THESIS ON

MUGHAL MUSEUM

AGRA

A THESIS SUBMITTED IN
PARTIAL FULFILLMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF:

BACHELOR OF ARCHITECTURE

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THESIS GUIDE

PROF. MOHIT KUMAR AGARWAL

SESSION

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TO THE

SCHOOL OF ARCHITECTURE
BABU BANARASI DAS UNIVERSITY, LUCKNOW

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I hereby recommend that the thesis, entitled **"MUGHAL MUSEUM, AGRA",** prepared by **Ms. JANHAVI AGARWAL** under my supervision, is the bonafide work of the student and can be accepted as a partial fulfillment for the award of **Bachelor's Degree** in (Architecture) School of Architecture BBDU, Lucknow.

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Recommendation :

Accepted
Not Accepted

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ACKNOWLEDGEMENT

I take this as an opportunity to extend my gratitude to all those who have contributed to the completion of this thesis in any manner large or small.

To begin with, I would like to thank my thesis guide **Prof. Mohit Kumar Agarwal & Ar. Ramakant** who have guided me throughout the whole thesis. My sincere regards to them for helping me with regular discussions leading to a better design proposal.

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Janhavi Agarwal

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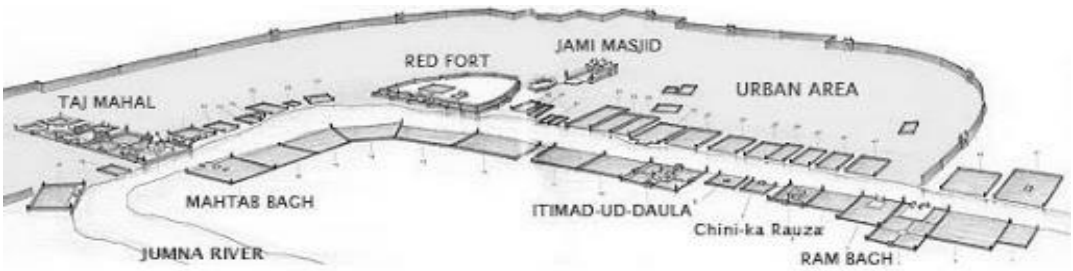
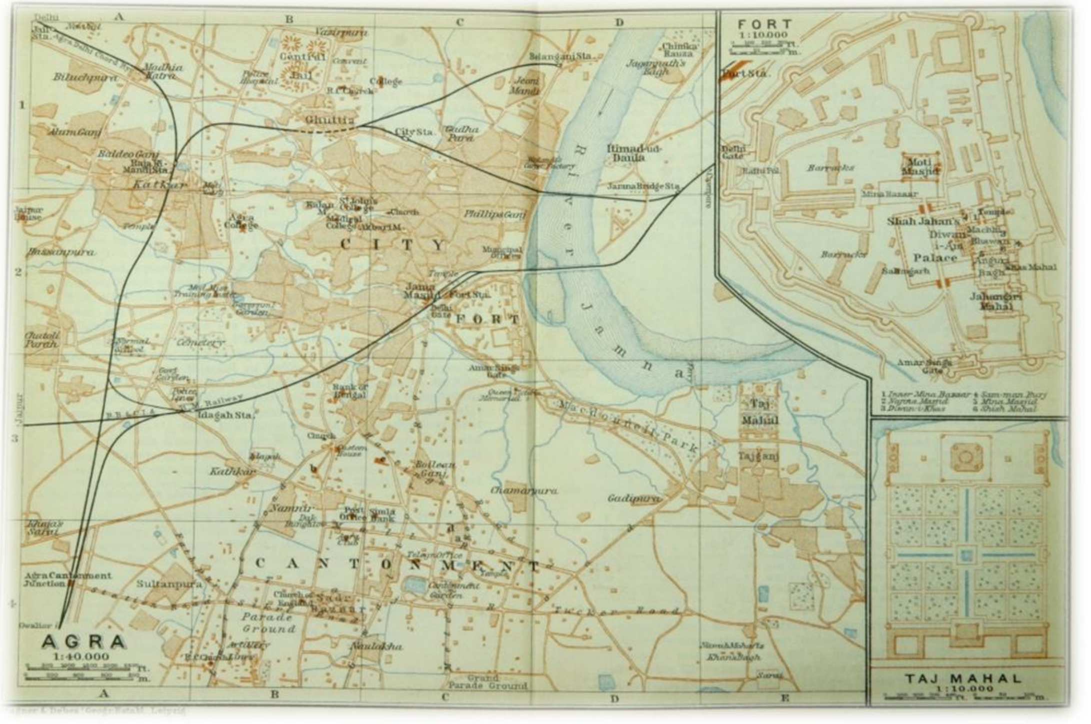


THE SEARCH

The search for the thesis is guided by a series of questions that would linger in my mind and leave me unsettled. So, the thesis is a journey figuring out answers to those questions .
Museums of many cities around the globe have become their identifying architectural element and a representative of their heritage - art, culture, historic events of the past etc. For example, Guggenheim Museum, Bilbao, Spain ; The Louvre, Paris, France ; Jewish Museum, Berlin, Germany etc.
Agra is often labelled as the 'city of Taj, city of Tombs, city of Mughals'. The Taj Mahal provides an international identity to the city as well as the country, but the empowering symbolism often overshadows the different layers of heritage that the city has to offer.



Map of the city Agra, 1914

NEED IDENTIFICATION

In Agra, foreign tourism, which infuses significant amount of money into the local economy, has dropped significantly over the last few years. Anecdotally, tourist report that the Taj Mahal is magnificent, but that Agra is to be avoided. The failure to light monuments and heritage means that the city's cultural icons are 'left in the dark' for significant periods.
Further, there is no district for shopping and entertainment. As a result, many tourists are just 'day-trippers that just stop and go, visiting the Taj Mahal.

The Agra fort at most and then quickly returning to Delhi without visiting the City's other equally rich sites which include 48 ASI monuments, or spending money with local merchants. The visitors and inf act even locals are hardly aware of the wealth of the city's heritage evident in the form of monumental structures, local street markets, craftsmen clusters, cuisine, language etc.
The lifestyle and the activity patterns of the people are changing constantly at a rapid rate and as a result the architecture too. I believe every city or rather every human settlement has something very unique in itself that should not be sacrificed in the race towards modernization.
Therefore, there is an urgent need to develop and connect the city's pouring heritage within the contemporary urban fabric, to realize the value of past for us to create an identity for ourselves in the face of globalization.

WHAT IS MUSEUM ?

A **museum** is an institution that cares for (conserves) a collection of artifacts and other objects of artistic, cultural, historical, or scientific importance. Many public museums make these items available for public viewing through exhibits that may be permanent or temporary. Largest museums are located in major cities throughout the world, while thousands of local museums exist in smaller cities, towns, and rural areas. Museums have varying aims, ranging from serving researchers and specialists to serving the general public. The goal of serving researchers is increasingly shifting to serving the general public.

Map Of Museums Over The World

HISTORY OF MUSEUMS

Early museums began as the private collections of wealthy individuals, families or institutions of art and rare or curious natural objects and artifacts. These were often displayed in so-called wonder rooms or cabinets of curiosities. One of the oldest museums known is Ennigaldi-Nanna's museum, built by Princess Ennigaldi at the end of the Neo-Babylonian Empire. The site dates from c. 530 BCE, and contained artifacts from earlier Mesopotamian civilizations. Notably, a clay drum label—written in three languages—was found at the site, referencing the history and discovery of a museum item.

Public access to these museums was often possible for the "respectable", especially to private art collections, but at the whim of the owner and his staff. One way that elite men during this time period gained a higher social status in the world of elites was by becoming a collector of these curious objects and displaying them. Many of the items in these collections were new discoveries and these collectors or naturalists, since many of these people held interest in natural sciences, were eager to obtain them. By putting their collections in a museum and on display, they not only got to show their fantastic finds but they also used the museum as a way to sort and "manage the empirical explosion of materials that wider dissemination of ancient texts, increased travel, voyages of discovery, and more systematic forms of communication and exchange had produced.

The Museo del Prado in Madrid (est. 1785)

The Museum Island in Berlin 1999 (23rd session)

PURPOSE OF MUSEUMS

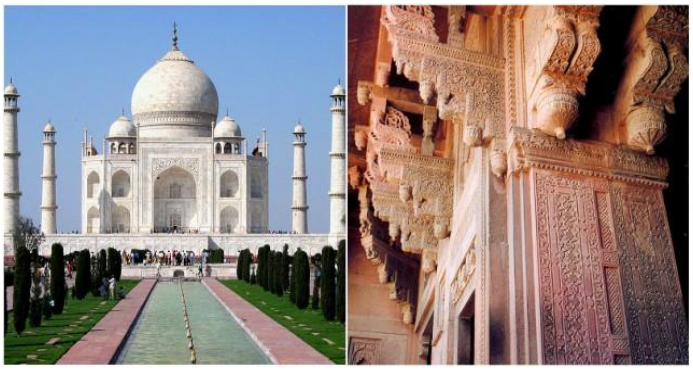
The purpose of modern museums is to collect, preserve, interpret, and display objects of artistic, cultural, or scientific significance for the education of the public. From a visitor or community perspective, the purpose can also depend on one's point of view. A trip to a local history museum or large city art museum can be an entertaining and enlightening way to spend the day.

WHAT IS MUGHAL ARCHITECTURE ?

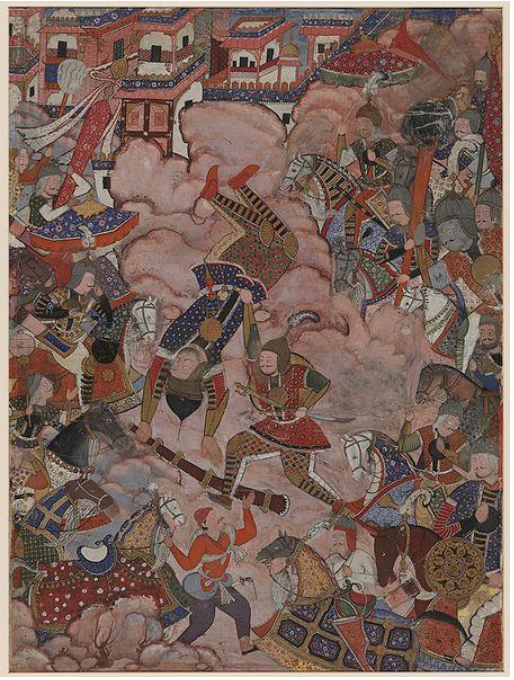
Mughal Architecture is the type of Indo-Islamic architecture developed by the Mughals in the 16th, 17th and 18th centuries throughout the ever-changing extent of their empire in the Indian subcontinent.
Mughal buildings have a uniform pattern of structure and character, including large bulbous domes, slender minarets at the corners, massive halls, large vaulted gateways, and delicate
ornamentation. Mughal Architecture incorporates Indian elements with Persian and Islamic elements. Some features common to many buildings are:

- Large bulbous onion domes, sometimes surrounded by four smaller domes.
- Use of white marble and red sandstone.
- Use of delicate ornamentation work, including pachin kari decorative work and jali-latticed screens.
- Monumental buildings surrounded by gardens on all four sides.
- Mosques with large courtyards.
- Persian and Arabic calligraphic inscriptions, including verses from the Quran.
- Large gateways leading up to the main building.
- Lawns on two or four sides.
- Use of decorative chattris

Mughal Architecture has also influenced later Indian architectural styles, including the Indo-Saracenic style of the British Raj, the Rajput style and the Sikh style.



The exterior decorations of the Taj Mahal include calligraphy , abstract forms , verses from the Koran, and vegetable motifs, executed in paint, stucco , carvings, and pietra dura work. The interior decorations also feature inlay work of precious and semi-precious gemstones.



AIM AND OBJECTIVE

This thesis aims to explore how people make meaning in and from museums, through the spaces from time to time.
My interpretation for museum is that, it is a place which represents the political and cultural milestones of the different eras of its history (including Mughal, colonial etc.) and the present through its art and architecture.

- To study the architectural and design aspects of the museum.
- To study the visitor's experience and circulation pattern in museum.
- To study the ergonomics of the exhibitions and display units in art gallery and museum.
- To study the techniques and impacts of lighting in museum.

SCOPE

- Space Integration is the most important part of museum planning and it's the main scope of work which can be exhibited through circulation pattern and zoning on sheets.
- Natural and artificial lighting is one of the most important aspects of museum planning that should be catered deeply with studying the effects and design aspect of it in the museum.
- Interior of a museum is as important as the exterior of the museum, so interior details are very important aspect of the museum design. Interior details will be the part of the scope of work.
- Landscaping and site planning is also one of the aspect which makes a boring museum into a living being, so landscaping details is also major to study.

LIMITATION

The project does not caters about the deep analysis of structural system and structural detail as these details are not the main aspects of design. The project also doesn't caters about the costing and estimation of the project because it's an academic project.

SITE ANALYSIS

CITY OF AGRA

EVOLUTION OF AGRA

The nucleus of Agra was Formed of gardens of the ruling elite lining the river Yamuna, on both sides, with the remaining city encircling it in the west.
The center of Agra had thus a suburban character an the Taj Mahal was not built in an isolated site, but as part of this splendid riverfront city and the Yamuna was the main artery and one would go by boat from one garden to another.
Today, the riverfront has largely disappeared what remains are a Few sites and sporadic ruined walls pavilions. Mughal Agra appears as an utopia of the past.

Pre-Mughal Period (13 B.C. - 1803 A.D.)

- The city in the epic Mahabharata explained the area called Agrevana.
- Some literature describes, it was founded by Raja Badal Singh. The river Yamuna was celebrated as the goddess river and religious activities where profoundly conducted along the river.

Mughal Period

- The formal garden construction techniques and architectural characters along the riverfront at Agra were a nostalgic solution from the rivers.
- The rulers saw the river as a transportation network as well as source of relaxation to witness their creations.

Colonial Period (1803- 194 7 A.D.)

- The introduction of modern amenities including railway stations, factory areas, golf courses, race grounds, public parks, road connecting major buildings, were major addictions during this period.

Post- Colonial Period (1947- 1990 A.D.)

- Post colonial development was very haphazard due to refugees settling around the city after India-Pakistan partition. This settlement caused stress to the traditional Mughal city areas.
- The conservation approach was monument centric.

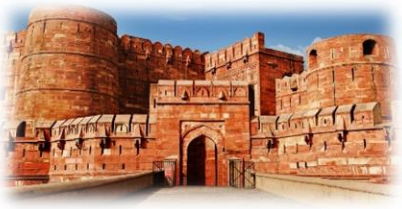
Present Day Period (1990- present)

- The river Yamuna today has become a stinking drain as a result of high pollution.
- There are only two bridges connecting the developments which are insufficient and congested and inhibit the growth of the city.

AGRA AS A WORLD HERITAGE CITY

Agra's Image Nationally And Internationally :

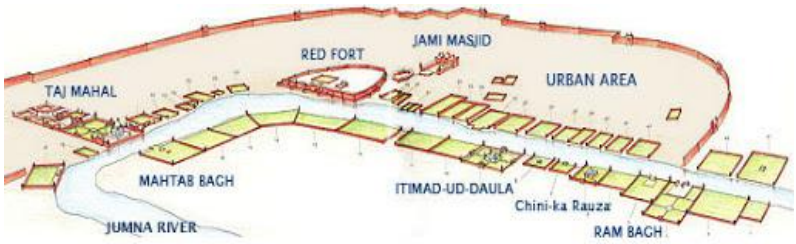
It is a city on the banks of the river Yamuna in the northern state of Uttar Pradesh, India. It is 363 km (226 mi) west of the state capital, Lucknow, 200 km (124 mi) south of the national capital New Delhi. The city holds rich architectural and socio-cultural heritage assets of the country such as the Taj Mahal along with 48 other ASI protected sites. Indeed the Taj Mahal represents the heart of the country titled as one of the seven wonders of the world.



With three world heritage monuments, the Taj Mahal, Agra Fort and Fatehpur Sikri, three under consideration, Sikandra, Itmad-ud-daula, and Jama Masjid and dozens of other historical structures, Agra is **"highly qualified"** to be designated as a heritage city**.**

THE RIVERFRONT CARDEN CITY

- Babur's choice of the riverfront site introduced a new type of urban planning in Hindustan. It led to the creation of the riverfront garden as a module of the riverfront city, a Charbagh with the n1ain buildings on the terrace overlooking the river.
- The development of Agra as a riverfront city was taken up again by Akbar when he moved the court back to Agra. Under Jahangir the riverfront scheme was fully developed.
- In the 1620s Pelsaert observed that 'The breadth of the city is by no means so great as the length, because everyone has tried to be close to the riverbank, and consequently the waterfront is occupied by the costly palaces of the famous lords, which make it appear very gay and magnificent.



CRAFTMANSHIP IN AGRA

1. LEATHER ARTICLES

Leather footwear of Agra is known internationally for superb craftsmanship. Completely handmade shoes are a class apart.

