ODEA: PERFORMING ARTS CENTRE - THEATRE

Radhe Radhe, Bhaktapur

By:

MONIKA DHITAL

750122

A thesis submitted in partial fulfillment

of the requirements for the

Degree of Bachelor of Architecture

Purbanchal University

KHWOPA ENGINEERING COLLEGE

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Libali, Bhaktapur, Nepal

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An Undertaking of Bhaktapur Municipality
KHWOPA ENGINEERING COLLEGE
(Affiliated to Purbanchal University)
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CERTIFICATE

This is to certify that the thesis entitled **ODEA: PERFORMING ARTS CENTER AND THEATRE** at ***Radhe-Radhe, Bhaktapur***, submitted to the Department of Architecture of Khwopa Engineering College by **Ms. Monika Dhital** of Class Roll No. 22 /B.Arch./075 has been declared successful for the partial fulfillment of the academic requirement towards the completion of the degree of Bachelor of Architecture of Purbanchal University.

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ABSTRACT

Theatre Arts has been prevailing in the world of architecture since 2000 BCE at Phaestus as the open air Amphitheatre of Greece. Theatre, in architecture, a building or space in which a performance may be given before an audience. A theatre usually has a stage area where the performance itself takes place. Since ancient times the evolving design of theatres has been determined largely by the spectators' physical requirements for seeing and hearing the performers and by the changing nature of the activity presented.

For many centuries they were an example of mass culture. Most theatrical designs can be traced back to the remarkable and large built structures by the Greeks and Romans. Their designs became significant monuments that represented the ambition of their culture as well as the people. Little is known about the nature and development of theatres in Asia from the 6th to 10th century CE. However, the early theatres have been said to be influenced deeply by the culture pertaining to the countries it was built in.

This paper includes information on theatre arts and architecture, history and timeline, types of theatre arts, project importance in Nepal, and studies such as literature, case studies and site analysis. The data and information were collected from primary and secondary sources. Most of the information for the national case studies and site analysis were collected by questionnaire, interview, observation and interview methods of research.

From these researches and surveys, it was found that the history suggests the importance of the open air theatre in theater architecture. Literature study showed the standards on which a theater is to be designed such as sightlines, c value of theater, seating, etc. From the national case studies it was found the insufficiency of spaces as both theater and institution and what more could they do if they had more space to work on. International case studies helped to find how the standards are being used to create a perfect theatre experience. From the site analysis various data on the macro and micro climate were collected that would influence the design in the future. Municipal standards and bye laws were collected in order to remain within the legal boundaries of the site.

After all of these research and found data, concept was developed from these very findings and implications of these research information was done. These data are further carried out in the design and planning processes.

DECLARATION

I declare that this thesis work entitled **"ODEA: PERFORMING ARTS CENTRE-THEATRE"** has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree. I state that this dissertation is the result of my own independent work/investigation, except where otherwise stated. I hereby give consent for my dissertation, if accepted, to be available for photocopying and understand that any reference to or quotation from my thesis will receive an acknowledgement.

…….
Monika Dhital
750122

ACKNOWLEDGMENT

The overall process of the thesis project and progress till now has many involvement whom I would like to express my gratitude who were kindly contributing directly & indirectly throughout the journey.
I feel fortunate to have had the guidance and encouragement of my supervisor Ar. Sunaina Shakya who has been both a strong advisor and a source of inspiration

Firstly, I would like to acknowledge our thesis coordinator Ar. Rashish Lal Shrestha and our Head of Department Ar. Archana Bade Shrestha, for his perceptive advice, direction & inspiration. Meanwhile, I would also like to thank all the teachers from the Department of Architecture of Khwopa Engineering College who suggested & corrected me during the process.

Through the report I would also like to express my gratitude to all those who have supported me directly or indirectly throughout this process. Their help, guidance, and encouragement have been invaluable to me, and I will always remember their contributions with appreciation.

Regards,

Monika Dhital

750122

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1. INTRODUCTION

1.1School of Performing Arts

The School of Performing Arts stands at the intersection of creativity, education, and cultural expression, embodying a space dedicated to nurturing the talents and aspirations of individuals passionate about the performing arts. Rooted in the belief that the arts play a transformative role in society, this institution seeks to cultivate not only artistic excellence but also the holistic development of its students. A multi-use performance space that is intended for use by various types of performing arts, including dance, music, creative writing, direction, visual arts and theatre.

The intended multiple use of performing arts centers in this sense differentiates them from single-purpose concert halls, opera houses or theatres, although the actual use of single-purpose spaces for other than their intended use is widespread. This sort of space has a long history, extending to the Roman Colosseum and Greek amphitheaters. A cluster of performance spaces, either separate buildings or under one roof, each space designed for a specific purpose such as symphonic music or chamber music or theatre, but multipurpose as a whole.

Figure 1: Theatre Seatings and Stage

(Source: www.esplanade.com)

1.2 Theatre Architecture

Theatre is a collaborative form of performing art that uses live performers, usually actors and actresses, to present the experience of a real or imagined event before a live audience in a specific place, often a stage. *(Source: Wikipedia.com)*

Theatre, in architecture, a building or space in which a performance may be given before an audience. The word is from the Greek theatron, “a place of seeing.” A theatre usually has a stage area where the performance itself takes place. Since ancient times the evolving design of theatres has been determined largely by the spectators’ physical requirements for seeing and hearing the performers and by the changing nature of the activity presented.

1.3 Types of Theatre Arts

1.3.1 Drama

A written work that tells a story through action and speech and is meant to be acted on a stage. A play, movie, or television production with a serious tone or subject. The term "drama" comes from a Greek word meaning "deed" or "act", which is derived from "I do". The two masks associated with drama represent the traditional generic division between comedy and tragedy.
Some of the type of dramas are:

(Source: Wikipedia.com)

Nepali and Western

- Comedy
- Farce
- Tragedy
- Tragi-Comedy
- Melodrama
- Opera
- Musical

(Source: Wikipedia.com)

1.3.2 Dance

Dance is an art form, often classified as a sport, consisting of sequences of body movements with aesthetic and often symbolic value, either improvised or purposefully selected. Dance can be categorized and described by its choreography, by its repertoire of movements or by its historical period or place of origin. Dance is typically performed with musical accompaniment, and sometimes with the dancer simultaneously using a musical instrument themselves. *(Source: Wikipedia.com)*

Some of the type of dances are:

Nepali

- Maruni
- Chandi
- Newari

Eastern

- Folk dance
- Kathak

Western

- Ballet
- Hiphop
- TAP
- Contemporary

1.3.3 Music

Musical theatre is a form of theatrical performance that combines songs, spoken dialogue, acting and dance. The story and emotional content of a musical – humor, pathos, love, anger – are communicated through words, music, movement and technical aspects of the entertainment as an integrated whole.
Some of the type of music are:

Nepali

- Sarangi
- Madal
- Tungna
- Jhyamta
- Narsingh
- Murali

Eastern

- Sitar
- Tabla
- Harmonium
- Bansuri
- Dhol

Western

- Trumpet
- Oboe
- Piano
- Harp
- Violin
- Cello
- Flute
- Saxophone

1.4 History of Theatre

1.4.1 Theatre History in the West

1.4.1.1 Greek Theatres

The first theatres did not put on performances for a few, but rather transmitted the words of the gods (who were very prolific in Greek times) to the more people the better. Initially there was a lack of spaces where large numbers of people could listen to the words in the chants, and so very soon large flat or cone-shaped esplanades started to appear, where you could sit and watch the performances.

Figure 2: Greek Theatres

1.4.1.2 Roman Theatres

The Roman theatre hardly added to or removed any of the elements used by the Greeks, probably because their architectural technology had not evolved sufficiently to stand out from them. What they did do was separate the orchestra, which became a pit, from the proscaenium, which would become the stage.

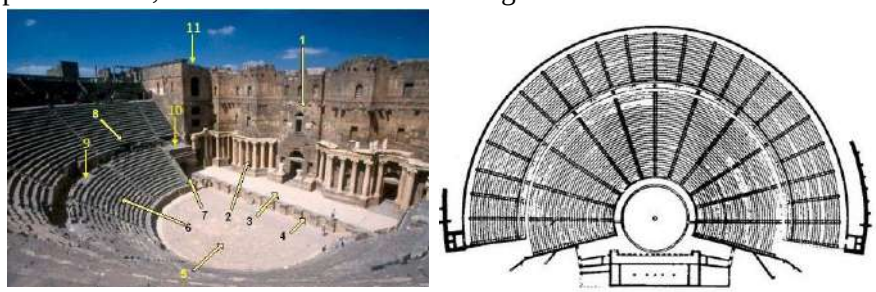


Figure 3 :Roman Theatres

1.4.1.3 Oriental theatre

In India (Hinduism), in Japan (Zionism) and in China (Buddhism), this culture manifested itself with songs, dance and mime. Almost all oriental theatres have the same quadrilateral shape, about six to seven meters wide, ever since the first Chinese theatres of the 2nd century BC. The pictures show the nō (noh) Japanese theatre from the 14th century, easily recognizable by the decorated back wall and the four wooden pillars making up the stage.

Figure 4: Oriental Theatres

1.4.1.4 Medieval theatre

The medieval theatre form took its roots from the Church. Medieval theatre was done on elaborate but temporary wooden stages inside large halls and even barns. Such performances were based on the dramatization of passages from the Bible and even the lives of holy figures.

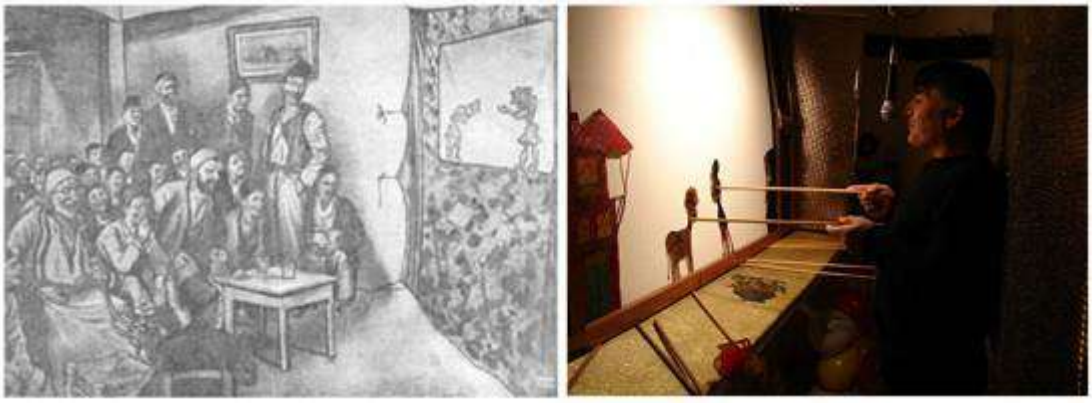


Figure 5: Medieval Theatres

1.4.1.5 Modern theatre

Towards the end of the Middle Ages, open-air theatres started to appear in Europe, first in the courtyards of existing houses, and later on in purpose-built settings. These were low, three-story buildings in which a small stage could be viewed from the balconies and a seating area in the courtyard itself.. These theatres opened up performances for the poorer citizens too, making theatre available to all.

Figure 6: Modern Theatres

1.4.1.6 Theatre Today

Towards the end of the modernist period, theatres already comprised the elements we are used to seeing today and which are all part of Greek, Roman, oriental and medieval legacies. There is a distinct separation between the public in the stalls, stands and boxes at different heights (on the sides and to the front), and the stage and orchestra.

Figure 7: Today Theatres

GREEK	ROMAN	MEDIEVAL	MODERN	TODAY
View of the orchestra (circular plan at the bottom of the slope)	They separated the orchestra from greeks, which became a pit, from the proscenium, which would become the stage.	Temporary wooden stages inside large halls and even barns.	Three-story buildings in which a small stage could be viewed from the balconies and a seating area in the courtyard itself.	all part of Greek, Roman, oriental and medieval legacies.
a lack of spaces where large numbers of people could listen, but a large flat or cone-shaped esplanades started to appear, where you could sit and watch the performances.	The audience sat on tiers of wooden benches, spectacula, supported by scaffolding. There was no curtain; the back scene, with its three doors, faced the audience.	semi-circular structures, constructed of wood initially and later stone.	semi covered courtyard thetares also opened for general pulic .	distinct separation between the public in the stalls, stands and boxes at different heights (on the sides and to the front), and the stage and orchestra.

1.4.2 Theatre History of Nepal

1.4.2.1 Lichhavi and Malla dynasty

According to historian Satya Mohan Joshi, the theatrical traditions in Nepal represented by dance, drama and musicals, might have been put into practice by the Lichhavis (*c.* 450–*c.* 750 CE). Courtyards, extended parapets, and *dabu* (raised platforms also known as *dabali*) are believed to have facilitated performance and played a major role in the evolution of the arts in Nepal. (Pokharel, 2010)

Religious and tantric customs, in the form of dance-dramas, took center stage of the evolving theater traditions in Nepal after the Malla kings came to power in 1200 AD.. In some cases, ropes were used for delineation in place of pillars. “The Dabali, in Nepal, was used as a mode for delivering orders and directives by the rulers to their subjects, forging a channel of communication and educating the masses,” says Joshi. “Use of theater in those forms, as historical evidences show, dates as long back as 5th century AD, when the kings of Lichhavi dynasty ruled the country.”

Figure 8: Lichhavi Theatre

1.4.2.2 Shah period and Rana regime

Theatre of Rana period were mostly influenced from Parsi theatre in India (melodrama). The Ranas were mesmerized by the flamboyance and richness of the theater, so they decided to import the form. The oligarchs were so engrossed by these performances that they invested in auditoriums, stage machinery, and regal attire.Though the Ranas never thought of plays as any more than a mode of entertainment, the positive trend that set in with their interest in theater was its eventual institutionalization. The Natyashala, a hall for performing plays and dance, was built inside the Singha Durbar in 1930s. The Natyashala or Dance House had a proper seating arrangement for the audience and a balcony large enough to accommodate the family and relatives of the Ranas.

1.4.2.3 Panchayat

In 1982, a promising theater group called Sarwanam staged a play “*Hami Basanta khojirahechhaun” (We are searching for spring)* at Tribhuvan University’s Coronation Garden, which marked the advent of street theater in Nepal. Nepal used the open air to voice issues about socio-cultural reforms, political oppression, and other humanitarian crises. Alongside street poetry, street theater too played a catalytic role in stirring the first Jana Andolan in 1990. Forty years after its inception, street theater is still widely practiced in Nepal.

1.4.2.4 Democratic government

Aarohan Theatre Group was founded in 1982 by a group of theatre artists from Biratnagar. In 2002, when Gurukul was launched, Nepali theater entered into a more market-oriented landscape. It also bridged the local theater with the global form by conducting international plays and festivals consistently. Between 2002 and 2009, Nepali theater reached new heights in areas of performance standards, global exposure, technology, and artistic growth. The growth in the number of theater houses since then alludes to a salutary situation.

1.4.2.5 Evolution of Theatre Spaces

- Lichhavi and Malla period

Figure 9: Malla Theatres

Dabalis, Courtyards and Extended parapets are believed to be used as spaces for theatrical performances during the Lichhavi and Malla period. Among which, Dabali is still residing in all major places like Durbar Squares of all three Kathmandu, Bhaktapur and Lalitpur.

- Rana and Shah Period

Theatres during Shah and Rana period were mostly influenced from Parsi theatre of India. The Natyashala was built inside Singha Durbar in 1930 but was not meant for the general public people. Later Rastriya Naach Ghar was meant for the public people.

Figure 10: Rana and Shah Theatres

- Realistic

Figure 11: Realistic Theatres

- A prominent stage and seating area
- Made for the public

- Contemporary

Figure 12: Contemporary Theatres

Time came when the theatre spaces evolved to contemporary styles. It was an approach towards modern day theatres. Open with a raised platform stage.

1.5 Requirement of Theatre in Nepal

Nepal being rich in art, culture and architecture theatre can be a good platform where this country's richness can be promoted in national and international levels.

Performing arts education is a multidisciplinary endeavor that combines aspects of theater, music, dance, and visual arts. Where in Nepalese society, only applied science and commerce is taken as a mode of academics and way of choice for future career, performing arts school can be a platform where career opportunities can be created.

Every year about 100 students apply for the drama school *(for the 1.5 years academic course)* only about 20 to 25 students are selected because of lack of academic spaces required for drama classes and all the necessary infrastructures. *(As per Mandala Theatre, Thapagaon, Kathmandu)*

1.6 Project Justification

Theater promotes literature so it should be given more priority than currently provided, as the saying goes ‘how much a nation is developed is seen by its art and literature’. In the existing theatres, various architectures aspects such as seating spaces, viewing angle, location, etc.

At hindsight we can conclude that not only Kathmandu but even our country Nepal in whole lacks a proper theatrical spaces. Existing theatres and schools are not adequate or architecturally developed. Existing theatres still lack spaces like rehearsal hall, studios, proper parking spaces, arrival experiences, live music/orchestra, outdoor spaces and workshops. Outdoor theatre spaces connected to the indoor ones cannot be seen. Where in the today world, social media and metaverse has taken over almost in the entirety, theatre could be a place where people would experience those old stories and writings of the famous literary persons and help it from getting unknown.

In case of Nepal where art and literature are well celebrated, a good space with all adequate necessities seems to be required. If we talk about theatres only in Kathmandu Valley, very few examples come in mind. Places like Mandala Theatre and Gurukul provide the theatre experiences but architecturally they do not seem to fulfill the essence of a theatre. A well designed theatre could provide all the necessities required to fulfill the essence of a theatre, spaces and good theatre experience.

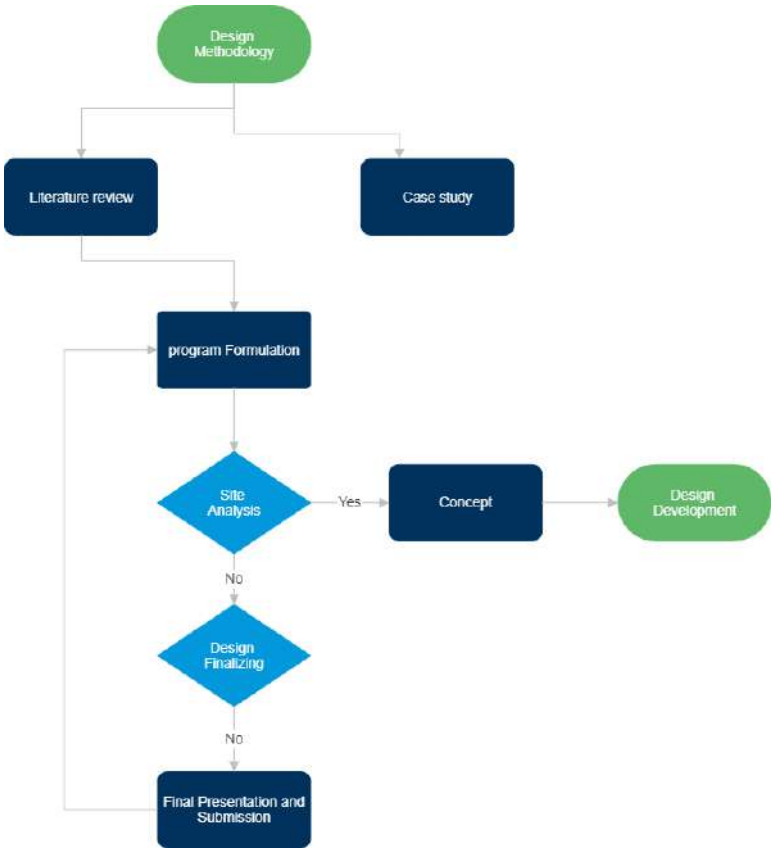
1.7 Objectives of the Project

- Provide school with proper training and theatre spaces
- Opportunities for students to engage with industry professionals through internships and workshops.
- Promote literature and diverse cultural traditions and perspectives within the performing arts.
- Actively engage with local community through performances, workshops, and outreach programs.

1.8 Prospects and Limitations

- Economic advancement relating to art, literature and theaters
- Where people only think commerce and applied science as means for career opportunities, promoting art and theatre could inspire people in this sector.
- Hosting International shows in the country theatres
- Encouragement and inspiration on academic levels
- Performing Arts Centre has a potential of producing a wide range of employment opportunities to both skilled and unskilled people.

1.9 Design Methodology



2. LITERATURE REVIEW

AGE - GROUP

FOR SCHOOLING:

For Children: from age of 5 years old

For Freestanding training: any age above 16 that is, academically above the +2 qualification

Till the age of 40

FOR THEATRE:

Target group may differ according to the type of drama being shown.

"Shows geared to audiences younger than 20 years of age need to be even more specific because the jokes and values that will resonate with a 7-10 year old audience will feel contrived, boring, and stale to a 12-17 year old audience."

Age 5 to 15 = Shows for children such as fairy tales, comedy

Age 16 to 25 = Life, Melodrama, Musical, Comedy

Age 25 and plus = Life, Melodrama, Musical, Tragic, Comedy

(Source: ruhnauclarke.com)

2.1 Academic Area

The academic area is divided into following sub categories:

2.1.1 Classrooms

- Lecture Rooms

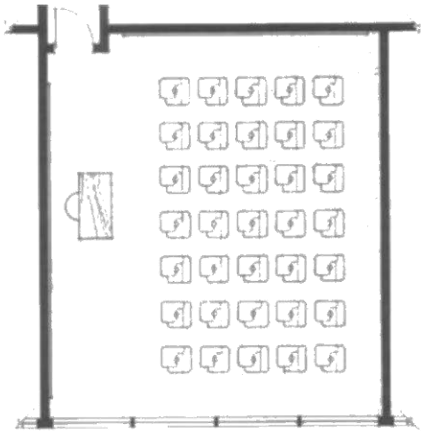


Figure 14: Classroom for 35 students

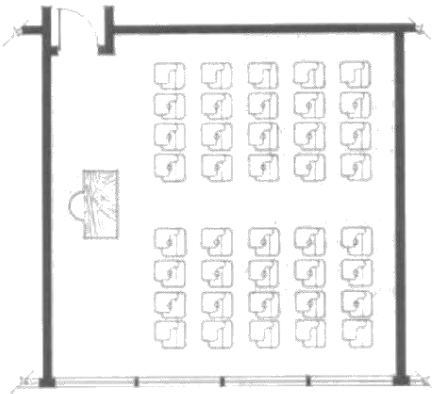


Figure 13: Classroom for 40 students Multiple Aisle

(Source: TimesaverStandards)

The seating arrangement is the most important feature in determining the size and shape of a classroom. In a room measuring 26' X 30' (Fig), with separate tablet armchairs for 35 students, the seven seats in a row might have a spacing of 3'6" between seat centers laterally and 4'6" between the end seat centers and side walls(6 X 3'6" + 9' =30') .Spacing from front to back in a column might be 3 feet between seat centers with 4 feet behind the back-seat center and 10 feet between the front-seat center and the front chalkboard (4 X 3' + 14' = 26') . This pattern allows for aisles of about 20 inches between columns, a width just under the 22-inch "unit width" used as a standard in estimating the number of persons who can walk abreast in a corridor or stair hall. This arrangement requires about 22 square feet of space per student. Lecture halls whose seats have folding tablet arms may allow 15 square feet or less per student.

A lecture room should be so placed in a building that it is accessible to students without overcrowding of corridors or stairways. Coat racks, adequate bulletin boards lining the corridors, and ample toilet facilities should be provided nearby. The room itself should be arranged so that the audience can see well, hear well, and be comfortable. In part this depends on temperature, humidity, background of light and sound, and seating space.

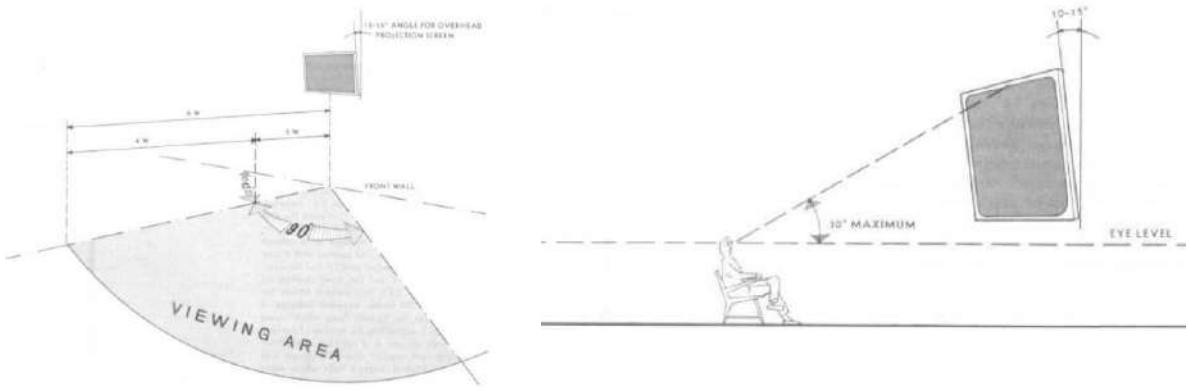
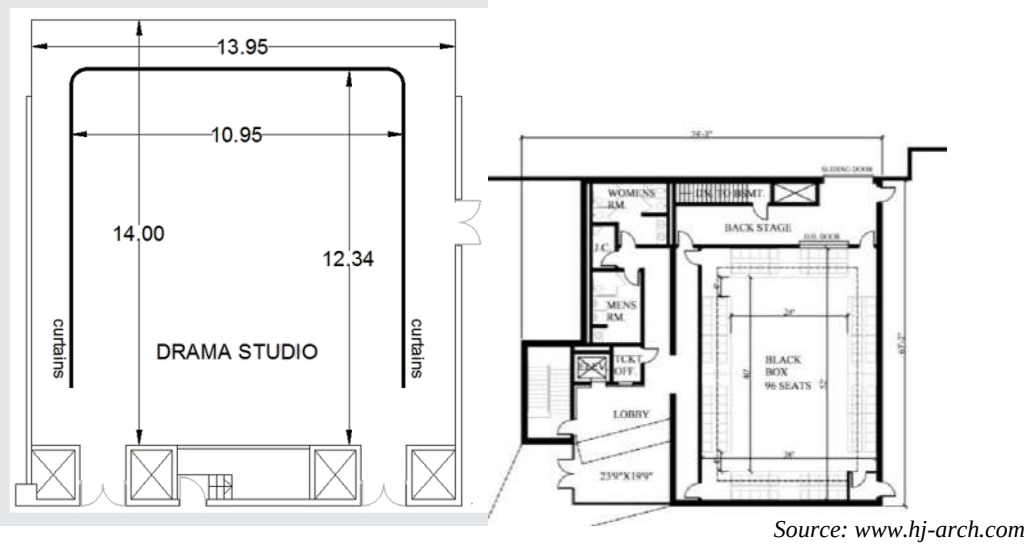


Figure 15: Viewing Angle for Classroom

- Drama Studio/ Black box Theatre



Source: www.hj-arch.com

Figure 16: Drama Studio

Black Box Theatres are essential teaching/performance spaces at educational facilities for the Performing Arts. They provide flexible space for the creative training of performers, technicians and theatre staff and encourage the development of experimental performance models and new means of artistic expression. Extremely flexible by design, they can be stand-alone spaces with integral control facilities and seating or components of larger interconnected teaching facilities which include performance theaters, recital halls and multimedia production facilities. The auditorium should be all black to live up to its name as a black box theater. Space: Stage User: actors Maximum Occupancy: 20 Sq.ft per person: 125 sq.ft.

2.1.2 Gallery / Display Rooms

Source: 20bedfordway.com

The art gallery should have ceiling designs that refract diffused light and any skylights cannot be higher than 17m. The area of 6 to 8 square feet per person is to be allowed for a moderate size art gallery. The average gallery visitor if a man, is about 5 ft 9 1/4 in tall, and his eye level is 5 ft 4 3/4 in ; the average woman is about 5 ft 3 1/4 in tall, and her eye level is 4 ft 11 ¾ in . Thus, the mean adult eye-level height is about 5 ft 2 1/4 in.

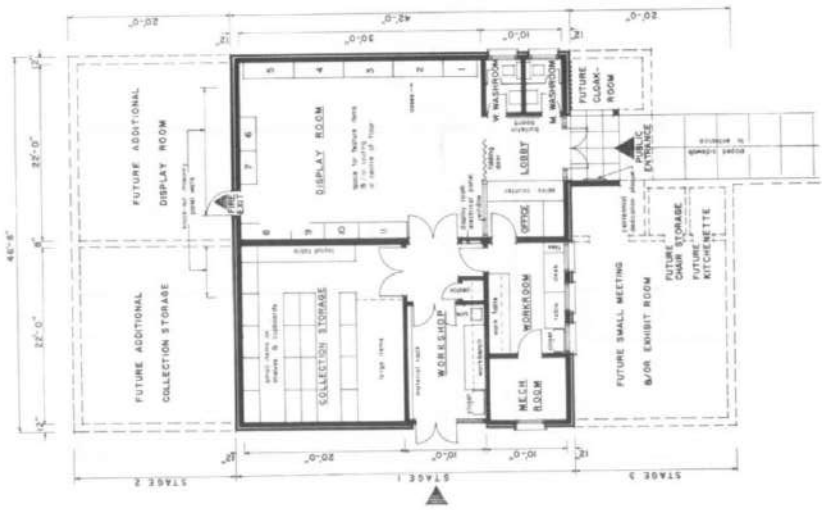
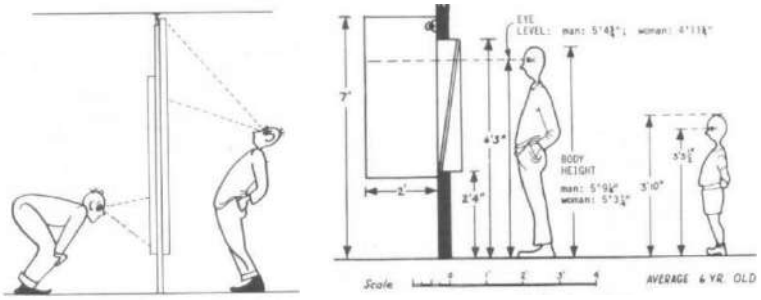


Figure 17: Typical Gallery Display



Source: Timesaver Standards

Figure 18: Anthropometry for Gallery

2.1.3 Merchandise Shop

Merchandising, structural, fixture, and aisle space requirements, shops with one customer's aisle only are usually 12 to 15 ft wide by 50 to 60 ft long in large cities; and 15 to 18 ft. wide by 60 to 80 ft long in smaller cities. These dimensions apply particularly to shops in 100 percent retail districts. Heights are more easily determined. Basements 8 to 9 ft high, in the clear, permit economical stock storage. Ground floors are preferably approximately 12 ft high If no mezzanine is included ; mezzanines at least 7 ft 6 in . Above floor level will accommodate most fixture heights. Height from mezzanine floor to ceiling may be as low as 6 ft 6 in. if used for service space only; 7 ft is the preferred minimum for public use.

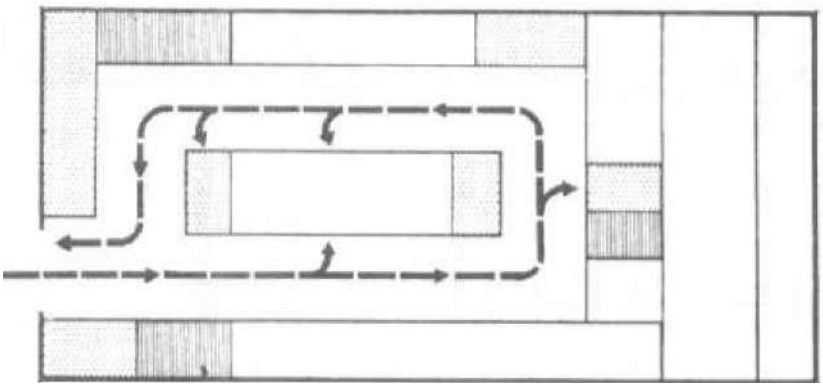


Figure 19: Typical Merchandise Shop

Source: Timesaver Standards

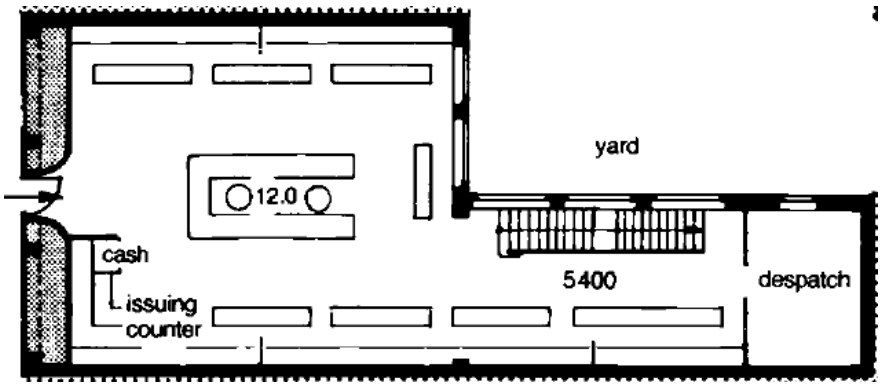


Figure 20: Mini Shop Area

Source: Architects' Data

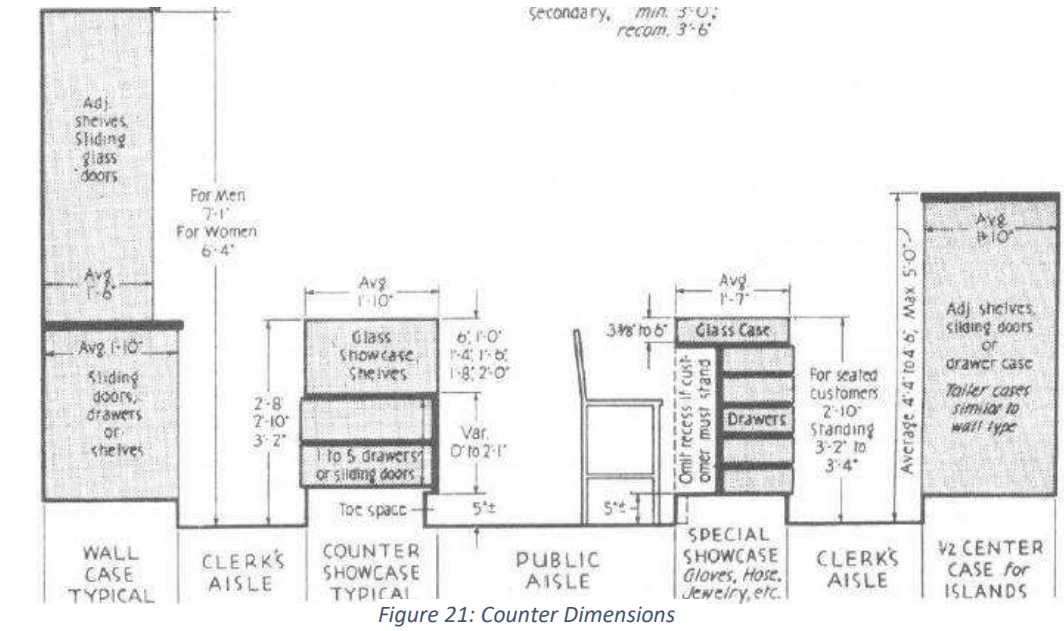


Figure 21: Counter Dimensions

Source: Timesaver Standards

2.1.4 Library

In a Library for seating at tables, allow 25 square feet per seat. *(Arch Daily)*

The target is two media units per inhabitant, but a minimum size of 300 m2 usable area with 10 000 media units in stock. They should be large, connected areas, almost square and flexibly usable, and extending horizontally rather than vertically, capable of extension and with an inviting entrance area. The shelf units in the adult area will have five or six shelves (max. reach height 1.80 m, Passages should not be longer than 3 m, neither niches nor compartments. Books are transported with a book trolley (L x H x W: 92 x 99 x 50 cm).

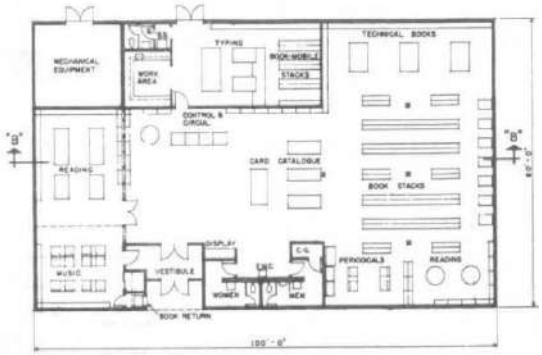


Figure 22: Typical Library

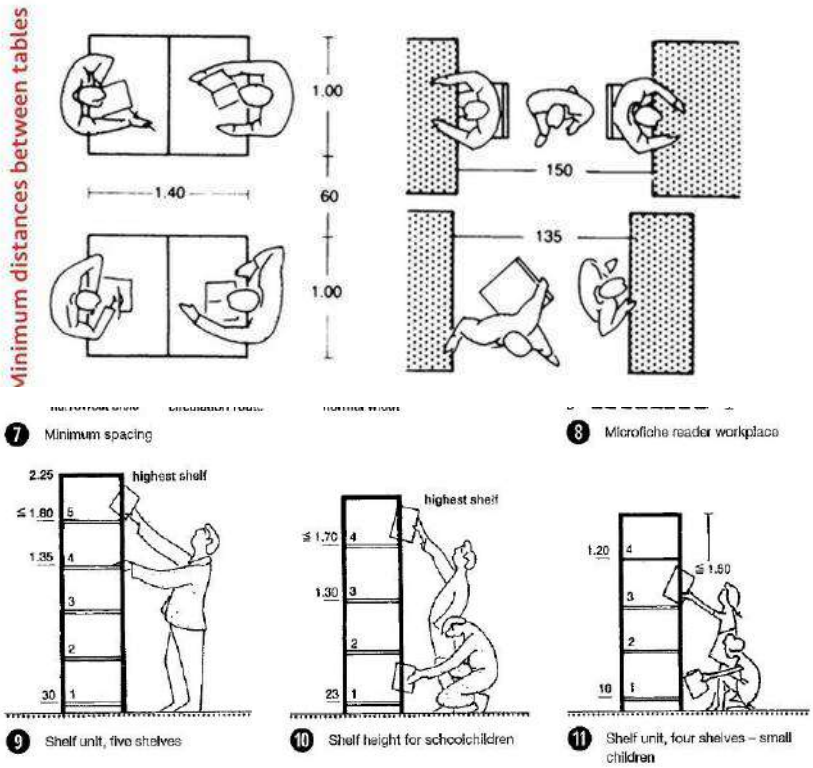


Figure 23: Anthropometry for Library

Source: Architects' Data

2.2 Performance Area

2.2.1 Theatre / Auditorium

2.2.1.1 Types of theatre

2.2.1.1.1 Proscenium Stage Theatre

A proscenium it can be said that it's a "window" that frames the play taking place on the stage. This type of stage, gives everyone in the audience a good view because the performers need only focus on one direction rather than continually moving around the stage to give a good view from all sides.

A proscenium theatre arrangement also simplifies the hiding and obscuring of objects from the audience's view (sets, performers not currently performing, and theatre technology). Anything that is not meant to be seen is simply placed outside the "window" created by the proscenium arch, either in the wings or in the fly space above the stage.

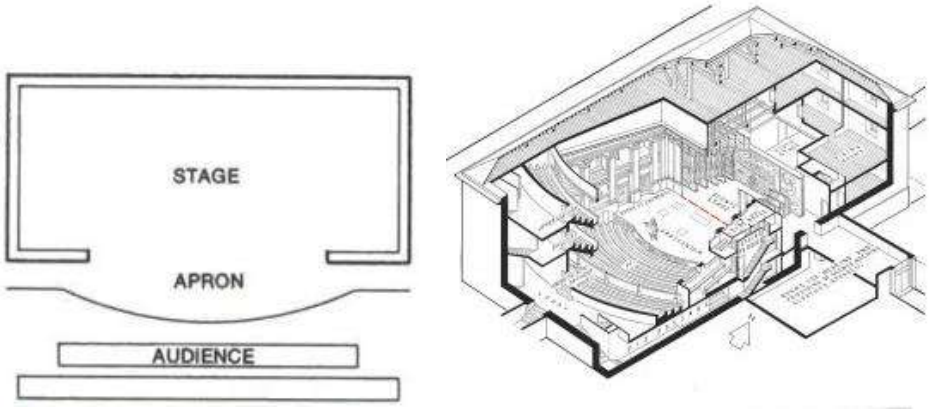


Figure 24: Proscenium Stage Theatres *cassstudio6.wordpress.com*

2.2.1.1.2 Thrust Stage Theatre

A thrust theatre stage is known by its arrangement which consists of being surrounded by audience on three sides. The Fourth side serves as the background.

Often the playing area is of square or rectangular shape, usually raised and surrounded by raked seating.

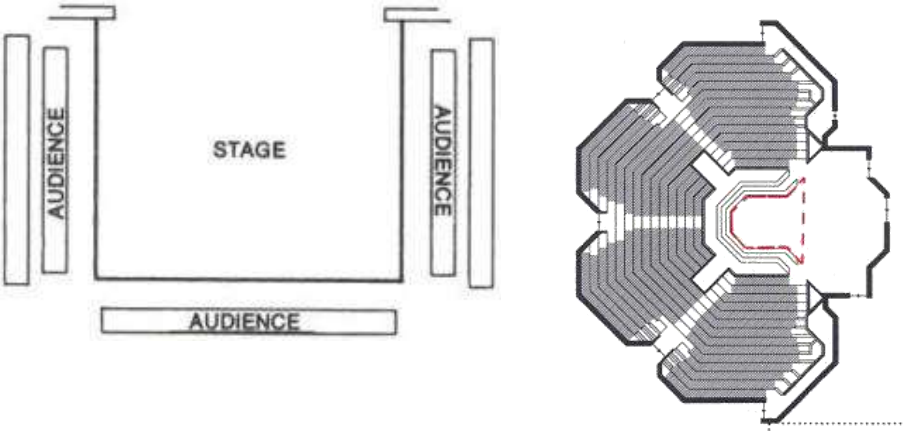


Figure 25: Thrust Stage Theatre

Source: cassstudio6.wordpress.com

2.2.1.1.3 End Stage Theatre

An End stage is the same as the Thrust stage but in this case the audience is located only on the front of the stage and doesn't extend around it. "Backstage" is behind the background wall. There is no real wing space to the sides, although there may be entrances there. An example of a modern end is a music hall, where the background walls surround the playing space on three sides. Like a thrust stage, scenery primarily background.

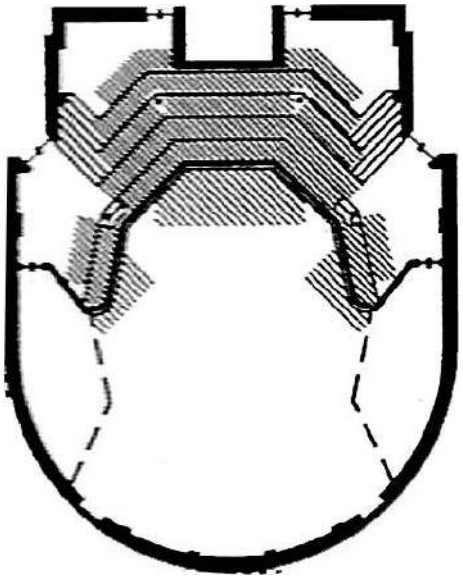
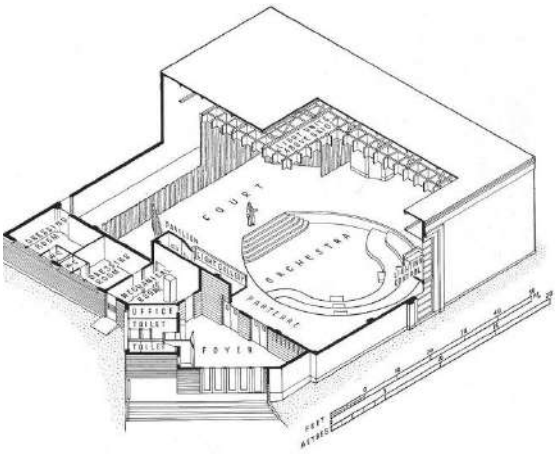


Figure 26: End Stage Theatre

Source: cassstudio6.wordpress.com

2.2.1.1.4 Flexible Theatre

Sometimes called a "Black Box" theatre, these are often big empty boxes painted black inside. Stage and seating not fixed. Instead, each can be altered to suit the needs of the play or the whim of the director.



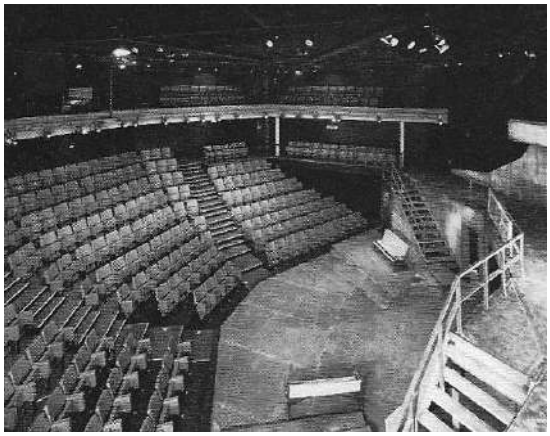


Figure 27: END STAGE SCENARIO

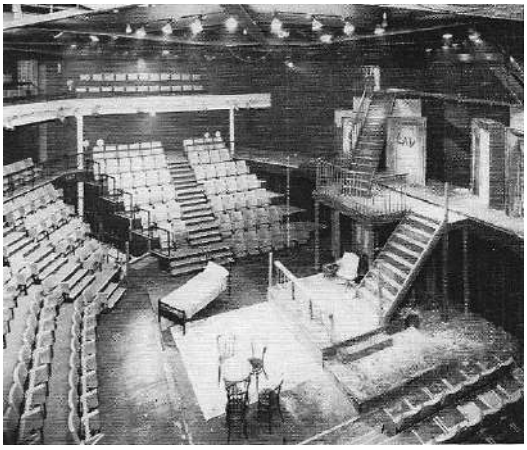


Figure 29: THRUST STAGE SCENARIO

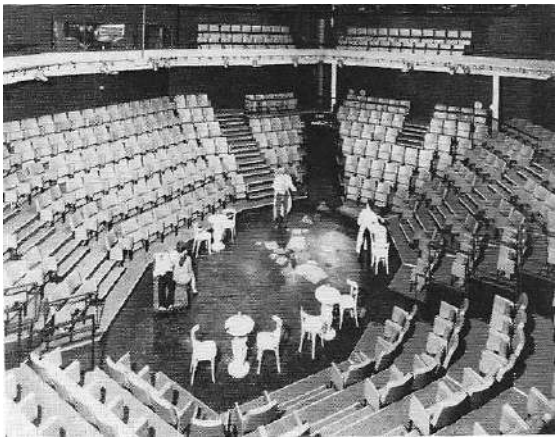


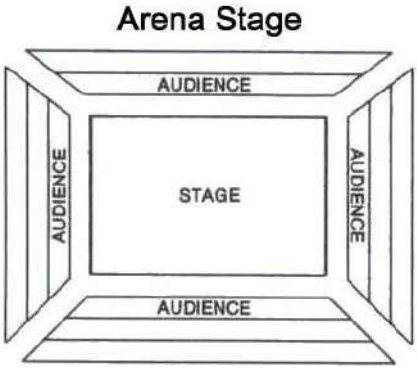
Figure 28: ARENA STAGE SCENARIO

Figure30:FlexibleTheatre

Source: cassstudio6.wordpress.com

2.2.1.1.5 Arena Theatre

An Arena stage is characterized by a central stage surrounded by audience on all sides. The stage area is also often raised to improve sightlines.



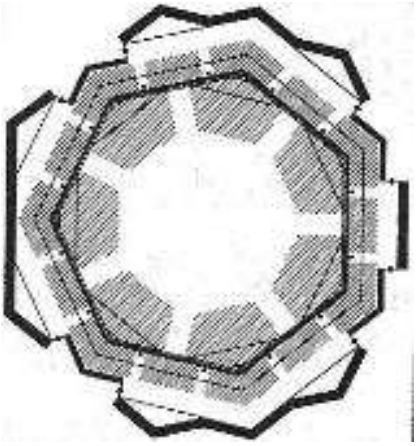


Figure 31: Arena Theatre

2.2.1.1.6 Profile Theatre

The Audience is often placed on risers to either side of the playing space, with little or no audience on either end of the "stage". Actors are staged in profile to the audience. It is often the most workable option for long, narrow spaces.

Figure 32: Profile Theatre

2.2.1.1.7 Sports Arena Theatre

Sports arenas often serve as spaces for Music Concerts or plays. In terms of form it can be said that they resemble an arena stage but larger and often rectangular in plan. When used for concert, a temporary stage area is set up as an end stage at one end of the floor (stage), and the rest of the floor and the stands become the auditorium.

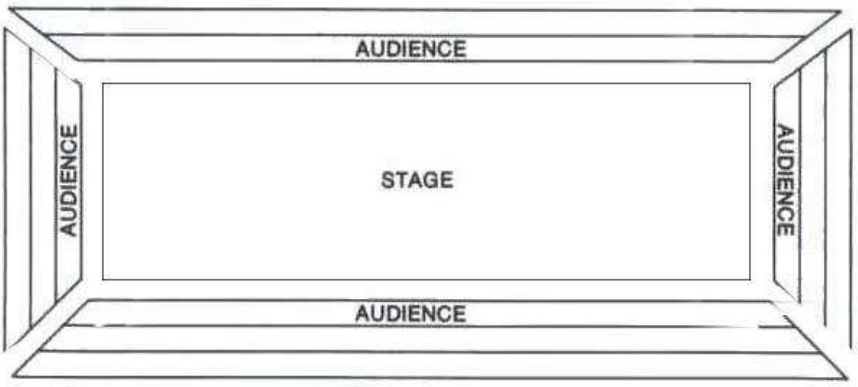


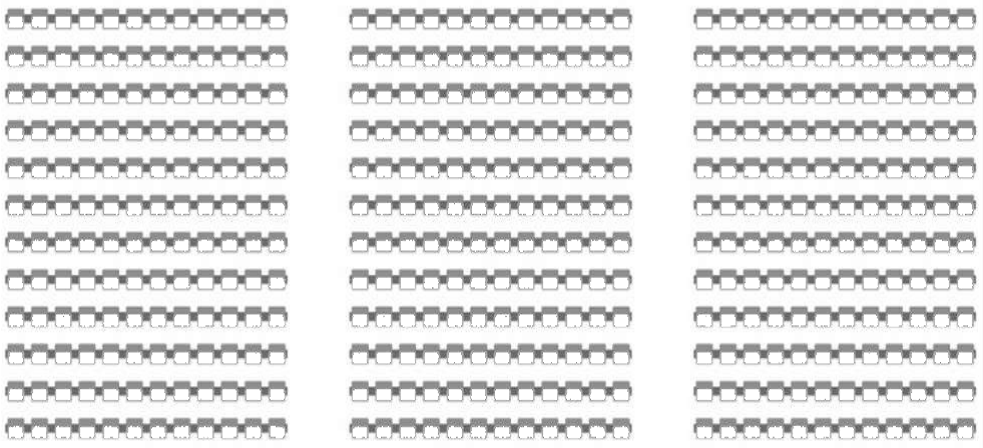
Figure 33: Sports Arena Theatre

Source: cassstudio6.wordpress.com

2.2.1.2 Types of Seating Arrangements

2.2.1.2.1 Multiple Aisle

This seating arrangement offers a formal setup, suitable for lecture halls and business conferences. Though the seat count can vary, the typical limit is a maximum of 14-16 chairs per row.

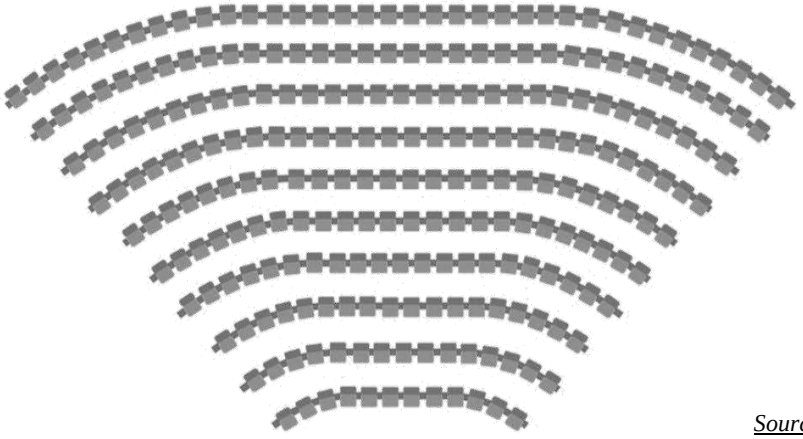


Source: www.capterra.com

Figure 34: Multiple Aisle Theatre

2.2.1.2.2 Continental

This seating arrangement makes good use of space and is a preferred choice for open space auditoriums and amphitheaters. Having all seats turned toward the central arena in a concave fashion helps establish greater intimacy between the performers and the viewers.



Source: www.capterra.com

Figure 35: Continental Theatre

2.2.1.3 Theatre / Auditorium

An auditorium is a room built to enable an audience to hear and watch performances. Auditoria can be found in entertainment venues, community halls, and theaters, and may be used for rehearsal, presentation, performing arts productions, or as a learning space. The design of theatres requires an understanding of complex functional interactions, of which much is explained by the history of theatres. Theater or auditorium style seating: 6 to 8 square feet per person.

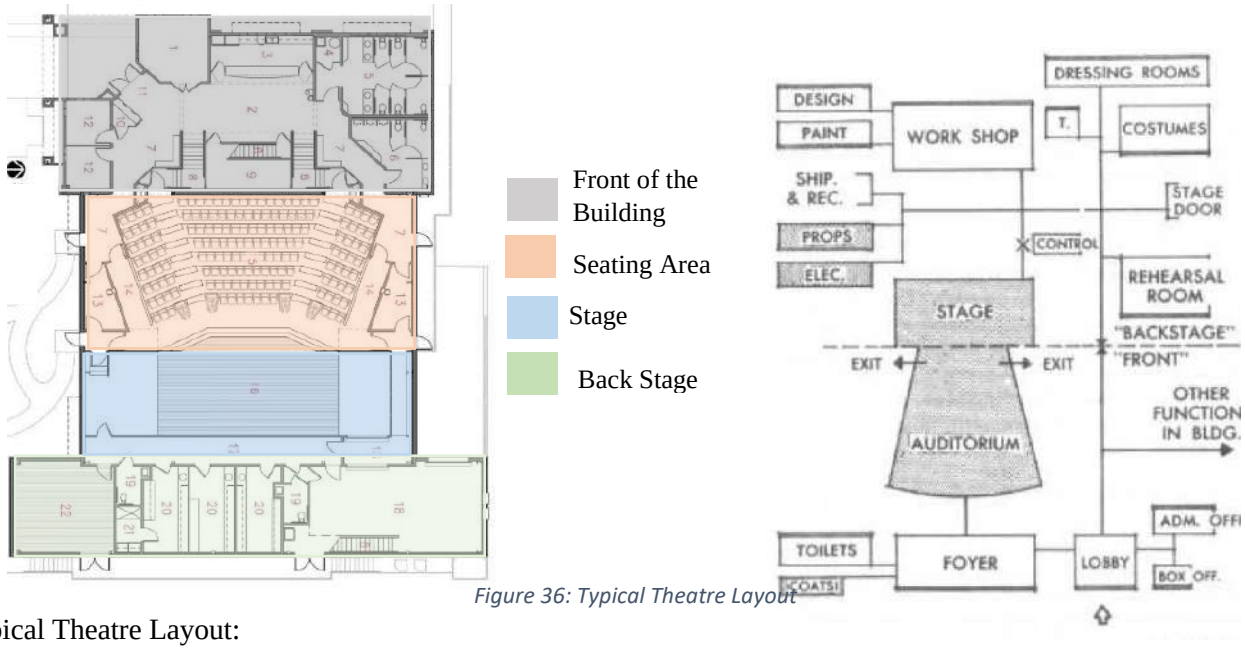


Figure 36: Typical Theatre Layout

Typical Theatre Layout:

i. Front of the Building

The front of the building in a theater may include spaces like entrance, foyer, lobby spaces, public washrooms, café, coat checking area, etc. In a lobby, foyer or waiting area, 20 square feet (1.89 sq. m) per person when seated in small chairs with an 80 square feet (7.43 sq. m) minimum altogether.

ii. Seating Area

Occupants of all seats are visually related to the performance when the seats are oriented toward the stage. This necessitates curving the rows of seats. The center of curvature is located on the center line of the auditorium approximately the depth of the house behind the proscenium. Budgetary limitations may dictate that seats be in straight rows to simplify construction; these rows can at least be related to the center of attention on stage by being placed on chords of the optimum row curvature.

