



“Islamic design in Western world”
vs
“Western design in Islamic world”





“Islamic garden in Christian world” “Christian garden in Islamic world”

A research paper about cross cultural perspective in the age of global architectural practice

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Foreword

As master students of Landscape Architecture in Wageningen University, we followed Design Theory classes. For this course we were obligated to work on a research topic and write an essay about it. The research list of topics which was made by Professor Jusuck Koh, included a topic called 'Cross cultural perspective in the age of global architectural practice'. We directly signed our names to work on this topic and after a short conversation with Prof. Koh we changed the topic's name to be: "Islamic design in Western world" VS "Western design in Islamic world."

We made an advantage of the fact that each of us represented one of the two worlds. Shady being Egyptian and Muslim and Harro being Dutch and non believer. Both of us found the topic very interesting and worked with an active attitude on it. Our search for information was difficult, because contemporary landscape architecture in the Islamic societies is a little documented subject.

Nevertheless we have learned a lot from this research and enjoyed working on it. Also we want to use the opportunity to thank our teacher for his active attitude in helping us developing the report. The research is now done and we hope to provide you with a readable and interesting document.

1. Introduction

1.1. Preface

Landscape Design in the Middle East is a little-documented subject¹. Until relatively recently conventional academic research had been conducted largely from an 'Orientalist' perspective². It is only today that discussion of Islam and architecture are starting to acknowledge the true diversity and complexities of Islamic societies.

Innovative and sustainable?

Since the beginning of 20th century the architecture in the Middle East has hesitated between the widespread adoption of imported inappropriate building systems, in the means of environment and culture, and self-conscious parody of an 'Islamic style'. With growing global anxiety over control of oil resources in the Middle East and the conflicts in Iraq, Iran and Afghanistan, what, however, happens next?

1.2. Problem Statement:

Therefore we think that Landscape Architecture cannot be disassociated from its ideological and political context, thus we need to look at what notions of identity, culture, tradition, and history represents a society. Within this perspective we focus upon, how can cultures influence our landscapes?

1.3. Research Question:

- What are the similarities and difference between Islamic and Christian landscape architecture?
- How do we, as Landscape architects and designers, create culturally and environmentally valid architecture that is sensitive to a multiplicity of traditions without allowing subjective values and images to intervene design process?
- Can Western contemporary design show respect to the local culture in the Middle East?
- Can the design for Islamic people show respect to the local culture in the West?
- It is important to create new, pluralistic, truly contemporary and ecologically responsible approaches to architecture and Landscape Architecture?
- But how to integrate designs made by western, as Landscape Architect, in Islamic societies considering cultural differences, including believers (Islamic and Christian people) and non-believers?
- How we design integrate Islamic societies in western designs?

1.4. Historical Briefing

Historical relationship between the Islamic and Christian world.

The historical relationship between the Islamic and Christian world goes back to the Roman Empire. It was in this empire when Christianity rose in power and overgrows many old believe. Next to this 'the Roman Empire' was the place where many trade relationships between Christianity and the Islamic world began.

When the power of the Romans declined and the dark ages took over, the power of Islamic societies began to increase. This Islamic culture (now lead by the Moorish) rose in power till 750 AD when they had even conquered Spain and the South of France. (Fig. 1)

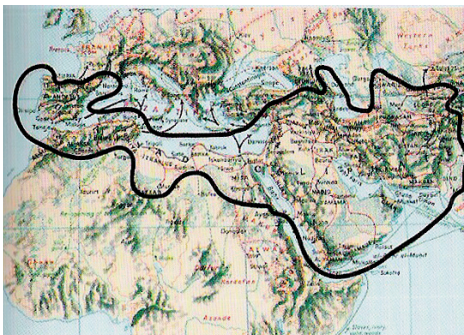


Fig.1, Islamic world circa AD 750

The Islamic influences kept growing reaching the east of their realm where it set foot on ground in Turkey. One of the important events that still have its influences till nowadays is that Jerusalem came within Islamic hands. (Jerusalem 1300 AD) (Fig. 2)

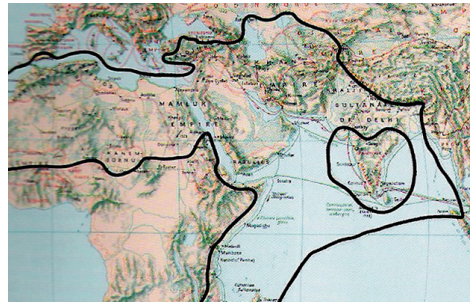


Fig.2, Islamic world circa AD 1300

With Jerusalem being in Islamic hands in the dark ages, Christian Europe tried to free its holy city several times. Between 1000 AD and 1300 AD seven crusades were taken to free the Holy Land with Jerusalem as its capitol.

From here, we can notice a remarkable movement in the west (Andalusia) of the Islamic realm, where Western Europe pushed the Moorish back to the Street of Gibraltar. Expect from this loss the Islamic influences kept growing under the Ottoman Turks who conquered Constantinople and went even further to the Balkan (1500 AD). (Fig.3)

1. Introduction

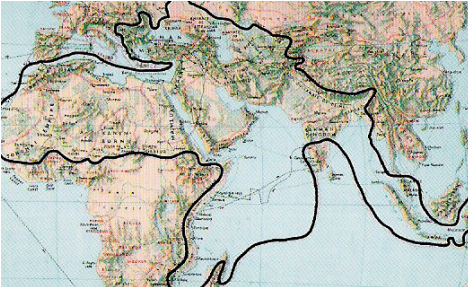


Fig.3, Islamic world circa AD 1500

Nevertheless the Islamic borders of its realm kept more or less constant (Jerusalem within) until mid- 18th century when Christian Europe began to rise in power³.

Hereafter economical, intellectual and many more developments in Europe brought some golden times and let even to colonisation of a big part of the Islamic realm (Africa and the Middle East). There were two main reasons for this colonisation by the west European countries. First the need for raw materials to provide there own population with goods to make products and to be able to enrich themselves. Secondly those European countries needed markets to sell their goods. Both situations let to the enrichment of the west European countries that were now fare more developed than the Islamic ones.

1.5. Contemporary Briefing

Islamic societies influences in the West: "Gastarbeider"

Guest workers, or temporary migration programs, has existed for decades in Western Europe.

During the 1960s, and in response to labor needs during the post-war period, Western Europe imported workers from the Mediterranean Basin (North Africa, Southern Italy, Greece, Turkey and Yugoslavia) to meet temporary labor shortages.

The labor "guest worker" generally connotes low social status as well as impermanence. Western Europe sought temporary foreign workers because they viewed labor shortages and they assumed that the post war European birth rate would climb to fill this labor shortages. They also figured that in times of unemployment, the temporary migrants would be the first to go.

By the 1980s, it was clear that Europe no longer had guest workers but permanent settlers or minorities. The countries had made no provisions for the permanent settlement of the workers, whose full social, economic, and political integration had yet to take place. A decade earlier, Western Europe had tried to reduce the influx of migrants. However their liberal policies of allowing family

reunification and a broad range of rights led to an unprecedented increase in the immigration and settlement rate, causing a domestic political backlash. Most governments restrict the political rights and social benefits of the temporary migrants.

Liberal as well as conservative media outlets, politicians and feminists have proclaimed the "failure of multi-cultural society" and warned of the danger of "Muslim parallel societies".

Western influences in Islamic societies:

After the oil boom of the early 1970s in the Middle East countries, especially the golf countries devoted a sizeable slice of their vast oil revenues to promote large scale projects. A building boom began and continues unhindered at a breathtaking speed until now. What was once stretches of empty desert lands were now becoming a part of an expanding society also investing in architecture and Landscape Architecture.

Leading western designers and architects and landscape architects were involved in the building of architecturally impressive projects. Inviting architects like, Santiago Calatrava, Jean Nouvel (Doha Corniche) or such as the German architect Frei Otto who reinforced his architectural commitment to tensile structures

by adapting them to the harsh climatic conditions of the Arabian Peninsula. Danish Architect Henning Larsen developed novel Modern architectural expressions by modernizing courtyards and the circulation pattern of *Souks* ⁴. (Appendix V)

In a similar way, US architect Louis Khan created an architectural solution based on the northern India¹n cultural heritage, which he modernized with strong symbolism at the National Assembly of Bangladesh in Dacca (1983), giving the Islamic world one of its strongest architectural expressions. French architects Jean Nouvel took the idea of lattice and *Mashrabiyya*⁵ (Appendix V) and reinterpreted it in terms of the most sophisticated building technology for the Arab World Institute in Paris 1987. Malaysian architect Ken Yeang has been providing solutions for bio-climatic high rise buildings and environmental concerns are not necessarily incompatible.

Sasaki is involved in two projects in Egypt. The Cairo Park designed by Boston's Sasaki Associates and Sites International, and the new American University in Cairo Master Plan by Sasaki/CDC, a joint venture of Sasaki Associates Inc, in Waterdown, Massachusetts, and Abdelhalim-CDC (Community Design Collaborative, Cairo). Even

4. Souk: an open-air market in an Arabian city

5. Mashrabiyya: Interlaced wooden screen work.

1. Introduction

West 8 are invited to design the landscape Architecture of the new Grand Egyptian Museum near the pyramids in Cairo.