2. STONE INLAY (also known as Pietra Dura)

Agra is famous for Parch in kari work which is very minute and precise inlay work. The artisans work together as a cooperative, meaning each of them remains an individual artist with complete creative freedom, but all profits are shared equally.

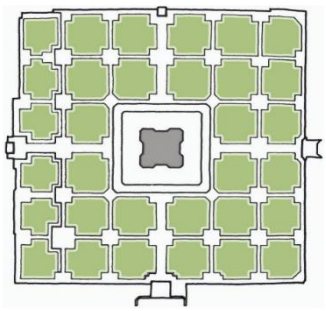
3. ZARI ZARDOZI (Metal Embroidery}

Zar in Persian means gold, while dozi means embroidery. The word zardosi can thus be interpreted as sewing with gold and silver threads. Zari is woven into fabrics, primarily made of silk, felt or velvet to create intricate patterns.

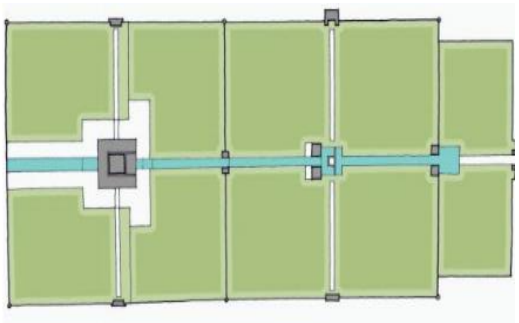
MUGHAL GARDENS

Gardens were a very important part of Islamic culture and were associated to the Islamic conception of the 'after life in paradise'.
Types of Mughal gardens :

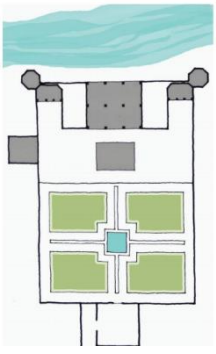
1. **Charbagh -** In its ideal form,, the Mughal 'charbagh' consists of a square, divided by cross axial paved walkways into four equal parts. The centre which is highly charged symbolically, may be occupied by a building - typically a garden pavilion, but also a tomb-or by a pool. The walkways may contain sunk channels, and, at the points where they meet the garden wall, there may be real or false gateways. The quadrants may in turn be subdivided into further squares. The whole composition is enclosed by a wall with towers at its corners.
2. **Terrace garden -** The concept of a garden laid out on a slope into the landscape. The main buildings are arrayed on ascending terraces along a central axis formed by a channel sunk in a paved walkway which collects water from, a spring. The individual terraces may be given the canonical four part form, as in the imperial gardens of Shalimar in Kashmir.
3. **Riverfront garden -** It is a variant of the charbagh invented by the Mughals for the specific conditions of the Indo-Gangetic plain. Here the main water source was usually a large slow-flowing river, from which the desired running water had to be raised into the garden. The main building was set on an oblong terrace running along the riverfront. Usually the terrace had rooms below the main building opening onto the river, and stairs leading down to a landing. Its two ends were accentuated by towers. The charbagh component lay on the downward side. In this way the garden was turned toward the river, and the main pavilions enjoyed its cooling effect. The scheme presented a carefully composed front to those who saw the garden from, a boat or across the river; and from inside, the buildings provided a backdrop for the garden.



Canonical cross axial :
The Tomb of Humanyun
Delhi, 1562-71



Terraced : Shalimar gardens
Kashmir, 1620-34



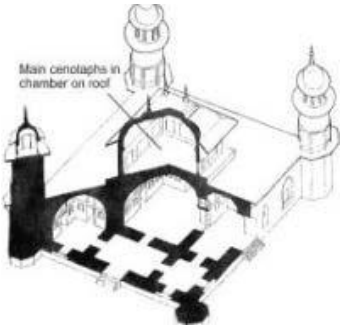
Waterfront :
Lal mahal,
Bari, 1637

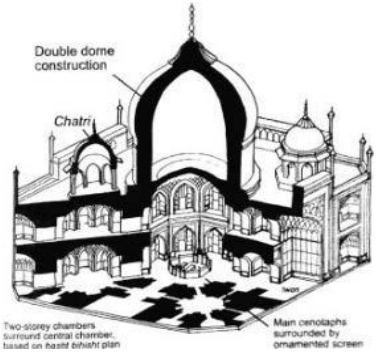
SIGNIFICANT ARCHITECTURAL FEATURES OF AGRA

WALLED FORTS - Forts and walled cities with lofty Bastions and Gates have been a symbol of power and reign throughout history. Agra holds two prominent walled palatial cities namely the Red Fort and Fatehpur Sikri.

COURTYARD AND HAVELIS - Fatehpur Sikri is one of the finest examples of climate responsive architecture. It features an irregular agglomeration of courtyards enclosed by more or less fragentary colonnades, of various groups of buildings, and of isolated structures.

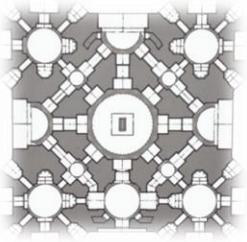
MASOLEUMS AND TOMBS
Mausoleums played a vital role in the Islamic culture, and therefore attention to detail was a crucial for these structures. Numerous mausoleums and tombs can be witnessed within the city which have survived the test of time.



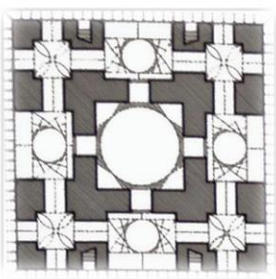


THE HASHT BIHISHT OR EIGHT PARADISES PAVILION

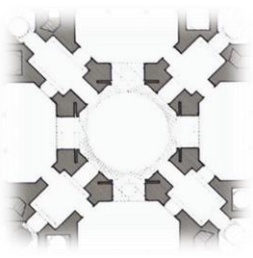
The hasht bihisht design consists typically of a square or a rectangle, with corners sometimes marked by towers but also sometimes chamfered so as to form an irregular octagon.



Plan of the Humayun tomb at Delhi : four radially planned hasht bihisht elements are con1bined in an overall hasht bihisht plan.



The basic hasht bihisht design : plan of the pavilion of Shah Quli Khan at Narnaul.

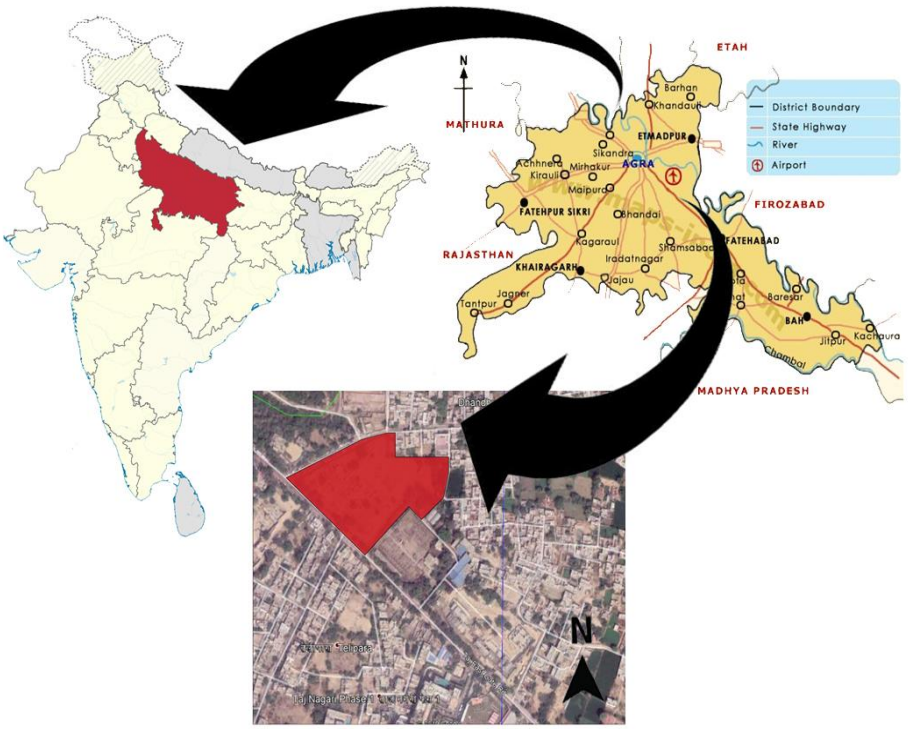


A radially planned hasht bihisht design: plan of Todar Nial's Baradari at Fatehpur Sikri.

SITE ANALYSIS

LOCATION OF THE SITE

- The site is located at a prime location, sharing two of its side with road, one of them with the main **24 m** Taj East gate road.
- The site is nearly 1.3km from Taj Mahal East gate.



APPROACH TO THE SITE

8 km from Agra cant Railway station
6.3 km from Agra fort Railway station

14 km from ISBT Bus Terminal, Agra

229 km from Indira Gandhi International Airport, Delhi

Agra fort Railway station

ISBT Bus Terminal, Agra

Indira Gandhi International Airport, Delhi

PHYSICAL STUDY ON SITE

- Site is surrounded by residential and commercial land.
- There is also 132KV Grid substation adjoining to the site.
- The Topography of the site is fairly plain.
- Area of the site is **7.65 Acre (30963.31 sq.m)**
- Coordinates - **27°09’52.34”N & 78°03’12.19”S**
- Latitude - **27.1660715 N**
- Longitude - **78.0550453 S**
- There are Neem and Peepal trees available at the site.
- Ground water level is 41.20mbgl (approx.).

Loam soil available on the site

Road and Footpath outside the site

132KV grid substation

Old ruined structure on the site

Neem tree located on the site

Hotel opposite to the site

SITE LOCALITY

Locality name - Tajnagri phase 1
Tehsil name - Tajganj
District - Agra
State - Uttar Pradesh
Language - हिन्दी, English, and Urdu

Tajganj Market In 1640

Tajganj Market In 2020

Tajganj is a small place located in center hub of Agra. This palace was a shopping district in the 1640s, but due to a decline in trade.

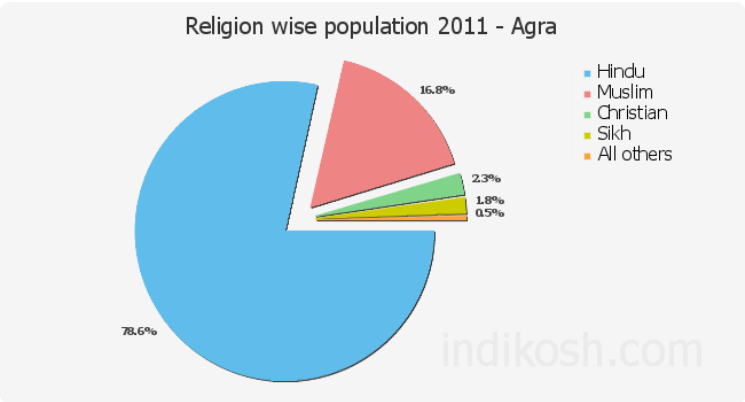
DEMOGRAPHICS

POPULATION

As of 2011 India census, Agra city has a population of 1,585,704, while the population of Agra cantonment is 53,053.

- The urban agglomeration of Agra has a population of 1,760,285.
- The district has a population density of 1,084 inhabitants per square kilometer.

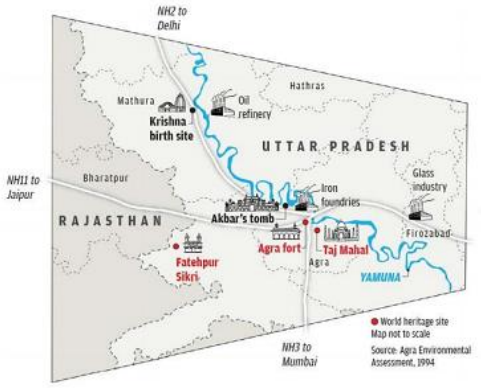
Agra City	Total	Male	Female
City Population	1,585,704	845,902	739,802
Children(0-6)	197,468	106,315	91,153
Average Literacy (%)	73.11 %	77.81 %	67.74 %



LITERACY RATE

Agra city has an average literacy rate of 73%. Literacy rate of males is considerably higher than that of women.

TAJ TRAPEZIUM ZONE

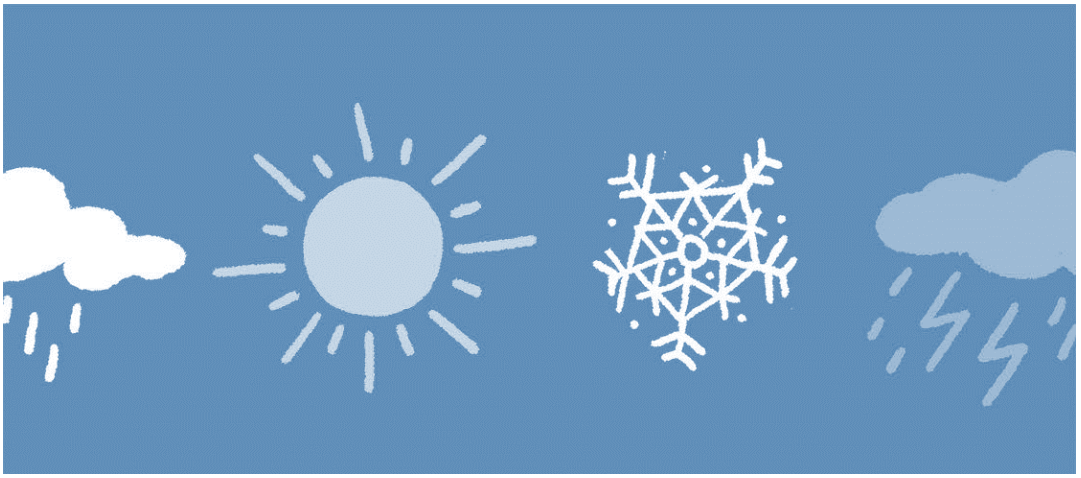


Taj Trapezium Zone (TTZ) is a defined area of 10,400 sq km around the Taj Mahal to protect the monument from pollution.
It is a major tourist destination most notably because of the Taj Mahal, Agra Fort and Fatehpur Sikri, all three of which are UNESCO World Heritage Sites.

THE GOLDEN TRIANGLE

Agra is included on the Golden Triangle tourist circuit, along with Delhi and Jaipur, and the Uttar Pradesh Heritage Arc, along Lucknow the capital of the state and Varanasi. Agra falls within the Braj cultural region.

CLIMATE ANALYSIS



GEOGRAPHY

Area : 188.4 sq. km**.**

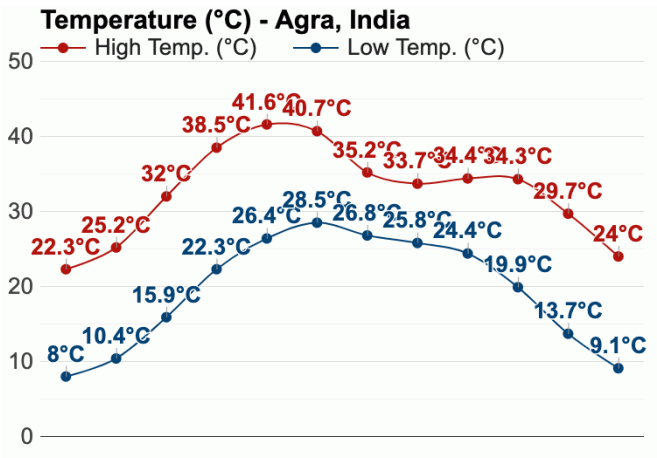
- Agra is situated on the bank of Yamuna River.
- Agra is located at about 370km distance from Lucknow, 200km from New Delhi, and about 50km from Mathura.
- On the east it is bounded by Firozabad District, and on the West its boundary are touched by Bharatpur.

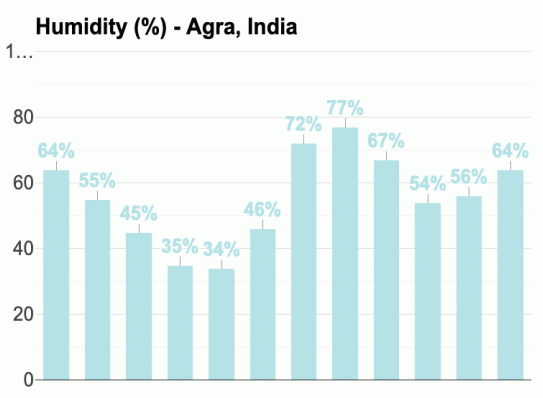
CLIMATE

- The climate of Agra is known as semi-arid one, which borders on a subtropical climate, along with humidity.
- The city is known for its mild winters, hot and dry summers and rainy monsoon.
- An average of 624mm is recorded the average rainfall during the month of June to September.

TEMPERATURE

- The warmest month (with the highest average high temperature) is **May** (41.6°C). The month with the lowest average high temperature is **January** (22.3°C).
- The month with the highest average low temperature is **June** (28.5°C). The coldest month (with the lowest average low temperature) is **January** (8°C).