Even in theaters of 1,200 to 1,500 capacity, the last seat is preferably not over 75 to 100 ft from the stage, and much less in smaller houses. When balconies are used, the front of the balcony is preferably within 50 ft of the stage.

Width-row spacing of 0.45m2 (or more) max of 16 seats per aisle OR 25 seats if one side exit door of 1m width is provided for every 3-4 rows

Proportions of the auditorium

These are derived from the psychological awareness and angle of view of the spectator, or the requirement for a good view from all seats. Options are:

- Good view, without moving head, but light eye movements of approx. 30°.
- Good view with slight head movements and light eye movements of approx. 60°.
- Maximum awareness angle without head movement approx. 110°, i.e. all actions in the field are 'in view'. Outside this field, there is uncertainty, because 'something' is out of view.
- Full head and shoulder movement allows an angle of view of 360°.

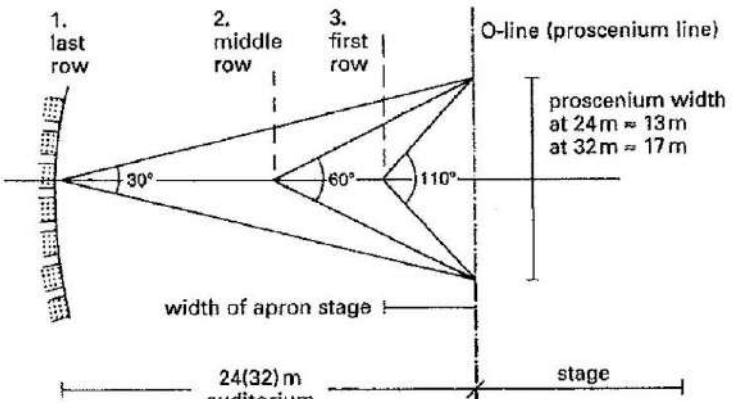


Figure 37 Proportion of a Theatre

Sightlines

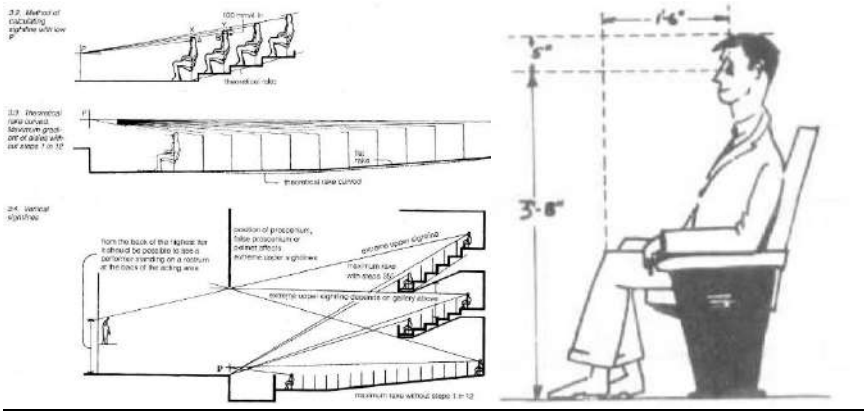


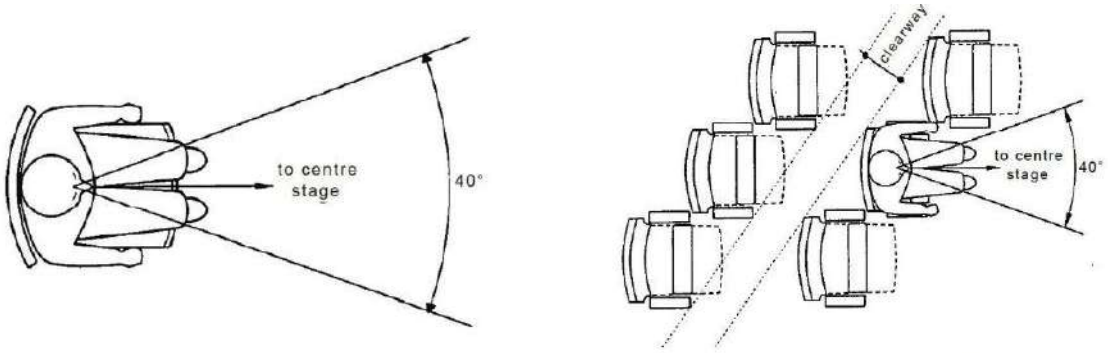
Figure 38: Sightlines for Theatre Design

Visual limits - usually it is essential for the audience to be close enough to discern facial expressions so the usual accepted max = 20m (from center of performance area).

Visual limitations verify the utmost distance from platform or stage at that the audience is ready to understand the performance and for the performers or speaker to command an audience.

- For drama it's essential to recognize facial features, and therefore the most distance ought to be 20 m measured from the setting line of a proscenium stage or geometric center of an open stage. This distance varies in line with perform kind and therefore the scale of the performance.
- For dance the audience must appreciate the complete body of dancers and facial expression: the distance should not exceed 20 m.
- For conference speaker and lecturer there are two scales: discerning facial expression, restricted by 20 m: larger scale wherever facial features isn't considered critical.
- For slide, video, tv and overhead projection visual limitations are determined by their various technologies.

Horizontal Sightlines: Given a particular size and shape of the platform or stage, horizontal sightlines limit the width of the seating area in the auditorium. This is more critical with the proscenium stage and with film, video and slide projection. Without head movement, the arc to view the whole platform or stage on plan is 40° from the eye, as shown in the figure.



The angle of horizontal vision for a stationary head is 40°

(b) *Where the head angle would exceed 30°, the seats may be angled within the row*

Figure 39: Horizontal Sightlines

Vertical sightlines:

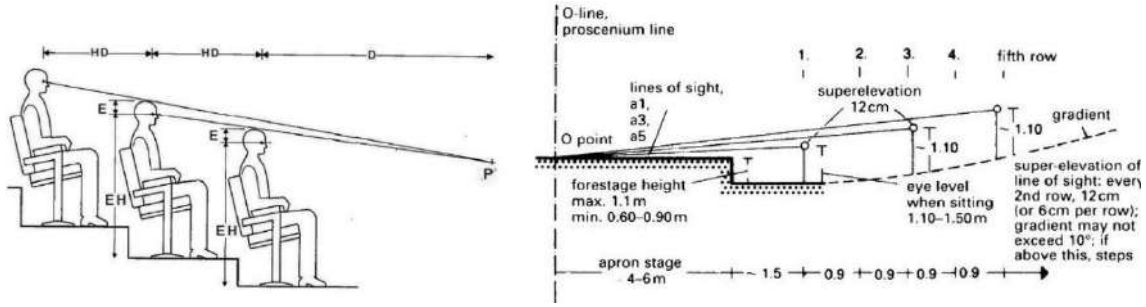


Figure 40 Vertical sightlines

P: Lowest and nearest point of sight on the platform or stage for the audience to see clearly.

HD: Horizontal distance between the eyes of the seated members of the audience, which relates to the row spacing and can vary from 760 mm to 1150 mm and more.

EH: Average eye height at 1120 mm above the theoretical floor level: the actual eye point will depend on seat dimensions.

E: Distance from the center of the eye to the top of the head, taken as 100 mm or 120 mm as a minimum dimension for the calculations of sightlines. For assurance that there is a clear view over the heads of those in the row in front this dimension should be a least 125 mm.

D: Front row of seats: the distance from point P to the edge of the average member of the audience in the front row.

Levels in Auditorium: Seating capacity within aural and visual limitations are often increased by the addition of one or more balconies within the general permissible volume of the auditorium. Similarly, boxes, side galleries and loges are often added to the side walls especially within the case of the proscenium format.

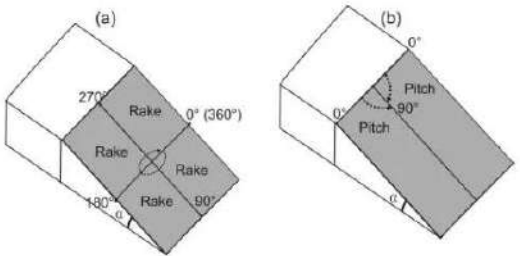


Figure 41: Levels in Auditorium

Number of Seats in a Row

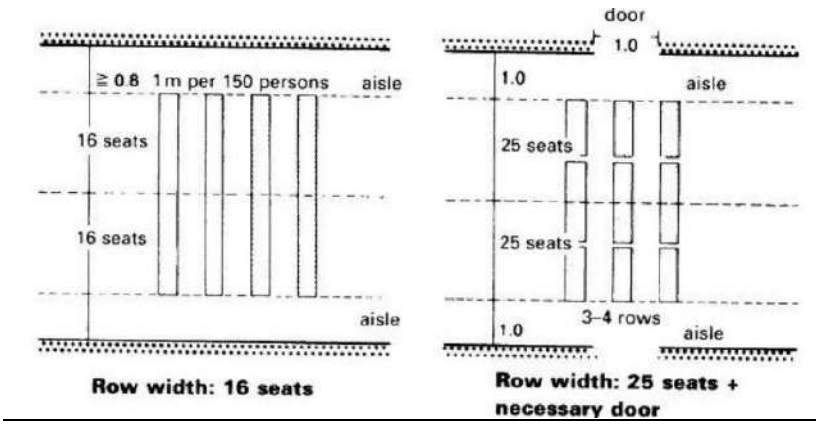


Figure 42: Number of Seats in a row

With traditional seating the maximum number is 22 if there are gangways at both ends of the row, and 11 for gangway at one end. Thus in all but the smallest auditorium the gangways divide the seating into blocks. Rows with more than 22 seats are permitted if the audience is not thereby imperiled. A maximum of 16 seats per aisle. 25 seats per aise is permissible if one side exit door of 1 m width is provided per 3-4 tows

Row to Row Spacing: Spacing is controlled by clearway between the leading edge of the seat and rear back of the seat.

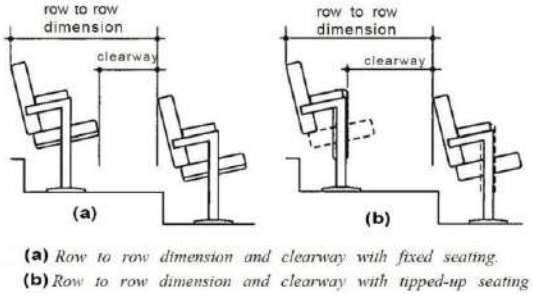


Figure 43: Row to Row Spacing

For traditional seating the minimum clearway for people to pass along the row 300 mm and this dimension increases with the number of seats in a row.

For continental seating the clearways not less than 400 mm and home than 500 mm.

Legislation also dictates the minimum row to row dimension at 760 mm this is usually not adequate and the minimum should be 850mm to 900mm for traditional seating.

Seating Density

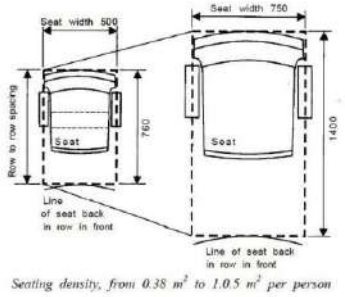


Figure 44: Seating Density

Seat with arms seat can occupy a space as small as 500 mm wide with a row to row dimension of 760 to 900 mm but can be as large as 750 mm wide by 1400 mm. The area per seat therefore varies between 0.38m2 and 1.05m2. Increased dimensions reduces seating capacity. Minimum dimensions as laid down by legislation offer a low standard of comfort and should not be taken as a norm, but the social cohesion of the audience may be lost if the standards are too high.

Size of Auditorium

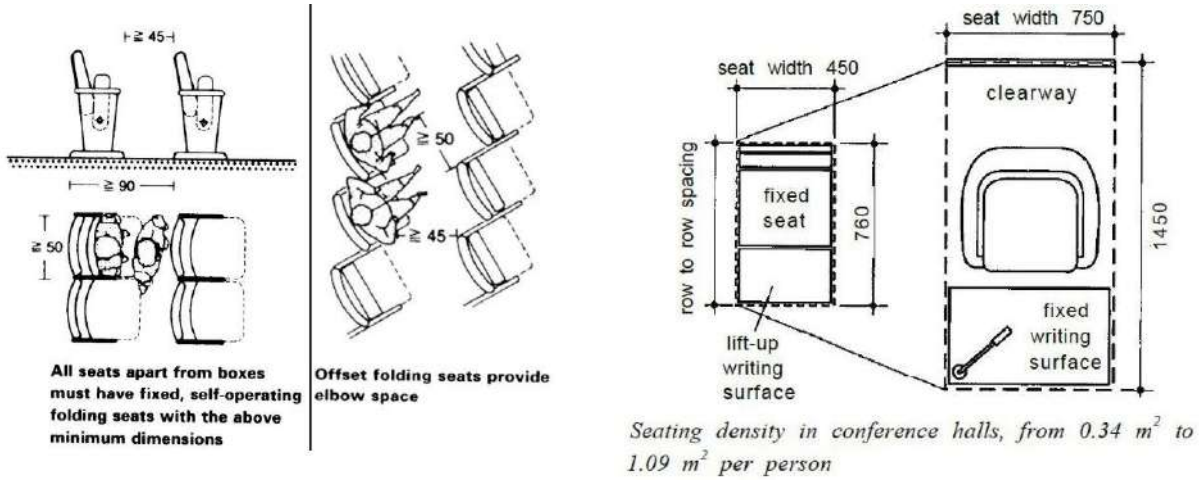


Figure 45: Size of Auditorium

An area of at least 0.5 m2 per spectator is to be used for sitting spectators.

This number is derived from a seat width x row spacing of at least 0.45m2 per seat, plus an additional minimum of 0.5m x 0.9m i.e. approximately 0.05m2 per seat.

iii. Stage Area

The Places of Assembly Regulations, which apply to all venues with audiences of more than 200, differentiate two types of stage: large stage and open stage (single-room theatre).

Large stage: Large stages are defined as having a stage area of more than 200 m2 behind the stage opening and with an upper stage of 2.5 m height above the stage opening or an apron.

iv. Backstage

The backstage of a theatre includes dressing rooms, green rooms, washrooms, staircases,etc.

Dressing room: 12x12ft average. This room is used for the headlining artist if they need their own personal room. Usually equipped with a private bathroom, furnished with sofa, lighting, mirrors, fridge, etc. Since it's the smallest room, it can often end up as an opening band room or a second production office.

Greenroom: Although the terminology is often confused with the artist dressing room, the greenroom is a common area found backstage. The idea behind this room is to have a common area where you store the hospitality rider, fridges, tables, chairs, TVs, etc. so that the dressing rooms are meant more for changing clothes and getting ready for a show.

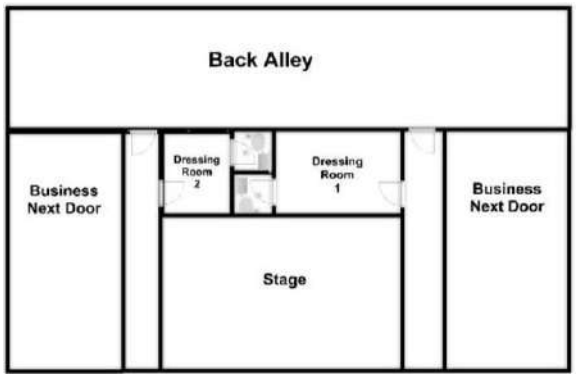


Figure 46: Typical Backstage Layout

2.2.2 Rehearsal Studios

Rehearsal Studios for dance and music

2.2.2.1 Dance Rehearsal Room

A dance studio is a space to learn, practiced or rehearsed body movement. Dance areas must have adequate moving spaces and reflecting mirrors.

Main Dance Studio

This studio, which should measure no less than 56 ft X 56 ft, will provide for a class of up to 36 students. The floor, which should be of conventional gymnasium construction. The ceiling height should be 22 ft to be proportional with the room and to give the feeling of height in leaps. The room should have wall mirrors along one wall-24 ft in length, 6 ft high, and with the bottom being 2 ft from the floor.

Dance Rehearsal Room

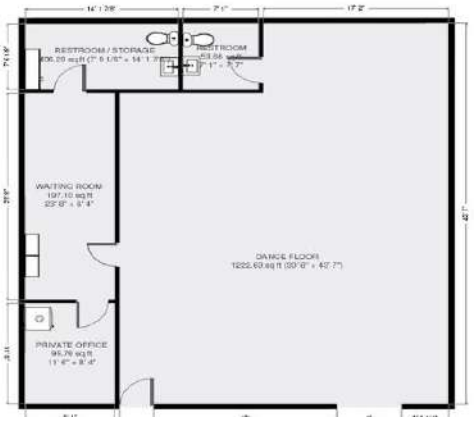
One or more dance rehearsal rooms of a minimum of 400 sq ft each will contribute to the development of students in dance who need small-group practices and extra rehearsals. A chalkboard, tack board, and rolling table for tape recorder player should be provided in such rooms.

Storage Room

Flats, levels, and other properties can be made and stored in a room of approximately 25 ft x 30 ft. This room should be locate adjacent to the main dance studio and should have wide double doors with a removable mullion so sets and properties can be moved in and out.

Costume Room

The size of this room will vary according to the program needs for costume construction and the storage needs for costumes made and retained in the department.



Source: http://www.dauntlessdance.com/

Figure 47: Dance Rehearsal Studio

2.2.2.2 Music Room

The music classroom should be part of the music suite and readily accessible to corridor and office. It is used for class instruction, choral work, and as a dressing room for large groups. It should have sound-tight doors, natural lighting, lavatory, and a dressing table. A chalkboard ruled for music, bulletin board, piano, and tablet armchairs will be needed. Provision should be made for projection, television, and a high-fidelity sound system.

Figure 48: Music Practise Rooms

Source: Timesaver Standards

Practice Rooms

Practice rooms should be near band and orchestra room. They are used for practicing and individual instruction. They may serve as music listening rooms. Soundproof doors, and soundproof windows into corridor, are necessary for supervision. Equipment includes music rack, small table, music lamp, chairs, clock, and counter for instruments and books. It may have a piano and phonograph. Electric outlets and artificial lighting are needed. Special acoustical treatment is necessary to prevent interference between rooms and with other areas and to deaden reverberation. Special attention should be paid to mechanical ventilation.

2.2.3 Drama Prop Workshop

The area required for scenery workshops is 4-5 times the main stage area for medium-sized theatres (theatres and multi-purpose theatres); in large opera houses or double theatres (opera and theatre), 1 0 times. Workshops, in or outside the building, should always be accommodated on one level. The Workplace Regulations and their technical rules and the work protection and accident prevention rules of insurers have to be taken into account in the design. In some cases, the company and collective agreements with the employees can also have an effect.

Scenery workshops are categorized as follows:

a) Painting room:

The floor area must be designed to accommodate two large backdrops or 'cycloramas' (Rundhorizonte - curved backdrops) rolled out on the floor for painting. The average size of a cyclorama is 10 x36 m. The painting room is located next to the sewing room (with a size about 14 of the painting room) joining the pieces of material.

b) Carpenter's shop:

Divided into bench and machine rooms, it has wooden floors and an adjoining timber store for 3 - 10 productions.

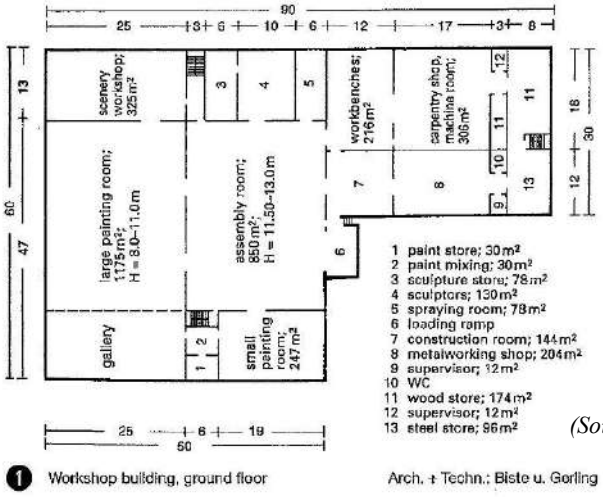
c) Upholstery: approx. 1/10 area of painting room.

d) Metalwork: as carpenter's shop, screeded floor.

e) Sculpture workshop.

f) Workshops should be grouped round an assembly room, which serves to test-assemble the scenery and has the same floor area as the stage. The height should be proscenium plus 2 m, diameter 9 – 10 m.

g) Changing, washing, and rest (canteen) rooms are to be provided for technical staff, and offices for the technical management. Further workshops for sound, lighting, props and costumes, size as required (production intensity, personal equipment).



(Source: Architects' Data)

Figure 49: Workshop Area Requirement

2.2.4 Recording Studios

The acoustic behavior of acoustic spaces depends on a lot of different factors, including:

- **type of wall/ceiling/floor construction** (affects sound proofing and amount of sound reflected, so also the reverb time)

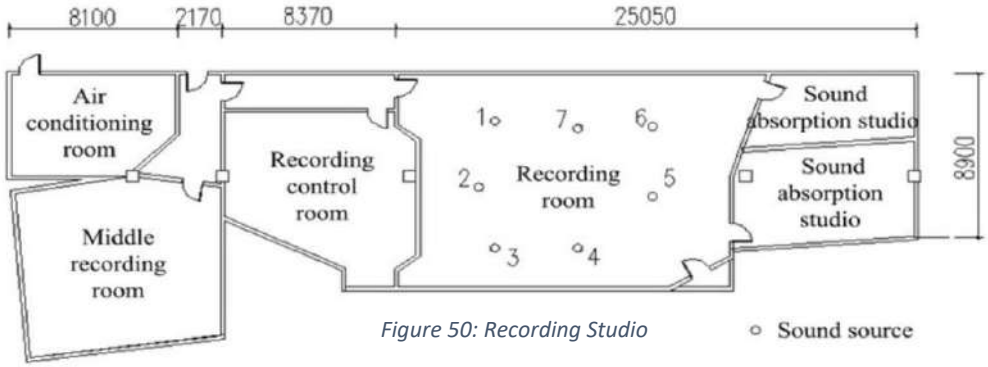


Figure 50: Recording Studio

- **room shape and proportions** (affect the distribution of the resonance modes and diffusion)
- **room size** (affects the reverb time and the frequency of the resonance modes)
- **choice of materials** (affects the absorption factor, that usually varies across the frequency range)
- **Acoustic modules** (can further affect the room acoustic adding absorption, reflection or diffusion).
- **placement of speakers** (main monitors, midfield, nearfield) *Source: www.soundcontrolroom.com*

Figure 51: Recording Studios

Source: officesnapshots.com

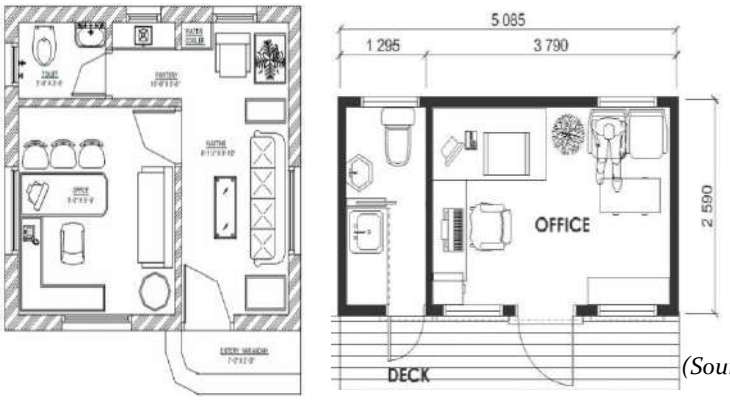
2.3 Administration

2.3.1 Accountant Room

2.3.2 Office Spaces

2.3.3 Meeting Rooms

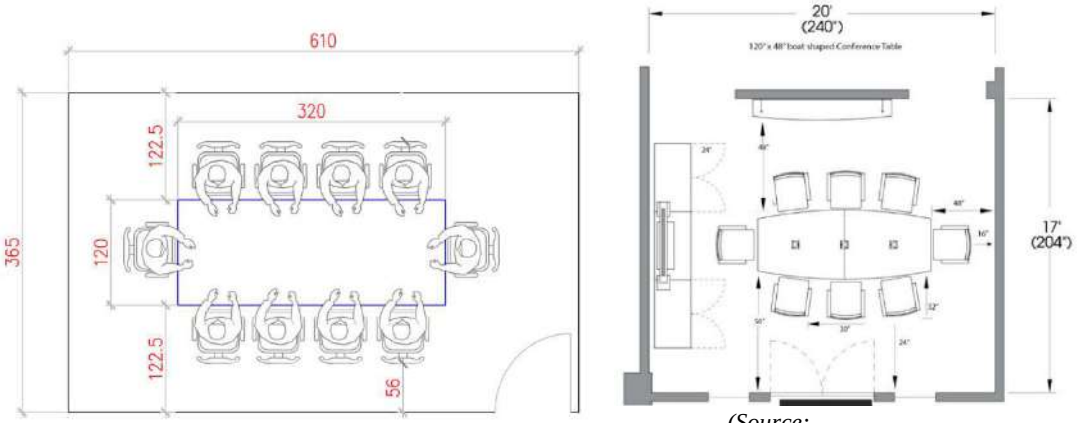
2.3.2 Office spaces



(Source: workplacestuff.co.uk)

Figure 52: Office Spaces

2.3.3 Meeting Rooms



(Source: workspace.ae)

(Source: https://workspace.ae/content/meeting-table-size-guide)

Figure 53: Meeting Rooms layout

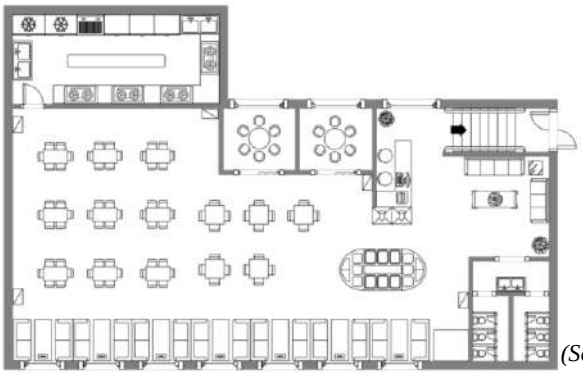
Area required: 30 to 40 square feet per person

- Conference table style: 30 to 40 square feet per person.
- Classroom-style seating: 14 to 18 square feet per person at desks.
- Auditorium-style seating: 6 to 8 square feet per person.
- Conference rooms often position front-row viewers quite close to the display screens. However, in general, the closest viewer should not sit closer than the width of the display screen itself. So a 48" screen should have viewers positioned not closer than 48 inches.

(Source: www.ambiencedore.com)

2.4 Services

2.4.1 Cafeteria/ Restaurant



(Source: www.pinterest.com)

Figure 54: Typical School Kitchen and Dining Layout

Space required for service system = 40 – 60 m2 approx.

Dining Room Size = 1.2 – 1.4 m2 per seat
For 50 – 80 occupants: 70 – 112 m2 area
(Source: Neuferts 4th edition)
Space required for kitchen = 0.5 m2 per pupil
Dining Room Size = 1m2 per seat
For 50 – 80 occupants: 50 – 80 m2 area
(Source: Architects' Data)
Counter service = 18 – 20 sq.ft per person
Dining Room Size = 9 – 12 sq.ft per seat
For 50 – 80 occupants: 600 – 960 sq.ft area
(Source: www.oakstreetmfg.com)

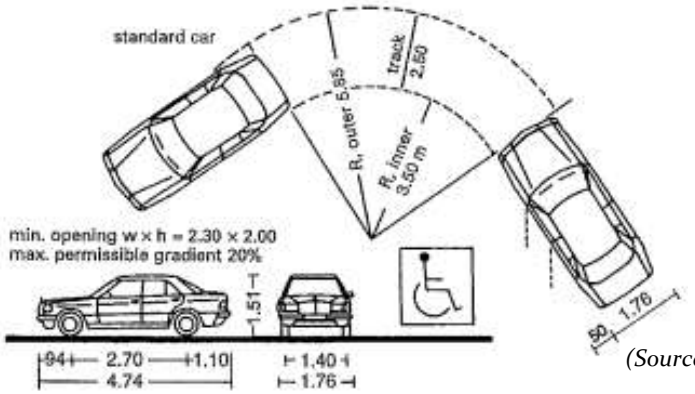
2.4.2 Parking

When driveways are less than 20 feet in width, marked separate entrances and exits shall be provided so that traffic shall flow in one direction only.

Type	Width	Length
Standard parking space	9 feet	18 feet*
Parallel parking space	8 feet	22 feet
* Parking spaces adjacent to landscape areas may project into the landscape area and be reduced to 16		

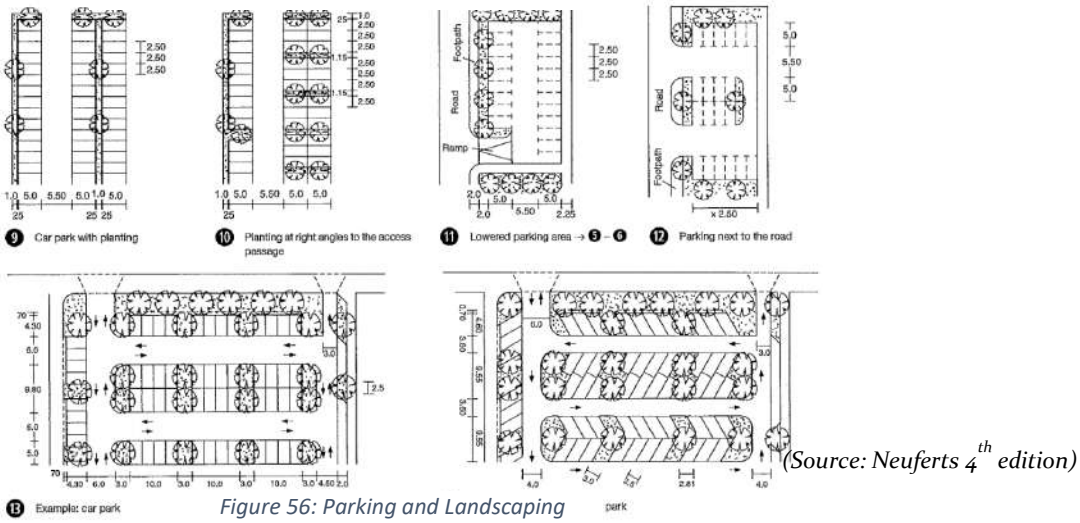
Angle	Width: 1 Row Sharing Aisle	Width: 2 Rows Sharing Aisle
90 degree angle parking	42.0 feet	60.0 feet
60 degree angle parking	34.6 feet	54.7 feet
45 degree angle parking	31.1 feet	50.0 feet
30 degree angle parking	28.8 feet	45.6 feet

Average four wheeler size = 15' x 6'
Area = 90 sq.ft
Parking Area for 30 four wheelers = 2700 sq.ft
Average two wheeler size = 7' x 2.4'
Area = 17 sq.ft
Parking Area for 200 two wheelers = 3400 sq.ft



(Source: Neuferts 4th edition)

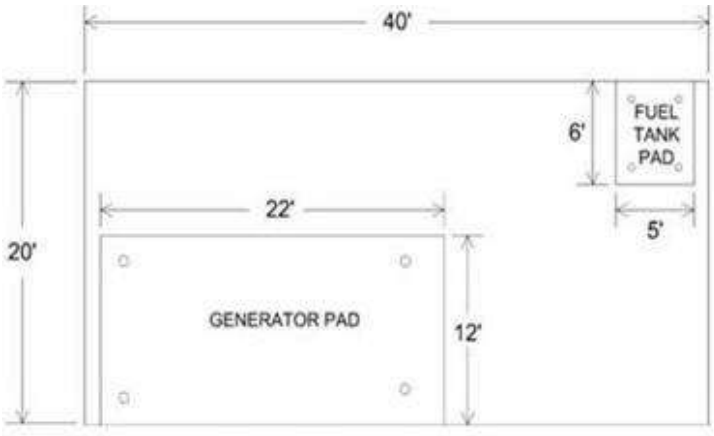
Figure 55: Vehicle Dimension and Turning Radius



(Source: Neuferts 4th edition)

Figure 56: Parking and Landscaping

2.4.3 Generator House



(Source: architizer.com)

Figure 57: Generator House Typical layout

Basic Room Requirements: A generator room must have enough space for a person to be able to service the generator with enclosure doors open. There also must be enough square footage for two people to be able to pass one another.

Installations of 600 Volts or Less: A minimum of three to four feet of aisle space is required, depending on if components are installed on one or both sides of the aisle.

Installations Over 600 Volts: A minimum of three feet and up to as much as 12 feet of aisle space is required for these installations.

2.5 Outdoors

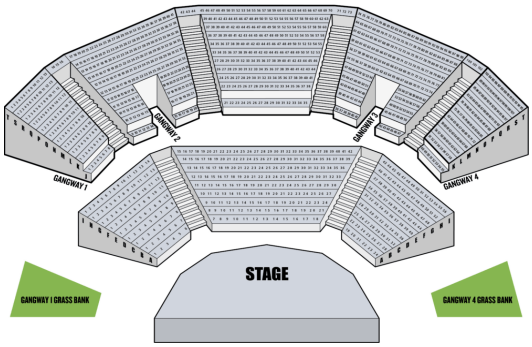
(Source: www.generatorsource.com)

2.5.1 Open Air Amphitheaters

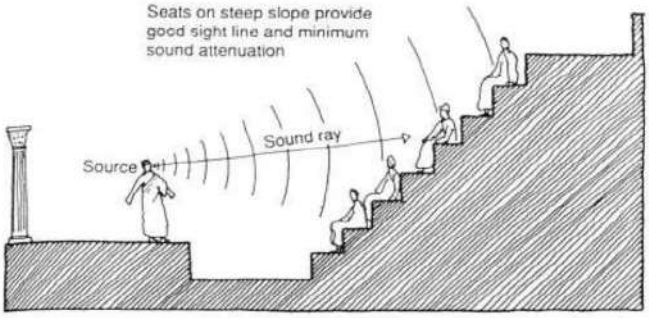
For the open air theatre, the stage should be 75cm above ground with seating rises of 30cm and 45cm and a minimum slope of 12 degrees.

Specifications:

- Stage to be raised at 75 cm above the ground level
- Lower seat riser 30 cm and tread 100 cm
- Higher seat riser 45 cm
- Slope seating should not be less than 12 degrees, for better audibility and visibility
- Noise level should not exceed 40 decibel Angle of view => 20 degrees



(Source: www.dimensions.com)



(Source: www.scribd.com)

Figure 58: Open Air Theatre Slope and Stage Design

- Slope of seating should not be less than 12 degrees, for better audibility n visibility. • Noise level should not exceed 40 to 50 decibel.
- Seating arrangement speaker Sound reflection.
- An outdoor theater with a semi-circular, fan-shaped, or elongated auditorium facing a grass, masonry, or wooden stage.
- While there are a number of factors that go into determining the stage height, including types of performances, seated or standing audience, venue shape and size, here are some rules of thumb for determining stage height:

    - Up to 100 spectators – 8” to 16” high
    - 100 to 300 spectators – 16” to 24” high
    - 300 to 500 spectators – 24” to 32” high.

(Source: www.slideshare.net)

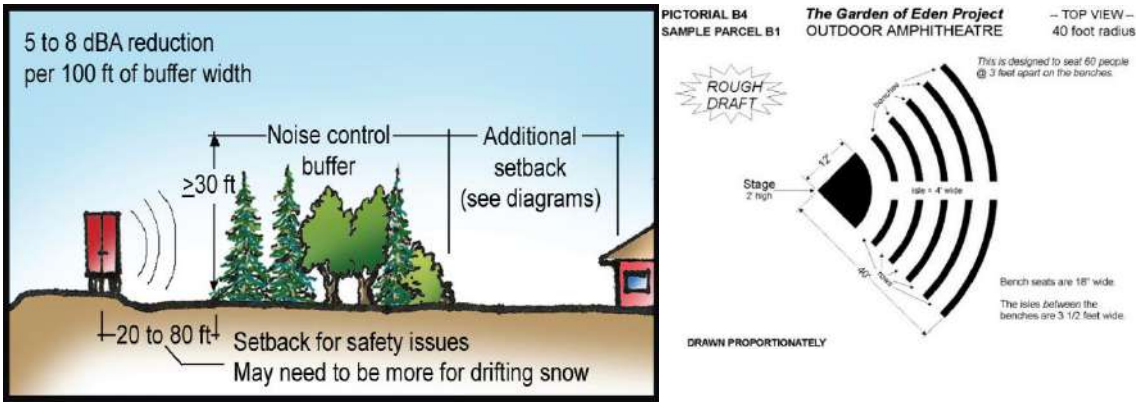


Figure 59: Open Air sound Buffer System Design *(Source: filestore.scouting.org)*

Buffer Guidelines for Noise Reduction Along Roads	
Moderate Speed Road (<40 mph)	**High Speed Road (≥40 mph)**
Plant a 20 to 50-foot wide buffer with the near edge of the buffer within 20 to 50 feet of the center of the nearest traffic lane	Plant a 65 to 100-foot wide buffer with the near edge of the buffer within 50 to 80 feet of the center of the nearest traffic lane

Key design considerations

• Locate buffer close to the noise source while providing an appropriate setback for accidents and drifting snow.
• Evergreen species will offer year-around noise control.
• Create a dense buffer with trees and shrubs to prevent gaps.
• Select plants tolerant of air pollution and de-icing methods.
• Natural buffers will be less effective than planted buffers.
• Consider topography and use existing landforms as noise barriers where possible.

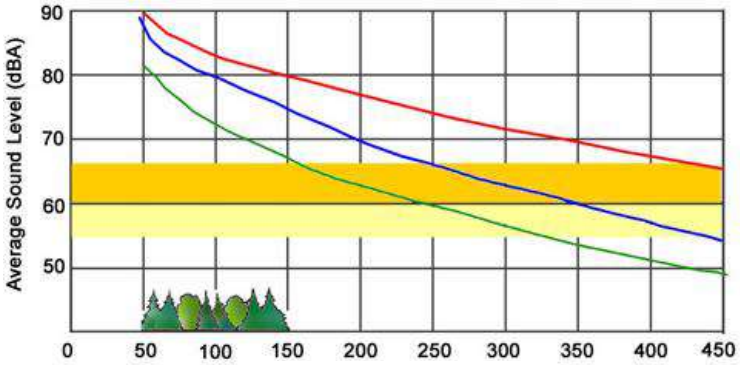


Figure 60: Sound Level Graph *(Source: www.fs.usda.gov)*

An outdoor recreational site near a highway needs to be located to meet the desired noise levels of 60 to 65 dBA. If 100-ft wide tree/shrub buffer is used, the site needs to be 100 to 200 feet behind the buffer. The site can be located immediately behind the buffer if a 12-ft high landform is incorporated into the buffer.

2.6 Lightings

Theatre lighting is much more than providing illumination so that the audience can see the stage, however this is a crucial aspect of lighting. Light is used to portray time, location, atmosphere, and mood.

When creating theatre lighting, designers need to consider the time and location of the production. When designing lighting for theatre, consider what the purpose of the light is. Is it to portray time, location, mood, or atmosphere?

Factors for lightings selection:

Color
The color of lighting can be altered with pieces of colored plastic, referred to as lighting gels, placed over the light source. Using different colors can change the mood and give different effects. For instance, a fire or inferno can be portrayed with red and orange lighting to depict the flames.

Intensity
Theatre lighting does not just allow you to have it on or off, you can adjust the light intensity (brightness) to create the effect you want. Intensity levels are generally rated from 1 to 100, and this variance allows the lighting designer to balance light evenly across the whole stage.

Focus
A light's focus refers to the definition of its beam. With theatre lighting, you can alter the beam's size and focus, giving it sharp or soft edges. Soft edges are suitable for blending different light sources, while a sharp-edged beam can spotlight a particular character.

Blackouts & Transitions
A production will very seldom have only one lighting state. Moving from one lighting state to another is referred to as a transition. These changes in lighting can happen instantly, or be slowly and subtly, to create a particular effect.

Instant, or snap lighting changes can be used to shock the audience, while they may not notice a slow transition until the result is clear. Gradual transitions are useful for changing the mood or indicating the time of day.

Blackouts occur when a stage is in complete darkness. Blackouts can be used as a sign to the audience that the play is finished, or for a significant time or location changes. A blackout is also used for changing scenery, but you should consider light for the stage crew to work. Allowing audiences to view the scene change is a way of retaining their attention during this pause.

Audience Consideration
To grasp theatre lighting design, it's vital to understand how lighting affects the audience's experience.

One crucial aspect to consider is the audience's positioning relative to the stage. Theatres come in various layouts, such as traverse, end-on, thrust, or in-the-round. Additionally, the nature of the performance, whether immersive, promenading, or site-specific, impacts the setup.

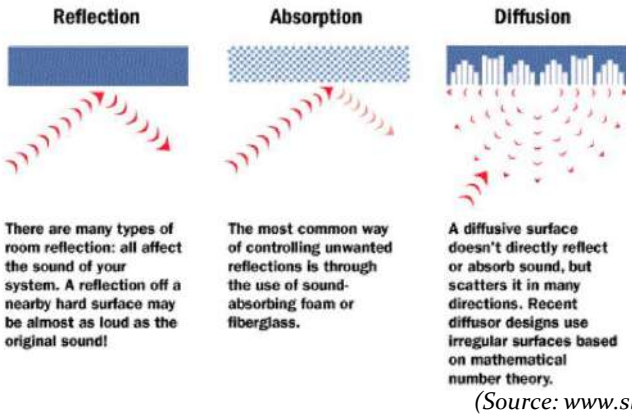
Each lighting configuration presents unique challenges, including the need to avoid obstructing the audience's view. For in-the-round productions, it's essential to prevent light from shining directly into the audience's eyes. Unwanted light spillage, known as "spill," poses a risk in thrust, traverse, and in-the-round setups.

(Source: www.researchgate.net)

2.7 Acoustics

Theatres are generally built with a short reverberation time, since this is required for good speech intelligibility and is the optimum for amplified sound. Many venues are made as acoustically “dry” as possible because most performances are fully amplified. For reinforced sound, a reverberation time somewhere between 0.7 and 1.2 seconds is ideal. However, a dry acoustic environment may not create a friendly or pleasant atmosphere. When transitioning from a foyer space, which usually has a pleasant acoustic atmosphere, into the theatre hall, conversations may suddenly sound “dead.”

There are four ways to improve workplace acoustics and solve workplace sound problems:
A = Absorb (via drapes, carpets, ceiling tiles, etc.)
B = Block (via panels, walls, floors, ceilings and layout)
C = Cover-up, or Control (background sound levels and spectra) (via masking sound)
D = Diffuse (cause the sound energy to spread by radiating in many directions)



(Source: www.slideshare.net)

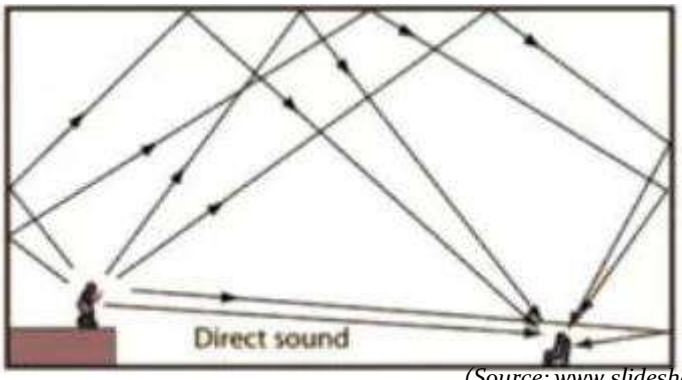
Figure 61: Types of sound Reflection

Good Acoustics

- Good distribution of sound to all the seats, which depends on proper shaping and finishes of all interior surfaces.
- Natural sound diffusion and envelopment.
- A sense of intimacy for the audience and a sense of ensemble for both performers and audience.
- Proper reverberation times throughout all frequencies, which depend on room's volume and the total sound absorption of all materials.
- Freedom for the acoustical faults of echoes, flutter, and focus.

Factors Affecting Acoustics

- Reverberation Time
- Loudness
- Structure borne sound
- Echo



(Source: www.slideshare.net)

Figure 62: Chracter of Sound Reflection in Theatre

Architectural Acoustics

It consists of:

i. Flooring

Farrat isomat acoustic floating floors are used to provide very high isolation between noisy or quiet rooms and surroundings rooms. They can be built as box in box systems with the walls and ceiling build off the floating floor.

- Excellent Acoustics and vibration isolation performance.
- Natural frequencies down to 6Hz.
- Acoustics air gap between 25 and 200 mm.
- Floating concrete slab thickness between 50 and 2000mm.
- Load bearing capacity up to 900 kN/m2.
- Ease, speed and adaptability of installation with minimal waste.

ii. Wall finishes

Acoustic curtains are typically made of the heavy duty, flame retardant, acoustically absorbent fabrics and can be used with various track systems to afford Greater flexibility than fixed sound absorptive panels.

Flexible fabric system to absorb sound

- Typically used for recording studios, sound sets, dance etc and in venues ranging from schools to theaters.

- Acoustic curtains can be used to cover windows areas, to divide spaces or arranged to cover head or reflective surfaces which allows an element of acoustic 'tuning' within the room.
- Acoustic curtains are manufactured from either wool serge or velvet velour, as the heavier nature of these fabrics provide the best acoustic results.
- Track selection is based on application, dependent on curtain size/weight and arrangement.
- Acoustic curtains are primarily intended for sound absorptive application, as they offer minimal sound transmission loss.

ACOUSTIC PANELS

Acoustic wall panels are a cost effective and attractive means of providing your venue with the highest quality audio performance.

ACOUSTIC STRETCH FABRIC WALL

Covering cinema walls with acoustic stretch fabric is an alternative to the use of acoustic curtains to manage the sound and echo characteristics in theatres.

CUSTOM WALL FINISHES

Specialty theatre can design and install any sort of custom wall finish to give your theatre a state of the art appearance.

iii. Ceiling

- Manufactured using optimum quality terracotta, these tiles offers resistance to humidity, heat and superior acoustical performance.
- Available in various shapes and sizes, these are readily used in offices, multiplexes, recording studios and construction industry.
- Subtex Ebony, subtex pebble, subtex plane and subtex nubby walls and ceilings. These products are widely used for furnishing offices, auditorium, retail outlets, Multiplex.
- Its range is appreciated for its humidity tolerance, durability

(Source: www.slideshare.net)

SPECIFICATIONS:

- Surface provided with white surface finish for monolithic texture and black surface for fully light absorption.
- Large format-1200mm X 1200mm.
- Light weight - 1.5kg-3.0kg without contributing to structural load of building.
- Fast track panels can be installed in T- grids after fit out (large size provide 4 tiles in 1 install).
- High quality, high aesthetic, high NRC, ceiling tiles and panels.

iv. Furniture

Furniture is usually larger, making it quite effective at blocking sound waves by limiting transmission as they are challenging to vibrate. Similarly, acoustic absorption occurs in upholstered furniture as sound elements entering its soft material cannot go back through the surface or edges.

In addition to providing comfort, upholstered furnishing helps manage sound in two ways: blocking and absorption.

Upholstered furnishings like soft sofas and chairs are better for soundproofing than wood or plastic because hard and flat materials generally reflect sound waves.

ACOUSTIC GENERAL

- Acoustic planning should ensure that optimum audible conditions are created for listeners in room where speech and music are to be carried out.
- Two important factors considered in acoustic planning are:
  Reverberation time: time taken for the decay of a noise level of 60 db after the sound source has been turned off.
- Reflections as the consequences of the primary and secondary structure of the room.

ACOUSTIC CINEMA

- Neighboring auditoriums should be separated with partition walls of approximately 85 db 18-20000 hz.
- Acoustic deflecting surfaces on the ceiling with low acoustic delay difference time.
- The reverberation time can increase with increasing room volume and decrease from 0.8-0.2 secs from low to high frequency.
- The rear wall behind the last row of seats should be sound absorbent to prevent echo.

Types of Soundproofing Materials

These are the most used soundproofing materials; each category has different best use scenarios. Each of these acoustic materials falls into one of these categories: Sound Absorbing, Sound Insulation, Sound Dampening, and Decoupling.

Acoustic Foam – This material, commonly called Studio Foam, has a distinctive wedge or pyramid shape that is highly effective at absorbing sound. They attach to walls as panels, hang from ceilings as baffles, or sit in corners as bass traps.

Sound Insulation – Sound insulation are batts made of mineral wool, rock wool, and fiberglass, designed to fit in between the studs of walls. The batts fit snugly between studs to take up airspace that can transmit sound.

Acoustic Panels/Boards – These are decorative versions of sound insulation and sound absorbing foam. They can come in many appealing colors, patterns, and fabrics to serve a dual purpose in the home and workplace.

(Source: www.slideshare.net)

Acoustic Fabrics – Acoustical fabrics are thicker and heavier than other fabrics and used in theater curtains, blackout curtains, and studio blankets.

Acoustic Coatings – Materials like Mass Loaded Vinyl (MLV) is a dense rubber like material, used in many different situations such as car soundproofing, machinery, appliances, and as an underlayment. The mass of the material acts as a sound barrier.

Floor Underlayment – Soundproofing a hardwood or tile floor requires the decoupling of the flooring surface and the subfloor to reduce the noise transmission. Cork, felt, and polymers are commonly used as underlayment materials.

Architectural Soundproofing – This group includes anything used in the structure of a building, such as soundproof windows, soundproof walls, doors, and decoupling products used to install them.

(Source: www.slideshare.net)

2.8 Accessibility in Theatre

i. Lecture Halls

Lecture halls providing fixed seating and desk facilities shall provide spaces of level floor area of at least 36" [92 cm] in width and 4'-4" [132 cm] in length. Desk space provided in this area shall have a knee clearance of at least 32" [81 .3 cm] in width and a height of 27/2" [69.8 cm].

ii. Theatre

Aisles: Where possible all new theater construction shall have ramped aisles (no greater than 1 in 12) with no steps (sight lines should be considered). If this is not possible, accessible and level cross aisles between seating sections shall be provided with minimum width of 7'-6" [228 .6 cm].

The placement of seating areas for the physically handicapped should not block egress routes used in the case of emergency.

Seating: Seating space shall be set aside for those in wheelchairs who must remain in their wheelchairs and cannot transfer to the regular seating. The number of level floor spaces of at least 36" [92 cm] in width and 4'-4" [132 cm] in length to be provided.

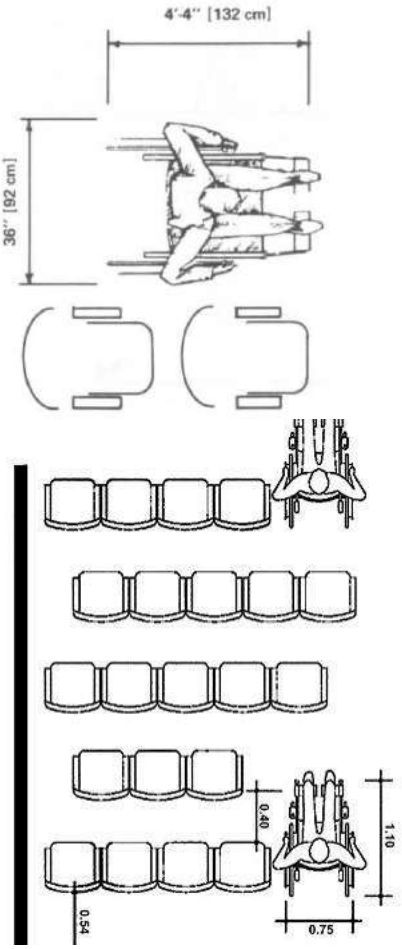


Figure 63: Accessibility Consideration in Theatre Seating

(Source: Neuferts 4th edition)

Figure 64: Types of Spaces Given for Wheelchairs

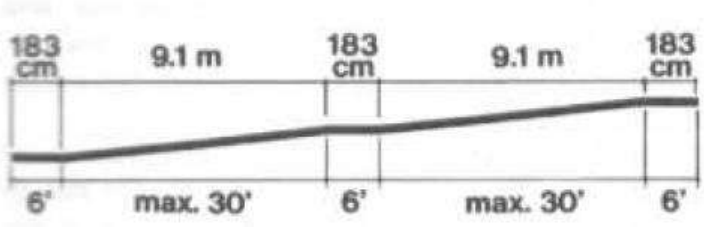
iii. Working Area

Space clearance under counter, table, and desk tops to be used by a wheelchair student shall be a minimum of 271/2 " [69.8 cm] in height and 32" [81 .3 cm] in width.

iv. Ramps

Width: A ramp shall be at least 4' [122 cm] in width

Length: The inclined section of a ramp shall not exceed 30' [9 .14 m] in length. At both ends of each 30' [9.14 m] (or smaller) section and at each turning point shall be a level area of at least 6' [183 cm) in length and the width of the ramp.



(Source: Neuferts 4th edition)

Figure 65: Ramp for Wheelchairs

Gradients: In modifying existing spaces: If an area to be romped has a vertical drop of 3" 7.6 cm) or less and is situated either in an open area or at a door with no closing-device pressure, then a gradient of not greater than 1:4 (25%) shall be used.

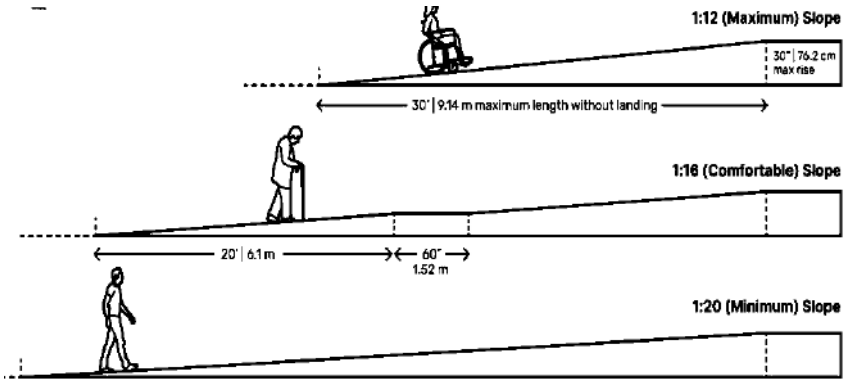
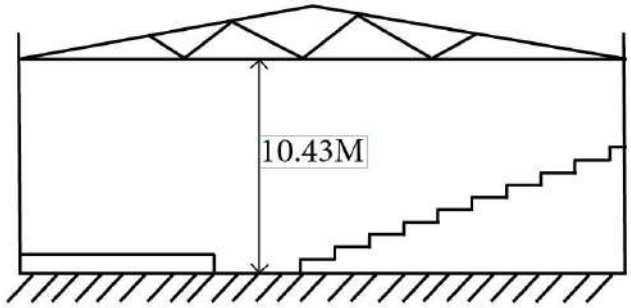


Figure 66: Various Gradients for different users of Ramps

2.9 Theatre Volume

This is determined by acoustic requirements (reverberation) : playhouse approx. 4-5 m3/spectator; opera house approx. 6-8 m3/spectator. Air volumes must not be less for technical ventilation reasons, in order to avoid too rapid air changes (draughts).

(Source: Neuferts 4th edition)



Air Space = 4-5m3 per person

i.e 4x300 = 1200 m3

lxbxh = 1200

thus, h = 10.43 m

Figure 67: Determination of Theatre Height by Theatre Volume

2.10 Major Findings and Lesson Learnt

- Historical Evolution and Cultural Influence: Study on history shows its influence on today theatre architectures.
- Impact of Technological Advancements: Acoustics and Sound Design, Lighting Innovations and Stage Mechanics and Flexibility has contributed to evolve the theatrical spaces.
- Standards: The basic requirements of the spaces in theatre academia and performance spaces, for example, per person area of each and every space for the flexibility in movement within the designed premises.
- The Role of Theaters in Urban and Social Contexts: Theaters are often designed as cultural landmarks within urban environments, serving as focal points for community engagement and cultural expression. Like in this case, design possiblity with Newari cultural enrichment.
- Formation of requirements are made referencing to the standards from literature and later altered during design.
- Areas are calculted in design by person area.
- Multi use and adaptive design philosophy accomodated in the creation and placement of open plaza interactive spaces using the concept of live interaction in theatre experience.