But finally many cities managed, despite this growth, to maintain its dignity and traditions of the past while others cities as Suha Ozkan⁶ stated: Is potentially a playground for everyone.

1.6. Religious influences

The influences of the Christian believe on Western society.

The way people look towards the landscape, leads to the way they will construct and design the landscape. Religion can influence this relation with the environment strong as we can see in the past. If we look around in the daily living environment of the Dutch society (which is part of the so-called Western Culture) we can experience that religion is not influencing our life as much as it has done in the past. Well what is the cause of this, and how does it relate to landscape architecture? The first major impact is made in the renaissance starting around 1350 AD. It was the time that Humanism was born. Because of their scientific knowledge People started questioning notes in the holy book. The whole situation led to a new situation that became

a lot more individualistic and was less controlled by the will of the church. In the end of the 18th century there was a new major impact named 'The Enlightenment', with the French revolution in the beginning of its existence. Continuing in the 19th century the industrialisation came in. It was in this century that society became highly scientific and productive orientated. This new situation brought a clear changement in the attitude of society in which the earth wasn't anymore a dwelling place that should be well protected, but an exploitable product. The climax of this new attitude was when church and state (policy) were separated. That took its entry in many countries afterwards. This separation has been present for over a century and has lead to an estrangement of our society towards the importance of religion in our daily live.

The influences of the Islamic believe on the Middle East societies.

Sociologists argue that the traditional secularization thesis or the so called Secularization theory", established a necessary connection between the beginning of modernity and the decline of traditional forms of religious forms. Generally speaking theorists of secularization process argued that

religion would lose its influence in social and political life once the society absorbs the values and institutions of modernization.⁷

Therefore we can say that, Secular Europe is the main reason for so-called Islamic 'resistance to all things modern' lies not in a rejection of modernity or modernization, but in an awareness of what is happening to the West where local, cultural and regional identities are being erased by an all-pervading market culture.⁸

"The Koran which is the main source of Islam is a complete book that covers everything so as to become the comprehensive guidance for Muslims, it does also serve as the code of conduct in all aspects of human life, be it spiritual, social, political, economic and beyond."⁹

From here we can state that the religion is still the major generator of the people's life in the Islamic societies. The separation between the religion and state didn't take over in almost all Islamic countries. The so called "secular governments" in countries like Egypt Syria and Tunisia are not like the Western secular model. On the other hand a western modernized country like Turkey could be called as "washed" in the eyes of the Islamic world.¹⁰

7. Paper abstract "Varieties of Islam in Secular Europe.

8 . Architectural Design (2004), Islam + Architecture, Wiley Academy, Vol.74 no.6.

9 . Mohamed EL Ghazali , (2000) (Arabic)The five aspects of Koran.

10 .Tarik Ramadan, 2002, Les Musulmans d'Occident et l'avenir de l'islam

2. Landscape design for the Middle East

2.1. Background:

Islam is the dominant cultural force in the Middle East. Islam has over 2000 million believers and is one of the few world religions which continue to win new adherents (UN & CIA World Facts Book)¹¹(Appendix VI). It originated in Saudi Arabia in the seventh century AD. Since then the geographical pattern of its spread has been east and west rather than north south. The Islam has produced an integrated pattern of religion, life style and urban planning which is peculiarly suited to the environmental conditions which prevail in the region. (Fig 4a, 4b)



Fig.4a, Layout of Ibn Tulun Mosque, Cairo
Fig.4b, Ibn Tulun Mosque



Landscape architects who have been brought up to design the genius of the place should pay attention to traditions and they will be better equipped than other designers to avoid problems. With a better understanding of the Islamic societies a design in this region is more likely to succeed. In this Chapter we will discuss two aspects, the cultural, climatic and ecological aspect.

2.2. Culture and Tradition

The Islamic believe plays an important role within culture and traditional habits in the Middle East. Islam is much more than a system of metaphysical beliefs. Every aspect of the believer's life is regulated by the principle of surrender to the will of Allah. Even the types of indoor and outdoor space can be related to the Islamic way of life. Traditionally there has been no essential difference between the types of spaces which are made for religious and secular purposes like the *Souk*⁴, *Hammam*¹², *Sabil*¹³, *Takkiyah*¹⁴, *Wikalah*¹⁵. (Appendix V)

The characteristic Middle Eastern settlements the old sections of Cairo, Damascus, Isfahan, and Istanbul are of very high density with narrow winding streets.(Fig5)

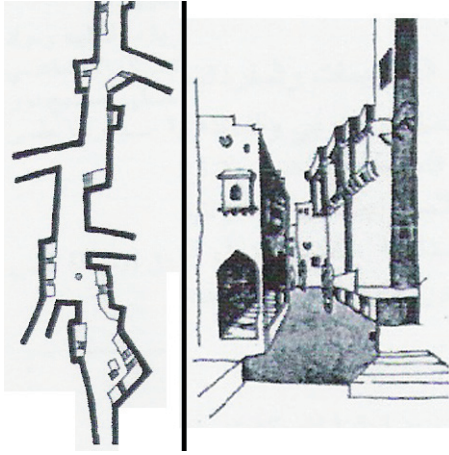


Fig.5 A typical street in Islamic Cairo

High walls (providing shadow) bound the streets and they open onto courtyards *Sahn*¹⁶ (Appendix V) of all sizes. Courtyards were found in the Middle East long before the advent of Islam, but the association of courtyards with Islam in its early days gave a great stimulus to the use of courtyards and still influences their design (Fig 6).



Fig.6 Al Suheymi House Courtyard, Cairo.

The word paradise is derived from the Persian *faradis* meaning a place walled in, and paradise is frequently referred to the Koran as a place of gardens beneath where rivers flow.

A mosque must face Mecca. It is usually planned with a courtyard on the same axis. Indoor and outdoor space is functionally and visually integrated in a way which has influenced many other types of open space. Muslims must wash before entering the mosque, usually at a pool or fountain in the centre of the courtyard. When the mosque is full on important religious occasions the courtyard is used as an overspill praying area.

In addition to its influences on urban form Islam has had a profound influence on Middle Eastern attitudes to nature. Man is held to be the noblest creature in creation and all nature subservient to him as mention in Koran¹⁷. It is not an attitude which is favorable to conservation in the modern sense of the word. Moslems don't think that they are as self sufficient. In other words they must recognize the importance of community and of property in communal ownership. This attitude has led to a degree of respect for trees in public spaces but Islamic philosophy doesn't encourage a love of wild nature. This has led to

16. Sahn: The interior courtyard of a Mosque
17. Koran (4), AL Haj (60).

2. Landscape design in the Middle East



Fig.7 The shade of trees has an important use in the Middle East.

love of plants (Fig 7). They are a symbol of God's ability to make life in the harsh deserts. In addition to this the Koran strictly prohibits idolatry and the representation of man or animals in any pictorial form. When painting religious scenes the face of the prophet, in particular, is never painted in, and Allah¹⁸ is never portrayed. "Islam wanted to eliminate all these kind of things so that people could concentrate on God. No god has no form but we cannot imagine him as a human being. So the emphasis became more abstract. The emphasis changed from pictorial representation or emphasis on the human being to more abstraction, so that the infinity of God is represented."¹⁹

Art historians have always traced the Muslims love of flowers and flora; decoration to this ban, and there is no doubt that gardens have flourished with Islam. The typical garden is an enclosed space providing safety, coolness, shade, water, sweet scents, flowers and greenery. Such qualities are invaluable as a relief from the heat, danger, harshness and glare which shows the relation with the geomorphologic environment. Grass lawns have not been a characteristic feature of Middle Eastern gardens. They have acquired some popularity as a symbol of western culture but they are expensive and should be used as sparingly as Persian Carpets.

2.3 Landscape Vocabulary of Islamic gardens and courtyards

The rich history of Islamic garden and courtyard garden design constitutes a unique and valuable source of landscape architecture vocabulary to inspire our contemporary design thought.

In general, garden design is an art that reflects the characteristics of a particular culture, philosophy, and time. The Islamic garden and Islamic courtyard share many design characteristics²⁰. Both portray a profound sense of unity and order (Appendix I). The

garden represents the concept of openness and stands in contrast to the courtyard which is typically confined within the walls of a building representing centrality and stability. While the relatively smaller and confined Islamic courtyard garden was appropriate for urban settings, the garden space, being open and extensive, was typically sited on the outskirts of the city associated with palaces and luxurious resorts. In addition, both share the source of inspiration being named in: the Koran and *Hadith*²¹ which govern the design characteristics and patterns.

Thus five principal physical design elements are identified. While they complement each other in describing the Islamic courtyard, they present unique aspects of the overall design conception. The Koran provides vivid description of physical design elements that has been incorporated in the Islamic courtyard garden as well as Islamic garden²². In 164 verses, the Koran refers to design elements that include: quadripartite layout, use of water, vegetation and shade, pavilions, and walls and gates (Appendix I).

