



2004 On Site Review Report

2725.EGY

by Hana Alamuddin

Bibliotheca Alexandrina

Alexandria, Egypt



Architect
Snøhetta Hamza Consortium

Client
Bibliotheca Alexandrina

Design
1989

Completed
2002

Bibliotheca Alexandrina

Alexandria, Egypt

I. Introduction

The construction of the Bibliotheca Alexandrina in Alexandria, Egypt, marks the revival of the role and spirit of the ancient library of the city, a centre of learning and exchange. With four main objectives, the new library is defined as the world's window on Egypt, Egypt's window on the world, a library for the new digital age and a centre of learning and dialogue. The main concept of the project is a disc rising from the water, representing the past, tilting towards the future, with the ground level representing the present. The disc is surrounded by a granite wall carved with letters from the alphabets of the world. The project consists of the Library, a planetarium and a pedestrian bridge that cuts across the public plaza that is shared with an existing conference centre. The Library comprises a main reading space, six specialist libraries, three museums, seven research centres, three permanent exhibition areas and various galleries and exhibition halls, along with the necessary facilities and services required for such a complex.

II. Contextual Information

A. Historical background

Alexandria, the main port of Egypt, was built on the Mediterranean coast by Alexander the Great in 331–332 BC. Throughout the Ptolemaic period, the city was a centre of science and learning, and under Roman rule it became the headquarters of the Roman Prefect. After the Arab conquest, Alexandria became a military base but remained an important commercial port and centre of learning, especially under the Bahari Mamluks. In July 1798, French forces entered Alexandria. After their defeat and the defeat of the British, the Turkish Sultan added Alexandria to his dominions under the governance of his Viceroy, Mohamed Ali, who developed the city into the second capital of Egypt. In July 1882, the British occupied and largely demolished Alexandria. Between the middle of the nineteenth and the early twentieth centuries, the city enjoyed its 'cosmopolitan' age; various foreign communities prospered and built their own cultural and financial institutions. However, after the triple aggression of the British, French and Israelis in 1956, many foreigners left Egypt. The city then developed as an industrial and commercial centre and, today, 40 per cent of Egypt's industries come under its governance. In the summer, the population of the city is said to double as it remains an important summer resort in the Middle East.

B. Local architectural character

Unfortunately, despite its glorious past, little remains from the Greek or Roman city of Alexandria. Today, the city is essentially modern, with some Mamluk and a few Early Christian monuments, while nineteenth-century revivalist-style residences and

Art Deco buildings remain from the city's cosmopolitan era of the early twentieth century.

C. *Climatic conditions*

Lying on latitude 31.20° north and longitude 29.88° east, Alexandria stretches for 70 kilometres on the eastern coast of the Mediterranean, north-west of the Nile delta. Alexandria has two main seasons, a mild winter from November to April, when the temperature reaches a minimum of 7°C and averages between 13 and 18°C, and summer, which extends from May to October with temperatures ranging from 21° to a maximum of 30°C in July and August, with a maximum humidity of 95 per cent. The prevailing winds come from the north and north-west with sand-bearing winds coming from the west in spring. Precipitation reaches 200 millimetres a year.

D. *Site and surroundings*

The site of the project is part of the town centre, facing the Eastern Harbour and the sea. To its north is the seaside Corniche and to its south Port Said Street on which the Faculty of Commerce of the University of Alexandria is located. To the east of the site is a maternity hospital and on its western boundary there are two residential buildings. The prevailing architectural character is that of the university buildings, 1950s and 1960s institutional structures comprising flat-roofed concrete frameworks with brick or plaster infill panels.

E. *Topography*

The site is in the Ancient Royal Quarter of the original Greek city of Alexandria, as verified by excavation work in 1994. In 1905, the municipality levelled the land to build the Corniche while during World War II the area was used by the military. The site is located in the Shatby zone, which was earmarked for educational and community development projects and became part of the university when the institution was established in 1942.

III. Programme

A. *What conditions gave rise to the formulation of the programme?*

The library was originally a project of the University of Alexandria, however, from 1974, the university campaigned for the rebuilding of the ancient library. It designated the current site, believed to be close to the original location of the library, and built the conference centre.

The ancient library of Alexandria, built by Ptolemy I Soter (who reigned until 284 BC), was the most famous library in the entire ancient and medieval world. It was part of the Mouseion (Shrine of Muses) which was a scientific research centre. The first universal library, at its peak it is said to have held 700,000 scrolls in various

languages. It was here that the Old Testament was first translated into Greek, Collimachus wrote the first catalogue of books and Euclid wrote his Elements of Geometry, to name but two of the many scientists and scholars who worked at the library.

In 1988, the President of Egypt took up the project at a national level and created the General Organization for Alexandria Library (GOAL). An international competition was organized by the Egyptian government, supported by UNESCO / UNDP and supervised by the UIA. The competition results were announced on 25 September 1998. It was won by the Norwegian-based company Snøhetta Arkitektur Landskap. In 1990, the Declaration of Aswan called for international support for the project and pledges were made towards the cost of its construction. Snøhetta formed a consortium with the Egyptian engineering specialists Hamza Associates with whom they developed the project and supervised the work.

B. Objectives

The purpose was to give back to Alexandria the glory it had enjoyed in ancient times by virtue of its library and to create, to that end, an institution that would become famous throughout the region for the quality of its services and the wealth of its resources: the object was to transpose the antique idea to modern times. Recreating the role of the ancient library in the modern world meant that provision would have to be made for every existing and future technological facility.

C. Functional requirements

The competition brief clearly stated that the scheme should comply with the local building regulations with regard to height, FAR (floor area ratio) etc. The brief also required: ease of access to the site and access for the disabled user to all its sections; compactness to minimize the movement of staff and books; extendibility within the building and internal flexibility; that natural light should be provided in offices and reading areas; comfort should be achievable through the control of solar penetration, humidity and noise; and fire prevention measures needed to comply with Egyptian, British or American standards. Safety and security considerations were to be accommodated and all systems had to be centralized for efficiency, while questions of economy with respect to maintenance problems, energy efficiency and management also had to be tackled.

The brief asked for the following departments and facilities to be included (public floor areas, as specified in the brief, given in parentheses):

- cultural activities department, cafeteria, bookshop, library for young people, calligraphy museum, science museum / planetarium, multi-purpose hall, exhibition area (2,718 square metres),
- books and periodicals collections (28,438 square metres),
- special collections, manuscripts and rare books, maps, music, audio-visual and electronic media section (4,198 square metres),

- administrative services (798 square metres), technical services (1,948 square metres),
 - operational support (8,032 square metres),
 - International school of information studies (2,400 square metres),
 - and a conference centre and ancillary services (1,800 square metres).

IV. Description

A. Project data

The project comprises two main parts: the Library and the Planetarium. These are linked at basement level, beneath the public plaza, to the existing conference centre while a pedestrian bridge spans the plaza between the university and the Corniche.

