THESIS REPORT ON

"MUSIC SCHOOL, DWARKA, DELHI"

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

BACHELOR OF ARCHITECTURE

BY

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THESIS GUIDE

DR. MOHIT KUMAR AGARWAL

SESSION

2022-2023

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 "MUSIC SCHOOL DWARKA, DELHI" under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor's degree in architecture, school of Architecture and Planning, BBDU, Lucknow.

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5. **Faculty of University to which the thesis is submitted: Yes / No**
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DECLARATION

I, SHASHANK VARSHNEY, hereby declare that the work in this thesis titled "MUSIC SCHOOL, DWARKA, DELHI" Submitted to School of Architecture and Planning, Babu Banarasi Das University, Luconow, in partial fulfillment for the award of Bachelors of Architecture Degree, is an original work done by me during the period of my study under the guidance of DR. MOHIT KUMAR AGARWAL and any references or data collected from other sources has been duly acknowledged.

Date: 01-07-2023 **SHASHANK VARSHNEY**

LUCKNOW **1180101040**

ACKNOWLEDGEMENTS

A number of people deserve special appreciation for their part in making this thesis possible. Without whom this thesis could not been completed. I am very glad to offer my sincere gratitude to my Dean and also my thesis guide **DR. MOHIT KUMAR AGARWAL** for his active guidance, needful advice and kind cooperation at regular intervals. I am also thankful to my teachers **PROF. KESHAV KUMAR, AR. SAURABH SAXENA**, **AR. SHAILESH KUMAR YADAV & AR. URVASHI TIWARI** for his and her valuable suggestions and needful guidance. I am especially thankful to my brother **AR. SUMIT GUPTA** for helping out in my thesis and a senior **AR. ANUKRITI MISRA** and junior **PRATEEK NISHAD** and also I am highly gratified to my **PARENTS** for their blissful blessings. And I would like to extend my thanks to all my well wishers and friends who extended their help in successful completion of my thesis.

SHASHANK VARSHNEY
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ABSTRACT

Music is dynamic and fast expanding into one's lifestyle. Ignoring music is like ignoring what is around us. Music is an envelope surrounding us, starting from chirping of birds to humming of machinery. A built can make music as the starting force for ordering space and in relation to it. The centre would be designed to gain a foothold into our lifestyles and brings forward awareness of music education and entertainment. This thesis report is a compilation of research and development, which resulted in an architectural design that focuses on person's auditory perception within the space .the project site area 12,36 acres. This Project Is Combination Of Two Parts Namely Indian And Western Music. The main aim of the project is to evolve a design solution which would incorporate the traditional and the modern trends in music. The design emphasis is on the overall layout and its spatial organization. The design includes educational section exhibit area, performing arts and residential houses.

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CHAPTER 1 : INTRODUCTION

1.1 INTRODUCTION:

Music School Is an Educational Institution Specialized In The Study, Training, And Research Of Music. Such An Institution Can Also Be Known As A Music Academy And Performing Art May Also Include Music, Opera, Theater And Musical Theatre, Magic, Illusion, Mime, Spoken Word, Puppetry, Circus Arts, Performing Art. There Is Also A Specialized Form Of Fine Art, In Which The Artists Perform Their Work Live To An Audience. Music is dynamic and fast expanding into one's lifestyle. Ignoring music is like ignoring what is around us. Music is an envelope surrounding us, starting from chirping of birds to humming of machinery. A built can make music as the starting force for ordering space and in relation to it

1.2 AIM OF THE PROJECT:

- To evolve a design solution this would incorporate the traditional and the modern trends in music.
- To serve as a prime zone of activity with essentials of performances, entertainment and market for all age groups.

1.3 OBJECTIVES:

The design solution would be achieved by:

- Emphasizing on the overall layout of the centre and its spatial organization.
- Incorporating landscape elements which integrate building with the surroundings
- Making full use of the potentials and the constraints of the site.
- Emphasizing on the layouts of studios, exhibition spaces, performance areas, music library, listening cubicles.
- Providing a solution for the above stated function by using all the latest technologies.
- Emphasizing on the interior spaces so as to create an environment dipped in music
- Providing proper parking facilities and easy accessibility for convenient circulation.

1.4 SCOPE OF THE PROJECT:

The design scheme will consist of

1. **EDUCATIONAL SECTION** with classroom for vocal and instrumental music, lecture halls, recording studios, library and administrative areas.
2. **PERFORMING SECTION** with two auditoriums, O.A.T, and DJ and Dance floor.
3. **EXHIBIT AREA:** This will consist of a resource library with listening

   Cubicles exhibit areas for music tracks; this would also include a museum for display and a theme restaurant
4. **RESIDENTIAL FACILITIES** comprising of hostels and a guest house.

1.5 LIMITATIONS:

Detailed design of the following:

- Master plan of the entire complex
- Educational section
- Performing section
- Exhibit area
- Interior designing of the performing section

CHAPTER 2. SITE STUDY

2.1 PROJECT BRIEF:-

PROJECT:	**MUSIC SCHOOL**
CLIENT:	Delhi Development Authority
AUTHORITY:	Delhi Development Authority (DDA)
LOCATION:	Golok Dham Chowk Road, Sector 11 Dwarka, (New Delhi)
TYPE:	Institutional
SITE AREA:	12.36 Acres
STATUS:	Unbuilt / Proposed

2.2. SITE INFORMATION

The Project Proposed Is Music School and Dwarka, New Delhi. The Municipal Corporation Of Delhi Proposed Music School on 12.36 Acres Land In Sector 11, Dwarka, New Delhi. This Project Is Combination Of Two Parts Namely Indian And Western Music. Firstly, Indian Music Refers To The Traditional, Classical, Hip Hop, Salsa, Contemporary Dance, Drama, Music And Art Of India Originating In The Temple. Therefore, This Academy Is An Academy Of Performing Indian Arts. Culture Can Be Defined As The Ideas, Customs Or Social Behavior of A Particular People Or Society. Culture Is The Characteristics And Knowledge of A Particular Group Of People, Language, Cuisine, Social Habits, Music And Arts. Also, To Generate the New Landmark for Dwarka. To Create a Holistic Environment for Learning, Teaching And Spaces. Due To These Reasons, the Music School Artists Being Proposed By Municipal Corporation of Delhi to Make People Aware Of Their Culture and Traditional Music of India.

Fig2..2- Site
Source-Self Clicked

Fig.2.1- Site
Source-Self Clicked

2.3LOCATION

2.3.1 SITE LOCATION

The site is proposed at Golok Dham Chowk Road, Sector 11 Dwarka, (New Delhi).
Site is having only two access roads.

Area: 12.36 acres
Latitude: 28.4595° N
Longitude: 77.0266° E
Altitude: 210 M

2.3.2 SITE PLAN (APPROACH WITH MAP):

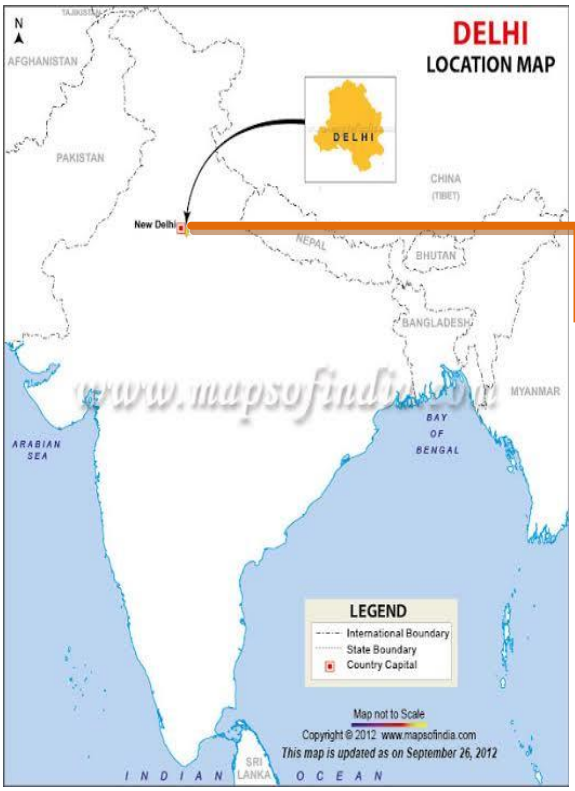


Fig.2.3- Map
Source-www.googlemap.com

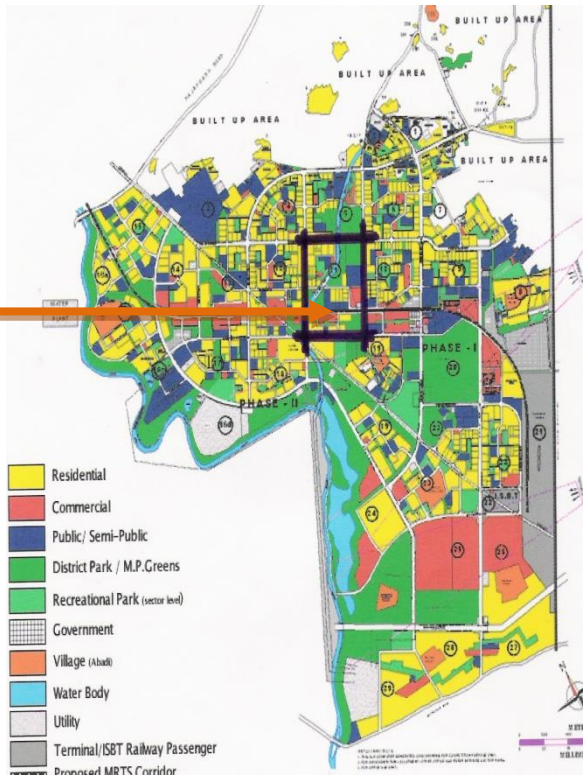


Fig.2.4- Delhi Map
Source-www.googlemap.com

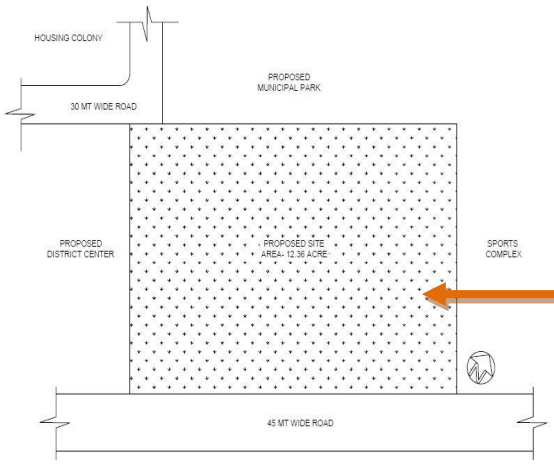


Fig.2.5
Proposed Site
Source-Self Draw

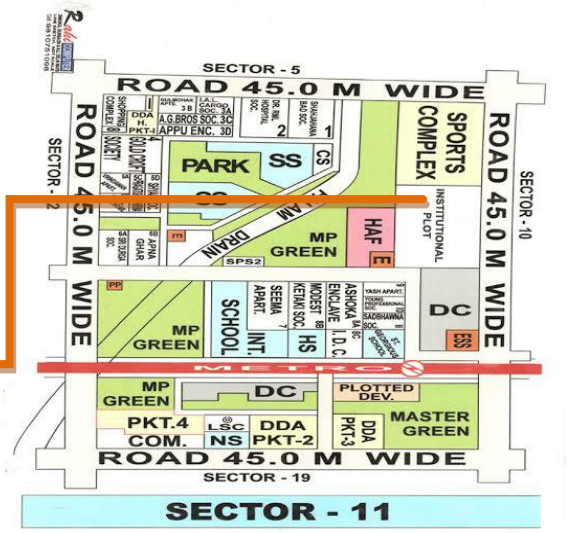


Fig.2.6
Source-www.google.com

2.3.3 KEY PLAN

Fig.2.7- Map
Source-Google map

Fig.2.8- Sports Complex
Source-Self Clicked

Fig.2.9-DDA Nagrik Suvidha Kendra
Source-Self Clicked

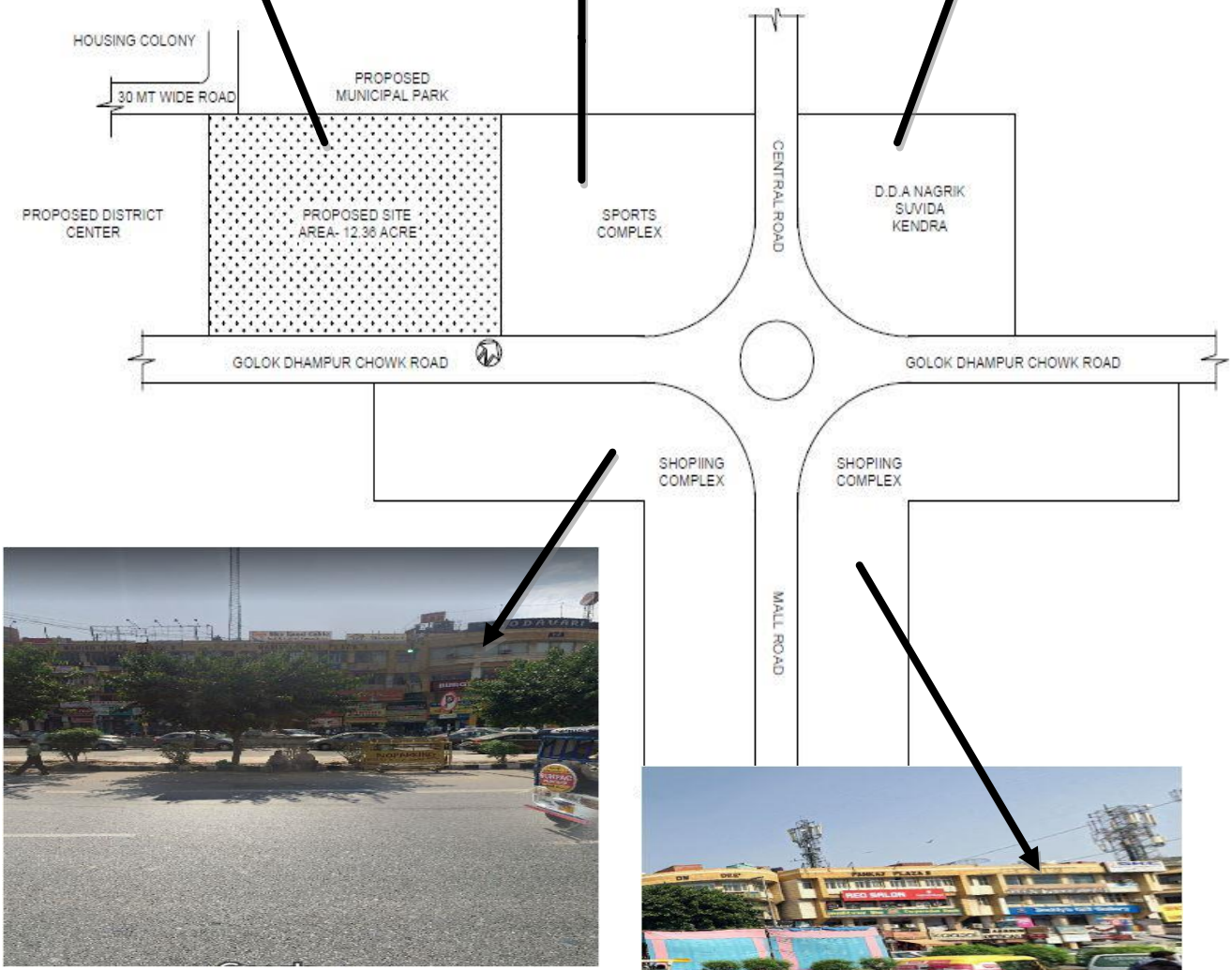


Fig.No.-2.10 Shopping Complex
Source-Self Clicked

Fig.No.2.11ShoppingComplex
Source-Self Clicked

2.3.4 ABOUT THE CITY (DWARKA)

The sub-city of Dwarka has been planned by the Delhi Development Authority in its continuing attempt to cater to the ever increasing population Metropolitan Delhi. The design of Dwarka reflects contemporary concepts of urban planning and environmental design along with the socio-economic context of modern Delhi. Dwarka has the entire basic five basic elements that are required in an ideal city

.

2.4. HISTORY

A small baoli, discovered five years ago in Dwarka, has been restored and could become a tourist *attraction. An elaborate conservation project by the India National Trust for Art and Cultural Heritage* for the Lodi-era baoli was completed recently. Dwarka Baoli (also known as Loharehri Baoli) is a historical Step well recently discovered in Dwarka Sub City, in southwest New Delhi, India. It was constructed for the residents of Loharehri village by the Sultans of the Lodi Dynasty in the early 16th century. Dwarka now stands where the Loharehri village once stood.

2.4.1ECONOMY

Gurugram Is The 4TH Highest Per Capita Income In India, And Is The Site Of Indian Offices For Half Of Fortune 500 Companies. DLF Limited, A Real Estate Company Acquired Vast Stretches of Land In The city.

2.4.2 EDUCATION

The City's Public School System Is Managed by the Government of Delhi, And Administrated by Delhi Board Of Education. There Are Several Universities And Institute. Including Newly Established MBS International School.

2.4.3TRANSPORT

Roadways, Delhi metro, Railways, Airways, Public Transit System

2.4.4CITY HIGHLIGHTS

- Shopping Malls
- Hub of Multinational Companies
- Infrastructure

2.5 NEIGHBORHOOD

2.5.1 LINK FROM THE MAJOR DISTANCE

Railway	Old Delhi Railway Station – 23km
Bus Stand	25km
Metro Station	2km
Police Station	2.5km
Hospital	Ayushman Hospital-700m
Petrol Pump	1.5km.
School	MBS International School -2km
Temple	Hanuman Mandir-1.2km
Market	Dwarka Market, 600m

Fig. 2.12 Dwarka Sector 13 Metro Station, Source- Self Clicked

Fig.2.13Police station
Source-Self Clicked

Fig. 2.14 Petrol pump
Source- Self Clicked

Fig. 2.15 Road ways
Source- Self Clicked

Fig. 2.16 Ayushman Hospital
Source- Self Clicked

2.5.2 ACCESSIBILITY

- It Is Accessible To Only Two Side Only Which Is Through The Main Road which Is 45 M Wide And Rear Side Road 30 m Wide.
- The Site Shape is regular Like a Rectangle with equal Angles Which Is Spread over 12.36 Acre of Land.

Fig.2.17Connectivity to Sector 12
Source- Self clicked

Fig.2.18Gokol Dhampur Chowk Road
Source- Self clicked

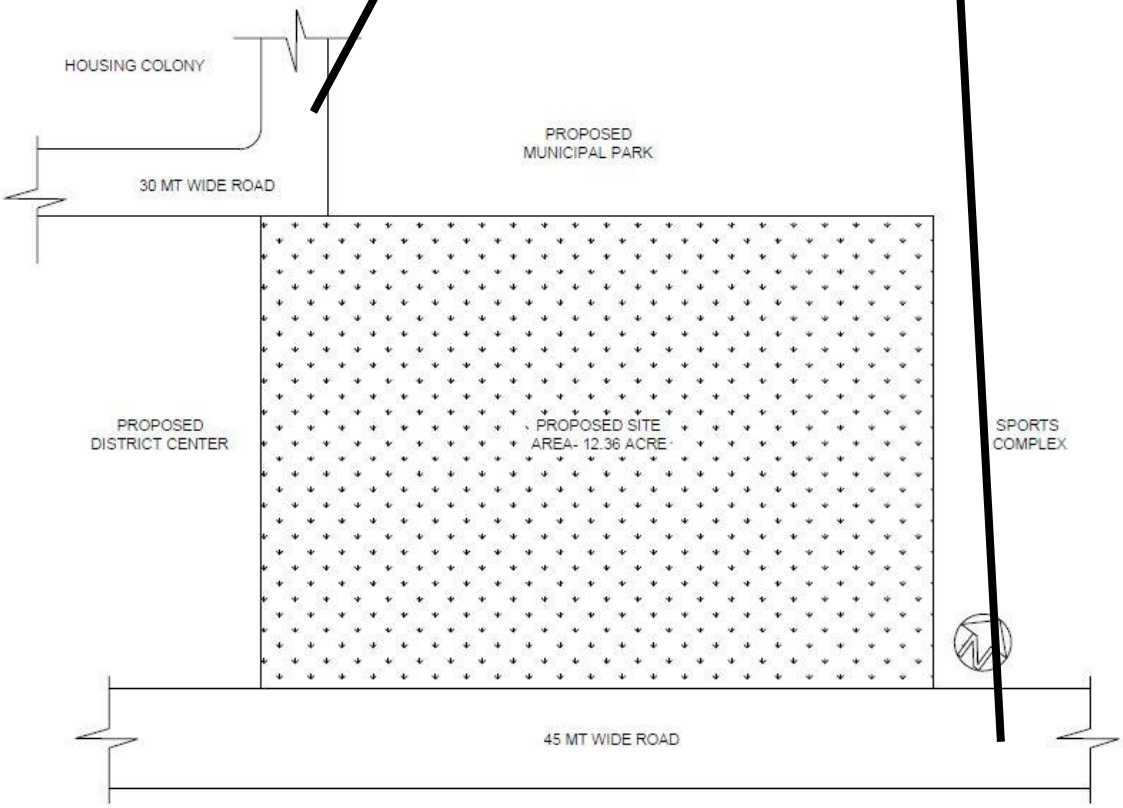


Fig.2.19 Site
Source- Self draw

2.5.3 TRAFFIC

- The site is situated near metro station, various office buildings and housing apartments are there.
- There is medium traffic at the Gokol Dhampur Chowk Road Dwarka

Fig.No2.20 Adjacent road
Source- Self clicked

2.5.4 NEARBY LANDMARK

1. Sport Complex
2. Ayushman Hospital

Fig.2.21- Sport Complex
Source- Self clicked

Fig.2.22 Hospital
Source- Self clicked

2.5.5 NATURE OF NEARBY BUILDING

Types of Building: Housing Apartments, offices,
Uses: Residential
Material: Walls are plastered
Floor: 12

2.6 PHYSICAL FEATURES

2.6.1 TOPOGRAPHY

- Site Is Flat On The Top Not Having Slopes Or Contours. There Is No Difference In The Level Of Road And The Site.
- Site Have Lots OF TREES

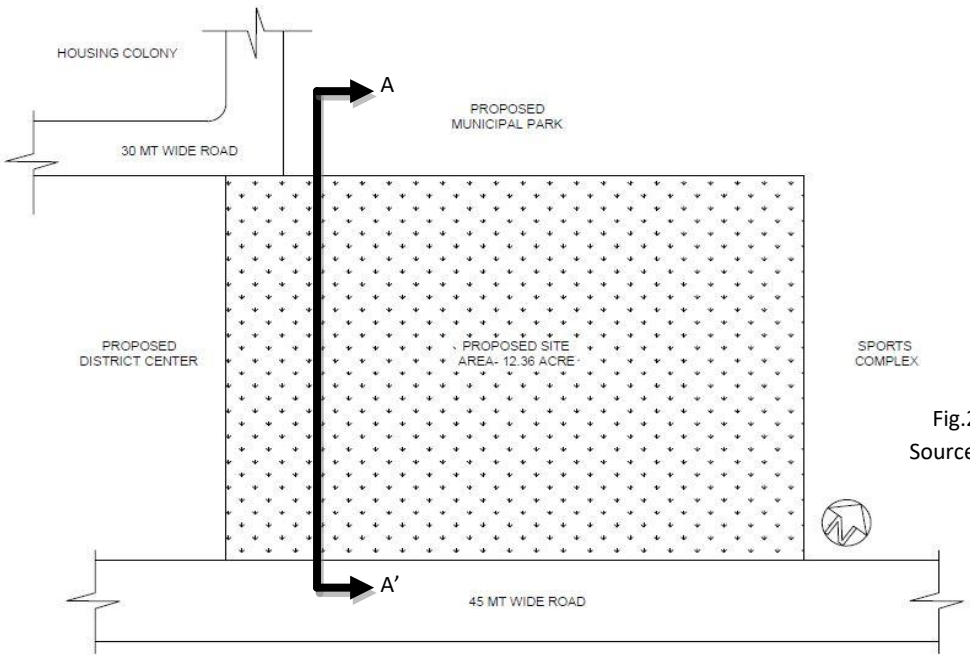
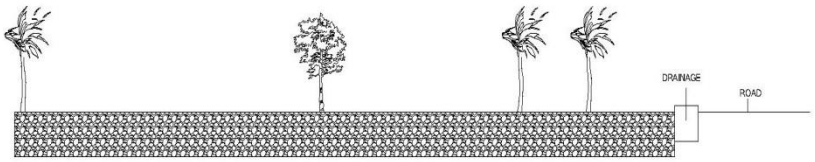


Fig.2.23- site
Source- Self draw



Section-AA'

Fig.No-2.24- site section
Source- Self draw

2.6.2 VEGETATION

- Existing Vegetation on Site: Trees and Shrubs like Phulaiand Kareel.
- Deciduous Plants Are Useful.

Fig.No-2.25trees, shrubs at site
Source- Self Clicked

2.6.3 SOIL TOPOGRAPHY

Alluvial soil is found in Dwarka.
These soils cannot retain water.
•**Color:** Light Grey to Ash Grey.
• Bearing capacity is 80KN/SQM.To 160KN/SQM.
• Raft Foundation is preferred for alluvial soil.
•Maximum radiations from sun occur except in the monsoon months.

2.6.4 GROUND WATER TABLE

- The City's Groundwater Levels Have Declined at an Alarming Rate.
- The average depth of ground water table is 50 meters. It is drooped 20 meters from 1995.

2.6.5SEISMIC ZONE

The entire region of Dwarka falls in high risk seismic zone (IV) making it vulnerable to earthquakes. Although no major earthquake has occurred in Dwarka in recent Years.

DESIGN CHALLENGE:

Since the water table is decreasing, rain water plant can be installed to use the rainwater. Since, the proposed site belongs to seismic zone 4 making it vulnerable to earthquakes. So, the building should be made earth quake resistant

2.7 SERVICES

2.7.1 ELECTRICAL

- The power supply is through
- The poles placed along the side Roads of the site.

Fig.2.26- Electric Pole
Source- Self clicked

2.7.2 DRAINAGE

- There Is a Sewer Line Along The Site.
- Drainage System behind the Site.

Fig.2.27 Drainage
Source- Self clicked

2.7.3 RAIN WATER HARVESTING

- There Is No Rain Water Harvesting Plant
- The Other Side Of The Site Rain Water Harvesting Plant Is Available In West And Heights.

2.7.4 WATER SUPPLY

- Main Source Of The Water Supply Is Ground Water.

2.8 BYE LAWS

- Total site area: 12.36 Acres
- Ground Coverage: 25 percent
- FAR: 1.5
- Front setback: 15m
- Rear Setback: 9m

2.9 INFERENCES

2.9.1 MERITS

- Road network is good.
- Location and area of site is justified.
- All services like, electricity, drainage, water supply etc. Are provided.
- Regular Shape of Site.

2.9.2 DEMERITS

- A Big naala Run behind the Site.

2.10 CLIMATE STUDY

2.10.1 NATURE OF THE CLIMATE

- The composite climate found in Dwarka.
- Composite climate, except during the monsoon, is characterized by the dryness in air, a hot summer and a cold winter.
- The year may be broadly divided into four seasons, via. Winter, summer, monsoon and the post monsoon.

Design Challenge:

- In composite climate the orientation of the buildings is preferable in north-east &south-west directions so, that the building receives less radiation from sun which help in lesser heat gain & reduce overall air conditioning requirement and thus saves energy.
- Courtyards are beneficial to allow maximum ventilation.
- Jaalis can be designed on outer façade of the building helps in cooling, shading and ventilation.

2.10.2 TEMPERATURE

- Overheated Period – May, June and July
- Cold Period – November, December, January and February
- Air Conditioning Will Be Required The Most From April To October.
- The Most Comfortable Months With Respect To Human Comfort Are March, April, August And September.

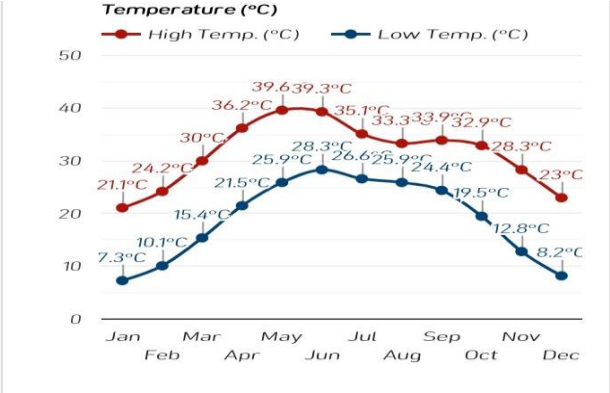


Fig.2.28Temperature graph
Source- internet

2.10.3 RELATIVE HUMIDITY

- The Ideal Relative Humidity For Health And Comfort Is About 40-50%. In The Winter Months, It May Have To Be Lower Than 40% RH To Avoid Condensation On The Windows. Since, RH Will Be High In the Months of July, August and September.
- Therefore, HVAC Will Be Required To Remove The Excess Humidity From The Building.
- In Winter Time Humidity Levels Must Be Even Lower—Generally 30-40%—To Prevent Condensation On Windows And Other Surfaces.

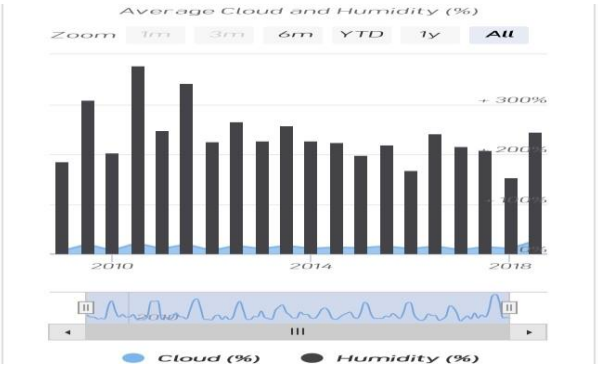


Fig.No2.29 Humidity graph

Design Challenge

- Water body can be installed because water absorbs relatively large amount of radiation and allow evaporation that results in cooling. As, a result during day time areas around water body are generally cooler.
- Water evaporation has a cooling effect in surrounding.
- To reduce humidity and for ventilation, courtyards and corridors are beneficial in climate of Dwarka.

2.10.4 RAINFALL

- Most rainfall is seen in July, august and September.
- The monsoon starts in late June and lasts until mid-September.
- High plinth is required to prevent rainwater from coming inside the building.

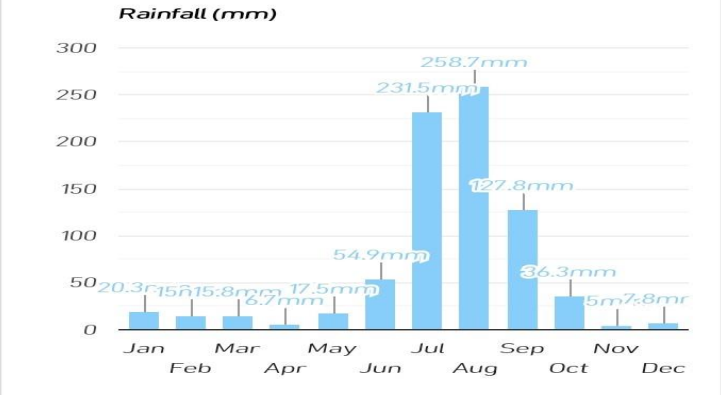


Fig.2.30Average rainfall

Source- internet

Design challenge

- Minimum Slope Required For Water To Run Off Is 1% (1/8" Per 1').
- Rainwater Harvesting Process Can Be Installed So, That The Rainwater Can Be Stored And Used.

2.10.5 SKY CONDITIONS

- In The South-West During The Monsoon Season, Heavily Clouded Or Overcast Skies Generally Prevail.
- The Skies Are Mostly Clear Or Lightly Clouded During Rest Of The Year.
- Therefore, the Solar Radiations Will Be Minimum In July, August and September.
- Natural Light Will Be There Except For Monsoon Season.

Shadow: On East Side There Is Housing Of 12 Floor Towers Which Kind Of Create Shadow During 10am To 12pm. Therefore, The Access Of Natural Sunlight Will Be After 11am Due To Housing Towers On East Side.

2.10.6 PRECIPITATION

- During the months January, February, March, November and December you will experience pleasant weather with a nice average temperature.
- Precipitation varies between 500 – 1300 mm per year.

2.10.7 WIND AND AIR MOVEMENT

- This wind rose diagram shows that wind blows from North West mostly and also, from west direction.
- Wind rarely blows from south west and south East.

Design Challenge

The Building Should Be Oriented In North West and West Direction To Allow The Maximum Ventilation Or Circulation Of Natural Air Inside The Academy Of Music And Performing Arts.

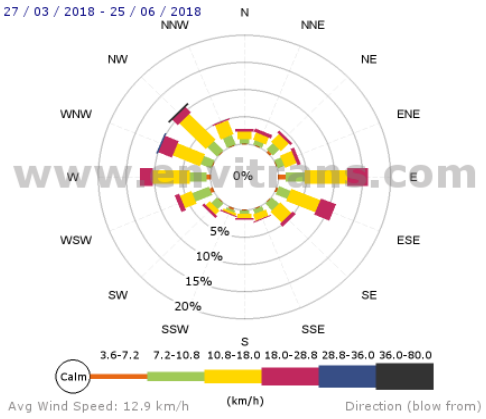


Fig.2.31Wind Rose Diagram
Source- internet

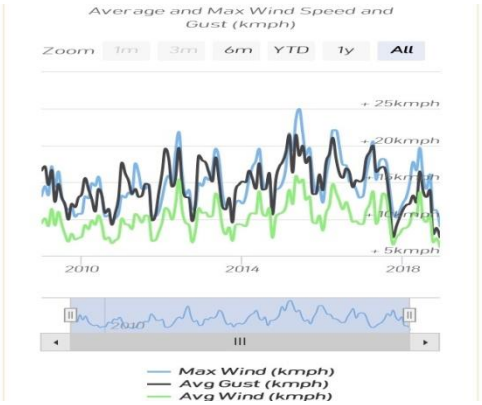


Fig.2.32 average wind speed
Source- internet

2.11 CLIMATIC CONSIDERATION

2.11.1 ORIENTATION

The orientation of houses should be such, that penetration of the sun rays maximum in the winter and minimum in summer. Proper orientation also helps in receiving natural light and ventilation.in composite climate the orientation of the building is preferable in north-east & south-west directions.

2.11.2 FORM & PLANNING

- Open spaces such as courtyard are beneficial.
- Courtyard should be designed in such a way so as to allow sun penetration during the winter months, but provides shading in the hot season.

2.11.3 WATER BODIES

Water Absorbs Relative Large Amounts Of Radiation. It Also Allow Evaporative Cooling. As A Result, During the Daytime Areas around Water Bodies Are Generally Cooler

.

2.11.4 BUILDING ENEVELOPE

ROOF

- Flat roofs may be used in this climate.
- A massive roof structure like a reinforced cement concrete RCC slab is preferable over an asbestos cement AC sheet roof.

WALLS

I multi-storied building, walls and glazing account for most of the heat gain. So, the control of heat gain through the walls by shading is an important consideration in building design.

CHAPTER 3 CASE STUDY -1

TRIVENI KALA SANGAM, NEW DELHI

Fig.No-3.1
Source- Self clicked

3.1 PROJECT BRIEF

Name : **Triveni Kala Sangam**
Location : Mandi House, New Delhi
Site Area : 4.3 Acres
Architects : Joseph Allen Stein
Founder : Sundari K. Shridharani
Type: Institutional
Purpose : Music, Dance and Arts Education
Climate : Composite

3.2INTRODUCTION

3.2.1 ABOUT THE CITY (DELHI)

Delhi Is A City And A Union Territory Of India Containing New Delhi, The Capital Of India. It Is Bordered By Haryana On Three Sides And By Uttar Pradesh To East. The NCT Covers An Area Of 1484 Square Km Delhi's Urban Area Is Now Considered To Extend Beyond The NCT Boundaries And Include The Neighboring Satellite Cities Of Faridabad, Gurugram, Ghaziabad, And Noida In An Area Now Called Central National Capital Region.

3.2.2 LOCATION:-

205 Tansen Marg Toderal Road Area, Near Mandi House Metro Station at New Delhi.

Latitude: 28°36’36”N
Longitude: 77°13’48”E
Altitude: 210 M

Fig.No-3.2
Source- www.googlemap.com

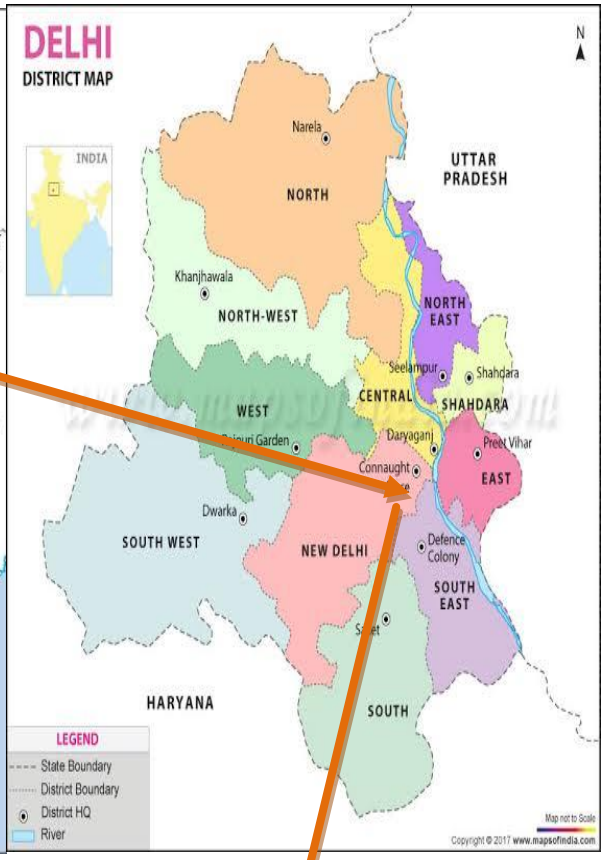


Fig.No-3.3
Source- www.googlemap.com

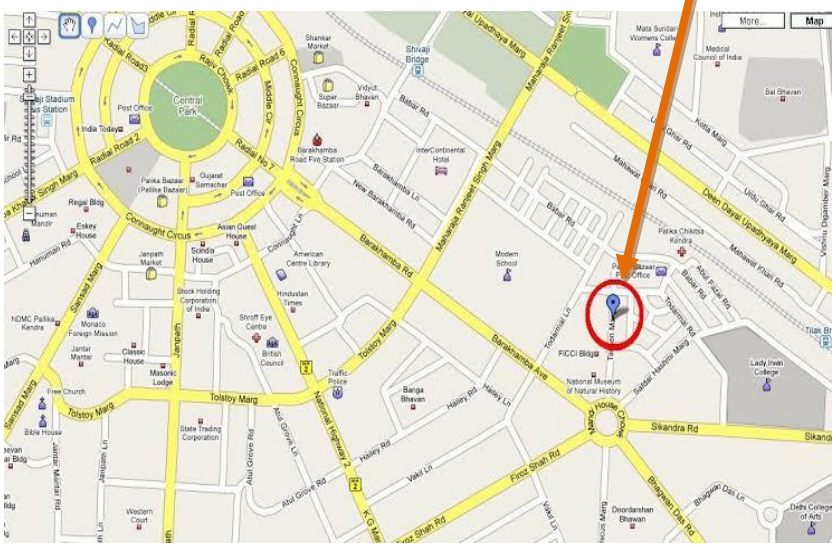


Fig.No-3.4
Source- Self clicked

3.2.3 ACCESS

- NEAREST METRO STATION, MANDI HOUSE – 0.5KM
- IDIRA GANDHI AIRPORT, 21 KM

3.2.4 SURROUNDINGS

- Shri Ram Centre for Performing Art
- FICCI
- National Museum of Natural History

3.3.1 TRIVENI KALA SANGAM (ACADEMY ABOUT)

- The Triveni Kala Sangam Was Founded In 1950 as an Academy Of Dance, Music, Painting and Traditional Forms of Expression into Indian Youth.
- Confluence Of Arts Is An Art Complex And Educational Centre.
- To Provide A Platform For Creative Artistic Expression With An Emphasis On Promoting Classical Form Of Dance, Music And Also Painting And Other Arts.

3.3.2 MAJOR FACILITIES

- Offices
- Dance Studios
- Music Studios
- Art Studios
- Auditorium
- Café
- Library
- Art Galleries
- O.A.T.
- Apartments

WHY CHOOSE CASE STUDY (TRIVENI KALA SANGAM)

Triveni Kala Sangam Is Very Old Academy Which Is Provided Music, Dance Training For Students With The Best Facilities.

Triveni Kala Sangam Is The Best Example Of Building In Which Natural Ventilation And Air Is Used.

3.3.3 CONCEPT

Architect's Interest For the Triveni Kala Sangam Are An Expression Of His Interest In Considering The Broadest Scope Of The Problem At Hand , And His Belief In Combining Aspects Of Traditional Understanding With Modern Possibilities In Design.

- The Main Aim Of This Institute Is To Educate People About Indian Dance, Music And Traditional Forms Of Expressions.
- To Follow Guru Shishya-Traditional Education System With Traditional Residential Facility For Students.

3.4.1 SITE: ZONING & PLANING

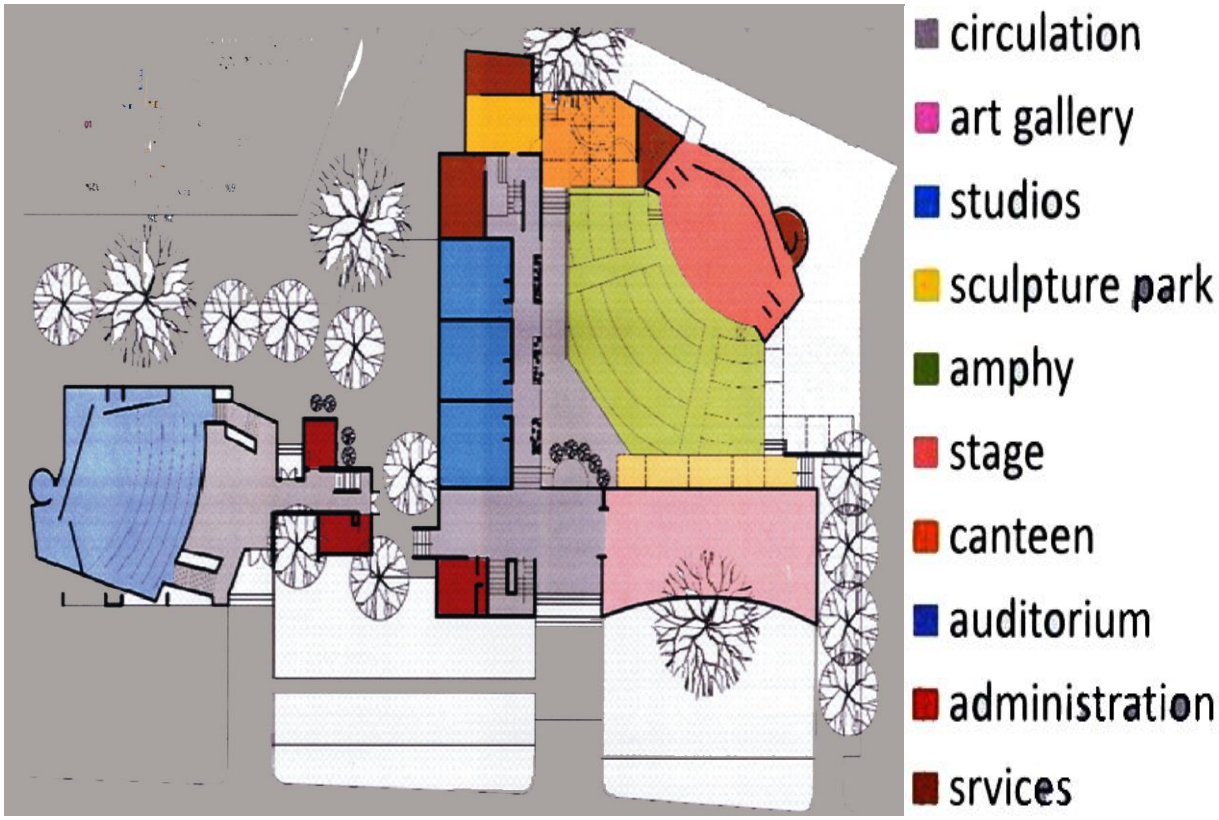
Site area- 4.3 acre
Ground coverage- 55%

The Plan of the Center Is Containing Three Entries to Enter In the Main Complex.

