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

ঐতিহ্য বিলাস

An attempt to revive the Heritage

HERITAGE CENTER

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May, 2020

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.
4. I/We have acknowledged all main sources of help.

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Of Fall, 2020 has been accepted as satisfactory in partial fulfillment of the requirement for the Bachelor of Architecture degree on [Date-of-Defense].

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Abstract

Narsingdi has important historical sites which make it very important for the young generations as well the common people. Not only historical structures, but it also has traditional 2500 years old technique of mud construction, it has its pride— muslin saree, which make this region internationally recognized to the Egyptian, Roman and Greece civilizations. It has its own boats making techniques, jamdani and taat saree, also jatra and kabigaan puthi paath. This intangible heritage is also present in this region as a result this area becomes richer traditionally culturally and this heritage is our root.

The objective is to involve and engage more people with the cultural and historical heritage of Bengal and of Narsingdi. Also, to try to revive the intangible heritage, uphold its importance of the rich heritage, and to further promote the history of the region to the world. Further objectives of the project include exposing the people of Bangladesh to its heritage and help them further understand it. It will help further anchor the identity of Bangladesh both to its own people and to the rest of the world. Moreover, making people aware of the archaeological restoration and preservation will help promote further work on more archaeologically significant sites around the country as well as encourage budding archaeologists and promote the importance of archaeological work. It will make the youth of the nation more interested in this type of archaeological wealth of our country so that in the future they will happily preserve it as well as acknowledge the important and hard work archaeologists of the past and present have done. The surrounding area hosts the buried remains of the

Wari-Bateshwar civilization, which is more than two millennia old, and it is here that part The beginning of Bangladesh's history is rooted. Using this as the focal point, we can build and extend the way we perceive our place in history and indeed the present. This project will also encourage archaeologists and historians to rethink and research the history of the regions, enriching not only the base of the knowledge we have of the region but also for academics who pursue, want to pursue, or will pursue studies of history and other related subjects in the region.

The concept of this project is to connect the past and present through the heritage trail to revive, preserve and promote the glorifying history and heritage of the region and nation. The project was conceived with two primary structures in mind. The heritage center and the heritage trail. The heritage trail is the arrangement of various historical and archaeologically significant sites over eighty-six kilometers in a coherent and manageable way, so visitors can easily complete a trip around it and understand the chronology and depth of how we got where we are. The trail is a mapping of locations and transportation facilities to help visitors navigate through this important trip. The heritage center will serve as the focal point for visitors and academics who want to understand and study the history of this region. It consists of galleries that will host exhibits collected from archaeological sites for visitors. With the addition of a workshop, library, motel, and school that will train academics and provide them with a place to stay while they study the significant sites nearby. This school serves in two shifts one of which will teach local students at a primary school level during the morning. The mosque and landscape will also serve the locals as a recreational area and a place for social gatherings.

Keywords: Archeology, Heritage center, Heritage trail, Culture, History, Landscape Architecture

Acknowledgement

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Chapter 1: Introduction

1.1 Introduction of the project:

Narsingdi is a city and district headquarters of Narsingdi District in the division of Dhaka, Bangladesh. Though Narsingdi is famous for its craft industry, this area is full of ancient structures and sites. There is a Dhaka-Sylhet highway road which is on the Shibpur district and near Bhairab, this road has 12 important ancient structures and archaeological sites.

Wari-Bateshwar which is one of the oldest traces of civilization that was found in Bangladesh is one of this 12 important ancient sites. The remains were dated to as early as 5th Century BC and remain one of the richest sources of our ancient heritage. The Oxford Companion to Indian Archaeology (OUP, 2006) by Dr. Dilip Chakrabarty in his book mentioned on the maps and text of 2nd urbanizations among 41 oldest urbanization Wari-Bateshwar was second and inside Bengal's oldest settlements Wari-Bateshwar was first among 12 oldest civilizations.

This site was first discovered by a local school teacher named Hanif Pathan in 1933 and after that his son Habibullah Pathan also joined his father's novel work. They reached out for help for excavating the sites. After that many educated people came to this site but could only understand its value in 1992, when archaeologist Dr Dilip Kumar Chakrabarty and later in 1996 archaeology professor Sufi Mustafizur Rahman started to find the site's true value. It is said that under this village, a 2500 years old city is buried. The first initiative was taken by professor Sufi Mustafizur Rahaman to build a museum to preserve it and to also create awareness about this site.

The site Wari-Bateshwar (20” 05, 46” N,90” 49.42” E) is situated about four kilometers Southwest from Belabo police station under Narsingdi district.

A Buddhist temple (lotus temple) and ‘Tongir tek Mandir Vita’ have been discovered in the same area of the Wari-Bateshwar which is 2500 years old. It is located 14 kilometres away from the mother site of Wari-Bateshwar. It has been discovered at the village of Tongirtek, Shibpur upazila, Narsingdi. After discovering, the team of Archaeologists from Jahangirnagar University named it ‘Tongir tek Mandir Vita’. Researchers conducted excavation there, assuming that it might be a 1500 years old ancient Buddhist temple. There is a copperplate named ‘ASHRAFPUR COPPERPLATE’ also discovered from the same Upazila, previously. Where it was mentioned that there were four ‘Buddhist Bihar or Biharika’ in that region. With the discovery of this feature, it has been evaluated as a milestone in Buddha religion.

Ashrafpur is an ancient village of Shibpur Upazila under Narsingdi district. The mosque was built in 930 AH/ 1524 AD by Dilwar Khan during the reign of Sultan Nasiruddin Abul Muzaffar Nusrat Shah (1519-1532). It was a single domed small mosque built in the sultanate style. Later on, a three-domed modern mosque has been built on the same site where once stood the Sultana mosque.

‘Single domed Mosque and Tomb of Shah Mansur’ located at Kumradi, Shibpur upazila was built in eighteenth century by a Muslim saint named Shah Mansur. In the course of time, the existence of the mosque is totally replaced by a new built Madrasa. But, still now the remainder of ‘Tomb of Shah Mansur’ is existing, although it is hard to assume how the original structure was.

Tomb of Shah Mansur’ located at Kumradi, Shibpur upazila. It was built in the eighteenth century by a Muslim saint named Shah Mansur. In the course of time,

Parulia Mosque, according to a Persian inscription attached in the main gateway of the mosque; Bibi Jainab, a daughter of Nasirshah and wife of Diwan Sharif, built this mosque in 1126 AH/ 1714 AD. The mosque was partially damaged by earthquakes in 1897 and was renovated later on. There is a one domed square tomb of Diwan Sharif and Bibi Jainab on the western side of the mosque. Every year at a particular month many people of cultural diversity come here to celebrate a fair (Local term Oros). People come to pray and wish to have something (Spiritual) which is related with the well-being of their life.

One of Narshingdi's most prominent tourist attractions, the Tomb of Shah Irani was built in the 14th century by a Persian nobleman who came to this land to spread the teachings of Islam. It's a Mughal period mosque structure.

Atkandi Nilkuthi Mosque is situated in the Atkandi village of Raipura upazila, Narsingdi. It was built by a man named ‘Alim Uddin’. Alim Uddin built this Mosque just beside the grave of his wife ‘Sadetunnesa’. To build this Mughal stylistic Mosque he brought some masons from Mahishur, India.

Telia Hindu Moth is a sacred place for Hindu religious people in Shibpur Upazila, Narsingdi. It is one of the common religious structures in Bangladesh. It was built in the 20th century. In several cases, this kind of structure is a complex with the crematorium. Likewise, there is a Crematorium along with the monastery or moth (মঠ). It’s a complex of two brick made structures situated in a very short distance. It is situated just beside the river Hariabhanga (Branch of Old Brahmaputra).

Chinishpur Kalibari (চিনিষপুর কালীবাড়ি) is one of old temples and a sacred place of worship in Hindu religion. So far from locals, it is almost 250 years old temple which was built by Hindu Saint Ramproshad (রাম প্রসাদ). He got financial support and land from person

name Ramkrishno Ray (রামকৃষ্ণ রায়) who was a Dewan (দেওয়ান) of G.P. Wise (Last Kuthial of Atkandi Nilkuthi). He built this temple with stones & bricks. This temple becomes so festive every year at new moon of Bengali month Boishakh (বৈশাখ) and Joistho (জ্যৈষ্ঠ), while a local fair is celebrated lasting for 3/4 days at the Temple premises. In course of time this tradition is losing its popularity as many rich people of Hindu Religion had left the country at the time of dividing Indian sub-continent in the year of 1947.

During the reign (1757-1858 AD) of East India Company, they built several Nilkuthi to collect 'Dadon' from the poor farmers and some indigo processing industries. Still now some portion of those processing industries exist in different areas of Bangladesh. One of these indigo Chimneys is situated at Narayanpur village of Belabo thana in Narsingdi District. We couldn't reveal who built this structure and specifically when it was built. It's nearly 75 feet tall from the surface which has grown narrower from its bottom to top and local people said there were six large furnaces underneath the chimney. To release the smoke of those furnaces this chimney was built.

Figure 1: Tin and bamboo made canopied structure to protect the ruins and also visible for then visitors

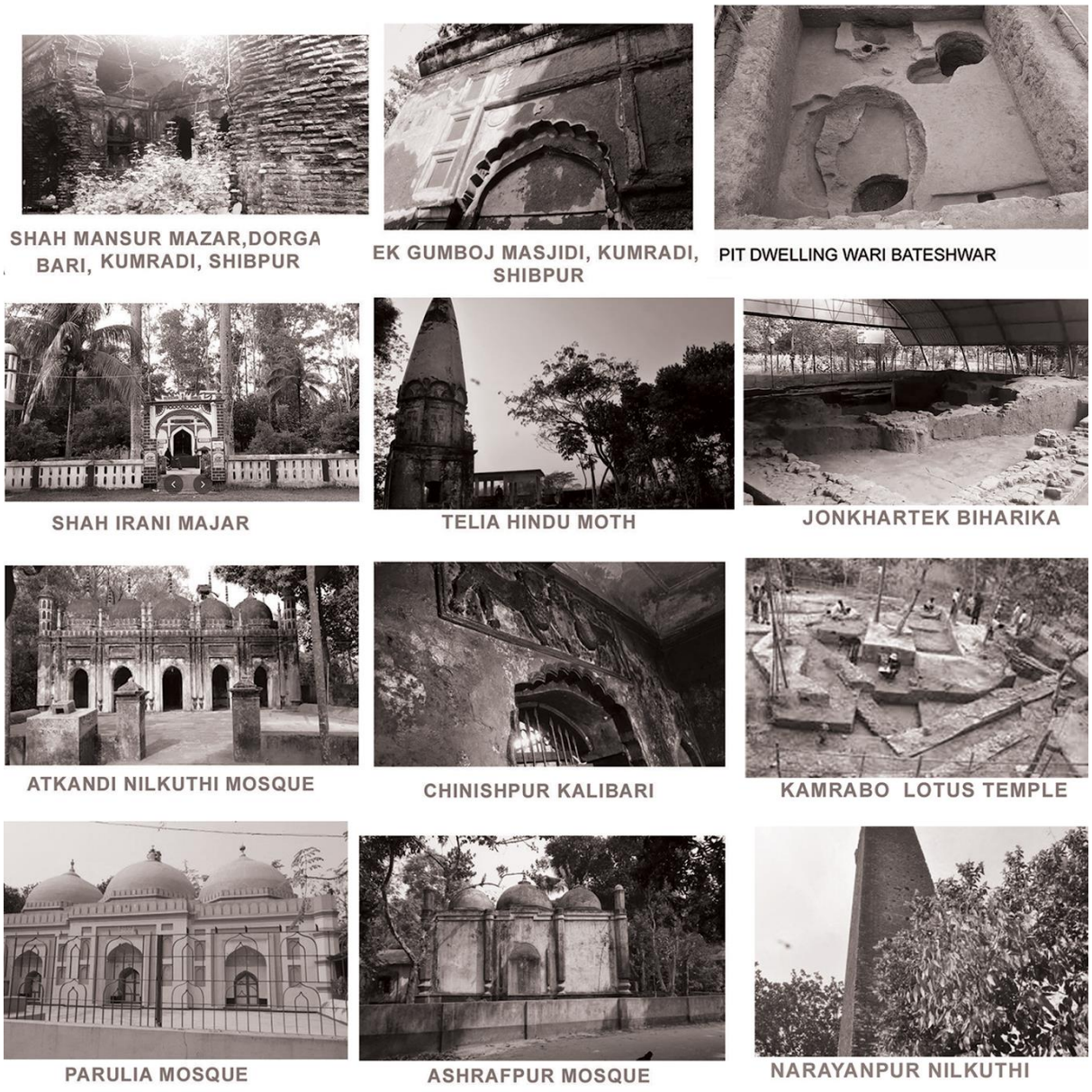
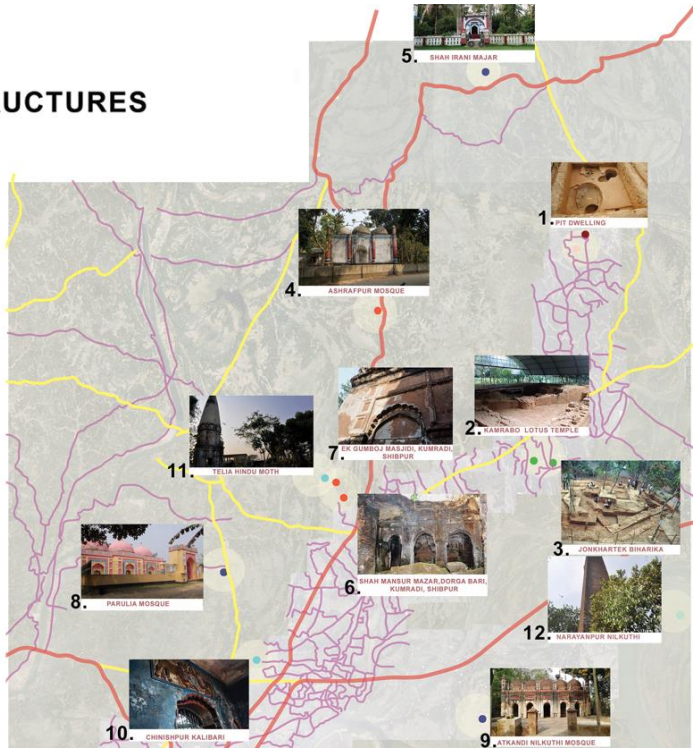


Figure 2: Tangible heritage

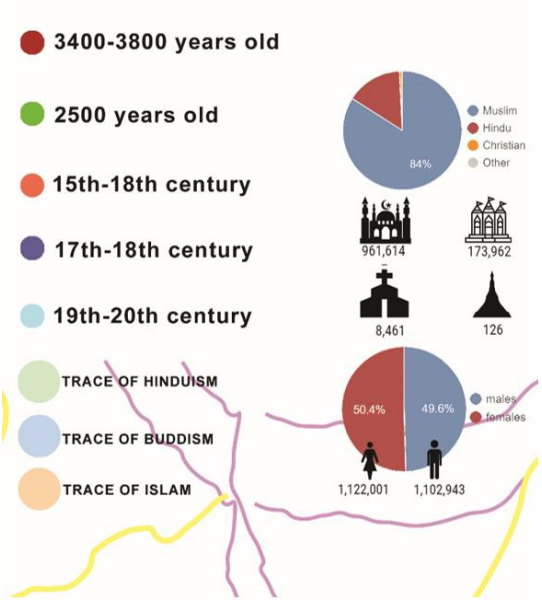
Source: Google

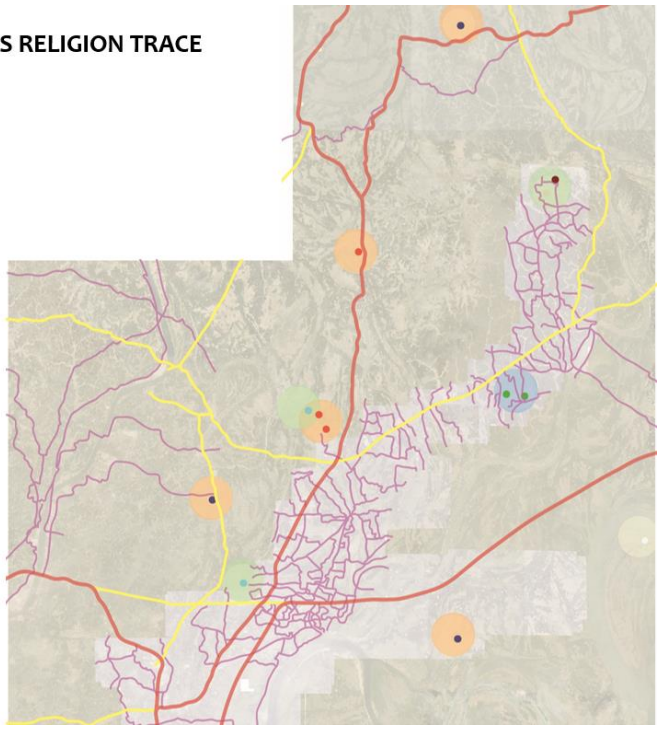
ANCIENT SITES AND HERITAGE STRUCTURES

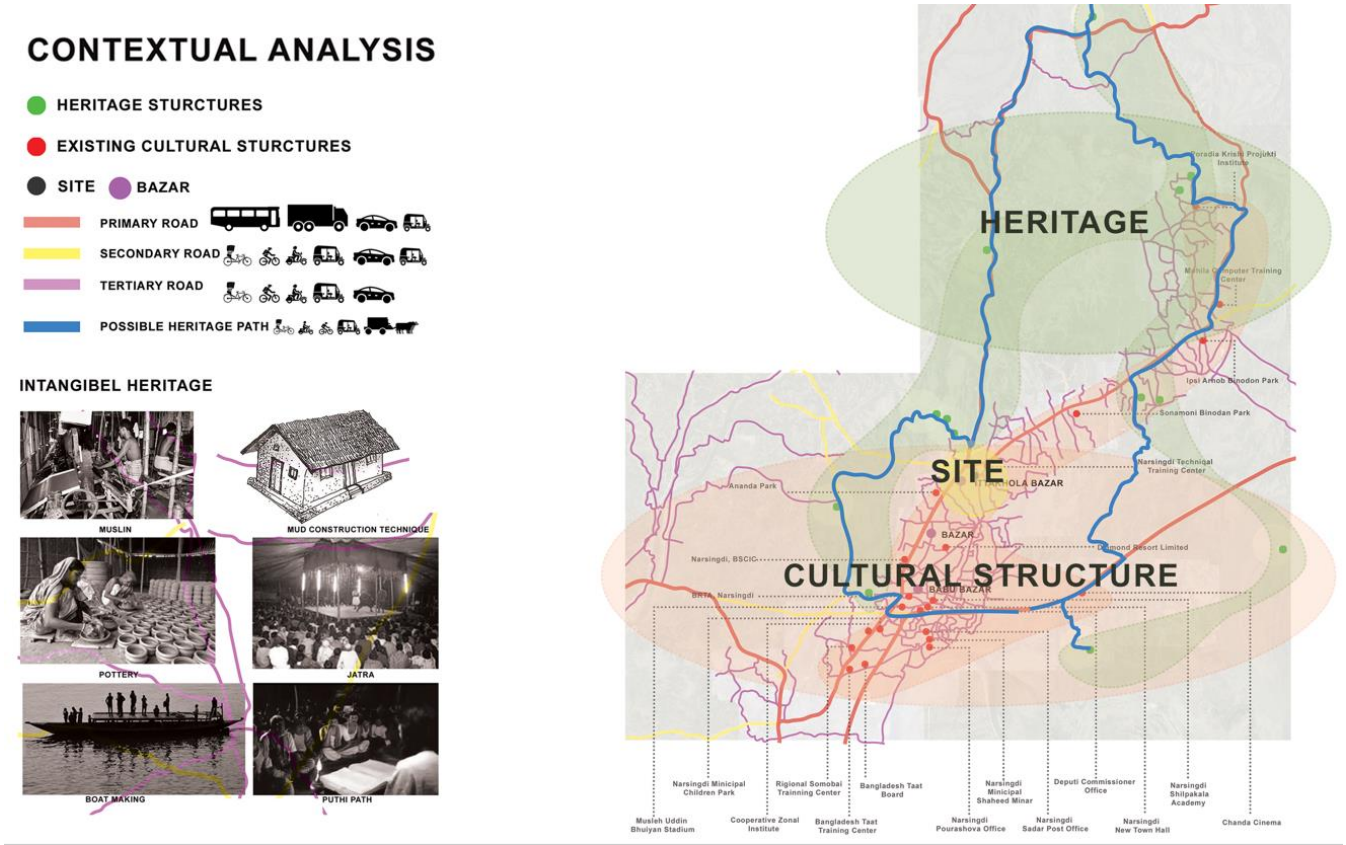
- PRE MAURYAN PERIOD
- PALA PERIOD
- MUGHAL PERIOD
- SULTANI PERIOD
- 250 YEAR OLD TEMPLE STRUCTURES
- BRITISH PERIOD STUCTURE



ANCIENT SITES AND HERITAGE STRUCTURES AND ITS RELIGION TRACE







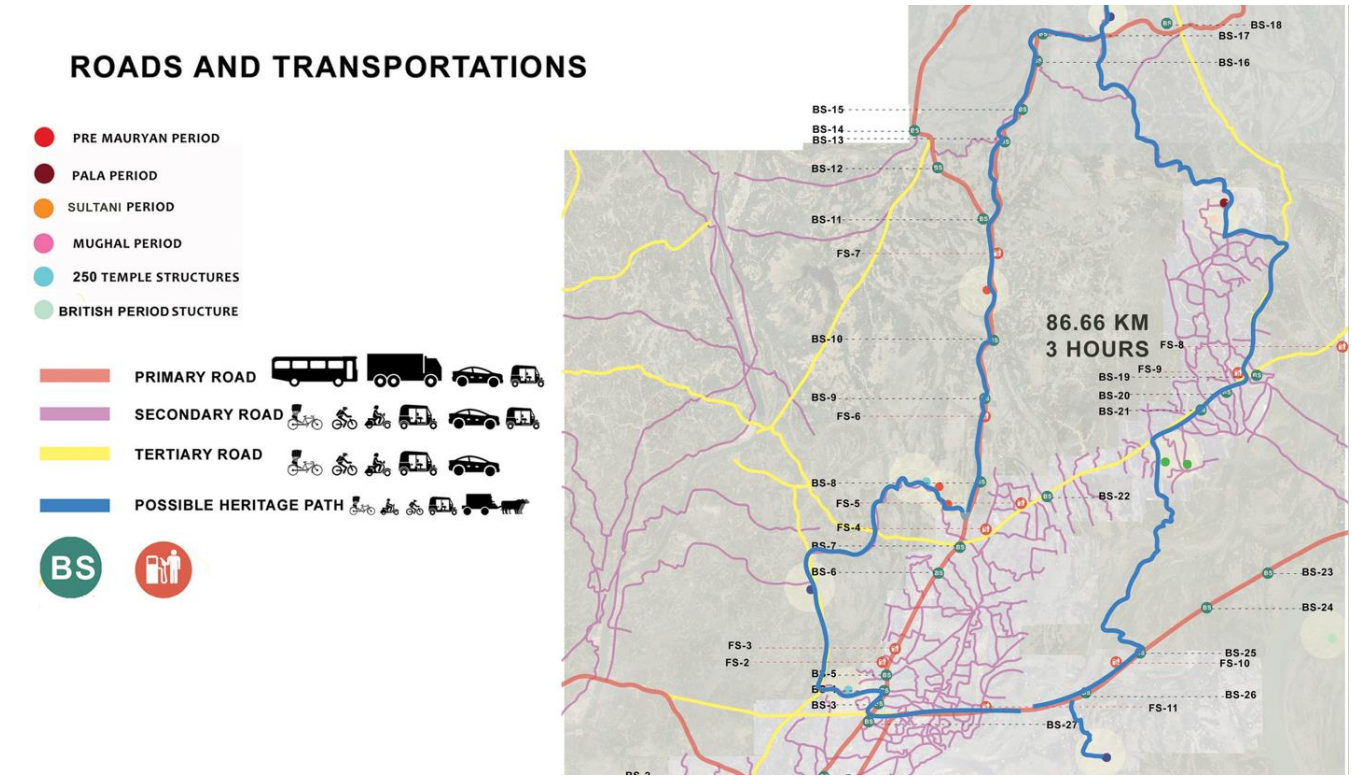


Figure 2.1: study for the Heritage center

Source: drawn by the author and google map

1.2 Aim and objectives of the project:

The objective is to involve and engage more people with the cultural and historical heritage of Bengal and of Narsingdi. Also, to try to revive the intangible heritage, uphold its importance of the rich heritage, and to further promote the history of the region to the world. Further objectives of the project include exposing the people of Bangladesh to its heritage and help them further understand it. It will help further anchor the identity of Bangladesh both to its own people and to the rest of the world. Moreover, making people aware of the archaeological restoration and preservation will help promote further work on more archaeologically significant sites around the country as well as encourage budding archaeologists and promote the importance of archaeological work. It will make the youth of the nation more interested in this type of archaeological wealth of our country so that in the future they will happily preserve it as well as acknowledge the important and hard work archaeologists of the past and present have done. The surrounding area hosts the buried remains of the Wari-Bateshwar civilization, which is more than two millennia old, and it is here that part The beginning of Bangladesh's history is rooted. Using this as the focal point, we can build and extend the way we perceive our place in history and indeed the present. This project will also encourage archaeologists and historians to rethink and research the history of the regions, enriching not only the base of the knowledge we have of the region but also for academics who pursue, want to pursue, or will pursue studies of history and other related subjects in the region.

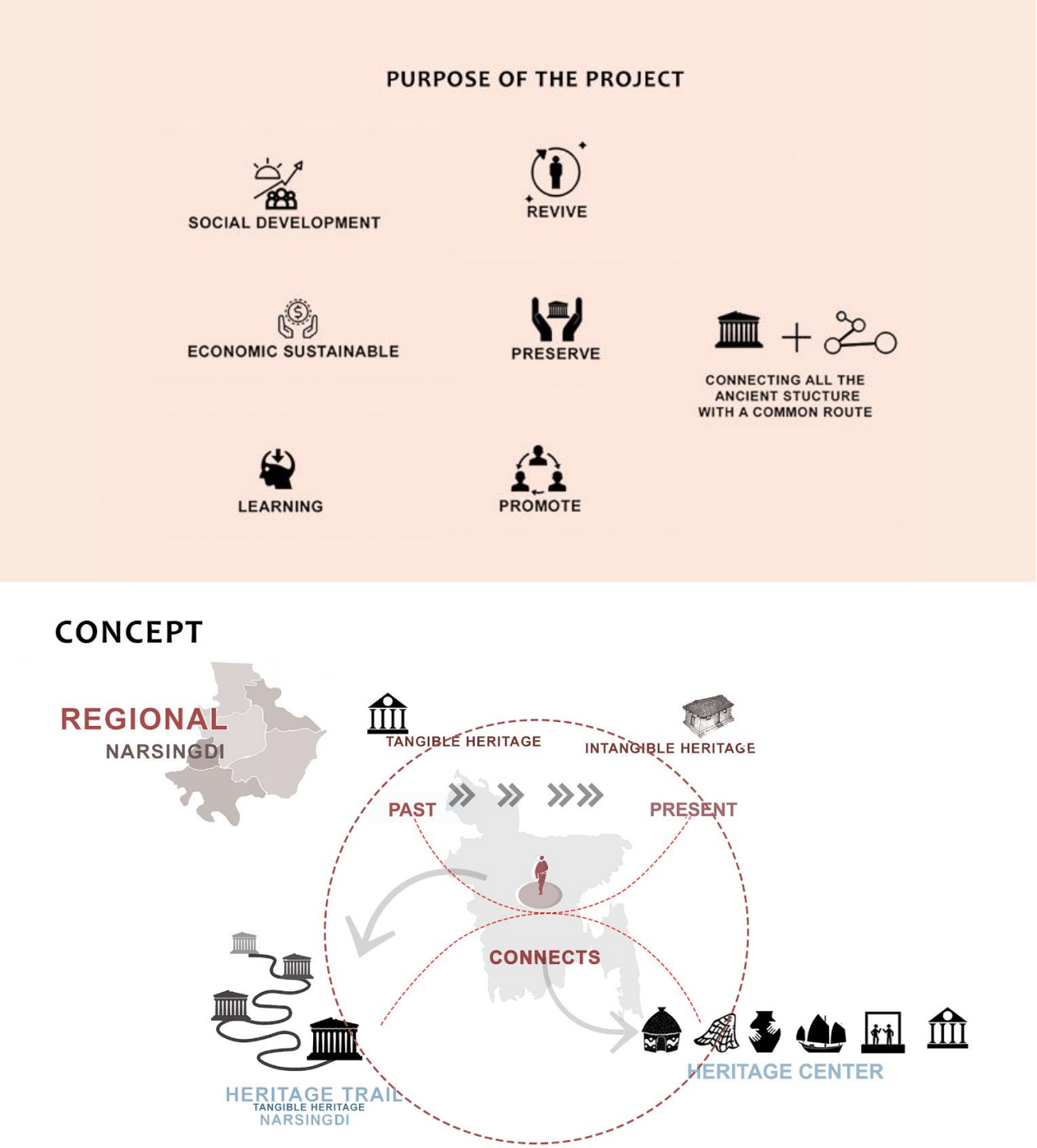


Figure 2.2: purpose and concept of the project

Source: drawn by the author

1.3 Project Summary

Name of the Project: The Heritage Center

Location: Ittakhola road, Shashpur moor, bhairav , Dhaka-Sylhet highway

Upazila: Shibpur

District: Narsingdi

Site area available for the Project Development: 3.6 acres

Proposed built-up area of the Project: 1,09,572 sq. ft

Proposed Program of the Project: Administrative block

Seminar room

Digital visualization room

Open stage

Galleries

Library

Workshop

Motel

Cafeteria

Parking

School

Mosque

Landscaping

Kiosk

Restaurant

& other service (staff’s room, electrical room, mechanical room, kitchen, toilet etc.)

Chapter 2: Literature Review

Archeology

2.1 What Is Archaeology?

Archaeology can be defined as the study of humanity's past. Archaeologists fundamentally study the things created, used or transformed by humans. This is done through the study of the material remains (the things that we leave behind, such as tools, hut dwellings, skeletons, jewelry etc.). Sometimes, archaeologists have to study contemporary societies to understand civilizations that flourished in the past.

Around the world, archaeology is practiced by professionals who work with other professionals from a wide variety of other disciplines in order to answer questions about our identity, our place in the world and what our future may bring.

2.2 What Is an Archaeology Site?

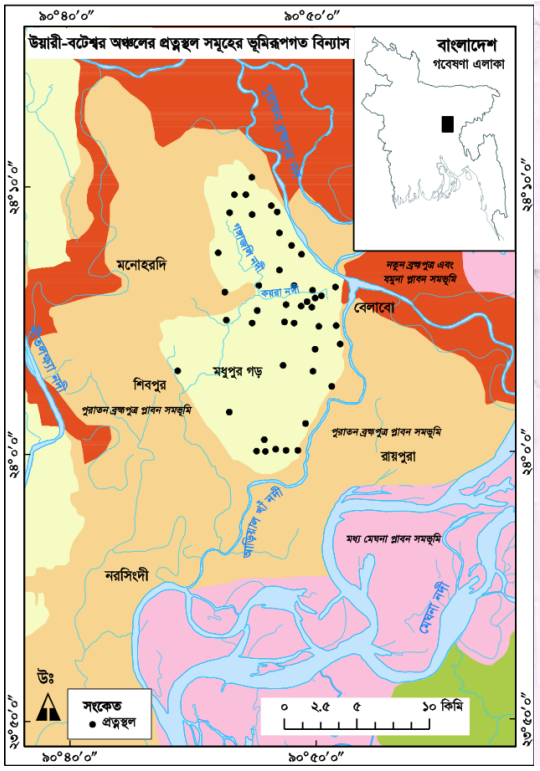
An archaeological site is a place or a group of physical sites where evidence of past activity has remained preserved. These may be investigated using archaeology and represent part of the archaeological record. Sites could range from those that contain few or no remains visible above the ground, up to buildings and structures that still remain in use.

2.3 What Is Archeology in Bangladeshi Context?

[Based on articles *Reading Relics* by Muntakim Haque on the lectures by Nisar Hossain, Shahnaj Husne Jahan and Michael Meister, March 2017 in Bengal Institute and *Excavating the Histories of Bengal* by Muntakim Haque on the lectures by Shahnaj Husne Jahan and Sufi Mustafizur Rahman, 2017 in Bengal Institute]

There is a lack of understanding of the significance of Bengal in history. The narrative of a region can be mapped through the transformation of its architecture as reference. In order to extrapolate, a good source of data would be ancient architectural ruins. A large proportion of which will happen to be religious sites that were guarded with much conviction and care. Temples, stupas and mosques etc can narrate the cultural and political shift of a region. By reading the relics left behind, there are ways to explore our past.

Archaeologist and professor at the University of Liberal Arts Bangladesh (ULAB), Shahnaj Husne Jahan has been navigating the challenging practice of archaeology in Bangladesh for decades. She affirms that in order to understand an ancient culture and their behavioral pattern, everyday objects must be studied; tiny pieces of abandoned rubbish could potentially reveal the culture of an entire civilization. She described the chronology of invention in cultures both prior to and after contact with other cultures and how this help determine the time and origins of a civilization along with the influences from other sources. Wari-Bateshwar, Lalmai Hills and Chaklapunji are archaeological sites where Neolithic and pre-Neolithic tools were already found. These sites could reveal archaeologically significant finds which could point us to a more comprehensive history of the Bengal region.