The Library consists of the main reading room, which seats 2,000 readers (13,625 square metres) and six specialist libraries: the Children's Library, Young People's Library, Multi-media Library, Taha Hussein Library for the visually impaired, Microfilm and Special Collections, and Rare Books and Manuscripts. There are also three museums, for antiquities, manuscripts and the history of science. There is the Internet Archive and seven research centres: the Centre for Special Studies and Programmes, The Centre for Manuscripts, with restoration facilities, the Arts Centre, the Centre for the Study of Writing and Calligraphy, the Alexandria and Mediterranean Research Centre, International School of Information Science, and the National Centre for the Documentation of Cultural and Natural Heritage (CULTNAT, head office in Cairo). In addition, three permanent galleries are housed: the Shady Abdel Salam Gallery, Impressions of Alexandria Gallery, and the Science of Underwater Archaeology, with space for various temporary art exhibitions. There is also the Nobel Peace Hall, and an Exploratorium was added by converting part of the original parking area. A cafeteria, offices and other services and facilities support the Library. Outside the Library building, the Planetarium seats 99 people and the refurbished conference hall can seat a total of 3,000 in four halls and one auditorium. The conference building also includes three restaurants that can be used by the staff. The outdoor plaza is 8,500 square metres and the reflection pool is 4,600 square metres. The Library covers eleven floors, comprising four levels below ground and seven above. The building rises to a height of 33 metres and the site area is 45,000 square metres. The ground floor is 23,900 square metres and the total floor area is 85,405 square metres.

B. Evolution of design concepts

1. Response to physical constraints

The design accentuated the prominence of the project by breaking the homogeneous skyline of the Corniche while complying with the competition brief with regard to local building regulations. The scheme provided entry from both the Corniche and Port Said Street with a pedestrian bridge that was designed to cross over both, but the segment over the Corniche was never built. The tilt of the project and the sculptural

form of the roof diffused airborne noise from the Corniche (80dB) and Port Said Street (60dB), and the roof of the Library was carefully designed to allow in natural light without the glare of direct sunlight.

2. *Response to user requirements; spatial organization*

The building is clearly organized with the eastern sector of the disc housing the main reading area and the western segment comprising the entrance to the Library, its administrative area, specialized libraries, museums and the other facilities and services. The 'cut' in the circle along the plaza is glazed to allow provide light into the administration area, along with two light wells.

The main reading area is one open space with eight terraces, each accommodating a section of the library by subject, starting from the roots of knowledge (philosophy, history, religion, and geography) and ending with the latest technologies. Compactness has been achieved by placing book storage facilities at the back of each reading area. The entrance into the reading room is planned as a procession of spaces which ends with the terraces that overlook the whole expanse of the room. The terraces break down the scale of the reading area for the individuals working in their own space. As for circulation, there are lifts in the service zone and the reading area, while four staircases link all the levels. Everywhere is accessible to the disabled, with the exception of the Planetarium theatre. The Planetarium is located outside the Library for access when the Library is closed.

3. *Purely formal aspects*

The architects, Snøhetta Arkitektur Landskap, have stated, 'the project must cross barriers of politics, religion, culture and history. In order to accommodate this challenge we proposed a strong, symbolic iconography that would address basic human conditions that affect human society, such as the passage of time and our relationship to the planet we live upon. The circular form is one that is found in all cultures and is related to the heavenly objects where humans first understood the passage of time with relation to the movement of the sun, moon and stars. To express the passage of time, the building appears as a gently rotated disc passing into the earth and simultaneously above it. As it passes into the earth it enters the world we understand as the past. When it passes above the ground it enters the future. The rotation point is upon the ground at the present. The building is ultimately felt to be a frozen moment in time.'

The tilting disc is surrounded by a circular wall comprising four thousand carved granite blocks that earned the Library the title of the Fourth Pyramid. The main reading area is one open space, 'where past, present and future symbolically connect in a singular open space' (Snøhetta).

The Planetarium is a suspended sphere next to the pedestrian bridge at the edge of the plaza forming, along with twelve olive trees, the main focus of the plaza along the Corniche.

4. *Landscaping*

The main plaza - a slightly elevated open space covered with grey granite - is supposed to be a place for contemplation. It has little seating and no designed planting areas. Today, the clients have placed pots of geraniums in the middle of the concourse. This area is used as an open-air theatre in the summer for live performances. Twelve olive trees, symbolizing peace, are planted in the western section of the plaza, under which various outdoor exhibitions have been held. The pool surrounding the Library on three sides makes a connection between the ground and the sky by reflection and also acts as a boundary between the building and the public. Papyrus plants are grown in planters in the section of the pool along Port Said Street to represent, along with the olive trees, the native vegetation and agricultural past of the region. The plaza is pedestrianized, with limited vehicular access (controlled by retractable stainless steel bollards) on the southern and western sides.

C. *Structure, materials, technology*

1. *Structural systems*

The sub-structure of the Library is the most innovative part of the project. The half submersion of the building 18 metres below ground on a site close to the sea raised serious structural problems. The circular diaphragm wall that had to be built is considered the largest in the world, with a diameter of 160 metres and a height of 35 metres. The diaphragm wall displays continuity through horizontal reinforcements; there are no expansion joints, minimizing the risk of water penetration, instead the form of the circle is utilized. Due to the complication presented by the existing conference hall, which broke the circular form, and the varying temperature differentials along the length of the diaphragm wall, the design of the wall was analyzed and studied using computer modelling and programs. Computer technology was also used in the design of the form of the building as the shape was not a cylinder but a 'section form called a torus' (Snøhetta).

The main structural system of the Library comprises a circular wall with a concrete-column grid of 7.2 x 9.6 metres for the lower floors and 14.4 x 9.6 metres for the floors above ground level. The whole is carried on a raft foundation with a pile for each column to reduce the construction time and cost.

The uplift forces from the ground water and the eccentric loading on the foundations (the north side of the Library bears one floor only whereas the south side carries the load of all eleven floors and the books) meant that the risk of the building tilting was great. Hence the foundations are unique in that they were designed as tension piles with a heavy raft foundation on the south side and as compression piles to take the weight on the north side.

The Planetarium has a steel structure that is suspended from a steel bridge which spans the diaphragm wall that in turn is supported on a raft foundation. The pedestrian bridge has an independent steel structure.

The structural design of the Library received numerous international awards such as the Outstanding Civil Engineering Achievement (OCEA) Merit Award in 2002, a competition organized by the American Society of Civil Engineers (ASCE), World Architecture Award 2002 for the Africa and Middle East Region, and the Quality in Construction Award 2001, organized by the British journal *Construction News*. The design also featured in numerous periodicals.

2. *Materials*

Structural members: The structure of the Library is of reinforced concrete. The columns were cast *in situ* with the tallest free-standing column reaching 16 metres in height. The capitals and beams of the roof are pre-cast. The structure of the Planetarium and bridge is steel.

Infill materials: The roof panels of the Library consist of anodized aluminium sandwich panels 15 x 10 metres with double-glazed glass panels. The Planetarium's main infill panels are made of GRC (glass reinforced concrete) and the bridge's are pre-cast concrete. The wall of the Library is covered with grey granite panels, 15 centimetres thick, that vary in size from 1 x 1 metre to 2 x 1 metre.

Renderings and finishes: Exterior aluminium surfaces are naturally anodized, with stainless steel fixings. The steel is hot-dip galvanized. The granite panels were quarried by splitting the rock, creating the wavy texture to the panels. The designs on the panels were traced by computer but carved by hand.

3. *Construction technology*

The technology employed in this scheme was the universally applied method of a concrete frame with infill panels. The sophistication lies in the sub-structure.

4. *Building services and site utilities*

The building is connected to the city's main services of water, power and sewerage. It has two electricity feeders as well as three generators and nine UPS (uninterrupted power system) batteries for emergency use. Plant rooms are located in the basements under the administration core and at the entrance to the car parks. The air-conditioning is a central HVAC system that is divided into 65 zones around the building. The air-conditioning ducts travel between the pre-cast concrete beams in the ceiling of the reading room under the roof guttering. Hence services, structure and architecture are well integrated and coordinated into one tidy system.

