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Reimagining the Library of the Future. From Social Condenser and Community Hub to Regenerative Design

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ABSTRACT

The primary objective of this article, an architectural forecasting opinion piece written by a design expert, is to investigate the various models of public library buildings and explore the continuous evolution of library design (presenting valuable information for anyone planning a library). The main question explored in this article is: What will be the design characteristics of the next-generation library? Methods used include precedent analysis, cases selected from an international list of 50 libraries built between 2010–2023 following a web search using the phrase “public library architecture” and analyzing these cases for repeated thematic similarities. Three similarities are identified.

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Collecting and sorting ideas for tomorrow’s libraries

Introduction and methodology: not one-size-fits-all

Along with such building types as art galleries, museums and concert halls, libraries have been one of architects’ desired public commissions for some time. The library is a truly public building that provides free entry and services; and despite the digital revolution, this building type appears to be more alive than ever in terms of people using it. Just think of the iconic libraries including Stockholm Public Library by Gunnar Asplund (completed in 1928), Louis Kahn’s Exeter Academy Library in New Hampshire (completed in 1972), Sendai Mediatheque by Toyo Ito (completed in 2000), or Seattle Central Library by Rem Koolhaas (completed in 2004). These much-celebrated public structures represent just a few imaginative examples of what a library building could be (Lehmann 2022).¹

The main question explored in this article is: What will be the design characteristics of the next-generation library? In response to this core question, case study design and precedent analysis was used to shape the findings. The cases presented in this article were selected from an international list of 50

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libraries built between 2010 and 2023 following a web search using the phrase “public library architecture” and analysis of these cases for repeated thematic similarities.²

As the diversity of cases illustrate, there is no single theoretical foundation or philosophical perspective of what a library should be, but instead a richly diverse reflection of its many different functions. The process of studying past work is known as precedent analysis, and it is foundational to every building research. Different from a case study that only looks at a single building; a precedent analysis is a valuation method exploring the commonality of design ideas in which a number of different buildings with particular features is analyzed in terms of conceptual similarities (Clark 2004).

The goal of this study is to promote excellence in library design and to examine the various emerging concepts for the next-generation library, thereby raising quality of life through the provision of pleasant gathering spaces, better access to knowledge for everyone and the strengthening of environmental, social, and cultural sustainability. Of particular interest are hereby the personal statements from leading library architects and thinkers on key issues important to the formulation of tomorrow’s library, offering perspectives on how the library typology might evolve into the future.

Libraries serve as not only depositories for books and manuscripts but as social gathering places for local communities, and they are frequently taking on broader tasks and programs. Libraries are shifting from a collection-centric institution to a people-centric service center, and the importance of special collections is on the rise. Given the major climatic, social and economic challenges, as well as the environmental degradation and increase of social inequalities, the library of the future is also about resistance: resisting the commercialization of public space, civic institutions, and identifying new ways of doing things (Rifkin 2000). At the core of the new approaches in library design is the resistance to the constant commodification and commercialization of public space.

Watson (2022) speculates that, over the next decade, the library will continue to expand its role as a free educational resource for lifelong-learning of all residents, with initiatives targeting non-traditional library users, operating as the “great equalizer of society.” This means that the library of the future is not just an aesthetic or urban statement, but also a political planning statement on the dilemma of our public institutions and spaces.

One of the questions was: How can civic architecture, such as a public library, better engage the public, exhibit conscientious urbanism and democratic ideals, and achieve a remarkably low carbon impact? Precedent analysis was chosen as method: the selected cases cover a wide range in terms of size, function and location — and certainly, no single example could be said to be a definitive model. The library is often a visual landmark and focal point for the surrounding area and cultural district. However, the discussed cases

identify recent trends, which manifest some of the best in contemporary library design. While each library has its own challenges and ambition, the architect's task is to question what a library might be in future, closely collaborate with the team of librarians, and ideally prepare the facility for unpredictable future change. Here, the presented projects give the author the confidence and optimism that library design will continue to positively evolve and deliver more than just a building; it gives the hope that the library of the future will enhance and contribute to the public space network (not just consume ground), even create new types of urban space, and introduce an entirely new dimension of programmatic diversity and user engagement (Lehmann 2022).

A small literature review to frame the library design research

Before the introduction of the cases, and to situate this opinion piece in the larger context of library design, a small literature review was conducted that explored literature written by architectural writers for library designers. The question what makes a good library has been discussed throughout the entire 20th century. Key texts include the work by the following authors, exploring the various architectural design issues and practical solutions: Hessel (1925), Wheeler and Morton Githens (1941), Thompson (1963, 1973), Metcalf (1965), Ralph Ellsworth (1973), Pevsner (1979), Brawne (1970, 1997), Oehlerts (1991), Worpole, Greenhalgh, and Landry (1992), Kito (1995), Kaser (1997), and Bieri and Fuchs (2001).

One of the earliest theorists of social space theory is Georg Simmel, who wrote on the sociology of space in his 1908 book "Sociology: Investigations on the Forms of Sociation" that explored the separation of leisure spaces and public space in modern societies. Social space theory in relation to public building typologies, the changing nature of the "public," and the impact of digitization were explored as key themes in seminal 20th-century texts by authors including Georg Simmel, Roland Barthes, Pierre Bourdieu, Michel Foucault, Jacques Derrida, Gilles Deleuze, Umberto Eco, Anthony Giddens, Juergen Habermas, Richard Sennett, Bruno Latour, Henri Lefebvre and others. Here, the view of social theory is on the concept of social space that expresses an articulation between physical space and sociality, and its interaction: the library is understood as a public gathering place for social interaction and sharing of knowledge, similar to a town square. Rifkin (2000) further noted the commodification of public space and changing nature of the library. More recently, the need for a critical library theory was outlined in the book edited by Leckie and Buschman (2010) that established the public library as space for democratic empowerment. Wong (2016) also wrote on the library in its social context. Important historical surveys and descriptions of the evolution of the library typology followed by Murray (2009), Black, Pepper, and Bagshaw

(2009), Campbell (2013), and Hille (2018). Around 1995, with the emergence of the World Wide Web, it became obvious that in the digital age, there is new potential for the place we call the library. Freeman (2005) and others explored the question of the changing of role of the library and asked, what is the role of a library when users can obtain information from any location? What does this role change mean for the creation and design of library space? In 2003, the UK's Commission for Architecture and the Built Environment (CABE 2003) published the relevant report on "Better Public Libraries," which was followed by the U.S. Education Advisory Board's 2011 report "Redefining the Academic Library" (EAB 2011).

In addition, a series of beautifully illustrated publications followed, such as by Bosser (2003), Futagawa (2006), and Ruppelt and Sladek (2018). In the last decade, practical planning and design guides were published by Edwards (2009), Worpole (2013), Schmitz (2016), Schlipf and Moorman (2018), Lushington, Rudolf, and Wong (2019), Wingert-Playdon (2019), and Nevarez (2021). Most recently, bibliotheca has launched an initiative on better library design with a free webinar specifically targeted to discuss successful design solutions and the integration of technology in libraries (2023). Belogolovsky's interview (2022) on the future of the library is also relevant.

Back to basics, expanding the offerings, or reducing the size of the open collection?

Besides the diversity of urban space, the selected cases show that the design of the next-generation library demands strong ideas for significant, memorable interior spaces. When creating a new library, some basic decisions will need to be made early on, and this involves a close collaboration between librarians and designers to clarify the intended purpose of the new library.