1. Main Entry
2. Entry To The Auditorium
3. Service Entry.

- At The Main Entry While Entering We Can Find Three Main Paths:
- One Path Is Leading Towards The Auditorium.
- The Other One Leads Towards A Passage Which Is Connecting The Studios and Canteen.

The Third Path Leads towards the Administration and Staircase



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There Are Basically 4 Major Zones in the Academy

ADMINISTRATION

In Administration Zone Have Various Offices

ACADEMIC ZONE

It Comprises Of Various Classes Like Music, Dance, Art Classes and Sculpture Making.

RESIDENTIAL ZONE

The Zone Is Only For Staff Who Teaches The Students.

RECREATIONAL AND OTHER FACILITIES

It has auditorium, Triveni terrace café and other recreational facilities.

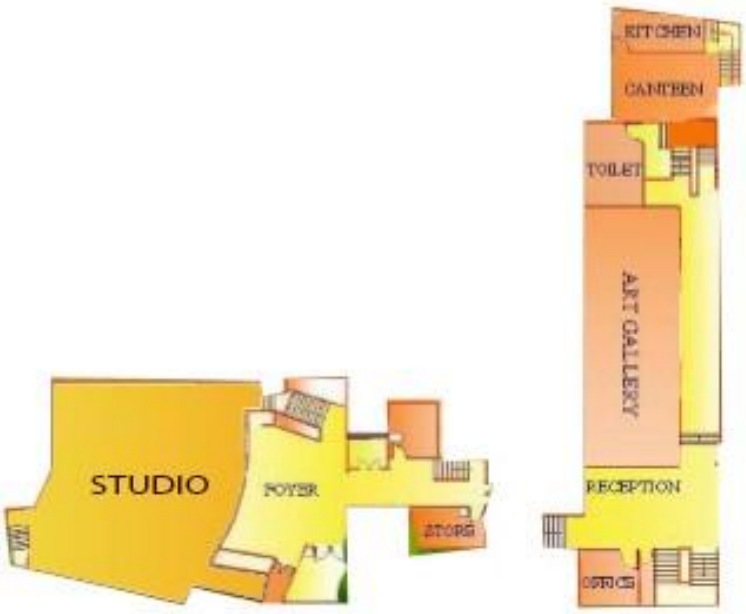
3.4.2 PLANING

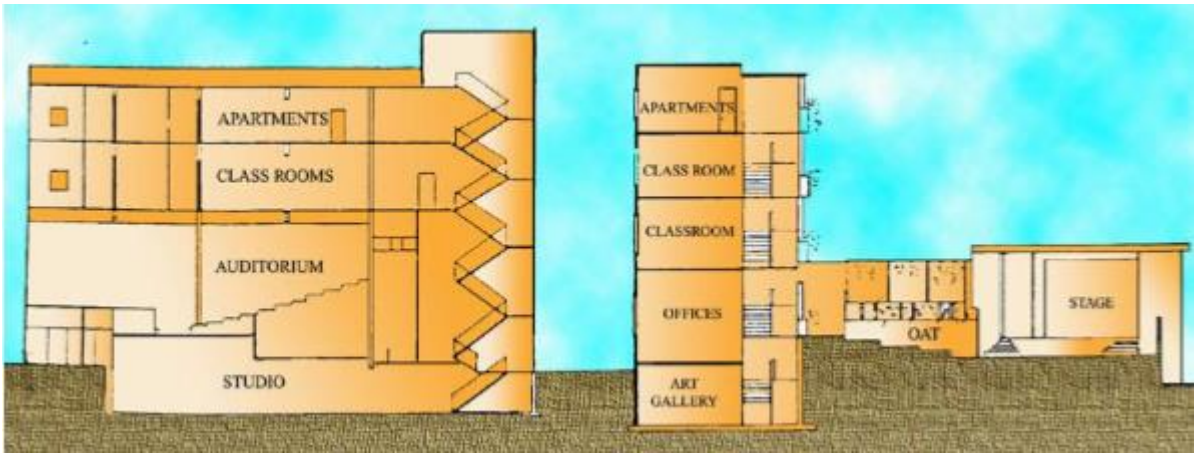
There are 2 blocks has Triveni Kala Sangam

- The Ground Floor Has The Public Area Like Lounge, exhibition halls, Art Gallery,
    - Library, Conference Rooms and Administration Room.
- On The First And The Second Floor Are Music, Dance And Art Studios Where Students Are Taught Painting, Dancing And Singing.
- First And Second Floor Includes Academic Purpose, Studios Where Music, Art And Dance Are Taught
- 3 Type of Audience Uses Building Staff, Audience Uses Building
- Staff, Audience And Students
- Zoning Has Been Separated Through Levels- Ground Floor For Audience Where Art Galleries, Café And O.A.T Is There
- First And Second Floor For Students
- Third Floor Is For Staff Residence

3.4.3 BASEMENT FLOOR

- Art galleries
- Office





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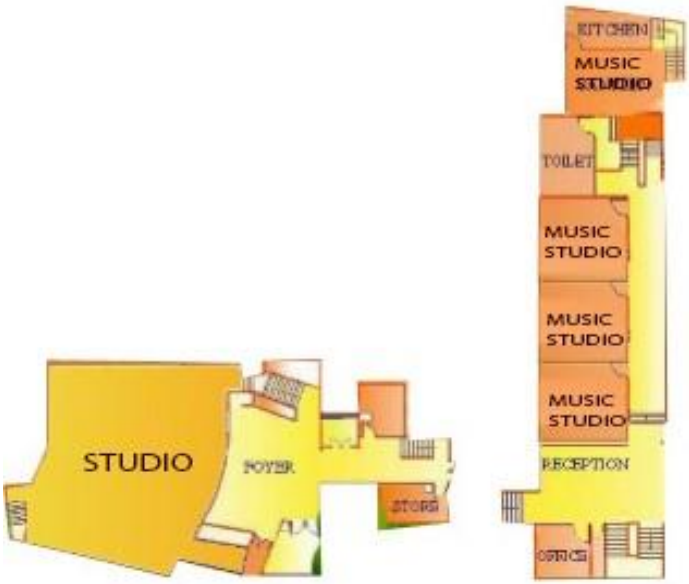
3.4.4 GROUND FLOOR PLAN

- Auditorium (160 ppl)
- Studios
- Offices
- Art Galleries
- Café
- Library
- Exhibition Space
- O.A.T
- Services

3.4.5 FIRST FLOOR

- Office
- Dance Studios
- Art studios
- Services



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3.4.6 SECOND FLOOR

- Music studios
- Office
- Toilets

3.5 EDUCATIONAL PROGRMMES:

DEPARTMENT OF DANCE:

- Bharatnatyam
- Kathak
- Oddisi
- Kuchipudi
- Chhau

DEPARTMENT OF ART ACTIVITY:

- Fine Arts
- Child Arts
- Sculpture
- Photography

DEPARTMENT OF MUSIC:

- Vocal
- Hindustani And Karnataka
- Instrumental
- Sitar-Flute-Tabla
- Ikebana & Bonsasi
- Lectures: Indian Culture
- Art Heritage: Galleries
- Prakrity: Pots And Plants
- Nook : Glass And Ceramics
- Sculpture and Painting Exhibitions, Dance

3.6 PROGRAM

- Auditorium – 300 To 350 Ppl Capacities.
- Garden Theater – 250 to 300 Ppl Capacities.
- Art Gallery-300 Painting Capacity
- Recording Studios
- Music Library
- Books Library-1500 Books Capacity
- Store Areas
- Dance Studios-20 Students At A Time
- Music Studios-10 Students At A Time
- Painting Studios-20 Students At A Time
- Sculpture Platform

- Canteen Area-25 People Capacity
- Toilets

Arts Department Is On Ground Floor, Dance Department Is On The First Floor And Music Department Is On The Second Floor.

3.6.1 CLASS

- Capacity of 20-30 People.
- Area-150 Sq.M

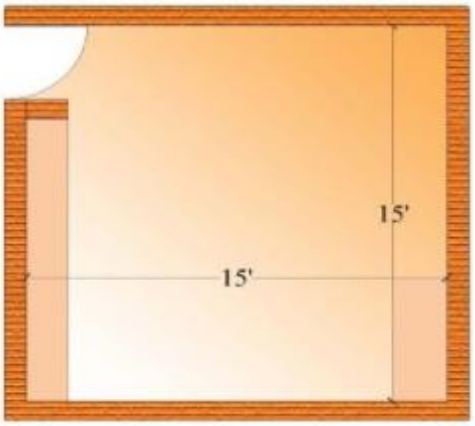

Fig.No-310
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Fig.No-3.11
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- On The Ground Floor There Are Art Studios.
- On The First Floor There Are Dance Studios
- On The Second Floor There Are Music Studios
- Dance Studios Has Been Designed Differently.
- This Studio Has Wooden Flooring.
- And Also A Mirror On Any One Surface Of The Studio.
- The Studio Has Changing Room.

Teachers and Musicians

3.6.2 MUSIC STUDIO

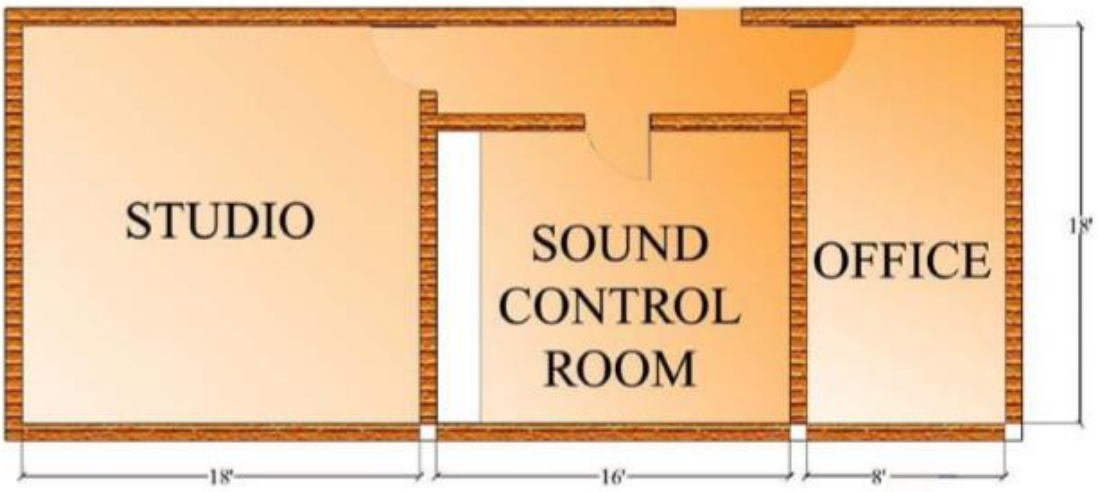

Fig.No-3.12
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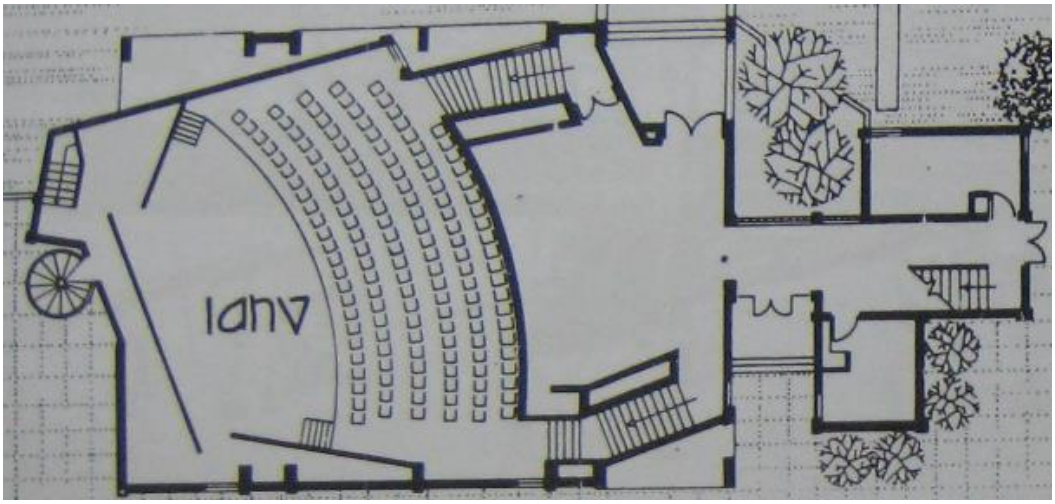
3.6.3 AUDITORIUM

This Auditorium Is Used For Large Conferences the Building Has A Separate Entry.
Area - 500 sq.m.
Capacity of 150 Seats.
The Green Rooms Are Placed In the Basements Which Is Around 2.4mts Down
Air Being Taken Ventilation Is Not Care Of For Green Room.

- It Doesn't Give The Ambience Once A Person Reaches The Foyer Of The Auditorium.



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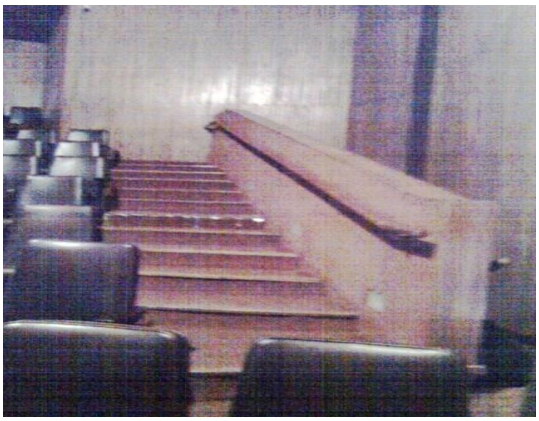

Fig.No-3.15
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STAGE:

- The Wooden Flooring Helps in Sound Absorption.
- There Are Spot Lights And Profile Lights For The Performers.
- The Projection Room Is Located At The Rear End Of The Auditorium.

SEATING:

- The Seats Of The Auditorium Are Covered With Rexin.
- There Are Two Aisles Situated At Both The Sides.

ACOUSTIC TREATMENT OF THE FLOOR, WALLS AND CEILING

WALLS

- Wooden Panels Were Provided To Absorb Sound And Help In Further Acoustic Treatment.
- Glass Wool With A Protective Layer Of Cloth Is Provided Behind

The Wooden Panels for Better Sound Absorption.

- No Acoustic Treatment Is Provided In The Backstage As The Walls Are Plastered Only.

Eight Emergency Lights And Speakers Were Located On The Rear And Front Walls Respectively.

FLOOR

- In The Seating Area Carpets Are Laid Over A Layer of Jute Which Is Pasted On Wooden Planks.
- In The Backstage Area A Combination Of Carpet and Wooden Flooring Exists.

Fig.No-3.16
Source- Self clicked

CEILING

- There Is No False Ceiling And Hence The Exposed Beams Forms A Grid Of 4m X 2m (Approx.) On The Ceiling Making Space For Lights And Smoke Detectors Etc.
- Perforated Boards Are Provided On The Spaces Between The Ceilings.

LIGHTS

- A Series Of profile as well as spot lights are located focusing on the stage.
- Down Lights Are Provided Over The Seating Area.
- Coloured Lights Are Also Provided Over The Stage Area.

AIR CONDITIONING

- Wooden Grills under the Stage for Air Conditioning for the Front Rows.
- Vertical Grills Are Also Provided On The Stage For The Performers.
- Ac Ducts Are Provided In The Green Room Area As Well.

GREEN ROOM

- False Ceiling Is Provided In The Green Room.
- Smoke Detectors And Down Lights Are Provided At Regular Interval Of 1m.

Fig.No-3.17
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Fig.No-3.18
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3.6.4 OPEN AIR PLAZA

- The Heart Of The Complex, Designed To Serve A Variety Of Staged Performances And Rehearsals,
- Sketching And Other Activities Also Carried Out Here.
- Gathering Takes Place Over Here
- The OAT is located between the teaching corridor
- And art gallery.
- It has a capacity of 350-400 people.

Fig.No-3.19
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STAGE

- Opposite Of The Corridor There Is A Covered Stage
- Which Is Opening Onto The Outdoor Plaza
- Various Activities Like Dance Practice , Display Of
- Sculpture And Painting Are Held Here.

Fig.No-3.20
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3.6.5 TRIVENI TERRACE CAFÉ:

- The Triveni Terrace Café Overlooking the Beautiful Theater.
- Divided Into 2 Spaces The Inner Has Capacity Of 15 People and Outside Have a Capacity of 20 People
- The Café Overlooked An Open Landscaping Courtyard
- Seating Of The Canteen
- Informal Space for Seating. - @35/Ppl
- Area-100 SQ.M.

3.6.6 ART GALLERY

- There is one of the Very Old and Famous Art-Gallery.
- Various Painting Exhibitions by the Most Renowned Artists Every Weak Exhibition Are Held Here.
- Art Gallery Is Illuminated With Artificial Light and There Is Not Any Access of Natural Light
- Area-200 SQ.M.

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3.6.7 SCULPTURE MAKING

Centre Has Been Teaching Clay Modeling And Sculpting.

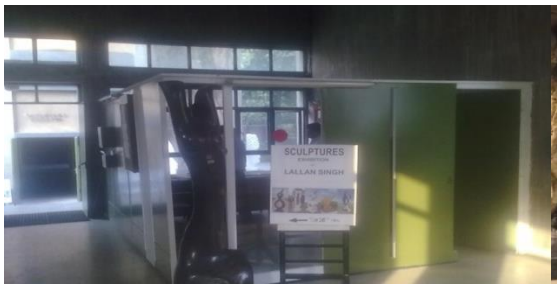

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Fig.No-3.24
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3.7 ARCHITECTURAL ELEMENTS

- Extensive Areas Of Jaalis And Planting Boxes Arranged Into Vertical Gardens Are Prominent Elements At The Triveni.
- Jalli Panel Creates a Cool Space of Filtered Light in the Class Room Building's Corridor.
- Use of Jali on the Exterior to the Exterior to cope up with Delhi's Hot Weather.
- The Colors of the Façade, Are Of Light Grey Concrete and Have Grit Finish on the Walls.
- The Textures' Are Rough And Rugged.
- Lack Of Bright Colors Is Soothing As The Abundant Greenery And Brightness.

Fig.No-3.25
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Fig.No-3.26
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Façade, Concrete Planters And Concrete Clad With Gray Chips For The Pergolas. **25**

Fig.No-3.27
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Fig.No-3.28
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Fig.No-3.29
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3.8 PARKING

Some parking is provided by NDMC.
Vehicles have to Parked main road and parking space is also not sufficient.
There is no parking space in Triveni Kala Sangam.

Fig.No-3.30
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Fig.No-3.31
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3.9 SERVICES:

3.9.1 ELECTRICAL SUPPLY

- The Power Supply Is Taken From The substation.
- In The Absence Of Light The Electricity Supply Is Continued By The Generator.
- Total No. Of Transformer – 1n n
- Capacity Of Transformer – 500Kva/Transformer
- Maximum Consumption Of Electricity – 500 Units Per Day

Fig.No-3.32
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3.9.2 WATER SUPPLY

Water Is Stored In Tanks and Then Supply
Capacity of water storage-5000 liters.
All the Water Supply through the Pipes
Sprinkler system are used to supply water in landscaping

3.9.3 FIRE FIGHTING SYSTEMS

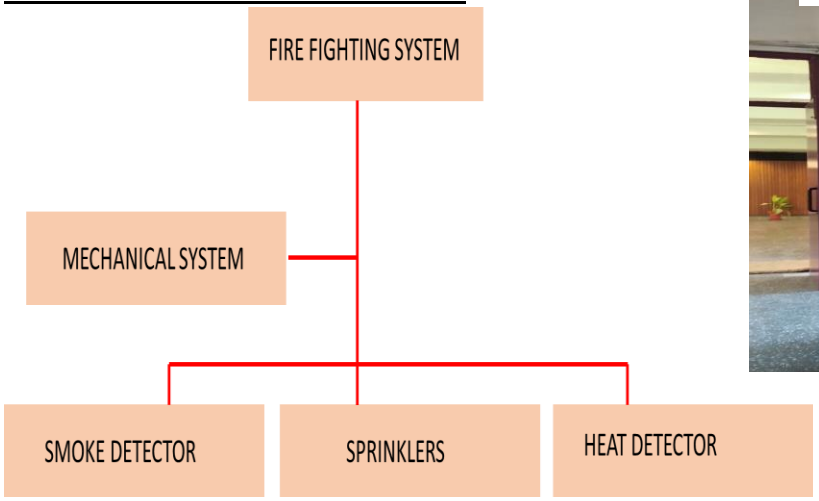

Fig.No-3.34
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- Fire hose reels used in corridors
- Fire sprinklers and smoke detectors are installed all over the corridors and staircase which burst at a temperature of 57 degree 7 above.
- Fire alarm is also used

3.10 INFERENCES

3.10.1 MERITS

- The Use Of Jaali Provides Natural Light And Air.
- All The Classes Are Well Connected To Open Areas.
- The Use Of Greenery In All The Floors Provides A Fresh Air.
- Well Connectivity by Transport and Other Facilities.

3.10.2 DEMERITS

- Parking area is not sufficient

COMPONETS	SPACES	NO.OF UNITS	AREA(SQM)	REMARK
ADMIN BLOCK	RECEPTION		20	
	ACCOUNTS OFFICE	2	30	
	ADMIN ROOM	2	30	
	TOILET		20	

EXHIBITION GALLERIES ART GALLERIES	ART GALLERY-1 ART GALLERY-2 ART GALLERY-3		100 200 150	
CAFÉ	SEATING@2/PPL KITCHEN@0.8/PPL	35	70 40	
AUDITORIUM (150)	FOYER GREEN ROOM TOILETS HALL	 15-20 150	120 50 50 270	
STUDIOS	DANCE STUDIO-4 MUSIC STUDIO-4 ART STUDIO-4	4 4 3	70X4=280 60X4=240 90X3=270	
O. A. T.	SEATING STAGE		150 48	

CHAPTER 4 CASE STUDY-2

TAGORE THEATRE CHANDIGARH

Fig. No-4.1
Source-Self-Clicked

4.1 PROJECT DETAILS

Name	**: Tagore Theatre**
Location	**:** Sector 18 Chandigarh, Punjab
Site Area	**:** 3.2 Acres
Constructed By	: PWD
Climate	**:** Composite
Architect	**:** Ar. Aditya Prakash
Construction Time	: 6 Years

4.2 INTRODUCTION

4.2.1 ABOUT THE CITY (CHANDIGARH)

Chandigarh is a city and a union territory in India that serves as the capital of the two neighbouring states of Punjab and Haryana. The city is unique as it is not a part of either of the two states but is governed directly by the Union Government, which administers all such territories in the country.

4.2.2 ABOUT THE TAGORE THEATRE

Tagore Theatre, Chandigarh is a center for cultural performances located in Sector 18, Chandigarh. It was designed by architect Aditya Prakash, who was part of Chandigarh Capital Project Team, headed by Le Corbusier. Aditya Prakash was the principal of Chandigarh College of Architecture.

4.2.3 HISTORY IDEOLOGY

Named after Rabindranath Tagore, India's Nobel laureate, Tagore Theatre, being the sole theatre in Chandigarh for a long time, had become an important hub of cultural activities for the citizens of Chandigarh. Now it has been converted into an auditorium Or Music School.

4.2.4 LOCATION:-

Fig.No-4.2
Source- www.googlemap.com

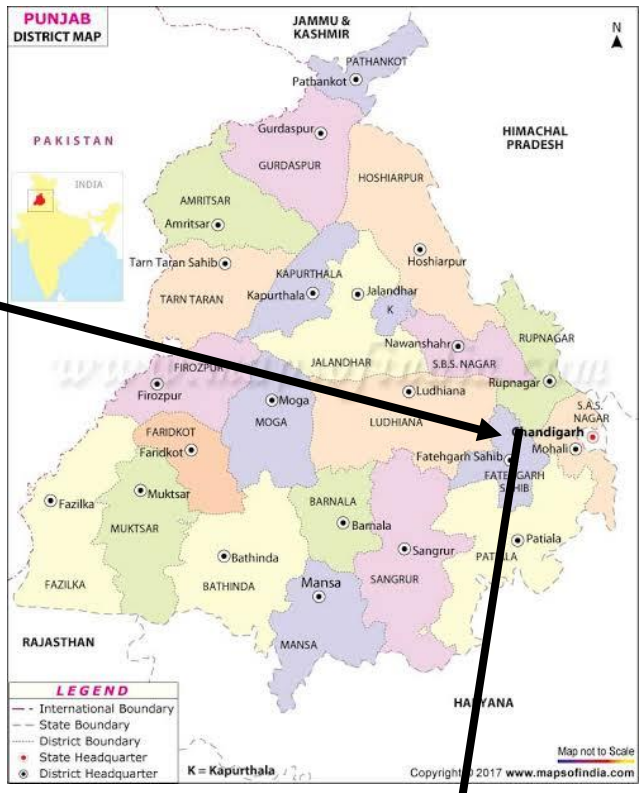


Fig.No-4.3
Source- www.googlemap.com

Fig.No-4.4
Source- www.googlemap.com

Fig.No-4.5
Source- www.googlemap.com

4.3CLIMATE

Chandigarh Has a Composite Climate under Koppen's Climate Classification.

4.3.1 TEMPERATURE

The Average Annual Temperature in Chandigarh Is 30°C

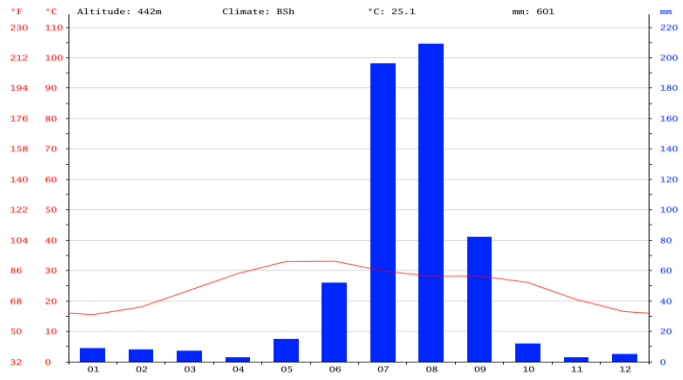


Fig.No-4.6
Source-internet

4.3.2 WIND DIRECTION

North West to North East

4.3.3 PRECIPITATION

The precipitation varies 473 mm between the driest month and the wettest month.

4.3.4 RAINFALL

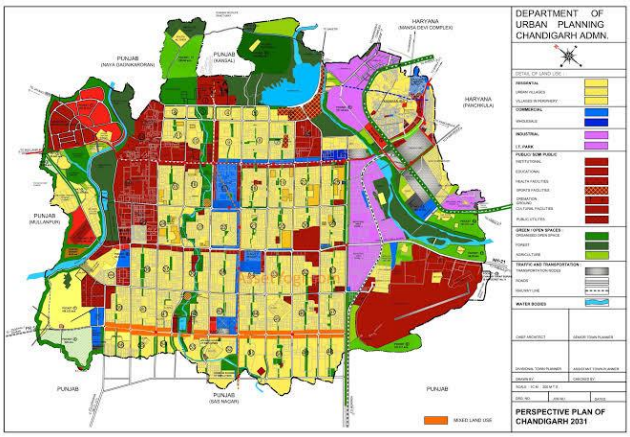
The average rainfall is 623 mm.

4.4 PLANNING CONCEPT:

Planning has been made to group the various units attached to the Theatre in a manner that will present a compact structure with all necessary amenities and comforts.

• A functional aspect of planning has been adopted so as to give facilities to amateur as well as professional drama groups for presenting productions of various types.

• The Tagore Theatre is run by Tagore Theatre Society which was formed in 1962 with Late Sh. Prithviraj Kapoor, the renowned Theatre and Film actor as its First Chairman. The Society was registered in 1972. Tagore Theatre was renovated in the year 2008 PLANNING



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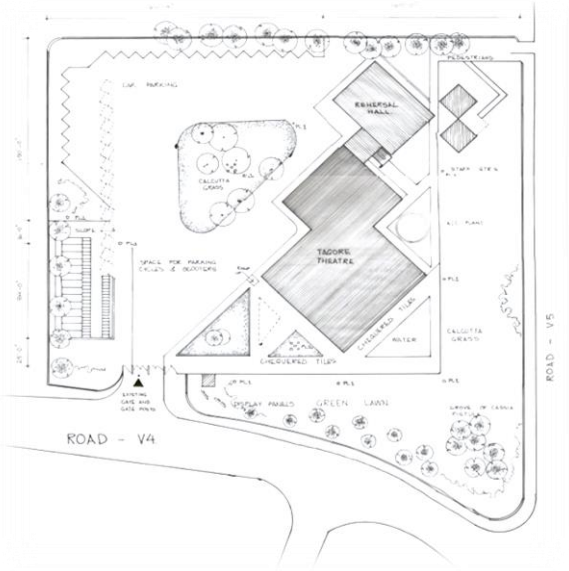

Fig.No-4.8
Source- By administration

4.5 FACILITIES:

- Library

- Auditorium
- Studio
- Museum
- Workshops
- Cafeteria
- Guest house
- Mini Theatre

4.6 SITE PLAN:

Site Area- 3.2 acre
Ground Coverage- 50% -1.6 acre

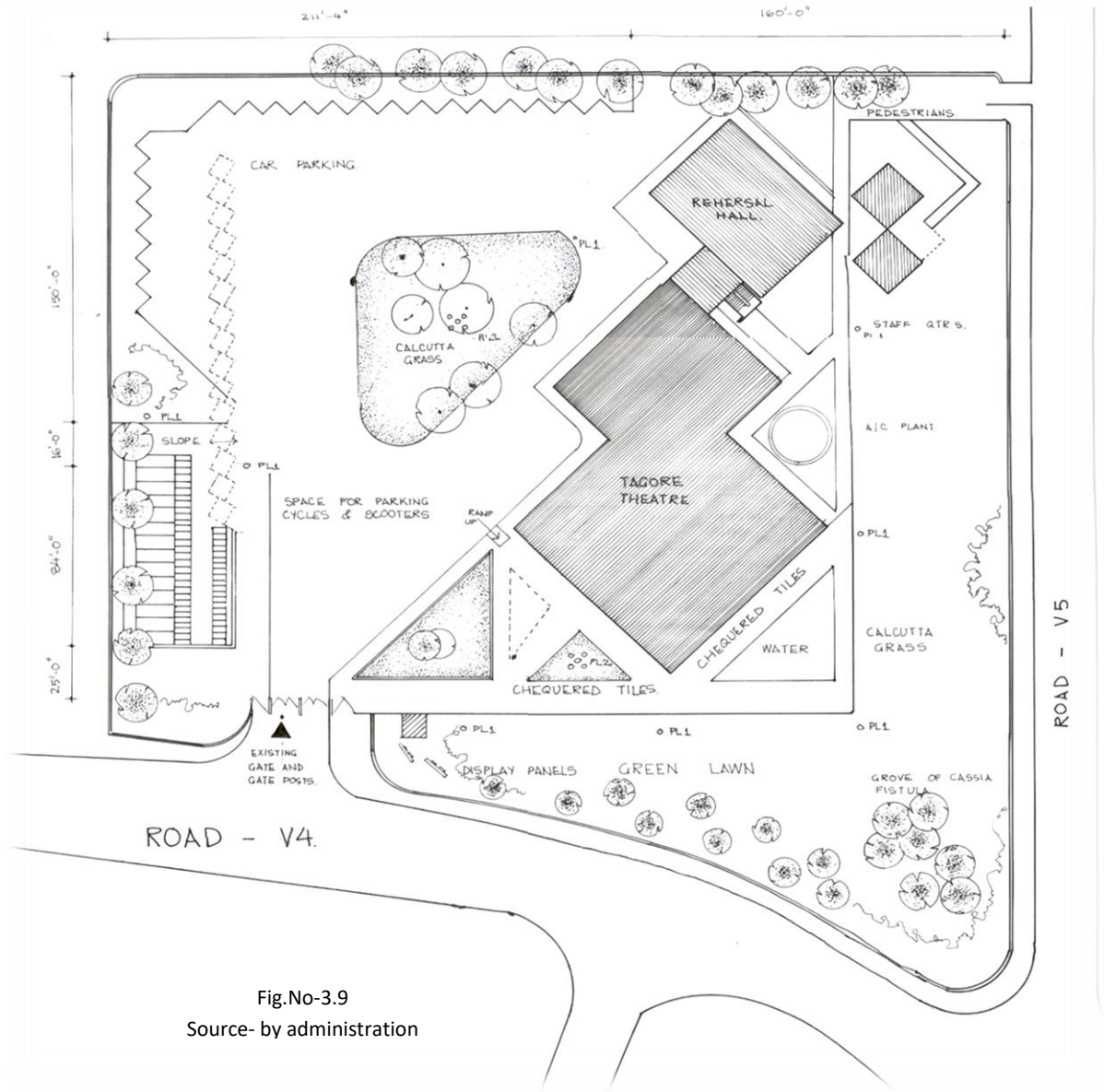

Fig.No-3.9
Source- by administration

4.6.1 LAYOUT & PLANING

Tagore Theatre Is Divided Into Major Layout

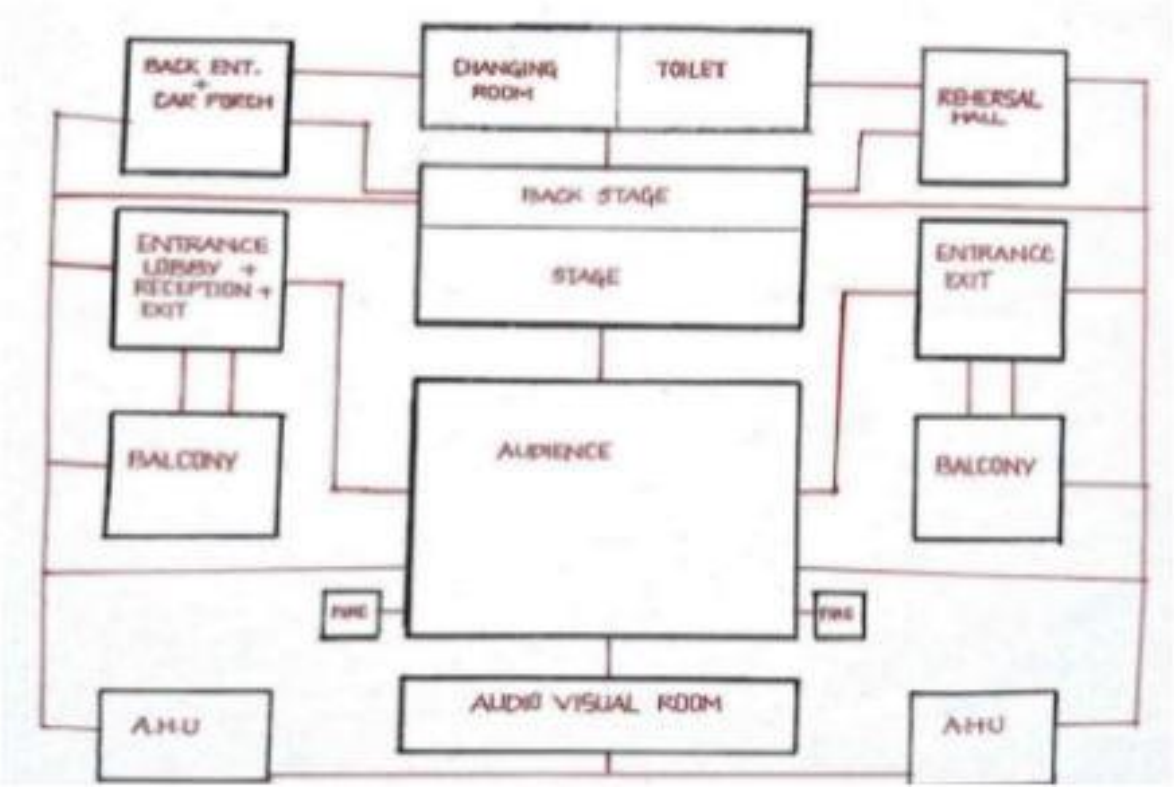

Fig.No-4.10
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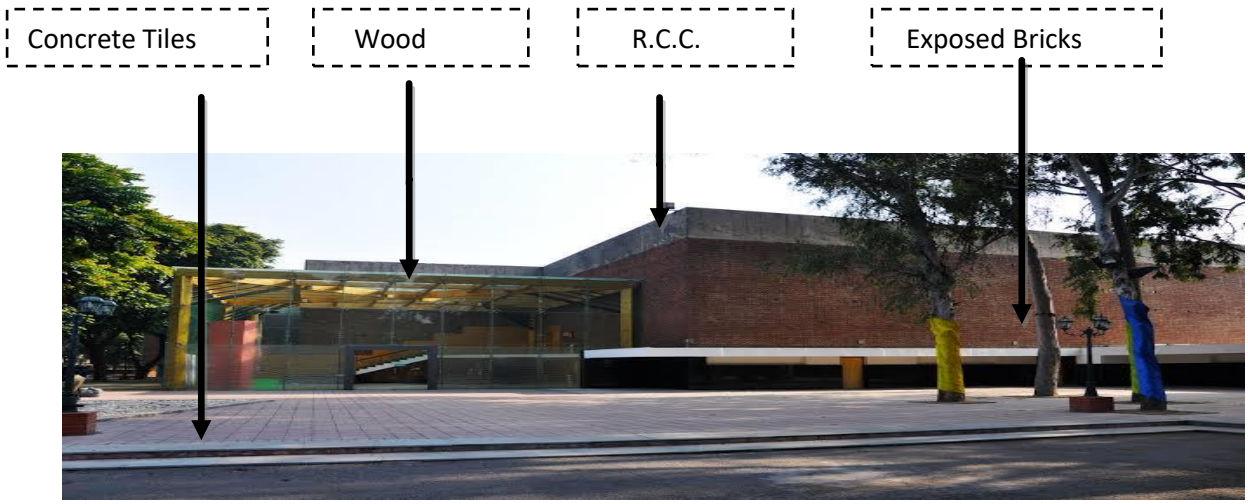

Elevation

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6.2 PLAN:

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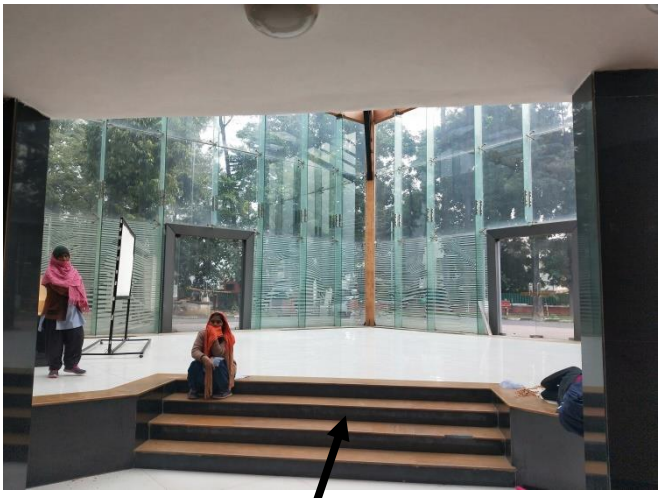

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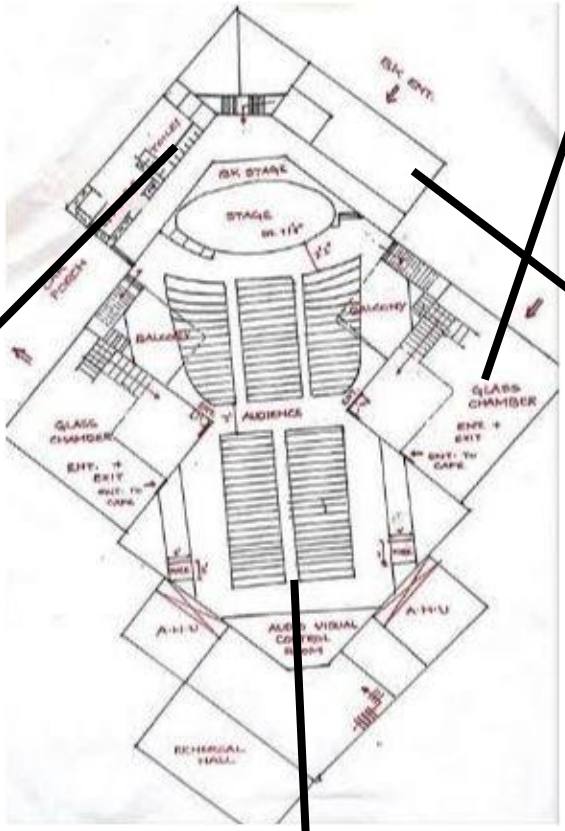

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4.7 INTERIORS:

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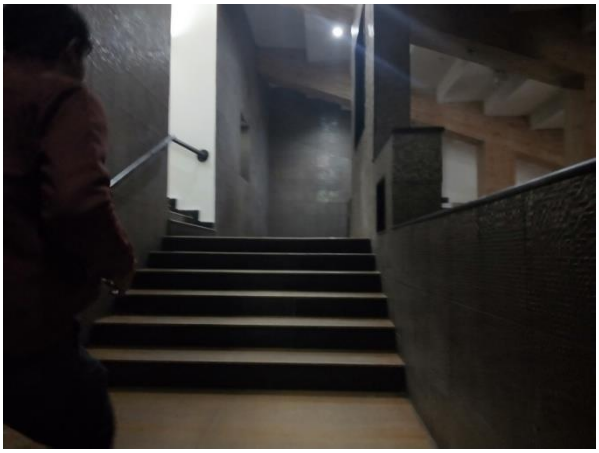

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FIG 4.20
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Fig.4.21
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Fig.4.22
Source- Self clicked

4.7.2 CAFETERIA

Fig.No-4.23
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4.7.3 STAGE LAYOUT

FRONT: 57’-0”
CENTRE: 34’-0”
BACK: 24’-0”
DEPTH: 39’-0” (WORKING 35’)
HEIGHT: 26’-0”
THERE IS A CURTAIN IN CENTRE OF THE STAGE.
A RAMP IS PROVIDED AT ONE SIDE OF STAGE.
STAGE HAS AN AREA OF 12MX15M
THE HEIGHT OF STAGE IS 2’.
THE ANGLE OF VIEW FROM CENTRE OF STAGE IS 90 DEGREES.WOODEN FLOORING IS USED DISTANCE BETWEEN STAGE

4.7.4 SEATING ARRANGEMENT

There are 801 seats in the auditorium as mentioned below:-
RIGHT BALCONY: 37
LEFT BALCONY: 37
REAR BLOCK: 250
FRONT BLOCK: 477
SLIGHT STAGGERED SEATING ARANGEMENT.
NO. OF PUBLIC ENTRANCE 6.
TWO PRIVATE ENTRANCE.
CEILING THE CEILING USED FOR REVERBRATION TIME, IT PROVIDES IMPORTANT PERFORMANCE ATTRIBUTES SUCH AS LIGHT REFLECTORS, FIRE RESISTANT.

