
**CONSERVATION ISSUES OF HISTORIC MOSQUES
OF DHAKA CITY
PRE-MUGHAL AND MUGHAL PERIODS**



Prepared by

Fariel Khan



A thesis submitted to the Department of Architecture, BUET
in partial fulfilment of the requirements for the
degree of Masters of Architecture.

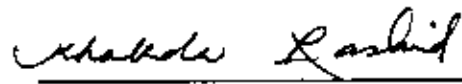
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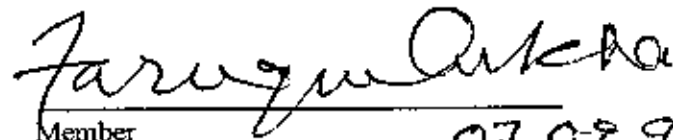
**DEPARTMENT OF ARCHITECTURE
BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY
DHAKA, BANGLADESH.**

Department of Architecture
Bangladesh University of Engineering and Technology
Dhaka, Bangladesh.

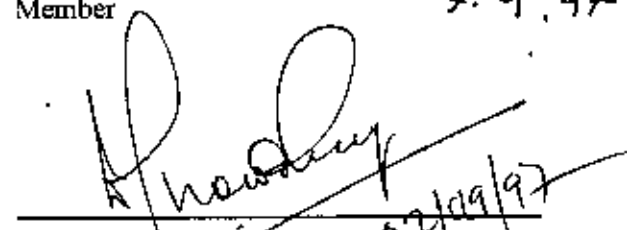
On this day, September 7 1997, the undersigned hereby recommended to the Academic Council that the thesis entitled 'CONSERVATION ISSUES OF HISTORIC MOSQUES OF DHAKA CITY-- PRE-MUGHAL AND MUGHAL PERIODS' submitted by Fariel Khan, Roll No 9108, Session 1989-90-91 is acceptable in partial fulfilment of the requirements for the degree of Masters of Architecture.

1. Khaleda Rashid
Supervisor
Professor and Head, Department of Architecture,
Bangladesh University of Engineering and Technology
Dhaka, Bangladesh.
2. Faruque A. U. Khan
Professor and Dean, Faculty of Architecture and Planning,
Bangladesh University of Engineering and Technology
Dhaka, Bangladesh.
3. Khairul Enam
Professor, Department of Architecture,
Bangladesh University of Engineering and Technology
Dhaka, Bangladesh
4. Abdul Momin Chowdhury
Professor, Department of History,
University of Dhaka
Dhaka, Bangladesh.


Chairman 07.09.97


Member 07.09.97


Member 7.9.97


Member (External) 07/09/97

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Synopsis

Paramount example of Muslim architecture was built during the Pre-Mughal and Mughal period. Mosque architecture went through extensive elaboration and perfection, which form the primary image of a complete mosque in the overall regional context of the subcontinent. There was no definite demand of architectural character in mosque design. Almost any building could be used as mosque having an elongated wall at right angle in 'qibla' direction.

During the Pre-Mughal period (1204-1576 AD) mosque architecture got a new expression. The Muslims came to Bengal with the enriched method of construction of Mosque architecture. The architecture was the blend of two ideas. The regional Bengali style is expressed through adaptation of pre-Islamic monumental traditions (Buddhist and Hindu temples) and contemporary vernacular models (the mud and thatch hut)

During the reign of Emperor Jahangir, the Mughal capital was shifted from Rajmahal to Dhaka in 1610, by Islam Khan – a Mughal Governor. As a result a new era in the history of Mughal architecture of Dhaka started .A large number of **mosques**, tombs, fortresses, bridges were built with the influence of traditional pattern of upper India. During this period building style underwent drastic change compared to the Pre-Mughal brick and terracotta architecture. The Muslim architecture of Mughals are recognised as brick-style architecture In 1666 AD Bengal came under the hegemony of the Mughals and they brought new decorum in their architecture especially in mosques. They evolved a style unique to Bengal, introduced a new architectural order with the sense of sophistication and refinement and discarded some of the established architectural elements. During Sultanate period the architecture took many decorative motifs from the folk arts of Bengal. **Here in Dhaka Mughals even changed over from the stone of the north India to elaborate brick structures.**

In the context of Dhaka and the adjoining areas Mughal style played a dominating role. The chain of their building activity found expression through the numerous mosques that change the skyline of Dhaka. Perhaps the name of Dhaka as 'the city of mosques' initiated from the mosque building activity of the Mughals. The Mughal mosques in Dhaka indeed have a

distinct pattern that identifies them from the rest . Yet they were not copy of the North Indian model that the Mughals have developed with so much care and dedication.

Before going to the discussion of historic mosques of Dhaka city, an elaborate discussion on the intrinsic pattern of mosque architecture in Bengal is attempted. The mosques of Bengal are classified according to the ground floor plan. **It is evident that the design of Mughal mosque in Dhaka city had drawn its concept of layout and organisation preliminary from the prominent mosques built here in the Pre-Mughal period.** Differences in the Pre-Mughal and Mughal mosques described in the thesis are in respect to over all form, shape, internal spatial organisation and surface articulation. A typological development of Pre-Mughal and Mughal mosques of the Dhaka city has been established. The study shows both Pre-Mughal and Mughal mosques adhere very closely with respect to the overall scale, use of building materials and technology. The most significant attributes of identification of Mughal mosques are the surface delineation with panel decoration and the design of domes decorated with merlons. All these have been discussed in chapter 1 and 2.

Majority of the historic mosques classified and discussed in chapter 3, have been transformed over the period in the name of successive extensions and renovations. In Bangladesh only two organisations namely, the Department of Archaeology, under the Ministry of Culture and the Architecture Department, under the Ministry of Works are the custodian of the heritage. They have conserved few mosques of Mughal periods. Unfortunately no evidences have been found so far of the process followed for conservation. Simply speaking, **conservation refers to the process of looking after a place so as to retain its all significance.** To achieve a successful conservation work it is vital to go through the process of conservation chronologically.

The planning tools and techniques of architectural conservation discussed in chapter 4 shall bring awareness among the technical institutions at local, regional as well as national level. The discussion in the chapter reveals that in Bangladesh there is a great need to educate people regarding conservation of Muslim and architectural heritage of Pre-Mughal and Mughal period. For the implementation of conservation of built forms there has to be community support as well as strong legislation. Community support can only be achieved if people are properly educated, and also become conscious to protect the heritage of the soil.

The chapter also critically analysed two mosques of Dhaka conserved by the Department of Archaeology, namely, Goaldi mosque of Pre-Mughal period and Sat Gumbad mosque of Mughal period.

Chapter 5 incorporated measured drawings and primary data of 4 mosques. They are Binat Bibi's mosque of Pre-Mughal period, Islam Khan Ki mosque, Churihatta mosque and Khan Muhammad Mridha's mosque of Mughal period. All these mosques have been transformed gradually due to the need of the community and also for climatic reasons. The gradual transformations of the local mosques are discussed. On the basis of the discussion for each mosque surveyed and studied specific recommendations on design and architecture are provided in the form of propositions.

Recommendations on conservation issues of historic mosques are provided in chapter 6. The recommendations are mostly on conservation process including policy, planning tools and techniques, development of design guidelines and public education. Conservation itself is not a simple task. It is painstaking, time consuming and laborious involving quite a big amount of resources. Moreover, architectural conservation of the historic mosques are definitely not only a physical issue but also a socio-cultural issue.

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Chapter 1. Preamble



1.1. Muslim Architecture and Conservation

Throughout the history it is evident that wherever the Muslims went they placed high priority on establishing Mosques for their fundamental religious requirements i.e. for the Muslim culture and ritual of congregational prayers five times a day. *Mosque is a distinctive type of Muslim religious building art, veritable symbol of Islam* (1). Mosque is considered, the centre of Muslim socio-political and religious life—the embryo of Muslim architecture.

Muslim architecture has created a special position in the history of world architecture. Moreover Muslim architecture specially the mosque architecture of different areas possesses separate identity of architectural pattern. The difference has been created because of different types of climate, availability of material, topography, cultural pattern and socio-economic factors present in the world.

Architecture being such a media which can explain the history, heritage, art, socio-cultural and economic condition of a civilisation or a country is of great importance. Throughout the century people have created different structures to express their preferences and aesthetics. Therefore, built forms act as the testimony and documentation of socio-cultural life, history and time period. So if they can be retained through the art of conservation the past, history and heritage may be cherished.

The self esteem and belief of a nation establishes key issues of development. Thus it becomes imperative to show respect towards past. Through the conservation of mosque architecture it is possible to trace the Muslim heritage for future posterity and for the future generation to cherish the past with pride.

Preservation of the historically important monuments should appear as one of the priority areas of a country, thus correct cultural dimension and individuality both would be presented. The pressure of urbanisation is constantly damaging the old structures and monuments of the city and each day its preservation is becoming more complex.

With the present economical condition of Bangladesh there always a debate remains whether the aspect of conservation is really needed. In the words of Keven Lynch, "The

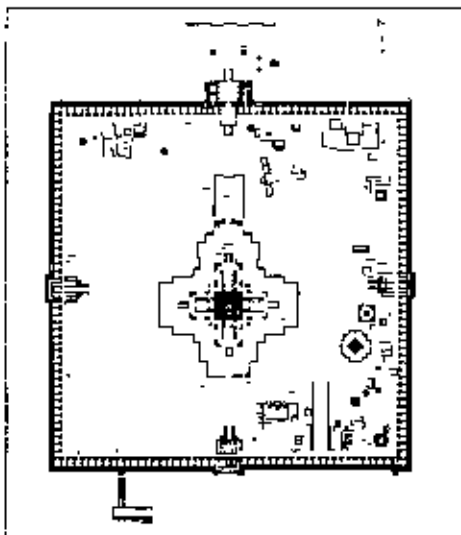
city without old buildings is one without an apparent past and resembles , a man suffering from a loss of memory.” (2)

The idea of conservation in different degrees and quality can be very clearly explained through the definitions of preservation, restoration, reconstruction etc. either taken collectively or in combination (Appendix-A). However, *the word Conservation means all the processes of looking after a place so as to retain its cultural significance. It may include maintenance, preservation, restoration, reconstruction and adaptation according to the circumstances and will be commonly more than one of these.* (3)

1.2. Architecture in Bengal – Historical Overview

Buildings and its architecture represent high points of human achievements. Bangladesh possesses a rich cultural heritage , extending over a period of two thousand years. The architectural history of Bangladesh is distinctly divided into five periods.

- The ancient period or pre Islamic period (300 BC—1000 AD) During this time Bengal was an important centre of Buddhist learning and artistic activity. The Paharpur monastery (fig. 1.1) built in the 800 AD. and the Hindu temples built during 900 to 1200 AD., developed a standardised model of temple architecture in south-east Asia Moreover, they formulated the local typology for the Bengali style temples in later days



Plan, Paharpur Monastery



fig 1.1 The Paharpur Monastery, 800 AD.

- The Sultanate or the Pre-Mughal period (1204-1576 AD) which introduced new building types, such as mosques, madrasas and mausoleums. The buildings expressed the architectural features through adoption of regional forms and use of local materials. Thus the metamorphosis of Middle Eastern and Central Asian architectural schemes , techniques and decorative pattern evolved the regional Bengali style of Islamic architecture –which became apparent by the fifteenth century. The regional Bengali style is expressed through adaptation of pre-Islamic monumental traditions (Buddhist and Hindu temples) and contemporary vernacular models (the mud and thatch huts) *Thus these monuments are both truly Islamic and of Bengal demonstrating the dynamic ability of Islamic architecture to transform itself by adoption and adaptation* (a). Important examples of the period are Shait Gumbad mosque, Bagerhat 1459 AD, and Khan Jahan's Mausoleum, Bagerhat 1459 AD (fig 1.2)

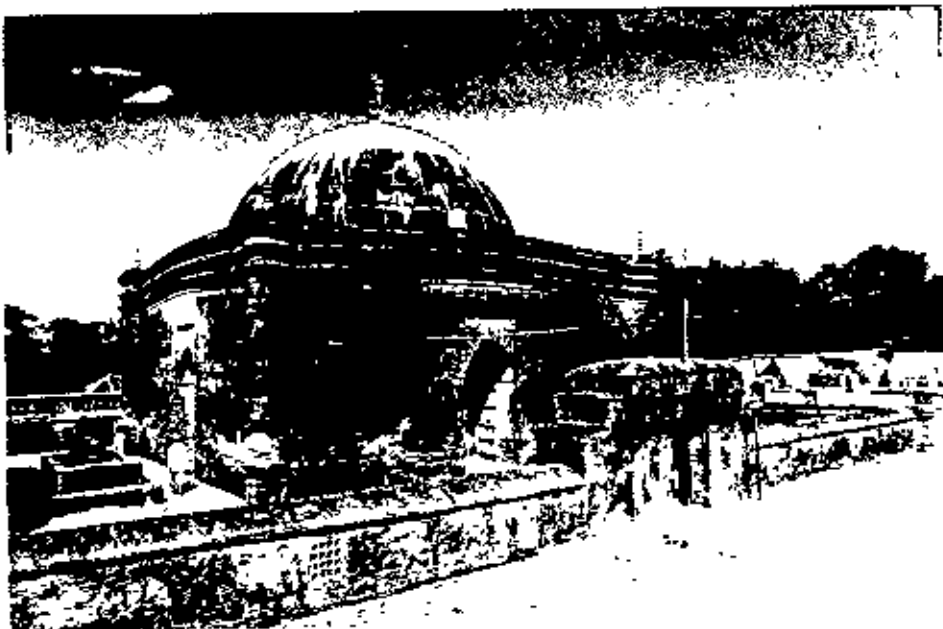


fig 1.2 Khan Jahan's Mausoleum, Bagerhat 1459 AD

- The Mughal period (1576- 1751 AD) proves the architectural accomplishments of the Mughals through the erection of mosques, tombs, gateways, forts, bridges, roads etc. always modest in scale compared to their North Indian counterpart. During this period building style underwent drastic change compared to the Pre-Mughal brick and terracotta architecture, where this architecture worked as the instrument of political power. Their architecture was a mixture of beauty and ambition. Bara Katra, Dhaka, 1644 AD., Lalbagh Fort, Dhaka, 1678 AD (fig 1.3) are the famous examples of Mughal reign.



fig 1.3 Lalbagh Fort, Dhaka 1678 AD

- The Colonial period (1757-1947 AD), represent the architecture followed by European Neo-Classical style and also adopted the grandeur of Mughal architectural character. The architecture of the period was the symbol of power and their political aspirations were expressed in the architecture like Dhaka Medical College, Dhaka, 1905 and the Carzon Hall, Dhaka, 1904. (fig 1.4)
- Architecture of Post Colonial period (1947- 1971 AD), during this time there were a great inclination toward pseudo-Islamic architecture. The Supreme Court building and Banga Bhabhan, Dhaka are the exemplary architecture of this period. But the

Bengali architects played an important role for the growth of modern architecture. One of the greatest architectural work of this century was the construction of Parliament Building in Dhaka (1962). (fig 1.5)

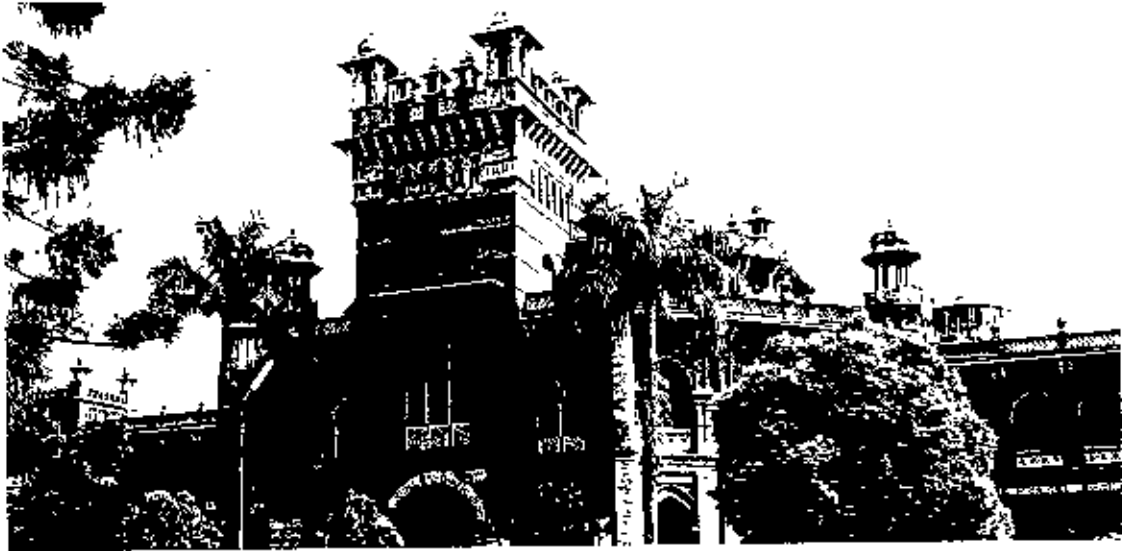


fig 1 4 Carzon Hall Dhaka, 1904



fig 1 5 Parliament Building in Dhaka (1962)

- Bangladesh period (1971-up to date) The architectural development in the last 26 years is based on our history, cultural reference, modified by socio-technical influence, of the western world. Along with that there is a deep traditional sensitivity and commitment to the land and people . Jatio Smriti Soudha , Savar and Nagar Bhaban. Dhaka (fig 1.6) are the explanatory examples of the contemporary architectural trend in Bangladesh.



fig 1.6 Jatio Smriti Soudha , Savar



Nagar Bhaban, Dhaka

1.3. Islamic Architecture and Historic Mosque

The history of early Islamic architecture in Bengal is different from the early centuries of Islamic architecture elsewhere. It took mere more than a decade to establish the Islamic empire in northern India while for the Bengal it was more than a century. Bengal, with six hundred years (1204-1757 AD) rule of Islam, constructed wide variety of Islamic monuments than can be seen anywhere else in the entire Indian subcontinent.(fig 1.7).



fig 1.7 Map of Bangladesh and West Bengal (India) showing sites of principal Islamic monuments (source. *The Islamic Heritage of Bengal*, George Michell, Ed.)

Despite its isolation from the heart-land of Islamic civilisation, the Bengal delta contains one of the most populous concentration of Muslims in the world. (5) There were four basic phases in the evolution of Islamic Bengal. These are **conversion, local integration, national integration and reform**. In the process the rulers, warriors, saints, poets together with architects and artisans all were involved. There are synthesis of pre-Islamic tradition in the region and the artistic contribution of invading Muslims. Thus the architectural expression of Islamic Bengal can be explained as an unique blend of foreign and local tradition.

The historic mosques are those which has certain architectural significance and represent a certain style or a period; as such mosques built during Pre-Mughal and Mughal periods may be termed as historic mosques. Architecture, the symbol and image of any society, represents high points of human achievements. Mosque architecture especially symbolises the impression of Muslim society. *Mosque architecture of Pre-Mughal Bengal exerted a profound influence on the development of characteristic features of Mughal architecture as well as Hindu building art of the 17th and the 18th centuries (6).*

Though the Pre-Mughal phase of Bengal architecture is brushed aside as a provincial manifestation, the Pre-Mughal Bengal developed a distinctive building style of its own, *experimenting and perfecting with the artistic ingenuity and prolific architectural contrivances of the masons and craftsmen, various forms of building and decorative art, such as chau-chala vault, hemispherical dome, perforated brick jali, glazed brick etc. undoubtedly make it an independent as well as the most distinctive school (7)*

In Sultanate period (13th century AD), the early Islamic era the architecture had more regional sensitivity in them than it had in India. The Muslims came to Bengal with the enriched method of construction of Mosque architecture. But gradually they were influenced by the local method of construction and developed a unique indigenous style. The architecture easily adopted the Bengali culture, tradition and climate. The period can be marked as one of great creative activity where the rulers were sympathetic towards the local context and culture. The architecture can be portrayed as a complete synthesis of the strong regional elements with the external ideas and concepts.

The specific features of the period included the form of roof derived from the rural huts, the curvilinear cornice in the form of hanging eaves of the thatch roof, the rich surface decoration with terracotta and extensive use of brick as the construction material. (8)

Here the advantages of the elasticity of bamboo, used in the dwellings of the Bengali huts are taken. With the replica of that they evolved the curvilinear form of roof and established a permanent and prominent feature of Mosque architecture in Bengal. This curvilinear form of roof was used by the Imperial Mughals in the monuments of Agra, Fatehpur Sikri, Delhi and Lahore. Therefore, the *do-chala* and *chun-chala* forms of roof which is made of bamboo and thatch were converted into brick or stone enriching the architectural character and tradition of Bengal as well as the sub-continent.

A new era in the history of Mughal architecture of Dhaka started when Subedar Islam Khan (1608-1613) shifted the capital of Mughal Bengal from Rajmahal to Dhaka in 1610. The Subedars and members of the royal family were fond of art and architecture. They erected large number of magnificent buildings mainly palaces, mosques, tombs, hammams, fortresses, *katras*, *idgahs* and bridges –influenced by the traditional pattern of upper India. During this period the architecture worked as the instrument of political power and building style underwent drastic change compared to the Pre-Mughal brick and terracotta architecture.

The mosque of Pre-Mughal and Mughal period in different areas of Dhaka city are acting as a part of daily environment of human beings. The historic mosques represent the living presence of the past which formed them, providing a screen of life's background. These are needed to reconcile the diversity of the society. They are the most effective tangible evidence of the past socio economic, cultural and religious activities. Therefore, it is of vital importance to protect them through the process of conservation to integrate them into the life of contemporary society.

1.4. The Research — Present State of Art

Bangladesh upholds a rich heritage of human civilisation and culture. Architecture constitute one of the major part of the heritage. In all Islamic settlements, *mosque is a symbol of Islamic spirit, pride and brotherhood. For centuries mosque architecture played a predominant role in defining the building art of the region* (9). Dhaka is known as *the city of mosques* (10). The sky line of Dhaka justifies the statement with numerous mosques of Pre- Mughal, Mughal and Contemporary times. Often the grandeur and beauty of mosque affirm the harmony that exists among the Muslims in terms of religious, social, ritualistic as well as cultural aspirations. *A glimpse of Islamic architecture of Bengal can be obtained from some of the existing mosques of Dhaka, which belong to pre Mughal and Mughal phases* (11). Being an academic research the study focuses on the Dhaka city only in the presumption that the findings may be applicable to the mosques of other cities of these period. So far 33 mosques (Appendix-B) have been identified in Dhaka city where only three belong to Pre-Mughal period and the rest to Mughal period. Binat Bibi mosque (1457 AD), Naswala Gali's mosque (1459 AD) and Mirpur Mazar mosque (1480 AD) are the examples of Pre-Mughal era. Some of the examples of mosques of Mughal period are Islam Khan ki mosque (1635-39 AD), Churihatta mosque (1649 AD), Allakuri's mosque (late 17th century), Musa Khan ki mosque (end of 18th century) , Farrukh Siyar mosque (1718 AD) and Kar Talab Khan's mosque (1700 AD) . These mosques despite of old age threat and negligence are still surviving as a document and silent testimony of the glorious past.

Architecture , the strongest media for the vivid expression of heritage and civilisation, is also an important evidence of socio cultural and religious aspects of a specific place at a definite time. Therefore, it is essential to conserve these centuries old architectural hermitages to link the past with the present. These built forms would revive and protect our identity, self esteem, the historical , cultural and architectural achievements of the posterity.

Bangladesh being a country of predominantly Muslim population, its conservation policy must reflect the priority measures for Muslim heritage (12) Dhaka the historic city being

the capital is under pressure of new and unplanned developments facing questions regarding visual continuity and architectural integrity. It is to be mentioned here, that consciousness on conservation is gradually growing. The Department of Archaeology Bangladesh under the Ministry of Culture and the Department of Architecture under the Ministry of Works have already conserved some of the important mosques of Mughal period, namely, Lalbagh mosque (1678-79 AD), mosque of Haji Khwaja Shabaz (1679 AD), Satgumbad mosque (later half of the 17th century) and Khan Muihammad Mirdha's mosque (1706 AD)

To protect the glorious history of the city, the symbols of Muslim architecture of Pre-Mughal and Mughal periods, adequate measures are to be taken , so that the future posterity is empowered to cherish the heritage.

1.4.1. Research Objectives

The research objectives are to

1. Explain the importance of mosque architecture in the context of Bangladesh specially the impact in communities of Dhaka city.
2. Establishment of typologies through comparison of the architectural features of Pre- Mughal and Mughal mosques of Dhaka city as well as in Bengal.
3. Identification of misleading and unplanned developments of few Pre-Mughal and Mughal mosques by the different non-professional and professional groups.
4. Development of a comprehensive strategy of conservation of mosque architecture of Pre-Mughal and Mughal periods which would act as an implementation guideline and a base work for future researches.

1.4.2. Research Methodology

In Dhaka city only 3 out of the 33 mosques identified so far are of Pre-Mughal period whereas the rest 30 belong to Mughal period. In the name of expansion and reconstruction most of the mosques of these periods have been transformed and changed several times from their original form and features. Under such

circumstances a thorough study concerning the present state of historic mosques and future actions to be taken to protect them is of utmost priority.

The research progresses according to the following stages;

1. A contextual study of the region specially Bangladesh and the Dhaka city as well as the distinguishing features and pattern of mosque architecture of Pre-Mughal and Mughal period are identified through literature survey. Subsequently a typological classification of different mosques of these periods in Dhaka city as well as in Bengal has been prepared in chapter 2.
2. The process of conservation of mosque architecture in the context of Bangladesh especially Dhaka city has been outlined in chapter 3. This shall act as a guide line of conservation for other mosques of different cities and may be of other historic structures
3. The planning tools and techniques of conservation of mosque architecture have been discussed in chapter 4. Galdi mosque of Pre-Mughal and Sat Gumbad mosque of Mughal period already conserved by the Department of Archaeology under the Ministry of Culture are selected case studies. Interviews and investigations were done to
 - i. Find out different stages of action of conservation
 - ii. Assess the land-uses, ownership pattern, management and maintenance considered
 - iii. Determine scope and limitations of conservation, legislation, administrative frame work, possibilities of financing.

Drawings were collected from the implementing organisations to

- i. Examine the design and the planning tools and techniques.
- ii. Explain the built form, architectural features, ornamentation pattern, details and decorations.

The findings are the secondary data of the research and are also discussed in chapter 4.

4. Through reconnaissance and literature survey based on the criteria of accessibility, present physical condition and community co-operation Binat Bibi

mosque of Pre-Mughal and Islam Khan Ki mosque, Churihatta mosque and Khan Muhammad Mridah's mosque of Mughal periods were identified for field survey

- i. Detailed measured drawings are prepared of all of them. (except Khan Muhammad Mridah's mosque where the drawings were prepared by the Department of Archaeology, under the Ministry of Culture.)
- ii. Detailed measured drawings of extension and or restoration at different times are done.
- iii. General information of the built forms, site and the surroundings and users perception are collected through photographs and interviews.

These are the primary data of the research and are elaborated in chapter 5. An analysis of gradual intervention of historic mosques are also included here.

5. On the basis of analysis of the information from stages 1 to 4 a set of recommendations are provided in chapter 6.
6. A conclusion drawn from the research work is described in chapter 7.

1.4.3. Application

The trend of architectural conservation is relatively new in the Third world countries especially in Bangladesh. But professionals, Government bureaucrats and concerned people are gradually realising the need of protecting the heritage through conservation. It is expected that the research shall

- i. Motivate different professional groups and even the general public to realise the importance of conservation especially of historic mosques.
- ii. Prevent destruction of the original style and character of the historic mosques and subsequently might be preserved to also encourage tourism.
- iii. Support the knowledge of the intrinsic qualities of the art, craft and architecture of Pre- Mughal and Mughal periods.

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Chapter 2. Bangladesh and Dhaka City ; Architectural Pattern and Typological Development of Mosque Architecture thereof

2.1. Bangladesh

Bangladesh (fig: 2.1) is located in the north eastern part of the South Asian subcontinent between latitudes 20 34 and 26 38 north and longitudes 88 01 and 92 41 east. It is bordered by India on the west, north and the east and by Myanmar (Burma) on the south-east. To the south lies the Bay of Bengal. Bangladesh has a land area of about 148,000 sq km. The land mass comprising mainly the delta of the three rivers, the Ganges, the Brahmanputra and the Meghna present an enchanting vista of vast green fields bounded by low hills in the north-east and south-east with an average elevation of 244 and 610 meters. The highest peak in the hill tracts rises 1230 meters above the sea level

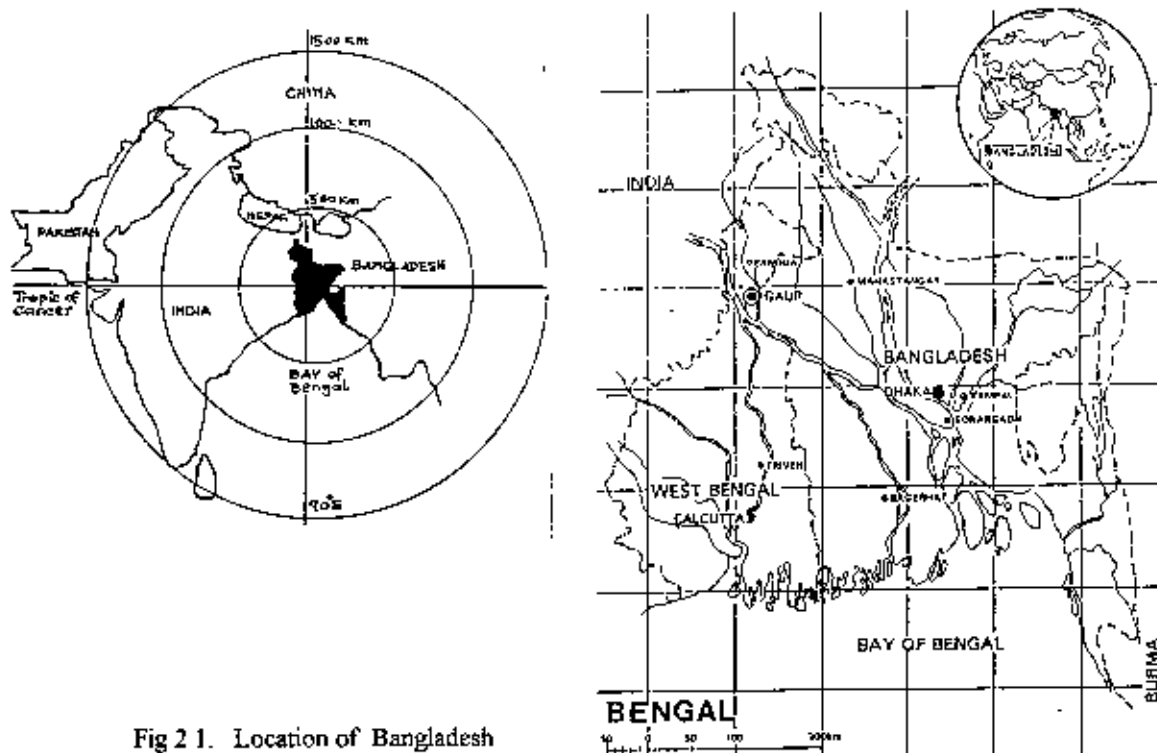


Fig 2.1. Location of Bangladesh

(Source: Abu Sayed Ahmed)

Bangladesh has a subtropical monsoon and a short duration of dry winter climate. Out of six marked seasons in a year, winter (November - February) pre-monsoon (June - September) and post monsoon (October - November) are predominant. The temperature ranges between 24 to 39 C in the winter months while the rainfall varies from 120 cm in the western part to 250 cm annually in the southern part.

About 85 percent of the Bangladeshis live in villages or rural areas. The country's population estimated at 108 million (census 1991). Muslim constitute about 86.5 percent of the population, Hindus 12.2 percent, Buddhist 0.6 percent, Christians 0.4 percent and the rest belongs to other faiths.

The territory comprising Bangladesh was inhabited in the prehistoric era by the Proto-Australoids and the Proto-Mongoloids. Later the Dravidians, Aryans and Mongolians came. Islam spread in the 11th century through Muslim missionaries, Arab traders and through conquests. For about 500 years the region had been under the rule of the Turko-Afghans and the Mughals. By the end of the 16th century Europeans started arriving. The rule by the British began in 1757 and continued till 1947 when the subcontinent was partitioned into India and Pakistan. The territory now comprising Bangladesh was former eastern wing of Pakistan. In 1971 Bangladesh emerged as an independent and sovereign country.

Bangladesh has, perhaps, the largest number of mosques in the world. (1) The mosques in Bangladesh, as in cases of other areas of building art, had mainly three phases of development. The first phase began with the initial Muslim conquest and continued throughout the few centuries of semi-independent viceroys of the Delhi Sultans and thereafter, the independent Sultans of Bangladesh till 1576 AD. The second phase was coexistent with the Mughal rule when this region was annexed as part of the North-Indian empire. The last phase began with the decline of the Mughals and the Europeans in the middle of the 18th century. (2)

2.1.1. Dhaka – The Historic City

Dhaka lies in 23 43 north latitude and 90 24 east longitude, stands on the northern bank of river Buriganga. The capital city of Bangladesh, Dhaka witnessed phenomenal rise and decline. It was also called *Jahangirnagar after the emperor Jahangir, in whose reign it became the capital of Bengal.*(3) Different historians developed few hypothesis on the derivation of its name . Islam Khan Chisti, the Governor of Bengal during the reign of Emperor Jahangir realised the fact that Dhaka will be the ideal place for administration, trade and commerce, as Dhaka had easy communication by land and water with other centres of Bengal like Sonargaon, Vikramapur ,Savar . For all these reasons it rose to prominence and *in 1610 AD. Dhaka was selected as the Capital of Bengal* (4). It grew and served as a capital for hundred years and its society , culture and art developed tremendously This was the time when the city grew in larger extent with forts, palaces, mosques, madrasahs, mausolca, markets, gardens, different administrative, public and private buildings. *During the early 18th century, when Dhaka was in its most prosperous condition, it was stated to be the 12th largest and the most flourishing city in the world.* (5)

In 1717 AD. Murshid Kuli Khan became the Governor of the province , transfered the capital to Murshidabad As a result the administration, trade and commerce started declining. The declined situation was aggravated when the Bengal lost its independence to the British. In 1864 Dhaka again started receiving attention with the establishment of the Dhaka Municipality. In 1905 Dhaka was selected as the capital of the recognised province. In 1947 Dhaka attained the status of the provincial capital of the eastern part of Pakistan, initially called East Bengal and later became known as East Pakistan. The honour and prestige that Dhaka deserved was achieved in 1971 , with the creation of the independent state of Bangladesh The following maps are showing the development and demarcation of Dhaka at different time period. (fig 2 2, 2 3, 2 4, 2.5)

Among the proud heritage of Bangladesh the Muslim mosques, Hindu temples, Christian churches can be mentioned. Like in other parts of Muslim world, mosques in Dhaka had a tremendous influence on the development of their architectural style. They form the most numerous and remarkable group of monuments These mosques range over a

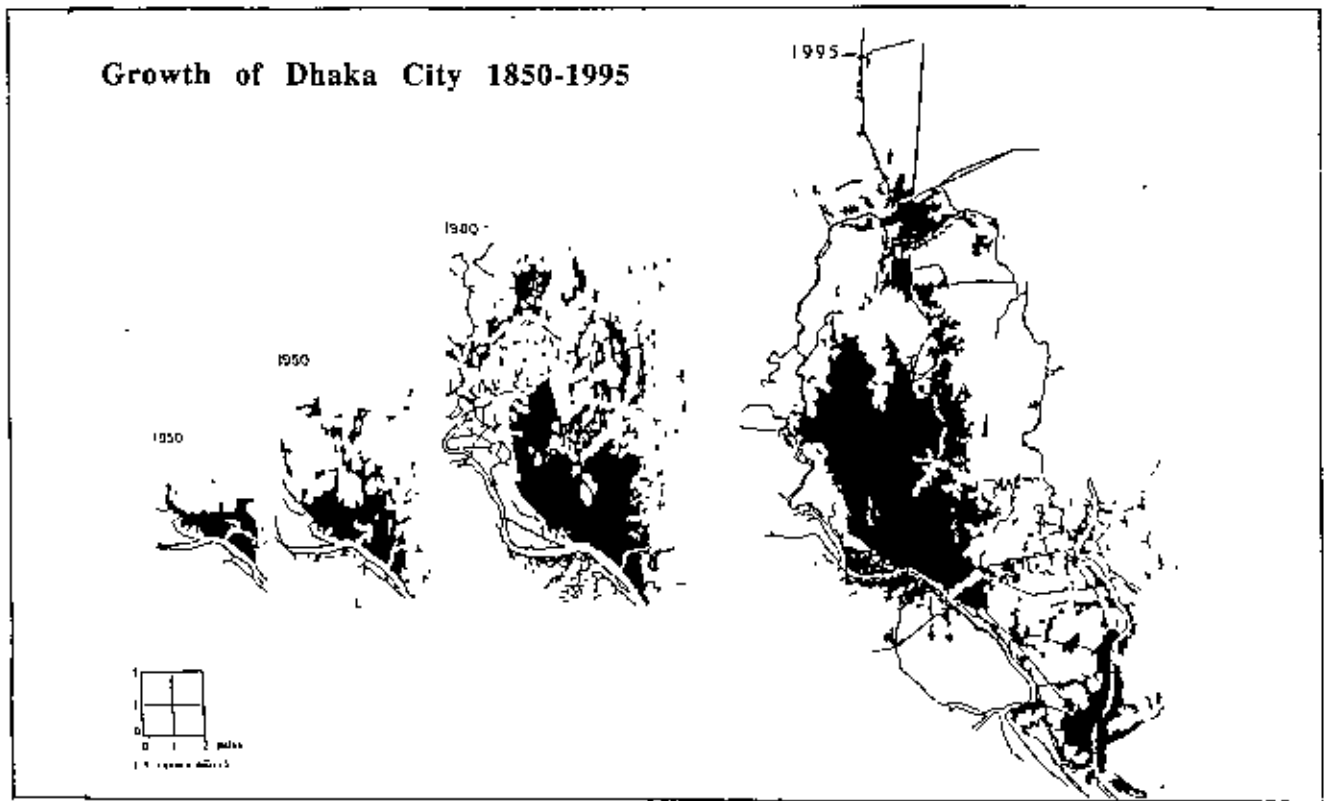


Fig 2.5 Growth of Dhaka city (Source Prof Nazrul Islam)

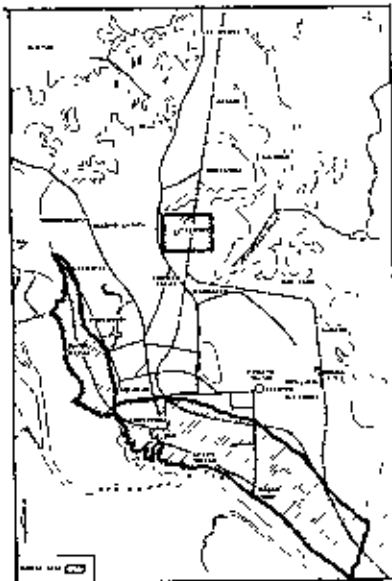


Fig 2.2. The Mughal Capital, in 1610

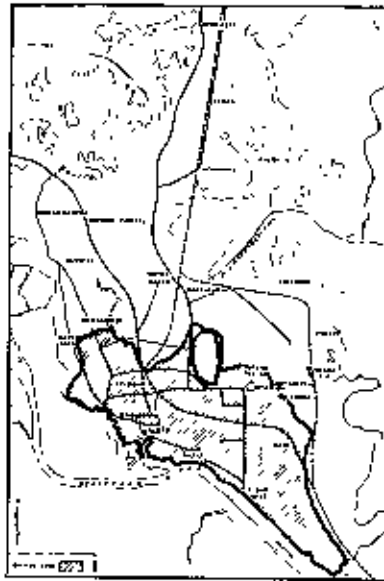


Fig 2.3. Dhaka in 1859

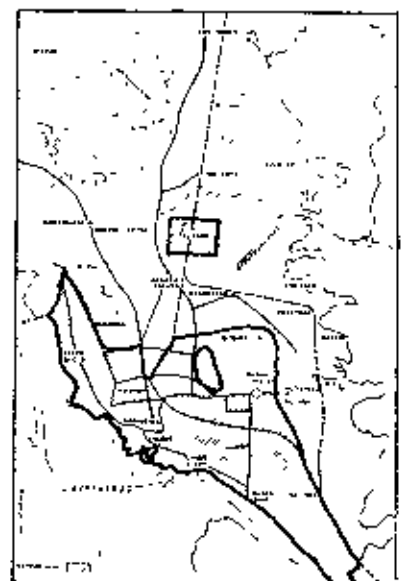


Fig 2.4 Dhaka in 1905-11

thousand in small localities as well as important civic centres. They add grandeur and beauty to the city but also testify deep religious fervour of the Muslims. The development of the mosque architecture in magnificent style has a significant role to explain the Muslim architecture and the Muslim heritage. The remarkable style of Muslim art in these religious monuments signify and express the socio-economic life style and glorious history of Pre-Mughal and Mughal period . These mosques convey the glowing testimony of the Muslim community .

Bradley Birt rightly pointed out that Dhaka is pre-eminently a Mussalman city—a city of mosques built by the faithful, strong in belief. Dhaka is considered a Mughal city but there are also some other monuments of Pre-Mughal period. *Early Muslim monuments like Binat Bibi's mosque in Narindu with the inscription dated 1457 AD, and Naswalagoli's mosque inscription of 1459 AD. And other evidences suggest that the Muslim started settling in Dhaka at least by the middle of the 15th century during the Sultanate period* (6) Such monuments beautified the city and at the same time established the glowing history of Pre-Mughal architecture and culture.

Charl's Deoly-the collectorate of Dhaka described in his book, (1824-30) that there were 223 mosques of Mughal period in Dhaka City, but most of them have no existence and the majority are now in ruined condition. Dr S.M.Hasan in the book "Dhaka - The City of Mosques", 1981 identified 507 mosques dated from 15th century up to 20th century M A. Rashid in the book Dhaka Nagar Masjid Nirdeshika 1987, identified 1,300 new and old mosques. The number of mosques in Dhaka city differs from literature to literature may be because of the factor of considering the area of Dhaka city proper being other than the area of Mega City of Dhaka (fig: 2 6)

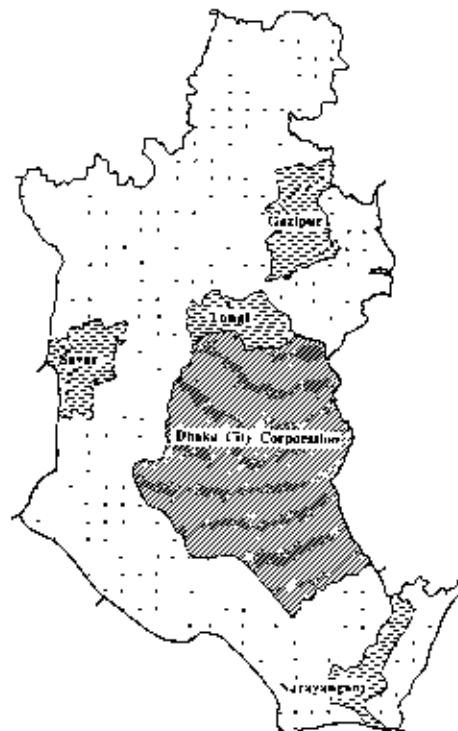


Fig 2 6 Demarcation of areas of Dhaka city proper and the Mega city of Dhaka (Source Prof. Nazrul Islam)

2.2. The Intrinsic Pattern of Mosque Architecture in Bengal

The Muslim architecture of Bengal is the resultant product of local tradition, history, geography, climate, material and the direct outcome of the social and economic condition of that period. All these have contributed to create a specific regional architecture which is particularly Bengali in style and design.

Muslim architectural activities in Bengal expressed the interaction of these basic aspects.