The purpose of libraries can vary. In 1640, the Bishop of Puebla, Juan de Palafox y Mendoza, donated 5,000 books from his private collection to the seminary of the Colegio de San Juan with the condition that the books be available to anyone who could read, and not just academics, thus creating the first public library in North America. The founders of the public libraries in the 1800s aimed to create a welcoming space for everybody with the basic objective to provide information to the general public to satisfy their informative, education and recreational needs (Benjamin Franklin in 1731, "Even for men of moderate means who could not readily afford books"). Libraries play an essential role in local communities through their core functions: providing access to information and resources, supporting literacy and education, promoting life-long learning, and serving as a community gathering space to foster dialogue and exchange. However, some librarians are now asking for a return to the purpose of the academic library, which is to support the

specific needs of the scholar and provide an inspiring place for concentration, reflection and research, with spaces to sit and chat, as well as an exhibition gallery space (as presented by cases later in this text). This includes a place where those scholars can meet, come up with ideas and make breakthroughs that possibly would otherwise would not happen. A good library provides both types of spaces: quiet spaces for concentration as well as spaces to gather, meet and discuss ideas. However, this concept might somewhat be too limited and insufficient for a public library that has to cater to a much broader range of user needs.

In 2011, the American Education Advisory Board (2011) released a thoughtful assessment of the future of libraries and their deep transformation, noting that “in an era when millions of books, articles, images and videos are available instantaneously via the web, libraries across all institutional types are experiencing declining demand for their traditional services, built around the storage and dissemination of physical resources” (EAB 2011). At the same time, new demand for digital information services and collaborative learning spaces promises new areas of opportunity and engagement with users, as Keith Webster argues (Webster 2022). There is one trend: increasingly, libraries aim to reduce the size of collections on open shelves by moving to compact automated storage systems, although many library users still value the ability to browse large-scale collections on open stacks. However, too much space is usually tied up in areas of low-demand activity, which could better be used for collaborative learning activities or other functions (Freeman 2005).

In Europe and the U.S., libraries are also under budgetary attack and funding cuts, so new projects must be carefully planned and executed (Buckingham 2014). Over the years, visitors and user expectations have also evolved, with today’s expectations of extended opening times, ideally 24/7. Designing new experiences will challenge the common predictability of library use and open up new possibilities for public life, debate, and encounter. Unpredictable and unusual functions could be combined and added to the program of the library. For example, introducing new amenities or cultural activities to the standard format of the program can range from maker spaces and roof gardens, to digital training facilities, lecture theaters, and so on. Most librarians and library designers are involved in reimagining the programmatic boundaries by offering new user experiences as a counterpoint to the activity of reading books. Having analyzed the spaces of a large number of libraries, the author found that around 60% to 70% of library programs consist of publicly accessible space and accessible areas for book storage; and many libraries are now adding high-quality exhibition programs for their gallery spaces. The small exhibition room at the Bodleian Library in Oxford, for example, attracts over 250,000 visitors per year, putting it ahead of many small museums.

Community libraries are also adding job training spaces and classrooms to their program to remain relevant for the community; with such additional community functions, the library will continue to be an engine for research as well as a community destination and place for public engagement.

The revival of the grand reading room. Bringing readers and books closer together

It seems that the design of libraries can go in different directions: some libraries are moving (back) toward a model that encourages readers to stay and linger, reflecting the trend of facilitating reading as well as other functions. While an increasing number of new built libraries are using compact automated shelves that operate as a closed stack system, one can also find the revival of the traditional reading room with some openly accessible stacks, frequently combined with meeting rooms that promote social exchange between the users; much like a community center or hub for social life among the local community.

However, one established approach that became popular in the early 20th century was to locate the majority of the book collection in depot spaces on a lower level to provide an open free-flowing plan for the main floor above. This approach was frequently used by large urban libraries in the US, simply to free up space. The consequence was that the reader became disconnected from most of the books and large parts of the collection. To avoid such a separation, two different approaches have recently emerged either to locate the book stack in the center of the building, surrounding it with reading rooms around the perimeter that benefit from daylight; or to disperse the collection, placing smaller parts of the collection in closer proximity to the reading areas in an open plan layout. Concerning this, Slyck and Abigail (1995, 81) noted, “as the reading space and book storage space became more integrated on each floor, the rectangular footprint of these buildings tended to grow, as did the library’s dependence on air-conditioning, fluorescent lighting, and flat suspended ceilings. Although the doctrine of flexible planning offered exciting possibilities in library service, the architectural spaces that it created often were monotonous.”

During the last six decades, the ever-growing extent of the collections necessitated larger interconnected storage areas in order to efficiently store the books. Although space could be saved by using compact shelving in storage areas, closed stacks or automated storage systems, most of the librarians still favor open access with reading spaces located directly adjacent to, or even interspersed with, the stack areas. The reason why many recent designs remind of the great reading rooms of the 19th century: a revival of the grand reading room surrounded by walls of books (e.g., Mecanoo’s library in Delft). Latimer (2011) also noted this “trend back in favor of users and their spaces rather than

the domination of the collection space,” arguing that the library today is all about making close connections between different groups of library users and the available resources. Close immediate access to book stacks (to minimize “book miles”) and the opportunity to wander around freely between walls of books have enjoyed a revival.

In our accelerated information-centered age, civic, cultural, and educational projects are playing a new societal role, and library architecture is measuring up to this new challenge. But in the midst of all this acceleration, the slow act of reading – for the sake of knowledge, enjoyment, or to simply explore the world of the human imagination — reading is still one of those experiences that gives a sense of emotional and spiritual fulfillment. Library architect Francis-Jones (2021) supports this argument: he contends that in these times of unprecedented change, libraries urge us not to dismiss the spaces that we have valued over centuries. Creating a space that surrounds the visitor with books on old-fashioned bookshelves is undoubtedly linked to an enriched sense of public values, and this is enforced by the short distance between reading rooms and bookshelves.

True to their slogan “we create happy and adventurous places,” one of the most eye-catching contemporary examples is the spectacular Tianjin Binhai Library (2014–17) designed by Dutch architects MVRDV. Questioning its design, wrote in the *Sydney Morning Herald*: “This library entertains the masses with scores of undulating bookshelves that snake in around its amorphous interior, which centers on a giant white golf-ball of an auditorium. However, many of the shelves are inaccessible using fake books; the ‘fun’ amorphous interior resonates with the sound of crowds at a funfair and anyone wishing actually to read or study is consigned to the dully-utilitarian spaces around the edge. No sense of sacred learning here; in fact, almost the opposite. This is a building that elevates easy popularity over scholarship.” Moreover, she goes on, “we need to lose the threadbare assumption that everything must be popular, dumbed down and profitable. Some things are beyond price.”

The main dilemma at Tianjin Binhai Library seems to be the lack of a quiet grand reading room; everything happens in the central, active entrance hall (See [Figures 1 and 2](#)).

Tianjin Binhai New Area Library is one of the most spectacular and radical library interiors of the last twenty years. The library is often a visual landmark and focal point for the surrounding area and cultural district. In this case, the external building shape is a simple box, while MVRDV was able to create an entire new library experience on the inside: a rippling wave of cascading bookcases stretches from the floor to the ceiling. These bookcases orbit the luminous “Eye,” an enclosed sphere that contains a spherical auditorium space. The library offers over 33,000 sqm (330,000 sqft) of floor area on five floors; the first two floors consist primarily of reading rooms, book storage and



Figure 1. Tianjin Binhai New Area Library, Tianjin, China (MVRDV, Winy Maas; with Tianjin Urban Planning and Design Institute), 2014–17. Image: Courtesy of the architects.