3. CASE STUDIES

The case studies have been selected with the relevance to the proposed thesis topic, that is, Performing Arts Centre – Theatre. So all the studies have been made with the respect to the requirements and functions of the selected topic.

The purpose of these case studies are to:

• Understand the current scenario of the drama schools and theatre in Kathmandu Valley and over all Nepal.
• Know the working principle and day to day work and functioning of the theatres and drama schools.
• Study the space allocation on the proposed site, the zoning and circulation.
• Understand the regional and international scenario of the theatres and compare the limitations and shortcomings.
• Study the functions and requirements with in the structure of a drama school and theatre.

3.1 National Case Studies

3.1.1 Mandala Theatre Nepal

3.1.1.1 Introduction

Mandala Theatre Nepal group was established in 2008 A.D in Anamnagar as Mandala Natakghar then in Thapagaon, Kathmandu, with the aim of exploring, popularizing and preserving the varieties of traditional and indigenous theatrical forms of the society.
Within the area of 1 ropanees and 10 anna, the area incorporates two performance halls, dormitories, café and parking areas.

3.1.1.2 Academics and Curriculum

For the Mandala Drama School, two academic sessions are introduced; one with the course of 3 month time period and one with one and a half years.

The 3 month course runs twice a year and the training sessions includes basics such as acting and movements while the 1.5 years course is for those who seek career in theatre and includes acting, movements, direction, creative writing, costume and set design. For each course about 15 to 25 students are selected

3.1.1.3 Age Group and Qualification

• Age in between 20-35 years.

• At least 3-5 years active experience in theatre work or at least a bachelor’s degree in any subject

3.1.1.4 Performances Types and Collaborations

Types of Dramas in Mandala Theatre are:

• Cultural and Religious Drama

• Socio-Political Drama

• Comic Drama

• Musical Drama (During theatre Festival 2022)

• Folk lore Drama (Based on Nepali community)

Mandala Theatre have been doing various collaborations with other theatres and various schools. They have been providing drama classes to children in schools and organized a theatre fest in

collaboration with other theatres in 2019. They also have collaborated with different NGOs and INGOs. They welcome those theatre enthusiasts to rent the theatre for their performances. Mandala have been associated internationally where workshops organized by other countries, especially India, were collaborated.

The theatre performances are scheduled for Sunday, Tuesday, Wednesday, Thursday and Friday for 5:30 P.M whereas the shows are at 2:30 P.M and 5:30 P.M on Saturday.

3.1.1.5 Site Location and Information

Mandala theatre is located 800m north of the New Baneshwor chwok and is reached after 4 minutes of drive and 450 m east of Aarohan Gurukul – Kunja Theatre.

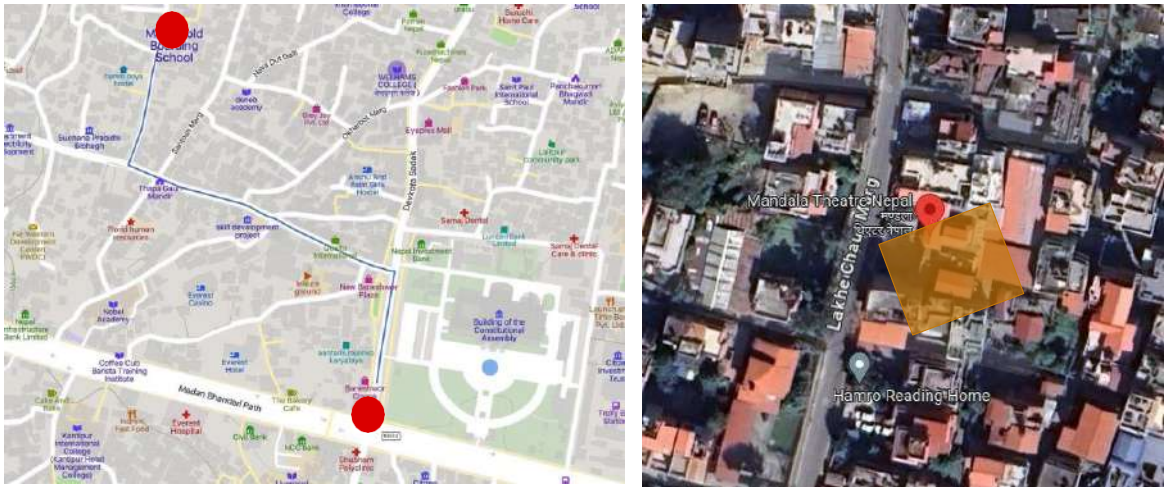


Figure 68: Location of Mandala Theatre and Direction from known Landmark

Other nearby theatres are: Shailee Theatre, Sarvanaam Theatre, Gothale Theatre and Lekhan Kunja - Aarohan Gurukul Theatre.

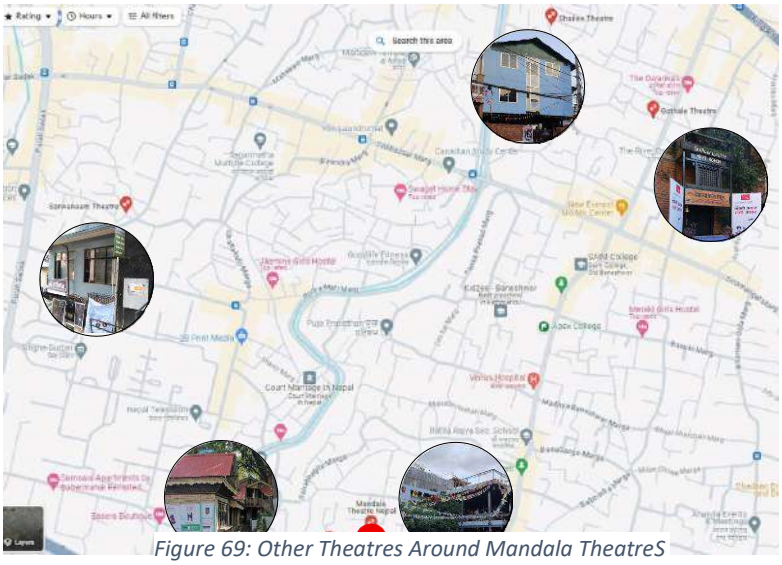


Figure 69: Other Theatres Around Mandala TheatreS

3.1.1.6 Site Approach and Zoning

The site is approached from Lakhe Chaur Marg on the west side.

Figure 70: Access to Mandala Theatre

Figure 71: Later Intervention Front View Concept of mandala Theatre

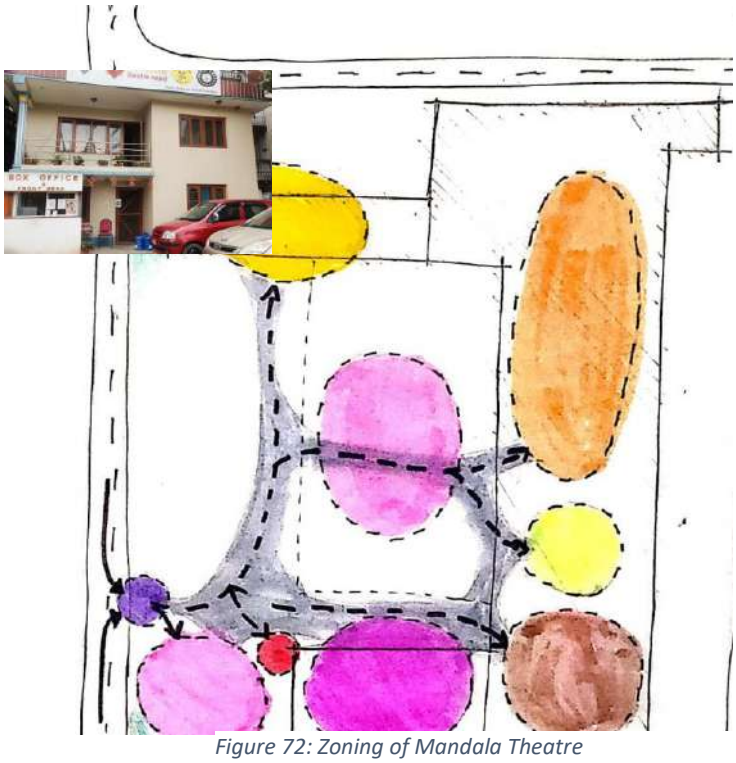


Figure 72: Zoning of Mandala Theatre

Figure 73: Park

Figure 74: Main Theatre

The open space upon the arrival is used for parking through which the ticket counter is approached that resides in the existing building used for dormitories. On the left are toilets: three for male three

for female and one accessible. At the center is bike parking through which the small black box theatre and workshops are reached.

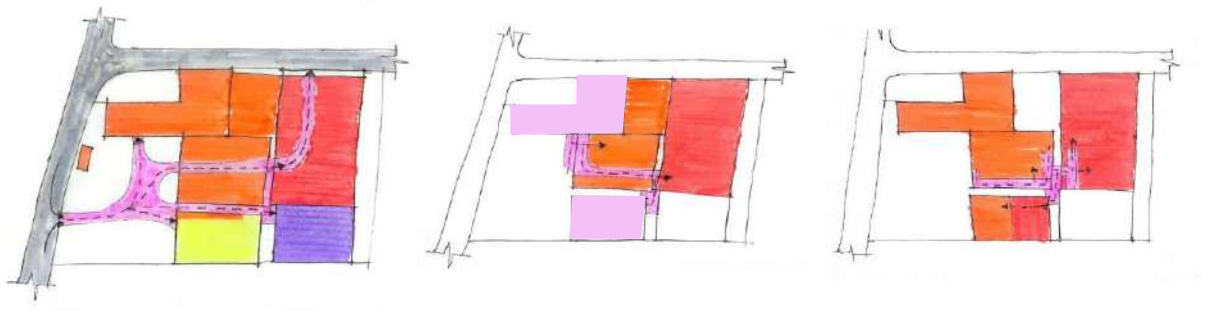


Figure 75: Floor wise Space Distribution

PERFORMANCE
SERVICES
RESIDENTIAL
WORKSHOP
ADMINISTRATION
ACCESS

The main open area upon access that leads to all spaces in the ground floor. The backdoor in the north is reached through the main hall.

The metal staircase in front of the parking leads to upper floor office, cafe, and main entry to the large hall.

The open area of cafe has a staircase that leads to upper floor restaurant, kitchen, green rooms, meeting rooms and costume and light rooms.

Figure 76: Master Plan of Mandala Theatre

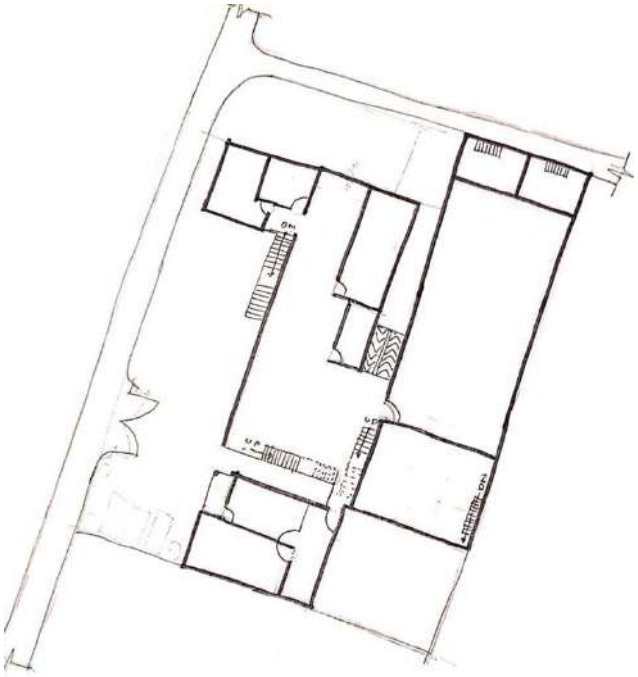


Figure 77: First Floor Plan

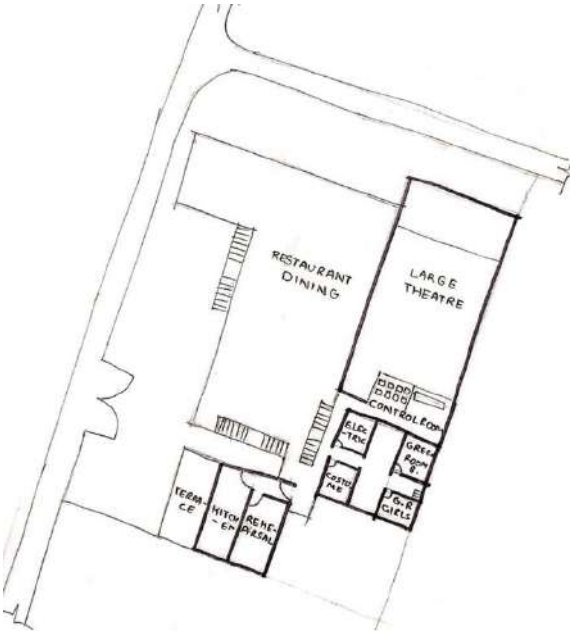


Figure 78: Second Floor Plan

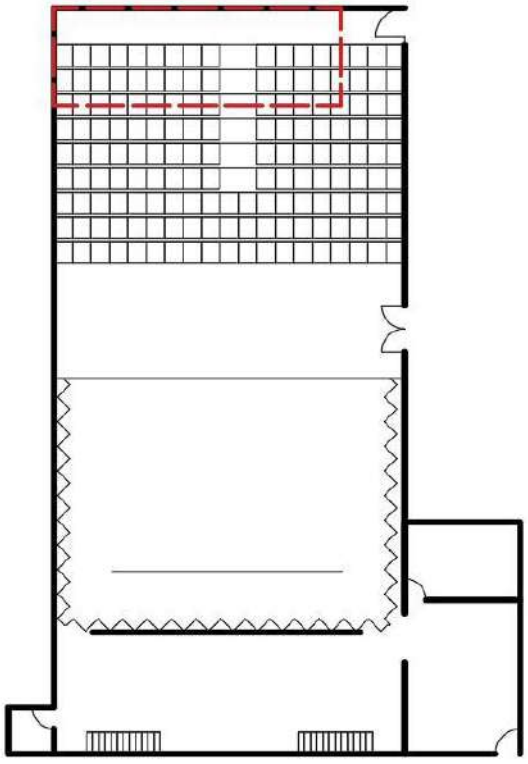


Figure 79: Main Theatre Plan

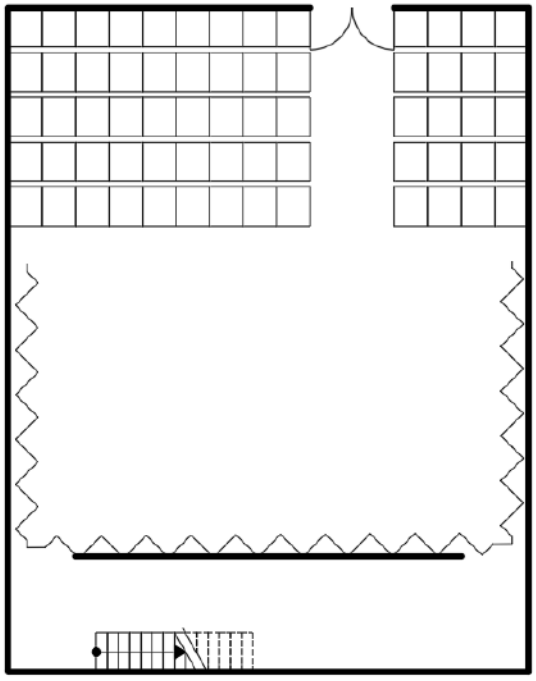


Figure 80" Blackbox Theatre plan

3.1.1.7 Problem Statement and Analysis

- Area given for bike parking seems sufficient for present conditiob but not enough for four wheeler parking.
- Lacks outdoor performing spaces.
- Existing building not fit for administrative functions.

- Not enough height for emergency exit door.
- Insufficient green rooms and preparation areas. Except curtains, no good soundproofing.
- Lacks separate rehearsal rooms.

3.1.2 Lekhan Kunja: Gurukul Nepal

3.1.2.1 Introduction

Aarohan Theatre Group (commonly known as Aarohan Gurukul and also known as Aarohan Theatre, and Gurukul Theatre) is a theatre group in Nepal. It produces shows incorporating various cultures, religions and rituals of Nepal. The group has produced 15 TV shows for Nepal Television and produced various radio dramas. One of the radio drama was 136 episodes long. The group has performed its plays in India, China, Pakistan, Bangladesh, Russia, South Korea, Thailand, Norway, Denmark and United States. It has two theater halls in its Biratnagar premise. Later the branch of Kathmandu came in association with the Lekhan Kunja theatre group and became Lekhan Kunja: Gurukul Nepal.

Within the area of about 3 ropanee and 6 anna Gurukul includes spaces such as Gurukul Theatre, Kunja Publication, Café, Writing Spaces, Library, Storage and Parking spaces including green landscapes.

3.1.2.2 Academics and Curriculum

For the academics in Gurukul, the academic sessions are of three months and is conducted twice a year. It includes training sessions:

- Drama
- Music
- Dance
- Visual arts
- Creative writing
- Direction
- Seminar
- Workshops
- Research
- Set design
- Lights

For this sessions, about 20 to 25 students are selected among which at least two students are provided with scholarship considering the requirements.

3.1.2.3 Age Group and Qualification

- Age in between 18-40 years.
- Any age group of people above 18 could apply for the training sessions yet the defined age is 40 years old.
- At least 3-5 years active experience in theatre work or at least a bachelor’s degree in any subject

3.1.2.4 Performances Types and Collaborations

Types of Dramas in Gurukul are:

- Cultural and Religious Drama
- Dramas from the books written by the artists of the Gurukul Theatre
- Socio-Political Drama
- Musical Drama
- Biography Drama

Gurukul has been doing various collaborations with other theatres and various schools. They have been organizing workshop packages for the students of various schools. The drama sessions last from three days to a week. The collaborations are done with schools as well as other theatres in various aspects such as drama and creative writing. Collaboration with Indian theatres was also done.

The theatre performances are not scheduled for any particular day and time. The plays are organized few times a week, could be any day. The dramas organized from the books written by the artists of Gurukul specializes in Biography genre.

3.1.2.5 Site Location and Information

Lekhan Kunja - Gurukul theatre is located 850m north of the New Baneshwor chwok and is reached after 5 minutes of drive and 450 m west of Aarohan Gurukul – Kunja Theatre.

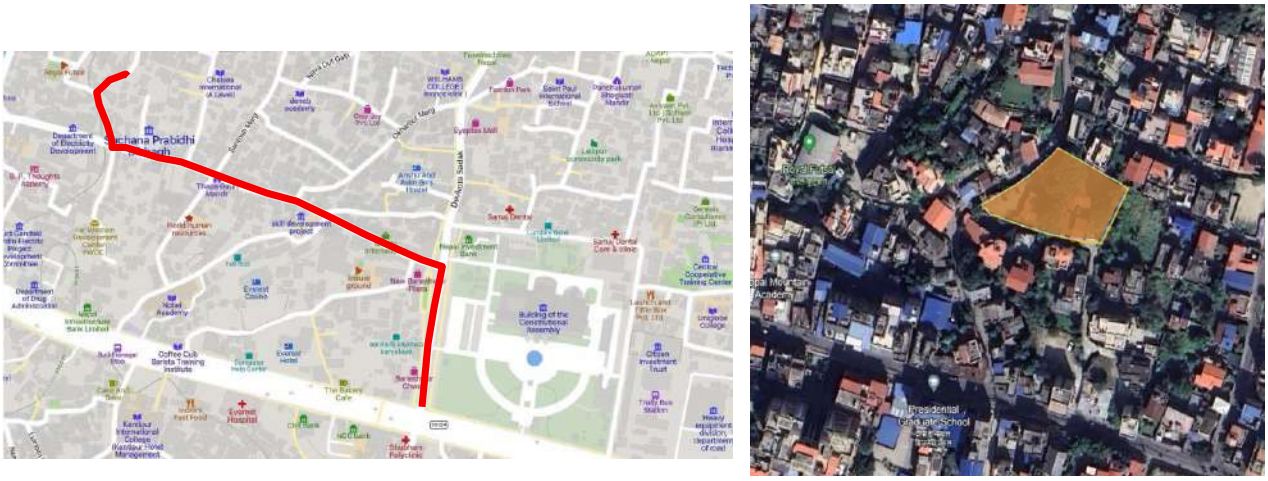


Figure 81: Location of Lekhan Kunja Gurukul

3.1.2.6 Site Approach and Zoning

The theatre area is approached from the west side of the site through the Bhadra Vinayak Marga. The main gate open to a ramp formed on 2.4 m height and into an open space at the front of the café and a parking space. On the left of the parking area, there is reception area within the building of Kunja Publication Bookstore/ Library. On the further left is a public toilet

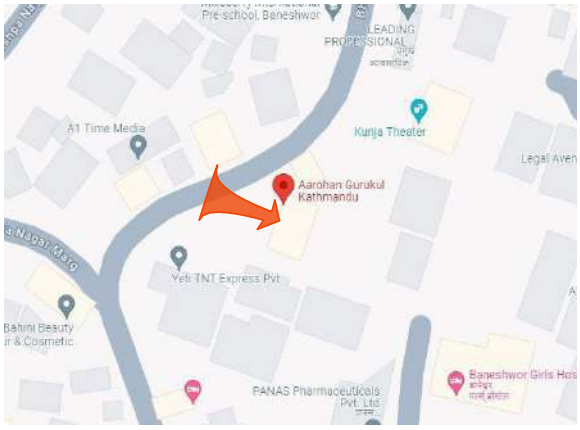


Figure 83: Access to Lekhan Kunja Gurukul

Figure 82: Aerial View of Gurukul

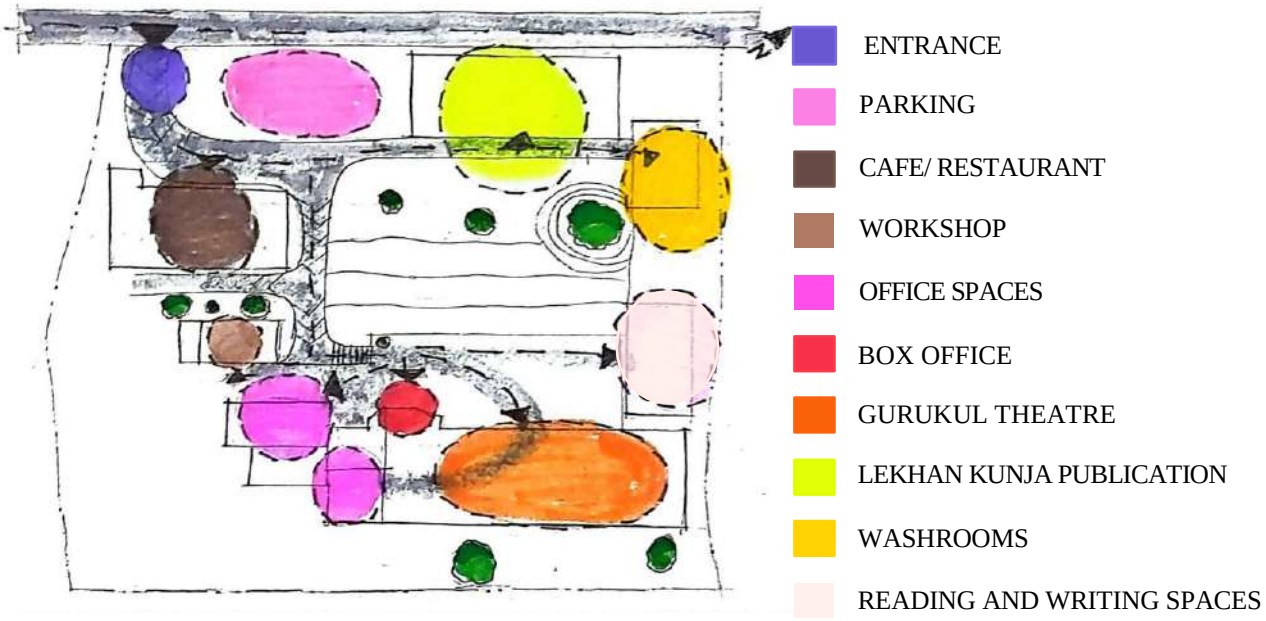


Figure 84: Zoning of Gurukul Theatre

- The theatre area is approached from the west side of the site through the Bhadra Vinayak Marga.
- The main gate open to a ramp formed on 2.4 m height and into an open space at the front of the café and a parking space.
- On the left of the parking area, there is reception area within the building of Kunja Publication Bookstore/ Library.
- On the further left is a public toilet.
- On the rear south is the main theatre hall on the left of which is reading and writing spaces and on the right is workshop.
- Attached to the front of the hall is ticket counter and on the west side of it has preparation rooms and director's room.

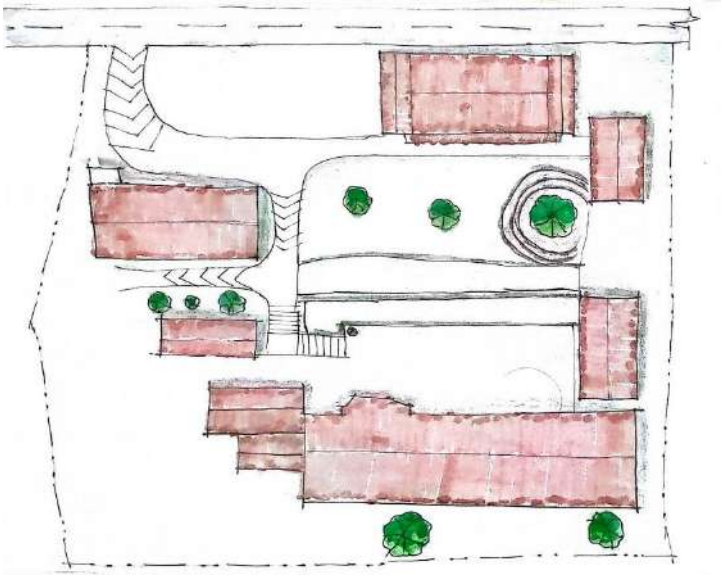


Figure 85: Master Plan of Gurukul

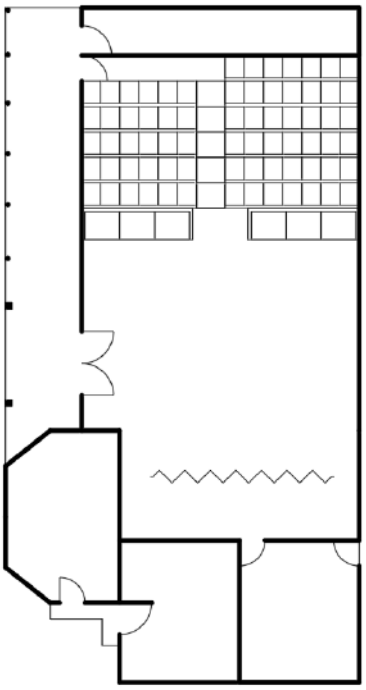


Figure 86: Theatre of Gurukul

3.1.2.7 Problem Statement and Analysis

- Not enough space for other functions of theatre
- Light inadquecy and sound proofing problems
- Little and Unmanaged parking spaces
- Existing Open space is on contoured land so diffculty in use for public.

3.1.2 Rastriya Naach Ghar, Jamal

3.1.3.1 Introduction

Envisioned as a hub for theatre, music and the performance arts, the Nachghar was first established in 1959 in a bamboo-fenced 450-seater hall. In the ensuing decades, the venue played host to a plethora of cultural events, while giving actors like Bhuwan Chand, Basundhara Bhusal and Subhadra Adhikari a platform that would propel them to fame. The once-iconic Nachghar has, however, slowly slipped out of national consciousness, unable to keep abreast with the more vibrant private theatres.

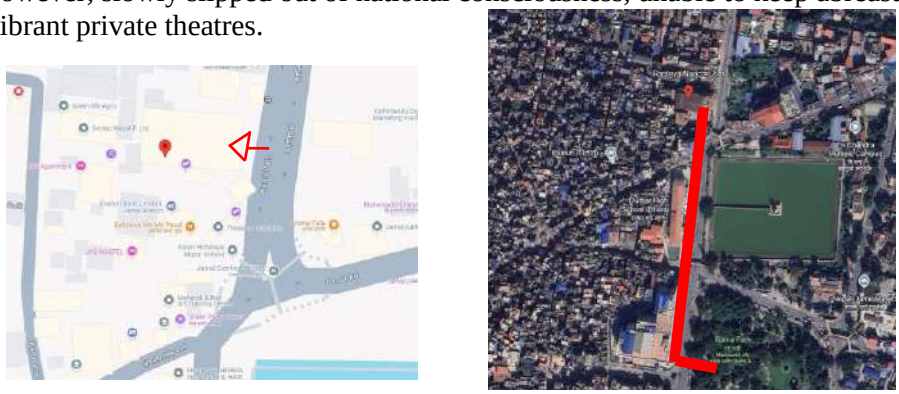


Figure 87: Location and Access of rastriya Naach Ghar

3.1.3.2 Site Location and Information

Rastriya Naach Ghar i.e National Theatre is situated in Jamal, Kantipath, Kathmandu 350 meter north of Ratnapark bus stand.

3.1.3.3 Site Access and Zoning

Theatre can be approacged from the east side gate from the main road of Kanti Path.

3.1.3.4 Scope of Study

- Acoustic treatment
- Auditorium and its seating
- Spaces in auditorium

Architect - Ar. Deepak Panta and Dr. Sushil B. Bajracharya
Architecture Style - Neo-traditional Style Auditorium capacity - 750 seats
Zone - Commercial Zone
Building Type - Mixed Use Building (commercial and theatre)

Figure 88: Street View of The theatre

The auditorium space is divided into 3 parts:

1. Front of House: Entrance, ticket counter, foyer, etc.
2. House
3. Stage
4. Stage facilities: Back stage, wings, green rooms, rehearsal rooms etc.

Figure 89: Auditorium

<u>Seating arrangement:</u>

- Concave Shape
- Concentric seat plan and first row at a distance of 5.8m form stage
- Stage raised 1.8m above the floor level
- Rise of seats is l5cm
- Inclination of seat is 11 degrees

3.1.3.5 Acoustics treatment

•Diffusive acoustic panels used on ceiling.

•Irregular ceiling profile holding light installations.

•Thick cavity walls with sound absorbing materials.

•Lobby designed as buffer space.

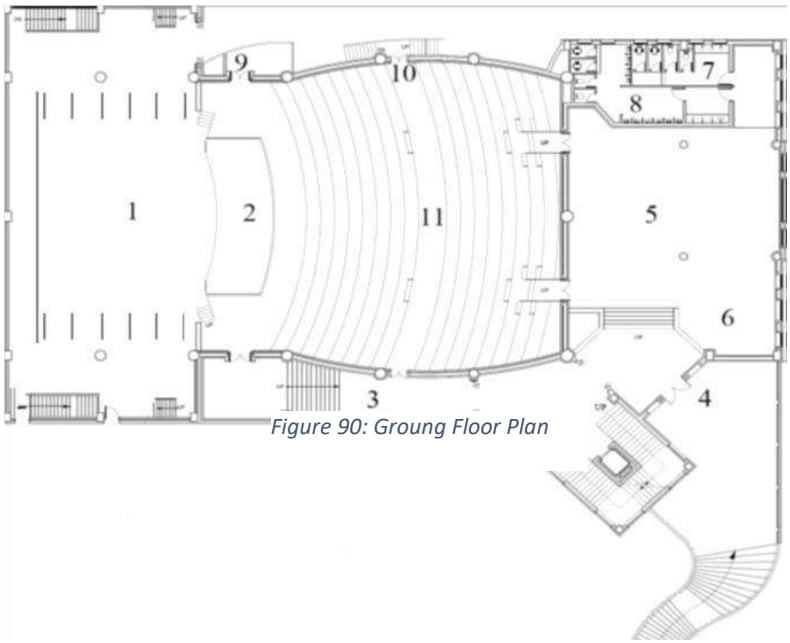


Figure 90: Groung Floor Plan

3.1.3.6 Safety and Services

- Basement parking- 35 cars and 50 bikes
- 6-person capacity vertical lift
- Fire sensors and water nozzles in main hall and lobbies.
- HVAC system for air conditioning.

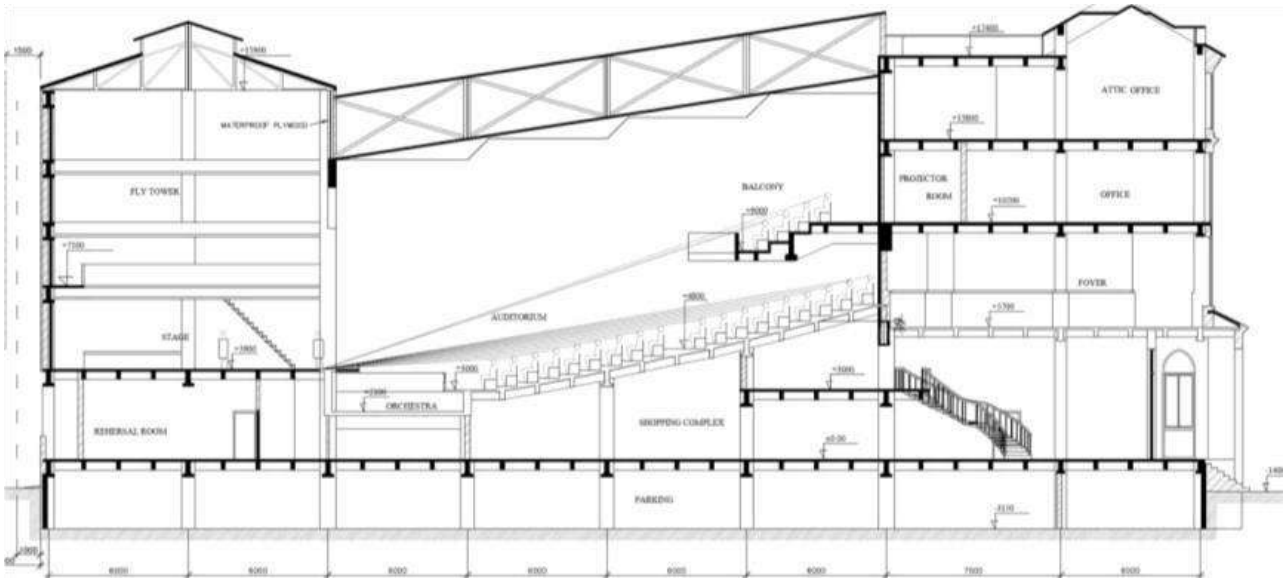


Figure 91: Section Through the Auditorium of Naachghar

3.1.3.7 Analysis

- Auditorium away from noisy road, foyer as buffer space.
- The entrance leads to the gallery on the ground floor engaging people with various displays before the commencement of programs.
- The public entrance to the auditorium is from the first floor since the ground floor is occupied by rental shops in the front.
- Audience are directly led through curved staircase near the entrance to the hall through a terrace on the first floor.
- Lift has been provided with the purpose to serve the disables and aged peoples.

3.2 Regional/ Asian Case Studies

3.2.1 Kala Academy, Goa

3.2.1.2 Introduction

Figure 92: Location of Kala Academy

Kala Academy is situated at Campal, Panaji in Goa along the banks of Mandovi river. The academy deals with both the eastern and western form of art. Spaces are planned especially for teaching and practicing of performing arts.
The academy is an institutional building which is based on mixed land use with a military hospital across the road, a cricket ground and a park on either side. It was designed by architect Charles Correa in 1983 on the total site area of 6.3 acres (2368.56 sq.m). The gradient of the site is flat land except slightly slope on the river side.

3.2.1.3 Architectural Characters

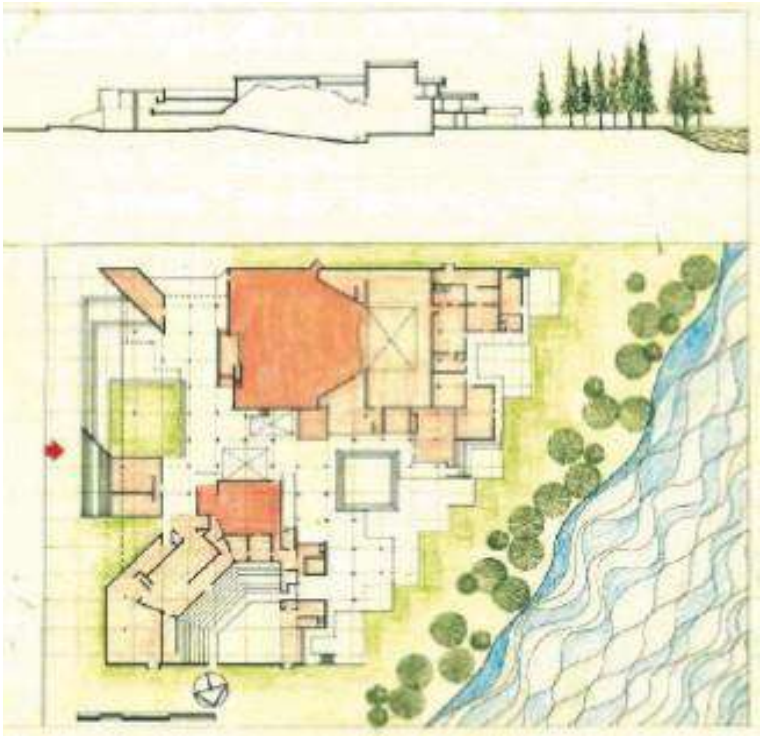


Figure 93: Kala Academy representing the intersection of the built and adjoining edge of Mandovi River

- For the architecture of the academy, Charles Correa has given importance to the process of moving through the spaces in a building.
- The built form has been kept low ranging from one to three storeys which is further enhanced by the use of parapet walls for upper floors that emphasizes horizontally.
- The ‘pergola’ above the entrance acts as an extension to the foyer of the main auditorium and amphitheater.
- Coffer slabs and parapet walls are used. The specially designed seating are extensively used.
- The walls in the interior are painted with the pictures depicting konkanse culture and create illusion.
- The building acts as a tunnel between the city and the river

Figure 94: View from Mandovi River

3.2.1.2 Site Planning

Figure 95: Site Planning of Kala Academy

- There are four entries to the site including the boat jetty provided on the river side.
- The building coverage is about 40% of total site area with well-defind pedestrian and vehicular systems.
- The active area includes the cafeteria, the garden and the amphitheatre.
- The site is divided into main service building, Muktamgan (Academic areas), parking and exhibition areas.

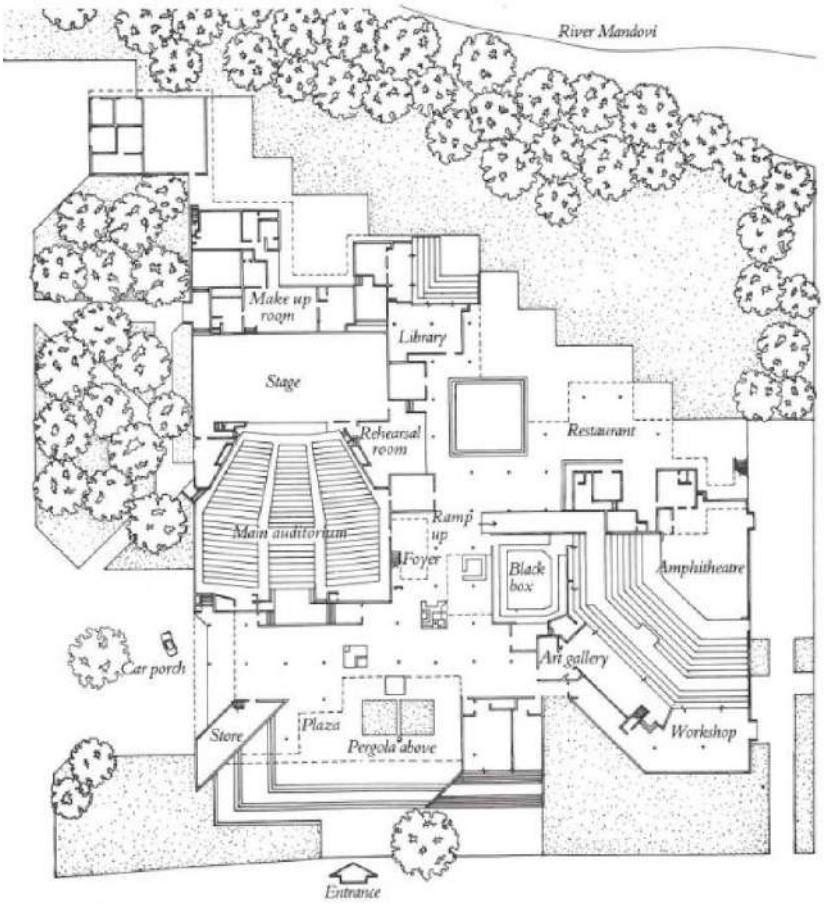


Figure 96: Master Plan of Kala Academy

3.2.1.3 Vertical Planning

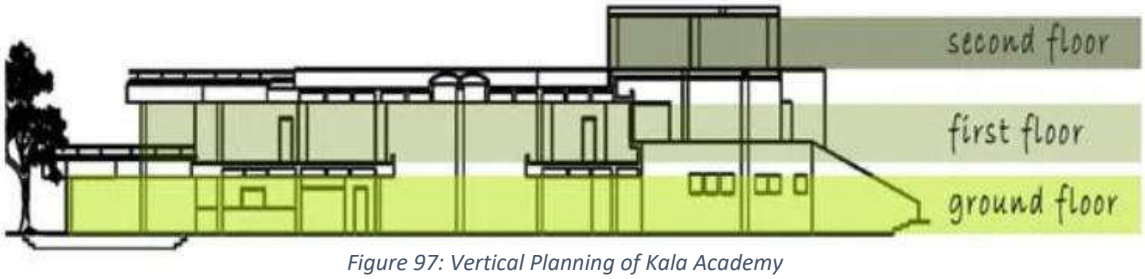


Figure 97: Vertical Planning of Kala Academy

Vertically, the building is divided into three zones:

Public, Administrative and **Academic**

These zones are provided at different levels in order to avoid conflict between the functioning of these zones. The ground floor includes facilities such as auditorium, preview theatre, contemporary amphithe- ater, art gallery and canteen where the public are also allowed. The first and second floors are private and semi-private zones which have academic and administrative functions. The people using the building are:

Staff, Students, **Public** (Audience)

The circulation is linked to the zoning and has been segregated by separating them by the means of levels, that is, the ground floor functions for the audience, the first and second floors for the staff and students.

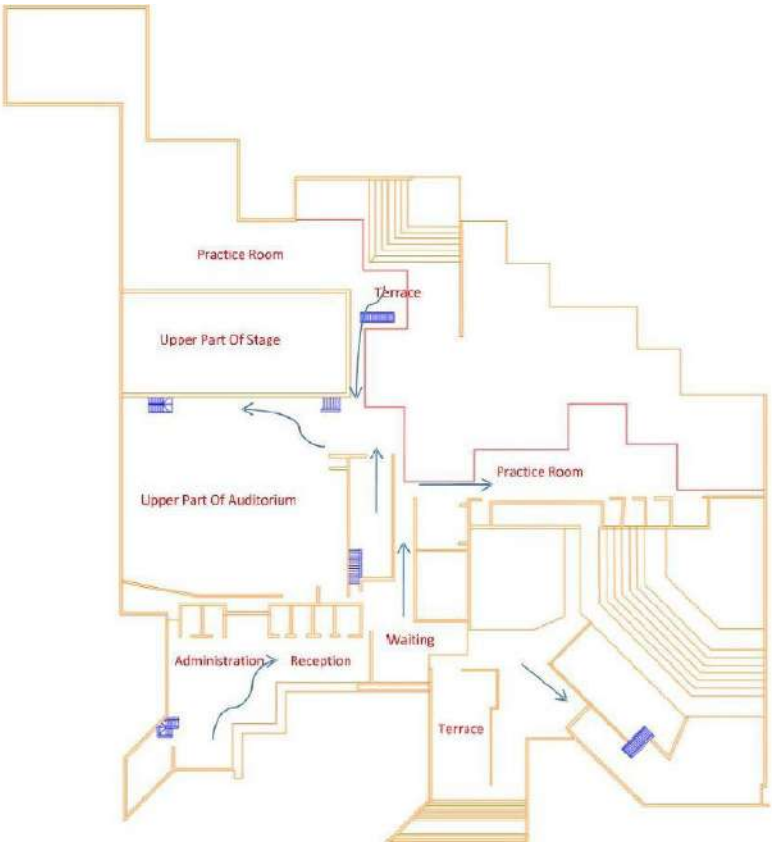


Figure 98: First Floor Plan of Kala Academy

This center for the performing arts pro- vides a number of facilities including a 1000 seat auditorium, a 200 seat open-air amphitheater, and a special “black box” for experimental productions. There is also accommodation for visiting troupes and facilities for teaching dance as well as for Indian and Western classical music.

Figure 99: Open Planning of Ground Floor

D.M Kala Mandir (A.C Auditorium)

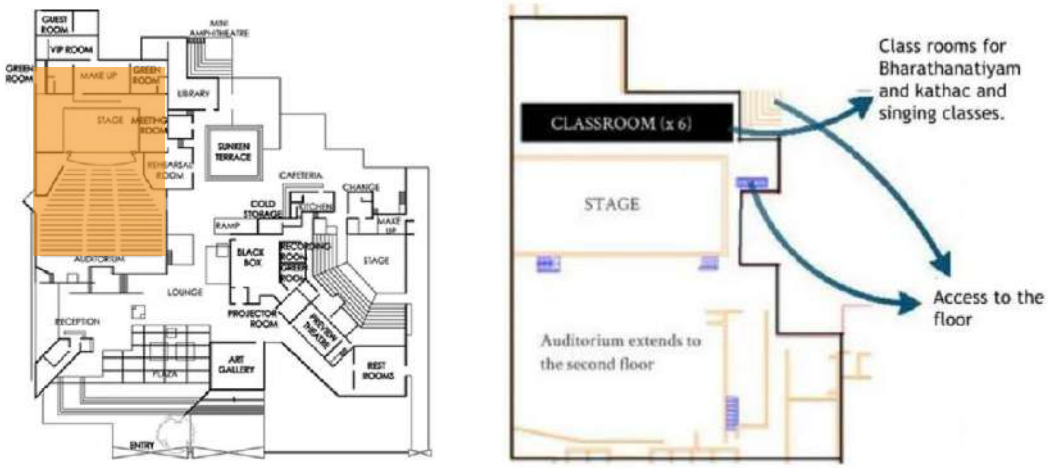


Figure 100: Classrooms

- Seating capacity - 1000
- Stage opening - 9.6 m
- Area - 1300 sq.m
- Orchestra pit- 7.2 x 2.1 m *
- The auditorium allows a variety of acoustical conditions ranging from speech, plays to sitar recitals and orchestral arrangements
- The changes are made by manipulating absorbent materials placed within inner compartments hidden from view above this ceiling.
- The walls of the auditorium are painted illusions of an old goa theatre,
- Behind the figures in the boxes real curtains may be pulled to reduce
- reverberation time in space.
- The stage is 80cm high from the first row.
- The raking height varies from 10-20 cm.

Figure 101: Stage View of Main Theatre

Figure 102: Seating View of Main Theatre

Section through the auditorium: The walls of the auditorium are painted illusions of an old Goa theatre, com- plete with boxes and 'typical' local inhabitants, by the Goa artist Mario Miranda. Behind the figures in the boxes, real curtains may be pulled to reduce reverberation time in space. At the start of the show the house lights dim gradually with the illuminated painted figures in the balconies fading last of all. At the interval, the process is reversed, and at the end of the performance, spotlights illuminated the painted ceilings inside the compartment to reveal a jungle scene.

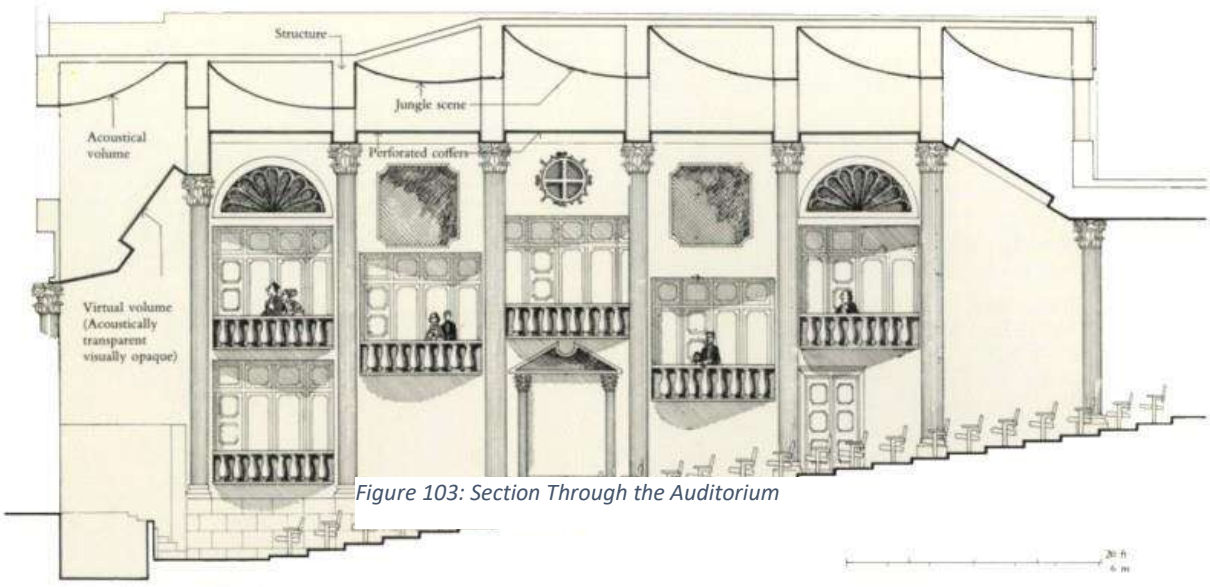


Figure 103: Section Through the Auditorium

Open Air Amphitheatre:

- Seating capacity (no chair) - 2000
- Seating capacity (chair) - 1312
- Proscenium opening - 15m
- Depth from curtain line- 12m
- The amphitheater is of double herringbone shape.
- There is entry from road main lobby and the restaurant area.
- The stage is raised at 75cm above the ground floor level (eye level of the first row)
- Two seating rakes provided. The lower seats have a rise of 30 cm and tread of 100 cm while higher ones have a rise of 45 cm giving adequate sight lines.
- Acoustics are good as the seats block out noise from the river side.

3.2.1.4 Programs and Functions

Ground Floor

1. Main Theatre = 1300 sq.m (977 people capacity)

2. Open Air Amphitheatre = 1750 sq.m (2000 people capacity)

3. Mini Open Air Theatre = 340 sq.m (215 people capacity)

4. Black Box Theatre = 175 sq.m (150 people capacity)

5. Art Gallery = 150 sq.m

6. Cafeteria = 450 sq.m

7. Parking = 2000 sq.m

First Floor

1. Administration = 500 sq.m
2. Rehearsal Hall = 150 sq.m (100 people capacity)
3. Classrooms = 86 sq.m (1.1 – 1.8 sq.m per person)
4. Meeting Room = 45 sq.m
5. Library = 135 sq.m
6. Guest Room = 53 sq.m

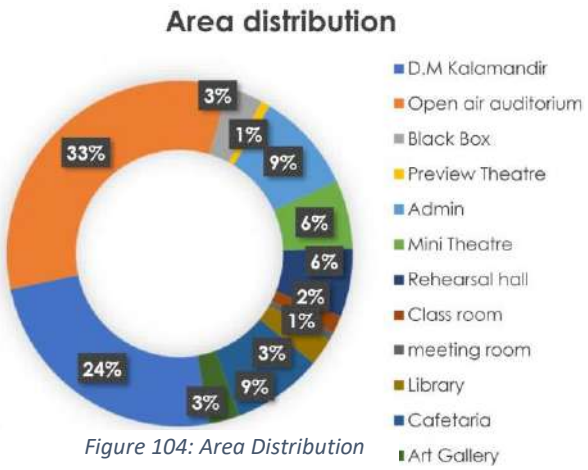


Figure 104: Area Distribution

3.2.1.5Analysis

- The layout and the building zoning provided are excellent has brought in a different overall treatment.
- Good acoustical treatment
- The 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, seatings etc.
- Vehicular and pedestrian ways properly defined.

3.2.2 Tianjin Juliard School

3.2.2.1 Introduction

Located in the Yujiapu Financial District of the port city of Tianjin, in China's Hebei province (39°00'08.1"N 117°40'23.6"E).

The Tianjin Juilliard School is a destination for music education and performance unique in China and a new dynamic cultural and social hub set along the Yujiapu Financial District river promenade.

It is a center for performance, practice, research, and interactive exhibitions, with communal spaces that are designed to welcome the public into the creative process and performance of music. TJS is the first performing arts institution in China to confer a U.S.-accredited Master of Music (MM) degree.
Architects: Diller Scofidio + Renfro
Area: 32500 m²


Figure 105: Location of Tianjian Juliard

3.2.2.2 Architectural Characters

Beside the Hai River rises a building of glass, steel, concrete, and wooden panels.
Five glass bridges span an expansive public space that extends the surrounding park into the building, inviting students, visitors and concert goers to mingle, re- lax and experience the students practicing and giving informal performances.

The glass bridges contain classrooms, teaching studios, and practice rooms, encouraging visual and auditory access to the study of music, inviting exchange between students, faculty and visitors.

Figure 106: Tianjian Juiliard School

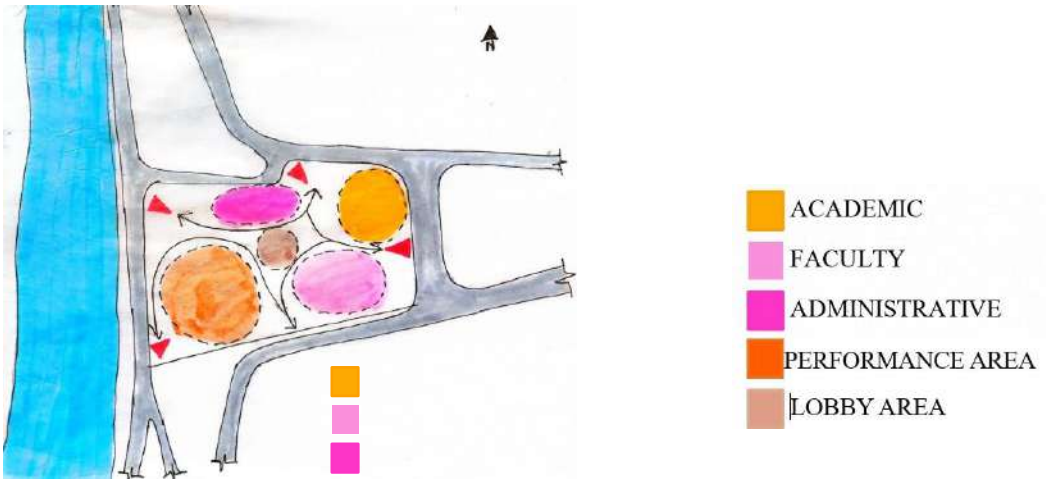


Figure 107: Zoning of Tianjian School

3.2.2.3Zoning and Circulation

The entrances to the site are from all four sides including the river side corridor road. The lobby area is placed at the centre of the site planning so that all other functions and services could be reached from the lobby area. The academic area is placed on the east side facing the main road of the area whereas the performance area is placed facing the river corridor. Administrative functions on the way to the main lobby near to the main entrance of the institution.

The faculty spaces and functions are placed near to the academic areas so that to and fro between the academic space and faculty members would be easy.

