

EXPLORATORIUM

(Climate Change Museum)

THESIS (2016-2021)

Submitted in partial fulfillment of the requirements for the award of
Bachelor of Architecture degree

By

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**DEPARTMENT OF ARCHITECTURE SCHOOL OF
BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY) Accredited**

with Grade "A" by NAAC

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BONAFIDE CERTIFICATE

This is to certify that this Dissertation Report is the bonafide work **AKSHAYA R (3621094)** who carried out the Dissertation entitled “ **EXPLORATORIUM(Climate change Museum)** ” under our supervision from January 2021 to May 2021.

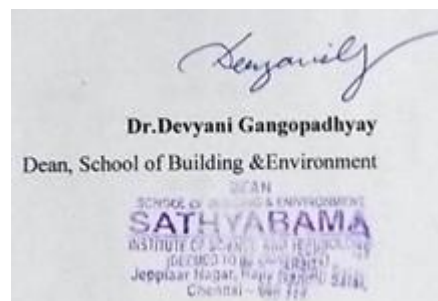
Internal Guide

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External Guide

Dean and Head of the Department

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Submitted for Viva voce Examination held on _____

Internal Examiner

External Examiner

2

DECLARATION

I, **AKSHAYA R** hereby declare that the Dissertation Report entitled “ **EXPLORATORIUM(Climate change Museum)** ” done by me under the guidance of **Ar. Yusuf Chiniwala** and (External Guide). Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Architecture Degree.

DATE

PLACE: Chennai

SIGNATURE OF THE CANDIDATE

EXPLORATORIUM (Climate Change Museum)

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EXPLORATORIUM

(Climate Change Museum)



CHAPTER 01 - INTRODUCTION

1.1 Climate change, Why now?

Climate change is happening and it is happening fast. This time thanks to **human action**. We have managed to change how the earth works and that required causing damage at a very large scale.

We are experiencing climate change in our lives every day and there is a **lack of public knowledge in the world**; especially in India, on climate change and global warming.

The idea here is to break down climate change factors and its symptoms through architecture as a medium. The possibility of educating people on climate change through architecture is the goal of this thesis.

1.2 What is Climate Change ?

Climate change, periodic modification of Earth's climate brought about as a result of changes in the atmosphere as well as interactions between the atmosphere and various other geologic, chemical, biological, and geographic factors within the Earth system.

Early the context of environmental ethics, an ecocentric view is one that holds that Earth's ecology and ecosystems (including its atmosphere, water, land, and all life forms) have intrinsic value—meaning they should be protected and valued even if they can't be used by humans as resources. But now we as human being think we are superior than other living being in the world that's where everything has changed.

1.2.1 Global Temperature Rise

Temperature has risen about 2.12 degrees Fahrenheit (1.18 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide emissions into the atmosphere and other human activities.

1.2.2 Warming Ocean

The ocean has absorbed much of this increased heat, with the top 100 meters (about 328 feet) of ocean showing warming of more than 0.6 degrees Fahrenheit (0.33 degrees Celsius) since 1969. Earth stores 90% of the extra energy in the ocean.

1.2.3 Shrinking Ice Sheets

The Greenland and Antarctic ice sheets have decreased in mass. Data from NASA's Gravity Recovery and Climate Experiment show Greenland lost an average of 279 billion tons of ice per year between 1993 and 2019, while Antarctica lost about 148 billion tons of ice per year.

1.2.4 Glacial Retreat

Glaciers are retreating almost everywhere around the world — including in the Alps, Himalayas, Andes, Rockies, Alaska, and Africa.

1.2.5 Decreased snow cover

Satellite observations reveal that the amount of spring snow cover in the Northern Hemisphere has decreased over the past five decades and the snow is melting earlier.

1.2.6 Sea Level Rise

Global sea level rose about 8 inches (20 centimeters) in the last century. The rate in the last two decades, however, is nearly double that of the last century and accelerating slightly every year.

1.2.7 Declining Arctic sea ice

Both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades.

1.2.8 Extreme Events

Record high temperature events and other natural calamities are happening around the world.

1.2.9 Ocean Acidification

Since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30%. This increase is the result of humans emitting more carbon dioxide into the atmosphere and hence more being absorbed into the ocean.

The ocean has absorbed between 20% and 30% of total anthropogenic carbon dioxide emissions.

1.3 How to Climate Change through Architecture?

- Join the 2030 AIA Commitment.
- Paris commitment
- Adapt and retrofit existing buildings.
- Select carbon-smart materials.
- Pursue renewable energy.
- Make the cities walkable or promote usage of public transportation.
- Built-less.
- Create Awareness through design for the user.

Examples:

- ***BIG Architects, Bjarke Ingels***

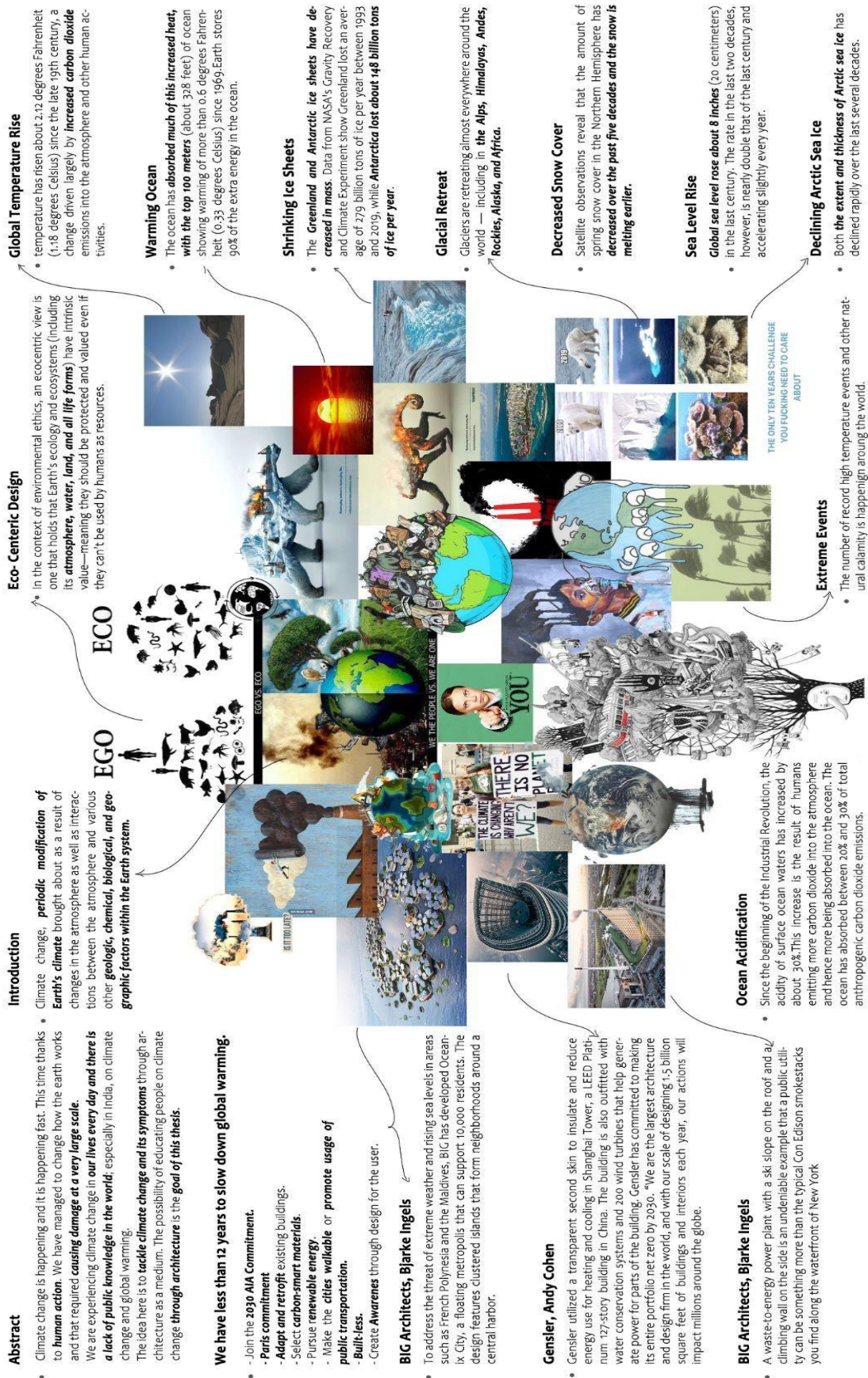
To address the threat of extreme weather and rising sea levels in areas such as French Polynesia and the Maldives, BIG has developed Oceanix City, a floating metropolis that can support 10,000 residents. The design features clustered islands that form neighborhoods around a central harbor.

- ***Gensler, Andy Cohen***

Gensler utilized a transparent second skin to insulate and reduce energy use for heating and cooling in Shanghai Tower, a LEED Platinum 127-story building in China. The building is also outfitted with water conservation systems and 200 wind turbines that help generate power for parts of the building. Gensler has committed to making its entire portfolio net zero by 2030. "We are the largest architecture and design firm in the world, and with our scale of designing 1.5 billion square feet of buildings and interiors each year, our actions will impact millions around the globe.

- ***BIG Architects, Bjarke Ingels***

A waste-to-energy power plant with a ski slope on the roof and a climbing wall on the side is an undeniable example that a public utility can be something more than the typical Con Edison smokestacks you find along the waterfront of New York



Data Things that are happening around the world due to climate change

S J.D. Supra
Failure to Prepare for Climate Change-Induced Extreme Weather: The Next Wave of Legal Exposure?
Failure to Prepare for Climate Change-Induced Extreme Weather: The Next Wave of Legal Exposure? Julie Silva Palmer, Charles Solomon.

 South China Morning Post

Was climate change to blame for India's glacier flood disaster?

Flash flood in Uttarakhand that washed away over 200 people is linked to avalanche and melting glaciers, experts believe. Extreme weather in ...

2 days ago

Breakage of Hanging Glacier May Have Triggered ...

To understand if the incident was climate change-driven or not, we ... So far this only explanation is that a hanging glacier cracked due to ... that climate change is increasing the occurrence of extreme events in the

20 hours ago

■ SAP Global

Scientists warn misuse of climate data is threat to business

Climate change is causing an increase in extreme weather events that is in billion-dollar-scale extreme weather and climate change-linked

Down To Earth Magazine

12 million in UK face health risks due to climate change: Study

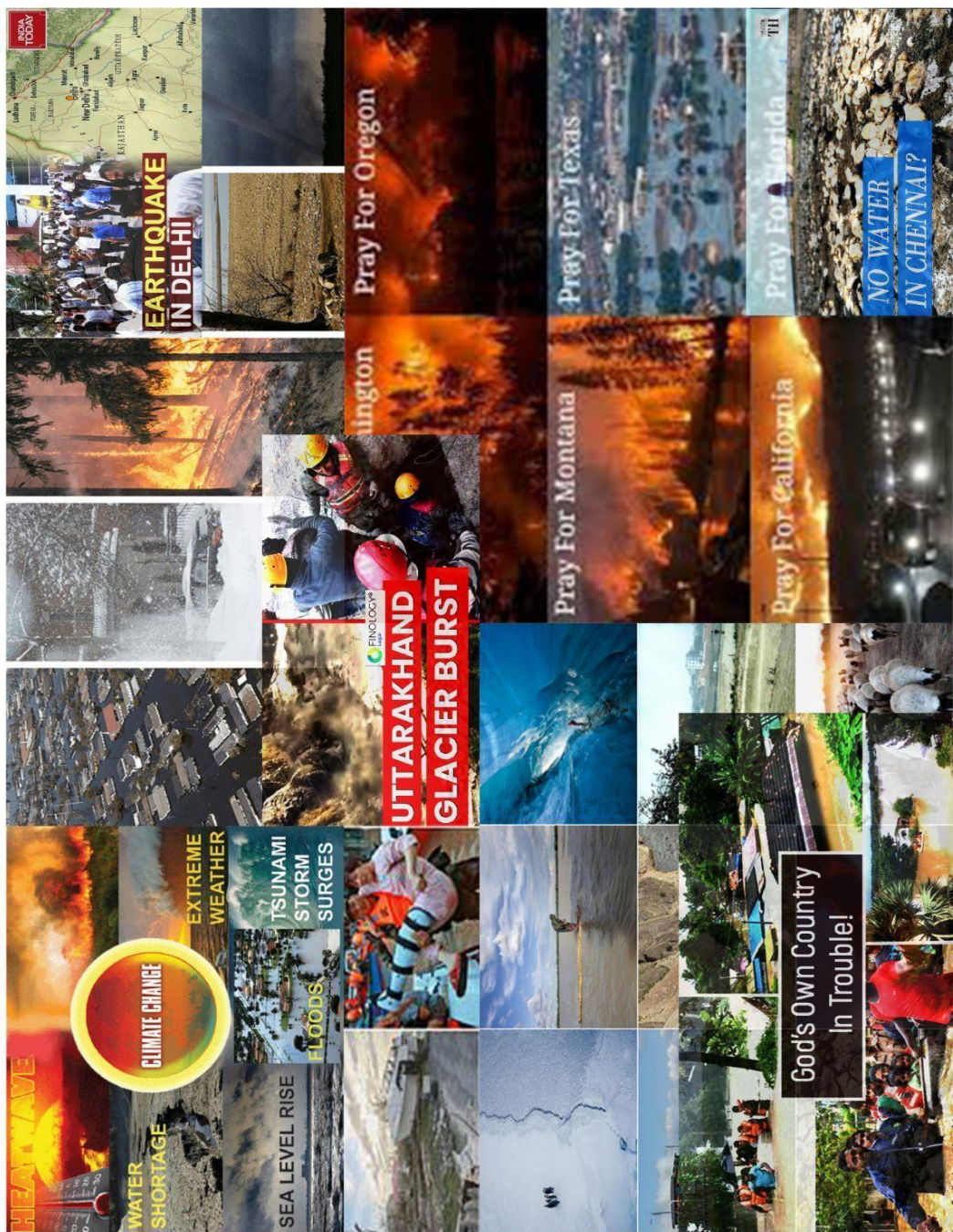
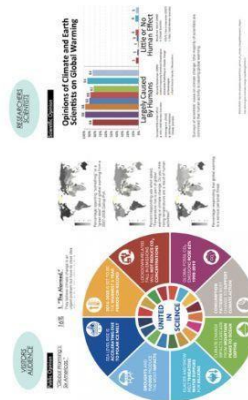
These extreme weather events have been made more likely by climate change, the report said. Hibiscuses in particular have put almost 12 ...



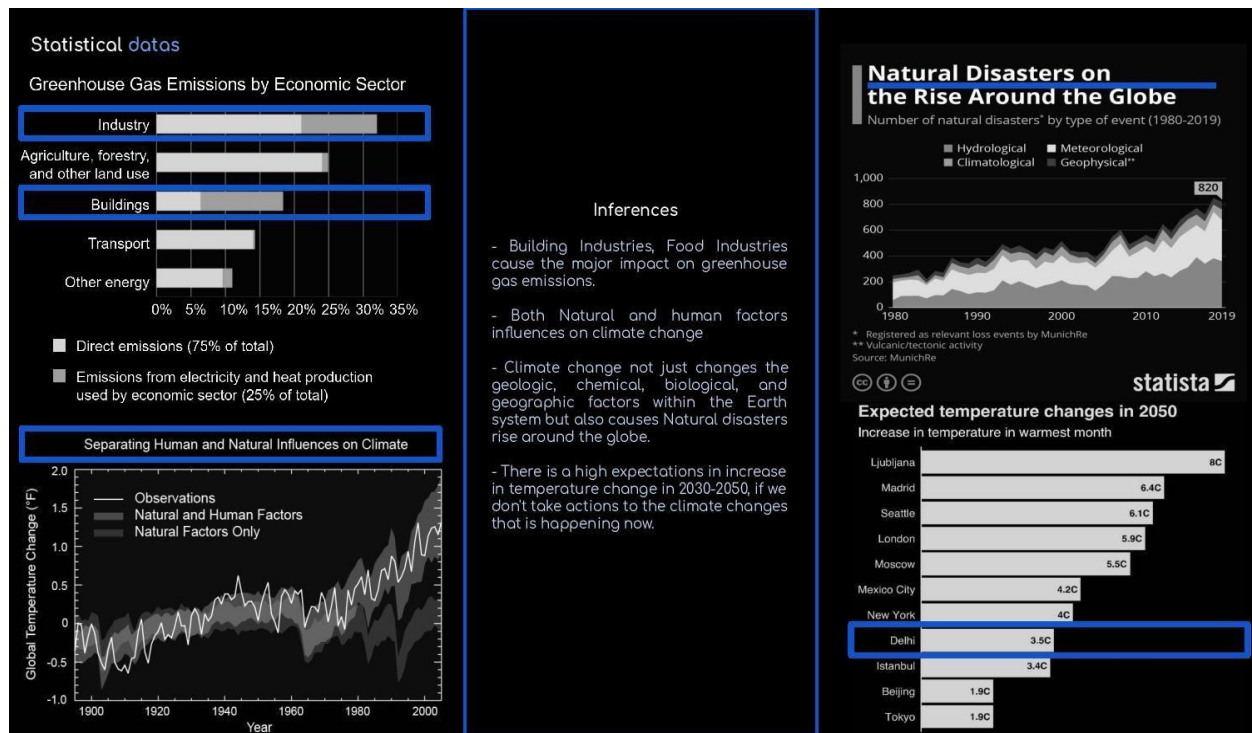
Climate Change Tracker: Was the Uttarakhand disaster foretold?

Listen to the Mint Climate Change Tracker podcast hosted by Eliseo micro-climatic changes in the past 20 years due to a loss of 50,000. This is no more an option, rather a national imperative to tackle such extreme

5 hours ago



1.4 Statistical Datas and Inference



1.5 Relation with your dissertation

The study can be implemented conceptual in the design through **Visual, Functional and Experiential characteristics**, in **Tangible or Intangible Metaphors**. Puzzles is been used has a design elements and features through Architectural Language and movement for communication through spaces. Bring in the **Eco-aesthetic and Eco-centric sustainable logic** through the understandings from the study. Implementing the various ideas in which puzzles have **influence Parametric and kinetic architecture**.

CHAPTER 02 - DESIGN INTRODUCTION

2.1 Introduction

Climate change has been happening, and it is happening rapidly. This time, it's because of human action. We have managed to change how the earth works and that required causing damage at a very large scale. We are experiencing climate change in our lives every day and there is a lack of public knowledge in the world; especially in India, on climate change and global warming.

This is detrimental to the community as a whole as an uneducated populace will continue doing more harm. The idea here is to tackle climate change and its symptoms through architecture as a medium. The possibility of educating people on climate change through architecture is the goal of this thesis. The climate museum and microclimate park proposed, is a public space whose primary purpose is to educate and experience the

public on climate change. This has been done through a variety of methods from sculptural interactive and experiential spaces, galleries and libraries.

2.2 Narrative

The journey of the climate museum begins here! The fundamental beginning of the universe was of course the big bang. Fast forward a few million years and we see the first signs of life, small bacteria and other single cell organisms. These evolved and within a few days of the universe's time, we saw mammals which very soon led to the epitome of evolution – us.

We have evolved to a stage where we can manipulate the fundamental building blocks of all life. But in this journey, we have also left behind what can only be termed as “collateral damage”. But the universe has a way of working and this collateral damage has begun to throw back on us all the damage we have done to the earth. The earth is responding in kind. But we do not observe this immediately.

What a generation is for us, is but a blink of an eye for the earth. Its reactions are too slow for us to perceive directly by daily observation. But what we fail to see has great impacts on our lives.

2.3 Aim

The aim is to design a museum that narrates a story of changing geography and topography by the living style choices of the people.

2.4 Objective

- Bring in the awareness of depletion of natural resources.
- The spaces can be experienced as a place or a time ,A place experienced as a time or a space, A time being experienced as a space or a place.
- Design of a core complex with buildings to educate people formally on the implication of Climate Change,
- Design a Museum of Climate Change,

Use architecture to create experiences through which this knowledge on Climate Change can be imparted.

2.5 Scope

In an exploratorium it is still considered an active and experiential centre where visitors interact with the exhibits and get the output from it. By creating a space where students, adults alike can learn the various theories via practical methods and experiments will increase the interest which is lacking in the current generation .

A unique combination of wonders of climate and innovation of architecture ,Aiming to be experienced and eco-friendly architecture.

2.6 Justification of the Project

The project is intended to create awareness and knowledge about climate change and how our day today activities and choices that we make are directly or indirectly linked. The idea of making it as an experiential space makes it even more connected to the issue and react to it. On the contrary experience roots only enables users to maintain physical and mental connections to the topic. More importantly, the sense of creativity and knowledge is nourished. Understanding the issues and problems based on climate change also heightens users sensitivity towards the relationship between man and the outer environment.

This thesis attempt is to explore the kind of architecture where experience can be effectively brought about. Its aims are providing a leisure environment as a part of the program where users can experience the micro change in the temperature difference in the site.

The thesis emphasis will be placed on the design of an environment in which users are encouraged to be explorative, to seek for knowledge and information as well to accumulate wisdom through participation and experiences.

2.7 Trust of the Design

- Combining architecture features and knowledge of structures to create quality spaces on a monumental scale.
- Enhancing the techniques of video projection and vision standards and giving it a more architectural look.
- Combined function of all the experiential aspects in a single campus.

2.8 Methodology of Design

- General conditions of the museum (lighting, ventilation, humidity) are obtained from library studies. Vision angles and details of gallery design are also obtained.
- The design details are obtained from library studies and case studies.
- Exhibit design is analyzed from case studies and library studies to arrive at spatial requirements.
- A study of contemporary methods of construction and materials are obtained. All legal disputes on the above and standards and restrictions are noted and analyzed.

2.9 Aspects of studies includes

- Macro level
- analysis of location
- Social infrastructure

- Micro level analysis
- Physical data
- Services
- Aesthetics | Flexibility
- Technical aspect
- Architectural style
- Structural framework
- Timings
- Activities and functions
- User analysis
- Materials | Circulation
- Public views

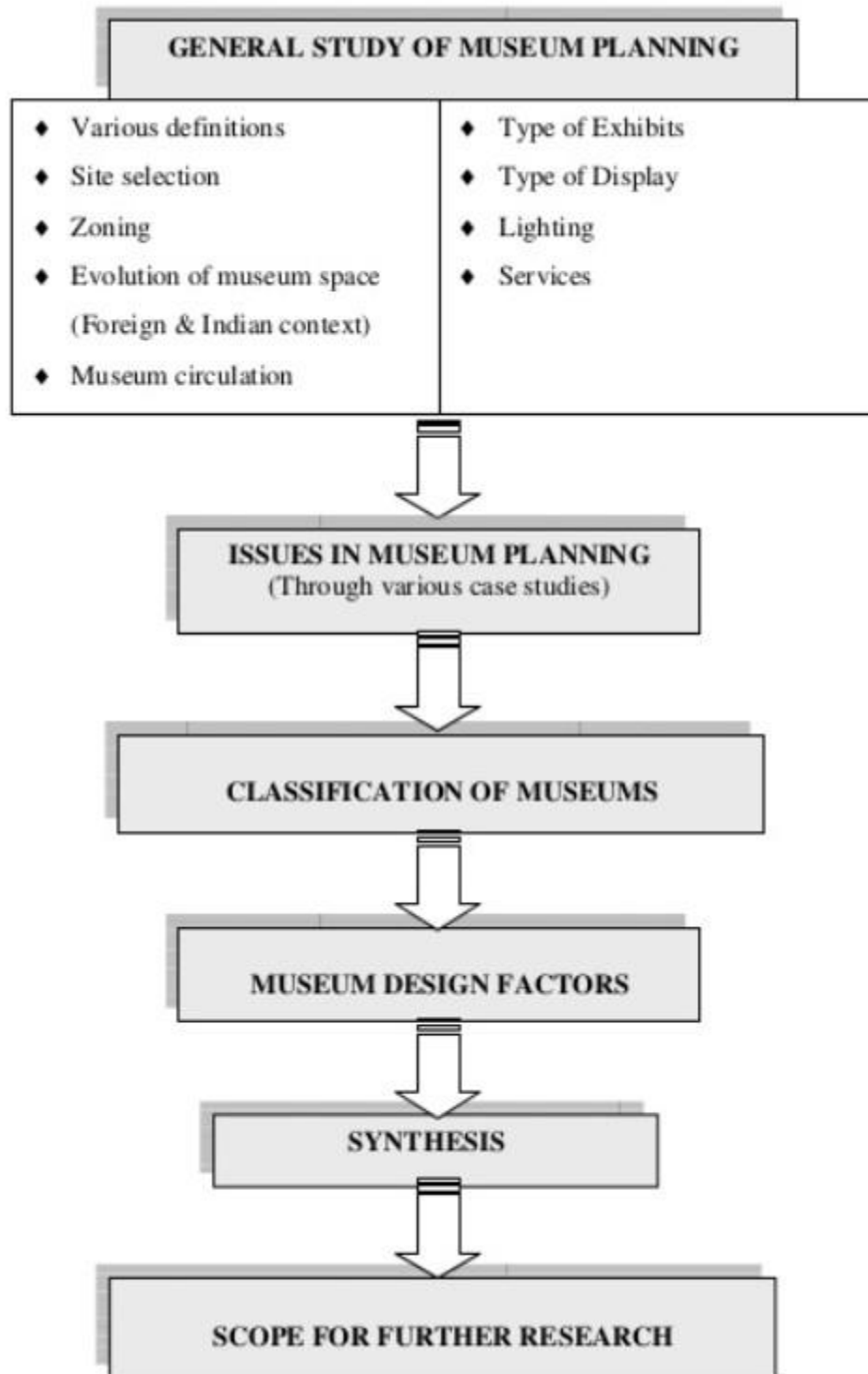


Fig: Methodology chart

CHAPTER 03 - LITERATURE STUDY

3.1 APPROACHES FOR DESIGN: A PREVIEW

1. **A sign:** a simple sign provides an introduction. It communicates the name of the facility .The name should be also descriptive and evocative.
2. **letting the visitor in before entering:** having a glimpse of the exhibit or a good view of a significant and special part of the inside act without actually entering can introduce,entice,inform and stimulate both the intended visitors and others who go by.
3. **Human activity pocket :**the most powerful preview includes people whether at work,play or rest .Creating a pocket outside, where activity of the museum spills over into the street to get the attention of those passing by in an effective strategy.
4. **Extending the inside outside:** an actual element of an exhibit or activity of the museum can be placed outside the building to provide introduction continuity and clues to its contents.
5. **Reaching out:** establishing satellite displays, whether in malls or in other museums or even retail stores can provide a preview that requires less commitment travelling to the museum.

3.2 APPROACHES FOR DESIGN: RETREAT

Retreats can be thought of in terms of their visual content,activity content and potential for social interaction and community services.

1. **Visual content:** the varied textures and colours of natural vegetation and materials, the sight and sound of running water,the light and shade and the patterns of landforms and weather produce contrast in the natural environment.
2. **Outdoor rooms:** near ones can be outdoor rooms serving as a place for retreat.The sheltered courtyards may provide a modified, microclimate.
3. **Activity:** a variety of contexts and activities can provide diversion and places of retreat .They work well with visual retreats.
4. **Social introduction and civic role:** talking and playing with other people can provide diversion,releases and refreshment through many avenues.More public retreat areas can support a feeling of neighbourhoods and community.

3.3 APPROACHES FOR DESIGN: A VISIBLE BACKSTAGE

1. **Transparency:** separating the backstage activity from the public by a glass wall provides a peephole arrangement that is easy and relatively inexpensive to arrange that

is easy and relatively inexpensive to arrange. This approach allows for complete thermal and acoustical control.

2. **Going on the front stage:** treating a service function as a display in its own way is a bold strategy that brings the backstage into full view.
3. **Controlled access into the ‘forbidden zones’:** spaces dedicated to a singular service function such as storage can be utilized by the public by changing the accessibility, providing light, and keeping sensible order in the placement and organization of objects.
4. **Connected to exhibits:** if a curator's office and workspace is near the exhibit area, the possibility of interaction with visitors is increased and also the exposure to the public is greater.

3.4 APPROACHES FOR DESIGN: DISTRIBUTION OF SERVICES

1. **Dispersal:** sensible distribution throughout the building: services such as restrooms can be dispersed in the building both vertically – on each floor- and horizontally, if the floor is sufficiently complex and size.
2. **Concentration:** placing services in one location, whether central or not, can aid in their identification and in understanding the organizing the building.
3. **Adjacencies, natural affinities and multiple functioning spaces:** adjacencies between several functions in the museum are going to be consistently similar 21 everywhere, e.g. proximities between entry point and cloak room is universally desirable.

3.5 APPROACHES FOR DESIGN: DISTRIBUTION OF SERVICES

1. **Exterior or building envelope, reflective of interior organization:** a building's façade or external elevation can give clues to the way the interior spaces are organized.
2. **Simple repetitive geometry:** repetitive geometry makes for predictable, even if only part of the building is in view. It is sufficient to see a beginning of a sequence of rooms along the linear spine to guess the overall structure.
3. **Transparency:** the ability to literally see the inside organization from the outside or from a vantage point increases the understanding of the plan and interior of the building.

4. **Dominant internal path:** the appropriate strategy for beginnings and the endings of the visit depends upon the nature of the internal path. Internal streets, indoor towns, concentric rings, one way path and have special qualities and demand particular treatment for coming and going. If any of this is a dominant physical feature, it can become another element in an understandable structure.

5. **Directional system:** where building design is not an option in making the museum structure understandable such as in case of an existing or recycled building, a clever and a sophisticated but simple directional system can repair some of the problem, by giving the viewer a graphic, pictorial or abstract reference to the environment.

3.6 APPROACHES FOR DESIGN: CLEAR CIRCULATION WHICH OVERLOOKS

1. **Open plan:** in a box like room museum the circulation path can be delineated by the display and exhibit system.
2. **Route centered about grand open space:** the classical organization of the Guggenheim Museum is a basic for a much copied prototype for circulation arrangement. While the geometry varies among the different variations, the 22 common feature is a horizontal and vertical circulation visible from the central point of origin.
3. **Internal, linear street:** a street pattern with the “houses” on each side provides the coherent and predictable path structure, which makes the route understandable for the viewer
4. **Externalization:** the circulation path can also be an integral of the building’s exterior.

3.7 APPROACHES FOR DESIGN: FOCAL POINT

1. **A prominent location:** at the largest scale, a central organizing space, the geographical centre of the symmetrical plan can be the main strategy for orientation and way finding.
2. **A major event:** the Chicago museum of science and industry has converted it is huge, classical centre space into a mix of events. Within that space the coal mines serves as a clear focal point :it has physical presence tall and massive, it is unique, and the event it houses is conceptually powerful
3. **Near and far views:** contrasts in viewing distance visual relief. A focal point at the end of a path provides a goal within reach.

3.8 APPROACHES FOR DESIGN: ACTIVITY CORE

Approaches for design deal primarily with the size and the location of the activity core, and its connections:

1. **Large space for small rooms:** one model for an activity core is complete, fullscale room or house within the museum's envelope. It is also possible to have the activity area displayed through a sequence of small rooms.
2. **Connection to the path:** if the activity in the core might disturb the natural flow of visitors nearby, an appropriate connection is needed between the path and the activity core.

3.9 APPROACHES FOR DESIGN: VARIATION IN SPATIAL DIMENSIONS

1. **The big box:** the building with a universal space allows for objects that are as large as the building's height, width, and length.
2. **The small box:** sometimes small boxes can be enough. Some one room museums or one object/one theme museums such as the Shrine of the Book at Israel Museum have enough energy and power to sustain interest. These places do not need large spaces, and benefit from being a small box.
3. **Variety and change:** a size continuum the combination of variously sized spaces may range from many small and one large to few small, several medium and few large, depending upon the needs of a particular museum, yet following an orderly geometric relationship.

3.10 APPROACHES FOR DESIGN: VARIATION IN SPATIAL DIMENSIONS

1. **Gradual exit:** if the entry and exit are the same door visitors are backtracking when they leave. An abrupt is not as shocking as an abrupt exit. A strategically placed restaurant, stone, reading room, waiting area provide an opportunity for lengthening the decompression from museum to street.
2. **Alternate paths:** The Indianapolis Children's Museum processes busloads of children through a special lower level area.

3. **Museum fatigue:** The dramatic difference between entry and exit is not always efficient or desirable. Maintaining the same general location symbolically provides summation and a reorientation to the outside. A slight difference reinforces the changed perspective.
4. **Distinct exit:** Many Disneyworld exhibits have totally separate entry and exit points. This sets up an opportunity for another perspective on the larger context and additional new input. It can be intriguing or stressful, unfolding and challenging.
5. **Integrating the path:** Considering the arrival and departure sequence as extending beyond the confines of the museum proper provides opportunities for longer transitional spaces and integration of the surrounding outdoor context into the museum experience.

3.11 APPROACHES FOR DESIGN: OUTDOOR EXTENSION

Outdoor extensions may take many different forms and provide a variety of opportunity to exploit the surrounding environment:

1. **Distance near or far:** the extension can be immediate to the building and near-by. Or it can be very distant such as the view of the Golden Gate Bridge and the skyline of San Francisco from the restaurant retreat in the Lawrence Museum of science in Berkeley.
2. **Context-** active or passive: near outdoor extensions can be used for visual relief, a change from indoor lighting, close up viewing, and abstraction to reality. Or it can be a place to use and experience activity in courtyards.
3. **Content-man made, built or natural:** most outdoor extensions contain natural elements- trees, grass, sand, water. This provides a contrast to the non-natural interiors.
4. **Conceptual and contextual connectivity to the museum:** outdoor extensions may contain displays and activities which are a part of a particular display or are integrated into the museum's primary path or an accessible secondary path.

3.12 APPROACHES FOR DESIGN: LANDMARK

The qualities of a landmark can be achieved through the design of the building's envelope, of an interior experience, or an object or event that is permanent or temporary, external or internal to the building:

1. **One of a kind form:** the form of a building can make it noticeable and memorable. Although the materials and colours of the East Wing of the National Gallery of art are the same as it is neighbor the spectacular form is identifiably unique and compels visitors to touch. The touch sets up an intimacy between visitors and building that transcends the formal nature of the museum's programs 25
2. **Shift in scale:** something out of place, out of scale, bigger than life, or miniaturized catches the eye and focuses the imagination. Oversized objects and large things fascinate children and adults alike. At least within the western culture there is preoccupation with „the tallest „or „largest“ or „most“ of anything.
3. **Symbolic image:** the building form, some of it is element or a separate object that is associations from it are own special powerful imagery or those that are connected to traditions, folk and a special cultural element.

CHAPTER 04 - MUSEUM

4.1 MUSEUM

The museum aims to reveal the true nature of the object in the clearest and most untrammelled way.

TYPE OF MUSEUMS

- It varies, from large institutions, covering many of the categories below, to very small institutions focusing on a specific subject, location, or a notable person. Categories include: fine arts, applied arts, craft, archaeology, anthropology and ethnology, biography, history, cultural history, science, technology, children's museums, natural history, botanical and zoological gardens. Within these categories many museums specialize further, e.g. museums of modern art, folk art, local history, military history, aviation history, philately, agriculture or geology. Another type of museum is an encyclopedic museum. Commonly referred to as a universal museum, encyclopedic museums have collections representative of the world and typically include art, science, history, and cultural history.
- The type and size of a museum is reflected in its collection. A museum normally houses a core collection of important selected objects in its field. This paper focuses on cultural history museums.

DESIGN GUIDELINES

While the overall guidelines for the archaeological site-museums, they will require specific additions and interpretations to aid the visitor's understanding of the period.

In other words people should have an experiential visit to such museums which is evoked through good lighting, sound/music, recorded material, interactive spaces and audio-visual footage to enhance the ambiance.

1. The building's ambience should be maintained inside as well as outside. Landscaping around the building should be developed in a way that it complements the experience within the museum.
2. Aesthetic choices support and reflect the theme and tone of the exhibition.
3. Orientation, spatial organization, and traffic flow are appropriate to the goals of the exhibition.
4. The physical space (such as layout, lighting, flooring) is created in such a way that audience members of varying physical sizes and abilities are able to navigate and interact with the exhibition.
5. If required audio-visual footage, voice recordings, ambiance music etc. may also be used for creating a complete experience. Other than following ASI guidelines for museum planning, the local building development control rules also to be followed, the museum comes under the institutional buildings category in DCR [Development Control Rules].

PLANNING FACTORS

- The museum planning involves planning the actual mission of the museum along with planning the space that the collection of the museum will be housed in.
- The way that museums are planned and designed vary according to what collections they house, but overall, they adhere to planning a space that is easily accessed by the public and easily displays the chosen artifacts.
- The planning Process of a museum should be using the storyboard as a guide, the designer should then proceed to evaluate and allocate exhibition space according to storyboard themes and other visual and communication needs.
- Shows museum planning process. The Selection of appropriate site and zoning the functional requirements and Determine the circulation space needed, including disabled access requirements, security needs and official legal norms such as fire escapes. Examine and distribute objects by units, sections, subsections that correspond to themes and sub-themes in the script and storyboard and designing the exhibition furniture system: panels, free standing exhibit showcases, screens, case shelves, block cases, table cases, wall hung panels and other wall mounted elements.

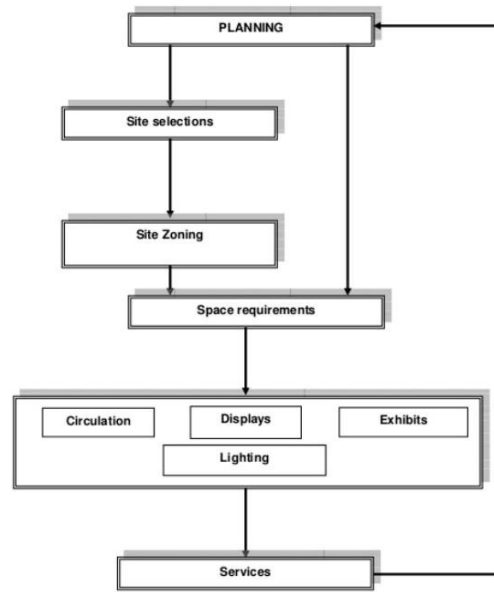


Fig: Museum Planning process

4.1.1 Planning of galleries

The planning of galleries is mainly dependent on types of collection and lighting needed for the same. The size of the rooms and the height of the ceiling will be determined by the nature of the object. Rooms lit by indirect artificial light are more suitable rather than sun lit galleries.

Ceiling – lighting fixtures may be hung from the ceiling but the wiring should be white or of any light colour to reflect as much as light possible.

Floor- materials used for the flooring should be quite comfortable and hard wearing. It should provide allowance for heavy load, fixings and be light reflecting. Floor stone used are marble, stone or tiles, hardwood and carpet flooring are also used conditionally.

Walls- they should be uninterrupted and avoid drawing attention to specific devices within the field of vision. It should act as a background for the exhibits and should not overwhelm them. They should be easily repairable and the colour selection is to be in accordance to reflectance.

Fire safety- smoke detectors are to be provided in all zones. Fires extinguishers are to be provided in all prominent points.

Temperature & humidity- humidity control prevents mould growth, corrosion and chemical reaction in textile and papers. 26

Air pollution- pollution causes unwarranted changes in the exhibits. Mechanical means of protection is done using air conditioning, humidifiers and dehumidifiers and air filters. Show cases are simple means of protection.

Relief areas- while planning a series of galleries it must be remembered that it is not possible for the visitors to keep up their interests, however attractive the galleries are, if they have to walk through a number of galleries, all the while their attention focused on exhibits. If the colour schemes and the mode of presentation vary from one gallery to another, it may give some relief but it is essential to plan a relief area after two or three galleries where the visitor's eye may rest with the natural surroundings and get relief after continually looking at some exhibits. A few seats, though not too comfortable, provided in these areas will relax the visitors and they can continue the round with more enthusiasm.

