THESIS REPORT ON

“CAPTAIN VIKRAM BATRA MUSEUM CUM SENA BHAWAN,

NEW DELHI

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

BACHELOR OF ARCHITECTURE

BY

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THESIS GUIDE

AR. VERSHA VERMA

SESSION

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TO THE

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY, LUCKNOW.

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY, LUCKNOW (U.P.).

CERTIFICATE

I hereby recommend that the thesis entitled **"CAPTAIN VIKRAM BATRA MUSEUM CUM SENA BHAWAN, NEW DELHI** "under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor's degree in architecture, school of Architecture and Planning, BBDU, Lucknow.

Prof. Mohit Kumar Agarwal Dean of Department	Prof. Sangeeta Sharma Head of Department

Recommendation Accepted

Not Accepted

External Examiner	External Examiner

BABU BANARASI DAS UNIVERSITY, LUCKNOW (U.P.).

Certificate of thesis submission for evaluation

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THE SUCCESS AND FINAL OUTCOME OF THIS PROJECT REQUIRED A LOT OF GUIDANCE AND ASSISTANCE FROM MANY PEOPLE AND I AM EXTREMELY PRIVILEGED TO HAVE GOT THIS ALL ALONG THE COMPLETION OF MY PROJECT. ALL THAT I HAVE DONE IS ONLY DUE TO SUCH SUPERVISION AND ASSISTANCE AND I WOULD NOT FORGET TO THANK THEM.

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My all teachers, your support, encouragement and guidance have given us the strength to embark on this rigorous journey .

It would not have been possible without My Friend- SAURABH RAI, YASH ,ABHILASHA .Though words hardly express the true emotions, still I would like to thank all my near and dear ones who helped and guided me.

Finally , I expressed my infinite indebtedness to my parents, for their love, affection and giving me enthusiastic inspiration at every stage of my project work. Without their love , blessings and sacrifices , I would probably have never succeeded in carrying through this project…

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PROJECT BACKGROUND

The project is a live project. the government of India has sanctioned the construction of national war museum in new Delhi. the global architectural competition for the national war museum was conducted in two stages in 2016 but it soon turned controversial with the runner-up accusing the winner of plagiarism, and the battle ending up in court. then the ministry of housing and urban affairs' arms the CPWD of India has pushed the project and shortlisted two new-Delhi based firms, CP Kukreja architects and Suresh Goel & associates to go ahead with the project. cpwd has opened the financial bid for the tender for selecting the consultant for comprehensive architectural and engineering planning.

INTRODUCTION & PROPOSITION

1.1 PROJECT BRIEF

1.2 NEED OF THE PROJECT

1.3 AIMS & OBJECTIVES

1.4 SCOPE

1.5 DESIGN REQUIREMENTS

1.6 DESIGN METHODOLOGY

WHY DELHI?

New Delhi, the national capital of India would be the best suited city for this project since a project of this status and importance, relating to the sentiments of national capacity should belong in the very heart of the country. The project aims to mnemonic and thus needs to attain locational advantage, i.e. its close proximity to the raj path, where the two most important events, independence and republic days are celebrated with strong parade. Also, the India gate which in itself is one of the most celebrated memorials in the world.

PROJECT BRIEF

TITLE: Captain Vikram Batra museum cum Sena Bhawan

LOCATION: princess park new Delhi

SITE AREA: 10.71 acres / 43341.8 sq. mtr.

- permissible far. = 1.20

- permissible ground coverage= 35%
- minimum setback= f 12, side and rear 9
- height restriction= 26m.
- geographic latitude: 28degree 36’ 56.45” north
- geographic longitude: 77 degree 13’57.88” east

CLIENT:

- ministry of defense, government of India

India has a rich military heritage. the gallantry of Indian soldiers is recognized world av since independence, the Indian armed forces have fought four wars to defend national borders and uphold our national interests.

a national war museum has been planned in new Delhi as a tribute to Indian soldiers and to showcase the nation's military culture, customs, traditions and history through multimedia multisensory auditoriums, display galleries, exhibit areas, research / educational assets, restoration / archive facilities, secure storage vaults and central facilities on the pattern of contemporary and global best practices. The museum is envisaged to be world class, state of the art building which will be a must visit landmark for those visiting New Delhi.

NEED OF THE PROJECT

Numerous museums have been erected but only a few revive the cultural aspect in society, bring back lost emotions, and give an identity to the place. in other words, very few museums are able to act as urban catalysts. This thesis aims to design a national war museum to portray the Indian war and military culture, customs, traditions, and history.

AIMS AND OBJECTIVES

AIMS

The aim of the thesis is to portray famous battles, eulogies military martyrs, heroes and leaders and chronicle the course of Indian military history. The institution will collect, interpret, preserve and display military artefacts, and relics of historical value. The components of the Indian armed forces and their campaigns, victories, memories, equipment, will be eternalized for perpetuating the memory of the services, which will be a source of inspiration for future generations.

OBJECTIVES

1. Portray victories military through campaigns, heroic a multi-sensory display force citizens faith and pride in the armed forces. And as to reinforce citizens faith and pride in the armed force.
2. Exhibit relics and, records of historical significance and military interest chronicling. Ascendency of armed forces from ancient times.
3. Display items of military interest and historical value including development of arms, equipment and their role in the Indian history.
4. Profile human experience of military war and chronicle events which shaped development of our countries national character.
5. Enhance awareness of the glorious military heritage of India instil and motivate citizens to greater devotion and duty to the country.
6. Inform about the challenges under which armed forces operate to enhance comprehension and understanding of the armed forces,
7. Act as military's premier educational research and archive centre with multimedia libraries, seminar and exhibition facilities.
8. Establish itself as an outstanding landmark in the national capital region for Indian and foreign visitors.

SCOPE OF WORK

History and Victory

To portray India's rich military history, military campaigns, heroic deeds and victories so as to educate them on our rich history and to reinforce citizens' faith and pride in the Armed Forces.

Inspiration

To act as a source of inspiration for future generations and to provide a national level platform for youth orientation for Military in India.

Mnemonic

To develop and generate a landmark and be recognized as a 'must visit' spot on the maps of tourists.

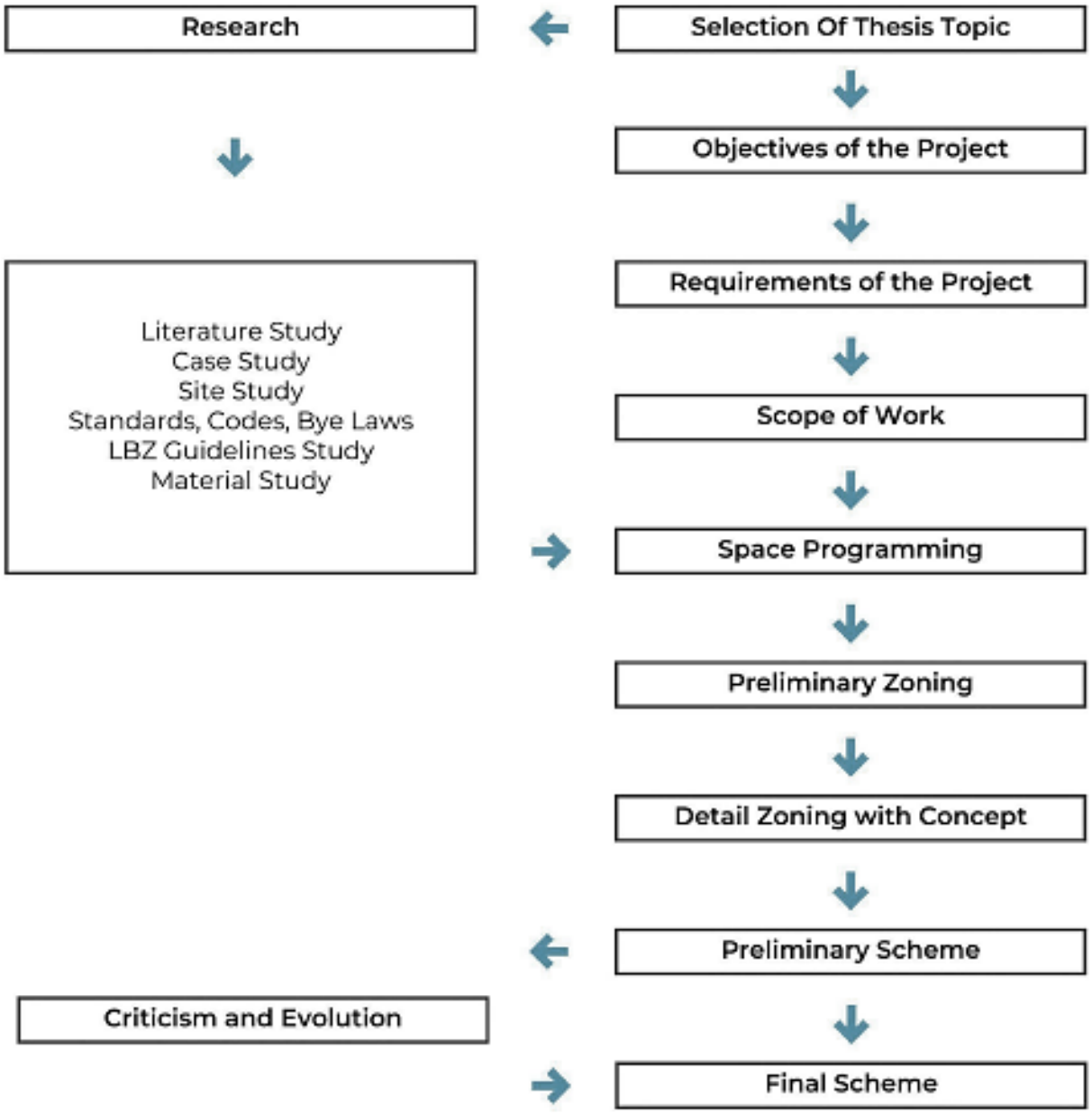
Archive

Act as Military's premier educational research and archive centre with multimedia libraries, seminar and exhibition facilities.

REQUIREMENTS

1. Entrance hall
2. Exhibition for Army, Navy, Air force
3. Audio visual room
4. Restoration lab
5. Auditorium (100 persons)
6. Ticketing counters
7. Outdoor Displays
8. Open air theatre
9. Guard rooms
10. Administrative offices
11. Public utilities
12. Cafeteria, Kitchen etc.
13. Shop for mementos
14. Central A/C plant including pump house
15. Parking
16. Interactive audio-Visual Arcades
17. History section
18. Library
19. Conference room

DESIGN METHODOLOGY



RESEARCH

Definition of museum

Benefits of museums

Administration

What is war?

Military history of India

List of Indians Wars

Major Indian Wars after Independence

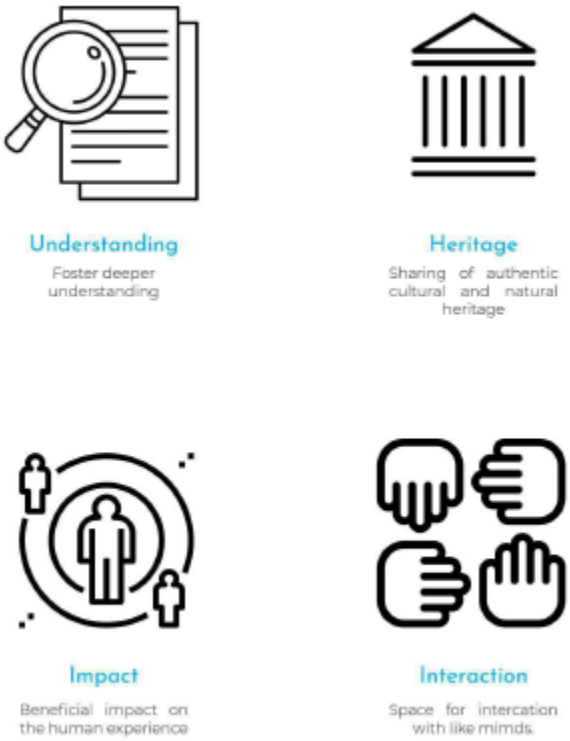
Indian Armed Forces

DEFINATION OF MUSEUM

A museum is a public collection of objects testifying to human cultural development. It collects, documents, receives, researches, interprets and communicates these through display. The purpose of modern museums is to collect, preserve, interpret, and display objects of artistic, cultural, or scientific significance for the study and education of the public. From a visitor or community perspective, this 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. To city leaders, an active museum community can be seen as a gauge of the cultural or economic health of a city, and a way to increase the sophistication of its inhabitants. To a museum professional, a museum might be seen as a way to educate the public about the museum's mission, such as civil rights or environmentalism. Museums are, above all, storehouses of knowledge.

BENEFITS OF MUSEUM

Museums are institutions created in the public interest. They engage their visitors, foster deeper understanding and promote the enjoyment and sharing of authentic cultural and natural heritage. Museums acquire, preserve, research, interpret and exhibit the tangible and intangible evidence of society and nature. As educational institutions, museums provide a physical forum for Critical inquiry and investigation.



ADMINISTRATION

Public vs. Private museums

Private museums are organized by individuals and managed by a board and museum officers Public museums are created and managed by federal, state, or local governments.

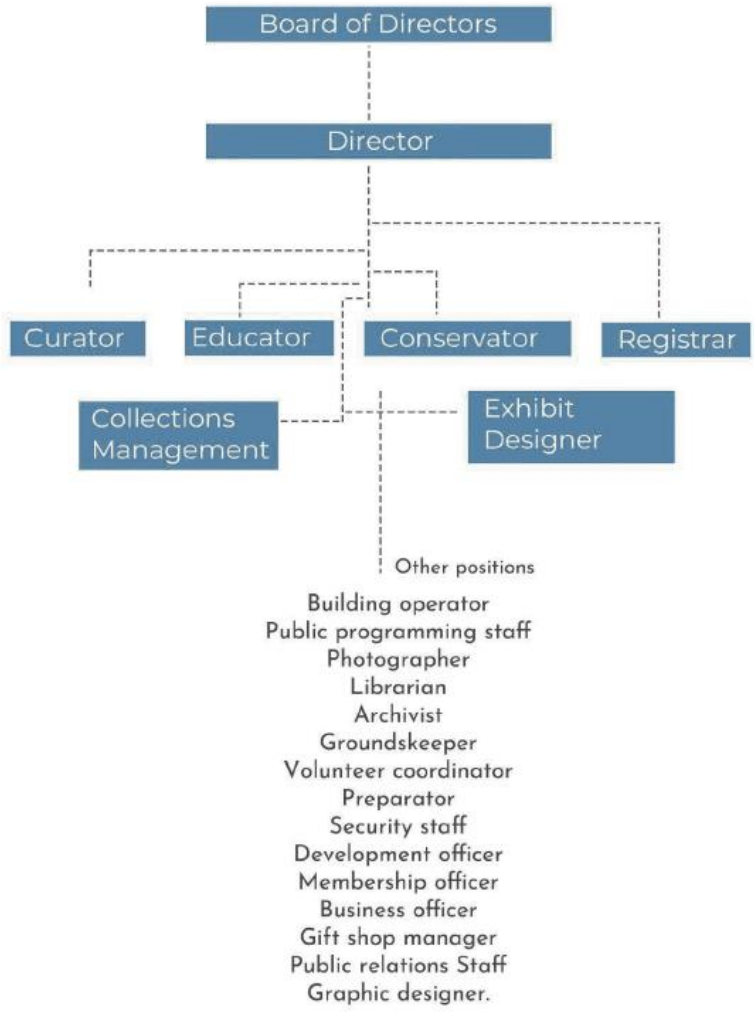
Non-profit vs. for-Profit museums

Nonprofit means that an organization is classified as a charitable corporation and is exempt from paying most taxes and the money the organization earns is invested in the organization itself. Money made by a private, for-profit museum is paid to the museum's owners or shareholders.

Museums run by trusts vs. Corporations

A trust is a legal instrument where trustees manage the trust's assets for the benefit of the museum following the specific wishes of the donor. This provides tax benefits for the donor, and also allows the donor to have control over how assets are distributed.

Corporations are legal entities and may acquire property in a way similar to how an individual can own property. Museums under incorporation are usually organized by a community or group of individuals. While a board of director's loyalty is to the corporation, a board of trustee's loyalty has to be loyal to the intention of the trust. The ramification is that a trust is far less flexible than a corporation.



WHAT IS WAR

"If everyone fought for their own convictions there would be no war" – Leo Tolstoy, War & Peace

War is an intense armed conflict between states, governments, societies, or para-military groups such as mercenaries, insurgents, and militias. It is generally characterized by extreme violence, aggression, destruction, and mortality, using regular or irregular military forces.

Ancient Warfare:
Stele of the Vultures,
c. 2500 BC

Medieval Warfare:
Battle of Hastings
1066

Early modern Warfare:
Retreat from Moscow
1812

Industrial age Warfare:
Battle of the Somme
1916

Modern Warfare:
First World War
1918

Modern Warfare:
Second World War
1918

MILITARY HISTORY OF INDIA

The predecessors to the contemporary Army of India were many: the sepoy regiments, native cavalry, irregular horse and Indian sapper and miner companies raised by the three British presidencies. The Army of India was raised under the British Raj in the 19th century by taking the erstwhile presidency armies, merging them, and bringing them under the Crown. The British Indian Army fought in both World Wars.

Indian warrior in Armor by Edwin Lord Weeks.

Ancient Indian Antennae sword; Metalwork, **1500–500 BCE.**

Ancient Indian Ax Blade, **1500–1000 BCE.**

Depictions of an ancient Indian warrior. Gandhara school of Art, **c. 1st century.**

The armed forces succeeded the military of British India following India's independence in 1947. After World War II, many of the wartime troops were discharged and units disbanded. The reduced armed forces were partitioned between India and Pakistan. The Indian armed forces fought in all four's wars against Pakistan and two wars against People's Republic of China in 1962 and 1967. India also fought in the Kargil War with Pakistan in 1999, the highest altitude mountain warfare in history. The Indian Armed Forces have participated in several United Nations peacekeeping operations and are presently the second largest contributor of troops to the peacekeeping force.

LIST OF INDIANS WARS

1 Indus Valley Civilisation
2 The Vedic period

3 The Magadha dynasties
3.1 Shaishunaga dynasty
3.2 Nanda dynasty
3.3 Maurya Empire
3.4 Shunga Empire

4 The Golden age
4.1 Satavahana dynasty
4.2 Mahameghavahana dynasty
4.3 Gupta dynasty

5 The Classical age
5.1 Empire of Harsha
5.2 The Chalukyas and Pallavas
5.3 The Chola Empire
5.4 The Gurjar-Pratiharas, Palas and Rashtrakutas
5.5 Arab conquest of Sindh
5.6 Ghaznavid invasion

6 The Medieval era
6.1 Delhi Sultanate
6.2 The Rajputs
6.3 Muzaffarid dynasty
6.4 Calicut
6.5 Vijayanagara Empire
6.6 Ahom Kingdom
6.7 Mughal Empire
6.8 The Marathas
6.9 The Jats
6.10 Travancore Kingdom
6.11 Mysore Kingdom
6.12 Sikh Empire

7 Colonial era
7.1 Company rule
7.2 The British Raj
7.2.1 World War I
7.2.2 World War II

8 Post-war transition and the Dominion of India

9 Republic of India
9.1 Major wars
9.1.1 First Indo-Pak war, 1947
9.1.2 Operation Polo, 1948
9.1.3 Liberation of Goa, 1961
9.1.4 Sino-Indian war, 1962
9.1.5 Second Indo-Pak war, 1965
9.2 Indo-Sino Clash of 1967
9.2.1 Third Indo-Pak war, 1971
9.2.2 Siachen war, 1984
9.2.3 Kargil War, 1999
9.3 Other operations
9.3.1 The Mizo National Front, 1966
9.3.2 The Chola incident, 1967
9.3.3 Operation Blue Star, 1984
9.3.4 Sri Lanka mission, 1987–1990
9.3.5 Operation Cactus, 1988
9.4 2001 Bangladesh–India border clashes
9.5 Missile program
9.6 Nuclear program

MAJOR INDIAN WARS AFTER INDEPENDENCE

The Republic of India has fought four wars with Pakistan and one border war with China. The recent/Contemporary wars and conflicts fought by Indian Armed Forces are:

FIRST INDO-PAK WAR - 1947

This has also been called the First Kashmir War. The war started in October 1947 when Pakistan feared that the Maharajah of the princely state of Kashmir and Jammu would accede to India. Following partition, states were left to choose whether to join India or Paki- stan or to remain independent.

SINO-INDIAN WAR – 1962

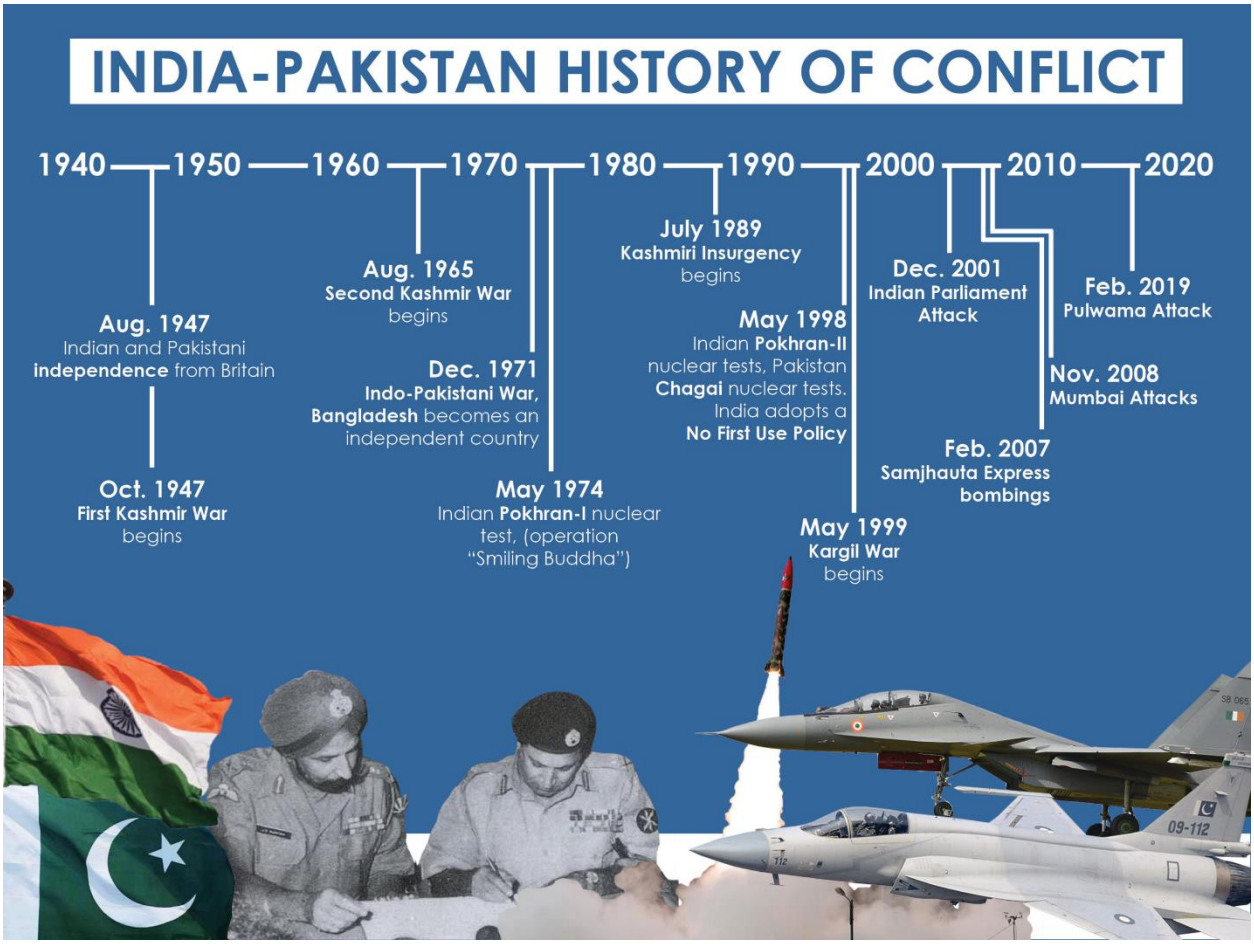
India fought a month-long bor. der war against China in 1962. Neither nation deployed air or naval resources during a conflict heavy with mountain combat. China ended the war by declaring a unilateral cease- fire and withdrew their forces to the pre-war positions

THIRD INDO-PAK WAR – 1971

The Indo-Pakistani War of 1971 was a military confrontation between India and Paki- stan that occurred during the Bangladesh Liberation War in East Pakistan from 3 December 1971 to the fall of Dacca on 16 December 1971 Strength of Indian Armed Forces: 825,000 - 860,000

KARGIL WAR – 1999

Commonly known as the Kargil War, or Operation Vijay in India, this conflict between the two countries was mostly limited. During early 1999, Pakistani troops infiltrated across the Line of Control (LoC) and occupied Indian territory mostly in the Kargil district.



INDIAN ARMED FORCES

The Indian Armed Forces are the military forces of the Republic of India. It consists of three professional uniformed services: the Indian Army, Indian Navy, and Indian Air Force. Additionally, the Indian Armed Forces are supported by the Central Armed Police Forces, Assam Rifles, Indian Coast Guard and Special Frontier Force and various inter-service commands and institutions such as the Strategic Forces Command, the Andaman and Nicobar Command and the Integrated Defence Staff.

The President of India is the Supreme Commander of the Indian Armed Forces. The Indian Armed Forces are under the management of the Ministry of Defence (MoD) of the Government of India.

With strength of over 1.4 million active personnel, it is world's second-largest military force and has the world's largest volunteer army. It also has the third-largest defence budget in the world.

Indian Air Force

Indian Army

Indian Navy

Indian Coast Guard

Border Road Organisation

CASE STUDIES

Opera House, Sydney

Jayaprakash Narayan Centre, Lucknow, India

Qatar National Convention Centre, Qatar

Mamun Military Station, Field Regiment, Punjab

Signals Regiment, Chandi Mandir

OPERA HOUSE, SYDNEY

Introduction:

- It is a multi-venue performing arts centre in Sydney, New South Wales, Australia
- It is a masterpiece of late Modern Architecture

About:

- Owner: State Governmentt of New South Wales
- Architect: Jorn Utzon
- Engineer: Ove Arup and Partners
- Cost: $ 102 million

Location:

- Sydney is the capital city of the state of New South Wales, Located on Australia's east coast.
- Australia is the smallest continent and one of the largest countries on world lying between the pacific and Indian ocean in the southern hemisphere

Structure

- The scale of the shells was chosen to reflect the internal height requirements, with low entrance spaces, rising over the seating areas up to the high stage towers.
- Roof structures are precast concrete panels supported by precast concrete ribs, not shells in a strictly structural sense.

