

ARCHITECTURAL DESIGN - V PORTFOLIO

Submitted by :
Samruddhi Modak
BA19ARC002

CONVENTION CENTRE

A convention center is a large building that is designed to hold a convention, where individuals and groups gather to promote and share common interests.

Convention centers typically offer sufficient floor area to accommodate several thousand attendees.

CASE STUDIES

1.

MLR Convention Centre

- ❖ Architects: Architecture Paradigm Pvt.Lmt.
- ❖ Completion Year: 2005
- ❖ B/U Area: 6503.2 sqm
- ❖ Plot Area: 1.6 Acres (6474.97 sqm)



Major Inferences

- The location should be a culturally active area of the city.
- An International convention center should be well connected to the airport and within walking distance of public transport.
- Poor connectivity leads to increased parking demand and possible congestion during events.
- Outdoor spaces can be planned on North Eastern side to have maximum outdoor thermal comfort.
- Service entry should be separated from common circulation
- User capacity of different spaces
- Connectivity
- Large span structure can be facilitated by an array of portal frames.
- It also allows column free spaces.
- Acoustically , concentric arch seating is preferable to focus the audience view towards stage. The first row > 3.6m from the stage. The alternate seating plan can enhance the visibility.
- Stage should at least be 35% of the seating area.
- Fan shape less than 100 degree is preferable due to sightlines & acoustic advantage.
- Basement parking needs sprinklers and smoke detectors.
- Commercial spaces should be designed as a part of the convention centre for passive income.

2.

De Klinker Cultural Centre

- ❖ Architects: : Atelier PRO
- ❖ Completion Year: 2014
- ❖ B/U Area: 7,800 sqm

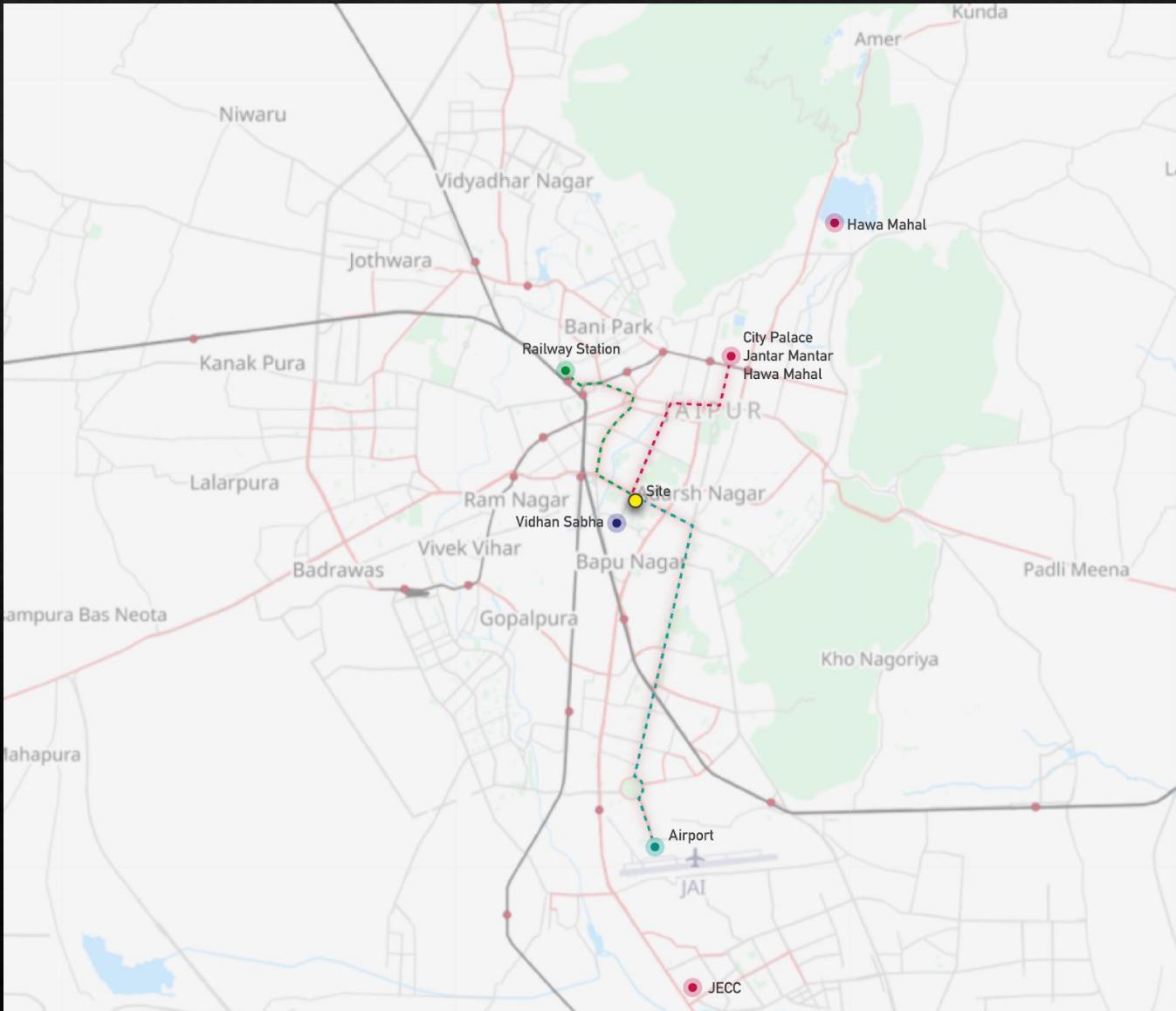


Major Inferences

- ❖ The design of an entrance should have a significant influence on both the appearance and functionality of the building.
- ❖ The built form of the structure should resonate with and respond to the specific regional architecture of its surroundings.
- ❖ Use of local materials with factory made techniques for innovative and surrounding-centric designs
- ❖ Accommodation of services and possible maintenance and repair
- ❖ Use of Foyer as an interactive and circulation space is a good way to catch public eye.
- ❖ Making the entrances to services areas partially hidden/smaller helps in privatization.
- ❖ provide a socializing space before, during breaks and after the conventions
- ❖ Provision of fly tower placed above the stage area (overhead suspension). This suspension to be used for both scenic and lighting instruments
- ❖ Orchestra pit can be provided (2.5 to 3 m) deep in front of the stage for seating musicians.
- ❖ Passenger lifts should be within a reasonable walking distance from the entrances and furthest point of floor areas.
- ❖ The travel distance from dead end of a corridor to an exit point shall not exceed 30 m in

SITE ANALYSIS

Site Location



Site Area:

20,285.2 sq m (5.01 Acres)

Site Location:

High Court Circle, Jaipur, Rajasthan

Land Type:

Government owned land (Recreational)

Jaipur International Airport

8km From The Site

Railway Station:

5km From The Site

Bus Stop :

300m From The Site

City Palace: 4.2km

Hawa Mahal: 8.5km

Vidhan Sabha: 600m

JECC: 14.8km



The site surroundings have a lot of **cultural activities** like, Hotels (Rambagh Palace), Stadium (SMS cricket stadium), Court (High court), Amar Jawan Jyoti, Vidhan Sabha,etc.

The site is located on the prime location of the city which is developing at a good rate.

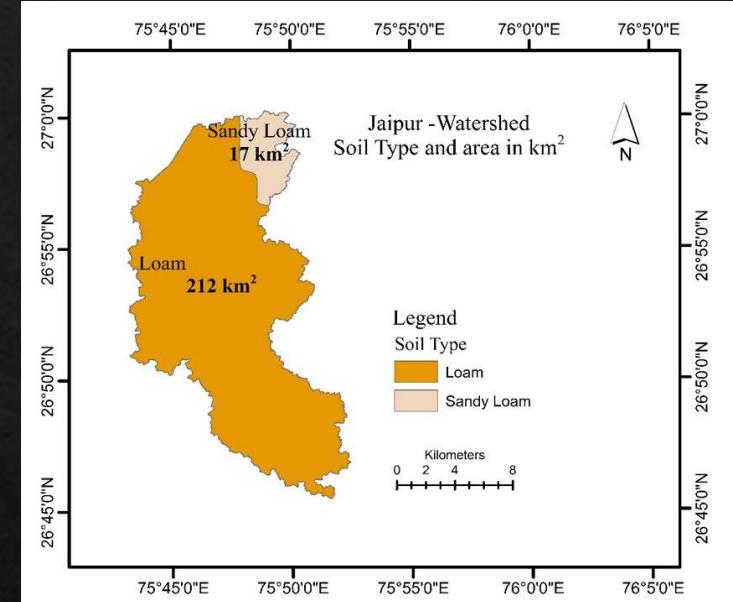
The site is polygonal in shape, roughly oriented NE-SW.

Largest side is 203.4M and smallest side is 11M.