D. *Origin of technology, materials, labour force, professionals*

1. *Technology*

The technology is ubiquitous, used by large contractors all over the world. The sub-structure was built by collaboration between an Italian and an Egyptian company. The super-structure was also a collaborative venture, between a British contractor and Egyptian contractors.

2. *Materials*

The roof panels were produced by the Amreya / GIG consortium, made in Austria and assembled in Egypt. This allowed technology transfer to the construction industry in Egypt. Similarly with the internal partitions and the stone quarrying, when seminars were held both in Norway and Egypt for the quarrying of the grey granite from south of Aswan. The black granite came from Zimbabwe. All the timber flooring was imported.

3. *Labour force*

The labour force was mainly Egyptian under the supervision of the various contractors and sub-contractors.

4. *Professionals*

Architects: The project's outline design, for the architecture, landscape and interior design, was conceived by Snøhetta, registered in Norway. However, the complete scheme and subsequent detailed designs were produced in partnership by Snøhetta and Hamza Associates of Egypt. The two companies then formed a consortium for this project and for about eight months Snøhetta's team worked in Hamza's offices in Cairo. Even today the firms are collaborating on a library scheme in Guinea.

Contractors: The contractors for stage one were Rodio / Trevi from Italy, working with various Egyptian contractors. For stage two, Balfour Beatty from the United Kingdom working with Arab Contractors from Egypt.

Consultants: For the structural, electro-mechanical design and project management of the scheme, Hamza Associates of Egypt worked as consultants.

Others: Jorunn Sannes (Oslo) for the designs on the stone wall, Schumann Smith Ltd (U.K.) for management, costing and specifications, Lichtdesign (Cologne) for natural-lighting design, Multiconsult (Oslo) for acoustics, Warrington Fire Research (U.K.) for fire and safety, and Stewart Helms (U.K.) for security.

V. Construction Schedule and Costs

A. History of project

The results of the competition were announced in September 1989 and the design phase took from 1994–96. Detailed archaeological excavations were carried out on the proposed site for two years before the project began (al-Ahram, November 1997) and ended in 1994.

Execution of the first phase (foundations and geo-technical engineering) started on 15 May 1995 and was completed on 31 December 1996. Phase two (superstructure, fit-out and external works) began on 27 December 1996. The building had a 'soft' opening for a month in October 2001 with the official inauguration held on 16 October 2002.

B. Total costs and main sources of financing

The total cost of the project was USD 219 million (USD 59 million for phase one and USD 160 million for phase two). Through the Aswan Conference in 1990, USD 65 million were donated by Arab countries, subsequent donations from 27 other countries making the total USD 100 million. Egypt donated the land and the conference centre and covered the remaining costs.

C. Comparative costs

It is very difficult to give comparative costs due to the nature and size of the project.

D. Qualitative analysis of costs (per square metre, per unit, etc.).

Cost of land: USD 60 million; infrastructure: USD 87.2 million; materials: USD 65.4 million; labour: USD 32.7 million; landscaping: USD 10.9 million; professional fees: USD 13.1 million; other: USD 9.7 million. Total cost (without the land) USD 219 million, actual cost per square metre (including landscape) USD 2,553 (all costs where calculated according to the rate of exchange in 2001 of EGP 3.3 / USD 1).

E. Maintenance costs

The maintenance of the building is currently carried out by the Italian sub-contractor who is training a local group to take over responsibility. The main cost therefore is EGP 800,000 (USD 130,000) per month for the maintenance team (150 people). Electricity consumption is EGP 300,000 (USD 50,000) per month, 60 per cent of which is used to run the air-conditioning system. Maintenance costs are covered by the interest from the endowment the Library has been given.

F. Ongoing costs

The materials used throughout the building are durable, require little maintenance and should perform well over time, with the exception of the external steel work which is found mainly on the bridge. This has just begun to suffer from corrosion due to sea spray. All systems connected with the scheme will require maintenance and upgrading with time to ensure maximum efficiency in energy use.

VI. Technical Assessment

A. Functional assessment

Inside the project, the building functions very well both for the general visitor and user of the reading room as it is clearly and well organized. However, at the entrance to the building there is no provision for waiting under the strong sun or rain, and increased security checks mean longer queues. While light wells introduce natural

light into the common areas between offices in the basement, the underground offices themselves have no natural light.

The uniform grey colour of the interior has clearly been found to need softening as can be seen by the introduction of potted plants in the public areas of the building.

B. Climatic performance

One of the most successful features of the building is the use of natural light. In the main reading area, lights are switched on only after 18h00. The orientation of the roof panels was carefully studied on computer at the design stage to introduce maximum levels of natural light without direct sunlight. Glare was dealt with in the design of the glass shading over the windows. The building is well insulated against noise, especially considering the high noise levels in the surrounding streets. The acoustics in the building are also very good; all panels, whether concrete, aluminium or timber, have acoustic slots that dampen the sound inside. The building is air-conditioned throughout, a facility that is controlled by a building management system (Honeywell 1.6XPS 2002).

C. Response to treatment of water and rainfall

The only system of water treatment is the collection of rainwater from the main roof which is then filtered and pumped up to water points on the roof for cleaning.

D. Environmental response

The project acknowledges the presence of the sea with a public square along the Corniche. The design also respects the urban environment behind it and retains the scale of the street. However, the public plaza is very barren and grey and the users obviously felt the need to add colour as the pots of red geraniums testify. The public square is not user-friendly as little in the way of seating or shelter was designed in.

E. Choice of materials and level of technology

Materials chosen for the project are durable and require little maintenance. The technology, with the exception of the foundations and structure, is straightforward for any large building. However, the quality control imposed by the architects and engineers, and the coordination between them, was evidently very successful.

1. Response to and planning for emergency situations

The wind along the Corniche can be quite strong but the 16° inclination of the roof of the main building diffuses the build-up of wind behind the whole project. The risk of earthquakes was taken into account in the design of the structure, one feature being the connection of the external wall to the diaphragm wall. Computer generated models checked the effect of earthquakes, especially on the suspended sphere of the Planetarium. The scheme is designed according to the NFPA code (National Fire Prevention Association) and infra-red scanners and smoke detectors are utilized

throughout. The main reading area in the Library can be evacuated in fifteen minutes and has two smoke curtains that come down from the roof to divide the space for smoke control. In addition, five of the air-conditioning fans reverse to extract smoke. The building management system coordinates well with the fire and security systems to control any emergency situation. Fire drills are carried out on a regular basis as are checks by the local fire department. As for power cuts, the building has three generators and nine UPS systems for the emergency lighting and security access system. Monitors and security cameras help guide users to safety in an emergency.

2. *Ageing and maintenance problems*

From a structural point of view, the building was designed for a lifespan of two hundred years as required by the Egyptian government. Inspection chambers are located beneath the lowest basement for checking ground water penetration. Similarly, between the outside and inside walls at the basement levels, corridors double-up for maintenance and as fire escapes.

Several water pumps were also left along the perimeter of the wall for the removal of water. A cathodic protection and monitoring system is also in place to deal with any corrosion of the steel in the structure. The rainwater gutters on the roof and the balconies of the office areas provide easy access for maintenance. A maintenance walkway has been provided along the edge of the pool and the granite wall. The only problem is in the courtyards inside the administrative block where the glass can only be cleaned after the laborious construction of a scaffolding tower.