Figure 2. Tianjin Binhai New Area Library, Tianjin, China (MVRDV, Winy Maas; with Tianjin Urban Planning and Design Institute), 2014–17. Image: Courtesy of the architects.

lounge areas. The upper floors offer meeting rooms, offices, computer and audio rooms and two rooftop spaces. This “instagrammable” space has been very well received and was much published globally. Terraced bookshelves, which echo the form of the sphere, create the interior, topographical landscape whose contours reach out and wrap around the façade. The five level building also contains extensive educational facilities accessible through the main atrium space. The public program is supported by subterranean service spaces, book storage, and a large archive. From the ground floor, visitors can easily access reading areas for children and the elderly, the auditorium, the main entrance, the floors above and the connection to the cultural complex (See [Figures 1 and 2](#)).

Central reading room or a “free-space” indoor landscape?

Throughout history, there have been reading rooms that offer a large, single and tranquil space with carefully placed columns, to create a feeling of openness reminiscent of the outdoors, like being in a grove, vineyard, or forest. One of the most well-known examples of such a space is the main reading room at the Bibliotheque Nationale in Paris, designed by Henri Labrouste in 1850. For its columns and arches, the architect used the most advanced iron construction technology of the 19th century.

Given the often disappointing, uninviting outcomes of new-built libraries in the postwar era, in the 1980s architects started to experiment with different spatial arrangements. Roth (2014) describes the development over the last decades and compared two very different solutions: at one end is Max Dudler’s monolithic Jacob and Wilhelm Grimm Zentrum in Berlin (completed in 2009), which is organized in internal “reader terraces:” at the heart of the library is an impressively large, stepping reading room, which stretches across four floors, in tiers like stepping terraces, receiving natural light from skylights above. All shelves, work places and seating areas follow the building’s minimal rectangular grid layout, and this interior space forms the “heart” of the library. At the other end is a completely different solution: SANAA’s Rolex Learning Center in Lausanne (completed in the same year, 2009): it offers a “free space” on one level that allows visitors to wander about freely through open fluid rooms that are not separated by any partitions (similar to Toyo Ito’s earlier Sendai Mediatheque in Japan, completed in 2001). There are no prescribed paths and along the way, one can encounter a landscape of hills and valleys with integrated seating possibilities, shelves, a cafe and small glass cubicles to which one can withdraw for concentrated group work. There is no central single reading room because reading happens formally and informally everywhere, dispersed throughout the building. These are two contrasting types of buildings – both aiming to bring readers and books closer together again – but in the way this is achieved could not be more different! (See [Figures 3 and 4](#)).



Figure 3. Jacob and Wilhelm Grimm Zentrum, Berlin, Germany, designed by Max Dudler Architects, 2005–09. Image: Courtesy of the architects.



Figure 4. Rolex Learning Center in Lausanne, Switzerland, by SANAA, 2004–09. Image: Courtesy of the architects.

With a renewed focus on the reading room as the central main space, this space provides visitors with soft, diffuse lighting (often daylight from the top) and a pleasant, comfortable experience to sit and read. Visitors may stroll through the stacks and browse the titles on display, and the access from shelves to the reading room is never far. To avoid long circulation paths, a close relationship between the open-shelf area and the reading room is still important. In Alvaro Siza's libraries, for example, the readers and the books always share the same spaces; according to the man himself, this is a lesson learned from visiting the libraries of Alvar Aalto. Such a central reading room allows people to experience the joy of reading while surrounded by a treasure trove of books, which can have a powerful physical presence – something that the convenience of electronic and digital books cannot offer. The reading room represents a continuous relationship that brings humans and books together even as it changes and evolves, transcending time and history.

Developing a detailed program with user engagement

Broad engagement with the librarians and trustees is essential before any basic design concept can be developed or decided. This was a helpful approach for Seattle's new library. Seattle Central Library (completed in 2004) is one of the most innovative new libraries of the last twenty years. Paul Goldberger noted that the architects, before commencing with any design, started out by first investigating how libraries actually work and how they are likely to change. "They went with Seattle's chief librarian and several trustees and staff members to look at libraries around the country, and then they held a series of seminars about the future of the book with scholars and representatives of Microsoft, Amazon, Media Lab and other organizations. They concluded that people are not ready to give up on books and that they are not ready to give up on libraries, but that they find most libraries stuffy, confusing and uninviting. Patrons wanted a more user-friendly institution, and librarians wanted one that was more flexible, and would not require constant rearrangement as collections expanded" (Goldberger 2004). It became quickly clear to the team that it needed a fresh approach. The team felt dissatisfied with older libraries, where books are stored on endless monotonous rows of shelves on separate floors and collections are arbitrarily broken apart, as these were not particularly attractive or user-friendly. It was at this point that OMA came up with the solution of the "Book Spiral," with shelves continuously winding up and up in a spiral, allowing for an uninterrupted presentation. As solution, the stacks were designed in the manner of a parking garage, with slanted floors joined in a series of zigzagging ramps — a new library typology based on user engagement was created (Seattle Central Library was extensively discussed by Muschamp 2004; Ramus 2004) (See Figure 5).

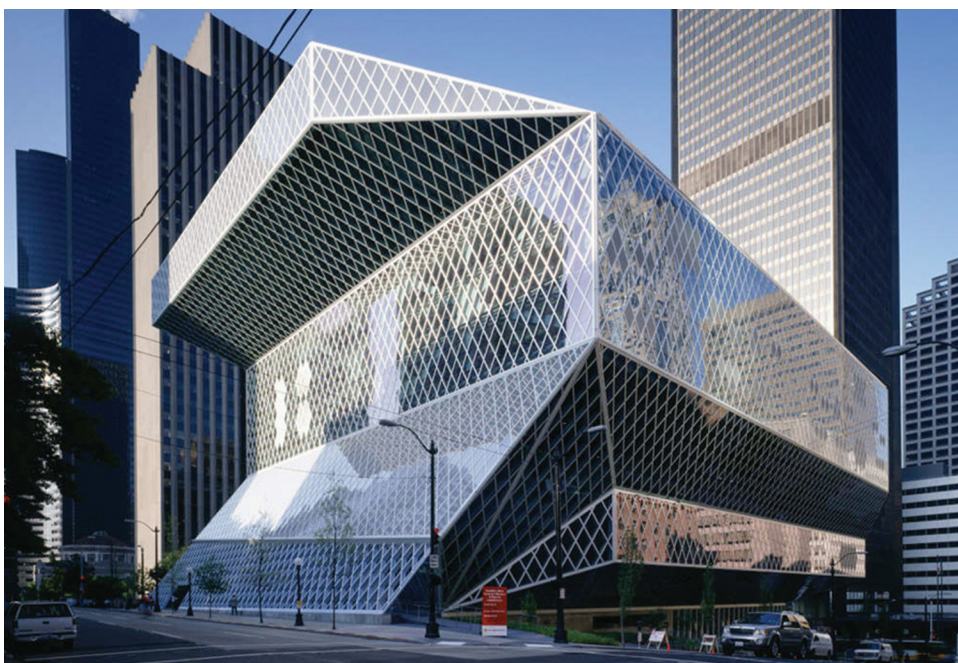


Figure 5. Seattle Central Library, Seattle, Washington, USA; designed by OMA, 1999–2004. Image: Courtesy of the architects.

