



Press release | Gerber Architekten | Dortmund | 10.01.2014

King Fahad National Library

Refurbishment and extension of the National Library in Riyadh, Saudi Arabia

Abstract

The King Fahad National Library, one of the most important cultural buildings in the Kingdom of Saudi Arabia, was completed and went into use for its intended purpose in November 2013. This project sees Professor Eckhard Gerber and his Gerber Architekten team accomplishing one of the most important urban development and cultural projects in the capital, Riyadh. The design functions as the central driving force behind a piece of urban development and rearrangement, and combines the challenge of designing within the existing building stock with respect for Arabian culture.

The symbolic cuboid shape of the new building surrounds the existing building on all sides, thus presenting the National Library as a new architectural image in the Riyadh cityscape without abandoning the old building, which now operates as an internal stack, making it the centre of knowledge within the new library as a whole. The square new building is covered by a filigree textile façade following traditional Middle Eastern architectural patterns and linking them with state of the art technology.

The design goes back to the early days of an international competition dating from 2003. When the National Library is completed, Gerber Architekten will be working on planning the Olaya Metro Station, another of this country's major projects.

(1.325 characters)

Urban development concept

The King Fahad National Library represents the new centre of the rapidly changing Olaya District, and stands out clearly from the heterogeneous existing building pattern. The square new building in the centre of the urban park looks open and light, and is tied into the urban space despite its size. Gerber Architekten designed the existing park including parts of the available green space as a spacious square, and this and the library now form an urban unit. Thus the National Library becomes the iconographic centre of a prestigious urban quarter that will become increasingly important in future years.

The site links King Fahd Road and Olaya Street, the two main traffic axes of the capital of the Kingdom of Saudi Arabia. The new urban square described above was created on Olaya Street, offering pedestrians direct access to the library and guaranteeing an attractive space in which to spend time despite the heavy traffic. This new square echoes the surrounding basic structure of public squares, in which desolate and neglected building plots are redesigned as green oases. These are intended for various new leisure and recreational activities in the district. The new library stands as an important element of this spatial sequence, and makes a contribution to transforming the area into a lively and complex new urban quarter.

(1.339 characters)



Architectural concept

Gerber Architekten developed a cuboid building surrounding the existing library on all sides, thus presenting the National Library as a new architectural image within Riyadh's urban space. The new building encloses the old one protectively, and combines itself with it in an unusual way, following monument preservation principles. The cruciform existing building, topped by a dome, is concealed inside the new building. The old structure is integrated as a building within a building, while its existing dome – originally in concrete – has now been reconstructed in steel and glass, and continues to be a cultural symbol of the library.

The entire former roof of the existing building, which occupies an extensive area, now provides a reading landscape flooded with light and offers a special atmosphere that will encourage the exchange of knowledge in this way. Inside – as if hidden in a treasure chest, a knowledge storehouse – are the book stacks. Visitors access the open-access sections on the third floor of the new building via bridges from the reading area. Everything is covered by a new roof, punctuated by skylights under which white membranes gently distribute the light throughout the entire interior.

The main entrance hall is on the ground floor, which also houses exhibition areas, a restaurant and a bookshop.

A library area for women only, in which they can spend time without a burka, is provided on the first floor of the new south wing; this space is separated from the other building uses, and is also accessed separately.

(1.545 characters)

Façade concept

The key element of the façade was developed especially for the new building. It is a cladding made up of rhomboid textile awnings, marked by its play with revealing and concealing. Inserted white membranes, supported by a three-dimensional, tensile-stressed steel cable structure, act as sunshades and interpret the Arabian tent structure tradition in a modern, technological way. This sequence of old and new creates a uniform and prestigious overall architectural appearance with characteristic styling. At night the façade glows in a soft white light and becomes the city's cultural lighthouse.

This filigree steel cable structure has a solar penetration level of only 7 per cent, and at the same time makes it possible to look both in and out. Given exterior temperatures of up to 50° Celsius, the membrane façade, which was optimised in relation to the local sun path by means of complex, three-dimensional light refraction, combines the required protection from the sun with maximum light penetration and transparency.

This façade was combined with ventilation and cooling for the building by means of layered ventilation and floor cooling. In this way, thermal comfort is increased and energy consumption significantly reduced by using certain methods and technologies for the first time in the Arab world.

