land now occupied by the Learning Commons. The lavish stone edifice was demolished after the Second World War and replaced by an austere ten-storey government office building. It is this ordinary building at a prestigious address that has been renovated to become the AUP Learning Commons (Figure 1) which incorporates the Library and a variety of other student services including Academic, Career and Experiential Advising, Academic Resource Center, IT Services, Multimedia Office, Student Media Center and the Teaching and Learning Center.

The Quai neighbourhood today is a harmonious urban ensemble of limestone buildings from different centuries that all feature common elements and construction materials, including massing and façade alignment. Even the Russian Orthodox Church, completed in 2016, follows the same template. The few exceptions include the neo-Gothic American Church of Paris, dating from 1931 and the Brutalist South African Embassy from 1974. The building at number 69, as with many post-war buildings, was constructed efficiently and economically, with no decorative flourishes. Its basement kept the same stone walls from the former *hôtel particulier*. A column and beam construction was employed for speed, creating open floor plates for maximum flexibility of use. Although at first glance the office building does not offer rich architectural qualities that make it feel particularly Parisian, on closer inspection one realises that its stone façade and large windows in black metal render it fully contextual with its surroundings. The building's neutral nature with generous strip fenestration could be easily adapted to a contemporary facility. The building's potential, coupled with the fact that it was adjacent to the AUP Student Life Center, made its purchase by the University an opportunity not to be missed.

Negotiation and Purchase of the Property

The sale of 69 Quai d'Orsay by the French government was part of a long-term strategy of selling off state properties with little historical or heritage importance. The University had been on a constant lookout for a larger and more convenient

space into which to move its library and additional services, a nearly impossible task as the property market for larger, non-residential buildings is extremely limited in central Paris. The fact that the property is located back-to-back with AUP's Combes building housing the AUP Student Life Center and classrooms, student services, the University Art Gallery and the beloved Amex Café, made it imperative that the University obtain the property from the French government. That it was firmly sited on the prestigious Quai d'Orsay facing the Seine and next to a luxurious Art Deco apartment building with a curved façade, only added to its value.

AUP President Celeste Schenck and Vice-President of Finance Valérie Fodé worked together with Baillon-Henrion Architects to present the university's plans to government authorities who, until this point, had wanted to convert the building into social housing. That the building would serve a non-profit institution, with collective interests, and included the presence of the University Library, made an important difference when presenting the project to the government. Together with the Combes building, the complex would create a significant educational and cultural landmark in the neighbourhood and increase its appeal to the city of Paris. The city threw its backing behind AUP as the preferred buyer. Selling to a university was an attractive option because it would be purchased by a non-profit, privately financed institution that would not seek funding from the French government.

On the AUP side, if the opportunity were lost, AUP would not be able to consolidate its campus in the seventh *arrondissement* and would have to consider moving outside Paris. AUP thrives on its central urban location and has long resisted any suggestions of relocation. According to President Schenck, the fact that AUP, a truly international institution, had been anchored in the seventh *arrondissement* for fifty-eight years helped in the decision of the French government to select the university as purchaser. Additional impetus to the proposal was the desire to keep the student population of Paris as large as possible.

Planning and Design

Once the new building was found, preliminary design overlapped with the purchase of the property to establish the feasibility of the building to adapt to its new purpose. As the dust settled around the purchase, the design of the Learning Commons started to take shape, incorporating the following elements:

- Restructuring of the rigid office floor plates into fluid, multipurpose spaces while maintaining fire code and accessibility compliance

- Construction of a physical link between the Library and other student services in the Learning Commons on the Quai d’Orsay with other student services in the Student Life Center in the Combes building just behind it, to create a larger and more robust complex called the AUP Student Life and Learning Commons. A glass bridge would be created and the new courtyard façade aligning with it would be a green wall, creating a vertical garden for users and visitors to enjoy
- Interior spaces would spatially reinforce the learning commons concept to meet the challenges of 21st century higher education in a global context, where collaboration and lateral learning are encouraged, and interdisciplinary study is both structured and informal, open to serendipitous exchanges. A key element would be the combined location of staff and students on each floor
- Optimisation of library collection spaces and study areas, with open access compact shelving in the basement and formal and informal study areas on four floors surrounded by open access shelving housing the different library collections in subject order



Fig. 2: Demolition of the old courtyard.
© AUP.

David Horn, Director of Campus Planning and Facilities at AUP described the project in the following:

Our idea of a learning commons is broader than what you see at other institutions. Our dream was to create a site where we would have all student services – life services, learning support – all in the same place. The Quai d’Orsay building gave us that opportunity. We had already created the Combes Student Life Center, which combined the AMEX Café, student services, clubs, student government and the graduate student lounge. Now we have created a full suite of learning support services that directly connects to that. (The American University of Paris 2020)

Architectural work would be a two-stage process: rehabilitation of the building envelope and creation of interior spaces through the evolving definition of the Library and Learning Commons. Rehabilitation began with the shoring up of existing foundations and preparation for the glass enclosed atrium and three-storey extension at the back of the property. The entire basement originally had different levels which were renovated and rationalised to create publicly accessible rooms, mechanical plant and storage. Internal walls and the courtyard were demolished so that the new construction could begin (Figures 2 and 3).



Fig. 3: All interior partitions, finishes, stairs and elevator were removed, and the structure stripped away to its core. © Lia Kiladis architecture.

As the building is close to the riverbank, the basement level is considered a floodable area. Flooding of the Seine has been a potential threat for libraries that line its banks such as the Bibliothèque nationale de France (BnF) or the École du Louvre library, as well as museums such as the Louvre and the Musée d'Orsay. The city suffered greatly in the historic flood of 1910 and Paris expects to be heavily flooded again in the 21st century. The rising waters of February 2016 put the population on alert. The situation has become more complicated in recent years because of new, seemingly absurd regulations that do not allow libraries to protect their own storage areas from floods in ways that would divert floodwaters to neighbouring basements.

Architect Sylvain Baillon considered several building features made it attractive to be used as a library and learning commons. Some of the most interesting buildings in Paris are located on the southern banks of the Seine, facing north, which affords them an unobstructed view over the river but avoids exposure to the southern sun, which can be harsh and unusually hot. On the southern bank, one has a pleasant view without being bothered by the sun, constituting ideal conditions to establish a library. Libraries welcome natural light for user comfort, but books risk being damaged if they are subjected to the direct rays of the sun. In addition, the large strip windows, typical of office buildings, provide greater flexibility when creating interior spaces than if they had been individual openings such as those of neighbouring apartment buildings. No space would be without daylight or without a view. The rest of the AUP campus buildings behind the quay are intermingled in a village-like atmosphere with streets and shops; having an AUP building on the Quai d'Orsay gives the university more visibility as an institution.

Until 2017 the generic office building had been divided between several French state administrative bodies and a forerunner of the international Organisation for Economic Coordination and Development (OECD). Spaces were distributed haphazardly and with little benefit to the building's north-south orientation. The building had one set of stairs and one elevator. The new project necessitated creating a second stair and a second elevator to meet fire evacuation requirements, which would substantially reduce usable floor space on each level. A small two-storey annex in the back was dismantled and replaced with a new three-storey structure to house the IT Services and to connect the Learning Commons to the Student Life Center in the adjacent Combes building on the ground floor, creating a single access point to the entire complex (Figure 4).

Student-Centred Focus

It is important to note that, beyond spatial concerns, the development of the Library and Learning Commons project was strongly linked to the particularities of AUP as an American institution of higher education solely based on foreign soil, in the cosmopolitan environment of Paris. AUP is the only foreign-accredited comprehensive university in France. It is a liberal arts institution, one of the very few in the context of French higher education, with an extremely diverse student body and faculty drawn from over 100 different nationalities. Integration in Paris and displacement of students from their home country go hand in hand when considering the design of AUP's learning spaces. The liberal arts curriculum is structured for multidisciplinary, intellectual exploration rather than a concentrated curriculum focused on a single discipline, as is found in many European and American universities. In a liberal arts programme, an open mind is a prerequisite and creativity, critical skills, and collaboration are actively pursued. Mentoring and lateral learning are utilised along with the traditional top-down teacher-student method. Spatial organisation must reflect these values and foster their development.

In the words of AUP president Celeste Schenck: "We put students at the centre of our educational experience, our pedagogies, and now our architecture" (The American University of Paris 2019a, 34). The student is the reason for the existence of the institution and students' needs were given priority in the layout of the space. It was decided that the Academic Resource Center, the Writing Lab, the Center for Academic, Career and Experiential Advising, the Civic Media Lab, the Teaching and Learning Center, Information Technology Services and donor-funded research centres would all go under the same roof as the Library. The library requirements for the new project were spaces where students would feel inspired and comfortable, whether in groups or individually; seamless connectivity; flexible furniture; and clear orientation to provoke curiosity and easy movement from one student-centred service to another. Staff would be scattered throughout the building rather than segregated in private offices.

The entire campus was being subjected to a long-term renovation plan with the specific aim of delivering academic services to the community. Four consecutive provosts, each with considerable experience in universities, entered into discussions with staff and students, and redefined work and study spaces for the new setting in the Learning Commons. Space planning proposals went through dozens of iterations to get the right mix of spaces and services on each floor and appropriate flow from one floor to the next, all the while complying with building and fire safety codes. When difficult decisions arose, the first priority, the student, was the decisive factor in choosing one solution over others.

A New Space, a New Library

The new space was created to host an academic library and the academic library had to change to fit into its new home in a Learning Commons. Moving from a traditional institution to an evolving, state-of-the-art facility was not done in one year. The University's delay in finding the appropriate building gave the Library the opportunity to implement changes progressively. The Library went through an entire reformulation of its service model with the help of a consultant from the Association of College and Research Libraries (ACRL). Books that did not fit within a clear curriculum need, or had no long-term value, were donated to charity organisations and other libraries. To compensate, the Library developed a more robust online resource collection with an emphasis on e-books, that currently exceeds 500,000 titles.



Fig. 4: The ground floor atrium is a reading room, meeting spot, nature pause, bridge to the Student Life Center and the geographical and psychological heart of the AUP campus.

© Mauro Davoli.

The library would occupy a portion of the renovated building with collections and study spaces spread throughout four floors. The sequencing of the collection in the new building, distributed over four levels, was less visually evident for the user who was used to the old library, where everything was on two levels. The four library levels were carefully measured to fit the collections in the new location; every centimetre was taken into consideration in the choice of the bookshelf system. Currently the basement level has open access electronic compact shelving and a quiet study room. The basement level houses the collections of social sciences, languages, the arts, literature, geography and history. The ground floor atrium, a central meeting point on campus, is a reading room lined with the collections of religion, science and technology, together with oversize materials, textbooks, music CDs and a small periodical collection (Figures 4 and 5). Its fish-bowl appearance, with glass walls and roof, are not normally associated with a traditional quiet reading room but more in keeping with a contemporary co-working space, where users are not particularly bothered by the low hum of conversation. The building was envisioned as a cruise ship at docks and the Uni-

versity named its central help desk the Navigation Desk. The Navigation Desk is located strategically in the connecting area of the Quai and the Combes buildings. The Navigation Desk provides help concerning the Library and all the other units hosted in the building.

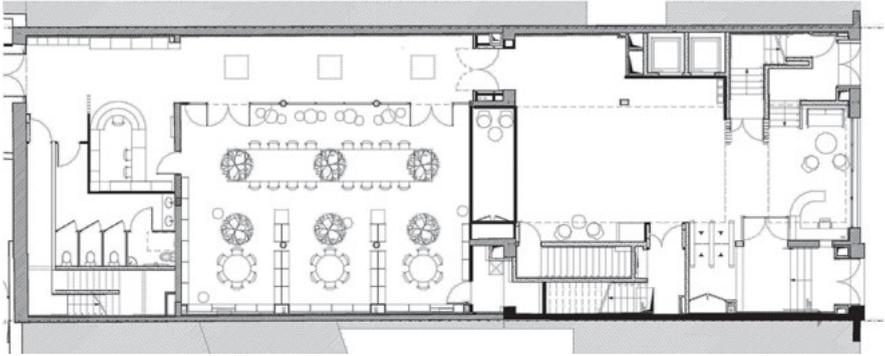


Fig. 5: AUP Library ground level. © Lia Kiladis architecture.

The first floor houses the philosophy and psychology collections, as well as librarians' offices and a help desk. The second floor has a truly quiet reading room lined with reference and general works. Throughout the four library floors, as with the rest of the building, good signage has been developed to help orient the user at all times. The architects tried to make the stairwells inviting by keeping fire doors

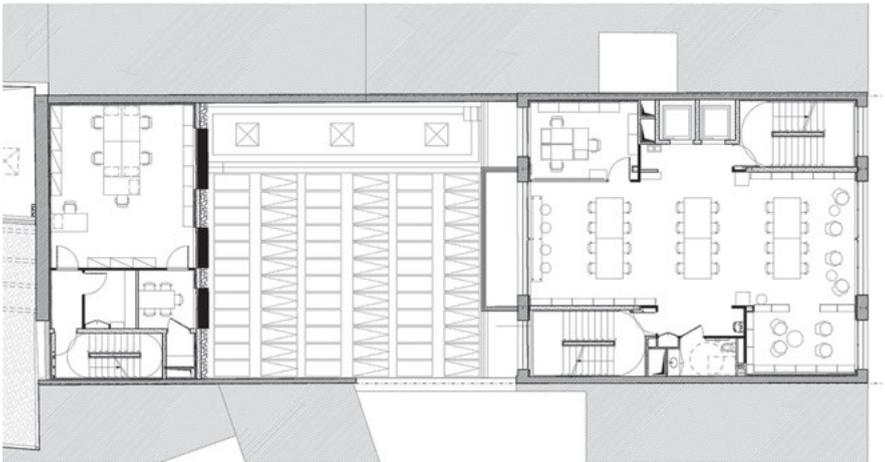


Fig. 6: AUP Library second level. © Lia Kiladis architecture.

always open, except in case of emergency, and adding bright colours and essential information on stair landings. Although all building levels are served by two elevators, users are actively encouraged to use the stairs.

Several digital technologies have been adopted to assure smoother day-to-day operations:

- Replacement of 3M magnetic security and technology by RFID technology the year before the move
- Self-service check-out, although the Navigation Desk remains important for human interaction
- New ExLibris library management system with its Alma and Primo products
- Subscription to more than 40,000 periodicals online with fewer than 30 titles on paper
- Online room reservation system for classrooms and group study rooms with students, faculty and staff required to reserve spaces every day.

In general, the University has decided to implement change gradually and allow the students, faculty and staff to take possession fully of spaces over several months before determining rules such as pre-defined areas for silent study and food and drink.

A Glass Roof and Vertical Garden

The project was developed with two main architects: Sylvain Baillon of Bailion-Henrion Architectes, principal architect responsible for the rehabilitation of the existing building including construction, fire safety and accessibility code compliance, the addition of the three-story courtyard building with its green wall façade and the glass-roofed reading room, and architect Lia Kiladis, responsible for the interior architecture, finishes and furnishings.

As noted previously, the building had great interest for Baillon because of its prime location on the Seine River, directly in front of the AUP Combes Building, and because his firm had previously renovated the Combes Building. Many parts of the old office building could be demolished without compromising structural integrity, making way for more contemporary spaces and the addition of several ecologically responsible construction elements to distinguish the new architecture from the old (Figures 3 and 4).



Fig. 7: Building connectivity. © Baillon-Henrion Architectes.

