Somapura Mahavihara Visitors Center

By

Shahriar Ahmed Shad
15308006

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

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Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
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Student's Full Name & Signature:

Shahriar Ahmed Shad
15308006

Approval

The thesis titled “Somapura Mahavihara Visitors Center” submitted by
Shahriar Ahmed Shad (15308006)
Of Fall, 2020 has been accepted as satisfactory in partial fulfillment of the requirement for the Bachelor of Architecture degree on 30-12-2020.

Examining Committee:

Supervisor:
(Member)

_____
Fuad Hassan Mallick, PhD
Professor and Dean,
School of Architecture and Design

Supervisor:
(Member)

_____
Muhammad Faruk, PhD
Associate Professor,
Department of Architecture

Supervisor:
(Member)

_____
Huraera Jabeen, PhD
Associate Professor,
Department of Architecture

Supervisor:
(Member)

_____
Abul Fazal Mahmudun Nobi
Senior Lecturer,
Department of Architecture

Departmental Chairperson:
(Chair)

_____
Zainab Faruqui Ali, PhD
Professor,
Department of Architecture

Abstract

Cultural heritage is the conveyance of life-style developed by any community passing through generations. It plays a significant role in building up connections to the past. During The Pala Dynasty several Viharas around Bengal were established. According to Tibetan sources, five great Mahaviharas stood out: Vikramashila, Nalanda, Somapura Mahavihara, Odantapura and Jaggadala. Somapura Mahavihara is one of the finest examples of the flourishment of Buddhism in Bengal. It had once been a center for education and meditation for Buddhist scholars. Although, Somapura Mahavihara holds significant value in our history but the unplanned development around the ruin and lack of tourist facilities demotivates tourists to come and also create a negative impression. The aim of the project is to create cultural heritage awareness among the people that will come in handy to heritage conservation and to cater facilities for the tourists, archaeologists, young researchers and art enthusiasts as well.

Keywords: Cultural Heritage, Heritage Management, Somapura Mahavihara, Vihara, Buddhist Architecture, Market, Local Economy.

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List of Acronyms

UNESCO	United Nations Educational, Scientific and Cultural Organization
UMass	University of Massachusetts Amherst
WWII	World War II

Chapter 1: Introduction

1.1 Introduction to the Project

Cultural heritage is the conveyance of life-style developed by any community passing through generations. The word 'cultural heritage' creates a picture of artifacts like paintings, buildings or historic sites, but its' impression is more than these materialistic approaches. It is the evidence of human growth and creativity. Architectural Heritage stands as a threshold between the past and the present that speaks about the past and portrays the gradual development of any civilization.

Buddhist Architectures are one of the earliest structures in Indian subcontinent. It started flourishing during the 'Mauryan' dynasty. 'Stupa' was the earliest form of Buddhist structure. A number of monasteries grew up during the Pala dyansty in the eastern regions of the Indian subcontinent, comprising Bengal and Magadha. According to Tibetan sources, five great Mahaviharas stood out: Vikramashila, Nalanda, Somapura Mahavihara, Odantapura, and Jaggadala. Sompura Mahavihara (also known as Paharpur Bihar) is located in Naogaon district of Bangladesh. The structure consists of 177 cells and a traditional Buddhist stupa at the center. The rooms were used by the monks for accommodation and meditation. The whole complex was built with bricks, locally available material.

Somapura Mahavihara is one of the finest archeological establishment in Bengal. Shompura is likely to be one of the few remaining Buddhist sites in Bangladesh. In no other place of Bangladesh has such prominent Buddhist ruins giving it a unique character. It's a perfect

amalgamation of the tangible and intangible history of Bangladesh. A large number of stupas and shrines of various sizes and shapes, terracotta plaques, stone sculptures, inscriptions, coins, ceramics etc. have been discovered during excavation. Somapura was designated a UNESCO World Heritage Site in 1985. Although being a prominent ruin and a large number of artifacts have been discovered, the museum size here is significantly small. Due to insufficient space many artifacts are not displayed. Lacking of proper lighting, ambience and gallery space demotivate the visitors which leads to unawareness to most of the people about the cultural heritage, history and architecture.

The bottom part of the vihara is decorated with unique terracotta plaques. During excavation the upper layer of soil was cleared to ensure the visibility of the structural framework. As a result, the vihara became a basin for the surrounding area. Heavy rainfall and salinity started decaying the terracotta plaques placed at bottom of the central temple. To prevent the decay original plaques were removed from some of the parts and replicas are being placed temporarily. Although the terracotta plaques are unique and fragile, no fabrication or material lab initiation has taken under consideration. The other shrines, ceramics, sculptures are also facing the same problem and lack of proper chemical and material testing lab these valuable artifacts are getting damaged.

Even being recognized by UNESCO world heritage site, the infrastructural development is very poor. Limited infrastructural support and lack of maintenance have created a serious concern about the future of this magnificent cultural heritage of Bengal.

1.2 Aim and Objectives of the Project

The goal of this project is to create cultural heritage awareness among the people that will come in handy to heritage conservation and to cater facilities for the tourists, archaeologists, young researchers and art enthusiasts as well.

The ‘Somapura Mahavihara’ needs to come under focus regarding resource management and the project aims to do this by:

- Promoting the area as a popular tourist destination
- Create cultural heritage awareness
- Providing a universal platform for art and crafts
- Utilizing museum space as a learning platform

1.3 Hypothesis

Reinvigorating the ‘Somapura Mahavihara’ through ancillary architecture.

1.4 Project Summary

Name of the Project: **Somapura Mahavihara Visitors Center**

Implementer of the Project: Department of Archeology, Bangladesh

Location:Badalgachi, Naogaon

Site area available for the Project Development: 6.6 acre

Proposed built-up area of the Project: 60,480 sqft

Proposed Program of the Project:

- Museum
- Library
- Office and Research area
- Multipurpose Hall
- Market Area
- Restaurant

Chapter 2: Literature Review

2.1 Culture and Heritage

Culture defines a civilization and heritage reflects the aspects of that civilization. Culture includes a vast area to define itself. In 1952, the American anthropologists, Kroeber and Kluckhohn, critically reviewed concepts and definitions of culture, and compiled a list of 164 different definitions. Apte (1994: 2001). Edward B. Tylor's classic definition of 1871 is: 'Culture or civilization taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society'. This definition points on two issues; one culture includes all aspects of belief and behavior; second, it is learned through social interaction, often unconsciously.

According to the UMass Center for Heritage and Society, 'Heritage is the full range of our inherited traditions, monuments, objects, and culture. Most important, it is the range of contemporary activities, meanings, and behaviors that we draw from them'. At first glance heritage may indicate the excavation, preservation and restoration but it is much more than this. UNESCO divides Heritage into two parts; Tangible and intangible. Like the historic cities, buildings, sculptures; languages, songs, poetry, norms are also as important. Both play equal role in defining a culture.

Here, Tangible Heritages are those having physical aspects which divides into two parts; movable and immovable Heritage. Movable heritage, which can be moved from one place to another i.e. objects. Immovable heritages are those which cannot be moved from one place to another i.e. infrastructures. Intangible heritage deals with the immaterial aspects of the heritage for instance literature, music, religious ceremonies, traditional practices, language etc.

(UNESCO). One of the foremost elements that helps to change a culture completely is infrastructure. According to Reza (2012) during the early Gupta and Pala period buildings techniques, crafts, sculptures developed. The famous monasteries; Vikramashila Vihara, Odantpuri Vihar, and Jagaddal Vihar were built which had a great impact on the local culture and practices.

2.2 Buddhist Architecture in Bengal

Bengal is enriched with its' numerous multicultural groups which evinces the existence of many early settlements. Buddhist settlements are one of those earliest settlements in Bengal. According to Doza (2016) during the 'Mauryan Dynasty' Buddhism started to spread in the Indian sub-continent following the 'Ganga' river banks, previously known as 'Ganga Rastra'. Pundranagar (Mahasthangarh), Somapura Mahavihara (Paharpurvihara), Shalbonvihara are one of the most important Buddhist Archaeological Sites situated in Bangladesh. Along with these, there are numerous unexplored archeological sites ranged in this delta.

After the fall of Mauryan Dynasty, Sungas (c. 185 to 73 BCE) came into power and Buddhism lost its royal patronage (Reza, Mowla 2015). Buddhism declined but was not completely vanished. Some non-orthodox Sunga rulers used to allow people practicing Buddhism during their reign. First century AD Kushanas came into power and Kanishka raised Buddhism to the state religion. Discovery of images of Buddha, and coins and inscriptions aided the evidence of flourishing condition of Buddhism in Bengal during his reign (Chakma, 2008).

The golden period of Bengal was during the reign of Guptas (RC, 2015). A number of architectures were established during this period including the famous Monastery of Nalanda. Although, the Gupta rulers practiced Brahmanism, they used to patronize Buddhism. During

this period many temples and stupas were found across the Bengal (Mookerji, 2007). Buddhism was fully flourished during the Pala dynasty as the Pala rulers practiced Buddhism. The most striking architectures were found by the Pala rulers. Vikramashila, Somapura Mahavihara were found in Pala dynasty.

Buddhist architectures in Bengal are mostly religious. The basic form came from the Stupa structure. The idea is to create an ambulatory circulation (pradakhsina) around a central shrine. Buddhists in this region used the locally found materials for construction. Ancient Buddhist spiritual settings were more precisely done with the Buddhist philosophy that was appreciated by the contextual local landscape (Doza, 2015). Buddhist primitive ideas and strategies for choosing the landscape follows:

- Orientation
- Philosophy of Buddhism
- Topographical analysis
- Consideration of urban core and economic life zone (fluid city)
- Vertical limits
- Aqua permeability
- Impermeable area for the locals

2.3 Preserving the Heritage

Tangible Heritages tend to wane faster unless proper measures are taken. As heritage bears the culture and history of any civilization, preserving a heritage in a mannered way is extremely

challenging and full of controversies. Here, comes the role of conservation of heritage. According to Sandu (2008) the conservation process aims to valorize the cultural and natural heritage assets and to preserve their historical messages. Like the tangible heritage; intangible heritages are also fading away due to the rapid change of technologies and adaptive multi-cultural practices. Preservation of any sort of heritage indicates the safeguard of the norms, principles, preservation techniques, research, restoration from the discovery of the asset to the intervention (E.C.C.O., 2008; Perusini, 2004).

The Department of Archeology, Bangladesh has enlisted 493 archeological sites all around the country. Among these 493 sites only 24 has minimum infrastructural establishment to ensure the protection and preservation of these archeological establishments. Conservation of the heritage sites is one of the primary tasks to revive the culture of any civilization. Conservation Science, as a new field, is interdisciplinary, complex, and global in character both scientific (theoretical) and technological (practical) that adopts the modern concept of integrated conservation (Moldovan, 2010). This concept serves two aspects of cultural heritage at the same time; one it spreads knowledge about cultural heritage and preserves the site. Out of this grew the concepts of collaborative conservation and participatory conservation which focus on stimulating all stakeholders involved in the process (cultural, social, economic and environmental) and the active involvement of the public and community members (Spiridon, 2013). This has influenced any sort of preservation by collaborative work and community engagement.

2.4 Cultural Heritage Management

People valuing any tangible or intangible heritage with their association known as Cultural Heritage. This includes norms, social values, architectural or scientific significance and historic places that bound people. Any transform to the world heritage affects the significant portion of the population. Good practices in heritage conservation and management are based on accurate information about conditions, materials, and transformation of built heritage sites. Therefore, heritage site documentation and its analysis are essential parts for their conservation (Reza, 2012). Heritage documentation includes three parts.

i. Visual (photographic, video and 3D model)

ii. Measured (plans, sections, elevations and details)

iii. Information (related to its present state and significance)

Heritage Management plan is essential to support any heritage site. This includes different set of actions to cater facilities to its' visitors and to the site itself. Incorporating partners, site specific goals, creating markets, setting a benchmark, engaging stakeholders and business plans are equally important (Kawharu, 2014). Local engagement and activity for tourists tend to attract more visitors to any heritage site. This promotes positive visitor experience and creates a gateway to introduce local goods and services to the world. According to Kawharu funding plays the most vital role for any heritage site. Partnering with industries and engaging stakeholders create channels for funding and help to boost local economy. This management plan aids to set a benchmark and pushes the managing sector to achieve it. Above all, national level policies and their implementation is a must to achieve the heritage management goals.

Heritage management plans can simply be explained with this table below:

Table: 2.4.1; Heritage Management

Source: Information from 'World Heritage and small island developing states: Land Management and community Involvement'; organized by Author

2.5 Significance of Cultural Heritage

Cultural Heritage has substantial significance on any civilization for its influential aspects. There are four aspects to determine the importance of cultural heritage (Raja, T 2013). These aspects help to determine the importance of any cultural heritage.

i. Historical significance

ii. Social significance

iii. Aesthetic significance

iv. Scientific significance

Chapter 3: Site Appraisal

Somapura Mahavihara is a salient archeological site in Bangladesh, set in a town named Paharpur under the Badalgachhi Upazila of Naogaon district. The area is connected with the nearby Railway station Jamalganj, the district town Naogaon and Jaipurhat town by metalled roads. It sits in the midst of alluvial flat plain of northern Bangladesh.

Figure 3.1: location

Source: Author

3.1 Site surroundings

In contrast to the plain monotonous level, Somapura Mahavihara stands about 24m high from the surrounding level. Ancient Vihara which was covered with jungle, locally called ‘Pahar’ or hill from which the place got the name of Paharpur. The surrounding area is flat and due to

excavation, the ruins itself went under 3-4 meters. The site has two major nodes; one Jamalgonj-Paharpur road which connects the Joypurhat highway, another one connects the Naogaon-Joypurhat road.

Figure 3.1.1; site surroundings

Source: Author

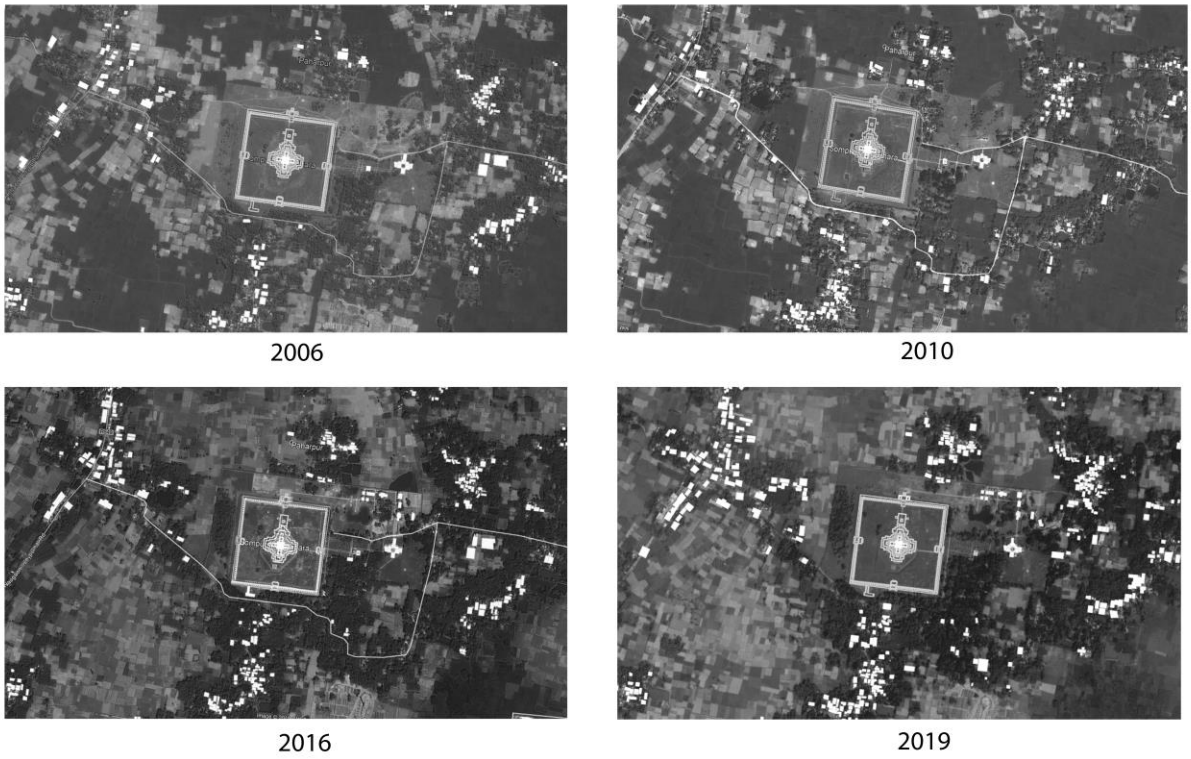
There are two major nodes near the site. Node 1 and 2 (fig: 3.1.1). Node 1 is more happening then node 2 for some specific reasons. Node 1 engages more people than node 2 as it engages light weight vehicles, restaurants, souvenir shops and other variety shops that complement the people engagement. The northern part of the site has temporary settlements (mostly with iron corrugated sheets) without proper roads. The southern parts of the site is highly dense with residential buildings. The museum stands at the eastern side of the Vihara.