"The theme of sustainability using up-to-date energy concepts and rational building structures runs through all our activities as a crucial idea that is taken for granted." (Prof. Eckhard Gerber)

(1.508 characters)

Background

Gerber Architekten were invited to take part in an international competition for building the Saudi Arabian National Library in 2003, and won the first prize. The brief was to design a building that properly reflected Arabian culture and was worthy of this tradition-stepped location. The existing historical building was to be retained in its essentials in this design. (369 characters)

Gerber Architekten build in Saudi Arabia

Gerber Architekten have been working in Riyadh, Saudi Arabia since 2001, and are presently designing a series of further projects after the King Fahad National Library is completed. At the time of writing they are implementing their winning design for the Olaya Metro Station, which took the prize in the face of international competition. The first prizewinners for the other two stations are the architects Snøhetta for the Downtown Metro Station, and Zaha Hadid Architects for the station in the King Abdullah Financial district. Another project under construction is the Prince Salman Science Oasis on Prince Abdullah bin Abdulaziz Road, with a total of seven permanent exhibition galleries. A butterfly dome is also being planned at present, and a municipal library for which building will start in 2014. A new underground station in Mecca by the Kaaba is also at the design planning stage.

Creativity, a structured and constructive way of working and also the reliability guaranteed by German architectural practices are held in high esteem in the Arab world in particular. The quality of work provided by German firms in executing designs is also valued, as in the case of the King Fahad National Library, for example. The building materials were individually finished by German manufacturers and exported to Saudi Arabia. Impeccable construction quality was guaranteed by Saudi Arabian firms under the capable direction of German site managers provided by Gerber Architekten.

(1.485 characters)

Publication

Architect Eckhard Gerber celebrated his 75th birthday last year. The "Eckhard Gerber Baukunst" exhibition marks this occasion and Gerber's creative activity over more than forty years. The publication of the same name, edited by Frank R. Werner, was published by the Jovis Verlag and is available under ISBN 978-3-86859-265-8. Recommended retail price: 59.95 Euros.

(366 characters)

Basic data

| | |
|-------------------------|---|
| Name: | King Fahad National Library |
| Location: | Riyadh, Kingdom of Saudi Arabia |
| Client: | Kingdom of Saudi Arabia |
| Architect: | Gerber Architekten |
| Interior Designer: | Gerber Architekten |
| Landscape Architecture: | Gerber Architekten in Cooperation with Kienle Planungsgesellschaft |
| Lightning Design: | Gerber Architekten |
| HVACR: | DS - Plan (Drees & Sommer Group) |
| Structural Framework: | Bollinger & Grohmann Ingenieure |
| in cooperation with: | Saudi Consulting Services |
| Main contractor: | Saudi Bin Laden Group |
| Competition: | 1999 – 2002 |
| Design: | 2004 – 2006 |
| Construction: | 2008 – 2013 |
| Completion: | November 2013 |
| GFA: | 86.632 m ² |
| Building costs: | 330.588.000 SR |
| Costs by qm: | 3.800 SR / m ² |

Project team

| | |
|-------------------------------------|---|
| Architect: | Gerber Architekten Prof. Dipl.-Ing. Eckhard Gerber Project architect: Dipl. Ing. Thomas Lücking |
| Team: | Dipl. Ing. Britta Alker Dipl.-Ing. Olaf Ballerstedt Dipl. Ing. Carolin Balkenhol Dipl. Ing. Hans Christoph Bittner Dipl. Ing. Markus Görtz Dipl. Ing. Juana Grunwald Dipl.-Ing. Thomas Helms Dipl. Ing. Nicole Juchems Dipl. Ing. Alexandra Kranert Dipl.-Ing. René Koblanck Dipl.-Ing. Nils Kummer Dipl.-Ing. Stefan Lemke Dipl. Ing. Jörg Schöneweis Dipl. Ing. Van Hai Nguyen |
| Structural framework (competition): | Schlaich, Bergemann und Partner (Stuttgart) |
| HVACR (competition): | HL-Technik AG (München) |
| On-site engineering: | Saudi Consulting Services (Riad) |
| Landscape architecture: | Gerber Architekten Prof. Dipl.-Ing. Eckhard Gerber Team: Dipl.-Ing. Nicola Gerber Dipl.-Ing. Eduard Gevers Dipl.-Ing. Till Müller |

Manufakturer index

| | |
|----------------------------------|--|
| Siteco | lightning |
| Sefar | textile façade |
| Pfeifer | tensile-stressed steel cable structure |
| Norka | façade lightning |
| Grohe | sink and flush |
| EFT (European Facade Technology) | façade technology |
| RP – Technik | tube frame doors |
| Kone | elevator and escalator |
| Dorma | fittings, closing systems, revolving doors |

Awards

Meed Award „Social Project of the Year 2014“

Iconic Award 2014 „Product – Façade“

International Architecture Design Award 2014

German Design Award 2015 „Architecture and Urban Space“

Credits

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King Fahad Nationalbibliothek

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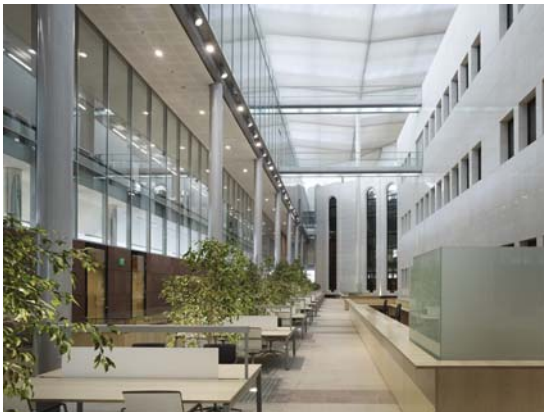
KFNL_1_Richters



