CULTURAL HUB

ST. THOMAS MARG 5, DLF FASE 5, **SECTOR 53, GURGAON** (HARYANA), INDIA.

A Thesis Submitted
in Partial Fulfillment of the
Requirement
for the Degree of

BACHELOR OF ARCHITECTURE

BY

ABHA PATEL
(ROLL NO. - 1170101001)

THESIS GUIDE

(AR. SHAILESH YADAV)

SESSION
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TO THE
SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY

LUCKNOW.

SCHOOL OF ARCHITECTURE AND PLANNING

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

CERTIFICATE

I hereby recommend that the thesis entitled "**CULTURAL HUB in Sector 53, Gurgaon (Haryana), India "** under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor's degree in architecture, school of Architecture and Planning, BBDU, Lucknow.

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

Recommendation Accepted

Not Accepted

External Examiner	External Examiner

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Certificate of thesis submission for evaluation

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ACKNOWLEDGEMENT

"In the Name of God Who is Most Beneficial and Merciful."

Time demands that I express my gratitude to those who have been a part of my stay in **B.B.D.U.** It's been great, all these years, but life moves on...and so do we...

I Express my deepest gratitude to my thesis guide AR. SHAILESH YADAV, for his valuable dispassionate guidance, critical discussions, suggestions and continuous support all through My **B.Arch. Thesis.**

I express my gratitude to DEAN, **AR. MOHIT KR AGRAWAL,** Department of Architecture, B.B.D.U. Lucknow, for being there to listen to and solve our problems. 1 would like to take this opportunity to express my sincere thanks to **AR. KESHAV KUMAR,** AND **AR. SATYAM SRIVASTAVA**

I am grateful to our Thesis Coordinator **AR. AANSUL SINGH** and **AR. SHAILESH YADAV,** for providing his useful comments at the various stage submissions.

Thank You" was not the exact phrase on my mind when I wrote this, it was something much deeper, but I am unable to find words for it.

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

I would also like to express my gratitude to various persons without whose help, this Thesis would not have been possible. All the experiences that I shall relate in the following pages would not have been possible without them,

My Family, MAA, PAPA saying thanks is nothing, just accept this as a tribute to what you have imbibed & inspired in me.

It would not be possible without my Seniors especially AR. NISHA BHARTI, AR. C.L. GUPTA, AND AR. SARFARAZ AHMED.

And it would also not be possible without my Juniors especially ANJALI, PRGAYA, ABHISARG.

My Friend- MOHAMMAD SADIQUE ANSHARI, ADITI TRIPATHI, MANISH VISHWAKARMA.

Though words hardly express the true emotions, still I would like to thank all my near and dear ones who helped and guided me.

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INTRODUCTION

Expression of Culture through Architecture.

(A Hub for Preserve and Disseminate the Knowledge Regarding
Historical and Modern Culture and Art Forms.)

WHAT (Is Cultural Hub)

- A Cultural Center is **an Organization**, building or **complex** that promotes Culture and Arts.
- A Culture centre is a Great **Platform for Presentation of Art**, Culture, **Music, Dance and othere Fine Arts.**
- Culture can be **define as** the Ideas, Customs or **Social Behaviour** of a particular people or **Society**, Culture is the **Characteristics and Knowledge of a particular Group of People**, Language, **Religion**, Cuisine, Social Habits, **Music and Arts**.

WHY(Gurgaon)

- Gurgaon is a in the Indian state of Haryana be at and is know to be financial and industrial our Country.
- Most **Artists in the NCR reside** in Gurgoan and part of Faridabad.
- Culture centre in **Gurgaon Prime Location** will provide a Platform not only the Existing Artist but also **Emerging Artists** who wants to **Learn Further**.
- Gurgaon is India's 2nd largest information technology hub.It has the 3rd highest per capita income in India.

WHY (To Express Cultural)

DIVERSITY :

India is a Diverse Country and Indian Culture is quite rich with respect to Heritage, Culture and Art Form.

IMPORTANT :

It is Internal to **Human Development** and Improve their **Quality of Life**.
It is also **Shapes the Image of Place**.
Without Culture, Cities as Vibrant Life Spaces will Not **Exist in the Future**.
”**The Influx of the Modern Equipment and the Craze of the Western Culture Adaption,will result Indians to loose their Culture. They not Important Indian Culture**.”
Culture is Not Only Much More **Important Socialy or Imotionally** but also **Economically culture is Very Important for Our Country.**

AIM (Proposition)

- The Main Aim of this Thesis is to Preserve and Disseminate the Knowledge Regarding **Historical and Modern Culture and Art Forms**.
- ”**We Devlope Continuity between That Which Was, That Which Is, That Which Will Be, [Past, Present and future]”**
- This **Thesis Aims** to Create a Cultural Center in Gurugram which not only Provides Education and Exhibition of Art Forms but also Initiatie a Large Culture Shift and Return to Idea that Creatives **Expression is the key for Balanced Individual and A Holistic Lifestyle**.

SCOPE AND LIMITATIONS

- **Gurugram District** is the second largest city in the Indian State of **Haryana** and is the **industrial** and **financial** centre of Haryana. It has the **3rd highest** per capita income in India after **Chandigarh and Mumbai.**

- The major scope of this project is to study and **design Culture hub** in **Gurugram**.
- The main scope of this project is to design the **landscapes**, gathering space where people will **interact with each other**.

- The project is to be started by studying the present **cultural complexes** and dance academies and then creating one only by understanding them.
- The scope of this project is also to make the people aware of **their culture** as they are being stuck in the **fast tech life** and also, introduce them to the **ancient Indian Dance** which were performed in temples.

First limitation is of this project is that the main focus will be **highlighting on** the **conceptual design** and **circulation space**, detailing will not be focussed in general Second, structure drawing will not be focussed.




PICTURES ARE SHOWING THE EXPECTED FACILITIES WHICH CENTRE WILL SERVE.

CLIENT BRIEF:

The Promoter of the project is **MCG (Municipal Corporation Gurugram)** and their Requirements are:

BASIC Requirements:-

ADMINISTRATIVE BLOCK

- Reception
- Managers room
- Staff room
- Meeting room

CULTURAL AREAS

- Exhibition and workshop
- Auditorium
- Conference room
- Open-air theater (OAT)
- Multipurpose halls

OTHER AREAS

- Academies (music, art and dance)
- Library
- Food court & cafeteria
- Accommodation
- Landscape areas
- Parking
- Services area

SITE ANALYSIS:

LOCAL BYE-LAWS:

Area :	7.62 Acres
Ground Coverage:	30%
FAR :	1.5
Max Permissible ht:	26m
Setbacks : Front :	15m
Other side:	9m
Parking:	100 sqmt / 2 ECS

SITE ANALYSIS

Gurgaon is a City Located in the Northern Indian State of Haryana.
It is Situated near the **Delhi –Haryana border**, about **30 Kms (19 Minute)** Southwest of the National Capital New Delhi and 268 kms (167 mi) South of Chandigarh, the State Capital.

LOCATION: The Site is spread over a 7.62 Acres ind at St Thomas Marg 5. DLF Fase 5. Sector 53, Gangram (Haryan), India.

NAME OF THE CLIENT: **MCG (Municipal Corporation Gurugram)**

AREA: 30,834 sq.m. or 7.62 acres

GOOGLE IMAGE OF SITE

MASTER PLAN OF GURGAON

EXPRESSION OF CULTURE THROUGH ARCHITECTURE

A Hub for Preserve and Disseminate the Knowledge Regarding
Historical and Modern Culture and Art Forms.

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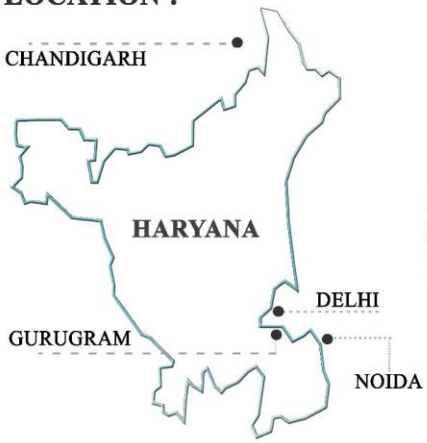
LOCATION :



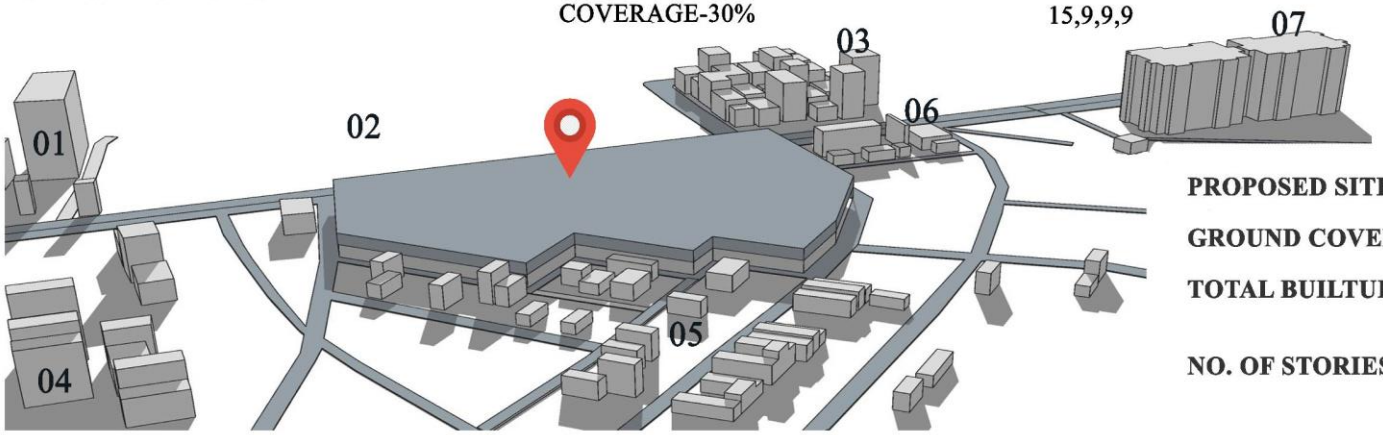
LATITUDE **28°26'28"N,**
LONGITUDE **77°05'16"E**

The **Site** is spread over a **7.62 Acres** ind at St Thomas Marg 5. DLF Fase 5. **Sector 53, Gangram (Haryan), India.**

GROUND COVERAGE-30%

FAR- 1.5

SETBACK - 15,9,9,9



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SURROUNDING LANDUSE:

01. Paras Hospital
02. Green Area
03. Mixed Land Use
04. Residencial
05. Residencial
06. Petrol Pump
07. Westend Heights

PROPOSED SITE = 7.62 ACRES OR 30,834 SQM

GROUND COVERAGE = 30% OF SITE = 9250 SQM

TOTAL BUILTUP AREA = SITE AREA X FAR
= 30834X1.5 = 46251 SQM

NO. OF STORIES = TOTAL BUILTUP AREA/ G.C
= 46251/9250 = 5 STORIES.

LANDMARKS/ SITE SURROUNDING IMAGE :

Paras Hospitals, Gurgaon

Petrol Pump

Mix Land Use

Golf Course Rd.

Open Green

Wazirabad Bundh

ST Thomas Marg Rd.

Residential

Site

DLF Westend Heights

AV Sports Academy

Residential

ACCESSIBILITY :

2 Airport- IGI Airport is **18Kms & Domestic** Airport is **20 Kms** from the **Site,**

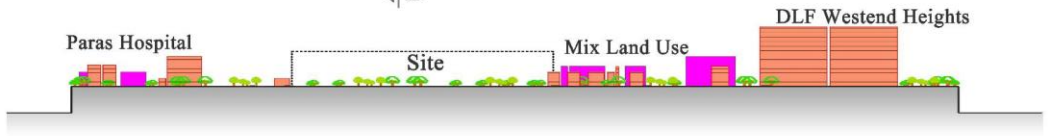
2 Metro Station Near the **Site** within **2 Kms** & Walk Distance **25-30 min.**

Railway Station is also **12 kms** from the **Site.**

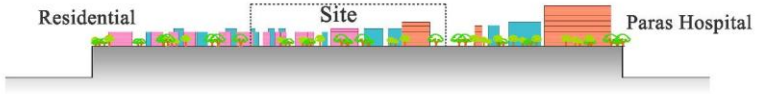
2 Bus Stop within1**Kms** & 12-20 min Walk Distance.

LANDMARKS/ SITE SURROUNDING IMAGE

SITE DRAWINGS :



SECTIONAL ELEVATION A-A'



SECTIONAL ELEVATION B-B'

PEDESTRIAN MOVEMENT :

VEHICULAR MOVEMENT :

LANDUSE OF SURROUNDING :

1.Paras Hospital,Gurgaon
2. Open Green
3. Mix Land Use
4. DLF5 STP Plant
5. Residential
6. Wazirabad Bundh
7. Residential
8. Petrol Pump
9. AV Sports Academy
10. DLF Westend Heights

CLIMATE IN GURGAON (HARYANA), INDIA

CLIMATE :

Gurgaon has an **Composite Climate**. It is very Hot in Summer (April-July) and Cold in Winter (December -January).

It has a High Variation between **Summer** and **Winter Temperatures** and **Precipitation.**

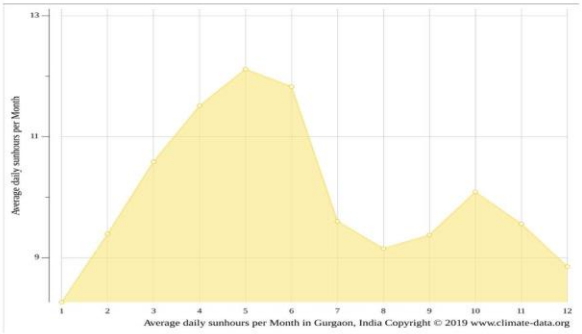
Summers starts in early **April** and peaks in **May**, with an average monthly Temperature of around 32°C /89°F

The **Monsoon** starts in late **June** and lasts Until **Mid-September.**

CLIMATIC DATA :

* SUN SINE
* TEMPERATURE
* PRECIPITATION
* HUMIDITY
* RAINFALL

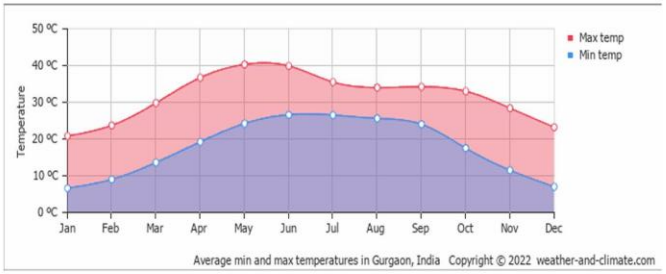
Hours of Sun Shine :



The mean Monthly Precipitation over the Year, including Rain, Snow, Hail etc.

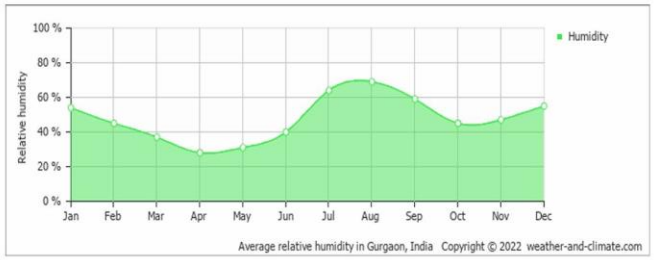
The Average Daily Sunhours Per Month in Gurgaon.

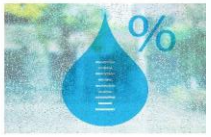
Average day and night Temperature :



The Mean Minimum and Maximum Temperatures Over the Year.

Average Humidity :

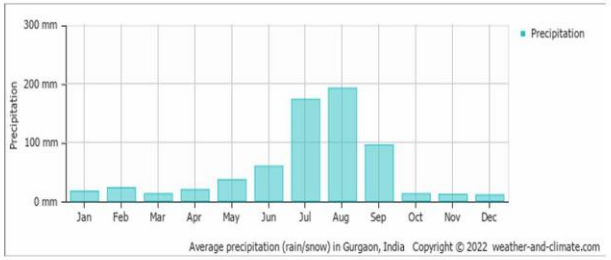




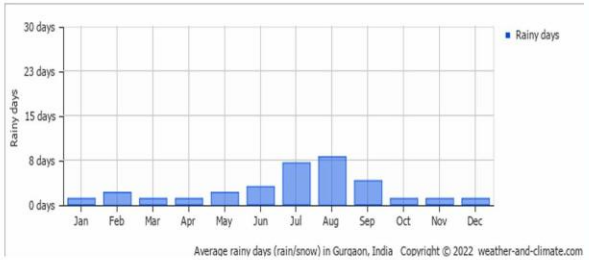
The mean Monthly Relative Humidity over the Year.

The Average Number of Days each Month with **Rain**, Snow, Hail etc.

Monthly Precipitation :



Monthly Rainfall :



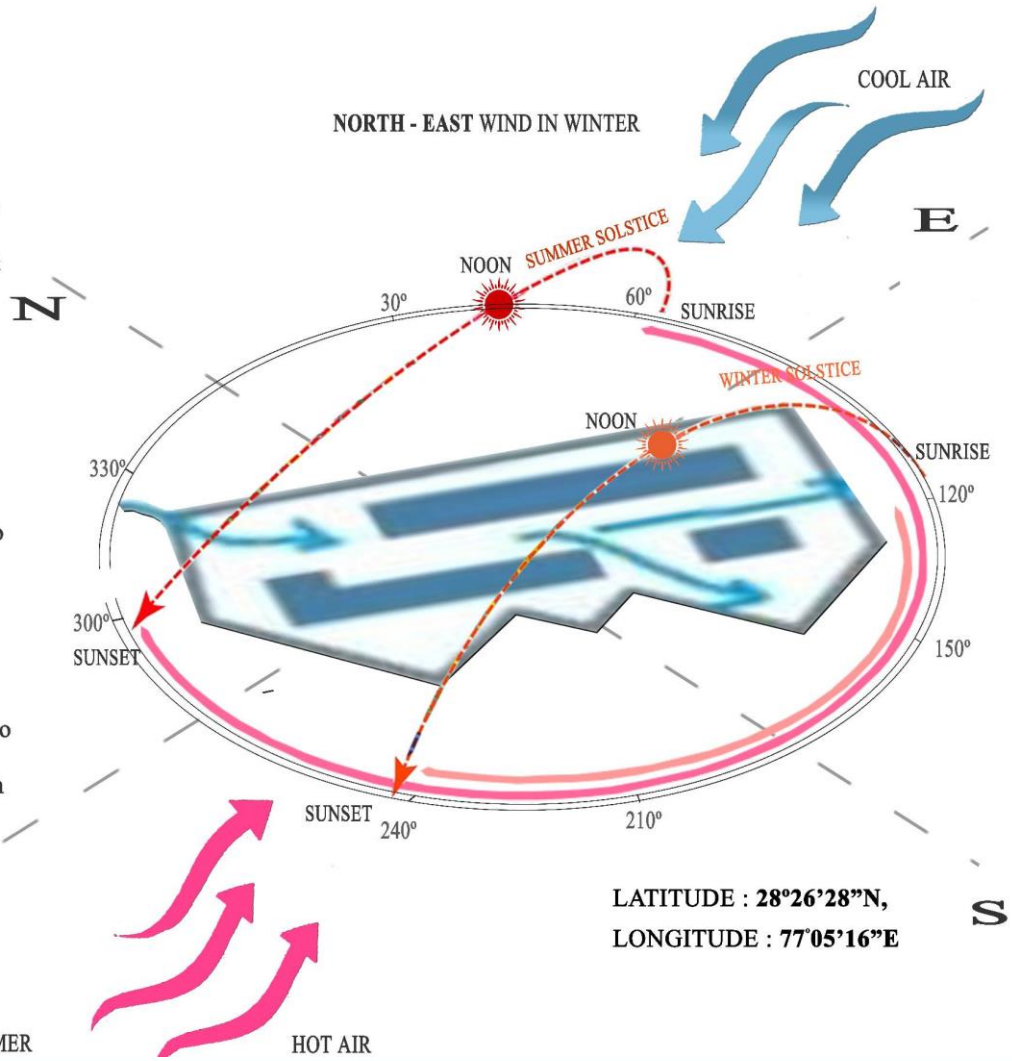
SUN MOVEMENT & AIR MOVEMENT DIAGRAM

SUMMER SUN :

- Sun Path at a **High angle** Sun, **North** to **E-W** axis.
- Glare free **Daylight** is most **Easily available** on **North** facade as minimal Solar Radation will fall at High angle.
- Easy **Shading** of **South facade** from High Angle **Sun**.

WINTER SUN :

- **Sun Path** at a Low angle, **South** to **E-W axis**.
- **Solar Radation** will Penetrate **South** facing Facades at a **Low Angle** during **Winter**.
- **East** and **West** Facades Continue to Receive Uniform, **Strong Solar Radiation** at a **Low Angle** through the **Year**.



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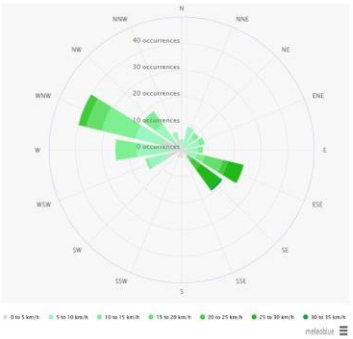


Wind Rose Gurgaon

WEATHER :

The average wind speed in Gurgaon is **2.4 m/s** with the maximum wind speed of around **8 m/s**

The average ambient temperature remains 24.7°C, varies from 5.5°C to 42.7°C.

The average reletive Humidity remains around 66.5%. varies from 14.9% to 100%

The station pressure varies from 984 hPa to 965 hPa averaged around 1000 hPa.

Windrose of Gurgaon shows that Predominantly Wind above.

SWOT ANALYSIS

STRENGTHS

- The **24m** Provides Direct **Access** to the **Site**.
- **Well- Connected** by the **Road** and **Public transport** Including **Buses** and **Metro**.
- The **Site** us elongated in the **EW** Direction Ensuring Proper **Day Light**.

WEAKNESSES

- The **Site** has been **Vacant** for almost **10 years** leading to encroachment of space.
- The **Site** is **Challenging** as it is in close Proximity to **Residential zones** and hence has to sensitive to the same.
- The Access Road to the Site often has a lot of **congestion** during **Evenings**.

OPPORTUNITIES

- The induction of a **Cultural Complex** will lead to the Area becoming **Active** and **Vibrant** even during the Evening aften Office hours- which will lead to a More **Dynamic Urbanscape**.
- The **Site** is Close to Major **Offices** and **Commercial** Zone - **Golf Course Road** and the **Airport** which allows it to Reach a **Greater Audience**.

THREATS

- During major Performances / Events **Traffic Conditions** will be multiplied and Chaotic if **not handled** Properly.
- The **Site** cannot rely on the Present context as Most **land** is **Vacant** and **Development** is Imminent.

PASSIVE SOLAR TECHNOLOGY BASICS :

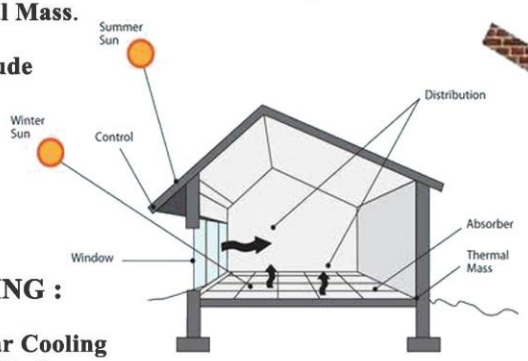
- **Passive solar technologies** convert sunlight into usable Heat and cause Air Movement for Ventilating to **Heat** and **Cool** living spaces **without Active Mechanical** or **Electrical Devices**.

PASSIVE SOLAR DESIGN :

- A **Passive Solar Building** uses **South-facing Windows** to Collect Heat from the Sun and Stores that heat in Materials throughout the Building known as **Thermal Mass**.