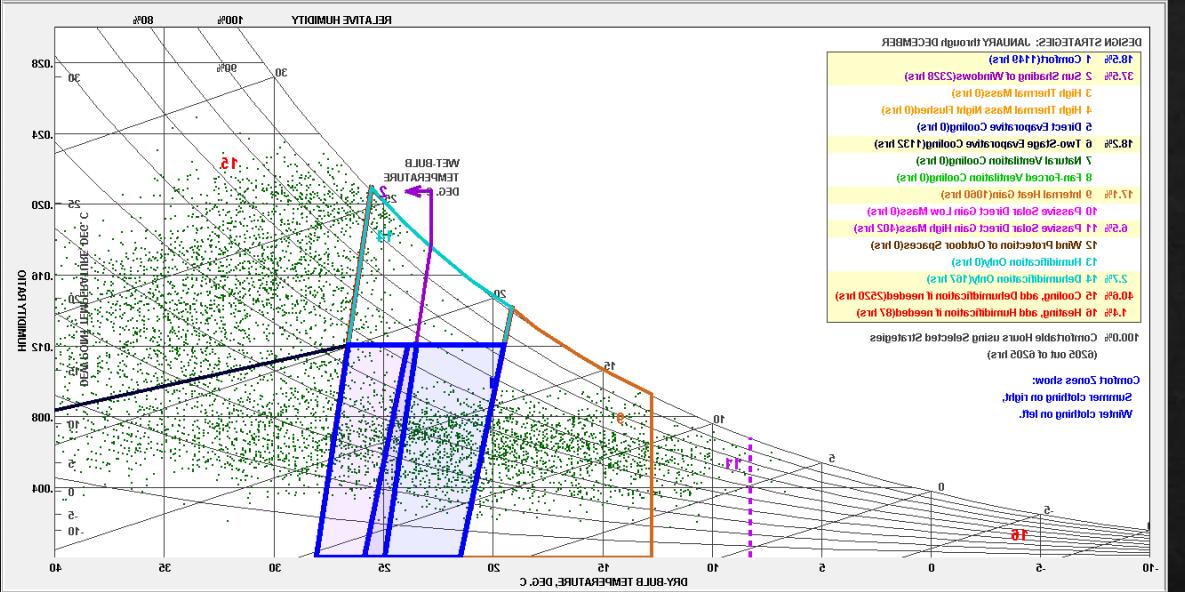
The two longest sides are almost parallel to each other.

Perimeter: 607.5m

Area: 20,285.2 sqm

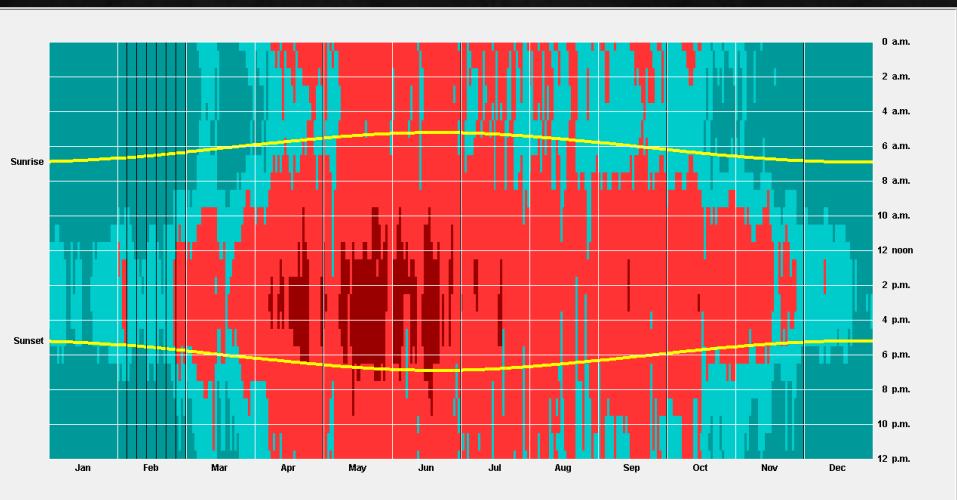
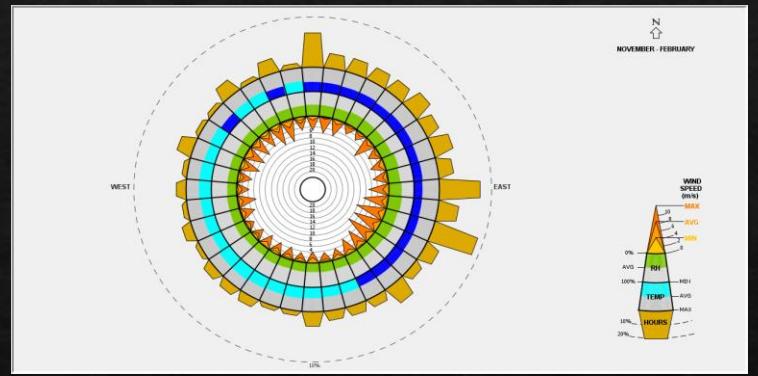
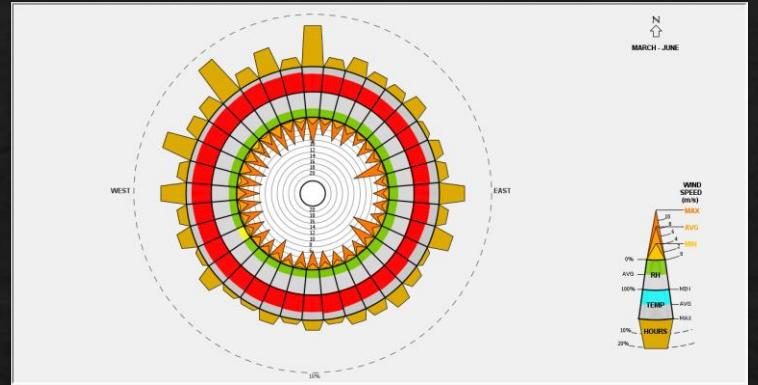


CONTOUR

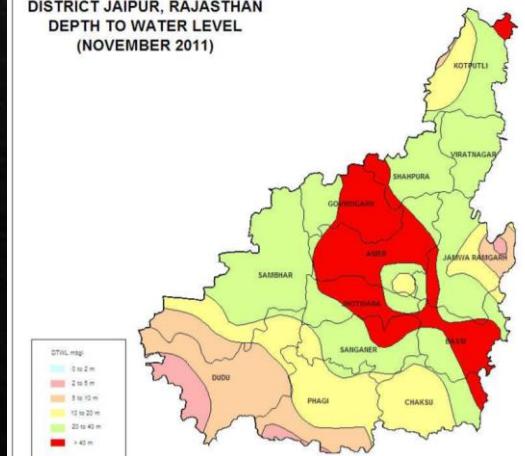


PSYCHOMETRY

SUMMER AND WINTER WINDS



DISTRICT JAIPUR, RAJASTHAN
DEPTH TO WATER LEVEL
(NOVEMBER 2011)



SUN PATH

GROUND WATER

BYE LAWS

Analysis	Inference / Design Decision
<ul style="list-style-type: none"> The site area is 20,285.2 sqm (>2500 sqm) The site has 18 M wide roads on the NE and NW sides Built area ratio (BAR) or FAR is 2 	<ul style="list-style-type: none"> 9 M setback on all sides Max ground coverage allowed is 50% Permissible built up area is 40,570.4 sqm The maximum building height permissible is 36 M ($1.5 \times 18\text{ M} + 9\text{ M}$ setback) Width of stairs and corridors will be min 2 M
PARKING	<ul style="list-style-type: none"> Parking area requirements - 1 ECU/ 50 sqm of built up area + 10% additional for visitors parking 1 ECU = 25 sqm in open area. 1 ECU = 30 sqm in ground level parking 1 ECU = 35 sqm in Basement parking 75 % of total ECU is reserved for car, 20% two wheelers and 5% for Bicycle. $\text{For } 6000 \text{ sqm B/U, } 120+12 = 132 \text{ ECUs (99 Cars, 27 two wheelers, 7 Bicycles)}$ Ramp proposed for parking should have a slope of 1: 8 ; ramp width would be min 3.6 M one way and 6 M for two way ramp

Analysis	Inference / Design Decision
<ul style="list-style-type: none"> •FACILITIES FOR DISABLED 	<ul style="list-style-type: none"> •Ramp should provided min. 1.8 m wide and max. slope should be 5% Min. 2 ECU is reserved in Basement, Max. distance for main door should be 30 m •Lift Dimensions : Internal depth = 1.1 m. Internal width = 2 m. Entry width = .9 m. •Toilet : Min dimension = 1.5m x 1.75m. Min. .9 m clear opening of door and should open outwards. Mounting ht. of WC should be 500mm.
<ul style="list-style-type: none"> •FIRE FIGHTING INSTALLATIONS 	<ul style="list-style-type: none"> •Provision of Fire First Exting, First Aid Hose Reel, Automatic Manually Sprinkler System, Manually operated Electronic Fire Alarm Systems, •Terrace tank with 25000 liters capacity, pump with 900 l/min capacity

Area programme.

Spaces	Units	No. of Users / Capacity	Area (sqm)
Administration			
Cabins	4	1 x 4	4 x 32
Director's Chamber	1	1 x 1	1 x 32
Auditorium			
Pre-function area	1	300 (Floating Crowd)	200
Lobby	1	-	-
Infodesk	2	-	-
Cloak Room / Security	1	-	15
Auditorium Seating		500	600
Stage	1	-	150
Control room (E, L/S, M)			
Equipment storage	1	-	25
Green Room Common	1	-	20
Green Room M,F	1 + 1	-	60
Projector room	1	2	20
Media Box	1	-	15
Toilets for Auditorium			
	1 Male (3S,5U,5B), 1 Female(6S,5B), 1 Other (1S+B)	-	62
Assumed Capacity: 1800 (Public) + 50 (Staff)			

Spaces	Units	No. of Users / Capacity	Area (sqm)
Event Areas			
Conference Rooms	4	100 x 4	4 x 160 = 640
Meeting Rooms	2	30 x 2	2 x 56 = 112
Exhibition Area	1	80	150
Seminar Rooms	4	60 x 4	4 x 120 = 480
Banquet Hall	2	100 x 2	2 x 120 = 240
Accomodation			
VIP Guest House	4	2 x 4	4 x 45 = 180
Executive Guesthouse	6	2 x 6	6 x 35 = 180
Guest Rooms	30	1 x 30	30 x 25 = 750
Dining + Mess	1	50 + 7 (Staff)	75 + 25 = 100
Caretaker's Quarters	3	1 x 3	3 x 25 = 90
Food + Commercial			
Cafeteria	1	150	150
Souvenir Shops	2	-	2 x 30 = 60
Space for Socio Cultural Activities (Extra 10-15% Area)			
Miscellaneous			
General Toilets	M(8 W/C, 52 U, 7 WB) F(22 W/C, 7 WB) Staff M(3 W/C, 3U, 3 WB) Staff F(4 W/C, 3WB)	1300 + 50	
Store Rooms	1 for each space	-	