New community-based programs, and the case of Finland

Concerning public libraries, the small Nordic country Finland is a particularly interesting case: it has the highest number of registered book borrowers per capita in the world, and the Finnish people are the world's most enthusiastic users of libraries. The population of 5.5 million people borrow close to 68 million books a year – just over 12 items per person; and Finland ranks as the world's most literate nation in a 2016 study. Public libraries play a central role in Finland's civic life, and access to library services is a statutory right for all citizens. The Finnish enthusiasm for libraries goes back a long time: Finland's first Library Act was passed in 1928 (Rizzardo 1987, 76). In the early 20th century, the leaders of the newly independent country embraced the public library as an investment in human capital and as a means to promote education and socio-economic development in a region without a wealth of natural resources or an established industrial base. Today, Finland is an advanced economy, and access to library services remains a statutory right, protected by law (Wiegand and Donald 2015, 200). Early on, public libraries in Finland began to explore new community-based programs and a broad range of services in addition to the core activity of lending books. It is not uncommon for libraries to provide amenities ranging from music rehearsal and recording facilities, to community space or childcare facilities.

Oodi Central Library, Helsinki's newest public library (completed in 2019), is part of a new era of libraries in Finland that respond to the country's 2017 update of its Library Act, which established a mandate for libraries to promote lifelong learning, access to culture, and support active citizenship, democracy and freedom of expression. Oodi's Makerspace, equipped with technologies such as 3D-printers and laser cutters, extends the tradition of lifelong learning by giving citizens the opportunity to access and train with new technologies that are likely to shape life and manufacturing in the digital economy of the 21st century. This Makerspace is not hidden in the back but placed centrally as glazed box with views inside. Given its breadth of services, different civic purposes, and expansive technological offerings, one might be forgiven for wondering whether Oodi should be considered a library at all. Rogers (2018) commented with some amusement in *The New York Times* that "Helsinki's new library has 3-D printers and power tools (and some books, too)." New libraries in Finland are an ambitious attempt by one of the most literate and digitally perceptive nations in the world to build social infrastructure. Nordic and Scandinavian countries have always placed a high premium on social integration and education, so it is no surprise that they emerged as leaders in library design. With their generous funded programs, the Finnish government spends more than one and a half times per capita on libraries when compared to the United States (See [Figure 6](#)).



Figure 6. Oodi Central Library, Helsinki, Finland; designed by ALA Architects, 2014–18. Image: Courtesy of the architects.

With Oodi Central Library in Helsinki, we took into account the fact that libraries will always be changing. Already, their use is different now from what it was ten years ago. — Samuli Woolston, ALA Architects, 2019

Located on a prominent site along the East River, against the backdrop of high-rise condominiums, the Queens Public Library at Hunters Point stands as a public building in a park, bringing community-devoted space to the Long Island City waterfront. It stands independently, rising with a minimal footprint to offer maximum surrounding green space to the local community. The concrete structure comes painted in aluminum-silver, giving the small library a “subtle sparkle,” says architect Steven Holl (2021). The vertical structure reimagines the traditional library model, providing a diversity of different spaces, from intimate reading areas to active gathering spaces. Large cuts in the façade allow visitor views toward the city skyline as they move up a series of bookshelf-flanked stairs. This compact and small branch library has a complicated section and features on 2,200 sqm (22,000 sqft) a public meeting room seating 140 people, a children’s reading and activity area, an adult reading area and quiet room, a cyber-center, a teen reading area, rooftop café and roof terrace. The main Manhattan view, perpendicular to the internal movement of the library, gives the small space a dramatic experience, while the book-lined switchback stairs include small reading rooms. Natural light enters through the large windows from all sides, animating the space. The digital and the book are merged through the bookshelves and adjacent digital workstations that flow upward along a series of open stairs. While this library is a fine public building, however, it also received some criticism of limited accessibility, when it was discovered that its single elevator does not reach every floor (the rooftop garden, cascading indoor terraces and a reading space are inaccessible for people who use wheelchairs), its staircase was vilified as dangerous and concern that the building is plagued with construction flaws (Randle 2019; article in the New York Times) (See Figure 7). Architect Steven Holl wrote (Holl 2021):

The future library serves an important role as a community-building institution. Therefore, there should be many libraries, as there are many communities. In the community around our Queens Library, many families are immigrants and use the library for language assistance and guidance. In our world of increasingly privatized development, the library of the future is an important social condenser – where children of the community meet other children, where seniors meet other seniors. Ongoing cultural events, such as readings, storytelling, and gatherings with educational messages, provide the local community with an important place of interaction and exchange. In the recent past, churches, or schoolhouses provided a public space that, like a social condenser, held the local communities together. In our digitally atomized present with multiple ethnic and religious backgrounds, the new community library provides a much-needed social institution. The library of the future is for tomorrow, much more than its past, book-filled ancestor. It is a place where a child can find optimism for the future of our planet and the human condition. — Steven Holl, 2021



Figure 7. Queens Public Library, Hunters Point, Queens - New York, USA; designed by Steven Holl Architects, 2010–19. Image: Courtesy of the architects.

The new Municipal Library “Stadtbibliothek” in Stuttgart takes the form of a cube with an edge length of 45 meters (150 feet). The attraction of this public library is in the inside: the cube-shaped, nine-story cube features an impressive atrium void in uniform pure-white, lit from the top skylight. It forms a five-story reading room shaped like an upside-down pyramid that resembles an M. C. Escher drawing. This enormous gallery hall is square-shaped and surrounded by a shell of bookshelves. The circulation is carefully laid-out, with vistas across the central void, turning the central atrium space into a stage. There is not one grand reading room as reading is supposed to happen informally on every level. Everything is kept in white, and the only color in the building comes from the books themselves. The shell of the cube is a double-layer facade with glass bricks on the outside. Recalling the “Cenotaph for Newton” by Étienne Boullée, the heart inspired the symmetry of the entrance of the building, while the core of the library follows the design of the ancient pantheon (See [Figure 8](#)).

One of the most impressive new public libraries is the Bibliotheca Vasconcelos in Mexico City; it resembles a giant machine. The mega-structure combines five different collections to one mega-library, all contained in a 250 meters (820 feet) long super-structure with suspended, hanging bookshelves that look as if they are hovering in mid-air. The ship-like building sits in the middle of a lush botanical garden containing flora native to Mexico; this means that when looking from



Figure 8. Stuttgart Municipal Library, Stuttgart, Germany (Yi Architects), 1999–2011. Image: Courtesy of Cida de Aragon.

inside out, library users enjoy a view into a beautiful garden. Its central linear atrium space connects all areas of this giant 40,000 sqm (400,000 sqft) library. The facility is named after José Vasconcelos, who was a philosopher, politician, and important cultural figure in Mexico for actively promoting literacy (See [Figure 9](#)).

The three main trends we can identify in recent library design

Library historian and designer Ken Worpole asked if libraries have a future.