KFNL_2_Richters



KFNL_4_Richters



KFNL_5_Richters



KFNL_6_Richters



KFNL_9_Richters



KFNL_11_Richters



KFNL_3_Richters



KFNL_13_Richters



KFNL_12_Richters



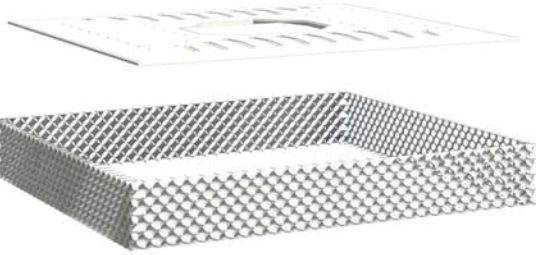
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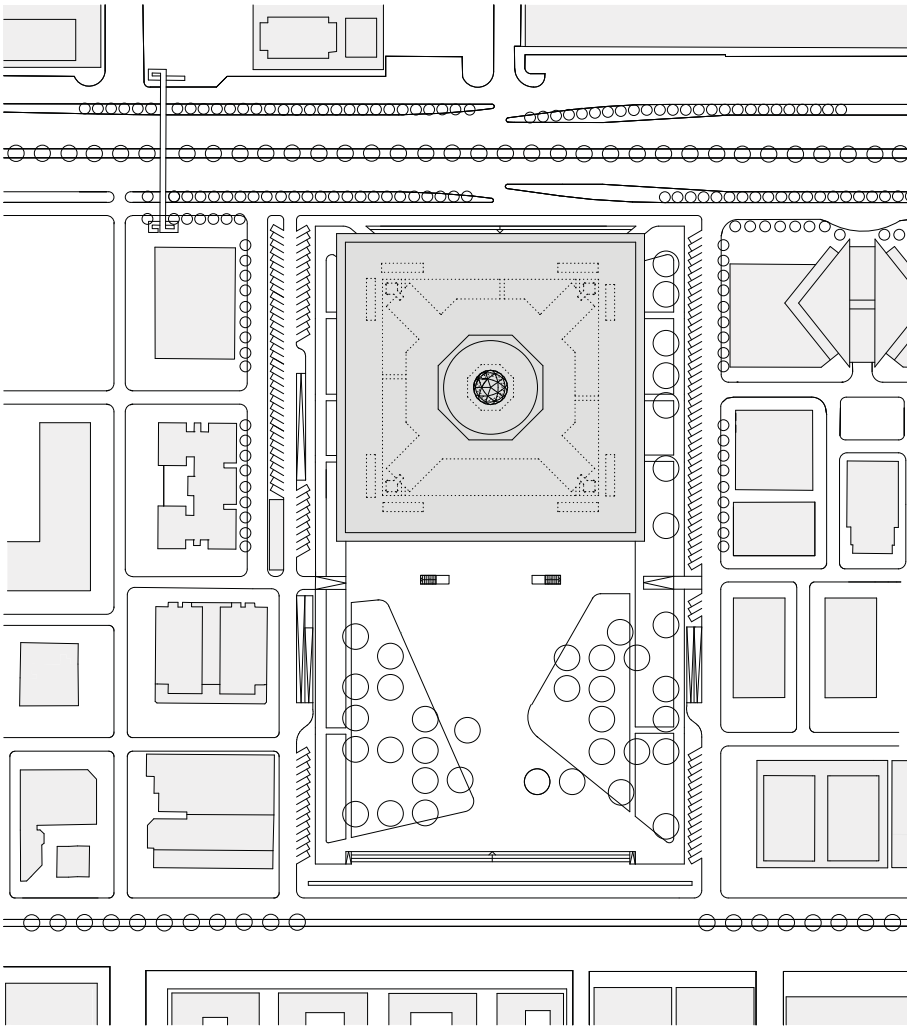