- 1. Quadripartite layout:
The harmonious central unit**
- 2. Use of water:
Reflection of heaven and
Environmental control**

- 3. Vegetation and shade:
Reflection of heaven and
Environmental control**
- 4. Pavilions:
Protection and Shelter**
- 5. Walls and Gates:
Privacy and human comfort.**

The five principal design elements of urban Islamic courtyard gardens were highlighted, which included: quadripartite layout, use of water, vegetation and shade, pavilions, and walls and gates. The design elements were described in light of the surviving example of urban courtyard garden in Islamic Cairo²³.

2.4. Climate and Ecology

Climate:

The classification of the climate in the Middle East is hot arid but despite the name it can be cold in winter and surprisingly humid in summer. Rainfall varies between zero and 200mm/annum. As in most desert areas there are occasional storms which result in severe flash floods. Hot and dusty winds, summer heat, winter cold, humidity and glare are frequent causes of climatic discomfort but they can be ameliorated by paying attention to climatic design. Climate should be one of the main planning considerations at each stage of the design process from regional planning to detailed

21. Hadiths are regarded as a narration on the Sunnah (lived example) of Muhammad P.B.U.S.
22. Translation of the Koran.
23. Nassar, Hala (2003), *Urban Courtyard Gardens in Islamic Cairo*.

2. Landscape design in the Middle East

design.

A landscape designer who has been trained in the west and is new to the Middle East must adjust to the pattern of open space requirements which is demanded by the cultural, climatic and ecological conditions of the region. He should take note of local ways of defense against the sun, catching cool winds, sheltering from hot winds, taking part in an intensive social activities²⁴ and the strongly rooted role of the Islamic believe.

Plantation:

Selecting the right plants for such hostile sites provides an enormous challenge, and with so few successful examples of planting design to refer to, many of the plants specified are initially chosen through a combination of basic botany, horticultural common sense, and experience of plants from similar climatic zones or projects.

Three major factors restrict plant growth in the desert. These are simply high temperatures, high winds speeds, and lack of water. The first two conditions lead to very high rates of evaporation, and a lack of water means that the high rate of water loss cannot be accommodated through rapid water uptake.²⁵

Ecology:

Conservation of the natural fauna

and flora is an objective in the Middle East .In general this can be done by taking control of grazing, conservation of local water sources, replenishment of soil organic matter and by irrigation. Since fully treated drinking water is an expensive commodity it should only be used when no cheaper type of irrigation water is available. Consideration should be given to recycling the by-products of industrial processes and using organic refuse as a source of humus.

3. Design examples in the Middle East

3.1. Selection Criteria & the Aga Khan Foundation.

In this chapter four projects will be selected and analyzed based on setting up a selection criteria based on the Aga Khan Award nomination.

The Aga Khan Award:

The Aga Khan Award for Architecture was established in 1977 by the Aga Khan, the 49th hereditary Imam of the Shia Ismaili Muslims, to enhance the understanding and appreciation of Islamic culture as expressed through architecture. Its method is to seek out and recognize examples of architectural excellence, encompassing concerns as varied as contemporary design, social housing, community improvement and development, restoration, reuse, and area conservation, as well as landscaping and environmental issues.

The Selection Criteria of the Aga Khan Foundation.

Through its efforts, the Award seeks to identify and encourage building concepts that successfully address the needs and aspirations of societies in which Muslims have a significant presence.

The selection process emphasizes architecture that not only provides for people's physical, social, and economic needs, but that also stimulates and responds to their cultural and spiritual expectations.

Particular attention is given to building schemes that use local resources and appropriate technology in an innovative way and to projects likely to inspire similar efforts elsewhere²⁶.

3.2. Design Criteria

In the Project analysis we will try to check the following criteria:

- Functional and Useful
- Experiential & Social interactive
- Meaningful and Educational
- Environmental sustainable
- Ecology sustainable

Parallel to this we will investigate if the Landscape Vocabulary of Islamic design, which was mentioned in chapter 2, is present in the following Projects.

3. Design examples in the Middle East

3.3. Tuwaiq Palace in Saudi Arabia ²⁷.

Location:

Riyadh, Saudi Arabia 1985 -

Status: Built

Designer:

Joint Venture (Atelier Otto /Buro Happold / Ormania). Recipient of the Aga Khan Award for Architecture.



Project Description:

A daring confrontation between tradition, landscape and high technology, the building, for the Arriyadh Development Authority, covers 24,000 square meters, refers to two local archetypes—the fortress and the tent—and incorporates the natural phenomenon of oasis (fig 8). Tuwaiq palace takes its name from the 800 kilometers long central Arabian escarpment that runs 50 kilometers west of Riyadh, and is a center for festivals, meetings and official and social gatherings for the community at large. Set within a dramatic landscape, the building is enclosed by inclined curved walls, forming a sinuous curvilinear spine 800 meters long, 12 meters high and between 7 and 13 meters wide (fig 9 and 10).

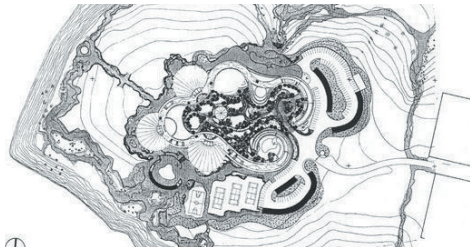


Fig.8, Groundplan of the site



Fig.9, Birdflief of the site

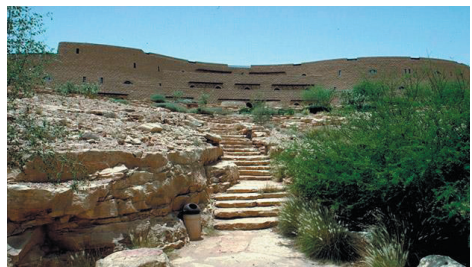


Fig.10, Inner court stairway of the site

Mushrooming from the spine are tents supported by tensile-structure technology (fig 11). The tents enclose the large-scale spaces: main lounges, reception areas, multi purpose halls, restaurants and a café.



Fig.11, Mushrooming tents

The landscape plan provides a dramatic contrast between the lush greenery (fig 12) of the outdoor spaces enclosed by the spine, and the arid rocky plateau beyond its walls (fig 13). Reinforced concrete, and steel masts and cables, are the basic structural materials of the building. The white tents are made of Teflon-coated, woven fiber fabric. Those facing the garden are of cable nets coated with custom-made, glazed blue



Fig.12, Lush walled greenery



Fig.13, Hard rocky outdoor space

ceramic tiles fastened to timber battens. Glass walls enclose the tents. The structure is the product of an alliance between Ormania Architects, Planners and Engineers of Riyadh, Atelier Frei Otto of Germany and the UK structural engineering from Buro Happold.

Remarks and Conclusion

Functional and Usefulness

The project's location which is in the diplomatic quarter in Riyadh shows that the main users are diplomats and their families. But the project is more official which makes it lacking in recreational options. But as we can see spaces made multifunctional for example the benches in the wall (fig 14).



Fig.14, Multifunctional use wall

3. Design examples in the Middle East

Experiential & Social interactivity

The building which was made mainly for the diplomats and officials can't be described as social interactive. On the experiential aspect the created oasis and the surrounding wall is a very has a very strong welcomed impact on the visitors. The overwhelming greenery (fig 15) on the inside and the desert on the outside create an experiential pearl within its environment and greater the contrast.



Fig.15, Overwhelming greenery

There is a clear meaning to combine the old with the new. The new functions as festivals and meeting take place in a new design building that has a clear relation to the history of the society. The inspiration from the fortresses and tents was the most important

criteria which made the Aga Khan select this project.

Environmental sustainability

The idea of using the wall as a climatic barrier between the desert and the oasis was an appropriate environmental idea, in addition to the use of light structures to include the projects activities by Teflon. The project was designed to incorporate hardscaping elements from the natural environment, and also used drought-tolerant plants that can withstand both the scarcity of water and the extremely hot climatic conditions of the area making the project sustainable. The space within is small scale divided and planted full with greenery giving shady for relaxing.

3. Design examples in the Middle East

3.4. Jean Nouvel Doha Corniche²⁸

Location:

Doha, Qatar, 2003 - **Status:** In Design.

Designer:

Jean Nouvel, winner of the Doha Corniche International Arts and Culture Center Competition, Doha.



Project Description:

In 2003, the Government of Qatar, through the National Council for Culture, Arts, and Heritage, is in the process of transforming the Doha Corniche into an international arts and culture centre for the Gulf region. The Aga Khan Trust for Culture (AKTC) is assisting the National Council for Culture, Arts, and Heritage in this endeavor (fig 16, 17 and 18).