The idea of a glass bridge to connect the Quai and Combes buildings developed into a glass-roofed atrium that would be the heart of the new complex, housing the reading room and clearly visible upon entry (Figure 7). The bridge ensured the integration of the Combes Student Life Center with the Quai d'Orsay Learning Commons to form the AUP Student Life and Learning Commons complex. Working in a heavily urban context, Baillon proposed that a lush vertical garden be planted which would climb the new courtyard façade, provide fresh air and bring nature into the building at all levels. Baillon likened the route from the street through the entrance hall to the atrium and the vertical garden as a metaphor for a life-long journey. He insisted on green roofs for the main building and annex, providing thermal insulation, rainwater management and a more pleasing view from the upper floors.



Fig. 8: Entrance Hall. The large mosaic of a compass set into the floor hall reminds AUP students of their status as global explorers. © Mauro Davoli.

State-of-the art information technology and building management systems were incorporated into the project in addition to contemporary standards for fire safety, accessibility and energy efficiency. The construction project took eighteen months to complete, a tight schedule that required a certain amount of designing-while-building, with the architects in constant dialogue with university offi-

cials, staff, safety regulators and construction contractors, all of whom adopted a flexible attitude to enable delivery of the project on time, on budget, and faithful to its original ideas.

A Docked Ship for Global Explorers

AUP President Celeste Schenck emphasised to the architect Lia Kiladis that on the interior, she wanted to avoid what she called the cold, clinical look of much contemporary university architecture in Europe. Schenck sought a warm ambiance of the kind found in traditional American campus architecture. Coupled with this was the theme of an AUP liberal arts education in Paris, an international city, and a multicultural student body where students are considered global explorers in training. With these thoughts in mind, Kiladis latched onto a metaphorical concept to fuel design thinking about the Learning Commons (Figures 8 and 9) through three ideas:

- The Quai d’Orsay building, overlooking the Seine River, is a docked ship, with the Combes Building as its anchor, attached to the firm ground of the seventh arrondissement, and embodied by the planting of the green wall.
- Functional spaces and services are laid out efficiently on every floor as if on a ship.
- Top floor lounge is the bridge of the ship, with its extensive view of the Seine and beyond with the analogy continuing to the ship’s engine rooms at the bottom of the hull, loaded with fuel, in this case, books.

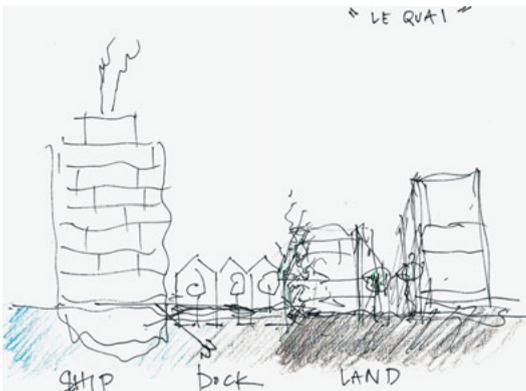


Fig. 9: Ideas sketch for interior architecture project. © Lia Kiladis architecture.

The interior design and furniture project drew inspiration from Art Deco, the stylistic movement that took its name from the 1925 Exposition des Arts Décoratifs in

Paris, and more specifically the *Style Paquebot/Streamlined Moderne* of 1930s Paris with clean lines and streamlined spaces evocative of a ship, shedding ornament and purifying volumes. Examples of streamlined modernism can be found in the neighbourhood of the Quai, notably the building next door at 67 Quai d'Orsay, designed by the architect André Leconte in 1935 (Figure 10). It is within the local context of streamlined modernism that the design project took shape.



Fig. 10: 67 Quai d'Orsay, by the architect André Leconte in 1935, inspired the project with its streamlined modernist style. © Mauro Davoli.

After the Second World War, purified architectural forms shed decoration completely, emphasising rationalism and efficiency. The result was often generic architecture, void of distinguishing characteristics, such as the original office building being renovated for reuse. The rationalism of the building's layout made retrofitting it for new use a relatively easy process as has been previously mentioned. Another layer of meaning would be required to make it into a compelling, coherent experience. The intention was to envelope rational architecture in a rich ambiance evocative of streamlined modernism which would serve as a contemporary catalyst for knowledge acquisition and intellectual exchange. The interior design project reconfigured the building for contemporary use while winding back the clock for stylistic inspiration. Fluidity of spaces, strategic use of colour, and consistent design elements from one floor to the next help orient users and visitors over the ten levels of the building. Within each floor, spaces flow from large and open to intimate and closed, echoing the dynamics of learning in small and large groups as well as individually.

Several elements are employed to reinforce general themes. Persistent use of transparent walls on each floor creates a feeling of active exchange of knowledge and of working together and facilitates transversal views from front to back,

from the water and trees of the Quai d'Orsay to the living green wall and Combes building on the courtyard side (Figure 11). Visitors to each floor are immediately oriented in the space. Offices, meeting rooms and classrooms are separated from the common space on each floor by floor-to-ceiling glass walls, so that all activities, whether in open spaces or closed rooms, feel linked to a larger whole.



Fig. 11: Second level Reading Room, with group tables, individual seating, natural light and views of vegetation on both sides. © Mauro Davoli.

Paint colours, which give each floor an identity within an ensemble, are inspired by early modernist artists, particularly Ukrainian-French artist Sonia Delaunay, known for her bold, dynamic colour palettes and forms and Eileen Grey, an Irish-French architect who employed strict geometric shapes for architecture and furniture design. The streamlined modernism and harmonious colours of the interior decoration have been carried through into the signage project, done by graphic designer and AUP graduate André Lavergne. Graphic patterns on floor landings and interior glass partitions have a woven character, much like the nature of AUP, itself woven together from American and French cultures and intertwined with a myriad of cultures. A modern sans-serif typeface was adapted with an inline stripe to give it a distinctive, streamlined feel.

The large mosaic of a compass, set into the floor of the Quai entry hall (Figure 8), serves as a physical reminder to AUP students of their training as global explorers. Robert O Hill, who financed the compass mosaic, remarked that “The compass reflects in a single image AUP’s goal that each student finds his or her north star and leaves equipped for an international career and a lifetime of global citizenship” (The American University of Paris 2019a, 41).

The tree-lined ground floor atrium is a reading room, meeting spot, bridge to the Combes building and the geographical and psychological heart of the AUP campus (Figure 4). The large, glass enclosed room is hybrid by design, varying in ambiance at different times of the day from total calm to humming with conversa-

tion. Layout and furniture choices were developed in the spirit of a coworking environment rather than individual study carrels or a traditional, silent reading room.

The Capstone

Fifty-eight years after its founding, the AUP Library, which started in 1962 as a small reference shelf in the basement of the American Church of Paris at 65 Quai d'Orsay, has made it back to the Quai d'Orsay. The library and its services have changed through the decades and it is now a state-of-the-art library with a multi-service facility tailored to its size and situation and located as part of a Student Life and Learning Commons.

The return to the Quai d'Orsay was not intentional, but life is full of interesting coincidences. The first locale overlooked a church courtyard, while the new one overlooks a vertical garden, much like a French abbey library. As with every new space on campus there are things to be changed and things to remedy; it is perhaps too soon to pronounce success. On the first day of operation in the spring of 2019, every seat, nook and study room was immediately filled, and it has operated at full capacity since that time.

The project had two architects of different nationalities working with the campus planner, the university senior staff, the board of trustees, faculty, donors, local authorities and of course the team of librarians, all from a myriad of nationalities and cultural backgrounds. The mix was an enriching factor for everyone, but what was most important was the campus leadership with a strong philosophy of liberal arts and visionary ideas which placed the student at the centre when conceptualizing details of the facility.

The achievement of the Quai building and its unification with the Combes building as the AUP Student Life and Learning Commons is the capstone of the campus plan that had been implemented over many years. The new spaces of the AUP Student Life and Learning Commons promote the AUP model of higher education, taking one thousand students from over one hundred nationalities and shaping them to be the next generation of global explorers who will set off from the Seine out into the world in all directions.

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Anna Raimondi

20 A Slaughterhouse Pavilion Becomes an Architectural Library in Rome

Abstract: Pavilion 9E is part of a significant industrial archaeological slaughterhouse complex in Rome, dating back to the end of the 19th century. The pavilion closed in 1975, was abandoned and became derelict, with the roof collapsing and leaving the structure in a precarious state. Today, part of the complex has been transformed for use by the Faculty of Architecture of the Università degli Studi Roma Tre/Roma Tre University for its library. The goal of the project was to restore and convert the building for a new public use maintaining a delicate balance between intervention and preservation. The renovation would include both new build additions featuring different elements or materials and restoration of some of the original industrial structures to support the reuse of the building for teaching purposes. The building was given a new roof which maintained the historical characteristics of the former roof; structures were conserved; and the mechanical and electrical plant was updated. The large internal spaces of the ground floor and the mezzanine were divided into various rooms or reconfigured using new furnishings and partitions, to create differently sized and independent spaces.

Keywords: Academic libraries – Italy; Library buildings – Design and construction; Industrial archaeology; Slaughtering and slaughter-houses – Remodelling for other use

Introduction

The Università degli Studi Roma Tre/Roma Tre University with almost 40,000 students is the third university in Rome and one of its characteristics is the reuse of old buildings. Roma Tre University has an overarching Sistema Bibliotecario di Ateneo/university library system, comprising several subject-based libraries including the Biblioteca di Area delle Arti/Fine Arts Library, which has several sections relating to specific faculty or subject areas. One section is the Sezione Architettura “Enrico Mattiello”/Enrico Mattiello Architectural Section or Library, which is the focus of this chapter.

Italy has a huge historic architectural heritage. Any building intervention relating to libraries often involves existing buildings which are under the jurisdiction of the Soprintendenza Speciale di Roma Archeologia Belle Arti e Paesaggio/Superintendent of Fine Arts of the Ministero per i Beni e le Attività Culturali/



Fig. 1: The new Sezione architettura “Enrico Mattiello”. © Studio Feiffer & Raimondi.

Facts and Figures

Name: Sezione architettura “Enrico Mattiello”, Biblioteca di Area delle Arti, Università degli Studi Roma Tre/Enrico Mattiello Architecture Section, Fine Arts Library, Roma Tre University

Address: Largo Giovanni Battista Marzi 10, 00153 Roma RM, Italy

Website: <https://sba.uniroma3.it/biblioteche/biblioteca-di-area-delle-arti/>

Opening: March 2018

Builder: Pasqualucci Costruzioni srl <https://www.pasqualuccicostruzioni.it/>

Architect: Studio Feiffer & Raimondi <http://www.feiffereraimondi.com/>

Gross floor area: 880 m²

Main floor space: 500 m²

Collection size: 20,000

Staff: 5

Workstations: 106

Building Costs: €2,000,000

Ministry of Cultural Heritage and Activities (MiBAC) and regarded as historic monuments. All requirements relating to the use of a library face restrictions imposed on existing spaces, which often are predetermined and inflexible, and do not support functional changes within a building. Restoring and preserving

such historic structures and adapting them for reuse as libraries presents two sorts of challenges: the needs and problems linked to the protection of monuments; and the needs and problems linked to the functions of a library.

Key considerations in restoration of buildings that should be considered are the upgrading, renewal and maintenance of structures and electrical and mechanical plants and future library activity. Issues to manage are space, time, regulation and cost. Space and time represent major constraints that require an understanding of how historic buildings work and how they can be converted and adapted most appropriately and cost-effectively. Essential questions when working on a historic structure are: What can I do? What should I do? Time relates to scheduled maintenance and functional management as key elements for the new use and its future development. Any interventions or planned changes to buildings must be specific, sustainable and last for some time.

Architectural projects involving changes to the structure and to use of the facilities must comply with the regulations currently in force. The regulations relate to protection of heritage, structural consolidation, energy embodied in the existing building, public uses, barrier-free access, acoustic and fire insulation and library and museum regulations. Cost is a key consideration. There are the costs of planning but also of restoration, of reinforcing any new build, of upgrading the mechanical and electrical plant, of furnishing as well as management costs and maintenance.

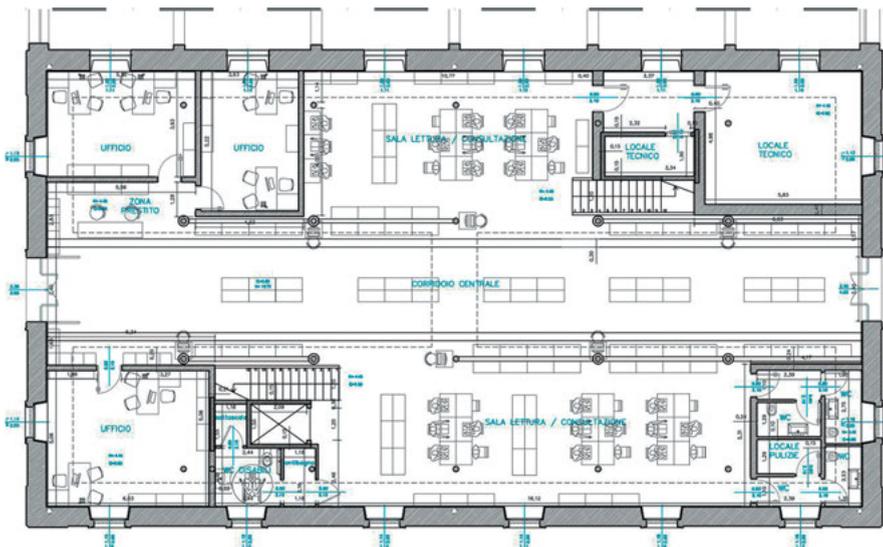


Fig. 2: Ground floor plan with the layout of workstations arranged to solve spatial, functional and technological problems. © Studio Feiffer & Raimondi.

Pavilion 9E of Mattatoio di Testaccio

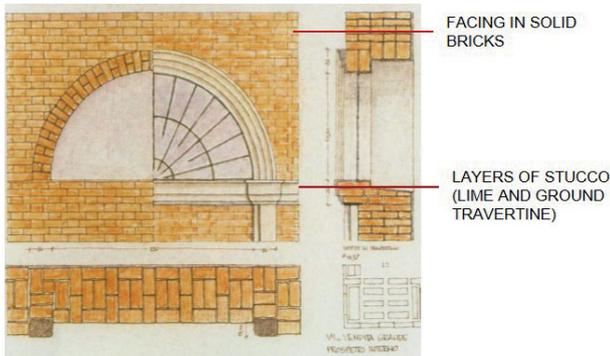
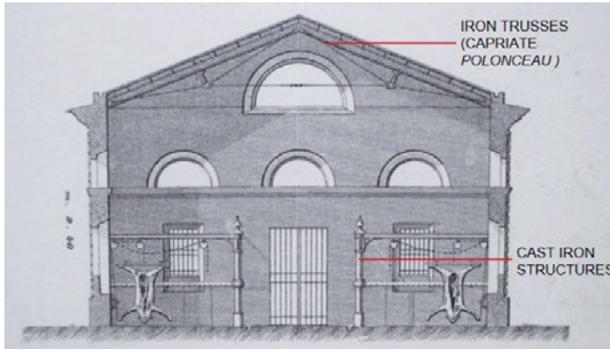
The restoration of Pavilion 9E of the disused slaughterhouse complex in Rome known as Mattatoio di Testaccio (Figure 3) is a clear example of adaptive reuse (Clark 2013). The complex, designed by the architect Gioacchino Ersoch, dates back to the end of the 19th century and constitutes a significant industrial archaeological site. The former slaughterhouse occupies an area of about 25,000 m², surrounding Lungotevere Testaccio and via Beniamino Franklin. The complex is divided into different buildings, pavilions, stores and open spaces, each one with a specific use, perfectly combining design and function.

