HISTORICAL BACKGROUND OF LIBYAN MOSQUE ARCHITECTURE: ASSESSMENT AND CRITICISM OF MOSQUES IN AJDABIYA CITY

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ABSTRACT

HISTORICAL BACKGROUND OF LIBYAN MOSQUE ARCHITECTURE:
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IN AJDABIYA CITY

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In order to renovate, eliminate or change any of a mosque's components, myths regarding the sanctity of the mosque elements should be disproved and dispelled. This is particularly true in our days, when modernity and local concerns in mosque architecture usually blend at regional levels, blurring the main reasons and impulses which lead to the design and to the incompetence in the construction of mosques. To achieve such a reading, the study attempts to trace the development of mosque architecture in Islamic history, in modern architecture in the world, specifically focusing on the history of the mosque in Libya. It investigates whether the conformity of mosque components and finishing is due to historic, current and local Islamic prescriptions; due to functional purposes and necessities, or merely as an imitation of the stereotype styles for loyalty to mental and habitual traditions regardless of functions.

The main objective of this thesis is to study 'the lack of innovation' in mosque architecture, especially in the Libyan case. The thesis investigates the factors which

may have caused this phenomenon and attempts to explore whether there is possibility to innovate mosque design. For this end, the thesis analyzes and evaluates urban, spatial, architectural and performance properties of the existing mosques in city of Ajdabiya in Libya, the results of which are expected to help architects in developing the innovations in mosque design.

The evolution of mosque architecture in history reveals the early innovations from the mosque of the Prophet, to the modern era mosques varying from continent to continent, from culture to culture. The reading of religious texts and the tradition exposes that Islamic teachings do not oppose beneficial innovation in mosque architecture. The used pattern in the design of mosques shows that not all mosques have the same features, not the same approach has been applied in all mosques and not all mosques have been influenced by the same factors.

Finally, the study asserts that acceptance of innovation is possible under the given circumstances: there are differences from one mosque to another, there are variations of mosque elements in terms of type and form, already varying from region to region. The main reasons for the absence of innovations are found to be due to unqualified designers who lack creativity, fear for the vulnerability of the heritage and some misconceptions and misinterpretations in terms of religious prescriptions.

Keywords: mosque architecture; architectural components of mosques; city of Ajdabiya; Libyan architecture; innovation in architecture.

ÖZ

LİBYA'DA CAMİ MİMARLIĞININ TARİHSEL ARKAPLANI
VE AJDABİYA ŞEHRİNDEKİ CAMİLER ÜZERİNE
BİR DEĞERLENDİRME VE ELEŞTİRİ

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Yapı olarak camilerin bir ögesinde yenilik yapmak, bir ögesini atmak ya da değiştirmek için, camiyi oluşturan elemanların kutsallığı ile ilgili mitleri yıkmak, onlardan vazgeçmek ya da onları yıkmak gereklidir. Bugünlerde bu durum, özellikle doğru gibi görünüyor; bölgesel ölçekte modern mimarlık kaygılarıyla yerel eğilimler birbirine girerek, cami inşaatlarında, o da varsa, tasarımın ve kötü tasarımın ardındaki belli başlı gerekçe ve dürtüleri iyice belirsizleştiriyor. Bu yönde bir okuma yapmak için, elinizdeki çalışma önce İslam tarihinde cami mimarisinin gelişimini izliyor; bunu modern mimarlık bağlamında da tekrarlayarak, esas vurgusunu Libya'daki cami mimarlığına yöneltiyor. Çalışma, camileri oluşturan ögelerin ve cami mimarlığının, ne denli İslam tarihinden ve kültüründeki gelişimden; ne denli işlevsel gerekliliklerle olan ilintilerden ve zorunluklardan; ne denli zihni ve alışkanlık cinsinden sadakat duygusuna dayanan basmakalıp (stereotip) stilistik taklitlerden kaynaklandığına bakmaya çalışıyor.

Tezin ana amacı, özellikle Libya cami mimarlığındaki ‘yenilik yokluğunu, yenilik eksikliğini’ ortaya çıkarmak, anlamak ve dönüştürmektir. Tez bu olguya yol açan etmenleri incelemekte ve camilerin mimari tasarımına yenilik getirmenin olanaklarını sorgulamaya çalışmaktadır. Bu amaçla tez, Libya’da Ajdabiya şehrindeki bütün camileri araştırma kapsamına almış; onların kentsel, mekansal, mimari ve kullanım içi yeterliklerini incelemiş, sonuçların mimarlara ipucu üretmesine çaba göstermiştir.

Cami mimarlığının tarihsel evrimi incelendiğinde, caminin, Peygamber’in ilk camisinden, kıtadan kıtaya, kültürden kültüre değişkenlik gösteren günümüz camilerine kadar çok değişim gösterdiği ve yeniliklere açık olduğu ortaya çıkmaktadır. Dini metinlerin ve geleneğin incelenmesi, İslami öğretinin cami mimarlığındaki yararcı yenileşmeye kapalı olmadığını göstermektedir. Varolan camilerdeki kalıplar ve örüntü ortaya çıkarıldığında ise camilerin zaten her bir örnekte farklılaştığı, aynı tasarım mantığının zaten kullanılmadığı, bütün camilerin zaten aynı etmenler dikkate alınarak tasarlanmadığı su yüzüne çıkmaktadır.

Sonuç olarak çalışma, verili koşullar altında bile yenilik yapılabileceğini göstermiş; camiler arasındaki farklılıkların, camiyi oluşturan ögelerin tip ve form açısından farklılaşmasının, camilerin bölgeden bölgeye farklılaşmasının bile buna kanıt olduğunu ortaya koymuştur. Cami mimarisindeki yenilik eksikliğinin, yaratıcılıktan uzak tasarımcılar ve tasarımsız camiler, cami mimarisinin kutsal bir miras olduğu kanısıyla ona dokunma korkusu ve dini tavsiye ve beklentilerin yanlış bilinmesi ve yanlış yorumlanmasından ortaya çıktığı saptanmıştır.

Anahtar Sözcükler: cami mimarisi; caminin mimari bileşenleri; Ajdabiya şehri; Libya mimarlığı; mimarlıkta yenilik.

To the memory of my father who taught me a lot

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INTRODUCTION

1.1 Definition of the Problem and Scope of the Study

In Islamic thought, the mosque is a place dedicated to Allah, who followers of the Islamic faith worship and pray to. Although in English, only the word mosque is used to define this place, in Islamic word it is defined as *Masjid* or *Jami*. Moreover, this space represents the identity of Islam. It gains its importance from the perch of prayer. In Islam, the act of prayer, whether performed by an individual or in collectivity by a congregation, is one of the five pillars of Islam; it is considered to be the soul of Islam.

An important reminder of the pivotal role of the mosque in Islamic thought is that the reward for the construction of a mosque is paradise as stated in the holy Qur'an *Surat al-Tawbah*:

> The mosques of God shall be visited and maintained by such as believe in God and the Last Day, establish regular prayers, and practice regular charity, and fear none (at all) except God. It is they who are expected to be on true guidance. (Qur'an, *Surat* 9, Verse18: 171)

Hadith Numbers 1084-1085 in Sahih Muslim, Book 4, the Prophet said he who built a mosque for Allah, Exalted, Allah would build for him a house in Paradise. From this point of view, the Muslims throughout history construct mosques to carry favor with Allah.

The mosque has occupied a prestigious position in Islam, unifying and gathering Muslims together under the banner of the Qur'an, and had the greatest influence in strengthening the ties of intimacy and solidarity among believers. Muslims gather in

the mosque daily, to attend the prayers which forbid them to commit indecency and evil, and they deliberate over their affairs in accordance with their religion, exhorting them to do good works and refrain from sinful acts. As stated in *Surat al-Ankabut* in the holy Qur'an:

> Recite what is sent of the Book by inspiration to thee, and establish regular prayer: for prayer restrains from shameful and unjust deeds; and remembrance of God is the greatest (thing in life) without doubt. And God knows the (deeds) that ye do. (Qur'an, *Surat* 29, Verse 45: 388)

The mosque is considered the most important structure in the Islamic world; it is a building not only made for public worship, but it is also the place where Muslims may practice their political, social and educational activities. The mosque represents Islamic culture and civilization, and therefore, it imparts to cities their Islamic identification.

The mosque is one of the most important parts of the urban structure. It always takes place in the center of cities and neighborhoods. It represents the heart or central core of Islamic architecture because; according to the belief of Muslims, it signifies existence of God (*Allah*) and the sign of unity and togetherness of them, especially prayer (*Salat*) which should be fulfilled five times daily, it is supposed to be performed in congregations in mosques.

What has been mentioned indicates the obvious importance of the mosque in Islam. However, the problem is that, generally, the architecture of mosques is blocked. On other words the problem of mosque architecture is that it lacks to 'innovation'. It seems that there is no intention to reinvent and rediscover the mosque to enhance its architecture according to contemporary trends. Every new mosque is in fact a copy of what preceded it. This leads to existence of significant number of mosques in a city, but without worthy architectural contribution. Generally, the reproduction of similar mosque design results quantity of building without architectural quality. This indicates poor in architecture. Moreover, the performance of the mosque elements is questionable. This research attempts to study and analyze the mosque architecture in order to explore its suitability for prayer rituals.

This study tries to answer a key question, whether the form of the mosque in particular, the mosque architecture in general, are realized amongst fixed religious

rituals? If so, the door of innovations and developments is shut tightly. Or the image of the mosque is perhaps inevitable result of repeating and reproducing the same form for a long period of time extending over several centuries. Otherwise, the design of the mosque is mainly a purely architectural matter. Thus, the way to renewal and innovation is open to achieve even particular planning for each mosque. The basic objective of this thesis is to study the stagnation of mosque architecture. In other words, this study argues that mosque design is suffering from 'lack of innovation'. It tries to explore the factors which may cause this crisis. This study attempts to verify whether the mosque design can be innovated and developed or not.

One of the objectives is to explore the origin of components of mosque and investigate whether they satisfy the unaltered orders of Qur'an or/and Tradition or merely architectural manipulations, which are subject to innovate, modify or abolish.

This study also aims at evaluating the performance of the mosque building that may help decision makers such as architects in solving problems in the facilities, and to understand the consequences of design that might be used to renovate the existing building or to improve future design.

To determine and analyze the architectural characteristics of the mosques in Ajdabiya city as a model of all mosques design in Libya is one of the study objectives.

The study also aims to clarify the status of mosque architecture in Qur'an and Tradition of the Prophet to adjust it from the myth of being an unchangeable design.

This study defends relevant innovation and development approaches to meet available modern architectural and technical possibilities. It emphasizes the need to take advantage of these possibilities and to exploit natural resources and characteristics of the place. This is to promote the performance of the mosque; firstly, as required by the Qur'an and the tradition; secondly, to achieve design of each mosque representing architectural value to become a component contributes in richness of the place architecture, consequently, to enhance the townscape.

The study also fortifies the idea that the intended innovations here are not to change any of Muslim rites but to innovate, improve and renewal of mosque architecture as a means to perform the important Islamic rituals. Any means is supposed to be renewed and developed to suit the technological and architectural possibilities of its era. To provide an atmosphere in which the worshipers could perform their rituals in the best possible conditions on one hand, and on the other hand, to achieve a building which could contribute to enhance the quality of townscape.

The concept of innovation also is not implementation and reproduction of old elements with new building materials, but the desired innovation is by exploiting the natural and manmade resources. By using these resources, each element of the mosque supposed to be designed and implemented in order to utilize it optimistically. A mosque embodies the true meaning of prayer and reflects the spirit of its place and time.

Although technology and building materials have developed dramatically, the architecture of mosques in Libya does not seem to have improved. Technology has caught up with human dexterity, so why doesn't architectural design of mosque flourish and keep pace with the advantages of modern construction materials and innovation’s quality?

Since there has been no analytical study devoted exclusively to mosque architecture in Libya, there is a necessity to perform an academic research regarding the architecture of Mosques in Libya that may compensate the paucity of objective analytical studies that deal with architecture of mosque generally in Libya and lack of architectural study particularly in Ajdabiya city.

1.2 Scope of the Study

To achieve the objective of this study, a three-part methodology has been employed; firstly, studying the status of the mosque in Qur’an and Tradition, to explore which element of the mosque emerged as a result of the religious need. Secondly, reviewing the evolution of mosque in history attempts to trace the development of its components which are currently used in mosques of Ajdabiya city, and are probably

relevant, to determine current tendencies today. Thirdly, experiencing and assessing the performance of mosque design according to Islamic rules, influential factors, architectural approaches and Islamic architectural features, in order to verify is there certain pattern followed in designing all mosques or there is possibility of change.

1.3 The reasons for Selecting Mosques of Ajdabiya as a Case Study

Mosques built in Ajdabiya city have been chosen for the case study for several reasons. Firstly, the upper structure of the mosques in Ajdabiya is hypostyle with mono dome in most cases, which represents the common typical style of Libyan Mosques; so such a study will represent typical characteristics and quality of Libyan mosques in general. Secondly, the relatively high number of mosques in Ajdabiya compared to other cities in Libya may give us substantial material. Thirdly, Libya consists of three geographical regions; coastal, desert and mountainous, and Ajdabiya is situated between coastal and desert regions and thus it is influenced by the Mediterranean and Sahara desert climate. Finally, above all, According to scholars such as (Messana, 1981: 76) and (Elmahmudi, 1996: 25) Ajdabiya is categorized as one of the most important Islamic old cities in Libya.

1.4 Overview of the Chapters

The thesis includes specific topics dedicated to discuss the history of the mosque in order to understand present tendencies in mosque architecture in Libya. This may lead to information showing that many present design features are not sacred and accordingly are subject to further study and criticism. In the second chapter, the major types of mosques in Islamic world are studied to determine the extent of their impact on the architecture of mosques in Libya, and to find inspiration for new designs incorporating the best characteristics and technology of these styles. Due to the difficulty of criticism and thus developing the design of the mosque, Islamic prescriptions and rules pertaining to the mosque are studied in chapter three to determine religious obligations; to attempt creating norms and standards for the design of the mosque from the viewpoint of Islam. This may establish an

authoritative source, to be an authentic confutation (To be a compelling argument against hardliners), which may help in establishing design patterns. The authentic confutation may provide wealthy functionality and improving the quality of religious experience of believers separating myth from fact. Also some influential factors, some architectural approaches and some Islamic architectural feature are studied in order to trace the applied method in designing mosques. In the fourth chapter the environmental conditions of Libya are studied to know their effects on mosque architecture and whether they are taken into account. In chapter five, architecture of mosques located in Ajdabiya city is analyzed. To achieve the goals of this thesis the design approach applied in Libya were studied. Main elements of the mosque are studied in order to define which one of them is originally derived from Islamic prescriptions and to conclude tendencies of today.

CHAPTER 2

HISTORICAL BACKGROUND OF MOSQUE ARCHITECTURE

2.1 The Mosque of the Prophet

This mosque was the first institution to be built following the Prophet migration in 622 AD. The year 622 was the first year of *Hijrah* (emigration); it signified the beginning of the Muslim lunar calendar. When the Prophet, as a result of the hostility of the unbelieving *Meccans*, he and his followers migrated from Mecca city; where he was born to *Yathrib* city; which would later be called al-Medina al-*Munour'ra* (the Enlightened City) or City of the Prophet and today it is simply Medina. Immediately after arriving, the first task of the Prophet was to build a mosque for the community and a house for himself and his family. The Prophet and his companions constructed the first building in Islam with local materials. As stated by Robert (1994) in his book titled *Islamic Architecture*: *form, function and meaning*:

> It was only in 622, ten years before his death, which the hostility of the Meccans to his religious teaching caused him to move for safety to Medina. This emigration (*Hijrah*) marks the beginning of Islamic calendar. In that same year he began to build a house for himself and his family. But he built that house not as a despised and persecuted religious outcast, which was how he was generally regarded in Mecca, but as the respected leader of a new and dynamic religious community. (Hillenbrand, 1994: 39)

In his Arabic book called *al-Tabacat al-Kubra*, Ibn Sa'd described the mosque of the Prophet. Following is a brief of this description:

It was surrounded by an enclosure about 100 cubits made from limestone with basement 3 cubits high and sun-dried mud bricks with walls 7 cubits high. It was accessed through three doors, *Bab al-rahmah* to the south, *Bab Jibril* to the west and *Bab al-Nisa* to the east (**Figure 2.1**).

There were two porticos, one on the southern, consisted of two rows of palm trunks used as columns to support a thatched roof of palm-leaves covered by mud. In all probability, it served to indicate the direction of prayer and to provide "*Zullah*" which means in Arabic "shaded place". The other portico, located on the northern side, consisted of a smaller row of palm trunks. Its function was mainly to provide shaded place. Some sources such as Creswell (1958) in his book called *a Short Account of Early Muslim Architecture* asserted that, additional to being a shaded place, it mainly served as a shelter of the poorest followers of the Prophet:

> In the southwest corner of the courtyard was a primitive shelter similar to the portico on the north side, serving as a home for the poorest of those who had followed Muhammad from Mecca, who for this reason came to be known as the People of the Portico. (Creswell, 1958: 3)

The Prophet sometimes climbed a simple pulpit as the *minbar,* consisting of three steps made of strong wood. On the eastern side, nine small rooms were built side by side to house the Prophet and his wives; in one of those rooms he was buried. All opened into a large courtyard in the middle. This courtyard became the central place of religious, social, political activity as stated by Grabar (1987) in his book titled *the Formation of Islamic Art*

> It seems clear that it was meant to be simply a private dwelling with a large area for numerous public functions of the spiritual and political leader of the new community. (Grabar, 1987: 102)

He continued explaining the importance of the courtyard in the same book, this house was not only a dwelling but also an area where numerous public functions were occurred:

> This courtyard became, for practical purposes, the place in which almost all the official activities of early Islam took place. In the collective memory of the culture, therefore, it became not merely a sanctuary but the second holiest *Masjid* of Islam (Grabar, 1987: 102)

Space of the prayers was aligned firstly facing north towards *al-Aqsa* mosque in Jerusalem. In the second year of the *Hijrah,* after the revelation of *Surat al-Baqara*; the second *Surat* of the *Qur'an*, the *Qibla* direction was set to the south in order to face *Kaaba* within the *Masjid al-Haram* in the city of Mecca. As stated in the book called *a Short Account of Early Muslim Architecture* by Creswell (1958):

> Muhammad was in the *Musalla* (or praying place) outside Medina, and had just made the second prostration towards Jerusalem, when he

> received the revelation recorded in the second *Surat* of the *Qur'an*. He then turned towards the south, and the whole congregation did likewise. (Creswell, 1958: 4-5)

Accordingly, the praying space and the portico of the poorest people had been interchanged the position as mentioned by Robert (1994) in his book called *Islamic Architecture*: *form, function and meaning*:

> When, very soon afterwards, a divine revelation caused Muhammad to change the *Qibla* from Jerusalem to the *Kaaba*, the *Zullah* was pulled down and re-erected alongside the new *Qibla*. (Hillenbrand, 1994: 40)

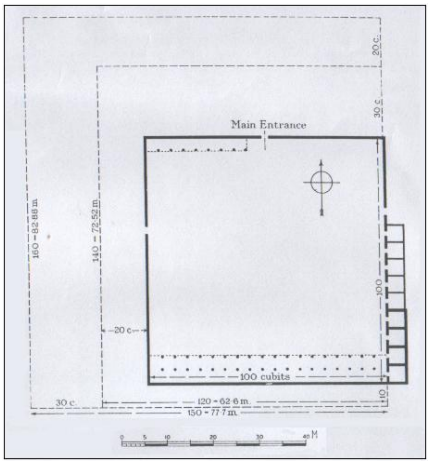


Figure 2.1: Reconstructed Ground Floor Plan of the Prophet Mosque (Source, Grabar, 1987)

It is important to note that there are many evidences which oppose with argument of some scholars such as A.K. Creswell in his book titled *a Short Account of Early Muslim Architecture* with regard to the mosque of the Prophet was merely a house not being tended to be a mosque. One of these evidences is Creswell's source of information on the establishment of the prophet mosque in Medina; the Arabic book titled *al-Tabacat al-Kubra*, by Ibn Sa'd. He recorded that when the Prophet wanted to build his mosque:

> The Prophet ordered that the trees should be cut, and the graves should be dugout and the ruins should be leveled. The trees (were thus) placed in rows towards the *Qibla* and the stones were set on both sides of the door. (Ibn Sa'd, 1960: 239)

Determining *Qibla* first demonstrates that, the intention was to build a mosque. The thing that is approved by Hillenbrand (1994) in his book called *Islamic Architecture*: *form, function and meaning*:

> The burden of these arguments is no special sanctity attached to the building in the Prophet's lifetime and that it was indeed used like, and exclusively referred to as, an ordinary house (*dar*). Moreover, on important occasions Muhammad prayed at the *Musalla* outside Medina. There is no need to try to describe these statements, but they fail to invalidate the assertion that the building was primarily intended as the focus of the new community and only secondarily intended as Muhammad's house. (Hillenbrand, 1994: 40)

In his book titled *the Formation of Islamic Art,* Grabar (1987) defines that, the simple structure of this mosque was the beginning of a new era in Islamic architecture. Additionally it became the muse for Muslim community, it was considered as the emergence of an archetype of mosques. The thing, which demonstrated this design, became an architectural inspiration source to the consequent mosque designs. Most subsequent mosques were derived more or less closely from it:

> In contrast to what is known of sanctuaries or houses elsewhere in Arabia, we are provided with a form, or at least an embryonic formal arrangement, in that a large open space has two covered areas at two opposite ends. The impulses for the forms were purely practical. (Grabar, 1987: 103)

2.2 Historical Background of Mosque Architecture during Early Islam

The first mosque was built by the prophet Mohammed in Medina, which was called Yathrab City, before the arrival of the prophet. This mosque was built with domestic materials. Its form was a simple quadrate with a square plan, which might have drawn inspiration from cube-shaped Kaaba. The mosque was divided into certain segments: a wall or Qibla facing Mecca, the Holy City, and a prayer space (*Musalla*) and an adjoining porch or portico protecting the assembly from the sun, pulpit (*Minbar*) and a courtyard (*Sahn*).

The development of mosque architecture began in the first century of the Prophet's emigration and many mosques there after were fashioned on the basic structure of the Prophet's Mosque in Medina. In fact, in its original idea, the mosque is a

representation of Islamic architecture in its simplest form, an enclosure for community gathering and prayer, the reading of the *Qur'an* and other religious functions.

The fundamental change of the architecture of mosques took place with the beginning of the Umayyad period. From then, the design of mosques started to progress rapidly; some elements after the Prophet's time were added such as the minaret, dome and niche imitated the ones in churches. The first minaret being used by Muslims were the four towers of Temenos church at Damascus in Syria during the time of Umayyad dynasty (Creswell, 1958: 111). While Hillenbrand, 1994: 129 stated that the first minaret constructed by Muslims was in the mosque of Basra when it was renovated in 665 A.D under the caliph Mu'awiya at the instance of his governor in Iraq, Ziyad b. Abih. Others believe that the first one was the four-minaret of Amr mosque in Fustat Cairo-Egypt, when it was enlarged in 673 A.D. (Wazeri, 1998: 101). However, the minaret was modified and renovated until it took distinctive form and function from the tower of a church. The earliest instance of the use of domes in Islam was the Dome of the Rock. It was constructed in 691 AD (72 Hegira) during the Umayyad dynasty, in the leadership of Caliph Abd-al-Malik (Creswell, 1958: 32) and (Khalil, 1992: 121).

Considering the virtue of constructing mosques and exhortation to it in Qur'an and Tradition, the mosque is the most important structure in a city for Muslims; it was first built when a new city was established. Simultaneously immediately after the conquest of a new city, it was the first building to be constructed to allocate a place for Salat. However, due to the urgent need for a place of worship, some of existing non-Muslim buildings were either entirely or partially converted into mosques (prayer place). As explained by Robert (1994) in his book titled *Islamic Architecture*: *form, function and meaning*:

> It is true that many churches, some fire temples, and on occasion even portions of classical Hindu or Jain temples, were adapted to serve as mosques. But this was only as a matter of expedience, and was never a long-term, deliberate policy. It did however its uses; indeed served motives could account for these conversions. In newly Islamized territory the pressing need for a place of worship could not always be met as quickly as might be wished. (Hillenbrand, 1994: 33)

In order to enhance the architecture of the mosque and its performance, early Muslims adapted successful architectural solutions, they had adopted from other civilizations. However, each element either was adopted or invented; there was an urgent need to use it. For instance, the minaret was used to call Muslims to pray and the dome to serve as structural element. Both of them played a key role in addition to performing functions and gave a distinct and beautiful building form.
Architecture and arts became highly developed especially in the architecture of mosques and in the surface decoration of buildings, using abstractions of natural forms and forms developed from Arabic calligraphy. "The early Muslims were accomplished mathematicians, and their designs were carried out in a stylized, mathematical way which enhanced their perception of building geometry. The accuracy and geometrical ingenuity of Islamic building became a permanent lesson to architects in the west," in words of Bill Risebero (1979) in his book titled *the Story of Western Architecture*, Page 27.

Architecture of mosques in the early period of Islam was characterized by simplicity and relied fully on local building materials and domestic techniques. However, in some cases, foreign expertise was employed.

In the beginning of Islamic civilization, the mosque was the residence of religious, social, political and educational activities. In fact, after spreading Islam and expansion of cities; the mosque was gradually limited to a place where Muslims can pray and learn Qur'an.

In the centuries later, the form of the mosque evolved not only to synthesize local architectural elements, but also more importantly to integrate details resulting from the availability of material and responses to climatic conditions, cultural traditions and available technologies. The monumental style of mosque developed and expanded into numerous types of mosque styles around the world. However, several scholars such as Robert Hillenbrand, Martin J. Frishman and Hasan Udin Khan categorize them under five distinct geographical regions. Each region being identified with certain typological peculiarities as following:

1. Hypostyle Hall with Flat Roof Mosque Style
2. The Dominant Central Dome Mosque Style

3. The Layout with an Iwan Mosque Style
4. Triple-domed Mosque with Large Courtyard
5. Detached Pavilions Mosque with Walled Garden Enclosure

2.3 Primary Styles of Mosque Architecture

The mosque plan was developed through a process of change and modification producing several highly significant types of mosque design. The design can be obviously identified as belonging to distinctly recognizable types and they are common to Islamic architecture in all regions where it is found. Since it is impossible to study all kinds of mosques all over the world of Islam here, styles of mosques have been divided into a certain number of design patterns that may influence the wide range of mosques. There are five categories of mosques and thus almost every built one has similar features of one style of these categories (Frishman and Hasan Udin Khan, 1994: 12). One type is used over and over in certain region. It became the predominant and prototype mosque model in this region. This does not mean that other styles cannot be found but the region became associated with a specific style of mosques. Robert Hillenbrand also proposes the same division. However, only three of these types fall inside of his book purview. This division is based on the book called *Islamic Architecture*: *form, function and meaning* by Robert (1994). He proposed ethnic category of mosque types dividing them into three main styles:

> Hence it is necessary to gloss over the particular genres of mosque ethnic became associated with specific dynasties or provinces and to force an inordinate variety of types on to Procrustean bed of three 'ethnic' architectural traditions: Arab, Turkish and Persian. (Hillenbrand, 1994: 64)

He tackles the Arab category first due to chronological reason:

> Since all the really early mosques to survive, namely those securely datable to the seventh and eighth centuries, are of Arab plan, no matter where they were built, it will be convenient to tackle that category. (Hillenbrand, 1994: 66)

However, Martin Frishman and Hasan-Uddin Khan (1994) in their book titled *The Mosque: History, Architectural Development and Regional Diversity* considered that the main types of mosque architecture in Islamic world are five types. Additional to

the mentioned three types, the other two are the Indian Mughal type and the Chinese one:

> One can say in general terms that every major mosque ever built, certainly until the arrival of the Modern Movement in the twentieth century, falls into one of five categories. (Frishman and Khan, 1994: 12)

2.3.1 Hypostyle Hall with Flat Roof Mosque Style

These types of mosques are found commonly in Spain, Africa, especially in the north, and Arabic countries which are located in west Asia. They are described as hypostyle hall with a flat roof and possibly one or more small domes. The layouts of these kinds of mosques are based on early Islamic mosque architecture, known as a hypostyle mosque of Arabic origin. It can be described as a walled rectilinear enclosure comprising a rectangular open courtyard (*Sahn*); mostly with colonnades laid on a grid pattern around the four sides of it and a pitched roof covering the prayer area located near the *Qibla*. This area is known as the sanctuary space supported by either multiple columns or a number of arcades. Commonly, they were made of either slim marble or stone. Some of them were reused from older buildings. Grid patterns of columns created parallel aisles. The extensions of rows of columns and arcades on all directions gives the person feeling as if s/he the center of spreading and collecting these lines; expressing the limitlessness of the vision. The best-known examples are the mosque of Fustat (Cairo), Qairawan (**Figure 2.2, 2.3**), Kufa, Kaurtuba and the Great Mosque of Damascus. (Hillenbrand, 1994: 66-92)

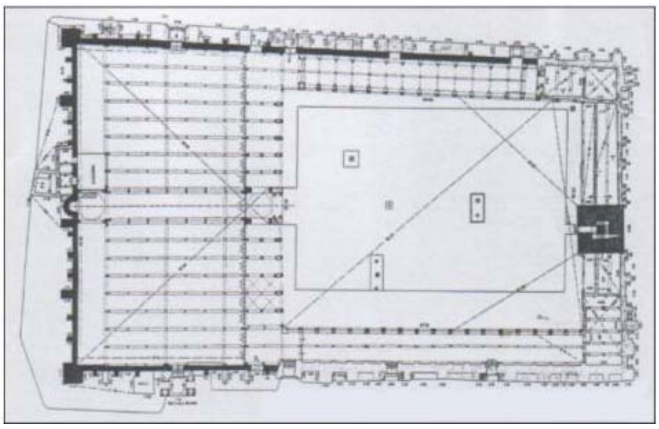


Figure 2.2: Ground Floor Plan of Qairawan Mosque (Source, Grabar, 1987)

Figure 2.3: Qairawan Mosque, General View (Source, Grabar, 1987)

2.3.2 The Dominant Central Dome Mosque Style

This style mainly gained prominence in the Ottoman period; it can be described as the vertical structure rising into the sky. It is dominated by its massive central dome, which covered most of the interior space; buttressed by a number of smaller domes. It is pointed by high slender minarets. Due to the progression from shorter to taller expressed with gradual advance from small domes that rising towards the central one, the thing that, promote the dominant dome as skyline.

The Süleymaniye Mosque (**Figure 2.4**), which is Domed, with four minaret towers can be given as an example of this approach. (Necipoğlu, 1994: 141-158)

Figure 2.4: The Suleymaniye Mosque, General View
(Source, www.GeatBuildings.com)

2.3.3 The Layout with an Iwan Mosque Style

This style gained prominence in Iran and central Asia. Possibly the most significant feature of this kind of mosques is *Iwan*. A mosque composes of one or multiple *Iwan*; mostly four *Iwan*. *Iwan* in traditional Islamic architecture is defined as a recessed and high vaulted space. It has only three built walls. *Iwan* serves as a great entrance leading to sacred domed space. Some times, it leads to a courtyard (*Sahn*). A courtyard surrounded by arcades and four *Iwan*, each of them is located in the middle of each of the four walls. A mosque has a unique decoration composed mainly of "*Muqarnas*". The first appearance of the *Iwan* style mosque was in A.D. 890 in Friday Mosque located in Isfahan, Iran (**Figure 2.5**), which is regarded as best-known example of this architectural style by Hillenbrand, Robert (1994) in his book called *Islamic Architecture*: *form, function and meaning*. (Hillenbrand, 1994: 100-114)

Figure 2.5: Iwan in the Friday Mosque, Isfahan, Iran (Source, http://www.syros.aegean.gr/users/nhad/Isfahan/IMG_1601fridaym.JPG)

2.3.4 Triple-domed Mosque with Large Courtyard

This kind of style can be found commonly in India, Pakistan and Bengal. This type is described as the triple-domed mosque with large courtyard. This mosque has characteristics of four symmetrically placed minarets, which mark the corners of spacious courtyards. The prayer hall has a prominent central portal and three polished white marble-covered high onion-shaped domes contrasting with the red-sand stone façade and four corner minarets; these combined with extensive arcaded courtyard. It features fancy brick work and terracotta decorations.

The larger mosques have a raised platform, which serves both as an enclosure space used by female worshipers and could be used by the king and his entourage. This was segregated from the rest of the mosque and had a separate entrance, which could be approached directly from exterior either by a ramp or by a flight steps. One of the best examples of Mughal architectural style is Friday Mosque located in Delhi, India (**Figure 2.6**). (Hasan, 1994: 159-180)

Figure 2.6: Friday Mosque, Triple-domed, Delhi, India (Source, http://www. mjlgreene.com/JMasjid.html)

2.3.5 Detached Pavilions with Walled Garden Enclosure.

This pattern is well known in China. The mosque has characteristics of single axis lined with all courtyards, Pagoda Tower, Chinese pavilions, freestanding and gateway, which leads to the prayer hall. The mosque building is subdivided into a number of courtyards. It is decorated with clay brick carvings. This mosque also has characteristics of special inverted eaves. It features several layers of brackets glazed roof tiles. Due to using the upturned eave roofs the building appears about to fly (**Figure 2.7, 2.8**). There are a number of wooden houses called water houses. They are the place where worshipers can perform ablution before they attend a prayer. The special building is the prayer hall. It features a combination of the Chinese traditional archway and pavilion. It is characterized by multiple stories of tilled roof. It is decorated with Qur'anic inscriptions, which are formed in colorful decorative patterns of grass and flowers.

Different from the common style of Islamic mosques, which have one or a number of domes and tall minarets, the Chinese mosque, has neither domes nor minarets. Although there is no minaret the tower called introspection serves as a minaret. It is located at the center of the main courtyard. It is multiple storied pagoda; each storey has a curved roof, many layers of eaves and an octagonal roof. The introspection tower is the tallest structure in the whole mosque. Except for using of Arabic

calligraphy combined with Chinese floral patterns, Chinese tradition in both design and its artistic outlook is dominated. The best example of this style is the Great Mosque, Xian in China. (Xiaowei, 1994: 209-224)

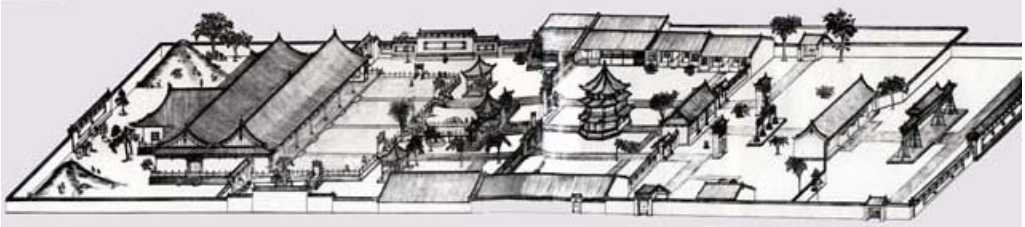


Figure 2.7: Drawing of the Great Mosque, Xian in China (Source, http://archnet.org/library/images/one-image)

Figure 2.8: Courtyard and Multiple Storied Pagodas
(Source: Frishman, 1994: 216)

CHAPTER 3

SOURCE OF LEGISLATIONS, ISLAMIC RULINGS AND ARCHITECTURAL TRENDS IN MOSQUE ARCHITECTURE

The Qur'an is the most appropriate source of legislation. The second source of rules is the tradition of the Prophet. This stated by Frishman (1994:

> Next in importance after the Qur'an as a source of guidance are the Hadith, the 'traditions' or 'saying' relating to the life of Muhammad (Frishman, 1994: 20)

Therefore, this attempts to discover the mosque resources, purpose and needs, according the Qur'an and traditions of the Prophet.