Features:

Facilities:

- Concert Hall- With 2679 seats.
- Joan Sutherland Theatre- A proscenium theatre with 1507 seats.
- Drama theatre- A proscenium theatre with 544 seats.

- Playhouse- An end-stage theatre with 398 seats.
- Studio, Recording studio, etc.
- Utzon room

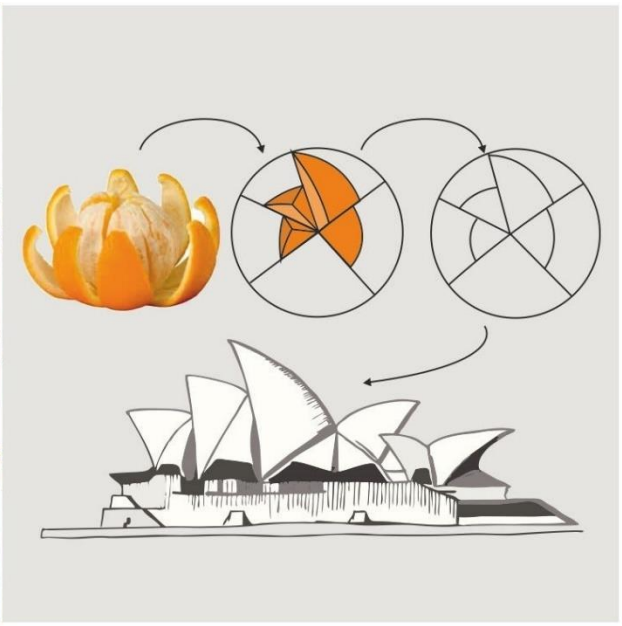
Outdoor Forecourt Dimensions:

- Length- 183m (600 feet)
- Width- 120m (394 feet)
- Area- 1.8 hectare (4.4 acres)
- Height- 65m (213 feet)
- Elevation- 4m (13 feet)

Design:

After three years of intensive search for a basic geometry for the shell complex I arrived in October 1961 at the spherical solution shown here.

I call this my "key to the shells" because it solves all the problems of construction by opening up for mass production, precision in manufacture and simple erection and with this geometrical system I attain full harmony between all the shapes in this fantastic complex. - JOHN UTZON



Material:

- The glass wall facing the Harbour
- Though the shells appear uniformly white from a distance, they actually feature a subtle chevron pattern composed of 1,056,006 tiles in two colours: glossy white and matte cream.
- The glass wall that was built after Utzon left. It feels as if hanging from the shell.

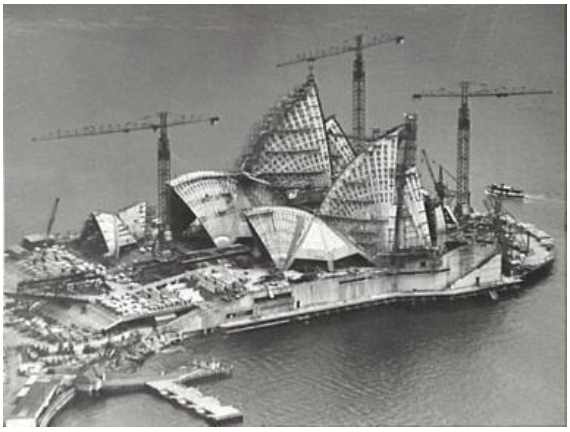
Construction:

The project was created in three stages

STAGE I (1959-1963): Consisted of building the upper podium

STAGE II (1963-1967): Saw the construction of upper shell

STAGE III (1967-1973): Consisted of Interior design



Concert Hall

The Concert Hall is the beating heart and the largest venue in the Sydney Opera House. Consist seating of 2679 people Its features include a high vaulted ceiling. White birch timber panelling. It contains the Sydney Opera House Grand Organ, the largest mechanical tracker action organ in the world, with over 10,000 pipes.

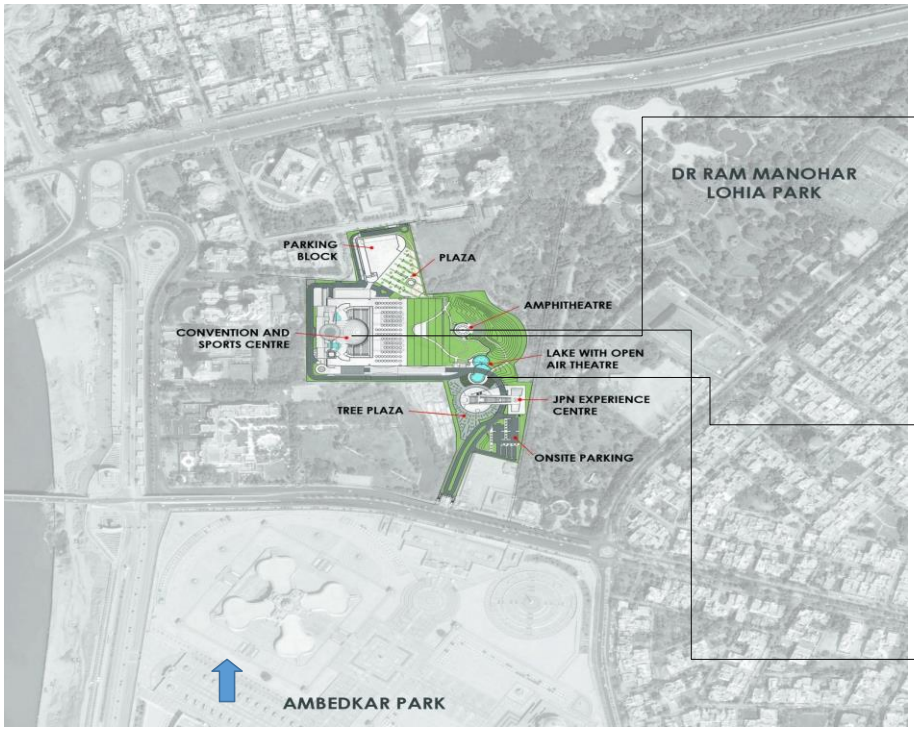
JAYAPRAKASH NARAYAN CENTRE, LUCKNOW, INDIA

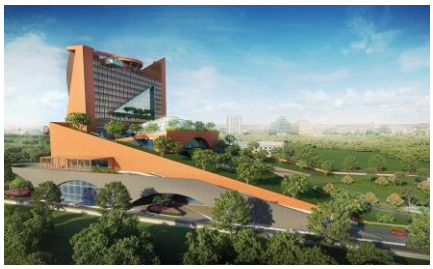
The Jayaprakash Narayan international center/ museum of socialism in Lucknow is built on the idea of creating public architecture, whose design vocabulary endows a contemporary value to past events, but stands its ground with its 'new-found' institutional identity reflecting the polarized views of civic authorities, curators, historians and the general public. the contemporary nature of the museum's architecture takes responsibility for creating what will be tomorrow's history while narrating the current one.

Site Context

Along with the adjoining international center, there is an interpretation center, inserted as an anchor point on one of the principal nodes of the city so that it takes on the onus of becoming a contemporary landmark and hopes to inspire the development of the urban fabric around it. the design of the building also strives to achieve fitting, sensitive and gallant negotiations with the contrasting and oft conflicting contexts of urbanity and nature. the terracotta cladding responds to the integrity of a historical cityscape.

The complex stands as a conceptual counter argument to the park across and ensures a climatic response by maximizing the green cover of the complex. one of the facades merges with the abutting greenery; the adjoining forest is literally and metaphorically swept off its feet and lifted audaciously up to the fifth floor elucidating the value of greens in the context. the center therefore serves as a 'respiratory apparatus' in the form of breathing spaces that also double up as phenomenal community centers engaging the inhabitants and the built environment of the city, with a view to entertain and educate.





Project Details:

JAYAPRAKASH NARAYAN INTERATIONAL CENTRE LUCKNOW, UTTAR PRADESH

ARCHITECT: STUDIO ARCHOHM.

DESIGN TEAM: SOURABH GUPTA, AMIT SHARMA, SANJAY RAWAT, DIPANKAR DUTTA, BHOOMIKA SINGHAL, RAM SAGAR, NEHA AGARWAL, SHAHZAD AHMAD

EXPERIENCE DESIGN: DESIGN FACTORY INDIA.STRUCTURAL CONSULTANTS ROARK CONSULTING. LANDSCAPE CONSULTANTS: SHAHEER ASSOCIATES SJA, CONSULTANTS.

ELECTRICAL CONSULTANTS: STUDIO ARCHOHM.

MECHANICAL ENGINEERING, HVAC PLUMBING: SUNIL NAYAR CONSULTANTS PVT. LTD.

Product Specification

Terracotta cladding terreal

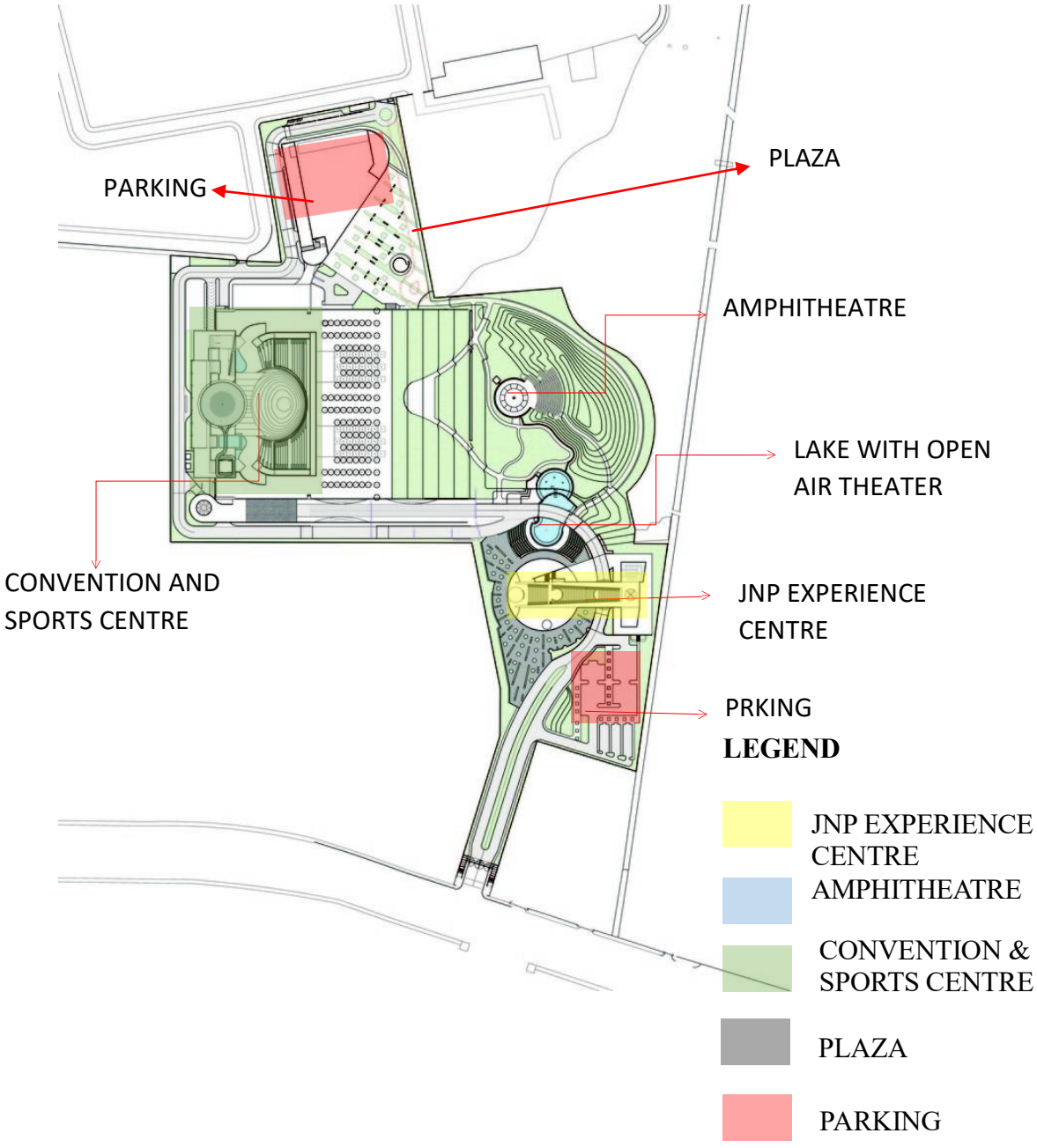
Concrete tiles : ivanka

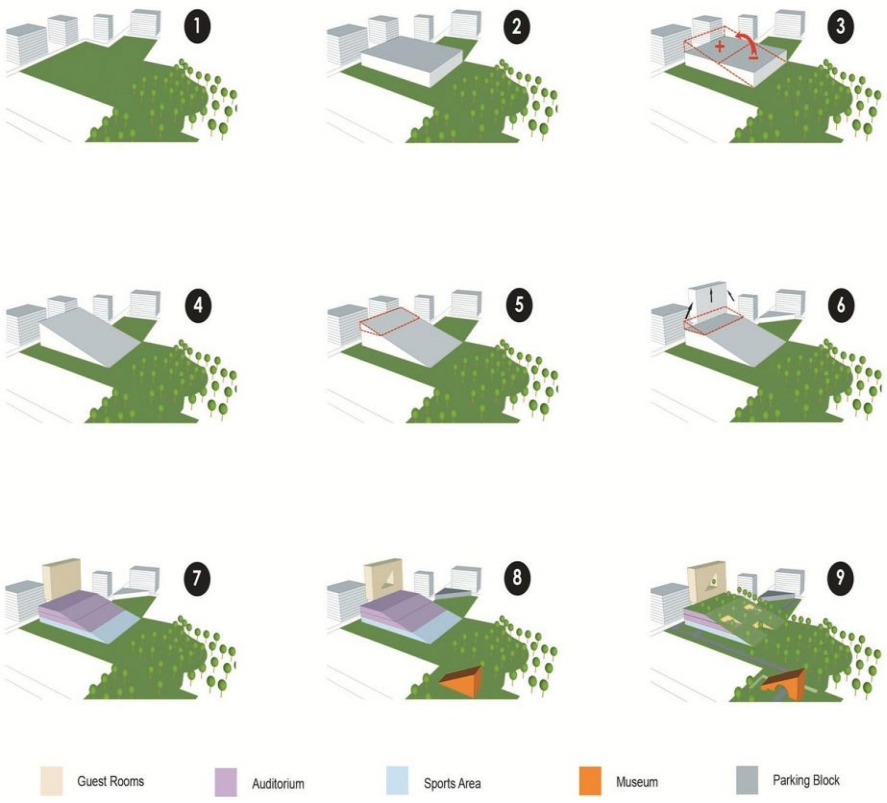
Purpose of JAYAPRAKASH NARAYAN INTERNATIONAL CENTRE

Layered with narratives, highlighting the "it is not about building a state, it is about building a state of mind," are the words quoted from the Lucknow development authority's manifesto book in 2010, which talks about the development in the state of Uttar Pradesh. With this holistic vision-chartered era they existed in. therefore, the aforesaid vision outlined by the government also proposed the intention of adding a fresh language of contemporary character to depict the current as well as the aspiration of the state, thereby showing paradigm shifts in shaping the city through iconic architecture in conversation with the architecture of the past. by the government along with urban planning and architecture design firm studio archohm, a fresh attempt has been made to design the public domain so as to improve the life of the citizens of Lucknow and the most populous amongst the new developments in the city like the rejuvenation of hussainabad, the old city, the smart city of chak gangeria. the art & craft center called Awadh shilpgram, the largest cancer institute of the region, the riverfront development, the metro line, the bicycle tracks, the parks, schools, housings:

The Jayaprakash Narayan International Centre (jpn ic) is the superlative. attempting to be somewhere in between what Burj Khalifa is to Dubai and what the bird's nest is to beijing jpn ic is situated in the heart of the state of India - Uttar Pradesh. just to put things in perspective, up is roughly the size of the United Kingdom; it features a world wonder, the Taj mahal, and its domestic tourism is greater than 20 states of India combined. if one ever visited one of the state's monuments every day, it would take more than two years to cover them all therefore, the capital

of the state of Uttar Pradesh, the city of Lucknow is no ordinary city. it is the city of the nawabs, read city and is spread across 18 acres of land. It was envisioned to be the largest building of its state, a unique civic institution, a world class Centre for conventions housing up to Muslim rulers of princely states in India with paramount power and majesty. it was also one of the most important centers during British colonial times. and all this is evident in its culture - of literature, dance, art, crafts, cuisine, etiquettes and of course it's striking architecture that is 4000 people at a time, hosting international sports with Olympic size swimming and diving pools, indoor tennis, table tennis.

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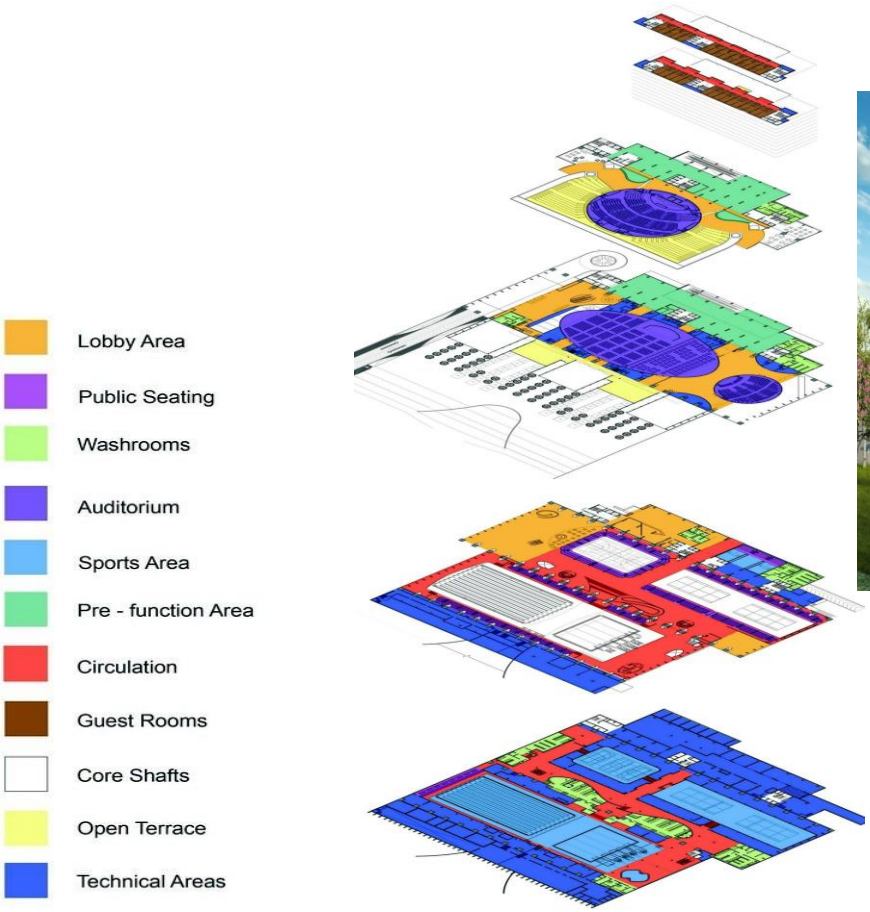
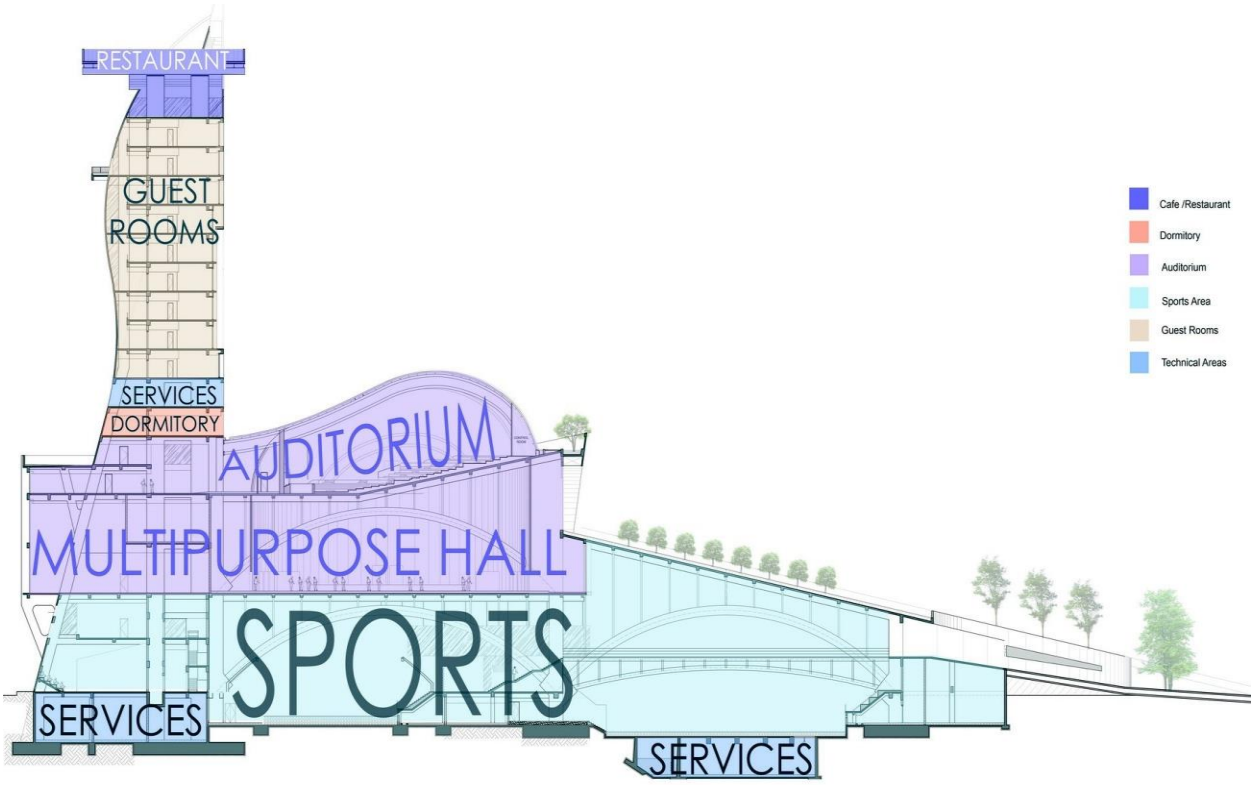
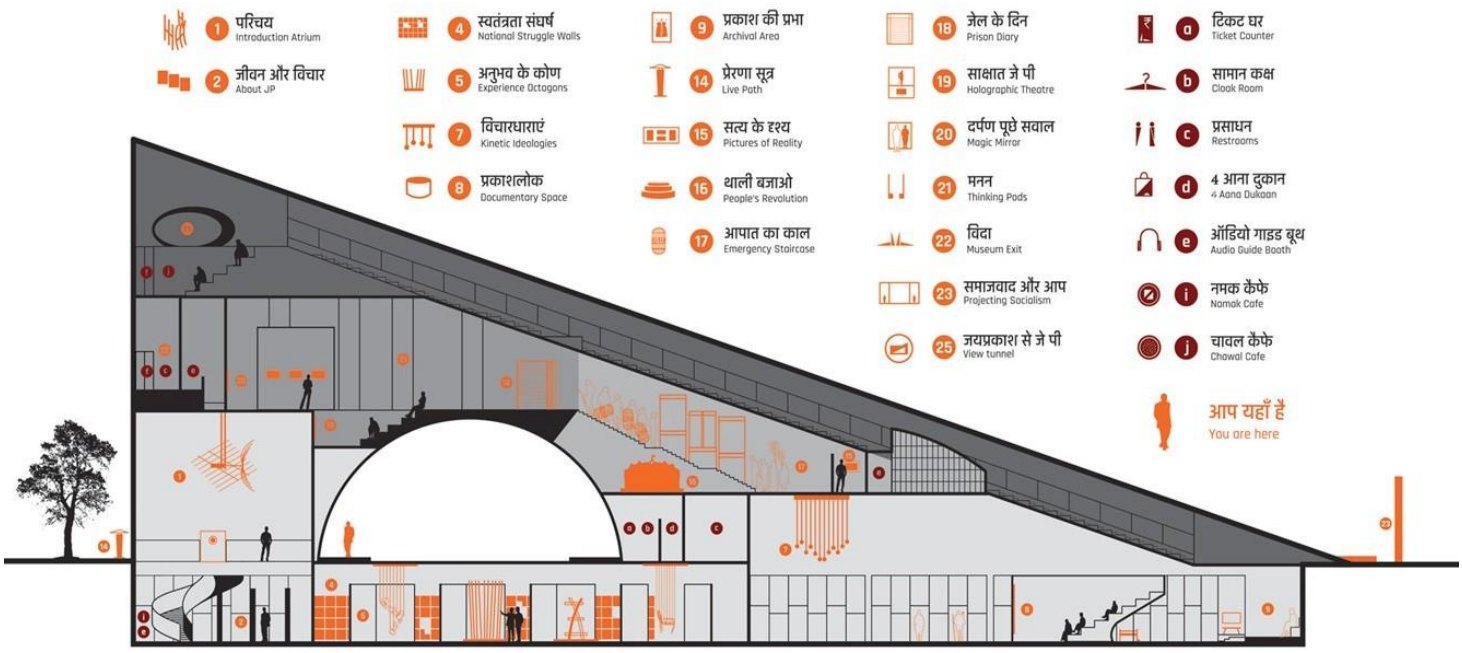
Guest Rooms
Auditorium
Sports Area
Museum
Parking Block

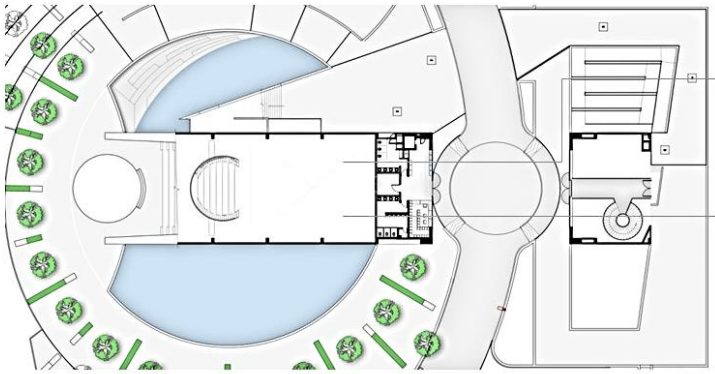

Lobby Area
Public Seating
Washrooms
Auditorium
Sports Area
Pre - function Area
Circulation
Guest Rooms
Core Shafts
Open Terrace
Technical Areas