3. *Design features*

The project is highly formal. The distinctive and strong presence of the building is what gives it monumentality. The structure can be read from across the bay and yet it sits very well within the dense urban fabric behind it. By tilting the Library into the ground, the scale of the building is minimized at close quarters, particularly from the plaza where it does not overwhelm the visitor or the existing conference centre.

4. *Impact of the project on the site*

It seems that an early proposal for a ten-coach parking area off Port Said Street was cancelled to enlarge the public plaza and now the project does present a problem for its neighbours in terms of increased traffic and pedestrian circulation. School buses bringing visitors park across from the Library on Port Said Street and so visiting students and those from the university have to cross the busy road to get to the ticket office and lockers because the pedestrian bridge has been closed due to security and crowd control issues. Tourist buses that come to the project also park along the Corniche.

5. *Durability and long-term viability of the project*

Under an Egyptian law enacted in 2001, the Bibliotheca Alexandrina was established as an independent, autonomous entity that reports directly to the Egyptian president. A presidential decree set forth the institution's organizational structure. This is composed of a Council of Patrons, headed by the president of the republic, and includes various heads of state and internationally eminent individuals. The decision-

making power is with a board of trustees of distinguished personalities, academics and five ex-officio members that is chaired by a representative of the president (at present Mrs Mubarak, the president's wife). Under this arrangement, the Library has a high international profile and a clear legal framework to ensure its viability. The financial independence and sustainability of the institution is being explored by the university and the city authorities who want to create a cultural centre that would appeal to tourists but would be for the benefit of all.

The basic building materials of the project are on the whole durable and need little maintenance; the cost lies in running the project and its systems. Solar technology was investigated and found to be inappropriate in this case because of the high power consumption which was not financially viable.

6. Interior design and furnishing

The finishes in the public areas are perforated aluminium or timber panels for the walls, granite tiles or timber for the floors. The furniture in the Library was donated by the Norwegian government and is mainly of wood, simply finished and designed for comfort and durability. Balustrades are of glass with stainless steel handrails. Corrugated metal sheets beneath the floor finish allow for maximum flexibility and accessibility for electrical wiring. This was the first time this system was used in Egypt and it was found to be highly appropriate and efficient.

VII. Users

A. User profile

The Library's opening hours are from 11h00 to 19h00, Sunday to Thursday, except Tuesdays, and 15h00 to 19h00 Fridays and Saturdays. Originally, entry into the Library was free but the number of visitors was so great (18,000 a day) that they interfered with those who wanted to use the library proper. Hence entry fees were set at EGP 4 (USD 0.65) for visitors, EGP 2 for university students, EGP 1 for high-school students and EGP 10 (USD 1.60) for foreigners. Annual passes are also available at EGP 60 for adults, EGP 30 for students (in April 2004, 18,000 users had annual cards).

The majority of the users are students from the University of Alexandria and local schools. School trips are organized between 09h30 and 11h00 so that they do not disturb other users. Aside from the Alexandrian students, other visitors use the conference facilities and research centres. An average of eleven activities, such as seminars, conferences, exhibitions and concerts, were held each month at the Bibliotheca Alexandrina in 2003. In terms of research, the Library does not aim to duplicate collections found elsewhere but concentrates on building strong sections in selected fields: archaeology, the ancient library, the city and Egypt as a whole; the ethics of science and technology; art and culture, with an emphasis on openness to others and critical analysis of art; and development issues around water and gender. The project is also in tourist guides for the city.

There are 1,100 members of staff in the complex, out of which only 26 are over 55 years of age. The average age of the staff is 27 and the gender mix is approaching fifty / fifty. The Library will be fully digitized by 2007.

B. User response

1. How do architectural professionals and cultural intelligentsia view the project?

The project was heavily criticized when it won the competition because of the technical and financial difficulties involved in building underground on the site. The lack of a proper 'elevation' was also noted, however the symbolic aspect of the sun, rebirth, progression and time was always greatly appreciated. Now the Library is admired, mostly for its simplicity and strength of form, its main reading area or 'universal' space, for the quality of the light and the quality of the building's construction, and for the coordination of the work and the detailing. Academics visit the complex and have consulted the engineers on various technical aspects of the project.

2. What is the popular reaction to the project?

The users are very proud of their Library. They see it as a modern, up-to-the-minute project that connects them to the contemporary world. Various conferences held in the complex have received regional and international attention that is raising the profile of the whole city. The Library is seen as a progressive landmark for the country as a whole, reinstating Egypt on the map as an open, modern centre of cultural exchange.

3. What do neighbours and those in the vicinity think about the project?

Alexandria University is in the immediate vicinity of the project, and so a large proportion of the users come from close by. They are very proud of the project and use it regularly for research purposes as they consider it a source of highly relevant, current information. They feel the Library is very well organized, the facilities are easy to use and the staff are ready to help them in their research.

VIII. Project personnel

Dr Mohsen Zahran, client representative during construction (to 2001)

Dr Ismail Serageldin, Director of Bibliotheca Alexandrina (2001 to date)

Mr Craig Dykers, architect, Snøhetta

Mr Christoph Kapeller, architect, Snøhetta

Mr Kjetil Trædal Thorsen, architect, Snøhetta

Mr Mohamed Sharkass, Head of Architecture, Hamza Associates

Dr Mamdouh Hamza, geo-technical engineer and Chairman of Hamza Associates

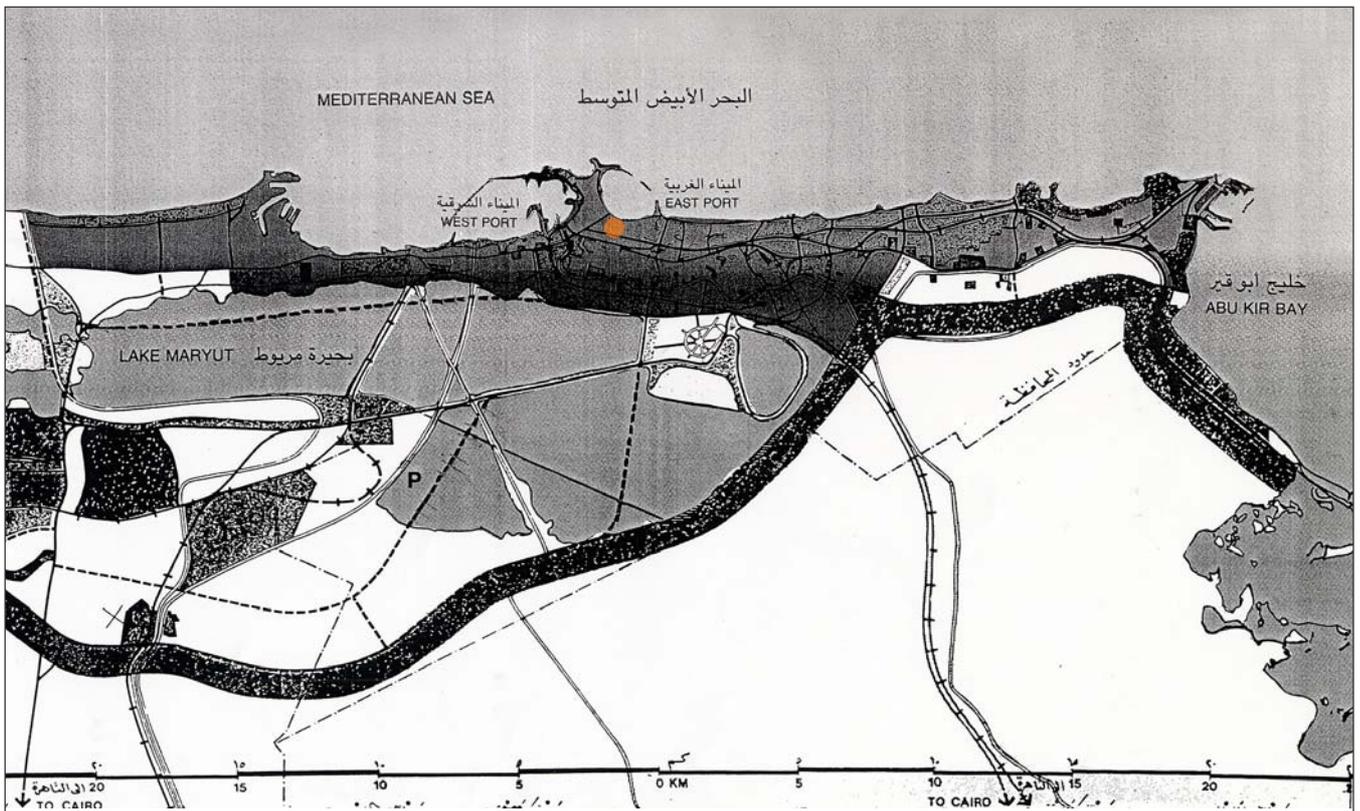
Dr Mashhour Ghunaim & Dr Ahmed Rashed, structural engineers, Hamza Associates