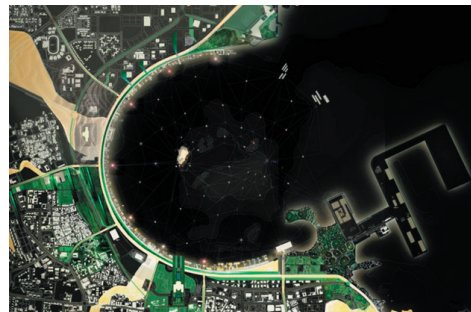


Fig.18, Jean Nouvels plan

The Corniche is composed of a narrow pedestrian strip, extending 7.5km along Doha Bay (fig 19)



Fig.16, The site before development



Fig.17, The site today



Fig.19, Planted pedestrian strip

from the Sheraton Hotel at the north end to the Marriot Hotel at the south, past Dhow harbor and the Doha Port facilities. A belt of prestigious administrative, cultural and commercial facilities and parks line the Al Corniche

Road, a dual carriageway running parallel to the pedestrian strip. The regeneration process is intended to enhance the quality of urban living along the Corniche and to provide an international culture and arts identity through innovative, culturally appropriate and environmentally sensitive urban planning and landscaping, highlighted by selected landmark projects of international significance.

The process was a competition involving six architects of international renown who were invited to respond to the detailed brief. The architects were:

Patrick Berger , Zaha Hadid , Kamel Louafi , Jean Nouvel , D. Paysage Architects , Martha Schwartz Inc.

The Swiss architect Jean Nouvel's won the competition and designed the following main elements:

1.The Coast & the Sea Level, 2-Desert Stream, 3- The Bay Constellation Geometry, 4-The Thousands Pears, 5-The Landscape, 6- The seven Light House.

Jean Nouvel described his project as follows:

THE SEVEN LIGHTHOUSES OF DOHA

In the beginning there was mobility, meaning space invigorated by wandering. The Bedouin name

gives off a value of apparition, suddenness. Those men have the desert as their homeland, which they inhabit with things and signs. Their journey indefinitely follows lines and curves, so that they always come back again: a departure to the eternal way back.

Doha presents itself to the Persian Gulf through its corniche in the form of the arc of a circle punctuated by seven lighthouses, white columns of chiseled light.

These columns of light endow an identity to the bay, each one's shaft inscribed with one of the seven "suspended poems", the Mu' allaqat, pre-Islam poems written by the Bedouins.

These seven lighthouses are arranged following perfect geometry, an ellipse on two centres, of which one derives from the position of Diwan (fig 20). This mathematical line marks the coast and generates a series of immersed luminous points in the bay.

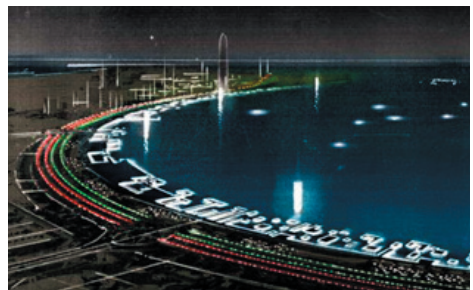


Fig.20, Seven lighthouses

3. Design examples in the Middle East

This figurative constellation in the bay is a homage to the “treaty of fixed stars”, borne of the work of Arab astronomers from the House of Wisdom – Beit al Hikma – of the 9th century (fig 21).

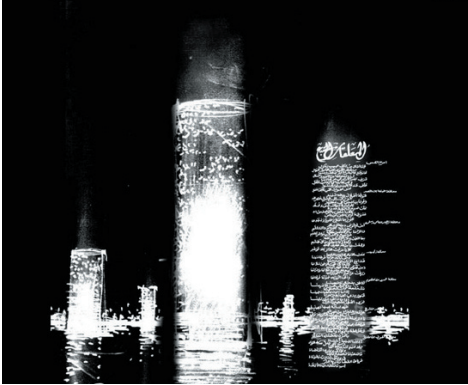


Fig.21, Minaret's (fixed stars)

Along the elliptical line of the coast, a continuous pedestrian promenade is laid out. It is completed on the lower promenade by “A Thousand Piers” – wooden jetties fixed over the illuminated water.

These piers are places of life available to the inhabitants of Doha. They reply to activity needs following each sector of the corniche. They are also marinas, berthing points for boats and access to the lighthouses.

The promenade is punctuated by different thematic gardens, which in a sense extend the inner landscaping of the city right up to the shore.

Car circulation is maintained along the corniche with a continuous parking lane which allows one to

stop where one chooses. Thus the corniche of Doha becomes a principle meeting space, the emblematic place of the city, illuminated each evening and for important events.

Remarks and Conclusion

The project is in the design status, so there not a lot critics and opinions about it. The post occupancy evaluation could not be done before the project is in real function. But in the same time the following evaluation will be done roughly based on Jean Nouvel's proposed schemes.

Functional and usefulness

Considering the function the project will be a daring attractive project in the gulf which is the main purpose of the city of Doha. Linking the Corniche with multiple layered schemes covering topics like desert, landscape, recreation and sea in addition to the seven light houses seems to make the project a magnet for tourism. There is a clear relation between buildings and boulevards (fig 22), in which both elements take

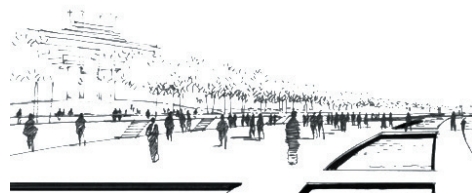


Fig.22, Relation building - boulevard

advantage of each other. Parallel to this given importance to the strip the design creates a place with potential liveliness creating social care.

Experiential & Social interactivity

The project is considered to be strongly experiential and socially interactive. If the visitor will follow the designed circulation path at night or during day he will be faced by a lot of themes like the State plaza/National library, Civic center and Al Bida park , Photography museum, Museum park, The seven lighthouses, floating gardens and the fisherman's piers. Because of the curve that is made in the Boulevard people look over the water seeing the liveliness on the other side changing by each step. This experience changes because your visual field is situated constantly in a different direction because of the moorings being public there is a great interaction with the activity on the water.

Meaningful and Educational

It is well know that the Arabs are fascinated with poems, even before Islam. This project is including a strong meaning through its seven Lighthouses which are decorated by the "suspended poems" the Mu' allaqat, in addition to the reference to the work of Arab astronomers from the House of Wisdom of the 9th century. The

educational message is strongly involved in the design and can be a proud full story to tell for the coming generations in addition to the foreigners.

Environmental sustainability

We doubt to have an environmentally sustainable project because the project is strongly showing of. Its is including traditional and historical meanings but on the other hand it seems that the project will need a lot of resources and will not give something back to the nature. Next to this there is a clear system can be seen from which green fingers stretch inwards the city connecting sea and city (fig 23).

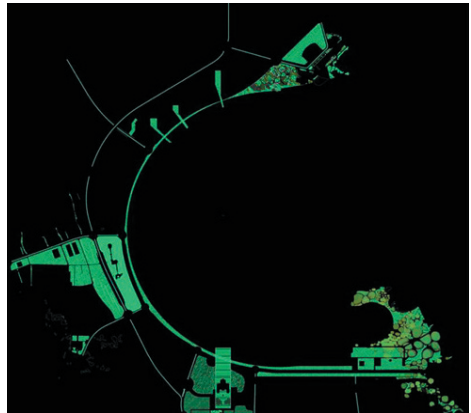


Fig.23, Green fingers

3. Design examples in the Middle East

3.5. American University new Campus in Cairo ²⁹

Location:

New Cairo, Egypt - **Status:** Under Construction

Designer:

Sasaki/CDC, a joint venture of Sasaki Associates Inc, in Waterdown, Massachusetts, and Abdelhalim-CDC (Community Design Collaborative, Cairo)

Background:

In 1998, an international design competition was held and out of 53 firms, this project was selected.



Project Description:

The Master Plan:

The master plan (fig 24) for the new campus defines a vision for the design and development of the 260-acre site. It reflects the desire to create spaces and places that facilitate, encourage, and celebrate the interactive learning process, to translate the university's mission into its campus setting and to create a showcase for ecological design.

The master plan (fig 24) addresses: the interplay of history, culture, climate and traditional architecture, the physical and technological needs of a world-class university campus, and the relationship with the surrounding community.



Fig.24, University masterplan

- AUC Park & Square
- Performing & Visual Arts Department

- Main Hall and Center for American Studies and Research
- Administration Building
- School of Sciences & Engineering
- Core Academic Center
- Libraries & Learning Technologies
- AUC Plaza
- Center, Auditorium rooms
- Student Housing
- Athletics Facilities (Indoor & Outdoor)

Landscape Architecture:

Within the decade, AUC will be relocating to its new campus site in New Cairo. The Desert Development Center (a research unit following the AUC) plays an active role in this transition by developing and maintaining the new campus's trees, shrubs, and grasses.

The New Campus landscape plan incorporates approximately 100 species and 150,000 plants.

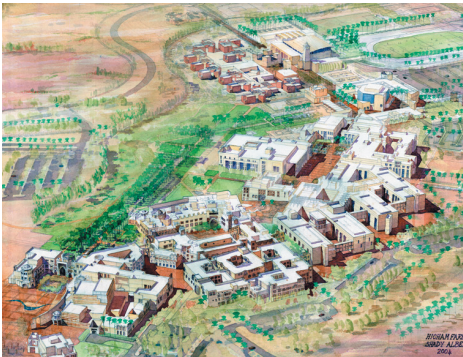


Fig.25, bird fled drawing university

The main elements of the AUC open-space system consist of the pedestrian spine, the AUC Park and Square, the shelter-belt, and

the gardens. These open-space elements form a continuous system that serves both the initial and long-term needs of the university.