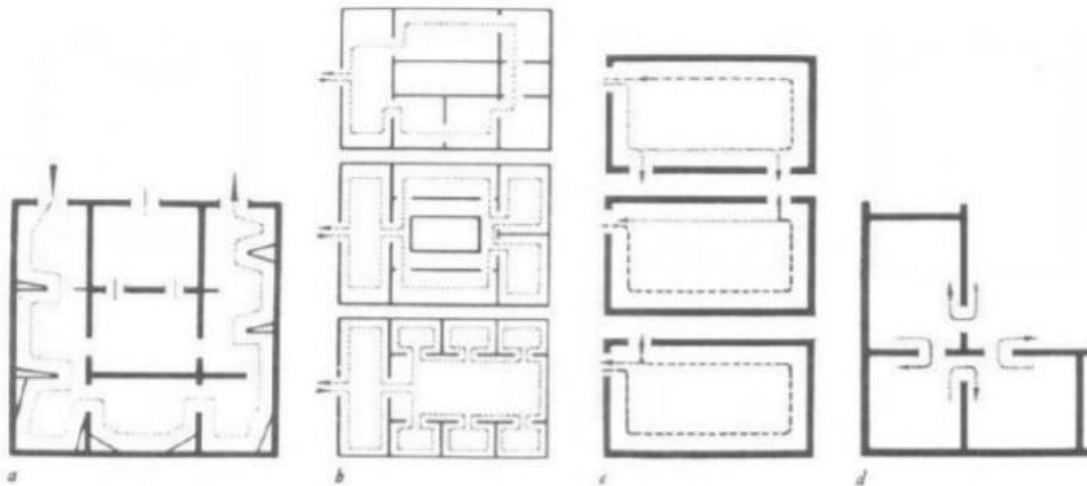


Fig. Floor plans for the location of doors in relation to the use of space

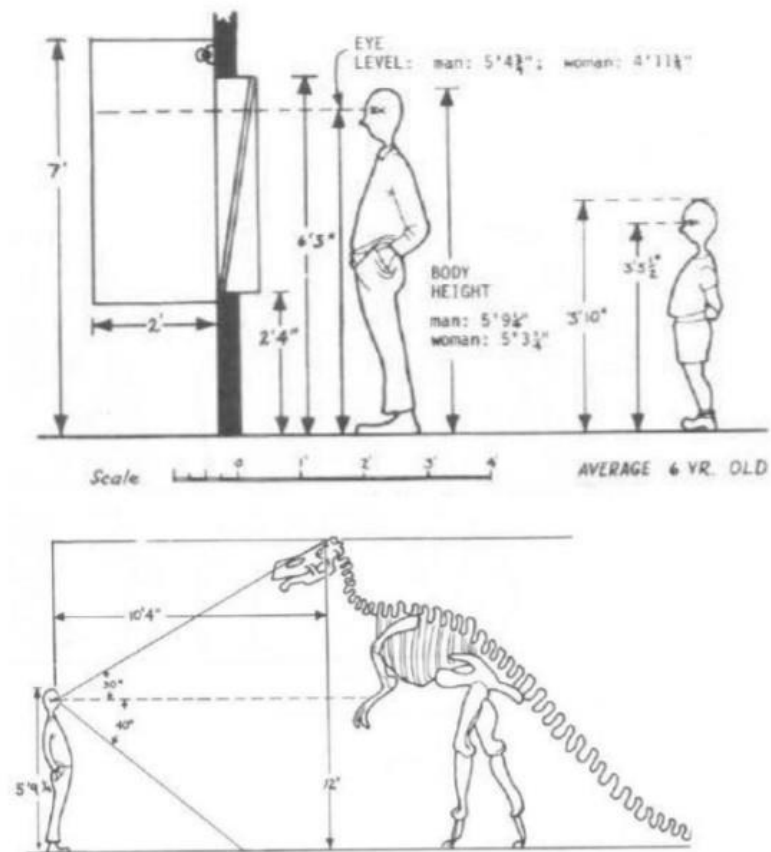
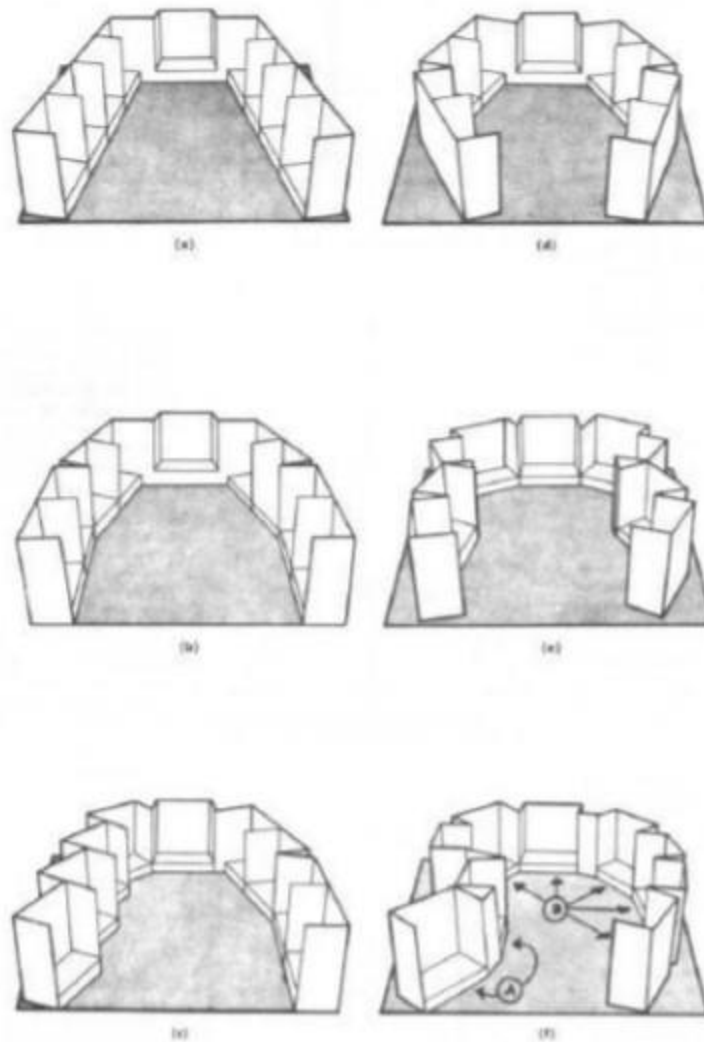


Fig.Measurement of adult and 6 year old visitor in relation to cases



Difficulties encountered in viewing details more than 3 feet below or 1 feet above one's eye level

4.1.2 Exhibition rooms

A museum in which all the rooms are the same size becomes very monotonous. By varying the dimensions and relation between height and weight and also by using different colours for the wall and different kinds of flooring provides us spontaneous and unconscious stimulus to attention.

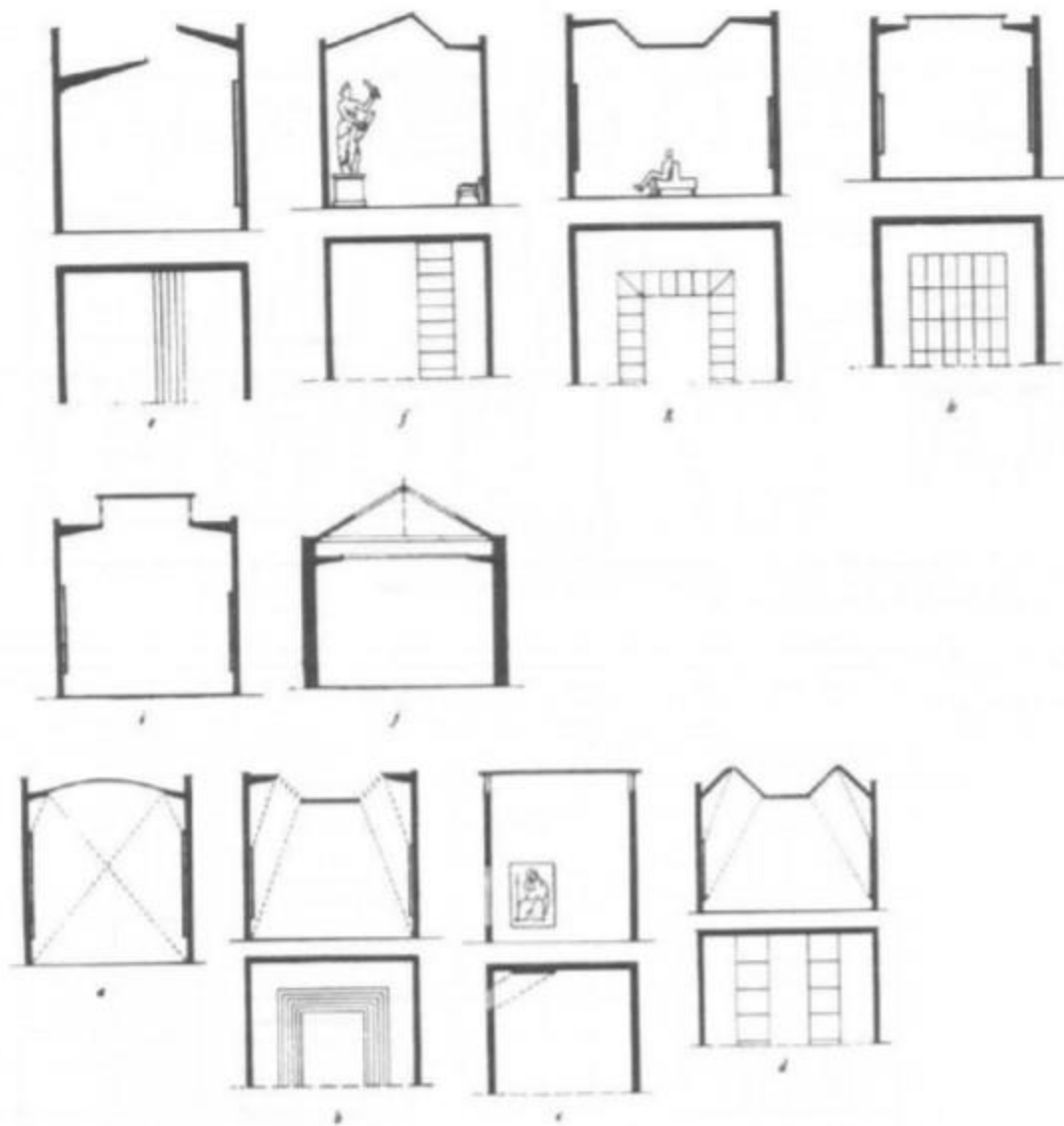


Fig:Lighting standards

4.1.3 Lighting

- The illumination is of paramount importance in museums. A clever arrangement of artificial and natural lighting may enhance the correct visibility inside and outside the building whereas an indifferent arrangement might make the exhibit look ugly or in false perspective whatever the architectural merits of the building or artistic qualities may be. 31 The lighting arrangement has a great effect on interior, exhibit visibility, general environment and on the mind of visitors.

- The general points about lighting arrangement are summarized below: Lighting arrangement in a museum has a great impact on the mind of visitors as such great care should be taken in the selection of the type of light used- natural or artificial.
- The natural light used is much too variable and a certain amount of control is necessary to regulate it.
- The artificial light is, however, very much constant but monotonous. Hence combination of both will be ideal. But it is very difficult, especially in a climate like India's to blend the natural and artificial lights to give a homogeneous effect.
- Hence artificial lights clearly arranged, are the answer to the problem of lighting museums with a few openings here and there to avoid the feeling of monotony by the visitors. It has been provided by experiments and observation that the objects are best lit if the background has a lower illumination than the object such as painting and sculptures etc. the illumination decreases up to a certain level.
- On other hand the illumination decreases if the background is more illuminated than the object. Objects are the best lit if the surrounding illumination is 30. Colour scheme should be taken care of. The background colour should be such so that it will not form any glare.
- Spot lights and other media have been used for emphasizing the sculpture in the interior as also to increase the dramatic effect and create a pleasant environment.

4.1.3.1 Artificial Lighting

- **Fluorescent lighting:** Behind case fascia panel [without diffusing panel separating light from case interior]; angles of vision must be calculated to avoid glare from light source.
- **Vertical Lighting:** Slim Fluorescent tubes set in case corners, forming light columns; suitable for wall cases with solid sides.
- **Fluorescent column:** set behind case uprights; a possible solution for lighting in old wall cases.
- **Side Lighting:** Louvers essential to mask fluorescent tubes; accurate calculation of light spread is needed to ensure even illumination on the case back panel.
- **Internal case lighting:** Slim light box for miniature fluorescent or incandescent lamps; brightness at eye level should be carefully controlled; wiring to the light box, housed in case corner, may be distracting.
- **External lighting:** through glass tab, but heat may build up unless 'cool' light source is used; objects can cast shadows when lit by slanting light and possible problems of glare.
- **Integral Lighting:** Light box separated from case interior by diffusing glass or louvers [with clear glass panel excluding dust]; fluorescent for even, well distributed light, or tungsten, for highlighting, can be accommodated. Lighting from below as well as from upper light box to reduce effect of shadows and to light undersides of objects; light source must be masked, usually by louvers.

- **Backlighting:** fluorescent tubes behind diffusing material, usually opal Perspex; tubes must be evenly spaced, at some distance from diffuser; ideally fitted with dimmers to control brightness.
- Strip lights [fluorescent or tungsten] attached to shelf ends inside the case, illuminating both above and below a shelf; can only be used for objects with no conservation risks.
- Lighting is classified by intended use as general, accent, or task lighting, depending largely on the distribution of the light produced by the fixture. Forms of lighting include alcove lighting, which like most other up lighting is indirect. This is often done with fluorescent lighting.

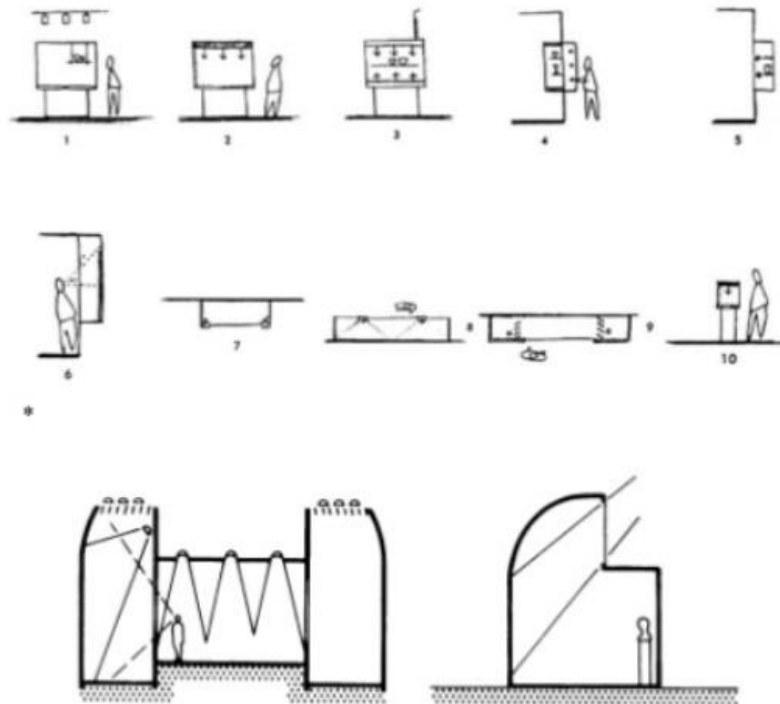


Fig: Artificial lighting

4.1.4 Problems caused by light

The geometry governing the eye lines of visitors and light cast by luminaries, shadows, light levels and reflectors have to be carefully designed.

Glare causes discomfort or disability and can be direct or reflected. It can be avoided in the design of the building envelope by orientation of windows, roof lights, provision of shading devices, diffusers, overhangs etc. Glare from reflecting surfaces can also be a

problem. To avoid direct glare at light sources must be screened from natural directions of view. Where there is a free circulation of visitors around objects consider the comfort of lighting from all angles: where there is a controlled viewing angle, the design of lighting to avoid spillage and resultant glare is easier.

Contrast keep general levels below 300 lux where there are mixed light sensitive exhibits because of the problems of adaptation as visitors move around.

Reflectance ambient spaces can be illuminated up to 300 lux, but higher levels can introduce glare and reflection. Glass frames and the cabinets can act as total or partial mirrors obscuring the object within. To avoid reflected glare any bright source must be excluded from the area seen by reflection in the exhibit- this area is often described as the “offending zone”

Damage caused by light

All spectral white light can damage artworks, particularly daylight. Chemicals can occur such that colours fade, paper discolours, and certain materials become more brittle. For example, pigment can fade in a water colour of fibers and be destroyed in a tapestry.

The harmful, ultra violet component of light may be filtered to some degree, although this has some effect on colour. An assessment must always be made of the likely photochemical action of light on any object with reference to other factors such as RH and high temperatures. **4.1.5 Air conditioning**

Air conditioning is the best for museums. There are two ultimate objectives of air conditioning in a museum, comfort of visitors and employees and conservation of collection. Both ends are of great and ever growing importance. Everywhere good seasons alternate bad seasons and vice-versa in which case air conditioning for comfort becomes essential. Air conditioning for conservation is a well established fact and lengthens the life of the exhibits.

4.1.6 Planning of services and service area

Now for the service area, which is behind the scene of the museum but is equally important as the museum galleries are at least 40 percent of the total area should be provided. The laboratories, offices for administration and technical staff of different departments and workshops need office space, stores for reserve collections and other materials as well as working space. Workshops need power connections.

All these areas should be well planned, well lighted and ventilated and linked up with one another and should be clean and usable, having pleasant atmosphere for efficient work. There should not be too many entrances and exit to the museum building as it will affect the security measures, it is advisable to have separate service entry for office and service areas.

Electrical and air conditioning plants should be accessible from it as well as it should be connected with the store rooms so that the goods and objects can be directly taken to the store without interfering with the galleries and the circulation of visitors.

4.1.7 Museum storage

This situation of collecting a number of specimens and showing only a small percentage in the galleries leads to the problem of museum storage. Certainly museum storage is not the kind of storage used by the house keepers.

The objects which do to find a permanent place in the galleries must find a safe place and sheltered place in the store. It is essential to see that the storage places are properly lighted, well ventilated and 34 adequately guarded, where the object can be well preserved and safe guarded against deterioration, decoyer damage.

In short the museum storage is a safe place for the object where they are equally cared for as they are in the galleries.

4.1.8 Seating

View is larger than in normal theatres.

Visitors watches the presentation by looking up

Inclination of seats

- Front seats- 45 degree
- Middle seats- 30 degrees
- Rear seat- 20 degree

Two types of seats

- Fixed angle
- Freely adjustable angle

Seating should be as per local fire safety

4.1.9 Ventilation system

Natural ventilation is not possible as the projection surface cannot be interrupted. Depending upon the local climate air conditioning is done. The air conditioning plant is designed and dimensioned to meet the following requirements.

- Fresh air supply to the sky theatre during shows.
- Elimination of stale air and supply of dry cooled or preheated air after the show.
- Maintenance of highest permissible air humidity and temperature during other times.

The floor of the auditorium is designed in such a way that the central 2- 2.5m diameter circular space is reserved for the projector. Suitable flooring material is used 35 depending upon the requirements. A layer of acoustical material is used above the flooring for sound absorption.

A control desk is provided next to the staff entry door wherein the shows are controlled. Sound systems are provided which are used for speech and music transmission, a 25 w amplifier with tape recorders, microphones, control switches etc. the loudspeakers are connected to the control panel. Separate loudspeakers used for transmission are mounted at the zenith and the loudspeakers transmission of speech could be installed at both the zenith and horizon. The cables connecting the loudspeakers are to be housed in an insulating tube.

4.1.10 Acoustics

Acoustics is the major determining factor in the design of a theatre or auditorium; the remedy for acoustical problems is a tedious and expensive process. Hence acoustical design is given importance even at the preliminary design stage.

Acceptable indoor noise levels for buildings.

- Auditorium – 20 to 25 db
- Theatre- 30- 40 db
- Conference rooms -35-40 db
- Offices , libraries – directly on vi to 45db
- Stores – 40- 50 db
- Restaurants- 50 – 55db

4.1.11 Reverberation

- Reverberation will improve acoustic conditions for the audience provided it is neither too much nor too little.
- The optimum reverberation time for the auditorium is less than 0.5 sec. reverberation depends directly on volume.
- Reverberation is inversely proportional to absorption.
- The acoustics of a theatre or auditorium depend on the quantity of viewers 36 Acoustics excellence is achieved on dense packing.
- The minimum standard of sound reduction likely required in an auditorium – 65 db Theatres – 50 – 60db Sound reduction is to be provided on all sides The roofing insulation is made 5-10 db less.
- Ancillary rooms, foyers and courtyards are invaluable methods of effectively solving acoustical problems Alterations are a common sight.

4.1.12 Reflectors

- When the auditorium is large and the distance to seat is over 18m, reflectors play a vital role.
- Ceiling reflectors are so designed that its resultant is concentrated in the more distant sheets.
- Material used for reflectors must be non- porous, smooth and must not weigh less than 25kg/cu.m.

Doors and windows should be treated acoustically with draught strip, rubber or felt. Materials generally used for acoustical treatment are

- Quilts
- Plaster boards
- Fiber wood
- Compressed wool
- Glass
- wool
- Mats

The entire ceiling is covered with 1” thick glass acoustic tile.

Floor finishes must be sound absorbing materials such as rubber, cork, linoleum,etc.

4.1.13 Space standards

- Office-1.5-2.5 sq.m/person
- Conference -1.5 -2sq.m/person [15-20 users]
- Boardroom – 1.5 – 2 sq.m /person[15-24 persons]
- Rest rooms - 50 sq.m
- Restaurant – area/person=1.5- 2.2 sq.m/person[dining]
- Kitchen=50%dining area
- Pantry25% dining area
- Water requirements= 70 liters per seat
- WC –male- 1 for 50-200 seats,
- female -1 for 50-200 seats
- Urinal- 1 for 500 seats W /b – 1 for every wc
- Space required in a library – stack room, catalog room, general reading room, periodicals reading room, librarian's room, deputy librarian's room, technical staff room, microfilm reading room.
- No. of seats to be provided – 20%of students population,10% faculty population • Relative position of rooms and circulation as follows.
- Stack room – centre, entrance thro catalog.
- General reading- enter directly from control region • Periodical- adjacent to above with independent access.
- Librarian / deputy librarian – close to general reading room
- Admin/ tech staff – next to above
- Size of the rooms- each book rack – 2m long may be assumed to house 700to 750 volumes,150 volumes / sqm of stack area
- Clear height – 2.35 m
- Height of rack – 2.2 m
- Orientation – longer side facing north and south, to avoid direct sunlight through windows
- Stack room – clear length should be equal to $1.8 \text{ to } 3.15 n$ where „n" is the number of the rows of book racks. The stack room should be provided centrally so that it is accessible from every part of the library
- Reading room-length can be $1.5 \times n$ where n is the no. of reading tables.

CHAPTER 05 - CONCEPTUAL STUDY

5.1 PERCEPTION:

- The discipline of expression....
- Applying aesthetics to spaces based on design knowledge, market awareness and an understanding of the client's objectives.

5.2 DESIGN:

To truly enhance a space, it must ultimately reflect the client's perspective. Does the space express the client's purpose through its design? Does it function well for all who move within the space? Have we achieved an environment that will continue to affect and bring fulfillment?

5.3 DETAIL:

- Detail is an integral part of design philosophy.
- The intrinsic connection begins with the first step and can be found in every step and can be found in every step of the design process trying to achieve strength of vision.
- Detail is what changes our perception of spaces.
- It begins with an appreciation of the architecture and finishes when the purpose of a space exceeds a client's expectations.
- It is an inherent part of all projects and results from a shared vision between the principals.

5.4 The shape of space-designing with space and light

- Every design professional is someone who touches a space, shapes the light and the feeling of that space.
- Light: The Shape Of Space, how to design with the effects of light rather than itself.
- To care about how people feel in the spaces we design, and focus on the humanization of architecture.
- To learn what pleases and what disturbs people based on how the human visual system responds to colour, texture, pattern and brightness.

- The appearance of building materialism colour and brightness when modified by light and spatial location.
- Lighting spatial connections, including the perception of rooms adjacent to the observer.
- Lighting and perception of spaces screened by architectural grilles. Creating lighted space as light interacts with form to change the perception and communication of a space .

5.5 DESIGN –THE ART OF PURPOSEFUL SPACE

- DESIGN changes the relationship of working places, and affects the people who fill its spaces.
- The spatial envelope.
- Articulation of the spatial envelope.
- Movement through space.
- The perception of the surface is basic to space-making.
- Main subjective realm defines the continuum of external reality or even an internal mood.
- Oku thinks of space as that which is the emptiness, an interface between the heavens and the earth.
- “A realization came into being that architectural shape was useless; that the prime requisite was for a system that could adapt to any kind of change rather than constant or changing functions.”
- Again traditional Japanese Architecture considered the relationships between colour textures, materials and surface treatments to be of unfailing importance.
- Today buildings are built with not only increasing technological skill but with a new kind of sensitivity.
- his sensitivity is not only about the visual perception of space but is also related to its haptic, tactile, and olfactory perceptions.
- The sum of the thesis is to study the packaging of architectural space.
- It is easy to say that surfaces and their perception form a very basic role in the nature and the spirit of space making.
- The negation of 'Function' and with it 'form' as the generators of architectural space is of particular significance.
- The need is to create a space of quality that holds through many changing functions.
- Space making has changed to accommodate a myriad of different functions, often in a constant flux and also the implications of virtual space making on the physical space.

- Manipulate architectural elements to define forms and spaces as a specified set of architectural elements can be modified to alter the perception of form and space.
- Explore the effects of light on the perceptions of form and space. The relationship between the design and organization of architectural elements communicate between the object and the user/ observer.
- To develop and build upon an ability to see, think, and to image 3-dimensionally. Certain spaces are not moody but can be very suggestive.
- The pattern of light in a room must be appropriate for the sort of activity that will take place in it.
- The wrong pattern of light and you would risk instigating resentment in the occupants of a room for the activity that should take place in it.
- Lighting can affect impressions of spaciousness, relaxation, privacy, intimacy and pleasantness.
- It can create cold, impersonal public spaces and warm, intimate, private ones.
- Light can have a strengthening or reinforcing effect in creating a suitable psychological setting, similar to that provided by background music.
- It is a mistake to concentrate on luminaries (lighting fixtures) as objects rather than on the surfaces being lighted.
- The light needed for perception and visibility increases as the size of details decreases.
- Although these moods are the general psychological response to architecture, no doubt a good share of them are specifically caste based on the way light interacts with the environment.
- Where you light lands is more important than the object that produces it.
- Luminaries should be the last components selected.
- When horizontal surfaces (normal work plane for activities such as reading, typing, cooking, etc.) are illuminated people and activities become the dominant features and the architecture a secondary one in a space, crafting a personality for the lighted space that encourages a gigantic attitude among its occupants.
- Activity becomes visually subordinate to the architectural environment. This shift reinforces a more intro perspective attitude, an inmate atmosphere with a feeling of privacy.
- Both incident light and surface finishes affect our visual perception of space. It is important to recognize the importance of reflected light when designing a lighting system.
- High reflectance and light-coloured surface reflect a large proportion of the light that strikes them, which produces a brighter interior with a more general diffusion of light.

- The next step in the lighting design process is to determine how much light is required for the activity that will take place in a place.
- If you are an art collector or have expensive paintings at your home, the photodegradation process is caused by visible and near visible radiation.
- Art objects have different levels of sensitivity. Metals, ceramic, glass and stone can safely stand in full sunlight but organic material such as paper, wood, textile etc. are susceptible to light.
- Heat and humidity in a room affects the rate of photo degradation. 42
- Heat speeds up chemical reaction so high wattage incandescent sources can be dangerous near art objects.
- Luminaries as objects should not be underemphasized as they are important architectural elements as well as lighting units; also they are important to design harmony and the general impression of space.
- They could fade or discolor.
- Protective coating on paint is not an ideal solution, it darkens when exposed obscuring the image beneath.
- Low reflectance and dark finishes absorb much of the light that lands on them reflecting very little towards the eye.
- Because surface brightness is low, such finishes contribute to a general impression of a dark space.
- Early in the design process the designer should decide which surface and objects to light and which to leave in relative darkness,
- Form could be various but Architecture space should be recognizable via human perspective and perception.
- Architecture Form could be various and splendid only if space could follow the essential logic and be well recognized in human scale.
- Both abstraction and Perception are required for the Architecture to design through analysis of abstract architectural space and form.

5.6 PERCEPTION OF SPACES

- The circulation path can be conceived as the perceptual thread that links the spaces of a building or any series of interior or exterior spaces together.
- Since we move in time through a sequence to a space we experience a space in relation to where we have been and where we anticipate we are going.

5.7 SPACES

- The ultimate purpose of an architectural mass is to contain space.
The human body in order to pursue any activity requires a certain minimum unobstructed volume around it [determined purely by the activity called utilitarian space.
- But such a space does not satisfy the emotional requirements. Increased volume must be distributed proportionally if it is a Space.
- If it is emotionally satisfying - such a space is aesthetic. But it is only when each of these spatial requirements exerts and influences on and modifies the other that we get Architectural space
- The purpose of an ARCHITECTURAL MASS is to create an ARCHITECTURAL SPACE.
- The distribution of mass therefore corresponds to the distribution of space.
Space in itself has no dimension and no form.
- It is the presence of mass that makes us experience space.
- Mass is a positive volume, Space is a negative one. • Form- Mass or Volume are evidence of the 3 dimension • Direction- vertical or horizontal axis of the mass.
- Shape- geometric qualities.
- Form deals with shape and the figure and when it's 3 dimensional it becomes mass.
- Form is the primary identifying characteristic of a volume, 44
- It is determined by the shape and interrelationship of the planes that describe the boundaries of the volume.

5.8 VISUAL PROPERTIES OF FORM

- Shape - The principal identifying factor of form, shape results from the specific configuration of form surface and edges.
- Texture- The surface characteristics of a form, texture, and affects tactile and light reflective qualities of form surface and edges.
- Size- The real dimensions of form, its length, width and depth, while these dimensions determine the proportions of the form, its scale is determined by its size, relative to other forms in its context.
- Visual inertia - The degree of concentration and stability of a form, visual inertia of a form depends on its geometry as well as its orientation relative to the ground plane and line of sight.
- Colour- The hue intensity and total value of a form's surface, colour most clearly distinguished from its environment. It also affects the visual weight of a form.

-
- Position- From location relates to its environment or visual field.
- Orientation - A form's position relative to the ground plane, the compass point or to the person viewing the form.

5.9 BUILT FORMS AND OPEN SPACES

- The symbolic relationship of form and space in architecture can be examined and found in several scales.
- At each level we should be concerned not only with the building's form but also its impact on the space around it.
- At the scale of the building's site a building form can relate itself to the space around it in many ways.
- A building can form a wall along the edge of its site and define positive outdoor spaces e.g. Mexican house and Ramakrishna house by Correa.
- A building can surround and enclose a courtyard within its value e.g. Renaissance palazzo.
- A building can merge its interior space with the private outdoor spaces if a walled site e.g. Johnson house, Cambridge.
- A building can enclose a portion of its site as an outdoor room e.g. Studio of Alvar Aalto, Helsinki, B.V Doshi Building can stand within its site and have the enclosed private exterior space be an extension of its interior space e.g., Japanese houses
- A Building can stand as a positive form in a negative space, e.g. American St Burbank house.

5.10 DEFINING SPACE WITH HORIZONTAL ELEMENTS

5.10.1 Base Plane

- A simple field of space may be defined by a horizontal plane laying as a figure in a contrasting background.
- The stronger the edge definition the more articulate will be its fields.
- For a plane to be seen as a figure there must be a strong and perceptible change in colour or texture between its surface and the plane upon which it lies.
- There is a continuous flow of space around it and it defines a territory zone of space within its boundaries.
- This is often used to define a space within a larger spatial context.
- This type of Spatial delimitation can be used to differentiate between a part of movement and places of rest that define a field from which the form of the building rises out of the ground or to articulate a functional zone within a one room living environment etc.

5.10.2 Defining Space with Vertical Elements

- Vertical elements are generally more active in the visual field than horizontal planes and are therefore instrumental in defining a volume of space and providing

a strong sense of enclosure; they also control the visual and spatial continuity between a building's interior and exterior.

- Linear vertical elements can define the vertical edges of a volume of space.
- A vertical plane will articulate the space that it fronts.
- Parallel planes define a volume of space between them that is axially oriented towards the open end of the configuration.
- U- Shaped configuration of a plane defines a volume of a space that is oriented towards the open end of the configuration.
- Four planes enclosed and introverted space and articulate the field of space around the enclosure.

5.11 SPACE LINKED BY A COMMON SPACE

- Two spaces that are separated by a distance can be linked out or related to each other by a third intermediate space.
- The relationship between the two spaces can differ in form and orientation from the two spaces to express in linking functions.
- The intermediate space can differ in form and orientation from the two spaces to express its linking function.

5.12 SERVICES

In the operation of collection services, not every operation necessarily requires a separate space, some services may be provided by outside agencies. As far as possible, collection movement and public circulation should be kept separate.

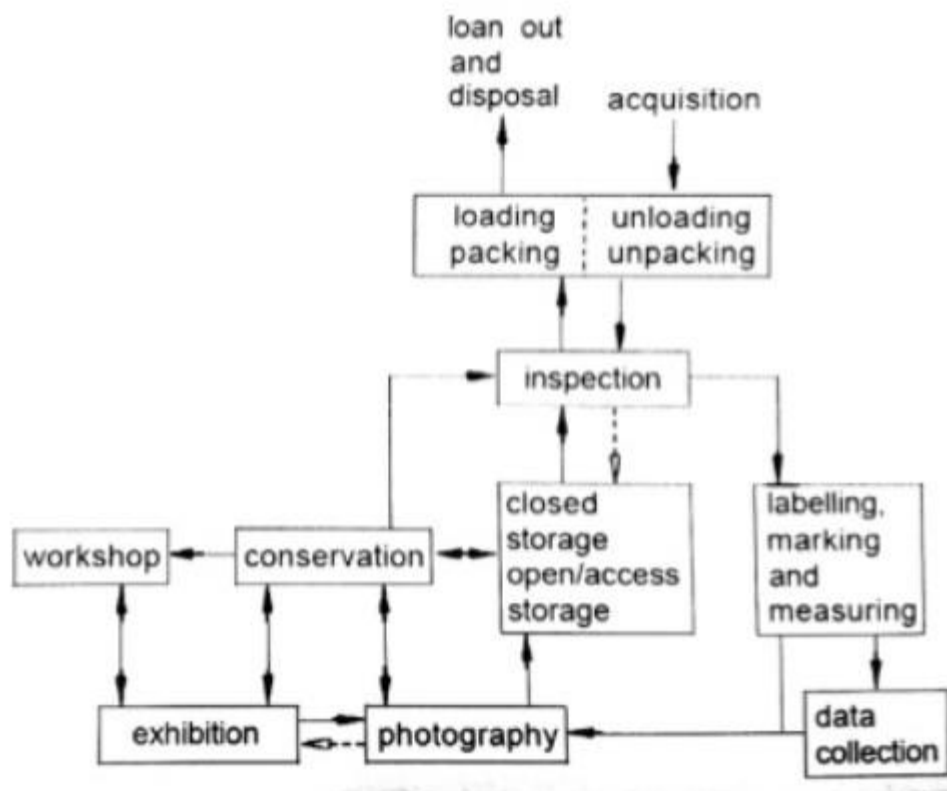


Fig: Layout of services

In Museum Planning, Building services engineering comprises mechanical engineering, electrical engineering and plumbing (MEP) engineering, all of which are further subdivided into the following:

- Communication lines, telephones and IT networks
- Escalators and lifts
- Fire detection and protection
- Heating, ventilation and air conditioning [HVAC]
- Lightning protection
- Natural lighting and artificial lighting, and building facades
- Security and alarm systems
- Water, drainage and plumbing

Building Services influence the architecture of a building and play a significant role on the sustainability and energy demand of a building. The latest trend in MEP or building services engineering is the utilization of Building Information modeling or BIM which may include 3D and 4D modeling. 3D BIM services enable building visualization, preview or prototype of architectural structures before actual construction.

CHAPTER 06 - AREA STATEMENT

PROGRAM CAPACITY

TRADE FAIR (70 DAYS - JAN- MARCH MONTH)

TOTAL AREA : 43,014 SQM (PLUS CAR PARKING)

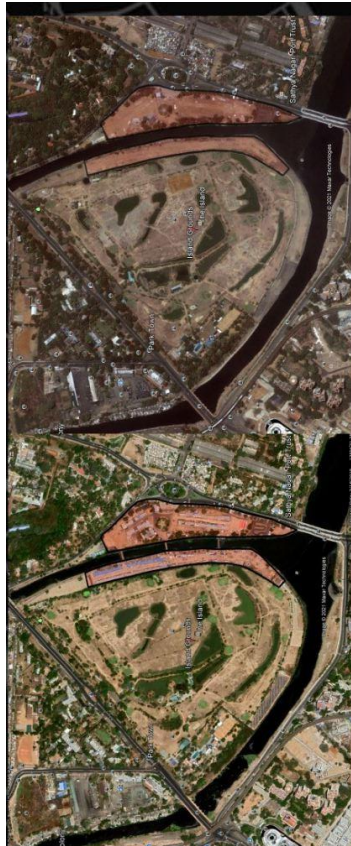
SERVICES : 585 SQM (FIRE / POLICE)

TOTAL VISITOR CAPACITY - 20,000

TOTAL AREA OF THE PROJECT : 13,000 - 15,000 SQM

AVG VISITOR CAPACITY : 1000 - 1500

PEAK MONTHS : 2000



CASE STUDY	TOTAL AREA (SQM)	AVG VISITOR CAPACITY	VISITOR CAPACITY (PEAK HRS)	SEATING CAPACITY
VIRASAT E KHALSA	80,000	5000 - 6000	20,500	400
PARTITION MUSEUM	5000	1000	2000	50
LD MUSEUM	6000	20	50	0
MADRAS MUSEUM	12,140	200	1000	500
LA COUNTRY MUSEUM	7000	600	1500	250
EXPLORATORIUM ,CHINA	33,000	3000	5,000	500
EXPLORATORIUM , SAN FRANCISCO	9290	1100	2000	50
LOUVRE MUSEUM	60,600	1500	7000	800
MITTO MUSEUM	17,429	2000	5000	250
THE MUSEUM OF ISLAMIC ARTS	35,000	1000	1500	500
GUGGENHIUM SOLMON	762	200 - 400	800	150
LOUIS VAITON MUSEUM	11,700	2000	ANNUAL (35,000)	500
VATICAN MUSEUM	70,000	2000	5000	800
THE BROAD MUSEUM	11,148	1500	2500	300
SOHOROUS MUSEUM	3500	200	500-600	50

	Program	Timing (Weekday/Weekend)	User Group	Emotion Experience	Area Per Person	No. of . Person	Infrastructure	Pedagogy	Total Area
PUBLIC	Entrance	Both WD/WE	All Age Group	Excitement	2-3 Sqm	Floating Population (50)	10 msq		260 Sqm
Public Collection/Exhibit Area	Ticket Counter	Both WD/WE	All Age Group	Excitement	2-3 Sqm		8 msq		10 Sqm
Non Public Area	Galleries (Temporary Exhibit)	Both WD/WE	All Age Group	Mixed Emotions .All senses Active	2-3 sqm	100 * 8	100 msq		3300 Sqm
Public Non-Collection/Exhibit Area	Galleries(Permanent Exhibit)	Both WD/WE	All Age Group	Mixed Emotions .All senses Active	2-3 sqm	100 * 8	100 msq		3300 Sqm
Non Public-Collection/ExhibitArea	Security Rest Area	Both WD/WE	Security		2-3 sqm				20 Sqm
	Lobby / Info Desk	Both WD/WE	Member and public	Curious	2-3 sqm				10 Sqm
	ATM Counter	Both WD/WE	Public						5 Sqm (2)
	Display Room	Both WD/WE	All Age Group		2-3 msq	150	250 msq		700 sqm
	Library	Both WD/WE	All Age Group	Mixed Emotions .Visual and scared Feeling	2-3 msq	150	250 msq		700 sqm
	Play Area	Both WD/WE	Kids						100 Sqm
	Shop	Both WD/WE	All Age Group	Excited	2-3 Sqm	50	30 msq		180 Sqm
	Restaurant								40 Sqm
	Admin -Directors's Room								40 Sqm
	Secretary Room								40 Sqm
	Accounts								60 Sqm
	Maintenance Room								30 Sqm
	Toilets								50 Sqm
	Video Room								50 Sqm
SEMI-PRIVATE-PUBLIC	Lounge	Both WD/WE (During Show hrs)	Public	Active	2-3 Sqm	50	20 msq		100 Sqm
	Meeting Room	WD	Admin Only	Active	2-3 Sqm	50	20 msq		170 Sqm
	Conference Halls	WD	Staffs	Interactive	2-3 Sqm	30	50 msq		140 Sqm
	Auditorium	Both WD/WE (During Show hrs)	All Age Group	Mixed Emotions (Visual and hearing active)	3 msq	500	500 Seating (0.4x0.5-2sqm per seating) Total - 1000 sqm		1500 Sqm
	Seminar Halls (2-3)								
PUBLIC OPEN SPACE	Lobby	Both WD/WE	All Age Group	Interactive (All Senses)	2-3 Sqm	250	30 msq		780 Sqm
	Inside Resting Area								
	Special Event hall								
PRIVATE	Stock Room	WE	Staff		2-3 sqm	10	50 msq		80 sqm
	Office	WD	All Age Group		2-3 sqm	30	100 msq		190 Sqm
	Vip Guest Room								100 Sqm
	Staff Rooms								
	house of Confilct								
	Satellite Kitchen + Beach Seating								
	ipoc office								
	gallery design office								

CHAPTER 07 - STANDARDS AND CIRCULATION

7.1 ZONING OF A MUSEUM

Zoning as a museum Planning Tool. In the practice or designing the zoning can be arranged as

- **Public Collection Areas:** Zone with environmental controls and security designed for the preservation of collections.
- **Non Public Areas:** Zone which is meant for the staff alone with environment controls and security.
- **Public Non-collection Areas:** Zone in which the finish and durability and environment created for human comforts.
- **Non Public-Collection Areas:** Zone in which the finish and durability and environment created for the staff alone.

Zoning analysis is a useful tool for the following reasons.

- It clearly indicates the amount of space that must be contained within the museum's environment.
- It provides benchmarks which assist the museum project team in monitoring the brief,
- It forms the basis for preliminary building running costs.

7.2 CLIMATE

- The Building should be oriented in such a way it gets natural benefits for all seasons. Proper shading devices designed for controlling natural light glare over the displays. Avoid drastic changes in humidity and temperature at all times.
- As a general rule, temperature and humidity guidelines set for storage areas are appropriate for exhibit gallery areas as well. If the exhibit gallery contains a door used by the public to enter and exit the museum, do not put artifacts near the door in order to avoid extreme changes in temperature and humidity.
- The Light levels in storage: Brightness and UV levels are damaging to collections and should be controlled. Cover all lights with UV filters, especially fluorescent tubes. Refrain from storing any artifact in an area with sunlight.

7.3 CIRCULATION

The circulation of public and staff service areas has to be separated from each other, and the visitor should be able to approach a particular gallery of his or her choice as directly as possible. He is not interested in. The Location of the temporary exhibit hall should take into consideration the possibility of a large number of visitors. A separate entrance is advisable. Circulating patterns should be designed keeping in mind that there is a general tendency to turn right to enter an exhibit hall.

TYPES OF CROWD FLOW

Depending upon the rate of flow of visitors the area inside the gallery can be described below.

Areas of constant crowd flow: These are the areas where terse repetitive exhibits that can be easily understood by the visitors are placed.

Areas of crowd slope - age : These are characterized by the general display of nature along with the exhibits of conceptual nature required time to absorb.

Area of crowd variable crowd flow : The exhibits allow visitors to choose among simple and complex exhibits.

7.3.1 CIRCULATION IN INDOOR AND OUTDOOR

- Circulation space identifies an area of a building that is used for pedestrian travel, such as a hallway, stairway, and areas in a room that leads to another room. It is generally not good to have a home with a high percentage of circulation space. When you visit a building, your main focus should be the rooms and not the hallway.
- Develop exhibitions with these visitor circulation patterns in mind. Design so that visitors do not have to take extra steps.
- Minimize the number of steps by not requiring backtracking.
- Don't design with multiple choice points where visitors have to make choices or where they will exit the exhibition without giving attention to all of the exhibit elements.
- Avoid designing two-sided exhibitions where exhibits on one side compete with those on the other.