A successful design must include the following elements :

- Aperture
- Thermal mass
- Distribution
- Control



PASSIVE SOLAR ELEMENT

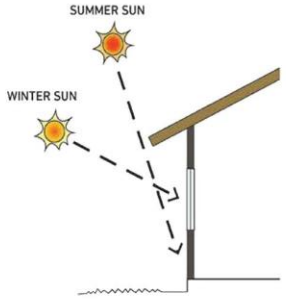
PASSIVE SOLAR COOLING :

At their Simpliest, **Passive Solar Cooling Systems** include Overhangs or Shades on :

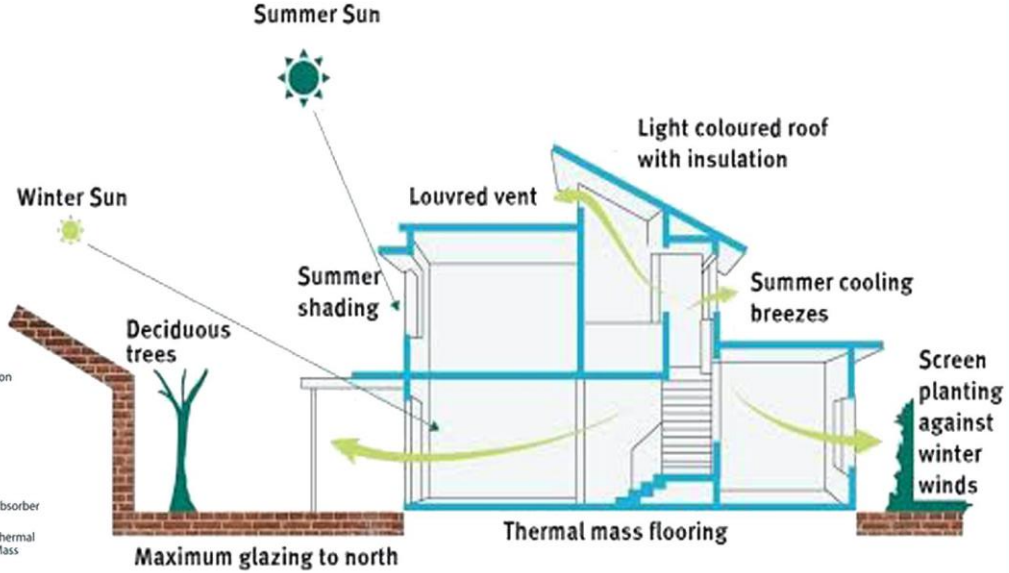
- South Facing Windows,
- Shade trees,
- Thermal Mass and
- Cross Ventilation.

PASSIVE SOLAR HEATING :

The Two Primary Elements of **Passive Solar Heating** are **South Facing Glass** and **Thermal Mass** to Absorb, Store, and Distribute Heat.



DIRECT SOLAR

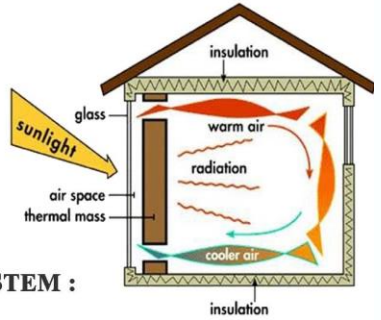


PASSIVE TECHNIQUE FOR BUILDING

KEY PASSIVE SOLAR BUILDING CONFIGURATIONS :

There are three primary passive solar energy configurations:

- Direct solar system
- Indirect solar system
- Isolated solar system



OVERVIEW OF PASSIVE SOLAR ENERGY SYSTEM :

- **Passive Solar Energy System**, as the name suggests, is a System that uses Solar Energy, which is our Greatest Source of renewable Energy through passive means (i.e., **Not by using any External Device** in order to **maintain the temperature** of a building).

PASSIVE TECHNIQUE FOR BUILDING

CLIMATIC STUDY:

Gurgaon has an Composite Climate. It is very Hot in Summer (April-July) and Cold in Winter (December -January).

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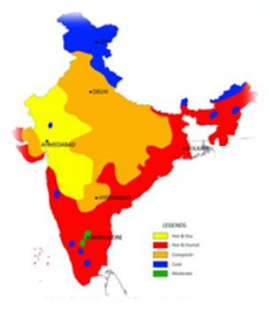
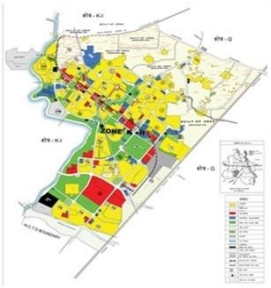
Summers starts in early April and peaks in May, with an average monthly Temperature of around 32ºC /89ºF

CLIMATE IS ONE OF THE BASIC ELEMENT IN THE NATURE.IT AFFECTS LAND FORMS, SOIL TYPE AND VEGITATION. ITS INFLUENCE ON MAN IS VERY GREAT.

climate is the generalized presentation of day-to-day weather conditions and the average state of weather through out the year. the combination of all weathers, determine the climate of a place.





Map Of India Showing Different Climatic Zones
Gurgaon is representative of composite climate
the whole composite climate of Gurgaon can be split into three distinct seasons:

HOT & DRY: (APRIL TO JUNE)
WARM & HUMID: (JUNE TO SEPTEMBER)
COLD & DRY: (NOVEMBER TO FEBRUARY)

LOCATION:

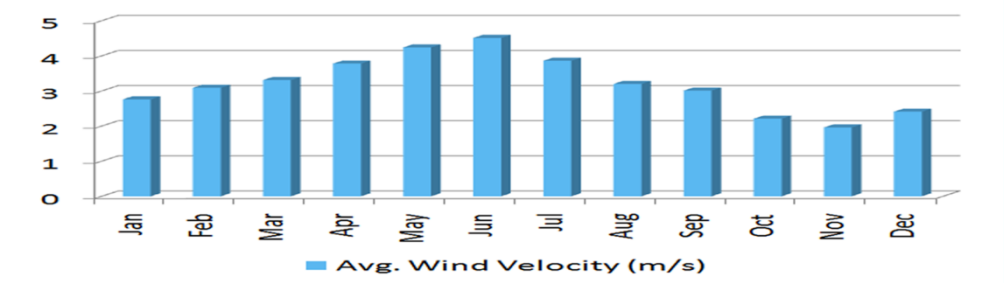
Latitude: 28º26’28”N,
Longitude: 77º05’16”E
Country: India
Continent: Asia
Sub-Region: Southern Asia

WINDS:

hot & dusty during summer.
strong winds in monsoon from southwest
DRY,COLD WINDS IN WINTER FROM NE.
graph of Delhi climate

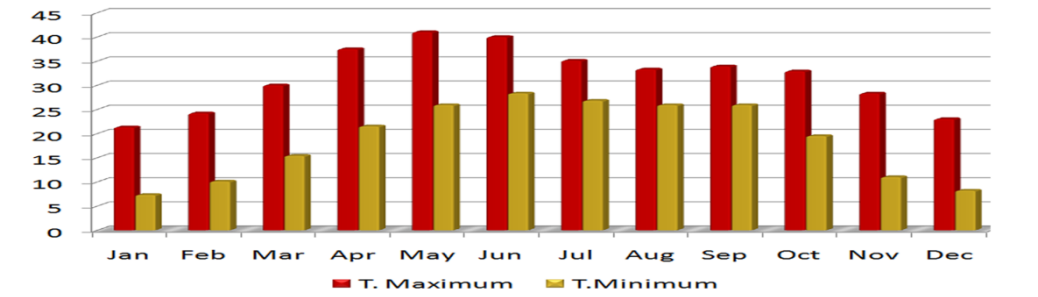
MONTHS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WIND DIRECTION	NE-SW	NE-SW	NE-SW	NE-SW	NE-SW	NE-SW	SE-NW	SE-NW	N-S	N-S	N-S	N-S

WIND VELOCITY:



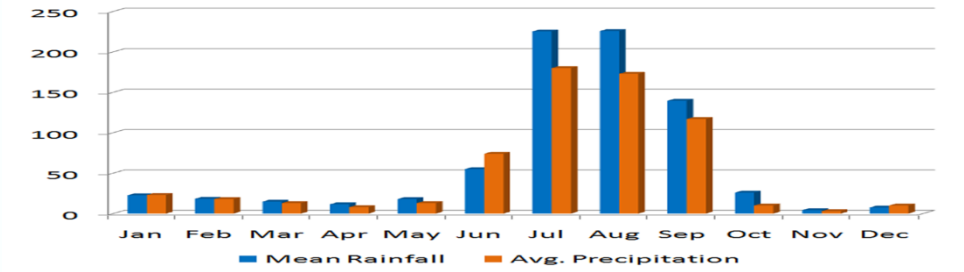
TEMPERATURE:

January is the coldest month with the mean max temperature of 21.3C and the mean min. of 7.3C. Temperatures begin to rise from mid-March. May and June are the hottest months. Day temperatures may sometimes reach 40C to 42C.



PRECIPATION:

The max. precipitation is 175 mm in July and min. is .8mm in Nov.

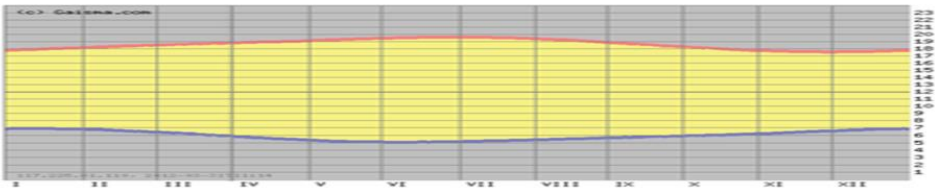


RAINFALL:

The max. rainfall is 211mm IN JULY and min. is 1mm in November. The normal annual rainfall in the district is 611.8mm.About 81% of the annual rainfall is received during the monsoon months of July, Aug and September.

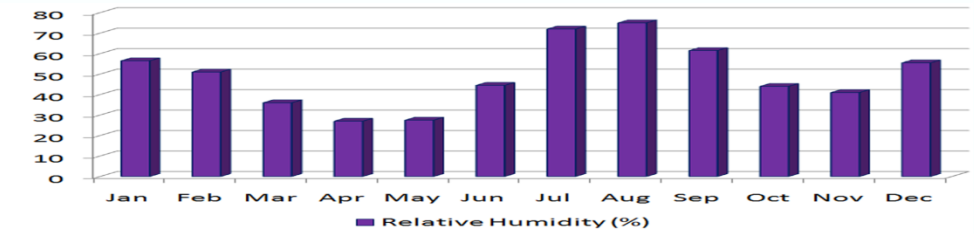
SUNLIGHT:

Sunlight hours in Jan to march is 11 to 13 hours , in April to May it is 14 to 15 hours, in June to July it is at max 15 hours, again get decreased 11 to 12 hours.



HUMIDITY:

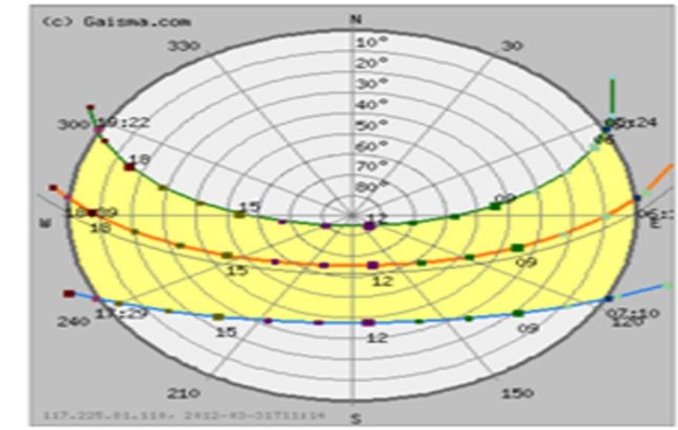
Humidity which go up to 60 to 75 percent in the month of July and September while in the summer months (April and May) air is considerably dry with relative humidity as low as 10 to 12 percent.



TYPICAL LANDSCAPE & VEGITATION:

Extremely Variable Landscapes With Rapid Seasonal Changes In Vegetation.

SUN PATH DIAGRAM:



SUN PATH SUNRISE/ SUNSET

Today
June 21
December 21
annual variation
equinox(march and sep)

Sunrise
Sunset

SUMMER SUN:

- Sun Path at a High angle Sun, North to E-W axis.
- Glare free Daylight is most Easily available on North facade as minimal Solar Radation will fall at High angle.
- Easy Shading of South facade from High Angle Sun.

WINTER SUN:

- Sun Path at a Low angle, South to E-W axis.
- Solar Radation will Penetrate South facing Facades at a Low Angle during Winter.
- East and West Facades Continue to Receive Uniform, Strong Solar Radiation at a Low Angle through the Year.

AIMS TO CLIMATIC STUDY:

- Minimization of glare and reduction of eyestrain.
- Minimization of solar heat entering room in summer.
- Protection against rain and wind.
- Provision of adequate ventilation at all times.
- Adequate exterior vision.

INFERENCES:

DIFFERENT CLIMATIC PERIOD OF GURGAON:

COOL PERIOD:

Usually temp. goes downward from beginning of Dec to mid of February min 8 to 10 c and max 20 to 25 c.

TEMPERATE PERIOD:

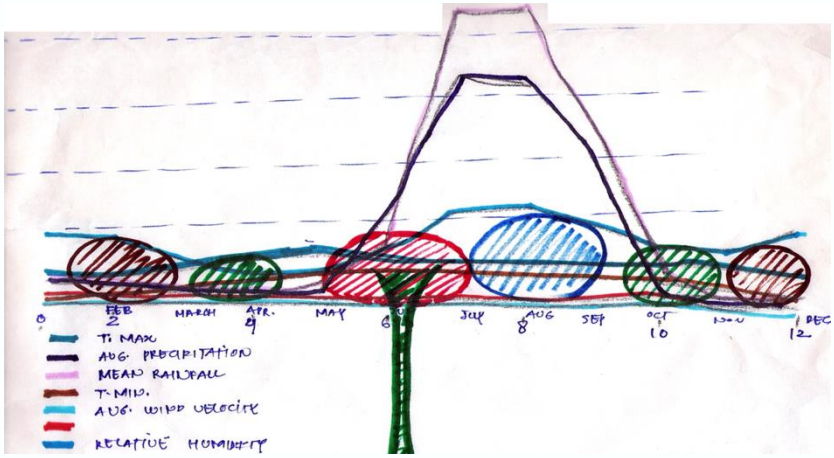
From mid Feb to end march min temp. 9 to 15 c and max temp. 22 to 30 c. and from begging of Oct to end of Nov min temp. 10 to 20 c and max temp 27 to 32 c.

HOT ARID PERIOD:

From April to June. Temperature is high and humidity is very low this is most uncomfortable period of the year.
this is major factor for orientation of the building.
insulation of roof is very important. Light colours on exterior walls are good.

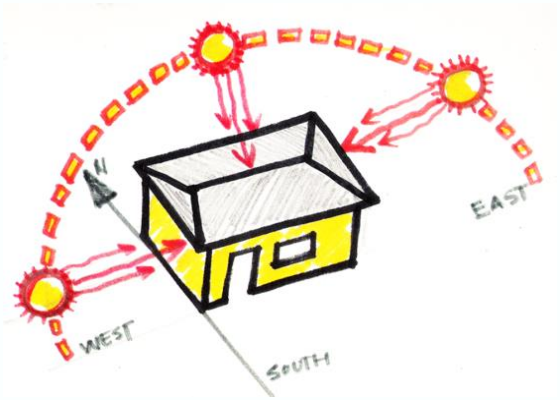
HUMID PERIOD:

In July with the coming of monsoon which lasts up to the end of sep, humidity rises, and clouds coverage increases, air movement becomes moderate for comfort conditions.
Orientation of building for sun is necessary.

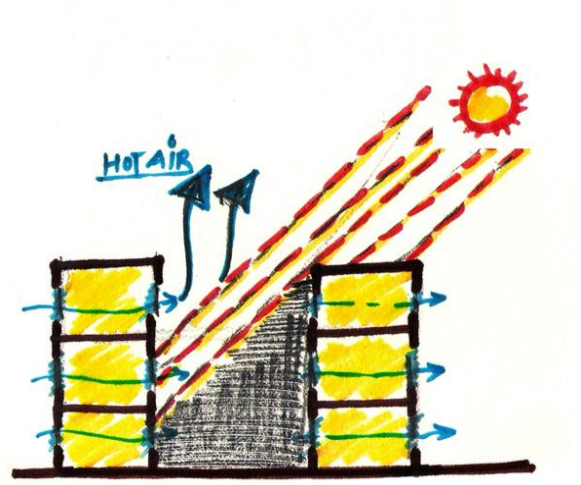


THIS ZONE REQUIRED MAXIMUM COMFORT

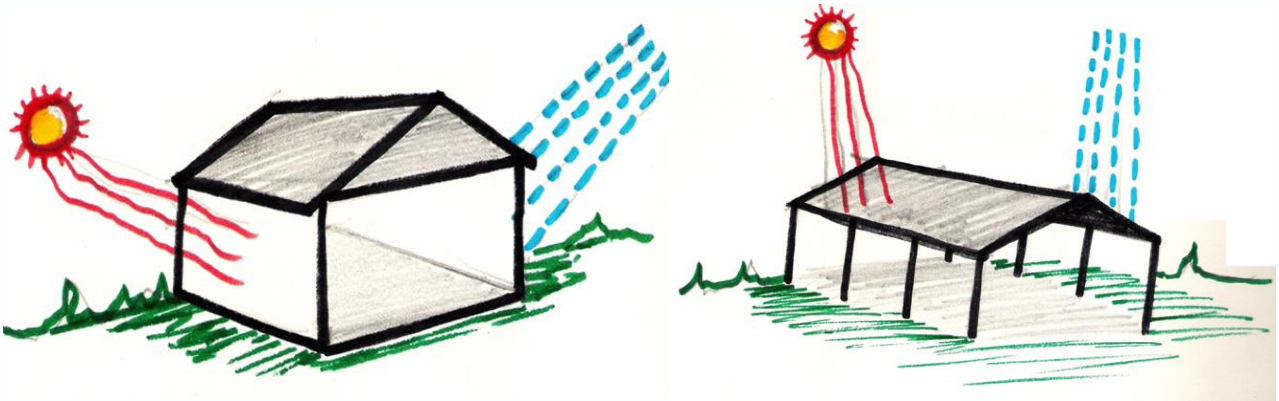
SITE INFERENCES:



Orientation of the building in north-south winds is favourable.



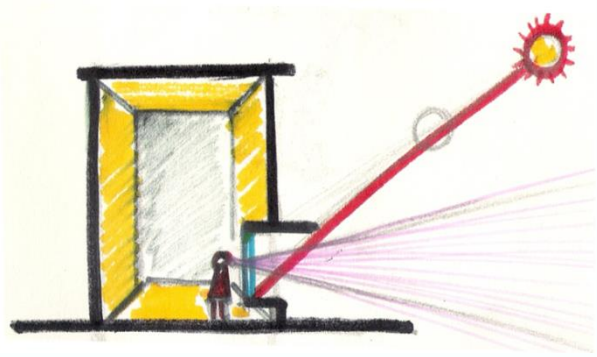
courtyards planning is good to welcome of and for trapping the sun.



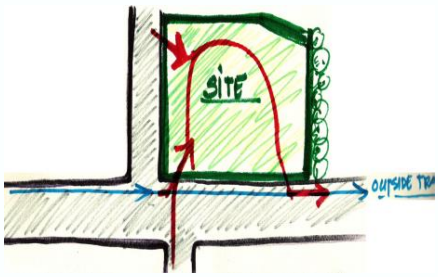
Protection from different positions of sun and winds

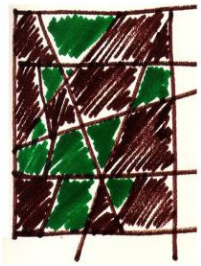
THERE ARE FOLLOWING SUN PENETRATION CONTROLLING DEVICES:

NATURAL: Orientation, trees and shrubs etc.
INTERNAL: Curtains, Blinds etc.

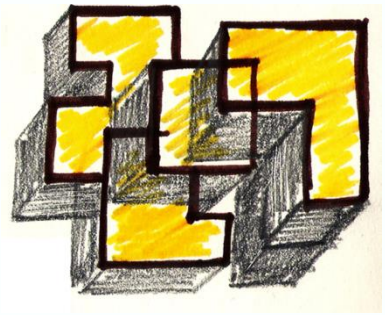


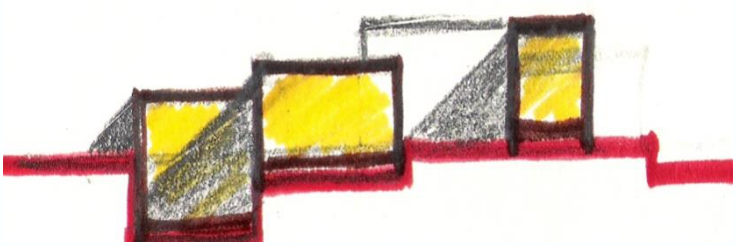
- If there is any important view and can't stop the view than sunken window is suitable.
- Less exposed surfaces to the direct radiation is beneficial for this type of climate.
- Provision of fins, louvers and recessed windows should be given to the exterior surfaces.
- The expected entry and exit to the site for vehicular and pedestrian movement





- The building will be having the combination of both ,the open and close spaces.





- The building will be so designed that having their own shaded areas as there is no such surrounding which is giving shaded area to the site.

SWOT ANALYSIS

STRENTH:

- The 24m Provides Direct Access to the Site.
- Well- Connected by the Road and Public transport Including Buses and Metro.
- The Site us elongated in the EW Direction Ensuring Proper Day Light.

WEAKNESSES:

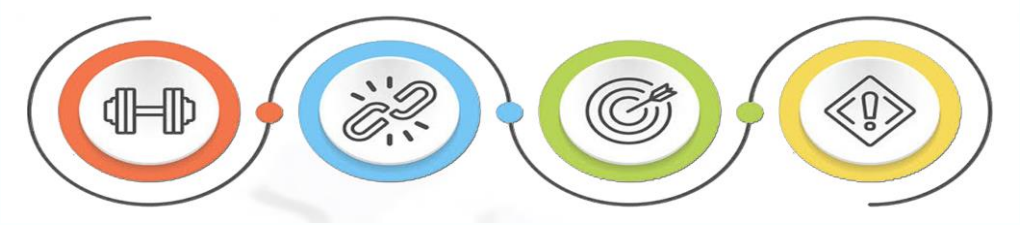
- The Site has been Vacant for almost 10 years leading to encroachment of space.
- The Site is Challenging as it is in close Proximity to Residential zones and hence has to sensitive to the same.
- The Access Road to the Site often has a lot of congestion during Evenings.

OPPORTUNITIES:

- The induction of a Cultural Complex will lead to the Area becoming Active and Vibrant even during the Evening aften Office hours- which will lead to a More Dynamic Urbanscape.
- The Site is Close to Major Offices and Commercial Zone - Golf Course Road and the Airport which allows it to Reach a Greater Audience.

THREATS:

- During major Performances / Events Traffic Conditions will be multiplied and Chaotic if not handled Properly.
- The Site cannot rely on the Present context as Most land is Vacant and Development is Imminent.