4.7.4 ACOUSTIC

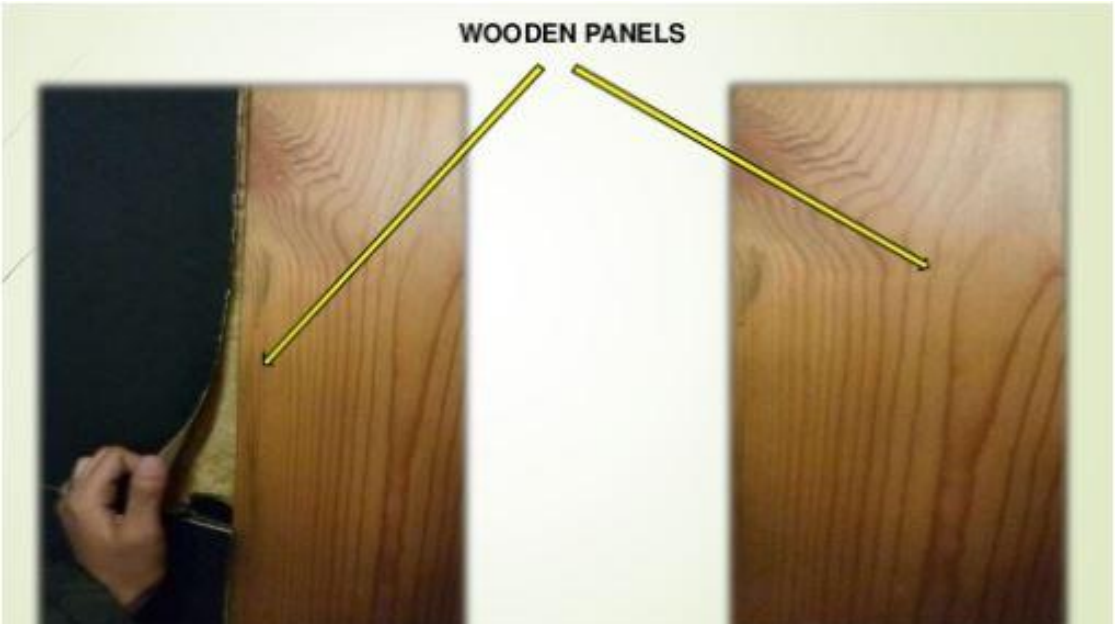

Fig.4.24
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4.7.5 SERVICES

4.7.5.1 FIRE SPRINKLERS :- A fire sprinkler system is an active fire protection method, consisting of a water supply system, providing adequate pressure and flow rate to a water distribution piping system, onto which fire sprinklers are connected. FIRE HOSE CABINET: - A fire hose (or fire hose) is a high-pressure hose that carries water or other fire retardant (such as foam) to a fire to extinguish it. On occasion, fire hoses are used for crowd control.

4.7.5.2 FIRE HOSE CABINET :- A fire hose (or fire hose) is a high-pressure hose that carries water or other fire retardant (such as foam) to a fire to extinguish it. On occasion, fire hoses are used for crowd control.

4.7.5.3 FIRE EXTINGUISHERS:- A fire extinguisher is an active fire protection device used to extinguish or control small fires, often in emergency situations. It is not intended for use on an out-of-control fire, such as one which has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard, etc.), or

Fig.No-3.21
Source- Self clicked

Otherwise requires the expertise of a fire department

Fig.No-3.22
Source- Self clicked

4.7.5.4 SMOKE DETECTORS:- A smoke detector is a device that senses smoke, typically as an indicator of fire. Commercial security devices issue a signal to a fire alarm control panel as part of a fire alarm system, while household smoke detectors, also known as smoke alarms, generally issue a local audible or visual alarm from the detector itself.

Fig.No-3.23
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4.8 PHYSICAL FEATURES

Features

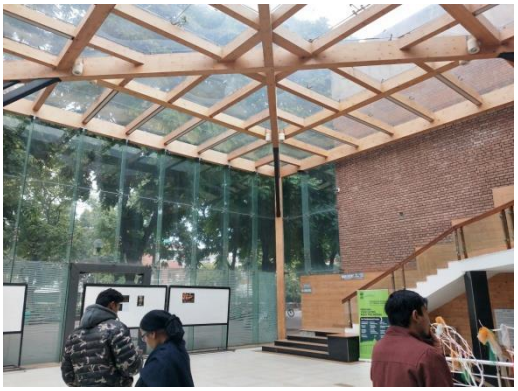

Fig.No-3.24
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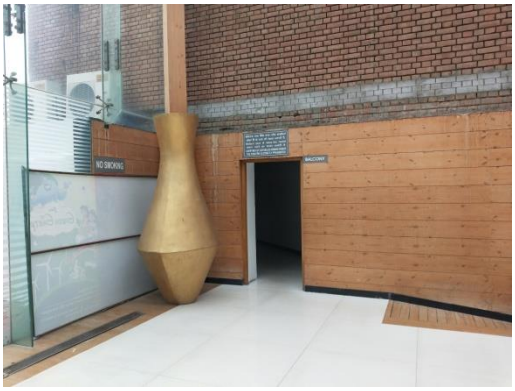

Fig.No-3.25
Source- Self clicked

4.9 CIRCULATION

- Tagore Theatre lies on V2 road.
- Entrance of This Site Face the Main Road.
- All the Tourists Have To Enter the Service Lane for Parking Their Cars and To Enter The Tagore Theatre.
- There Are Two Gates To Enter The Site.
- First Gate Is Only For the Visitors and Second Is For the Exhibitors and the Staff.
- Service Road Finish at 30m of the Main Gate of the Second Gate for the Staff Members.

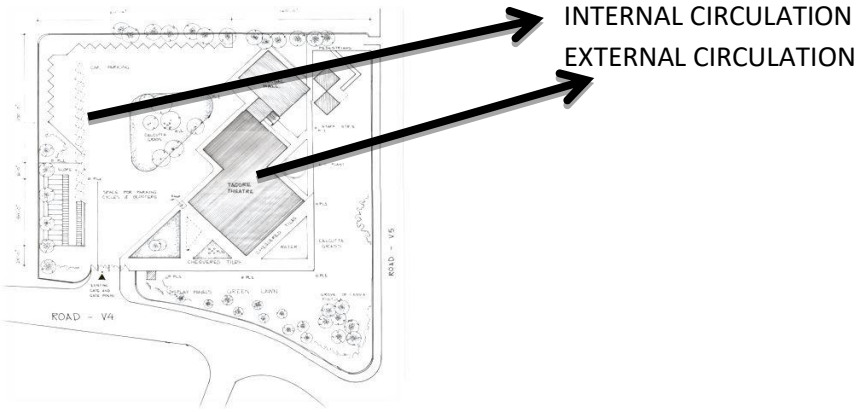

Fig.No-3.26
Source- Self Made

PARKING

- Tagore Theatre Have park our cars.
- Actually there is specific parking allotted to this site to serve adjacent TP. The site is in the use
- Vehicles of the government employs, visitor stand media would be parked at the service lane adjacent to Tagore Theatre.
- The available area of parking is more than 50 cars can be parked in the service lane adjacent to the site.

4.10 PARKING AREA-

ENTRY	PERSON	NO. OF CARS
GATE-1	All Person	50 APPROX
GATE-2	Pedestrian Entry	

4.11 S.W.O.T. ANALYSIS:

STRENGTH:-

- Proper Staggering of seats can be done.
- Ramps can be incorporated. • Some wheel chair spaces can be generated.
- Stampede in case of fire as less exits.
- Seats being left unused due to poor visibility.
- Balconies left unused specially its last row which is at the same level as its second last row

WEEKNESS:-

- Poor visibility from back seats due to inappropriate depth of the hall.
- Inappropriately staggered seats.
- Less no. of exit doors.
- No ramps for physically handicapped people.
- No wheel chair space provided.
- Last row of balcony is not elevated.
- Poor visibility of stage from the balconies.

OPPERTUNITIES:-

- No central aisle, best view secured.
- Good seating capacity.
- Good acoustics.

THEARTS:-

- Fire Hydrants system installed.
- Smoke detectors and Sprinklers installed.
- Good space utilization, canteen and exhibition area below the house

CHAPTER 5 : LITERATURE STUDY-1

KALA ACADEMY, GOA

Fig.No-5.1
Source- self click

5.1 PROJECT BRIEF

ARCHITECT:	Charles Correa
BUILDING TYPE:	Institutional
SITE AREA:	6.3 Acres
SITE GRADIENT:	Gentle slope

5.2 INTRODUCTION

5.2.1 ABOUT THE CITY (GOA)

Goa Is A State In Western India With Coastlines Stretching Along The Arabian Sea. Its Long History as a Portuguese Colony Prior To 1961 Is Evident In Its Preserved 17th Century Churches And The Area's Tropical Spice Plantations. Goa Is Also Known For Its Beaches, Ranging From Popular Stretches At Baga.

5.2.2 ABOUT KALA ACADEMY

KALA ACADEMY is a Prominent Cultural Center by the Government of GOA, The Building Was Designed by Charles Correa. It Plays The Role Of Being An Apex Body To Develop Dance Drama, Fine Arts, Folk Arts, And Thereby Promote Cultural Unity Of Goa. The Center Offers Training through Its Faculty, and Also Organizes Festivals, Seminars, Competitions, Exhibitions, Workshops and Other Programmes.

5.2.3 LOCATION:

Situated At Campal, Panaji Along The Banks Of River Mondovi Area Has Mixed Land Use With A Military Hospital Across The Road, A Cricket Ground And A Park On Either Side.

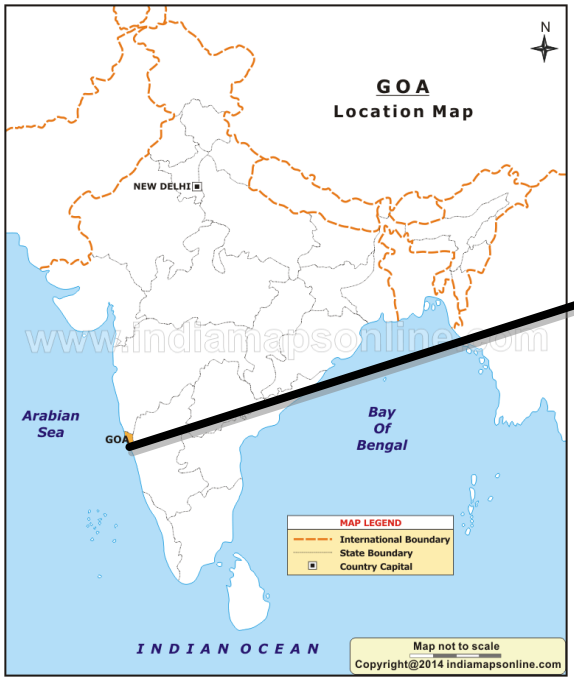

Fig.No-5.2
Source- www.googlemap.com

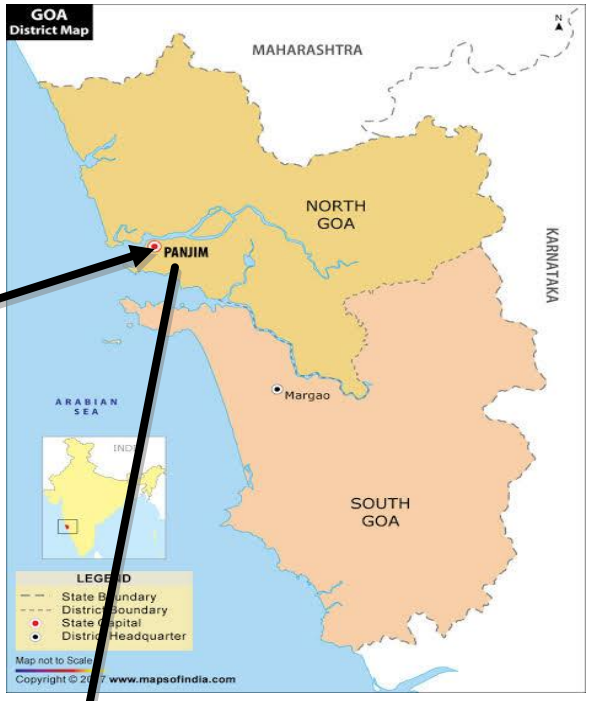

Fig.No-5..3
Source- www.googlemap.com

Fig.No-5.4
Source- google map

5.2.4 ACCESS:

- Regular Buses Connecting Panaji And The Academy Are Available.
- Dabolim Airport, 35km

•Nearest Railway Station Is Madgao, 53 Km.

5.3 FACILITIES AT KALA ACADEMY

- ❑ D.M Kala Mandir
- ❑ Open air theatre
- ❑ Mini OAT
- ❑ Black Box
- ❑ Rehearsal Room
- ❑ Art Gallery
- ❑ Meeting Room
- ❑ Guest Room
- ❑ Preview Theatre
- ❑ Cafeteria
- ❑ Library
- ❑ Teaching Studio
- ❑ Green Room
- ❑ Kitchen
- ❑ Administration
- ❑ Reception
- ❑ Lounge

5.4 SITE: PLANNING & ZONING

5.4.1 ZONING:-

- Building Is Divided Into Three Zones:
- Public, Administration, Academic
- Provided At Different Levels So As To Avoid Conflict Between These Zones
- First and Second Floors - Academic and Administration Facilities.
- Circulation Linked To The Zoning Is Segregated Through Levels - Ground Floor For Audience Functions And First And Second Floor For Staff And Students With Degree Of Inter Linking.

5.4.2 SITE PLAN

SITE AREA - 6.3 ACRES

GROUND COVERAGE - 40%

• Four Entries to the Site.

•Boat Jetty Provided On the River Side.

•Well Defined Pedestrian and Vehicular Systems

•Includes The Cafeteria, Garden And Amphitheatre.

•Site Is Divided Into Main Building, Service Building, Muktangan, Parking Area, The Exhibition Space.

5.4.3 GROUNDFLOOR

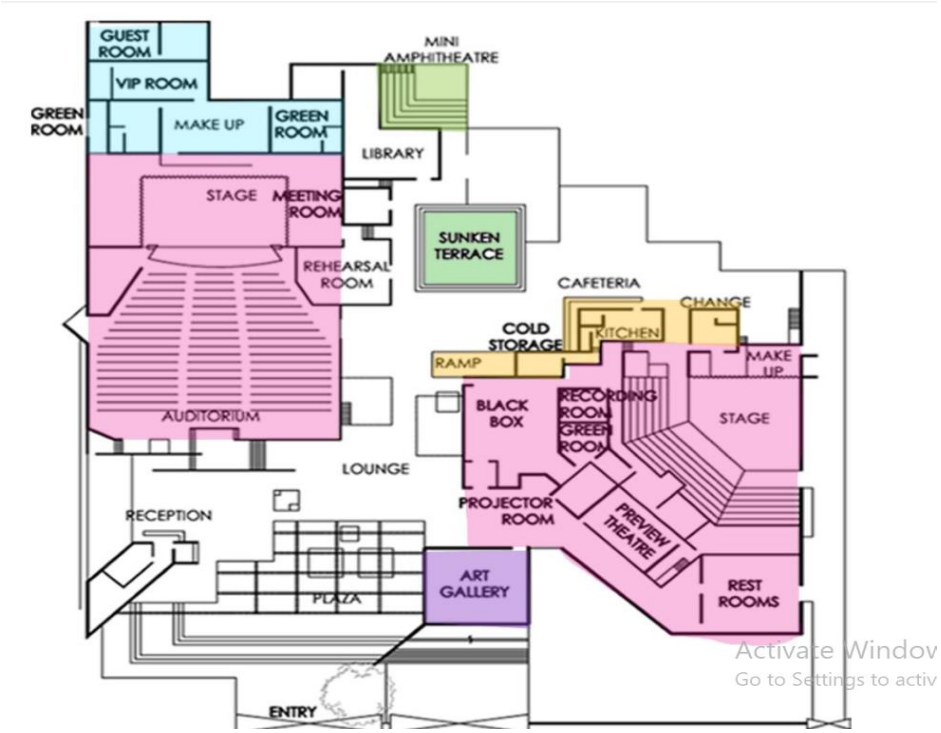

Fig.No-5.5
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5.4.4 FIRST FLOOR

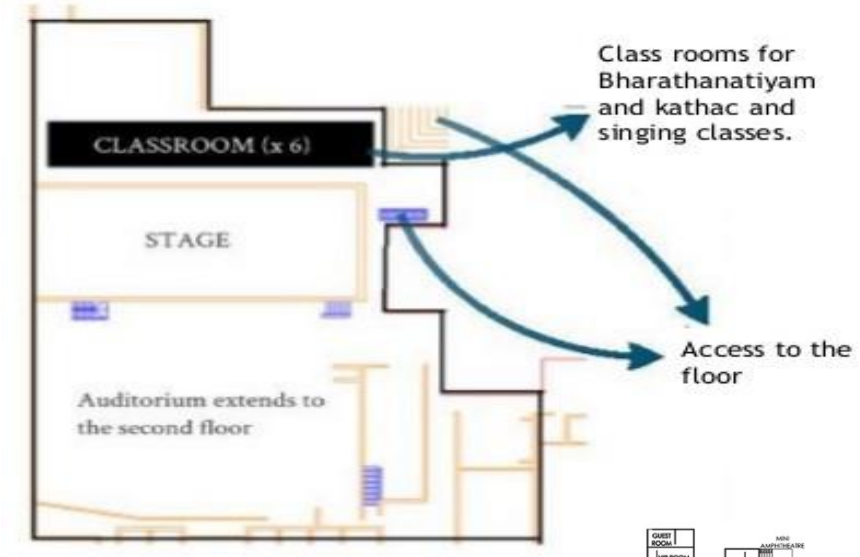


Fig.No-5.6
Source- self click

5.5 FACILITIES

5.5.1 D.M KALA MANDIR (A. C AUDITORIUM)

- Seating Capacity – 1000 (1300 SQ.M.)
- Orchestra Pit- 7.2 X 2.1 M
- Variety Of Acoustical Conditions Ranging From Speech,
- Plays To Sitar Recitals And Orchestral Arrangements

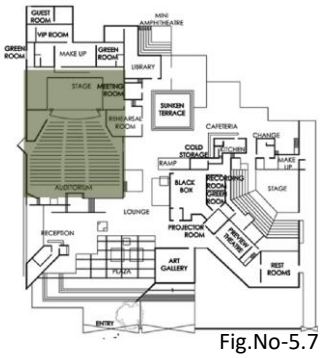


Fig.No-5.7
Source- internet

- Walls Of The Auditorium Are Painted Illusions Of An
- Old Goan Theatre
- Stage Is 80cm High From The First Row.
- Raking Height Varies From 10-20 Cm

Fig.No-5.8
Source- internet

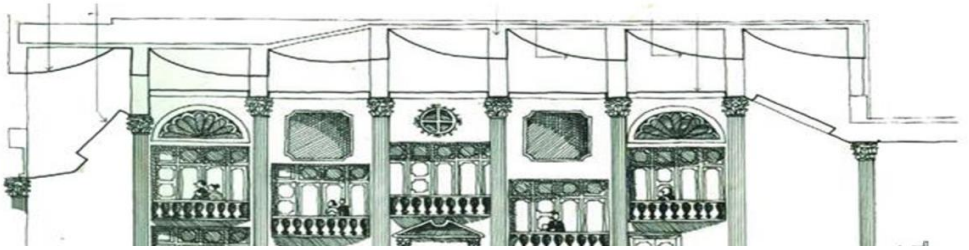


Fig.No-5.9
Source- internet

5.5.2 OPEN AIR AMPHITHEATRE:

- Seating Capacity (No Chair) - 2000
- Seating Capacity (Chair) - 1312
- Proscenium Opening - 15m
- Depth from Curtain Line- 12m
- Amphitheatre Is Of Double Herringbone Shape.
- Main Entry from Road Main Lobby
- Stage Is Raised At 75cm Above The Ground Floor Level(Eye Level Of The First Row)
- Lower Seat Rise - 30 Cm And Tread Of 100 Cm
- Higher Seat Rise Of 45 Cm
- Acoustics Are Good As The Seats Block Out Noise From The Road Side And The Stage Blocks Out Noise From The River Side

5.5.3 BLACK BOX

- Seating Capacity - 200.
- Area - 175 SQ.M.
- Used For Experimental Productions, Music
- Concerts, Meetings and Amateur Performances
- Also Used As A Recording Studio.

- Control Room And A Green Room Provided.
- Black Box Lobby Is Also Provided.

5.5.4 ADMINISTRATION:

- Administrative Area Is On The First Floor.
- The Area Divided Into Closed And Open Cabinets
- Total Area -500 SQ.M.

Fig.No-5.11
Source- internet

Fig.No-5.12
Source- internet

5.5.5 PREVIEW THEATRE:

- Capacity - 24.
- Used During 'IFFI' For Special Screening.
- Has Got A Jury Room And Projector Room Attached.
- Particle Board Has Been Used For Acoustical Effect.

5.5.6 ART GALLERY:

- Running Wall Space - 30 X 1.50 Mts
- Carpet Area Of Gallery – 90 SQ.Mts
- The Exhibits Are Displayed On The Wall On Four Sides.
- Lighting Features Are Very Normal No Facility To Hold A Good Exhibition.

Adjustable Cove Lightings Are Used In Gallery

Fig.No-5.13
Source- internet

5.5.7 LIBRARY:

- Area- 135 SQ.M
- Library Is In Proximity With Mini Oat.
- Books Are Raked In Glass Shelves

Fig.No-5.14
Source- internet

5.5.8 CAFETERIA:

- Capacity For 100 Members
- Square Table Are Provided Each With 4 Seats
- 3 Sides Open In To The Outdoor Landscape
- It Is Accessible From All Theatre Meeting Room - 45 SQ.M.

5.5.9 TEACHING STUDIO:

- All the music studios are of the same size 3.3 x 2.6ms
- Central air conditioning is provided for all class rooms.
- Acoustically treated classrooms with the same type of padding provided for the walls and ceilings.
- Three walls are faced with linen material and glass wool, the rest is paneled with wood particle board

Fig.No-5.15
Source- internet

5.6 PARKING FACILITIES:

- Parking Facilities Is Provided On The South-Eastern Side.
- Nearly 250 Public Parking Are Provided.
- Special VIP And Staff Parking Provided.

Fig.No-5.16
Source- internet

5.7 BUILDING STYLE AND CHARACTER:

- Importance to the Process of Moving Through the Spaces in a Building.
- Built Form Has Been Kept Low Ranging From One To Three Floors.
- This Is Further Enhanced By The Use Of Parapet Walls For Upper Floors, Which Emphasize Horizontally.
- The 'Pergola 'Above the Entrance Acts as an Extension to the Foyer of the Main Auditorium and Amphitheatre.

- Use Of Coffer Slabs And Parapet Walls
- Extensive Use Of Specially Designed Seating

5.8 SERVICES:

- The service buildings (AC plant and generator room) are provided on the western corner of the site without disrupting building functioning.
- Two separate service entries have been provided.

Generator room and the other Eastern corner of the site.

- The Eastern Entry Caters To The Need Of The Amphitheatre And The Canteen.
- A Loading Deck Has Also Been Provided Here
- The Septic Tank Is Provided Underneath The Garden

5.9ANALYSIS

- The Layout And The Building Zoning Provided Are Excellent
- Good Acoustical Treatment
- Flow of Spaces Has Resulted In A Good Built-Open Relationship.
- Good Use Of Site Features Has Successfully Made The Public Spaces Interesting By Use Of Sculptures, Paintings, and Seating Etc.
- The Cafeteria Is The Most Active Space With Good View To The River.
- Vehicular And Pedestrian Ways Properly Defined.
- Service Blocks Are Separated
- Security Measures Provided Are Minimum.
- Signage Provided Is Minimum.
- The Trees Have To Some Extent Blocked The View To The River

Public Spaces Too Large.

CHAPTER 6 LITERATURE STUDY-2

NATIONAL CENTRE FOR PERFORMING ARTS

Fig.No-6.1
Source- internet

6.1 PROJECT DETAILS

Name: National Centre for Performing Arts
Location: N.C.P.A Marg, Nariman Point Mumbai Maharashtra.
Site Area: 8 Acre
Architect: Phillip Jhonson & Patel Batliwala
TYPE: Institutional
CLIMATE: Warm and Humid

6.2 INTRODUCTION:

6.2.1 ABOUT THE CITY (MUMBAI):-

Mumbai Is The Capital Of The Indian State Of Maharashtra. It Is the Most Populous City in India with an Estimated City Proper Population of 12.4 Million as Of 2011. It Is The Second Most Populous Metropolitans Region Area In India.

6.2.2 ABOUT THE NATIONAL CENTRE FOR PERFORMING ARTS:-

The NCPA Is A Multi-Venue, Multi-Purpose Cultural Centre In Mumbai, India, Which Aims To Promote And Preserve India's Heritage Of Music, Dance, Theatre, Film, Literature And Photography. It Also Presents New And Innovative Work In The Performing Arts Field.

6.2.3 LOCATION:

N.C.P.A Marg, South Mumbai.

Latitude: 18°58’30”N
Longitude: 72°49’33”E

Fig.No-6.2
Source- internet

Fig.No-6.3
Source- internet

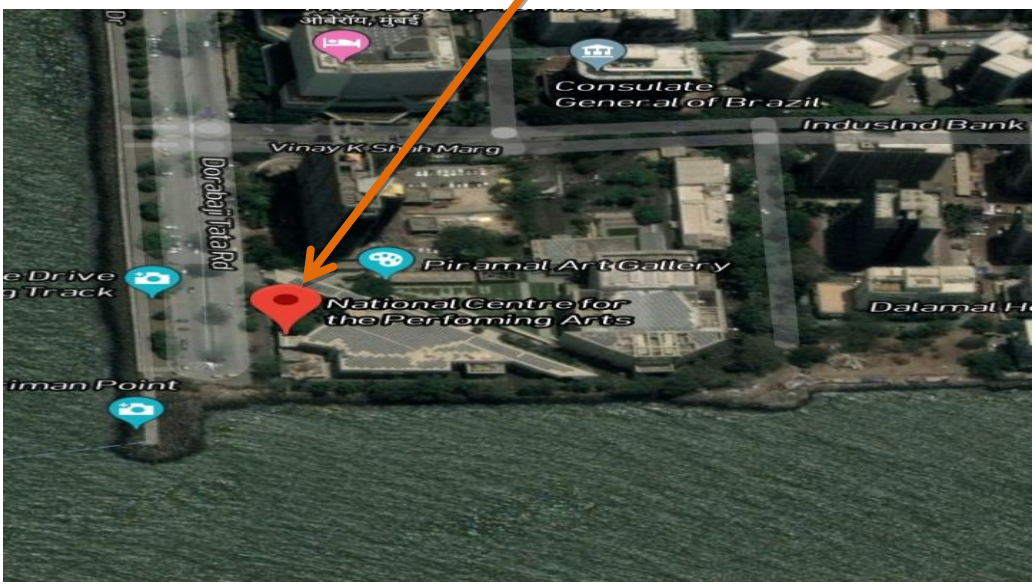


Fig.No-6.4
Source- internet

6.3 MAJOR FACILITIES

- TATA THEATER

- JHAMSHED BHABHA THEATER
- MAIN ADMINISTRATIVE OFFICE
- TEACHING AND REASERCH BLOCK
- EXPERIMENTAL THEATER
- GODREJ DANCE ACEDEMY THEATER
- BLACK BOX
- ART GALLERY
- STAFF AND GUEST ROOMS AND N.C.P.A APARTMENTS
- CAFÉ
- LIBRARY
- GREEN ROOM
- KICHTEN
- RECEPTION

6.4 SITE: PLANING & ZONING:

The Building Divided Into three major zones:
Public, Academic, Residential

Fig.No-6.5
Source- internet

AUDITORIUM:

1. Jam shed Bhabha Theatre
2. Tata Theatre
3. Experimental Theatre
4. Dance Theatre Godrej
5. Little Theatre

6.4.1 SITE PLAN

Site Area- 8 Acres

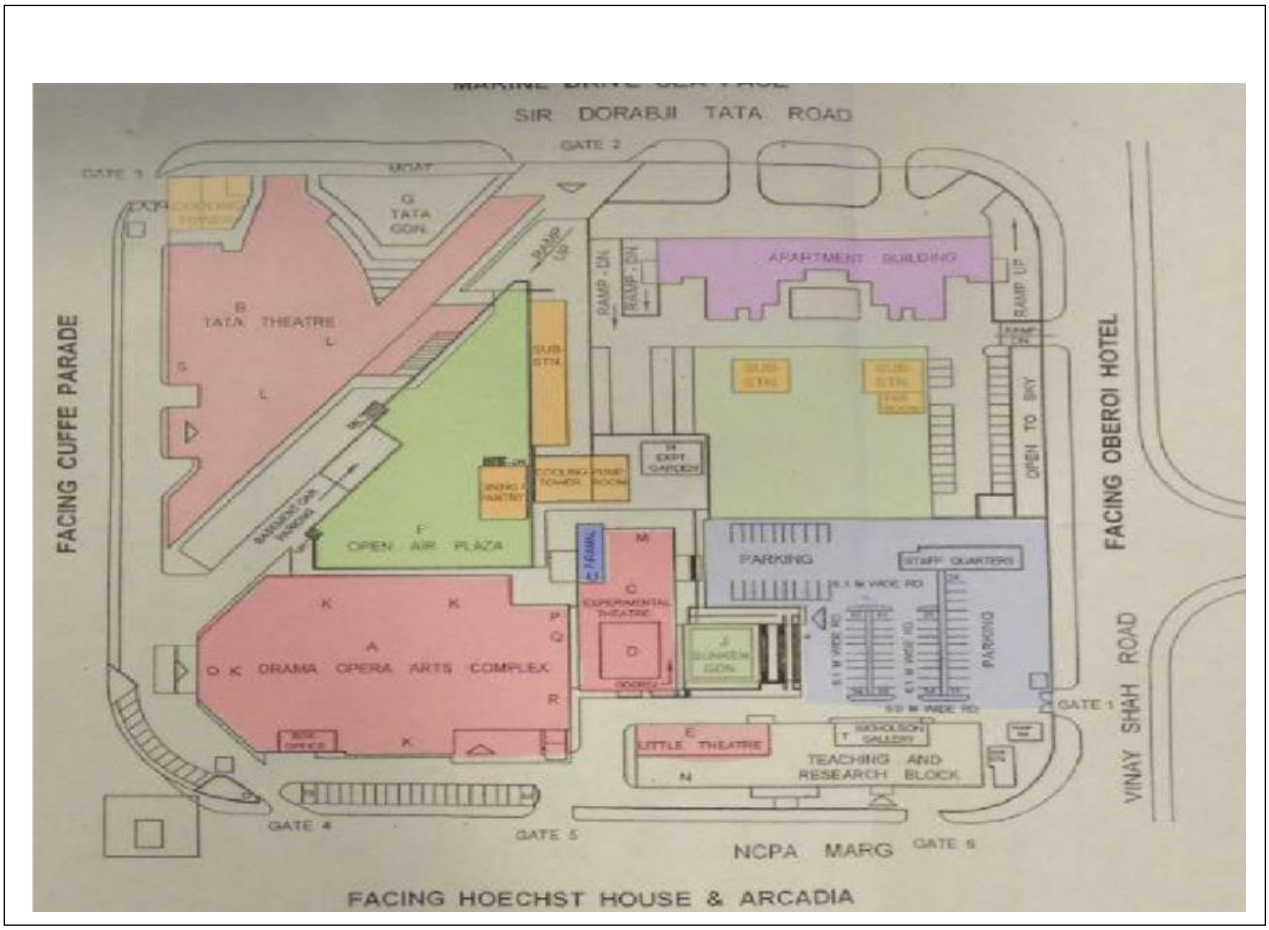


Fig.No-6.6

Source- internet

6.5 FACILITIES

6.5.1 JAMSHED BHABHA THEATRE

Access

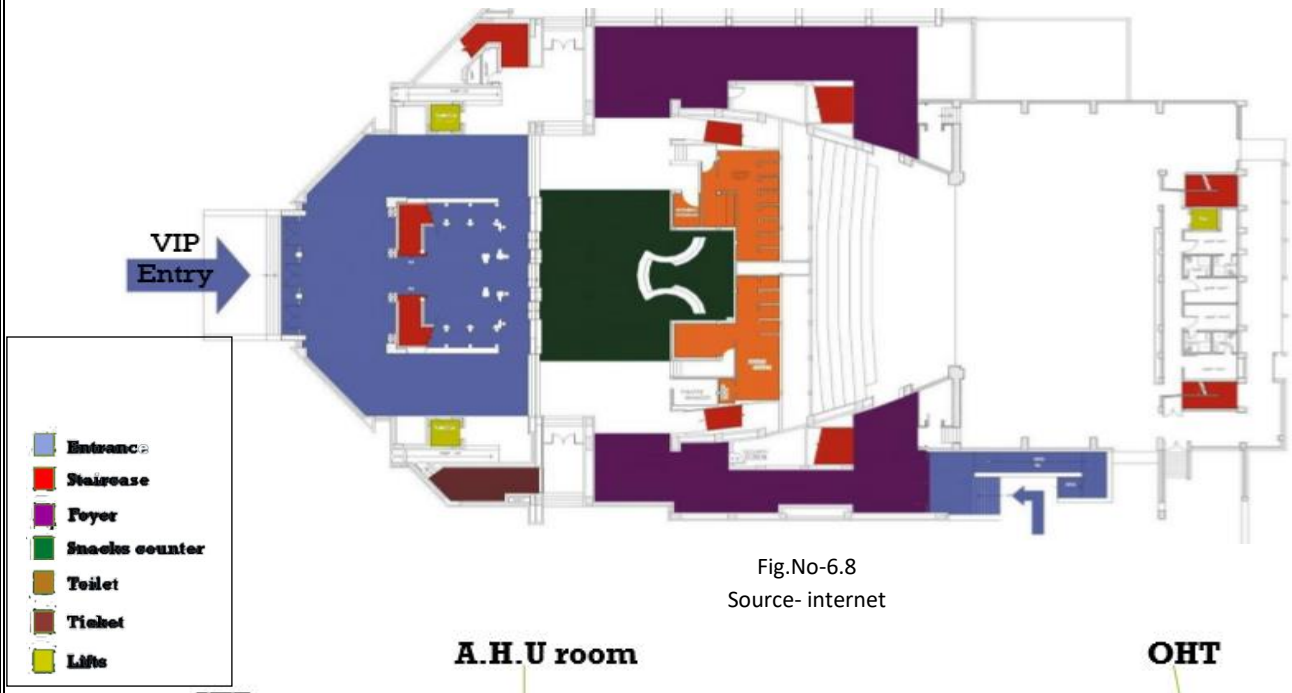
To Access The Theatre For The Public, There Are:

- 6 Side Door
- 2 Foyer Entries

DOORS

- 2.4 M (W) X 2.1 M (H)

- 7 Inch Thick
- With Panic Bars



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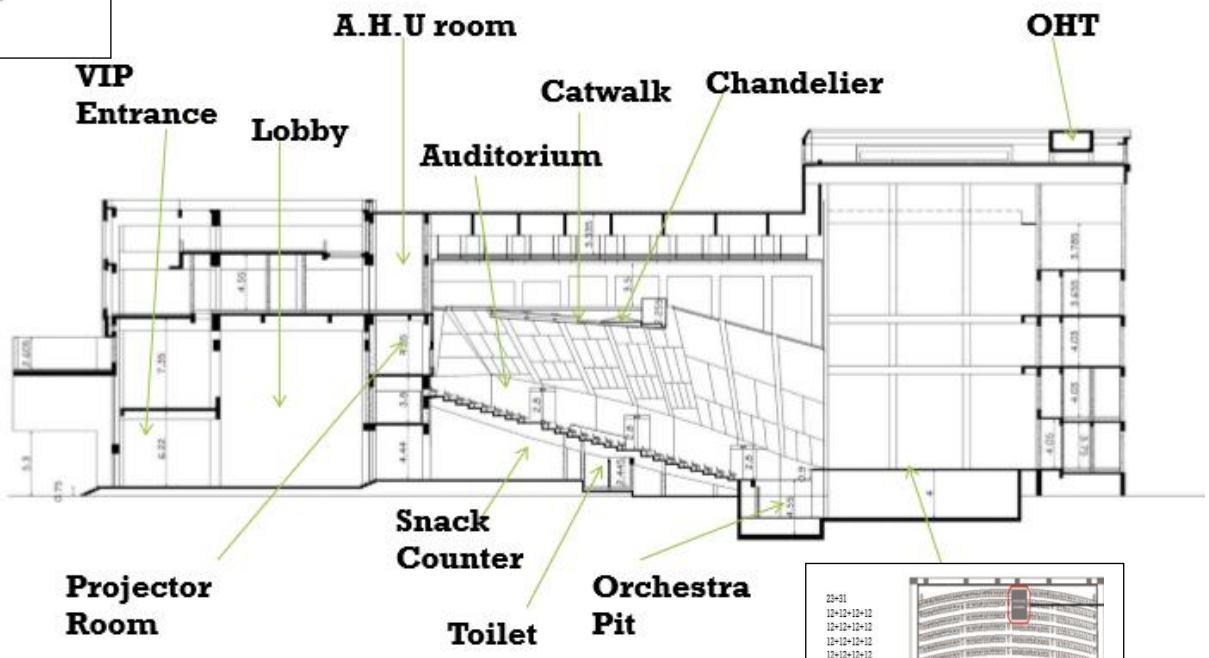

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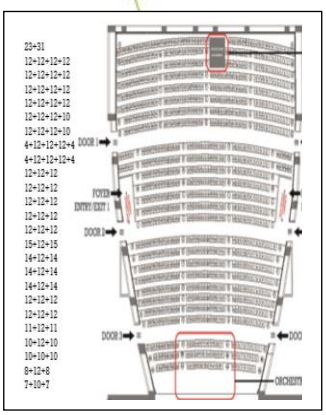

Fig.No-6.10
Source- internet

SEATING CAPACITY

Total capacity -1010

Seats Capacity reduced in the following cases:

- Use of In-House
- Sound Mixer/Monitor Reduced By 7 Seats Sound Systems
- 8-Channel Audio Mixing Console

• Basic Sound System for Speech and Music Reinforcement

DRESSING ROOMS **53**

Ground Floor- Solo Rooms 4 with Attached Toilet (11.6 SQ.M. Each)

Mezzanine- Group Rooms 2 with Attached Toilet (23 SQ.M. Each)

Fig.No-6.11
Source- internet

STAGE

• Floor Hardwood Timber Flooring on Concrete
• Size 9m (D) X 17.5m (W) At Its Maximum Width:
• Height 3m at Upstage: 6m at Downstage Rotatable Stage
• Operation Electronically Controlled
• Rotation 180°
• Rotation Time 80 Sec.

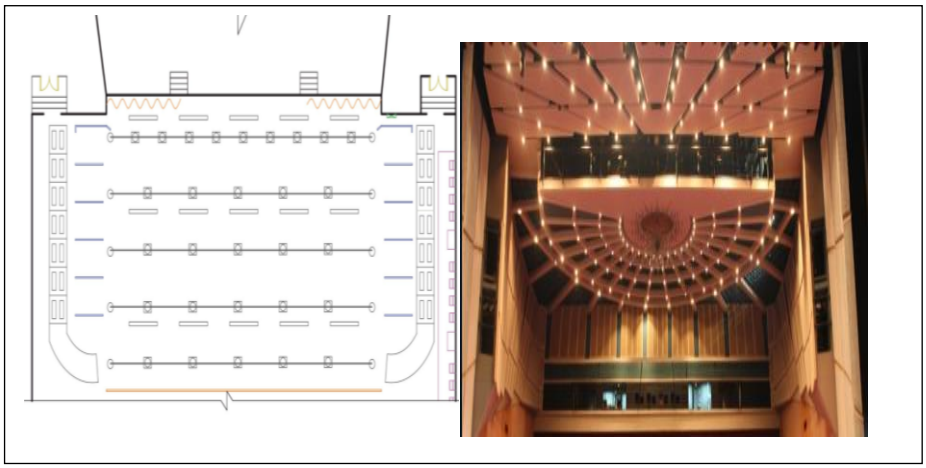

Fig.No-6.12
Source- internet

Fig.No-6.13
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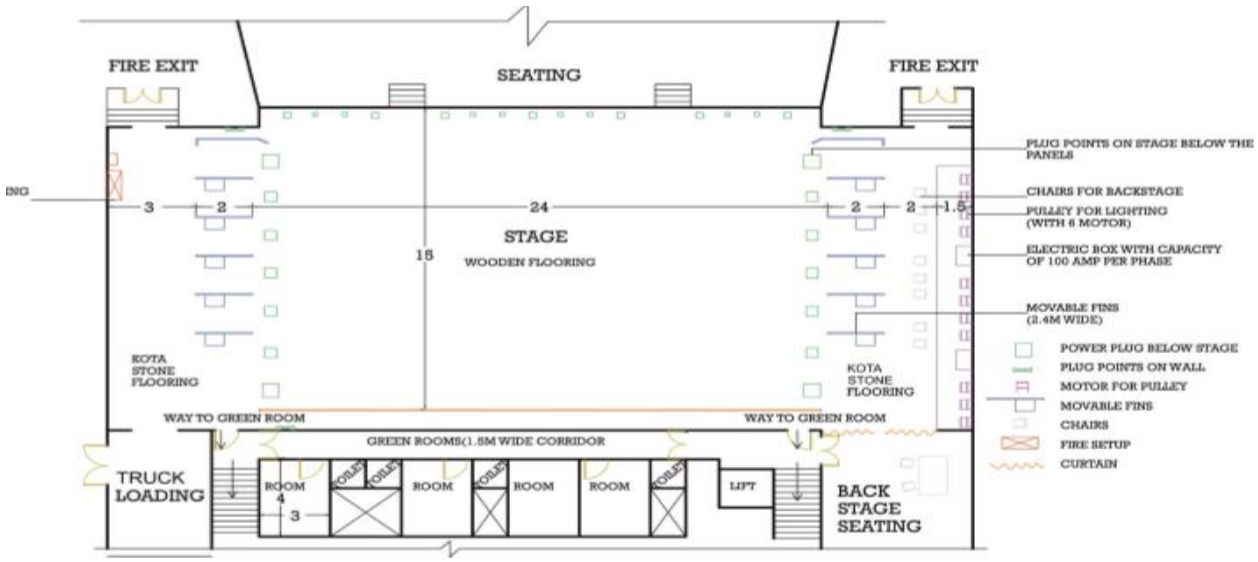

CONTROL ROOM:

•Location Rear of the auditorium behind glass window; partially openable divided into 4 compartments inter-connected through common passage.