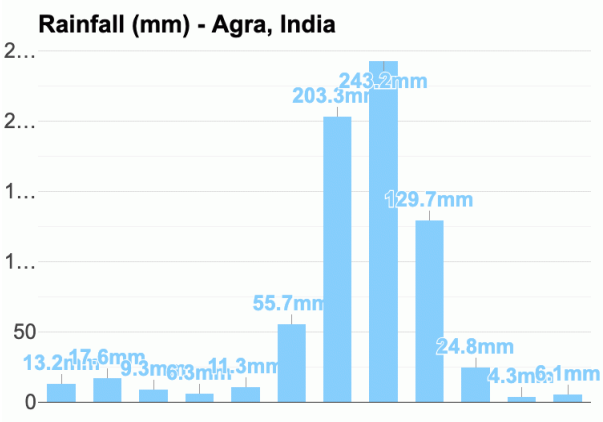


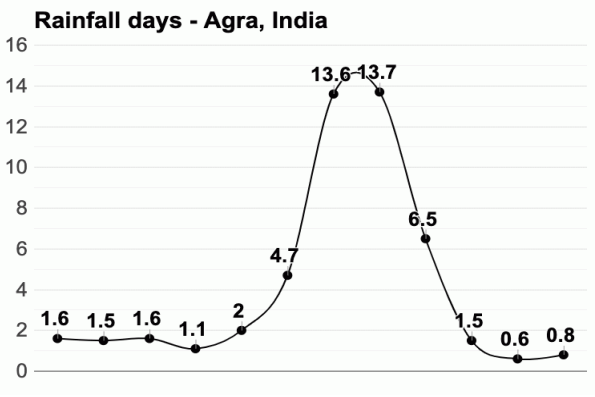
HUMIDITY

- The month with the highest relative humidity is **August** (77%).
- The month with the lowest relative humidity is **May** (34%).

RAINFALL

- The wettest month (with the highest rainfall) is **August** (243.2mm).
- The driest month (with the lowest rainfall) is **November** (4.3mm).



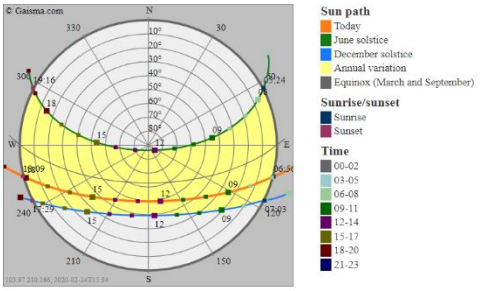


RAINFALL DAYS

- The month with the highest number of rainy days is **August** (13.7 days).
- The month with the lowest number of rainy days is **November** (0.6 days).

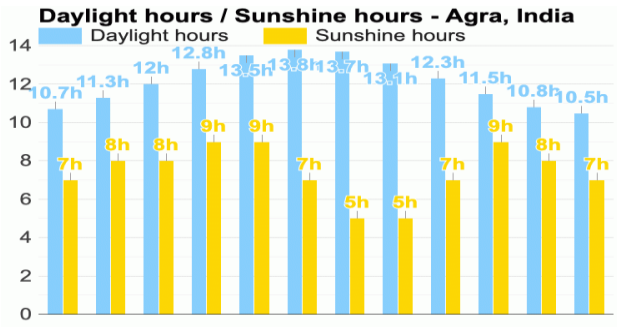
SUN PATH DIAGRAM

The solar altitude, and the solar azimuth, can be read directly for any date of the year and any hour of the day from the solar charts or **sun path** diagrams.

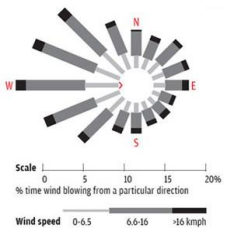


DAYLIGHT HOURS/SUNLIGHT HOURS

- The month with the longest days is **June** (Average daylight : 13.8h).
- The month with shortest days is **December** (Average daylight: 10.5h).
- Months with most sunshine are **April, May** and **October** (Average sunshine: 9h).
- Months with least sunshine are **July** and **August** (Average sunshine: 5).

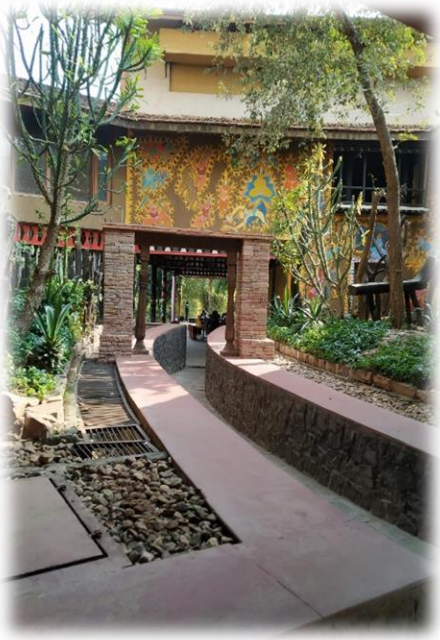


WIND ROSE CHART



In Agra, wind mostly blows from west to east. So, the zone has more buffer on the west of Taj.

CASE STUDIES



BHOPAL TRIBAL MUSEUM OF ART

- **Architect -** Revathi Kamath
- **Construction Year -** 2003 - 2013 (10 years)
- **Location -** Shyamla Hills Rd, Near State Museum, Shyamla Hills, Bhopal, Madhya Pradesh
- **Site Area -** 7 acre
- **Budget -** 3250 lakh
- **Land type use -** cultural and historical information
- **Footfall per day -** 600 (approx.)
- **Footfall on weekends -** more than 1500

INTRODUCTION

The Museum of Tribal Heritage at Bhopal was commissioned by the Government of MP in 2004. The Museum is designed to create a built fabric, which the tribal communities could identify. While the architecture of the museum is inspired by tribal rhythms, geometries, materials, forms, aesthetics and spatial consciousness, these, very qualities are now acting as points of inspiration for the display materials.

SITE LOCATION

The museum is built on a site of seven acres, the galleries are raised above the ground on columns, forming a continuous, multileveled veranda, following the contours of the sloping, rocky terrain of Shyamla Hills of Bhopal, Madhya Pradesh.

Latitude: 23° 14' 3.8868‘’ N
Longitude: 77° 23' 5.0712" E

CONNECTIVITY

8.0 km away from Bhopal Railway Junction

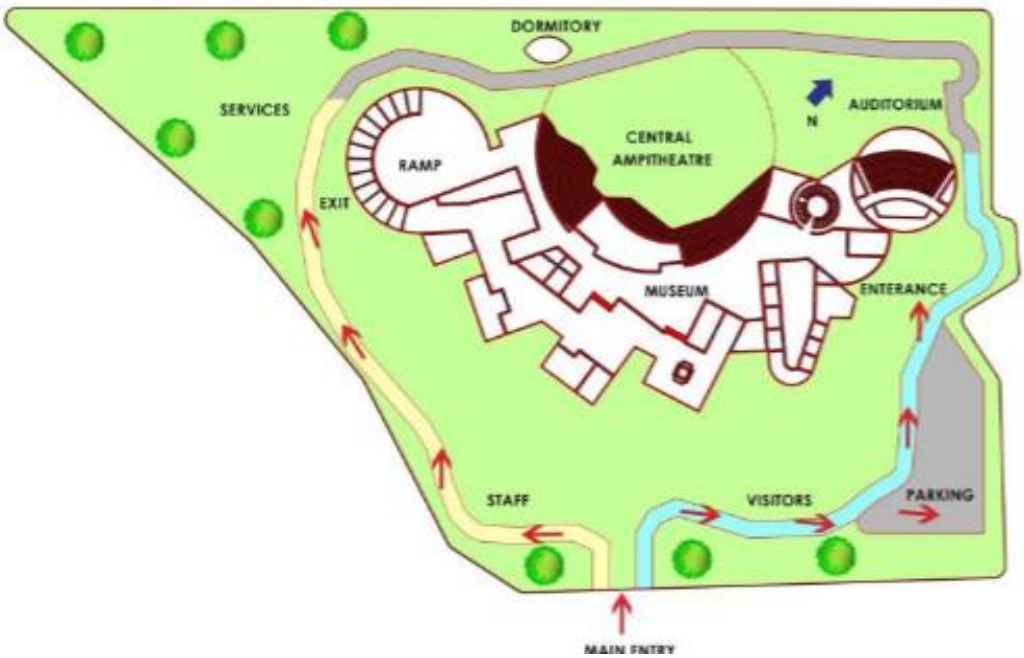
6.9 km away from Bhopal Bus Stand

14.2 km away from Raja Bhoj International Airport, Bhopal

CLIMATE

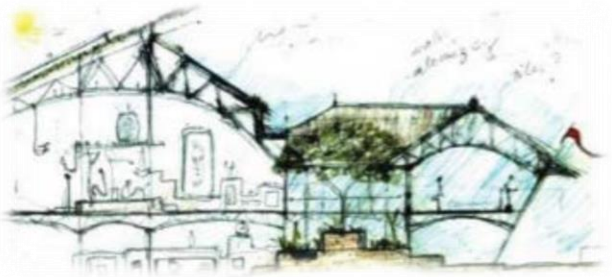
- Macro-Climate - Hot & Dry
- Average Temperature - 25.1 °C
- Maximum Temperature - 40. °C
- Minimum Temperature - 10.7 °C
- Annual Precipitation - 1132 mm
- Prevailing wind Direction - 12km/h South-West

SITE PLAN



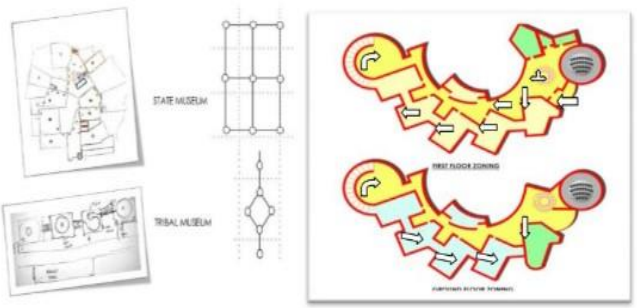
CONCEPT

The Museum is designed to create a built fabric which the tribal communities could identify with extend, and evolve, to represent them and express their own ideas and way of life with and spontaneity.



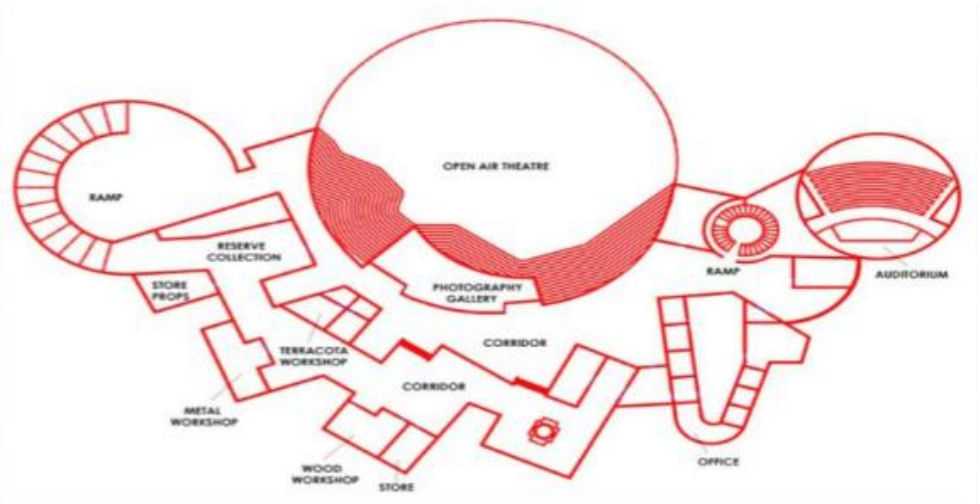
CIRCULATION PLAN

After entering the main museum circulation path has been defined to make visitors go to through the same passage and experience the whole museum. Special care has been taken for the movement of the physically challenged visitors.

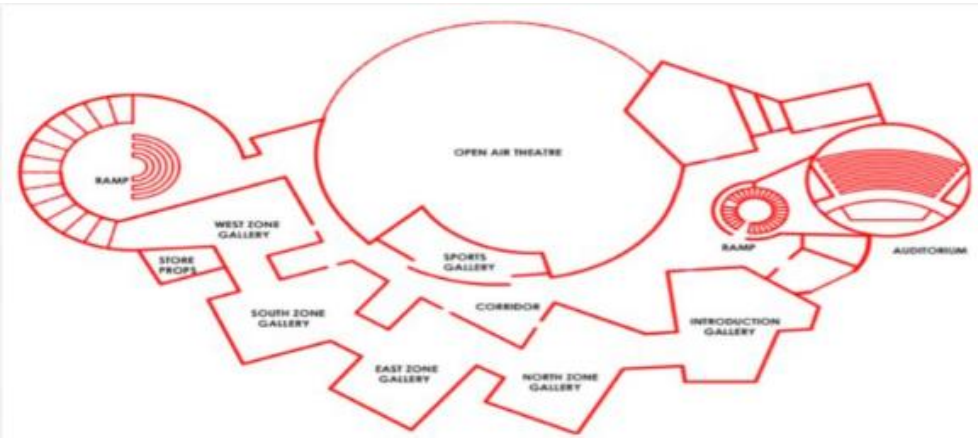


FLOOR PLANS

The main entrance, was at First floor and it connect Ground floor through ramps.

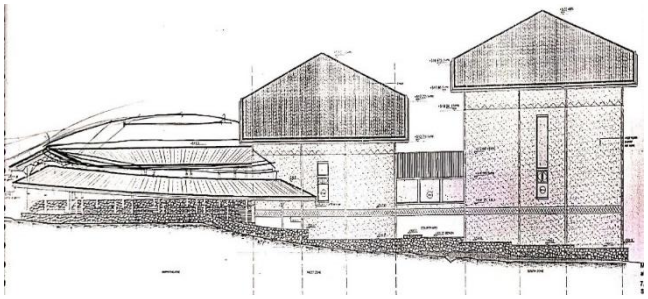


GROUND FLOOR PLAN



FIRST FLOOR PLAN

ELEVATIONS

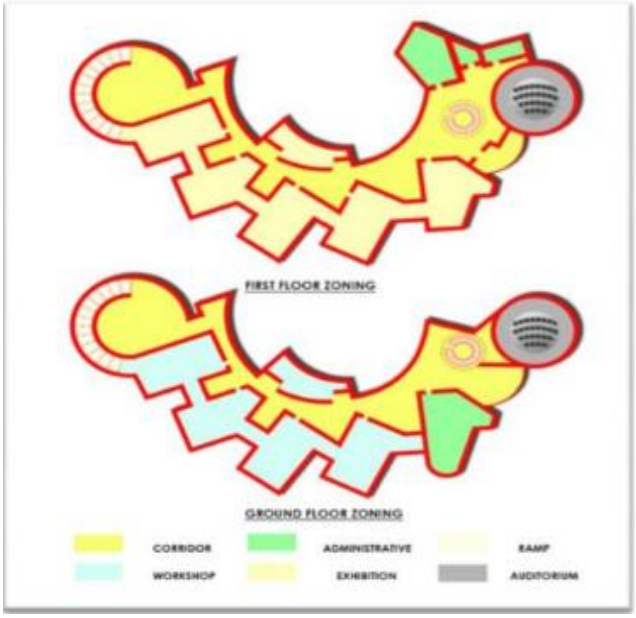


East Zone Gallery Internal Elevations

Front Elevation Of West And South Zone

ZONING

The museum is segregated between public and administrative spaces. Continuity of the spaces is maintained to integrate spaces throughout horizontal zoning. Administrative and workshop is placed at lower levels while public area like exhibitions galleries, auditorium and restaurants are placed at upper level in vertical zoning.



EXHIBITION GALLERIES

There are total 7 no. of exhibition galleries :

1. **Cultural Diversity -** Area (400 Sq.m.)
2. **Tribal Aesthetics -** Area (400 Sq.m.)
3. **Tribal Life -** Area (400 Sq.m.)
4. **Tribal Devlok -** Area (400 Sq.m.)
5. **Guest State -** Area (200 Sq.m.)
6. **Tribal Games -** Area (200 Sq.m.)
7. **Reserve Collection -** Area (100 Sq.m.)