Do libraries have a future? There is no doubt they do, as the current wave of library building across the world confirms. However, new designs for libraries will be much more site-specific in their future configurations, and their programme will be adapted to meet local social and demographic circumstances, along with the likelihood of more shared or co-located facilities and funding partners. In the USA, the grand city library has become a focal point of urban renewal, and the same is true in Europe. These new libraries are no longer service stations but destination buildings in their own right, and require architectural imagination to succeed. In an otherwise highly commercialized urban center, the public library



Figure 9. Bibliotheca Vasconcelos Public Library, Mexico City, Mexico (Alberto Kalach & TAX), completed in 2006. Image: Courtesy of Cida de Aragon.

acts as a beacon of civility and will be increasingly valued as such. — Ken Worpole, *Library Historian*, London, 2013

With this optimistic outlook in mind, and analyzing all the selected cases, three main trends in library design (and combinations of these trends) can be identified:

- The flexibility and adaptive reuse of an existing structure as a library;
- The library as a programmatic hybrid and community-focused destination;
- The library as a highly sustainable green building that integrates nature and greenery in form of roof gardens or green spaces in a courtyard;



Figure 10. Municipal Library and Historical Archive – Biblioteca del Mediterraneo, Alghero, Sardinia, Italy (Giovanni Maciocco and Department of Architecture of the University of Sassari), 2010–15. Image: Courtesy of Cida de Aragon.

Let us examine these three main trends further.

Libraries as adaptive reuse projects: refurbishment and building adaptation

The number of public libraries that are adaptive reuse projects in existing structures is constantly growing. Buildings often last longer than the purpose they were designed for, and adaptive reuse offers interesting opportunities in which the new can relate to the old; the new can pay respect, but can also speak of its own age with integrity and without pastiche. In times of ecological necessity and whole-lifecycle approaches, it has become increasingly questionable to justify completely new-built library structures, when an adaptive reuse solution would, most of the time, be so much more sustainable. Reusing and adapting existing structures has emerged as a significant way to accommodate new libraries in a more sustainable way: by reducing the embodied energy, maintaining a sense of memory and place, and making the reused structure part of the wider urban renewal while requalifying the existing city through its reuse. To facilitate reuse, architects need to design adaptable buildings that can accommodate multiple uses within their lifecycle through retrofitting,

adaptability, and as a catalyst for the reuse of brownfield sites. Some good examples of this trend are:

- The Community Library at the SESC Pompéia Cultural Centre, São Paulo, Brazil, designed by Lina Bo Bardi, which reuses a former metal barrel factory space (1977-86);
- The Library in Eichstaett, Germany, designed by Karljosef Schattner, which reuses a former Baroque palace as the new Eichstätter Universitätsbibliothek – Ulmer Hof (1976-80);
- The Municipal Library and Historical Archive used by the public and the Department of Architecture, Design and Urban Planning, at the University of Sassari in Alghero, Italy: it is the reuse of a 17th-century church, which was transformed into a small public and specialized college library (2015) (see [Figure 10](#));
- The University Library for UPF Biblioteca Disposit de les Aigues in Barcelona, Spain, which reuses a 19th-century water reservoir (architects: Clotet, Paricio & Associats, 1992-2009);
- The LocHal Public Library in Tilburg, the Netherlands, which reuses a converted locomotive shed (architects: Mecanoo and others, 2017-19).
- Marrickville Public Library and town square in Sydney, Australia, which reuses a former hospital building (2018-20), designed by BVN Architects.
- Stanbridge Mill Library in Wimborne, Dorset, UK, which reuses a former farmhouse and water mill (2020-21), designed by Crawshaw Architects.

The Biblioteca del Mediterraneo in Alghero is an adaptive reuse of the former church Santa Chiara that, since 1647, has housed the cloistered convent of the Isabelline nuns. In 1868, the whole estate became property of the municipality of Alghero who turned it into a civic hospital, serving this function up until 1970. After more than thirty years of abandonment, the entire complex was restored and the rundown area transformed into an exceptional center of culture and award-winning example of urban regeneration. Main user is the Department of Architecture, Design and Urban Planning of the University of Sassari. The small library hosts 50.000 volumes; two staircases are running on both sides of the three-story vaulted main hall, and the walls are completely covered with bookshelves.

The library as a hybrid urban place, community destination and a leader in sustainability

Redefining the boundaries of library design begins with questioning what is possible and practical. Designing for the cultural sector is always a creative endeavor in terms of how to design a building that truly expresses and shows respect for what will be represented and displayed inside. Libraries of the 21st

century are about more than just books: they are about “place-making” – creating urban places that have a positive, long-lasting impact on users, the community, and act as catalyst for urban regeneration. Including a place for tourists to visit on a rainy day. Simply put, the new libraries are places that people enjoy spending time in, and therefore are buzzing with activity.

Architecture scholar and critic asks, “Does a library of the future even need books? No one seems certain. Indeed, for a while, the book-free library seemed a real possibility and librarians were encouraged to think of this as ‘reinvention.’ But we all knew it for what it was; the triumph of the Neoliberal bums-on-seats barbarians over any kind of respect for scholarship.” This argument suggests that not every library should be turned into a community center or childcare facility, because it could diminish its mission and value. So, one needs to ask what is appropriate and makes sense. When is additional functional program too much?

Introducing soft amenities, additional functions and cultural activities to the traditional library program can be the right solution. The add-on program could range from gallery spaces and roof gardens, to digital training facilities or 3D-printing workshops. Moreover, some of these additions might make the library part even stronger. The most promising of current trends in library design that are likely to prevail and influence the library of the future, can be identified as:

- The library as a public space and catalyst for urban regeneration;
- The library as a large neutral flexible shed to deal with any future change;
- The library as a public pavilion in a densely vegetated garden;
- The library as a terraced vineyard;
- The library as a civic theater and stage for urban life;
- The library as an urban monolith that forms the context of, and background to, public life;
- The library as a continuous spiral, helix, or ramp space for entirely new spatial and organizational experiences.

Greening the library

Sustainable design principles are now a key component and major driver of any contemporary public building, introducing new ways of design and construction with the aim to minimize the negative environmental impact. The need to preserve resources, minimize waste, and ensure low-cost operation is a powerful driver of the design of any new project. A good example of how sustainable design strategies can directly shape the library of the future is the “The Brain” in Berlin by Foster + Partners, completed in 2005 (See [Figure 11](#)). It is one of the most energy-efficient buildings on campus and it maximizes daylight for the balconies of the various reading areas.



Figure 11. Academic library “The Brain” on the Freie Universitaet campus, Berlin, Germany, designed by Foster + Partners, 2000–05. Image: Courtesy of the architects.

In terms of user comfort, the most common complaints in libraries are about temperature (overheating), glare, and acoustic problems (noise), with users commenting that the buildings are either too hot or too cold, too much day-lit (which can lead to glare on computer screens), or too noisy (for more details on this, see also the IFLA building guidelines for libraries). Library scholar Latimer (2011) noted, “In the past, libraries often had uniform lighting throughout, but it is now recognized that areas of activity can be defined by varying the level of lighting. As readers, and indeed library staff, like to work in natural light, seating areas are often placed around the edges and perimeter of the building, with maximum daylight penetration throughout deep-plan buildings being provided by an atrium.”

Over the next decade, we will most likely see continuous improvement in the fields of energy-efficiency and sustainability, pushing the boundaries toward regenerative design. There will be an increase in adaptive reuse projects, where libraries are not entirely new-built but instead adapt an already-existing structure, as well as an increase in refurbishment and remodeling of existing libraries (Mecanoo’s recent remodeling of libraries in Washington, D.C. and New York City are good examples of this trend; see also the interview with Mecanoo by Stevens 2021). The potential of a new or refurbished library to become



Figure 12. Sendai Mediatheque, designed by Toyo Ito between 1994 and 2000, located in Sendai, Japan. The building is seen as a milestone of the new conception of libraries. Image: Courtesy of the architects.

the catalyst for the urban regeneration of an entire neighborhood is significant.