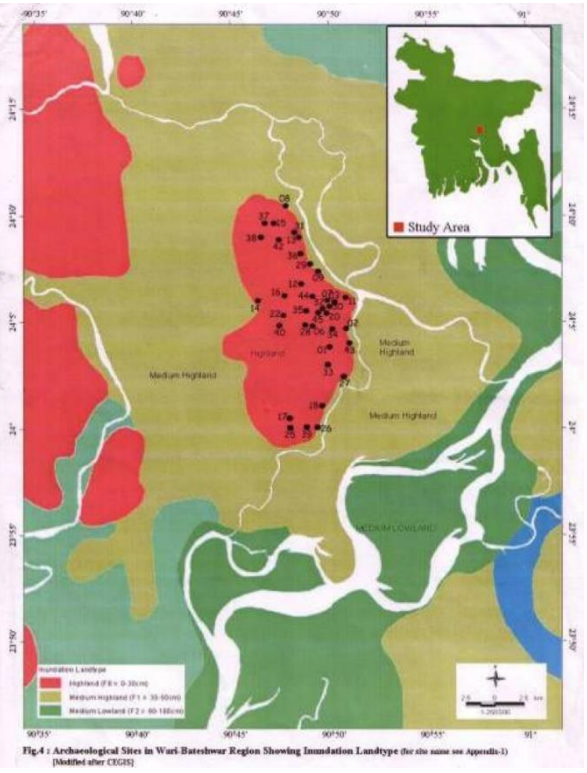


Fig.4 : Archaeological Sites in Wari-Bateshwar Region Showing Inundation Landtype (for site name see Appendix-1)
[Modified after CEGIS]

Figure 3: Wari Bateshwar excavation and findings,

Source: image courtesy: Sufi Mustafizur Rahman

In a lecture at Bengal Institute, Sufi Mustafizur Rahman, archaeologist and professor at Jahangirnagar University and chief archaeologist in the excavation at Wari-Bateshwar, detailed much of the findings discovered at the site. Wari-Bateshwar is thought to have been established around the 5th century BC. It was rediscovered in the 1930s, although excavations didn't begin until the turn of the new millennium. Thousands of items were recovered from excavations at Wari-Bateshwar. The items ranged from currency and utensils to objects of worship and jewelry. By understanding the composition of these items, the technique they were built with, the way they were stored and their location relative to other objects, the purpose of the objects, the role they played in the lives of the citizens of the city, and most importantly, the way the people lived their lives were extrapolated. Additionally, by examining the craftsmanship and materials used in some of the items found, Mustafizur Rahman has come to several startling conclusions about the connections the city had with other city-sites.

Sufi Mustafizur Rahman believes there is a high possibility that the city traded with the Greeks; it is possible that Wari-Bateshwar was the city the Greek mathematician Ptolemy had referred to as 'Sounagora' in his book Geographia. Furthermore, he claimed "silver punch-mark coins that are found in Wari-Bateshwar dates back to 6the century BCE, one of the earliest in the world."

American archaeologist, art and architectural historian Michael Meister, from the University of Pennsylvania, said that the way icons or their significance shifted during times of a regime change are key reference points from which much information can be extracted.

2.4 How to Preserve It in Our Country?

The bureaucracy surrounding archaeological research is deeply affecting the findings at sites like Bhitargarh just as other sites in Bangladesh. Mahasthangarh is thought to be one the most vulnerable excavation sites by The World Heritage Fund due to lack of funding to protect the area from rough weather conditions and looting.

In order to address these issues, there is a need for public interest and support in archaeological research and preservation of the sites. These are deeply tied to the national identity and the public need to be aware of it. A museum will be a good first step in generating this support and could not only create the

discourse needed to bring attention to the sites, through the discourse the corruption and bureaucracy can also be addressed as well as more ideas and volunteers can be had to more effectively expand archaeology in Bangladesh.

Museum

2.5 What Is A Museum?

Museums are called those institutions which collect artefacts and other objects of artistic, cultural, historical, or scientific importance. There are many public museums which are maybe permanent or temporary that make these items available for public viewing through exhibits. Mostly largest museums are located in major cities throughout the world, while in the smaller cities, rural areas, there are thousands of local museums. Aims of museums varies ranging from serving researchers and specialists to serving the general public. The objective of serving researchers is increasingly becoming the goal of serving the general public.

2.6 Typology of Museum

There are various types of museums, such as art museums, natural history museums, science museums, war museums, and children's museums. Largest museums like The Louvre in Paris, the National Museum of China in Beijing, the Smithsonian Institution in Washington, D.C., the British Museum and National Gallery in London, the Metropolitan Museum of Art in New York City and Vatican Museums in Vatican City are the most visited museums in the world. There are more than 55,000 museums in 202 countries according to the International Council of Museums.

Types

1 Agricultural museum

2 Architecture museums

3 Archaeology museums

4 Art museums

5 Biographical museums

6 Automobile museums

7 Children's museums

8 Community Museums

9 Design museums

10 Encyclopedic museums

11 Ethnology or ethnographic museums

12 Historic house museums

13 History museums

14 Living history museums

15 Maritime museums

16 Medical museums

17 Memorial museums

18 Military and war museums

19 Mobile museums

20 Natural history museums

21 Open-air museums

22 Pop-up museums

23 Science museums

24 Specialized museums

25 Virtual museums

26 Zoological parks and botanic gardens

2.7 Advantage and Disadvantage of Museums

[The Role of the Museum in Society

Emmanuel N. Arinze

President, Commonwealth Association of Museums

Public lecture at the National Museum, Georgetown, Guyana

Monday,May17,1999,

http://www.maltwood.uvic.ca/cam/activities/past_conferences/1999conf/batch1/CAM%2799-EmmanuelArinze.GuyanaFinal.pdf]

A museum possesses materials as well as information that can and should be used to enrich and improve the school curriculum in various disciplines. A museum education programme that is properly articulated will become essential in the overall educational system of society.

Museums promote unity in society through their resources and ensure understanding as well as appreciation for the various cultures that exist in a society. Museums use their collections to promote better understanding of the collective heritage of the people of Bangladesh and this will foster commonality of those things that bind the nation and its people together.

Today's society, museums need to promote current and challenging exhibitions.

You need to expand its scope and must not be confined to objects or materials in their possession. Museums must deal proactively with their execution of their mandate and it is important that they communicate their vision clearly which will guide them in everything they do.

There are possible drawbacks to museums as depending on the volume of attraction and intervention on building the museum, the local community will be disrupted. Current forms of business may be affected, as well as the ecosystem, transportation, housing and even culture and power structure. Interventions made to implement the museum in the site will require sensitivity and awareness of all these factors in order to ensure there is only positive impact on the local communities because of the museum.

2.8 Archeological Museum

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In the public lecture *The Role of the Museum in Society* by the then President of Commonwealth Association of Museums, Emmanuel N. Arinze on Monday, May 17, 1999, he speaks of the role of museums:

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Wari-Bateshwar is a very important site where many artefacts, coins and metal pots were discovered. To preserve those museums are needed so that people can see those artefacts and can know about the glorious history of this region. Moreover, museums are another way of promoting this oldest civilization through those exhibits to be aware and draw people’s attention. It is through the promotion of this civilization that further interest in the overall

importance of archaeology in our culture can be cultivated and further research and preservation of other important sites can be promoted.

2.9 Training and Workshop

There are hurdles when it comes to the exploration and discovery of historical evidence of Bengal. Shahnaj Husne Jahan claims that there were twenty-five hundred archaeologically significant sites in Bangladesh that are not being excavated. She expressed her dismay at the lack of expertise and effort in conserving archaeological sites in Bangladesh. She adds that there are various types of laboratories needed to assist archaeologists which are unavailable due to lack of funding and well-trained professionals. Training is a planned way of activity transfer or modifying knowledge, skills and attitudes through learning experiences. A training center will go a long way in training up professionals to manage equipment, and skillfully excavate and protect archaeological sites. In the book of Human Resource Management in chapter 52 Designing and implementing training programs it elaborately described many things about the workshop. The workshop can also train interested participants the skills to protect as well as the importance of protecting these sites and how to communicate to the public these messages which is crucial, as creating public support is the most effective way of getting funding for archaeological projects. Requirements of training vary from demands of the users and also from programs of the project with new technologies and new approaches. There are two ways of implementing a training program. One is centered around the trainer who controls experiences and learning contents, and the other one is centered on the learner where the trainer acts as a guide and provides resources. In order to design a training center.

2.10 There are some steps for designing a training center

Firstly, Identifying and observing trainee's present conditions

Secondly, defining the learning objective of the training

Thirdly, implementation and creation of a training program to improve performance

2.11 Objectives of training

Increase knowledge about the specific subject

Improving the attitudes about important factors on that specific subject

For effective functioning build and strength skill on the specific subject

For functioning and fulfilling the potential in a better way on the assigned works

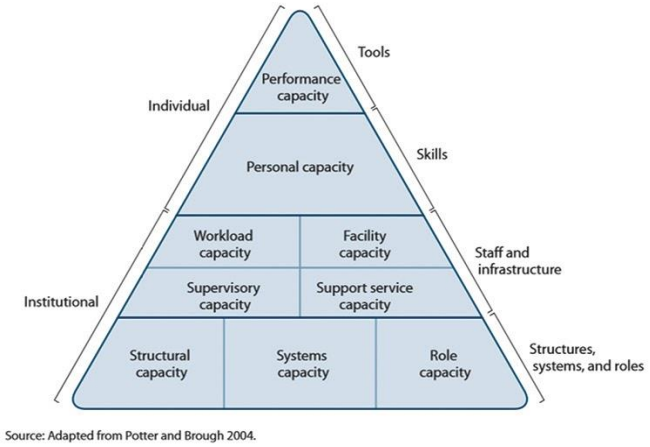


Figure 3 Capacity-building framework

Figure 4: capacity building framework

source: Adapted from Potter and Brough 2004

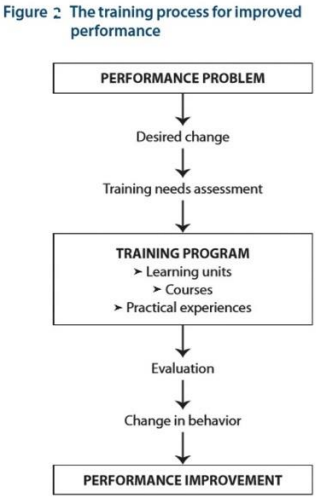


Figure 5: training process for improved performance

source: Adapted from Potter and Brough 2004

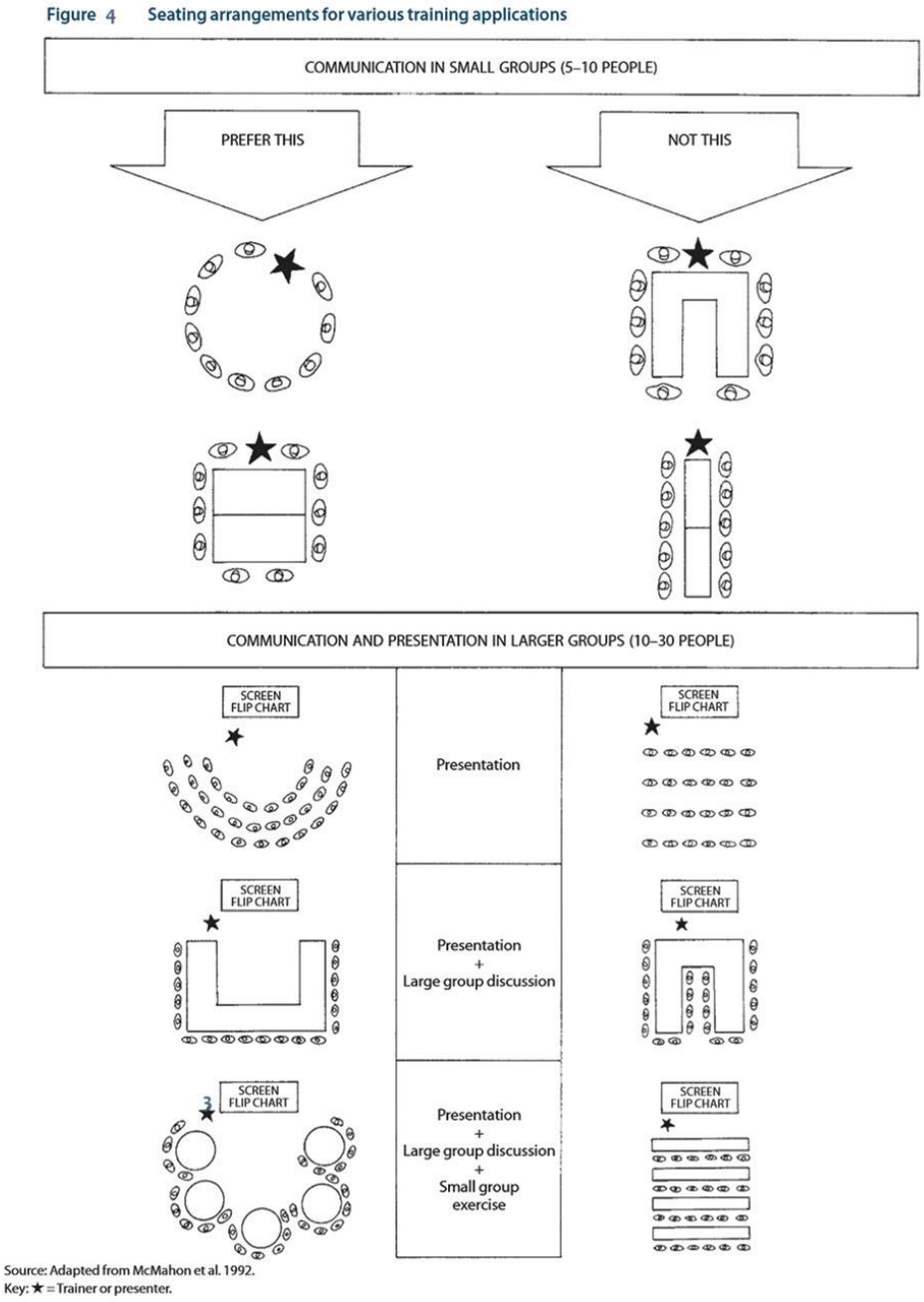


Figure 6: sitting arrangement for various training application

Source: Adapted from McMahon et al. 1992

Human Resource Management in chapter 52 Designing and implementing training programs

Bengal lectures on WariBateshwar conducted by Profe. Mujtafizur Rahman

The book shekorer shondhane written by Profe. Mujtafizur Rahman and Habibullah Pathan

Architectural magazine the VASE

The Role of the Museum in Society

Emmanuel N. Arinze

President, Commonwealth Association of Museums

Public lecture at the National Museum, Georgetown, Guyana

Monday,May17,1999,

http://www.maltwood.uvic.ca/cam/activities/past_conferences/1999conf/batch1/CAM%2799-EmmanuelArinze.GuyanaFinal.pdf]

Chapter 3: Site Appraisal

3.1 Site surroundings

The site is in Shashpur village, which is surrounded by thick layers of trees and crop fields . In the West it has a road called putiya bazar road with a school and a mosque and crop fields To the South there are some one-storied tin-shed houses with many crop fields and ponds. To the East is pitiya bari road and the residential zone with some grocery shops. To the North there is a thick belt of trees with it the market areas and connected with the main Dhaka-Sylhet highway route. Trees are thicker in the west and north part of it. There were many types of trees, mostly fruit trees and woody trees. Some of them are jaam, water apple, guava, lychee, boroi, jackfruit, pomelo trees, weed apple, tamarind, lotkon, coconut and more. Wooden trees like mahogany, walnut, and arjun trees are there. Thick bamboo trees were there on the site. In short, the site has various types of big trees which cast shadows all the time. There are many birds which can be seen.

3.2 Historical Development of the Site

This area has its historical background as many ancient sites found in this area which represent 2500-year-old civilization. Not only that pit dwelling which is similar to another pit dwelling in Gujarat which is said to be 3400-3800 years old. An old city is assumed to be under this Wari-Bateshwar. Only that Mughal, Sultani period 18th century and British periods significant structures have been found here in Shibpur to Belabo belt Dhaka-Sylhet highway Bhairab. A citadel with a business hub was present there from the pre-Mauryan period. Many artefacts have been discovered from the excavation of those sites and from the architecture of the other mosques and temples we can

get the timelines of how significant this area is as an historical one. In 1700 people from Natore and subregion area's people come to this place to protect themselves from a pandemic. And they started to live here in this region by taking lease from the king.

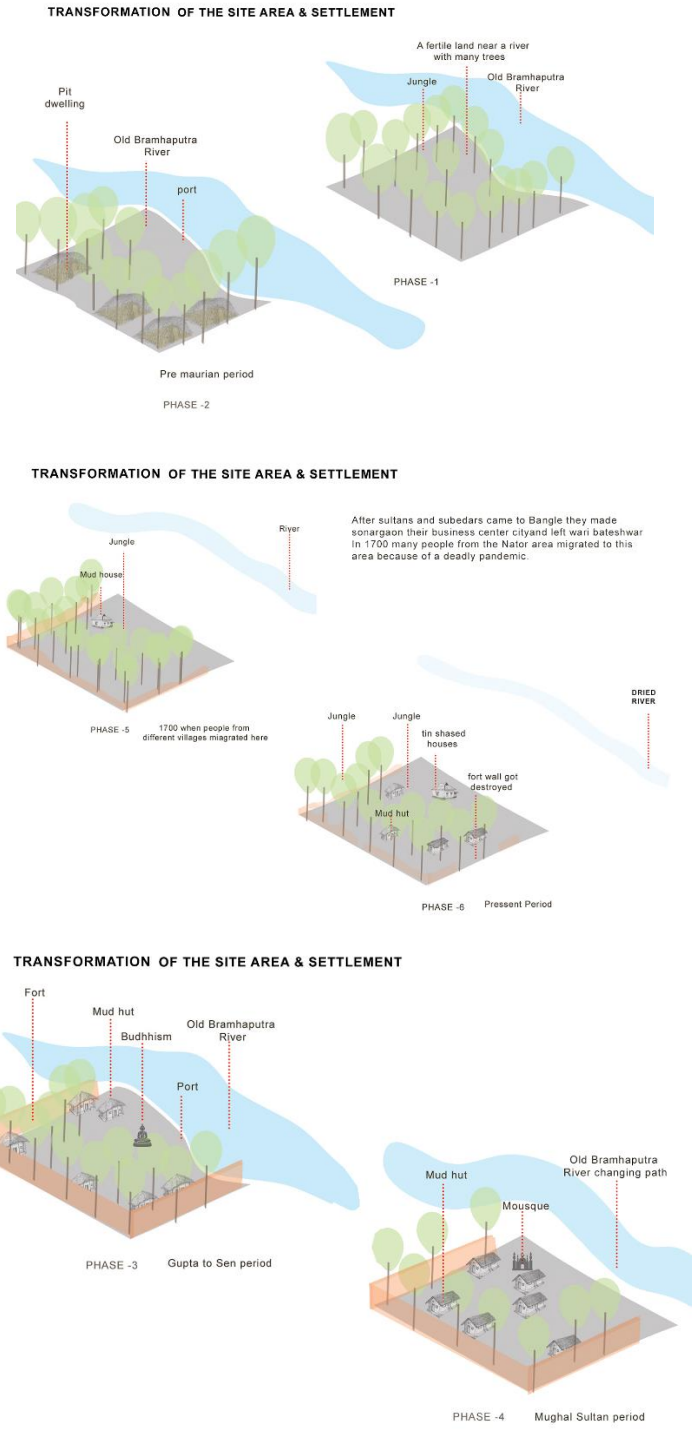


Figure 7: transformation of the area and settlement

Source: The book Wari Batheshwar Shekorer Shondhane

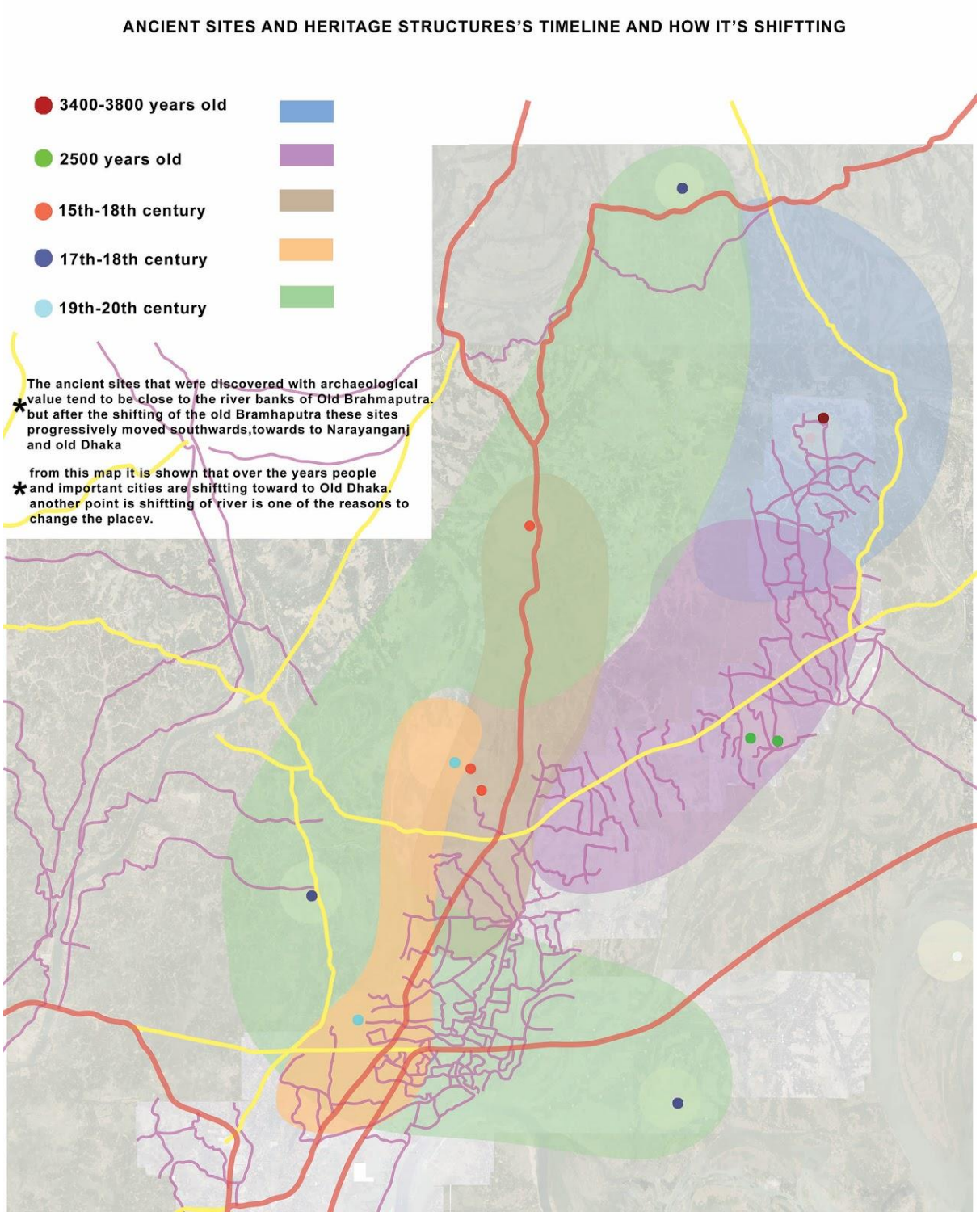


Image 8: mapping the shifting of thehistoric sites

Source: The book Wari Batheshwar Shekorer Shondhane google map redrawn by the author

3.3 Geographical Characteristics of the Site

The site is placed in a moderately vegetated area with large numbers of planted trees which have grown to a significant size. The area lies a bit in front of the old Brahmaputra river and Meghna River. The area is slightly elevated than the surrounding river basin areas of Bhairab and Narsingdi. The area is largely made of level ground with sparse distribution of mounds and hills. It is possible that these mounds are further archaeological sites as so many of the excavated areas

3.4 Land-use Pattern of the Surroundings

This Shashpur moore area is a flat land area, though only the archaeological sites are comparatively higher than the normal ground level. And being in this area is surrounded by rivers so during flood sediment could be found there. Sediments are really good for cultivation for this reason people started to settle on the bank of the rivers gradually. This settlement turns into a big civilization. In the 1720s this area was covered with thick vegetation and dense forestation. But at that time many people migrated from Nator Joshohore zillah because of a pestilence attack according to Habibullah Pathan. He also mentioned they had to take lease for staying in this village to the king of this area at that time. Before that it was not but a jungle after they came it became a neighborhood.

The current state of this place is a mosque, two primary schools, a high school, a madrasa, a government technical training center, a market, some agro industry, two banks and a police fari, a bus stand called ittakhola , three patrol and gas pump and some one to three storied pakka, adadha pakka and mud house with many small water bodies, crop fields and small mudi dokan.

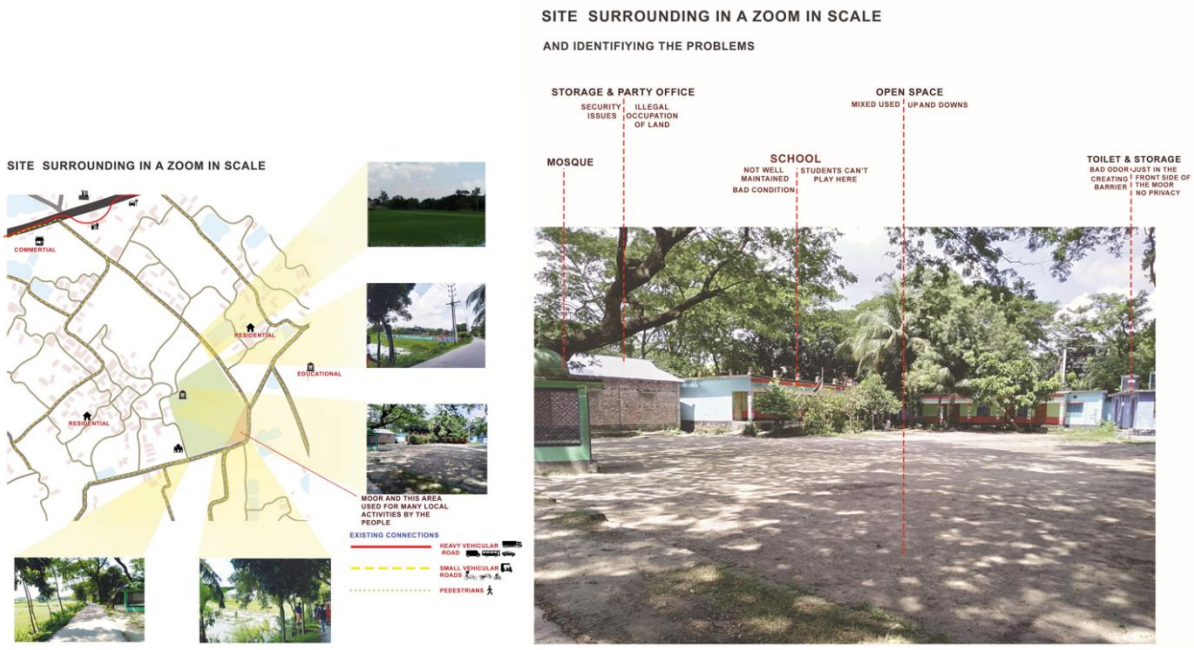


Image 9: mapping the site and sit's picture

Source: The book Wari Batheshwar Shekorer Shondhane google map redrawn by the author

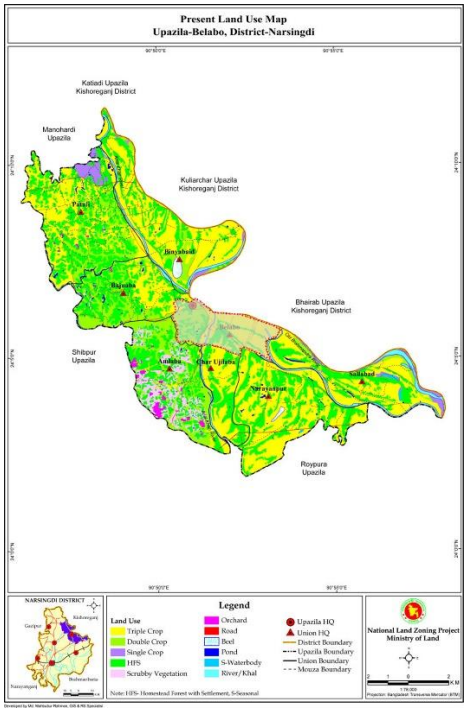


Image 10: Land use map

Source: Bangladesh ministry of land

3.5 Accessibility and Connectivity

This area has 2500 years old history and there were so many rivers which directly and indirectly connected to this site area. Gangajali, koyra, ariyal kha rivers were surrounded by this site. Those were the direct connections to the site. And the old brahmaputra, shitakhha river and meghna river were partially and indirectly connected to this river. So, this site was previously accessible through a water route. Moreover, it was told by a renowned archeologist that this site has business connections with Rome, Asham and also silk route. Since it is assumed as a business hub so there must have been proper and good accessibility and connectivity through the water route.

Right now, to go to this site we need to take a bus from Mohakhali and have to go Dhaka to Narsingdi road and have to stop in the Ittakhola bus stand them have to take a rickshaw or auto to go to the Shashpur mor Putiya bazar road. Roads were pitched but some roads towards the village side were narrow around 12’ wide. Roads were shaded with big canopy trees and some of the roads were still kacha roads and more like pedestrians.

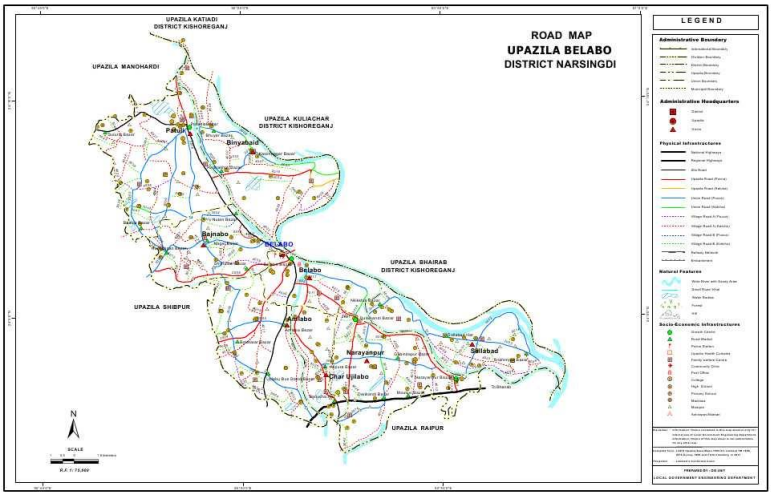


Image 11: Road Map

Source: Narsingdi City corporation

3.6 Climatic Conditions

The site where it is situated in Shashpur village, is a dry place. Usually dry season and rainy seasons are typically seen in this area. Average rainfall 1000-1500 mm. There are fifty archaeology sites present in this Wari-Bateshwar and the surrounding region. Area all the sites are uplifted than the actual ground level of the village those are at least 3-6 meter higher than the ground level. As a result, from the birth of this new land the records said that in the flood of the following years 1958, 1988, 1998 those areas remain safe. The Center for Environmental and Geographic information service of Bangladesh made a flood map where 50 archeological sites are present on the flood free high land areas of Wari-Bateshwar.

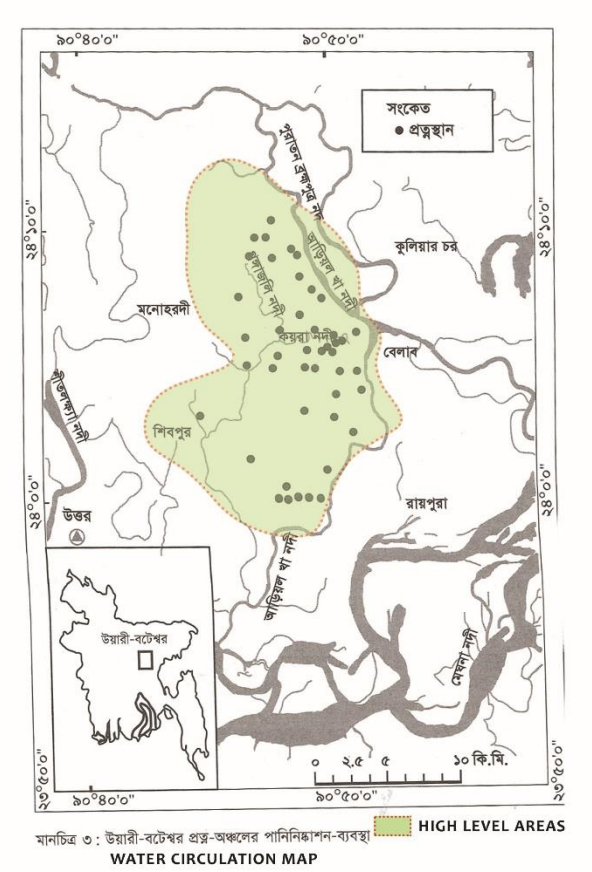


Image 12: high level area map

Source: The book Wari Batheshwar Shekorer Shondhane

3.7 Socio-Cultural and Economic Contexts

Narsingdi's Wari-Bateshwar being an ancient site there is so much evidence of socio- cultural and economic are seen. This flat site had a socio-cultural economic connection with the southeast part of Asia. By excavating the site many Buddhist temple vihara ponds and silver coins, beads ornaments, metal pots and mud pots were found. From that one can get the evidence of having a kind of Buddhism practice all over the area. And by the beads pots and silver coins it proves that Wari-Bateshwar surely was a business hub back then. Later on, evidence of business connection with Rome was also found with this business hub. Since it was situated on the bank of the Brahmaputra river so there is also a possible way of business connection with Assam too. In that ancient site there are some structures like boundaries which surround the administrative zone which also another evidence of a business center was present there at that time. There are Mazar and masque with madrasa Mughal period and also from the sultan period and also there is a chimney for indigo harvesting. 18th century's temples also are here. From this, it is well-defined how this area has a blending of different religion structures from different time periods. From the mud building and the kobigaan jatra pottery taat jamdani we can get a hint of the socio-culturally rich. Even in the economy sector it had a trade relationship with the Egypt Greece also international business relationship for the muslin and spices.

Currently there are school bazaars and varieties of shops, bus stand factories industries. Temporary museums are there. So, bazar became the main business hub and communication platform for every kind of person, especially male members. For the children school is the main communication platform. And also, the open-air museum. And there is a post office, police outpost, and also many one to three-story buildings so socio-cultural and economic activities are still present here.