S W O T

CASE STUDY -1

RABINDRA BHAWAN, NEW DELHI

INTRODUCTION :

Year of Completion 1961

Site Area 12400 sqm (3.5 Acre)

Architect(s) Ar. Habib Rahman

Location Feroz Shah Marg, Mandi House, New Delhi

Climate Composiite Climate

LOCATION:

ACCESSIBILITY :

- 6.4km, New Delhi Railway Station
- 220m, Mandi House Metro Station
- 600m,Mandi House Bus Stop
- 16km, Delhi International Airport
- 180m Metro St..Via (2min) Safdar Hashmi Marg
- 180m Metro St..Via (1min) Safdar Hashmi Marg

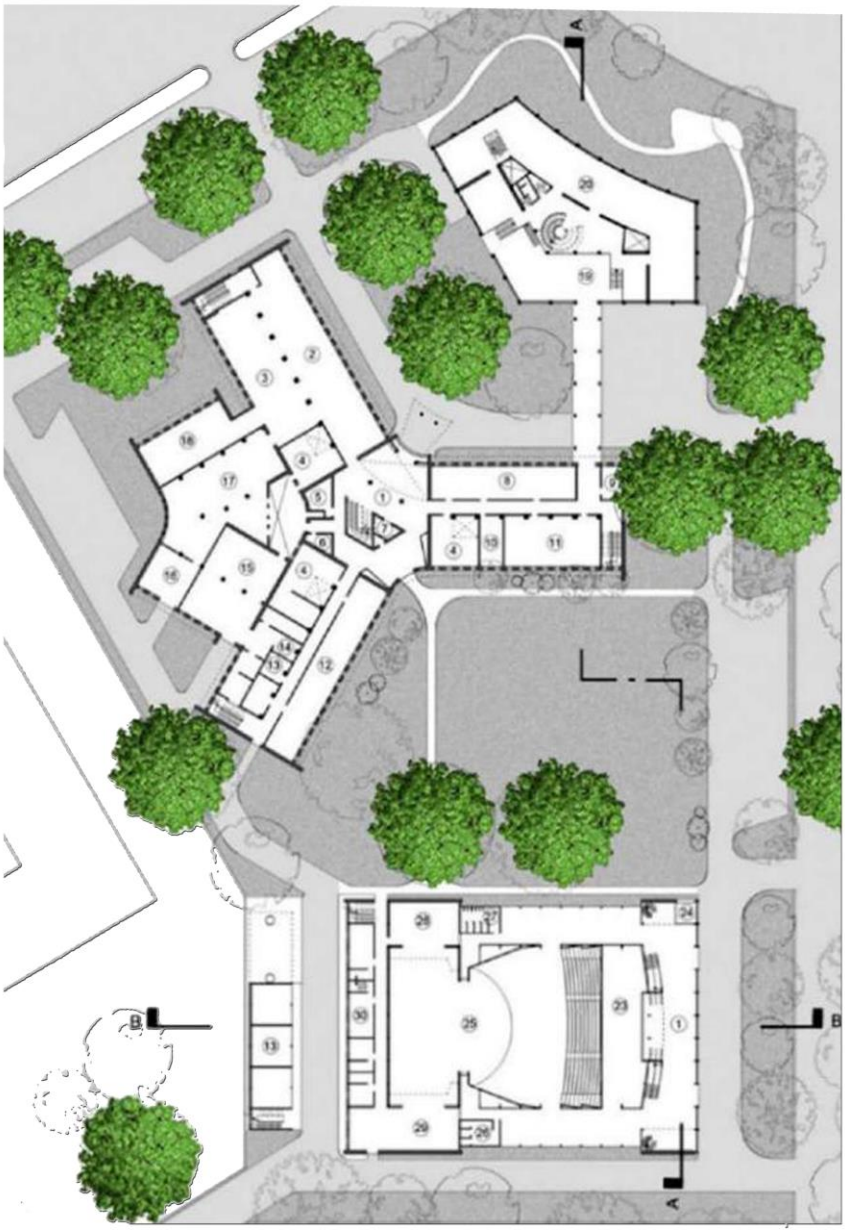
OVERVIEW :

- Designed by Ar. Habib Rahman, Rabindra bhawan was created to the building is thus the home of three National Academies:
- Lalit Kala (Plastic Arts), Sangeet Natak (Dance, Drama and Music) and Sahitya (Literature) which Represented Indian Culture by Word, Form & Spirit.

CONCEPT :

- Design of Building inspired from Simplicity of Rabindra Nath Tagore.
- The building design was a shift from Bauhaus Design which was initially rejected by Pt. Jawahar lal Nehru to Simple, Elegent Structure with Indian Elements to Represent National academies.

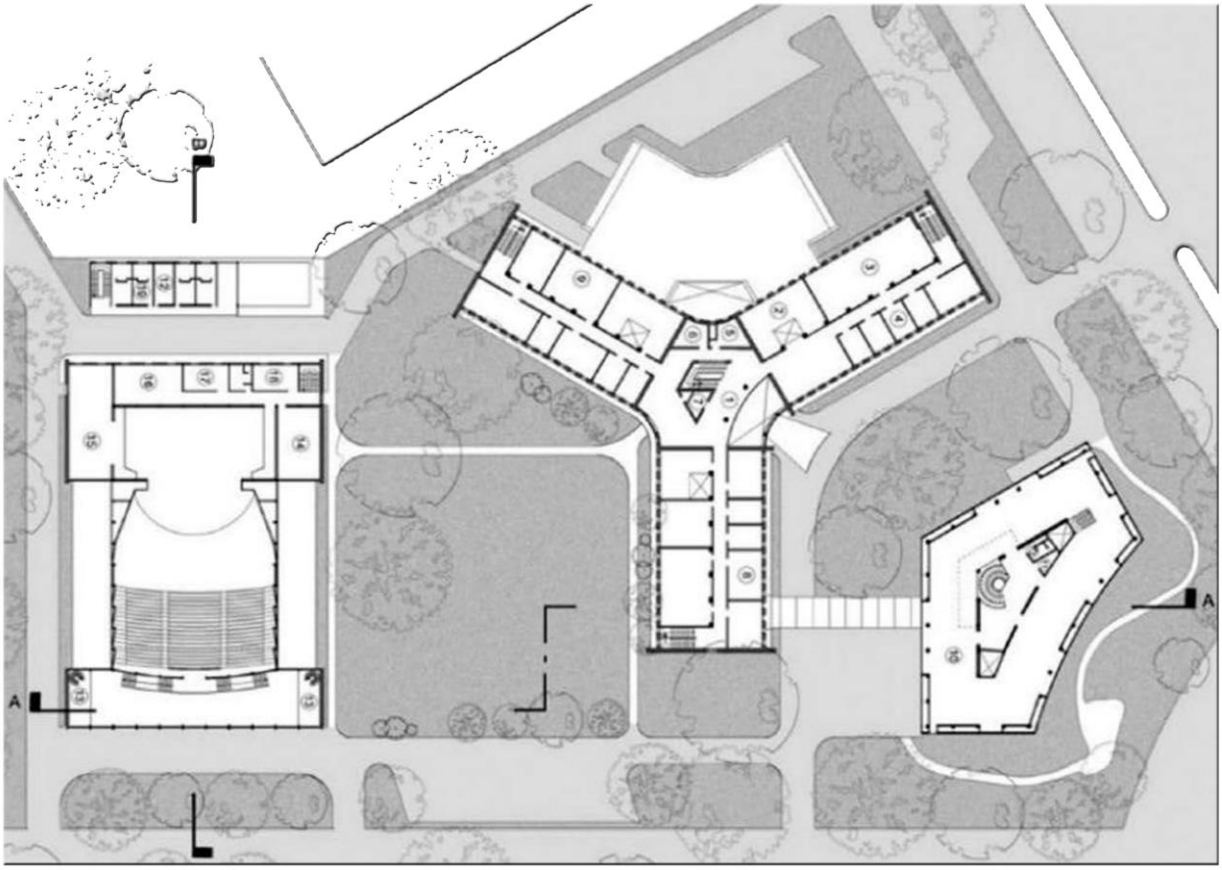
GROUND FLOOR PLAN



LEGENDS :

1. Entrance Lobby
2. Library
3. Snacks Area
4. Blower Room
5. Common Toilet
6. Switch Room
7. Lifts
8. Store
9. Store Keeper
10. Electrical Room
11. Dark Room
12. Museum for instruments
13. Transformer room
14. room
15. Cycle Shed
16. Parcel room
17. Storage
18. Scholar's room
19. Foyer
20. Exhibition space
21. Store room
22. Tollets
23. Weather maker room
24. Ticket Booth
25. Stage
26. Ladies Toilet
27. Gents Toilet

FIRST FLOOR PLAN



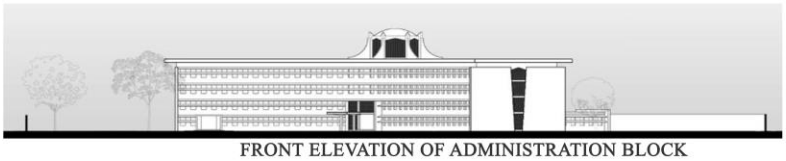
FIRST FLOOR PLAN

LEGENDS :

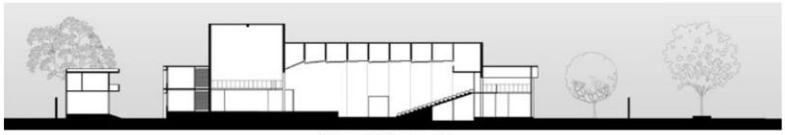
1. Lobby
2. Book store
3. Conference hall
4. Sahitya Academy offices
5. Gents toilet
6. Ladies toilet
7. Lifts
8. Lalit Kala Academy offices
9. Sangeet Natak Academy offices
10. Exhibition space
11. Store room
12. Common toilets
13. Mezzanine Floor
14. Costume design section
15. Workshop
16. Rehearsal room
17. Office
18. Room for Coach
19. Staff Quarters

ELEVATION & SECTION OF THE BUILDING

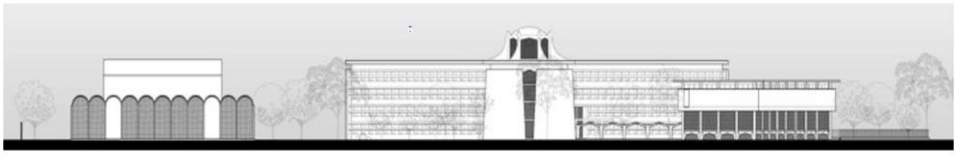
RABINDRA BHAWAN 'S PICTURES :



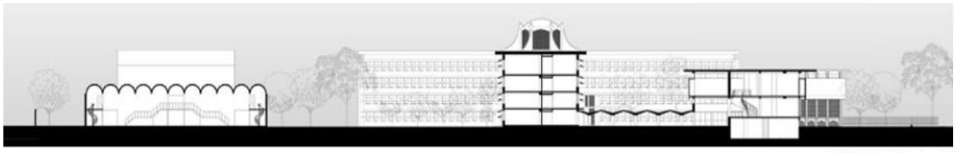
FRONT ELEVATION OF ADMINISTRATION BLOCK



SECTION B-B'



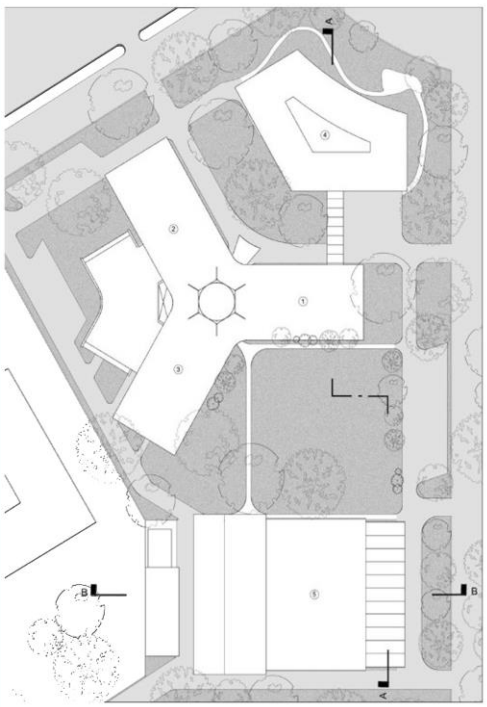
EAST ELEVATION

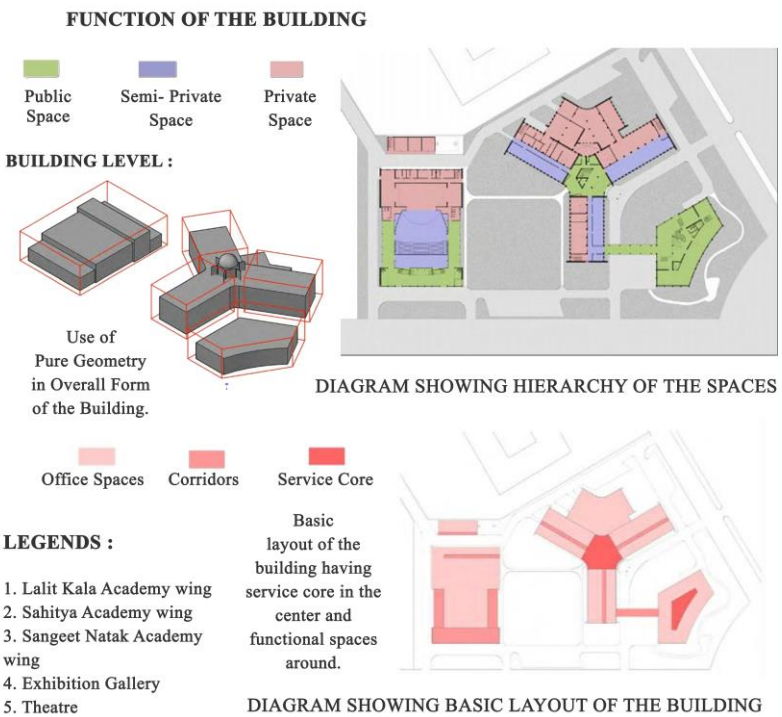


SECTION A-A'

ELEVATION & SECTION OF THE BUILDING

TERRACE PLAN:





FLOOR PLAN & FUNCTION OF THE BUILDING

CASE STUDY -2

KALA ACADEMY, GOA

INTRODUCTION :

Year of Completion 1985

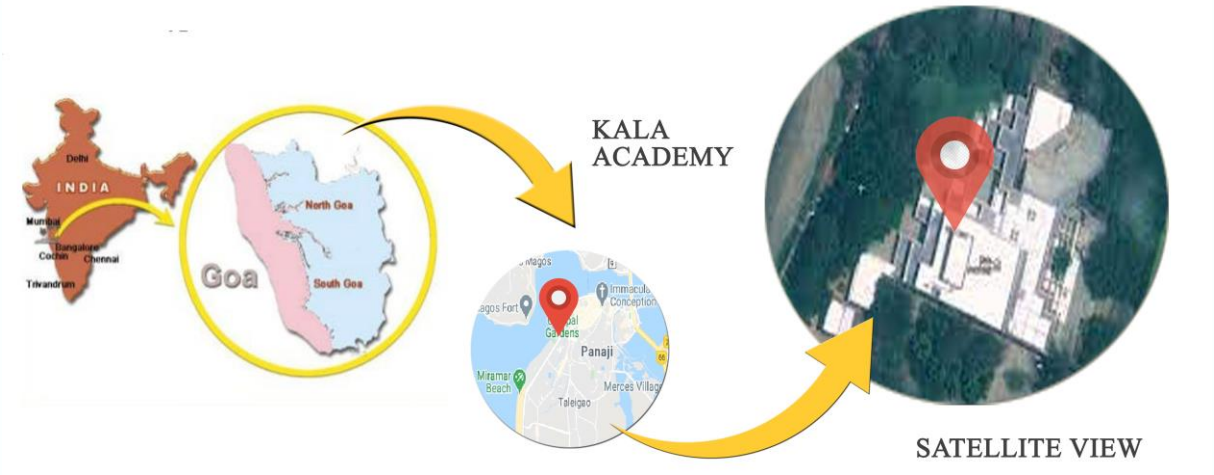
Site Area 25500 sqm

Architect(s) Charles Correa

Location Dayanand Bandodkar Marg,
Panaji, Goa 403001

Climate Conditions Warm & Humid Climate.Receives HeavyRainfall throughout the year. **Humidity is very hight Ranging from 70-90%**

LOCATION:



ABOUT :

- It is the venue of international film festival of India.
- The kala academy established in 1969 for promotion of art and culture in Goa.
- It is a vibrant representation of the culture and art of the people of Goa Variety of cultural programs held in its premises.

LAYOUT (SITE PLAN) :

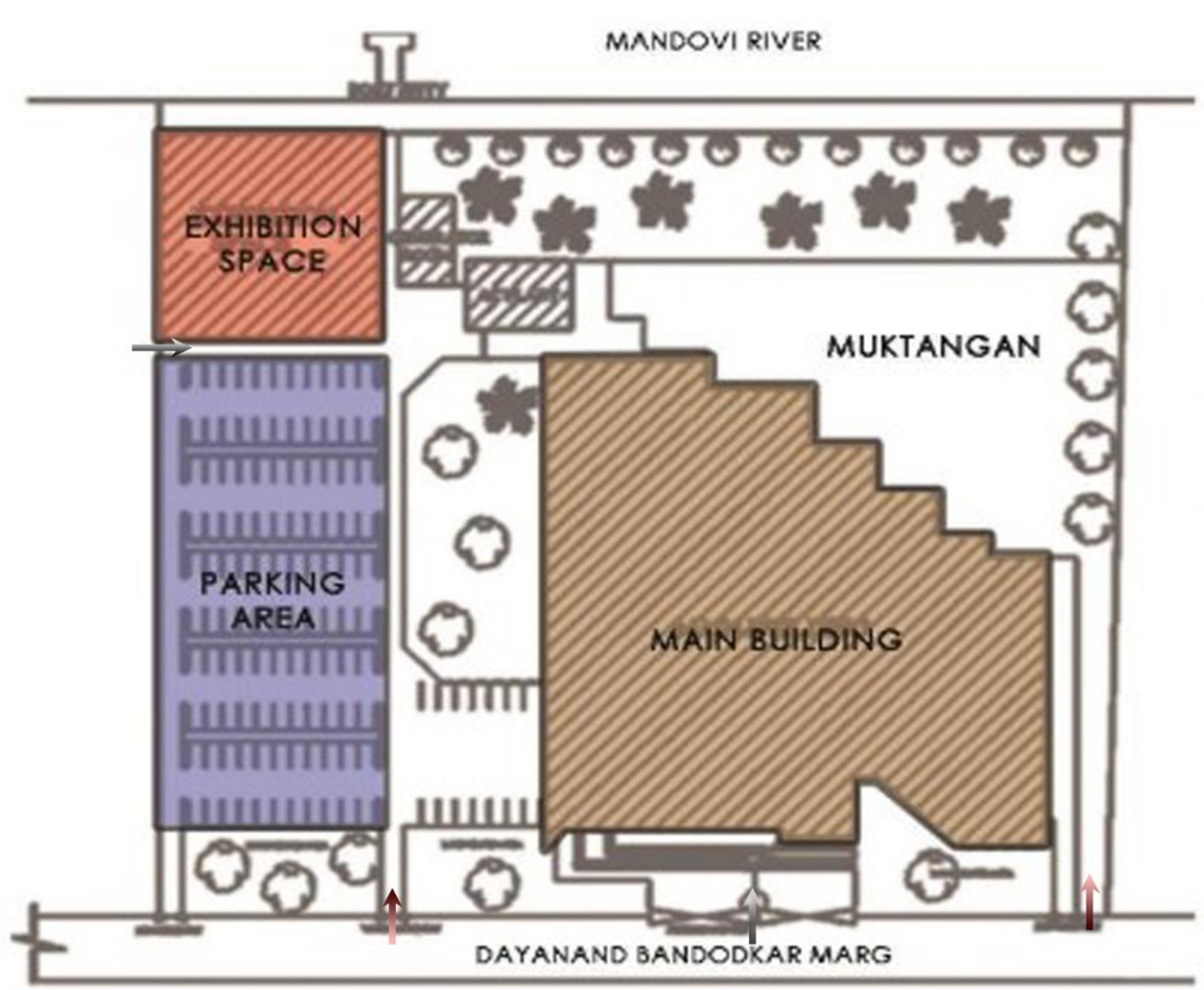
- There are four entries to the site.
- Boat jetty provided on the river side.
- The coverage is about 40% the pedestrian and vehicular systems are well defined.
- The active area includes the cafeteria, the garden and the amphitheatre.
- The site is divided into main building service building, Muktangan, parking area, the exhibition space.

LATITUDE 15º29'39"N,
LONGITUDE 73º49'03"E

LAYOUT (SITE PLAN)

SITE PLAN AND ZONING

Functional layout :
(SITE PLAN)



BASIC FUNCTIONAL DISTRIBUTION

ACCESSIBILITY :

- Regular buses connecting Panaji and the academy are available.
- Bus stops - 4.5 km
- Dabolim airport, 35KM.
- Karmali Railway Station, 13KM

BUILDING LEVEL ZONING

The building is divided into three Zones:
1- Public,
2-Adminisration, and
3-Academic

They are provided at different levels so as to avoid conflict between these zones.

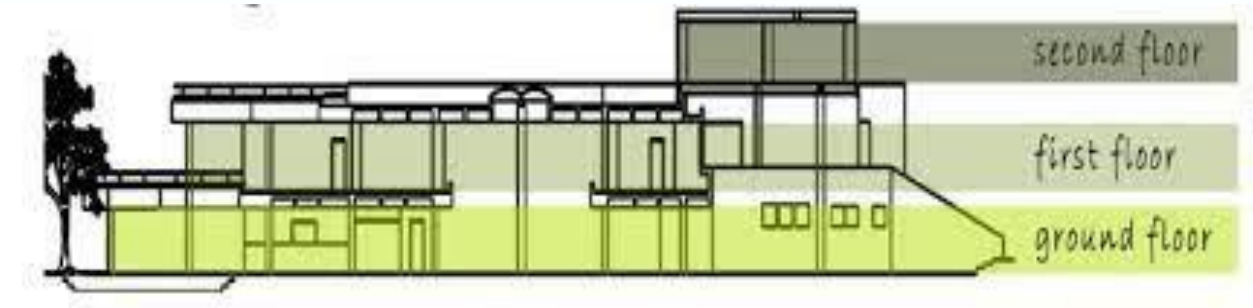
The ground floor includes facilities like auditorium, Preview Theater, amphitheatre, art gallery, and canteen etc, where public entry is invited.

The first and second floors include academic and administration facilities.

There are three groups of people using the building:
1. Staff,
2. Students,
3. Audience.

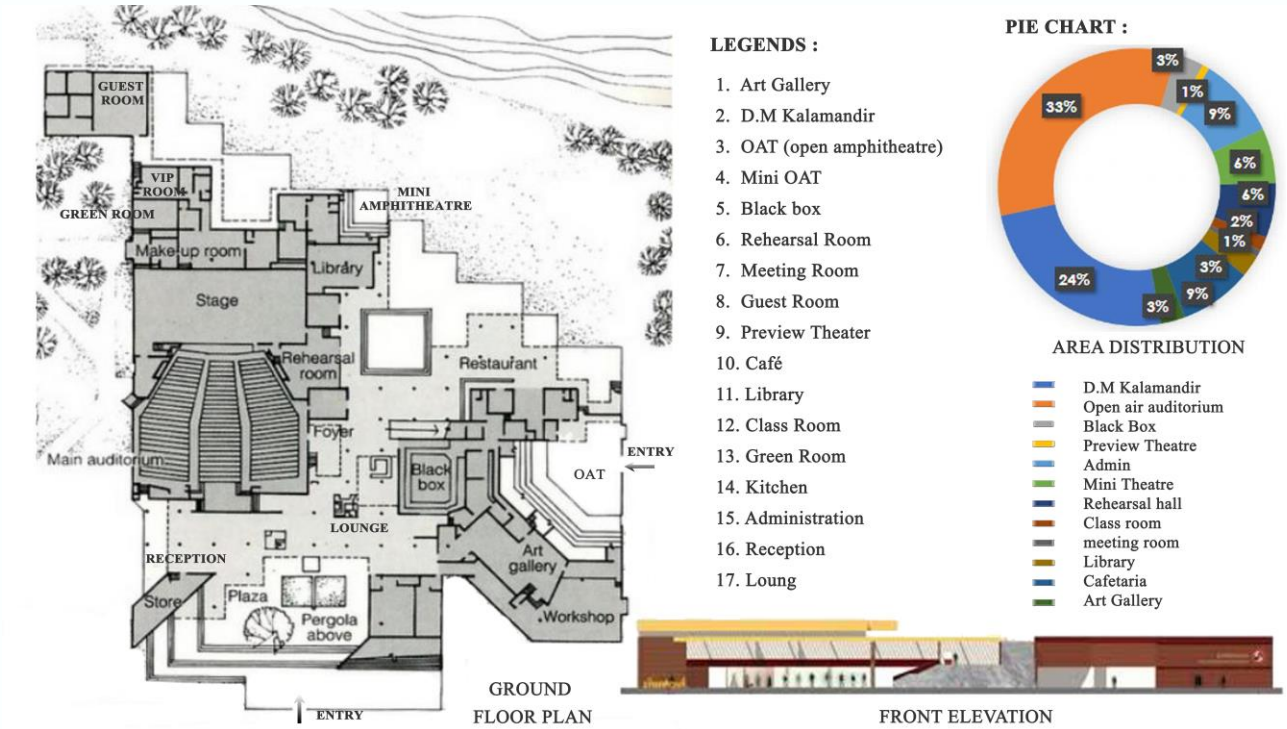
The circulation has been linked to the zoning and has been segregated by separating them through levels -

- Ground Floor for audience functions
- First and Second Floor for staff and students with a necessary degree of inter linking.