Regenerative library design, reconnecting with nature

A fascinating trend today is *regenerative design*. Today, designers must ask how to repair and restore damaged ecosystems, by activating nature-based solutions and reconnecting the human-made with the natural, e.g., by adding roof gardens and even urban farming. There are numerous new ways to regenerative design and the integration of greenery into libraries and reframe the conversation with clients and policy-makers on the possibilities of regenerative design. Regenerative design goes beyond sustainable design; it is an approach to designing systems or solutions that aims to work with natural ecosystem processes for returning energy from less usable forms. *Wikipedia* (2023) defines regenerative design as a “design method that uses whole systems thinking to create resilient and equitable systems that integrate the needs of society with the integrity of nature.”

The next-generation library will be designed for urban regeneration and an ecological future, with a concern for the flows of energy, water and materials (waste). It will be a key part of the economic redevelopment of urban centers, based on circular-loop thinking and principles of sustainable design. It will not

only be a library building that encourages encounters between readers and books, but an institution, which goes far beyond by reconnecting the user with nature, its resource flows and cycles. The Ellen MacArthur Foundation has published extensively on the relevance of the circular economy for architecture (Ellen MacArthur Foundation 2017). Given the growing awareness of the importance of nature in a fulfilled life, the author speculates that the super-green library of the future will be an immersive experience with an abundance of natural lighting; and the experience of nature will be a key element of the future library, which could be a building that allows visitors to experience being in a garden or next to a tree. Moreover, it will be made of natural ecological (bio-based) materials: the library as a timber building, using the latest technology in innovative mass timber engineered construction systems in combination with rammed earth walls. Designing buildings in partnership with nature, the new urban library will not only be biophilic, but it will be bio-centric: a shift from human-centric to bio-centric starts with the replication of processes and patterns commonly found in nature (without imitating them literally). The book “Low Carbon Cities” (Lehmann 2015) argues that bio-centricity often starts with the recovery and repair of damaged brownfield sites where soil and water systems are degraded. Here are a couple of thoughts on the regenerative design for libraries:

- Urban form becomes a polycentric network structure, rather than the monocentric as mostly seen today. Instead of a large centralized (monocentric) energy power plant, the city will operate many small, decentralized systems at dispersed (polycentric) nodes, operating at the scale of the building. At least 50% of its energy needs will be generated on-site by the library itself, using renewable energy sources. Roofs, canopies and façades will become gardens and covered with solar-powered PV collectors. Strategically placed windows provide natural light and help with reduced heating or cooling costs. The library will capture rain and recycle gray water; excess water from roofs will be used for irrigation and diverted to landscape features that hold and clean the water. Close-by natural areas, such as parks, gardens or wetlands, will be integrated to manage hydrological flows.
- The library of the future is likely to programmatically stack its different functional sections vertically and be connected with the surrounding urban fabric at different points. Buildings will be elevated on pilotis (large columns) to keep the ground plane open in order to prioritize public space, pedestrian connectivity, and “blue-green” (waterbodies and green spaces) networks. Elevated community decks will be connected to public space below and, by extension, with, the surrounding neighborhood. This includes a rethink of hard urbanism to include soft socio-ecological landscapes and natural systems.

- In future, cities need new infrastructural systems and buildings that can generate, capture, process, recycle, upcycle, distribute, and store resources. Construction materials and components will need particular attention to avoid material waste and high embodied energy, using modular off-site manufacturing where possible. As outlined in “Cradle to Cradle – Remaking the Way We Make Things” (McDonough and Braungart 2002), as well as in “The Principles of Green Urbanism” (Lehmann 2010), and the work published by the Ellen MacArthur Foundation (UK), circularity is the reorganization of resource flows into closed-loop systems so that the waste from one becomes a resource for another.

Self-sufficient cities have closed-loop systems that eliminate the constant demand for virgin materials, decoupling consumption from material needs, and the metabolism of cities from planetary systems. Some of this depends on the infrastructure, and some on new roles for existing adaptively reused structures, while much depends on new business models for manufacturing and the behavior change of urban populations.

The ecologically sustainable library integrating greenery in all its forms

The next generation library will be super-green, with green entry courtyards, roof gardens, and green walls to reduce the urban heat island effect, improve the air and microclimate, and create a calming ambience. It might resemble a garden.

The library as a public garden: user-focused rather than collection based

Over 83% of the U.S. population currently live in urban areas, with a large portion of the population “estranged from nature” (Office for National Statistics 2016, p. 2). Today, we spend over 90% of our lives in controlled interior environments (ASHRAE 2010) with increasing amounts of our time constituting “screen-time” online and for most of this time being isolated, alone. With an increasing number of people living in urban areas (often suffering from loneliness, obesity, and depression), the need to create and enhance public spaces, walkability, and upgrade civic facilities within cities has never been greater. At the same time, city life is becoming increasingly synonymous with technology and disconnectedness from nature, neighbors and the public sphere. Cities have formed the backdrop of these trends and have been substantially influenced and shaped by them. Hence, the wider theme of the next-generation of public buildings will most likely include a discussion on renaturing and re-greening of our cities.

Michelle Jeffrey Delk noted, “It is not about any specific technology, but about how people interact with technology or access resources” (Jeffrey Delk 2022), arguing that a library could also be read as a “landscape of knowledge,” similar to a public garden or ecosystem. There are numerous ways for a library to integrate natural elements and be like a garden. This garden could be a rooftop garden, vertical urban farm, or a community garden in a courtyard, as a productive landscape element as social condenser that brings together people from different backgrounds.

Greened building envelopes and vegetated roofs are ways of repairing and renaturing the city fabric. Greened building envelopes can reduce a library’s operating and cooling costs. Public green spaces and roof gardens have a series of positive impacts besides the recreational and ambience effect: there is evidence that integrating greenery into library design will help to reduce air pollution, decrease the buildup of the urban heat island effect, lower noise levels, and enhance the wellbeing of library users and is beneficial for human stress reduction (Kaplan 1995). This could include ground-based green areas such as in a courtyard, or green walls inside, terraced contemplative gardens, or a public roof garden as a consumption-free roof space with a panoramic view. There are a number of good examples of this trend:

- Warsaw University Library (Poland) features a large public roof park measuring over 10,000 sqm (100,000 sqft);
- TU-Delft University Library (Netherlands) has an accessible sloping green roof that is a popular informal meeting place on campus (5,000 sqm);
- Ballard Library in Seattle (USA) offers a gently curving green roof of 2,000 sqm (20,000 sqft) as informal space for the community; and
- Vancouver Public Library in Vancouver (Canada) has a 2,600 sqm (26,000 sqft) green roof that keeps the building cool during the summer period.

So, the possibilities for greening a library can range from courtyard gardens and communal urban farming, to low-tech potted plant terraces, green walls in entrance halls, or plant shelves and extensive roof gardens – all contributing atmospheric and climatic benefits. Today, green roofs are essential, as they reduce the urban heat island effect; importantly, the vegetated library roofs should be made publicly accessible to library users, so that people can enjoy the view and read outside, or have meetings on the roof in shaded areas.

Thus, the library of the future is a project that is as much about a public building as it is about re-greening and establishing a new urban landscape. The goal is to create a library, which is an inclusive gathering place, a counterpoint to the otherwise suburban residential areas, and as a point of pride for the city.

The library's role as a symbol of shared cultural and community values will remain and is likely to become stronger. Given the continuing physical disintegration and decline of the city center in most American cities, one could say that the library of the future is likely to become an important ingredient of any urban regeneration, as a microcosm of the city – a social network – in and of itself.