- a. *Ideals and traditions of the people*
- b. *Purpose and functional requirement of the buildings to be erected*
- c. *Soil and climate of the country*
- d. *The available human skill and building materials (7)*

In the Bengali culture there is a strong interconnection between creativeness and the construction technique and also availability of materials. During Sultanate period the architecture took many decorative motifs from the folk arts of Bengal. **Even Mughals changed over from the stone of the north India to elaborate brick structures.**

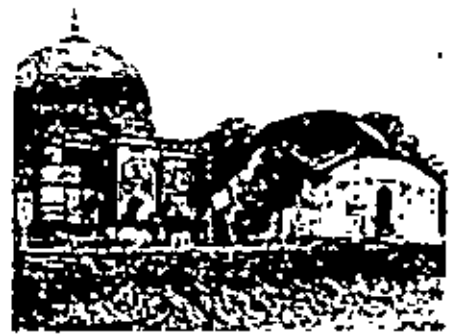
Built Form There is a close relationship between the Pre-Mughal mosque and the Bengali hut. In Bengali village majority of dwelling houses were built of single roomed rectangular structure with curved roofs of bamboo frame. The roof is generally of two shapes - the *do-chala* (a roof sloping down in two directions away from the central curved ridge at the top) or *chau-chala* (a roof sloping down in four directions) . Walls were of mud reinforced with bamboo or wooden posts. All these forms were followed during the Pre-Mughal period. The curved cornice (single domed or multi domed) of the mosques are similar to the curved edges of the *do-chala* or *chau-chala* thatched roof. (fig. 2.7) To keep the curvature of the cornice entire roof was curved in form. These curvature was not really necessary; neither are the corner towers. These were used because of the natural inclination to reproduce forms associated with a more familiar building materials. Thus, *even when the roof was a brick dome, a conscious*

decision was made to retain local flavour by incorporating forms and details that were totally unnecessary when buildings were of bricks (14)

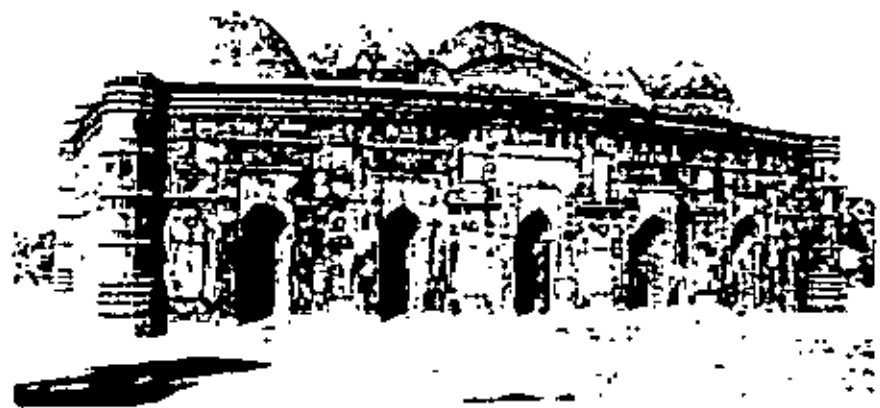
Massive foundation was required because of the soft and deltaic soil of Bengal. Walls were usually thick (5 to 6) to achieve the durability of the structure. For climatic reasons the entry doorways were normally narrower and disproportionately smaller with well protected roof and compact prayer chamber to keep the monuments water tight from heavy monsoon rains.



Traditional rural hut in Bangladesh



Shah Muhammad mosque (1680).



Choto Sona Mosque (1493-1519), Pre-Mughal monument

Fig 2.7 Similarities of Pre-Mughal mosques and the Bengali hut

Architectural Features

Arch. dome, minaret, mihrab etc had been recognised as the fundamental and distinctive features of mosque architecture.

Building Materials

The availability of building materials play a dominant role to develop specific pattern or building style for a particular civilisation. In Bengal there were and even today the abundance of alluvial soil developing the cheapest building material—the brick. *Here stone and marble are totally absent,* as a result all the mosques are of brick. Lime was used as mortar. The Parapets, roofs and domes were plastered to resist water

As it has been mentioned before that stone was not available in Bengal, but the architects and the builders were conscious about its strength. Therefore whenever possible they used stone pillars for supporting arches and domes. Stone was also used in some places to cover the exterior facade of brick walls to withstand the hazard of atmospheric humidity. (fig. 2.8)

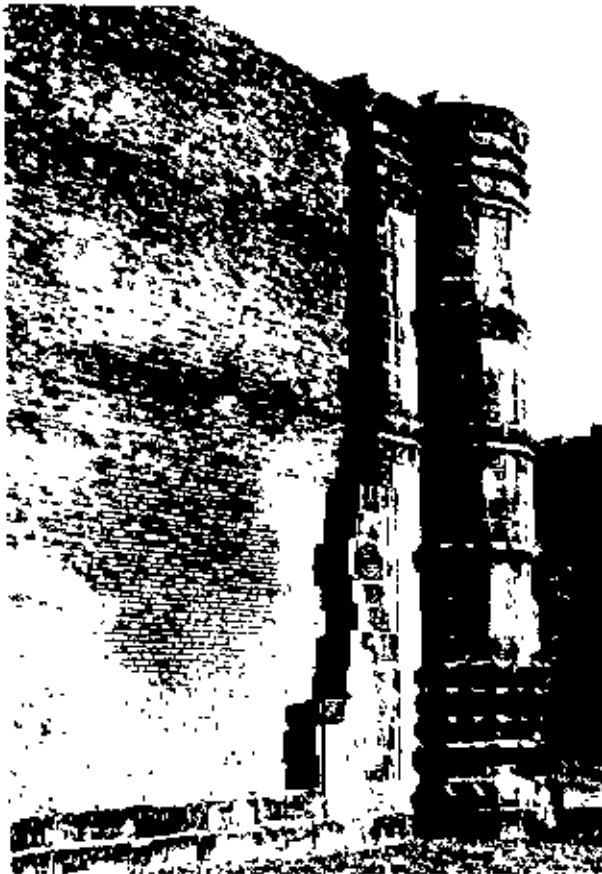


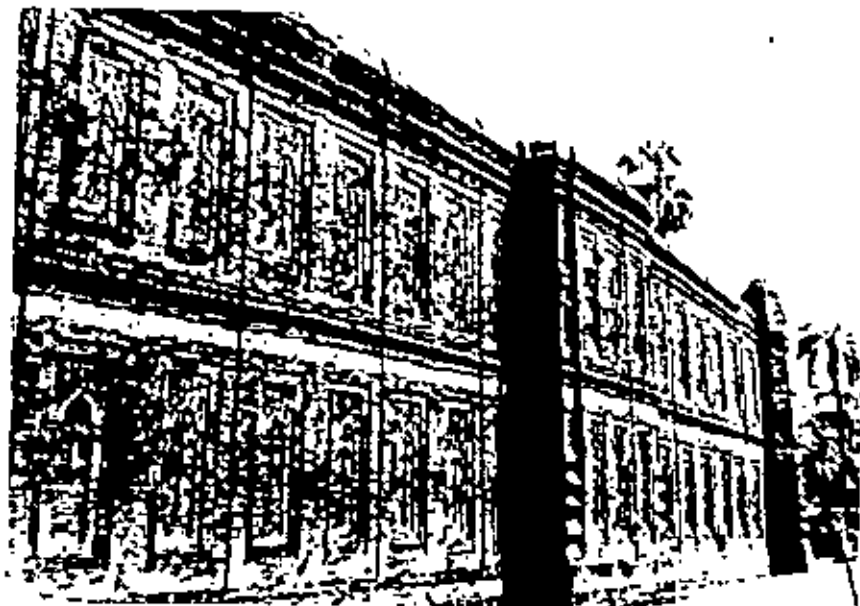
Fig 2.8 Use of stone to cover the exterior brick walls Eastern facade, Choto Sona mosque, Gaur

**Ornamentation
and Decoration**

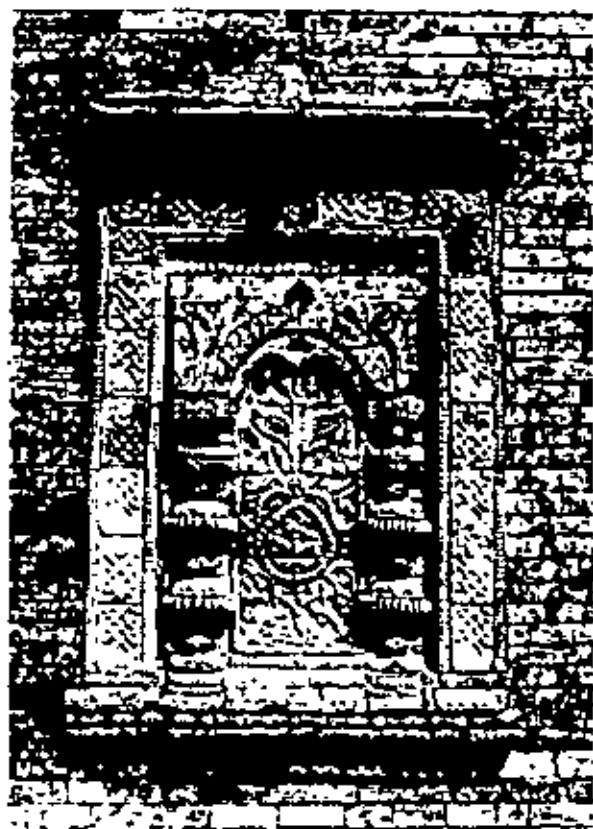
In mosque architecture and in other Islamic monuments painting on walls with imagery representation of natural living form were prohibited, rather floral and geometric patterns were encouraged, which has been done in mosaic, tiles and terracotta. (fig: 2.9)



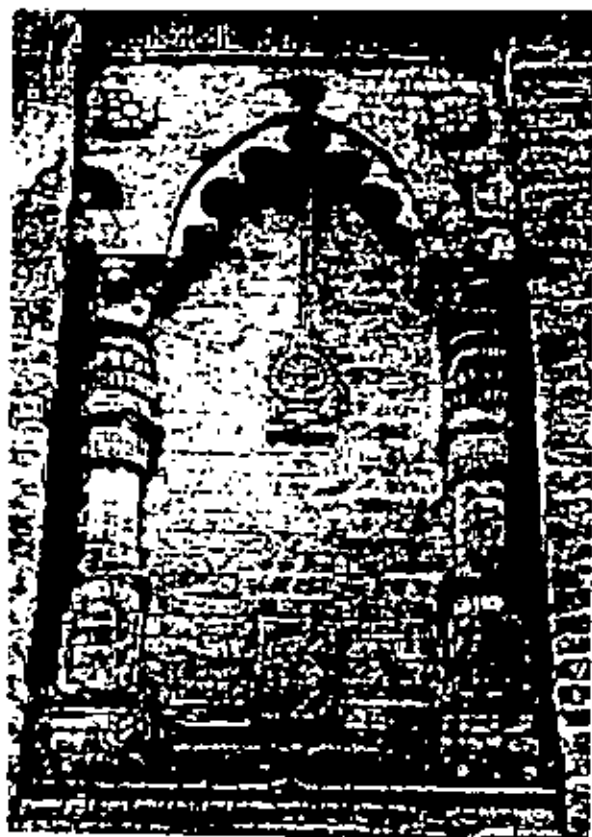
Fig 2.9 Geometric pattern above the mihrab,
Darasbari mosque, Gaur



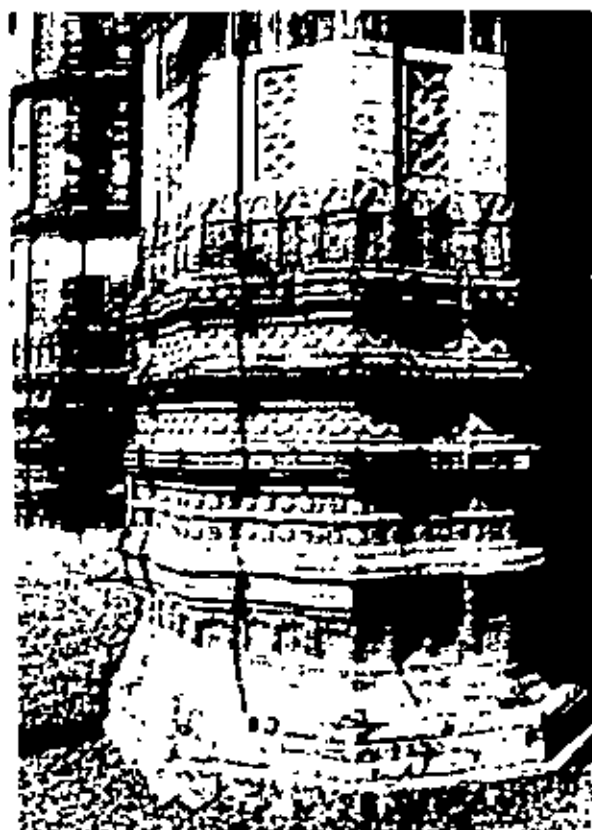
Terracotta ornamentation on the west wall Bagha Mosque, Rajshahi



Ornamental terracotta decoration,
Kharia Dighi mosque



Mihrab ornamentation,
Mohzampur mosque, Sonargaon



Decoration at the base of the corner tower,
Choto Sona mosque, Gaur.



Chini tukri ornamentation in the mihrab

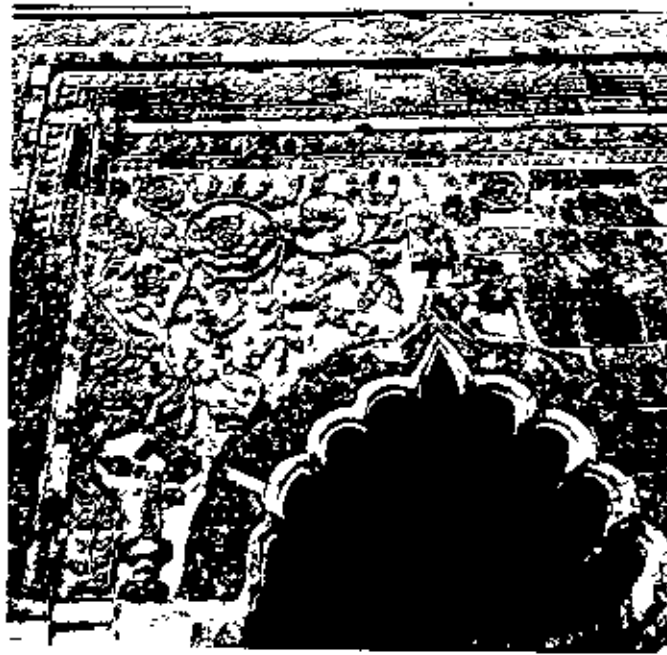


Fig 2 9 Floral pattern mihrab spandrel
Darasbari mosque, Gawr

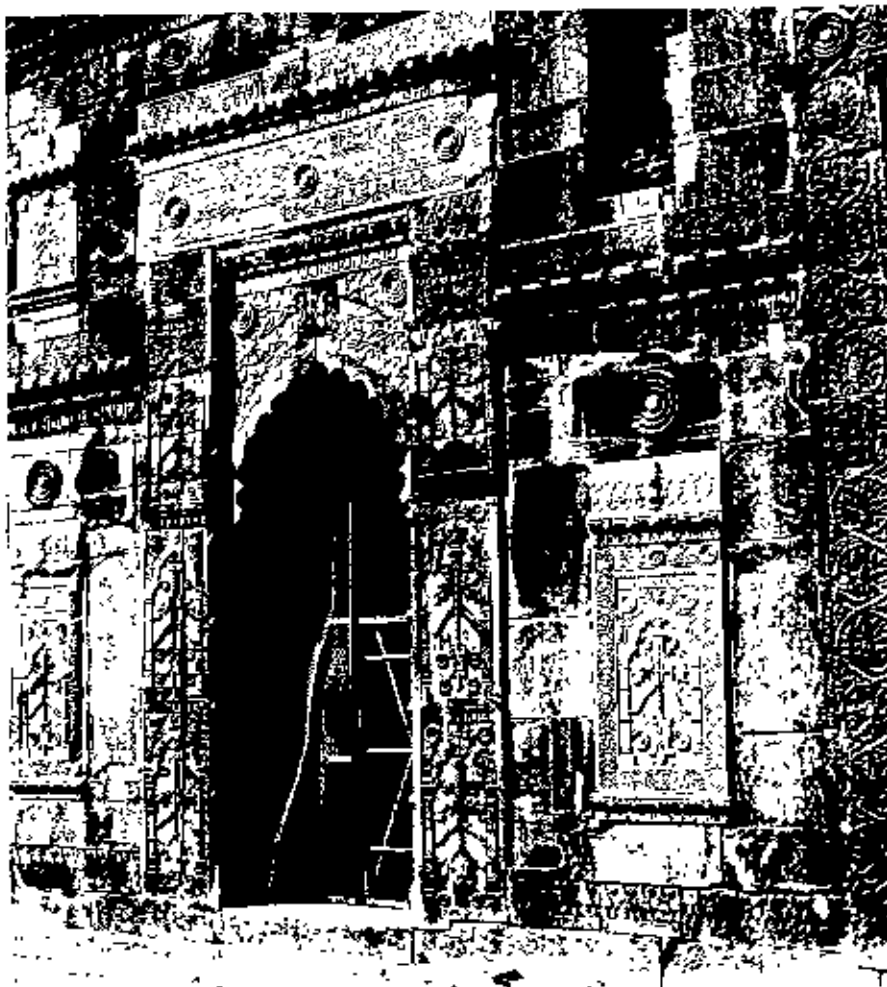


Fig 2 10 Central doorway, Choto Sona mosque, Gawr

Islamic ideas waged a war against icons, images and figurative drawings, though basically chaste, stern and simple, mosque never rejected ornamentation. *Muslim architects and decorators recourse to fundamentally three forms of ornament for the enrichment of the surface - arabesque or intricate geometric patterns, monumental inscriptions and vegetal designs* (10) (fig: 2.10). According to Marshall, *the ornamentation is inclined to colour and line or flat surface carving and took the form of conventional arabesques or indigenous patterning.* (11) Arabic lettering (calligraphy) with decorative carving appeared on the surface of the walls. (fig ; 2.11) Brick was very much available. Therefore, the Bengal mosque architecture were dominated by the brick work in its building art. Also the moulded terracotta made out of fine textured alluvial clay were employed for the purpose of surface decoration. *In fact, terracotta decoration reached a new dimension that attained an aesthetic individuality of its own. Claiming equal glory with that of the mosques of Damascus or the tiles of Isfahan* (12)

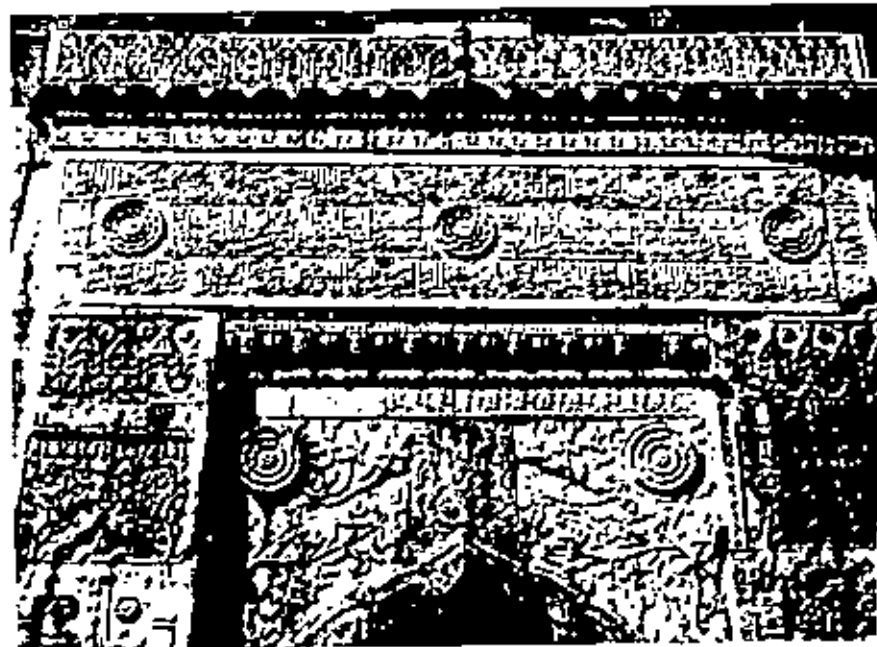


Fig : 2.11 Calligraphy with decorative carving
Stone Inscription over the central doorway

2.2.1. Architectural Pattern of Pre-Mughal Mosques in Dhaka

The earliest Muslim monuments of Bengal were those built before 1410 AD, possessing a foreign or imperial air, such as, the minar or victory tower at Chota Pandua, or the Adina Mosque in Pandua. Mosques built by the later independent Sultans, on the other hand were far more modest and architecturally speaking fitted more closely with the local culture. Bearing low domes, low facades and lacking minars or enclosed compounds, these mosques seem not to be concerned to project the majesty of religion or the power of the state. Rather, *by adopting the chala or thatched bungalow as their model, they appear to be more concerned with presenting Islam in an idiom already encompassed within the architectural experience of the common Bengali folk for whom they were intended* (13)

During Pre-Mughal period the two centred pointed arch raising from the side pillars and the cusping at the arches appeared in Bengal for the first time. The use of terracotta decoration on the surface was one of the characteristic features of Pre-Mughal mosque architecture in Bengal. The terracotta ornamentation also influenced the stone decoration as it is evident in the Kusumba mosque. In Mughal period plaster was used instead of terracotta plaque. The traditional Pre-Muslim corbelled roof influenced the Mughal monuments of Bengal, for example the name of the Bibi Pari Mazar at Dhaka (fig' 2.12) may be mentioned as a Mughal monument of the 17th century.



Fig -2.12 Bibi Pari Mazar Lalbagh, Dhaka

When dome was chosen as a method of roof construction , influenced by the northern India and the Middle east, then the shape of the chamber was transformed from the rectangular to a square form, Binat Bibi Mosque. Goaldi Mosque are few examples and in the case of a larger rectangular mosque type , multiple domes were used over square bays. Adina Mosque. Chota Sona Mosque are two explanatory examples Therefore the basic character of Pre-Mughal mosques (fig: 2.13) in Bengal as well as in Dhaka city were,

- Brick structures, occasional use of stone in pillars, arches, carved mihrabs
- Absence of minarets
- Structures have curved cornices
- Four attached corner tower, usually octagonal
- Arches - Pointed
- Domes - Hemispherical and without shoulder
- Wall thickness- 1.3 to 2.3 meter.
- Interior- Pillared hall, where pillars are used to support domes

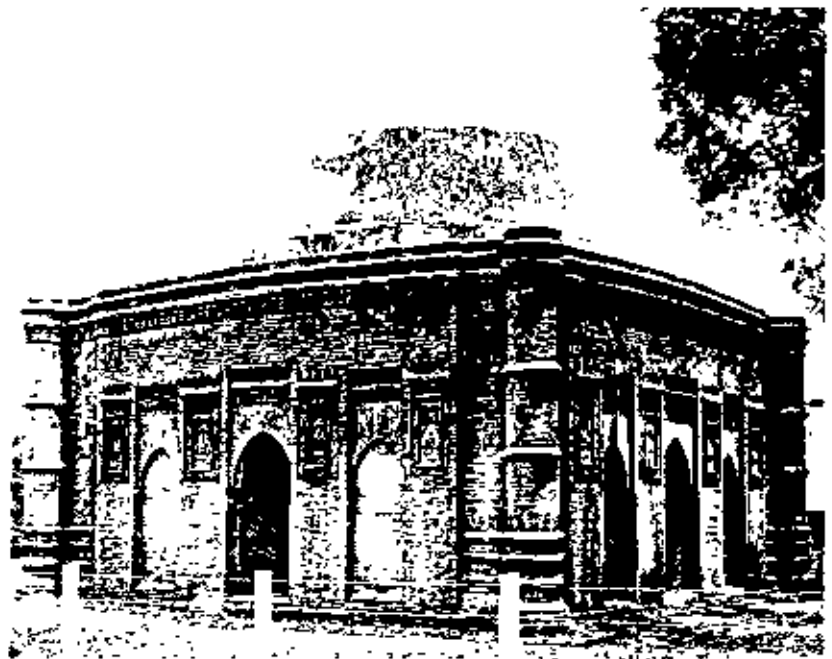


Fig 2.13 Goaldi mosque Sonargaon Pre-Mughal mosque

2.2.2. Architectural pattern of Mughal Mosques in Dhaka

During the reign of Emperor Jahangir , the Mughal capital was shifted from Rajmahal to Dhaka in 1610, by Islam Khan -- a Mughal Governor. In this period the traditional Bengali forms were maintained in the mosque architecture of Bengal. The Muslim architecture of Mughals are recognised as brick-style architecture. In 1666 AD Bengal came under the hegemony of the Mughals and they brought new decorum in their architecture especially in mosques. They evolved a style unique to Bengal, introduced a new architectural order with

the sense of sophistication and refinement and discarded some of the established architectural elements

During the Mughal era there were inter flow of ideas from different parts of India resulting a standard layout of Muslim architecture. *The arrival of the Mughals didn't at once make itself felt in architectural form , but by the middle of the 17th century something approaching a standard imperial pattern had began to emerge in the architecture of the viceregal capital of Dhaka* (15). Satgumbad mosque (1680), Haji Khawja Shahbaz mosque (1679), Khan Muhammad Mirdah's mosque (1704) are the glorious examples explaining the standard pattern of mosque architecture of Mughal period.

Because of their availability, brick as a building material always dominated the mosque architecture during this period. Stone always served as secondary material. These are imported from Rajmahal hill in Malda district. Sand stone and granite were also imported from Bihar and other parts of India

The basic characteristic features of the mosque architecture (fig. 2.14)of the period are .

- The faceted pier supported the cusped arch
- Engaged ribbed / moulded corner turrets
- Horizontal , straight cornice
- Heavy brick facade.
- Merlon decoration
- Dome on octagonal shoulder



Fig 2.14 Hazi Khwaja Shahbaz's mosque, Dhaka, Mughal mosque

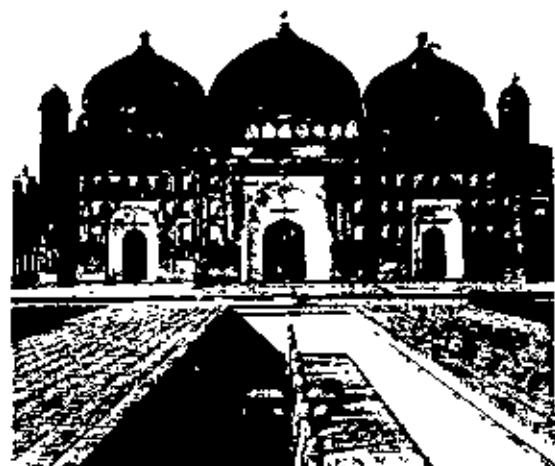
2.2.3. Distinguishing Features of Mosque Architecture in Dhaka -- Pre-Mughal and Mughal period

The following are a comparison of the distinguishing features of mosque architecture of Pre-Mughal and Mughal period in Dhaka city as well as in Bengal

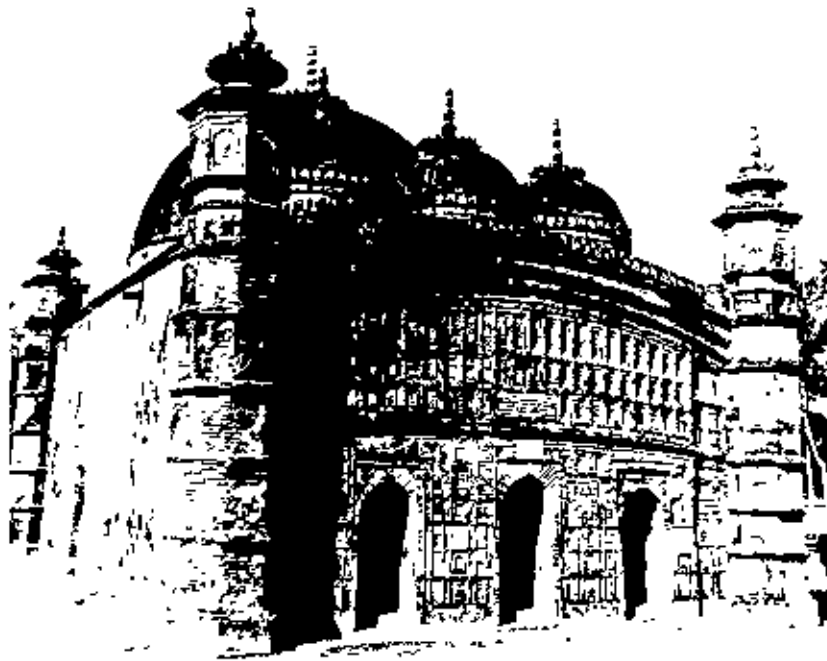
Building Elements	Pre-Mughal period	Mughal period
Walls	Brick surface having relief work on them, often mixed with glazed brick Not plastered but they are decorated with terracotta design and brick relief	Mosques are made of brick but the carved brick ornamentation of the Pre-Mughal period was replaced by flat surface decoration of plastering Plastered and decorated with plaster pattern
Parapet and cornice	Curvature in form	Horizontal and straight
Arch	Two centred and pointed, raised from heavy piers or pillars	Mainly four centred
Dome	Usually semi-circular without any shoulder drum. Results in lack of height and grandeur. Sometimes pillars supported the roof which divide the interior central prayer hall into aisles and bays. Six, nine, ten, twenty one or seventy seven domes structure with a very few exception of single or five domed structure	The domes rest either on shored or on transverse arches, as a result they attain height, beauty and grandeur. While the dome is crowned by a tall beautiful finial Mainly three domed
Corner Turret	Octagonal turret at the corner	The corner minarets generally short height above the parapets are topped by the plastered kiosks
Minarets	Absence of minarets. There is only one example of a mosque with minarets, the Saigunbad mosque in Bagelhat	Absence of minarets



Khana Dighi mosque (1480) Gawr before conservation



Lalbagh Fort mosque (1678-79), Dhaka



Teracotta ornamentation with curved cornice and hemispherical dome. Atia mosque, Tangal 1600



Octagonal base of the dome with merlon pattern-Abmer mosque of Mughal period



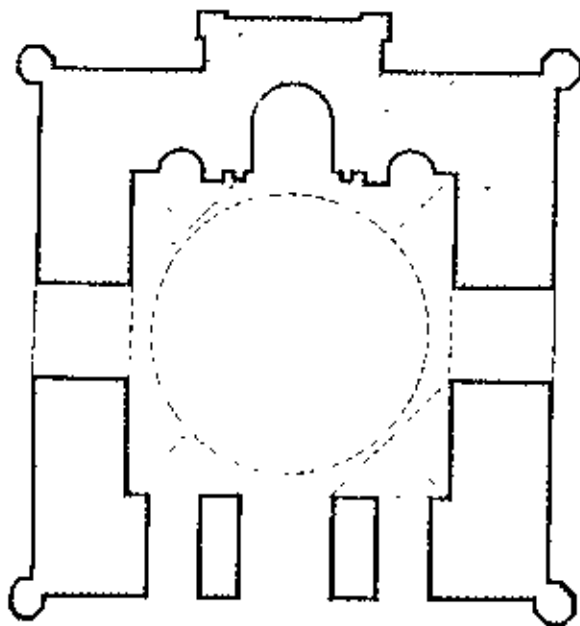
Corner turret straight cornice of a Mughal mosque, Khan Muhammad Mridah's mosque

i. *Square Mosque (single-domed)*: (fig: 2.16)

- Cubical prayer chamber of smaller to medium size, with corner towers and without any corridor.
- Single dome resting on squinches.
- Entrance gateways through massive walls , except on the western wall. Three entrances are from the front with the central one being larger than the other two.
- Projected mihrabs on the western wall! Usually there are three mihrabs with the central one being more decorative and elaborate than the other two at the sides.

This prominent form of single domed mosque was very popular in Dhaka city, the adjacent areas and in all the other districts of Bangladesh. For example, Binat Bibi at Narinda (1475), Baba Saleh's mosque at Bandar , Sonargaon (1505) and Galdi mosque at Sonargaon (1519).

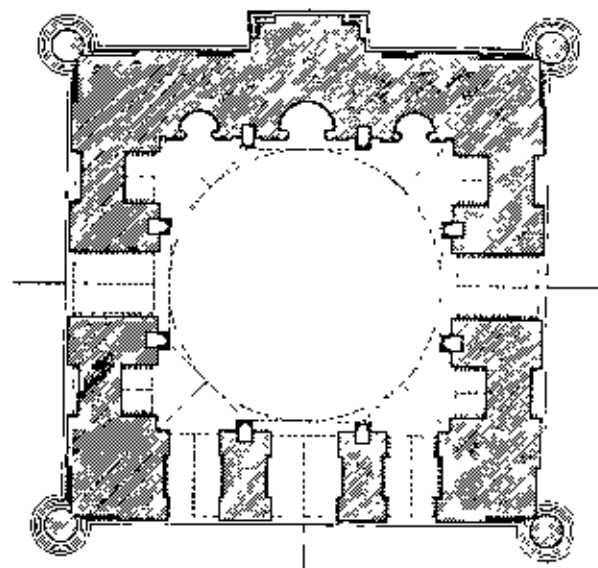
Fig :2.16 Square type of mosque



Plan, Binat Bibi mosque, Dhaka



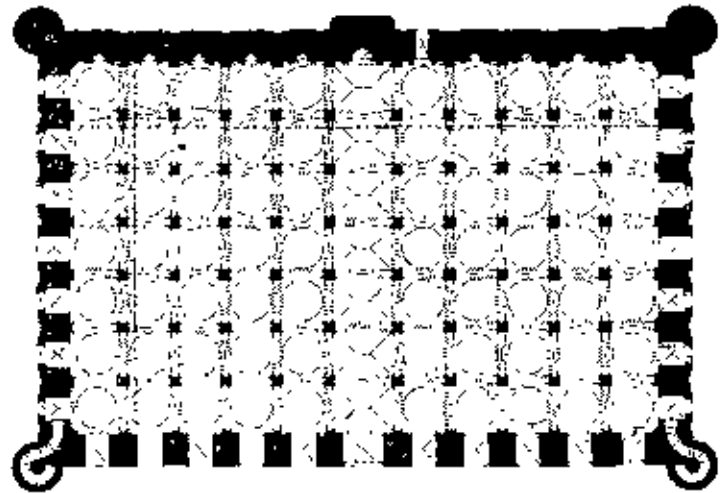
Galdi mosque, Sonargaon



Plan, Galdi mosque, Sonargaon

ii. **Rectangular Mosque** : Satgumbad mosque and Lalbagh Fort mosque in Dhaka, (fig: 2 17) are the traditional type of mosque architecture in Bengal Basic architectural features are,

- Rectangular plan
- multi-domed
- Hemispherical domes
- Curved cornices
- Corner towers
- Pointed arched entrance
- Panelled walls
- Stone casings
- Jali windows
- Stucco and glazed tiles
- Stone -chiselling



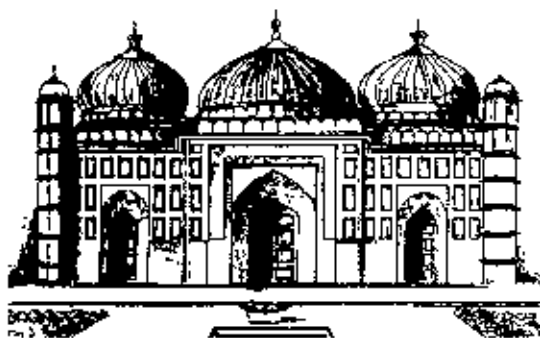
Plan

Shait Gumbad mosque,
Pre-Mughal period

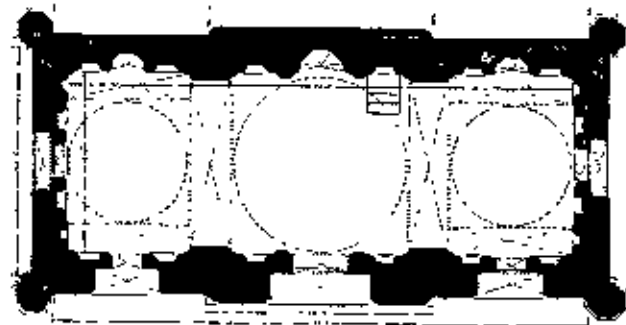
Fig 2 17. Rectangular type of mosque



Perspective view



East Elevation



Plan

Lalbagh Fort mosque,
Mughal period

2.3. Typological Development of Mosques of Pre-Mughal and Mughal Period

The fundamental concept of mosque is in close conformity with the saying of the Prophet, as Bukhari relates, *This earth has been created for me as a masjid and a place of purity, and what ever men from any Umma finds himself in need of prayer, let him pray(any where)* (16)

The mosque is of various and almost of any shape. It is in fact a wall, (17)

According to the ground floor plan the mosques of Bengal can be broadly classified into courtyard type and enclosed type.

- a. **Courtyard Type:** This pattern of mosque architecture is very uncommon in Bengal. The best example is the Adina Mosque at Hazrat Pandua (1374-75) (fig - 2 15)

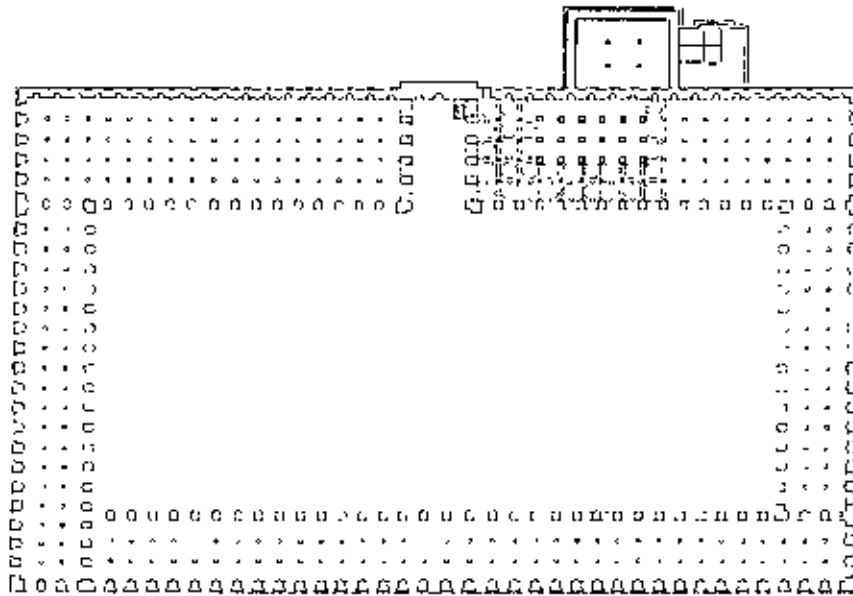
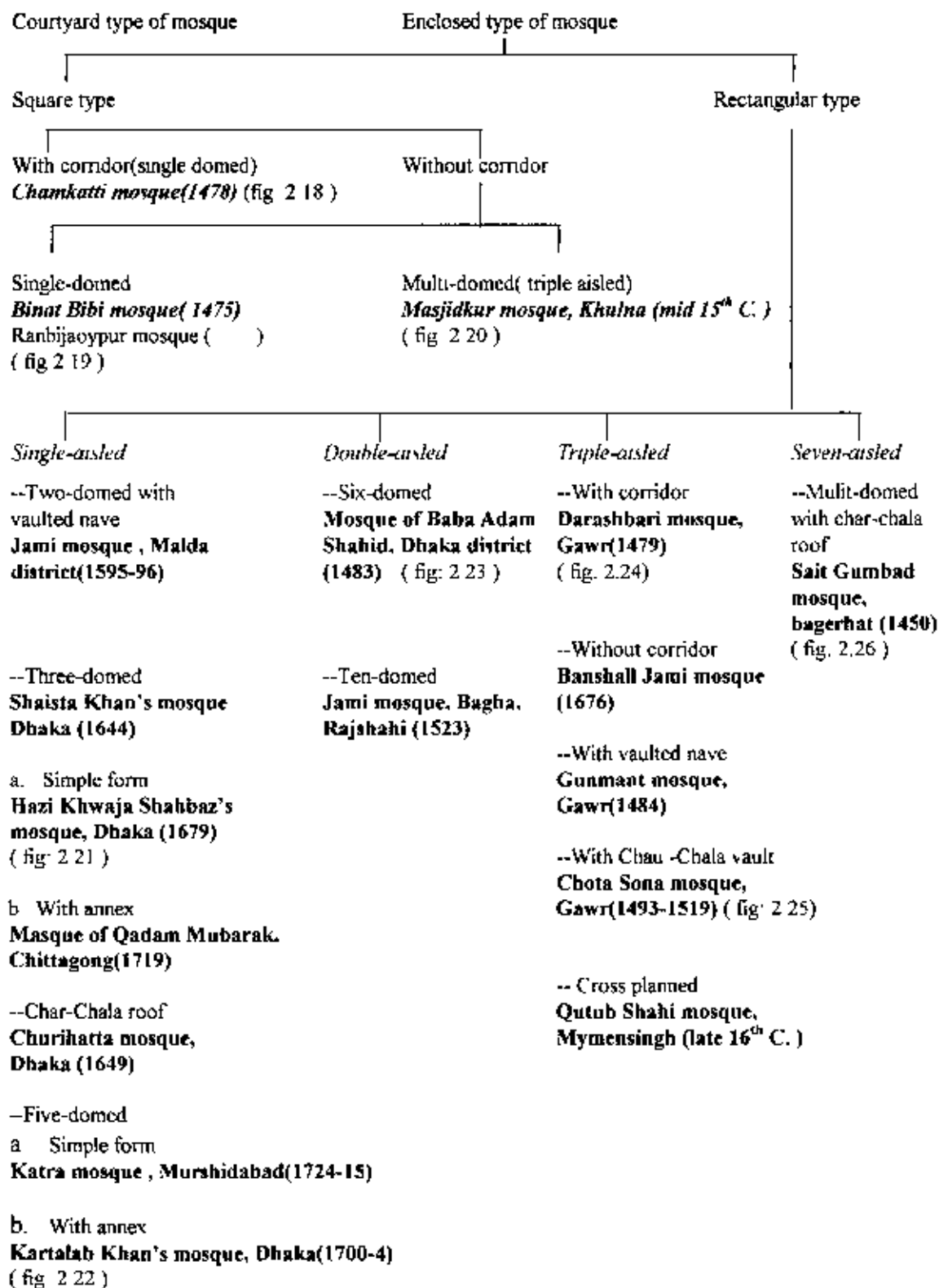


Fig .2 15 Ground Floor Plan, Adina mosque (1374-75) (Source Abu Seyed Ahmed)

- b. **Enclosed Type:** Most of the mosques of Bengal of these two periods and especially the study area, the Dhaka city are of enclosed type without any courtyard. The humid climate of our country is the basic reason to evolve this standard pattern of mosque architecture. The enclosed ones are basically of two types, square type and the rectangular type

2.3.1. Classification of Mosques in Bengal According to the Ground Floor Plan



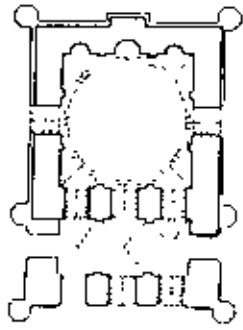


Fig :2 18. Chamkatti mosque

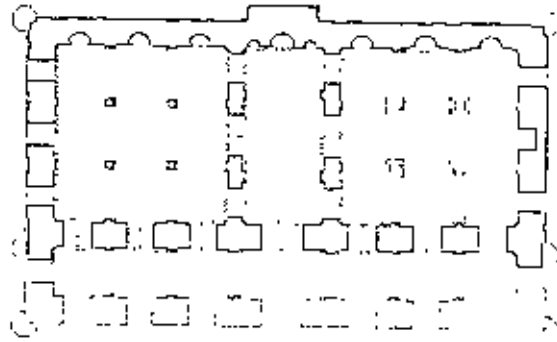


Fig :2 24 Darashbari mosque

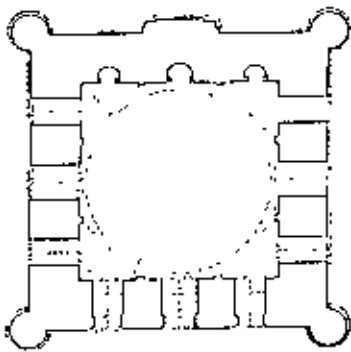


Fig 2.19 Rangbijaoypur mosque

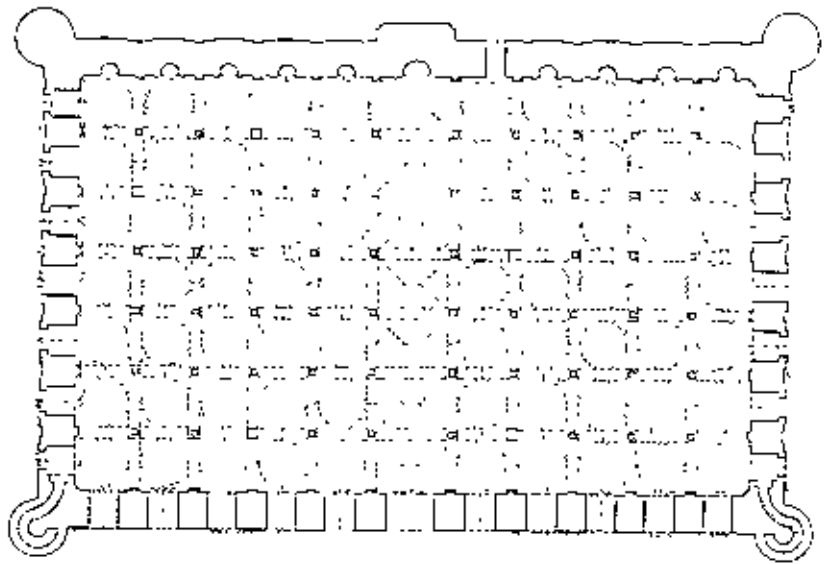


Fig 2.26. Sarf Gumbad mosque

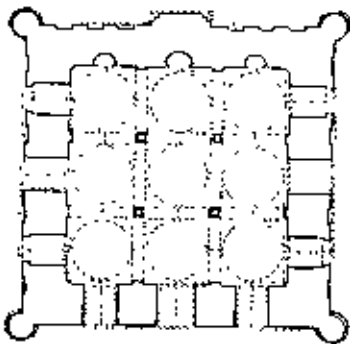


Fig 2.20 Masjidkur mosque

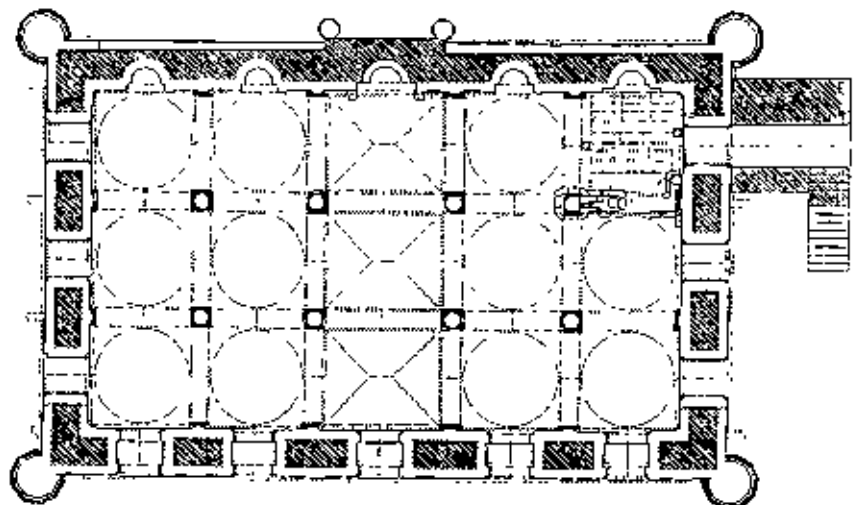


Fig :2 25 Choto Sona mosque (Source: Abu-Saved Ahmed)