3.1 Source of Legislation: Regulation and Function

The foundation of Islamic law and rituals are the Qur'an and Tradition, therefore, it is fundamental to construct mosques in accordance with their teachings. The meaning of the Tradition here is the saying and actions (deeds) of the Prophet relating life and Islamic liturgy. In accordance with the *Sharia*, the Muslims must act according to what the prophet asked or acted. In the Qur'an, Muslims have been ordered to obey the Prophet. In the following verses, there are clear orders to obey the Prophet;

Surat al-Nisa in the holy Qur'an:

> O ye who believe! Obey God, and obey the Apostle, and those charged with authority among you. If ye differ in anything among yourselves, refer it to God and His Apostle.... (Qur'an, *Surat* 4, Verse 59: 78)

Surat al-Ahzab in the holy Qur'an:

> Ye have indeed in the Apostle of God a beautiful pattern (of conduct) for any one whose hope is in God and the Final Day, and who engages much in the praise of God. (Qur'an, *Surat* 33, Verse 21: 408)

Surat al- Ahzab in the holy Qur'an:

> It is not fitting for a Believer, man or woman, when a matter has been decided by God and his Apostle to have any option about their decision: if any one disobeys God and His Apostle, he is indeed on a clearly wrong Path. (Qur'an, *Surat* 33, Verse 36: 410)

Surat al-Nur in the holy Qur'an:

> Deem not the summons of the Apostle among yourselves like the summons of one of you to another: God doth know those of you who slip away under shelter of some excuse: then let those beware who withstand the Apostle's order, lest some trial befall them, or a grievous penalty be inflicted on them. (Qur'an, *Surat* 24, Verse 63: 343)

Surat al- Hashr in the holy Qur'an:

> … So take what the Apostle assigns to you, and deny yourselves that which he withholds from you. (Qur'an, *Surat* 59, Verse 7: 552)

In his book called *Islah al-Masajid Min Albidah Wa Al-Awaid,* Al-Qasimi Gamalalden, 1983: 10, explains the meaning "obey God" by adherence to Qur'an and "obey the Apostle" by adherence to Tradition.

Rulings pertain to the construction of mosques in the holly Qur'an and Tradition:

The worshiper must face to Kaaba as asserted by the holly Qur'an in *Surat al-Baqarah* as following:

> We see the turning of the face (for Guidance) to the heavens: now shall we turn thee to a Qibla that shall please thee. Turn then thy face in the direction of the Sacred Mosque: wherever ye are, turn your faces in that direction. The people of the book know well that that is the truth from their Lord, nor is Allah unmindful of what they do. (Qur'an, Surat 2, Verse144: 20)

Islam encourages actions of conserving resources and abhors wasteful acts of any kind. The Prophet was known to have admonished his followers not to be wasteful in performing ablution even if the water was from an abundantly flowing river.

Avoiding excessiveness and extravagance in everything are essential principles in Islamic thought. It is best for the mosque to be kept a simple construction to avoid

excessiveness and decoration that distracts the worshiper from concentrating on the prayer. This basic teaching of Islam is dictated in the holy Qur'an, *Surat al-Araf* as following:

> ...but waste not by excess, for Allah loveth not the wasters. (Qur'an, Suratt 7, Verse31: 139)

In Sahih Muslim, Book 4, Numbers 0862-0863, Hadith of the Prophet banned worshipers from lifting one's eyes towards the sky during prayer; every prayer should look towards an area where he or she prostrates. Commands of the Prophet in *Sahih* Muslim, Book 4, *Hadith's* Numbers 0864-0867 are to observe prayer with tranquility and calmness. The prayers should make the first row complete and keep close together in the row of the prayer. *Hadith* Numbers 0868-0882 in *Sahih* Muslim, Book 4, it is considered that the straightening of a row is a part of the merits and perfection of prayer. Also it is considered that the first row of prayer for men is the best and then of the subsequent rows; the more nearness to the Imam the more priority.

It is forbidden to build a place of worship (mosque) on graves or to use graves as mosques and it is banned to decorate mosques with pictures and any figure containing animate beings as stated in Hadith numbered1084-1085 in Sahih Muslim. It is also ordered that the W.C (the toilet) should not be in the direction towards of Mecca. So there are the general recommendations from the Qur'an and the traditions, which try to govern the rules shaping the formation of mosques in Islam.

On the other hand, according to Islamic teaching, any attempt to promote the performance of the mosque is appreciated. For instance, the prophet Mohammed greeted an idea of his companions who used oil lamp to illuminate the mosque of Medina.

3.2 Prescriptions of the Prayer

There are two questions here: what are prayers in Islam? And what kinds of space do these rituals require? What is the mosque and what it does?

It is impossible to understand the architecture of the mosque and consequently promote its performance without knowing the prayers inasmuch as the main activity that occurs within it.

In the mosque daily of prayers are performed five times. Although the daily prayers can be fulfilled alone in any clean area, praying as a group in a mosque is preferable. It is like the obligatory prayer of the man in congregation being better than praying the obligatory individual. In Hadith number 1360 in Sahih Muslim, Book 4, the Prophet said that: "Prayer said in a congregation is twenty-five degrees more excellent than prayer said by a single person." Only Friday and the prayers of the two 'Ids of Muslims are obligatory. That is to say, while the *Salat* can be performed anywhere, it would rather preferred to perform in the mosque.

Based on observations, it is obvious that the number of people who get to Friday and 'Ids prayers is higher than the daily ones. They are Matins, Noon, None's, Maghrip and Evening prayers. While noticing that the daily prayers are compulsory for all mature Muslims; both males and females with stipulation of cleaning up (lavage) from profanity and ablution after flatus, stool or urination. This basic teaching of Islam is expressed in *Surat al-Araf* in the holy Qur'an as following:

> O children of Adam! Wear your beautiful apparel at every time and place of prayer: eat and drink: … (Qur'an, Surat 7, Verse31: 139)

Due to this stipulation, most mosques are provided with ablution facilities such as water taps and toilets. Additional to ablution, Islamic rules focus on taking care of one's appearance and personal hygiene. That is probably why a Muslim is required to perfume oneself with pleasant smell and to wear clean beautiful clothes.

Largely, mosques are crowded during Fridays. The prayer of Friday is only one pray per week. In addition, mosques are overcrowded during prayers of 'Ids which are only two times annually.

The main activity of Muslims in mosques is to pray. Prayers consists of some settings and movements such as standing, bowing, coming to the erect position after bowing, then standing, getting down for prostration, raising the head and kneeling, prostrating, getting up at the end of prayer after adopting the sitting posture. Some of

these actions are repeated. Therefore, this ritual necessitates an empty area of things that may interrupt lines of prayers. Additional to perform the ritual of prayers, the worshiper can sit to concentrate on seeing and listening as the imam delivered Friday sermon or read Qur'an. Since, it is excellent of one to listen to the *Khutba* (sermon) with perfect silence. The minimum required space for each worshiper is 1×2 meters as defined by Robert Hillenbrand (1994) In his book titled, *Islamic Architecture; form, function and meaning.* Muslims listen and pay attention to Friday Elids sermon. It is preferred to watch the orator. It is considered suitable to avoid anything which may interrupt vision or hearing.

Muslims needed a vacant clean space for congregational prayer. More space is needed especially on Fridays, when all men are required to perform the prayer collectively. All worshipers have to stand in rows behind the *imam* who leads the prayer. The worshipers should strictly follow the Imam in prayer and acting after him; it is forbidden to do any action of a prayer like bowing or prostrating ahead of the Imam. As Hadith reported in Sahih Muslim, Book 4, Number from 0817 to 0831

3.3 Importance of Beauty and Perfection in Islamic Thought

Since the topic is the architecture of mosques, it is may be illuminating to understand the standards of beauty in the texts of the Qur'an and the traditions of the Prophet. According to Ar-Raissouni (1999), Islam stresses the importance of beauty and perfection. His main notes regarding the aesthetic value in both the Qur'an and the tradition are discussed here.

"Sophistications sincerity and perfection are important in Islamic thought, in the relationship of man with God, with the community and with the environment. Perfection is a strong demand in the teachings of Islam and a stage through which the noble mission should be accomplished perfectly. The Prophet embodied this idea in saying **"**Allah loves, for anyone of you doing something that makes it perfect." (Silqini, 2004: 69-117).

According to Mikdashi (1995), aesthetics is the entire tendency, education and thought in mind which attracts man's attention to all the beauties in nature and life, which allows him to experience emotions and a sense of respect on seeing beauty, to enjoy it and benefit from it while watching its preservation and its blossoming. Islam urges to provide an element of beauty in everything (Mikdashi, 1995: 156-159).

Islam urges that the beauty, perfection, harmony, balance and accuracy of the universe signify the presence of God the great Creator and Almighty. Islam considers that beauty and perfection are means, which connect Muslims with God. Admittedly, because Allah is the creator of all the beauty in nature; when Muslims see or feel anything beautiful, they remember their beautiful God. Meaningful beauty in Islam coincides with visual organizations and fundamental principles of architecture such as perfect composition, proportion, balance and exact computation. They result unity and harmony with interest which is an essential aspect of aesthetic satisfaction and therefore of successful design. Both Qur'an and Tradition, the fountainhead of the Islamic perspective insist the highest value on the achievement of beauty in everything. Here are examples, which attest to this concept.

3.3.1 Aesthetic Value in the Texts of the Qur'an

The general principle in Islam is that every discharge should be implemented perfectly. As in *Surat al-Sajdah* in the holy Qur'an:

> He Who has made everything which He has created most good.
> (Qur'an, *Surat* 32, Verse 7: 403)

In *Surat al-Infitart* in the holy Qur'an:

> Him Who created thee, fashioned thee in due proportion, and gave thee a just bias; In whatever Form He wills, does He put thee together.
> (Qur'an, *Surat* 82, Verse7-8: 608)

These verses indicate the beauty and adornment in the creation of the human being. Using the rightful proportion from which architectural standards such as human proportions, golden sections and "Le Modular" of Corbusier are derived.

This concept of creating human being into a most noble image is stressed in *Surat al-Tin* in the holy Qur'an:

> We have indeed created man in the best of moulds. (Qur'an, *Surat* 95, Verse 4: 625)

Not only is the human being created in magnificent equilibrium but also everything in the universe is alike, as *Surat al-Qamar* in the holy Qur'an says:

> Virely, all things have We created in proportion and measure. (the Qur'an, *Surat* 54, Verse 49: 532)

The Qur'an stresses the manifestations of beauty in nature and in all creatures. After man, the Qur'an continues with other beauties, which Allah urges us to admire. There are several verses about the universe and creatures. In *Surat al-Hijr* and *Surat Qaf* , Qur'an invite people to muse and enjoy the universe

> It is We Who have set out the zodiacal signs in the heavens, and made them fair-seeming to (all) beholders (the Qur'an, *Surat* 15, Verse 16: 240)

This verse is the example of the delight because of the existence of natural beauty. Moreover, it is strange not to observe the aesthetic from some of mankind:

> Do they not look at the sky above them? - how We have made it and adorned it, and there are no flaws in it? (The Qur'an, *Surat* 50, Verse 6: 516)

These verses stress the admirable and respectable way of beauty that Allah the Glorious has created. Moreover, it continues; the sky is built up and furnished with ornaments, leaving no crack in its expense. The Qur'an considers well creation of the sky and its decoration a paradigm that simplifies the greatness of the God.

The description has a more aesthetic and symbolic value. In *Surat Sheba* verse 15, talks about "The natives of Sheba had two gardens in their dwelling places." The gardens are described in such luxuriousness as paradises on earth. The Qur'an takes attention to the aesthetic of balance and accuracy of creatures and exhorts to be applied as *Surat al-Rahman* in the holy Qur'an says:

> And the firmament has He raised high, and He has set up the Balance (of Justice), in order that ye may not transgress (due) balance. So establish weight with justice and fall not short in the balance. (The Qur'an, *Surat* 55, Verse 7-9: 533)

Firming the importance of balance in *Surat al-Hijr* in the holy Qur'an:

> …and produced therein all kinds of things in due balance. (The Qur'an, *Surat* 15, Verse 19: 241)

Surat al-Nahl verse 6 the Qur'an calls attention to the creatures of Allah and their beauty. Animals are described how they look beautiful to mankind." In this way Allah shows the beauty of those animals." How beautiful they look to you when you bring them back to rest in the evening, or when you take them out to graze in the morning. They carry you and your burdens to far-off lands horses, mules, and donkeys, which you may ride or use as ornaments. Even in those animals Allah shows the admirable features.

The Qur'an continues in *Surat al-Nahl*, "it is Allah Who has created the sea so that you may eat of its fresh fish and bring up from its ornaments with which to adorn your persons". Allah gives a different point of view while looking at the sea. It is a source of fresh fish, also source of beauty and ornamentations.

3.3.2 Aesthetic Value in the Tradition

There are several Hadith that highlight the importance of aesthetics in life. The following samples show aesthetic experience and the art of building up a harmonious lifestyle.

It is narrated in *Sahih* Bukhari, on the authority of Ibn Messaoud who was one of the Prophet's companions Volume 1, Book 4, Number 221, the Prophet said: "He who harbors in his heart even the slightest feeling of superiority will not enter Paradise." In another narration 'No one who harbors an iota of pride in his heart will enter Paradise". Then one of his companions remarked that: "Humans like to wear beautiful clothes and shoes." To whom the Prophet replied: "Allah is Beautiful and He loves beauty". According to Ar-Raissouni (1999), it is clear that being neat-looking by wearing beautiful clothes and shoes is not a kind of pride or superiority that the Prophet has warned about. On the contrary, being elegantly dressed is something which God appreciates. The warning includes presumptuousness (shows a lack of respect for others) which leads to be denied from accessing to Paradise. The main points in this Hadith are to prevent insulting or harming others and appreciating of beauty in Islam. Also, some concepts have been interpreted and misunderstood which may affect the architecture of the mosque. Some misunderstood concepts

which are thought to have affected the architecture of the mosque will be discussed in the following chapters.

There are several examples, which indicate the beauty in man and the environment, which he lives in. In Sahih Muslim: Book 1, Number 56, the Prophet said: “There are about sixty and seventy articles of faith. The most important one is the statement ‘There is no other god but Allah’, and the least important one is the commitment to keep public spaces in a good state of cleanliness for a good social behavior is part and parcel of one’s faith.” The main point in the Hadith is to keep clean public spaces, so to prevent them from ugliness. The Prophet inhibits Muslims from defiling the environment. It is narrated on the authority of Anass whose one of the prophet’s companions, the Prophet said: “maintain the mosques clean and pure”. By this way the outside will be clean as the interior of mosques.

There are various examples about not only seeing but also the hearing of sounds in the human environments. This statement includes practical advice. Praying trains Muslims to speak quieter and more polite and prevents voice pollution. The Muslim is ordered to be clean. There are texts which deal with the smelling sense. According to Abu Horayra, the Prophet said: “Whoever is offered a mild and sweet fragrance should take it.” The Prophet mentions the advantage of good scents.
In Sahih Bukhari Book 13, Number 5, the Prophet said: “It is an obligation for every nubile person to take a bath on Friday, to clean his teeth, and also to put perfume if it is available.” The scent, which a man uses, spread out to himself and to his environment.

There are several such Hadith which are inciting the smelling sense, improving the demand and admiration to sweet scent and making clean surroundings. There is a Hadith in Sahih Muslim number 1142 which recommends not entering mosque after eating garlic, onion or anything of offensive smell till its odor vanished.

The emphasis is on that the sources of legislation for Muslims are the Qur’an and the Tradition. Both the Qur’an and the Tradition exhort Muslims to do every mission aesthetically, perfectly and not wastefully. The entire statements are to improve the aesthetic value and sensory beauty in human being’s environment. The whole

recommendation is to educate people and focus their attention on creation. By enhancing the aesthetic quality, the quality of life increases.

The most important point here is to build mosques according to Islamic teachings which exhort aesthetic and perfection.

3.4 The Mosque Architecture and Some Influential Factors

To research whether the influential factors in the mosque architecture is the same in the entire Muslim world or not, an article investigating 'Islam and the Form of the Mosque' by Frishman (1994) is discussed. He attempts to explain the story of mosque's evolution. He tries to define influencing factors on mosque architecture in the Islamic world. His study is analyzed to explore whether it is relevant to what is happening in Libya or not.

3.4.1 Religious Concepts and Mosque Architecture

Monotheism is judged by Frishman (1994) as the fundamental principle which plays the crucial role in the foundation of Islam:

> The concept of monotheism both as a religious belief and as a force provides the spiritual backbone of a nation, and the concept of the prophet hood. (Frishman, 1994: 17)

Monotheism in Islam is embodied in *shahada* or creed which represents the membership of Islam as Frishman further points out:

> The acceptance of the *shahada* as translated from Arabic into English: 'There is no God but the God and Muhammad is his Messenger.' This formula comprises the irreducible minimum of Muslim belief, and it is widely accepted that anyone who utters the *shahada* may be regarded as a. (Frishman, 1994: 17)

The fundamental observances which form the basis of the Muslim faith are five pillars:

1- Islam founded on submitting to the one and indivisible God and Muhammad as his last Prophet, embodied in the *shahada*.
2- Prayer or *namaz.*
3- Alms or *zakat.*

4- Fasting.
5- Pilgrimage; the *hajj*, or pilgrimage to Mecca.

As has been mentioned before the basis of Muslim belief comes mainly from the Qur'an and secondly from the '*Hadith*' (in this chapter see 3.1 section). This is confirmed by Frishman (1994). He expresses that "the '*Hadith*', the 'traditions' or 'sayings' relating to the life of Muhammad is second in importance after the Qur'an as a source of guidance. After Islam spread to a vast area of the world, and the growth of these Islamic societies, laws to regulate economic transactions, social and political issues were needed. Certain and specific laws were imposed to organize business, dealings and social activities between people. These laws are derived from Qur'an and the *Hadith.* The thing which led to the emergence of '*Sharia*' which is defined by Frishman (1994) as:

> The *Sharia* grew out of the attempts made by early Muslims, as they confronted immediate social and political problems, to device a legal system in keeping with the code of behavior called for by the Qur'an and the *Hadith*. (Frishman, 1994: 29)

With the passage of time the *Sharia* has gained the consensus of legal experts '*Ulama*' who are persons with high knowledge at the interpretation of the Qur'an and the *Hadith.* However, they do not have any hierarchy in the rituals of Islam. As explained by Frishman (1994):

> Unlike Christianity, classical Islam had no priestly hierarchy and no central religious authority to promulgate official doctrine. Consequently, since no religious orthodoxy existed, there could be no heresy or deviation from authorized truth. The nearest approach to clergy in Islam is the theologians and jurists known as the *Ulama*. Although these learned men may as individuals or in schools formulate rules and interpret scripture, they have never been constituted as an authority to lay down religious dogma. (Frishman, 1994: 29)

Probably, due to deriving the laws from the Qur'an and the *Hadith*, different from Christian society, Frishman notes, Islamic society is formalized by *Sharia* not vice versa:

> Whereas Western legal systems have grown out of and been molded by society over the centuries, for Islam it is the law which has always molded society. (Frishman, 1994: 29)

Since all laws are supposed to be derived from the Qur'an and the *Hadith,* the state and its constitution are considered to be holy and deserving respect as stated by Frishman (1994):

> In essence the Islamic state as conceived by orthodox Muslims is a religious polity established under divine law. This law is not limited to questions of belief and religious practice, but also deals with criminal and constitutional matters, as well as many other fields which in other societies would be regarded as the concern of the secular authorities. In an Islamic context there is no such thing as a separate secular authority and secular law, since religion and state are one. (Frishman, 1994: 30)

Any idea which does not win the approval of the *Ulama* is classified as '*bid'a*' (heresy), an act of innovation which is not permitted. Staying away from innovation may result from the concept of the *bid'a.* The severity of committing a *bid'a* is stated explicitly by the saying attributed to the Prophet:

> The worst things are those that are novelties. Every novelty is an innovation, every innovation is an error, and every error leads to hellfire. (Frishman, 1994: 30)

Since this concept opposite to innovation, it is worth to mention that the majority of the Muslim clerics (*ulama*) explain that the notion of *bid'a* has been based on failure understood. The Islamic teachings forbid any innovation only in religious rituals. However, including mosque architecture, any innovation on other areas of life which leads to improvement of human life is not *bid'a.* In contrary, it is appreciated according to Islamic teachings. The mosque is not a ritual in itself, but a means to perform rituals. Therefore, any innovation to improve the atmosphere of worship is highly appreciated.

3.4.2 The Mosque Typology

Frishman (1994) notes that originally, the monotheistic religions opposed to use splendid and luxurious edifices as worship places but this opposition was changed by their leaders in an attempt to overshadow the other neighboring religions. The same author explains that there is a belief that the monotheistic religion gains strength when new followers embrace it and also by preventing a believer of this religion to relapse and convert to another religion. One of the means to gain the highest admiration and thus attracting followers is by constructing recognizable symbols and/or impressive buildings which positively affects humans. The phenomenon of competing religions in constructing what is believed to be impressive building as places of worship is supported by Khalil (1992). This belief is verified by the fact

that Khalil (1992) has denounced the request of Sharawi who is a famous divine *Imam*. His request was to build a bigger, more ornamented and more dominant building than any surrounding church or temple. (Khalil, 1992: 168-169)

Frishman goes on to say that interest in the splendor visible form was less a characteristic of Islam than it was of Christianity. It is attributed to the fact that the worship and the need for the use of symbols and objects in the church is the basis of worship. While in Islam, faith depends primarily on the Qur'an.

The mosque is the pivotal building of the complex of buildings which consist of khan, religious school, hospital etc. In general all these activities engaged in separate buildings from the mosque. In addition to the prayer rituals, religious teachings and reading of the Qur'an verses can take place within the mosque space. According to the teachings of Islam, these activities are regarded as kind of God worshiping.

The minimalist nature of Islam and the simplicity of the liturgical requirements, requiring only flat clean area, oriented towards Mecca as a place for prayer. This feature is probably reinforced according to Frishman by the fact that the nature of most followers of Islam are nomads especially the Arabic ones. Their lifestyle prevents them from constructing any kind of permanent buildings, since all their properties had to be demountable and portable.

Lacking of specific orders or material source to build a particular form of worshiping place forces Frishman to use the phrase 'architectural vacuum' to describe the architectural atmosphere in which both Islam and Christianity came into existence:

> No source material could have existed to help suggest forms for their (Islam and Christianity) places of worship. Inventing an architectural form to provide for the worship of an invisible and non-representational deity has never been achieved, and any thing that became an accepted form had to be evolved through the passage of time. (Frishman, 1994: 30)

These circumstances, according to Frishman (1994), made both Muslims and Christians borrow ideas and elements from earlier civilizations. They adapted the borrowed elements and ideas to suit their monotheistic beliefs and rituals. The design of the initial church was mainly obtained from the buildings of the Romans. Islam adapted from Persia, Egypt, the Church and Roman ideas.

The impressive and widespread effect of the crucifix is an advantage which the Church always had over Islam. "The Church could rely on powerful visual symbols to help convey its message" as Frishman stated and he continues to compare the crucifix with Islamic ones:

> In the mosque there is no component part or object to evoke a response comparable to that associated with the symbolic cross of Christianity. The minaret, if separated from the mosque and thus divorced from its accepted function as the place from which the call to prayer is made, becomes simply another tower. The *Mihrab* is the focal point of any mosque, but if it were to be removed from its position indicating the direction of Mecca and re-erected at some distance from the place of worship, it would become just another niche. Islam is virtually without symbols other than the Kaaba at Mecca, assuming that one leaves aside mystical or allegorical motifs such as the crescent moon and star which today serve as national or political emblems, and which in any case have origins that antedate the monotheistic religions. (Frishman, 1994: 30)

And he goes on to show the impressive of the Kaaba on the spirits of Muslims:

> The powerful emotional impact of the Kaaba upon devout Muslims is indisputable, but it can only be experienced in Mecca. (Frishman, 1994: 32)

He argues that the picture of the Kaaba can be seen in other places such as textile and wall decorations, but they do not have the same effect as the real Kaaba of Mecca. They are counted as kind of simulations. However, the emotional impressiveness of the crucifix is not diminished by its size or the material from which is made.

Direct relationship between architectural form and function which features the mosque does not exist in the church. Unlike in the mosque, Frishman notes, in the church the relationship between the Christian worshipers and their God is not direct. There is the priest who serves as a mediator between the two sides. While in Islam, the relationship between a worshiper and his God is a direct relationship in which there is no intermediary. As asserted by the holly Qur'an in *Surat al-Baqarah* as following:

> When My servants ask thee concerning Me, I am indeed close (to them): I listen to the prayer of every suppliant when he calleth on Me: let them also, with a will, listen to My call, and believe in Me: that they may walk in the right way. (Qur'an, Surat 2, Verse146: 25)

According to Islamic thought, the prayer is the means of communication between the Muslim and his God. Accordingly, when a Muslim wants to communicate with the

God, it would begin in prayer. During the prayers, Muslims believe that they are in the hands of the God. Then, it is assumed that the Muslim has been feeling in seclusion from secular. Moreover, their beliefs make any place classified as a mosque for the duration of the prayer.

By comparison with church, within a mosque, religious and secular activities can be fulfilled. To explain this, Frishman points out that:

> From the earliest times the mosque has always been a religious and social centre for a community, as well as-in the case of congregational mosques-providing a platform for political pronouncements at midday prayers on Fridays. In many respects, therefore, besides its religious role, the range of activities traditionally associated with the mosque was comparable to those previously associated with the Greek agora or the Roman forum. (Frishman, 1994: 32)

Although, there are some activities occur in the church, such as: weddings, confirmations, confessions and baptism, which are not practiced in the mosque, secular and religious are quite distinct from each other. These activities are considered as part of the uses of the church. The distinction of the secular from religious according to the role of the church is embodied in the saying; 'Render to Caesar's the things that are Caesar's and to God the things that are God's'. According to Frishman, "this concept has no meaning for Muslims". However, this perception runs against the injunctions of the Qur'an and differs substantially from perspective of some scholars.

According to the holy Qur'an, any place allocated for worshiping God, should particularize for this purpose and not for anything else. As stated in *Surat al-Jinn in* the holy Qur'an:

> And the places of worship are for God (alone): so invoke not anyone along with God; (Qur'an, *Surat* 72, Verse 18: 585)

According to Hillenbrand (1994) as an example of dissenting Frishman:

> To this day no one walking from the bustle of a *bazaar* to the serenity of a mosque can seriously doubt that Islam clearly distinguishes between the dues of Caesar and those of God. The architecture proclaims that very distinction. The change to an orientation towards Mecca, so frequently noticeable as soon as one enters the building, is conceived in the same spirit. Finally, the believer takes off his shoes to enter a mosque and that simple homely action symbolizes the transition from the secular to the spiritual realm. A saying of the Prophet reported by Abu Huraira makes the same point still more sharply: 'most favored

> of God in cities are their mosques and most abhorred are their markets'. (Hillenbrand, 1994: 32)

3.4.3 The Component Parts of the Mosque

The beginning of the mosque layout was derived from the mosque of the Prophet at Medina City. This mosque is described in chapter 2. The typical mosque consists of elements similar to the ones existing in the mosque of the prophet. These components are the prayer space, the *Qibla* wall with *Mihrab* and the *Minbar*. They are described precisely in chapter 5 (5.2.1). However, there are some elements invented after the time of the Prophet for functional reasons and others for political reasons.

3.4.3.1 Common Components of the Mosque

Frisman (1994) writes, additional to the elements which were found in the mosque of the Prophet, there are elements invariably available in mosques. They are:

1- Minaret; the original purpose of the minaret, except for serving as symbolic landmark, it was a place from which the call to prayer is summoned (read 5.2.1.4).
2- Dome; the original purpose of the dome, except for serving as symbolic landmark, it is used for structural purpose (read 5.2.1.5).
3- Ablution facilities; are built to meet the requirement of the prescribed ritual ablutions before prayers. The ablution facilities consist of washing facilities and toilets. The washing facilities are a fountain or taps placed in separate room. The ablution facilities are designed to allow a number of worshipers to wash simultaneously.
4- The portal; serves as transitional threshold between the tranquil atmosphere within the mosque and the hustle and bustle of the street outside. The portal is almost glamorized to emphasize, on the one hand, the importance of the presence of God's house, on the other, the generosity of the mosque's patron.

Although building a mosque represents an act of piety in it, the patron's highest respect is given and is appropriately commemorated wherever possible. Frishman (1994) has attributed the cause of constructing high walls surrounding most mosques to conceal the interior of the mosque from outside view. However, according to White (1998) while hospitability is an important feature of the congregational space, constructing a fence surrounding gathering place is an act opposite of hospitality:

> Hospitality is a fundamental aspect of all that happens in the gathering space, both inside and outside the building. These spaces need to welcome both stranger and the person familiar with the place and people. Monumental and imposing forms may be awesome and impressive to the passerby but they do not generally attract and invite people to enter. Human-scaled spaces call us to come inside, especially when a covered entrance suggests shelter. On the other hand, a chain-link fence, which shelters no one, is the opposite of hospitality. (White, 1998: 8-9)

He asserts that the sense of welcome can be enhanced by features such as human scale furnishing, landscaping and paved paths. White is careful to stress that; "Gathering space must help proclaim: We want you to be with us" (White, 1998: 9).

3.4.3.2 Individualized Components

There are some places which are prepared for individual people. Separating worshipers from each other are due to several reasons such as sex, function or politics.

1- Separate part of the building to segregate male from female worshipers.

2- The *dikka* is a raised single-storey platform reached by its own stairs. It is designated for the *muezzin*. From the *dikka* the starting of the prayers is announced and the words of the *Imam* are replayed loudly.

3- Frishman (1994: 37-40) argues, the architecture of the mosque is affected by politics. He uses '*maqsura*' as an example. *Maqsura* is an enclosed lodge available in some mosques. In order to provide security and special splendor for important persons such as governors, their retinue and dignitaries, special places are particularized for them, places such as *maqsura.* It was used in the early centuries of Islam to protect the life of rulers and dignitaries against threats such as assassination.

Sometimes, to gain maximum security, the accommodation of the governor was erected adjacent to the Qibla wall in purpose to provide direct access to the mosque.

Finally, Frishman (1994) concludes that the most influential factors on mosque architecture are two factores. The first factor is *bid'a*. He defines the *bid'a* phenomenon as any new feature which could be interpreted as a sign of opposition to orthodox tradition in mosque design. The adoption of this kind of rigid attitude, according to Frishman (1994), "can effectively eliminate any creative element in design, leaving an architect with no choice but to resort to the use of historical revivalism" (Frishman, 1994: 41). The other factor is preservation of country's cultural identity. The debatable issue which is stated by the same author is that "the question as to whether the continued use of regional or vernacular architectural language should be encouraged in a contemporary situation" (Frishman, 1994: 41).

3.5 In Search of Liturgical and Architectural Principles of Mosque Design

The typical mosque consists of a prayer hall and a number of elements or components, which can serve similar functions and often have similar forms. The main elements of the mosque are the *mihrab*, *minbar*, minaret, dome, ablution facilities and above all a covered prayer space (**Figure 3.1**).

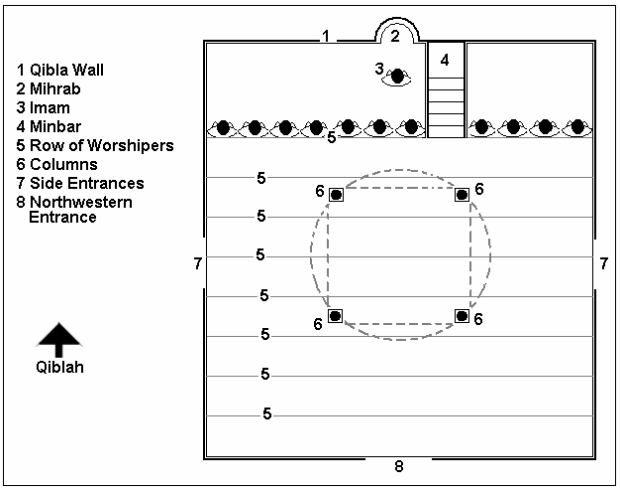


Figure 3.1: Ground Plan Showing the Elements of the Typical Mosque
(Source: Personal Schema, 2006)

Since all mosques should be directed towards the Holy City Mecca, many of them were incorrectly oriented during the construction phase, which is corrected after construction by rotating the niche. This moving leads to wasted areas especially in front of the mosque (**Figure 3.2**).

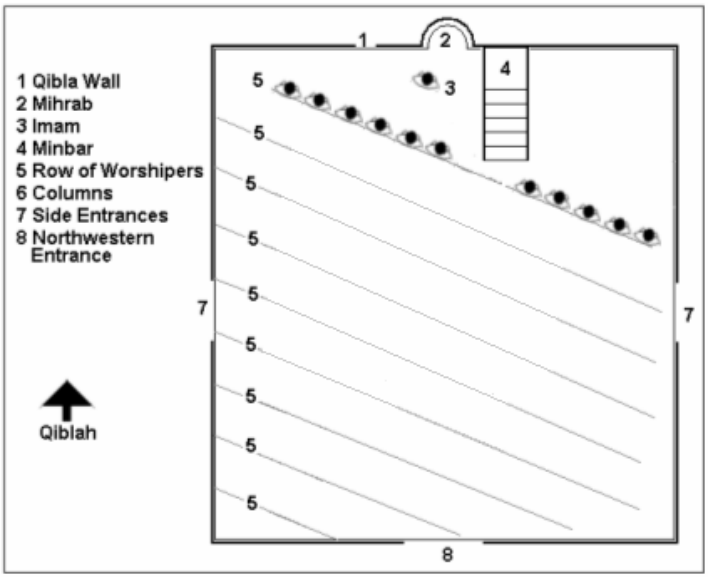


Figure 3.2: Incorrect Orientation Leading to Waste Space (Source: Personal Schema, 2006)

In congregation prayer worshipers stand close together shoulder-to-shoulder in parallel rows, facing the niche, which is oriented in the direction of the Kaaba in the Holy City of Mecca. Columns and some *minbar* practically create open spaces and interrupt rows of worshipers, which can interfere with what was prescribed by the Prophet.

During the time of the Prophet, the *Minbar* consisted of three steps only, but after that the number of steps increased interfering with the first and sometimes the second row of worshipers. The larger *Minbar,* the more is interruption of worshiper's rows.

Another prohibition is that no one is allowed to pass in front of a worshiper's (under the nose) within the area of prayer (in Arabic the *Musalla*). One of main reasons of passing through Musalla is moving people from and to the side entrances (**Figure 3.3, 3.4**).

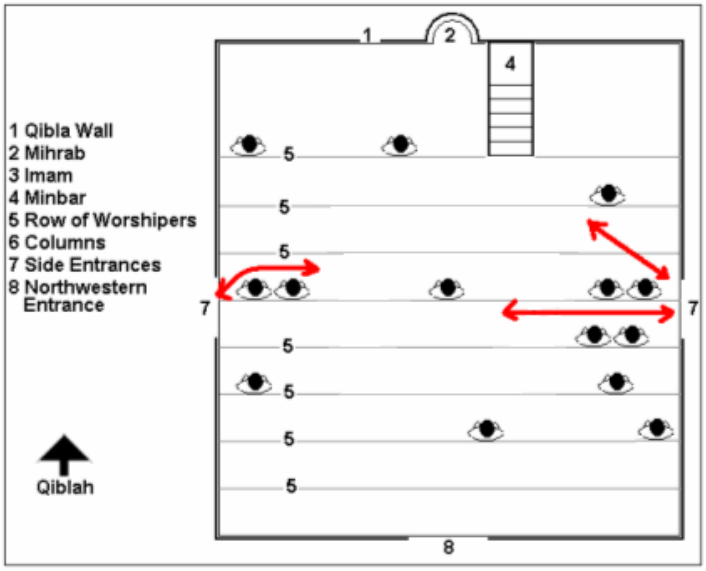


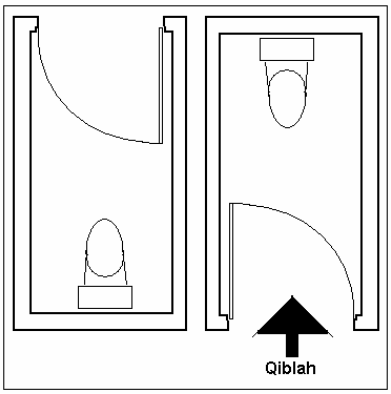
Figure 3.3: Moving of Some Persons under Nose of Other Worshipers
(Source: Personal Schema, 2006)

Figure 3.4: Entering and Exiting through the Side Entrances
(Source: Personal Archive, 2006)

The WC in the toilet should never be oriented in the same direction as the Holy City of Mecca (**Figure 3.5**). The W.C should be directed perpendicularly towards the direction of Holy City of Mecca (**Figure 3.6**).