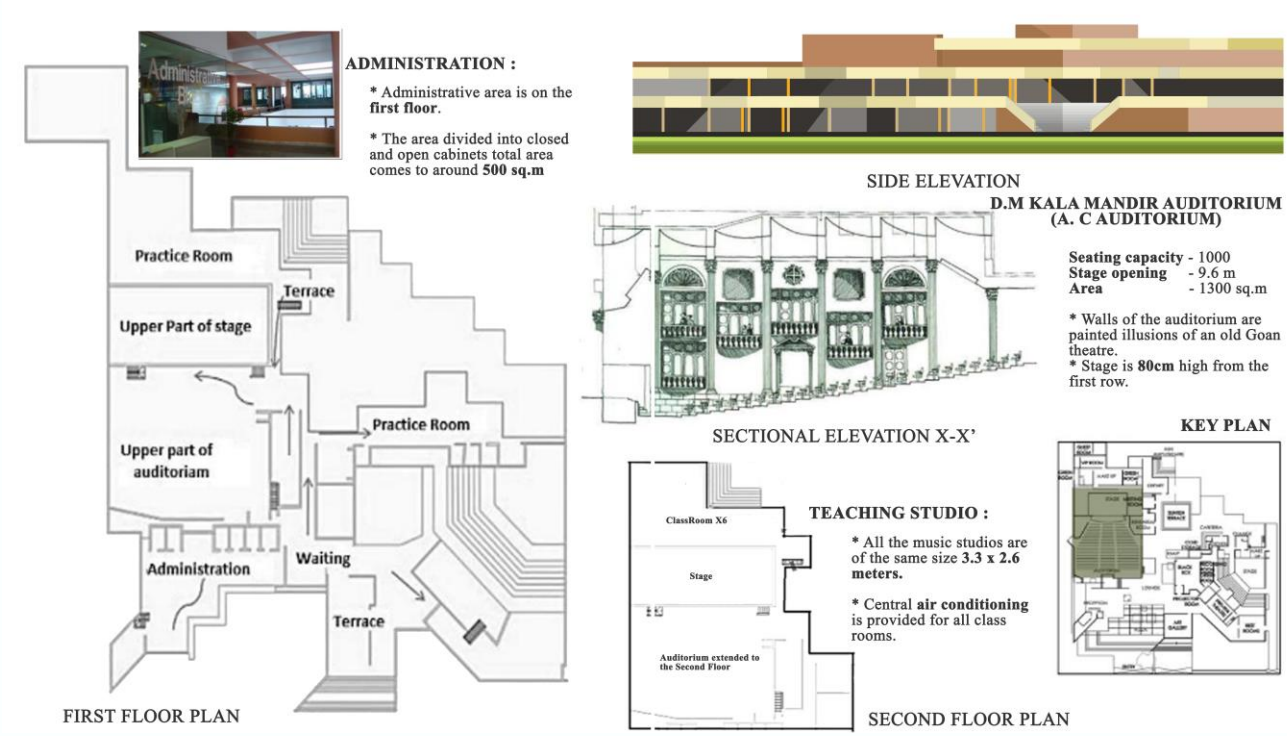
ZONAL SECION OF KALA ACADEMY

FLOOR PLAN WITH DETAIL



GROUND FLOOR PLAN

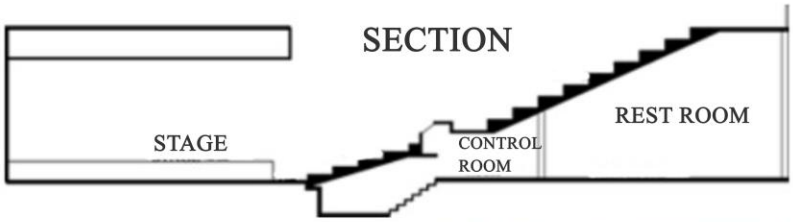
FLOOR PLAN WITH DETAIL



FIRST FLOOR PLAN **SECOND FLOOR PLAN**

FLOOR PLAN WITH DETAIL

KEY PLAN :



AMPHITHEATRE:

Seating capacity **(no chair) - 2000**
Seating capacity **(chair) - 1312**
Proscenium opening **- 15m**
Depth from curtain line **- 12m**

* There is entry from **Road Main** lobby and the **Restaurant Area**.

* The stage is Raised at - **75cm** above the Ground Floor Level

MINI OPEN AIR THEATRE:

* The Mini OAT seats **300 people**.

* It is mainly used as an outdoor classroom and meeting space however small performances are also held here.

* The OAT has a Tread - **85cm** and Rise - **45 cm.**

* The stage is **square** is shape.

OAT'S VIEW

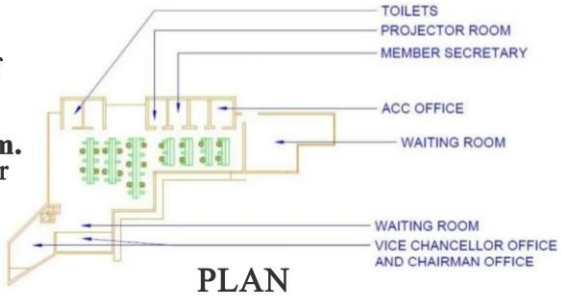
ADMINISTRATION SPACE :

* Glass and exposed concrete were used.

* Septate cabins made of **Plywood**.

* Cabins each of **3.5 sq.m.**
* **Septate office** room for higher authorities.

* Main **lounge area** for visitors.



PLAN

PROGRAMATIC CONTENT

EXTERIOR & INTERIOR IMAGE

COMPONENTS	SPACES	
1. D.M Kalamandir (1300 sqm)	Total Seating	977 nos
	Proscenium Stage Opening	9.6m
	Expandable	11.4m
	Proscenium Height	4.5m
	Appearance Stage Depth	2.7m
	Orchestra Pit	7.2m x 2.1m
	Stage Height From First Row	0.8m
2. Open Air Auditorium (1750 sqm)	Seating (Chair)	1312 nos
	Seating (no Chair)	2000 nos
	Proscenium Opening	15m
	Appearance Stage	2.7m
3. Black Box (175 sqm)	Seating (Chair)	150 nos
	Seating (no chair)	200 nos
4. Preview Theatre (45 sqm)	Capacity	24 nos
5. Administration		500 sqm
6. Mini Theater (Open Air) (340 sqm)	Seating (Chair)	215 nos
	Seating (No Chair)	300 nos
	Tread	0.85m
	Riser	0.45m
	Aisle Width	1.2m
	Stage	7.5m x 7.5m
	Farthest Seat	6m
7. Rehearsal Hall (150 sqm)	Seating (Chair)	100 nos
	Seating (no Chair)	200 nos
8. Class room (86 sqm)	Vocal class room	1.1sqm/p
	Instrumental class	1.8 sqm/p
9. Meeting room		45 sqm
10. Library		135 sqm

LITERATURE STUDY -1

SUPVA, ROHTAK (HARYANA)

INTRODUCTION :

Year of Completion 2014

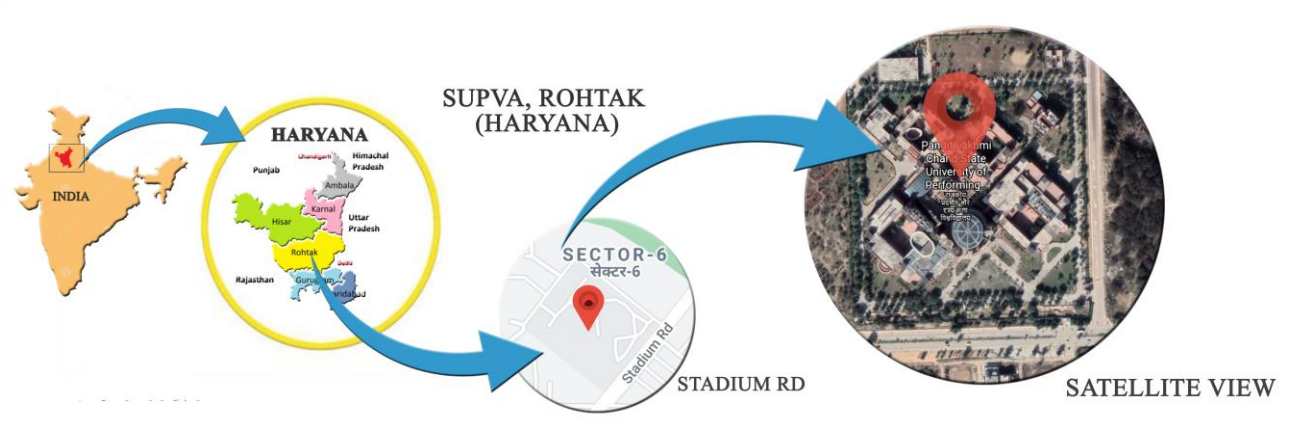
Site Area 101200 sqm

Architect(s) Raj Rewal

Location State University of Performing & Visual Arts, Integrated Campus, (SUPVA) Sector-6, Rohtak - 124001, Haryana**.**

Climate Composiite Climate

LOCATION:



LATITUDE 28º54’32”N,
LONGITUDE 76º36’18”E

ABOUT :

The project offered a unique opportunity to define a new urban complex in terms of traditional values and at the same time allowed us to take a quantum leap of fusing photovoltaic panels as an integral part of its design.

CONCEPT :

The concept of design is based on creating humane spaces between the buildings which merge with surrounding sandstone structures to create an ambience where students can intermingle and collaborate to expand their mind in creative endeavours.

Main Features Of The Campus

• Total land area: 22 acres
• Total Built up area: 7 lac sq. ft.
• Eight Independent building blocks

- State Institute of Fine Arts
- State Institute of Film & Television
- State Institute of Design

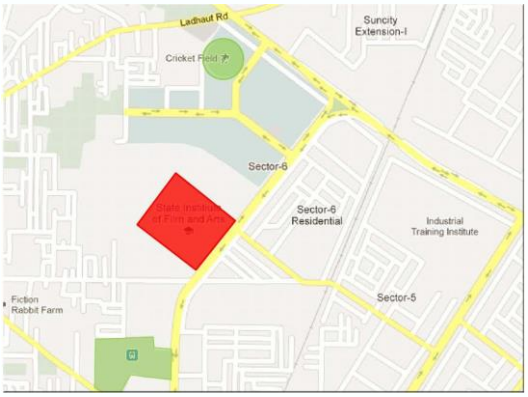
State Institute of Urban Planning & Architecture

- Central block: Auditorium & Library
- Administration & Cafeteria
- Guest House block
- Utility Block

ACCESSIBILITY :

5.1km, rohtak junction	6.9km, Rohtak Helipad
66 km Metro Station	
1.3Km,rohtak Bus Stand	2.4Km Via Stadium Rd

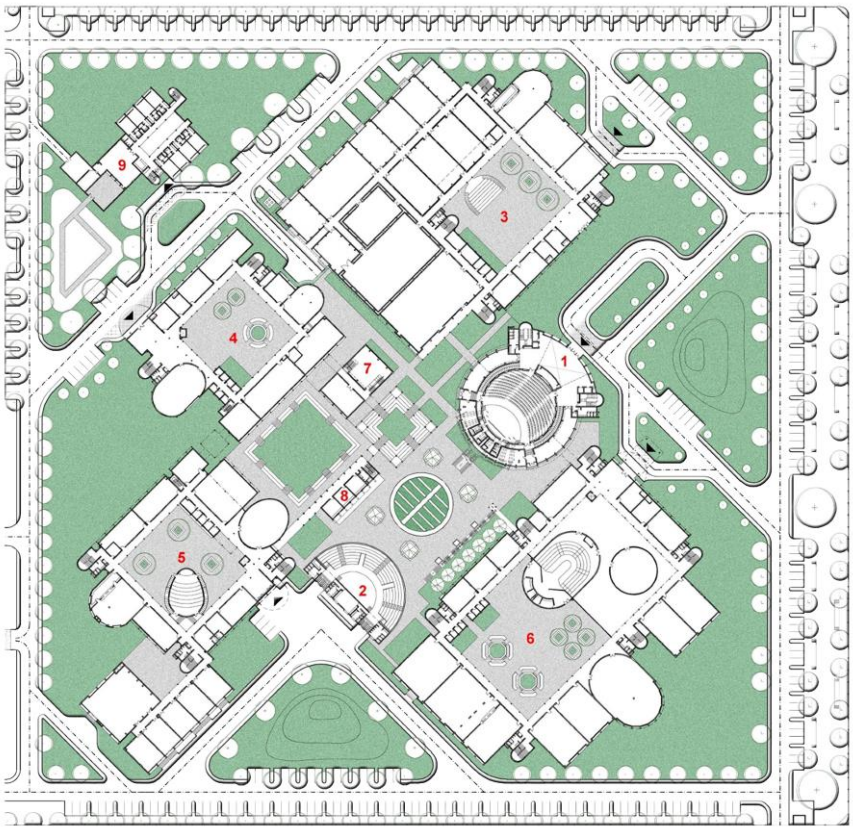
LANDMARKS NEAR THE SITE



East: INDUSTRIAL TRAINING INSTITUTE SEC-5
West: PURPOSED RESIDENTIAL AREA
North: STADIUM
South: ISBT ROHTAK

ITE PLAN & AREA STATEMENT

SITE PLAN DETAILS :



SITE PLAN

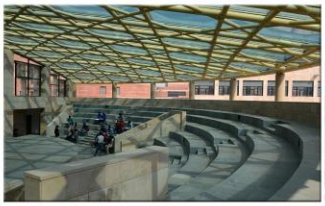
1. Common Activity Area(auditorium, Library And Conference Hall)
2. Amphitheater
3. Institute Of Film & TV
4. Institute Of Architecture And Urban
5. Institute Of Fine Arts
6. Institute Of Fashion Design
7. Cafeteria
8. Administration
9. Guest House

ARCHITECTURAL EXPRESSION

The Building has been Designed as a **Play of Blocks**.

Building is Treated with the **Red Stone, Dholpur Stone Cladding** and Grit which make it Rather Interesting and Less Bland.

The **Stone Jaalis** Seems to be Used for **Light** and **Shadow Effect in Corridor**.



ARTISTIC APPRAISAL

Although the Building Itself does not Stand out Artistically But the **Environment** Created by the users gives it an **Artistic Feel**.

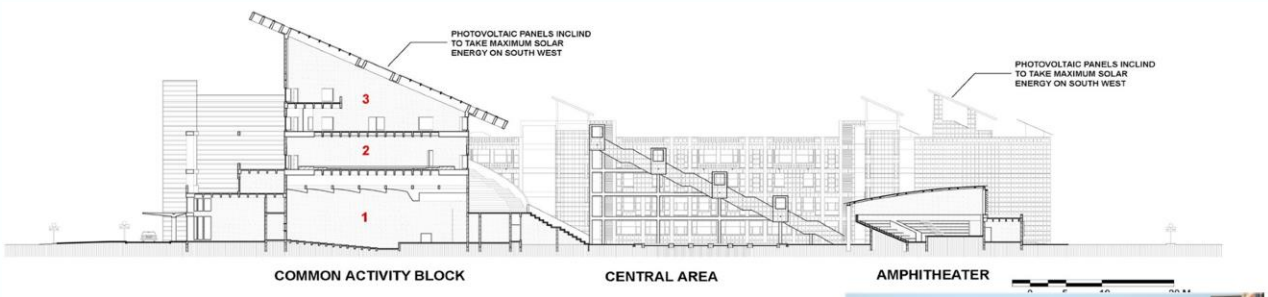
The Courts have been Created for Interaction of Students, Dholpur Stone and Red Stone use for the **Flooring Pattern**.
Play of **Light and Shadows** make it Rather Interesting.

BUILDING 's VIEW

CONCEPT :

The Concept of design is based on creating humane spaces between the buildings which merge with surrounding sandstone structures to create an ambience where students can intermingle and collaborate to expand their mind in creative endeavours.

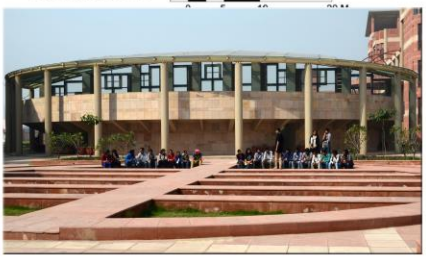
FLOOR PLAN & SECTION DETAILS

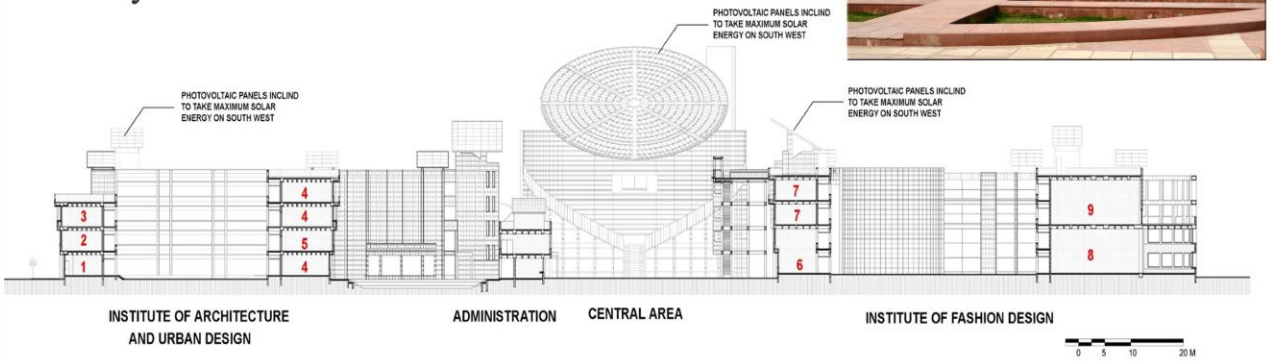


SECTION A-A'

LEGENDS :

1. Auditorium
2. Conference Hall
3. Library





SECTION B-B'

LEGENDS :

1. Principal's Office
2. Class Room
3. Class Room
4. Laboratory
5. Computer Lab
6. Reception
7. Foundation Courses Lab
8. Dvd, Vcd & Books Library
9. Resource Centre

LITERATURE STUDY -2

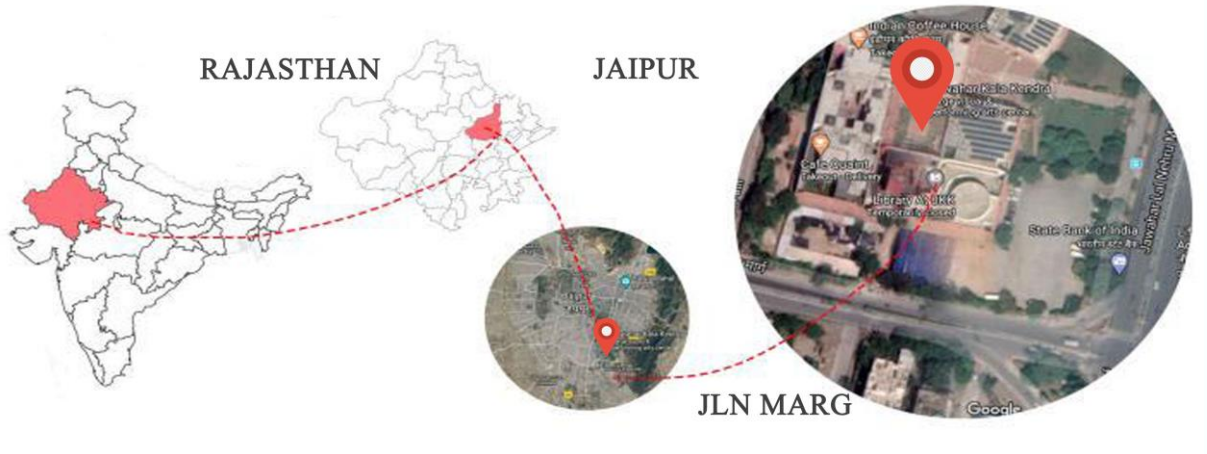
JAWAHAR KALA KENDRA , JAIPUR

INTRODUCTION :

(CITY AND CLIMATE)

- Jaipur (Pink City) Founded by Maharaja Sawai Jai Singh is world wide famous because of its Technical Details and Beauty.
- Jaipur Architecture is based on Indian Vastu Concepts and Shastric cities (Navgrah).
- Jaipur has a hot and Dry Climate. Temperature reaches up to 40ºC- 45ºC in May and June.