The slaughterhouse closed in 1975 and development of the site saw part of the complex occupied by the Facoltà di Architettura/Faculty of Architecture of the Roma Tre University (Clark 2013). Some of the buildings house art galleries and temporary festivals and other social and cultural activities but others are still in a state of neglect or have not been completely restored.



Fig. 3: An aerial view of the Mattatoio di Testaccio complex. © Geoportale, Municipality of Rome.

Pavilion 9E is a medium size building (32 x 18 x 13 m) located in the south of the slaughterhouse complex (Figure 4). It was decided that the architectural section library of the University would be located in it. Until its restoration, Pavilion 9E was derelict; the roof had collapsed, and it was in a precarious structural condition (Figure 5).



Figs. 4 A and B: Architectural and construction characteristics of Pavilion 9E. © Source: Image A: Cuppelloni 2002. Image B: Cremona, Crescentini, Pentiricci, and Ronchetti 2014.

Pavilion 9E has the same architectural and construction characteristics as the other buildings in the complex: a combination of stone and ironwork, bricks and tuff structure, a type of rock made of volcanic ash, with solid bricks and natural hydraulic lime and eco-pozzolan-based mortar, a gable roof supported by iron trusses, façades with a series of regular openings and cornerstones, and ledges coated with layers of stucco with a travertine-like finish (Figure 4).



Fig. 5: The Pavilion 9E after the collapse in 2008. © Anna Raimondi.

The iron roof structure consisted of primary trusses with secondary purlins between. The trusses had a triangular profile with I-section main rafters, a tension rod lower tie and internal members consisting of struts and ties. Leakage of rainwater and corrosion caused failure of the main ties resulting in collapse of the trusses. As a consequence of the loss of the ties, the external walls, despite their substantial thickness, were incapable of resisting the resulting horizontal thrust from the main rafters and collapsed at the highest levels (Figure 5).



Fig. 6: The temporary constructions to stabilise structures and to ensure safety in the building site. © Anna Raimondi.

Safety on the building site and during the restoration work was of primary importance. In preparing the initial investigation programme, it was necessary to install temporary supports, to stabilise structures and to provide environmental protection (Figure 6). As part of the work, any structural fragments or archival material, such as archaeological and administrative items, were removed and safely stored in cooperation with the appropriate local and national authorities.

After removing roofing and other materials and ensuring the structural walls were stable, the next phase was to measure and study the geometric characteristics of the building, particularly the dimensions of the building as a whole and of component parts including windows, walls and frames to make a diagnosis and plan for restoring the building.

Before starting on the restoration, it was essential to assess the state of the materials used in the building. A team of qualified personnel studied the site using topographic and photogrammetric integrated techniques. It was, therefore, possible to obtain specific building measurements, establish the results of building and structural deformations like displacement of the wall about its vertical axis and to lay the basis for the subsequent reinstatement of the exterior materials.

The vertical walls of Pavilion 9E were unstable because of the loss of part of the peripheral tie and parapet of the southern walls, due to the failure of the iron roof trusses. Finally, a diagnostic analysis of materials and structures was carried out using the following tests:

- Investigation of the materials using thin blades and polished sections
- Geognostic surveys to classify different types of ground level and ground footing which is required to comply with anti-seismic laws
- Ground analysis taking core samples made to a depth of at least 15 m under the surface which identified the water table at -1 m under a landfill layer, with a thickness of about 5 m and for the next 3–8 m, clayish-loamy soil of low and medium compactness, containing organic substances, with quite a low resistance to cut and a high compressibility
- Excavation of wall foundation was carried out to a depth of 3 m and did not locate the layout or centreline of the foundation
- Ad-hoc flat-jack methods used to obtain the structural modulus of elasticity and break strength parameter, particularly along the east and north façades
- Endoscopy through the wall using a Standard Penetration Test of plasters and chemical and physical analyses. The results provided in-depth information. The walls were made of solid bricks with natural hydraulic lime and eco-pozzolan-based mortar with a ratio of about 1:3; the plaster was classified M25 according to the Ministerial Decree 14 January 2008; the test pressure corresponded to a value ranging from 71 to 110 Mpa and the compressive strength was about 2.5 N/m².

Conservation, reinforcement and restoration of architectural heritage requires a multidisciplinary approach. Work undertaken should be the result of an overall integrated plan that respects the different aspects of architecture, engineering structure, technical systems and functionality. The diagnosis for the Pavilion 9E project was organised in three different fields: architecture and architectural restoration, structural and mechanical and electrical plant, with the following objectives:

- Conservation of materials and archaeological elements of the new post-industrial urban style
- Structural reinforcement of the existing construction
- Interventions to improve stability and seismic retrofitting
- Transformation of spaces for new functions
- Technological adaptation and an improved technical plant system.

Conservation of Materials and Archaeological Elements

A classification was drawn up with a graphic analysis of the different types of internal and external surfaces in order to identify existing materials with each represented by a specific colour, their state of conservation indicated using a precise pattern for each form of degradation noted and registering the way restoration was to be carried out using symbols calibrated to a graphic key that described the sequence of specific restoration operations. Main actions taken included filling visible gaps in masonry with specific material or mortar, integration of missing elements including bricks, stones and plaster decorations, and conservation of metallic elements of archaeological architecture (Figure 7).



Fig. 7: Typical elements and signs of industrial archaeology that were conserved during the restoration. © Anna Raimondi.

In considering the repair of the structure, two aspects were of primary importance: the use of materials compatible with the original; and good construction techniques to produce a reliable sustainable result.

Structural Reinforcement of the Existing Construction

The most critical aspects in structural reinforcement were:

- Reconstruction of the corner elements of the walls using the tothing-out method, cutting back the brickwork in a tooth-like shape into which new bricks are laid, called *scuci-cuci*. The method allows the adjoining masonry to be made with bricks similar to the original and was chosen because of the state of decay caused by the failure of the rainwater drainage system.
- A complete reconstruction of the gable roof and its supporting structure which was a fresh interpretation of totally damaged structural elements no longer performing their structural role. However, the design of the intervention was based on a historical image and preference was given to work that was the least invasive and most compatible with heritage values. The new roof structure is composed of five steel trusses located between windows, with struts and tie-rods, respectively beams with a HEA240 profile and elements with 40–60 mm in diameter (Figure 8).
- Stability inspection of the basement and footing reinforcement through the construction of a slab of reinforced concrete and continuous footings under new internal walls.



Fig. 8: First phase of the working process for the roof construction, made of steel structures.
© Cesare Feiffer.

Improving the building's stability and seismic retrofitting were necessary to contain the horizontal thrusts, adapt the structure to the current anti-seismic regulations and connect transversal and longitudinal vertical partitions. A unique brick stringcourse, reinforced with a fiberglass mesh was created with reinforcing steel bars crossed at the corners, and tie-rods near the new internal floor.

Transformation of Spaces for New Functions

The aim of the intervention was to respect the concept, techniques and historical value of the original structure and leave evidence of it for the future. Where possible, any measures adopted should be reversible so that any additions could be removed and replaced should new techniques become available. This approach was adopted for all new work required to change Pavilion 9E from a slaughterhouse to a library. The restoration and reintegration of details and features respect the original materials, archaeological evidence, original design and original plans. The reuse project has been mainly influenced by the industrial architectural style of the complex and its archaeological characteristics. The post-and-beam construction has defined several new areas, differentiating peripheral areas and corridors from closed areas and offices (Figures 1 and 9).

Inside Pavilion 9E the two levels are now used for library functions, taking advantage of the skeleton construction of the main floor and maintaining an unobstructed view of the central area on the new first floor. The new steel mezzanine is clearly distinguishable, by reference to the expression of architectural and spatial aspects (Figures 10 and 11). The plan of the internal areas has been developed through an interaction with the building, its environment, shape and orientation, defining functional zones and their connections (Figure 2). Restrooms, technical rooms and offices are located on the main level, with reading and consultation rooms on the first level. The spaces are organised as a modular internal volume, structurally independent from the rest of the building. All the new rooms are illuminated by both natural and artificial light, through large rounded arch windows, reaching to the upper floor.

To access the upper level, one can use either a lift or the two flights of stairs, near the central double-height hall. The open elevator shaft is contained within the pavilion, without any external construction. With the addition of the new mezzanine, the internal surface has increased by about 300 m² from 500 m² to about 800 m².



Fig. 9: Internal of the Pavilion 9E after restoration: the roof rebuilt and the iron elements as structures of the new mezzanine. © Anna Raimondi.



Fig. 10: A transversal section with the drawing of the mezzanine which greatly increases the usable areas. © Studio Feiffer & Raimondi.



Fig. 11: Structure of the industrial archaeological elements are used as new structural elements for the new mezzanine. © Cesare Feiffer.

Technological Modification and the Mechanical/ Electrical Plant System

A system of service facilities run under the ground floor, using all spaces between the classic Iglù® formworks. To reach the upper levels, the wiring was laid in new technical channels or through new walls. Due to the archaeological restrictions of the pavilion, it was impossible to locate technical equipment underground. The only option was to use a room within the building containing a heat pump that supplies a general electric panel, a system for the required air exchange and several fan coil units both for air conditioning and heating. From this room a distribution of forced ventilation is carried out with visible round pipes, attached under the roof. The technological solution is based on the concept of minimal intervention, reversibility and differentiation. As a library also needs quiet and silent spaces, specialised acoustic technicians studied the acoustic performance of the enclosing walls of the services area.

All power and data supplies and cables are in cavities under the floor and the wiring connects directly to the furniture, to provide functional reading areas and workstations with no loose or trailing cables on the floor (Figures 2 and 12).

The Library Layout

The entire system of furniture and equipment had to adapt itself to architectonic, structural and technical systems. Therefore, it was necessary to set up an inex-

pensive means of subdividing the space for particular functions. The furnishings have an important role as they organise the spatial layout of the multi-functional spaces. Several bookshelves, holding approximately 20,000 volumes, are placed between reading areas and fixed workstations. Higher shelving is placed near external walls and the existing cast-iron pillars with lower shelving along the internal passages (Figure 9). This lets in natural light and allows the spatial layout of the building to be clearly visible and perceived as originally intended.

The library includes monographs, essays, books on the history of architecture, science and theory of construction, technology, environmental and urban planning. Since 1995, about 220 issues of major Italian design magazines have been added to the collection. The library has open access shelving, and the books are arranged according to a thematic classification scheme devised by Enrico Matielli that can be easily understood by users (Figure 12). Open access encourages browsing which has benefits although it does not replace rigorous information retrieval methods for specific research.

There are three reading rooms on the ground floor and ten reading areas on the upper level. The library has seating for 106 people, with each study place equipped with electrical connections and multimedia facilities thereby providing perfect workstations for users. As part of the renovation of Pavilion 9E, some abandoned structures of the 1950s and 1960s in the complex were demolished, as they were compromising usability and safety. The demolition of Pavilion 22, on the south side of the library, provided space which could be easily converted into an outdoor extension to the library, with appropriate planting, furnishing and covered structures. The project, with the authorisation of the Soprintendenza Speciale di Roma Archeologia Belle Arti e Paesaggio/Superintendent of Cultural Heritage, respects the vision of the original architect and engineer Gioacchino Ersoch and also the features of the former Mattatoio di Testaccio, considered one of the best examples of industrial archaeology and 19th century civil engineering in Rome. In the future, if economically feasible and taking advantage of funds allocated by Roma Tre University, the works mentioned above will take place which will complete the urban and functional transformation of the whole area, as a place where arts and cultural treasures remain to be discovered.

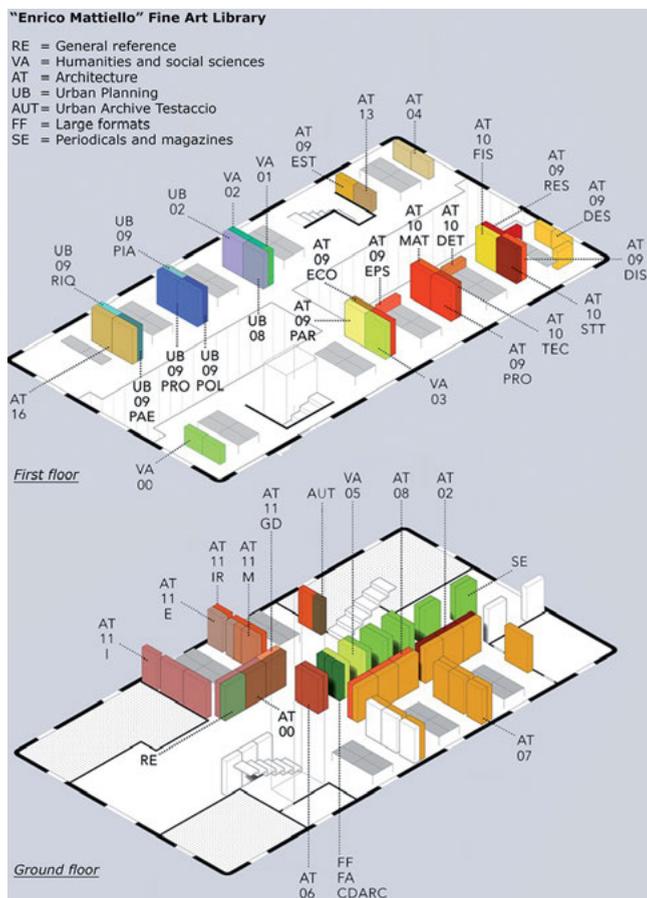


Fig. 12: Enrico Mattiello thematic classification scheme.
 © University Roma Tre.

Conclusion

After carrying out safety checks on the building in 2010, the project was validated in 2011. For financial reasons, construction was delayed and did not commence until October 2015, concluding in October 2017, for a total cost of approximately €2,000,000. Today Pavilion 9E has been successfully renovated to accommodate the Enrico Mattiello Architecture Section of the Fine Arts Library at Roma Tre University.

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Gabriella Karl-Johnson

21 A Library Hovering in the Chapel in Bogotá, Colombia

Abstract: The chapter considers the potential of repurposing disused religious buildings for use as libraries and examines an exemplary model of library adaptive reuse in a cultural heritage context: La Capilla, the Biblioteca Satélite de Arquitectura y Diseño at Universidad de los Andes/University of the Andes (Uniandes) in Bogotá, Colombia. The author outlines the La Capilla project in detail, including the larger context of adaptive reuse in the Uniandes campus and in Bogotá. The architectural strategy used in the La Capilla conversion was an almost freestanding structural insertion placed inside an unaltered historic shell. The history of the Uniandes campus and the city of Bogotá is explored. Two other church to library conversion case studies are briefly examined to conclude that architectural intervention in culturally significant buildings can enhance public understanding of history while simultaneously serving library programmatic needs.

Keywords: Academic libraries – Colombia; Library buildings – Design and construction; Church buildings – Remodelling for other use

Introduction

Architect Carlos Campuzano likes to describe his 1996 La Capilla architectural intervention as a ship in a bottle. The analogy fits: a delicate, expansive construction sits within an existing vessel of unyielding proportions, and observers might wonder how the graceful object was ever assembled inside its unaltered container. Situated within the 19th century shell of a chapel on the campus of Universidad de los Andes/University of the Andes (Uniandes) in Bogotá, Colombia, the library is one of the University's satellite libraries and supports the Facultad de Arquitectura y Diseño/School of Architecture and Design at Uniandes which was expanding and outgrowing its existing physical spaces when the library conversion commenced. In the two and a half decades since La Capilla opened, the library has housed and lent materials related to architecture and design, provided evolving study spaces, honoured local history and inspired aspiring designers and established professionals alike. The renovated library is small in area but provokes instructive questions on the nature of cultural heritage renovations, thoughtful approaches to library conversion projects and the role of local experts.