It is important that, the *Minbar*'s size and location must not interrupt the congregational worshipers. Especially when it always disturbs the first row of worshipers which is in Islamic teaching considered as the privileged one. Also it

must be situated in the place in which the Imam should be as widely visible as he could be.



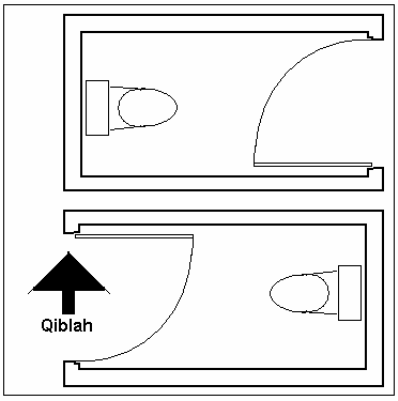


Figure 3.5 **Figure 3.6**

Figure 3.5: Orientations of the WCs toward Kaaba
(Source: Personal Schema, 2006)

Figure 3.6: Perpendicular Orientation of the WCs to the line of Qibla, the Recommended Orientations (Source: Personal Schema, 2006)

The location of the ablution facilities should be located in a suitable place not to prevent the desirable northern breeze from penetrating into the mosque (**Figure 3.7**).

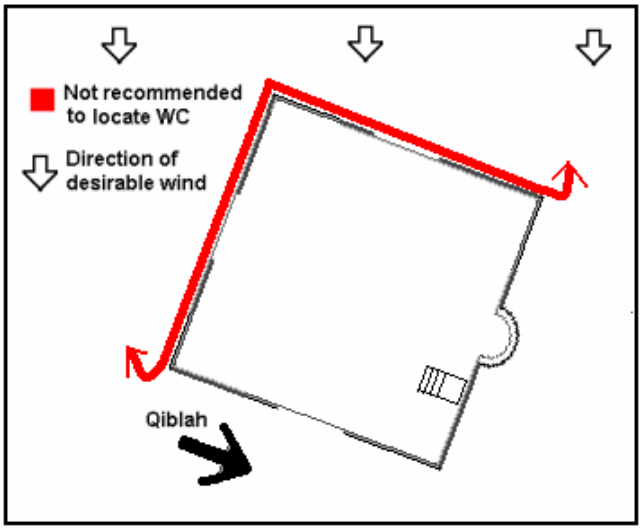


Figure 3.7 Not Recommended Place of ablution Facilities
(Source: Personal Schema, 2006)

The minaret should be designed and situated in such a way to catch the eye from many directions. According to the analysis given by Greenberg (1995: 180), in his book called the *Poetics of Cities; designing neighborhoods that work,* the minaret would affect more well if it were located on the corner of the block, and thus less able to affect whenever it is situated far from the corner. The corner location is an important factor in its success. Comparing the corner minaret and the mid block minaret, can be seen in **Figure 3.8**. The heavy lines indicate roughly the area of influence of each minaret's location. While the mid block minaret is visible to a far smaller amount of sidewalk, the corner one would have greater influence over wide range area. The corner is the best location for a minaret when the streets are in a regular grid. However, when the streets are curved then the best location is where the biggest number of visual lines intersects. In order to be most effective, the minaret must be located at the junction of the visual range (**Figure 3.9**).

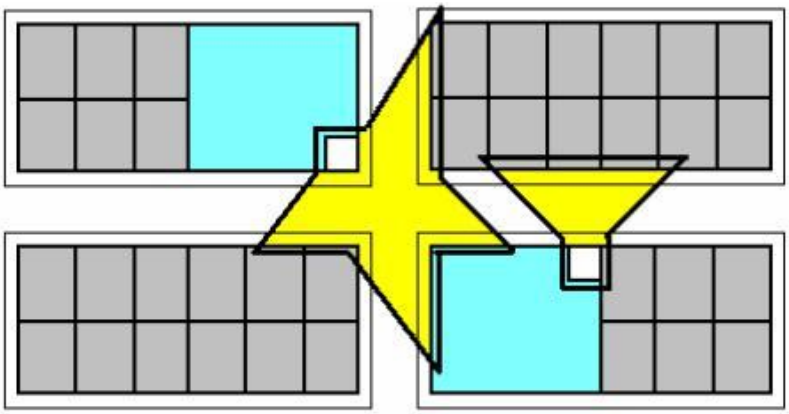


Figure 3.8: A Corner Minaret Affecting a Larger Area
than a Middle Block Minaret (Source: Greenberg, 1995: 180)

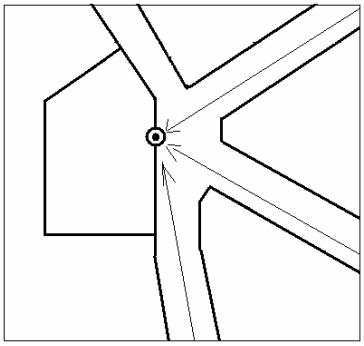


Figure 3.9: Best Location of the Minaret on the intersections of Visions Lines
(Source: Personal Schema, 2006)

Muslim art is non-figurative; it is an art of abstract ornamentation only, spiritual three-dimensional sculpture as well as pictorial representation have never been welcome in Islamic art; reproduction of human or animal figures are not allowed in the art of Muslims.

In addition to limited decorations, the principle of constructing mosques holds that of simplicity, avoiding overstatement of decorations that may drive away from the mental state of prayers or affect their reverence.

3.6 Some Trends of Architectural as Approaches in Mosque Design

In order to classify mosque architecture, architectural approaches which seem to be relevant to mosque design is tackled in general.

3.6.1 Regionalism and Vernacularism Approaches

Since rituals of the prayer are almost the same all around Islamic world, all the mosques share a number of common characteristics. The variety of mosque design is attributed to 'regionalism' by many scholars and practitioners of Islamic architecture. Differences between mosques from one region to another are mainly due to regional diversity of cultures and climates as explained by Frishman (1994). The same author gives Egypt and India as a clear example of different mosque architecture from one place to another one. Frishman notes that regardless using the same elements in most mosques, architectural languages greatly vary from one region to another:

> Despite the fact that architectural elements such as mihrab indicating the direction of Mecca, the courtyard and the minaret are common to most mosques every where, even though the architectural language in which these standard features are expressed often varies greatly from one region to another. (Frishman, 1994: 12)

Differences of mosque architecture from one place to another can be interpreted by regionalism approach as a suggestion made by Serageldin (1994) is:

> The consideration of mosque architecture can be broadened by reference to this view of regionalism in the world of Muslim societies. (Serageldin, 1994: 73)

The regionalism concept is defined by Serageldin (1994), as:

> It (regionalism) embraces the notion that any architectural work reflects the specifications of the region in which it is located. It accepts contextualism in the broader sense of including the physical aspects (site, climate, materials) as well as the socio-cultural context, stylistically and functionally. (Serageldin, 1994: 73)

According to Pirani (2002), regionalism conforms to Islam thought in aspect of respecting idiosyncrasy of each society:

> God acknowledge of colors, languages, culture, traditions, and histories. Thus Islamic respect diversity and teaches respect for diverse cultures and the maintenance of their architectural identity. In Islam diversity is strength and not a weakness. Hence the concept of architectural regionalism is very important. (Pirani, 2002: 33)

Regionalism is an approach which publicizes to benefit from methods, styles, techniques and traditions of local architecture. That is to produce architecture which respects the history, tradition and culture of its society, as well as, to achieve architecture which is compatible with its environmental characteristics. Regionalism movement adopts 'vernacularism' as a strategy which seeks to speak for a specific identity.

Vernacularism as Serageldin (1994) quoted from Turkish architect Suha Özkan:

> Vernacularism refers to architecture evolved over time in any region and is therefore limited to existing building types and scales. (Serageldin, 1994: 73)

Vernacular architecture is undertaken by local master builders. To paraphrase definition of 'vernacularism' by Salem 1993, "domestic architecture that built of local materials and technique which rely on long experience of county's workmen in using and forming the local materials. Elements and their structural forms are chosen to suit the available materials". (Salem, 1993: 175)

According to Serageldin (1994), unlike Roman civilization, mosque architecture reflects geographical variations. Meaning, architectural language of Islam is not imposed on molding into certain fashion regardless the sense of the place:

> Historically, the Muslim experience was very different from, say, that of Roman civilization its strictly defined architectural language which resulted in identically designed forts being planted in the deserts of Libya and the snows of northern Europe, regardless of climate-a

> situation akin to someone using a giant rubber stamp to define the boundaries of the cultural identity of the empire. (Serageldin, 1994: 72)

3.6.2 Modernism and Adaptive Modernism Approaches

Some of modern characteristics of mosque architecture are stated by As (2006: 56) as "a free plan, the continuity of elevations and the use of horizontal openings". Işıkyıldız, (2000: 71) has quoted from Serageldin that modernist approach attempts to break with tradition surrounding it. For Serageldin 'modernist approach', "places originality and use of modern vocabulary, form and technology at the fore". The adaptive modernist approach is defined as tending to incorporate traditional vocabulary into a modern approach. This violates one of International Modern Movement principles. The movement rejects use of 'traditional elements'. Common characteristics of this movement are stated by Peel, Powell and Garrett (1989: 38) as "cubist and abstract are and the 'machine aesthetic'-and the subsequent reinterpretation of spatial relationships and the rationalization of construction methods". Though this is a too simplistic approach to define modernism in architecture, for our concern regarding Libyan architecture, it may be found appropriate.

3.6.3 The Traditional Approach

The traditional approach is handled and engaged in by institutional architects whom vocational training is architecture. As Işikyildiz (2000: 70) has quoted from Serageldin; these architects espouse either the vernacular or historically relevant traditional architectural language. One of examples which can be given as believers of this approach is Post Modernism as a Movement. Perhaps with the difference stated by Peel et al.1989: 101; characteristics commonly associated with Post-Modernism; in particular historical references or classical orders are used in an exaggerated playful way. This movement is defined by Peel et al. (1989) as:

> The broadly used label for recent development in architecture (Post-Modernism) that have broken with the functional ideals of the Modern Movement shows an anti-purist delight in shapes for their own sake and in plundering any historicist style for motifs. Traditional materials like

> brick and timber are favored for exteriors, but up-to-date construction methods are not shunned. Mainstream Post-Modern architecture of the past two decades often features patterned brickwork, pitched roofs, turrets and round windows. (Peel, et al., 1989: 125)

3.6.4 Modernism, Post-Modernism and Mosque Architecture

While Modernism finds imitating and reproducing common architectural elements a kind of bankruptcy, Post-Modernism considers using of wellknown elements as a method to address and to connect with people. By using common elements according to Post-Modernism point of view, people get involved in their period and environmental architecture. Post-Modernism insist on producing architecture which can be perceived by the public. They demand back exaggerated ornamentations instead of 'purity'. Purity is primary principle of the International Modern Movement. Post-Modernism want to meet the wishes of the masses. They claim that the architecture should tell story with imagination, excitement and fun as it relates to the feelings of ordinary people. Post-Modernism denies the language of abstraction as can be seen one of the qualities of International Modern Movement. Abstraction, according to Post-Modernism does not reflect the feeling of the people because they find it a limited language to certain category of people who have their own parameters for beauty. Post-Modernism believes that what is considered beautiful for architects is not necessarily seen as beautiful by common man as well. Therefore, the Post-Modernism insist on using architectural language which can be understood by people and harmonize with them. They claim that history, heritage and local architecture are rich of architectural vocabulary and rich sources for selection. Peel, et al. (1989) summarizes disagreement of Post-Modernism over Modernism views:

> People were becoming bored and alienated by the severe cubic shapes and abstract geometry of Modernism. It was too uniform and lacked any sort of historical reference which could provide a feeling of continuity- an idea of place, time and, above all, identity. After this severity the public was ready for more variety, it wanted signs of individuality and even frivolity (Peel, et al., 1989: 100)

According to Frampton (1995), the common element of Modernism and Islamic architecture is abstraction which is rejected by Post-Modernism (Frampton, 1995: 99). However, certain elements of Modernism like glass tower which is a form of

abstraction, spurned upon by both Islamic and Post-Modernism but for different reasons. Big surface of glass is not suitable as a building material in extreme environment and there is also a concern for privacy in the Middle East culture (Salem, 1993: 157). The abstraction language as mentioned previously is not accepted for Post-Modernism. They discarded using big glass façade without decoration because it does not tell story and they consider such façade is tending to be bore. Moreover, Post-Modernism insists on using over decoration. However, the overstatement is rejected by Islamic rules because it is a kind of squander. Islamic architecture and Post-Modernism have common elements such as the use of historical symbols which are considered bankruptcy by International Modern Movement.

3.7 Some Islamic Architectural Features and Mosque Design

Some Islamic architectural features are studied in order to verify whether a certain pattern is followed in designing mosques or not.

3.7.1 'Concealed or Hidden Architecture' Feature

Frisman (1994) notes that the concealment of the interior of a building from outside view is an essential feature of Islamic architecture. Several researchers of Islamic architecture agree with this view, one of them for example is Grube (1978), who confirms this viewpoint, terming this feature of Islamic architecture as 'hidden architecture'. Grube notes, the Islamic architecture can be experienced only after entering the building and being seen from inside. The same author notes, "It is rare that an Islamic building can be understood, or even its priciple feature identified by its exterior" (Grube, 1978: 10)" he continues, "Hidden architecture may be considered the main and dominant form of truly Islamic architecture" (Grube, 1978: 11). Grube gives 'the Umayyad Great Mosque of Damascus as a typical example of the hidden architecture and he findes the Dome of the Rock in Jerusalem, a typical exception. However, Erzen (2004) disagrees this opinion. She comments, "this is not true of Ottoman buildings which, especially in Sinan's era assumed a special concern

for the exterior look and an openness to the exterior" (Erzen, 2004: 196). The same author shows how the relation between interior with exterior is in the case of the Ottoman mosqques:

> The Ottoman mosque became more extraverted and open to the exterior in Sinan's designs, as is evidenced in the use of galleries on side elevations, or in the elevations' expressiveness of the interior layout, in turn it became visually and experientially more continuous with the exterior. (Erzen, 2004:117)

Closely related to the concept of 'hidden architecture', Khalil agrees with this view, saying that one of the most important principles for some Muslims is the 'privacy' and the separation of men from women. More important the same author finds that the mosque in particularly and other worshiping places in generally must be secluded from the exterior world, because a worshiper has nothing to do with the clamorous of the streets. Closely related to this idea, Alexander et al. (1977) in 'Pattern 66' of *A Pattern Language*, suggests, the holy spaces should be reached through 'layers of access' which serves as a transition to between exterior and interior. According to many scholars like Wazeri (1998: 79) and Mikdashi (1995: 65-88), the relation between the interior of the mosque is not to the exterior, but it is to the sky directly through a courtyard and indirectly through a dome. They claim, "the dome arching over the believers like the spherical dome of the sky", because there is often a relationship between inside and outside, in one way or another, this relationship can be interpreted in many ways. According to Serageldin (1994):

> Any architectural work has both a functional and an artistic dimension. In the case of a mosque the prayer-hall must be suitable for its purpose in accordance with the liturgy of Islam, but the building itself must also 'speak' to the local community's identity. (Serageldin, 1994: 72)

According to Norberg-Schulz (1985), spaces of a building are connected to each other; accordingly, a space can not be evaluated separately. Norberg-Schulz defines the concept of the architectural space as three features:

- Direction; covering the collection of the space and the circulations.
- Identity; meaning the dominance of environmental tone (sense of the place)
- Memory; including observation of the dominant elements which have identity to compose the form.

These features are implied by Norberg-Schulz within three dimensions:

- topological dimension meaning the structure of the space

- morphological dimension meaning the composition of the form
- typological dimension meaning the judgment about quality

‘Sense of the place’ is defined by Serageldin (1994, 72) as “it can be given to particular locations and ‘character’ to an environment by local geographic, climatic and morphological features and social practices”.

In the same sequence, Alexander (1964) evaluates the architecture based on the fitness between the context and the form. He asserts that the form should fit the context, thereby; Alexander uses the form as internal coherence. The form signifies the structure of the interior space. As a result, the interior is compatible with the exterior of the building. According to Alexander, the term context means “external responsiveness”. The term “fitness” was used to express “acceptability”, which represents the relation between the form and the context. The design according to him should satisfy the expected demands. According to Salem (1993), the context should fit the structure and the form. He explains this concept by giving the example of the Dome of the Rock. It is built over a sacred rock. The circular form makes the rock situated in the center. It can be seen from any point inside the building. According to him this reveals success of the design. The form fits the function. Also the rock to be covered, a span more than 20 meters is needed. Therefore, the dome was chosen because it was suitable for this purpose. The dome was a good choice on a count of the materials and techniques of that period (Salem, 1993: 60). Another concept of the relation between the form and the context is stated by Unwin, 2003. His emphasis is the identification of a space by an exterior element. Where he uses the example of church towers which signifies the position of the alter, in order to show the strong relationship between the form and the context (Unwin, 2003: 87). Another point of view is stated by Erzen (2004, 54), is that she highlights the relationship between the form and the context of mosques in Turkey: mosques are with simple interior and complex exterior.

3.7.2 Non-axial Architectural Feature

According to many scholars, this feature is also seen as one of the essential characteristics of Islamic architecture. Grube notes that Islamic architecture can be described as a non-axial one. Moreover, he elaborates that inside of a mosque, one could feel lost if the *Mihrab* is not clear. Mikdashi confirms this description. He finds that the absence of the axial is an intended technique in Islamic architecture, because the non-axial cubic form of the Kaaba has influenced the design of a mosque. That is because non-axial does not give an importance for one point, but same importance is given for every part of the building. (Mikdashi, 1995: 42-43) The same author finds that the most important factors influencing the design of the mosque of the prophet in Medina city are: 1- Function 2- Denial of Islam for luxuries.3-the Islam rejection's of material representative through reducing the furniture inside the mosque. 4- Importance of the square shape (the base of the cube, the form of the Kaaba) this attributes the absence of axial. Mosques which were built later were affected by the square shape. Mikdashi gives example of some well known mosques which are square-shaped and subsequently characterized in absence of the axis, such as Kufa mosque (639 A.D.), Amr mosque, Cairo (642 A.D.), the Great mosque, Syria (744 A.D.) and Ahmad Ibn Tulun mosque, Cairo (879 A.D.). There is a view that adoption of axis by a *Mihrab* in the mosque architecture is indicative of improvement. Mikdashi refute that since, compared with the size of a *Qibla* wall, the size of a *mihrab* is small, and therefore it does not represent axial direction. (Mikdashi, 1995: 70) Methods used by Muslims in order to assert non-axial in a mosque are; 1- distribution of columns dividing the area into equal spaces 2- a dome 3- courtyard (*sahn*). Mikdashi explains that; the presence of a courtyard in the mosque of the Prophet to meet several needs such as functional needs; one of the activities that occur in the mosque was a meeting of people. A courtyard features in non-axial since it is open to the sky. (Mikdashi, 1995: 73-78)

3.7.3 The Feature of Calligraphy

Use of the 'word' in calligraphy which appears as the main subject of decoration is another feature which characterizes Islamic architecture. It is used widespread as an architectural expression. Indeed, some researchers write that the use of calligraphy in architectural ornamentation is invention which can be attributed to Islamic architecture. Grabar, 1987: 128 notes, "One of the fairly common motifs of mosque decoration was the writing of a variety of Arabic texts." He comments "by means of the art of calligraphy the word enters the building." According to Grabar, Muslims mostly Islamic religious passages are selected, particularly verses from the Qur'an. Quotations from the Prophet can also be found. Thus, this makes this art not merely consisting of decorations, but conveys significant meaning for Muslims, as the same author states:

> Arabic writing on monuments was thus more than decoration; it was a subject matter restricted to the Muslim or Muslim-ruled community and thereby expressing concrete meaning belonging to the members of the faith. It can appropriately be considered as an invention inspired by Islam. (Grabar, 1987, 128)

Closely related to this, Galdieri (2002) asserts:

> There is no other architecture in the world (including even Christian religious buildings, although they make extensive use of it) in which the word is materialized on such a large scale, with such richness and expressive variety (Galdieri, 2002, 112)

In addition, the same author continues, this art is necessary as a substitute for the prohibition of producing human images.

Thackston (1994) writes that calligraphy is the most common, if not the sole, in decorating mosques:

> From the earliest times the written word was used as the major, and some times the sole, type of mosque ornamentation, with a total absence of figural decoration, for the written word was never subject to prejudice of any kind; and in Islam, where the Qur'an is considered the actual, literal Word of God, copying quotations from it in the most beautiful fashion possible has always been considered meritorious. (Thackston, 1994, 44)

CHAPTER 4

ENVIRONMENTAL CONDITIONS AND THE HISTORY OF MOSQUE ARCHITECTURE IN LIBYA

In this section, the environmental conditions of Libya are studied to point out the extent of their effect on mosque architecture. Thus, it is through that we will be able to determine whether the environmental conditions were taken into account or not, during the design and construction of these mosques. In order to trace the development of the mosque architecture in Libya, the history of Libya in terms of political, cultural and social are studied.

4.1 Environmental Conditions of Libya

4.1.1 Location of Libya

Libya is a country in Northern Africa (**Figure 4.1**); its land extends nearly 1,760,000 square kilometers, which is bound on the north by the Mediterranean Sea, on the east by Egypt, and on the southeast by Sudan, and on the south by Chad, and on the southwest by Niger, and on the west by Algeria and Tunisia. Although Libya has the longest coastline of any country bordering the Mediterranean Sea at approximately 1750 kilometers, the majority of the land is a desert, known as the Sahara (**Figure 4.2**). There are several mountains located in the east and the west of Libya, known as the Green Mountains and the Western Mountains. Its main urban centers are Tripoli, which is the capital and the largest city, and Benghazi, which is the second city.

Figure 4.1 **Figure 4.2**

Figure 4.1: Location of Libya
(Source: http://worldatlas.com/webimage/countrys/africa/ly.htm)

Figure 4.2: Libya and the State Border (Source: http://worldatlas.com/webimage/countrys/africa/ly.htm)

4.1.2 Climate of Libya

The climate is mostly arid and hot, although the coastal climate is mild, and the winters are wet and cool. Throughout Libya, days are commonly warm or hot, and nights are cool. Libya has only two seasons; a mild winter from November to April and a hot summer from May to October. The only differences between the seasons are variations in daytime temperatures and changes in the prevailing winds. In the coastal regions, the prevailing climate is Mediterranean, which is characterized by cold, rainy winters and hot, dry summers. While in the inland desert areas, the climate is harsh and arid; during winter, the temperature is very low at nights and high during days. Prevailing winds blow from the south, known as the winds of "Ghibli" which is dry, hot and dust/sand-laden and is especially common in summer. Libya receives fewer than eighty millimeters of precipitation annually in most areas. Most rain falls along the coast. Some areas receive only traces of rainfall. Some areas will go years without rain and then experience sudden downpours that result in flash floods. Cities located on the coastal line have relatively high humidity during the summer, but breezes blowing from the Mediterranean Sea help to keep the moisture

down to a comfortable level. But during the rest of the year, humidity is low. When moving southward, the amount of precipitation decreases rapidly.

4.2 History of Mosque Architecture in Libya

Mosques begin to emerge with the entry of Islam into a city. They impart to cities their Islamic identification. And therefore, the conquered cities were changed entirely as stated by Elmahmudi (1996) in his book called *the Islamic Cities in Libya: Planning and Architecture*,

> The Arab Muslims conquered Libya and a new life, completely different began in this century. One of the fields, which began to change, was the faces of cities, which were transformed into Islamic lifestyle. After which the Muslims tried to build their own towns. The first city, which is very known, actually constructed by and for Muslims in North Africa was probably the Fustat in Egypt, and also Qairawan in the State of Africa. Geographical positions were situated between Fustat and Qairawan and the early Islamic cities in Libya were influenced by those two cities. In the Fatimid period, from the 4th until the 9th century, the cities in Libya took their place as a result of the development of an Islamic city. In general, in the plan and uniformity of the architectural features, and, for example, Sultan (today known as Surt) and Ajdabiya cities are representative of this type of city. (Elmahmudi, 1996: 25)

The history of architecture in Libya can be divided into six main periods or era. The significant Mosques built during each period will be classified according to its upper structure. The meaning of upper structure here is the way of constructing the roof of the mosque. However, the types of the upper structure can be classified under four main categories, which are common in Libya:

The first type of upper structure is defined by a simple form of flat roof without any kind of domes, with timber tie beams spanning between the walls. They were covered from top by a slight lay of certain substances of building materials to prevent water from penetrating into the interior (**Figure 4.3**).

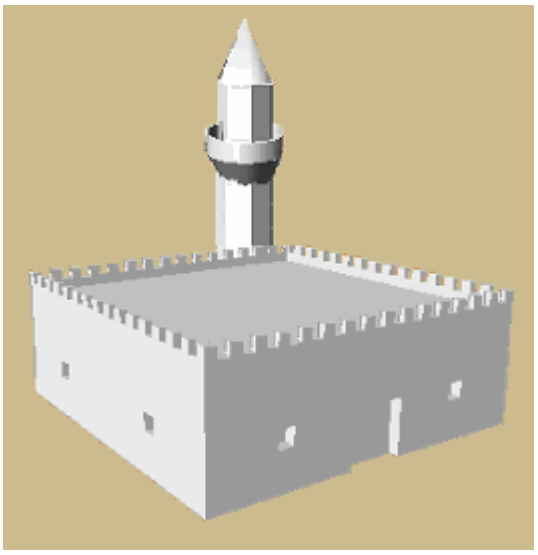


Figure 4.3: Mosque, Flat Roof

The second one is the vaulted roof type. It consists of a number of vaults each one supported by two rows of arches (**Figure 4.4**).

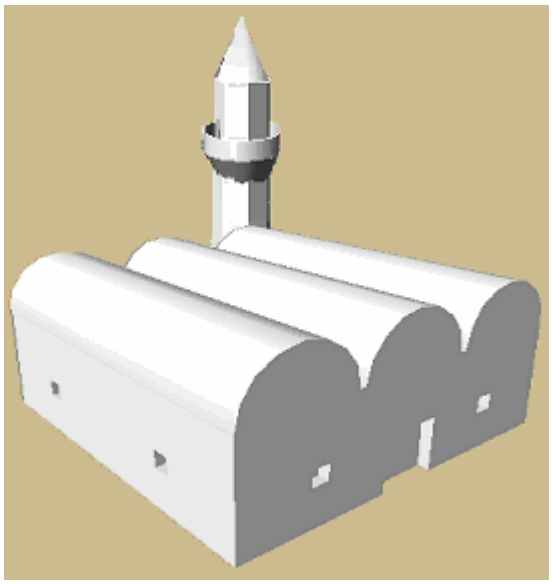


Figure 4.4: Mosque, Vaulted Roof

The third upper structure classification of mosque is the flat roof type one central dome which known as the central dome (**Figure 4.5**).

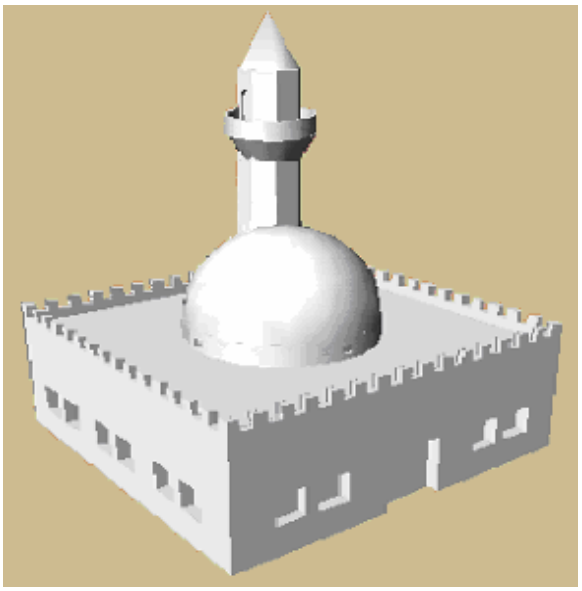


Figure 4.5: Mosque, One Central Dome

The fourth one is the upper structure of multiple adjoining domes. It consists of a number of domes; the mosque is divided into multi-domed bays of almost equal width though of varying height (**Figure 4.6**).

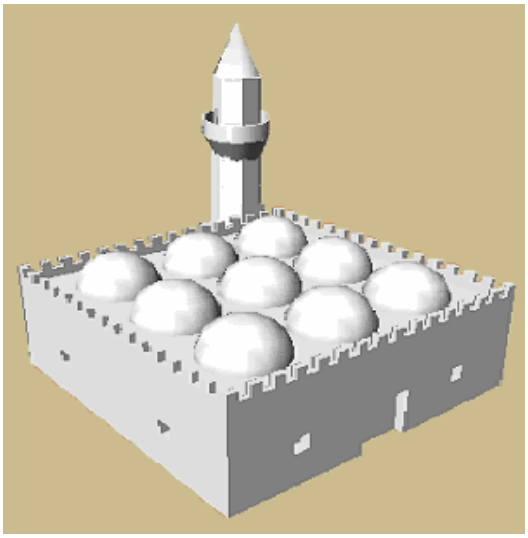


Figure 4.6: Mosque, Multiple Domes

These mosques as types with plan and construction variations can be found in the following historic eras with several examples. The first era is called the Era of Early

Islamic conquests. It lasted from 642 until 1510 A.D. Mosques in this period are characterized by simplistic designs and relies fully on using local materials, knowledge and technology. Unfortunately very few of the original mosques from this period remain as many have been extended, changed, modified and others fell into ruin. The best-known examples are the mosque of Sahnoun in Ajdabiya city, which will be discussed in some detail later on, Sultan City Mosque, Zawila Mosque, Mohammed Shan al-Shan Mosque (**Figure 4.7**) and al-Naga Mosque in Tripoli (**Figure 4.8**) whose upper structure has multiple adjoining domes and the Mosque of Abdullah bin Abi Alsarah in Ujlah oasis (**Figure 4.9**). The upper structure of the latter one also has multiple adjoining domes.

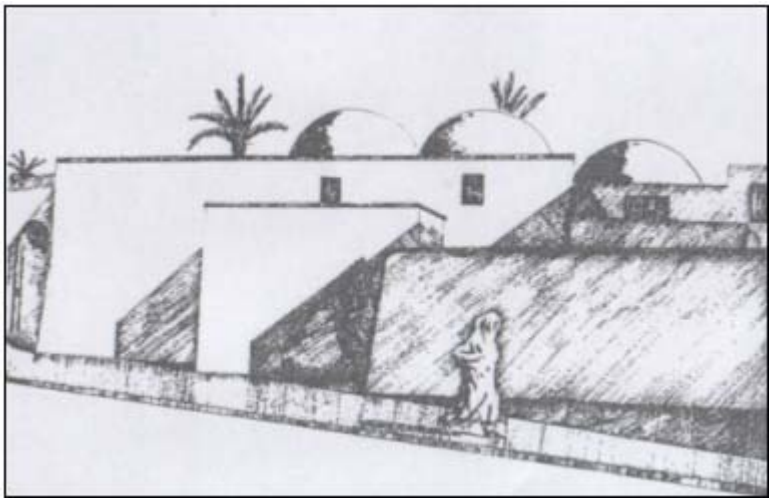


Figure 4.7: Mohammed Shan al-Shan Mosque
(Source: Amoura, 1993: 360)

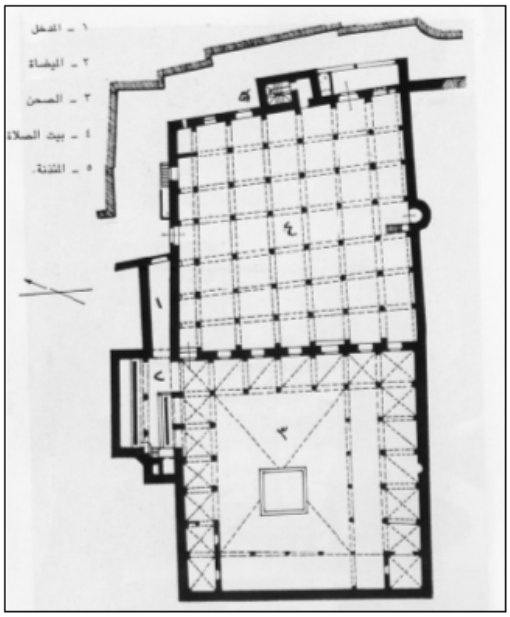


Figure 4.8: Al-Naga Mosque, Ground Plan, Tripoli (Source: Messana, 1981, P 260)

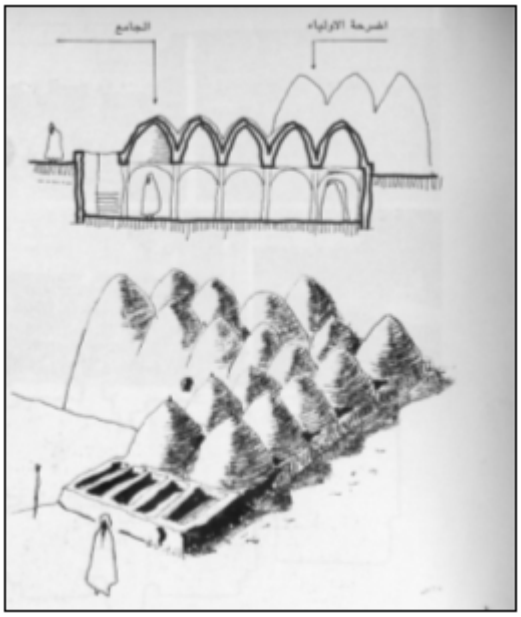


Figure 4.9: Abdullah bin Abi Alsarah Mosque, Ujlah (Source: Messana, 1981: 240)

Between 1510 and 1551 A.D., Tripoli was invaded by Spanish invaders and during this time no new significant mosques were built. On the contrary, some mosques were demolished while some of them were converted into churches such as al-Saray al-Hamra Mosque. During that period, an Ottoman commander called Murad Agha built only one mosque in Tripoli. Its upper structure is a vaulted roof type mosque (**Figure 4.10**). This mosque has a square-shaped minaret. However, it resembles a fortress rather than a mosque, probably to resist the Spaniards (Messana, 1981: 173)

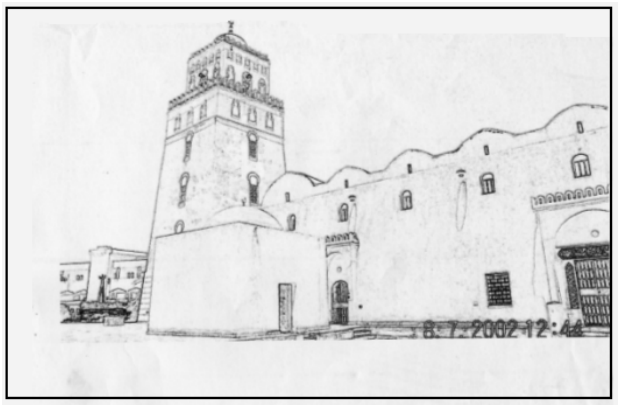


Figure 4.10: Murad Agha Mosque (Source: Bash-Imam, 2006)

The third period is the First Ottoman Era. It was between 1551 and 1711 A.D., and was characterized by a rapid expansion in the number of constructed mosques. During these period new building techniques, architecture styles and applied arts, such as wood inscription, emerged and were applied in the building of mosques (**Figure 4.11**). Some historians attributed the renaissance in the building of mosques to some governors competing to build mosques; perhaps to satisfy the local population. This can only be observed around Tripoli, the seat of power. This was not the case in the rest of the country. The best-known examples of this era are the Grand Mosque located in Derna (**Figure 4.12**), and two mosques located in Tripoli, Shaib al-Ain (**Figure 4.13**) and Darghout Mosques. The upper structure of all of them is multiple adjoining domes.