Parallel to the pedestrian spine is the garden, extending from the entry towards the student housing. The garden serves as a natural complement to the urban form of the Pedestrian Street and plazas. It is a place of retreat and repose.

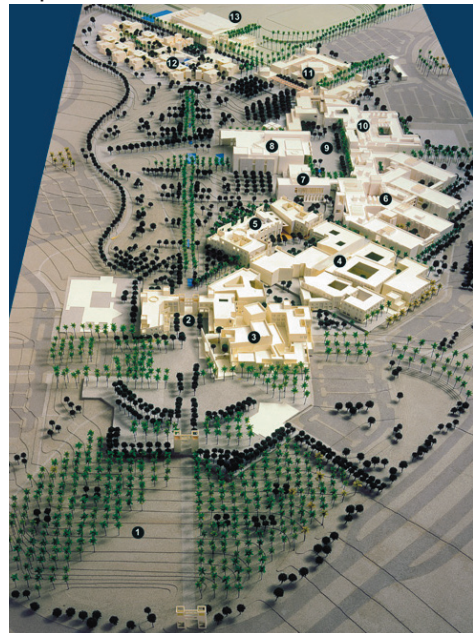


Fig.26, University scale model

3. Design examples in the Middle East

The campus open space structure also links the community of new Cairo with the campus through the AUC Park and Square. The AUC Park and Square create a significant public open space. While The AUC Square is the cultural focus of the campus, the sports fields toward the southeast form the recreational focus.

Environmental optimization

In the fragile, yet rich environment of the East Cairo desert, AUC's New Campus is intended to be a model for building and living in such an ecosystem. The New Campus is also thought of as an environmental teaching tool.

Two sets of studies were conducted; the first focused on the campus design in response to the environmental characteristics of the project's region and site; the second focused on minimizing the project's impact on its environment and context.

The first set of studies consisted of analysis of the macro climatic aspects of the new campus region and resulted in a set of urban design strategies such as the relationship between buildings and outdoor spaces, building volume and orientation and landscape strategies and features.

The second sets of studies were much more focused on the micro climate of indoor and outdoor urban spaces. Such studies resulted

in passive architectural designs for cooling and heating such as window sizes and placement, shading devices, natural ventilation controls, wall sections and composition for control of heat flow and architectural elements such as wind catchers and solar chimneys for environmental control of outdoor and semi-outdoor spaces.

Outdoor spaces were particularly important for hosting functions and promoting interactive learning, key to AUC's mission. Accordingly the environmental optimization studies guided the outdoor space configuration, shading strategies ground cover and hardscape features as well as selection of plant species indigenous to the environment and climate.

The environmental optimization studies also affected all engineering design activities to minimize depletion of resources and energy requirements. Recycling and cogeneration are only two examples of the applied techniques within the engineering systems.

The same approach guided the selection of building material and finishes among other criteria.

Remarks and Conclusion

Functional and Usefulness

The main function of the Landscape in the new campus of the American

University in Cairo is to control the local climate by providing shaded outdoor environment for the students. In addition to that the university wanted to interact with the surrounding urban tissue by designing a public park and square. But due to political concerns the whole project is surrounded by fences and security cameras creating an atmosphere that shows a self orientated attitude towards the landscape.

Experiential & Social interactivity

As an educational building the main design objective was creating multi functional gathering places for the students to give them the chance for different social activities. The greenery (fig 27) is a clear place for retreat and repose and therefore the place you rest is the place you experience nature, meet friends and give the environment a social value.



Fig.27, Green courtyard

Meaningful and Educational

This project is one of the leading projects in new Cairo, because it is including a lot of values and meaning considering being

environmental friendly and a passive energy consummator. The use of traditional, local and climatic solutions is a message this project is translating into a sustainable built environment. Another value in this project is that the design was made only after a deep and long analytical study, to find the best environmentally design which shows responsibility.

Environmental sustainability

Environmental sustainability has been taken very seriously. As an example: accordingly the environmental optimization studies guided the outdoor space configuration, shading strategies ground cover and hardscape features as well as selection of plant species indigenous to the environment and climate.

3. Design examples in the Middle East

3.6. The Azhar Park Project in Cairo ³⁰

Location:

Cairo, Egypt. 2005 - **Status :** Built

Designer:

Boston's Sasaki Associates and Sites International, a Cairo-based landscape firm.



Project Description:

The creation of the 30-hectare (74-acre) Al-Azhar Park, undertaken in the historic district of Cairo by the Aga Khan Trust for Culture, is proving to be a catalyst for urban renewal in one of the most congested cities in the world.



Fig.28, Bird flew Cairo park

Egypt's capital, with a population of more than 17 million, has one of the lowest ratios of green space to urban population in the world – an area the size of a footprint per inhabitant, according to one estimate. Al-Azhar Park therefore provides much-needed leisure

and recreational space while functioning as a “green lung” in the heart of the city.

The US\$ 30 million project was designed as an agent for economic development, and has become a case study for creative solutions to a spectrum of challenges facing historic cities, including ecological rehabilitation.

The project includes the excavation and extensive restoration of the 12th Century Ayyubid wall and the rehabilitation of important monuments and landmark buildings in the Historic City. It also encompasses an extensive social development programme, including apprenticeship arrangements, housing rehabilitation, micro-credit and health care facilities.

The multidisciplinary project presented a range of complex technical issues, including highly saline soils and the incorporation in the park of three large fresh water reservoirs for the city of

Cairo, each 80 meters in diameter and 14 meters deep.

Builders had to clear a 500-year-old accumulation of fill and debris. The massive excavation required moving 1.5 million cubic meters of rubble and soil, the equivalent of more than 80,000 truckloads.

Landscaping of the park

Most features of the Park were based on the traditional use of public spaces in Islamic contexts. This legacy can be seen in a variety of styles from different periods and different regions. It is reflected in the *Bustan*-like orchard spaces, the shaded sitting areas (*Takhtaboush*) and the Fatimid archways used in the construction of Park buildings, among other elements. Persian and Timurid elements are also reflected in the water channels and fountains. Specific features of the Park include:

- The Royal Palm Promenade
- Geometric Garden
- Southern lookout and kiosk
- Children's play area
- Children's amphitheatre and stage
- Northern lookout plaza
- Water cascade garden
- Lake
- Orchard
- Playing fields
- Historical wall promenade and amphitheatre



Fig.29, Park map

The fountain and stream-lake are divided into two systems. The cascade and fountain system, which is approximately 90 meters long, is run by two pumps that re-circulate the water. The stream and lake are fed directly by raw Nile water from a nearby municipal line, a pipe measuring approximately 170 meters off site. The lake water is then filtered mechanically and pumped throughout the Park's irrigation main line. The total length of the main and lateral irrigation lines within the Park site measures approximately 10 kilometers.

The Park has all necessary amenities, such as ramps and toilet facilities, for the handicapped. The marble benches and lighting were designed by Sites International and built by local artisans using local materials.

3. Design examples in the Middle East

Horticulture

The realities of seasonal high temperatures, low humidity, scant rainfall and desert winds imposed severe conditions on the Park's plants and trees. Specialist plant nurseries were created, both on site and outside Cairo, to identify the best plants and trees for the soil, terrain and climate. The nurseries also carried out the propagation of the necessary plants to furnish the Park – 89 varieties of trees, 51 shrubs, five sorts of grass, 14 climbers, 50 groundcover plants and 26 varieties of succulents. Over 655,000 young plants from cuttings and seed were planted. Most of the lawn was planted elsewhere and brought in as turf. The lawn areas required four metric tones of grass seed. The nurseries contain over two million plants and trees, which can be used not only for replenishing the Park's vegetation, but for planting in pots in the courtyards and roof terraces of the historic city, for sale to official and private garden contractors and for visitors to the Park. A sales outlet for plants is envisioned on site. Perhaps the most interesting local varieties of trees are Sycamores, Zyziphus and four types of Acacia. Other species include the *Cassia smallii* and *Sophoras arizonica* and *japonica* trees. The non-Egyptian native plants were developed from stock in the country and adapted to local conditions. A good deal of

experimentation was required to find hybrids that would withstand the difficult soil conditions found at the Park. Reflecting garden traditions in both the East and West, many medicinal and culinary herbs were planted in the Park, including laurel, chamomile, mint, lemon grass, coriander and thyme. A wide variety of roses have been grafted onto *Rosa canina* rootstock to ensure that they will thrive in Park conditions.

The Park utilizes an irrigation system providing water through drippers and sprinklers. The irrigation is regulated by a special weather station in the Park which calculates the water needs based on temperature, humidity and wind speed.

The Park design, by Boston's Sasaki Associates and Sites International, uses elements common to gardens of the Islamic world across the ages: a mix of orchards and naturalistic landscapes, and formal open spaces including fountains and water features with a strong emphasis on symmetry and geometric design.