Fig. 1: View of the study platform from choir toward apse. © Antonio Castañeda Buraglia.

Facts and Figures

Name: Biblioteca La Capilla del Campito, Facultad de Arquitectura, Universidad de los Andes

Address: Biblioteca Satélite de Arquitectura y Diseño, Sistema de Bibliotecas, Universidad de los Andes, Cra 1ra Este N 19A – 40, Bogotá, Colombia

Website: <https://biblioteca.uniandes.edu.co/>

Opening: 1996

Builder (owner): Universidad de los Andes

Project Architect: Carlos Campuzano Castelló <http://campuzanoarq.com/>; *Collaborator:* Gustavo Duque

Gross floor area: 325 m²

Main floor space: 170 m²

Collection size: 15,200

Staff: 3

Workstations: 64

Building Costs: US\$ 200,000

This chapter closely examines La Capilla, the Biblioteca Satélite de Arquitectura y Diseño/Satellite Library of Architecture and Design at Uniandes, as an exemplary model of library adaptive reuse in a cultural heritage context. The study

considers the architectural strategy of a nearly freestanding structural insertion within a historic shell (Figure 1) and suggests that such design intervention in culturally significant buildings can enhance public understanding of history while serving library programmatic needs in a pragmatic, elegant and conservation-minded way. The chapter explores the potential of religious buildings that have fallen into disuse, architectural interventions that rely on minimal building alteration, and the sustainability of adaptive reuse, positioning the reuse of La Capilla chapel (Figure 2) into a library as one more layer in the building's unfolding history.

History of the Uniandes Campus and the La Capilla Project

To understand the La Capilla renovation project, it may be helpful to learn something of the context of Uniandes. Uniandes was founded in 1948 as an alternative to state-run Colombian universities that offered a more restrictive model of higher education at the time (Escovar 2002, 24). Styled after liberal arts colleges in North America, Uniandes allows students a broad range of courses and more freedom to take classes outside a declared course of study. Uniandes is physically located in the Las Aguas district of Bogotá on a sloping hillside approaching the picturesque Monserrate peak; the entrance to the nearly vertical Monserrate funicular is a short walk from the northeastern edge of campus, not far from La Capilla. A one-time residence of Simón Bolívar occupies land just up the mountainside, near the aptly named Quinta de Bellavista/Villa of the Beautiful View.

The dramatic terrain is not merely scenic, as this area of Bogotá was an industrial centre from the 17th century onward. The place where the San Francisco River and the San Bruno mountain stream intersect and tumble together down the steep elevation provided an ideal site for water-powered mills, initially for grain and later for paper. Over the following centuries, the area in which La Capilla is located became the home of a range of other industries, including a hat factory, brewery and tissue factory. Further down, the sloping landscape that comprises the Uniandes campus, the Buen Pastor jail, the headquarters of a chocolate company and an historic estate aptly named the Quinta de Bellavista were located. All of these and more were later incorporated into the wide-ranging collection of buildings comprising Uniandes (Universidad de los Andes 2010).

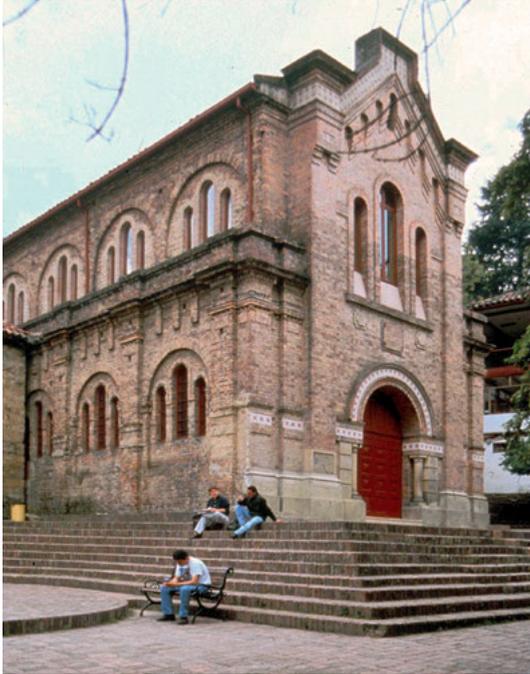


Fig. 2: View of La Capilla exterior, looking west. © Antonio Castañeda Buraglia.

Biblioteca La Capilla is located in a former chapel in the historically significant portion of campus known as El Campito. In the 19th century, the built environment of the formerly industrial sector was further developed with the infill of single-storey vernacular structures that housed a complex of charitable institutions. Alberto Escovar describes the sector's architectural history in his informative 2002 guidebook *Bogotá: Guide to Bogotá, Historic Center*:

Some of the buildings that form this sector of the university belonged to what was known as the Campito de San Jose, the site of a convent, surgical ward, and psychiatric clinic founded on April 30, 1883 by the Sisters of the Congregation of the Presentation of the Most Holy Trinity; it was later converted into an insane asylum. (Escovar 2002, 30)

As Escovar elaborates, the somewhat motley assemblage of buildings that occupies the El Campito zone was never intended to comprise a single institution. Ranging from single-storey tile-roofed adobes to taller brick buildings and reinforced concrete structures, the variety of architectural styles and building types is broad. The entire sector was part of the lands acquired by the University at its founding in the mid-20th century.

La Capilla Restored and Renewed

The former chapel that was eventually converted into Biblioteca La Capilla initially provided a lecture hall and offices for the Facultad de Arquitectura y Diseño. While useful and necessary for the school to function, the chapel spaces were provisional, undesigned, and somewhat dispiriting for students and faculty to occupy.¹ The upper windows of the chapel had been bricked over in prior decades for use as an auditorium, making for dim light and gloomy, unplanned spaces, contributing to an unpleasant user experience within the building (Figure 3). In addition to factors of light and spatial experience, the building had been subject to inconsistent upkeep and had begun to show its age. The restoration and renovation commenced in 1993, was designed by architect and Uniandes faculty member Carlos Campuzano Castello together with Gustavo Duque and completed in 1995.



Fig. 3: View before the refurbishment.
© Antonio Castañeda Buraglia.

¹ Information in the following paragraphs is primarily based on documentation provided to the author by Carlos Campuzano Architects, including plan and section drawings, project texts, photographs and email correspondence, with grateful acknowledgement of generous information sharing during the global Covid-19 quarantine.

The project received several international awards for excellence in renovation and little has changed in the 25 years since its opening (El Colegio de Arquitectos del Ecuador 2013). The library space is functional, inviting and innovative. The exterior of the building was unchanged by the renovation, except for the restoration of the upper storey windows, formerly removed and bricked over. Abundant equatorial light pours in through the upper windows of the historic façade into the library interior, where steel study and storage platforms seem to hover within the brick shell (Figure 1). The separation of study space from browsing space enables undisturbed studying for library users, but separation is difficult to achieve in a small space; the solution of elevated platforms allows the two functions to coexist at a harmonious distance.

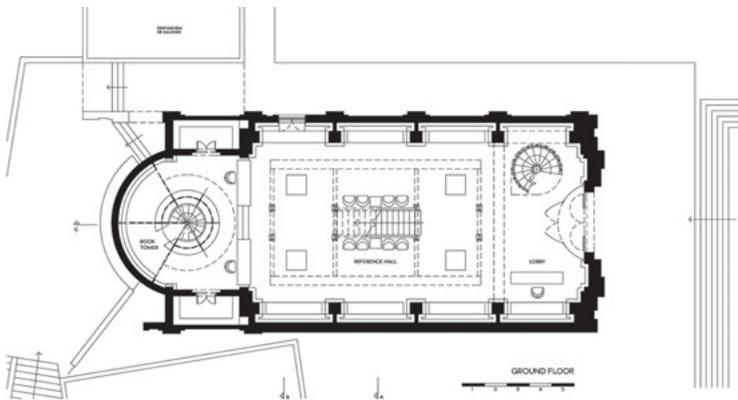


Fig. 4: Plan of ground floor level. © Carlos Campuzano Arquitectos.

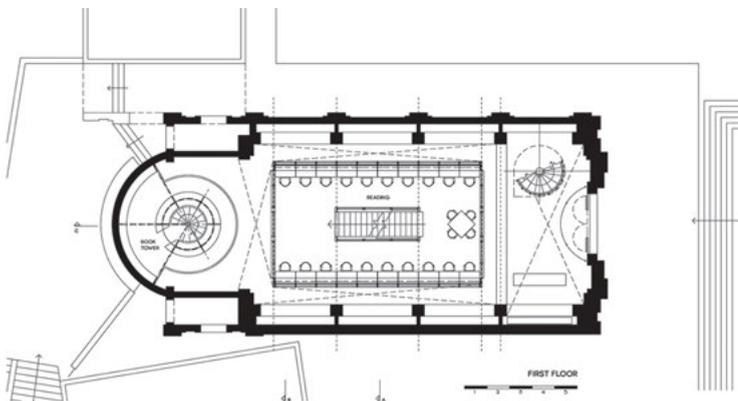


Fig. 5: Plan of second level. © Carlos Campuzano Arquitectos.

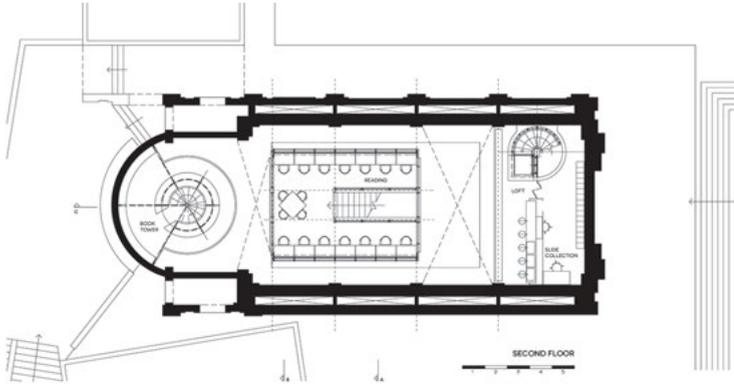


Fig. 6: Plan of third level. © Carlos Campuzano Arquitectos.

La Capilla is a diminutive project, measuring in at 170 m² of ground floor space, with an additional 155 m² gained on the second and third floors of the freestanding steel insertions (Figures 4–6). The chapel is a double-height brick structure that measures 8 m wide by 22 m deep, with ceilings of roughly 12 m in height. A slab on grade foundation is situated above a channelised river, running beneath the midline of the building, thus no basement or sublevel exists beneath the chapel. The renovation project called for the placement of two free-standing multi-level steel platforms inside the historic shell (Figure 7), and the issue of structural footings was the first to be addressed.

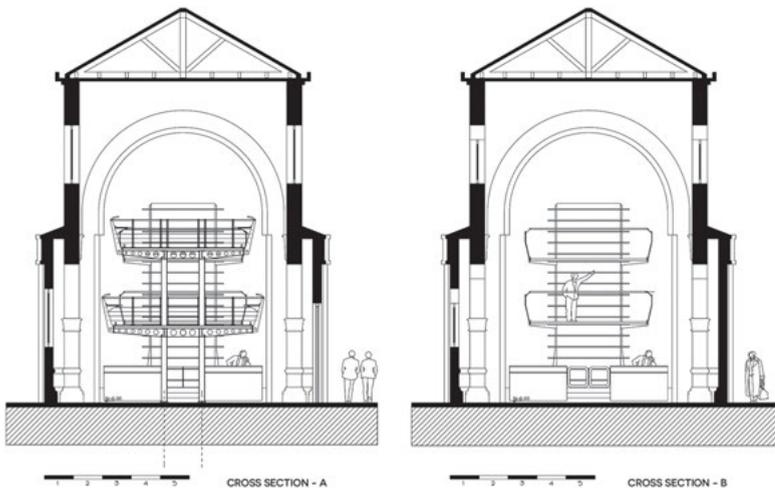


Fig. 7: La Capilla, transverse sections. © Carlos Campuzano Arquitectos.

Removal of the original flooring and foundation within the walls was among the first tasks of the renovation. Rectangular steel rebar cages were placed underground to create stable footings for the steel study platforms and shelving spaces that later would be placed in the structure above. The cages were excavated away from any influence of the river running under the chapel. A single tall, broad door permits entrance to La Capilla and all elements were brought by the construction team through it to assemble the large steel platforms. The custom steel components were cast in a steel workshop in Bogotá, and large I-beams form the upright structure connecting to the underground rebar cages.

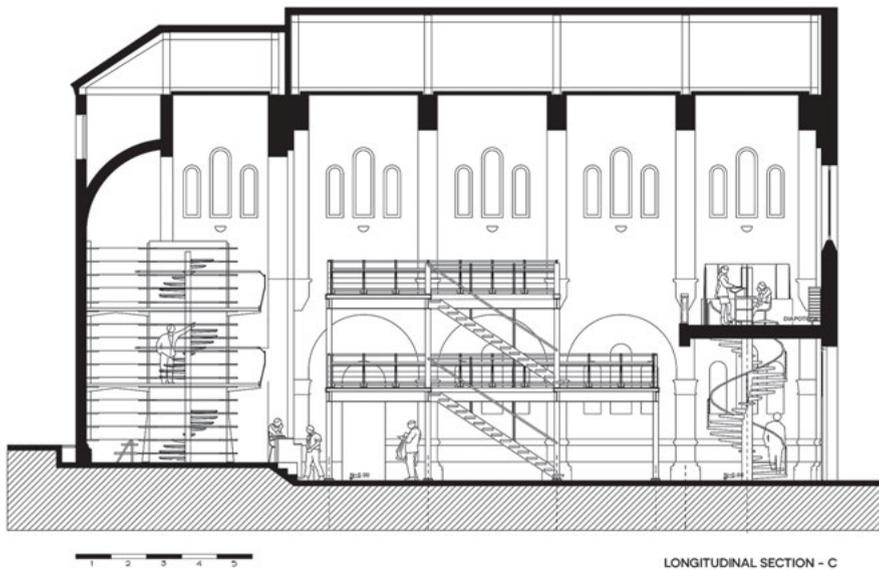


Fig. 8: La Capilla, longitudinal section. © Carlos Campuzano Arquitectos.

The two platforms (Figure 8) are distinguished by use: one for studying and one for book storage. A two-storey study platform is centred within the length of the space, rising toward the ceiling like a craft at sea (Figure 1). Originally the area beneath the study platform had provided some seating and an open circulation space, but the space is now used for shelving and computer workstations.

Set within the apse, a three-storey circular shelving structure, the Wisdom Tower (Figure 9) in the words of the architects, allows users to climb an internal spiral staircase toward original frescoes of winged cherubic heads, a decorative element uncovered during the restoration phase of work. The double-faced



Fig. 9: The Wisdom Tower.
© Antonio Castañeda Buraglia.

shelves of the book turret allow the user to examine journals and books while ascending; platforms at each level allow perusal of the outside shelves of the turret. Arriving at the top of the structure, it is possible to pause and glance across the full length and breadth of the chapel, towards the entrance, across the second steel platform where students quietly study, towards the choir mezzanine, where new periodicals are shelved and light streams in from the windows above. The spatial experience of ascending each platform and looking out towards the next feels akin to looking across a body of water to another watercraft nearby.