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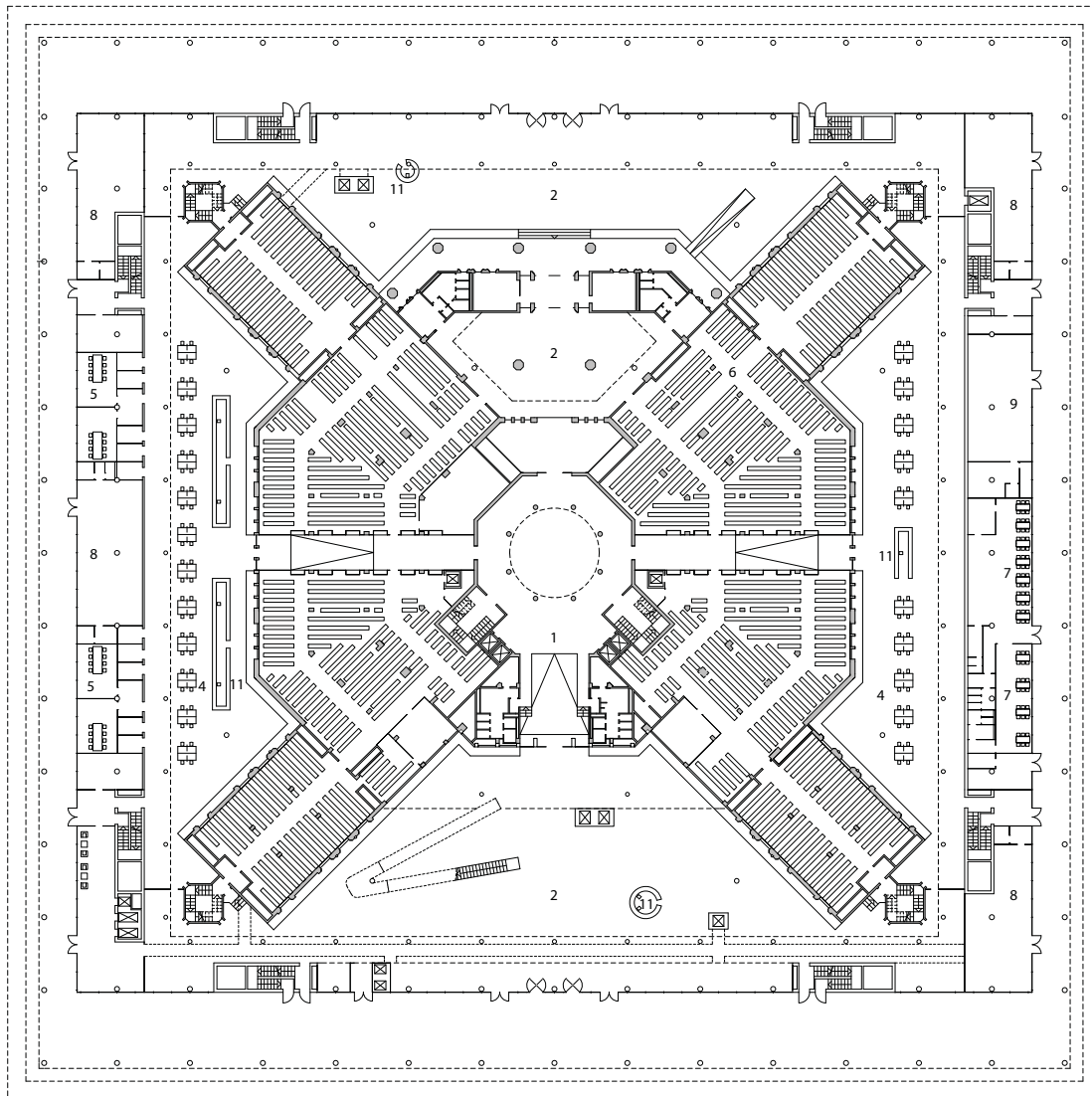