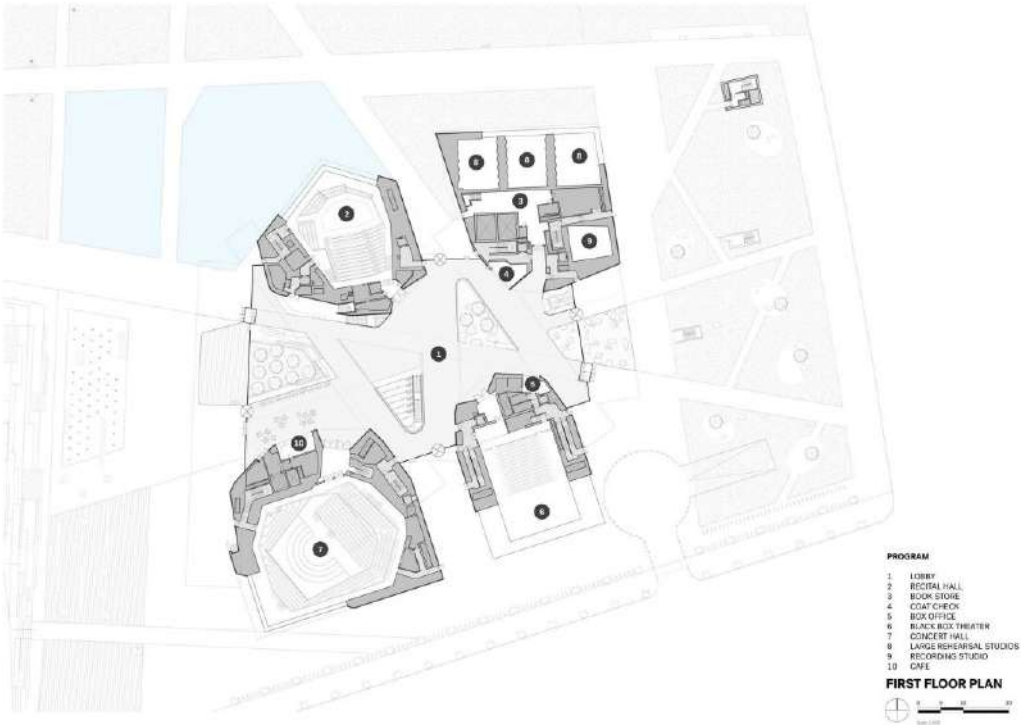


Figure 108: Tianjian Juiliard Master Plan

The building is composed of four faceted pavilions housing a 690-seat concert hall, a 299-seat recital hall, a 225-seat black box theater, and administrative, faculty, and rehearsal programs.
Transsolar's climate concepts target three key conceptual and performance goals: Create a semi-in-doors public entrance lobby that is perceived as an extension of the adjacent park; demonstrate world-class energy performance while meeting the stringent indoor environmental requirements for world-class music education and performance, and two stars in the Chinese green rating system.

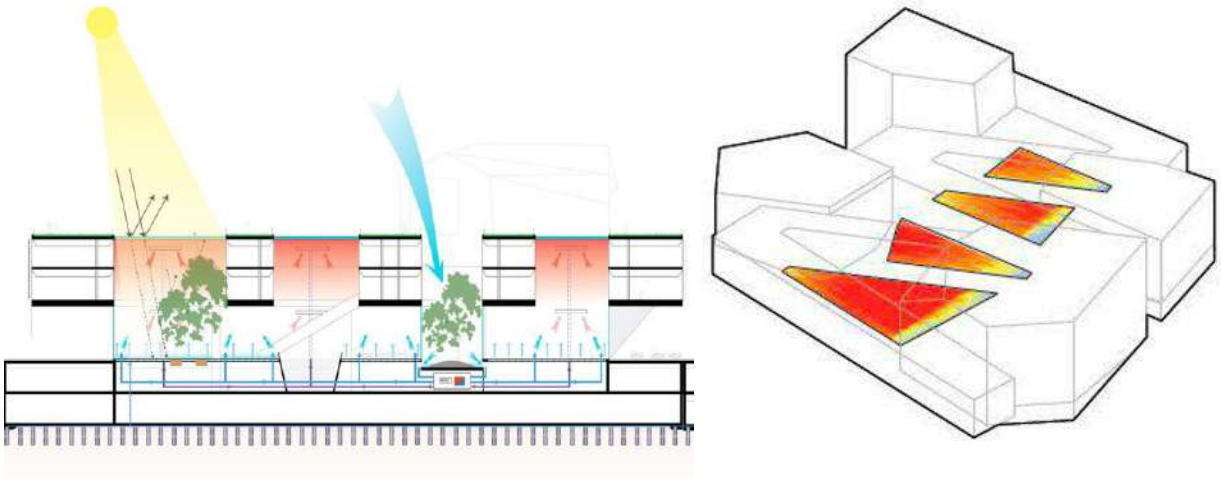
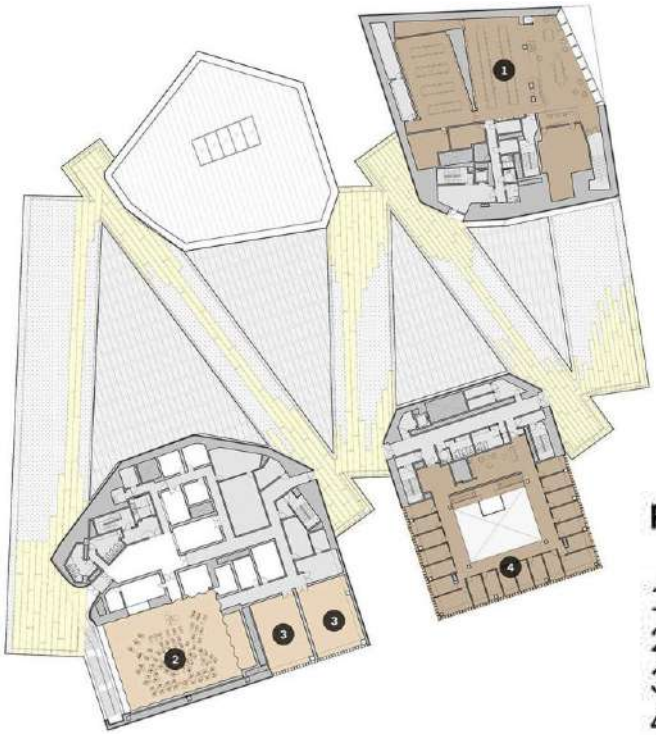


Figure 109: Juiliard School Building Design Concept

The upper floors incluse classrooms for drama, dance, music and arts placed in triangular form forming as void in between which overlooks the main lobby. The triangular portions maintains the form of the building. It also includes spaces like faculty and student lounges, practice rooms and teaching studios.

PROGRAM

1 FACULTY LOUNGE
2 CONCERT HALL
3 TEACHING STUDIOS
4 PRACTICE ROOMS
5 CLASSROOMS
6 STUDENT LOUNGES



The upper floor i.e. second floor consists of a library, faculty offices and orchestra rehearsal rooms.

PROGRAM

1 LIBRARY
2 ORCHESTRA REHEARSAL
3 KEYBOARD ROOMS
4 FACULTY OFFICES

Figure 111: Second Floor

3.3 International Case Studies

3.3.1 The Kennedy Center for the Performing Arts

3.3.1.1 Introduction

Figure 112: Keneddy centre of Performing arts

The John F. Kennedy Center for the Performing Arts is the United States National Cultural Center, located on the eastern bank of the Potomac River in Washington, D.C. Opened on September 8, 1971, the center hosts many different genres of performance art, such as theater, dance, orchestras, jazz, pop, psychedelic, and folk music.

The original building, designed by architect Edward Durell Stone, was constructed by Philadelphia contractor John McShain, and is administered as a bureau of the Smithsonian Institution. An earlier design proposal called for a more curvy, spaceship-inspired building similar to how the Watergate complex appears today. An extension to the Durell Stone Building was designed by Steven Holl and opened in 2019. The center receives annual federal funding to pay for building maintenance and operation.

3.3.1.2 Architecture

Figure 113: Kennedy centre

- Architect Edward Durell Stone designed the Kennedy Center. Overall, the building is 100 feet (30 m) high, 630
- feet (190 m) long, and 300 feet (91 m) wide.
- The Kennedy Center features a 630-foot-long (190 m), 63-foot-high (19 m) grand foyer, with 16 hand-blown
- Orrefors crystal chandeliers (a gift from Sweden) and red carpeting.
- The Hall of States and the Hall of Nations are both 250-foot-long (76 m), 63-foot-high (19 m) corridors. The building has drawn criticism about its location (far away from Washington Metro stops), and for its scale and form, although it has also drawn praise for its acoustics, and its terrace

overlooking the Potomac River. In her book On Architecture, Ada Louise Huxtable called it "gemütlich Speer."

- Cyril M. Harris designed the Kennedy Center's auditoriums and their acoustics. A key consideration is that many aircraft fly along the Potomac River and over the Kennedy Center, as they take off and land at the nearby Ronald Reagan Washington National Airport. Helicopter traffic over the Kennedy Center is also fairly high.
- To keep out this noise, the Kennedy Center was designed as a box within a box, giving each auditorium an extra outer shell.
- The Welcome pavilion stands above the entrance, while the Skylight pavilion at the center of the site has a mas- sive curved wall.
- The River pavilion, which is built at the lowest part of the grass mound, sits alongside the river and is adjacent to a reflection pool.

3.3.1.3 Zoning and Site Planning

Figure 114: Zoning of Kennedy Centre

3.3.1.4 Concept

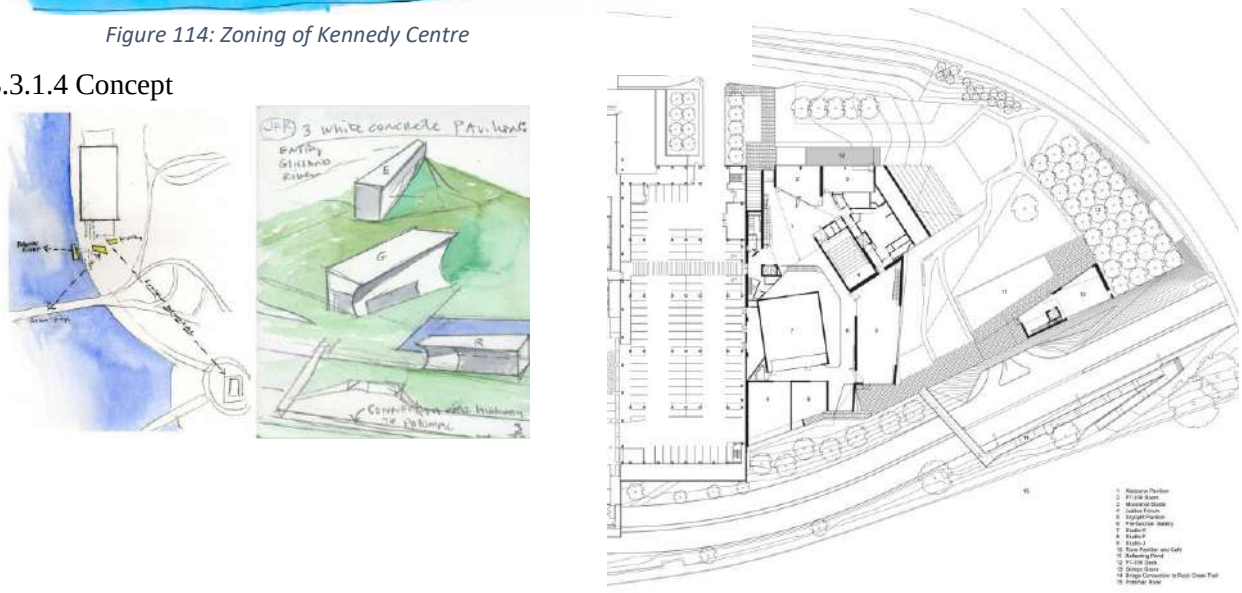


Figure 115: Concept Development

Building By the River:

Because the soil near the Potomac River is challenging at best and unstable at worst, the Kennedy Center was built with a caisson foundation. The Kennedy Center Building Expansion Project enlisted architect Steven Holl to design an outdoor stage pavilion, originally to float on the Potomac River.

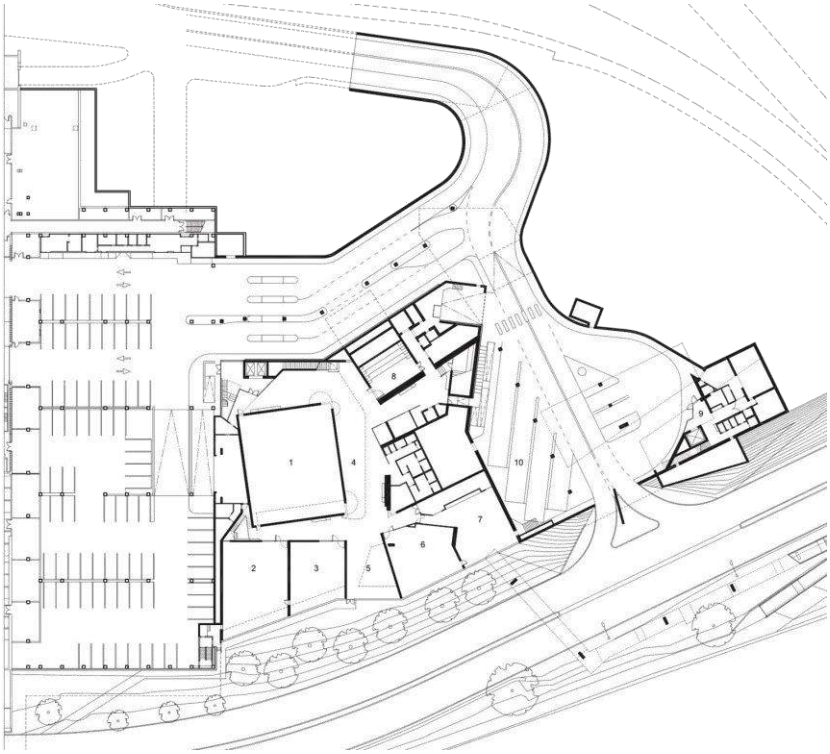


Figure 116: First Floor of Kennedy Centre

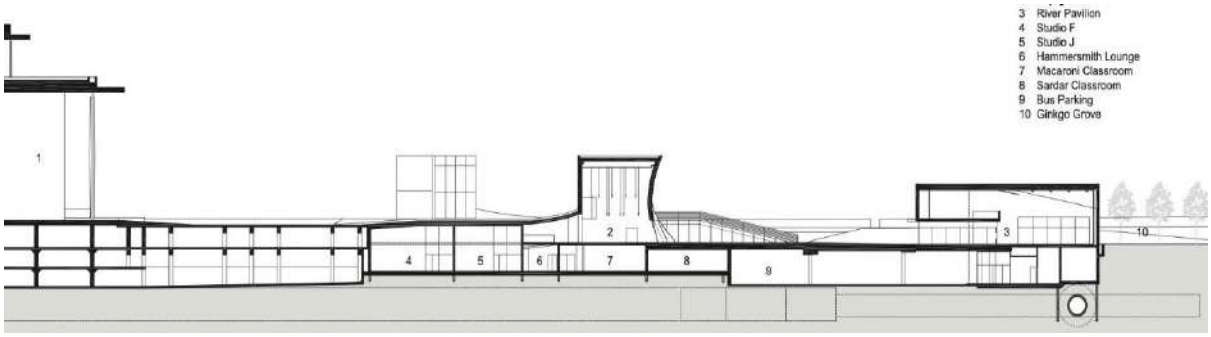


Figure 117: Section Through the Auditorium

3.3.1.5Analysis

- Enough two and four wheeler parking spaces.
- Provision of proper drama classrooms and drama studios.
- Includes small theatre in upper floors but lacks proper auditorium.
- The access by the means of bridge may not always be feasible.
- Overall access and circullation through the site is with wide road so it could be an advantage during emergency cases

3.3.2 Buddy Holly Hall of Performing Arts

3.3.1.1 Introduction

The Buddy Holly Hall of Performing Arts and Sciences is a new performing arts venue in Lubbock, Texas. Groundbreaking took place on April 20, 2017

Location - Lubbock, United States Site Area - 20400 sq.m (40-2-3-0) Architect - Diamond Schmitt Architects

Building Type - Institutional

Figure 118: Aerial View of the Hall

Figure 119: Location Map of the Hall

3.3.2.2 Zoning and Planning

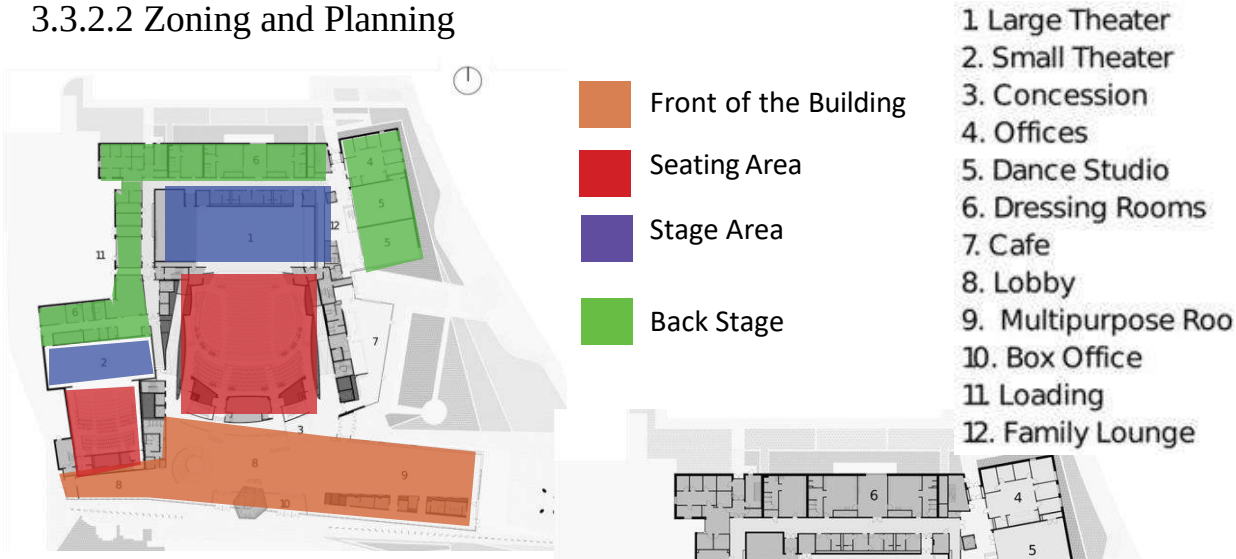


Figure 120: Zoning of Buddy Holly Hall

- There are two theatre halls.
- The front of the buildings includes lobby areas, ticket counter, cafe and food stall concession area.
- The seating area of the main auditorium hall is of capacity 2297 seats whereas of small theatre is 415.
- The seating area faces to the Procenium type stage.
- The backstage consist of dressing rooms segregated for male and female, preparation areas and wash rooms.
- The second floor consists offices, lounge, and dance studios on ground floor.
- The building's modern exterior design draws from the prismatic and layered rock formations of the surrounding area.
- The hall interior's adaptive layout is tailored to its unique and wide-ranging performance line-up.

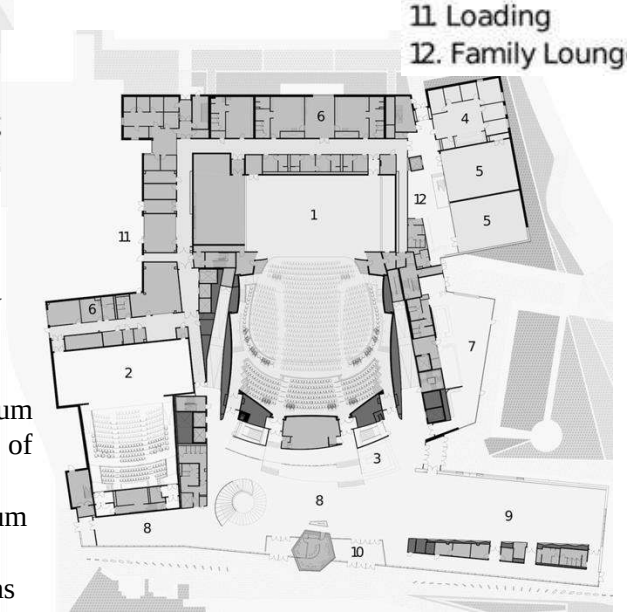


Figure 121: Master Plan of the Auditorium

3.3.2.3 Architecture

Upper floor consists of mechanical rooms, Technician areas.

- A long overhang, angled concrete fins, and deep-set ribbon windows all act as architectural drapery.
- The hall's use of glass at ground-level entrances creates an inviting and seamless transition for visitors entering and exiting the hall.

Figure 123: Main Theatre

Figure 122: Small Theatre

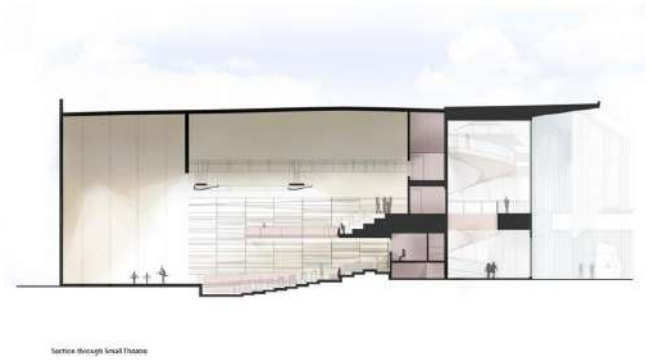


Figure 125: Section Through Large Auditorium

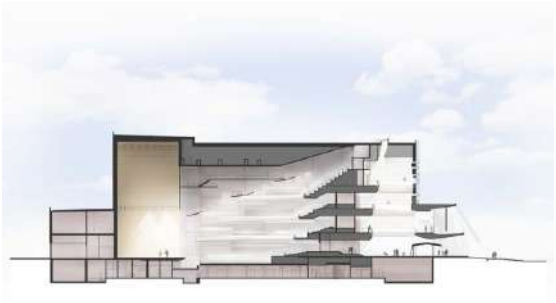


Figure 124: Section through Small Auditorium

3.3.2.4 Analysis

- The auditorium area have proper spaces like dressing rooms and washrooms.
- The lobby areas and foodcourts are planned so that it would be easily accessible and work for both theatres.
- Proper acoustics work so that the thetares would not cause trouble of sound at the same time performances.

4. SITE ANALYSIS

Site analysis is done in two levels that is, micro level and macro level. The macro level analysis of site includes the overall study of the site surrounding and the climatic zone whereas the micro level of the analysis includes study of micro climate and immediate surrounding.

4.1 Site Introduction

The site is located at Radhe Radhe of Bhaktapur District, Madhyapur Thimi Municipality, Ward no 5. The site is approached from the 7m wide service road of the Araniko Highway 25 meter wide.

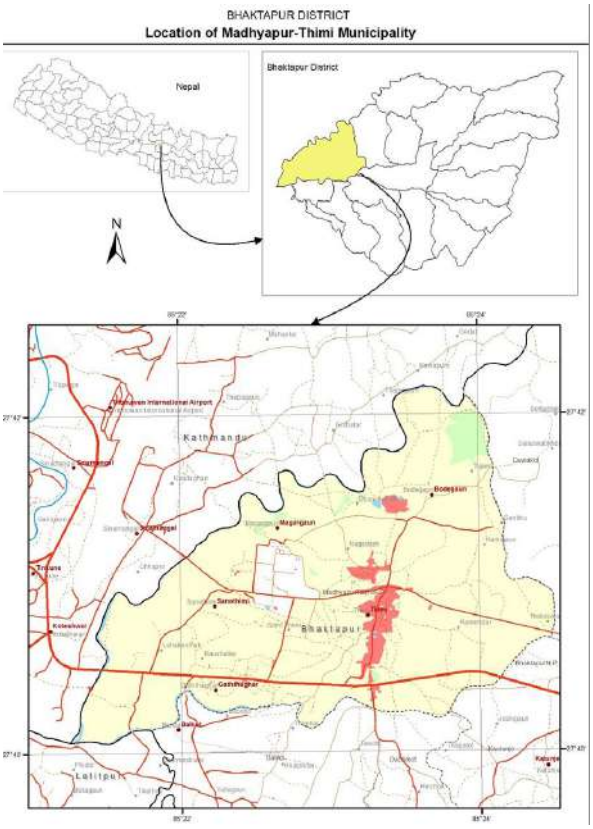


Figure 126: Location of Municipality

Figure 127: Site surrounding with 200m radius from the site

4.2 Site Description

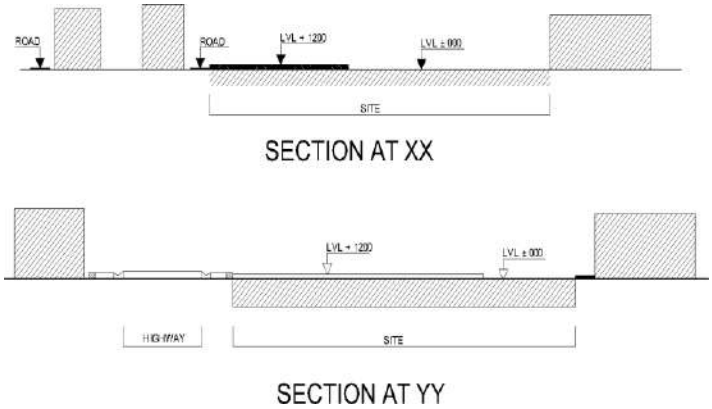


Figure 128: Section of the site showing the main road and site levels

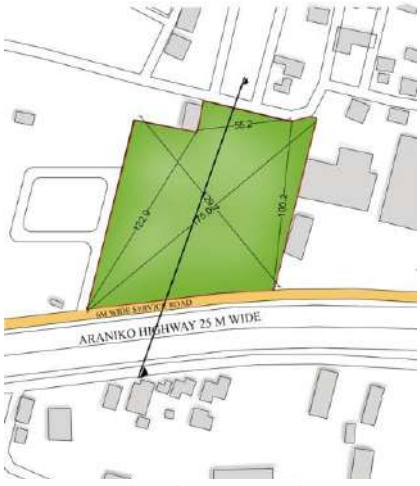


Figure 129: Site plan showing site dimensions

g sub zone. It lies within th Sangam 85 square meter which is 22 ropanee 8 anna 2 paisa and 0 daam. The site is south oriented with flat topography.

Figure 130: View of site from south

Figure 131: View of site from east

Figure 132: View of site from north

4.3 Site Access

Figure 133: Site plan showing site access

Figure 134: Road Hierarchy

- 25m wide Araniko Highway
- 14m wide road
- 6m wide service road
- 6m wide colony road

4.4 Site Justification

For the location of the site, it is specifically chosen to be Bhaktapur because within the valley, both Kathmandu and Lalitpur consists of the drama school and theatre spaces.
Only Bhaktapur district of the Kathmandu valley lacks a proper theatre or auditorium and other theatre spaces including institutions related to theatre.
The site is chosen in Radhe Radhe, Bhaktapur because with the establishment of the Bhatbhateni complex and the Royal Thai Hospitality, it has become one of the growing places in population, commercialization and residence.

Radhe Radhe is one of the happening places in Bhaktapur that falls within the satellite city of Madhyapur Thimi.
So designing a theatre and drama school with enough population to attract to, it can create various opportunities. The site falls within a close proximity to Kathmandu and Lalitpur and also falls on the way from banepa through the connection of the Araniko Highway.
Since the site is in direct visibility from the Araniko Highway, there is easy access to the site.

4.5 Neighbourhood Context

4.5.1Immediate Surrounding
The site is directly visible from the Araniko Highway and approached from the service road.
Major Landmarks such as Bhat Bhateni Supermarket, Royal Thai Hospitality, Heritage Palace Banquet are within 250 m radius of the site.
The site is situated within Sangam Colony.

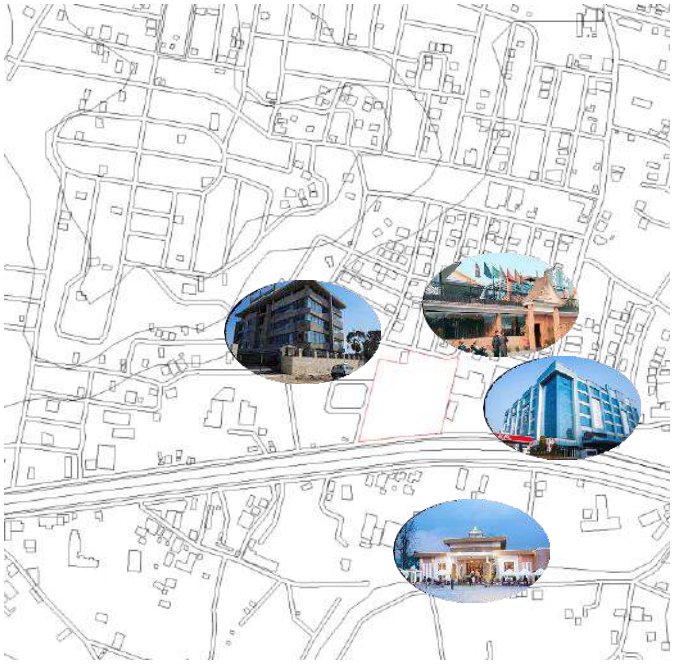


Figure 135: Neighbourhood Context

4.5.2 Proximity Analysis

- Within 4km there are major traditional areas such as Bhaktapur Durbar Square, Traditional Settlement of Thimi and Nil Barahi Temple. These traditional proximities might influence the design and people around the site.

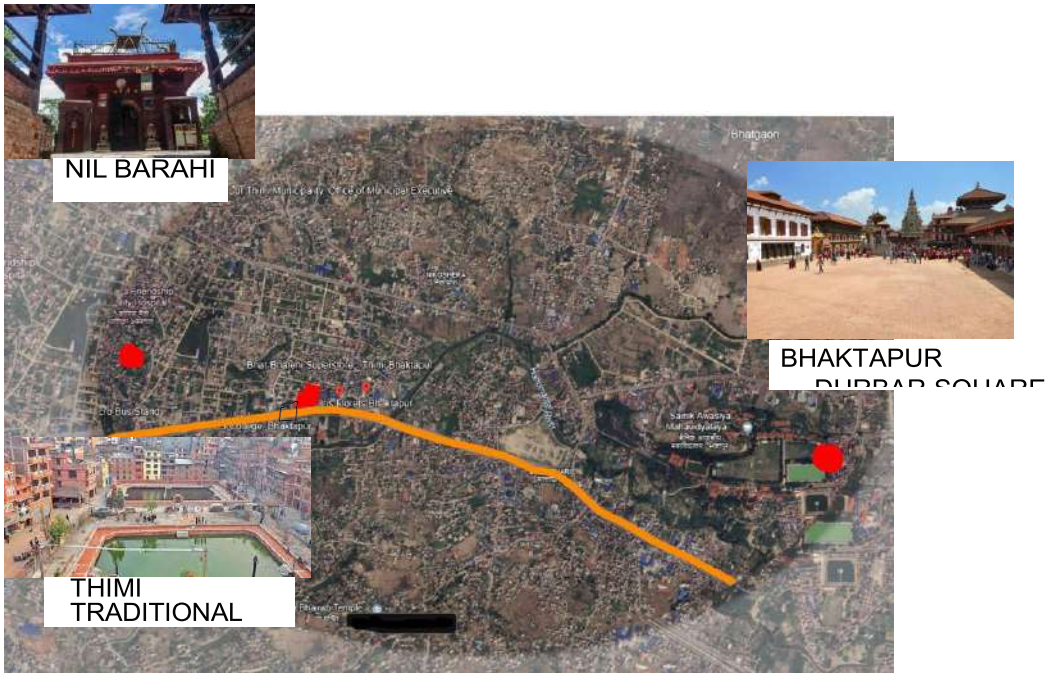


Figure 136: Proximity Analysis

4.5.3 Busy Areas

Busy Areas at Radhe Radhe Bus Stand and New Thimi Chwok

Busy Areas during Biska Jatra i.e Jatra Route which also affects the service road going thgrough the site

Busy Areas during wedding seasons for the banquet i.e Thai hospitality

Bus stops within close proximity, 500m to Thimi and 200m to Radhe radhe

Figure 137: Busy Areas

4.6 Human and Culture

Madhyapur Thimi Municipality Total Area ...
Population = 119,756 (Census 2021)
Population Density = 10,777/km

Age Groups (C 2021)	
0-14 years	23,729
15-64 years	89,243
65+ years	6,784

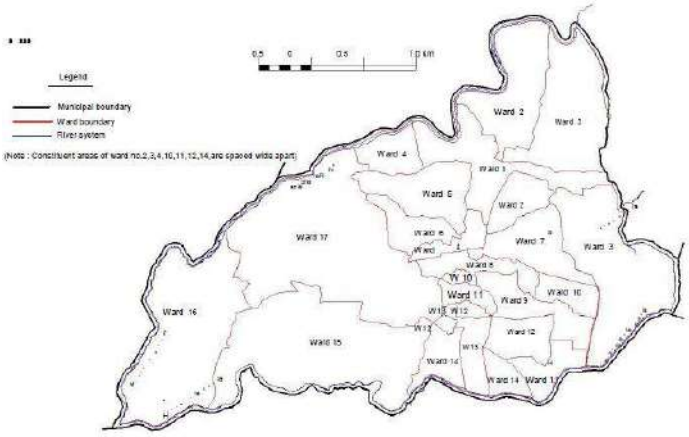
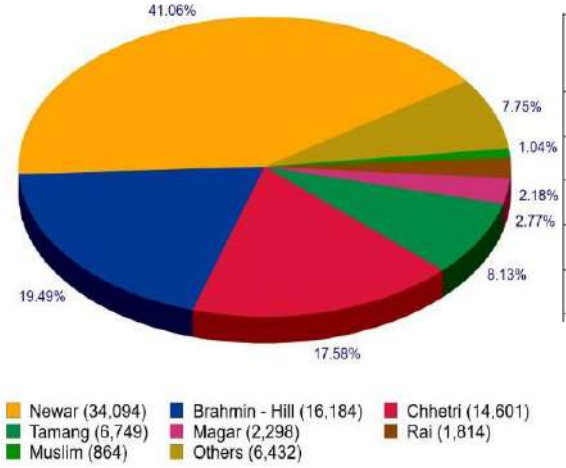


Figure 1: Map of Madhyapur Thimi Municipality

Figure 138: Madhyapur Thimi Municipality

As the data shows the maximum population in ward no 5 of Madhyapur Thimi Municipality where the site resides is of the age group from 15 to 64 years which is the age group of people to be involved in theatre arts as the literature suggests. So, people can be attracted to the theatre to be designed on this site. Also, the site is near the traditional Thimi settlement, so various ethnic people can devour the experience of the theatre experience in traditional forms.

Ethnicity



Ward no.	Household	Male	Female	Total
1	662	1630	1424	3054
2	437	1004	1025	2029
3	1389	3331	3033	6364
4	457	978	967	1945
5	714	1607	1582	3189

Figure 139: Ethnicity

4.7 Climatic Analysis

The maximum temperature is 83 degree Fahrenheit in the month of June. During this temperatures design attention is required in the places like open air theatre.

The minimum temperature is 37 degree Fahrenheit in the month of January. North side of the site is to be taken into considerations during this time of the year.

The wind direction of Bhaktapur area is from south west to north east. These winds flowing are prevailing winds. The maximum wind flows in the month of April with 6.3mph and least in November with 3.7mph.

Maximum precipitation is in the July and minimum in November.

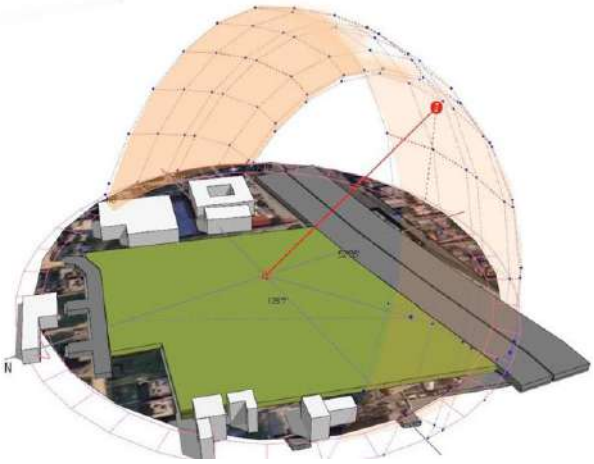


Figure 140: Sun Angle

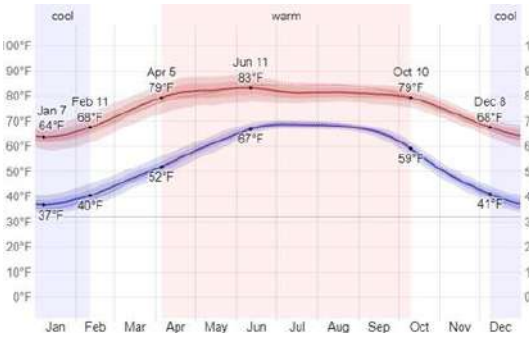


Figure 141: Average High and Low Temperature

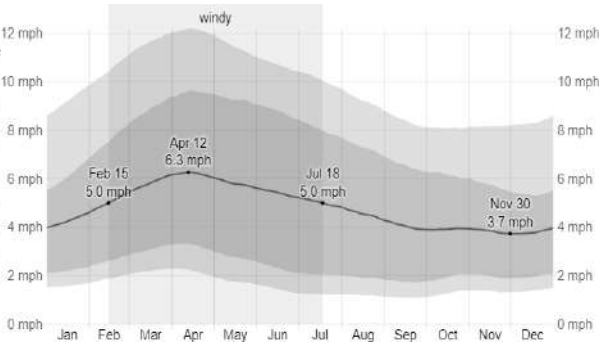


Figure 142: Average Wind Speed in Bhaktapur

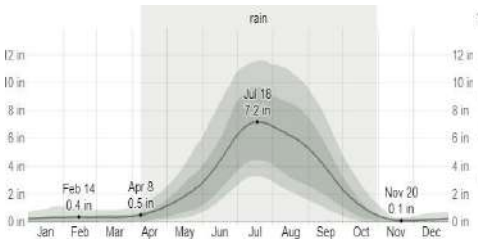


Figure 143: Average Monthly Rainfall in Bhaktapur

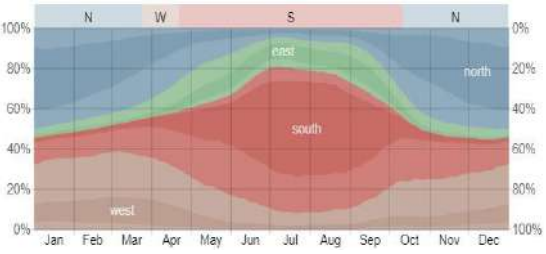


Figure 144: Wind Direction in Bhaktapur

4.8 Topography

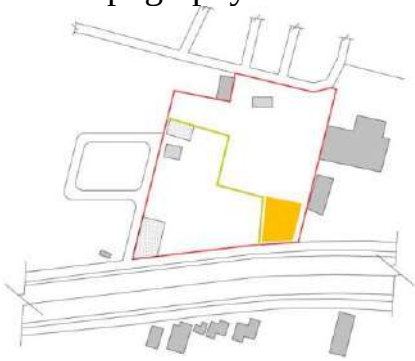


Figure 145: Man Made Features

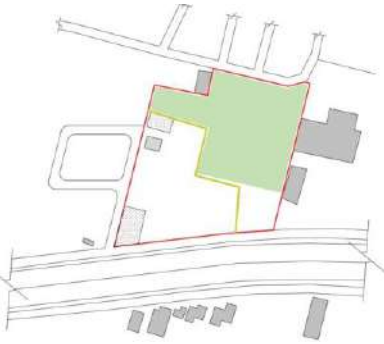


Figure 146:Natural features

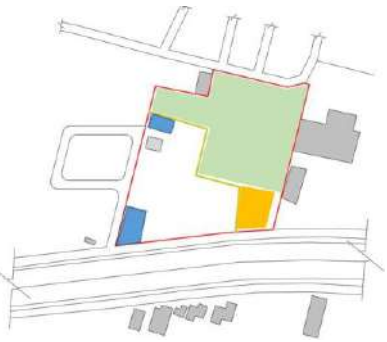
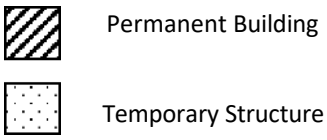


Figure 147: Land Use



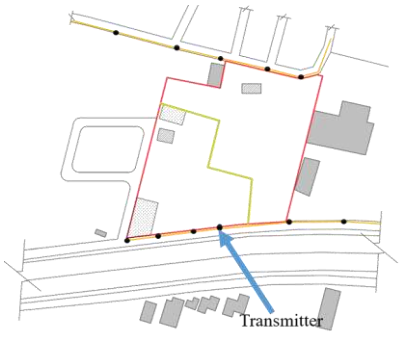


Figure 148: Electricity

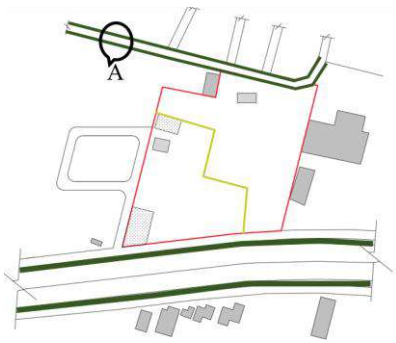
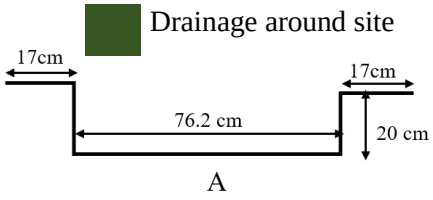


Figure 149: Drainage

Figure 150: Sensory



4.9 SWOT Analysis

STRENGTH

Direct access and visibility from the main highway multiple access to the site which can be a strength during the days of busy days.

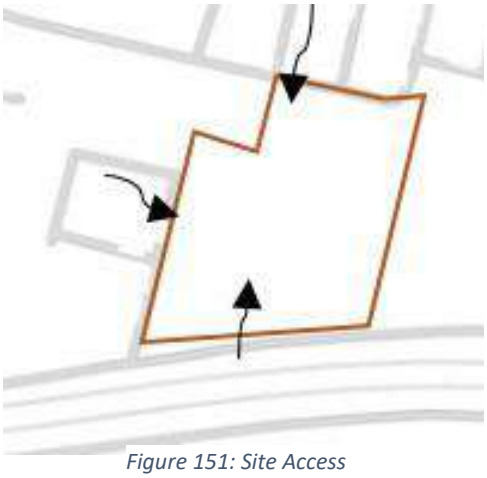


Figure 151: Site Access

WEAKNESS

The view in the north is not visible from ground level so difficult to use.

Pollution due to high traffic density of main highway, i,e, smoke, noise, dust

Figure 152: Sensory

OPPORTUNITY

The site is south oriented so use of shading devices can be used in the design in further processes. Site location within a colony in a sub residential commercial zone so attraction of more people. The traditional settlement of Thimi and people can be attracted to various ethnic pragrams.

Figure 153: Cultural Significance

THREAT

During high rainfall, flood might be a threat as the site is on lower level than of the main highway.

Figure 154: High rainnfall Causing Flooding

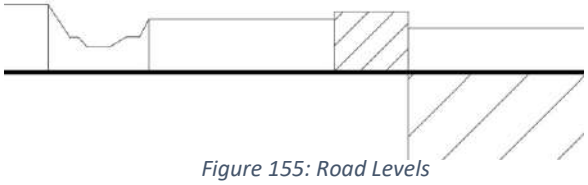


Figure 155: Road Levels

4.10 Bye Laws

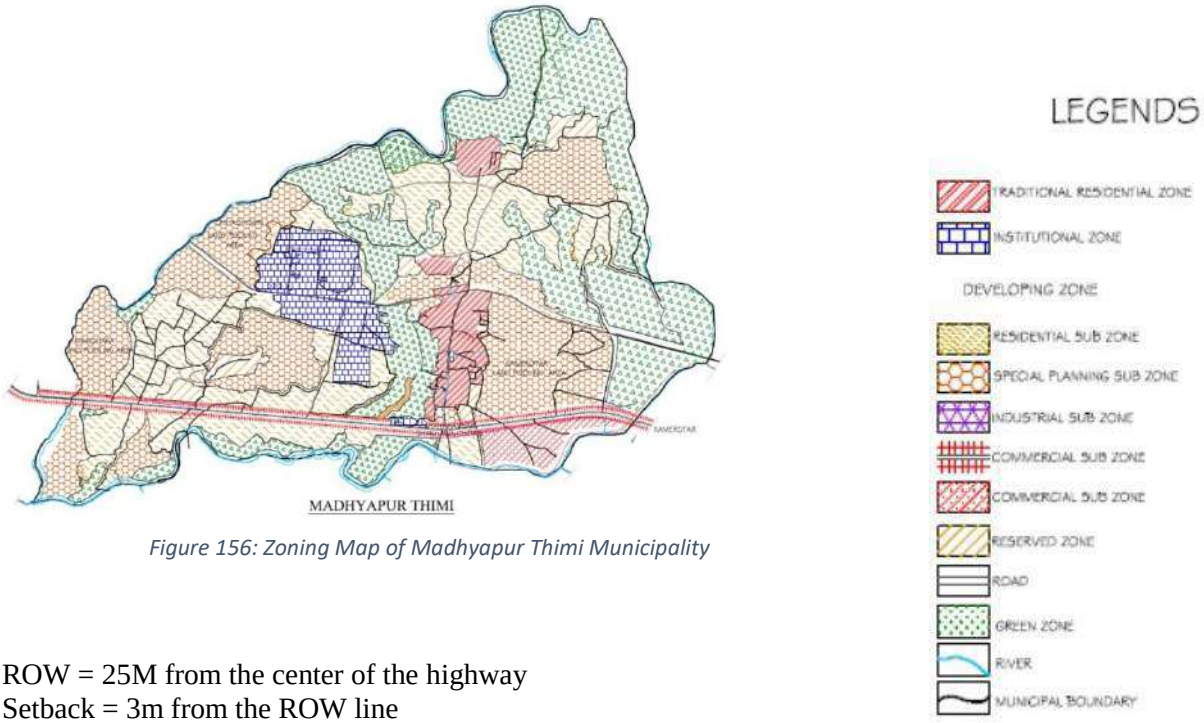


Figure 156: Zoning Map of Madhyapur Thimi Municipality

ROW = 25M from the center of the highway
Setback = 3m from the ROW line
= 3m from other roads
= 1.5 m from property line Open Spaces = 4% of total site area for 10-25 ropanee land area Coverage = 40% for institutional building
FAR = 3.5
Parking = 20% of the total site area

(ग) विकासशील क्षेत्र (Developing Zone)

यस नगरपालिका क्षेत्रभित्र अन्य विविध विकास विस्तारको अवस्थालाई अझै सुव्यवस्थित बनाउन यस क्षेत्रका भू-भागलाई निम्न अ
उपक्षेत्रमा विभाजन गरिएको छ । विभिन्न प्रकारका भवनलाई आ आफ्नो उप क्षेत्रको नियम लागू हुने गरी विभाजन समेत गरिएको छ ।

(अ) आवासीय उपक्षेत्र
(आ) व्यापारिक उपक्षेत्र
(इ) औद्योगिक उपक्षेत्र
(ई) विशेष योजनागत उपक्षेत्र
(उ) संयुक्त आवास/कोलोनी
(ऊ) अन्य उपक्षेत्र

(अ) आवासीय उपक्षेत्र (Residential sub-zone)

परम्परागत आवासीय क्षेत्र,संस्थागत क्षेत्र,व्यापारिक उपक्षेत्र,औद्योगिक उपक्षेत्र,विशेष योजनागत उपक्षेत्र बाहेकमा भवन निर्मा
यस विनियममा रोक नलगाइएका क्षेत्रहरूलाई आवासीय उपक्षेत्र भनी तोकिएको छ । जुनसुकै क्षेत्रमा निर्माण हुने आ
भवनको हकमा समेत यो उपक्षेत्रको नियम लागू हुनेछ । यस उपक्षेत्रमा निर्माण हुने भवन आदिको मापदण्ड निम्न अ
निर्धारण गरिएको छ,-

१) *भवनको क्षेत्रफल तथा उचाइः* यस क्षेत्रमा निर्माण हुने भवनको क्षेत्रफल तथा उचाइ निम्न बमोजिम हुनुपर्नेछ,-

स्थानीय विकास
मध्यपुर थिमि नगरपालिका
२०७३

5. Program Formulation

Users of the space

1. Students

= 35 for students 1.5 years of academic and training program

= 40x2 students for 3 months a year academic and training progam

2. Teachers

- Drama = 2
- Music = 2
- Dance = 2
- Direction and Visual Arts = 2
- Light and Sound = 1
- Literature = 2
- Total No. of People = 115 - 120

1. Administration Staff

- Accountant = 2
- Director = 1
- Management = 5
- Gallery/ Merchandise = 2
- Library = 2

2. Services

Cleaners = 5

Guard = 1

Workers at cafeteria and restaurant = 10

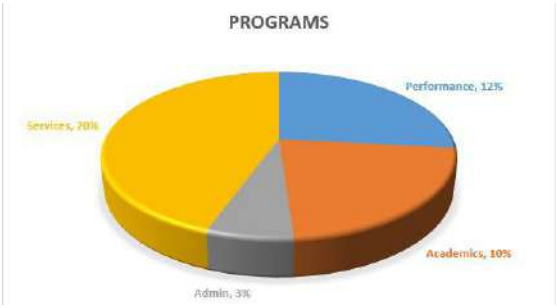
Program from Literature

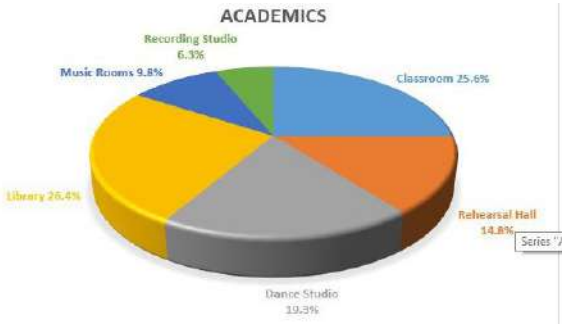
S.N.		Occupants	Area per person (sq.m)	LXB	No. of Units	Area (sq.m)	Total Area (sq.m)	Remarls
	ACADEMIC							
A	Drama							
1	Classrooms							
i.	For 1.5 year	35	2.04		1	71.4	71.4	
ii.	For 3 months	40	2.04		2	81.6	163.2	
2	Drama Studio		1.8		2	193	392	
B	Dance Studio							
1	Classrooms							
i.	For 1.5 year	35	2.04		1	71.4	71.4	From course of mandala
ii.	For 3 months	40	2.04		2	81.6	163.2	theatre and Gurukul
2	Dance Studio			9x9	2	81	162	
	Changing Rooms			1.5x2	4	3	12	2:Male, 2:Female
C	Music Studio				1			
1	Rehearsal Room				2	30	60	
2	Practise Room				4	10	40	
3	Recording Studio			9x6	1	54	54	
D	Gallery/ Merch				1	80	80	
E	Workshop							
1	Painting Room						36	
2	Carpentry						40	
3	Upholstery						18	
4	Sculptor						20	
5	Metal						40	
6	Changing						10	
F	Library							
1	Occupants	50	2.5		1		125	
2	1000 Book Vol.						10	
	PERFORMANCE							
A	Front of Building							
1	Lobby		1.8					
2	Toilets						75	
i.	Male			1.5x0.8	2		2.4	1 cubicle for 250 male
	Urinals			0.762x1.22	5		4.65	1 urinal for 50-100 male
ii.	Female			1.5x0.8	5		6	4 cubicle for 100 female
iii.	Universal			1.5x2.2	1		3.2	
3	Restaurant	130	1.07		1		140	
B	Seating	300	1.09		1		327	
C	Stage		1.02	20x10	1		204	
D	Backstage							
1	Green Rooms							
i.	Changing(Male)			1.5x1.5	4	2.25	9	

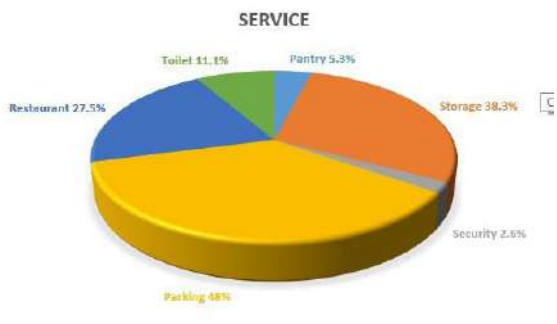
ii.	Changing(Female)			1.5x1.5	4	2.25	9	
iii.	Makeup (Male)			5x7	1	35	35	
iv.	Makeup (Female)			5x7	1	35	35	
2	Refreshment/ Pantry			5x5	1	25	25	
3	Toilets							
i.	Male			1.5x0.8	1	1.2	1.2	1 cubicle for 250 male
	Urinal			0.762x1.22	2	0.93	4.65	1 urinal for 50-100 male
ii.	Female			1.5x0.8	4	1.2	6	4 cubicle for 100 female
iii.	Universal			1.5x2.2	1	3.2	3.2	
E	Open Air Theatre							
1	Large	300	1.02		1		306	
2	Small	100	1.02		1		102	
S.N		Occupants	Area per person (sq.m)	LXB	No. of Units	Area (sq.m)	Total Area (sq.m)	Remarls
	ADMINISTRATION							
1	Accountant Room			5x5	1	25	25	
2	Director's Room			5x5	1	25	25	
3	Management			5x8	1	40	40	
4	Staff Room			5x10	1	50	50	
5	Meeting Rooms			5x4	2	20	40	
6	Toilets			1.5x1.5	8	2.25	18	
	SERVICES							
1	Cafeteria	100	1.07		1		107	
2	Generator							
i.	Generator (Pad)			6x3.6	2	21.6	43.2	
ii.	Generator House			12x6	1		28.8	
3	Parking							
i.	Four Wheelers		8.36	2x4.64	50	8.36	418	
ii.	Two Wheelers		1.6	0.8x2.13	200	1.6	320	20%of site = 2292.6sq.m

Program from Planning

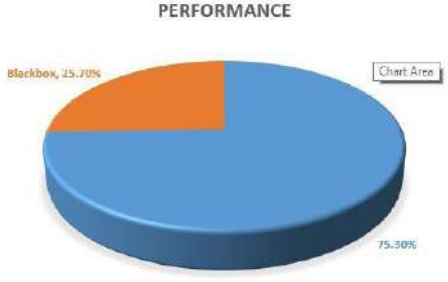
Max coverage allowed: 40% Total site area: 11463.4085 sq.m Total Ground Coverage: 3174.86 sq.m
i.e 30 % of the total site area
Total First Floor Coverage: 2153.67 sq.m
Building Footprint area = 3771.28 sq.m, 25 % for walls, circulation, voids
Total Built up Area = 5511.04 sq.m







A. PERFORMANCE	AREA (SQ.M)	NO OF US-ERS	NO.S	TOTAL AREA
1. Main Theatre	1019.68	215	1	1019.68
2. Black Box Theatre	170.6	100	2	341
B. ACADEMIC				
1. Classrooms	65	42	4	260
2. Rehearsal Studio	50	35	3	150
3. Dance Studio	100	45	2	200
4. Library	280	50	1	280
5. Music Rehearsal Rooms	32	10	3	96
6. Recording Studio	61	5	1	61
C. ADMINISTRATION				
1. Finance	42	3	1	42
2. Admission	35	3	1	35
3. Management	40	1	2	80
4. Meeting Room	40	1	1	40
5. Cabins	60	1	1	60
6. Staff Room	67	15	1	67
D. SERVICES				
1. Pantry	60		2	120
2. Storage	31		4	124
3. Security	60	2	1	60
4. Parking	1094		1	1094
5. Restaurant	627	110	1	627
6. Toilets	50		5	250



6. Concept Development

The theater experience is a unique and immersive form of entertainment that engages audiences through live performances. Unlike watching a movie or a TV show, theater performances take place in real-time, allowing the audience to connect with the actors and the story on a deeper level.