The approach to interior painting of the walls and ceilings of the chapel favoured selective restoration. The surfaces were painted mainly white or yellow when the restoration and renovation commenced. Rather than fully removing the paint, small bands have been stripped to reveal the successive layers of wall surface and paint. These strips are scattered throughout the ceilings and walls of the library, labelled in the places that are at eye-level, presenting a highly visual lesson in techniques of historical construction and interior architecture.

The minimal degree of contact between structural insertion and historic envelope honours the building's history and suggests future repurposing as well. For now, the chapel is a library. It has been other things in the past, and it may yet be something else in the future. The acknowledgment of temporality and change is particularly understandable in the larger context of the campus of Uniandes and the specific context of El Campito, with its long history of changing uses of buildings and land. As the architects describe in their original project text, "the very carefully manufactured iron structure expresses the capacity of the transformable, of existing now but going one day, if La Capilla del Campito wants it to be so."²

At the time of writing, the library houses 14,408 print volumes and 858 audio-visual items. La Capilla has three staff members: one director and two assistants.³ Very few modifications have been made to the library since its opening: the circulation desk was moved to the left of the entrance rather than under the study tower; the original carpeting has been replaced; and shelving has been placed in all available space within the library. The study space accommodates sixty persons, and most users are students in the departments of architecture and design. The library is well-used and well-loved by users across the university and outside of it.

Bogotá and Architectural Reuse

Bogotá, Colombia, is a city that is adept in the repurposing of buildings. In the mid-20th century, a time marked by the systematic razing of disused or outmoded buildings in affluent cities in the west and the north, Colombia was trending in the opposite direction. A prominent example of architectural repurposing is the national museum of Colombia, situated in downtown Bogotá near the still-active Plaza de Toros bullfighting ring. When the Penitenciaría Central de Cundinamarca, commonly referred to as *el panopticon*, was vacated after the construction of a modern prison outside the city centre, a centrally located, extremely sturdy building suddenly stood vacant. Rather than dismantling the prison, the national government of Colombia undertook renovation of the space to provide a permanent home for El Museo Nacional de Colombia, the country's oldest museum (Museo Nacional de Colombia n.d.). The prison was built in the panopticon style typical of many 19th century penitentiary buildings, with long corridors radiating from a central hub, a design that coincidentally makes for a reasona-

² *Memoria*, project text provided by Carlos Campuzano Architects.

³ With thanks to Sandra Fonseca of Universidad de los Andes Sistema de Bibliotecas for generous information sharing.

bly good museum experience. Prison cells became galleries, and wide hallways with tall ceilings provide additional display spaces. The central hub that originally provided a surveillance point for guards now serves as a node from which to make choices about whether to view art, nature or history exhibitions down each respective corridor.

The campus of Uniandes provides excellent specific examples of the practice of architectural repurposing. When the campus land was acquired by the university's founders, the landscape was already populated with a variety of buildings, as described above. Juan Carrasquilla Botero's comprehensive account of Uniandes campus history summarizes the former functions of this diverse collection of buildings: "Wastelands, orchards, roof gardens, mills, farms, factories of paper, fabrics, candles and soaps, and hats, convents of nuns and sisters of the charity, women's prison, old people's home, madhouse, public toilets; all that has been that today is the University of the Andes" (Carrasquilla Botero 1991, translated by the author).

Rather than using precious start-up funds on tearing down the old buildings, the existing structures were incorporated into the Uniandes campus. Decades later, once the university was firmly established and could afford refurbishment, many of the buildings were renovated. Among the architects who have designed the renovations is Colombian architect and Uniandes Architecture Faculty member Daniel Bermudez Samper, who has worked on several renovations and who designed the building that houses the Facultad de Arquitectura y Diseño/School of Architecture and Design at Uniandes.

Preservationist Sally Stone describes in her book *Undoing Buildings: Adaptive Reuse and Cultural Memory* the notion "that the reuse of existing structures and situations can be culturally beneficial, even if it is not necessarily the easiest or most straightforward strategy" (Stone 2020, 126). However, cultural benefit is not necessarily a common motivation of architects and real estate developers, whose interests may compete with objectives to preserve history. As Stone states, "Developers and architects may want to make a contemporary statement, the users may not be an exact fit, adaptation may be difficult, and efficiency difficult to achieve, but given the important cultural value of the historic environment, razing and rebuilding may not be the most responsible solution ..." (Stone 2020, 126–27).

The history of the Uniandes campus and the city of Bogotá together help to illustrate the possibilities of making a place's history known through continuous use of its built heritage.

Repurposing Disused Religious Buildings

In the United States, the home country of the author of this chapter, the decline in church attendance in urban centres, often caused by relocation to suburban areas, has been a trend of increasing significance over the past three decades. The primary denominations affected by the trend are the United Methodist Church, the Presbyterian Church and the Roman Catholic Church (Simons 2016, 13), three faith groups that have tended to construct especially handsome, sturdy buildings. With the decline in church attendance, an increasing number of physical facilities of religious organizations, generally stately churches and chapels, stand vacant, frequently in prominent locations within cities and towns. The unlikelihood of immediate occupancy without extensive renovation can sometimes result in low selling prices for these buildings, particularly if town or city government becomes involved with a building's sale. Unoccupied structures in prominent locations are seen to contribute significantly to urban blight, something municipal authorities are eager to avoid.

One common strategy for the conversion of religious buildings is their development as performing arts spaces. This is one of the most harmonious new uses for churches and chapels, and among the least resource-intensive, given the typical acoustic qualities and existing spatial arrangements which are well-suited to performers and audiences. Often a renovation of this type will not need to involve the creation of additional floors and walls, and it can be a relatively affordable conversion. A second common conversion strategy is the redevelopment of religious buildings into condominiums and apartments. There are numerous examples of this conversion strategy around the world, and particularly in North America. From Brooklyn and Toronto to Albuquerque and Columbus, many owners and developers have capitalized on the prime locations of vacant religious buildings to create profitable housing. While recent architectural history includes a handful of precedents for the conversion of religious buildings into libraries, the potential remains comparatively unexplored.

The conversion of former religious edifices into libraries can result in buildings that are extremely successful as architectural works, as libraries, and as conveyors and containers of local history. To elaborate this point, two European project precedents are described. The examples include a public library set within a larger public complex, DePetrus in Vught, the Netherlands (Figure 10), and a university library, Biblioteca UNED in Madrid, Spain (Figure 11).

Excursion: Other Examples of Church Buildings' Reuse

De Petrus, Vught, Netherlands

The DePetrus adaptive reuse project is a library, museum and community centre completed in 2018 and designed by the Dutch firm Molenaar&Bol&vanDillen Architecten. The project is in central Vught in southern Netherlands with a total area of 3,000 m² (Library, Museum and Community Center 'De Petrus'/Molenaar&Bol&vanDillen Architects" 2018). DePetrus Vught began its life as Saint Pieter church, built in the early 1880s to replace a church that had served the town for centuries. After years of neglect and declining use, the 19th century building's condition became dangerous to occupants, with pieces of the ceiling matter



Fig. 10: DePetrus, Vught, Netherlands. © Jeroen Schortemeijer.

dropping onto worshippers during services, prompting an immediate halt to the use of the building for religious purposes. Community support saved the building from demolition, and a group of seven financial backers eventually settled on a programme for a community centre for the city. The open-plan hybrid space includes a library, café, coworking spaces, the Vught Museum and temporary exhibition spaces. A local charitable organization, Welzijn/Wellbeing Vught, offers counselling and social work services, and another group, Stichting Anders Bezig Zijn, offers adult education courses (DePetrus 2018). While the building rises to a soaring three-storey height, the main programmatic elements are clustered on the first floor in a plan that flows from one space into the next, without

walls or continuous partitions. The building is open to the ceiling, and the visual experience is striking. Interior walking paths at a second-floor mezzanine level provide a serpentine counterpoint to the traditional rectilinear plan of the church, encircling the space in gentle arcs and bringing users in close visual range of the building's historic stained-glass windows and murals. The DePetrus reuse project provides a community hub for the residents of Vught that is uplifting, attractive and exceedingly practical (Figure 10).

Biblioteca de Escuelas Pías de San Fernando (UNED Madrid), Spain

Located in the Lavapiés neighbourhood in Madrid, the main structure that comprises the Biblioteca de Escuelas Pías dates to the early 18th century. The original construction was completed in 1791 and functioned for nearly 150 years as a church and a faith-based school for underprivileged and orphaned children. During the Spanish civil war, the building was set ablaze and sacked. In the decades that followed, the building was briefly home to a cinema before being fully abandoned. The restoration of the school building was completed in the late 1990s and the church to library conversion was completed in 2004; the architect of the full complex conversion and restoration was José Ignacio Linazasoro. The imperfections of the partially ruined brick structure are left largely intact and visible. Curving slatted wood insertions arc across the ceiling, tying together new and old spaces, with simple circular chandeliers hanging low in the room to provide light (Figure 11). Mercedes Gomez notes that “the idea was to integrate



Fig. 11: Biblioteca Escuelas Pías, Madrid, Spain. © Libe Fdez. Torrón-tegui, from the digital publication reharq.com.

the library into the ruins, without altering them, so that they kept their suggestive and romantic aspect... the new was subordinated to the old, the remains of the past are not exhibited as a mere ornament but are valued in themselves” (Gómez 2012). The library now serves a university, UNED Madrid, but keeps a regular schedule of public opening hours. As summarized by preservationist and writer Libe Fdez Torrónategui the conversion has been a complete success, for “it has adapted to a new functional programme, its use is ongoing and defined, it has regenerated part of the neighbourhood, it has become a cultural attraction... [and] it can be visited by the general public” (Torrónategui 2017).

Sustainability in Architectural Reuse

Architectural reuse is a potentially advantageous approach to the built environment in many ways, but significantly in terms of ecology. The embodied energy present in an existing building can be immense, particularly when one considers masonry processes such as bricklaying, which, in previous centuries, necessarily involved an additional layer of craft in the making of individual bricks themselves. All three original buildings discussed in this chapter were primarily constructed of brick, a material common to Europe and former European colonies throughout the world.

In the conversion of existing buildings to new uses, the process of adaptation must take a reasonably gentle approach if sustainability is to remain paramount. In La Capilla, the siting of the building could not be changed, so the footings of the steel platforms needed to take account of the channelised river running beneath the building, lest the project shift from light-touch renovation to a substantial environmental and hydrological engineering project. The full removal of existing paint in La Capilla might have become excessively labour-intensive, tipping the project beyond the threshold of environmental and economic sustainability. A selective removal of paint was undertaken instead, keeping the particulate materials of sand, lime and cement inside the walls under an upper layer of plaster and paint, rather than releasing them and creating indoor air quality issues during the renovation that would require subsequent remediation. Restoration of the building’s upper window apertures provided a source of increased naturally abundant equatorial sunlight. These types of light-touch interventions can enhance the overall sustainability of a project, both in the renovation process and in the long term.

Conclusion

Architects and institutional clients increasingly seek to optimise the environmental and financial sustainability of building projects (Plevoets and van Cleempoel 2019). The renovation of La Capilla can serve as an instructive precedent. With relatively low costs, minimal demolition and reconstruction, and a harmonious shift in building use, the conversion of La Capilla from worship space to makeshift classrooms to library has been an enduring success (“‘La Capilla’ Universidad de los Andes” n.d.). In the pursuit of architectural projects that are simultaneously functional libraries and habitable elements of local history, conversion projects such as DePetrus and Biblioteca de Escuelas Pías de San Fernando provide excellent examples of library conversions in buildings of historical significance. The renovation of La Capilla was completed almost 25 years ago, but the project continues to provide an innovative and instructive example of building rehabilitation. The sensitivity to place and history demonstrated in the library’s design is a lesson for the many architecture students who use the books and study space inside La Capilla.

While older churches and chapels continue to become vacant because of population shifts and decreasing religious engagement, more opportunities will arise to convert religious buildings to other uses. The three examples described, La Capilla, DePetrus, and Biblioteca de Escuelas Pías de San Fernando, support the argument that converting churches and chapels into libraries can make for harmonious and successful transformations in building use. As these projects demonstrate, spaces that were originally designed for contemplation and spiritual communion can be transformed beautifully into spaces for study and intellectual reflection.

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Tara Murray Grove

22 Transforming a Match Factory into the American Philatelic Research Library in Bellefonte, Pennsylvania

Abstract: The American Philatelic Research Library, one of the largest libraries in the world specializing in stamp collecting and postal history, opened its new library in 2016. The library attracts researchers from around the world, yet it was constructed in the unlikely location of an abandoned match factory building at the edge of a small town, Bellefonte, in central Pennsylvania, hundreds of miles from a major metropolitan area. Throughout the renovation process and library opening, the library built and strengthened connections with the community of researchers around the world who use its resources, and with the local community. The architect's design concept for the project was to produce a state-of-the-art complement to the historical factory exterior. The new library unites collections which had previously been housed separately and adds functional elements such as a rare book room, exhibition space, work areas with individual reading lights and power outlets, along with accessibility features. The story of how the library found its new home and how it built support for the renovation project by engaging with its own history and the local history of Bellefonte, demonstrates the power of the library as place and can inform future library building projects worldwide.

Keywords: Special libraries – United States; Library buildings – Design and construction; Factories – Remodelling for other use

Introduction

Hundreds of people gathered in the atrium of the American Philatelic Research Library's new home to celebrate its grand opening on 2 November, 2016. At one end of the atrium, a ribbon stretched across a grand central staircase, awaiting the ceremonial cutting to officially open the library. Neat rows of bookshelves lined both sides of the atrium, and two spacious desks flanked the entrance. Behind the staircase, armchairs upholstered in dark hues clustered around low tables. Some furniture had been removed to make room for the grand opening ceremony, but visitors on a normal day would see long wooden tables with shaded reading lamps in the atrium at the foot of the staircase. In short, the space contained everything to be expected of a research library. Surrounding the traditional library



Fig. 1: The new American Philatelic Research Library reading room.
© Pieper O'Brien Herr Architects.

Facts and Figures

Name: American Philatelic Research Library

Address: 100 Match Factory Place, Bellefonte, PA 16823 USA

Website: <http://stamplibrary.org>

Opening: October 2016

Builder: Veronesi Building and Remodeling Inc. <https://www.vbrinc.com/>

Architect: Pieper O'Brien Herr Architects <https://poharchitects.com/>

Gross floor area: 22,400 sq ft

Main floor space: 19,000 sq ft

Collection size: 90,000

Staff: 5

Workstations: 100

Building costs: US\$ 4,900,000

fixtures, though, stood the exposed brick walls of a century-old factory building. Sections of variously coloured bricks and different shades of mortar hinted at modifications and repairs made to the building over decades of industrial use.

In the crowd that Saturday, local politicians mingled with stamp collectors, some of whom had travelled great distances for the event, as reporters from philatelic magazines and local newspapers jotted down notes. The philatelists in the crowd attended to celebrate a testament to the enduring appeal of stamp collecting, or to be among the first researchers in one of the world's largest libraries dedicated to stamp collecting and postal history. Some in the crowd, who were neither stamp collectors nor researchers, simply wanted to witness the long-awaited completion of renovations to an historic building at the edge of a town eager for revitalization.

The library's elegant new home (Figure 1) was once a factory for making matches, part of a thriving industrial district. The story of how a special library that draws researchers from all over the world came to be located in an old factory building is intertwined with the history of America's largest stamp collecting organization and the evolution of a former industrial town. The effort to complete the library drew on support from the philatelic community, the library community and the local community; the library's grand opening celebrated all of these.