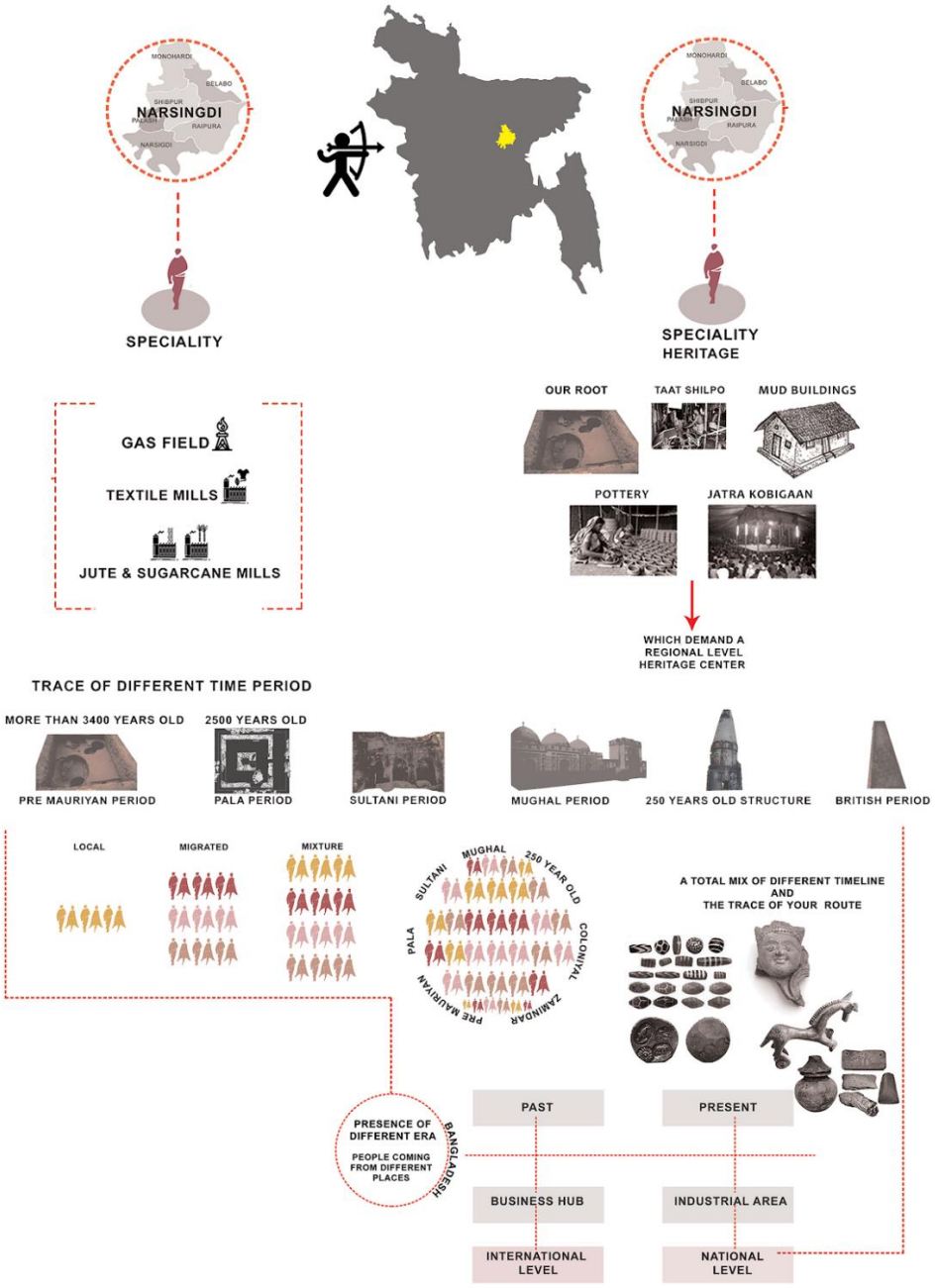


Image 13: socio- cultural diagrams

Source: The book Wari Batheshwar Shekorer Shondhane and diagram created by the author

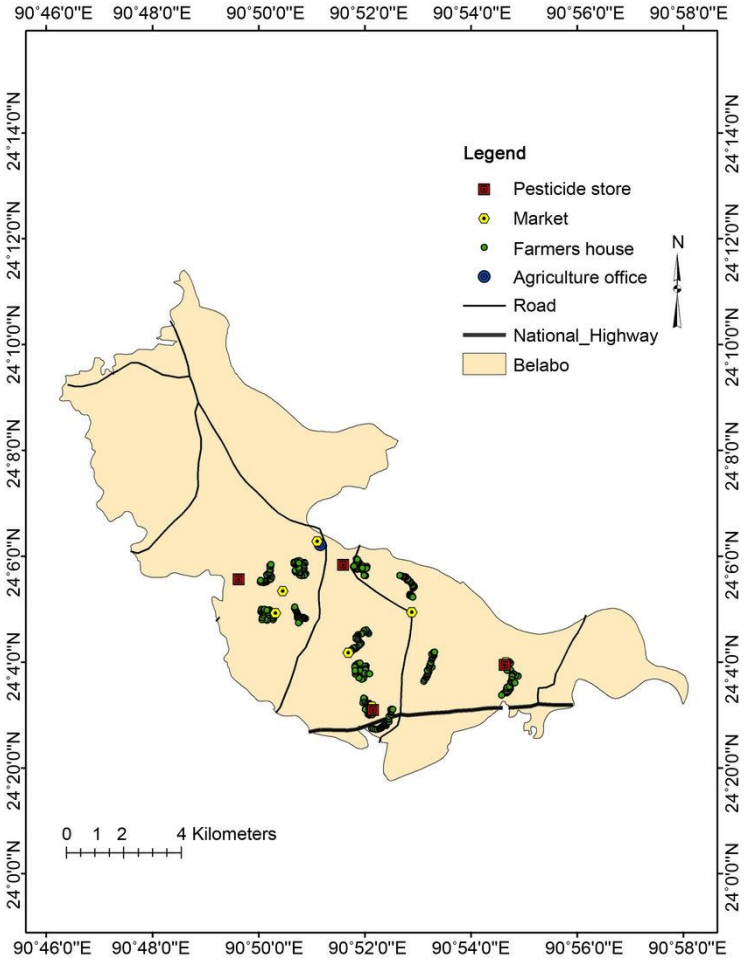


Image 14: economic area's map

Source: The book Wari Batheshwar Shekorer Shondhane

3.8 Images of Existing Site Condition

The first picture is the bigger map of the site surrounding to understand the site's condition in a more accurate way. So that this analysis on site may bring benefits for this Wari-Bateshwar Heritage center and Heritage Trail. The rest of the pictures have a small map to explore the site and closest surroundings properly.

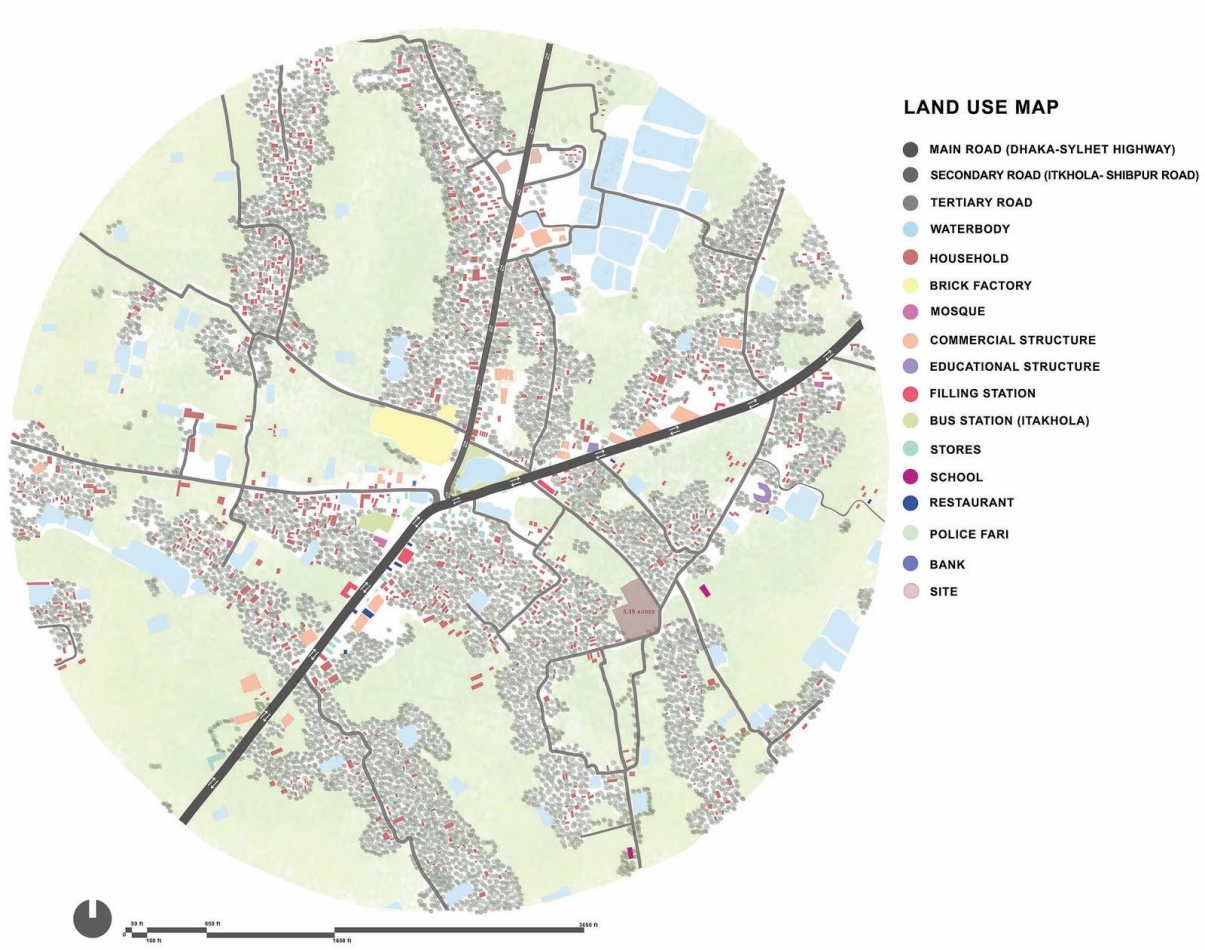
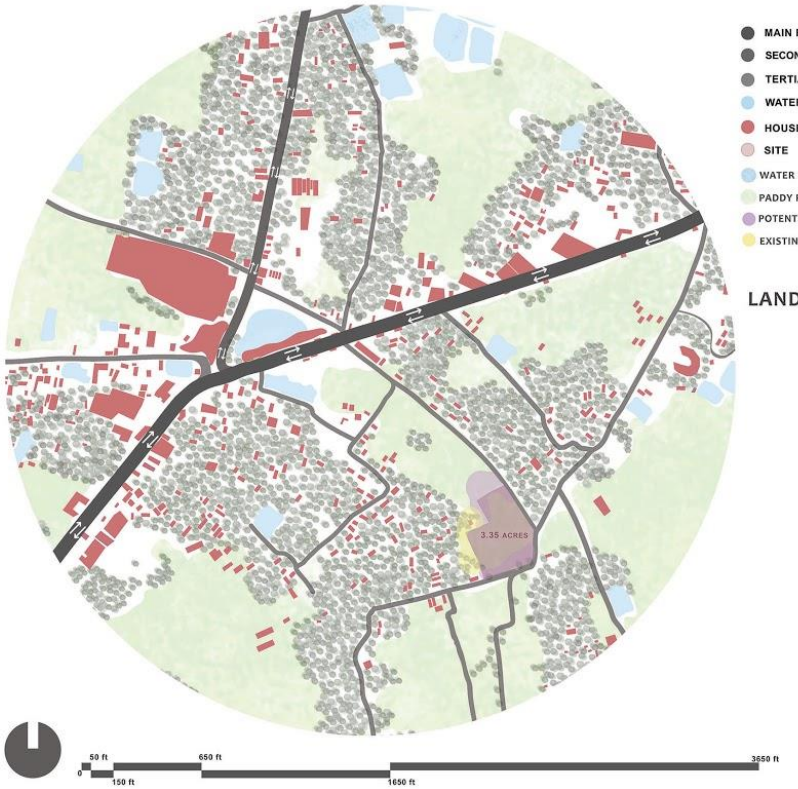
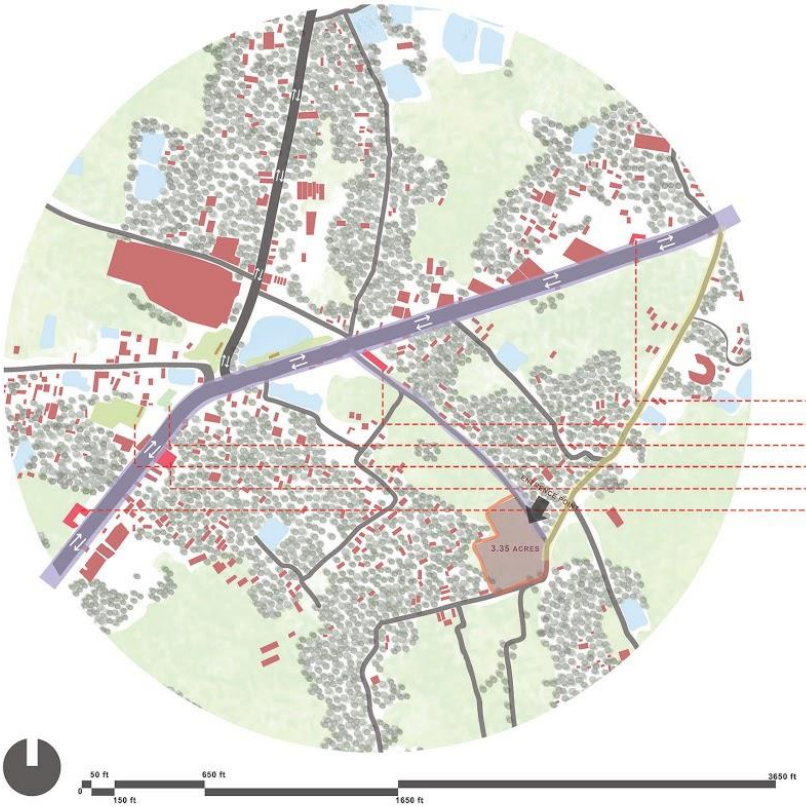


Figure 15: redrawn of the extended map of the site

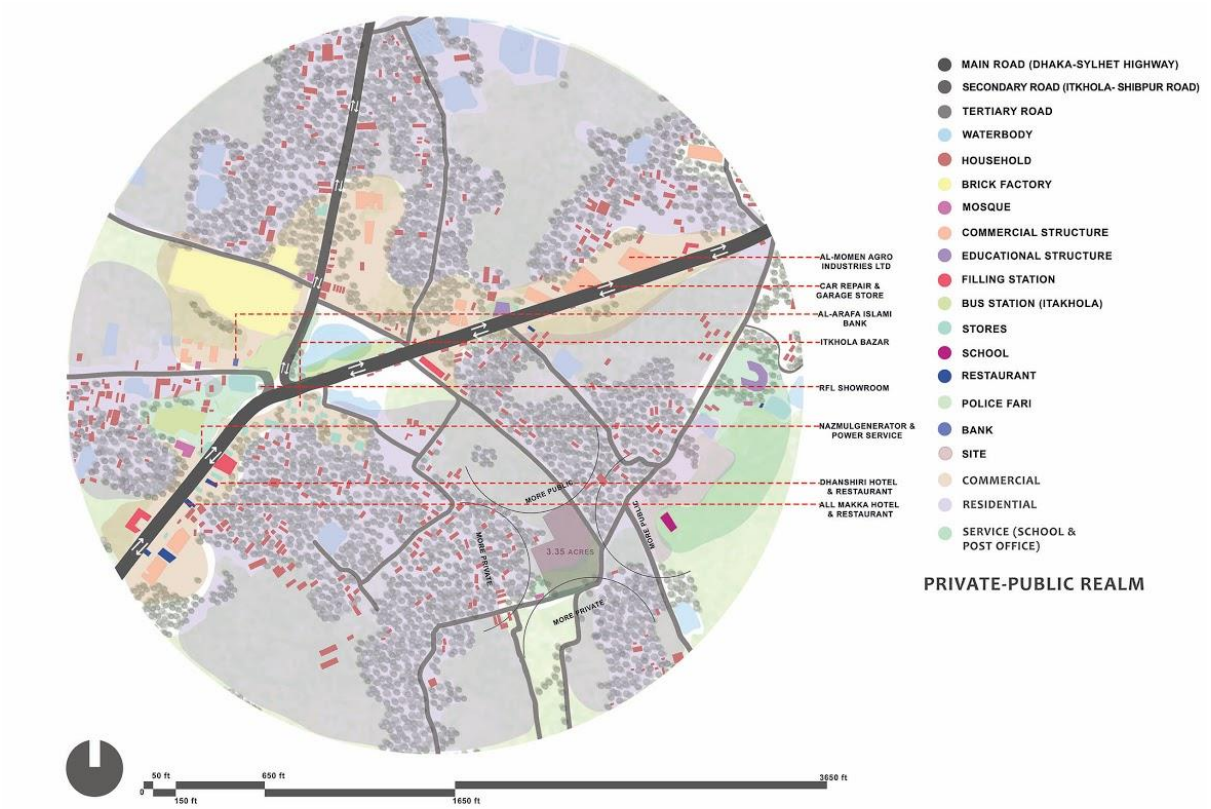
Source: Google Maps



LANDSCAPE



ACCESS



PRIVATE-PUBLIC REALM

TYPOLOGY OF BUILDING (HEIGHT)

Fig: 16: redrawn maps for site detail study Source:

Google Maps

Image 6: Present map of the site and surroundings

Source: Google Earth, LDG, Ministry of land,

Chapter 4: Case Study Appraisal

4.1 New Acropolis Museum

Bernard Tschumi Architects

MUSEUM ATHENS, GREECE

Architects: Bernard Tschumi Architects

Area: 21000.0 m²

Year: 2009

Manufacturers: Goppion , Glasbau Hahn

4.1.1 Environment and micro-climate

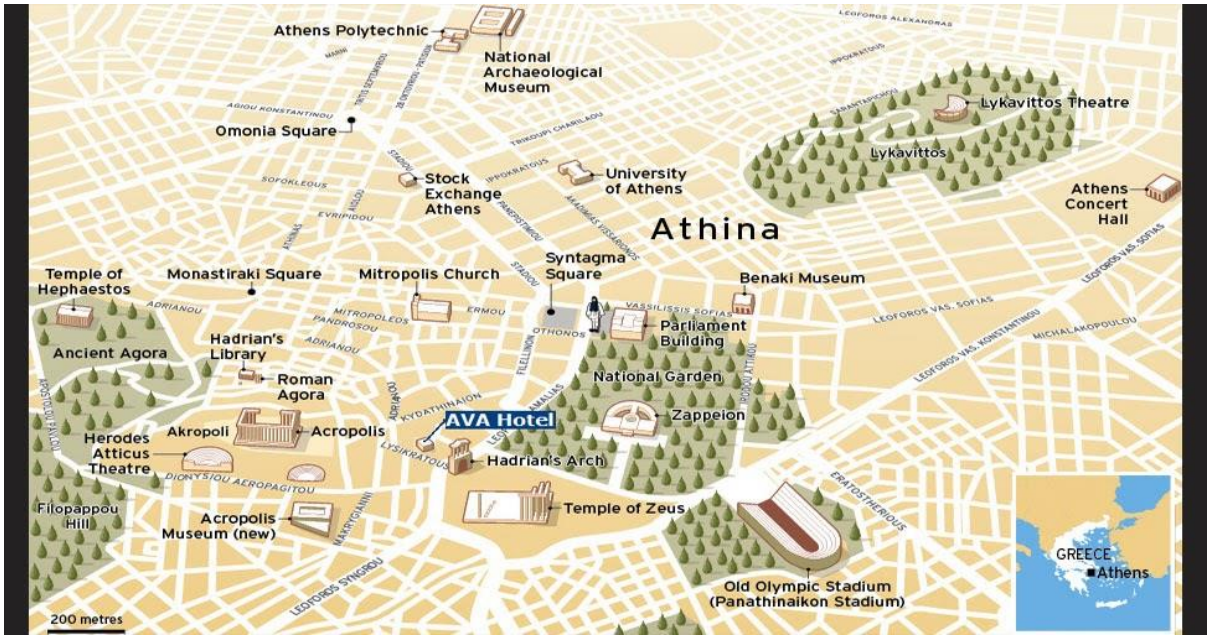


Image 1: road map of Greece

Source: The Acropolis museum

The Acropolis Museum is in Athens, Greece, a few kilometers away from the Mediterranean Sea. The climate of this location is hot and dry during summer, and cold and wet during winter. The orientation of the building is so as to maximize light capture from the South, and to increase accessibility to the sea breeze blowing from the Mediterranean Sea to the South. The site is a 4th century ancient archaeological excavation site which is accommodated within the compounds of the museum.

4.1.2 User behavior and requirements

Image 2: floor plans of the Acropolis museum

Source: The arch daily Acropolis museum

Image 3: floor plans of the Acropolis museum

Source: The arch daily Acropolis museum

The collection in the museum is installed chronologically, throughout prehistory and Roman period, but reaches its apex (both literally and programmatically) with the Parthenon Frieze. Therefore, the visitor's route is clearly looped three-dimensionally. It goes on by moving up from the lobby using escalators to double-heighted galleries for the Archaic period. It goes upward again via escalator to the Parthenon Gallery. Then in order to get back down, one must go through the Roman Empire galleries. Finally going out toward the Acropolis itself.

4.1.3 Form and Function

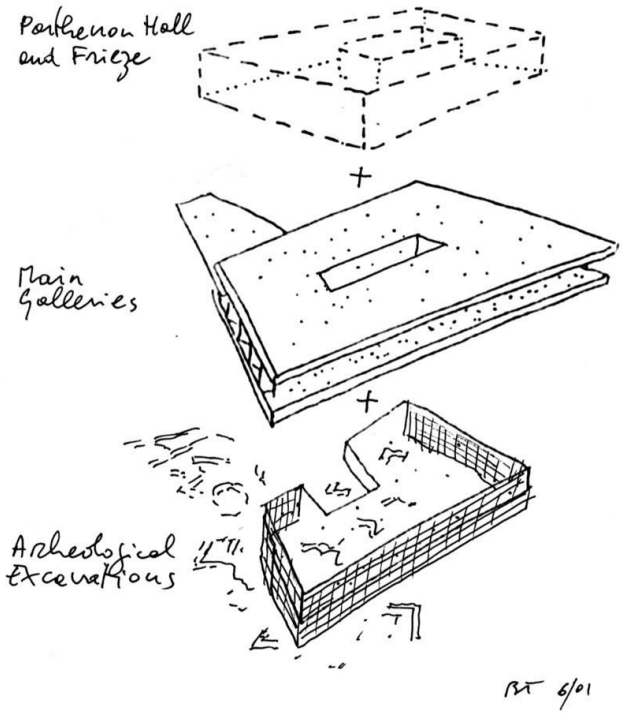


Image 4: conceptual sketches of the Acropolis museum

Source: The arch daily Acropolis museum

The building was built primarily to preserve the archaeological site. The fundamental reason for the form is to incorporate and display the archaeological site within it. The surrounding environment played a role in orienting the building as having the largest proportion of surface area facing south maximizes the capture of natural light and the sea breeze.

And also, each floor exhibits different era's archeology materials. In the basement it has the all administrative and research zone. the ground floor contains 200 people, auditorium, cafe, digital visualization, educational zone with classroom, and the slope of the acropolis with glass paving and landscaping. First floor contains all the galleries with required facilities. Second floor has a restaurant and other digital rooms and facilities with a terrace and this floor is bigger than the rest of the floors. Third floor has a Parthenon gallery and atrium.

So, whenever a floor contains many different functions it changes its size and visual appearance so forms follow the functions here from this case study.

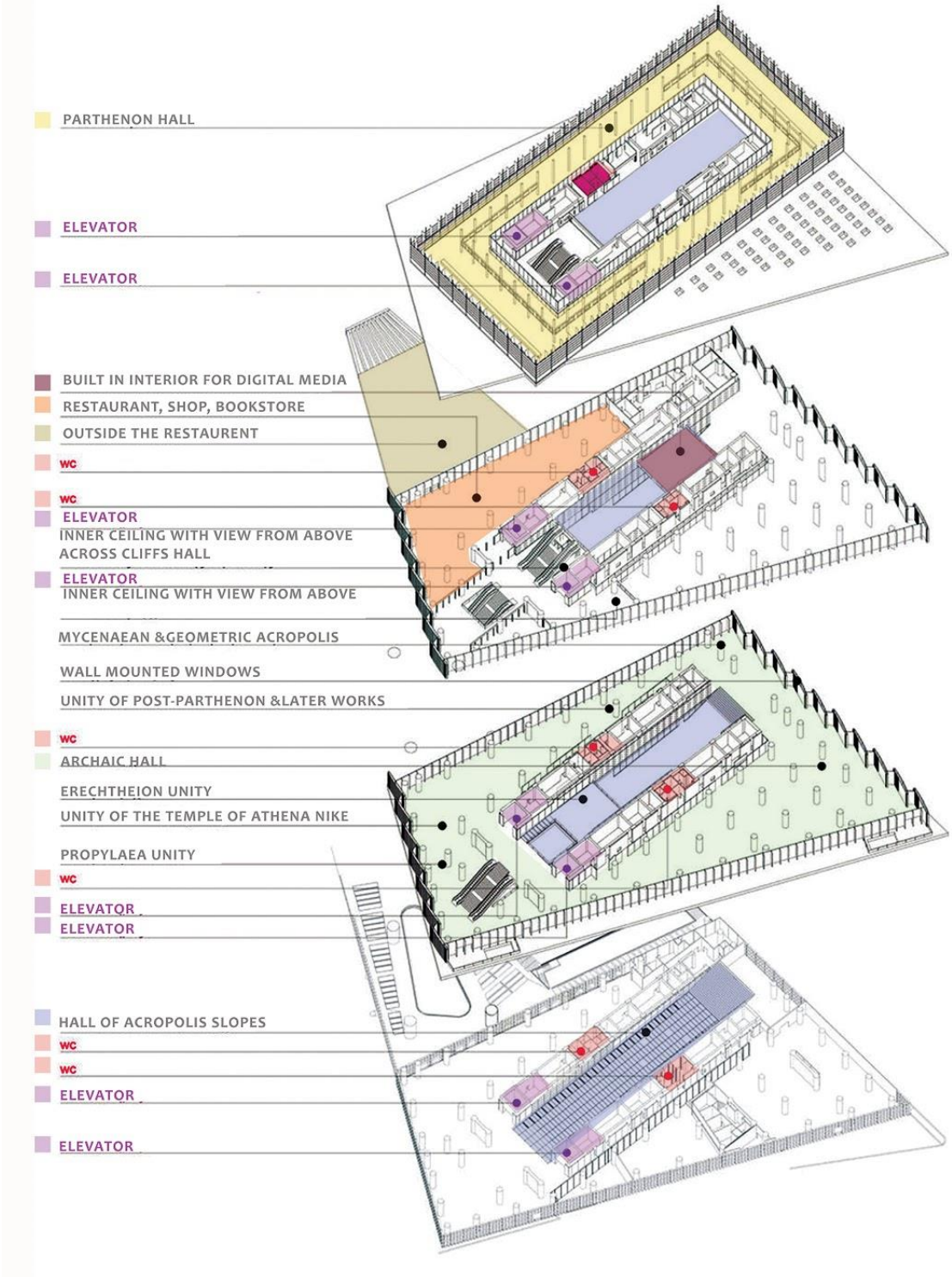

PARTHENON HALL
ELEVATOR
ELEVATOR
BUILT IN INTERIOR FOR DIGITAL MEDIA
RESTAURANT, SHOP, BOOKSTORE
OUTSIDE THE RESTAURENT
WC
WC
ELEVATOR
INNER CEILING WITH VIEW FROM ABOVE
ACROSS CLIFFS HALL
ELEVATOR
INNER CEILING WITH VIEW FROM ABOVE
MYCENAEAN &GEOMETRIC ACROPOLIS
WALL MOUNTED WINDOWS
UNITY OF POST-PARTHENON &LATER WORKS
WC
ARCHAIC HALL
ERECHTHEION UNITY
UNITY OF THE TEMPLE OF ATHENA NIKE
PROPYLAEA UNITY
WC
ELEVATOR
ELEVATOR
HALL OF ACROPOLIS SLOPES
WC
WC
ELEVATOR
ELEVATOR

Image 5: floor plans with the functional flow of the Acropolis museum

Source: The arch daily Acropolis museum

4.1.4 Horizontal and vertical circulation

The visitor's route is clearly looped three-dimensionally. It goes on by moving up from the lobby using escalators to double-heighted galleries for the Archaic period. It goes upward again via escalator to the Parthenon Gallery. Then in order to get back down, one must go through the Roman Empire galleries. Finally going out toward the Acropolis itself.

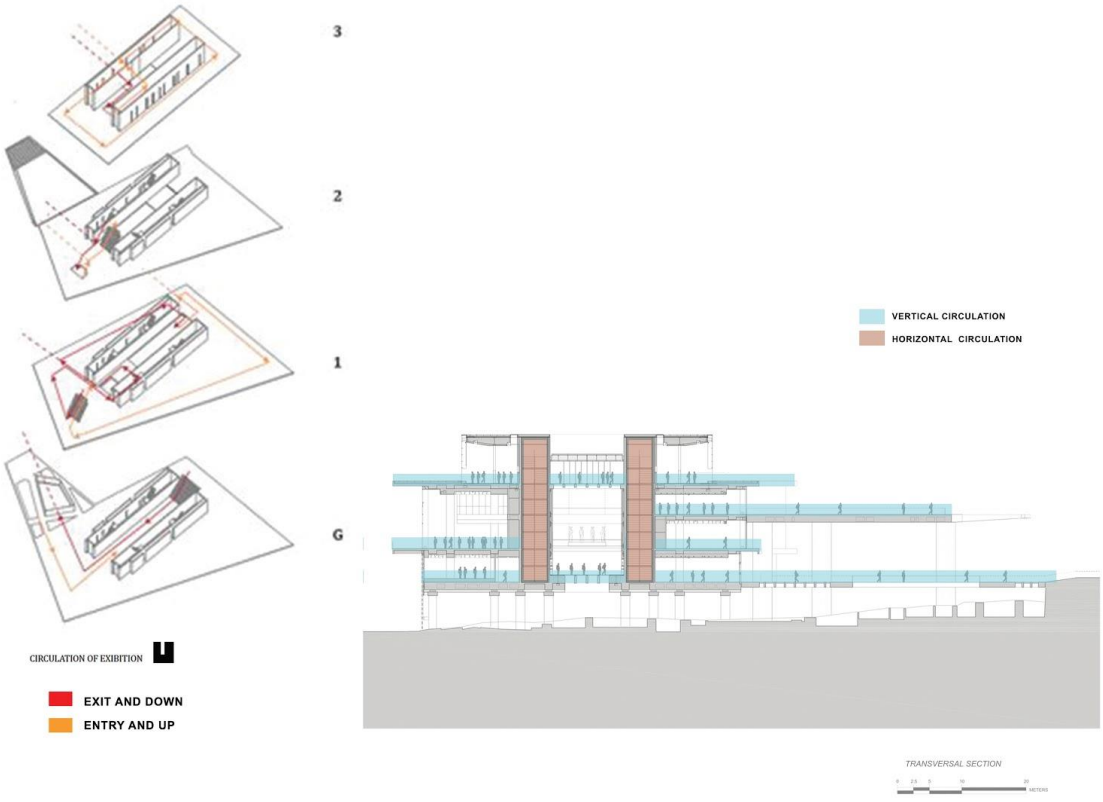


Image 6: horizontal and vertical circulation of the Acropolis museum

Source: The arch daily Acropolis museum

4.1.5 Site Planning and Landscape detailing

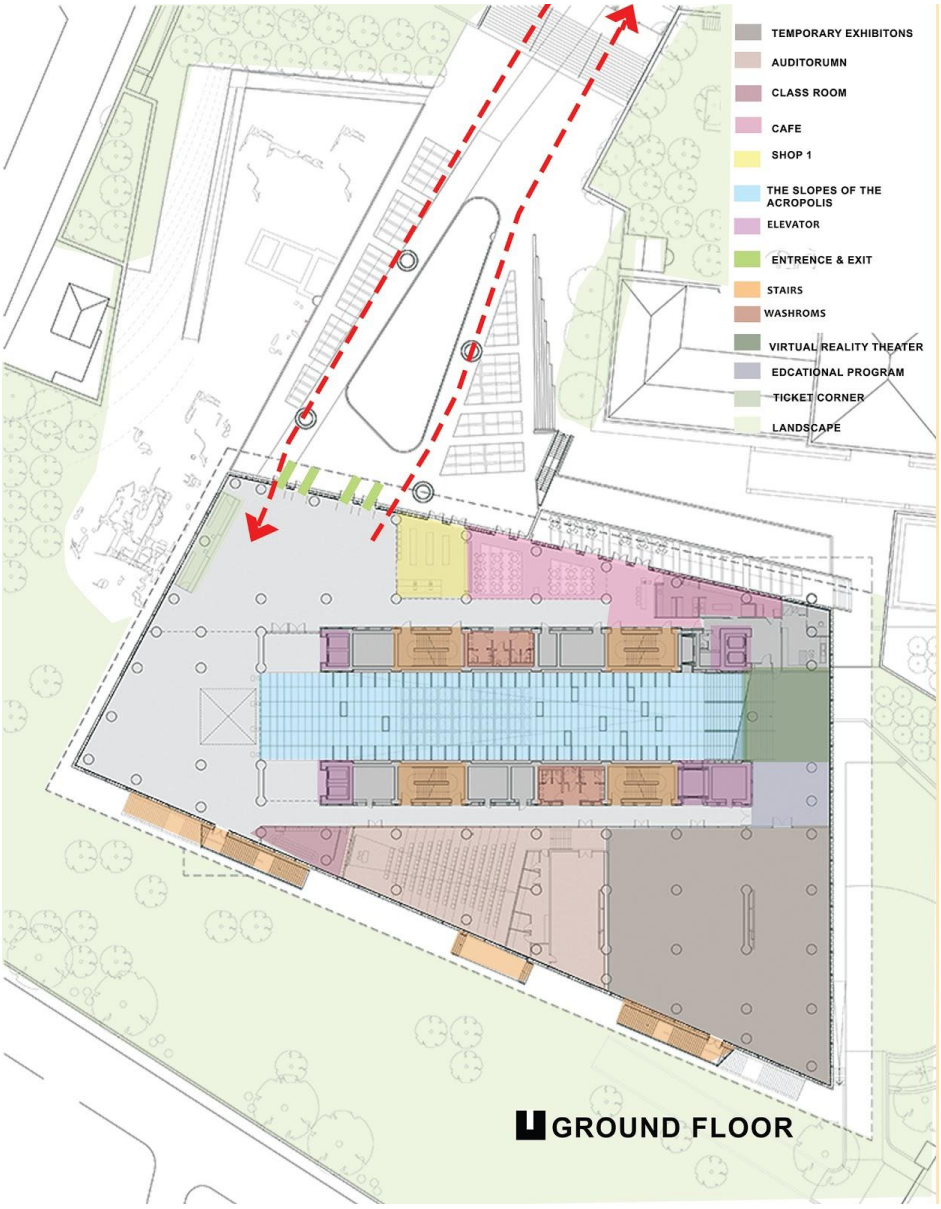


Image 5: Site Planning and Landscape detailing of the Acropolis museum

Source: The arch daily Acropolis museum

Site planning is the very important part for this project since it is situated on the top of an important archeology site. The building is designed in a way where visitors can see the the site because of the walk on glass paving and the site is surrounded by green landscape. For entering

the site there is a drop off area with stairs and plaza and visitors will find the glass paving area from where they can see the existence condition of the archeology site.