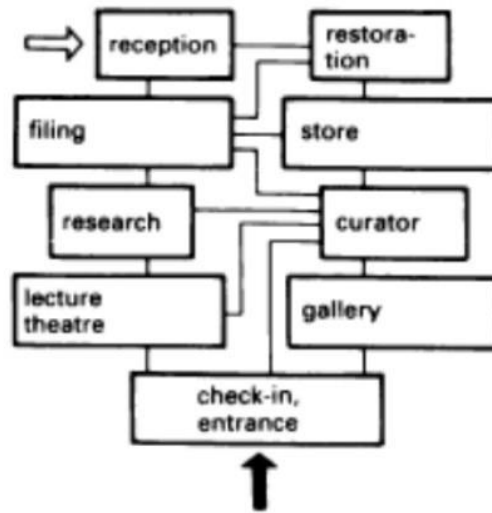


Fig : Circulation Diagram

7.3.2 Designing circulation spaces should be:

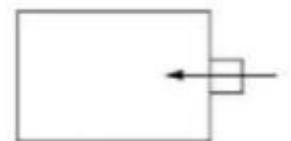
- Widen corridors beyond the typical 8-9 feet currently in use.
- Corridors should be able to easily handle two-way traffic.
- Break up corridor lengths. This will reduce travel time and also discourage kids from running through the halls.
- Keep corridors a consistent width. Corridors that expand and contract create bottlenecks.
- Consider rounding or angling corners so there is a sight line to the intersecting corridor.
 - Blind corners can be a hazard. People who walk at a fast pace or turn corners quickly do not see the traffic in the intersecting hallway.
- This can lead to congestion, bumping, collisions, and altercations.

Circulation patterns :

The circulation within the museum can be attributed to one of the following types:

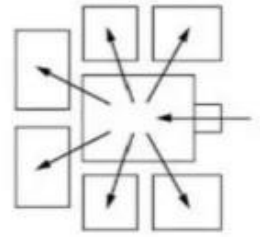
1. Open Plan

- Large autonomous exhibits ,free circulation.
- Bays and columns - scale ,structure and proportion.
- Level changes - circulation ,mechanical aids
- Roof spans - single / multiple
- Service Spaces - under floor / overhead area
- Air circulation - environmental control ,Energy consideration



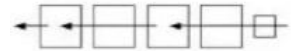
2. Core and satellites

- Core space for orientation to museum / subject / collections
- Satellite spaces for autonomous exhibits /themes/ collections
- Core / Satellite - sitting of temporary changing exhibit or special exhibitions
- Free circulation- firm core to specific satellite



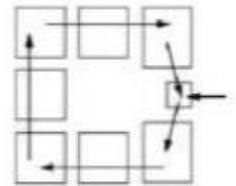
3. Linear Procession

- Linear sequence of space , controlled circulation, tunnel show
- Thematic exhibitions/ storyline organizations
- Sitting of large key exhibits
- Seperate entrance and exit - relationship to associated activities



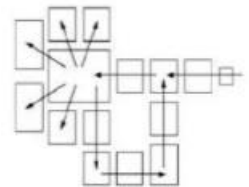
4. Loop

- Linear sequence of space , controlled circulation, tunnel show
- Thematic exhibitions/ storyline organizations • Sitting of large key exhibits • Circulation returns to exit.



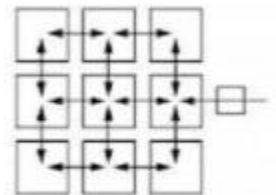
5. Complex

- Combines group of spaces with features of above mentioned plans
- Complex organization of collections
- Complex communication strategy
- Orientation vs disorientation - critical factors



6. Labyrinth

- Locally free circulation - management of circulation is a museum function
- Complex organization of collections
- Complex communication strategy
- Orientation / disorientation
- Critical factors
- Relationship between subject collections

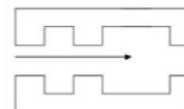


7.3.3 Circulation plans for visitors

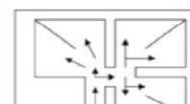
Another Way to classify circulation patterns for visitors in museum exhibition galleries can be as follows:

- **Chain**
Visitor navigate as per their interests
- **Window**

Chain: The main aim is to allow visitors to navigate in regard to their interest in displayed exhibits.



Window: From the central point, visitors are allowed to move towards the rooms according to their interests.



Allows movement in different rooms from a central point

- **Central**

With collections kept centrally ,visitors move around the collection to collection to see the objects from different viewpoints.

- **Block**

Allows For movement in random fashion

- **Brush**

Visitors are exposed to different parts of exhibits as they move.

CHAPTER 08 - USER BEHAVIOUR

In order to create a useful and effective museum exhibition, all its creators,designers and curators have to be well acquainted with the target group.Without understanding the target audience the exhibition cannot succeed because it will not be able to communicate with and foster the interest of visitors.

The spectrum of museum visitors is very diverse and there is no general and universal classification. Visitors, however, have some common features upon which we can build our categorization:

- **socio-demographic characteristics:** age, sex, occupation, education, the type of community the resident is from, local or non-local residents;
- **museological characteristics:** motivation for the visit (professional, informational), knowledge of the topic, potential of the tour to engage;
- **range characteristics:** individual visitor, (various types of) groups of museum visitors, frequency of visits, timescale of museum visit;
- **psychological or physiological characteristics:** reception, intelligent, memory, imaginative, visual, auditive, motoric.

Some target groups can be generalized as below:

- families;
- school parties;
- other organized educational groups;
- leisure learners;
- tourists;
- the elderly;
- people with visual, auditory, mobility or learning disabilities.

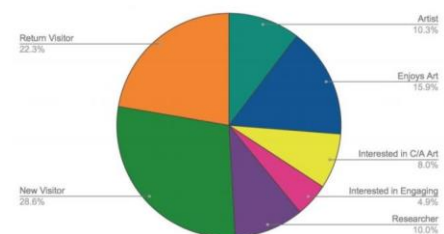


Museum visitors can also be categorized in three broad and much simpler categories:

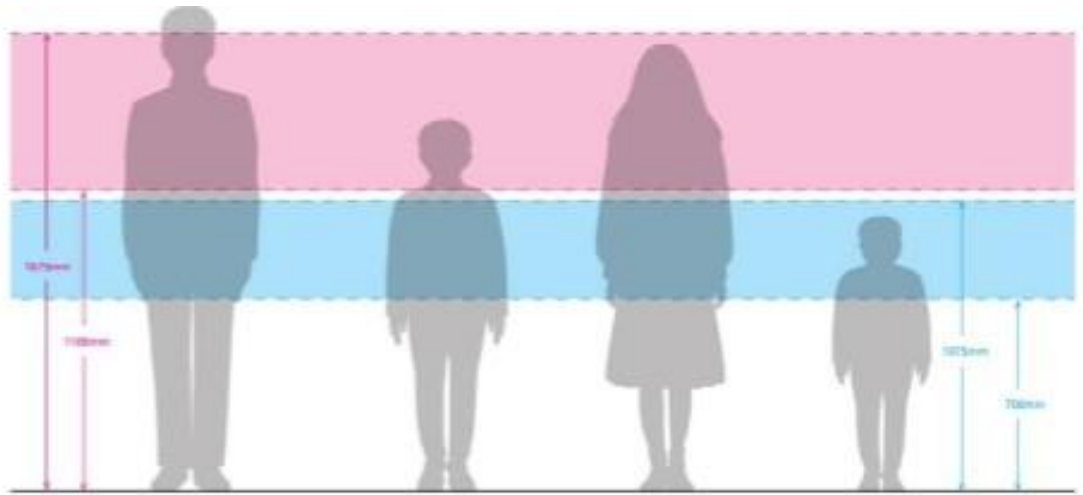
- **Casual visitors:** people who move through a gallery quickly and who do not become heavily involved in what they see.
- **Cursory visitors:** show instead a more genuine interest in the museum experience and collections.
- **Study visitors:** A minority of visitors who thoroughly examine exhibitions with much more detail and attention. They are learners who will spend an abundance of time in galleries, read the text and labels, and closely examine the objects.

Based on the above classification, different types of users that are going to visit the museum are:

1. Visitors
2. Artists
3. Tourists
4. School Children
5. Art Researchers
6. Families
7. Students
8. Art Historians
9. Visually impaired people
10. Hearing-impaired & deaf people
11. Sensory-impaired people
12. Physically disabled people



13. Art enthusiasts
14. Staff
15. Artist



CHAPTER 09 - CASE STUDY | ANALYSIS AND INFERENCE

9.1 DISPLAY TECHNIQUES

The idea of exhibits considerably changed during years rather than a remarkable display of exhibits with “do not touch” restriction, the display has formed a team of inactive, active and interactive types.

9.2 MODE OF DISPLAY

The museum can display interpretive information in the following forms:

Passive Communication

- Graphic Panels - Incorporate text and Images
- Object Labels - For individual objects
- E-labels - Incorporate text, images, video, audio and interactivity
- Images and Illustration - Photographs, maps, drawings and diagrams

- Models - Scale models, dioramas, props, reconstructions

Active Communication

- Audio - Spoken word, oral testimony, music, foreign languages
- Video - Film, interviews, archive film, moving image effects

Reactive Communication

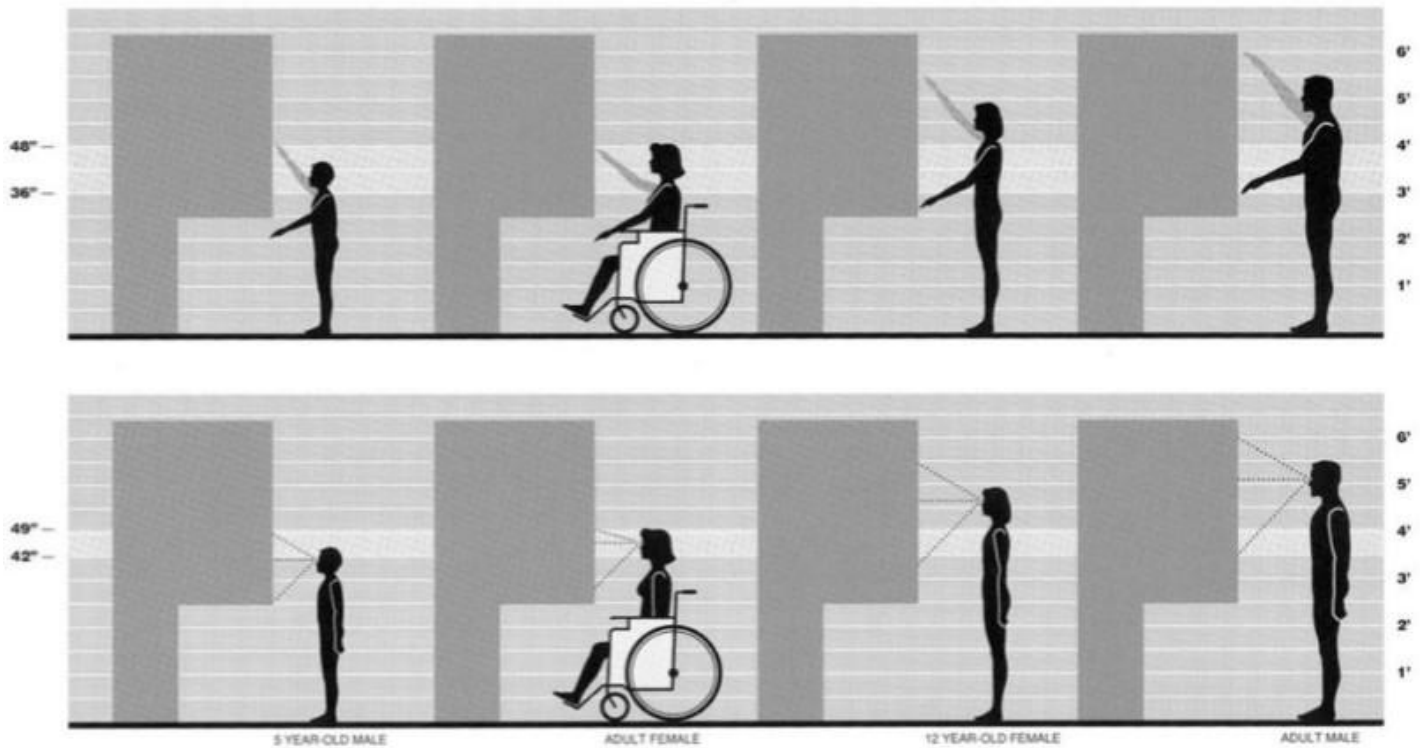
- User activated (Push button, pressure pad, proximity switch)
- Lighting Effects- Sequenced presentations
- Immersive Effects- Sequenced presentations with audio
- Films- Movies, documentaries and videos

Interactive Communication

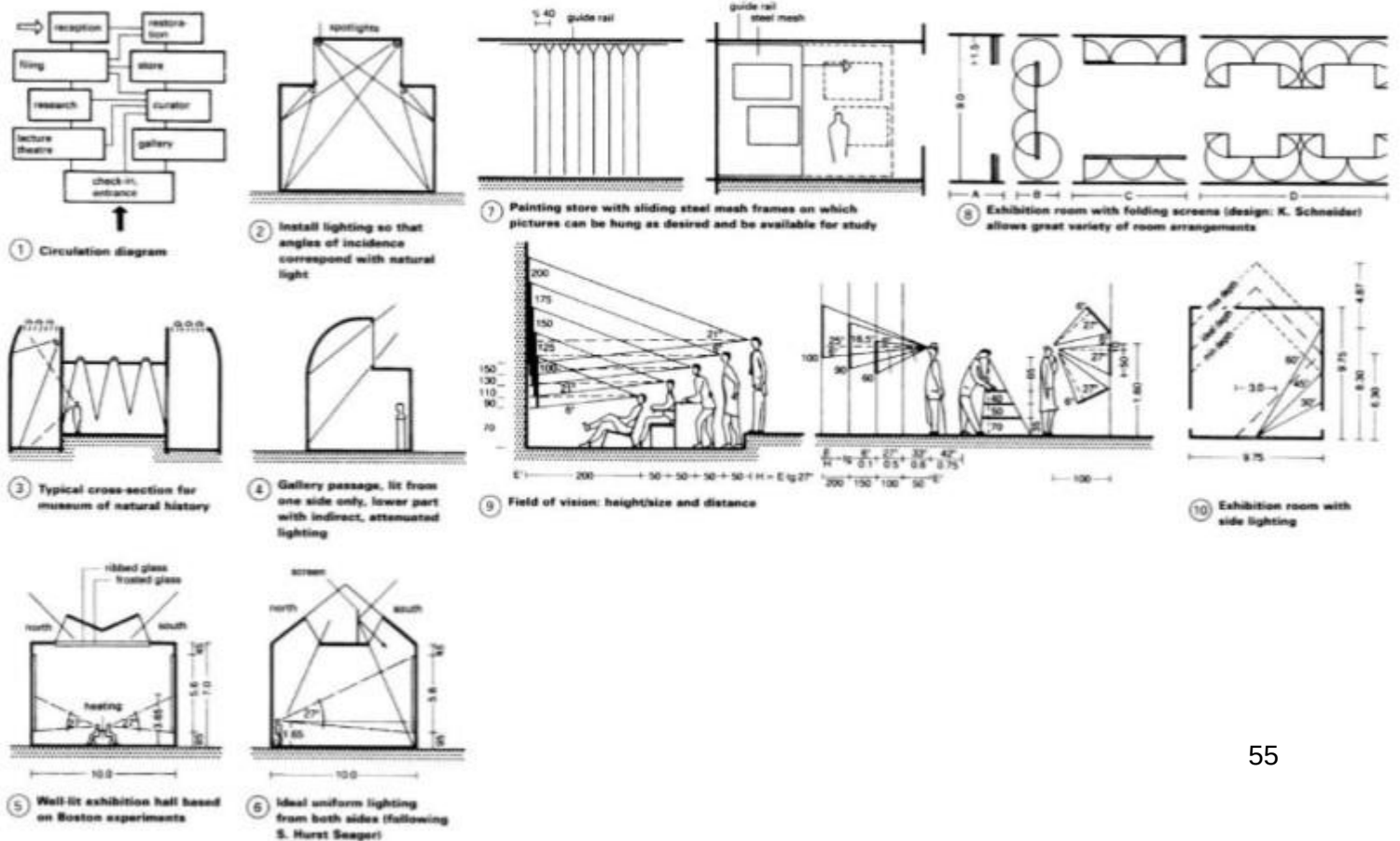
- Educational Technology, microprocessor controlled devices, online Databases.
- Low-tech Interactives - Incorporate text, film, flipbooks, audio
- Live Interpretation - Staff or actors in role-play
- High-tech Interactives - Programmed and computerized



9.3 USER - FRIENDLY HANDS-ON EXHIBITS



9.4 EXHIBITION GALLERY DESIGN



9.5 DISPLAY TYPES

Wall mounted displays



Container displays



Hanging displays



Interactive displays



Open display



Modular displays



9.6 INTEGRATED LIGHTING

Small, shallow display cabinets (glass-topped desks) and high or box-shaped showcases mostly have an integrated lighting system. This has advantages: Fewer or no reflections occur on the cabinet glass. It is easier to avoid direct glare for the observer due to bright unshielded light sources. It is easier to engineer special lighting effects for a dramatic presentation.



9.6.1 OUTDOOR LIGHTING

- Whether sculptures or installations, some works of art are intended to be exhibited outdoors while others may become candidates for outdoor display because of their size.
- For the majority of such objects, an inner courtyard or small patch of garden is usually enough.
- The interplay of light and shadow. Outdoor illumination at dusk or at night basically has the same effect as illumination with directional light in an exhibition room.
- But it also gives exhibits an appearance they do not have in daylight: the artificial lighting creates new structures, reinventing the object in a game of light and shadow.
- The best way to determine the perfect location for a mobile spotlight or flood is to conduct trials - with light from below, from below and from the side, from the side, from above, from above and from the side, or even bounced off another surface. Every solution has a charm of its own.



9.6.2 FACADE LIGHTING

- Light can make any building an eye-catcher. Combined with fascinating architecture, well-planned facade lighting imbues a building with a unique quality - and enhances the area around it at the same time. Illuminating the entire building has a long-range impact; harnessing light to emphasize only architectural details heightens its presence of passers-by.
- Where the principal viewing direction and the direction of illumination are not identical, light-dark contrasts create a three-dimensional effect: an angle of around 60 degrees to the viewing direction is right for plain or fairly plain facades; for more detailed or ornate facades, the angle can be smaller.
- Other forms of illumination Facade lighting is usually a discrete design element. To achieve the desired effect, any additional signal lighting, such as floodlighting for flags or banners, needs to be coordinated with the facade lighting.



9.6.3 DAYLIGHTING

Interior lighting with daylight is an architectural challenge that entirely must be addressed and resolved at the early design stage of a new building. Conditions for harnessing daylight can rarely be created later, and system modification is difficult. Daylight planning is a matter for experienced professionals.

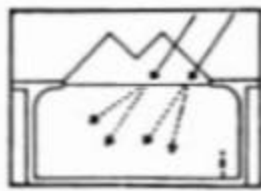
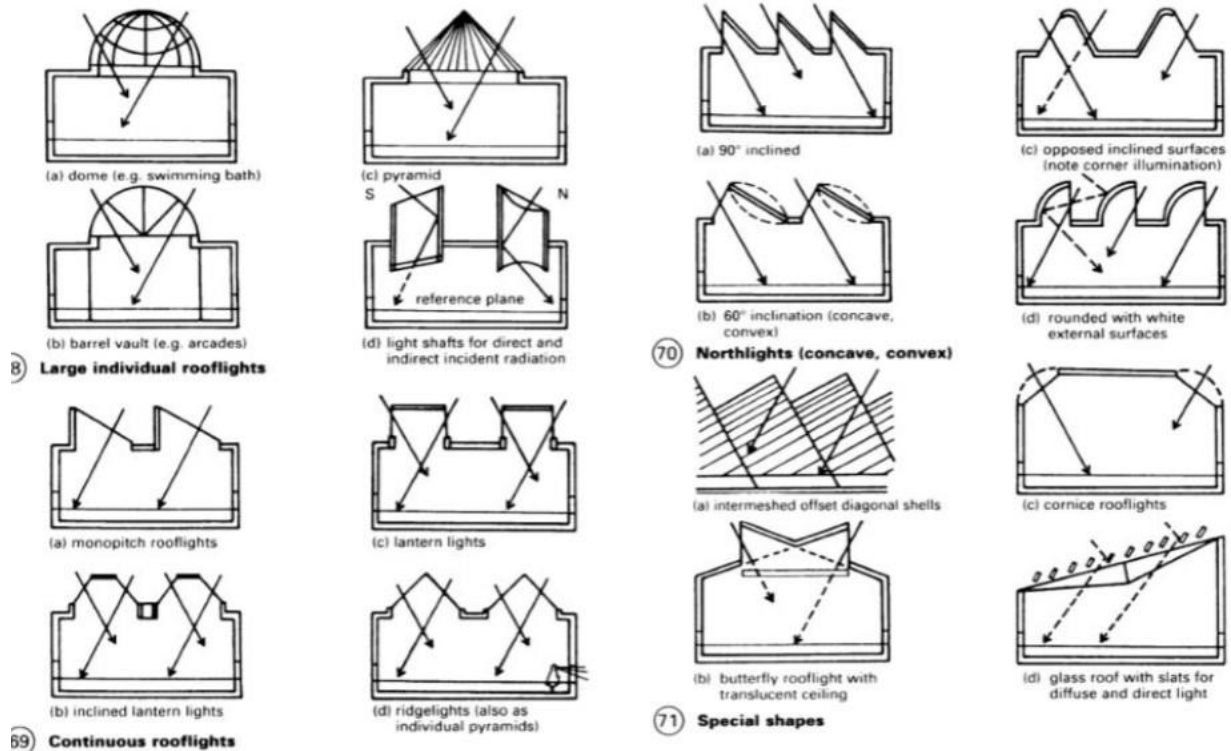
The different methods of introducing daylighting in a museum are:

Windows:

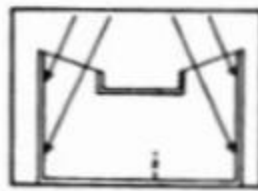
Outsized windows are not necessarily a suitable alternative to skylights and not actually the right tool for making maximum use of daylight. On the other hand, there are many ways today to direct daylight and “lockout” direct sunlight even in rooms with lateral windows.

Skylights:

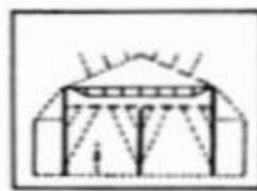
Skylights are classic daylighting elements for picture galleries. They provide uniform, diffuse lighting. Because the light is admitted over a large area, the shadows produced are soft. The incident daylight that passes through a skylight reaches nearly every part of the room, including freestanding display cabinets, sculptures and partitions. Because no windows are present, more wall space is available for paintings. There is also no problem with reflections on exhibition walls due to incident daylight from the side.



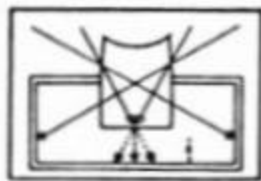
Neue Pinakothek, Munich



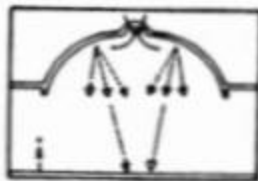
Art Gallery, Bremen



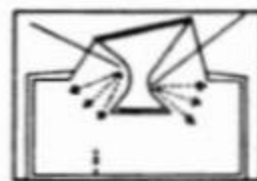
Brandywine River Museum,
Chadds Ford, PA, USA



National Museum of
Western Art, Tokyo



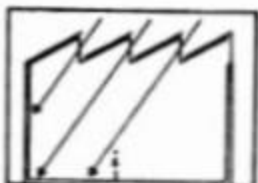
Kimbell Art Museum, Fort
Worth, TX, USA



Nordtjllands Art Museum,
Aalborg, Denmark



Bauhaus Archives, Berlin



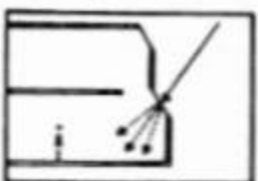
Abteiberg Museum,
Mönchengladbach



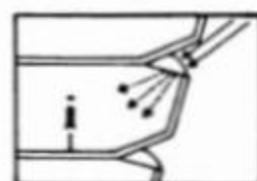
Maeght Foundation Museum
St. Paul-de Vence, Paris



Uffizi Gallery, Florence



Diocese Museum,
Paderborn



Guggenheim Museum,
New York

Sound :

- Avoid intrusive overlapping sound between different sound sources within the display area. Some people with hearing impairments or people who have difficulty filtering multiple stimuli cannot separate foreground from background noise. Avoid intrusive overlapping sound from interactive activities; Design display layouts and specific story display structures to minimize sound overlap.

Exhibit Maintenance :

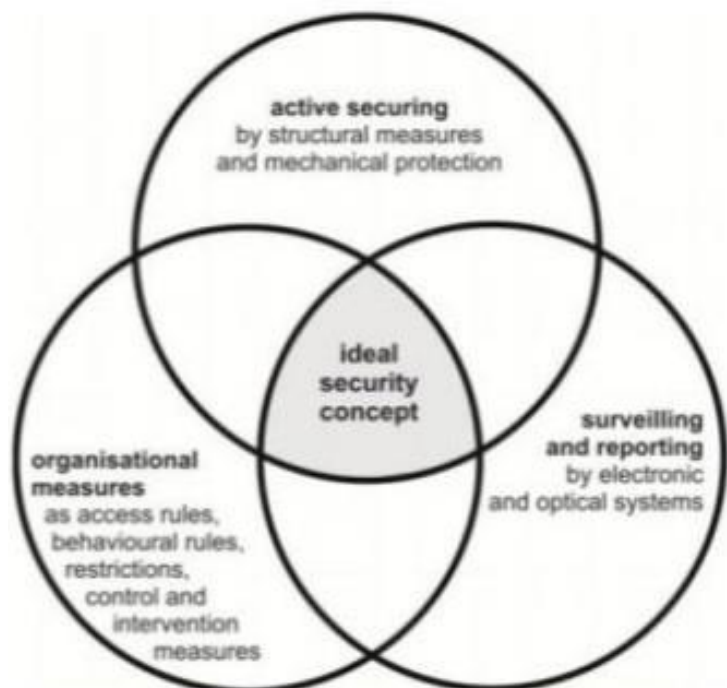
- Temperature
- Relative Humidity
- Light
- Dust and Dirt

9.7 Museum Security

Security is an essential part of life today, whether we like it or not. Most organisations see the need to allocate resources to security to protect their assets, customers and employees. Museums, galleries, libraries and archives have the added duty and responsibility of protecting the nation's cultural assets. Resource believes that security should be provided in a structured and effective manner that represents best value. This publication is intended to support and guide the implementation of this principle and act as a valuable, practical tool for operational managers across the sector.

Types of Risk:

- Burglary
- Vandalism
- Robbery Hold-up
- Natural hazards
- Fire and fire smoke





Security Features:

1. Small and wireless, vibration sensors placed behind the exhibit can detect the lightest fingertrap.
2. The catalogs keep data about a canvas's thread count, highly magnified photographs of exhibit details and other proof of authenticity.
3. Fix the exhibit properly to prevent from theft.
4. Glazing protection for pedestal exhibits.
5. Environmental sensors for fire, temperature changes and other hazards can be used to complement theft-deterrent sensors. These devices are even more common for items on pedestals, but are used for paintings as well.
6. Around the edge of the room, a low rail or change in floor texture or height creates a border to keep people from getting too close to the exhibit.
7. Motion-detection devices beamed directly over the exhibit sound a chirping alarm (like a smoke detector) to startle the too-close observer and alert security.
8. Saturation motion detection is the most important technology used in any given exhibit space. Instead of focusing motion detection only on entrances and egresses, such as doors and air ducts, it's most practical to simply flood the room with motion detection. That creates very few "dead spots" for potential thieves to avoid sensors and helps deter "stay behinds": skulkers who come into the room with a group but remain when others leave.
9. Closed-circuit TV cameras add another security layer beyond motion detection.

10. Fire alarms, sprinklers and temperature controls are mandated controls in any exhibit space.
11. Windows need to be closed and fastened whenever possible.
12. Security guards need to be on alert during gray hours and are also a constant presence in the museum at all other hours.

9.8 Energy Efficient Design

Energy efficient buildings can be defined as buildings that are designed to provide a significant reduction of the energy need for heating and cooling, independently of the energy and of the equipment that will be chosen to heat or cool the building.

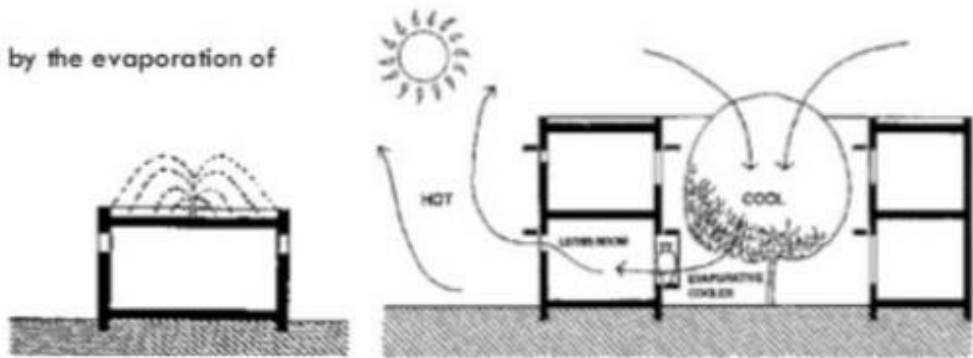
This can be achieved through the following elements:

- Bioclimatic architecture: shape and orientation of the building, solar protections, passive solar systems.
- High performing building envelope: thorough insulation, high performing glazing and windows, air-sealed construction, avoidance of thermal bridges.
- High performance controlled ventilation: mechanical insulation, heat recovery.



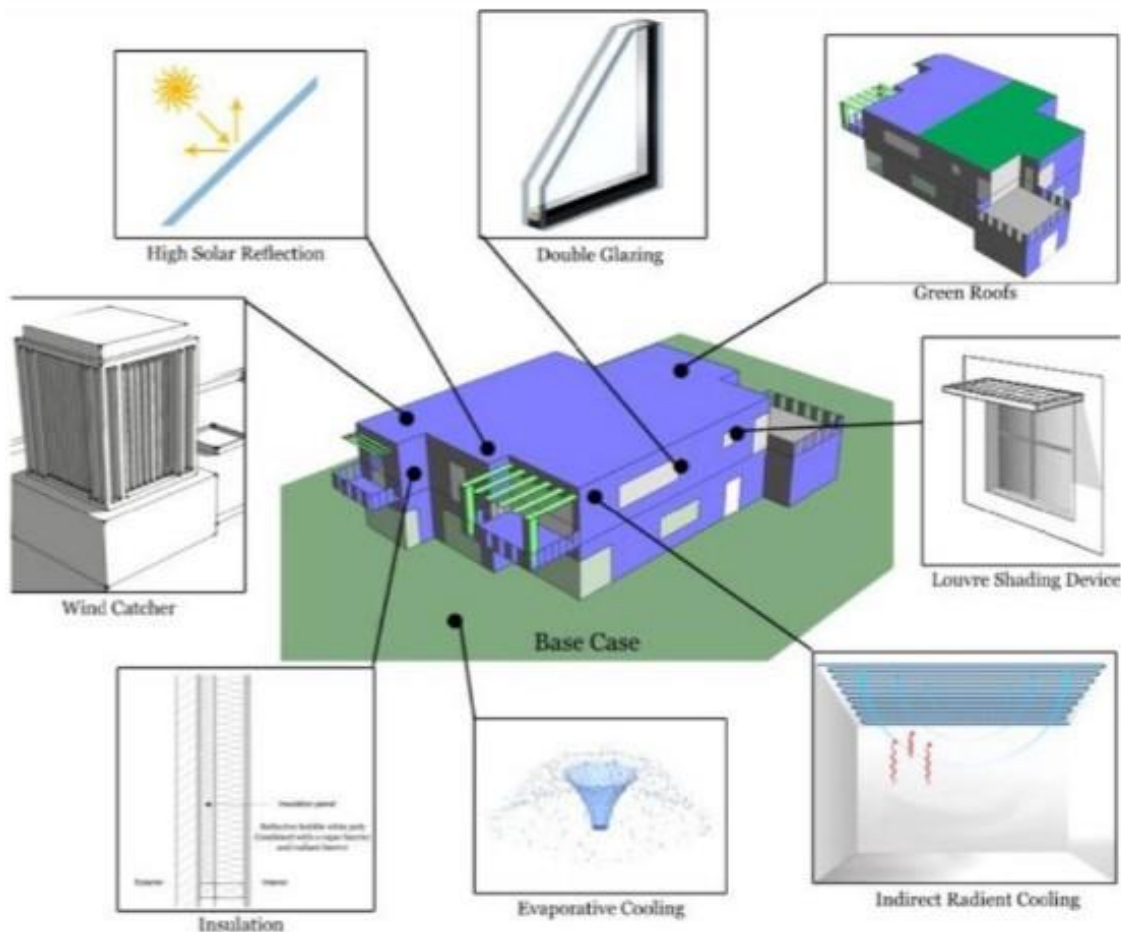
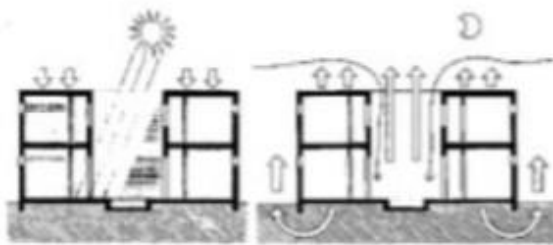
Passive cooling

- Cooling can be achieved by the evaporation of water.

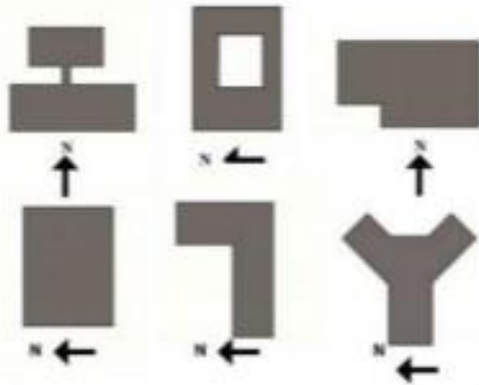


Courtyard

- The courtyard is provided with water and plants, it acts as a cooling source.
- Internal courtyards provides cross ventilation & natural cooling.
- Most openings are to the internal courtyard rather than exterior surface.

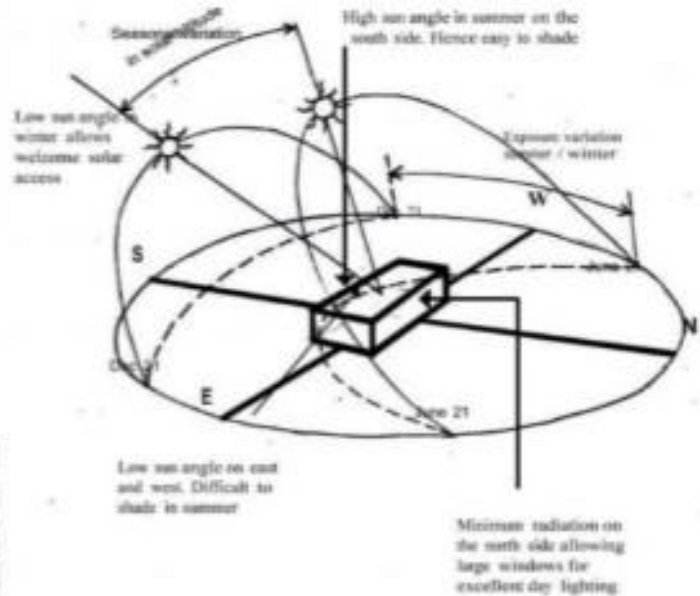
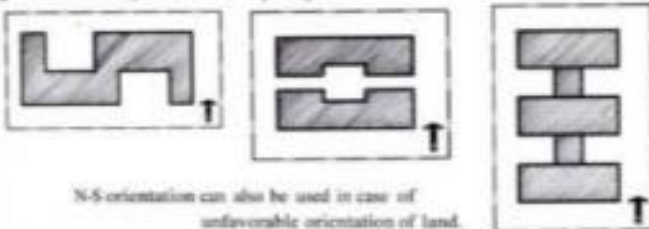


BEST POSSIBLE ORIENTATION OF TYPICAL EXISTING PLANS



ORIENT BUILDING LONG FACES ALONG N-S

N-S orientation can be used in creative ways to generate a variety of built and open spaces.

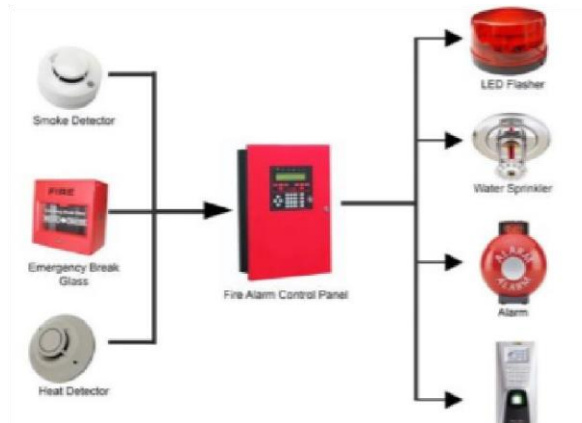


9.9 Services & Disaster Preparedness

A fire protection system is an important component of a building's safety plan, regardless of whether it's a commercial facility, hospital or educational facility

Passive Fire Protection uses systems that do not require any motion or action in order to work. Fire and Smoke Dampers prevent the spread of flames and smoke through the ductwork of a facility. Fire Walls/Barriers as well as Fire Doors, if kept shut, help contain the fire to one specific location of the building. Photo-luminescent Egress Path Marking Systems and Exit Signs will continue to glow in smoky conditions, allowing people to navigate their way to safety.

Active Fire Protection uses systems that do require a certain amount of motion or action in order to work properly. These systems use some amount of actions to notify of the fire and smoke conditions, help slow the growth of the fire or to help put out the fire altogether. Examples: Fire Alarm Systems, Sprinkler Systems, Fire Extinguisher/Hydrant, Fire-fighters, etc.



- Care should be taken to install the systems according to the object on display.
- Large halls should be divided in compartments, with fire resistive walls of up to 1-2hrs. fire rating.
- Early detection of fire is necessary, therefore the latest technology should be used, such as ionisation type smoke detectors.
- Non-Combustible Interior Finish.
- Electrical wires and cables coated with fire paints.
- All the shafts should be non-combustible.
- Automatic fire fighting systems should be installed.
- Information boards should be installed for the users.

- Emergency Exits should be given at an interval of 22m.

9.10 DISASTER RESISTANT

Identification of various hazard-prone areas should be and technical guidelines for hazard resistant construction of building should be followed More advanced techniques for earthquake resistance is not to strengthen the building, but to reduce the earthquake-generated forces acting upon it.

Some disaster resistant design techniques are- Base Isolation Method, Energy Dissipation Devices, Fluid Viscous Dampers, Damping Devices and Bracing Systems, etc.



9.11 UNIVERSAL DESIGN PRINCIPLES

Exhibit teams will work to promote inclusion in the following three key areas, ensuring that a wide range of visitors can:

Physically interact with/perceive the space

Is the environment inclusive so that a diversity of individuals can physically interact with/relate to the space? In other words, is the space set up so that a diversity of individuals can move around the space comfortably and safely? Is the information in the

space conveyed in a variety of formats so that a diversity of individuals can perceive it? Can a diversity of individuals manipulate or cause things to happen within in the space?

Cognitively engage with the materials

Is the environment inclusive so that a diversity of individuals can cognitively engage with the materials? In other words, is the information conveyed using a range of media to allow a diversity of individuals with a range of learning styles to engage with the materials? Do the materials take into account a diversity of individuals with a range of learning and cognitive skills? Do the materials take into account a diversity of individuals with range of experiences and sets of background knowledge?

Socially interact with one another

Is the environment inclusive so that all individuals can socially interact with/relate to one another? In other words, is the environment generally safe and welcoming for a diversity of individuals? Is the space set up to comfortably and safely foster and facilitate encounters and engagement among a diversity of individuals? Are the materials designed to provide meaningful reasons to foster and facilitate encounters and engagement among a diversity of individuals? To ensure the physical accessibility of the exhibition and the Museum's adherence to its legal requirements, the 2010 ADA Standards for Accessible Design will be followed.



PRINCIPLE ONE: Equitable Use

The design is useful and marketable to people with diverse abilities.

- It provides the same means of use for all users: identical whenever possible; equivalent when not.
- It avoids segregating or stigmatizing any users.
- Provisions for privacy, security, and safety are equally available to all users. • The design is appealing to all users.

PRINCIPLE TWO: Flexibility in Use

The design accommodates a wide range of individual preferences and abilities.

- It provides choice in methods of use.
- It accommodates right or left handed access and use.
- It facilitates the user's accuracy and precision. •It provides adaptability to the user's pace.

PRINCIPLE THREE: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. It eliminates unnecessary complexity.

- It is consistent with user expectations and intuition.
- It accommodates a wide range of literacy and language skills.
- It arranges information consistent with its importance.
- It provides effective prompting and feedback during and after task completion.

PRINCIPLE FOUR: Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

It uses different modes (pictorial, verbal, tactile) for redundant presentation of essential information.

It provides adequate contrast between essential information and its surroundings.