Figure 157: Theatre

Figure 158: Ancient Theatres

The essence of a theater lies in its ability to create a shared, live experience that connects performers and audiences in a unique and profound way.

The very concept of performance or “Theatre” as the history suggests, started from the circular Greek Amphitheatres. The open air amphitheatre which were used for entertainment purposes in ancient times. The significance of the theatrical spaces is profound in the history of theatre architecture.

The theatre spaces are well designed for the gatherings of a group of people and generally allow for the controlled access, theatres tend to be used as multipurpose buildings that can provide assembly spaces for lectures, meetings, concerts, films, performance arts, circuses and even some kinds of sporting events.

The essence of theater is also found in its ability to evoke strong emotions whether through comedy, tragedy, or drama, theater has the power to move people, leaving lasting impressions and sparking conversations.

CONCEPT: Live Interaction

At its core, theater is about the live interaction between performers and the audience. This immedi-acy creates a sense of presence and participation that cannot be replicated in other forms of entertainment.

Theater as a live interaction space in architecture is an intricate blend of design, functionality, and atmosphere, carefully crafted to enhance the connection between performers and the audience. The architectural design of a theater is pivotal in shaping the overall experience, focusing on how space can facilitate and amplify the live interaction that is at the heart of theater.

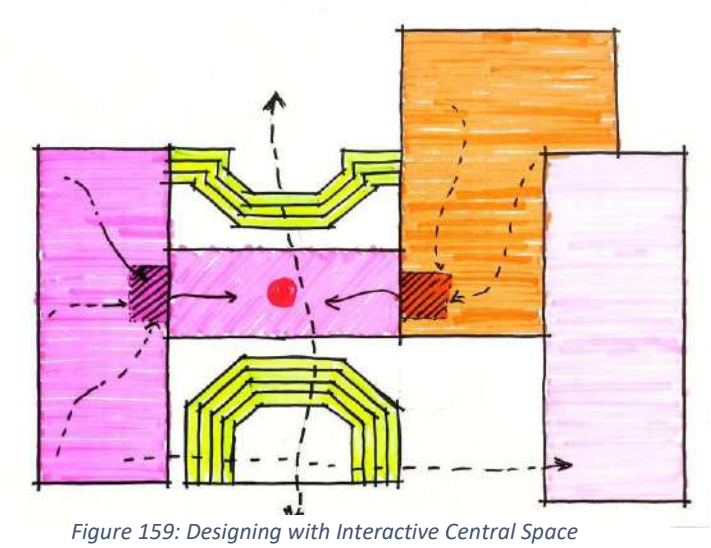


Figure 159: Designing with Interactive Central Space

Purpose of Live Interaction

The basic concept and major purpose of the theatre is to give people a live experience of things by seeing. This is how theatres work. So, it can be used in the spaces outside the theatre building also. Not only the actors interact with the audience but also the audience should interact with other audiences. Therefore, such spaces where people could come together with the intention of intercommunication about various things be it about the drama they just watched or the area they are being stood on or the spaces around them. Such communal space could be placed in the form of central plaza, the very central point of the overall site design.

In essence, theater architecture is not just about creating a venue for performances, but about designing a space that actively facilitates and enhances live interaction. The architecture of a theater shapes how stories are told and experienced, turning the physical space into an integral part of the theatrical experience.

Through thoughtful design, theaters become dynamic environments where the boundaries between performer and audience are fluid, creating a shared space for communication, expression, and connection.

CONCEPT: Site

The initiation of drama and theatres started from the open air amphitheatres so the main concept as a point of departure are those open air theatres. Also the lack of not only outdoor performing spaces or amphitheatres in the present context of Kathmandu Valley and then further Nepal, but also inefficient theatre and auditorium spaces in current theatres of Kathmandu Valley.

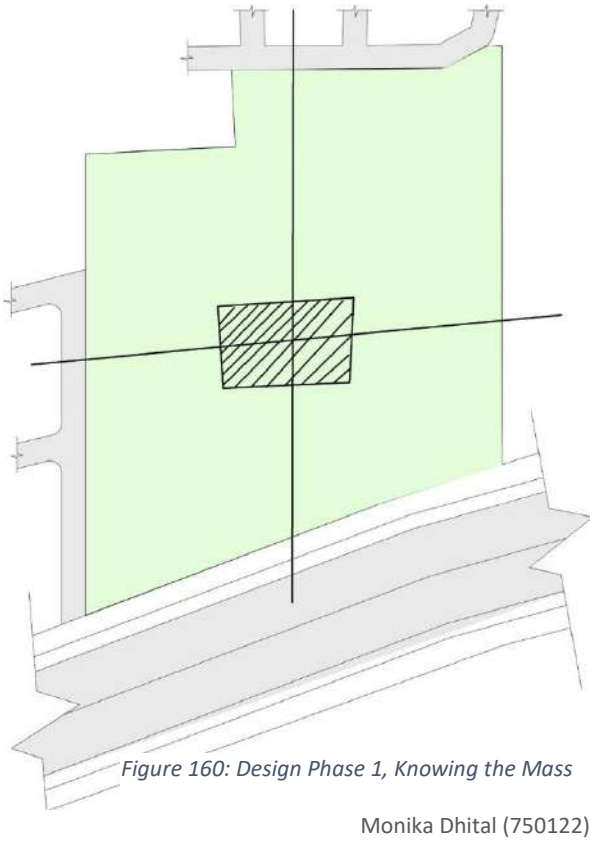


Figure 160: Design Phase 1, Knowing the Mass

To place this concept on the site, projection lines are drawn on the site on both x - axis and y - axis from the centre of both of the directions. From the derived centre point, radial lines for the open air

theatre is drawn from which a location of the OAT is made. Now leaving the spaces for the ROW and Setbacks on all of the sides of the site following the Bye laws of the Madhyapur Thimi Municipality, the functions of the theatre institution is placed following the lines of the site.

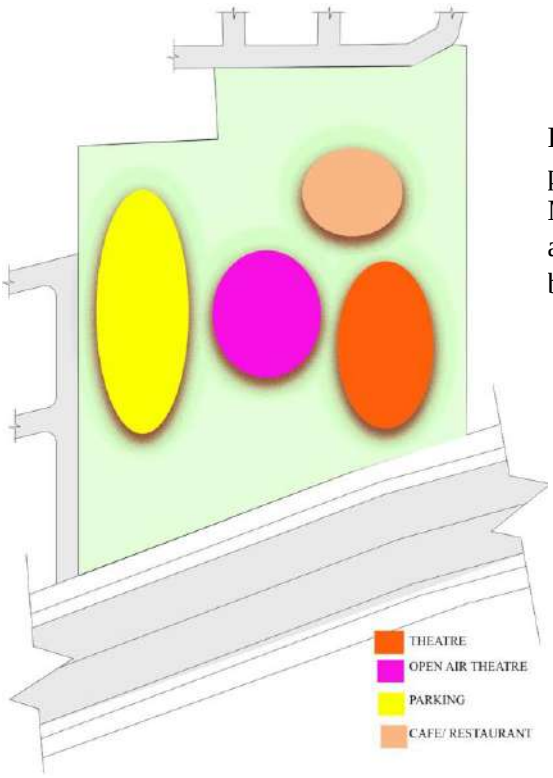


Figure 161: Design Phase 2, Zoning

Placing the required spaces based on the zoning and program and altering the functions accordingly. Maintaining the main concept of the Open Air Theatre and placement of the multiple courtyards as voids to balance and even out the mass.

Therefore, the concept is developed from the placement of the open air theatre (OAT), centralized on the site and planning the functions of the theatrical spaces accordingly.

The mass of the building is balanced by placement of voids and courtyards in multiple spaces and maintaining the zoning of the site accordingly. Assuring the pollution criteria and to give the feeling of openness to the one entering the building premises where one can observe the elevational character of the building and built environment.

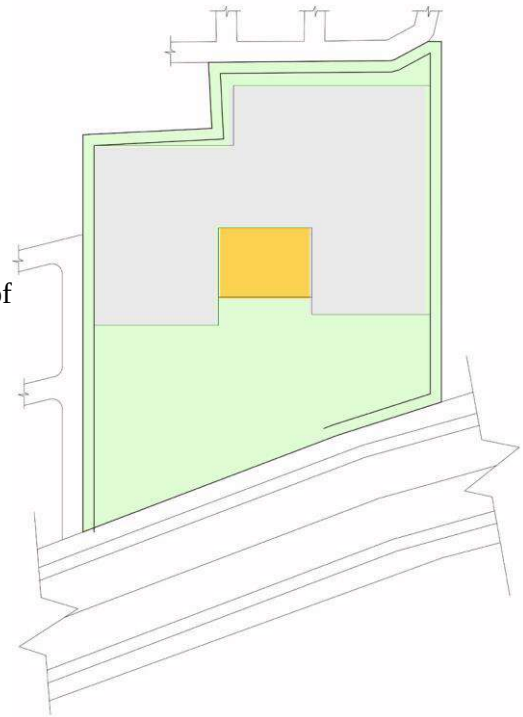


Figure 162: Design Phase 3, Placement

The programs are placed and planned on the rear side of the site because the front side is directly connected to the ever busy Araniko Highway so the problem of noise is inevitable due to the high traffic density. So, the frontal portion of the site could be used to create a buffer space that shields the institution from the possible noise and pollution.

CONCEPT: Master Plan

Figure 163: Design Phase 4, Master Plan

The central space acting as interaction space connecting the block on two sides. The meeting point of the circulation spaces connects two major open plaza area on north and south.

The central space connects two blocks to ease the movements whenever necessary. Reason for the separation of both blocks is also because the performance block is not wholly private, it is meant to be rented out to sustain the project i.e. the economic reverence and lack of auditorium type spaces within the locality.

Middle section of the design is the most prominent connecting medium which not only bridges the two units but

also acts as indoor activity space, also considering the weather factors.

CONCEPT: Form Development

The programs from the literature study was to be placed on the upper floors in order to develop the hierarchy of the building blocks for form development.

In order to do that, vertical zoning was an essential criteria to be fulfilled.

Therefore, the ground floor was meant to be dedicated wholly for the public following the open planning concept where the spaces of ground be it the building space or outdoor space could be used by public. Thus ground floor consists spaces such as parking, restaurant, theatre and open air theatre.

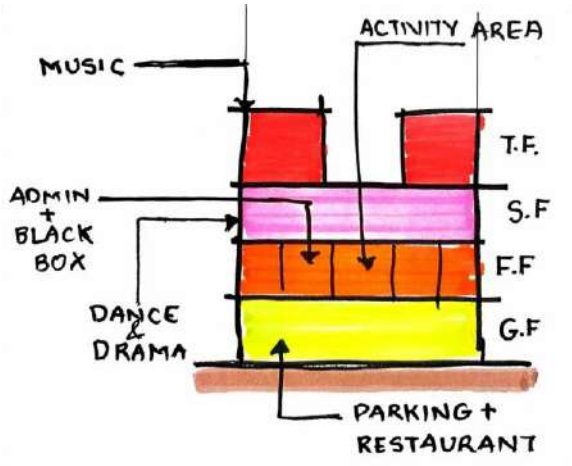


Figure 164: Vertical Zoning

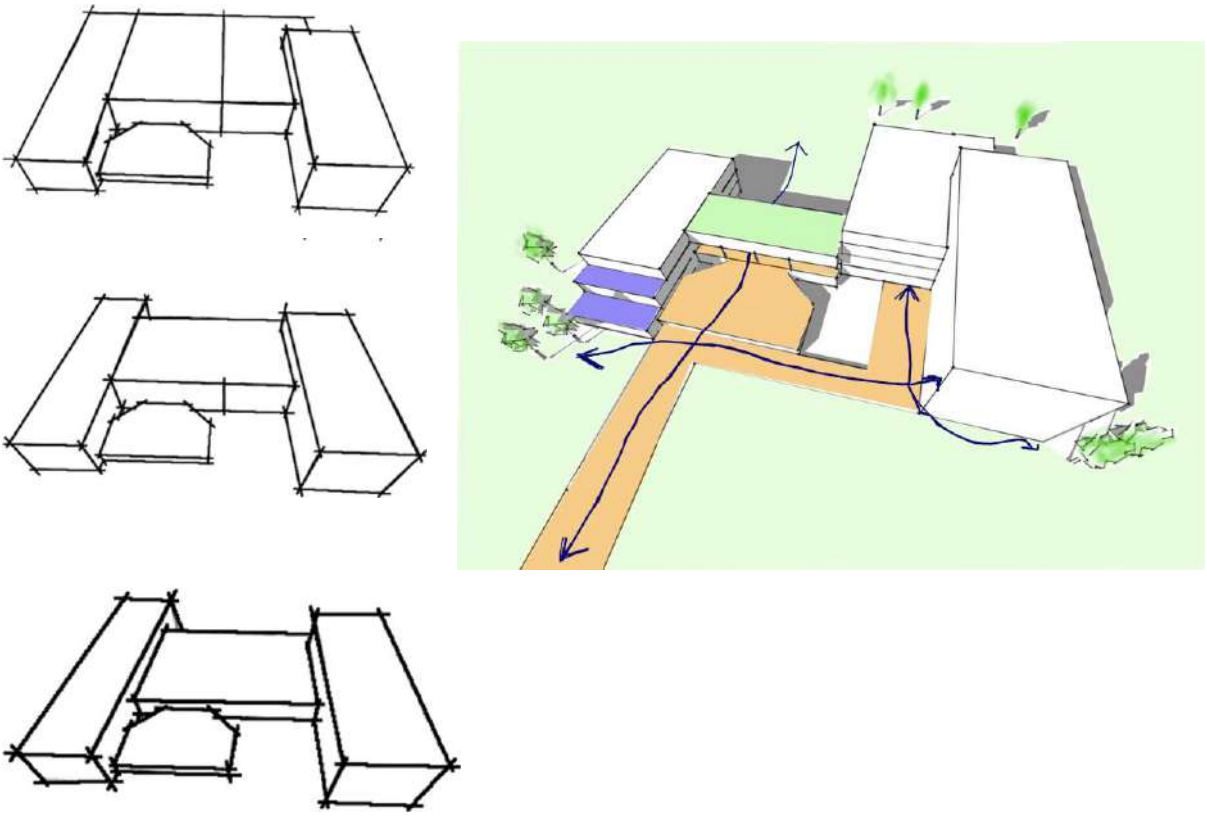


Figure 165: Design Phase 5, Form Development

With respect to the centrally placed plaza, the overall planning was done following the programs on the upper levels from vertical zoning. Mass and void spaces created to maintain the lightness of the building.

Figure 166: Design Phase 6, Interactive Space Formation

Figure 167: Design Phase 7, Finalization

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- *https://www.nepalarchives.com/content/madhyapur-thimi-municipality-bhaktapur-profile/*
- *https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/bhaktapur_nepal_1283617*
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ANNEX

ODEA : PERFORMING ARTS CENTRE- THEATRE

INTRODUCTION

A drama school, stage school or theatre school is an undergraduate and/or graduate school or department at a college or university; or a free-standing institution which specializes in the pre-professional training in drama and theatre arts, such as acting, design and arts administration.

THEATRE ARCHITECTURE

Theatre, in architecture, a building or space in which a performance may be given before an audience. The word is from Greek theatron, “a place of seeing.” Since ancient times evolving design of theatres has been determined largely by spectators’ physical requirements for seeing and hearing the performers.

THEATRE IN HISTORICAL EVOLUTION

GREEK	ROMAN	MEDIEVAL	MODERN	TODAY
• View of the orchestra (circular plan at the bottom of the slope)	• They separated the orchestra from greeks, which became a pit, from the proscenium, which would become the stage.	• Temporary wooden stages inside large halls and even barns.	• Three-story buildings in which a small stage could be viewed from the balconies and a seating area in the courtyard itself.	• all part of Greek, Roman, oriental and medieval legacies.
• a lack of spaces where large numbers of people could listen, but a large flat or cone-shaped esplanades started to appear, where you could sit and watch the performances.	• The audience sat on tiers of wooden benches, spectacula, supported by scaffolding. There was no curtain; the back scene, with its three doors, faced the audience.	• semi-circular structures, constructed of wood initially and later stone.	• semi covered courtyard thetares also opened for general pulic.	• distinct separation between the public in the stalls, stands and boxes at different heights (on the sides and to the front), and the stage and orchestra.

TYPES OF THEATRE ARTS

- DRAMA
  - COMEDY
  - TRAGEDY
  - MUSICAL
  - MELODRAMA
  - FARCE

NEPALI DRAMA

WESTERN DRAMA

- DANCE
  - BALLET
  - HIPHOP
  - FOLK
  - CONTEMPORARY
  - KATHAK

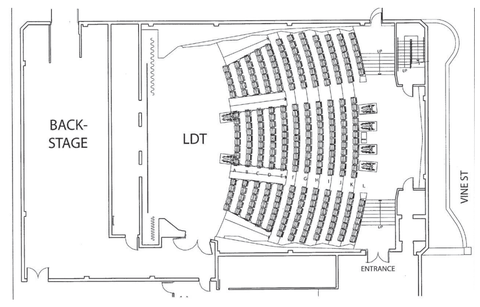
TRADITIONAL

CONTENPORARY

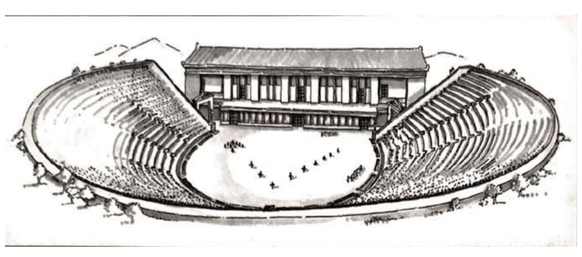
- MUSIC
  - JAZZ
  - ROCK
  - POP
  - CLASSICAL
  - FOLK/ CULTURAL

NEPALI

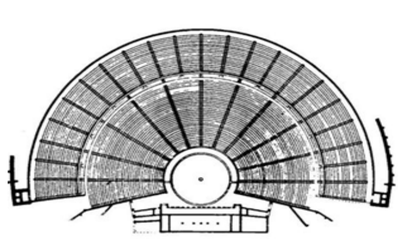
WESTERN



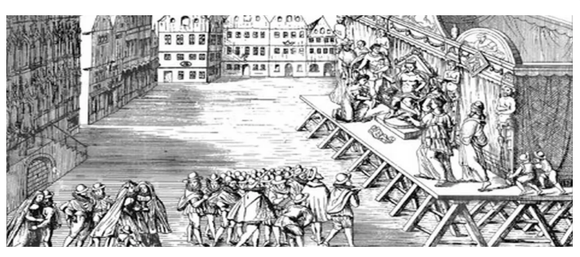
THEATRE TODAY



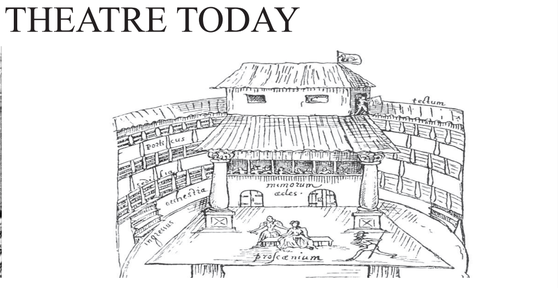
GREEK THEATRE



ROMAN THEATRE



MEDIEVAL THEATRE



MODERN THEATRE

GREEK THEATRE

ROMAN THEATRE

MEDIEVAL THEATRE

MODERN THEATRE

AFFILIATED TO PURBANCHAL UNIVERSITY

KHWOPA ENGINEERING COLLEGE

DEPARTMENT OF ARCHITECTURE

LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE

TITLE: THEATRE ARTS AND HISTORY

NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2080/11/23

1.a

THEATRE HISTORICAL EVOLUTION IN NEPAL

LICHHAVI AND MALLA PERIOD

Dabalis, Courtyards and Extended parapets are believed to be used as spaces for theatrical performances during the Lichhavi and Malla period.



CONTEMPORARY

Time came when the theatre spaces evolved to contemporary styles. It was an approach towards modern day theatres. Open with a raised platform stage.

RANA AND SHAH PERIOD

Theatres during Shah and Rana period were mostly influenced from Parsi theatre of India.

RESLISTIC

A prominent stage and seating area and made for the public

PROJECT OBJECTIVES

- Provide school with proper training and theatre spaces
- Opportunities for students to engage with industry professionals through internships and workshops.
- Promote literature and diverse cultural traditions and perspectives within the performing arts.
- Actively engage with local community through performances, workshops, and outreach programs.

PROJECT JUSTIFICATION

- As a person who loves reading books and has special attachment with literature, I personally enjoy when I get to see characters of books I create in my head in front of my eyes.
- In case of Nepal where art and literature are well celebrated, a good space with all adequate necessities seems to be required.
- Existing theatres and schools are not adequate or architecturally developed and still lack spaces like rehearsal hall, studios, proper parking spaces, arrival experiences, live music/orchestra, outdoor spaces and workshopss.
- As an architecture student, various architectures aspects such as seating spaces, viewing angle, location, etc. rarely provided the essence that a proper theater is supposed to give.
- In present, some schools like Lincoln School have performing arts in their academia. Places like Aarohan Gurukul provide the theatre experiences and academic provisions but architecturally they do not seem to fulfill the essence of a theatre.

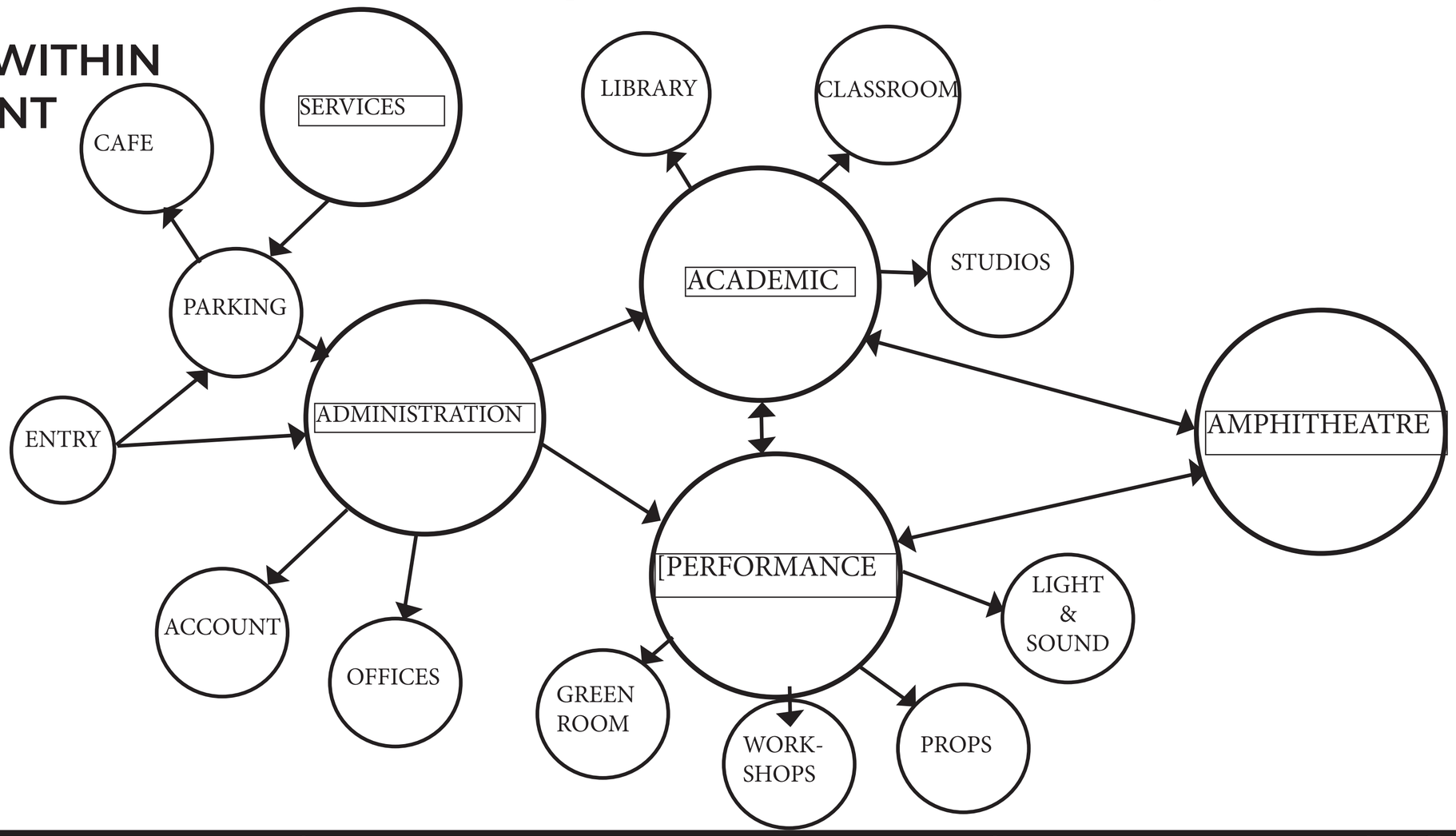
PROSPECTS OF PROJECT

- Economic advancement relating to art, literature and theaters
- Career opportunities: promoting art and theatre could inspire people in career sector.
- Employment opportunities to both skilled and unskilled people.

TARGETED USERS

- Scholars who want to pursue theatre as career
- People who seek education in performing arts
- Tribal people who love the cultural reflections
- People on whole who seek entertainments through act.

SPACES AND WITHIN MOVEMENT



AFFILIATED TO PURBANCHAL UNIVERSITY
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE

TITLE: PROJECT JUSTIFICATION

NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2080/11/23

1.b

LITERATURE REVIEW

AGE GROUP IN PERFORMING ARTS

FOR SCHOOLING:
For Children: from age of 5 years old
For Freestanding training: any age above 16 that is, academically above the +2 qualification
Till the age of 40

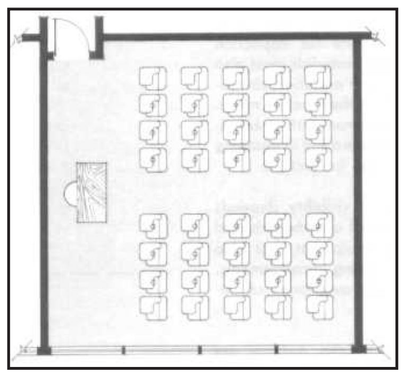
FOR THEATRE:
Age 5 to 15 = Shows for children such as fairy tales, comedy
Age 16 to 25 = Life, Melodrama, Musical, Comedy
Age 25 and plus = Life, Melodrama, Musical, Tragic, Comedy

SCHOOL OF PERFORMING ARTS

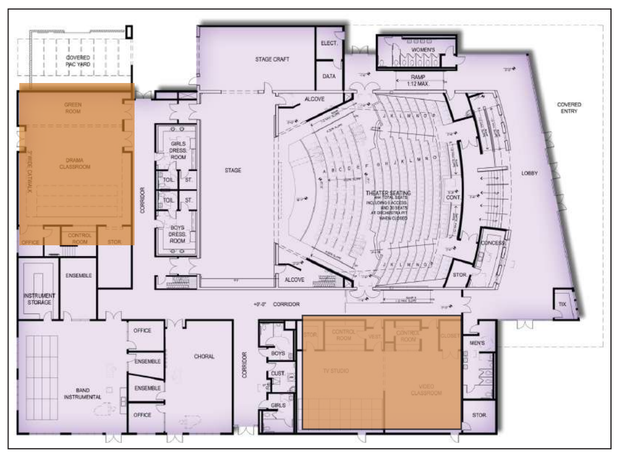
1. ACADEMIC AREA
2. PERFORMANCE AREA
3. ADMINISTRATION
4. SERVICES
5. RESIDENTIAL
6. OUTDOOR AREAS
7. THEATRE ACOUSTICS
8. ACCESSIBILITY IN THEATTRE

ACADEMIC AREA

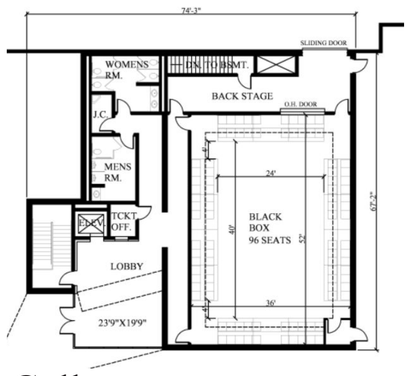
Classrooms



A lecture room should be so placed in a building that it is accessible to students without overcrowding of corridors or stairways.

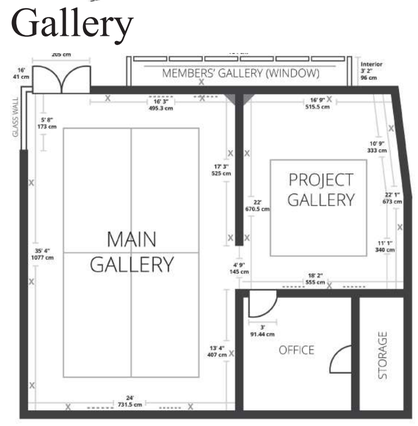


BlackBox Theatre



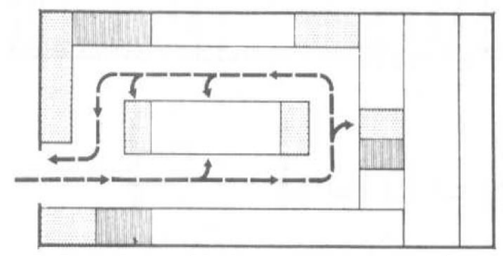
The auditorium should be all black to live up to its name as a black box theater. Space: Stage User: actors Maximum Occupancy: 20 Sq.ft per person: 125 sq.ft.

Gallery



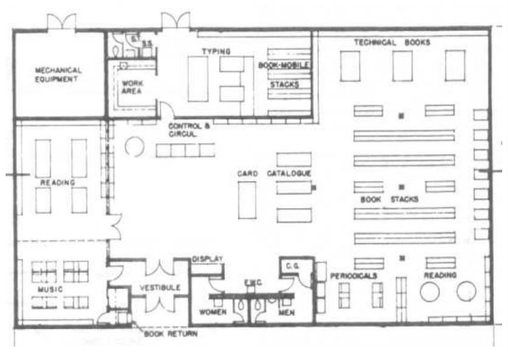
The art gallery should have ceiling designs that refract diffused light and any skylights cannot be higher than 17m. The area of 6 to 8 square feet per person is to be allowed for a moderate size art gallery.

Merchandise



Merchandising, structural, fixture, and aisle space requirements, shops with one customer's aisle only are usually 12 to 15 ft wide by 50 to 60 ft long in large cities; and 15 to 18 ft. wide by 60 to 80 ft long in smaller cities.

Library

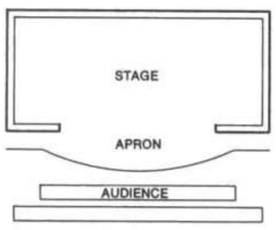


A minimum size of 300 m2 usable area with 10000 media units in stock. Passages should not be longer than 3 m, neither niches nor compartments.

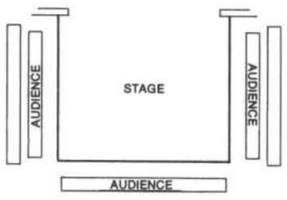
PERFORMANCE AREA

Auditorium
Auditorium Types

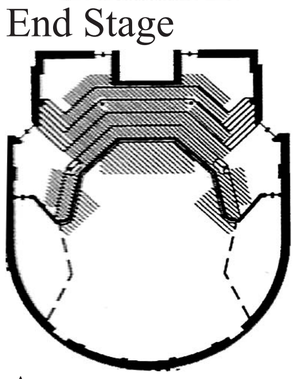
Procenium



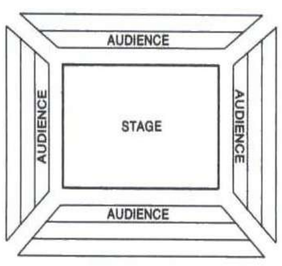
Thrust

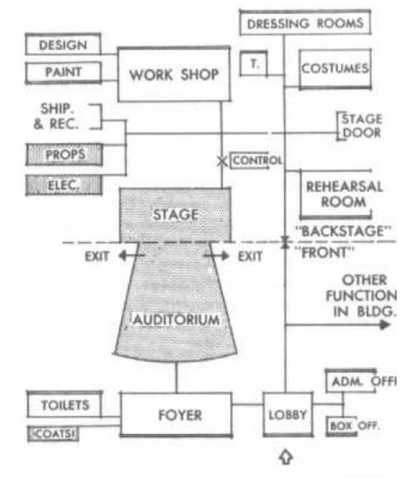


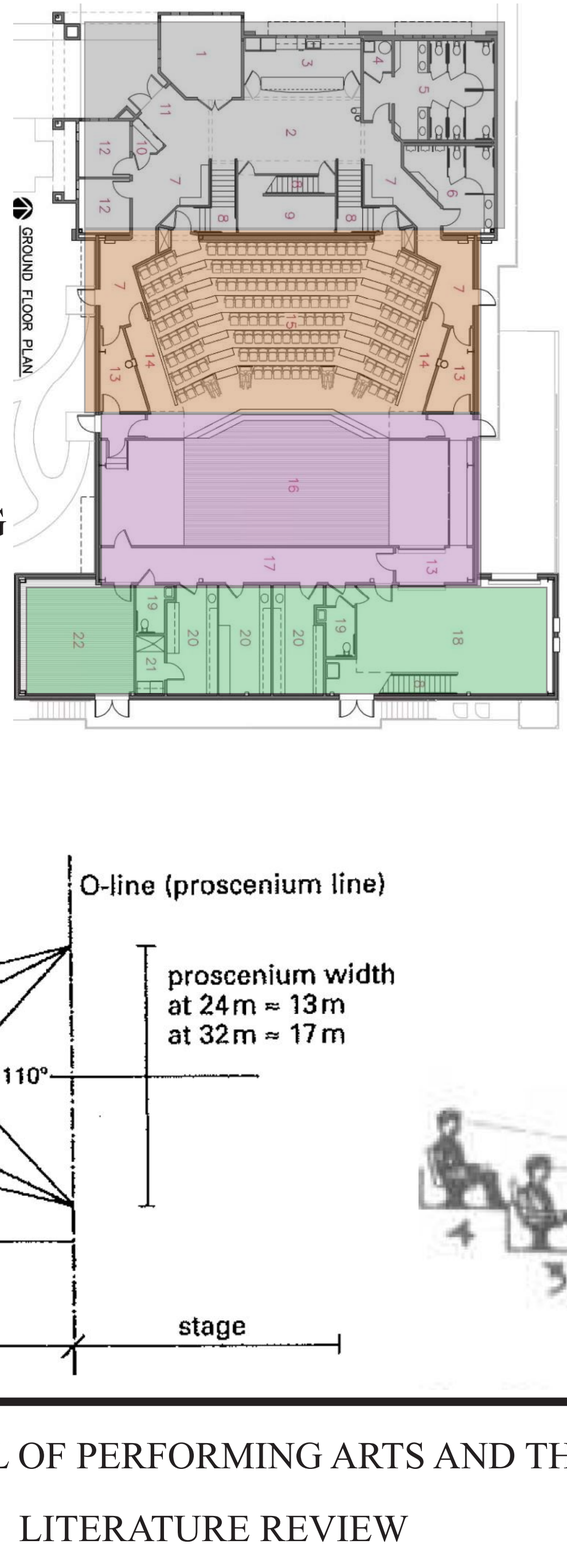
End Stage



Arena

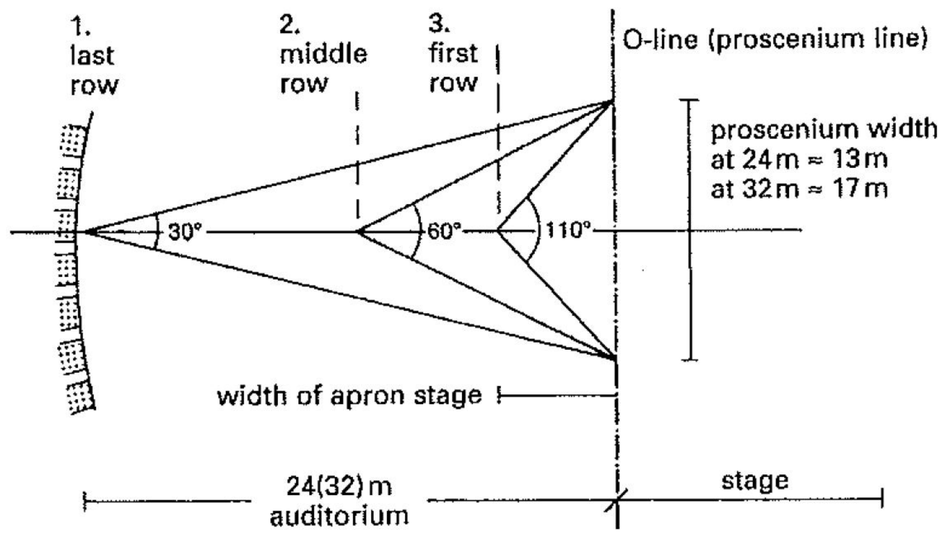




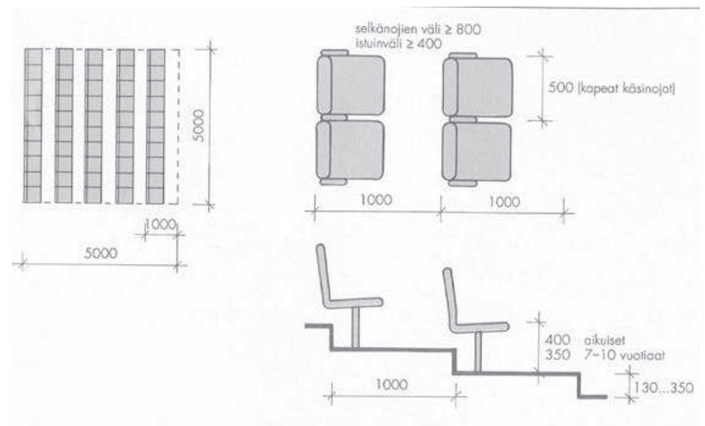


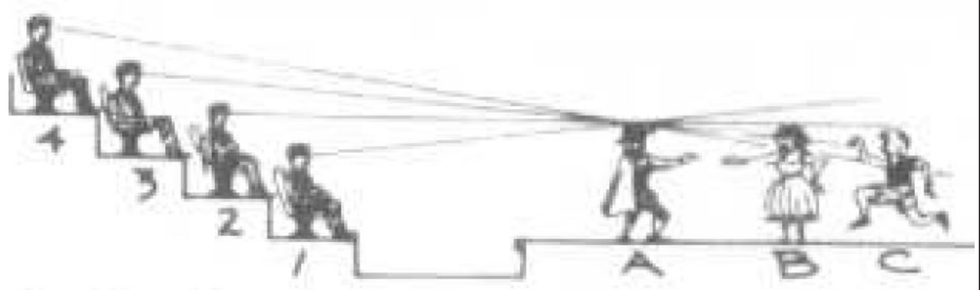
FRONT OF THE BUILDING
SEATING AREA
STAGE AREA
BACK STAGE

SIGHT LINES



SEATINGS

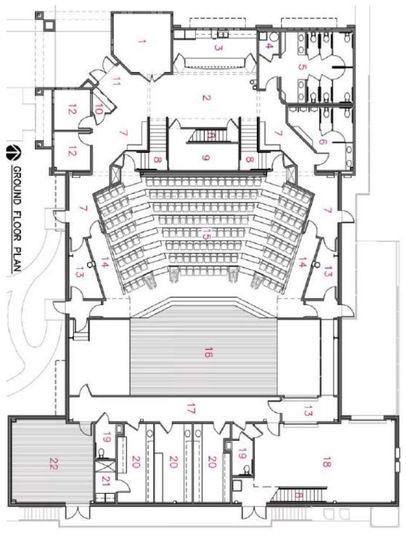


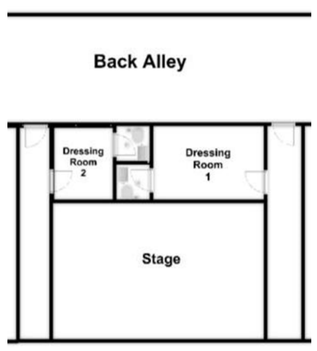


AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	SCHOOL OF PERFORMING ARTS AND THEATRE TITLE: LITERATURE REVIEW	NAME: MONIKA DHITAL ROLL NO: 750122 DATE: 2080/11/23

2.a

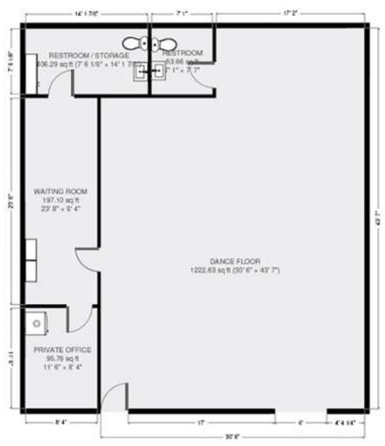
BACKSTAGE





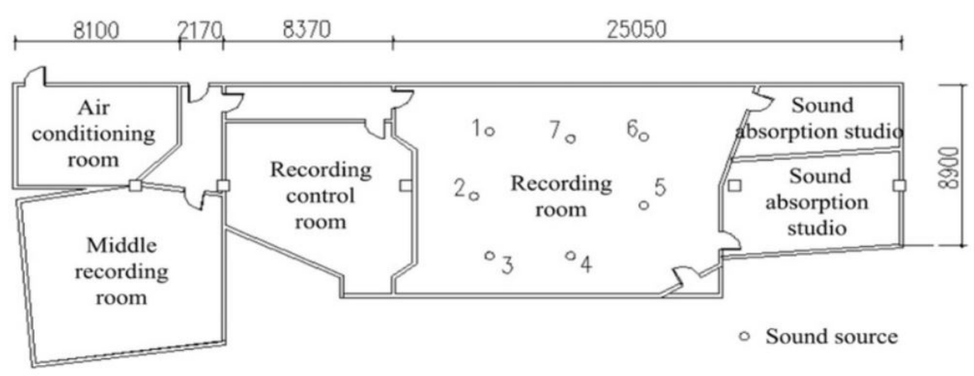
Dressing room: 12x12ft average. Usually equipped with a private bathroom, furnished with sofa, lighting, mirrors, fridge, etc.
Greenroom: Greenroom is a common area found backstage. The dressing rooms are meant more for changing clothes and getting ready for a show.

REHEARSAL STUDIOS

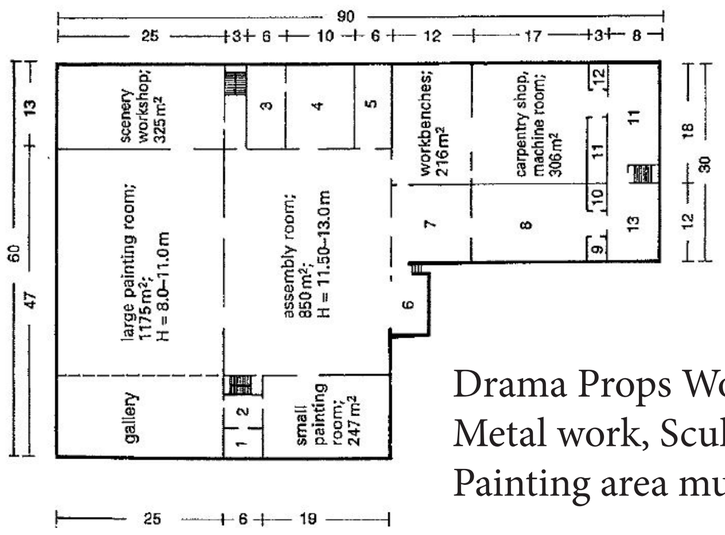


- This studio, which should measure no less than 56 ft X 56 ft, will provide for a class of up to 36 students.
- The ceiling height should be 22 ft to be proportional with the room and to give the feeling of height in leaps.
- The room should have wall mirrors along one wall-24 ft in length, 6 ft high, and with the bottom being 2 ft from the floor.

MUSIC ROOMS



WORKSHOPS

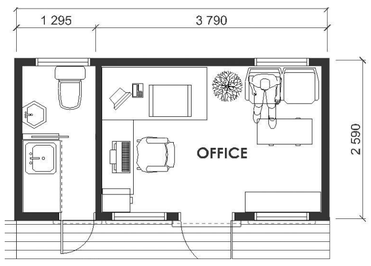


Drama Props Workshop includes: Painting room, Carpenter's shop, Upholstery, Metal work, Sculpture, Charging, washing and rest areas.
Painting area must have minimum of 20m² area.

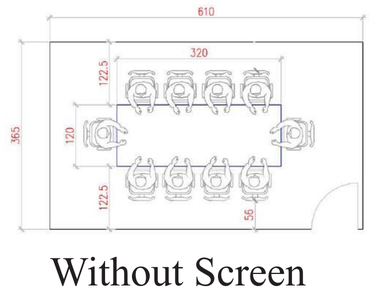
Factors to Consider for Music Rooms and ecording Studios are:
- Type of wall/ceiling/floor construction
- Room shape and proportions
- Room size
- Choice of materials
- Acoustic modules
- Placement of speakers

ADMINISTRATION

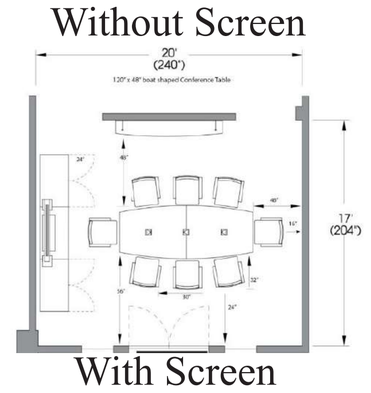
Office Spaces



Meeting Room



Without Screen

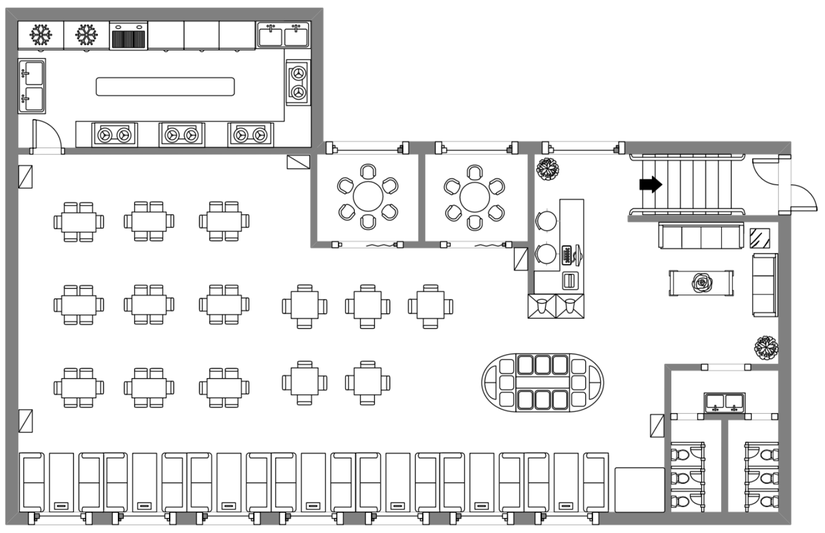


With Screen

- Conference table style: 30 to 40 square feet per person.

SERVICES

CAFETERIA



Space required for service system = 40 – 60 m2
Dining Room Size = 1.2 – 1.4 m2 per seat
For 50 – 80 occupants: 70 – 112 m2 area

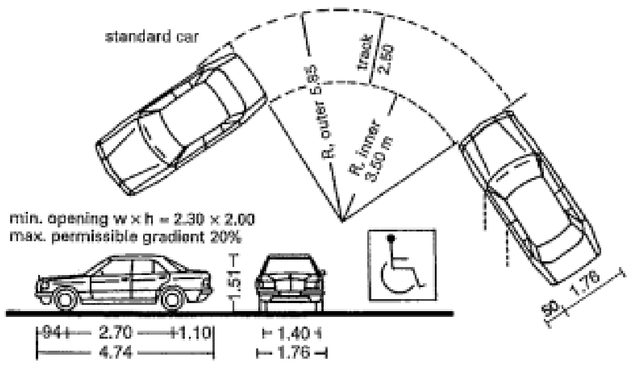
Space required for kitchen = 0.5 m2 per pupil
Dining Room Size = 1m2 per seat
For 50 – 80 occupants: 50 – 80 m2 area

Counter service = 18 – 20 sq.ft per person
Dining Room Size = 9 – 12 sq.ft per seat
For 50 – 80 occupants: 600 – 960 sq.ft area

PARKING

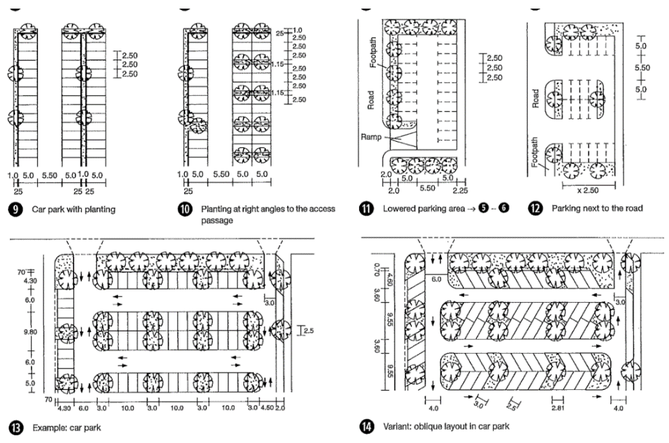
Type	Width	Length
Standard parking space	9 feet	18 feet*
Parallel parking space	8 feet	22 feet
* Parking spaces adjacent to landscape areas may project into the landscape area and be reduced to 16 feet in length when separated from the landscape area by curbing or approved wheel stops.		

Angle	Width: 1 Row Sharing Aisle	Width: 2 Rows Sharing Aisle
90 degree angle parking	42.0 feet	60.0 feet
60 degree angle parking	34.6 feet	54.7 feet
45 degree angle parking	31.1 feet	50.0 feet
30 degree angle parking	28.8 feet	45.6 feet

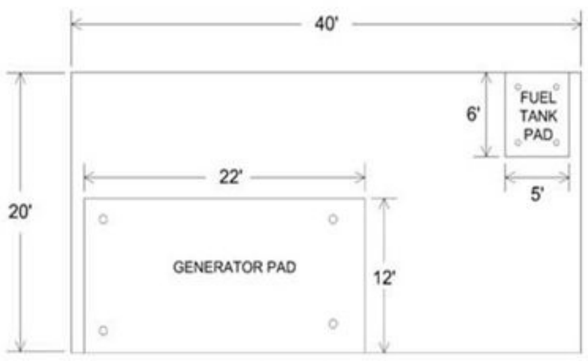


Average four wheeler size = 15' x 6'
Area = 90 sq.ft
Parking Area for 30 four wheelers = 2700 sq.ft
Average two wheeler size = 7' x 2.4'
Area = 17 sq.ft
Parking Area for 200 two wheelers = 3400 sq.ft

PARKING AND LANDSCAPING



GENERATOR'S HOUSE



Basic Room Requirements: A generator room must have enough space for a person to be able to service the generator with enclosure doors open. There also must be enough square footage for two people to be able to pass one another.
Installations of 600 Volts or Less: A minimum of three to four feet of aisle space is required, depending on if components are installed on one or both sides of the aisle.
Installations Over 600 Volts: A minimum of three feet and up to as much as 12 feet of aisle space is required for these installations.

AFFILIATED TO PURBANCHAL UNIVERSITY
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DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE

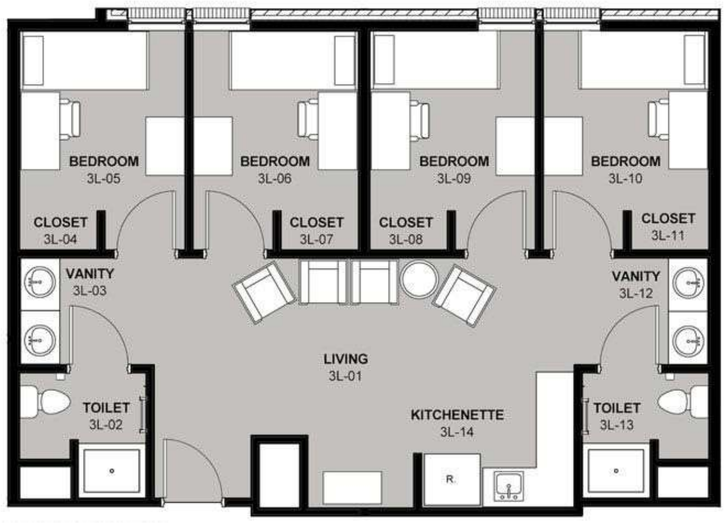
TITLE: LITERATURE REVIEW

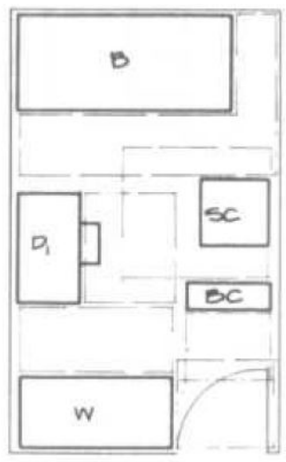
NAME: MONIKA DHITAL
ROLL NO: 750122

DATE: 2080/11/23

2.b

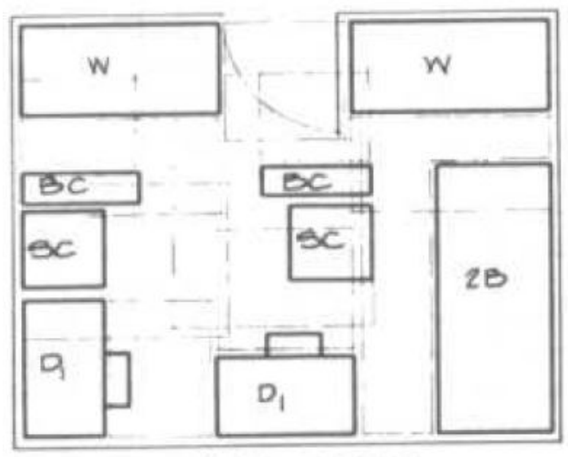
RESIDENTIAL





Single Bedroom

Double Bedroom with Bunked Bed

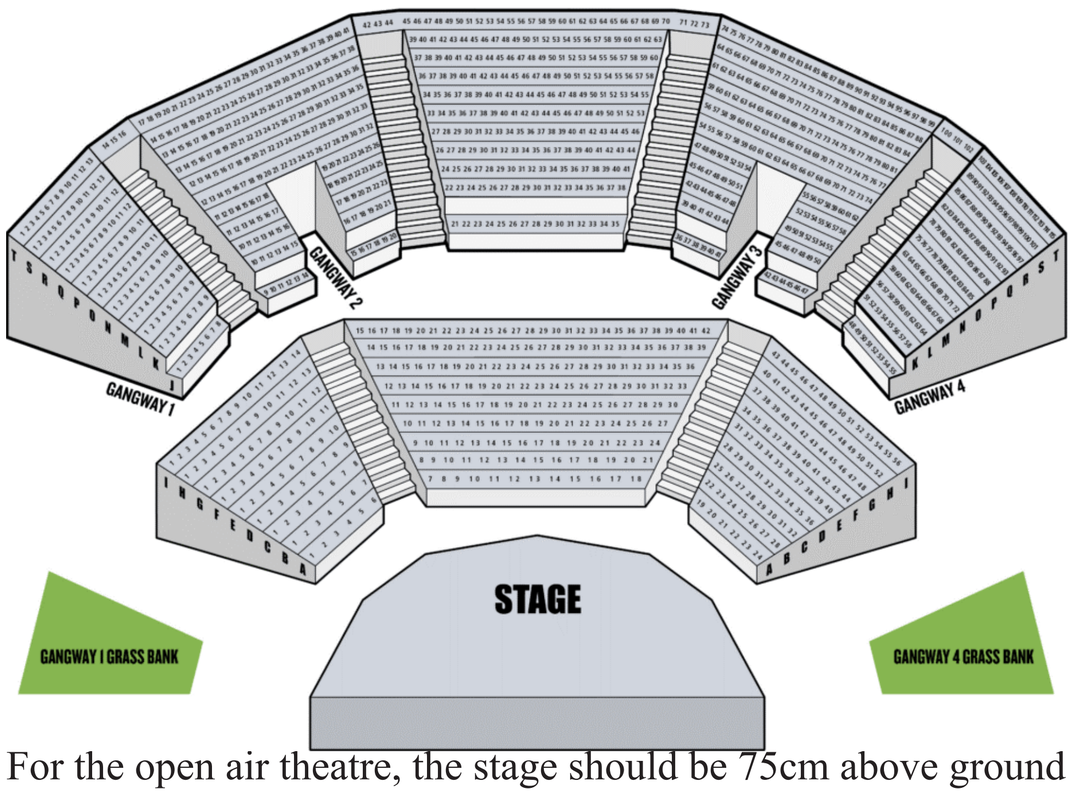


Double Bedroom with Non-Bunked Bed

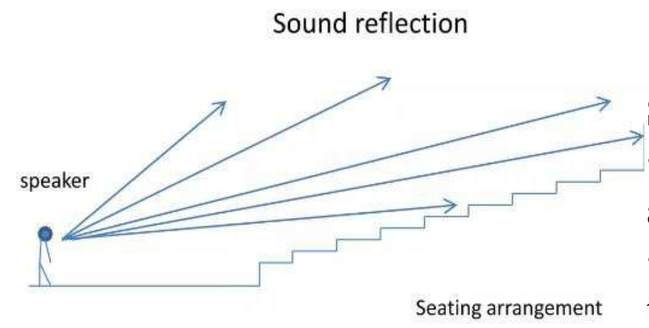
The minimum area requirement for a single room should be 9 square meter (90 sq.ft) varying to 12 square meter (120 sq.ft). The single room is unlikely to be really humanely satisfactory if it is less than 120 square feet. The furniture should be movable, not fixed, to allow the student to organize.