ZONNING AS PER FLOOR



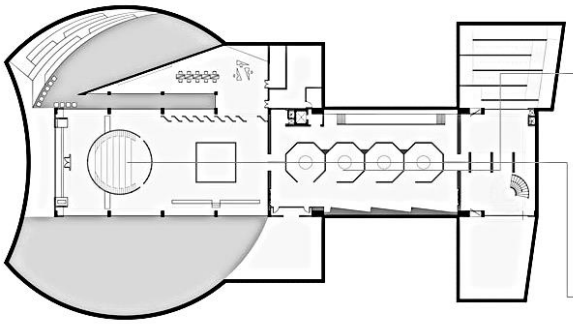
CROSS SECTION



KINETIC IDEOLOGIES

EXPERIENCE
OCTAGONS

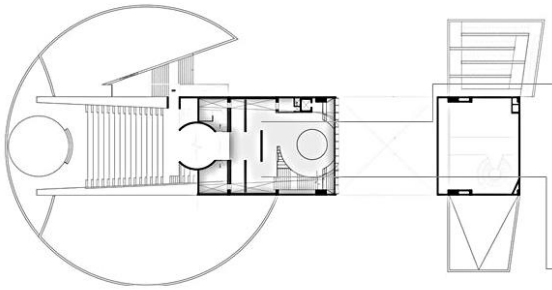
GROUND FLOOR PLAN



NATIONAL STRUGGLE
WALLS

DOCUMENTARY SPACE

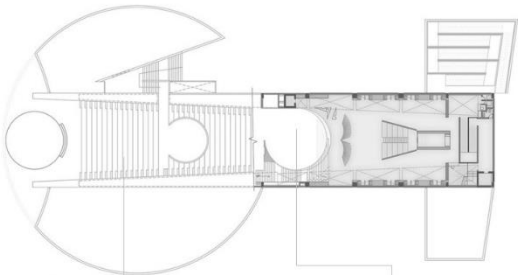
BASEMENT FLOOR PLAN



PICTURES OF REALITY

PEOPLE'S
REVOLUTION

FIRST FLOOR PLAN

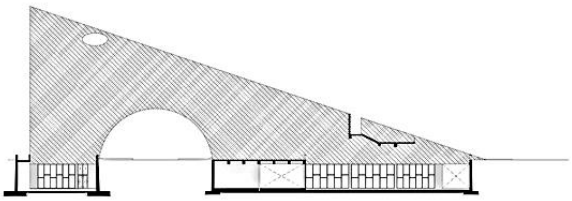


SECOND FLOOR PLAN

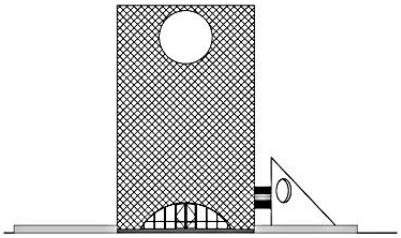
STEPPED ROOF

VIEW TUNNEL

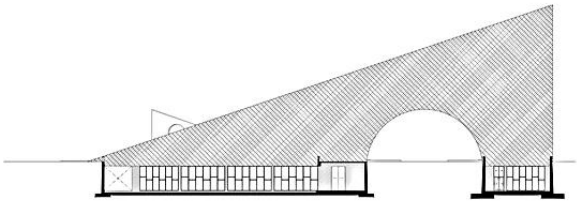
ELEVATIONS , SECTIONS AND VIEWS



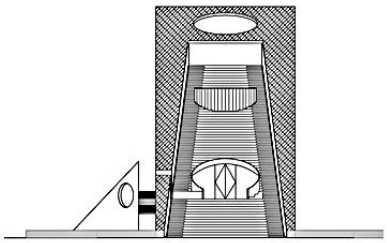
SOUTH ELEVATION



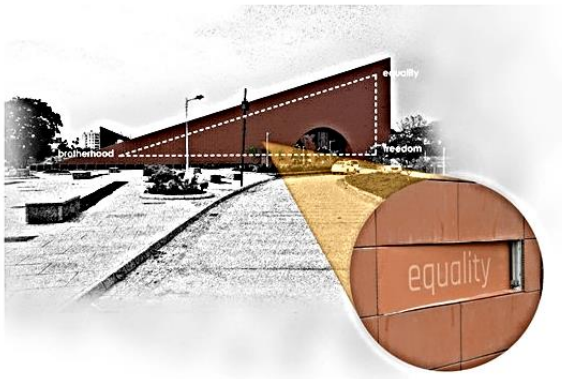
WEST ELEVATION



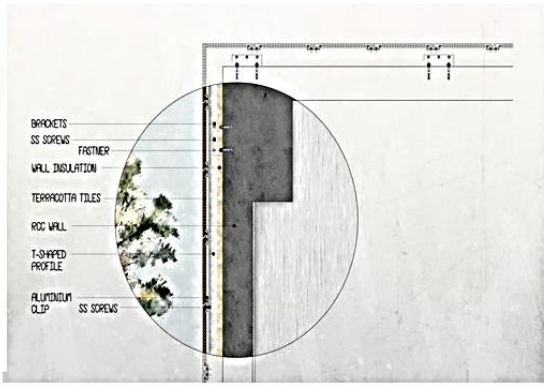
NORTH ELEVATION



EAST ELEVATION



FREEDOM, EQUALITY AND BROTHERHOOD



DETAIL OF TERRACOTTA FACADE

SECTION AA'

SECTION BB'

QATAR NATIONAL CONVENTION CENTRE, QATAR

INTRODUCTION

The Qatar National Convention Centre (QNCC) is being built in Doha as part of the Qatar Foundation Education City. Qatar Foundation is a non-profit organisation founded by Emir of the State of Qatar Sheikh Hamad Bin Khalifa Al-Thani in 1995.

Conceptual design of the QNCC was provided by Yamasaki Architects and RHWL, based on a design conceived by Arata Isozaki. The convention centre will have advanced solutions and form a benchmark in international venue design. Apart from exhibitions and conferences, the convention centre will host local and international music and arts festivals, and international events such as boat and motor shows. Design on the QNCC started in 2006 and was completed in the first quarter of 2009. The 177,000m² convention centre development is estimated to cost $1.2bn upon completion.

CONCEPT

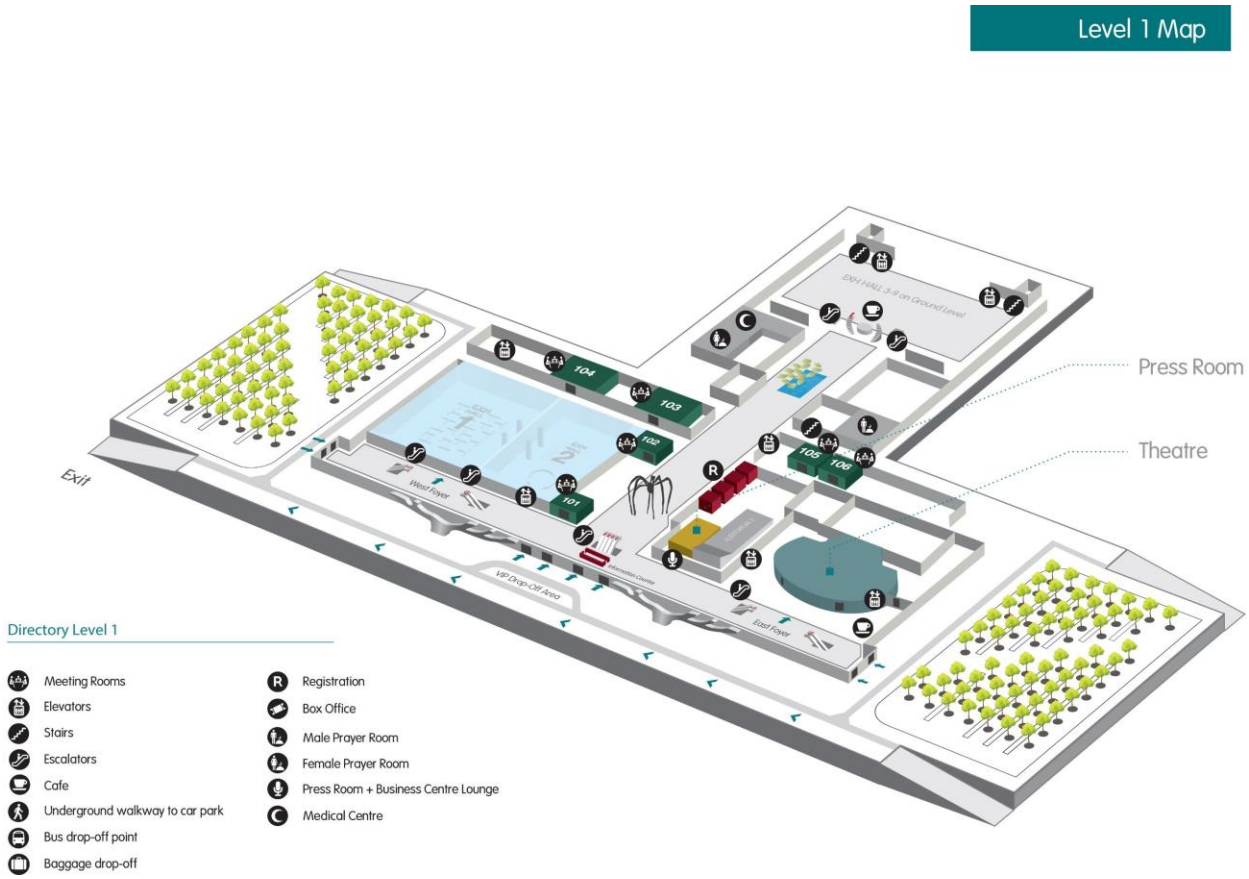
The convention centre will be a six-storey structure with a basement measuring about 250m long and 110m wide. The iconic design of the building will be a huge organic structure resembling two intertwined trees in the main façade. It represents Sidra Tree, a beloved and multifaceted icon in Qatari culture and the emblem of the Qatar Foundation. The tree is a beacon of learning and comfort in the desert, a shady haven for poets and scholars who gather beneath its branches to share knowledge. The tree structure will act as the main entrance and also support the external canopy of the building.

Structure/construction

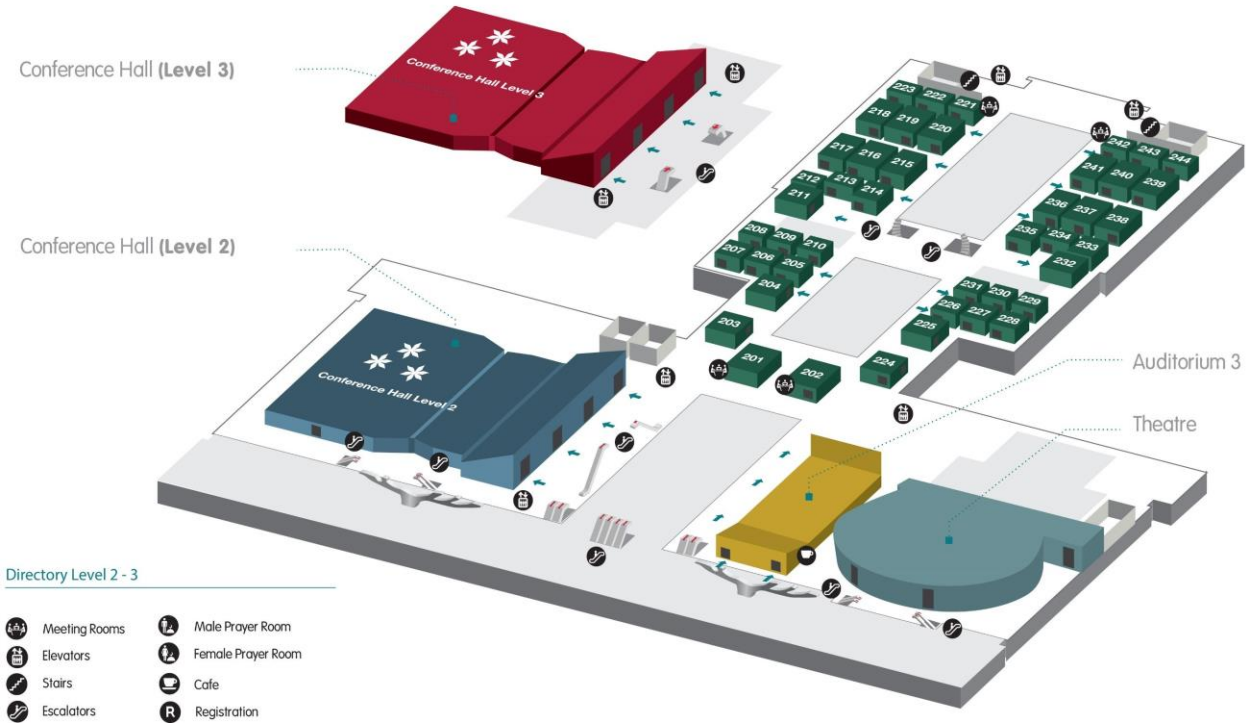
"The convention centre will be a six-storey structure with a basement measuring about 250m long and 110m wide. “

The building structure was constructed upside down from roof deck to the foundations using **Macalloy bars** to reduce costs. The **250m-long organic Sidra Tree** metal structures were fabricated in Malaysia and shipped for assembly to Doha. The concrete roof deck of the building will be a 40m-long and 30m-wide structure supported by the tree structures.

The steel tree structures grow from two concrete bases along the façade and divide into four branches. They are made with structural core of octagonal tubes. The iconic Sidra Tree branch façade will change its color daily due to six undercoats.



Level 2 Map



Directory Level 2 - 3

- Meeting Rooms
- Elevators
- Stairs
- Escalators
- Male Prayer Room
- Female Prayer Room
- Cafe
- Registration

MAMUN MILITARY STATION, FIELD REGIMENT, PUNJAB

Artillery units are called regiments and are categorized as field and medium depending upon the type of guns held. Each regiment is composed of approx. 600 men, 18 guns and associated vehicles and equipment's.

76 field regiment has a total strength of 550 with 27 officers, 33 JCO's (junior commissioned officer), 498 OR's (sepoy).

SITE AREA: 62 ACRES
BUILT UP AREA: 25 acres
ARCHITECT: M.E. S
CLIMATE: Hot and dry climatic conditions.

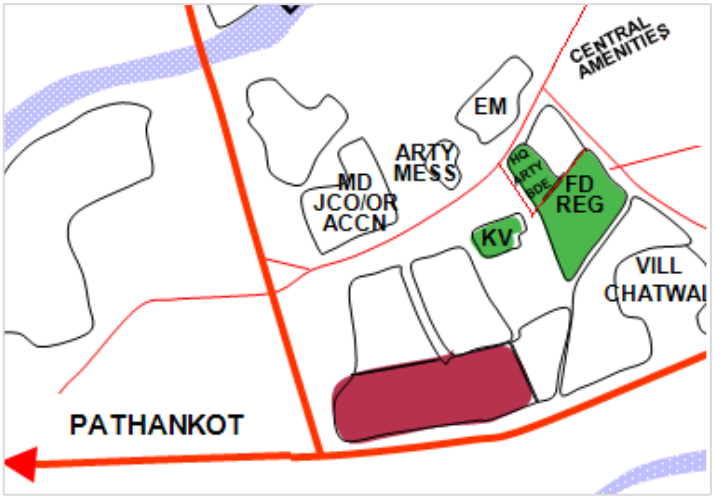
FIGURE 2 – ENTRANCE CHECKPOINT

LOCATION AND ACCESS:

The site is located in Mamun military station, opposite the Arty Headquarter.

SURROUNDINGS:

- It has the arty headquarter opposite to it.
- And is surrounded by wild growth on the other three sides.

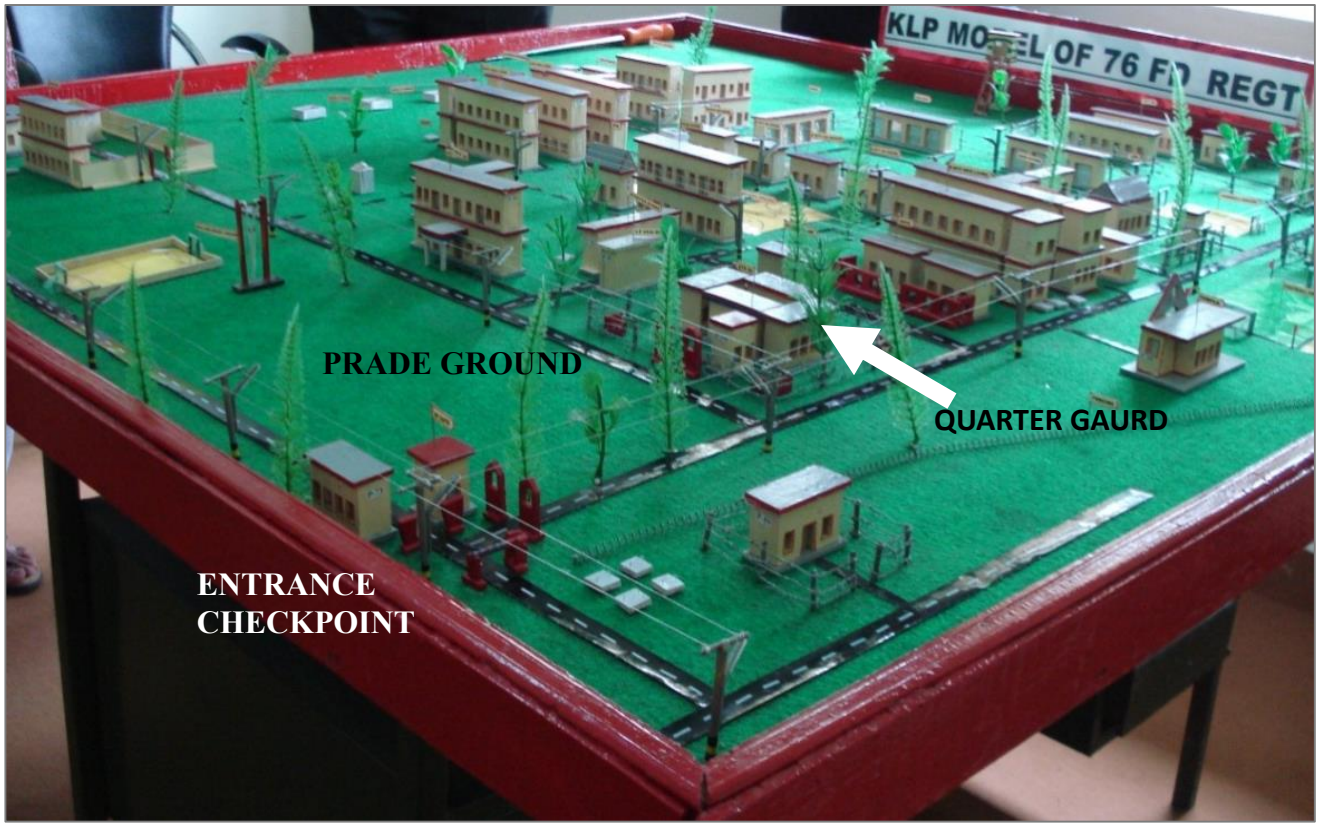


INTENT OF CASE STUDY

Reason of selection of this project as a case study was the similarity of context of this regiment with my project.

- The KLP is situated in the same location and climatic zone as that of my project.
- To know and understand the requirements of a KLP regiment.
- To study the arrangement and interlink age of various components and activity spaces.

- To understand the circulation within a KLP.



BASIC PLANNING AND LAYOUT

SITE PLANNING:

The site has an area of 62 acres and has a square shape.

SECURITY:

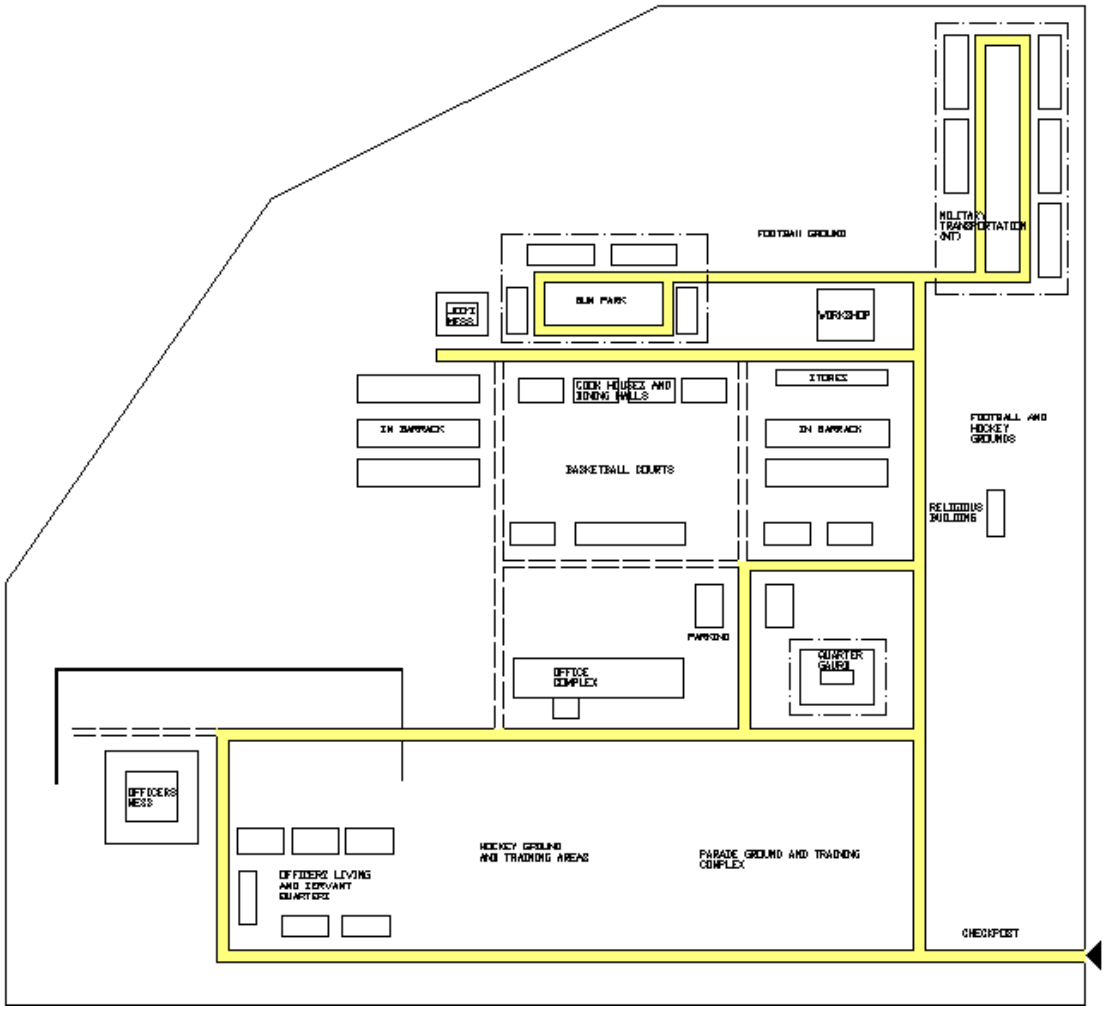
To ensure the security of the offices, stores, arms, specialized vehicles, and to stop the entry of unauthorized persons and stray cattle a 2.1m high security fence with swam neck surrounds the site.
Watchtowers have been placed at

PLANNING:

Grid iron pattern has been followed in the site planning.

CIRCULATION:

The circulation is well planned throughout the site, keeping the vehicular traffic restricted to the periphery.
The road to the tank sheds and other military transportation is kept to the periphery, completely segregated, to allow easy transportation in case of war.
Roads are 3.65 and 5.5 meter wide.
An integrated plan has been followed keeping the appropriate inter location of various items needed for the functional efficiency of the unit in mind.
Certain buildings of higher security have fencing even inside the site, for e.g. Quarter guard, Gun Park.
The administrative building has been placed at the front of the site providing a dominating façade and blocking the view of the other building in its background.
The quarter guard (the store house of all the arms and ammunition) has been placed next to the administrative building.
The location of the lines are so placed that each part of the unit is easily accessible to the sepoys. They are actually at the core of the whole unit.



INDIVIDUAL BUILDINGS:

Linier planning has been followed in all the buildings.

Two storied construction has been used to keep in harmony with the town/cant planning.

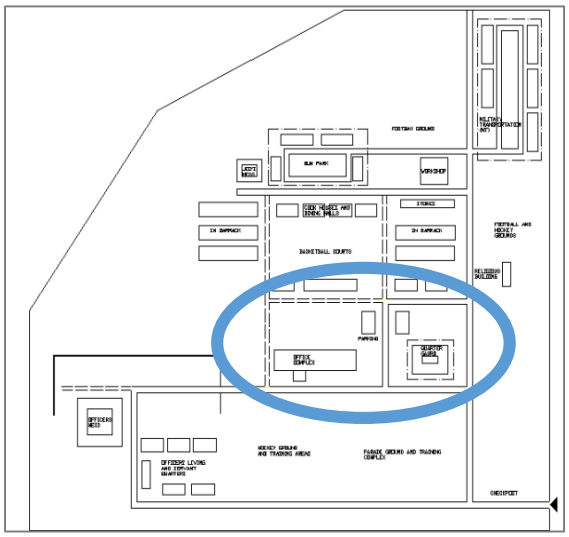
Mamun being in seismic zone 5, two stories load bearing construction has been followed.

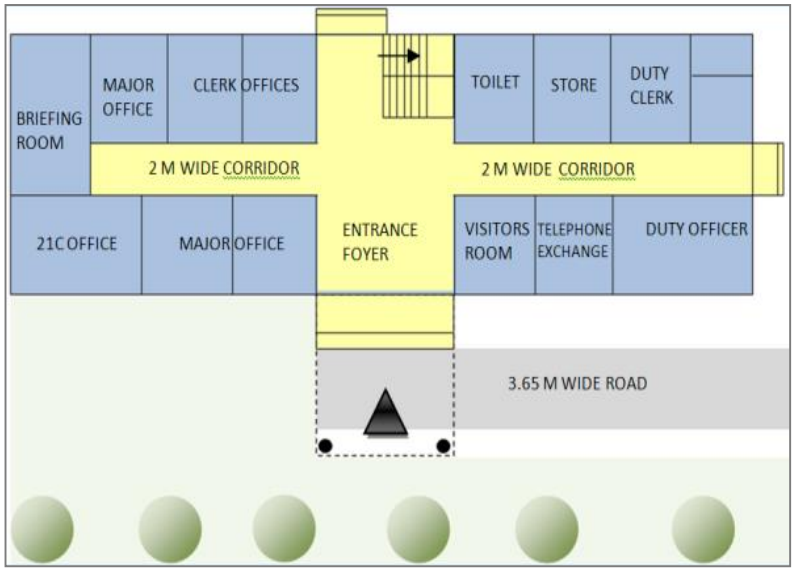
The various functions in a regiment/unit are as follows:

1. Administration block
2. Guard house and Armory
3. Officer's mess and officers' quarters
4. Garage
5. Service quarters
6. JCO mess and living accommodation
7. Single man (SM) barrack
8. Cook houses and dining halls
9. Storage and workshops
10. Gurdwara / temple
11. Sports ground (hockey, football, basketball and volleyball)
12. Training areas
13. Open spaces:
14. Landscaping of the area.
15. Internal road layouts and sewage systems in the area.