The American Philatelic Research Library

The mission of the American Philatelic Research Library (APRL) is to maintain a philatelic library for stamp collectors and postal historians and to offer services “that promote knowledge, research and education of all aspects of stamp collecting, postal history and postal operations” (American Philatelic Research Library 2011, 1). The APRL is a membership library, serving the 27,000 members of the American Philatelic Society (APS) and individuals who join the library separately. It is also open to the public and provides services without any membership requirement, primarily to stamp collectors, stamp dealers and auction houses, historians, journalists and the local community. Non-members have access to all library services, except direct borrowing privileges, and pay an additional fee for some services. The APRL participates in sharing of library resources through interlibrary loan, mainly as a lender, and portions of its holdings are listed in the OCLC WorldCat database.

The APRL is incorporated independently with its own governance, but in practice has a symbiotic relationship with the APS, the national organization for stamp collectors in the United States. The APS has provided a library as a member

service for most of its existence, and early library initiatives predate the creation of the APRL in 1968. When the APS was founded in 1886 as the American Philatelic Association, it included a library department and the first group of officers appointed included a librarian (Davidson 1986a, 128). The first library collection was built through donations from members and publishers. It resided with the volunteer librarian, requiring a transfer of the collection each time a new librarian was appointed. Books and journals were circulated by mail to members, an arrangement that did not seem to work as well as anticipated. In 1897, the librarian reported “that during the past year there has been practically no use made of the Library” (Deats 1897). The collection was transferred to the Carnegie Institute (now the Carnegie Library of Pittsburgh) and members who lived in Pittsburgh agreed to mail books to members from other areas and to return them to the library when they were mailed back (Deats, Krauth, and Severn 1897). By the 1920s, the arrangement had proved unsatisfactory, and in 1928 the APS left the collection at the disposal of the Carnegie Library of Pittsburgh (Davidson 1986b, 674), where at least some of the original books still reside.

For the next four decades, the APS was without a library, but in the 1960s interest in a lending library resurged, and in 1968 the APRL was incorporated independently as an affiliate of the APS (“Philatelic Literature Association Merger with American Philatelic Research Library” 1969). The APRL officially opened for business in 1972 with the completion of the first American Philatelic Building in State College, Pennsylvania. The building was owned by the APRL and co-occupied by the APS and APRL, an arrangement that would continue through a second American Philatelic Building in State College and the current American Philatelic Center in nearby Bellefonte, Pennsylvania. By the 1980s, the APS and APRL had outgrown their first building and a second American Philatelic Building was built and opened in State College in 1982. The second building was later expanded, but the APRL collection continued to grow and the library space quickly reached capacity.

When, at the beginning of the 21st century, the APS and APRL found themselves once again in need of more space, the APRL purchased a vacant factory, originally constructed by the Pennsylvania Match Company and known locally as the Match Factory complex, from the Borough of Bellefonte and began the renovation of a new home for itself and the APS. The Match Factory complex, consisting of eighteen mostly connected buildings, was larger than the space required by the APS and the APRL, and the APRL planned to lease out the unneeded space. For three decades, the APS and APRL had occupied buildings designed and built specifically for their needs. Renovating a century-old building and becoming a landlord presented a new way of operating. The move was welcomed by the local community in Bellefonte, which had been waiting for nearly a decade for

someone to buy and renovate the abandoned buildings, but it was met with skepticism by some in the stamp collecting community.

A Home for Philately in Central Pennsylvania

State College had always been a surprising location for the headquarters of “America’s Stamp Club,” as the APS is sometimes called. Located in central Pennsylvania, a half day’s drive from major cities such as Philadelphia or Washington, DC, the population was about 100,000 according to the 2000 Census. The town grew up around the Pennsylvania State University (Penn State), founded in 1855 and still the region’s major employer. It was a far cry from, for example, the urban home of the Royal Philatelic Society London, the UK’s national stamp collecting organization.

But the APS, and later APRL, had called State College home since the hiring of the first staff member, who happened to live in State College, and the establishment of the first APS office on the second floor of a downtown building in the 1940s. When the society moved to its own building, the headquarters and library became a destination for stamp collectors from near and far as well as for the local population. A portion of the APS membership, however, was left wondering why their society could not be located in a larger city, with access to an international airport and proximity to cultural attractions and relevant institutions such as the National Postal Museum in Washington, DC.

It was not surprising, then, that when the APS and APRL decided to purchase an abandoned factory building 10 miles from State College in Bellefonte, population 6,395 per the 2000 Census, the membership needed to be convinced that the move was a good idea. State College already appeared remote and rural to many APS members; Bellefonte, despite its designation as the county seat, was much smaller. The Match Factory had lain vacant since 1996 and would require extensive renovations before the APS and ARPL could move in (Figure 2). The purchase and renovations would incur large debts for the two non-profit organizations, at a time when interest in stamp collecting appeared to be waning and APS membership was declining. The town of Bellefonte, like many towns in Pennsylvania, had experienced flooding in the aftermath of Hurricane Agnes in 1972. The history evoked concern that the banks of the nearby creek would overflow and flood the building. Although reuse of existing structures has been recognized as a sustainable practice, some worried that the Match Factory would require too much work to provide a suitable home for the APS and APRL. Nevertheless, the APS and APRL had long outgrown their 25,000-square-foot building in State College, and the library needed additional space to house its growing collection.



Fig. 2: The Match Factory complex at the time of the purchase in 2000. Reprinted with permission from *The American Philatelist*, 114 (10): 943.

Despite the concern expressed in meetings and in the pages of philatelic magazines, after extensive research, the APS and APRL proceeded with the purchase. APS leadership described the advantages of the new location to win member support. For example, the February 2002 issue of *The American Philatelist*, the monthly publication of the APS, contained an article on the history of Bellefonte, which, well into the 20th century, boasted a larger population than the nearby college town (Wunderly 2002). In a November 2000 editorial for the society's monthly magazine, APS President Peter P. McCann attempted to allay member concerns about the APS and APRL taking on the duties of a landlord:

One of the criticisms that was raised in the debate about whether the APS should acquire the property or not was that some people felt that the APS should not become a landlord as a non-profit society. Many non-profits already are major landlords as a means of investing for the future, and in actual fact there is really no practical difference in investing in mutual funds, U.S. government securities, or real estate, which in our case would be buildings the APS also happens to occupy. (McCann 2000, 1035)

The Match Factory

The first construction of what is now the Match Factory complex began in 1899 to house the new Pennsylvania Match Factory. As the company expanded its operations, the complex grew, and by 1931, it had reached its present size of eighteen buildings. The complex operated as a match factory under several names and owners until 1947, when economic conditions forced its closure, and the property was purchased and used as a warehouse by a local lumber company. In 1996, entrepreneurs purchased the complex with plans to use it as a brewery, but the group failed to raise the necessary funding and in 2000 the Borough of Bellefonte took ownership of the property.

Bellefonte was eager to revitalize its waterfront district, which was roughly delineated on one end by the looming façade of the four-story Match Factory and its brick smokestack. When the municipality purchased the Match Factory, it did

so with the intent of preserving the building and putting it to use. As the sale was underway, Bellefonte applied to have the property listed on the National Register of Historic Places and formed a committee to find suitable tenants for the building (Urch 2000). The historic registry listing ensured preservation of the building and made tax credits to facilitate the sale available. Later, when the APS expressed interest in purchasing the property for its headquarters, Bellefonte committed to expanding nearby Talleyrand Park, a centrepiece of the waterfront district, to connect the Match Factory to downtown Bellefonte. The land in between the existing park and the Match Factory was overgrown and unused at the time of the sale, contributing to the property's derelict appearance (Figure 2).

Once the sale was finalized and sufficient renovations completed, the APS and APRL moved their operations into the Match Factory. The local newspaper reported that "Bellefonte officials and residents see the society's decision to renovate the Match Factory as a large boost to efforts to revitalize the borough's waterfront district" (Dobo 2004, A1). When the move was finished, Bellefonte threw a party complete with concerts, banquets, garden parties and trolley rides to celebrate the potential influx of visitors to the town (CDT Editorial Staff 2004).

The Match Factory's importance to Bellefonte extends beyond the economic value of the property. At its height, the factory employed hundreds of people, and many of the workers' descendants still reside in Bellefonte. The author of a report prepared for the Borough of Bellefonte and the Pennsylvania Historical and Museum Commission found that "the residents of Bellefonte take pride in their history, and understand the important role that industry played in the development of the community" (Hammerstedt 2005, 63). The report noted that many of Bellefonte's industrial resources had been removed and urged the preservation of those that remained.¹

The opening of the new APS headquarters in the Match Factory was voted one of the top ten stories of the year by readers of the *Centre Daily Times*, State College's newspaper. To this day, many people who come to tour the APS and APRL facilities have little or no interest in philately and just want to see the renovated factory.

1 At the time of the report's preparation, the APS had already purchased and moved into the Match Factory, although renovations of the complex were not yet complete.

Match Factory Renovations

The renovations to the Match Factory were planned as several distinct projects, with the library renovation taking place in the last phase. The first phase included 22,000 sq ft for tenant space in a concrete block building that had been added to the complex in the 1960s, after factory operations had ceased. Once tenants began occupying part of the complex, rent income helped to offset the debt incurred by the building purchase and allowed for continued work on the property. The second phase of renovations included two historic buildings and a connection to the block building, providing the space needed for the APS and the APRL to move into the Match Factory in 2004.

With the renovations for its permanent home still several renovation phases in the future, the APRL moved into temporary library space, which it occupied for twelve years. The space, approximately 12,000 sq ft, provided a little breathing room after the cramped conditions in the previous State College location, but it proved inadequate for material in the APRL's collections. To accommodate more shelving, the stacks were placed closer together than the spacing recommended by library accessibility standards, making it impossible for staff to push book carts between the rows and difficult for researchers to access the collection. Despite the attempts to conserve space, the shelves were soon overflowing once again. The library lacked office space beyond the librarian's office which doubled as a rare book room, and a few desks hidden behind the reference shelves. Volunteers were forced to work in the centre of the library where they competed with researchers for limited table space. Portions of shelving units had to be removed to accommodate support columns.

During this time, the library stored about half of its physical collections in a warehouse space in another location in the complex which placed the collections in jeopardy and complicated the library's operations. The warehouse lacked adequate climate control and though connected by an interior hallway, its distance from the main library made it difficult for staff to catalogue materials and retrieve them for researchers. The space was also used for other storage purposes by the APS, which created security concerns. Subsequent renovation for tenant space on the floors above the warehouse produced dust which later had to be cleaned from library materials, and a new hallway for tenant access reduced the amount of space available for library storage. Addressing these challenges would become a priority when the library renovation finally began years later.

While the APS and APRL occupied the complex, renovations continued. A third phase provided additional event space for the APS and APRL. The shared space would eventually be used for a banquet to celebrate the grand opening of the APRL. The fourth phase included expanded tenant space and a structure

built to take advantage of the opportunity to acquire, via a loan from the National Museum of American History, the historic Headsville, West Virginia post office and general store. The APS operates the post office, which was depicted on a 1972 US stamp commemorating the 100th anniversary of mail order, as a contract postal station and stocks it with items similar to those that would have appeared on the shelves during its operation in the latter half of the 19th century. The post office is a popular stop for collectors and non-collectors alike, and employees at tenant businesses enjoy the convenience of buying stamps and sending mail close by their offices.

Subsequent renovation phases included more tenant space, and the final tenant, a distillery, opened for business in 2015. The distillery, Big Spring Spirits, achieved Leadership in Energy and Environmental Design (LEED) Gold certification from the US Green Building Council. In addition to a sustainable distilling process, the certification factored in the reuse of an historic building and the maintenance of interior non-structural elements, such as walls, flooring and ceilings. The design of the APRL incorporated similar principles, although most interior elements in the library space were unsalvageable by the time renovations commenced.

Following the renovation phases already described, the only remaining unrenovated space was that designated from the outset as the permanent home of the APRL: the two buildings labelled Building Three and Building Four on schematics. In the intervening years, however, a dwindling APS membership and a national recession combined to place economic pressure on the APS and APRL and delay the library renovation.



Fig. 3: The American Philatelic Research Library space before renovations. © Pieper O'Brien Herr Architects.

The library construction was completed in phases, partly to address funding concerns. The first phase included the closed stacks, map room and rare book room

on the second floor of the new library space in Building Four, the smaller of the two adjacent buildings (Figure 7). The closed stacks area was fitted out with compact shelving to store archives, second copies and other less frequently consulted material. The completion of the first phase of the library renovation allowed for the transfer of material out of the problematic warehouse storage. While the material was still not co-located with the rest of the library collection and the staff, it was at least finally on library shelving, in climate-controlled space, secure, and separate from non-library storage. The next phase would include all of the larger Building Three, which occupied a central location in the complex but had suffered severe damage due to a partially collapsed roof and the cumulative effects of weather. The threat of further damage to the unprotected building put additional pressure on the APRL to complete the library project. On the day the architect toured the site, fresh snowfall lay on the ground inside the building, and the interior floor structure had completely collapsed (Figure 3).

The Library Design

The Match Factory façade, rising up behind the railroad tracks at the edge of the picturesque Talleyrand Park, is one of the iconic images of Bellefonte. It serves as a backdrop for community celebrations and wedding photographs in the park. The two buildings that comprise the new APRL, Building Three and Building Four, together with Building Five, a four-story building used for tenant space, and a tall brick smokestack, form the skyline. The name of one of the later iterations of the Match Factory, Universal Match Corporation, is painted across the three buildings (Figure 4).



Fig. 4: The exterior of the Match Factory as seen from Talleyrand Park. © Pieper O'Brien Herr Architects.

The APRL project was designed by Pieper O'Brien Herr Architects. The principal architect, Charles J. O'Brien III, is an APS member and familiar with Society and library operations and the needs of the membership. The design team worked closely with library staff throughout the project, ensuring that the design facilitated library operations and accommodated naming opportunities for donors. Because of the property's historic designation and location inside an historic district, the project had to be approved by Bellefonte's Historic Architectural Review Board. Two goals guided the design: to produce a state-of-the-art library facility accommodating staff and researcher needs; and to follow an historical theme complementing the building's exterior.

For most of the year, the APRL serves most of its researchers remotely. Staff handle requests by telephone or email, retrieve materials, scan short passages and images, and send books on loan by mail. While significant digitization efforts are underway, including APRL projects, philatelic literature lags behind many other fields in this respect, and most of the material is in paper format. For their work, staff require proximity to physical collections, access to scanning equipment and workspace for processing book loans by mail.

On a typical day, the APRL might see only a handful of visiting researchers, but during special events such as the APS Summer Seminar week of educational offerings, the library can be crowded with researchers. The new library space had to be able to accommodate occasional influxes with adequate seating for individual work and small groups. Library staff asked for spaces tailored to the needs of researchers travelling to visit the library for extended periods, such as carrels with lockable storage.