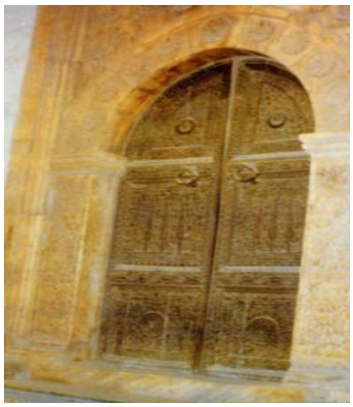


Figure 4.11: Wood Inscriptions, Shaib al-Ain Mosque, Tripoli
(Source: Bash-Imam, 2006)

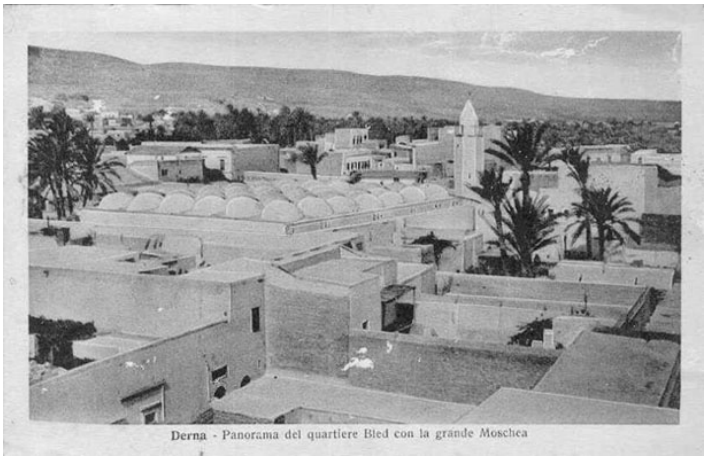


Figure 4.12: Derna Mosque
(Source: Archive of Usama SASSI)

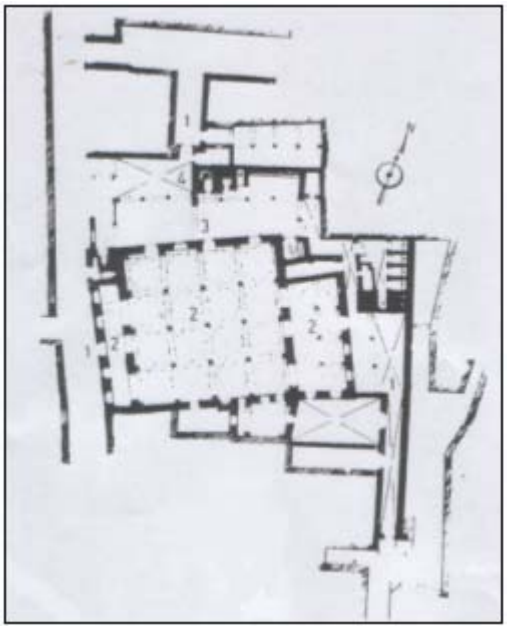


Figure 4.13: Shaib al-Ain Mosque, Ground Plan, Tripoli
(Source: Elmahmudi, 1996: 92)

The fourth era is called the Era of Qaramanlli; remained a period of time from 1711 until 1835. Mosques featured highly developed architecture combining Ottoman, European and local styles. Ornamentations emerged such as the use of marble and ceramic to decorate columns, minarets and the *Minbar*. This phenomenon was spread throughout the country due to the relative calm and a period of political stability. The best examples are Ahmed Basha Mosque (**Figure 4.14**) and Ghorgi mosque (**Figure 4.15, 4.16**). Their upper structure is multiple adjoining domes. Each of them has an attached octagonal minaret.

Figure 4.14: Ahmed Basha mosque, General View, Tripoli
(Source: Messana, 1981: 271)

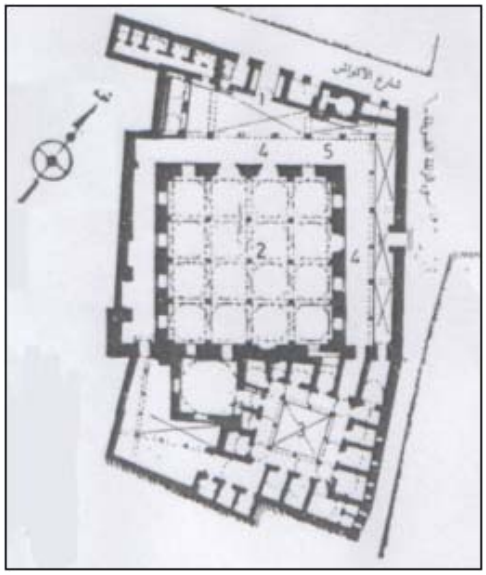


Figure 4.15: Ghorgi Mosque, Ground Plan, Tripoli (Source: Amoura, 1993: 388)

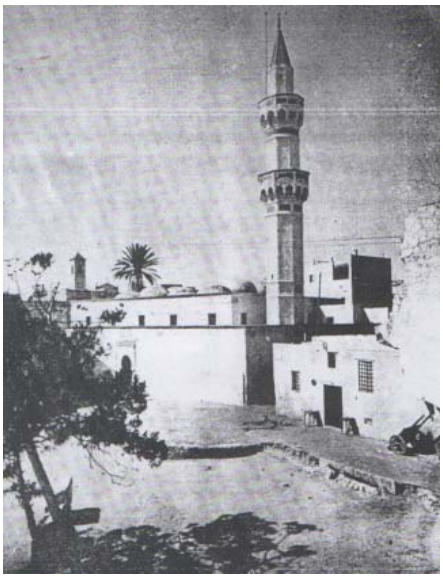


Figure 4.16: Ghorgi mosque, General View (Source: Messana, 1981: 273)

The fifth period is called the second Ottoman era. It lasted from 1835 to 1911. Since money was used to develop infrastructure like extending water wells and other municipal services, mosques were not constructed as in number and in excellence as of those of mosques built during period of the Qaramanlli. Mosques built during the second Ottoman period were constructed in a simple method of implementation. The al-Atique Mosque (**Figure 4.17**) built in Benghazi city is the most significant known example of this period. This mosque has a circular shaped minaret. Its upper structure consists of a flat roof with a central dome supported by four massive columns.

Figure 4.17: al-Atique Mosque, Benghazi (Source: Messana, 1981: 283)

The sixth era is called the period of Italian colonialism. Its duration started in the year 1911 and ended in 1943. Although the Italians, at the beginning of the invasion, had demolished many of the mosques, they later contributed to building mosques characterized with excellent architectural features. Mosques were designed by architects who took into consideration the land casting and needs (**Figure 4.18, 4.19**). Most mosques built during this period featured an upper structure consisting of a flat roof with a central dome.

Figure 4.18: Mosque built during the Italian Period
(Source: Bash-Imam, 2006)

Figure 4.19: Mosque built during the Italian Period
(Source: Bash-Imam, 2006)

4.3 Environmental Conditions of Ajdabiya City

4.3.1 Location and Character of Ajdabiya

Ajdabiya lies almost 18 kilometers from the Mediterranean Sea. It is located about 870 kilometers east of Tripoli City and approximately 160 kilometers south of Benghazi City (**Figure 4.20**). The region consists of low sand and gravel hills, with salt flats towards the sea. West of the city is the al-Sham marshlands; a salt flat 15 meters below sea level. Although some distance from the seashore, Ajdabiya has a number of wells, several of which are sweet and an altitude of only 10 meters. Ajdabiya is located on plain land almost halfway along the Libyan coastline. This situation makes it easy to reach directly from Tripoli in the west, leading to Tunisia, Benghazi in the north, Tobruk in the east, leading to Egypt, and the desert route leading south through to the oases of Ujla, Jalou and Kufra towards Central Africa. During ancient times, Ajdabiya gained significance because it was a crossroads for convoys departing from and to the south of Libya. The highest point in the urban area is +3.5 meters while the lowest point descends 3.0 meters below sea level. The area contains porous limestone, as there are several quarries. Since the topography of Ajdabiya is flat and the rate of rainfall is low, there are no valleys in the urban area. Ajdabiya is at present, the Region's largest city and acts as the administrative and commercial center for the surrounding settlements. The city's economy is based on commerce, quarrying and construction for the most part.

4.3.2 Climate of Ajdabiya City

Ajdabiya is influenced by both the Mediterranean in the north and the Sahara desert in the south (**Figure 4.21**). Its climate can be described as semi-arid. The northeast of the city gains a higher rate of rainfall, just allowing a certain amount of grazing and agriculture to take place. Between October and March, northwesterly winds bring rainfall which averages about 130 mm annually (**Figure 4.22**). During this period the average relative humidity is 60-70 % (**Figure 4.23**). Wind speeds are 13 to 25 knots for 20 % of the winter duration (**Figure 4.24**).

Summers are characterized by a hot, unstable Saharan air mass and dry southerly wind (**Figure 4.25**). This wind is known as "Ghibli". Maximum temperature during summer may rise to 47°C and the minimum rarely goes below 15°C (**Figure 4.26**).

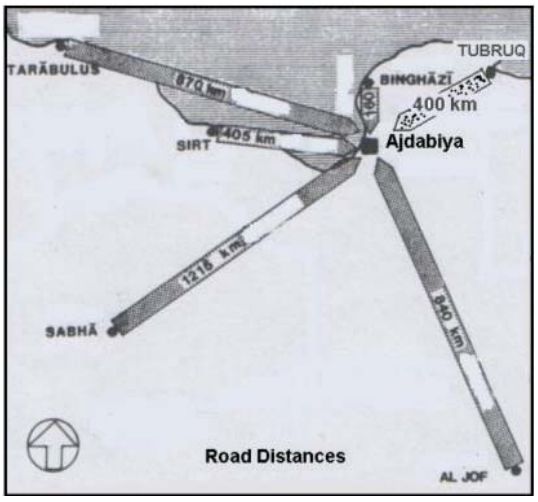


Figure 4.20: Road Distances
(Source: Finnmap Oy, 1984: 2-1)

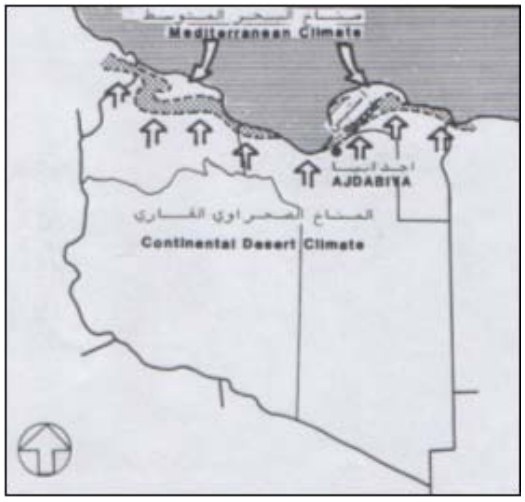


Figure 4.21: Climatic Influences
(Source: Finnmap Oy, 1984: 3-1)

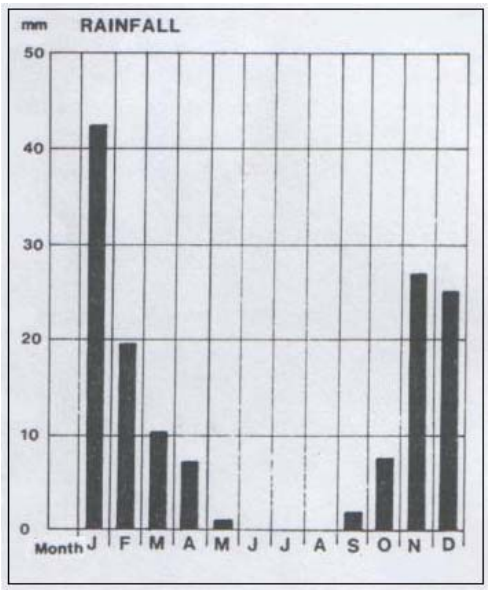


Figure 4.22: Rate of Monthly Rainfall

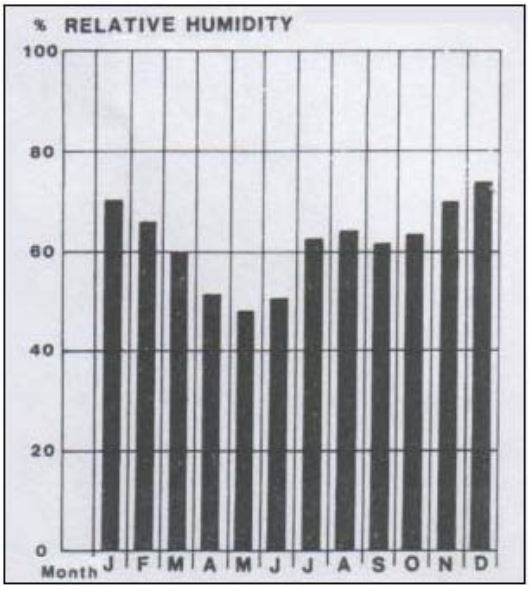
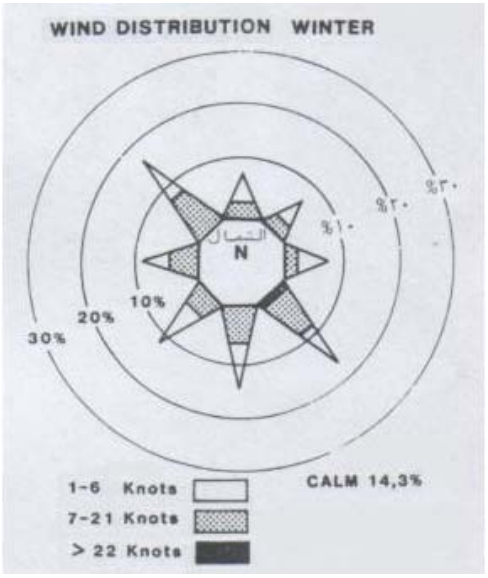


Figure 4.23: Relative Humidity
(Source: Finnmap Oy, 1984: 3-3)



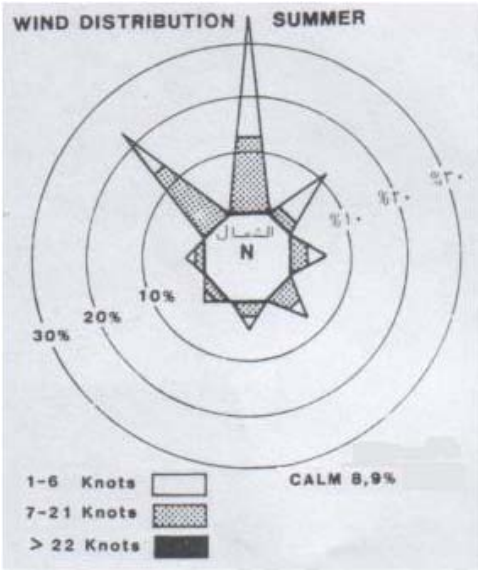


Figure 4.24: Wind Distributions during Winters **Figure 4.25**: Wind Distributions during Summers
(Source: Finnmap Oy, 1984: 3-3)

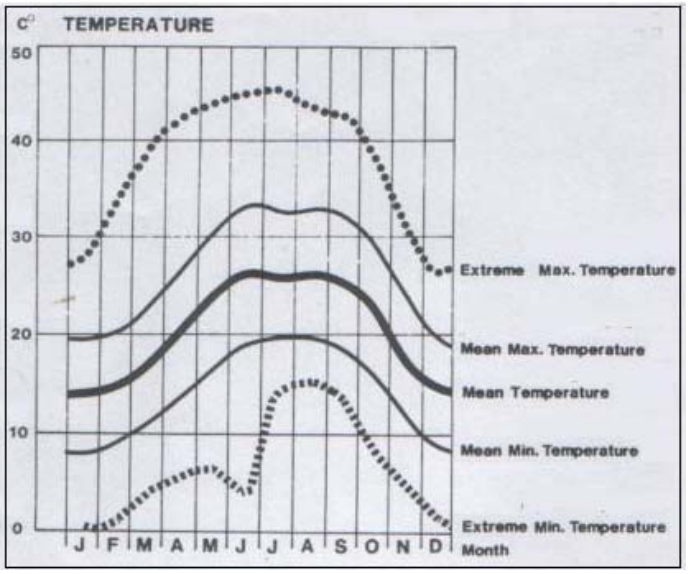


Figure 4.26: Temperature Distribution
(Source: Finnmap Oy, 1984: 3-3)

4.4 History of Urban Character and Mosque Architecture in Ajdabiya City

Within the area today called Ajdabiya city; the ancient civilizations established a military base to protect and control caravans routes; there was a Roman town known as Corniclanum founded for this purpose. Also in the Fatimid period, Ajdabiya was one of the major centers for commerce. The earliest record of occupation for

Ajdabiya is related to the Roman period in 52 A.D. It was the year of establishing a Corniclanum town. This was certified by an inscription discovered in the archeology of Ajdabiya. However, nothing remains of that archeology except for an inscription carved on rocks. After that period, historically Ajdabiya have not been mentioned as an urban life until the advent of the Fatimid Era by Caliph Abu al-Qasim Obeidallah, as stated by Blake, H., Hutt, A. and Witehouse, D. (1971) in a paper published in a review called *Libya Antique,* volume 8:

> According to al-Bakri both Tripoli and Ajdabiya were founded by Abu al-Qasim, who presumably also enlarged and fortied Sultan town, the mediaeval Surt, and may well have contributed building to al-Marj, the Medieval Barqa. Certainly all these cities flourished during the 4th and 5th/ 10th and 11th centuries and are of necessity closely linked in their situation and development, and were overrun at the same time by the invasion of the Beni Hilal and Beni Sulaim tribes in approximately 1050. In the case of Barqa, Ajdabiya and Surt urban life ceased with that invasion. (Blake et al. 1971: 106)

A part of the Ajdabiya town built by the Fatimid still survives. One of significant remains is a fortress-palace, which is located west of and close to the old Tripoli road in the center the contemporary city. The other one is located in the old cemetery, called Sidi Hasan, to the southeast of the contemporary city; within this area stands the remains of a large mosque. There is a description of this preserved mosque in *Libya Antique*, volume 8, pages 106-108. The description is attributed to an errant called al-Bakri who apparently saw it before it was demolished. He stated that this mosque was built by Abu al-Qasim (934-46 A.D.), which is known today as Sahnoun Mosque or Fatimid Mosque. The plan is rectangular, with the courtyard surrounded on all sides by arcaded a *Riwak*; the *Sahn* measured 20 by 17.2 meters and the building about 31 by 31 meters (**Figure 4.27**). The *Riwak* and the *Sahn* were paved with limestone slabs. *Mihrab* was crowned with a horseshoe arch and decorated with a semi-circular niche. The main entrance was in the center of the northwest wall. The minaret was on the northern side. It was octagonal in form with sides about 1.48 by 1.48 meters resting on a square base with sides about 3.6 meters and was entered via external stairs. Some of the masonry was re-used Roman stones; since Roman inscriptions still remain on the site. Also there are blocks incised with Arabic inscriptions. All supporters, columns, the pillars of the main entrance and the square basement of the minaret were constructed of massive lime stone blocks. The outer walls were built of mud-brick. Lime and clay were used as mortar. (Blake et al, 1971: 105-123)

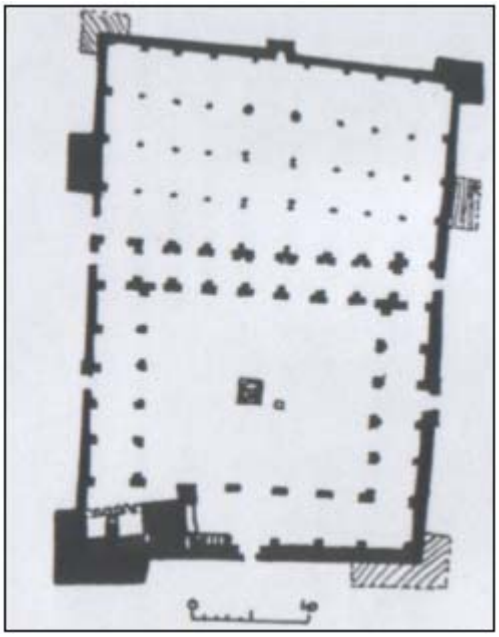


Figure 4.27: The Sahnoun Mosque or Fatimid Mosque, Ground Plan, Ajdabiya
(Source: Elmahmudi, 1996: 110)

Figure 4.28 depicts the Sahnoun mosque as was imagined in 1824 AD by French errant called George Pashu. However, this picture dissent the ruins (**figure 4.29**) and the mentioned descriptions. For instance, Pashu suggested that walls were built of stone which is durable. However, only the remained are the columns and the basement of the minaret. This is indicative of constructing the rest of the building of ephemeral materials such as mud. **Figure 4.30** is axonometric as pictured by the author based on the descriptions which are stated by Blake et al. (1971) in a paper published in a review called *Libya Antique,* volume 8. The type of the upper structure of the Sahnoun mosque has not been mentioned. Since the upper structure of mosques built during that period was multiple domes, accordingly, the assumed upper structure of the Sahnoun mosque is a flat roof and multiple domes.

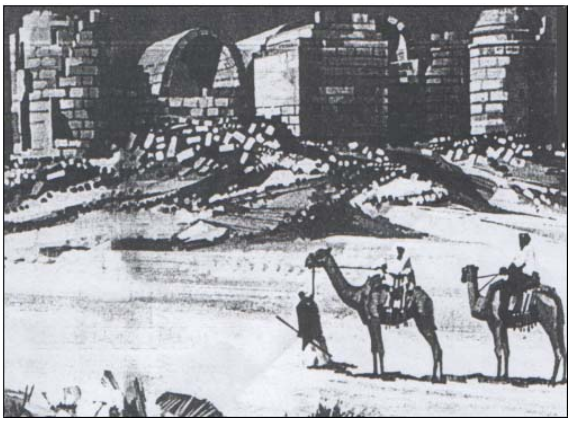


Figure 4.28: The Sahnoun Mosque or Fatimid Mosque, as Imagined by Pashu, 1824 (Source: al-Su'ayty, 2003: 35)

Figure 4.29: The Sahnoun Mosque or Fatimid Mosque, Ruins (Source: Blake et al., 1971)

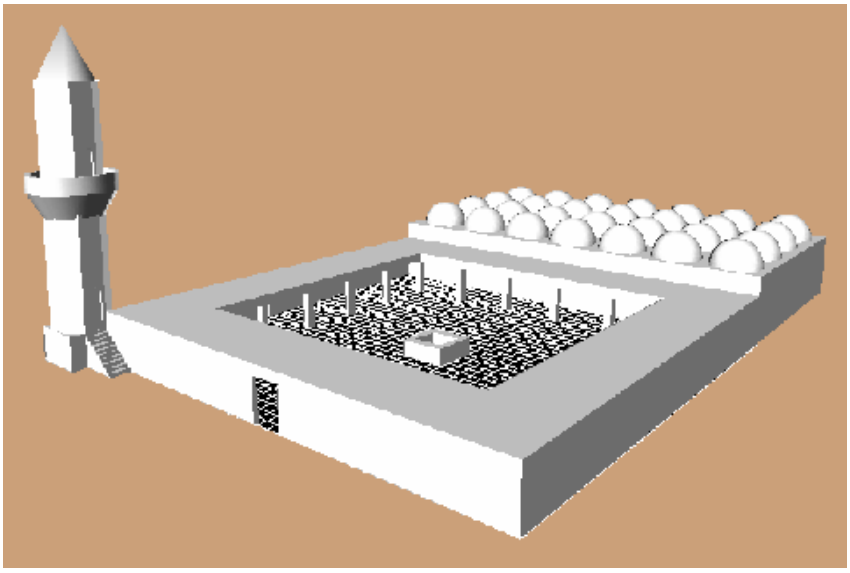


Figure 4.30: The Sahnoun Mosque or Fatimid Mosque, as Pictured by the Author, 2006

CHAPTER 5

PHYSICAL PROPERTIES AND FUNCTIONAL ANALYSIS OF THE MOSQUES IN AJDABIYA CITY

5.1 Mosques in Ajdabiya City: An Approach for Interpretation

There are forty-seven mosques located in Ajdabiya city. All of them have been studied and information is gathered in a catalogue. In order to assess the performance of these mosques, they were visited in site, during the (months) of 2005. Information about their physical properties was collected from the institution responsible for the mosques in Libya. It is called *al-Waqfs institution*. Experiencing the building and taking photos are part of the data collection. To clarify the performance of each mosque, factors such as the orientation of the mosque, the *Minbar*'s location, columns, the side entrances, domes if any, minarets if any, protection from the elements (sun and rain), shelves or cupboard for storing things; especially storage of shoes, location and orientation of ablution facilities and workmanship of the construction, were all studied. Also a map showing all the mosques located in Ajdabiya and the site plan of each mosque was prepared by the author, using aerial photos made by Finnmap Oy, dated 1984. The plans are not drawn to scale, because they are derived from scanned drawings.

In order to trace the development of mosques within the city, they are arranged in chronological order in the catalogue. On the site plan, to distinguish the mosque from the other surrounding buildings, mosques are colored as shown in **Figure 5.1**.

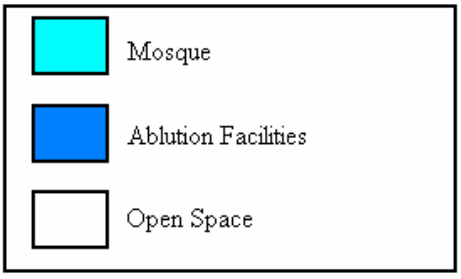


Figure 5.1: Legends of the Site Plans

The definitions of densities stated in the following catalogue are:
Low Density: These areas consist of detached or semi-detached units of some 120 m² gross floor area with a plot size of 360 m² and building height limited to 2 storeys. The number of housing units is less than 20 units per one hectare.

Low-Medium Density: Semi-detached, or terraced, dwellings would form the low-medium density residential areas. These units have a gross floor area of approximately 110 m² and a plot size of 300 m². Buildings do not exceed 2 storeys. The number of housing units is between 21 and 30 units per one hectare.

Medium Density: These areas consist of terraced dwellings or apartments with a plot size of 180 m² and a gross floor area of some 90 m². The maximum building height would be 4 storeys. The number of flats is more than 30 per one hectare.

According to Conway and Roenisch 1994: 73, building construction can be divided basically into two types;

1- Frame construction.
2- Load bearing wall construction.

1- Frame construction, it is the frame that carries the weight of the building. Frames may be of wood, as in medieval timber frame houses and barns, or of iron, steel or reinforced concrete.

2- Load bearing walls, as their name implies, are carry their own weight and also the weight of the rest of the building. Load bearing walls can be of masonry, wooden logs (log cabins) or a number of other materials such as mud or blocks.

Figure 5.2

Distribution of Mosques in Ajdabiya City

Mosque's Number	Name of the Mosque	Construction Date
1	Gar Hirra	1946
2	al-Ansar	1950
3	Ammouria	1960
4	Ghazwat al-Khandak	1960
5	al-Fatah	1964
6	Ejnadeen	1965
7	al-Karama	1965
8	Ghazwat Honain	1966
9	al-Esra	1975
10	Um al-Kurra	1975
11	Taboak	1975
12	Khalid Ibn al-Walid	1975
13	al-Atique	1975
14	Ghazwat Ohed	1975
15	al-Qadesya	1975
16	al-Yarmoak	1975
17	Ghazwat Budder	1978
18	Ain Jaloot	1979
19	Bay'at al-Radwan	1980
20	al-Salam	1985
21	Hetten	1985
22	Balat al-Shoha'da	1986
23	al-Taneem	1986
24	Ko'ba	1986
25	al-Quds	1986
26	al-Baet al-Mamour	1987
27	Bab al-Ray'an	1988
28	al-Bay'yan	1990
29	Jabal al-Rahma	1990
30	Jabal Arafat	1990
31	al-Safa	1990
32	al-Hijrah	1990
33	al-Asma al-Hossna	1991
34	Bab al-Salam	1992
35	Bab al-Maruwa	1994
36	al-Bakaih	1995
37	al-Jehad	1995
38	al-Madinah	1995
39	That al-Sowwari	1996
40	al-Hassan wa al-Husain	2000
41	al-Shorooque	2000
42	Ibrahim al-Khaleel	2002
43	al-Er'wa al-Wethka	2003
44	That al-Re'ka	2004
45	al-Falujah	2004
46	al-Thora al-Deania	2005
47	Omar al-Mukhtar	2005

P Fatimid Fortress Palace

M Fatimid Mosque (934 - 46)
"Sahnoun Mosque"

5.1.1 Gar Hirra Mosque

Location: al-Mahla Ash'Sharghyia
Designed by: Master builder
Date of Completion: 1946
Finance Sponsored by: Local sources
Craftsmanship: Libyan
Existing Elements: *Minbar* and *Mihrab*

Figure 5.3: Site Plan of Gar Hirra Mosque

Urban Context: The mosque is located near the center of the city. The building is not fenced. The place is featured in high population density.

Plan Arrangement and Elements: The building consists of a prayer hall, ablution facilities and an annex. They form one mass (**Figure 5.3**). The prayer hall is oriented according to the road direction resulting sheered away from the *Qibla* direction. The prayer rows are not parallel to the *Qibla* wall, which means that there is a wasted area to the left of the *Minbar*. Although the *Minbar* is moveable, it disrupts the first row. Also the columns positioned within the prayer hall break the next prayer rows. There is an unusual door at the front of the mosque, which adversely affect the first row (**Figure 5.4**).

Section Design: Although the ceiling height of the prayer hall is about 5 meters and there are small windows distributed in the second storey level, one can feel that the level of ventilation and illumination is not adequate. Orientation of the WC faces towards the *Qibla*. The walls are not ornamented.

Elevation Characteristics: Although there is a small minaret, the building looks like an old house rather than a mosque. The decoration of the mosque parapet

(crenellated castle parapet) expresses the Libyan traditions. The entrance does not dominate and is not covered to be a shelter from the sun and rain (**Figure 5.5**).

Building Materials and Methods of Construction: Basically based on load bearing wall construction.

Figure 5.4: Interior Space, Gar Hirra Mosque

Figure 5.5: Exterior View, Gar Hirra Mosque

Condition of the building: To keep the mosque in good condition, there is recognizable care for its maintenance.

5.1.2 Al-Ansar Mosque

Location: al-Mahla Ash'Sharghyia
Designed by: Master builder
Date of Completion: 1950
Finance Sponsored by: Local sources
Craftsmanship: Libyan
Existing Elements: *Minbar* and *Mihrab*

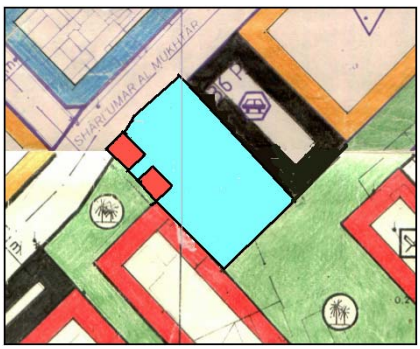


Figure 5.6: Site Plan of al-Ansar Mosque

Urban Context: The mosque is located between commercial area and residential area. It is not fenced. The surrounded area is crowded. There is no exterior space to act as transition space between the turmoil of outside and the serenity of the mosque (**Figure 5.6**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They form only one mass. At the center of the mosque some of the prayer rows are disturbed by columns, which hold up the cubical structure constructed instead of a dome. The cubical structure is not utilized to ventilate or to illuminate the mosque naturally, but as a form.

Section Design: The prayer hall ceiling is about 5 meters. One can notice that the prayer hall is poorly illuminated. Lights are lit during the daytime (**Figure 5.7**). It is ventilated by means of air conditioners and fans. Orientation of the WCs does not face towards the *Qibla*. The walls are not ornamented.

Elevation Characteristics: There is one side entrance. The main entrance is not covered to be a shelter from the sun and rain. It is not dominant. The building has no symbolic features. It looks like an old house; there is no sign that distinguishes it as a mosque. (**Figure 5.8**)

Figure 5.7: al-Ansar Mosque, Artificial Illumination during the Daytime Hours

Figure 5.8: An Outdoor View of al-Ansar Mosque

Building Materials and Methods of Construction: Basically built in load bearing wall construction.

Condition of the building: To keep the mosque in good condition, there is recognizable care for its maintenance.

5.1.3 Ammouria Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder

Date of Completion: 1960

Finance Sponsored by: Local sources

Craftsmanship: Libyan

Existing Elements: *Minbar*, *Mihrab* and Minaret

Figure5.9: Site Plan of Ammouria Mosque

Urban Context: The mosque is located in a residential area which has a low population density. It is not fenced. There is no outdoor space to serve as transition space (**Figure 5.9**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They shape only one mass. The size cross section and amount of columns are more than necessary (**Figure 5.10**). Moreover, they are not orderly arranged, resulting in a negative impact on the space of prayer. The entrance disturbs the worshipers.

Section Design: Although the height of the prayer hall ceiling is about 5.5 meters and there are small windows distributed in the second storey level, one can experience that the level of ventilation and illumination is not adequate. The walls are not ornamented.

Elevation Characteristics: There are extensions which are different from the original building, resulting in asymmetrical sizes and forms in windows and columns. The facade lacks unity, harmony, or any concern. The arrangement is chaotic with weak relationships among the elements. The parapet, windows and

arches have been added in random fashion. The archways and the windows have nothing in common (**Figure 5.11**).

Building Materials and Methods of Construction: The structure of the original building is based on load bearing wall construction, while the structure of the extensions is frame construction in reinforced concrete. While the original building was built by Libyan labors, the extension one was constructed by foreign workers.

Figure 5.10: Ammouria Mosque, Poor Illumination, Improper Size and Form of Columns

Figure 5.11: Ammouria Mosque, an outdoor View

Condition of the Building: To keep the mosque in good condition, there is observable care for its maintenance.

5.1.4 Ghazwat al-Khandak Mosque

Location: al-Mahla al-Gharbyia
Designed by: Master builder
Date of Completion: 1960
Finance Sponsored by: Local sources
Craftsmanship: Libyan
Existing Elements: *Minbar*, *Mihrab* and Minaret

Figure 5.12: Site Plan of Ghazwat al-Khandak Mosque

Urban Context: The mosque is located in residential area which has a low-medium population density. The building is fenced. There is exterior open space which serves as transition area from secular discord to the tranquility of the mosque.

Plan Arrangement and Elements: The building consists of two scattered parts. A prayer hall separated from the other part which consists of ablution facilities and annex used for teaching the Qur'an. They are located in a way which deprives the mosque from the desirable breeze. The position of the minaret is not in the corner which makes the minaret less dominant from the different approaches towards the mosque. (**Figure 5.12**)

Section Design: Height of the prayer hall ceiling is about 4.5 meters. At the center of the mosque some of the prayer rows are disturbed by columns, which hold up the cubical structure that was constructed instead of a dome. The cubical structure is not utilized to ventilate or to illuminate the mosque naturally. One can experience that the interior space is badly lit. Columns and misdirection toward Mecca detract from the area of the prayer. The walls are not ornamented (**Figure 5.13**).

Elevation Characteristics: Although the parapet of the facade expresses Libyan tradition features, the arrangement of the elements of the façade is chaotic with weak relationships. The building does not appear to be one unit, because each part is different from the next (**Figure 5.14, 5.15**).

Figure 5.13: Ghazwat al-Khandak Mosque, Incorrect Orientation

Figure 5.14: Ghazwat al-Khandak Mosque, an Exterior View

Condition of the Building: To keep the mosque in good condition, there is remarkable care for its maintenance.

Figure 5.15: Ghazwat al-Khandak Mosque,
Ablution Facilities Form Different from the Mosque

Building Materials and Methods of Construction: The structure of the original building is based on load bearing wall construction, while the structure of the extensions is frame construction with reinforced concrete. While the original building was built by Libyan labors, the extension one was constructed by foreign labor force.

5.1.5 Al-Fatah Mosque

Location: al-Mahla al-Gharbyia
Designed by: Master builder
Date of Completion: 1964
Finance Sponsored by: Local sources
Craftsmanship: Libyan
Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

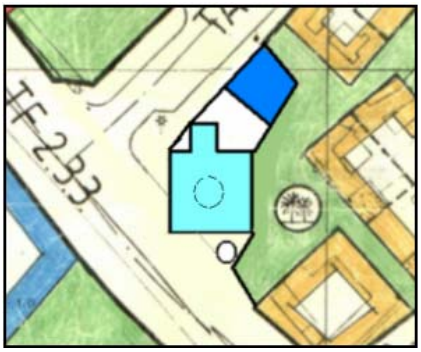


Figure 5.16: Al-Fatah Mosque Site Plan

Urban Context: The mosque is located between commercial area and residential area. The surrounded area is crowded. The interior space is fenced but the prayer hall is not fenced. There is no exterior space to act as transition space between the hustle

and bustle of the market place and the tranquility of the mosque. Moreover, a part of the building is in the street (**Figure 5.16, 5.17**).