Dr Ibrahim Helal, electrical engineer, Hamza Associates

Dr Ali Omar, mechanical engineer, Hamza Associates

Mr Mohsen Abdou, plumbing and fire fighting engineer, Hamza Associates
Mr Tarek Yassine, site engineer, Hamza Associates, during construction, currently
Director of the Engineering department at the Bibliotheca Alexandrina

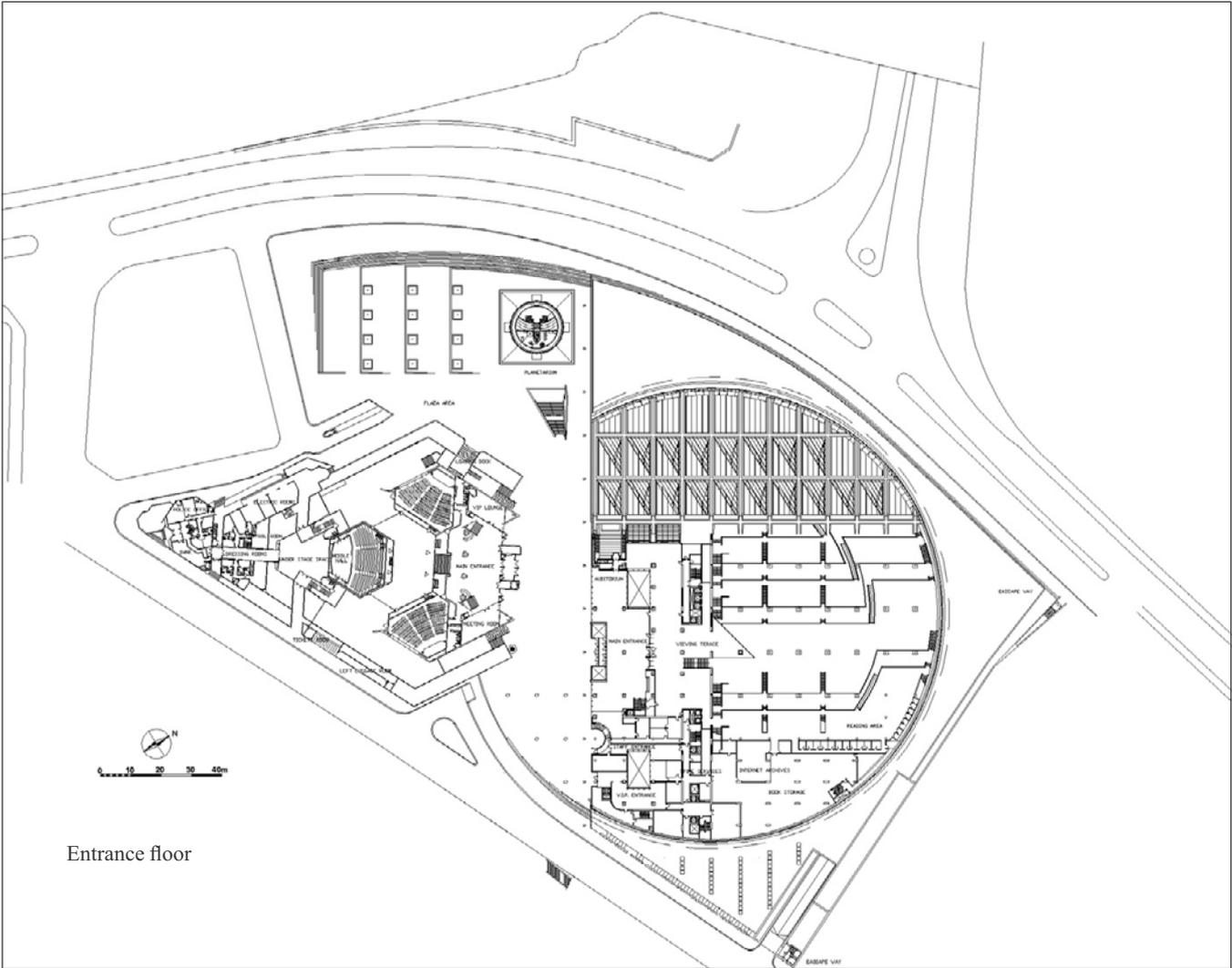
Hana Alamuddin
May 2004



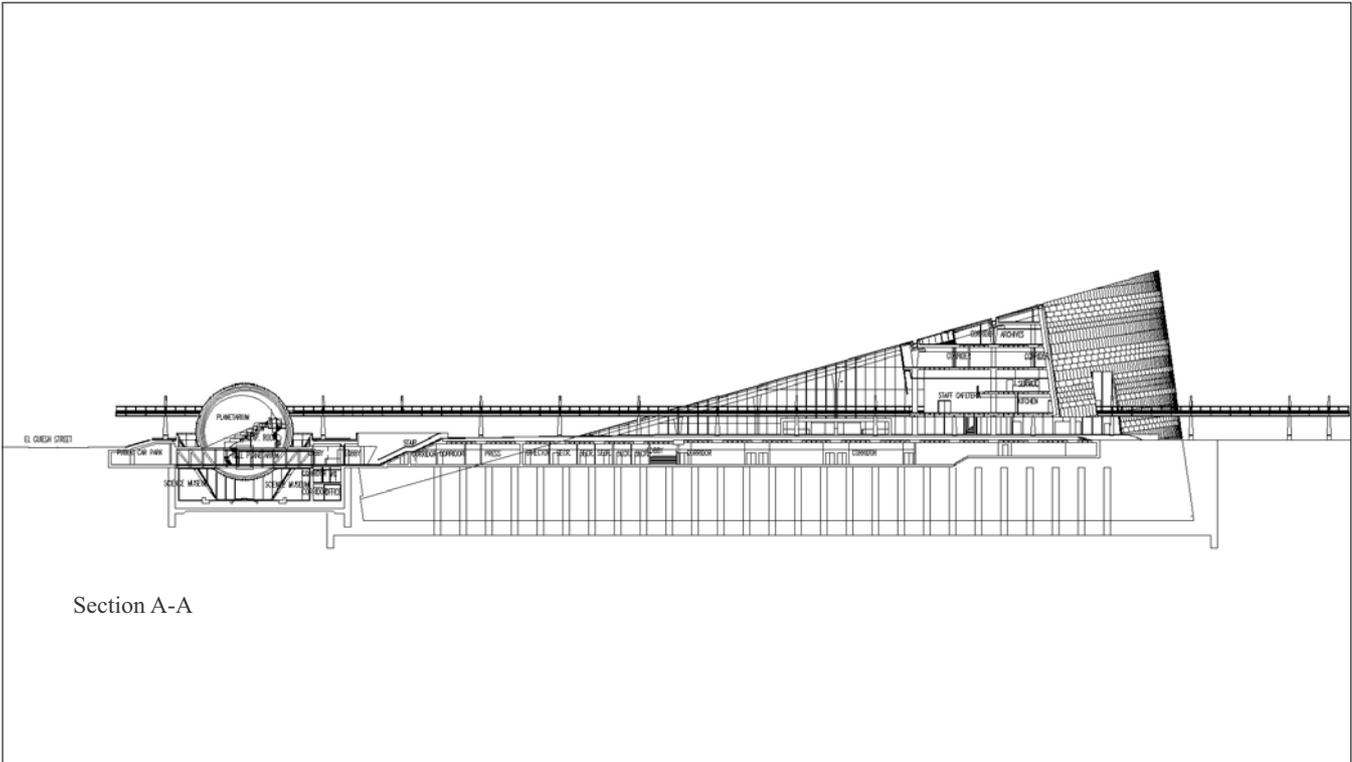
The site of Bibliotheca Alexandrina is part of the town centre, facing the Eastern Harbour and the sea.