- Compartment 160 SQ.M
- Compartment 228 SQ.M
- Compartment 310 SQ.M (Light Control Cubicle)
- Compartment 445 SQ.M
- Power supply 18 kW, 30 Amps per phase

REHEARSAL ROOMS (FRONT-OF-HOUSE)

These are separate venues

- West room 1 124 SQ.M, height 2.88m (second floor West Wing) (90 SQ.M. adjoining open terrace)
- West room 2 115 SQ.M, height 2.9m (third floor West Wing) (50 SQ.M. adjoining open terrace)
- East room 1 113.5 SQ.M, height 2.9m (second floor East Wing) (55 SQ.M. adjoining open terrace)
- East room 2 99 SQ.M, height 2.9m (third floor East Wing) (32 SQ.M. adjoining open terrace)

MISCELLANEOUS SPACES

Foyers at Two Levels.

GROUND FLOOR (LEVEL 0)

- Area 930 Sq.M.
- Height Variable, Minimum 2.5m
- Elevator 1 (West Foyer)
- Accessory Electric 9 Kw (East Foyer) Lighting Supply
- Load 15 Amps per Phase 9 Kw (West foyer) Lighting Load 15 Amps per Phase
- Service Counter 2 (One Front Foyer and One in West Foyer)

FIRST FLOOR (LEVEL 1)

• Area 465 SQ.M.
• Height Variable; Minimum 2.5m
• Service Counter 1 (East Foyer)

MUSEUM

• Area 165 Sq.M.
• Height 5.45m

ORCHESTRA PIT

• Forestage Orchestra Elevator 19m (W) X 4m (D): Travel -2.9m (Below Stage), 0.0m (Auditorium Level) To + 1m (Stage Level); Locking @ 400mm Increments (9)
• Capacity 60 Musicians
• Below-Stage Pit, Fixed Portion 15.4m (W) X 4.2m (D) X 3.1m (H)

6.5.2 TATA THEATER

ENTRY

- There Are Separate Entrances, One For The Performers And The Other For The Audiences.
- The Performers Were Also Used As The Service Entry.
- Two entry exit

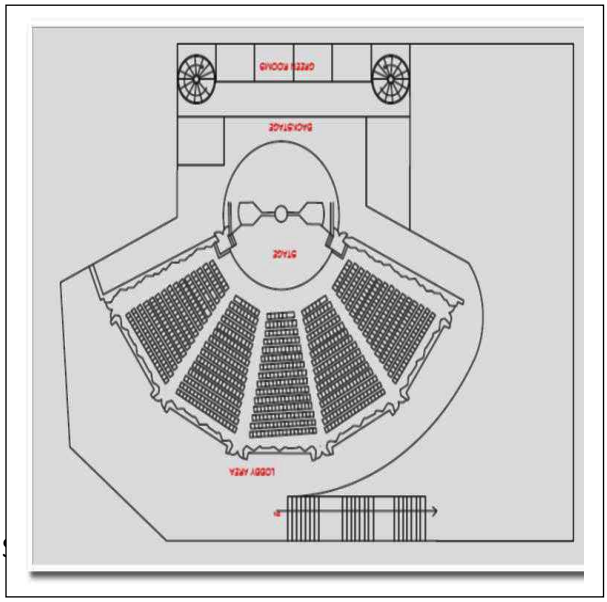

Fig.No-6.14
Source- internet

SEATING CAPACITY

- Total capacity -1010 seats
- Capacity reduced in the following cases:
- • Use of in-house
- • Sound mixer/monitor Reduced by 7 seats Sound System

STAGE

- Floor Hardwood Timber Flooring on Concrete
- Size 9m (D) X 17.5m (W) At Its Maximum Width:
- Height 3m at Upstage: 6m at Downstage Rotatable
- Operation Electronically Controlled

DRESSING ROOMS

- Ground floor- Solo rooms 4 (11.6 sq.m. each)
- Mezzanine- Group rooms 2 (23 sq.m. each)

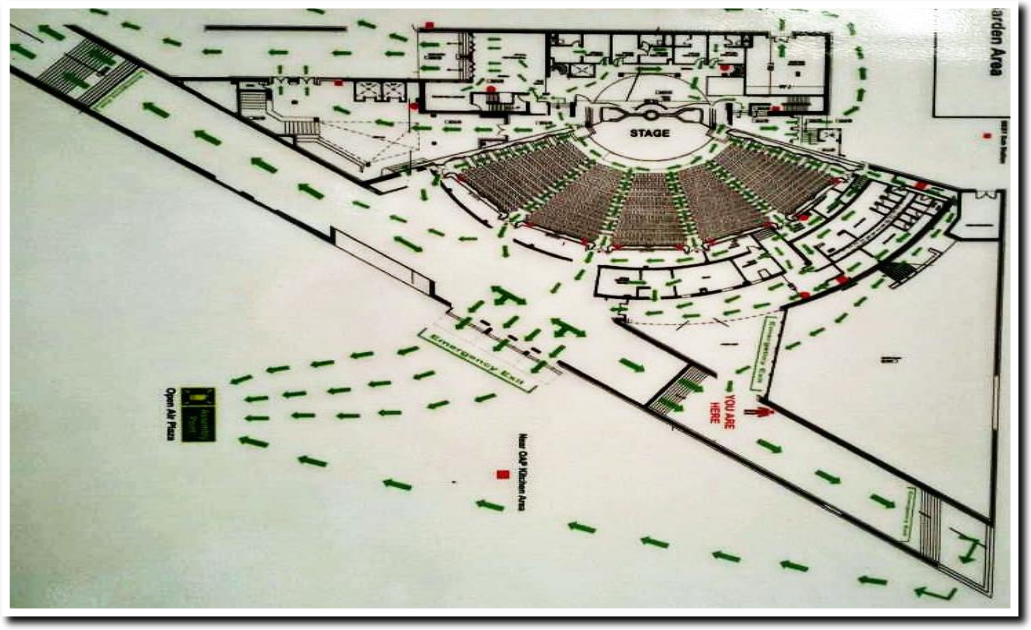

Fig.No-6.15
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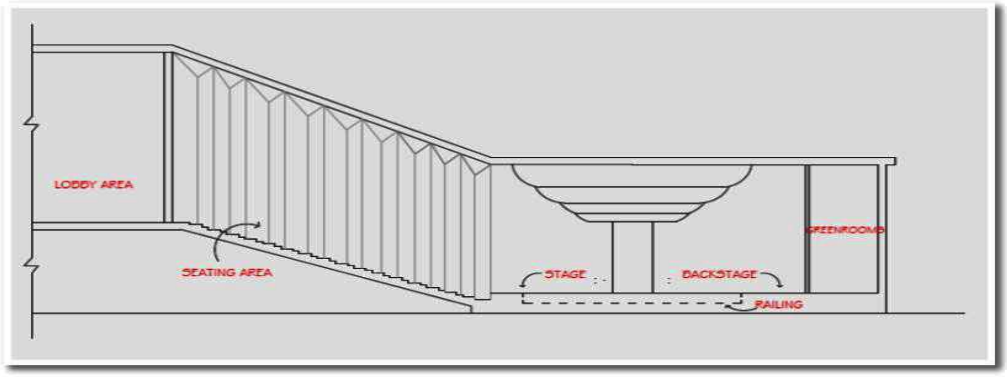

Fig.No-6.16
Source- internet

EXPERIMENTAL THEATER

SEATING CAPACITY

- 285 seats maximum (variable)
- Plastic bucket-chairs (blue) on modular wooden tiers

STAGE

- 9.7m (w) x 7.3m (d) x 0.7m (h) maximum
- Variable configuration; modular wooden platforms

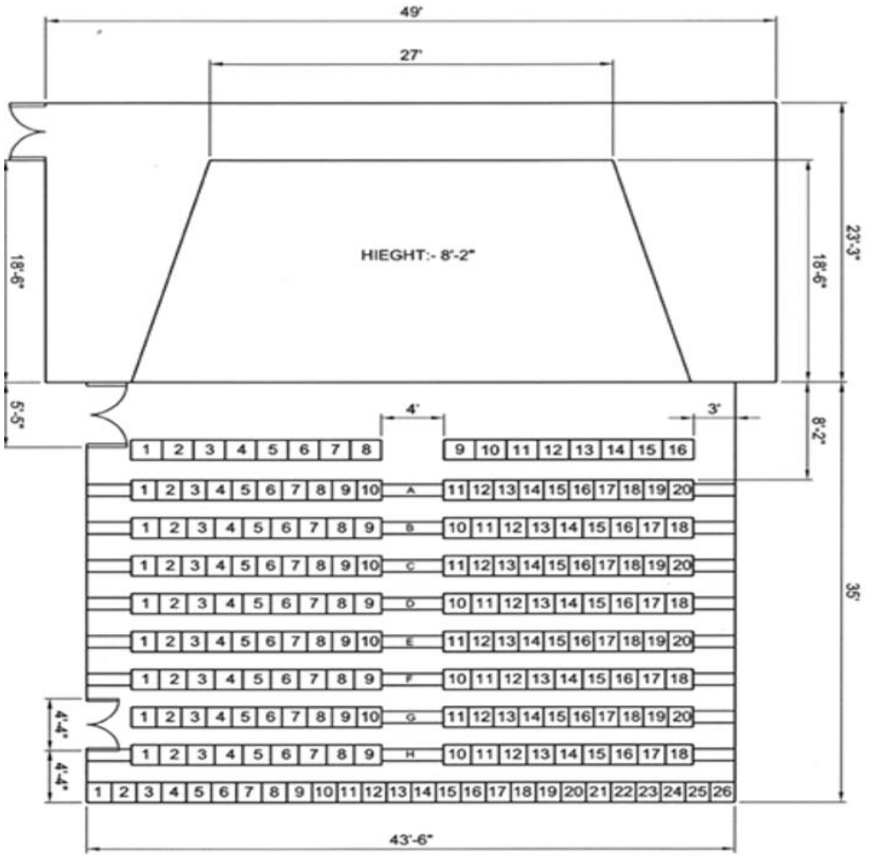

Fig.No-6.17
Source- internet

6.5.3DANCE THEATRE GODREJ

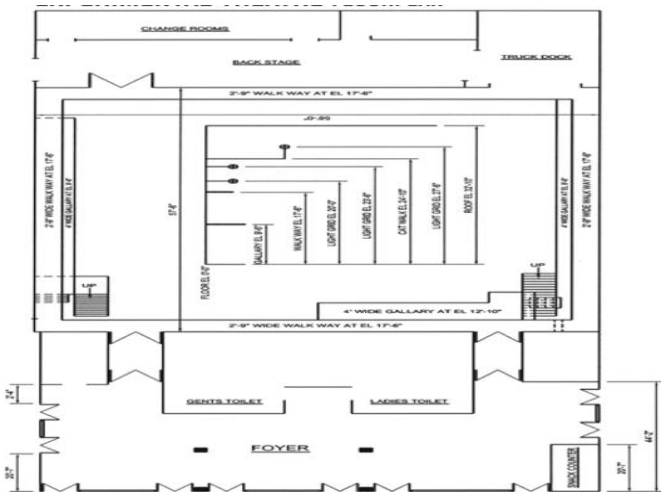

Fig.No-6.18
Source-intern.

FLOOR
• Concrete floor 19.20m (l) x 19m (w)
• Floor-to-grid height (Catwalk) 9m (h), average

CONTROL ROOM
• Behind glass observation window at
First floor level LIGHTING
• Electronic light dimmer 1 Specifications
•Lighting console -Phoenix Cantor-48, 48
Channels (ADB make)

DRESSING ROOMS (with toilets & showers)
• Ground floor 2 (7 SQ.M each)
• First floor 1 (20 SQ.M)

MISCELLANEOUS SPACES
• Foyer (non A/C)
• Size 425 SQ.M; height 3m

SEATING CAPACITY
• 185 Seats

STAGE
• Floor Timber Flooring On MS Slotted Angle Frame;
• 0.65m from Auditorium Level
• Wing-To-Wing 9m (W) X 5.6m (D) Height: 2.34 M

WING SPACE
• Stage- Right 3.55m (W) X 6.7m (L) Height: 2.34m
• Stage-Left 2.2m (W) X 6.7m (L) Height: 2.34m
• Cross-Over Space 14.9m (L) X 1.1m (W) Height: 2.34m
• Proscenium Opening 9.55m (W) X 2.40m (H)
• House Curtain Maroon Velour; Motorized Travel

MISCELLANEOUS SPACES
• Foyer (Non-A/C)
• Area-158 SQ.M
• Sunken Garden 232 SQ.M

DRESSING ROOMS (2 nos.)
• Ground Floor - 13.8 SQ.M& 17 SQ.M
• Common Lobby - 19.6 SQ.M

LITTLE THEATRE
SEATING CAPACITY
• 114 seats
• Cushioned chairs (off-white) on carpet (Maroon)

STAGE
• Floor timber flooring on concrete slab;
•0.8m (h) from auditorium level.
• Size with side wings and 6.66m (w) x
• 5.47m (d) x back concertina flat 3.96m (h)
• Downstage 3.08m (h) upstage

WING SPACE
• Stage-right 1.1m (w) x 6m (l) x 3.08m (h)
• Stage-left 1.0m (w) x 6m (l) x 3.08m (h)
• Cross-over space 8.7m (l) x 0.6m (w) x 3.08m (h)

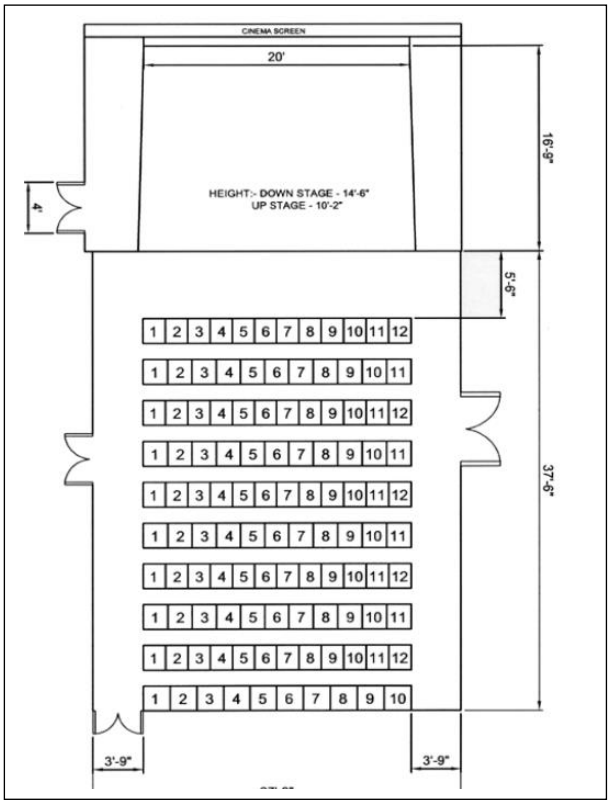

Fig.No-6.19
Source- internet

• Proscenium opening 5.85m (w) x 3.96m (h)
• House curtain Maroon velour; motorized travel

DRESSING ROOMS

• Ground floor 1; 8.5 SQ.M
• First floor 1; 15.8 SQ.M

MISCELLANEOUS SPACE

• Foyer (air-conditioned)
• Size 13.3m (l) x 5.6m (w) x 6m (h)
• Area 74.5 SQ.M

RECORDING STUDIO

Studio Is Equipped With State-Of-The-Art Multi Track
• Recording Equipment Based On the Pro Tools HD Platform
• Main Recording Hub, Interconnected To All Five Theatres
• Through Fiber Optic Cable Spreading An Area Of 24,000sqm.

6.5.4 LIBRARY

Fig.No-6.20
Source- internet

6.5.5 SUNKEN GARDEN (75-100 members)

- Located Next To The Dance Theatre Godrej.
- Reception Space Also Used For Small-Scale Performances
- Stepped Seating Leading Down To A Performing Area.

Fig.No-6.21
Source- internet

6.6 TREATMENTS

6.6.1 WALLS AND CEILING

- The Walls And Ceiling Had A Basic Wooden Framework.
- These Frameworks (Panels) Had Alternate Concave And Convex Triangular Forms Which Ensured Even Distribution Of Sound Over The Entire Auditorium.
- These Projections Come Out From The Sides Of The Walls. They Are Hollow and May Act As Resonators.
- These Are Surfaces Which Help In The Dispersion Of Sound.
- The Special Acoustic Forms Are Made Up Of High Density Compressed Plaster (P.O.P).
- Due To These Special Acoustic Methods, The Voice Is Naturally Audible At Any Place In The Auditorium Without Any Mikes Or Sound Systems.

- There Are Hollow Projections That Come Out From The Sides Of The Auditorium
- That May Act As Resonators Or Anti Focusing Surfaces That Help In Dispersion Of Sound.

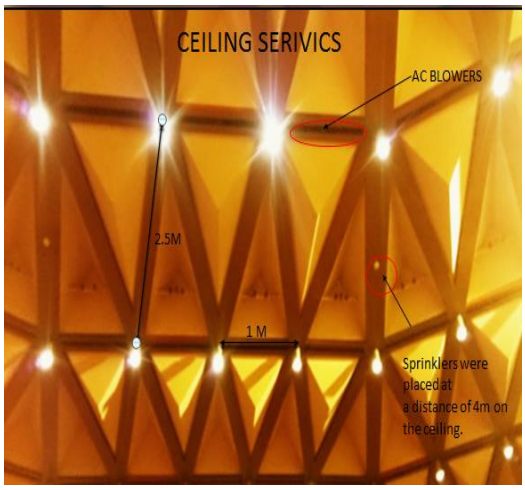

Fig.No-6.22
Source- internet

Fig.No-6.23
Source- internet

6.6.2 LIGHTING

- A Good Number Of Lighting Fixtures Are Oriented On The Stage Covering All Angles
- There Are Halogen Lights On The Ceiling Over The Seating Area
- These Lights Are Of Different Types, Qualities, Intensities, Color Etc. Halogen Lights, Spot Lights, Focus Lights
- There Were Total 64 Lights On The Ceiling
- These Lights Can Be Dimmed Or Brightened As Per Requirements
- The Lighting Over The Stage Also Had Fixtures To Hang The Focus Lights

6.6.3 CEILING

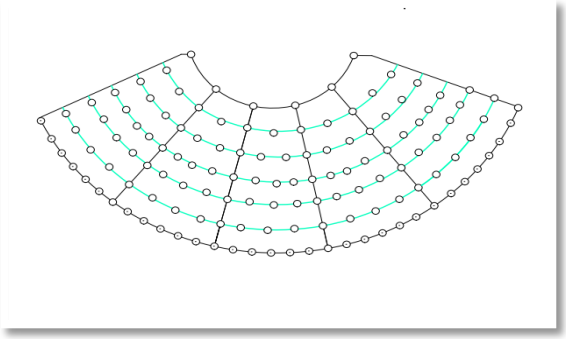

Fig.No-6.24
Source- internet

6.7 STRUCTURE

- All the Auditoriums having column beam structure
- JBT and TATA theatre have good span column free space,
- Coffered ceiling is cast for making the space column free.
- Cantilevers more than 10 foot is projected at the entrance of TATA theatre.
- Building is finished with different materials like stone, plastered etc.

OUTER AREA OF JBT

OUTER AREA OF TATA THEATRE

WAY TO THE BASEMENT PARKING

Fig.No-6.25
Source- internet

CHAPTER 7 STANDARAD STUDY

7.1 ENTRANCE FOYER

The entrance foyer may be required to accommodate the following:
Allow a Minimum of 0.6 m^2 per Person for All the Foyer Areas

7.2 VERTICAL MOVEMENTS

7.2.1 STAIRS

Width: min. 1500mm
Landing Area; Intermediate flat landing is should be provided when the difference in LVL is more than 2500

7.2.2 RAMPS

The entrance to the ramp is required adjacent to the stairs
Min. width 1.2m
Max. Slope of ramp 1:20 and min. is 1:12

7.3 PARKING

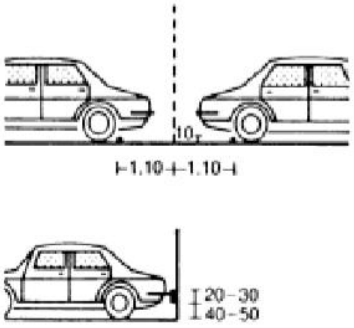

Fig.7.1
Source-Neufert

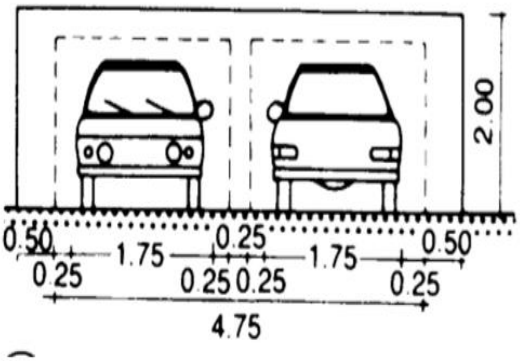

Fig7..2
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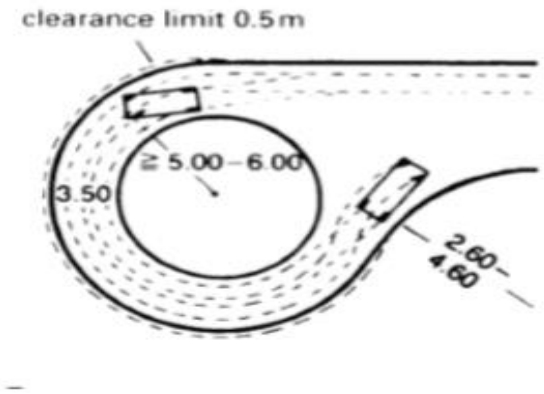

Fig. 7.3
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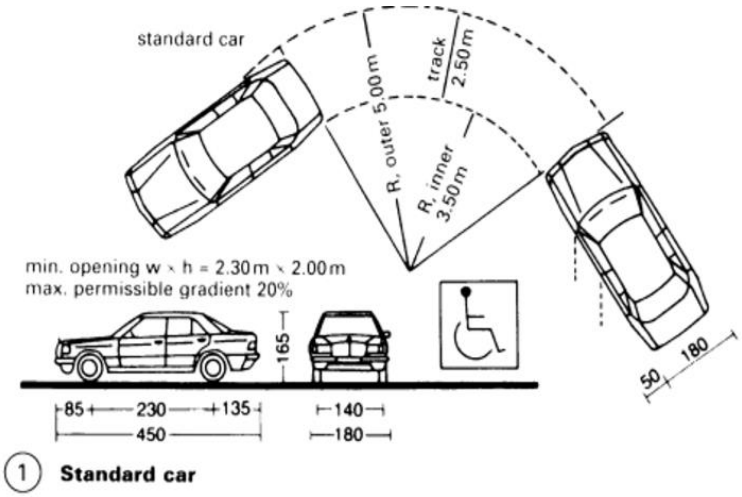

Fig.7. 4
Source-Neufert

7.3.1 LANDSCAPING:

Integration Of All The Spaces Can Be Achieved By Landscape, Built Form- Such As Connecting Corridors, Pergolas, and Pavement Design Etc.

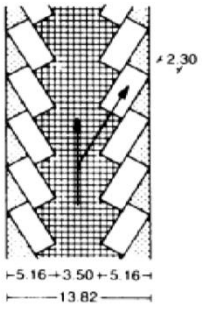

Fig.7.5
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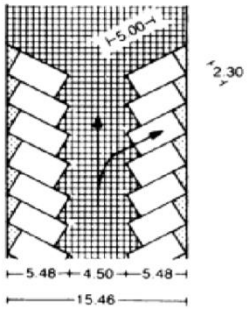

Fig.7.6
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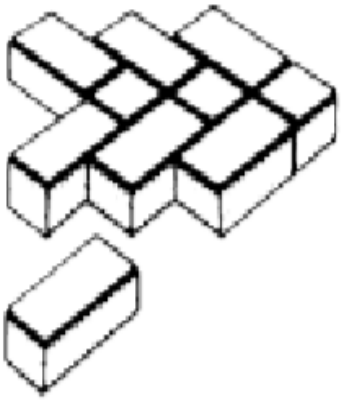
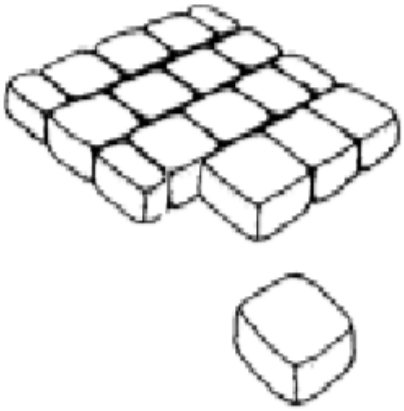


height (cm)	width (cm)	length (cm)	blocks/ m^2
6	10	10;20	48;96
8	10	10;20	48;96



height (cm)	width (cm)	length (cm)	blocks/ m^2
8	7	21	68
8	14	14;21	51;34

Fig. 7.7
Source-Neufert

7.3.2 SIGNAGE'S:

Standard Signage's Used For The Building Services, The Signage's Should Reflect The Cultural Theme Of The Design It Should Be Placed In Such A Manner That People Need Not Ask Which Direction To Go.

7.4 MUSIC STUDIO

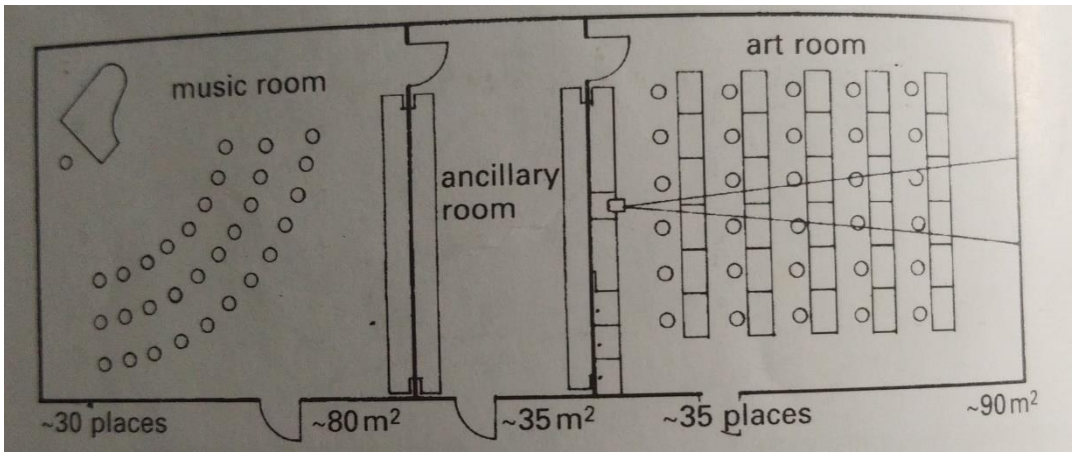


Fig.7.8
Source-Neufert

7.5 ART GALLERY:

The Gallery May Be Designed As A Formal Interior Essentially For Pictures, Or Less Formal And Specific, Allowing Exhibitions To Be Created For The Space. Live Art Should Be Considered, As Should the Use of Gallery Space for Recitals, Drama Performances

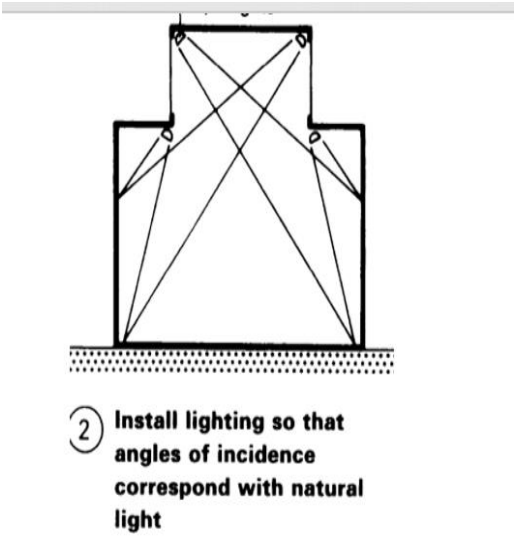


Fig.7.9
Source-Neufert

7.6 LIBRARY:

•Area Required For A Simple Reading/Work Place Is 2.5 M2 for A PC or Individual Work Place > 4.0 M2 Is Needed
• Fire Precaution
•Installation Of Book Security System Will Prevent Theft Of Book, By Giving Electronic Lock Up.
•The More Efficient Method Is To Have Linked Areas Which As Large As Possible

Without Change in Level.

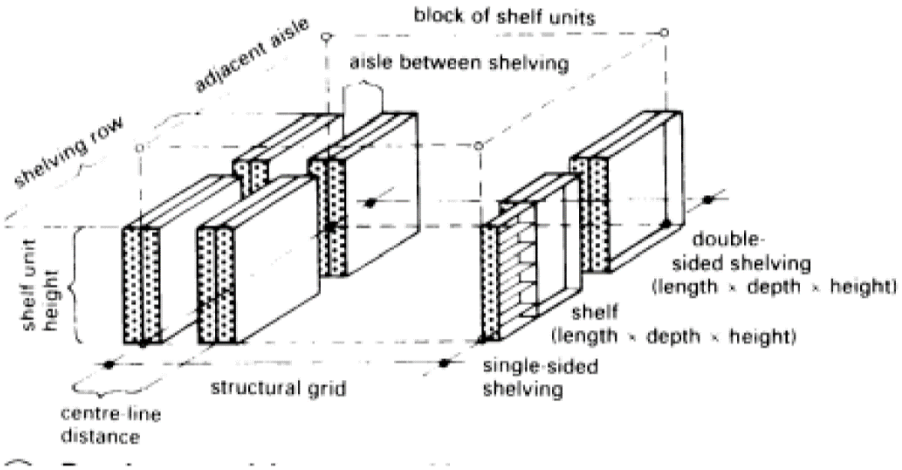


Fig.7.10
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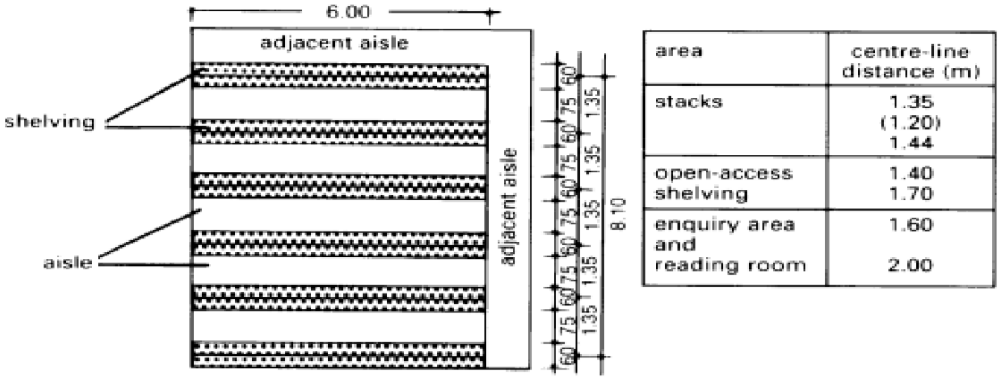

area	centre-line distance (m)
stacks	1.35 (1.20) 1.44
open-access shelving	1.40 1.70
enquiry area and reading room	1.60 2.00

Fig.7.11
Source-Neufert

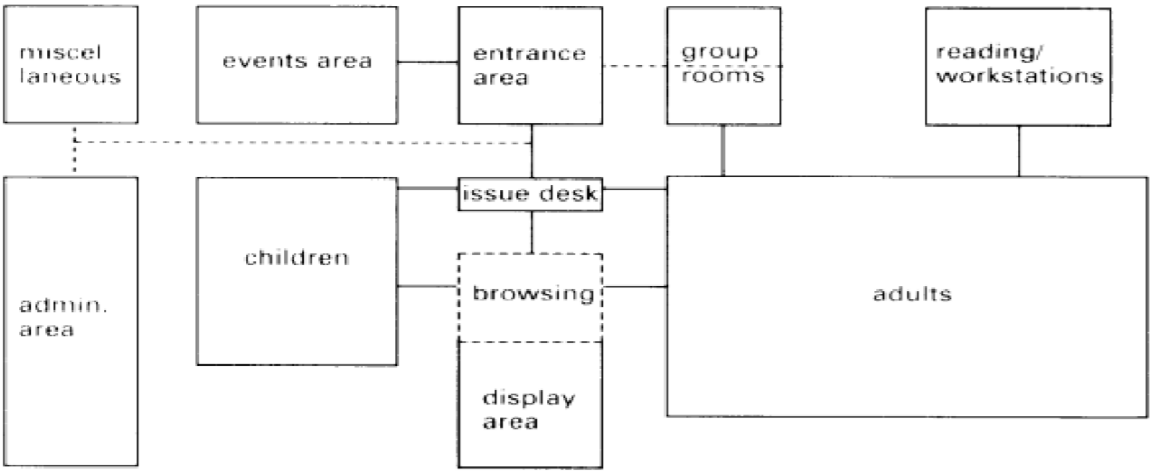

Fig.7.12
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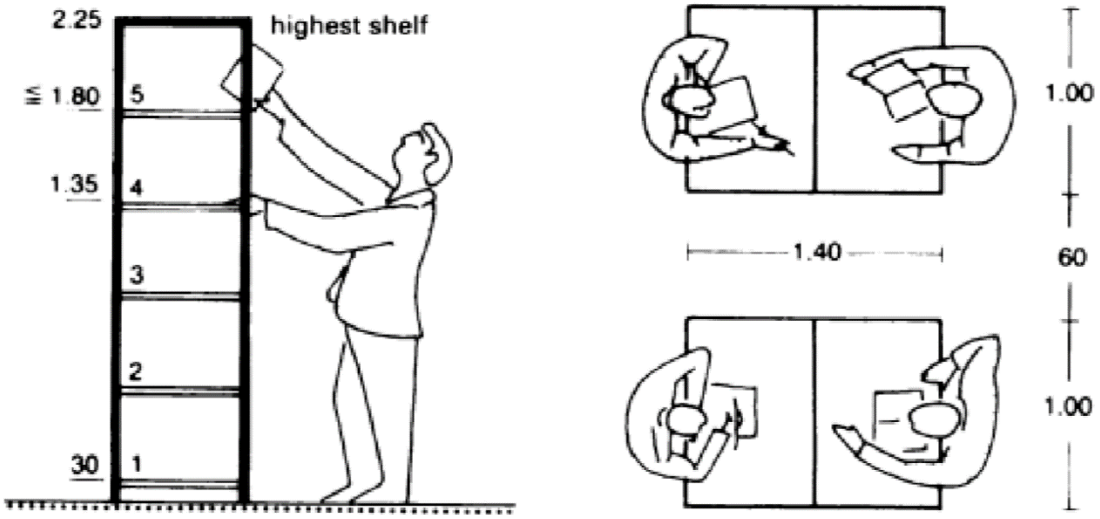

Fig.7.13
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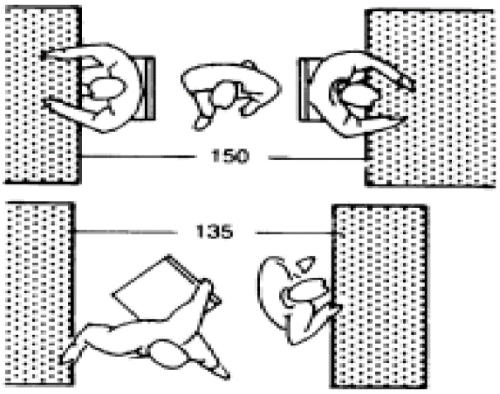

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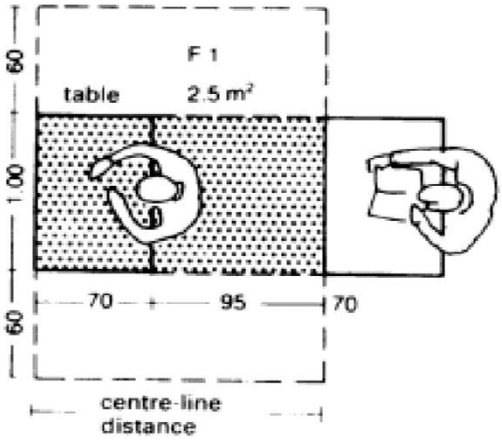


Fig7..16
Source-Neufert

7.8 TOILETS:

Legislation Provides A Guide To The Minimum Provision: This Is Usually Inadequate Especially For Women.

- A General Guide To The Minimum Requirements Is As Follows:
- Men WCs Minimum of 2 For Up To 500 Males, Then One for Each Additional 500.
- Urinals Minimum of 2 For Up To 100 Males, Then One for Each Additional 100. Wash Basins One for Each WC plus One for Each Five Urinals.
- Women WCs Minimum of 2 For Up To 75 Females, Then One for Each Additional 50.
- Wash Basin One for Each WC

7.9 AUDITORIUM

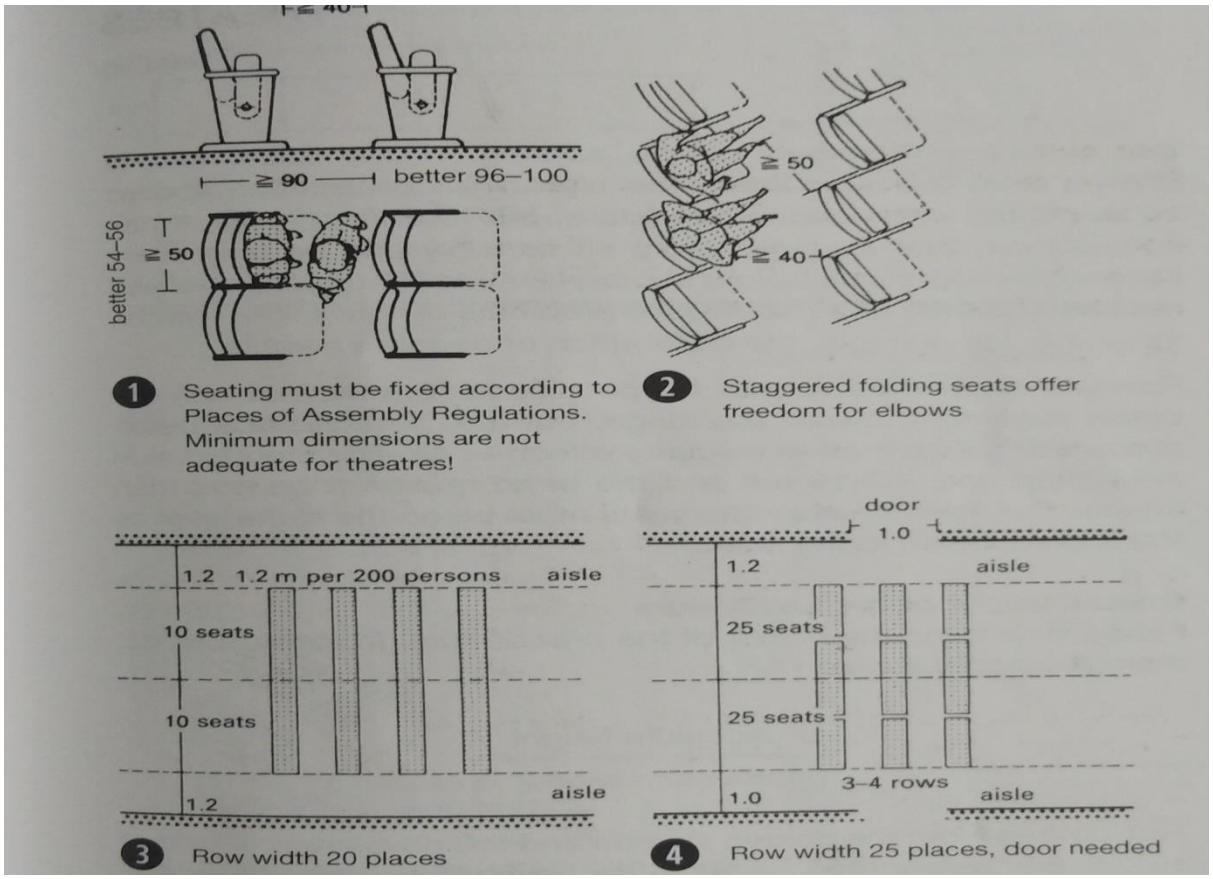


Fig7..17, - Source-Neufert

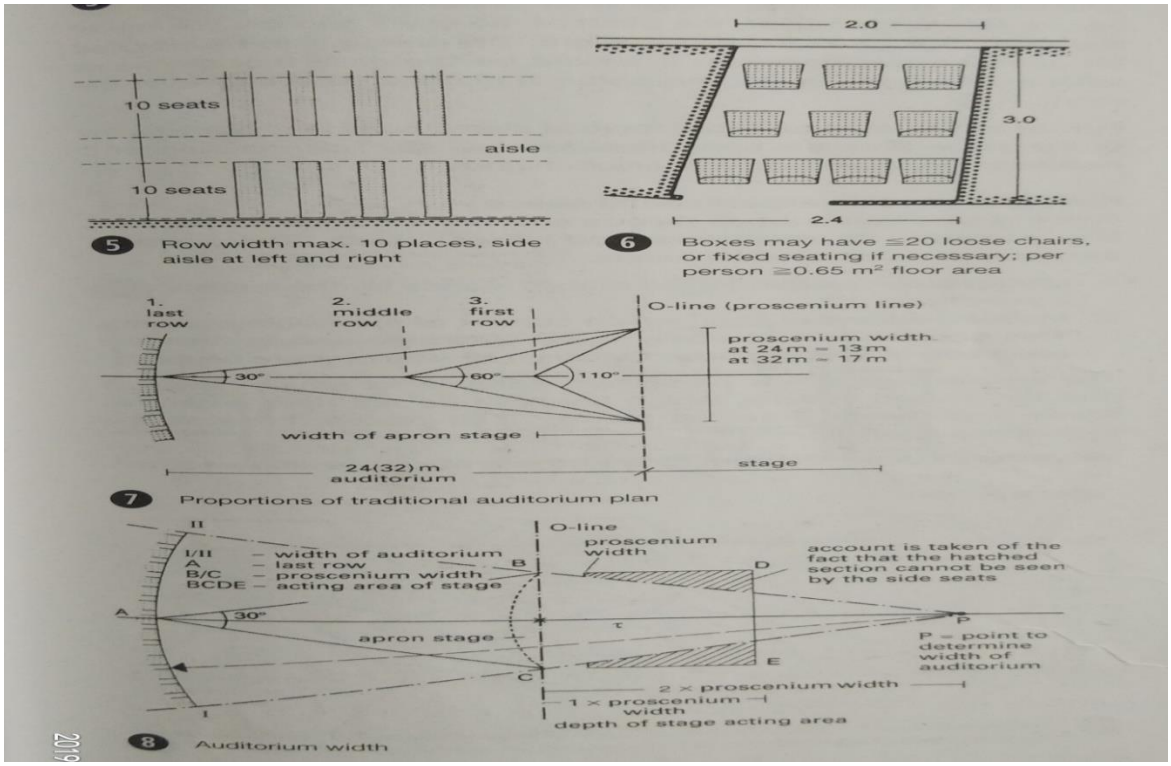


Fig.7.18, - Source-Neufert

7.9.1 AUDITORIUM AND PLATFORM/STAGE FORMATS

The Relationship Between The Auditorium [The Audience] And The Platform/Stage [The Performance] Is A Fundamental Requirement. The Selected Format Affects The Experience For Both Audience And Performers, Seating Capacity And Auditorium Size And Shape, From Which Follows The General Arrangement Of The Building.