3.2 Historical Development of the Site

Somapura Mahavihara sits on a plain land in the northern part of Bengal. As per Buddhist philosophy monasteries needs to be placed somewhere away from the locality to avoid the hustle and keep that as a sacred place for meditation and learning. The intention for Somapura

Mahavihara was same. The monastery is located in Badalgachhi Upazila, 31.6 km away from the Naogaon district and 14 km from the Joypurhat district. As the monastery was placed intentionally away from the locality, till now the population density around the monastery is low in contrast with the other areas of the corresponding Upazila.

Figure: 3.2.1: Chronological development



Source: Author

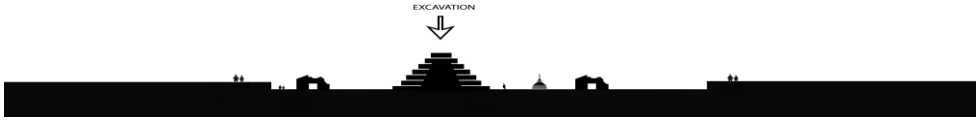
Although the monastery is placed away from any growing settlements but day by day informal structures are growing around the site. Chronological development (fig: 3.2.1) shows the increasing infrastructure around the site from 2006 to 2019 that evinces the increasing settlements.

3.3 Geographical Characteristics of the Site

The monastery is located in a plain land. The surrounding lands are mostly used for harvesting. The area is flood free because of its' geographical location but due to excavation the monastery

site went 3-4 meters down. There is no major water bodies around the site and during rainfall the monastery area becomes a natural basin for its depth.

Figure: 3.3.1 Geographical Characteristics

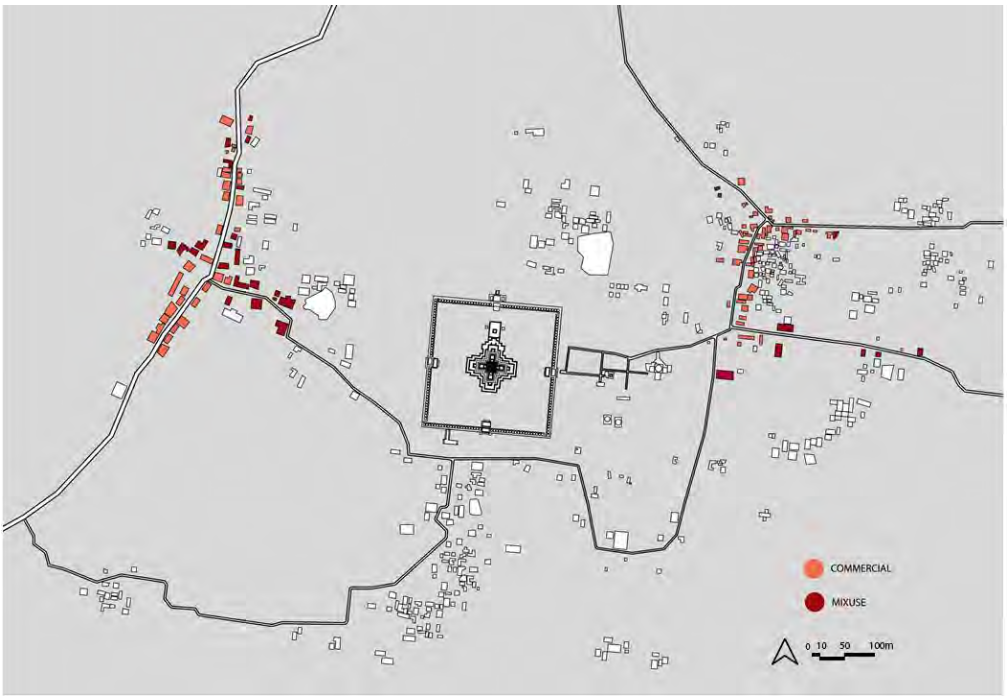


Source: Author

3.4 Land-use Pattern of the Surroundings

The area is mostly surrounded by farmland. Two major nodes are located close to the site (fig: 3.1.1). Most of the buildings are residential. Structures close to the nodes have now being used as commercial buildings to facilitate tourists.

Figure: 3.4.1 Land use pattern

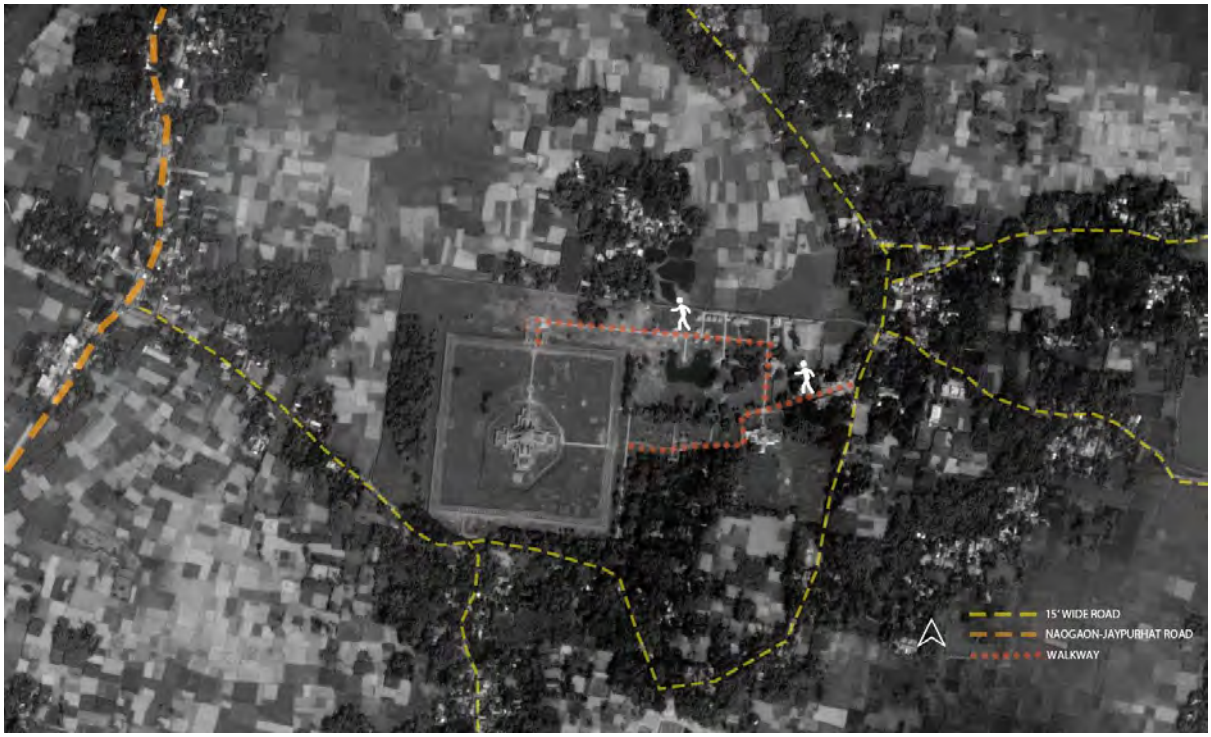


Source: Author

3.5 Accessibility and Connectivity

Somapura Mahavihara is located near the Naogaon-Jaypurhat road. The site is only accessible from the 15’ access road. A walkway connects the Vihara from the Access road creating two separated walkways from museum entry point. One of it leads the visitors to the main entrance of the Vihara located in North, other takes the visitors to the eastern gate of the Vihara.

Figure: 3.5.1 Connectivity

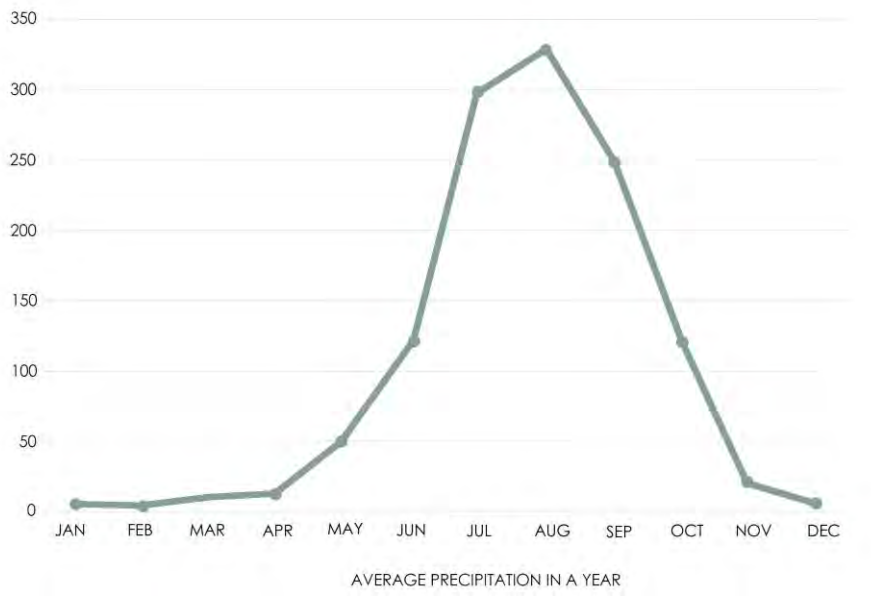


Source: Author

3.6 Climatic Conditions

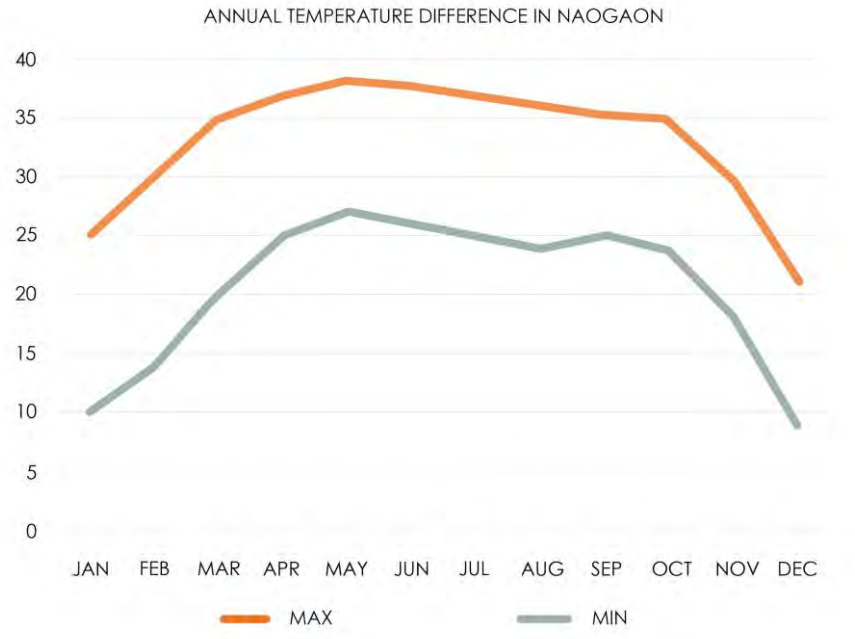
Bangladesh has a subtropical monsoon climate. Naogaon is on the northern districts of Bangladesh. Wide seasonal variations in rainfall, high temperatures and humidity is very common here. Being a northern district winter stays a little long here. Precipitation rate and temperature are average here.

Table: 3.6.1; Precipitation



Source: http://live.bmd.gov.bd/map/77/#Badalgachhi

Table: 3.6.2; Temperature



Source: http://live.bmd.gov.bd/map/77/#Badalgachhi

3.7 Socio-Cultural and Economic Contexts

Most of the lands near Somapura Mahavihara are farmland. The area is still not developed and dominated by the people who are directly or indirectly related with farming and agriculture. Small businesses are developing around the area who are directly dependent on the tourists visiting Paharpur. Temporary Food and souvenir shops are growing around the existing gate of Somapura Mahavihara which are initiating the unplanned development around this historic site.

3.8 Images of Existing Site Condition

Image 1: Somapura Mahavihara

Image 2: Entrance

Image 3: Site surroundings

Source: Author

Somapura Mahavihara is a UNESCO World Heritage Site. Placing any new structure here is challenging. Several facts need to be considered while developing the site. Location of the new structure, design expression, material selection and relation with the local context is crucial considering the local climate. The new structure should be placed at least 250 meters away from the heritage building.

Chapter 4: Case Study Appraisal

Three case studies are taken and critically analyzed to understand the purpose of those particular buildings, design considerations and design approach. Among the three case studies, two of them are selected from international context and one from local context. These building are analyzed based on some common features.

4.1 Kolumba Museum

Kolumba Museum, designed by famous Swiss Architect Peter Zumthor, is in Cologne, Germany. The museum was commissioned by a competition entry, where Zumthor came up with an innovative and humble idea to encompass the ruins of the church utilizing the upper level and a side wing to house the show ranges. The museum has sixteen exhibition rooms and 1750 square meters of total floor area.

Figure: 4.1; Kolumba Museum

Source: inexhibit.com

4.1.1 Environment and micro-climate

Kolumba Museum sits on a historic Roman Catholic Church destroyed in WWII. The building is a simple and significant composition of warm-colored volumes and coordinating both to its urban context as well as the historic site where is located. The museum incorporates the ruins of the late-Gothic Church and the chapel 'Madonna of the Ruins' designed by a German architect, Gottfried Böhm in 1950. Since, the museum sits in an urban context, it has direct access from the secondary road.

Figure: 4.1.1.1; Museum location

Source: Author

The orientation of the museum derives from the ruins. Zumthor placed the new structure respecting the Catholic Church and keeping the mother structure prominent.

4.1.2 User behavior and requirements

The museum houses sixteen exhibition rooms in three levels. Ancient and modern religious arts are displayed in the galleries. Minimalism and simple form of display is all around. There is a secret garden courtyard-a quiet and secluded place for reflection at heart of the museum.

