

অনুরণন
REVIVAL OF ANDERKILLA SHAHI JAME MOSQUE

By

Ramisa Yeameen Chowdhury Eva
14308015

A thesis submitted to the Department of Architecture in partial fulfillment of the
requirements for the degree of
Bachelor of Architecture

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অনুরণন

REVIVAL OF ANDERKILLA SHAHI JAME MOSQUE

CHATTOGRAM, BANGLADESH



Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Ramisa Yeameen Chowdhury Eva
14308015

Approval

The thesis/project titled “অনুপ্রাণ: Revival of Anderkilla Shahi Jame Mosque” submitted by
1. Ramisa Yeameen Chowdhury Eva (14308015)
of Summer, 2019 has been accepted as satisfactory in partial fulfilment of the requirement
for the degree of Bachelor of Architecture on 08-08-2019.

Examining Committee:

Supervisor:
(Member)

Fuad H. Mallick, PhD
Professor and Dean, School of Design
Brac University

Mohammad Habib Reza, PhD
Assistant Professor, Department of Architecture
Brac University

Abul Fazal Mahmudun Nobi
Senior Lecturer, Department of Architecture
Brac University

Departmental Head:
(Chair)

Zainab Faruqui Ali, PhD
Professor and Chairperson, Department of Architecture
Brac University

Abstract

The Ander Killa (meaning "the inner fort") Shahi Jame Mosque is a 362 years old mosque of Mughal era standing at 32 feet high from the ground on a hilltop. It was built during 1667 AD by Umed Khan, son of Nawab Shayesta Khan, as a symbol of triumph of the Mughals' over the Arakani Moghs and Portuguese pirates in 1666 AD.

Over time many alterations took place in the mosque. The visibility of the Mughal mosque has been cloaked completely due to the extension of the mosque and surrounded buildings. Currently 3000 people can pray in the mosque at once while many people pray on the road during Friday prayer. In addition to that, the book market below has extremely natural poor ventilation and little or no light.

The design thrives to meet up its necessity with an added flavor of exposure of the Mughal mosque, accommodating twice the number of people to pray, relocating the shops, creating public interaction and tourist attraction.

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Glossary

adhan	means an announcement for the call of salat
baitullah	'house of Allah' indicates to any mosque in general or holy kaaba in particular
Caliph	selected leader of the Muslim state
chauchala	means 'four roof' in Bengali
dawat	means an invitation for Islam
Eid	two great festivals of Islam
hajj	the greater Muslim pilgrimage to Mecca, which takes place in the last month of the year and which all Muslims are expected to make at least once during their lifetime if they can afford to do so.
imam	leader of the congregational prayer or salat that the Muslims pray five times a day
iwan	vaulted or flat roofed hall which is open at one end
jama'at	congregation for salat
jami	the mosque where salat is performed in juma
juma	the friday prayer as the sun crosses the zenith
kaaba	The square-shaped building in the centre of the Holy Mosque in Mecca, Saudi Arabia, in the direction of which Muslims must face for performing the salat.
khutba	means a speech of sermon
maqsura	means enclosures near the mihrab to protect a ruler in mosque
masjid	means a mosque
mihrab	a recess in the mosque which indicates the direction of salat
muezzin	person who performs the duty of adhaan
quibla	holy Kaaba in Mecca in which direction Muslims must pray
ramadan	the ninth month of the Muslim year, during which strict fasting is observed from dawn to sunset.
riwak	portico around a courtyard
saan	courtyard
salat	type of Islamic prayer
sawm	fasting from dawn until dusk during Ramadan
shahada	a testimony that is an Islamic creed which is one of the five pillars of Islam
wudhu	the rite of purification which must be done before praying
zenana	enclosed platform indication lady's gallery

1. Introduction

1.1. Introduction of the project

A mosque plays a significant role in Islam. It connects the brotherhood and unity amongst the Muslim communities spiritually acting as a centre of platform. The main purpose is to pray *salat* in *jama'at*. Several other activities are involved within a mosque. Hence, mosque has become an obligatory part of every Muslim settlement worldwide. A criterion for a mosque irrespective of place and culture is similar all over the world, as the standard is followed by Islam. Mosques were built long before the Mughal period and flourished during the sultanate period (1338-1538) (Hasan, 2007).

The Anderkilla Shahi Jame Mosque is a two-storied mosque which stands 30 feet high from the road level, below the plaza of which two-storied book market is located. Omer Faruk started rebuilding and extended the mosque by removing all the illegal ownership on the site. He is the one to introduce book market alongside the mosque for its finance and welfare (Azad, 2015). Prophet Muhammad (peace be upon him) said “the best of places are the mosques and the worst of places are the markets” (Tabarani, Hasan). Religiously this seems to oppose the present situation of the existing function. The challenge will be to keep in mind and re-design in a manner so that both work productively discretely, yet together, without interrupting other functions.

This project would act as a medium for people from every other religion to be acquainted with and build up more knowledge about Islam by being a part of it. At present situation, females are not allowed to enter the mosque for praying. Therefore, it would not only welcome the male, but also females. In addition to that, it would also

be a place for the tourists from all around the world to come, feel the essence of the Mughal period mosque, and be conscious about the history of Islam.

1.2. Project Brief

- Name of the project: Anderkilla Shahi Jame Mosque, Chattogram, Bangladesh
- Client: Islamic Foundation, Bangladesh
- Location: Anderkilla, Chattogram, Bangladesh
- Site acre: 3.7 acre

1.3. Project Background

Anderkilla Shahi Jame Mosque is a 362-year-old mosque located on a hilltop and built during the Mughal era. It is predominantly surrounded by commercial buildings and to some extent residential buildings. Umed Khan, son of Nawab Shayesta Khan, built this mosque in 1667 as a symbol of triumph of the Mughals' over the Arakani Moghs and Portuguese pirates in 1966. Currently, the mosque is the only antiquity of Ander Killa (the inner fort). On the wall of the main mosque, the construction year is mentioned as 1078 Hijra in an inscription stone.

Chittagong Development Authority (CDA) has taken a project of Tk 200 crore to expand and reconstruct Anderkilla Shahi Jame Mashjid. The mosque would be completed keeping its original shape unaltered. CDA plans to preserve and conserve monuments and structures of historical and archaeological importance.

1.4. Project Rationale

Anderkilla Shahi Jame Mosque is one of the significant structure alive from the Mughal era. Being located on the central part of Chattogram it is working successfully. As time passed by, numerous alterations took place in the mosque, starting from structural changes to interior changes. Earlier in the Mughal period there was not

much requirement in terms of population. However, with the change of time, as there is an immense increase in number of populations, an extension is done on the mosque to accommodate people for prayer. For the maintenance of the mosque in terms of financial need, a book market has been built. The book market is famous all over and known in Chattogram for selling educational books, mostly Islamic books. Amazingly, this knot between the book market and the mosque enhanced it to become a landmark in Chattogram for praying, shopping and doing business at the same time. Eventually this place turned into a socio-cultural hub, as there are street hawkers, vendors, restaurants, etc. surrounding the periphery of the site of the mosque. Unfortunately, due to the extension of the mosque it made it relatively obscure to identify there is a Mughal period mosque.

1.5. Problem Statement

The space provided for praying is not working effectively for the increased number of populations in Muslim communities. In addition to that, the vision to perceive the mosque from the main road is cloaked.

1.6. Aim and Objective of the Project

- Providing clear visibility from the road after extension and accessibility must not be concealed
- Relocating the existing shops (235 no. of shops) that is below the plaza of the mosque
- Providing parking and other new facilities
- The main mosque of Mughal era will be kept unchanged and conserved, adding new extensions

2. Literature Review

2.1. Islam

2.1.1. *The Message of Islam*

The word Islam is derived from the Arabic root “Salema” which means peace, purity, submission and obedience. In terms of religion, Islam means submission to the will of God and obedience to His law. Everything and every phenomenon in the world other than man is administered totally by God-made laws, i.e. they are obedient to God and submissive to his laws, they are in the State of Islam. Man possesses the qualities of intelligence and choice; thus he is invited to submit to the good will of God and obey His law, i.e., become a Muslim which is the best safeguard for man’s peace and harmony. Islam is an Abrahamic monotheistic religion that teaches that there is no God but only one (Allah) and that Muhammad (pbuh) is the messenger of God. It is the second largest religion in the world with over 1.8 billion followers or 24% of the world’s population (Wikipedia). The followers of Muslims are called as Muslims or Musalmans.

Islam dates to the age of Adam and its message has been conveyed to man by God's prophets and messengers, including Abraham, Moses, Jesus and Muhammad (pbuh). Islam's message has been restored and enforced in the last stage of the religious evolution by God's last prophet and messenger, Muhammad (pbuh). On 610 A.D. when Muhammad (pbuh) was 40 years old, the first message of Islam came to him through the archangel Jibril (Gabriel), who revealed which would later become Quran (holy book of Islam). This incident occurred in a cave called Hira, located on the mountain Jabal an-Nour, close to Mecca.

The spirit of the message of Islam can be summed up and shown in this phrase: “La ilahaila Allah.” - There is no god but Allah. It means that, apart from the One and Only Allah, nothing must be worshipped. Muslims believe in this strongly. Anyone who follows Allah and takes Muhammad (pbuh) as his messenger becomes a Muslim because Quran says that “He who obeys the Messenger has indeed obeyed Allah” (al-Nisa' 4.80).

Islam believes in providing rewards to the ones doing good deeds and in providing punishment to the wrong doers. Islam also teaches a final judgment with the righteous rewarded paradise and unrighteous punished in hell. Quran says, “Whoever works righteousness — whether male or female — while he (or she) is a true believer (of Islamic Monotheism) verily, to him We will give a good life (in this world with respect, contentment and lawful provision), and We shall pay them certainly a reward in proportion to the best of what they used to do (i.e. Paradise in the Hereafter)” (al-Nahl 16:97). Islam is not only a religion but an all-embracing way of life (Farah, 2003).

2.1.2. *The Message of Quran*

The Holy Quran, the Word of Allah, the supreme authority in Islam—is Allah’s last revelation, intended and envisioned, for all times and all places to guide mankind both in esoteric and exoteric domains of life. That is, beyond any doubt, the Holy Quran—the best, most excellent, complete, and comprehensive Book—contains guidelines and message, rules and guiding principles of Truth, regarding human life in entirety, ranging from socio-cultural and political, economic and material, moral and legal, to national and international. The Holy Quran serves for mankind as a complete and comprehensive constitution,

explained fully, and “on the basis of true knowledge”, making it “guidance and mercy for those who believe” (Q. 7: 52).

Originally Quran is written in Arabic, it has been made accessible, thanks to translations, to those who have no knowledge of Arabic. While no substitute for the original, translations serve the signal purpose of spreading the word of God far beyond the Arabic-speaking peoples to a far broader spectrum of humanity. The Quran is apparently in the Arabic language, but the truth is, it is in the language of nature, i.e., the language in which God directly addressed all human beings at the time of creation. This divine invocation of humanity is ever-present in the consciousness of all human beings, which is why the Quran is universally understandable — to some on a conscious plane, and to others at the subconscious level. This reality has been described in the Quran as “clear revelations in the hearts of those who have been given knowledge.” This verse goes on to say that “none deny Our revelations save the wrongdoers.” (20:49)

The revelations to the Prophet took place over a period of more than twenty years. Before Muhammad's (pbuh) death, many of these messages had been written down in order to be preserved. Muhammad (pbuh) himself began the work of preservation, and Abu Bakr, the first caliph, continued the process by compiling revelations which up to that time had been memorized by the followers and passed on by word of mouth. A complete written text of the Quran was produced shortly after Muhammad's (pbuh) death, with particular care taken to eliminate discrepancies and record only one standard version. This version was then transmitted to various parts of the new Islamic empire and used to assist in the conversion of unbelievers. The text of the Quran has existed

virtually unchanged for fourteen centuries. The Quran is the sacred text that is most widely read in the world today (Farah 2003).

The word Quran means recitation in Arabic. The Quran consists of one hundred and fourteen chapters of six thousand verses, originally revealed to Muhammad (pbuh) over a period of twenty-two years (Esposito, 1998). These chapters which are called surahs are arranged according to length, from the longest being some twenty-two pages of Arabic text for surah two, through the shortest being only a single line for surah one hundred and eight. The name of Allah appears more than two thousand five hundred times in the Quran (Esposito, 1998). The Quran emphasizes service to God. "It envisions a society based on the unity and equality of believers, a society in which moral and social justice will counter balance oppression of the weak and economic exploitation" (Esposito, 1998).

2.1.3. *Five Pillars of Islam*

Islam is built upon five pillars. Muslims follow the Quran as a guide to worship.

2.1.3.1 *Iman*

The Profession of Faith—The Shahada: The Profession of Faith, the shahada is the most fundamental expression of Islamic beliefs. It simply states that there is no God, but God and Muhammad are his prophet.” It underscores the monotheistic nature of Islam. It is an extremely popular phrase in Arabic calligraphy and appears in numerous manuscripts and religious buildings.

2.1.3.2 *Salat*

Daily prayers - *Salat*: A Muslim has to pray five times in a day. The prayers are recitations of the Quran in Arabic. This does not imply that

a Muslims needs to go to a mosque and pray *salat or salah*. Prayer can be done anywhere keeping the fact in mind that it should be meant to pray towards Mecca following the *qibla* direction. The faithful pray by bowing numerous times while standing and then kneeling and touching the ground or prayer mat with their foreheads, as a symbol of their reverence and submission to Allah. The recitation and movements demonstrate submission, humility, and the adoration of God. On Fridays a great congregational prayer is done in the afternoon called *juma*. The men and women worship in separate groups (Esposito, 2002). This prayer is led by a leader who is called *imam*. There is also a sermon called *khutba* which combines religious advice on social and political issues based on the Quran's teachings (Esposito, 2002).

2.1.3.2 Zakat

Daily Alms-Giving—*Zakat*: Although not defined in the Quran, Muslims

believe that they are meant to share their wealth with those less fortunate in their community of believers. Muslims need to pay a yearly contribution of two and a half percent of their individual wealth and assets which is used to help the poor. It is an act of worship, or thanksgiving to God, and of service to the community.

2.1.3.2 Hajj

Pilgrimage to Mecca—*Hajj*: Pilgrimage to the Holy city of Mecca (in Saudi Arabia) and other sacred sites must be performed at least once in a person's life, if they are physically and financially capable. The conditions to go are that they must pay for themselves without burrowing

the money and be able to afford it (Ahmed 1999). Performing the pilgrimage is a temporary suspension of all worldly activities, and is a time for one to reflect, worship, seek the forgiveness of Allah and attain His closeness.

The Pilgrimage is an annual event which takes place in the 12th month of the lunar calendar (Dhul-Hijjah in Arabic) thus unifying people of every color, race, status and age, as they join in worship of the One True God. All pilgrims wear simple and similar clothing, which strips away distinctions of class and culture, so that all stand equal before Allah. They are from different classes, colors, nationalities, and races and they are in the same dress performing the same rituals (Zepp, 2000). Pilgrim men must wear two seamless white sheets and the women must cover their whole body except for their hands and face. These coverings symbolize purity as well as the unity and equality of all believers. In 2018, almost 2.4 million pilgrims fulfilled the Hajj (statista). Hajj involves following in the footsteps of Prophet Abraham, as taught to us by Prophet Muhammad (pbuh). This great act of worship consists of many components including sacrificing an animal, supplicating, visiting and praying at various sites, circling the *Kaaba*, walking between two mountains, as well as many other rituals, all of which are performed over a period of 6 continuous days. Prophet Muhammad (pbuh) said, "Whoever performs Hajj and does not utter obscenities or commit sin, will come back just like the day when his mother bore him (i.e. pure of sins)."

2.1.3.2 *Sawm*

Fasting during Ramadan—*Sawm*: Muslims are expected to fast during the holy month of Ramadan, the ninth month in Islamic calendar starting from dawn to dusk refraining from three key human needs - food, drink and sexual relations. One should also abstain from all sinful actions. As with any act of worship, fasting requires obedience and submission to Allah's commands through the highest degree of commitment and sincerity.

Fasting is mandatory for every physically and mentally capable adult Muslim, exempting pre-pubescent children, the sick, the mentally unfit, the elderly people, menstruating/pregnant/breastfeeding women, and travellers. Missing fasts usually must be made up for soon afterward, although the exact requirements vary according to circumstance.

Generally, fasting lasts for twenty-nine or thirty days. The *Eid* al-Fitr is the feast of the breaking of the fast of *Ramadan* and is a celebration that lasts for three days.

2.1.4. *Praying in Islam*

The prayer ritual, which is over 1400 years old, is repeated five times a day by hundreds of millions of people all round the world. These five prayers, in the order of which they are performed, are called salat al-subh or fajr, salat al-zuhr, salat al-asr, salat al-maghrib, and salat al-isha (Rippin, 2001).

- *Salat al-fajr*: dawn, before sunrise
- *Salat al-zuhr*: midday, after the sun passes its highest
- *Salat al-asr*: the late part of the afternoon
- *Salat al-maghrib*: just after sunset

- *Salat al-isha*: between sunset and midnight

Carrying it out is not only highly spiritual but connects each Muslim to all others around the world, and to all those who have uttered the same words and made the same movements at different times in Islamic history. Prayers of body, mind and soul. Prayer for a Muslim involves uniting mind, soul, and body in worship; so, a Muslim carrying out these prayers will perform a whole series of set movements that go with the words of the prayer. If a Muslim prays without the right attitude of mind, it as if they had not bothered to pray at all. “Woe to those who pray but are unmindful of their prayer or who pray only to be seen by people” (Quran 107:4-6). Basic physical positions for prayer are standing, bowing, sitting or kneeling, and prostration. The prayers take about five to ten minutes each. "The whole sequence of the ritual is repeated twice in the morning, three times at sunset, and four times in the noon, afternoon and evening prayers" (Rippin, 2001).

Prayer is always done in the direction of the Kaaba shrine in Mecca. *Kaaba* is the House of God and Mecca is the holiest city of Islam and the birthplace of Muhammad (pbuh). In Muslim communities, people are reminded of the *salat* by the daily calls to prayer, known as *adhan*. *The adhan* are delivered from mosques by a *muezzin*, the mosque's designated caller of prayer. Muslims must be clean before they pray. They make sure of this by performing ritual washing or ablution, called *wudhu*. Ablution is a spiritual and physical cleaning. They begin by cleaning their minds from thoughts and concerns and concentrate on God and his blessings. Then they wash their hands, face and feet. The arms they wash up to the elbows. Then they utter, "I bear witness that there is no god but God; He has no partner; and I bear witness that Muhammad is His servant and

messenger". If water is unavailable it can be performed by sand. This process is called tayammum.

2.2. Prophet of Islam, Muhamad (Peace Be Upon Him)

Muhammad (pbuh) was born in 570AD in the Arabian city of Mecca. His father, Abdullah had died some weeks earlier. Muhammad was orphaned at the age of six. His early years were difficult because of the deaths of both his parents and it was his grandfather who took him in charge. His uncle, Abu Talib, a prominent merchant of Mecca raised him. His uncle was a man who was generous of nature but always short of resources and hardly able to provide for his family. Young Muhammad (pbuh) had therefore immediately started to earn his livelihood; he served as a shepherd boy to some neighbors. At the age of ten he accompanied his uncle to Syria when he was leading a caravan there.

By the time he was twenty-five, Muhammad (pbuh) had become well known in the city for the integrity of his disposition and the honesty of his character. A rich widow, Khadijah, took him in her employ and consigned to him her goods to be taken for sale to Syria. Delighted with the unusual profits she obtained as also by the personal charms of her agent, she offered him her hand. According to divergent reports, she was either 28 or 40 years of age at that time. He later married Khadija and took his place as a leading influential citizen of the city. Muhammad's (pbuh) marriage to Khadija was a long and happy one, and produced two sons, who both died as infants, and two daughters, of whom the younger, Fatima, is best known.

He is described as a handsome, large man with broad shoulders, black, shining eyes flecked with brown, and a fair complexion. His personality was reserved and gentle, but he was a man of impressive energy. Often, he would escape from the society,

which he considered too materialistic and irreligious, and spend long hours alone in a cave doing meditation on nearby Mount Hira.

Muhammad's (pbuh) first communication from heaven came in the form of a command:

Recite! In the name of your Lord, who created all things,
who created man from a clot (of blood).

Recite! And your Lord is Most Bounteous
Who teaches by the Pen,
teaches man that which he would not
have otherwise known (Quran 96:1-5)

The early revelations did not immediately convince Muhammad (pbuh) that he was a messenger of God. In fact, his first reaction was fear and self-doubt. During his depressions brought on by fears over the source and nature of his revelations, he sought the comfort and advice of Khadija. As the revelations continued, Muhammad (pbuh) finally became convinced that the message he was receiving was the truth, and that he had been called to be a messenger of divine revelation.

Muhammad (pbuh) died on June 8, 632 in Medina. He succumbed to a fever, probably induced by the great strains brought on by constant campaigns for new converts and the unrelenting demands for his attention. Initially Muslims refused to accept his death, but were reassured by Abu Bakr, who recited this verse from the Quran:

Muhammad is only a messenger: many are the messengers
who have died before him; if he dies, or is slain, will
you turn back on your heels? (3: 144).

2.3. The Mosque

Mosque, Arabic *masjid* or *jāmi'*, any house or open area of prayer in Islam. The Arabic word *masjid* means “a place of prostration” to God, and the same word is used in Persian, Urdu, and Turkish. Two main types of mosques can be distinguished: the *masjid jāmi'*, or “collective mosque,” a large state-controlled mosque that is the centre of community worship and the site of Friday prayer services; and smaller mosques operated privately by various groups within society. If there is no formal building to pray such as mosque then the pious Muslim can select any open space, spread out a mat, orient towards the *qibla* and perform their salat.

In fact, of course, Muslims began to build mosques from the very early days of Islam, and as the number of these mosques multiplied, patterns of architecture began to develop. Nevertheless, it is salutary to remember the willed austerity of the arrangements for worship as defined and practiced by Muhammad (pbuh). In the centuries, to come Muslims never entirely forgot the starkness; of his example, and periodically the forces of revivalism and pietism attempted at least a partial return to the pristine simplicity of the earliest Islamic worship (Hillenbrand, 1994).

“Islam did not instruct the Muslims how to build mosques, but it did instruct them to build mosques and to make them function as places of collective worship and community development centres. The Prophet (pbuh) built quite a number of mosques in Madinah, which was the prototype Islamic city and played the role firstly as the city-state and later as the capital of the ever-expanding Muslim state” (Omer, 2009).