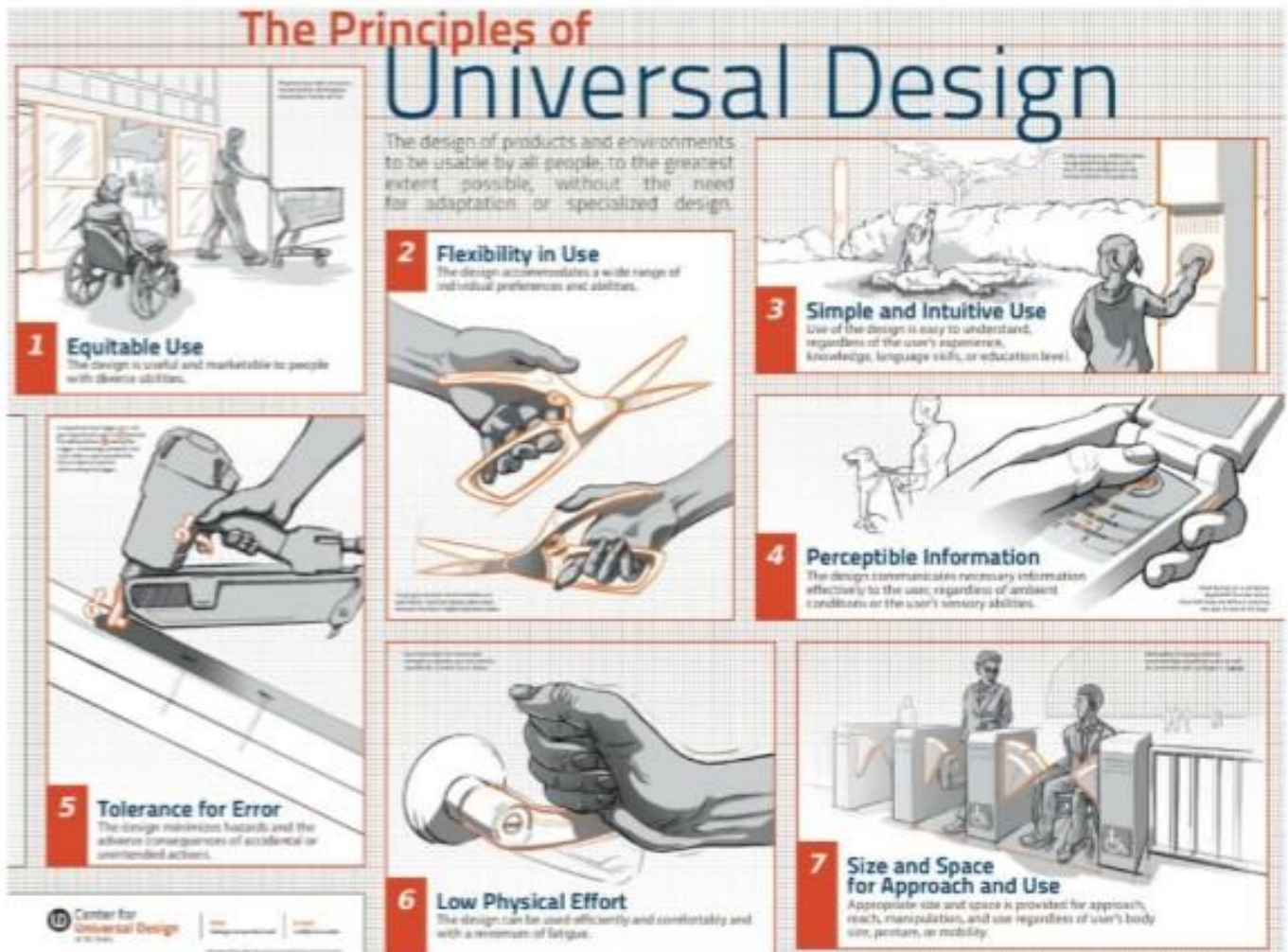
- It maximizes "legibility" of essential information.
- It differentiates elements in ways that can be described (i.e., make it easy to give instructions or directions).
- It provides compatibility with a variety of techniques or devices used by people with sensory limitations.

PRINCIPLE FIVE: Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

- It arranges elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.
- It provides warnings of hazards and errors.

- It provides fail safe features.
- It discourages unconscious action in tasks that require vigilance.



PRINCIPLE SIX: Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue.

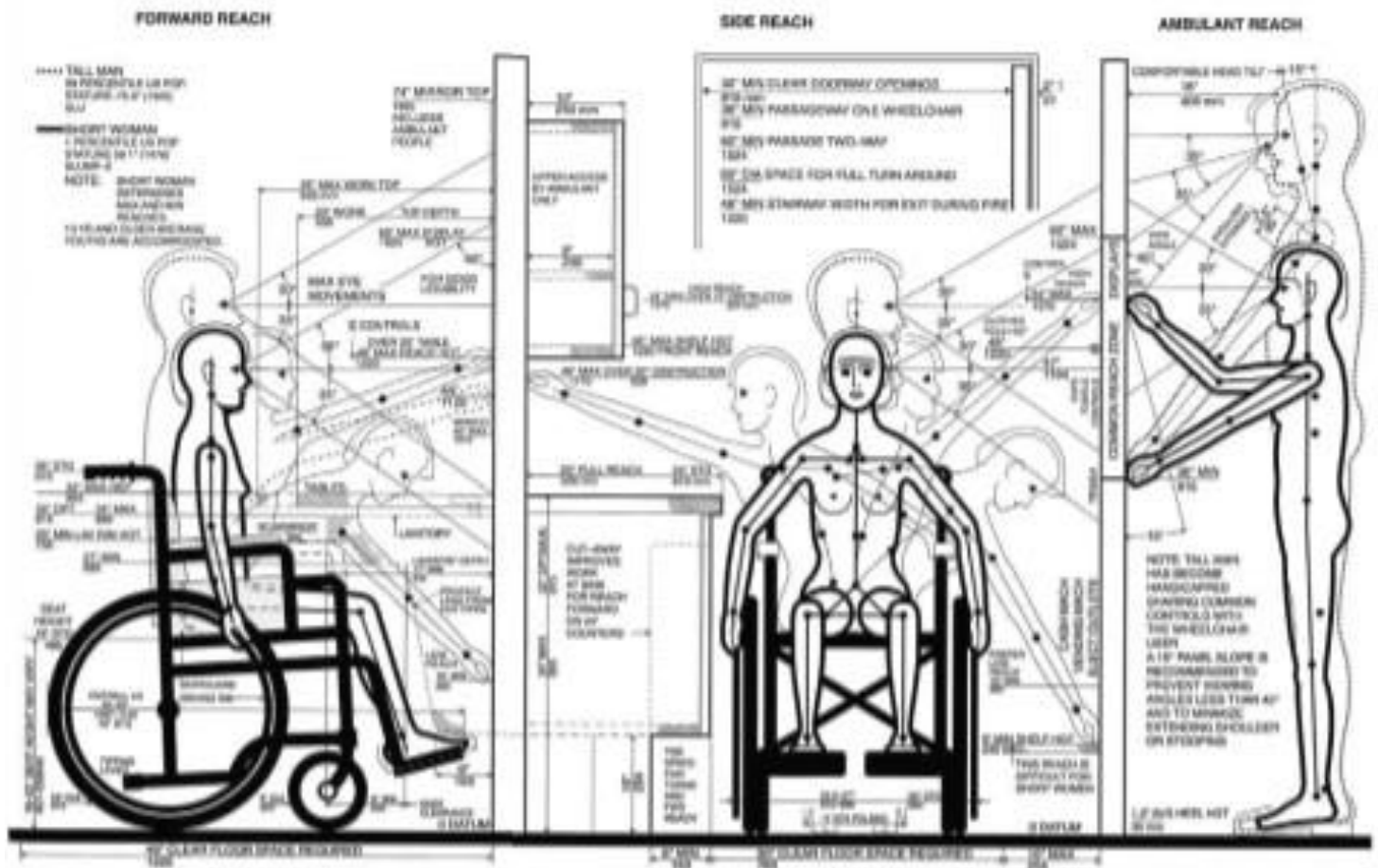
- It allows user to maintain a neutral body position • It uses reasonable operating forces.
- It minimizes repetitive actions.
- It minimizes sustained physical effort.

PRINCIPLE SEVEN: Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.

- It provides a clear line of sight to important elements for any seated or standing user.
- It makes reaching to all components comfortable for any seated or standing user.

- It accommodates variations in hand and grip size.
- It provides adequate space for the use of assistive devices or personal assistance.



Graphic Design

Minimum size body text
(exceptions for small ID labels)
Recommendation
22pt body text

Ideal size for body text
Recommendation
28–32 pt body text

Contrast for body text
(under 36 pt)
Recommendation

Between
70% and 95% or 70% and 95%

Typeface choice for body text
Recommendation

Use simple sans serif
and serif typefaces

Don't use these styles:

Script
Handwriting
STENCIL

(exceptions for titles made
on a case by case basis)

Type styles for body text
Recommendation

Do not use ALL CAPS
Do not use **bold**
Use *italics* sparingly

Line length and leading
Recommendation

Line length: 45–55 characters
The ideal line length is about this many characters
Leading should be at least 120% of type size
120%

Hyphenation
Recommendation

No hyphenating words

Physical Design

Slant surface angles
Recommendation



Stool height
Recommendation



Circulation between free-standing components
Recommendation



Wheelchair clearance
minimum measurements



Flooring transitions – options
maximum measurements



Ramps

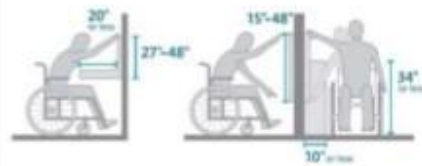


Door clearance – options

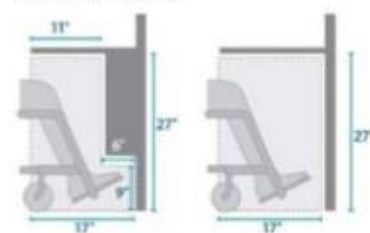


Reach

When possible minimize reach distance to 11"



Wheelchair pull under – options
minimum measurements



Protruding objects – options



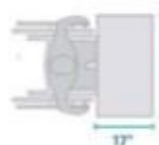
Free-standing signs – options



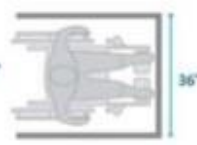
Head clearance



Pull under
minimum



Pull in
minimum



CHAPTER 10 - CASE STUDY

Few futurist approaches that architects reflection on climate change.



CopenHill: The Story of BIG's Iconic Waste-to-Energy Plant. (BIG ARCHITECTS). Eco-technic



Shanghai Tower (Gensler, Andy Cohen) Eco-technic



Floating City (BIG Architects) Eco-technic

Case Studies

Primary Study

- Virasat-e-Khalsa
- Partition Museum
- LD Museum
- Madras Museum
- Peda Chandigarh

Secondary Study

- Jewish museum
- Zeitz Museum of Contemporary Art Africa.
- Country museum of art ,LA
- Exploratorium museum by Bernard Tschumi.
- Exploratorium After Dark. San Francisco
- Climate Museum, New York
- Ashoka trust for research in ecology and the environment

Selection criteria

	Virasat-E-Khalsa	Partition Museum	LD Museum	Madras Museum	Peda, Chandigarh	Jewish Museum	Zeitz Museum of Contemporary	Exploratorium, San Francisco	Exploratorium Museum, Bernard Tschumi	Ashoka trust for research in ecology and environment	Climate Museum
Study Scope											
Experiential											
Display											
Siting and Location											
Form And Massing											
Planning and Zoning											
Organizational layouts and Spatial Responses											
Functioning											
Material, technique and finishes											

Virasat E Khalsa Museum

Project info

Architect : Moshe Safdie & Associates

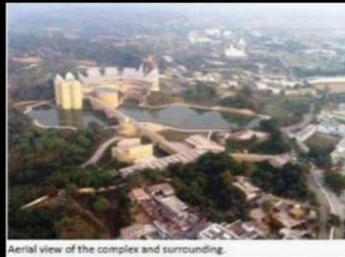
Location : Anandpur Sahib, Punjab.

Site Area : 300,000 msq

Covered Area: 80,000 msq

Project Year : 2013

Concept



Aerial view of the complex and surrounding.

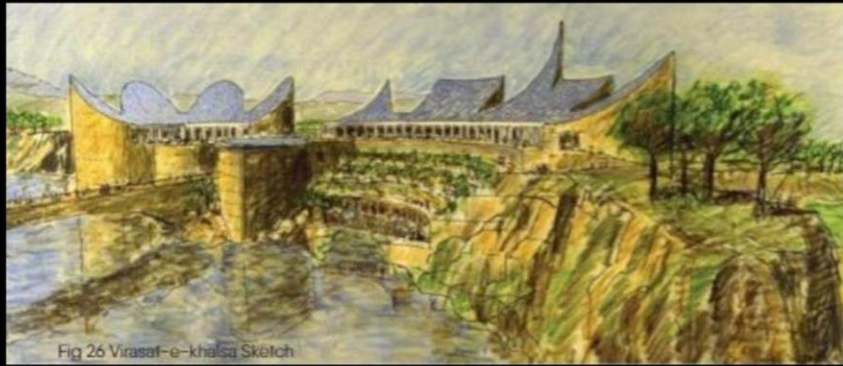


Fig 26 Virasat-e-khalsa Sketch

Virasat E Khalsa Museum

Lighting

COMPLEX A	COMPLEX B	COMPLEX C
Auditorium 600 seats (900 m ²)	Cafeteria 426 m ² (400 people)	Entrance Lobby
Guest rooms 230 m ²	Kitchen 96 m ²	Reception
Mechanical Room x 3 300 m ²	Maritime Room 15 m ²	Gift/bookshop
Library 800 m ²	Lobby 84 m ²	Conference rooms
Temporary Exhibit Gallery 600 m ²	Receiving Area 94 m ²	Workshop/Store
Meeting rooms 200 m ²		Restroom
Mech./Electrical rooms 245 m ²		Permanent exhibit building
Receiving Area 85 m ²		Heritage building
Toilets x 2 100 m ²		Petrol building
		Office areas

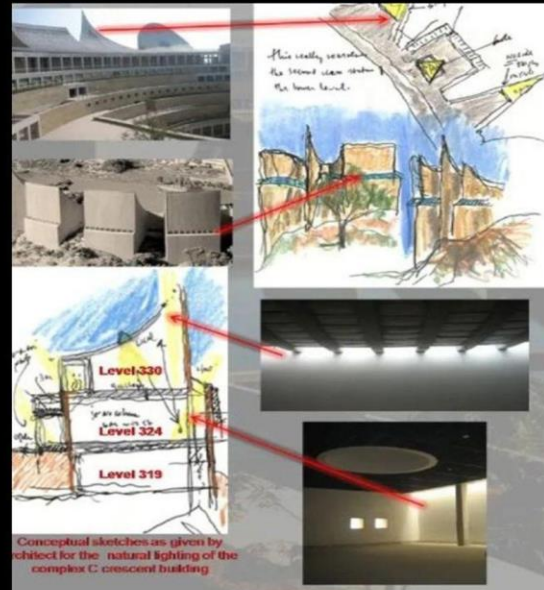


Plan of the complex

Circulation plan

Connection :

Two functional sets building. Gateway for the town. 165 Meter bridge the connection between the 20m high western and eastern complex .Water body covering an area of acre.



Conceptual sketches as given by architect for the natural lighting of the complex C: crescent building

Virasat E Khalsa Museum

14 Gallery



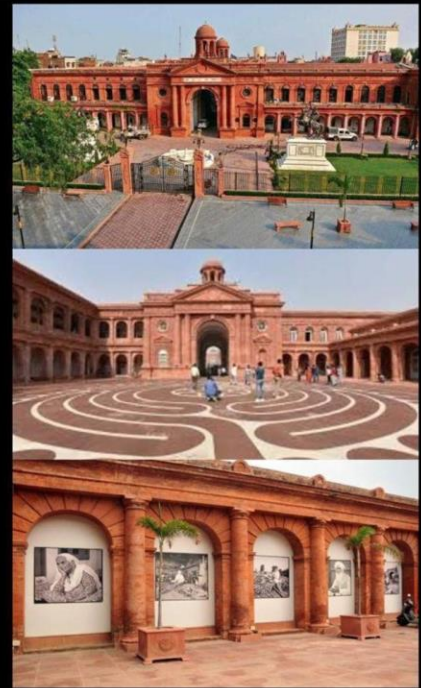
Virasat E Khalsa Museum

14 Gallery



Partition Museum

Project info
 Architect : Moshe Safdie & Associates
 Location : Amritsar, Punjab.
 Site Area : 70,000 msq
 Covered Area: 3000 msq
 Project Year : 2017 and under construction



Elements



Jewish Museum

Project info

Architect : Studio Libeskind

Location : BERLIN, GERMANY

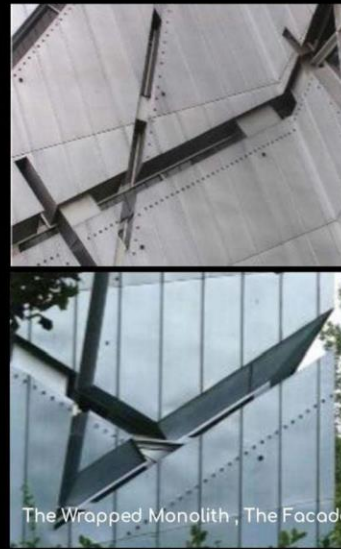
Site Area : 1.49 acre

Covered Area: 15500 m²

Project Year : 1999

The official name of the project is the 'JEWISH MUSEUM' but i have called it 'BETWEEN THE LINES' because for me it is about two lines of thinking ,organization and relationship .One is a straight line, but broken into many fragments;the other is a totorous line,but continuing indefinitely.

- Daniel Libeskind



The Wrapped Monolith ; The Facade as a Map

Narrative,Poetics and Experience

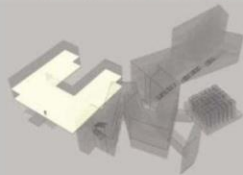


Figure 6.1: Enter through the Kolongshaus

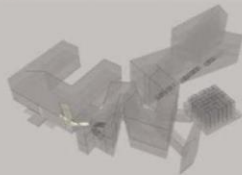


Figure 6.2: Stairs down to Underground Level



Figure 6.3: The Three Axes

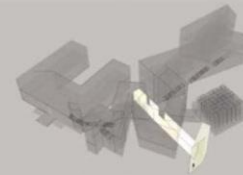


Figure 6.4: Axis of the Holocaust / Holocaust Tower

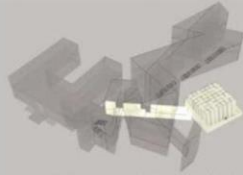


Figure 6.5: Axis of Exile / Garden of Exile - Emigration

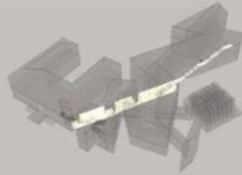


Figure 6.6: Axis of Continuity / Scale of Continuity



Figure 6.7: Second Level

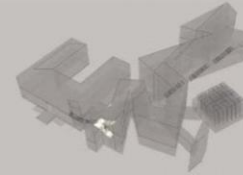


Figure 6.8: Stairs to First Level



Figure 6.9: First Level

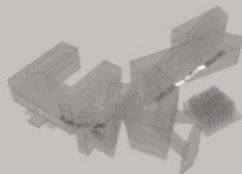


Figure 6.10: Stairs to Ground Level



Figure 6.11: Ground Level

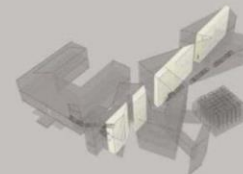


Figure 6.12: Interior Walls

The Entrance Staircase-The tree Axes



The Holocaust Tower



The Hoffmann Garden of Exile and Emigration



The Stair of Continuity



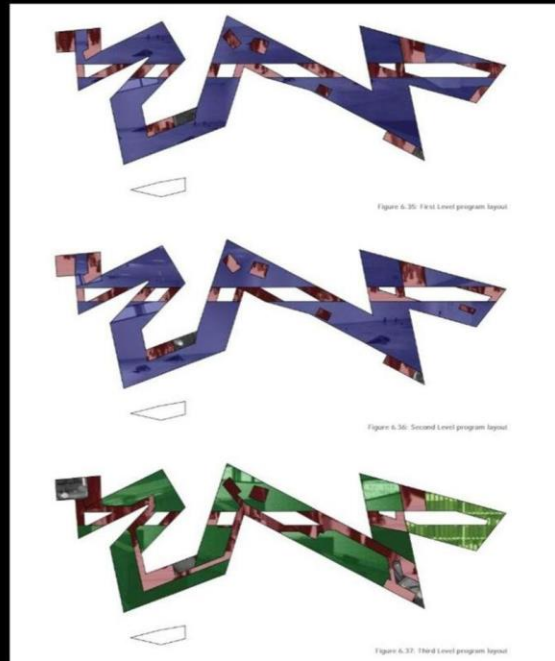
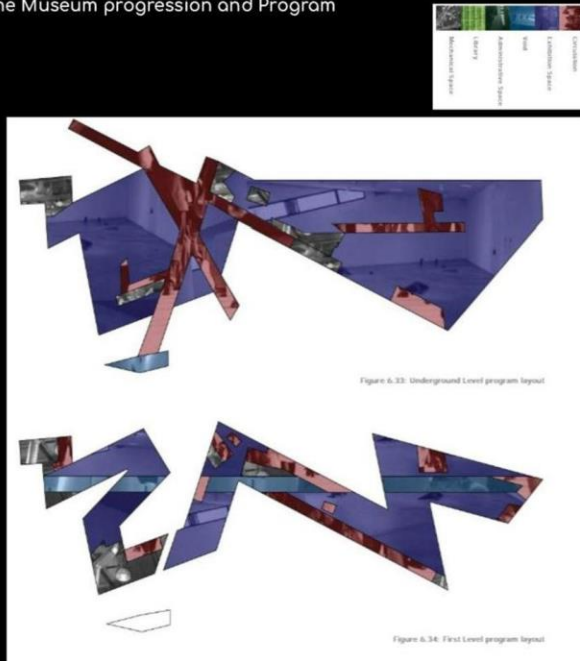
The Muuseum progression and Program



The interior Voids



The Museum progression and Program

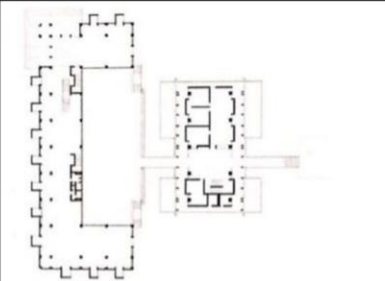


Climate Museum, New York

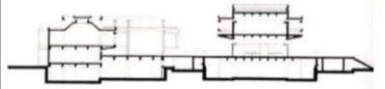


LD Museum

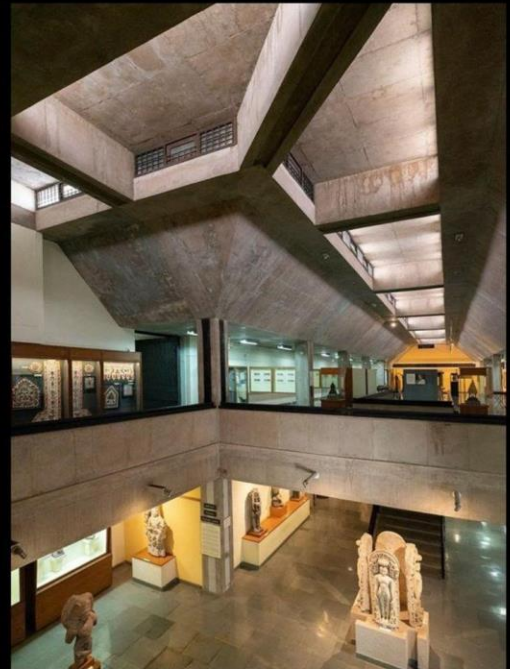
Project info
 Architect : B.V Doshi
 Location : Ahmedabad
 Site Area : 50,000 msq
 Covered Area: 6000 msq
 Project Year : 1956



PLAN (Mehta Gallery & Institute of Indology)



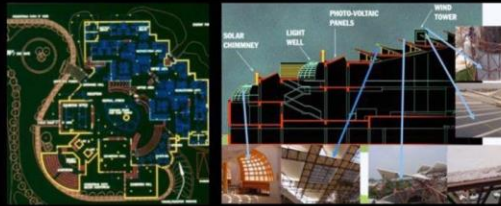
SECTION (Mehta Gallery & Institute of Indology)



Peda

Project info

Architect : Ar Vind Krishan
 Location : Chandigarh, 160020
 Site Area : 1.49 acre
 Covered Area : 68,224 sq.ft
 Project Year : 2004



1. WALLS

They are made of two layers of bricks with a 5 cm air gap in between. In southern and western façades, insulation (consisting of 60 cm by 60 cm panels of 5 cm thick rock wool wrapped in polyurethane sheets) has been placed between the layers of bricks in addition to the air gap. This is done to reduce the amount of heat transferred from the outside to the inside through the walls.

2. ROOF

As maximum heat gain is through the roof, a rockwool-and-polyurethane insulation at an air gap of 5 cm from the concrete slab has been placed. Top layer is made of mud phuska and brick tiles for further heat-proofing.

3. SOLAR SHELLS

These concrete domed structures on the southwestern façade are one of the well-recognised innovations of this project. The domes have horizontal and vertical intersecting fins with glass fixed in the voids. These voids allow natural light with reduced glare.

4. SHELL ROOFING

A portion of the roof of the atrium (open space in the centre of the building) is covered by a lightweight shell roofing. The roofing consists of 10 cm of high-density EPS (extruded polystyrene) sandwiched between high-grade FRP (fibre-reinforced plastic) sheets reinforced with steel.

5. PHOTOVOLTAIC PANELS

There is an integrated 25 kWp solar photovoltaic plant in the building. More than half of the building's electricity requirement is provided by the panels. The panels are placed on the roof of the atrium, in between two sheets of toughened glass. This helps filter daylight.

6. WATER FOUNTAIN

These are operational during hot and dry months (April to June) and help decrease the interior temperature through direct evaporative cooling.

7. DAYLIGHTING

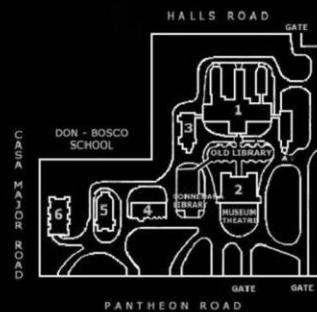
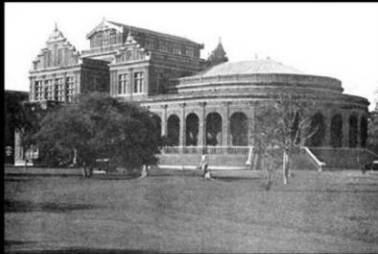
Sunlight entering through solar shells, shell roofing, glass-integrated photovoltaic panels and windows made of unplasticised PVC meets the building's lighting requirement.



Madras Museum

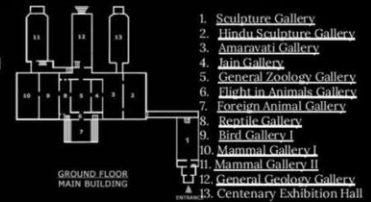
Project info

Architect : Henry Irwin
 Location : Egmore, Chennai
 Site Area : 16.25 acres
 Covered Area : 3 acres
 Project Year : 1851



SITE PLAN
 GOVERNMENT MUSEUM
 CHENNAI - 600 008.

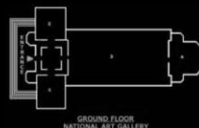
- P1. MAIN BUILDING
 2. FRONT BUILDING
 3. BRONZE GALLERY
 4. CHILDREN'S MUSEUM
 5. NATIONAL ART GALLERY
 6. CONTEMPORARY ART GALLERY



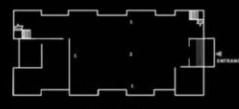
1. Sculpture Gallery
 2. Hindu Sculpture Gallery
 3. Amaravati Gallery
 4. Jain Gallery
 5. General Zoology Gallery
 6. Flight in Animals Gallery
 7. Foreign Animal Gallery
 8. Reptile Gallery
 9. Bird Gallery I
 10. Mammal Gallery I
 11. Mammal Gallery II
 12. General Zoology Gallery
 13. Centenary Exhibition Hall



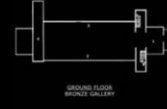
1. Museum Theatre
 2. Arms Gallery
 3. Pre-History Gallery



1. Decorative Art Gallery
 2. Tanjore Painting Gallery
 3. Indian Traditional Art Gallery
 4. Ravi Varma Painting Gallery



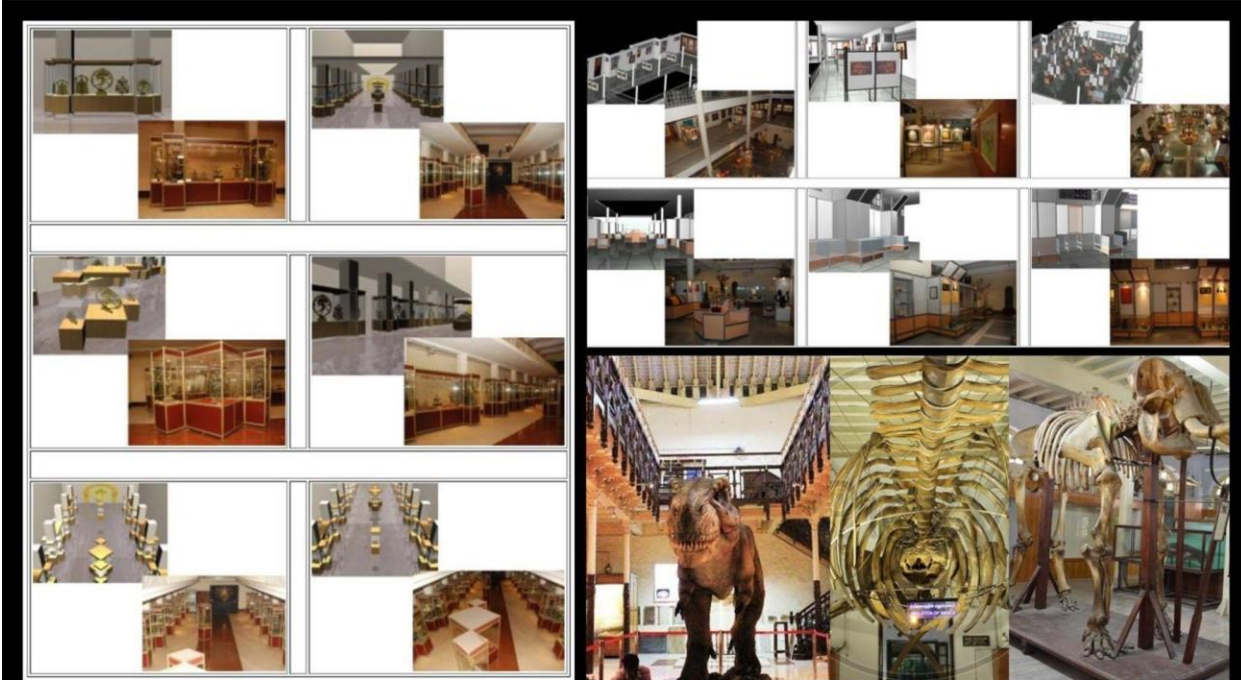
1. Modern Art Painting Gallery
 2. Metal Sculpture Gallery



1. Guide Room
 2. Vaishnavite Bronzes
 3. Solvite Bronzes
 4. Chemical Conservation Gallery



1. Technology Gallery
 2. Kids Corner
 Way to Ground Flo

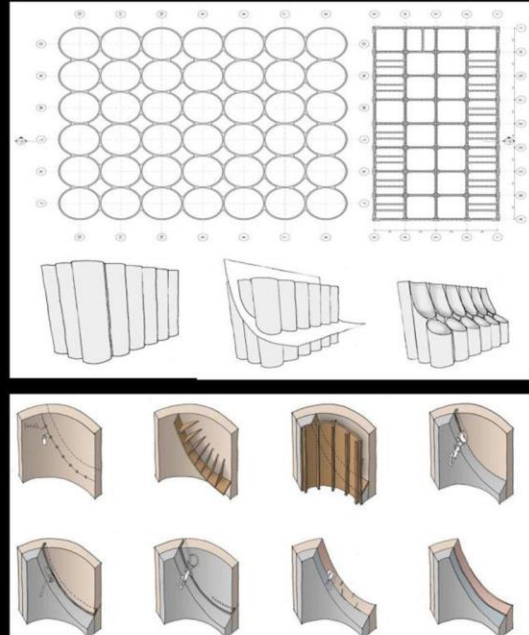


Zeitz Museum of Contemporary Art

Project info
 Architect : Studio Libeskind
 Location : Heatherwick Studio
 Site Area : 1500 Sqm
 Covered Area: 9500 Sqm (Adaptive reuse)
 Project Year : 2017

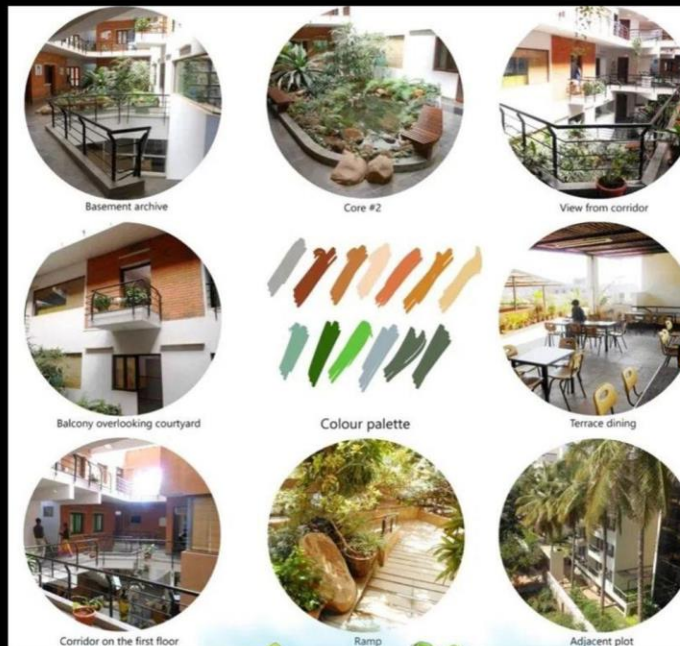
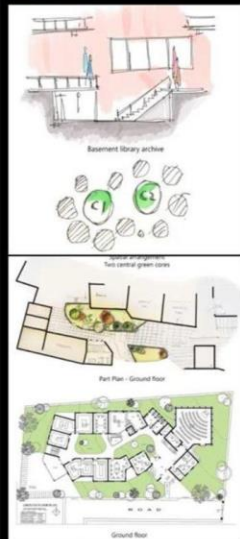


Zeitz Museum of Contemporary Art



Ashoka trust for research in ecology and environment

Project info Architect : Good earth Architects
Location : bangalore
Site Area : 10000 sqm
Covered Area : 7500 sqm
Project Year :1998



PLANNING

The basement being partially over ground level will be naturally light and ventilated. The basement will also house some services like the electrical and power room, rainwater harvesting tanks, facilities for drivers and house keeping staff. Also part of the library which is accessed internally is in the basement.

The ground floor entrance from the south east side leads you into a reception and lobby area, which has a small landscaped dry 10 courtyard. The auditorium which is designed as a multipurpose space can accommodate up to 100 people. This space has access from the outside towards the east side. The area outside is landscaped to act as a spill over space in between seminars or conferences. One can also go up to a terrace on the first floor which has smaller lecture room. The balconies and verandahs with people moving back and forth in various floor levels.

The Library has been divided into two inter connected spaces on levels with an under ground for archives. It is a flexible space left to the imagination of the librarian to make optimum use for display and encourage interest in areas of research. Mostly people will browse and borrow books and read them at their desk or workplace.

The labs are towards the western end. The Bioinformatics and Databases are to the right and the GIS and Map rooms to the left. The Genetics, Chemistry and Soil labs are placed together. The latest museum and exhibition are to the far right. There is a terrace over looking the south west side of the land. Beside this is a staircase which leads you to the first floor which has the workspace for the research fellows and their assistants. The east side is the rooms for the directors and admin assistant with a board room and a lecture room.

The second and third floors are mainly workspaces for research fellows and their assistants. The workspaces have a visual link with walls only two and a half to four feet high the rest either open or have glass whenever round privacy is required. This gives a feel like being in a greenhouse and all the spaces have a connection to the open courtyard within and also the land around outside.

The fourth floor or the terrace has the Cafe with library and kitchen. It also has a gym and exercise room and also a recreation lounge with entertainment facility. The dining area consists of a large semi covered space with a view towards the site. Towards the south side we plan to have a terrace garden with pergolas, shade nets, creepers and lots of plants. This will keep the building cool in summer and will be a nice place to relax or take a break from work.

The courtyards are covered with skylights and can be either shade net or covered in some places. This is mainly to control the heating sun accompanied with wind. The courtyard helps to keep the building cool in summer and warm in winter. It also provides for natural ventilation system, in which fresh air is drawn into the rooms and stale air is exhausted out through wind driven out through the side walls in the central roof skylight.

The building materials used are non toxic and all natural material are used in their natural form, texture and colour. The main structure of the building is a RCC frame with columns and beams with infill walls of cement blocks and terracotta hollow bricks. Local rough Granite is also used for some walls. The floors and windows are of sustainable timber as far as possible. The floors are terrazzo using black and grey chips. Painted walls in the rest rooms and kitchen. The interiors are plastered walls with a relief of bricks exposed in the corners. The external walls are plastered with a mud plaster-embossed to contrast with the brick and concrete.

The Rainwater is harvested in underground tanks, the remaining is discharged in the ground through permeation walls. The grey water from the wash basins, showers, kitchen etc. will be recycled for use in the garden. Special filters are used for the labs which produce toxic chemicals in traces. The Black water from the sewage is connected to a DEWATS sewage treatment plant and water that comes out is used for landscaping.

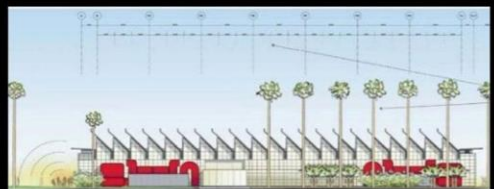
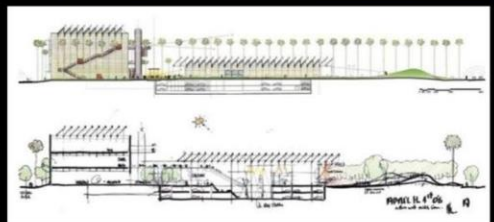
Solid waste management will involve sorting of garbage, composting of kitchen waste. All recycling of paper and glass. All toxic waste produced such as toner ink, cartridges, batteries, film etc. is segregated from the others and disposed separately. The landscape and trees that we have planted in the land have a functional and aesthetic purpose. The courtyard has a rock garden a water body and a stream flowing through with fish and butterflies to complete the ecological cycle.

Los Angeles County Museum of Art (LACMA)

Project info Architect : William Pereira
Location : Los Angeles, California
Site Area : 5600 sqm
Covered Area : 7000 sqm
Project Year : 2016

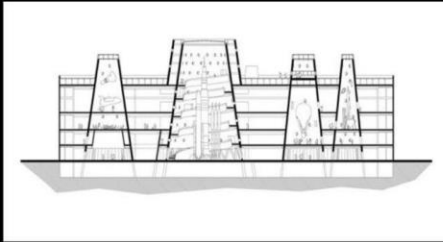


-Urban Lights, a collection from 1920-30's .
-Rethinking of the museum as a more transparent and open space.
-Establishing a civic space
-Audience Engagement

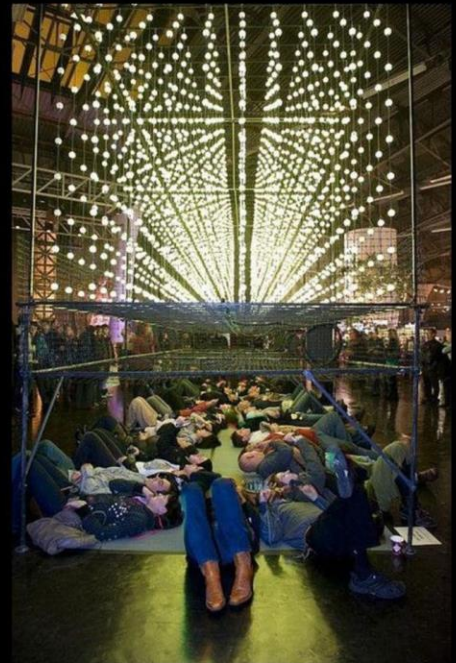
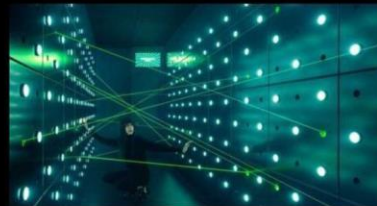


Exploratorium museum

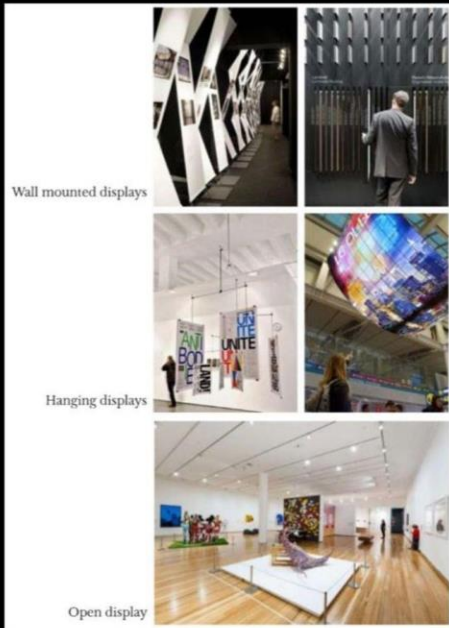
Project info Architect : Bernard Tshumi
Architects
Location : China, Binhai
Site Area : 380000 sqft
Covered Area: 355200 sqft
Project Year :2019



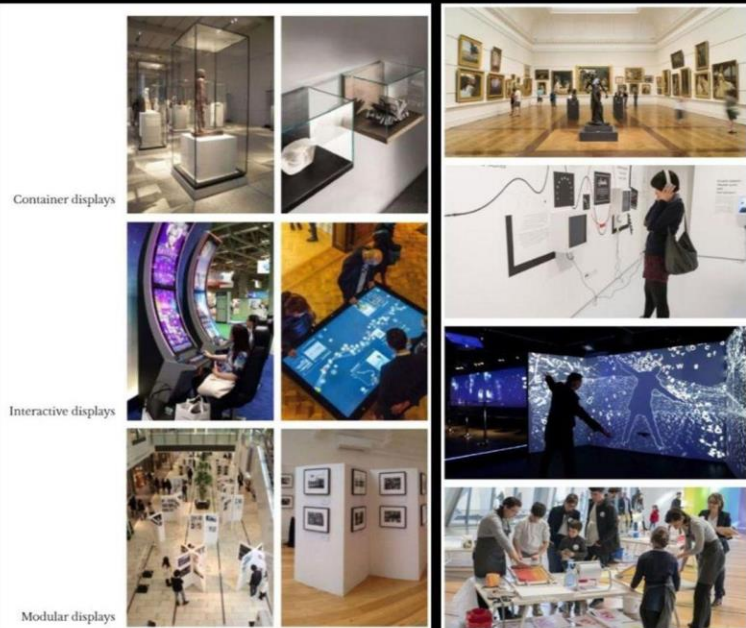
Exploratorium, San Francisco



Display Types



Experiential (Making senses active)



Zoning of a Museum

- **Public Collection Areas:** Zone with environmental controls and security designed for the preservation of collections.
- **Non Public Areas:** Zone which is meant for the staff alone with environment controls and security.
- **Public Non-collection Areas:** Zone in which the finish and durability and environment created for human comforts.
- **Non Public-Collection Areas:** Zone in which the finish and durability and environment created for the staffs alone.