Figure: 4.1.2.1; courtyard

Source: archute.com

The museum is designed for exhibiting religious painting with the essence of history and modernism. The sixteen exhibition rooms have the foremost shifting qualities with respect to approaching sunshine, measure, and extent pathways. The only common thing they have is, decreased materiality of the brick, mortar, plaster and terrazzo which shows up the works of craftsmanship. As the building piled up on a historic church a section of the building offers some books of sacred arts and a secluded reading corner for the readers.

4.1.3 Form and Function

The form of the building came from the remaining ruins of the late gothic church. The intention was to create a linkage between the past and the present, at the same time respecting the neighborhood. Externally the building portrays massiveness with a humble intention to blend with the ruins. The interior expresses more about the past and creates a dramatic journey through the excavated ruins.

Figure: 4.1.3.1; Form derivation

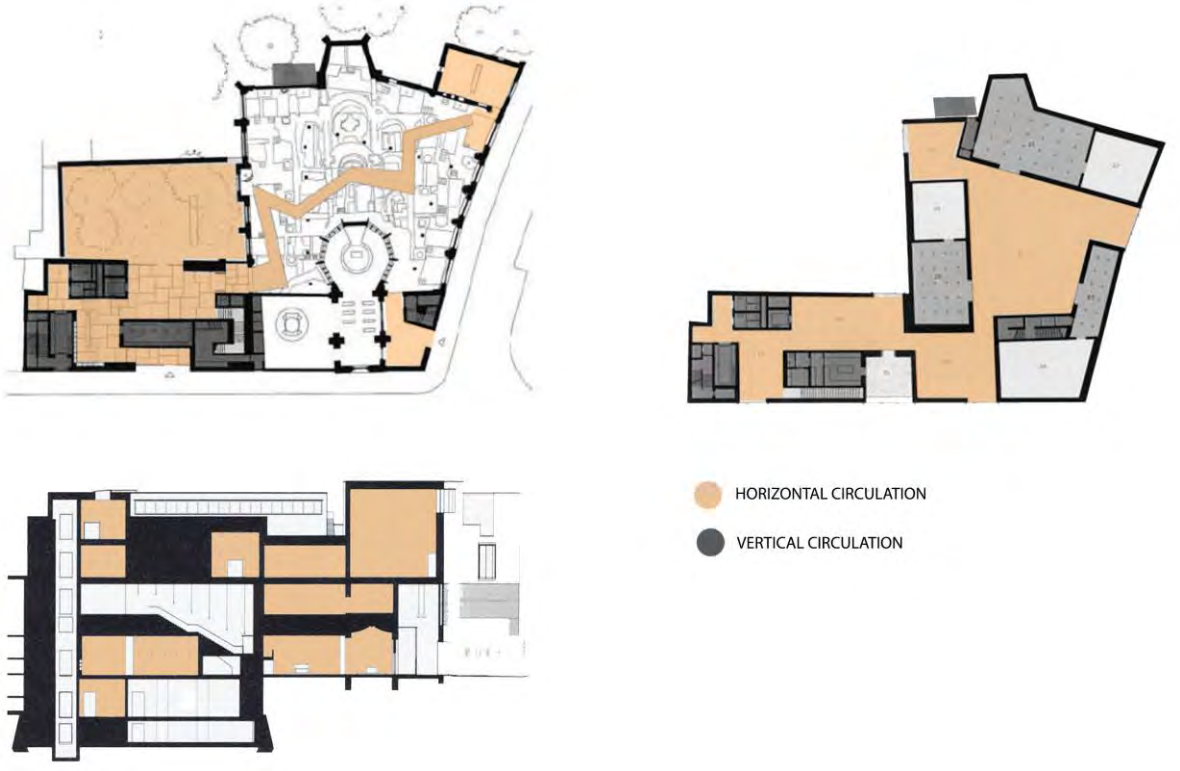
Figure: 4.1.3.2; Functional zoning

Source: ArchDaily; Modified by Author

4.1.4 Horizontal and vertical circulation

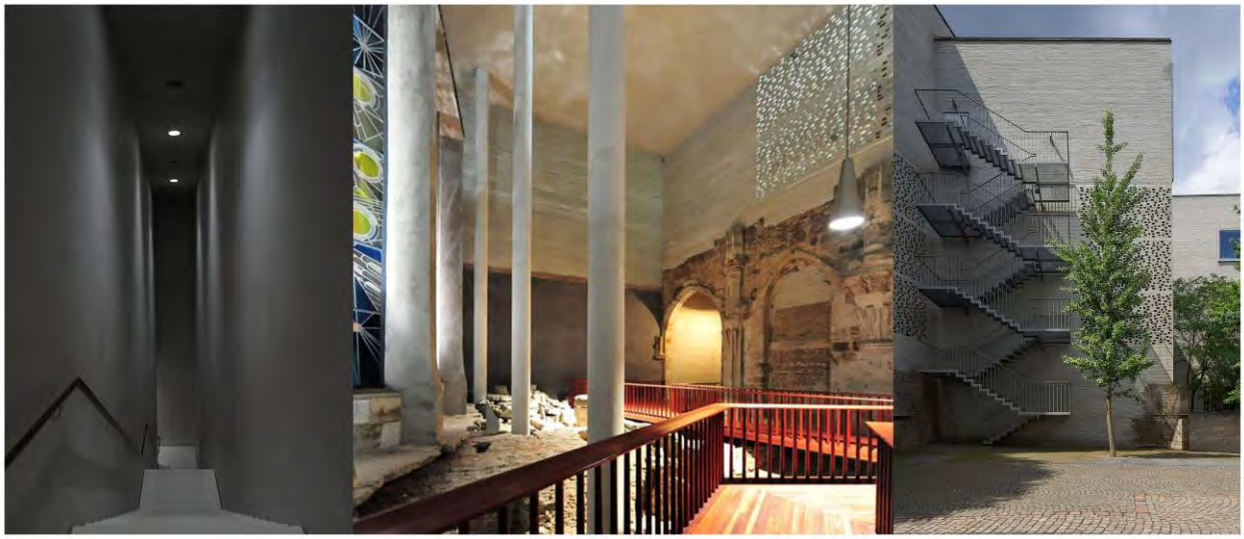
Kolumba Museum offers universal accessibility, the reason why the museum welcomes its' visitors from the pedestrian walkways and made every floor accessible for everyone. Strategically the services are placed in such a way so that the horizontal circulation does not get hampered. A clear circulation is designed here to ensure the visibility of the galleries. Most of the services are placed inside the main building except one service stair.

Figure: 4.1.4.1; Horizontal and vertical circulation



Source: ArchDaily; Modified by Author

Figure: 4.1.4.2

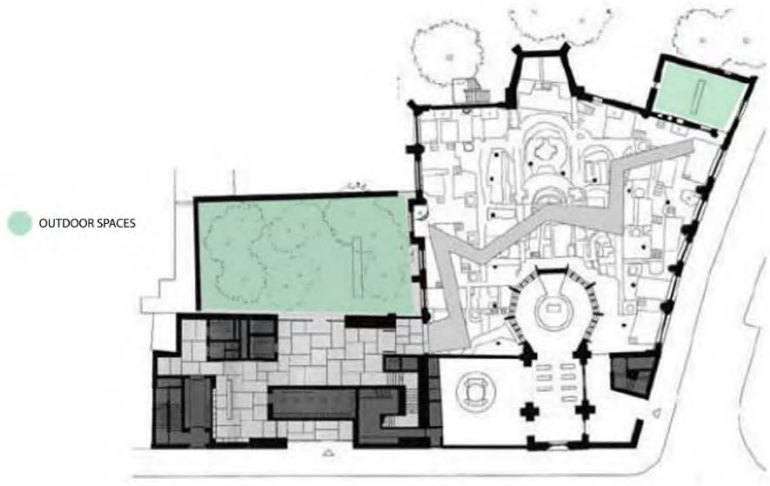


Source: archspace.com

4.1.5 Site Planning and Landscape detailing

Peter Zumthor merges both the buildings with a clear identification of the past and the present. The building includes the whole destroyed church and creates a journey through the ruins (image: 4.1.3.1).

Figure: 4.1.5.1; Landscape



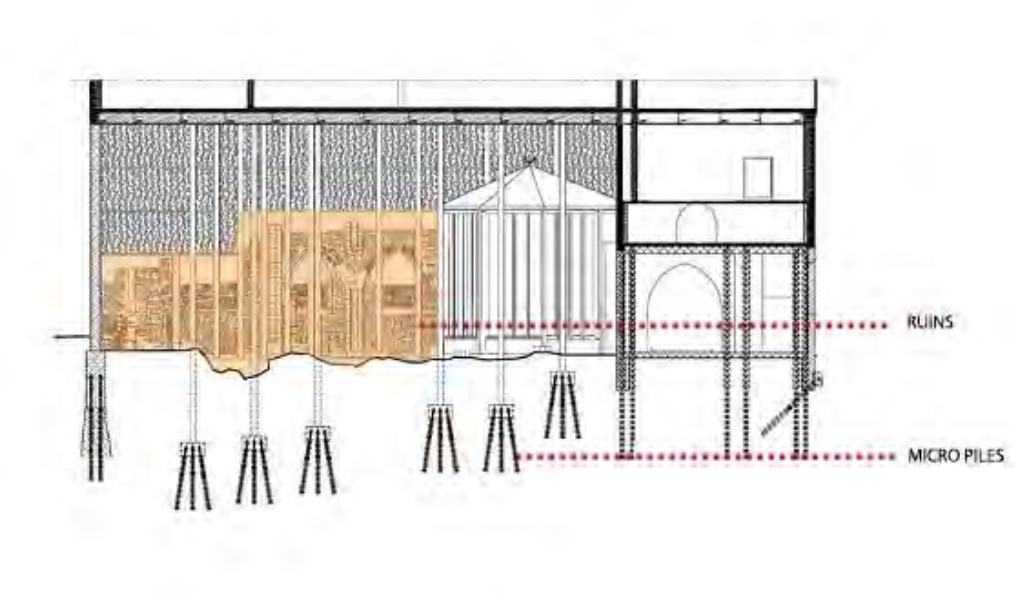
Source: ArchDaily; Modified by Author

Zumthor's design delicately rises from the ruins of a late Gothic church, respecting the site's history and preserving its essence. "They (the Archdiocese) believe in the inner values of art, its ability to make us think and feel, its spiritual values. This project emerged from the inside out, and from the place" - Zumthor. The building opens its views to some courts designed in a serene Zen minimalism, which houses works by famous sculpture like Richard Serra and Joseph Wolf.

4.1.6 Structural details

Kolumba Museum is built on a historic ground. To avoid the damage of the excavated ruins and at the same time creating a journey in between them micro piles were used. The main museum stands twelve meter above the ruins. The whole concept was to build a museum on the ruins without harming the artifacts.

Figure: 4.1.6.1; Structural details

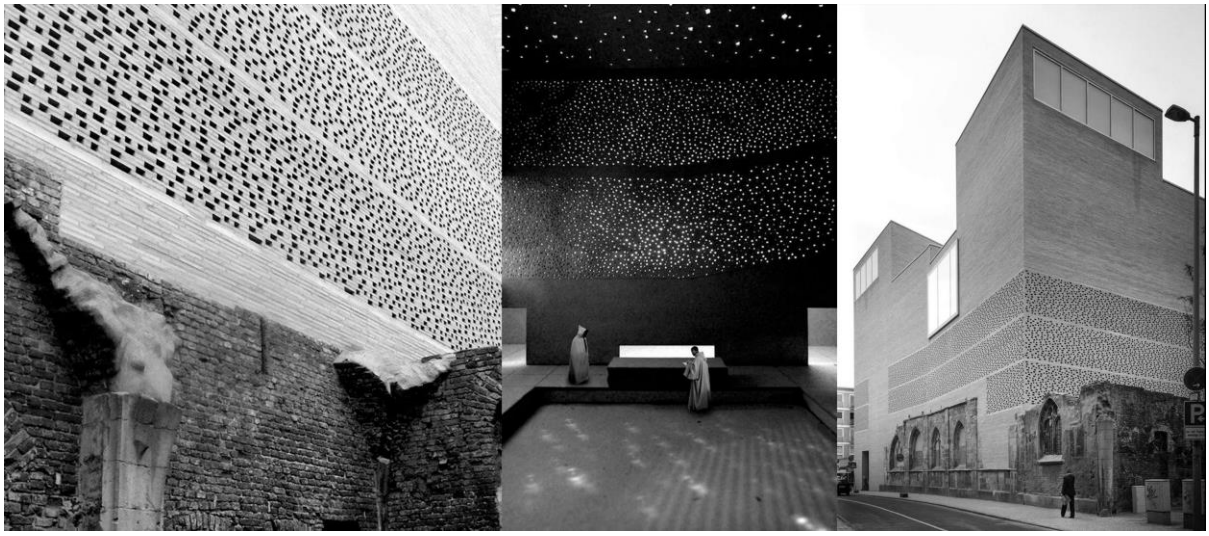


Source: ArchDaily; Modified by Author

4.1.7 Design detailing

Zumthor used grey brick to unite the destroyed fragments of the destroyed church. These fragments include the remaining pieces of the Gothic church, stone ruins from the Roman and medieval periods, and German architect Gottfried Böhm's 1950 chapel for the "Madonna of the Ruins. The texture of thin grey custom-made brick frames the remains of the old chapel achieving a remarkable integration between past and present. Perforations on the facade, forming a kind of lattice made on the basis of the bricks themselves. This effect lightens the perception of the volume.

Figure: 4.1.7.1; Material detail



Source: arcstreet.com

4.2 Madinat Al Zahra Museum

The tenth-century royal residence city of Madinat al-Zahra is widely considered to be one of the foremost noteworthy early Islamic archeological locales within the world, and the foremost broad in Western Europe. The purpose of this museum was to interpret the site and showcase the artifacts at the same time serve as a training and research center and the archeology team headquarters. Madinat Al Zahra Museum, designed by Nieto Sobejano Arquitectos at the historic land of Cordoba, Spain in 2009.

Figure: 4.2.1; Mdinat Al Zahra Museum

Source: arch-arena.in

4.2.1 Environment and micro-climate

The old Hispano-Muslim city in Cordoba were built in tenth century which created a dialogue between those who conceived and built it a thousand years back and the archaeologists who conducted research and excavation on the surrounding agrarian landscape. This dialogue paved the way of building this museum on this historic land. Architects strategically placed the museum away from the ancient ruins since the land yet to be excavated in future. The old Hispano city was built on terrain and the newly built museum sits on similar landscape. As a historic royal city most of its lands are untouched, the architects decided not to invade the mainland rather they placed the museum location away for future excavation with a humble design approach.

Figure: 4.2.1.1; Museum location

Source: Author

4.2.2 User behavior and requirements

The purpose was to build a structure for the excavated Hispano city to create a dialogue between the past and the present with a vision to clear out the temporary structures built around the city and bring them under one roof. With this vision the architects designed a museum incorporating training and research facilities and at the same time serves as the Headquarter of the research team.