Wall Decoration

Information Board

SERVICES

1. Maintenance
2. Janitor Room
3. Store Room
4. Housekeeping Center
5. High Tension Control Room
6. HVAC Room

AMENITIES

1. Restaurant
2. Museum Shop
3. Seminar Hall
4. Dormitory
5. Water Fountain
6. Toilets

Courtyard Planning

Entrance Gallery To Upper Level And Lower Level

Lower Level : Entrance To The Food Court →

← Central Courtyard

MATERIALS

STONES

WOOD FOR FURNITURE

CLAY FOR POTTERY

TERRACOTTA TILES FOR ROOF

PLASTER OF PARIS OF DECORATION

WOOD ROPE FOR DECORATE COLUMNS

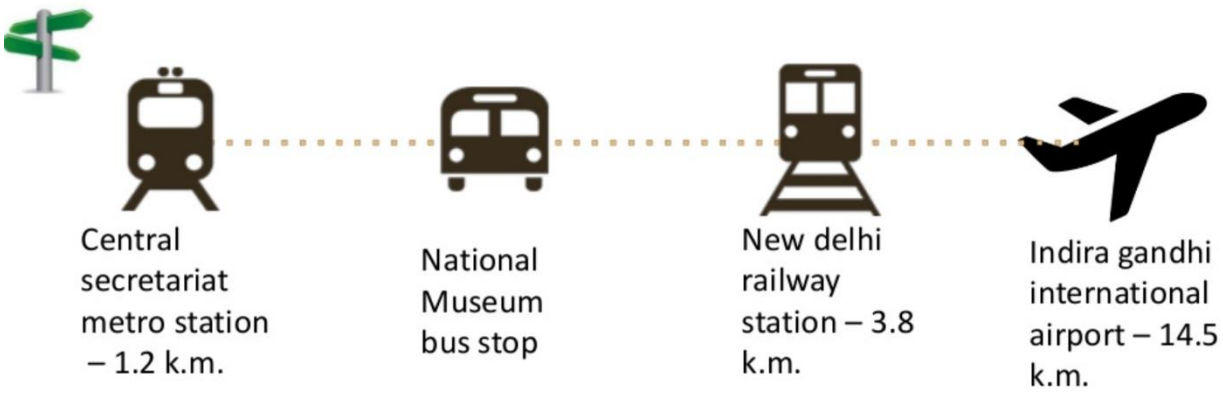
NATIONAL MUSEUM, DELHI

- **Architect -** Gywer committee
- **Established -** 15th August 1949
- **Location -** Janpath, New Delhi, India
- **Site Area -** 7.5 acres
- **Land type use -** cultural and historical information
- **Footfall per day -** (2500-3000) per day
- **Footfall on weekends -** more than 3000

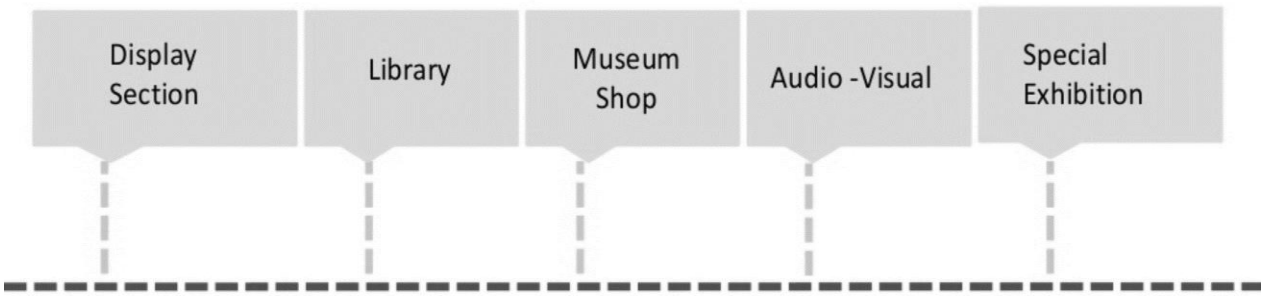
INTRODUCTION

The **National Museum** in New Delhi, also known as the **National Museum of India**, is one of the largest museums in India. It holds a variety of articles ranging from pre-historic era to modern works of art. The museum has around 200,000 works of art, both of Indian and foreign origin, covering over 5,000 years.

CONNECTIVITY

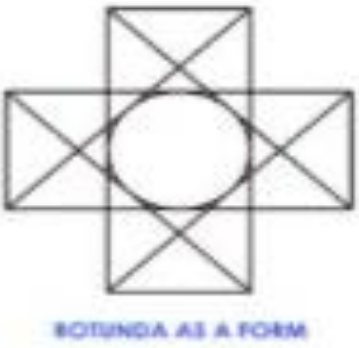


RESOURCES



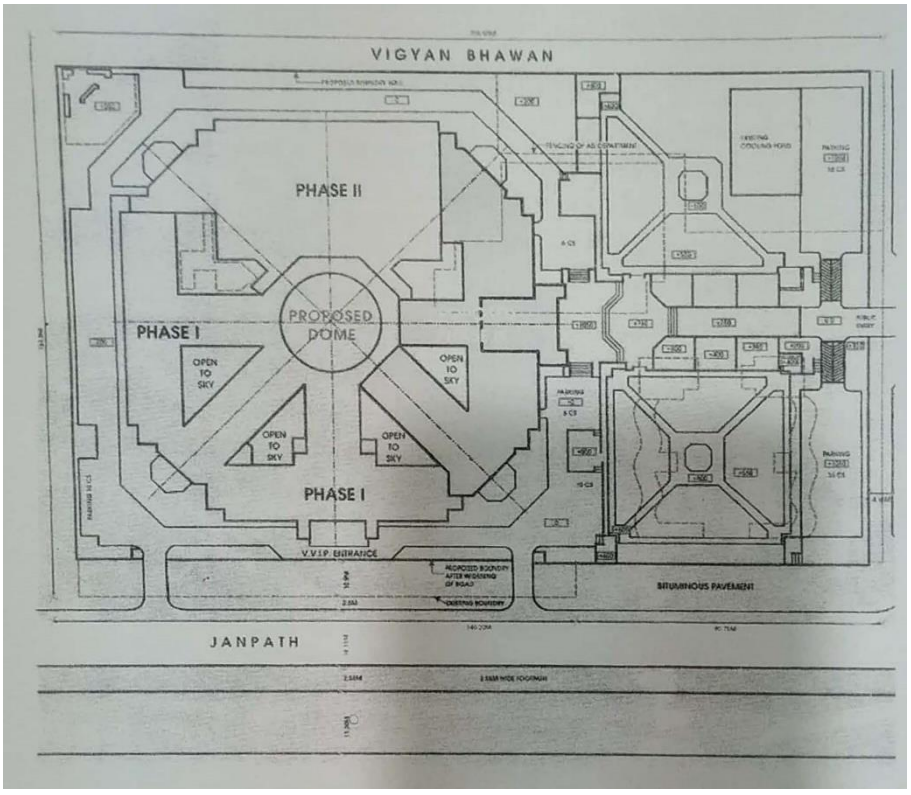
CONCEPT

Building was designed such that it merges with the site surrounding. Building comprises of four storied with a basement. Basic plan of the building is fan shaped with a circular courtyard in between surrounded by a covered Veranda. Wings are linked With the courtyard according to different requirements and need. Hence, one's find that after watching the exhibits one finds himself again in the same place from where he/she started.

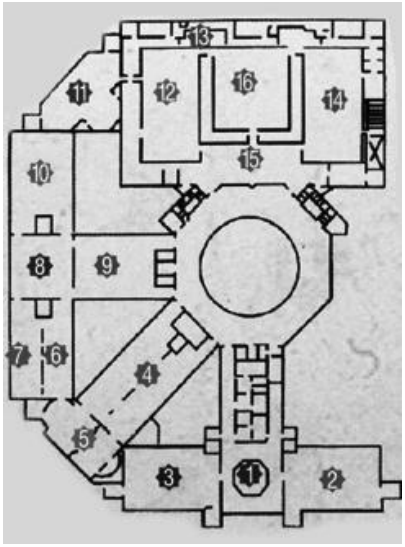


SITE PLAN

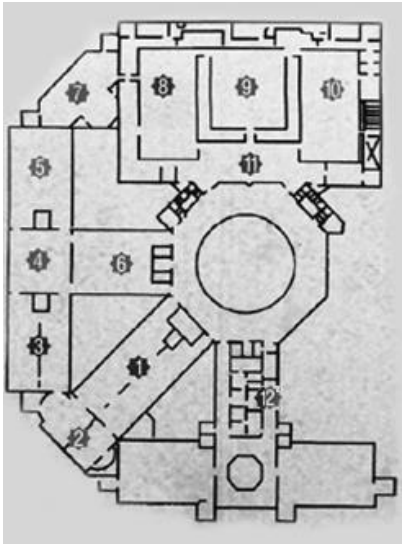
The site is not well designed as there is no segregation of spaces. There is no proper parking facility and the landscape area is not designed well. Parking facilities are provided at the adjacent building.



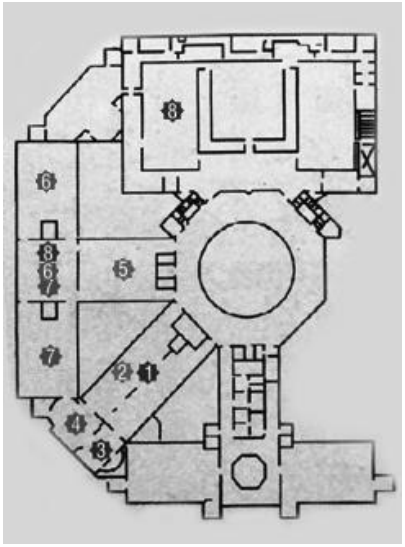
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



1.	**Entrance hall**	**9.**	**Bronzes**
2.	Library	10.	Late Medieval Art
3.	Auditorium	11.	Buddhist Art
4.	Harappan civilization	12.	Indian miniature paintings
5.	Maurya, Shunga and Satvahana art	13.	Transparencies of Indian Scripts and coins
6.	Kushan (Gandhara, Mathura & Ikshvaku Art)	14.	Decorative Arts 2
7.	Gupta Art	15.	Decorative Arts 1
8.	Gupta Terracotta & early Medieval Art	16.	Jewellery

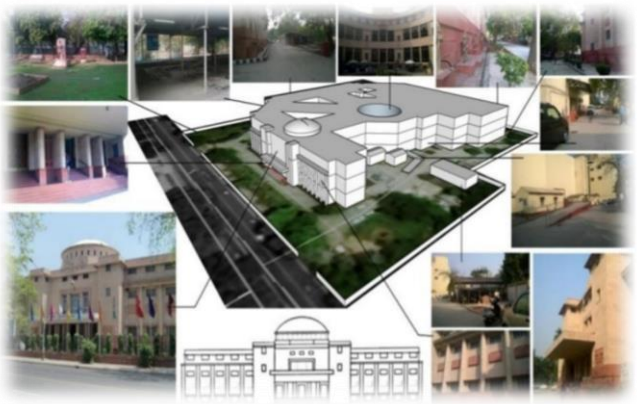
1.	**Special Exhibitions**	**7.**	**Thanjavur Paintings**
2.	Manuscripts	8.	Maritime Heritage
3.	Manuscripts	9.	National Museum Institute
4.	Central Asian Antiquities 2	10.	N.M.I &D.Gs Office
5.	Central Asian Antiquities 1	11.	Ajanta Paintings
6.	Coins	12.	Administrative office

1.	**Costumes and Textiles**	**5.**	**Tribal Lifestyles**
2.	Pre-Columbian & Western Arts	6.	Musical Instruments
3.	Costumes & Textiles	7.	Wood Carving
4.	Copper Plates	8.	Arms & Armour

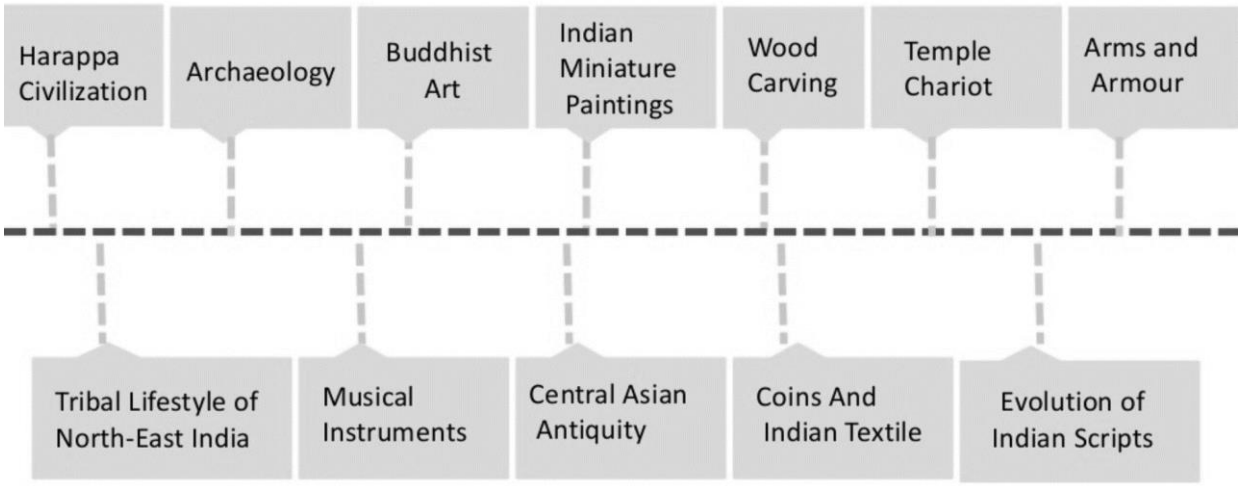
ELEVATIONS

SURROUNDINGS

1. **East -Vigyan Bhawan,**
2. **West-Jawaharlal Nehru Bhawan,**
3. **North -Rajpath Road South**
4. **Archaeological Survey Of India**



EXHIBITION GALLERIES



Harappan Civilization

Bronze Sculptures

Buddhist Art

Indian Scripts & Coins

SERVICES

1. Electrical Room
2. Projection Room
3. HVAC Room
4. Store Room
5. Staff Café
6. Toilets
7. Lifts
8. Ramp

LITERATURE STUDIES

MUSEUM OF ISLAMIC ARTS, DOHA, QATAR

INTRODUCTION

LOCATION: Doha Bay. Doha, Qatar
ARCHITECT : **I.M.Pei Architects**
YEAR: 2008
SIZE : 35,500 SQ.M.

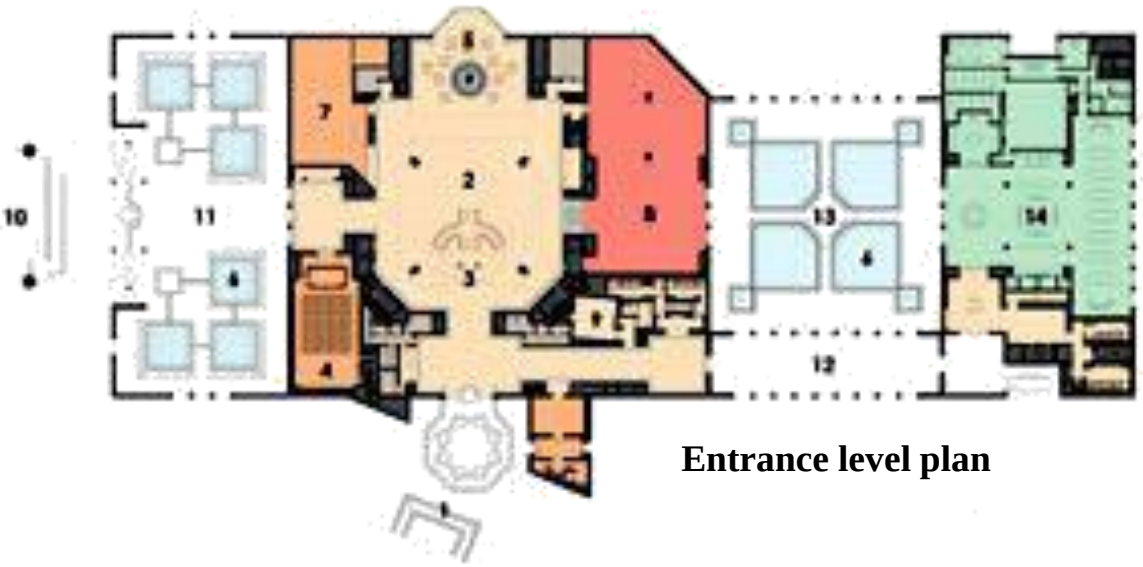
- The **Museum of Islamic Art** is a museum on one end of the seven-kilo meter-long (4.3 mi) corniche in Doha, Qatar. As per the architect I.M.Pie specifications, the museum is built on an island off an artificial projecting peninsula near the traditional dhow harbor.
- The Museum of Islamic Art is dedicated to reflecting the Full vitality, complexity and diversity of hears of the Islamic world. It is a world-class collecting insitution, which preserves, studies and exhibits masterpieces.
- The interior is no less spectacular. The centrepiece of the atrium is a curved double staircase leading up to the first floor. Above it floats an ornate circular metal chandelier echoing the curve of the staircase.
- Designed by Pritzker Prize-winning architect I.M. Pei, the 35500-square-foot Museum of Islamic Art in Doha Bay houses a collection of international masterpieces in galleries encircling a soaring,five-storey-high domed atrium.
- The Museum, an architectural icon 60m (195ft) off Doha's Corniche, rises from the sea and is connected to shore by two pedestrian bridges and a vehicular bridge.