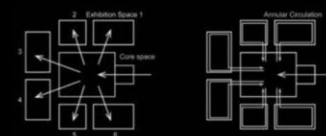


Fig. : 2.3 Gallery Circulation

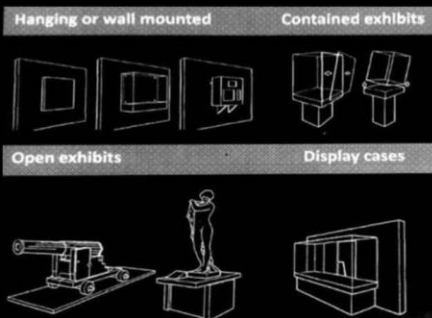


Fig. : 2.5 Type of Displays

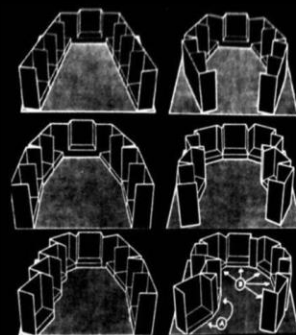


Fig. : 2.6 Exhibition spaces



Fig. : 2.4 Circulation Pattern

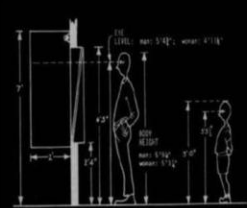


Fig. : 2.7 Display Standards

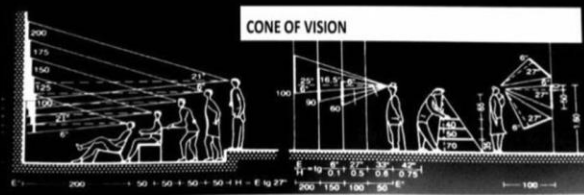


Fig. : 2.9 Cone of vision

CHAPTER 11 - SITE ANALYSIS

11.1 Site Selection

Site selection involves measuring the needs of a new project against the merits of potential location. Site selection is part of the planning. Lists of factors affecting the decision are usually drawn up, including:

- Availability,
- Access,
- Cost of acquisition and development
- Security considerations
- Visibility
- Compatibility of neighboring facilities

Each factor should be weighed before it is evaluated. The weighting of site selection factors should be done in relation to fundamental issues of the museum's mission, its policies and its institutional character

Site ,Why India - Chennai ?

Because apart from all the metropolitan cities across India ,chennai being in the coastal boundary it as experienced a lot of environmental crisis in a very short period of time it require a proper change and awareness among the people for understanding of the issue and bring the change together in the coming times .



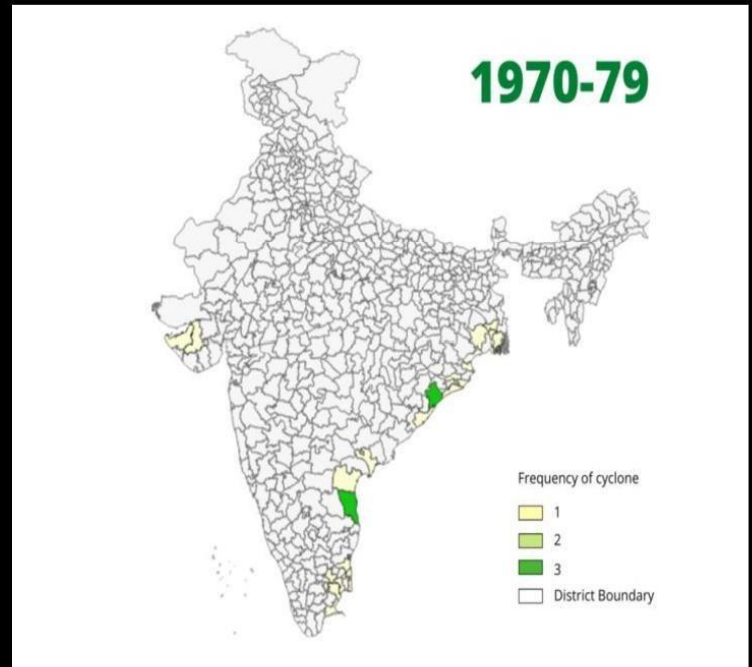
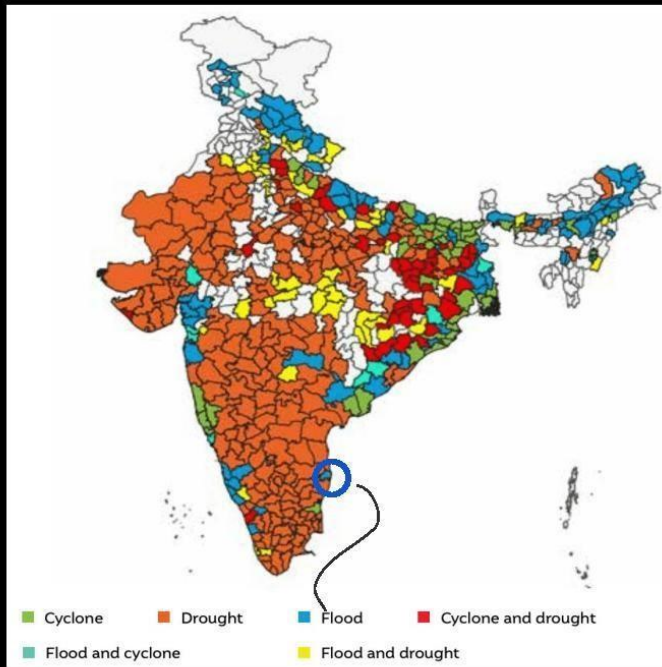
Floods

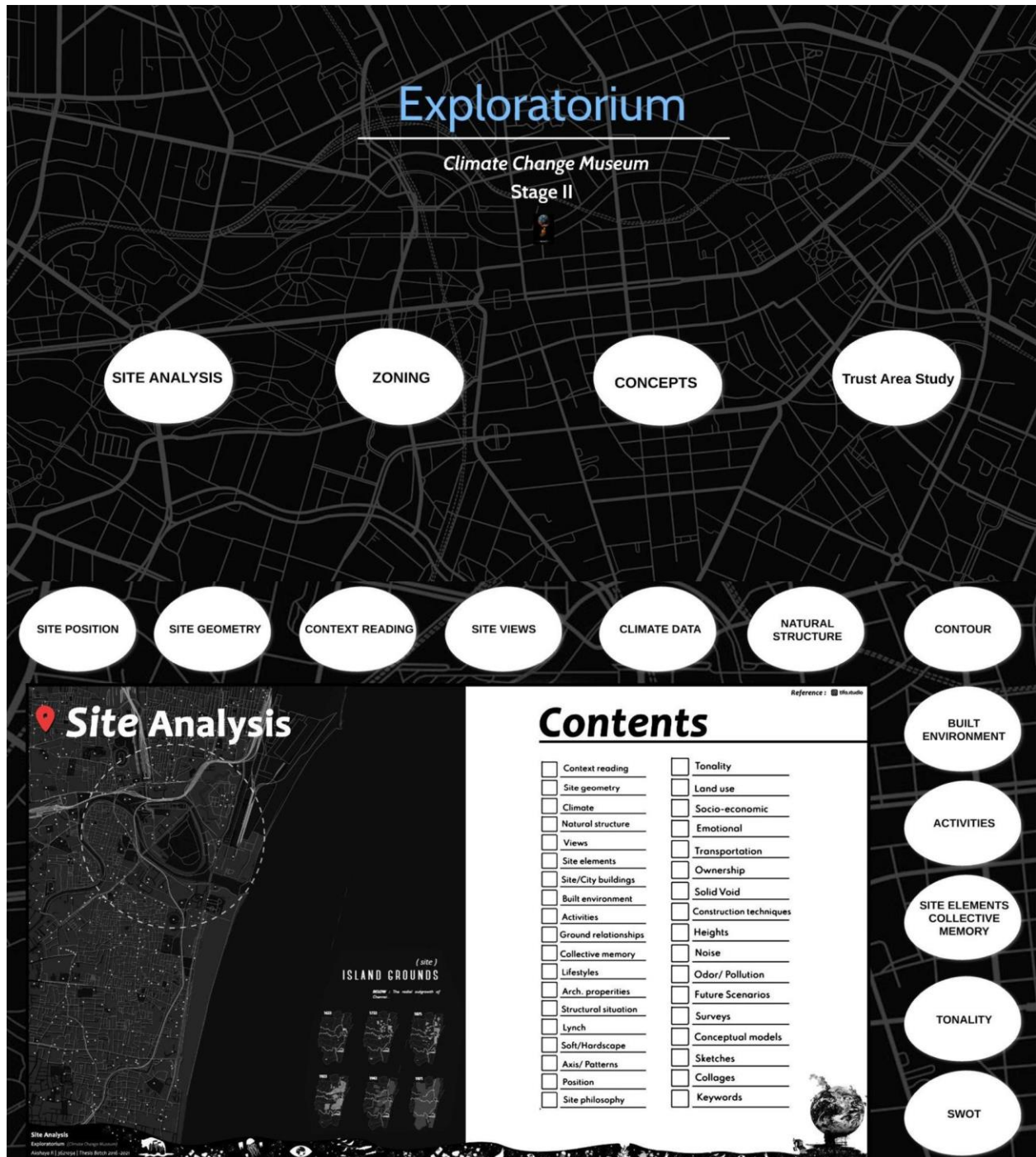


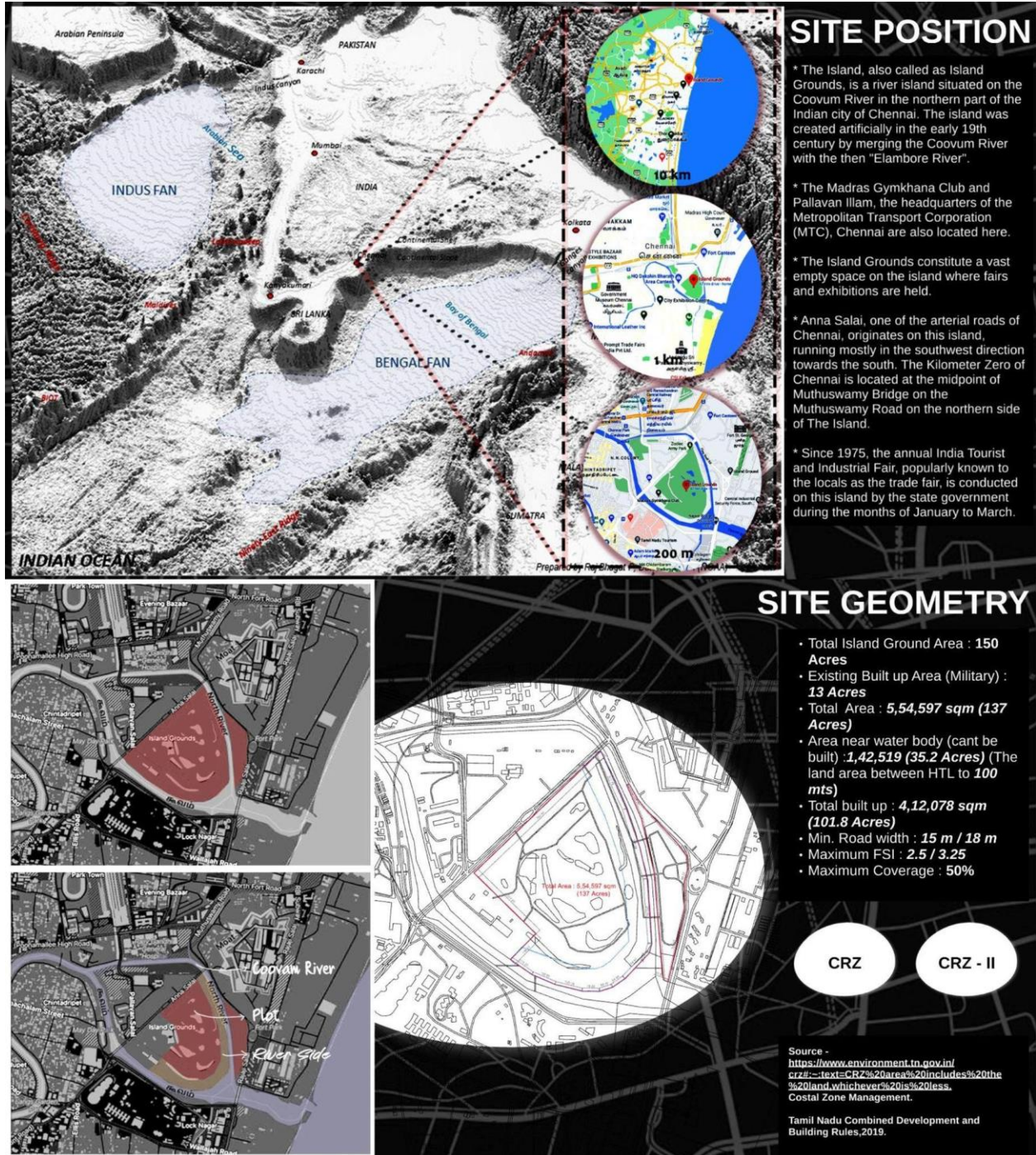
Drought



Cyclones







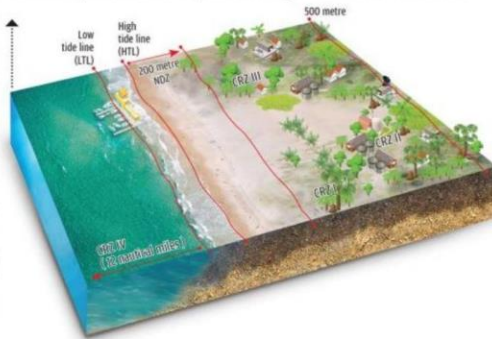
Diluted by design

Hotels, resorts and temporary tourism facilities can now be built closer to the shore; mangroves to make way for ports, harbours

Coastal Regulation Zone Notification, 2011

Index

- CRZ I: Eco-sensitive and intertidal areas
- CRZ II: Areas which have been developed up to or close to the shore
- CRZ III: Areas that are relatively undisturbed and do not fall under CRZ-I or CRZ-II
- CRZ IV: Area between Low Tide Line and 12 nautical miles into the sea/ tidal influenced waterbodies
- NDZ: No development zone that extends up to 200 m from High Tide Line towards land in CRZ-III area

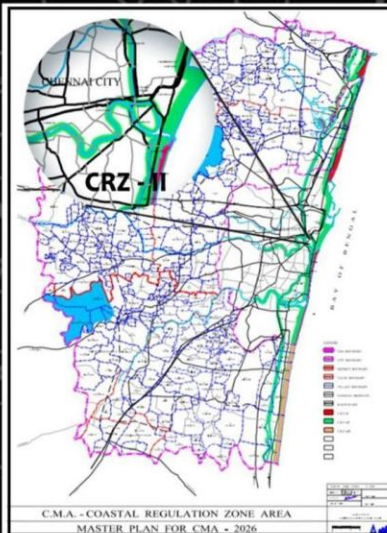


Coastal Regulation Zone Notification, 2018



Index

- CRZ I A: Eco-sensitive areas
- CRZ I B: Inter-tidal areas
- CRZ II: Areas which have been developed up to or close to the shore
- CRZ III A: CRZ-III areas, where the population density is more than 2,161 sq km as per 2011 Census
- CRZ III B: Areas with population density of less than 2,161 per sq km, as per 2011 Census
- CRZ IV A: 12 nautical miles from the Low Tide Line towards the sea
- CRZ IV B: Tidal influenced waterbodies
- NDZ: 50 metres from High Tide Line in CRZ III A areas, 200 m from HTL in CRZ-III B areas

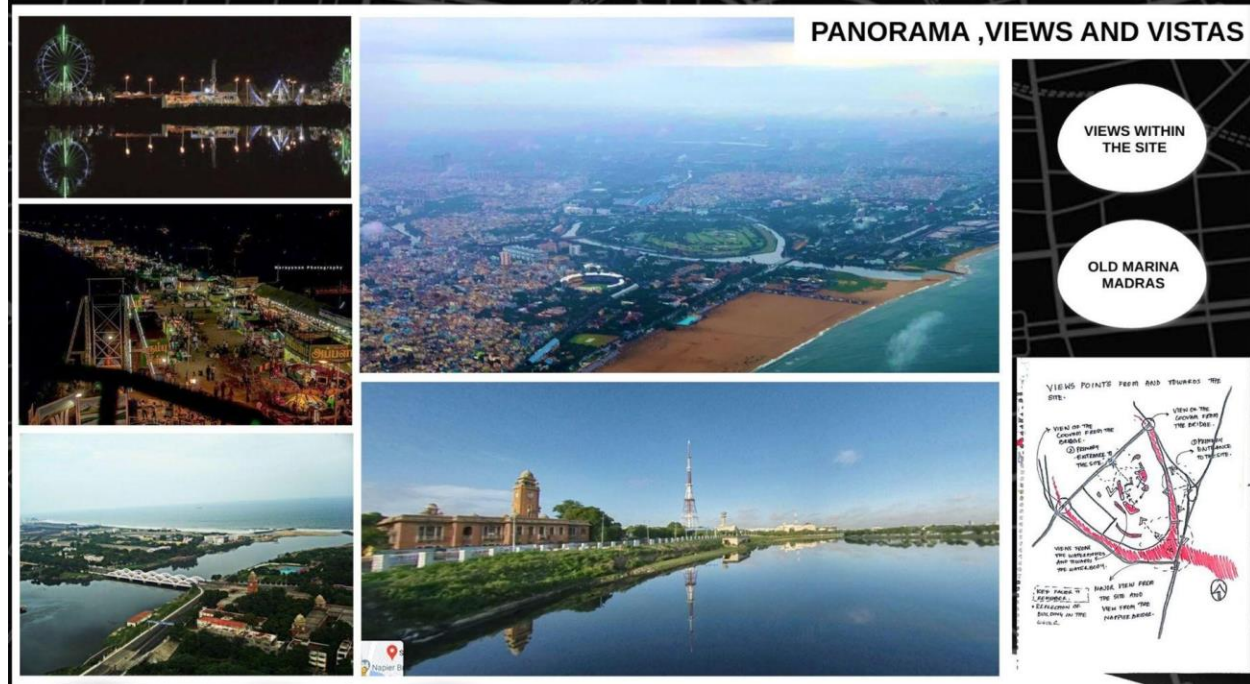
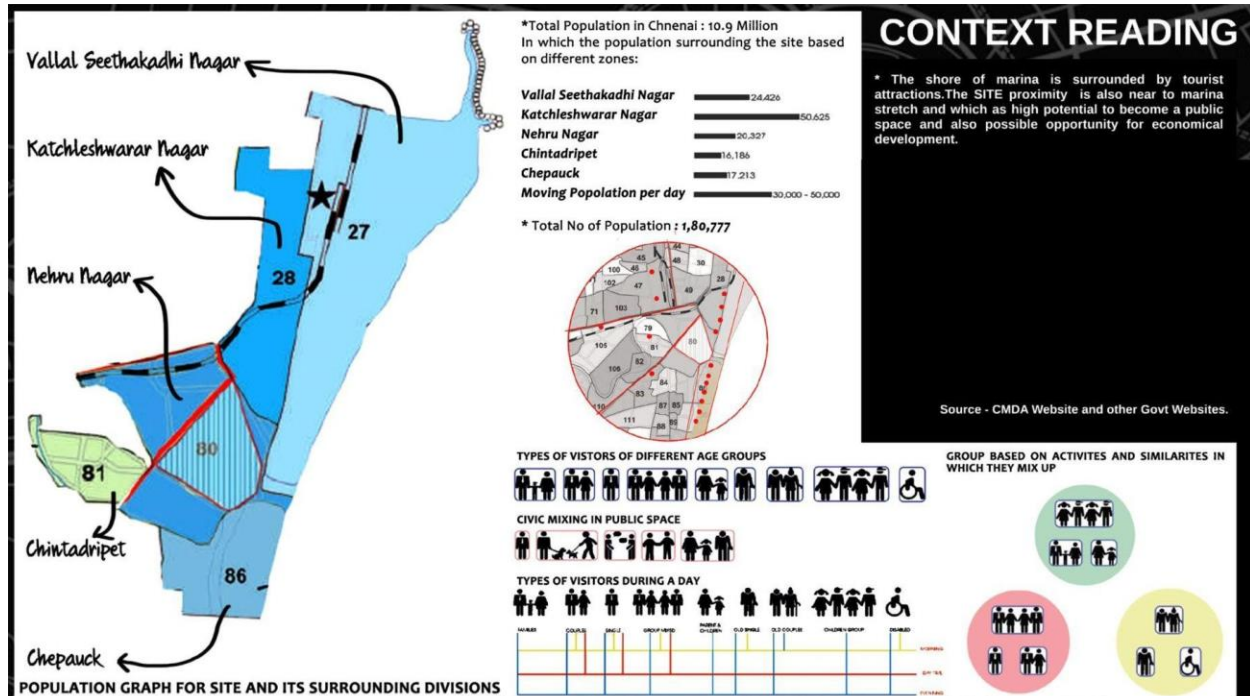


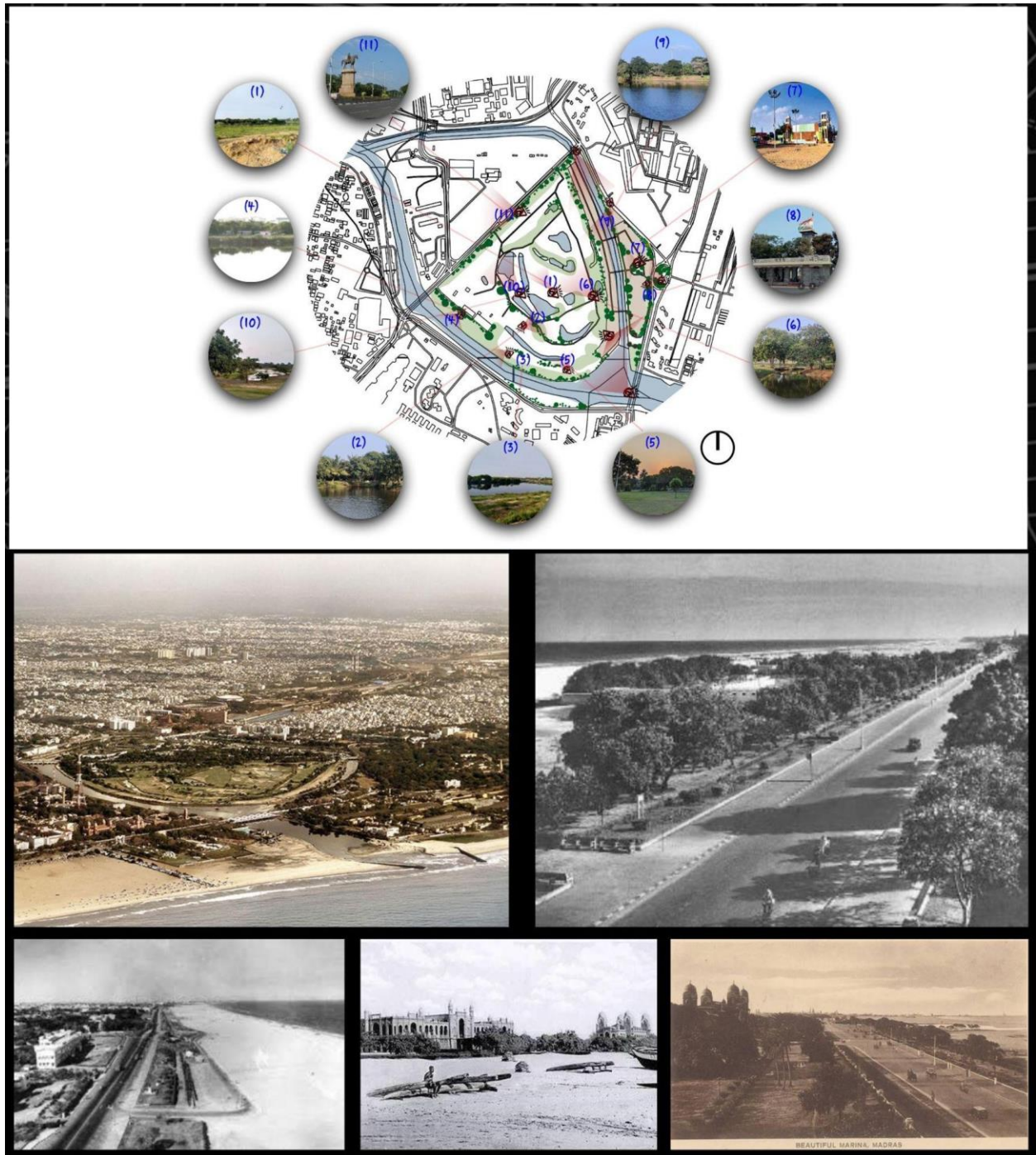
CRZ - II

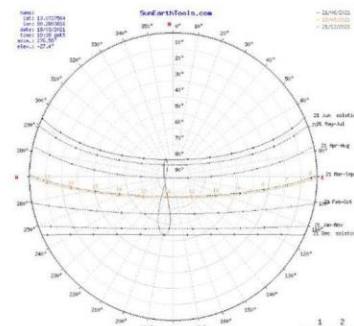
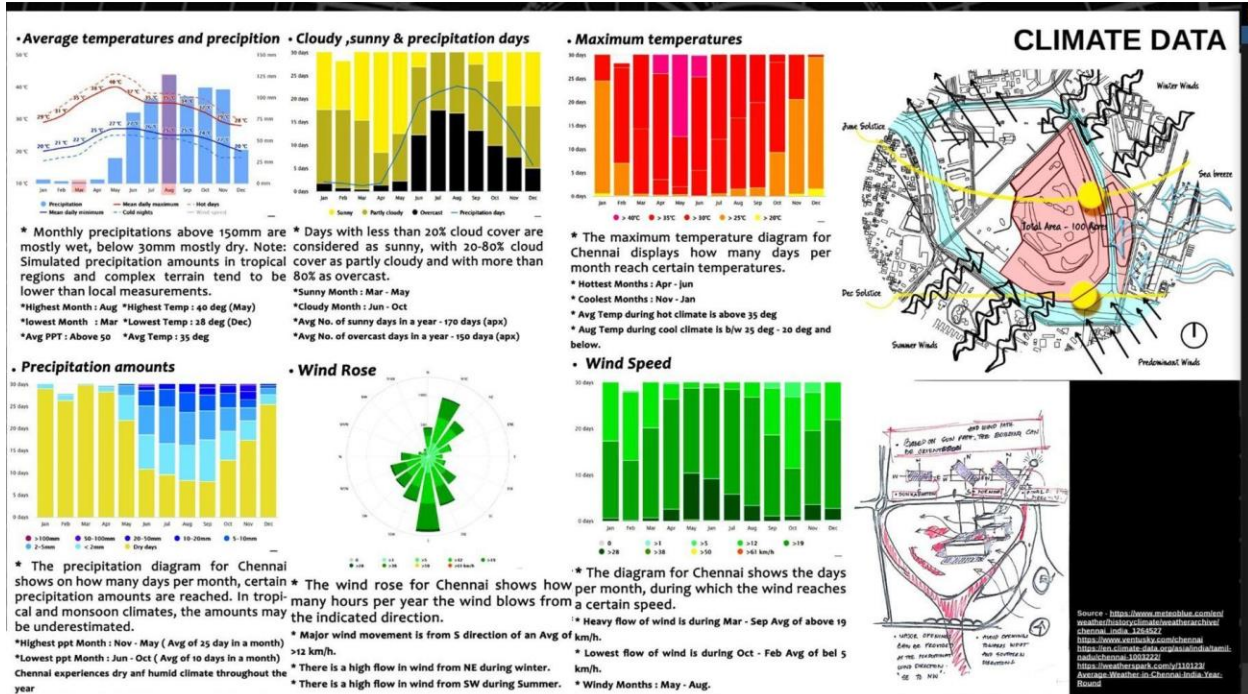
Buildings shall be permitted only on the landward side of the existing road or on the landward side of existing authorized structures. These buildings will be **subject to the existing local town and country planning regulations** including the existing norms of floor space index (F-SI)/Floor area ratio (FAR).

Special rules for High Rise Buildings

(*) Areas set apart for High Rise building developments in Chennai Metropolitan Area are given in Annexure - XIX. In rest of the State, High Rise buildings are permissible except in areas specifically declared as prohibited area for construction of High Rise Buildings in the Master Plan or Detailed Development Plan or as may be declared by the local body in other areas with the approval of the Directorate of Town and Country Planning or Government from time to time.







sun position	Elevation	Azimuth	latitude	longitude
19/03/2021 19:39 GMT5	-27.4°	276.55°	13.0727564° N	80.2803816° E
twilight -0.833°	05:43:48	17:49:41	90.36°	269.84°
Civil twilight -6°	05:22:34	18:10:53	89.16°	271.05°
Nautical twilight -12°	04:57:56	18:35:32	87.75°	272.48°
Astronomical twilight -18°	04:33:16	19:00:13	86.27°	273.98°
daylight	hh:mm:ss	diff: dd+1	diff: dd-1	Noon
19/03/2021	12:05:53	00:00:45	-00:00:43	11:46:44



Date	Elevation	Azimuth
19/03/2021 GMT5		
coordinates	13.0727564, 80.2803816	
location	13.07275640, 80.28038160	
hour		
05:43:48	-0.833°	90.36°
6:00:00	3.11°	91.27°
7:00:00	17.71°	94.81°
8:00:00	32.22°	99.03°
9:00:00	46.52°	104.92°
10:00:00	60.29°	115.08°
11:00:00	72.2°	138.58°
12:00:00	76.09°	194.01°
13:00:00	67.36°	234.82°
14:00:00	54.31°	250.39°
15:00:00	40.23°	258.14°
16:00:00	25.81°	263.13°
17:00:00	11.26°	266.98°
17:49:41	-0.833°	269.84°

Solar Angle Calculator

Select Country:

Select Town/City:

Optimum Tilt of Solar Panels by Month

Figures shown in degrees from vertical

Jan	Feb	Mar	Apr	May	Jun
61°	69°	77°	85°	93°	100°
Jul	Aug	Sep	Oct	Nov	Dec
93°	85°	77°	69°	61°	54°

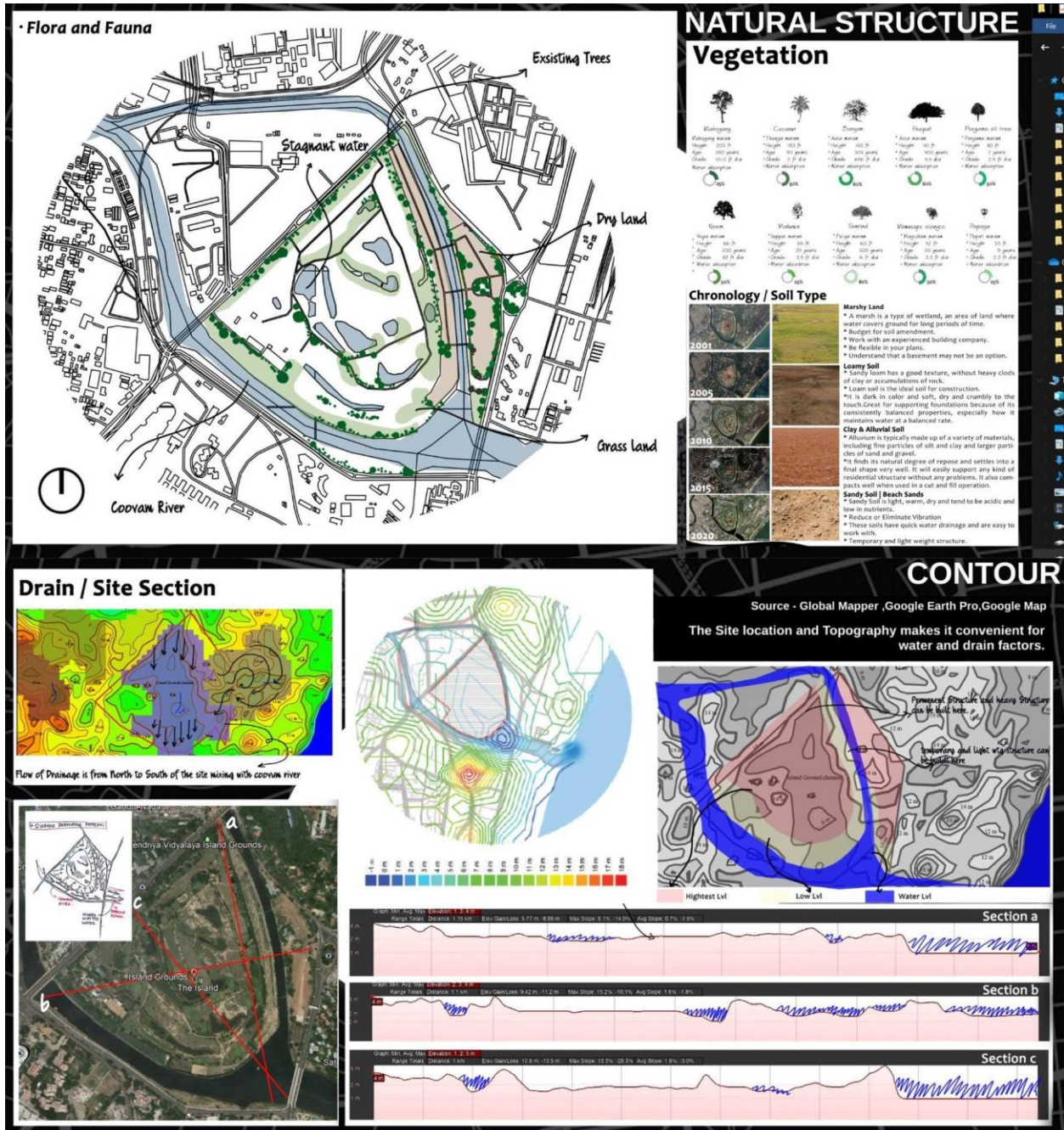


Notes:

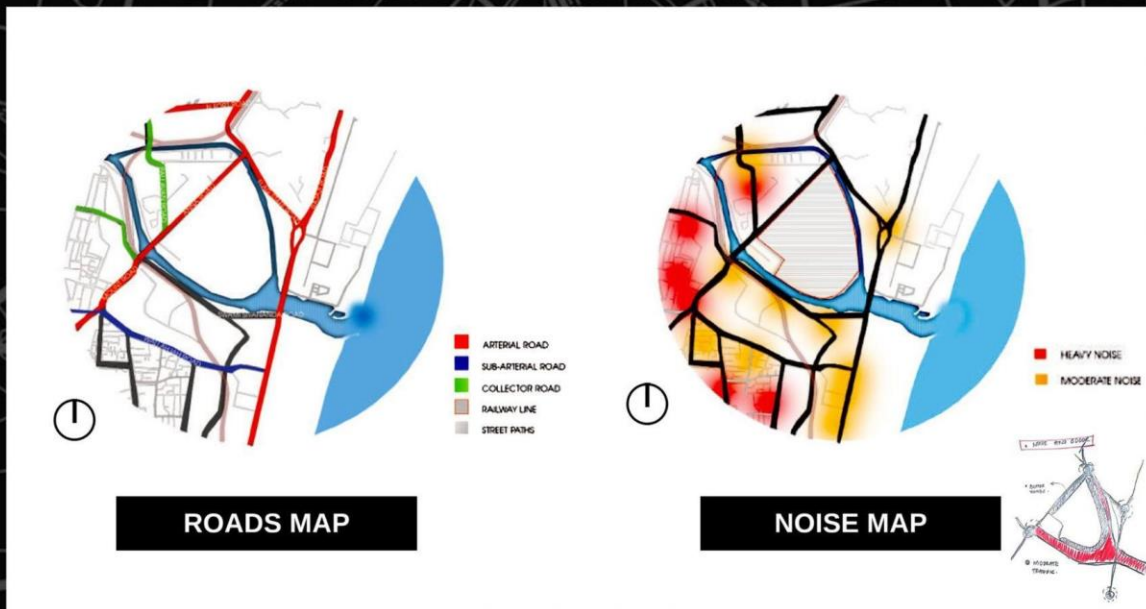
On the 21st December, the sun will rise 85° east of due south and set 85° west of due south.

On the 21st March/21st September, the sun will rise 91° east of due south and set 91° west of due south.

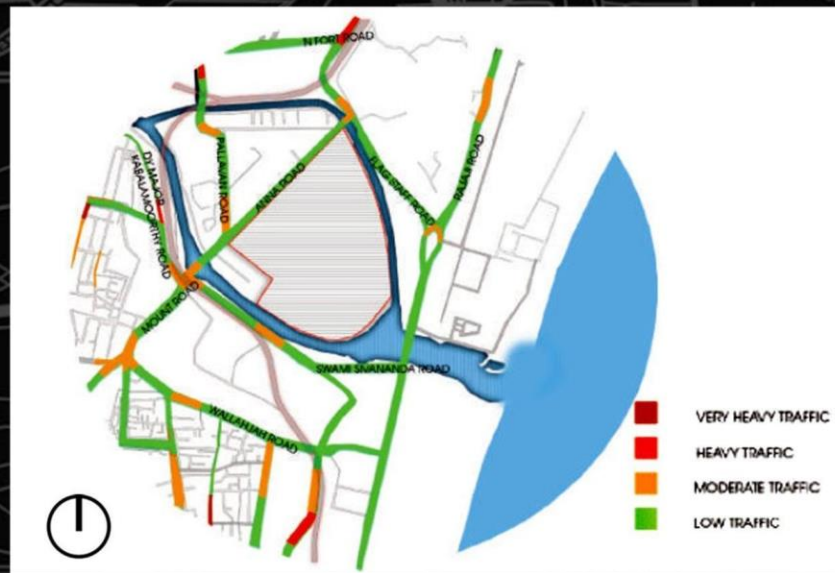
On the 21st June, the sun will rise 97° east of due south and set 97° west of due south.



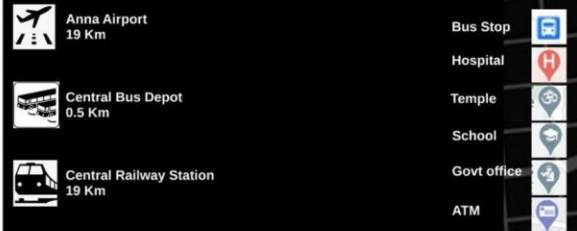
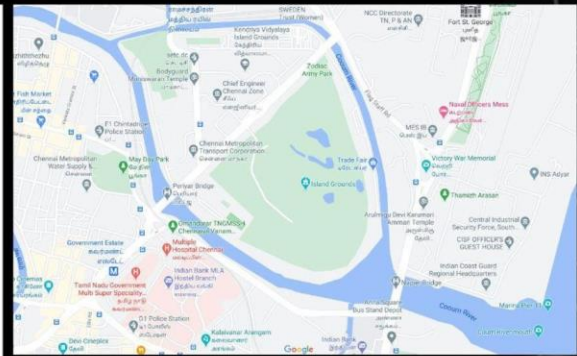
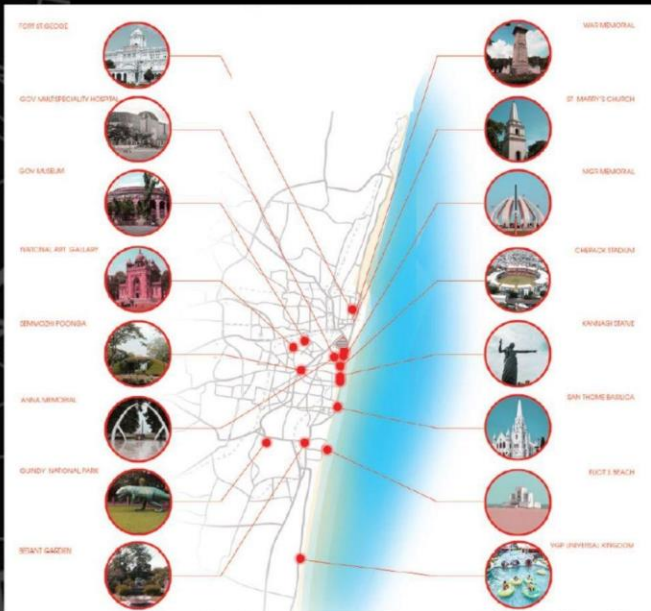
ROAD CONNECTIVITY



TRAFFIC ANALYSIS

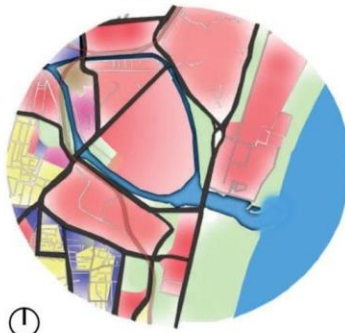


AMENITIES



LAND USE

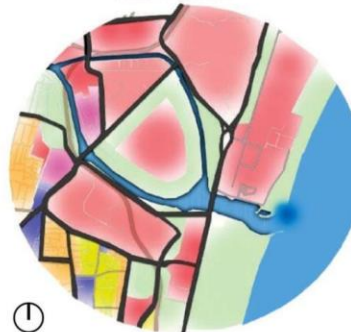
LANDUSE - 2006



- ① INSTITUTIONS
- ② COMMERCIAL SPACE
- ③ INDUSTRIAL AND HAZARDOUS SPACE
- ④ RECREATIONAL AND OPEN SPACE
- ⑤ MIXED RESIDENTIAL AREA
- ⑥ PRIMARY RESIDENTIAL AREA
- ⑦ NON-URBAN SPACE

* The zone is an institutional zone which is appropriate location for designing a desalination tower.