The first urban element introduced by the Prophet Muhammad (pbuh) to the city of Medina was the mosque institution which functioned as a community development center and it were so dominant in the functions performed that they flourished the multifaceted socio-cultural dimensions of Islam. Mosques built during the Prophet

Muhammad's (pbuh) era was full of simplicity. "His mosque in Madinah, when firstly built consisted of an enclosure with walls made of mud bricks and an arcade on the *qibla* side (towards Mecca) made of palm-trunks used as columns to support a roof of palm-leaves and mud" (Omer, 2009).

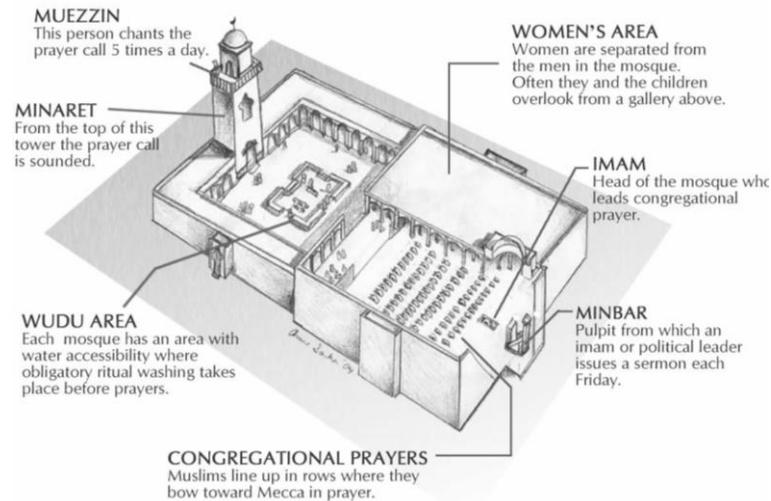


Figure 1 Diagram of Mosque

Source: Diagram of Mosque

2.4. Role of Mosque in Islam

A mosque is the heart of Islam, which connects Islamic spirit, rituals and divine services. Building a mosque is a common practice in Muslim communities, which meets the requirements of performing *salat* and other social or religious services. Thus, it becomes an inseparable part of Muslim settlements. Bangladesh being a majority of Muslim population, mosques are seen to serve as a focal point in every neighbourhood. Also, a mosque symbolizes the identity of a community. Muslims are not allowed to perform *salat* alone unless there is a serious and unavoidable excuse (Thanvi, 1990).

Regional get-together occurs twice in a year for the *salat* of Eid in a much bigger congregation. Muslims from all over the world meet in the Hajj at the holy *Kaaba*

and in the mosque of the Prophet Muhammad (pbuh), once in a year for the biggest congregation. This unique phenomenon of unity reflects the innate intention of Islam for a social bonding and worldwide brotherhood of the Muslim community. Activities like *dawat*, religious education, religious discussion, marriage and many other social services are conducted from a mosque too.

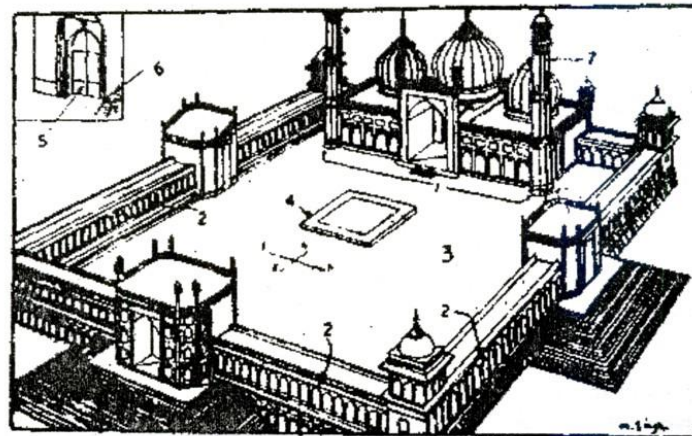
The mosque, for Muslim, is not only a place of prostration, but also the center of many social activities. The mosque in a sense is an epitome of Muslim life (Cragg, 1956).

2.5. Elements in Mosque

The first mosque built by Prophet Muhammad (pbuh) was made at its best simplicity. (Discussed in 2.9.1). The first mosque went through many changes due to some obvious functional demands during the lifetime of Prophet Muhammed (pbuh) and the four *Caliphs*. Although, much changes were not done in the basic characteristics. Changes occurred due to its inherent necessity, influence of the regional styles and the mission to become comparable with the monumental and splendid buildings of other communities. High minarets are example of such attitude. However, a medieval period mosque was composed of these elements:

- *Liwan* (prayer hall)
- *Riwak* (cloister)
- *Saan/ Sahn* (courtyard)
- *Haud* (tank)
- *Mihrab* (prayer niche)
- *Mimber* (pulpit)
- *Minar* (minaret)

Plan showing the essential parts of a typical congregational mosque the world over.



- | | |
|--------------------------|----------------------|
| 1. LIWAN (PRAYER-HALL) | 2. RIWAQ (CLOISTERS) |
| 3. SAHN (COURTYARD) | 4. HAUD (TANK) |
| 5. MIHRAB (PRAYER NICHE) | 6. MIMBAR (PULPIT) |
| 7. MINAR (MINARET) | |

Figure 2 Elements in Mosque

Source: Mosque Complex

Minaret and other elements like *maqsura*, ruler's gallery, or women's gallery is an addition of later period.

2.6. Characteristic Features of a Mosque

Many changes took place since the starting of the first mosque in Medina through those in medieval period to those of today. As time wore on, new elements are added. The concept of simplicity thus got lost. The first mosque built by the Prophet Muhammad (pbuh) and the four *caliphs* has the following characteristics:

- Simple
- No monumental appearance
- No ornamentation
- Platform of unity and brotherhood
- Busy with rituals, *dawat*, religious education, etc.

Few other common features are it has defined orientation towards *qibla*, has specific

architectural features and transparency of space.

In Islamic architecture, some characteristic features, though contradictory to the doctrine also evolved. It can be summarized as addition of minaret as a symbol of power and majesty, and emphasis on visual aspects - intricate and expensive ornamental design.

2.7. Hierarchy of Significance of Mosque

Mosque can be arranged hierarchically in the following order from different *hadith*:

- Al-kaaba in Mecca
- Masjid-i-Nababi in Medina
- Masjid-al-Aqsa in Jerusalem
- *Jami* Mosque
- Prayer space to pray five times daily
- Individual space for prayer

2.8. Period of Construction

For mosque architecture of Bangladesh (or Bengal), it can be phased as:

The early Islamic or pre-Mughal or Sultanate period (1204-1576 AD)

- Mughal period (1576-1757 AD)
- The British colonial period (1757-1947AD)
- Contemporary period (1947- present)

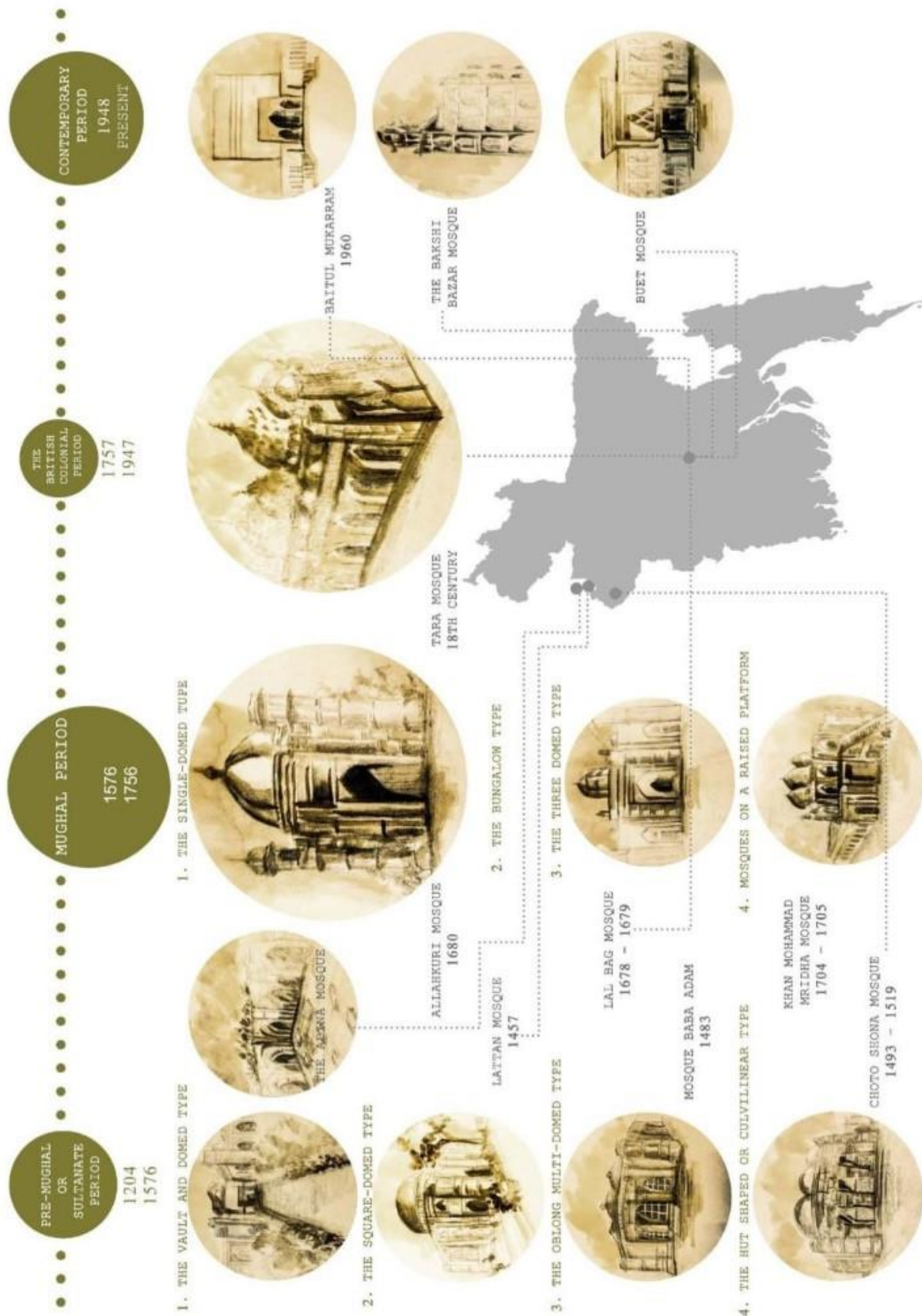


Figure 3 Development of Mosque in Bengal

Source: www.galleryneed.com

2.9. Historical Synopsis

2.9.1. *The First Mosque*

To the Prophet Muhammad (pbuh), the Holy Kaaba in Mecca always remained as the principal mosque, known as *Baitullah* even before the time of the Prophet Muhammad (pbuh) (H and J, 1961). Hadith says this is the first mosque on earth, which is also known as Al-Masjid-al-Haram.

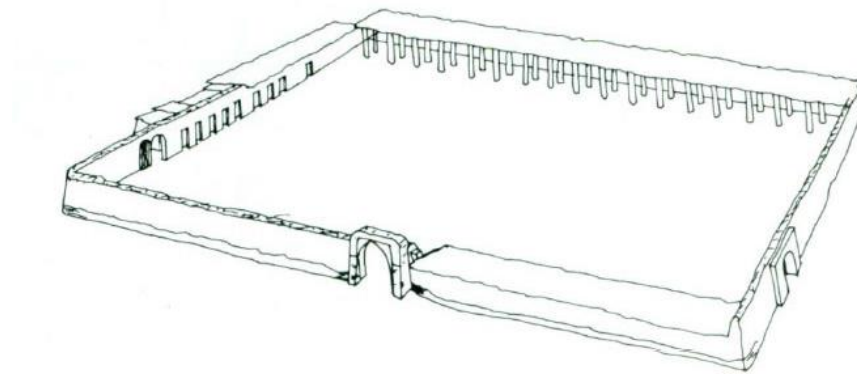


Figure 4 House of Prophet (pbuh) and the first mosque in Islam

Source: (Lima, 2011)

The Prophet Muhammad (pbuh) stopped at a place during hijra named as Quba and used a space as a mosque, that was not a shelter. Later in Medina a shelter was built as the residence of Prophet's family and the first community mosque in Islam (H and J, 1961; Hillenbrand, 1994; Creswell, 1958).

The first mosque complex contains of an approximately square courtyard (about 50m x 50m), surrounded by walls with three entrances. On the northern side a covered portico was built for prayer. Two more small rooms were there for Prophet's family. At the southwest corner, another portico was built for the poor

migrants from Mecca named as *suffa*. The deeper covered area faced northern boundary wall, which was the direction of *qibla* that was towards Jerusalem during that period of time. However, it is assumed that the larger covered portico was intended for main prayer hall. After Prophet's (pbuh) death (632 AD), the number of rooms of the living quarter increased to nine. Four rooms were made up of sun-dried brick and five of them were made of palm branches plastered with mud.

2.9.2. *Islam in Indian Subcontinent*

In 1204 Ikhtiyar al-Din Muhammad Bakhiyar(d.1206), originally of Garamsir in northern Afghanistan, a turkoman of the Khalji tribe and the soldier of fortune, defeated the Hindu ruler Lakshmansena at Nadiya, a city that is now identified with the village of Naoda in western Rajshahi district (Hasan, 2007). Bengal is the anglicized form of Banga and Bangala, the name which first makes its appearance in the work of the Delhi historian Zia al-Din Barani (d. 1357) in his "Tarikh E Firuz Shahi" (history of the rule of Firuz Shah). Abul Fazal, the official historian at Akbar's court, described bangala the east corner province (Suba) of the Mughal empire, as bounded by hills in the north and south, by suba Bihar in the west and by the tract of land called Bhati (lowland) in the east (Hasan, 2007). The country of Kuch in the north, a very large principality derives its name from Koch, the caste to which the ruling family belonged. It can be identified with the area between the upper of the river Karatoya and the Brahmaputtara before it turns south, of which Kamrup is a subject state and next to it is Assam. In the southeast is Arakan with its port of Chittagong

(Allami, Akbari and Jarret, 1993). This is how the Bangla under The Mughal Empire is formed, and Mughal style architecture and mosques started to get evolve in the Bengali region.

2.9.3. *Islamic Architecture in Bengal*

Bengal was ruled from 1206 to 1324 after the conquest by the Turkish. Sultanate period started in 1338. Islamic architecture and mosques started to flourish all over the region in its own way. To build a mosque indigenous technique were applied following various forms. Initial approach started from thatch hut mosque. Eventually Buddhist and Hindu architecture was embraced and to reflect a predominant significance in a mosque a dome was introduced. Intervene of covered extensions, multiple domes, and open courtyard occurred. This development progressed this way until the intervention of Mughal style in Bengal architecture (Hasan, 2007).

2.9.4. Cultural Timeline of Islamic World

500	570 – Birth of Muhammad (pbuh)
600	610 – Muhammad's first revelation 622 – Muslims and Muhammad emigrate to Madinah 632 – Death of Muhammad (pbuh) 632-661 – rule of the rightly guided Caliphs 691 – Dome of the rock, Jerusalem
700	706 – Great mosque of the Umayyad, Damascus 711 – Muslims enter Spain 715 – Al-Aqsa mosque, Jerusalem 750 – Abbasid caliphate founded, Iraq 785 – Mosque of Cordoba began
800	825 – Al-Kwarizmi writes of ZERO in mathematics 848 – Mosque of Al-Mutawakkil begun, Iraq 862 – Qarawiyyin mosque founded, Fez 879 – Mosque of Ahmed Ibn Tulun, Cairo
900	900 – Compilation of The 1001 Nights 936 – Madinat al Zahra palace complex, Cordoba 972 – Al Azhar university found, Cairo
1000	1001 – Ibn al Bawaab produces earliest Quran copy on paper, Baghdad 1010 – Firdaws presents Shahnama at Ghaznavid court, Persia 1062 – Marrakech founded 1099 – First crusade begins rule in Jerusalem
1100	1187 – Salah al Din returns Muslim rule in Jerusalem
1200	1237 – Yahia al-Wasit illustrates al-Harir's Maqamat, Baghdad 1258 – Mongols sack Baghdad
1300	1325 – Ibn Battuta leaves Tangier 1362 – Mosque of sultan Hassan, Cairo 1370 – Timurlane begins rebuilding Samarqand
1400	1429 – Astronomical Observatory, Samarqand 1453 – Ottomans begin rule from Constantinople 1474 – Mosque of Qa'itbay, Cairo 1492 – End of Muslim states in Spain 1498 – Vasco da Gamma sail to India from Portugal
1500	1526 – Mughal dynasty established in India
1600	1617 – Sultan Ahmed (blue) mosque, Istanbul 1638 – Shah mosque, Iran 1647 – Taj Mahal
1800	1802 – Napoleon orders for publication of Description De l'Egypte 1821 – Jean Francois Champollion deciphers hieroglyphics 1869 – Suez Canal opens
1900	1908 – Hijaz railway from Damascus to Madinah 1922 – Tutankhamun's tomb opened 1932 – Saudi Arabia founded by 'Abd al-'Aziz Al Sa'ud 1945 – Arab league founded 1967 – Aga khan foundation established 1968 – Tayeb Salih's Season of Migration to the North 1970 – Hassan Fathy's Architecture for the poor 1979 – Edward Said's Orientalism; Abdus Salam wins Nobel prize for Physics 1983 – Muhammad Yunus founds Grameen Bank, Bangladesh 1988 – Naguib Mafouz wins Nobel prize for Literature 1998 – Petronas Towers, world's tallest building opens in Kuala Lumpur 1999 – Ahmed H. Zewail wins Nobel prize for Chemistry

Figure 5 Cultural timeline of Islamic World

Source: saudi aramco world

2.9.5. *Islam in Indian Subcontinent*

The first mosque continued to work as an administrative headquarter for 25 years by three *Caliphs*, after the demise of Prophet (pbuh). Minor alterations took place during this period. It remained the same for another 50 years until the capital was shifted from Medina to Kufa. It was demolished in 707 AD so that Caliph Al-Wadid could built a new mosque.

In the Syrio-Byzantine regions of the conquered lands, towards the northwest of the Arabian Peninsula, there was no need to build new building because few existing church buildings were available to be used either by converting them into mosques or by sharing with the Christians.

In the northeast, i.e., parts of the former Sassanid Empire of Persia, however, new mosques had to be established. The first ever mosque outside of the Arabian Peninsula was on Basra in the Iraqi region where Utbah ibn Ghazwan founded the city in 635 AD as a winter camp for the army.

2.9.5.1 *Types of Plan*

2.9.5.1.1 Courtyard

Since the time of early Islamic architecture courtyard has been one of the prominent elements. The first mosque in Islam located in Medina by Prophet (pbuh) also had an open courtyard. The perception of a courtyard in Arab countries and Asia is very much different. Most of them are mainly forecourts surrounded by *riwaq* (cloister) or a wall. The inner courtyard is mostly in the central part of the mosque. A fountain is placed on the central axis. The Friday mosque at Isfahan (8th-17th

century), the Great mosque at Gulpayagan (1104-18 AD) and the mosque of Gawhar Shad at Mashhad are some examples of courtyard typed mosque with four *iwan*. The Adina mosque at HazratPandua (1374-84 AD) is the only example of the courtyard type mosque present in Bengal. The large courtyard (127.7 m x 57.2 m) is surrounded by three side—*riwaqs* and *qibla-riwaq*.

2.9.5.1.2 Enclosed

Early Muslim conquerors of Bengal were of Turkish region, which causes Turkey to be the source of art and architectural theme. Most of the mosques built in Anatolia between the 12th and 13th century was of the enclosed type without courtyard, The Eshrefoghlu mosque at Beyshehir (1297 AD), the Great mosque at Silvan (1157-58 AD) and the Great mosque at Erzurum (1179 AD) are examples of the enclosed type mosques in Anatolia. One of the most conspicuous features of mosque architecture as developed in the monsoon region of Bengal is the enclosed type of structure, where the courtyard was discarded. The rainfall climatic condition made an impact on the formation of enclosed type mosques.

2.9.5.1.3 Rectangular

Among the large number of mosques that was built in Bengal during the early Islamic period, almost half were conceived from a rectangular shaped ground plan. Rectangular type of mosques can be sub-divided into three further sections: multi-

unit, multi-unit with wider central aisle and multi-unit with transept. Numerous aisles and bays divide the rectangular shaped prayer hall. The freestanding stone pillars supports the arcades between each aisle and bay, which is in both transverse and longitudinal directions and forms several uniform units or grids. These units are covered with semi-circular dome. In the early Islamic architecture of Bengal this type of cross-arcaded multi-unit mosque was practiced immensely. Similarly, it is also seen that the aisles are covered with gable roofs. The earliest known example of arcades running perpendicular to *qibla* axis is found in the Al-Aha mosque at Jerusalem.

2.9.5.1.4 Square

Almost half of the mosques built during the early Islamic period of Bengal are based on square shaped ground plan. These square shaped mosques are very small in size and suitable for a small community of rural area. Square shaped mosques can be sub-divided into three sections: single unit, single unit with a fore room and multi-unit. In Bengal, the Ranbijoypur mosque at Bagerhat (1459 AD), the Shahi mosque at Bandar, Dhaka (1481-82 AD) and the Galdi mosques at Sonargaon are some examples for single unit square mosque.

In Muslim world multi-unit square shaped mosque is not very common. Three examples of multi-unit square mosque in Bengal are, the Qasba mosque at Bansal (mid-15th century AD), the Masjidkur mosque at Bagerhat (mid-15th century AD)

and the nine domed mosques at Bagerhat (mid-15th century AD). These mosques followed the style of Khan Jahan Ali (R) and are quite similar in terms of size and proportion.

2.9.5.2 Several Mihrab Niches

In the early Muslim architecture several *mihrab* niches is not very common. The earliest examples of several mihrab niches are, The Great mosque at Damascus (706-15 AD) and the tomb of Iltutmish at Delhi (1235-36 AD). The number of *mihrab* niches depends on the number of entrance openings in the eastern or front wall, and the location of the *mihrab* niches correspond to the central axis of the openings. The *mihrab* niche is made up of three basic components: arch, the supporting columns and capitals and the space between them. The *mihrab* niche gives the impression of a door or a doorway, either in a flat or in a recessed form.

2.9.5.3 Turrets

The corner turrets have appeared in most of the desert palaces built by the Umayyads in the beginning of the 8th century at Syria and Jordan. The corner turret is witnessed in Indo-Islamic architecture from the very beginning of the architectural development. The *Jami* mosque or Arhai-din-ka-jhompra at Ajmir (1200 AD) and the Sultan Ghun tomb at Delhi (1231 AD) appear to be the earliest known examples of the corner turrets in India. It is assumed that the turrets in Bengal were influenced by the Tughluq architecture.