Fig :2.23 Mosque of Baba Adam



Fig 2.21 Hazrat Khwaja Shahbaz's mosque

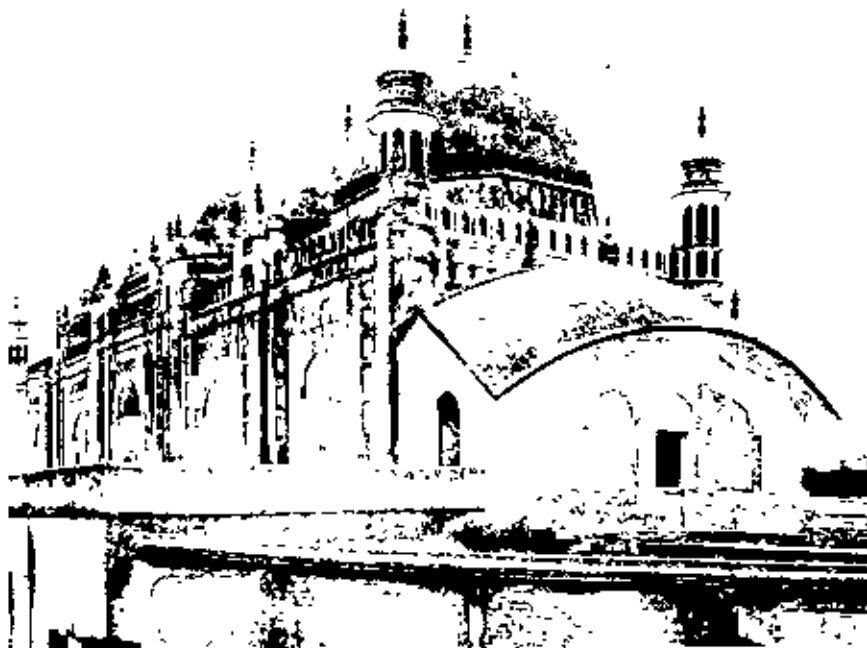
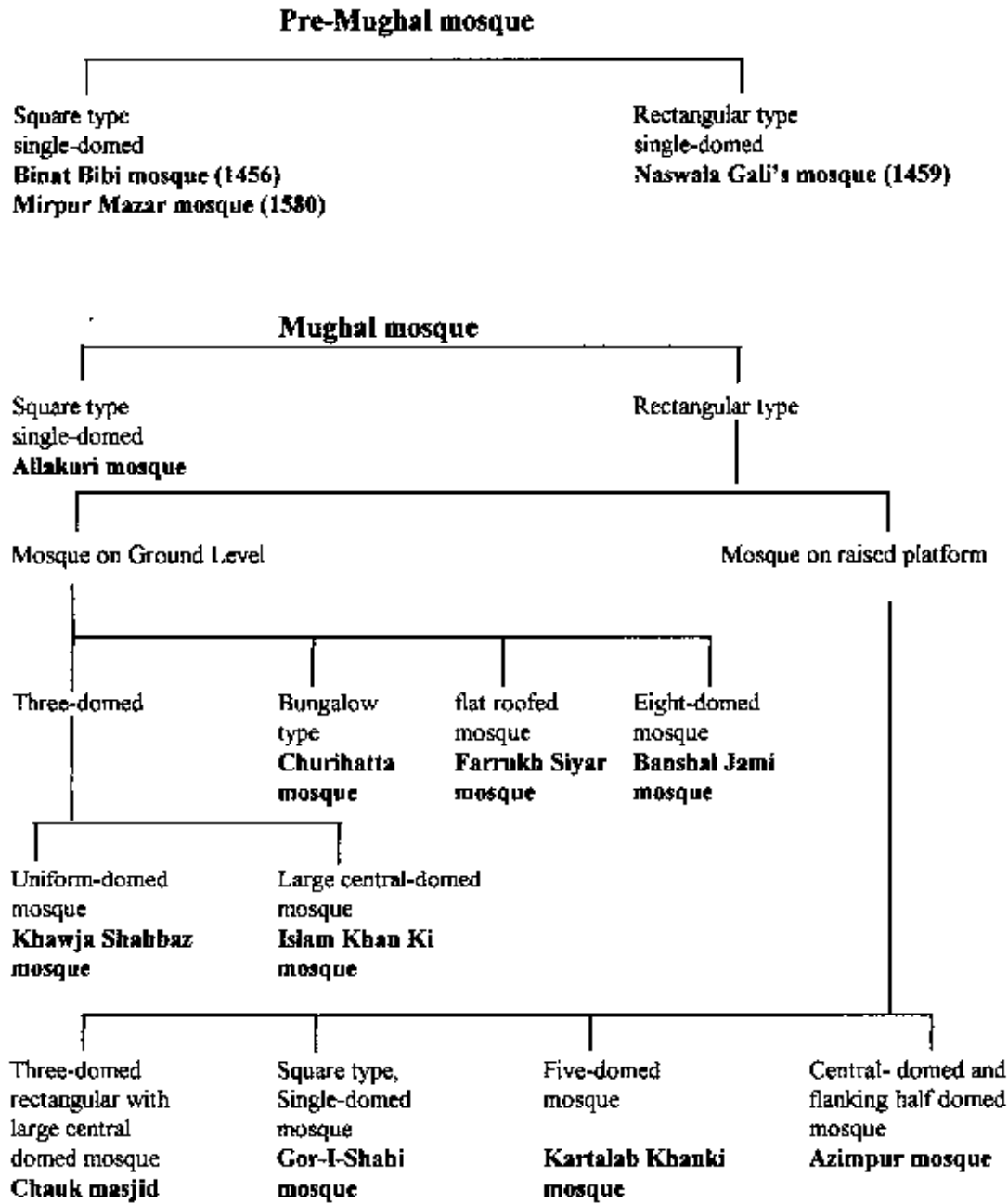


Fig 2.22 Kartalab Khan's mosque

2.3.2. Classification of Pre-Mughal and Mughal Mosques in Dhaka City



Description of Pre-Mughal Mosques in Dhaka City

All of the Pre-Mughal mosques have been transformed from their original architectural character in the name of extension and reconstruction for several times. As a result it is very difficult to explain the original character of mosque architecture of Pre-Mughal period from

the existing structures. Among the three Binat Bibi Mosque and Mirpur Mazar Mosque are square shaped single domed structure, retaining some of their original features. Whereas Naswala Gali's Mosques was originally rectangular, single domed structure which had been transformed totally.

Description of Mughal Mosques in Dhaka City

A. SINGLE DOMED OR KIOSK MOSQUE

- Hayat Bepari Mosque (1664)
- Allakuri Mosque (1680) (fig 2.27)
- Bibi Meher Mosque (1814)

These types of mosques were very famous during the Sultanate period. It was also an important and common form of mosque architecture during Mughal reign. Because of its size and less cost of construction it was erected in the Islamic world both by the private and by the royal initiatives.

The Kiosk Mosques are distinguished by a cubical prayer chamber surmounted by a dome and with corner tower. The projected mihrab have entrance gateway through massive walls except on the qibla side and have no corridor. *The earliest known example of this type is the Hazura Mosque in Bukhara, which was built approximately towards the end of 8th or the beginning of the 9th century.* (18) The best example of this type of mosque in Dhaka is the Allakuri Mosque at Muhammadpur.

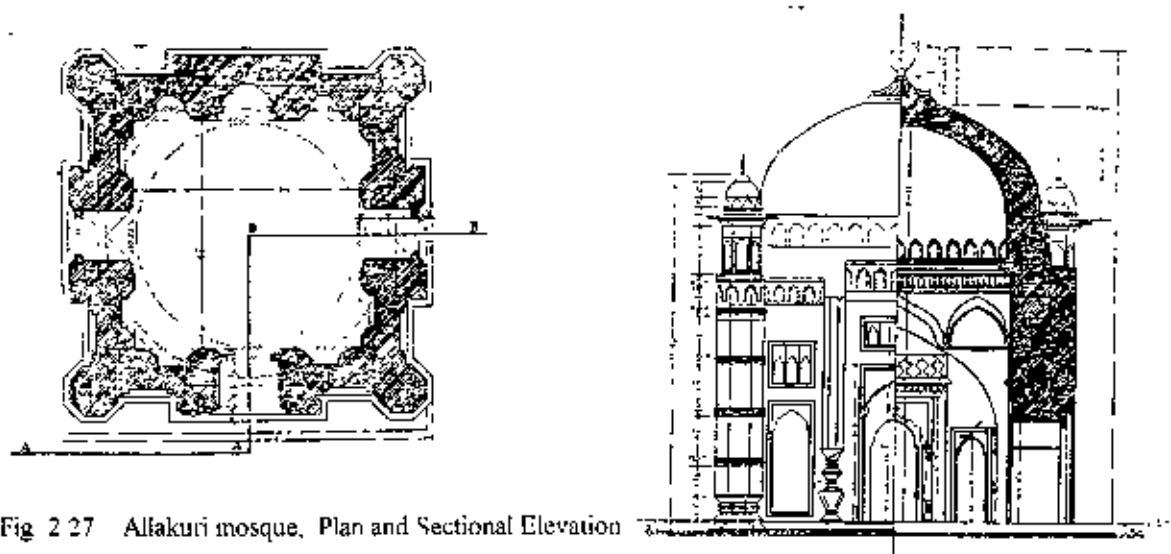


Fig 2.27 Allakuri mosque, Plan and Sectional Elevation

B. RECTANGULAR MOSQUE

1.0 Mosque on Ground Floor

1.1. Three - Domed Rectangular Mosque

A large number of Mughal mosques in Dhaka city are of rectangular three domed type. *This type of structure appeared for the first time in the Indian Sub-continent during the Lodi and Suri periods. Such as the Bara Gumbad Mosque (1494) at Delhi (19) and the Rohtasgarh Mosque (1543) in Bihar (20)* Subsequently this style was practised by the Mughals . The rectangular covered type with three- domed prayer chamber and without the addition of shan along with the surrounding riwaqs—was at time regarded as a perfect mosque plan. In Dhaka there are two kinds of the three-domed type mosques They are.

a. Mosque with Uniform Domes

Here three equal square bays are covered with three equal shapes of domes. The best and the only example of this type of mosque is Khwaja Shahbaz mosque (1679) (fig 2.28) This has been restored by the Department of Archaeology, Dhaka



Fig 2.28 Hazi Khwaja Shahbaz's mosque

b. Mosque with a Large Central Dome

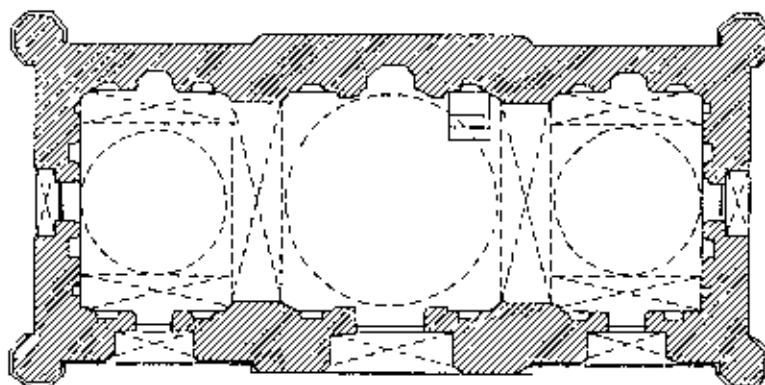
Here a large square central bay and small rectangular bay on either side is covered by three domes where the central one is bigger than the flanking ones. To place the side domes on circular base above the rectangular bay, the Mughals introduced two half-domed vaults on

the eastern and western sides. The facades are relieved with panels, pierced with triple archways –the central archway is slightly bigger than the other two at the side, and set in a protected frontons. Sometimes these archways open under a semi-dome. The parapet is straightened and further enriched with blind merlons. The corner minars are crowned with plastered kiosks. Examples of this type of mosques are,

- Islam Khan ki masjid (1635-39)
- Navara Lane mosque (mid 17th century)
- Shayesta Khan mosque (1664-78)
- Lalbagh Fort mosque (1678-79) (fig: 2.29)
- Satgumbad mosque (1680)



Fig :2.29 Lalbagh Fort mosque



Plan. Lalbagh Fort mosque

1.2 . Bungalow Type Mosque

The Bungalow type of mosque is covered either by the *do-chala* or *chau-chala* vaults. The *chau-chala* vaulted roof of Armanitola mosque is very much of Bengali origin of *chau-chala* huts of this land. In Bengal *chau-chala* hut roof was first translated into brick structure by the Sultanate craftsmen, noticed over the bays of the central nave of the Satgumbad mosque (mid 15th century) at Bagerhat and the Choto Sona mosque at Gawr (1493-1519) (fig. 2.30). The example of this type of mosques are, Churihatta mosque (1650) and Armanitola mosque (1716) (fig. 2.31)

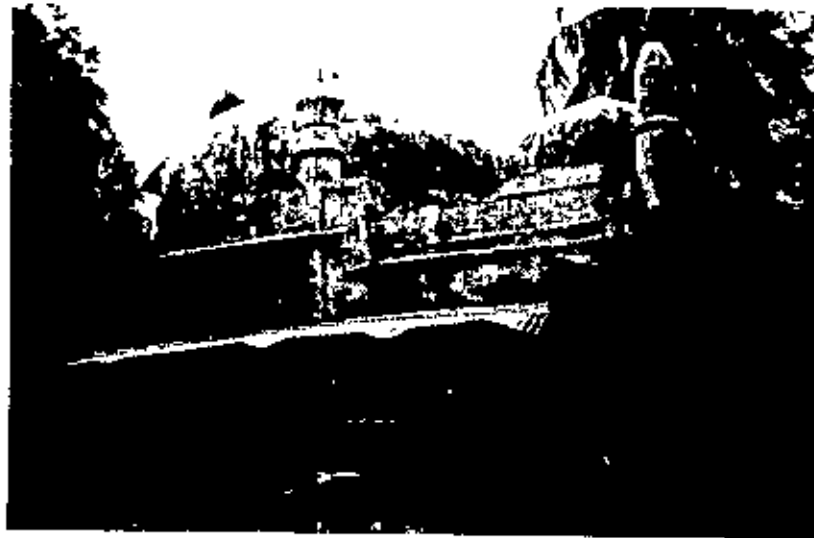


Fig 2.31 Armanitola mosque

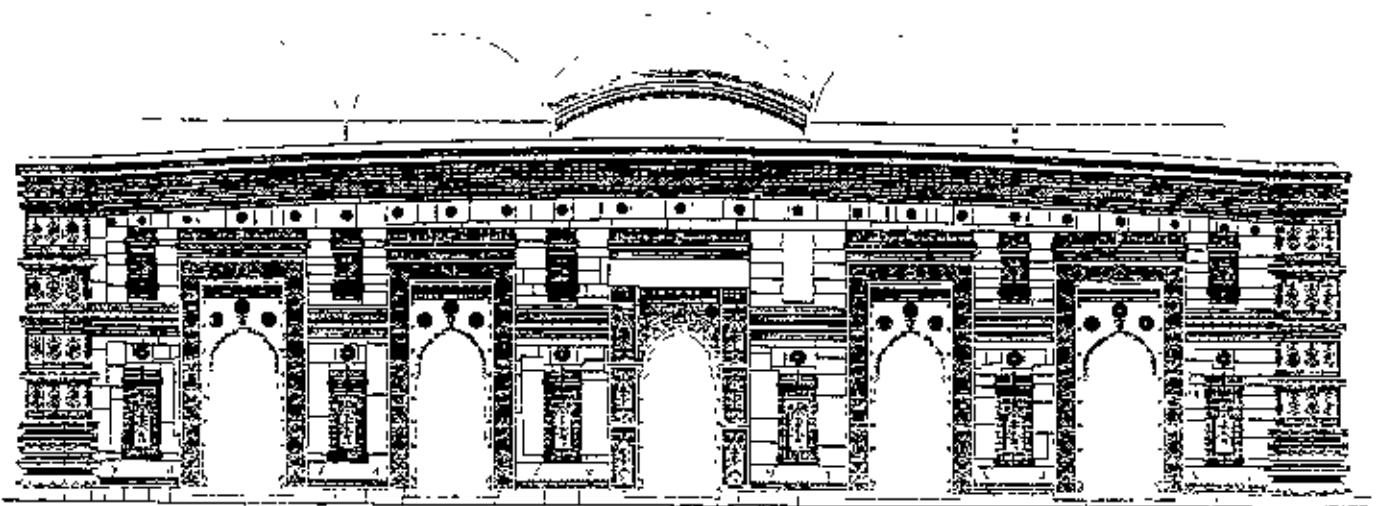


Fig 2.30 Choto Sona mosque with *chau-chala* hut roof at the centre. Elevation

(Source: Abu Sa'ad Ahmed)

1.3. Flat Roofed Mosque

This type of mosque consists of a *rectangular structure with three longitudinal aisle cut by a number of bays and covered originally with a flat roof of wooden planks* (21). The only example of this type of mosque is the Farrukh Siyar mosque (1703-04) (fig.2.32). This mosque is not only the lone example in Dhaka city but also in the whole of Mughal Bengal.



Fig. 2.32 Farrukh Siyar mosque

1.4. Eight Domed Mosque

During the Sultanate period there were trend to erect multiple domed mosques but this trend was not practised in Mughal period in Dhaka or in other areas of Bangladesh. The only example of eight domed mosque of Mughal period in Dhaka city is the Bangshal Jami mosque (fig. 2.33). There are some similarities of this mosque with Khajawa Shabbaz mosque. Both of them have similar type of decorative lateral arches



Fig. 2.33 Bangshal Jami mosque

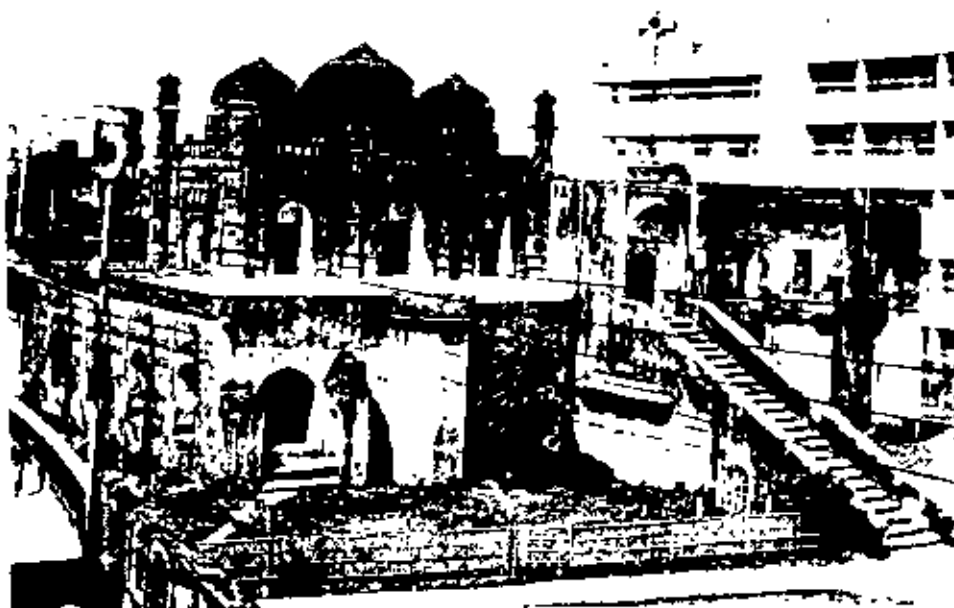
2.0 Mosques on Raised Platforms

Some of the Mughal mosques of Dhaka city were built on the western side of high vaulted platforms. Usually these structures can be identified as two storied mosque , as most of the cases the vaulted spaces are used for different purposes. But there are contradiction among the historians regarding the original purpose or motive of constructing this kind of spaces below the mosques. According to Taifur, **the ground floor rooms were originally meant for a Madrasa** (22) According to A. Karim, the vaulted chambers of Mirdha's Mosques were originally built as shops (23) There are several variations of this pattern of mosque in Dhaka city. These are,

2.1. Three Domed Rectangular Mosques

Here the central dome is larger than the side ones. Example of this kind of mosque are

- The Chauk Mosque (1676)
- Khan Muhammad Mirdah's Mosque(1704)
- Khawja Amber Mosque (1677-76)
- Musa Khan's Mosque (1679) (fig 2 34)



Khan Muhammad Mirdah's mosque (1704)

2.2. Square Type Single Domed Mosque

The best example of this type of mosque is the Gor-I-Shahi mosque (1726) (fig: 2.35)

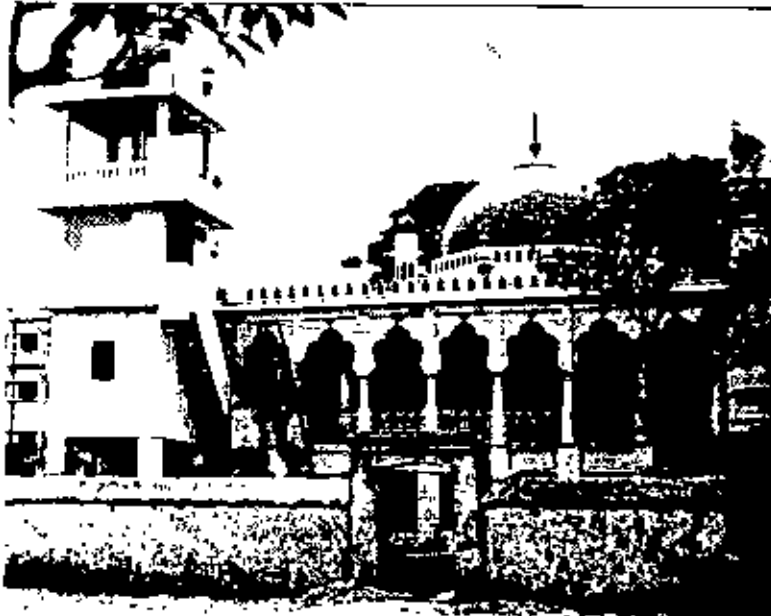


Fig :2.35. Gor-I- Shahi mosque

2.3. Central Dome and Flanking Half Domed Mosque

Azimpur mosque (fig: 2.36) is the only example of this type of mosque in Dhaka city and even in this subcontinent .

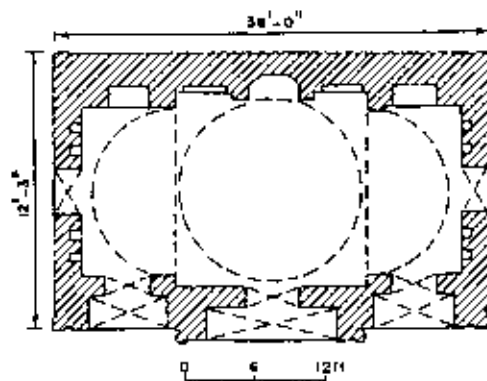


Fig :2.36 Plan, Azimpur mosque

2.4. Five Domed Mosque

The only example of this type of mosque in Dhaka city is the Kartalab Khan Mosque (1700-04). (fig 2 37) .It is represented by a single rectangular hall where there are a large central square bay . The flanking smaller rectangular bays are covered by a large central dome and two smaller ones on its either side in the same lane.

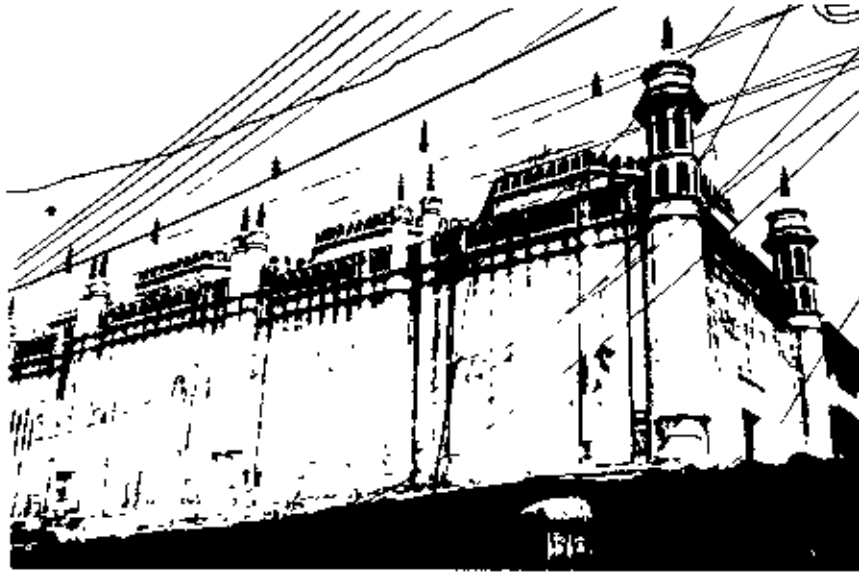


Fig 2 37. Kartalab Khan mosque



Interior view of the Kartalab Khan mosque

The mosques which are being restored extensively by the Department of Archaeology and Museums , retain many original features. On the other hand most of the listed mosques of the research of Mughal period in Dhaka city have lost all their original features . Their repetitive transformation, reconstruction and repairs by the users of the local communities have given them a very modern look which is completely different from their original architectural characteristics. As a result it is sometimes very difficult to identify the original form and the architectural features of the structures . In most of the cases the mosque have been extended by adding veranda on the east side and to accommodate more people inside different side walls of the prayer chamber are knocked down to transform it into a larger room. The following are the names of some of the completely changed mosques of Mughal period in Dhaka city .

- Zindabazar Jami mosque (1612)
- Hayat Bapari's mosque (1664)
- Nabaray Lane mosque (first half of the 17th century)
- Magbazar mosque (1670)
- Amoligola mosque (1676)

2.4. Conclusion

The main intention of this typological classifications of Pre-Mughal and Mughal mosques is to categorise according to the **architectural style** as well as **layout of spaces**. Still each mosque is unique in itself. For conservation general guidelines may be provided based on the classification but each mosque has to be treated individually. The following chapter deals with the conservation process in the context of Bangladesh with especial reference to the four selected mosques comprising the primary data.

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Chapter 3. Conservation in the Context of Bangladesh

3.1. Conservation Process and Scope

Like other cities of Bangladesh, Dhaka possesses a large number of mosques of historic importance which need to be conserved for large socio-cultural and historical interests as they are the documents and silent testimony of the past. At present Dhaka is under the pressure of growth of new and unplanned development which pose a tremendous threat, destroying the visual continuity and architectural integrity of the historic city. Conservation play a very significant role to exhibit the past heritage and to ensure the future of the past. Therefore, it is necessary to take positive measures to protect the mosques with the process of conservation and considering appropriate measures to upgrade and readjust the present encroachment.

Since conservation is rather a new concept, a concrete process has never been developed to conserve historically and architecturally significant structures. Mosques though occupies a big part of our life and living, in that respect also the **number of mosques conserved did not follow any specific direction and process**. Each mosque are being treated individually without any stepwise written method neither following the periodic style or the significant architectural style. Different organisations are viewing conservation process in different perspective. None is learning from others mistakes. Tara mosque is the glowing example of the above saying. It was an important Mughal mosque in Dhaka city. The mosque was conserved by the Department of Architecture, under the Ministry of Works. To accommodate more people the mosque was extended. But that was done without any historical precedence, as a result the mosque has lost all its basic characteristics. Originally the mosque was a three domed structure with a larger central dome and smaller ones on either sides. In the name of extension two domes were added resulting into a radical transformation of the built form. The delicate and proportionate composition of the mosque is destroyed totally. Now there is a smaller dome at the centre and in two sides and two larger domes in the intermediate spaces. (fig: 3.1) Other mosques which have been conserved by the Department of Architecture include Dilkusha mosque, Amber mosque. But all of them have lost there original

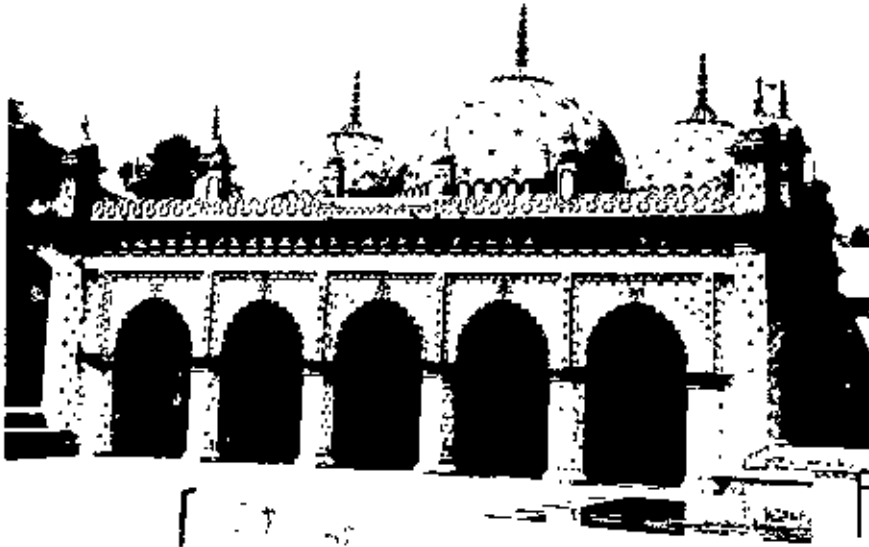
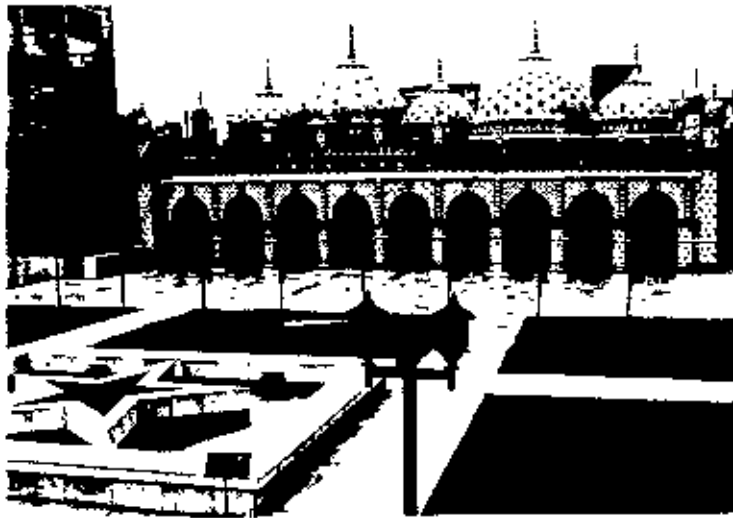


Fig 3.1 Tara mosque before conservation



Tara mosque, after conservation

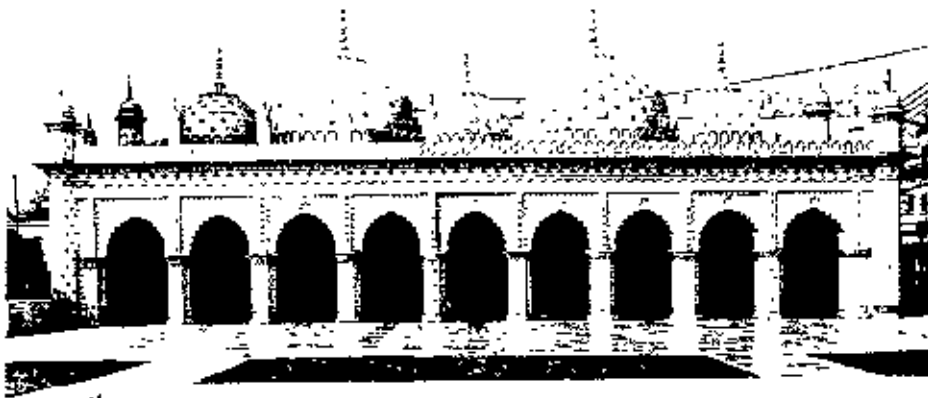
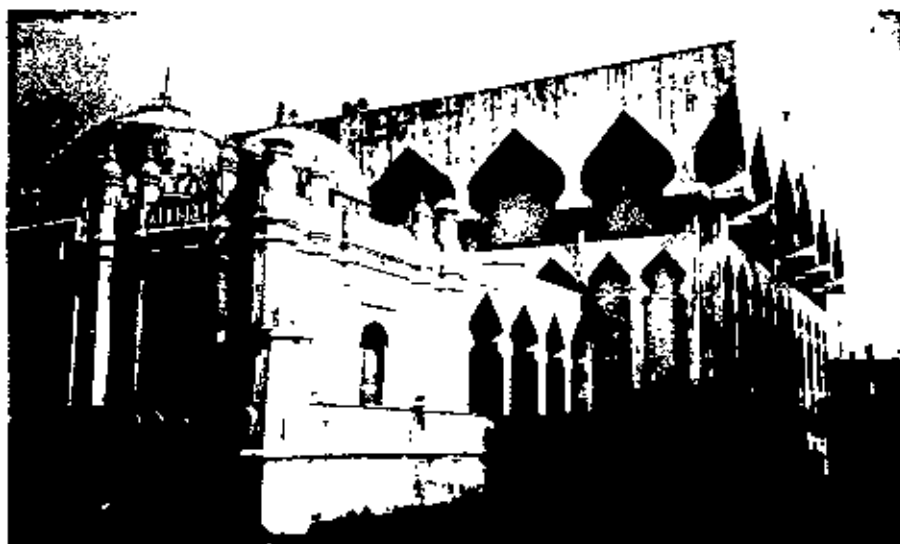




Fig. 3.2 Dilkusha mosque, after conservation



Fig. 3.3 Shah Amber mosque different stages of conservation



character, because of wrong approach in the name of conservation. (fig: 3.2) According to Sir Bernard Feilden, *A work of conservation is a work of art unto itself, but it is art working under strict controls. You've got to absorb the historical and archaeological and cultural values, and understand them. And then through the building, which speaks to you, produce something that will speak to the man in the street, as a work of art.* (1)

From this statement on conservation it is clear that, the process of conservation does not freeze the history, it allows continuity with change without altering the traditional impact, values and basic environmental characteristics and it is the only means to preserve a living heritage and a thread of continuity in the process of inevitable change.

The conservation process itself and so of mosque architecture of Pre-Mughal and Mughal period in Dhaka city could be divided into the following different levels.

- *Policy level*
- *Planning level*
- *Implementation level*

3.1.1. Policy Level

The policies may be considered as

- a. Identification and listing of mosques
- b. Classification of the listed mosques
- c. legislation of conservation.
- d. Motivation.
- e. Arrangement of resources

a. Identification and Listing of Mosques.

In this stage of action buildings are selected for conservation, which articulates the original flavour of the past and which are worth to be conserved . This phase always acts as the benchmark for the implementation of any conservation project. The relevant authority of Bangladesh do not give any emphasis on this stage of action. In many country the listing of important monuments are usually done by the local authorities. In

Bangladesh listing of building of historic importance , their protection and preservation is done by the Department of Archaeology under the Ministry of Culture. They are the custodian of all historical monuments and structures . They can enlist only those structures worth for preservation according to their stated century old guidelines. The Department started the listing of monuments in 1883 (2) continues to date, but the pace , depth and detail with which it was carried out fell far short of requirement. The number of listed monuments were **152** in 1972. Now it has risen to **229**. Unfortunately they are not covering large number of mosque architecture of Pre-Mughal and Mughal period and also other structures scattered all over the country, These monuments need to be identified and listed first so that the existing resources available for conservation of the heritage can be allocated judiciously.

There are only few mosques of Pre-Mughal and Mughal period which are still surviving in Dhaka city . It is important to prepare the list of mosques of Dhaka city of Pre-Mughal and Mughal periods considering their priorities for conservation or protection. A glimpse of Muslim architecture of Bengal can be obtained from some of the existing Mosques of Dhaka, which belong to Pre-Mughal and Mughal period. As mentioned in chapter 1, the listing is provided in Appendix-B.

b. Classification of the Listed Mosques

Most of the mosques listed in Appendix-B have changed a lot over the period. Only very few of them have retained their original condition. Further classifications of the listed structures can be done according to the present condition of the structures , their period of construction, use of materials, architectural features or type of facilities available. **Based on the present condition of the structures of Pre-Mughal and Mughal period** the following classification has been done by Shabnam Faruqi and provided in Table 3.1

TABLE-3.1

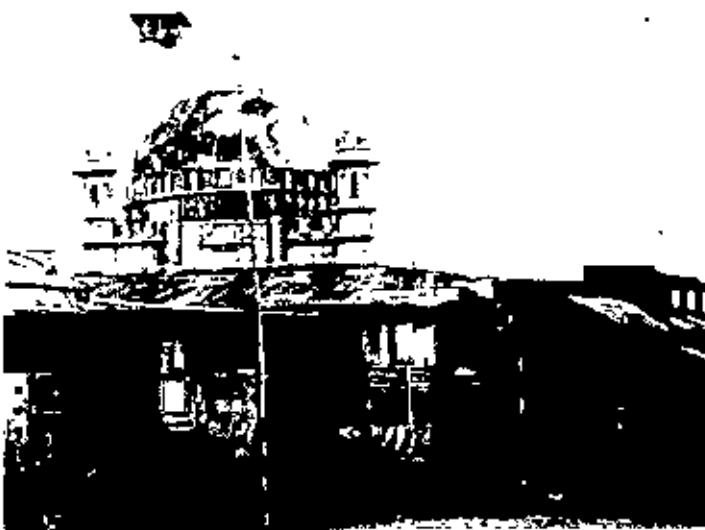
	Semi Transformed Mosque	Transformed Mosque	Mosques Protected by Archaeology Department
Pre Mughal Mosques	Mosque Binat Bibi , Narinda, (1456) Mirpur Mazar mosque Mirpur, (1480)	Mosque and Gateway in Naswallah Gulli (1459)	
Mughal Mosques	Islam Khan ki mosque (1610-13) Hazi Begh mosque (1642) Hayat Bepari's mosque (1668) Chaukbazar Shahi mosque (1676) Khawaja Amber mosque (1677-78) Shaista Kahn's mosque (1668-78) Musa Khan mosque (1679) Allahkuri mosque (1680) Banshal Jami mosque (end of 17 th c.) Nimrali mosque (1685) Vat mosque (1685) Dilkusha mosque (end of 17 th century) Kartalab Khan mosque (1700-4) Marium Saleba mosque (1706) Jail Garden mosque (1714) Gor -I Shahi mosque (1726) Armanitola mosque (1735) Tara mosque (1735) Azimpur mosque (1746)	Zindabazar Jami mosque (1612) Mosque at Nava Rai Lane (beginning of 17 th century) Churhatta mosque (1649) Magbazar mosque (1670) Amrigola mosque (1676) Mosque of Farrukh Siyar (1703-6)	Idgah mosque(1640) Lalbagh Fort mosque (1678-79) Haji Khawaza Shahbaz mosque (1679) Sat Gumbaz mosque (1680) Khan Muhammad Mirdah's mosque (1704)

i. Semi Transformed Mosque of Pre Mughal and Mughal Period

Most of the mosque of Appendix-B is under this category. These mosques have gone through several repairs, renovations and mainly enlargements. The usual process of enlargement is to add a veranda on the east to accommodate more people of the local community, some walls are knocked down and new space is added to enlarge the main prayer chamber. But in spite of that the basic form of the original structure can still be recognised. (fig 3.4)



Mirpur Mazar mosque (1480)



Allahkuri mosque (1680)

Fig 3.4 Semi Transformed mosques



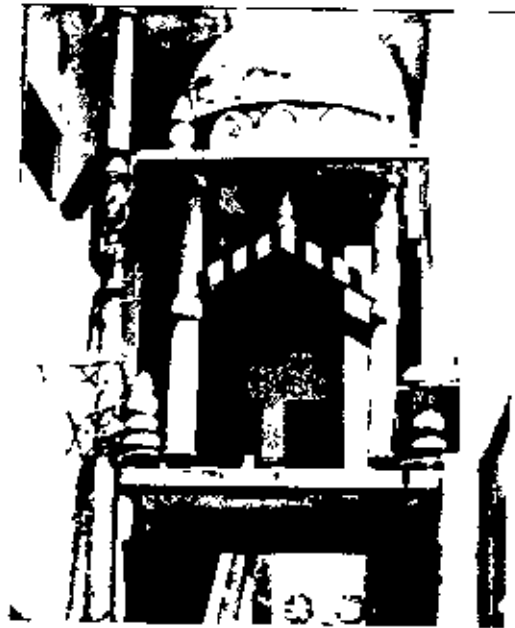
Chaukbazar Shahi mosque, (1676)

ii. Transformed Mosques of Pre Mughal and Mughal Period

There are several mosques in Dhaka city which have transformed completely due to extensive change and modification for many times without any sympathetic attitude toward the original form of the structure. This classification is mainly required, as this will identify the emergency of conservation. In most of the cases only the inscriptions are available which can authenticate the originality of the structure. Where the inscription is not existing then it is very difficult to ascertain the period of initial construction (fig 3.5)



Naswallah Gulb's mosque (1459)



Zindabazar Jami mosque (1612)



Churihatta mosque (1649)

Fig 3.5 Transformed mosques

iii. Mosques under the Protection of the Archaeology Department.

There are several mosques of Mughal period which are under the protection of the Department of Archaeology and Museums. These mosques have been conserved in different times. The Department tried to retain many original features of the structure which can be a positive way of learning and know the pattern of the mosques of those period.(fig. 3 6)



Sat Gumbad mosque (1680)

Fig 3 6 Mosques under the protection of the Archaeology Department



Idgah mosque (1640)

In the research only four mosques (fig 3.7) has been identified from the above table for detail analysis and study for conservation, as they encompass the entire condition and character of mosque architecture of Pre- Mughal and Mughal period in Dhaka city. These are.