4.1.6 Utility planning

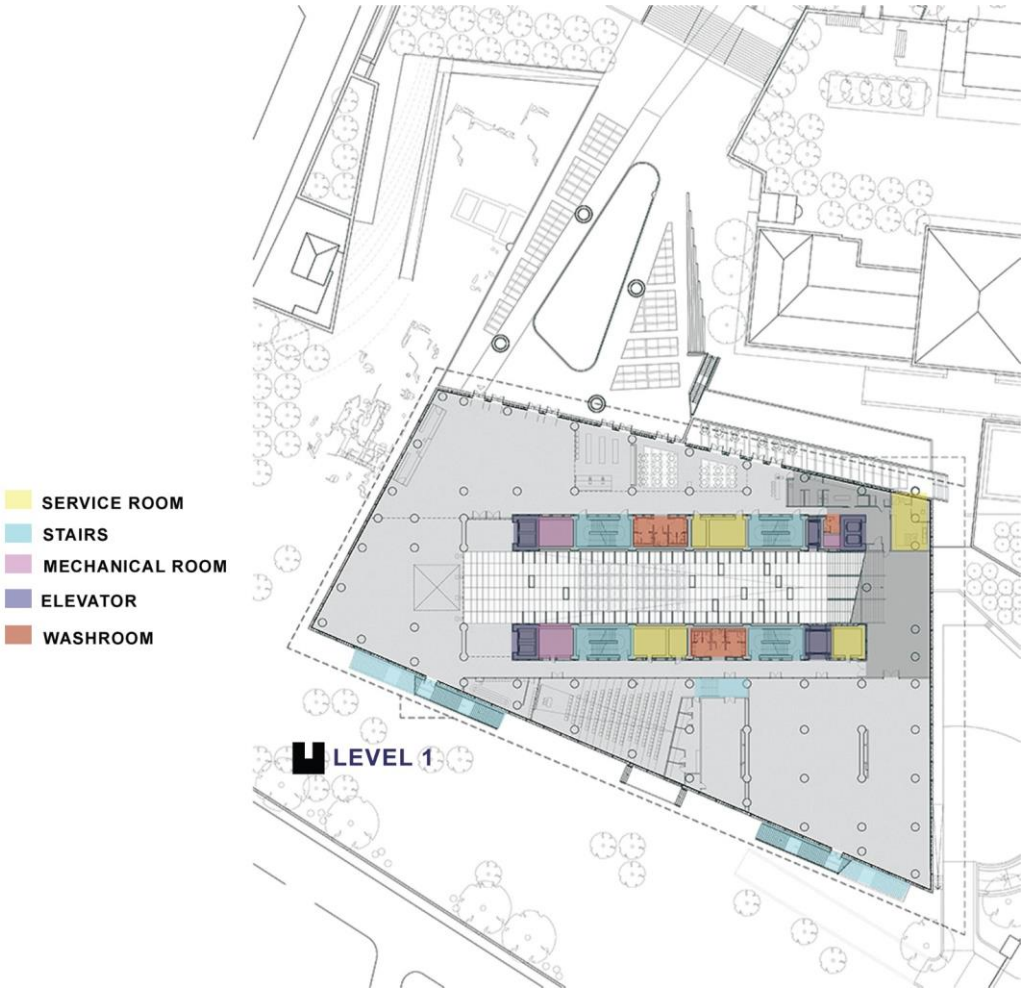
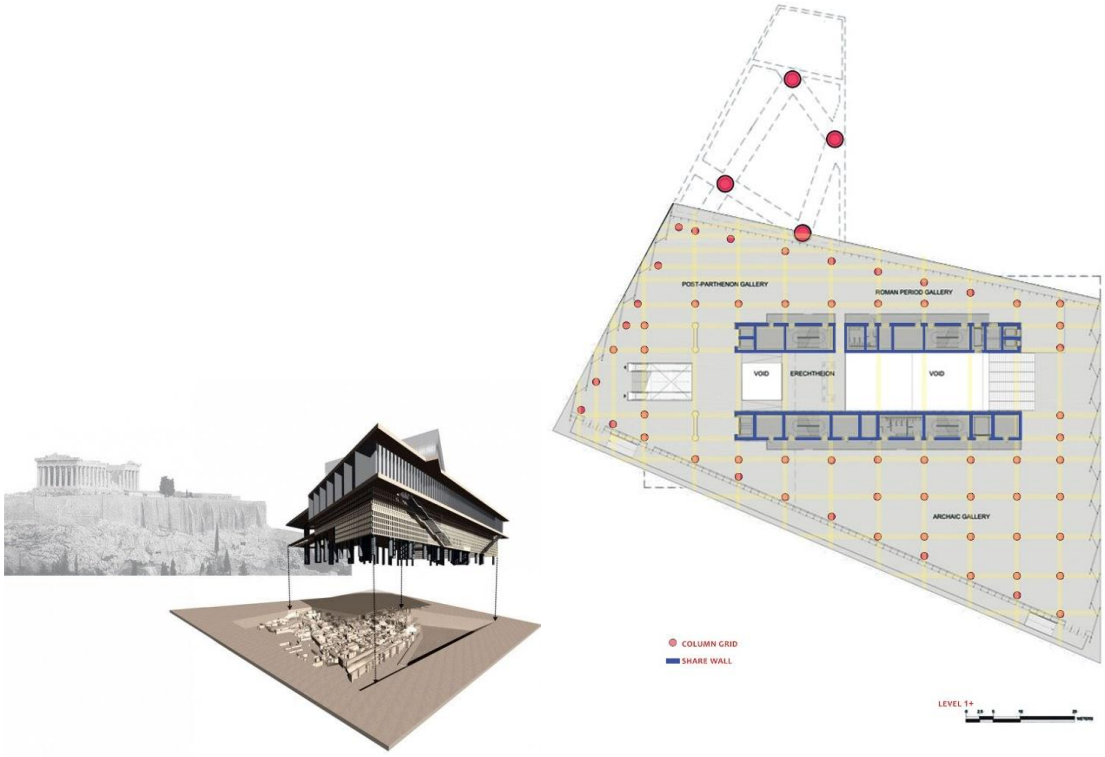


Image6: Utility detail of the Acropolis museum

Source: The arch daily Acropolis museum

If we think about the utility part of the project we can see that it has mechanical rooms elevators and it is designed fully with the HVAC systems. Some of the exhibits need special preservations and room temperatures that were preserved accordingly. About the washroom facility and serviced zone facility it is fully furnished with all these utility facilities. This building has a fire hazard control facility too. Fire Stairs are locked with fire rated doors.

4.1.7 Structural details



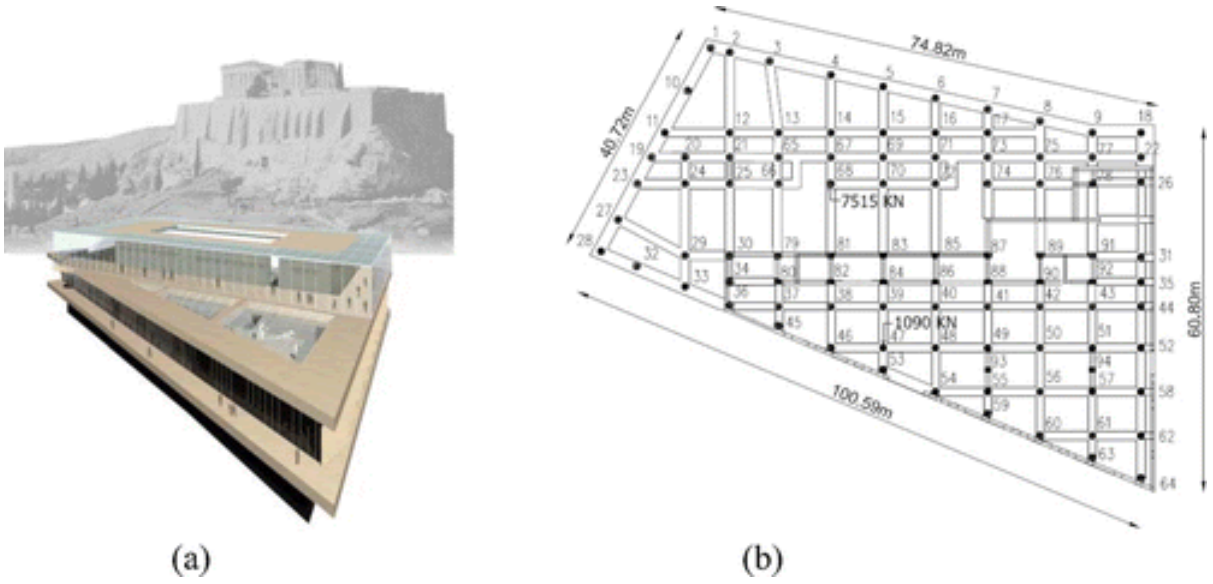


Image 7: structural detailing of the Acropolis museum

Source: The arch daily Acropolis museum

There were some pillars which could be found from the archaeological site and the architect designed the base hovers over the excavation on more than 100 slender concrete pillars. The combination of pillars (old and new) and shared walls evenly distribute the load from the floors above.

The top is the rectangular, glass-enclosed, skylight Parthenon Gallery, over 7 meters high and with a floor space of over 2,050 square meters (22,100 square ft). It is shifted 23 degrees from the rest of the building to orient it directly toward the Acropolis. Here the building's concrete core, which penetrates upward through all levels, becomes the surface on which the marble sculptures of the Parthenon Frieze are mounted. The core allows natural light to pass down to the Caryatids on the level below.

4.1.8 Design detailing

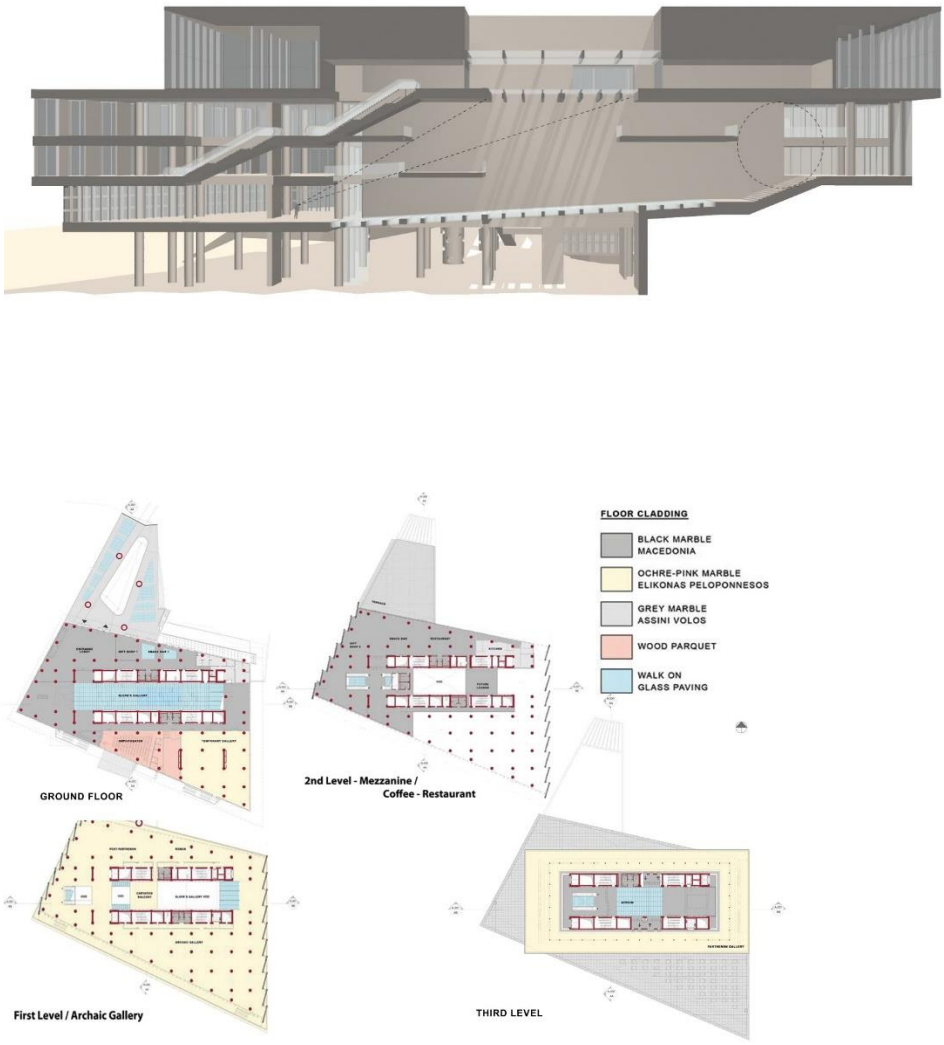


Image 8: Designing detailing of the Acropolis museum

Source: The arch daily Acropolis museum

In this design detailing part, we can see on the top most floor it has a big atrium which ensures natural sunlight and all the glass walls assure 360-degree view from the floors. It has different

types of floor materials like black marble ochre pink marble, glass paving wood parquet and grey marbles. It has all the facilities for especially abled people according to the standards.

In this project how the new built project can merge with an important archeology structure without dominating the existing archeology heritage building as well as the site. Also, how glass paving design ideas could actually preserve the archeology site at the same time it could be a main attracting exhibit of this newly built building. This was the main learning part of this project. Again, also the functional flow for each floor and of course the lighting and material choosing were also highlighting part of this museum project.

4.2 Royal Museum of Central Africa in Tervuren

MUSEUM RESTORATION: TERVUREN, BELGIUM

● Architects: Stéphane Beel Architects

● Area: 27125.0 m²

● Year: 2018

● Photographs: Luca Beel

● Manufacturers: AGC, ASSA ABLOY, Jansen, KORODUR , Kone , ODS , POTTEAU LABO , ZNR , Autodesk, Adobe Systems Incorporated

4.2.1 Environment and micro-climate

Image 9: Environmental and micro climate detailing of Royal Museum of Central Africa in Tervuren

Source: google earth

Summers in Tervuren are comfortable and partially cloudy while the winters are long, quite cold, windy, and frequently cloudy. Throughout the year, the temperature is typically between 1°C to 22°C and it drops to rarely -6°C or above 29°C quite rarely. The English Channel is 100 km North-West and is the closest large water body and the effect of sea breeze is quite minimal.

4.2.2 User behavior and requirements

In the restored museum visitors have to enter through an entrance pavilion with a long gallery. While going the first pass an opening through which daylight enters, a point of reference and orientation, while walking along an exhibition of the museum's collection. From an appeached The Congo river, in the direction of a light point in the distance: the sunken courtyard of the museum building, which introduces light and orientation. This old building museum has been renovated and restored and to support that old museum building a new museum has been built.

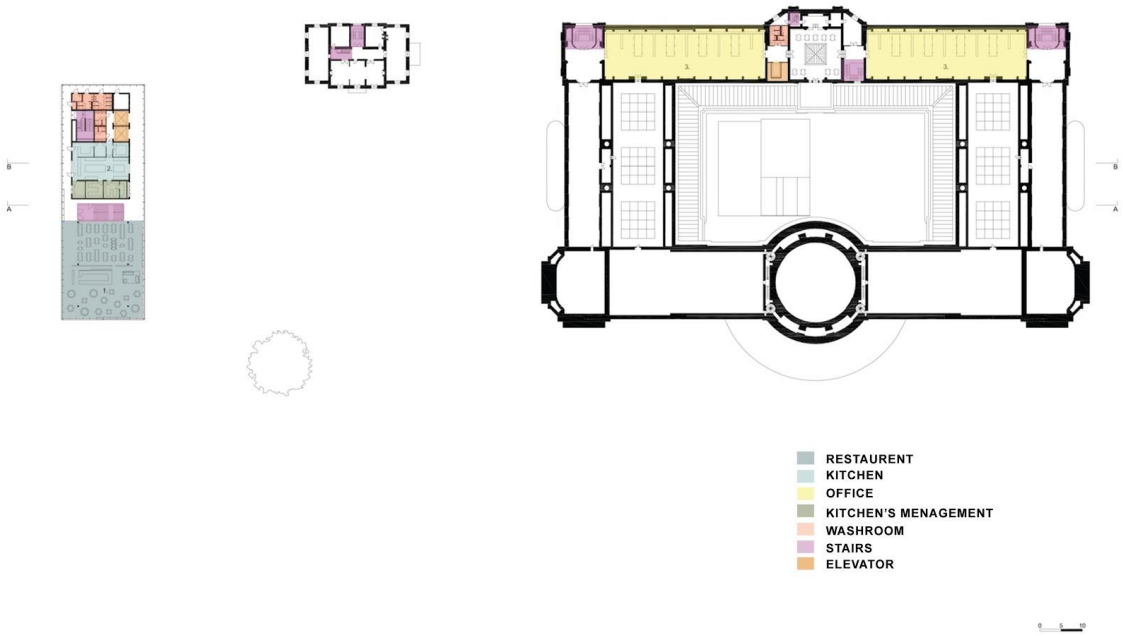
New building has four levels -2 level has a child workshop locker, auditorium, gallery, temporary exhibition rooms, sitting and lobby.

Minus first level has a foyer meeting room, patio, music workshop, educational workshop, lockers auditorium, gallery, temporary exhibition rooms, sitting and lobby, depot.

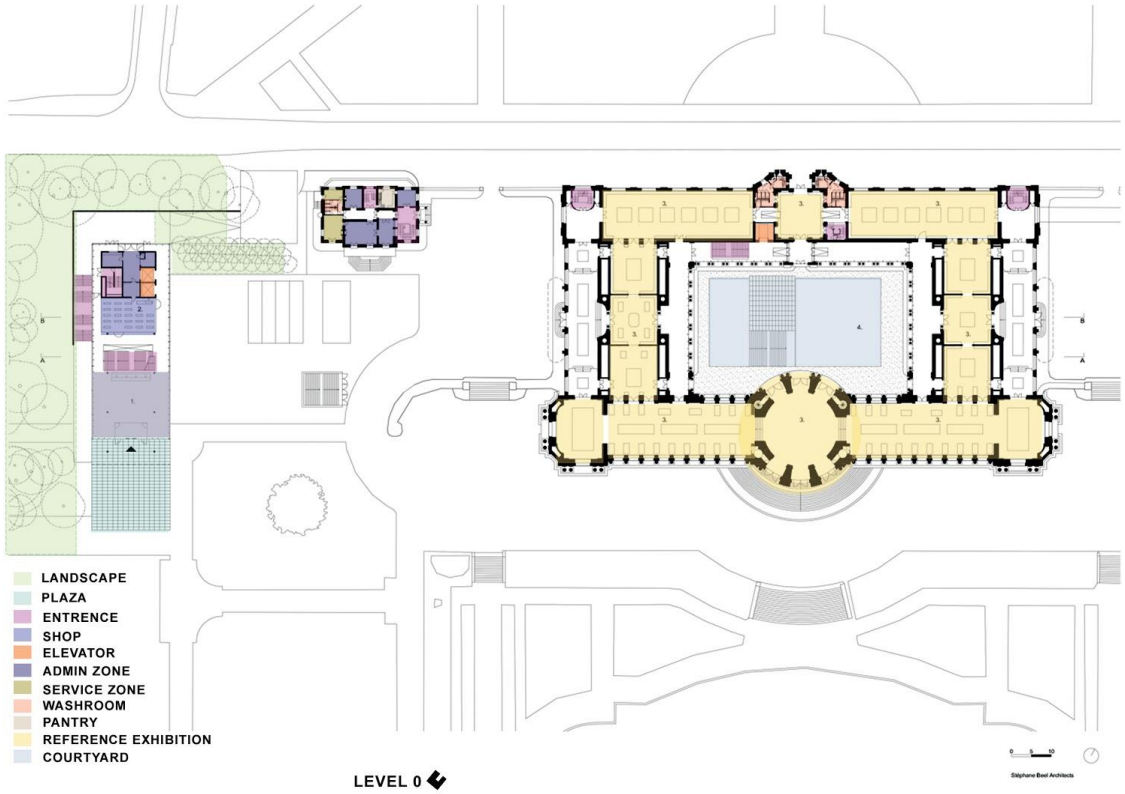
Ground floor level has the landscape plaza, entrance, shop, admin, pantry.

First floor level has a restaurant, kitchen, and office.

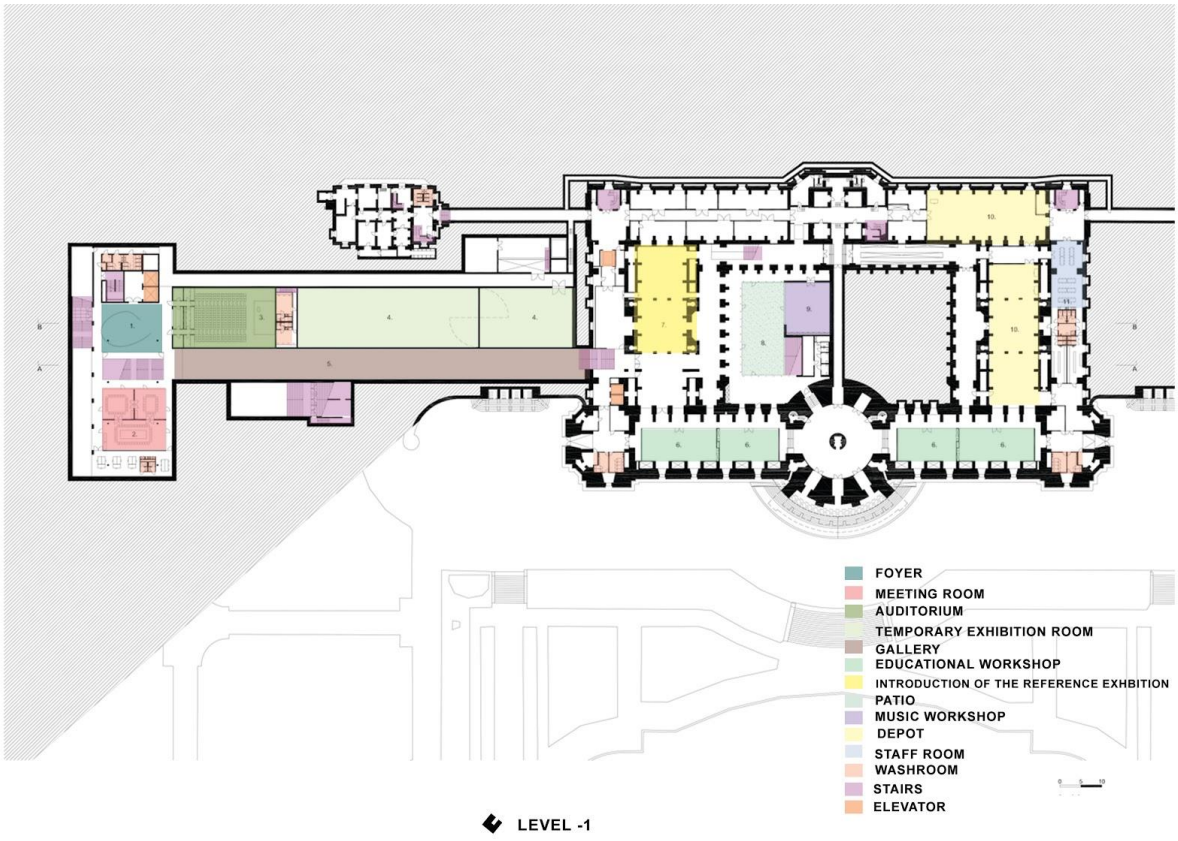
All these floors have vertical circulation facilities, elevators and stairs, and also have mechanical rooms, service rooms and washrooms.



LEVEL +1



LEVEL 0



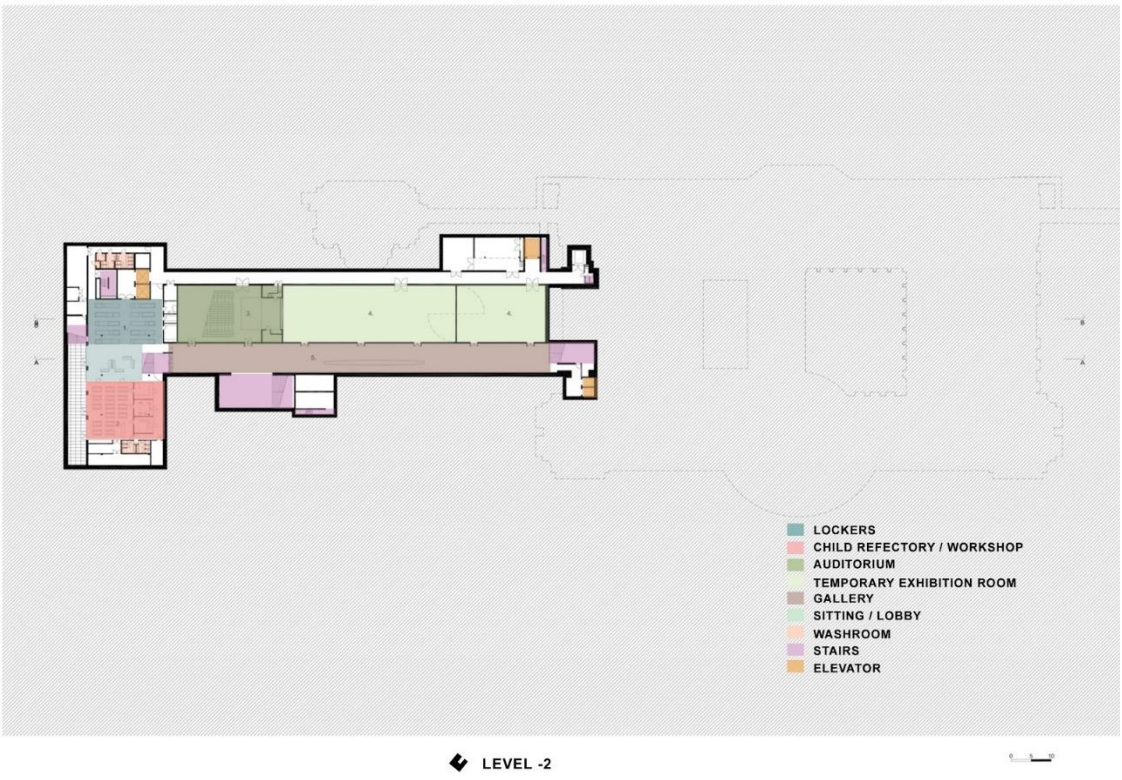


Image 10: All floor plans of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

4.2.3 Form and Function

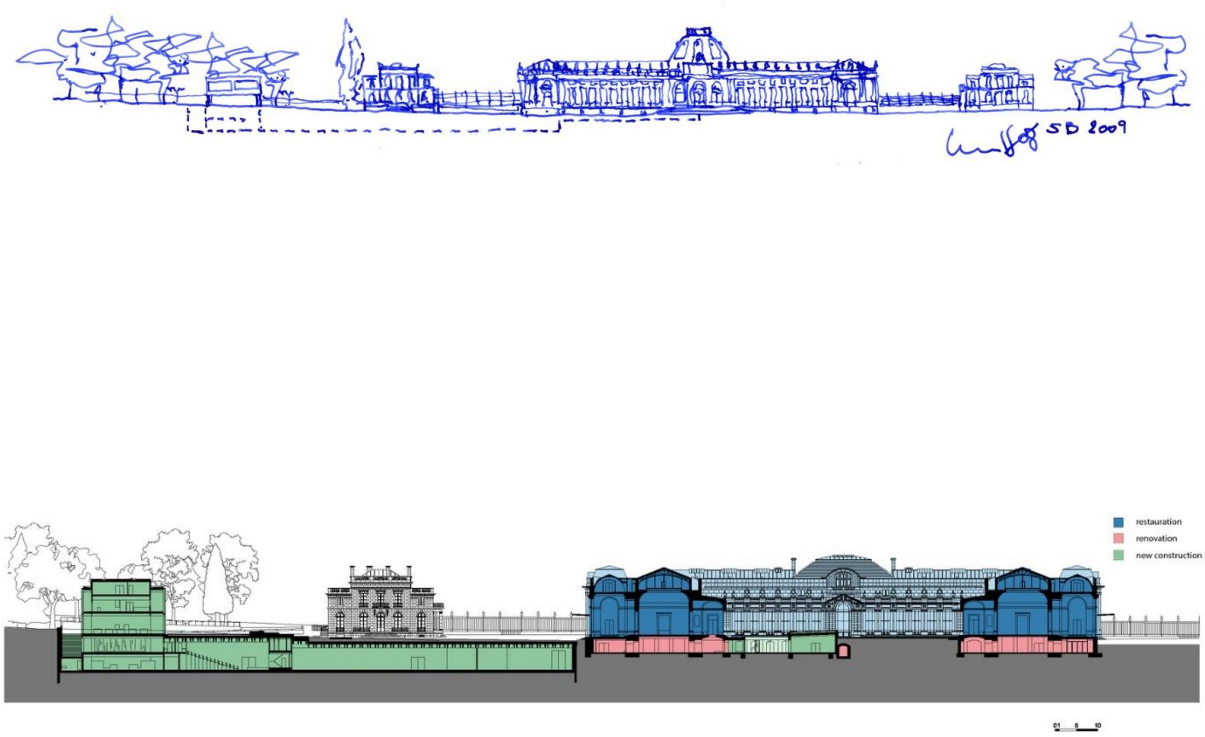


Image 11: Section with the type of building detail of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

The reorganization restoration with the extension were conceived in such a way that the direct environment of the museum building was preserved as much as possible and was once more connected to the French garden. All the museum functions with new added programs such as the auditoriums gallery children workshop, educational and music workshop zone with the reception, shop and cafeteria were removed from the layout of the earlier museum, optimized and housed in the new construction. This created more space in the museum building for the new permanent exhibition. the old museum building kept intact as much as possible. In the underground level the new building is connected with the old one through a gallery, some exhibition rooms and auditorium. And on the top level of the building has a kitchen, pantry,

shop office which took less floor area so this is how functional flow and program organized and designed. This program and functional layout of the new building has been designed in a way to accommodate all of it again in a way so that the new building won't seem to be overpowering the old museum building.

4.2.4 Horizontal and vertical circulation

In the new building it has stairs and elevators too. Five sets of stairs are here in the new building, two are for the underground theater, one is used by the staff, fire stair, and the other one used for child workshop purposes. Two sets of elevators from basement to level plus one. And horizontally the new building can connect to the old museum building through the basement gallery way.

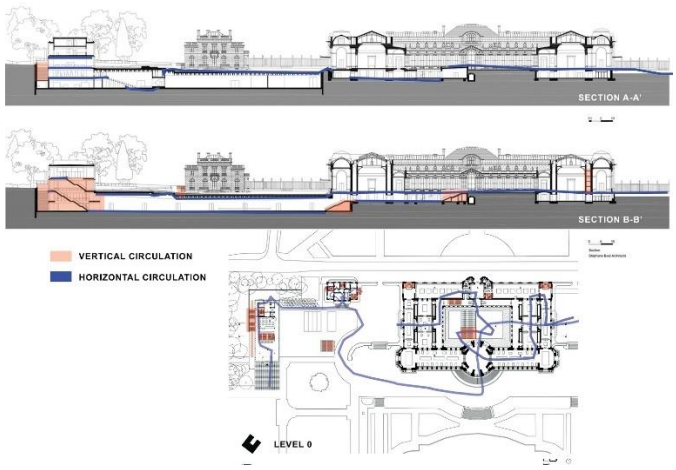


Image 12: Horizontal & Vertical designing of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

4.2.5 Site Planning and Landscape detailing

This building is surrounded by gardens and green. There is a French garden too. Park of Tervuren is also here. On the west part the colonies building is situated. In the east part the British school of Brussels. And on the north part main road is situated.