2.9.5.4 Gallery and Maqsura

An enclosed platform known as *zenana* or lady's gallery in the early Indian mosque architecture at Gujrat appeared, which is an exceptional innovation in the mosque architecture and unusual in the rest of the Islamic world. About the presence of women in the mosque, the Prophet did not forbid women to attend public prayers in a mosque but pronounced that it is better for them to pray in private.

Maqsura is an enclosed area in a mosque reserved for the use of the sovereign. In the earliest years of Islam, the *mihrab* seems to have maintained its pre-Islamic meaning as the place of a ruler and fulfilled the functions in the mosque that would later be associated with the *maqsura*. According to Islam, the third caliph 'Uthman (r. 644–56) introduced the *maqsura* at the mosque of Medina to protect himself from assassination.

2.9.5.4 Types of Construction Technique

In the early Islamic architecture, true arch and domes were introduced in Bengal. The mosques in Ahmadabad are the finest examples in this case, where tall slender pillars and the connecting stone beam supported the roof, covered by the traditional Hindu corbelled (false) dome.

2.9.5.4 Domes and Vaults

For the protection of the devotees from the sun or rain, the prayer hall had to be covered. Earlier days, palm leaves or mud was used to cover the roof. With the evolution of mosque architecture domes were eventually introduced. Form and number of domes reveals from which region it belongs to. In Bengal multi-domed mosque were adapted with

the evolution. Numerous semi-circular domes cover the prayer hall. A special vault named *chauchala* dome was introduced. The Chota Sona mosque at Gaur is an example of such vault. Small square mosque consists of a single dome. Some of the examples are, The Eklakhi mausoleum in Pandua, the Ranbijoypur mosque at Bagerhat and the Galdi mosque at Dhaka. The fore room of the single domed square typed mosque is covered with a mixture of various types of domes and vaults. The fore room of the Chamkatti mosque at Gaur is covered by three-groined vault, which is unique in Bengal. Another exceptional example is the Masjidbari mosque at Barisal where the fore room is covered by a long *chauchala* vault.

2.9.6. *Chronological Development in Bangladesh*

The distinguishable architectural heritage of Bangladesh dates to the 3rd century BC. From that era, two major religions - Hinduism and Buddhism were dominant. The remains of that era are religious buildings which were built with less permanent materials. It is proven that the builders of Bengal in the ancient times were sensitive by seeing articulation of space, functional solution, orientation, climatic considerations, use of local materials, construction technique, sense of proportions and other aspects of architecture. The advent of Islam in Bengal in the 13th century was somewhat of different characteristics from the rest of India. For India, it was a political and military conquest over the Hindu dominion, whereas in Bengal, it occurred with less political and social upheavals, because of the conversion of upper-class Bengalis to Islam long before the invasion (Zahiruddin, 1990). Architectural features imported by

Muslims, together with the prevailing vocabulary of architecture of the region, gave birth to an Islamic architectural style, unique in many ways.

2.9.6.1 Spread of Islam in Bangladesh

Islam arrived in this land in the same process as the land itself has been formed - in a continuous process of accumulation of silts. Islam was preached by generation after generation before the establishment of Muslim rule through a period of six centuries.

Islam entered Bangladesh through the following three ways:

- The Chittagong port was one of the major ports for entering the eastern region including China, Thailand, Malaysia and Indonesia. Many merchants used to anchor at the Chittagong port and go to China using land roads. The Arab merchants had been using this port since pre-Islamic period and continued to do so after they embraced Islam. They used to preach Islam along with their business activities. Islam began to spread from that time.

- King Cherumol Perumol of Tamilnadu coastal kingdom Malabar embraced Islam during the lifetime of the Prophet Mohammad (PUH). As a result, that area turned into a centre for preaching Islam. Preachers used to come to Bangladesh from that region.

- After the conquest of Sindh by Muhammad Bin Kashem, many preachers used to come from the Arabia, Iran, Iraq, Turkey on their feet to preach Islam here.

- The first Muslim military conquest of Bengal took place in the year 1204 by Ikhtiyar al-Din Muhammad bin Bakhtiyar Khilji (a

Muslim of Turkish descent). Bengal witnessed a golden age for the first time during that period built by the Muslim sultans. The sultans ruled until arrival of Sher Shah Suri, and later the Great Mughals in the 16th century. The Great Mughals like the earlier sultans, made Bengal one of the richest places in the empire, they ruled directly until 1707.

- After Muslim rule was established in Bengal, hundreds of Sufi saints came here to spread Islam. Islam slowly spread all over the country. It took several centuries for Muslims to become the majority. Sufi saints preached Islam mainly in the eastern part of Bangladesh, which is why eastern part of Bengal has a higher Muslim population than the west.

- Possibly the biggest light of Islam in Bengal came from Saint Shah Jalal, who was of Yemeni origin, and was said to be descendant of Prophet Muhammad (pbuh). He arrived here in 1303 and preached Islam in Sylhet, Habiganj, Moulvibazar, Sunamganj and nearby areas. The largest airport of Bangladesh is named after him i.e. *Shah Jalal International Airport* in Dhaka.

2.9.6.2 Spread of Islam in Bangladesh

The architectural heritage of Bangladesh dates back to 13th century. There were two major dominant religions- Hinduism and Buddhism. The architectural buildings of that time period are mostly religious buildings and were made of less permanent materials. The function solution, flow of space, climatic considerations, orientation, every tiniest concern toward details reflects that the builders of Bengal were sensitive during the ancient time.

For India, it was a political and military conquest over the Hindu dominion, whereas in Bengal, it occurred with less political and social upheavals, because of the conversion of upper-class Bengalis to Islam long before the invasion (Zahiruddin, 1990). A rich architectural vocabulary was developed here due to the long heritage of the Buddhist and Hindu period. Besides, when the Muslims invaded India, they already possessed style of mosque architecture. Such architectural features gave birth to an Islamic architectural style in various ways.

2.9.6.3 *Segments of Evolution*

2.9.6.3.1 The Pre-Mughal or Sultanate Period

During the Sultanate period, mosques were a new building type that was introduced. A unique architectural rapidly developed. Earlier Bengal enjoyed its independent rule for 3 and a half centuries, before being the province of Mughal empire. During this period the architecture had bloomed carrying its own identity.

During the Sultanate period four characteristics were commonly seen in Bangladesh. Minaret became one of the prominent structures ensuring *adhaan* to be heard from far distance. It was not until the fourteenth or fifteenth centuries that the building of minarets became universal in Bangladesh (Frishman, 1994). Absence of minarets was seen in the pre-Mughal and Mughal mosques of Bangladesh, with a few

exceptions such as the *Shat* (sixty) *Gumbad* (dome) Mosque of the mid-fifteenth century.

In other places the doors are tall and large but considering the climatic condition in geographical context the doors of mosques in Bangladesh are small. Having a pond is also a significant feature unless there is scarcity of land. The mosques of pre-Mughal Bengal used brick as a construction material, and the exterior was ornamented with brick and terra-cotta decoration.

Pre-Mughal mosques can be divided into groups:

- The vault and domed type
- Square-domed roof type
- Oblong multi-domed type
- Hut-shaped type

2.9.6.3.1.1 The Vault and Domed Type

The type is characterized by hemispherical roof dome without drums, corner towers, curved battlements, stone carving, and the use of glazed tiles. The Adina Masjid (Bengali term for mosque) at Hazrat Pandua is a distinctive example of the earliest design phase. The large open courtyard at the centre of the structure is surrounded by an oblong *Iiwan* (shaded portico). The phenomenon of an arched facade was introduced in Bengal during the Sultanate period. One of the earliest attempted in Indo-Muslim

architecture is the vault over the nave of the mosque (Hasan, 1979).

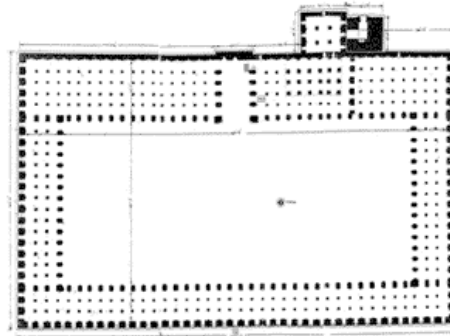


Figure 6 Plan of Adina Mosque

Source: Adina Masjid

2.9.6.3.1.2 Square-domed roof type

The type is characterized by square-domed roof by a cubical prayer hall, *mihrab*, corner towers, glazed tiles, mouldings, curved cornice, etc. An example of such is the Lattan Mosque at Gaur (1475).

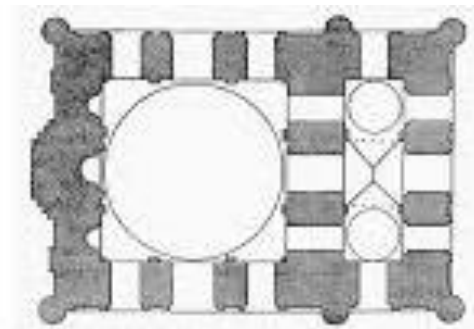


Figure 7 Plan of Lattan Mosque

Source: (Noble, 2011)

2.9.6.3.1.3 Oblong Multi-Domed Type

Typical architectural components of this typology include a rectangular plan, aisles, bays, hemi-

spherical domes, pointed arched entrances, curved cornice, corner towers, panelled walls, stone casing, jali (semi-transparent screens) windows, stucco and glazed tiles, and stone chiselling. An example of such is the Mosque of Baba Adam at Rampal, Dhaka (1483).

2.9.6.3.1.3 Hut-shaped Type

At an early period, Bengalis evolved curved types of roofs made of bamboo and reeds to cover their humble cottages. The curvilinear form allowed flexible materials to assume shapes facilitating rapid drainage in this region of heavy monsoon rainfall. Generally, these roofs took two forms: *do-chala* (two roofs), and *chau-chala* (four roofs). These were later composed with brickwork termed as “Bangla roof”.

An example of such type is the Choto Sona Mosque (1493-1519 AD). It is roofed over by three Bengali (*chauchala*) roofs. The interior being divided into three longitudinal aisles and five bays by stone pillars. Hemispherical domes covered the side bays where the interiors of which show decoration copied from bamboo framework, a design, which emphasizes the local character of the dome (Dani, 1961).

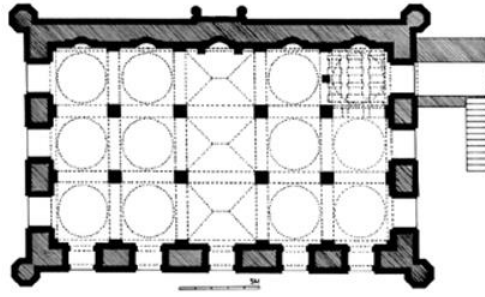


Figure 8 Plan of Choto Sona Mosque

Source: (Mosque Architecture in Bangladesh, 2012)

2.9.6.3.2 The Pre-Mughal or Sultanate Period

In the sixteenth century indo-Islamic architectural styles started in Delhi, Agra and Fatehpur Sikri. The Mughal style in mosque architecture had a universality that is recognized. The prominent elements introduced by the Mughal architects were dominant central domes and tall axial entrances. Four centered arches were introduced. Traditional terracotta art was replaced by plaster panels. Bengal became a province of the Mughal Empire and was ruled from Delhi by the governors of Bengal (1576). The Mughals disrupted the Bengali architectural tradition that had been generated during the pre-Mughal period. Traditional brickwork of terracotta was stopped replacing plasters. Three domed mosques replaced the multi-domed of the Mughal era.

Mughal mosques can be divided into groups in terms of ground floor plan and roof plan:

- Single-domed type
- Bungalow type

- Three-domed type
- Raised platform mosques

2.9.6.3.2.1 Single-Domed Type

The Allakuri Mosque (1680 AD), located in the Sat-masjid Road in the Muhammadpur Colony is the best example. It is a square plan, projecting fronts at the middle of each side, which provided doorways for the east, north, and south sides. The dome is carried on squinches and is crowned by a finial. The interior is kept cool due to the thickness of the wall. Four corner towers are each crowned by a plastered kiosk and parapet. The dome also provides an easily recognizable symbol of empire.

2.9.6.3.2.2 Bungalow Type

Churihatta Mosque (1649 AD) may be taken as an example. It is recognized by a chauchala roof rather than domes and has an oblong plan with four corner towers. The facades are decorated with panels and a straight parapet. Three doorways, formed by two arches, provide entrance from the eastern side.

2.9.6.3.2.3 Three-Domed Type

It is the most common type mosque in the Mughal period in Bengal. Either all the domes were of same size or the dome in the centre was larger. Persians

had such style. Lalbagh Fort Mosque (1678-1679 AD) is such an example. It has an oblong plan, roofed over by three fluted, bulbous domes, resting on drums. Three entrance doorways are decorated by cusped arches, while the façade is decorated with rectangular panels. Parapets are straight instead of the curvilinear cornice of pre-Mughal types.

2.9.6.3.2.2 Raised Platform Type

The Khan Muhammad Mridha Mosque (1704-05) stands on a 16.5 ft raised platform. It has a rectangular plan, with a three domed type with the prayer chamber in the upper floor level. The terrace is reached by a flight of steps in front of the hall. Three squat-shouldered domes cover the roof, while the facades are ornamented with panelling. On the arrival of British, the mosque architecture of the Mughals vanished.

2.9.6.3.3 The British Colonial Period

Architectural legacy was not much during the British period. Bangladesh with its vast rural area, was neglected for about two centuries or British rule. Several churches had started to build. Any specific innovative design characteristics was not generated during this period. Most mosques followed the common Mughal style of a three-domed structure with an oblong plan and octagonal corner towers. However, a few, are

significant for their extensive and elaborate ornamentation. One of the examples is Tara Masjid (Star mosque) in Dhaka. It was constructed on the late 18th century but changes were brought in the 20th century. An extension was done on the northern side adding two more domes. This mosque is highly enriched with colourful decorated tiles both in the interior and exterior.

2.9.6.3.3 Contemporary Period

With the partition of the subcontinent in 1947, Bangladesh (the East Pakistan) entered a new era of development. Building activities during this period have been mostly utilitarian. Two major trends are mosque erected by the common people and mosque designed by the trained architects.

2.10. Historical Places in Chattogram

Table 1

Source: (Chisty, 2014)

Period	Name	Location
Sultani : Monuments	BadrAuliya Tomb: Known As Bara AuliyarDesh	Boxirhat
Mughal: _x000D_ Monuments	Shah Qatal Tomb: A Square Tomb	Katalganj, Sulokbahar
	Anderkilla Shahi Jame Mosque	Anderkilla
	Hamza Khan Mosque And Tomb	Panchlaish
	Hazi Mosque Now In Ruins	Pahartali Mauza (Beside The Railway Track West Of Dewanhat Over Bridge)
	Mullah Miskin Mosque And Tomb	Ward-2, On The Eastern Slope Of A Hill Known As Madrasa Pahar Chandanpura Mahallah
	Wali Khan's Mosque: Built By Mughal Fauzdar Wali Beg Khan	Chawkbazar
	Kadam Mubarak Mosque	Jamal Khan Ward
	Colonial Times: Institutional/Government Use	
Residential Houses (Private)	Wooden Bungalow No L/1: (1887)	SegunBagan, Pahartali, Enayet bazaar
	Dc's Bungalow Dc Hill	Buddhist Temple Road
	Mirzar Pool: Bridge On The Hathazari Road	Muradpur, Sulokbahar
	Battali Railway Station: (1896)	Battali near new market
	Karnaphuli Railway Bridge (Known AsKalurghat Bridge) (1931)	Kalurghat
	Old Circuit House (Zia Sriti Jadughar): 1913	Bag monirum
	Pahartali Railway Workshop	Pahartali
	Chittagong Police Hospital	Lalkhan Bazaar
	Police Armory	Bag monirum
	The European Club	Pahartali
	J.M. Sen Hall (Town Hall)	Dewan Bazaar
	Water Works	Bag monirum
	Malum Bari Wooden Bungalow	Maddahya Halishahar, Ward
	K. Sen's House Seven Storied Masonry Structure	Sadarghat Ward
Religious Buildings	N.N. Paul Building With Banyan Tree (Opposite Dc Hill)	Dc Hill
	Ispahani Manzil	Sarson Road
	Chandanpura Mosque	Chandanpura, Anderkilla
	K.S. Abdul Hakim Mosque	Mansurabad
	Patharghata Church	Patharghata Ward
	Love Lane Church	Jamal Khan Ward-21
	Second World War Graveyard	Badshah Miah Road
	ShadurPahar	North Of Ctg., Cantonment Ward-01
Pakistan Period	Jamuna Bhaban	Sk. Mujib Road, Agrabad

2.11. Architectural Heritage

Protecting the built heritage and conserving the local traditional and cultural values of communities for future generations present a real challenge for developers, architects, and professional education programs which are responsible for preparing the courses focused on heritage conservation aspects, learning respectful aware design with cultural context, and qualified graduates in planning, design, and implementation of conservation projects. Fundamentally, heritage represents the history and culture of a nation, where the conservation of architectural heritage plays a vital role in defining the landmark within the area of heritage. Preserving the architectural heritage provides benefits to property owners, businesses owners and to the community because re-using existing fabric means requiring fewer materials from outside and more labour-intensive work by local trades. It also increases property value for both the restored buildings and surrounding properties. Additionally, conservation of the architectural heritage uses less than half of the energy used in the construction of new buildings whilst reducing the construction waste. It may help to maintain current state, prevent further damage and deterioration or rebuilding the damaged portions to recall the previous state of that architecture (Koshley, 2012). Preservation strives to keep the remains of old buildings in its original state and keep the previous function in a frozen form for display. This is more suitable for buildings that are in a critical structural state. Architectural conservation attempts to find a new use of an old building, prolonging its life through adaptive reuse.

2.12. Architectural Heritage

There are few approaches that can be used for conservation:

- a. Preservation
- b. Restoration
- c. Reconstruction
- d. Adaptation
- e. Rehabilitation

3. Site And Context Analysis

3.1. Site Appraisal

The site is located at the centre of Chattogram city, Bangladesh.

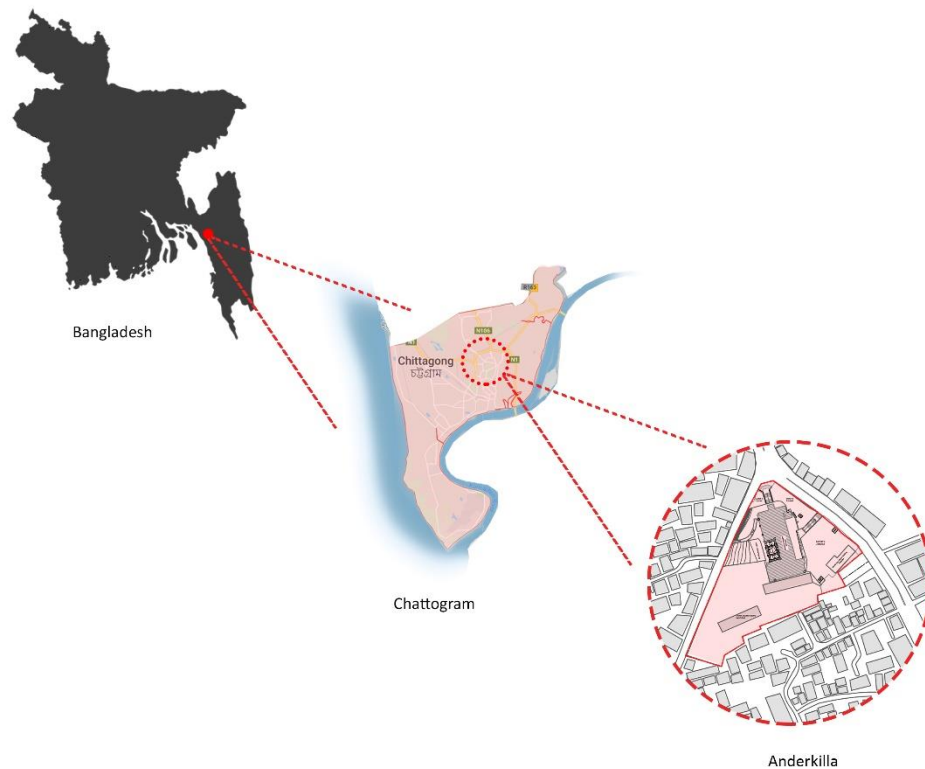


Figure 9 The site map shows where the site is located

Source: Author, 2019

The site is hilly where the mosque is located 30 feet above the ground. There is a two storied book market below the mosque. The terrace or plaza of the mosque acts as the roof of the market. This market was built later onwards to support finance to the mosque. As time wore on, an extension is done in the mosque to accommodate a greater number of people to pray.

3.2. Historical and Social Background of Anderkilla

The 362 years old mosque holds history of the Mughals, British and the Pakistan period to the present.

3.2.1. Chronological Development in Bangladesh

Initially this mosque acted as a fort of Chattogram. The mosque was built in 1667 as a symbol of triumph of the Mughals' over the Arakani Moghs and Portuguese pirates in 1666 by Umed Khan, son of Nawab Shayesta Khan. After that it went under the British rule, East India Company turned the mosque into a magazine for arms and ammunitions. They destroyed domes and pillars of the mosque and forcibly kept the mosque-based activities closed for around 95 years.

However, Khan Bahadur Hamidullah Khan, a revenue officer under the British Raj in the 19th century, launched a movement that succeeded to free the mosque in 1856. But the properties of the mosque had been registered as the waqf

properties for the next 106 years until a committee headed by deputy commissioner of Chattogram was form in 1962 to look after the mosque.

Anderkilla Shahi Jame Mosque was handed over to the Islamic foundation under the ministry for religious affairs on Januray 7,1996 for its maintenance and management.



Figure 10 Anderkilla Mosque during the Mughal era

Source: Jahangir, 2008

3.2.2. Socio-cultural Background

Since the time of Pakistan period, Anderkilla became a place for socio-cultural hub. This led the development of shops and markets and other commercial buildings to evolve. Hence, the authority of the mosque came up with the concept to build a marketplace below the mosque which would help to finance the expenses of the mosque.

3.3. Present Condition of Anderkilla

At the moment Anderkilla is one of the most bustling area in Chattogram, Bangladesh with latitude and longitude coordinates of 22.3569° N, 91.7832° E and GPS coordinates of 22° 20' 30.8400" N and 91° 48' 55.9296" E.

It is a diversifying area with mostly mixed-used and commercial buildings of book shops, printing and press, tailor and fabrics, bank, etc.