The museum building has rapidly become an iconic feature of the Doha landscape. Standing alone on reclaimed land, the building draws much influence from ancient Islamic architecture, notably the **Ibn Tulun Mosque in Cairo.**

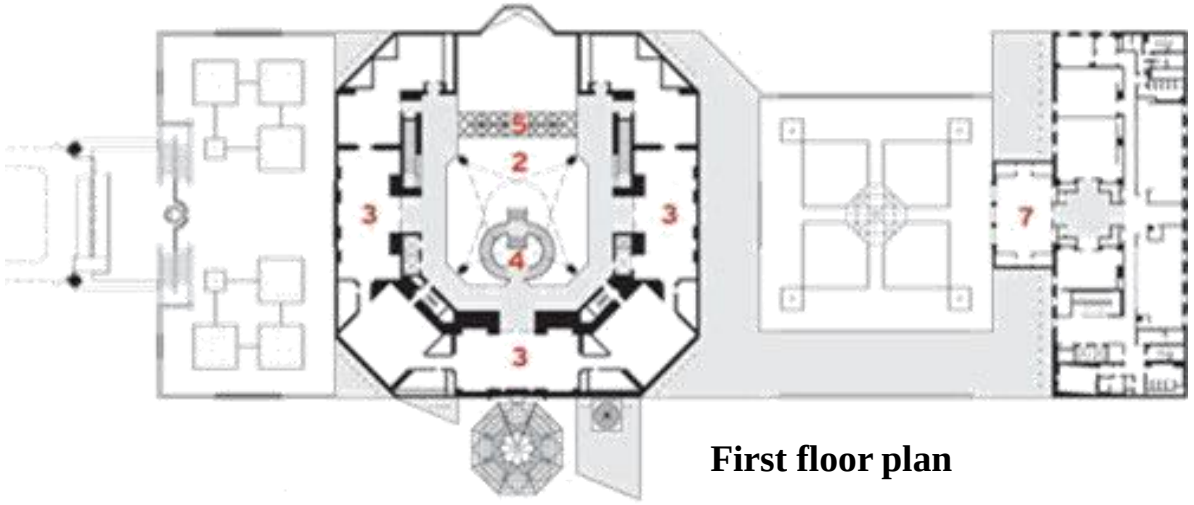
Designed by Pritzker Prize-winning architect I.M. Pei, the Museum is comprised of a main building with an adjacent education wing connected by a large central courtyard. The main building rises five-storeys, topped by a high domed atrium within a central tower.

CONCEPT

Its faceted exterior planes and the breadth and layout of its interiors speak of a modern architecture but also of the essence of Islam. From the last century the culture is what has promoted innovation in this part of the Gulf, and with the fusion of the work of the architect IM Pei and the French designer architect Jean Michel Wilmotte, a bridge has been built that crosses the centuries, linking the culture Islam material with art and architecture.



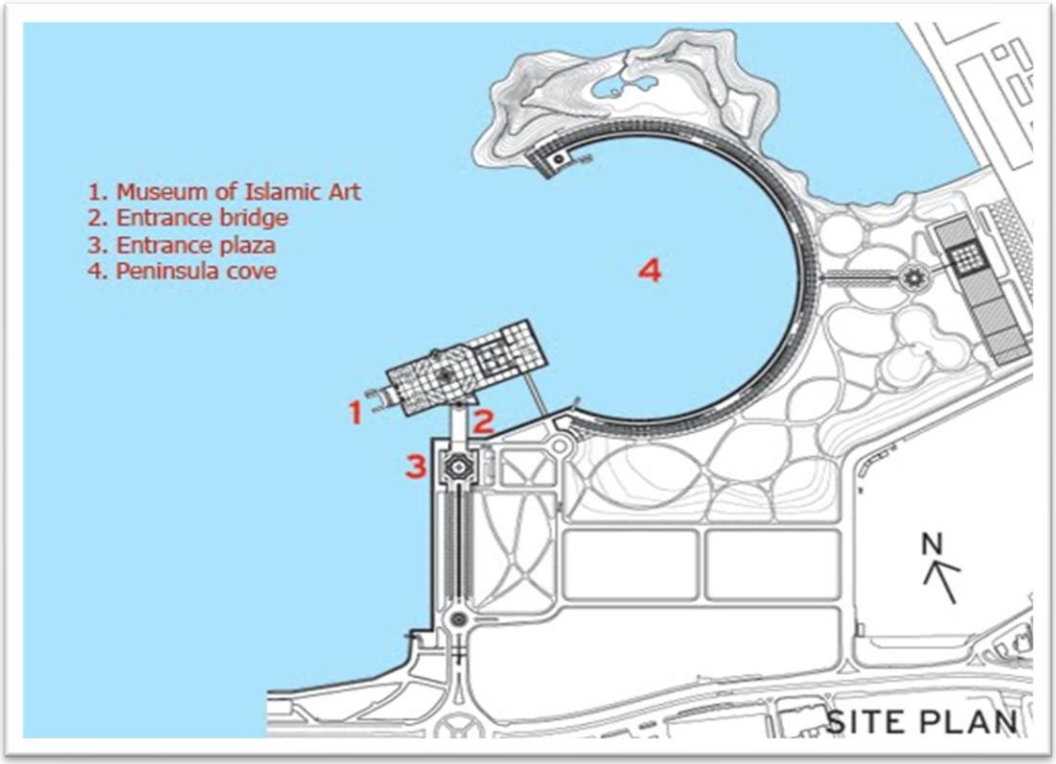
Entrance level plan



First floor plan

1	Entrance bridge	8	Auditorium
2	Atrium	9	Central Courtyard
3	Gallery	10	Arcade
4	Main Staircase	11	West Courtyard
5	Atrium Bridge	12	Office
6	Restaurant	13	Prayer Room
7	Education Wing	14	Boat Dock

SITE PLAN



LAYOUT

- The designer's success is attributed to three considerations: borrowing elements from the past ,integrating these elements in harmonious patterns and abstract forms at link past and present , and creating various social logic of space that ranges from pleasurable public space to intimate spatial setting.
- The building stands in the sea some 195 feet off Dom's Corniche. A park of approximately 64 acres of dunes and oases on the shoreline behind the museum offers shelter and a picturesque backdrop.
- The Museum is composed of two cream colored limestone buildings, a five-story main building and a two-story Education Wing, connected across a central courtyard.

AREA PROGRAM

The building has 35,500 sqm distributed as follows:

- 4.225 sqm exhibition space
- 3,100 sqm for permanent exhibitions
- 750 sqm for temporary exhibitions
- 375 sqm for study galleries
- ceremonial entrance and 280m bridge,

2.700 sqm educational wing:

- 820 sqm library
- 400 sqm conservation laboratory
- 1.800 sqm warehouse, 430 sqm auditorium
- 380 sqm bar-restaurant
- gift shop 300 sqm
- Museum parking 26 ha

Central Dome

HEIGHTS

- Highest point inside 50m outside 63m
- 45m glazed north facade
- Luminous pillars at the pier 30m.

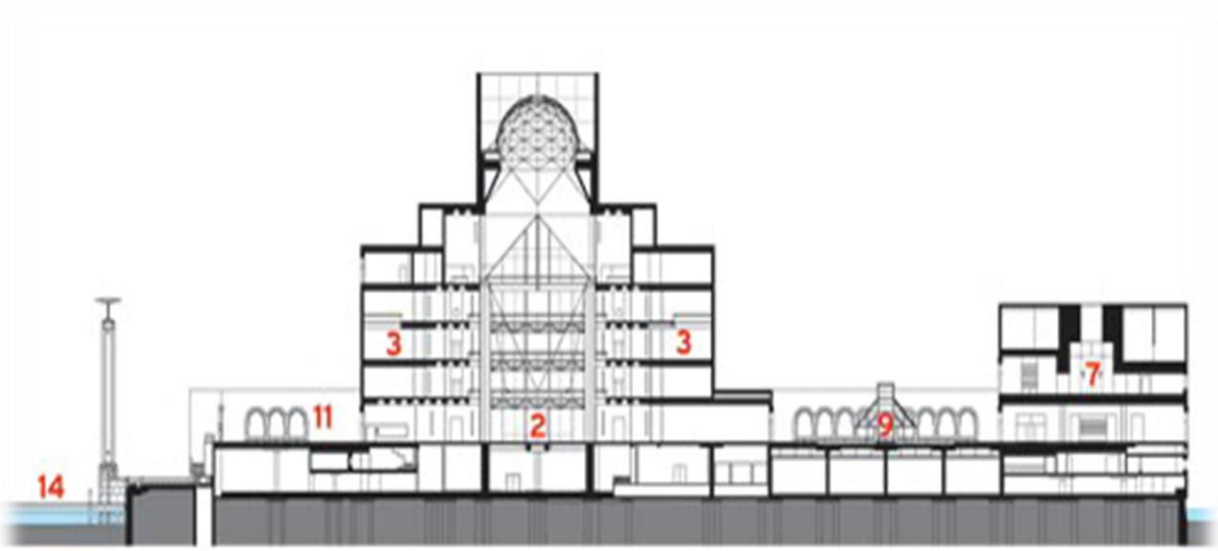
DESIGN DESCRIPTION

- A geometric matrix transforms the dome's descent from circle to octagon, to square, and finally to four triangular flaps, which angle back at different heights to become the atrium's columns.
- On the north side of the Museum a 45 meter tall glass curtain wall, the only major window, offers panoramic views of the Gulf and West Bay area of Doha from all five floors of the atrium.
- The treasures from the permanent collection are exhibited on two floors of galleries that encircle the atrium. The galleries feature dark grey porphyry stone and Louro Faya, a Brazilian lacewood that was brushed and treated to create a metallic appearance, which contrast with the light-colored stonework of the rest of the Museum.
- I remained faithful to the inspiration I had found in the Mosque of Ibn Tulun, derived from its austerity and simplicity. It was this essence that I attempted to bring forth in the desert sun of Doha.

Interior of the Education wing library

SECTION A-A'

- The Museum is composed of a 5-story main building and a 2- story education Wing, which are connected across a central courtyard.
- There exists a bilateral symmetry in the overall plan.
- The main building's angular volumes step back progressively as they rise around a 164-foot-high domed atrium, which is concealed from outside view by the walls of a central tower.
- A sheet of glass rinses to a height of 45m on the north side of the museum offering views of the gulf and west bay area of Doha from all 5 floors of the atrium.



Aerial - view looking From west to east

You can find out more about the architecture of the museum in the MIA Library and there are also several books available from the Museum Gift Shop.

THE BIHAR MUSEUM, PATNA, INDIA

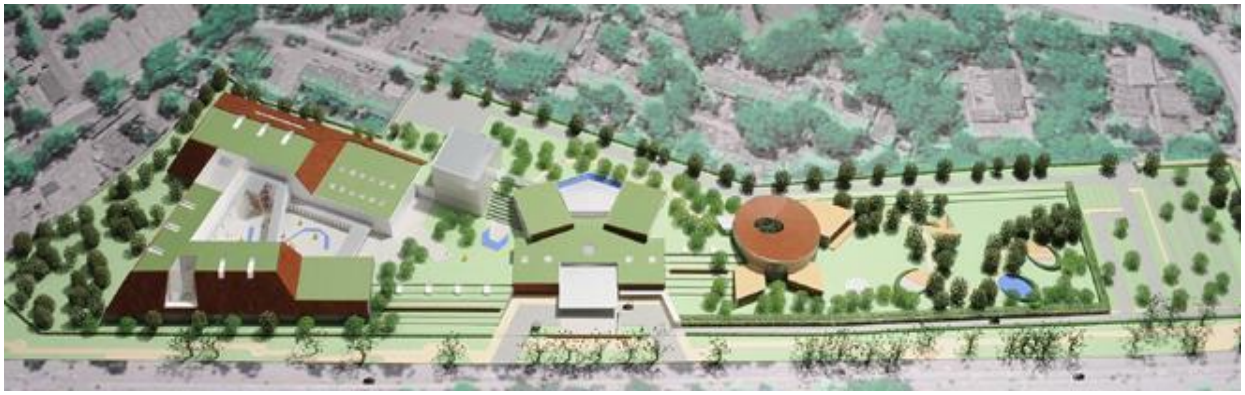
INTRODUCTION

LOCATION : Jawaharlal Nehru Marg, Bailey Rd, Patna, Bihar
ARCHITECT : Maki and Associates (Tokyo) in association with Opolis (Mumbai)
YEAR : 2017
SITE AREA : 53,480 SQ.M.
CLIENT : Department of Art, Culture, and Youth (DACY), Government of Bihar, India

ABOUT

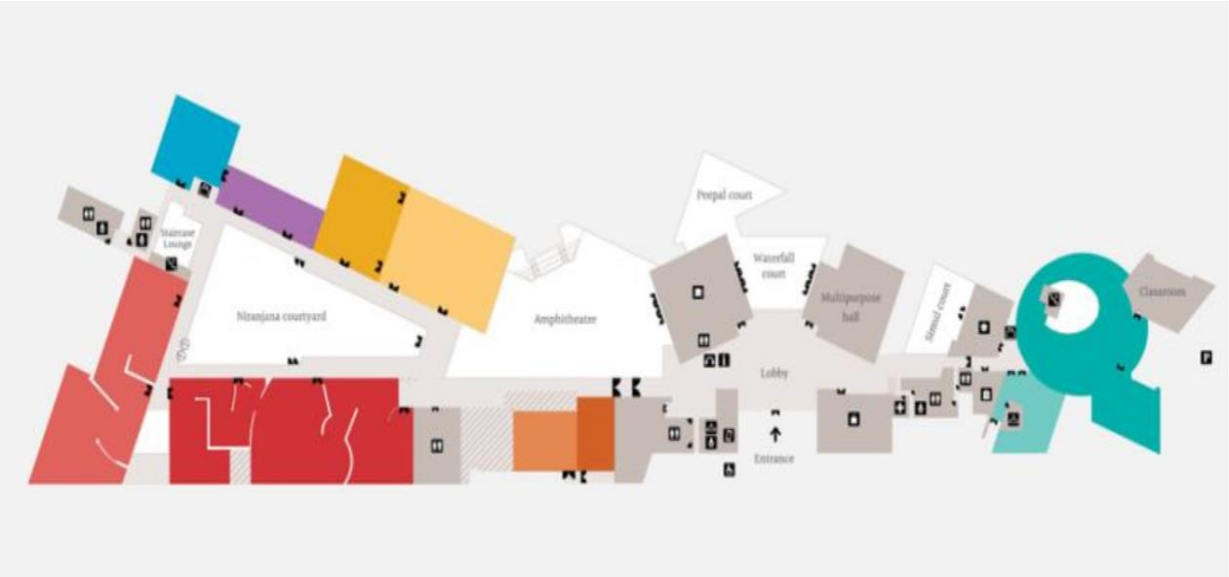
- Bihar museum is a modem state of the art museum located in Patna. It was partially opened in August, 2015. 'The children's museum', the main entrance area, and an orientation theatre were the only parts opened to the public in August 2015. Later, in October 2017 remaining galleries were also opened.
- More than 100 artefacts were transferred here from Patna museum.
- The generous 5.3 hectare plot along Patna's Bailey Road allowed for a variety of site planning approaches, while demanding sensitivity to its low-scale surroundings and prominent tree growth.
- In response to this context, Maki and Associates conceived the Bihar Museum as a 'campus" - an interconnected landscape of buildings and exterior spaces that maintains a modest but dynamic profile, in harmony with existing site conditions.

SITE PLAN



CIRCULATION PLAN

The circulation pattern was based on the history of Bihar, starting with Buddhism and Jainism followed by Mauryan and Gupta Empire to Sher Shah Suri and to the Colonial Past to exhibit the great history of Bihar to the Visitors.



CONCEPT

“The concept of the design is bridge to the past and gateway to the future”.

Each program zone (entrance / event, museum exhibition, administration, and children / educational) has been given a distinct presence and recognizable form within the complex. These zones are linked together via interior and exterior courtyards and corridors, ensuring that all spaces retain a connection to the surrounding landscape while remaining sheltered and comfortable throughout the year.