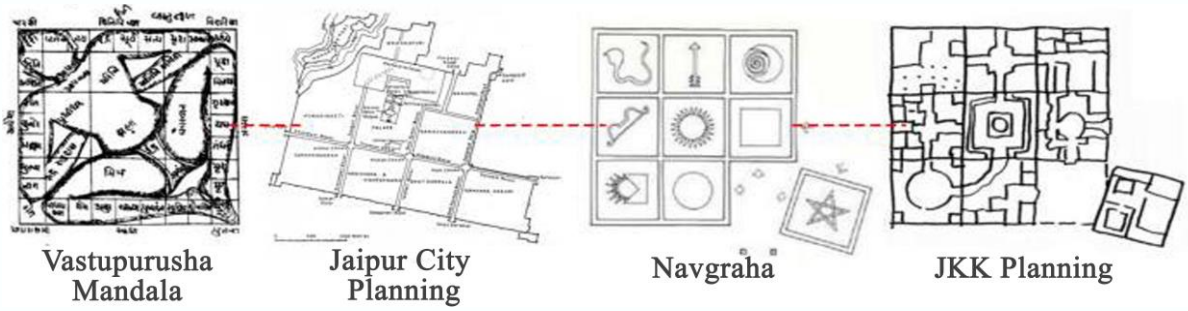
LOCATION:



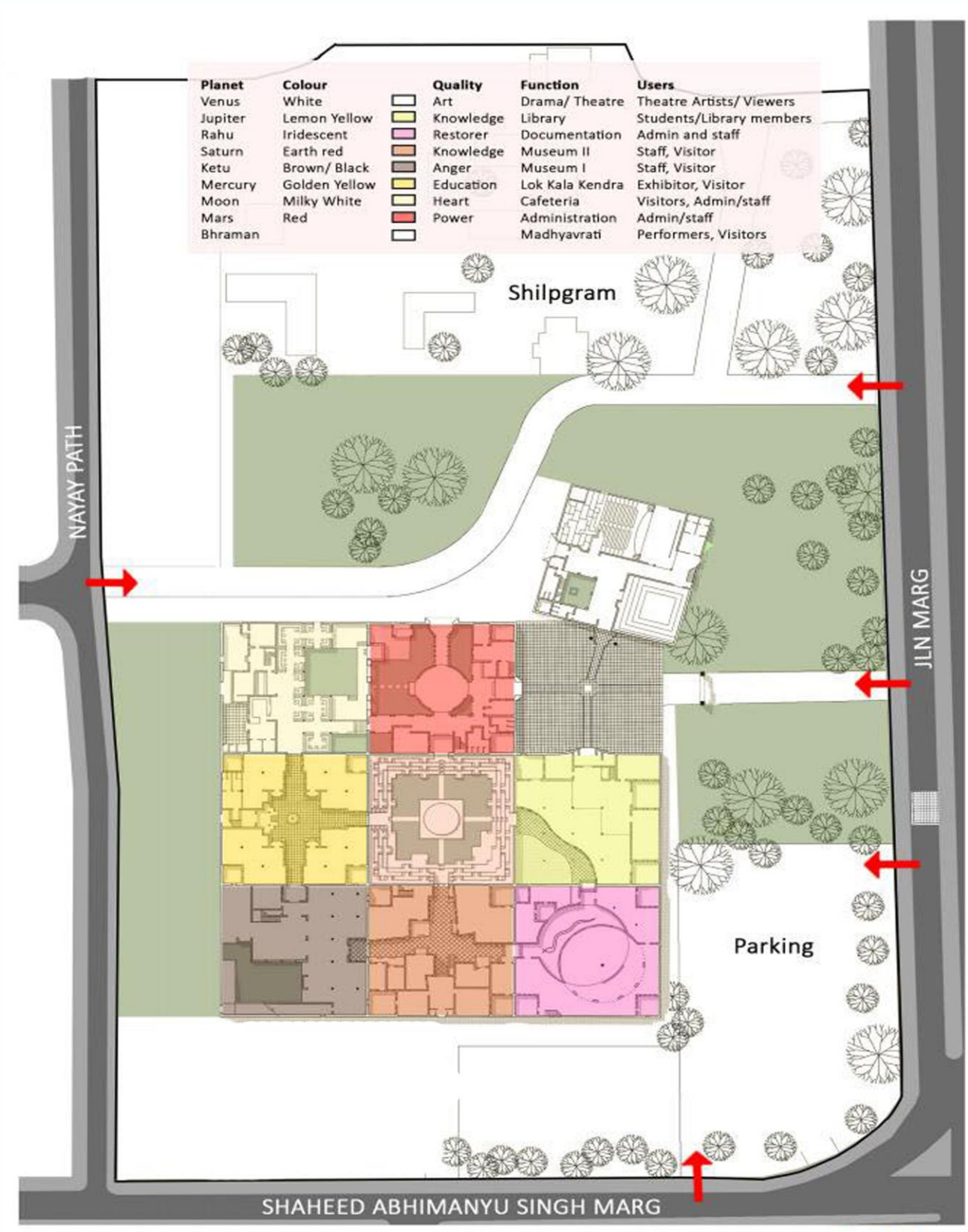
LATITUDE 26º52'33"N,
LONGITUDE 75º48'33"E

CONCEPT AND OVERALL PLANNING :

Architect : Charles Correa
Site Area : 9 Acres
Purpose : To Establish An Art and Cutural Centre in the Memory of Late Prime Minister Jawahar lal Nehru.
Concept :

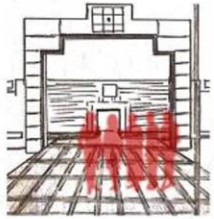


SITE PLAN WITH ZOINING



SITE PLAN

LINER PATHWAYS :



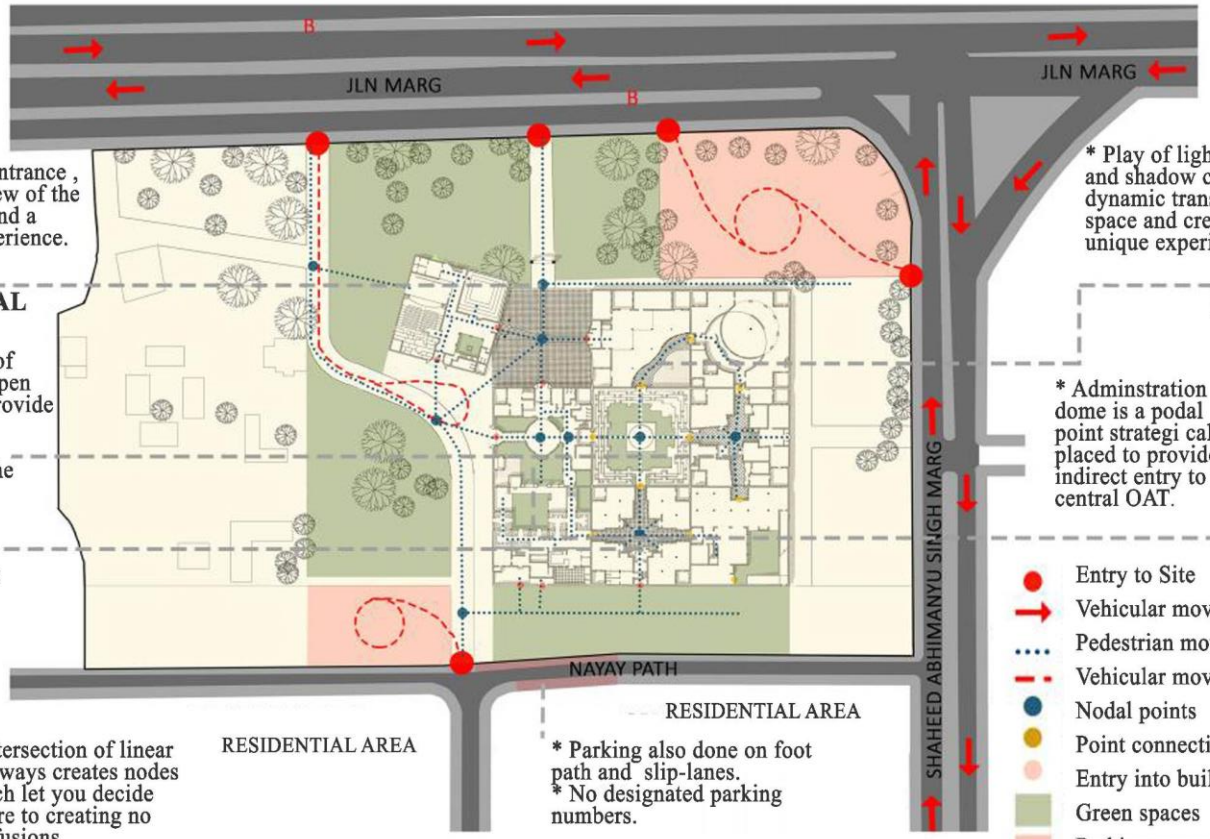
* Linear entrance , framed view of the building and a grand experience.

HIERACHY OF TRANSITIONAL SPACES :

* Heirarchy of open, semi-open and closed provide a change in experience throughout the journey.

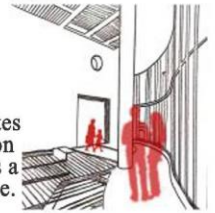
INTERSECTING PATHWAYS :

* Intersection of linear pathways creates nodes which let you decide where to creating no confusions.



SITE PLAN

PLAY OF LIGHT AND SHADOW :



* Play of light and shadow creates dynamic transition space and creates a unique experience.

NODE POINTS :

* Adminstration dome is a podal point strategi cally placed to provide an indirect entry to the central OAT.

ACCESSIBILITY

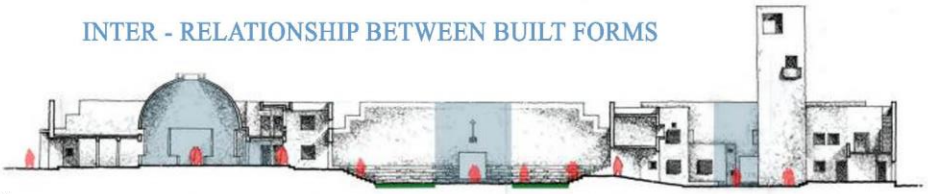
- JAIPUR AIRPORT - 7 KM
- METRO STATION - 1.7 KM
- RAILWAY STATION - 1.5 KM
- BUS STATION - 100 M

*Linear Pathways can be used to Create Direct **Focus on Built Forms**.

*Tucking away Parking at Entrances and Restricting vehicular movement on site, **Saves lot of circulation space**.

* **Provison of Round Abouts** for Vehicular Movements ease Circulation on Site.

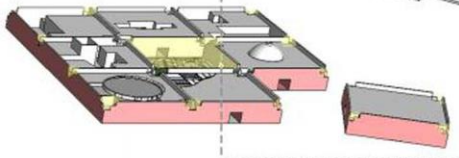
INTER - RELATIONSHIP BETWEEN BUILT FORMS



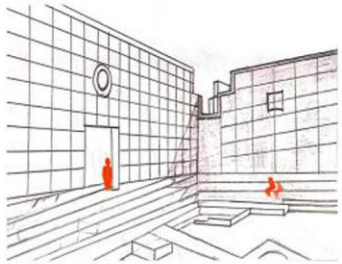
SECTION SHOWING TRANSITIONAL SPACES AND NODAL POINTS.

RESPONSE TO ENVIRONMENT :

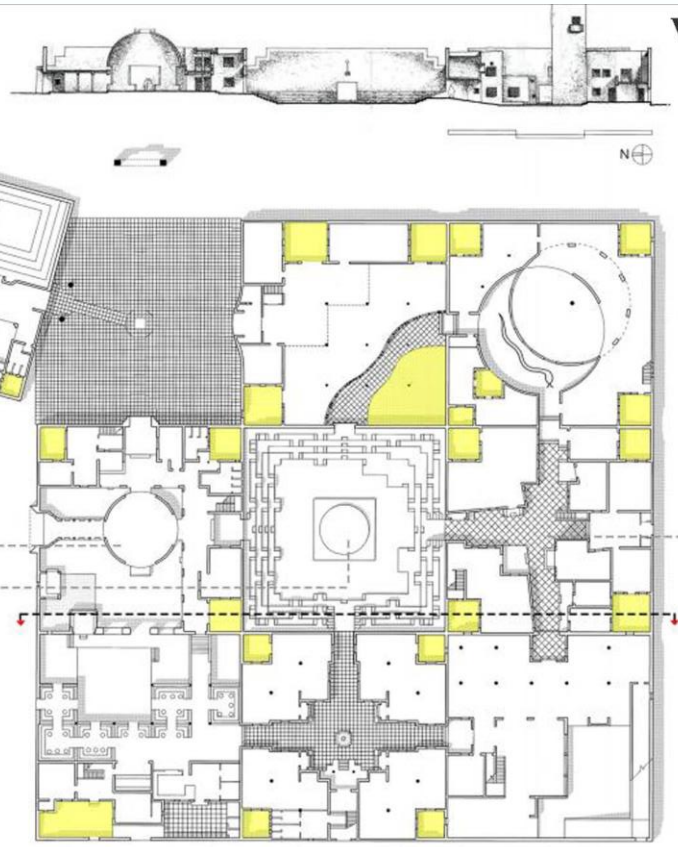
•Light through oculus at the Admin area.



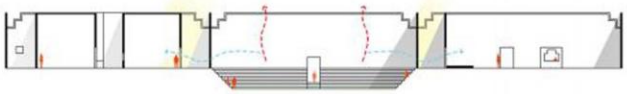
•Light wells and courtyars to provide natural light.



•Courtyard is used to maintain the temprature of the building. Due to incident solar radiationin the courtyard, the air gets warmer and rises.

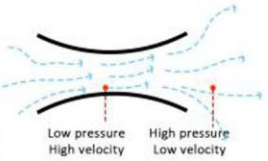


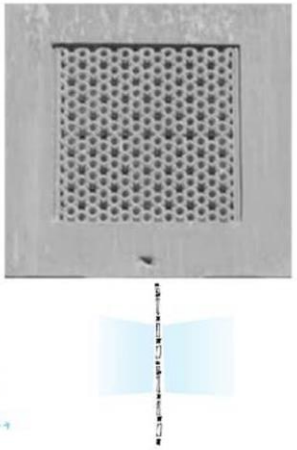
PLAN DEPICTING THE VENTILATION WELLS .



SECTION SHOWING THE USE OF COURTYARD AND VENTILATION WALL.

VENTURI EFFECT :



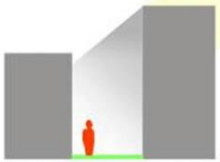


•Venturi Effect through the jali pattern used in jkk.

•Fenestration are inspired from old jaipur architecutre and is given a vernacular look to create a sence of belonging and use the concept of venturi effect.

•Ventilation/light shafts can be placed around the corners of each block, which provided clean walls without compromising Aesthetics like the walls of Jaipur city.

•Form modulation can be done in our design to provide different volumes which can lead to climaticaly sensitive spaces.

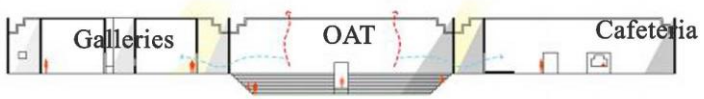


NAVGRAH CONCEPT :

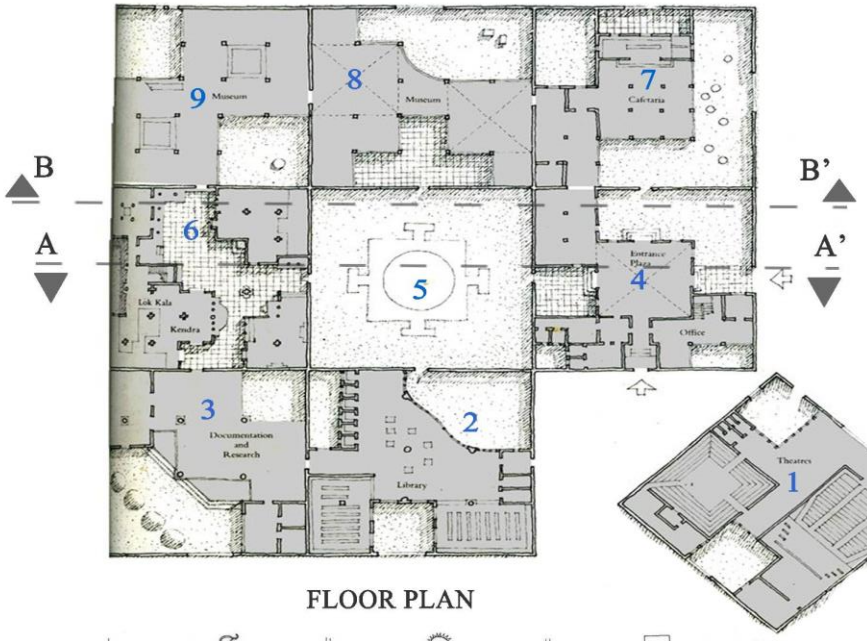
NINE HOUSE MANDALS

NINE BLOCKS :

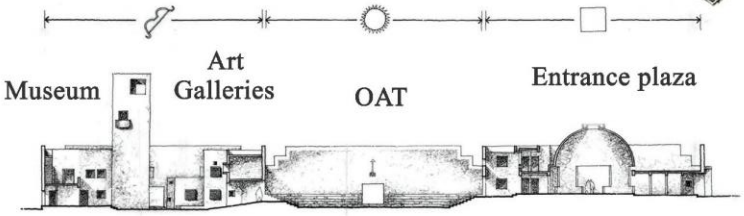
1. Ketu : Alankar Gallery
2. Budh: Sudarshan Art Gallery
3. Chandra: Satkar Cafeteria
4. Shani Srajan Workshop.
5. Surya: Madhyavarti, Open Air Theatre.
6. Mangal: Administration Block
7. Rahu: Sphatic Art Gallery.
8. Guru Sandarbh Library.
9. Shukra: Rangavan and Krishnavan



SECTIONAL ELEVATION B-B'



FLOOR PLAN



SECTIONAL ELEVATION A-A'

LEGENDS :

1. Auditorium
2. Library
3. Art Galleries
4. Dome' Admin Block
5. Open Air Theatre
6. Workshop
7. Cafeteria
8. Exhibition Galleries
9. Museum / Gallery

FACILITIES :

I. Auditorium
II. Library
III. Print making studio
IV. Museum
V. Terracotta gallery
VI. Chaturdik gallery
VII. Sukriti gallery
VIII. Surekh gallery
IX. Parjit-1 gallery
X. Parjit-2 gallery
XI. Workshops
XII. Cafeteria
XIII. Guest house
XIV. Open air theatre
XV. Theatre
XVI. Shilpgram

FLOOR PLAN AND AREA CALCUATION

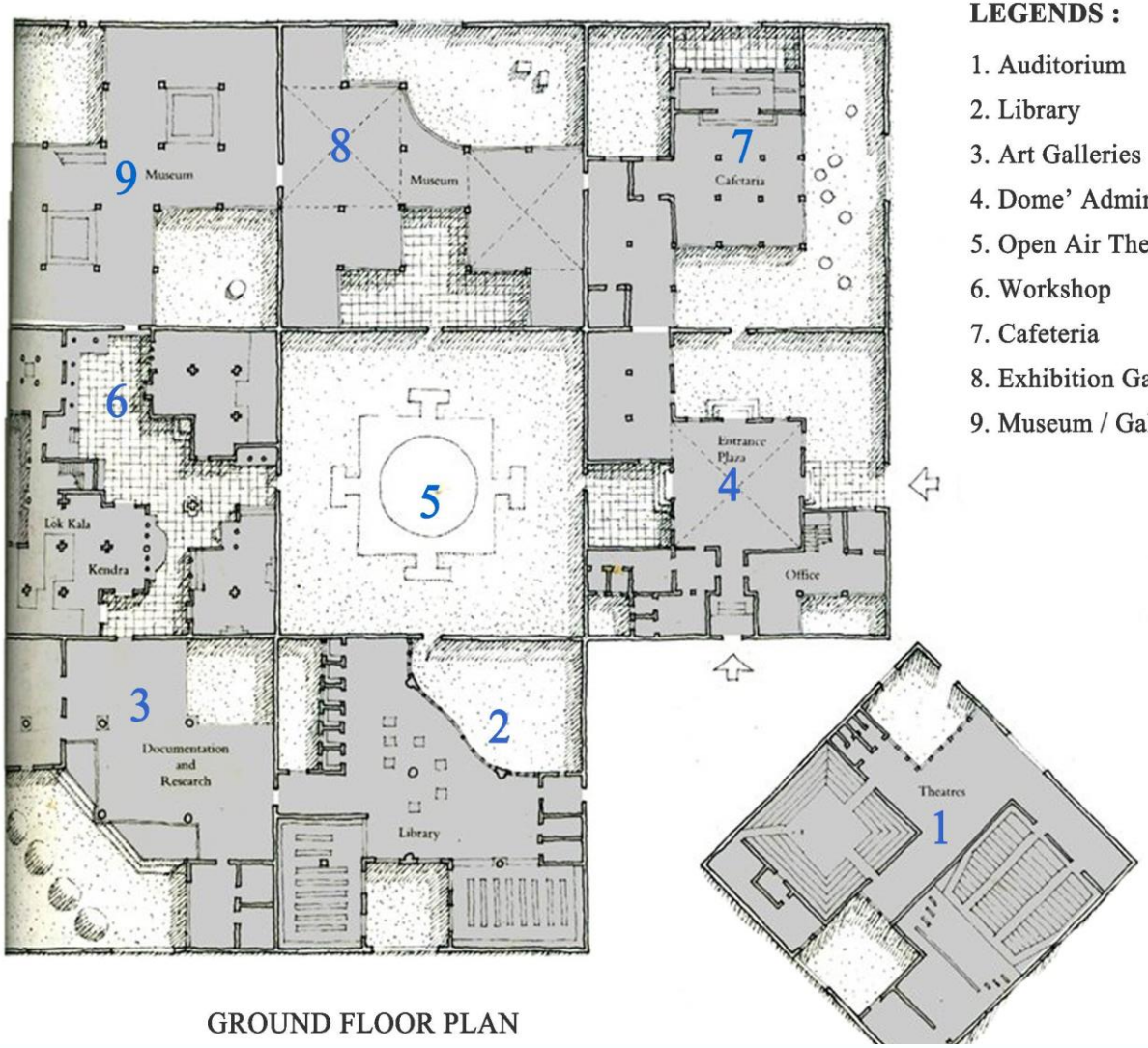
AREA CALCULATION :

I. Total Site Area : 9.7 acres.
II. Madhyavarti (OAT): 870 sqm.
(Seating capacity: 2187)
III. Art Galleries :140sqm.
IV. Sandarbh Library: 650sqm.
V. Shilp Gram: 10000 sqm.
VI. Auditorium: 12mx20m
(Seating Capacity: 229)
VII. Auditorium :12.7mx12m
(Seating Capacity: 150)

PIE CHART :

AREA DISTRIBUTION

- Covered area
- Circulation
- Green area
- Service area
- Open to sky

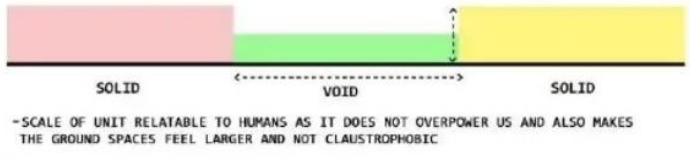


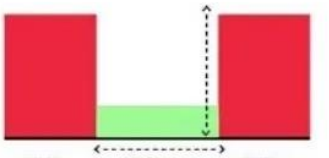
GROUND FLOOR PLAN

LEGENDS :

1. Auditorium
2. Library
3. Art Galleries
4. Dome' Admin Block
5. Open Air Theatre
6. Workshop
7. Cafeteria
8. Exhibition Galleries
9. Museum / Gallery

ELEVATION FEATURE





•Height of almost all the walls is 8m.
•Area is much larger for all the blocks as compared to the height.
•Scale of unit is relatable to humans as it does not overpower us and also makes the ground spaces feel larger.
•Increase in height makes the central space smaller and claustrophobic. So here, smaller height and larger areas eliminates this effect.


MERCURY


VENUS


JUPITER


RAHU

• Presence of each of the planets is expressed by the traditional symbol inlaid in white marble.


SUN


JAWAHAR KALA KENDRA, JAIPUR

MATERIAL FEATURE

Materials used :

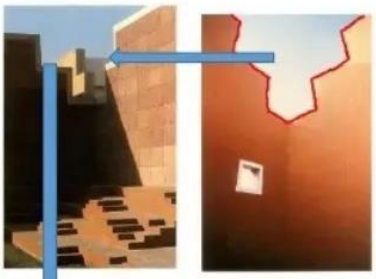
•Red Sandstone in Kund Steps
• External Wall around Kund – Beige Dholpur Stone used in coping
• All the exterior walls are covered with Red Sandstone.
• Interiors are colored in auspicious colors, emotions and mythic associated with that planet.
• Cafeteria furniture : Granite and Kota Stone.
• Cafeteria Flooring : Marble and Grey Mica Slate.
• Planets expressed in traditional symbols on walls : White marble and at some places Granite and Mica Slate.
• Use of locally available materials is preferred like Red Sandstone , Kota Stone, Mica Slate etc.


PAINTED WALLS FOR INTERIORS


JAWAHAR KALA KENDRA, JAIPUR

DAYLIGHT AND VENTILATION

CENTRAL OPEN AIR THEATRE INSPIRED BY COURTYARD PLANNING TO PROVIDE BETTER VENTILATION



SMALL PUNCTURES IN WALLS FOR VENTILATION

LIGHT SHAFTS WITH STEPPED PROFILE

Features:

- Smaller Openings.
- Light Shafts at the corner of each unit.
- Light Shafts have stepped profile with marble coping.
- Central court to bring in light and air.
- Small punctures on the wall for Ventilation.
- Use of Pergolas and Columns for shade and interesting lighting effect, which creates beautiful patterns at day time.