Plan Arrangement and Elements: The building consists of two separated parts. One is a prayer hall and the other part is ablution facilities. The affect of the minaret is not optimum because its position is not in the corner of the block which makes it less capture the eyes from different approaches towards the mosque. Using of acute angles that can result in uncomfortable and unmanageable corners or confined unusable space.

Section Design: The prayer hall ceiling is 4.5 meters. At the center of the mosque some of the prayer rows are disturbed by columns, which hold up a dome. Probably because the dome is too shallow, it is not utilized to ventilate or to illuminate the mosque naturally. One gets the impression that the interior space is poorly lit. There is only one side entrance. The walls are not ornamented.

Elevation Characteristics: The parapet of the building (crenellated castle parapet) expresses Libyan tradition features. However, the main entrance is not covered to be a shelter from sun and rain, exacerbated by accessing the entrance directly from the road.

Figure 5.17: Al-Fatah Mosque, An exterior View

Building Materials and Construction Method: The structure of the original building is mainly load bearing wall construction. However, the structure of the

extensions is based on frame construction. The original building was built by Libyan labors, but the extensions and modifications were executed by foreigner.

Condition of the Building: To keep the mosque in good condition, there is observable care for its maintenance.

5.1.6 Ejnadeen Mosque

Location: al-Mahla Ash'Sharghyia
Designed by: Master builder
Date of Completion: 1965
Finance Sponsored by: Domestic
Craftsmanship: Libyan
Existing Elements: *Minbar* and *Mihrab*

Figure 5.18: Ejnadeen Mosque, Site Plan

Urban Context: The mosque is located in a low-medium density residential area. It is not fenced. There is no outdoor area to serve as transition space between the noisiness of the street and the calmness of the mosque (**Figure 5.18**).

Plan Arrangement and Elements: The building is only one mass which consists of two parts. One is a prayer hall and the other part is ablution facilities. Columns are very massive and dispensable. They adversely disturb the prayer space (**Figure 5.19**). The first prayer row is badly affected by the *minbar* and the side entrance located in the front of the mosque.

Section Design: The prayer hall ceiling is about 4.5 meters. One can experience that, the prayer hall is badly lit. Openings are few and small probably due to hot climate or/and load bearing walls. The walls are not ornamented.

Elevation Characteristics: Although there was attempt to make the parapet of the building to express Libyan tradition features, the mosque appears as a house rather than a mosque. The composition lacks unity, harmony, or interest. The main entrance

is not covered to be a shelter from sun and rain; moreover it is accessed directly from the road.

Building Materials and Construction Method: The structure of the original building is based on load bearing wall construction, but the structure of the extensions is frame construction made up of mainly reinforced concrete. While the original building was built by Libyan labors, the extensions and modifications were executed by foreigners. Design and workmanship are poor due to absence of unity and absence of harmony. Bad finishing of the building indicates the weakness of the workmanship (**Figure 5.20**).

Condition of the Building: It is noted that people are interested in making the mosque remain in the best possible condition.

Figure 5.19: Ejnadeen Mosque, Massive Columns, Poor Illumination

Figure 5.20: Ejnadeen Mosque, an Exterior View

5.1.7 Al-Karama Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder

Date of Completion: 1965

Finance Sponsored by: Local sources

Craftsmanship: Libyan

Existing Elements: *Minbar*, *Mihrab* and Minaret

Figure 5.21: Al-Karama Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. There is small outdoor area which may serve as buffer zone between noisiness of streets and calmness of the mosque. The main entrance of the building is fenced.

Plan Arrangement and Elements: The building is only one mass which consists of two parts. One is the prayer hall and the other part is ablution facilities. The minaret is not located at the corner of the block so that it can be seen only from a close distance to the mosque. The prayer hall is deprived from the desirable breeze due to northern-west extension; moreover, it lacks the "recommended" entrance located on the opposite side of the *Qibla* wall (**Figure 5.21**). The interior of the mosque is disturbed by non uniform shaped-columns. Some of sections are circular while others are rectangular. A large area of the prayer space has been lost functionally because of the error in determining the correct direction of the *Qibla* before the start of construction (**Figure 5.22**).

Section Design: Height of the prayer hall ceiling is about 4.5 meters. One can experience that, the prayer hall is badly lit. Only two entrances on the two sides of the building are available. They sometimes create congestion in front of some worshipers. The walls are not ornamented.

Elevation Characteristics: It can be noticed that the parapet of the building is straight, not representing convention of Libyan building tradition. One gets the impression that the designer does not pay attention to proportion. The façade is very huge when compared with few small windows (solids/voids) (**Figure 5.23**).

Figure 5.22: Al-Karama Mosque, Incorrect Orientation

Figure 5.23: Al-Karama Mosque, an Exterior View

Building Materials and Construction Method: The structure of the original building is based on load bearing wall construction, but the extensions are of reinforced concrete frame. The materials mainly are of (reinforced) concrete. While the original building was built by Libyan labors, the extensions and modifications were executed by foreigners.

Condition of the Building: To keep the mosque in good condition, there is observable care for its maintenance.

5.1.8 Ghazwat Honain Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder

Date of Completion: 1966

Finance Sponsored by: Local sources

Craftsmanship: Libyan

Existing Elements: *Minbar*, *Mihrab* and Minaret

Figure 5.24: Ghazwat Honain Mosque, Minaret inside the Prayer hall

Urban Context: The mosque is located in a medium density residential area. There is outdoor area to act as a transition zone between the noisy streets and the serenity of the mosque. It is fenced.

Plan Arrangement and Elements: The building consists of two separate parts; one is a prayer hall and the other part is ablution facilities. Since the location of the minaret is not in the corner of the block, its importance as a focal point is diminished. Moreover, inexplicably, the minaret is positioned inside the prayer space. It occupies the area of the first two prayer rows (**Figure 5.24**). However, according to Islamic rules, the first row is the most desired one. The *minbar*, columns and the minaret

disturb the prayer space. When the Imam stands on the minbar, he is invisible for part of the first prayer rows.

Section Design: Height of the prayer hall ceiling is about 5 meters. One can experience that the interior space of the mosque is poorly illuminated. The walls are not ornamented (**Figure 5.25**).

Elevation Characteristics: It can be noticed that the parapet of the building is straight not in line with conventional Libyan tradition. One gets the impression that the designer does not pay attention to proportions as to enhance unity. The extended part of the mosque differs totally from the old one (**Figure 5.26**).

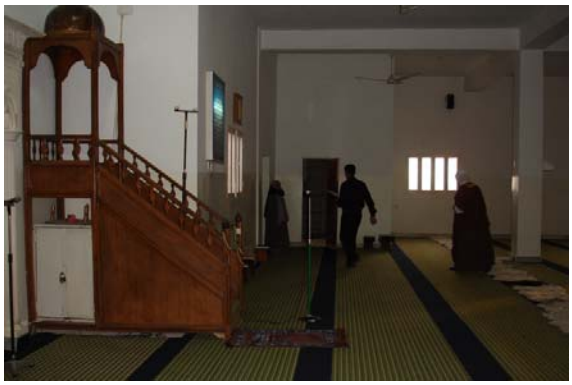


Figure 5.25: Ghazwat Honain Mosque, Poor Illumination

Figure 5.26: General View of Ghazwat Honain Mosque

Building Materials and Construction Method: The structure of the original building is based on load bearing wall construction, but the structure of the extensions is frame construction. The materials are mainly reinforced concrete. While the original building was built by Libyan labors, the extensions and modifications were executed by foreigners. Design and workmanship are too weak due to bad construction and the absence of architectural principles.

Condition of the building: To keep the mosque in good condition, there is remarkable care for its maintenance.

5.1.9 Al-Esra Mosque

Location: al- Mahla Ash'Shamalyia

Designed by: an Architect

Date of Completion: 1975

Finance Sponsored by: Government

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab,* Dome, and two minarets

Figure 5.27: Site Plan of al-Esra Mosque

Urban Context: The mosque stands aloof. The building is prominent in an exposed location (**Figure 5.27**). It is located near the center of the city on one of the main roads (**Figure 5.2**). The mosque is surrounded by an open space and not fenced.

Plan Arrangement and Elements: The building was only a single mass which consists of two parts. One was the prayer hall and the other part was the ablution facilities. However, recently the ablution facilities were separated. There is a disadvantage originating from the location of the east and west entrances of the mosque, which are parallel to the direction of *Qibla*. Routes leading to these entrances pass under worshiper's very nose. The *minbar* disturbs the first prayer rows. The relation between ablution utilities with mosque building is weak, because it is located far and looks different in shape and texture. Moreover, the location of the ablution utilities deprives the building from the desirable current breeze.

Section Design: Ceiling height of the prayer hall is about 6.5 meters. The distribution and the sizes of the windows seem to be adequate. One gets impression that the illumination is satisfactory. However, ventilation is mainly mechanical. There is calligraphic ornamentation.

Elevation Characteristics: It can be noticed that, the building displays a good sense of proportion and harmony between the mass, dome and minarets. The two high

minarets act as a marker identifying the place of the mosque in a way that can be seen for long distance around (**Figure 5.28**). The parapet of the building was decorated in a new way at that time; instead of using the known crenellated castle parapet, foliage form was used.

Figure 5.28: Al-Esra Mosque, an Outdoor View

Building Materials and Construction Method: The materials are of mainly reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labors.

Condition of the Building: It is obvious that there is concern of keeping the building in good condition.

5.1.10 Um al-Kurra Mosque

Location: al-Mahla Ash'Sharghyia	Designed by: An architect aided by members of the local community
Date of Completion: 1975	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

Urban Context: The mosque is located in a medium density residential area. It is fenced. There is outdoor area to serve as a transition zone between the noisiness of the streets and the tranquility of the mosque.

Plan Arrangement and Elements: The building consists of two separate parts. One is the prayer hall and the other part is the ablution facilities. Side entrances, columns and the *minbar* disturb the prayer hall. The minaret is not located in the corner of the block so that its effect as a landmark is not optimal (**Figure 5.29, 5.30**). Ablution facilities occupy a considerable space, which is almost equal to the prayer area.

Section Design: Although the ceiling height of the prayer hall is about 4.5 meters, one can experience that the interior space is poorly illuminated. The dome is not used to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: It can be noticed that the parapet of the building expresses the Libyan tradition with sky line decorations. The dome is hardly noticeable since it is too shallow.

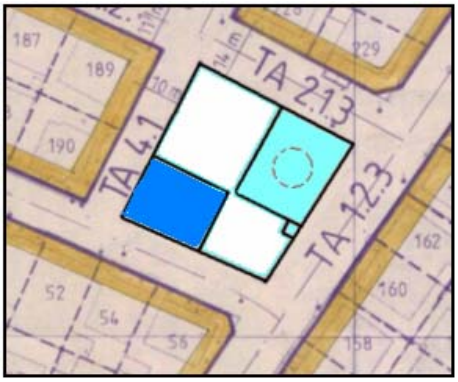


Figure 5.29: Site Plan of Um al-Kurra Mosque, Equality of Ablution Facilities and Prayer Hall Areas

Figure 5.30: Um al-Kurra Mosque, Minaret

Building Materials and Construction Method: The materials are mainly of reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by labors.

Condition of the Building: It is noted that people interesting in making the mosque remains in the best possible condition.

5.1.11 Teboak Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder
aided by members of community

Date of Completion: 1975

Finance Sponsored by: Local resources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*
And Minaret

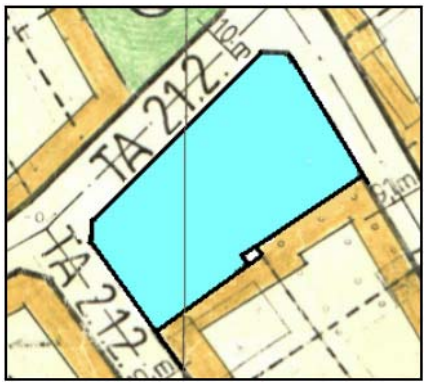


Figure 5.31: Teboak Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. The building is not fenced. There is no outdoor area which may serve as buffer zone between noisiness of streets and the serenity of the mosque (**Figure 5.31**).

Plan Arrangement and Elements: The building is only one mass which consists of two parts. One is the prayer hall and the other part is the ablution facilities. The first prayer row is badly affected by the *minbar* and the side entrance located in the front of the mosque. The interior prayer hall is adversely disturbed by the columns. The sizes of the columns are massive. They appear almost like segments of the walls. The columns have different forms (**Figure 5.32**).

Section Design: The openings are few and small compared to the area and the height of the building, resulting with poor illumination levels in the interior space. The walls are not ornamented.

Figure 5.32: Teboak Mosque, Massive Side Columns with Rectangular Sections

Elevation Characteristics: The massive horizontal mass with its yellow color dominates than any thing else. The minaret becomes a secondary focus. The building does not display a good sense of proportion and rhythm (**Figure 5.33**).

Figure 5.33: Teboak Mosque, Main Elevation

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreigners. Finishing of the building indicates poor workmanships.

Condition of the Building: It is obvious that there is interest in keeping the building in good condition.

5.1.12 Khalid Ibn-al-Walid Mosque

Location: al-Mahla Ash'Sharghyia	Designed by: Master builder aided by members of community
Date of Completion: 1975	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar, Mihrab,* Dome and Minaret

Urban Context: The mosque is located on a ring road (**Figure 5.2**). The area is a low density residential area. The mosque is fenced by about 1.5 height wall but without doors. There is adequate outdoor area to serve as buffer zone between noisiness of the streets and the serenity of the mosque (**Figure 5.34**).

Plan Arrangement and Elements: The building consists of two separate parts. One is a prayer hall and the other part is ablution facilities. The side entrance of the building, the *minbar* and columns, adversely affect the interior prayer hall. Poor site selections for the previous ablution facilities led to the demolition of them and the building of new ones on the other side of the mosque (**Figure 5.34**). The improper location of the minaret diminishes its ability to affect a larger area as a focal point.

Section Design: The prayer hall ceiling is about 4.5 meters. It seems that the height of the building and the dome are not exploited as fully as possible to provide natural illumination. One can experience that the interior of the mosque is badly lit. The walls are not ornamented.

Elevation Characteristics: It can be noticed that the parapet of the building reflects Libyan traditions of decorating mosques. The dome is too shallow which makes it difficult to be noticeable. Since the building displays a bad sense of proportion, one gets the impression that the designer does not pay attention to proportion and unity. (**Figure 5.35**)

Condition of the Building: It is noted that people interesting in keeping the mosque remains in the best possible condition.

Figure 5.34: Khalid Ibn-al-Walid Mosque, Site Plan

Figure 5.35: Khalid Ibn-al-Walid Mosque, Shallow Dome and Unsuitable position of Minaret

Building Materials and Construction Method: The construction mainly is in reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labors. The level of constructing the building displays a bad sense of craftsmanship.

5.1.13 Al-Atique Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: An architect

Date of Completion: 1975

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab,* Dome and Minaret

Figure 5.36: Al-Atique Mosque, Site Plan

Urban Context: The mosque is located in a commercial area at the center of the city. Probably due to this reason, at the Friday prayer, it is not fully occupied. However, the surrounded area is crowded (**Figure 5.36**). the interior space is fenced but the main entrance of the prayer hall is not fenced.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The recommended entrance is the one that faces the Qibla wall. This entrance is absent in the case of this mosque. This causes disturbance of the worshipers because of the movements through the side entrances. These movements may affect the prayer hall. The *mihrab* and internal columns disturb the rows of prayers. Since the minaret is not located on the corner, its effect is not optimal. The WCs are oriented towards the *Qibla* direction. (**Figure 5.37**)

Section Design: The height of the prayer hall is about 5.5 meters. This is probably used to provide natural illumination, since one can notice that the prayer hall is well illuminated. However the building is ventilated by means of air conditioners. The walls are not ornamented.

Elevation Characteristics: The main entrance is covered to be a shelter from the sun and rain. The building displays a sense of well-proportioned and harmonious elements.

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The level of constructing the building displays a good sense of craftsmanship.

Condition of the Building: It is obvious that there is interest in keeping the building in good condition.

Figure 5.37: Al-Atique Mosque, an Exterior View

5.1.14 Ghazwat Ohed Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder aided by members of community

Date of Completion: 1975

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

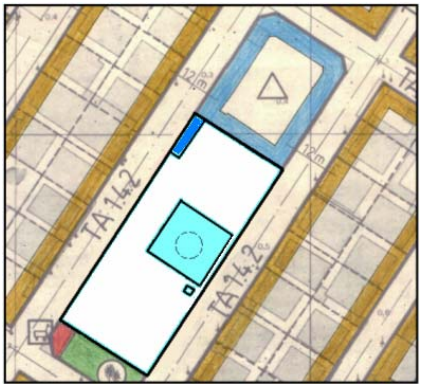


Figure 5.38: Site Plan of Ghazwat Ohed Mosque

Urban Context: The mosque is located in a medium density residential area. It is fenced. There is adequate outdoor area to serve as buffer zone between noisiness of streets and the serenity of the mosque (**Figure 5.38**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. Side entrances, the *minbar* and the indoor columns affect worshiper rows adversely. The minaret is not located in the recommended position, which is at the corner of the block. This reduces the importance of the minaret as a focal point. The WCs are oriented towards *Qibla*, which is not pleasant according to Islamic thought. (**Figure 5.38**)

Section Design: The height of the prayer hall ceiling is 5 meters. However, this height is not exploited to provide natural illumination and ventilation, since one can notice that the interior space is poorly-lit and the building is ventilated by means of air conditioners. Moreover, lacking of windows on the northern direction resulting, the prayer hall is deprived from the desirable natural breeze. The walls is not ornamented.

Elevation Characteristics: The dome disappeared from the façade due to unplanned extensions. The construction of the building reveals that; there is prodigal waste of

space (**Figure 5.39**). The sky line of the mosque is straight. The building does not display a sense of harmonious and well-proportioned elements. (**Figure 5.40**)

Building Materials and Construction Method: The construction mainly is in reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is obvious that there is interest in keeping the building in good condition.

Figure 5.39: Ghazwat Ohed Mosque, Dispensable Spaces, Poor Workmanship

Figure 5.40: An Elevation of Ghazwat Ohed Mosque

5.1.15 Al-Qadesya Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1975

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar* and *Mihrab*

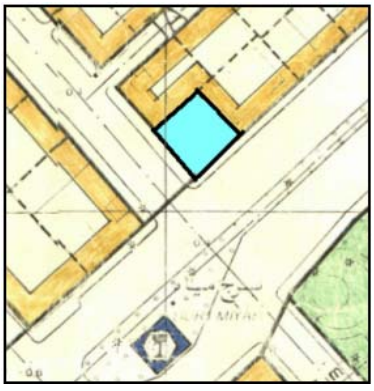


Figure 5.41: Site Plan of al-Qadesya Mosque

Urban Context: The mosque is located on one of the main roads of the city. It is between the commercial area and a residential area (**Figure 5.2**). The mosque is not fenced. The building lacks an outdoor space to serve as transition zone between noisiness of streets and the tranquility of the mosque (**Figure 5.41**).

Plan Arrangement and Elements: The prayer hall and ablution facilities form only a single mass. It lacks an open space to the north and consequently the lack of a northern entrance and denial of the desired northern breeze especially in summertime, is apparent. Entrance to the mosque is only available on the western side (**Figure 5.41**). It causes congestion, which bothers worshipers. The relatively small sized prayer hall is disproportionate to big columns so that it is disturbed (**Figure 5.42**). The WCs are oriented towards the *Qibla*, which is not recommended according to Islamic thought.

Section Design: The height of the prayer hall ceiling is about 4.5 meters. The building is ventilated by means of air conditioners. One can note that the interior space is poorly-lit. Lacking of windows on the northern direction resulting, the prayer hall is deprived from the desirable natural breeze. It lacks of ornamentation

Elevation Characteristics: Although, the parapet of the building decorated in crenellated castle parapet which representing convention of Libyan building tradition, absence of outer symbolic elements such as a minaret or a dome makes the building might be perceived as an ordinary house rather than a mosque (**Figure 5.43**).

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is noted that people are interested in making the mosque remain in the best possible condition.

Figure 5.42: Al-Qadesya Mosque, Massive Columns

Figure 5.43: Al-Qadesya Mosque, an Exterior View

5.1.16 Al-Yarmoak Mosque

Location: al-Mahla al-Gharbyia

Designed by: an Architect

Date of Completion: 1975

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

Figure 5.44: Al-Yarmoak Mosque, Site Plan

Urban Context: The mosque is located in residential area which has a low-medium population density. To access the prayer hall, there is an exterior open space which serves as transition area from secular discord to the tranquility of the mosque.

Plan Arrangement and Elements: The minaret is not located in the corner, which is considered the suitable place for a minaret to act as an affecting focal point (**Figure 5.44**). Although the *minbar* does not bother the first row of prayer, it cannot be seen from important parts of the interior space. There is unnecessary entrance located to the east of the mosque because it does not lead to anything (**Figure 5.45**). Since the extensions were not planned carefully, the building lost the northern area from which the desirable breeze comes.

Section Design: the prayer hall is divided into two sections; the height of the northern section is about 4.5 meters while the height of the southern one is about 6 meters. The first floor of the northern part is devoted to female worshipers. Since the desirable wind comes from north, perhaps procedures of separation of men from women worshipers led to deprive the mosque from desired northern breeze. One can observe that the interior space is badly lit. The relatively big columns disturb the prayer space. The building lacks ornamentation (**Figure 5.46**).

Elevation Characteristics: The parapet of the facade expresses Libyan tradition features. Although the minaret is not located in the proper situation and the dome is not dominant, the building is attractive with its harmonic, unity varying size of blocks and dynamic façade.

Figure 5.45: Al-Yarmoak Mosque, No Where Exit

Figure 5.46: Al-Yarmoak Mosque, Massive Columns

Figure 5.47: Al-Yarmoak Mosque, General View

Building Materials and Methods of Construction: The structure is reinforced concrete frame construction. All constructions including modifications and maintenance are executed by foreign labor force.

Condition of the Building: One can easily note that efforts to maintain the status of the mosque in the best possible case.

5.1.17 Ghazwat Budder Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1978

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab,* Dome And Minaret

Figure 5.48: Ghazwat Budder Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is fenced. To access the prayer hall, there is outdoor area to serve as a transition zone between the noisiness of the streets and the tranquility of the mosque.

Plan Arrangement and Elements: The prayer hall and ablution facilities are separated from each other. The interior space of the mosque is affected adversely from the columns. The WCs are directed towards the *Qibla*, moreover, they are located in the northern direction which result that the prayer hall is deprived from the desirable natural breeze. The minaret was not located properly, because it was not positioned in the corner of the block (**Figure 5.48**).

Section Design: The height of the prayer hall ceiling is about 5 meters. Since one can experience that the interior space is poorly-lit, it seems that the height of the

building is not used to benefit from natural ventilation and illumination. The building is ventilated by means of air conditioners. The walls are not ornamented.

Elevation Characteristics: Although, the parapet of the building decorated in crenellated castle parapet which representing convention of Libyan building tradition, the proportions and unity are not taken in considerations by the designer. The dome is hardly noticeable. The building entirely reveals bad architectural design and weakness of workmanships. (**Figure 5.49**)

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is obvious that there is interest in keeping the building in good condition.

Figure 5.49: An Outdoor View of Ghazwat Budder Mosque

5.1.18 Ain Jaloot Mosque

Location: al-Mahla Ash'Sharghyia	Designed by: Master builder aided by members of community
Date of Completion: 1979	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab* and Dome

Urban Context: The mosque is located in a medium density residential area. It is fenced. To access the prayer hall, there is outdoor area to serve as a transition zone between the noisiness of the streets and the tranquility of the mosque.

Plan Arrangement and Elements: The prayer hall and ablution facilities are separated from each other. The interior space of the mosque is affected adversely from the columns. The WCs are directed towards the *Qibla*. The opposite entrance to the *Qibla* wall is preferable because the movements of the worshipers through this entrance do not adversely affect the prayer as much as the side entrances do. This situation and column disturb the prayer hall adversely. The two side entrances were built completely similar just loyalty to symmetry because one of these two entrances became the main entrance at the expense of the northern one, however, the another side entrance leads to no where (**Figure 5.50**).

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can note that the interior space is poorly-lit, it seems that the height of the building is not used to ventilate and illuminate the building naturally. Small windows which are positioned at the dome are canceled. It lacks ornamentation (**Figure 5.51, 5.52**).

Figure 5.50: Ain Jaloot Mosque, Site Plan

Figure 5.51: Ain Jaloot Mosque, Poor Illumination

Elevation Characteristics: It is seems that proportions and unity are not taken in considerations by the designer. The dome is hardly noticeable. The building entirely reveals bad architectural design and weakness of workmanships. (**Figure 5.53**)

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.52: Ain Jaloot Mosque, Poor Design

Figure 5.53: Ain Jaloot Mosque, General View

Condition of the Building: Despite the choice of unskilled labors, it is obvious that there is interest in keeping the building in good condition.

Bay'at al-Raddwan Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1980

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab,* cubic structure and Minaret

Figure 5.54: Bay'at al-Raddwan Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is fenced. To access the prayer hall, there is outdoor area to serve as a transition zone between the noisiness of the streets and the tranquility of the mosque.

Plan Arrangement and Elements: The prayer hall and ablution facilities are separated from each other. Interior space, which is prayer space, is disturbed by columns, *minbar* and the side entrances. Since the minaret is not positioned at the corner of the block, its function as a land mark is diminished. The arrangement is chaotic with weak relationships among the elements (**Figure 5.54**).

Section Design: The height of the prayer hall is about 4.5 meters. Since one can experience that the interior space is badly-lit, it seems that the height of the building is not exploited to ventilate and illuminate the building naturally. Moreover, the small windows which are positioned at the dome are canceled. It is not ornamented. (**Figure 5.55**)

Elevation Characteristics: The cubic structure built instead of a dome is shallow; it is useless because it cannot be seen even from close distance. It is seems that proportions and unity are not taken in considerations by the designer. Demolition and changing of elements such as ablution facilities and windows reveal poor design (**Figure 5.56**)

Figure 5.55: Bay'at al-Raddwan Mosque, Canceled Window

Figure 5.56: Bay'at al-Raddwan Mosque, General View

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of choosing of labors appear to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

5.1.20 Al-Salam Mosque

Location: al-Mahla al-Gharbyia	Designed by: Master builder aided by the patronage
Date of Completion: 1985	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab* and Minaret

Urban Context: The mosque is located in the industrial area of Ajdabiya city. It is located on desert route leading south through to the oases of Ujla, Jalou and Kufra (**Figure 5.2**). To access the prayer hall, there is no outdoor area to serve as a transition zone between the noisiness of the highway road and the tranquility of the mosque.

Plan Arrangement and Elements: The prayer hall and ablution facilities are separated from each other. The columns, *minbar* and unordinary side entrance disturb the prayer hall. The location of the minaret is not in a suitable place so that its effect is not optimal. Since the minaret is not positioned at the corner of the block, its function as a land mark is diminished.

Section Design: The height of the prayer hall is about 4.5 meters. Since one can feel that the interior space is well-illuminated (**Figure 5.57** it seems that openings manipulated successfully to supply natural illumination. It lacks of ornamentation.

Elevation Characteristics: It is seems that proportions and unity are not taken in consideration by the designer. Expansion of the building has been continuous; therefore, it appears if it is not only one building. The building reveals bad architectural design and poor workmanship (**Figure 5.58, 5.59**).

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force.

Figure 5.57: Al-Salam Mosque, Well-illuminated Prayer Hall

Figure 5.58: Al-Salam Mosque, General View

Figure 5.59: Al-Salam Mosque, General View

Condition of the Building: Regardless employing of labors appears to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

5.1.21 Hetteen Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder aided by members of community

Date of Completion: 1985

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, polygon cubic structure and Minaret

Figure 5.60: Hetteen Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is fenced. There is adequate outdoor area to serve as buffer zone between noisy streets and the serenity of the mosque (**Figure 5.60**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facilities is far from the prayer hall. There is a huge unusable open space. Internal columns and side entrances negatively affect the prayer rows. The minaret is not located on the recommended position (the corner of the block). This diminishes the importance of the minaret as a focal point.

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can experience that the interior space is well-illuminated (**Figure 5.61** it seems that openings manipulated successfully to illuminate the building naturally. The openings on the cubical structure are a good source of illumination. It is not ornamented.

Elevation Characteristics: Instead of using an ordinary dome, a polygon cubic structure is built but from exterior, it is hardly noticeable. The minaret dominates the building. It is disproportionate to the small sized mosque mass. The building entirely reveals bad quality of both, architectural design and workmanship. (**Figure 5.62, 63**) The building does not display a sense of harmonious and well-proportioned elements. (**Figure 5.40**)

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is obvious that there is interest in keeping the building in good condition.

Figure 5.61: Hetteen Mosque, Well-illuminated Prayer Hall

Figure 5.62: Hetteen Mosque, Disproportionate Minaret

Figure 5.63: Hetteen Mosque, Disproportionate Minaret

5.1.22 Balat al-Shoha'da Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1986

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab,* Dome and Minaret

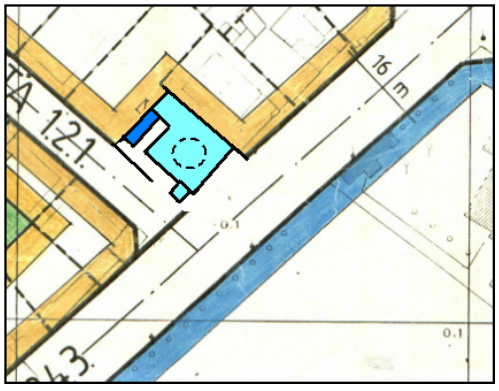


Figure 5.64: Balat al-Shoha'da Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. To access the prayer hall, there is small outdoor area to act as a transition zone between the noisy streets and the tranquility of the mosque.

Plan Arrangement and Elements: The prayer hall attaches to the ablution facilities. The side entrance, columns and the *minbar* disturb the prayer. The building lacks northern windows, which means it is depriving from the desired Northern breeze. Since the minaret is positioned at the corner of the block, its function as a land mark seems to be optimum. (**Figure 5.64**)

Section Design: The height of the prayer hall is about 4.5 meters. Although the small windows which are positioned at the dome are canceled, one can experience that, the illumination of the interior space is good (**Figure 5.65, 66**). It is not ornamented.

Elevation Characteristics: Although the minaret is well located, its form has no aesthetic pleasing features. It is seems that proportions and unity are not taken in considerations by the designer. Some parts of the parapet are castle crenellated decoration; however, the extension parts are not decorated. (**Figure 5.67**)

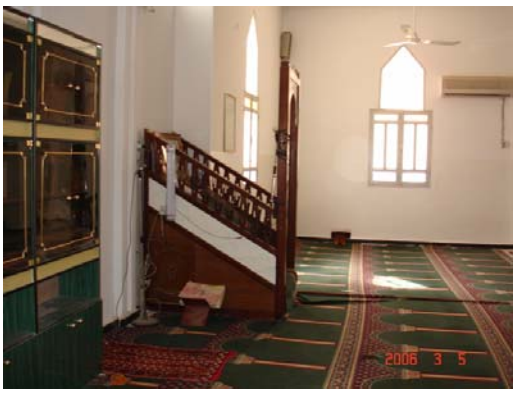


Figure 5.65: Balat al-Shoha'da Mosque, Good Illumination

Figure 5.66: Balat al-Shoha'da Mosque, Poor Design, Poor Workmanship

Building Materials and Construction Method: The materials are mainly reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.67: Balat al-Shoha'da Mosque, General View

Condition of the Building: Regardless of being a work of unskilled labors; it is obvious that there is interest in keeping the building in a good condition.

5.1.23 Al-Taneem Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: an Architect

Date of Completion: 1986

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

Figure 5.68: Al-Taneem Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is located on one of the main roads (**Figure 5.2**). The building is fenced. To access the prayer hall, there is an exterior open space which serves as transition area from secular discord to the tranquility of the mosque (**Figure 5.68**).

Plan Arrangement and Elements: The minaret is not located in the corner, which is considered the suitable place for a minaret to act as an affecting focal point. The

eastern side entrance, columns and the *Minbar* disturb the prayer hall. The main entrance is dominant to the front of the building and protecting from the sun and rain.

Section Design: The height of the prayer hall is about 5.5 meters. Since one can experience that the interior space is poorly-lit, it seems that the height of the building and the dome are not exploited to ventilate and illuminate the building naturally.

Elevation Characteristics: The parapet of the building is straight, no representing convention of Libyan building tradition. Although the minaret is not located well, its form is good on account of scale and proportion. The exterior elements of the entire building display unity and harmony. (**Figure 5.69**)

Building Materials and Methods of Construction: The structure is reinforced concrete frame construction. All constructions were executed by foreign labor force.

Condition of the Building: It appears that there are efforts to maintain the status of the mosque in the best possible case.

Figure 5.69: Al-Taneem Mosque, General View

5.1.24 Ko'ba Mosque

Location: al-Mahla al-Gharbyia

Designed by: an Architect aided by members of local community

Date of Completion: 1986

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, polygon cubic structure and Minaret

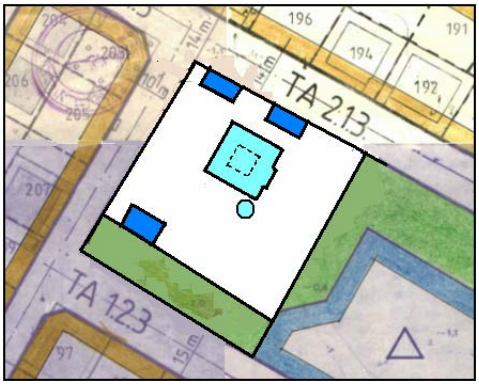


Figure 5.70: Ko'ba Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is surrounded with open space. The mosque is fenced. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.70**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facilities is far from the prayer hall. There is a huge unusable open space. The prayer hall is adversely affected by internal columns, the *Minbar* and side entrances. The minaret is not located on the recommended position (the corner of the block). This diminishes the importance of the minaret as a focal point.

Section Design: The height of the prayer hall ceiling is about 5 meters. Instead of using an ordinary dome, a polygon cubic structure is used. Since one can feel that the interior space is badly-lit (**Figure 5.71**), it appears that the height of the ceiling and cubic structure are not used efficiently to supply naturallighting.

Elevation Characteristics: Instead of using an ordinary dome, a polygon cubic structure is built but from exterior, it is noticeable. The crenellated castle parapet is used in order to decorate the building on one hand and may be to reflect convention

of Libyan building tradition on the other hand. Although comparing to the height of the building, the minaret appears too high, the exterior elements of the building display good sense of unity (**Figure 5.71**). However the bad finishing and construction is indicative of bad workmanship.

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.71: Ko'ba Mosque, Poor Illumination

Figure 5.72: Ko'ba Mosque, General View

Condition of the Building: regardless employing of unskilled labors, it appears that there is strong intent to keep the mosque in the best possible case.

5.1.25 Al-Quds Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: an Architect

Date of Completion: 1986

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab* Dome and Minaret

Urban Context: The mosque is located in a medium density residential area. It is fenced. The surrounding open space is used as greenery area the thing which

improves the environment (**Figure 5.73**). Also it acts as transition zone between secular discord and the tranquility of the mosque.

Plan Arrangement and Elements: The minaret is not located in the corner of the block. It detaches to the building. The side entrances, columns and the *Minbar* disturb the prayer hall. The main entrance is dominant to the front of the building and protecting from the sun and rain.

Section Design: The height of the prayer hall is about5 meters. Since one can experience that the interior space is badly-lit (**Figure 5.74)**, it seems that the height of the building and the dome are not exploited successfully to ventilate and illuminate the building naturally. It is ornamented of calligraphy and geometrical forms.

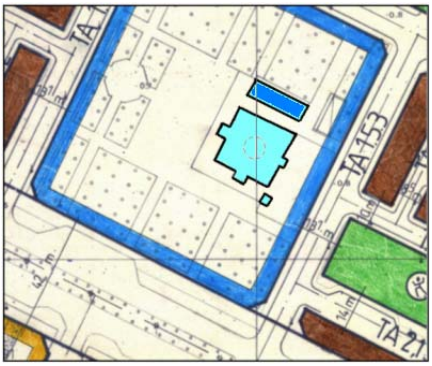


Figure 5.73: Al-Quds Mosque, Site Plan

Elevation Characteristics: The parapet of the building is straight, no representing convention of Libyan building tradition. Although the minaret is not located well, the composition of exterior elements is unified and displays a good sense of harmony (**Figure 5.75**).