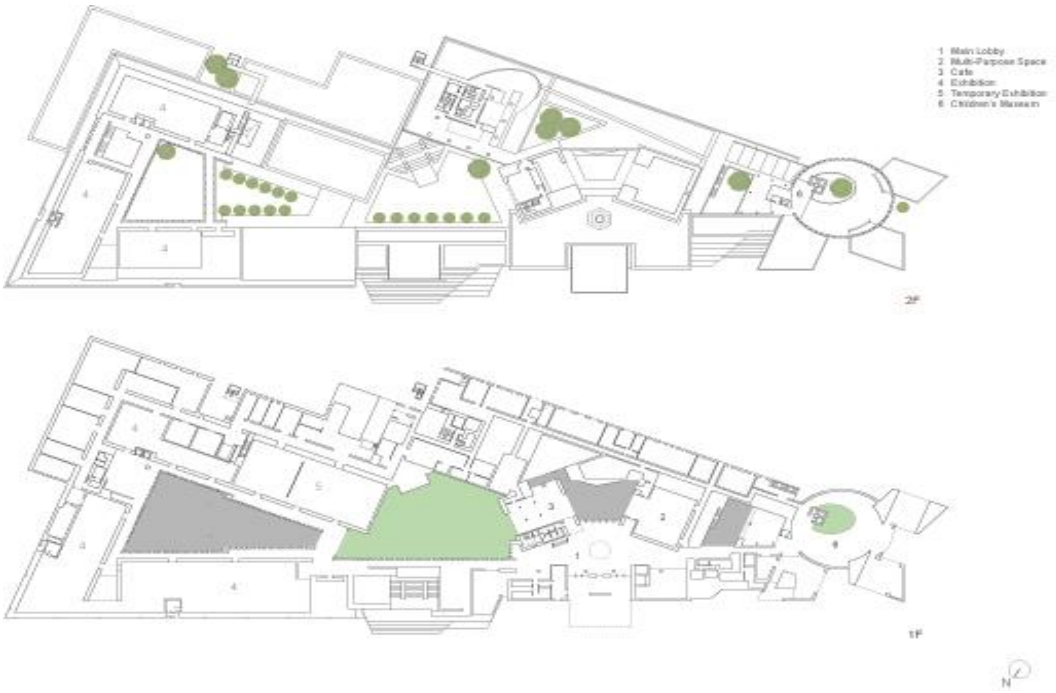
AIM

The design aimed to create:

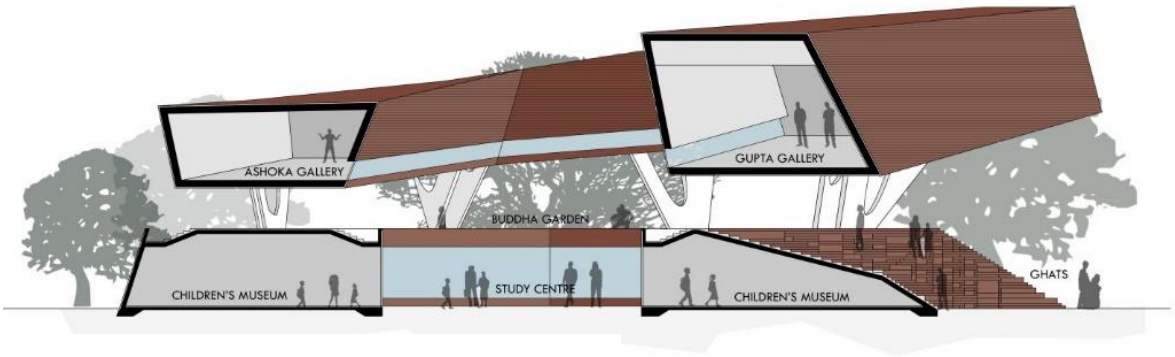
- The Museum as Expanse – a museum that reflects the many layers of Bihar's history.
- The Museum as journey – a museum that reflects the memories and epic scope of the Bihar region.
- Museum as Learning Landscape – a museum that reflects Bihar's educational needs.
- Museum as Symbol – a museum that reflects both India's past and future**.**

PLANNING OF MUSEUM

- Executive – Policy and strategy development and overall oversight.
- Administration, Finance and Facility Management Department– Policy and systems advisory, accounting, payroll, human resources/benefits management, staff training, facility management, maintenance and security.
- Exhibitions and Collections Department – Exhibition planning and development, utilization of collections
- Education and Public Programs Department -Public and educational programs, including curriculum planning.
- Marketing, Revenue Generation and Visitor Services Department – Marketing strategy and packaging opportunities, media purchasing, website management, visitor services.



SECTION



SECTION

Axonometric View

EXHIBITION GALLERY

Total no of exhibition galleries are 14 :

S.NO.	EXHIBITION GALLERY	AREA IN SQ.M.
1.	Bronze Sculpture Store	300
2.	Coins Vault	200
3.	Textile Gallery	300
4.	Miniature Gallery	300
5.	Manuscript Gallery	100
6.	Hindu Art Gallery	200
7.	Buddhist Art Gallery	400
8.	Jain Art Gallery	200
9.	Tribal Art Gallery	600
10.	Terracotta Gallery	300
11.	Children's Museum	600
12.	Pre Show Display	200
13.	Post Show Display	100
14.	Temporary Exhibition	1000

MATERIALS

- The Museum's exterior is characterized by extensive use of weathering steel(**Corten steel**), a durable material that complements its context and creates a dignified contrast to the surrounding greenery.
- It is supplemented with **stone, terracotta, and glass finishes** – a modern material palette with clear connections to Bihar's past and future.

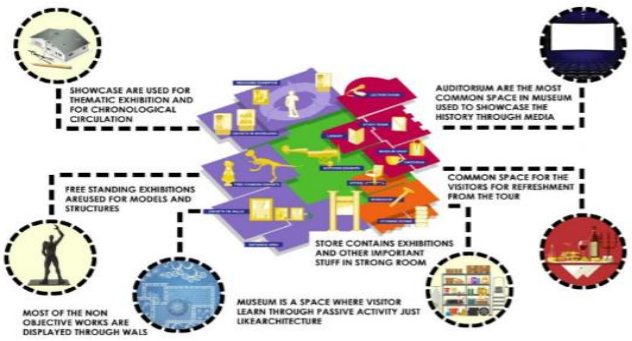
INFERENCES OF CASE STUDY AND LITERATURE STUDY

AREA COMPARITIVE CHART

S.NO.	SPACE	TRIBAL MUSEUM, BHOPAL	NATIONAL MUSEUM, DELHI	BIHAR MUSEUM, PATNA	MUSEUM OF ISLAMIC ART, DOHA	GUIDELINES
1.	ADMINISTRATIVE BLOCK Staff Office Director General's Chamber Curator Office Meeting Room Staff Rest Room Security Monitoring Room Server Room Staff Toilet (M/F) Staff Canteen	NO. OF UNITS IN SQ.M. 5 60 1 20 1 12 1 40 1 40 1 20 1 20 1/1 10 1 80	NO. OF UNITS IN SQ.M. 10 120 1 30 2 20 2 100 1 40 1 20 1 20 5/5 50 1 100	NO. OF UNITS IN SQ.M. 10 200 1 30 2 40 2 200 1 100 1 30 1 30 5/5 50 1 200	--	300-450 SQ.M.
2.	EXHIBITION GALLERY	Total no of galleries – 7 Total Area – 2100 SQ.M.	Total no of galleries – 26 Total Area – 8920 SQ.M.	Total no of galleries – 14 Total Area – 4800 SQ.M.	Total Area – 4225 SQ.M.	Depends on no. and size of artifacts
3.	WORKSHOP Wood Workshop Metal Workshop Terracotta Workshop Store Store Props	NO. OF UNITS IN SQ.M. 1 400 1 400 1 400 3 120 1 40	NO. OF UNITS IN SQ.M. 1 200 1 200 1 200 3 120 1 80	NO. OF UNITS IN SQ.M. 1 200 1 200 1 200 1 200 1 100	Total Area - 1800 SQ.M.	40-65% of Exhibition area
4.	AUDITORIUM	Area – 340 SQ.M. Projector room – 20 SQ.M. Green room – 20 SQ.M.	Area – 500 SQ.M. Projector room – 20 SQ.M. Green room – 30 SQ.M.	Area – 300 SQ.M. Projector room – 20 SQ.M. Green room – 30 SQ.M.	Total Area – 430 SQ.M.	0.9 SQ.M. for 1 person
5.	LIBRARY	Area – 120 SQ.M. Librarian's office – 12 SQ.M. Cyber room – 12 SQ.M.	Area - 200 SQ.M. Librarian's office – 20 SQ.M. Cyber room – 30 SQ.M.	Area - 300 SQ.M. Librarian's office – 20 SQ.M. Cyber room – 30 SQ.M.	Total Area – 820 SQ.M.	0.75 SQ.M. for 1 person
6.	AMENITIES Restaurant Museum Shop Seminar Hall Dormitory Water Fountain Toilet (M/F)	NO. OF UNITS IN SQ.M. 1 200 1 100 1 200 5 50 5 10 5/5 25	NO. OF UNITS IN SQ.M. 1 250 1 100 1 200 - - - - 10/10 50	NO. OF UNITS IN SQ.M. 1 250 2 200 1 200 - - - - 10/10 50	EDUCATION WING Total Area – 2700 SQ.M. RESTAURANT Total Area – 380 SQ.M.	Depends on amenities provided
7.	SERVICES Maintenance Janitor Room Store Housekeeping Center High Tension Control Room HVAC Room	NO. OF UNITS IN SQ.M. 1 50 1 20 5 100 1 20 1 200 1 200	NO. OF UNITS IN SQ.M. 1 50 1 20 5 100 1 20 1 200 1 200	NO. OF UNITS IN SQ.M. 1 100 1 50 1 200 1 100 1 200 1 200	--	500-750 SQ.M.

COMPONENTS OF MUSEUM

Activating the complex with public leisure functions. Treating the main edge as the public edge inviting tourists as well as local residents to visit again and again. The museum is not intended to be only an attraction for the tourists who are not residents of the city.



GUIDELINES

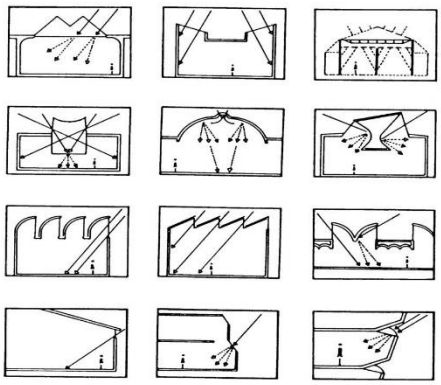
LIGHTNING

LIGHTING-:

- In a museum lighting determines how we feel and how we perceive things.
- PHYSIOLOGICALLY: the lighting must highlight the object on display.
- It must create the right ambience.
- Lighting in a building can be of two kinds: Natural or Day lighting and Artificial lighting.

NATURAL LIGHTING:

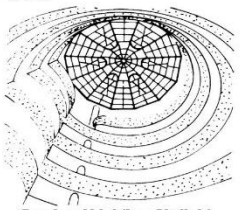
- Daylight is rarely satisfactory for exhibits as it is too far temperate in cold countries and far too brilliant in tropical countries.
- Daylight has daily and seasonal changes with unpredictable patterns depending on cloud cover, atmospheric pollutions and other climatic variations.
- Daylight can only be successful in illuminating large areas to stimulate natural external conditions.
- However some exhibits need natural daylight like plants, large engineering exhibits and most sculptures.
- Natural lighting could be of two kinds: Overhead Lighting and Lateral Lighting
- Lateral Lighting is provided by the windows
- Overhead lighting is mostly used in museums.



Various Types of Overhead Lighting

OVERHEAD LIGHTING-

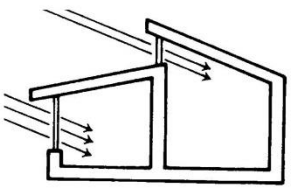
- It provides a steady source of light which least liable to be affected by lateral obstacles.
- Wall space is as a result left free for display and exhibits.
- However maintenance is a problem.
- This type is also difficult to inculcate in multistory.

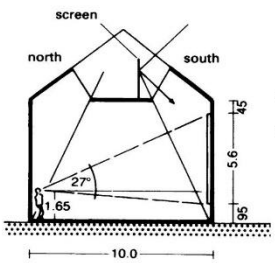


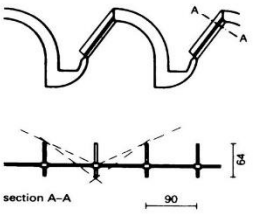
Overhead Lighting- Skylight

LATERAL LIGHTING-

▪It is provided either by windows of various shapes and sizes placed at suitable intervals in the walls or by continuous openings
▪They provide a convenient and economical method of regulating ventilation and temperature.
▪Acts as an excellent relief by providing pleasant views of the outside natural environment.
▪However it also causes glare and reflections which impedes the visibility and decreases flexibility of interior layout.







Typical cross-section, northern light, 53° glazing

LIGHTING REQUIREMENTS:-

EXHIBITIONAREA	100-200	LUX
FOYERS	150	LUX
OFFICES	300	LUX
PARKING	50	LUX
RESTAURANT	100	LUX
TOILETS	100	LUX

AVERAGE SIGHTLINES

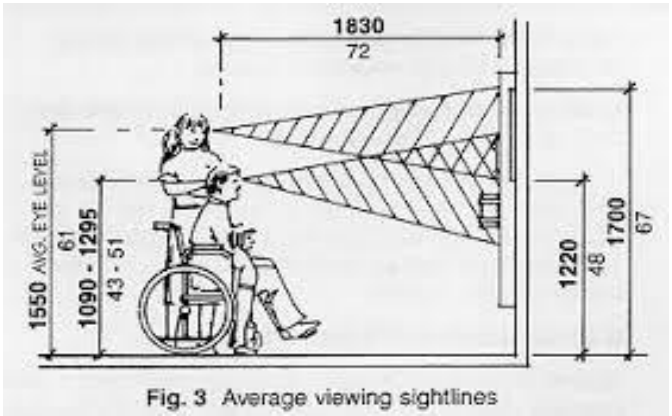
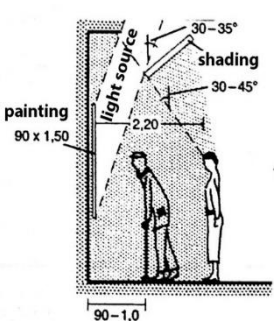
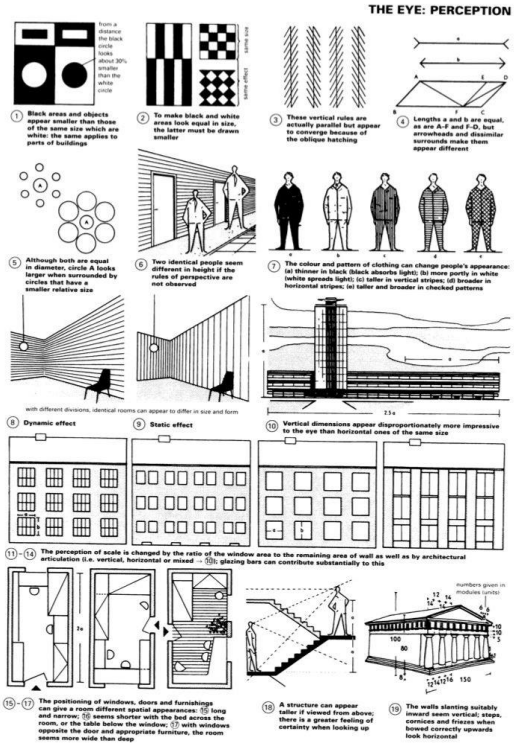


Fig. 3 Average viewing sightlines

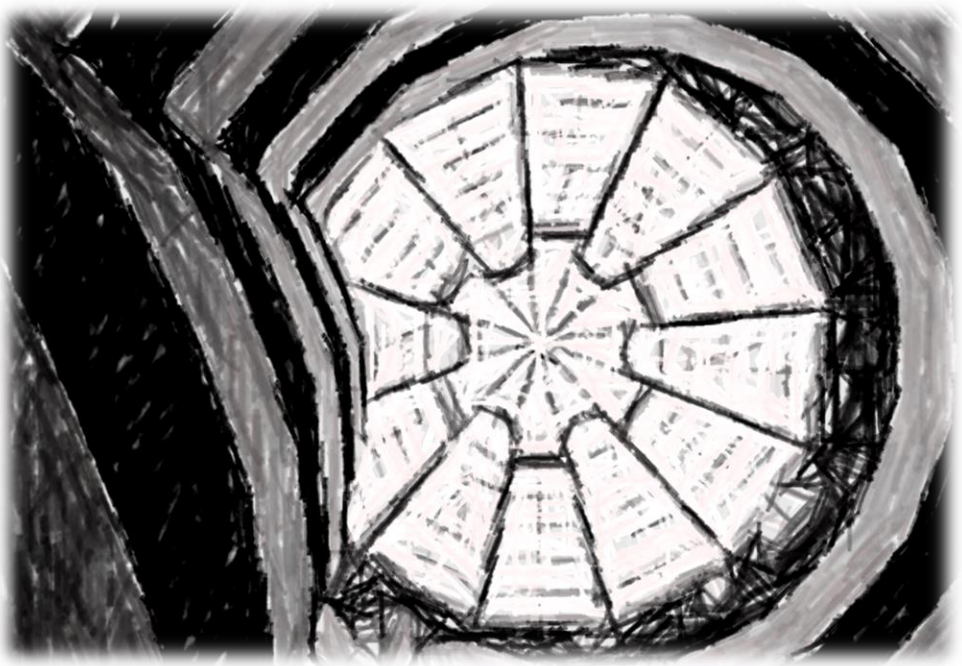


EYE ANGLE

EYE PERCEPTION



CONCEPT



CONCEPT EVOLUTION

MODERN ARCHITECTURE + SYMBOLIC ELEMENT OF MUGHAL ARCHITECTURE = CONCEPT EVOLUTION OF MUGHAL MUSEUM

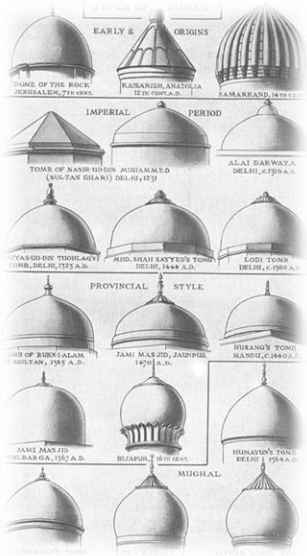
Modern architecture, or **modernist architecture**, was based upon new and innovative technologies of construction.
Particularly modern architecture was based on the use of the materials are :

1. **Glass,**
2. **Steel, and**
3. **Reinforced concrete**



Elements Of Mughal Architecture, are important part of concept evolution as by providing symbolic element of this period, the design can relate with it.
Symbolic elements are :

1. **Dome,**
2. **Mughal gardens,**
3. **Carvings, and**
4. **Water channels**

IDEA OF MODERN ARCHITECTURE

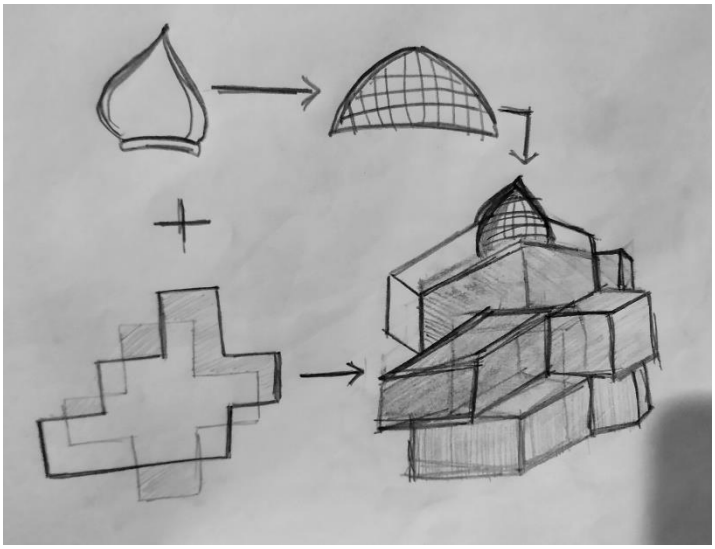
Idea came from form should follow function or functionalism an embrace of minimalism and a rejection of ornament. Modern architecture emerged at the end of the 19th century from revolutions in technology, engineering and building materials, and from a desire to break away from historical architectural styles and to invent something that was purely functional and new.