3.3.1. Site Images

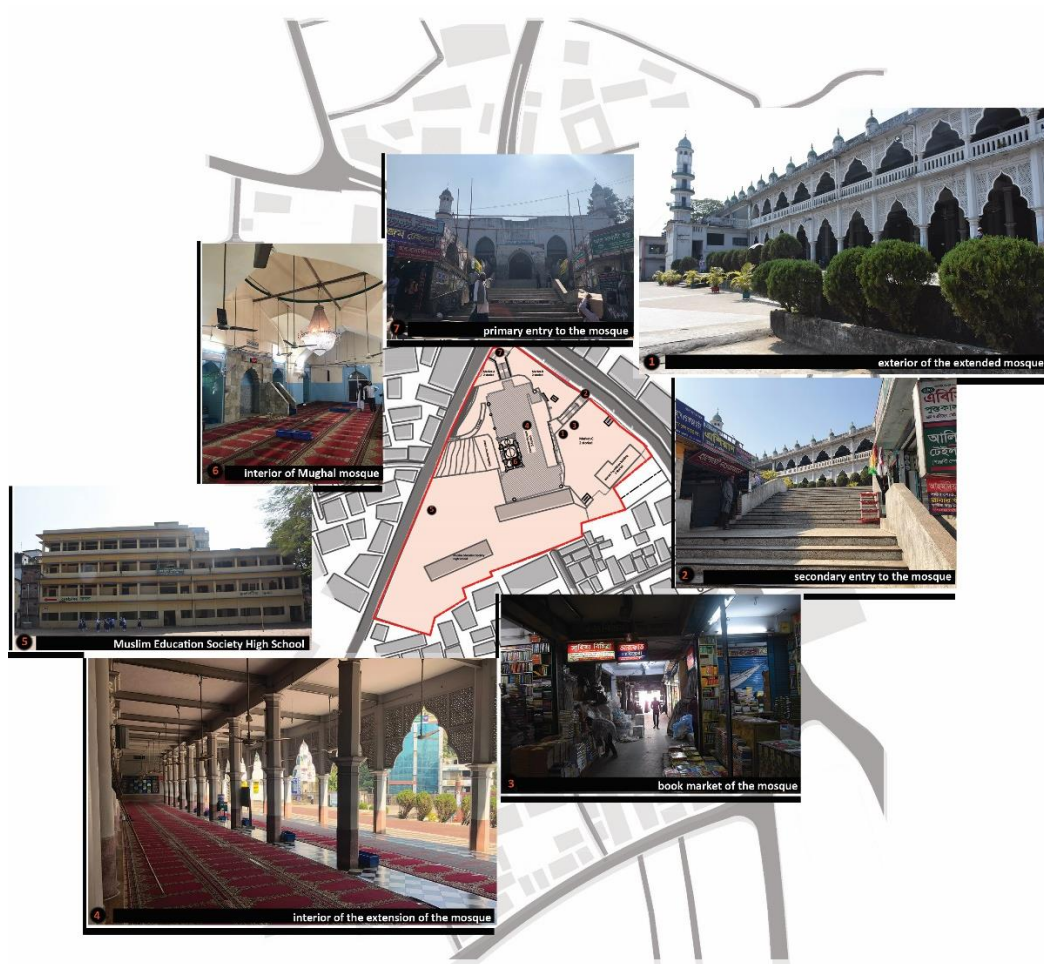


Figure 11 Key map showing the existing condition

Source: Author, 2019

3.3.2. Surrounding Important Settlements

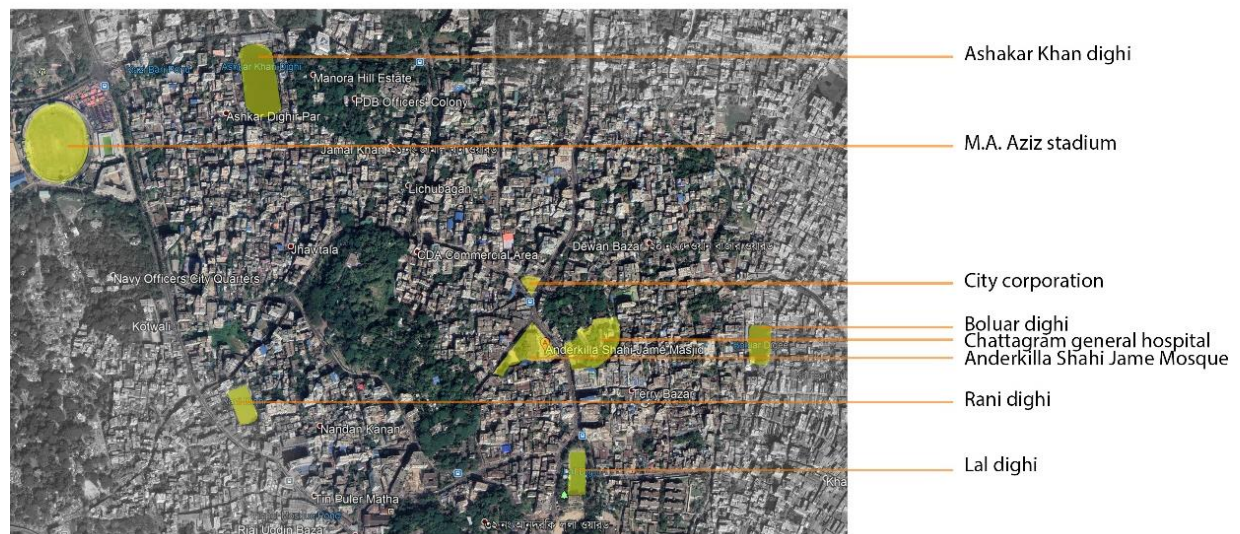


Figure 12 The maps show surrounding important settlements

Source: Author, 2019

3.3.3. Existing Measurements of the Site

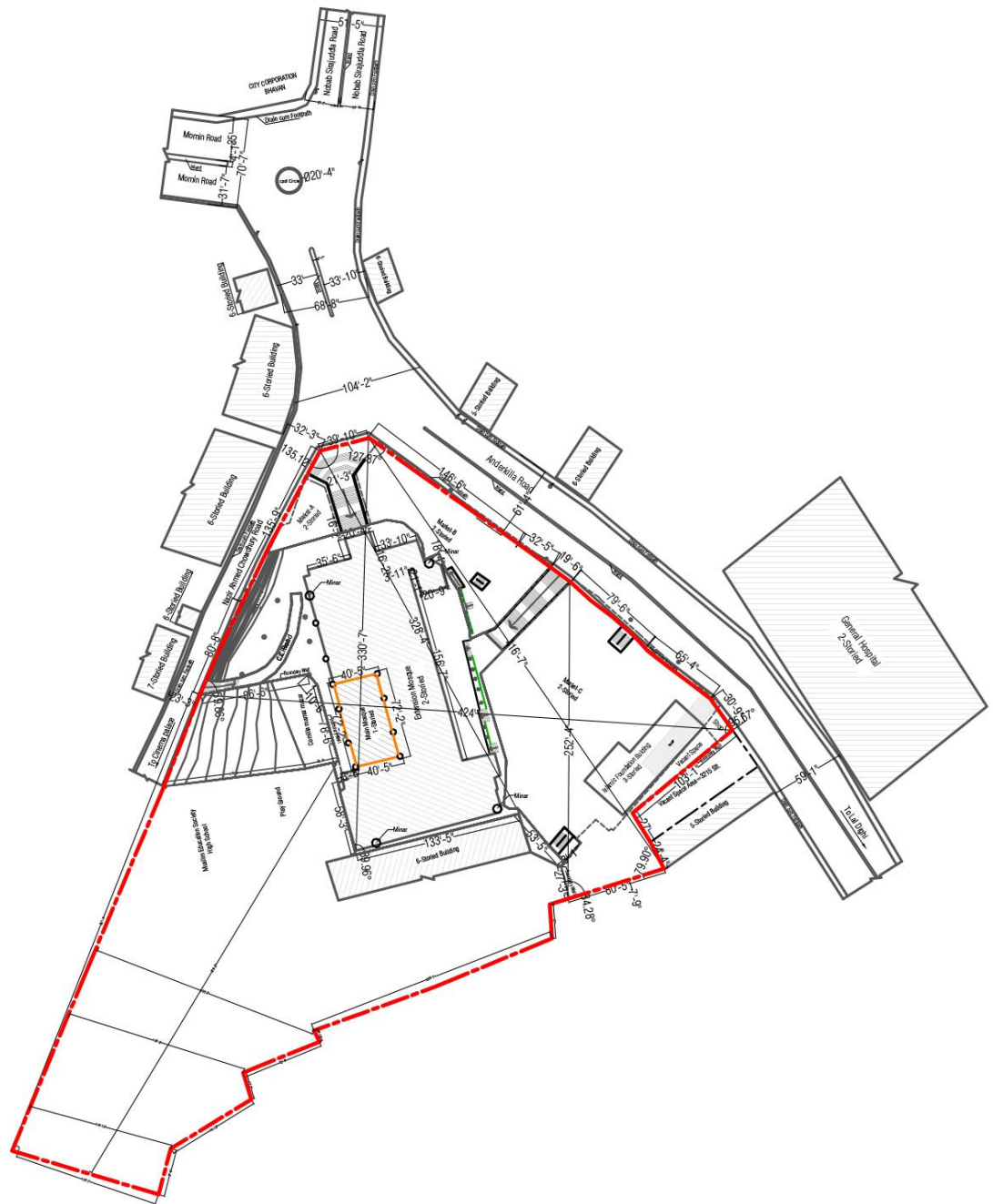


Figure 13 The measurements are shown of the site

Source: Author, 2019

3.3.4. Existing Layout of the Functions on the Site

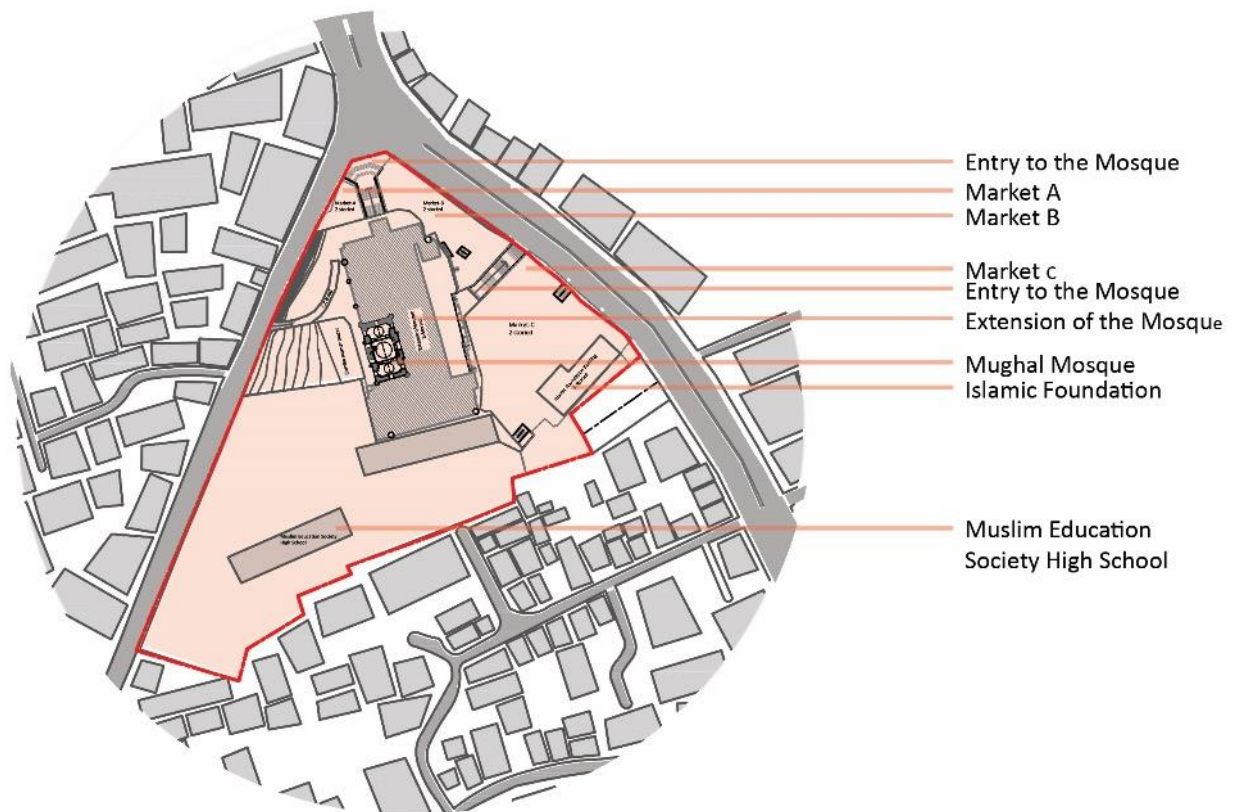


Figure 14 Existing functions on the site

Source: Author, 2019

3.3.5. Existing Layout of the Market on the Site

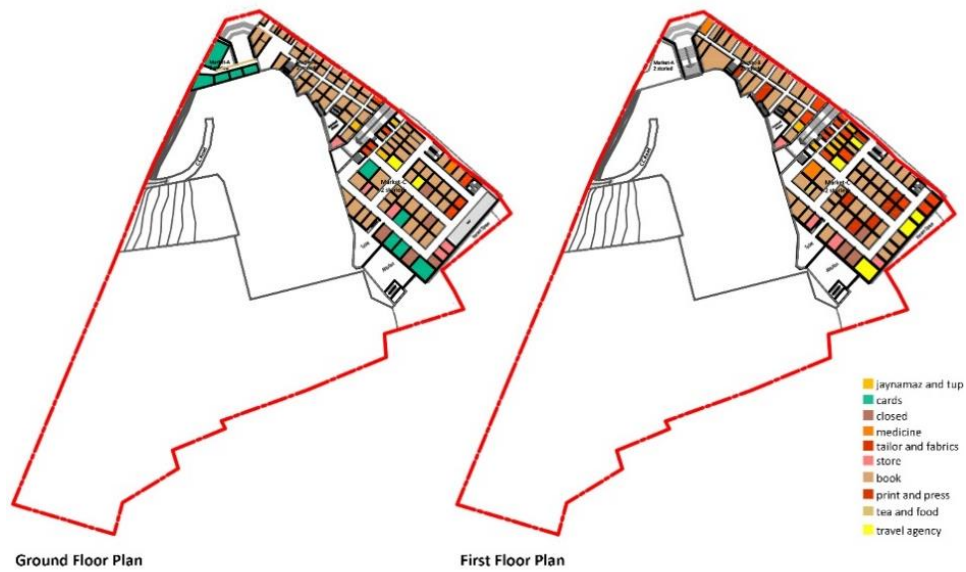


Figure 15 Existing layout of the market

Source: Author, 2019

A schematic layout of the two storied existing markets, i.e. market A, B and C below the plaza of the mosque is achieved through study of the site.

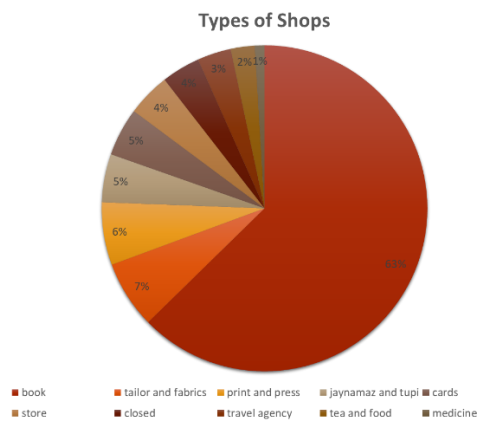


Figure 16 Types of shop

Source: Author, 2019

Quantity of bookstore is at a higher percentage than other stores.

3.4. Site Context

3.4.1. Solid-Void Relationship

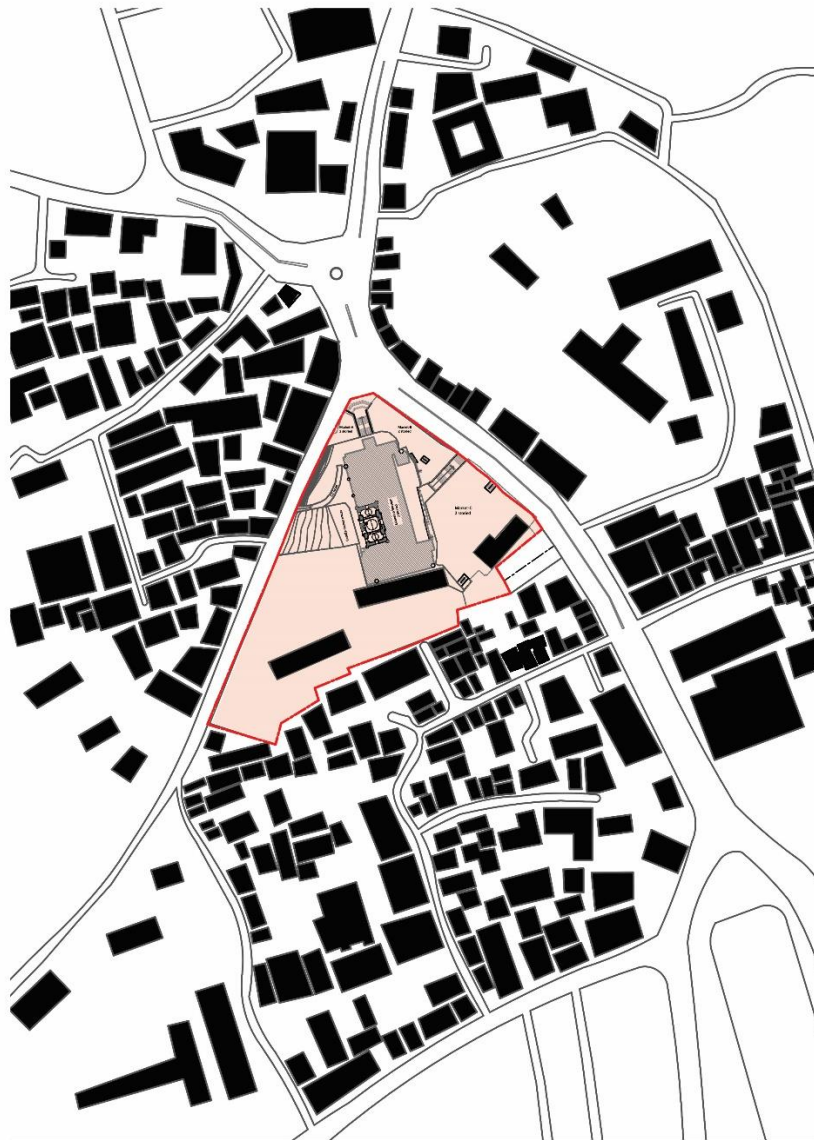


Figure 17 Figure-ground diagram

Source: Author, 2019

The figure ground shows that there is an unplanned development of mixed-use, commercial and residential buildings around the site surroundings.

3.4.2. Road Network

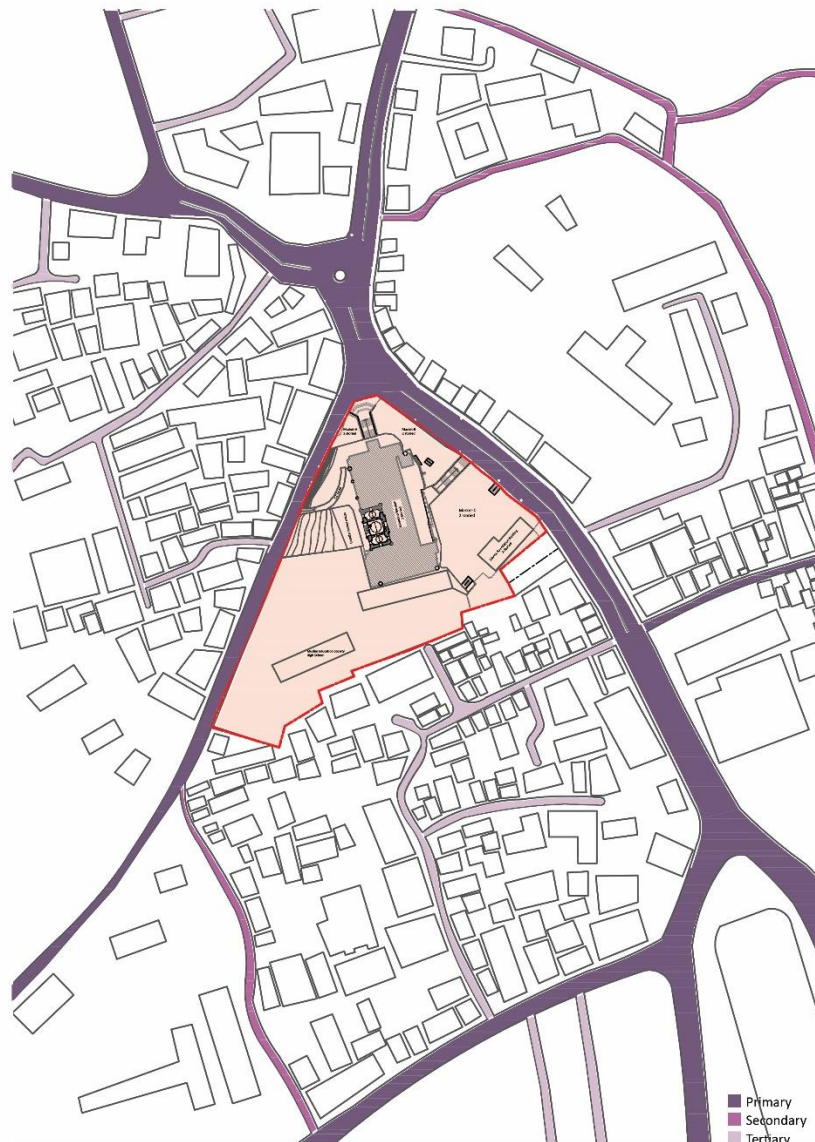


Figure 18 Existing road network

Source: Author, 2019

Anderkilla road is the primary road connecting with three other primary roads, i.e. Nabab Siraj Ud Daula Road, Kata Pahar and Momin Road on the node.