So, what could be add-on design components of the next-generation library?

New libraries will increasingly follow a pattern of strategic calculation similar to investment-driven economic operations: indoor and outdoor design elements (selected from an inventory of scalable, replicable and exchangeable components) can be selected and bundled together in section and plan, to create an attractive offering of spatial sequences.

Philosophy exercises a strong influence on contemporary architectural thought and the understanding of the built environment. Discussions of architects and academics are often heavily loaded with theoretical ideas, concepts and views imported from the works of philosophers and from other disciplines. Influenced by the ironic work of the Austrian team Mörtenböck and Mooshammer (2021), who developed an inventory of future urban elements (the “must-haves” of every design project today), these interchangeable components are emblematic of the current innovation economy and design trends impacting the design of public buildings. Under the banner of “place-making,” said components have become today's ubiquitous ingredients for any competition-winning future library design. Adapted as “components of the future library” and identified by 15 broader trends in library design globally, these include the following design elements (components):

- The public space in front of or inside the library: the “instagrammable” forecourt, square, or entrance hall offers free Wi-Fi-connection for everyone and is an area of high visibility that blurs the boundaries between private and public; the building typology is reframed in service of urban morphology and a revival of the courtyard type;
- The inclusion of a domesticated public space and courtyard: this can further blur the boundaries between public and private, indoor and outdoor, by creating outdoor spaces that feature interior design elements which create intimacy with objects for individual library users;
- The concept of the library as a shared warehouse: the high flexibility and staged urban atmosphere of the warehouse space appeals to start-ups and younger library users, who want to be part and move in; additional services are offered outside the usual library functions;

- Meeting pods: these create unusual spaces for meetings or concentrated work that can be inserted everywhere, as soundproof spaces with glass walls that vary in size;
- Free public Wi-Fi-connection: offering connectivity to everyone and everything is part of the future, but could create a conflict with privacy policies and data management;
- Open ceilings exposing technology: these create a technical look and enable rapid installation, adding a casual “high-tech” vibe to any library space;
- Stadium seating and landscape furniture: this consists of large-scale steps for sitting that suggest openness and allow for social moments such as sudden meetings and encounters; this could also take the form of an interior built landscape that seamlessly merges floors and walls, signaling collaboration and nonhierarchical organization of space;
- Themed spaces: different from the traditional library space, these lessen the feeling of “work” by creating a different experience; the more eccentrically they are designed, the more interest they will create, communicating an image of “enjoyable productivity” and “playground furniture;”
- A viewing platform on the green roof as a must-have: a special roof location that provides an elevated panoramic view and a place where people can socialize, chat and enjoy the sights as a shared immersive experience;
- Whiteboard walls or graffiti walls everywhere: these allow for rapid markings that can be quickly erased or left for days to foster the dynamic exchange of ideas;
- A circulation loop: connecting various activities along a ramping pathway in a nonhierarchical way, which can foster social encounters and a sense of continuity;
- Green walls, screens, or a vertical garden: trendy in cities globally, they bring relaxing feelings of nature and can transform the experience from a collective to an individual one; they can also improve internal acoustics and indoor climate. However, if not done well, the integration and irrigation of a green wall can result in constant and costly maintenance duties;
- DIY furniture: the unique and casual appearance of DIY furniture is very popular and looks cool on social media; it could include upcycling of materials as an ecological statement, which can create a sense of identification with the library environment;
- A climbing wall: these unique exercise spaces can be integrated into the entrance hall or atrium, and are usually located next to the café;
- A desirable component for libraries today is the Makerspace, a 3-D printing and laser-cutting workshop facility to introduce library users to digital manufacturing and can also meet other needs

The role of the library's program in improving people's lives, regenerating urban neighborhoods and shaping meaningful civic space

Bringing various functions and elements together in one compact complex, the Sendai Mediatheque by Toyo Ito, designed between 1994 and 2000 (See [Figure 12](#)), combined an art gallery, a library, and a center for the visually- and auditory-impaired, with a media center of visual images. Over twenty years ago, this building embodied a fresh way to look at the library program. The actual library function is just one of a number of different learning spaces (even some retail spaces might be included), all combined in one building. Most likely, the trend of including unusual programmatic elements will just become stronger.

Huis van Eemnes in Donderen, The Netherlands (completed in 2020), is marketing itself as a new type of “hospitable library and culture house for a small town:” an inspiring third place to meet, create, and participate, where organized and spontaneous activities can take place. This new type of library program combines opposing functions: the peaceful and quiet surroundings of the library with the dynamics of a busy cultural center, and the noisy brasserie and bar. The entities are openly connected to each other and surrounded by multifunctional rooms, including a theater, a sports hall, and event rooms. Here, the risk is, of course, that the functionality of a serious library is compromised. However, it seems that, with financially constrained times ahead and a growing need to market libraries in the face of competition from other information providers, such hybrid models are likely to become a more common model. Moreover, architects will become even more concerned with new design concepts and library planning on very limited budgets.

The built structures reflect and shape the aspirations and expectations of any changing society and the aim to improve people's lives; libraries do this probably more than any other building. Architecture, urbanism, regeneration and the creation of public space can be exemplary vehicles to enhance the health, sustainability and vibrancy of communities (Lehmann 2019). In reflecting on the appropriateness of a commercial program for the next-generation library, it is helpful to consider the following concerns:

- How are new environmental, social, and technical challenges addressed through innovative approaches in the design?
- How will principles of inclusion and diversity (pluralism) be articulated through the architectural design and everyday usage of the library?
- How does the library and its public space react to the current condition of our public space networks, shaped by excessive globalization,

commercialization, and the uncontrolled surveillance of the public realm, identifying another possible pathway?

A design studio on the library of the future

In 2021, a design studio led by the author at the University of Nevada explored the dilemma of public buildings and public space in the age of post-pandemic social isolation and the impact of climate change. The studio used the public library as a catalyst for upgrading urban space and enhancing climate resilience and social inclusion in Downtown Las Vegas. This urban studio is engaged in the architectural explorations of typologies and the future of public buildings such as the library.

A group of twelve enthusiastic students in the fourth-year Bachelor of Science in Architecture program developed design proposals for a local public library at a prominent downtown site on Charleston Boulevard over a period of four months. Support came from library experts. With a series of guest lectures, precedent analysis and field trips, the students were introduced to the complexity of the design project and asked to develop a unique program for their library of the future. The size of the library was to be around 7,000 sqm (70,000 sqft); it had to facilitate the creation of new forms of knowledge production and sharing that builds capacity and resilience in



Figure 13. Library designs from the UNLV architectural design studio on the library of the future: selected projects by Bachelor degree students, Jose Rodriguez and Rebeca Rivera, 2021. Image: Courtesy of the students.



Figure 14. Library designs from the UNLV architectural design studio on the library of the future: selected projects by Bachelor degree students, Jose Rodriguez and Rebeca Rivera, 2021. Image: Courtesy of the students.



Figure 15. Library designs from the UNLV architectural design studio on the library of the future: selected projects by Bachelor degree students, Jose Rodriguez and Rebeca Rivera, 2021. Image: Courtesy of the students.

the community. Following here are a couple of selected projects from this intensive studio (See [Figures 13–15](#)).