Building Materials and Methods of Construction: The structure is reinforced concrete frame construction. All constructions executed by foreign labor force.

Condition of the Building: It appears that there are efforts to maintain the status of the mosque in the best possible condition.

Figure 5.74: Al-Quds Mosque, Poor Illumination

Figure 5.75: Al-Quds Mosque, General View

5.1.26 Al-Baet al-Mamour Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder aided by members of community

Date of Completion: 1987

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

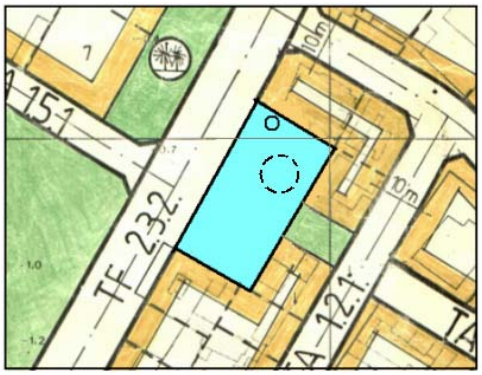


Figure 5.76: Al-Baet al-Mamour Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is not fenced. There is no outdoor area to serve as buffer zone between noisy streets and the serenity of the mosque (**Figure 5.76**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are attached to each other. The sections of the columns are circular, rectangular, square and L-shaped. They are more than necessary. (**Figure 5.77**) Although there is no side entrance, the prayer hall is extremely disturbed by columns and the *Minbar*. The minaret is not located on the recommended position (the corner of the block). This diminishes the importance of the minaret as a focal point.

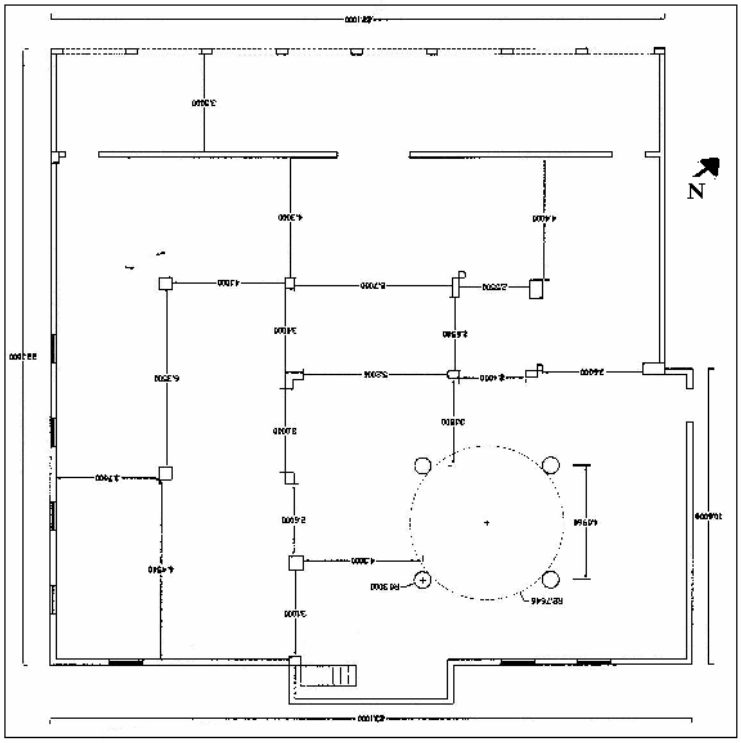


Figure 5.77: Al-Baet al-Mamour Mosque, Ground Plan
(Source: Personal Schema, 2006)

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can experience that the interior space is badly illuminated (**Figure 5.78**), it seems that the height of the ceiling or the dome are not used to successfully to supply natural illumination. The mosque lacks ornamentations.

Elevation Characteristics: The unplanned extension led to the disappearance of the dome and an imbalance façade. It seems that architectural principles such as unity proportions and harmony are not taken in account by the designer. The parapet is straight, not representing convention of Libyan building tradition (**Figure 5.79**)

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of the lack of interest in architectural design and the selection of unskilled workers, there is obvious insist in keeping the mosque in the best possible case.

Figure 5.78: Al-Baet al-Mamour Mosque, Poor Illumination

Figure 5.79: Al-Baet al-Mamour Mosque, Disappearing Dome

5.1.27 Bab al-Ray'yan Mosque

Location: al- Mahla Ash'Shamalyia

Designed by: an Architect aided by members of community

Date of Completion: 1988

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

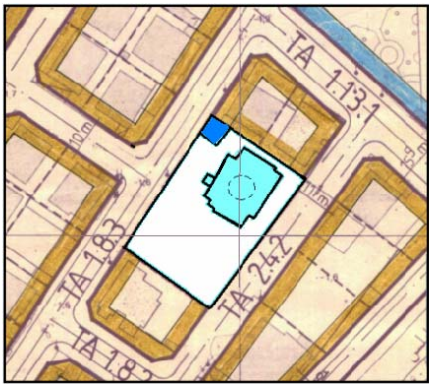


Figure 5.80: Bab al-Ray'yan Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is surrounded with open space. The mosque is fenced. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.80**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. There is a huge open space which is unused. The prayer hall is disturbed by the eastern side entrance, columns and the *Minbar*. The minaret is not located in suitable position, thus, it can only be seen from a nearby location. This may diminish the importance of the minaret as a focal point. (**Figure 5. 81**)

Section Design: The height of the prayer hall ceiling is about 5 meters. Since one can experience that the interior space is badly illuminated, it appears that the height of the ceiling and the dome are not used efficiently to supply natural illumination. It is not ornamented.

Elevation Characteristics: The crenellated castle parapet is used in order to decorate the building on one hand and may be to reflect convention of Libyan building tradition on the other hand. Unplanned extensions such as the sheet iron of the arena's roof in the front as well as huge columns distort the form of the façade.

Moreover, some columns were placed at an inappropriate site, which impedes movements (**Figure 5.81, 82**).

Figure 5.81: Bab al-Ray'yan Mosque, Minaret

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is noted that people interesting in keeping the mosque remains in the best possible condition.

Figure 5.82: Bab al-Ray'yan Mosque, Unsuitable location of Columns

Figure 5.83: Bab al-Ray'yan Mosque, Clumsy Arena

5.1.28 Al-Bay'yan Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: Master builder aided by members of community
Date of Completion: 1990	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab* and Dome

Urban Context: The mosque is located in a low density residential area. It is surrounded by two of the main roads of the city (**Figure 5.2**). The mosque is fenced. It is located within open space. There is adequate outdoor area to act as a buffer zone between noisy surrounded roads and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. There is a huge unusable open space. The prayer hall is disturbed by the side entrances, columns and the *Minbar.* There is sufficient space in the recessed area where the *Mihrab* is located. This area can accommodate the *Minbar* completely. Instead of placing it there, only part of the *Minbar* is positioned there and the rest disturbs the first worshipers' row. Since in Islamic teaching, the favorite row of worshipers is the first one and then the following. The advantage of this plan is that there is additional area given to the first two rows. However, the two rows are disturbed by the *Minbar*.

Section Design: The height of the prayer hall ceiling is about 5 meters. Since one can experience that the interior space is poorly illuminated (**Figure 5.84**), it seems that the height of the ceiling and the dome are not used successfully to supply natural illumination. It lacks ornamentations. Seats of the ablution facilities are high (**Figure 5.85**)

Elevation Characteristics: The parapet is straight, not revealing convention of Libyan building tradition. The dome seems to be a minor element in a vast structure that surrounds the domed area (**Figure 5.86**).

Condition of the Building: It seems that taking care of maintenance and keeping the building clean are less than the level of interest in other mosques.

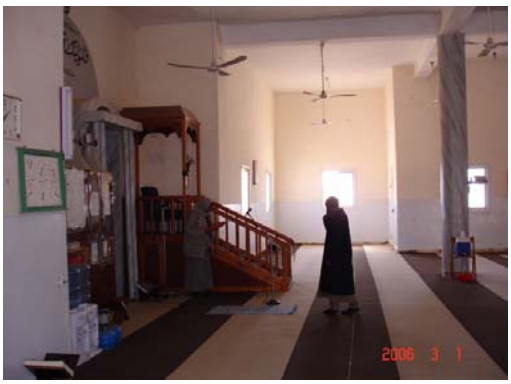


Figure 5.84: Al-Bay'yan Mosque, Poor Illumination

Figure 5.85: Al-Bay'yan Mosque, High Seat, Idicating Poor Design

Figure 5.86: Al-Bay'yan Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

5.1.29 Jabal al-Rahma Mosque

Location: al-Mahla al-Gharbyia

Designed by: an Architect aided by members of local community

Date of Completion: 1990

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

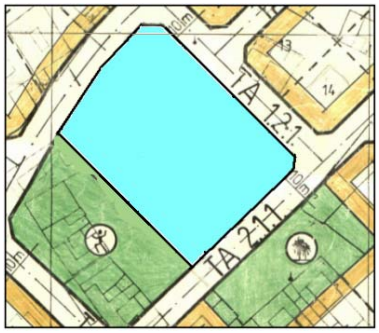


Figure 5.87: Jabal al-Rahma Mosque, Site Plan

Urban Context: The mosque is located in residential area which has a low-medium population density. There is exterior open space which acts as transition zone from secular discord to the tranquility of the mosque (**Figure 5.87**).

Plan Arrangement and Elements: The building consists of two separated parts. They are a prayer hall and ablution facilities. However, the ablution facilities are located far and in the north of the mosque which deprives the prayer hall from the desirable breeze. The prayer hall is disturbed by the side entrances, columns and the *Minbar*. The minaret is not positioned in the corner of the block. This location reduces its importance as a focal point.

Section Design: The building is consists of two storeys. Part of the upper floor is devoted to female worshipers. Although the openings are big and divided along the building, one can experience that the interior space is badly lit. Probably the concealed part which is devoted to women affects the level of the illumination.

Elevation Characteristics: It seems that the composition of exterior elements displays a good sense of unity (**Figure 5.88**).

Building Materials and Methods of Construction: The structure is reinforced concrete frame construction. All constructions executed by foreign labor force.

Condition of the Building: To keep the mosque in good condition, there is remarkable care for its maintenance.

Figure 5.88: Jabal al-Rahma Mosque, General View

5.1.30 Jabal Arafat Mosque

Location: al-Mahla al-Gharbyia

Designed by: an Architect aided by members of community

Date of Completion: 1990

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome and Minaret

Figure 5.89: Jabal Arafat Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is surrounded with open space. The mosque courtyard is fenced. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.89**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. There is a huge unusable open space. The prayer hall is disturbed by the side entrances, columns and the *Minbar*. The location of the minaret is not suitable because it is not positioned on the corner of the block.

Section Design: The building is consists of two storeys. Part of the upper floor is devoted to female worshipers. One can experience that the interior space is badly lit.

Probably the concealed part which is devoted to women affects the level of the illumination. The walls are not ornamented.

Elevation Characteristics: The crenellated castle parapet is used in the original building. However, the extended is not decorated. There are unplanned extensions which are different in shape and color from the original building. Moreover, the extended area is separated from the prayer hall by the northern entrance, which leads to problems in the acoustics and visibility. The unplanned extension led to an imbalance façade (**Figure 90, 91**).

Figure 5.90: Jabal Arafat Mosque, Different Forms and Colors

Figure 5.91: Jabal Arafat Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is noted that people interesting in keeping the mosque remains in the best possible condition.

5.1.31 Al-Safa Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1990

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome And Minaret

Figure 5.92: al-Safa Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is fenced. The mosque is surrounded with huge unusable outdoor open space. It acts as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.92**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facilities is not appropriate since it is far from the mosque and blocks the desirable breeze. The minbar, columns and the side entrances disturb the prayer hall. The location of the minaret is not suitable because it is not placed in the corner of the block. Due to this improper location, its effect as a land mark is limited.

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can note that the interior space is poorly illuminated, it seems that the height of the ceiling is not used successfully to supply natural illumination. The walls are not ornamented.

Elevation Characteristics: Comparing to the height of the building, the minaret appears too high. It seems that proportions are not taken considerations. Since the extended part of the mosque differs totally from the old one, the exterior elements of the building display bad sense of unity (**Figure 5.93**).

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is noted that there is strong concern to keep the mosque in the best possible condition.

Figure 5.93: Al-Safa Mosque, Minaret

5.1.32 Al-Hijrah Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: Master builder aided by members of community
Date of Completion: 1990	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar, Mihrab* Dome and Minaret

Urban Context: The mosque is located in a low density residential area. It is surrounded with open space. The mosque is fenced. It acts as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The minbar, columns and the side

entrances disturb the prayer space. The location of the minaret is not suitable. Due to this improper location the effect of the minaret as land mark is diminished.

Section Design: The height of the prayer hall ceiling is about 4 meters. One can observe that the interior space is well illuminated. It is not ornamented (**Figure 5.94**).

Elevation Characteristics: Comparing to the height of the building, the minaret appears too high. The extended part of the mosque differs from the original one. The exterior of the building lacks proportion, unity and harmony (**Figure 5.95**).

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.94: Al-Hijrah Mosque, Good Illumination

Figure 5.95: Al-Hijrah Mosque, General View

Condition of the Building: It appears that there are efforts to maintain the status of the mosque in the best possible condition.

5. 1.33 Al-Asma al-hossna Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: an Architect

Date of Completion: 1991

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar, Mihrab* and Dome

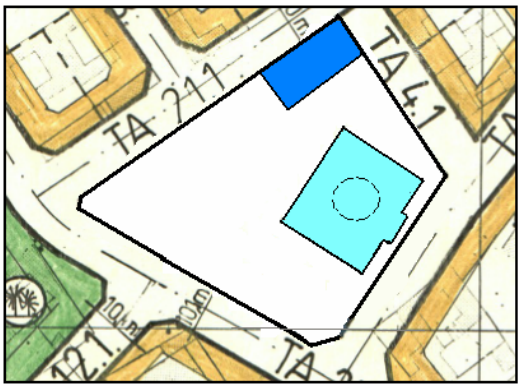


Figure 5.96: Al-Asma al-hossna Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is fenced. There is a huge outdoor open space, most of which is not used. To access the prayer hall, there is an exterior open space which serves as transition area from secular discord to the tranquility of the mosque (**Figure 5.96**).

Plan Arrangement and Elements: The location of the ablution facilities is not suitable, because it deprives the prayer hall from the desired breeze. Moreover, the odor of ablution facilities disturbs the interior space. The minbar, columns and the side entrances disturb the prayer hall.

Section Design: Although, ceiling height of the prayer hall is about 4.5 meters, one can experience that the interior space of the mosque is poorly illuminated. The dome is not used to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: The parapet of the building is decorated in a way at that instead of using known crenellated castle parapet, foliage form is used. The building displays a good sense of unity, proportion and harmony. (**Figure 5.97**)

Building Materials and Methods of Construction: The structure is reinforced concrete frame construction. All constructions executed by foreign labor force.

Condition of the Building: It appears that there are efforts to maintain the status of the mosque in the best possible condition.

Figure 5.97: Al-Asma al-hossna Mosque, General View

5.1.34 Bab al-Salam Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: Master builder aided by members of community
Date of Completion: 1992	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

Urban Context: The mosque is located on one of the main roads of the city (**Figure 5.2**). It is located between the center of the city and a low density residential area. The mosque is fenced. There is adequate open space to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of ablution utility is not suitable because it deprives the building from the desirable current air. The minbar, columns and the side entrance disturb the prayer space. The location of the minaret is not suitable. Due to this improper location the effect of the minaret as land mark is diminished. The circulation routes are well related to existing surrounded streets. There is a disadvantage from an entrance located on the west side of the mosque which is parallel to the direction of *Qibla*. Routes leading to this entrance pass under worshiper's very nose. (**Figure 5.98**)

Section Design: The height of the prayer hall ceiling is about 4.5 meters. One can note that the interior space is poorly lit (**Figure 5.99**). the walls are not ornamented.

Elevation Characteristics: The composition of the building lacks unity and harmony. The arrangement is chaotic with weak relationships among all the exterior elements of the mosque. And accordingly, it lacks interest. (**Figure 5.100, 101**)

Figure 5.98: Bab al-Salam Mosque, Site Plan

Figure 5.99: Bab al-Salam Mosque, Poor Illumination

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction (reinforced concrete). All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.100: Bab al-Salam Mosque, General View

Condition of the Building: Regardless of having employed unskilled labors, it appears that there is strong intent to keep the mosque in the best possible condition.

Figure 5.101: Bab al-Salam Mosque, General View

5.1.35 Bab al-Maruwa Mosque

Location: al-Mahla al-Gharbyia

Designed by: an Architect aided by members of community

Date of Completion: 1994

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

Figure 5.102: Bab al-Maruwa Mosque, Site Plan

Urban Context: The mosque is located in a low-medium density residential area. The interior open space of the mosque is fenced but the prayer hall is not. It is accessed directly from a street without sufficient space to act as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.102**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are attached to each other. The *minbar* and the columns disturb the prayer hall (**Figure 5.103**). There is a useless room in the rear of the building (**Figure 5.104**). It was built for the *Muezzin.* But it was discovered that its location is not suitable because it is far from the first row where the *Muezzin* should sit. It is not practical. There are two structures of ablution facilities (**Figure 5.105**). One of them had been demolished “due to improper location” according to the custodians of the

mosque. Another one was constructed. The minaret is not located on the recommended position (the corner of the block). This diminishes the importance of the minaret as a focal point.

Section Design: The height of the prayer hall ceiling is about 4 meters. Since one can experience that the interior space is poorly illuminated, it appears that the height of the ceiling and the dome are not used efficiently to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: The unplanned extension led to the disappearance of the dome and an imbalance façade. The composition of the building lacks unity and harmony. Accordingly, it lacks interest. Comparing to the height of the building, the minaret appears too high. (**Figure 5.106**)

Figure 5.103: Bab al-Maruwa Mosque, *Minbar*

Figure 5.104: Bab al-Maruwa Mosque, Unused Room

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: regardless employing of unskilled labors, it appears that there is strong intent to keep the mosque in the best possible case.

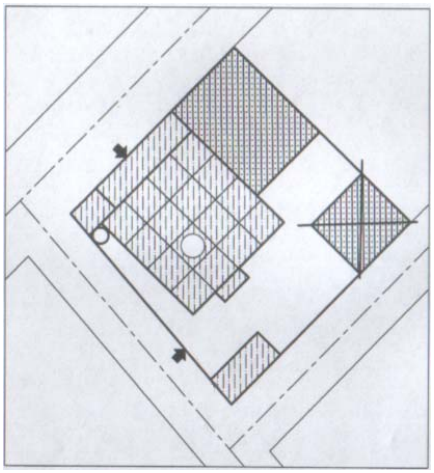


Figure 5.105: Bab al-Maruwa Mosque, Canceled Ablution Facilities

Figure 5.106: Bab al-Maruwa Mosque, General View

5.1.36 Al-Bekaih Mosque

Location: al- Mahla Ash'Shamalyia

Designed by: an Architect aided by members of community

Date of Completion: 1995

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* and Dome

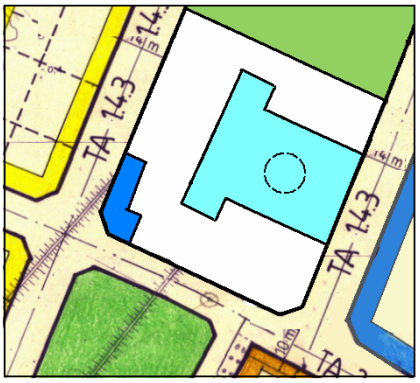


Figure 5.107: Al-Bekaih Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is surrounded with open space. The mosque is not fenced. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.107**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facilities is not suitable because it is far from the prayer hall. Although the minbar does not disturb the worshipers, it is located in a corner so that the *Imam* is invisible by part of

the first rows (**Figure 5.108**). Side entrances and the columns disturb the prayer hall. The location of the proposed minaret is not on the corner of the block, and therefore its effect as a focal point is reduced.

Section Design: The height of the prayer hall ceiling is about 6 meters. Since one can experience that the interior space is badly illuminated, it appears that the height of the ceiling and the dome are not used efficiently to provide natural illumination. The Minbar and Mihrab space are made of ornamented temper.

Elevation Characteristics: Although the parapet of the building is straight not in line with conventional Libyan tradition, the dome is generally visible from afar, indicating a mosque (**Figure 5.109**)

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.108: Al-Bekaih Mosque, *Minbar* and *Mihrab*

Figure 5.109: Al-Bekaih Mosque, General View

Condition of the Building: It is noted that people interesting in keeping the mosque in the best possible condition.

5.1.37 Al-Jehad Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1995

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar* and *Mihrab*

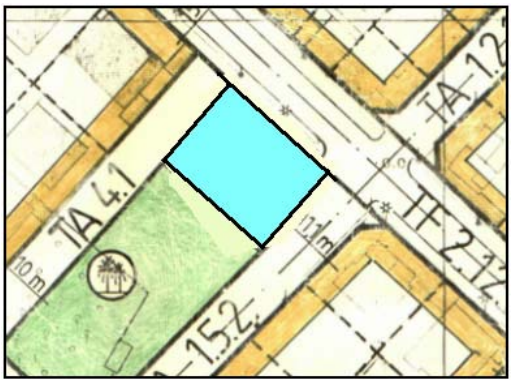


Figure 5.110: Al-Jehad Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is accessed directly from a street without sufficient space to act as a buffer zone between noisy streets and the serenity of the mosque. It is not fenced. (**Figure 5.110**)

Plan Arrangement and Elements: The prayer hall and the ablution facilities are combined. They form only one mass. The minbar and the columns disturb the prayer hall. The unplanned extensions deprive the mosque from the desirable breeze.

Section Design: The prayer hall ceiling is about 4 meters. One can experience that the prayer hall is badly lit. The walls are not ornamented.

Elevation Characteristics: The building looks like a house rather than a mosque. The parapet is straight, not decorated in battlement castle form as in many mosques in Libya which may confer a distinct language. The entrances are not protected from the sun and rain (**Figure 5.111**).

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: It is noted that people interesting in making the mosque remains in the best possible condition.

Figure 5.111: Al-Jehad Mosque, General View

5. 1.38 Al-Madinah Mosque

Location: al- Mahla Ash'Shamalyia

Designed by: An architect aided by
The patronage

Date of Completion: 1995

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab*, Dome
And Minaret

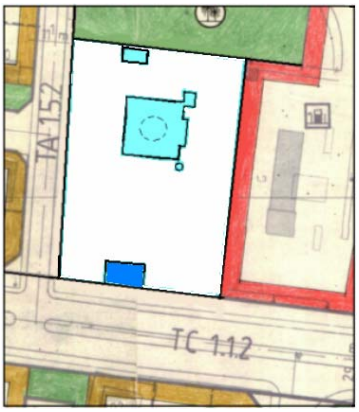


Figure 5.112: Al-Madinah Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is fenced. The building is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque. There is huge open space which is not used (**Figure 5.112**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facility is unfit because it is far from the mosque. Lack of paved paths causes dirty carpets from sand. The location of the minaret also is unfit because it does not take on extent point of surrounded streets. Relation of circulation between the entrances of the mosque, ablution, fence gates and surrounded streets is weak (**Figure 5.113**). Side entrances and minbar disturb the worshipers.

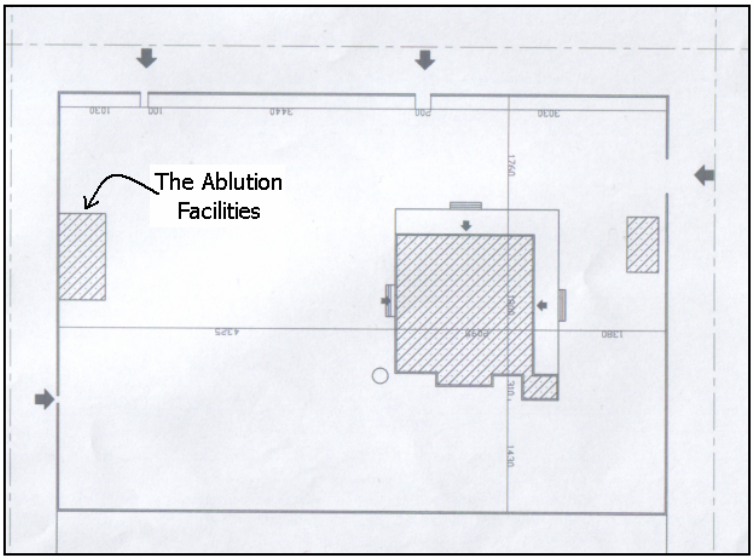


Figure 5.113: Al-Madinah Mosque, Poor Relationship between Gates and Entrances of the Mosque

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can experience that the interior space is poorly illuminated, it appears that the height of the ceiling and the dome are not used efficiently to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: The parapet looks like a castle battlement which reflects a convention of Libyan architecture language. Probably the mosque is not surrounded by other buildings; the minaret and the dome are generally visible from afar, indicating a mosque (**Figure 5.114**)

Figure 5.114: Al-Madinah Mosque, General View

Condition of the Building: It is noted that the mosque is kept in the best possible condition.

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

5. 1.39 That al-Sowwari Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 1996

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* and Minaret

Figure 5.115 That al-Sowwari Mosque, Site Plan

Urban Context: The mosque is located in a low density residential area. It is fenced. To access the prayer hall, there is an exterior open space which serves as transition area from secular discord to the tranquility of the mosque (**Figure 5.115**).

Plan Arrangement and Elements: The building consists of prayer hall, annex to teach Qur'an and ablution facilities. They are separated form each other. The space occupied by other facilities is roughly equivalent to the area allocated for the prayer space which is the main function of the mosque. Side entrances, columns and *minbar* disturb the prayers hall. The location of ablution facilities is not suitable because it blocks the desirable breeze.

Section Design: The height of the prayer hall ceiling is about 4 meters. Since one can experience that the interior space is poorly illuminated, it appears that the height of the ceiling is not used efficiently to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: The parapet looks like a castle battlement which reflects a convention of Libyan building tradition. The location of the minaret is not suitable because it does not take on extent point of surrounded streets. Moreover it is not in harmony in relation with the mass of the mosque building (**Figure 5.116**).

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of poor labor work which appears to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

Figure 5.116: That al-Sowwari Mosque, General View

5.1.40 Al-Hassan wa al-Husein Mosque

Location: al- Mahla Ash'Shamalyia

Designed by: Master builder aided by members of community

Date of Completion: 2000 Finance Sponsored by: Local sources

Craftsmanship: Foreigners Existing Elements: *Minbar*, *Mihrab*, and polygon cubic structure

Urban Context: The mosque is located in a low density residential area. It is fenced. The mosque is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of ablution facility is not appropriate because it blocks the desirable breeze. The prayer hall is adversely affected by side entrances, columns and *minbar*.

Section Design: The height of the prayer hall ceiling is about 4 meters. Instead of using an ordinary dome, a polygon cubic structure is used. Since one can feel that the interior space is well-illuminated (**Figure 5.117**), it seems that the height of the ceiling and cubic structure are used successfully to supply natural illumination. There is little Qur'anic calligraphy.

Elevation Characteristics: Although, the parapet of the building decorated in line with crenellated castle parapet which represents convention of Libyan building tradition especially in mosques, absence of outer symbolic elements such as a minaret or a dome makes the building might be perceived as an ordinary house rather than a mosque (**Figure 5.118**).

Figure 5.117: Al-Hassan wa al-Husein Mosque, Good Illumination

Figure 5.118: Al-Hassan wa al-Husein Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of choosing of labors appear to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

5.1. 41 Al-Shorooque Mosque

Location: al-Mahla al-Gharbyia	Designed by: An architect aided by members of community
Date of Completion: 2000	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab*, and Dome

Urban Context: The mosque is located on a ring road (**Figure 5.2**). It is placed in a low density residential area. The mosque is fenced. It is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. Side entrances and columns disturb the prayer hall. Although the *minbar* does not disturb the worshipers, it is located in a corner in a way that apart from the first rows can not see the preacher.

Section Design: The height of the prayer hall ceiling is about 4 meters. Since one can feel that the interior space is poorly illuminated, it seems that the height of the ceiling and the dome are not used successfully to supply natural illumination. The Mihrab and the Minbar are made of wood which ornamented with calligraphy.

Elevation Characteristics: Although the parapet of the building is straight not in line with conventional Libyan tradition, the dome is generally visible from afar, indicating a mosque (**Figure 5.119**)

Figure 5.119: Al-Shorooque Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of poor labor work which appears to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

5.1.42 Ibrahim al-Khaleel Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: Civil engineer aided by the patronage
Date of Completion: 2002	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar, Mihrab,* and Dome

Urban Context: The mosque is located in a low density residential area. It is fenced. The mosque is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The side entrances and columns disturb the prayer hall. Although the *minbar* does not disturb the worshipers, it is located in a

corner in a way that apart from the first rows the preacher can not be seen. The platform is high the thing which makes the vision is not comfortable for the two first rows.

Section Design: The height of the prayer hall ceiling is about 7 meters. Since one can feel that the interior space is well illuminated, it seems that the height of the ceiling and the dome are exploited successfully to supply natural illumination. The interior of the mosque is ornamented by geometrical decorations.

Elevation Characteristics: The dome is generally visible from a far. The parapet of the building is decorated in foliage. The dome and the parapet indicate a mosque. It seems that the building displays a good sense of unity and harmony. (**Figure 5.120**)

Figure 5.120: Ibrahim al-Khaleel Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions are executed by foreign labor force.

Condition of the Building: It is noted that the mosque is kept in the best possible condition.

5.1.43 Al-Er'wa al-Wethka Mosque

Location: al-Mahla al-Gharbyia	Designed by: Master builder aided by members of community
Date of Completion: 2003	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab*, Dome and Steel Minaret

Urban Context: The mosque is placed in a low density residential area. The mosque is fenced. It is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. A disadvantage originating from the entrances located on the side of the mosque which is parallel to the direction of the *Qibla* wall. Routes leading to this entrance pass under the worshiper's very nose. Although the *minbar* does not disturb the first prayers row, it is positioned in a recessed space in a way that obscures vision to some worshipers. The location of ablution facilities is unfit because it is far from the mosque. Moreover, the walkway between the mosque and the ablution facilities is not paved or covered.

Section Design: The height of the prayer hall ceiling is about 4 meters. Since one can feel that the interior space is poorly lit (**Figure 5.121**), it seems that the height of the ceiling and the dome are not used efficiently to supply natural illumination. The walls are not ornamented.

Elevation Characteristics: The entrances are not protected from the sun and rain. The minaret is steel pipe. Its section is about one meter. It looks very strange. The composition of the building lacks unity and harmony. The arrangement is chaotic since the composition of elements without identifiable relationships. Therefore, it lacks interest. (**Figure 5.122**)

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions are

executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Condition of the Building: Regardless of having employed unskilled labors appear to be; it is obvious that there is interest in keeping the building in a good condition.

Figure 5.121: Al-Er'wa al-Wethka Mosque, Poor Illumination

Figure 5.122: Al-Er'wa al-Wethka Mosque, General View

5.1.44 That al-Re'ka Mosque

Location: al-Mahla Ash'Sharghyia

Designed by: Master builder aided by members of community

Date of Completion: 2004

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* and Dome

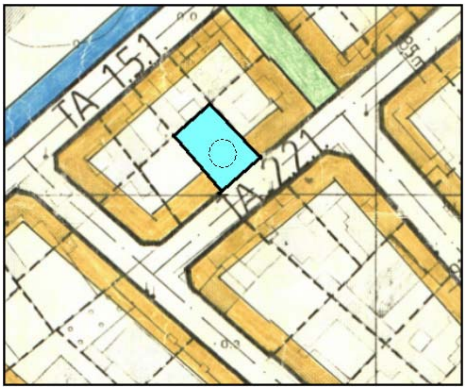


Figure 5.123: That al-Re'ka Mosque, Site Plan

Urban Context: The mosque is located in a medium density residential area. It is not fenced. To access the prayer hall, a corridor is used to act as transition area from secular discord to the tranquility of the mosque (**Figure 5.123**).

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They attach to each other. Although the *minbar* does not disturb the first prayer row, it is positioned in the recessed space in a way that obscures vision on some worshipers (**Figure 5.124**).

Section Design: The height of the prayer hall ceiling is about 6 meters. Since one can experience that the interior space is well lit (**Figure 5.124**), it appears that the height of the ceiling and the dome are used successfully to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: Since the dome is invisible, absence of outer symbolic elements makes the building might be perceived as an ordinary house rather than a mosque. The alley are narrow and do not give a sense of comfort (**Figure 5.125**). The entrances are not protected from the sun and rain. The composition of the building lacks unity and harmony. The arrangement is chaotic since the collection of elements is without identifiable relationships. Therefore, it lacks interest (**Figure 5.126**).

Figure 5.124: That al-Re'ka Mosque, Interior Space

Figure 5.125: That al-Re'ka Mosque, Alley

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions including modifications and maintenance are executed by foreign labor force. The construction of the building reveals a sense of poor craftsmanship.

Figure 5.126: That al-Re'ka Mosque,
General View

Condition of the Building: Regardless of poor labor work which appears to be unskilled; it is obvious that there is interest in keeping the building in a good condition.

5.1.45 Al-Falujah Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: Civil engineer aided by The patronage
Date of Completion: 2004	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar*, *Mihrab,* and Dome

Urban Context: The mosque stands aloof, but it is fenced. The mosque is placed on one of the main roads of the city (see **Figure 5.2**). The mosque is located in a low density residential area. It is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The location of the ablution facilities blocks the desirable breeze. The side entrances and columns disturb the prayer hall. Although the *minbar* does not disturb the first prayers row, it is positioned in a recessed space in a way that obscures the preacher from being seen by some worshipers (**Figure 5.127**). Moreover, the height of the preacher's platform makes looking at him uncomfortable (**Figure 5.128**).

Section Design: The height of the prayer hall ceiling is about 7 meters. Since one can feel that the interior space is well illuminated, it seems that the height of the ceiling and the dome are exploited successfully to supply natural illumination. The interior of the mosque is ornamented by geometrical decorations.

Elevation Characteristics: The dome and the parapet indicate a mosque, because the dome is generally visible from a far and the parapet of the building is decorated in foliage. It seems that the building displays a good sense of unity and harmony. (**Figure 5.129**)

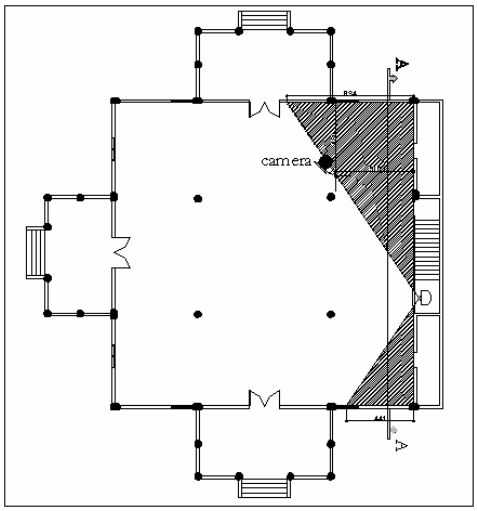


Figure 5.127: Al-Falujah Mosque, Invisible Preacher to Some Worshipers

Figure 5.128: Al-Falujah Mosque, High Platform

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions are executed by foreign labor force.

Condition of the Building: It is noted that the mosque is kept in the best possible condition.

Figure 5.129: Al-Falujah Mosque, General View

5.1.46 Al-Thora al-Deania Mosque

Location: al-Mahla al-Gharbyia

Designed by: Master builder aided by members of community

Date of Completion: Old mosque 1994
New mosque 2005

Finance Sponsored by: Local sources

Craftsmanship: Foreigners

Existing Elements: *Minbar*, *Mihrab* Dome and Minaret

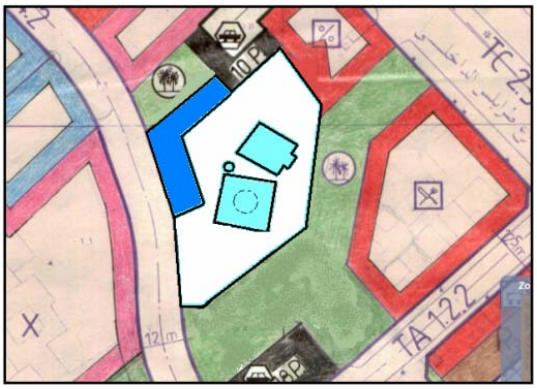


Figure 5.130: Al-Thora al-Deania Mosque, Site Plan

Urban Context: The mosque is located in the center of the city. It is fenced. The mosque is accessed through open space which acts as a buffer zone between noisy streets and the serenity of the mosque (**Figure 5.130**).