The site is flanked by the seaside Corniche on the North and by Port Saïd Street on the South, adjacent to the University of Alexandria.

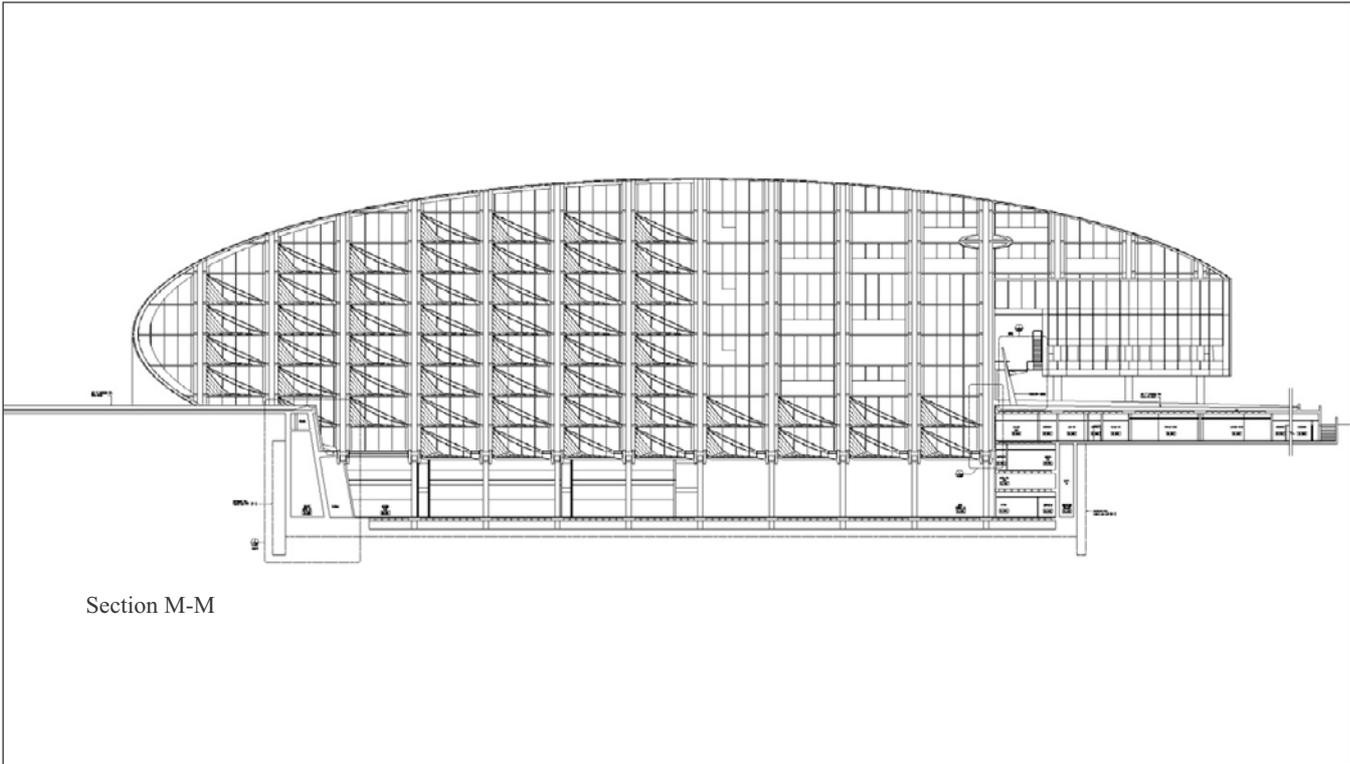
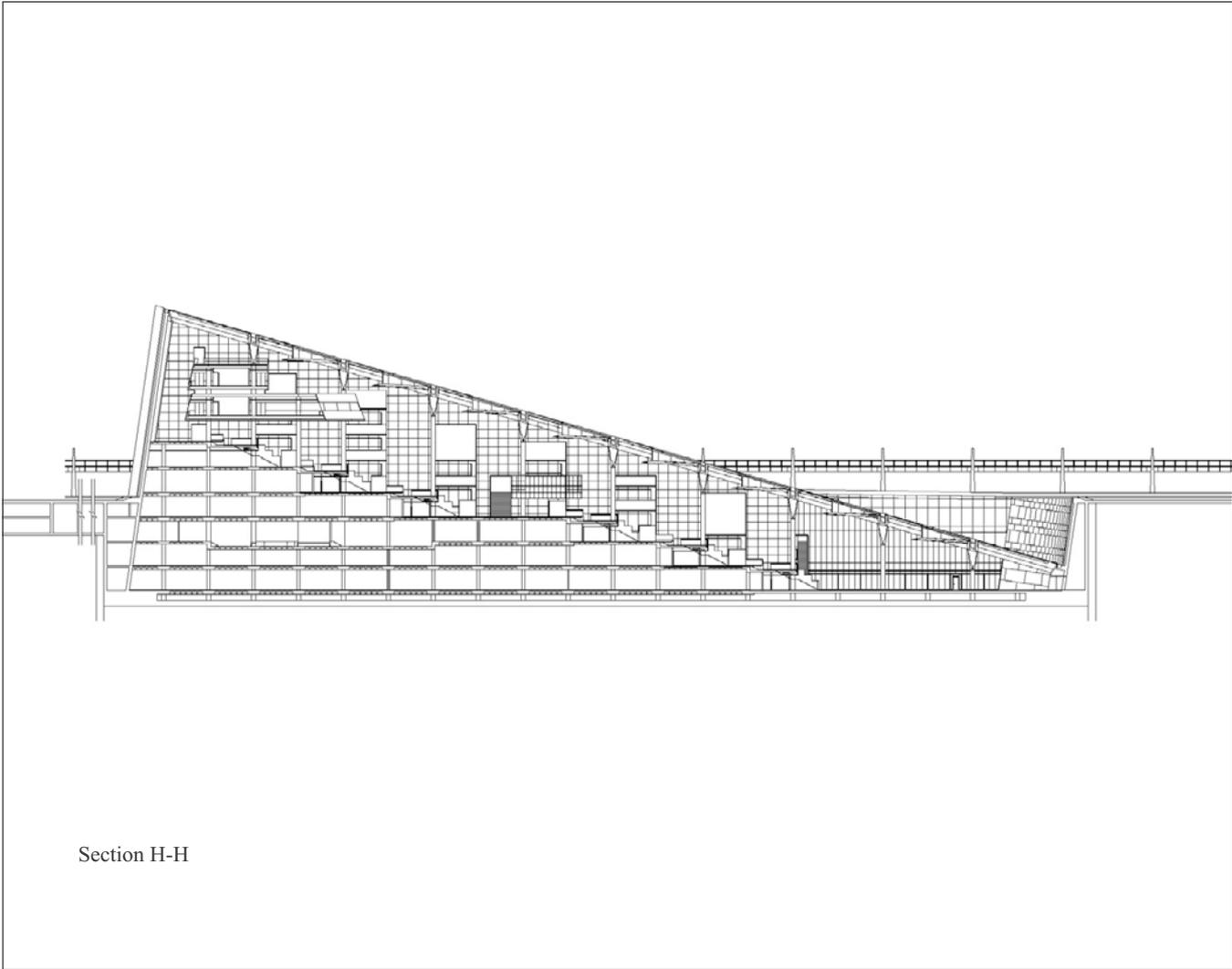