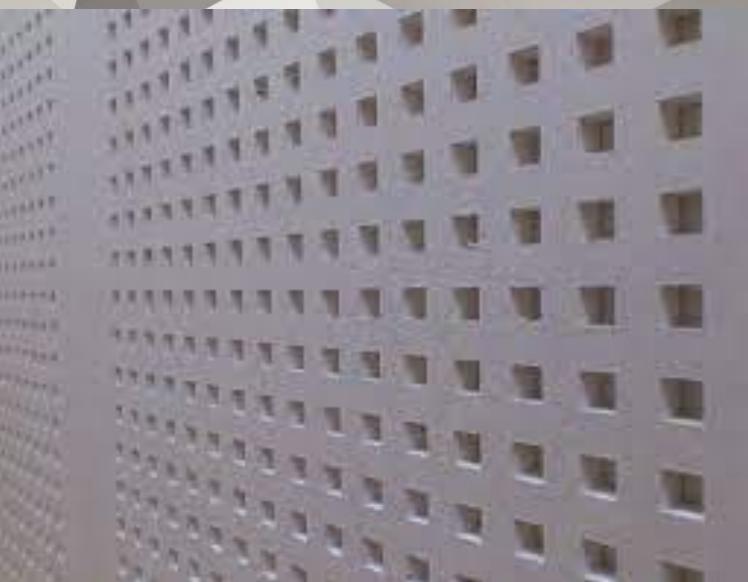
CONCEPT

USE OF LOCAL MATERIALS WITH FACTORY MADE TECHNIQUES FOR
INNOVATIVE AND SURROUNDING CENTRIC DESIGN.



CONCEPT

- 1) Modern Architectural style ,Yet blending with the surrounding through color pallet of materials.
- 2) All Surrounding buildings are in yellow and red combination but majorly with traditional touch in architectural style.
- 3) Hence, Use of yellow Sand stone and Pink Terracotta cladding in the building. Making it uniform with the surrounding while being unique in architectural style.

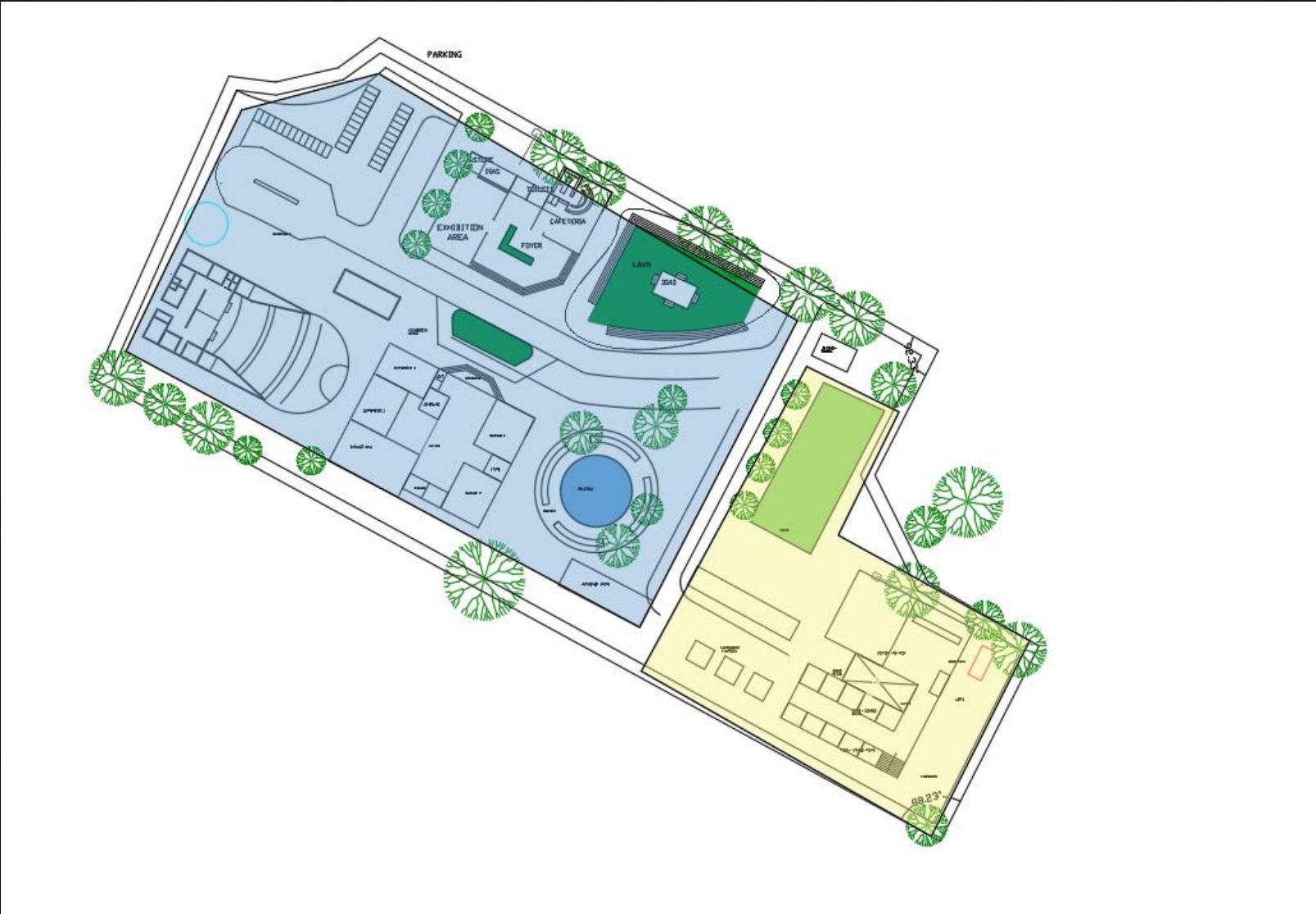


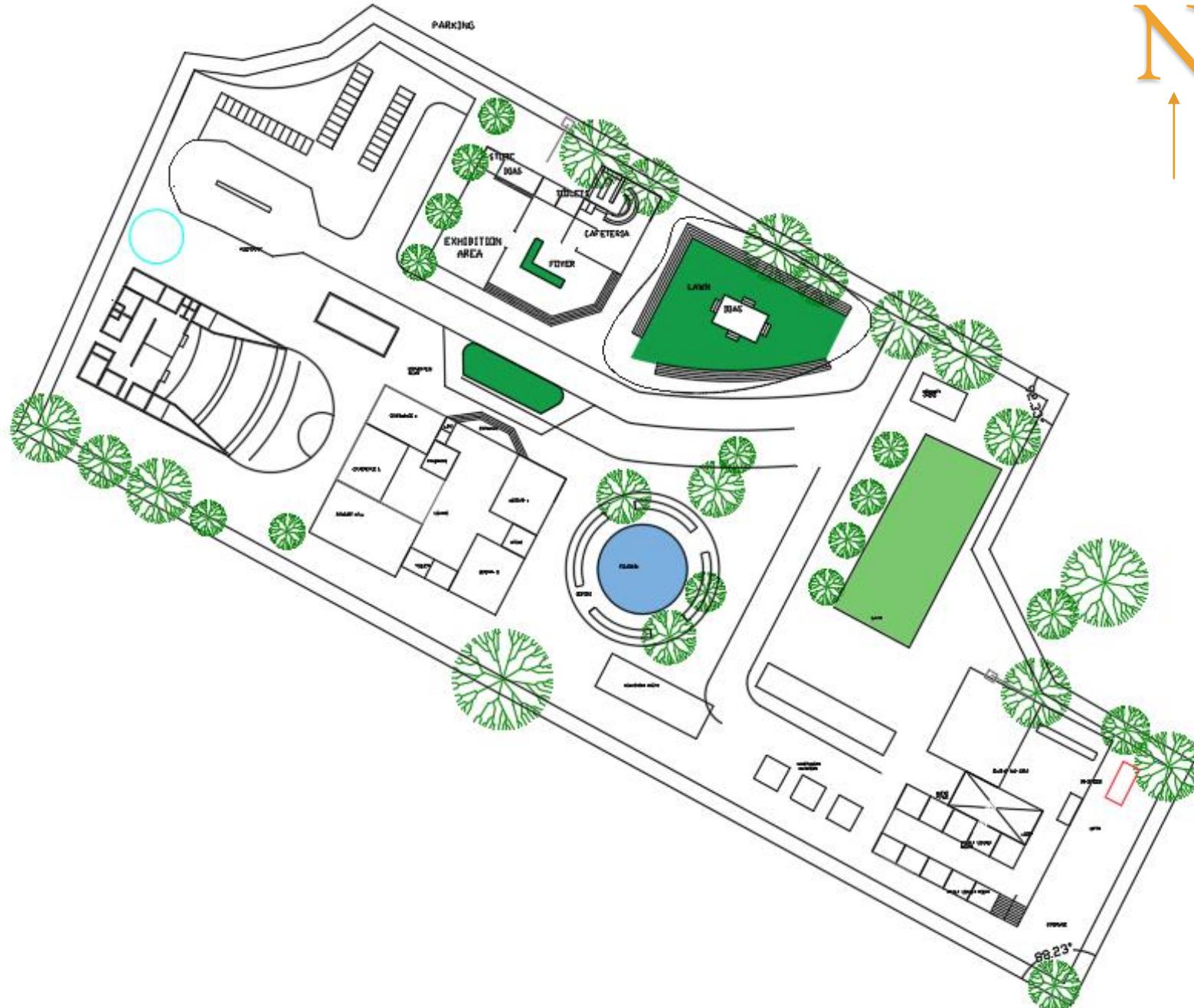
DESIGN ELEMENTS.