PAST + PRESENT + FUTURE

The design is an attempt to showcase the heritage of the city, historical as well as contemporary not merely represented by the Taj mahal. And hence the design is more inclined towards the abstraction and interpretation of the heritage which reflects both the past and the present.

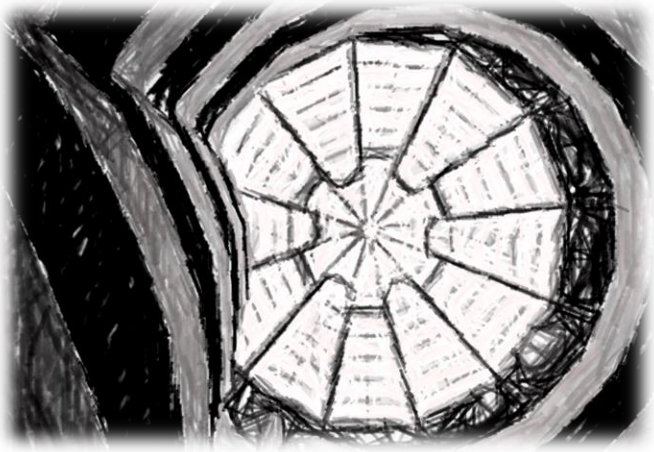
FORM EVOLUTION

ADDITION & SUBTRACTION OF GEOMATRIC SHAPES + ASYMMETRIC FORM WITH PERCEPTION OF SYMMETRIC VIEW

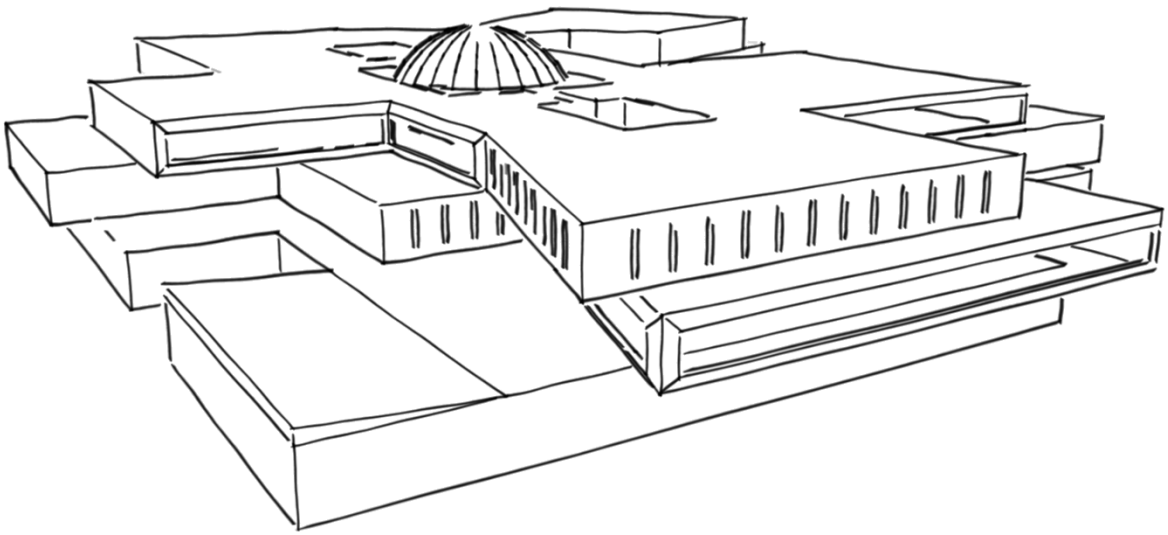


FINAL EVOLUTION OF DOME

As I am representing the modern architecture as my concept so I also need to evolve the old method of dome by the addition of modern materials.



FINAL EVOLUTION OF SHAPE



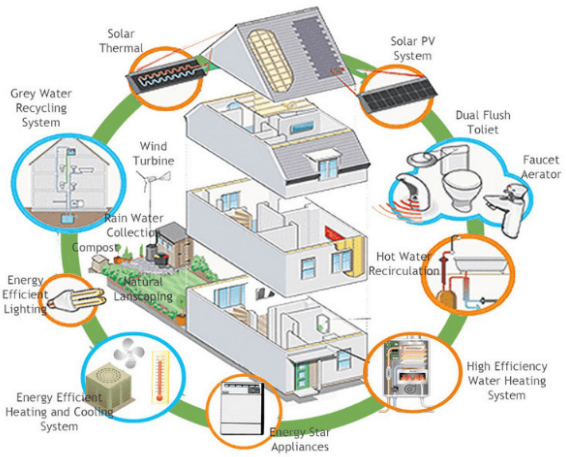
MATERIALS AND TECHNIQUES

ENERGY EFFICIENT BUILDING

Energy saving or energy efficiency in building is a method to design buildings by taking the advantage of natural resources and innovative use of passive solar techniques. Mainly these buildings have high performing controlled ventilation, high efficient heating, lightning, and cooling systems.

STRATEGIES TO REDUCE ENERGY

- Landscaping
- Ratio of built and open spaces
- Orientation
- Location of water bodies
- Building envelop
- Controlled ventilation
- Energy efficient doors and windows

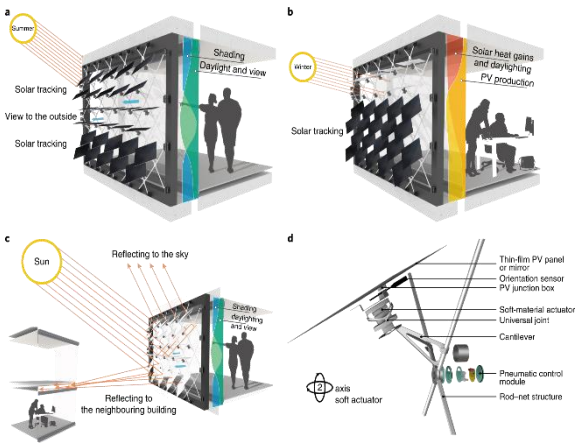


FILLER SLABS

Filler slab is alternative slab construction technology where part of concrete in bottom of slab is replaced by filler material. The portion of concrete is replaced by low cost, light weight filler material (like Mangalore tile, clay Pots, etc.). Due to reduced concrete, self weight of the slab is reduced and thus about 40% less steel is required, without compromising strength of the slab. This technology was used by Architect Lauri Baker in Kerala extensively.

DAY LIGHTING PV PANELS

Natural light is one of the key ways of saving energy. Daylighting minimizes the amount of artificial light and reduces electricity and HVAC (heating, ventilation, and air conditioning) costs. Making use of natural light can save up to 75 percent of the energy used for lighting buildings and reduce cooling costs.



TERRACE GARDEN

Reduce indoor temperature by 6- 8 degree and can reduce air conditioning cost Reduce overall heat absorption of buildings and insulate the building against heat and cold. And also gives aesthetic and pleasant view to our building.

PROVIDING RAMP AT THE CENTER

Creates more enthusiastic effect and also barrier free architecture.

3-D PAINTINGS ON THE WALL INSIDE

It reduces the building interior cost and gives more realistic view.

TANGIBLE + INTAGIBLE SPACE

The project aims at articulation and translation of tangible and intangible aspects of the heritage of the city of Agra as a successful tourist friendly and attractive.

BALANCED RESPONSE

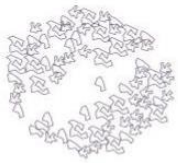
The architecture responds to the historical monuments of the city but at the same time creates a balance between the heritage and contemporary.

SKILL DEVELOPMENT

This could be a hub for skill development and live demonstration of techniques and skills associated with objects displayed via different modes.

ELECTIVE

LANDSCAPE



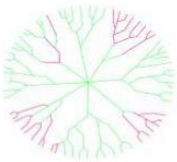
BOTANICAL NAME	**Anthocephallus cadamba**
COMMON NAME	KADAMB
CATEGORY	TREE
HEIGHT	12M
SPREAD	12M
FLOWERING SEASON	JUN-SEP
COLOUR OF FLOWER	ORANGE
FRAGRANCE	YES
LIGHT REQUIREMENT	SUN GROWING, SEMI SHADE

DESCRIPTION

- Indigenous to the warmer parts of India.
- It grows to 1 5-20 m tall.
- Branches are horizontal, leaves large, shining, opposite, elliptic, oblong.
- Large deciduo us tree.
- Golden balls of yellow flowers are borne in rounded

SPECIAL CHARACTER

- Indigenous (native to India)
- Fragrant flowers or leaves
- Attracts butterflies and bees
- Recommended for creating shade
- Quick growing trees
- Good on seaside



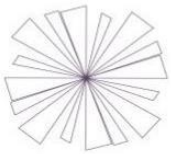
BOTANICAL NAME	**Cassia fistula**
COMMON NAME	AMALTAS
TYPE	DECIDUOUS /SMALL TO MED SIZED
HEIGHT	8M - 12M
SPREAD	6M - 8M
FLOWERING SEASON	SCENTED FLOWERS APPEAR THROUGHOUT YEAR
COLOUR OF FLOWER	YELLOW
FRAGRANCE	-
LIGHT REQUIREMENT	FULL SUN, SEMI SHADE

SPECIAL CHARACTER

- Indigenous (native to India)
- Auspicious or Feng Shui plant
- Attracts birds,butterflies,bees
- Suitable for road median planting
- Suitable for avenue planting
- Hanging or weeping growth habit
- Salt or salinity tolerant

DESCRIPTION

- Leaves large 40cm long.
- Flowers yellow on pendulous bunches 40-50cm long.
- New leaves appear in May .
- The timber is durable and is used for house posts, agricuitural implements and tool handles.



BOTANICAL NAME	**Bahunia Purpuria**
COMMON NAME	Purple Bahunia
TYPE	DECIDUOUS /SMALL TO MED SIZED
HEIGHT	8M - 12M
SPREAD	6M - 8M
FLOWERING SEASON	JAN-MAR, OCT-DEC
COLOUR OF FLOWER	PURPLE
FRAGRANCE	YES
LIGHT REQUIREMENT	SUN GROWING

SPECIAL CHARTACTER

- Fragrant flowers or leaves
- Plant for puja or prayerflower or leaves
- Attracts birds,butterflies,bees
- Recommended for creating shade
- Quick growing trees
- Must have for Farm house or big gardens

DESCRIPTION

- Undoubtedly the most beautiful flowering tree in its genus.
- Leaves are large and le athery.
- Flowers in terminal clusters from October to March.
- Flowers profusely in sunny locations, lesser in shaded areas.
- The canopy is sparse with many long hanging branches.

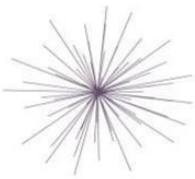
BOTANICAL NAME	**Deonix Regia**
COMMON NAME	Gulmohar
TYPE	EVERGREEN TREE
HEIGHT	8M - 12M
SPREAD	8M - 12M
FLOWERING SEASON	JAN-MAR, AUG-DEC
COLOUR OF FLOWER	RED
FRAGRANCE	-
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER

- Rare Plant or difficult to get plant
- Attracts bees
- Animals will not eat
- Recommended for creating shade
- Quick growing trees
- Suitable for avenue planting

DESCRIPTION

- Leaves are 6-20 cm long.
- Can tolerate heat and grows well in dry climatic zones. Suitable for growing in drought prone areas.
- It is a fine flowering tree rarely seen in India.
- Soil should be well drained. Fertility can be variable.
- Excellent tree for large gardens, parks and public spaces.



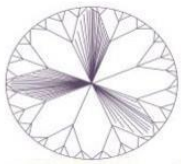
BOTANICAL NAME	**Callistemon Lanceolatis**
COMMON NAME	THE BOTTLE BRUSH TREE
TYPE	EVERGREEN TREE
HEIGHT	12M
SPREAD	8 M - 12M
FLOWERING SEASON	FLOWER THROUGHOUT THE YEAR
COLOUR OF FLOWER	BRIGHT RED
FRAGRANCE	-
LIGHT REQUIREMENT	FULL SUN, SEMI SHADE

SPECIAL CHARACTER

- Good for screening
- Good for Hedges and Borders
- Quick growing trees
- Suitable for avenue planting
- Hanging or weeping growth habit
- Grows best in cooler regions
- Must have for Farm house or big gardens

DESCRIPTION

- The tree most famous in Indiafor cricket bats , that are made out of its wood.
- Grows s urprisingly well with us too.
- Flexible, hanging, greenish to brown branches and long bottle



BOTANICAL NAME	**Erythrina Varigata**
COMMON NAME	Indian Coral Tree
TYPE	DECIDUOUS
HEIGHT	MORE THAN 12 M
SPREAD	MORE THAN 12 M
FLOWERING SEASON	IN SUMMER
COLOUR OF FLOWER	RED
FRAGRANCE	YES
LIGHT REQUIREMENT	FULL SUN

DESCRIPTION

- The leaves are compound, with three diamond shaped leaflets, each about 6 in long.
- Before the leaves come out in late winter or early spring, coral tree puts on a spectacular show withbright crimson flowers 2-3 in long in dense terminal clusters. It may flower a little during the summer, too.

USES

- E. variegata is valued as an ornamental tree.
- Its bark and leaves are used in alternative medicine. it is used especially for menstrual disorders

BOTANICAL NAME	**Psidium Gujava**
COMMON NAME	Guava
TYPE	DECIDUOUS/FRUIT TREE
HEIGHT	2.7M-3.0M
SPREAD	3M
FRUIT SEASON	JUN-AUG, NOV-JAN
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER

- The tree is easy to recognize because of its smooth, thin, copper-colored bark that flakes off, showing the greenish layer beneath.
- Guava fruits are known to be a source of antioxidant. Because of its high level of pectin, guavas are extensively used to make candies, preserves, jellies, jams, and marmalades, and also for juices and aguas frescas.

BOTANICAL NAME	**Rosa Indica**
COMMON NAME	Rose
TYPE	DECIDUOUS /SMALL TO MED SIZED
HEIGHT	1M - 2M
SPREAD	1M - 2M
FLOWERING SEASON	SCENTED FLOWERS APPEAR THROUGHOUT YEAR
COLOUR OF FLOWER	RED
FRAGRANCE	YES
LIGHT REQUIREMENT	FULL SUN, SEMI SHADE

SPECIAL CHARACTER

- Fragrant flowers or leaves
- Plant for puja or prayer flower or leaves
- Attracts butterflies
- Thorny or Spiny
- Must have for Farm house or big gardens

DESCRIPTION

- One of the most loved roses all over the world.
- It has plenty of sweet fragrance.
- Medium spreading bush is a must for every garden.