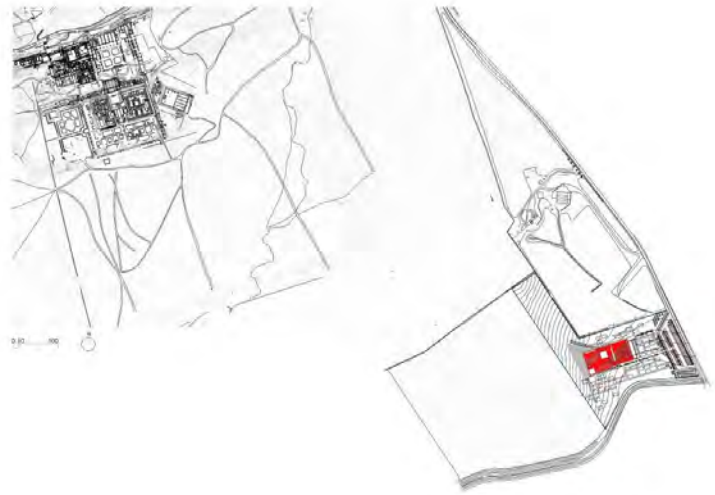
Figure: 4.2.2.1; Zoning

Source: ArchDaily; Modified by Author

4.2.3 Form and Function

In such a vast extension of land, yet to be excavated, the architects decided to act as an archaeologist; not building new structures rather go below the ground. This unveils the idea of an underground museum which articulates its spaces around a sequence of solid and void spaces. The voids guide the visitors to the main lobby and the other public spaces like exhibition hall, cafeteria, assembly hall and library.

Figure: 4.2.3.1; Form



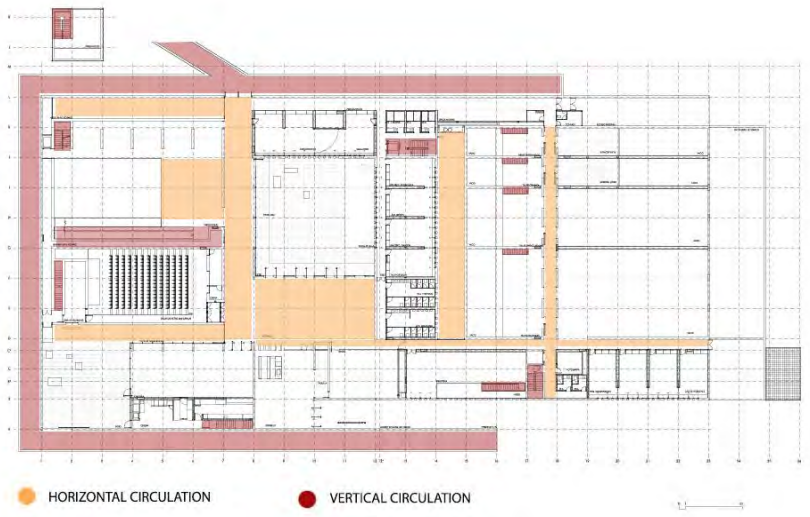
Source: archdaily.com

The ruins of the Hispano city determine the form of the museum building. The Hispano royal buildings were designed around the courtyard. The functions were placed surrounding the free spaces. The architects designed the new buildings with the essence of the old Hispano buildings. The voids create the journey. The architects designed the building for future extension as well. The double square floor plan of the museum resembles the anatomy of the city, the gardens evoke the abandoned geometry of an excavation.

4.2.4 Horizontal and vertical circulation

The services of the museum are placed in groups to ensure a neat circulation. To ensure universal accessibility several ramps and elevators are installed. Most of the services are placed centrally to create uninterrupted spaces for public interactions.

Figure: 4.2.4.1; Horizontal and vertical circulation



Source: ArchDaily; Modified by Author

4.2.5 Site Planning and Landscape detailing

The architects decided to act here as archeologist. Without imposing the building on the site; they decided to go underground that creates a conversation between the past and the present. Another reason to go underground is not to overpower the new structure. The Hispano city stands at the north. The architects designed the entry from the north; a ramp comes down to the lobby from the entrance and opens up in the central courtyard. The other functions are placed around the open spaces.

Figure: 4.2.5.1; Site planning

Source: ArchDaily; Modified by Author

The intention of the architect is to blend the building with the landscape. Use of material on the roof and its texture, color helps the building to blend in the nature. The surrounding landscape resembles the excavated parts of the ruins at the same time opens up opportunities for future extension of the building.

Figure: 4.2.5.2; Landscape

Source: archdaily.com

4.2.6 Design detailing

The roof of the building blends in the nature at the same time the white walls create a contrast with the nature to reveal its identity respecting the surroundings. The concrete walls and cor-ten steel rooftops reflect with the white and the ruddy; the colors of the stuccoed walls of the Caliphal city. Light, shadow, surface and matter extricate the keen lavishness of the archeological ruins

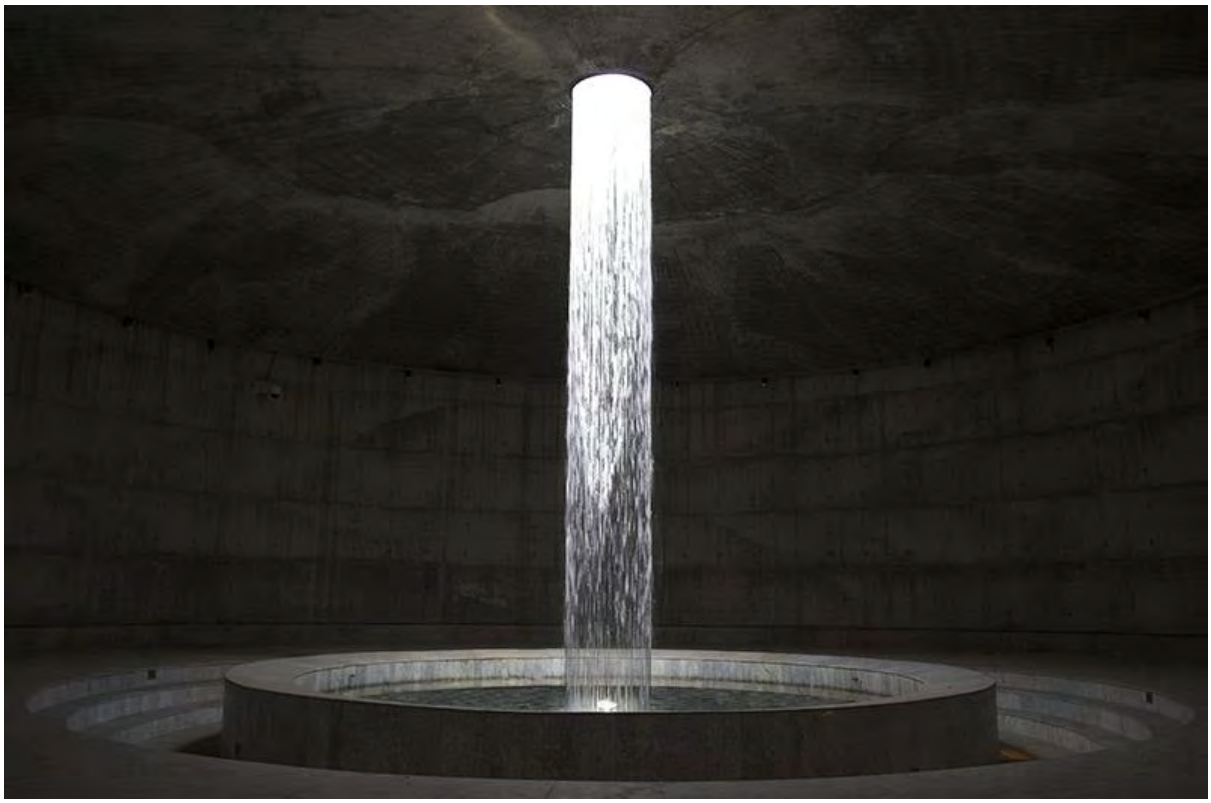
Figure: 4.2.6.1; Detailing

Source: archdaily.com

4.3 Museum of Independence

Museum of Independence is designed by famous Bangladeshi Architect Kashef Mahboob Chowdhury and Marina Tabassum at Suhrawardi Udyan, Dhaka. The architects got the design commission through national design competition. The site area is 67 acres and the museum occupy 5669 meters square area.

Figure: 4.3.1; Museum of Independence



Source: Author

4.3.1 Environment and micro-climate

Museum of Independence sits on the historic ground of Suhrawardi Udyan; the most happening place of Dhaka and at the center of the ground. The approach to the museum is from north of the ground. The surrounding places are very popular and every now and then many events take place, so, the architects secluded the museum with water body along with permeability. In respect with the history of the ground and demand for public space, architects decided to build it underground.

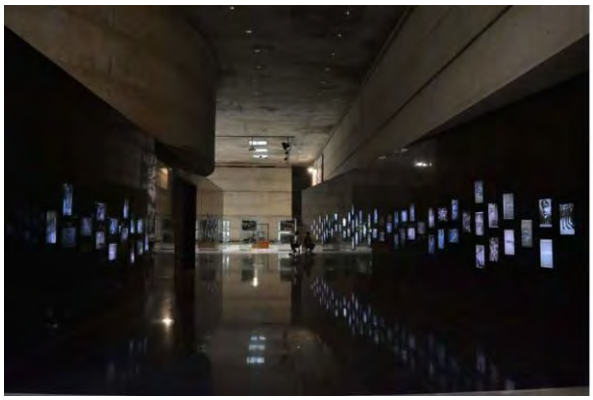
Figure: 4.3.1.1; Site surroundings

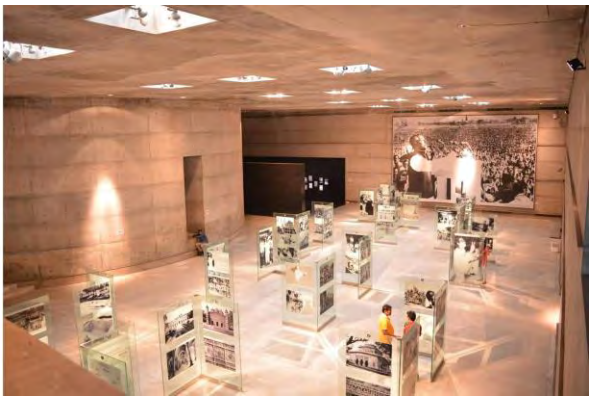
Source: Author

4.3.2 User behavior and requirements

The museum invites public to its huge open plaza. A circular walkway goes around centering the light tower. A water body is placed at the center of the plaza that flows down separating tow galleries inside. The complex combines a multimedia projection theater, an amphitheater, three water pools and a 155-seater auditorium. A long terracotta mural designed by the artists of Bangladesh runs along the entire length of the complex, depicting the struggle of independence, and quotes from Bengali poets from both Bangladesh and West Bengal, India. There are two exhibition halls connected by a dark narrow passage way. The museum houses 144 glass panels that displays 300 newspaper articles during the Liberation War.

Figure: 4.3.2.1; Galleries



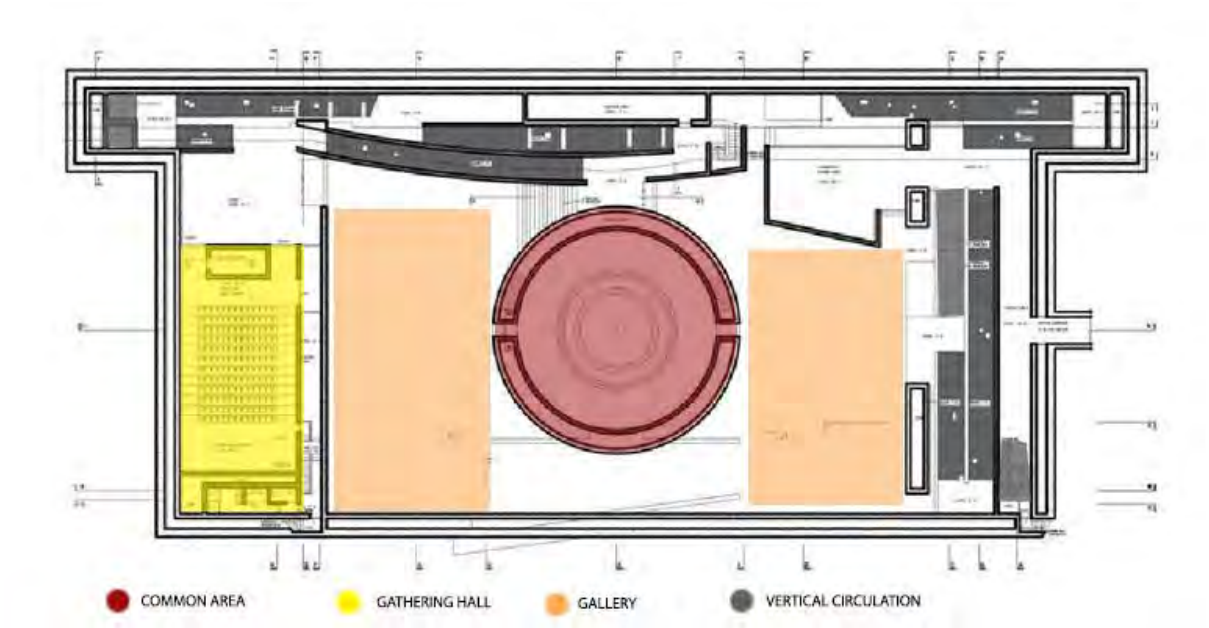


Source: Author

4.3.3 Form and Function

The design approach is very simple. Two galleries are separated by a common space. Both gallery houses photographs and newspaper article during the Liberation War.

Figure: 4.3.3.1; zoning



Source: https://mtarchitekts.com/ ; Modified by Author

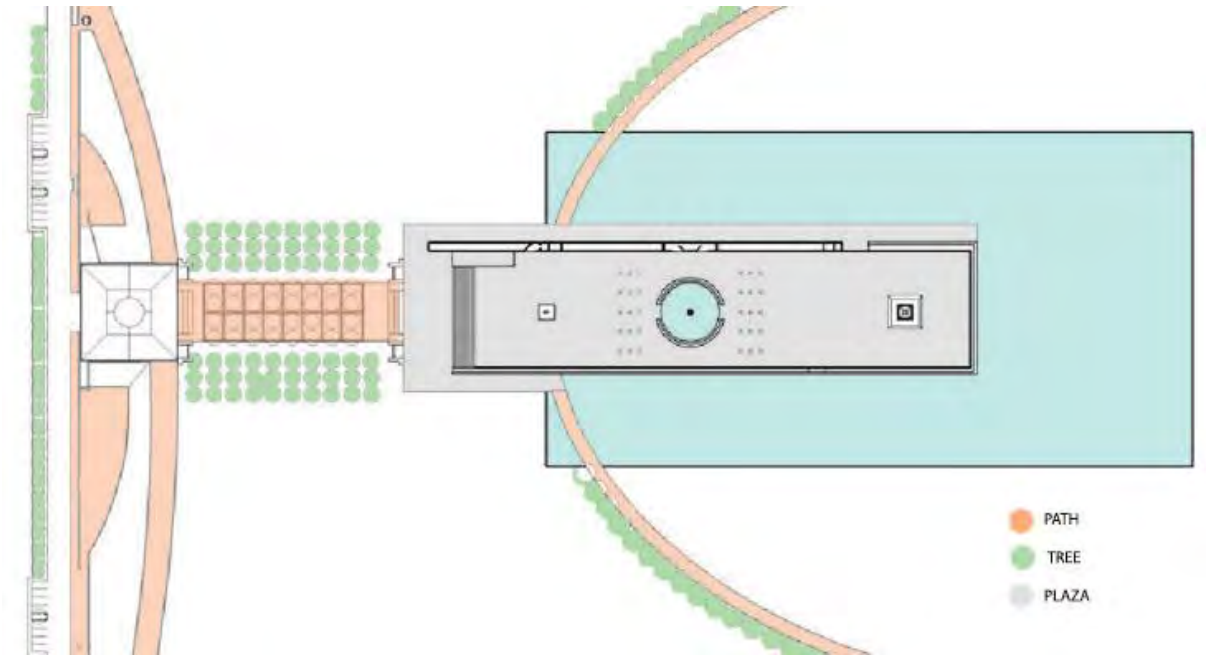
4.3.4 Horizontal and vertical circulation

The primary access to the museum is ramp; to achieve universal accessibility. All vertical circulations and services are placed at the both ends to achieve a neat horizontal circulation (Image: 4.3.3.1).