3.4.3. Building Height

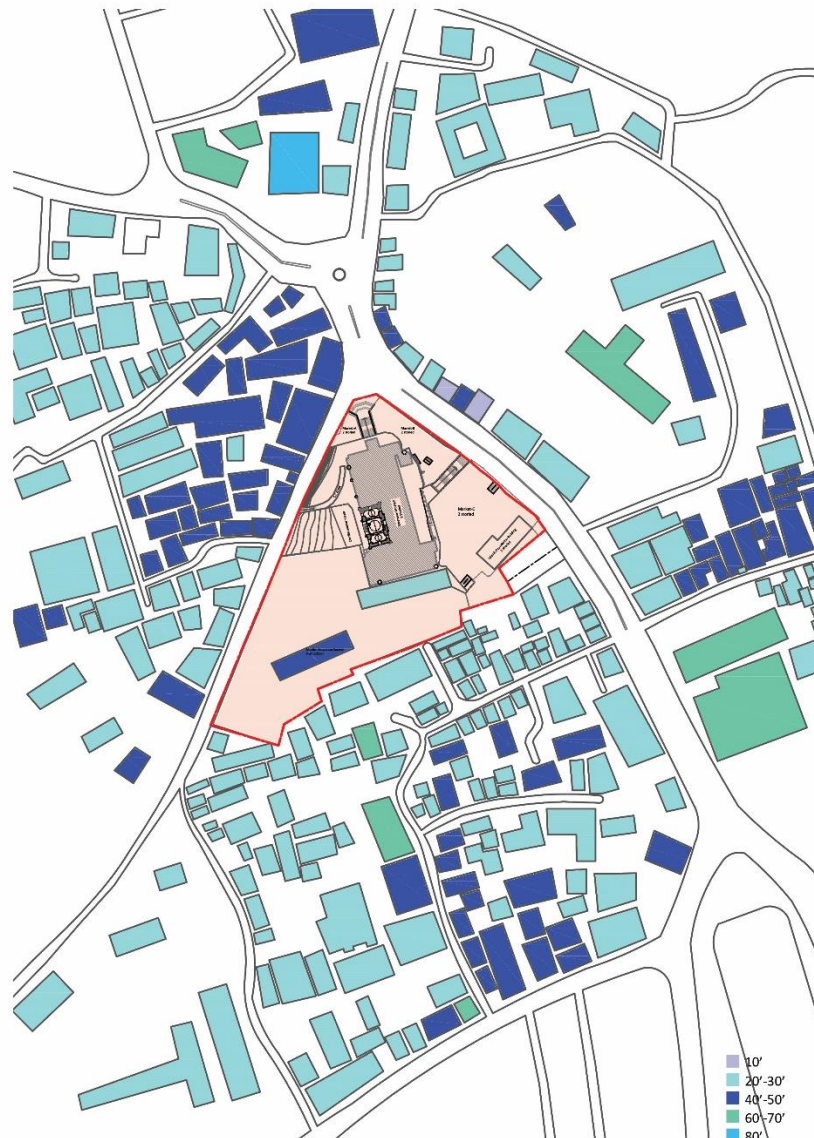


Figure 19 Existing building height

Source: Author, 2019

There is an absence of high-rise buildings along the site. Most of the building are two to five storied.

3.4.4. Building Pattern

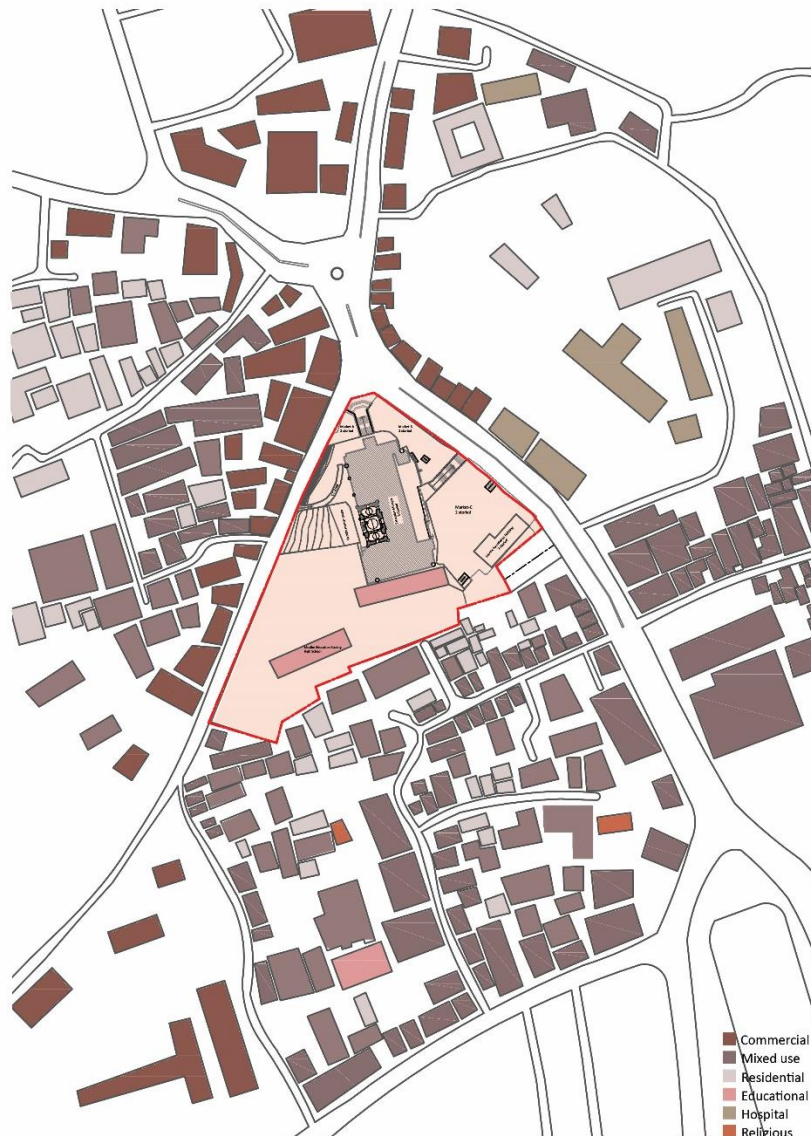


Figure 20 Existing building pattern

Source: Author, 2019

The land use pattern map visibly reflects that there is a dominance of mixed-use and commercial buildings in the periphery of the roads. While, the residential area is more on the inner side.

3.4.5. Green and Waterbody

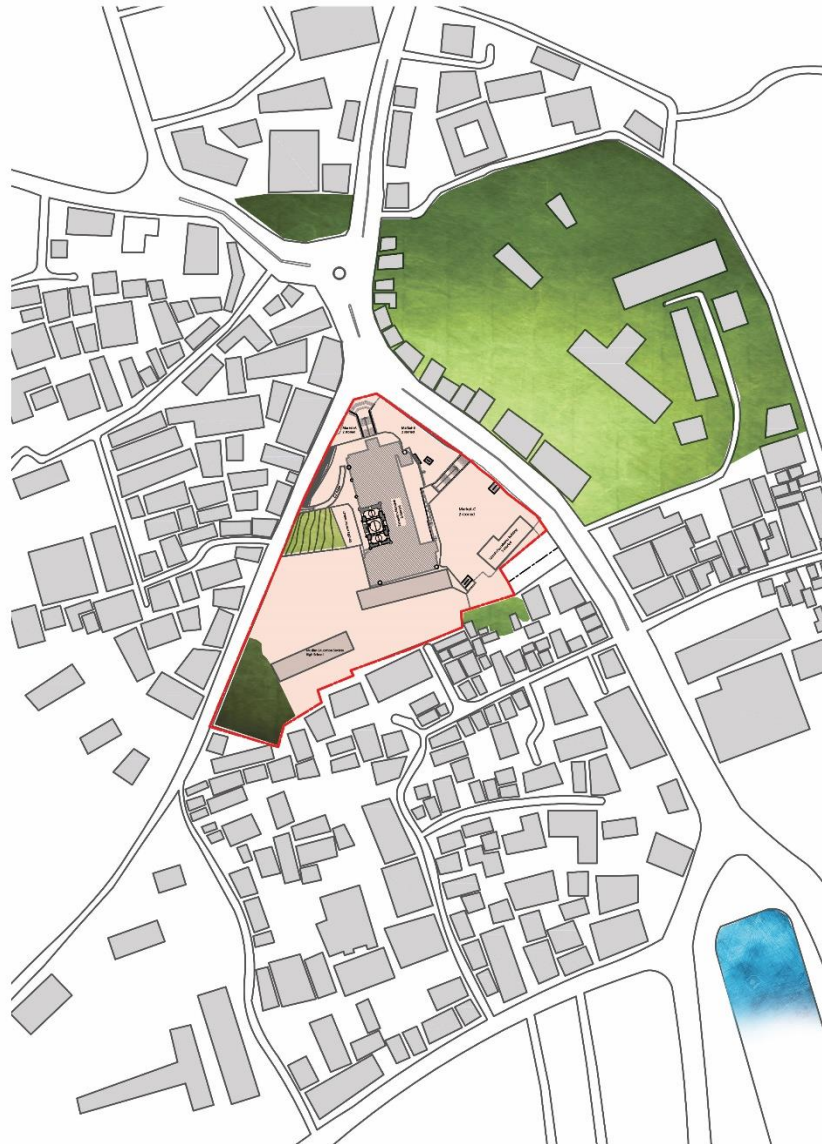


Figure 21 Existing green and waterbody

Source: Author, 2019

There is absence of green on the site. While on the opposite side of the site, Chattogram General Hospital has a portion of solid green. The waterbody marked is the Lal Dighi which is not much close to the site.

3.4.6. Shade and Shadow



Figure 22 Shadow analysis diagram during different month

Source: Author, 2019

Shadow analysis throughout the year shows that negligible or no amount of shadow falls at noon on the site due to the surrounding buildings. This would help for vegetation and the site won't be damp.



Figure 23 Shadow analysis diagram on May at different time

Source: Author, 2019

Shadow analysis on summer from morning to evening shows that shadow falls after 5:00pm on the site due to the surrounding buildings.

3.5. Climatic Analysis

3.5.1. Climatic Conditions

Bangladesh has a subtropical monsoon climate outlined by immense seasonal variations in rainfall, high temperatures and humidity. There are three distinct seasons in Bangladesh: a hot, humid summer from March to June; a cool, rainy monsoon season from June to October; and a cool, dry winter from October to March. Primarily, maximum summer temperatures range between 30°C and 40°C. April is the warmest month in most parts of the country. January is the coldest month, when the average temperature for most of the country is about 10°C.

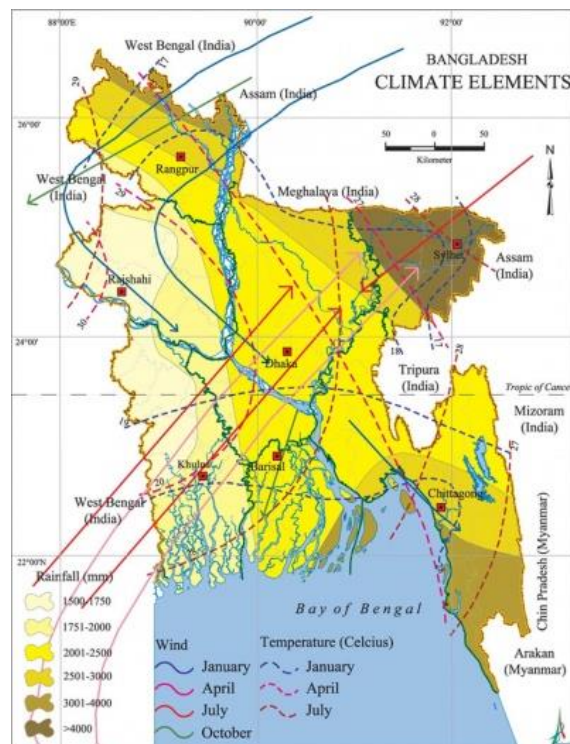


Figure 24 Climate elements in Bangladesh

Source: Banglapedia

The climate is tropical in Chattogram. Chattogram has significant rainfall most months, with a short dry season. The average temperature in Chattogram is 25.7 °C.

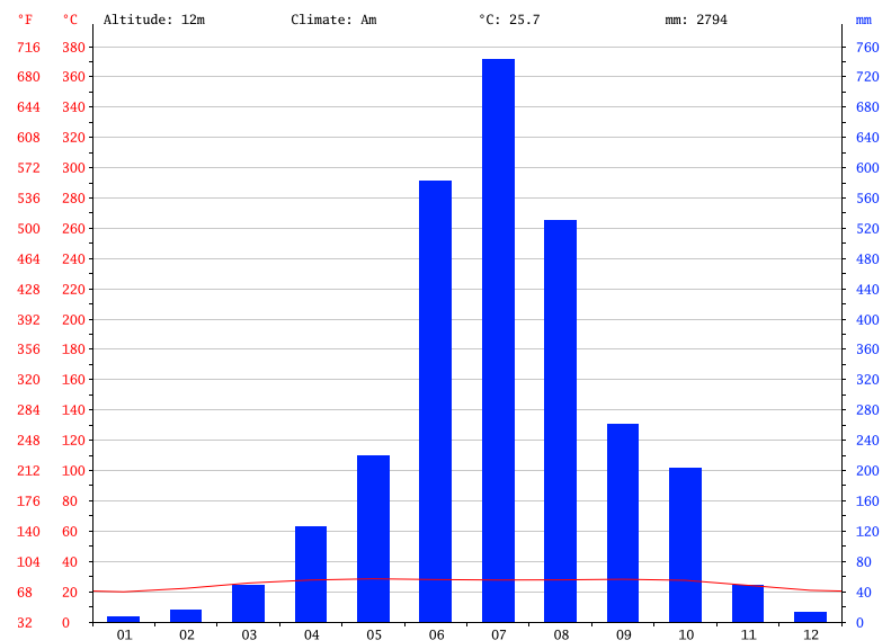


Figure 25 Climate graph by month in Chattogram, Bangladesh

Source: (Climate Chittagong, n.d.)

The driest month is January. There is 6 mm of precipitation in January. In July, the precipitation reaches its peak, with an average of 743 mm.

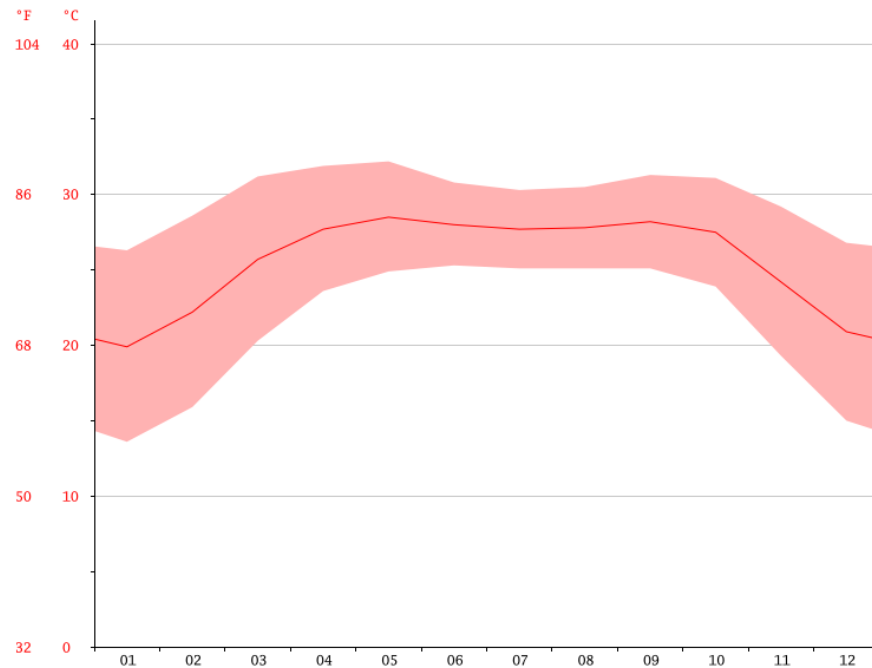


Figure 26 Average temperature in Chattogram, Bangladesh

Source: (Climate Chittagong, n.d.)

With an average of 28.5 °C, May is the warmest month. At 19.9 °C on average, January is the coldest month of the year.

3.5.2. Hydrological Characteristics- Rainfall

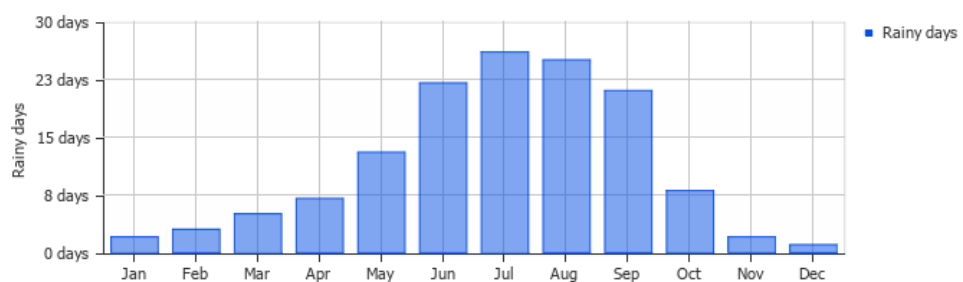


Figure 27 Average rainy days in Chattogram, Bangladesh

Source: (Climate, 2014)

Heavy rainfall is characteristic of Bangladesh. With the exception of the relatively dry western region of Rajshahi, where the annual rainfall is about

1600 mm, most parts of the country receive at least 2000 mm of rainfall per year. Because of its location just south of the foothills of the Himalayas, where monsoon winds turn west and northwest, the regions in northeastern Bangladesh receives the greatest average precipitation, sometimes over 4000 mm per year. About 80 percent of Bangladesh's rain falls during the monsoon season.

Chattogram gets hold of on average 2735 mm (107.7 in) of rainfall per year, or 227.9 mm (9 in) per month. On average there are 135 days per year with more than 0.1 mm (0.004 in) of rainfall (precipitation) or 11.3 days with a quantity of rain, sleet, snow etc. per month. The driest weather is in January when an average of 6 mm (0.2 in) of rainfall (precipitation) occurs. The wettest weather is in July when an average of 598 mm (23.5 in) of rainfall (precipitation) occurs.

3.5.3. *Wind and humidity*

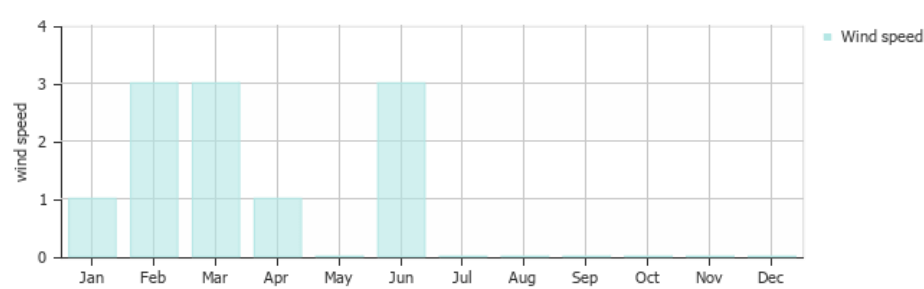


Figure 28 Average wind speed in Chattogram, Bangladesh

Source: (Climate, 2014)

The diagram for Chattogram shows the days per month, during which the wind reaches a certain speed.

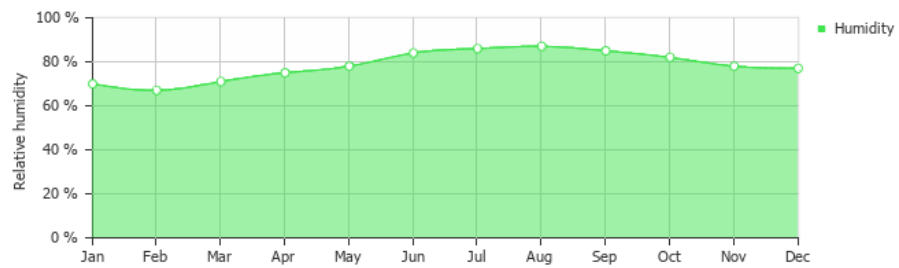


Figure 29 Average monthly relative humidity in Chattogram, Bangladesh

Source: (Climate, 2014)

On average, August is the most humid, while; February is the least humid month. The average annual percentage of humidity is: 78.0%

3.6. Probable Plan of Mughal Mosque

The plan and elevation are achieved by being present on the site and taking all the possible measurements. Study of other mosques of Mughal period also helped to shape it into form.

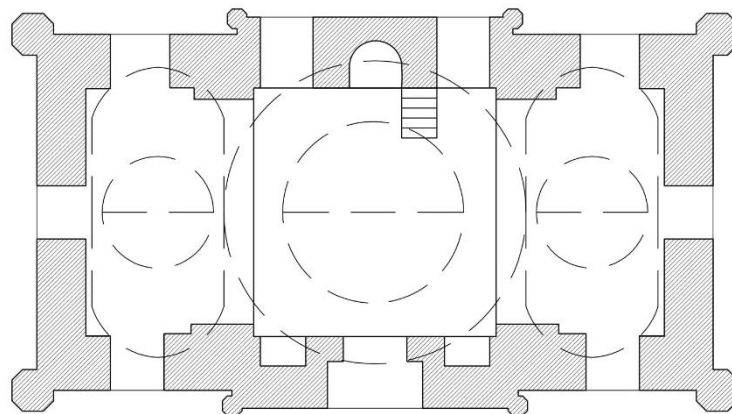


Figure 30 Plan of Mughal Mosque

Source: Author, 2019

3.7. Probable Elevation of Mughal Mosque

The plan and elevation are achieved by being present on the site and taking all the possible measurements. Study of other mosques of Mughal period also helped to shape it into form.

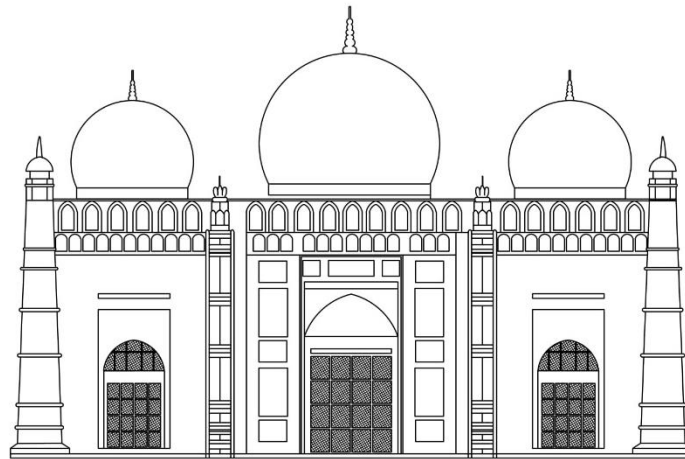


Figure 31 East elevation of Mughal mosque

Source: Author, 2019

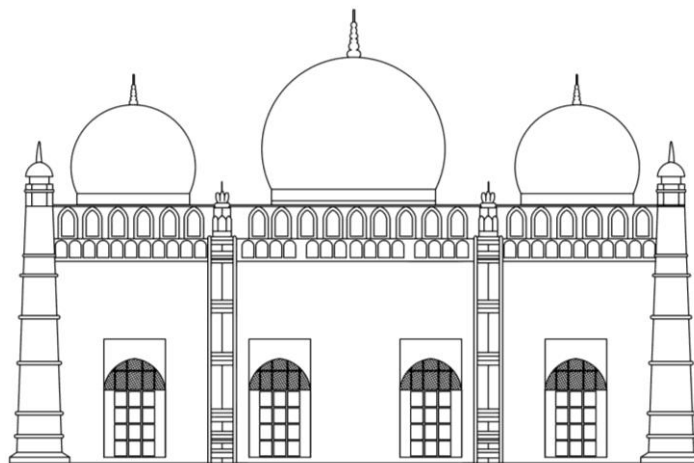


Figure 32 West elevation of Mughal mosque

Source: Author, 2019

3.8. Evolution of Anderkillla Mosque

The information of the evolution of the mosque over the years is achieved by talking to the local people who has been living there for long time, interviewing the shop owners, *imam* and members in the Islamic foundation.