The final design incorporated elements to facilitate the specialized operations of the APRL while retaining its focus on the historic theme. Throughout the project, the architect strove to preserve history and promote sustainability through reuse and restoration, and any new materials required were selected with a period look and feel. In an email to the author on 9 November, 2019, O'Brien described the interior design concept for the project:

The architects believed it was important from the outset that the interior should look like it had always been this way. The massive existing brick walls were designed to remain exposed to view. The entire floor and roof structure were replaced, in part due to the poor condition of the existing wood structure. The new replacement structure was designed from the outset to handle the heavy library loads yet closely resemble a historic period structure. The new wood trusses were designed to be reminiscent of the former structure in shape and form. The new steel columns were articulated with period details to mimic an iron column from a former era, possibly a style that could have been used when the original structure was built. Other modern materials were selected to further emulate the historic fabric. A 'wood look' porcelain floor for the area under the atrium was a vitally important piece of

the design. This flooring looks like wood, but has a permanent, easy-to clean surface that will be longer lasting and more durable than actual wood. In addition, a special ceiling was needed. The pressed ceiling tiles have the visual appeal of vintage copper yet also offer modern sound absorption characteristics. The flooring and ceiling products were replicated with modern high-tech materials. They offer the look and feel of the former materials' full glory yet do so without cost and maintenance issues.

The property's historic designation presented challenges during renovations. Nineteenth century factory buildings relied on natural light, but because the main library building, Building Three, is bordered by other buildings in the Match Factory complex on three sides, only one wall had windows. The architect envisioned a clerestory at the peak of the roof to provide natural light. The historic designation precluded any changes to the exterior, but the architect was able to demonstrate, using a picture postcard image (Figure 5), that a clerestory had previously existed on another part of the complex. The older clerestory had been removed prior to the APRL taking ownership of the property. Bellefonte's Historic Architectural Review Board approved the addition of a clerestory.

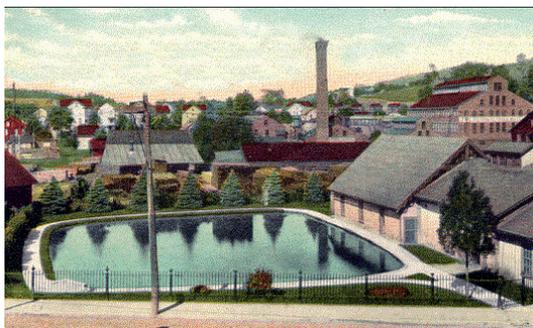


Fig. 5: Picture postcard showing the historic clerestory. © Fred D. Smith Collection.

The building's age and former industrial use presented other challenges. One corner of the library space was occupied by a three-story vault. Rather than attempt to remove the vault, the design repurposed it as an elevator shaft. On the hallway wall outside the library, the vault door hardware is preserved as a reminder of the building's past. Occasionally, construction workers discovered structural elements within interior walls that forced minor changes in the design, particularly to the new connections between Building Three and Building Four.



Fig. 6: First floor plan. © Pieper O'Brien Herr Architects.

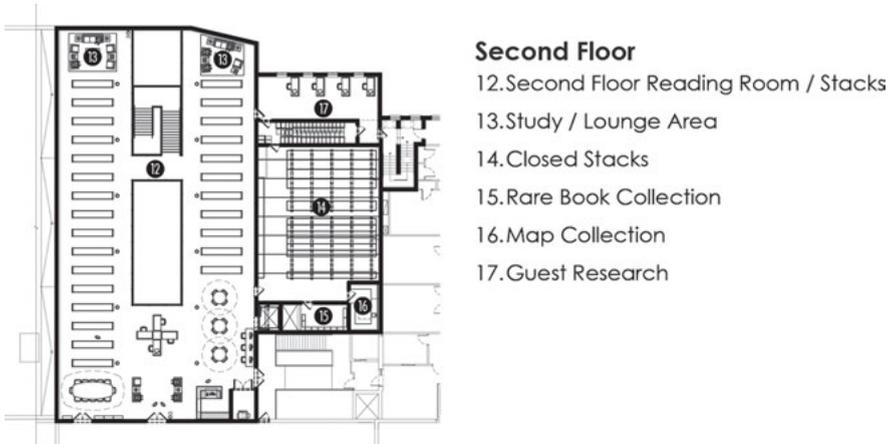


Fig. 7: Second floor plan. © Pieper O'Brien Herr Architects.

The new library design addressed practical concerns for the APRL. When the renovation was completed, APRL collections were finally, after decades of various separations due to space constraints, located in a contiguous and secure 19,000-square-foot facility (Figures 6 and 7). The rare book room was deliberately placed on the second floor to alleviate any lingering flooding concerns and allowed the rare book collection to be moved from the staff office where it had been stored. The new map room provided space for a flat file. As archival mate-

rial quickly filled the compact shelving installed on the second floor of Building Four in the first phase of library renovations, a second closed stacks section of compact shelving was added to the first floor, to be used for the APRL's vast collection of philatelic auction catalogues. Interior walls were kept clear to provide display space for the library's collection of art works, and a separate gallery room for exhibits from the library's archives was added to the design. The design incorporated a variety of seating options to accommodate different uses of the library, including the long work tables already mentioned, smaller tables for individual or small group work, conference tables for informal meetings, carrels for quiet study, and soft seating areas near the exterior wall windows. All the work areas provide easy access to electrical power and task lighting. Throughout the design, the team incorporated accessible features in accordance with the Americans with Disabilities Act and American Library Association guidelines. The design paid particular attention to the spacing of the book stacks, which had been problematic in the temporary library space. In the early design stages, support columns were spaced to line up with the desired width of the library aisles. After careful consideration due to the cost involved, an elevator inside the library was added to the project to make the second floor of the library fully accessible and to enable staff to move book carts easily between the floors. In initial designs, the library would have relied on an existing elevator in another part of the complex.

The design team placed staff work areas in dispersed locations throughout the library to ensure researchers had access to assistance when needed. The cataloguer's desk is on the second floor, close to the journal collection and the second-floor closed stacks. The reference and circulation desks are positioned on either side of the entrance to welcome visitors, and the library director's office is at the rear of the library, with a window to the children's area and close access to a new private work area. The work area houses several workstations to ensure a comfortable working environment with secure storage for volunteers and interns.

Much of the funding for the library renovation came from private donors. To assist in fundraising, the design team incorporated library spaces with naming opportunities that would appeal to donors. The spaces included five reading lounges. For the final design, after consultation with the donor, one of the lounges was converted to a children's area to support APS youth programs and outreach to the local community. The APS Education Department helped to select appropriate furniture for the children's area.

Engaging the Community

In addition to the symbiotic relationship between the APRL and the APS membership that was so critical to the Match Factory project, the new library helped the APRL to strengthen ties with other philatelic libraries throughout the world and with the local community of Bellefonte. Throughout the renovation project, the APRL engaged with its communities, and at the completion of the project, invited them to join in the celebration. The APRL had gained not only a physical home, but a community base to support future initiatives.

Although the APRL is one of the largest and most accessible collections of philatelic literature in the world, it is not the only library dedicated to stamps and postal history. The APRL hosts a union catalogue for North American philatelic libraries (<http://catalog.stamplib.org>) and is a founding member of the Global Philatelic Library (<http://globalphilateliclibrary.org>). Other philatelic libraries watched the developments at the Match Factory with keen interest, particularly those in North America who frequently consult the APRL to ensure that last copies are preserved or for help filling collection gaps. The APRL commits to collecting more comprehensively than other philatelic libraries, therefore other philatelic libraries rely on the APRL having enough space to serve as a repository. Attendees at the World Stamp Show 2016 in New York City got a sneak peak of the new APRL in a presentation, and the featured speaker for the APRL's grand opening banquet was David Beech, long-time curator of Philatelic Collections at the British Library and former president of the Royal Philatelic Society London.

The APRL has enjoyed close and collaborative relationships with its tenants. At the banquet celebrating the library's grand opening, the bar featured a gin cocktail created by the Match Factory's distillery, Big Spring Spirits. The custom cocktail was named the Inverted Jenny, a nod to the well-known US stamp error with the airplane printed upside-down. The Inverted Jenny has special meaning for the APRL because the library received, via a bequest, the title to four of the stamps which had been stolen from a display in the 1950s, and the sale of one of the stamps that was later recovered helped to finance the library renovation.²

Collaboration with Match Factory tenants, and benefits such as access to the contract postal station and event space rental, have proved to be beneficial for the APRL. Tenants who develop attachments to their Match Factory space fill long-term leases which increase the APRL's financial stability. Relationships with

² The library still owns and displays one Inverted Jenny. The library's close relationship to the stamp is evident in several places in the new library. An image of the Inverted Jenny decorates the backs of wooden chairs in the children's area, and a model of the Curtiss Jenny biplane depicted on the stamp is suspended from the library's lofty second floor ceiling.

the local businesses of the Match Factory also build bridges to the community of Bellefonte. These relationships have been key in positioning the APRL and APS as part of the Bellefonte community and not outsiders.

Perhaps the most successful avenue to engage the local community for the APRL has been through its historic building. The one exception to the APRL's policy to limit its collecting to materials related to philately or postal history is material related to the history of the Match Factory. The collection includes newspaper clippings, souvenirs and even a matchbox found by a construction worker during the renovation project. Within the APRL's Match Factory collection is a copy of a photograph of Match Factory employees. The APRL invited community members to identify the workers in the photograph. The APRL also collects envelopes and postcards related to Bellefonte, including some that predate the adoption of stamps for the payment of postage in 1847.

One APRL collection of particular interest to both postal historians and local history buffs is the Daniel Hines Air Mail Collection. The collection is the one most frequently consulted for non-philatelic purposes at the APRL. In 1918, when the U.S. Post Office Department initiated development of transcontinental air mail services, it needed a refuelling stop for its planes between New York and Cleveland. The post office selected Bellefonte, and an airfield was established on the site where the town's high school stands today. The archival collection was formed by Daniel Hines, whose brothers worked at the Bellefonte airfield. It was donated to the APRL by a family member soon after the library relocated from State College to Bellefonte. Bellefonte claims two distinctions in the story of the nation's air mail system: it was the first stop on the new route, and the most dangerous. The combination of changing weather and mountainous terrain caused numerous crashes, claiming the lives of 34 pilots. Bellefonte retained its prominence in national aviation for about a decade, until the post office handed over operation of the air mail routes to private contractors and advances in aviation lessened the need for refuelling stops.

When the APS and APRL moved into the Match Factory, a local retired Navy pilot, who had been searching for a place to erect a monument to the fallen air mail pilots, finally found an agreeable location (Wunderly 2018, 129). The granite memorial, dedicated in 2005, stands on the APRL property at the edge of Spring Creek. In 2007, the APS published a book by a local author based on research in the Hines Collection, *Bellefonte and the Early Air Mail: 1918–1927*. It is now in its second edition (Wunderly 2018) and has proved popular with local and philatelic audiences. Public libraries in Bellefonte and State College include it in their holdings, and it was featured in a broadcast by the local public radio station (Kochersperger 2008). The APRL incorporated local history prominently into its new

physical presence with a display of maps and photographs from the Hines Air Mail Collection just outside the library entrance.

Conclusion

While the APRL is a unique case, other types of library construction projects can be informed by its story. Through its grand new library, the APRL created a place of pride and inspiration for the philatelic community and formed a bond with the local community by preserving and bringing new life to a landmark site.

Library collections, even when their focus is global, contain materials that help to tell the story of their local communities. For a university library, the materials might be the university archives, publications of faculty and students, or books about the local community; for a public library, local history and genealogical resources and publications by local authors relate to the local community; in a corporate library, the archives and records of the parent organization contribute to the story. The library's physical presence is a testament to the importance of its community's history and provides a gathering place for the community. Engaging the library's communities, through targeted collection-building, exhibits and programming, builds support for the library as place.

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Appendix

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Sustainability and Reusing Buildings for Libraries: A Review of Selected Documents

Abstract: The reuse of old buildings for new libraries has gained currency within the Library and Information Science (LIS) profession and has informed sustainability initiatives. Adaptive reuse benefits the environment by conserving natural resources and minimizing the need for new materials. This chapter provides a review of some key documents on sustainability, green libraries and the recycling and conversion of buildings as libraries. Building reuse provides an opportunity for sustainable thinking in library planning. Sustainability and going green are already evident in library architecture and design and there is a need to encourage embracing greener practices and adaptive reuse. Sustainability and going green are growth areas for the future. Adaptive reuse and repurposing buildings that have outlived their original purposes for different uses or functions while at the same time retaining their historic features are viable alternatives to new buildings. Building reuse is occurring in developed countries while some developing countries are saddled with challenges slowing adoption of the trend.

Keywords: Library buildings – Design and construction; Buildings – Remodelling for other use; Sustainability; Green libraries

Introduction

Much has been written on adapting older buildings for new use and the approach is no longer an obscure initiative but rather an innovative way forward. It makes sense that with time structures will age and outgrow their usefulness and original functions. With changes in technology and lifestyle, buildings and their design are constantly updated to meet new demands imperative for sustainability.

Methodology

This literature review and document analysis constitute a qualitative research method to review and evaluate documents in both printed and electronic form (Bowen, 2009) and analyses published journal articles, conference proceedings and books to bring greater understanding of the issue of libraries and sustainability.

Bowen (2009) stated that like other methods in qualitative research, document analysis requires that data be examined and interpreted to elicit meaning, gain understanding and develop empirical knowledge. The methodology was chosen for this review because it captured and combined many reviewed articles by experts in the field as well as case studies. Reviewing a group of articles on the same topic is a vital means of triangulation.

Sustainability: Definition or Prediction?

There is much discussion in academia and among researchers on whether sustainability can be defined or predicted. Costanza and Patten (1995) argue that because sustainability can only be assessed after the fact, it is a prediction problem more than a definition problem and they suggest that what passes as definitions of sustainability are therefore often predictions of actions taken today that one hopes will lead to sustainability in the future. As evidenced, a system can only be known to be sustainable after there has been time to observe if the prediction holds true.

Lubin and Esty (2010) argue that sustainability is an emerging megatrend and its course is therefore to some extent predictable as it follows past megatrends like globalization and the rise of the information society. They state that over the past ten years, environmental issues have steadily encroached on businesses' capacity to create value for customers. Environmental issues have been magnified by escalating public and governmental concern about climate change, industrial pollution, food safety, natural resource depletion and some building designs. Consumers in many countries are seeking sustainable products and services or leaning on companies to improve the sustainability of traditional offerings.

What Should Libraries Learn from the Sustainability Megatrend?

Sustainability is truly relevant to libraries requiring them to adapt and innovate or be relegated to the background. What can libraries learn from emerging ideas about sustainability? Will libraries take advantage of sustainability initiatives and learn to do old things in new ways?

The Talloires Declaration composed and ratified in 1990 marked a watershed in the commitment to environmental sustainability in higher education. Twenty-two

presidents, rectors and vice- chancellors of universities from all over the world convened at the Tufts European Center in Talloires, France to discuss the role of universities and the role of university presidents in environmental management and sustainable development. A ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations and outreach at colleges and universities has been signed by over 500 university leaders in over 50 countries and the Association of University Leaders for a Sustainable Future established (n. d.). The declaration has led to the education of environmentally responsible citizens, fostered environmental literacy for all and incorporated sustainability in the operations of universities. The plan supports an environmentally sustainable future and has informed many. Kurbanoglu and Boustany (2014) contend that the declaration forced academic libraries to start going green.

As ideas for sustainability have been further promoted and extended, sustainable approaches to the design of libraries and other buildings have come to the fore for consideration and implementation. It has become an accepted imperative to create environmentally responsible library facilities and spaces in the 21th century with considerable action undertaken by international and national library associations.