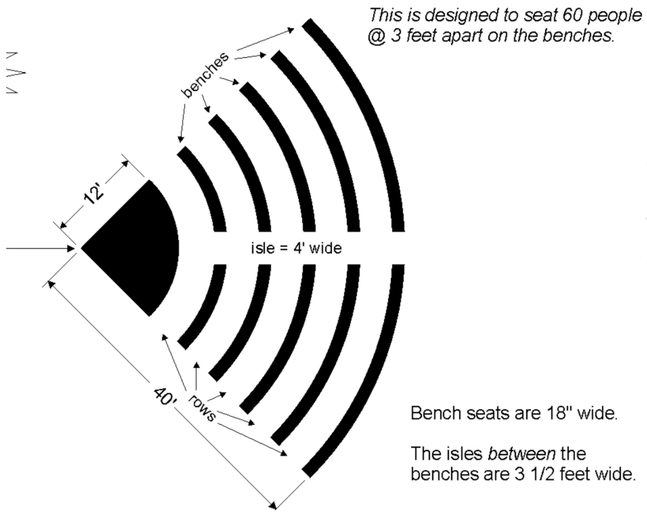
The split double room consists of two spaces with a connecting opening. The area for a double room varies from 13 square meter (140 sq.ft) to 17 square meter (180 sq.ft) for bunked beds and 17 square meter (180 sq.ft) to 22 square meter (240 sq.ft) for non-bunked beds.

OPEN AIR AMPHITHEATRE



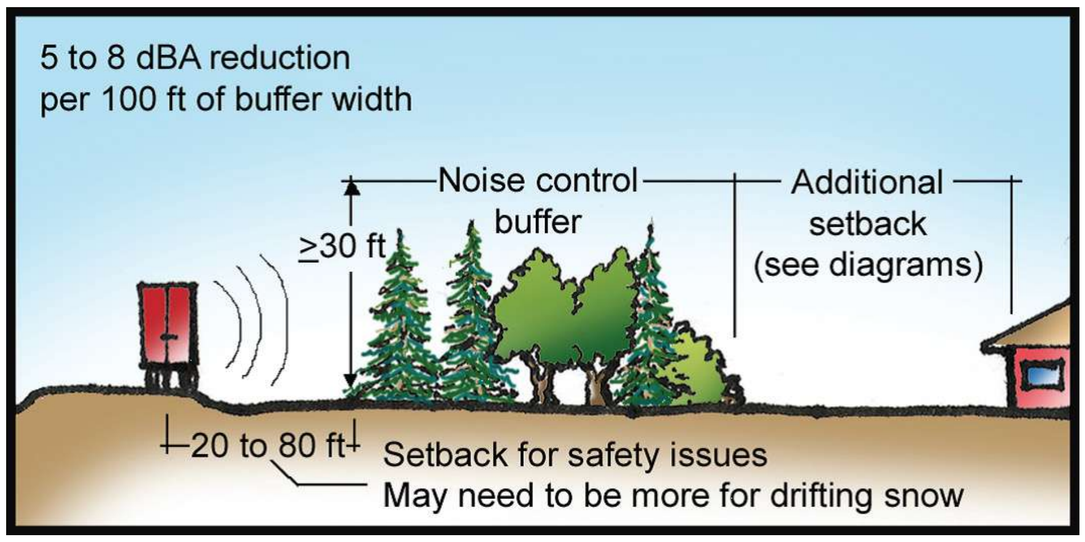
For the open air theatre, the stage should be 75cm above ground with seating rises of 30cm and 45cm and a minimum slope of 12 degrees.





Specifications:

- Stage to be raised at 75 cm above the ground level
- Lower seat riser 30 cm and tread 100 cm
- Higher seat riser 45 cm
- Slope seating should not be less than 12 degrees, for better audibility and visibility
- Noise level should not exceed 40 decibel
- Angle of view => 20 degrees



Buffer Guidelines for Noise Reduction Along Roads	
Moderate Speed Road (<40 mph)	High Speed Road (≥40 mph)
Plant a 20 to 50-foot wide buffer with the near edge of the buffer within 20 to 50 feet of the center of the nearest traffic lane	Plant a 65 to 100-foot wide buffer with the near edge of the buffer within 50 to 80 feet of the center of the nearest traffic lane

- An outdoor recreational site near a highway needs to be located to meet the desired noise levels of 60 to 65 dBA.
- If 100-ft wide tree/shrub buffer is used, the site needs to be 100 to 200 feet behind the buffer.
- The site can be located immediately behind the buffer if a 12-ft high landform is incorporated into the buffer

LIGHTINGS

- Theatre lighting is much more than providing illumination so that the audience can see the stage, however this is a crucial aspect of lighting.
- Light is used to portray time, location, atmosphere, and mood.
- To bring in dynamism in performances
- Step lighting should be considered
- Lights are fixed to certain heights along the stage borders and also in its floor

Factors for Lighting Selection

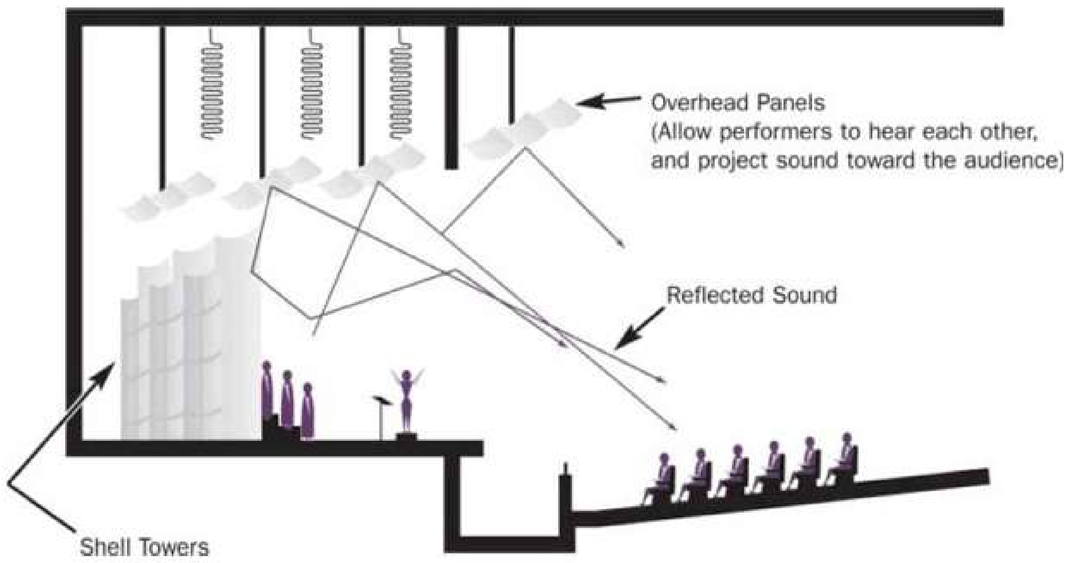
- Colour - Using different colors can change the mood and give different effects.
- Intensity - to balance light evenly across the whole stage.
- Focus - can alter the beam's size and focus, giving it sharp or soft edges.
- Blackouts and Transitions - for changing scenery, transitions are useful for changing the mood or indicating the time of day.
- Audience Consideration - to avoid obstructing the audience's view.

TYPES OF LIGHTS:

- SPOTLIGHTS: to illuminate specific portion
- FLOODLIGHTS: for consistent coverage across a stage
- STRIP LIGHTS: to add large amount of color coverage to stage

ACOUSTICS

Achitectural acoustics consists of:
- Flooring = Floating Floors
- Wall Finishes: Curtains, Cavity Wall Construction
- Ceiling: Subtex materials and Terracota
- Furnitures: Upholstered furnishings like soft sofas and chairs

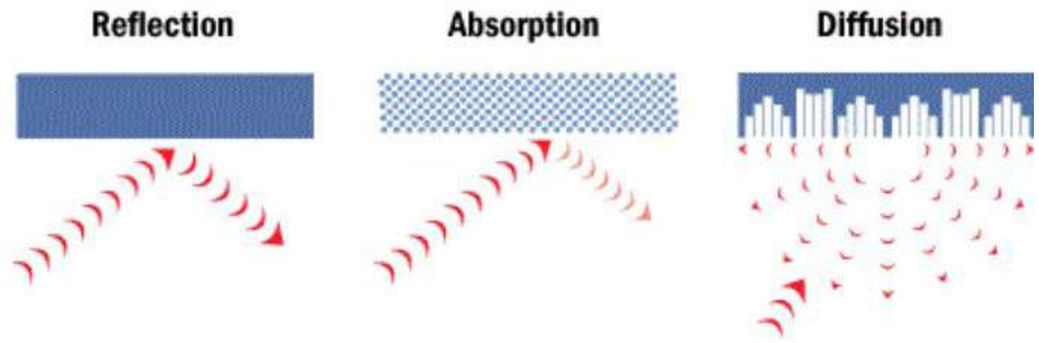


ACOUSTIC MATERIALS

- **SOUND ABSORBENTS:** to eliminate sound reflections

i. Porous: soft materials with pores
ii. Resonant: semi-hard materials fixed to timber panels with air gap between them
iii. Cavity: consists chambers with a narrow opening
iv. Composite type: consist of perforated fixed over an air space containing porous absorbents

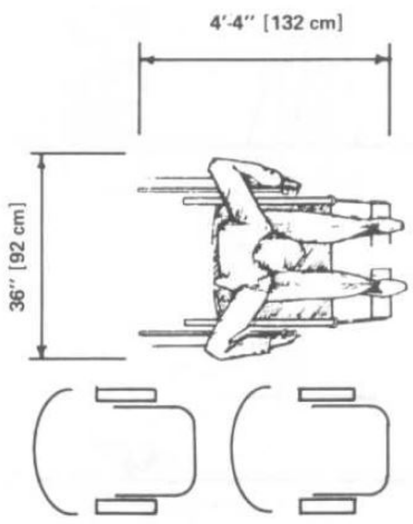
- **ACOUSTIC PANELS**
- **ACOUSTIC STRETCH FABRIC WALL**
- **CUSTOM WALL FINISHES**



ACCESSIBILITY IN THEATRE

LECTURE HALLS

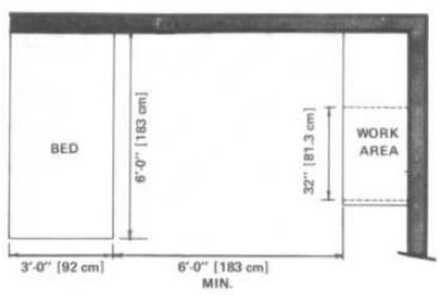
Lecture halls providing fixed seating and desk facilities shall provide spaces of level floor area of at least 36” [92 cm] in width and 4’-4” [132 cm] in length. Desk space provided in this area shall have a knee clearance of at least 32” [81 .3 cm] in width and a height of 27/2” [69.8 cm].



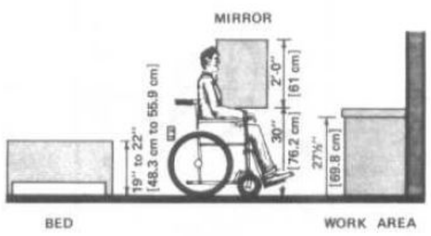
WORKING AREAS

Space clearance under counter, table, and desk tops to be used by a wheelchair student shall be a minimum of 271/2 “ [69.8 cm] in height and 32” [81 .3 cm] in width.

BEDS

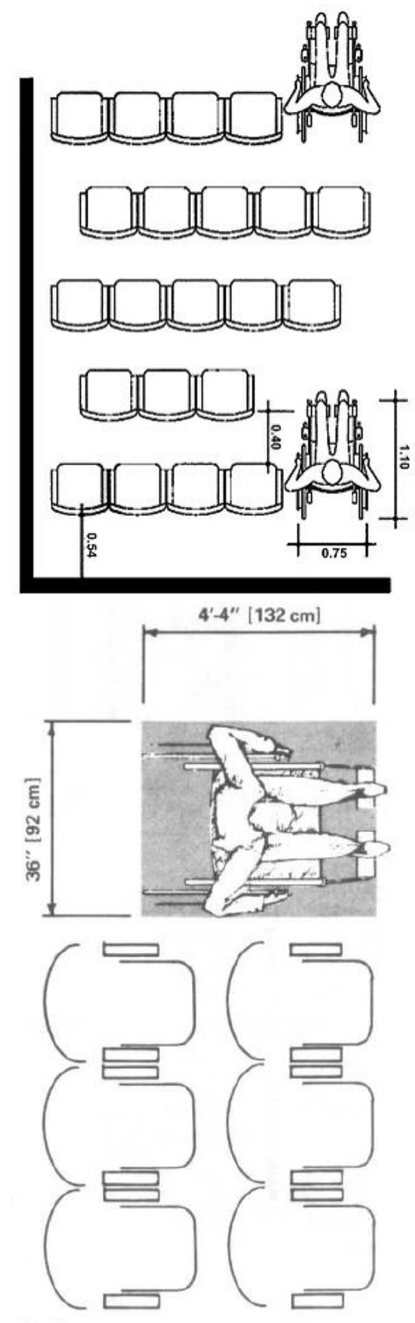


Beds shall have minimum dimensions of
3’ [92 cm] by 6’ [183 cm] and between 19” [48.3
cm] and 22” [55.9 cm] in mattress height from floor level



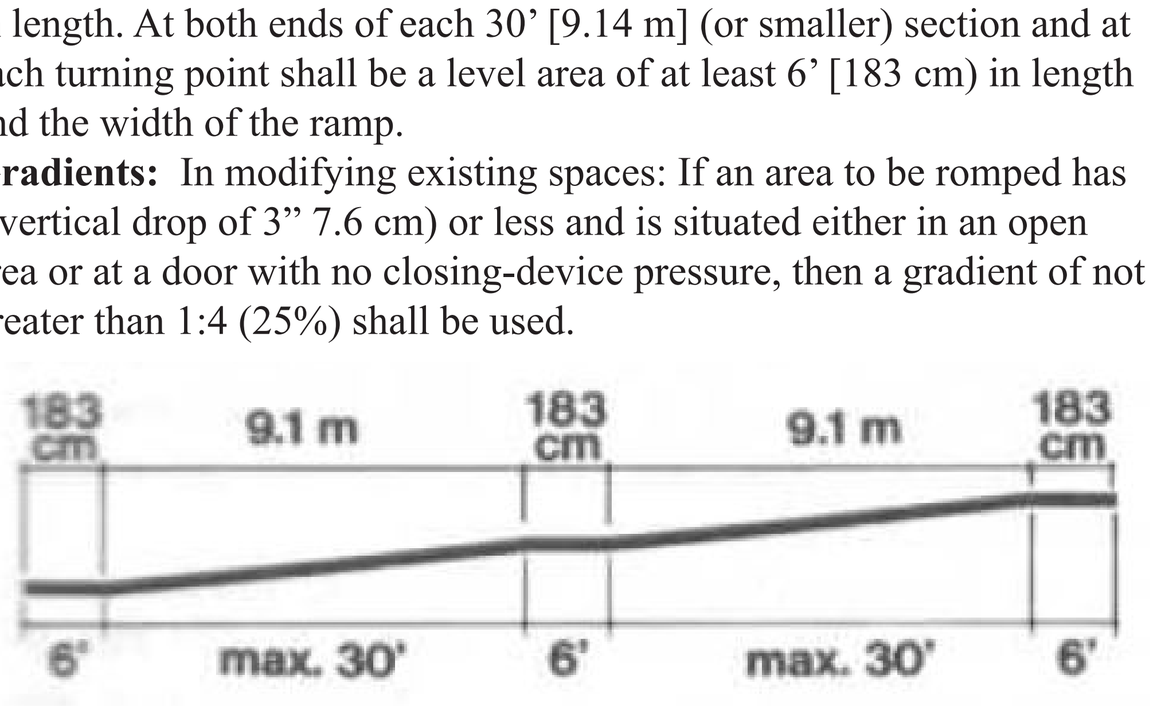
LECTURE HALLS

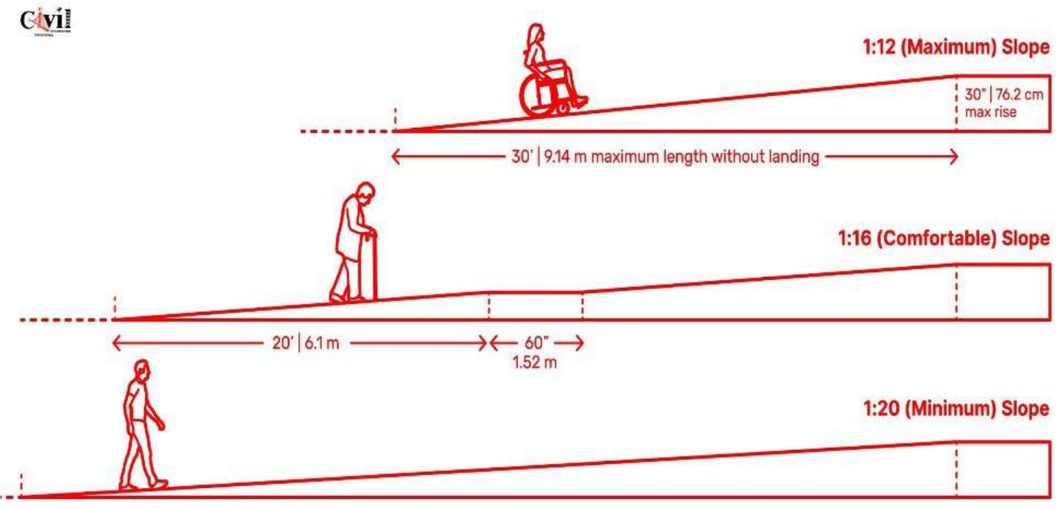
Aisles: Where possible all new theater construction shall have ramped aisles (no greater than 1 in 12) with no steps (sight lines should be considered).
The placement of seating areas for the physically handicapped should not block egress routes used in the case of emergency.
Seating: Seating space shall be set aside for those in wheelchairs who must remain in their wheelchairs and cannot transfer to the regular seating. The number of level floor spaces of at least 36” [92 cm] in width and 4’-4” [132 cm] in length to be provided



RAMPS

Width: A ramp shall be at least 4’ [122 cm] in width
Length: The inclined section of a ramp shall not exceed 30’ [9 .14 m] in length. At both ends of each 30’ [9.14 m] (or smaller) section and at each turning point shall be a level area of at least 6’ [183 cm) in length and the width of the ramp.
Gradients: In modifying existing spaces: If an area to be romped has a vertical drop of 3” 7.6 cm) or less and is situated either in an open area or at a door with no closing-device pressure, then a gradient of not greater than 1:4 (25%) shall be used.





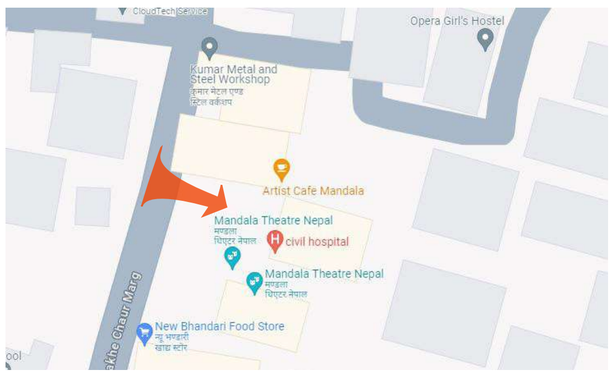
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	SCHOOL OF PERFORMING ARTS AND THEATRE TITLE: LITERATURE REVIEW	NAME: MONIKA DHITAL ROLL NO: 750122 DATE: 2080/11/23

2.d

NATIONAL CASE STUDY

MANDALA THEATRE NEPAL

Location - Thapagaon, Kathmandu
Site Area - 852.86 square meter (1-10-3-1)
Building Type - Adaptive Reuse, New Structure
Ownership - Private Ownership
Building Architecture - Modern



The theatre area incorporates two performance halls, dormitories, café, administrative spaces, toilets, restaurant and parking areas.

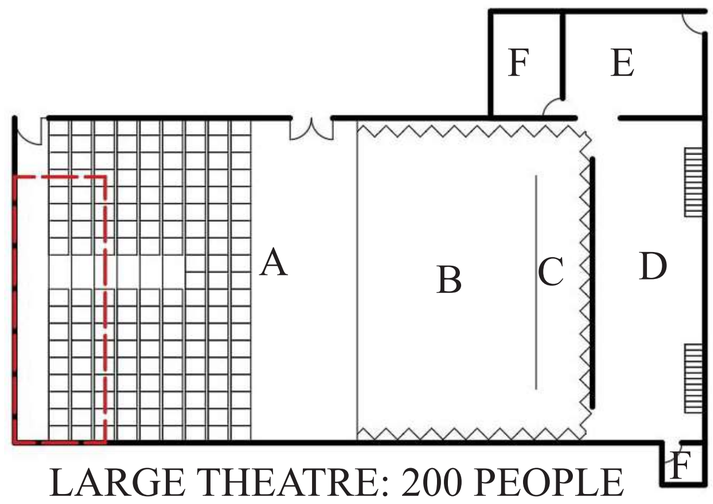
MUSICAL INSTRUMENTS USED

1. Damaha
2. Flute
3. Guitar
5. Jhyamta
6. Madal

Musical Instruments

ARCHITECTURE

- Modern Architecture
- Metal truss Structure, use of aluminium
- Sloped Roof
- Rcc and concrete existing building whereas ecopanels in the new.
- Use of wire mesh in the openings of restaurant.

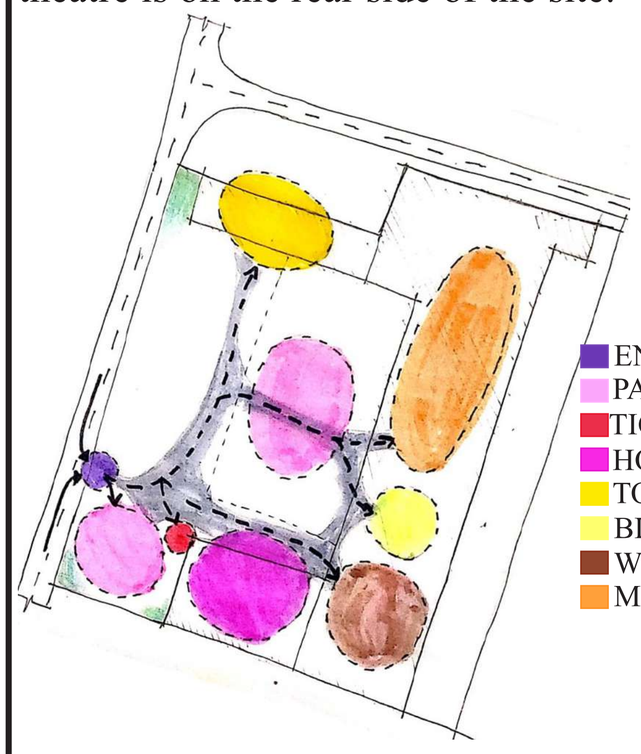


LARGE THEATRE: 200 PEOPLE CAPACITY

A SEATING AREA
B STAGE AREA
C BACK STAGE
D PREPARATION AREA
E SPARE ROOM
F WASHROOMS

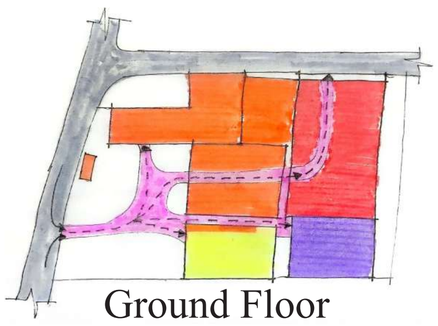
ZONING

The open space upon the arrival is used for parking through which the ticket counter is approached that resides in the existing building used for dormitories. On the left are toilets: three for male three for female and one accessible. At the centre is bike parking through which the small blackbox theatre and workshops are reached. The main theatre is on the rear side of the site.

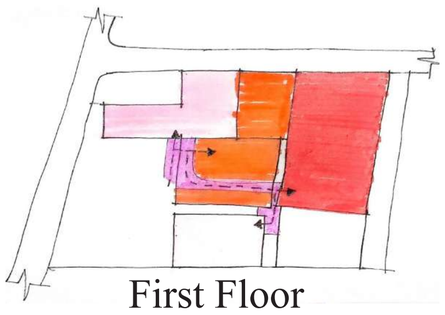


ENTRY
PARKING
TICKET COUNTER
HOSTEL
TOILETS
BLACK BOX THEATRE
WORKSHOP
MAIN THEATRE

CIRCULATION



Ground Floor



First Floor

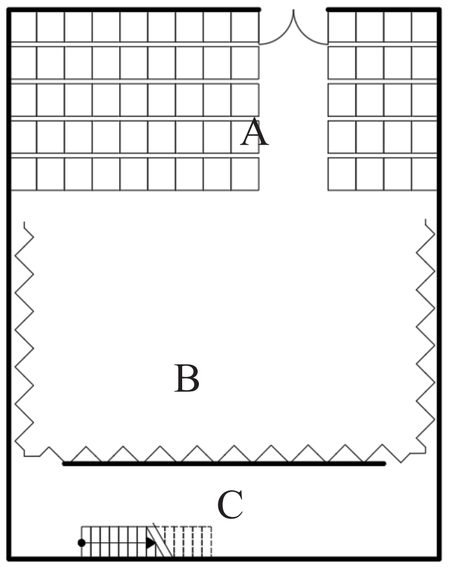
Second Floor

The main open area upon access that leads to all spaces in the ground floor. The backdoor in the north is reached through the main hall.

The metal staircase infont of the parking leads to upper floor office, cafe, and main entry to the large hall.

The open area of cafe has a staircase that leads to upper floor restaurant, kitchen, green rooms, meeting rooms and costume and light rooms.

PERFORMANCE
RESIDENTIAL
ADMINISTRATION
SERVICES
WORKSHOP
ACCESS



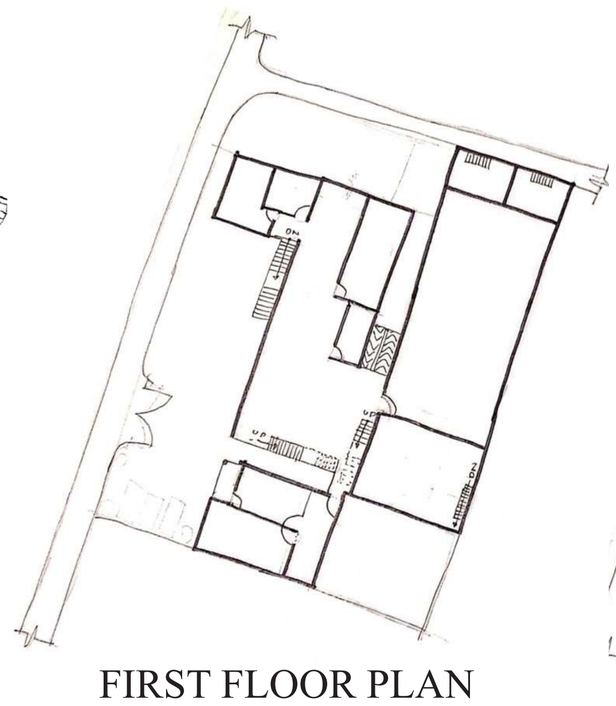
BLACK BOX THEATRE: 70 PEOPLE CAPACITY

ANALYSIS

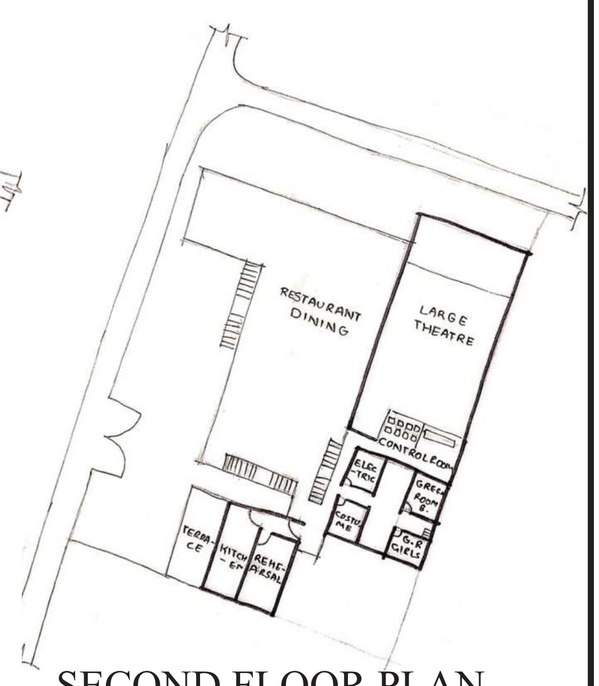
- Area given for bike parking seems sufficient for present conditiob but not enough for four wheeler parking.
- Lacks outdoor performing spaces.
- Existing building not fit for administrative functions.
- Not enough height for emergency exit door.
- Insufficient green rooms and preparation areas.
- Except curtains, no good soundproofing.
- Lacks seperate rehearsal rooms.

PLANNING

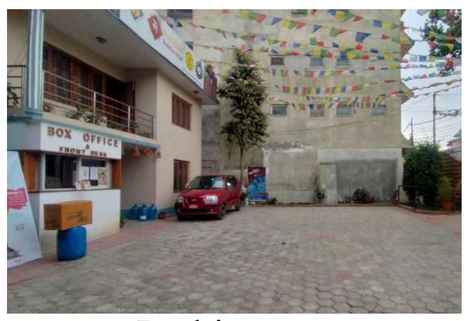
GROUND FLOOR PLAN



FIRST FLOOR PLAN



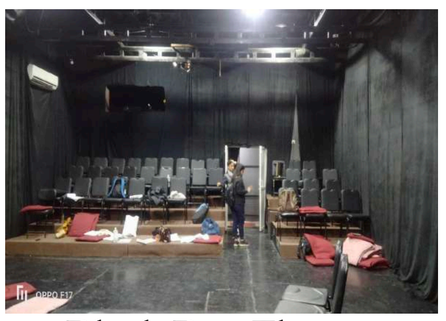
SECOND FLOOR PLAN



Parking

Washrooms

Large Theatre



Black Box Theatre

Workshop

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DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE
TITLE: NATIONAL CASE STUDY

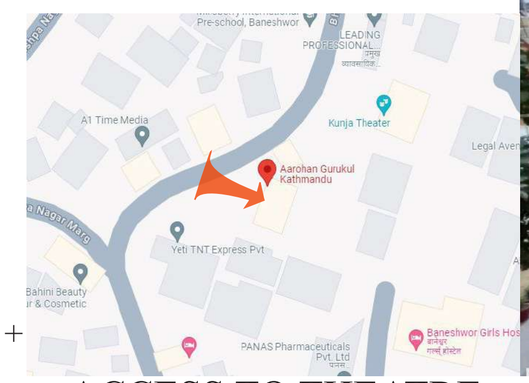
NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2080/11/23

3.a

NATIONAL CASE STUDY

LEKHAN KUNJA - GURUKUL

Location - Thapagaon, Kathmandu
Site Area - 1716.99 square meter (3-6-0-0)
Building Type - Institutional
Ownership - Private Ownership
Building Architecture - Bamboo Structure Modern + Traditional

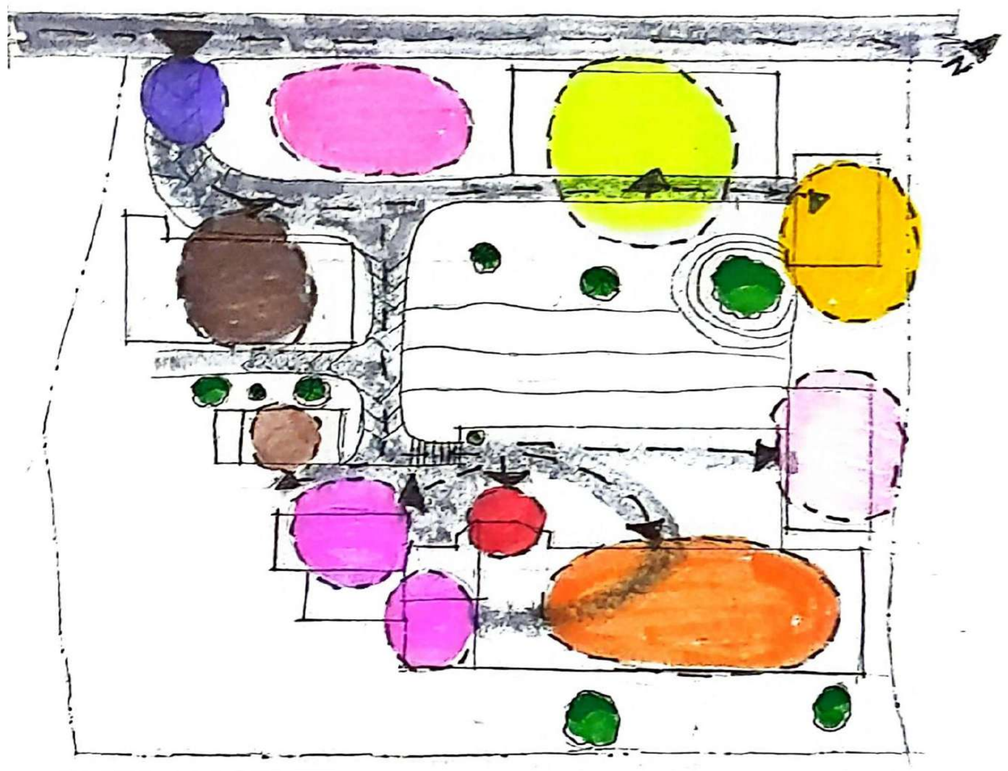


ACCESS TO THEATRE


LEKHAN KUNJA PUBLICATION BUILDING

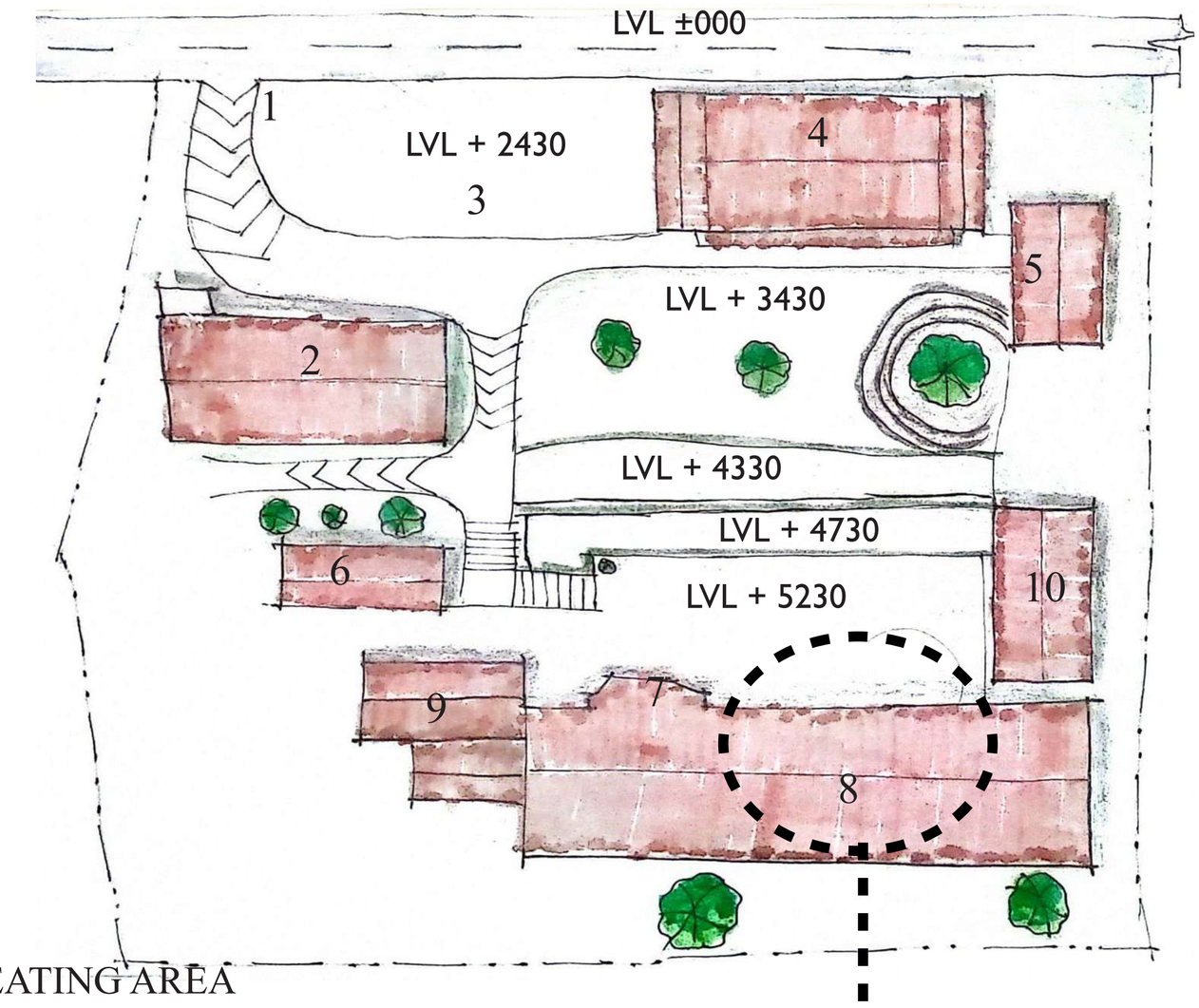
Within the area of about 3 ropanee and 6 anna Gurukul includes spaces such as Gurukul Theatre, Kunja Publication, Café, Writing Spaces, Library, Storage and Parking spaces including green landscapes.

ZONING AND CIRCULATION

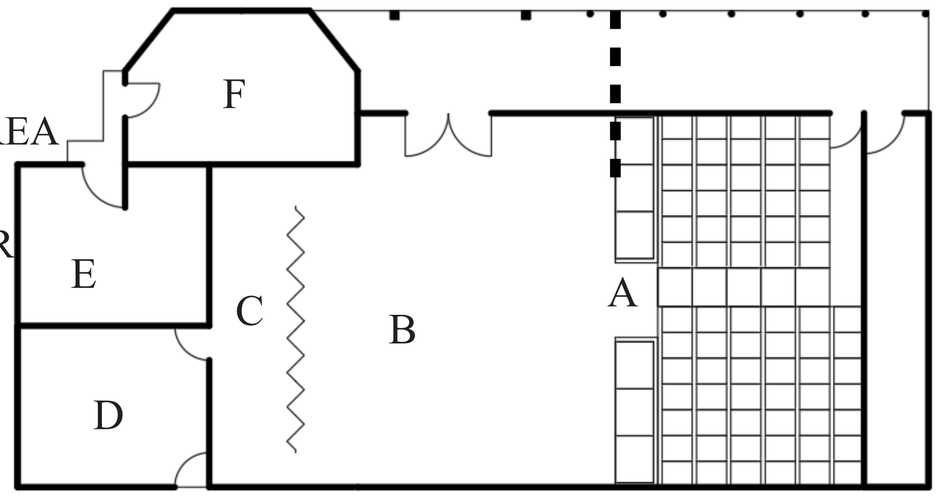


1 ENTRANCE
2 CAFE/ RESTAURANT
3 PARKING
4 LEKHAN KUNJA PUBLICATION
5 WASHROOMS
6 WORKSHOP
7 BOX OFFICE
8 GURUKUL THEATRE
9 DIRECTOR'S OFFICE
10 READING AND WRITING SPACES

PLANNING



A SEATING AREA
B STAGE AREA
C BACK STAGE
D PREPARATION AREA
E SPARE ROOM
F TICKET COUNTER



THEATRE: 80 PEOPLE CAPACITY

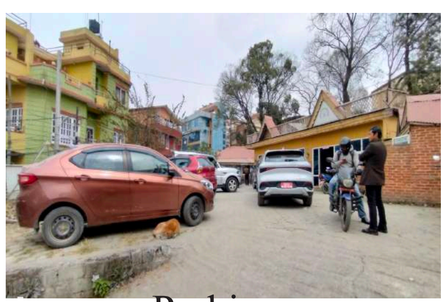

Seating Area of Theatre Hall

ARCHITECTURE

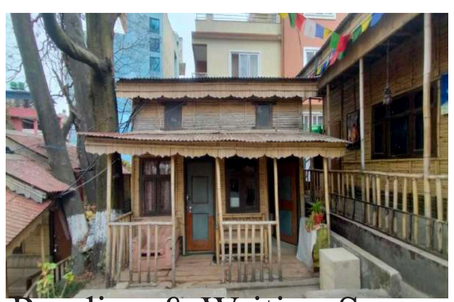
- Modern + Traditional Approach
- Built on Contoured Land
- Bamboo Structure
- Bay protruded wall of the main thetare hall for ticket counter
- Baranda space on ebvery building to resemble Traditional Nepali house as Baranda
- Wooden Doors and Windows but use of glass
- Sloped Roofs
- G.I sheet roofing
- Two way roofs and lean to roofs
- Flooring: concreting and hexagonal tiles in the parking area

ANALYSIS

- Not enough space for other functions of theatre
- Light inadquecy and sound proofing problems
- Little and Unmanaged parking spaces
- Existing Open space is on contoured land so diffculty in use for public.


Parking

Contoured Open Land


Reading & Writing Space


Ticket Counter


Workshop

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DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE
TITLE: NATIONAL CASE STUDY

NAME: MONIKA DHITAL
ROLL NO: 750122

DATE: 2080/11/23

3.b

NATIONAL CASE STUDY

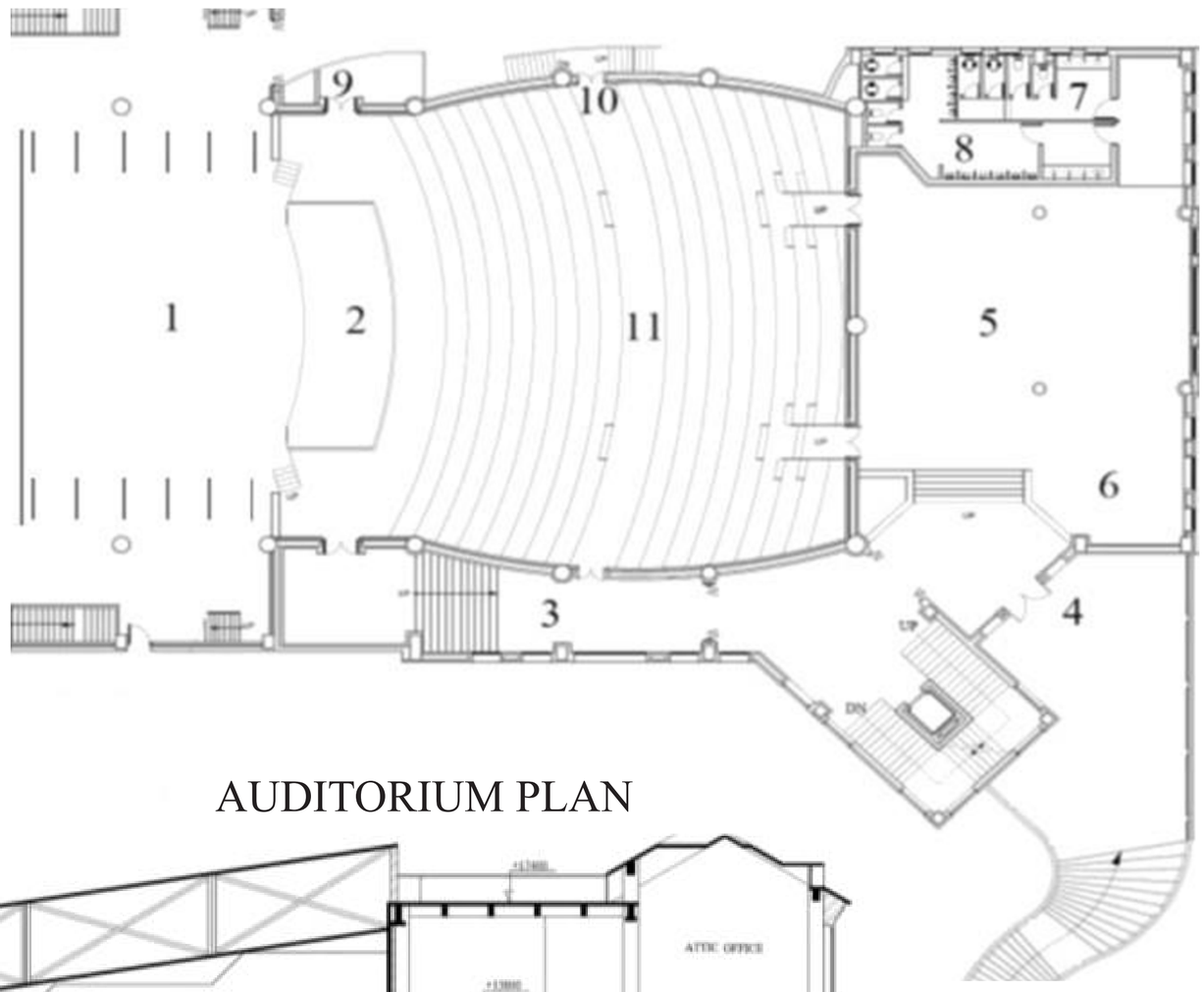
RASTRIYA NAACH GHAR

Location - Pradarshani Marg, Kathmandu
Architect - Ar. Deepak Panta and Dr. Sushil B. Bajracharya
Architecture Style - Neo-traditional Style
Auditorium capacity - 750 seats
Zone - Commercial Zone
Building Type - Mixed Use Building (commercial and theatre)

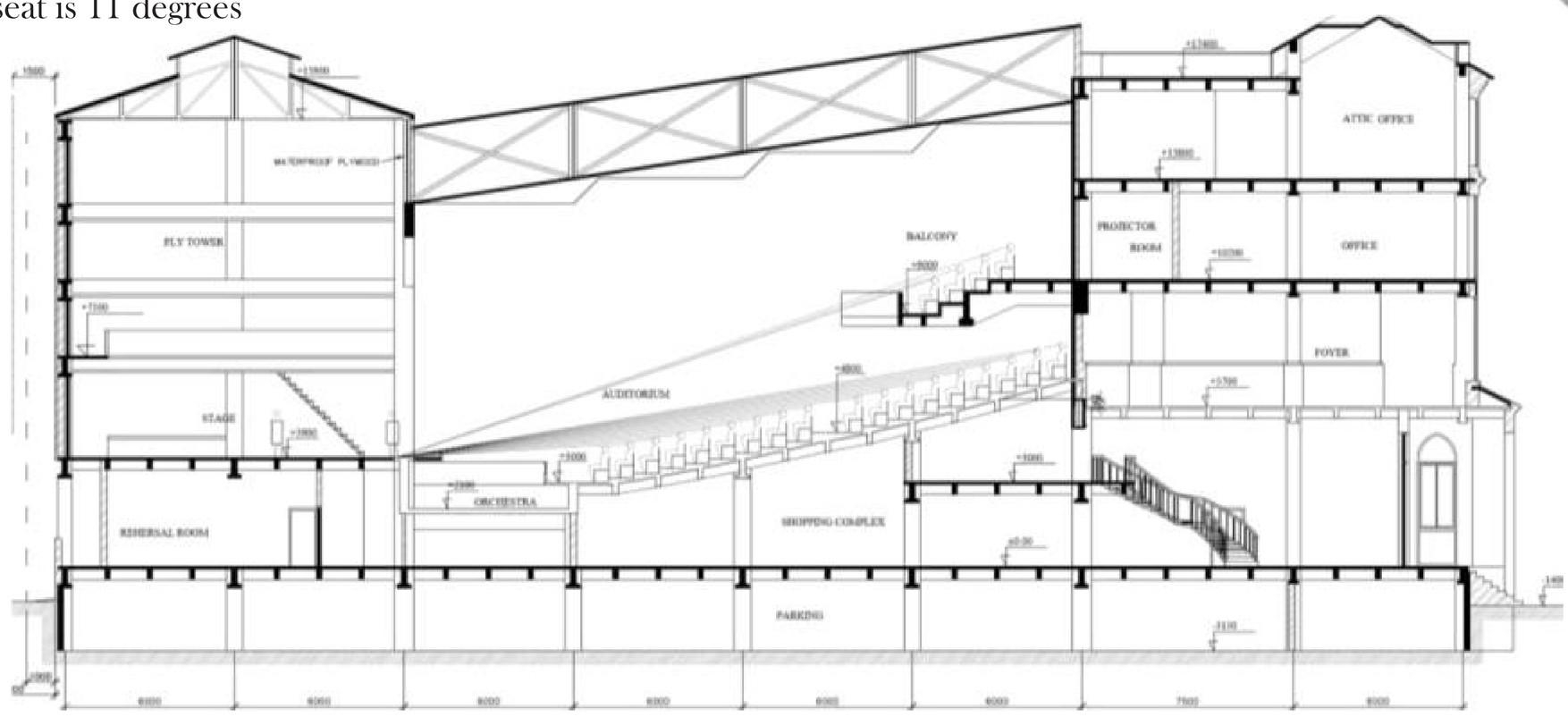
The auditorium space is divided into 3 parts:
1. Front of House: Entrance, ticket counter, foyer, etc.
2. House
3. Stage
4. Stage facilities: Back stage, wings, green rooms, rehearsal rooms etc.

Seating arrangement:

- Concave Shape
- Concentric seat plan and first row at a distance of 5.8m form stage
- Stage raised 1.8m above the floor level
- Rise of seats is l5cm
- Inclination of seat is 11 degrees



AUDITORIUM PLAN



SECTION THROUGH AUDITORIUM

Acoustics treatment

- Diffusive acoustic panels used on ceiling.
- Irregular ceiling profile holding light installations.
- Thick cavity walls with sound absorbing materials.
- Lobby designed as buffer space

Safety and Services

- Basement parking- 35 cars and 50 bikes
- 6-person capacity vertical lift
- Fire sensors and water nozzles in main hall and lobbies.
- HVAC system for air conditioning.

ANALYSIS

- Auditorium away from noisy road, foyer as buffer space.
- The entrance leads to the gallery on the ground floor engaging people with various displays before the commencement of programs.
- The public entrance to the auditorium is from the first floor since the ground floor is occupied by rental shops in the front.
- Audience are directly led through curved staircase near the entrance to the hall through a terrace on the first floor.
- Lift has been provided with the purpose to serve the disables and aged peoples.

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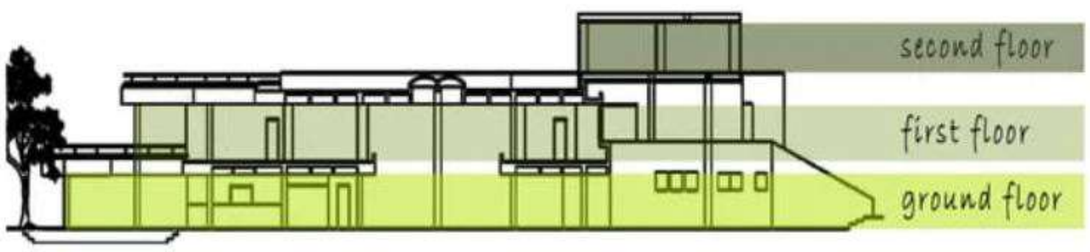
REGIONAL CASE STUDY

KALA KENDRA

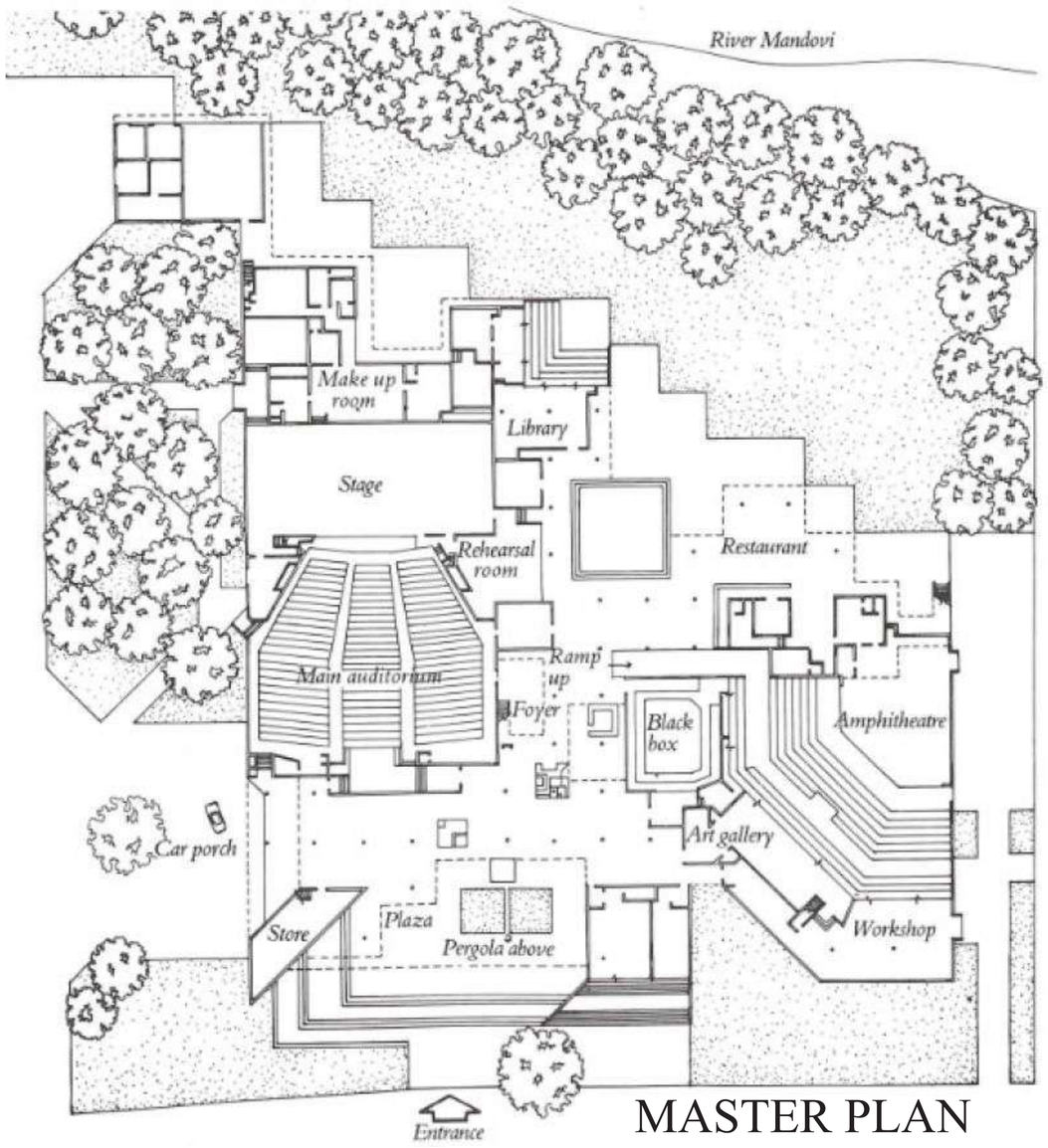
Location - Panaji, Goa, India
Site Area - 2368.56 sq.m (6.3 acres)
Architect - Ar. Charles Correa
Zone - Commercial Zone
Building Type - Institutional

- The building coverage is about 40% of the total site area with well-defined pedestrian and vehicular systems.
- The active area includes the cafeteria, the garden and the amphitheater.
- The site is divided into main service building, Muktangan (Academic areas), parking areas and the exhibition space.