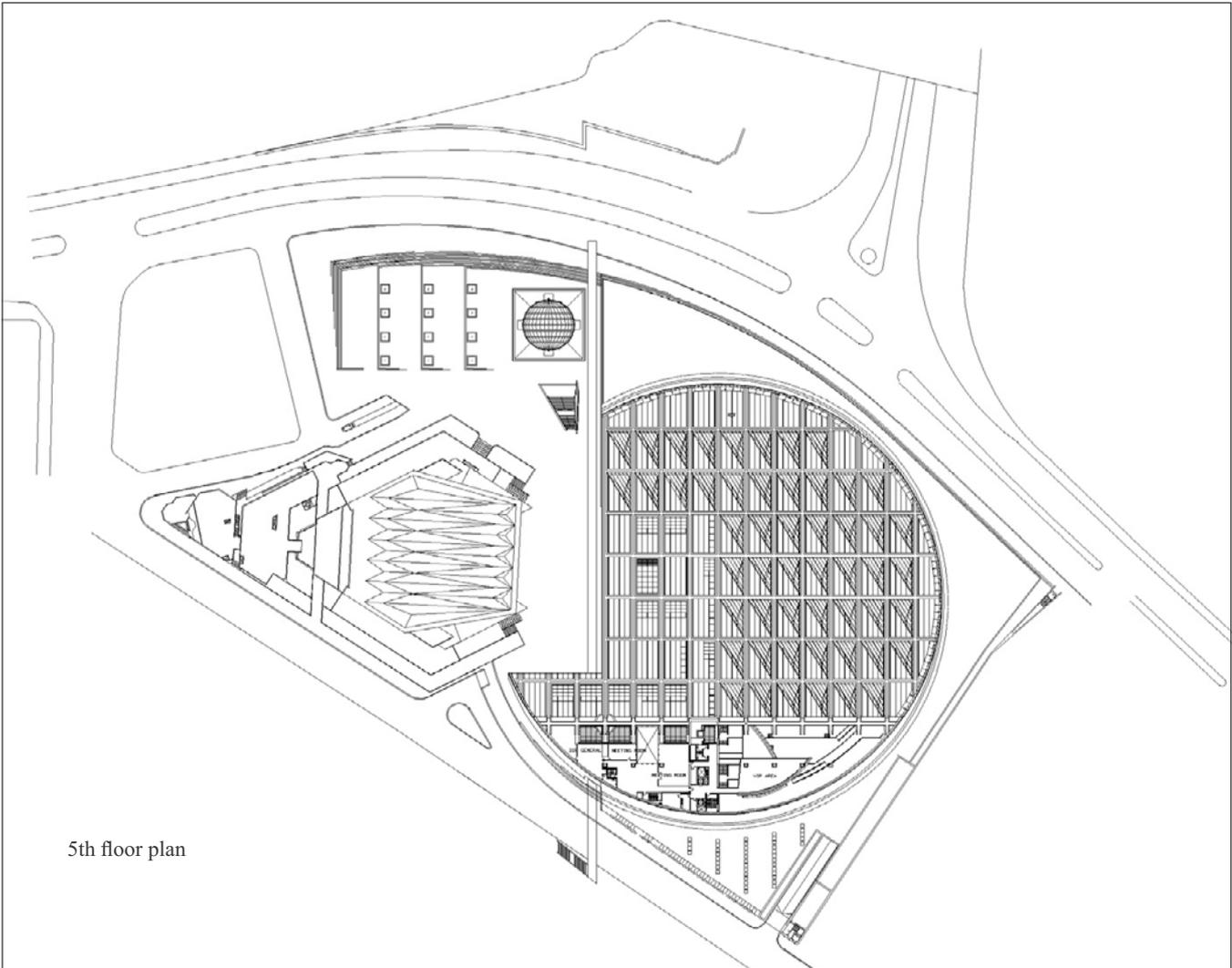


Entrance floor

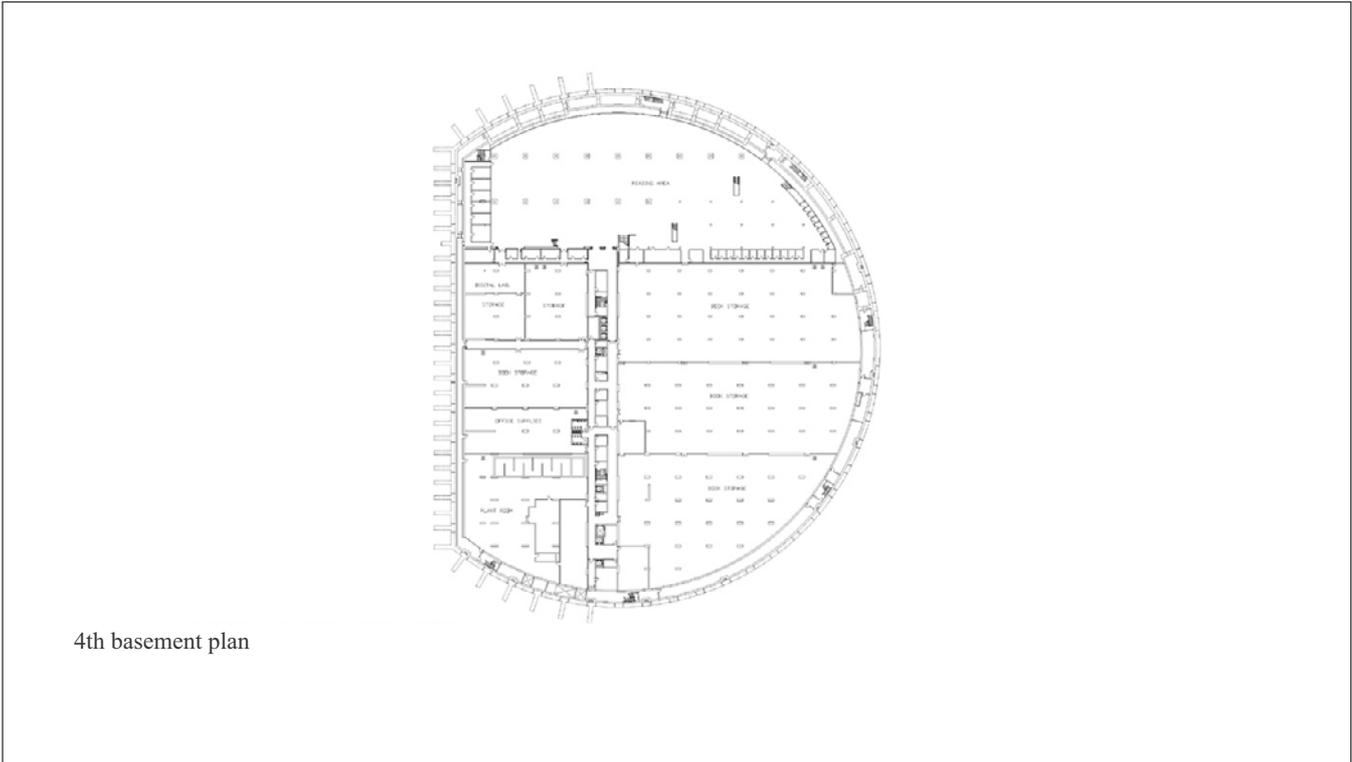


Section A-A





5th floor plan



4th basement plan

General view of the shoreline of Alexandria seen from the Mediterranean Sea. The building is visible to the centre-right, distinguished by the tilting roof covered with anodised aluminium sandwich panels with double-glazed glass.



View of the main library from the corniche road in front of the complex.



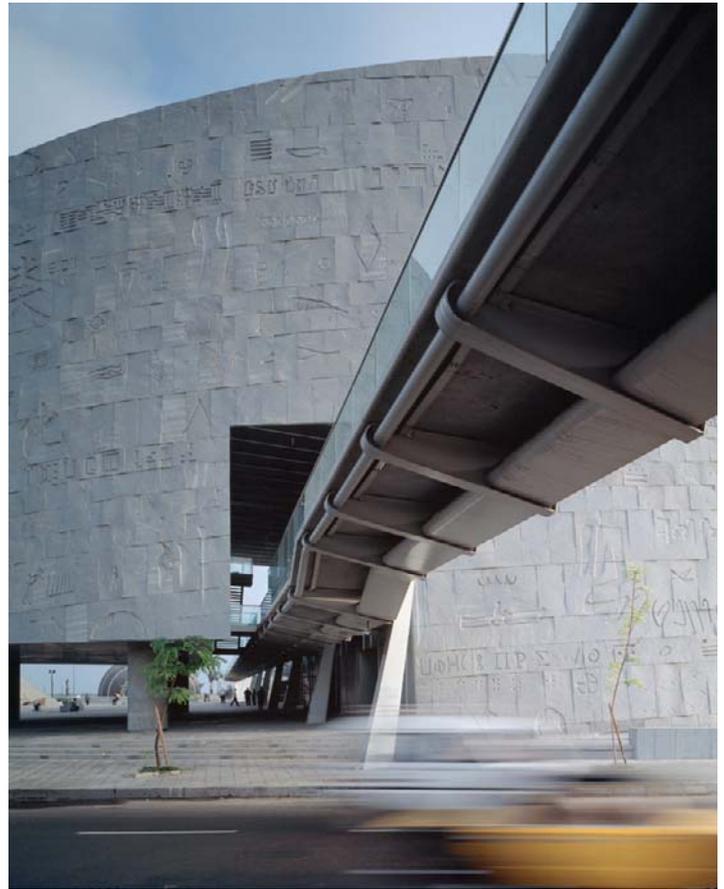


The round walls are covered in four thousand granite panels carved with alphabets from throughout history.



The main plaza is slightly elevated, and paved with grey granite. The area is used as an open-air theatre for outdoor performances.