ADMINISTRATIVE BLOCK:

- The administrative block occupies a central location in the site ensuring maximum accessibility from all areas.
- It houses the offices, conference rooms, classrooms etc.
- The building has a linier plan with offices on either side of a central corridor.
- The building is a two storied load bearing structure.
- Rooms of the duty officer and the duty clerk have been planned close to the entrance to enable locking up of the main administrative block separately during off duty hours.





QUARTER GUARD:

The *Quarter Guard* is the most important building in a KLP. It consists of all arms and ammunition required for the soldiers during a crisis. It is designed in such a way that it is accessible from all parts of the site without hindrances.

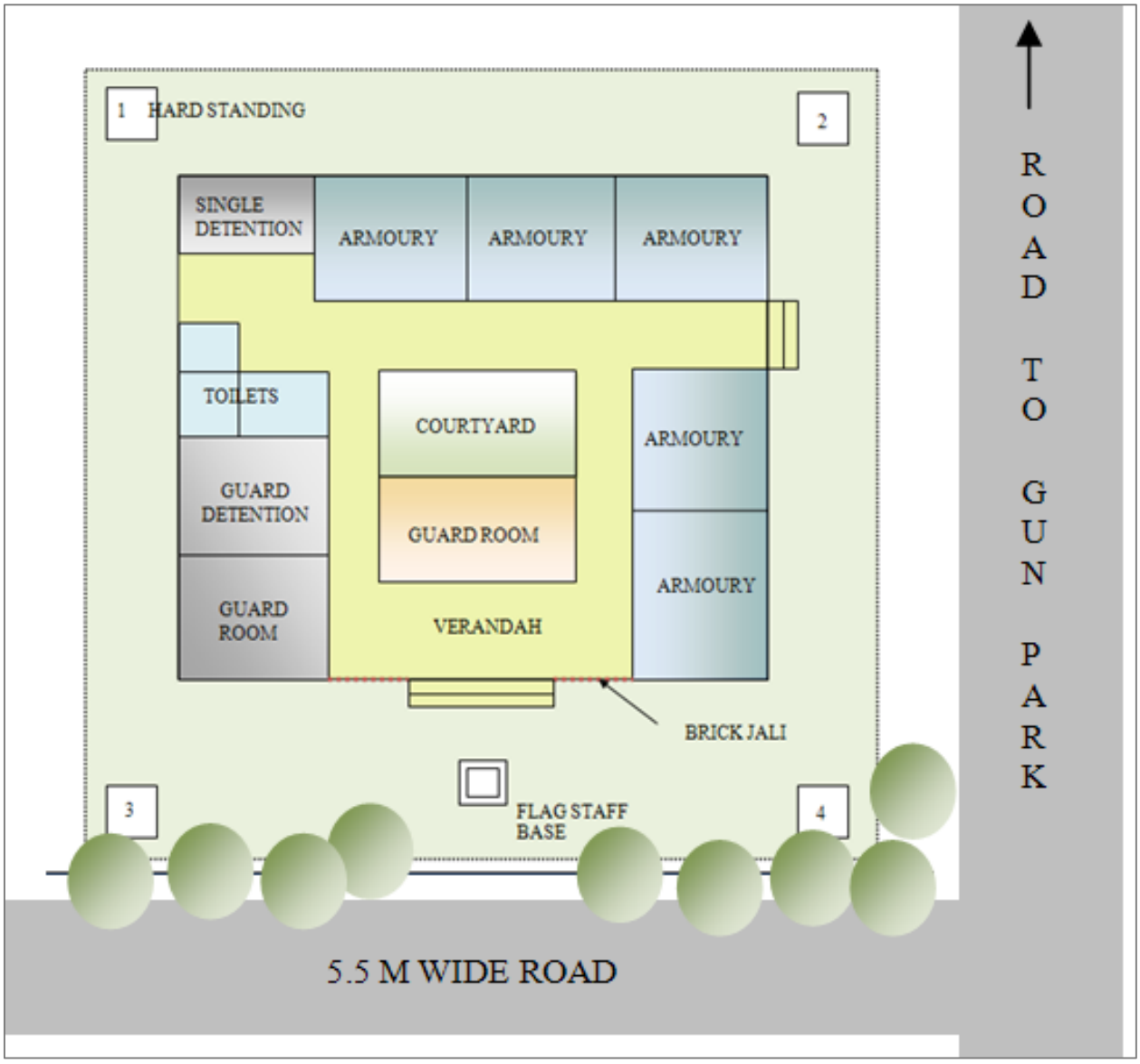
It is located at the vantage point in the unit area so as to give a clear view of the entrance to the unit.

The quarter guard has been placed next to the administrative building so that it is in the view of the Commanding Officer.

PLANNING:

- The quarter guard is a single storeys structure with a central courtyard and rooms all around it.

- It is a high security building with guards at the entrance, and fencing all around.
- Windows are replaced with ventilators as the rooms are store rooms with ammunition and arms in them.
- The guard room has been sub divided further into office, rest and dining space.
- The guard house has five rooms acting as armories for individual battery.
- These armories contain two tier shelves (600 mm wide), for storing the weapons.



OFFICERS MESS AND LIVING:

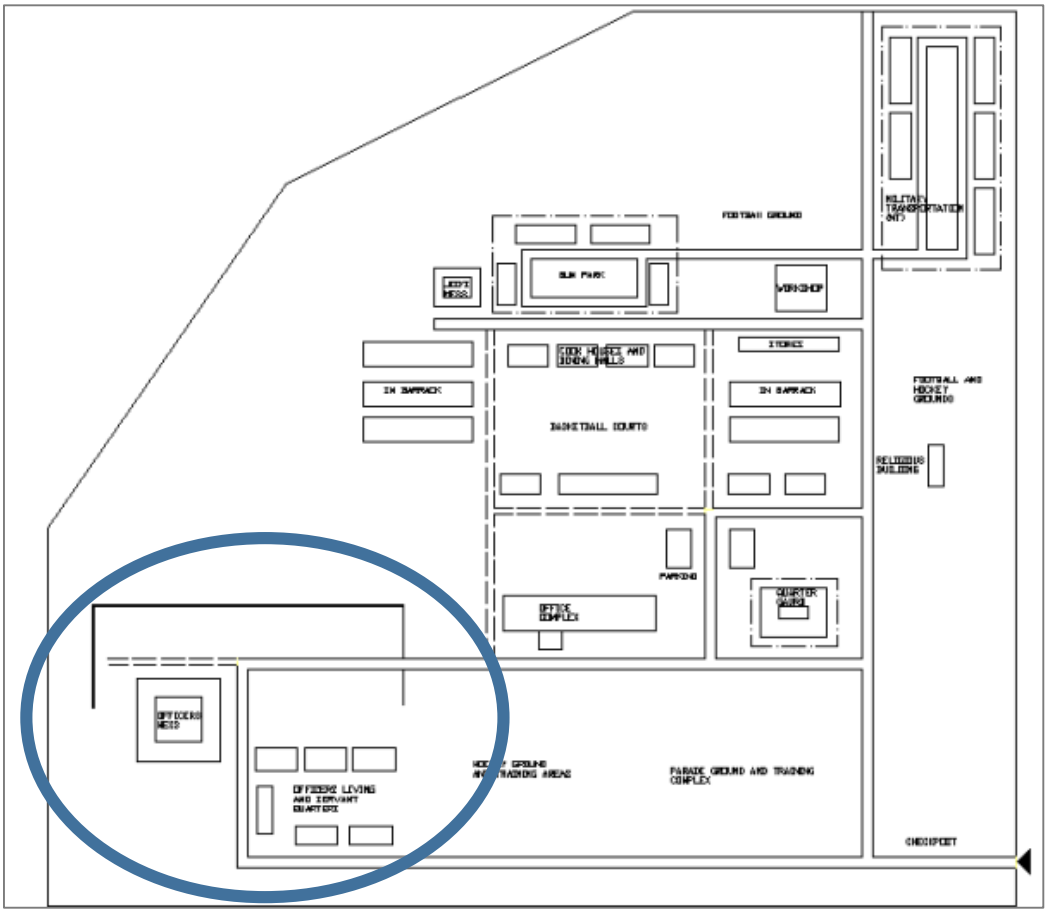
The officer's mess is the most lavish building of the regiment which is rich in heritage artifacts and silver trophies diligently preserved over the years.

The officer's mess located away from the main building complex of the unit.

- The officer's mess has a separate road network that leads to it, for access by guests and outsiders.
- Located close to the officer's mess are the living quarters of the officers along with servant quarters close by.
- It has a low-cost parking for cars and scooters.

Planning

Central courtyard planning has been adopted, and the area has been used as a badminton court.



ANTER ROOM:

- it is a large room for gatherings and other function.
- It is lavishly decorated with the regiment legacy.

OFFICERS LIVING ACCOMMODATION

- These are accommodations for single officers within the KLP.
- They are planned close to the mess as they dine here.

PLANNING

- Two modules have been clubbed together, through a central staircase.
- Each module has four houses, spread on two floors.

GARAGES AND PARKING

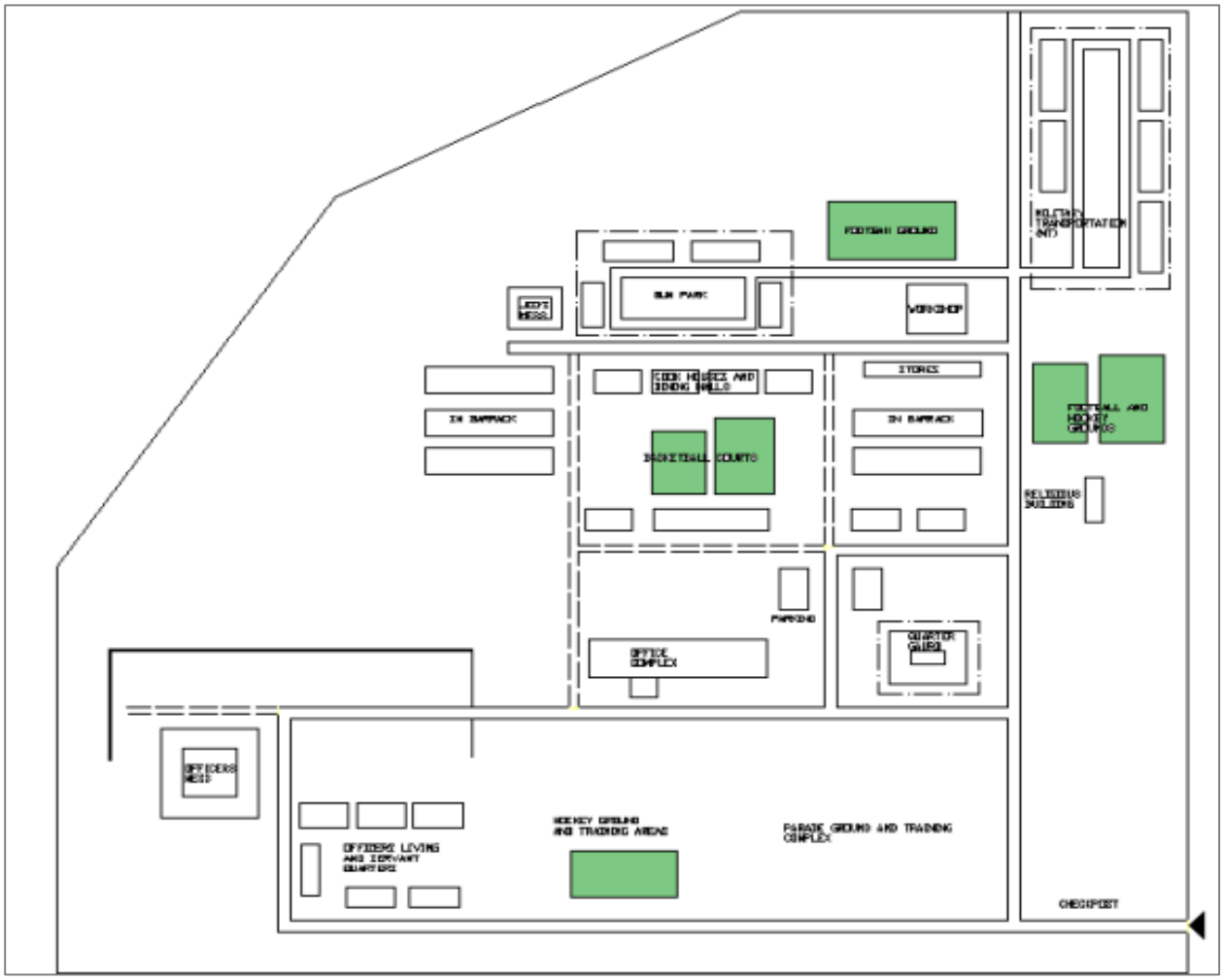
- Shed type garages have been provided for vehicles in a compact suit, providing administrative convenience of the unit and effective utilization of space.
- These garages are low cost avoiding shutters due to the high security prevailing within the site.
- Parking for vehicles has been provided close to the officer's mess and the administrative block.
- The garages have brick jails.

RELIGIOUS BUILDING

- It is compulsory for every KLP to have a gurdwara or temple, according to the majority of occupants.
- 76 Field regiment is a mixed regiment with equal strengths of Hindus and Sikhs and hence has a gurdwara and mandir in its premises.

LANDSCAPE

- Ornamental trees such as Ashoka, Gulmohar have been placed in the area of the main office complex, Quarter Guard, Officer's Mess and the JCO's mess.
- Hedges have been grown all along the roads and boundary walls, serving as a zone divider.
- The Administration Block, Quarter Guard, Officer's Mess and the JCO's mess have well maintained lawns in front of them.
- Trees have been planted all over the site, as well as along the roads creating beautiful avenues.



ARCHITECTURAL FEATURES

All buildings have been given an external color wash in lime.

The buildings have horizontal bands of red on the façade demarcating the columns, Chajja and the roof line.

SERVICES:

- **Water supply**: Daily requirement of the regiment is 70,000 gallons per day. A nearby overhead tank caters to the water needs of the unit.
- **Firefighting**: has been provided as water hydrants and fire extinguishers close to the quarter guard, cook house, workshops, mess.

INFERENCES

POSITIVE

- The placing of the various blocks has been done according to the various functional requirements thus facilitating the movement of men inside the complex.
- No high-rise structures, most buildings have double story.
- The three living quarters have been segregated from each other to avoid interference between them. Their messes have been located close by and are connected by open spaces.
- Vehicular movement has been restricted to the periphery, thereby not interfering with the daily routine.
- The garages have been provided with a linier road connecting it directly to the entrance, thereby making evacuation simpler.
- The living quarters of the ORs have been clubbed together creating a central open space which has been used as sports field.

NEGATIVE

- Common services cannot be provided inside the complex since all the elements are scattered here and there throughout the campus.
- The built-up areas have been distributed all over the site creating unusable spaces.

SIGNALS REGIMENT, CHANDI MANDIR

INTRODUCTION

Signals are essentially the NERVES of the Army. Like the nerves in our body connect the brain to the sensory organs and also to the limbs. It is through the nerves that the brain receives inputs from the various sensory organs.

In the same manner, the Signals, connects the troops and the Army Headquarter, the brain of the Army. These inputs are processed at the Headquarters and converted into action plans. Therefore, it is the responsibility of the Signals to convey these operational plans to the troops who execute them.

The key location plan of the signals regiment at Chand mandir is a KLP for strength of 421 men.

INTENT OF CASE STUDY

Every unit in the Indian army has a similar arrangement of functions and building type.
The Signals regiment is one of the latest KLP constructions in India, incorporating a different style and arrangement of functions.

This case study will help me understand the site planning and architectural style being followed in the army today. And to study the arrangement and interlink age of various components and activity spaces held within a KLP.

LOCATION

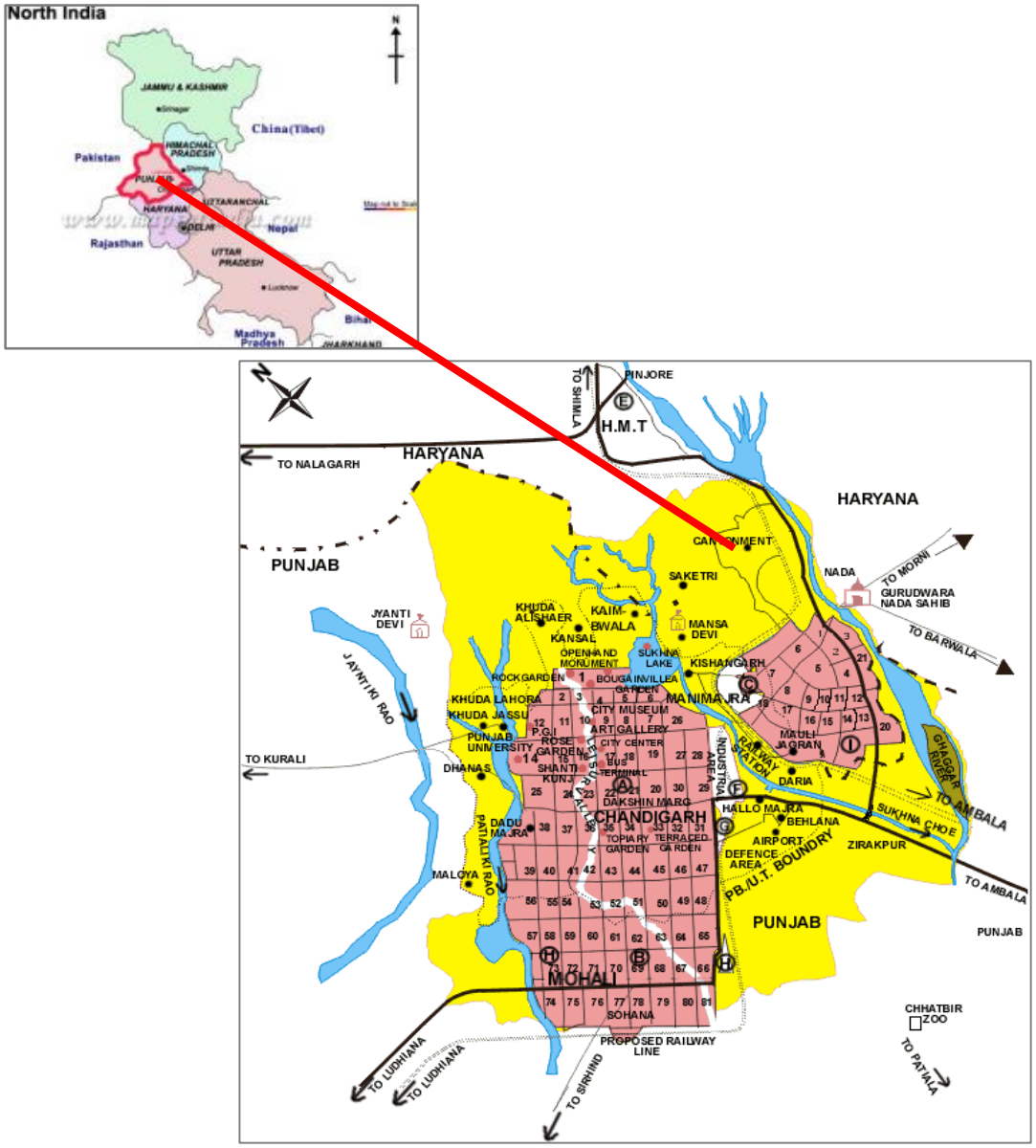
The site is located in the Chand mandir cantonment, in Panchkula city, Haryana

ACCESS

The site has two main entrances connecting it to the main road. These entrances cater to different functions and finally join at the Administration block.

SURROUNDINGS

The Division headquarters are opposite the site and the Shivalik ranges in its background this regiment holds an important location within the cantonment.



INTRODUCTION

SITE AREA: 58 ACRES
BUILT UP AREA: 15 acres
ARCHITECT: M.E.S (military engineering services)
CLIMATE: Hot and dry climatic conditions

BASIC PLANNING AND LAYOUT

The site planning has been done radially, with roads cutting the site into three sections.

SECURITY

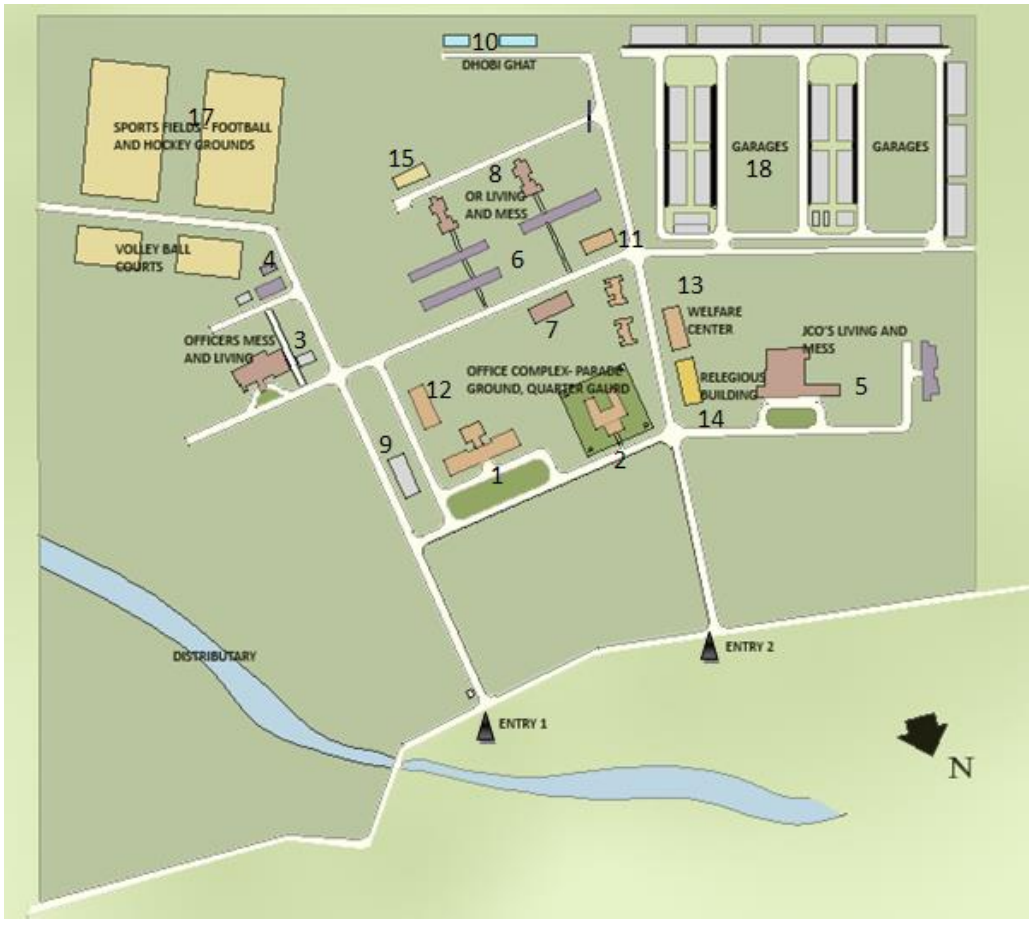
The site is enclosed by barbed wiring, with certain areas within the site having their own wiring, these buildings being of more importance. The quarter guard is one such building.

THE SITE HAS THE FOLLOWING:

Administrative building
Quarter guard
Officers mess and single officers' quarters
Servant quarters with officers living
JCOs mess and single JCOs accommodation
Single accommodation for havaldars and or institute
Cook house and dining
Parking
Drying and ironing sheds
Unit trade shop
Education building
Family welfare Centre
Religious building
Training sheds
Parade ground

Sports fields – football hockey volley ball basketball

Covered accommodation for vehicle (low cost) "b" vehicle



OFFICE BUILDINGS
LIVING QUARTERS
MESS BUILDINGS
GARAGES

SPORTS FIELDS
RELIGIOUS BUILDING
DHOBI GHAT

INTRODUCTION

The site has been divided into three zones by the roads:
The central zone contain the office complex and the OR living quarters.
On one side are the officers living quarters and the sports fields.
And on the other side is the JCOs living quarters and the garages.

CENTRAL ZONE

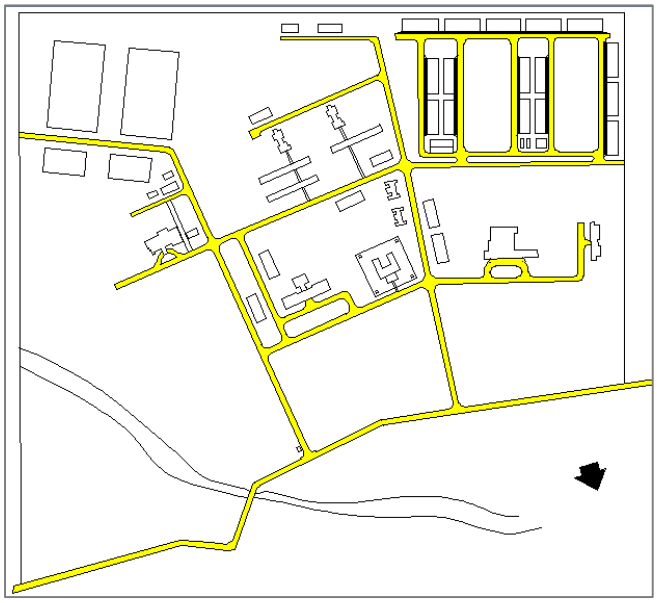
The office complex (administrative block, Quarter Guard, education building) is placed close to the entrance, and can be accessed from both the entrances.
The OR (other ranks) living quarters have been placed in the core of the site, giving the jawans easy access to every part of the site.

LEFT ZONE

The Officers Mess and living can be directly accessed from the entrance.
The sports fields have been grouped together at the rear of the site; it consists of the football and volleyball grounds.
Right Zone
The JCOs living and mess have been planned close to the entrance providing them a separate access.
The religious building and the welfare center are also located here close to the vehicle access.

The garages are located at the back of the site creating, as they are do not need to be accessed from outside.