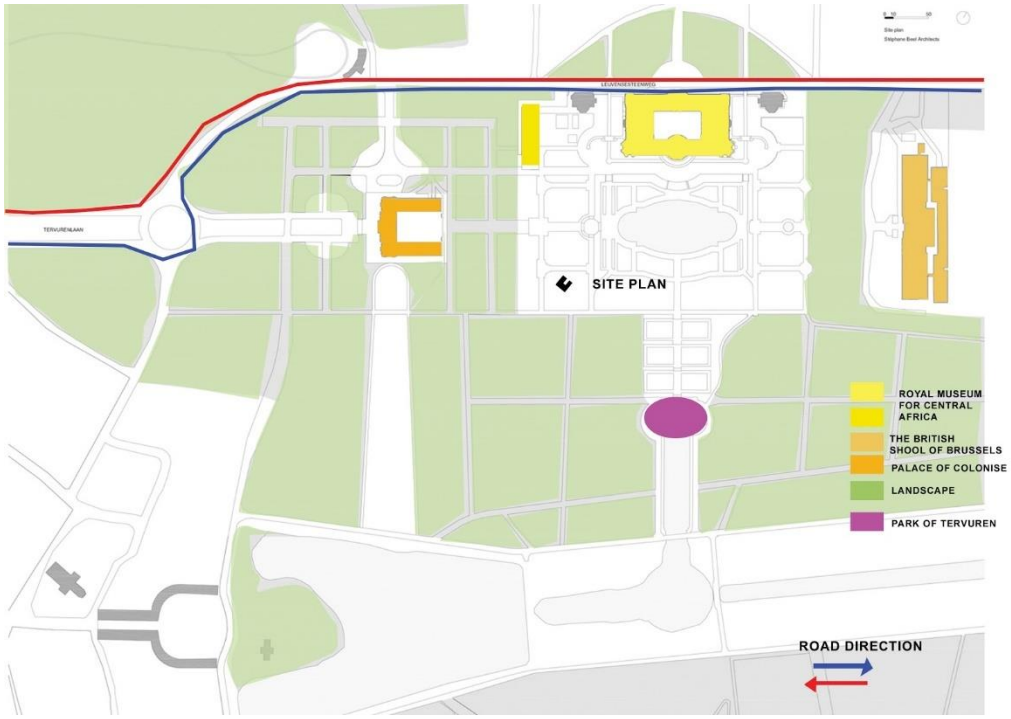


Image 13: Site planning & Landscaping of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

4.2.6 Utility planning

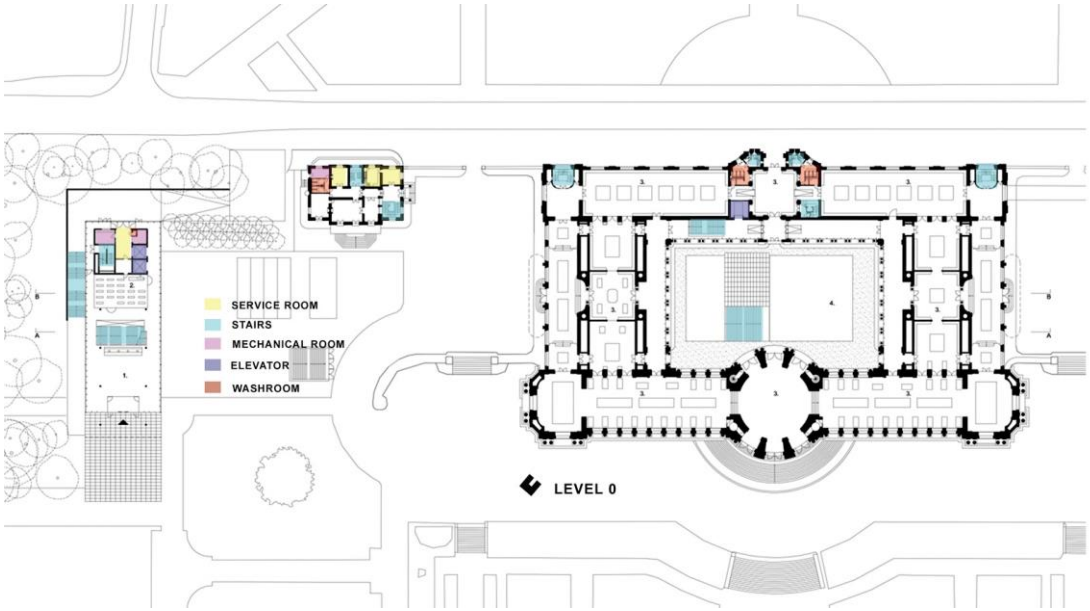


Image 14: Utility planning of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

New building is facilitated with all the new technologies HVAC system, fire safety control, and lighting.

The old building was not facilitated with the new technologies. But after renovation the exhibition rooms are subtly equipped with new technologies that bring the museum building up to date as regards the conservation and presentation of the collection. the highly sophisticated techniques which have been integrated almost seamlessly: improved thermic isolation and airtightness, management of incoming light, air-quality control embedded invisibly in the new exhibition platforms, interventions at the level of accessibility and fire safety are all elements that enable a new approach to exhibiting in the existing monument, without tampering with the monument and its intrinsic value.

4.2.7 Structural details

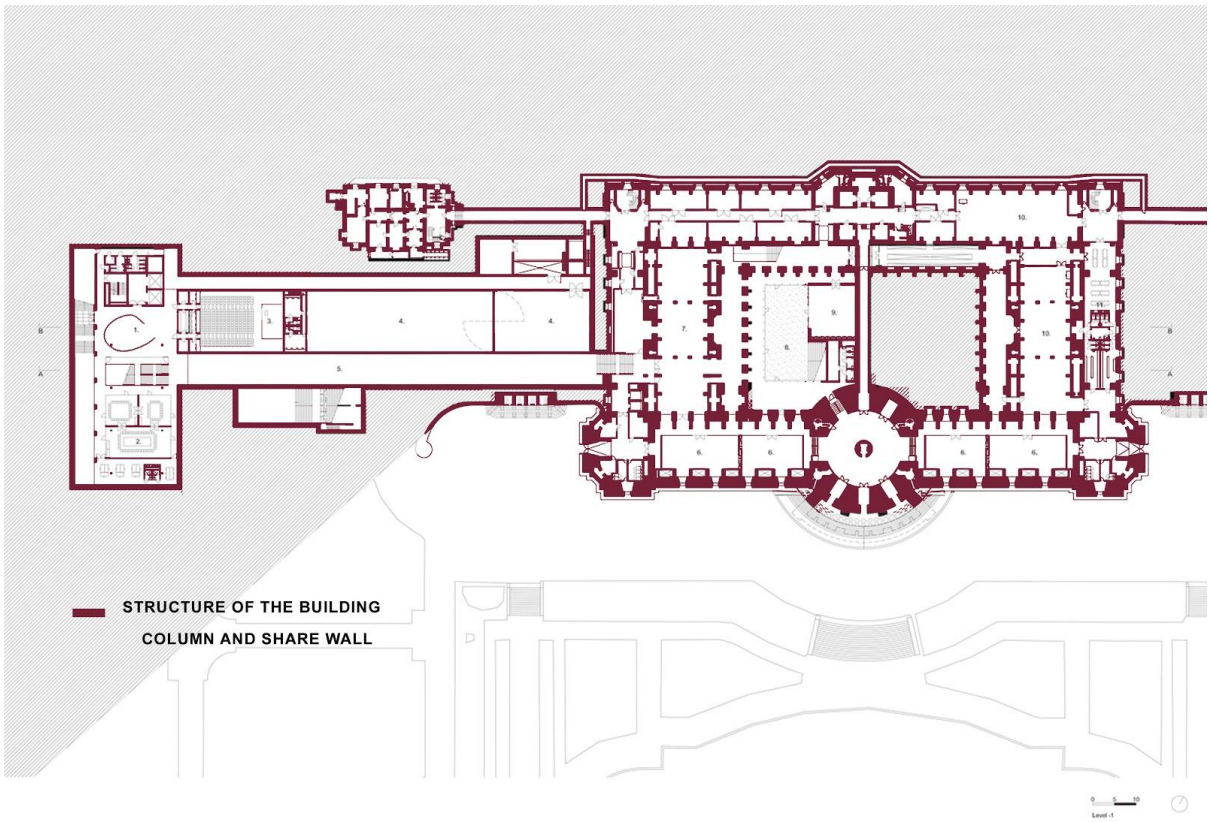


Image 15: Structural planning of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

New building had columns and the shear wall to transfer the loads from the floors

Auditorium gallery and child workshop area only has the shear wall structures. His building is covered with the glass facade.

4.2.8 Design detailing

This building structure is covered with large glass panels with a well finished white interior. metal concrete and woods are used. It has well designed on keeping in mind for the universal accessibility issues. And well solved with proper lighting and circulation

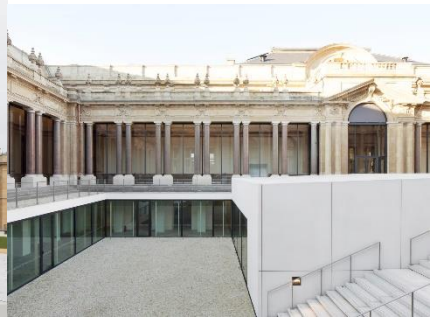


Image 16: Designing details of Royal Museum of Central Africa in Tervuren

Source: The Arch Daily

The most fascinating part of this project is how it connected with the main old heritage valued building without touching it even. And how this old museum building has been restored, reorganized and preserved. Functional analysis was the best part since from there we can see how the new building's minus second level's museums and auditorium can connect the old museum building's restoration part.

4.3 AD Classics: Bharat Bhavan

Architect: Charles Correa

Location: Bhopal, Madhya Pradesh, India

Built time: 1982

Project type: cultural

4.3.1 Environment and micro-climate

The complex comprises a series of terraces and courtyards which were built into a hillside which slopes down toward a lake.

Bhopal is a warm climate so being in this warm climate the architect designed open to sky spaces, since in a warm climate late evenings and early morning the best place to be outdoors under the open sky. For this type of climate control solution architect designed the sunken courtyards at Bharat Bhavan provide shade from the scorching midday sun, while the raised terraces offer refreshing air and space at cooler times of day. Architect was inspired from the red fort at Agra which was a climatic solution at that time in architecture.

Image 17: Environment and micro-climate of the Bharat Bhavan

Source: the google earth

4.3.2 User behavior and requirements

After entering the complex, visitors can follow the path of terraces leading down to the lake, or moving down to the three courtyards that provide access to most of the cultural facilities. These include, a museum of tribal art, an auditorium, a library of Indian poetry, contemporary art galleries, a print shop, and a studio for an artist-in-residence. wide glass-paneled openings from the courtyards to the buildings ensure the arts program is both literally and figuratively accessible to all. Also, an amphitheater situated at the bottom of the site with the lake forming

a natural backdrop all open-air performances take place.

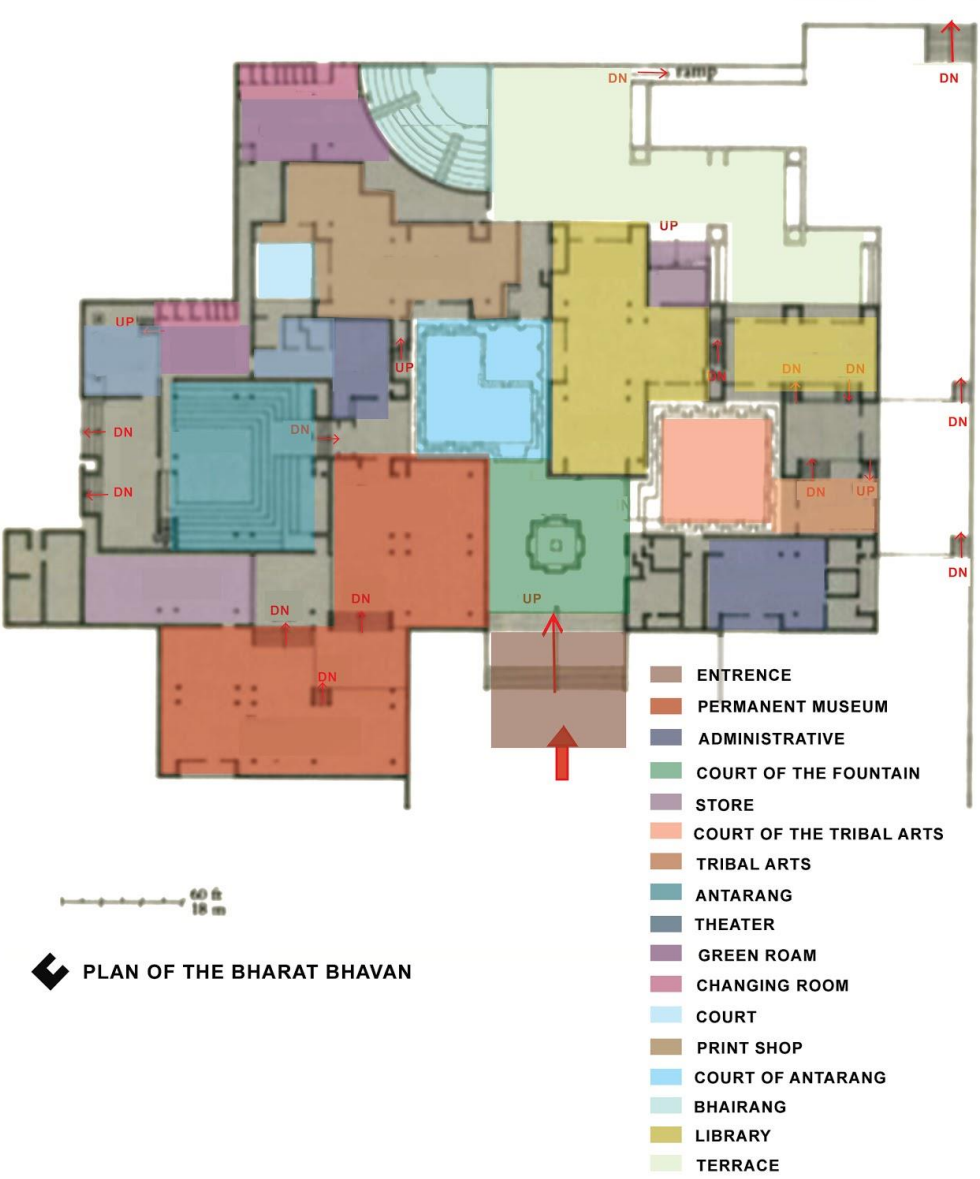


Image 18: plan of the Bharat Bhavan

Source: The Arch Daily redrawn

4.3.3 Form and Function

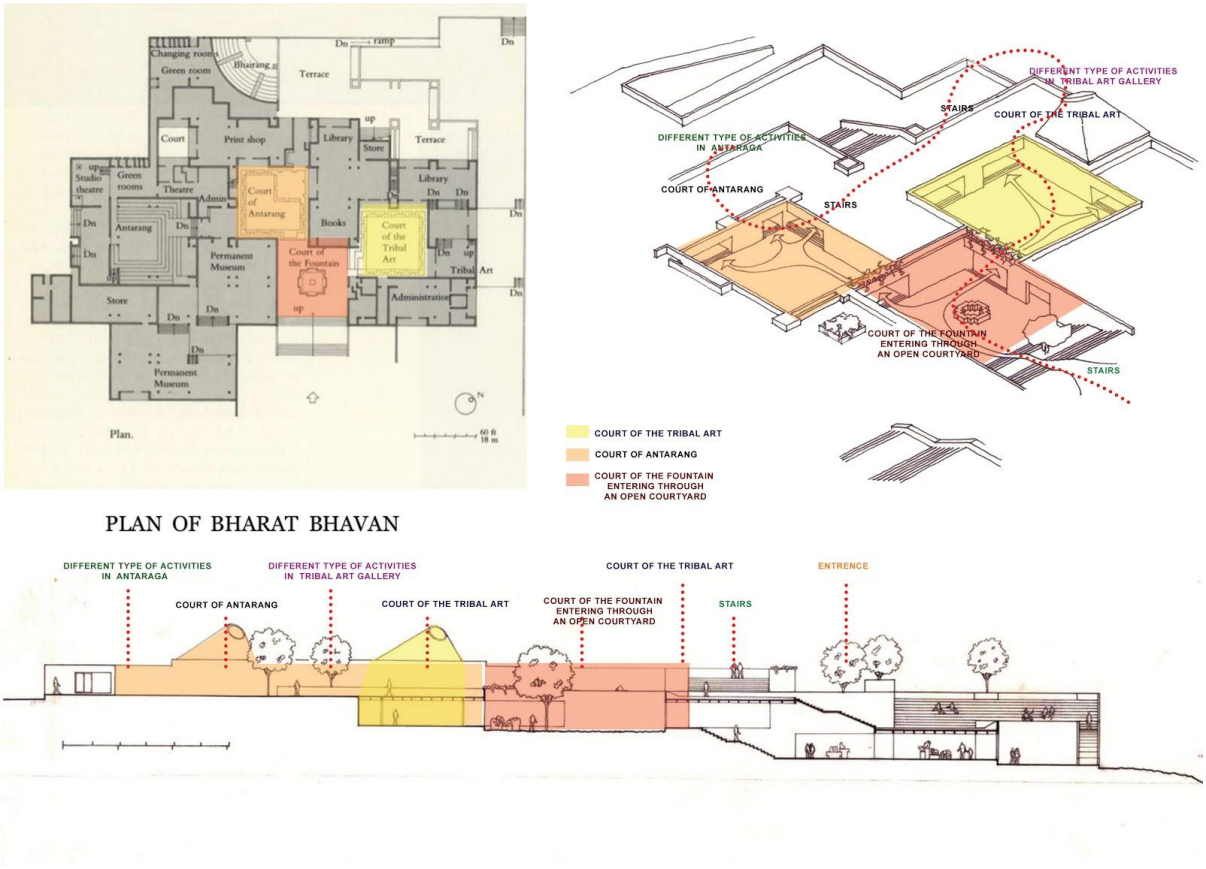


Image 19: form & function detail of the Bharat Bhavan

Source: The Arch Daily redrawn

The Design of the complex contains an open to sky courtyard and through those courtyards' visitors are going to some places which provide programs like tribal art, gallery library or theater. But for going visitors have to follow a pathway full of different levels and courtyards which will be accessible with the landscaping stairs.

Architect wanted to make this complex to establishing a modern architecture but with the blending of India's past rich traditional architectural heritage which will give the visitor a feeling of their rooted vernacular traditions. The route through the terraces encourages movement down the site's natural gradient, with the courtyards providing tranquil spaces for rest and relaxation. The dialogue between these two components creates an ebb and flow of energy around the complex, in what Correa described as a "Ritualistic Pathway". Since the architect said that it is a universal impulse which is found in every culture, religion and even on secularism like Fatehpur Sikri. Stairs are very significant in Indian tradition since it is reminiscent of a ghat which leads down to a holy water body for holy bathing like Ganges at Varanasi as a stylish influence. Architect wanted the visitors experience the ritualistic pathway through steps, courtyard, lead down to the lake to emphasizing the sacred nature of this pathway

4.3.4 Horizontal and vertical circulation

In this complex visitor experience this complex through open to sky courtyards and steps for going to any specific area like library, art gallery, stores, theater or even the lake. Upper level floors are connected with the stairs. This complex has so many levels at so many steps. And there is enough space for visitors to sit and enjoy the lake shore and relax

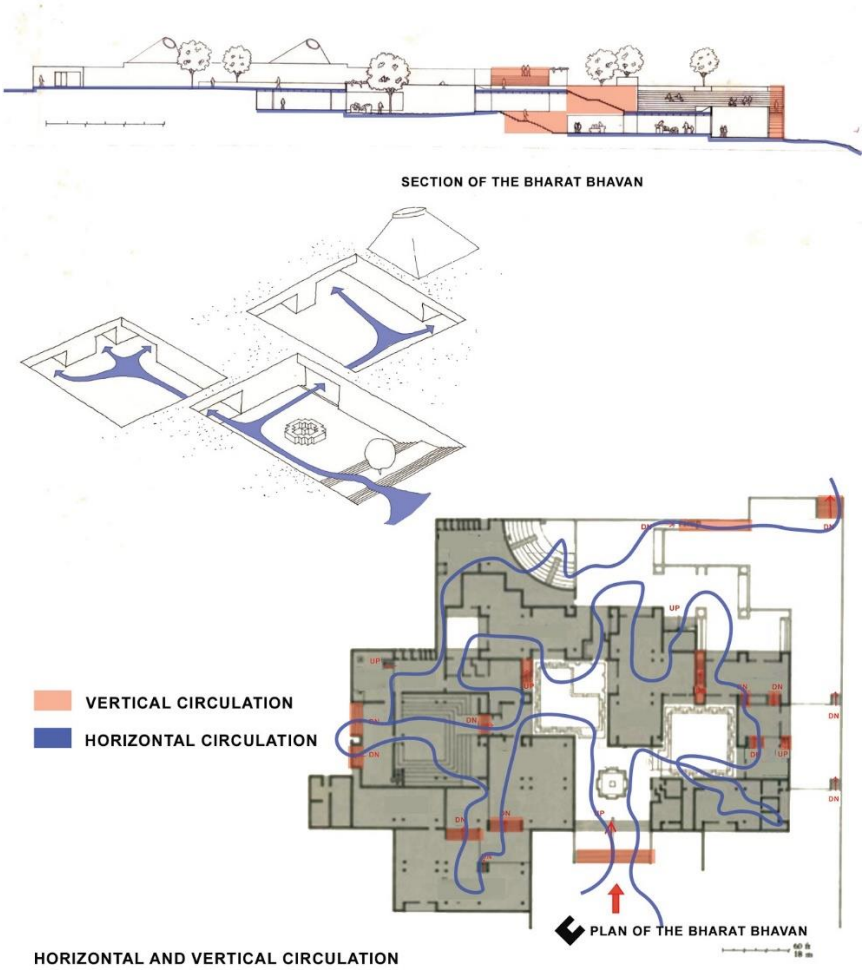


Image 20: vertical and horizontal details of the Bharat Bhavan

Source: The Arch Daily redrawn

4.3.5 Site Planning and Landscape detailing

Image21: site planning & landscape details of the Bharat Bhavan

Source: the google earth

This site has plenty of greeneries big trees. There is a lake shore on the south west part which includes a park named Vardaman park. Few hostel clinics, banks of India in the west part.

In Front of the site there is a main road. On the north part there are plot with greenery and a hotel

4.3.6 Utility planning

This building complex has proper space for circulation. It has so many stairs because of the hilly site. Washroom is there with service rooms. On the lakeshore area there are other sets of washrooms. It has ramp so this area must have universal access.

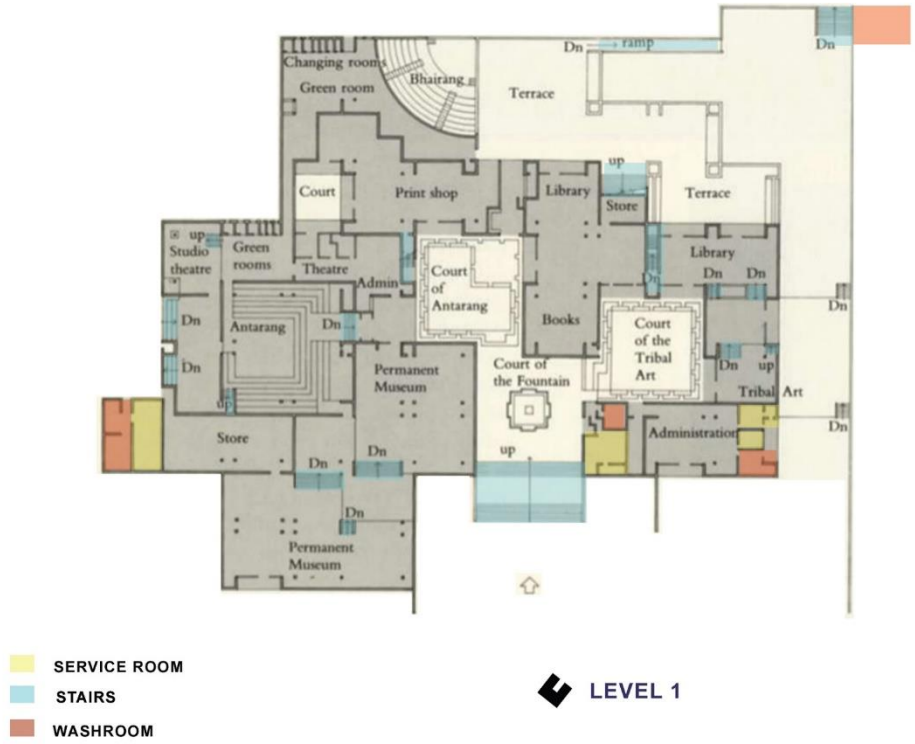


Image22: utility planning details of the Bharat Bhavan

Source: The Arch Daily redrawn

4.3.7 Structural details

The sky always held a spirituality and significance for Charles Correa, who had described it as the "abode of the gods" as well as the "the source of light – which is the most primordial of stimuli acting on our senses it is taken from Ibid. Correa. "Blessings of the Sky". p.28. He tried to harness the power of the sky which creates the metaphysical experience through architecture, having proclaimed that "there is nothing so profoundly moving as stepping out into an open-to-sky space and feeling the great arch of the sky above this was taken from Correa, Charles. *Housing and Urbanization*. Thames and Hudson: London, 2000. p.7

In Bharat Bhavan, those that are going from the galleries to the courtyards, it is intended for them to go through a similarly dramatic spatial experience. The sky had even been incorporated into the interior of the site, with concrete 'shells' on top of the structure which allows light and air to enter through circular openings. From outside, these shells are there to reinterpret the decorative umbrellas that originally sat on top of Rajasthani palaces.

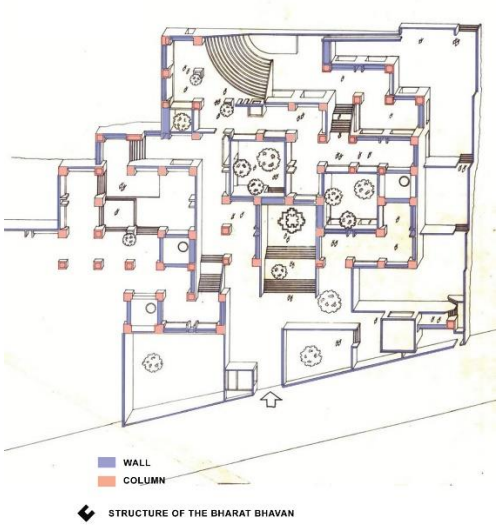


Image23: structural details of the Bharat Bhavan

Source: The Arch Daily redrawn

4.3.8 Design detailing

The courtyards in this project, steps, landscaped sunken spaces and the way it leads to serious programs like the library and gallery, the transition between long-term success of Bharat Bhavan is to a great degree due to the enduring popularity it has among local residents. The courtyards of Bharat Bhavan create communal public spaces, with steps around the peripheries providing organized seating where residents meet and socialize. The terraces proved popular with families. In the book Frampton, Kenneth. *Charles Correa*. Thames and Hudson: London, 1996. P.45 it is noted that Families spend their evenings going down to the water's edge and consuming the cultural offerings provided by the complex. This creates a building well adapted to the needs and wants of contemporary society while at the same time making use of familiar architectural styles, Correa has managed to blend modernity with tradition; a significant feat and a progression towards establishing distinctly Indian Modernism.

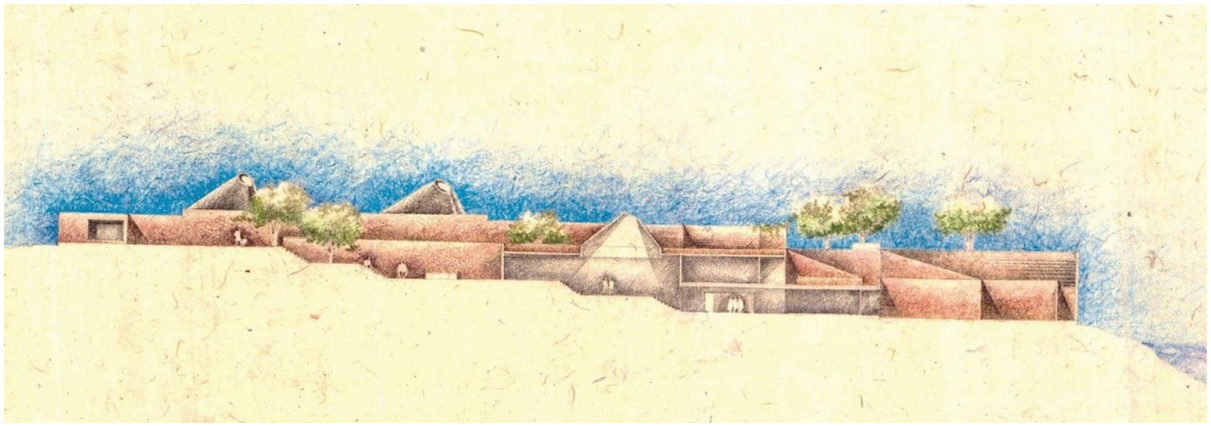


Image24: Design details of the Bharat Bhavan

Source: The Arch Daily

Chapter 5: Program Appraisal

5.1 Classroom

Classroom is an essential part of this museum design since it included a research center. Distinct Classrooms are needed here since there will be mixing up of different types.

One Type will be lecture rooms, another will be a lecture and laboratory room since there will be classes on the ancient artefacts. Another type will be rooms for training which will be given to people. So, the layout of furniture will be different. But per person for a classroom needs 24 sq. ft and for 25 people it is 601 sq. ft. Also, in this design there will be two training classrooms, two lecture rooms and two rooms with laboratory research facilities so total square footage for 6 classrooms will be 3603 sq. ft.

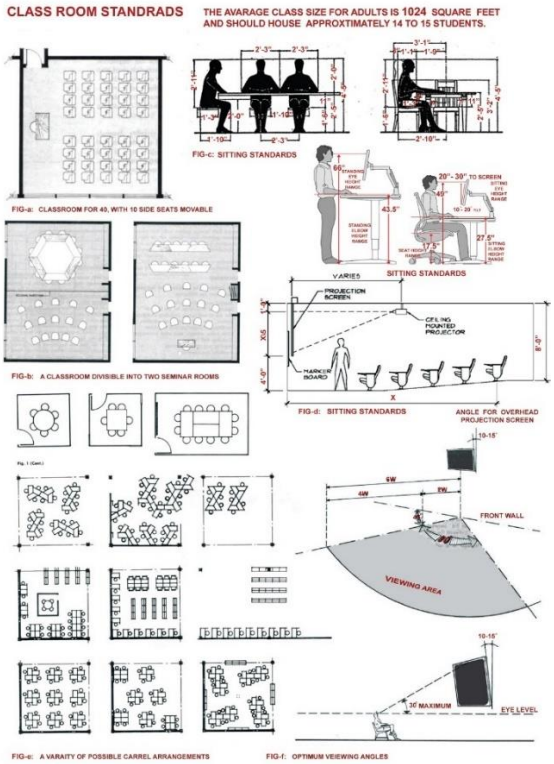


Figure 25: classrooms standards

Source: Source: from time saver

5.2 Dorm

Dorm is another important part because in this museum there will be trainers from outside and as well as trainees. So, they need to have dorms for them. There will be many types of rooms in different sizes and for different purposes to serve

Common room
A minimum of 12 sq. ft per person for the dining room is required. But for the combination of dining and recreation or any other service room per person 22 sq. ft is required

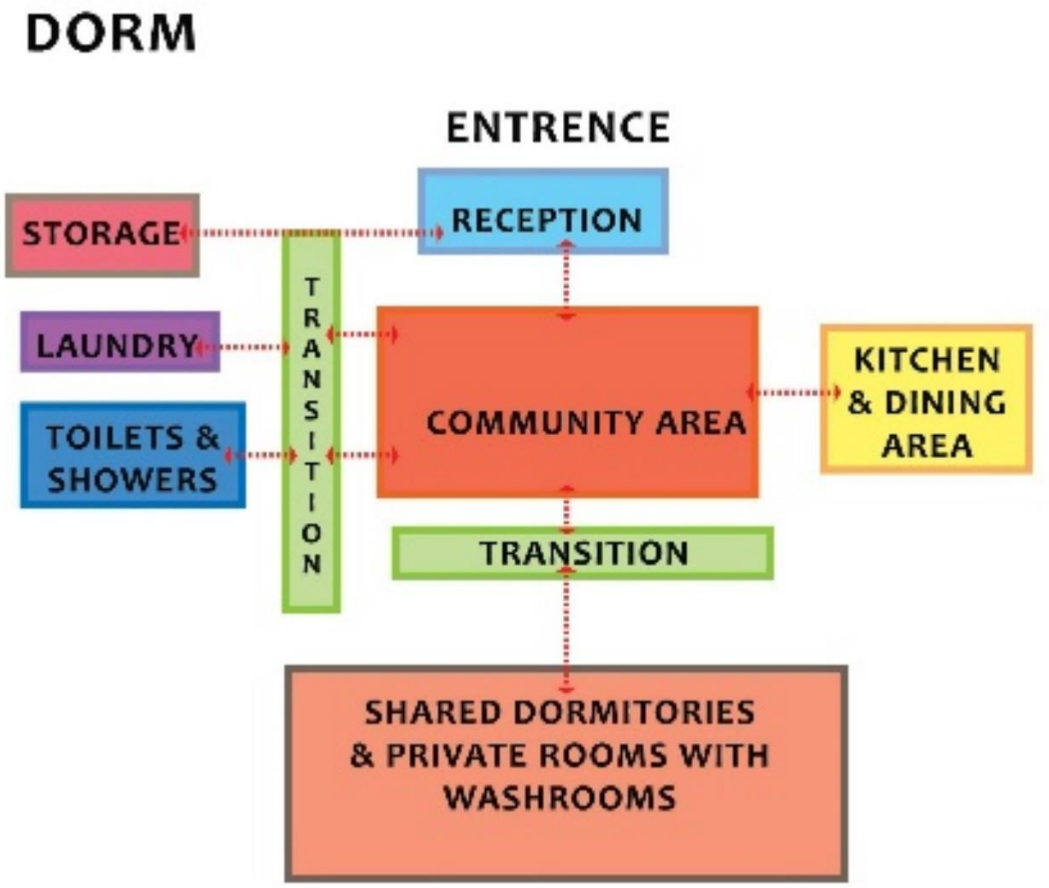
Bedroom
In a dorm there are types of bed rooms. Single, double and triple bed room. On the other hand, there can be six beds in a room too. A room with a double bed will be 16'by 12'.