- 1) Waterbody for microclimate influence
- 2) Socializing spaces for breakouts
- 3) Lights and acoustics
- 4) permeable materials on ground
- 5) Rainwater harvesting
- 6) Huge Foyers for Grandeur look.
- 7) Positioning of Vertical Circulation according to user flow.

ZONING
AND SITE PLAN

ZONING BASED ON PUBLIC AND PRIVATE SPACES.

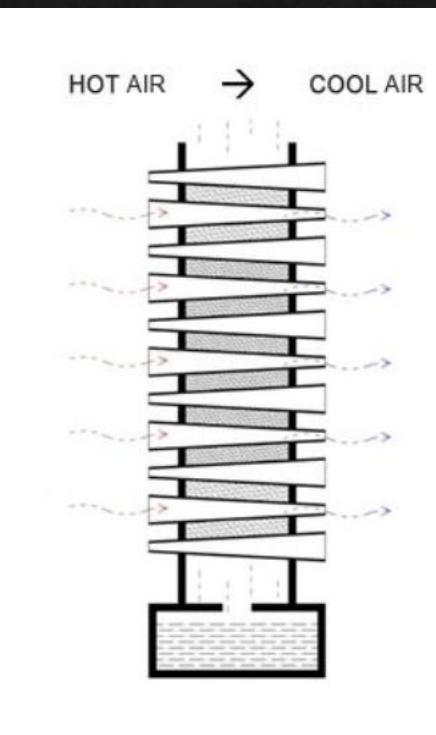




CLIMATE RESPONSE
And
PASSIVE COOLING STRATEGIES

Low tech air conditioning.

- ❖ Hot air is passed through series of teracotta cones stacked as shown in the diagram. Water is run on the top of these cone to achieve evaporative cooling.
- ❖ Sand is filled in between the cones to hold the water for longer time.





When the air passes through the terracotta cones and comes out, it's naturally cooled the same way the water stays cool in the

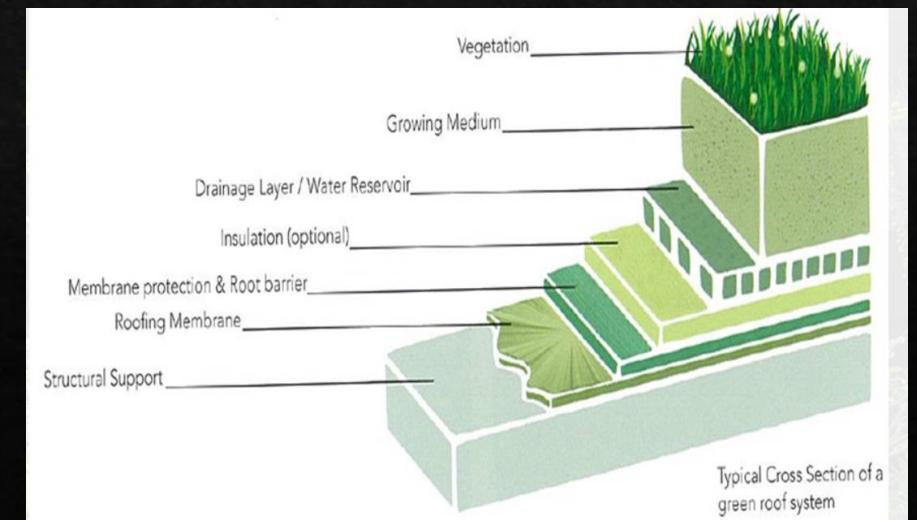
Glass cube walling



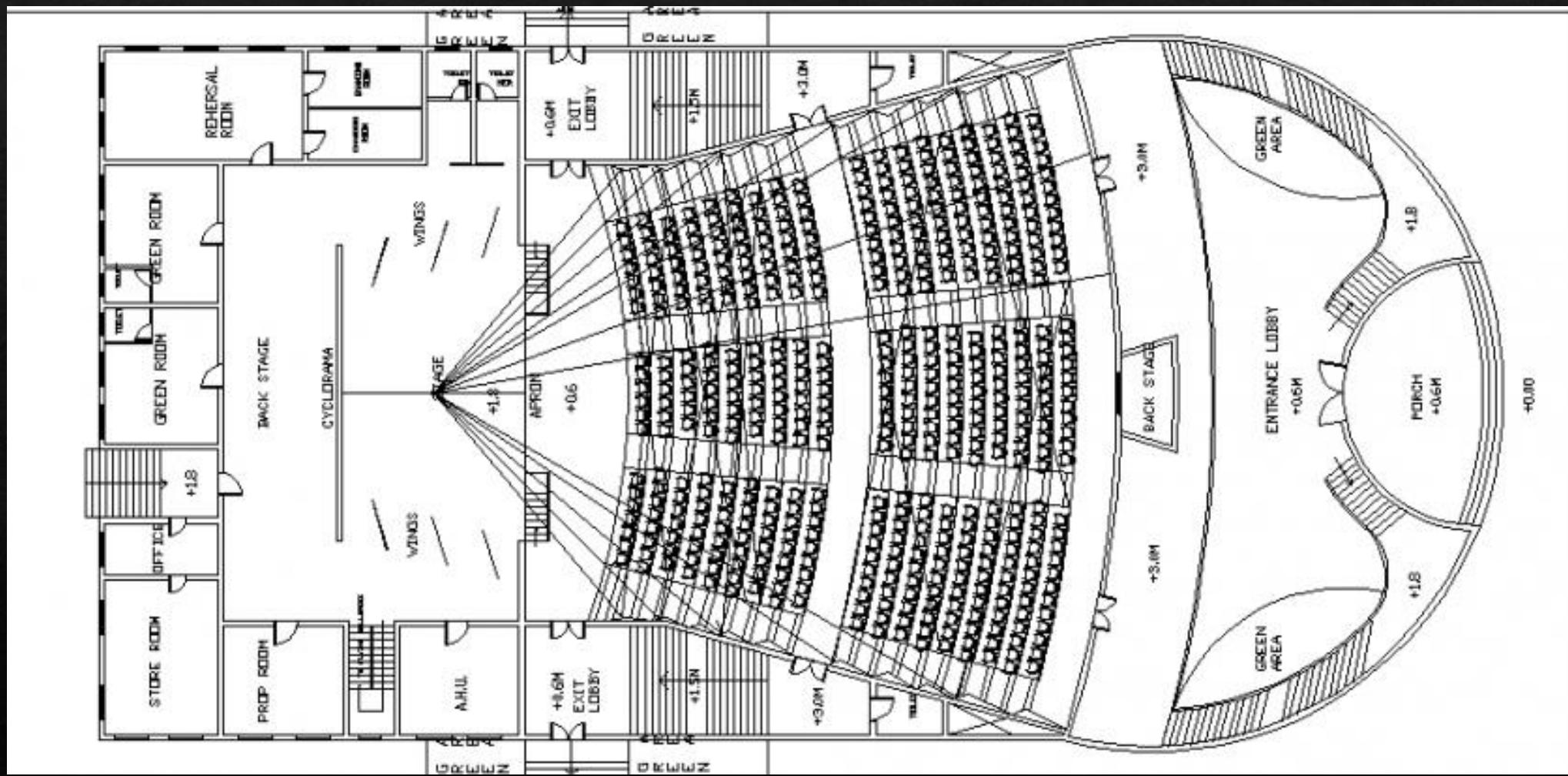
- Glass blocks permit natural light gentle to cross the window.
- It provides privacy.
- They are available in a wide range of options.
- Also, provides safety.
- It provides tolerance.
- **It provides good thermal and sound insulation.**
- They are extremely resistant.

Roof garden

- It reduces the heat of buildings and energy costs.
- It reduces ambient temperature.
- It captures and harvests rainwater.
- It reduces storm water runoff and discharge