LAND USE - 2026



- ① INSTITUTIONS
- ② COMMERCIAL SPACE
- ③ INDUSTRIAL AND HAZARDOUS SPACE
- ④ RECREATIONAL AND OPEN SPACE
- ⑤ MIXED RESIDENTIAL
- ⑥ PRIMARY RESIDENTIAL

* The site is surrounded by more green and open spaces which makes it more suitable location for the design.

LYNCH ANALYSIS



PATH



EDGE



DISTRICT



NODES



LANDMARKS

SOILD AND VOID



THE GROUND

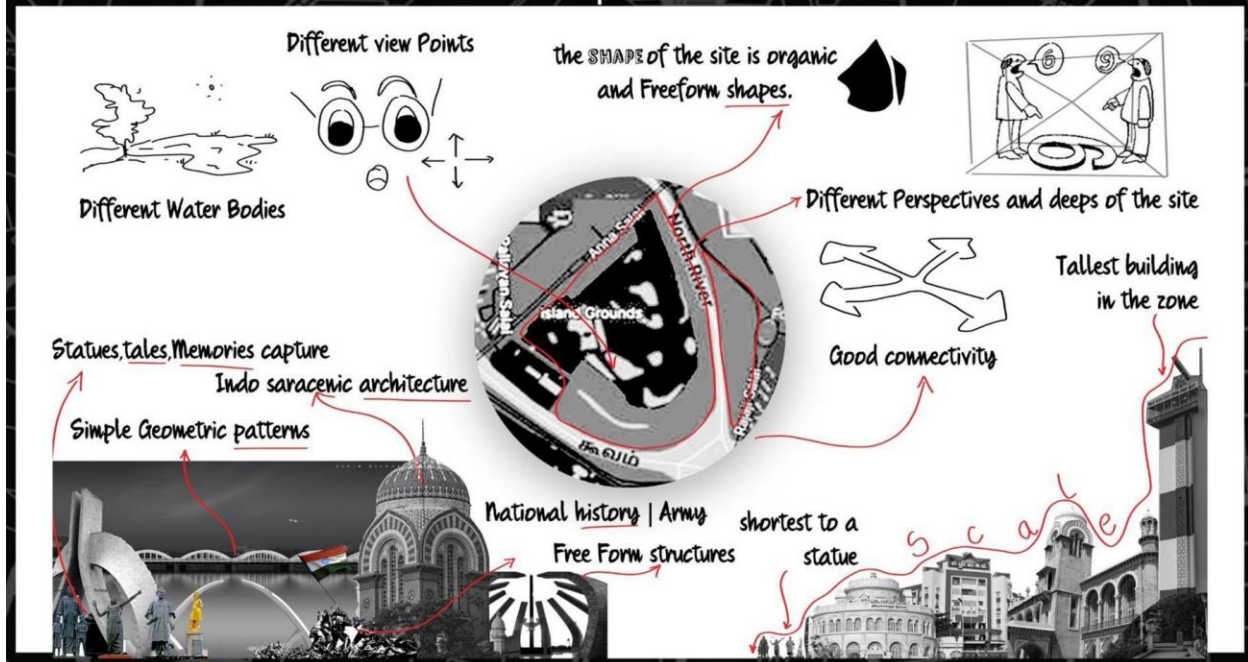


BUILDINGS

SITE IN AND AROUND ACTIVITIES

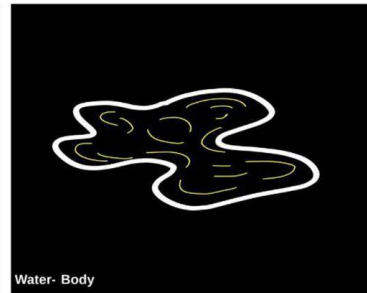
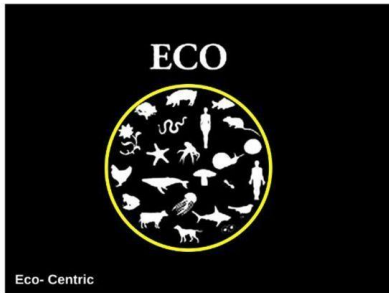
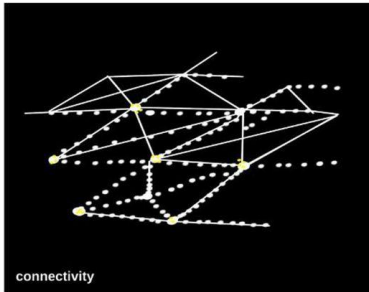


SITE ELEMENTS | COLLECTIVE MEMORY

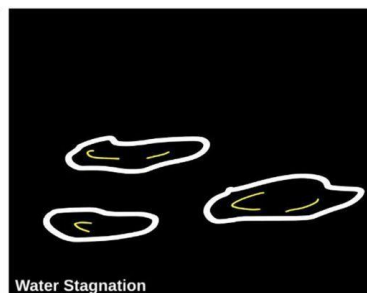
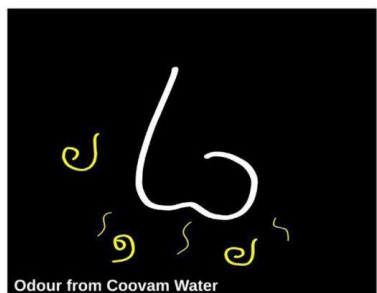
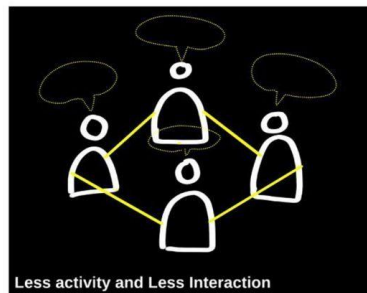
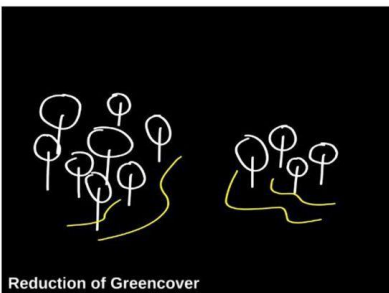
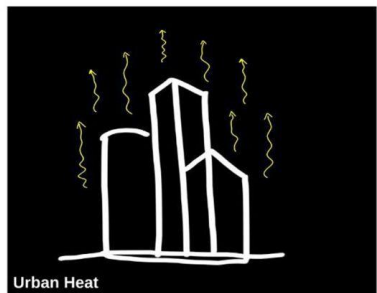




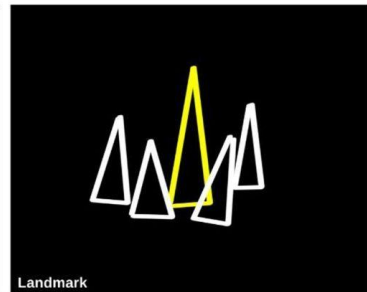
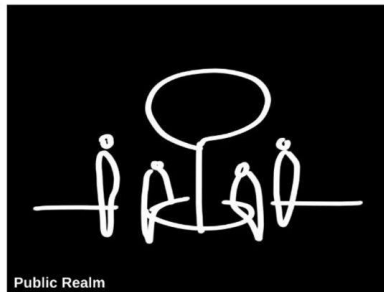
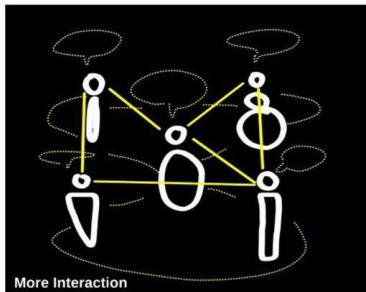
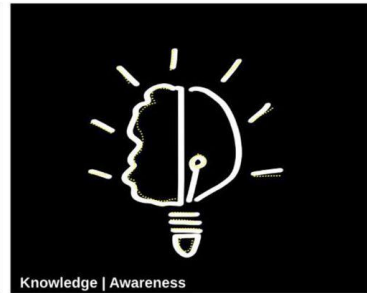
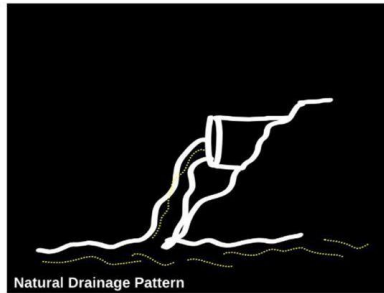
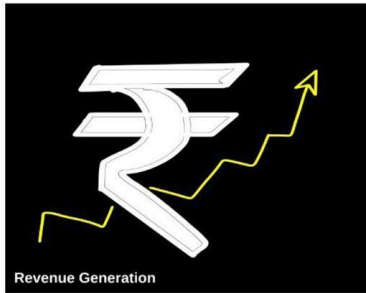
STRENGTHS



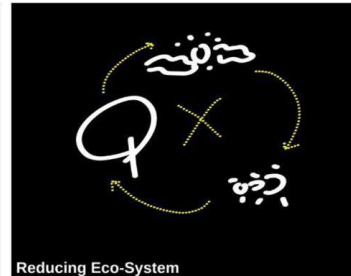
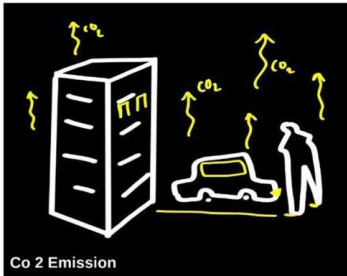
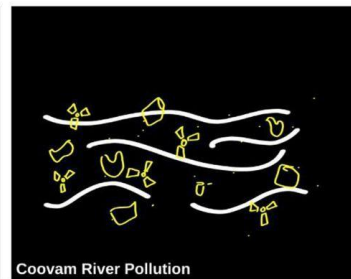
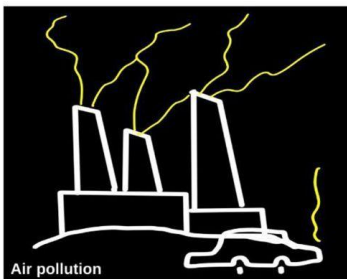
WEAKNESS



OPPORTUNITIES

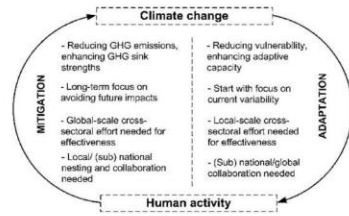


THREATS

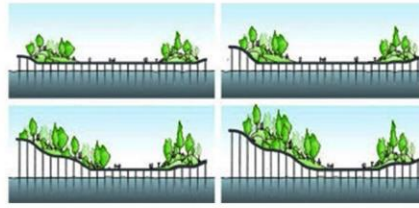


CHAPTER 11 - CONCEPT AND DESIGN PROGRAM DEVELOPMENT

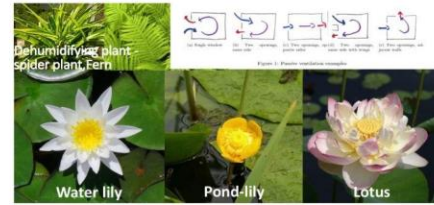
Gallery Circulation



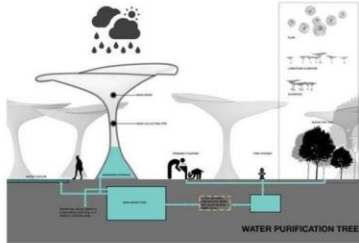
Water lvl rise (10-15 ft) - Structural Solution



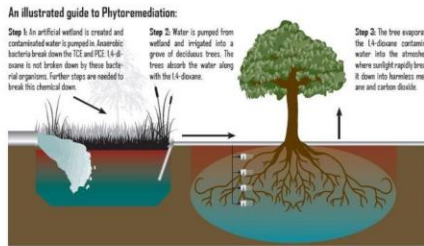
Dehumidifying Plants and proper ventilation



Rainwater collector towers



Bioremediation



Micro climate experience



What happens if we dont change ourselves in the things that we are doing?



Scary?

Consious?

What are my roles as an user of the Planet how should i behave?

Living Condition?

What can i do as an Architect?

needed?

Provoking?

The aspects of Climate change that really hit me ????

Selfishness?

climate change -Is it scary , my emotional connect to it?



Warning?

Program that can connect to your consciousness, feeling ,thought provoking .

Behaviors Patterns?

Taking it to a new generation ,How to teach them ? (books,visuals,story's)

small or big?



Real?

Awareness?

No one wants to listen or understand what others as to say ,but how can i make them listen through feeling through senses ,through space,through love , through architecture..?

Alarming?

the activities that do as an effect on the climate change?

Consequence?

What i wanna do about it ?



Environment?

Ecology?

How to understand the problem from the source point ?

selfless?

Change?

Human Activities?

How to be or make people around you more conscious ?

Care?

Greedy?

Choices?

Actions?



needed?

How to change or adapt to a habit which was never through before ?

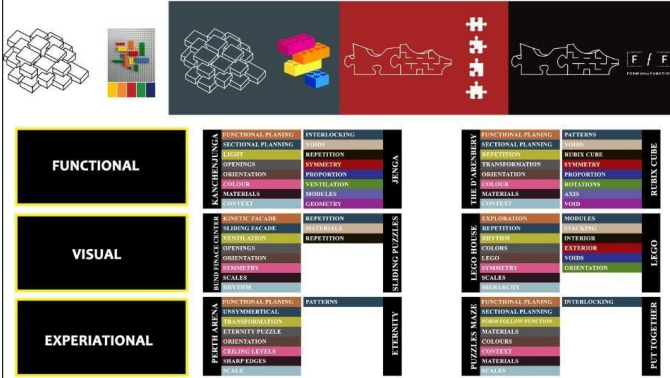
Reactions?

Repel Effect / Butterful Effect ? a smal change in a area can bring a bigger impact another area?

MANIFESTATION OF DIFFERENT PUZZLES IN ARCHITECTURE

FORM

* The concept of designing a form and function of a building is of most important feature in architecture.
 * The conventional way of designing is development of architectural form and spaces is three dimensional euclidean geometry. Over the years many architects have got inspired by a lot of things in and around them, which opened a new perspective of viewing architecture and spaces.
 * Nowadays, Puzzles have come to limelight which has created many interesting architectural marvels in this era. These kind of ideas and inspiration can help to blur between the modern and modernist way of designing a building. Function, visual and experiential aspects of a design can be inspired from different types of puzzles.
 * This dissertation is to explore the different ways in which the diverse puzzles have inspired architecture in the modern architecture times.



Dissertation reference



PUZZLE AND ARCHITECTURE

THE EYES OF THE SKIN

FUNCTION

"Experiencing architecture is multi-sensory; qualities of space, matter and scale are measured together by the eye, ear, nose, skin, tongue, skeleton and muscle. Architecture strengthens one's sense of being in the world, and this is basically an enforced experience of self. Instead of mere vision, or the five classical senses, architecture involves several realms of sensory experience which interact and fuse into each other." mentioned PALLASMAA, J. (2005) in his book 'The Eyes of the Skin: Architecture and the Senses'



CRITICISMS BY PALLASMAA

Juhani pallamaa has made multiple criticisms against ocularencentric architectural design in the book. He has said "..... architecture has adopted strategy of advertising and instant persuasion; buildings have turned into image products detached from existential depth and sincerity."

He also talks about experiences in that an experience can never be forgotten once it is made by comparing the sense of what the word means to purely oral person when compared to a literate person.



MATERIALITY AND TIME

Natural material express thier age, as well as the story of thier origins and thier history of human use. All matter exists in the continuum of time; the patina of wear adds the enriching experience of time to the materials of construction. But the machine-made material of today scaleless sheets of glass, enamelled metals and synthetic plastic tend to present thier unyielding surfaces to the eye without conveying thier material essence or age.

Book reference



OCULARENCENTRIC ARCHITECTURE
 THE DOMINATION OF VISION
 NARRISTIC VS NIHILISTIC
 SPACE, TIME AND ARCHITECTURE
 ARCHITECTURE AS AN EXPERIENCE
 AUTHORITY OF PRESENCE
 ARCHITECTURE AND THE HUMAN BODY

Scary?
uncannily striking or surprising.

Conscious
aware of and responding to one's surroundings.

Living Condition?
its a matter of how big or small a space it is.
-class division.
-power

Needy?
(of a person) needing emotional support; insecure, or lacking the necessities of life

Provoking?
giving rise to the specified reaction or emotion
-Visuals can do it more..

Selfishness?
the quality or state of being selfish; lack of consideration for other people.
-waiting spaces

Environment?
Involves the surroundings, nature, which natural exist, or shared spaces
As a whole

Warning?
a statement or event that warns of something or that serves as a cautionary example
-advance notice of something.

Experiences?
practical contact with and observation of facts or events.
-an event or occurrence which leaves an impression. -It could involve different emotions.

Reactions?
something done, felt, or thought in response to a situation or event.

Greedy?
having an excessive desire.

Fear?

Ecology?

Real?
actually existing as a thing or occurring in fact.

selfless?
concerned more with the needs and wishes of others than with one's own

Human Activities?

Awareness?
knowledge or perception of a situation or fact.

Consequence?
importance or relevance.

Alarming?
worrying or disturbing.

Actions?

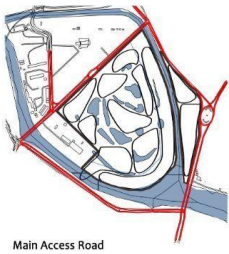
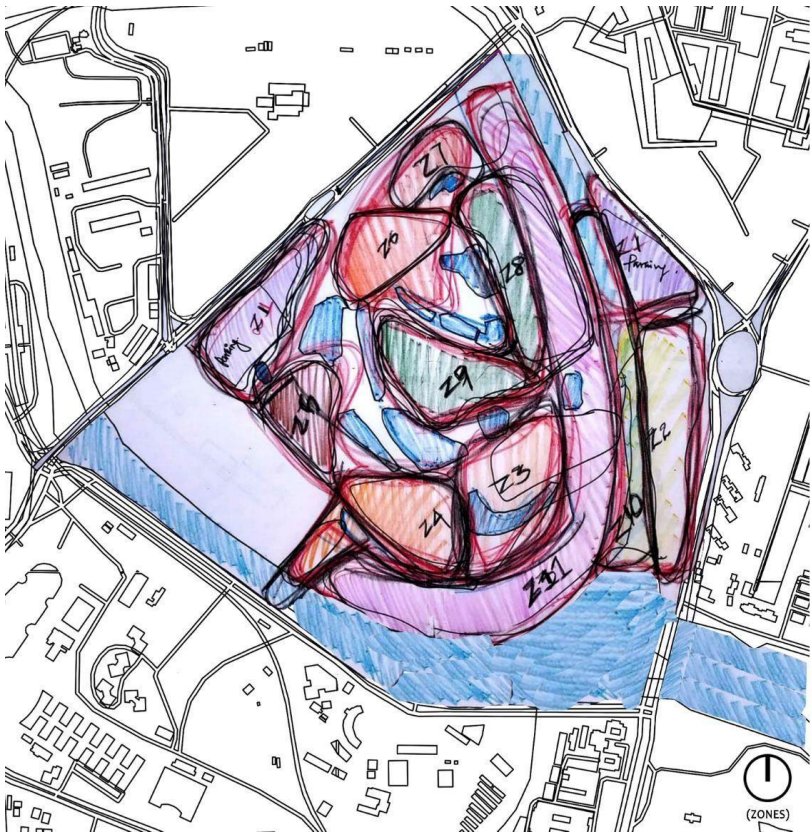
Behaviors Patterns?

Choices?

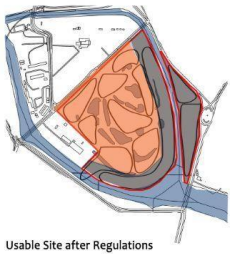
Care?

Change?

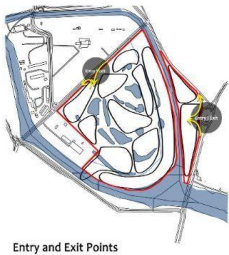
CHAPTER 12 - ZONING AND MASTERPLAN



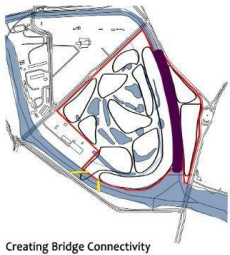
Main Access Road



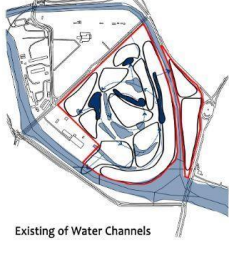
Usable Site after Regulations



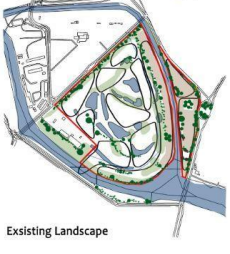
Entry and Exit Points



Creating Bridge Connectivity



Existing of Water Channels



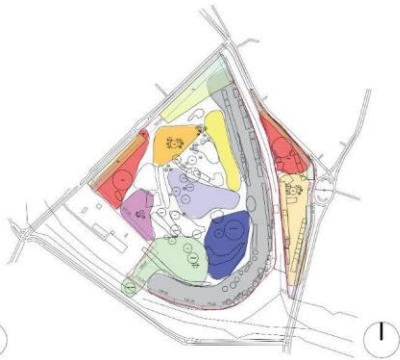
Existing Landscape



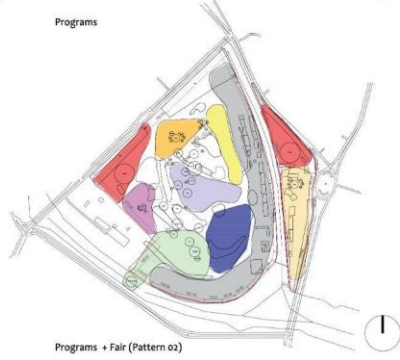
Zones



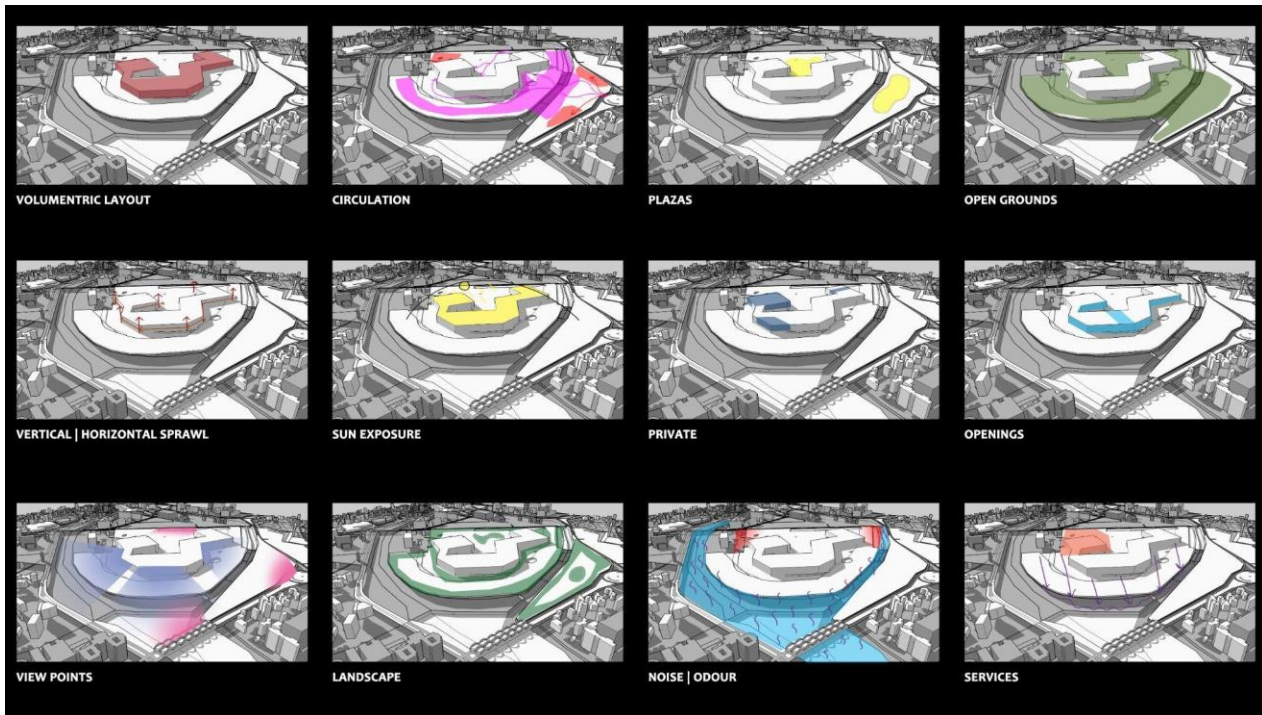
Programs



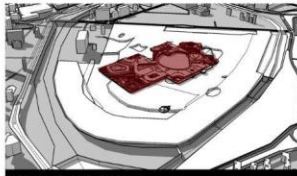
Programs + Fair (Pattern 01)



Programs + Fair (Pattern 02)



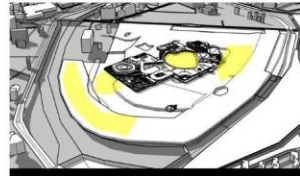
EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



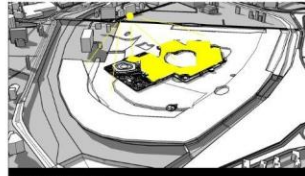
VOLUMETRIC LAYOUT



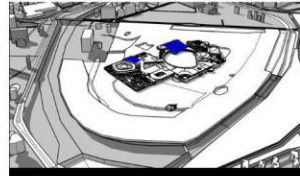
CIRCULATION

**PLAZAS**

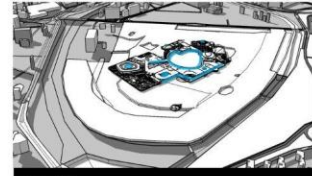
OPEN GROUNDS

**VERTICAL | HORIZONTAL SPRAWL**

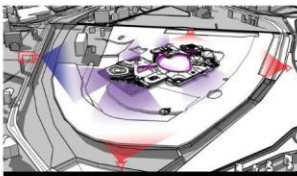
SUN EXPOSURE



PRIVATE



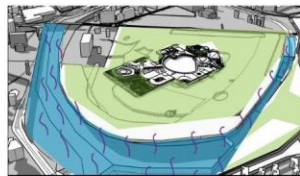
OPENINGS



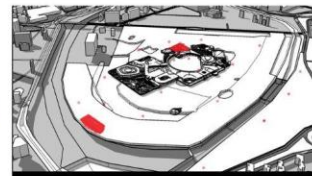
VIEW POINTS



LANDSCAPE



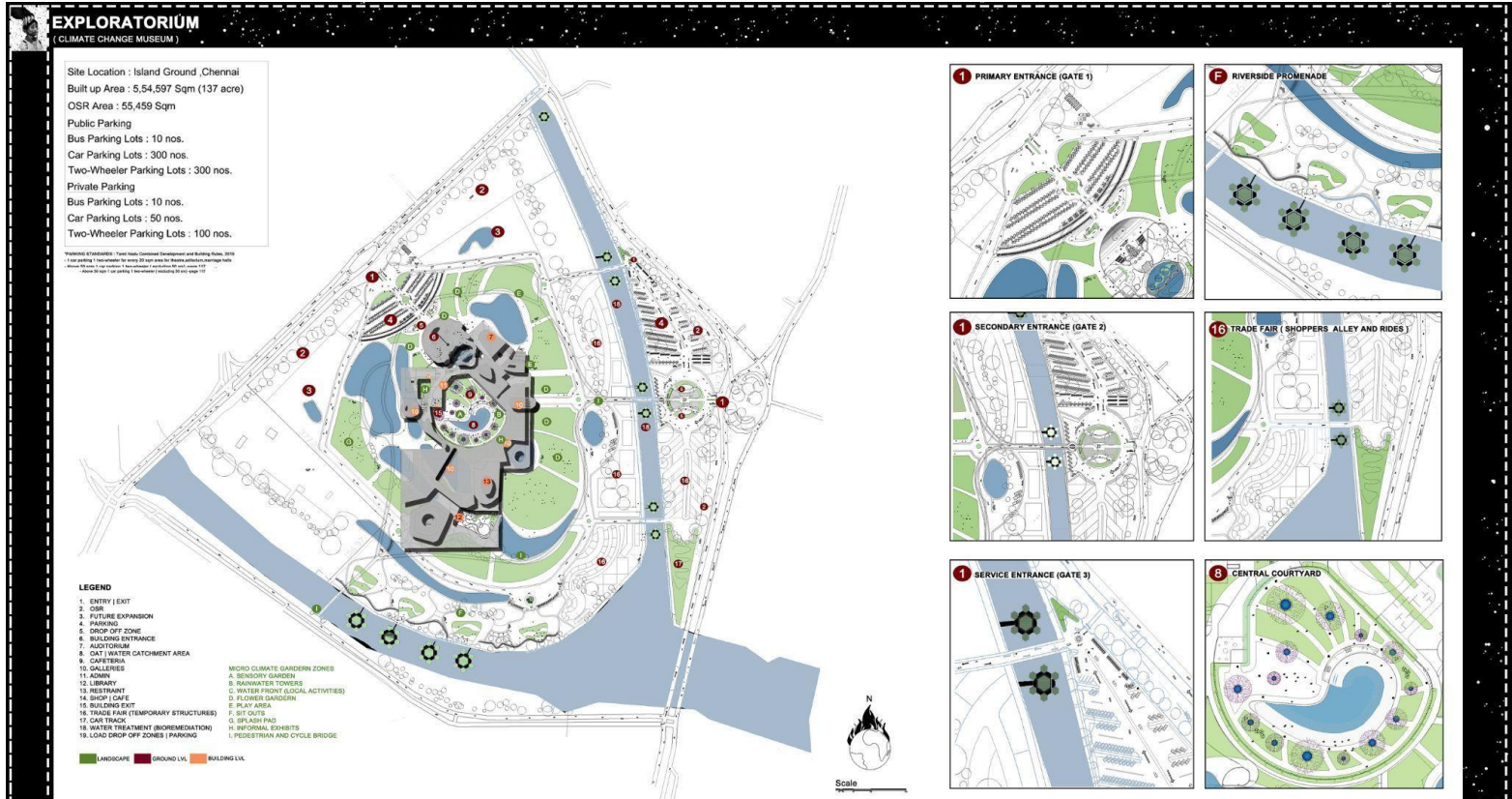
NOISE | ODOUR



SERVICES

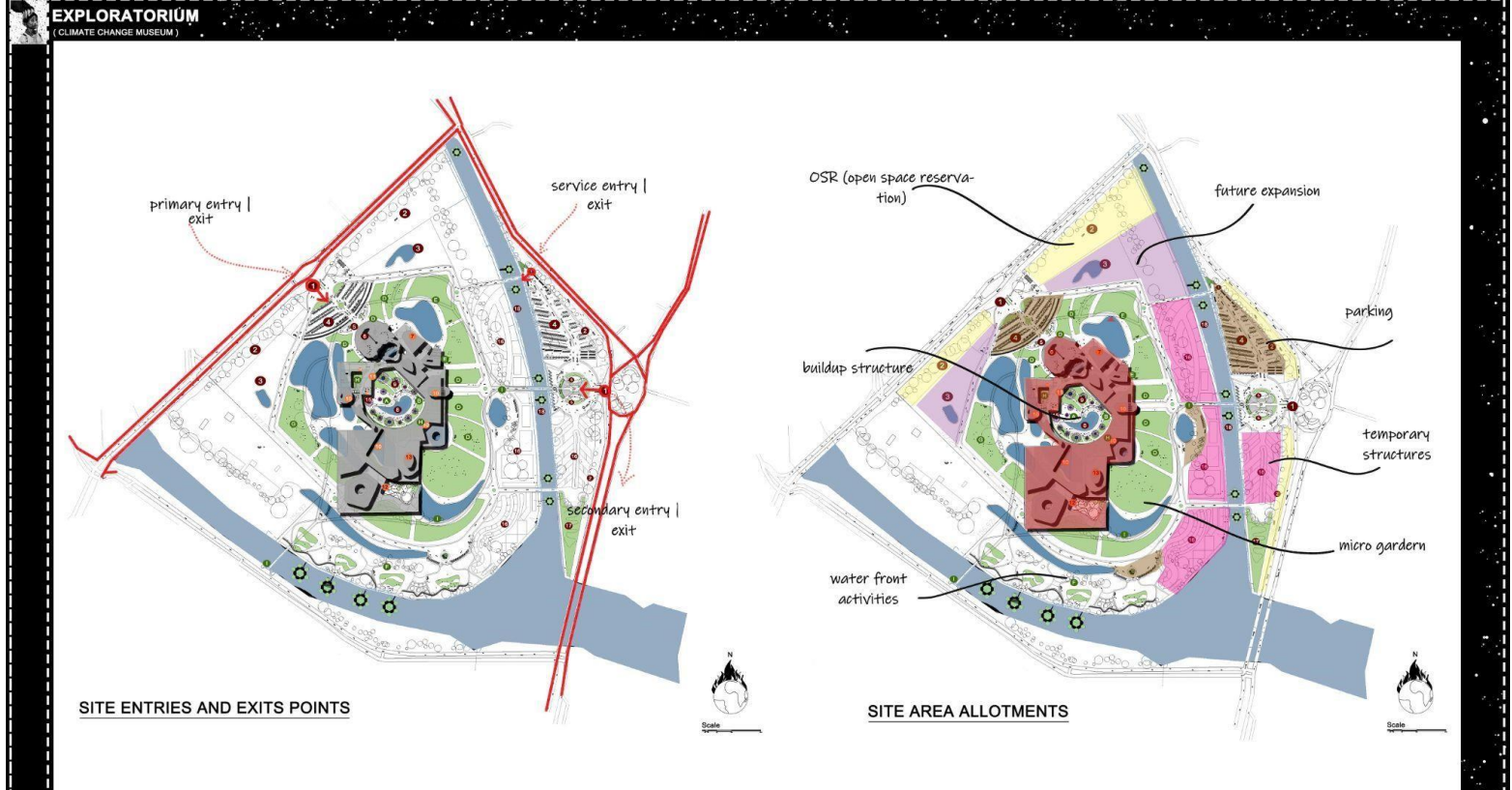
MASSING AND DESIGN

ARSHAYA W, 9621094, 10th SEM. DEPARTMENT OF ARCHITECTURE, BATHYABANA



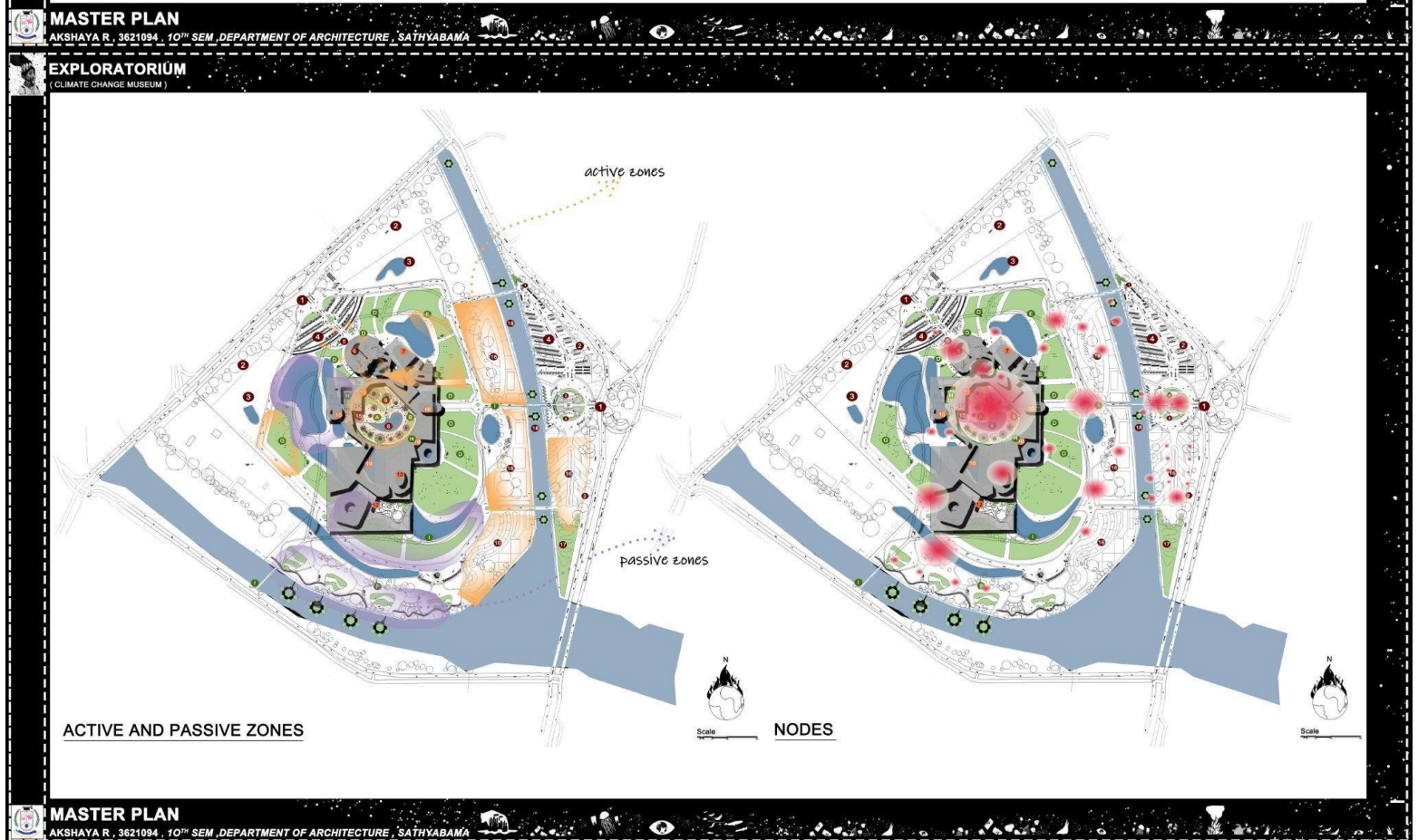
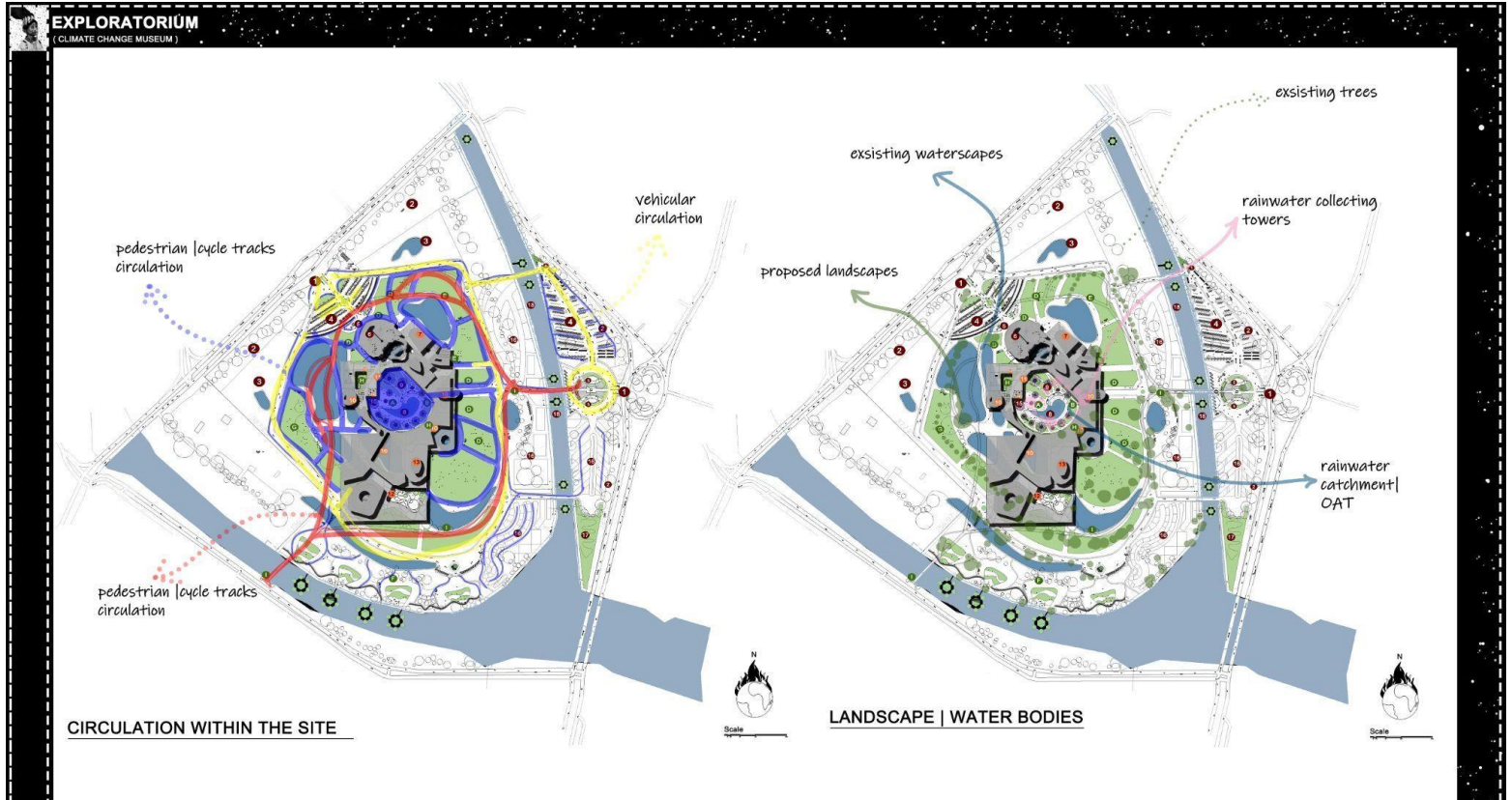
MASSING AND DESIGN