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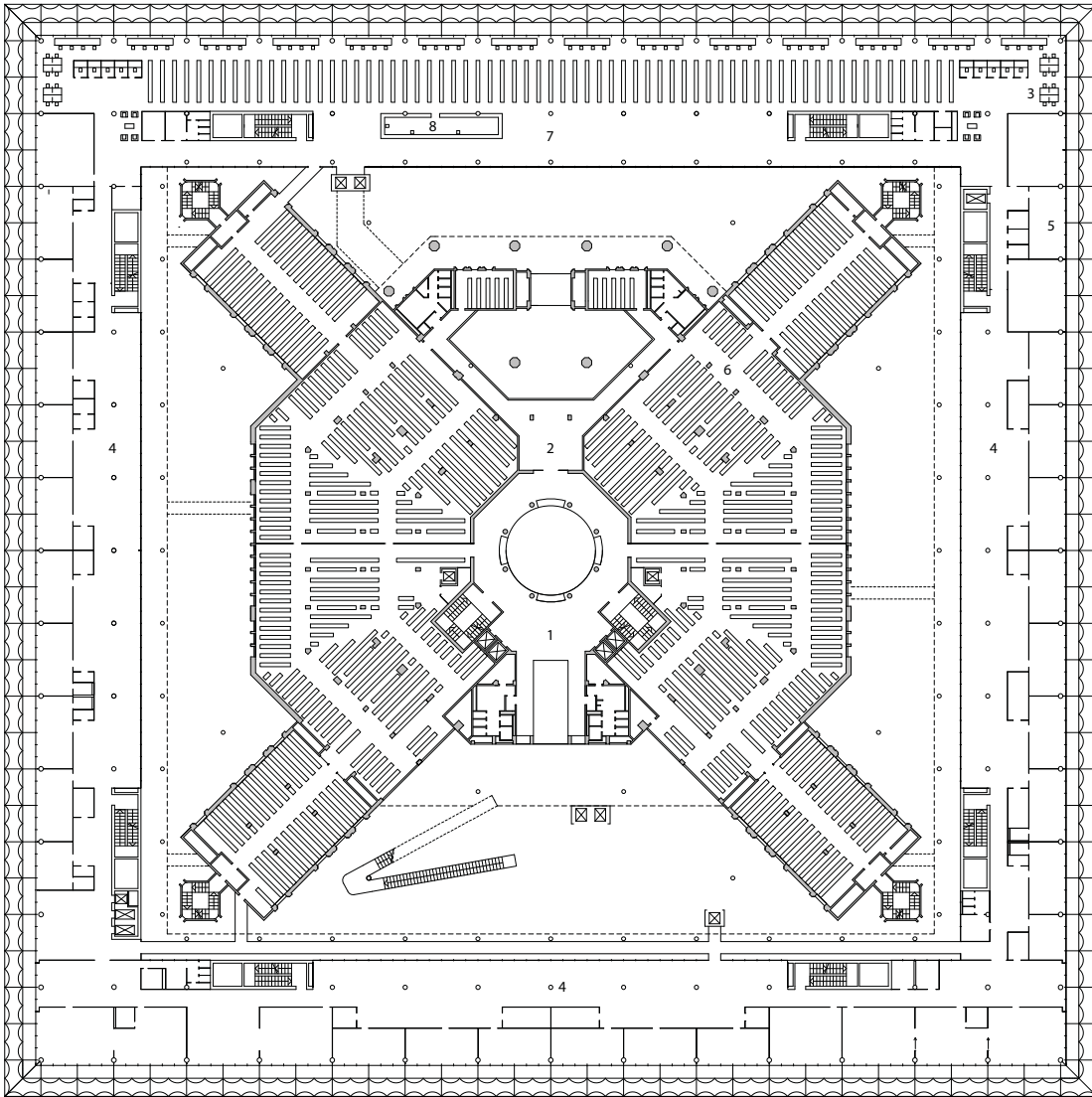
King Fahad Library
siteplan



- 1 Rotunda
- 2 Entrance Hall
- 3 Public Halls
- 4 Reading Area
- 5 Studyroom
- 6 Closed Access Stack
- 7 Restaurant
- 8 Shop
- 10 Vault Room
- 11 Information and Service