PREDOMINANT TYPES OF PRODUCTION:

For Orchestral And Choral Classical Music In A Concert Hall Or Recital Room, There Are Three Broad Categories: The Audience Focused Towards The Orchestra And Choir On The Platform, With Or Without Choir Stalls, In A Single Direction; The Audience On Three Sides, Semi-Surrounding The Platform; The Audience Surrounding The Platform.

Types of Single Direction Relationship Include The:

- Rectangular Box;
- Variations on the Rectangular Box;
- Fan-Shaped Auditorium.

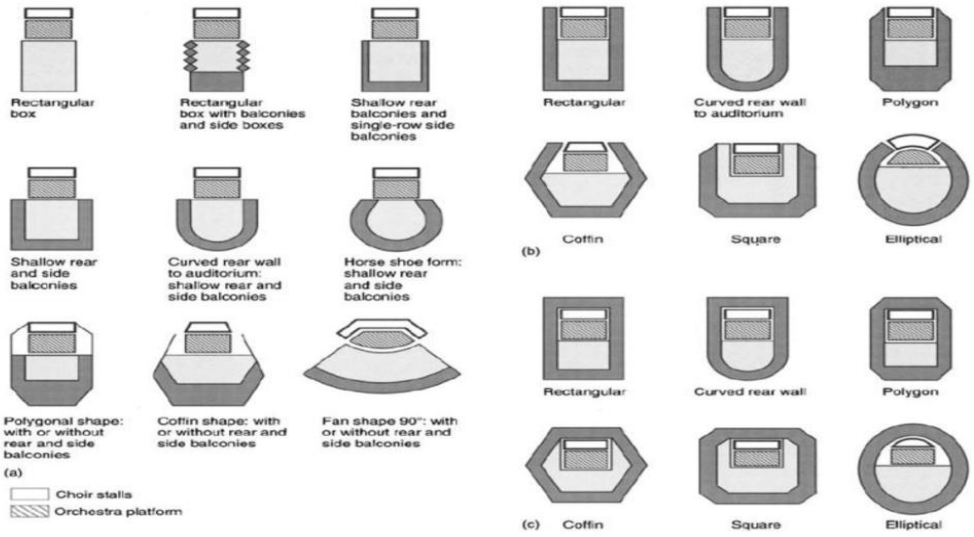


Fig.7.19, - Source-Neufert

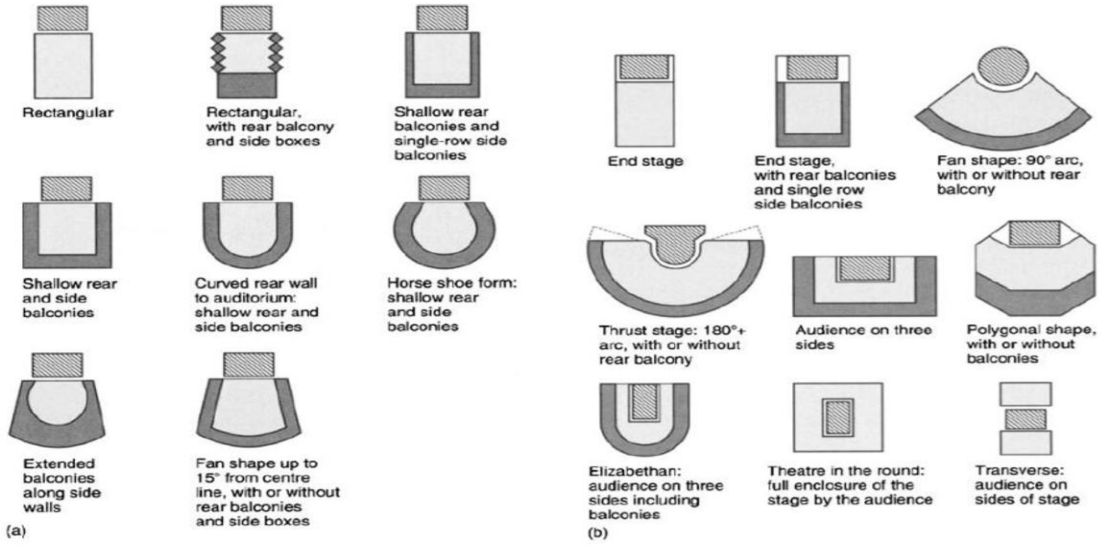


Fig.7.20, - Source - Neufert

7.9.2 OPEN STAGE FORMS:

The open stage forms may be classified into five broad categories
End stage
Fan-shaped
Thrust stage
Theatre-in-the-round
Traverse stage

7.9.3 PERFORMERS' ACCESS THROUGH THE AUDITORIUM

rmance by way of:

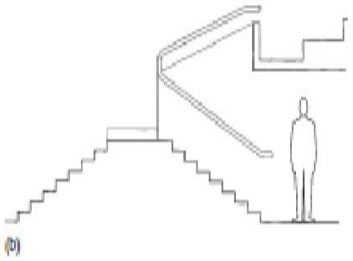


Figure 12.22 Audience vomitory. A public entrance into the auditorium through a block of seating as distinct from through the side enclosing walls to the auditorium. (a) Diagrammatic projection showing a simple form of vomitory within a seating area: the gangway is to one side serving rows above the vomitory and central to the vomitory below; the example shown displaces some 20 seats. The actual number of seats displaced and the complexity of vomitory design will depend on size and spacing of the seats, the general layout and the pitch of the raked floor. (b) Section through the vomitory, with staircase access: a sound lobby is necessary between public spaces and auditorium. The access from the public spaces can be on the flat or ramped: the effect is an increase in lost seats.

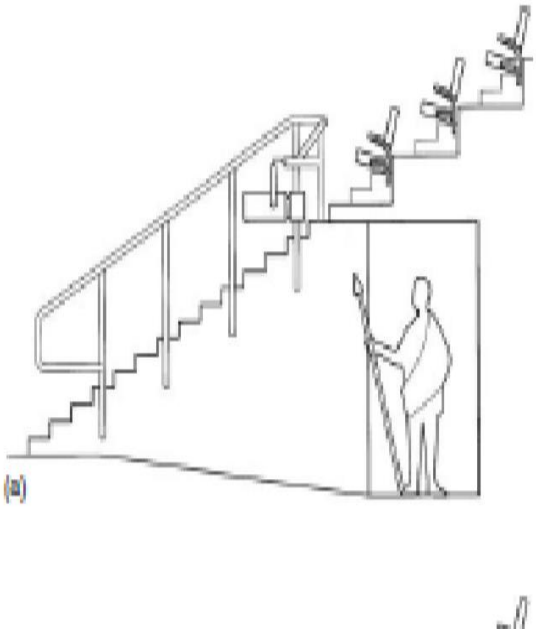


Fig7..21, - Source - Neufert

7.9.4 SEATING DENSITY

Density of seating can vary seats as small as 500 mm wide, and less with seats without arms, with a row to row dimension of 760 mm, but can be as large as 750 mm wide by 1400 mm. This is a variation from 0.38M2 to 1.05M2, with these examples, and the increased dimensions means fewer seats within a given area and reduces the seating capacity.

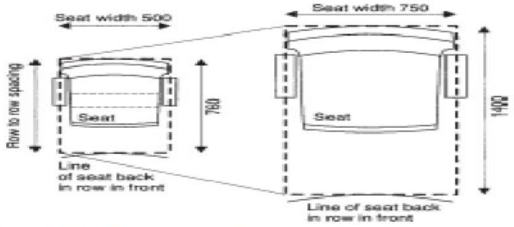


Figure 12.20 Seating density. Sizes of seats and area allocated to each seat can vary. The plans show the range from 0.38 MP (and less) to 1.05 MP (and more).

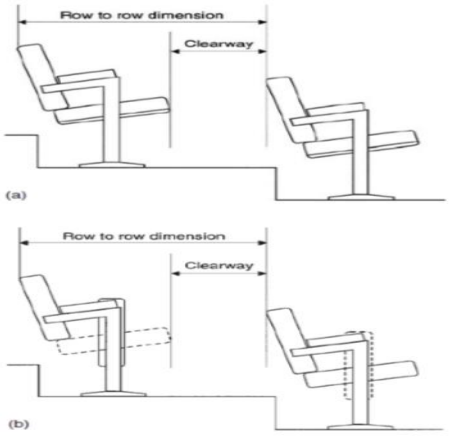


Fig7..22
Source-Neufert

7.9.5 TRAVEL DISTANCE

The Evacuation From Each Level Of The Auditorium Within A Limited Period Of Time Is Required In Case Of A Fire. For Traditional Seating The Travel Distance Is 18 M Measured From The Gangway: For Continental Seating, 15 M From Any Seat. The Aim Is To Evacuate The Audience Of Each Level Within 2.5 Minutes.

7.9.6 EXIT NUMBERS

The Number Of Exits Per Level Are Two For Each Level Within An Auditorium With The Seating Capacity Up To 500: An Additional Exit Is Required For Every Further 250 Seats As Defined By Legislation. Egress In Case Of Emergencies Should Follow the Natural Flow of Movement from the Seats Away From the Platform/Stage

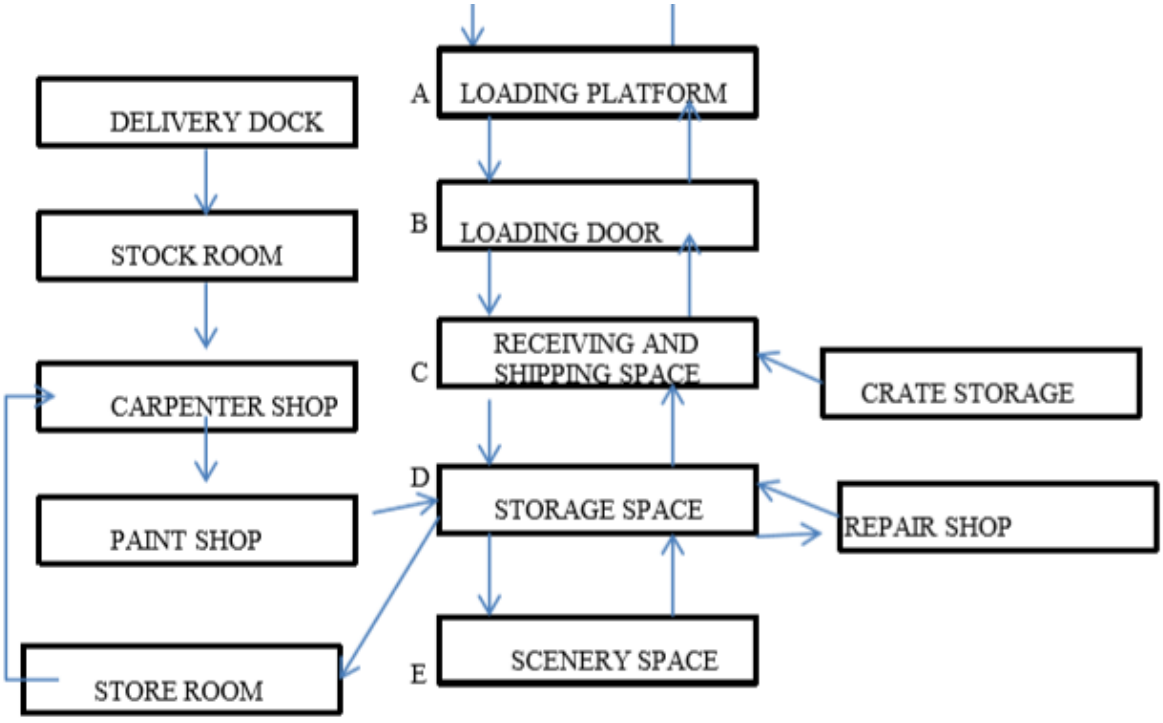
BACKSTAGE OPERATION: (actor/performer)

ACTION	SPACE
Check in , get mails and messages.	1) vestibule – min 50sqft equipments- bulletin board. telephone booth 2) door mans booth – min 30 softy equipments- counter, mail box, small deck ,key rack
Dress for performance -put makeup and costume	1) dressing room-50sqft/person location – near stage equipments- clothes, costume hanger, shoe racks, make up table 30" wide, 18" deep,18"wide mirror, one lavatory each 1/ 4ppl in large dressing room. 2) makeup room – 300sqft(min) equipments- makeup table/ benches, chair on 2 sides, lights on face.
Wait for call to stage -stage manager checks cast	1) green room-50 sqft/person (min) location- near stage equipments- lounge, furniture, tables, full length mirror, call system outlet. 2) stage anterroom – alternate to green room – 150 sqft equipments- chair and benches location- near proscenium without lounge aspects.
Go to stage -enter and perform leave the set	1) passage of min. wifth 1.5m no stair only ramp for level change.

Fig.7.23
Source-Neufert

ACTION	SPACE
Quick change	1) dressing room – min 50sqft/ actor space for dresser to help actor location- immediate to the stage.
Waltz for curtain calls	1) green room , stage anteroom
Removal costume	1) shower- adjoining each dressing room 1/6 actor
Confer with stage manager/ director	1) green room with adjoining kitchenette.
Check out and leave theater	1) vestibule and stage entrance

Fig.7.24, - Source-Neufert



FLOW CHART FOR SCENERY

Sequence e ABCDE for commercial theater
EFGHDE for self contained theater

Fig.7.25, - Source-Neufert

7.10 TREATMENTS

7.10.1 LIGHTING:

Lighting Within The Auditorium Covers The Following:
Auditorium Lighting
Emergency Lighting
Working Lights
Director's Desk Lighting
Cue Lights
Blue Lights:

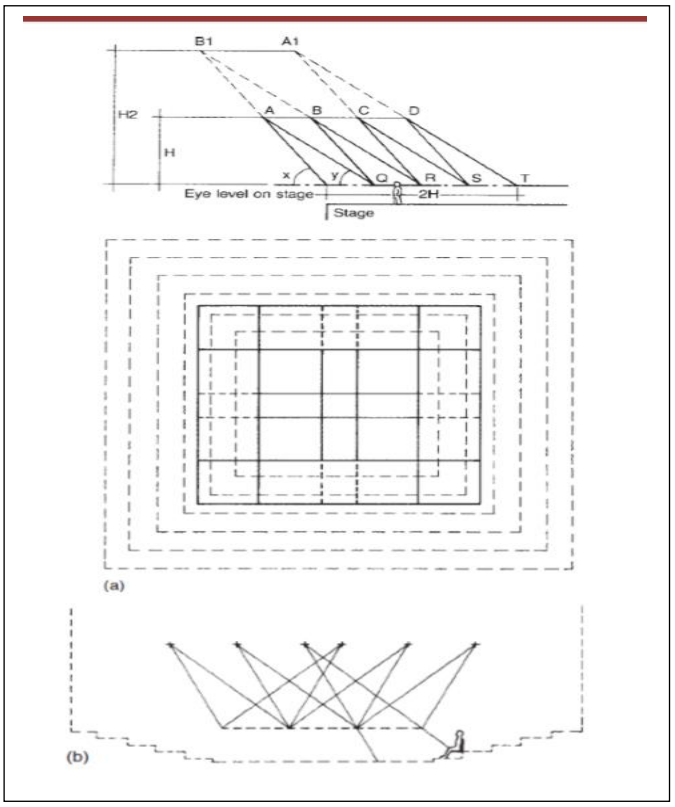


Fig.7.26
Source-Neufert

7.10.2 SOUND EQUIPMENT:

The Sound Equipment Described In The Following Sections May Be Required To Be Incorporated Into The Auditorium Design. Control Rooms for Performance Sound, Broadcasting And Recording Are Discussed Under Performance Organization

7.10.3 SOUND REINFORCEMENT:

Location of Loudspeakers for the Amplification of Music, Voices or Special Effects, Especially For Those Performances Relying On Amplification Such As Musicals And Pop/Rock Concerts. The Aim Is To Locate The Main Loudspeaker To Distribute Sound Across The Whole Of The Audience And Can Be:

- over The Platform/Stage along the Setting Line or above the Proscenium Opening
- At The Sides of the Platform/Stage as the Traditional Position for Pop/Rock/Jazz Concerts (Often Touring Groups Providing Their Own Equipment)
- Various Positions Within The Auditorium To Supplement Main Loudspeakers And For Sound Effects On Side And Rear Walls, Ceiling To Auditorium And Balconies And, Possibly, Under The Floor. Location Requires An Uninterrupted Line From Speakers To Members Of The Audience.

7.10.4 SAFETY CURTAIN:

In Case Of Fire On The Stage, Traditionally It Is Necessary To Separate The Stage Areas

From The Auditorium, With The Proscenium Opening Being Closed By A Safety Curtain. The Normal Form Of Safety Curtain Is A Rigid Type Which Is Suspended Immediately Behind The Proscenium Opening, Running Between Side Tracks And Dropping Onto The Stage Front From The Flytower

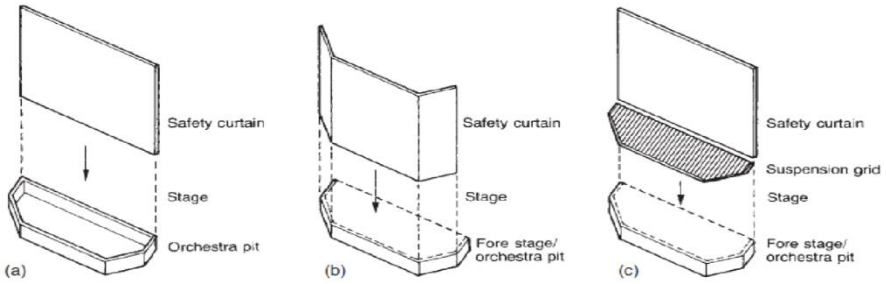


Fig.27
Source-Neufert

7.11 FIRE PROTECTION

The enclosing walls and floors of the auditorium should be fire-resistant as should the doors and other openings in the walls. Other aspects to be considered include:

- non-combustibility of materials including finishes and seating
- Detector system: smoke detectors in auditorium and associated voids
- Extinguishers: hose-reels, portable extinguishers; automatic sprinkler systems will not be allowed over seating areas
- Alarms: connected to automatic detector system and central indicator panel and, possibly, direct link to local fire station; alarms should be visual (flashing light) in auditorium and not audible. Fire precautions should be discussed with the local fire authority and fire insurers

COMPARATIVE AREA ANALYSIS

PROJECT NAME & LOCATION	TRIVENI KALA SANGAM, DELHI	TAGORE THEATRE, CHANDIGARH	NCPA, MUMBAI	KALA ACADEMY, GOA
				
YEAR	1986	1962	1969	1985
SITE AREA	4.3 ACRES	3.2 ACRES	7.6 ACRES	6.3 ACRES
CRITERIA FOR SELECTION	Well integration of public spaces. Use of Indian courtyard typology to address harsh climate.	Use of locally available material and use of traditional knowledge of vastu to organize spaces	For performing arts. Prime reason for NCPA in Delhi	Grounded to earth design with vast expanse of greens creating and ideal environment for learning
PROJECT COMPONENT	contemporary art galleries, amphitheater, a museum of tribal art, an auditorium, a library of Indian poetry, a print shop, and a studio for an artist-in-residence	Theatres, library, teaching cafeteria, studio, studios	Theatres, art galleries, amphitheater, reading & listening library, teaching & research block, music research lab, studio for archival documentation & audio-visual archives.	1000 seat Auditorium, preview theatres, art galleries, 2000 seat amphitheater, canteen, black box, meeting room, rehearsal room, guest room, library, class room
CLIMATIC CONDITIONS	Composite climate	Composite climate	Tropical, wet & dry climate	Tropical monsoon climate. Hot & humid climate for most of the year.

COMPARATIVE AREA ANALYSIS

THESIS 2023

PROJECT NAME & LOCATION	TRIVENI KALA SANGAM, DELHI	TAGORE THEATRE, CHANDIGARH	NCPA, MUMBAI	KALA ACADEMY, GOA
SUSTAINABLE SYSTEM	Well ventilated inside spaces due to shell 'chhatri', sunken courtyards for daytime heat.	Classical Rajasthan courtyard typology well suited for harsh climate of the area. Thick wall acts as insulators.	Well ventilated inside spaces. Use of louvers to break direct harsh sunlight	Extensive use of pergola to control micro climate. Well ventilated inside spaces.
STRUCTURAL SYSTEM	Coffered Slab on RCC columns with (2m-6m-2m tartan grid) concrete shell atop for ventilation	Concrete frame	Concrete frame	Concrete frame having 6m x 6m grid. Wafer slab
FACADE & FENESTRATION TREATMENT	Stone cladded walls with green terraces	Dry cladded red sand stone	Stone cladding with louvers on western face	Stone clad & Plaster. Parapets around terrace
ARCHITECTURE STYLE	Contemporary Indian architecture	The international style	Contemporary Indian architecture	Contemporary Indian architecture
KEY LEARNINGS	Proper ventilation is the prime requirement for any institutional building and sealed-box architecture isn't suitable for India	Segregation of spaces was done to facilitate separate utilization of building at once without compromising the integrity of flow of movement	An old but very functional center for performing arts. Prime reason for NCA in Delhi	Well resolved circulation. The building looking onto River Mandovi in the context.

COMPARATIVE AREA ANALYSIS

THESIS 2023

COMPONENTS	SPACES	AREA (SQ.M)				USERS/ CAPACITY			
		C(a)	C(b)	C1	C2	C(a)	C(b)	C1	C2
ADMINISTRATION	Foyer + lounge	50	95	-	30	20	40	-	-
	Director's office	20	30	-	-	-	-	-	-
	Accounts	50	80	-	20	-	20	-	5
	Toilets	20	70	-	35	-	-	-	-
	Store	10	20	-	-	-	-	-	-
	Telephone exchange	-	20	-	-	-	-	-	-
	Other offices	-	150	90	50	-	-	35	15
CONFERENCE/SEMINAR	Lounge + info	100	-	-	-	-	-	-	-
	Seminar	150	-	-	-	80	-	-	-
	Store	10	-	-	-	-	-	-	-
	Pantry	10	15	-	-	-	-	-	-
	Conference	75	90	-	-	25	30	-	-
STUDIO/WORKSHOP	Dance	120	150	250	120	-	-	-	-
	Music	120	150	150	120	-	-	-	-
	Painting	60	70	-	-	-	-	-	-
	Textile	60	70	-	-	-	-	-	-
	Drama	120	-	250	120	-	-	-	-
	Lithography	60	-	-	-	-	-	-	-
	Photography	60	-	-	-	-	-	-	-
	Graphics	-	150	-		-	-	-	-
	Sculpture	120	-	-	-	-	-	-	-
	Pottery	75	-	-	-	-	-	-	-
	Ceramic	75	70	-	-	-	-	-	-
	Modeling	75	70	-	-	-	-	-	-
	Offices	-	200	80	70	-	-	25	-

COMPARATIVE AREA ANALYSIS

THESIS 2023

LIBRARY	Desk + reading carrels	100	250	-	45	25	80	-	11
	Computer terminals	60	70	-	-	-	-	-	-
	Retail	-	30	-	-	-	-	-	-
	Stack room	150	-	-	30	-	-		-
	Photocopy	10	-	-	-	-	-	-	-
	Store	20	30	-	-	-	-	-	-
	Office	20	30	-	-	-	-	-	-
	Audio Visual	-	90	-	-	-	20	-	
EXHIBITION /ART GALLERIES	Galleries	650	1500	1200	330	200	500	450	-
	Security office	50	-	-	-	-	-	-	-
	Curator's room + office	60	-	-	-	-	-	-	-
	Workshop + storage	100	120	-	-	-	-	-	-
AUDITORIUM	Audi-1	560	900	1600	1200	300	400	1010	954
(1000 SQ.M)	Foyer	250	300	-	-	-	-	200	-
	Admin office	40	60	-	-	20	-	-	-
	Rehearsal room	60	120	-	-	25	-	-	-
	Green room	60	120	-	-	20	-	-	-
	Toilets	50	70	-	-	-	-	-	-
	Audi-2	-	-	1750	365	-	-	1109	250
	Foyer	-	-	250	-	-	-	200	-
	Audi-3	-	-	500	-	-	-	285	-
	Audi-4	-	-	450	-	-	-	185	-
	Audi-5	-	-	200	-	-	-	114	-
RESTAURANT	Seating	150	350	550	400	45	90	175	200
	Kitchen	60	80	-	75	-	-	-	-
	Service area	22	40	-	-	-	-	-	-

COMPARATIVE AREA ANALYSIS

THESIS 2023

AMPHITHEATER	Foyer	150	200	-	-	25	30	-	-
	Ticket office	10	50	-	-	-	-	-	-
	Office	50	40	-	-	10	10	-	-
	Rehearsal	60	80	-	-	20	20	-	-
	Dressing room	60	80	-	-	20	25	-	-
	Stage workshop	60	60	-	-	-	12	-	-
	Load/unload	20	-	-	-	-	-	-	-
	Projection room	40	60	-	-	2	4	-	-
	OAT/Amphitheatre	800	1000	-	550	500	550	-	300
	Amphitheatre-2	-	-	-	2800	-	-	-	2500

FRAMED AREA ANALYSIS

COMPONENTS	SPACES	NO. OF UNITS	AREA
ADMIN	ENTRANCE FOYER		
	DIRECTOR'S OFC.	1	25
	ASSISTANT'S OFC.	1	25
	ACCOUNTS	1	25
	MANAGER'S ROOM	1	25
	TECHNICAL HEAD ROOM	1	25
	MEETING ROOM	1	50
	WAITING AREA	1	25
	CONFERENCE ROOM	1	12
	PANTRY	1	80
	STORE & MAINTENANCE	1	30
	GUEST'S STAFF ROOM	1	70
	COMMON RM. FOR GURUS	1	60
	ADMIN STAFF ROOM	2	25
	STAFF TOILETS	1	80
	AUDIO VISUAL ROOM	1	30
	EXAMINATION ROOM		
	RECEPTION	1	10
	TICKET COUNTER	1	15
	TOILETS (FEMALE) - 3 WC	1	15
	TOILETS (MALE) - 4 URINALS, 2 WC	1	15
			TOTAL - 985
AUDITORIUM (CAP 1000)	FOYER	1	200
	RECEPTION		
	MAIN STAGE	1	160
	SEATING		2000
AUDITORIUM (CAP 400)	BACK STAGE	1	120
	GREEN ROOM	1	30
	COSTUME ROOM	1	30
	CHANGE ROOM	1	30
	CONTROL ROOM	1	50
	SCENERY STORAGE	1	30
	PROJECTOR ROOM	1	30
	DARK ROOM	1	30
	TOILETS	2	30
	VIP FOYER	1	100
	EQUIPMENT STORAGE	1	50
	MEDIA LIBRARY	1	25
	RETAIL AREA	1	30
	COAT CHECK	1	25
			TOTAL - 3770
MUSEUM	DISPLAY GALLERY	2	500
	INSTRUMENTAL GALLERY	1	200
	MANUSCRIPT & OTHER	1	100
	STORE ROOM	1	100
	SEMINAR HALL	1	80
			TOTAL - 980

COMPONENTS	SPACES	NO. OF UNITS	AREA
GALLLERIES	GALLERY (CONTEMPORARY MUSIC)	1	100
	GALLERY (VEDIC TEMPLE MUSIC)	1	100
	GALLERY(GRAND FOLK MUSIC)	1	100
	GALLERY (MUSIC OF INDEPENDENCE)	1	100
	EXHIBITION (MUSICAL INSTRUMENT)	1	200
	SEMINAR HALL	1	50
	STORE ROOM	1	50
			TOTAL - 700
O.A.T (CAP. 700 PERSONS)	STAGE	1	160
	SEATING	700	1400
	GREEN ROOM	1	30
	CONTROL ROOM	1	30
	CHANGE ROOM	1	30
	TOILETS	2	30
			TOTAL - 1680
RESEARCH AND DOCUMENT	LIBRARY & RESOURCE CENTRE	1	80
	READING ROOM	1	50
	MATERIAL STORAGE	1	100
	PHOTOCOPY ROOM	1	15
	AUDIO VISUAL ROOM	1	50
	RECORDS	1	30
	CASSETTES	1	30
	VIDEO CASSETTES	1	50
	CONTROL DESK	1	30
	ADMINISTRATION CATALOGING	1	50
	ACCESSORIES STORAGE	1	50
	MEETING ROOM	1	30
	RECEPTION	1	50
	SEATING WITH A/V FACILITY(HEADPHONES, GROUP LISTENING)	1	60
			TOTAL - 675
RECORDING STUDIO	STUDIOS	3	400
	DARK ROOM	3	60
	CONTROL ROOM	3	100
			TOTAL - 560

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FRAMED AREA ANALYSIS

COMPONENTS	SPACES	NO. OF UNITS	AREA
RESIDENCE			
GIRLS HOSTEL	ROOMS	50	750
	DORMITORY	1	60
	MESS/DINING HALL	1	200
	STORE ROOM	1	50
	KITCHEN	1	50
BOYS HOSTEL	ROOMS	50	750
	DORMITORY	1	60
	MESS/DINING HALL	1	200
	STORE ROOM	1	50
	KITCHEN	1	50
	GUEST HOUSE	1	300
	TEACHER'S RESIDENCE	1	150
	SPIRITUAL SPACE (YOGA,PHYSICAL & MENTAL EXERCISE)	1	80
			TOTAL - 2750
ACADEMIC	FOYER	1	60
	RECEPTION CUM WAITING	1	100
	LIBRARY (FOR 300 PERSONS)	1	1000
	LECTURE ROOMS	5	300
	MUSIC STUDIOS	10	500
	INDIVIDUAL MUSIC ROOMS	35	1050
	ROOM FOR INSTRUMENTS	1	200
	MUSIC RIAZ ROOM	20	
	WORKSHOP	5	400
	STORE ROOM		200
	SEMINAR HALLS	5	200
	GENERAL LIBRARY	1	1000
	DIRECTOR'S OFC + T	1	30
	DEAN OFFICE + T	1	25
	HOD OFFICE + T	1	25
	EXAMINATION ROOM	1	30
	STAFF ROOMS	8	240
	OFFICE	1	35
	MALE TOILET	1	15
	FEMALE TOILET	1	15
			TOTAL - 5425
ELECTRIC SUB - STATION	TRANSFORMER ROOM	1	25
	MAINTENANCE	1	15
			TOTAL - 40
GENERATOR ROOM	GENERATOR	1	20
	STORAGE	1	20
			TOTAL - 40

COMPONENTS	SPACES	NO. OF UNITS	AREA
CAFETERIA	INDOOR SEATING (FOR 250 PPLS.)	1	300
	OUTDOOR SEATING (FOR 100 PPLS.)	1	120
	KITCHEN & SERVICING	1	100
	STORE ROOM	1	60
	TOILETS	2	25
	RECEPTION	1	10
	COLD STORE	1	25
			TOTAL - 650

TOTAL AREA - 17912 SQ.MTRS.

ADDING 30% CIRCULATION AREA - 5373.8 SQ.MTRS.

TOTAL BUILD UP AREA - 23285.8 SQ.MTRS.

TOILET NORMS

FOR 100 BOYS - 15 SQ.M.
2 WC, 6 URINALS, 2 BASIN

FOR 100 GIRLS - 15 SQ.M.
4 WC, 2 BASIN

BASEMENT

FLOOR TO FLOOR HEIGHT. - 2.4 METRE (NOT LESS THAN)

CEILING HEIGHT BE ATLEAST 0.9 M & ALMOST 1.2 M HIGHER THAN GROUND LEVEL.

PARKING

FOR AUDITORIUM - 16 PERSONS / 1 CAR
TOTAL PERSONS - 2000
PARKING PROVIDED - 125 CARS

FOR ACADEMIC - PARKING @ 1.0 ECS / 100 METRE SQUARE OF BUILT-UP AREA
+ METRO DEDUCTION + MLCP DEDUCTION

A. METRO DEDUCTION: IF A PROPERTY IS LOCATED WITHIN A WALKABLE DISTANCE FROM A METRO STATION, THE PARKING REQUIREMENT WITHIN THAT PROPERTY SHALL BE REDUCED BY A PRESCRIBED PERCENTAGE VIZ. FOR PROPERTIES LOCATED UPTO 500 M FROM A METRO STATION, THE DEDUCTION IN PARKING WITHIN THE PLOT SHALL BE 30 PERCENT OF THE PARKING NORM AND FOR PROPERTIES LOCATED MORE THAN 500 M AND LESS THAN 800 M FROM A METRO STATION, THE DEDUCTION IN PARKING WITHIN THE PLOT SHALL BE 15 PERCENT OF THE PARKING NORM.

B. MLCP DEDUCTION: IF AN MLCP IS LOCATED WITHIN 1.0 KM RADIUS OF ANY PROPERTY, THE PARKING REQUIREMENT WITHIN THAT PROPERTY SHALL BE REDUCED BY 10 PERCENT.

TOTAL SITE AREA - 12.36 ACRES (240 M X 208.5 M) = 50,008.56 SQUARE METERS
GROUND COVERAGE (PERMISSIBLE) - 30% (15002.4 SQ. METRES)
PERMISSIBLE FAR - 1.5
ACHIEVED FAR - 0.46
MAXIMUM HEIGHT - 26 M

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INTRODUCTION

NEED OF A MUSIC

MUSIC IS DYNAMIC AND FAST EXPANDING INTO ONES LIFESTYLE. IGNORING MUSIC IS LIKE IGNORING WHAT IS AROUND US. MUSIC IS AN ENVELOP SURROUNDING US, STARTING FROM CHIRPING OF BIRDS TO HUMMING OF MACHINERY. A BUILT CAN MAKE MUSIC AS THE STARTING FORCE FOR ORDERING SPACE AND IN RELATION TO IT. THE CENTRE WOULD BE DESIGNED TO GAIN A FOOTHOLD INTO OUR LIFESTYLES AND BRINGS FORWARD AWARENESS OF MUSIC EDUCATION AND ENTERTAINMENT.

AIM

- TO EVOLVE A DESIGN SOLUTION WHICH WOULD INCORPORATE THE TRADITIONAL AND THE MODERN TRENDS IN MUSIC.
- TO SERVE AS A PRIME ZONE OF ACTIVITY WITH ESSENTIALS OF PERFORMANCES, ENTERTAINMENT AND MARKET FOR ALL AGE GROUPS.

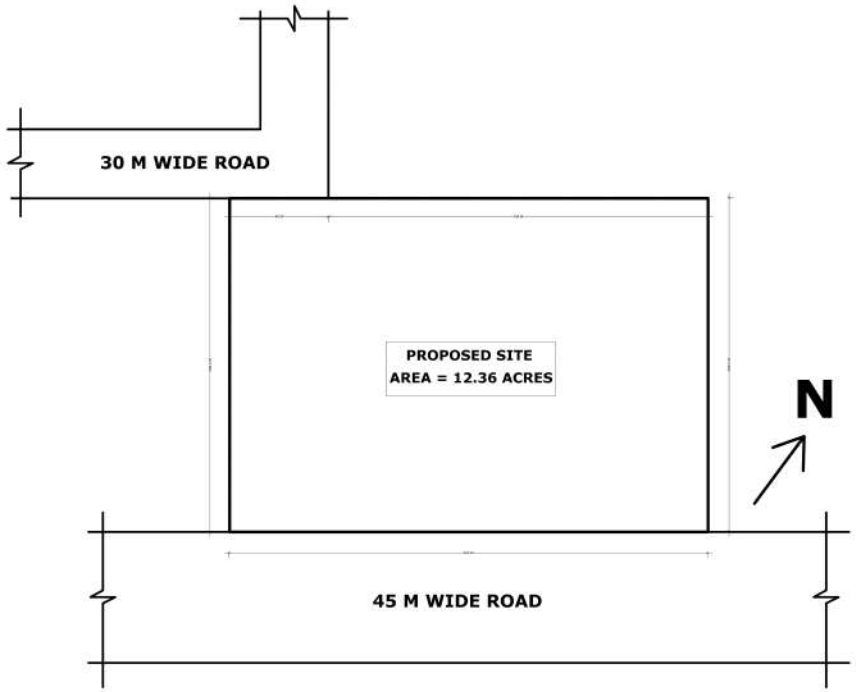
OBJECTIVES

- EMPHASIZING ON THE OVERALL LAYOUT OF THE CENTRE AND ITS SPATIAL ORGANISATION.
- INCORPORATING LANDSCAPE ELEMENTS WHICH INTEGRATE BUILDING WITH THE SURROUNDINGS
- MAKING FULL USE OF THE POTENTIALS AND THE CONSTRAINTS OF THE SITE.
- EMPHASIZING ON THE LAYOUTS OF STUDIOS, EXHIBITION SPACES,PERFORMANCE AREAS,MUSIC LIBRARY,LISTENING CUBICLES.
- PROVIDING A SOLUTION FOR THE ABOVE STATED FUNCTION BY USING ALL THE LATEST TECHNOLOGIES.
- EMPHASIZING ON THE INTERIOR SPACES SO AS TO CREATE AN ENVIRONMENT DIPPED IN MUSIC.
- PROVIDING PROPER PARKING FACILITIES AND EASY ACCEBILITY FOR CONVENIENT CIRCULATION.

SCOPE

1. EDUCATIONAL SECTION
2. PERFORMING SECTION
3. EXHIBIT AREA
4. RESIDENTIAL FACILITIES

SITE PHYSICAL FEATURES



TRANSPORT- ROADWAYS, DELHI METRO RAILWAYS,AIRWAYS, PUBLIC TRANSIT SYSTEM.

CITY HIGHLIGHTS- SHOPPING MALLS, HUB OF INTERNATIONAL COMPANIES,INFRASTRUCTURE

TOPOGRAPHY- SITE IS FLAT. NO DIFFERENCE BETWEEN ROAD AND SITE HAVING LOTS OF SMALL TREES.

SOIL TOPOGRAPHY- ALLUVIAL SOIL IS FOUND. SO MAT/RAFT FOUNDATION IS SUITABLE.

SERVICES- **ELECTRICAL** - POWER SUPPLY IS THROUGH THE POLES PLACED ALONG THE SIDE RIAD OF SITE.

DRAINAGE - THERE IS A SEWER LINE ALONG THE SITE.

DEMERITS- A BIG NAALA RUNS BEHIND THE SITE WHICH IS 6.2 KILOMETRERS AWAY FROM THE SITE.

MERITS- ROAD NETWORK IS GOOD. ALL SERVICES LIKE ELECTRICITY, DRAINAGE, WATER SUPPLY ETC. ARE PROVIDED. REGULAR SHAPE OF THE SITE.

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CONCEPT

FORM → THE DESIGN OF THE OBJECT OR BUILDING

FOLLOWS → FORM COMES BEFORE FUNCTION

FUNCTION → THE USE OF THE OBJECTS

WHEN WE SAY THE THAT THE FORM FOLLOWS FUNCTION WE SAY THAT THE PURPOSE DEFINES THE LOOK AND SHAPE OF THE OBJECTAND THAT'S EFFICIENCY.

FORM FOLLOWS FUNCTION IS A PRINCIPLE ASSOCIATED WITH MODERN ARCHITECTURE AND INDUSTRIAL DESIGN IN THE 20TH CENTURY.

THE PRINCIPLE IS THAT THE SHAPE OF A BUILDING OR OBJECT SHOULD BE PRIMARILY BASED UPON ITS INTENDED FUNCTION OR PURPOSE.

IT'S A PRINCIPLE THAT GOVERNS AND BUILTS IN FOUNDATION IN ANY ARCHITECTURAL PIECE COMPARISING OF ANY FORM.

A DESIGN OR STYLE OR A SHAPE OF AN OBJECT FOLLOWS THE FUNCTION OF THE OBJECT.

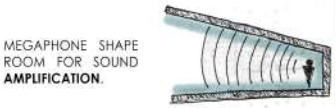
FOR AN EXAMPLE, A CHAIR'S SHAPE IS DESIGNED ACCORDING TO THE EXACT PURPOSE OF ITS EXISTENCE. IF THE CHAIR IS BUILT FOR PEOPLE TO HAVE A QUICK NAP, THE CHAIR'S SHAPE MUST BE LONG ENOUGH TO MAKE THE PEOPLE FEEL COMFORTABLE AND COSY.

IF AN OBJECT HAS TO PERFORM A CERTAIN FUNCTION, IT'S DESIGN MUST BE SUPPORT THAT FUNCTION TO THE FULLEST EXTENT POSSIBLE.

DESIGN STRATEGY

MUSIC


REDUCING CORNERS FOR GOOD SOUND **REVERBATION**

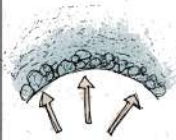

MEGAPHONE SHAPE ROOM FOR SOUND **AMPLIFICATION**.


REDUCING **NOISE** TO ELIMINATE DISTRACTION.


USING **ACOUSTIC** MATERIALS FOR GOOD SOUND QUALITY.

NATURE


HARNESSING SOFT NATURAL **SUNLIGHT** FOR HEALING.


USING SEA FOR **SENSORY** EXPERIENCE AND HEALING.


CENTRAL **COURTYARD** FOR STRESS REDUCTION AND GUIDANCE.


USE OF **NATURAL MATERIALS**.

ARCHITECTURE

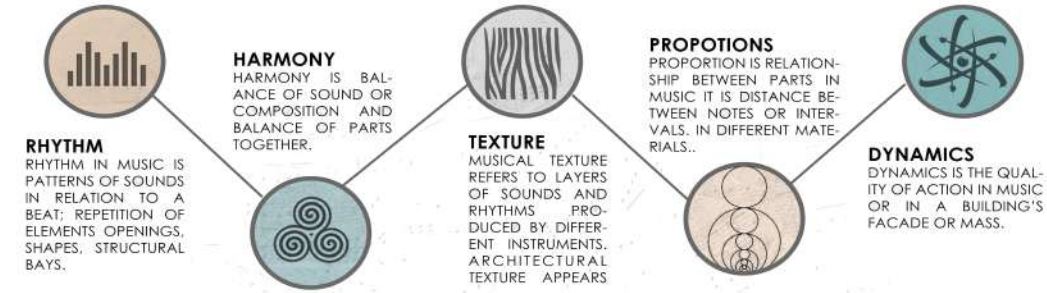

MULTIPLE **ACCESS** TO MAKE THE SPACE MORE WELCOMING.


FREE MOVEMENT TO MAKE THE SPACE COMFORTABLE FOR USERS.