Dinning
A minimum of 12 sq. ft per person for the dining room is required. But for the combination dining and recreation room per person 20 sq. ft

Kitchen
In a dorm there will be a food preparation zone, a cutting washing zone and a pantry as well. So, there will be consideration of individual spaces and working zones.

Washrooms

There will be separate sets of washrooms for male and female. In our country's context there needs to be a separate place for washrooms for male and females. Rest of the part is there will be needing at least one big washroom for special abled persons.



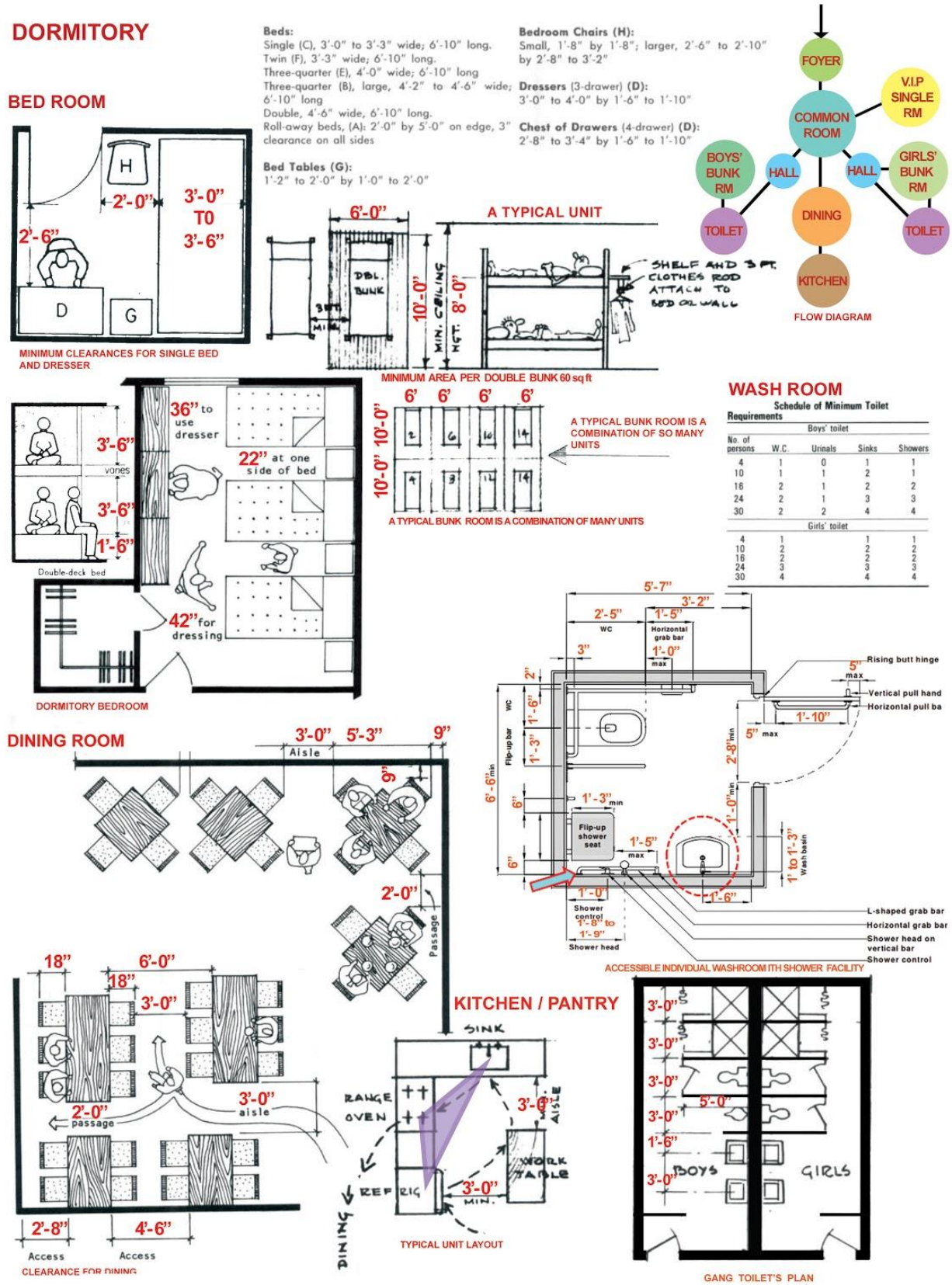


Figure 26: dorms standards

Source: from time saver

5.3 Museum

For museums there will be a need for spaces like storage and galleries for different types of artefacts whose or materials will dictate the size of the spaces. There is a need for storage with repairing zones, so artefacts can be preserved.

Museums must be designed in a way to give a sense of proportion which should always be the primary objective of designing the form of a museum.

Daylight may come from above from the sides, in the former case suitable skylights will be provided in the ceilings of the exhibition rooms.

The Minimum size of a museum's galleries is 16 by 23 feet and the ceiling is 14'. Galleries with permanent exhibitions will be 22' wide, 12' to 18' height and 65'to 80' long.

A good museum includes some basic function

1. Curatorial
2. Display function
3. Display preparation
4. Educational and public function
5. Other services

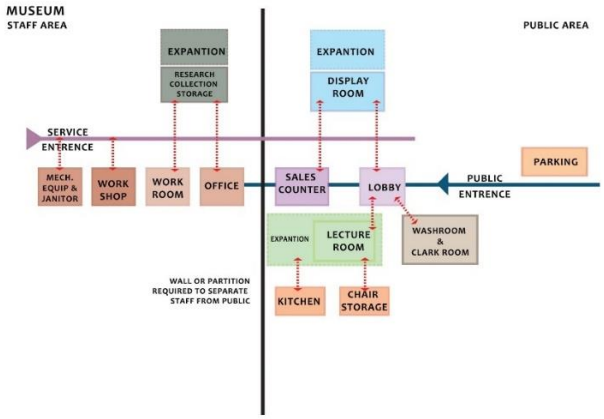


Figure 27: museums standards

Source: from time saver

5.4 Library

As a general rule, public libraries that serve no more than 10,000 users should accommodate 7 to 10 seats for every 1,000 users. This does not include the seats needed in meeting rooms or staff areas. The number of seats can be adjusted depending on the library. For example, if the library is one that encourages long-term use, i.e., extensive collections of research materials, then the number of seats should be inflated. If the library encourages browsing, i.e., the latest magazines or bestsellers, the number of seats needed may be less.

The square footage needed for user seating varies depending on the type of seating, i.e., lounge chair, table seating, etc. As a general rule of thumb, for table seating one must use 25 square feet per seat; for study carrel seating use 30 square feet per seat; and for seating in lounge chairs use 35 square feet per seat. As a general average, designers can use 30 square feet per seat according to WBDG National Institute to build science.

Since it is not a public library, we cannot think of arranging seating according to a great population criterion. Since it is a main supporting program for this museum it won't be calculated in this way. Rather there will be 50-70 seating arrangements with two librarians, a printer scanner room and storage for 2000 to 5000 books.

Again, 7 volumes per linear foot, or 50 books per foot of standard height wall shelving, or 100 books per foot of double-faced shelving; bookstack areas, 15 books per square foot (includes aisles), or 2.

So, for 70 readers a minimum of 2100 sq. feet of space will be required.

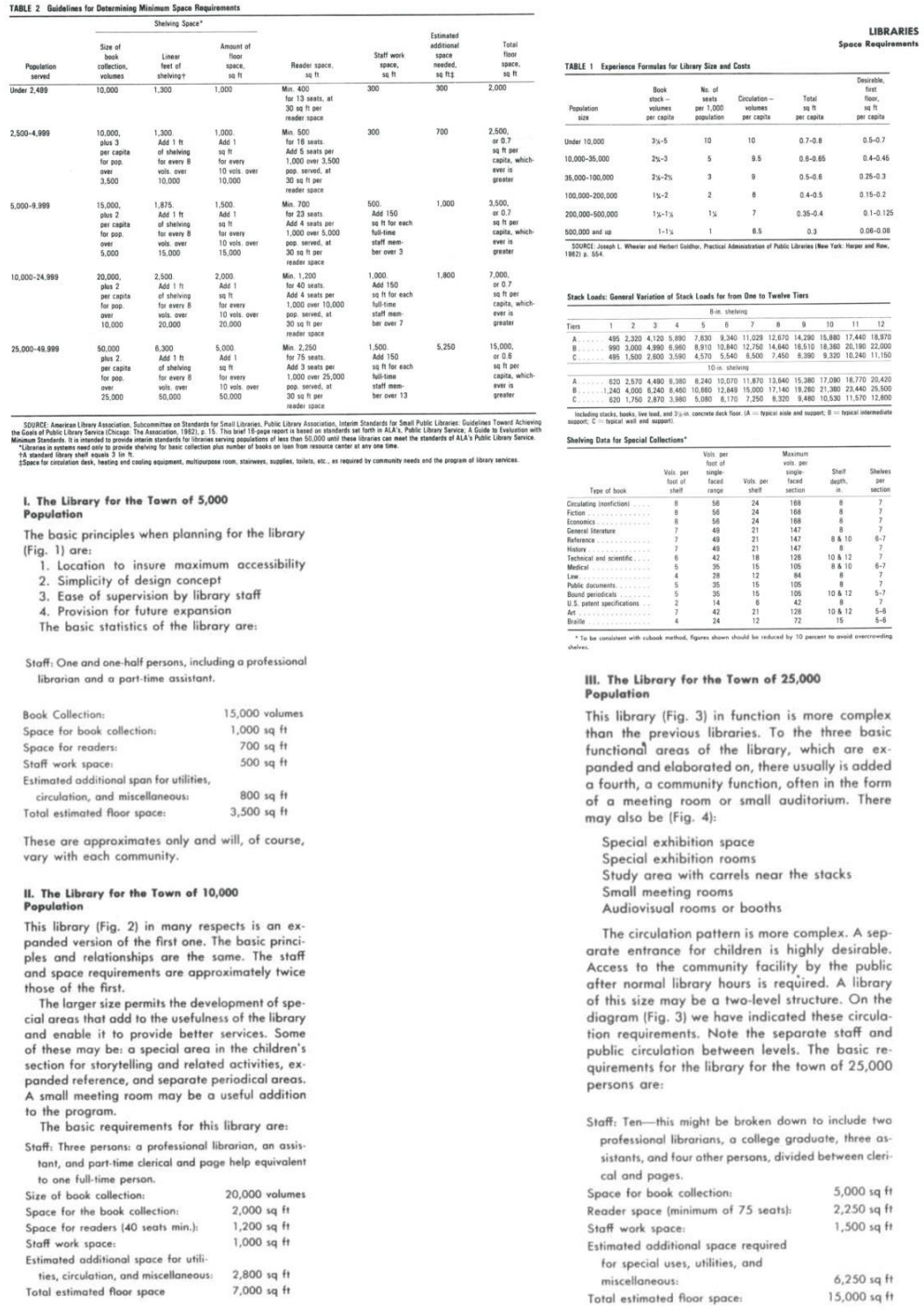


TABLE 2 Guidelines for Determining Minimum Space Requirements

Population served	Shelving Space*			Reader space, sq ft	Staff work space, sq ft	Estimated additional space needed, sq ft‡	Total floor space, sq ft
	Size of book collection, volumes	Linear feet of shelving†	Amount of floor space, sq ft				
Under 2,499	10,000	1,300	1,000	Min. 400 for 13 seats, at 30 sq ft per reader space	300	300	2,000
2,500–4,999	10,000, plus 3 per capita for pop. over 3,500	1,300. Add 1 ft of shelving for every 8 vols. over 10,000	1,000. Add 1 sq ft for every 10 vols. over 10,000	Min. 500 for 16 seats. Add 5 seats per 1,000 over 3,500 pop. served, at 30 sq ft per reader space	300	700	2,500, or 0.7 sq ft per capita, whichever is greater
5,000–9,999	15,000, plus 2 per capita for pop. over 5,000	1,875. Add 1 ft of shelving for every 8 vols. over 15,000	1,500. Add 1 sq ft for every 10 vols. over 15,000	Min. 700 for 23 seats. Add 4 seats per 1,000 over 5,000 pop. served, at 30 sq ft per reader space	500. Add 150 sq ft for each full-time staff member over 3	1,000	3,500, or 0.7 sq ft per capita, whichever is greater
10,000–24,999	20,000, plus 2 per capita for pop. over 10,000	2,500. Add 1 ft of shelving for every 8 vols. over 20,000	2,000. Add 1 sq ft for every 10 vols. over 20,000	Min. 1,200 for 40 seats. Add 4 seats per 1,000 over 10,000 pop. served, at 30 sq ft per reader space	1,000. Add 150 sq ft for each full-time staff member over 7	1,800	7,000, or 0.7 sq ft per capita, whichever is greater
25,000–49,999	50,000 plus 2 per capita for pop. over 25,000	6,300 Add 1 ft of shelving for every 8 vols. over 50,000	5,000 Add 1 sq ft for every 10 vols. over 50,000	Min. 2,250 for 75 seats. Add 3 seats per 1,000 over 25,000 pop. served, at 30 sq ft per reader space	1,500. Add 150 sq ft for each full-time staff member over 13	5,250	15,000, or 0.6 sq ft per capita, whichever is greater

SOURCE: American Library Association, Subcommittee on Standards for Small Libraries, Public Library Association, Interim Standards for Small Public Libraries: Guidelines Toward Achieving the Goals of Public Library Service (Chicago: The Association, 1962), p. 15. This brief 18-page report is based on standards set forth in ALA's, Public Library Service; A Guide to Evaluation with Minimum Standards. It is intended to provide interim standards for libraries serving populations of less than 50,000 until these libraries can meet the standards of ALA's Public Library Service.
*Libraries in systems need only to provide shelving for basic collection plus number of books on loan from resource center at any one time.
†A standard library shelf equals 3 lin ft.
‡Space for circulation desk, heating and cooling equipment, multipurpose room, stairways, supplies, toilets, etc., as required by community needs and the program of library services.

I. The Library for the Town of 5,000 Population

The basic principles when planning for the library (Fig. 1) are:

1. Location to insure maximum accessibility
2. Simplicity of design concept
3. Ease of supervision by library staff
4. Provision for future expansion

The basic statistics of the library are:

Staff: One and one-half persons, including a professional librarian and a part-time assistant.

Book Collection:	15,000 volumes
Space for book collection:	1,000 sq ft
Space for readers:	700 sq ft
Staff work space:	500 sq ft
Estimated additional span for utilities, circulation, and miscellaneous:	800 sq ft
Total estimated floor space:	3,500 sq ft

These are approximates only and will, of course, vary with each community.

II. The Library for the Town of 10,000 Population

This library (Fig. 2) in many respects is an expanded version of the first one. The basic principles and relationships are the same. The staff and space requirements are approximately twice those of the first.

The larger size permits the development of special areas that add to the usefulness of the library and enable it to provide better services. Some of these may be: a special area in the children's section for storytelling and related activities, expanded reference, and separate periodical areas. A small meeting room may be a useful addition to the program.

The basic requirements for this library are:

Staff: Three persons: a professional librarian, an assistant, and part-time clerical and page help equivalent to one full-time person.

Size of book collection:	20,000 volumes
Space for the book collection:	2,000 sq ft
Space for readers (40 seats min.):	1,200 sq ft
Staff work space:	1,000 sq ft
Estimated additional space for utilities, circulation, and miscellaneous:	2,800 sq ft
Total estimated floor space	7,000 sq ft

TABLE 1 Experience Formulas for Library Size and Costs

Population size	Book stock—volumes per capita	No. of seats per 1,000 population	Circulation—volumes per capita	Total sq ft per capita	Desirable, first floor, sq ft per capita
Under 10,000	3¼–5	10	10	0.7–0.8	0.5–0.7
10,000–35,000	2¾–3	5	9.5	0.6–0.65	0.4–0.45
35,000–100,000	2¼–2¾	3	9	0.5–0.6	0.25–0.3
100,000–200,000	1¾–2	2	8	0.4–0.5	0.15–0.2
200,000–500,000	1¼–1¾	1½	7	0.35–0.4	0.1–0.125
500,000 and up	1–1¼	1	6.5	0.3	0.06–0.08

SOURCE: Joseph L. Wheeler and Herbert Goldhor, Practical Administration of Public Libraries (New York: Harper and Row, 1962) p. 554.

Stack Loads: General Variation of Stack Loads for from One to Twelve Tiers

Tiers	1	2	3	4	5	6	7	8	9	10	11	12
8-in. shelving												
A	495	2,320	4,120	5,890	7,630	9,340	11,029	12,670	14,290	15,880	17,440	18,970
B	990	3,000	4,990	6,980	8,910	10,840	12,750	14,640	16,510	18,360	20,190	22,000
C	495	1,500	2,600	3,590	4,570	5,540	6,500	7,450	8,390	9,320	10,240	11,150
10-in. shelving												
A	620	2,570	4,490	6,380	8,240	10,070	11,870	13,640	15,380	17,090	18,770	20,420
B	1,240	4,000	8,240	8,460	10,660	12,849	15,000	17,140	19,260	21,360	23,440	25,500
C	620	1,760	2,870	3,980	5,080	6,170	7,250	8,320	9,480	10,530	11,570	12,600

Including stacks, books, live load, and 3½-in. concrete deck floor. (A = typical aisle and support; B = typical intermediate support; C = typical wall end support).

Shelving Data for Special Collections*

Type of book	Vols. per foot of shelf	Vols. per foot of single-faced range	Vols. per shelf	Maximum vols. per single-faced section	Shelf depth, in.	Shelves per section
Circulating (nonfiction)	8	56	24	168	8	7
Fiction	8	56	24	168	8	7
Economics	8	56	24	168	8	7
General literature	7	49	21	147	8	7
Reference	7	49	21	147	8 & 10	6–7
History	7	49	21	147	8	7
Technical and scientific	6	42	18	126	10 & 12	7
Medical	5	35	15	105	8 & 10	6–7
Law	4	28	12	84	8	7
Public documents	5	35	15	105	8	7
Bound periodicals	5	35	15	105	10 & 12	5–7
U.S. patent specifications	2	14	8	42	8	7
Art	7	42	21	126	10 & 12	5–6
Braille	4	24	12	72	15	5–6

* To be consistent with cubook method, figures shown should be reduced by 10 percent to avoid overcrowding shelves.

III. The Library for the Town of 25,000 Population

This library (Fig. 3) in function is more complex than the previous libraries. To the three basic functional areas of the library, which are expanded and elaborated on, there usually is added a fourth, a community function, often in the form of a meeting room or small auditorium. There may also be (Fig. 4):

Special exhibition space
Special exhibition rooms
Study area with carrels near the stacks
Small meeting rooms
Audiovisual rooms or booths

The circulation pattern is more complex. A separate entrance for children is highly desirable. Access to the community facility by the public after normal library hours is required. A library of this size may be a two-level structure. On the diagram (Fig. 3) we have indicated these circulation requirements. Note the separate staff and public circulation between levels. The basic requirements for the library for the town of 25,000 persons are:

Staff: Ten—this might be broken down to include two professional librarians, a college graduate, three assistants, and four other persons, divided between clerical and pages.

Space for book collection:	5,000 sq ft
Reader space (minimum of 75 seats):	2,250 sq ft
Staff work space:	1,500 sq ft
Estimated additional space required for special uses, utilities, and miscellaneous:	6,250 sq ft
Total estimated floor space:	15,000 sq ft

Figure 28: library standards

Source: from time saver

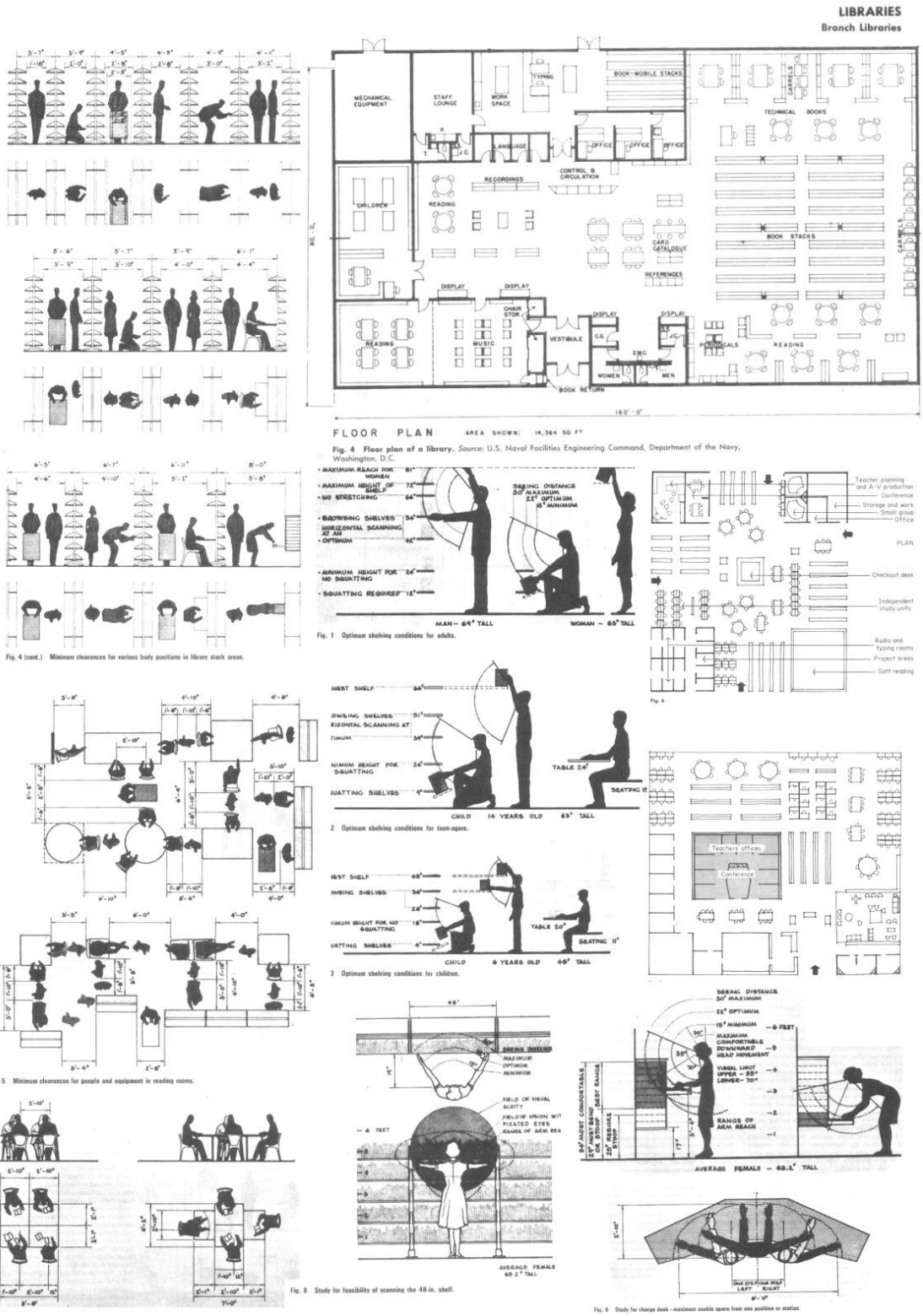


Figure 29: library standards

Source: from time saver

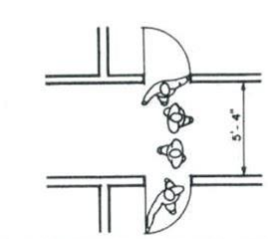


Fig. 13 Corridor width based on requirements of human figures.

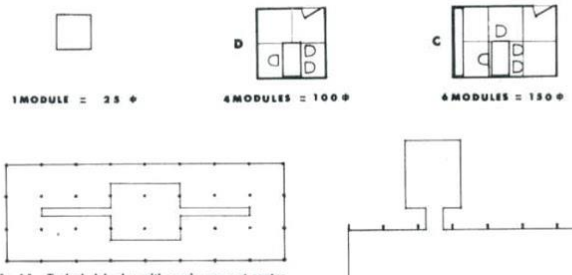


Fig. 14 Typical slab plan with service core at center.

Fig. 15 Maximum flexibility of rental area achieved by use of clear-span framing and separate service tower.

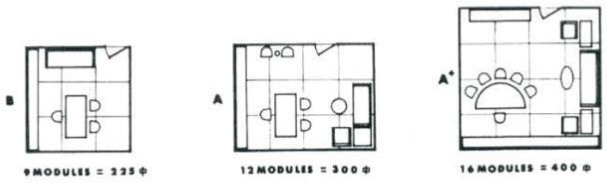
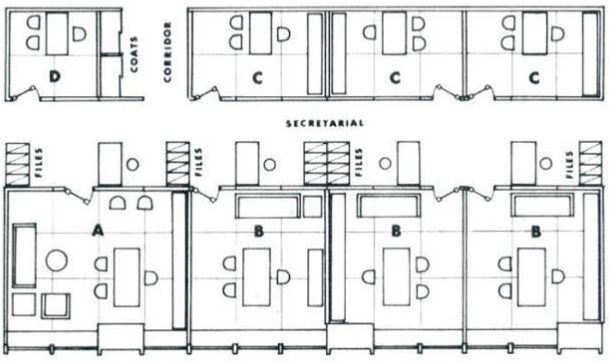


Fig. 1 Typical modular office plans.



Commercial

OFFICES, GENERAL

Planning

Fig. 2 Typical modular private office plan with secretarial area.

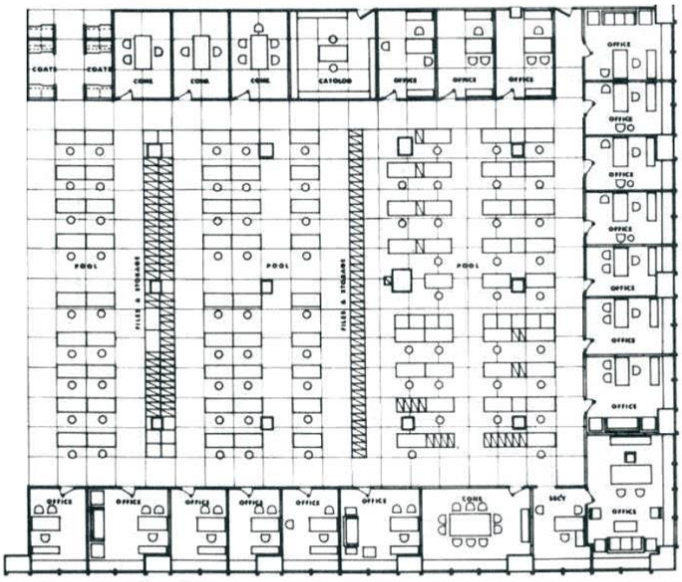


Fig. 3 Typical open office plan.

Figure 30: office standards

Source: from time saver

5.5 Office

Since it is a museum there will be an administrative zone. And in this administrative zone there will be some sections which will run the whole museum.

Such as

1. President / trustee’s room’s

2. Secretarial room

3. President’s board of meeting room

4. Manager's room

5. Secretary's room

6. Permanent exhibition department

    1. Curator’s room,
    2. Management room
    3. Research room
    4. Archive room

7. Education and learning sector

    1. Manager,

2. Secretary.

3. Meeting room

8. New media sector

1. Manager

2. Secretary

3. Digitalization room

9. Front house zone

1. Ticketing,

2. Information,

3. Visitor Bookings and

4. Switchboard and Information Service.

10. Department for Service Quality zone

1. Research and Evaluation Services,

2. Service Request Management.

11. Commercial Department zone

1. Commercial Management,

2. Shops, and

3. Warehousing.

12. Accounts Department zone

1. Finance and Budget Management,

2. Procurement and

3. Payroll.

13. Security Department

1. Day Shift (which includes the cloakroom area),

2. Night Shift and

3. Control Room.

14. Technical Service

1. Maintenance of Electrical/Mechanical Installations,

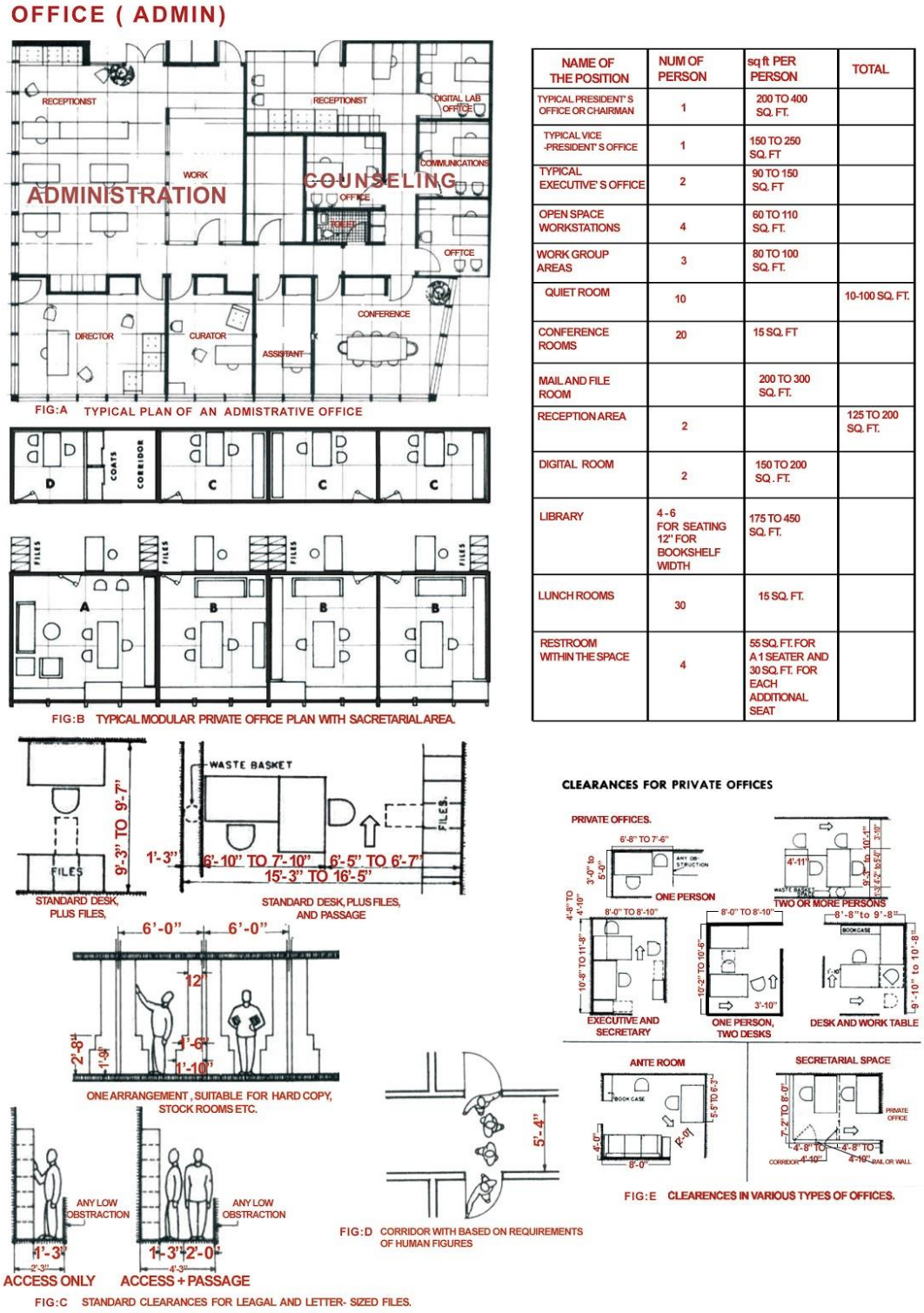
2. Maintenance of Buildings and Surrounds,

3. Cleaning Services and

4. Information Technology Support.

15. Medical services

So those will be some programs for which museums will be needing rooms.



NAME OF THE POSITION	NUM OF PERSON	sq ft PER PERSON	TOTAL
TYPICAL PRESIDENT' S OFFICE OR CHAIRMAN	1	200 TO 400 SQ. FT.	
TYPICAL VICE -PRESIDENT' S OFFICE	1	150 TO 250 SQ. FT	
TYPICAL EXECUTIVE' S OFFICE	2	90 TO 150 SQ. FT	
OPEN SPACE WORKSTATIONS	4	60 TO 110 SQ. FT.	
WORK GROUP AREAS	3	80 TO 100 SQ. FT.	
QUIET ROOM	10		10-100 SQ. FT.
CONFERENCE ROOMS	20	15 SQ. FT	
MAIL AND FILE ROOM		200 TO 300 SQ. FT.	
RECEPTION AREA	2		125 TO 200 SQ. FT.
DIGITAL ROOM	2	150 TO 200 SQ . FT.	
LIBRARY	4 - 6 FOR SEATING 12" FOR BOOKSHELF WIDTH	175 TO 450 SQ. FT.	
LUNCH ROOMS	30	15 SQ. FT.	
RESTROOM WITHIN THE SPACE	4	55 SQ. FT. FOR A 1 SEATER AND 30 SQ. FT. FOR EACH ADDITIONAL SEAT	

Figure 31: office's standards

Source: from time saver

5.6 Restaurant

The restaurant facilities will include spaces for table service fine dining, fast food and coffee shops. Dining Room will encompass 60% of the total area while the kitchen, Cooking, Storage, Preparation, etc. will occupy the remaining 40% of the area. It's important to remember that fast food banquet seating may use as little as 10 square feet per person, while fine dining may require 20 square feet per person. It is common for most restaurants or coffee shops that have a general menu to average about 15 square feet per person. This is taking into account space needed for traffic aisles, wait stations, cashiers. The general seating guidelines that should be observed are:

- **Fine Dining:** 18–20 Square Feet per person
- **Full-Service Restaurant Dining:** 12–15 Square Feet Per person
- **Counter Service:** 18–20 Square Feet per person
- **Fast Food Minimum:** 11–14 Square Feet Per person
- **Table Service, Hotel/Club:** 15–18 Square Feet per person
- **Banquet, Minimum:** 10–11 Square Feet per person
- **Coffee shops** average about 15 square feet per person.

For safety reasons and to allow for free flow of traffic for diners and servers, the traffic path between occupied chairs should be at least 18 inches wide and at least 4–5 feet per table must be left aside, including chair space. This allows for free movement of servers between stations and the kitchen and provides enough comfortable room for the guests to move around. It is very important for safety reasons that there is enough space for the guests and staff to move around in and that the aisles are clear, especially in case there is a fire.