Park buildings - a rectilinear Lakeside Café by Serge Santelli and an arcaded Hilltop Restaurant by Rami al-Dahan and Soheir Farid - are strikingly different, reflecting the Trust's concern with exploring Islamic Architecture in its broadest

sense, addressing questions of tradition and modernity, still critical in the Islamic world today.

The project was conceived in 1984, but site work only started in 1997, giving the Trust ample time to develop a comprehensive urban revitalization project for neighboring al-Darb al-Ahmar, historic Cairo's poorest quarter, envisioning the park as a catalyst for positive urban change. Tackling socio-economic development and physical upgrading, the Trust's current physical initiatives include public-space, infrastructure, and solid-waste management programs. A housing rehabilitation scheme will restore 200 houses over the next four years, and restoration projects for some the district's most prominent monuments are underway. All this goes hand-in-hand with cultural and educational activities, health services, credit facilities, and employment and training opportunities, often related to building and construction. Since it opened to the public thousands of visitors from all walks of life have used the park - an accomplishment in a city where social barriers are strong. ³¹

Remarks and Conclusion

Functional and Usefulness

We find as mentioned before the main function of Al- Azhar Park was providing a green lung for Cairo, in addition to be a generator for an extensive social development and urban renewal.

From a functional point of view, providing the necessary amenities such as ramps and toilets facilities from the beginning of the design is a good addition considering function. The main success of the project is providing such a green area for relaxation containing 3 reservoirs for the city and maintained through an horticultural selling point, also for commercial use , and weather station which is emphasizing the benefit and function behind the park.

Experiential & Social interactivity

The social interaction is found outside the parks borders. The strongest experience once can get by visiting the park is the silence and peace. Compared to the traffic crowded and dusty surroundings, the project cut you out from the surroundings which is a preferred feeling for the citizens of Cairo. It was also a good idea to benefit from being on the top of the hill to provide the scheme with axial corridors ended with interesting views to have a city panorama.

3. Design examples in the Middle East

Meaningful and Educational

One of the major lacks of this project was creating meaningful and educational themes related to the history of the place. In the site there was an archeological excavation project, but the designer almost didn't mention anything about the Ayyubids as a minimum by some signs or informative points.

Environmental sustainability

On the city scale the project is considered as environmental sustainable, but we found that the project itself didn't introduce or adopt ideas to minimize the water consumption or use passive ways in the purifying and irrigation of water. Considering the plantation we found it quite good to have an experimental attitude considering the nursering of new species.

The use of a lot of local materials and indigenous plants shows that the design is well adapted to its environment and is therefore more lightly to be sustainable.

4. Islamic design in the West

4.1. Introduction:

In this chapter we will open a discussion rather than demonstrate and present certain direction and aspects. We will try to introduce the fact that there is Islamic believe present in the West. This is represented through several institutions like embassies, mosques, cultural centers and cemeteries including the environmental space they need. How to deal with this fact is the main focus in this chapter.

4.2 Background:

Some of the earliest and finest examples of Islamic influence in the West was the Alhambra Palace and its gardens (Appendix IV). Andalusia a province which is still named in Arabic, as it was during Moorish influences in south Spain.

In Sicily everything is gone, and travelers in the fourteenth century, such as Alberti³² could find only poor remains of Islamic gardens, which were strung round the city of Palermo, like a "necklace on a fair lady's neck". Alberti does describe the villa La Zisa, which is still standing, but it is so completely rebuilt that one can scarcely find the court with the fountain that he admired so much. In front of the hall Alberti saw a wonderful fish-pond, into which streamed the fountain water, and in the middle of

this was a good kiosk, attached by a bridge to the land.

Another Arab villa, which lay between Palermo and Monreale, is particularly interesting, because Boccaccio³³ mentions it in the sixth tale of the fifth day, calling it Cuba, from the Arab *Kubba*³⁴ or domed pavilion. Traces of an important orchard, about two thousand feet long, have been preserved. "There was a splendid garden," says Boccaccio³⁵, following older accounts, "with all possible combinations of trees, and ever-flowing waters, and bushes of laurel and myrtle. From entrance to exit there ran a long colonnade with many vaulted pavilions for the king to take his pleasure in, One of these is still to be seen. In the middle of the garden is a large fish-pond, built of freestone and beside it the lofty castle of the king."

4.3. The Architectural Character of Islamic Institutions in the West

Today, more than 15 million Muslims create an integral part of Europe (750000 of them being in Holland). Some of them are highly educated immigrants and converts. While many are underprivileged workers who help fill blue-collar jobs, have little political access. Islamic architecture and Landscape Architecture's representation in

the West is an important topic.

There is a dilemma that exists about character, in terms of appropriateness of and the representation of Islam, in the Institutions built for Muslim immigrants in the West. Questions like 'how much are we going to adapted before losing our own identity' are frequently heard. While architects building in Islamic nations are fighting their own battles against modernism in architecture in order to maintain continuity within the context of their traditional and contemporary cities, architects building for Muslim communities overseas are searching for appropriate images for their Institutions in cultures which historically have been unaware of the true nature of Islamic civilizations in the world.

We should understand the complexities involved in designing for such building programs, which include mediating between the clients' insistence on the recreation of the architectural traditions which have been left behind, and the immediate urbanistic, symbolic, social and political forces of the contexts which weave and knit the buildings in their surroundings. Within the limited scope of this endeavor, emphasis is placed on consideration of the architectural character of these religious

institutions. However, one cannot completely ignore other aspects of the histories of these buildings, which illustrate the process of their making.



Fig.30, Mosque Rotterdam



Fig.31, Mosque Spain

These buildings are often loaded with self-conscious and fully acknowledged historical references, taken from the so called generic tradition of 'Islamic

4. Islamic design in the West



Fig.32, Mosque Rome (up and down)



Architecture', and are collaged to impress upon the believer or non-believer alike, with recognizable imagery and form, the religious and ideological associations of their functions. However, this method of orchestrating often leaves an unstable territory, within which a critical evaluation of them reveals the inherent contradictions. Before building in the West, there is issues that should be considered, such as the image of Islam in the eyes of the West, the human need for continuity and the use of typology

in architecture, and on other hand, the distillation of arguments on specific topics such as the iconography of Islamic architecture and the various interpretations put forward to explain its extensive use of geometry and ornament.

The examples of As Salam Mosques in Rotterdam and Rome and the Spain (fig 30, 31, 32) extend and demonstrate the above dialogue with the past and will form the basis of formulation of design principles which might be utilized in future building programs.

4.4. Criticism and solutions on Islamic Institutions in the West

Often the buildings with their environment show little or no adaptation to the specific landscape of the country. The aggressive, prominent, overacting performance of the (mosque's) buildings with their surroundings sometimes even not interacting with the (Dutch) landscape is present. Because of the bad integration with Western societies they stand on places like industrial areas or at the borders of the city. This is a wrong policy if we want to interact with them we have to find a place that Western society understands or even better benefits from the mosque.

If we take Holland as an example you can see a lot of integration problems between the native community and the Islamic minorities. Also here you can see the bad interaction between Islamic buildings and (urban) environment with the Dutch landscape. How to solve this problem and what to do? From our opinion there are three helping hands namely; create understanding for both parties, find pleasurable similarities and use these and promote actions that cause interaction between the two groups. The main statement is, do not try to cover the places

but let them interact with the Dutch community.

Down below we made a list with possible practical examples that answer these criteria. We do not disseminate that the list covers everything it is a start but clearly could be improved and expanded with more research.

- Water and social gathering places are valuable for both societies and could function as bridges between both communities.
- Create mosques with Dutch Architectural vocabulary (the inside doesn't bother people).
- Let the surrounding public space of the mosques be part of Dutch social life (markets or events) and attach it with specific Islamic shops (make it a day out, shopping as if on vacation) and create understanding of the Islamic place (visitors centre).
- Combine the exotic gardens of Islamic paradise with an educating horticultural aspect to create acceptance and usefulness for the Dutch. A pity is that these gardens are somehow not seen in Holland.
- Combine specific services that show integration towards Dutch society (language-, job- or volunteers centre, neighbourhood house, crèche or Dutch school).

4. Islamic design in the West

- Make a really good interaction with the surrounding Dutch (urban) landscape. This must be done in many ways visible, experiential, ecological, and environmental but the meaningful aspect plays a key role in this situation. There must be acceptance of both parties as well as interaction to stimulate integration.

4.5. Conclusion

Any project for Islamic people in the West should revolve around three main concepts: **Beauty**, based on Islamic geometry as a spatial expression of the Islamic doctrine. **Adaptation & Transformation**, achieved through the extraction of rules from historical Islamic architecture and their reinterpretation within the contemporary context. **Flexibility**, seen in the resulting set of design elements that can be employed flexibly in different projects.