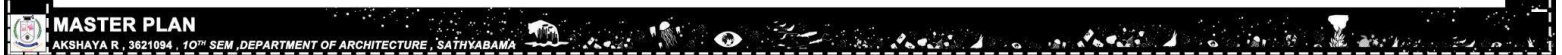
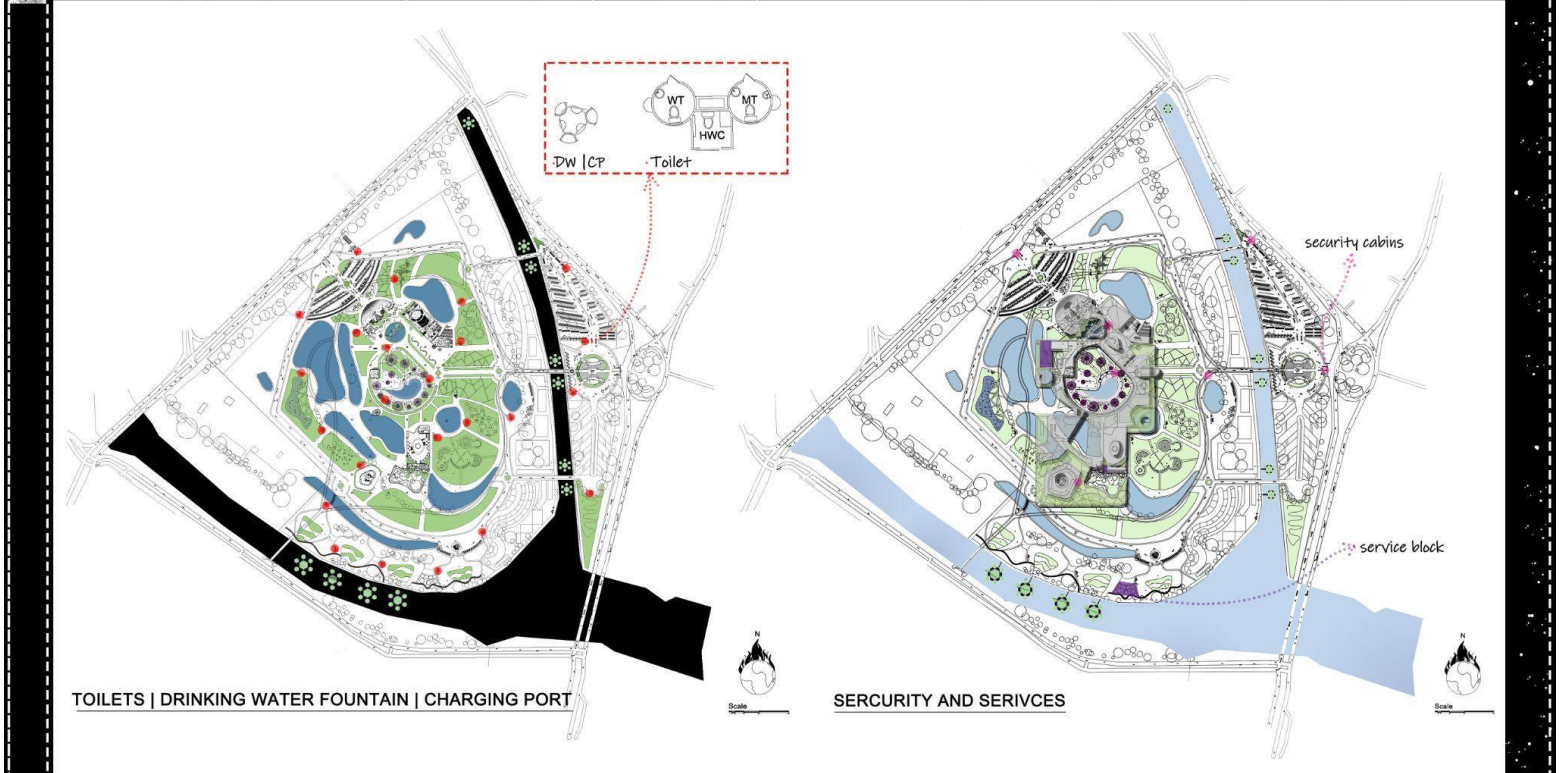
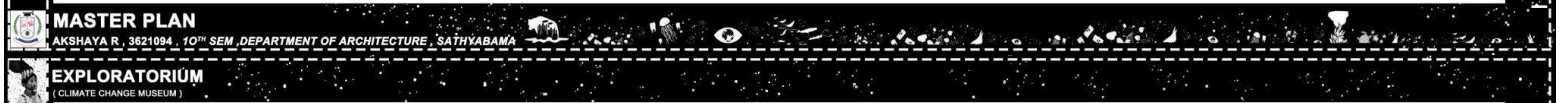
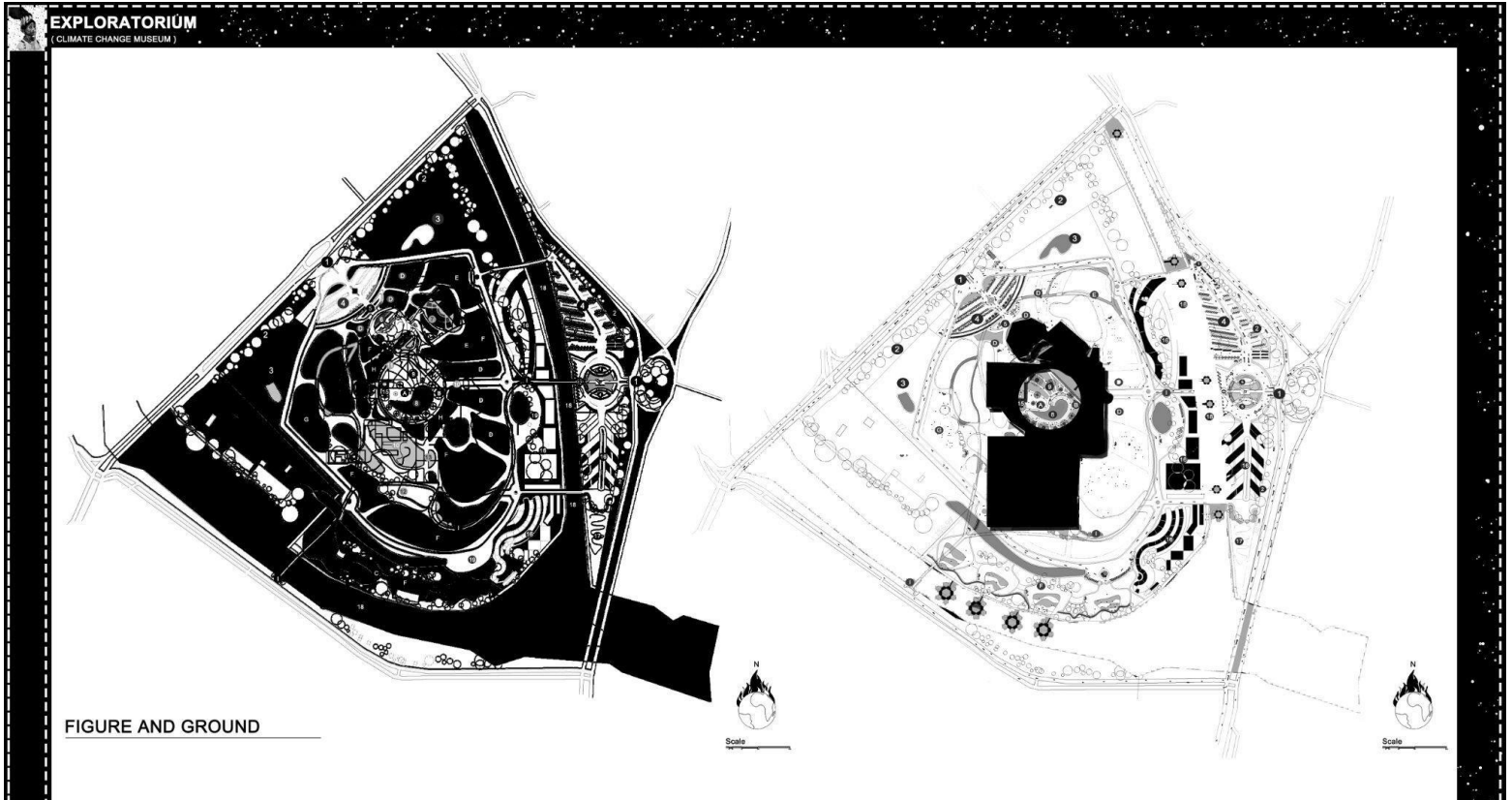
AKSHAYA R. 3621094. 10TH SEM. DEPARTMENT OF ARCHITECTURE, SATHYABAMA



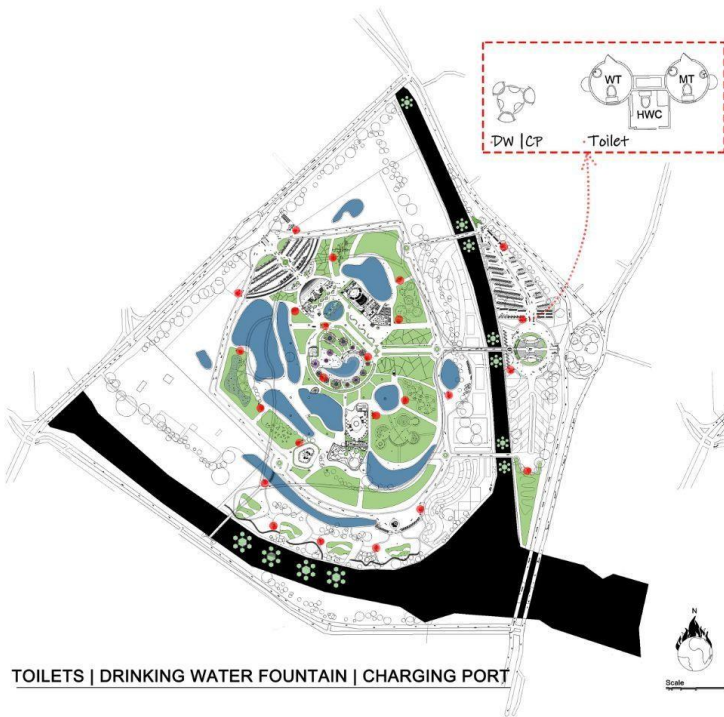
MASTER PLAN

AKSHAYA R. 3621094. 10TH SEM. DEPARTMENT OF ARCHITECTURE, SATHYABAMA





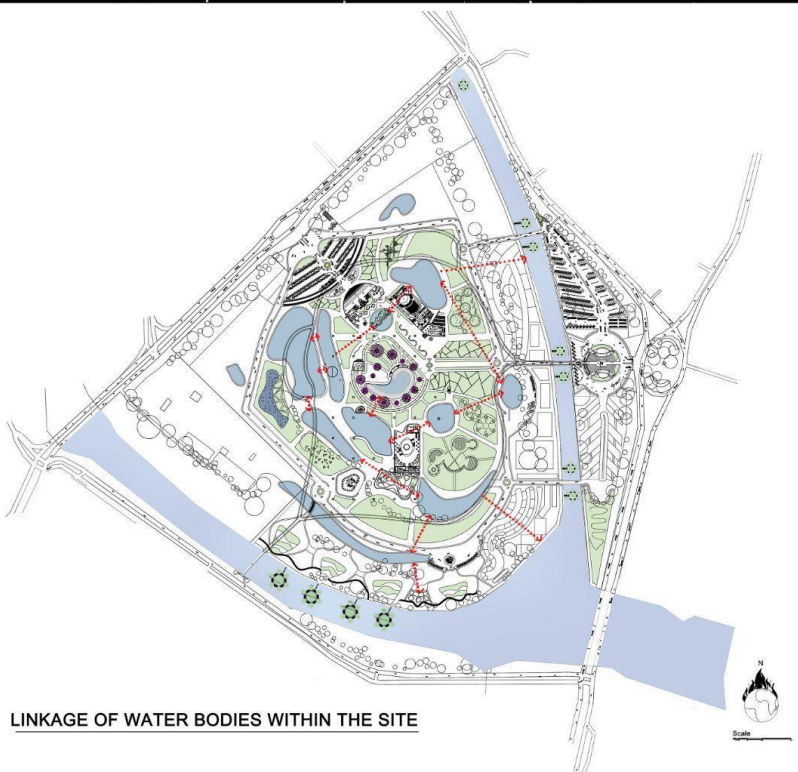
EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



MASTER PLAN

AKSHAYA R, 3621034, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



SEASONAL CHANGES

MASTER PLAN

AKSHAYA R, 3621034, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



FLOWER GARDEN



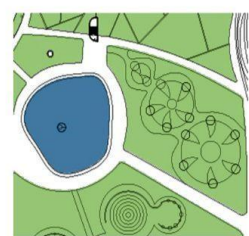
BUILDING BLOCK PLAY (MODULES UNITS)



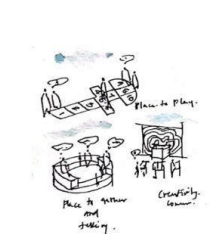
SHADOW GARDEN



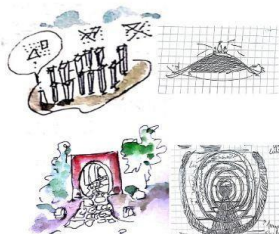
FLOWER GARDEN



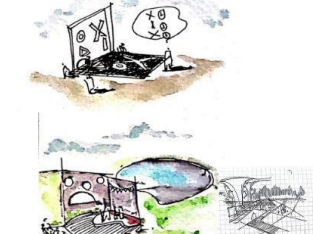
COLOUR GARDEN



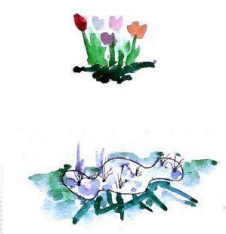
PLAY AREA | INTERACTIVE SITTING



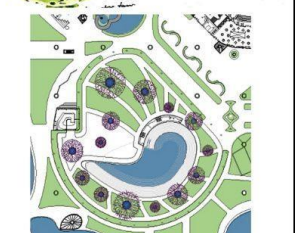
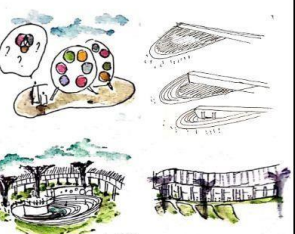
ROCK | ZEN GARDENS



INTERACTIVE SITTING



SPLASH PAD | WATER GARDEN



CENTRAL COURTYARD

MASTER PLAN ZONES

AKSHAYA R. 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



VIEW 01



VIEW 02



VIEW 03



VIEW 04



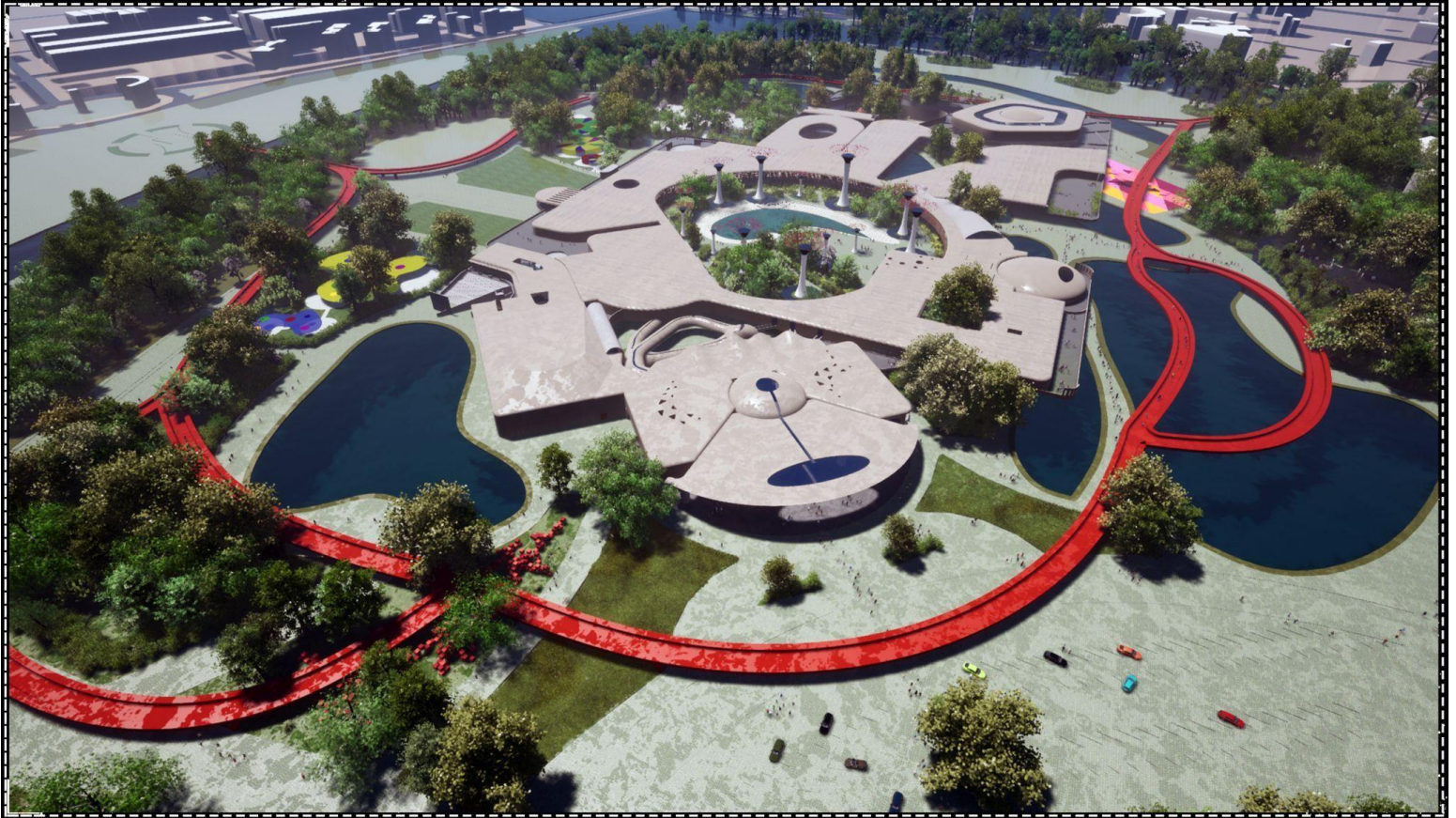
VIEW 05



VIEW 06

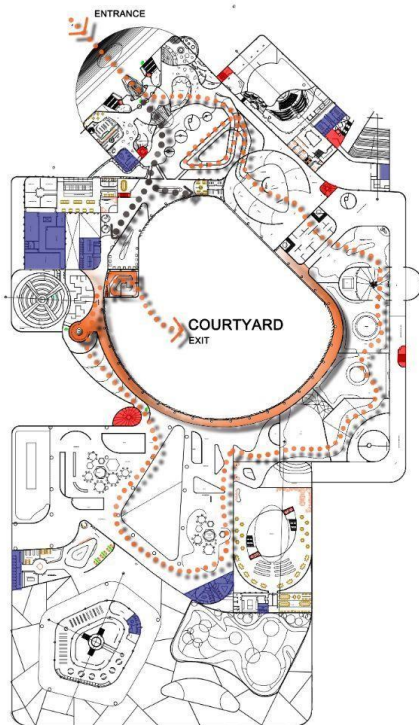
MASTER PLAN ZONES VIEWS

AKSHAYA R. 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

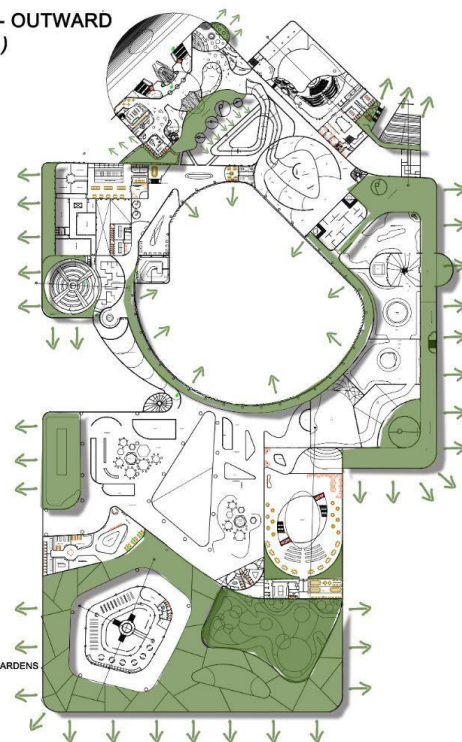


EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)

CIRCULATION
(ENTRY - EXIT)



INWARD - OUTWARD
(VISTAS)



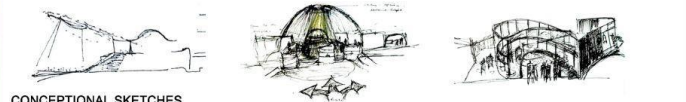
CIRCULATION | SERVICES

AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

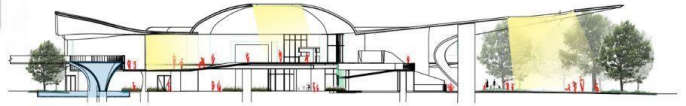
EXPLORATORIUM (CLIMATE CHANGE MUSEUM)

Architecture and Human Senses, EcoEmpathy, Phenomenology, Experience, Journey

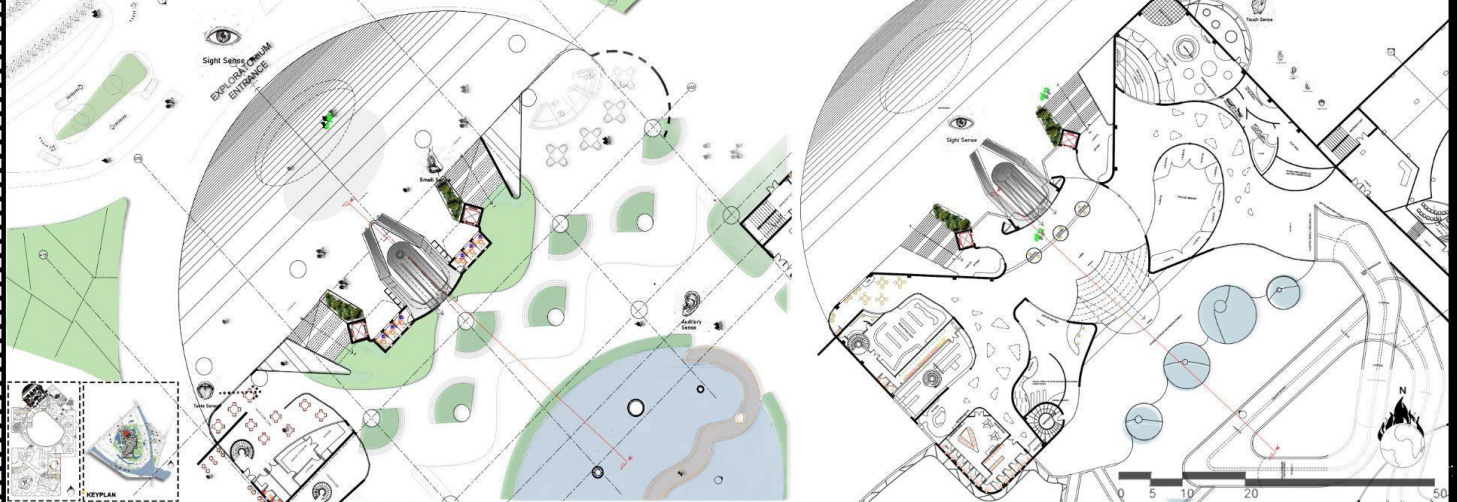
"Architecture is essentially an extension of nature into the man-made realm, providing the ground for perception and the horizon of experiencing and understanding the world." Said by Juhani Pallasmaa from the eyes of the skin, which have been the key theoretical basement throughout this project.



CONCEPTUAL SKETCHES



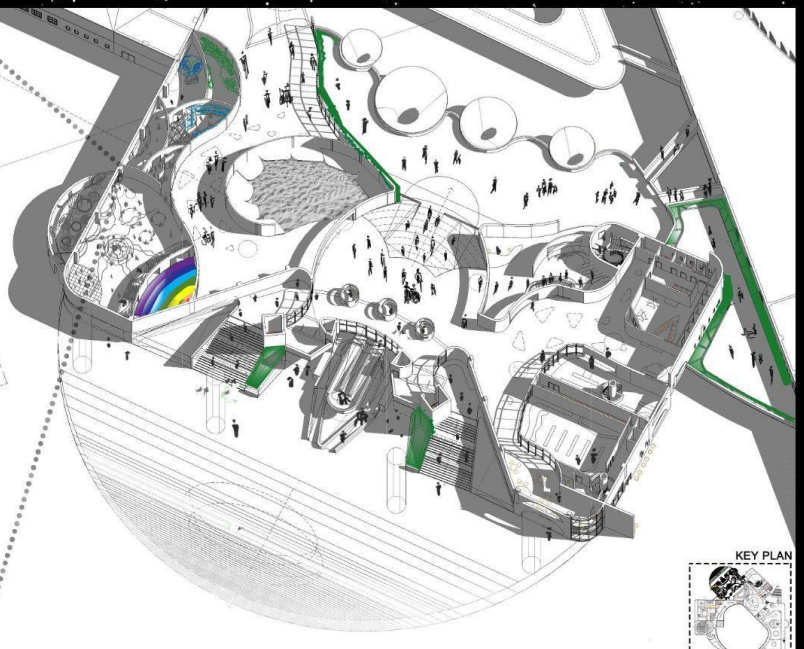
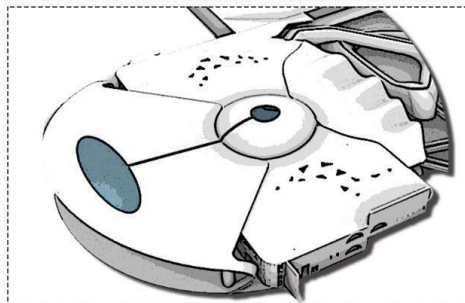
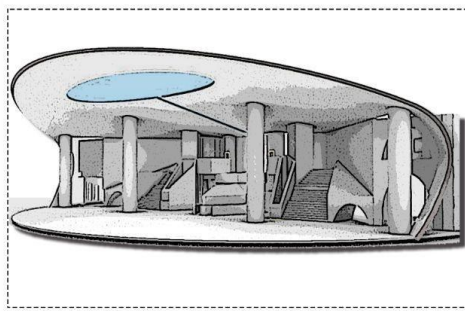
SECTION A



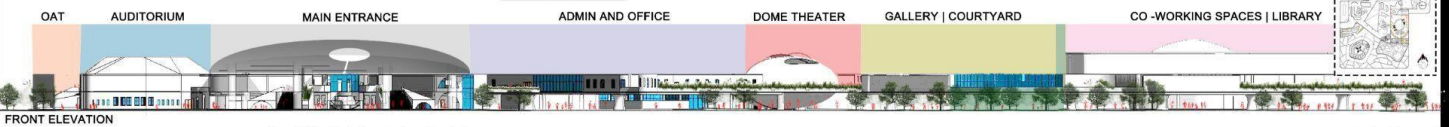
01 ENTRANCE

AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

EXPLORATORIUM (CLIMATE CHANGE MUSEUM)



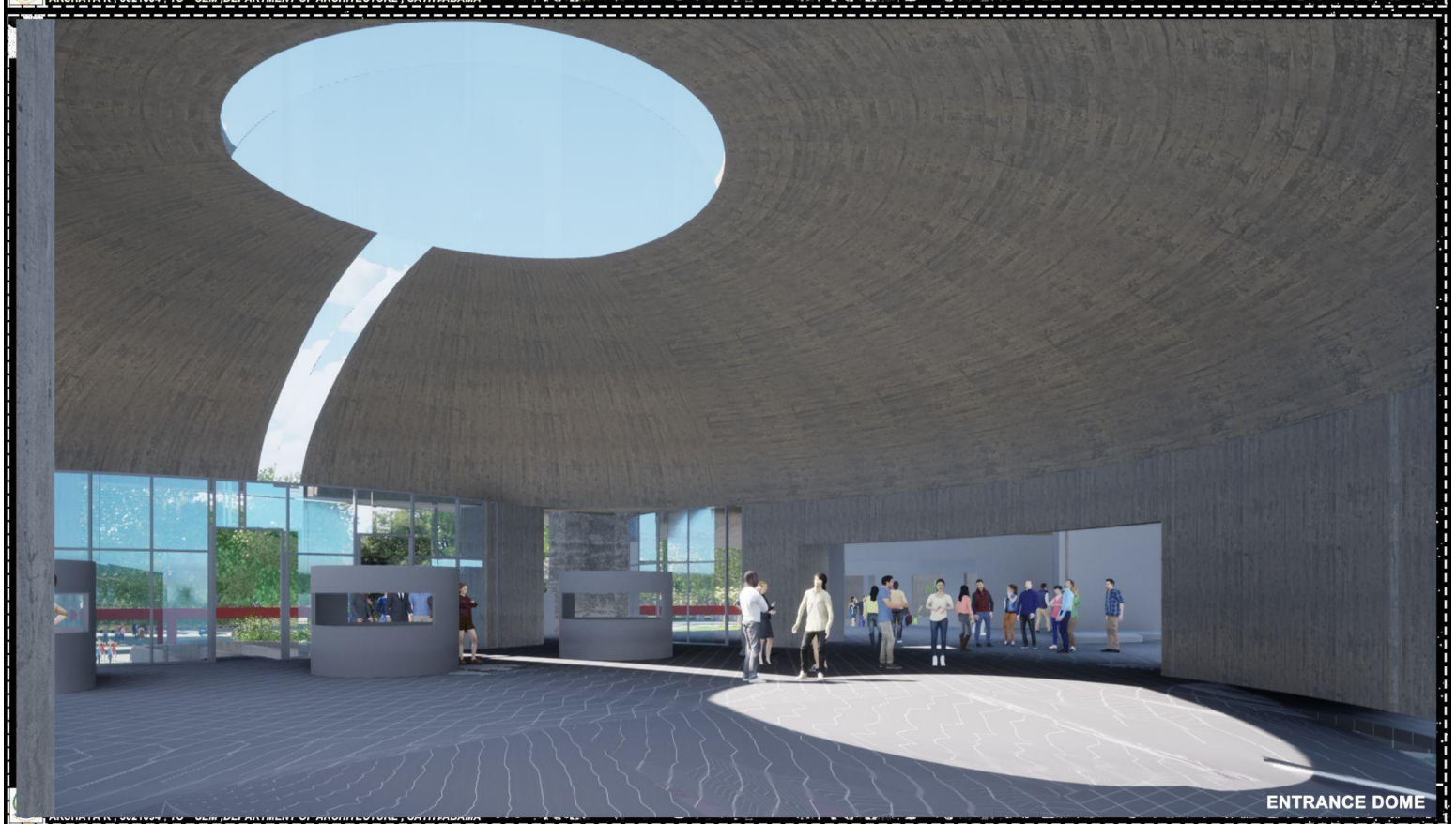
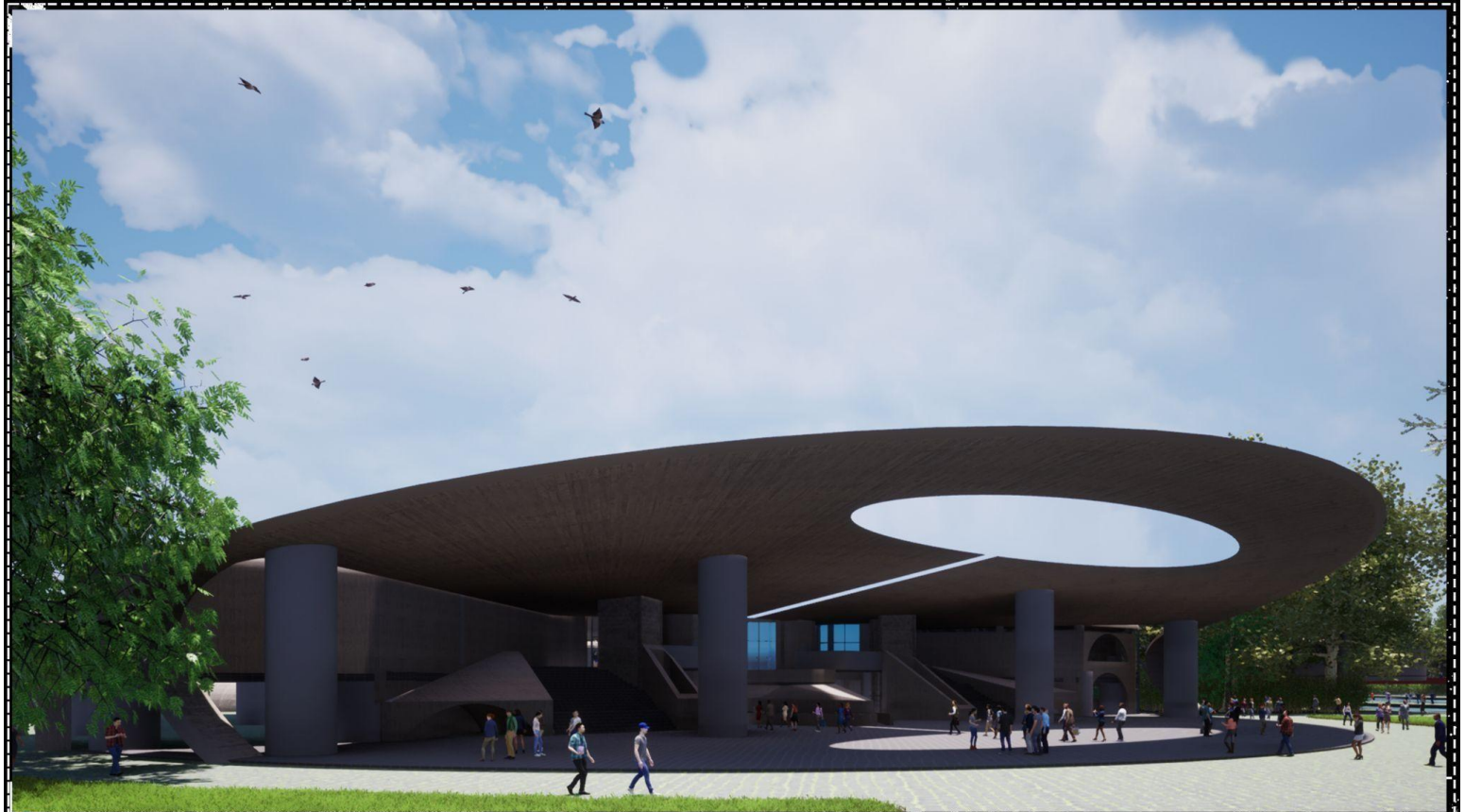
KEY PLAN

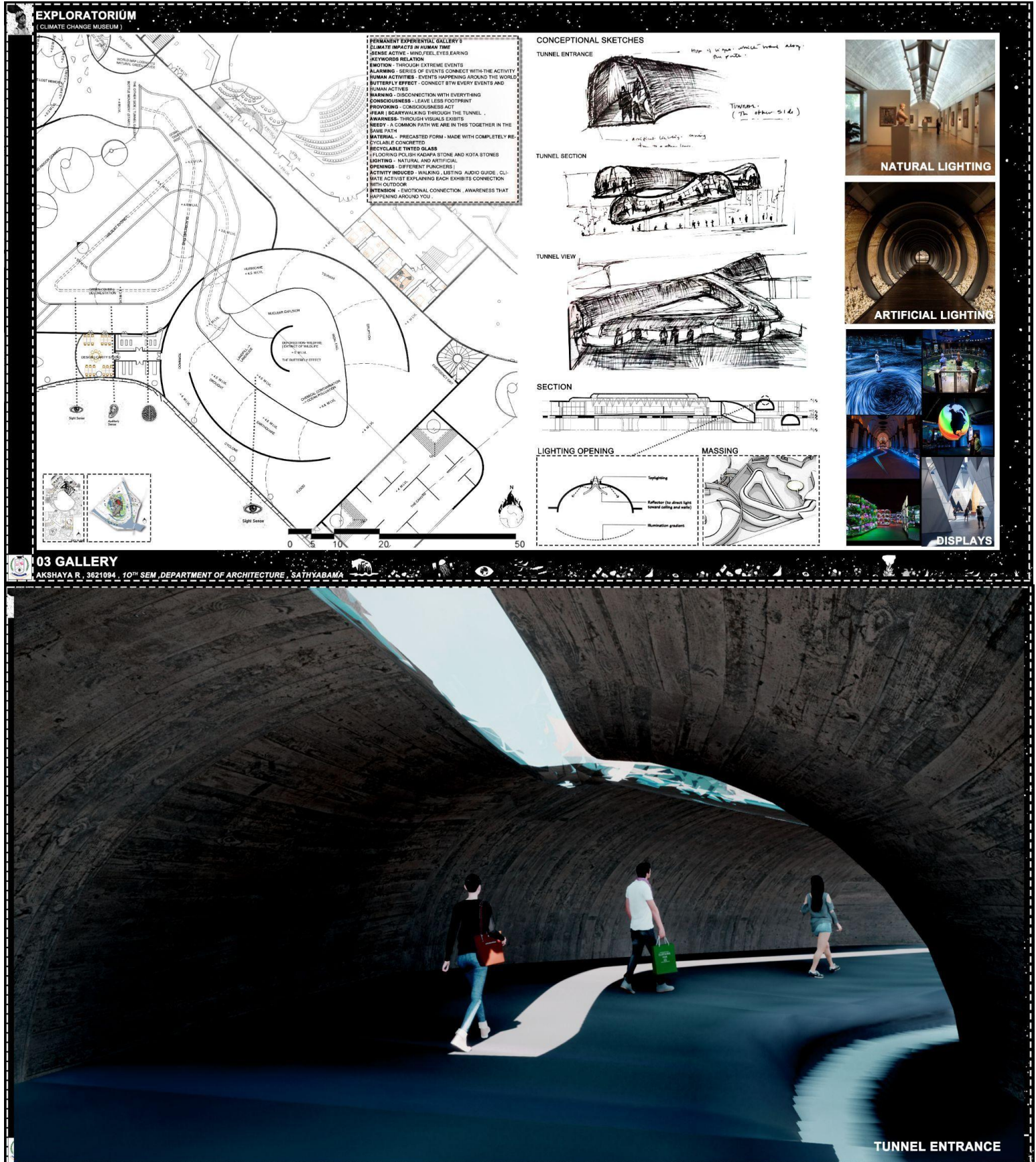


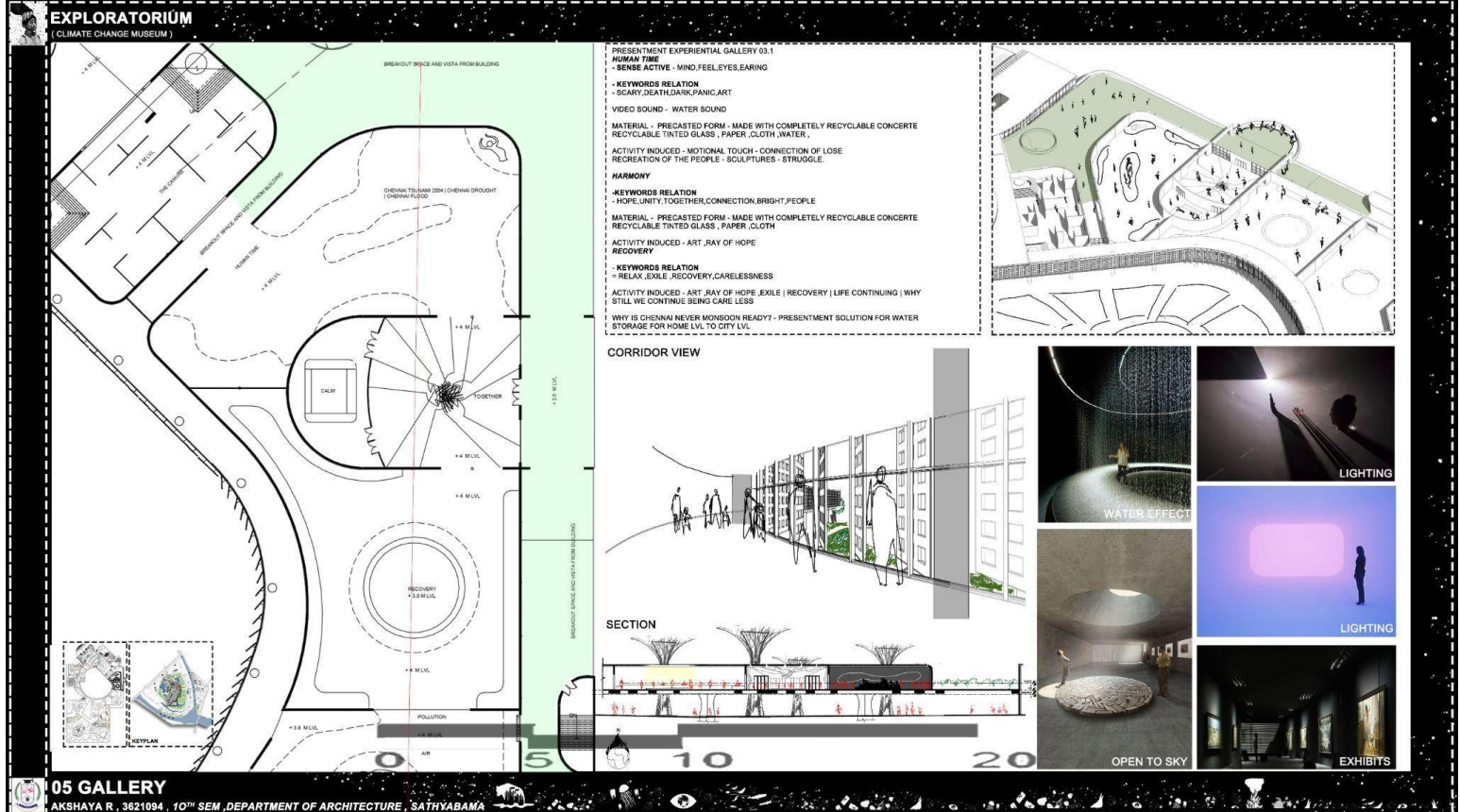
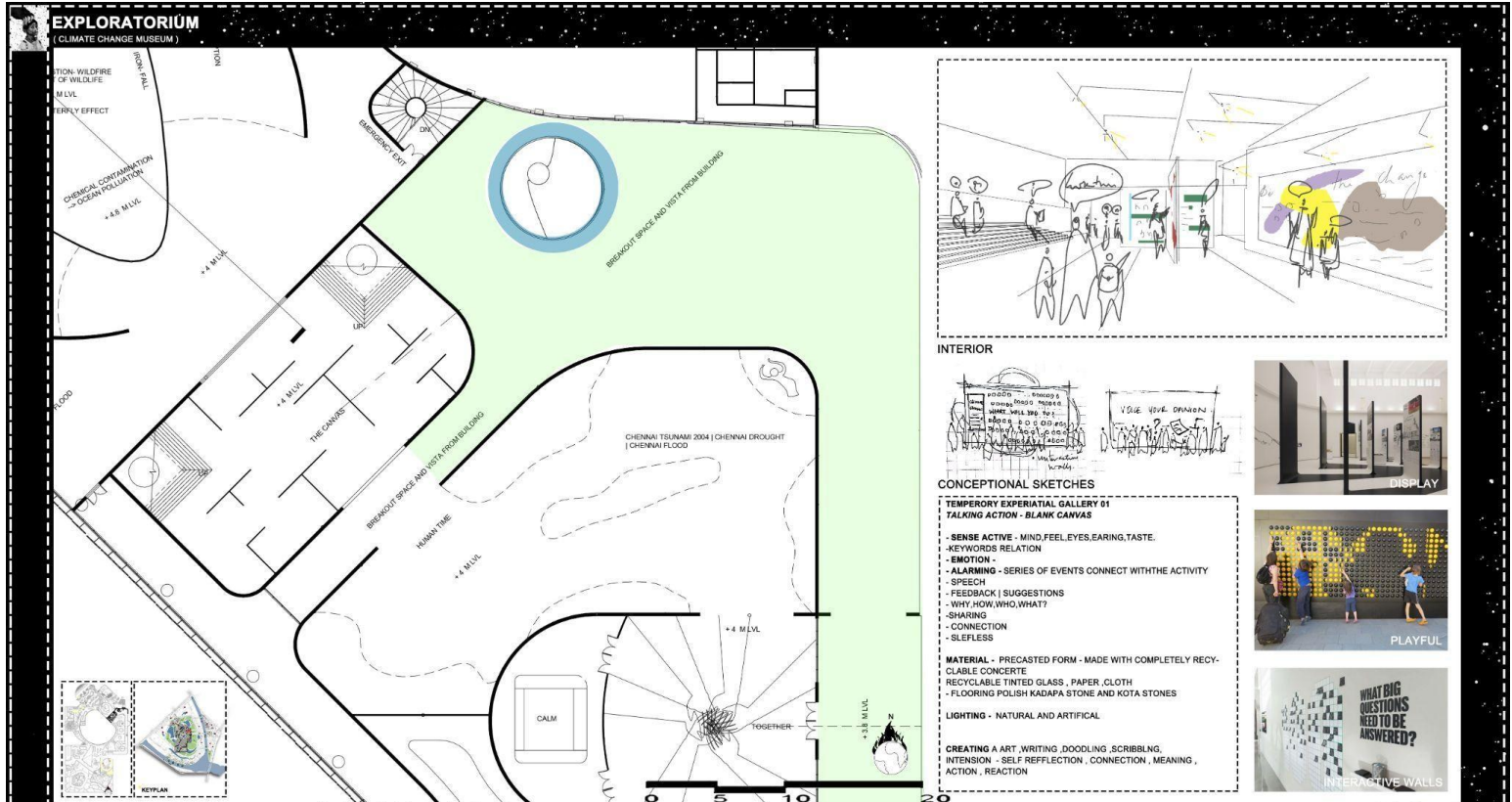
FRONT ELEVATION