USE OF **HEALING COLORS**.


PASSIVE COOLING FOR HEALTHY ENVIRONMENT.

MUSIC AND ARCHITECTURE



RHYTHM HARMONY TEXTURE PROPORTION

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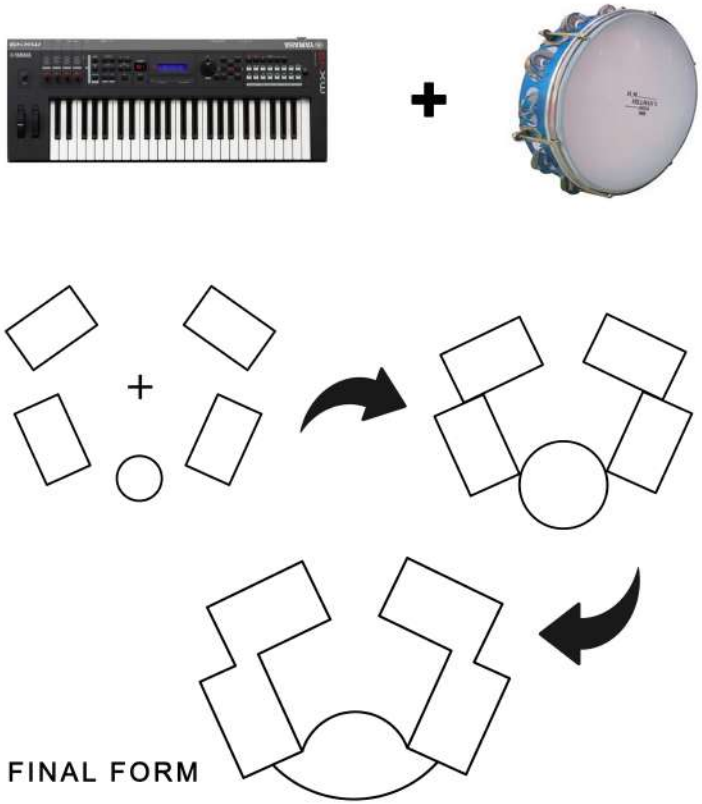
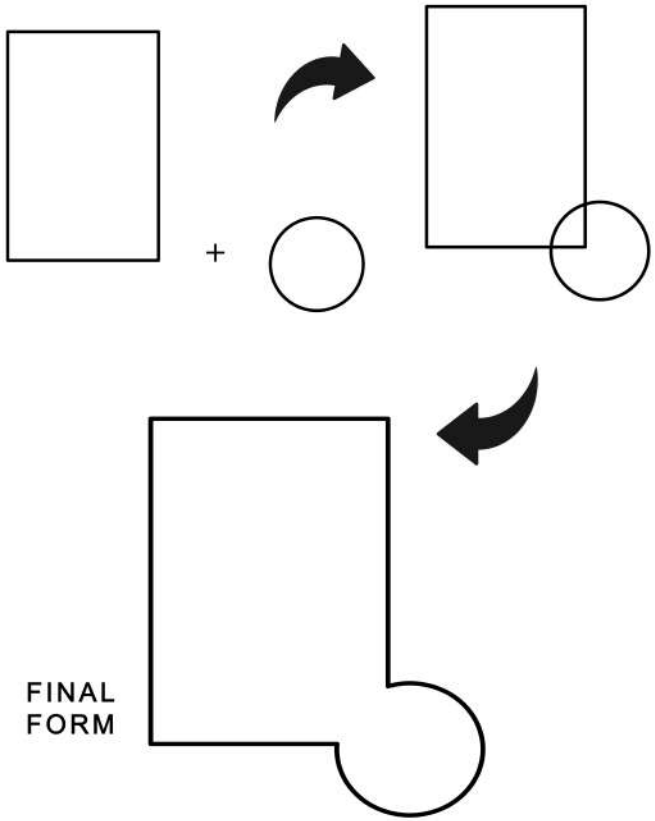
FORM EVOLUTION

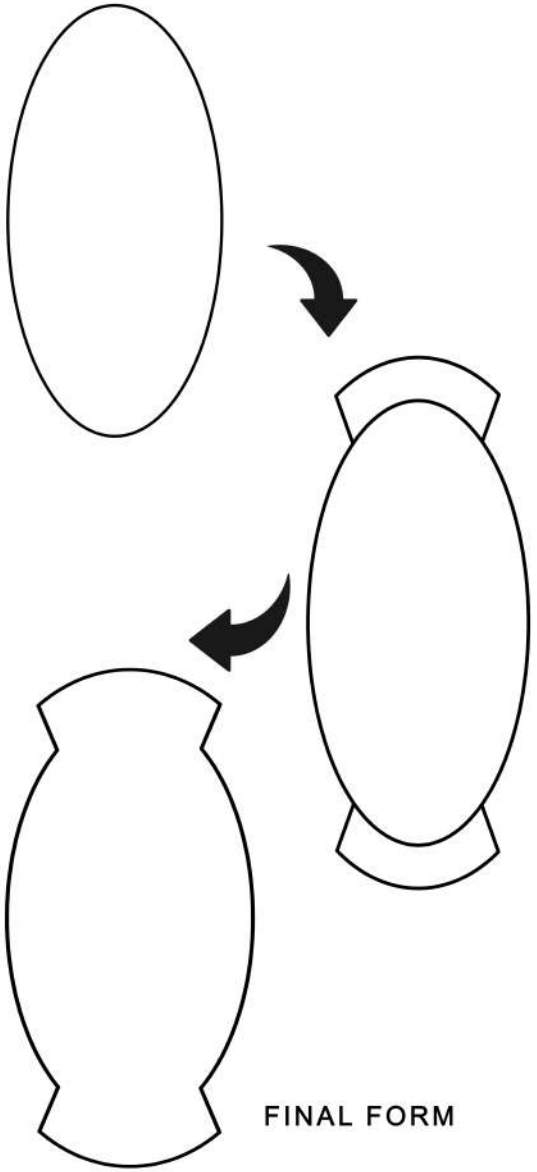
FOR EDUCATIONAL BLOCK



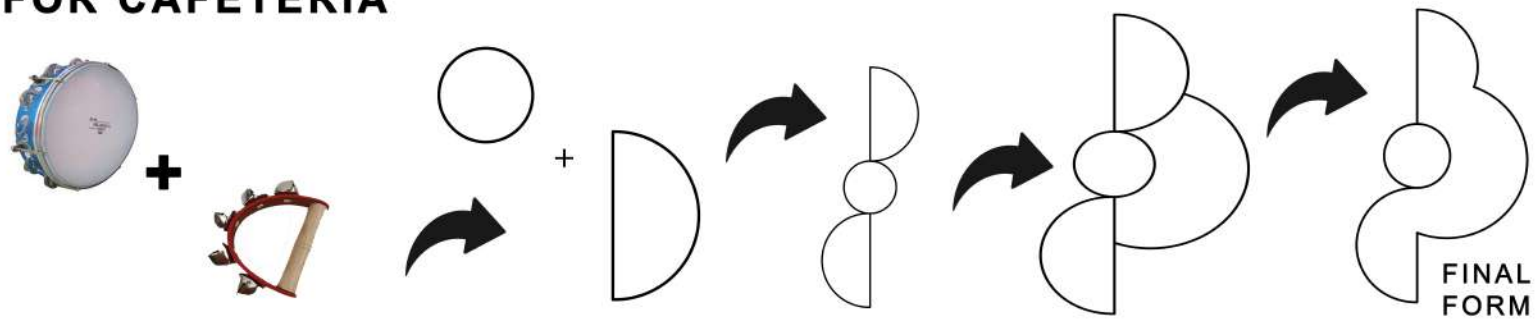
FOR RECORDING STUDIOS



FOR AUDITORIUM



FOR CAFETERIA



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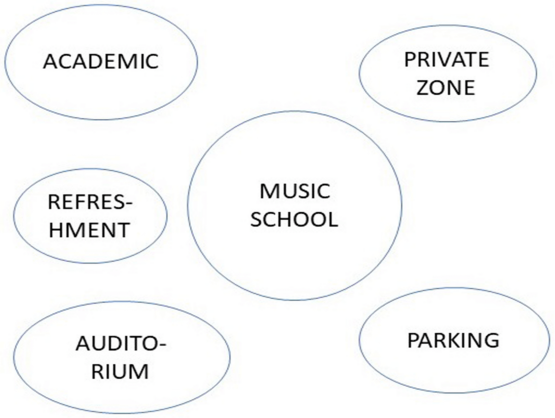
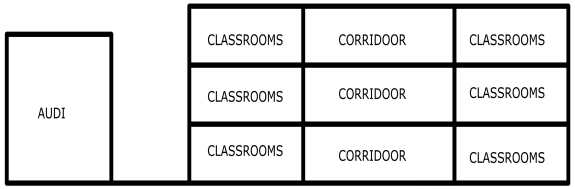
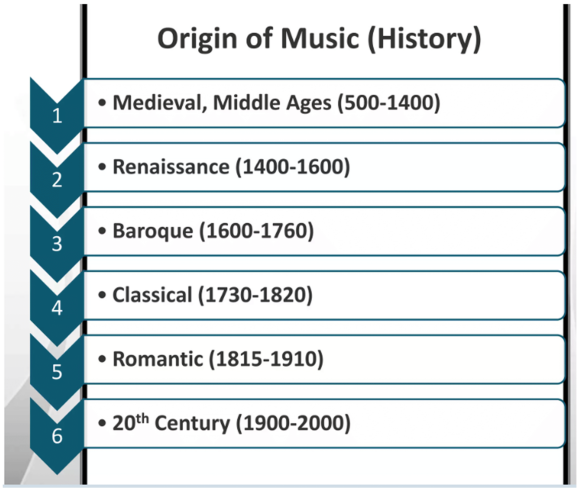
ZONING



VERTICAL STACKING





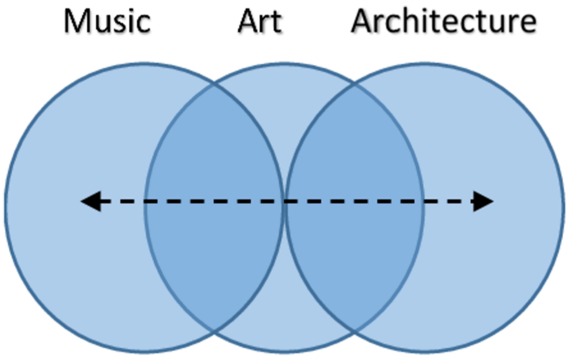


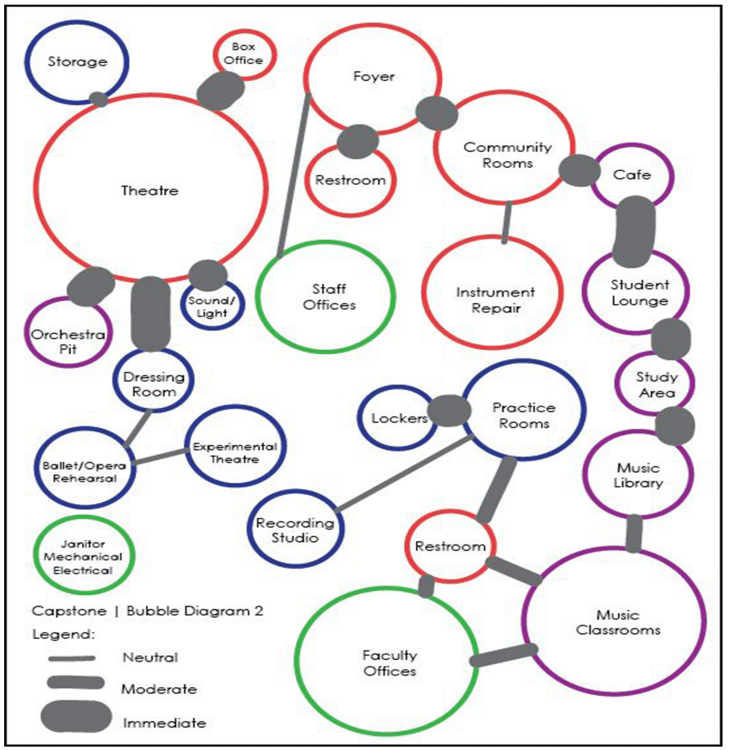
Figure 2: Music and Architecture as Two Arts (Author)

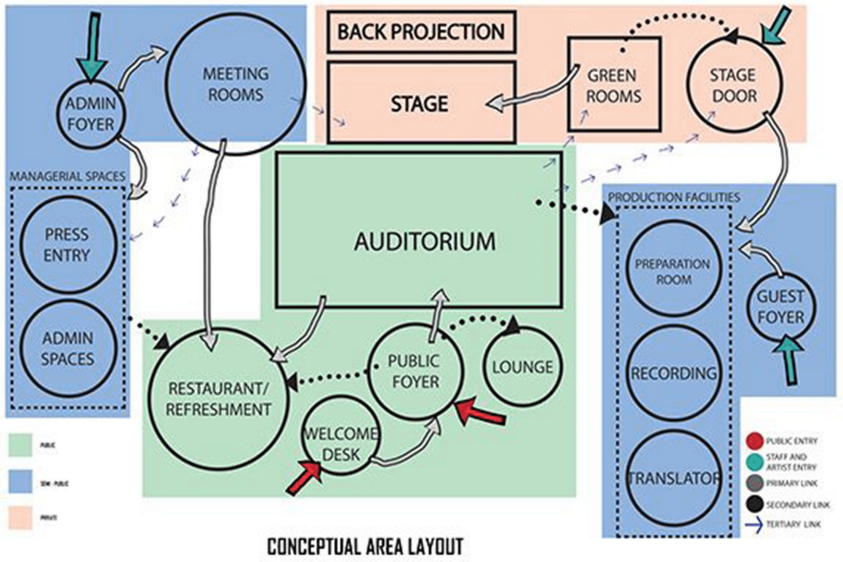
Music and Architecture

	Music	Architecture
Rhythm	patterns of sounds in relation to a beat	repetition of elements - openings, shapes, structural bays- establish regular or irregular rhythm
Texture	layers of sounds and rhythms produced by different instruments	appears in different materials
Harmony	balance of sound or composition	balance of parts together
Proportion	distance between notes or intervals	relationship between parts
Dynamics	quality of action	facade or mass

Table 1: Interrelation of Music and Architecture in Different Eras (Author)

	Architecture	Music
Ancient Times	Geometry & Resonance	Simple Harmonic Resonance
Middle Ages	Monumental Scale	Chores Music
Renaissance Times	Pleasant Proportion	Harmonic Proportion
Baroque Times	Curvilinear Ornaments	Tonality in Music
Modern Times	New Material and Electronic Simulation	New Musical Instrument and Electronic Performances





MUSIC SCHOOL - DWARKA

THESIS 2022-2023

SHASHANK VARSHNEY
B. ARCH. 5TH YEAR
10TH SEMESTER
ROLL NO -1180101040
SAP, B.B.D.U, LKO.

THESIS GUIDE
PROF. (DR.) MOHIT KR. AGARWAL

1) INSTRUMENTAL MUSIC	Undergraduate	Post Graduate
A) STRING INSTRUMENTS		
5 Department		
Annual Intake	20	20
(Guitar, Electric Bass, Violin, Double Bass, Banjo)		
B) WIND INSTRUMENTS		
2 Department		
Annual Intake	20	20
(Flute, Trumpet, Trambone)		
C) PERCUSSION INSTRUMENTS		
4 Department		
Annual Intake	20	20
{Drum (wooden), Xylophone, Tabla, Banjo, Drum}		
D) OTHER INSTRUMENTS		
3 Department		
Annual Intake	20	20
(Piano, Harmonium, Keyboard)		
2) VOCAL MUSIC		
2 Department		
Annual Intake	20	20
(Carnatic, Hindustani Music)		

Total Number of Departments = 16
No. of students in UG Level in one batch = 150
Total no. students in five batches = 100 X 5 = 500

No. of students in PG Level in one batch = 100
Total no. students in two batches = 100 X 2 = 200

Therefore, Total Number of Students = 500 + 200 = 700 Students

MUSIC SCHOOL, DWARKA

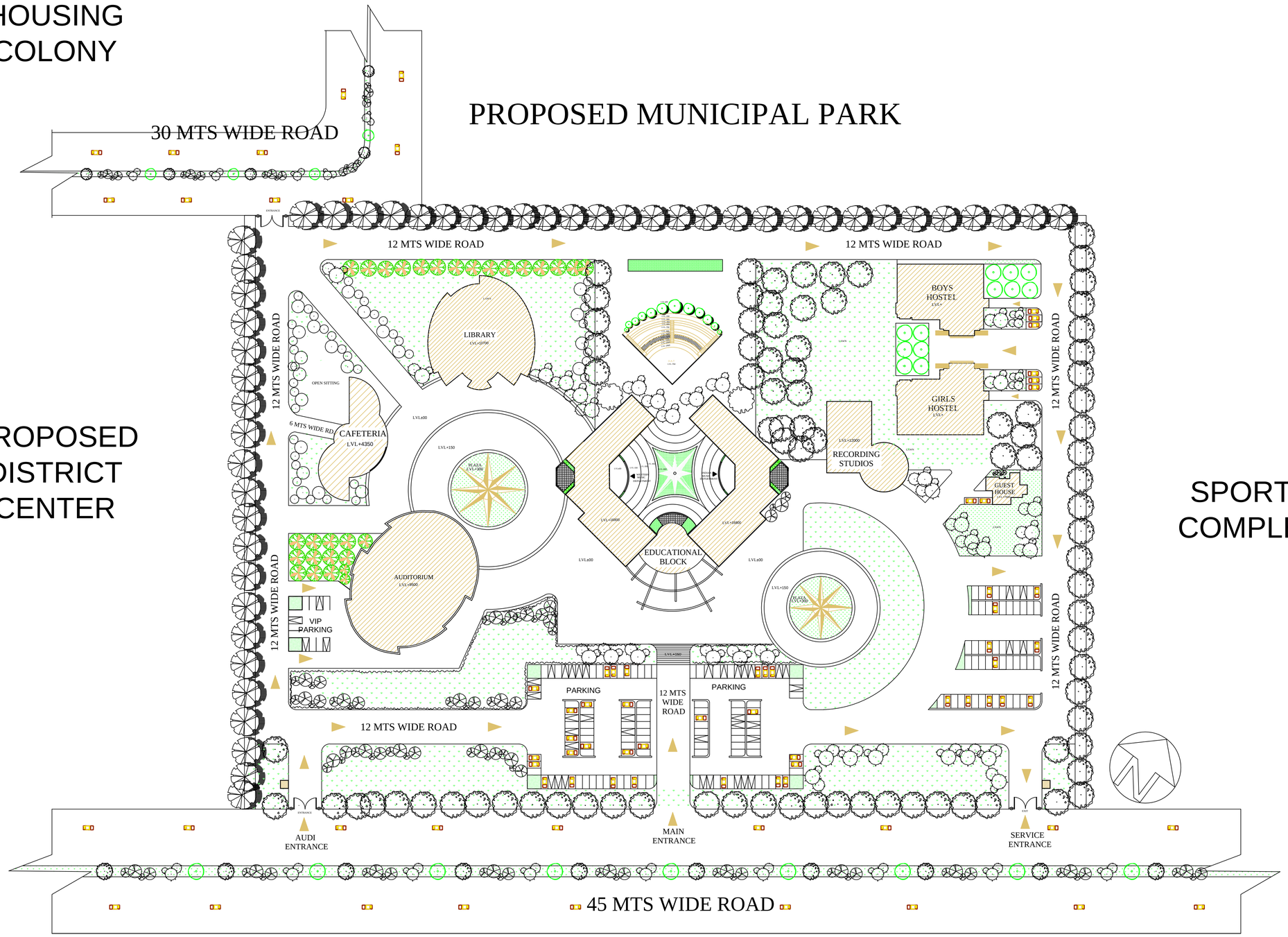
THESIS 2022-2023

HOUSING COLONY

30 MTS WIDE ROAD

PROPOSED MUNICIPAL PARK

PROPOSED DISTRICT CENTER



SPORTS COMPLEX

SITE PLAN

SCALE - 1:500

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PROF MOHIT KR. AGARWAL

SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

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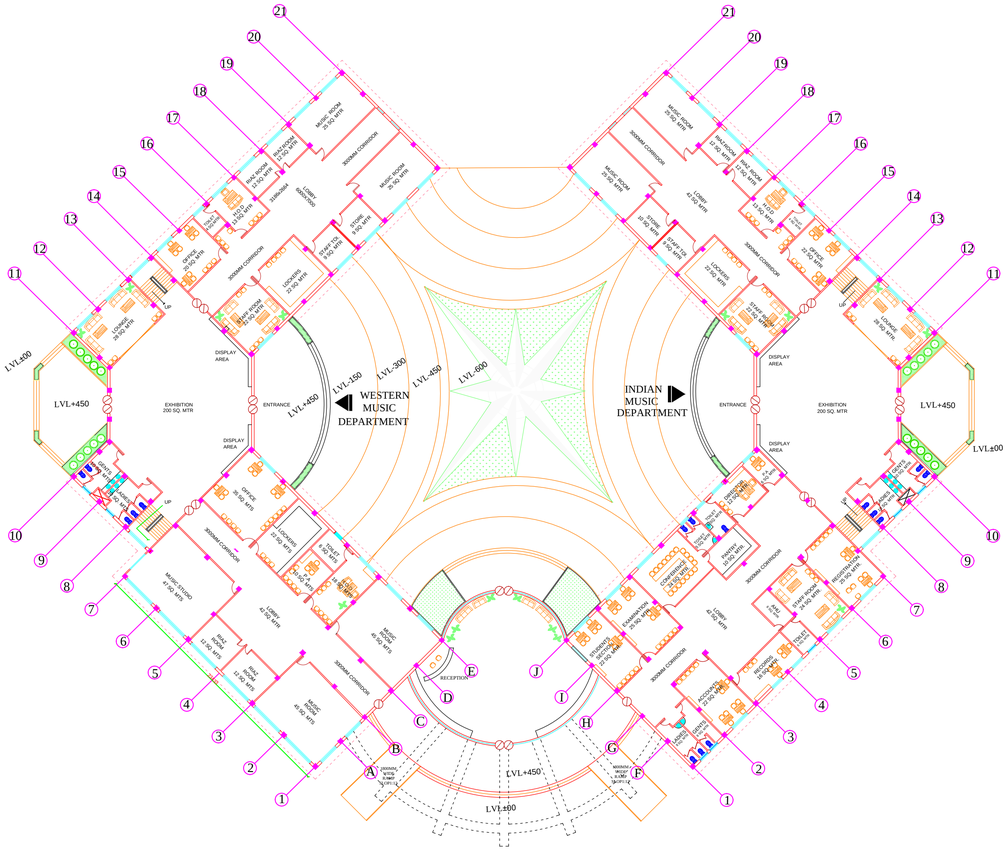
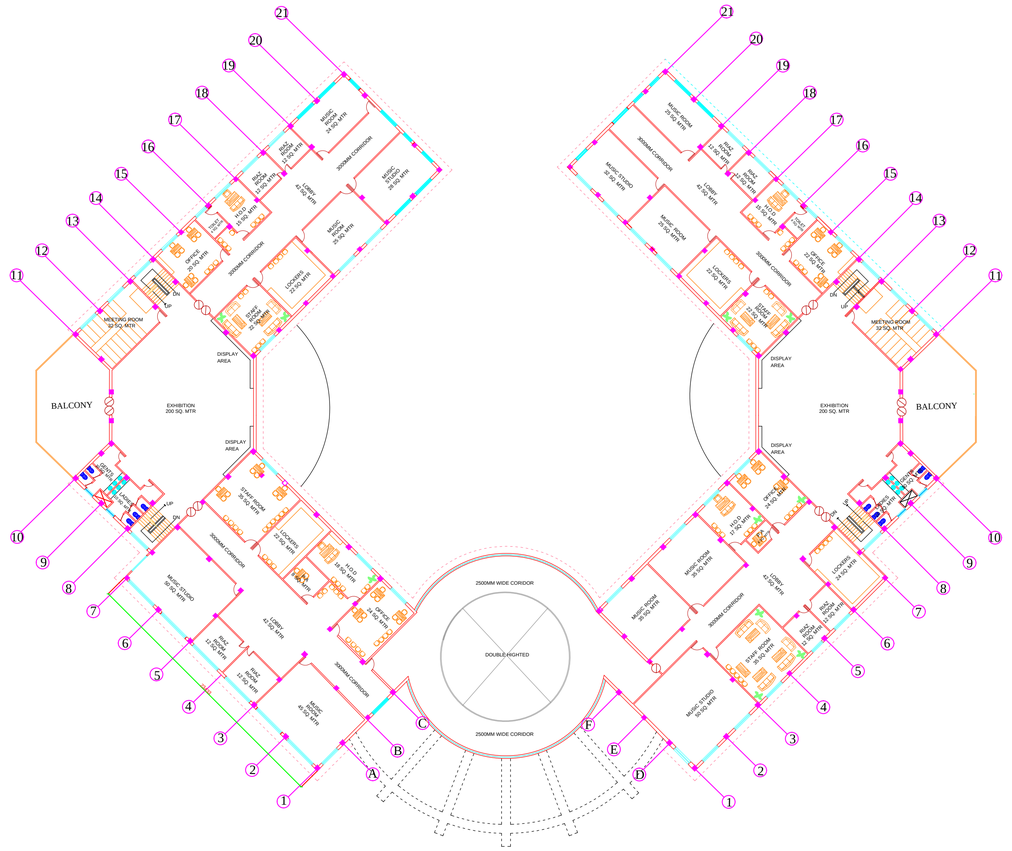
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



GROUND FLOOR PLAN



FIRST FLOOR PLAN

EDUCATIONAL BLOCK

SCALE - 1:100

GUIDED BY:-
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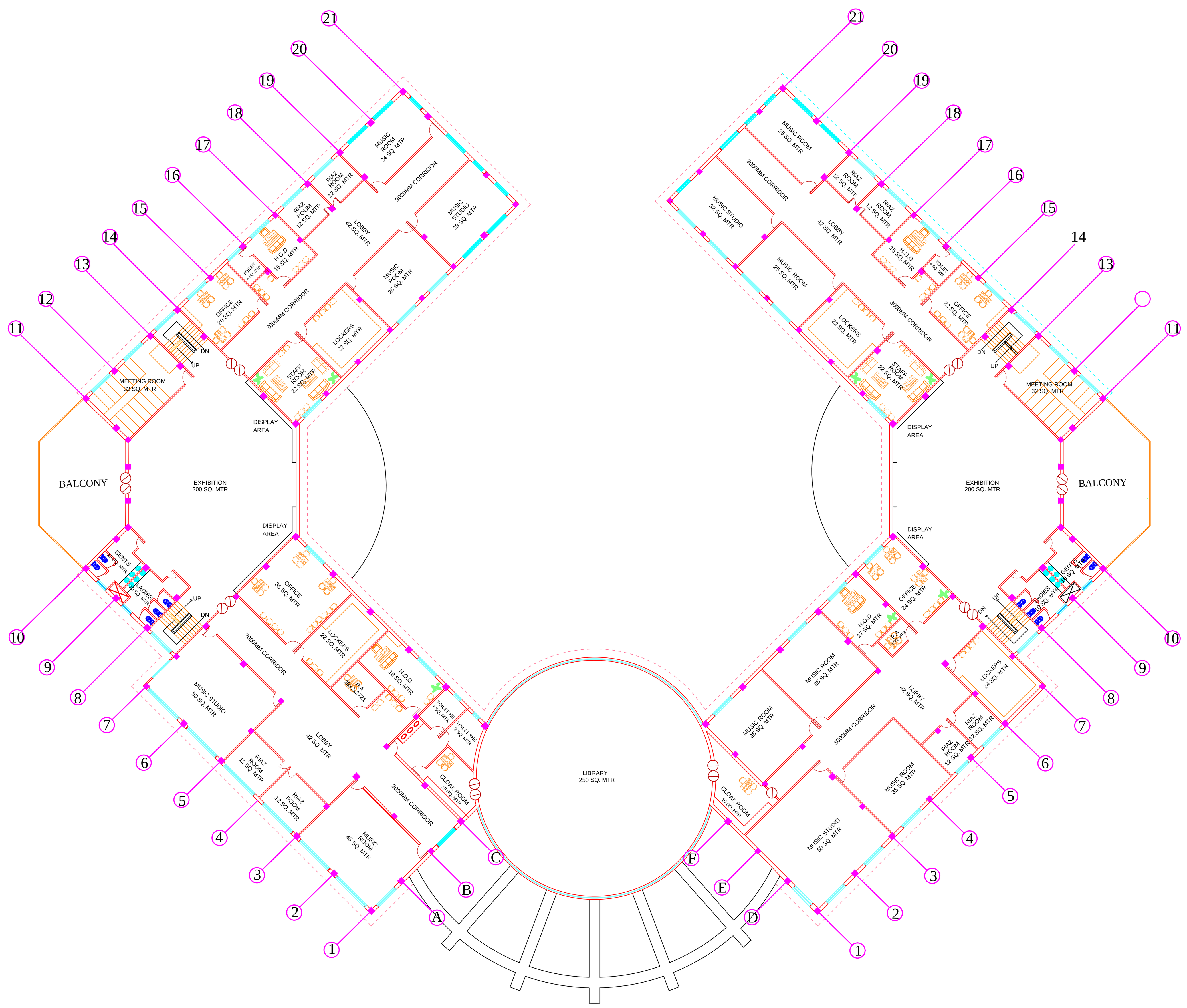
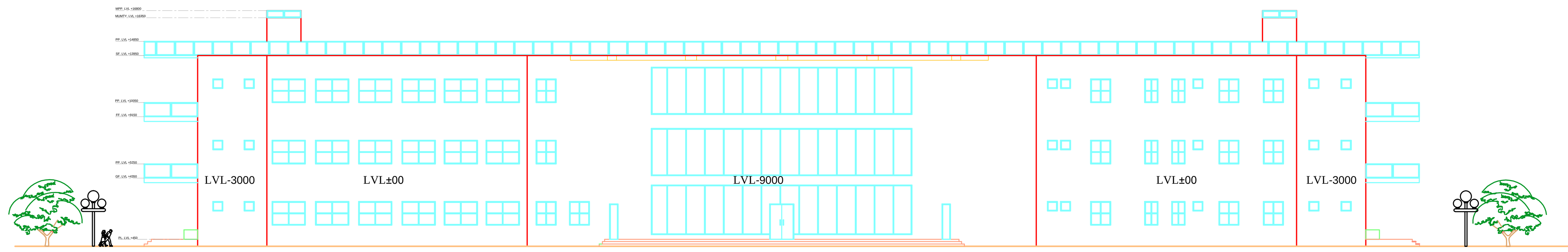
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

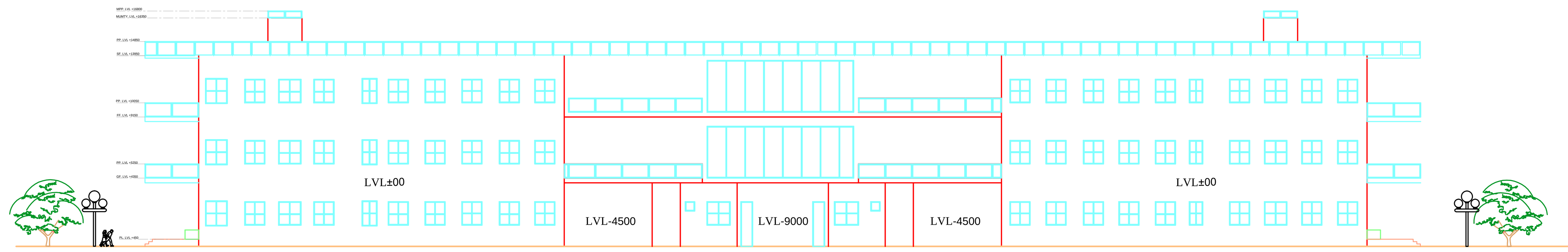
THESIS 2022-2023



SECOND FLOOR PLAN



FRONT ELEVATION



REAR ELEVATION

EDUCATIONAL BLOCK

SCALE - 1:100

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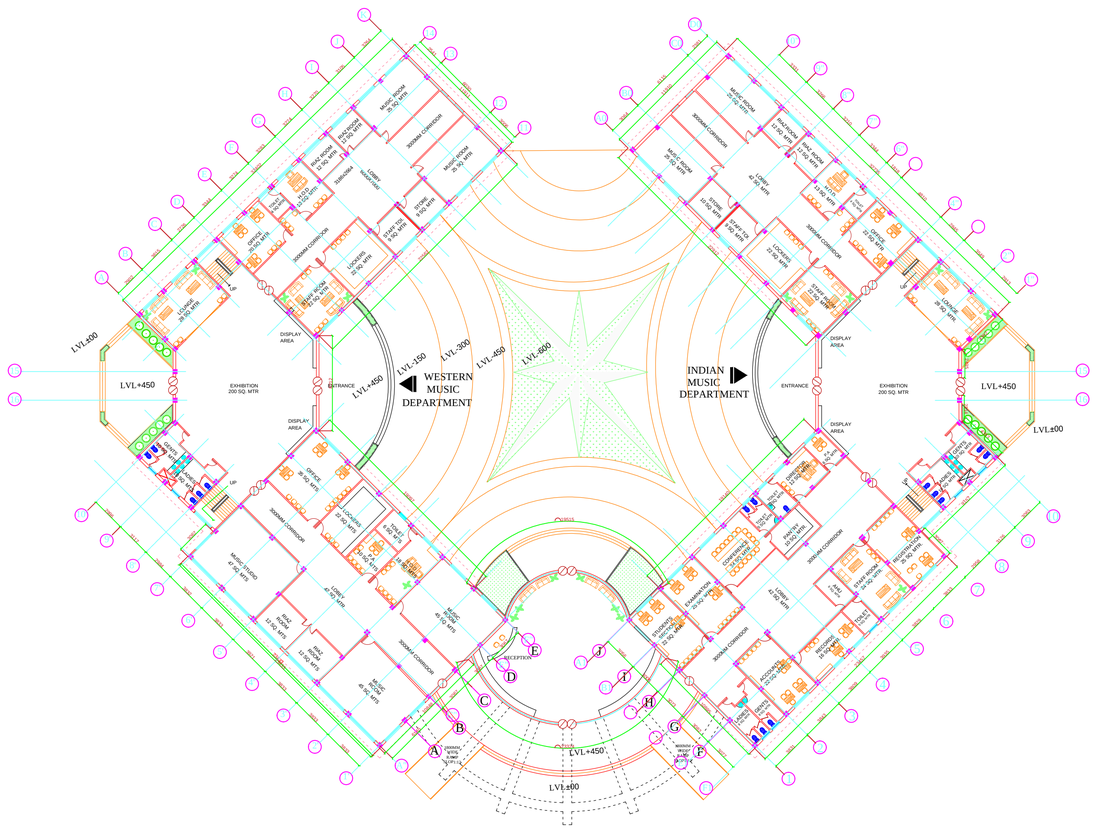
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

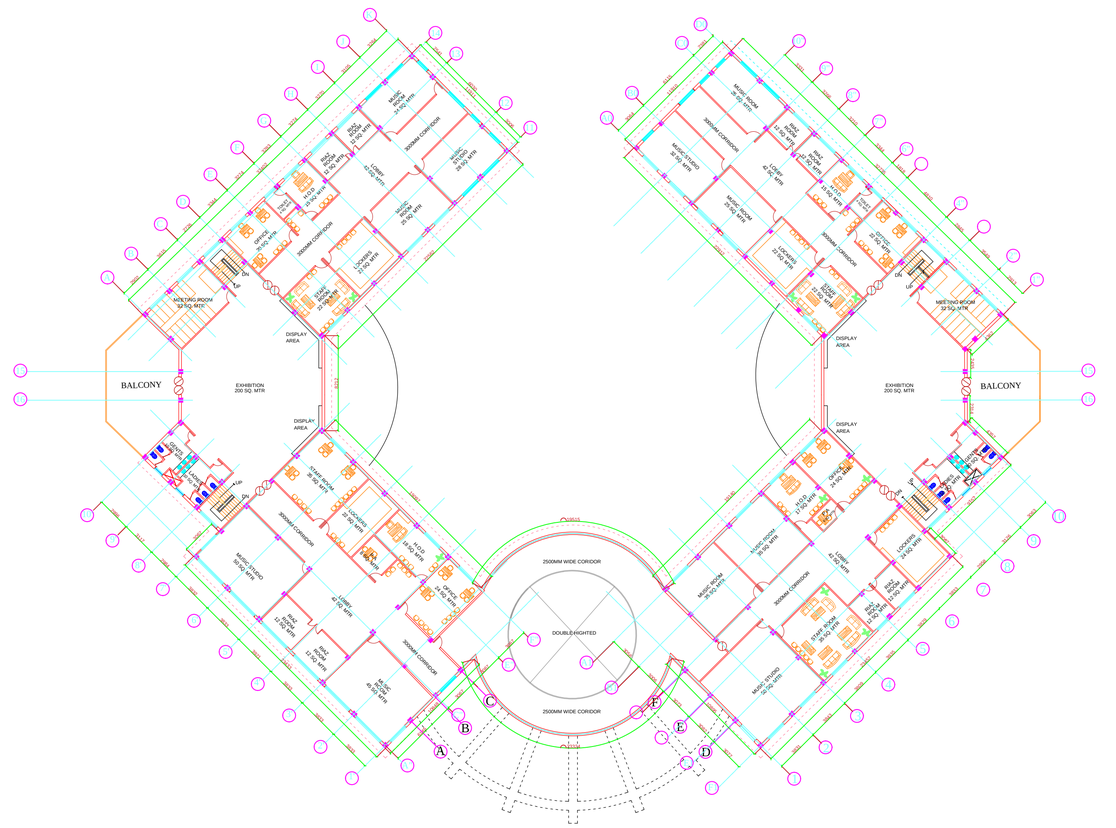
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



GROUND FLOOR PLAN

COLUMN CENTRE LINE PLAN



FIRST FLOOR PLAN

COLUMN CENTRE LINE PLAN

EDUCATIONAL BLOCK

SCALE - 1:100

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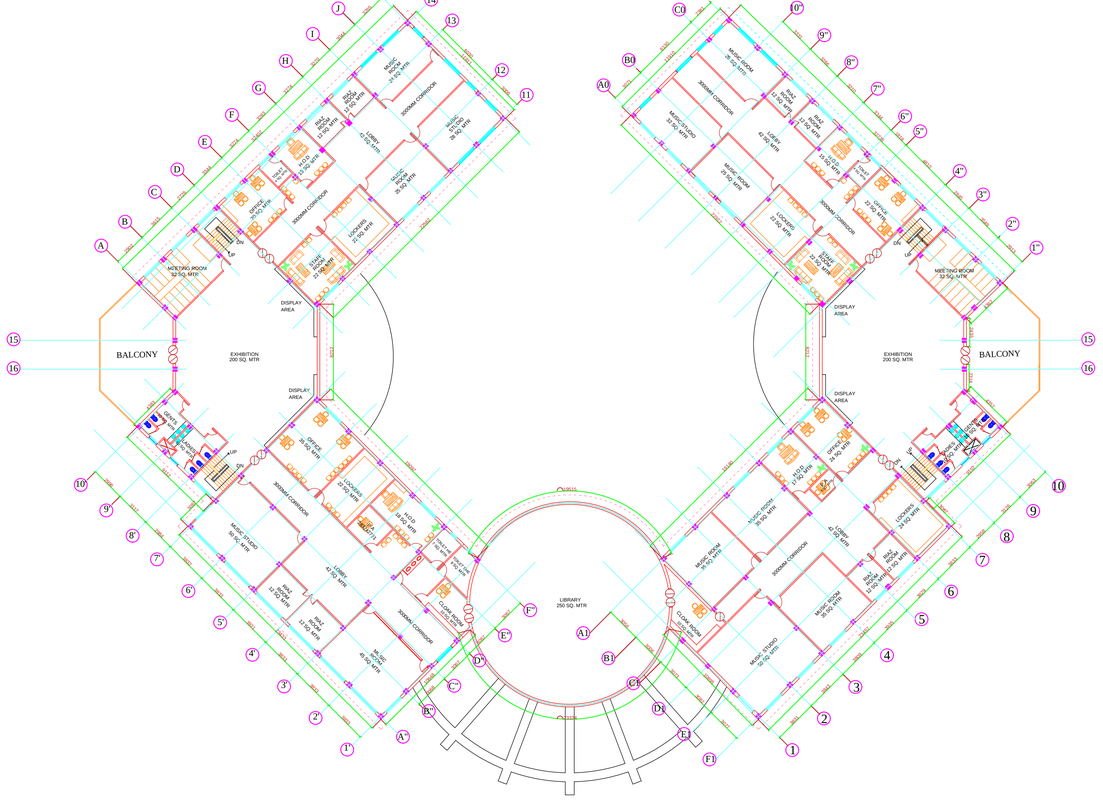
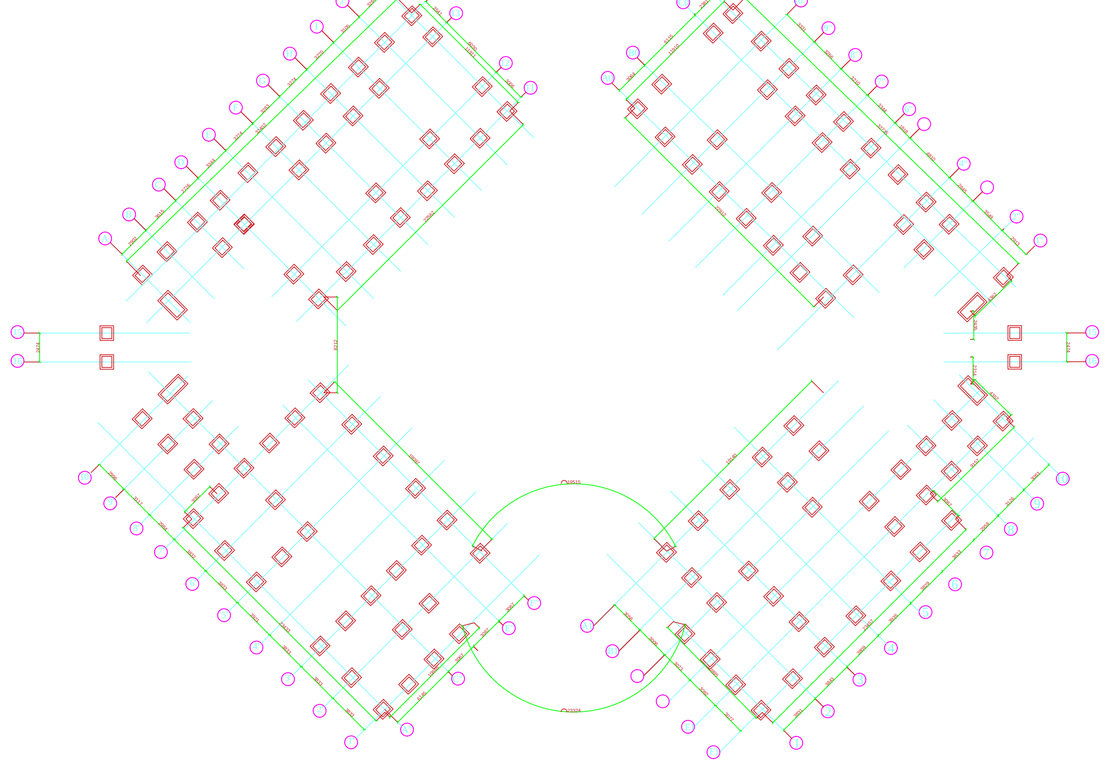
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