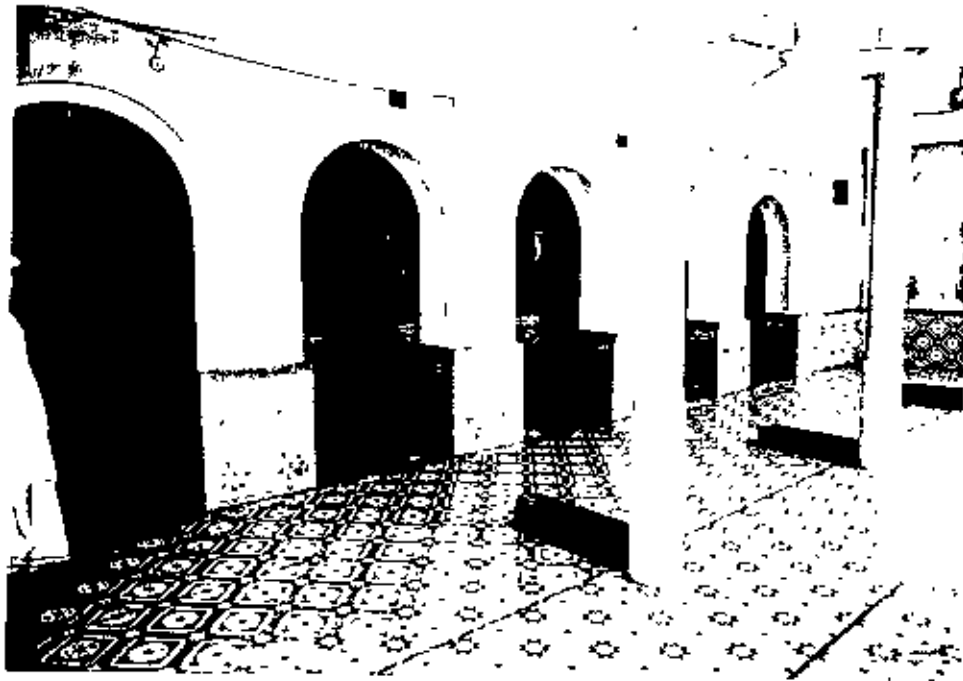
- **Binat Bibi Mosque . Narinda. (1456) of Pre- Mughal period**
(Semi-tranformed)
- **Islam Khan ki mosque, Sayad Aulad Husain Lane, (1610-13) of Mughal period**
(Semi-tranformed)
- **Churihatta mosque, Churihatta, Chaukbazar (1649) of Mughal period**
(Tranformed)
- **Mosque of Khan Muhammad Mirdah, Lalabagh (1704) of Mughal period**
(Protected by the Archaeology Department)



Fig 3.7 Binat Bibi mosque (1456)



Churihatta mosque, (1649)



Islam Khan ki mosque (1610-13)



Mosque of Khan Muhammad Mirdah, (1704)

c. Legislation of Conservation

Lord Curzon in 1904 developed a law for the protection of the historic structures of the country . In 1968 that law was cancelled and another law was developed for conservation, known as the *Antiquities Act 1968 (Act XIV XVII Pak, code of 1968)* (3) But here, the East Bengal Conservation Act (EEBC) of 1952, the Paurashava Act. of 1977 and the Building Construction Regulation of 1984 are the legislation applied to building and land use control All these legislation does not have any bylaws or passing reference regarding conservation

*The Part II of the Constitution of Bangladesh deals with the fundamental principles of state policy. The article 23 of the Constitution states that the state shall adopt measures to conserve the cultural traditions and heritage of the people. Article 24 further says that the state shall adopt measures for the protection of **historical monuments** against disfigurement, damage or removal of all monuments, objects and place of special artistic or historic importance or interests* (4) The effect of all these policies have very little impact in reality. Many of our historic structures are destroyed everyday by men and nature as there is no strict laws to protect them. Therefore, now it is essential to recommend several rules and regulations on legislation of conservation to protect the culture of the soil.

There should be a local authority at community level of Dhaka city who would be entitled to control land use development. This authority must be empowered to enforce different conservation laws and bylaws. Along with that a specific design guide lines should be prepared for Dhaka city regarding the building height, building bulk and setbacks, adjacent to the listed structure for conservation. Also any new development , demolition or alteration of those structures would require prior permission from that local authority. The authority should also be responsible to deliver the repair and maintenance notice to the mosque committee of the listed structures

But whatever different rules and regulations can be prepared , their implementation will be easier if there are adequate provisions of promotional and positive measures like financial assistance, public awareness and motivation.

d. Motivation of the Local People at the Community Level.

There is a great need for motivation and raising awareness of general people on conservation of the heritage. Without the community support it is not possible to implement any conservation work in a locality, all the efforts will go in vain. Without the spontaneous support of the public no government or institution can successfully carry out any conservation project. The key success of any planning strategy depends largely on the approval and involvement of the public. The objectives of motivation should be aimed at

- i. making the general public conscious of their heritage expressed through the historic built environment and awakening an active interest in its cultural, social and economic importance.
- ii. making the public aware of their responsibilities in the process of conservation and maintenance.

This task can be done through the formation of different local authorities, who shall take initiatives to motivate the Government as well as the local people by highlighting the especial architectural and historical significance of different monuments which are worth preserving and enhancing in their locality.

The Aga Khan Trust for Culture launched an architectural conservation workshop in March- April 1989 by the Institute of Architects Bangladesh (IAB), the Department of Architecture under the Ministry of Works, the Bangladesh University of Engineering and Technology and the UNDP. This type of workshops, seminars can be very useful to provoke and to create awareness to the policy makers, professionals and to the common people that the issue of conservation of the heritage has to be taken seriously for our cultural survival.

Therefore, conservation programme cannot be done without the willingness, co-operation, participation and active help of the local people. The authority should encourage the local people to give suggestions and to play an active part on the conservation activities of the selected local mosques. Constant co-operation between the individuals of the community and the public authority can make any project to be implemented successfully.

e. Arrangement of Resources :

Resources includes mainly the money , expertise and labour. With the present economical condition of Bangladesh there is always a debate remains whether the aspect of conservation is really needed. *The Department of Archaeology is allocated Tk. 1 million (US \$ 25,000, 1989) per annum to protect 229 listed monuments and sites scattered all over the country* (5) which is a very insignificant amount for even 229 listed monuments. Due to heavy rainfall lasting almost six months , the monuments become almost covered by moss and vegetation. Therefore, effective and timely measures are necessary to eradicate them. *These essential maintenance work and petty repairs are carried out in Bangladesh under an annual repair programme.* (6) For various reasons , mainly financial, it is not possible to attend to every monument each year. As a consequence, many such neglected monuments are considerably damaged. Many unforeseen factors also contribute to the damages and destruction of the monuments.

Sir Bernard Feilden said, *among bureaucrats, there is an illusion that conservation costs money. But we can prove that conservation , if introduced early into feasibility thinking, will save money .* He also pointed that the developing countries are often richer in craftsmen but poorer in professionals. The problem is how to get through to the crafts people and get them interested in conservation.

In Bangladesh there are extreme shortage of expertise in this field of work. We have to have a team of expertise to implement any conservation work properly.

3.1.2. Planning Level

The actions of planning level comprises of

- a. Reconnaissance survey
- b. Data collection
- c. Site survey : Assessment , Evaluation and Analysis of the selected monuments
- d. Documenting the listed structures
- e. Setting of goals and objectives of conservation

a. Reconnaissance Survey

Reconnaissance survey is a kind of general survey, carried out after the final selection of structures or mosques. The survey is based upon the general observation of the structure, the site and its adjoining areas. Informal discussion with the local community was carried out to understand of the locality, the need and the preferences. This survey helps to determine the historical and the architectural significance of the monuments, the condition of the structure and its environs. Also any additional function if the mosque requires or the overloaded function that it need to be removed for the sake of conservation can be identified. The selected mosques have undergone a reconnaissance survey by different historians at different time. For this research a reconnaissance survey on the selected 4 mosques has been undertaken before the collection of data from different sources.

b. Data Collection and Compilation

In this phase relevant data regarding the four structures are collected in two different ways.

i. from written materials

ii. from visual records.

Written record consists of information on the selected mosques available in books, magazines, articles etc. The authentic information are being collected from the architectural or historical description of different historians or archaeologists from their direct observation or from inscriptions on foundation stones

The visual records comprises of the old drawings, photographs and sketches from books, magazines, personal collection, also recent photographs (black and white, coloured photographs and slides). The recent photographs are very important. Lots of things are not possible to draw in the measured drawings like colour of the building, materials, damaged sections, perspective view of the monument along with its adjacent areas, ornamental details, landscaping. All can be visualised from these type of documentation.

The visual record is very important to prepare a correct drawing as they are authenticating the originality of various elements of the monuments. Though data on the mosques for primary survey are available, but they are not adequate for preparation of detailed measured

drawings. Also the structures are always under a continuous transformation and changes . Therefore, recent records are essential

All the records (written and visual) collected so far of the mosques surveyed are discussed and analysed in chapter 5.

c. Site Survey : Assessment , Evaluation and Analysis

The site survey is very much different from the reconnaissance survey. In this phase the changes or transformation that has occurred in those mosques over the years are being verified from the data collected above. Here an analytical inventories of architectural, historical , economic and socio-cultural aspects are also carried out .The survey continues until the measured drawings are prepared. The following aspects need to be highlighted Here they are only mentioned and the related primary data are dealt in detail in chapter-5

i. Assessment of the Historical Background

- The history of the structures and the adjacent areas and their respective significance or importance.
- The period of construction with specific date (if possible) with changes in use and purpose with specific time
- Important historical events and incidents that happened related to those built forms.
- Geographical location and orientation.
- Comparative analysis of style and character of the selected structures .

ii. Evaluation of Physical Condition

- Existing condition of the structures and the adjacent areas.
- Systems and organisations of built forms.
- Need for addition or alteration.
- During the life of the building the pace and scale of change, nature of growth, expansion in horizontal or vertical direction, phases of construction etc.
- Stylistic uniformity within the structure and with the surrounding areas.

- Assumption of the previous condition with the help of literature survey, maps, drawings etc.
- Physical character of the selected structures and the surrounding areas in terms of their sizes, densities and heights.
- Description of interior and exterior
- Land use pattern and their subdivision.
- Comparative study of mosque types, forms and pattern of structures
- Characteristics of details and decorations of building elements.
- Construction methodology and the system of structure.
- Type and application of building materials i.e. in foundation , wall, roof, stair, floor, parapet cornice etc.
- Building prototypes and groupings.
- Service system.

iii. Analysis of Socio-Cultural and Economic Aspects

- Present use in relation to socio cultural and economic importance.
- Social character of the community, their life style, living pattern, religion and land use.
- Present land value along with the selected property value
- Potentials of the site and the area.

d. Documenting the Listed Structures

Where the need of protection is urgent it should be considered without delay and if there are some problems to start the process instantly then those structures should be thoroughly documented . If the structural condition does not permit for repair or restoration i.e very unsound to be kept, then it should be destroyed after documentation and rebuilding the whole by considering the original architectural features and characteristics.

In Bangladesh a number of associations and organisations were involved with the identification, listing and evaluation of buildings and places of historical significance. In “Conservation Study of Dhaka City”-- a research group sponsored by Ford Foundation of

faculty members of the Department of Architecture, Bangladesh University of Engineering and Technology were involved in survey, short listing and documentation of the historical buildings and places of old Dhaka.

The Asiatic Society of Bangladesh initiated a pilot project known as “ Survey of Historical Monuments and Sites in Bangladesh” with the assistance of Getty Grant. The survey was in Gawr-Lakhnawti, Sonargaon-Panam and Mainamati-Devaparvata. The Society have published three books on the three sites describing and discussing the historical, architectural and conservation issues with detail documentation, illustrations of all the significant archaeological and architectural sites and monuments.

Dhaka Nagar Jadughar, under Municipal Corporation of Dhaka showing their consciousness to develop a knowledge, based on historical buildings and places in Dhaka. They are also active to generate local awareness and to motivate people by providing on-site information of the historical sites to understand and thus realise the need of conservation.

Another private group namely “ Sthaptya Bangladesh” is also involved in collecting documents and information on historical buildings and places in Bangladesh, publishing measured drawings for future research and to sustain the heritage.

Documentation is the preliminary phase and an essential task before the implementation of restoration, conservation or renovation work. The process of documentation to produce a scale drawing of any structure where no previous information or drawings are available is painstaking and time consuming work. The following different steps are being carried out in this phase.

Preparation of Measured Drawings

In this study since there was no drawings available of the selected mosques (except Khan Muhammad Mridah’s mosque) Therefore, each part of the mosques are measured to prepare correct scaled drawing. Besides the floor plans, elevations and sections of the mosque, different structural details and ornamentation are measured and recorded. These measurements have been done by precise hand measurements and sketching. In preparing this drawings even minute details are given importance specially those portion of the monument which represent certain style and period both architecturally and historically. As

essential for the study the site plan, original plan, floor plans (ground floor, first floor), elevations, sections, architectural details and ornamentation of the mosques surveyed are prepared.

e. Setting of Goals and Objectives of Conservation

It is important to clarify **the nature and intent of conservation** work of any structure. Conservation measures vary according to **the maturity and the present condition** of individual structure. Some of them may require simple refurbishing or some may need extensive restoration .Based on the condition of structures, different mosque shall require different kind and level of conservation work, which has to be specifically identified at this stage of conservation process.

From the above mentioned stages of survey it will be decided whether the mosque requires preservation or restoration. If the mosque requires archaeological conservation, then the process shall postulates prolonging the life of the structure or the environment, arresting all the man made and natural elements causing decay and erosion. Sir John Marshall stated that, *the object is not to reproduce what has been defaced or destroyed, but to save what is left from further injury and decay and to preserve it as an heirloom for posterity. Any addition or alteration is prohibited in archaeological conservation unless those are required to save the monument from structural failure.* Some of the selected mosques can be protected either with the concept of restoration or reconstruction. In case of restoration the existing fabric of the structures have to be retained to an earlier known state by removing accretion or by reassembling existing components without the introduction of new materials. Whereas in case of reconstruction, it will be possible to introduce new materials into the fabric to retain the structure as nearly as to a known earlier state.

When a mosque need to be protected with the essence of architectural conservation , then preservation of cultural significance and the heritage is essential. Architectural conservation looks after all the aspects like maintenance, preservation, restoration, reconstruction or adoption according to the need and circumstances without destroying the historic values (Appendix-A). The basic advantage of the objective is the adaptive reuse, i.e. preserving and maintaining the old structures in modern, urban, economic and development contexts. It

does not freeze the original character rather it can retain the original architectural environment and accommodate present demands and activities. **At the present context majority of the listed mosques specially the 4 mosques in question are to be protected with the objectives of architectural conservation .**

From the above discussion a decision is taken about the selected mosques, so that all the aspects like labour, manpower, money involved for the conservation project can be identified and calculated precisely. After the conservation plans and specification have been prepared it goes through the public authority for their approval before the execution of the project

3.1.3. Implementation Level

The level involves the actual undertaking of conservation work. In general , the implementation of conservation work involves the following phases,

a. Planning Phase

In this phase the final decisions on the following points are taken under consideration

- i. formulation of the working scheme
- ii. assessment of economic viability of the project

b. Technical Resource and Identification Phase

- i. selection of a professional team of architects, planners, engineers, supervisors and contractors
- ii. appointment of appropriate skilled labour and craftsmen

c. Construction Phase

- i. assessment of the accuracy of the reconstructed part with the original form and features
- ii. management of construction
- iii. scheme of regular supervision

d. Regular Maintenance Phase

- i. develop a scheme for regular maintenance after conservation.
- ii. determining the causes of deterioration with probable solutions for conservation.

3.2. Conservation and Climatic Aspects

The existing heritage of Bangladesh whatever remains are continuously exposed to the tropical monsoon climate, as well as industrialisation and destruction caused by the people's growing demand for urbanisation. The danger of destruction of the heritage is at the hand of men and nature. There are instances of religious enthusiasts demolishing old mosques to enlarge or rebuilt them anew to earn religious merit. There are even a number of cases where large scale renovations were made to protect monuments by local people totally disregarding their characteristic features. Consequently many such monuments had to be de-protected.

In the name of extension, renovation in almost all the mosques veranda have been added. This trend is common in Bangladesh. In North India almost all the mosques are without veranda. This is due to the climatic reason. This is how the consideration of climatic aspects in conservation works is very essential. The tropical monsoon climate of Bangladesh having an annual rainfall of 80 to 100 inches, dreadful hailstorms with north-western and catastrophic cyclone disturbances causing decay and damages to untold number of monuments and sites in every year. The pressure of population with demand for more land for housing and urbanisation are havoc to many historic structures.

The present condition of the building materials of the majority of the listed mosques are not very satisfactory. It is important to determine the causes of deterioration first. Then after a correct accurate diagnosis of the causes of deterioration of the mosques and the building materials remedial action are recommended. But before this, an understanding of the usual materials, their size and construction technology, their age and durability, uniqueness of design and design qualities as well as workmanship and detail ornamentation of the mosque structure is required. Otherwise, the repair may cause failure and can involve financial liability only to rectify the damage. An expertise along with an in-depth supervision, a specific and positive solution may be achieved for the conservation work. The main problems are classified into two broad categories

a. Dampness of the Mosque Structure

Almost each and every listed mosques are affected with severe dampness problems. The causes may be different for different structures. In Bangladesh three means namely direct penetration of rain water, rising damp and condensation either singularly or in combination is the basic reason of dampness. Therefore, it is important to identify exact cause of deterioration before recommending an appropriate method for rectification. Penetration of damp should be stopped at the point of penetration. Defective pointing , poor construction details or cracked external rendering and decoration can be the passage of rain water are common contributors of penetrating damp. Also, where the internal floor level is below the ground level or where the water table is high, lateral penetration might happen.

b. Problems Associated with Building Materials

The material which has been used in the listed mosques are mainly brick. Other materials are wood or timber, glass, cast iron and wrought iron etc.

All the mosques of Dhaka city are made of brick. The brick work of the built forms are commonly affected by (a) water penetration, (b) crystallisation of soluble salts, (c) fracture, (d) cracking , surface defects due to the differential settlement of structures.

The remedial actions should be different for different cases and the remedial action need to be specified on the basis of detection of accurate causes of deterioration. The repairing methods of brick work is critical as it might disturb the rest of the sound brick. In case of replacement, the new brick should match in colour, texture and size of the rest of the brick work. But unless it is absolutely essential the removal of brick from its original place is not be a wise decision rather it is recommended to patch or reinforce the defective brick with coloured mortar or with the same appearance of the adjacent brick work. But if fracture is the reason for structural weakness and responsible for water penetration, then in-depth remedial actions need to be taken.

3.3. Conclusion

The Muslim heritage can be traced down through the existence of some mosques and tombs of that period and it is a pity to see that the heritage is torn down by abrupt changes and transformation of the original structures in the name of extension or renovation and so called modernity. The climate of the country is not at all supportive of the preservation of the works of ancient architecture which were mainly constructed with earthen bricks with a little more durability than the huts of bamboo and mud . These structures failed to withstand the rainy weather and frequent floods of the country. Intense rainfall caused extensive damage and deterioration

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Chapter 4. Architectural Conservation -- Planning Tools, Techniques and Conserved Mosques as Case Studies.

4.1. Planning Tools and Techniques of Architectural Conservation

Bangladesh is one of the low-income countries of the world. Here a vast majority can not meet their basic need for shelter, food, health and education. Therefore, it is very difficult task to stimulate people to recognise and appreciate the importance of preserving our architectural heritage . At this critical economic condition the **government and the private organisations should take initiatives to eradicate the capital resource scarcity, limitations of management and technical human resources of conservation.** It is the duty of all the conscious citizen to convince others that if the heritage is lost the sense of identity, national pride and self esteem vanishes. People must believe in the fact that the heritage is to be protected.

The conservationist Raskin said, *they are not ours to destroy, they belong partly to those who built them and partly to all mankind who follow us* (1) The father of the conservation movement in England, William Morris uttered, *we are only trustees for those who come after us* (2) According to Sir Bernard Fielden , *raise the public's consciousness of the value of their cultural heritage before it is lost forever.* (3)

Conservation of heritage is to be considered as the key to the definition of identity. If India being in similar condition as Bangladesh can incorporate the following statement in their constitution then the people of Bangladesh should also be more conscious about it. The constitution of India under the Fundamental Duties states, “ It shall be the duty of every citizen of India to value and preserve the rich heritage of our composite culture.”

It should be realised that economic factors is not the only matrix, there are other factors which should also need to be considered. The following are some comprehensive and cost effective approaches regarding conservation for low-income countries like Bangladesh.

a. Awareness among Technical Institutions and Development Authorities at National, Regional and Local Level.

It is important to train and aware the development planners, implementers, architects regarding the priority and importance of conservation. Also the **aspect of conservation of our heritage can be included in the curriculum of all the technical and social studies of the country.** A course on conservation at the Department of Architecture , Bangladesh University of Engineering and Technology has been included at B.Arch. level. The course would help to develop a group of technical people on the subject.

In developed countries the local authorities are involved with the economic as well as physical developments. Depending on situations they undertake schemes which are mostly related to conservation, reuse of old structures and spaces of historic importance. Local authorities also encourage the public regarding the importance of preserving significant structures.

In Bangladesh similar development authority can be established at local level who will be responsible for the listing of buildings of historical , architectural and social importance and which are worth to be conserved . They must have the power to give decision for demolition, alteration or any new development of the listed buildings after discussing with the Archaeological Department. **Violation of the order of the authority shall be considered as legal offence.** They shall also have the power to give notice to the owner of the listed buildings (in personal level along with a public notice) to aware them that these structures are no longer their personal property. Therefore, any demolition or alteration cannot be made without the prior permission of the Development authority. They can also deliver the 'repair and maintenance' notice to the owner and the occupier of the listed monuments for their regular maintenance.

In Britain, the local planning authority used to exercise design control of new buildings and alteration of existing buildings and they consider it as part of the overall planning and development control. A successful operation of architectural conservation was carried out by the Greater London Council. The Central Market Building an Convent Garden, London was restored and converted into small retail units after the wholesale market left the area.

Convent Garden's transformation and renovation established an example of area conservation.

In Mumbai the Maharashtra State Government is setting up an advisory commission for conservation consisting of historians, architects, engineers and local laymen. Such kind of **advisory commission can be established in Bangladesh guided by Municipal authorities.** The commissions should undertake surveys, train up people, develop expertise to prepare lists of historical monuments and areas, establish necessary control to repair and maintain historical monuments and areas at different regions of Bangladesh.

b. Initiate Involvement of Private Sectors in Bangladesh

In Bangladesh the Government and the public sectors have real limitations and constraints on economy. Here new trends are gradually forming to develop public / private partnerships in the economy regarding physical and social services. They can also share the responsibility to protect our heritage with the government. It is now essential **that private sector should come forward and work as voluntary organisation to give decision on the developing agenda regarding conservation of our heritage.** The Society for the Protection of Ancient Buildings (SPAB) founded by William Morris is a private organisation working as a leading organisation on conservation and shaping the legislation of England.

c. Motivation of the Local People at the Community Level

There is a great need for motivation and raising awareness of general people on conservation issues. Without the community support it is not possible to implement any conservation work in a locality. As mentioned earlier the task can be done through the formation of different local authorities. They shall take initiatives to motivate the Government and the local people by upholding the especial architectural and historical interest of different monuments in their locality, whose character is worth preserving and enhancing .

Conservation programme cannot be done without the will, co-operation , participation and active help of the local people. The co-operation will be possible to get if the aim of conservation is communicated to the concerned people. The authority should encourage the local people to give suggestions and to play an active part on the conservation activities of



the four selected mosques. Constant co-operation between the individuals of the community and the public authority can bring implementation successfully. But if the public are not educated and not conscious enough , they will not be able to understand the essence of conservation of the historical built-forms rather they will transfer or alter the very important architectural features which need to be conserved most .

d. Develop Provisions for Financial and other Incentives

It is important to provide some financial assistance and incentives as promotional and positive measures to some of the private organisations and influential people of the locality. These people are interested on conservation and are involved in the maintenance and protection of the listed mosques and their surroundings. The following are some of the ways to provide financial assistance.

i. Grants and Loans

The government can allocate direct grant to some organisations for architectural conservation of the listed mosques and the surrounding structures. Moreover, grants can be given for upgrading the infrastructure of the adjacent areas . For example upgrading the sewerage, water supply, solid waste, garbage disposal, street powering and lighting for the mosque and for the adjacent areas. *In Britain the Historic Building Council spent 15.5 million pound in grants in 1983-84 financial year only* (4)

ii. Tax Concessions

There can be some provision for exemption from property tax, income tax , wealth tax and value added tax (vat) for those organisations who are interested and implements conservation works. The approach can work very well and can be a great incentive for the organisation.

iii. Helping Hand

The local authority involved in conservation activity of different areas can take the responsibility to provide labour and materials which are required for regular repairs and maintenance of the listed structures.

e. Develop Design Controls and Guidelines

Architectural conservation does not freeze the development activity or any change but it restrict unplanned development and undesirable change. The policy of conservation allows controlled change so that the original character or environment of the built-form and its surrounding areas are not destroyed. Any new development can blend perfectly with its surroundings. But there should be some **regulations to ensure that the architecture of new buildings adopt harmoniously to the spatial organisation and setting of the historic monuments.**

In Bangladesh there is no such guidelines for architectural conservation. Therefore, it is important to develop a guide line for any change and it has to be publicised for the general people. **The Design controls and guidelines must be very simple and should be applicable to all the different monuments which need to be conserved.** The following aspects can be taken into consideration as design and guidelines for architectural conservation of Bangladesh.

i. Control over Demolition, Alteration or Addition

Any repair, addition, alteration, demolition shall require prior permission from the local as well as the planning authorities. No one can make any change without having enough knowledge on conservation.

ii. Height Control

The control is required to protect the sky line of the adjacent areas of the conserved structure. **Any new structure should not be allowed to build which is out of proportion and in objectionable position and distance of the listed monuments.**

iii. Repair and Maintenance

There must be some law that the listed structures should be maintained regularly according to need .

iv. Environmental Pollution Control

The listed monuments should be protected from increasingly developed environmental damages or pollution of different harmful industries in proximity of the structures. Again

advertisement or waste disposal. shall not be permitted . Preventive measures should be taken against destructive effects of noise, shocks or vibrations caused by vehicles .

v. Control over Harmony of the Area

Any rebuilding or alteration should maintain the harmony in terms of function, use of colour, material, height, form, architectural character i.e. consistency with the existing listed monuments. The main bazar of Jaipur, India exhibit a unique facade treatment. There is a colour code to bring the harmony of that place. Individually the buildings may not have facades of great architectural quality but as a group they form an outstanding element of the cityscape Internally these structures are not identical—lots of changes are made by the owner without disturbing the external facades. Thus Jaipur is retaining this character for more than 270 years.

vi. Control over the Development Rights

Particular attention should be given to the open spaces within the plot of the selected monuments. Because there is always a possibility of construction of built-forms, which may have an effect on the main structure and could destroy the harmony of the whole.

vii. Sight Pollution

The historic monuments should be protected from visual distortion by the erection of poles, pylons, electricity or telephone cables, large scale bright posters or neon signs for advertisements Also other kind of commercial advertisements and signs, street parking and vandalism—all these can ruin the original environment and physical character of the listed monuments . Therefore, where these structures exist appropriate measures should be taken for the removal of such harmful advertising elements.

The design control and guidelines mentioned above shall restrict the unplanned development and abrupt physical development. They shall also advocate a sympathetic development of the new structures in terms of scale , height, details, decorations and architectural harmony.

Deviations of these guidelines should be punishable . *Very recently in Washington D.C. , the four historic town houses which one of the preservation group wanted to preserve, found*

that the facades of the townhouses has been demolished. The owner was fined merely \$ 500 for demolition without the permission (5).

f. Develop a Strong Knowledge Base

The basic step of conservation is to understand which structure is historically, socio-economically and architecturally important. What is their significance at national, regional or local references and whether it should be of worth preserving or enhancing . This can be judged and assessed by historians, conservationists, architects, archaeologists and other relevant professionals. Therefore, the preliminary investments should be made for training technical personnel like architects, engineers (civil, structural and chemical engineers) specially in this area to develop sufficient knowledge and skill. This training may also include building craftsmen to perform especial type of construction and other works for conservation and preservation.

According to Sherban Cantacuzino, A nation wide programme to train building craftsmen should be initiated on the principle of 'learn by doing' . Such a programme would best be organised by the historic monuments organisation or the archaeological survey which in most cases already exists and has the necessary experience to do this. (6)

g. Public Education for Conservation

Conservation is a political, technical and physical process as well as social activities. Technical intervention alone may not solve the problems of preserving the heritage, fundamental social issues must also be considered.

The key to success of any planning strategy , depends largely on the approval and involvement of the public. Even the best organised operational structures and good intentions can accomplish little without the energy and interest of the people who can help to get things done.

Therefore, it is the **prerequisite to involve the public for the protection , development and preservation of their architectural heritage and for that public education is an essential phenomenon to raise the consciousness** and to motivate them to participate in the process of conservation of their historical structures.

There is a tremendous lack of understanding and appreciation of the need of conservation of our heritage. Though there is a tendency of protecting the community mosques by the local people for religion purpose but they are not conscious enough to retain the original architectural character of the structure. As a result in the name of extension or protection they are destroying the historical monuments and all these are happening because of lack of appropriate knowledge. Therefore, if retention of the original character or if conservation of transformed mosque is intended the public action of the community people is certainly needed. **The effectiveness of the public action depends primarily on how much they are educated and how far they are informed.** Through proper education people will know and understand the need of conservation of the heritage and their subsequent role in the conservation process.

The National Museum of Kenya (NMK) , a scientific , cultural and educational organisation under which preservation of Kenya's Cultural Heritage is organised, *has all along been trying to sensitise and mobilise the general public into participating in the conservation process through education programme* (7). The African Archives and Museums Programme (AAMP) aims at educating the public to aware their responsibilities to protect their heritage. The old and historic structures have multifarious values which justifies the need of their protection and conservation. The following aspects identify some values of continuation of tradition through conservation

1. They are the living model of a specific architectural trend of a definite time which will be a source of knowledge of the posterity.
2. They are the part of the national heritage.
3. Their physical and structural usefulness need to be utilised by the local people.
4. It is very difficult to reproduce the ornamentation and decoration of the original structure as there is no availability of those craftsmen who will be able to reproduce it with the old techniques of construction.

The old buildings and monuments are architectural forms that embody such intangible values and meanings . . . hence architecturally idea of conservation operates at two levels. At the physical level, it is the preservation of physical structure which are signals for us to identify the past. On the other level , it also should maintain the spirit of the place, the

activities that makes the place what it is Without the 'spirit' the physical restoration is merely superficial recreation of shells without appropriate a relevant contents (8)

The public education project at first should set some objectives and to execute those objectives successfully there is a need to fix several strategies or approaches. Next the concerned authorities who shall be responsible for this purpose will perform some activities to utilised the public potentialities and by that they will be able to overcome all the constraints that are related in this aspect. Therefore, it is recommended that the project goes through the following stages of action

- i. Aims, objectives and values
- ii. Approaches and strategies
- iii Performance, activities and education

i. Aims, Objectives and Values

Considering the present state of educational and socio cultural or economical condition of Bangladesh the following objectives can be taken by the project at the preliminary stage.

1. Raising public consciousness regarding the need of conserving heritage.
2. Awakening an active interest in the historical and economical values of the old structures.
3. Initiating public participation to control unplanned development, extension , renovation or demolition of architectural heritage of the soil.
4. Motivating the public to retain the local heritage and its surrounding environment.
5. Involving the public in the process of conservation and aware them to perform their responsibilities in this process.

ii. Approaches and Strategies

To execute the above objectives different strategies need to be taken to get a successful result. First of all find out the target groups i.e. the group of people of different community who needed to be educated. This target group shall eventually represent the rest of the people of that definite community. Then various information on conservation shall be communicated to the target group through media like television, vedio films, exhibition, publications etc.

iii. Performance, Activities and Education

In this phase of action the project shall evaluate at what extent they have been able to penetrate their project's aims and objectives. Besides evaluation the project shall also execute a social survey to uphold the need and the benefits of the programme, arrange seminars and workshops on architectural conservation, performing educational tours to different areas of Dhaka city to familiarise with say the mosque architecture of Pre-Mughal and Mughal period to the target group.

h. Introducing Legislative Support on Conservation

In Bangladesh a small percentage of people have respect towards rules and regulations regarding the physical development. The majority are not aware of it. As a result the built form that are growing very fast in different areas neglecting the codes and rules regarding height, bulk, set back, public health, safety, philosophy etc. in other way demolishing the environment. The new developments are destroying ruthlessly the visual continuity and architectural integrity of the historical monuments. So the primary aim should be to protect further damage at the same time upgrading and readjusting the present encroachment of the listed structures. Therefore, **to protect the original character of the monuments and to control random development at the adjacent areas strict laws and policies should be implemented.**

There are some legislation ~~exists~~ in the country for the protection of the historic mosques and historically important monuments. But they have very little impact in reality. The **legislation should be strictly enforced.** In addition to the present laws, appropriate legislation for conservation should be incorporated and implemented to

- a. prevent unauthorised repairs, reconstruction, addition, demolition, alteration, extension and maintenance of the historically important monuments.
- b. regulate all new construction for conformance to the laws.
- c. enforce and monitor the compatibility of the uses of the monument.
- d. ensure control on building height of the surrounding areas of the monuments.

In Bangladesh the East Bengal Building Construction Act (EBBC) of 1952, the Pourashava Act of 1977 and the Building Construction Regulation of 1984 are the only legislation implying to the building and land use control. In urban areas the Town Improvement Act

(TIA) of 1953 and EBBC are practising for physical development and land use . But all these legislation does not have any by laws or passing reference on conservation. The Antiquities Ordinance of 1976 have dealt with preservation in clause 5, 10 and 12. But that cannot be implemented for conservation of mosques, as the task of conservation has specific distinction from preservation.

Whatever different rules and regulations can be prepared, their implementation will be easier if there are adequate provisions of promotional and positive measures like financial assistance, public awareness and motivation. There should be statutory provisions to harmonise among the town planning and local or regional planning who are interested for the protection of the architectural heritage. The legal and administrative body require a specific system for the protection of these Muslim heritage.

i. Tourism

The architectural heritage of a country plays an important role in making a place of destination of foreign tourists (9) For the last few years tourism is important and to some extent a vital factor of economy of many third world countries. Architectural and archaeological sites, climate, natural flora and fauna etc. attract tourists from different parts of the world. Dhaka; the capital city of Bangladesh is characterised by a wonderful tropical monsoon climate and comprises of many architectural and archacological sites All these can be a very good source of promoting tourism in Bangladesh As we have seen that international tourism contributed in building national economy of many developing countries of the world. Therefore, we should also focus on and give priorities on the development of tourism in Bangladesh.

For centuries Dhaka is famous for its indigenous culture, glorious historical and architectural heritage. Their exploitation, conservation, protection and proper maintenance shall contribute to the **development and multiplication of tourism** in Bangladesh

Tourism can produce immense foreign income. That is why there is a great competition to give various facilities to the tourists in different countries of South and South East Asia. The survey report of British Tourism Authority (BTA) says that **by conservation of the history and tradition of different countries of Britain, they are earning tremendous economic**

benefits through tourism. Comparing with these countries, Bangladesh has not yet flourished in the aspect of tourism. However, *after the independence of Bangladesh the number of tourists started increasing when a separate tourism department “ The Parjaton Corporation” was established* (10) *Bangladesh earned 76 crores taka in 1994 out of tourism.* (11)

4.2. Case Studies

Two mosques namely Goaldi mosque of Pre Mughal period and Sat Gumbad mosque of Mughal period are taken as case studies. Both the mosques have already been conserved by the Department of Archaeology, under the Ministry of Culture. They are discussed below

4.2.1. Goaldi Mosque

Location

The mosque is located at Sonargaon P.S. in the village of Goaldi of Aminpur union. It is locally known as Goaldi Shahi mosque.

Historical Background

Once Sonargaon was a populated area and a place of attraction of general people of Bengal. Although no traces of the Muslim capital can be detected at present, it can be assumed through archaeological evidences that a rich and extensive Muslim settlement must have grown over the entire Mוגrapara and Goaldi region which contains Fath Khan's mosque, ruined buildings and tombs of Dargabari, Azam Shah's tomb, two mosques of Goaldi and other relics of historical importance. *Even in the later part of the nineteenth century the people of Mוגrapara used to believe that the capital city was located in this area* (12)

According to the inscription, *the mosque is dated 15th Shaban, A.H. 925 (12 August 1519), built during the reign of Allauddin Hussein Shah and the patron is named as Mollah Hijbar Akbar Khan* (13) Historians state the mosque bears the mark of Hussein Shahi style. It is also considered that Goaldi mosque has developed an evolutionary process of mosque architecture in Bengal. *The decline of Sonargaon started with the establishment of Mughal capital of Bengal in Dhaka in 1608* (14) as a result the population of the city dropped to a few and also for severe flooding people abandoned the city.

In 1823 Sir Alexander Cunningham, a British army General, interested in the antiquities of India. He came across the references to a mosque in this area in some old manuscripts. Later on, through investigations at the site at his own initiative revealed the existence of the mosque. The local residents were struck with the sudden revelation of the mosque whose existence was beyond their knowledge. They began to call it the "Gayebi Masjid" and

refrained themselves from using it. As a result, the mosque remained without any use and maintenance and the process of decay continued. When historian A. H. Dani visited the site in 1961, it (the mosque) had already taken the shape of a ruin. In 1969 historian A.K.M. Zakariah found the whole building totally destroyed except its western wall (15) (fig. 4.1). The south-eastern wall and the dome were partially missing and heaps of debris occupied the floor of the mosque. The rest of the structure along with the mihrab, cornice, interior surface decoration survived in a decaying condition. Moreover the surviving portion was covered by the heavy growth of vegetation and affected by sulphate action. Thus the mosque gradually disappeared like the other ancient monuments of Bengal and were being engulfed by the darkness of vegetation.



fig 4.1 Galdi mosque before conservation

The mosque was brought under the protection of the Department of Archaeology and Museum of the country in 1963. After an initial attempt of conservation in 1964-65, the Department of Archaeology took a new approach for extensive restoration , which was implemented in 1975-76 (fig. 4.2)



fig. 4.2 Galdi mosque, after conservation

For this particular mosque , preservation or restoration was very much required for maintaining the fabric of the structures in their original state as well as to arrest further deterioration. Most of the part of the mosque were required to be restored or reconstructed. In case of reconstruction, it was essential to retain the existing fabric of the mosque to an earlier known state by removing accretion or by reassembling existing components without the introduction of new material. Whereas, when some part of the structure was protected by the concept of reconstruction then that specific portion of the structure tried to retain as nearly as possible to a known earlier state with the introduction of new material into the fabric.

At the first attempt of conservation there were gross defects and hence the restored portion was dismantled. Later on all care was taken to restore the mosque to its original form and features. In this phase of implementation the bricks of the unaffected areas were preserved, but the damaged and decayed bricks were taken out and replaced by new ones of same size, colour and thickness. The debris accumulated within the prayer chamber were removed and the damaged floor was traced and relaid after careful study. The terracotta ornamentation of the walls as well as the entire form and features of the mosque were restored. The doorways were provided with iron grills for the protection against undesirable encroachment (fig: 4.3).



fig -4.3. Doorways are protected with iron grills, eastern facade

Maintenance

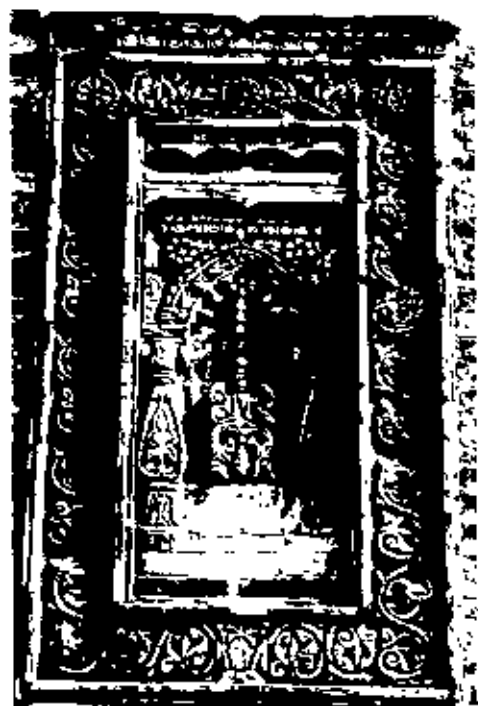
The maintenance of Goadi mosque is entirely done by the Department of Archaeology, Under the Ministry of Culture. Though there are provisions of maintenance in every year but that is not always possible because of lack of fund. The fund which is now available is allocated for 229 monuments scattered all over the country.

Morphological Character

The mosque reflects a strong sense of symmetry in the arrangement of different architectural elements. It bears all the basic features of Pre Mughal mosque architecture.

After the restoration by the Department of Archaeology and Museum many of the original features had been retained though there were major repairs. For example curved cornice, engaged corner towers, terracotta ornamentation, use of building materials etc (fig 4.4)

The engaged corner towers giving a sense of completeness to the composition of different elevations



Terracotta ornamentation on the wall

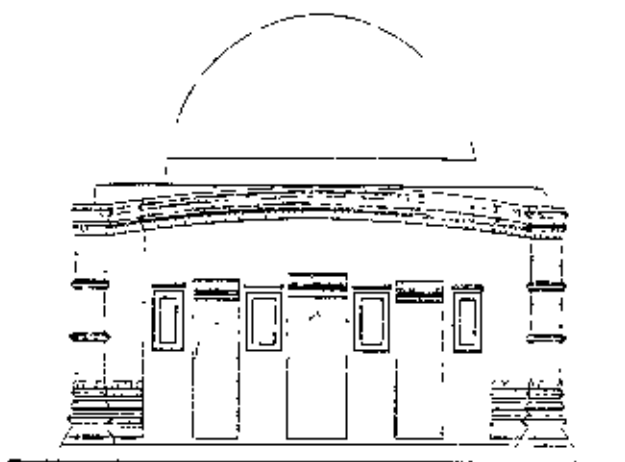


fig 4.4 Curved cornice, engaged corner tower and panel decoration, south elevation

Basic Form

The mosque is a single domed square shaped structure (fig 4.5)

Internal measurement .

16.5 x 16.5 (5 m x 5 m) approx.

External measurement

25.9 x 25.9 (7.85 m x 7.85) approx.

Wall thickness :

4.8 (1.43 m) approx.

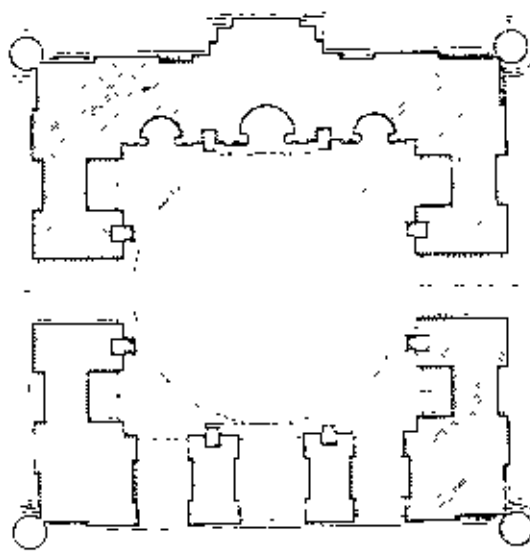


fig 4.5. Plan, Goadi mosque

Architectural Features

- Wall** - the exterior and interior of the wall is broken up by recesses.
- mihrab projection on the west wall (fig 4.6).
- Entrance** - three doorways from the eastern side, central doorway. 3-7 (1.10 m, approx) wide ,
side doorways : 2-9 (84 cm, approx.) wide.
- single entry from the northern side. 3-7 (1.10m, approx.) wide
- single entry from the southern side, 3-7 (1 10m, approx.) wide
-two blind doorways on the northern and southern side.
- Arches** -pointed, trefoil cusped.
Mihrab-three mihrabs on the western wall similar to the arched entries in the east wall. The central one is ornamented with stone to accentuate its functional operation and is bigger than the other two (fig: 4.7).
- Corner tower** -engaged corner towers, circular in shape with horizontal band (fig: 4.8).
- Dome** - hemispherical, placed on squinches
- Cornice** - gently curved
- Niches** -there are internal and external niches. The interior one is more deeper than the exterior side.