PLAY OF LIGHT AND SHADOW THROUGH PERGOLA AND COLUMNS

JAWAHAR KALA KENDRA, JAIPUR

SERVICES

Backyard Entry

Staff quaters

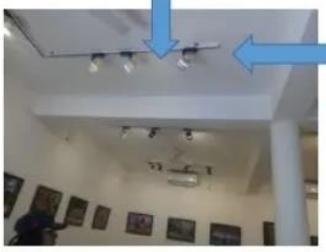
Ssrvice Entry

Service Rooms

Cooling Plant

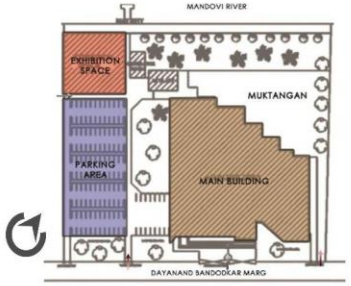
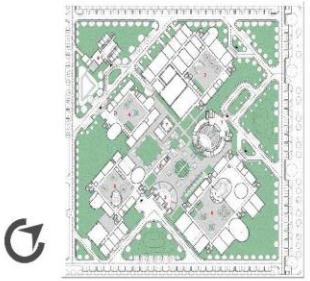
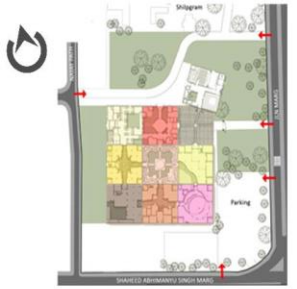
Shilp Gram

- Cooling plants and air conditioning for formal areas like offices and some of the informal spaces like Auditoriums
- All the other areas are naturally ventilated.
- Service Entry through Shilp Gram and Shaheed Abhimanyu Singh Marg.
- Artificial Lighting in art galleries through ceiling mounted spot lights.



SPOT LIGHTS MOUNTED ON CEILINGS TO FOCUS ON THE WALLS OF ART GALLERIES

JAWAHAR KALA KENDRA, JAIPUR

PARAMETERS :	CASE STUDY		LITERATURE STUDY	
Project Name & location	Rabindra Bhawan, New Delhi	Kala Academy, Goa	SUPVA, Rohtak (HARYANA)	Jawahar Kala Kendra, Jaipur
	 View of Rabindra Bhawan, New Delhi	 View of Kala Academy, Goa	 View of SUPVA, Rohtak (Haryana)	 View of Jawahar Kala Kendra, Jaipur
Year of Completion	1961	1985	2014	1992
Site Area | Built-up area	12140 sqm (3 Acre) |14568sqm	25500 sqm (6.3 Acres) | 51000sqm	101200sqm (25 Acre) | 44250sqm	38450 sqm (9 Acre) | 9000 sqm
Architect(s)	Habib Rahman	Charles Correa	Raj Rewal	Charles Correa
Site Plan & Location	 Feroz Shah Marg, New Delhi	 Dayanand Bandodkar Marg, Panaji, Goa	 Sector-6,Rohtak (Haryana)	 JLN Marg, Jaipur
Ground Coverage	3,035 sqm - 25%	10,200 sqm - 40%	30,360 sqn - 30%	8,100 sqm - 30%
FAR	1.2	2.0	1.0	1.5
Criteria for Selection	Located in Delhi, it faces near Similar Challenge in Terms of Response to Climate & Context.	Grounded to Earth Design With Vast Expanse of Greens Creating and Ideal Enviornment for Learning.	A Very Recent Example of Reinterpreting the Spaces as per Indian Requirement and use of Local Material.	Use of Locally Available Material and Use of Traditiona Knowledge of Vastu to Organise Spaces.

Project Name	Rabindra Bhawan, New Delhi	Kala Academy, Goa	SUPVA, Rohtak (HARYANA)	Jawahar Kala Kendra, Jaipur
Project Components	Museum, Theatre, Art Gallery, Reading & Listening Library, Teaching & Research Block, Music Research Lab, Audio-Visual Archieves.	1000 Seat Auditorium, Preview Theatres, Art Galleries, 2000 Seat Amphitheatre, Canteen, Black Box, Meeting Room, Rehearsal Room, Guest Room, Library, Class Room.	Auditorium, Library and Conference Hall, Amphitheatre, Teaching & Research Block, Studio, Cafeteria, Common Facility Zone, Administration, Guesthouse.	Theatres, Courtyard, Art Galleries, Amphitheatre, Library, Teaching & Research Block, Cafeteria, Museum, Studio.
Climate Conditions	Delhi's has an Composite Climate. It is very Hot in Summer (April-July) and Cold in Winter (December -January).	Warm and Humid Climate. Receives Heavy Rainfall throughout the Year.	Composite Climate with Very little rainfall. Average Temperature of 25°C	Hot & Dry Climate. Very less Rainfall and High Temperatures During Summer Months.
Sustainable System	**Thick Load Bearing Wall adding to Thermal insulation. Leuvers on Windows to block Direct Sun and Rain.**	**Extensive use of Pergola to Control Micro Climate. Well Ventilated Inside Spaces.**	**Microclimate Created with Shading Devices & Courtyard, Insulation on 0uter wall, Glazed Window. NW-SE Orientation with Green Buffer.**	**Classical Rajasthani Courtyard Typology Well Suited for Harsh Climate of the area. Thick Wall Acts as Insulators.**
Structural System	Concrete Frame with Load Bearing Walls.	Concrete frame having 6m x 6m Grid, Wafer Slab.	Concrete Frame.	Concrete Frame.
Facade & Fenestration Treatment	Exposed Brick Wall with Horizontal Leuvers.	Stone Clad & Plaster, Parapets Around Terrace.	Stone Cladding with Fenestration to Allow Winter Sun.	Dry Cladded Red Sand Stone.
Architectural Style	**Post-colonial architecture.**	**Contemporary Indian Architecture.**	**Contemporary Indian Architecture.**	**Contemporary Indian Architecture.**
Key Learnings	Sitting in the Strong Context of National School of Drama & SRCPA this Building Reponds Very Strongly to its Contex.	Well Resolved Circulation. The Building Looking Onto River Mandovi in the context.	Proper seperation in all Institute Buildings in Placement and Connectivity Connected by Centrally Placed Auditorium & Library.	Segregation of Spaces was done to FacilitateSeperate Utilisation of Building at once without Comprimising the Integrity of Flow of Movement.

AREA ANALYSIS

ADMINISTRATION			
AREA	**JAWAHAR KALA KENDRA** AREA (SQ.M.)		**STANDARD (SQ.M.)**
RECEPTION	15		_
ENTRANCE FOYER	85 @ .7m^2/P FOR 100 P		.8m^2/P
DIRECTOR OFFICE	24		_
P.A.OFFICE	18		_
DY. DIRECTOR OFFICE	_		_
CONFERENCE	40 @ 2m^2/P FOR 20 P		1.5-2 m^2/P
PUBLIC RELATION AND PUBLICITY SEC.	_		_
MAINTENANCE SECTION	__		_
ACCOUNTS SECTION	_		8.5 m^2/P
STAFF	40		8.5 m^2/P
STAFF ROOM	18		2.25-4 m^2/P
RECORD ROOM	_		_
PANTRY	_		_
STORAGE	_		
M TOILET	_		1 W.C,1 URINAL,1 W.B
F TOILET	_		1 W.C,1 W.B

AUDITORIUM			
AREA	**JAWAHAR KALA KENDRA AREA (SQ.M.)**		**STANDARD (SQ.M.)**
ENTRANCE FOYER	72 @.3m^2/P		.65m^2/P
SEATING AREA	180 @.75m^2/P FOR 240 P		.8-1.2m^2/P
STAGE	100 @.42 m^2/P		.46-.65m^2/P
STAGE/BACSTAGE	_		100%OF SEATING AREA
BACKSTAGE	_		
stage workshop/store	_		50% OF STAGE AREA
green room -M	25		MIN.20 m^2
green room -F	25		MIN.20 m^2

toilets	_		
rehersal room	_		35% OF STAGE AREA
M.TOILET	12		2 W.C'S,5 URINALS,2 W.B'S
F.TOILET	12		3 W.C'S,2 W.B'S
VIP FOYER	_		MIN. 30 m^2

CAFETERIA			
AREA	**JAWAHAR KALA KENDRA** AREA (SQ.M.)		**STANDARD (SQ.M.)**
SEATING AREA	350		1.4-2 m^2/P
CAFETERIA SERVICE	55		.74-1.11m^2 / SEAT
Receiving	_		5%
Food storage	15		20%
Preparation	_		14%
Cooking	_		8%
Baking	_		10%
Ware washing	_		5%
Traffic aisles	_		16%
Trash storage	_		5%
Employee facilities	_		15%
Misc.	_		2%
M. TOILET	_		2 W.C'S,3 URINALS,2 W.B'S
F. TOILET	_		2 W.C'S,2 W.B'S
HOBBY CENTRE			
AREA	**JAWAHAR KALA KENDRA** AREA (SQ.M.)		**STANDARD (SQ.M.)**
RECEPTION	_		
ENTRANCE FOYER	_		.55 m^2/P FOR 1/3rd POP.
OFFICE	_		8m^2/P
STAFF ROOM	_		2.25-4 m^2/P
CERAMIC WORKSHOP			
POTTERY WORKSHOP			
WOOD WORKSHOP	160 (5 IN NO.)		15 m^2/ P

MUSIC CLASS(VOCAL)	_		7.5m^2/ P
MUSIC CLASS(INST.)	_		7.5m^2/ P
DANCE CLASS	_		9m^2/ P
ART STUDIO	35		7m^2/ P
SEMINAR ROOM	_		1m^2/ P
PANTRY	_		
STORAGE	_		
M TOILET	_		2 W.C'S ,3 URINALS ,2 W.B'S
F TOILET	_		1 W.C ,1W.B

AMPHITHEATRE

AREA	**JAWAHAR KALA KENDRA** AREA (SQ.M.)		**STANDARD (SQ.M.)**
SEATING AREA	600 @ .6m^2/P		.8m^2/P
STAGE	80		MIN.40' X 25'
GREEN ROOMS-M	_		MIN.20m^2
GREEN ROOMS-F	_		MIN.20m^2
STORAGE	_		_

LIBRARY

AREA	**JAWAHAR KALA KENDRA** AREA (SQ.M.)	**STANDARD (SQ.M.)**
STACK AREA	80 @.007m2/VOL.(11000VOL.)	.007 m^2/P
READING AREA	50 (FOR 60 P) @.8m^2/P	1.2m^2 / P
READING CARELS	18 (FOR 8P) @2.25m^2/P	2.5m^2 / P
COMPUTER ROOM	44	5.8m^2 / P
AUDIO VISUAL ROOM	72(FOR 60 P) @ 1.2m2/P	1.5-2m^2 / P
LIBRARIAN	16	_
STAFF	30	_
XEROX ROOM	_	_
ISSUE COUNTER	_	_
M. TOILET	_	2 W.C'S, 4 URINALS,1 W.B'S
F. TOILET	_	1 W.C,1 W.B
STORE	1	_

ART GALLERY		
AREA	JAWAHAR KALA KENDRA AREA (SQ.M.)	STANDARD (SQ.M.)
ENTRANCE FOYER AND DISPLAY		.55m2/P FOR 1/3rd POP.
TEMPORARY EXHIBITION	1024	_
ART GALLERY(1)	_	_
ART GALLERY(2)	_	_
ART GALLERY(3)	_	_
ART GALLERY(4)	_	_
PERMANENT EXHIBITION	1070	_
CURATOR'S OFFICE	_	_
STORAGE	_	_
M. TOILET	_	2 W.C.'S, 5 URINALS,2 W.B.'S
F. TOILET	_	2 W.C.'S,1 W.B.

IN JKK,ART GALLERY FORMS 21.3 % OF BUILT UP AREA AND 5.48 % OF SITE AREA.

RESIDENTIAL		
AREA	JAWAHAR KALA KENDRA AREA (SQ.M.)	STANDARD (SQ.M.)
GUEST ROOMS (SINGLE)	_	20m2/P
GUEST ROOMS (DOUBLE)	31(3 IN NO.)	28m2/P
M.TOILET	21	4W.C'S,2W.B'S,4BATHS
F.TOILET	10	3W.C'S,2W.B'S,3BATHS
DINING	_	1.5m2/P
KITCHEN	_	45% OF DINING AREA
STORE	_	

IN JKK GUESTROOMS ARE 2.5% OF BUILT UP AND .65% OF SITE AREA.BUT IT IS NOT SUFFICIENT.

PROGRAM REQUIRMENT:

ADMINISTRATION	
AREA	
RECEPTION	15 SQM
ENTRANCE FOYER	200 SQM(250 P)
DIRECTOR OFFICE	20SQM
P.A. OFFICE	10 SQM
CONFERENCE	40 SQM
STAFF	40 SQM
PANTRY	10 SQM
STORAGE	10 SQM
M TOILET	35 SQM
F TOILET	35 SQM
	415 SQM

AUDITORIUM	
AREA	
ENTRANCE FOYER	90 SQM
SEATING AREA	650 SQM(FOR 800 P)
STAGE	150 SQM
BACKSTAGE	25 SQM
STAGE STORE	20 SQM
GREEN ROOM -M	MIN. 20 SQM
GREEN ROOM -F	MIN. 20 SQM
REHERSAL ROOM	45 SQM
BACK STAGE TOILETS	20 SQM
M.TOILET	2 W.C'S,5 URINALS,2 W.B'S
F.TOILET	3 W.C'S,2 W.B'S
VIP FOYER	60 SQM
	1080 SQM

LIBRARY	
AREA	
STACK AREA	40 SQM
READING AREA	90 SQM@ 1.2 SQM (FOR 75 P)
AUDIO VISUAL ROOM	60 SQM
OFFICE AREA (LIBRARIAN & STAFF)	60 SQM
XEROX ROOM AND ISSUE COUNTER	15 SQM
M. TOILET	35 SQM
F. TOILET	35 SQM
STORE	8 SQM
	343 SQM

ARTISTIC PROGRAMS	
AREA	
CERAMIC WORKSHOP	110 SQM
POTTERY WORKSHOP	150 SQM
WOOD WORKSHOP	150 SQM
EXHIBITION GALLERY-1	325 SQM
MUSIC CLASS	240 SQM
DANCE CLASS	240 SQM
PAINTING STUDIO	190 SQM
EXHIBITION GALLERY-2	325 SQM
SCULPTURE COURT	150 SQM
M TOILET	105 SQM
F TOILET	65 SQM
	1810 SQM

SOCIAL & RECREATIONAL PROGRAMS	
AREA	
TABLE TENNIS	65 SQM
CARDS ROOM	240 SQM
REST AREA	100 SQM
PUB	235 SQM
BAR	325 SQM
SAUNA BATH	50 SQM
STORE	35 SQM
MEDITATION CLUSTURES	650 SQM
M TOILET	105 SQM
F TOILET	65 SQM

	1870 SQM

CAFETERIA	
AREA	
SEATING AREA	350 SQM @1.4sqm/p (for250 p)
KITCHEN	30 SQM
PANTRY	20 SQM
STORAGE	-
M. TOILET	35 SQM
F. TOILET	35 SQM
	480 SQM

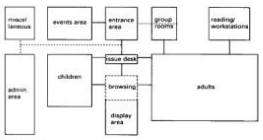
OTHERS SERVICES	
AREA	
OUTDOOR SPORTS	1200 SQM
INFORMAL SEATINGS	500 SQM
ELECTRICAL ROOMS	16 SQM
COMMON M. TOILET	35 SQM
COMMON F. TOILET	35 SQM
	1786 SQM

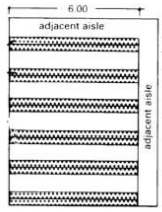
AMPHITHETRE	
SEATING AREA	200 SQM (FOR 200 P)
STAGE	85 SQM
GREEN ROOM (M)	MIN. 20 SQM
GREEN ROOM (F)	MIN. 20 SQM
STORAGE	10SQM
	335 SQM
EXHIBITION AREA	
ENTRANCE FOYER AND DISPLAY	-
TEMP. EXHIBITION	-
ART GELLERY	-
PERMENENT EXHIBITION	-
OFFICE	-
STORAGE	-
	-
RESIDENTIAL AREA	-
GUEST ROOMS SINGLE	100 SQM(5P)
GUEST ROOMS DOUBLE	120 SQM(10 P)
DINNING	50 SQM(35 P)
KITCHEN	20 SQM
STORE	15 SQM
	405 SQM
	- **TOTAL BUILDABLE AREA=8524 SQM**

STANDARDS ...

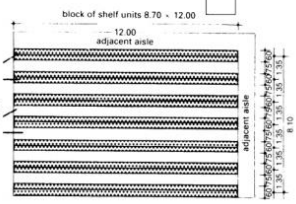
LIBRARIES

LIBRARIES PERFROM A LARGE FUNCTIONS IN SOCIETY. PUBLIC LIBRARIES PROVIDE COMMUNITIES WITH LITERATURE AND OTHER INFORMATION MEDIA WITH AS MUCH AS POSSIBLE DISPLAYED ON OPEN SHELVES.





FLOOR AREA FOR OPEN ACCESS BOOKSHELVES 8.70X6.00M PER BLOCK SHELVE UNITS



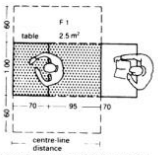
FLOOR SPACE OF BOOKSHELVES IN AREA CLOSED TO PUBLIC

area	centre-line distance (m)
stacks	1.35 (1.20) 1.44
open-access shelving	1.40 1.70
enquiry area and reading room	1.60 2.00

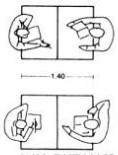
area	volumes per shelf
stacks	25-30
open-access shelving	20-25
enquiry area and reading room	20

CIRCULATION ROUTES

IT SHOULD BE >1.2M WIDE, AND CLEAR SPACES BETWEEN SHELVES AT LEAST 1.3 -1.4M WIDE.AVOID OVER CROSSING AND OVERLAPPING OF ROUTES FOR USERS, STAFF AND APARTMENTS.



FLOOR AREA FOR AN INDIVIDUA WORKSTATION



MIN. DISTANCE BETWEEN TABLE

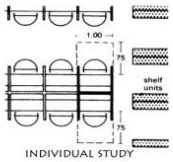
$$F_1 = b \cdot e \cdot \left(1 + \frac{N\%}{100}\right) \quad \text{formula 1}$$

F1 floor area required for an open workstation for library user
b width of table
e distance between centre-lines of tables arranged one behind the other
N% percentage of area allowed for adjacent aisles providing access to individual workstations

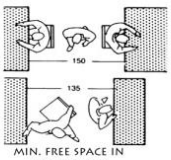
Under the conditions listed above, the floor area required for an individual work station is approx. 2.50 m². Example:

$F_1 = 1.00 \text{ m} \cdot (0.70 + 0.95) \cdot \left(1 + \frac{50}{100}\right)$

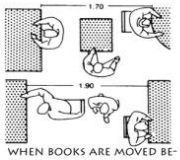
$F_1 = 2.48 \text{ m}^2$



INDIVIDUAL STUDY BOOTHS



MIN. FREE SPACE IN READING AREA



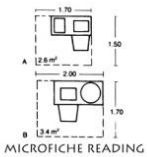
WHEN BOOKS ARE MOVED BETWEEN SEAT AND STANDING USERS

INTERNAL ENVIRONMENT

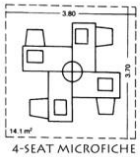
BOOKSHELVES SHOULD BE PROTECTED FROM DAYLIGHT.
LIGHTING SHOULD HAVE SEPARATE SWITCHES IN EACH AREA AND BE INDIVIDUALLY ADJUSTABLE AT EACH WORK STATION.
THE RECOMMENDED TEMPERATURE FOR READING ROOM AND OPEN ACCESS AREAS IS 22°C IN SUMMER AND 20°C IN WINTER, WITH 50-60% RELATIVE HUMIDITY AND 6 OR 7 AIR CHANGES PER HR.

FLOOR AREA

WORK SPACES SHOULD PREFERABLY BE IN DAYLIGHT AREAS. THE AREA REQUIRED FOR A SIMPLE READING/ WORK PLACE IS 2.5 M²; FOR A PC OR INDIVIDUAL WORK PLACE,>4.0M² IS NEEDED.
THERE SHOULD BE 300M² OF USABLE FOOR AREA FOR EVERY 10000 UNITS OF COLLECTION.



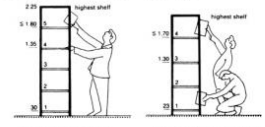
MICROFICHE READING WORKSTATION

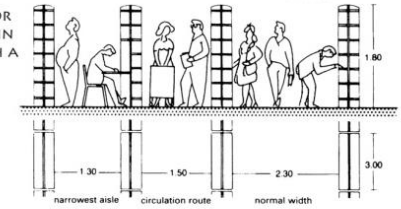


4-SEAT MICROFICHE STATION

HEIGHT

AREAS FOR ADULT USER CAN HAVE 5 OR 6 SHELF LEVELS (MAX. REACH 1.80M), IN CHILDREN'S AREA 4 SHELF LEVELS WITH A REACH HEIGHT OF 1.20M.

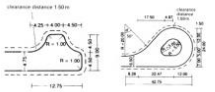




PARKING

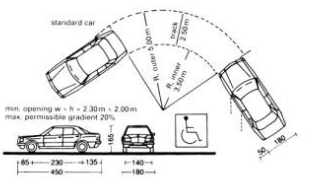
THE TYPE, SIZE AND SHAPE OF TURNING PLACE IN ROAD DEPENDS ON THE ROAD USE IN THAT PARTICULAR AREA.
WHERE CARS PARKED FACE TO FACE , TRANSVERSE BARRIERS ABOUT 10 CM HIGH CAN BE USED TO ACT AS FRONTAL STOPS.
ROAD TURNING PLACES CAN BE DDESIGNED AS HAMMERHEADS, CIRCULAR OR LOOPS.

TYPES OF TURNING LOOPS
HAMMERHEAD
LOOP
CIRCULAR

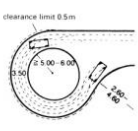


type of vehicle	length (m)	width (m)	height (m)	turning circle radius (m)
motorcycle	2.20	0.70	1.00[2]	1.00
car				
- standard	4.70	1.75	1.50	5.75
- small	3.60	1.60	1.50	5.00
- large	5.00	1.90	1.50	6.00

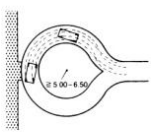
VEHICULAR TURNING DATA



STANDARD CAR

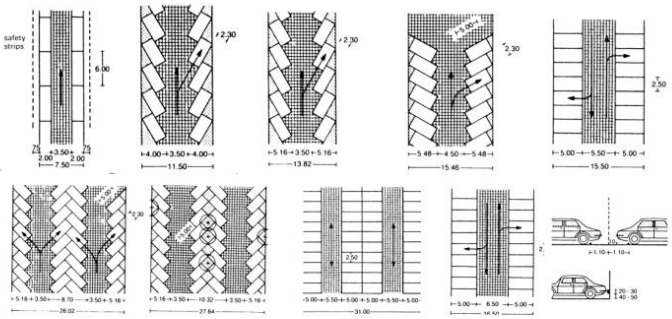


CAR TURNING CIRCLE



CAR TURNING CIRCLE RADIUS FOR AN ENTRANCE DRIVE >5- 6.50M

PARKING LAYOUT



STANDARDS FROM NBC

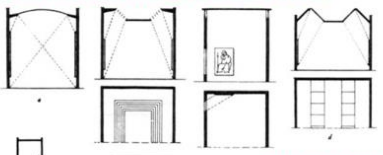
SOCIOCULTURAL FACILITIES

	Require,Min Area 750 m²
•LAND AREA	
•COMMUNITY ROOM (1 FOR EVERY 5000 POPULATION)	
•COMMUNITY HALL, MANGAL KARYAYAL&ALYANA MANDAPAW (1 FOR EVERY 15000 POPULATION)	Area 2000m²
•RECREATIONAL CLUB (1 FOR EVERY 100000 POPULATION)	Area 10000 m²
•MUSIC, DANCE AND DRAMA CENTRE (1 FOR EVERY 100000 POPULATION)	Area 1000 m²
•MEDITATION AND SPIRITUAL CENTRE (1 FOR EVERY 100000 POPULATION)	Area 5000 m²
•SOCIO-CULTURAL CENTRE (1 FOR EVERY 1000000 POPULATION)	area 15 ha

STANDARADS FROM TIME SAVER

MUSEUM

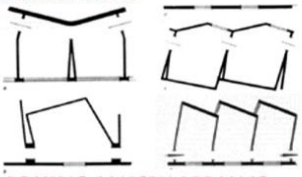
DIFFERENT METHODS FOR ADMITTING



THIS TYPE OF LIGHTING, SOMETIMES CALLED OVERHEAD LIGHTING.
1. A FREER AND STEADIER SUPPLY OF LIGHT, LESS LIABLE TO ANY BUILDING ASPECTS.
2. THE SAVING OF WALLSPACE, WHICH THUS REMAINS AVAILABLE FOR EXHIBITS.