Vertically, the building is divided into three zones:
Public, Administrative and **Academic**

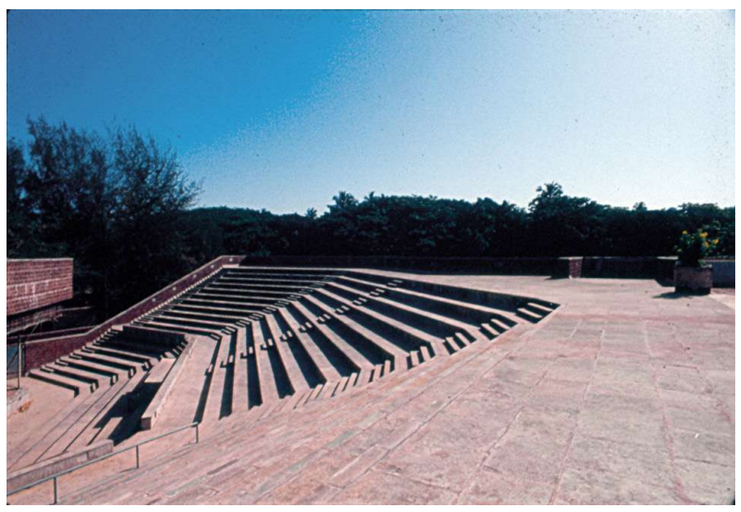
- These zones are provided at different levels in order to avoid conflict between the functioning of these zones.
- The ground floor includes facilities such as auditorium, preview theatre, contemporary amphitheater, art gallery and canteen where the public are also allowed.
- The first and second floors are private and semi-private zones which have academic and administrative functions.



MASTER PLAN

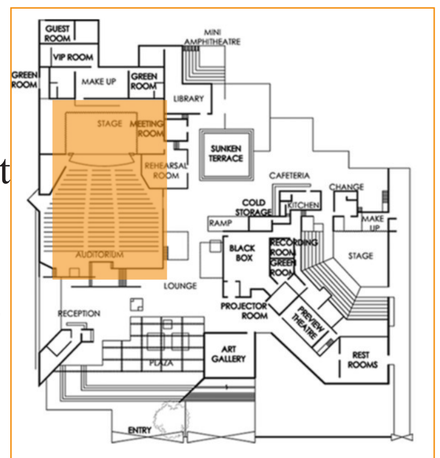
Open Air Amphitheater:

- Seating capacity (no chair) - 2000
- Seating capacity (chair) - 1312
- The amphitheater is of double herringbone shape.
- The stage is raised at 75cm above the ground floor level (eye level of the first row)
- Two seating rakes provided. The lower seats have a rise of 30 cm and tread of 100 cm while higher ones have a rise of 45 cm giving adequate sight lines.



D.M Kala Mandir (A.C Auditorium)

- Seating capacity - 1000
- Stage opening - 9.6 m
- Area - 1300 sq.m
- The changes are made by manipulating absorbent materials placed within inner compartments hidden from view above this ceiling.
- Behind the figures in the boxes real curtains may be pulled to reduce reverberation time in space.
- The stage is 80cm high from the first row.



ANALYSIS

- Overall site is divided into prominent zones i.e Academic, Performance, Administrative.
- The flow of spaces has resulted in a good built-open relationship.
- Vehicular and pedestrian ways properly defined.
- In case of emergency the restaurant area has no direct access to vehicles.
- The area is not gated so security might be a concern.

ENTRANCE PLAZA

SEMI-ENCLOSED COURTYARD

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SCHOOL OF PERFORMING ARTS AND THEATRE

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3.d

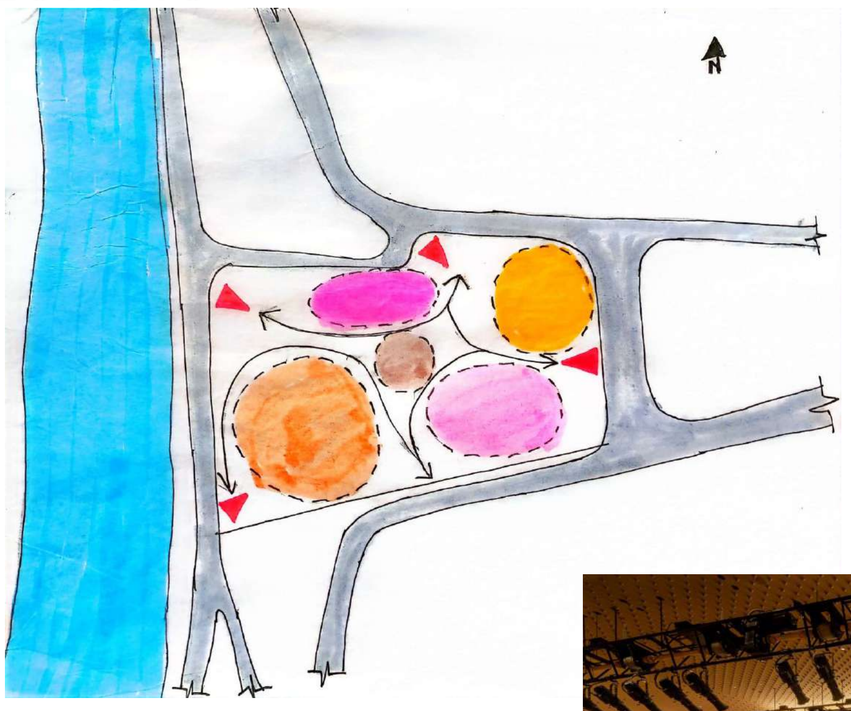
REGIONAL CASE STUDY

TIANJIAN JUILIARD SCHOOL

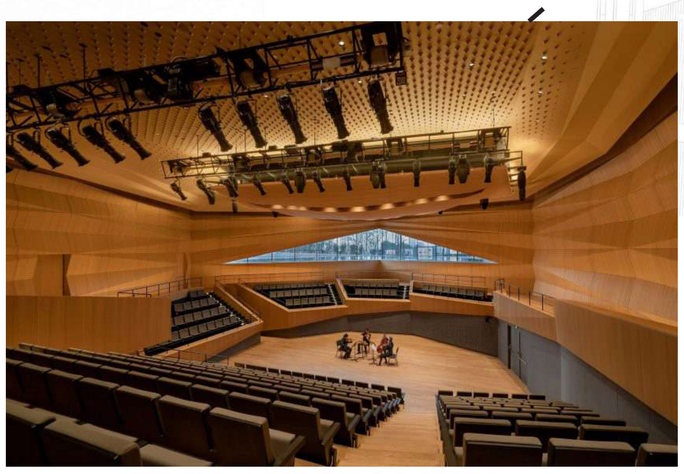
Location - Binhai, Tianjin, China
Site Area - 32500 sq.m (63-14-0-2)
Architect - Diller Scofidio + Renfro
Building Type - Institutional

It is a center for performance, practice, research, and interactive exhibitions, with communal spaces that are designed to welcome the public into the creative process and performance of music.

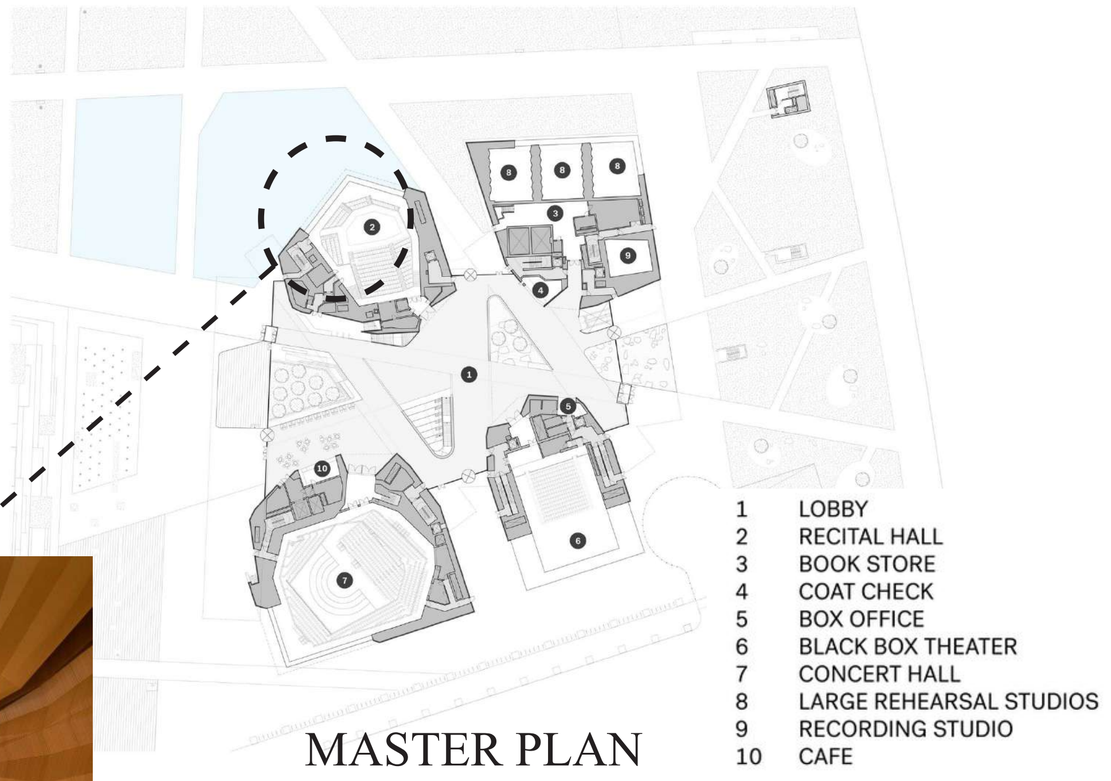
ZONING



- ACADEMIC
- FACULTY
- ADMINISTRATIVE
- PERFORMANCE AREA
- LOBBY AREA



MAIN AUDITORIUM



1 LOBBY
2 RECITAL HALL
3 BOOK STORE
4 COAT CHECK
5 BOX OFFICE
6 BLACK BOX THEATER
7 CONCERT HALL
8 LARGE REHEARSAL STUDIOS
9 RECORDING STUDIO
10 CAFE

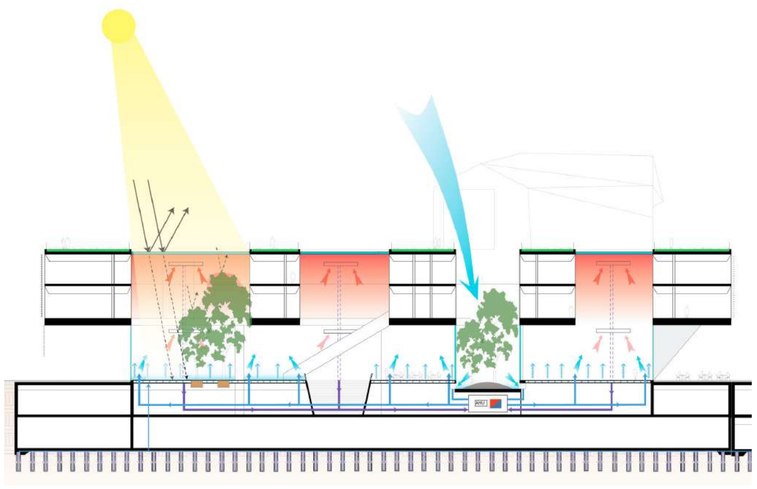
MASTER PLAN

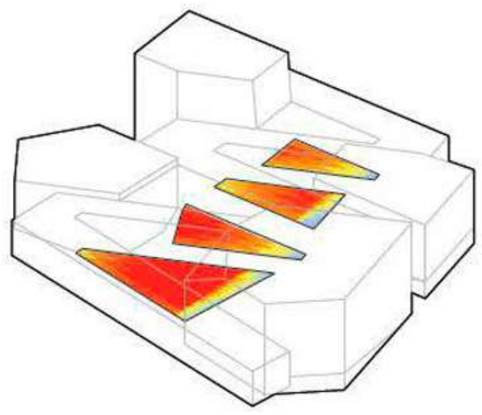
The building is composed of four faceted pavilions housing a 690-seat concert hall, a 299-seat recital hall, a 225-seat black box theater, and administrative, faculty, and rehearsal programs.

1 FACULTY LOUNGE
2 CONCERT HALL
3 TEACHING STUDIOS
4 PRACTICE ROOMS
5 CLASSROOMS
6 STUDENT LOUNGES

FIRST FLOOR PLAN

CONCEPT

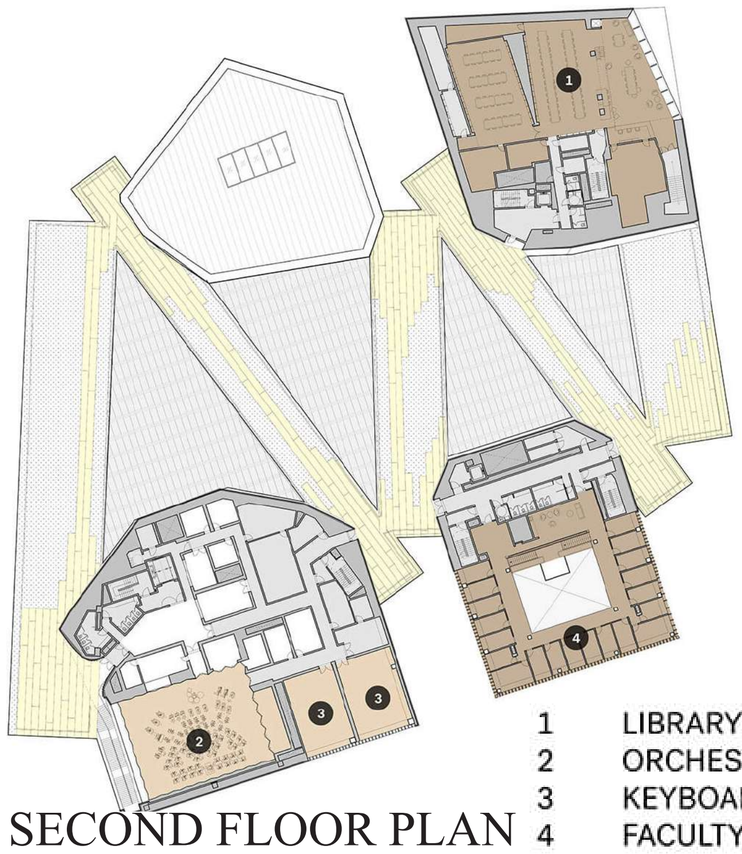




Transsolar's climate concepts target three key conceptual and performance goals:
Create a semi-indoors public entrance lobby that is perceived as an extension of the adjacent park; demonstrate world-class energy performance while meeting the stringent indoor environmental requirements for world-class music education and performance, and two stars in the Chinese green rating system.

ANALYSIS

- The triangular spaces formed following the axis.
- Practise rooms are placed at those axis so that opens at the triangular courtyard.
- Proper and enough parking and open spaces but still lacks open aie amphitheatre.
- Classrooms on the east gaining eastern sunlight.



1 LIBRARY
2 ORCHESTRA REHEARSAL
3 KEYBOARD ROOMS
4 FACULTY OFFICES

SECOND FLOOR PLAN

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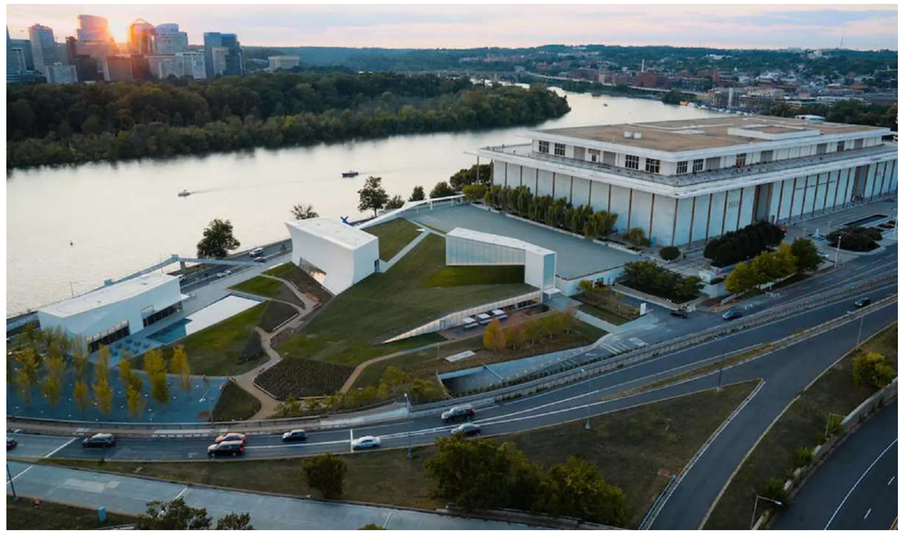
3.e

INTERNATIONAL CASE STUDY

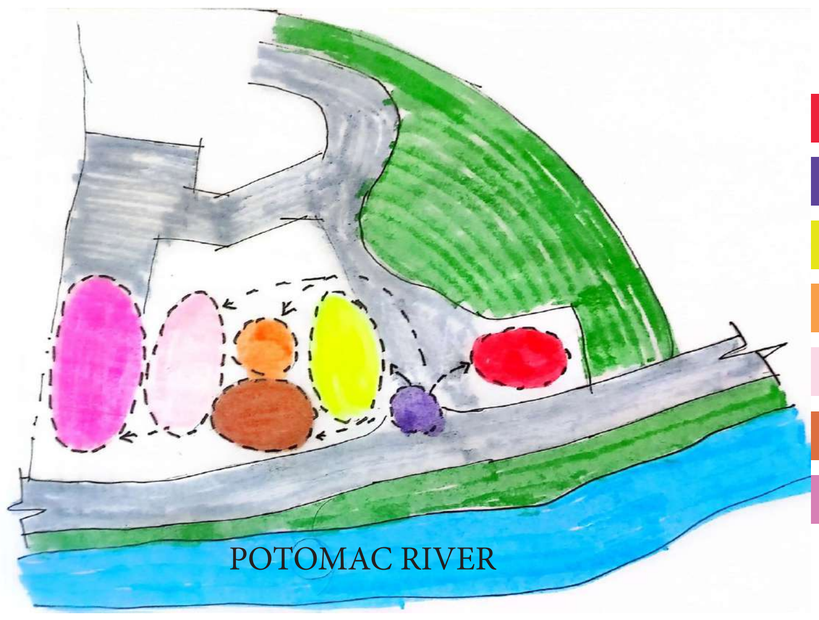
THE KENNEDY CENTRE FOR PERFORMING ARTS

Location - Washington D.C, United States
Site Area - 6600 sq.m (12-15-2-1)
Architect - Edward Durell Stone
Building Type - Institutional

The John F. Kennedy Center for the Performing Arts is the United States National Cultural Center, located on the eastern bank of the Potomac River in Washington, D.C. Opened on September 8, 1971.



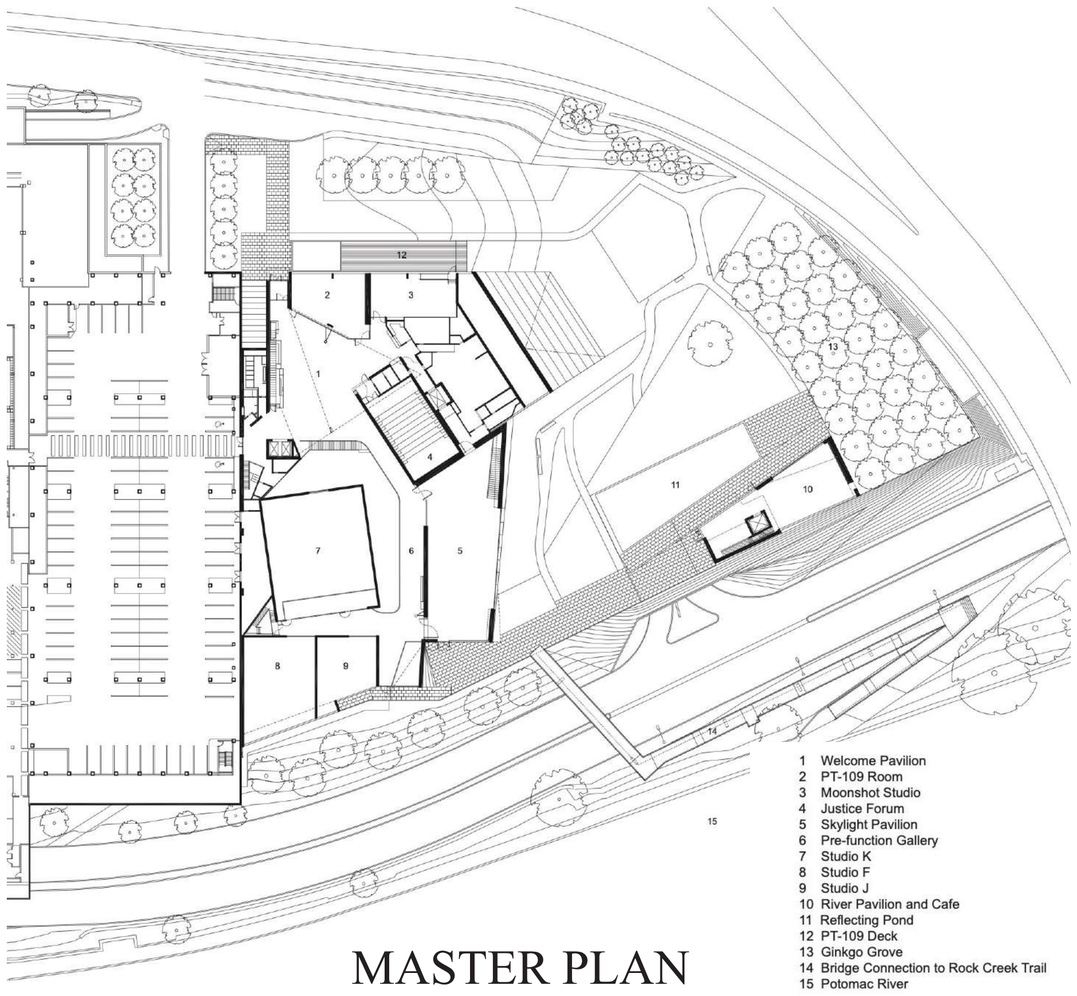
ZONING



CAFE
ENTRANCE
WATER BODY
MINI THEATRE
STUDIOS
GALLERY
PARKING

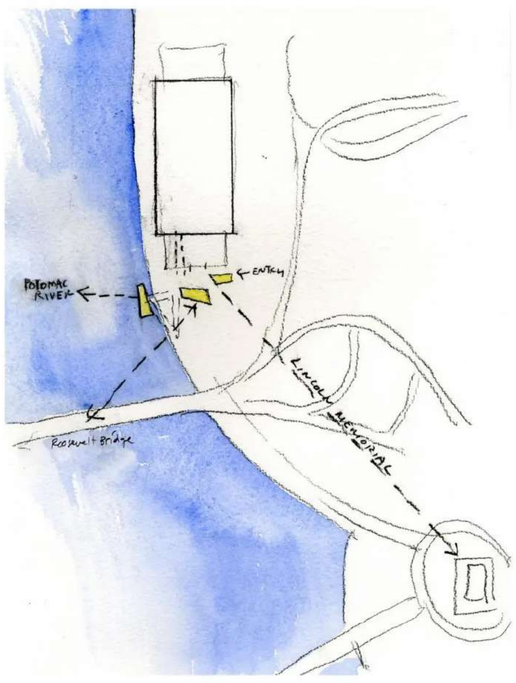
ARCHITECTURE

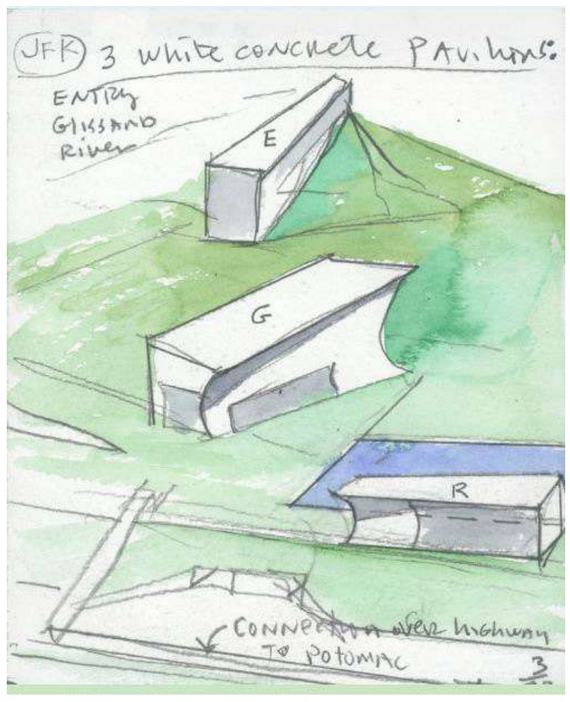
- Overall, the building is 100 feet (30 m) high, 630 feet (190 m) long, and 300 feet (91 m) wide.
- The Kennedy Center features a 630-foot-long (190 m), 63-foot-high (19 m) grand foyer.
- The Hall of States and the Hall of Nations are both 250-foot-long (76 m), 63-foot-high (19 m) corridors. The building has drawn criticism for its scale and form, although it has also drawn praise for its acoustics, and its terrace overlooking the Potomac River.



MASTER PLAN

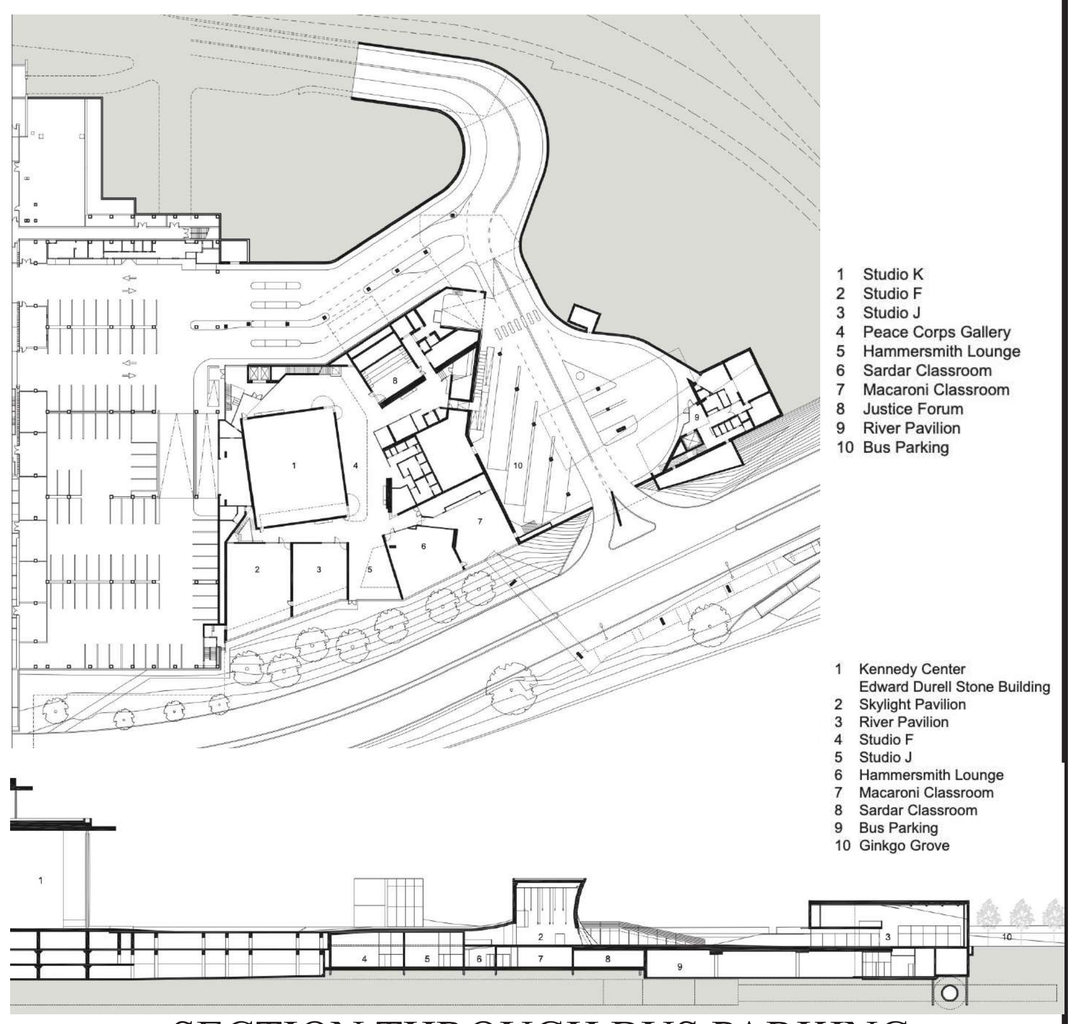
CONCEPT





Building By the River:

- Because the soil near the Potomac River is challenging at best and unstable at worst, the Kennedy Center was built with a caisson foundation.
- The Kennedy Center Building Expansion Project enlisted architect Steven Holl to design an outdoor stage pavilion, originally to float on the Potomac River.



SECTION THROUGH BUS PARKING

ANALYSIS

- Enough two and four wheeler parking spaces.
- Provision of proper drama classrooms and drama studios.
- Includes small theatre in upper floors but lacks proper auditorium.
- The access by the means of bridge may not always be feasible.
- Overall access and circullation through the site is with wide road so it could be an advantage during emergency cases.

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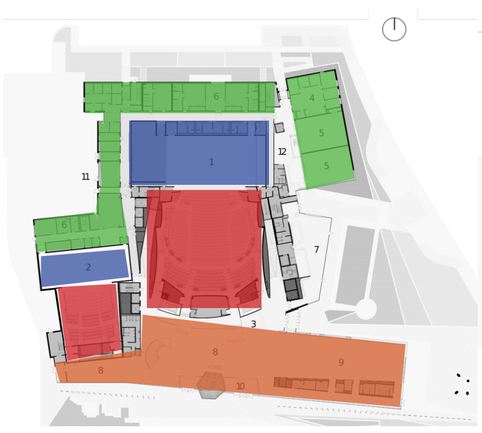
INTERNATIONAL CASE STUDY

BUDDY HOLLY HALL OF PERFORMING ARTS

Location - Lubbock, United States
Site Area - 20400 sq.m (40-2-3-0)
Architect - Diamond Schmitt Architects
Building Type - Institutional

It features the grand 2,297-seat Helen DeVitt Jones Theater, the more intimate 415-person Crickets Theater, and other flexible spaces for rehearsal, events and performance, as well as a restaurant, two multi-purpose rooms and an outdoor tiered and covered amphitheater.

AUDITORIUM

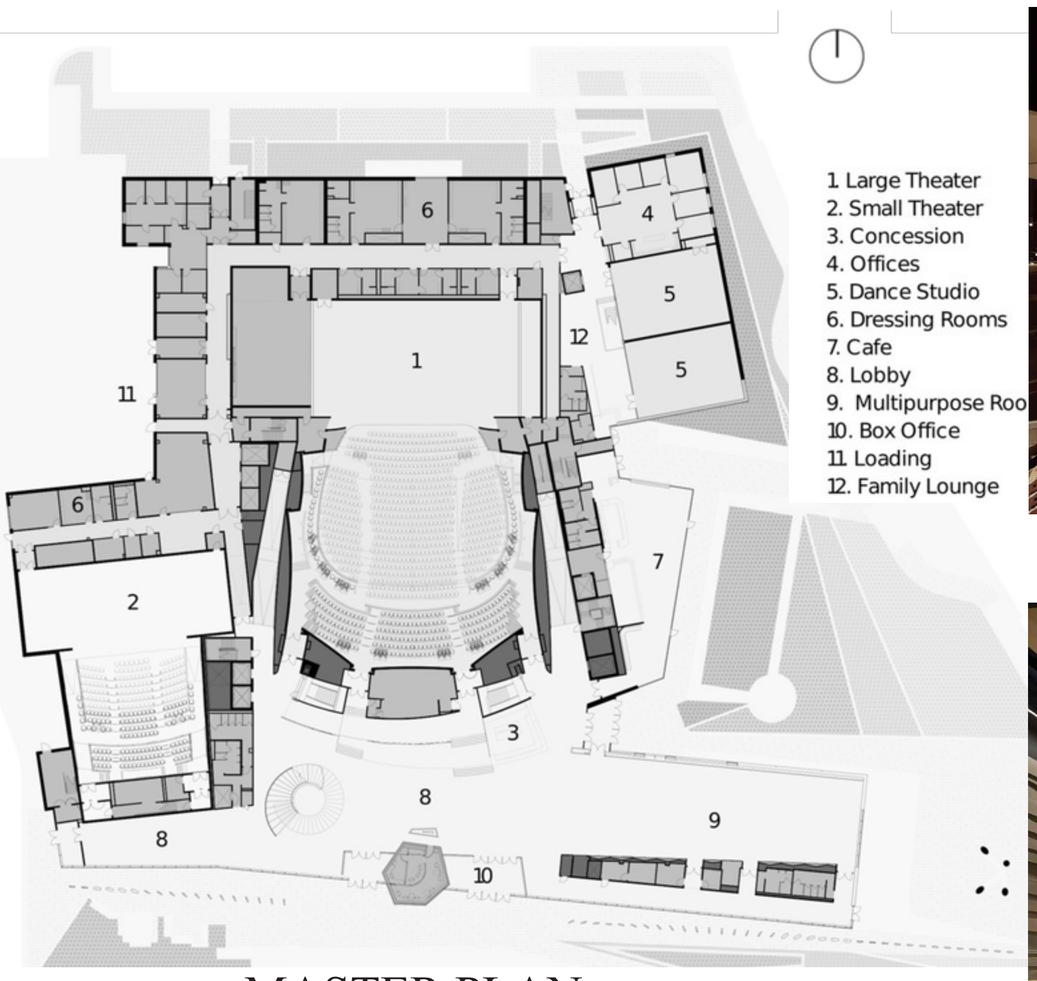


Front of the Building

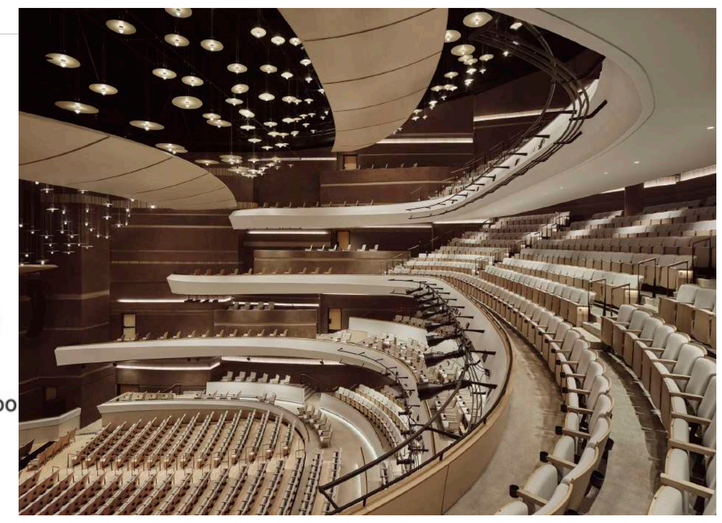
Seating Area

Stage Area

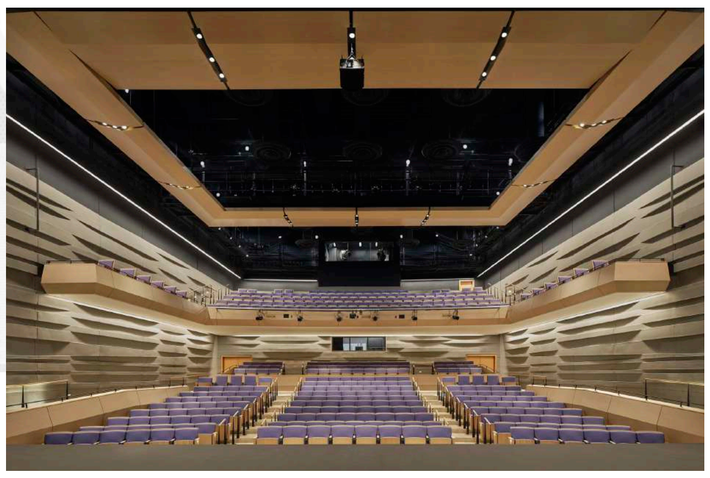
Back Stage



MASTER PLAN

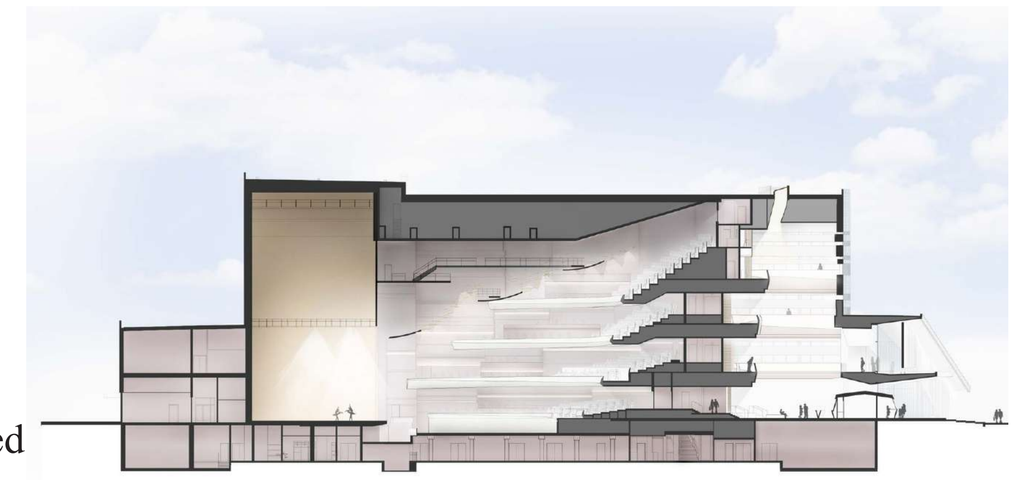


LARGE AUDITORIUM

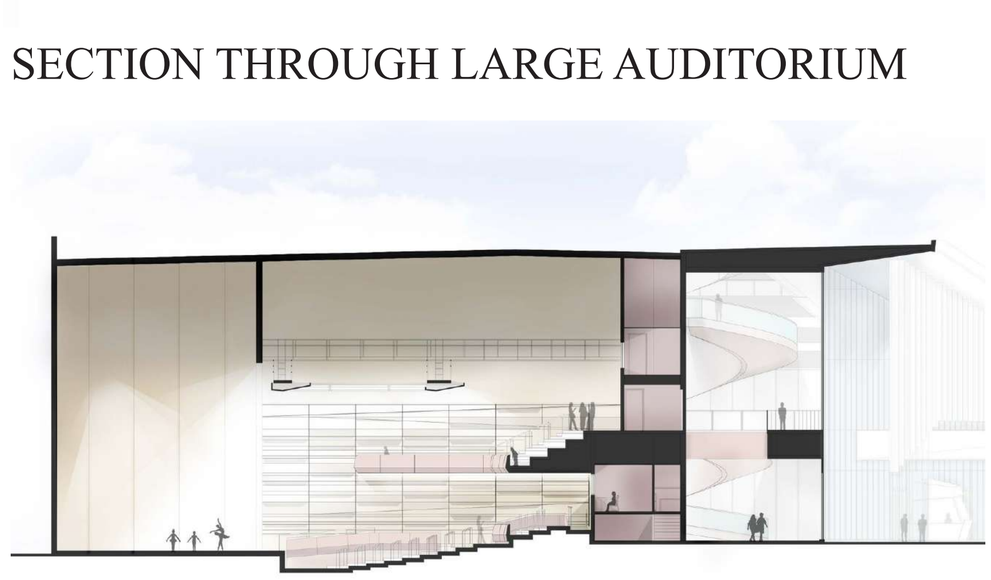


SMALL THEATRE

There are two theatre halls.
The front of the buildings includes lobby areas, ticket counter, cafe and food stall concession area.
The seating area of the main auditorium hall is of capacity 2297 seats whereas of small theatre is 415.
The seating area faces to the Procenium type stage.
The backstage consist of dressing rooms segregated for male and female, preparation areas and washrooms.
The other spaces are offices, lounge and dance studios on the ground floor.
Upper floor consists of mechanical rooms and terrace areas.



SECTION THROUGH LARGE AUDITORIUM



SECTION THROUGH SMALL THEATRE

ARCHITECTURE

- The building's modern exterior design draws from the prismatic and layered rock formations of Texas canyons.
- The hall interior's adaptive layout is tailored to its unique and wide-ranging performance line-up.
- A long overhang, angled concrete fins, and deep-set ribbon windows all act as architectural drapery.
- the hall's use of glass at ground-level entrances creates an inviting and seamless transition for visitors entering and exiting the hall.

ANALYSIS

- The auditorium area have proper spaces like dressing rooms and washrooms.
- The lobby areas and foodcourts are planned so that it would be easily accessible and work for both theatres.
- Proper acoustics work so that the thetares would not cause trouble of sound at the same time performances.

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KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

SCHOOL OF PERFORMING ARTS AND THEATRE

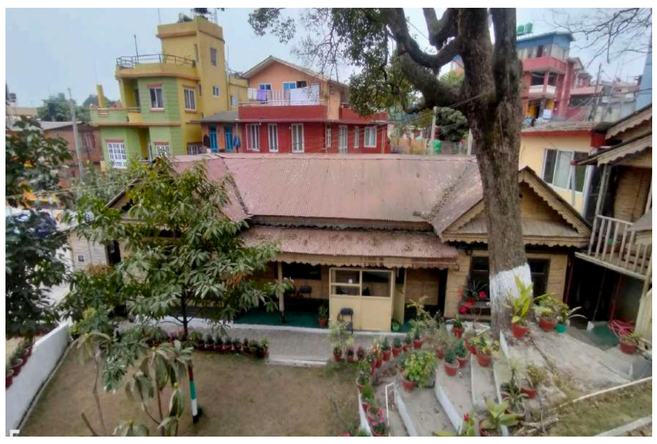
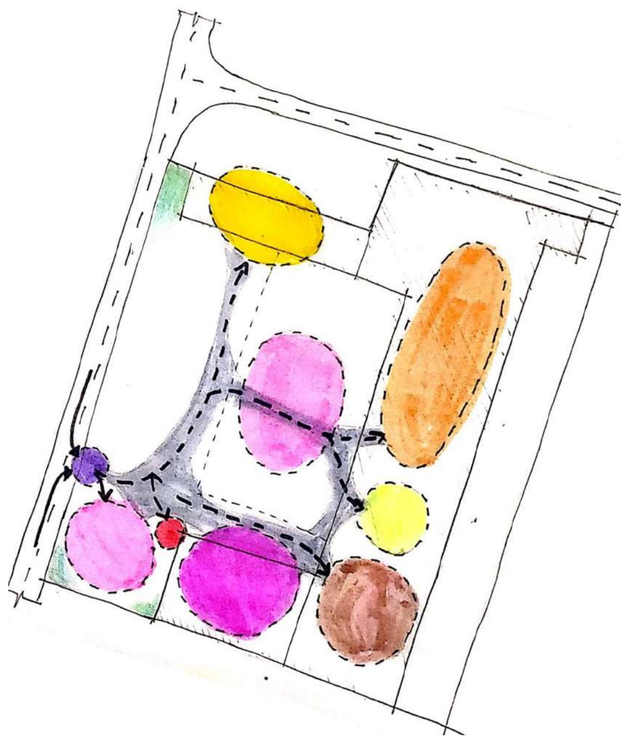
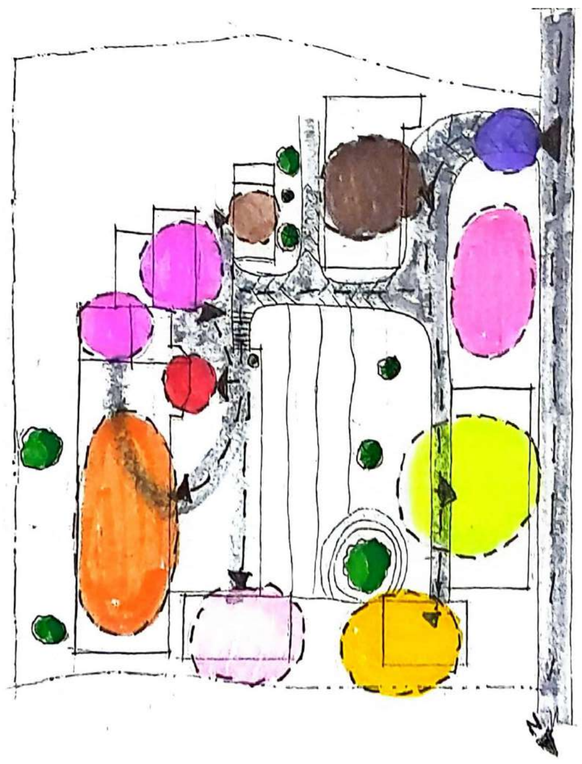
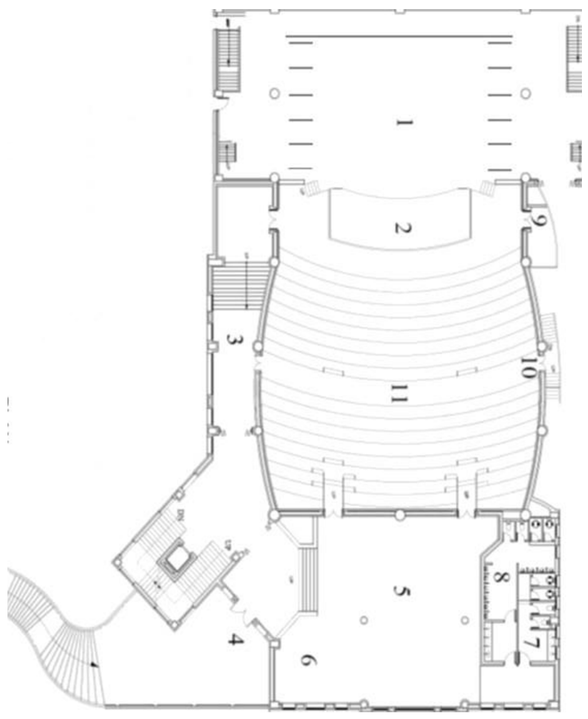
TITLE: INTERNATIONAL CASE STUDY

NAME: MONIKA DHITAL
ROLL NO: 750122

DATE: 2080/11/23

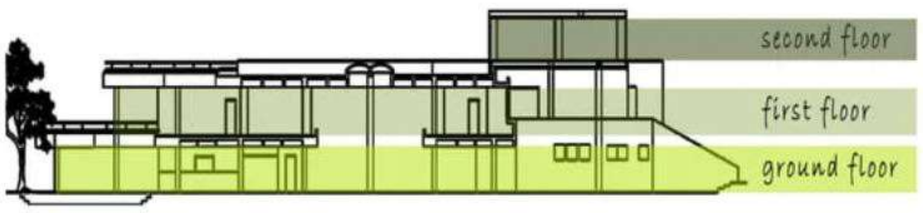
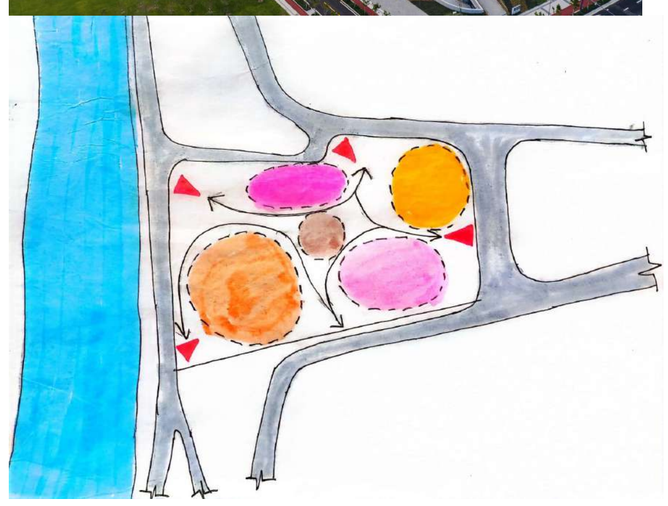
CASE STUDIES COMPARISON CHART

NATIONAL

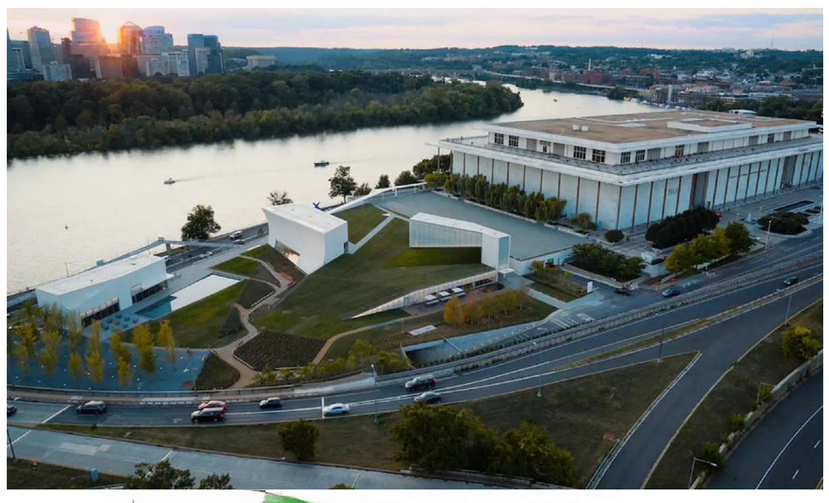
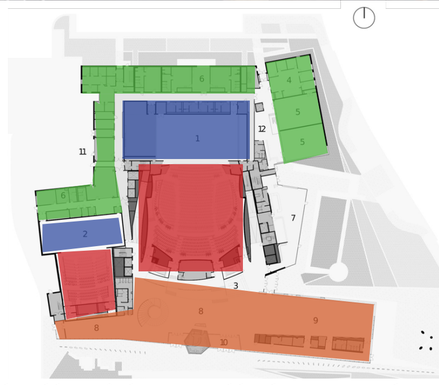
PARAMETERS	1. MANDALA THEATRE, NEPAL	2. LEKHAN KUNJA - GURUKUL	3. RASTRIYA NAACH GHAR
			
1. ZONING	 • The area is divided into Parking, Ticket Counter, Hall, Workshops and Dormitories.	 • The area is divided into Parking, Cafe, Pulication, Washrooms, Theatre Hall, Workshop.	 • The building is Auditorium Hall with parking spaces and the main hall.
2. ACCESS	• Access from the west side road. • The backdoor of the hall opens to the north side road.	• Access from the west side road from the ramp of 2.4 meter height.	• Access from the south east side, from the main road of Kantipath.
3. ARCHITECTURE	• Modern approach to Architecture with the use of metal truss, aluminium, steel structure, and eco panels.	• Traditional approach to Architecture: • Bamboo structure, and traditional style wooden doors and windows. • Sloped roofs with G.I sheets.	• Modern approach to Architecture with traditional facade look. • Overall structure is made of RCC and Concrete.
4. ACOUSTICS	• Use of Black soft Curtains on the walls inside the theatre for sound absorption. • Still a problem to run two shows at two halls due to lack of proper acoustic maintenance	• Use of Black soft Curtains on the walls inside the theatre for sound absorption. • Still a problem to run two shows at two halls due to lack of proper acoustic maintenance	• Diffusive acoustic panels used on ceiling. • Irregular ceiling profile holding light installations. • Thick cavity walls with sound absorbing materials. • Lobby designed as buffer space.
5. LIGHTING	• Spot lights in order to use during the shows and white lights to illuminate the hall.	• Spot lights to use during the shows and not enough white lights to illuminate the hall.	• Spot lights for the shows and enough white lights to illuminate the hall.
6. HALL CAPACITY	• 200 seat Capacity for large theatre and 70 people capacity for small theatre	• 80 seat capacity	• 350 seat capacity

CASE STUDIES COMPARISON CHART

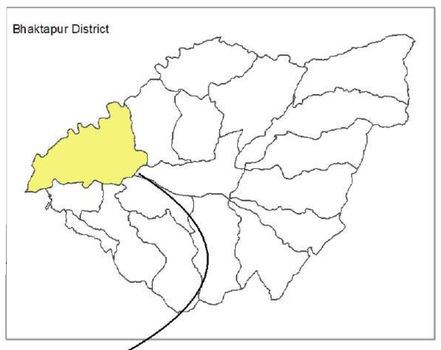
REGIONAL

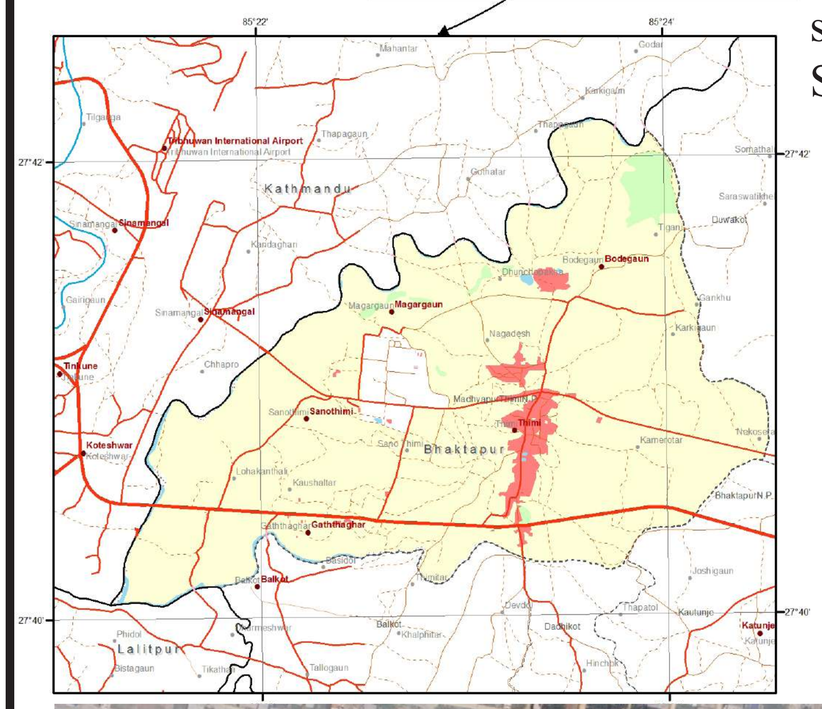
PARAMETERS	1. KALA ACADEMY, GOA	2. TIANJIN JUILIARD SCHOOL, CHINA
		
1. ZONING		
	• Area divided into main service building, academic area, exhibition area and parking.	• Area divided into faculty, academic area, lobby, administrative, and performance.
2. ARCHITECTURE	• Spaces inside are heterogeneous, and the transition between the spaces is through corridors resembles the streets of old Goa. Correa sketched the murals on the walls that create the illusion of the Goa streets	• Create a semi-indoors public entrance lobby that is perceived as an extension of the adjacent park.
3. HALL CAPACITY	• 1000 seat Capacity	• 225 seat capacity in the Black Box Theatre

INTERNATIONAL

PARAMETERS	1. THE KENNEDY CENTRE , UNITED STATES	2. BUDDY HOLLY HALL, UNITED STATES
		
1. ZONING		
	• Area divided into cafe, water body, mini theatre, studios and parking.	• Auditorium hall with small theatre, large theatre, lobby areas, ticket counter, cafe and food stall concession area, offices, lounge and dance studios.
2. ARCHITECTURE	• Overall, the building is 100 feet (30 m) high, 630 feet (190 m) long, and 300 feet (91 m) wide. • Terrace overlooking the Potomac River	• The building's modern exterior design draws from the prismatic and layered rock formations of Texas canyons. • A long overhang, angled concrete fins, and deep-set ribbon windows all act as architectural drapery
3. HALL CAPACITY	• Mini Hall 130 seat Capacity	• Auditorium with 2297 seats capacity

ODEA : PERFORMING ARTS CENTRE- THEATRE





The site is located at Radhe Radhe of Bhaktapur District, Madhyapur Thimi Municipality, Ward no 5

The site is approached from the 6m wide service road of the Araniko Highway

The site falls within commercial area of the special planning sub zone. It lies within th Sangam Colony of Kamerotar.