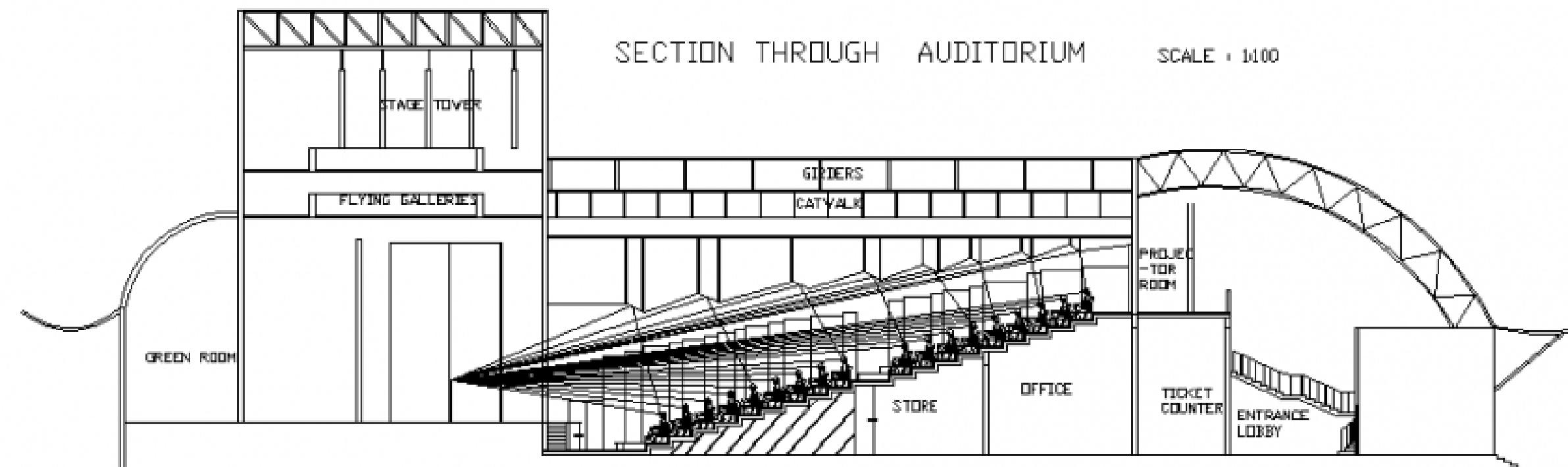


PLANS
SECTIONS
ELEVATIONS

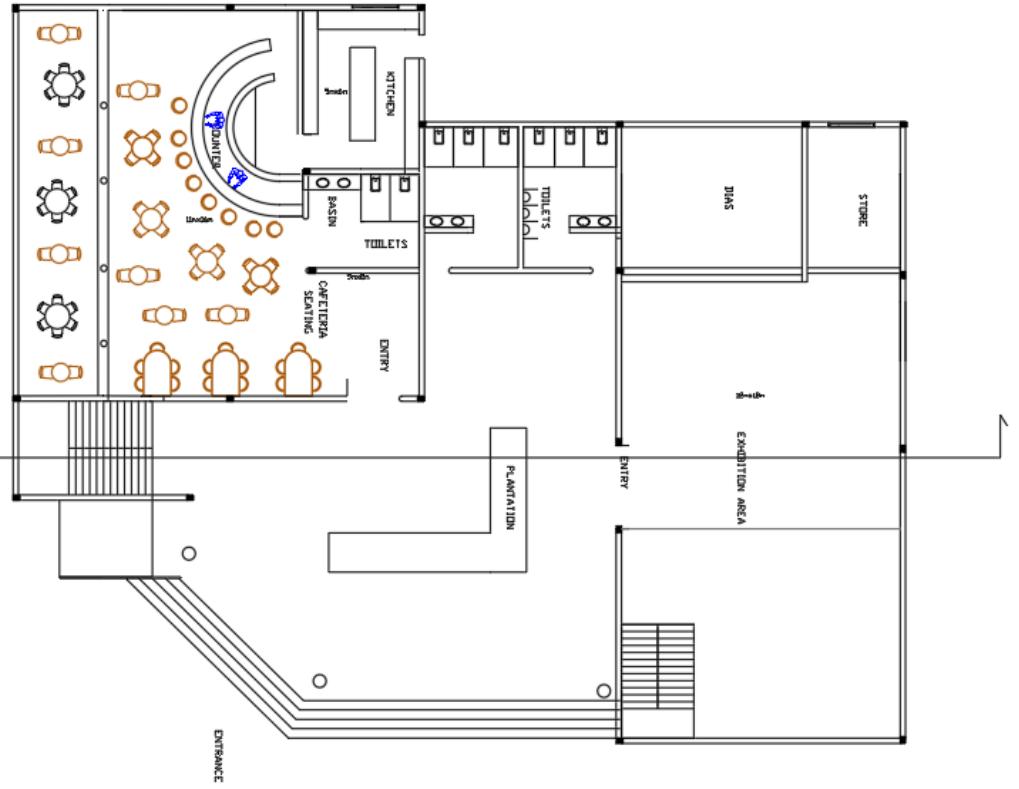


SECTION THROUGH AUDITORIUM

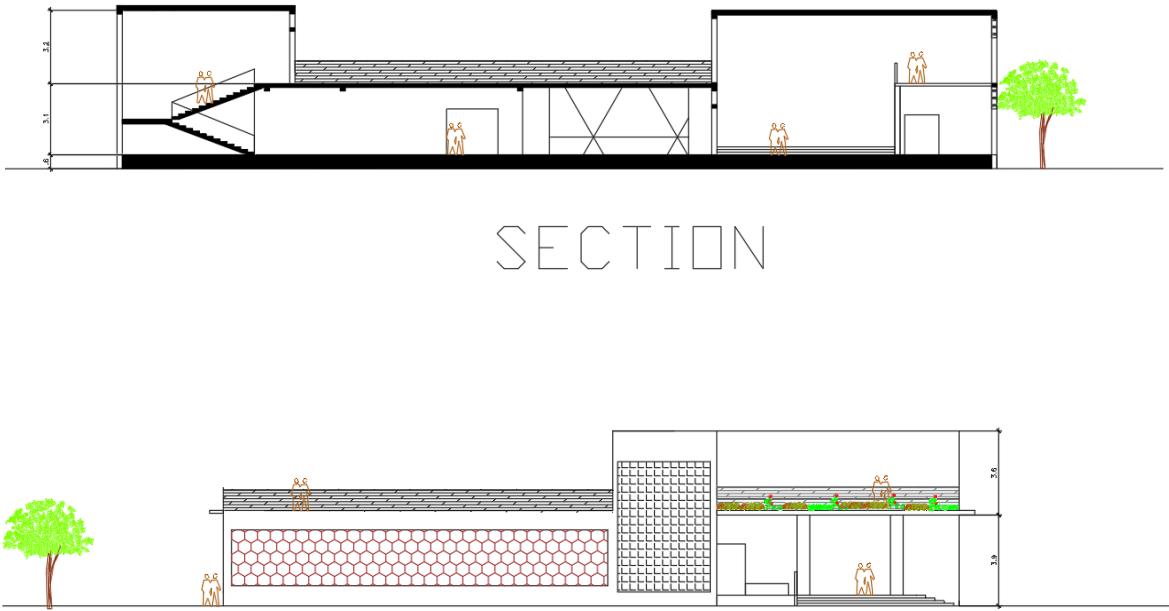
SCALE : 1:100



CAFETERIA AND EXHIBITION

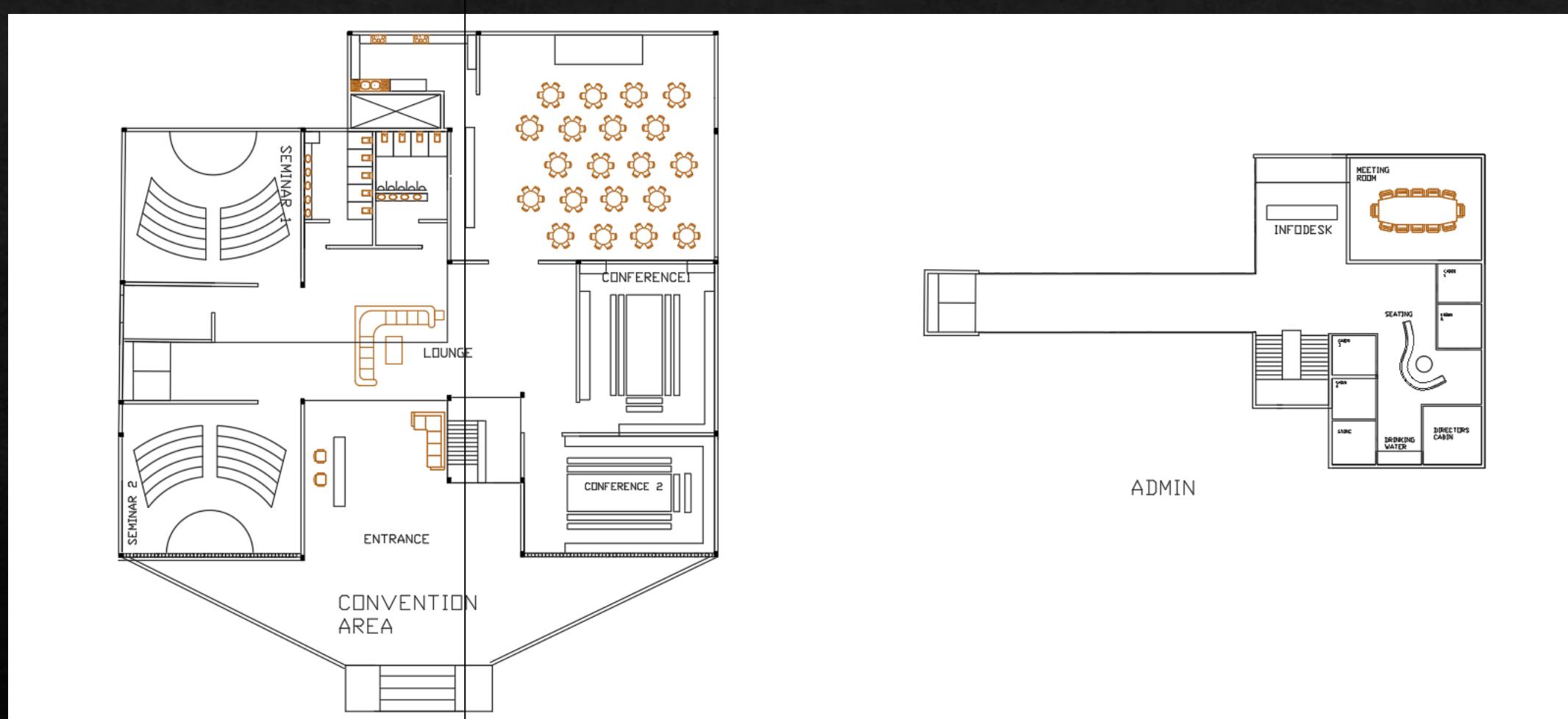