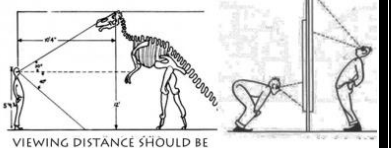
DIFFERENT TYPES OF FLOOR PLANS FOR THE LOCATION OF DOORS IN RELATION TO THE USE OF SPACE .
A GOOD MUSEUM INCLUDES THESE BASIC FUNCTIONS :
(1) CURATORIAL, (2) DISPLAY,
(3) DISPLAY PREPARATION,
(4) EDUCATION .

DIFFERENT WAYS OF DIVIDING EXHIBITION SPACE



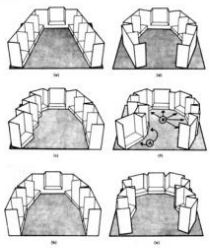
HEIGHT AND VISION

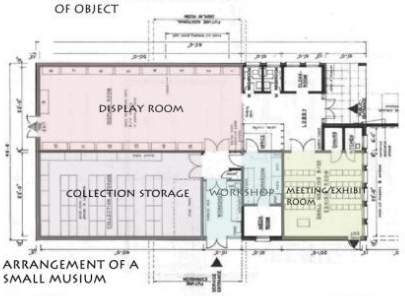
DIFFICULTIES ENCOUNTERED IN VIEWING DETAILS MORE THAN 3 FT(0.9 M) BELOW OR 1 FT (0.3 M) .ABOVE LEVEL.



VIEWING DISTANCE SHOULD BE INCREASE WITH GREATER SIZE OF OBJECT

POSSIBLE GALLERY ARRANGEMENTS

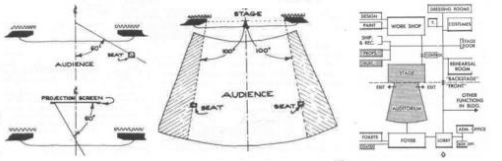


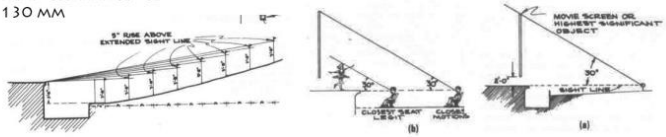


ARRANGEMENT OF A SMALL MUSIUM

AUDITORIUM

EYE HEIGHT – 1120±100MM
TREAD OF SEATING TIER – 800 TO 1150MM
HEAD CLEARANCE –C1: 65 MM
HEAD CLEARANCE –C2: 130 MM





STANDARDS ...

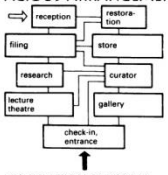
STANDARDS FROM NEUFERT

MUSEUM'S

THE MAIN CONCERN OF MUSEUMS AND ART GALLERIES ARE COLLECTING, DOCUMENTING, PRESERVING, RESEARCHING, INTERPRETING AND EXHIBITITNG SOME FORM OF MATERIAL EVIDENCE.

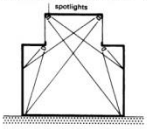
SPACES

- TO SHOW WORKS OF ART OF CULTURAL AND ART THE INSTITUTION SHOULD PROVIDE PROTECTION AGAINST DAMAGE, DAMP, ARIDITY, SUNLIGHT AND DUST.
- SHOW THE WORK IN BEST LIGHT.
- EXHIBIT SO PLACED AS TO BE SEEN WITHOUT EFFORTS.
- SPACIOUS ARRANGEMENT IN A ROOMS OF SUITABLE SHAPES.

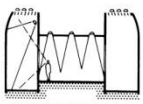


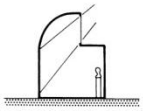
CIRCULATION DIAGRAM

PROVISIONS FOR LIGHTING

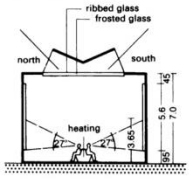


INSTALL LIGHT SO THAT ANGLE OF INCIDENCE CORRESPOND WITH NATURAL LIGHT

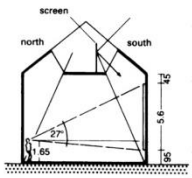

CROSS SECTION OF MUSEUM, SHOWING LIGHTING


GALLERY PASSAGE, LIT FROM ONE SIDE ONLY, LOWER PART WITH INDIRECT, ATTENUATED LIGHTING

FIELD OF VISION

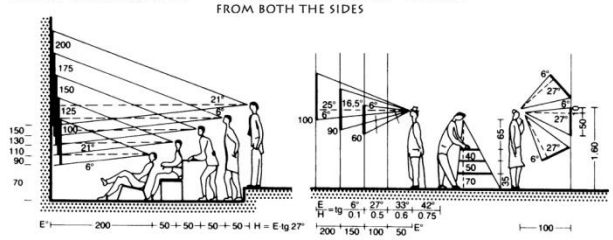


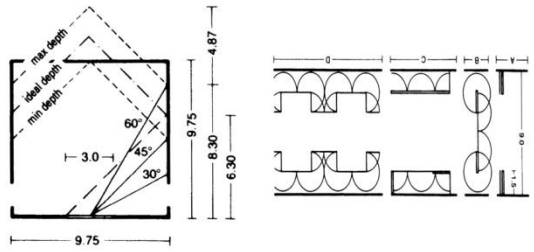
WELL LIT EXHIBITION HALL



IDEAL UNIFORM LIGHTING FROM BOTH THE SIDES

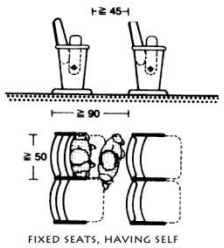
- THE NORMAL HUMAN ANGLE OF VISION STARTS FROM 27° UP FROM THE EYE LEVEL.
- THE WELL LIT PICTURE SHOULD BE HUNG 10 M AWAY WITH TOP NOT MORE THAN 4.9M ABOVE EYE LEVEL.
- A FAVOURABLE VEIWING SPACE IS BETWEEN 30° AND 60° UP, FROM MIDDLE OF FLOOR.



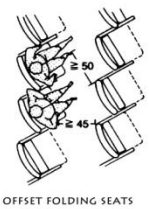


AUDITORIUMS

THE AIM IS TO ESTABLISH WHETHER THERE ARE AUDIENCES FOR THE PROPOSED PROGRAMME OF USE, AND TO DEFINE A CATCHMENT AREA FROM WHICH AUDIENCES ARE TO BE DRAWN.



FIXED SEATS, HAVING SELF OPERATED FOLDING SEATS



OFFSET FOLDING SEATS PROVIDE ELBOW SPACE

SEATING CAPACITY

THE MAX. CAPACITY OF AN AUDITORIUM DEPENDS ON THE FORMAT SELECTED , AND ON AURAL AND VISUAL. OTHER FACTORS INCLUDE LEVELS, SIGHT-LINES, ACOUSTICS, CIRCULATION AND SEATING DENSITY,AS WELL AS SIZE AND SHAPE OF PLATFORM/ STAGE.

SIZE OF AUDITORIUM

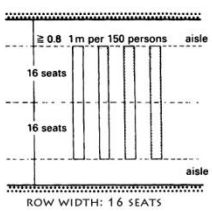
AN AREA OF AT LEAST 0.5M² PER SPECTATOR IS TO BE USED FOR SITTING SPECTATORS.

LENGTH OF ROWS

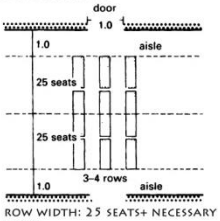
A MAXIMUM OF 16 SEATS PER AISLES. 25 SEATS PER AISLES US PERMISSIBLE IF ONE SIDE EXIT DOOR OF 1M WIDTH IS PROVIDED PER 3-4 ROWS.

EXIT, ESCAPE ROUTES

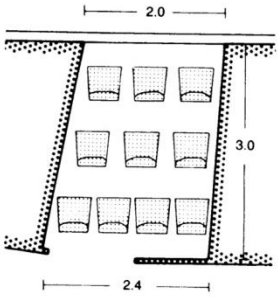
1M WIDE PER 150 PEOPLE(MIN. WIDTH 0.8M)



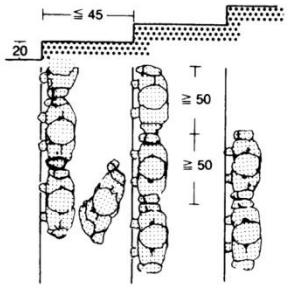
ROW WIDTH: 16 SEATS



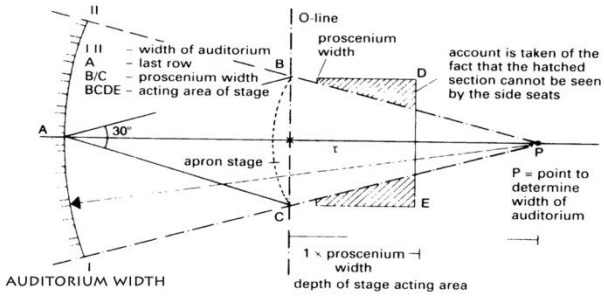
ROW WIDTH: 25 SEATS+ NECESSARY DOOR



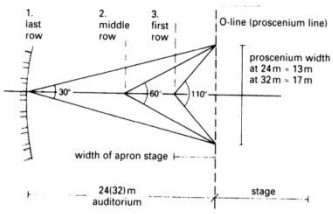
BOXES MAY HAVE UPTO 10 LOOSE CHAIRS, ELSE FIXED CHAIRS ARE NECESSARY- AREA MIN. 0.65 M² PER PERSON



STANDING PLACES SHOULD BE ARANGED IN ROWS, SEPARATED BY FIXED BARRIERS ACCORDING TO MIN. DIMENSIONS ABOVE



AUDITORIUM WIDTH



VIEWING ANGLE

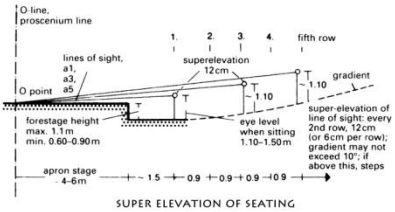
- WITHOUT HEAD MOVEMENT , BUT SLIGHT EYE MOVEMENT OF ABOUT 30°.
- WITH SIGHT HEAD MOVEMENT AND SLIGHT EYE MOVEMENT APPROX. 60°.
- MAX.PERCEPTION ANGLE WITHOUT HEAD MOVEMENT IS ABOUT 110°,I.E. IN THIS FIELD EVERYTHING WHICH TAKE PLACE ' BETWEEN THE CORNERS OF THE EYES' IS PERCEIVED.
- WITH FULL HEAD AND SHOULDER MOVE MENT A PERCEPTION FIELD OF 360° IS

ELEVATION OF SEATING

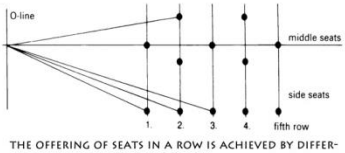
ELEVATION OF SEATING IN AN AUDITORIUM IS OBTAINED FROM LINES OF VISION.

THE ROWS OF SPECTATORS SHOULD BE FORMED IN CIRCULAR SEGMENT TO ACHIEVE BETTER MUTUAL PERCEPTION.

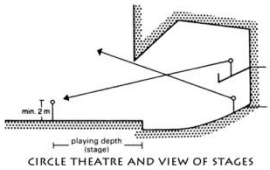
A ROOM PROPORTION OF 1:1.6 IS BEST OPTION FOR MULTIPLE USE.



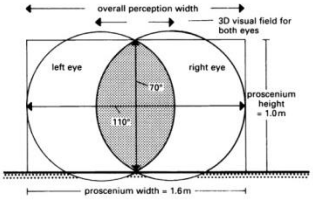
SUPER ELEVATION OF SEATING



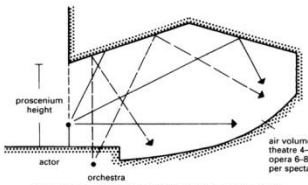
THE OFFERING OF SEATS IN A ROW IS ACHIEVED BY DIFFERENT SEAT WIDTHS(0.50-0.53-0.56)



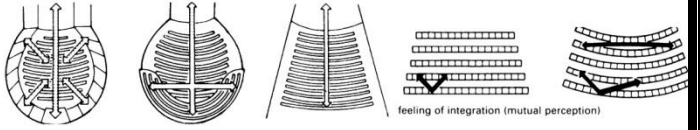
CIRCLE THEATRE AND VIEW OF STAGES



GOLDEN SECTION OR PHYSIOLOGICAL PERCEPTION



CEILING SHAPE AND SOUND REFLECTION



CONTACT AND RELATIONSHIP BETWEEN PUBLIC AND STAGE AND AMONG ONE ANOTHER

CONCEPT OF DESIGN

INTRODUCTION

ABOUT

SITE AREA 7·62 ACRES/30834 SQM **BUILT-UP AREA** 9250 SQM
LOCATION ST. THOMAS MARG 5, DLF FASE 5, SECTOR-53, GURGAON
ARCHITECTURE CONTEMPORARY INDIAN ARCHITECTURE
CLIMATE COMPOSITE CLIMATE

SITE PLAN
NOT TO SCALE

CONCEPT

AS 'CULTURAL HUB' HAS ITS ROOTS DEEP INTO THE INDIAN CULTURAL HISTORY AND ITS UNIVERSAL. MANDALA (A SYMBOL OF INFINITY) IS THE MAIN CONCEPT FOR PLANNING A SPACE IN MOTION.

PROGRAMMATIC CONTENT

THREE WINGS IN THE BUILDING ATTATCHED TO THE CENTRE PLAZZA -
1st WING - ADMINITRATION. EXHIBITION AND ART GALLERY.
2nd WING - AUDITORIUM.
3RD WING - CAFETERIA, MULTIPURPOSE HALL, CONFRENCE AND VIP LOUNGH.
TWO OTHER INDEPENDENT BUILDING BLOCK-
- ADADEMIC BLOCK
- ACCOMMODATION BLOCK
TWO OAT
PARKING - (SURFACE, STILT AND BASEMENT)
SERVICES
LANDSCAPE

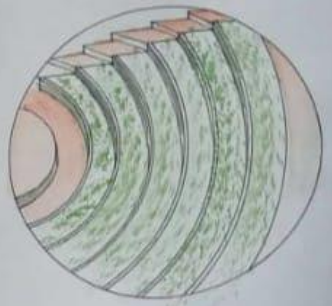
LEGEND

- ENTRY TO SITE
- VEHICULAR MOVEMENT OFF SITE
- PEDESTRIAN MOVEMENT
- VEHICULAR MOVEMENT ON SITE
- NODAL POINTS
- POINT CONNECTING TWO SPACES
- ENTRY INTO BUILT FORMS
- GREEN SPACES
- PARKING SPACES

LINEAR PATHWYS CAN BE USED TO CREATE DIRECT FOCUS ON BUILT FORMS
TUCKING AWAYS PARKING AT ENTRANCES AND RESTRICTING VEHICULAR MOVEMENT ON SITE, SAVES LOT OF CIRCULATION SPACE.
PROVISON OF ROUND ABOUTS FOR VEHICULAR MOVEMENTS EASE CIRCULATION ON SITE.

BLOW-UP

DETAIL - A



DETAIL - B

DETAIL - C

SITE CLIMATIC DETAILS

ORIENTATION AND MASSING

BUILTFORM SHOULD BE NORTH- SOUTH ORIENTED SO TO ACHIEVE GLARE FREE LIGHTING AND LESS HEAT GAIN.
SELF SHADING MASSING ALWAYS KEEP THE AREAS COOL AND IN SHADE.
DESIGN ACCORDING TO WIND DIRECTION.
COURTYARD TYPOLOGY WITH WATER BODIES CREATING MICRO CLIMATE.
BUILDING AT 30°-45° ANGLE TO THE WIND TO MAXIMISE AIR MOVEMENT AND CROSS VENTILATION.
EAST AND WEST ORIENTATION SHOULD BE PROTETED BY BUFFER SPACES. SHADED WALLS ETC.

FACADE SYSTEM

NORTH

GLASS FACADES TO LET IN GLARE FREE LIGHT. PLANTER ON SLAB LEVEL TO SUBDUE NOISE.

EAST

JALI WALL OR LOUVERES TO COMBAT HEAT AND GLARE BUT MAINTAIN VENTILATION AND DIFFUSED LIGHT.

SITE PLAN

SOUTH

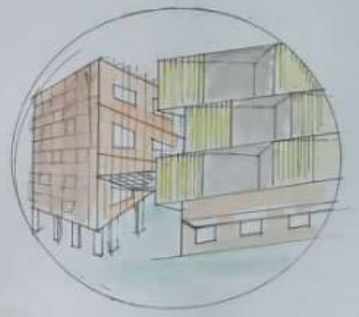
MOSTLY SOLID WALL BUT AT SOME PLACES HORIZONTAL CHAZZAS AND JALI PATTERN TO COMBAT GLARE AND HEAT.

WEST

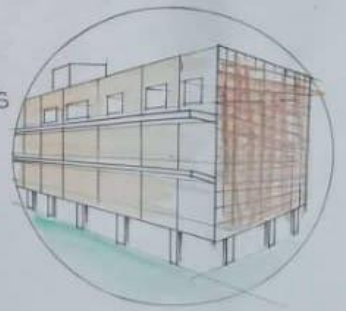
MOSTLY SOLID WALL AND VERTICAL ∀ LOUVERS WITH PLANTERS TO COMBAT HEATAND NOISE.

BLOW-UP

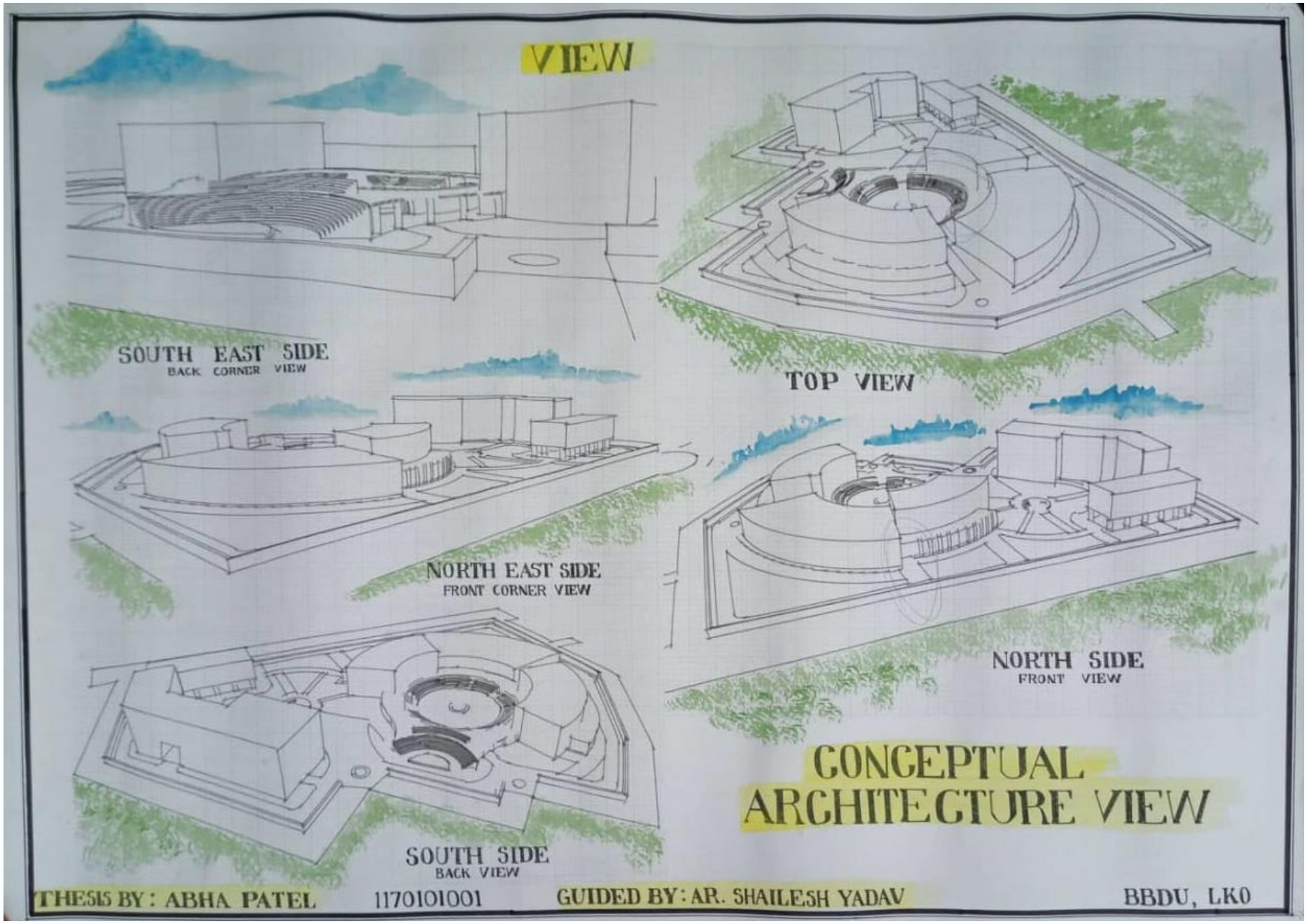
VIEW SHOWING NORTHEM GLASS FACADE TO LET IN GLARE FREE LIGHT AND PERGOLA FOR SHADING



VIEW SHOWING LOUVERED FACADE AND SEMI COVERED SPACES ALONG WITH PLANTERS



VIEW SHOWING SELF SHADING FACADE ON WEST AND PLANTERS ON NORTH

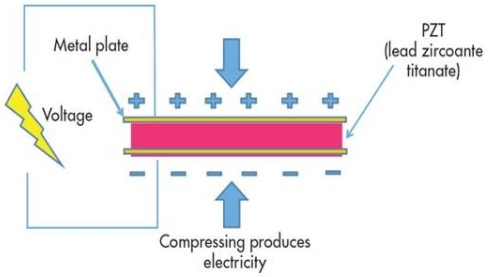

VIEW
SOUTH EAST SIDE
BACK CORNER VIEW
TOP VIEW
NORTH EAST SIDE
FRONT CORNER VIEW
NORTH SIDE
FRONT VIEW
SOUTH SIDE
BACK VIEW
CONCEPTUAL
ARCHITECTURE VIEW
THESIS BY : ABHA PATEL
1170101001
GUIDED BY : AR. SHAILESH YADAV
BBDU, LKO

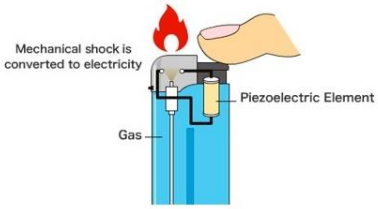
TECHNOLOGIES AND TECHNIQUE

PIEZOELECTRIC PLATES USED IN PUBLIC PLACES

A Piezoelectric transducer comprises a **"Crystal"** Sandwiched between two metal plates. When a sound wave strikes one or both of the plates, the plates vibrate. The crystal picks up this vibration, which it translates into a weak **AC voltage.**

The most common Piezoelectric Material is quartz. Certain ceramics, Rochelle salts, and various other solids also exhibit this effect.



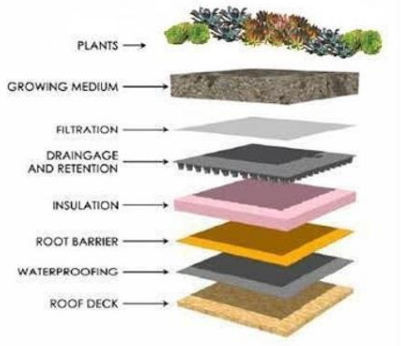


" Piezoelectricity is the Process of using Crystals to Convert **Mechanical energy** into **Electrical energy."**

ROOFTOP GARDEN USED IN ACADEMIC & ACCOMODATION BLOCK

Roof Gardens, located on Buildings, go some way to Restoring to nature an Equivalent amount of Biodiversity-Bearing soil and growing area to the land covered by the building. Like any city garden they can Provide much **Needed Green space for people to enjoy.**

Additionally, they Provide Good Rooftop insulation, Protecting Apartments or Offices below from the hot sunlight striking the building from above in Summer. In Winter they Keep Warmth from escaping from the Building below.
The layers of Moist soil, **Mulch and Plants** act to **Stabilise the Building's Temperature** Despite outside Variation.