A pedestrian bridge, in steel, spans the plaza, above the corniche road and to the university.



A “cut” into the circular form is glazed, and allows light into the administration areas.





Interior of the main library, which is one open space with eight terraces, each accommodating one subject area of the library.



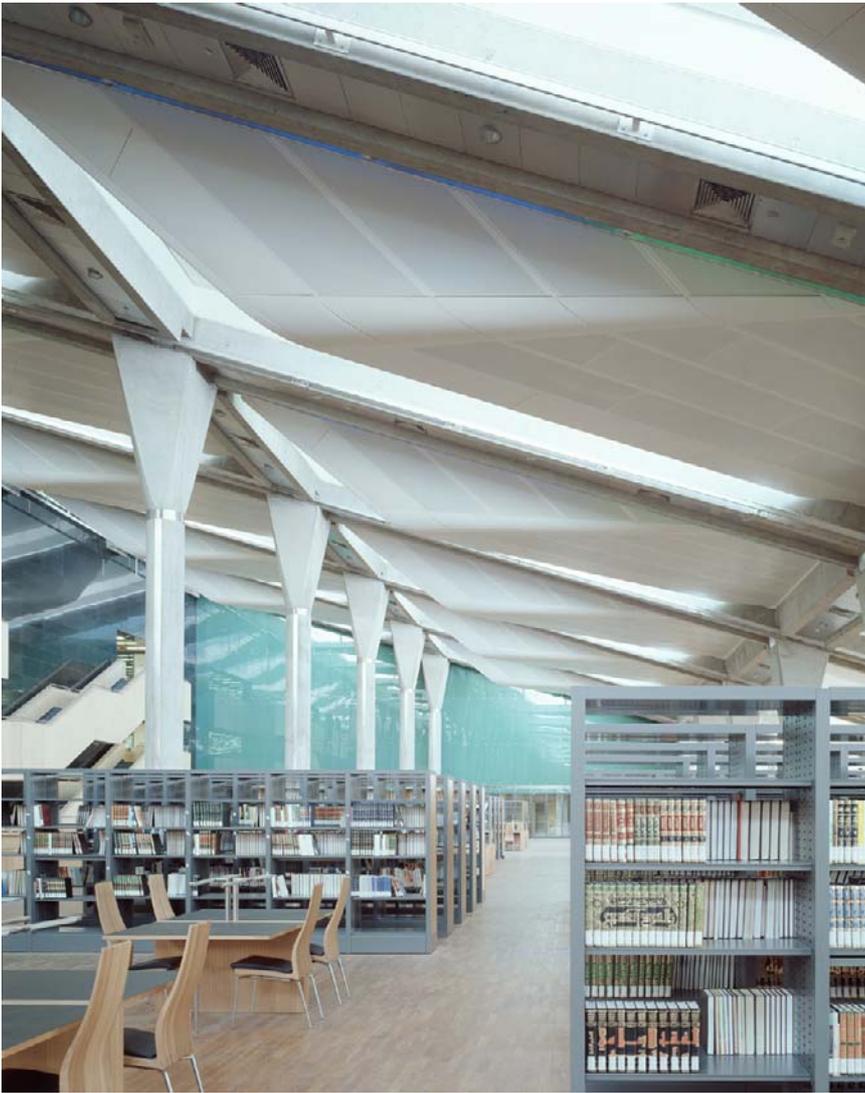
Detail of one of the terrace areas in the library.

View from the uppermost part of the library, looking down over the various terraces.



Side view of the main library, showing the interior organisation of terraces.





Storage facilities for books are placed at the rear of each terrace.



Elevators are housed in a service zone; the entire facility is accessible to the physically handicapped.