These architectural concepts establish an original architectural grammar of a mosque, which can then be adapted, changed or re-used by a certain Islamic community towards new formal interpretations. The resulting design project will point out the variable nature of a mosque; being able to switch between religious and secular functions and its transformative character, changing its typology when assimilating architectural and programmatical elements of different cultures or other building types. While reinterpreting historical elements of a mosque, it will synthesize learning and the interacting between Muslim and non-Muslim cultures as well as enable spatial aggregation of diverse Muslim sub-cultures and their religious

practices.

5. Conclusions

5.1. Conclusions

The Landscape Architect should:

1. *Try to create the biggest qualitative combination* in his design including functional, experiential, meaningful and environmental elements. By doing so you will create as optimal possible value and greater the interaction with more user groups. Secondly the park will get less harmful for changes in time because it functions from a greater number of useable elements, making it less prominent if one of them falls away or changes.
2. *Take into account climatically conditions* (high evaporation, high differing temperatures, strong hot winds and limited water amounts).
3. *Take in consideration the Islamic value and conditions* of the place that needs to be designed (because these are deeply rooted within the society).
4. Next to the holy description of water in the Koran the element is vital in these areas. *Water is live* can be taken literally in these areas and therefore everything should be done to create optimal benefit from this element. The irrigation should rely on technical systems to get better results with less water of, maybe, poor quality is most

important in that area.

5. *Create understanding of the place* with help of meaningfulness, experiential and educational elements.

5.2. Proposals

Here we talk about elements instead of criteria to provide more practical solutions.

Water

- Make a clear relation to the holy element out of the Koran
- Give it a functional use like purifying, drinking place animals, recreational (swimming or boating) or maybe even production of low energy outputs.
- Create meaning by experience like visibility and touchable areas.

Vegetation

- Choose trees wisely so that they can deal with the hard environmental climate.
- If possible choose the most esthetical vegetation at hand because of the reflection towards paradise.
- Where possible give the vegetation an economical sustainability (fruit trees or bushes, rubber trees or timber woods) in combination with the pleasurable (smell of the fruit and the splendour of the

blossom) creating greater social acceptance.

- Make a good balance between the shelter of shade and the evaporation vegetation provides.

Open spaces

- Make sure that they are multifunctional like a space useable for soccer; a market and festival so that it is in use all time creating liveliness and social security.
- Try to create cooling elements like; catching winds, providing places with water (well touch because of evaporation) and elements given shade like walls and vegetation without losing the openness.

Routing

- Make paths part of the daily system to create liveliness, social care and economical exploitable. This means that paths do not only function for the park but provide routes between home and work, school, shopping place or mosque.
- Create social care on liveliness by attaching 24 functions attached to the path (without disturbing the park experience). Examples are special housing and recreational area's (indoor as well as outdoor).

Outdoor furniture

- Choose your outdoor furniture in such a way that it is not visible as furniture (because a empty bench looks desolated). Examples are stairways as benches, lighting within fountains, artwork or lighting trees (from below instead of from above).

Landscape Management

- Climate control, site planning, irrigation techniques, maintenance and landscape management should be involved during the conceptual design stage. They are fundamental for the survival of the project.

The two main points which have been the key philosophy of this research are, firstly, that in the Middle East as much as in any other part of the world it is essential to commence with the existing character of the environment. And not only the physical characteristics but what can be described as genius Loci or the spirit of the place.

Secondly, that it is an area where water supply is the key to all design and successful implementation. To design, a reference should be made to the vernacular design tradition which grown over centuries of Arab, Persian, Muslim

5. Conclusions

and Moorish art and experience in the climate of this part of the world.

From our own point of view we think a sensitive designer is always searching for the true vernacular and for ways in which it can be interpreted today without blindly copying historic tradition. This means looking beyond the familiar details to the principles behind the tradition.

Some fundamentals have been mentioned like the landscape elements in Islamic gardens, the use of water as precious material; the Casbah planning, which ensure deep shade from climbers; the Arab proverb which warns the pedestrian to "walk in the shade", and look upon the sunlight"; the use of small amounts of water in canals and fountain jets to increase humidity. All these are well tried principles which have been successful for hundreds of years, and should not be discarded.

So also the use of courtyard planning to even-out extremes of day and night temperatures, using reflective surfaces to throw back the sun's heat by day, and the floor of the courtyard (pool or solid stone) as a heat sink to give heat out at night.

Appendix I

Landscape Vocabulary of Islamic gardens and courtyards

1- Quadripartite layout:

One of the well recognized characteristics of Islamic courtyard garden is that it follows a geometrical and often symmetrical layout. Typically, they are square or rectangular in shape enclosed within the walls of the building. The layout is a quadripartite with slightly raised walkways or canals leading to a focal fountain or a pool at the center of the courtyard.

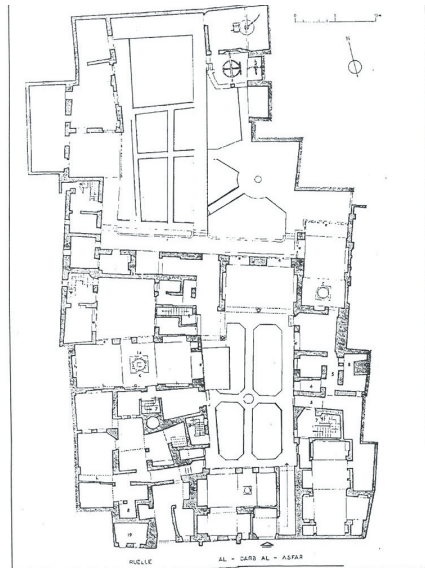
Reference to a quadripartite design occurred more than once in the Koran. *Surat*³⁵ Mohammed describes four rivers of paradise: "in it are rivers of water incorruptible, rivers of milk of which the taste never changes, rivers of wine, a joy to those who drink, and rivers of honey pure and clean." *Surat ar-Rahman*³⁶ provides a longer and more detailed description of four gardens. They are the gardens of the Soul and the Garden of the Heart, and the higher two are the Garden of the Spirit and the Garden of the Essence.

From the surviving examples of urban courtyard gardens in Cairo, the layout of Beit al-Sehemi, figure (34), shows two courtyard gardens with quadripartite design created by walkways.³⁷



Fig.33, Beit al-Sehemi courtyard photo

Fig.34, Beit al-Sehemi central quadripartite court in the plan



2- Use of water:

Most of the Muslim world lies in arid and semi-arid environments. The creation of cool and shaded courtyards was a logical response to alleviate the harshness of the physical environment. Thus the use of water in the courtyards was essential for creating localized micro-climate. In addition to its pragmatic quality, water contains within itself aesthetic properties that were highly appreciated and frequently used in Islamic courtyards. It trickles gently, cascades down small waterfalls, jets from fountains, runs along canals, or remains still in pools reflecting the sky (fig 35 & 36).

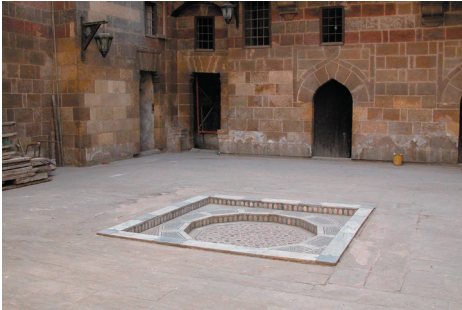


Fig.35, A central water basin in a courtyard

Endless combinations of stillness and movement provided an interior environment that both delights and soothes.

The Koran refers to both dynamic and calm qualities of water. "Gardens underneath where rivers flow" was repeated thirty times in different Suras³⁵. The righteous

are promised to reside amidst gardens and flowing rivers: "As to the righteous, they will be in the midst of Gardens and Rivers" (al-Kamar: 54)³⁸; and in them (both) will be two springs pouring forth water in continuous abundance" (ar-Rahman: 50)³⁶. A calm central



Fig.36, The basin should be reflecting the sky

water tank corresponds to the basin *-haud-*³⁹ which was promised to the prophet Mohammed (PBUH) in Surat al-Kauther ⁴⁰. The central planting bed is connected to a cistern by water channel. Running water thus not only irrigates the vegetation but also provides aesthetic and cooling effects.

3- Vegetation and shade:

Trees, shrubs, and foliage grow in the adjoining quadrants of the Islamic courtyard gardens. Plant materials were used both for their pragmatic and aesthetic qualities. The Islamic courtyard garden was densely planted for shade thus creating cool usable space. Fruit trees, which were

38.Koran : (al-Kamar: 54)

39.Haud: A pool or tank, often in the centre of the courtyard of a mosque.

40,Koran: Surat al-Kauther

planted in abundance, often drew on a palette of trees mentioned in the Koran. Pomegranates, vines, and palm are the most frequently mentioned. In addition to shade, they provided food, aroma, and color. Tall cypresses were planted for protection against the wind, and diverse species of Oaks and Willows to shade the gardens from the heat and brightness of the summer sun.

The Koranic descriptions are rather consistent in providing a vivid portrait of greenery, lushness, shades, delicious fruit, and unimaginative beauty: "Branches, unfalling fruit, grapes, and pomegranates" and "and fruit in abundance, whose season is not limited nor (supply) forbidden" (al-Waki'a 32-33)⁴¹; and "In them will be fruit, dates, pomegranates" (ar-Rahman: 68)⁴². "Spreading shade" is an expression posed in the Koran as part of the reward awaiting the righteous: "And the shades of the (Garden) will come low over them" (El-Ensan: 14)⁴³; and "we shall admit them to shades; cool and ever deepening" (al-Nesaa: 57)⁴⁴.