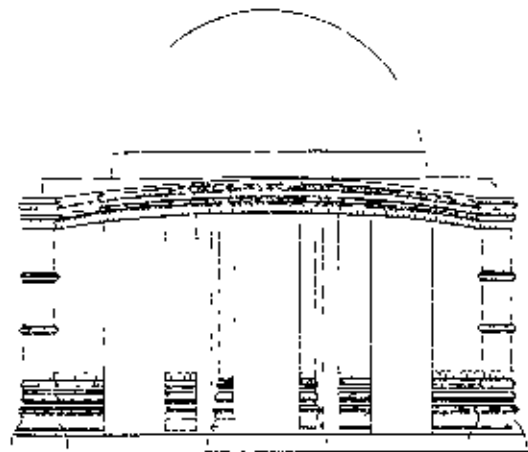


fig. 4.6 West elevation



Western wall, broken up by recesses

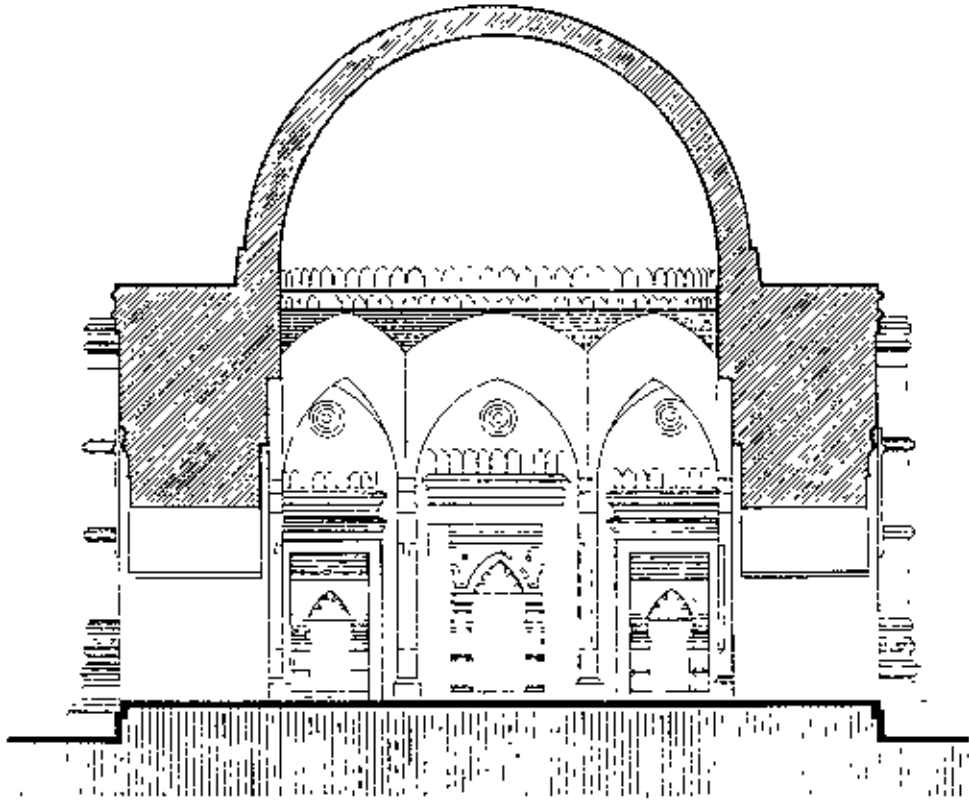


fig 4 7. Section through north-south doorways, showing mihrabs on the western wall



fig 4 8 Circular corner tower with horizontal bands

Structural System

The dome is placed on squinches. Four rectangular vaults rise from door height at the corners inside the mosque to give the square plan of an octagonal configuration. Two stone pilasters at the two ends of each of these arches are working as extra support to the brick wall to take the load of the roof and dome. *The octagonal drum has been transformed into a circular ring by the use of small corbelling. The dome is made of lime concrete, and therefore is relatively quite thick at the top.* (fig. 4.9).

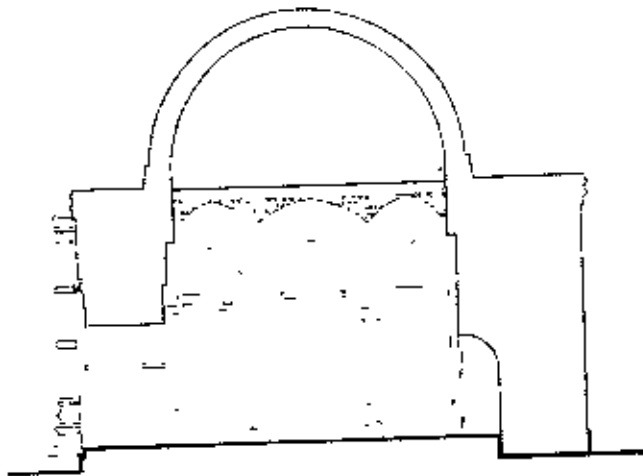


fig 4.9 Section through eastern doorway, showing the structural system and thick dome construction



Decorative squinche and pendentive

Building materials

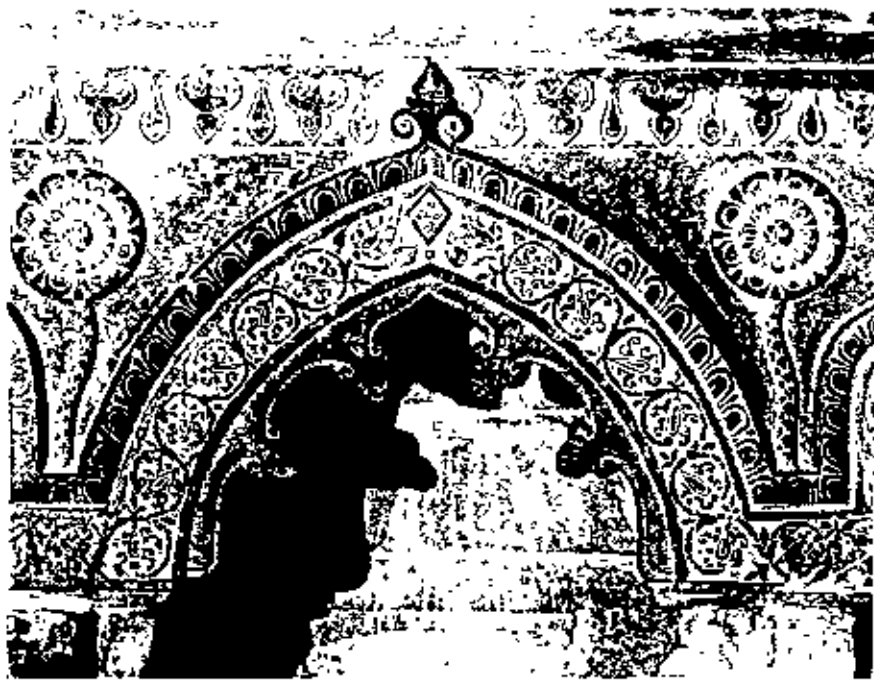
- Brick -the mosque is made of brick, the traditional building material of the region
- Stone -stone is used for the ornamental purposes of the central mihrab (fig 4.10).
-two pilasters supporting the arch carved out of a single stone piece.
- Terracotta -for ornamental purpose of the external surface pannels
- Lime concrete -the dome is made of lime concrete.

Decoration

- the exterior wall is decorated with rectangular terracotta panels articulated with miniature niches and ornamental hanging motifs (fig. 4.11)
- around the cornice there are decorative bands of smaller niches with floral motifs
- Calligraphy and ornamentation of local patterns are combined in the central mihrab *The sensitivity of the local craftsmen are evident in the ornamentation of the brick pilasters and the main mihrab. The ornamentation and elevation treatment of the mosque scales down the massiveness of the brick work. (17)*



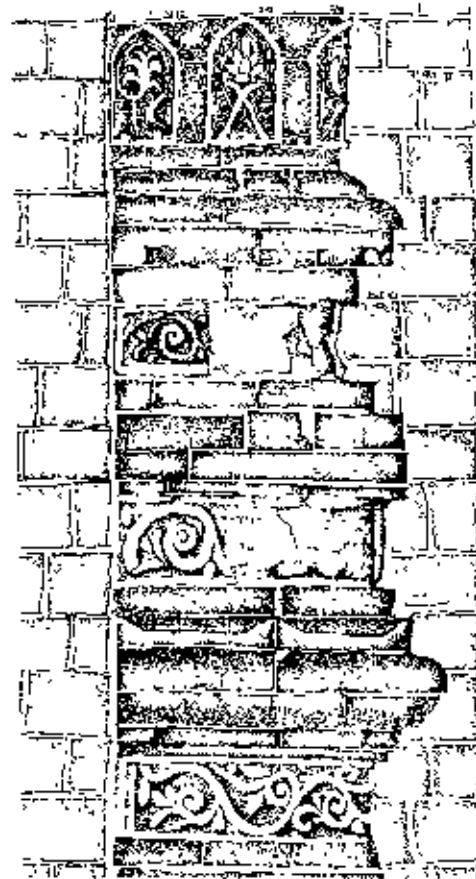
fig 4 10 Central mihrab with stone ornamentation



Use of stone for ornamental purposes central mihrab



fig 4 11 Ornamental hanging motif. terracotta panel



Terracotta ornamentation of the corner tower

Inferences

Available photographic evidences shows that the entire building collapsed except the western wall. The structure was rebuilt because of its historical and architectural significance. Records show that the initiatives for restoration and rebuilding were undertaken twice within a span of ten years. The present state is the product of the last initiative in 1975-76. Since the people have abandoned the mosque for some local taboo, it has been conserved and maintained by the Archaeological Department without any interference or intervention. Being aware of possibility of encroachment on surrounding land a boundary wall has been added enclosing the mosque premise.

Unfortunately no published or official record is available about the process of restoration of the mosque. It is not known whether substantial intellectual and technical studies were done before the restoration work. If it is built on assumptions based on other surviving mosques of the same period then it represent the similar type, not the original one. Therefore, **the conservation of the mosque still demands an intellectual investigation to ascertain the degree of appropriateness of the last restoration.**

Opinions differ among the historians about the original characteristics of the mosque. Contradictory description of the mosque have been found in different historical records. Restoration and conservation is therefore, never an one time effort. It opens up new questions and discourse which eventually enrich the horizon of our knowledge and experience.

The corner towers of Goadi mosque evokes a number of questions. **The style indicates that the corner tower should be octagonal in shape (fig: 4.12).** But in the conserved mosque the corner towers are given circular shape. An answer to this enquiry could not be obtained. This is an example which directs that **precessions especially in architectural style should be maintained and adhered to as strictly as possible.** Moreover, architecturally the corner towers appear like structural elements holding the building together. In fact they are detached towers connected to the main form through a thin line joint. This is indeed very strange and difficult to justify structurally, architecturally and historically considering the period and process of conservation. There are many examples of circular, octagonal and hexagonal towers but such a disposition is hard to find (fig: 4.13). Though Prof Perween Hasan

uttered that the corner towers were not really necessary for structural purposes. She also mentions that, in Sultanate period they were used because of the natural inclination to reproduce traditional built-forms to retain local flavour in the mosque architecture.

Besides all these the restoration work done by the Department of Archaeology, is praiseworthy in many ways. It was indeed a painstaking job done with lot of care and sincerity. This very effort is a point of departure for further exploration in architectural and historical research and conservation.

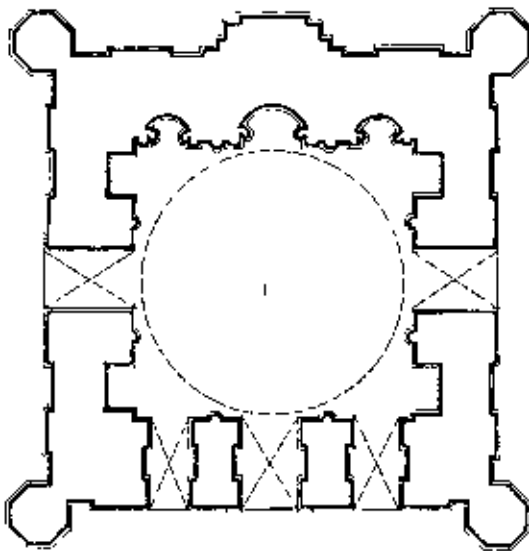
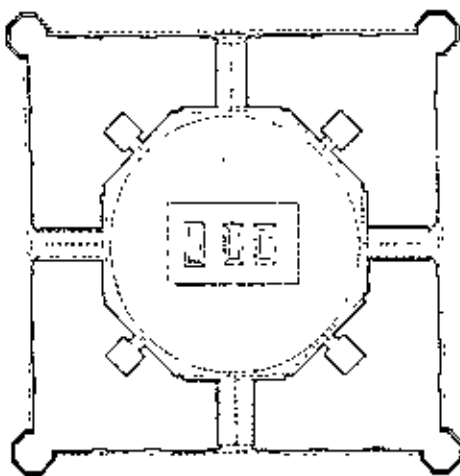
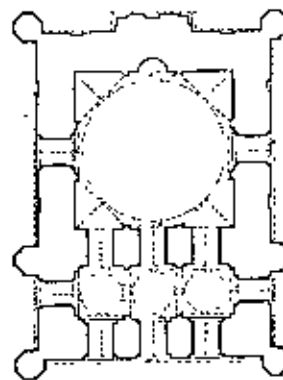


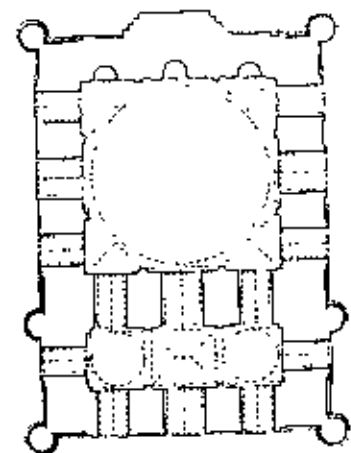
fig: 4.12. Proposed plan of Galdi mosque, octagonal corner tower as structural element



Ekhlaki Mausoleum, octagonal tower



Rajbibi mosque, octagonal tower



Larten mosque, circular tower

fig. 4.13. All the corner towers are engaged with the built form

(source: Abu Sayed Ahmed)

4.2.2. Sat Gumbad Mosque

Location

Sat Gumbad Mosque is located at Muhammadpur. *This place was known as Jafarabad. During Mughal rein Jafarabad was an important business centre* (18) A stream of river Buriganga was once flowing through the eastern side of the mosque . Now the river has shifted about a mile to the southern side.

Historical Background

The mosque is dated to be on the second half of the seventeenth century. In the absence of epigraphic record, *the mosque is believed to have been built by the Governor Shaista Khan in circa 1680 A.D.* (19) Although the popular name Sat Gumbad suggests it to have seven domes, but *actually the mosque is roofed over by three domes, the four corner towers being hollow and built in two stages with canopies of the shape of dome.* (20) The mosque was conserved by the Department of Archaeology and museum. The conservation was done according to the original plan of the mosque.

The original character of the mosque can be traced from the book of Charles Doily, published in 1928-30. He has also drawn a sketch of the mosque, (fig: 4.14) which proved

that the domes and the arches were in ruined condition. Even then he praised a lot for its architectural beauty, as well as its suitable location i.e. at the edge of river Buriganga. He also compared it with the structure of Venice built at the edge of river Adriatic.

Later on Rahman Ali Tais wrote a book (1910) from where it is possible to find out the ruined condition of the mosque and its different stages of restoration. According to him *Nawab Sir Ahsan Ullah Bahdur repaired the mosque. As a result people gradually started to pray here five times in a day* (2). From this statement it is evident that **the mosque was in such a ruined condition that people could not even pray there.**

Maintenance

The maintenance of Sat Gumbad mosque is done by the Department of Archaeology, Under the Ministry of Culture. It received good care from its custodians and is in a good state of preservation.

Morphological Character

The mosque is recognised as one of the outstanding examples of the mosque architecture and the most innovative of all the monuments of Mughal periods built in Dhaka city. The mosque was built on a 15-0 (4.6 m. approx.) high buttressed platform at the edge of river Buriganga. It is constructed at the western side of the platform. The mosque is a three domed rectangular structure. All the elements of the mosque is harmoniously balanced and gives a sense of graceful proportion of the structure (fig 4.15).

The northern and southern side of the main prayer chamber is surmounted by two enormous double storied hollow corner pavilion, having dome at the top. The hollow octagonal tower replaced the usual slender towers at the four corners of a mosque and justified the nomenclature of Sat Gumbad or seven domed mosque. There are arched shaped door and panel work at both the levels of the pavilion. At the lower stage, among the eight sides, four of them comprises of door openings and four of them are ornamented with panel work. Similarly at the upper level four sides are having arch shaped door openings and rest four are ornamented with arched panels with a small opening for window. Here all the opening and doors have multicusp ped ornamentation. The tower's level are clearly identified with the help of projected eave with merlon ornamentation.

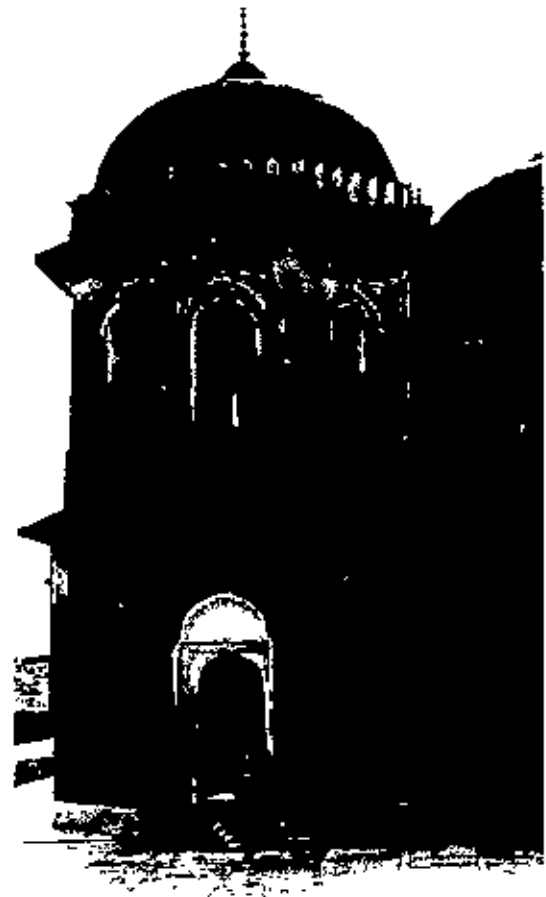


fig 4.16 Double storied corner tower

The corner tower is an exceptional type of architectural element. As a result it has been identified as a especial and different type of mosque architecture among the Mughal mosques in Dhaka city (fig 4.16).

A small gate way was constructed in the middle of the eastern border of the open courtyard to accommodate a place for "adhan" or "call for prayer" from its top. It is a later addition and has got resemblance with the central part of the mosque. There are also merlons with multi cusp ped ornamentation. There are some steps at both sides of the gate way (fig 4.17)

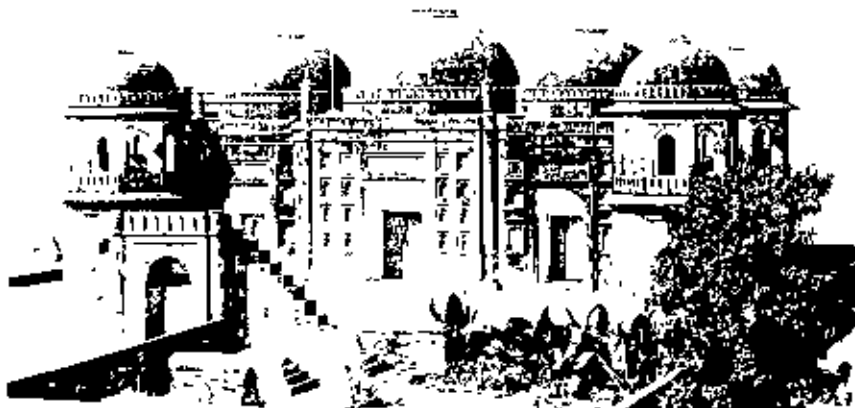


fig: 4.17 Gateway in front of the mosque with merlon ornamentation

Basic Form

The mosque is a three domed rectangular structure (fig. 4.18)

Internal measurements : 47 - 3 x 16 - 3 (14.4 m x 5 m) approx

External measurements : 57 - 4 x 29 - 3 (17.5 m x 8.9 m) approx

Wall thickness 4 - 3 to 5 - 3 (1.3 m to 1.6 m) approx

Architectural Features

Eastern wall - has projected fronton at the centre with two engaged turret at the projected ends. The top of the turret is pinnacle shaped (fig 4.19).

-three arched entrances (four centred), flanked by shallow niches and multi cusped ornamentation. The central main entrance is bigger than the side ones and this entrance is emphasised by multi foil archways and slender engaged columns with bulbous base. All the three entrances were built under a half circular domes.

central doorway 6-0 (1.8 m . approx) wide

side doorways 4 - 6 (1.37 m, approx) wide

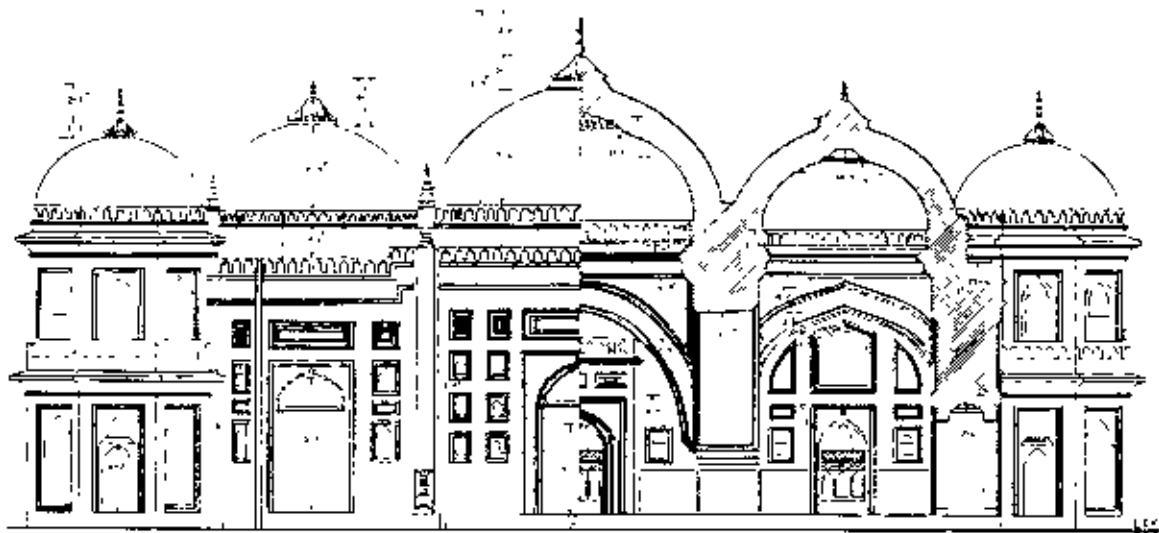


fig 4 19 Sectional elevation showing the eastern facade and the western interior of the mosque

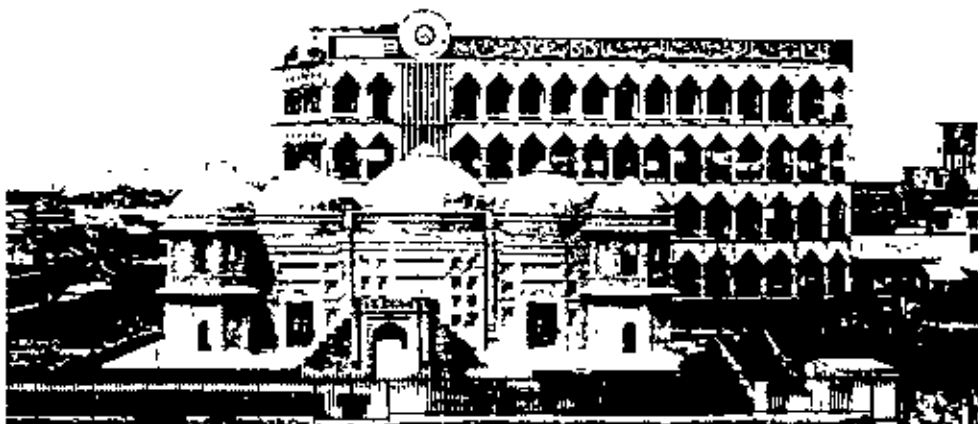


fig 4 20 Over imposing multi storied Madrasa in the mosque's background

Western wall -has projected fronton at the outer facade of the western wall with two engaged turret. The top of which is pinnacle shaped above the parapet level.
-two kinds of panel work. Upper level rectangular panel and lower level arched shaped panel.

Northern and

Southern walls- have single entry, under a half centred dome 3-5 (1.04 m, approx.) wide
-projected fronton having engaged turret, which are pinnacle shaped at the top of the parapet level.
-decorated with arched shaped panel work.

Floor -mosaic work

Roof -three domes, each of them with octagonal drum

Parapet -horizontal with merlon ornamentation.

Colonnades -prominent

Arches -multi foil

Mihrab -three mihrab in the qibla wall with multi cusped ornamentation in the arched opening

Corner tower -12-3 x 12-3 (3.7 m x 3.7 m) approx.
octagonal tower, double storied with arched panels and window surmounted by cornice and crowned by domes with lotus finials.

Cornice -straight

Niches -presence of niches on the internal and external wall of the structure.

Structural System

-the transition of the square to a circle of the dome is done through pendentives. Domes are resting on the octagonal drums decorated with merlons

-the interior of the main chamber hall is divided into three bays with two lateral arches.

-half circular domes are used for the transition of larger dome to smaller sized side domes.

Decoration

- the surface of the central mihrab is embellished with moulded plaster relief.
- series of merlons on the octagonal drum of the domes. This pattern of ornamentation is being followed in the middle strip of the octagonal pavilions
- rectangular and arched shaped panels with niches at the eastern wall
- arched shaped ornamentation in different sides of the built form.
- multi cusped ornamentation and detail works have been done inside the panels and the niches.

Inferences

The Mughal mosques have distinctive characteristics and the Sat Gumbad mosque is an unique example of Mughal mosque in Bengal with seven domes. The Mughal vision of the mosque was to serve dual purposes. First was to show their respect for the religion and the second was to establish a symbolic expression of their rule in a place or region. To achieve the second goal, Mughal mosques developed with easily identifiable defined character. The characteristics were strong enough so that the modifications required by site and additional requirements could not affect the general ambience. **Specific site condition was given paramount importance** on those days besides the general pattern of mosque layout, architectural order and decorative details

Considering the scale of architectural development in those days, the Mughal mosques were indeed monumental in shape and mass. Unlike the North-Indian typologies, the Mughal mosques in Bengal were usually a single structure, placed on a site without the proximity of other structures. Therefore, **the surrounding nature played a very important role in the overall visual image of the mosque.**

According to the sketch drawn by Charles Daouli during 1808, the shape of the domes above the main prayer chamber were different than the present half circular shape. They were umbrella shaped structures. From the picture it may be concluded that, due to restoration of the structure for several times, the shape of the dome has been transformed. On the other hand since there is no historical record it is very difficult to determine when and how the

shape of the dome has changed, or whether the shape of the dome was an imagination of Daouli that has been depicted in the sketch, not the reality

Contrary to the normal practice of conservation followed all over the world, the floor of the main prayer hall and of the open courtyard has been completely renovated with mosaic carpeting. This feature is no longer Mughal in character. (22) The corner tower has been protected correctly.

Another thing grossly overlooked in the conservation work was the surrounding development. Recently a multi storied Madrasa is constructed at the north western side of the mosque. This over imposing Madrasa in the background with respect to scale and character reduced and undermine the physical, aesthetic quality and importance of the mosque in the overall landscape. According to the conservation rule of other countries, a structure like the Madrasa can never be allowed to be constructed adjacent to the protected structure. From this a lesson can be learnt that is, the conservation effort to be successful should not be confined within the physical boundary of the monument but may extend beyond up to the visual field

There were very little space both in the front and back side of the mosque. The Directorate of Archaeology acquired some land around the structure and developed it into a garden . The required services like water supply for ablution and for gardening are arranged properly. Sewerage services are also provided adequately.

4.3. Conclusion

Conservation of architectural heritage is a difficult job and that has been compounded more by the absence of awareness and education of general public Therefore, it is essential to overcome the problem to achieve the ultimate goal of protecting the heritage. In many cases it is seen that conservation accentuates tourism. Possibilities in this regard may be searched. The case studies show that, though there are few short comings in the conservation of the mosques, but the attempts are praiseworthy and many lessons could be learnt from them.

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Chapter 5. Field Survey of Four Mosques of Dhaka City—Pre-Mughal and Mughal Periods

The chapter 5 contains the primary data of the research. As mentioned earlier four mosques, one of Pre-Mughal and three of Mughal periods are analysed here. All the four mosques are represented through measured drawings. The drawings are prepared (except Khan Muhammad Mridah's mosque) exclusively for the research. Here minute precision had been tried out which is very essential for architectural conservation.

5.1. Mosque of Binat Bibi (1457 A.D.)

Location

The mosque is located at Narinda of old Dhaka (Fig: 5.1) It is situated by the side of Heyat Beopari's bridge, one of the oldest bridge of the locality, over the canal called Dulari Khal .



Fig: 5.1 Mosque of Binat Bibi and the adjacent area

Historical Background

At present there are only three mosques existing in Dhaka city of Pre Mughal period. Binat Bibi's mosque is the oldest one and *the earliest surviving Muslim religious building in Dhaka* (1). The importance of Binat Bibi's mosque is unlimited. A glimpse of Pre-Mughal period, the trend of art and architecture of the past, can be obtained from the original built form and the details and decoration of Binat Bibi's mosque. According to the stone inscription slab, *the mosque was built by Musammat Bakht Binat, daughter of Marhamat in 1457 AD. (2) during the reign of Sultan Nasiruddin Mahmood Shah (1442-1459)* (3)

Site and Surrounding areas

Narindah is one of the oldest area of Dhaka. Though the area is very congested there is a children's park at the southern side of the mosque. A road is passing in front of the mosque i.e. the eastern side is also open. But the northern and the western side is encroached by the structures. A very narrow lane is passing through the northern wall. So it is very difficult to get a view of the northern facade. The adjacent built forms are mainly three to four storied high. Except there are series of single storied shops across the eastern road. Therefore the south-eastern facade is visible at a distance. There is no open space within the site except the water tank for ablution at the western part of the mosque.

Original Built Form

Originally it was a *square chamber crowned by a simple hemispherical dome* (4) *The prominent features of the Pre-Mughal days are represented in its curved cornice and battlements are still visible in the qibla side, absence of any drum for holding the dome* (5). It was an un-plastered structure with octagonal corner towers. *The mihrab had a projection at the back of the west wall* (6)

measurement $12^1 - 0'' \times 12^1 - 0''$ (3.65 m x 3.65 m approx.)

Wall thickness $6^1 - 0''$ (1.82 m, approx.) (7)

Entrance There were *three doorways from the east and single doorway from the north and south side* (8) through simple arched openings.

Maintenance

The maintenance of Binat Bibi mosque is done by 12 member Masjid Committee. They are the decision maker for any change or construction. Therefore, whenever change or enlargement is required the Masjid Committee do that with out any harmony of the original built form

Transformations

The mosque has been thoroughly altered and renovated several times. At the first stage the square shape of mosque was transformed into a rectangular shape by breaking down the southern wall and extending towards south. A new dome over the extended portion was also constructed in 1932. As a result the single domed square mosque transformed into a double domed rectangular one (fig 5.2). *The walls were plastered and earlier parapet was straightened and a new veranda was constructed on the east and south side* (fig. 5.3)



Fig 5.2 Interior view of the transformed Mosque



Fig 5.3 Eastern veranda, recent addition

*The second stage of renovation or extension was done after 1962.*¹⁰⁹ This time the mosque was extended toward the western side by breaking down the western wall including the mihrab. A new mihrab on the extended portion was constructed (fig. 5.4). A star shaped water body was incorporated in the backyard of the western portion (fig. 5.5) The extended portion of the eastern wall did not maintain the original thickness. Also all the entry doors were constructed with horizontal flat lintel (fig. 5.6).

*In the third stage of transformation during 1985-86, two floors had been added over the mosque*¹¹⁰ The original and the added dome was retained and the extension was made with the help of beams (fig. 5.7).

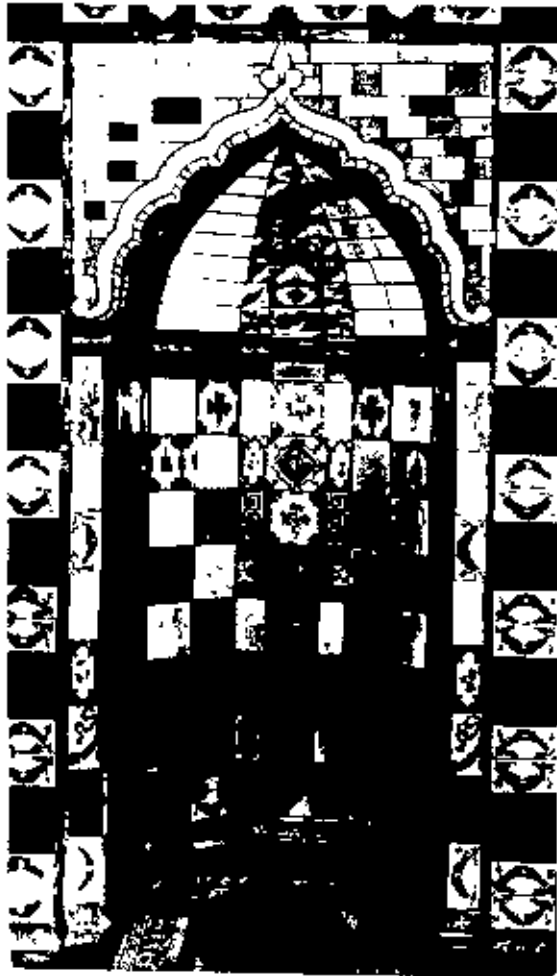


Fig. 5.4 Mihrab on the extended portion



Fig. 5.7 Extension of the built form during 1985-86



Fig 5 5 Star shaped water body



Fig 5 6 Doorways of the eastern veranda with horizontal flat lintel



Fig 5 8 Original dome was protected with the help of column and beam

The original mosque was very simple type, but when the mosque was renovated and extended, most of the Pre-Mughal features were altered. The outer facade of the eastern veranda, the northern wall, the dome, the side walls of the water body were decorated with traditional *chini tukri* (broken glass). Present *chini tukri* decoration was not in the original built form.

At present the mosque has nothing but it's age to remind of the architectural style **It is very difficult to find the square shaped single . domed mosque in this three storey structure.** *Only the inscription, the eastern wall , northern wall, the original dome, the curved cornice, the upper portion of the southern and the western wall reflect the original character which are still surviving today* (12)

When these changes are analysed it is seen that, at the time when those changes were taking place there were no control over the community nor any imposition against breaking the old mosque to make more space for prayer . Yet concerned people themselves have realised the value and with what ever knowledge and effort they had, they tried to retain those part of the original structure as much as possible. It is because of the good sense prevailing at that time, total demolition of the original structure was prevented. That is why, today we can still see the original dome that they have retained and maintained in the first floor of the mosque (fig:5.8) which could have been easily cleared off for making more prayer space instead they have gone up another floor to add spaces. The dome is carefully hidden and protected with its finials under a new roof. So there is no doubt that this particular community in question placed great value in conserving the precious dome of Binat Bibi's mosque. All they needed is technical and financial help with which they could have preserved it in a much better way. Motivation was there but there was absence of technical or intellectual assistance to do anything better than what has been done. Therefore, the surviving portions are the valuable asset which need to be protected on priority basis and thus conserve the mosque before it is too late.

The mosque is in a shamble due to repeated extension, renovation and plastering. But even then Dani believes that, *the north and west facades and the first dome give an idea of its antique character* (13)

Propositions

- a. Convince the mosque committee to stop any further addition to the existing structure .
- b. Preparation of detail measured drawings of
 - i. ground floor (fig: 5.9)
 - ii. first floor (fig: 5.10)
 - iii. section along the original dome and the newly constructed one (fig: 5.11)
- c. The plan of the existing structure shows difference in thickness of walls. The north and east wall is thicker than the rest. This is the original part. From this original portion of the structure and from the previous information of the original built form of the structure, the original plan is drawn (fig: 5.12)
- d. Because of breakage of the original wall and multiple transformations of the original structure, now the original shape cannot be deciphered in the floor plan. Therefore, it is possible to incorporate the original plan by engraving the plan (mentioned in no. c) with mosaic work within the existing floor plan. The colour of the mosaic work should be very different from the existing floor. (fig: 5.13)
- e. The eastern wall , northern wall, the original dome, the curved cornice, the upper portion of the southern and the western wall still reflect the original character. Therefore, here attempts maybe taken to
 - i. Reconstruct the eastern wall of the mosque according to the original plan and also the details and decorations of the period that the mosque had, but now lost under heavy plastering. (fig: 5.14)
 - ii. improve the ornamentation pattern and the arched opening of the outer surface of the eastern wall.
 - iii. Place the inscription in a position where it is easily visible.
 - iv. Portion of the northern wall still surviving may be decorated according to the traditional northern wall pattern of Pre-Mughal mosque. For example the northern wall of Galdi Mosque (fig: 5.15)

All these actions are time consuming and a long process. Motivating and involving the community people for its ultimate success is also a lengthy and a slow task.

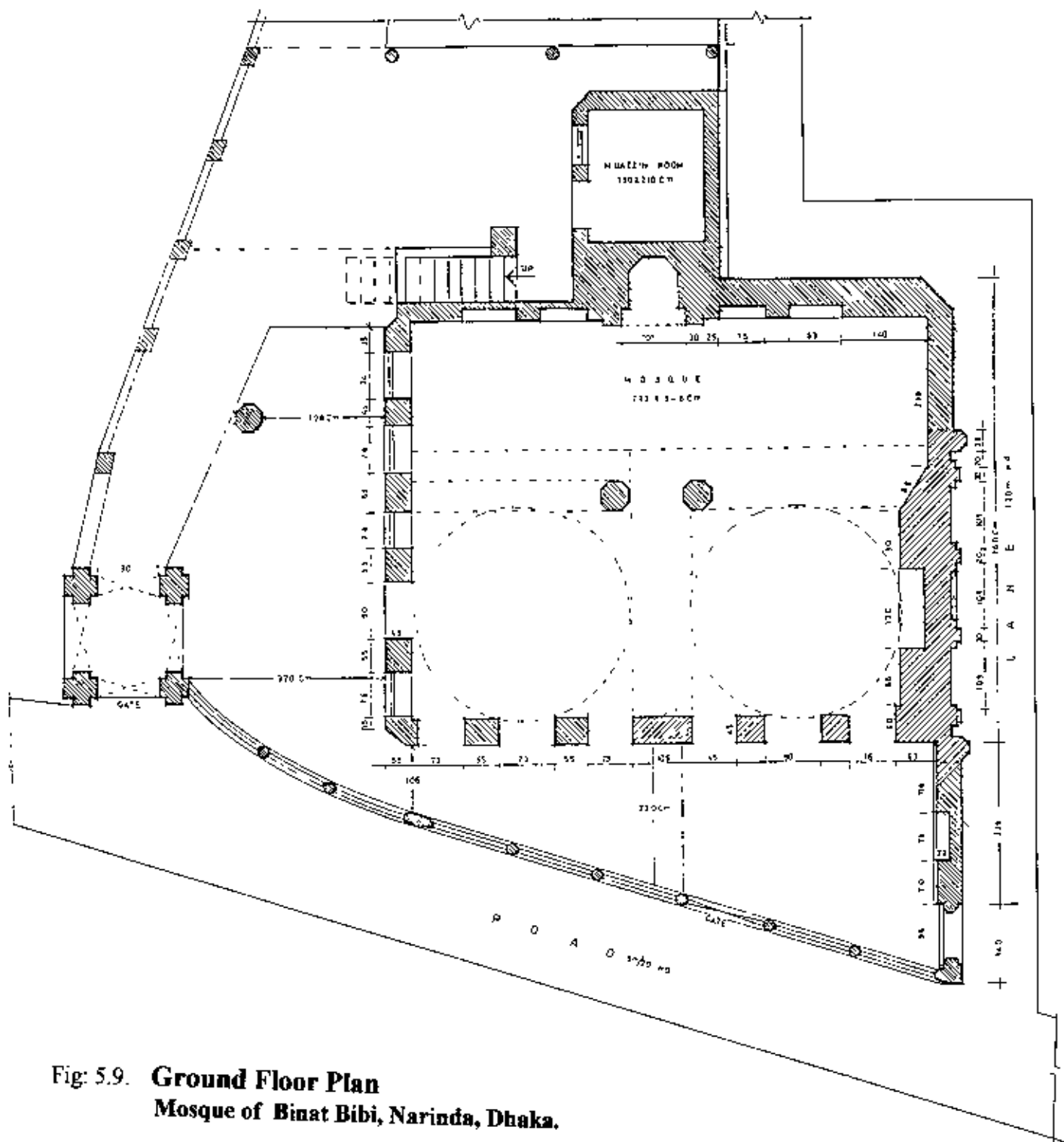


Fig: 5.9. **Ground Floor Plan**
Mosque of Binat Bibi, Narinda, Dhaka.