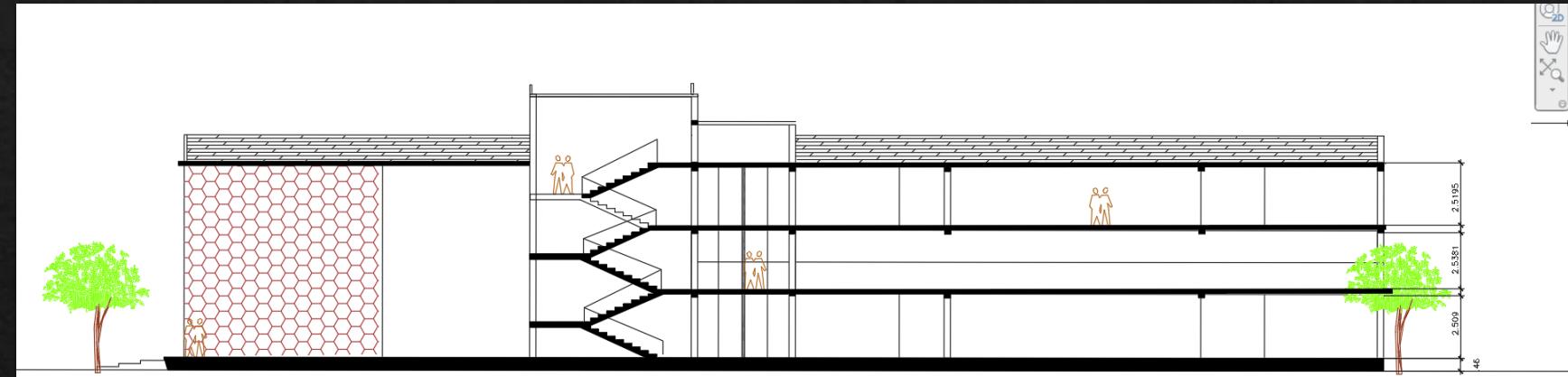
PLAN



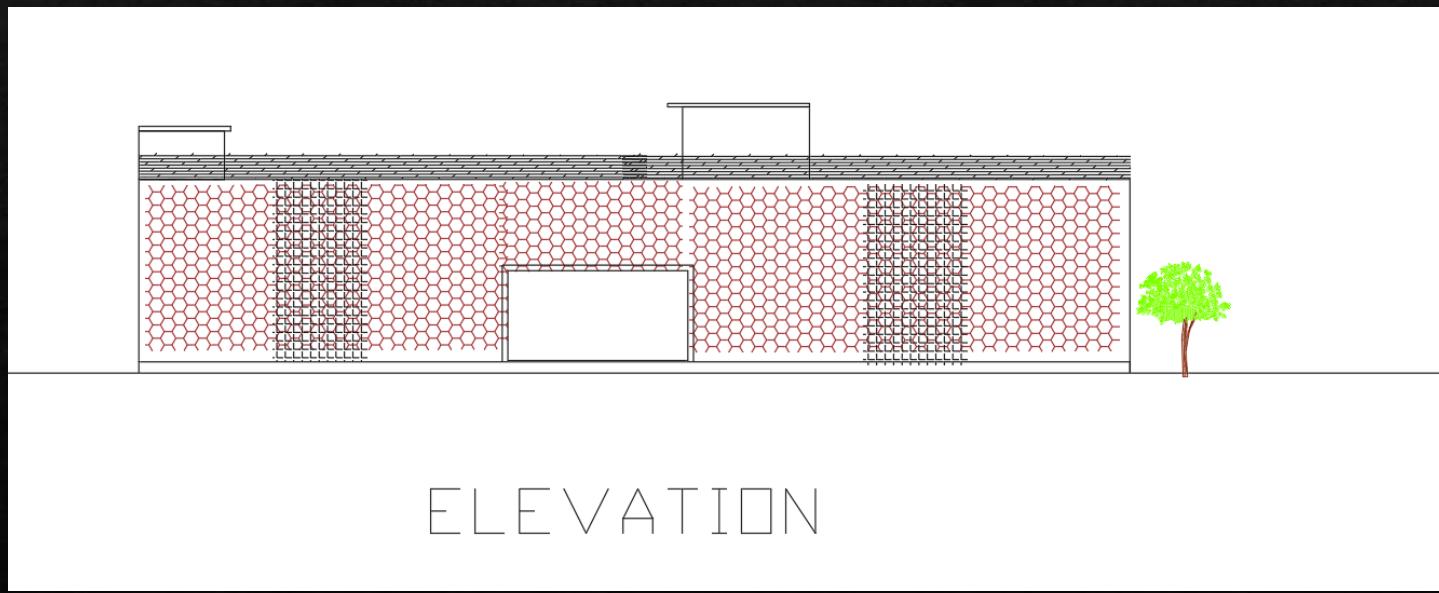
ELEVATION

CONVENTION BLOCK (G+2)

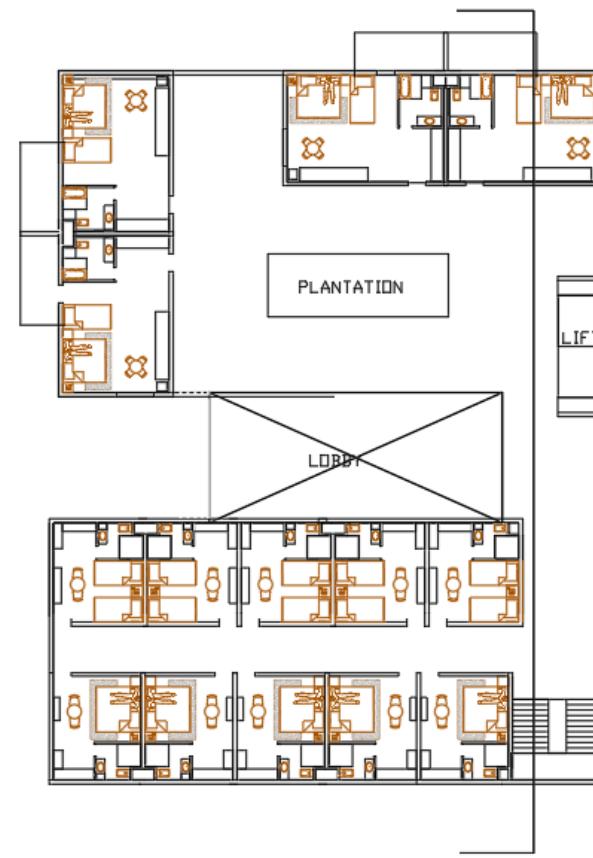
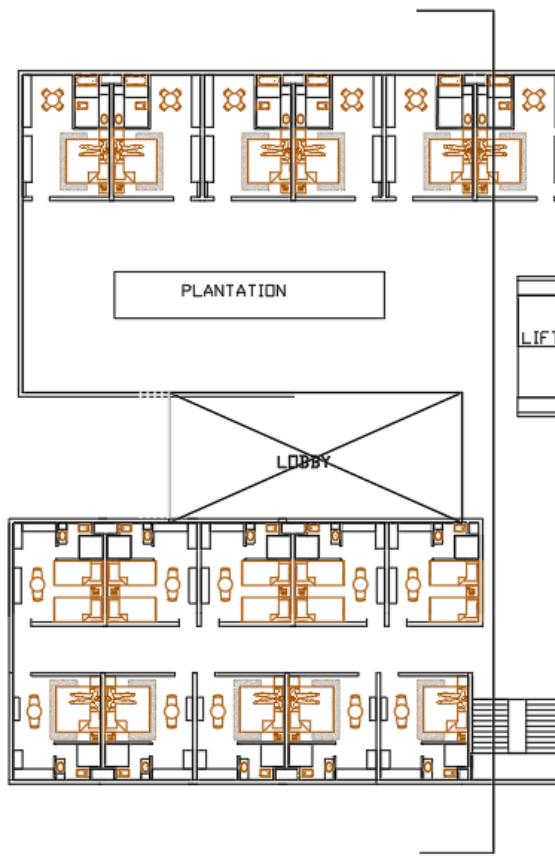
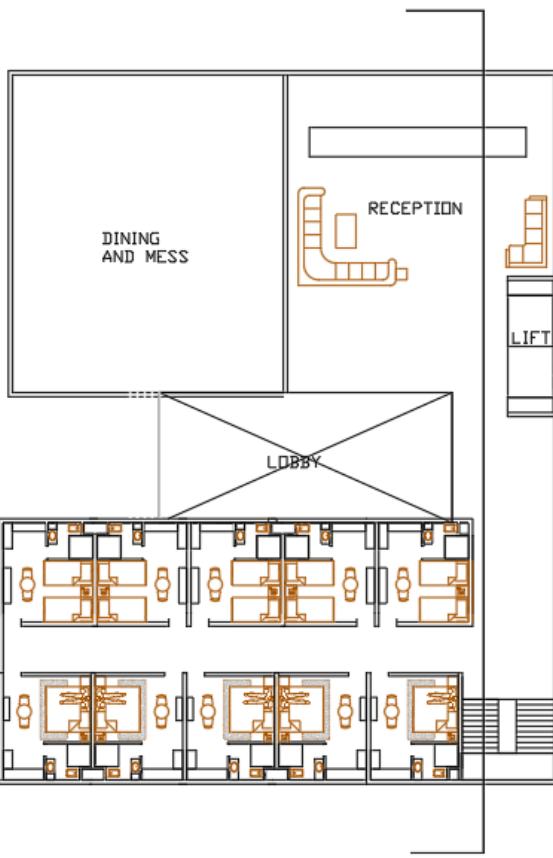