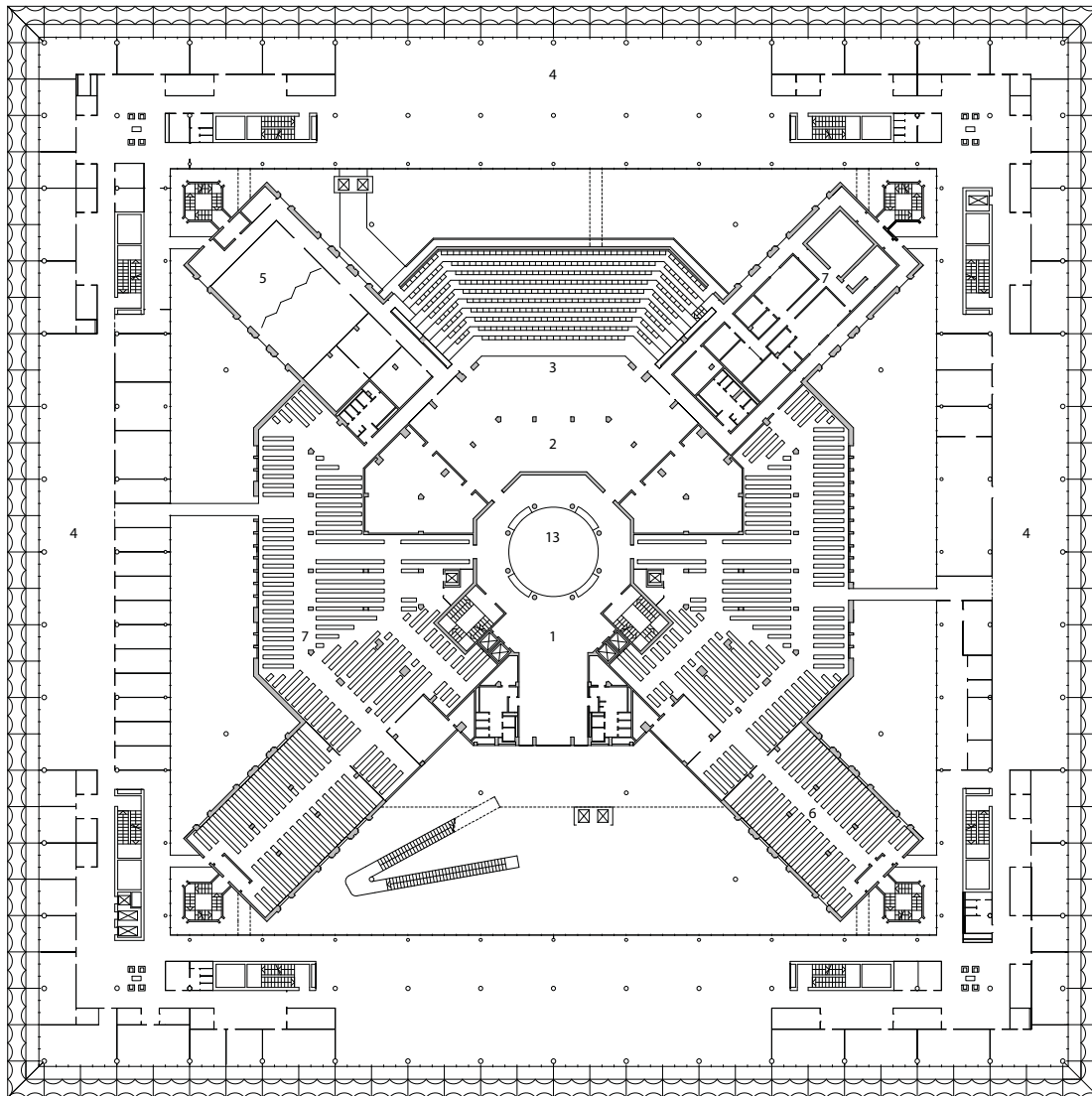
King Fahad Library
ground floor



- 1 Rotunda
- 2 Entrance Hall
- 3 Reading Area
- 4 Administration
- 5 Seminar Room
- 6 Closed Access Stack
- 7 Women's Library
- 8 Information and Service