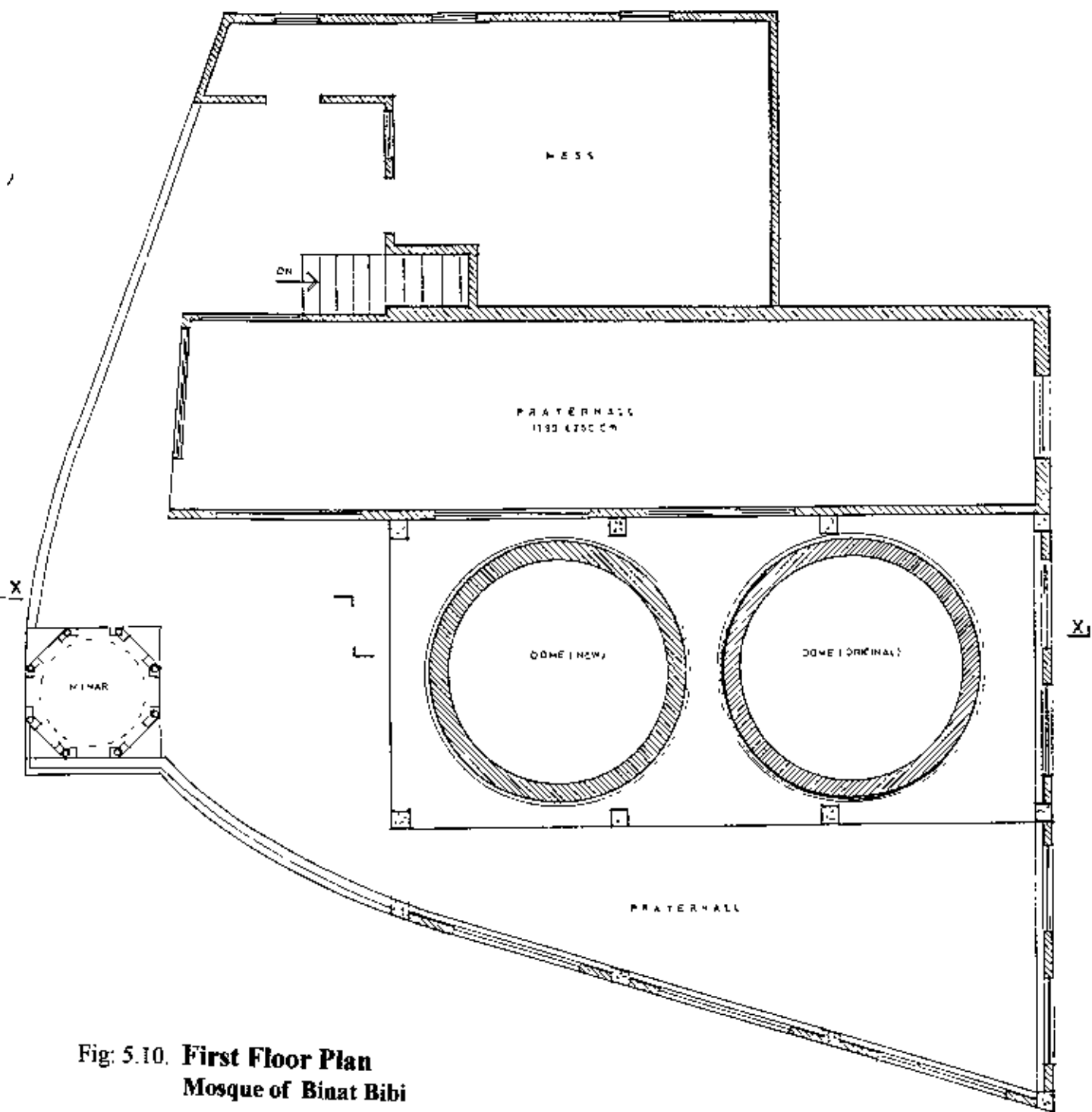
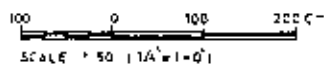


Fig. 5.10. First Floor Plan
Mosque of Binaat Bibi



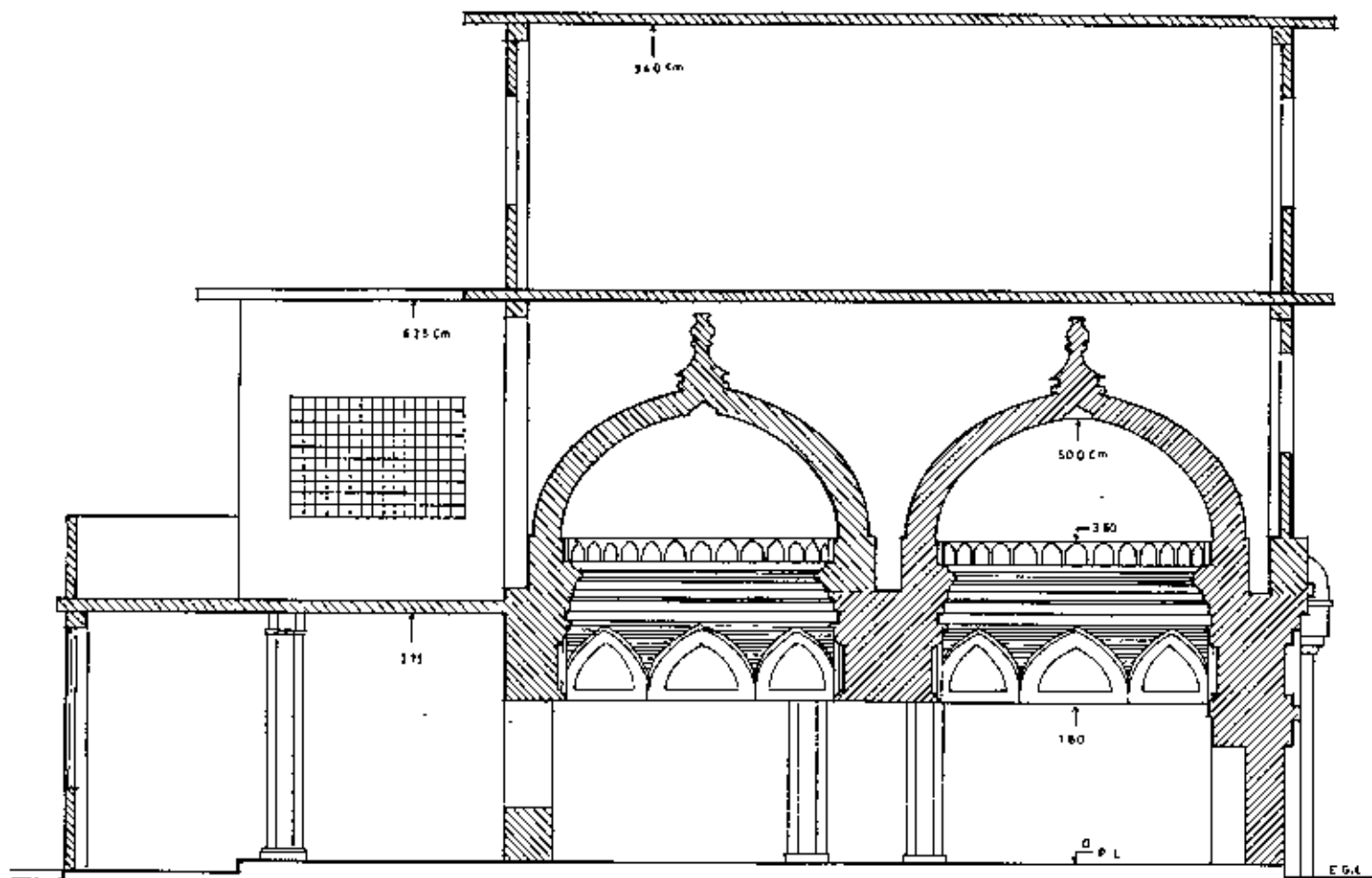


Fig. 5.11. Section X-X

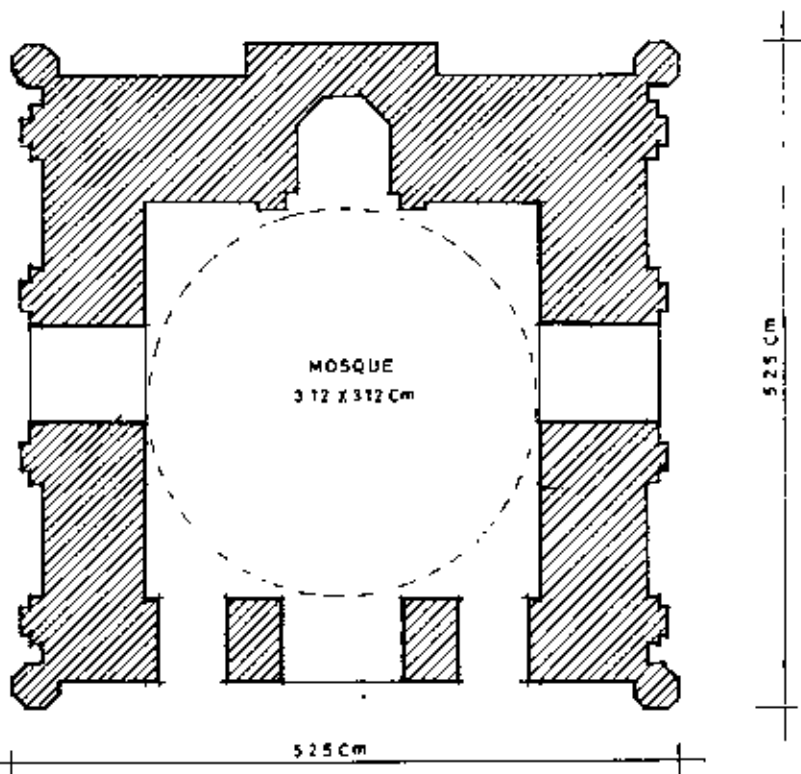
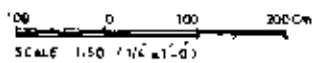


Fig. 5.12. Original Plan
Binat Bibi Mosque

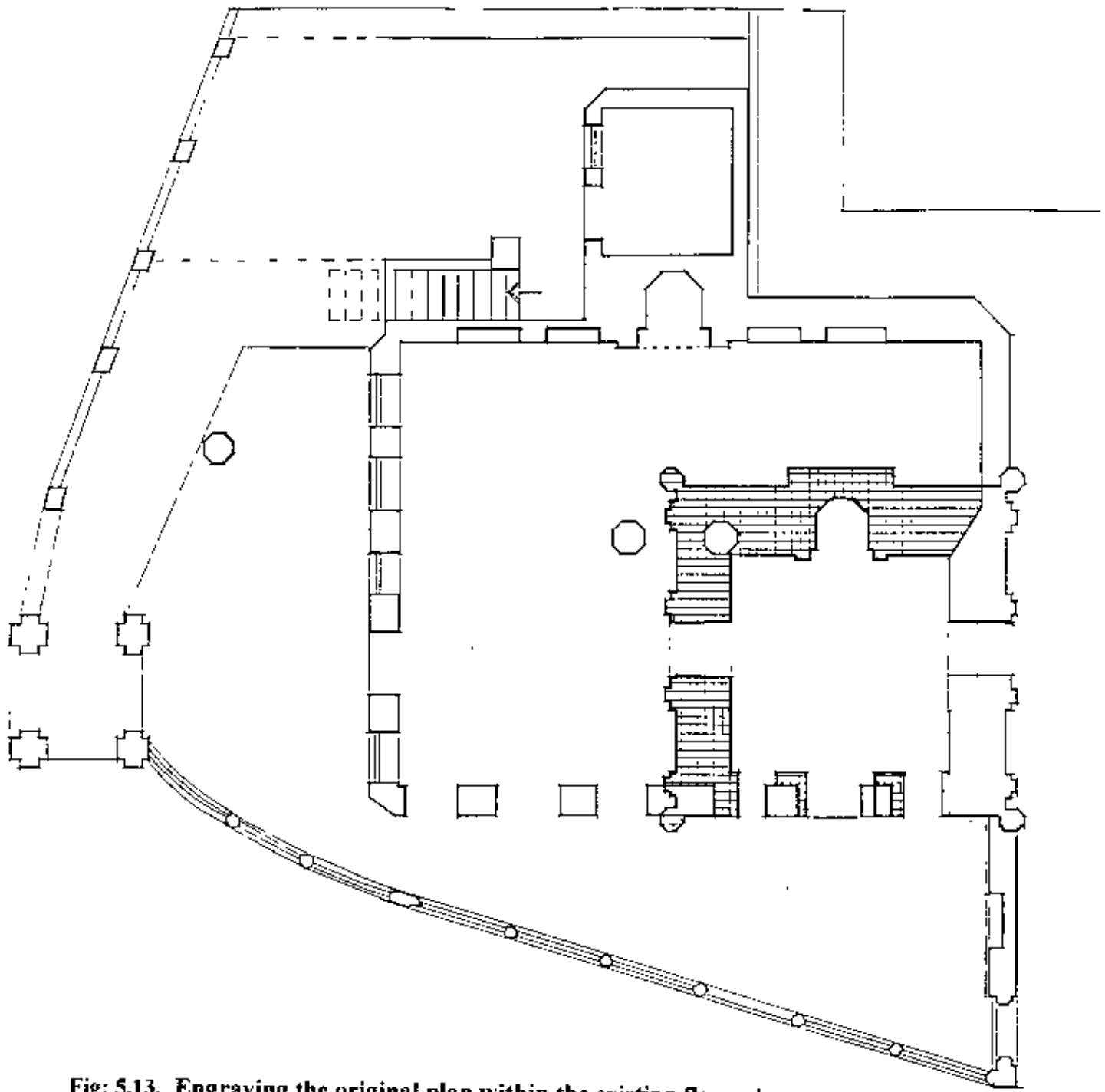


Fig: 5.13. Engraving the original plan within the existing floor plan.



Stone ornamentation,
Choto Sona mosque

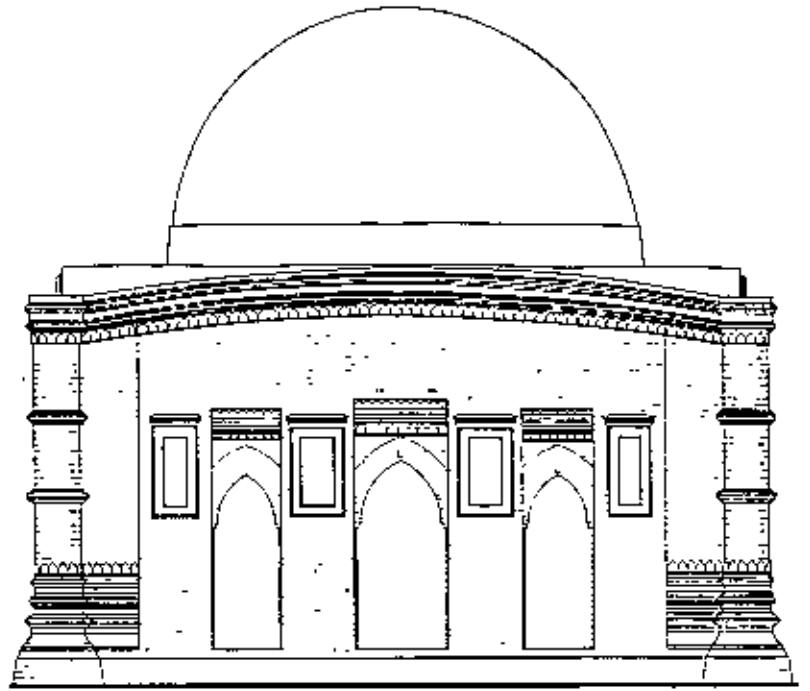
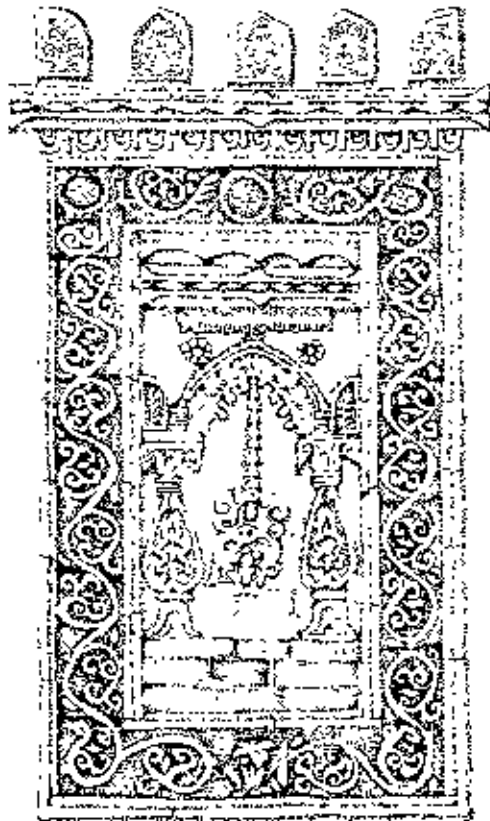
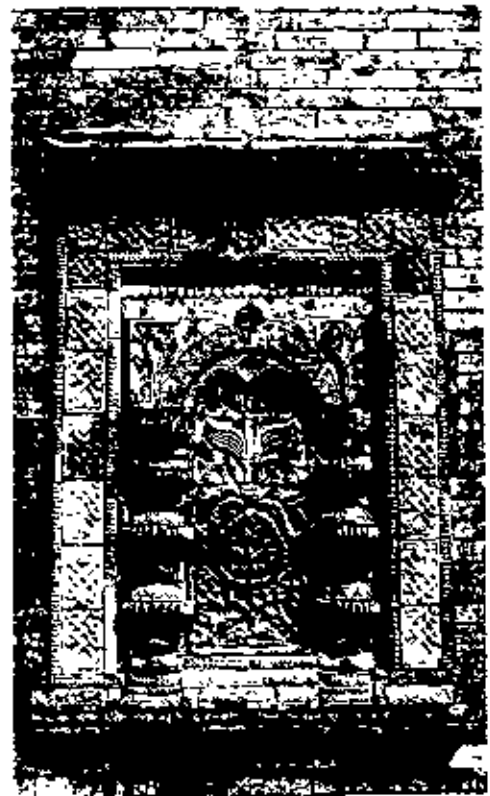


Fig 5 15 Northern wall of Binat bibi's mosque may be decorated with traditional ornamentation of Pre-Mughal mosque (Goaldi mosque)



Terracotta ornamentation, Goaldi mosque



Terracotta panel, Kharia Dighi mosque

Fig 5 14. Ornamentation of Pre-Mughal mosque architecture may be incorporated on the wall surface

5.2. Islam Khan Ki Mosque (1610-13)

Location

The mosque is located at 38, Aulad Husain lane of old Dhaka. Previously the place was known as Ashiq Jamadar Lane (fig. 5.16)



fig. 5.16 Entrance doorway of Islam Khan Ki mosque

Historical Background

The mosque is considered as *the oldest surviving Mughal monument in the city* (1). It was built by Islam Khan, the first Mughal Governor of Dhaka (15). Subahdar Islam Khan was famous for

establishment of monuments, roads and fort in Dhaka city. Dani observes, *He (Subahdar Islam Khan) allotted quarters to his men and established the town with mosques, one of which is called Islam Khan Ki masjid* (16)

Site and Surrounding areas

The approach road to the mosque is very congested. The structures are four to five storied high, constructed immediately to the road line and giving a tunnel effect to the entry gate. The area is densely populated. There is no open area adjacent to the mosque. Even the mosque site is covered absolutely with built forms. The south-western and the south-eastern corner rented out for shops. The first floor was constructed covering the water body for ablution. Here one thing should be mentioned that the people within the mosque cannot even see the historic domes because of the solid wall at the first floor level.

Original Built Form

originally the mosque was a three dome structure with the central dome being much bigger than the other two.

Measurement	34'-0" x 14'-0" (10.4 m x 4.3 m , approx.) (17)
Entrances	There were three doorways from the eastern side and single doorway from the northern and the southern side to the original part, without any attempt for embellishment.
Decoration	facade and corner minars were not decorated. <i>The simplicity of the mosque speaks of Pre-Shaista Khani style</i> (18).

Maintenance

Islam Khan Ki mosque is maintained by 15 member Masjid Committee with a tenure of two years. They are the determinant of the gradual enlargement of the mosque. The members are not even conscious what they are doing in the name of extension . For example hiding the historic dome at the first floor level is very painful.

Transformations

The mosque has been renovated and repaired several times by the local people . As a result it has lost most of its original features *The inscription of the mosque was lost several years back* (1999). The main prayer hall is divided into three bays with two lateral arches **The mihrab is on the western wall and the outer facade is unplastered. Unpainted domes on the octagonal drums speak of the past origin.** The interior of the mosque has been decorated with different colourful paints and tiles having mosaic floor (fig 5.17)

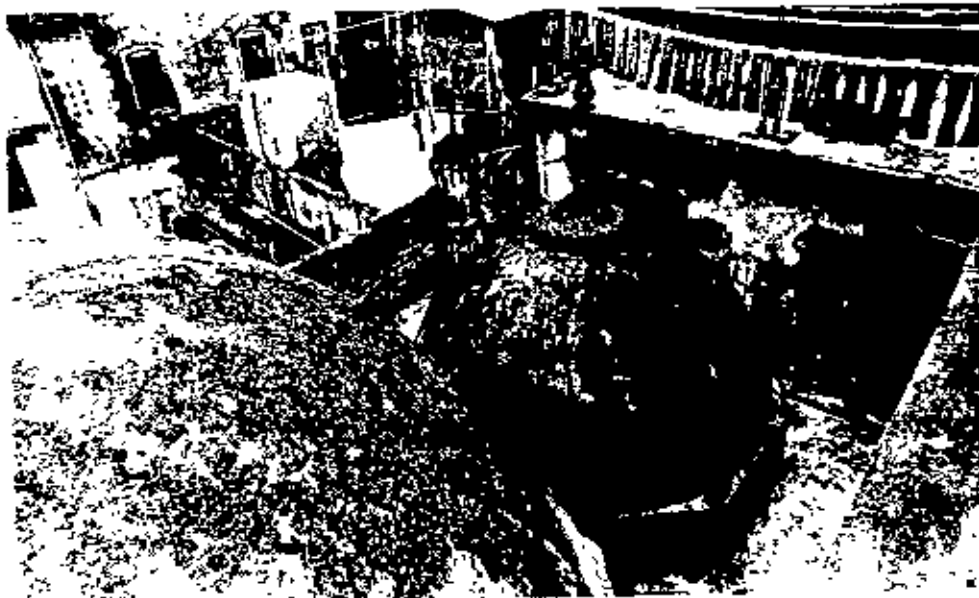
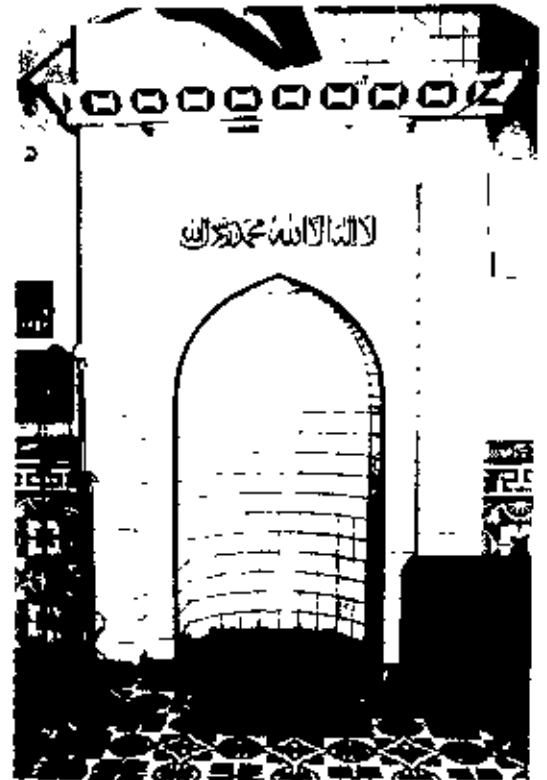


Fig 5.17 Partial view of domes with octagonal base



Interior view of the original mosque structure



Mihrab on the western wall



Fig. 5.18 Eastern veranda, first phase of extension

The first phase of extension was from the eastern side, which is used as veranda (fig. 5 18) The next phase was the extension of the mosque towards the eastern and the southern sides. The extension on the eastern part accommodated a hall room in front of the veranda (fig: 5 19) and a water body on the southern side for ablution with a water fountain in the middle. The veranda is again ornamented with broken glasses. Later on, there were addition of a floor over the extended portion. In this process of extension, a wall was constructed hiding the domes completely at the first floor level. The outer facade of this extended portion was ornamentation with broken glass (*chini tukri*) (fig: 5 20) A minaret was also added subsequently.

Thus the original features of the mosque is over shadowed for unplanned extensions and renovations. Though the original structure can be found intact when one enters in the main prayer hall. Sometimes it is very difficult to identify the mosque from a distance. Being in a densely populated area with high rise commercial developments around the mosque, it is hardly visible. Moreover, within the site itself there is no open space left. This is very unfortunate. The fate of the oldest and the first testimony of mosque architecture of the Mughal reign is vanishing.



Fig. 5 19 Entry hall room, second phase of extension



Fig: 5.20 *Chini Tukri* (broken glass) ornamentation

Propositions

- a. Convincing the mosque committee to stop any further extension or addition of structure
- b. Preparation of detail measured drawings of
 - i. ground floor plan (fig. 5.21)
 - ii. first floor plan (fig. 5.22)
 - iii. section along the domes of the original mosque (fig: 5.23)
 - iv. original plan with the help of the previous information and by analysing the existing mosque structure(fig: 5.24)
- c. Shifting the existing main entry of the mosque and locating it along the central axis of the original structure. By doing it the original structure would get more importance and the hierarchy of mosque function will be established. (fig: 5.25) The existing main entry may be retained as secondary entry for ablution and for other purposes
- d. Putting a transparent screen instead of the solid wall at the first floor level which is now hiding the historic dome of the first Mughal mosque in Dhaka city. (fig:5.26)
- e. Introducing the traditional arched opening and ornamentation pattern at the outer facade of the mosque.

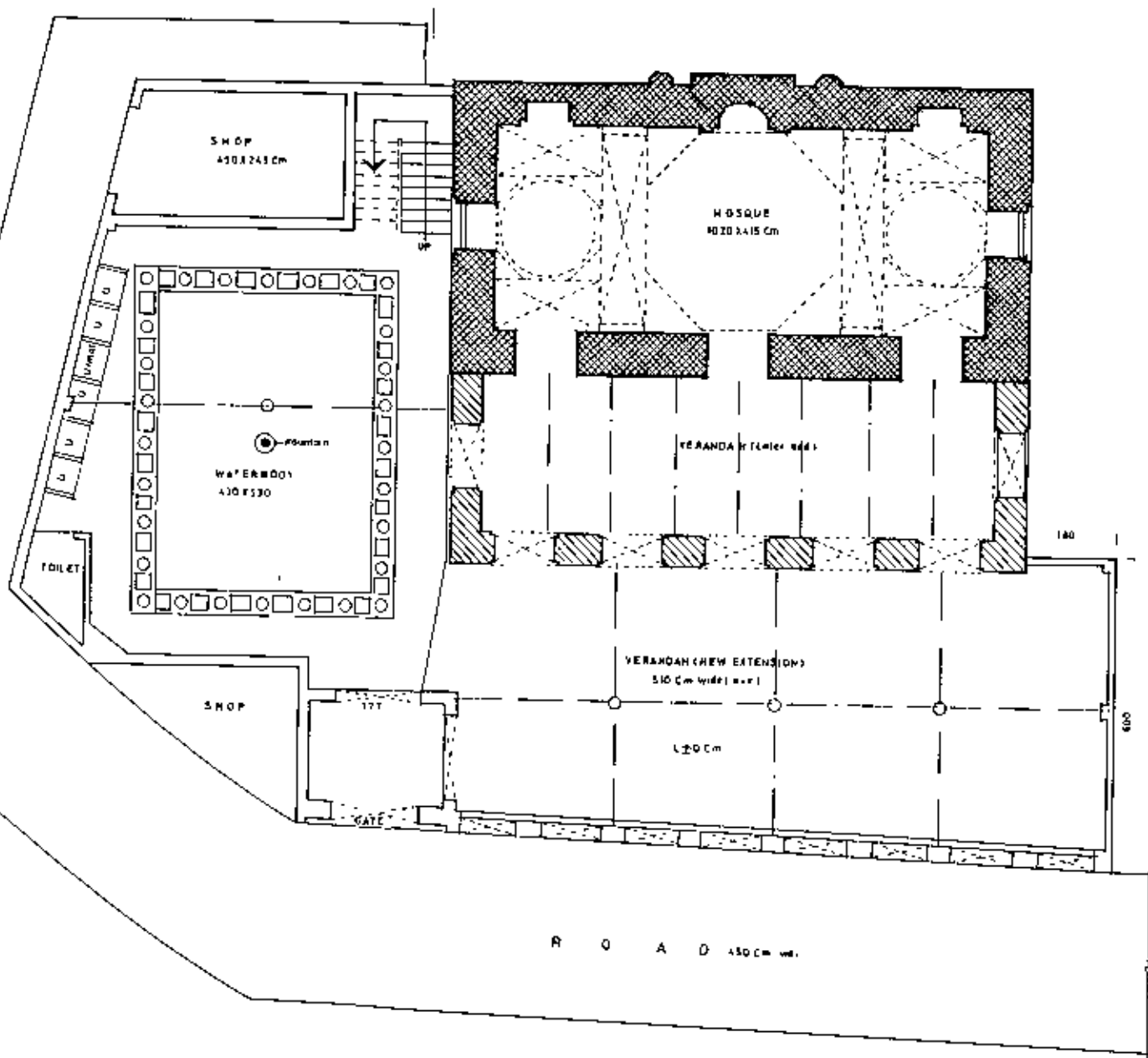
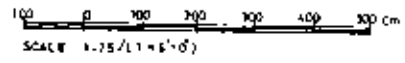
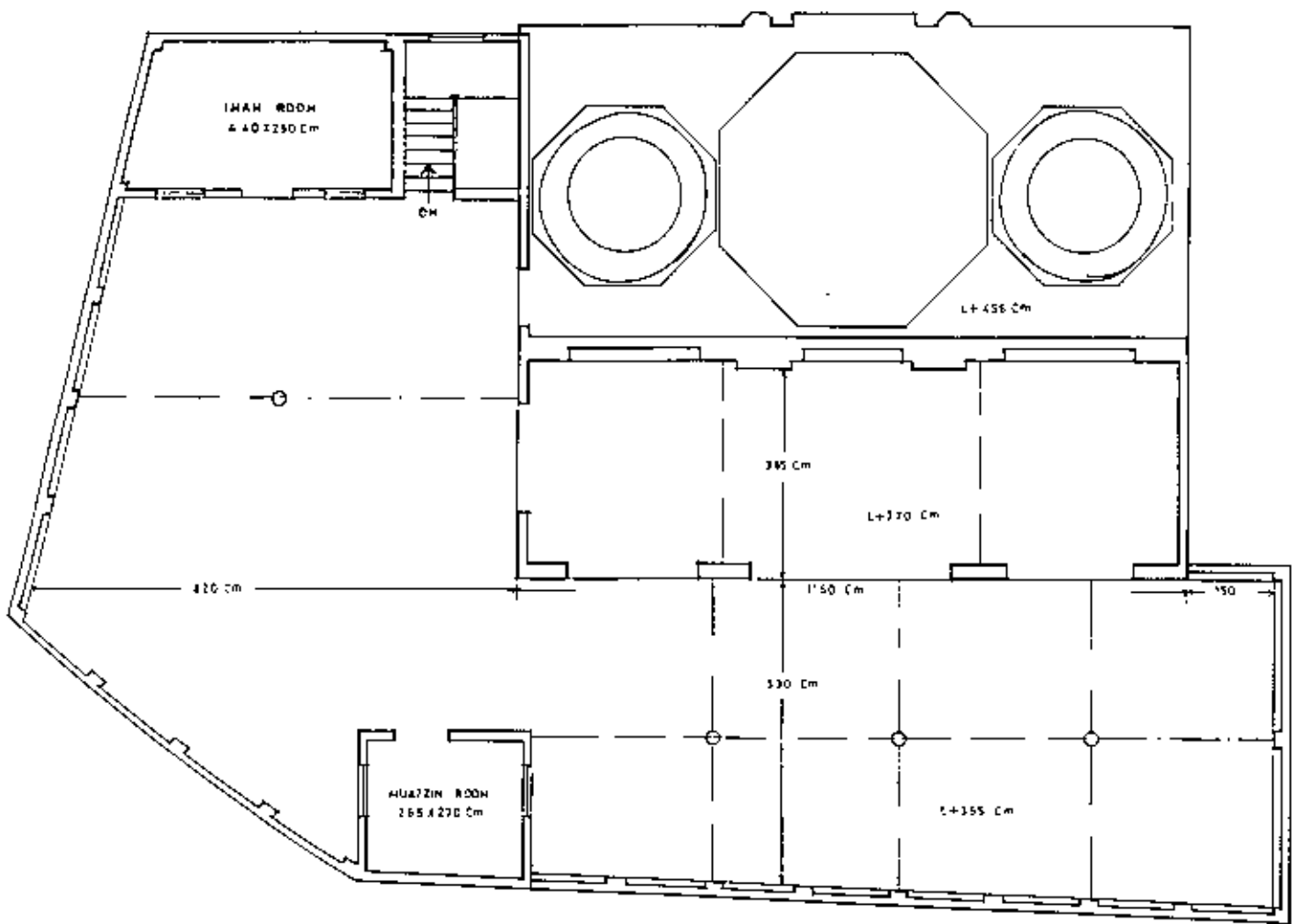
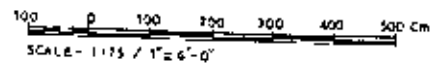


Fig: 5.21 **Ground Floor Plan**
Islam Khan Ki mosque, Aulad Husain Lane, Dhaka.





**Fig: 5.22. First Floor Plan
Islam Khan Ki mosque**



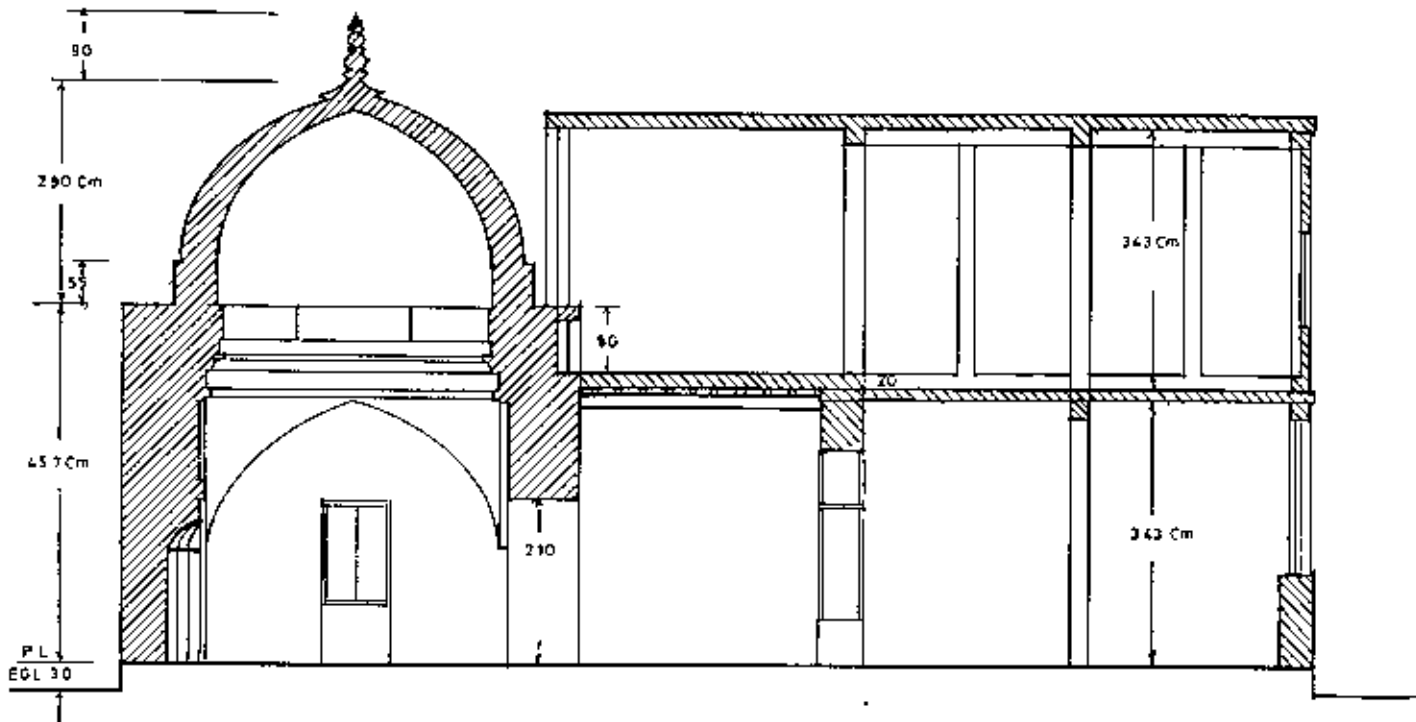


Fig: 5.23. Section through the Main Mihrab (Along the east-west direction)

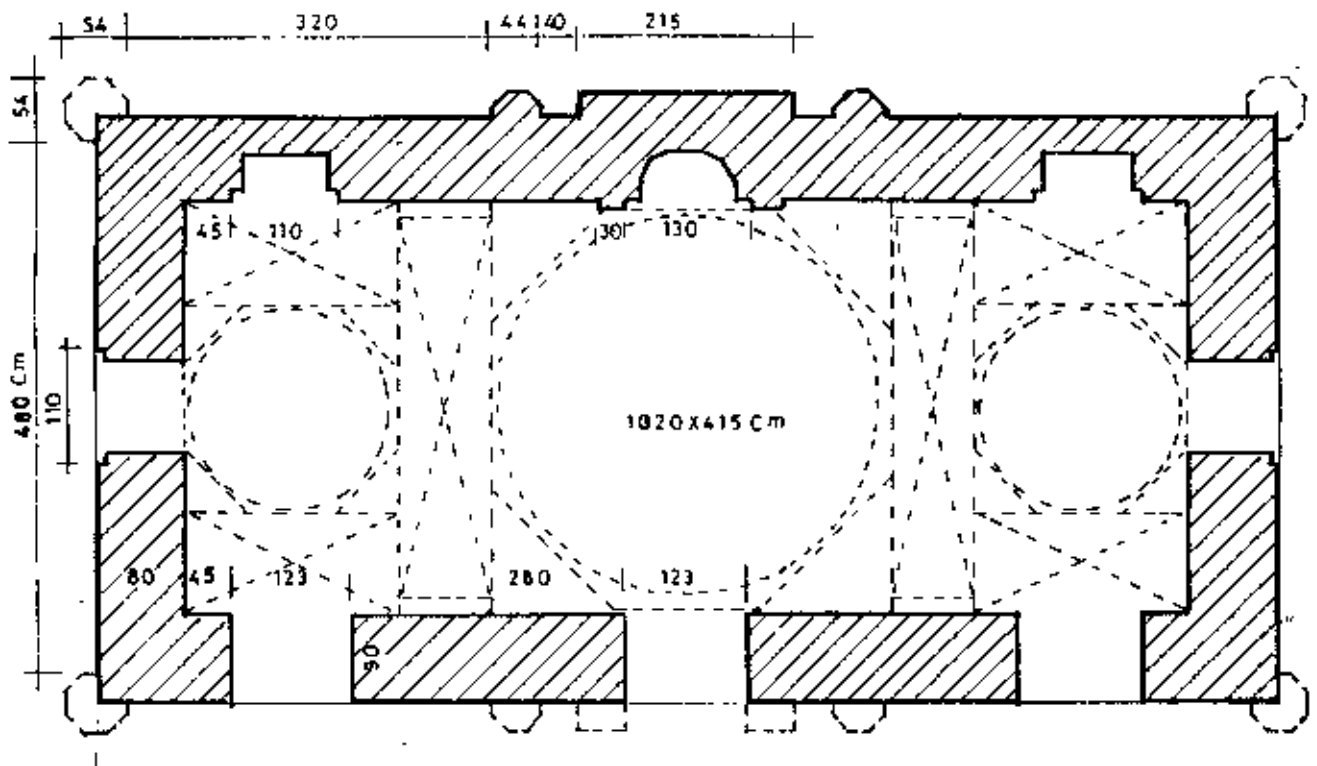
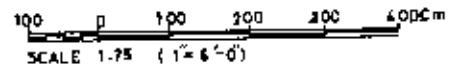


Fig: 5.24. Original Plan Islam Khan Ki mosque

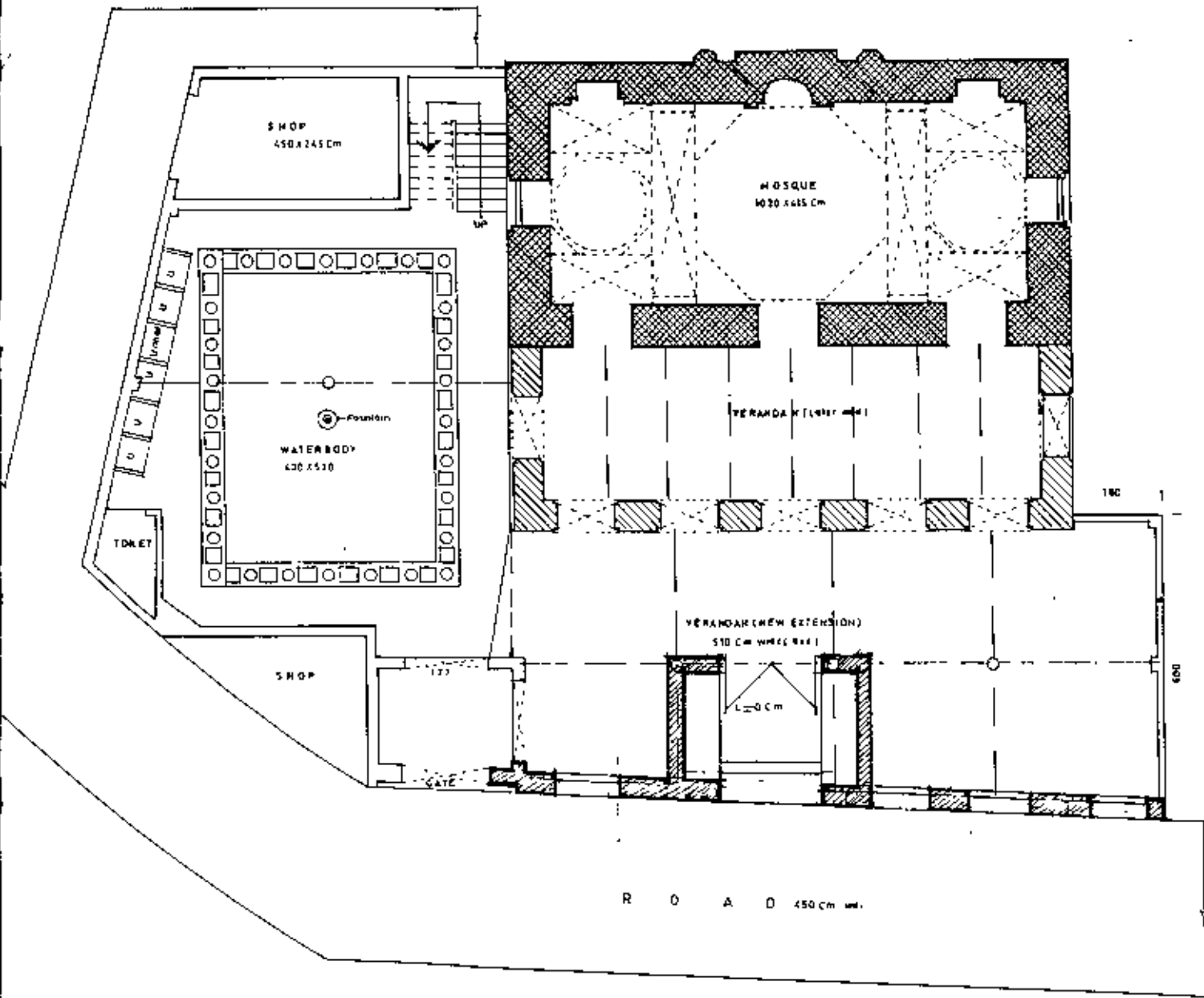


Fig: 5.25. The Proposed Main Entry Along the Central Axis of the Original Structure

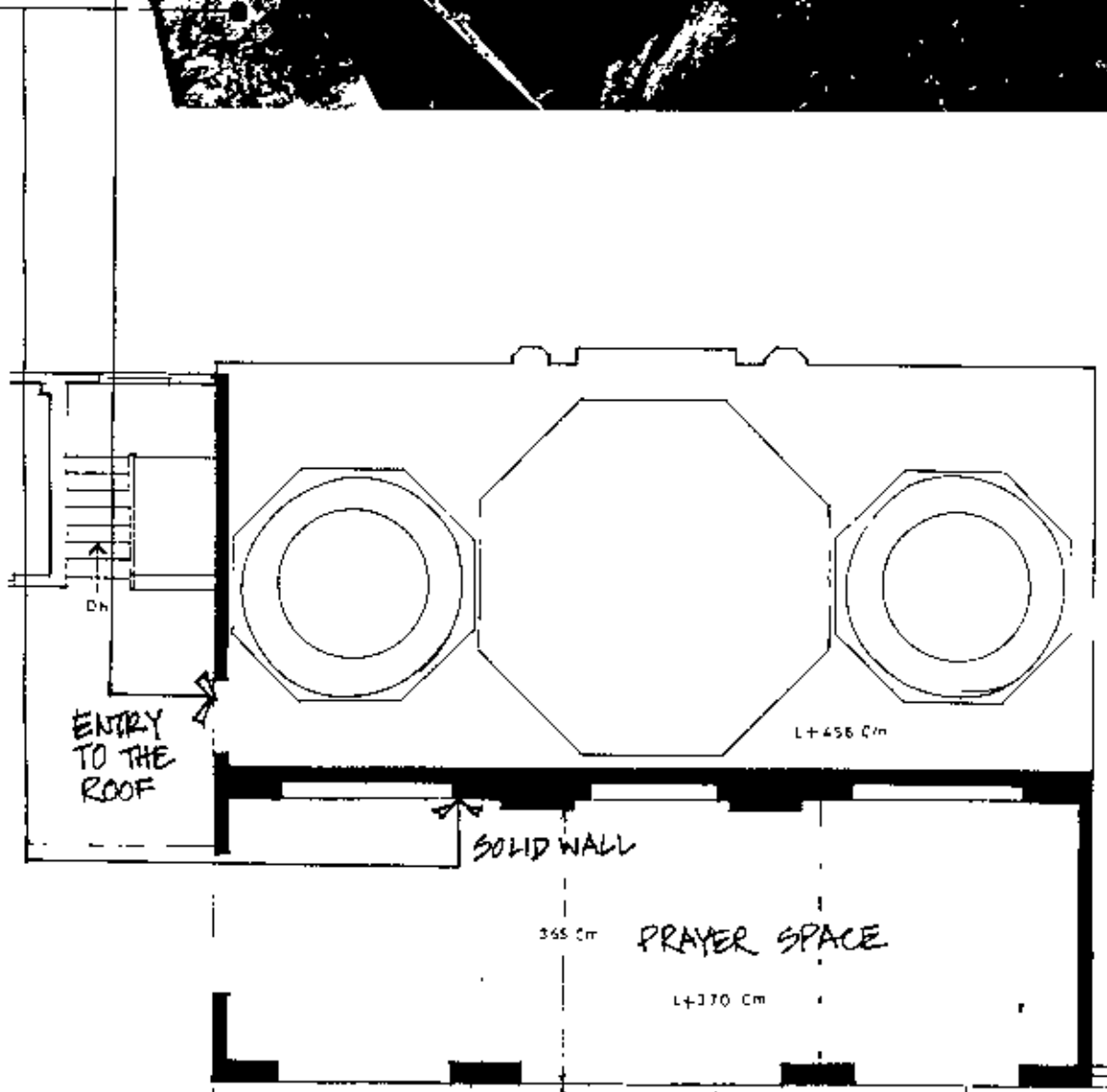
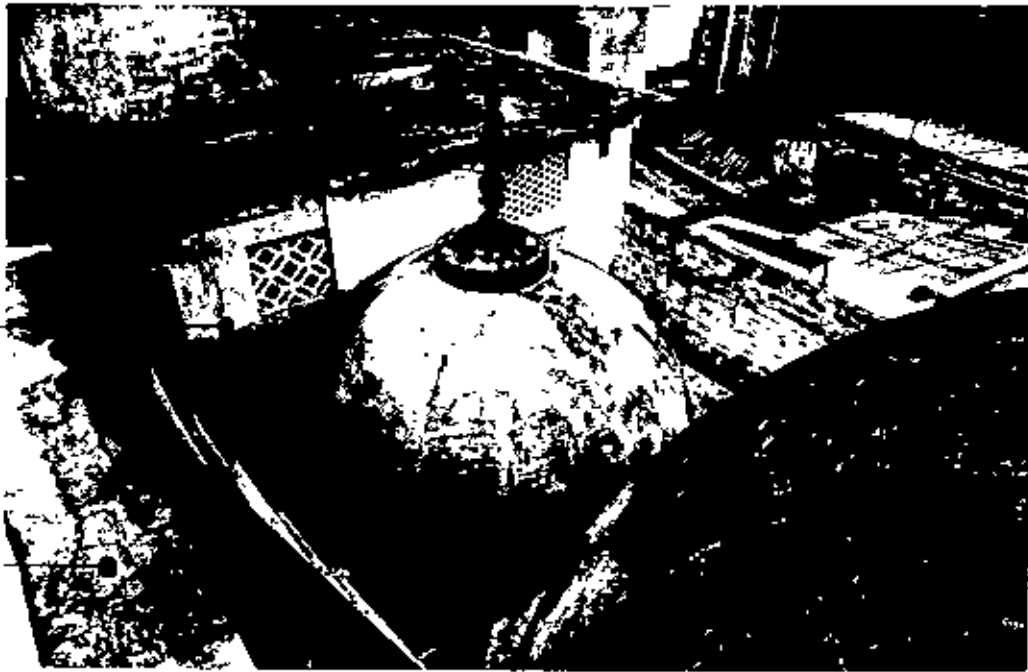


Fig: 5.26 The solid wall completely over shadowing the historic domes.
The solid wall may be replaced with transparent screen.