SECOND FLOOR PLAN

COLUMN CENTRE LINE PLAN



FOOTING/TRENCH PLAN

EDUCATIONAL BLOCK

SCALE - 1:100

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SHASHANK VARSHNEY
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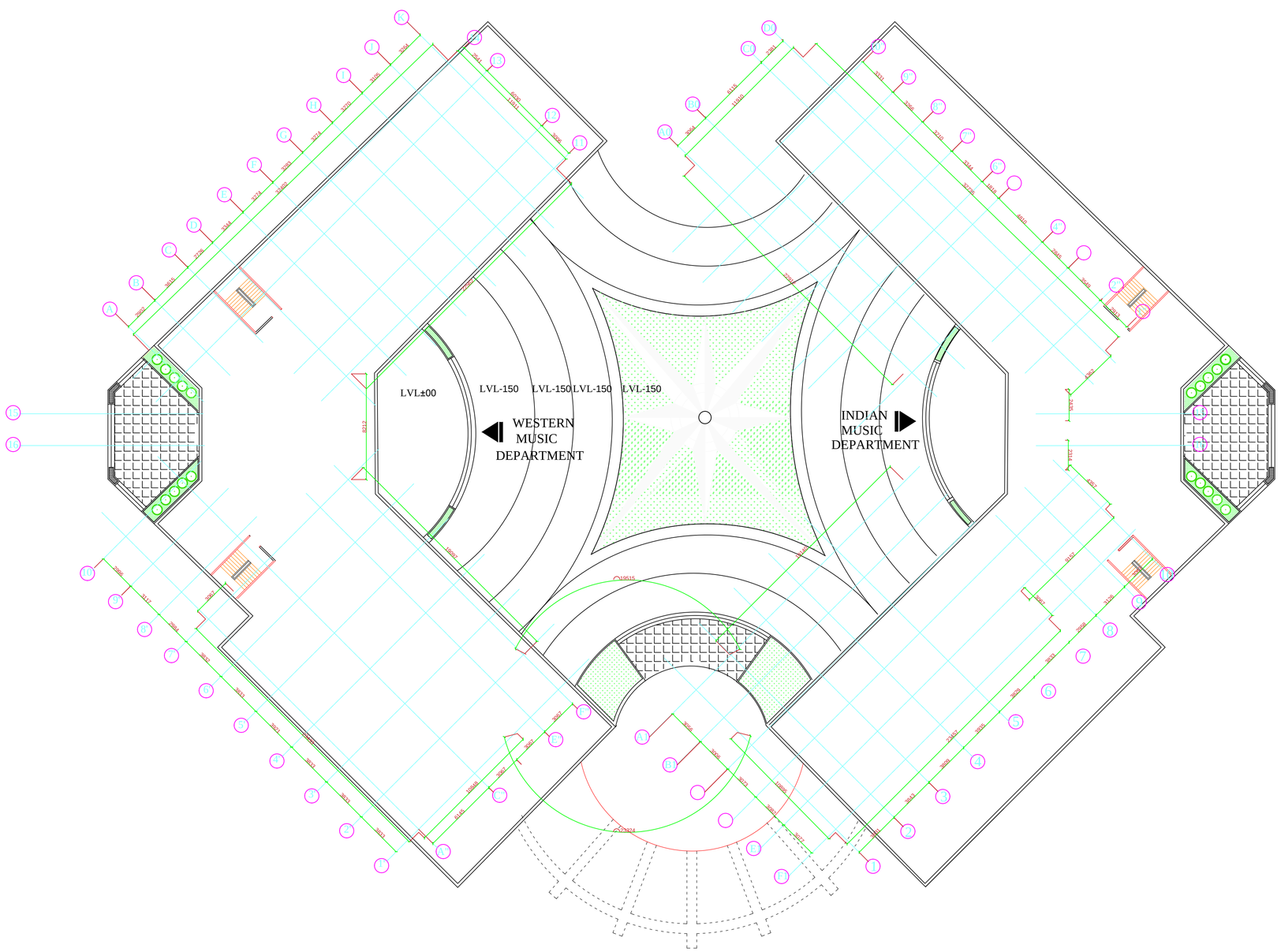
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



ROOF TOP PLAN

EDUCATIONAL BLOCK

SCALE - 1:100

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SHASHANK VARSHNEY
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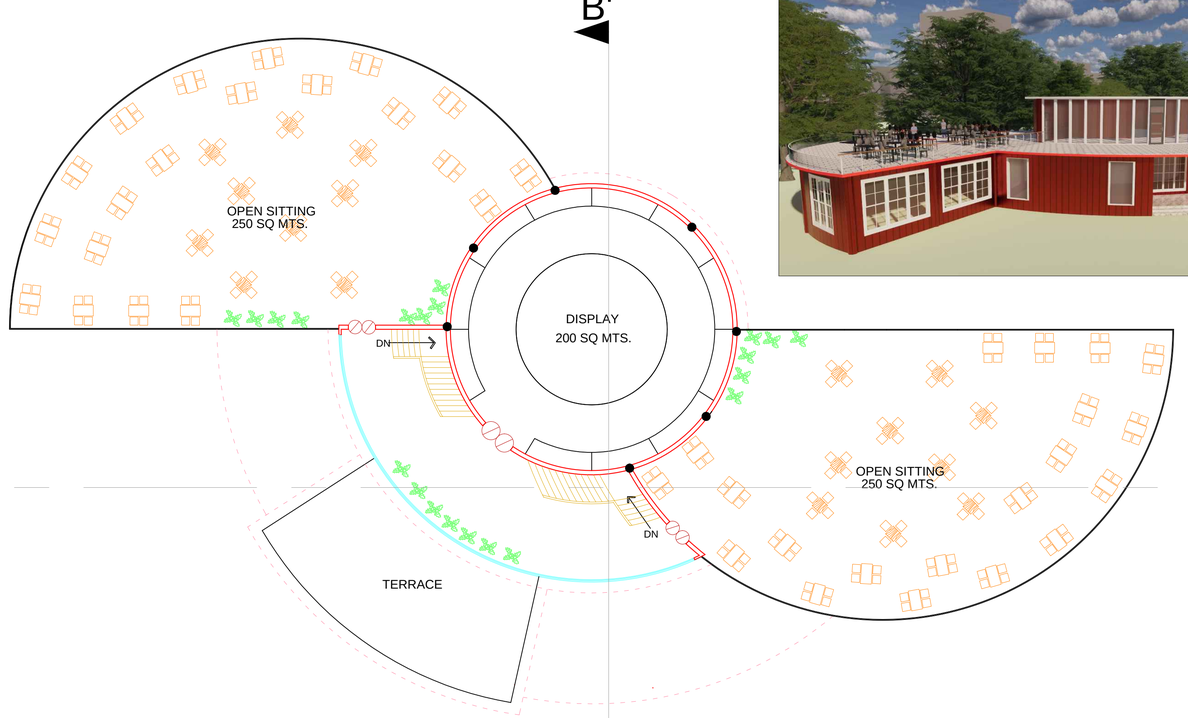
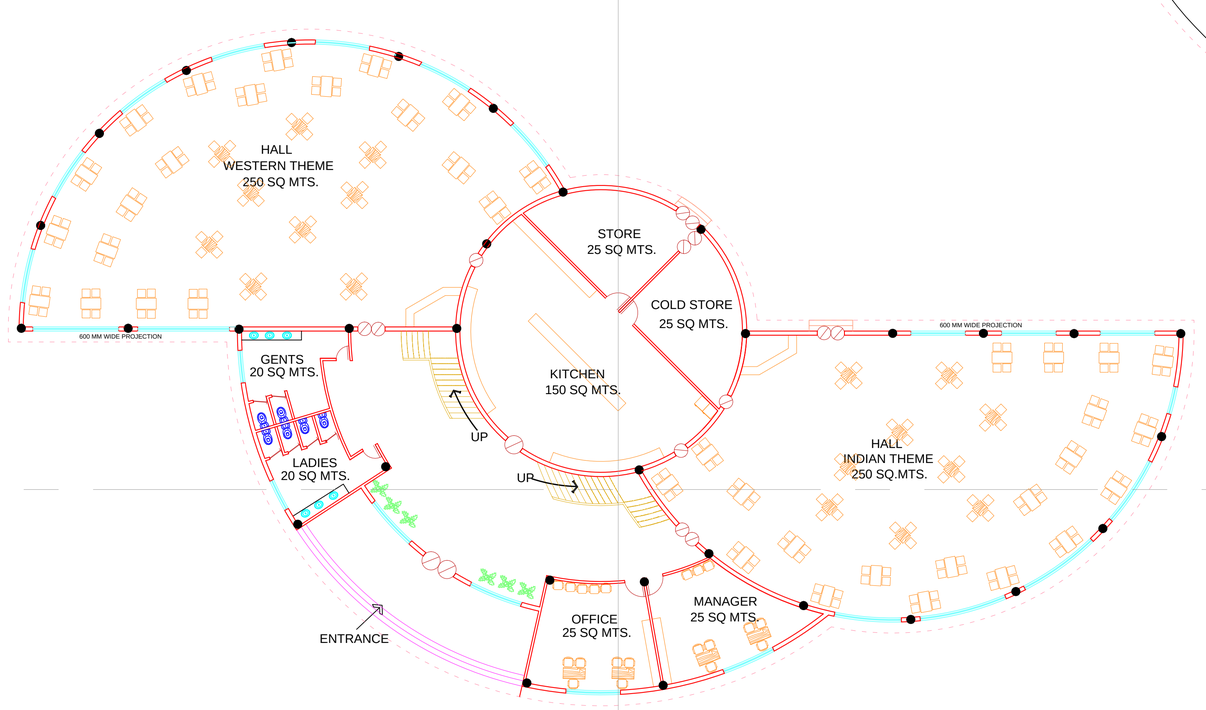
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



FIRST FLOOR PLAN

B



GROUND FLOOR PLAN

B

RESTAURANT BLOCK

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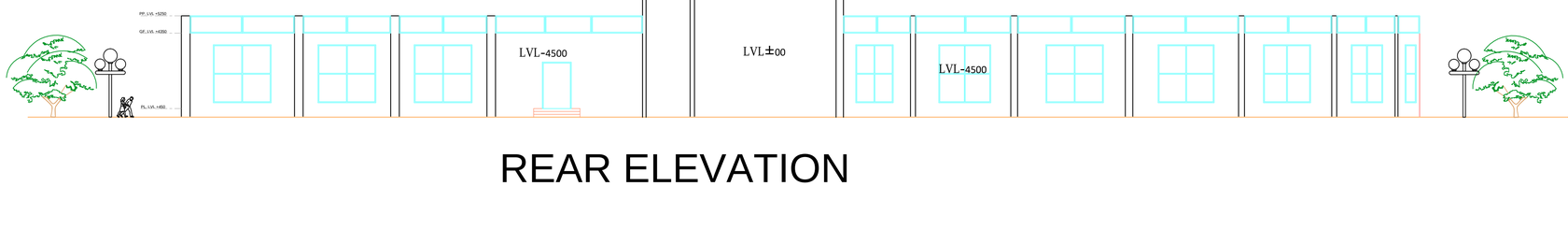
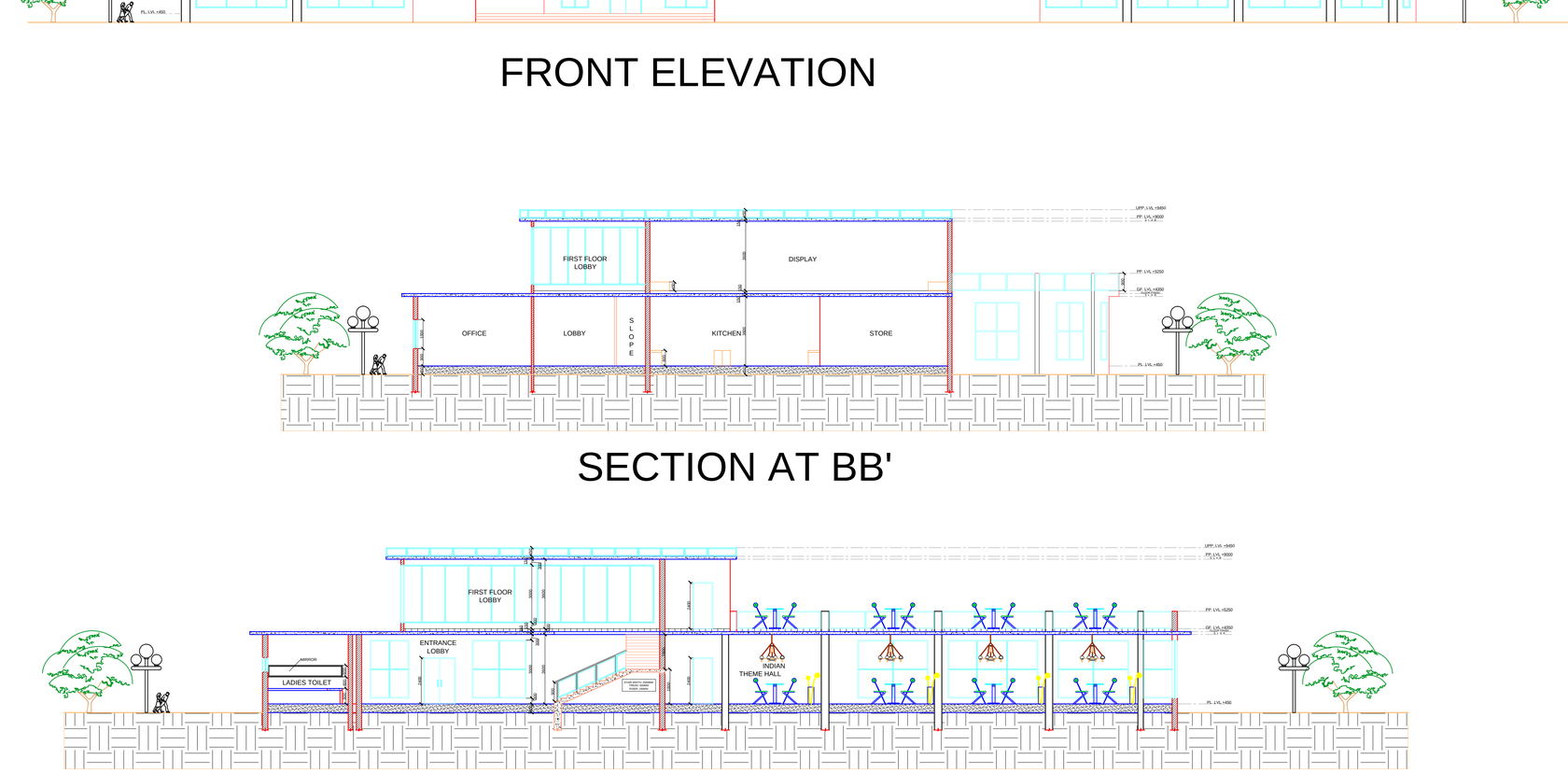
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



REAR ELEVATION



FRONT ELEVATION

SECTION AT BB'

SECTION AT AA'

RESTAURANT BLOCK

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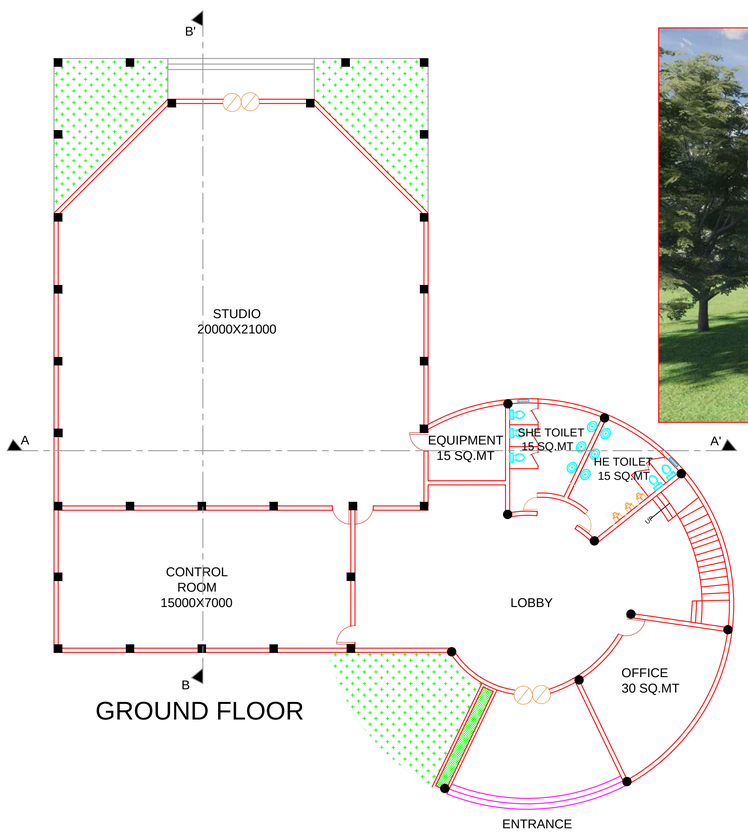
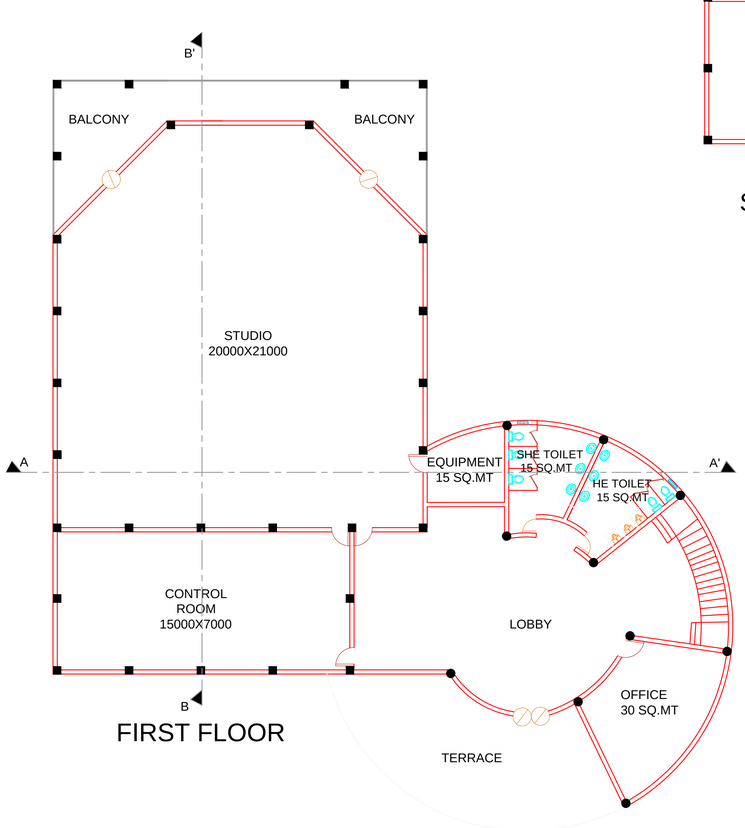
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

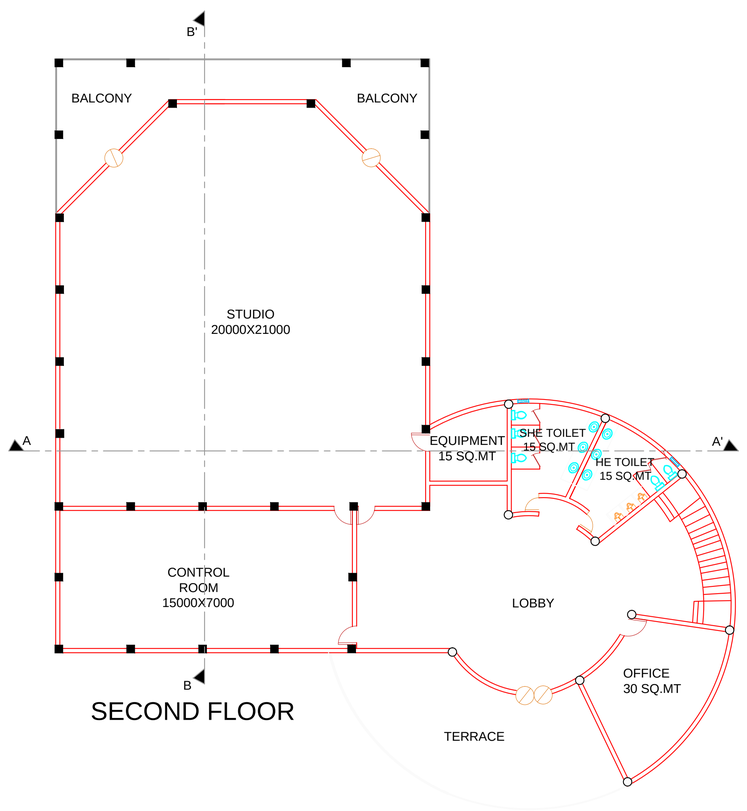
THESIS 2022-2023



GROUND FLOOR



FIRST FLOOR



SECOND FLOOR

RECORDING STUDIO BLOCK

SCALE - 1:100

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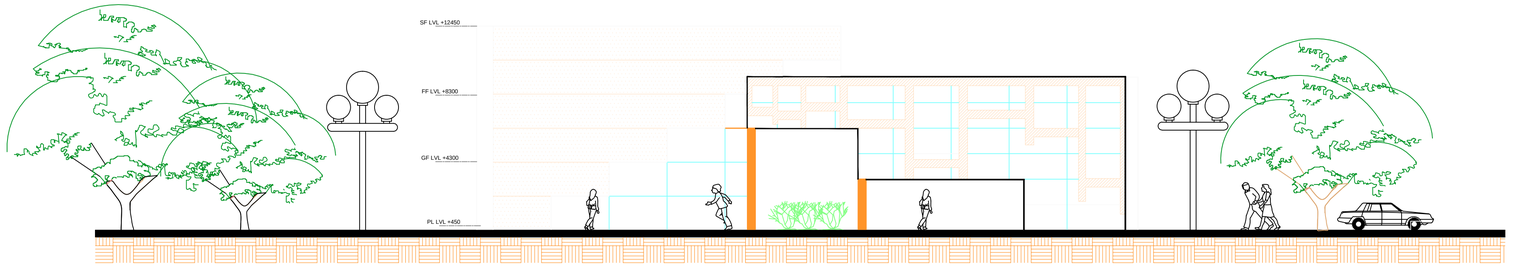
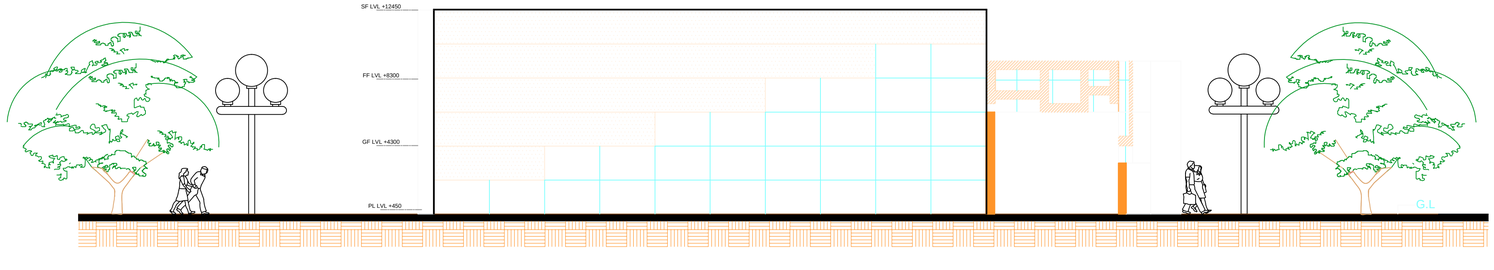
MUSIC SCHOOL, DWARKA

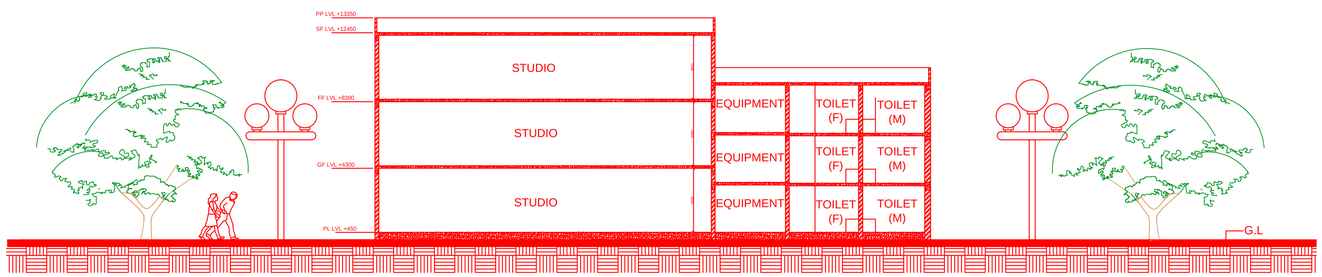
THESIS 2022-2023



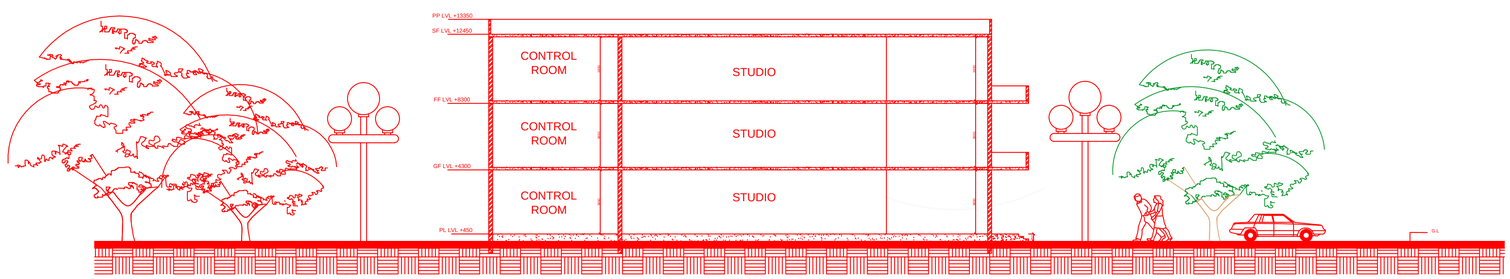
FRONT ELEVATION



SIDE ELEVATION



SECTION AT AA'



SECTION AT BB'

RECORDING STUDIO BLOCK

SCALE - 1:100

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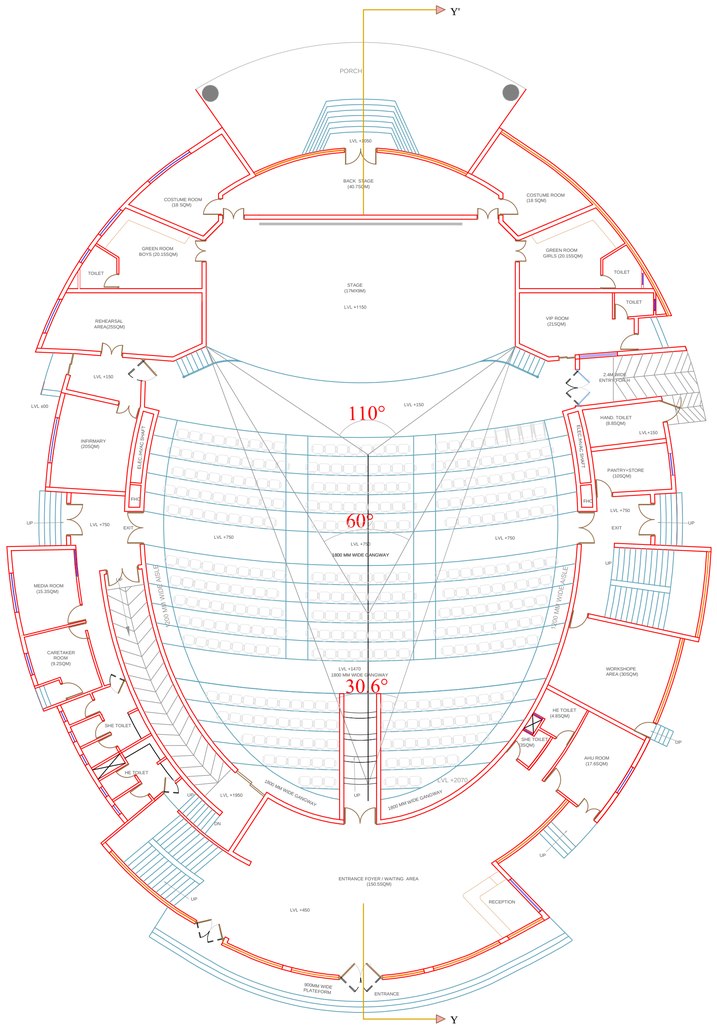
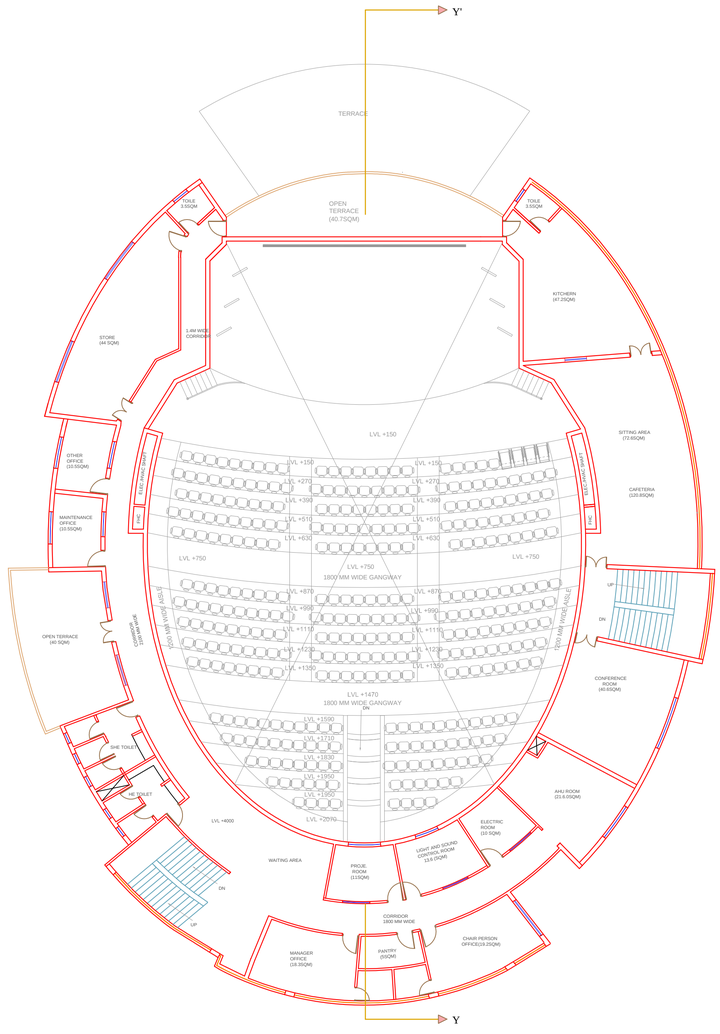
MUSIC SCHOOL, DWARKA

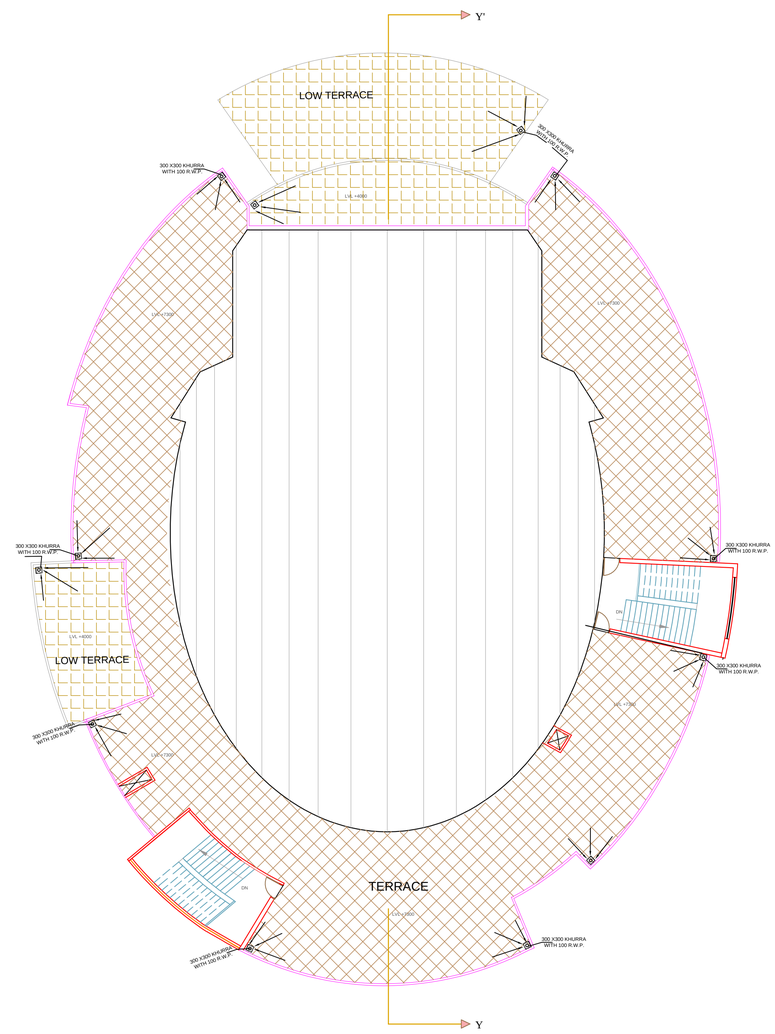
THESIS 2022-2023



GROUND FLOOR PLAN



FIRST FLOOR PLAN



TERRACE FLOOR PLAN

SCALE - 1:100

AUDITORIUM BLOCK

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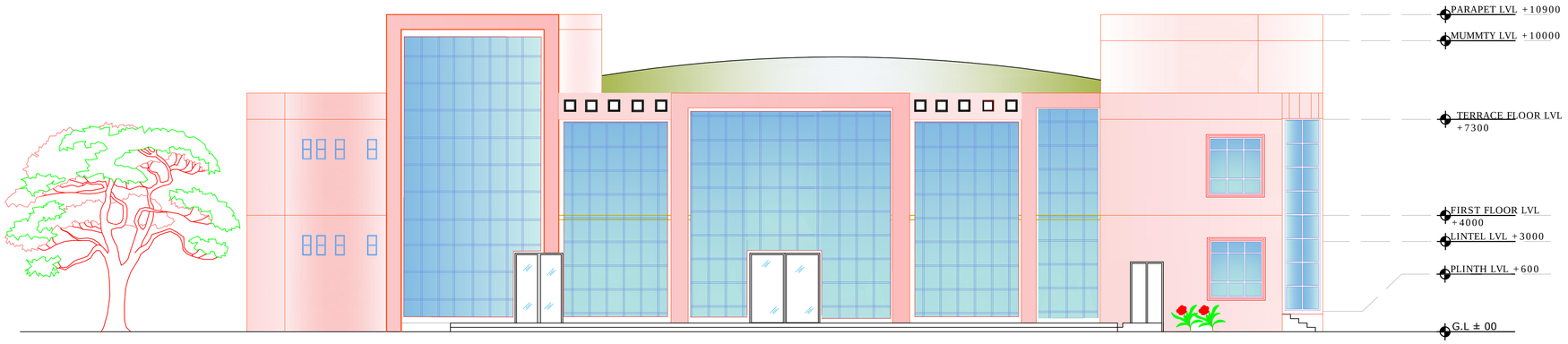
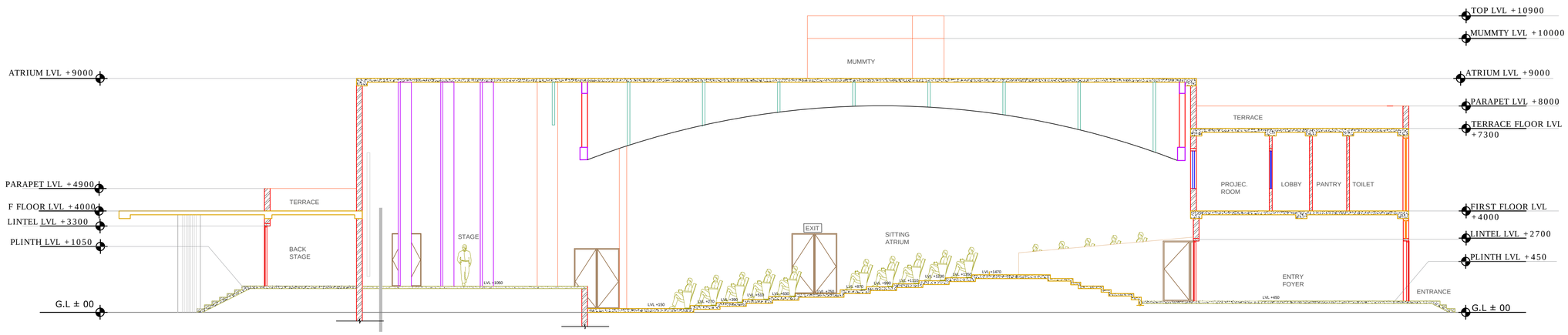
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



FRONT ELEVATION



SECTION AT Y-Y'

AUDITORIUM BLOCK

SCALE - 1:100

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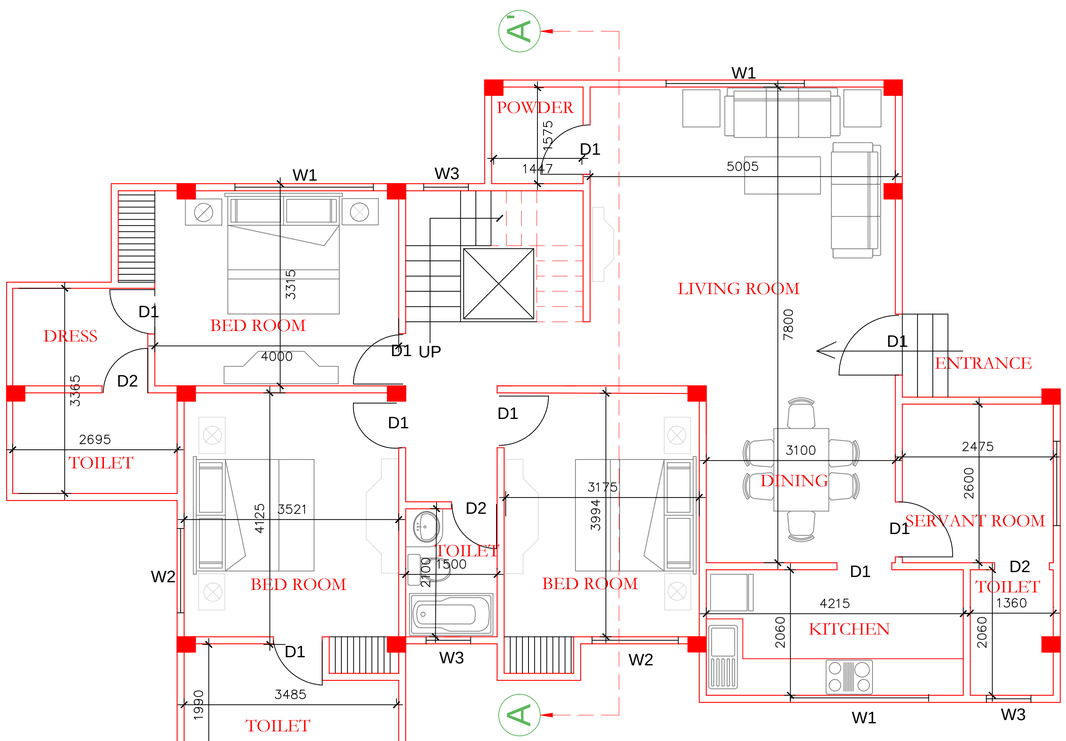
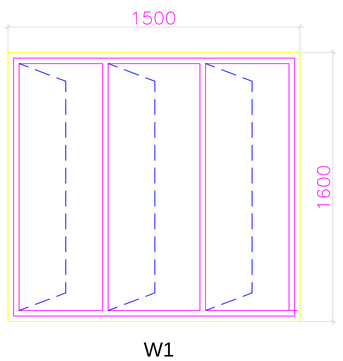
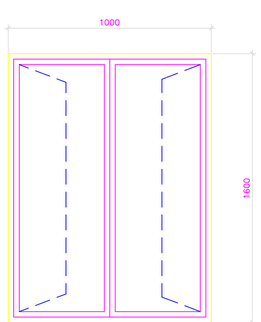
MUSIC SCHOOL, DWARKA

THESIS 2022-2023





W1

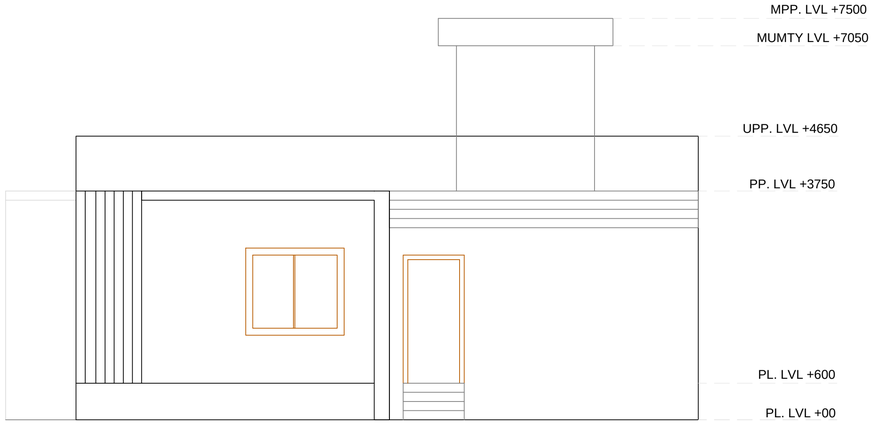


W2

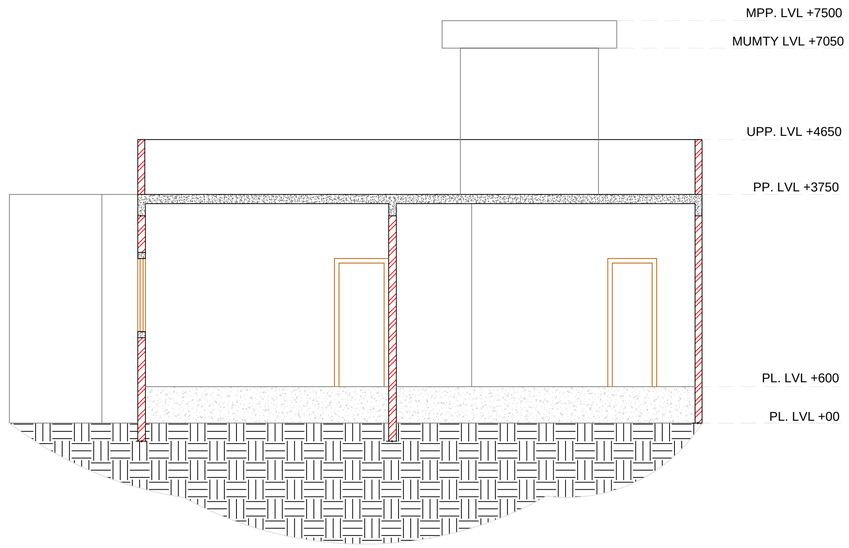
SHEDULE OF DOORS AND WINDOWS

DOOR MARKED	WIDTH	HEIGHT	LINTEL HEIGHT
D1	900	2100	2100
D2	750	2100	2100

WINDOW MARKED	WIDTH	HEIGHT	SILL HEIGHT	LINTEL HEIGHT
W1	1500	1600	500	2100
W2	1000	1600	500	2100
V1	600	1000	1000	2100



FRONT ELEVATION



SECTION AT AA'