CIRCULATION

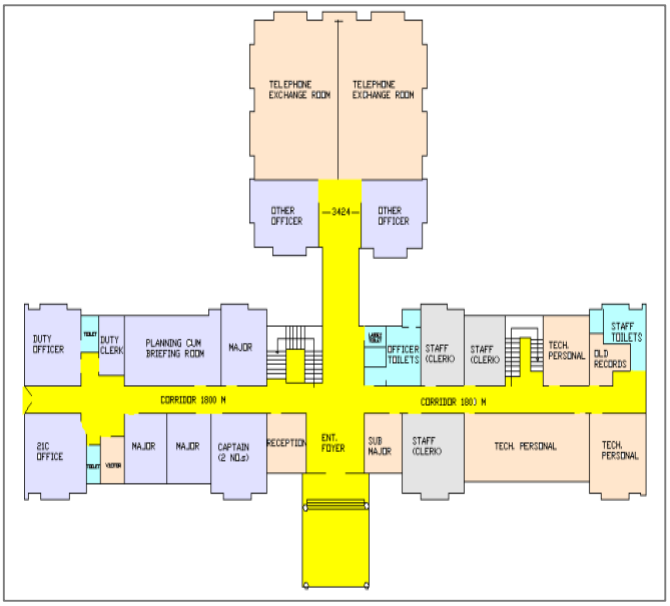


The roads width is 3.65 m for secondary roads and 5.5 m for primary roads.
All buildings have been provided with vehicular access.

INDIVIDUAL BUILDINGS

Linier planning has been followed in all the buildings.
Two storied construction has been used to keep in harmony with the town/cantonment planning.
Chandigarh being in seismic zone 4 two stories load bearing construction has been followed.

ADMINISTRATIVE BLOCK



The administrative block occupies a central location in the site ensuring maximum accessibility from all areas.
It is divided into two blocks, the office block and the telephone exchange block.
It has a two wheeler low cost parking for-
-100 bicycles
-50 scooters

PLANNING

The building plan is T-shaped with central corridor planning.
The building is a two storied framed structure.
The offices of the officers are placed in the right wing and the left wing contains the offices of the staff, the toilets and the pantry.
Rooms of the duty officer and the duty clerk have been planned close to the entrance to enable locking up of the main administrative block separately during off duty hours.
It contains a library for 10,000 books.
Sanitary annex facilities are provided for 83 persons (approx.).

Vertical Circulation

Two staircases have been provided for the vertical circulation.
The shorter side contains the telephone exchange block, and the longer side contains the offices.
The first stair case can be accessed from the central lobby and the second has been provided in the right wing of the administrative block
It divides the block into two equal halves with offices on both sides.
Adjoining to the entrance foyer are the reception, staircase.
It acts as connectivity between the office block and the telephone exchange.

OFFICERS MESS AND LIVING

The Officer's Mess is one of the most important institutions of the Indian army. It epitomizes the art of graceful, dignified and aesthetic living.

The Officer's Mess located away from the main building complex of the unit.

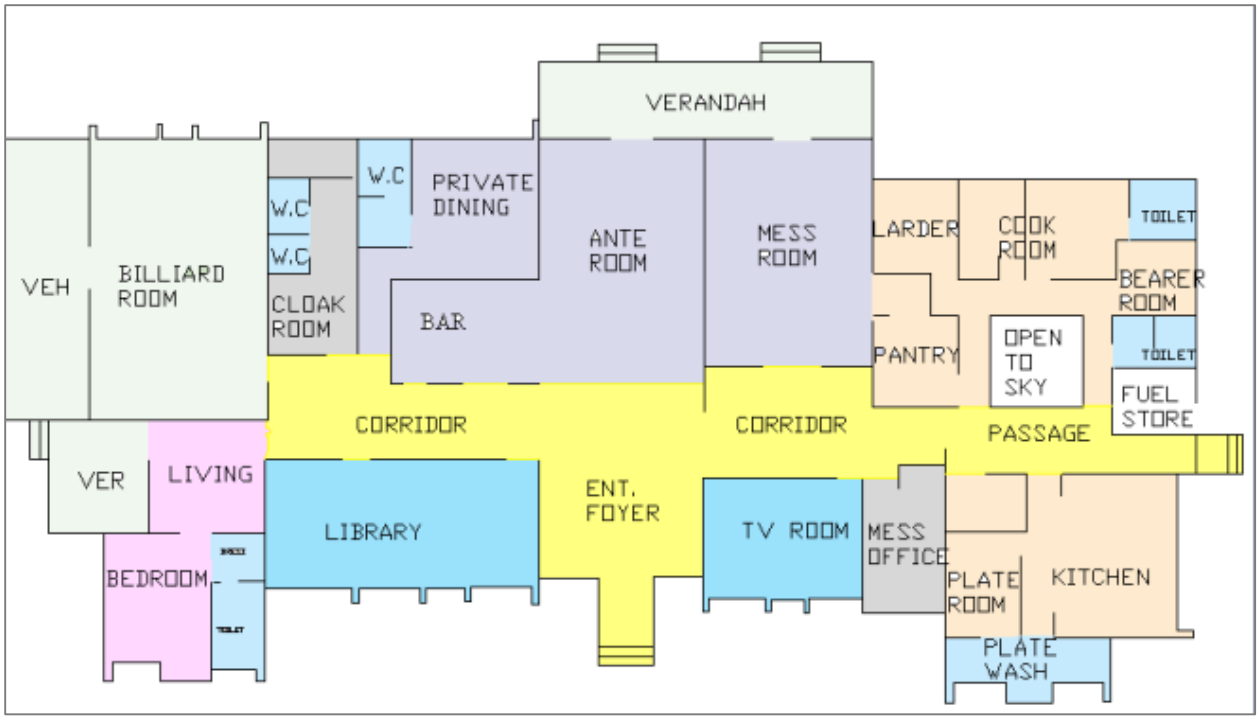
ACCOMMODATION STATEMENT

Given below is the accommodation statement of the signals regiment which defines the number of men to be provided with single men accommodation.

The Officer's Mess has a separate road network that leads to it, for access by guests and outsiders.

Located close to the Officer's Mess are the living quarters of the officers along with servant quarters close by.

PLANNING
The entrance foyer creates an ambience of grandeur.
Combined with the ante room is the bar, and pantry.
In the core of the building are the ante room and the mess room.



SINGLE MAN (SM) BARRACK

The accommodations for havaldars – OR (other ranks) are known as lines or barracks. Signals Regiment has three batteries and there is one line for each battery.

The lines occupy the prime position in the site, with easy access to all other area of the site.

The lines have separate dining space connected through a covered passage.

PLANNING

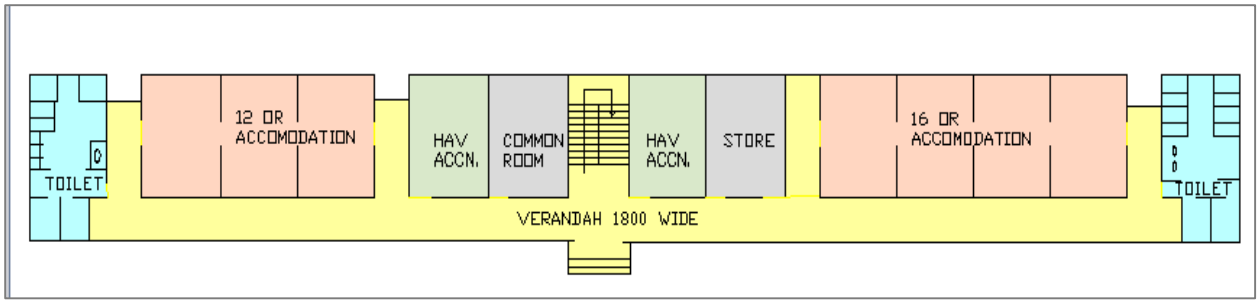
The lines are linier in plan, with all rooms opening into a verandah.

Verandahs have been provided to overcome the extreme summers faced in this part of the country.

The toilet blocks are at either end of the lines.

Vertical circulation is through a staircase that has been placed conveniently in the center of the building.

RCC Jali has been used in the elevation.



COOK HOUSE AND DINNING HALL

Kitchen Area: 7600x4200

Dining Hall Area: 10900X5400

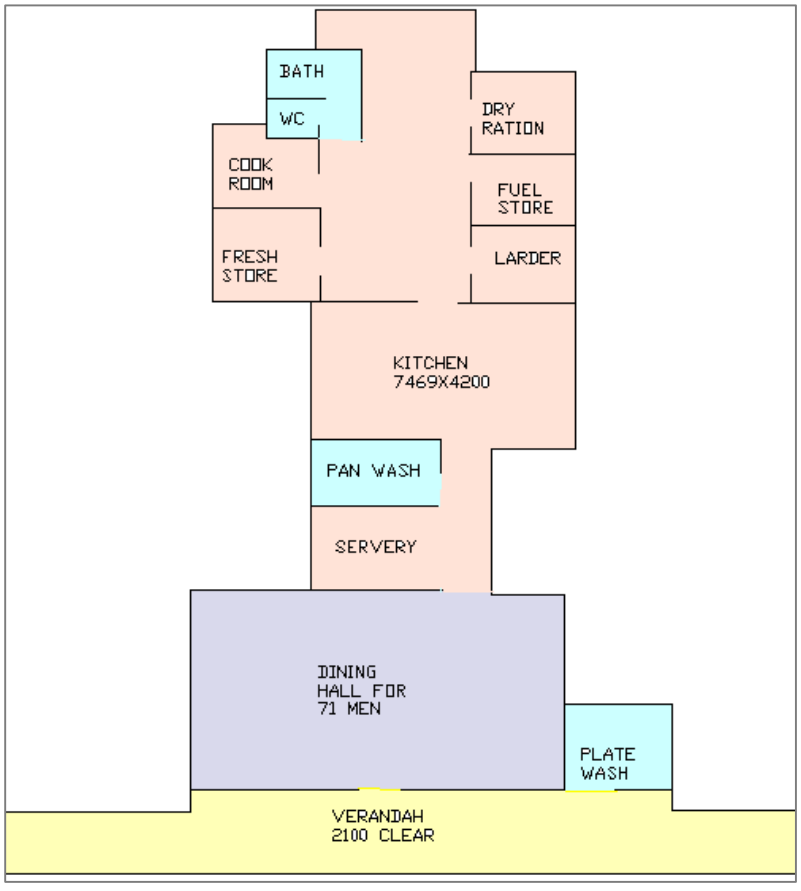
It is placed close to a vehicular access for various services

All the cook houses and dining halls follow the same planning.

GARAGES AND PARKING

Signals regiment is included in the support arms regiment of the Indian army,

These are open garages to store the different army vehicles within the K.L.P.



SPORTS FIELDS

All the sports fields have been clubbed together and are located at the rear of the site.

The following fields are present:

Two football fields
Two volleyball fields

SERVICES:

Daily requirement of water supply to the KLP is about 70,000 gallons per day.

There is a tube well and an overhead tank existing in the location which satisfies the water demand.

INFERENCES

POSITIVE

The zoning in the site has been done in regard with the inter relationship between various building block and various functional requirements.

The living areas of the three ranks have been distributed over the site so as to avoid interference between the three.

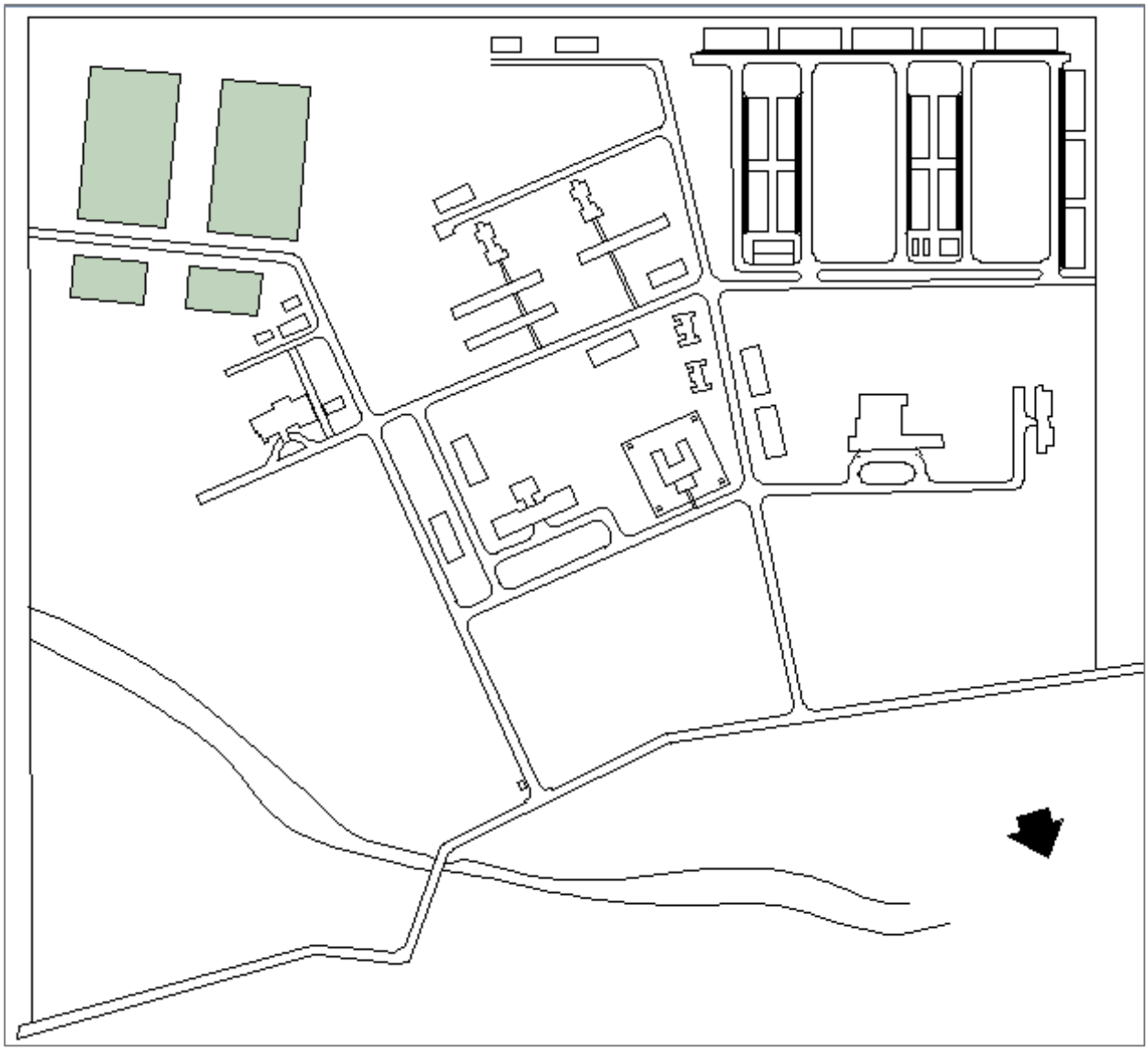
The OR living quarters have been placed centrally to give the jawans easy accessibility of all areas within the KLP.

The garages have been placed at the back of the site, thereby avoiding any hindrances in the daily functioning of the regiment.

NEGATIVE

The built up area has been distributed all over the site, creating huge unusable spaces.

The sports field has been placed at a very secluded zone.



SITE ANALYSIS

Site Location

Site Evolution

Figure ground Map

Site Urban Analysis

Site Connectivity

Site Images

Site Condition

Site Surroundings

Climate Analysis

Climate Analysis Diagram

Site Context Images

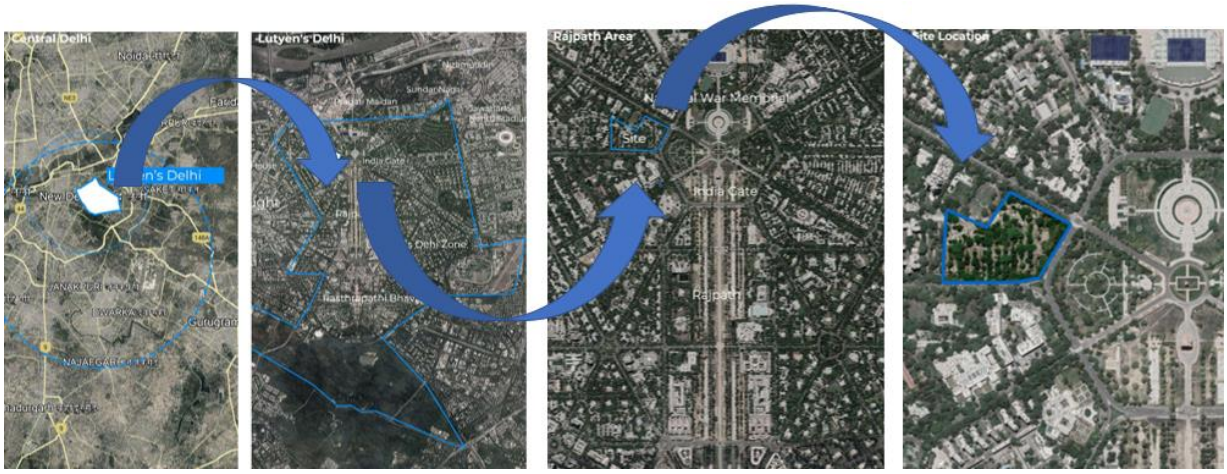
SWOT Analysis

SITE LOCATION, SITE SURROUNDING & CONTEXT

Central Delhi is home to numerous iconic architectural entities that are world renowned. these entities remain glorious examples of Indo-European syncretic architecture that has few parallels anywhere else in the world. some of the iconic buildings are.

the site is located adjacent to the India gate in Lutyens's Delhi which is in central Delhi.

Lutyens' Delhi is an upscale, primarily residential neighbourhood surrounding a fountain and ponds in picturesque rashtrapati Bhawan park. it's home to government of. fices, including the grand 1927 parliament of India and its adjacent museum, along with a mahatma Gandhi statue, and a handful of laid-back coffee shops and eateries



SITE EVOLUTION

Mapping the changes

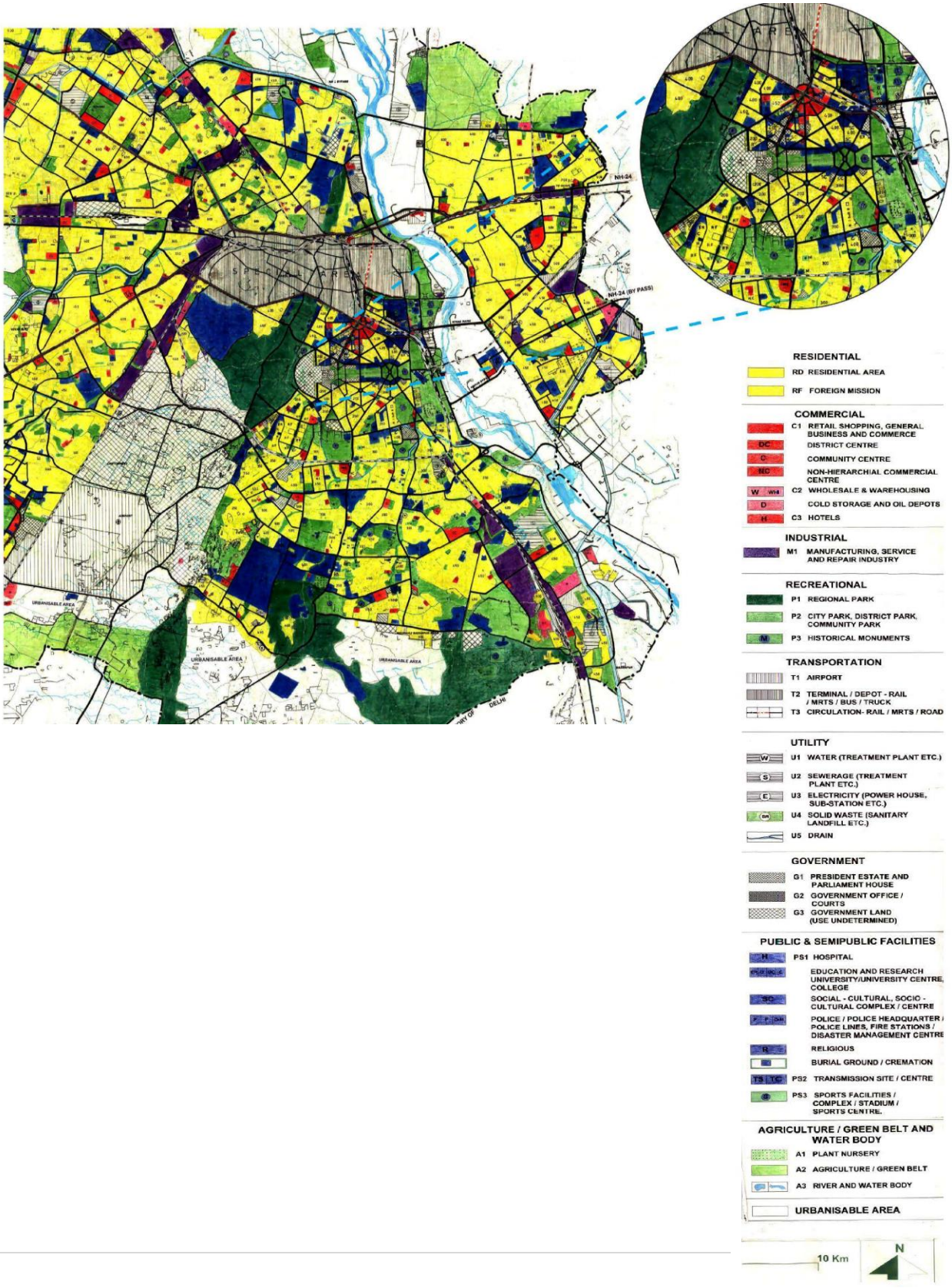
URBAN ANALYSIS

BUILT FORM: the mapping has been done of the built form analysis of the site surrounding.

GREEN SPACES: Delhi has very fewer green spaces but near the zone of the site a lot of green patches can be seen on the center of the road and site.

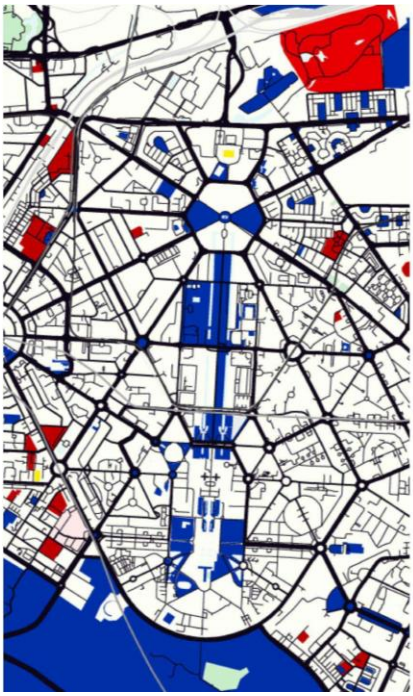
ROAD NETWORK: the road network consisted of diagonals and radials shape at 30 degree or 60-degree angles to the main axis, which forming triangles and hexagon.

LAND USE MAP

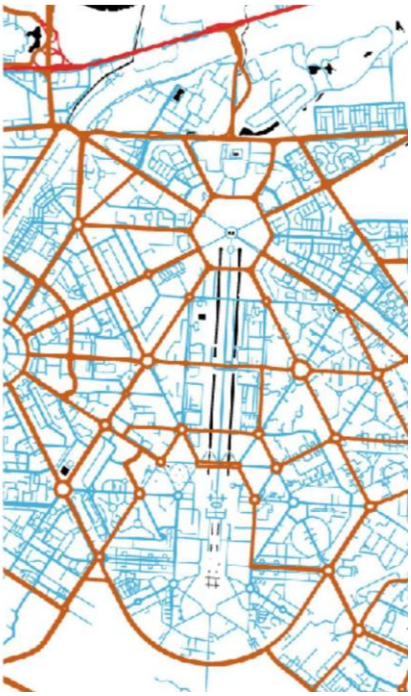

NH-24
NH-24 (BY PASS)
URBANISABLE AREA
URBANISABLE AREA
RESIDENTIAL
RD RESIDENTIAL AREA
RF FOREIGN MISSION
COMMERCIAL
C1 RETAIL SHOPPING, GENERAL BUSINESS AND COMMERCE
DC DISTRICT CENTRE
C COMMUNITY CENTRE
NC NON-HIERARCHIAL COMMERCIAL CENTRE
W WH C2 WHOLESALE & WAREHOUSING
D COLD STORAGE AND OIL DEPOTS
H C3 HOTELS
INDUSTRIAL
M1 MANUFACTURING, SERVICE AND REPAIR INDUSTRY
RECREATIONAL
P1 REGIONAL PARK
P2 CITY PARK, DISTRICT PARK, COMMUNITY PARK
M P3 HISTORICAL MONUMENTS
TRANSPORTATION
T1 AIRPORT
T2 TERMINAL / DEPOT - RAIL / MRTS / BUS / TRUCK
T3 CIRCULATION- RAIL / MRTS / ROAD
UTILITY
W U1 WATER (TREATMENT PLANT ETC.)
S U2 SEWERAGE (TREATMENT PLANT ETC.)
E U3 ELECTRICITY (POWER HOUSE, SUB-STATION ETC.)
SW U4 SOLID WASTE (SANITARY LANDFILL ETC.)
U5 DRAIN
GOVERNMENT
G1 PRESIDENT ESTATE AND PARLIAMENT HOUSE
G2 GOVERNMENT OFFICE / COURTS
G3 GOVERNMENT LAND (USE UNDETERMINED)
PUBLIC & SEMIPUBLIC FACILITIES
H PS1 HOSPITAL
EDUCATION AND RESEARCH UNIVERSITY/UNIVERSITY CENTRE, COLLEGE
SC SOCIAL - CULTURAL, SOCIO - CULTURAL COMPLEX / CENTRE
POLICE / POLICE HEADQUARTER / POLICE LINES, FIRE STATIONS / DISASTER MANAGEMENT CENTRE
R RELIGIOUS
BURIAL GROUND / CREMATION
TS TC PS2 TRANSMISSION SITE / CENTRE
PS3 SPORTS FACILITIES / COMPLEX / STADIUM / SPORTS CENTRE.
AGRICULTURE / GREEN BELT AND WATER BODY
A1 PLANT NURSERY
A2 AGRICULTURE / GREEN BELT
A3 RIVER AND WATER BODY
URBANISABLE AREA
10 Km
N

URBAN ANALYSIS

Built Form



Green Spaces

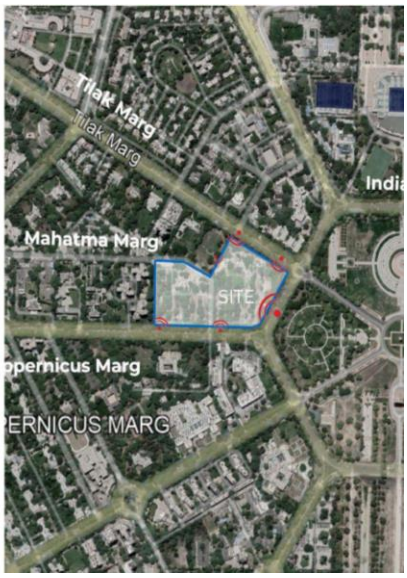


Road Network

SITE CONNECTIVITY

Road Connectivity

Airport, Railway & ISBT



Noise Sources

Road Connectivity

the site is surrounded by three roads

1. India gate circle (main)

2. Copernicus Marg (secondary)

3. tilak Marg (secondary)and intersected by mahatma Jyothi Rao marg. (tertiary)

Airport, Railway & ISBT

DISTANCES

NEW DELHI RAILWAY - 5.2 KM

SHAZRAT NIZAMUDDIN - 5.2 KM

SOLD DELHI RAILWAY - 11.8 KM

SKASHMIRI GATE ISBT. - 12.9 KMS

IGI AIRPORT - 196 KMS

Noise Sources

The major source of noise can be seen from the major road side which is from the India gate circle road. the secondary roads have comparatively lesser amount of noise source.