5.3. Churihatta Mosque (1649)

Location

The mosque is located at Churihatta or Bangle Market near the Chaukbazar of old Dhaka. (fig: 5.27).



Fig. 5.27. Churihatta mosque and the adjacent Chaukbazar area

Historical Background

Historians say that the *mosque stands on the site of a former temple which was destroyed and this fact receives partial confirmation from the inscription* (20). According to Muslim ritual, a temple cannot be changed into a mosque, moreover Dani pointed out that *the mosque was built by a Mughal officer, Muhammad Beg in 1649, when Prince Shah Shuja was the viceroy of Bengal* (23).

Site and Surrounding areas

The mosque is surrounded by roads, except the western side. The southern approach to the mosque from the Churihatta bazaar area is very wide comparing to the width of other roads of old Dhaka. As a result the mosque is visible from a distance (fig: 5.27). The adjacent built forms are mainly three to four storied high. Because of the presence of roads along the mosque site, the surrounding structures are not overshadowing the mosque.

Original Built Form

*The original mosque was rectangular with towers at the four corners (22) This mosque is considered as an extraordinary Muslim monument as it is originally roofed by *chau-chala* vault rather than domes i.e. a Bungalow type of mosque. This roof was destroyed completely. To explain this Mughal Bungalow type of mosque Dani said, *they have generally a rectangular hall with plastered walls, relieved with arched panels and the roof formed of cross vaults with each segment slightly curved and the ridge of joining rounded. The shape of the roof very nearly resembles the canopy on the top of I'tmad-ud-Dowla's tomb at Agra and obviously is of north Indian origin. The best example of this type are the Churihatta Mosque near Chauk and the tomb inside the Dacca High Court (23)**

Measurement	30 ¹ -0 ⁸ x 13 ¹ -0 ⁸ (9.14m x 3.96m, approx.)
Interior	The interior hall was <i>covered with an intersecting vaulted roof, the line of intersection is curved and so is the central ridge (24)</i> west wall had three mihrabs and a row of rectangular panels above the head line.
Entrance	There were three doorways from the eastern side having two successive arches and single entrances from the south and northern sides, which also admit light
Cornice	straight with blind merlons
Parapet :	ornamented with merlons pattern
Decoration :	the facade was decorated with numerous square and rectangular panels

Transformations

The present state of mosque is the result of different level of extension and renovation. The historical Mughal traditional features are destroyed and turned the mosque into a very contemporary mosque architecture (fig' 5.28). The mosque has lost most of its original features. Therefore, it is very hard to find out any of the original features of the structure, except **the western wall with original thickness are still surviving and the inscription hanging over the central entry doorway.**



The inscription and the view of the prayer hall through aluminium doorway



Mirble fitted mihrab of the main prayer hall



Fig 5 28 Completely transformed Mughal mosque

The most painful and unrepairable damage was the destruction of the *chant-chala* roof for the construction of another floor over the original structure. *The main central prayer hall was extended towards the northern side and a veranda has been added on the east in the year of 1962.* (25) Later on the structure extended up to the site line to accommodate entry hall on the eastern side, ablution space on the northern side and toilet space on the southern side (fig.5.29) Subsequently another floor was added for more prayer space and for madrasa. All these phases of renovations and changes are not recorded properly, as such detail information regarding the changes are not available

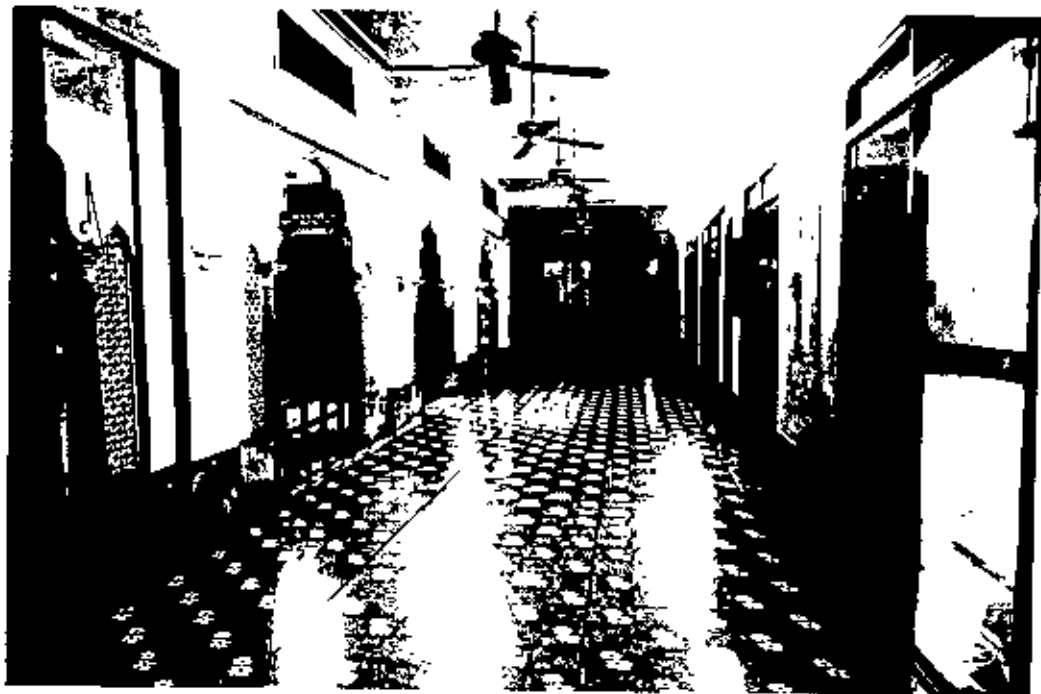


Fig 5 29 Addition of eastern veranda in the year 1962

Maintenance

The maintenance of Churihatta mosque is done by 18 member Masjid Committee. They are being elected by the community people for two years. The study showed that the mosque is under the category of completely transformed structure. The sole responsibilities of these transformation are the Committee members. They are keep on changing the structure in the name of maintenance and renovation according to their need and desire resulting overshadowing the history under the pressure of modernisation



View of the main prayer hall through the outer eastern veranda



Eastern entry hall acting as the transition space between the road and the eastern veranda of main prayer hall



Propositions

- a. The conjectural drawings derived from different authentic sources may be displayed in a panel or drawn directly on walls at the entry hall of the mosque
- b. Convincing the mosque committee to stop any further extension or addition of structure .
- c. Preparation of a detail measured drawings of
 - i. ground floor plan (fig: 5.30)
 - ii. first floor plan (fig: 5.31)
 - iii. section along the main prayer hall of the original mosque. (fig: 5.32)
- a. Placing the inscription in a position where it is easily visible .

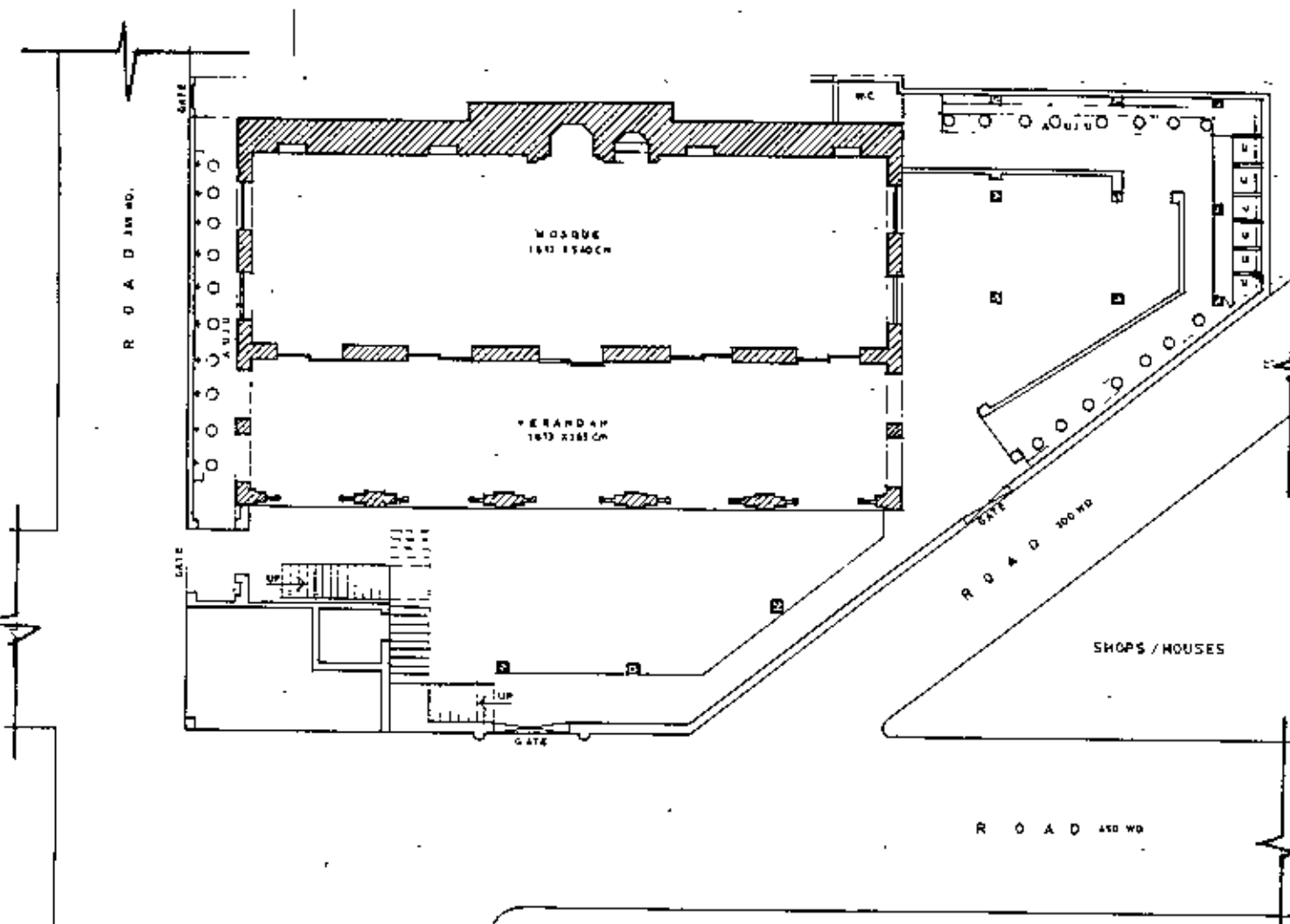


Fig. 5.30. **Ground Floor Plan and Site Plan**
Churihatta mosque, Chaukbazar, Dhaka.

100 0 100 200 300 400 500 CM
 SCALE - 1:100



Plan of Original Wall, Churihatta mosque

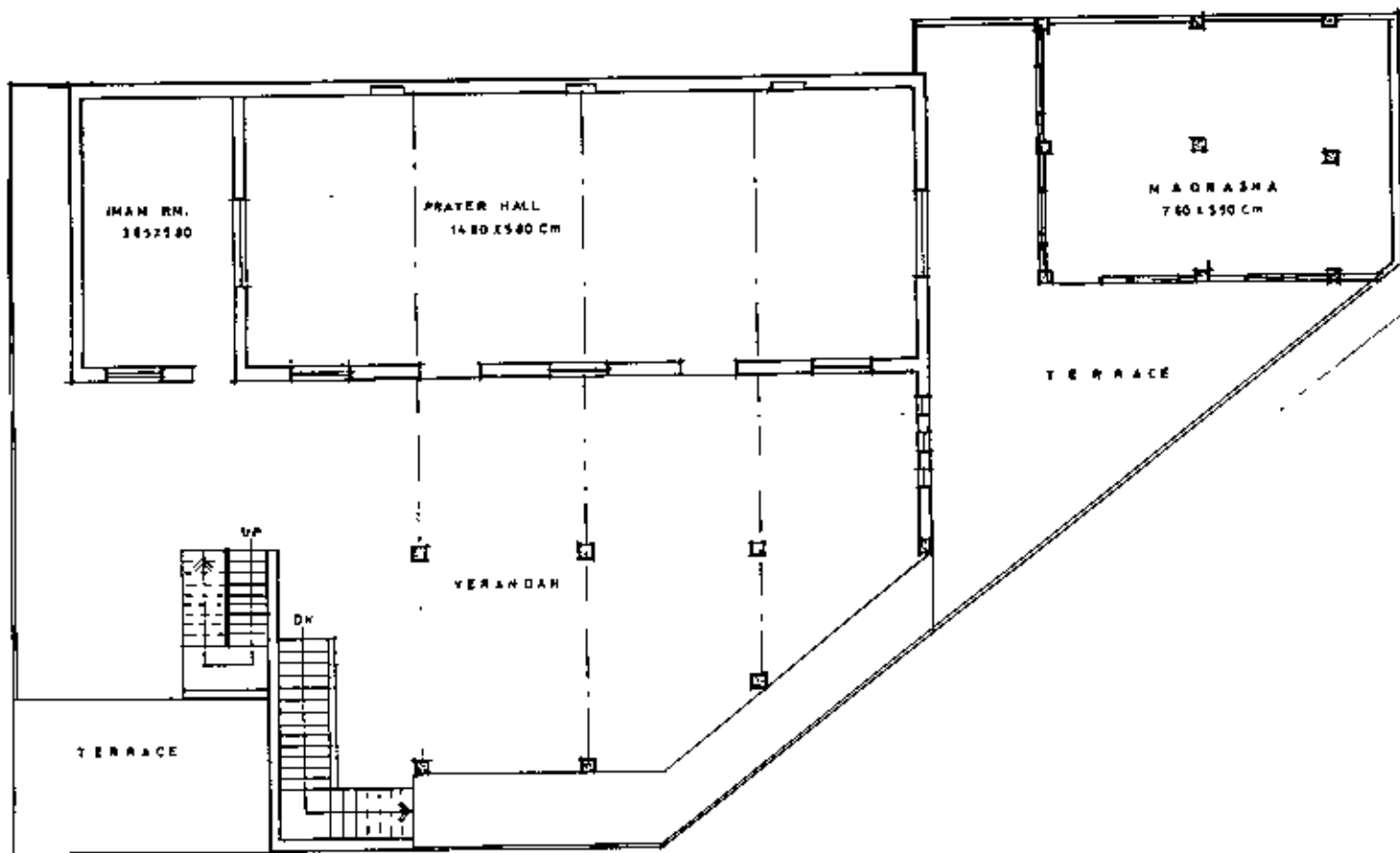


Fig. 5.31. First Floor Plan
Churihatta mosque

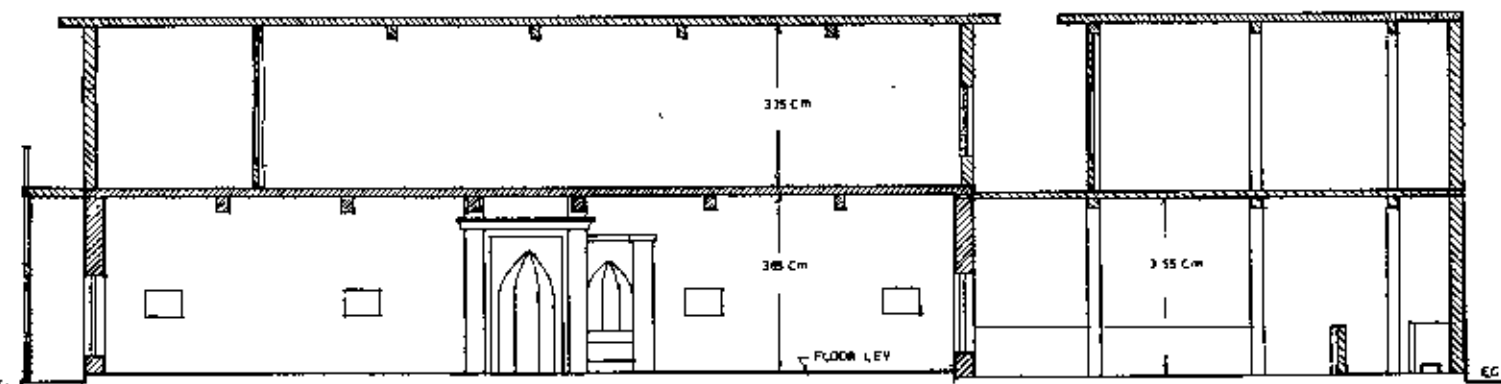
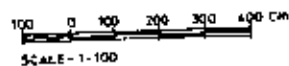
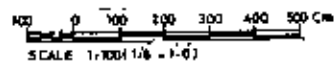


Fig. 5.32. Section through the Main Prayer Hall (Along the north-south direction)



5.4. Khan Muhammad Mridah's Mosque (1706)

Location

The mosque is located at the north-west corner of Lalbagh fort of old Dhaka (fig:5.33).

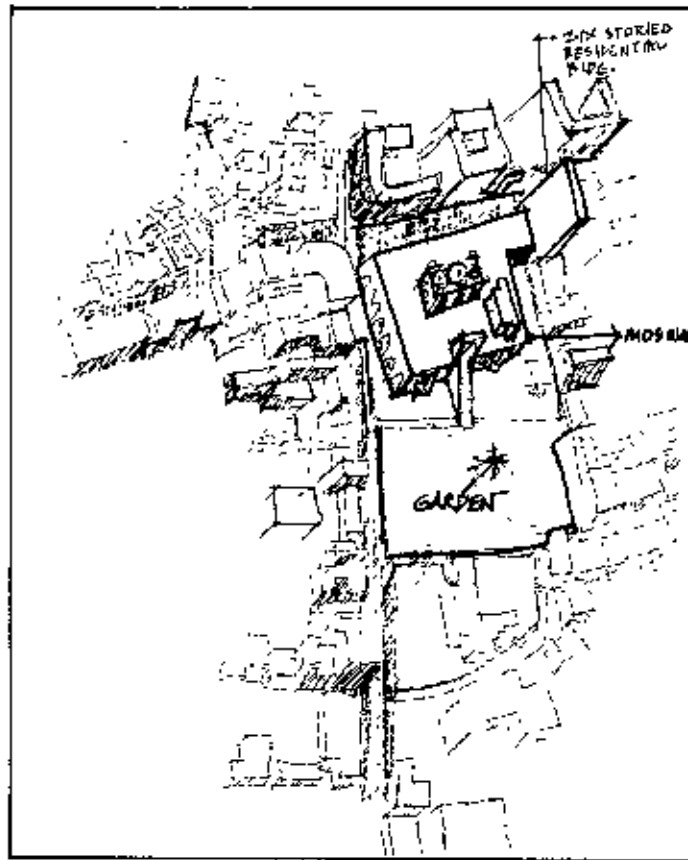


Fig. 5.33 Axonometric view of Khan Muhammad Mridah's mosque and the surrounding area

Historical Background

Khan Muhammad after whom the *Masjid* is known was designated *Mirdah*, a commander of ten. He built or as the word *Mirdah* also means a superintendent, supervised the construction of the mosque in 1706 under the patronage of *Quazi Ibadullah* (26) during the reign of Empire *Aurangazeb*. The mosque was declared protected in 1913 and since then its conservation and maintenance are being looked after by the Directorate of Archaeology (fig:5.34).

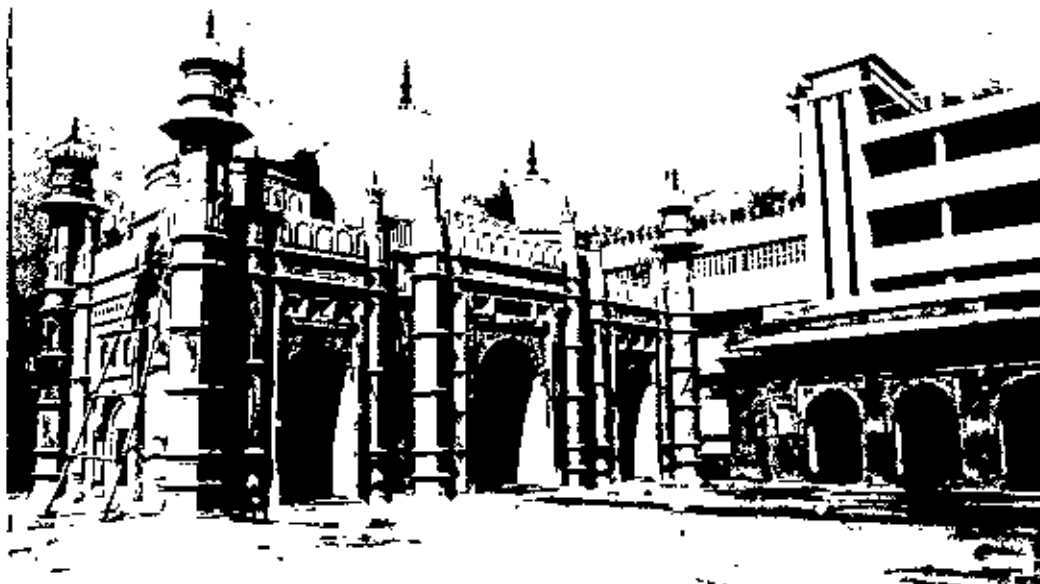




Fig 5.34 Khan Muhammad Mridah's mosque before conservation



Khan Muhammad Mridah's mosque after conservation



Site and Surrounding areas

Lalbagh area is located at the northern fringe of old Dhaka. The built-up areas adjacent to the mosque is irregular and haphazard. Most of the structures are used for commercial purposes mainly shops of various kinds, printing press, cottage industries and they are three to four storied high. The highest structure is a six storied apartment at the north-west corner of the site. Because of high land value and commercial pressure, all the surrounding structures will be turned up into six to eight storied high and the mosque will be engulfed by the tall structures. Therefore **adequate area conservation and planning controls should be implemented with utmost priority.** The mosque is situated in the south-west corner of a walled compound of 0.8 acres. One third of the area is occupied by the mosque and the supporting structure. The rest is the garden--the only open space in the adjacent densely populated area.

Maintenance

The mosque is run by 18 member Masjid Committee elected by the local influential people. The required fund for the mosque's maintenance is raised by the donations and charity from the local people. As the mosque is under the protection of Archaeology Department therefore, any maintenance and repair has to be done with their permission. But in reality the Committee is doing several repair and construction works without the permission of the department. For example the lattice gate at the entry, repair of some architectural features which are not in harmony with the original pattern of the mosque. The south-western apartment which is disturbing the environment is the owner of one of the Committee member.

Original Built Form

The mosque is a single aisle three-domed oblong structure—a typical pattern of the Mughal era (fig 5.35) It follows the 'qua-plan' of the Muslim Madrasa, which was extensively used in Egypt during Ayubid and Mameluke periods (11th to 15th Century A.D.) (27) The mosque is situated in the south west corner of a walled compound of 0.8 acres. One third of the area is occupied by the mosque and the supporting structures. The rest is garden—the only open space in the adjacent densely populated area. (fig: 5.36)

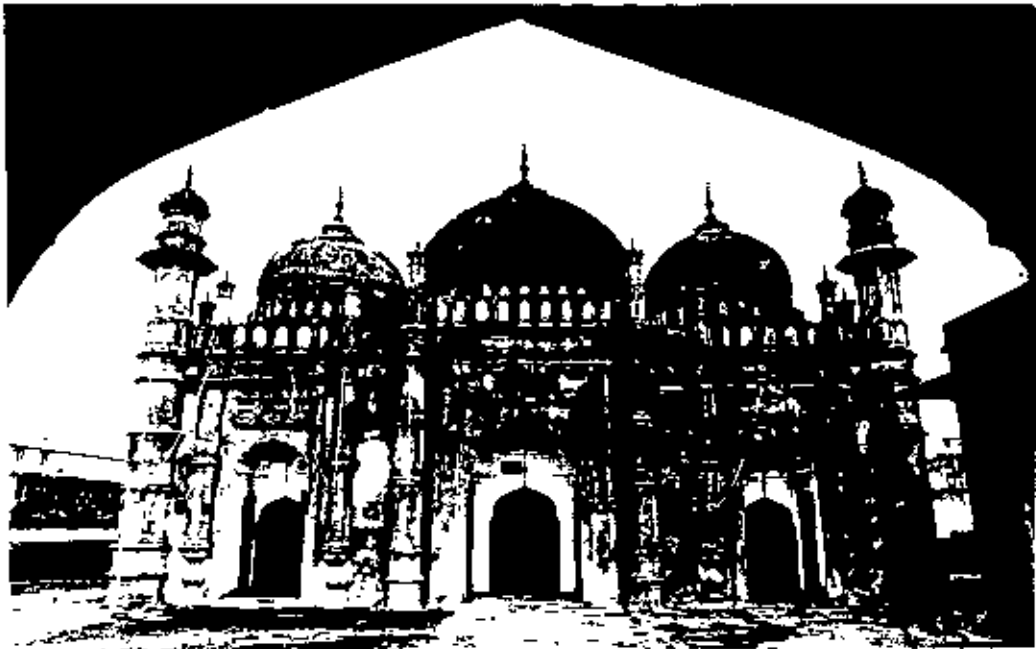


Fig 5.35. Three domed oblong structure, main prayer hall

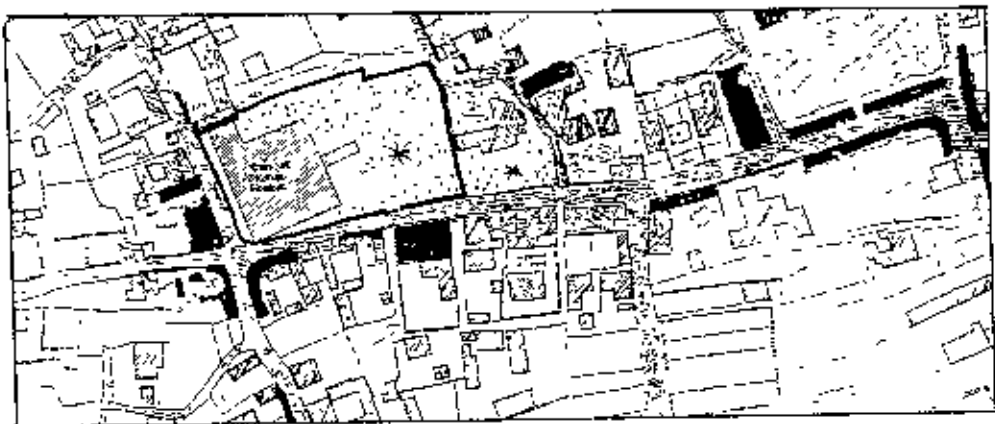


Fig 5.36 Site plan of the mosque within the densely populated area

The mosque is built on a raised platform with a structure on north western corner. The additional structure have three chambers, central one being comparatively bigger than the other two.

Size of the mosque 24'-0" x 48'-0" (7.3m x 14.6m, approx.) (fig: 5.37).

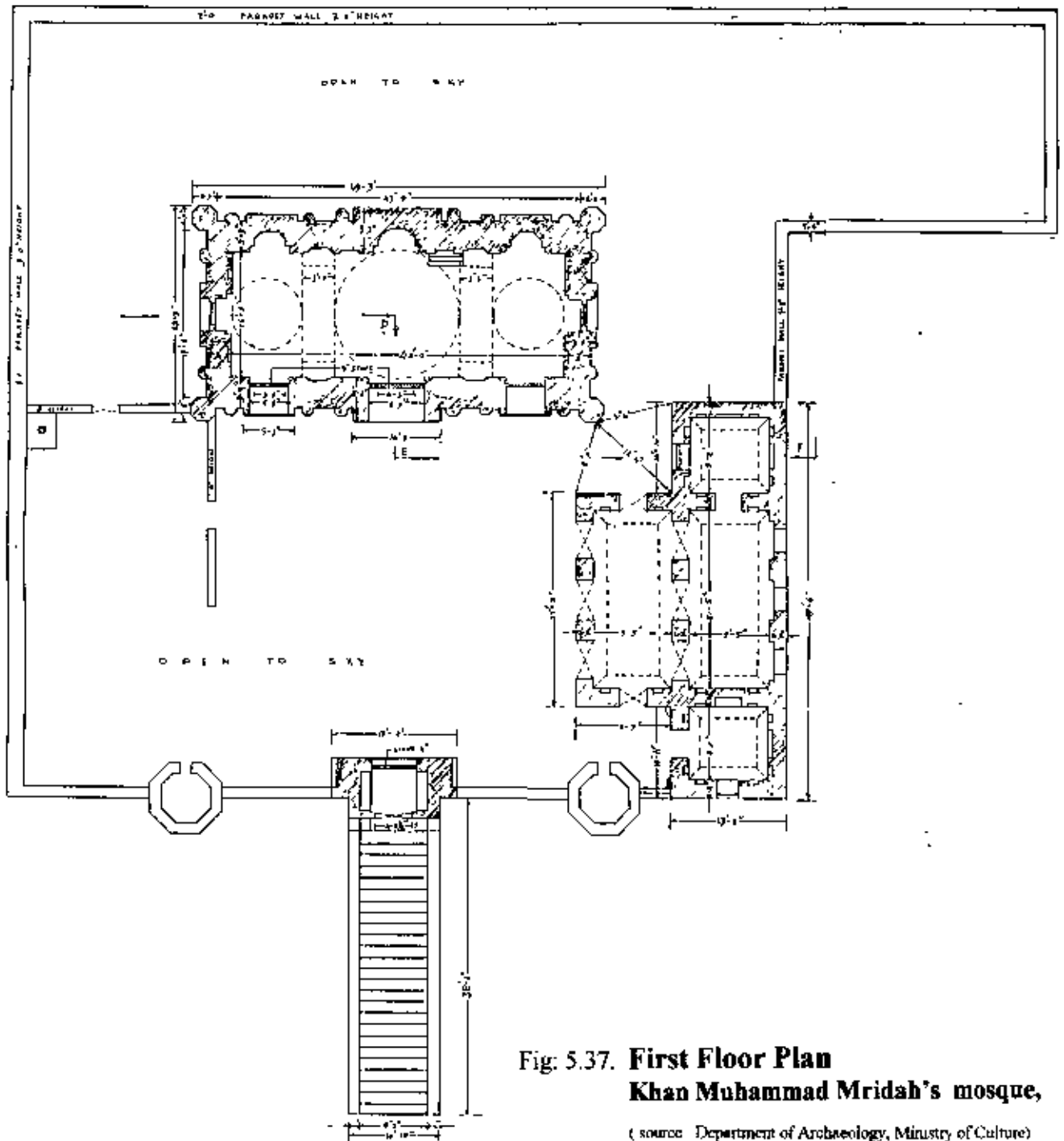
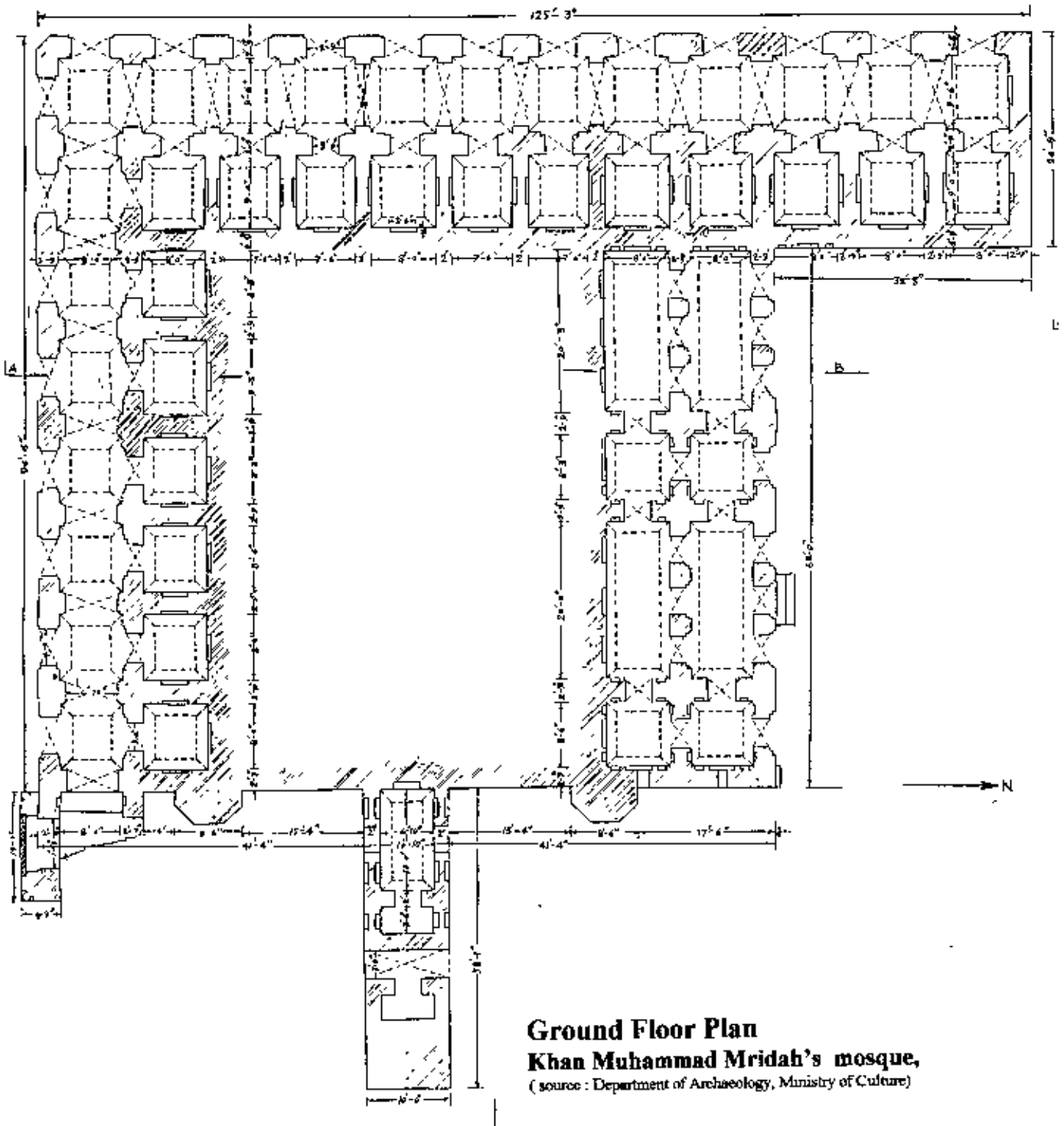
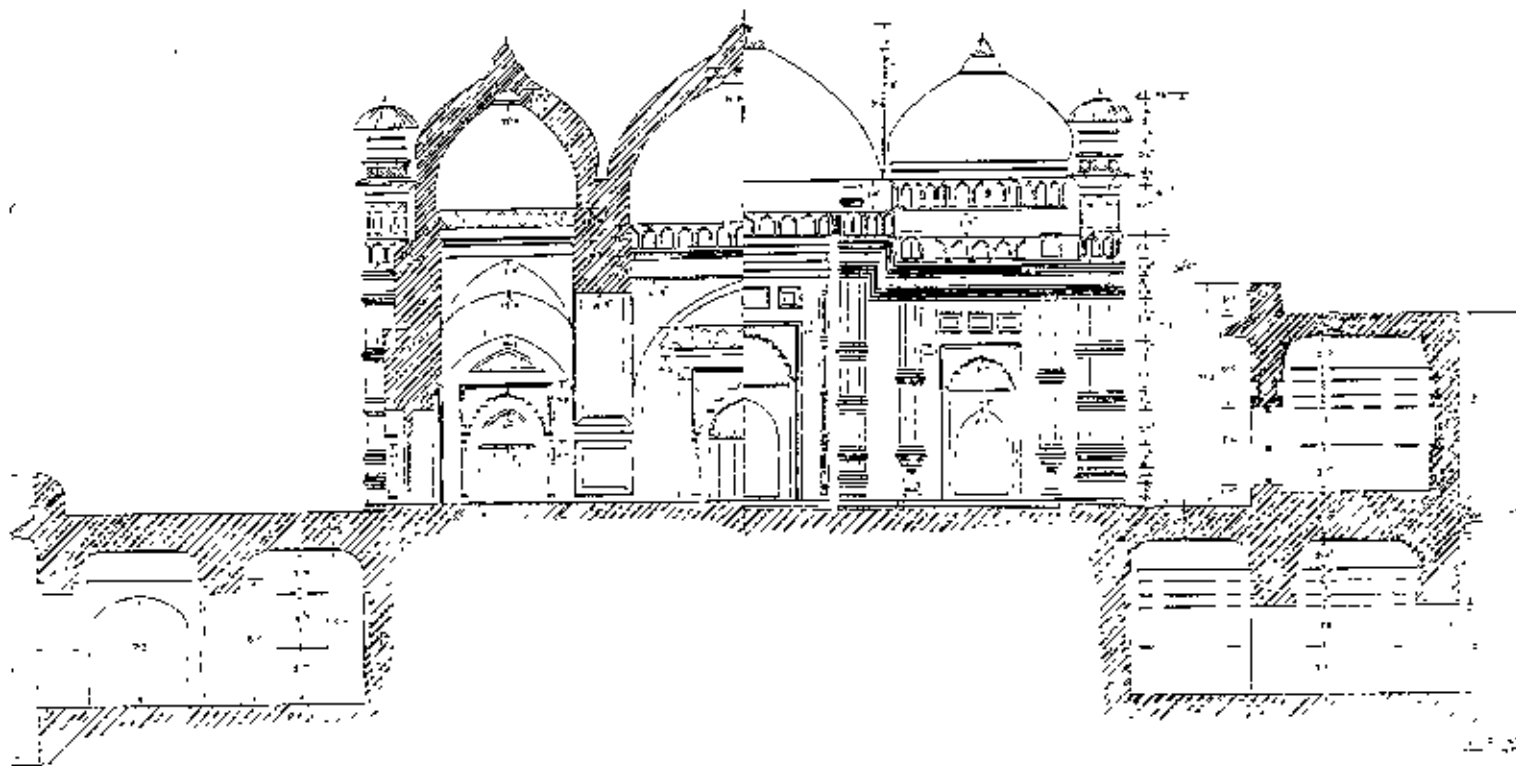


Fig: 5.37. **First Floor Plan**
Khan Muhammad Mridah's mosque,

(source: Department of Archaeology, Ministry of Culture)

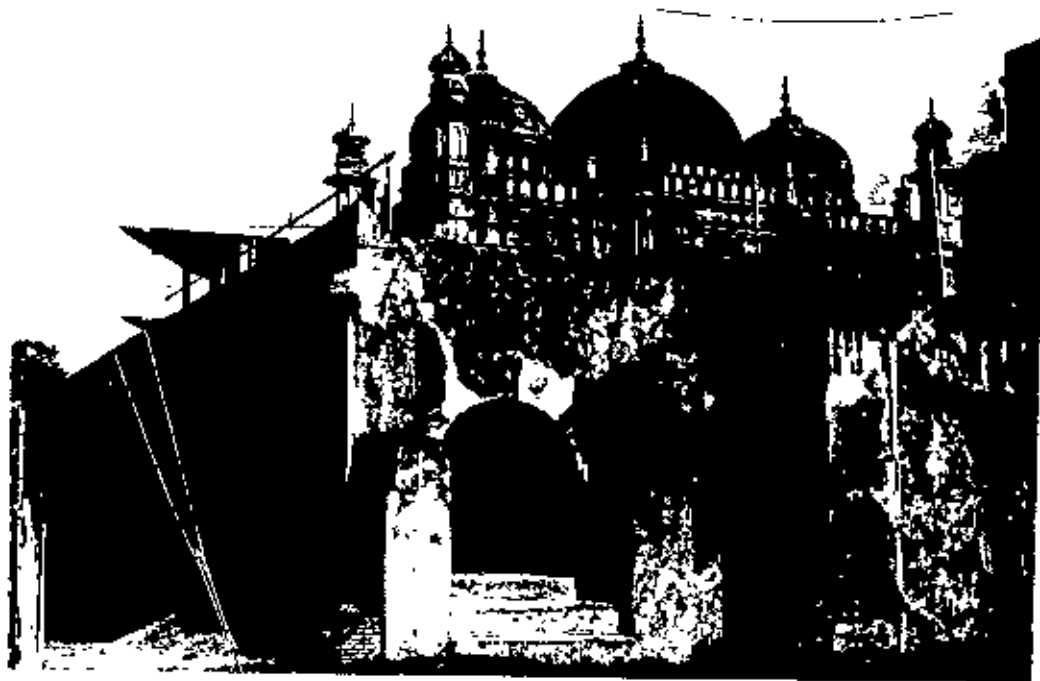


Ground Floor Plan
Khan Muhammad Meidah's mosque,
 (source : Department of Archaeology, Ministry of Culture)



Sectional Elevation along the Main Prayer Hall and the Adjacent Structure

(source: Department of Archaeology, Ministry of Culture)



Southern view of the corridor and the podium

Size of the platform $125' - 0'' \times 100' - 0''$ (38.1m \times 30.48m, approx.) and 16 - 6 (5m, approx) high from the ground level. The flight of steps leading up to the gateway entrance of the mosque (fig 5.38).

Interior the mosque is divided into three parts. A larger dome is on the square central part and the smaller side domes on the flanking oblong sides. Domes are supported on pendentives. (fig: 5.37)



Fig 5 38 Steps leading to the gateway of the mosque



Fig 5 39 Interior view of the main prayer hall

Corner minarets
Entrance

rise higher than the parapets and terminate in ribbed cupolas.(fig: 5.40)
single entrances from the south and north wall, boarded by pilaster minarets. Where as three entrances from the eastern wall, with the central one providing the main access. The facade is decorated with beautiful panelling and ornamented merlons at different stages of the parapet (fig 5.41).

There is a projection of the mihrab at the west wall. This projection is also articulated with narrow minarets on each side. The wall contains three ornamented mihrabs under multi-cusped arches and is framed with rectangular panels



Fig. 5.40 Corner minarets with ribbed cupolas at the top

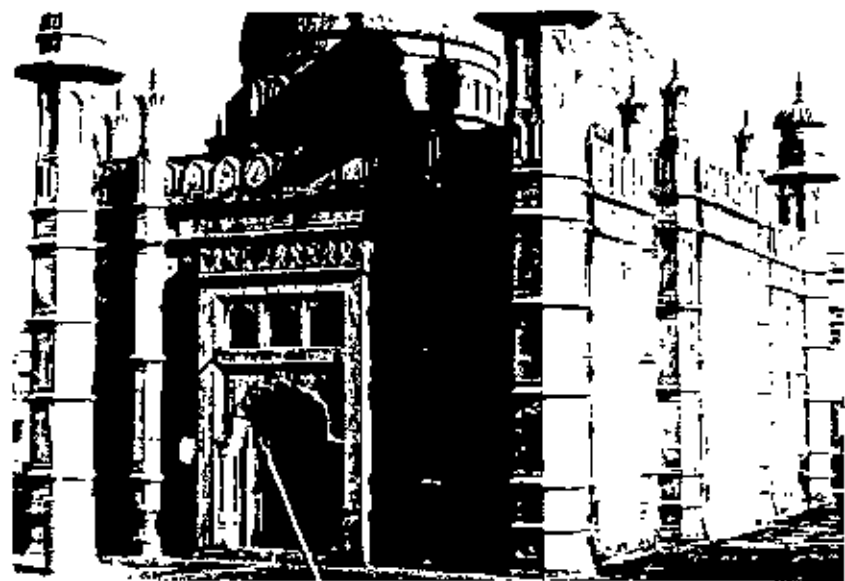


Fig. 5.41. North facade decorated with ornamental panel and merlon



Fig 5.42 The corridor connecting the cell like chambers beneath the podium

Under the podium a 9-0 (2.74 m) wide corridor runs along the northern and western part of the structure, providing seventeen 9-0 x 9-0 (2.74 m x 2.74 m) chambers (fig 5.42). There are four more chambers on the southern side. *The north western rooms on the upper storey and the vaulted chambers on the ground floor together with the prayer hall as stated above may originally have been utilised as a Madrasa for its class rooms as well as for the residence of the teachers and the students.* (28)

At present the mosque is run by a Committee of 18 members. They are repairing and maintaining the mosque from time to time with the permission of the Department of Archaeology. Several attempts were made to protect the mosque from structural deterioration, but the repair works done so far to some areas of the mosque and its surroundings did not follow the original character of the structure.