Furniture Guidelines:

- Table Height: 29″ – 30″
- Seat Height 17″ – 18″

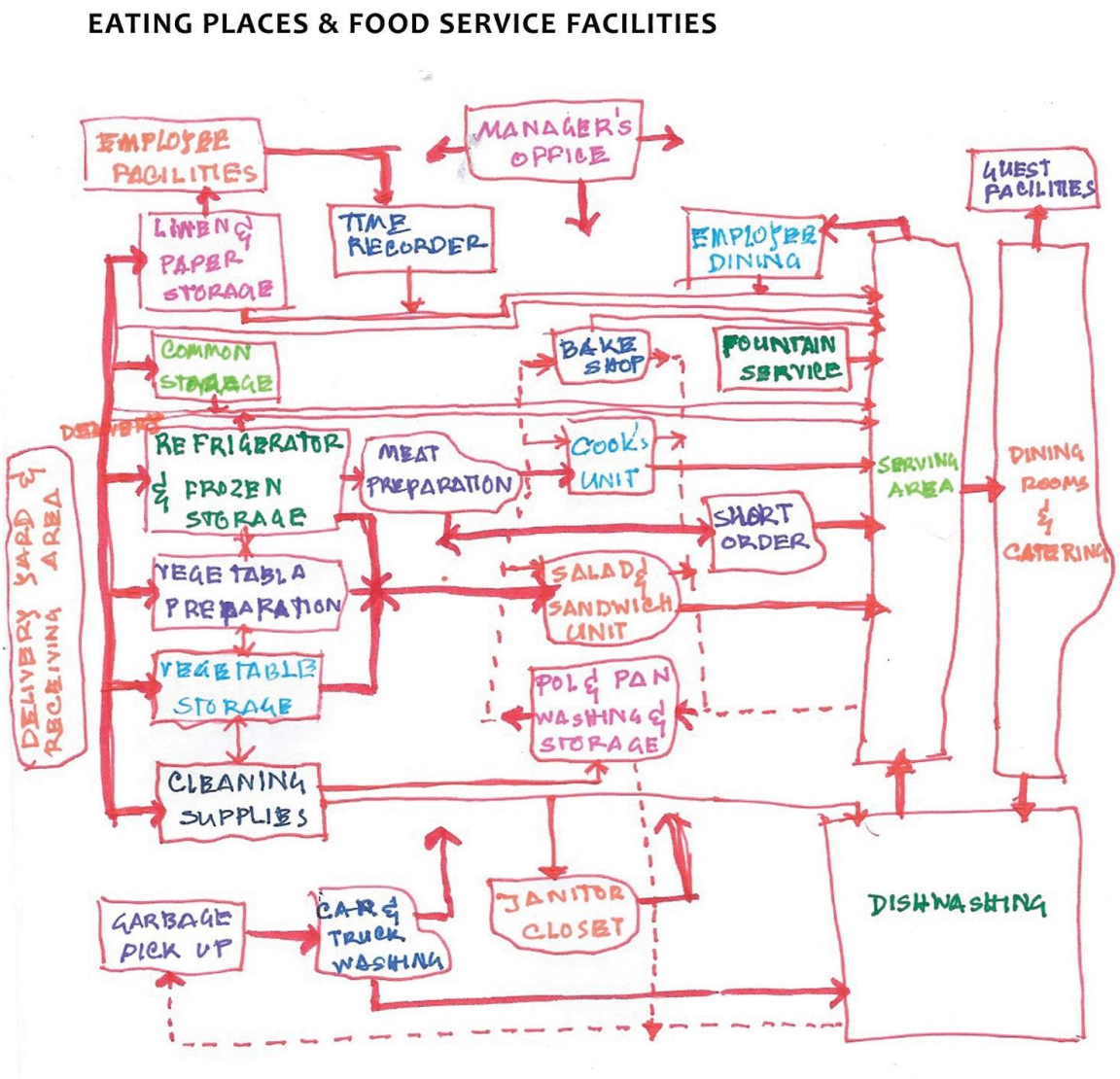


Figure 32: restaurant's standards

Source: from time saver

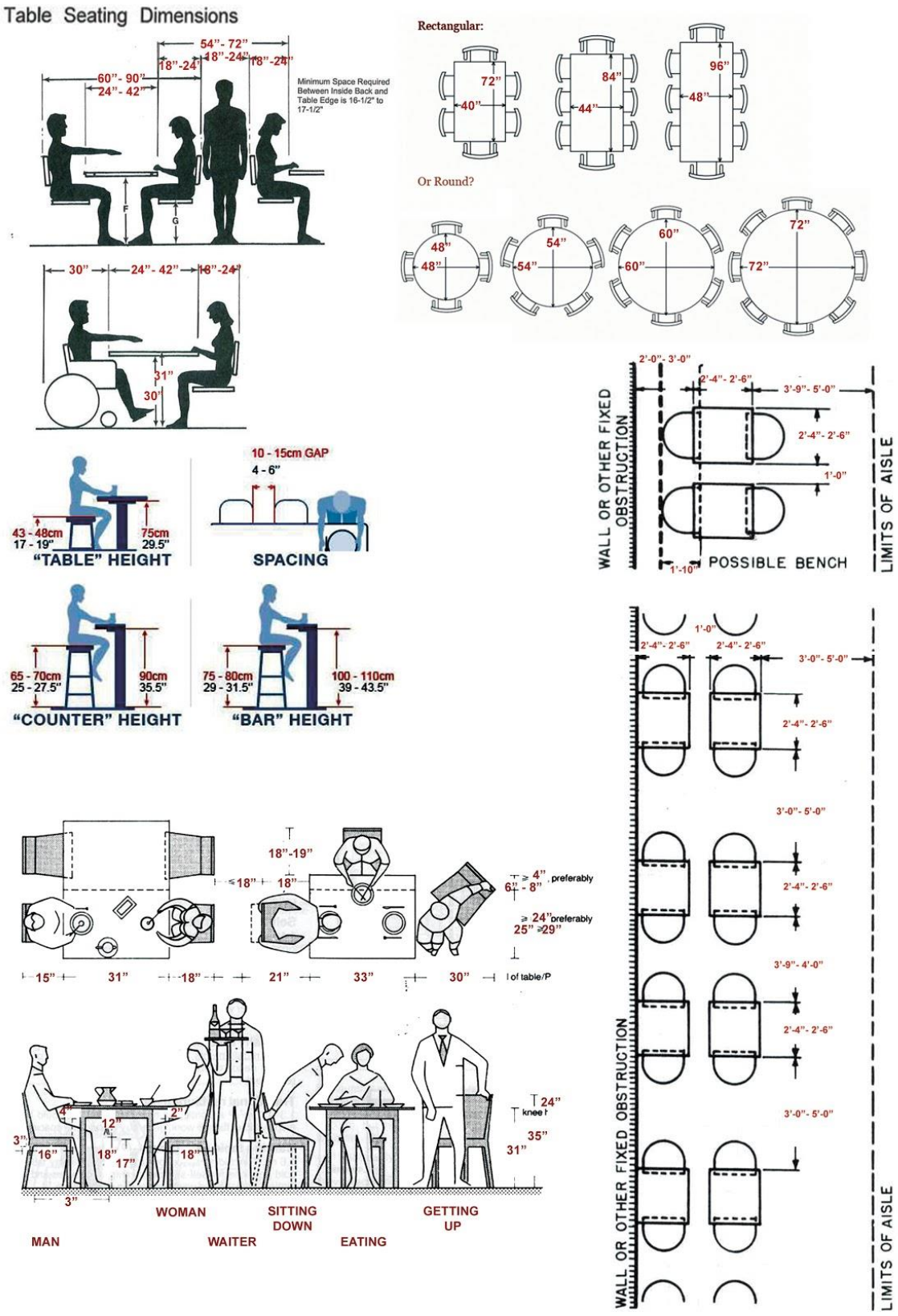


Figure 33: restaurant's standards

Source: from time saver

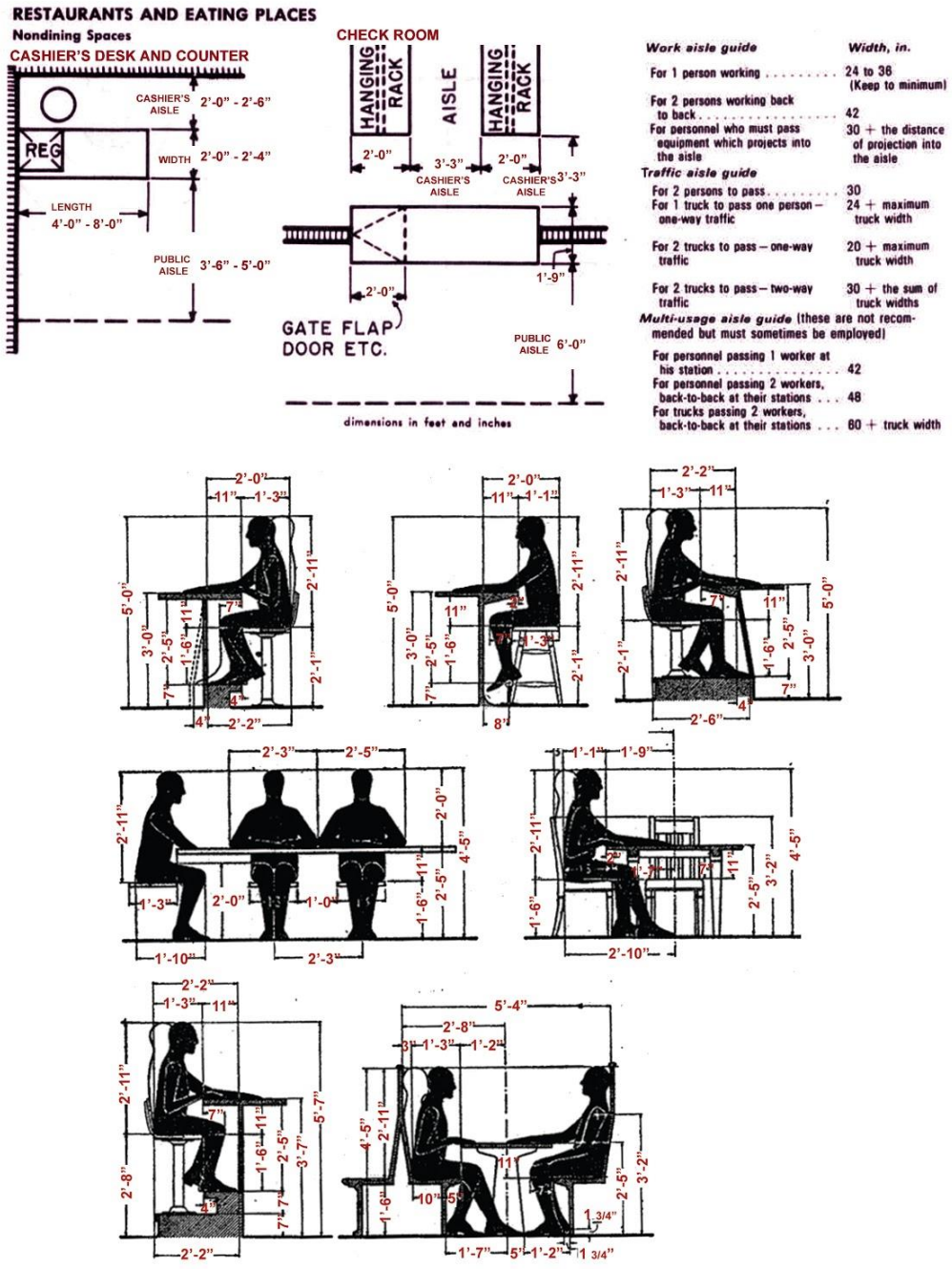


Figure 34: restaurant's standards

Source: from time saver

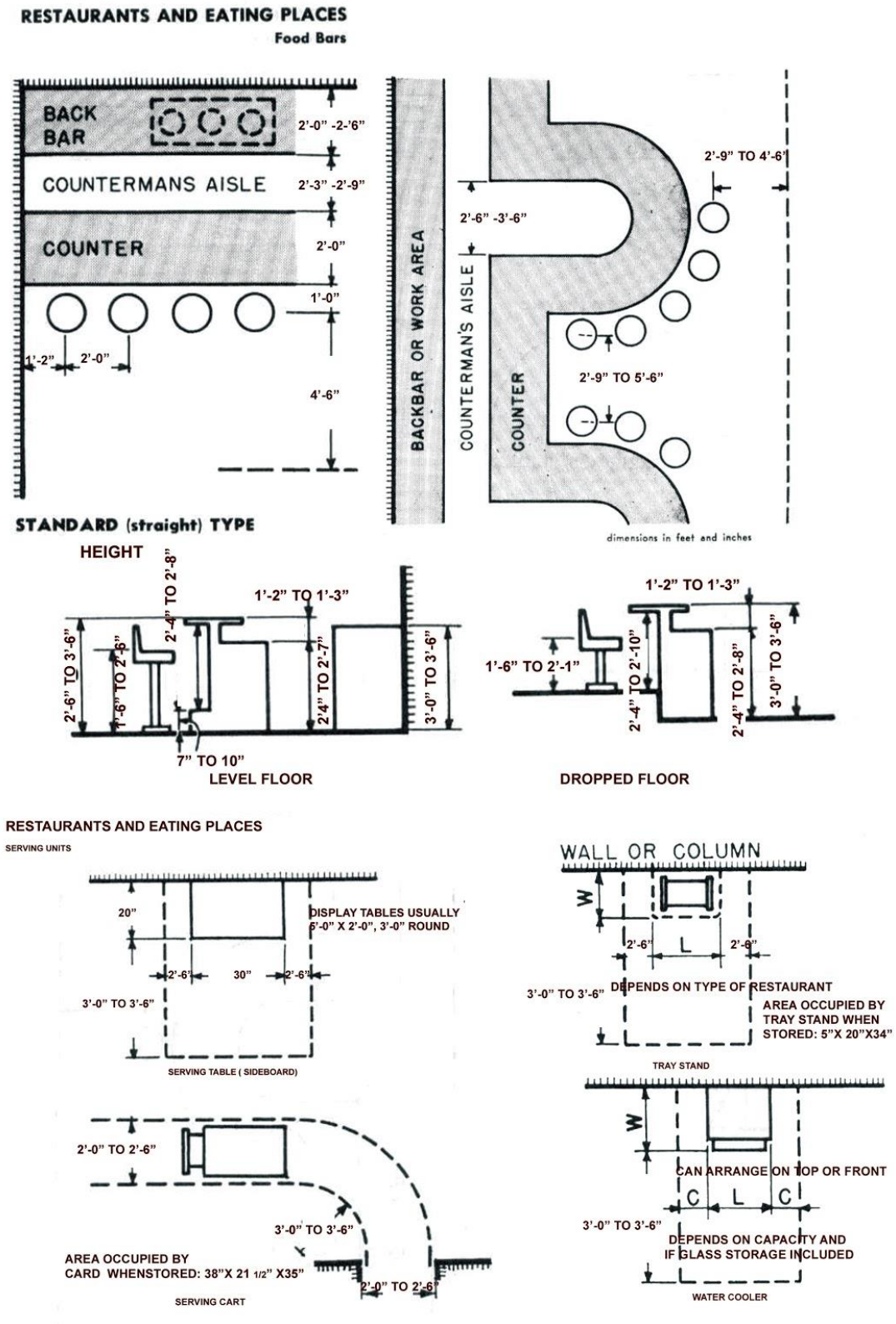


Figure 35: restaurant's standards

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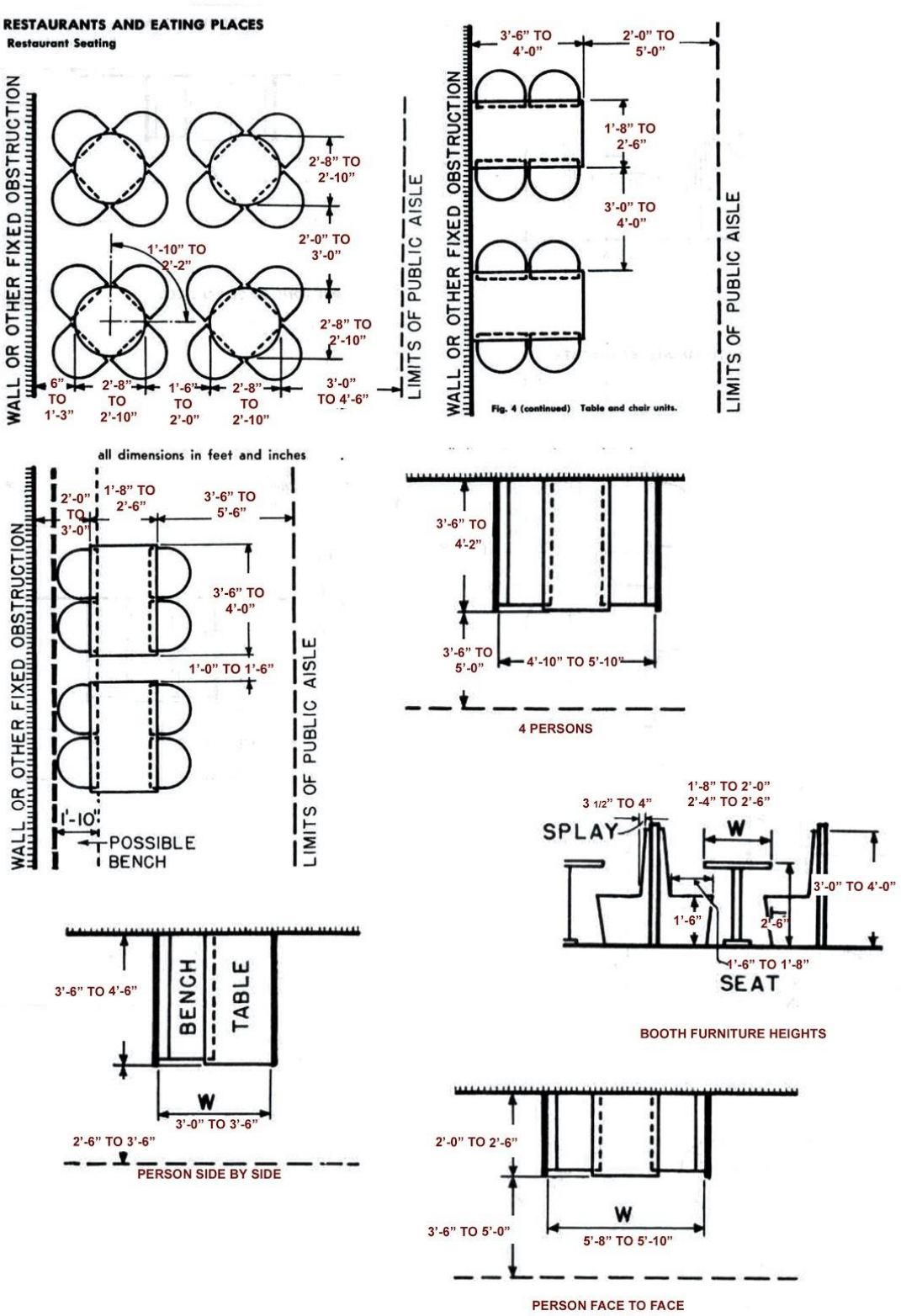


Figure 36: restaurant's standards

Source: from time saver

5.7 Parking

While considering design for parking we have to understand the distribution of spaces. Handicapped spaces need to be directly next to the entrance ramp, and we have to have a clear idea of how to distribute and allot spaces for different vehicles. The curb radius will depend on the largest possible vehicle allowed to park. Depending on the location of service and equipment entrance, the parking for the service and cargo vehicles need to be allotted. Parking for visitors will have a mix of midsized vehicles, motorcycles and bicycles. So, depending on the space and expected daily and maximum visitation for the museum will dictate this allotment. There might also be need for secure parking for VIP visitors but this can also be done through versatile use of the existing parking spaces depending on the nature of visits and a decision the administration could be left to. The drawings and charts below provide a more technically detailed account of parking allotment.

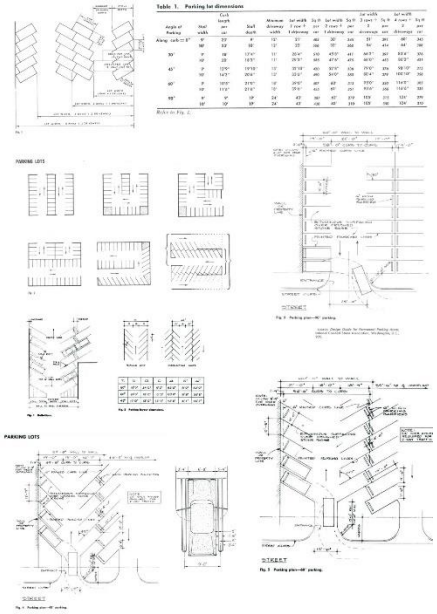


Figure 37: parking's standards

Source: from time saver

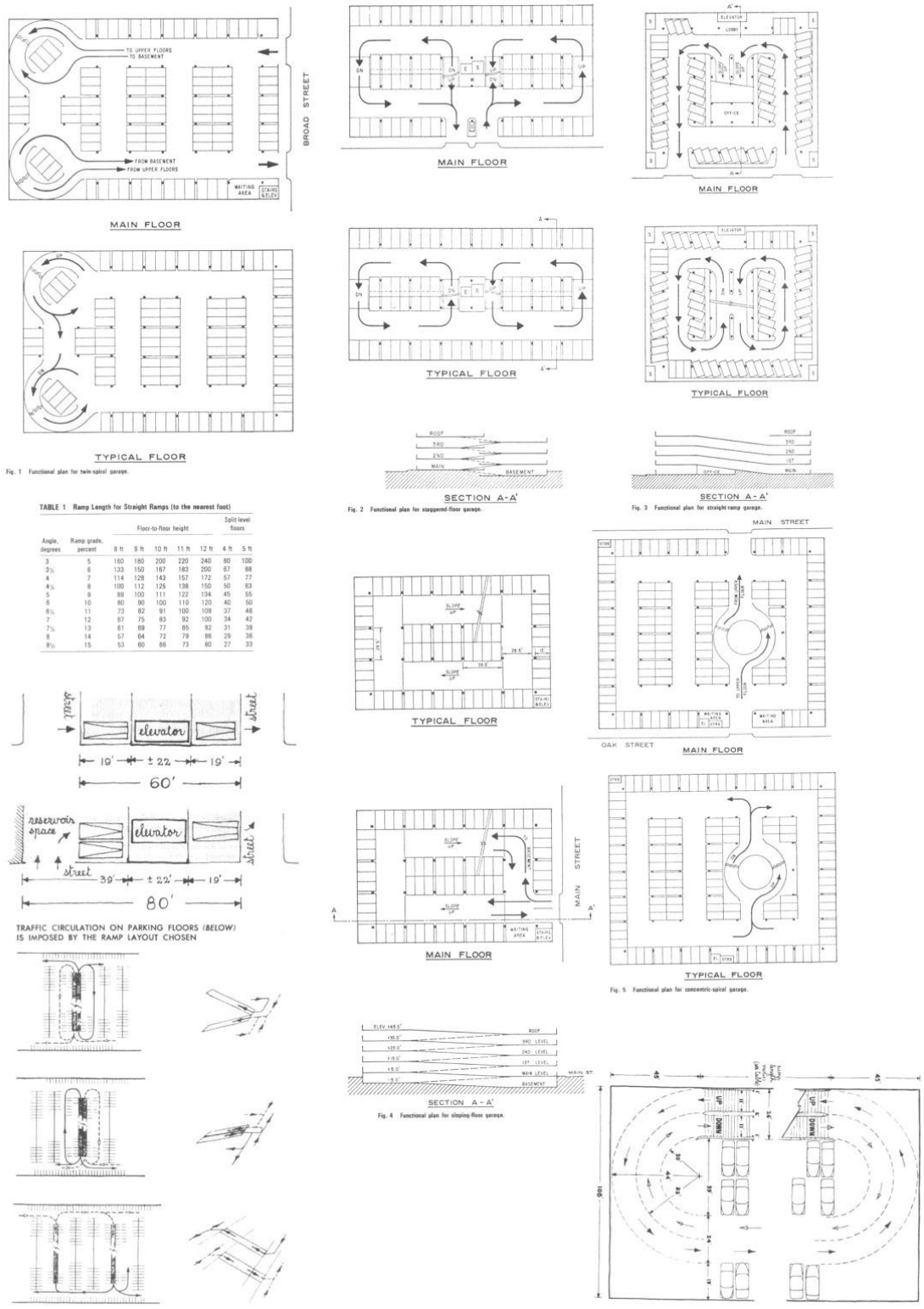


Fig. 1 Functional plan for twin-spiral garage.

TABLE 1 Ramp Length for Straight Ramps (to the nearest foot)

Angle, degrees	Ramp grade, percent	Floor-to-floor height 8 ft	9 ft	10 ft	11 ft	12 ft	Split-level floors 4 ft	5 ft
3	5	160	180	200	220	240	80	100
3½	6	133	150	167	183	200	67	88
4	7	114	128	143	157	172	57	77
4½	8	100	112	125	138	150	50	63
5	9	89	100	111	122	134	45	55
6	10	80	90	100	110	120	40	50
6½	11	73	82	91	100	109	37	46
7	12	67	75	83	92	100	34	42
7½	13	61	69	77	85	92	31	39
8	14	57	64	72	79	86	29	36
8½	15	53	60	66	73	80	27	33

Fig. 2 Functional plan for staggered-floor garage.

Fig. 3 Functional plan for straight-ramp garage.

Fig. 4 Functional plan for sloping-floor garage.

Fig. 5 Functional plan for concentric-spiral garage.

Figure 37: parking's standards

Source: from time saver

5.8 Amphitheatre

An Amphitheatre is an open-air area used for entertainment and performances. The area allows for all around viewing from all sides

Figure 38: amphitheater's standards

Source: from time saver

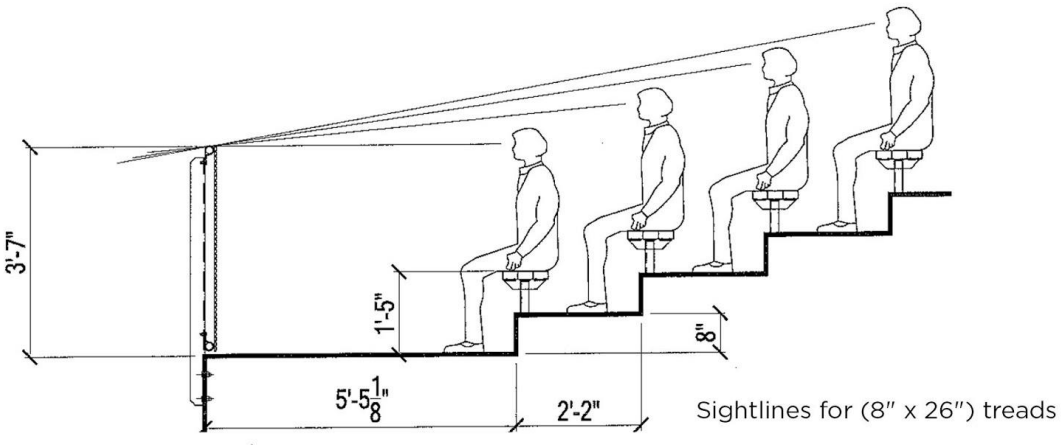


Figure 39: amphitheater's standards

Source: from time saver

If an aisle can be reached from one end of a row *only*, the seat count may then be limited to 7 or 8.

In a continental arrangement, all seats are located in a central section. Here the maximum quantity of chairs per row can greatly exceed the limits established in a multiple-aisle arrangement.

In order to compensate for the greater length of rows allowed, building codes will require wider row spacing, wider aisles, and strategically located exit doors.

Although it would seem like more space is called for, a continental seating plan is often not any less efficient than a multiple-aisle arrangement. In fact, *if it's carefully planned*, a continental arrangement can frequently accommodate *more* seating within the same space.

Program for

Administration

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	Entry, Reciption, Lobby				800
2	curator's room	1	2	200	400
3	administrative office				
4	President's room		1	250	250
5	secretarial room		1	200	200
6	maneger's room		1	150	150
7	secretary's room		1	150	150
8	parmanent exhibition depertment	1	6	200	1200
9	Education and learning department	1	4	200	800
10	New media sector	1	3	300	900
11	front house zone	1	5	200	1000
12	Service quality zone	1	3	150	450
13	commercial zone	1	5	200	1000
14	accounts zone	1	3	150	450
15	sequrity zone	1	3	150	450
16	toilet	3		200	600
	sub total				8800
	including 30% circulation				11,440

Gallery

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	Pre history				4000
2	manuscript & documents				3000
3	weapons & tools				2600
4	coins & engraved gems				2000
5	reserve collection				3000
6	temporary gallery				8000
	sub total				22600
	including 30% circulation				29380

Research laboratory

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	chemical lab				1500
2	research lab				1500
3	preservation lab				1500
4	photography lab				500
5	polish room				500
6	store				2500
7	toilet				200
	sub total				7200
	including 30% circulation				9300

Dormitory

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	volunteer's dorm	1	9	2000	2000
2	external expert's dorm	1	6	2000	2000
3	students/ visitor's dorm	2	20	2500	5000
4	dining	3		800	2400
5	kitchen	3		600	1800
6	toilet	6		400	2400
	sub total				15,600
	including 30% circulation				20,280

Educational

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	library		100		4000
2	workshop				2000
3	seminar		100		1000
4	audio visualization				1600
5	classroom		100-150		1500
6	toilet				500
	sub total				10,600
	including 30% circulation				13,780

service

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	cafe		100		2000
2	outdoor cafe		50		1000
3	staff room				2000
4	kitchen				800
5	mechanical room				600
6	electrical room				500
7	laundry				200
	sub total				7100
	including 30% circulation				9230

Modified programs and sq. ft

Program for

Administration

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	Entry, Reciption, Lobby				800
2	curator's room	1	2	200	400
3	administrative office				
4	President's room		1	250	250
5	secretarial room		1	200	200
6	maneger's room		1	150	150
7	secretary's room		1	100	100
8	parmanent exhibition depertment	1	6	100	600
9	Education and learning department	1	4	100	400
10	New media sector	1	3	150	450
11	front house zone	1	5	200	1000
12	Service quality zone	1	3	100	300
13	commercial zone	1	5	150	750
14	accounts zone	1	3	150	450
15	sequrity zone	1	3	80	240
16	toilet	3		200	600
	sub total				6690
	including 40% circulation				9366

Gallery

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	Pre history				4000
2	manuscript & documents				1500
3	weapons & tools				1500
4	coins & engraved gems				2000
5	reserve collection				1500
6	temporary gallery				6000
	sub total				16500
	including 40% circulation				23600

Research laboratory

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	chemical lab				1100
2	research lab				1500
3	preservation lab				1100
4	photography lab				400
5	polish room				400
6	store				2500
7	toilet				200
	sub total				7200
	including 40% circulation				10080

Dormitory

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	volunteer's dorm	1	9	2000	2000
2	external expert's dorm	1	6	2000	2000
3	students/ visitor's dorm	2	20	2500	5000
4	sitting room	3		400	1200
5	pantry	3		100	300
6	toilet	6		400	2400
	sub total				12900
	including 40% circulation				18060

Educational

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	library		100		4000
2	workshop / class room		100-150		2000
	audio visualization/ seminar room		100		1600
	toilet				500
	sub total				8600
	including 40% circulation				12060

service

	Function	Number of Units	Number of user	Area per Unit	Total Area
1	restaurant		100		2000
2	outdoor cafe		50		1000
3	staff room				800
4	kitchen				450
5	mechanical room				800
6	electrical room				300
7	laundry				200
	sub total				5550
	including 40% circulation				7770