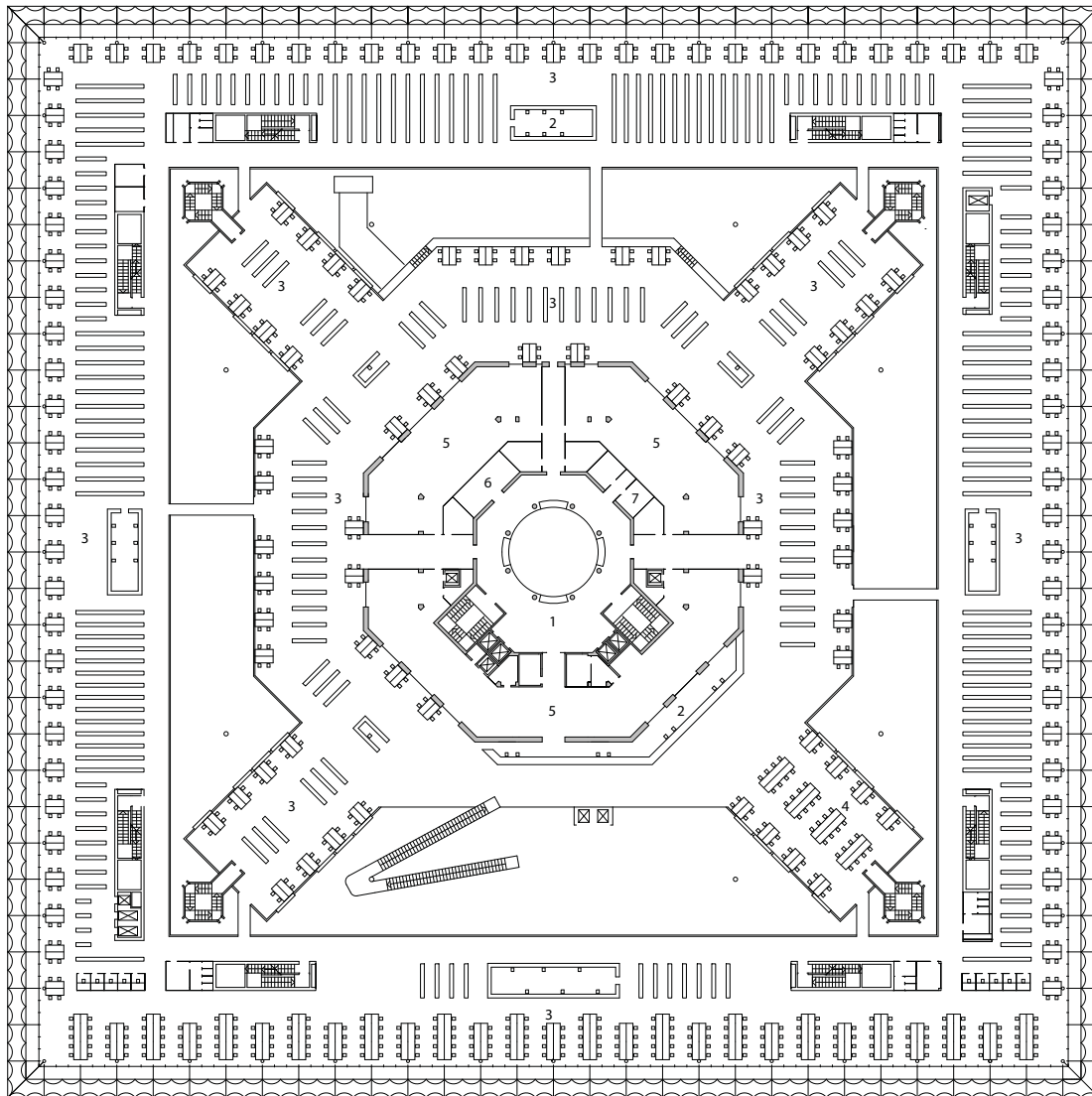
King Fahad Library
1th floor



- 1 Rotunda
- 2 Foyer Lecture Hall
- 3 Lecture Hall
- 4 Administration
- 5 Seminar Room
- 6 Closed Access Stack
- 7 TV Studio



King Fahad Library
2nd floor



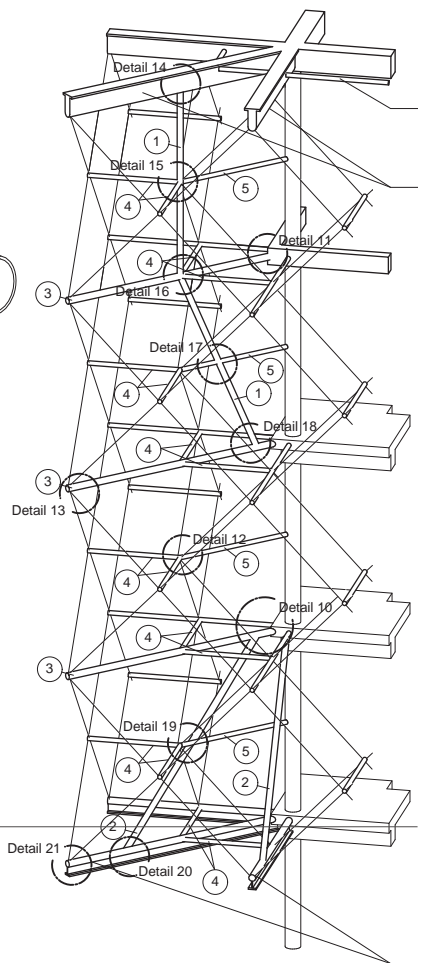
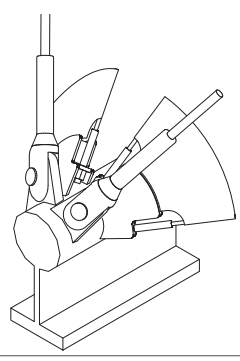
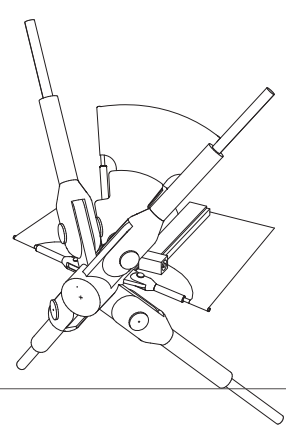
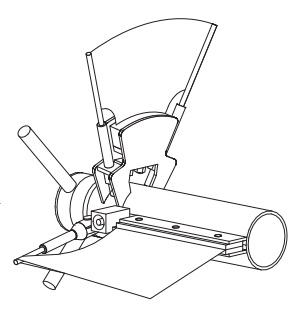
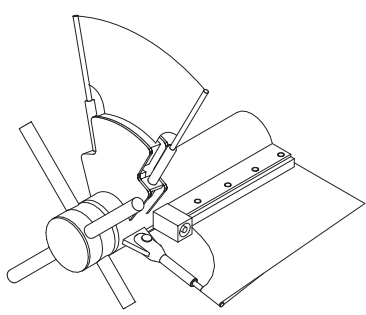
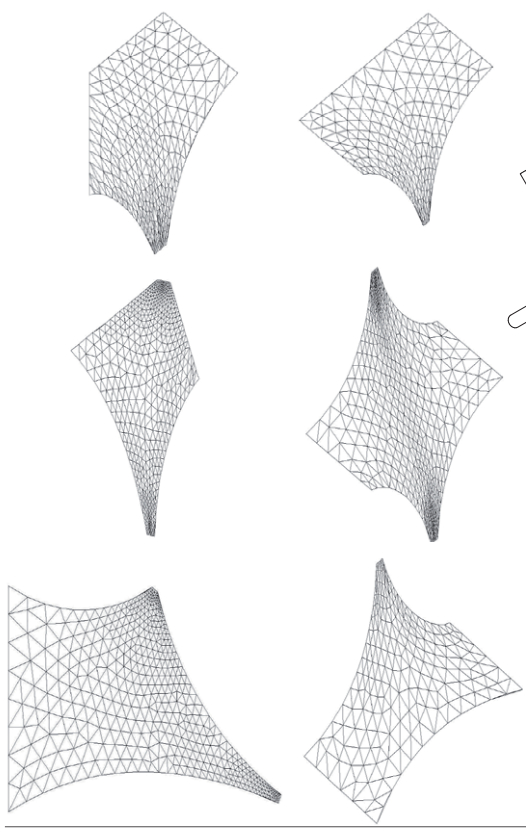
- 1 Rotunda
- 2 Information and Service
- 3 Open Stack
- 4 Reference Search Area
- 5 Closed Stack
- 6 Language Labor
- 7 Music Room