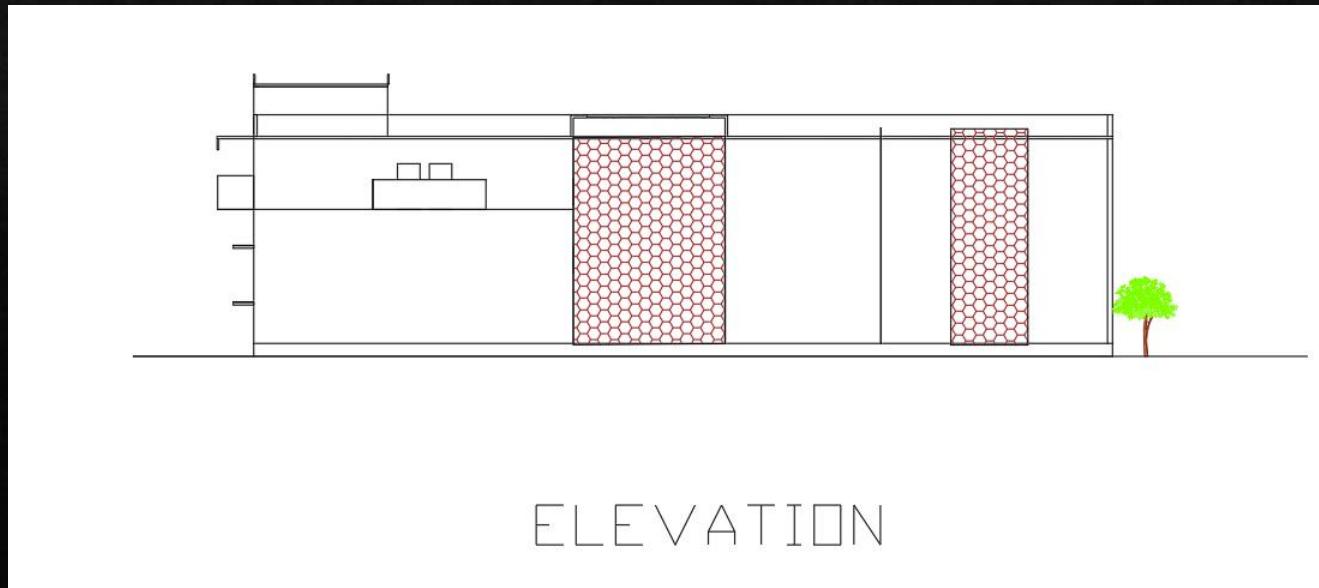
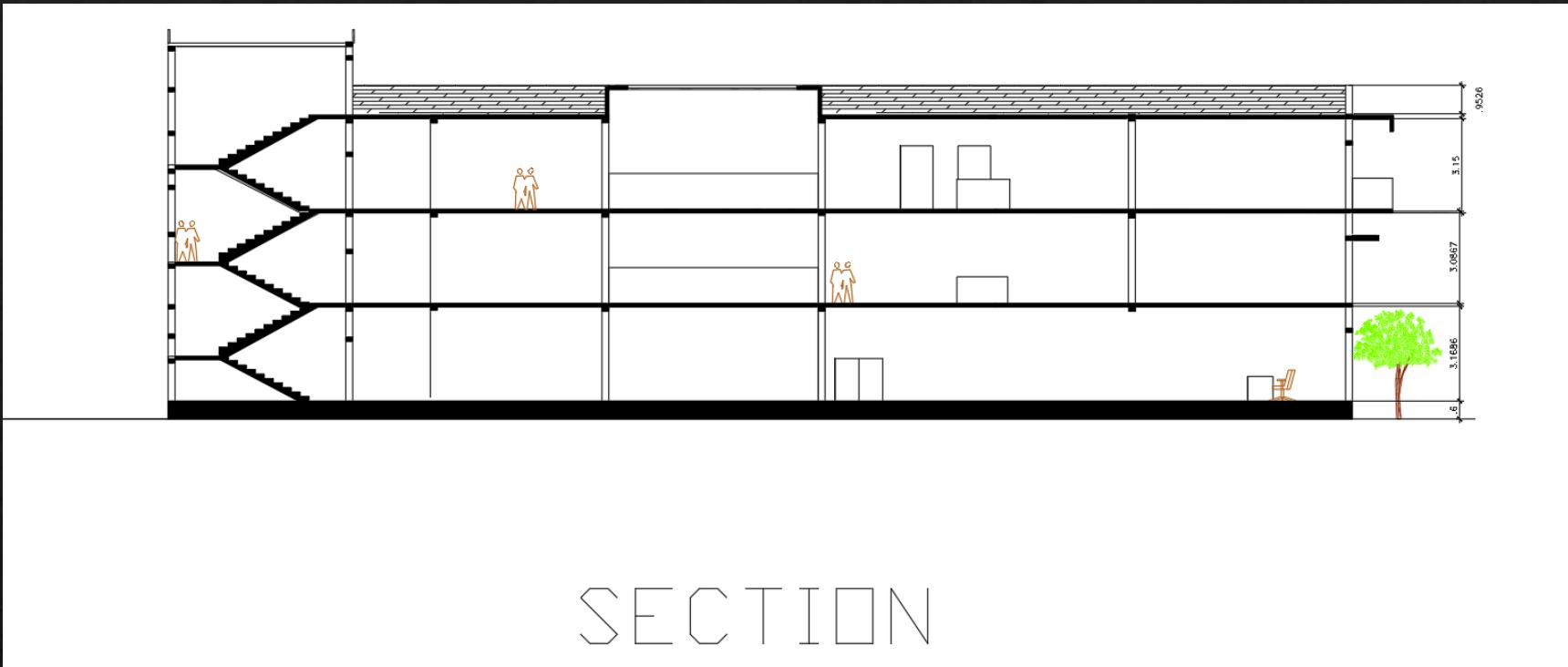
SECTION