Plan Arrangement and Elements: The building consists of two prayer halls and ablution facilities. They are separated from each other. It is believed that the old one which was constructed in about 1965 is not oriented correctly. Therefore it has been disused as prayer hall and it now serves as a school to learn about the *Qur'an*. However, both of the prayer halls are wrongly oriented as will be discussed under the

title of mosque orientation (see 5.2.1.1). The new mosque can be described as follows: The side entrances and columns disturb the worshipers. The prayer hall is not disturbed by the *minbar*. The *Minbar* is positioned in a recessed space in a way that the preacher is invisible to some worshipers. The minaret (only the old mosque has minaret) is not located on the recommended position (the corner of the block). This diminishes the importance of the minaret as a focal point.

Section Design: The height of the prayer hall ceiling is about 4.5 meters. Since one can experience that the interior space is poorly illuminated, it appears that the height of the ceiling is not used efficiently to provide natural illumination. The walls are not ornamented.

Elevation Characteristics: it seems that the two prayer halls vary in form from each other. For example, while the parapet of the old building represents the Libyan architectural language by pattern decorations of castle battlement, the parapet of the new one is merely straight. (**Figure 5.131**)

Figure 5.131: Al-Thora al-Deania Mosque, General View

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction. The old mosque was built by local mason. The new one was constructed by foreigners. Modifications and maintenance are executed by foreign labor force. The construction of both building reveals a sense of poor craftsmanship.

Condition of the Building: regardless employing of unskilled labors, it appears that there is strong intent to keep the mosque in the best possible case.

5.1.47 Omar al-Mukhtar Mosque

Location: al- Mahla Ash'Shamalyia	Designed by: An architect aided by local members of community
Date of Completion: 2004	Finance Sponsored by: Local sources
Craftsmanship: Foreigners	Existing Elements: *Minbar, Mihrab,* and Dome

Urban Context: The mosque stands aloof, but it is fenced. The mosque is placed in a low residential area. It is surrounded with open space. There is adequate outdoor area to act as a buffer zone between noisy streets and the serenity of the mosque.

Plan Arrangement and Elements: The building consists of prayer hall and ablution facilities. They are separated form each other. The side entrances and columns disturb the worshipers. Although the *minbar* does not disturb the first prayer row, it is positioned in a recessed space in a way that the preacher is invisible to some worshipers (**Figure 5.132**).

Section Design: The height of the prayer hall ceiling is about 5 meters. Since one can feel that the interior space is well illuminated, it seems that the height of the ceiling and the dome are exploited successfully to supply natural illumination. The mosque is slightly ornamented with geometrical decorations. (**Figure 5.133**)

Elevation Characteristics: The dome and the parapet indicate a mosque, because the dome is generally visible from a far and the parapet of the building is decorated in foliage. Also it can be noted that the covered area of the entrances are too large. It seems that the building displays a good sense of unity and harmony. (**Figure 5.134**)

Building Materials and Construction Method: The materials mainly are reinforced concrete. The structure is frame construction in reinforced concrete. All constructions are executed by foreign labor force.

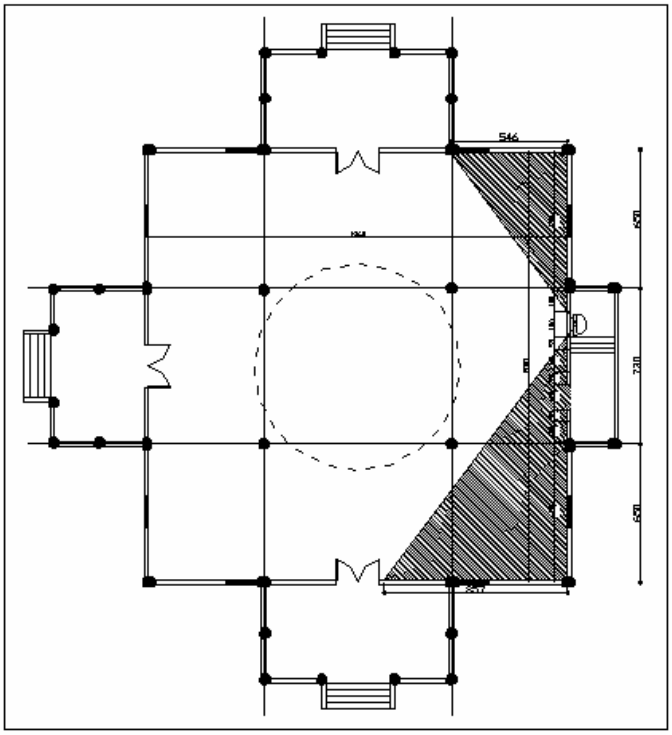


Figure 5.132: Omar al-Mukhtar Mosque, Invisible Preacher to Some Worshipers

Figure 5.133: Omar al-Mukhtar Mosque, Good Illumination

Figure 5.134: Omar al-Mukhtar Mosque, General View

Condition of the Building: It is noted that the mosque is kept in the best possible condition.

5.2 A Comparative Reading for Main Components of Mosques

5.2.1 Main Common Components in Ajdabiya Mosques

It is useful to sketch a simple floor plan, using numbers to designate the mosque elements. (**Figure 5.135**)

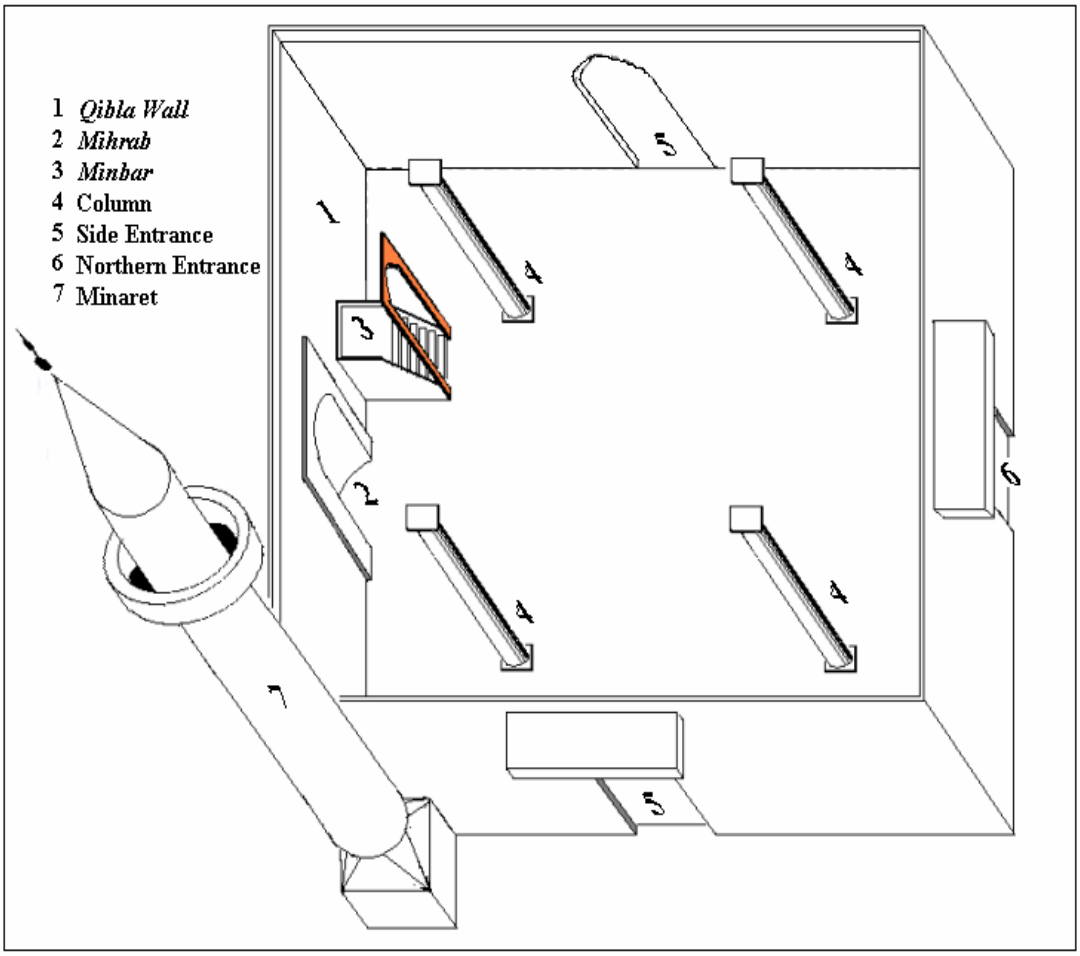


Figure 5.135: Some Elements of a Mosque
(Source: Personal Schema, 2006)

5.2.1.1 Orientation of the Mosque (*Qibla*)

The direction of the Qibla is compulsory oriented towards Mecca. Despite the existence of tools, which accurately determine the direction toward Kaaba, most of Ajdabiya mosques are not oriented correctly. Moreover, some of them are very far from the appropriate direction. According to the interviewed master builders in Ajdabiya city (Appendix 1), the mosques were oriented by the master builders by using certain stars. In the orientation of the al-Esra mosque and after (1975) the compass has been used to determine the direction of the *Qibla*. However, the results remain almost the same. Yet, both means fail to determine the correct direction (**Figure 5.136**). Most of the mosques are oriented towards the south rather than the correct direction whose angle is 111 degrees with the main North-south axis of Ajdabiya city. This is based on JEPPESEN navigation charts (Jeppesen charts have been used for more than 70 years for both aviation and marine navigation. Jeppesen charts cover all the world is a resource for maps and navigational aids information). Elmahmudi (1996: 167-168), gives an explanation of the failure in determining the accurate directions for mosques. The term *Qibla* is derived from the Arabic word meaning ‘south’ in English. This may create a misunderstanding of the direction. Libyan people thought that Mecca is located south of Libya and thus the direction of prayer is to the south

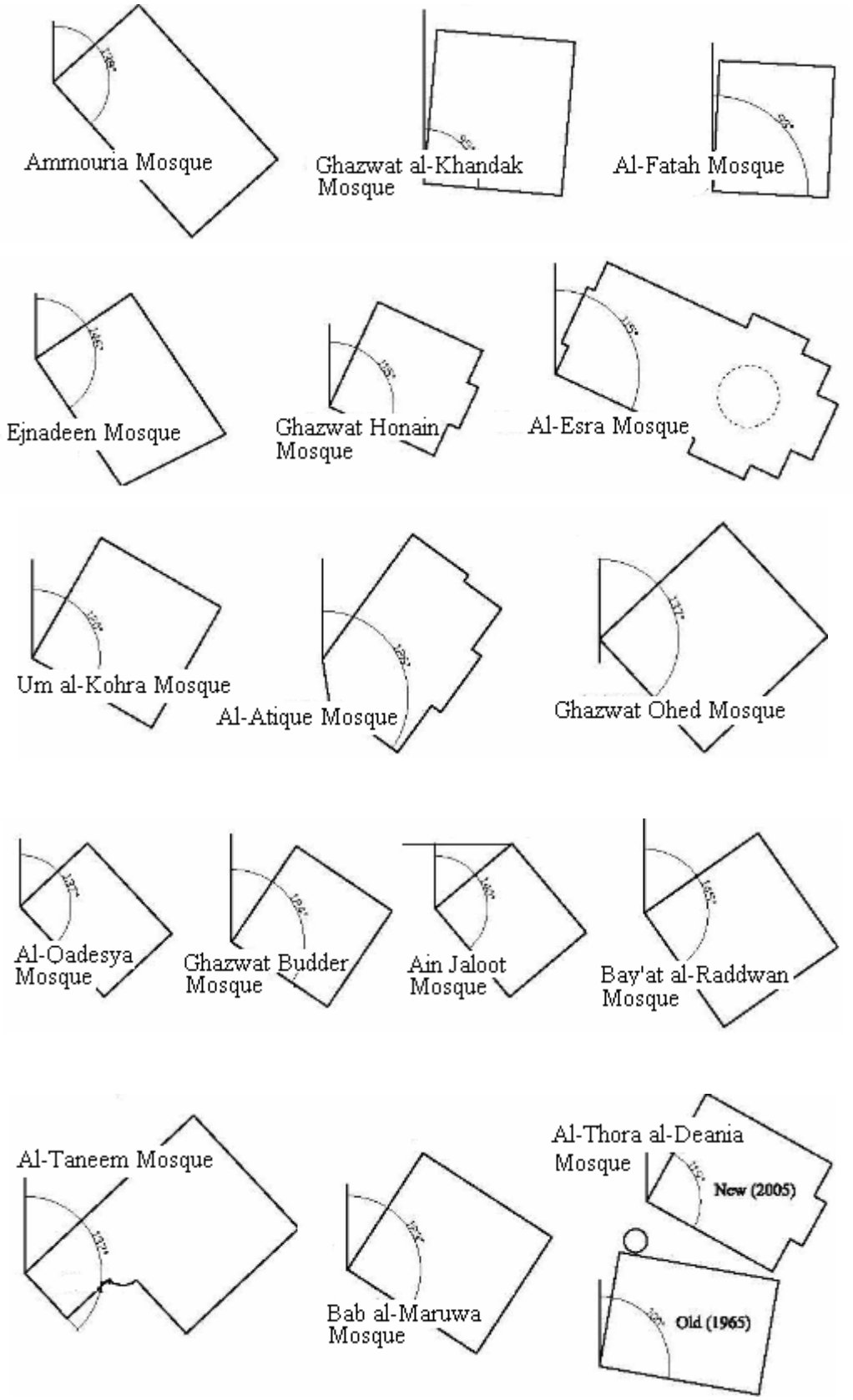


Figure 5.136: Incorrect Orientations (*Qibla*)

5.2.1.2 *Mihrab*

The *Mihrab* is the niche in the *Qibla* wall, which signifies the orientation, prescribed for ritual prayer. It directs the worshippers towards the Kaaba in Mecca, the holiest shrine for Muslims. Apart from, the *Haram al-Sharif* in Mecca, the *Mihrab* and the *Qibla* wall are indispensable architectural elements for all mosques. In the *Haram al-Sharif* in Mecca, worshipers compose circles around the Kaaba. The *Mihrab* is described by Frishman (1994) as:

> It is a recess or niche which is the central and most decorated feature of any mosque. Unlike the altar in a church, however, the Mihrab is not regarded as sacred; what is prescribed or sacred is the direction of prayer which its presence indicates. It is said that the spot by the wall where Muhammad used to stand when at prayer in his house in Medina was marked after his death by a stone (Qibla). The form of the Mihrab is basically that of the Roman niche-semicircular in plan and having a semicircular arched top-set in the wall. (Frishman, 1994: 33-35)

There are generally two types; hollow and flat (**Figure 5.137**). The former one divided into three types; semi-circular or concaved (**Figure 5.138**), corner hollow (**Figure 5.139**) and rectangular space extended of the *Qibla* wall (**Figure 5.140**). This space represents the *Mihrab* and contains a Minbar. It is believed that the first use of the hollow *Mihrab* as it is known today in 87-89 *Hijrah* AD 706-707 the era of lifetime Omar Ibn Abdualaziz (Mikdashi, 1995: 68).

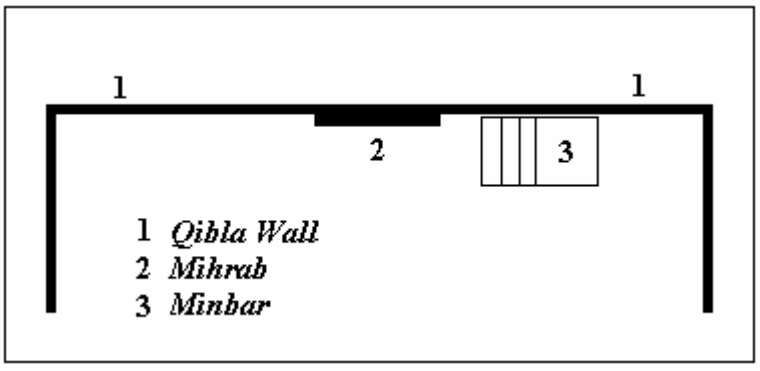


Figure 5.137: Flat *Mihrab*
(Source: Personal Schema, 2006)

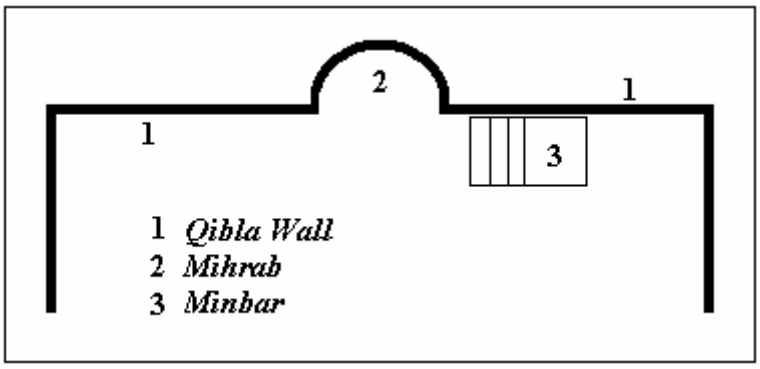


Figure 5.138: Concaved *Mihrab*
(Source: Personal Schema, 2006)

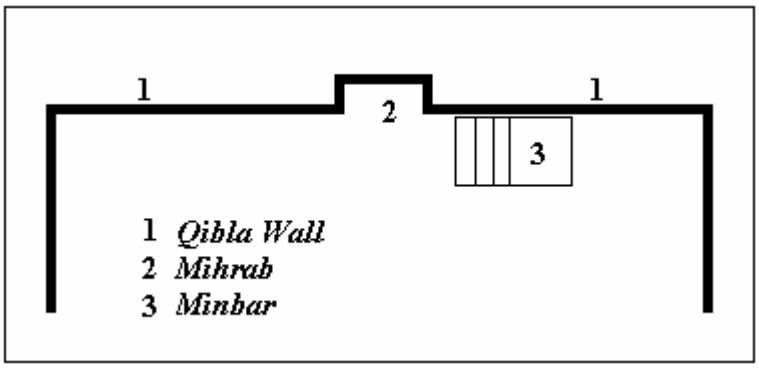


Figure 5.139: Corner Hollow *Mihrab*
(Source: Personal Schema, 2006)

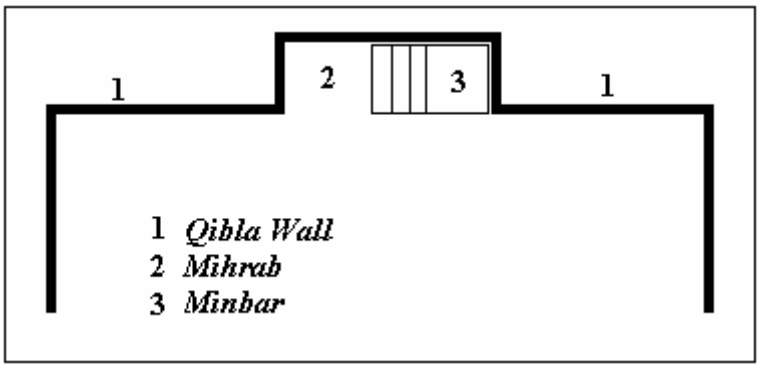


Figure 5.140: Recessed Space Containing *Mihrab* and *Minbar*
(Source: Personal Schema, 2006)

Varieties of materials such as stone, marble, ceramics, mosaics and wood have been using to build and decorate *Mihrab.*

Although, there is more than one *Mihrab* built in one mosque in some examples in the Islamic world, in every mosque located throughout Libya, there is only one *Mihrab.*

It is subject to be highly decorated. Although, the *Mihrab* serves as indicator of *Qibla* direction, many of them occupy space more than is actually needed.

5.2.1.3 *Minbar*

It is also an indispensable architectural element of mosques. The *Minbar* is a raised place with steps leading to a platform, from which the *Imam* or preacher delivers the ceremony on religious occasions such as Fridays and two Ids of Islam. This platform is small so that only one person can be accommodated on it. It is always located to the left of the *Mihrab*.

"The *Minbar* of the Prophet consisted of only three steps. It was made of strong wood." (Wazeri, 1998: 27) A number of researchers believe that the *Minbar* became composed of more than three stairs after the time of the Prophet. It became more than three steps and highly ornamented during the era of Umayyad dynasty and after (Khalil, 1992: 170). The main materials used in the manufacture of *Minbars* are wood and marble. However, stone is sometimes used.

The types of *Minbar*s can be divided into three types; the first one is a recessed *Minbar* with *mihrab* in rectangular space (**Figure 5.141**). The advantage of this one is that it does not disturb rows of worshipers. But its disadvantages are that the *Imam* becomes invisible to some places in the mosque, especially side parts of the first worshiper rows, and some times result in uncomfortable vertical viewing. "The movement of the eye is 54 degrees in width, 27 degrees upwards." (Neufert, 1970: 21) The second is the *Minbar,* which is perpendicular to the *Qibla* wall (**Figure 5.142**). It features the imam standing to speak on any step. There is a *Minbar* which is parallel to *Qibla* wall (**Figure 5.143**). On which the *imam* stands to speak can only stand on the platform. The disadvantages of the second and the third ones are the

disturbance of first rows of worshipers and creating uncomfortable viewing. In the worst cases, the *Minbar* is positioned in a place that interferes with the prayer rows and makes the *Imam* invisible to some worshipers (**Figure 5.144**).

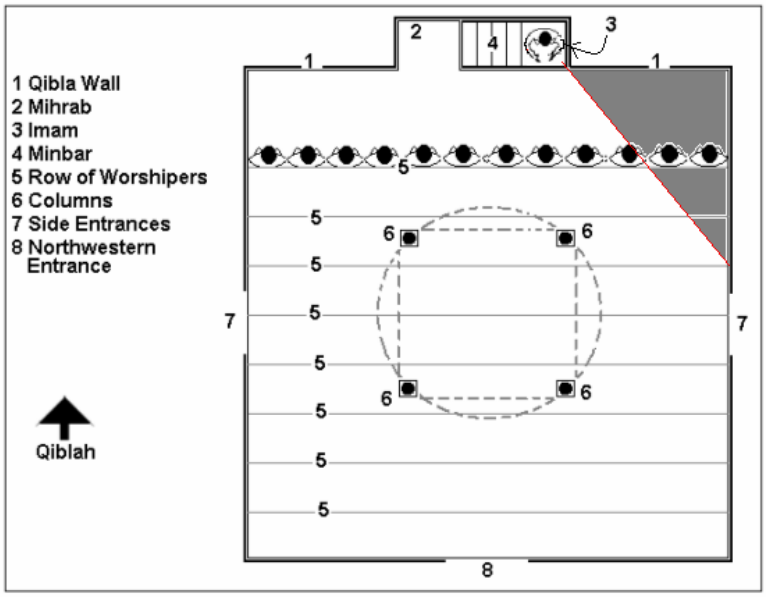


Figure 5.141: Recessed Space Containing *Mihrab* and *Minbar*
(Source: Personal Schema, 2006)

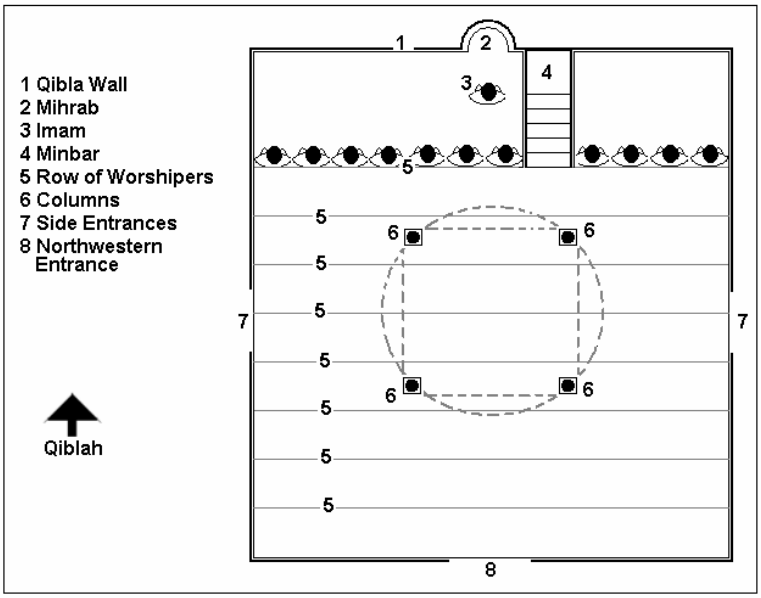


Figure 5.142: *Minbar* Perpendicular to *Qibla* Wall
(Source: Personal Schema, 2006)

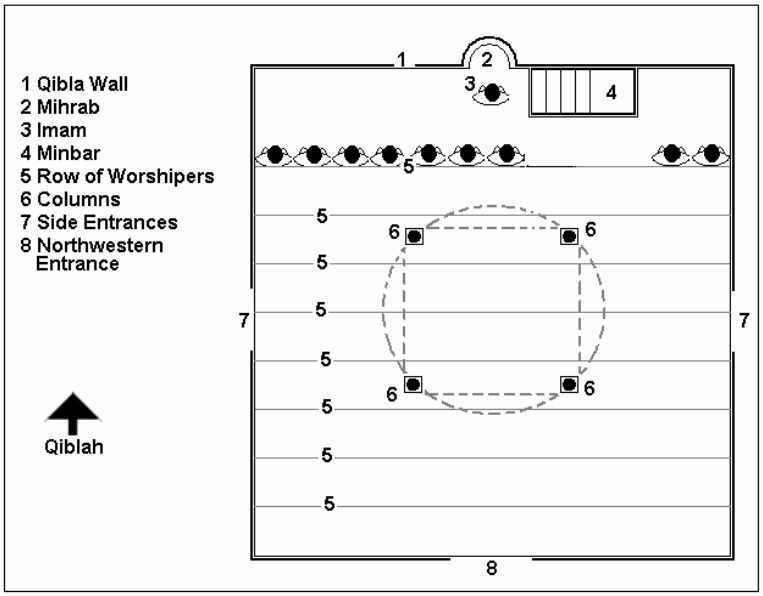


Figure 5.143: *Minbar* Parallel to *Qibla* Wall
(Source: Personal Schema, 2006)

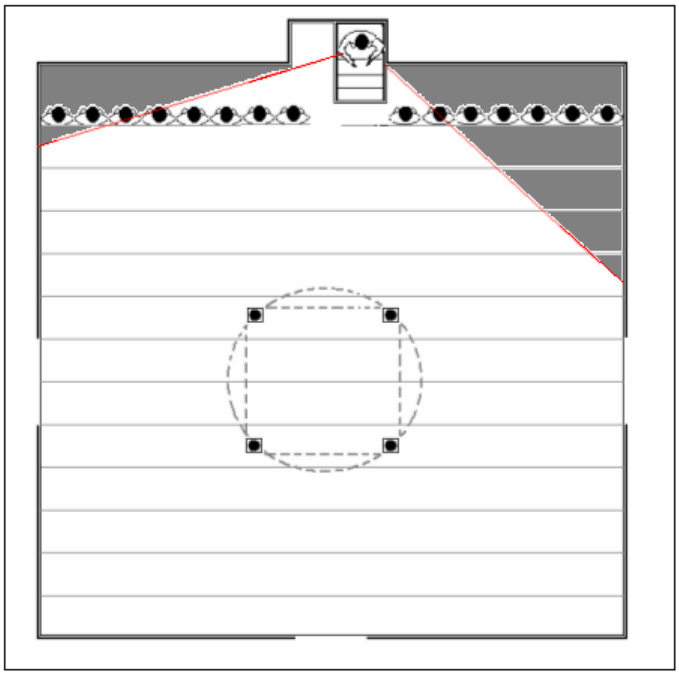


Figure 5.144: The Worst Case, Invisible *Imam*, Disturbed Worshipers
(Source: Personal Schema, 2006)

5.2.1.4 Minaret

The minaret is one of the elements of mosque architecture. There are three Arabic terms most commonly used to designate the minaret; first, *mi'dhana*, *which* is derived from *adhan* (summon to the prayer). It means it is a place from which the call to prayer is summoned. The second is *sauma* (hermitage), which means a place where religious persons live on their own. The third one is manara, which means a place of light or fire (Hillenbrand, 1994: 132-133). The minaret was inspired from the civilizations that preceded Islam. It is a high tower whose highest point is the place where the *Muezzin* can announce *Adhan* and could be heard far and wide. *Adhan* is Arabic word means call people to come for prayer. The official function of a minaret is to summon people and to announce the time of prayer. In the time of the Prophet no such thing as a minaret was found. Calling worshipers to come to fulfill prayer was done from the highest roof. It is needful to confront the argument marshaled by Creswell. In his book titled a *Short Account of Early Muslim Architecture,* page 5, Creswell recorded that Muslims had started summoning to prayer merely as an imitation of the Jews and Christians. This deviates from both historical facts and the Qur'an. Historically, the discussion was on how to call the worshipers. The Qur'an orders to call the worshipers. As stated in Sahih Muslim, Book 4, Number 0735, "when the Muslims came to Medina, they gathered and sought to know the time of prayer but no one summoned them". The Companions of the Prophet discussed that they should know the timings of prayer by means of something recognized by all. Some of them suggested using something like the bell of Christians. Some of them proposed using a horn like that of Jews. But Bilal who was one of the Prophet's companions was ordered by the Prophet to call worshipers with *Adhan* in the same way known to Muslims today.

Calling is contained in the Qur'an literally. It was already exist in the Qur'an, before discussion on how to call to prayer. This can be deduced from the holly Qur'an in *Sura al- Jumu'ah* as following:

> O ye who believe! When the call is proclaimed to prayer on Friday (the Day of Assembly), hasten eamestly to the remembrance of God, and leave off business (and traffic): that is the best for you if ye but knew!. (Qur'an, *Sura* 62, Verse9: 561)

According to some researchers in history, emergence of the minaret for the first time in Islamic architecture was likely during the first century of Islam. As several studies have shown such as Grabar (1987) and Hillenbrand (1994), the minaret derives its physical shape directly from the characteristic square towers of Christian, themselves issued from Roman and Hellenistic constructions. It is sometimes immediately attached to the mosque mass as mosque of Qairawan. Its location is detached to the mosque building. The best example is the mosque of Samarra. It is difficult to foresee all forms of minarets all around the Islamic world (**Figure 5.145, 5.146**). However, according to Grabar (1987) types of early minarets can be divided geographically as following: Square minarets are commonly known in North Africa. Cylindrical-shaped minarets are in Iraq and Iran. In Turkey minarets are elegant around and have a slender pointed apex. There are few instances of spiral type minarets. The best-known examples are Samarra in Iraq and in the mosque of Ibn Tulun in Cairo-Egypt. Thirty-three mosques of the 47-mosque of Ajdabiya have minarets. Fifteen are square-shaped minarets. Thirteen are cylindrical form. Four are octagonal. One mosque has a pipe used as a minaret whose diameter is about one meter. Custodians; the persons with responsibility for protecting and taking care of the mosques which have no minaret were asked about the reasons of absence of the minarets. They stress that the minaret is very crucial element of the mosques and thus the mosque is considered deficient without a minaret. The reason for their absence is the lack of funding. In order to investigate how the form of the minaret is chosen, three old master builders in Ajdabiya were interviewed. They said that the shape of the minaret was chosen by the status of labors and financial condition. If there was sufficient money and the labors were skilled then the minaret was round shaped because it was preferable. If the labors are not skilled, the shape of the minaret was square. The octagonal shaped minarets were not known.

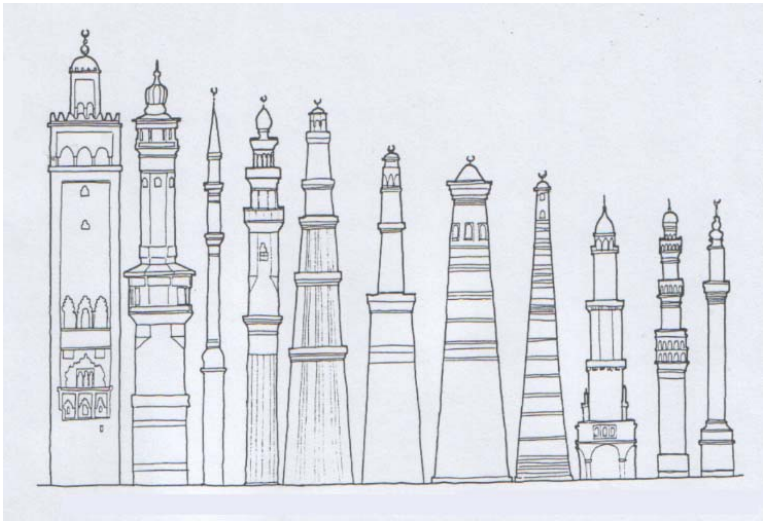


Figure 5.145: Different Forms of Minarets around the Islamic World (Source: Hillenbrand, 1994: 130)

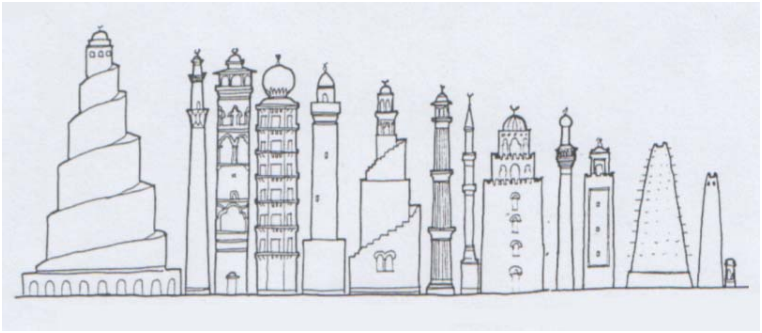


Figure 5.146: Different Forms of Minarets around the Islamic World (Source: Hillenbrand, 1994: 131)

The people with responsibility for protecting and taking care of the mosques without minarets stress that the mosque cannot be identified as a mosque without a minaret. “The mosque is a minaret” this is a paraphrase of what one of these people had said.

The *Adhan* is called not personally in the minaret, but from the prayer hall via microphone and speaker system and thus the role of the minaret needs re-consideration. But in the case of acknowledging that the function of the Minaret is symbolic and identity element, then it should stand as a focal point. It should has pleasant architectural form and acts as a marker identifying the place of prayer in a way, which a place of worship is being deserved.

5.2.1.5 Dome

The dome is an essential structural component for large spanned structures. As stated by Ali Ihsan in ASCE conference:

> The dome is the structural form, which distributes loads to supports through a doubly curved plane. It is a continuous geometric form, without corners or perpendicular changes in surface direction. It encloses the maximum volume with a minimum of surface. (Unay, 2006)

Smith (1995) explains the emergence of the dome as an element of mosques in his book called *The Dome; a study in the history of ideas*; 3-44. The dome was known before Islam for a long time; moreover, the dome was used by Roman and Byzantine widely. The first use of the dome in the history of Islam was in the Dome of the Rock, which was constructed in 691 AD (72 Hegira).

The dome is one of the most important architectural and structural innovations. It has contributed to the evolution of architecture. The dome is not used only in mosque architecture. It is used also in different building purposes including military and civilian buildings (Al-Haddad, 1993: 6-8).

At the beginning the dome was placed either above or at the front of *Mihrab.* That was to emphasis the importance of the *Mihrab* and the dome signifying the location of the *Mihrab.* The best examples of these are the Umayyad mosque in Damascus and al-Azhar mosque in Cairo-Egypt.

In mosques all around the world, there is a variety of forms of domes. They are spherical, oval, bulbous or onion, pyramid and polygon shaped domes. However, in Ajdabiya's mosques, domes can be divided into two categories; spherical or semi spherical and polygon cubical shaped domes. From the 47-mosques of Ajdabiya on thirty six of which have domes. 81% of mosques, which have domes, are spherical or semi spherical shaped domes. 19% of which is polygon cubical shaped.