VEHICULAR MOVEMENT & TRAFFIC ANALYSIS

A variety of vehicle operate simultaneously. From private cars, to School buses to E-Rickshaws – these are multiple mode of transport present.

Site area & Present Site Scenario

Existing site plan showing the barracks and trees present on the site

CLIMATE ANALYSIS

Delhi's climate study

Delhi is characterized by long hot summers and a cold short winter with the rainy season in the months from July to September. the variations in the mean maximum and minimum temperatures for each of the months, the average rainfall and the variation in average relative humidity are provided in the charts and graph enclosed

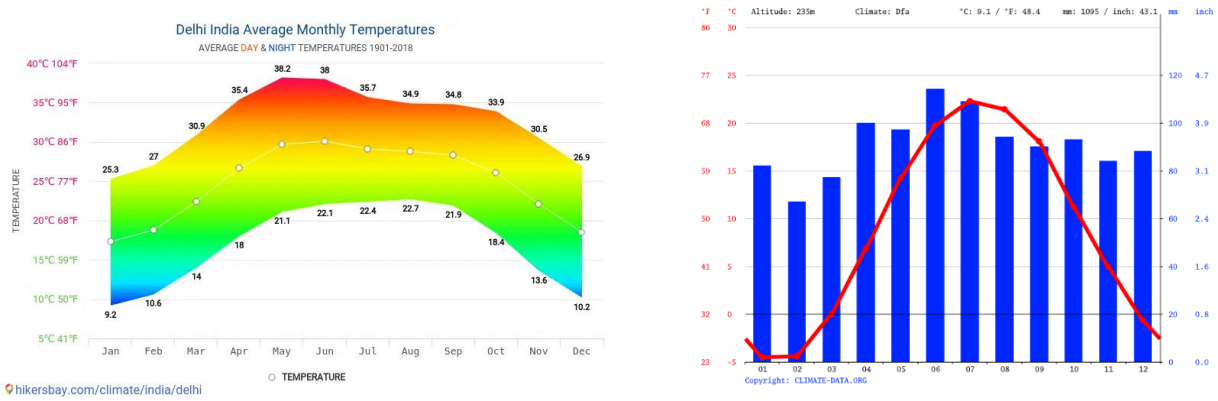
TEMPERATURE

Delhi features a humid subtropical climate. Temperatures range from 5 to 40°c (41.0 to104.0°f) with the lowest and highest temperatures ever recorded being -2.2 and 48.4°c (28.0 and119.0°f) respectively. the annual mean temp 42.5°c (77.0°f) and the monthly mean temperatures range from 13 to 32°c (55 to 90°f). the average annual rainfall is approximately 714 mm (28.lin), most of which falls during the monsoon in July and august. the average date of the advent of monsoon winds in Delhi is 29 June.

Mean Minimum & Maximum Temperatures, Average Rainfall, No. of Rainy Days and Average Relative Humidity of Delhi (M.O.

Month	Mean Temperature		Mean Rainfall (in mm)	No. of Rainy Days	Average RH(%)	
	Maximum	Minimum			Maximum	Minimum
January	20.8	7.8	20.9	1.7	77	45
February	23.7	10.3	21	1.3	68	37
March	29.6	15.4	14.5	1.2	39	29
April	36	21.5	10.7	0.9	37	20
May	39.8	26.2	14.1	1.4	52	21
June	39.4	28.3	66.3	3.6	75	35
July	35.2	27	198.4	10	80	61
August	33.6	26.2	206.5	11.3	72	68
September	34	24.7	130.3	5.4	72	56
October	32.9	19.4	20.8	1.6	62	41
November	28	12.8	3.9	0.1	61	40
December	22.7	8.4	8.8	0.6	73	47

Monthly Rainfall & Temperature Chart

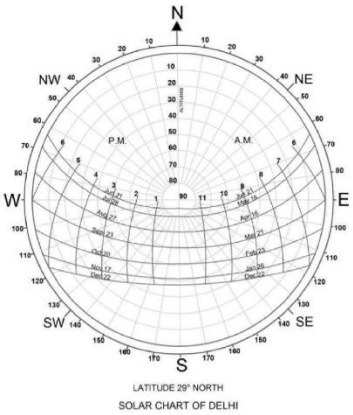


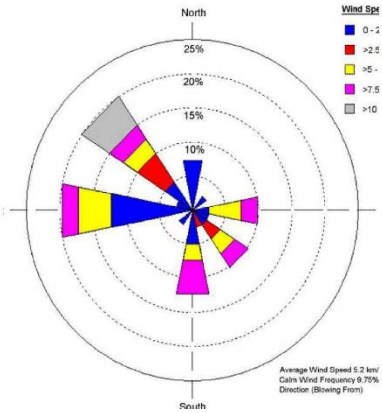
Rainfall & Temperature Graph

CLIMATE ANALYSIS (SUN PATH & WIND DIRECTION)

Wind Direction

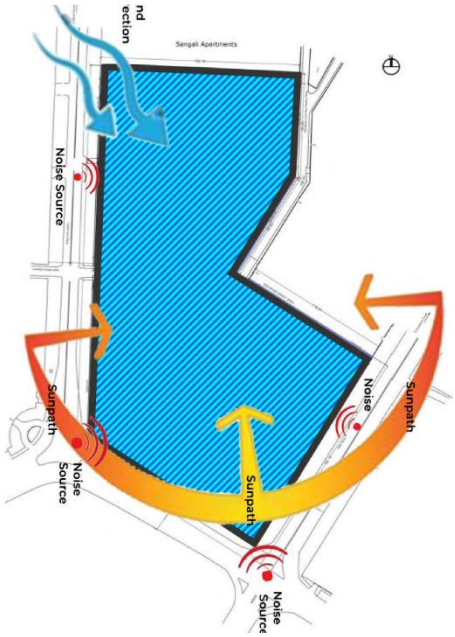
The Prevailing Winds are Predominantly from North-West both in summer and inn winters



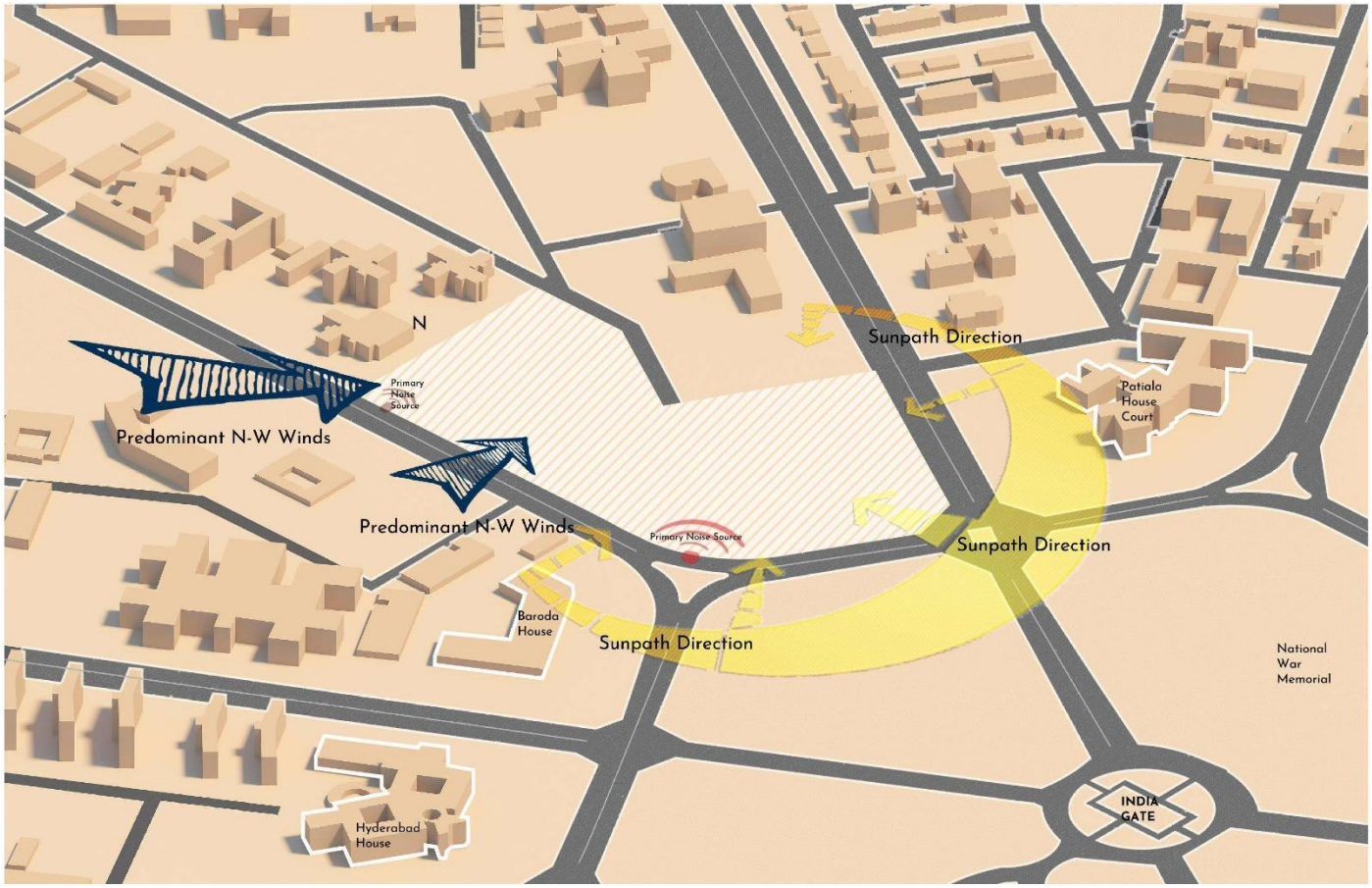


Sun Path

Adequate sun exposure is present on site which makes it possible for solar energy generation and creating multiple traces



CLIMATE ANALYSIS DIAGRAM



SWOT ANALYSIS

STRENGHTS

- THE SITE IS LOCATED IN PRIME AND CENTRAL PART OF CITY WITH ALL OTHER GOVERNMENT BUILDINGS IN IT'S LOCAL VICINITY.
- CONNECTED THROUGH PRIMARY ROAD, EASIER ACCESS
- CAN BE ACCESSED THROUGH SERVICE LANE
- LOCATED IN A VERY HIGH SECURITY ZONE AND HENCE WILL CREATE NATURAL SURVEILLANCE FOR THE SITE

WEAKNESS

- ADJACENT TO PRIMARY ROAD-SOURCE TO FAST TRAFFIC AND NOISE
- EXTREME WEATHER CONDITIONS

OPPORTUNITY

- LOCATED ADJACENT TO THE RAJPATH AND INDIA GATE WHICH ALREADY HAS A VERY HIGH FOOTFALL
- WELL CONNECTED NETWORK OF ROADS
- GREEN SPACES SUCH AS THE PRINCESS PARK, LOCATED ADJACENT TO THE SITE CREATES OPPURTUNITIES FOR CLIMATE RESPONSIVE DESIGNS
- CAN BE CONNECTED TO THE NATIONAL WAR MEMORIAL

THREAT

- PRESENCE OF STRONG ARCHITECTURE VOCABULARY IN THE AREA BOUND TO THE GUIDELINES OF LUTYEN'S BUNGALOW ZONE WHICH MIGHT RESTRICT THE ARCHITECTURE FREEDOM TILL SOME LIMIT.
- PRESENCE OF HUGE NUMBER OF TREES ON THE SITE WHICH HAS TO REPLACE IN 1:3 RATIO IF BEING CUT DOWN

BYE-LAWS & AREA PROGRAMMIING

Standards

Bye-Laws

Program Analysis

Area Programming

STANDARDS ANDBYE-LAWS

Maximum Ground Coverage – 35%

F.A.R – 1.20

Maximum Permissible Height – 26M

Open Space

Front – 12M

Side – 6M

Rear – 6M

Staircase Requirements

Minimum Width of Staircase-2 M

Minimum Width of tread- 300 mm

Minimum Riser- 150 mm (max 15 per flight)

Minimum number of fire exit staircases- 2

Maximum travel distance between two fire exit staircases- 45M

Maximum travel distance from dead end to fire exit- 6M

Public Walks and Ramps

Minimum Width- 1800 mm Gradient- 1:20 (5% slope)

Fire Fighting Installation

Underground Static Water Storage Tank- 1,00,000 L Terrace Tank- 20,000 L

Fire tender Movement

For building of height more than 15 M, fire tender shall have access to half of the building perimeter. With minimum road width of 6 M wide and 9 M turning radius.

Parking Guidelines

Basement to be used for parking & services requirements only subject to the area allocated for services not exceeding 30% of the basement area. Use of basement for purposes other than parking and services shall be counted towards F.A.R and shall be subject to provisions under building bye laws & Master Plan Delhi 2021. Parking Standard @ 2ECS /100 sqm of floor area.

A proper scheme for visitors parking. Parking adequacy statement shall be prepared taking into consideration a large visitor footfall.

PROGRAM ANALYSIS

Functional Break-ups

EXHIBITION GALLERY

Galleries
Interactive Arcades
Audio-Visual Rooms

LIBRARY RESEARCH

Reading Areas
Digital Libraries
Admin

CONVENTION CENTRE

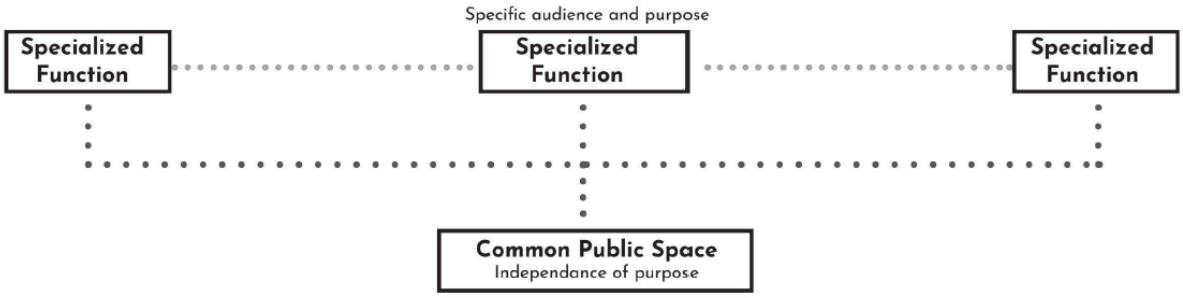
Auditoriums
Studios

FOOD & BEVERAGES

Terrace Garden

ADMINISTRATION

Auditoriums
Studios



In order to create a vibrant and active space the ground floor needs to serve as a common, public place.

Multi Sensorial Plazas
Peace Pavillion
Public Realm
Souvenier Shop

Quickread Lounge
Cafeteria
Book Store
Spillout Areas
Kid's Lounge

Temporary
Exhibition Hall
Spillout Area

Restaurant
VVIP Entry
Multi-Purpose Halls

Workshops
Stores
Admin

AREA STATEMENT

AMENITES BLOCK	
GROUND FLOOR	
CAFETERIA +LOUNGE	667.2
AUDITORIUM	
AUDITORIUM(100 SEATER)	334.1
PRE FUNCTION LOBBY	227.01
VIP ROOM	61.4
ENTRY LOBBY	461.6
OFFICE	
OFFICE 1	27.1
OFFICE 2	30.2
OFFICE 3	30.2
OFFICE 4	30.2
OFFICE 5	30.2
OFFICE 6	30.2
OFFICE 7	30.2
DIRECTOR OFFICE	60.1
OFFICE LOUNGE	59.9
SEMINAR ROOM	62.5
VIP ROOM WITH W/C	54.6
OFFICE TOILET	18.6
TOILET	82.4
CIRCULATION	87.4
A.H.U	33.8
FIRST FLOOR	
TEMPORARY EXHIBITION	586.1
LOBBY	180.1
RESTAURANT	
SEATING AREA	803.8
PRIVATE ROOM	33.4
KITCHEN	
MEAT AND FISH PREP	20
MEAT STORE	5
FISH STORE	5
PANTRY	5
VEG COOKING AREA	25
NON-VEG COOKING AREA	30
STORE	10
VEGETABLE PREP.	10
VEGETABLE STORE	5
TRASH	5
PANTRY	16
F&B MANAGER	
TOILET	82.4
CURCULATION	87.4
A.H.U	33.8
SECOND FLOOR	
LIBRARY	
PERODICALS ROOM	282.4
SOCIAL ROOM	222
CATALOGUE	172.8
READING AREA	880.2
ISSUE	34.1
CATALOGUING ROOM	98.8
LIBRARIAN	26.9
ASST. LIBRARIAN	18.5
TOILET	6.2
TOILET	82.4
CURCULATION	87.4
A.H.U	33.8
THIRD FLOOR	
LIBRARY	
SEMINAR ROOM	158.6
MEETING ROOM 1	60.2
MEERING ROOM2	60.2
LIBRARY	
READING AREA	883.7
E READING ROOM	84
SERVER ROOM	15.8
STACK ROOM	207.5
TOILET	82.4
CURCULATION	87.4
A.H.U	33.8

IAF BLOCK	
GROUND FLOOR	
IAF EXHBITS	
EXHIBITION AREA	6398.8
SOUVENIER SHOP	340.05
ENTRY LOBBY	231.2
CLOAK ROOM	115.6
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4
FIRST FLOOR	
INDIAN MILTARY FORCES GALLERY	
EXHIBITION AREA	4915.9
AUDIO VISUAL ROOM	153.3
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4
SECOND FLOOR	
INDIAN NAVY GALLERY	
EXHIBITION AREA	4915.9
AUDIO VISUAL ROOM	153.3
CAFETERIA	712.2
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4
THIRD FLOOR	
INDIAN AIR FORCE GALLERY	
EXHIBITION AREA	4915.9
AUDIO VISUAL ROOM	153.3
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4
FOURTH FLOOR	
EXHIBITION AREA	4915.9
AUDIO VISUAL ROOM	153.3
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4
ROOF	
SERVICE COURT 1 (4)	160.5
SERVICE COURT 2 (3)	116.4

WAR AND PEACE MUSEUM	
GROUND FLOOR	
26 M HIGH EXHIBITION HALL	3550
FIRST FLOOR	
GALLERY-1	1310
SERVICE CORE	120
GALLERY-2	675
SERVICE CORE	120
GALLERY-3	1210
SERVICE CORE	180
GALLERY-4	1050
SERVICE CORE	120
SECOND FLOOR	
GALLERY-1	1310
SERVICE CORE	120
GALLERY-2	675
SERVICE CORE	120
GALLERY-3	1210
SERVICE CORE	180
GALLERY-4	1050
SERVICE CORE	120
THIRD FLOOR	
GALLERY-1	1310
SERVICE CORE	120
GALLERY-2	675
SERVICE CORE	120
GALLERY-3	1210
SERVICE CORE	180
GALLERY-4	1050
SERVICE CORE	120
FOURTH FLOOR	
GALLERY-1	1310
SERVICE CORE	120
GALLERY-2	675
SERVICE CORE	120
GALLERY-3	1210
SERVICE CORE	180
GALLERY-4	1050
SERVICE CORE	120

CONCEPT

INTRODUCTION & CONCEPT

MILITARY OF INDIA

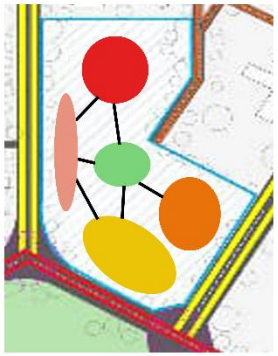
The Predecessors to the contemporary army of india were many the sepoy regiments, native ca valry, irregular horse and indian sapper and mines companies raised by the three britiien presidencies. the army of india was raised under the British Raj in the 19th century by taking the erswhile Presidency armies mergins them and bringing them under the crown. the britiish Indian army fought in the both world wars.

INDIAN ARMED FORCES

the India armed forces are the military forces of the republic of India. Ministry of defence of the Goverment of India with strength of over 1.4 Million active personnel. It is worls second largest military force and has the worlds largest volunteer army. it also has the third largest defence budget in the world

ZONING & CONCEPT

Zoning ia an emperial concept that refers to the division of a large area of land. such as a city of township, into many zones.



ADMINISTRATION
ARMY OFFICE

M U S E U M ,
AUDITORIUM/CONVE
NTION

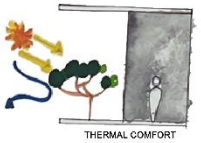
PARADE

PARKING

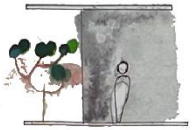
SUNKEN GARDEN

BIOCLIMATIC CONCEPT

ENVIROMENTAL STRATEGIES
SUMMER
SOLAR PROTECTION
GREEN SURFACE
OPEN SPACE VENTILATION
RAINWATER CELLECTION

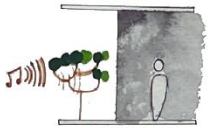


THERMAL COMFORT



BIOPHILIA

AIR QUALITY



NOISE ABSORBTION

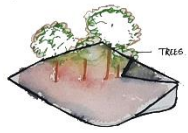
CONCEPT

Captain Vikram Batra Sena Bhawan will bring all offices Museum and Convention centre under one roof thereby improving the working effeciency, while reducing the carbon footpring and logistics requirement.

BIOCLIMATIC ARCHITECTURE

Shape and orientation of the building, solar protections, passive solar system.
high performing building envelope, through insulation, high performing glazing and windows
Air sealed construction
High performace controlled ventilation, mechanical, heat recovery.

BIOCLIMATIC + ORGANIC ARCHITECTURE

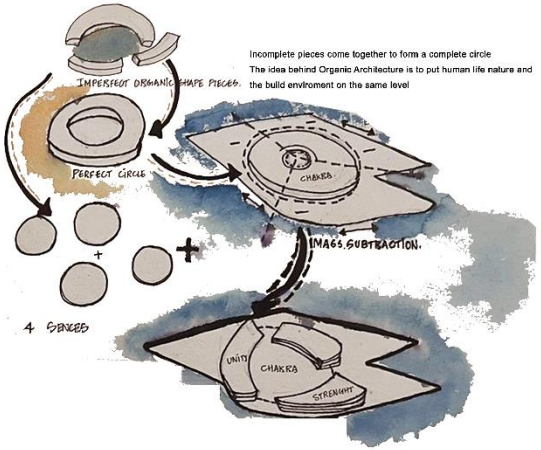


Circular shape to mimic branches with the ecosystem and connectivity of the rainforest.

NATURAL CROSS VENTILATION
The atrium lobby acts as the centre point and gateway to the building.
When opening in a certain enviroment or construction are aranged on oposite or adjacent wals, allowing air to enter and exit

The atrium loby acts as the centre point and gateway to the building

Sensible vehicle circulation and parking
Dividing Public and Private areas with the loby as the connector.



Incomplete pieces come together to form a complete circle
The idea behind Organic Architecture is to put human life nature and the build enviroment on the same level

This form of Architecture can be distinguished from more Traditional style by its peculiar characteristics among its core concepts is the idea that building, As any living organism must grow from within its enviroment and adapt to it

And build a Sustainable ecosystem where all components support one another and thrive as a result.

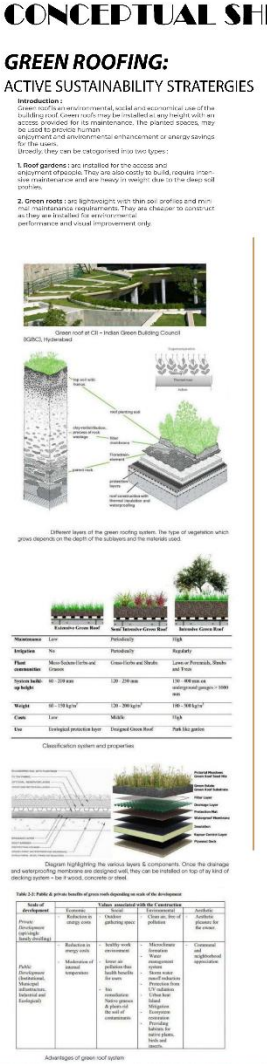
The structure must therefore be desined as if it was molded by nature for and form that landscape. Likewise, the color scheme must derive from fields and woods to match the elements of nature.

SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

CONCEPTUAL SHEET:

GREEN ROOFING:

ACTIVE SUSTAINABILITY STRATERGIES



FORM DEVELOPMENT:

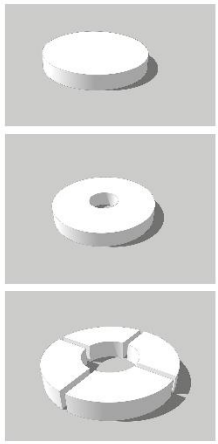
THIS FORM OF ARCHITECTURE CAN BEDISTINGUISHED FROM MORE TRADITIONALSTYLES BY ITS PECULIAR CHARACHTERISTICS AMONGST ITS CORE CONCEPT IS THE IDEA THAT BUILDINGS, AS ANY LIVING MUST GROW FROM WITHIN ITS ENVIRONMENT AND ADAPT TO IT.

AND BUILD A SUSTAINABLE COMPONENTS SUPPORT ONE ANOTHER AND THRIVE AS A RESULT.

THE STRUCTURE MUST THEREFORE BE DESIGNED AS IF IT WAS MOLDED BY NATURE FOR AND FROM THAT LANDSCAPE. LIKEWISE, THE COLOR SCHEME MUST DERIVE FROM FIELDS AND WOODS TO MATCH THE ELEMENTS OF NATURE.