Conclusion: a super-flexible hybrid building type serving multiple uses

With a focus on innovative architecture, the main question explored in this article is: What will be the architectural design characteristics of the next-generation library? Architecture must always look to the future, anticipate the changing contexts, and imagine the libraries that are ahead of their time. The next-generation library will be socially inclusive of the needs of the wider community and perform very well environmentally; it will be designed for the whole lifecycle to ensure that it can stand up to the rigors of the next generation's demands.

The purpose is to provide valuable information for anyone planning a new library and predict future library design trends. In conclusion, after analyzing 50 libraries (built between 2010 and 2023), three repeating thematic similarities have been identified:

- Flexibility and adaptability
- Hybrid program strengthening the community-focus
- Green sustainable design principles

One of the key take-away messages of this opinion piece is that we will still build libraries in the future, despite continuing digitalization; however, these must now be super-green buildings that often include genre-bending hybrid programs. It is a positive trend that green roofs, living walls and gardens have become a popular feature to be integrated in all architecture worldwide. Besides its positive impact on the urban microclimate and water management, contact with nature is essential for human existence, urban wellbeing and good quality of life. The importance of applying the concept of re-greening to the library of the future is now better understood and recognized as extremely relevant.

The public and academic library remains an uplifting and important feature in the community and on campus. Libraries are not dying, but evolving. Libraries are important cornerstones of any healthy community; they give people the opportunity to find jobs, explore scientific research, experience new ideas, and learn about wonderful stories, while at the same time providing a sense of place for gathering. Appearing often effortless, the extraordinary libraries of architects Snøhetta, Mecanoo, Foster + Partners, Steven Holl and others (presented earlier) demonstrate an extraordinary ability to uncover the real and often contradictory issues and potentials of each project by a very careful analysis of purpose and place; often resolving these in a building of ease and great elegance. These libraries represent themselves and their

users—carefully balancing the need to express a sense of *civitas*. Seattle Central Library and many other iconic libraries were designed before e-books and the iPad even existed. The post-digital age requires our civic spaces and public buildings to become more agile, malleable and adaptive to change, able to respond to the complexity and unpredictability of our urban situations.

It is most likely that the library of the future will be an indoor extension of public space or green space — a civic “living room” that offers a variety of facilities such as recording studios, class rooms, and maker spaces, with access to public services, exhibitions and community events — in addition to providing books. The future concept that emerges is a library as a public resource, civic space, and a place for ideas and contemplation. Instead of suffering its frequently announced “death,” the library is very much alive, and the speculative idea of what a library *is*, is in accelerating re-definition. The library experiences a strong comeback and is now firmly established as a “third space” – a place away from both the workplace and the home – to study, collaborate or socialize. Contrary to earlier predictions, the digitization has had largely a positive impact on library design. However, serious challenges remain: the ever-changing user needs, reduced funding and declining user numbers will pose ongoing challenges that future library design has to recognize.

Speculating and looking ahead, libraries have a very bright future, even if the role of the physical book continues to shrink. However, libraries will have to contend with increasing budget restraints and changing community demands, adapting to changing user expectations (e.g., libraries will lend non-traditional things, like bicycle repair kits and cake pans; and provide non-traditional services such as passports and banking). Like streaming services, libraries of the future have to become destinations in themselves, spaces that make the act of discovering knowledge exciting and enjoyable.

The user-focused (rather than collection-based) library of the future must also strike a thoughtful balance between quiet, contemplative spaces for concentration, and conversational spaces for lively communication and dynamic collaboration. It will be more fluid between formal and informal spaces, between the individual and the collective. The library of the future must serve those who want to work alone or collaboratively in groups, in silence or in a lively café atmosphere.

It has become evident that, as a vital and continuously evolving building type, the library remains very much alive and with a bright future. In a way, the library of the future is going back to fulfilling the ideal of the (never built) 1785 proposal by Étienne-Louis Boullée for the French National Library. Inspired by grand classical forms, his vast barrel-vaulted reading room was a vision of a central public meeting place on a colossal, almost urban scale (See [Figure 16](#)).

The qualitative comparison of the selected cases presented in the study reveal an importance of the library as community hub and destination, driven by sustainable design principles and based on a strong

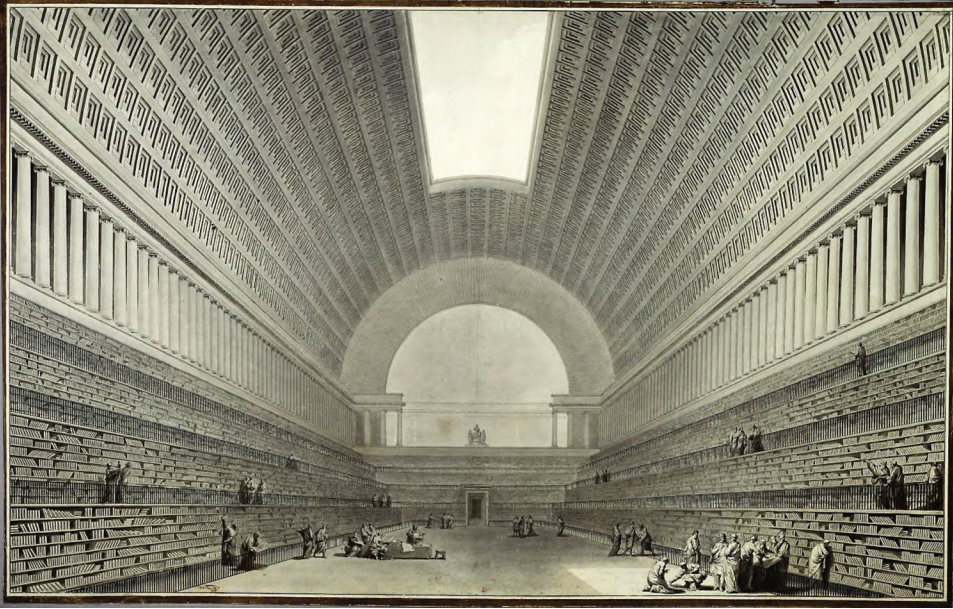


Figure 16. Étienne-Louis Boullée unbuilt proposal for the French National Library in Paris, 1785. Image: Courtesy of Wikimedia Commons, Creative Commons CC-BY-2.0.

focus on user engagement. As the survey of precedents shows, libraries today range from urban incubator for knowledge generation, storage and sharing to community destination and basis for outreach efforts. The article identified different trends that enable the next-generation library to become a hybrid and take on numerous different new roles within the urban and demographic shifting context. Furthermore, results show that the public library is a unique typology undergoing transformation as a free educational resource, social testing ground of public interest, and shared civic space — all relevant concepts for the future of our cities. There is obviously no formula for the library of the future. Primarily, a library for tomorrow must enable and inspire the imagination of its users. It might well be that the ideal type of library has not yet been realized. The author is inclined to agree with Jorge Luis Borges, who wrote in 1975, “*I have always imagined that Paradise will be a kind of library.*”

Notes

1. More background on sustainable design principles and the impact of climate change on cities and buildings, including libraries, can be found in the writings of: McDonough and Braungart (2002).
2. Further background on the practicalities of library design and the history of libraries can be found in the writings, articles and handbooks of: Wheeler and Morton

Githens (1941); Thompson (1963); Metcalf (1965); Brawne (1970, 1997); Ellsworth (1973); Thompson (1973); Oehlerts (1991); Worpole, Greenhalgh, and Landry (1992); Kito (1995); Slyck and Abigail (1995); Kaser (1997); Bieri and Fuchs (2001); Futagawa (2006); and Karen Latimer, Niegaard, and Niegaard (2007, 2011).

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