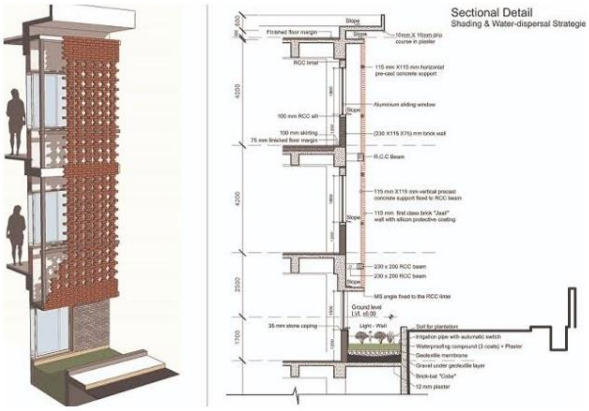
ROOFTOP GARDEN

USE OF JALI

The use of **Jali in this Context has a huge Advantage** à it also Possesses some Historical importance. The Patterns of the Jali are also used to **Beautify the Facades**.
It is Generally used as a **Cooling Device** which cuts the Sun light, Reduces Direct heat Gain & lets the Breeze to Pass through its Pores.

The Jaalis Promote Natural Cross Ventilation by the using Pressure difference formed by the Wind Flow. When the wind flows through a Jaali, due to reduced flowing space, the amount of wind flowing through a pore increases, increasing the velocity & pressure. This causes Cooling effect. This Phenomena is known as the **Venturi Effect**.

In the design, these jaalis shall **be used on the Southern & the Western walls to cut heat gain & Direct Sunlight through the Majority Part of the Day.**

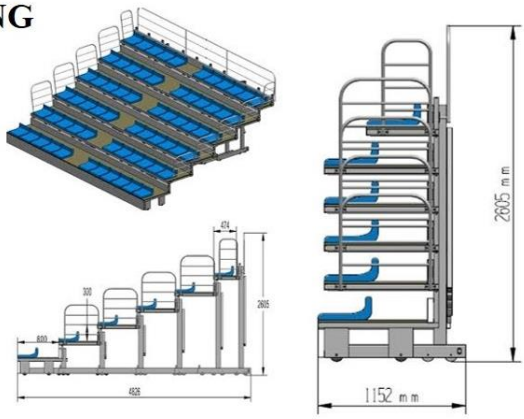


JALI SECTION DETAIL

TECHNOLOGIES AND TECHNIQUE

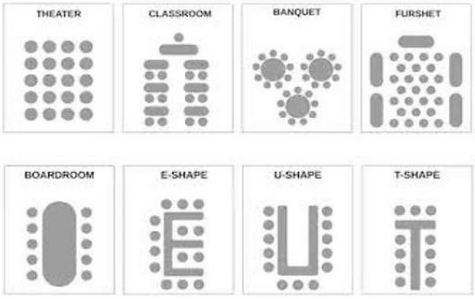
RETRACTABLE SEATING

Retractable seating (also known as telescopic seating) is **a system in which audience seating can be retracted and stored in a wall, or below a stage**. These systems allow for multi-purpose use of a space in a way which wasn't possible with fixed audience seating.



RETRACTABLE SEATING

FLEXIBILITY OF CLASSROOMS



Flexibility of Classrooms for Dance, Drama and Music has been Provided so that Multiple types can be learnt in there and the space become Multifunctional.
Studio spaces and classrooms both have designed **keeping in mind different ways** of Performance and the freedom Needed **while Performing.**

ARCHITECTURAL LOUVRES

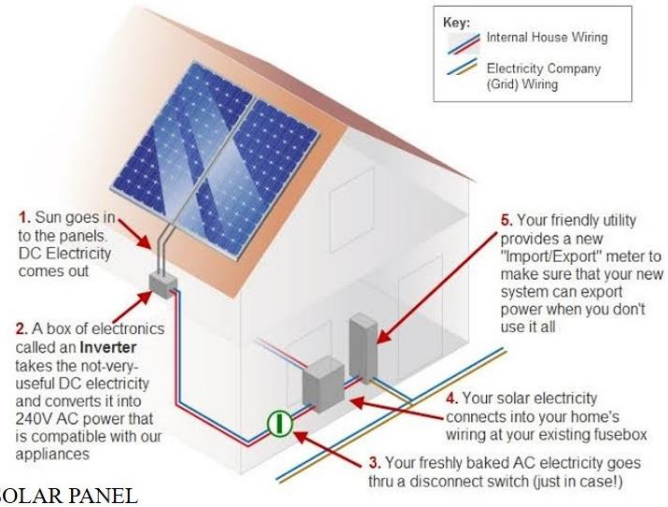
louver, also spelled Louvre, **Arrangement of Parallel, Horizontal Blades, Slats, Laths, Slips of Glass, Wood, or other Material Designed to Regulate Airflow or light Penetration**.
Louvers are often used in Windows or Doors in order to allow air or light in while keeping Sunshine or Moisture out.
They may be Either **Movable or Fixed.**

SOLAR PANEL

Solar Energy begins with the Sun. **Solar Panels** (also known as **"PV Panels"**) are used to Convert light from the sun, which is composed of Particles of Energy called "Photons", into Electricity that can be used to power Electrical loads.

SPACE FRAME PHOTOVOLTAICS

A good way is to Adjust Angles twice a Year for Summer and after seasons.
The **Best time** to adjust **Summer angles is mid March** and **Winter angle is mid September**.
Changing these angles will Produce 5% more energy than the fixed one.



SOLAR PANEL

AREA ANALYSIS

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
LIBRARY AREA					
Reception & Index	50	1	50	1	50
Office	4	10	40	1	40
Reading Area & Stack	300	2.5	750	1	750
Issue Counter			20	1	20
Computer Search Room	150	2	300	1	300
Conference Room	40	1.5	60	1	60
Storage			60	1	60
Washroom			20	2	40
Universal Washroom			3	1	3
TOTAL =					**1323 SQM**
Circulation + Wall + Services (40%) =					**529 SQM**
GRAND TOTAL					**1852 SQM**

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
EXHIBITION AREA					
Reception And Info	150	1	150	1	150
Waiting Area	50	0.6	30	1	30
Exhibition Gallery	300	2	600	1	600
Cultural Museum	150	2	300	1	300
A/V Room	50	2.5	125	1	125
Foyer (30% Of Gallery)			180	1	180
Storage (20% Of Gallery)			40	3	120
Washroom			30	2	60
Universal Washroom			3	1	3
Total =					**1568 SQM**
Circulation + Wall + Services (40%) =					**627 SQM**
Grand Total					**2195 SQM**

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
MULTI PURPOSE HALL					
Office & Reception Counter	150	1	150	1	150
Pre- Functional Hall	75	1	75	1	75
Pantry + Service	4	1	20	1	20
Hall	300	2	300	1	600
Toilet	15	0.7	10.5	15	10.5
VIP Entrance Hall	25	1	60	1	25
VIP Lounge	25	1	20	1	25
store			30	2	60
Washroom			30	2	60
Universal Washroom			3	1	3
Total =					**1028.5 SQM**
Circulation + Wall + Services (40%) =					**411.4 SQM**
Grand Total					**1440 SQM**

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
THEATRE/ AUDITORIUM (Dance/ Music/ Drama)					
FRONT OF HOUSE					
Box Office/Ticketing/ Information Counter	2	6	12	1	12
Cloak Room	2	20	40	1	40
Foyer	(20% Of main hall)				324
Security Check			6	2	12
Visitor Washroom			40	3	120
Waiting Lounge	(10% Of main hall)				162
Food & Beverage Bar				1	500
Total =					**1170 SQM**
Circulation + Wall + Services (40%) =					**468 SQM**
Grand Total					**1638 SQM**

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
THEATRE/ AUDITORIUM (Dance/ Music/ Drama)					
BACK OF HOUSE					
Dressing Room			3	10	30
Green Rooms			12	2	24
Performer & Crew Lounge			48	1	48
Storage Room			40	1	40
Rehearsal Areas			120	1	120
Workshop & Carpentry			20	1	20
Laundry			20	1	20
Loading / Unloading Dock			40	1	40
CONTROL ROOM					
Security control room			9	1	9
Projection room			10	1	10
Light & sound control			12	1	12
Recording room			6	1	6
Manager cabin			8	1	8
PERFORMANCE AREA					
Stage	40	3	120	1	120
Sitting for Audience	1000 P	900SQM [0.6 - 0.9 SQM /p including gangways] (IS 2526:1963)			
Total =					**1407 SQM**
Circulation + Wall + Services (40%) =					**563 SQM**
Grand Total = (Front Of House + Back Of House) (1970+ 1638) = 3608 SQM					

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
ADMINISTRATION BLOCK					
Reception LOBBY			100	1	100
Manager Office	1	30	30	1	30
Secretary Office	1	10	10	1	10
Assistant Office	2	12	24	1	24
Staff Office	6	15	90	2	180
Finance & Account Office	4	15	60	1	60
Record Room			40	1	40
First Aid Room			12	1	12
Server Room			20	1	20
Meeting Room	25	2	50	1	50
Archive & Printing	2		15	1	15
Waiting Area	30	2	60	1	60
Storage			20	2	40
Washroom			15	2	30
Universal Washroom			3	1	3
TOTAL =					**674 SQM**
Circulation + Wall + Services (40%) = SQM					**269.6**
GRAND TOTAL =					**944 SQM**

AREA ANALYSIS

COMPONENT	NO. OF PEOPLE	AREA\ PEOPLE	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
ACADEMIC BLOCK					
OFFICE	2	10	20	4	80
Director Room	1		30	1	30
Principal Rooms	1	1	24	1	24
Administration	1		45	1	45
Conference Room	60	3	180	2	360
Documentation centre			60	2	120
Research Centre	4O	3	120	2	240
Training Studio	30	3	90	6	540
Lecture Room	40	1.2	48	8	384
Creative Culture Lab	30	2.5	75	2	150
Planning & Development Lab	30	2.5	75	2	150
Storage Room			20	4	80
Faculty Room	15	5	75	2	150
Faculty Dinning	20	3	60	1	60
Seminar Room	50	3	150	2	300
Laboratory	40	2.5	1OO	2	200
Washroom (Student, Faculty)			20	12	240
Universal washroom			3	6	18
Total =				**3021.0 SQM**	
Circulation + Wall + Services (40%) =				**1208.4 SQM**	
Grand Total				**4230 SQM**	

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
WORKSHOPS & ART GALLERY					
Reception & Administration	150	1	150	1	150
Pantry	50	1	50	1	50
Security Desk	2	-	25	1	25
Store		-	100	1	100
Exhibition Gallery	400	1	400	1	400
Exhibition Design Studio	15	2	30	2	60
Wood Workshop	30	2.5	75	2	150
Metal Workshop	30	2.5	75	2	150
Pottery Workshop	30	2.5	75	1	75
Glass Workshop	30	2.5	75	1	75
Product Store			25	4	100
Raw Material Store			25	4	100
Washroom (F- 4WC,3WB/ M-3WC,5U,3WB)			30	4	120
Universal Washroom			3	1	3
Total =				**1558 SQM**	
Circulation + Wall + Services (40%) =				**623 SQM**	
Grand Total				**2181 SQM**	

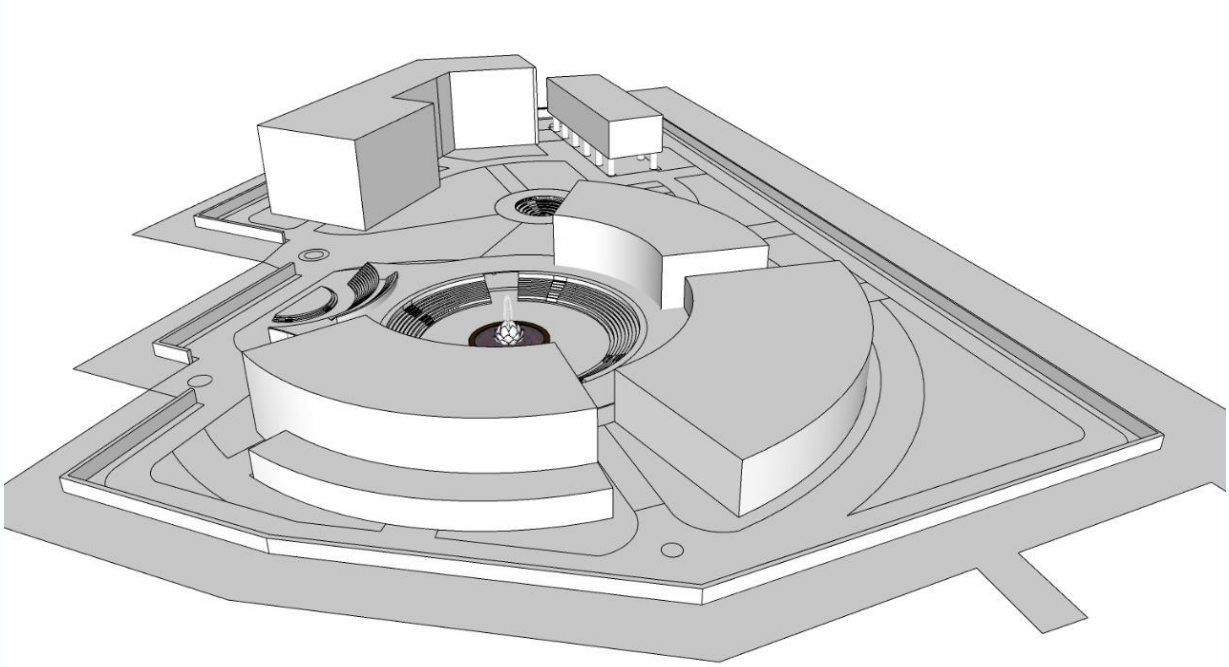
COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
CAFETERIA					
Seating Area	180	2	360	1	360
Kitchen (40% Of Seating Area)			144	1	144
Pantry			30	1	30
Storage			20	2	40
Staff Washroom	2		6	2	12
Waiting Area	30	2	60	1	60
Washroom			30	2	60
Universal Washroom			3	1	3
TOTAL =				**709 SQM**	
Circulation + Wall + Services (40%) =				**283.6 SQM**	
GRAND TOTAL =				**993 SQM**	

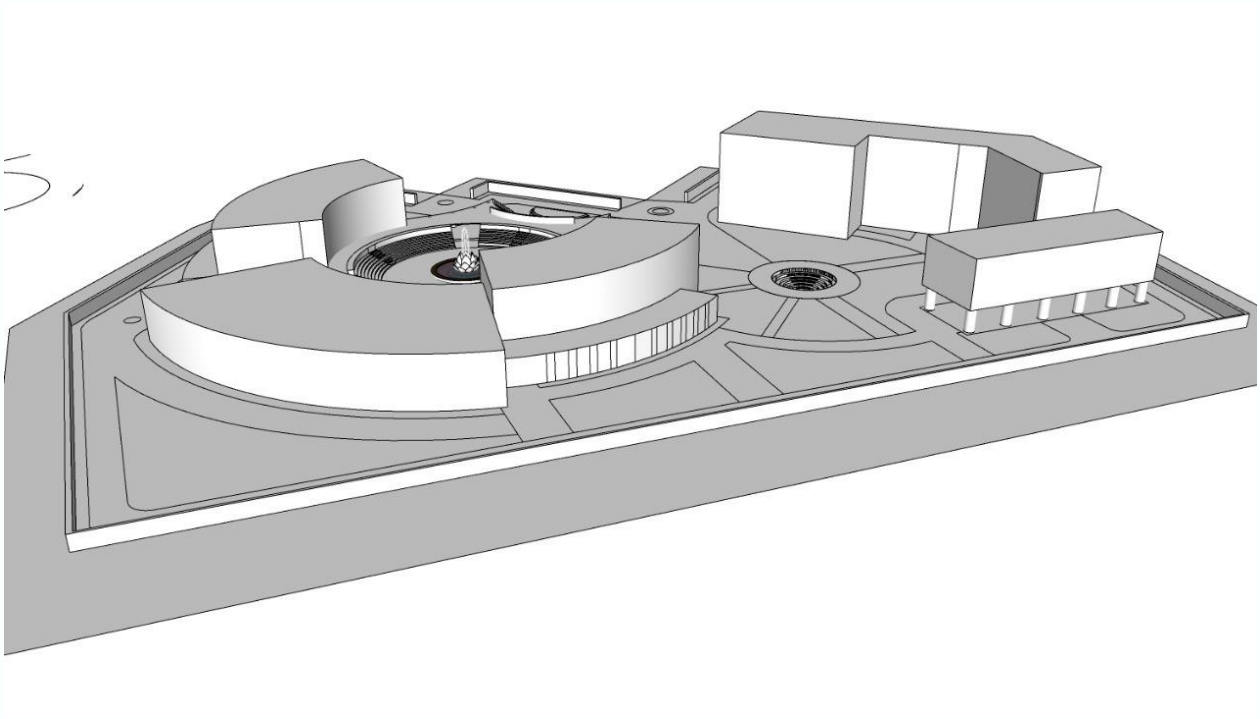
COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
ACCOMODATION BLOCK					
Reception Lobby / Waiting			100	1	100
Single Room	1	10	10	100	1000
Double Room	2	12.5	25	100	2500
Common Room	100	2	200	1	200
Laundry Room			120	2	240
Mess Area	300	1.5	450	1	450
Community Kitchen (40% Of Seating Area)			180	1	180
Warden Room With Office	2		60	1	60
Washroom & Bath (F- 30 WC, 30 WB, 30 Baths. M- 25 WC 15U 25WB 30 Baths)			280	1	280
Storage			20	4	80
TOTAL =				**5090 SQM**	
Circulation + Wall + Services (40%) =				**2036 SQM**	
GRAND TOTAL =				**7126 SQM**	

COMPONENT	NO. OF PEOPLE	AREA\ PERSON	UNIT AREA (SQM)	NO. OF UNITS	TOTAL AREA (SQM)
SERVICES					
Prayer room	30	1.5	45	2	90
Maintenance room	1	12	60	1	60
Mechanical room	2	15	60	1	60
Electrical room	150	2	30	1	30
Transformer room			30	1	30
TOTAL =				**270 SQM**	
Circulation + Wall + Services (40%) =				**108 SQM**	
GRAND TOTAL =				**380 SQM**	

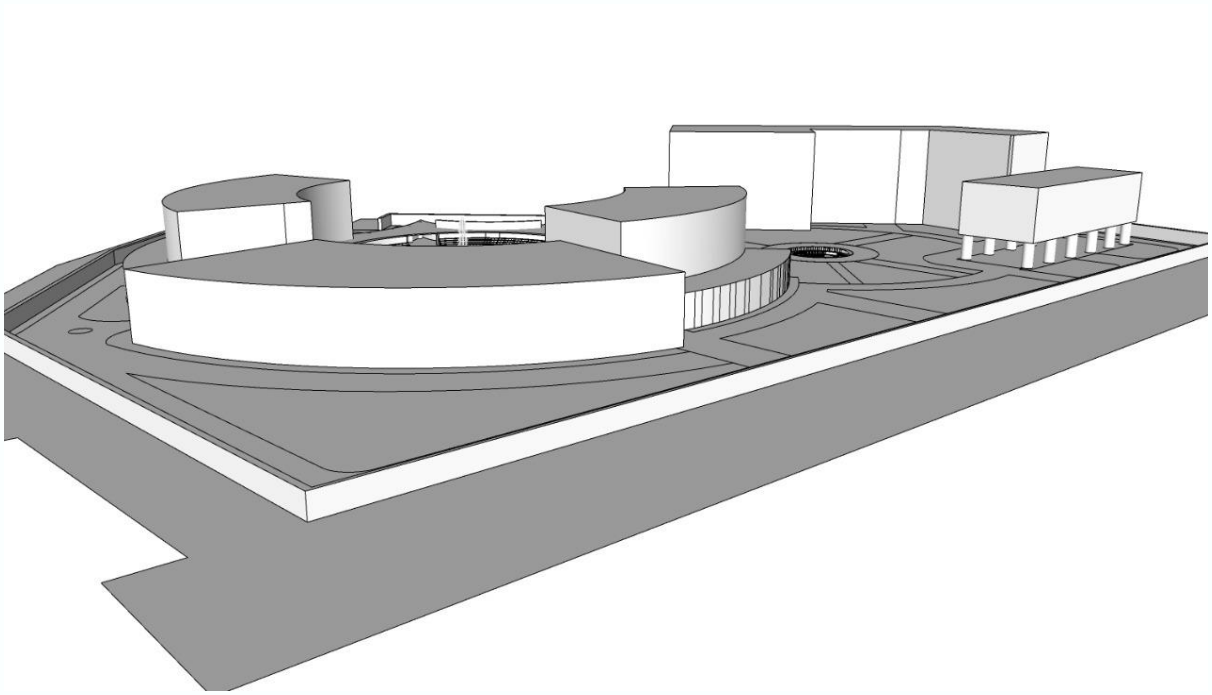
Total Built Up Area = (1852 + 2195 + 2181 + 1638 + 3608 + 1440 +4230 + 944 + 993 + 7126 + 380)
= 26,587 SQM

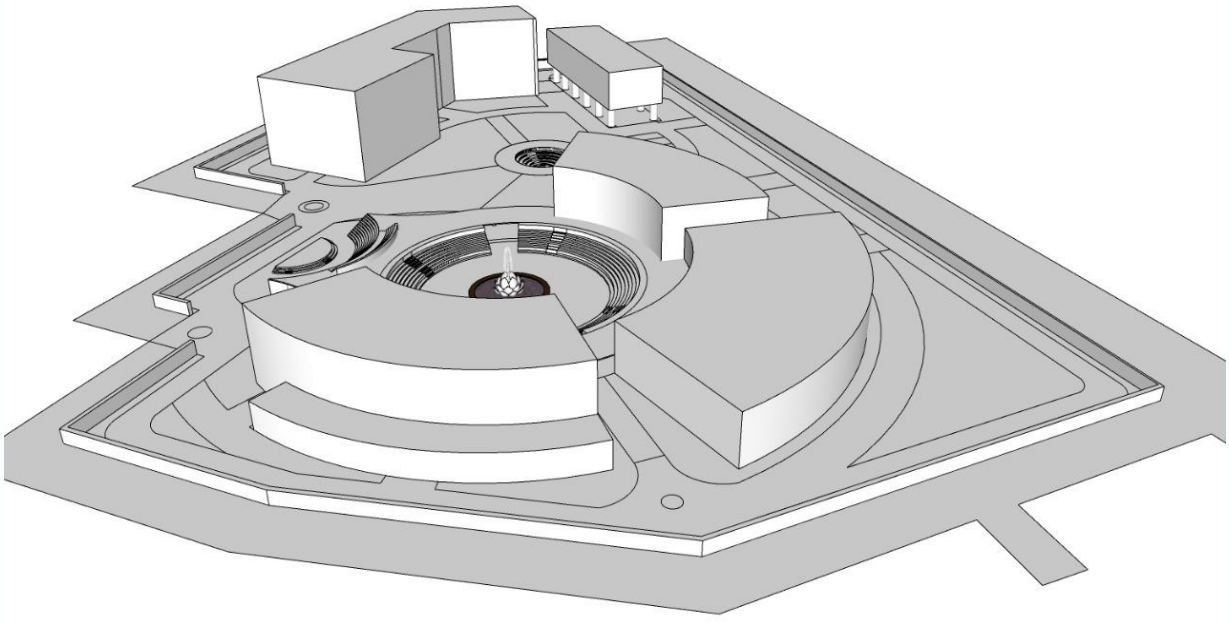
DESIGN DEVELOPMENT





INITIAL LEVEL DESIGN





FINAL DESIGN