4.3.5 Site Planning and Landscape detailing

Suhrawardy Udyan plays a significant role in our Liberation War. The museum is built to commemorate the glory of the Liberation War. The idea was to seclude the museum at the same time creating permeability for people. The rows of trees dictate the way to the Plaza that is secluded by a shallow water body from the rest of the ground. A circular pathway goes around centering the glass tower.

Figure: 4.3.5.1; Site Plan and Landscape

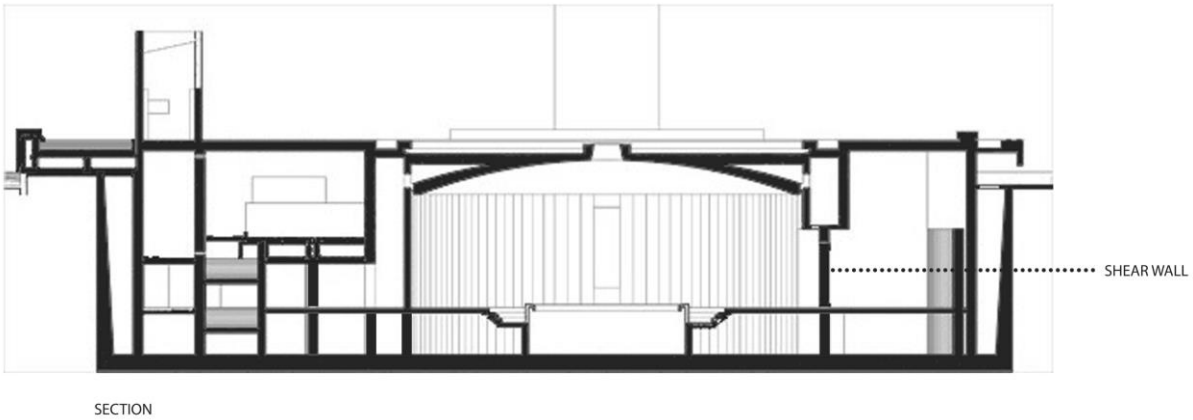


Source: https://mtarchitekts.com/ ; Modified by Author

4.3.6 Structural details

The museum houses two galleries with clear views. To achieve this amount of free spaces the architects designed the museum with shear wall.

Figure: 4.3.6.1; Structure



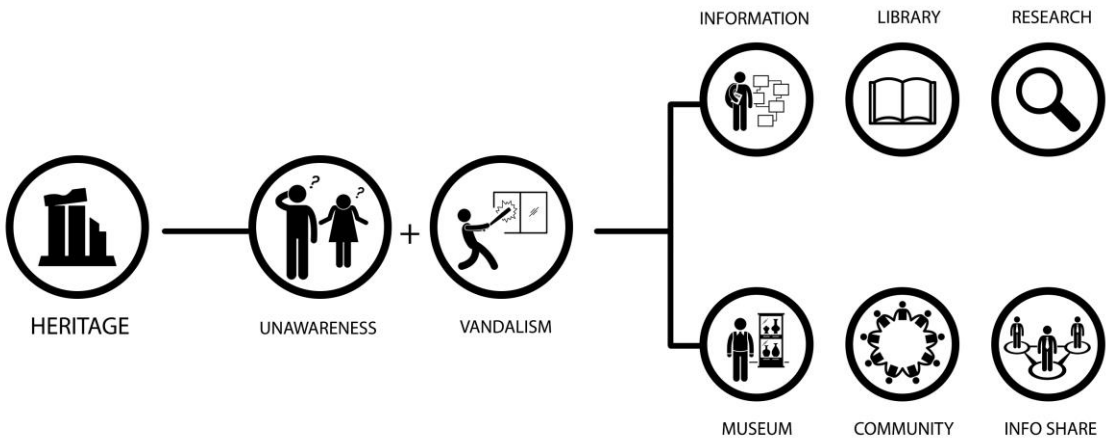
Source: https://mtarchitekts.com/ ; Modified by Author

Chapter 5: Program Appraisal

The project comprises four basic programs; Museum and Library, Market Area, Restaurant and Multipurpose hall. The main purpose of this project is to work as an invigorating element for this historic site where this new building will work as a Fore room. Sompura Mahavihara plays an impeccable role in the history of Bengal. Although, the site falls under UNESCO World Heritage Site, but vandalism and lack of proper maintenance ruining this magnificent structure. Only guidelines and site protection cannot help the condition to recover unless a sense of ownership is being established.

Program appraisal will follow the literature review and the context requirements. The project has two parts; public and private. The public zone includes Market area, galleries, gathering hall, library and restaurant areas. Private zone incorporates the workshops and office area. All these programs need to create a dialogue between the past and the present.

Figure: 5.1; Tentative programs

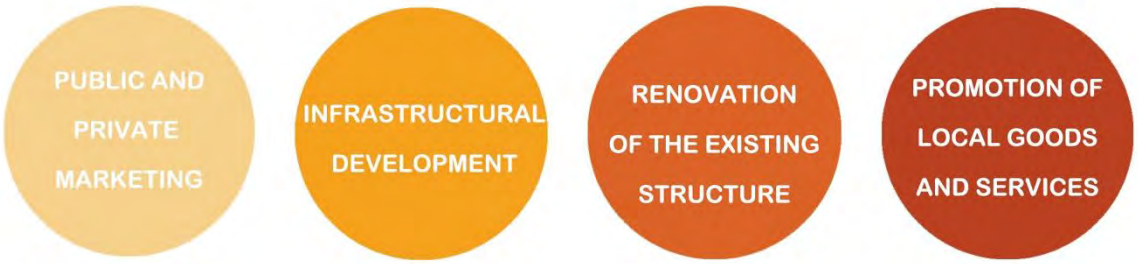


Source: Author

5.1 Program Rational

The historic site; Somapura Mahavihara is quite delicate and sensitive area. Any new structure should not overpower itself. Programs that will be incorporated have to assist in the development of the site. The basic understanding of the programmatic requirements of the project should be gathered from the literature review and site context. Flexibility of programs are the most convenient way to support the heritage site. Programs have to be organized in a way so that it always keeps the room for future extension.

Figure: 5.1.1; program contributors



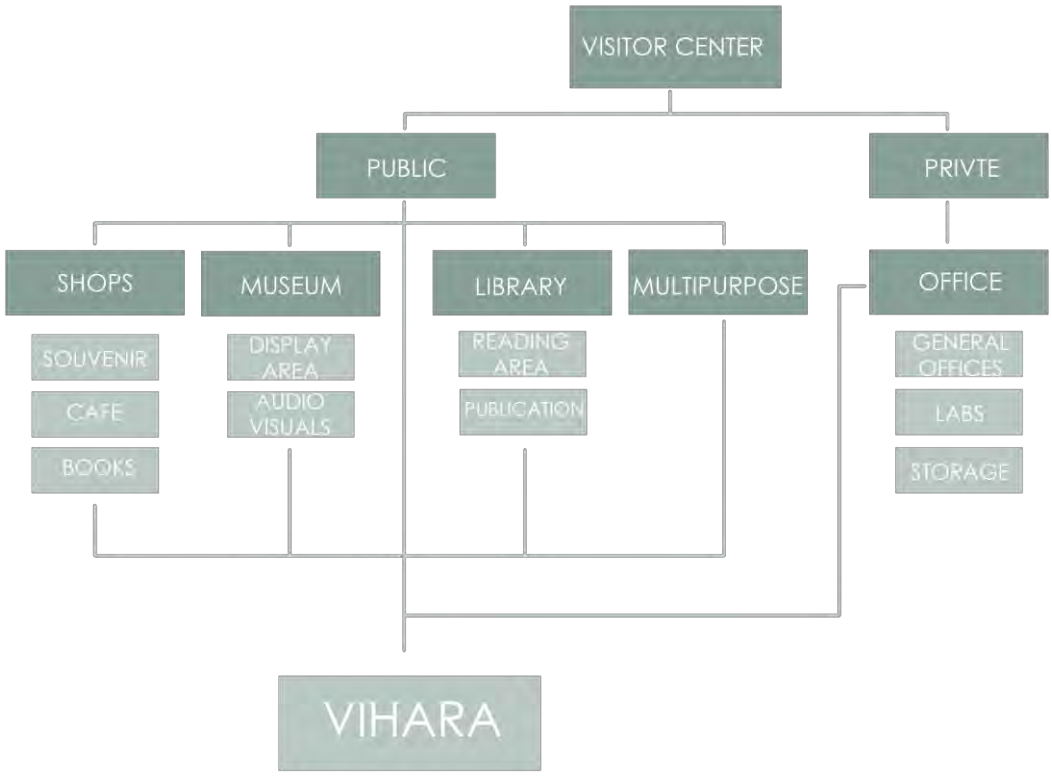
Source: Author

The new structures' program comes from the necessity of the site that directly refers to the literature review. These four factors contribute to derive programs for the new structure. The Heritage Management Plan identifies the need of the site and aids to develop programs for The Somapura Mahavihara. The study shows a 'Visitor Center' incorporating the local businesses is suitable for this site.

5.2 Functional Flow

The programs clearly define the threshold between public and private zone. The functional flow comes from the studies and analyzing the requirements.

Figure: 5.2.1; Functional flow



Source: Author

5.3 Area for the Programs

The required area for the programs is in square foot;

Table; 5.3.1; Program area

Program for

	Functional space	Number of units	Number of users	Area per unit (in sft)	Total area (in sft)
A.	Lobby and Reception				
1	Counter				120
2	Lobby				1600
				Subtotal	1720

B.	Gallery				
1	Temporary Gallery				6000
2	Fixed display				10000
3	Reserve area				4000
				Subtotal	20000

C.	Library				
1	Stack area				400
2	Reading area				1200
3	Multi-Media				400
4	Stuff area				300
5	Publication				300
				Subtotal	2600

D.	Administrative facilities				
1	Lobby				300
2	Complex superintendent				350
3	General office				800
4	Meeting & Conference				500
5	Monitor room + Stuff				500
				Subtotal	2450

E.	Restaurant				
1	Seating Area				3500
2	Kitchen				900
3	Storage				400
				Subtotal	4800

F.	Research				
1	Material & Excavation				2000
2	Laboratory				1200
3	Storage				1000
				Subtotal	4200

G.	Gathering Area				
1	Multipurpose Hall				5000

H.	Market area				
1	Shops				3500
				Subtotal	3500

Total Area with 30% circulation = 60,480 sqft

Chapter 6: Design Considerations

The project aims to link the heritage with people. Both from historic and cultural point of view 'Somapura Mahavihara' plays a significant role. The idea of implementing new structure is not only to uphold the history and culture but also to improve the condition of this historic structure and support the local people through ancillary architectural intervention.

'Somapura Mahavihara' is one of the earliest establishments in Indian subcontinent. It has an immense importance in our culture and history. Any newly build structure in this context needs to be executed in such a way so that the new structure does not overpower itself at the same time respect the historic structure. In 'Somapura Mahavihara' any new intervention needs to consider the context and the importance of the heritage.

6.1 Placement of the new structure

The intention of the new structure is to stimulate a feeling for the ancient ruins and uplift the historical significance of the ancient Bengal to its visitors, where the new structure will not be overpowering rather it will work a fore room to the visitors. Site selection is very crucial for this project. The Somapura Mahavihara is a UNESCO World Heritage site. According to UNESCO, new structures placements should be at least 250 meters away from the historic monument. The old museum sits inside the 250 meters, including the remaining ruins around it. The new structure has to be placed in such a location, so that it does not encroach the designated periphery of the ruins at the same time creates a sense of connectivity with the mother structure.

The suitable location for the Visitor Center is the north-eastern part of the Vihara. The reason behind choosing this location is; the site is 250 meters away from the mother structure and has the potential to create a dialogue with the Vihara.

Figure: 6.1.1; site surroundings

Source: Author

Figure: 6.1.2; possible site locations

Source: Author

There are three possible sites for the new structure.

Site 1:

Has all the connectivity including vehicular and pedestrian facilities and also an active node. There is no permanent structure in the site. The site is currently being used as the parking area for the guests. A portion of this site is low land and turns into a seasonal waterbody during monsoon.

Site 2:

Placed along with the axis of the mother structure and creates a dialogue with the main structure. Currently there is no connecting roads and being used for farming.

Site 3:

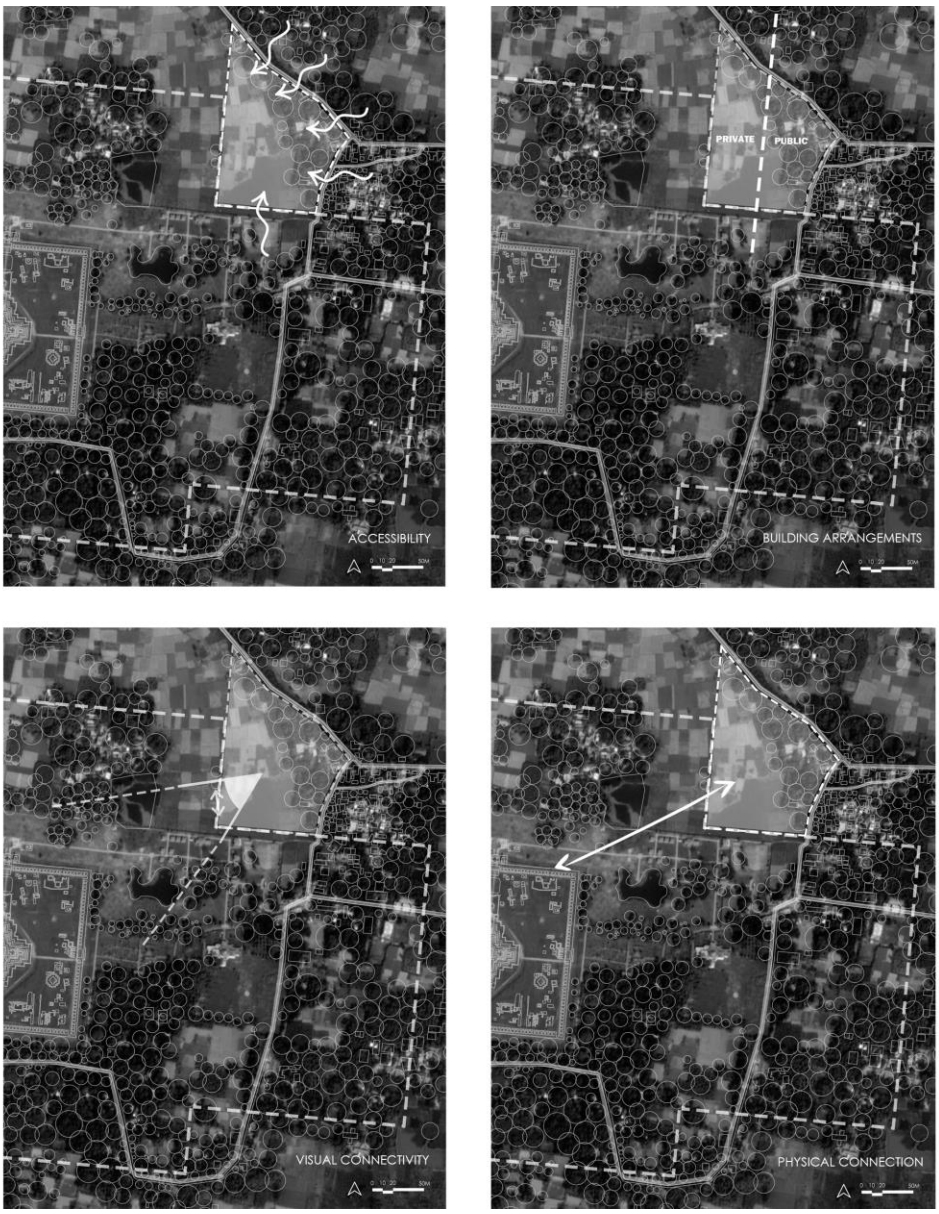
Has all the connectivity including vehicular and pedestrian facilities and also the most active node. The site has many permanent and semi-permanent structures including residences of locals and market area.