BOTANICAL NAME	**Phyllanthus Emblica**
COMMON NAME	Amla
TYPE	DECIDUOUS/ FRUIT TREE
HEIGHT	4M-6M
SPREAD	4.5M
FLOWERING SEASON	JUN-AUG
COLOUR OF FLOWER	ORANGE
FRUIT	OCT-JAN
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER

Indigenous (native to India)
Good for screening
Attracts bees
Hanging or weeping growth habit
Salt or salinity tolerant

DESCRIPTON

Bears clusters of large sized fruit. Fruit has excellent pulp.
It has one of the highest sources of vitamin C.
Also medicinal. Plants grow to around 6 meters.
Can bepruned and kept short.
The plants are very hardy and recommended for dryland agriculture.

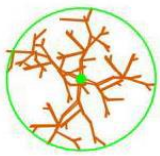
BOTANICAL NAME	**Saraca Thaipingensis**
COMMON NAME	Ashoka
TYPE	EVERGREEM TREE
HEIGHT	6M - 8M
SPREAD	4M - 6M
FLOWERING SEASON	SEPT-DEC
COLOUR OF FLOWER	YELLOW
FRAGRANCE	YES
LIGHT REQUIREMENT	SUN GROWING, SEMI SHADE, SHADE GROWING

SPECIAL CHARACTER

- Auspicious or Feng Shui plant
- Good for screening
- Recommended for creating shade
- Hanging or weeping growth habit
- Must have for Farm house or big gardens

DESCRIPTION

- t is liked for both the flowers and the foliage.
- The new leaves are soft, limp, and shades of pink and red.
- The young leaves stiffen up and turn green over the next week or so.
- Flower heads are large, up to 45 cm, and bright yellow,turning reddish as they age.
- Flowers are fragrant, particularly at night.



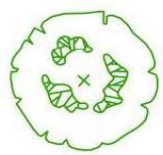
BOTANICAL NAME	**Acacia Auriculiformis**
COMMON NAME	Babul
TYPE	DECIDUOUS / QUICK GROWING
HEIGHT	MORE THAN 12M
SPREAD	MORE THAN 12 M
FLOWERING SEASON	MAY-JUL
COLOUR OF FLOWER	YELLOW
FRAGRANCE	-
LIGHT REQUIREMENT	FULL SUN, SEMI SHADE

SPECIAL CHARACTER

- Good for screening
- Attracts bees
- Animals will not eat
- Recommended for creating shade
- Quick growing trees
- Suitable for road median planting
- Good on seaside

DESCRIPTION

- The leaves are sickle shaped up to 18 cm long and 6 cm broad.
- Flowers are mildly scented, sessile in dense spike near the end of branches.
- Flowers are followed by twisted pod shaped fruit.
- Tree is used for firewood, box making and paper making.



BOTANICAL NAME	**Dalbergia Sissoo**
COMMON NAME	Shisham
TYPE	DECIDUOUS
HEIGHT	20M-25M
SPREAD	3M-5M
COLOUR OF FLOWER	WHITISH TO PINK
LIGHT REQUIREMENT	FULL SUN

USES

-Shisham is best known economic timber species of the rosewood genus sold internationally.
-It also used as fuel wood and for shade and shelter.
-The tree is planted on roadsides, along canals and as a shade.
-Traditionally, slender tree twigs (called datun) are first chewed as a toothbrush and then split as a tongue cleaner.
-Ethanolic extract of the fruits of Dalbergia sissoo exhibited molluscicide effect against eggs of the freshwater snail Biomphalaria pfeifferi.
-Sissoo is among the finest cabinet, furniture and veneer timbers.

BOTANICAL NAME	**Mangifera Indica**
COMMON NAME	Mango
TYPE	EVERGREEN/FRUIT TREE
HEIGHT	MORE THAN 12M
SPREAD	MORE THAN 12M
FLOWERING SEASON	MARCH-MAY
FRUIT SEASON	APR-AUG
COLOUR OF FLOWER	CREAM, OFF-WHITE
FRAGRANCE	YES
LIGHT REQUIREMENT	FULL SUN

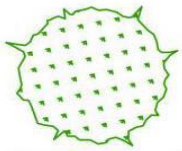
SPECIAL CHARACTER
- Fragrant flowers or leaves
- Auspicious or Feng Shui plant
- Plant for puja or prayer flower or leaves
- Attracts birds,butterflies,bees
- Recommended for creating shade

DESCRIPTION
- Mangoes are the kings of thetropical fruit.
- They are de licious, nutritious and wholesome.
- The Mango is the favourite fruit of Indians.
- This is a fruit of Indian origin.
- The mango tree is evergreen - with a dense canopy.
- New shoots mature for a full year before fruiting.

BOTANICAL NAME	**Morus Nigra**
COMMON NAME	Mulberry
TYPE	EVERGREEN/ FRUIT TREE
HEIGHT	6M - 8M
SPREAD	6M - 8M
FLOWERING SEASON	SCENTED FLOWERS APPEAR THROUGHOUT YEAR
GROWN FOR	FRUITS OR SEEDS
PLANT FORM	SPHERICAL OR ROUNDED
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER
- Good for screening
- Good for Hedges and Borders
- Attracts birds
- Recommended for creating shade
- Suitable for avenue planting
- Must have for Farm house or big gardens

DESCRIPTION
- Native to w. asia
- This is a must ha ve in all fruit gardens.
- The plants bear a large quantity of fruit.
- The fruit is sweet and sour.



BOTANICAL NAME	**Tamarindus Indica**
COMMON NAME	Tamarind
TYPE	DECIDUOUS FRUITS TREE
HEIGHT	MORE THAN 12 M
SPREAD	MORE THAN 12 M
FLOWERING SEASON	APR-JUN
COLOUR OF FLOWER	OFF WHITE, LIGHT YELLOW
PLANT FORM	SPHERICAL OR ROUNDED, SPREADING
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER
- Indigenous (native to India)
- Rare Plant or difficult to get plant
- Attracts birds,bees
- Recommended for creating shade
- Suitable for avenue planting
- Must have for Farm house or big gardens

SPECIAL CHARACTER
- Most of us have seen vendors selling this fruit outside schools and collages.
- A favorite with girls.
- The deep red flesh makes it very attractive.
- Grafted plants ensure early fruiting.

BOTANICAL NAME	**Moringa Olifiera**
COMMON NAME	Sahajan/ Drumstick tree
TYPE	DECIDUOUS TREE
HEIGHT	12 M
SPREAD	8-10 M
FLOWERING SEASON	SCENTED FLOWERS APPEAR THROUGHOUT THE YEAR
COLOUR OF FLOWER	WHITE AND YELLOW
FRAGRANCE	-
LIGHT REQUIREMENT	FULL SUN
SPECIAL CHARACTER	Moringa oleifera is a nutritious vegetable tree with a variety of potential uses. It is a fast-growing, drought-resistant tree; it is considered one of the world's most useful trees. Every part of the Moringa tree, from the roots to the leaves has beneficial properties that can serve humanity. Moringa Oleifera is used as a micronutrient powder to treat diseases. Leaves can be eaten fresh, cooked, or stored as dried powder for many months without refrigeration, and reportedly without loss of nutritional value. A coarse fibre that is obtained from the bark is used in making mats, paper and cordage. The Moringa plant is a fast-growing, drought resistant tree that can reach up to 3 meters in its first year.

BOTANICAL NAME	**Terminalia Arjuna**
COMMON NAME	Arjun
TYPE	DECIDUOUS
HEIGHT	4M-6M
SPREAD	5 M
FLOWERING SEASON	SCENTED FLOWERS APPEAR THROUGHOUT YEAR
LIGHT REQUIREMENT	FULL SUN

SPECIAL CHARACTER
- The arjun tree was introduced into Ayurveda as a treatment for heart disease.
- Arjuna tree is effective in bringing down LDL cholesterol levels.
- The Arjuna tree bark can be very effective in the treatment of asthma.
- The powdered dry bark of Arjun tree can be taken along with honey to restore strength to fractured bones.
- Arjun Tea is a herbal, caffeine-free tea made from the bark of arjuna tree. The tea is useful for almost every other health problem.
- Its wood is used in boat and house building as it is very hard. Its wood is also used in the making of the agricultural implements.
- It is grown in the cities and towns for the purpose of shade.

BOTANICAL NAME	**Azadirachta Indica**
COMMON NAME	Neem
TYPE	EVERGREEN
HEIGHT	MORE THAN 12 M
SPREAD	MORE THAN 12 M
FLOWERING SEASON	MAR-JULY
COLOUR OF FLOWER	WHITE
FRAGRANCE	-
LIGHT REQUIREMENT	SUN GROWING

SPECIAL CHARACTER
- Indigenous (native to India)
- Plant for puja or prayer flower or leaves
- Good for screening
- Attracts birds,bees
- Insect or mosquito repellent
- Recommended for creating shade

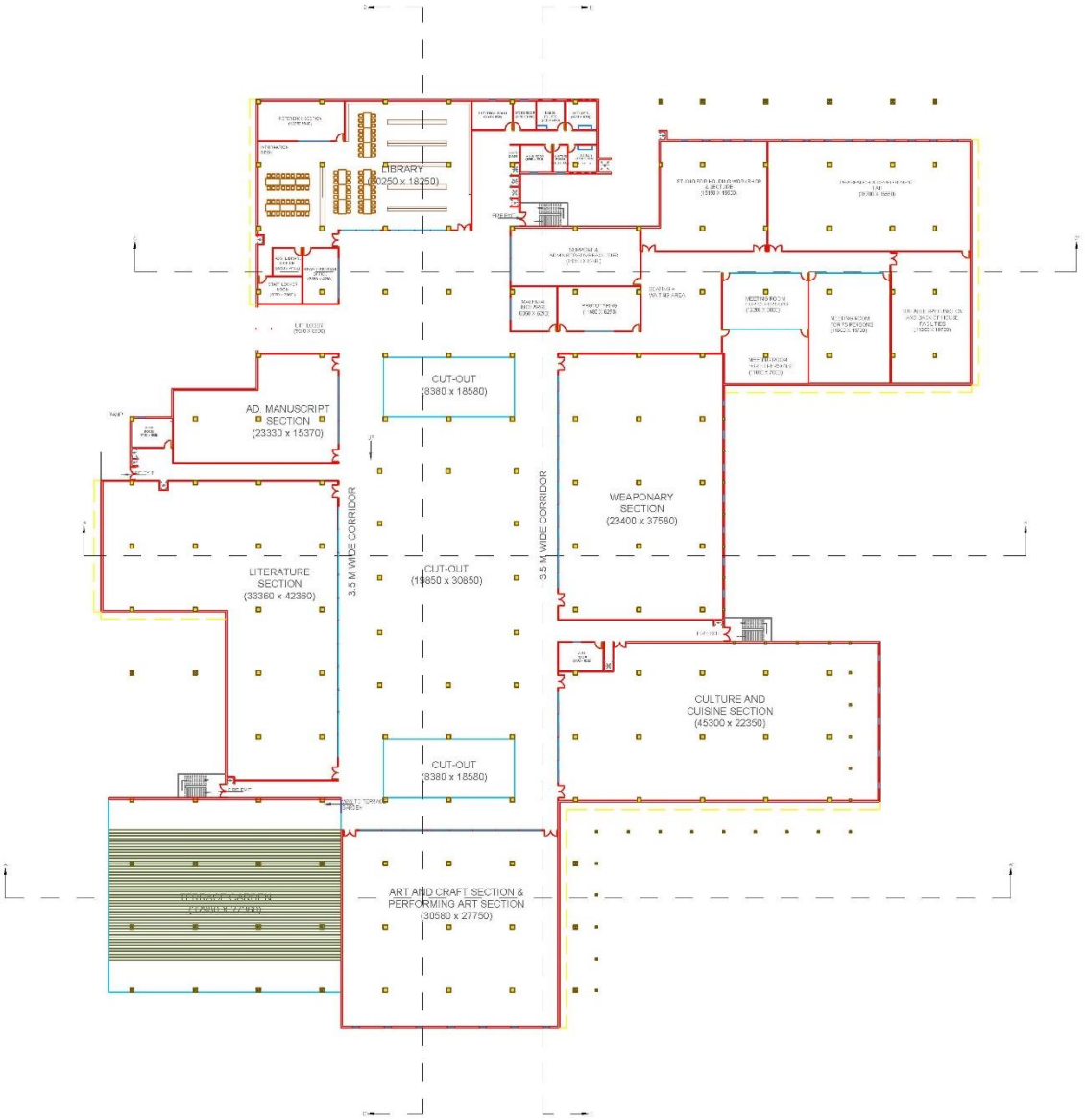
DESCRIPTION
- Fruits relished by birds and hence get dispersed widely.
- It is one of the best of Indian trees, because of its valuable medicinal properties.
- Traditionally value d for antiseptic resin, toothpastes, soaps and lotions.
- Leaves and furit used as a vermifuge.
- Important honey plant.
- Fruit yellow 1-2cm long egg shaped.
- Leaves- toothed margin, pointed, shining
- Fresh leaves appear March-April.
- wood used in carving, cigar boxes and cup boards.

DRAWINGS

GROUND FLOOR PLAN

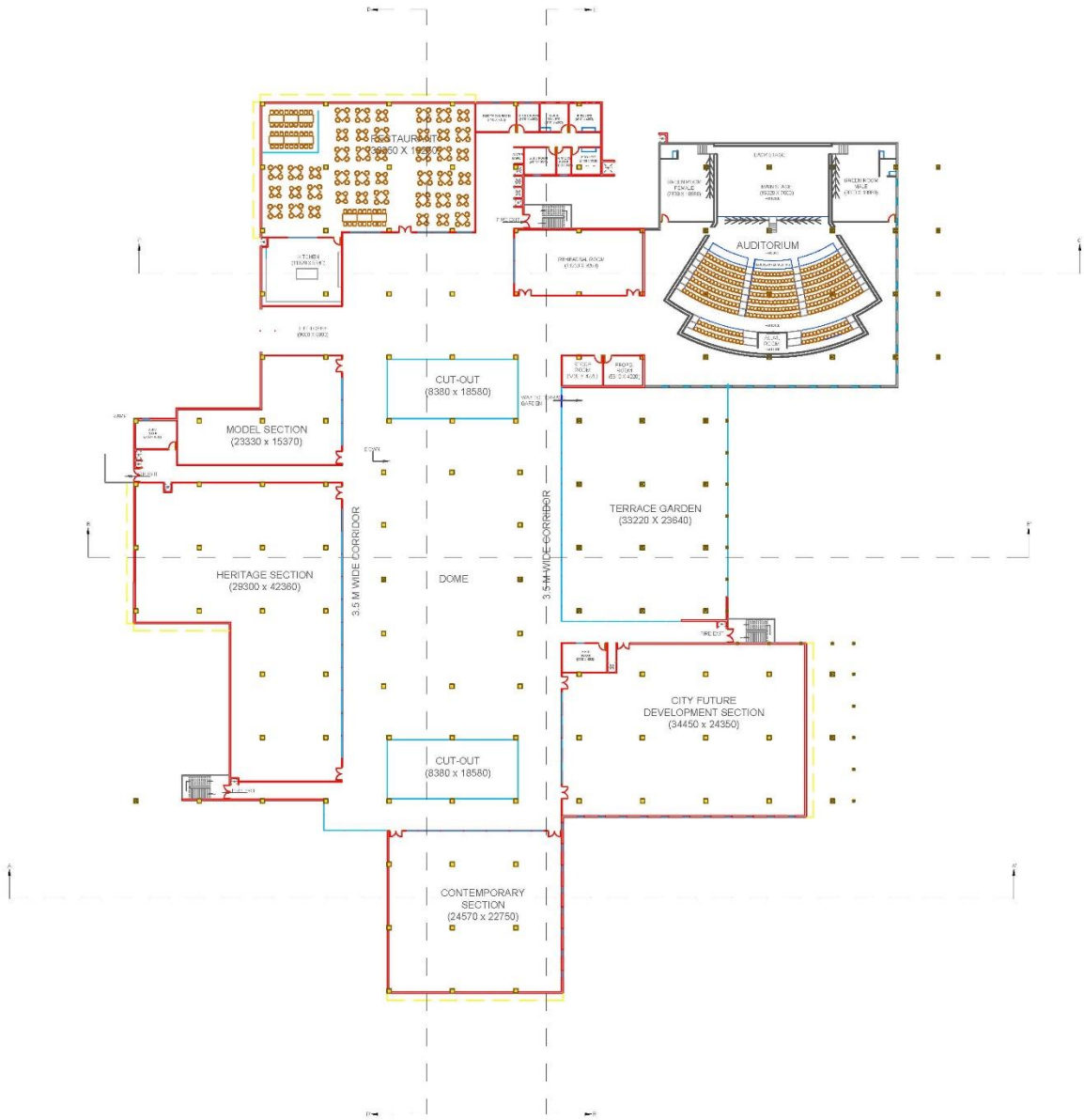
GROUND FLOOR

FIRST FLOOR PLAN



FIRST FLOOR

SECOND FLOOR PLAN



SECOND FLOOR

BASEMENT PLAN

BASEMENT