Propositions

- a. The surrounding encroachment and the construction of a six storied apartment along the north wall of the podium proves that the existing rules and regulations for the protection of historically important monuments are not followed strictly in the country. The presence of the structure disturbs the entire environment of the mosque's vicinity (fig. 5.43). If tall and leafy trees can be planted along the boundary, then that will act as a screen to the adjacent tall structures.



Fig. 5.43 Over imposing six storied structure disturbing the mosque's vicinity.

- b. There is a need for the renovation of doors, windows and exposed wiring of the structure by keeping the original form and character of the mosque.
- c. The south-eastern side of the boundary wall had arched openings. This was the original boundary wall. But all the openings and the other sides of the wall were filled with brick--depriving the Mughal character. Later on, the brick filling of the south-eastern wall was replaced by grill. The entire boundary wall should be rebuilt with open archways in regard to the ancient character.

- d. The construction of the roof drainage system is working well from the south and west side. But due to their placement beneath the inclined eaves, the rain water from the upper terrace runs down over the vertical wall surfaces, causing damage to the structure (fig: 5.44)



Fig 5.44 Damaged wall surface due to rain water

- e. Several repair works on the parapets, minarets, cornice and in different areas of the mosque as well as the vaulted cells and the veranda of the lower storey, distorted the original architectural character of the structure. All the changed features should be reconstructed with expertise to retain the historic character.
- f. The plaster work of the grave beside, does not match with the plaster pattern of the mosque. This point may be analysed and appropriate measures should be taken.
- g. To generate an income to maintain the mosque and the madrasa instead of depending on other resources, it is recommended that the chambers beneath the podium may be utilised for commercial uses. Book shops, attar shops or shops of similar nature which would protect the sanctity of the mosque may be installed. This shall also be in harmony with the surrounding commercial uses at the street level.

5.5. Analysis of Gradual Transformations of the Historic Mosques of Dhaka-- Pre Mughal and Mughal Periods

In the initial stage, local mosques were just a linear wall with a niche at the centre indicating the place of Imam who will lead the prayer. Rest of the enclosure developed in reference to the climate and culture of the place. These buildings were humble and purpose oriented, played a little role in image making. They were the products of popular architecture, respected and maintained as a sacred space. Whereas, the mosque built by the patronage of the rulers and the wealthy individuals played the additional role of image making. Therefore, they were relatively massive in scale and designed with extensive details and ornamentation according to the taste of the builders. Essentially they were built with permanent materials to last longer than the local mosques. **Those mosques eventually formed the image and pattern of mosque typology in the different context and time.** Like in Bengal they came to be known as the Mamluk style, the Ilyas Shahi style, the Husain Shahi style, the Khan Jahan style, the Mughal style. Each have their distinctive characteristics. The architecture of these mosques were influenced by the North Indian mosque architecture.

The easily identifiable difference between the mosques built in the local context and the North Indian model is that, the local mosque is limited within single building with corner minarets, dwarf in nature with multiple dome. Whereas the North Indian mosque is built with a large 'shan' (open court yard) enclosed by 'riwaq' or cloister. The main prayer hall sits on the western end of the open courtyard. Approach to the mosque is through imposing gate ways across the 'shan'. Usually the covered built form of the North-Indian model, is narrower compare to the enclosed cloister. But in case of local model, the depth of the built form is reasonable in comparison to the width (fig: 5.45). Because of these stylistic and typological differences while conserving historic mosques, one needs to be very cautious and a thorough study and research is essential.

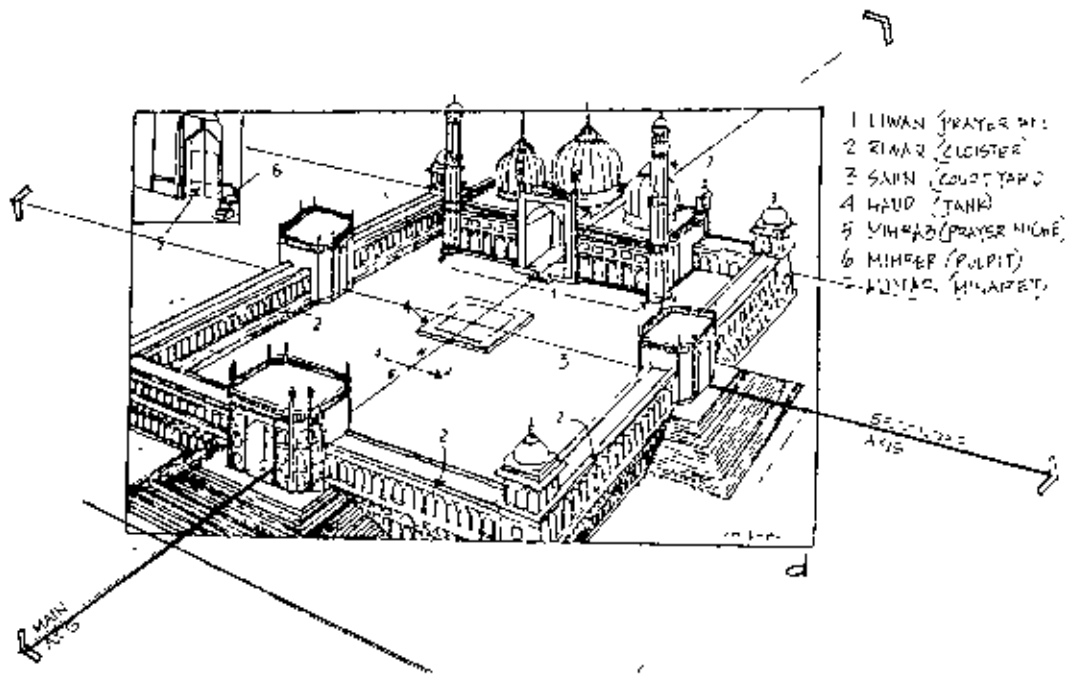
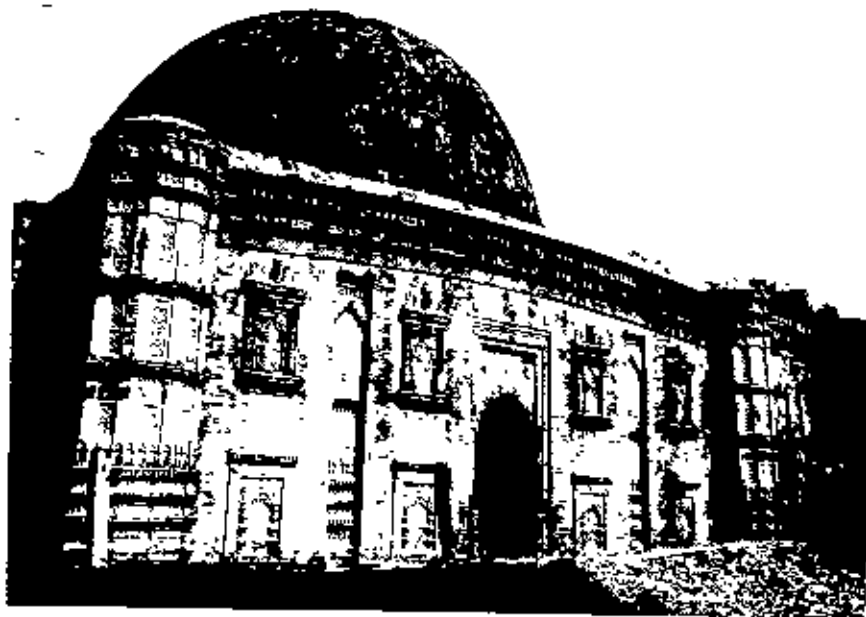
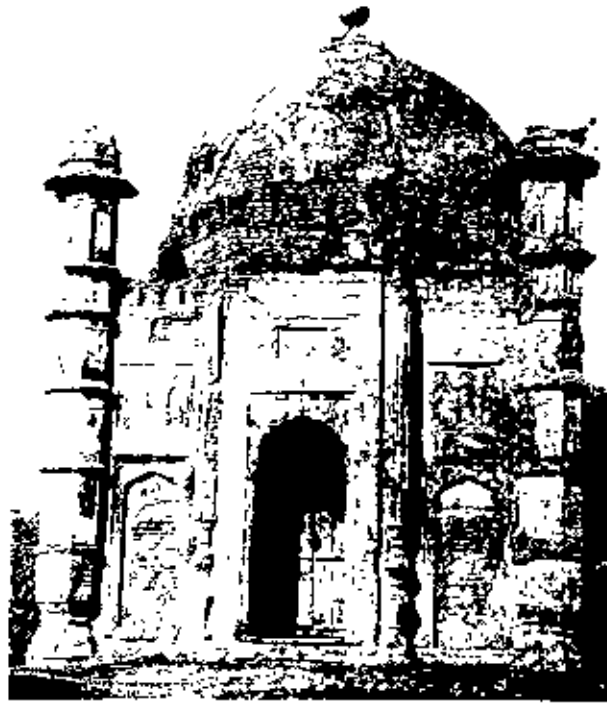


Fig 5-45 Organisation of typical congregational mosque.
Mughal period, North India



Dwarf nature of the local mosque,
Southern facade of Khania Dighi mosque,
no preparation for entering the main prayer hall

Accordingly the veranda became an essential element of architectural design in all the popular mosque built by common people and it became a generally accepted essential element of local mosque typology Therefore, it is not surprising to find the addition of veranda in all the historic mosques of the city as an initial transformation of the original structure (fig: 5 46)



Allahkuri mosque, before transformation

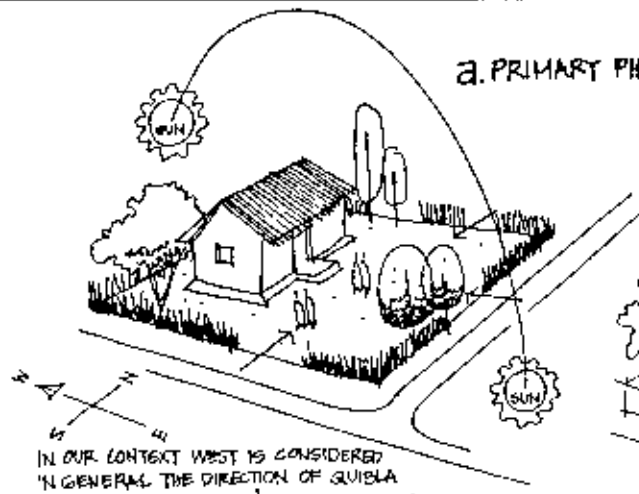


Allahkuri mosque, after transformation

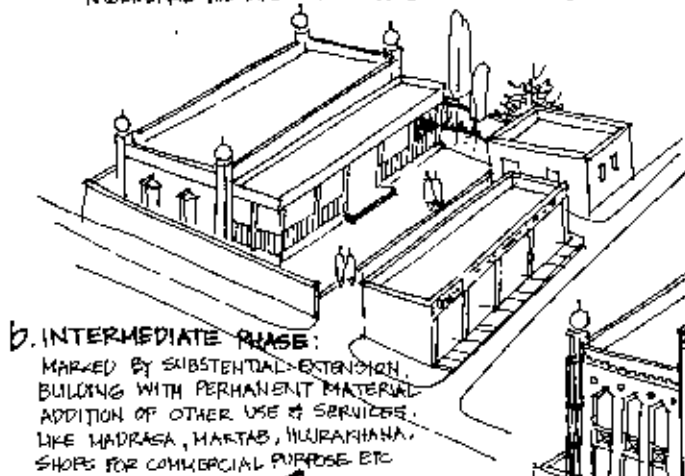
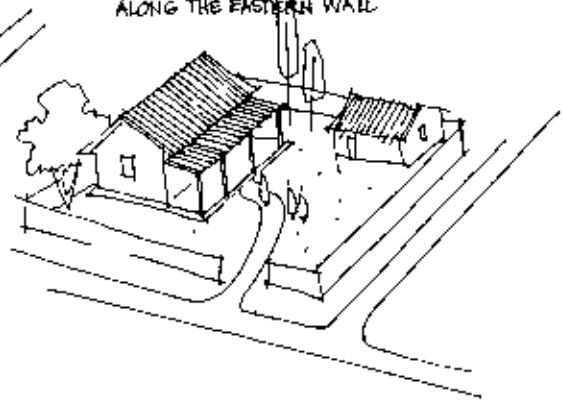
There were similarities in the style, organisation pattern and in the layout of building of both Pre-Mughal and Mughal mosques in Bengal. Both the types have corner towers mainly octagonal, built with thick brick walls, essentially confined within a single built form with a direct approach from outside into the building. However there are a few exceptions like Khan Muhammad Mirdah's mosque that has been placed on an elevated platform with an annexed structure

The significant difference of these two typologies is the absence of transitional space between the outside and inside. The open courtyard forms the transitional space in the North Indian model. **But nothing was developed to replace the shan in local models.** Buildings were placed directly on the ground as a sculpture having free relationship with the nature. When the rulers or influential people financed to build a mosque to represent his power, more importance was given to the details and decorations of the eastern facade of the mosque architecture. Therefore, they may have consciously withdrawn and ignored the essential climatic element i.e. the veranda to maintain or establish the set image that sustained in the model of the dry region. Therefore, in local context addition of a covered veranda along the eastern facade (main entry to the mosque) gradually started. The veranda was acting as a transitional space from outdoor to indoor and serving the climatic and functional purposes of the country

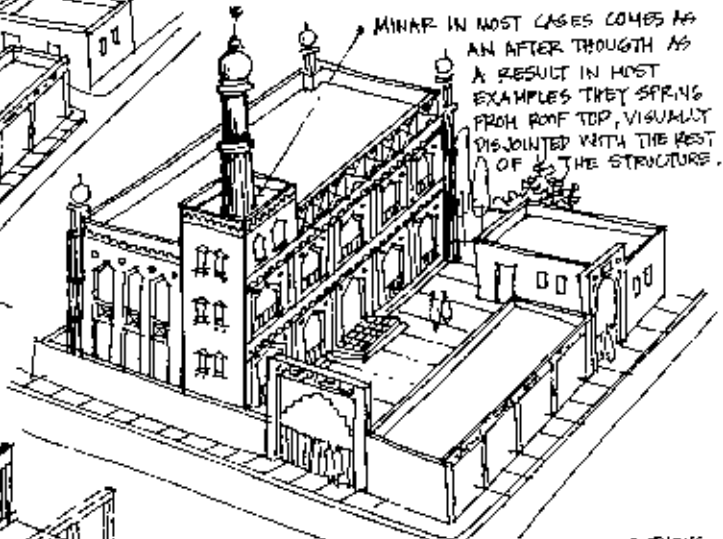
The use of the transitional veranda became more significant over the time. Especially when the question of security and additional accommodation became essential with the increase of density of population in the surrounding community. The technological developments bring more comfort in the prayer hall. Electrical light, ceiling fan, public address system, wall clock, chandeliers etc. were added facilities to the mosque interior which required the main prayer hall to be locked for security other than the prayer time. Whereas the Muslim religion demands that the mosque be the house of God can never be kept close so that anybody can pray anytime. **Thus addition of a veranda became justified for a number of reasons. Architecturally as a transitional space, climatically as a shelter, religiously as a space open for prayer (all the time) and security wise a protection for the main hall.**



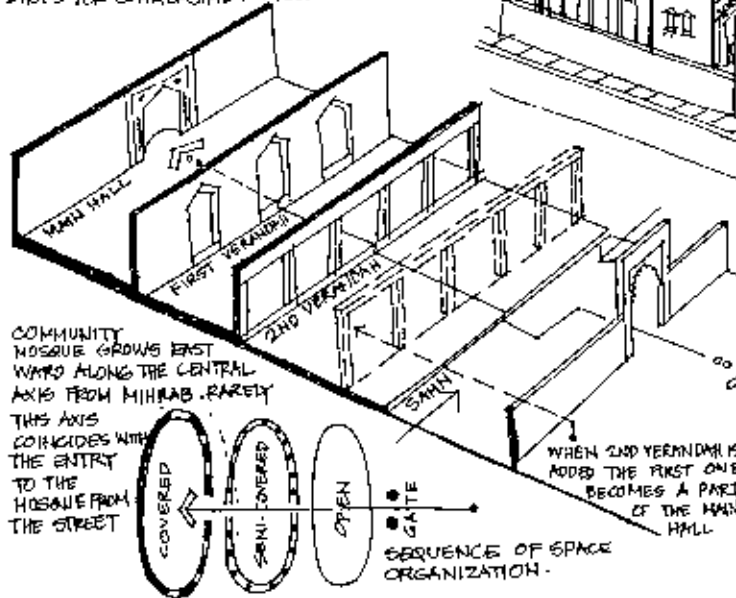
a. PRIMARY PHASE : INITIATES WITH A SIMPLE STRUCTURE PLACED TOWARDS THE WEST OF THE PLOT TO KEEP SPACE FOR FURTHER DEVELOPMENT ON THE EAST. INEVITABLE NEXT ADDITION IS A VERANDA ALONG THE EASTERN WALL



b. INTERMEDIATE PHASE : MARKED BY SUBSTANTIAL EXTENSION, BUILDING WITH PERMANENT MATERIAL, ADDITION OF OTHER USE & SERVICES, LIKE MADRASA, HARTAB, MUJARRIHANA, SHOPS FOR COMMERCIAL PURPOSE ETC



MINAR IN MOST CASES COMES AS AN AFTER THOUGHT AS A RESULT IN MOST EXAMPLES THEY SPRING FROM ROOF TOP, VISUALLY DISJOINTED WITH THE REST OF THE STRUCTURE.



COMMUNITY MOSQUE GROWS EASTWARDS ALONG THE CENTRAL AXIS FROM MIHRAB. RARELY THIS AXIS COINCIDES WITH THE ENTRY TO THE MOSQUE FROM THE STREET

c. FINAL PHASE : ENTIRE SITE TURNS INTO A BUILTUP AREA. VERTICAL EXPANSION NEEDED IN MOST CASES DUE TO SPACE LIMITATION ON THE GROUND

AT THIS STAGE DESIRE FOR IDENTITY LEADS TO ADDITION OF A MINAR AND ELABORATELY DECORATED GATE STRUCTURE

IN THE MATURED STAGE OF FINAL PHASE EXTENSIVE ORNAMENTATION IS DONE IN THE INTERIOR & EXTERIOR. A COMMUNITY MOSQUE RARELY HAVE A FINAL STAGE OF COMPLETION.

Addition of veranda in the historic Mughal mosque of Dhaka city

source Prof Abu H Inamuddin, et al

The sequence of transformation and intervention starting from adding the veranda entered into other areas of functional requirement for prayer, like ablution. When the old mosques were built specific ablution was not in demand. Usually mosques were located near a pond that provided water for ablution. When water supply was available and the ponds were filled in for physical development, the need for ablution space with supplied water became essential, particularly in old Dhaka. Need for additional structure or arrangement for ablution, toilet etc. cropped up with urban densification. (fig: 5.47).

These ancillary facilities had to be developed within the area available along the mosque. In places where more areas were available those were being intervened for commercial and accommodation purposes. Over the time the mosque premise became over loaded with variety of structures that completely over shadowed the original mosque.

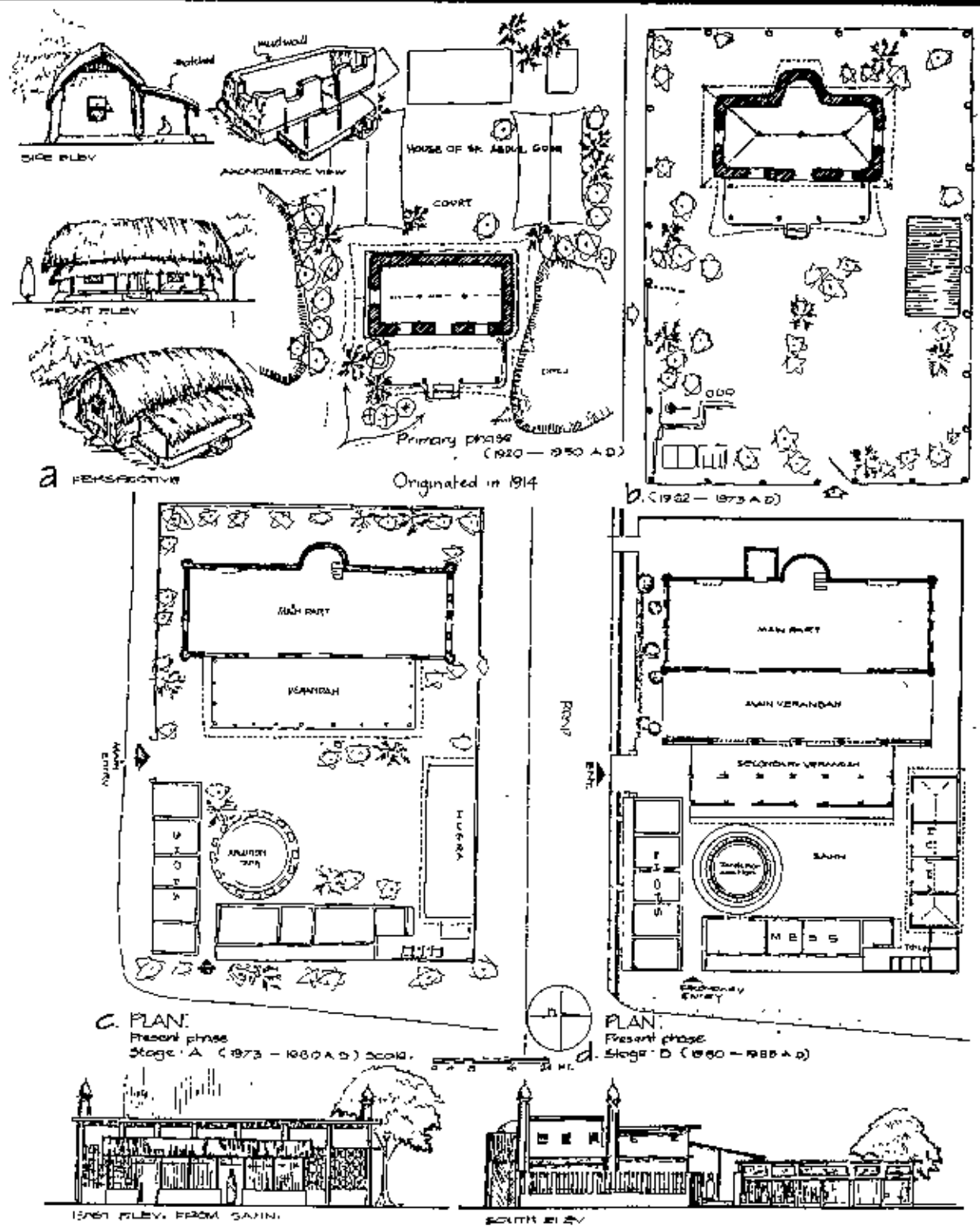
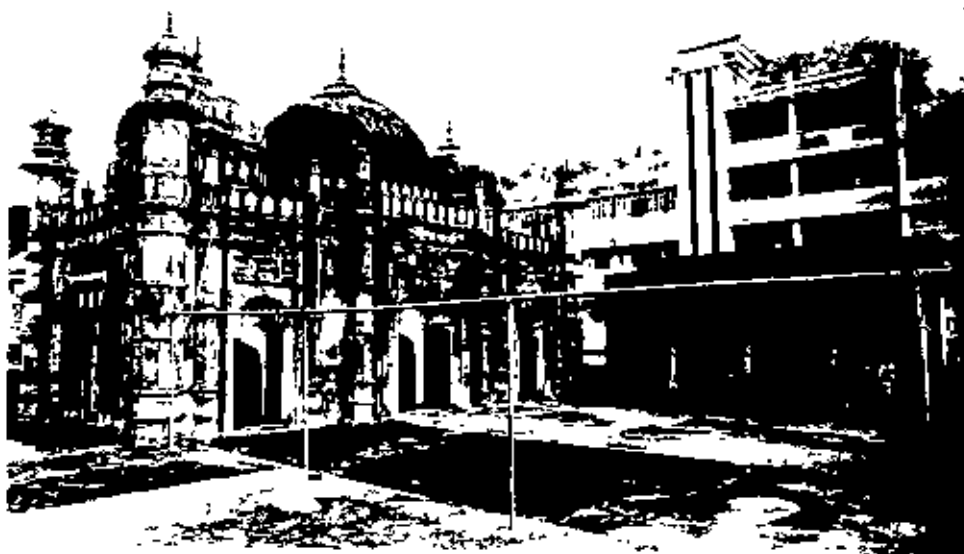


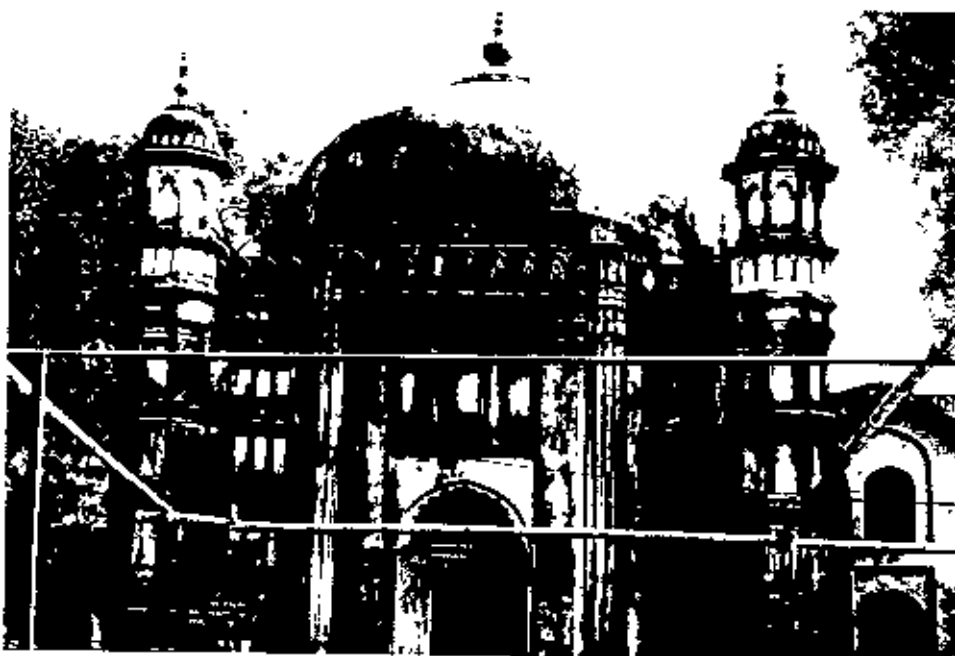
fig 5.47. Gradual transformation of the local mosque

source: Prof. Abu H. Immuddin, et al

In case of the mosques conserved by the Department of Archaeology, the need of additional prayer space in front of the mosque is provided by temporary structure (fig : 5 48) As a result the eastern facade is not over shadowed with a permanent veranda This kind of temporary covered prayer space is thoughtful alternative solution instead of defacing the historic mosque with the permanent element Therefore, the approach is positive to conservation



Khan Muhammad Mridah's mosque



Haji Khawaza Shahbaz mosque

Fig 5 48 Temporary accommodation of prayer space

5.6. Conclusion

From the field study and analysis of the findings of individual mosques, several propositions are provided for each of them which may be considered as recommendation of architectural conservation. After analysing the gradual transformations of historic mosques it is evident that no built forms especially which are for public uses like mosques, cannot be expected to remain static for a long time. It will gradually go for transformation in the name of extension and renovation. Therefore, any suggestion regarding architectural conservation has to take these factors into considerations.

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Chapter 6 : Recommendations on Conservation Issues

Conservation did not get any attention either in practice or as a discipline in Bangladesh. Each monument representing the past history and architectural pattern of definite time should be considered as immovable heritage, whose destruction might lead to socio-cultural and religious disturbance in the country. The recommendation on conservation to protect the mosque architecture of Pre-Mughal and Mughal periods of Dhaka city as well as of the whole country should incorporate the identification, protection, restoration, renovation, maintenance and revitalisation. The conservation plans and activities should be **properly incorporated within the overall local and national development plans.**

5.1. Recommendations

a. Development of a Comprehensive Process of Conservation

A comprehensive process of conservation should be developed for conservation of historic mosques. The primary action should be listing of all the historic monuments and drawing a complete analytical inventories incorporating the architectural, archaeological, historical, cultural, economic and socio-religious data which are needed for implementation of a conservation project. **For safeguarding and to avoid pilferage, documentation of movable and immovable antiquities in the historic structures should also be made.**

A detail study of the materials and technologies used in the original construction of the historic structures should be carried out prior to the implementation of conservation of any mosque by the authorities entrusted. The stages have been described in detail in chapter 3, which may be followed for conservation implementation works in Bangladesh.

b. Policy for Conservation

The policy of conservation should take into account the historical, architectural, socio-cultural, spiritual and aesthetic needs of the contemporary society. **The policy should also reflect the resource constraints of the country.**

Conservation of a historic mosques should incorporate the surrounding environment as a coherent whole i.e. the adjacent areas- natural or man made. Therefore, **there must be a policy for Area Conservation**. The policy should include that,

- a. there should be a legislation incorporating control on the adjacent building heights, setback rules, building bulk and floor area ratio. Effective and efficient mechanism should also be developed to enforce them.
- b. the open space around the historic structure should be determined according to the size and importance of the monument.
- c. a design guidelines for the appropriate physical development of the adjacent areas should be incorporated in the policy.

c. Development of the Concept of Multidisciplinary Team Work

Conservation especially architectural conservation is a multidisciplinary activity. Therefore, for the protection and conservation of the heritage establishment of a team of multidisciplinary professionals towards a common reference is necessary. The team should be composed of the professionals like specialists in conservation and restoration; scholars of Islamic art , history and culture; archaeologists; relevant historians; architects, landscape architects, town planners and engineers; socialists, economists and environmentalists. A well co-ordinated research cell of these multifarious professionals could be created who will carry on studies. Specific education and research on conservation along with practical training programme should be introduced and developed by the team. The Respective authority of conservation as well as the government should encourage and assist the multifarious professional team for research on the historic monuments and their environment.

d. Formulation of a Planning or Advisory Authority

On the basis of districts / locality / community, a planning authority should be formulated comprising of an administrative body and representatives of those districts / locality / community. The authority is essential for the planning and implementation of conservation work at community level. The following are the responsibilities and the functions recommended .

- The local authority should be entitled to formulate and enforce different conservation bylaws as necessary.
- They are responsible to ensure the co-ordination among different groups.
- The local authority must be answerable for their performance at local level.
- They should encourage the local people to participate in the activities of the authority.
- The authority should also take care and ensure that conservation of old structures does not lead to changes in the living pattern of adjacent areas of least privileged social categories. When the question of clearance arises for area conservation the poor inhabitants should be compensated properly.**
- They should also be responsible to deliver the repair and maintenance notice to the respective committees of the listed structures.

e. Development of Design Guidelines for Conservation

A specific design guidelines should be prepared for conservation. A conservation manual for methods of conservation and restoration, including materials and technologies used in the ancient days should be prepared and made available with the design guidelines. The intrinsic pattern of the historic mosques should be considered an essential document in preparing the manual and formulating the guidelines.

Sulphate action is very destructive for historical monuments. Majority of the historic monuments have severe salt peter and disfigurement of wall surface by lichen, algae and fungi. They are causing greater harm to the parts of the monuments repaired and restored. Therefore, it is essential that the materials used for conservation should not be contaminated by sulphate and care should be taken to keep the materials use for conservation free from such contamination.

Drainage system should be properly done with adequate slope on the roof or podium to drain out the monsoon rain water. Blockage of rain water would lead to quick deterioration of the structure. The dampness problem can be solved with proper lighting and ventilation. Otherwise the conserved structure would be affected quickly again for dampness problem. **In addition to all these, some specific suggestions on design are given for the mosques studied (mentioned in chapter 5 as propositions) as follows :**

- a. Binat Bibi's mosque should incorporate the original plan (derived from the previous information) by engraving the plan with mosaic work within the existing floor plan. The colour of the mosaic work should be very different from the existing floor.
- b. Islam Khan Ki mosque should built a transparent screen replacing the solid wall at the first floor level which is now hiding the historic dome of the first Mughal mosque in Dhaka city.
- c. Khan Muhammad Mridah's mosque, must rebuilt the boundary wall which are now being filled with brick work depriving the Mughal character.

f. Creation of Public Awareness

Measures should be taken to familiarise the concept of conservation of the heritage and to bring the same into attention of the institutions, administrative bodies, different professionals at local , regional and national level. Specially speaking awaring the general people about the importance of the historic mosques is of urgent need. Thus the responsibility to protect them from deterioration or deliberate destruction may be gained.

To ensure public knowledge and their awareness of the need of conservation extensive educational and informational programme should be introduced in schools, colleges, universities. Articles on the rich heritage and the importance of their preservation may be included in the text books of primary and secondary level. Use of information media such as television, radio, newspaper, magazine, cinema, exhibitions are effective tools. In this case special education programmes should be conducted for the religious community as they are the main custodians of the mosque structures.

In every cases the information should be clear and comprehensive. The information should be widely circulated among the general people as well as organisations both private and public. The general public should also be informed of the adjacent areas of the listed mosques, the objectives of the conservation programme and the process of carrying it out. Conservation programme cannot be done without the willingness, co-operation, participation and active help of the local people. Constant co-operation between the individuals of the community and the public authority can assure successful implementation of the project.

To raise the public awareness and support in the process of conservation different professionals, Bureaucrats, technocrats, political bodies as well as the audio-visual media will have to play a very important role. Efforts should also be taken to arrange workshops, seminars on conservation. The Aga Khan Trust for Culture launched an Architectural Conservation Workshop in March-April 1989. **A further consultative workshop is deemed necessary, to formulate a standard procedure for the conservation of historic structures.** Workshops on conservation of historic structures to visit on site activities for comparative purpose in various countries should be promoted. All this type of workshops, seminars can be very useful to provoke and to create awareness to the policy makers, professionals and to the common people. **The issue of conservation has to be taken seriously for the survival of the heritage and culture.** So that the people of tomorrow can cherish and learn from the richness of yesterday.

g. Measures Against the Destruction of Heritage by Men and Nature

The existing heritage of Bangladesh in many areas are exposed to the destruction caused by the people's growing demand for urbanisation. The destruction of the heritage is in fact at the hand of men and nature. There are instances of religious enthusiasts demolishing old mosques to enlarge or rebuilt them to earn a new religious merit. There are even a number of cases where large scale renovations are made to protected monuments by local people totally disregarding their characteristic features. Again the tropical monsoon climate is causing decay and damage to untold number of historic monuments every year. Therefore, it is necessary to take measures to stop the ignorant demolition, irrational and inappropriate reconstruction in the name of development, expansion, renovation and modernisation.

h. Formal Education on Conservation

Different courses can be offered to the teachers of different institutions and give training to different professionals / personnel on conservation. So that they can develop themselves as guides for the tourists whoever comes and see the remains of the Muslim heritage. The intra-regional relation trainee exchange programme, within the region, among member countries

of SAARC (South Asian Association for Regional Co-operation), on conservation should be initiated.

Initiatives should also be taken to revitalise the crafts techniques indispensable for safeguarding the heritage. Therefore, it is vital to encourage the training of skilled workers and craftsmen specialising in the method of conservation and encourage them to develop the traditional method of construction of the mosque architecture and incorporate the methods into contemporary modern techniques of construction. . In that respect training of adequate number of professionals of different field like craftsmen, ostarar and technicians is essential. So that, they can incorporate the application of modern techniques in the conservation work. If necessary craftsmen may be employed from other places to train local mason.

The Department of Archaeology usually take the responsibility to protect historically important structures as they have some qualified and proper personnel for their preservation, protection and maintenance. But the country require more expertise so that any untrained person need not extent or repair of the structure. Bangladesh University of Engineering and Technology in the Department of Architecture can intensify the number of courses on conservation. They can even open up a new department or include another stream on conservation in post graduate level.

i. Co-operation of the International Agencies

It is important that institutions who are linked with conservation should seek co-operation from the International agencies. This will increase competence and specialisation in the field of conservation. The co-ordination of multilateral or bilateral co-operation may be in the form of exchange of information through publications, organisation of seminars and symposium; arrangements of fellowships; exchange of scientific and technical staff; joint action regarding implementation of large scale conservation or restoration projects of historic monuments. Conservation policies, sharing of concepts and plans of the cultural and historical heritage of other countries may also be of great help.

j. Arrangement of Financial Assistance

There are tremendous limitations in finance for conservation. The financial assistance in Bangladesh come usually in the following ways,

- a. Formal financing from Government
- b. Private financing
- c. Institutional financing

Whatever resource comes from the Government, measures need to be taken so that the assistance are guaranteed from the annual budget of Bangladesh Government. Financial assistance from the private and the institutional organisations need to be increase.

To encourage private organisations as well as individuals in investing in conservation work **Government may float tax deduction programmes and bonuses. Incentives may be provided in different forms. Prizes, honourable mentions could be some of them.**

k. Establishing Regular Maintenance Programme

To ensure the protection of the structure and its surrounding areas constant supervision and maintenance programme should be adopted. Urgent repairs and immediate attention taken should be highlighted repair works. **An adequate budget must be allocated for this purpose.**

6.2. Conclusion

Mosque as a building type in a rudimentary structure originated from our Prophet Hazrat Mohammed's mosque at Madina, Saudi Arabia. Over the centuries the mosque typology matured in different aspects and found expression in different culture and climate in different ways.

The Muslim heritage can be traced down in Bangladesh as well as in Dhaka city through the existence of many mosques and tombs of Pre-Mughal and Mughal periods. But it is very unfortunate that the heritage is torn down by abrupt changes and transformation of the original structures in the name of extension, renovation and so called modernity. At present Dhaka is under pressure of growth of new and unplanned development which pose

a tremendous threat by destroying the visual continuity and architectural integrity of the historic monuments.

Majority of the historic mosques as mentioned in chapter 3, are taken care by a committee. They look after the mosques through donations. In many cases large amount of donations are available from wealthy personnel or from Islamic Countries, which is a new phenomenon. The donations are usually given for the maintenance and conservation of the structure, if necessary. However in most of the cases less is spent in retrieving the original mosque and more is spent for the extension and glorification of the mosque complying with contemporary images of pseudo modernity . As a result they do more harm by means of augmenting participatory design stage by stage.

To protect the heritage different measures could have been taken by the Government or any authority in several ways. Instead the Government acted in the line of local people. The glorying examples are the Star mosque, Kawran Bazar mosque, Ambar mosque. All of them have been renovated denying their originality So naturally it has encouraged other people to undertake similar steps for other mosques. In some cases these religious structures becomes a place of commercial earning for the mosque. So eventually they are encroached upon by commercial activities, like shopping and madrasa. All these additions denounces the natural setting of the mosque and this is being justified for the mosque maintenance at the cost of the mosque itself.

Moreover, the climate of the country is not at all supportive for the preservation of the historic mosque architecture. The structures fail to withstand the rainy weather and floods of the country. Frequent floods and intense rainfall cause extensive damage and deterioration. Therefore, protection of heritage through the art of architectural conservation is essential. The objectives of conservation has to be highlighted and set properly. The conservation objectives are not a linear activity but a multi-dimensional parallel activities. Experience says that **money may be more harmful as it may work against conservation**. So money is not the primary issue over here. More important is the application of the financial resources in a justified, judicial and planned way. A number of objectives have to be fulfilled here.

The awareness of architectural conservation is limited within the academic circle and few learned bodies. The first effort should be to propagate the knowledge about the importance of conservation to the general mass. It is not expected that people will have either the technical knowledge or the ability to undertake any conservation effort. Any conservation proposal to retrieve the original mosque without involving the community will be a futile effort. Simply because, years of contribution in terms of labour, material, financing effort have been put by the community to bring the mosque to its present level. The community people value all these changes as their contribution to modernisation and improvement. Therefore, the **architectural conservation of the historic mosques are definitely not only a physical issue, rather a socio-cultural issue.** It involves a long term programme through which the original structure may be revived in part or whole. This can only be done by motivating users and relevant personnel. The idea is not to reconstruct or rebuilt what has been changed or destroyed in course of time but to retain and preserve whatever is available now. To proceed to shape built forms and accordingly to re-establish its original characteristics is a long term plan.

The conservation should never be hurried in its manifestation. It involves the whole society not just in terms of knowledge but also to experience it directly by being involved in the process of conservation. It is usually a very slow and painstaking process, demanding a whole hearted involvement of the society. Any effort imposed from external sources might be rejected.

The fact remains that architectural conservation is not a simple process, it is a sustained activity of caring and maintenance by the users who share the value of conservation as their own identity. Therefore, it is natural that conservation is a never ending process---the children learn from their elders and they continue the same and transcend the knowledge perpetually to the future generation.

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Appendix-A

Refurbish	means to clean up and make the structure look fresh
Refurnish	means to furnish again, usually with the connotation of duplicating the original furnishings as closely as possible. (1)
Replica	is a precise duplicate or close reproduction of the original structure.
Preservation	is the keeping of something that exists and safe guards it from any further changes than those which it is already undergone.
Restoration	is returning an existing building to its original appearance and condition by removing later additions, replacing missing parts, cleaning painting and the like.
Reconstruction	is described as building something new as a representation of that which has gone Buildings are sometimes erected on the original foundations of previous buildings. To rebuild is a synonym for to reconstruction but it may also be used in the case of a house being moved from its original site to a new location as at an open-air museum. If the house has had to be largely or entirely dissembled in order to move it and then rebuilt on its new site. In this case, though rebuilt, the house is original in the sense that all or most of its components are original.
Imitation	is something that follows the style or pattern of the original but is not a close copy.
Simulation	is something that assumes the appearance of the original falsely by imitating its identifying characteristics, usually superficial and stereotyped like a stage-set.
Maintenance	when the structures are maintained to preserve the historic architectural values. (2)

Appendix-B

Pre-Mughal Mosques

1. Binat Bibi Mosque , Narinda, (1456)
2. Mosque and Gateway of Naswallah Gulli, Urdu road (1459)
3. Mirpur Mazar mosque, Mirpur (1480)

Mughal Mosques

1. Islam Khan ki mosque, Sayad Aufad Husain Lane, Islampur (1610-13)
2. Zindabahr Jami mosque, Zindabahr (1612)
3. Nava Rai Lane mosque , Nava Rai (beginning of 17th century)
4. Idgah mosque, Sat masjid Road (1640)
5. Hazi Begh mosque, Dhakeshari road, Palashi (1642)
6. Churihatta mosque, Churihatta, Chaukbazar (1649)
7. Hayat Bepari's mosque, Narinda (1668)
8. Magbazar mosque, Nayatola, Maghbazar (1670)
9. Chaukbazar Shahi mosque, Chaukbazar (1676)
10. Amligola mosque, Jagannath Shah Road (1676)
11. Khawaja Amber mosque, Kawran Bazar (1677-78)
12. Shaista Kahn's mosque, Midford (1668-78)
13. Mosque at Lalbagh Fort, Lalbagh (1678-79)
14. Haji Khawaza Shahbaz mosque, Sohrawardi (1679)
15. Musa Khan mosque, Karzan Hall (1679)
16. Sat Gumbaz mosque, Sat Masjid Road (1680)
17. Allahkuri mosque , Muhammadpur(1680)
18. Vat mosque, Lalbagh Road (1686)
19. Banshal Jami mosque, Banshal (end of 17th century)
20. Nimali mosque, Nimali (1685)
21. Dilkusha mosque, Matijhill (end of 17th century)
22. Mosque of Khan Muhammad Mirdah, Atish Khan, Lalabagh (1704)

23. Mosque of Kartalab Khan (Murshid Kuli), Begam Bazar (1700-4)
24. Mosque of Farrukh Siyar, Shayasta Khan Road, Lalbagh (1703-6)
25. Marium Saleha mosque, Babupara, Nilkhet (1706)
26. Jail Garden mosque, Central Jail Road (1714)
27. Gor -I Shahi mosque, Azimpur (1726)
28. Armanitola mosque, Sharatchandra Chakrabarti Road, Armanitola (1735)
29. Tara mosque, Abul Khairat Road, Armanitola (1735)
30. Azimpur mosque, Azimpur, Nayapoltan (1746)

Note:

The list has been prepared by Shabnam Faruqi in her M. Phill Thesis in 1995 from the University of Dhaka.