CHAKRA:

UNITY PEACE STRENGHT



3 TIERS OF THE PROJECT:

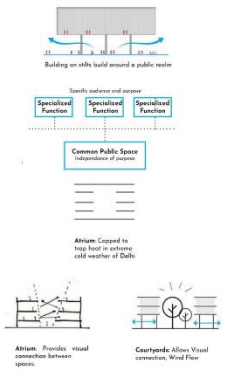
PROGRAMMATIC LEVEL
SITE LEVEL
BUILDING LEVEL

1st Tier: Programme
Active, Vibrant & Relevant Socio-Cultural Complex

Solution:
Active, Complimentary, User-Appropriate Programming

2nd Tier: Site
Open, Free and Accessible Public Realm

Solution:
Stilted open spaces creating additional programme. Scope for change or transformation.



SITE IMAGE

SITE CONTEXT IMAGE

SWOT ANALYSIS

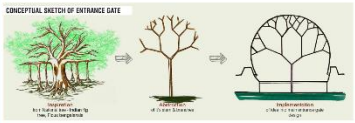
Strengths
- The site is located in prime and central part of city with all other Government buildings in it's local vicinity.
- Connected through primary road, Easier access
- Can be accessed through service lane
- Located in a very high security zone and hence will create natural surveillance for the site

Weakness
- Adjacent to primary road- Source to fast traffic and noise
- Extreme weather conditions

Opportunity
- Located adjacent to the Rajpath and India Gate which already has a very high footfall
- Well connected network of roads.
- Green spaces such as the Princes Park, located adjacent to the site creates opportunities for climate responsive designs
- Can be connected to the National War Memorial

Threat
- Presence of strong architecture vocabulary in the area bound to the guidelines of Lutyen's Bungalow Zone which might restrict the architecture freedom till some limit.
- Presence of huge amount of trees on the site which has to replace in 1:3 ratio if being cut down

ENTRANCE GATE DESIGN CONCEPT



Landscape Palette

The oblate land of Delhi is far more than just a rippleless river drenched land. It is a land that caresses the pride of being the capital of magnanimous India. Nestling on the Indo-gangetic plain, Delhi is bordered by the Indian state of Uttar Pradesh on the south and Haryana on the other three sides. Simple geography, isn't it? But no, the cordial land is a humble arrangement of undulating ridges, flat plains and wet lands on the banks of Yamuna. Although the so-called hills don't amount to much, they are the northern extent of the great Aravalli Range of Rajasthan. Yamuna, one of the most sacred rivers in Hinduism, is the only main river flowing through Delhi. Most of the city, including New Delhi, lies west of the river. East of the river is the urban area of Shahdara.

Ashoka
Saraca asoca is a plant belonging to the Detarioideae subfamily of the legume family.

Shahtut
Morus alba, known as white mulberry, common mulberry and silkworm mulberry, is a fast-growing, small to medium-sized mulberry tree which grows to 10–20 m tall. It is generally a short-lived tree with a lifespan comparable to that of humans, although there are some specimens known to be more than 250 years old.

Shisham
Dalbergia sissoo, known commonly as North Indian rosewood or shisham, is a fast-growing, hardy, deciduous rosewood tree native to the Indian subcontinent and southern Iran. D. sissoo is a large, crooked tree with long, leathery leaves and whitish or pink flowers.

LOCAL MATERIALS:

Agra Sandstone

Advantage
Thick, dense material - delayed thermal transfer from the outer face to the interiors. This ensures that the room is cooler inside even when the outside temperature is very hot.

Applications:
Structural Load Bearing
Exterior Cladding

Lakhori Bricks

Advantage
The traditional size of brick of Delhi, it involves low energy in its creation and allows for flexibility in working in modules.

Applications:
Exterior Cladding
Infill block Masonry

Dholpur Sandstone

Advantage
Thick, dense material - delayed thermal transfer from the outer face to the interiors. This ensures that the room is cooler inside even when the outside temperature is very hot.

Applications:
Structural Load Bearing
Exterior Cladding

Fly Ash-Lime Gypsum Blocks

Advantage
Use of a waste material (fly ash) collected from local power plants. Ready abundance and environmentally healthy as re-purposing a waste product.

Applications:
Infill Blocks Masonry
Exterior Cladding

Clay Bricks

Advantage
Made out of compressed earth - taken from the site or foundation, the material can be broken down and re-purposed in the future.

Applications:
Infill blocks : Masonry
Structural Load Bearing

Delhi Quartzite

Advantage
Highly durable stone with undulating rough texture, it requires very little maintenance. It also provides protection from UV rays but is brittle and cant withstand a lot of heat.

Applications:
Exterior Cladding
Paving

Fly Ash : Autoclaved Aerated Concrete (AAC)

Advantage
Lightweight material - reduces the load of the building, thereby reducing the depth of foundation digging. Re-purposing waste material.

Applications:
Infill blocks: Masonry

Rammed Earth:

Advantage
Thick, dense material - delayed thermal transfer from the outer face to the interiors. This ensures that the room is cooler inside even when the outside temperature is very hot.

Applications:
Structural Load Bearing
Exterior/Interior Plaster

PLANS, SECTION, ELEVATION

War museum

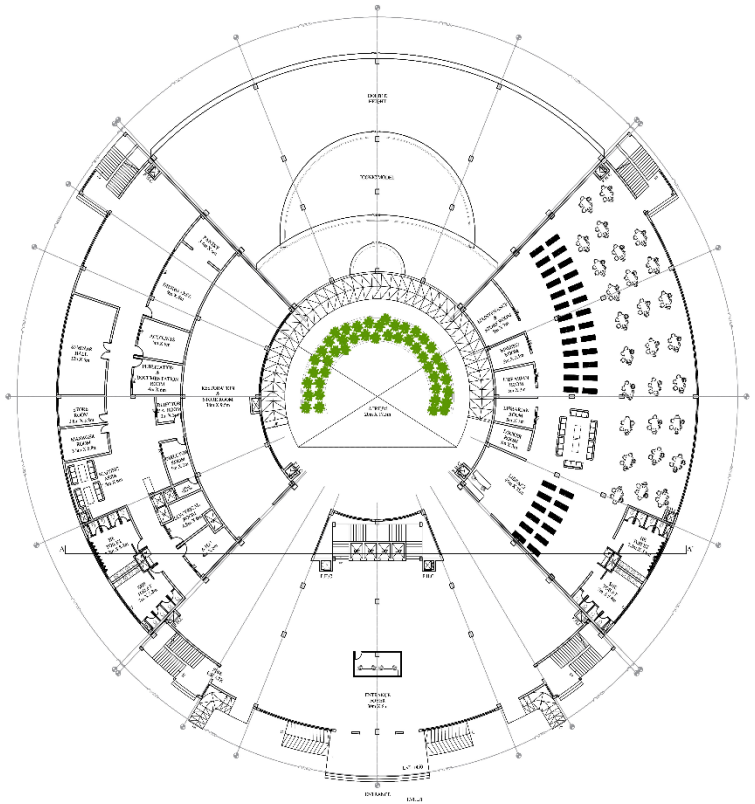
Restaurant

Open Air Theater

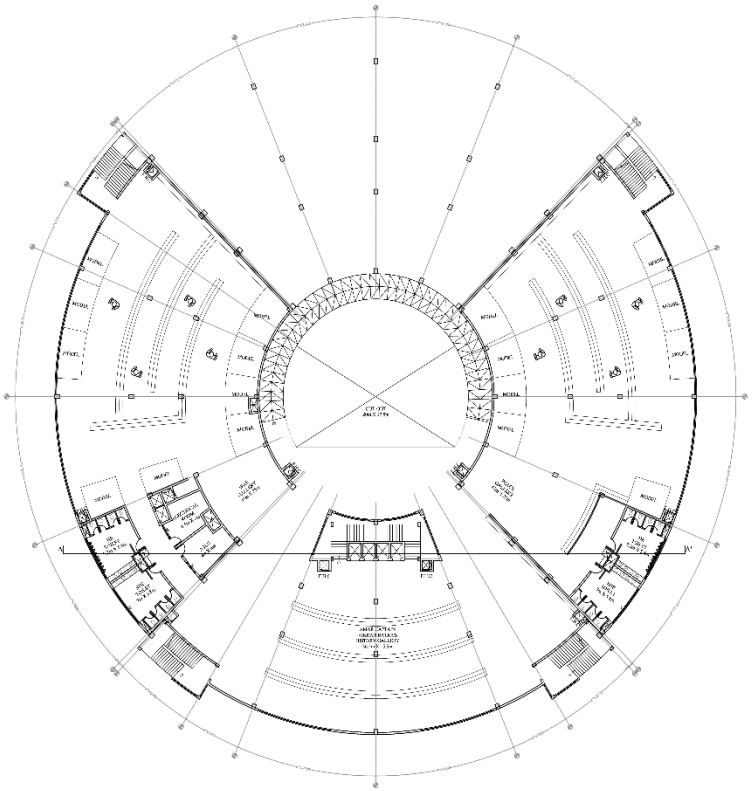
Auditorium

Basement

MUSEUM DETAILS:

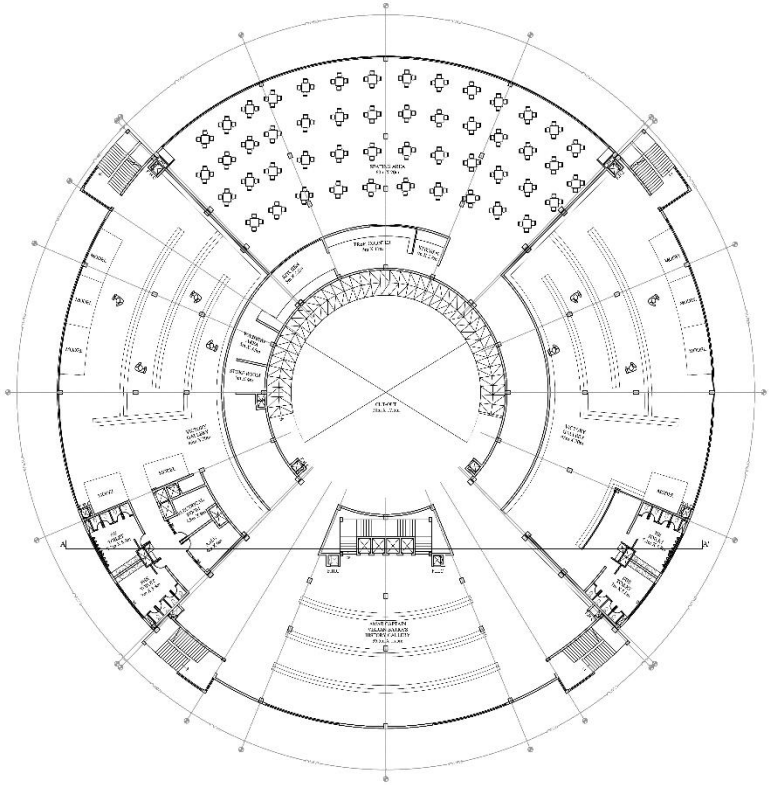


GROUND FLOOR PLAN

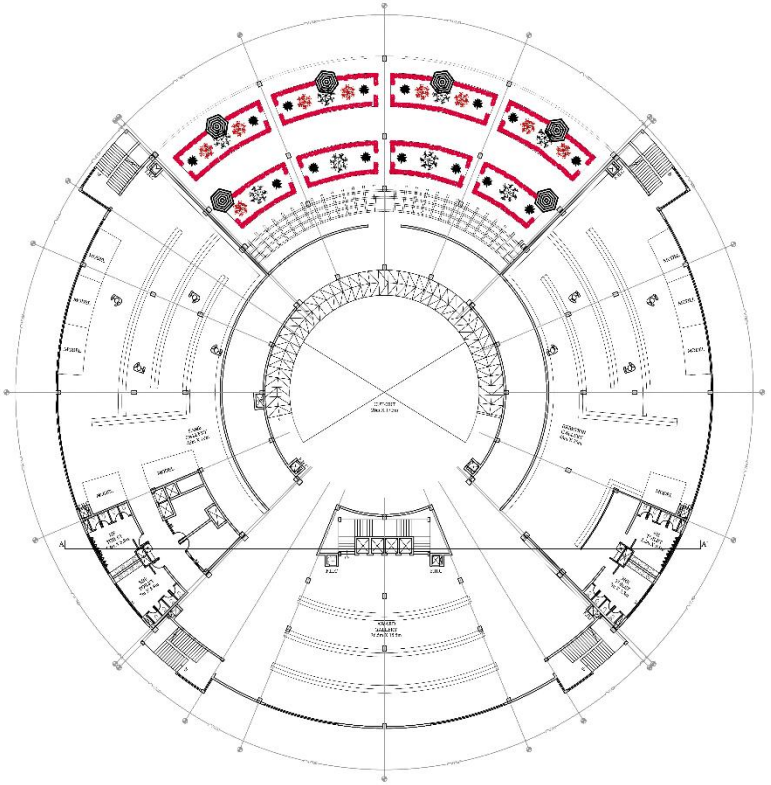


FIRST FLOOR PLAN

MUSEUM DETAILS:

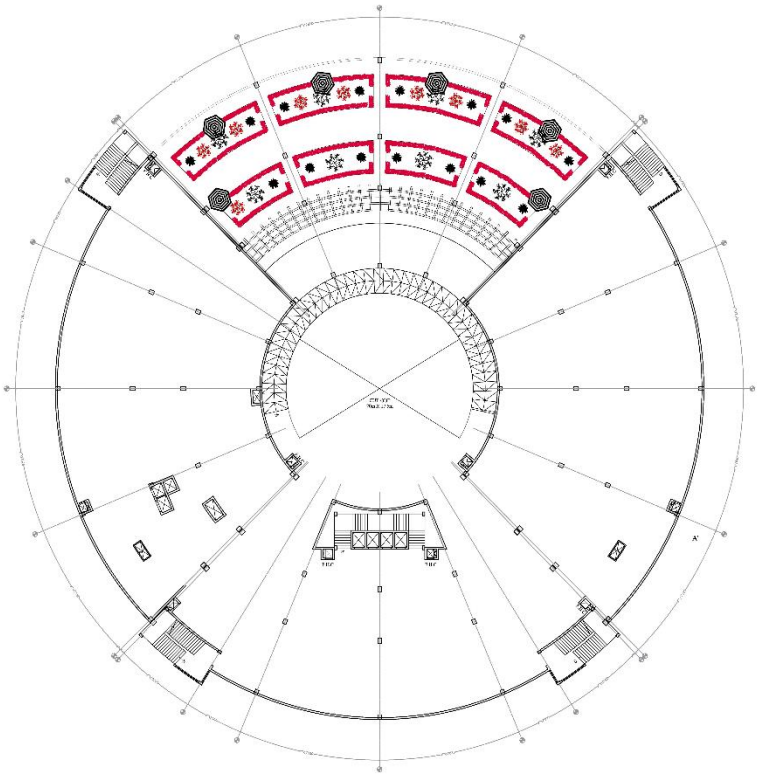


SECOND FLOOR PLAN

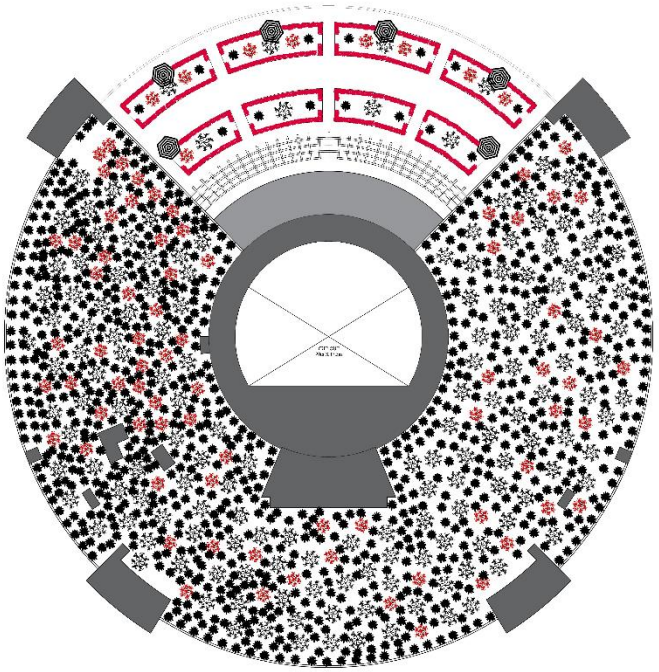


THIRD FLOOR PLAN

MUSEUM DETAILS:

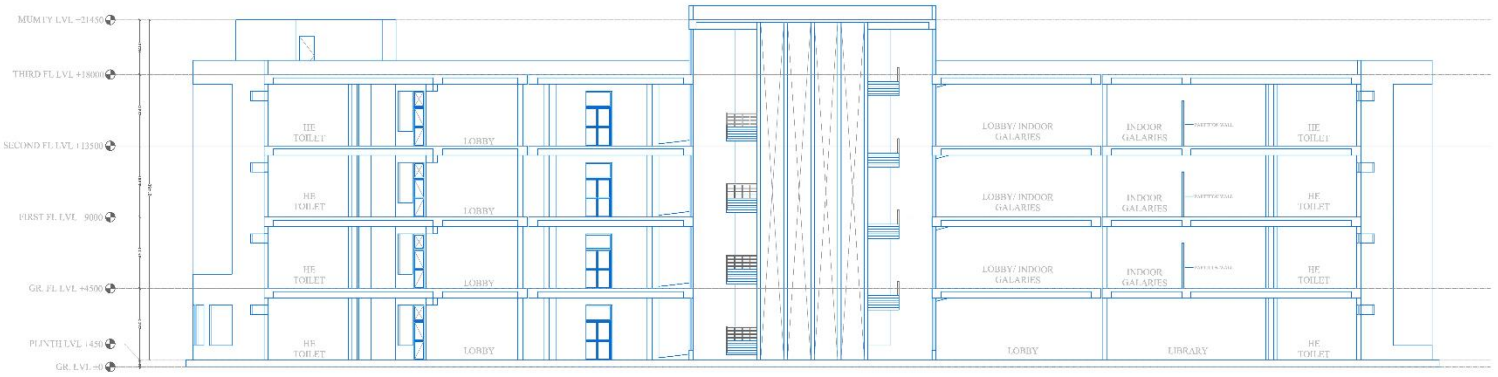


TERRACE FLOOR PLAN

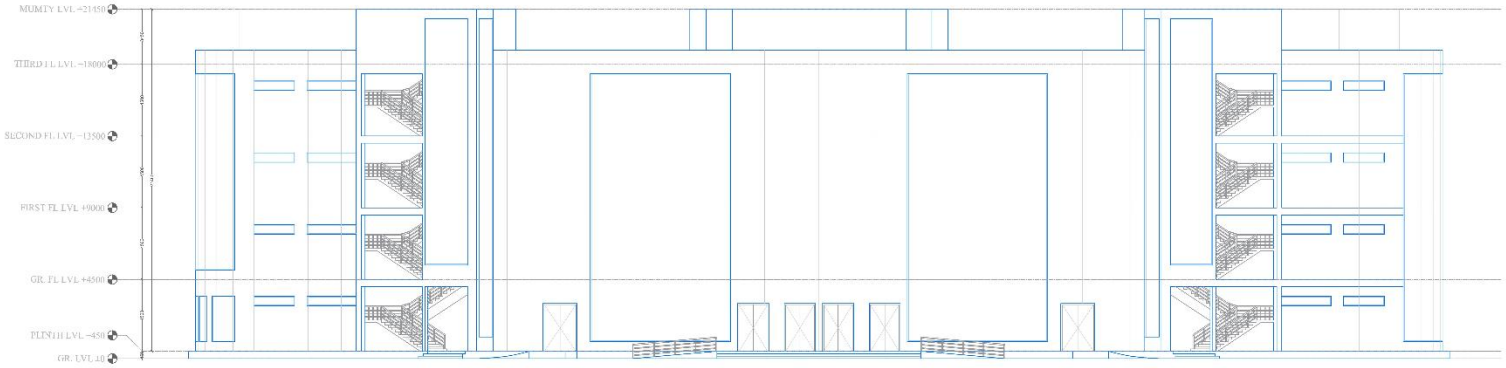


MUMTY FLOOR PLAN

MUSEUM DETAILS:

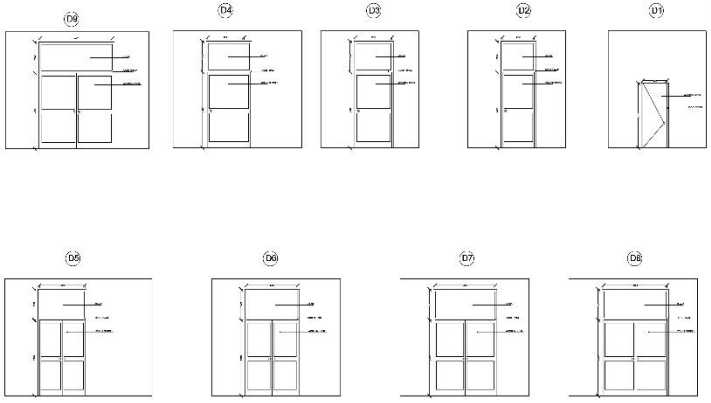


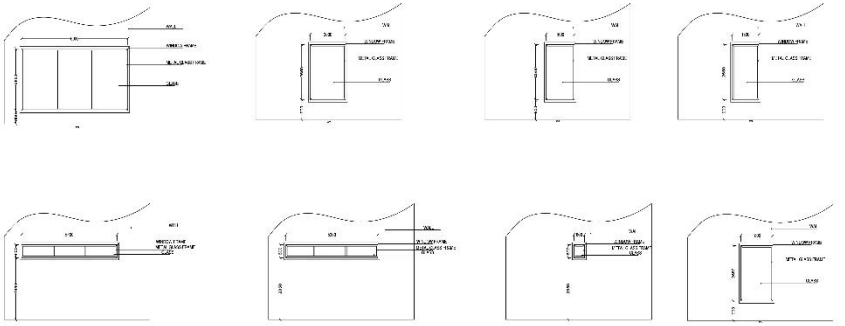
SECTION AA'



FRONT ELEVATION

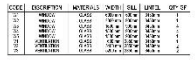
MUSEUM DETAILS:





THIRD FLOOR DOOR SCHEDULE

S. NO.	CODE	DESCRIPTION	MATERIAL	WIDTH (MM)	SILL LEVEL	LINTEL LEVEL	QUANTITY
1	D1	SINGEL DOOR	WOOD	800		2750	8
2	D2	SINGLE DOOR	WOOD	1050		2750	8
3	D3	SINGEL DOOR	WOOD	1200		2750	8
4	D4	SINGLE DOOR	WOOD	1400		2750	8
5	D5	DOUBEL DOOR	WOOD	1500		2750	8
6	D6	DOUBLE DOOR	WOOD	1700		2750	4
7	D7	DOUBEL DOOR	GLASS	2000		2750	8
8	D8	DOUBLE DOOR	WOOD	2100		2750	8
9	D9	DOUBEL DOOR	WOOD	2400		2750	8



THESIS: SCHOOL OF ARCHITECTURE & PLANN.
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EITHER I WILL COMEBACK AFTER HOISTING THE TRICOLOR