02 ENTRANCE

AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA



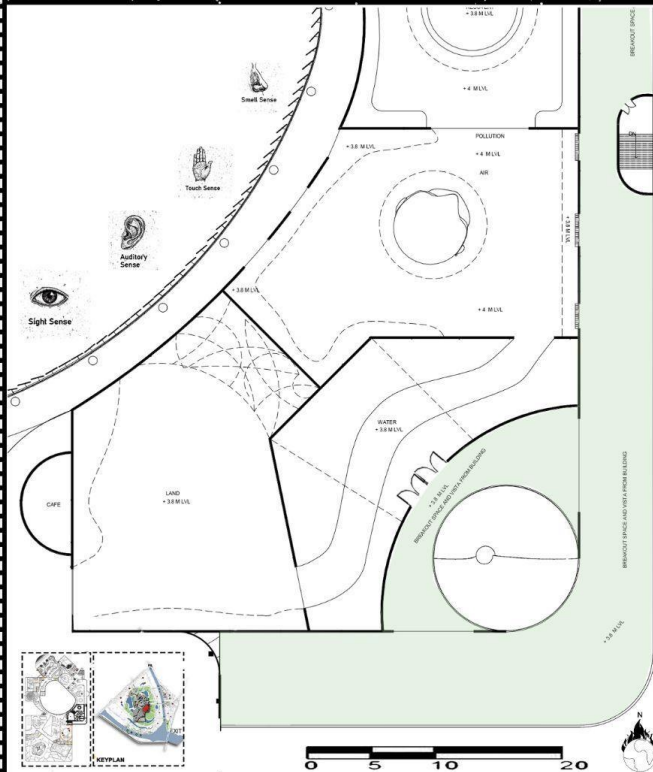






CORRIDOR VIEW

EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



PERMANENT EXPERIENTIAL GALLERY 4.1

AIR POLLUTION

- SENSE ACTIVE - MIND, FEEL, EYES, EARING, TASTE.
- KEYWORDS RELATION
- FEELING
- FRESH
- REFLECTION

MATERIAL - PRECASTED FORM - MADE WITH COMPLETELY RECYCLABLE CON-
CERTED RECYCLABLE TINTED GLASS, PAPER, CLOTH, WOOD, ALUMINUM

PERMANENT EXPERIENTIAL GALLERY 4.2

WATER POLLUTION

- SENSE ACTIVE - MIND, FEEL, EYES, EARING, TASTE, SMELL.
- KEYWORDS RELATION
- PLASTIC - SURFACE LEVEL
- FRESH
- SELF REFLECTION

MATERIAL - PRECASTED FORM - MADE WITH COMPLETELY RECYCLABLE CON-
CERTED RECYCLABLE PLASTIC - WATER TANK - STONE
DEFUSE LIGHT OPENINGS

PERMANENT EXPERIENTIAL GALLERY 4.3

LAND POLLUTION

THE REMAINS OF NON - BIODEGRADABLE WASTE
STRONG AS PLASTIC - SWAP EXPERIENCE

- SENSE ACTIVE - MIND, FEEL, EYES, EARING, TASTE.
- KEYWORDS RELATION
- PLASTIC
- WASTE
- BIODEGRADABLE
- NON - BIODEGRADABLE

MATERIAL - PRECASTED FORM - MADE WITH COMPLETELY RECYCLABLE CON-
CERTED RECYCLABLE TINTED GLASS, PAPER, CLOTH,
- FLOORING POLISH KADAPA STONE AND KOTA STONES

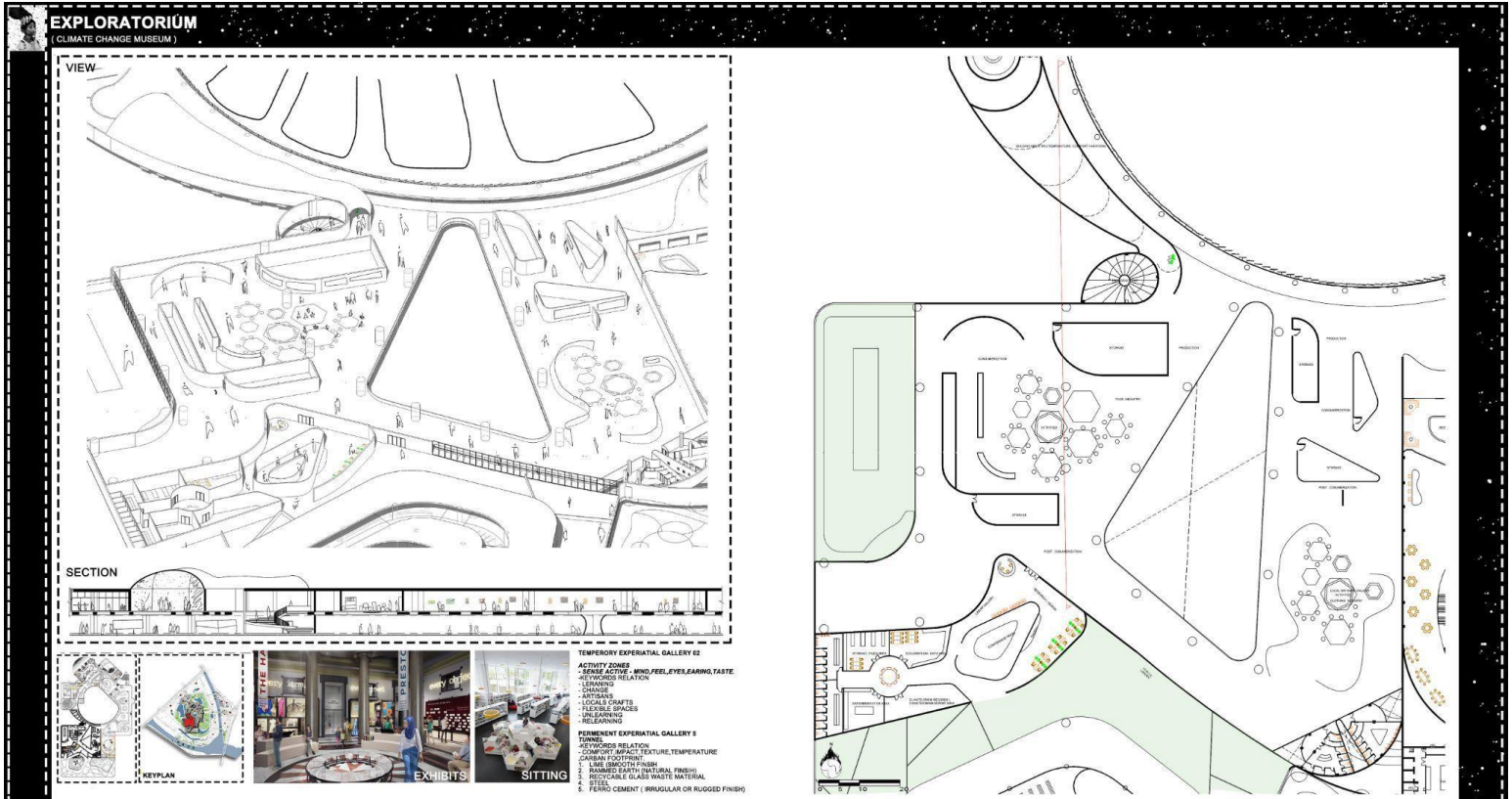


VIEW



06 GALLERY

AKSHAYA R. 3021094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA





PERMENENT EXPERIATIAL GALLERY 6

VISUAL TREAT- SENSE ACTIVE - MIND,FEEL,EYES,EARING,TASTE.
KEYWORDS RELATION,REALITY, SELF OF BELONG.

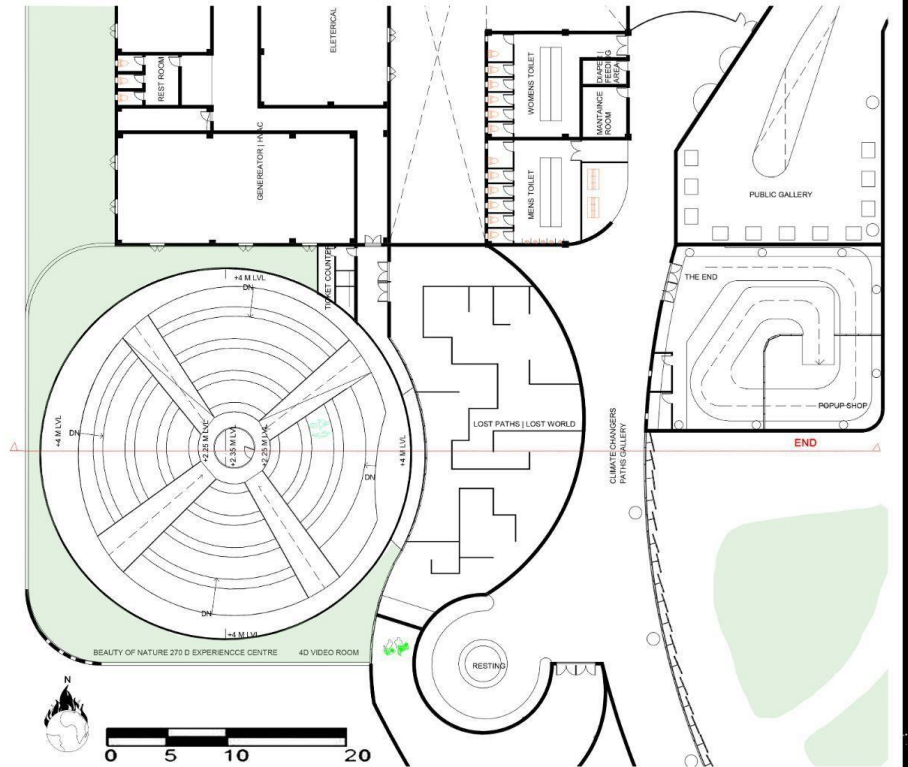
MATERIAL • PRECASTED FORM • MADE WITH COMPLETELY RECY.

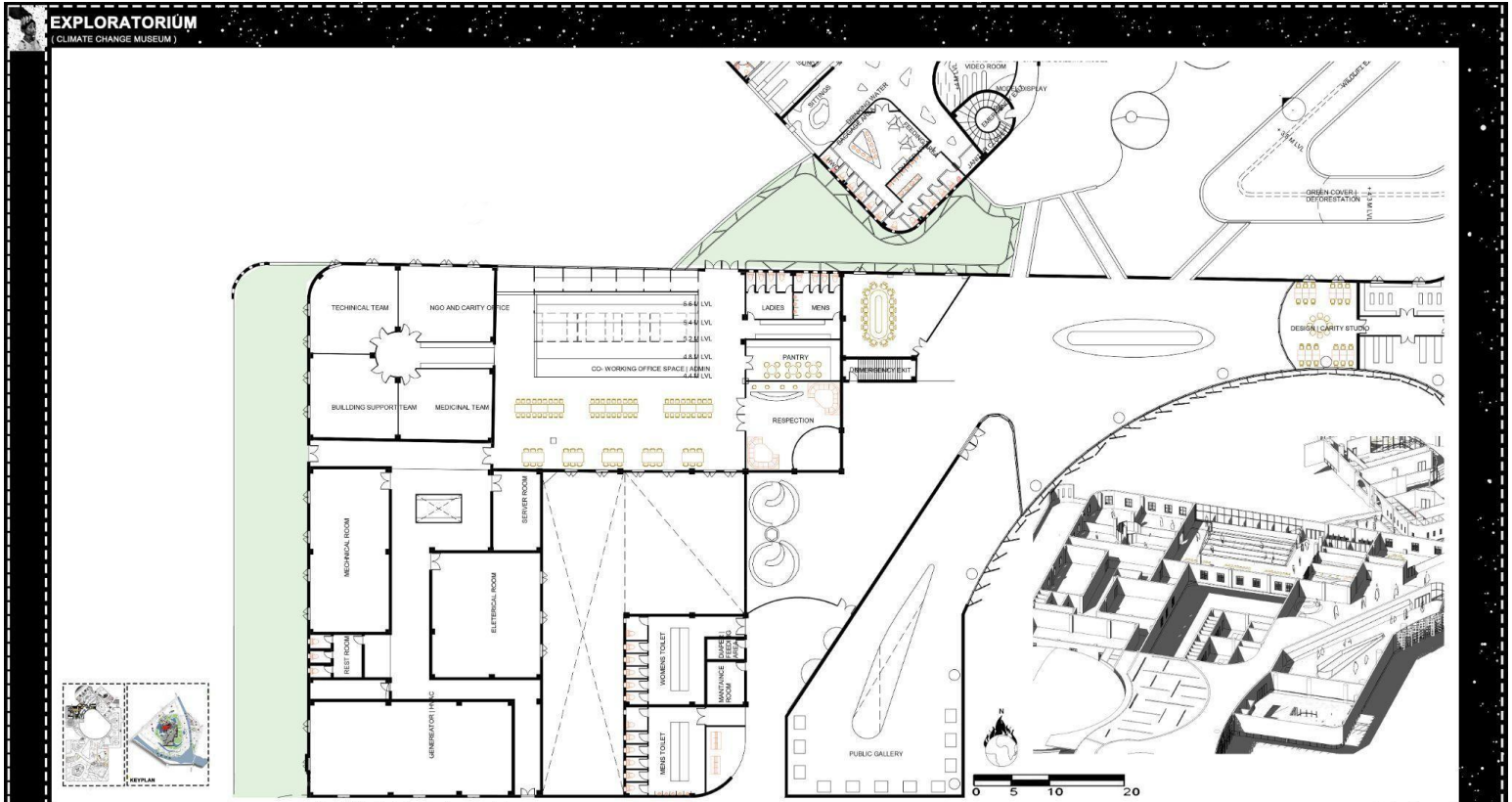
- RECYCLABLE TINTED GLASS, PAPER, CLOTH

ACTIVITY INDUCED - RELAX AND ENJOY

LOST PATH | WORLD

GREEN WALLS
OPEN TO SKY

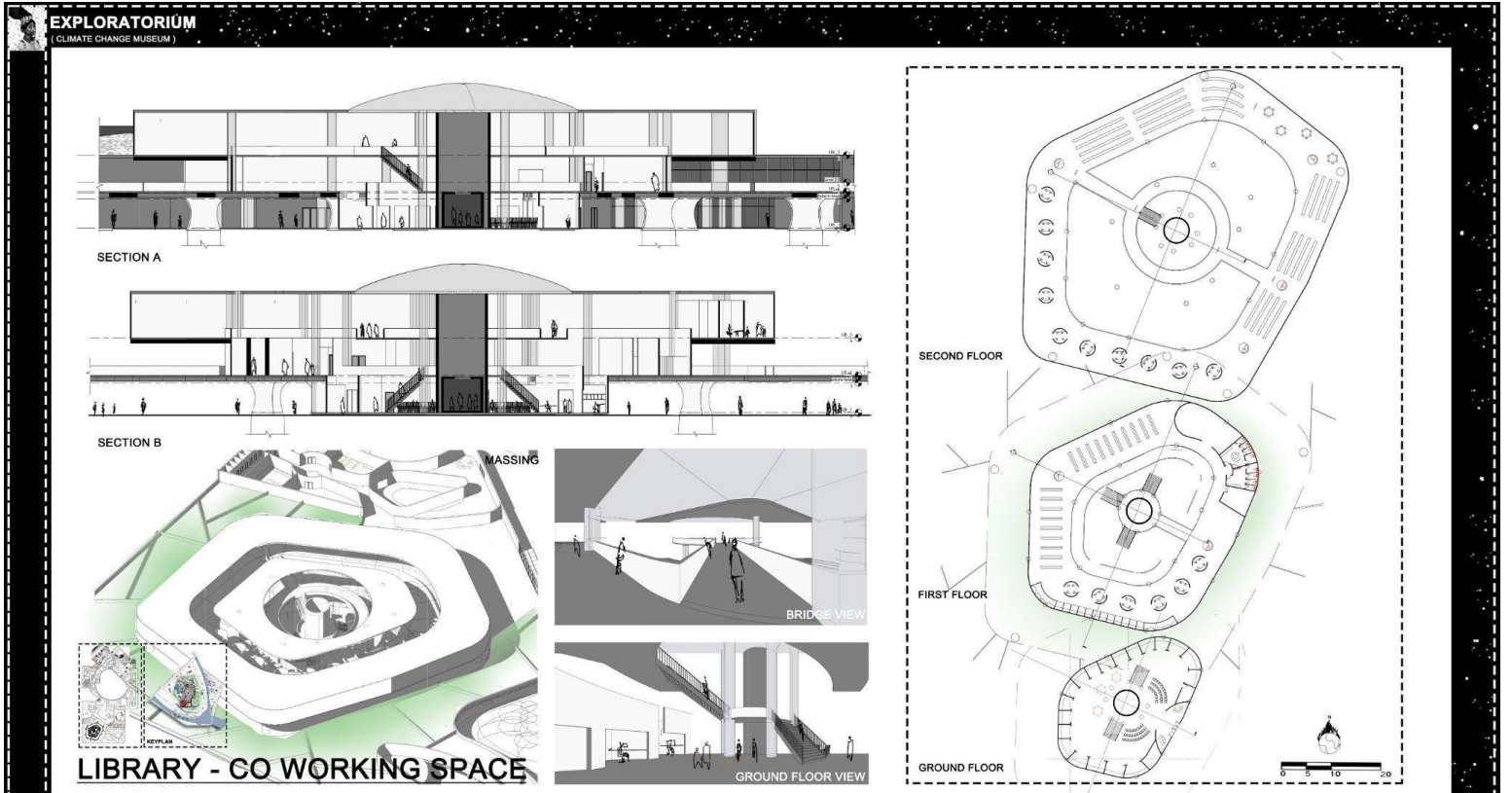




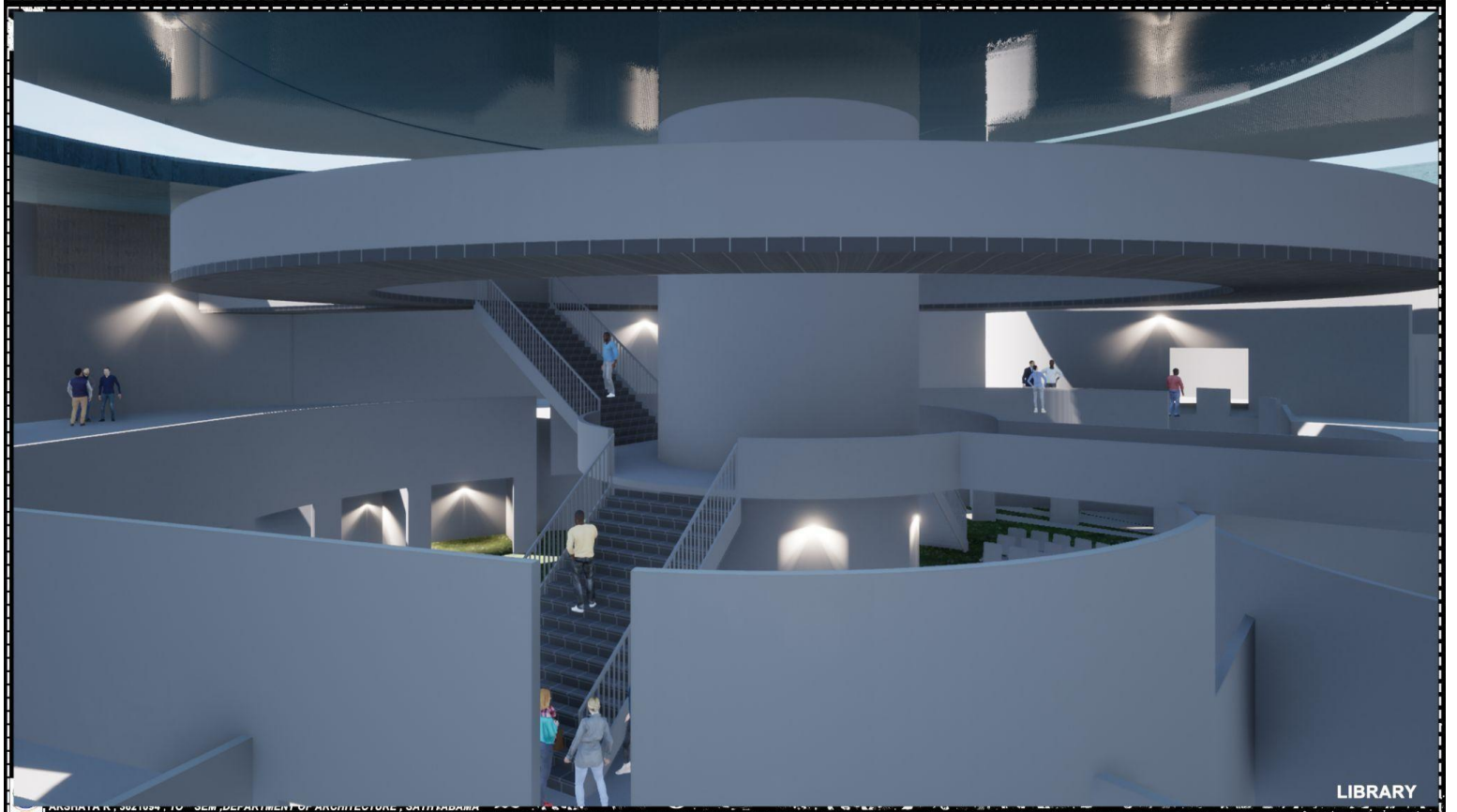
ADMIN | PUBLIC DISPLAY
AKSHAYA R., 3RD SEM., DEPARTMENT OF ARCHITECTURE, SATHYABAMA

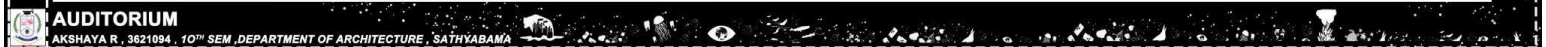
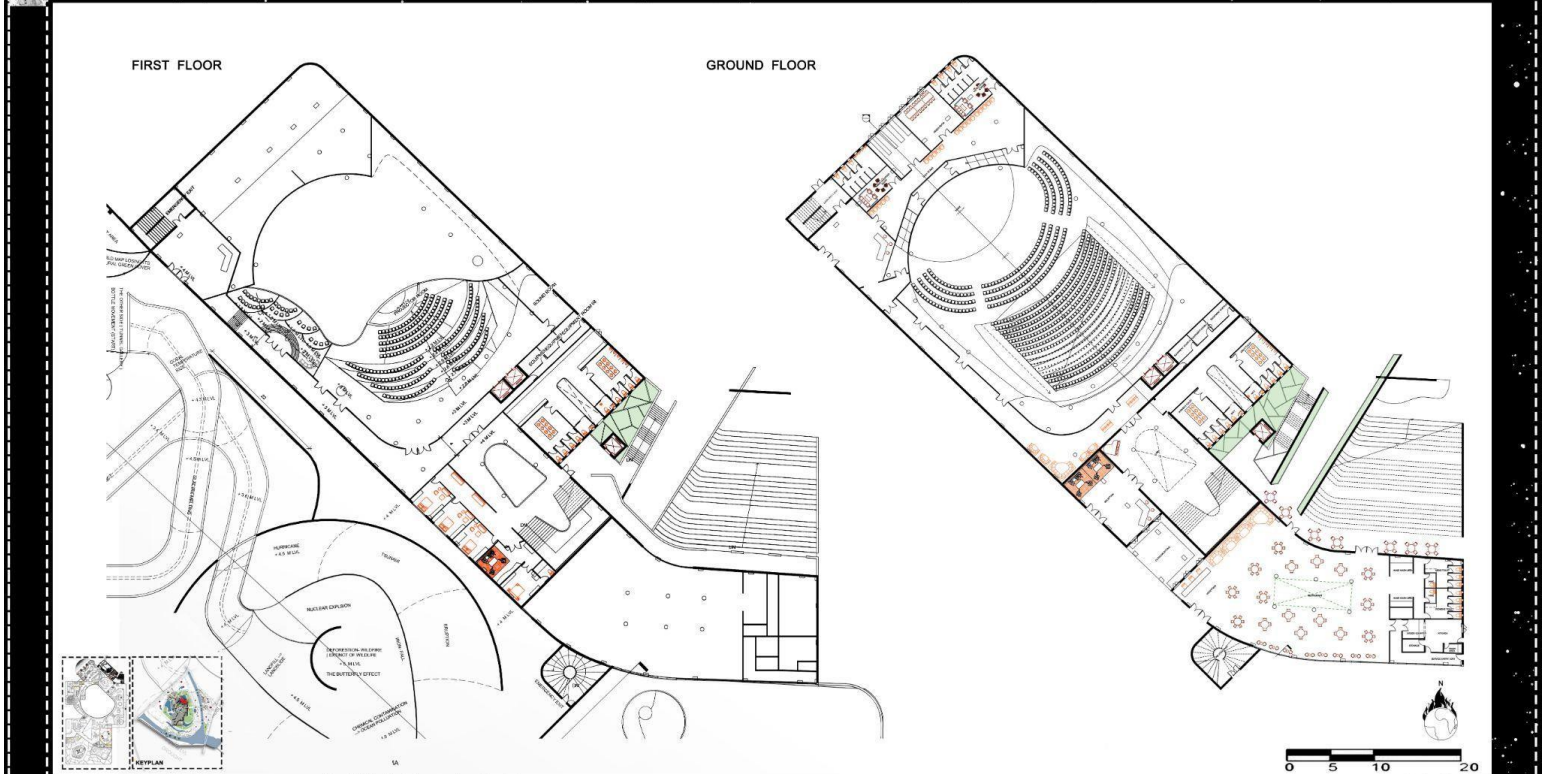
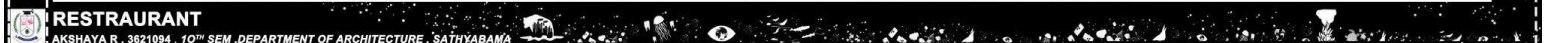
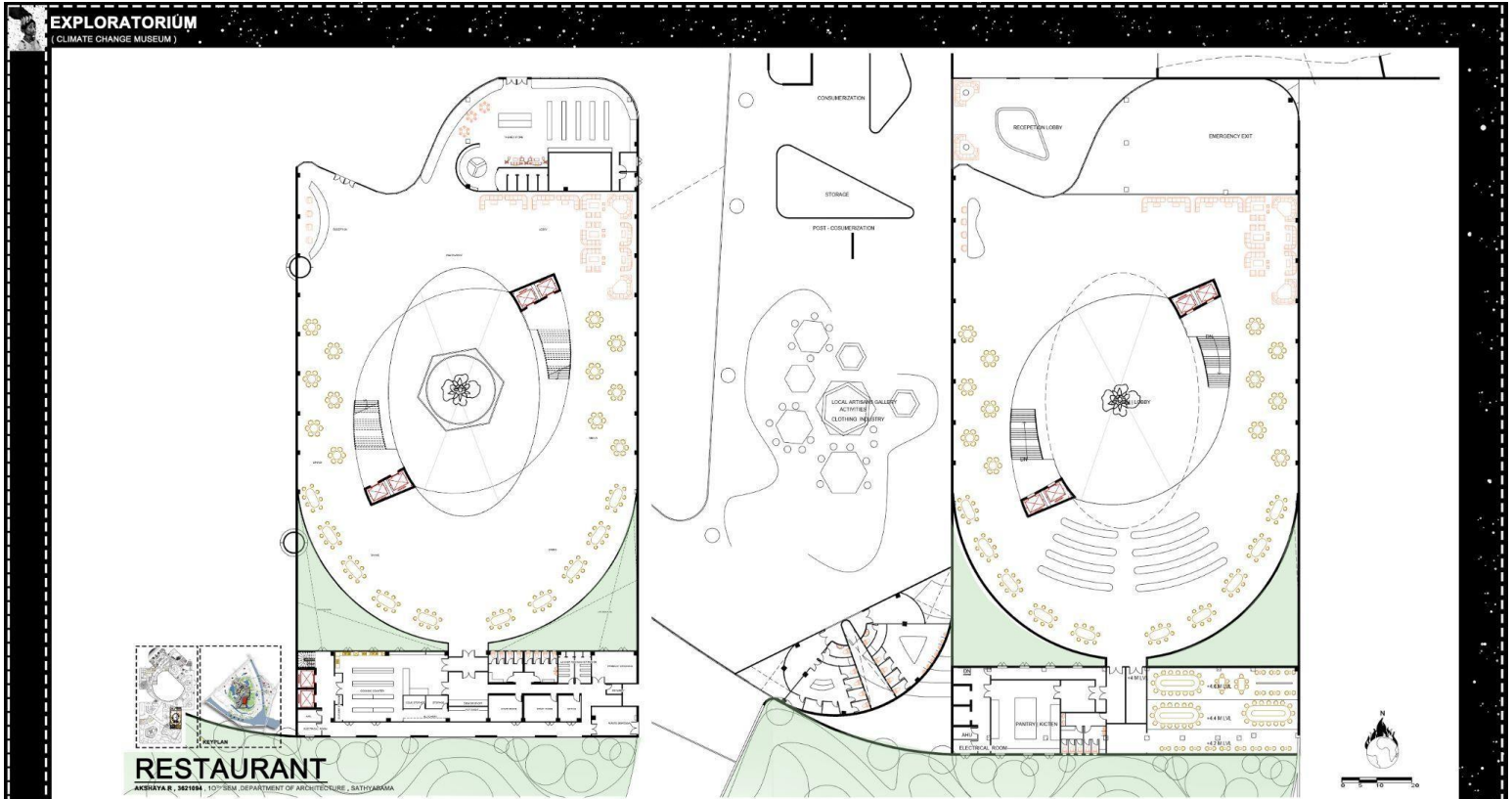


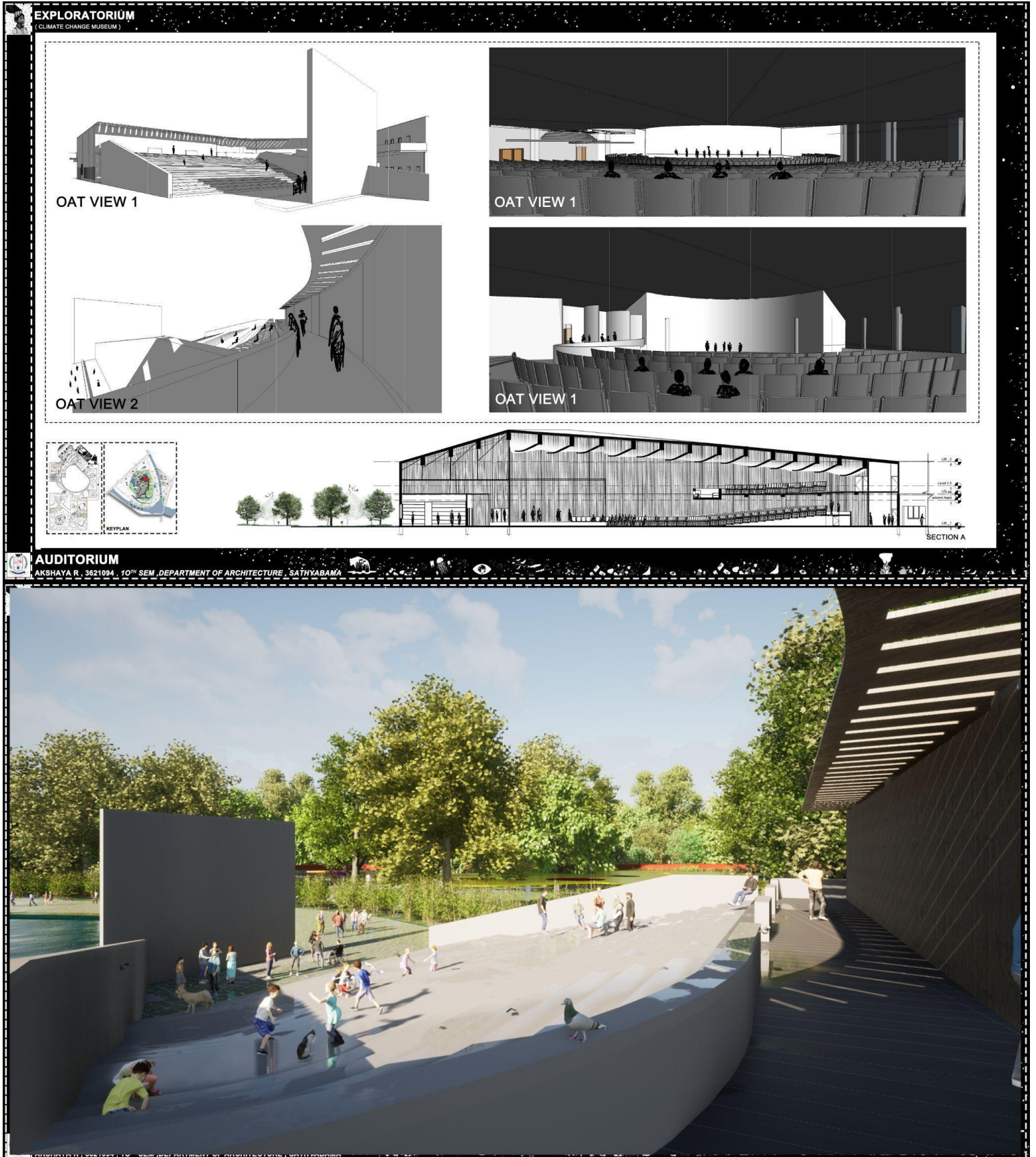
ADMIN CORRIDOR



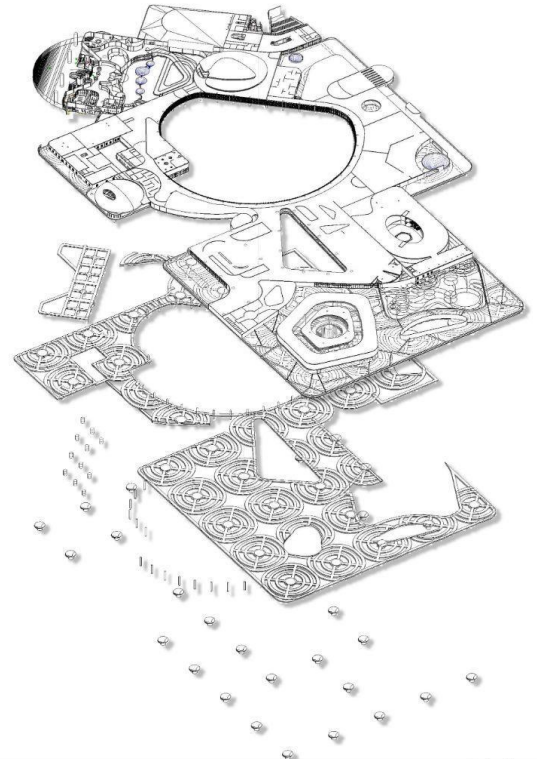
LIBRARY | CO-WORKING SPACES
AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA







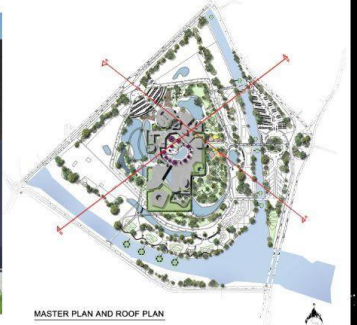
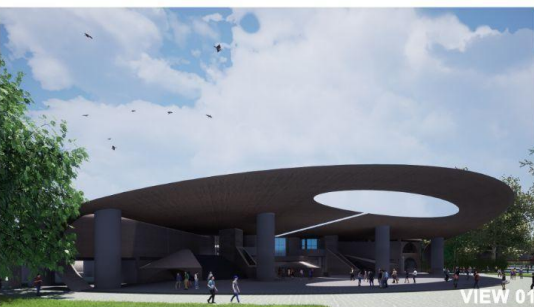
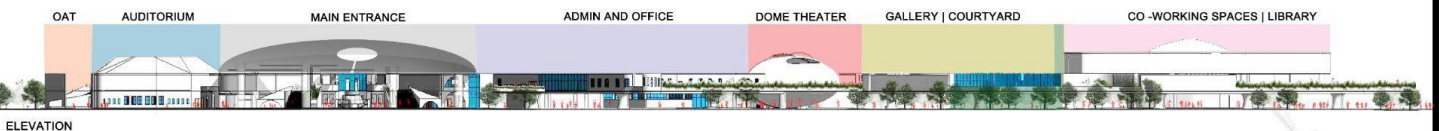
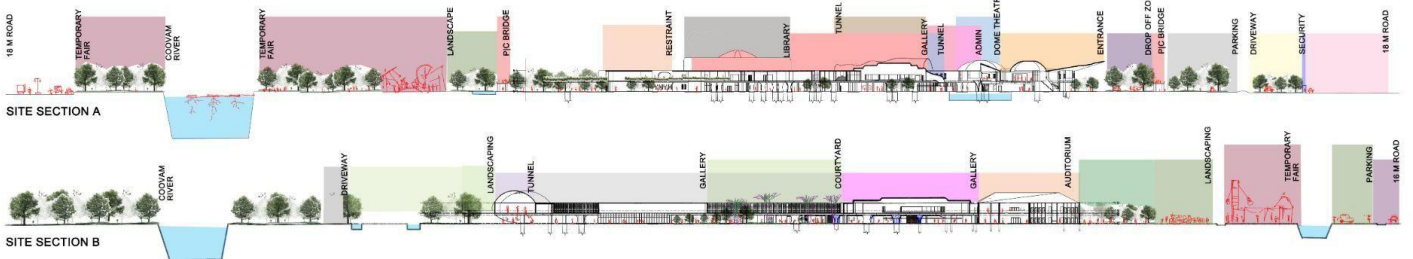
EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



MASSING | FACADE | STRUCTURES

AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA

EXPLORATORIUM
(CLIMATE CHANGE MUSEUM)



SITE SECTION | ELEVATION

AKSHAYA R., 3621094, 10TH SEM, DEPARTMENT OF ARCHITECTURE, SATHYABAMA