Among the three locations, site 1 is the most potential location for the new structure. It has all the connectivity, active market place and there is no permanent structure inside the site area.

Figure: 6.1.3; Site

Source: Author

Figure: 6.1.4; opportunities



Source: Author

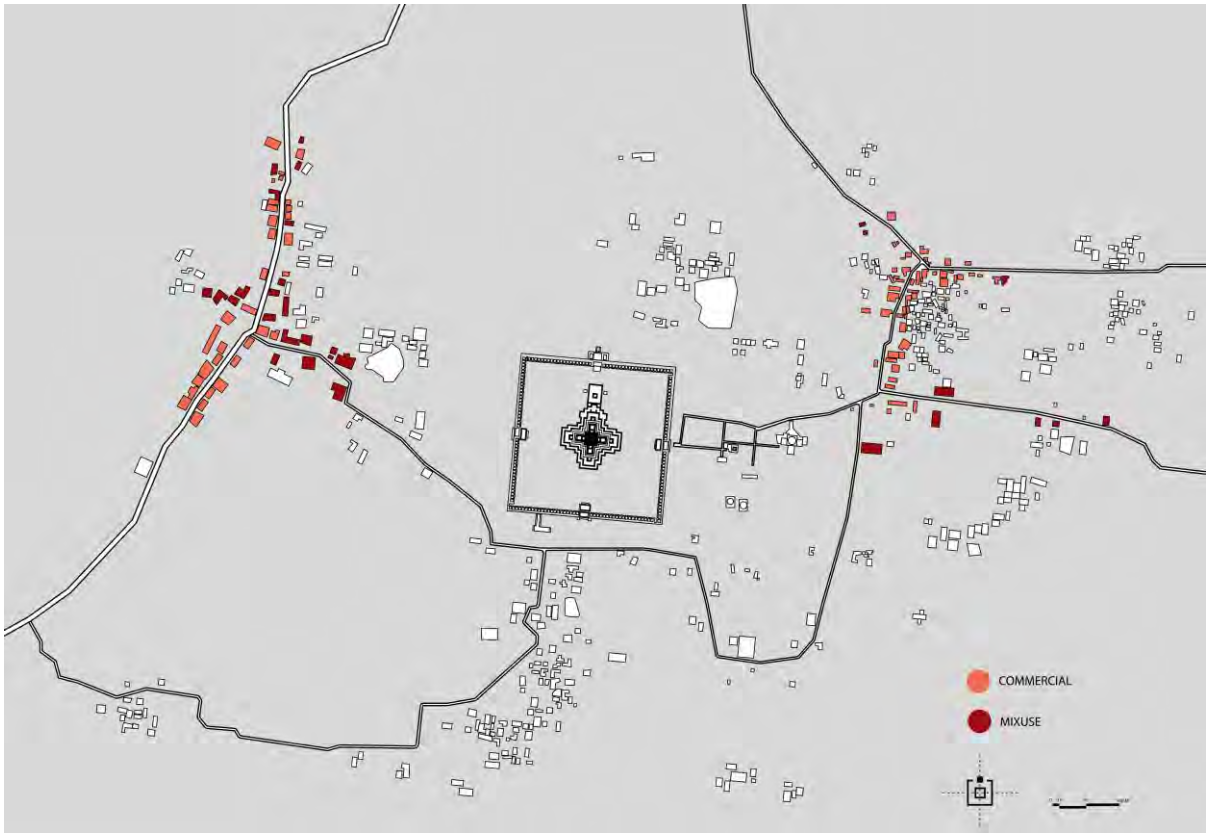
The placement of the new building needs to ensure four major facts; Accessibility, Public and Private Function Relation, Visual connection and Physical connection.

6.2 Community Involvement and Set Goals

The involvement of local people makes every project lively. In 'Sompura Mahavihara' the involvement of local people can make a difference in today's context. Although, the Vihara is

a UNESCO World Heritage site, the facilities for tourists here are very poor. The lack of sense of ownership and unawareness of people often leads towards vandalism. The old museum in Paharpur does not engage its' audience longer as it only houses the exhibits. This perhaps pushes the visitors to spend more time outside of the museum area. Based on tourist activities the locals have started small individual informal business around the Vihara complex. Engaging these locals in design will create a sense of ownership among them and this will prevent the vandalism which is currently being faced by this magnificent structure.

Figure: 6.2.1; community involvement



Source: Author

Along with community involvement specific set of goals need to be achieved. The actions can be divided into three parts assessing the site potential and opportunities. Affiliation with local

market and showcasing the local products will attract more tourists and also inspire the small local businesses to invest more. Upgrading the policies of Heritage Management and proper application of the set policies will encourage small investors and enhance the local market that will create a sense of ownership.

Table: 6.2.2; Goals, Strategies and Action

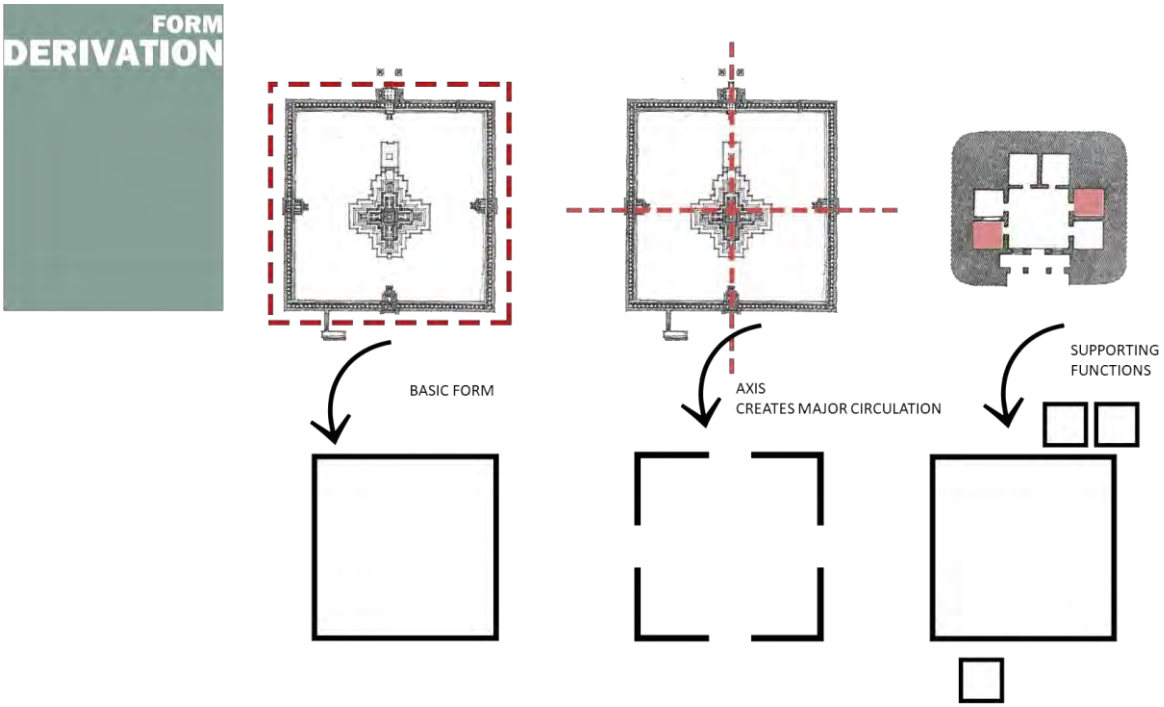
STRATEGIES ACTIONS GOALS	PART A	PART B	PART C
	-POTENTIAL SITE BENIFITS AND SITE LIMITATIONS	ASSESSING LARGER CONTEXT	-MARKETING PLANNING AND MANAGEMENT ISSUES
	-INHERENT INFLUENCE OF THE SITE	-NATIONAL POLICIES ON HERITAGE MANAGEMENT	-AFFILIATION OF THE MARKETING STRATEGIES WITH PRILIMINARY GOALS
	-GOALS AND OBJECTIVE OF PROMOTING TOURISM	-APPLICATION OF HERITAGE MANAGEMENT RULES AND GUIDELINES	

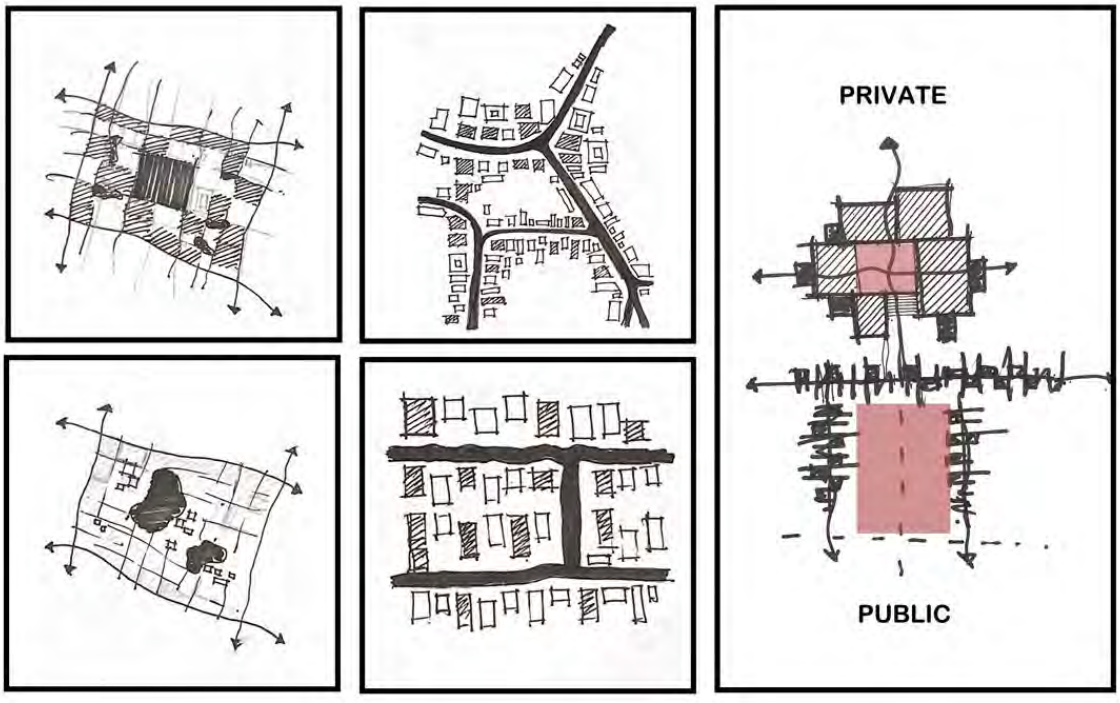
Source: Author

6.3 Form Generation

The new structure should not overpower itself rather the design approach should be respectful to the 'Somapura Mahavihara'. Form and material selection of the new structure should complement the mother structure. The scale and proportion of the new building should respect the ruins. Humbleness of the structure can be achieved though massing, form and material selection. Functionally the new building has to complement the Vihara by creating a journey through linkage between the old and new structure, guided way for in and out for people and storytelling.

Figure: 6.3.1; design approach to the new structure; Form

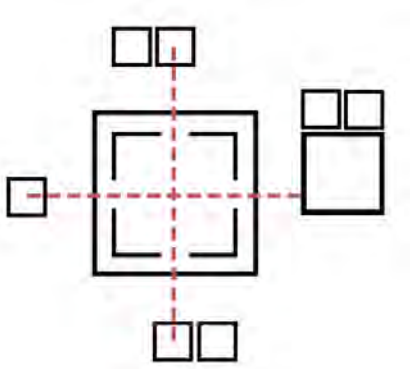




FORMATION OF TRADITIONAL RURAL HOUSES

FORMATION OF BAZAR

COMBINATION OF TWO FUNCTIONS



Source: Author

The basic form is derived from the mother structure. The axis denotes the major circulation and connects the supporting functions. Buddhist Viharas and Rural homestead of Bengal have a significant style in common. Both the structures are introvert in expression and extrovert in terms of internal spaces. A common central courtyard is prominent in both structures. The design is highly inspired from the Buddhist Viharas in Bengal and our Rural homestead.

Another function was integrated here, The Bazar. Engaging two different functions together created a fine line between Public and Private zones. The local market and its style of placing functions inspired the design in terms of dealing with the public zone.

Chapter 7: Design Suggestions

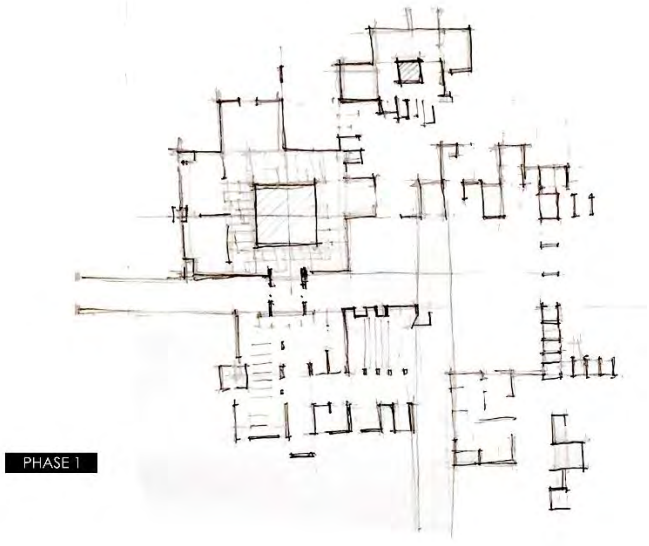
The project is theorized to create a connection between the historical past of ancient Bengal and the present. The aim is to promote The World Heritage Site and create financial opportunities for the locals by engaging more tourist activities.

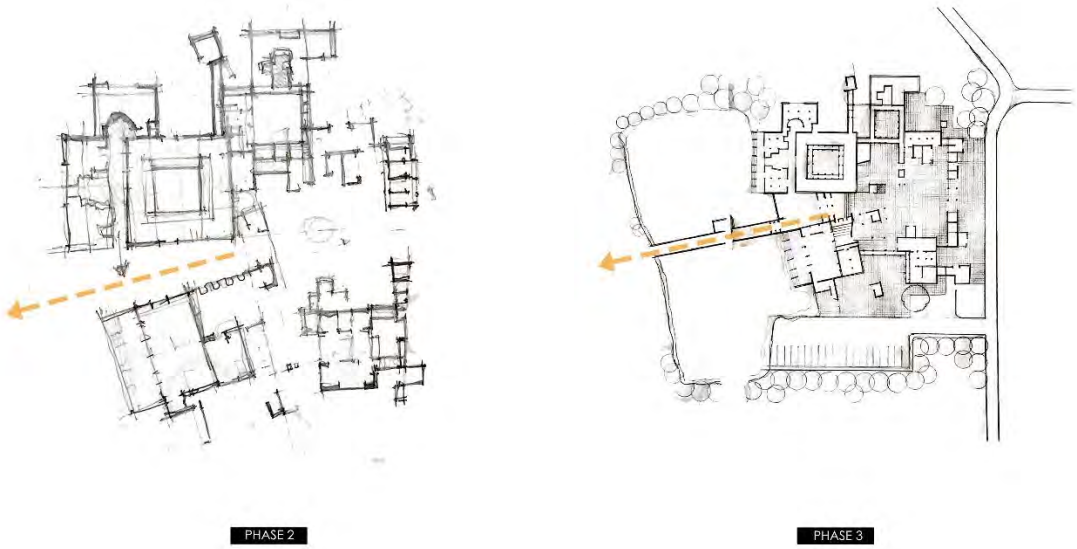
As it has already been proven that only museum cannot entertain the visitors. Different set of functions engage tourists in day long activities that help to increase the tourist number. The design incorporates four major functions; Museum and Library, Market Area, Restaurant and Offices. Although, the Somapura Mahavihara is an introvert structure but the new building design approach is to make the it more extrovert and incorporate all the public place facilities.