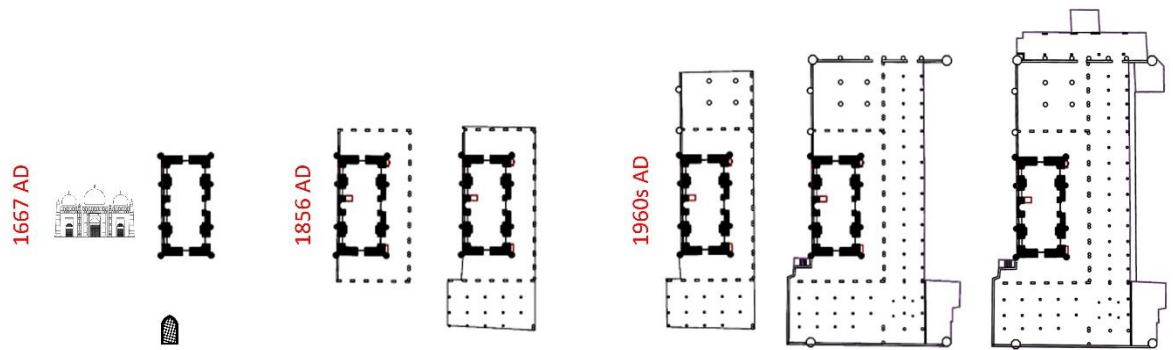


Figure 33 Evolution of the mosque over period of time

Source: Author, 2019

3.9. SWOT Analysis

3.9.1. Strength

- The site holds a strong historical significance of Mughal era.
- Centrally located and easily accessible.
- West side of the site is mostly filled with building structure, which provides sufficient shade and saves from west heat.

3.9.2. Weakness

- There are no parking facilities due to which it leads to greater traffic congestion. This also hampers the number of customers coming in the market.
- Mostly concrete based structure with no green.
- Absence of light on the market.

3.9.3. Opportunity

- It can be turned into a vibrant public space attracting tourists.

3.9.4. Threat

- The mosque is two storied and is structurally vulnerable to collapse at any time.

4. Program Development

This chapter deals with developing and understanding the requirements of the program and the functional spaces. Program development acts as a navigation, which helps the project to develop. It is also important for the programs to develop keeping in mind about the contextual analysis. There are few specific programs for this project, and it is crucial to have thorough understanding of how the programs were derived and space has not taken shape yet!

The functional programs and area requirements of the project are acquired from literature review, diversified local and international case studies, Time Saver Standards, The Architect's handbook, and CDA rules and regulations.

4.1. Program Rationale

The proposed program is to demolish the existing extension of the mosque and the two storied book market below the plaza and then redesign it. The extension will be designed to accommodate greater number of people than before. Clear visibility must be provided from the road allowing the Mughal era mosque to be seen. Restoration of the old mosque must be done.

4.2. Rationale of the Chosen Approach

The approach will be to restore the old mosque by applying different conservation methods and technique, making sure that the new extension of the mosque does not overpower the old mosque. This can be achieved through conservation, redesign and renovation. This rejuvenation will be done considering the religious facilities, economic purposes, public gathering and by welcoming tourists.

4.3. Basic Program Development

The primary aspects of the project are:

- Rejuvenation of the Mughal Mosque by providing clear visibility from the road after extension and accessibility must not be concealed
- Relocating the existing shops (235 no. of shops) that is below the plaza of the mosque
- Providing parking and other new facilities
- The main mosque of Mughal era will be kept unchanged and conserved, adding new extensions following the same characteristics, construction method and material

4.4. Existing Functions

Old Mosque
Extension Mosque
Ablution
Toilet
Book Market
Islamic Foundation
School

4.5. FAR Calculation

Land Area=3.5 acre = 1,52,460 sft

- User type = E6/F1/F2 (E6= religious building, F1= office, F2=Small shops or stores)
- Road width = 60 ft or 18 m
- FAR (Floor Area Ratio) = 6.5
- Total Buildable Area = 1,52,460 X 6.5

= 9,90,990 sft

M.G.C. (Maximum Ground Coverage)

- a. Upto 12m = 75% of land area

$$= 1,14,345 \text{ sft}$$

- b. Above 12m = 50% of land area

$$= 76,230 \text{ sft}$$

Setback (CDA Rules)

If the building is within 10 storied and the site area is more than 20 *katha*,

- Front setback: 1.50m
- Back/rear setback: 2m
- Side setback: 1.5m

Standard for car parking

- For office: 2150 sft = 1 car parking
- For mosque: 1000 sft = 1 car parking

Therefore, 112 parking needed for mosque

- For shops: 2150 sft = 1 car parking

Therefore, 30 parking needed for 235 shops

4.6. Basic Program Development

The following functions are achieved by studying the site thoroughly what it demands, by consulting a member from the Islamic Foundation (client) in Chattogram, by consulting one of the architect who is involved in the project in

BUET, Dhaka, by interviewing numerous local people who comes here to pray and resides in the surrounding area, and the shopkeepers.

Table 2

Source: Author, 2019

MOSQUE	function	no. of user	total area in square feet	with 30% circulation
	male + female	7,500	60,000 (8 sq ft per person)	78,000
	male	7,031	56,248	73,123
	female	469	3,752	4,877
	ablution space	414	2,484 (6 sq ft per person)	3,329
	toilet	116	2,320 (20 sq ft)	3,016
	baby care room		2,000	2,600
Total				86,945
ISLAMIC LIBRARY	function	quantity	total area in square feet	with 30% circulation
	reader's space and book keeping		5,000	6,500
	librarian room	1 nos	300	390
	store room	1 nos	300	390
Total				7,280
ISLAMIC FOUNDATION	function	quantity	total area in square feet	with 30% circulation
	lobby	1	1,900	2,470
	lecture hall	1	1,250	1,625
	director's room	1 nos	350	455
	assistant director's room	1 nos	200	260
	deputy director's room	1 nos	280	364
	accountant's room	2 nos	220	286
	engineer's room	1 nos	200	260
	seminar room	1	1,000	1,300
	moktab	100 nos	1,000	1,300
	Imam's room	3 nos	500	650
	Muajjin	2 nos	300	390
	motaalli	2 nos	250	325
	accountant	2 nos	250	325
	kitchen + dining	1 nos	900	1,170
	washroom (female)	1	150	195
	washroom (male)	2	380	494
	electro mechanical room	1	4,000	5,200
	security guard room	4 nos	480	624
	garbage room	1	600	780
Total				18,473
BOOK MARKET	function	quantity	total area in square feet	with 30% circulation
	book market	235	200 sq ft x 235 = 47,000	61,100
	cafeteria	1	1,200	1,560
	superstore	3	5,500	7,150
Total				69,810
VISUAL ENTERTAINMENT HALL	function	quantity	total area in square feet	with 30% circulation
	lobby + ticketing	1	3,000	3,900
	visual entertainment hall	1	3,500	4,550
	washroom (female)	1	250	325
	washroom (male)	1	250	325
Total				9,100
SCHOOL	function	quantity	total area in square feet	with 30% circulation
	lobby	1	2,000	2,600
	student service office	1	1,500	1,950
	classroom	13 (25 student requires 1,000 sq ft)		13,000
	physics, chemistry and biology lab	3	1,800	2,340
	computer lab	1	1,200	1,560
	E.C.A. room	1	1,000	1,300
	study room	1	500	650
	board room	1	750	975
	teacher's workstation	1	750	975
	teacher's dining room	1	480	624
	break room	1	750	975
	principal's room	1	250	325
	vice principal's room	1	200	260
	washroom (female)	5	1,250	1,625
	washroom (male)	5	1,250	1,625
	library	1	1,500	1,950
	librarian room	1 nos	300	390
	store room	1 nos	300	390
Total				33,514
TOTAL BUILDABLE AREA				225,122

4.7. Functional Flow Chart

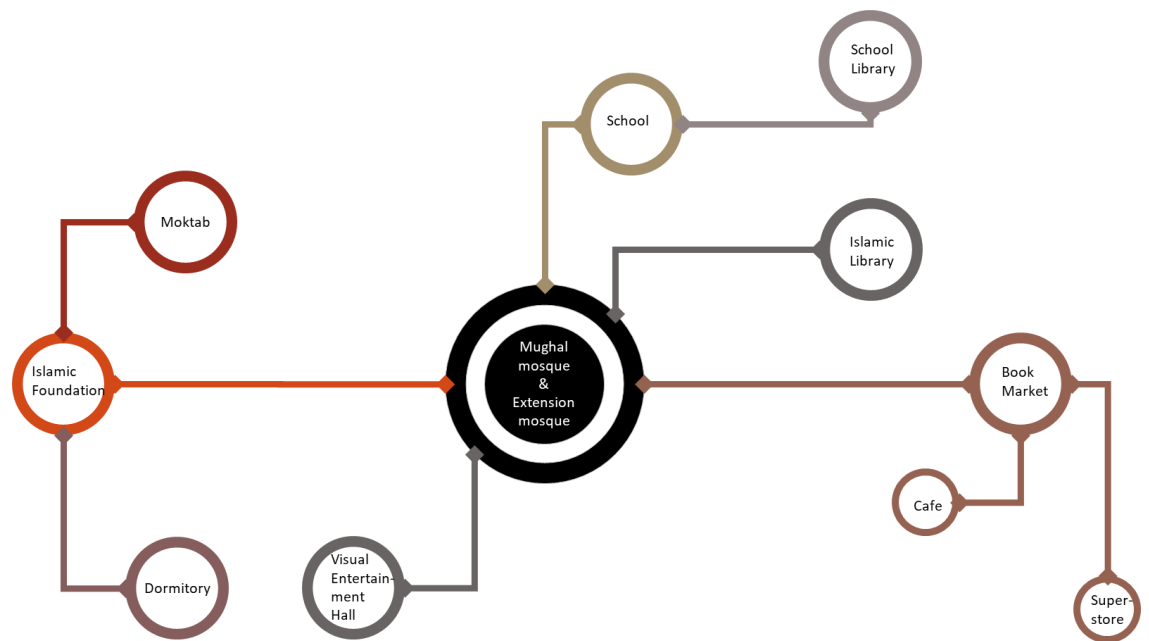


Figure 34 Flow chart of functions

Source: Author, 2019

5. Case Studies

5.1. Chandgaon Mosque- Chattogram, Bangladesh

5.1.1. *Background*

- Architect: Kashef Mahboob Chowdhury (Bangladeshi Architect)
- Client: Faisal M. Khan
- Location: Chattogram, Bangladesh
- Area: 1048.0 m²
- Project Year: 2007

This mosque seeks to fulfill the traditional role as both spiritually and as a gathering place serving the community, which is located on the suburban periphery of the port of Chattogram in Bangladesh. The architect began by determining the significant elements of a mosque to conceive a new form and expression for a typology that goes back for a millennium and a half. The result is this monolithic and spare mosque, pared down to two identical cuboid structures.

5.1.2. *Characteristics*

The first is the front court, its heavy masonry walls punctuated with low, outspread openings onto the encompassing landscape, with an enormous eyelike aperture above. In the second volume, the naturally lit mihrab wall is evened by an iconic, cut dome. While the apertures give a sense of openness and breathe in light and ventilation by day, by night they allow light to shine out of the mosque like a beacon. With its simplicity, geometric purity, the Chandgaon mosque stands out from numerous such structures that have reduced

architectural features associated with the usual mosque type. It makes a definitive architectural statement in a different direction, pointing to the contemporary, to a desire to live in spaces that reflect the universal values of the present day.



Figure 35 Interior of the mosque below the cut dome

Source: (ARCDAILY)



Figure 36 Exterior of the mosque during nighttime

Source: (ARCHNET)

5.1.3. Interpretation

- North South orientated
- Use of two identical cuboid structure
- An eyelike aperture on the roof stimulates diffused light
- Heavy masonry wall with low and wide opening
- Suitable daylight condition
- A solemn and peaceful environment is created
- Merged with landscape
- No ornamentation or decoration

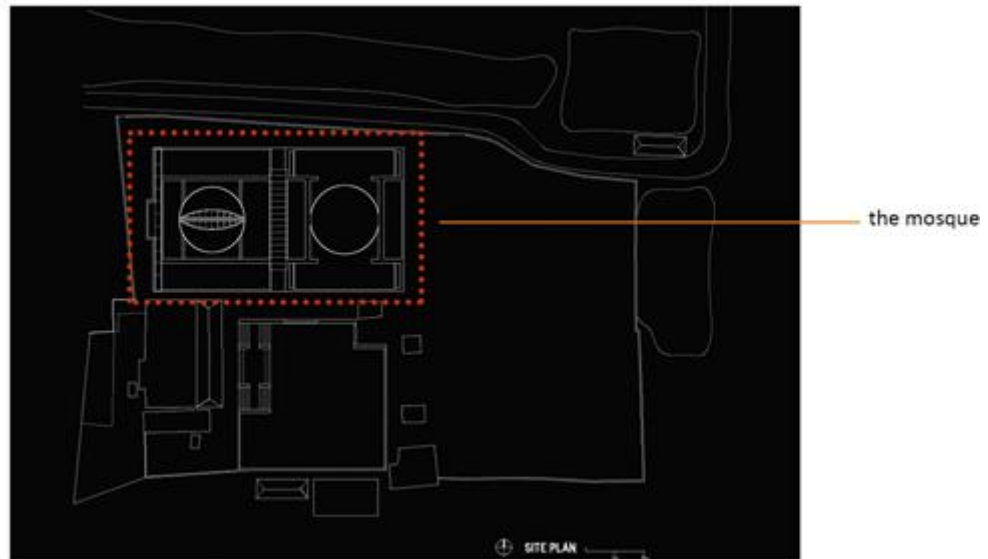


Figure 37 Site plan of the mosque

Source: Author, 2019

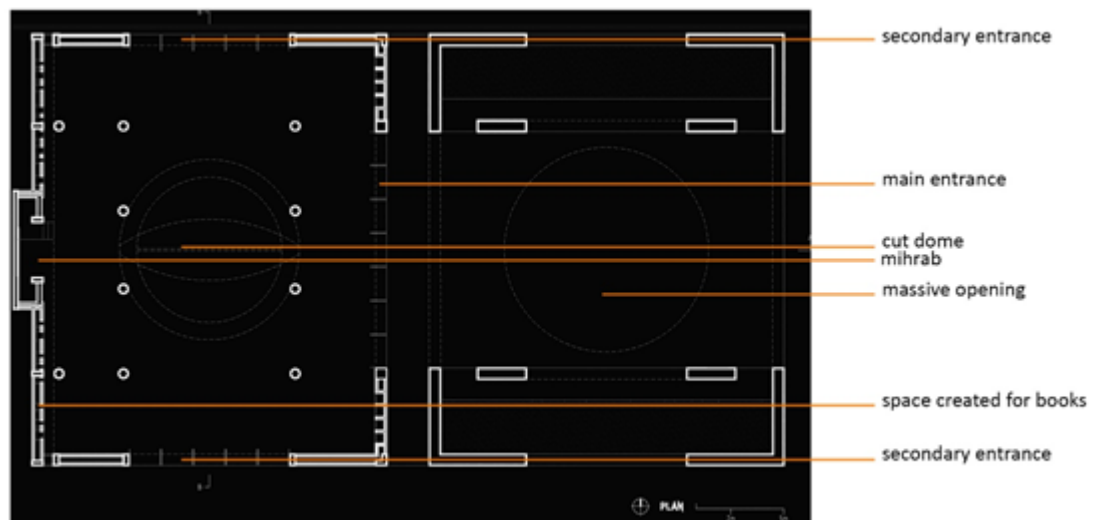


Figure 38 Interior space within the mosque

Source: Author, 2019

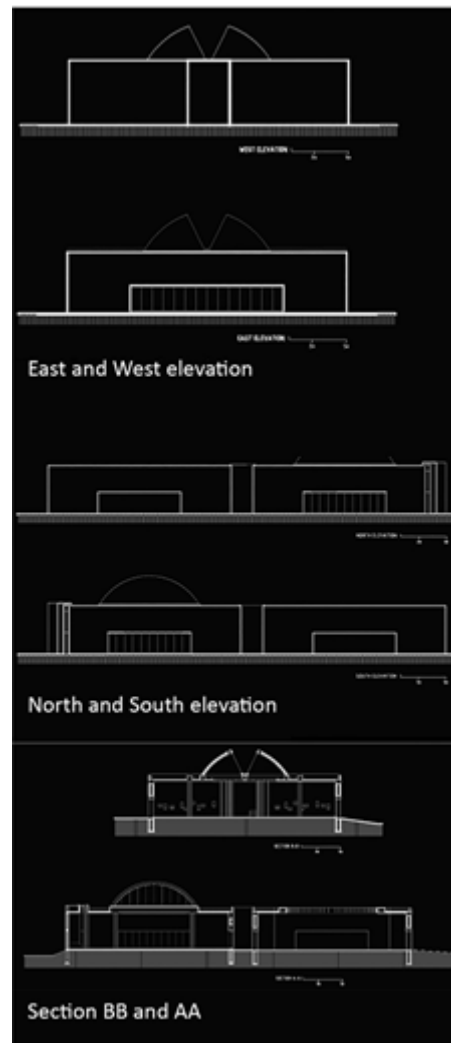


Figure 39 Elevation and Sections of the mosque

Source: Author, 2019

5.2. Shah Faisal Mosque- Islamabad, Pakistan

5.2.1. Background

- Architect: Vedat Dalokay (Turkish Architect)
- Location: Islamabad, Pakistan
- Area: 5,000 m²
- Project Year: 1986

The Shah Faisal Mosque is the largest mosque located at the end of Shaharah-e-Islamabad in Pakistan, against the backdrop of the picturesque Margalla Hills. It also the National mosque of Pakistan. It is named after the late King Faisal bin Abdul Aziz of Saudi Arabia, who supported and financed the project as a gift to the people of Pakistan.

The Faisal Mosque has an area of 5,000 m² (54,000 sq ft) and has a capacity to accommodate 20,000 worshipers in the main prayer hall, 24,000 in porticoes, 100,000 in the courtyard and another 200,000 in the adjoining ground. The huge sanctuary has a plan of 60 × 60 square meters. The peak of the roof is 40m above ground level (Nasim, 2008).



Figure 40 Exterior of the mosque

Source: (Google Image)



Figure 41 Aerial view of the mosque

Source: (Google Image)

5.2.2. Function of the Mosque

- Main Prayer Hall
- Women's Gallery (nos 1500 people)
- Ablution
- *Shaan*
- Funeral Area
- Auditorium
- Library
- Museum
- Lecture Hall
- Islamic Research Institute
- Cafeteria
- Office
- Car Parking (nos 400)

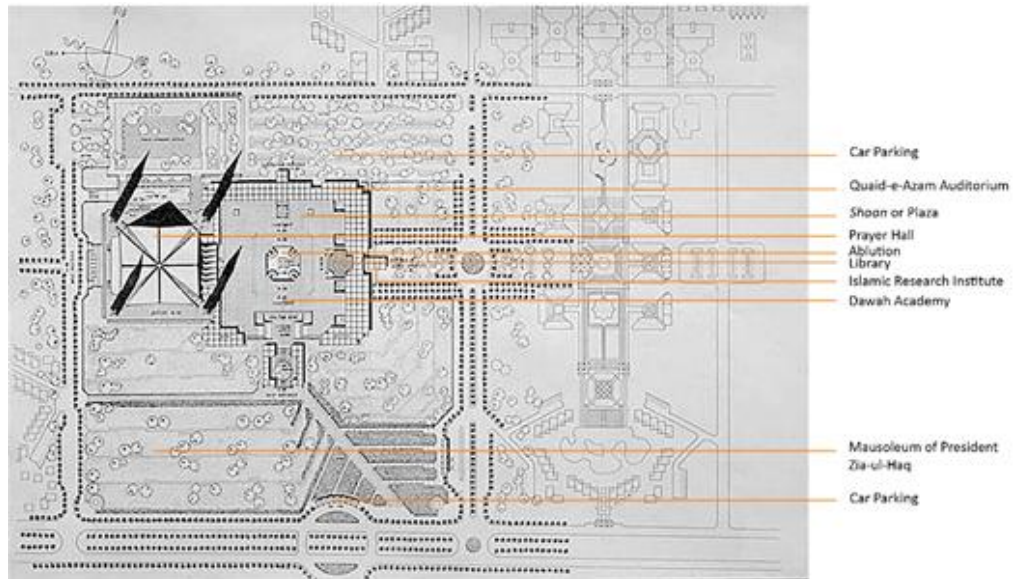


Figure 42 Existing functions of the mosque

Source: Author, 2019

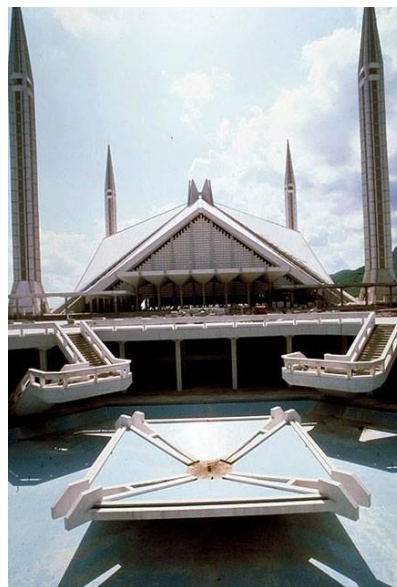


Figure 43 Ablution space

Source: ARCHNET

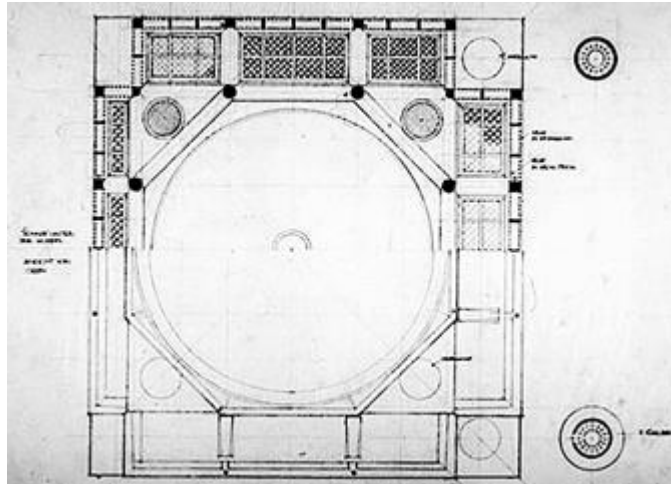


Figure 44 Plan of main prayer hall

Source: ARCHNET

5.2.3. Characteristics

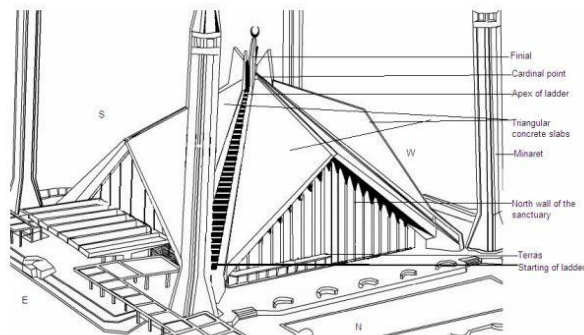


Figure 45 External features of the Faisal mosque

Source: (External Features of the Faisal Mosque, n.d.)