ELEVATION

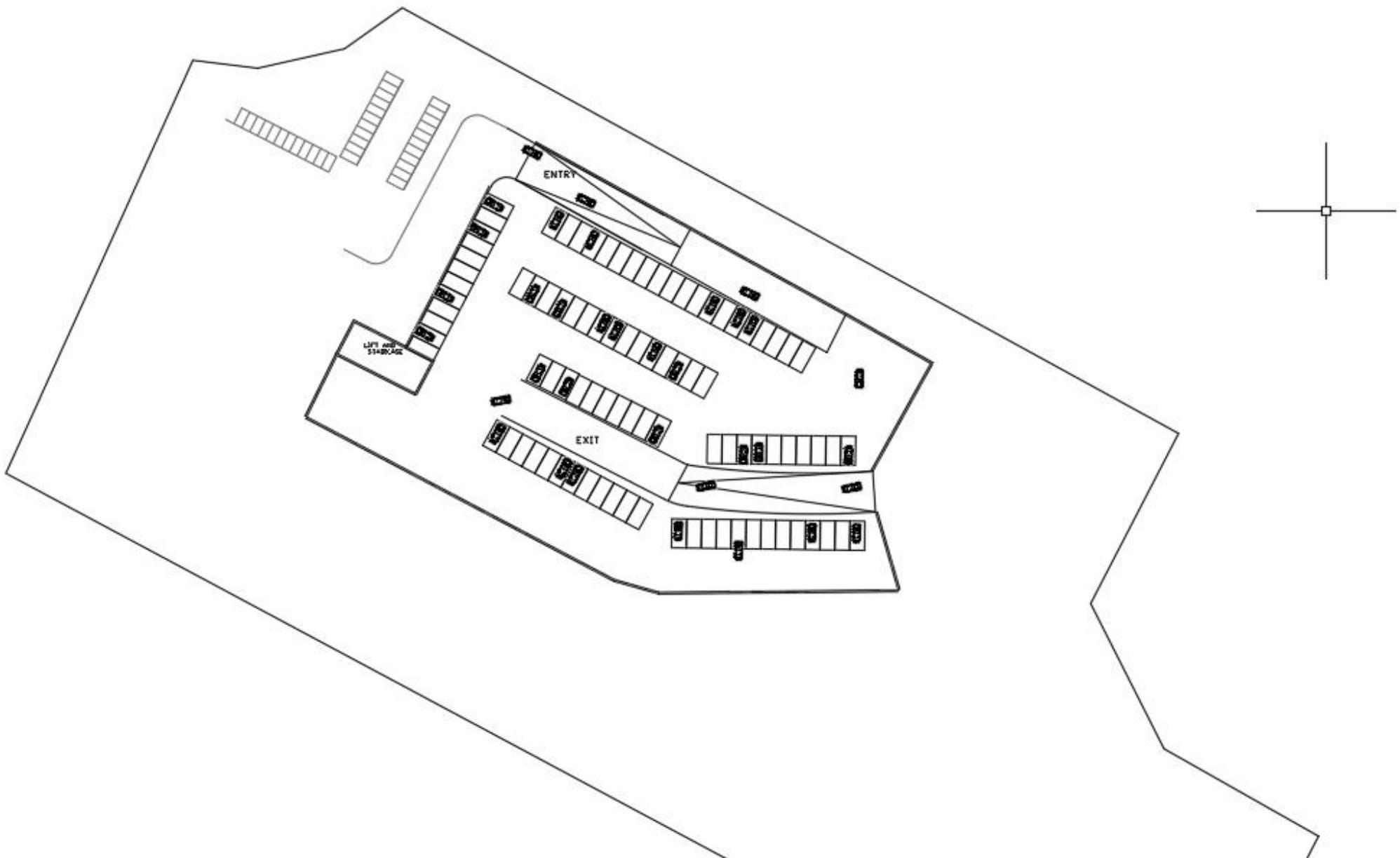


PLANS



PARKING

BASEMENT PARKING



SERVICES



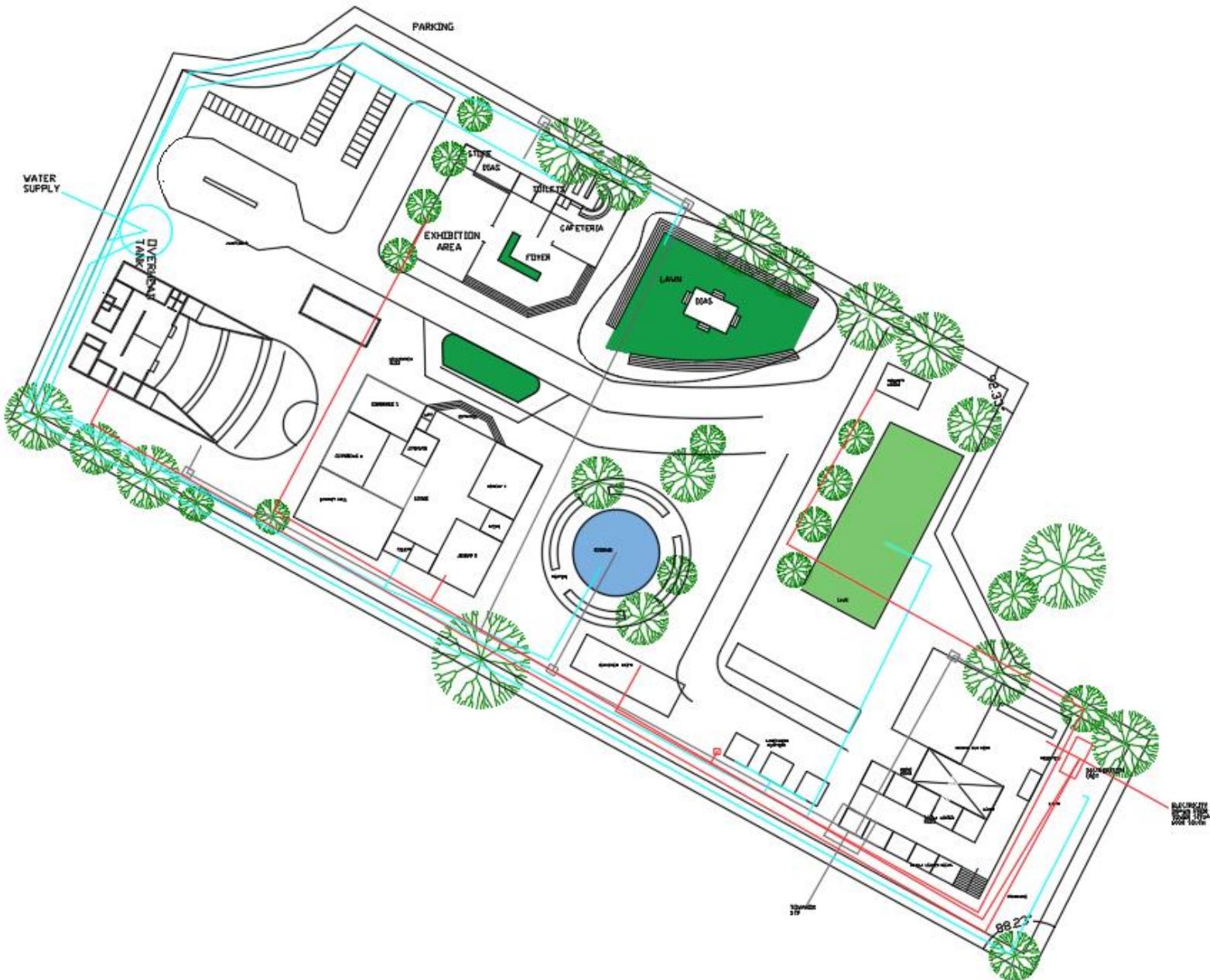
Analysis

- Many water tanks located in site surroundings the nearest one being 1.3 km away and nearest overhead tank being 1 km away.
- Nearest substation is located at a distance of 4.5km and the farthest one being 9.7 km away.
- The buildings in surrounding have their own waste management and sewage treatment facilities. A WMC is located at 7.2 km distance from site.
- Also the nearest sewage treatment plant is at 1.8km distance.

Inference / Design Decision

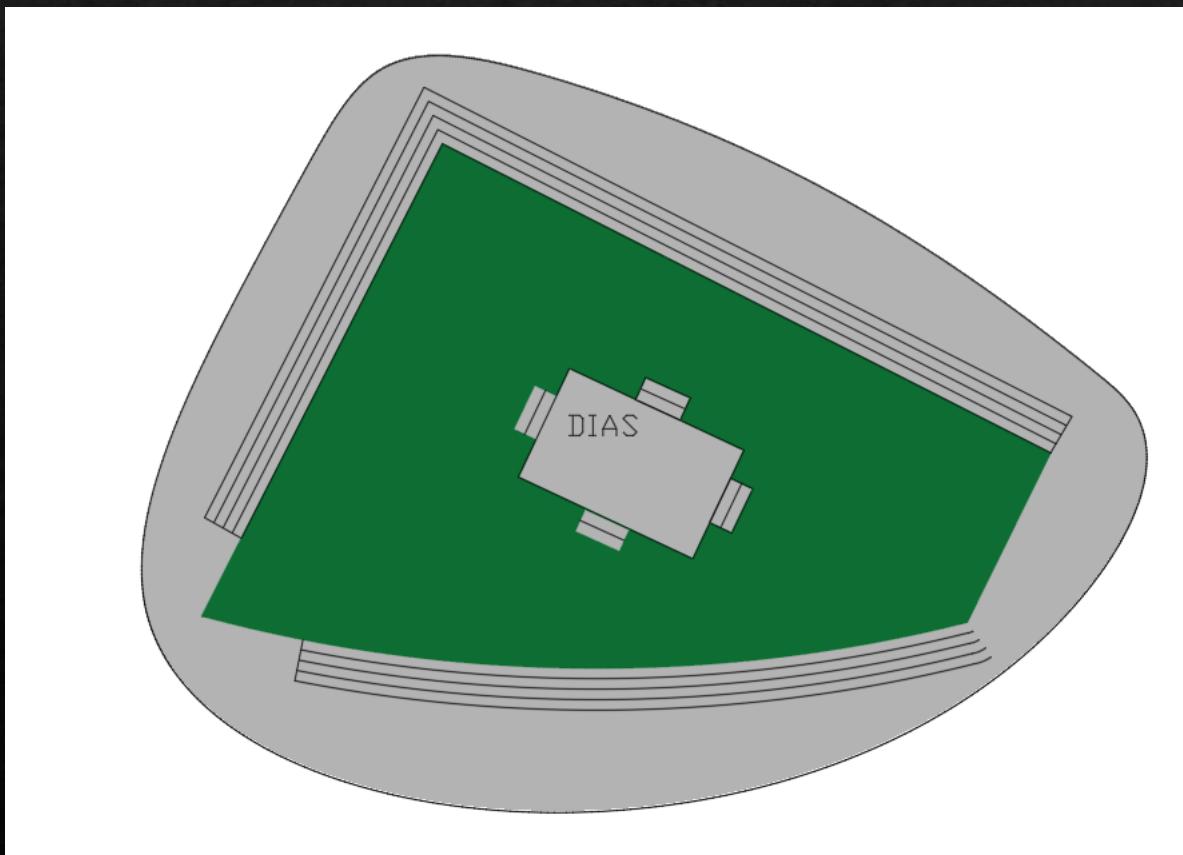
- Water can be directly taken from nearest source and distributed to various facilities within site by means of proper storage devices.
- A electric tower is located within the stadium complex, 800m south.
- Site would require solid waste collection system of its own and then it can be sent for further processes to WMC.
- The close proximity of STP eliminates need of on site STP, but sewage lines should be connected to main lines according to drainage.

WATER
SUPPLY
DRAINAGE
AND
ELECTRIC
SUPPLY

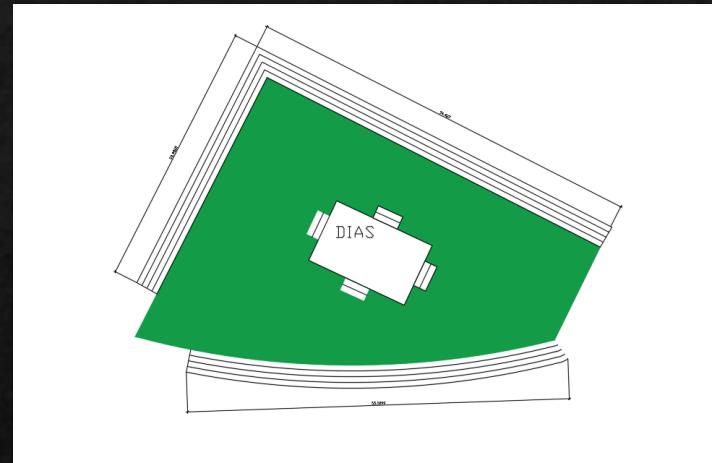


SOCIO CULTURAL SPACE

SEMI - OPEN INTERACTIVE CULTURAL SPACE



ETFE pavilion for shading from harsh sun.



Facilitating a multifunctional space for
Cultural treats and performing arts.
Native to Jaipur
For example:
Ghoomer, elephant fair, etc.

Properties of ETFE

- 1. Lightness**
- 2. High Heat Insulation,**
- 3. High Light Transmission**
- 4. Elasticity**
- 5. Self Cleaning**
- 6. Long Life**
- 7. Acoustics**
- 8. Fire Resistance**

Thank you