GRAND TOTAL sqft = 80,936

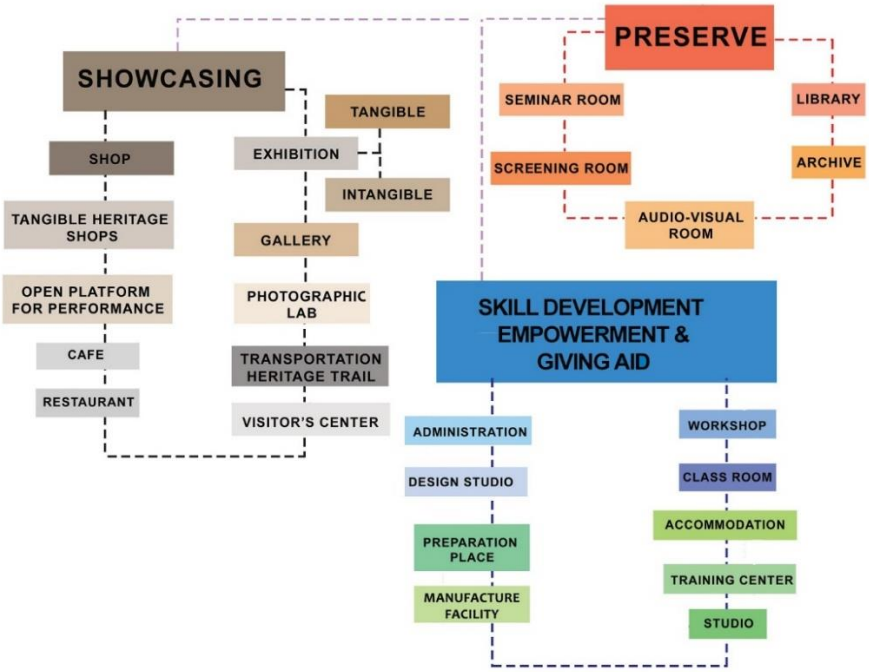


Figure 40: program diagram

Source: analyze and made by the author

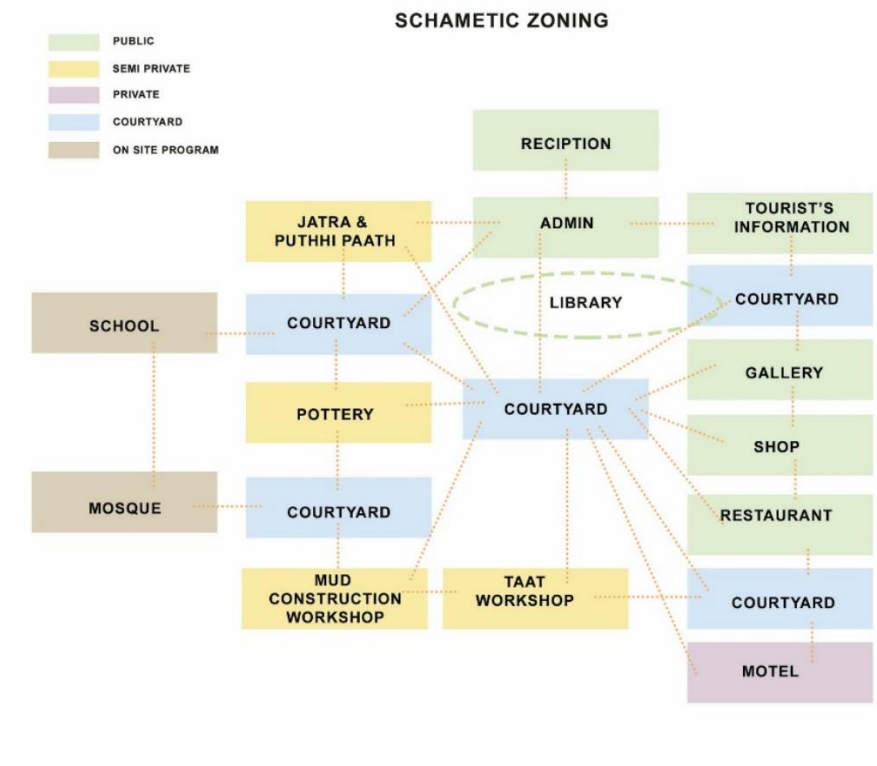


Figure 41: program diagram

Source: analyze and made by the author

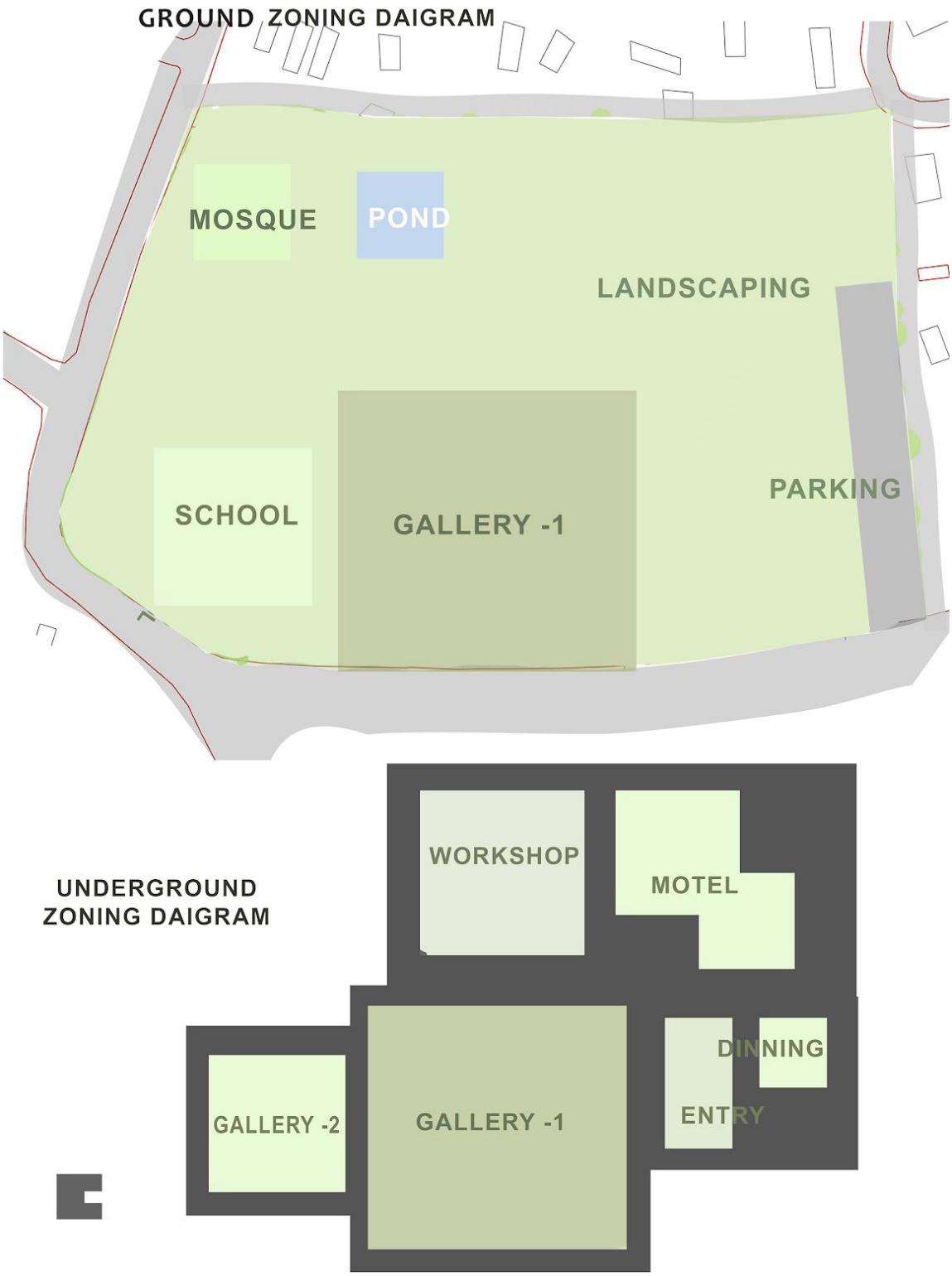


Figure 42: zoning diagram

Source: analyze and made by the author

Chapter 6: Design Considerations

6.1 keeping the main function underground

While analyzing the site at Wari-Bateswar we could see a 2500-year-old civilization was unearthed. It is considered as Gour and an important business hub. So many types of artifacts also how people used to live their lives that it could be found. Not only that different timeline's artifacts and structure have been found.

Much of the content of the complex is undiscovered pieces of the heritage and history of Bengal, all arranged to be discovered. It is because of this that the complex was built underground to replicate the way the people in Wari-Bateshwar lived in pits thousands of years ago, but at a time when pit-dwelling is not relevant, the idea of experiencing the discovery of the history of Bengal as the unearthing of treasure allows for this design to be considered.

Again, while analyzing the case study of Acropolis museum we could find that the museum was built on the top of an archaeological site. The site kept intact because it was designed in a way that visitors could see the archaeological site going through a walk on glass paving. That underground area is restricted and semipublic. Only admin zone research rooms archive mechanical room and any official sector programs related directly to the museum are situated on the basement portion and people can see it from the rest of the building. Also, it gives a 360-degree view of the site. I really love the idea of this walk on glass paving. It is at the same time preserving the archeological site and the visitors could see the current condition of the site and could acquire contextual understanding of the site. For doing this the architect Bernard Tschumi invented a great idea which I appreciated. He could actually make sure that while coming to the museum visitors could see and take advantage of all the surrounding views as

well as the excavated ground condition where the ancient archeological site is found. I wish to consider this design solution in my design consideration as the site has excavated ground with archaeological evidence. So, I want to preserve it in a good way and to showcase it to the visitors.

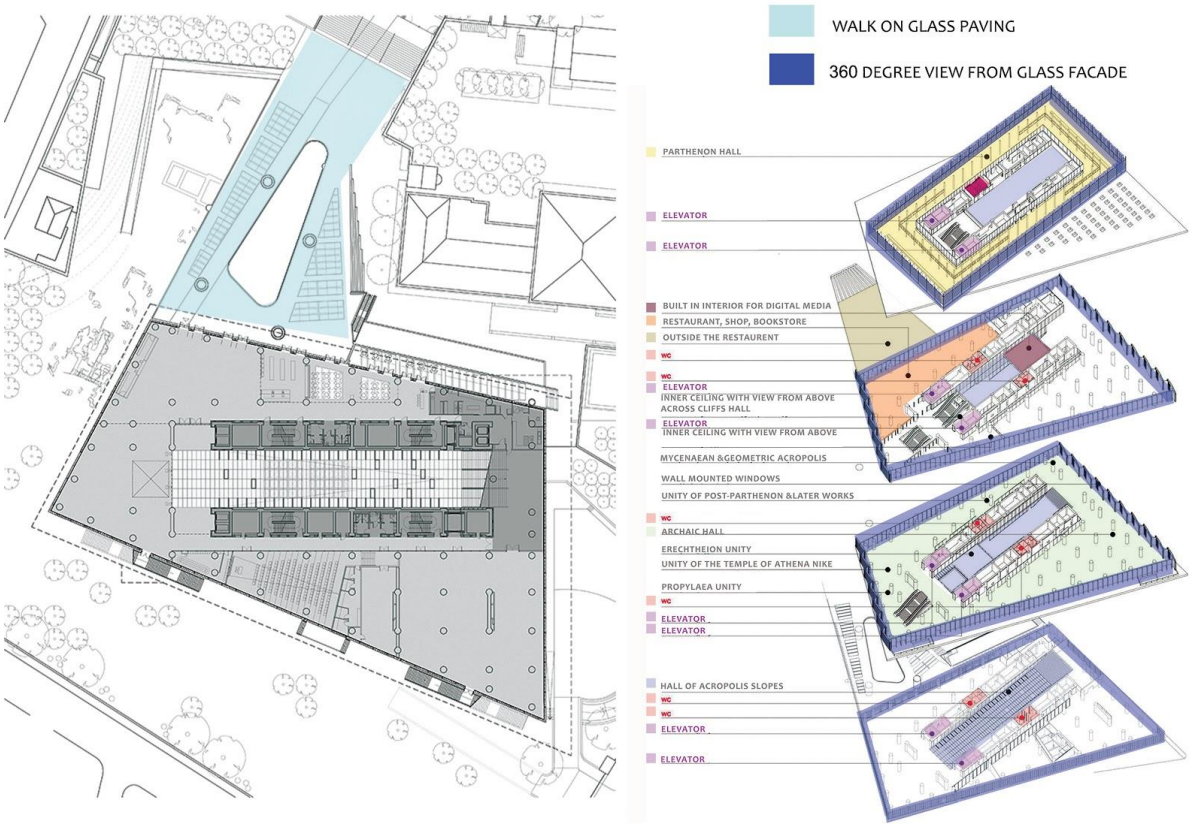


Figure 43: important considered design idea diagram

Source: analyze and made by the author

Again, another case study of the royal museum of central Africa where there is a new building built to preserve the old heritage building and two buildings were connected through

underground galleries. This design approach is appreciable because the new building accommodates the maximum number of important functions in it and it is connected through an underground program. Moreover, the building design is so simple that it does not overpower the main heritage valued building.

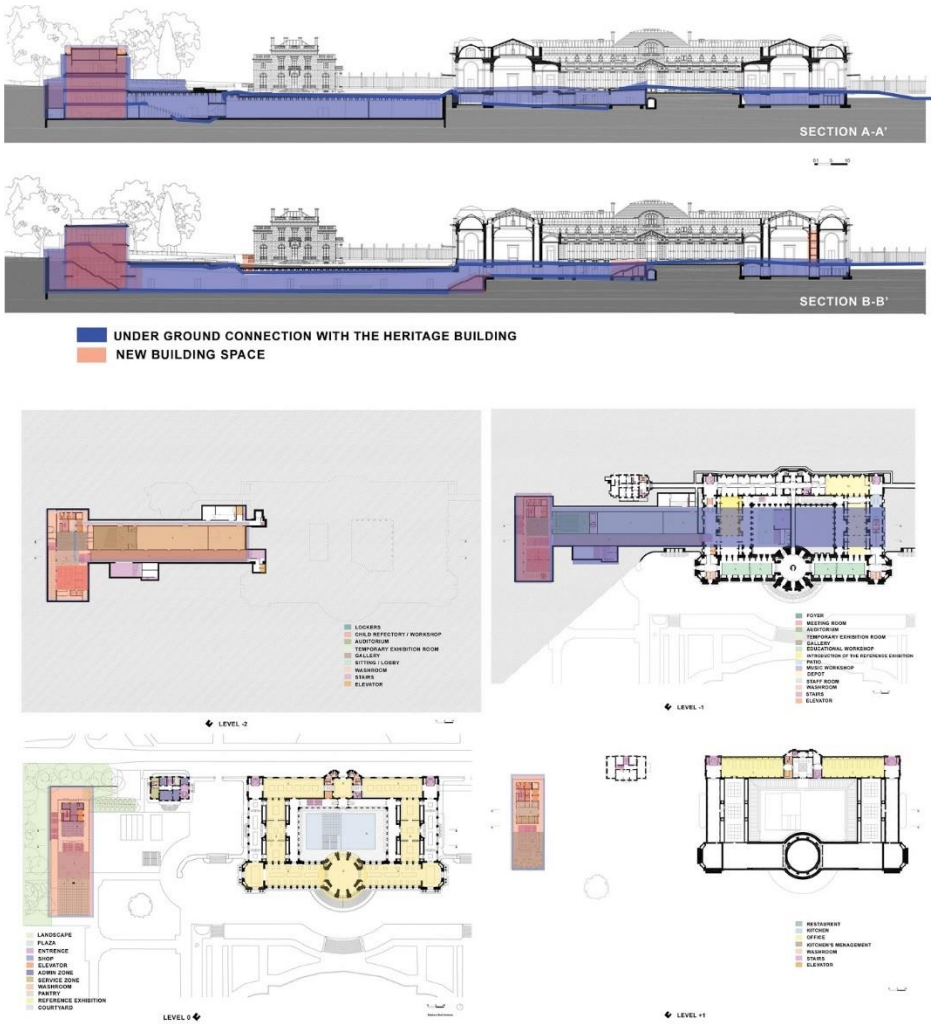


Figure 44: heritage center design solution from the considered design ideas

Source: redrawn by the author

6.2 Climatic consideration:

The site Wari-Bateshwar has a very hot dry climate but it is full of greeneries and the site is surrounded mostly with big trees like jackfruits olive and Arjun Shegun trees.

After the case study analysis, it is easy to see how architects were sensible enough to deal with the climatic issues and applied the design solution to make the design comfortable for the visitors

Both acropolis and the royal museum of Central Africa have extreme warm and humid climates so architects used wood stones as floor and glass as the wall of the building and to facilitate HVAC.

Again, the Bharat Bhavan in India designed by Charles Correa he designed it in a way that it shows that the architect tackles the hot humid climate in a very good way. In that design Charles Correa came up with stepped courtyards for going to every important functional space like the gallery, library, tribal art zone, theatre, store etc. He took inspiration from the Mughal architecture design considerations for climatic issues. He gave open sky courtyards because in the morning and from evening to night it gives the visitors the experience of the open sky and the breeze since it is situated in front of a lake so microclimatic issues work here properly. Since there is a lake there so comparatively hot air gets in touch to lakes water and the air becomes cold so their cold breeze can experience clearly. Again, Charles Correa did not give any big structures in front of the lake, rather he gave Amphitheatre and courtyards with steps so that air can move properly without any barrier inside the site. All the building structures are very low in height. Two stories only. Architect Charles Correa cleverly deals both with the

climatic issue and turns the design into an enjoyable one while also taking advantage of the lake and tried to create microclimatic factors here in his design of Bharat Bhavan.

In short, the way architects try to do the design considering the climatic factor and design changes like the material or even adding elements like open to sky courtyards with steps giving amphitheater in front of the lake and not giving any tall big structure. This is what and how design considering the climatic issues should be done.

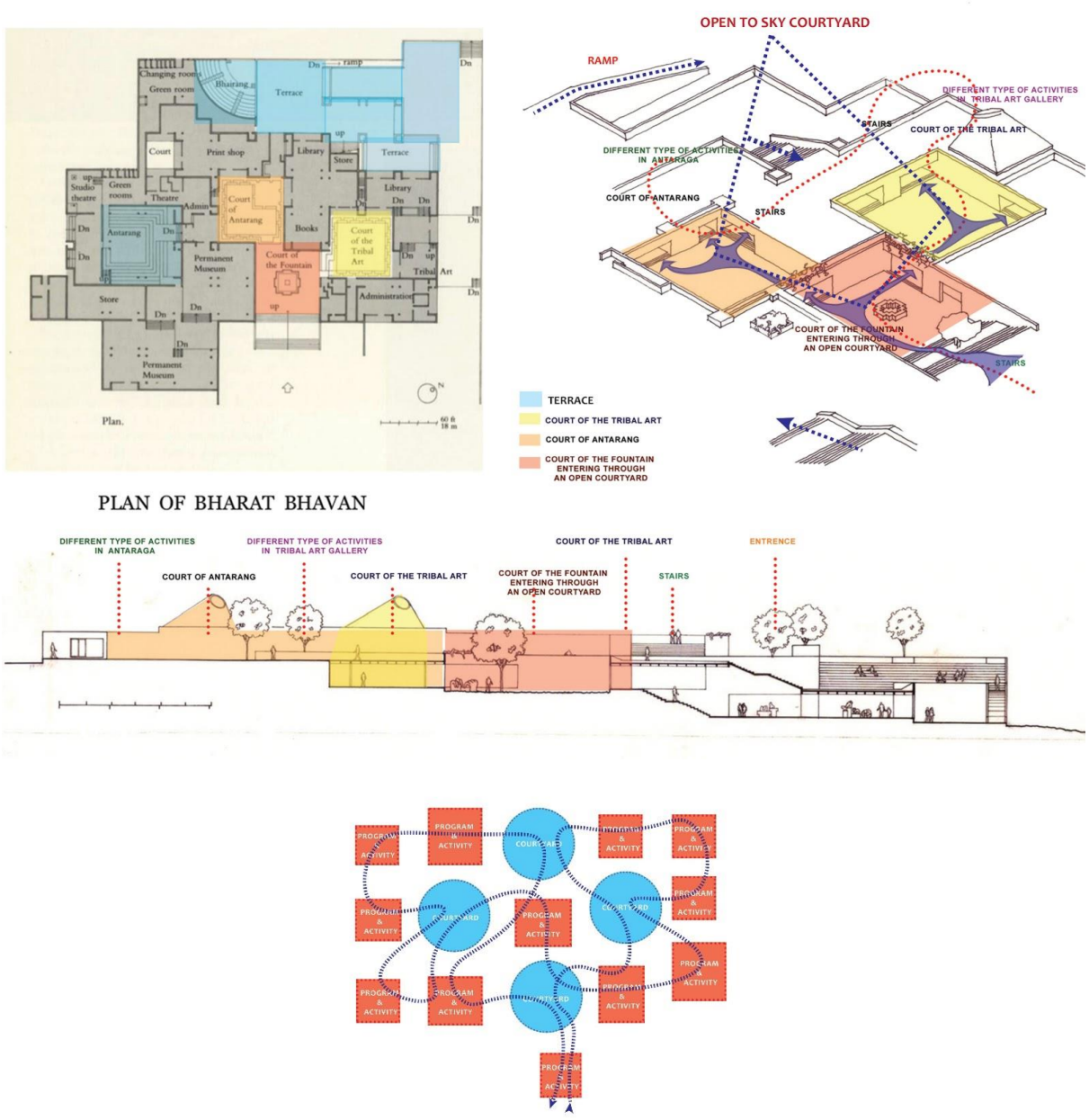


Figure 45: Bharat bhavan's design solution regarding climatic issues

Source: redrawn by the author

6.3 Program function and materials:

Third consideration will be the materials, the materials that we could see using in the building is directly influenced by the site surroundings, climate, and also the demand of the design or the designers and the clients.

In the museum of acropolis, we could see clever and technical choices of materials for both floors and facades.

On the ground floor glass paving was used so that people could see the excavated archeological site. Different types of floor materials defined different types of the program of the floor. Ochre pink marble eikons Peloponnesus is used for only where there are galleries on ground, first and third floors. Wood parquet for the theatre section on the ground floor. Again, Grey marble Assini Volos defines the terrace or the extension of the second and third floors. Black marble Macedonia used in the ground and second floors where there are shops, restaurants etc. so there is a tendency to separate the programs by the floor material's patterns.

The facades were glass panels so that visitors could get a 360-degree view of the site,

So in the site of Wari-Bateshwar this technique could be followed but in consideration to our native building materials we could differentiate the programs by the floor patterns.

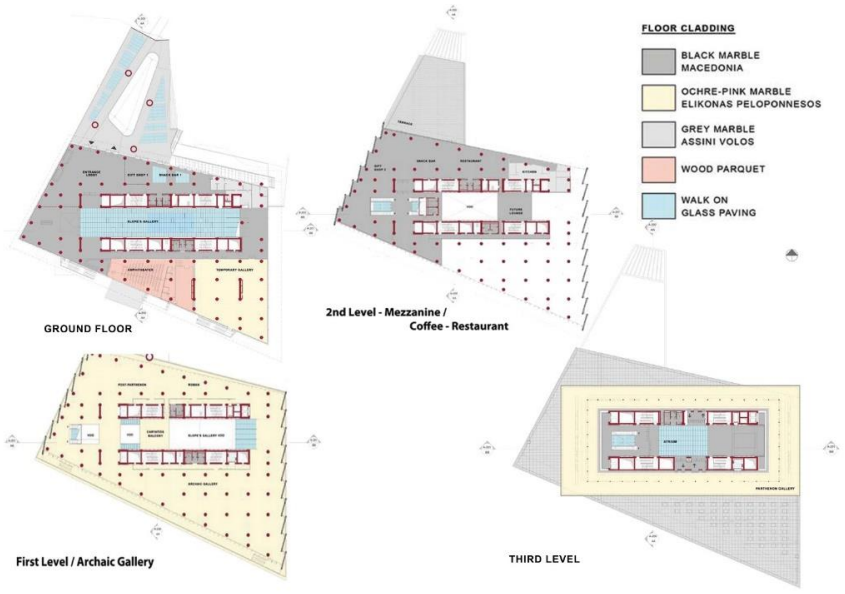


Figure 46: Acropolis museum's material and functional flow

Source: redrawn by the author

Chapter 7: Design Suggestions

Design suggestion was a very important part of this project. Since it has different time lines present in it. So there has to be some combined suggestions coming from the context at the same time from the artifacts and tangible structures.

7.1 Ground floor treated as Landscape

Here in this design ground level is treated as landscape a mosque and school are included in the site and can be accessed from the ground level. Landscape part is in 4' height from the ground line. The main reason for providing a landscape on the ground level is first it has to be given a vive of a flat land like the rest of the site's area and from top people won't be able to see main the structures. By this it created a committee space for that particular area's people.

7.2 Under ground floor treated as the main functional area

To give a vive of unearthing the treasure from history and heritage also to reassume the feelings of living in a pit house under ground is treated as the main functional floor. Here in this floor people can get the museums workshops motels and restaurant.

7.3 Creating punches in the ground level

In the ground level some punches are created to get proper air circulation and light.

So that it can have cross ventilation

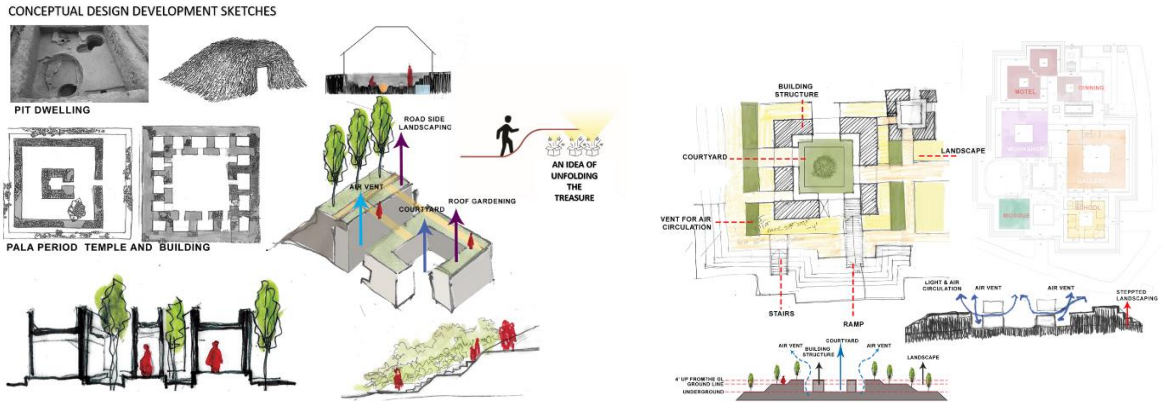


Figure 47: from generation

Source: redrawn by the author

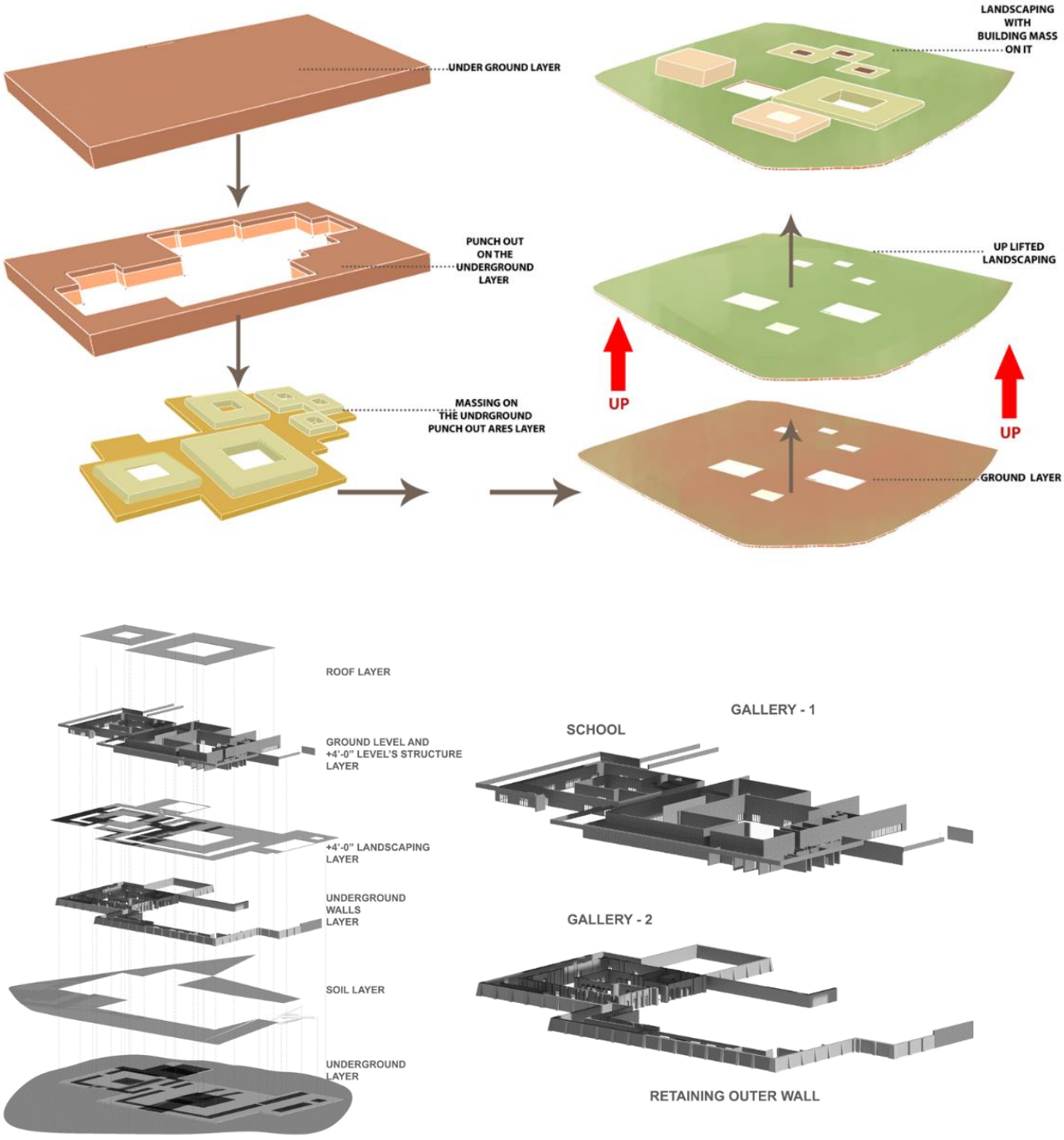
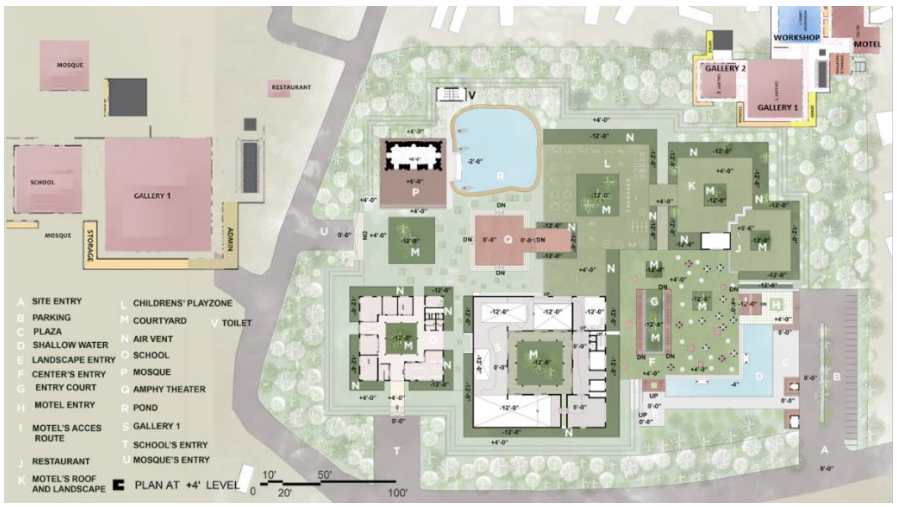


Figure 48: from generation

Source: redrawn by the author



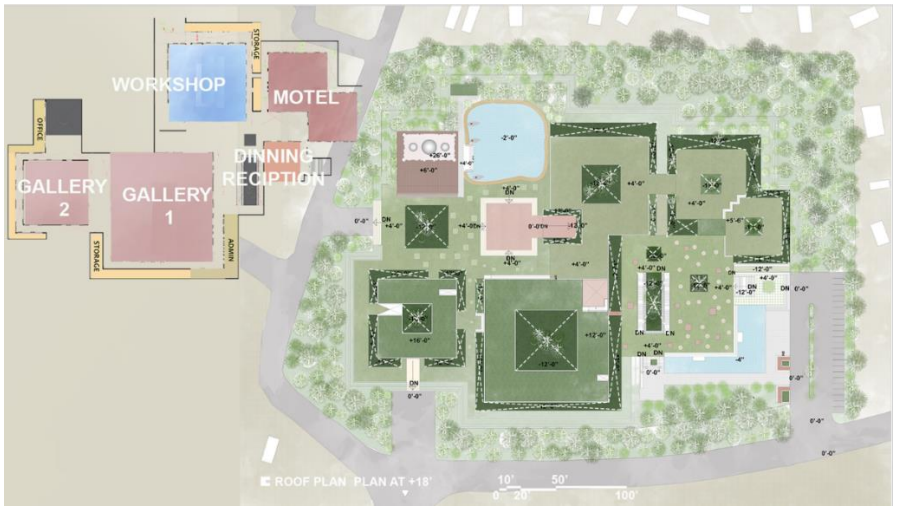
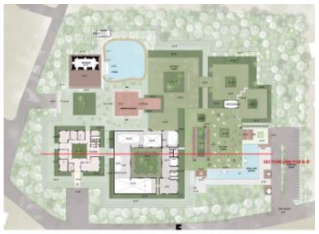
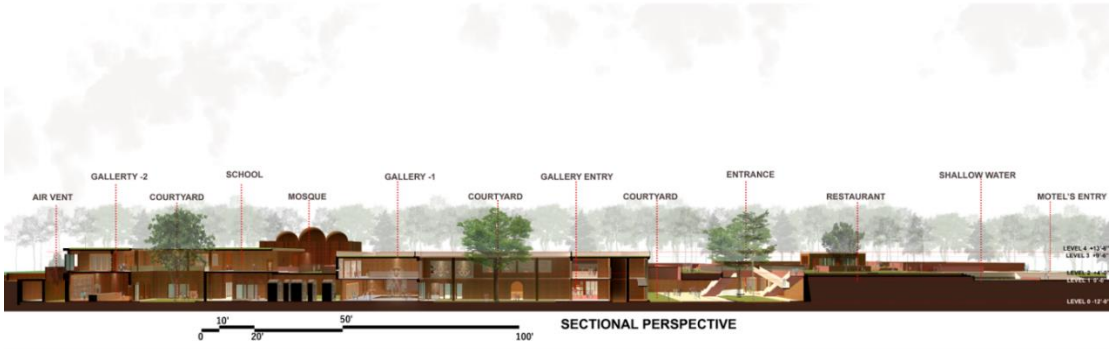


Figure 49: floor plans

Source: redrawn by the author





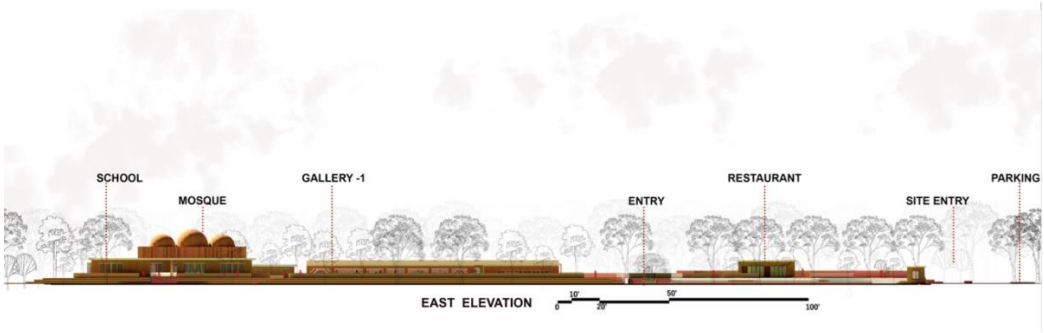


Figure 49: elevation section and plan

Source: redrawn by the author

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