GUEST HOUSE

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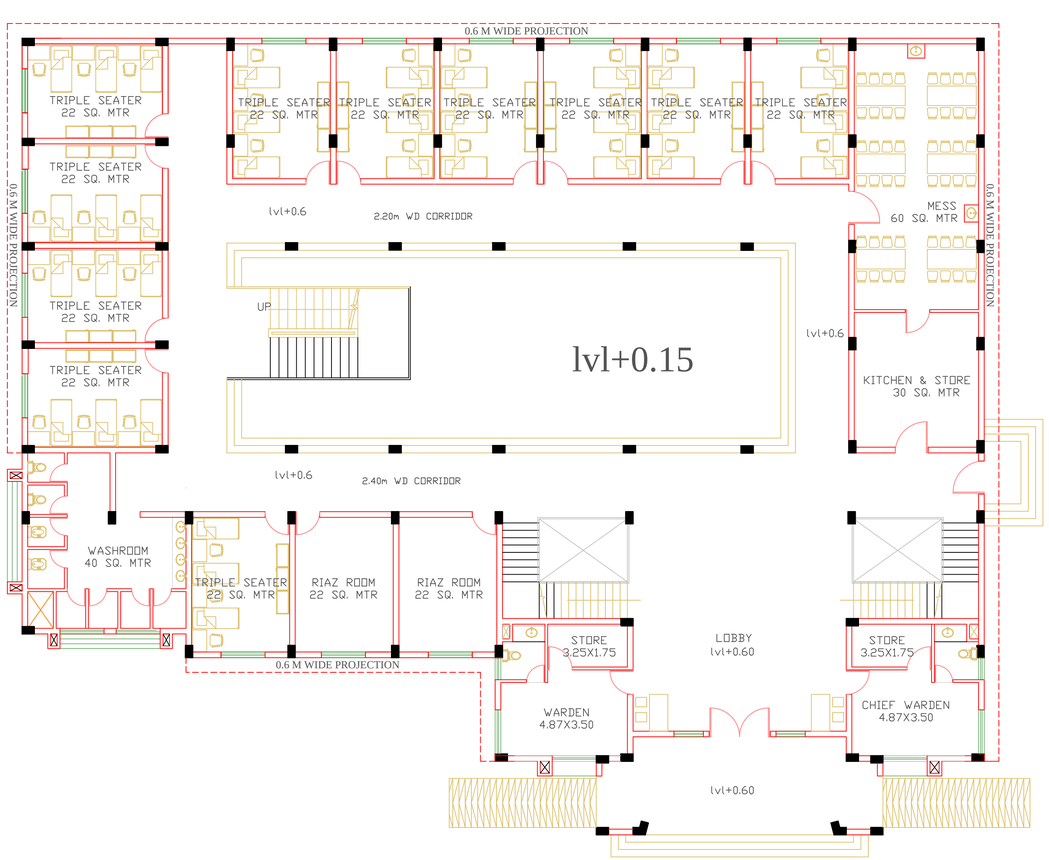
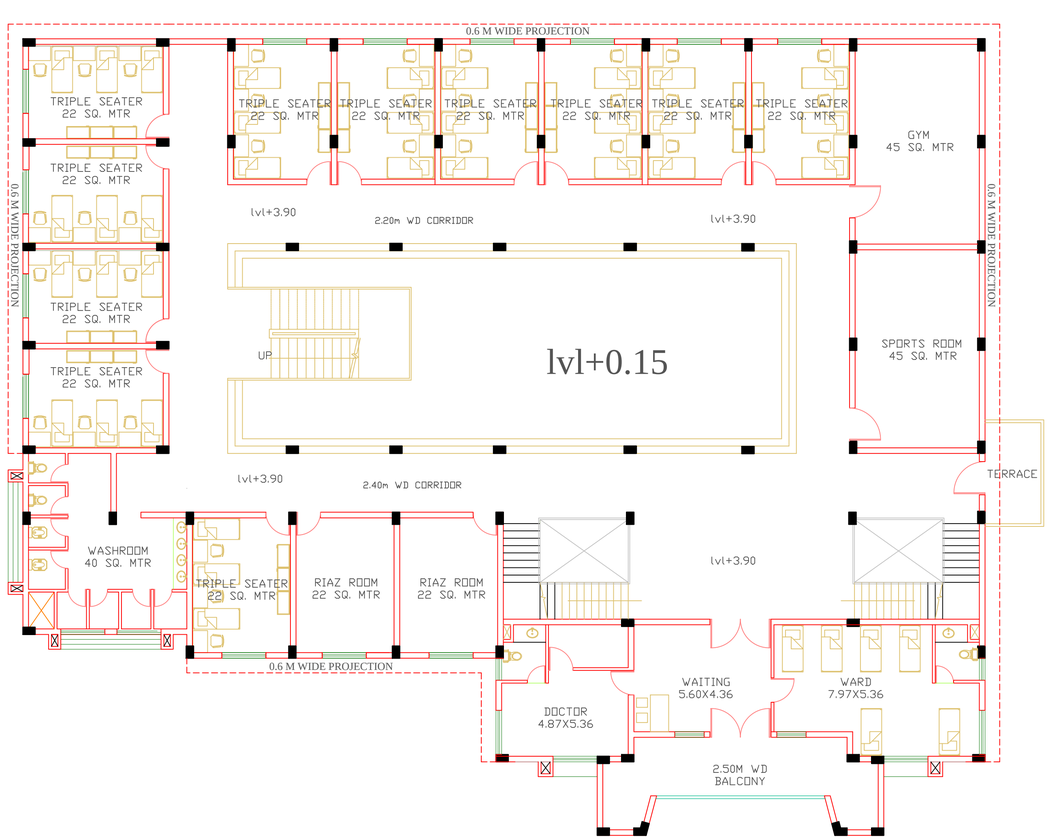
MUSIC SCHOOL, DWARKA

THESIS 2022-2023



GROUND FLOOR PLAN



FIRST FLOOR PLAN

GIRLS HOSTEL

SCALE - 1:100

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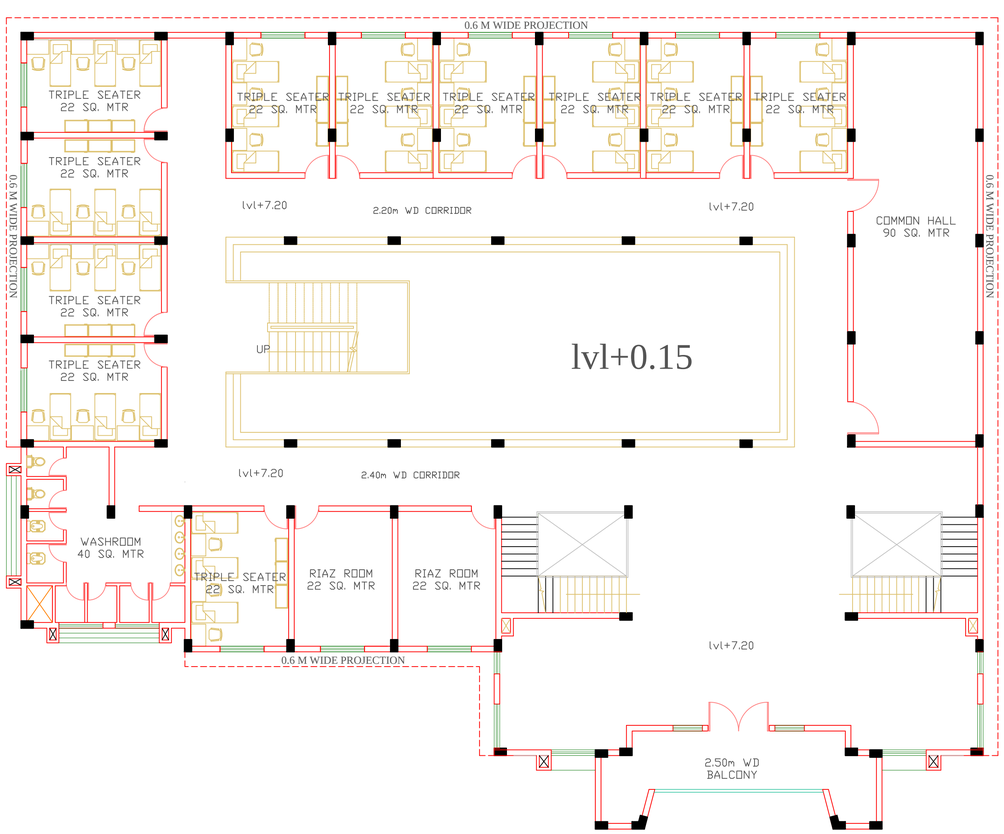
PROF MOHIT KR. AGARWAL

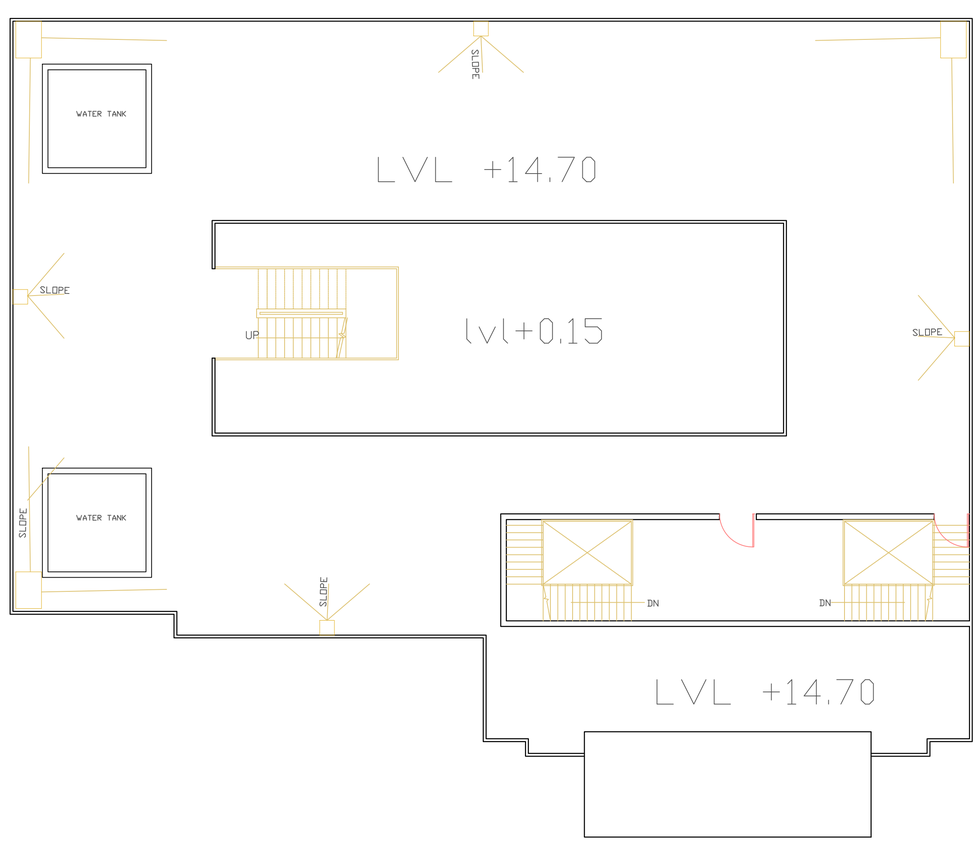
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



SECOND FLOOR PLAN



TERRACE PLAN

GIRLS HOSTEL

SCALE - 1:100

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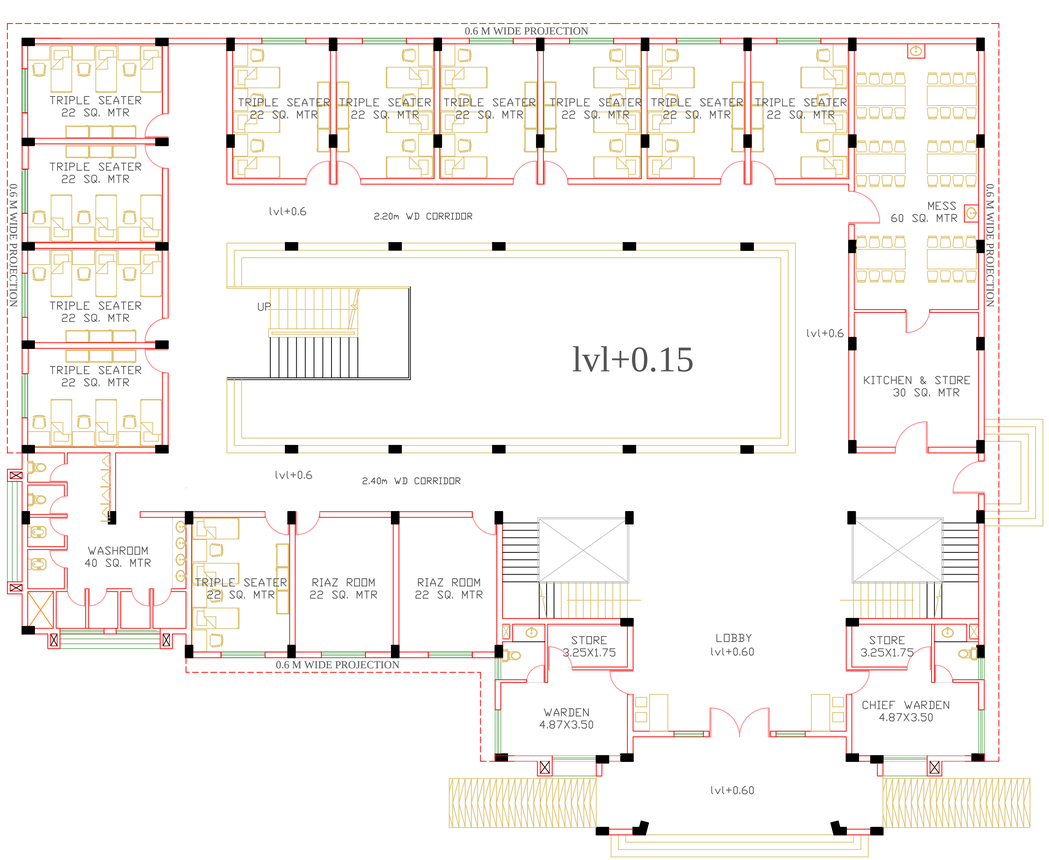
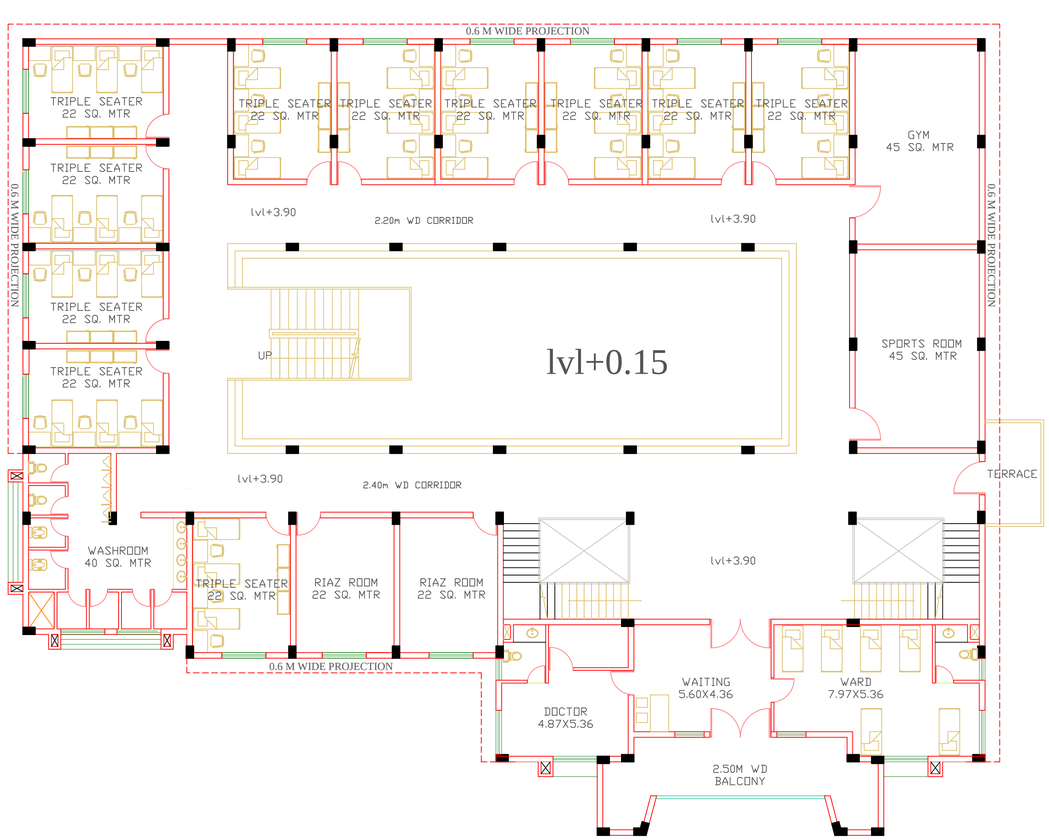
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



GROUND FLOOR PLAN



FIRST FLOOR PLAN

BOYS HOSTEL

SCALE - 1:100

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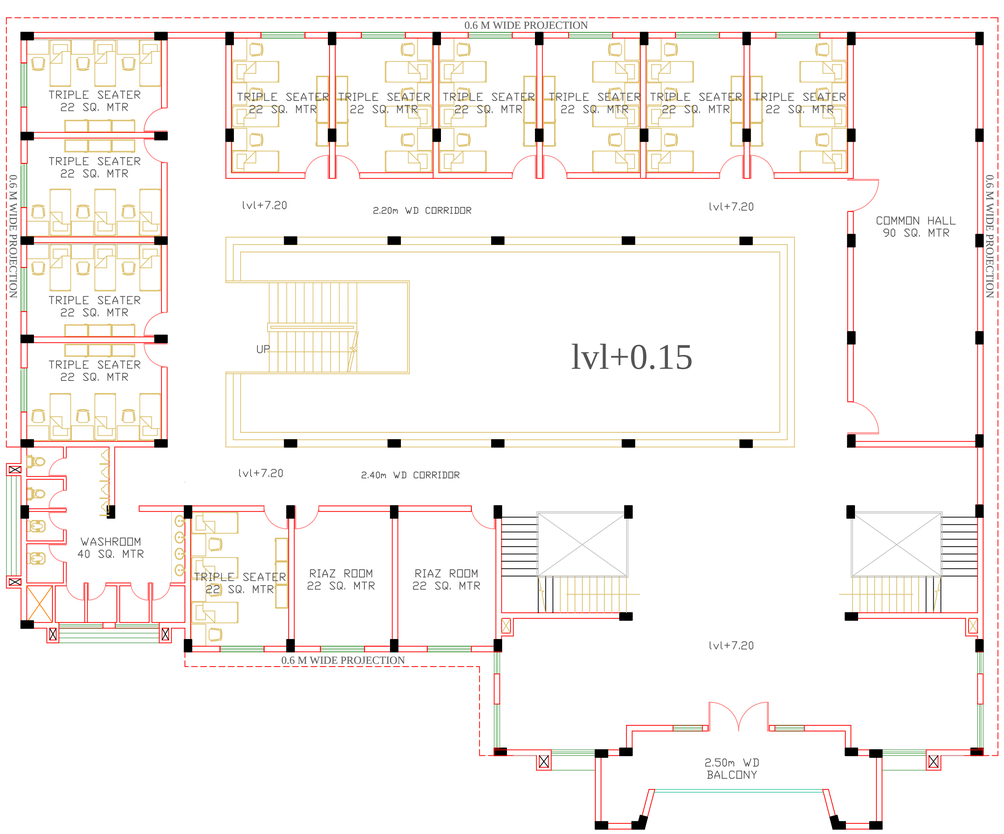
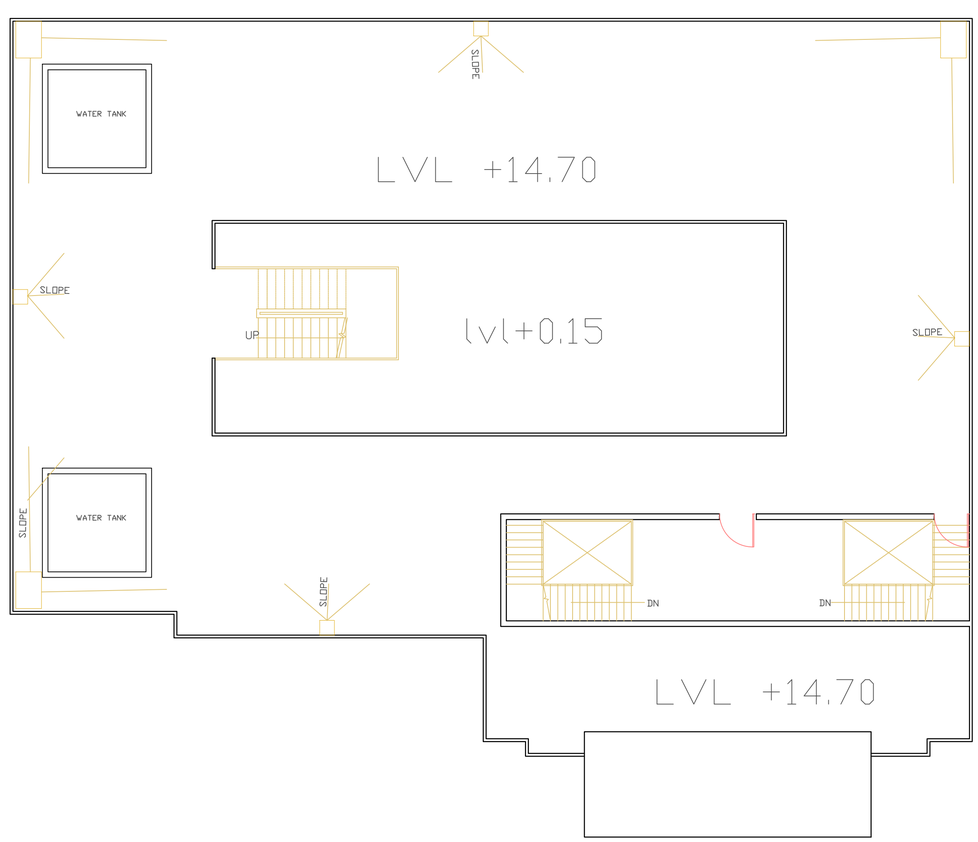
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



SECOND FLOOR PLAN



TERRACE PLAN

BOYS HOSTEL

SCALE - 1:100

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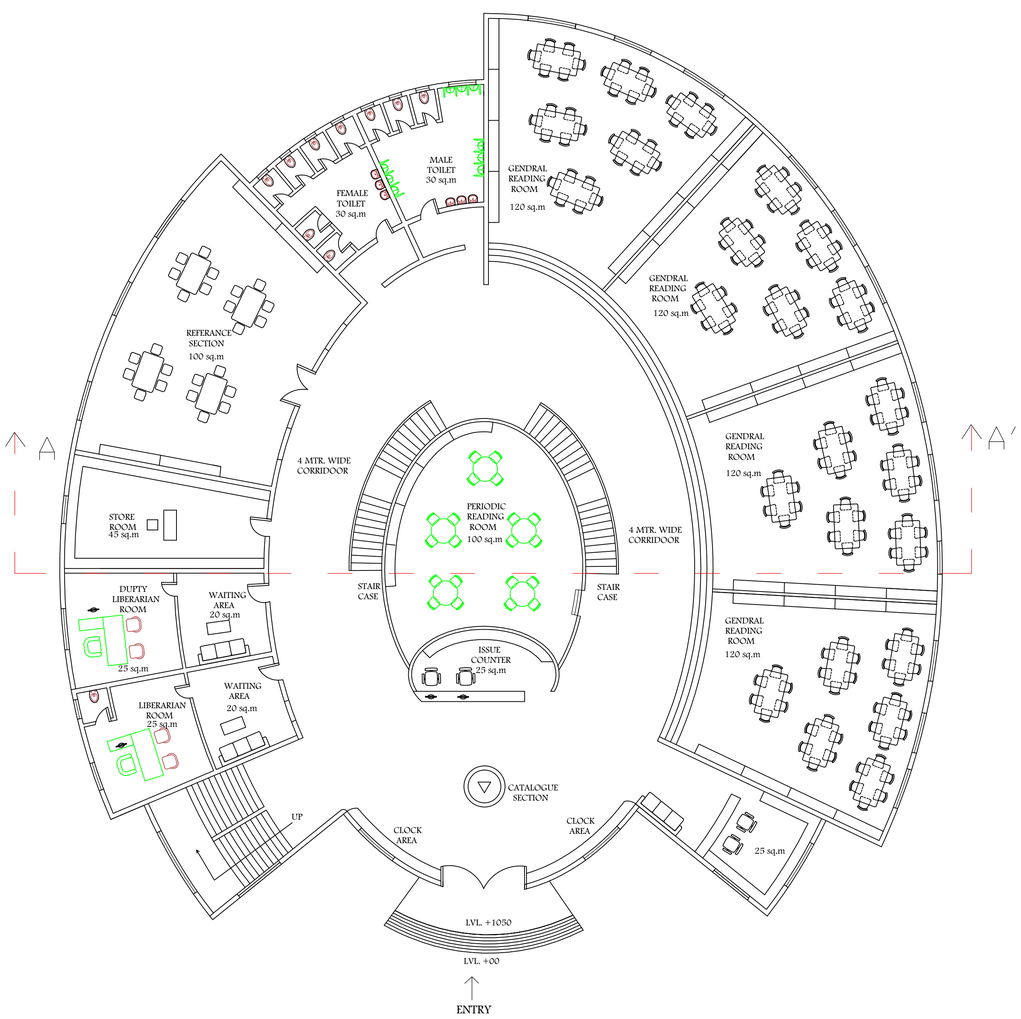
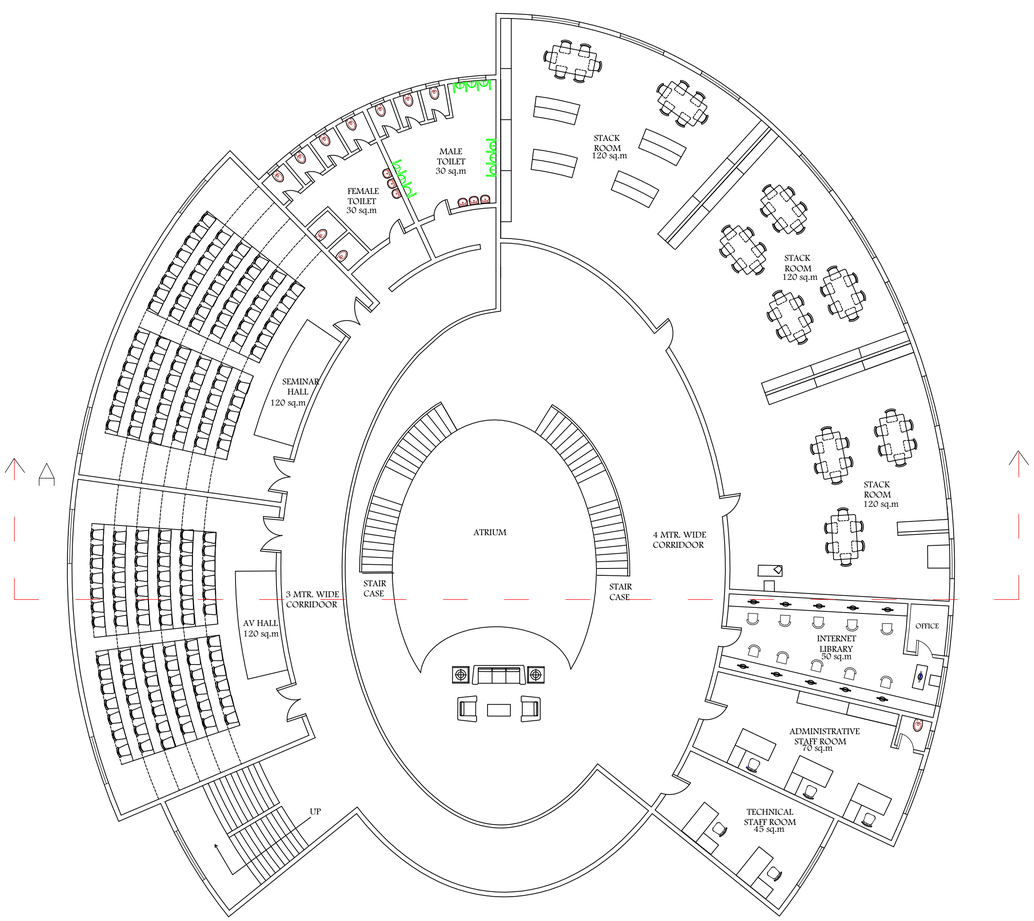
SUBMITTED BY:-
SHASHANK VARSHNEY
1180101040

MUSIC SCHOOL, DWARKA

THESIS 2022-2023



GROUND FLOOR PLAN



FIRST FLOOR PLAN

LIBRARY

SCALE - 1:100

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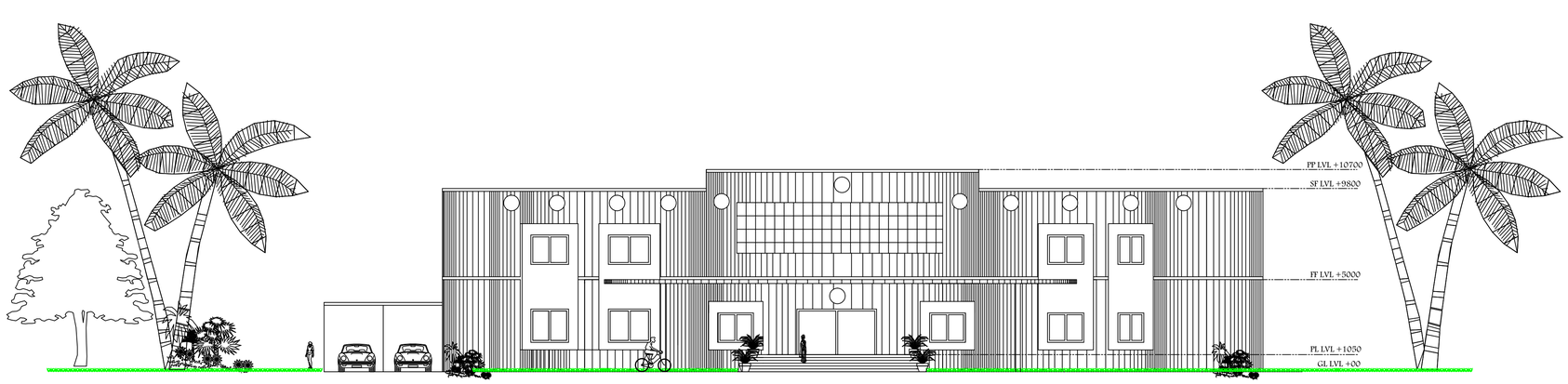
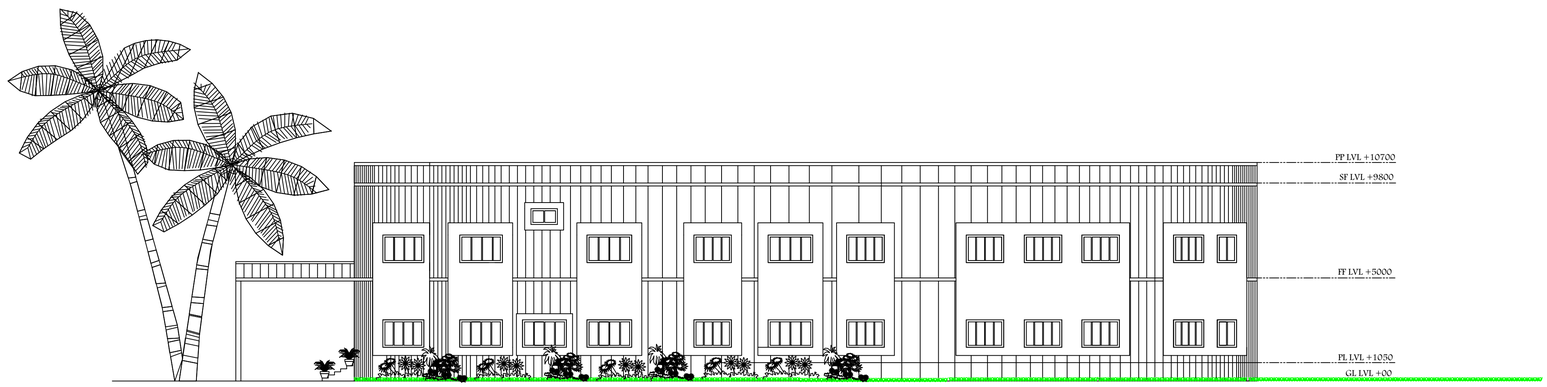
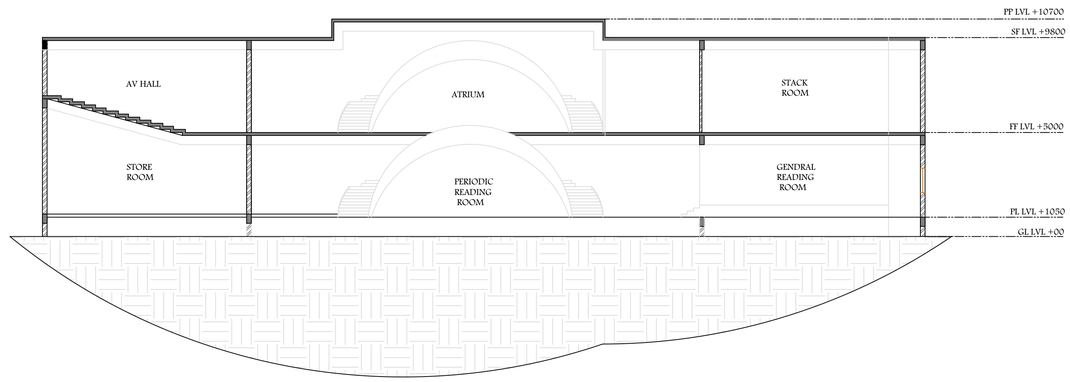


FRONT ELEVATOIN



RIGHT SIDE ELEVATOIN



SECTIONS AT AA'

LIBRARY

SCALE - 1:100

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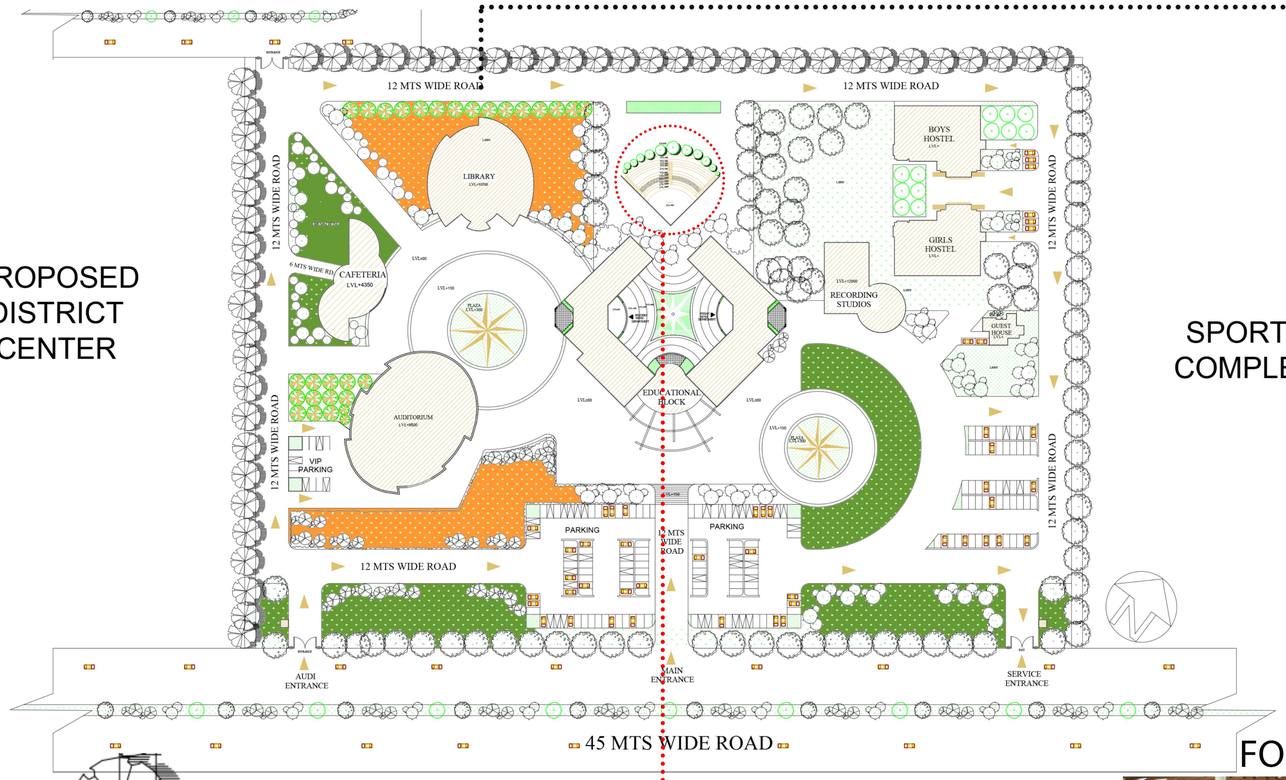
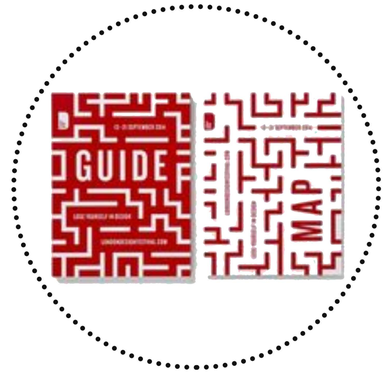
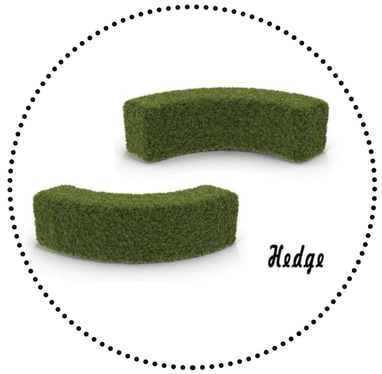
PLAN

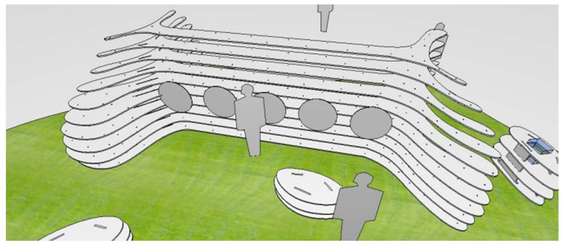
PROPOSED DISTRICT CENTER



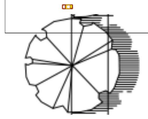
SPORTS COMPLEX







FOR OPEN EXHIBITION



(TEAK /SAGAUN

GULMOHAR, POPLAR, NEEM AND PEEPAL

FOR PATHWAYS

FOR OPEN EXHIBITION

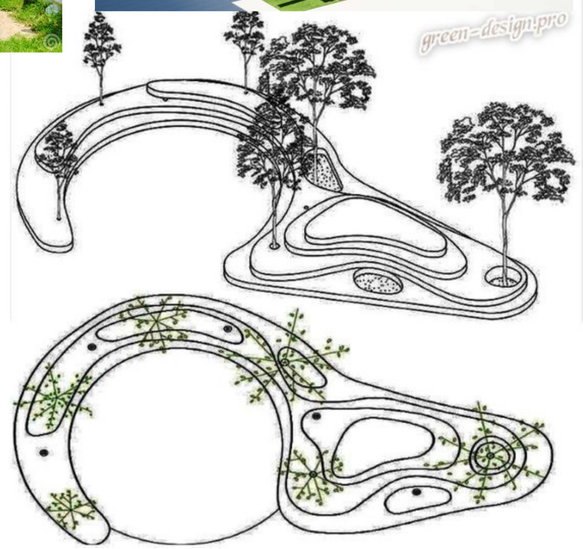
TREES : FLOWERING

TREES : FLOWERING

Botanical Name	Common name
Delonix regia	Gulmohar
Neolamarckia cadamba	Kadam
Bombax ceiba	Red silk cotton (Semal)
Butea monosperma	Flame of the forest
Cassia fistula	Golden shower
Callistemon	Bottle brush
Erythrina variegata	Indian Coral
Lagerstroemia speciosa	Pride of India
Plumeria albo	Firangpani
Jacaranda mimosifolia	Neel gulmohar
Bauhinia variegata	Kachnar
Nyctanthes arbor-tristis	Parijat
Cascabela thevetia	Yellow kaner
Pterospermum acerifolium	Kanak champa
Ceiba speciosa	Floss silk tree

SHRUBS

Botanical Name	Common name
Raphis excesia	Ladt palm
Dypsis lutscens	Areca palm
Strlitzia nicolai	Bird of paradise
Bambusa ventricosa	Buddha belly bamboo
Scheffelra variegated	
Codiaeum	Croton
Diffienbachia	Dumb cane
Tecoma gaudichaudi	Gaudi chaudi
Tabemaemontana coronria	Crape jasmine
Hamelia patens	Fire bush
Bouganvillea	
Clerodendron inerme	Wild jasmine



SMALL BREAKOUT /SITTING SPACES WHICH ACT AS RECREATIONAL SPACE

MUSIC SCHOOL , DWARKA

GUIDE

PROF. MOHIT KUMAR AGARWAL

SHASHANK VARSHNEY
B.ARCH 5TH YEAR
1180101040

BIBLIOGRAPHY

This report includes information, pictures and all the data related to this thesis. This has been completed by many sources which are given below:-

1. SELF SOURCE:-

- Site visit And Measurement
- Anthropometry Study

2. BOOK SOURCE:-

- Newfert
- N.B.C BOOK
- Time sever

3. INTERNET SOURCE:-

- http://google.com
- http://googleearth.in
- http://en.m.wikipedia.org
- http://slideshare.com
- https://www.ncert.nic.in
- https://www.dda.ac.in