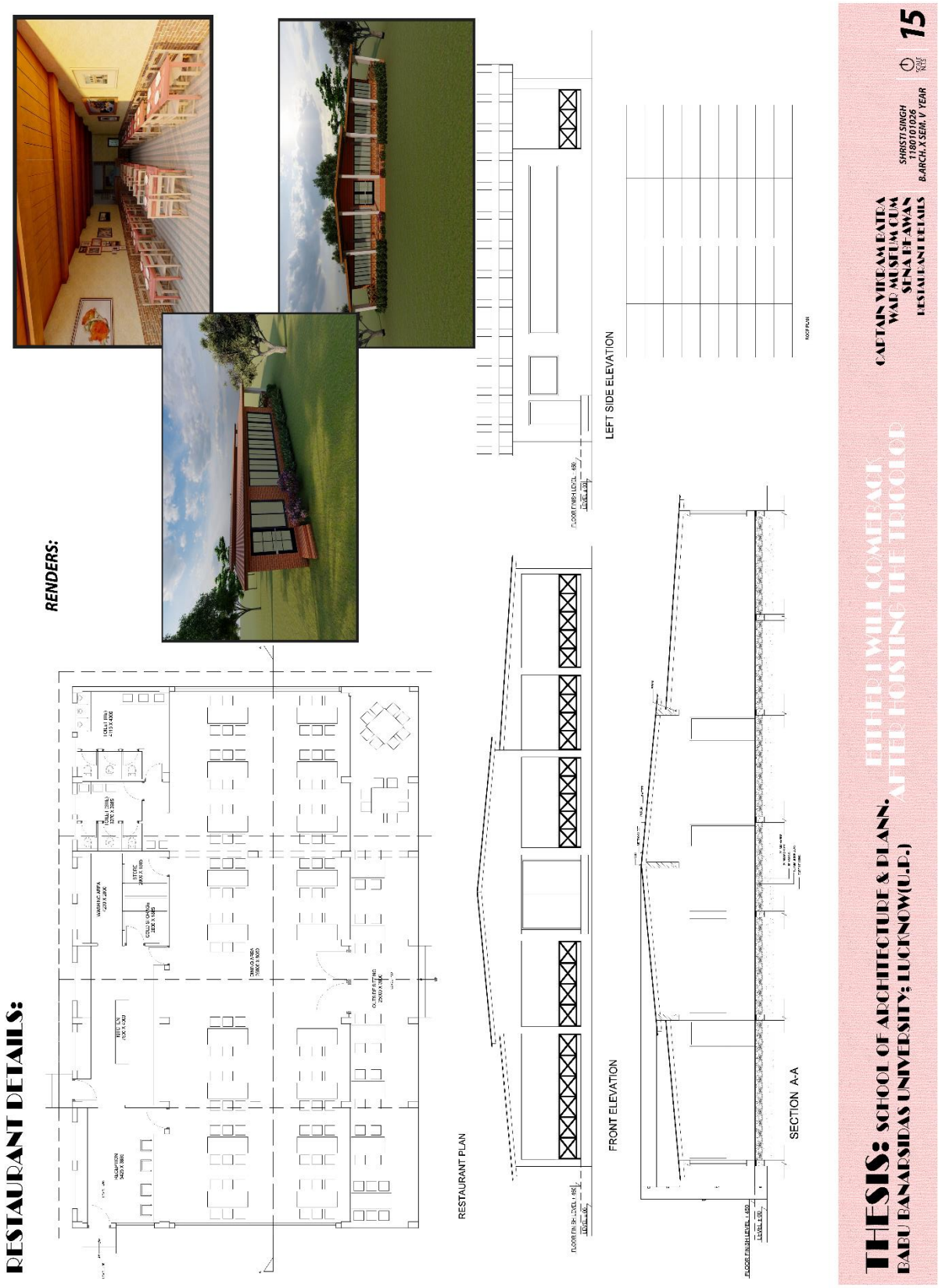
CAPTAIN VIKRAM BATRA WAR MUSEUM CUM SENA BHAWAN
MUSEUM DETAILS

SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

SCALE N.T.S

20

RESTAURANT


RESTAURANT DETAILS:
RENDERS:
RESTAURANT PLAN
FRONT ELEVATION
LEFT SIDE ELEVATION
SECTION A-A
THESIS: SCHOOL OF ARCHITECTURE & PLANN.
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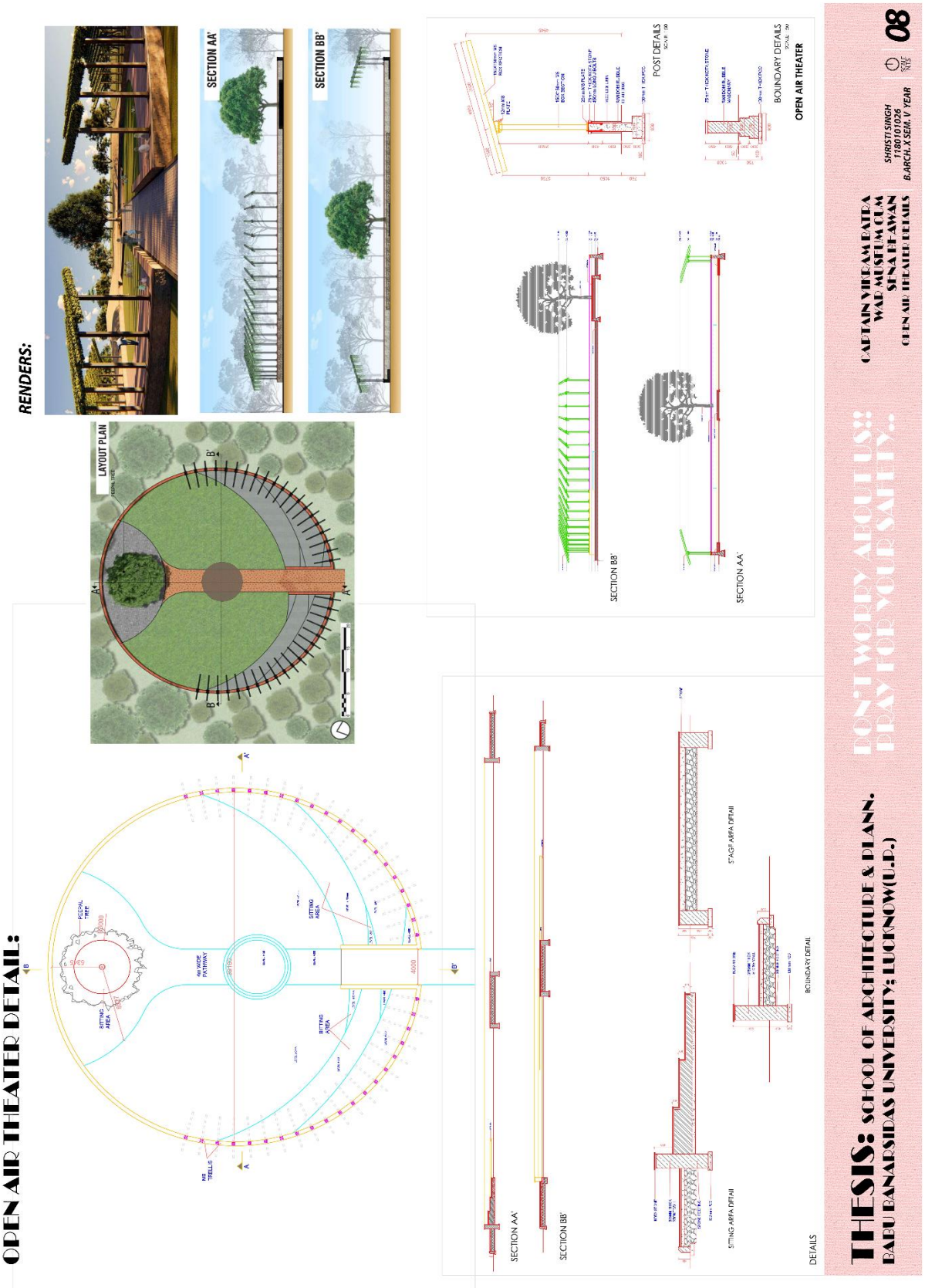
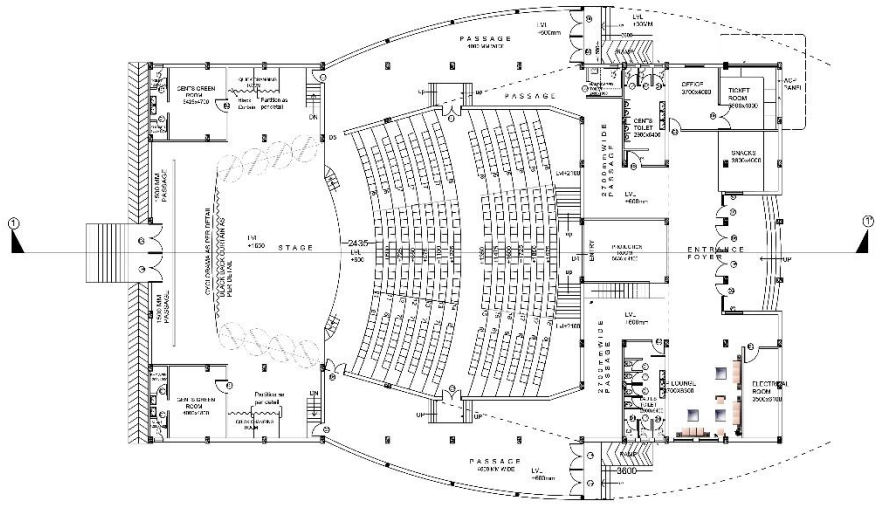
CAETAS VIRAM BATRA
B.ARCH. X SEM. V YEAR
15

OPEN AIR THEATER

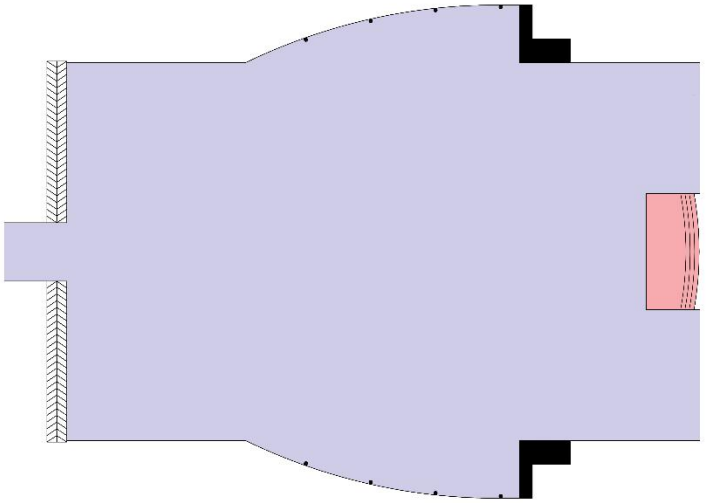


AUDITORIUM DETAILS:

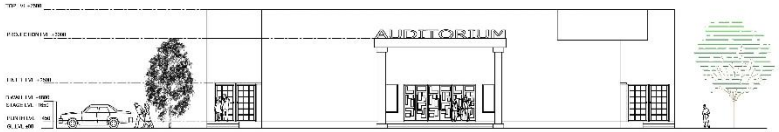


PLAN

S. NO	CODE	DESCRIPTION	MATERIAL	WIDTH	LINTEL	QTY
1	D1	SINGLE DOOR	WOOD	750	2100	14
2	D2	SINGLE DOOR	WOOD	900	2850	9
3	D3	SINGLE DOOR	WOOD	1050	2850	2
4	D4	DOUBLE DOOR	WOOD	2000	2850	2
5	D5	DOUBLE DOOR	WOOD	1400	2850	5
6	D6	DOUBLE DOOR	WOOD	1700	2850	6



TERRACE PLAN



ELEVATION

RENDERS:

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YEH DIL MAANGE MORE!!

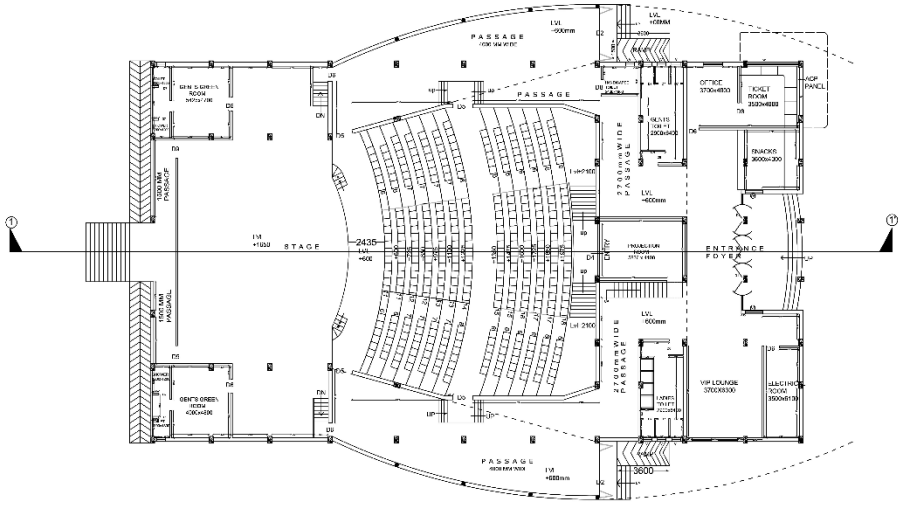
CAPTAIN VIKRAM BATRA WAR MUSEUM CUM SENA BHAWAN
AUDITORIUM DETAILS

SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

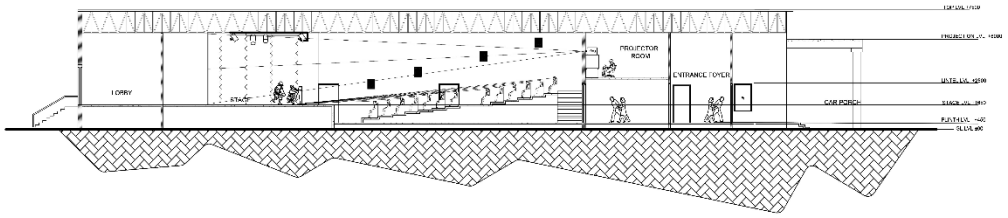
SCALE N.T.S.

11

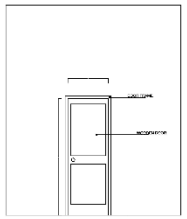
AUDITORIUM DETAILS:



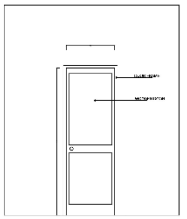
WALL WORKING PLAN



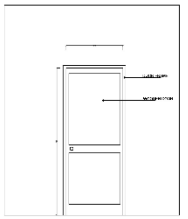
SECTION



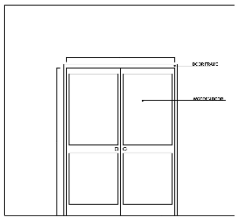
D1



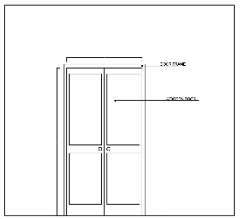
D2



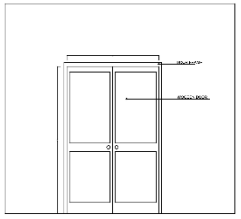
D3



D4



D5



D6

SCALE: N.T.S

S. NO	CODE	DESCRIPTION	MATERIAL	WIDTH	LINTEL	QTY
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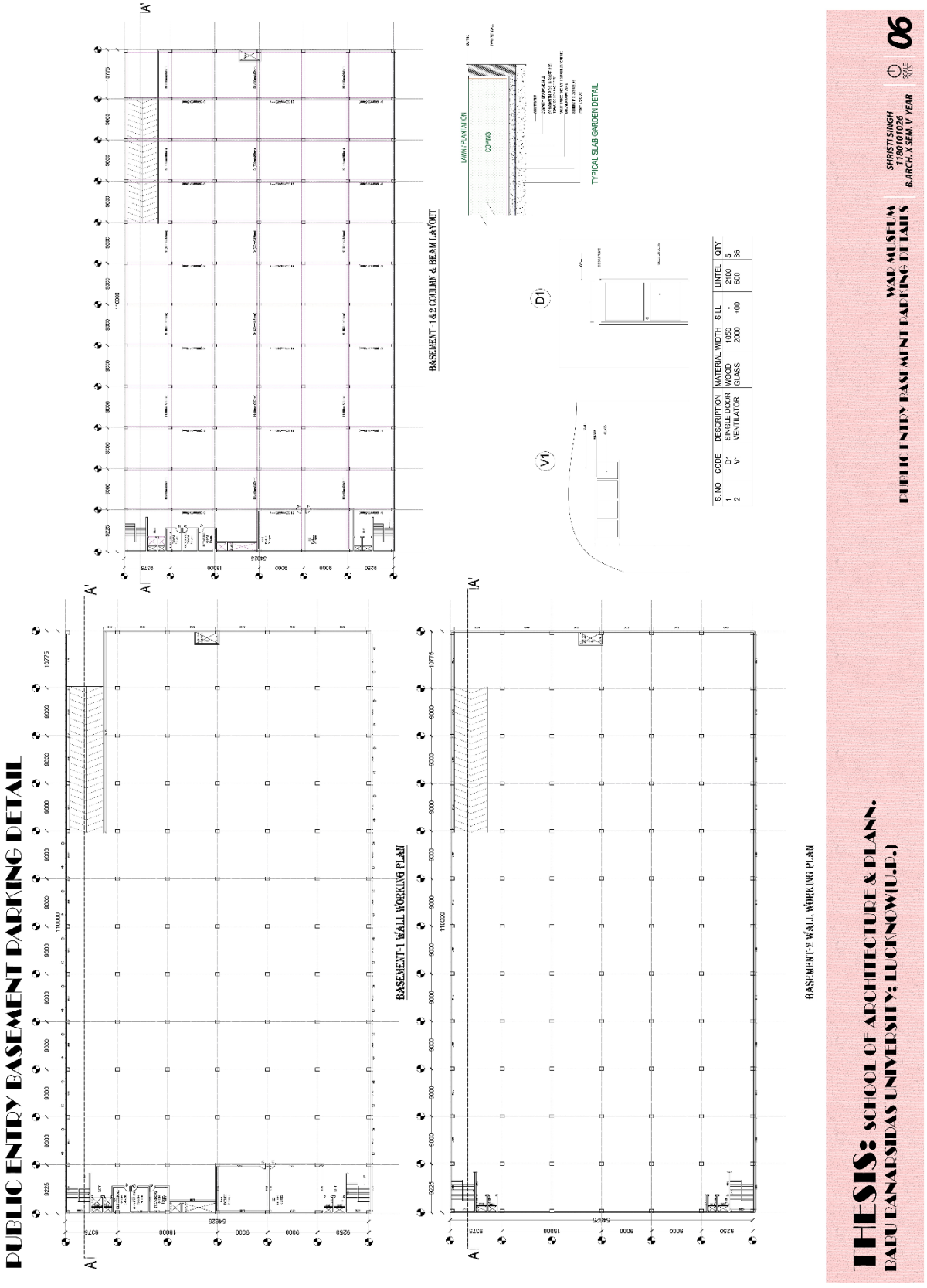
2	D2	SINGLE DOOR	WOOD	900	2650	9
3	D3	SINGLE DOOR	WOOD	1050	2650	2
4	D4	DOUBLE DOOR	WOOD	2000	2650	2
5	D5	DOUBLE DOOR	WOOD	1400	2650	3
6	D6	DOUBLE DOOR	WOOD	1700	2650	6

BASEMENT


PUBLIC ENTRY BASEMENT PARKING DETAIL
BASEMENT-1 WALL WORKING PLAN
BASEMENT-2 WALL WORKING PLAN
BASEMENT-1&2 COTLMN & BEAM LAYOUT
TYPICAL SLAB GARDEN DETAIL
LAWN PLAN AXON
CORING
D1
V1
S. NO CODE DESCRIPTION MATERIAL WIDTH SILL LINTEL QTY
1 D1 SINGLE DOOR WOOD 1050 - 2100 5
2 V1 VENTILATOR GLASS 2000 +00 600 36
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WAR MUSEUM
PUBLIC ENTRY BASEMENT PARKING DETAILS
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1180101026
B.ARCH. X SEM. V YEAR
06

LANDSCAPE & OTHER DETAIL

Wet land & Valley of Flower

Climber Garden

Boundary Wall Detail

WETLAND & VALLEY OF FLOWERS:

WETLAND:

PROPOSED PLANT SPECIES

VALLEY OF FLOWERS:

VALLEY OF FLOWERS

The Valley of Flowers paints an image of a picturesque valley in the Himalayan region of Uttarakhand. Similarly, a compact-classic flower garden has been proposed to **display the local varieties** of flowering plants. More than 30 varieties of flowering plants will be grown in this garden. The right blend of **local and exotic species** such as Argemone Mexicana, Bacmeria Diffusa, Tagetes, Chlorophytum Tuberosum, Eclipta Alba, Vernonia Cinera, Rosa Bracteata etc., are proposed in this area. The **amalgamation** of these species makes this garden **enchanting** and **flamboyant**. The picturesque and **enthralling view** of this garden will undoubtedly captivate the visitors.

PROPOSED PLANT SPECIES

CLIMBER GARDEN:

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EITHER I WILL COMEBACK
AFTER HOISTING THE TRICOLOR

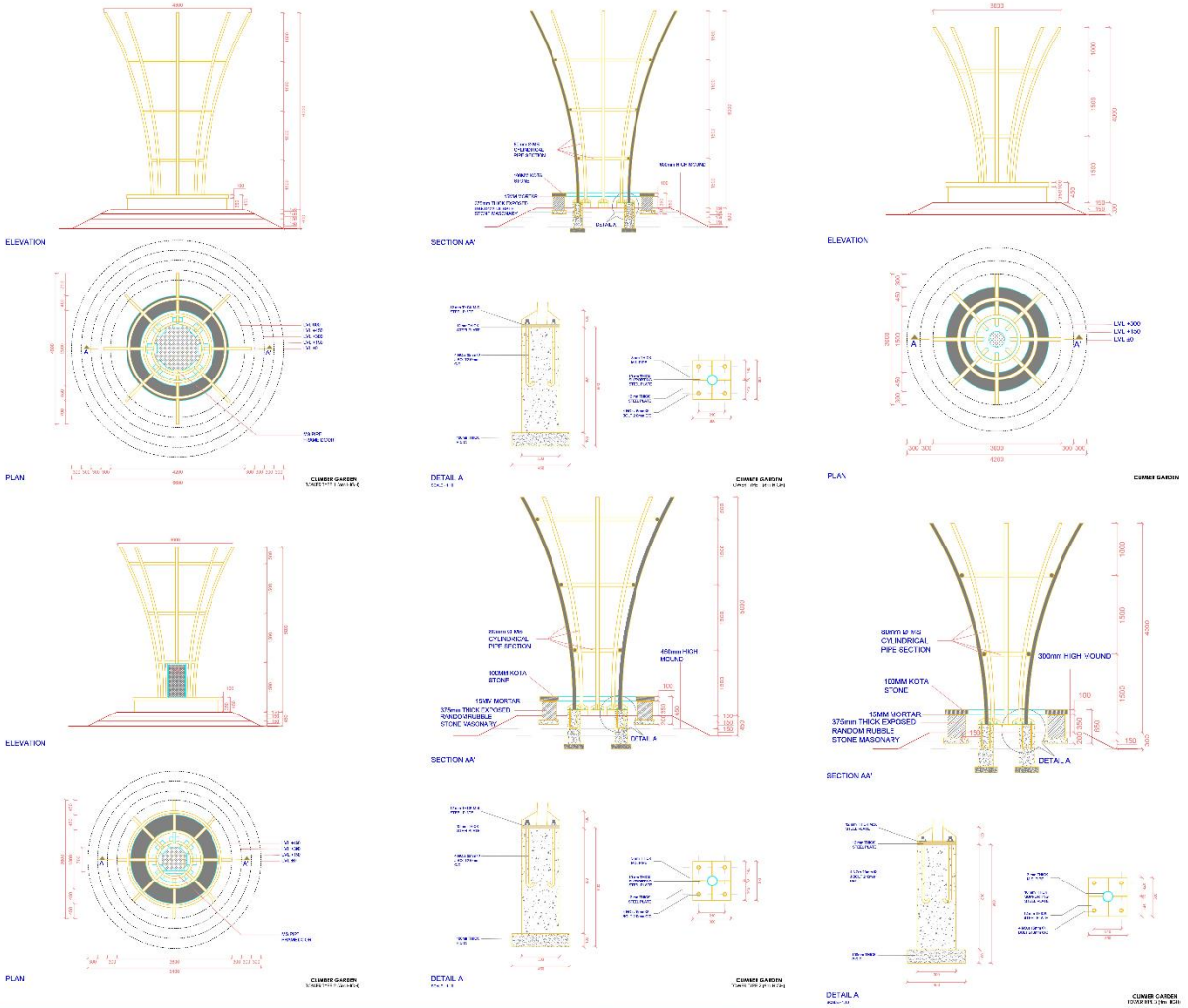
CAPTAIN VIKRAM BATRA
WAR MUSEUM CUM
SENA BHAWAN
WETLAND AREA AND VALLEY OF FLOWER

SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

SCALE N.T.S

13

CLIMBER GARDEN DETAILS:



RENDERS:

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EITHER I WILL COMEBACK AFTER HOISTING THE TRICOLOR

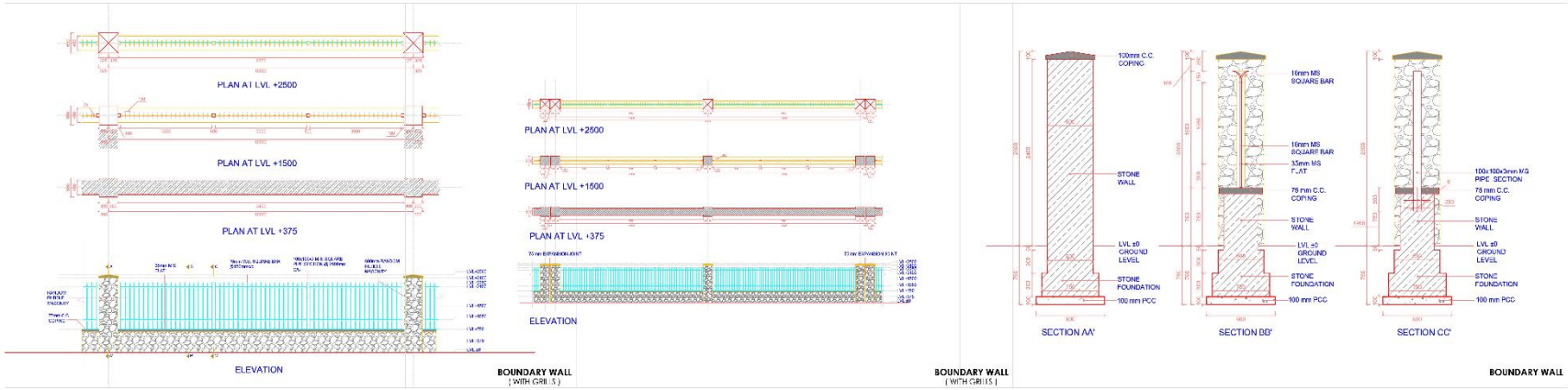
CAPTAIN VIKRAM BATRA WAR MUSEUM CUM SENA BHAWAN
CLIMBER GARDEN DETAILS

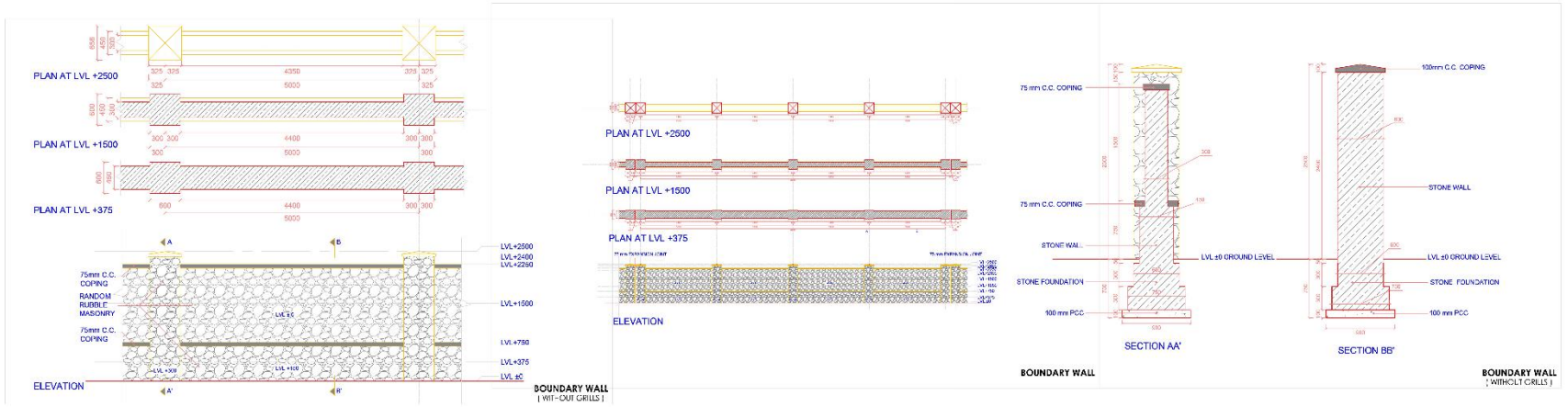
SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

SCALE N.T.S

14

BOUNDARY WALL DETAIL:





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DON'T WORRY ABOUT US!!
PRAY FOR YOUR SAFETY..

CAPTAIN VIKRAM BATRA
WAR MUSEUM CUM
SENA BHAWAN
BOUNDARY WALL DETAILS

SHRISTI SINGH
1180101026
B.ARCH. X SEM. V YEAR

SCALE N.T.S

05

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https://www.archdaily.com/794277/museum-of-socialism-jayaprakash-narayan-interpretation-center-archohm

https://www.archdaily.com/425521/qatar-national-convention-centre-arata-isozaki

https://www.iberdrola.com/innovation/bioclimatic-architecture-passivhaus#:~:text=Bioclimatic%20architecture%20is%20a%20way,traditional%20architecture%20is%20intrinsically%20bioclimatic.