5.2.2 Missing Components in Ajdabiya Mosques

5.2.2.1 Courtyard

The courtyard existed in the mosque of the Prophet and served important purposes such as political, educational and social meeting places. Although the courtyard does not serve as a political place any more, it can serve other purposes. The primary function of the courtyard is not a pathway. The courtyard provides worshipers with extra space protected from the weather. By the courtyard the mosque can gain extra articulation and good relationship between open and covered spaces. It is needed to serve as a transition from the interior of the mosque to the outdoors. The courtyard with outdoor protected seats is a place of gathering, waiting and rest before and after the prayer. Since secular speaking inside the mosque is prohibited, the courtyard is the suitable place for greeting and conversation. Mikdashi highlights the social role of the courtyard in his Arabic book called *Unit of Islamic Arts, Architecture, Handwritings and Music*:

> The view of the courtyard in the Great Mosque of Damascus was very nice. It was the place where the people met. In which you can see some people talking while they are walking. Some of them read. That was the case during the day until the last prayer. (Mikdashi, 1995: 91)

5.2.2.2 Anteroom (Entrance, Foyer)

When entering the mosque, a person should take off his/her shoes and walk barefoot into the mosque (**Figure 5.147**). Therefore, it must provide a place to put shoes. This place should be protected from the sun and rain. In addition to keeping the shoes and personal items, it serves as a transition space between the exterior and interior; when entering the mosque and exiting. Providing lockers “cupboards” is to make the worshiper feel that their items are inviolable.

Figure 5.147: Gar Hirra Mosque, Worshipers' Shoes

Figure 5.148: A Locker System, Turkey, 2006

Generally, in most mosques of Ajdabiya, shoes are left in the open in front of the mosque without adequate protection. A locker system (**Figure 5.148**), which is used in the mosques of Turkey, is a good system to store items.

CHAPTER 6

GENERAL CONCLUSIONS

6.1 Assessments

6.1.1 Some Findings and Problems

A frequent complaint from worshipers is that most mosques in Ajdabiya city do not have a transitional area (like an anteroom), which separates the outside from the prayer hall. Worshipers have to leave personal items exposed to the outdoor circumstances and thieves in front of the mosque's entrance. It may also lead to congestion at the entrance.

The location of ablution facilities is chosen inappropriately in most cases which lead to the demolition and change of its position. They are located mostly on the northern direction of the mosque so that the desirable summer breeze is blocked. By locating the ablution facilities on the suitable position, the mosque is exposed to the cooling effect of the breeze in the hot summer months. Many ablution facilities are built on the side of the mosque facing the *Qibla*. This is a weakness in design which shows the lack of consideration of worshipers who find it offensive having toilets between them and the holly City. The facilities in this position are impractical because they are far away from the entrances. By not considering the prevailing winds, ablution facilities placed in position where odors are carried into the prayer hall. In order to avoid the odor problems, many builders place ablution facilities too far away from the mosque creating another problem for worshipers.

A lot of mosques also lack paving walkways between ablution facilities and the prayer hall. After ritual cleaning, worshipers have to walk through soil and dusty land and then enter the building, which leads to dirt being carried into the prayer hall.

Most walkways lead to detached ablution facilities with no covering shelter to provide welcome shade from the strong Sahara sun during summer months and from rain during winter seasons.

One of the most frequent problems is that all mosques lack hospitable meeting place which contains furniture to sit and protection from elements, comfortable spaces where worshipers can sit, chat and wait until the time of prayer comes. Also in which they can meet after the prayer since talking inside the mosque about secular subjects are forbidden.

Extensions are made without considering architectural principles leading to an imbalance and design elements becoming invisible, disappearing and the loss of open spaces.

6.1.2 Discussions and Final Results

The mosque architecture is influenced by religious concepts. It is affected by *bid'a* concept as has been discussed in chapter 3. There is misunderstood regarding the prescriptions of Islam. For example, when the Prophet warned from pride attitude whose opposite is humility, avoiding pride was interpreted by some of his companions as wearing tatters cloths (see chapter 3, section 3.3.2).

Elements of the mosque are the prayer space; *Minbar* and an indication of the *Qibla*, which would later be called *Mihrab*, existed in the mosque of the Prophet. It is entirely appropriate to call the whole interior area of a mosque the prayer space; since it is the place where the prayer worships occurs either individually or congregationally.

However, the exterior ones, which are mainly the minaret, dome and ablution facilities were not found in that mosque. Since the mosque did not develop organized exterior features or even elaborated gates until much later. One can say in general the interior of the mosque is devoted to worship while the exterior of the mosque is secular. The exterior is part of the city, which could be inhabited by non-Muslims.

It can be noted that, elements, which were introduced to the mosque after the time of the Prophet, were imported for functional reasons; none of them were used arbitrarily. For example the minaret was used for calling worshipers. The dome was used to gain the largest possible span. *Iwan* was introduced to provide shaded and ventilated space with open air. Greenery was used to ease the harsh climate.

The dome is used as a structural solution. It is to obtain the largest possible span. At the mosques in Ajdabiya, the dome does not cover the whole area of prayer space. It becomes a structural millstone requiring at least four pillars to support it. These supporters adversely affect the space of the prayer.

The upper structure of the most mosques in Libya before the Italian period was multi domed. Perhaps in the view of Messana (1981: 64-82), the reason that mosques were multiple domes to distinguish them from “Mrabottih”. It was a special place (tomb) in which the admired person was buried. Mrabottih is a widespread phenomenon in North Africa. It is the glorification of a dead person who had high spiritual status. It is always a hut in which only one person is buried. It is covered by a hemispherical dome (**Figure 6.1**). However, during the Italian and post Italian era, the style of the mosques in Libya became hypostyle hall with a flat roof and possibly one dome.

Ottomans ruled Libya for more than four centuries. They built many mosques, but they were not in the Ottoman-style. For example, there was no mosque built in Tripoli using the central dome style, which is associated with the Ottomans. Instead of that Ottomans followed the applied model, which was the multi domes style. The sole exception was al-Atique Mosque built in Benghazi city. It reveals the Ottoman central dome style. The mosque was constructed in A.D 1852. That was the end of the Ottoman period. (Elmahmudi, 1996: 176) However, according to Amoura, the Ottoman style affected the shape of minarets. Some of which became cylindrical-shaped or octagonal instead of being only square, the shape that had been dominated on western Arab region (Amoura, 1993: 394, 395).

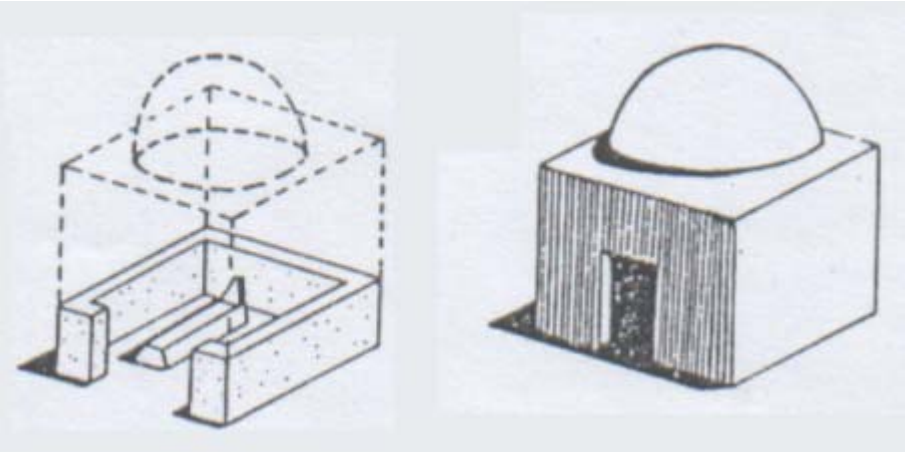


Figure 6.1: Drawing to Show a Form of Mrabottih (tomb)
(Source: Messana, 1981: 68)

According to (Amoura, 1993: 387-399) most of the pre Italian roofs of mosques were very low. Due to structures and climate mosques were built with very thick walls, little and small fenestrations painted in white. Minarets were simple formed. Their heights must not be too high to disturb the privacy of citizens, especially those located in neighborhoods.

All mosques of Ajdabiya were surveyed. Architects designed only 16 out of 47 mosques (34%). 34 out of the mosques (66%) were designed by unqualified persons. Most of the mosques are not oriented accurately. The occurrence of *Mihrab* and *Minbar* is 100 percent. 40 out of 47 *Minbars* (85%) are located in a manner that bothers worshippers. There are disturbed columns in all prayer halls. 43 out of 47 mosques (91%) have one or more side entrances, which lead to disturbing movements. However, not implementing side entrance in the other 4 mosques (9%), probably, is not optional but due to existence of neighbor. The incidence of domes is 77% (36 out of 47 mosques), but 21 out of 36 domes (58%) are hardly noticeable and bad in aspect of form. The occurrence of minarets is 33 out of 47 mosques (70%). But the form and location of 26 out of 33 minarets (79%) are not appropriate. 51% of the mosques (24 out of 47) are not protected from elements (sun and rain). Suitable shelves or cupboard for storing things; especially shoes are not available in 43 out of 47 mosques (91%). 68% of ablution facilities locations (32 out of 47) are not appropriate. The orientations of 16 out of 47 WCs 33% are not preferable. 42 out of 47 mosques (89%) reveal bad workmanship implementations.

In order to explore the use of the space during the daily prayers, twelve of Ajdabiya city mosques were chosen randomly; three of which are located in the center and nine are located in neighborhoods. The result of the survey shows that; about 50% of the prayer spaces, of the mosques located in center, is occupied in the three prayers performed during the daylight (Noon, None's and *Maghrip* prayer). Approximately, the same percentage is occupied at Friday prayer. While during the night prayers (Matins and Evening prayers) the percentage of use of the prayer's space does not exceed 20%.

The survey of neighborhood mosques reveal that about 50% of the space is occupied during Noon, None's, *Maghrip* and Evening prayers. While the mosque are wholly full at Fridays prayers; moreover many people can be seen attending the prayer outside of the mosques, only about 15% of the prayer hall space is used at the Matins prayers. Most of the mosques are only completely occupied during the Friday's prayer. Noting that the Friday prayers are only 1/35 of the total imposed prayers. This means a waste of energy used for a building not to be fully occupied.
This indicates that while the whole space of the mosques are ventilated and illuminated by mechanical means, the spaces are not fully occupied in the most cases.

In order to research which element, minaret, dome or both of them, the mosque is identified; two pictures of mosques were shown to one hundred and sixty-four men aged between twenty and fifty five years (Appendix B). One of the pictures is of a mosque having a dome (**Figure 6.2**) and the other is one with a minaret (**Figure 6.3**). The result is that 153 out of 164 the interviewed people (93%) found the building, with only a dome is obviously recognizable as a mosque. The mosque, with only a minaret, is recognized as a mosque by about 156 out of 164 the interviewed people (95%). This reveals that the majority of the interviewed people identified the two buildings as a mosque.

Figure 6.2: Al-Falujah Mosque, a Dome Without a Minaret, 2006

Figure 6.3: That al-Sowwari Mosque, a Minaret Without a Dome, 2006

6.1.2.1 The Process of Building a Mosque in Libya

Rarely, constructing a mosque is accomplished by full funding from the government. In some cases, the mosque is being built through donations from people. The process of establishing a mosque, in most cases is conducted by one donor. The mosque then was nicknamed in the name of its donor, but currently, the names of mosques are officially designated by *Waqfs*. The process is that any person who has money influence and/or power can decide to build a mosque anywhere irrespective of the land use and without interference from the authorities. A donor often chooses a designer and may even intervene in the design and selection of the accomplished contractor. Many mosques in Ajdabiya city were built in parks and gardens. Mostly, the Libyan government does not interfere in designing or constructing mosques. However, mostly, the maintenance of mosques is made through donations of people.

Relying on the view of White et al. (1998) regarding a fence surrounded a religious building is a countermeasure for hospitality; mosques in Ajdabiya city are not hospitable. Some are not fenced off. These mosques are not fenced off perhaps because around them, there are no spaces to build fences (see **Figures 5.9, 5.18, 5.31, 5.76, 5.110, 5.123**) and/or mosque located in the city center (see **Figures 5.3, 5.6, 5.41**) and one mosque situated on main road (see **Figure 5.27**). Other mosques are surrounded by high fences making the place uninviting. As mentioned previously, mosques are inaccessible between prayers. This situation is exacerbated by the fact that mosques have no shaded areas and seats. However, this has not always been the case. According to this standpoint, mosques were very hospitable before the 1980s.

Meaning none of the mosques was fenced off and they were accessible between prayer times. Probably, the reason for the change was because religious extremists tried to exert their influence and spread their propaganda within mosques with the intention of influencing people's opinions. Therefore, from then on, the government has undertaken to control the running of mosques. Another interpretation but related to the same meaning of a fence around a mosque is stated by Frishman (1994). As has been mentioned previously (see section 3.4.3.1), he writes that a fence acts as a veil to conceal the interior of the mosque from outside view. Both of these opinions support the 'hidden architecture' concept. Although calling for prayer is for all people to come to pray, only worshipers meet the invitation to attend. The rest of the people are not concerned. Since the worshipers have nothing to do with outside, structure to shield them from outside is necessary. Mosques in the past time may not be surrounded by noisy streets, as happening today. Thus there was no need to build a fence. But today, in light of the existence of mosques with windows overlooking the streets, building a fence probably is necessary. There are windows which allow the mosque users to experience what is going on outside. These windows make users feel connect with out side. When these windows are open, the noisy of streets cause disturbance for worshipers. Especially from windows in the *Qibla* wall of mosques which are located directly on streets without open space in between. Most the mosques have openings in the level of the stand men. This is may evidence of poor design because if the windows are open they are a source of disturbance. Another possibility of these windows is to be close which leads to question that especially in a hot climate region, such as Libya, what is the feasibility of designing and implementing windows to be closed better than to be open?

Therefore, for Muslims, unconsciously, the hidden architecture is an important requirement. It is to satisfy privacy needs in accommodations and to achieve the necessary tranquility for worshiping. The separation of women from men is another indicator of the hidden architecture concept for Muslims.

Another factor may strengthen to build a fence and specify the role of the mosque in prayer only. In Libya, the mosque is opened and locked a few minutes before and after prayers, meaning that the mosque is off limits and inaccessible to worshipers between the prayer times. Therefore, the use of the mosque is exclusive except for

prayer times. In contrast, most mosques in urban areas, such as Turkey, are accessible to worshipers and even tourists at any time during daytime hours. That means worshipers are free to congregate and study the Qur'an within the confines of the mosque. Mosques in Libya are places where only prayers can be performed and have no other social purpose.

Additional to the assumption of complying with the functional purpose, the mosque design must respond to its own inner determinants such as cultural requirements, the characteristics of the site, the local climate, the current building materials and contemporary architecture with corresponding building technology.

Ignoring these factors leads to the emergence of buildings similar in form and built with the same elements and the same building materials in regions characterized by different features; coastal, mountain and the Sahara desert. The characteristics of the site such as neighboring buildings, roads and utilities are not taken on account. This leads to placelessness or nowhere architecture. For example, the plan of Omar al-Mukhtar Mosque (see 5.1.47) had been prepared before designated the location. It was not prepared for this mosque specifically, but the plan was prepared for no certain mosque. It was for any mosque whatever the place. Instead of hybridization with its surrounding environment, the design of mosques is less concerned with the site and accordingly, a mosque seems as a no-where building. In other words, a mosque with a stereotyped plan can be constructed in any place regardless of influencing factors.

In the hot regions like Libya, an emphasis to suitable openness or fenestrations, providing shadow and use of water for cooling and encouragement of convective air currents are desirable. However, most of the mosques in Ajdabiya city disregard these principles and they have even opted for the use of mechanical means of cooling just so that they can use the fortress like image of the mosque typology.

6.1.2.2 The Status of the Mosque for People in Libya

Superiority of mosques as a place, not as a form is obvious in Libya. From the catalogue assessment and the questionnaire (see **Appendix B**), it can be concluded that, Libyans in general and in Ajdabiya in particular are not concerned with form of the mosque. In other words, when someplace is defined as a mosque, the people would support it and do not question or criticize. Whatever the form, the place is considered to be holy and deserving respect. The value of the mosque in terms of architecture takes latest concern. This is supported by what As has quoted from Graper saying "The uniqueness of the Muslim visual symbolic system lies not in the forms it takes but in the relationship it creates". (As, 2006: 60).

What has been stated by Frishman regarding the possibility of converting any building to be a mosque, and vice versa, is not completely true of Libya. In the case of the mosques in Libya, it may convert any building into a mosque. But it could be argued that it is impossible to convert a mosque to any purpose other than religious. For example, Al-Thora al-Deania mosque (see 5.1.46), when it was discovered that the orientation towards *Qibla* was incorrect, the old building is being used to teach the *Qur'an*, not any other purpose despite the fact that the mosque is located in a commercial area. Another example demonstrates the importance of mosques; there are some mosques which are against the city planning. Although these mosques occupy parts of public road, no one was able to demolish these mosques (see **figures 5.6 and 5.16**).

When it came to what is the applicable approach to design and construct a mosque, the period predating 1965, which is the period before era of oil revenues in Libya, can be defined as the period of vernacular architecture. Most of the mosques were built by local labor force, using local materials and local techniques. The buildings which have been built after the oil revenues, it is difficult to be concluded under certain generalized approach. Because, mostly are built by foreign labor force, made of some local materials, some imported materials, exotic technique and architectural language. This may demonstrate that mosque users unconcern of the form and the architectural language. For example, compared with other mosques, al-Quds mosque

(see **Figure 5.75**) looks different. Probably because it designed by Indian architect, this mosque may reflect the Indian architectural language, but it certainly does not reflect the Libyan architectural language.

The architecture of the mosques in Ajdabiya can be included under non-axial feature with some exceptions. Al-Esra mosque for example characterizes in obvious axial quality (see **Figure 5.27**). Moreover, its plan can be described as crucifix form.

The assessment of the examples reveals that ornamentation is rarely available. Only some mosques are ornamented. The ornamented mosques are al-Quds (5.1.25), al-Bekaih (5.1.36), al-Shorooque (5.1.41), Ibrahim al-Khalil (5.1.42), al-Falujah (5.1.45) and Omar al-Mukhtar (5.1.47). It may be noted that mosque ornamentation is new feature. It was not know in all the examples which were built before al-Quds mosque. Probably, either lack of calligraphy professionals or the majority of worshipers at that time can not read.

Differ from mosques sponsored by local sources; mosques which are funded by the state are designed by architects. Architectural, structural, electrical and mechanical schemes are found before embarking on the construction. They are implemented by specialist contractors. They are usually characterizes in luxuriousness.

It is relevant here to note that perhaps in the case of lacking the adequate financial resources and the necessary technical possibility to build a dome, there is insistence on building a polygon cubic structure. The cubic structure is considered as a substitute for a dome. The reason might be there is need for a symbolic element and/or intending to emphasis the centrality of the building the principle which confirms non-axial feature.

Regardless of the lack interest in the design phase, and despite the lack of care in selection of skilled labors to construct mosques, it is obvious that there is interest in keeping the building in a good condition. Indeed, whatever the form of the building, it seems that people feel possessive. They are fond of their mosques. Moreover, people may even proud of their building.

There is a phenomenon of indiscriminate extension, which could be described as the building expands in any direction by adding various forms and sizes of structures in disregard of the form and the size of the original building. It gives impression that it is not a single building but it is more than one building. This may lead to the marginalization or disappearance of elements such as domes and minarets, which the goal of their existence is to serve as a focal point. Also, in several cases indiscriminate extensions lead to the closure of the north side, which leads to the depriving the mosque of the desired breeze. This is defined by Grube (1978) as regardless of how the form of the building would be, it is easy to make additions to original building. However, there are some exceptions. In al-Esra mosque for instance, when custodians wanted to build a new ablution facilities instead of the old ones whose odor had harmed the worshipers. The new chosen place was a location far from the mosque in order to avoid smell of toilets on one hand and to avoid distortion of the original form on the other hand

It is thought that high minarets as land marks. The higher the minaret the further the call to prayer can be heard. However, the height of buildings and city noise such as the noise of cars and factories make these claims questionable. The height of the minaret is an important consideration, but it is not the only consideration. Another important factor is to locate the minaret in the place, which is visible from the direct access points.

Figure 6.4: New Elements

There is no doubt that there are some innovations used in the mosque, such as Loudspeakers and mechanical ventilations. These elements become evident in the mosque architecture. They can be observed in the façade of many mosques. (see **Figures 6.4, 6.5** illustrates emergence of such elements.

Figure 6.5: New Elements

6.2 Conclusion

Investigating the possibility to accept innovations in mosque design, will draw us first to question whether there are attempts to innovate, with profound knowledge of appropriate needs. It is unfortunately easy to state that such attempts comparing to possibilities of today, are modest.

Factors Influencing Absence of Innovation

There are perhaps four main factors having a strong influence on the absence of innovation in mosque design.

The first factor causing the absence of innovation in mosque design is that absence of challenges of comparing the mosque architecture with temples of other religions which might lead to indifference in the interest in mosque architecture and thus the absence of creativity. Because Islam is the dominant religion, or it can be said that it is only the one in Libya, it might lead to lack of architectural competition with other religions.[1]

The second one is the impact of misconceptions such as *bid'a* concept which has been discussed in Chapter 3, section 3.4.1. This is evidenced by using of the common elements.

The third factor causing the absence of innovation in mosque design is linked to the second factor in a way or another, and it is the loyalty to the traditions, demonstrated by repeating common elements but regardless of functions. Some elements of the mosque are built not necessarily to serve a purpose: they are traditionally there just for the sake of being there. This can be defined as patriotic school thoughts. Many people feel it is their patriotic duty to combat innovations. It may be for fear of that 'innovation' is a confrontation of tradition. Thus, adoption of the innovation would lead to the loss and extinction of the national identity.

[1] According to Frishman (1994) and Khalil (1992), perhaps to prove the merit, there is competition among religions in constructing worship places. To outmaneuver neighboring religions and gain the highest dominant, what is believed to be recognizable symbol is built. In order to attract admiration and attention the building must be excellent and impressive to the maximum possible extent. For further details see Chapter 3 Section 3.4.2.

The forth factor causing the absence of innovation in mosque architecture is the effect of absence of the qualified designers or lack of paying adequate attention to design process.[2] The absence of tools for creativity leads to existing design of buildings being repeated without any improvement since not much talent is needed to copy and reproduce. The form is repeated. Mistakes are repeated. The problems are repeated.

Promises for Innovation

This brings us back to the original question; is there possibility to innovate mosque architecture. Fortunately, there are many hints, indicating for acceptance of mosque design innovation.

Firstly; Islam does not oppose to beneficial innovation, evidenced by the fact that there were innovations for the mosque of the Prophet approved by some of his companions. If an innovation is forbidden or it is something not true, how could it be done in the mosque of the Prophet in particular by his companions? According to Islam, there are no clear rules to what a mosque should look like. The exterior elements such as the minaret and the dome did not exist in the mosque of the Prophet. Each of the features was added after the time of the Prophet in order to enhance the performance of the mosque. To ornament mosques, figurative forbiddance did not bottleneck early designers, but they invented calligraphy as a substitute for figurative art. Thus, the design of mosques is a subject of study, criticism, change for the better and promotion. It is necessary to stress that Islam

[2] This is evidenced by following indicators; the first indicator is that in sunny countries like Libya, the use of electrical illumination during the daylight hours reveals poor design of the fenestrations or openness. Probably the size and/or positions of windows are not appropriate. The second indicator is that while mechanical ventilation is used, the ceiling of the majority of the mosques is high, resulting in ineffective ventilation at a high-energy cost. The bigger the volume is, the higher the energy consumption becomes. The third indicator is that in the majority mosques the location of the ablution facilities is unfit, and displays a weak relationship with the mosques. The fourth indicator is that the orientation of most mosques located in Ajdabiya is incorrect. The fifth indicator is that some *Minbars* are situated in a position that interferes with the front prayer rows. In other cases the *Minbar* is positioned within a recessed *Mihrab* that makes the *Imam* invisible to some worshipers. In the worst cases, the *Minbar* is positioned in a place that interferes with the prayer rows and makes the *Imam* invisible to some worshipers. the sixth indicator is that, in many cases, it seems that the architectural principles such as proportions, scale and unity are not taken in account.

never insisted on a unifying imagery but merely on some fundamental ritualistic practices.

From the reading of religious texts, it can be concluded that Islam exhorts to perfection, aesthetic and simplicity. Islam inhibits from figurative either human being or animal and any thing divert worshipers from concentrating on the prayer. Nothing impels to avoid innovating mosque architecture. Moreover, the simplicity of Islamic prayer rituals makes the way for innovative and creative ideas more wide. The main rules of the prayer can be stated as, 1- Orientation towards Mecca. 2- Straight row; the shoulder attach to the shoulder. 3- The best row is the first, then the next. 4- Non passes in front of the worshiper.

Secondly, the mosque architecture changes from place to place and changes from time to time.

Thirdly, although mosques seem to look alike, they have different features, for example, while some of them are non-axial, some are axial. Also while some reflect ‘hidden architecture’ concept, some of them have elements which run against the hidden architecture feature. Many approaches are applied in mosque design, e.g. while some mosques can be described as vernacular, some of them are designed in modern approach.

Fourthly, there are variations of mosque elements in terms of type and form. For example, there is a wide diversity in the form of the minaret in all around the Islamic world. ‘Change’, ‘variation’ and ‘diversity’ signify the possibility to innovate.

Fifthly, using of new elements such as loud speakers and mechanical ventilation. Comparing to the developing progress, using of such elements is not that big innovation. However, their appearance as part of a building facade is at least indicator of that the concept of innovation is able to be accepted.

Finally, above all, there is a phenomenon which can be exploited to improve the mosque architecture, public support and advocacy of a building when it is designated as a mosque.

The mosque building is not an end in itself, but a means to an end; it simply, serves the needs of those who built it. It provides worship to Allah manifested in Islam. And therefore everything about the mosque must be formed by its main function as the place where Muslims worship. In practical terms, that means architecture that responds to its time and place is changeable from time to time and from place to place. Accordingly, it means opening the planning and design process to critique and debate. Closely related to this concept, Arkoun (1994) notes:

> For Muslims the concept of the sacred is linked directly to the word of God, the revelation of His commands and teachings, as well as to the *Hadith* of the Prophet and the interpretation of their meanings. Such a concept does not of course preclude aesthetic and architectural creativity in the design of a building, for such creativity is in the domain of the architect and thus remains quite separate from the idea of the metamorphosis of the sacred. (Arkoun, 1994: 268)

On one hand, there is no doubt that it is difficult to convince people to change something in religion. Probably, due to the reason stated by Wilson (1995: 39), “The existing monuments form is an ideal order among themselves”. On the other hand, making every effort and spending money to reproduce and use the same elements regardless of function, regardless whether the element is well shaped or not, and regardless the element is located appropriately or not, is indicative of the importance of such element for public may be for seeking to maintain their identity. Probably, the stand point of Post-Modernism can explain the phenomenon. Peel et al. (1989) verbalizes the opinion of Post Modernism as “the public is ready for signs of individuality and even frivolity”. The same author continues noting according to Post modernism “there is need for historical references which could provide a feeling of continuity – an idea of place, time and, above all, identity” (Peel et al., 1989: 100). Relying on this, the study believes that architecture is a source of providing solutions. It is possible to find appropriate solutions which enhance the performance of the building in a way preserve the identity of the society in accord with possibilities of today. That may lead in giving an element strong meaning to sustain longer.

By understanding what a mosque is and what it does, and by knowing the religious, socio-cultural, characteristics and economic factors which may affect the mosque design, the necessary innovation can be done respectfully by the society. Most of the

interviewed people accept the idea of even canceling the minaret, when they learned from a reliable source that the minaret did not exist at the time of the Prophet. If designers of mosques do not possess the necessary knowledge, skill and thus creativity, they can do nothing to persuade people to change the stereotype image of mosques. It is simply continuing to build mosques in a style already known. This claim is confirmed by Arkoun (1994):

> Those who designed and built the early temples, synagogues, churches and mosques were, in their respective cultures, part of an integrated social environment and, because the roles and the meanings of their religious buildings were well understood, architects and master-builders could express such meanings in their designs. They thus made significant contributions to the civilizations of their time. (Arkoun, 1994: 272)

Islam prescribes beauty and simplicity. However, when an observer looks at the mosques in Ajdabiya, he may get the impression from the mosque that Islam prescribes ugliness instead of beauty and complexity instead of simplicity. In other words the mosque architecture in Ajdabiya city creates a wrong impression of Islam.

Here once again, this is not to invite to breakaway of the history. This study does not deny the mosque elements, because the represent tradition, history and identity. This study also does not oppose using the elements of the mosque. But, when these elements are designed, they should be designed appropriately in respect of the prayer rule, according to the architectural principles and satisfying requirements of their society. This study is against ‘ruminate’ copy from the past which leads to stagnation. The stagnation is a feature of death.

In order to enhance mosque architecture, misconceptions need to be corrected, and the mosque needs to be reinvented according to current possibilities. Probably, by an organization which combines all related multidisciplinary specialists who are concerned about mosque architecture. This organization might determine the appropriate goals and strategies, also to regulate and to process the design and the construction of mosques.

The reason for planning and designing of any building, including mosques, is for performing a certain function. The end result, the building, must well-perform the

purpose for which it was established and avoid doing anything that could hamper the activity.

The religious clergy should define clear rules pertaining the architecture of the mosque to put up rational standards and regulations. In order to provide effective facilities, mosque leaders are required to discover or affirm the congregation's purposes, resources and needs. A clear understanding of the primary purposes is foundational to building needs. Then the architects should follow the rules to enhance the performance of the mosque. Architects should be given the full authority to design what they feel appropriate within restrictions of the real religious requirements. The mosque should be developed to provide the necessary utilities. That is to establish efficient new architectural solutions in accordance with modern architecture, modern technology and local conditions.

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APPENDIX A

INTERVIEWS

The purpose of these investigative master builders is to know the mosque techniques and methods about design and constructions before 1970. The mosques before this year were built mainly with mud. After that the building material was changed. The mosques have been built with reinforced concrete. Because of the difficulty of finding experts at building construction in the period pre 1970, three master builders have been interviewed about who design the mosques, how the shape of the minaret was chosen and the method of determining the Qibla.

The interviewed master builders are:

1- Ali Saleem Ibrahim Hamad, born in 1936 AD (**Figure 1**)
2- Mohammed Hamad Mohammed Lihlegue, born in 1939 AD (**Figure 2**)
3- Bin Ahmeed Farag al-Jhani, born in 1946 AD (**Figure 3**)

When questioned about the designer of mosques, it was learnt that master builder was the designer in most cases, but without any prior drawings. And also, he was the contractor and the builder. At the same time, the works of the master builder were done without the supervision of anyone else.

The master builders were interviewed to learn about how the shape of the minaret was chosen. They said that only square and circular (around) shaped were known. The preferable shape was the circular one. The shape of the minaret was determined according to the budget and the efficiency of the labors. If the budget was low and the labors were not skill then the shape was square. According to them, due to constructing of the square minaret is easier than the circular one.

When they were asked about how the direction of the *Qibla* was determined, the master builders said that the direction of the *Qibla* was determined by looking to certain stars.

When the master builders were asked about the influence of the cement and the reinforced concrete on the construction, they said that the cement and the reinforced concrete were new building materials and techniques for them at that time. Despite that their experience remains confined to the construction by stone and mud; they believe that the cement and the reinforced concrete are an important development in construction.

Figure 1: Ali Saleem Ibrahim Hamad, Master Builder, 2006

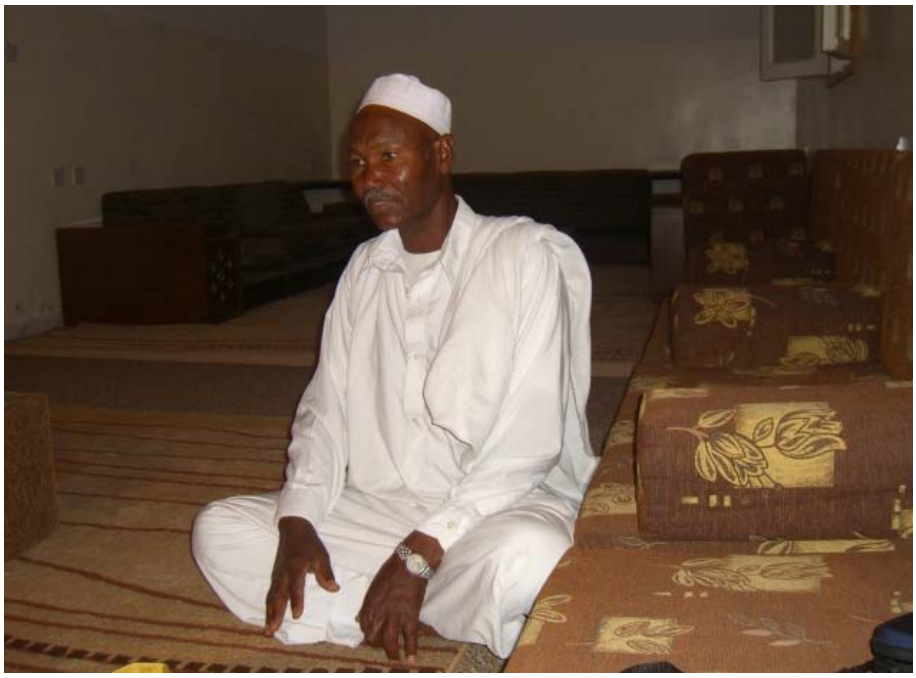

Figure 2: Mohammed Hamad Mohammed Lihlegue, Master Builder, 2006

Figure 3: Bin Ahmeed Farag al-Jhani, Master Builder, 2006

APPENDIX B

QUESTIONAIRE

The purpose of this questionnaire is to explore the possibility of identifying the mosque by only one component, either its dome or its minaret. Two pictures of mosques were shown to one hundred and sixty-four men aged between twenty and fifty five years. One of the pictures shows a mosque having a dome and the other is one with a minaret.

The question about fig1 was “what this building might be?”
The building with only a dome was identified as a “mosque” by 153 persons. The building was identified as a tomb by 10 persons; however, one of 164 interviewed people could not identify the building.

The question about fig2 was “what this building might be?”
The building with only a minaret was identified as a mosque by 156 persons. Eight persons were not sure.

Question3: What are the main factors in choosing a mosque for prayers?
The majority of the questioned people found that the *Imam* and the distance are the main factors in choosing a mosque for prayers. However, none of them considered the form of the mosque as a factor to be influencing the choice for prayers.

APPENDIX C

GLOSSARY

Most of terms defined bellow are Arabic words that are mentioned in more than one chapter of this thesis. The definitions are derived from Frishman, 1994.

Word	Brief Definition
Adhan	the daily five-calling to prayer by a person called *Muezzin*
Allah	: the almighty God
Hadith	: saying of the Prophet Muhammad
Hijrah	: emigration of the Prophet Muhammad and his followers from Mecca city to Medina in AD 622; marking the beginning of the Muslim calendar
Imam	: preacher and leader of prayer in congregational worship
Iwan	: a recessed section along a continuous wall, roofed or vaulted space unflustered with three walls and open on one side facing to a courtyard of the mosque
Kaaba	: a sacred structure towards which all Muslim worshipers orient
Khutba	: a sermon containing secular and liturgical topics concerning Muslims delivered to congregation at midday prayer each Friday
Masjid or Jami	:mosque; a Muslim place worship or a place set aside to worship *Allah*
Mecca	: the holy city of Muslims in which the holy *Kaaba* located

Mihrab	: usually concave niche, found on the wall of a mosque directed toward Mecca indicating the direction of prayer
Minbar	: a pulpit; used for the delivery of the sermon often on prayer of Fridays
Muezzin	an official person who calling worshipers to prayer
Muhammad	: the Prophet of Islam
Muqarnas	: a concaved and curved surface used to ornament a vaulted structure
Musalla	: space of prayer
Qibla	: orientation of Muslim worshiper; toward Mecca; indicated by the presence of the *Mihrab*
Qur'an	: the holy book of Muslims
Riwak	a covered area enclosed the courtyard of the mosque
Sahih	An Arabic word one of its meanings in English is "authentic source"
Sahn	a courtyard: often referred to a courtyard of mosque
Sharia	the canon and law of Islam
Surat	Chapter of the Holy *Qur'an*
Tradition	: saying and actions (deed) of the Prophet relating life and Islamic liturgy, transmitted through *Hadith*
Zullah	: shaded place