7.1 Design Development

Influences from the Somapura Mahavihara is taken to create an overall impression, at the same time small courts are being introduced to make the place lively and active.

Figure: 7.1.1; Design Phases





Creating approach and connection to the Somapura Mahavihara.

Source: Author

Creating courtyards of different sizes and shapes to make the spatial quality more interactive.

7.2 Plans

Figure: 7.2.1; Top view

Figure: 7.2.2; Roof plan

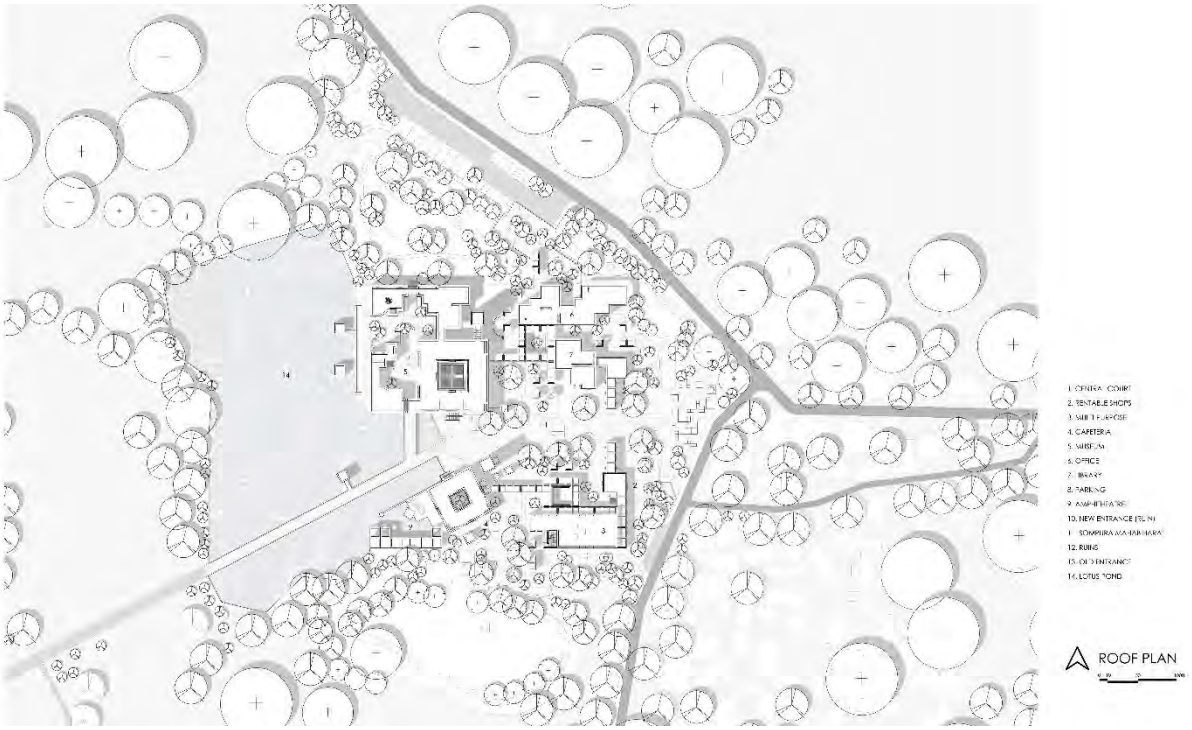


Figure: 7.2.3; Ground Floor plan

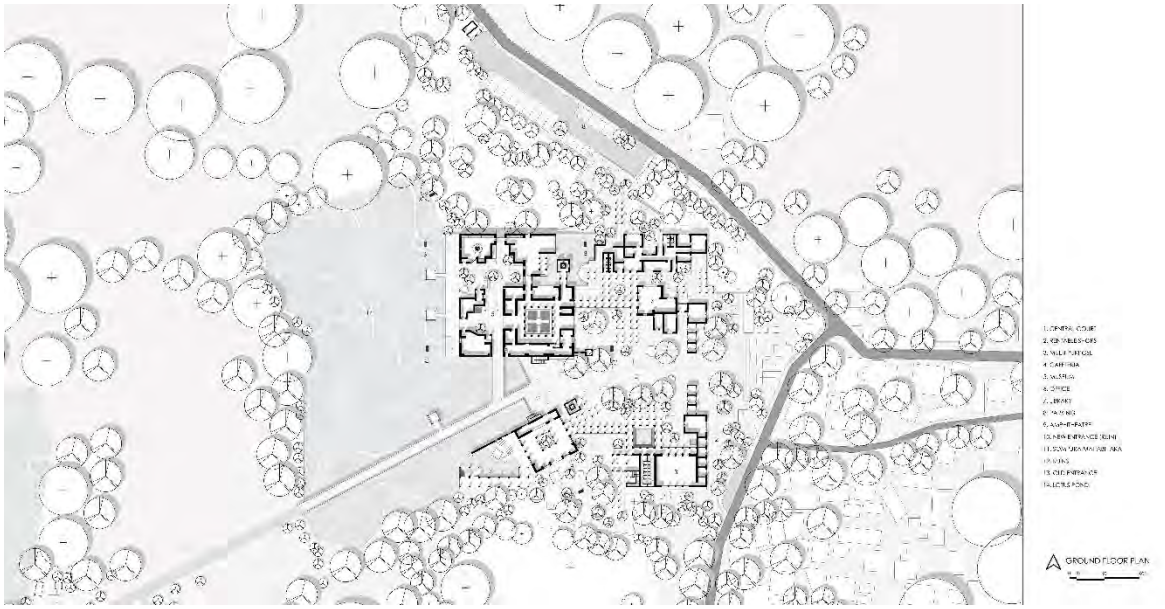


Figure: 7.2.4; Detailed Plan-Museum

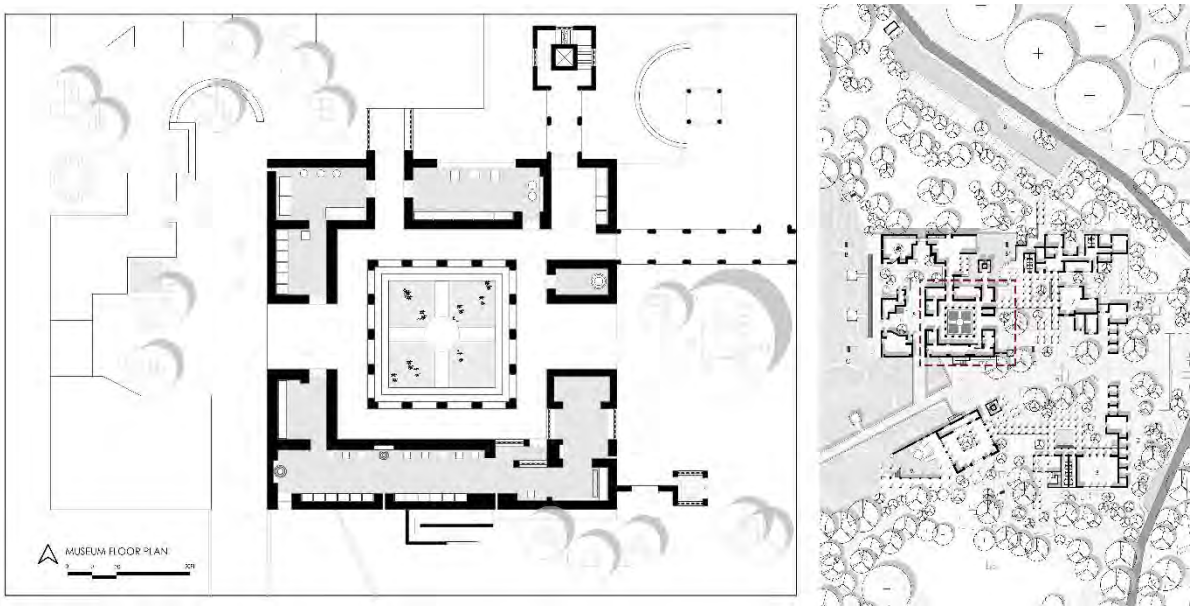


Figure: 7.2.5; Detailed Plan-Museum

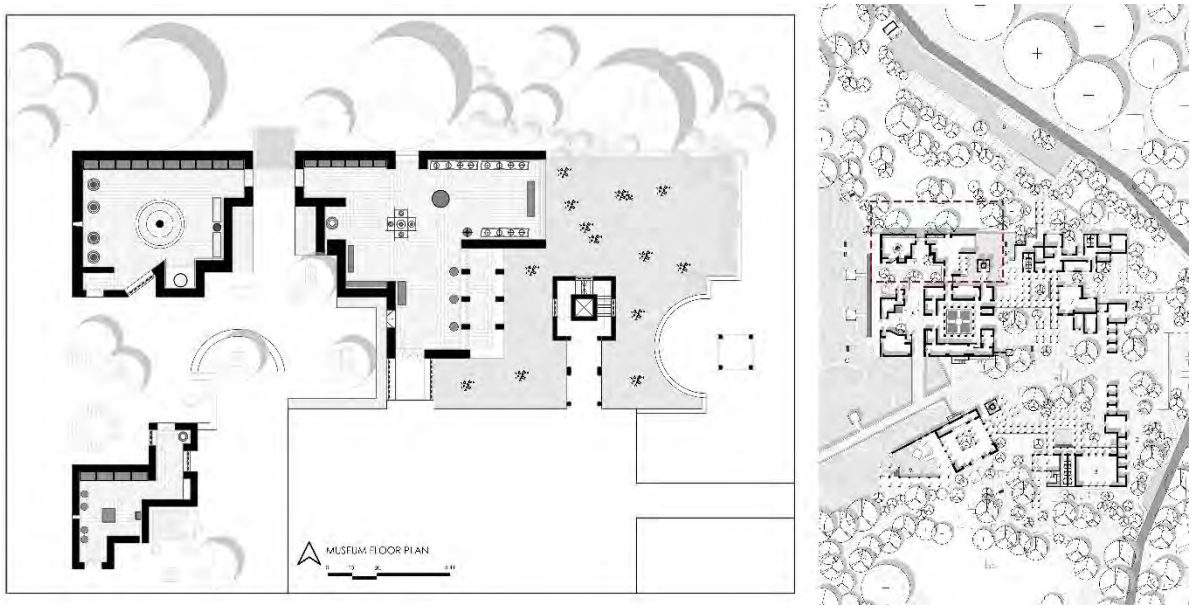


Figure: 7.2.6; Detailed Plan-Office Area

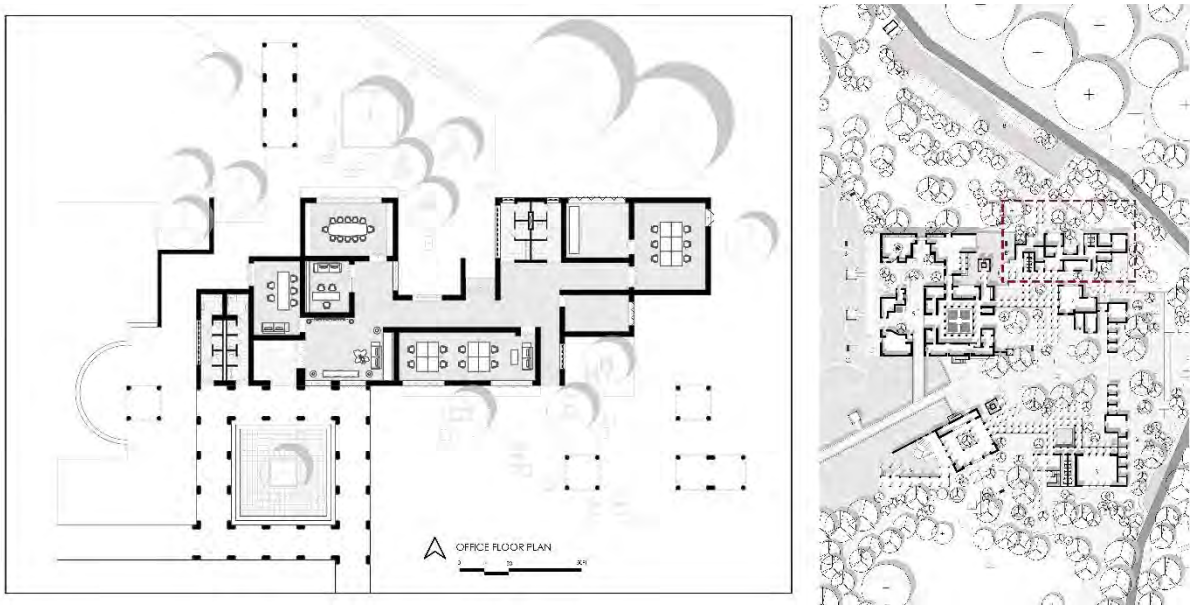


Figure: 7.2.7; Detailed Plan-Library

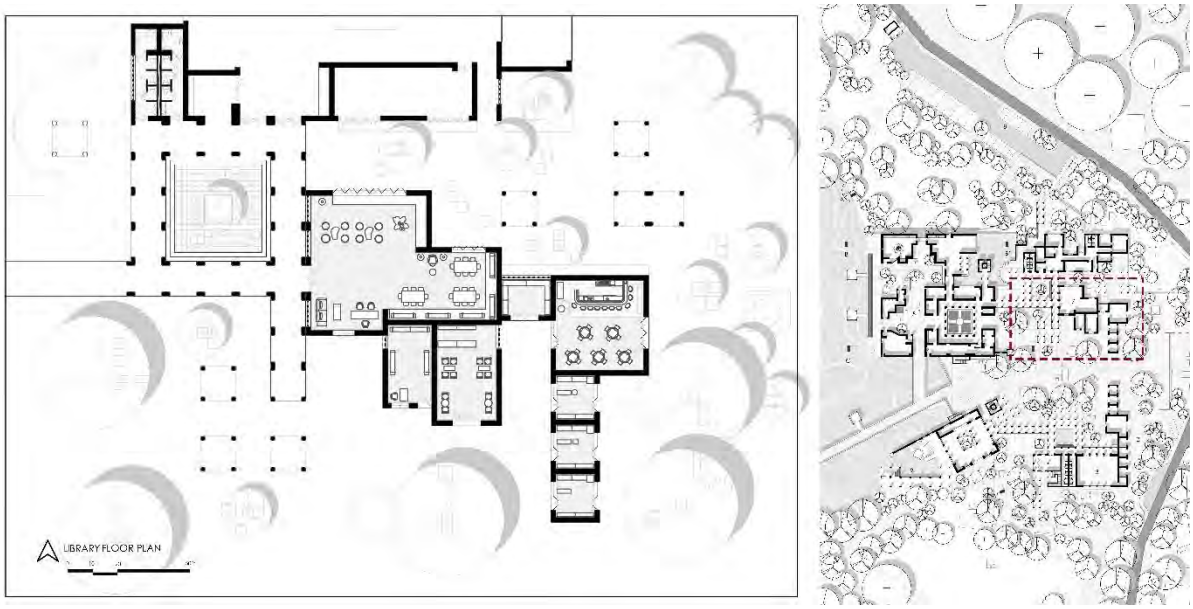
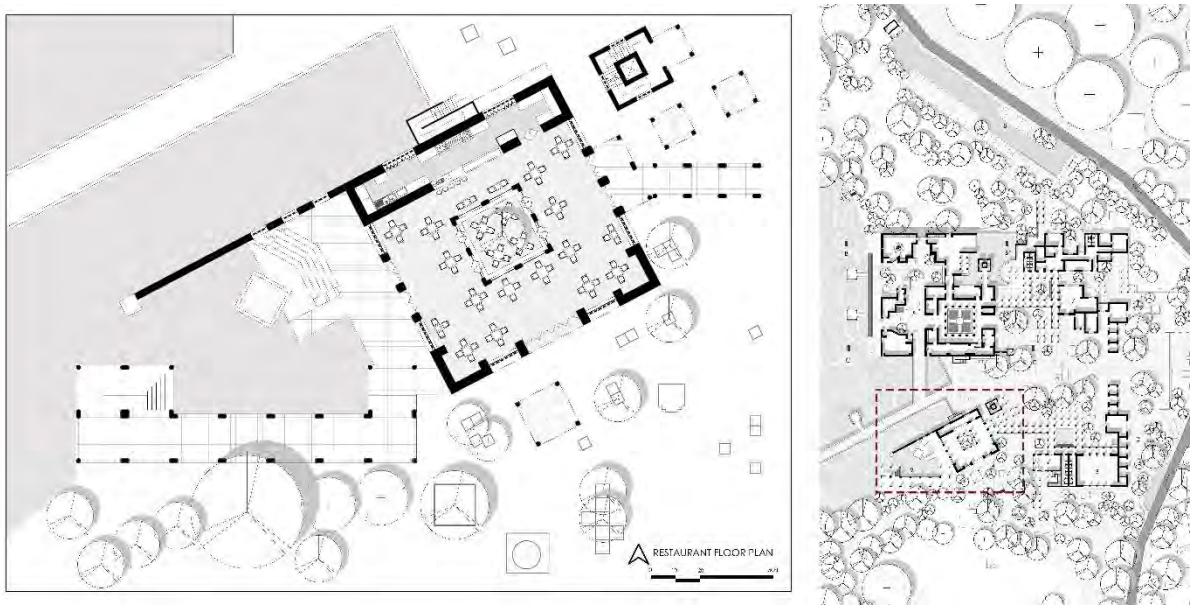


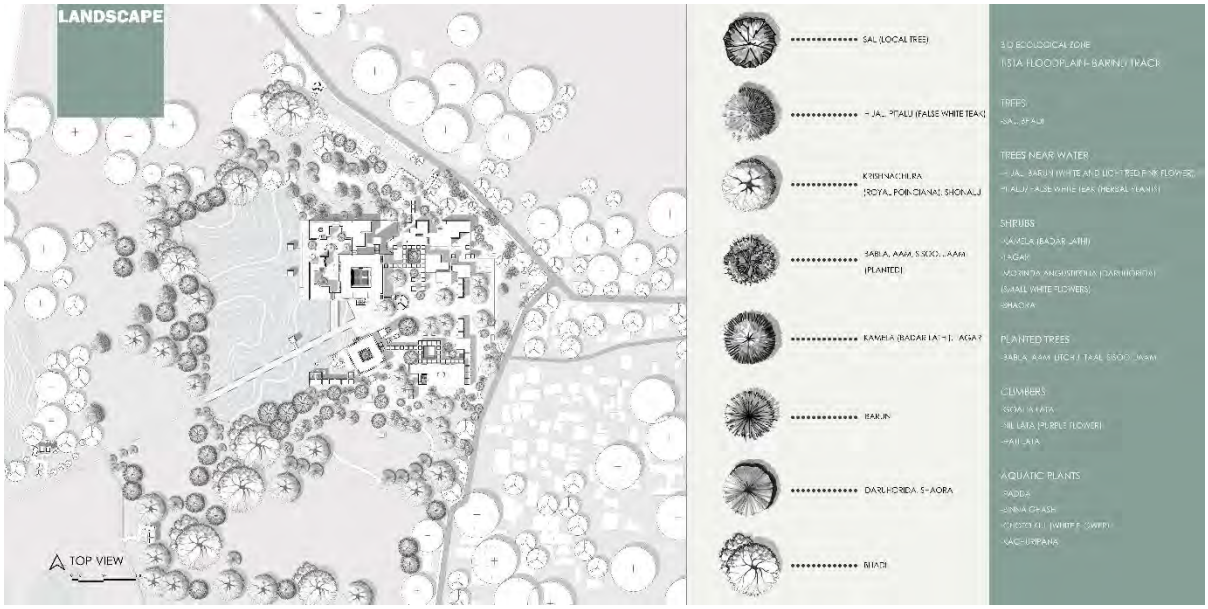
Figure: 7.2.8; Detailed Plan-Restaurant



Source: Author

7.3 Landscape

Figure: 7.3.1; Landscape