4- Pavilions:

The perception of the Muslim of his surrounding environment, both open spaces and built ones, includes both the Earth and Seven heavens which are guarded and ruled by Allah. As a result, the flow

of space in Islamic architecture perceived by Muslims and strongly rooted in the Islamic culture creates a sense of continuity and unity of space. Such sense of unity became a strong attribute of the Islamic courtyard garden enforced by the centrality of the quadripartite layout.

According to the Koran, the ultimate place of residing for righteous Muslims is the "pavilion". As implied in the Koran and Hadith²¹, pavilions are cool structures, built in the gardens of paradise, over running water. Abu-Ummamah⁴⁵ narrates "He who has good dispositions shall have a house built for him in the highest apartment of paradise". And the Koran describes: "For those who fear their Lord, that lofty mansions one above another, have been built: Beneath them flow rivers" (al-Zumar: 20)⁴⁶. In gardens, the design of pavilions or structures where Muslims enjoy the shade, coolness, and the water, differed architecturally depending on the geographic location in the Muslim world.

Appendix II

5-Walls and Gates:

The form of Islamic courtyard garden has such distinctive characteristic as privacy for contemplation and repose, protection from the hot, dusty, and noisy environment, reduction of glare, and abundant refreshing shade and cool air which are essential for human comfort. This was readily provided by surrounding walls and buildings.



Fig.37, The entrance to the house

In the Koran, paradise is described as an enclosed garden, surrounded by “walls” and accessible through “gates”: “and those who feared their Lord will be led to the Garden in crowds: Until behold, they arrive there: Its gates will be opened.....” (al-Zumar: 73)⁴⁷, and “Gardens of Eternity, whose doors will (ever) be open to them” (Saad: 50)⁴⁸.

By analogy, the Islamic courtyard garden is the Muslim’s paradise: if permitted, gates will be open.



Fig.38, The external wall of a house and street path

In summary, five principal design elements of urban Islamic courtyard gardens were highlighted, which included: quadripartite layout, use of water, vegetation and shade, pavilions, and walls and gates. The design elements were described in light of the surviving example of urban courtyard garden in Islamic Cairo.

46 Koran: (al-Zumar: 20)
47 Koran: (al-Zumar: 73)
48 Koran: (Saad: 50)

Appendix III

Architectural Review Interview with I.M. Pei, October 27, 2004 **At the twilight of his career, I.M. Pei shows few signs of slowing down**

AR: *How did your museum project in the Middle East come about?*

IMP: How do I begin? Qatar does not have much history, it's a new emirate. So I couldn't draw on the history of the country; its history is really just being a desert. But I thought, the one thing I must learn about for this project is the Islamic faith. So I read about Islam and Islamic architecture, and the more I studied the more I realized where the best Islamic buildings were. At the beginning, I thought the best Islamic work was in Spain—the mosque in Cordoba, the Alhambra in Granada. But as I learned more, my ideas shifted. To begin with, the climate of southern Spain is not at all like desert, where most Islamic architecture is built. I kept searching. I traveled to Egypt, and to the Middle East many times. I saw early Islamic architecture in Damascus, Syria, where they took some early Christian churches and transformed them into mosques, so they were not pure Islamic—just as in southern Spain, it's no longer pure Islamic architecture either, because it gets mingled with Christianity. Or in Turkey, where the Ottoman influence is felt, too—

it's Islamic but not pure Islamic.

I found the most wonderful examples of Islamic work in Cairo, it turns out. I'd visited mosques there before, but I didn't see them with the same eye as I did this time. They truly said something to me about Islamic architecture. The museum I'm designing is more influenced by the Mosque of Ibn Tulun than any other building. This mosque is very austere and beautiful, its geometry is most refined. You think of Gothic architecture, it's so elaborate. This is the opposite—so simple.

AR: *It's inspiring to see that you're so engaged with these issues. You're still a student!*

IMP: Yes, I am. You always should be. That's what makes life interesting.

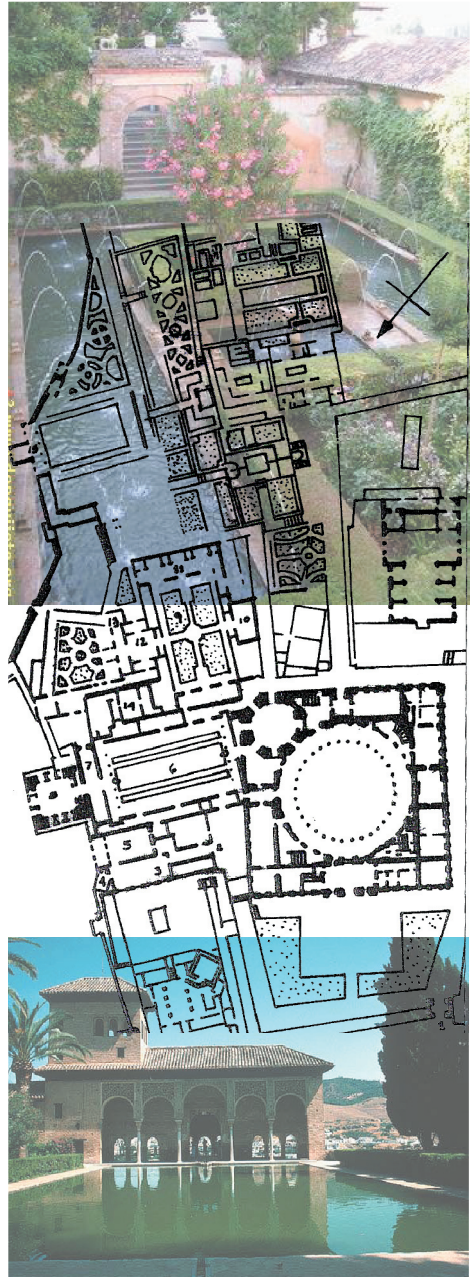
Appendix IV

Alhambra Granada (principally 1338-90)

One of the most elaborated and richly decorated of Muslim palaces. It is set on a steep-sided spur, projecting into a fertile valley. Richly planted terraces sparkling with water courses and set about with jewel like pavilions, were used to convert the fortress palace of the eleventh century into a paradise.

It is an ideal example for the enclosed garden isolated from outside, watered, planted and controlled. Woven into rugs, painted on tiles and extolled by the poet, the idyll of the earthly paradise is as much a statement of place as is a room in a building. Its geometric formality and peace of its enclosure detach it from the harsh reality of outer world.

The **Palace of Muhammad V** was the private residence of this Moorish king and is another highlight of the visit. Four great halls enclose the famous *Patio de los Leones*, the "lions' court". The figures of lions that carry the fountain is a curiosity in arabian art, as the figurative representation of animals (as well as humans) is forbidden by the *Koran*. Remarkable are as well the verses of poet *Ibn Zamrak*, which explain the function of the palace's very advanced irrigation plants.



Appendix V



1. Hammam, bathroom or bath-house. Communal bathing was characteristic of Cairo, Damascus and Istanbul.
2. Sabil, a public drinking fountain.
3. Takkiyah, a house providing temporary accommodation for travelers and the poor.
4. Wikalah, Residential and storage building for merchants and craftsmen who are traveling or need temporary accommodation. Rooms are organized in a rectilinear format around a huge open courtyard.
5. Sahn: The interior courtyard of a Mosque
6. Souk: an open-air market in an Arabian city
7. Mashrabiyya: Interlaced wooden screen work

Appendix VI

Islam is the fastest growing religion and the second largest religion in the world

Muslims in Asia (1996)	1,022,692,000 (30%)
Muslims in Africa (1996)	426,282,000 (59%)
Total Number of Muslims on the Earth (1996)	1,482,596,925
Total Number of People on the Earth (1996)	5,771,939,007
Percentage of Muslims (1996)	26%
Islam annual growth rate (1994-1995) from U.N.	6.40%
Christianity growth rate (1994-1995) from U.N.	1.46%
Total Number of Muslims on the Earth (1998)	1,678,442,000
Expected Number of Muslims on the Earth (2000)	1,902,095,000

This table below shows the growth of Islam:

North America (1989-1998)	25%
Africa	2.15%
Asia	12.57%
Europe	142.35%
Latin America	-4.73%
Australia	257.01%

Among every four to five humans in the world, one of them is Muslim. Muslims have increased by over 235 percent in the last fifty years up to nearly 1.6 billion. By comparison, Christians have increased by only 47 percent, Hinduism, 117 percent, and Buddhism by 63 percent. Islam is the second largest religious group in France, Great Britain and USA (Muslims in USA are 10 millions and Jews are 6 millions).

The numbers of the growth rates have been taken from United Nation. The number of the total population has been taken from The CIA World's Facts Book which can be found at: <http://www.odci.gov/cia/publications/factbook>

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