The gable appearance of the Faisal Mosque is influenced by Greek architecture, and the sloping lines at the corners are inspired by the pyramidal roof. The slopes down from all four sides from the apex of the building are a perfect example of pyramidal form. In the Faisal Mosque roof, all slopes come down from its cardinal point. The gable appearance of the Faisal Mosque is influenced by Greek architecture, and the sloping lines at the corners are inspired by the

pyramidal roof. The slopes down from all four sides from the apex of the building are a perfect example of pyramidal form. In the Faisal Mosque roof, all slopes come down from its cardinal point.

Each of the Mosque's four minarets are 90m high. Entrance is from the east, where the prayer hall is fronted by a courtyard with porticoes.

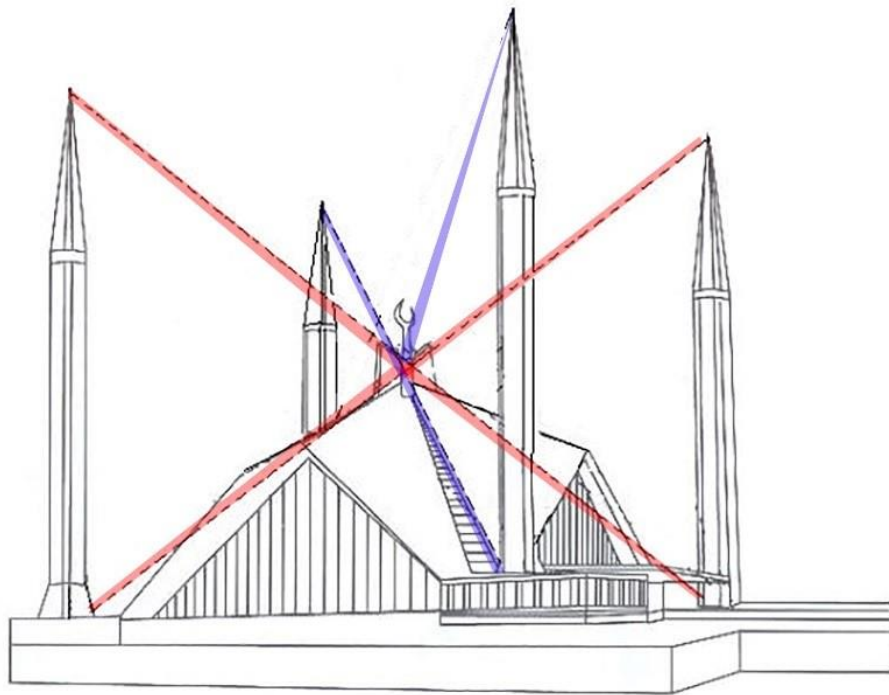


Figure 46 Imaginary network of triangular shapes of the exterior of the Faisal Mosque

Source: Author, 2019

Mosque is placed at the centre. Minarets play a vital role in separating the external pyramidal structure of the sanctuary from diagonal lines of the hills. Secondly, they set the mosque in a square frame. The white colour provides an effect of light weight and softens the sharp contours of the mosque. The architect selected white colour for its meaningful symbolism related with Islamic religion: white is the colour of the clothing of the pilgrim to Mecca during the *hajj*.

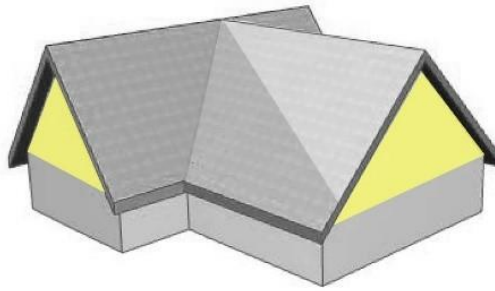


Figure 47 Gable roof

Source: Google image

Gable roofs were used in the construction of buildings in Greek, Roman, Byzantine, Gothic and Medieval architecture. The gable roof of the Faisal Mosque is an advanced form of hyperbolic paraboloid construction. It is based on shell construction, which can be constructed with large or short span. The main purpose of this concrete shell structure is to cover a large area without any interior supports. The same purpose has been achieved in the mosque which gives huge internal space with no obstructive columns or supports.

5.2.4. Interpretation

- A dominant structure
- Dome-less
- Expression of concrete shell in roof
- Gable roof
- Four sculptural stair leads to the ground floor for ablution
- A reflection pool and fountain give a unique essence
- Use of decorative tiles for interior walls and floors
- Use of diffused light from roof

5.3. Penzberg Islamic Forum- Penzberg, Germany

5.3.1. Background

- Architect: Jasarevic Architekten
- Client: Penzberg Islamic Community
- Location: Penzberg, Germany
- Area: 1450.0 m²
- Project Year: 2005

South of Munich, where the Alps rise beyond Lake Starnberg, one is in deepest Bavaria, a region known for its conservative Catholicism. In Bavaria, a small Muslim community used contemporary architectural style to build this forum - a courageous undertaking based on a desire for integration. In the middle of the hall, there's a second floor. This is a gallery which is reserved for women, so that men and women cannot see each other.



Figure 48 Exterior of the mosque

Source: (Islamic forum)

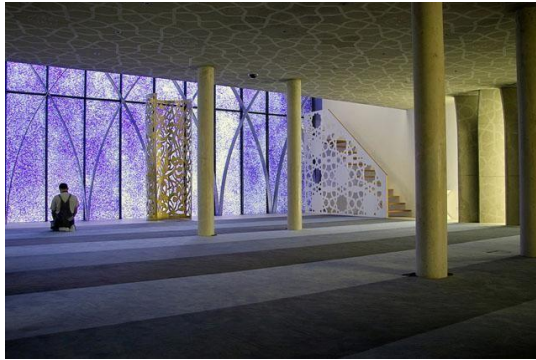


Figure 49 Interior of the mosque

Source: (ARCHNET)

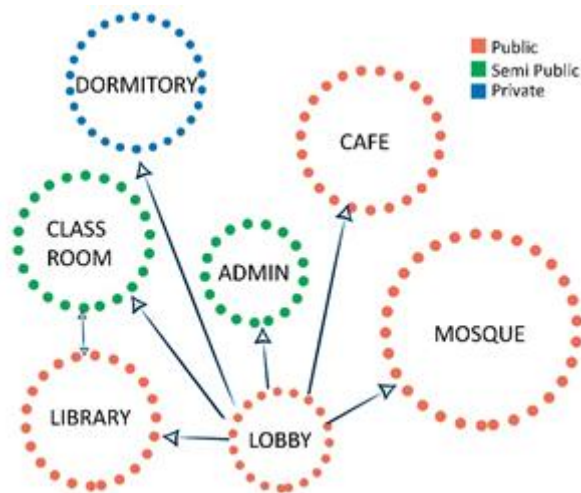


Figure 50 Functional flow

Source: Author, 2019

5.3.2. *Function of the Form*

- Prayer Room
- Communal
- Administrative Rooms
- Library
- Restaurant
- Apartment/Dormitory

- Kitchen
- Multifunctional Room
- Classroom
- Parking



Figure 51 Site plan, ground floor plan, first floor plan and basement plan

Source: Author, 2019

5.3.3. *Characteristics*

The building and its delicate tower fit into the surroundings with its distinctive appearance, where the traditional village structure has already been broken with in the form of different rooflines and ornaments between rusticity and post-war monotony. The mosque has a full-height decorative blue glass façade and a stainless minaret that lightens at the Maghrib (sunset) prayers - a column decorated with Arabic words calling the faithful to prayer.

The functions have been placed under a single roof on an L-shaped ground plan. But the facades, that are clad in pale stone, clearly indicate the different functions of the rooms – to the east above all the slightly recessed full-length blue glass ornamented window. The entrance features two concrete slabs that swing out of the wall like open gates, creating an inviting environment for the visitors into the house in German and Arabic script; the actual door, made of stainless steel, is open to all. Inside, one is greeted by a classical open-plan staircase with a great deal of daylight. To the right, the view opens up into the beautiful prayer room. From the side, daylight enters between curved concrete slabs, on the front wall the light enters through the blue glass without dazzling.

The way the light falls grabs attention to the ceiling and wall panels, where ornaments are used to the unclad concrete that can be read as expressions of divine infiniteness. The abstracted star motifs contain The 99 Names of God – such as “The Most Merciful” and “The Utterly Just” – in calligraphy.

5.3.4. *Interpretation*

- The façade of the mosque, particularly the entrance, are decorated by Islamic inscriptions of Quran versus accompanied by German translation.

- The facades were transformed into huge boards where people would read the peaceful message of Quran and appreciate the beauty of calligraphy and Islamic ornamentation.
- Transparency is the main guiding principle. The idea was to welcome both religious and non-religious people, despite their ethnic backgrounds.
- Transparent facades allow more than 60% of the mosque to be seen from exterior.



Figure 52 Exterior of the mosque

Source: (Muslims in Germany getting ready for Eid Ul Fitr prayers, 2015)

6. Design Development

6.1. Design Considerations

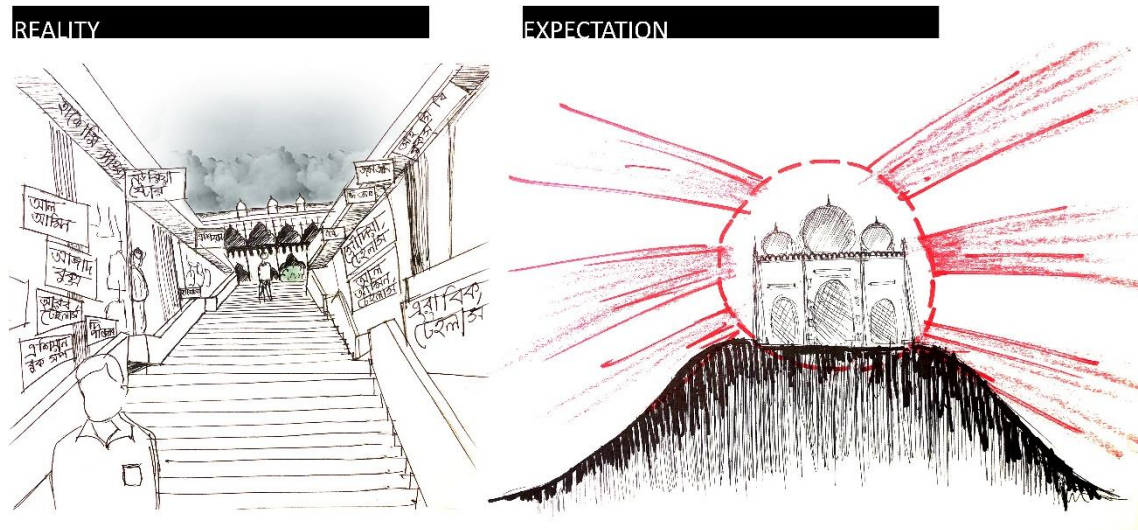
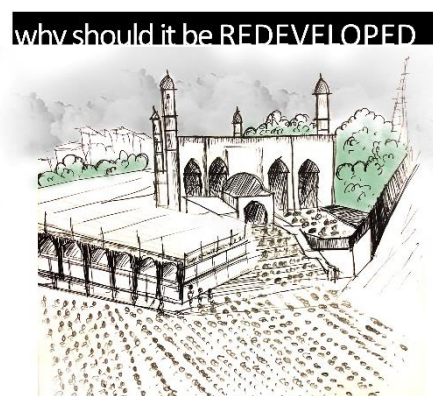


Figure 53 Concept diagram 01

Source: Author, 2019

In reality only the extension of the mosque can be seen from the main road, while the expectation is “the exposure of the Mughal mosque.”



Source: Author, 2019

1. With time as the number of populations increased, there is insufficient space for people to pray, the shops beneath receive little or no sunlight during daytime and there is no facility for parking.

2. Extension of the mosque made it relatively obscure to identify the presence of the Mughal mosque from the road.

6.2. Concept Development

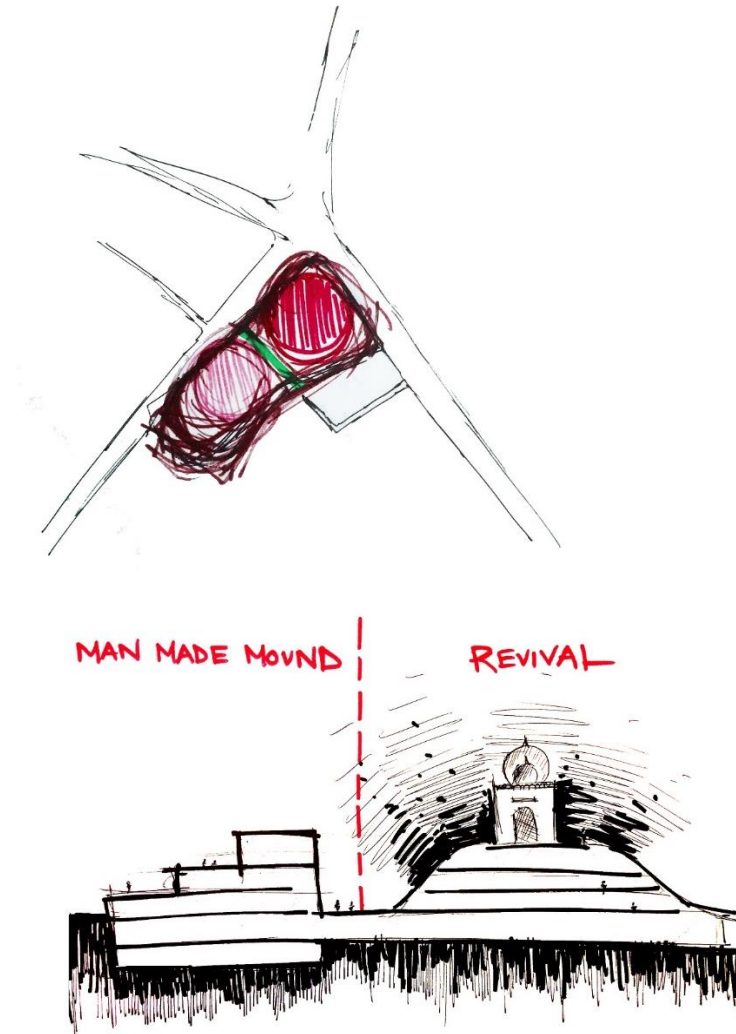


Figure 54 Concept diagram 02

Source: Author, 2019

The concept is derived by splitting the site into two. One, a hill, which revives the Mughal era mosque and the other, man-made mound, encompassing other functions such as school, market, Islamic foundation, visual entertainment hall, and library.



Figure 55 Probable contour map

Source: Author, 2019

A probable contour map of the Mughal era acts as a guide for the revival of the hill.

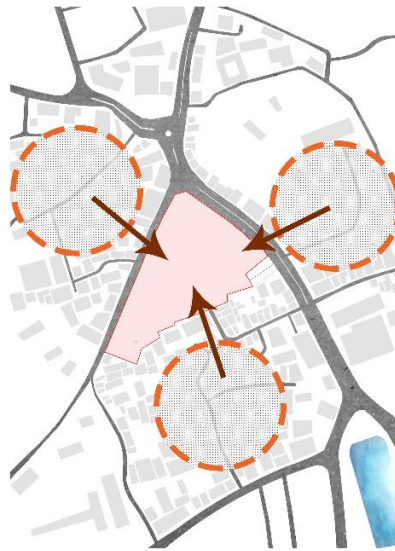
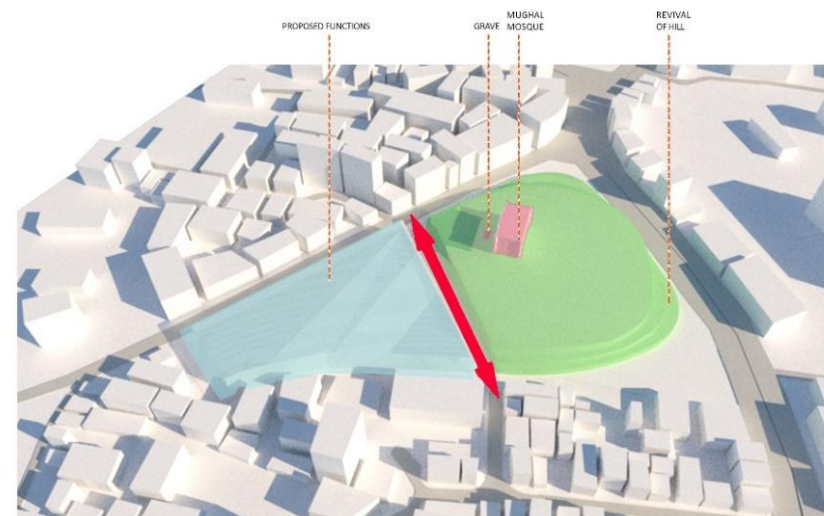


Figure 56 Connecting the neighbourhood

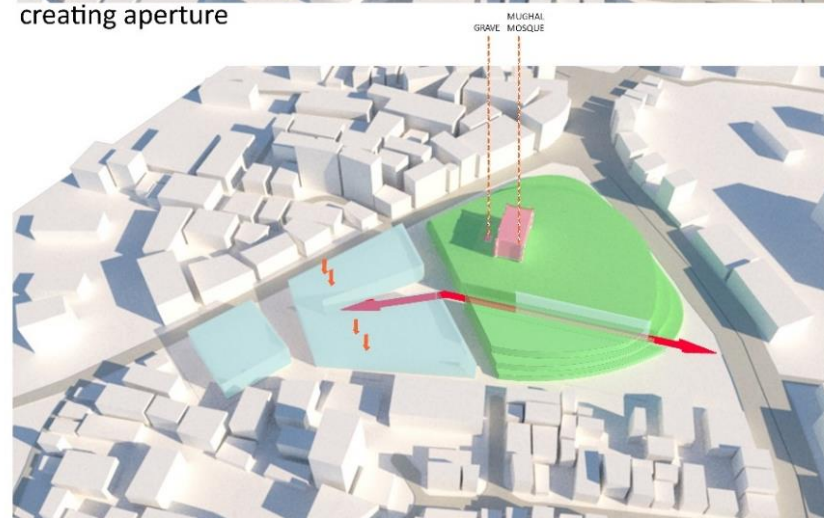
Source: Author, 2019

Major pedestrian routes connecting the neighbourhood creates a major impact in the form derivation process.