Green Buildings Versus Greening Buildings

Kurbanoglu and Boustany (2014) identified the difference between green buildings and greening buildings at the European Conference on Information Literacy (ECIL) in Croatia. Green buildings, the authors posit, are structures that are designed, built, renovated, operated or reused in an ecological and resource efficient manner to use finite energy resources prudently to reduce the carbon footprints of buildings. In contrast, the authors point out that greening buildings emphasizes the efficient use of electricity and water, sustainable materials and resources, as well as building materials, furnishings and fixtures with recycled content. Greening buildings makes use of natural and recycled materials and products and emphasizes the installation of geothermal energy systems.

According to the authors, the Arabian Branch of the Scottsdale Public Library in Arizona, the Biblioteca Municipal Publica de Villanueva/Villanueva Public Library in Colombia, the Vennesla bibliotek og kulturhus/Vennesla Library and Culture House in Norway, the Central Public Library in Singapore, the TU Delft/Delft University of Technology Library in the Netherlands, the King Fahad National Library in Riyadh, Saudi Arabia and the Cambridge Public Library in the United States are libraries where green operations and practices, programs and

services, information systems and collections all reflect the multifaceted concept of green libraries.

The Green Library Movement

Antonelli has tracked the growth and development of green libraries and the Green Library Movement which has gained enormous support within the library profession (2008). The main concern of the Green Library Movement has been the reduction of libraries' environmental impact. The Green Library Movement grew in popularity and resulted in the building of green libraries, an emphasis on Leadership in Energy and Environmental Design (LEED) certification while also greening existing library facilities, providing green library services and embracing environmentally supportive and sustainable practices within libraries (Antonelli 2008).

Al and House (2010) examine the global ethic of the library community in recognizing that reversing the human impact on the environment is part of its social responsibility in the context of the North American library community with attention to policy and practice in five major metropolitan areas. Their findings showed an exciting emergent library discourse on green policy and actions at a local level, but they argued that even though public libraries were implementing green measures at the service and programming levels, they were not yet encoding a green ethic in official institutional language and that library associations were generally remiss in addressing environmental responsibility in their policies. Additional advocacy work on environmental awareness, first at policy level and then, within the community in general would be required to ensure further acceptance of environmental responsibility. Considerable development has taken place since including initiatives sponsored by the International Federation of Library Associations (IFLA) and its support of the United Nations 2030 Agenda for Sustainable Development. The Council of the American Library Association (ALA) in 2019 adopted sustainability as a core value of librarianship after several round table discussions on the subject at conferences. ALA President, Loida Garcia-Febo, indicated that it was a pivotal time for libraries and the communities they serve and that by adding sustainability to its core values, ALA was recognizing that libraries of all types could act as catalysts and inspire future generations to reach solutions that are not only sensible but essential to sustaining life on this planet (American Library Association 2019).

Sustainable Library Architecture and Design

A sustainable library is defined in the *Online Dictionary for Library and Information Science* as:

A library designed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.). In new construction and library renovation, sustainability is increasingly achieved through LEED (Leadership in Energy and Environmental Design) certification, a rating system developed and administered by the U.S. Green Building Council (USGBC). [Click here to learn more about sustainable libraries.](#) Synonymous with green library (Sustainable library n.d.)

Green architecture makes the library green. As noted by Wanda Urbanska (2009, 53), “building a green library may represent the largest public statement any community can make to show its support for sustainability”. Any new construction or library renovation requires sustainability to be achieved through Leadership in Energy and Environmental Design (LEED) certification which has become the most accepted standard for environmentally friendly building design in North America and in many other countries throughout the world. Numerous libraries have obtained certification including those already referred to by Al and House (2010). Similarly, the Building Research Establishment Environmental Assessment Method (BREEAM) is the accepted standard in the United Kingdom and in some other countries around the world according to Rezaallah, Bolognese and Khoraskani (2012). The certification processes promote greening libraries, enhance the image of libraries as proponents of sustainability and assist in advocating for sustainability initiatives in libraries.

Hauke, Latimer and Werner (2013) discuss green libraries and provide ideas and best practice examples on how to green libraries and how and where libraries demonstrate both ingenuity and ethical leadership. The authors cite earlier publications, debates and discussion about the green library movement and the role of libraries and librarians as leaders in the sustainability movement. They posit that library associations and organizations promoted the idea of going green at conferences and sponsored new sustainability round tables at conferences to support the advancement and dissemination of sustainable practices.

They suggest opportunities and models for libraries to implement eco-friendly ventures. Since not all libraries can be rebuilt mostly due to budget constraints, and some because of their historical importance, it is imperative to operate environmentally in existing buildings and without additional resources. It is an exciting time as libraries express their commitment to green values and

offer open and easy access to information and knowledge about initiatives for appropriate environmental management and sustainable development.

Sustainable Thinking

It is evident that before sustainability can become a reality, awareness must be created and an appropriate mindset developed, which, according to Aldrich (2018) refers to the alignment of a library's core values and resource allocation with outcomes. Staff time and energy, facilities, collections and technology, must all be aligned with initiatives and activities which reduce environmental impacts and support the local and global community's right to endure and thrive by bringing new and energetic life to fruition through choices made in all areas of library operations and outreach.

The first step towards a sustainable library is sustainable thinking, which is a determined yet realistic attitude that will help libraries spot opportunities for institutional advancement, advocate for and safeguard operating funds, and generate intense loyalty from the communities served (Aldrich 2018). The perspective aligns with the thoughts of Hauke and Werner (2011) who provided answers to questions such as what sustainable means in the context of libraries. What examples are there of projects across the world that have developed sustainable, green libraries? The IFLA Green Library Award sponsored by IFLA's recently established Environmental Sustainability and Libraries Section (ENSULIB) and De Gruyter since 2016 has done much to promote green libraries initiatives and sustainable thinking within libraries. The notion of sustainable thinking not only urges libraries to think differently, with intent, about everything that they do, but demonstrates how to use construction and renovation projects as unique opportunities for positive changes according to Aldrich (2018).

As suggested by Hauke and Werner (2011), libraries as non-commercial public buildings are especially suited to provide examples of sustainability, to distribute and disseminate ideas about sustainability to the community, and to promote civic involvement in sustainability. Being green complements sustainability, and vice versa, and requires libraries to take environmental issues into account when making choices. It also means consuming resources at a rate no faster than they can renew themselves and generating waste at a rate no faster than can be assimilated by the environment (Kurbanoglu and Boustany 2014).

Sustainability represents the foundation of an official plan to continue to guide the growth of institutions and societies at large and quintessentially becomes a conceptual framework for a holistic approach for longevity in institu-

tions (Kurbanoglu and Boustany 2014). If the focus is on the needs of future generations, sustainability and holistic concepts will be incorporated in the design of work systems and of buildings. Sustainability is clearly a driving force in the design, delivery and operation of all services, including library services. Sustainability and going green are leading to the significance of concepts ranging from biophilia to low energy consumption in the design of library facilities and an emphasis on environmental and economic performance.

Reuse as an Opportunity for Sustainable Thinking

Hauke and Werner (2011) recommend the reuse of old buildings as an opportunity for sustainable thinking in library planning. The authors advocate the reuse of empty buildings no longer serving their initial functions or purposes. The rehabilitation of such buildings has become a key concern in the implementation of eco-friendly initiatives. The authors observe that for a long time the adaptation of old buildings for library use was rejected and the emphasis was on the benefits of a new building as evidenced by the quote: “A librarian must never accept an old building which has previously been used for other purposes” (Hauke and Werner 2011, 3). However, a debate at the IFLA conference in Budapest in 1985 about what conditions must be fulfilled for an old building to be converted into a library changed the trajectory of the discussion. More light was shed on such discussions by Santi Romero (2007) who indicated the possibilities of reuse and developed a typology of adaptable buildings, setting out the advantages and disadvantages of converting and renovating different building types.¹

Simply put, the positive aspects of reuse of existing buildings in terms of retaining symbolic value, cultural identity, urban ambience, frequently central location, architectural distinctiveness and heritage, community meaning and relevance and acceptance by the public are expected to reinforce local, regional, national and in some cases international support for sustainability initiatives in library architecture.

The process of rededication of a building with a former different use into a library, and the recycling or reuse of existing buildings into new use will become increasingly necessary in the future. The idea, Hauke and Werner (2011) argue, translates into reducing the ecological footprint of library buildings in a cost-effective and efficient way. They also argue that contrary to earlier misconceptions which posited that projects repurposing buildings into libraries could not become

¹ An earlier chapter by Santi Romero in this book expands on his earlier work.

good libraries, many have been successful. Examples cited by Hauke and Werner are found in Germany, Italy, Austria, Switzerland and the United States.

Sherin (2018) explores how values and sustainability can reshape the way design management is practised and applied. The book discusses how designers can combine innovative creative thinking with analytical problem-solving skills to produce outputs that are business ready and ethically driven. The book is relevant to sustainable library design as it cites numerous international examples showing how ethical design can be utilized effectively. It is a good resource to help design and project managers to use traditional design competencies in visionary ways and enable them to engage with a diverse set of stakeholders to solve universal design problems.

Clark (2008) makes a case for reuse not only in relation to cultural distinction, aesthetics and expense but also notes that adaptive reuse is different from restoration or preservation. He points out that while a restoration or preservation project involves restoring a building to its original state, adaptive reuse changes the intent of a structure to meet the modern user's needs. The fact that the wasteful processes of demolition and reconstruction are bypassed makes adaptive reuse attractive. Environmental benefits combined with energy savings and the social advantage of repurposing a place with valued heritage make adaptive reuse an essential component of sustainable development. It is critical that a library and its patrons and residents make wise use of non-renewable resources and strive to protect, enhance and restore the institution of the library so that future generations will be able to continue to enjoy and use it.

Li and Tsai (2017) show how historic buildings are being recycled into libraries all over the world. They contend that the rededication of a building with a former different use into a library is obviously recycling. The transformation of an existing building with a prior non-library function into a library brings the challenge and the opportunity for sustainable thinking in library planning. Their article demonstrates how adaptive reuse can provide an innovative resolution for buildings no longer in use, even decreasing land use and cost by avoiding demolition and new construction. The proportion of libraries adapted from old buildings when compared to construction of new buildings is likely to remain significant in the future especially in developed parts of the world.

Preservation of Cultural Heritage

This review notes Given and McTavish's view (2010) which suggests that as cultural institutions begin to share physical and human resources and new tech-

nologies reshape approaches to access and preservation, educational programs must respond in kind. They refer to the ways in which the current convergence of libraries, archives and museums mark a return to tradition rather than a departure from it and question whether new technologies and curricula are leading the three fields of study and practice into new territory, or whether they represent new stages in an ongoing history of acquisition, documentation, representation and access to the enduring knowledge of the three communities. The views of Given and McTavish reinforce sustainability as it relates to preservation of cultural heritage, historical identity of places and buildings, and preservation of the *genius loci* (Hauke and Werner 2011).

Historic buildings are being recycled into libraries all over the world with many gaining a new purpose and vigour. Examples occur throughout this book and elsewhere and former buildings include silos, post offices, barracks, breweries, factories, railway stations and stables, all transformed into libraries (Hauke and Werner 2011).

Li and Tsai (2017) examined school buildings in Taiwan. For a historic school building no longer serving in its original capacity, the only alternative to demolition is adaptive reuse. The most successful reuse projects seek to revitalize links to the community and preserve the history of the original connection through a new appropriate function. Otherwise, the perception that historic old school buildings are functionally obsolete is a contributing factor to why they sit empty for so long. It is assumed that buildings wear out and become useless, but in truth they do not wear out, they only deteriorate. Minor building elements may need to be repaired or replaced over time but structural elements such as the ceilings, walls, floors and foundations may never need more than occasional repair.

It is in the best interest of the LIS profession to capitalize on the historic nature of the existing building when considering reuse and to consider the rationale for reuse which must be ultimately sustainable and inherently green.

The Bibliothek Luckenwalde/Bibliothek im Bahnhof/Luckenwalde City Library, Germany, is a transformation of a railway station (Hauke and Werner 2011, 2; Sanne 2009). It operated from the beginning of the 20th century in a small town located half an hour train ride from Berlin. It was an excellent location for a library especially for train travellers and was transformed by ff-architekten Berlin into a beautiful library. However, the existing building did not have sufficient capacity for the required 45,000 volumes and the 50,000 yearly users. In addition to the adaptive reuse of the existing structure, the architects proposed a shimmering golden extension with a children's library on the ground floor and a young adult library on the first floor.

The Library of the Hochschule Luzern/Lucerne University of Applied Sciences and Arts in Switzerland was a former logistic centre for Swiss Mail (Hauke

and Werner 2011, 2; Schelling 2011) and was repurposed to make use of its excellent location near the main station in the middle of the city with good access to public transport. It cost less than half the costs of a new building of the same size and location with a flexible use of space making the case for reuse viable and efficient.

Adaptive reuse and repurposed historic buildings minimize costs, extend the life of buildings, preserve the existing environment and contribute in a global context to the management of climate change.

Challenges Facing Sustainable Goals in Developing Countries

It is perhaps surprising that while there is much good news about adaptive reuse, sustainable thinking and greening libraries in developed countries, the same cannot be said about developing countries, especially in Africa. One example is Ghana which lacks a proactive approach to developing and implementing urban policies capable of adjusting to the ever-changing and challenging demography and environment (Rosenberg 2006).

Some libraries in Ghana are facing numerous challenges that threaten their ability to become viable pillars of sustainable development. The buildings are typically unplanned with no drainage or universal access. They are financially fragile, make inefficient use of public services, and are subject to inappropriate building construction which makes them susceptible not only to climate change, but also to severe socio-economic hardship (Rosenberg 2006). Amidst these challenges, sustainability has not caught on despite some countries being signatories to the United Nations Sustainable Development Goals (SDGs) (United Nations 2015) to end poverty and protect the planet and ensure prosperity for all.

It would be appropriate to advocate for such laudable initiatives related to building reuse and sustainable design at sustainability round tables at international and local conferences to identify a new type of building infrastructure that would achieve economic growth through an economic base that does not drain or pollute natural resources, but rather uses recycled products to retain the invested energy. Such initiatives do exist but could be extended.

Conclusion

It is a pivotal time for the pursuit of sustainable development in libraries and communities have much to gain from adapting and reusing buildings. The results, the findings and observations in this document analysis provide a strong argument for sustainability. The literature review highlights the wider ongoing dialogue in the field. Sustainability and going green are growth areas for the future of libraries. A rational case is made for adaptive reuse and the repurposing of buildings that have outlived their original purposes for different uses or functions while at the same time retaining their historic features.

While sustainability and going green are trends that have already benefitted library architecture and design in developed countries, the same cannot necessarily be said about developing countries, with Ghana as an example.

In making a case for building reuse, it will be necessary to weigh the cultural importance, aesthetics and costs for any individual project. Often the most important factor in the decision to adapt an existing building is the initial projected cost and budgets play a large part in the discussion and implementation of sustainability initiatives.

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Zecc Architecten was recently awarded the Architect of the Year title for 2020. In addition to his work at Zecc, he is a visiting lecturer at the Amsterdam Academy of Architecture, lectures widely in the Netherlands and internationally and is active in several educational roles at Fontys HAN and Arnhem Academy of Architecture.
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competitions; and written the book *Library Architecture: Recommendations for a Comprehensive Research Project*. He took part, as a Spanish expert representative, in the development of the International Standards Organization (ISO) Technical Report ISO/TR 11219 "Qualitative conditions and basic statistics for library buildings". Since 2005 he has been a member of the IFLA Library Buildings and Equipment Section Standing Committee. Email: santiromerogaruz@gmail.com

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