Source: Author

The site falls under the ‘Tista Floodplain’- Barind Track. Previously it was used as the parking area for the existing museum. There were few existing trees. The idea was to design a building keeping the existing local plants and trees.

7.4 Elevations

Figure: 7.4.1; South Elevation

Figure: 7.4.2; East Elevation

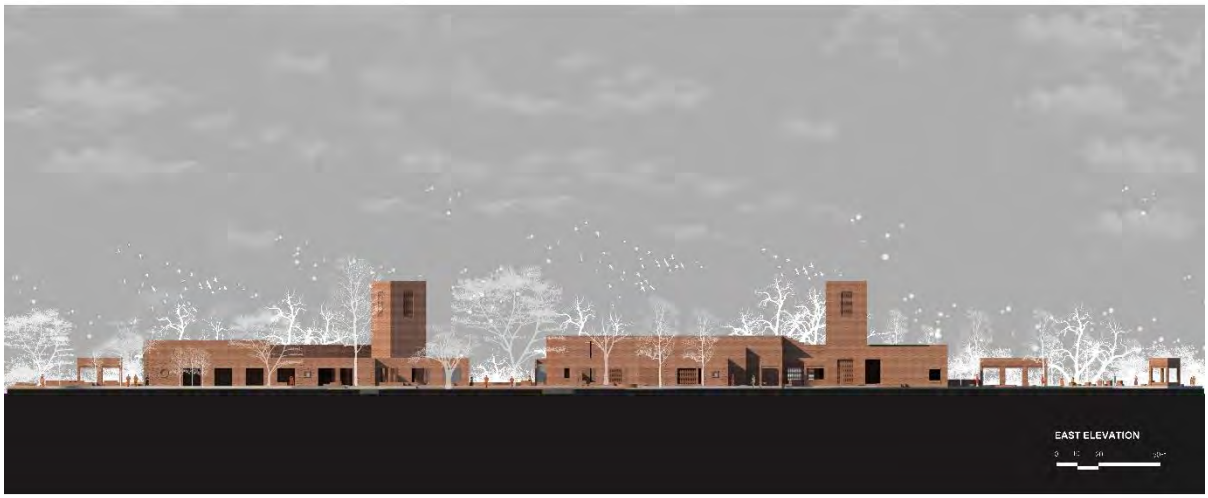


Figure: 7.4.3; West elevation

Source: Author

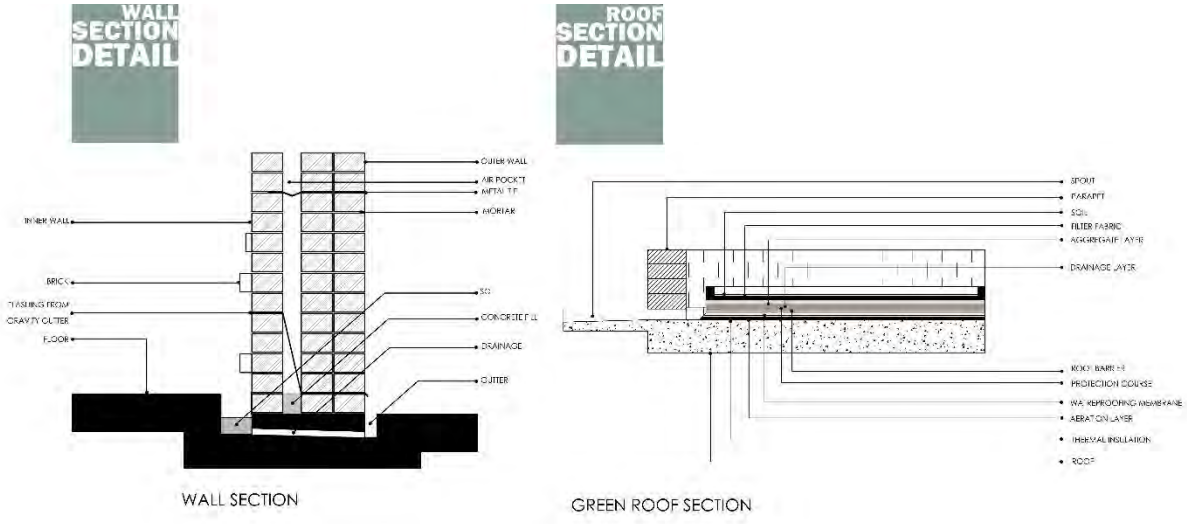
7.5 Sections and Details

Figure: 7.5.1; Section AA

Figure: 7.5.2; Section BB

Figure: 7.5.3; Section CC

Figure: 7.5.4; Wall and Green Roof Section



Source: Author

7.6 Images

Exterior

Restaurant Area

Entrance from Parking

Market Area

Recreational Area

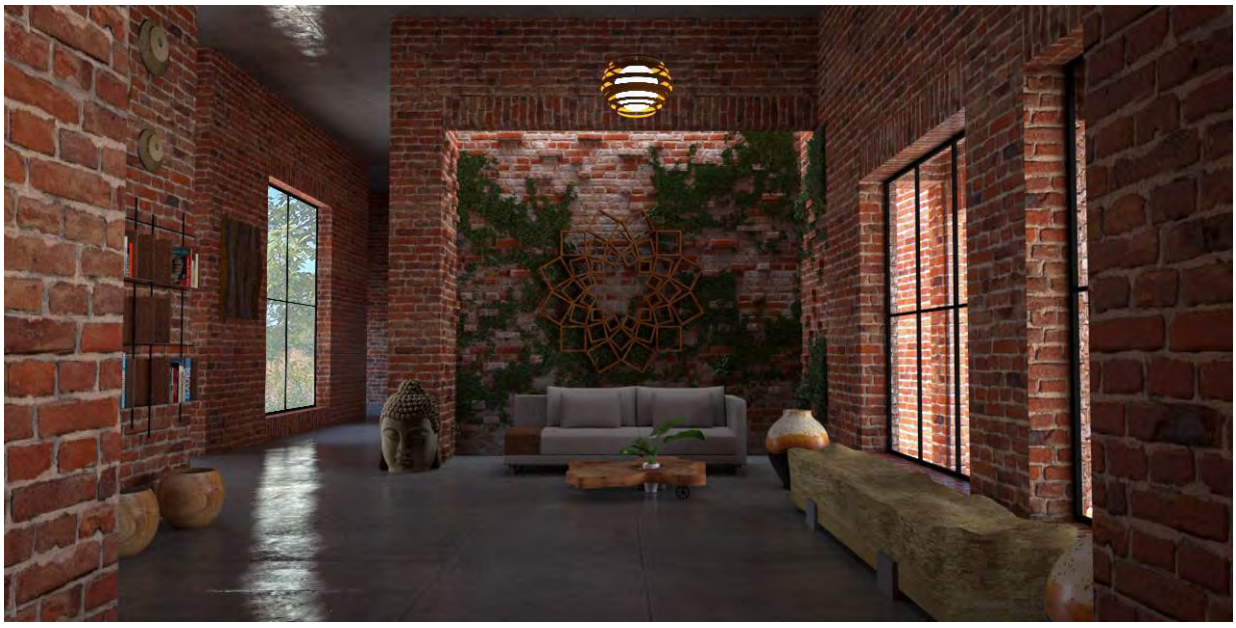
Interior

Museum Gallery

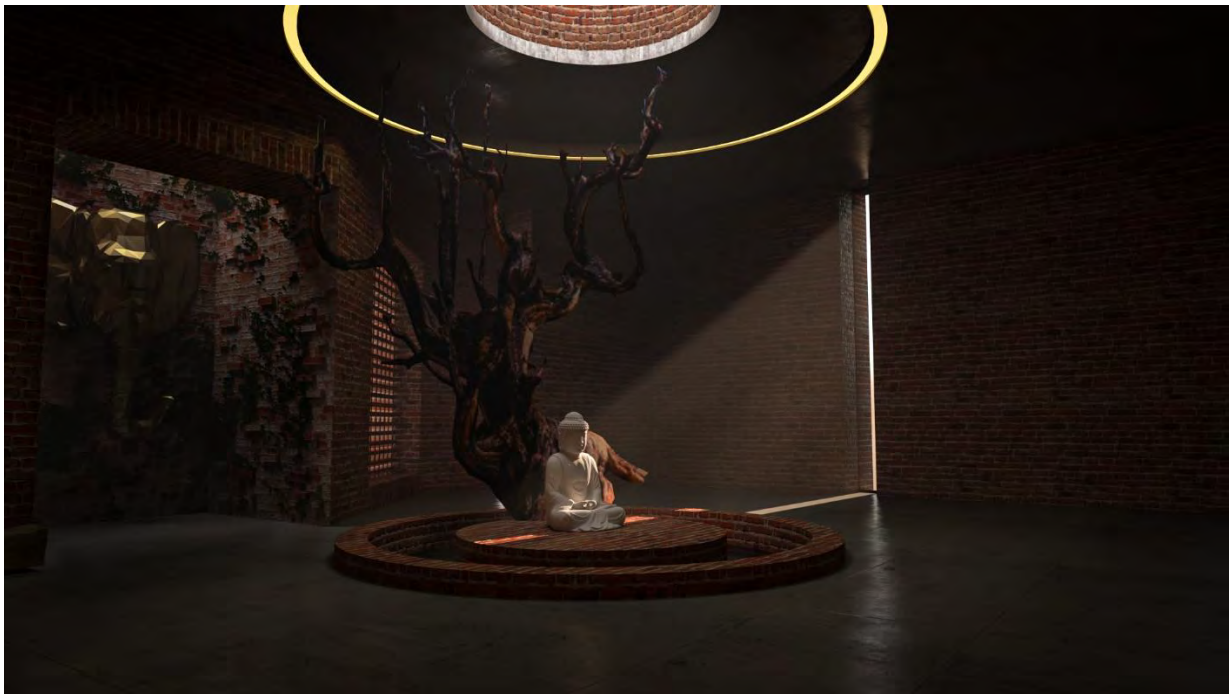
Museum Galley

Library

Office Area



Museum Gallery



Source: Author

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Appendix A.

Program for Client:

- Museum
- Library
- Office and Research area
- Multipurpose Hall
- Market Area
- Restaurant