King Fahad Library
3rd floor



King Fahad Library section



details

Gerber Architects' Philosophy

The client's requirements are the basis for the development of our design concepts. Deductions from the site's specific characteristics and history, the surrounding structures, climate and access paths, as well as energy and ecological needs - aspects of particular importance today - are all parameters of our design process. Ultimately, the building or urban landscaped ensemble, should, as a unique element, reflect the genius loci, formulating a distinctive and memorable idea of structure and space in all its parts.

By reducing design concepts developed in this way, all important ideas should - in the form of a small logo - be visually imparted, make an impression and set a sign. When the building is used and experienced, this conceptual sign should be perceptible as a structure and in all its parts recognizable through its clarity and conclusiveness, right down to the use of materials and colour. This is only possible, however, when the design's basis is a rational, functionally intelligent, innovative and thus formally expressive concept.

Our goal, as a team of architects, interior designers, engineers, urban planners and landscape designers, is to create built environments that affect people and stir their desires; places people like to visit and linger in; spaces that are tangible and logically accessible. These should be structures that improve the urban and landscaped environment with their beauty and in their simplicity, as well as being exciting in their spatial arrangements, which are clear and self-evident with regards to the orientation between inside and out.

The main aspect of our efforts is to focus within the existing multiplicity of what is right, to distill that to a well proportioned concentrate and to connect things with one another aesthetically, thus creating solutions to the tasks at hand for our fellow beings.

A precise calculation of costs and adherence to the budget are basic requirements for our work. The planning and construction time follow professional construction schedules, which are set up and supervised by our well-cooperating project management. Our planning team with over 100 employees has a knowledge resulting from 45 years of office experience and is equipped with the very latest technical equipment and systems. In order to provide a comprehensive planning service, we are associated with freelance specialized consulting engineers. We work for private and public clients, for companies, industry, commerce and trade organisations, banks and insurance companies and are able to successfully support general contractors and construction companies with the preparation of tenders and the development of working drawings.



Professor Eckhard Gerber

| | |
|------------|--|
| 1938 | born in Oberhain, Thuringia |
| 1959–1966 | studied Architecture at the Technical University of Braunschweig; grant from the Reemtsma Scholarship Fund, Hamburg |
| 1966 | founded the studio "Werkgemeinschaft 66" |
| 1973–1975 | Assistant at the University of Dortmund under Professor Harald Deilmann |
| 1975 | 1974 Award for Young Artists from the State of North Rhine-Westphalia for City-Planning and Architecture |
| since 1979 | Gerber Architekten, Dortmund successful competition entries in Germany and in other countries, numerous prizes for realized buildings |
| 1981–1992 | Professor of Design Basics and Applied Theory of Design in Architecture and Regional Planning at the University of Essen |
| 1990–2004 | Professor of Design Basics and Design in Architecture at the University of Wuppertal |
| since 1992 | Chairman of the Dortmund Art Association |
| 1995–1999 | Dean of the Department of Architecture at the University of Wuppertal. Member of the BDA, DWB, frequently head of the jury in architectural competitions, speaker at conferences in Germany and abroad |
| since 2004 | Professor of Design Basics and Design in Architecture in the Master's Study Course in REM & CPM at the University of Wuppertal |

Selected projects:

Harenberg City-Center, Dortmund
MDR Broadcasting Centre of Saxony-Anhalt, Magdeburg
New Exhibition Grounds, Karlsruhe
King Fahad National Library, Riyadh
Prince Salman Science Oasis, Riyadh
RWE Tower, Dortmund
Cologne University of Applied Sciences, Gummersbach Campus
University of Applied Sciences, Würzburg-Schweinfurt
Biological Institutes of Dresden University of Technology
Institutes of Physics and Dept. Life, Light and Matter, University of Rostock
Rudolf Virchow Center for Experimental Biomedicine, Würzburg
Art and Media Campus, Hamburg-Finkenau
Dortmunder U – Centre for Art and Creativity

Member of BDA (Bund Deutscher Architekten) and Deutscher Werkbund
Served as jury-chair at many international competitions
Speaker at national and international conferences