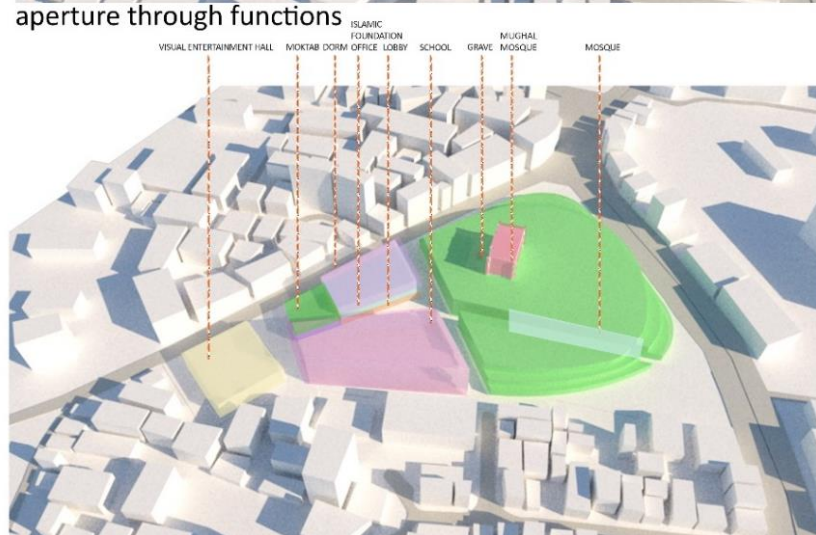
6.3. Form Development



creating aperture



aperture through functions



functions distributed

Figure 57 Form development

Source: Author, 2019

6.4. Zoning



Figure 58 Zoning

Source: Author, 2019

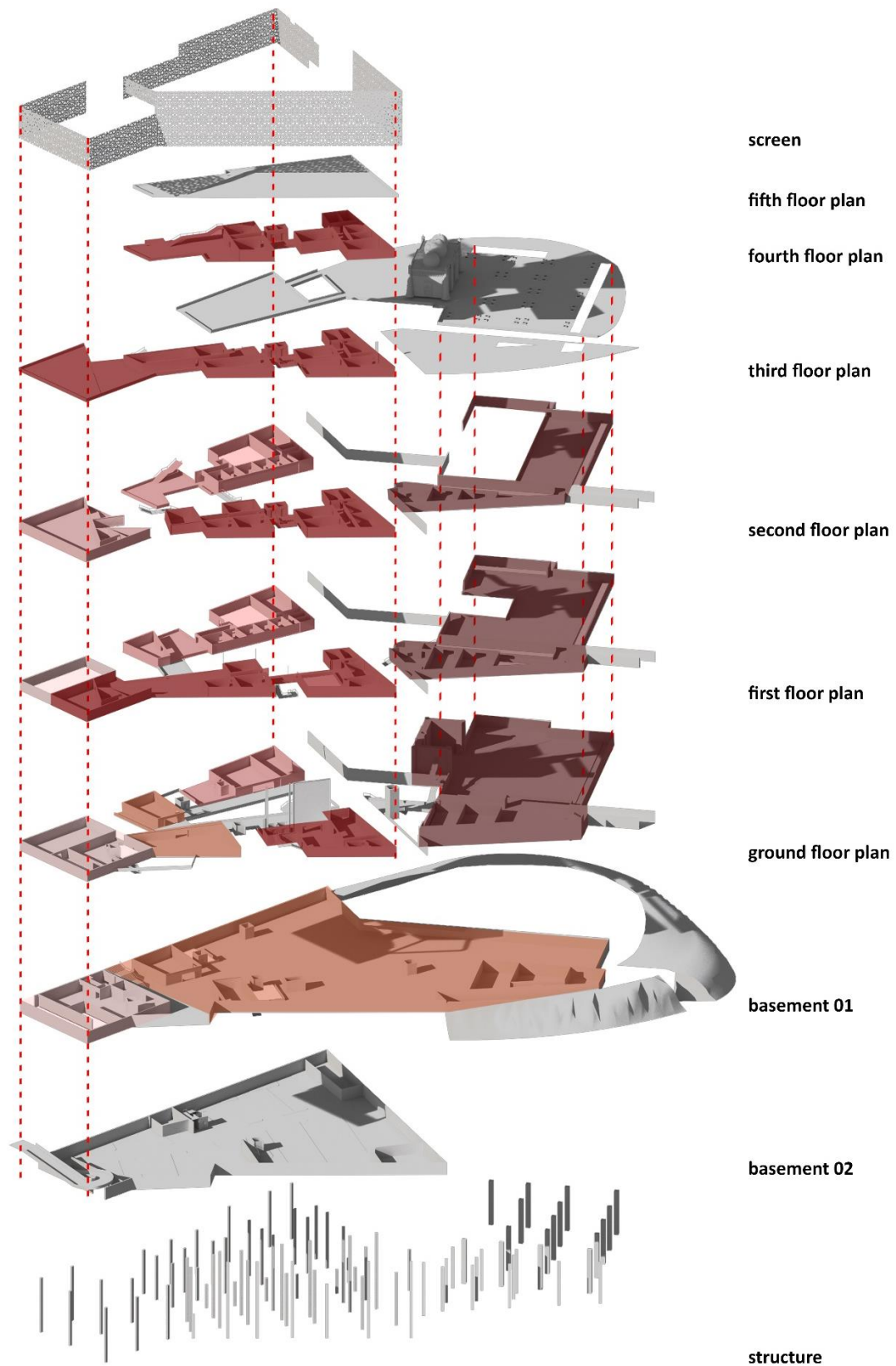


Figure 59 Zoning by floors

Source: Author, 2019

6.5. Plans

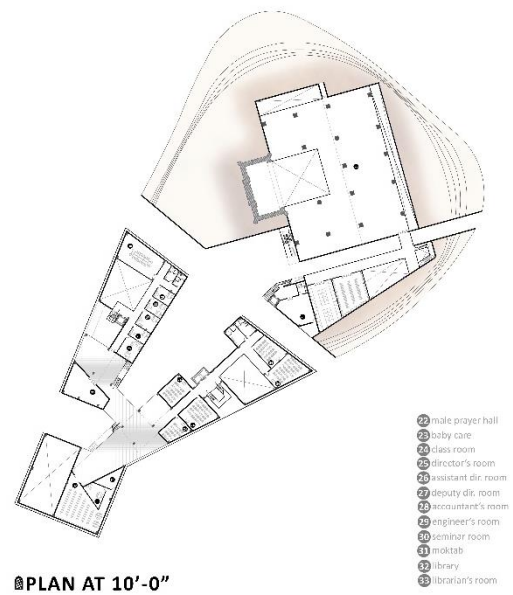
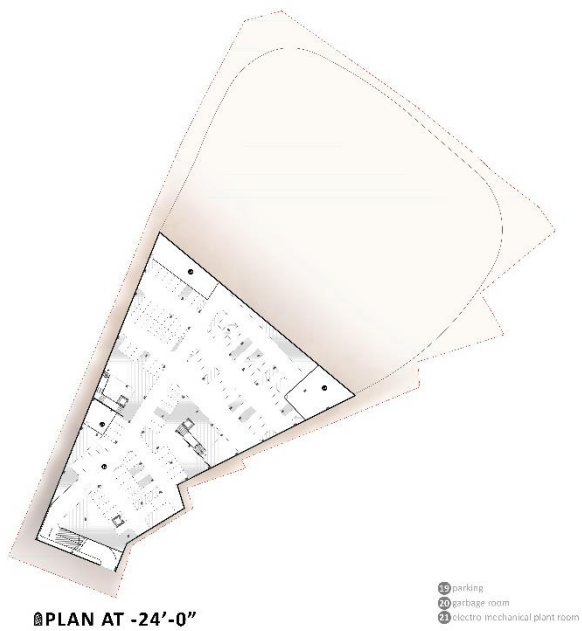
6.5.1. Masterplan

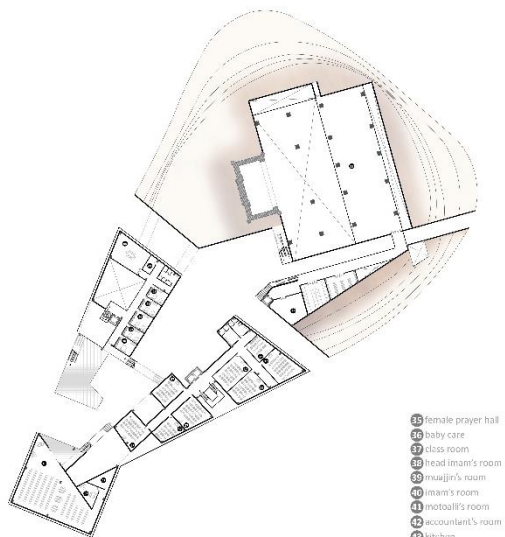


Figure 60 Ground floor plan

Source: Author, 2019

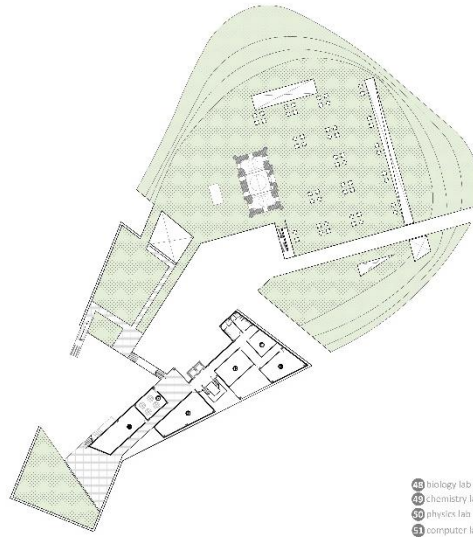
6.5.2. Floor Plans





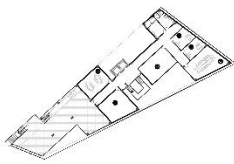
PLAN AT 20'-0"

- 35 female prayer hall
- 36 baby care
- 37 class room
- 38 head imam's room
- 39 muajjin's room
- 40 imam's room
- 41 mosque's room
- 42 accountant's room
- 43 kitchen
- 44 dining room
- 45 Islamic library
- 46 librarian's room



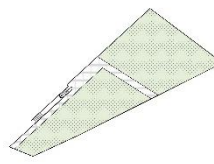
PLAN AT 30'-0"

- 46 biology lab
- 47 chemistry lab
- 48 physics lab
- 49 computer lab
- 50 study room
- 51 F.C.A. room
- 52 playground



PLAN AT 40'-0"

- 51 principal's room
- 52 vice prin. room
- 53 board room
- 54 break room
- 55 teacher's workstation
- 56 dining room



PLAN AT 50'-0"

6.6. Sections

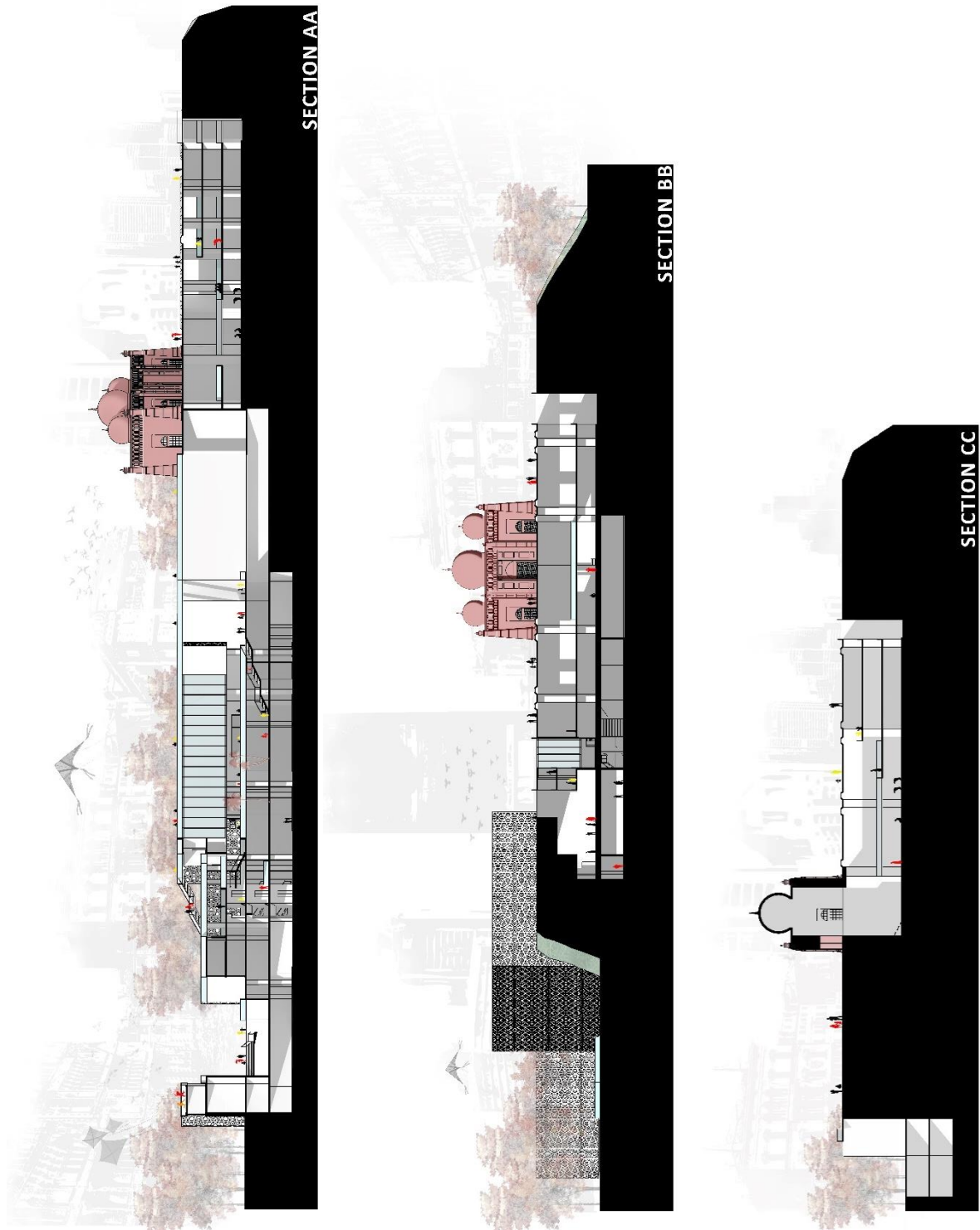


Figure 61 Sections



Figure 62 Sectional perspective

6.7. Elevations



Figure 63 West elevation

6.8. Perspectives



Figure 64 Interior of the mosque 01



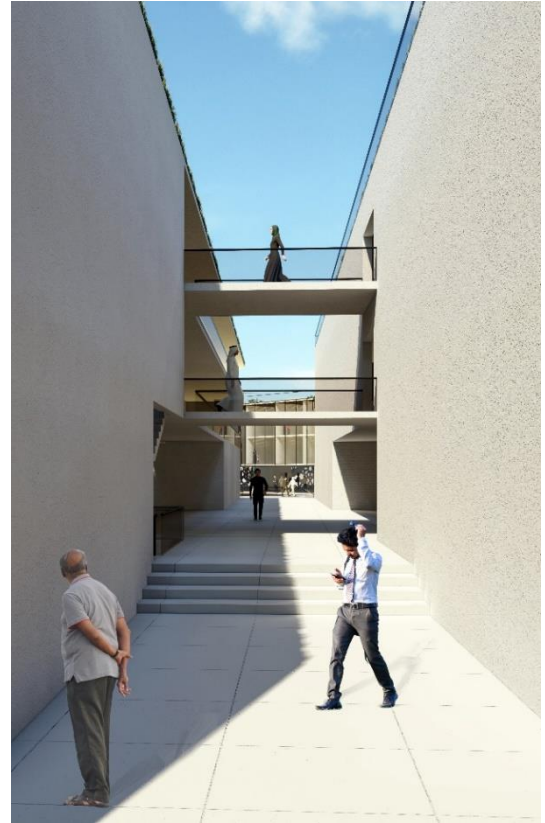
Figure 65 Interior of the mosque 02



Figure 66 Aerial view of the complex

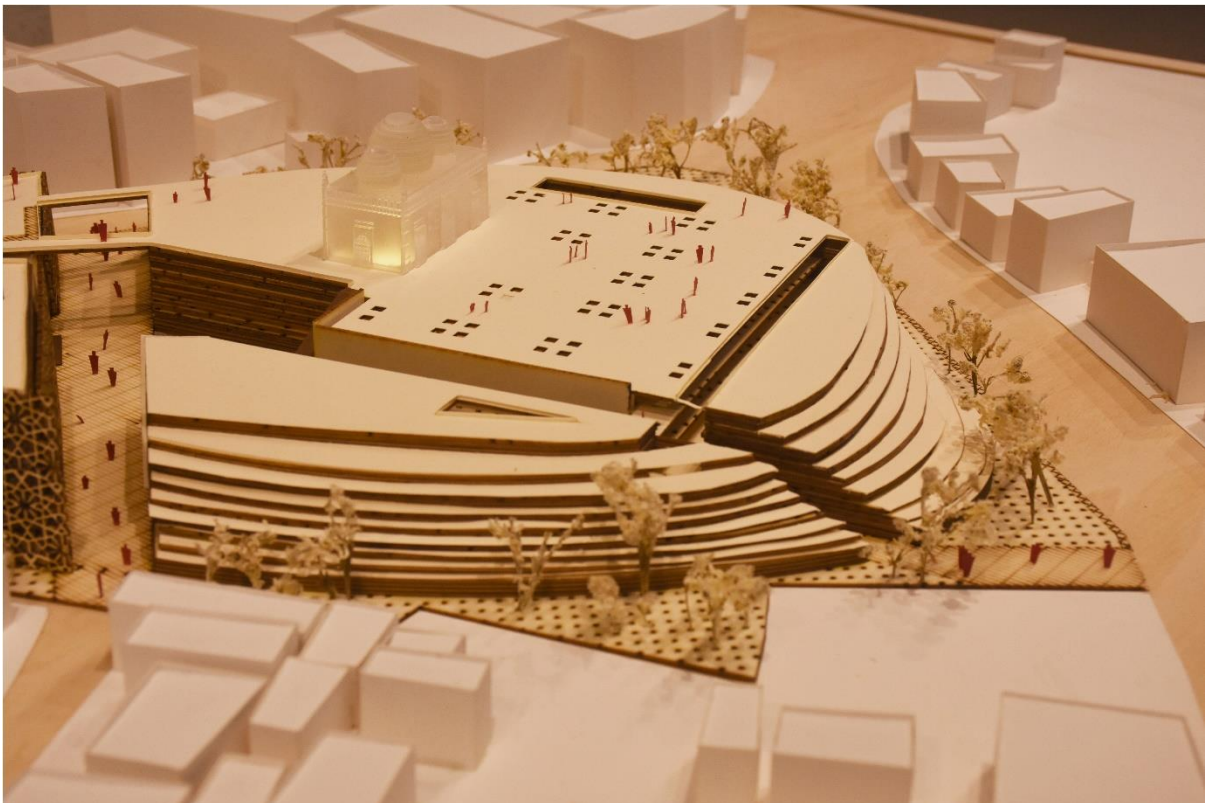
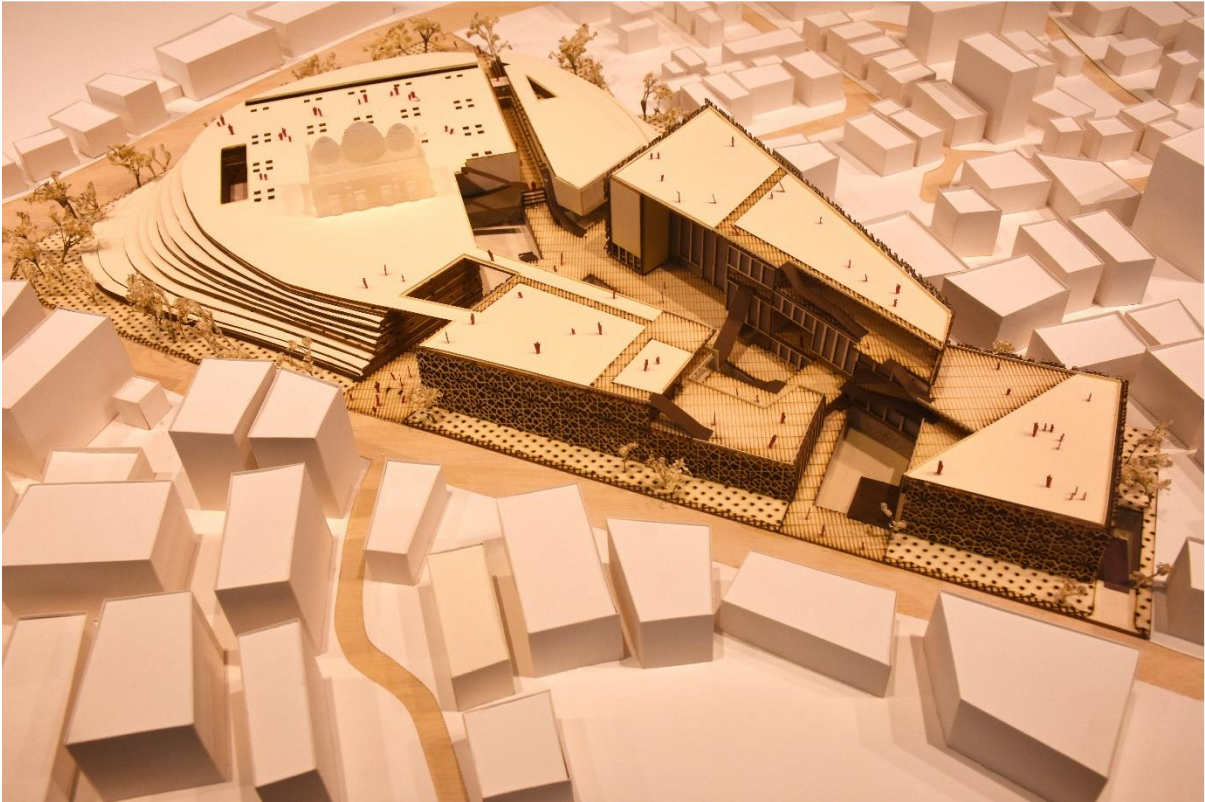


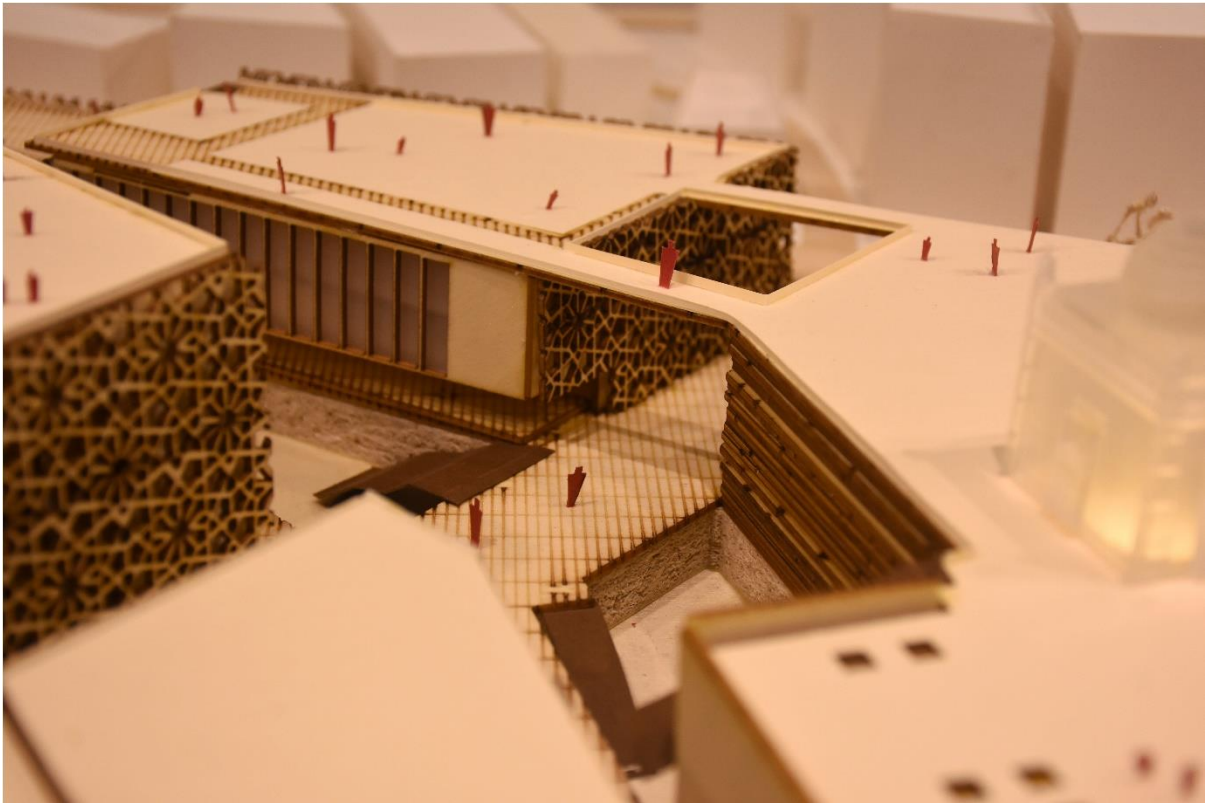
Figure 68 View from the cafeteria



**Figure 67 Pedestrian route
connecting the mosque with the
complex**

6.9. Model Images







7. Conclusion

It is disheartening to witness the vanishing of sensitivity towards the history and heritage, which reflects the roots of us as a nation. The aim of this project was to raise awareness amongst everyone by exposing the Mughal mosque and by adding an essence of Mughal era. The aim was also to hit people in their soul trying to connect it spiritually.

Hence, the appearance of sensitivity towards heritage will help us to strengthen our virtue.

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