Site Orientation = South

Topography = Flat

BYE LAWS

ROW = 25M from the center of the highway

Setback = 3m from the ROW line

= 3m from property line

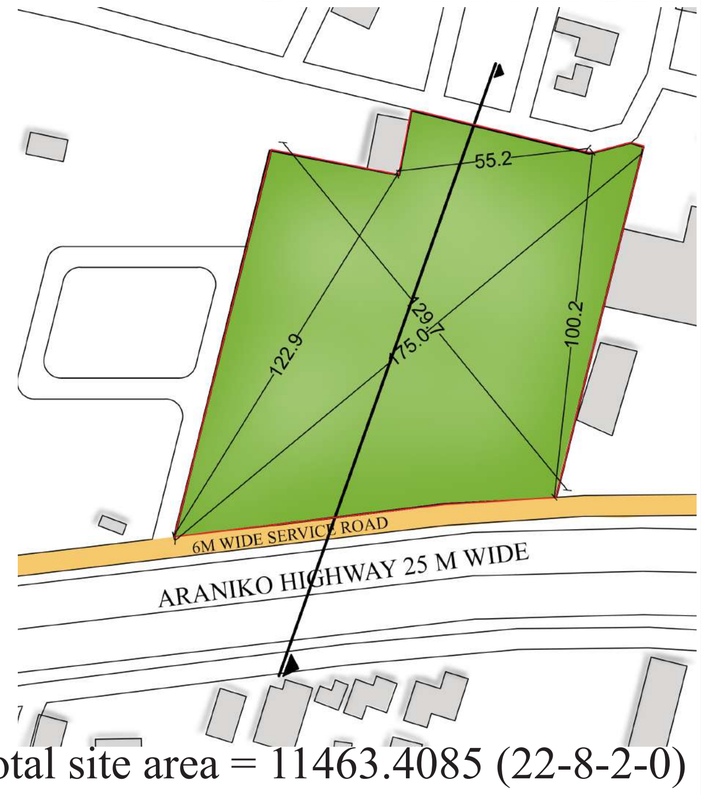
Open Spaces = 4% of total site area for 10-25 ropanee land area

Coverage = 40% for institutional building

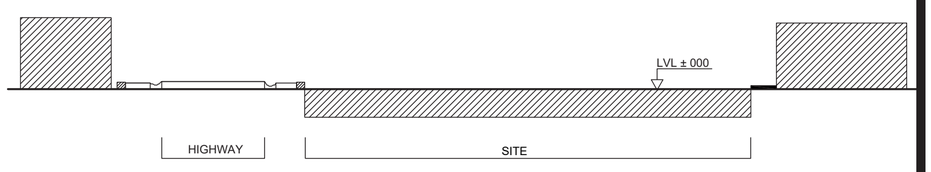
FAR = 3.5

Parking = 20% of the total site area

SITE ANALYSIS



Total site area = 11463.4085 (22-8-2-0)

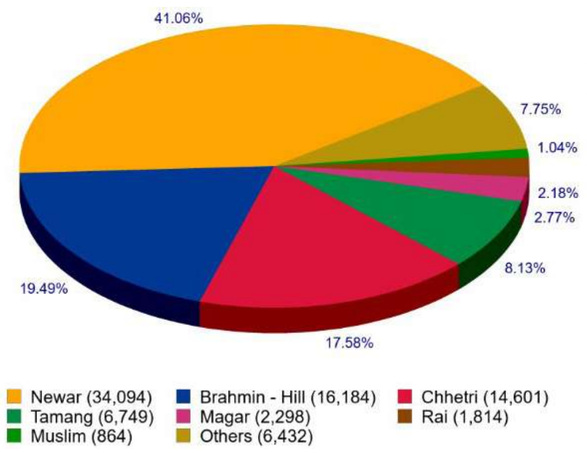


VIEW FROM SOUTH

VIEW FROM EAST

VIEW FROM NORTH

HUMAN AND CULTURE



Madhyapur Thimi Municipality

Total Area = 11.11 km2

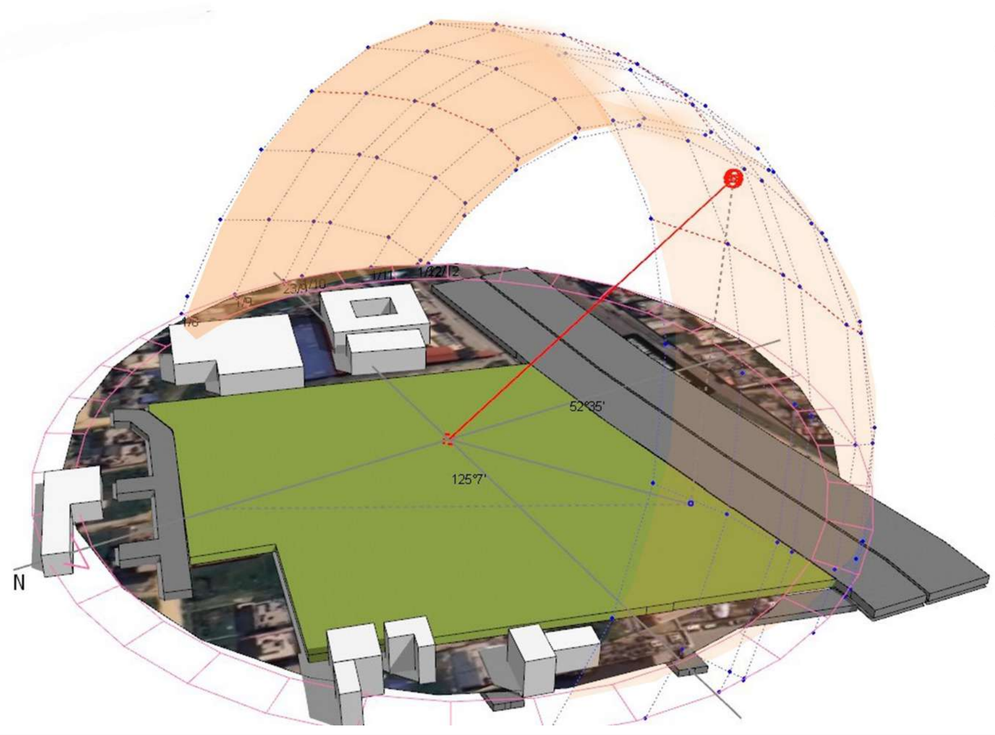
Population = 119,756 (Census 2021)

Age Groups (C 2021)	
0-14 years	23,729
15-64 years	89,243
65+ years	6,784

SITE JUSTIFICATION

- Close proximity to Kathmandu and Lalitpur
- On the way from banepa
- Easy Access
- Visibility
- As for the location of the site, it is specifically chosen to be Bhaktapur because within the valley, both Kathmandu and Lalitpur consists of the drama school and theatre spaces.
- The site is chosen in Radhe Radhe, Bhaktapur because with the establishment of the Bhatbhateni complex nearby, it has become one of the growing places in population, commercialization and residence. So designing a theatre and drama school with enough population to attract to, it can create various opportunities.

CLIMATIC ANALYSIS



- Max Temp=83F in June
- Min Temp=37F in January
- Most wind in April with 6.3mph
- Least in November with 3.7mph
- Max precipitation in July and min. in November.
- Prevailing Winds flowing from South West to North East.

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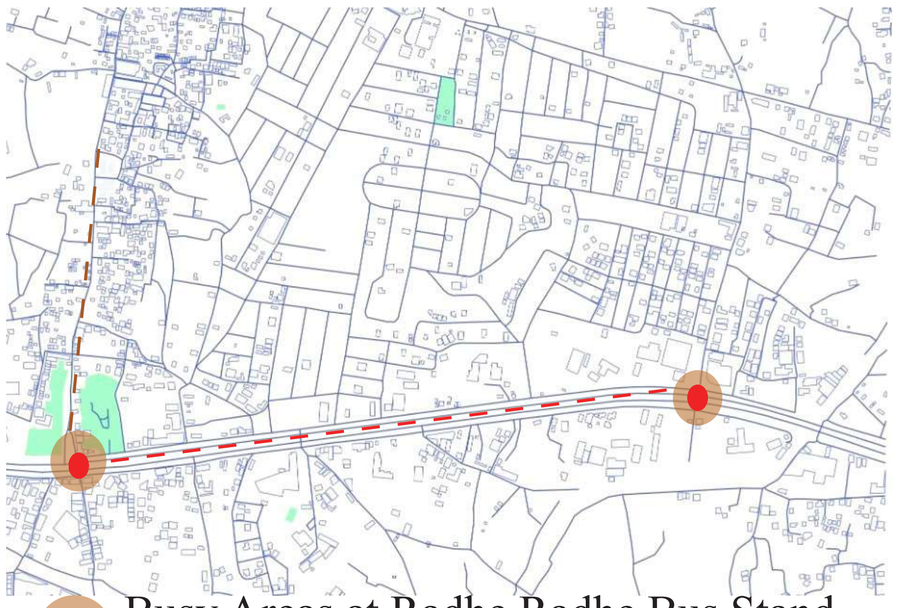
AR 4

ODEA : PERFORMING ARTS CENTRE- THEATRE



Busy Areas at Radhe Radhe Bus Stand and New Thimi Chwok

Busy Areas during Biska Jatra i.e Jatra Route which also affects the service road going thgrough the site

Busy Areas during wedding seasons for the banquet i.e Thai hospitality

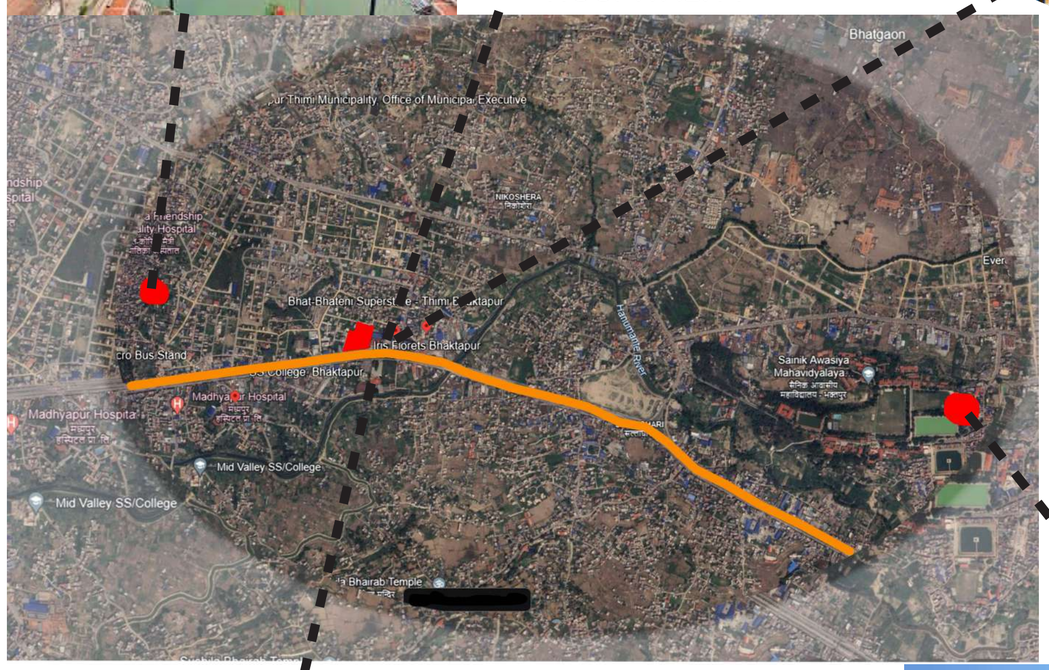
Bus stops within close proximity, 500m to Thimi and 200m to Radhe radhe

SITE ANALYSIS

THIMI TRADITIONAL SETTLEMENT (1.4KM)

ROYAL THAI HOSPITALITY

BHAT-BHATENI SUPERMARKET

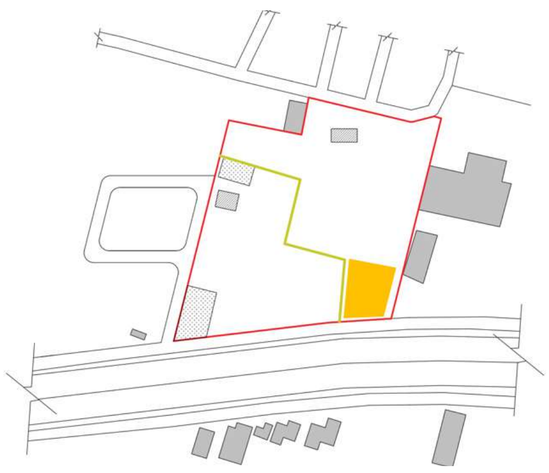


HERITAGE PALACE

BHAKTAPUR DURBAR SQUARE (3.8KM)

TOPOGRAPHY

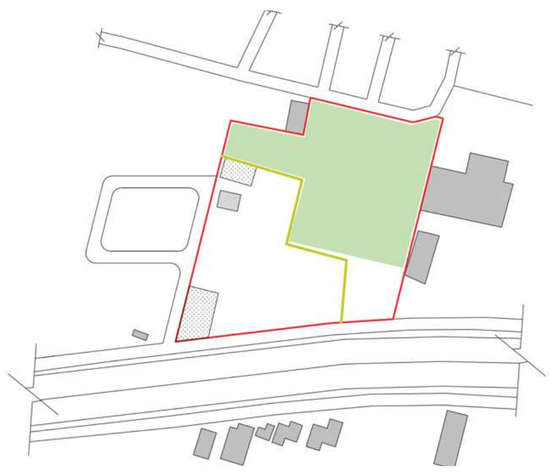
Man-made Features



Building

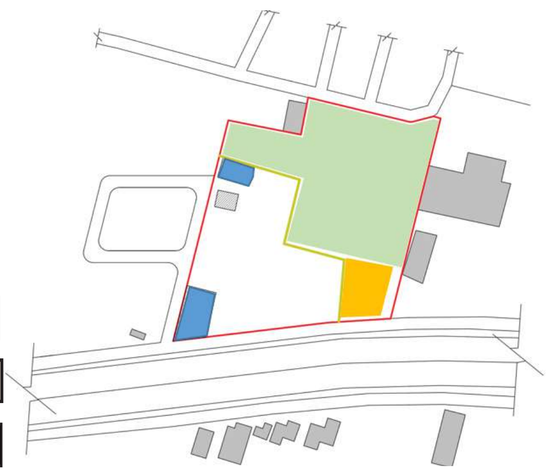
Temporary Structures

Natural Features



Green Space

Current Use



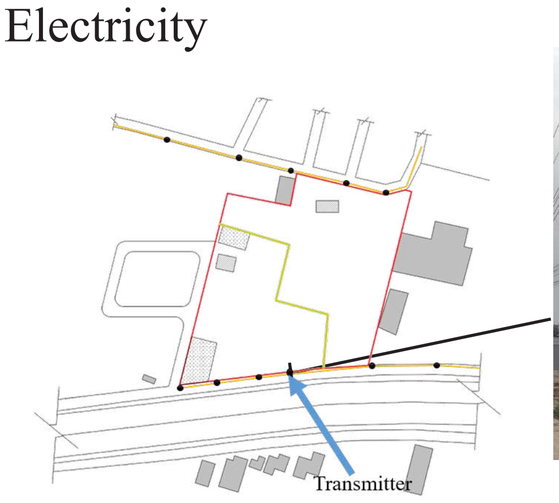
Parking

Commercial

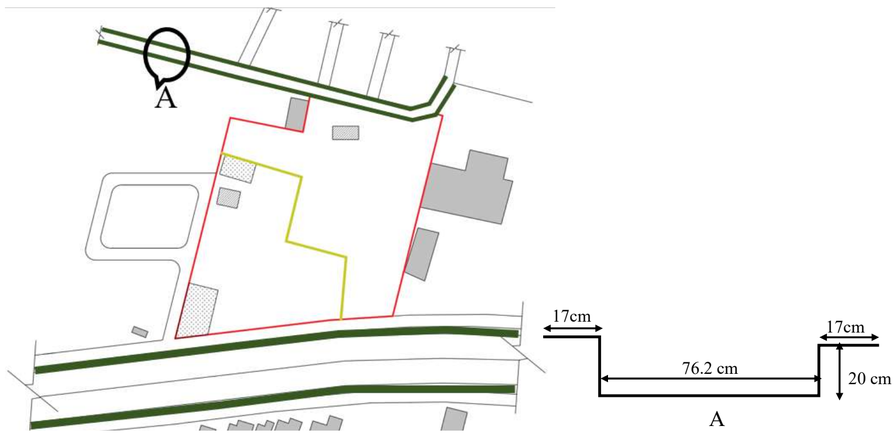
Unused

UTILITIES

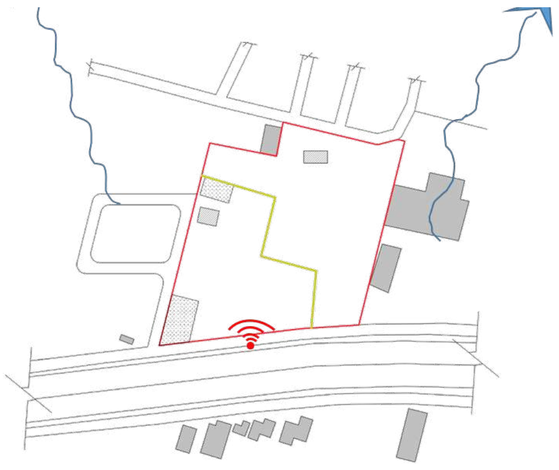
Electricity



Drainage



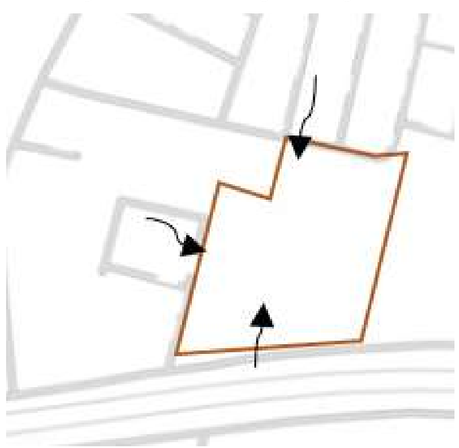
Sensory



S W O T

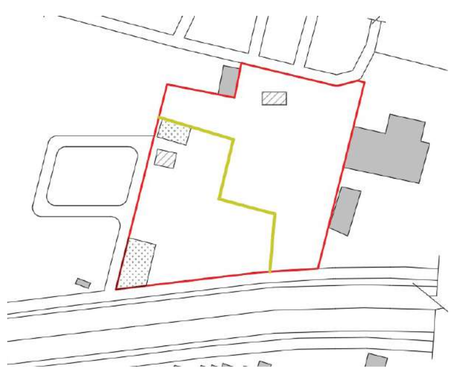
STRENGTH

- Direct access and visibility from the main highway
- Multiple access to the site which can be a strength during the days of busy days.



WEAKNESS

- Pollution due to high traffic density of the main highway i.e smoke, dust and noise.



OPPORTUNITY

- The site is south oriented so use of shading devices can be used in the design in further processes.
- Traditional settlement of Thimi and people can be attracted to various ethnic pragrams.

THREAT

- During high rainfall, flood might be a threat as the site is near the Hanuante River.

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AR 5

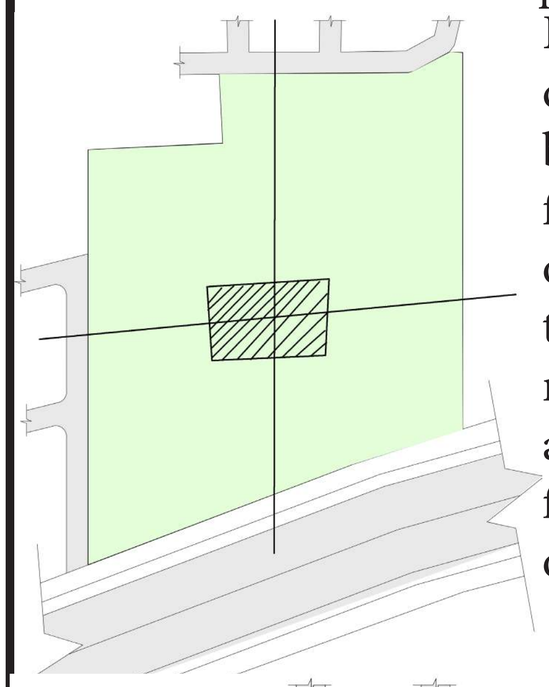
ODEA : PERFORMING ARTS CENTRE- THEATRE

CONCEPT DEVELOPMENT

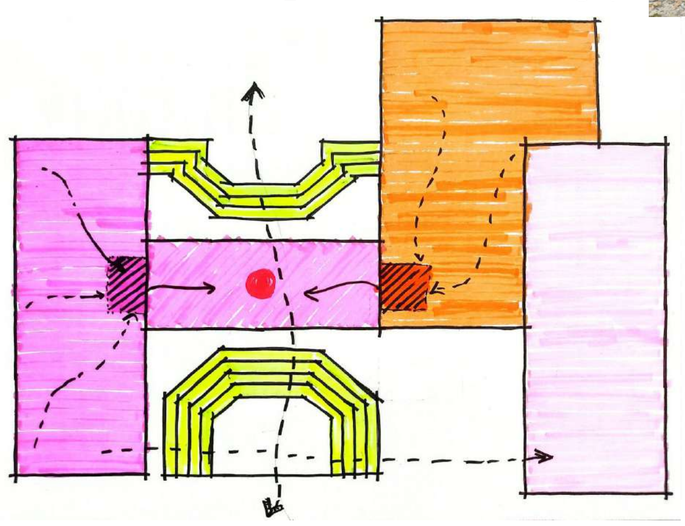
The very concept of performance ot "Theatre" as the history suggests, started from the Greek Amphitheatres. The open air amphitheatre which were used for entertainment purposes in ancient times.

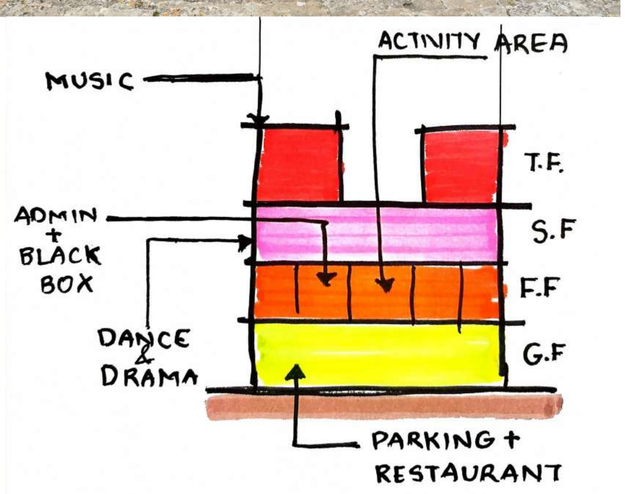
During the project selection, the major concens for the design of a theatre were absence of any kinds of outdoor performing spaces.

Therefore, the concept is developed from the placement of the open air theatre (OAT), centralized on the site and planning the functions of the theatrical spaces accordingly.

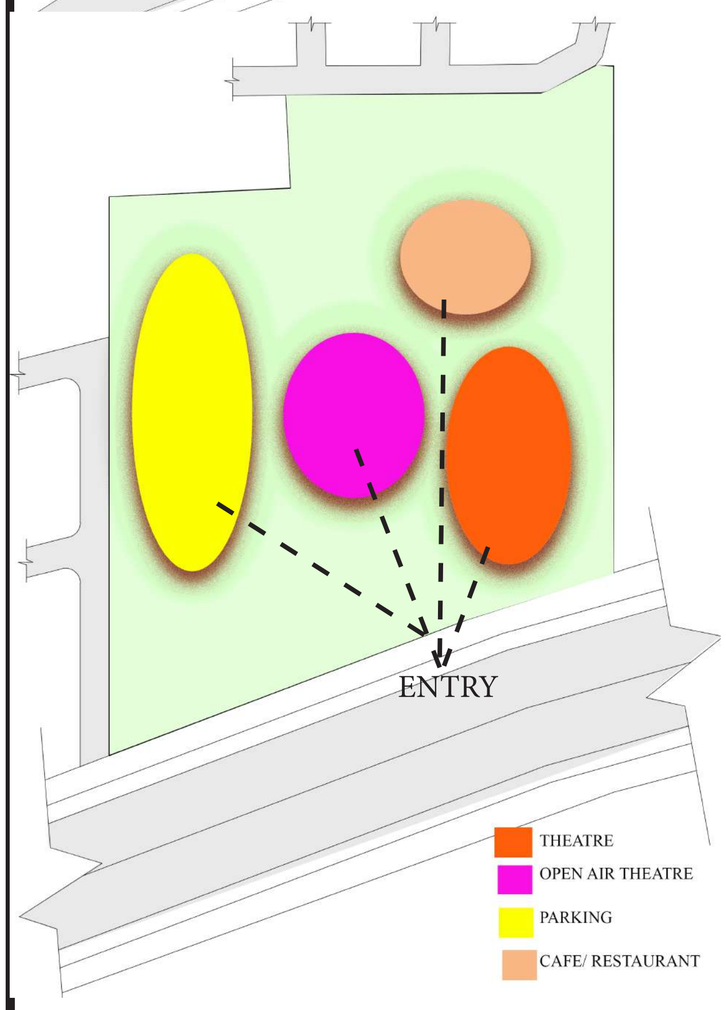


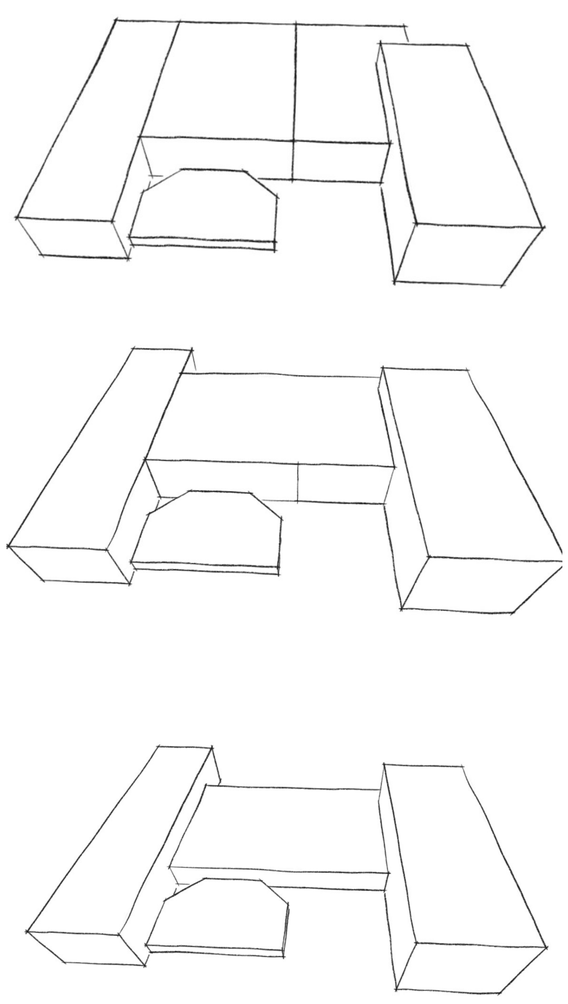
Projection lines are drawn on the site on both x - axis and y - axis from the centre of both of the directions. From the derived centre point, radial lines for the open air theatre is drawn from which a location of the OAT is made.

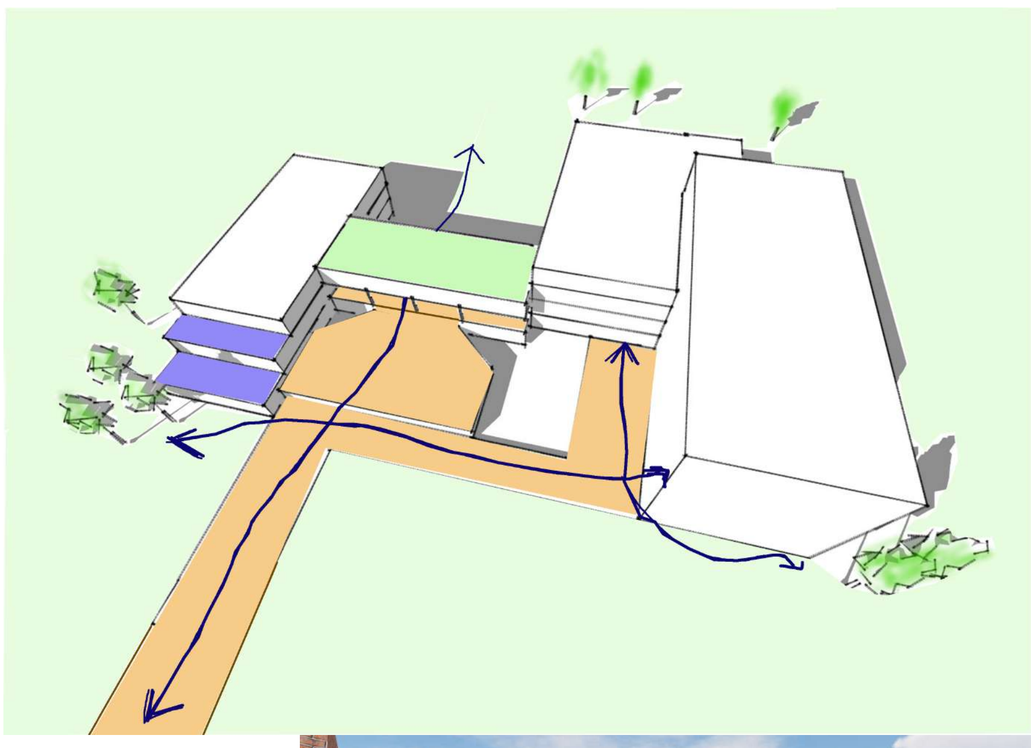




The central space acting as interaction space connecting the block on two sides. The meeting point of the circulation spaces connects two major open plaza area on north and south.







The programs are placed and planned on the rear side of the site because the front side is directly connected to the ever busy Araniko Highway so the problem of noise is inevitable due to the high traffic density. So, the frontal portion of the site could be used to create a buffer space that shields the institution from the possible noise and pollution.

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AR 6

ODEA : PERFORMING ARTS CENTRE- THEATRE

PROGRAM FORMULATION

Users of the space

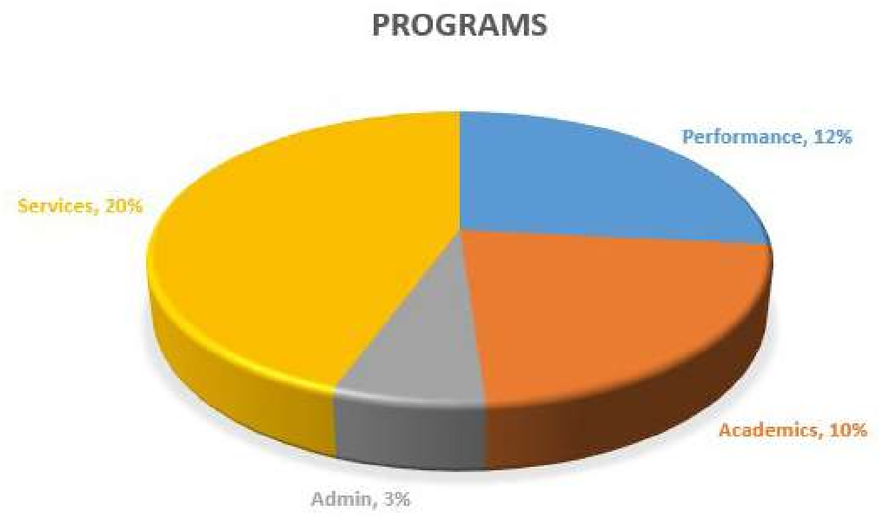
Total site area: 11463.4085 sq.m
Max coverage allowed: 40%
Built Up Area: 5511.04 sq.m
GCR Coverage: 30%
Ground Floor Area: 3174.86 sq.m

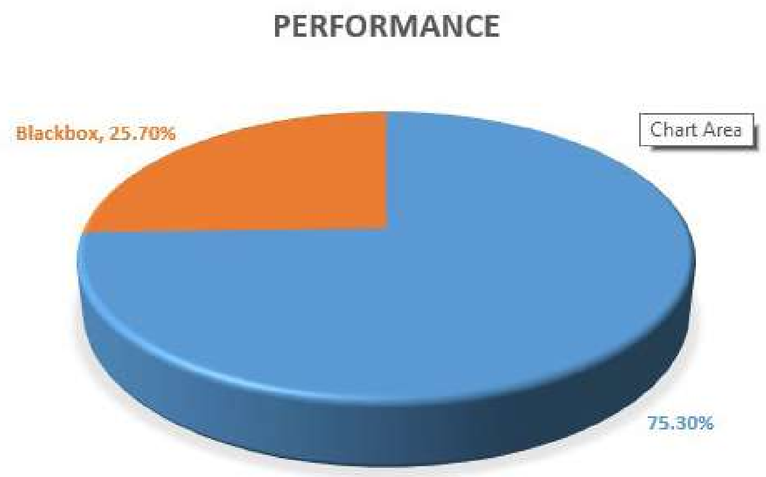
1. Students
= 35 for students 1.5 years program
= 40x2 students for 3 months a year progam
2. Teachers
• Drama = 5
• Music = 3
• Dance = 3
• Direction and Visual Arts = 5
• Light and Sound = 5
• Literature = 3

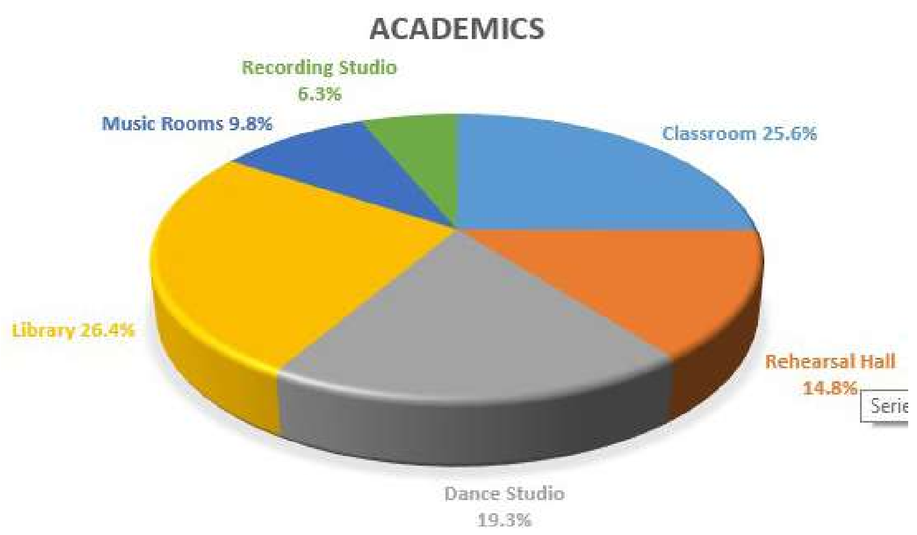
3. Administration Staff
• Accountant = 2
• Director = 1
• Management = 5
• Library = 5
4. Services
Cleaners = 10
Guard = 2
Workers at cafeteria and restaurant = 10
• Total No. of People = 115 - 120

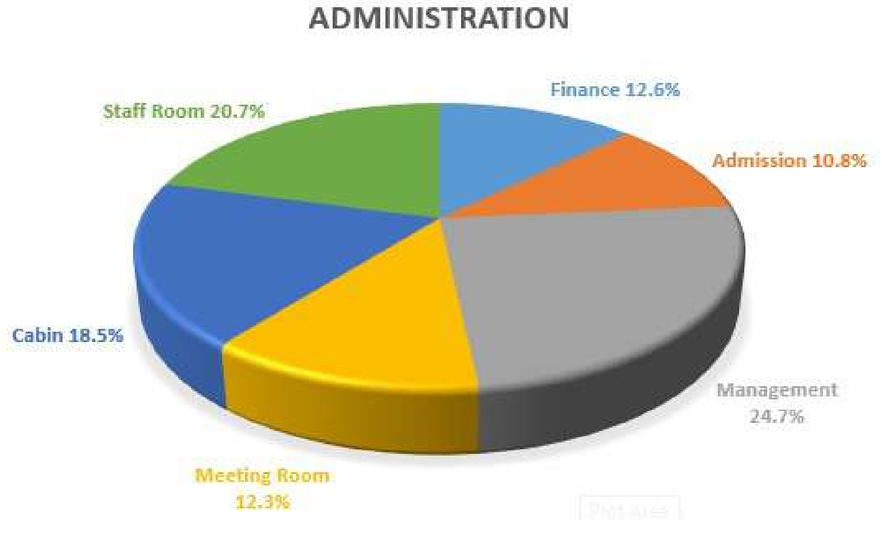
PROGRAMS

A. PERFORMANCE	AREA (SQ.M)	NO OF USERS	NO.S	TOTAL AREA
1. Main Theatre	1019.68	215	1	1019.68
2. Black Box Theatre	170.6	100	2	341
B. ACADEMIC				
1. Classrooms	65	42	4	260
2. Rehearsal Studio	50	35	3	150
3. Dance Studio	100	45	2	200
4. Library	280	50	1	280
5. Music Rehearsal Rooms	32	10	3	96
6. Recording Studio	61	5	1	61
C. ADMINISTRATION				
1. Finance	42	3	1	42
2. Admission	35	3	1	35
3. Management	40	1	2	80
4. Meeting Room	40	1	1	40
5. Cabins	60	1	1	60
6. Staff Room	67	15	1	67
D. SERVICES				
1. Pantry	60		2	120
2. Storage	31		4	124
3. Security	60	2	1	60
4. Parking	1094		1	1094
5. Restaurant	627	110	1	627
6. Toilets	50		5	250

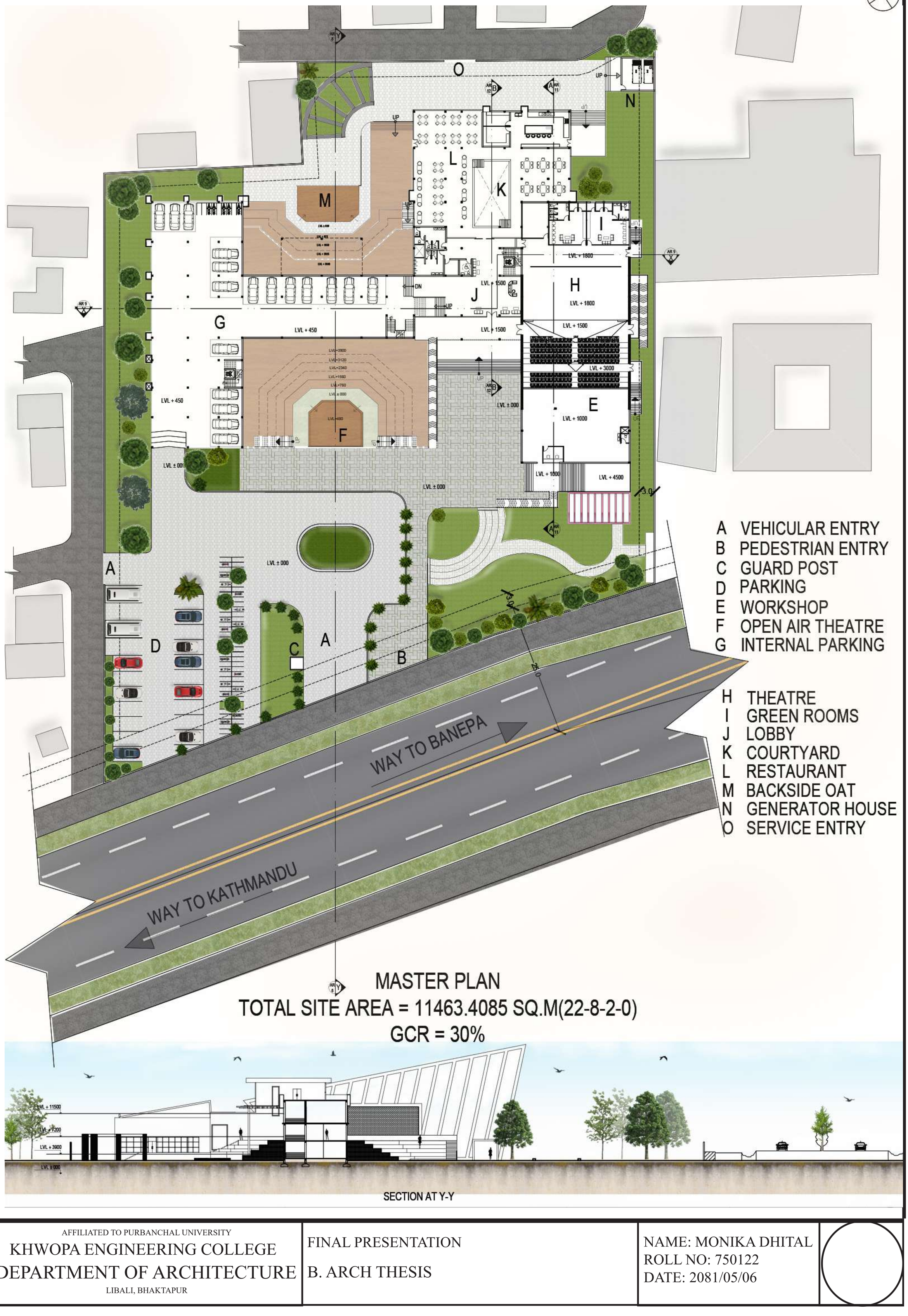








ODEA : PERFORMING ARTS CENTRE- THEATRE



MASTER PLAN

TOTAL SITE AREA = 11463.4085 SQ.M(22-8-2-0)

GCR = 30%

SECTION AT Y-Y

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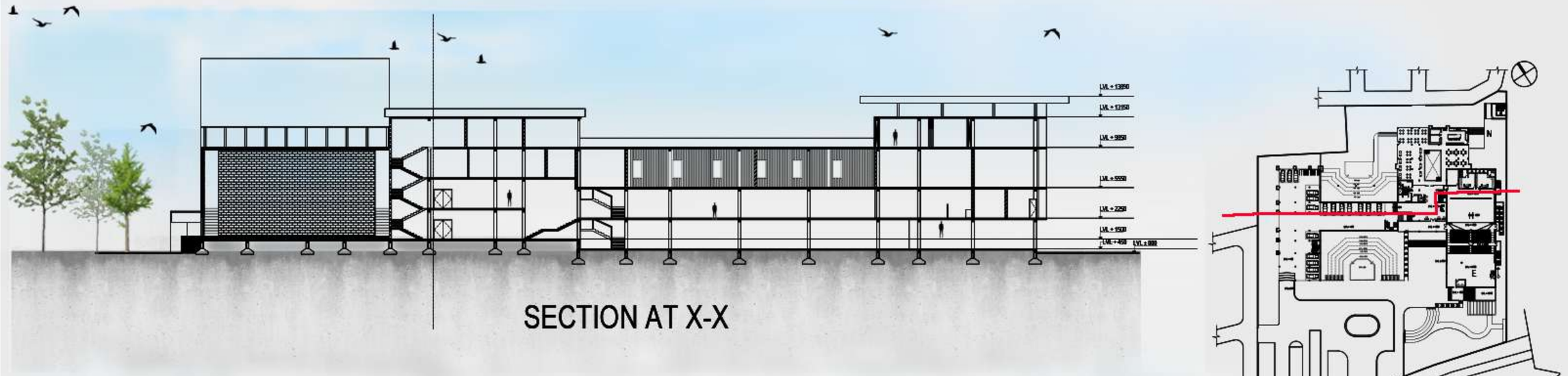
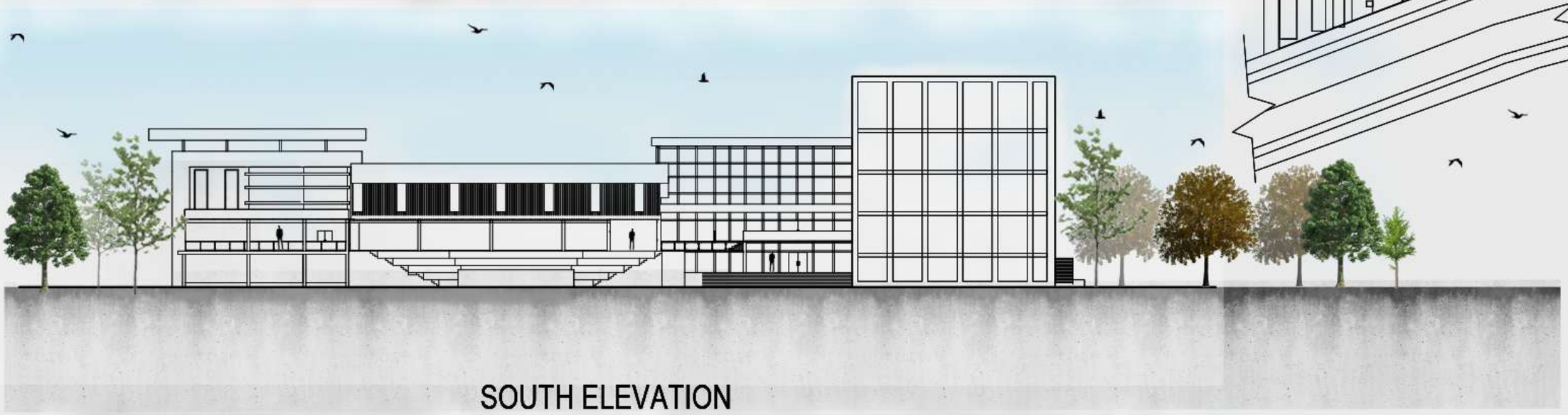
ARTS CENTRE - THEATRE



SECTION AT X-X



SOUTH ELEVATION

WEST ELEVATION

EAST ELEVATION

NORTH ELEVATION

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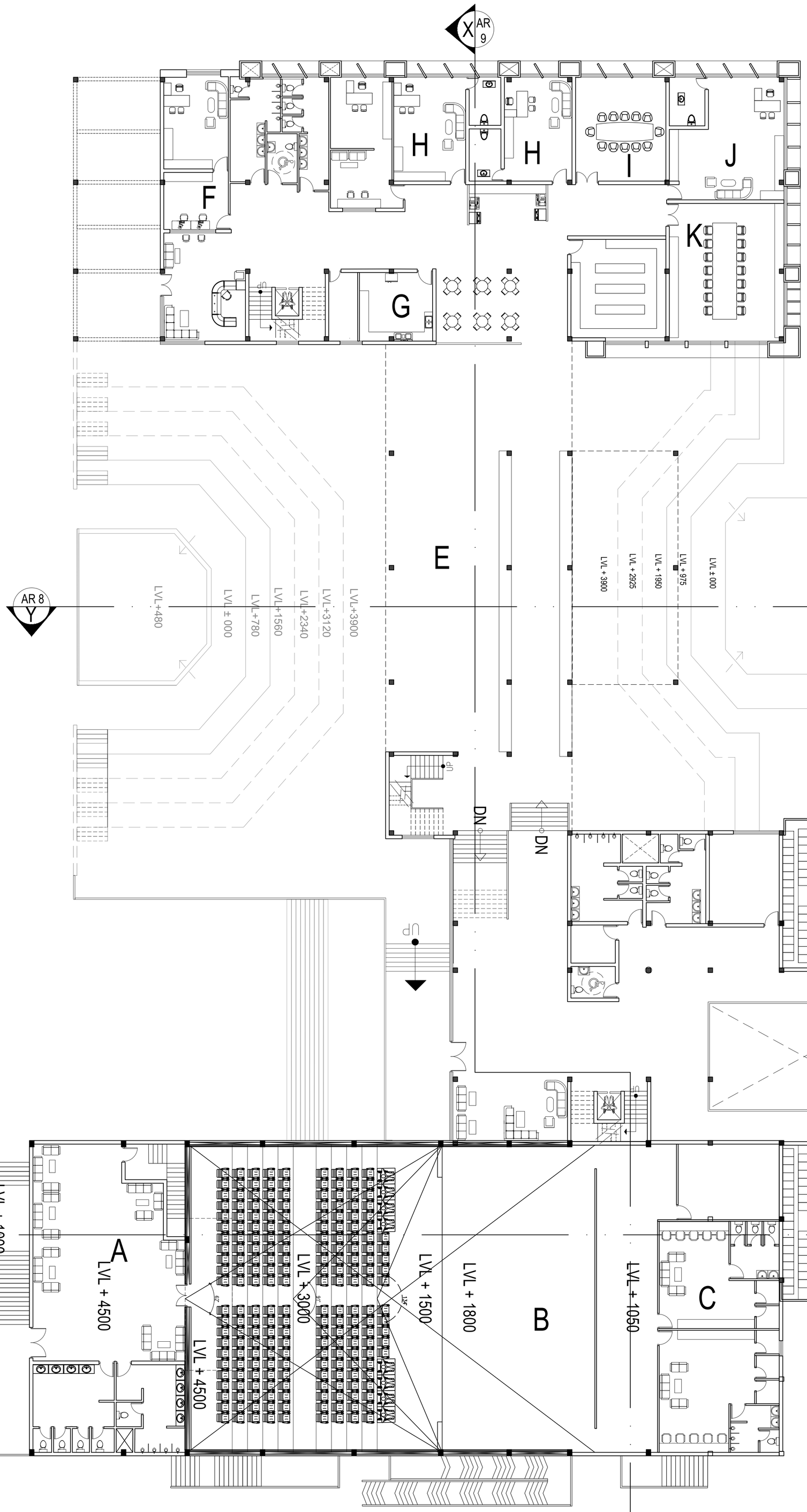
DATE: 2081/05/06

ODEA: PERFORMING ARTS CENTRE - THEATRE

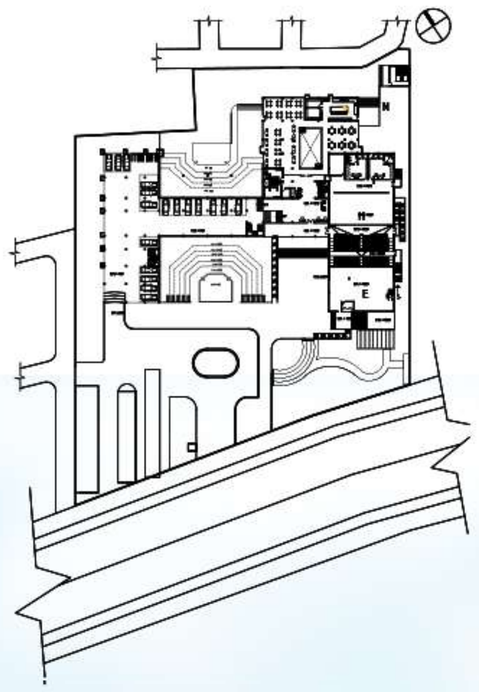


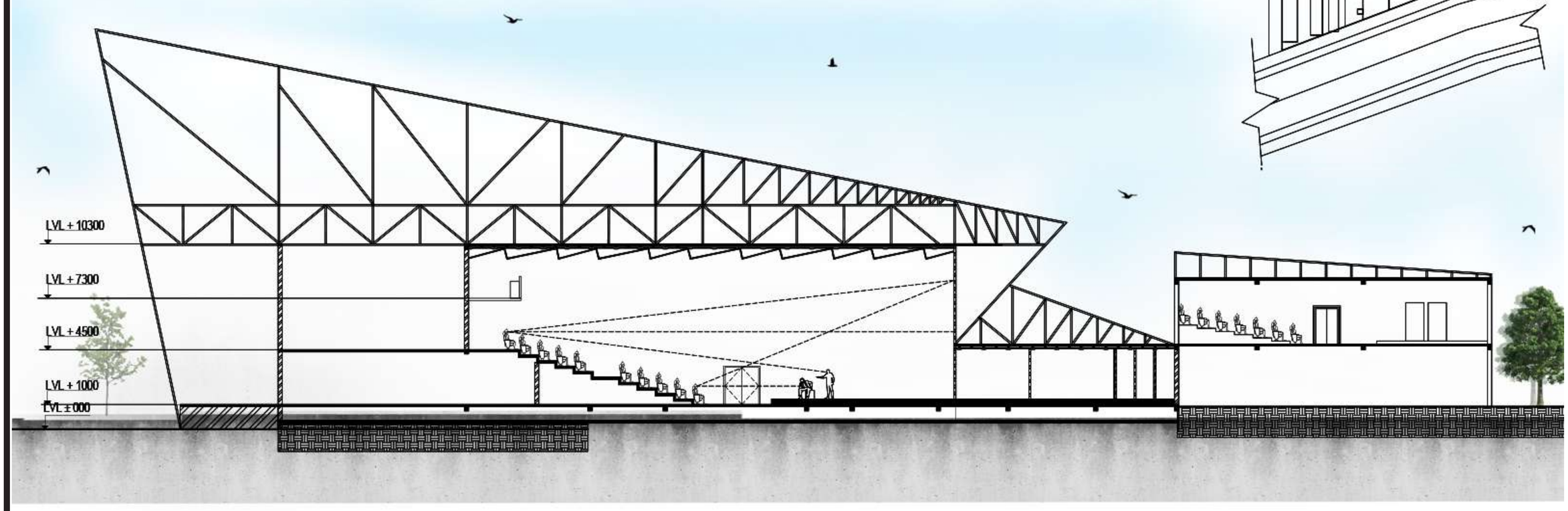
A THEATRE LOBBY
B THEATRE HALL
C GREEN ROOMS
D BLACK BOX THEATRE
E INTERACTIVE EXHIBITION AREA
F ACCOUNT SECTION
G PANTRY
H DEPARTMENT CABINS
I MEETING ROOM
J DIRECTOR'S CABIN
K STAFF ROOM

FIRST FLOOR PLAN
Area: 2153.67 sq.m

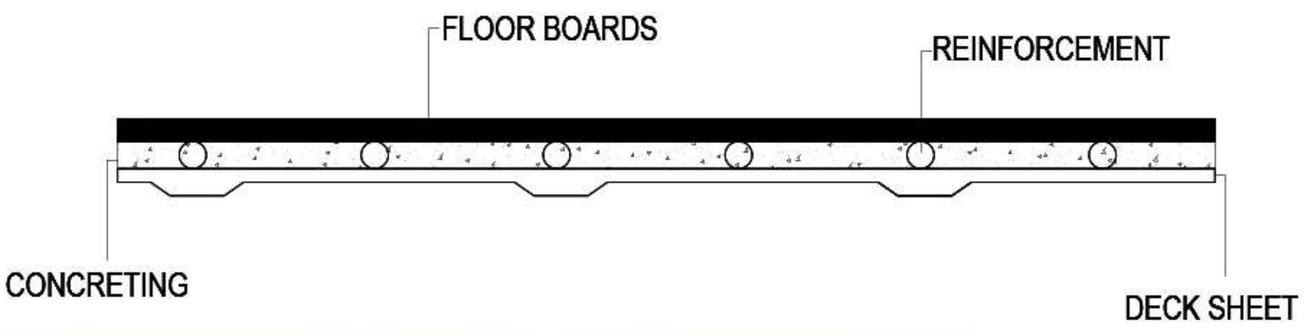
AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B.ARCH THESIS	NAME:- MONIKA DHITAL	ROLL NO.:- 750122
		DATE:- 2081/05/16	SCALE:- 1:300
		SUBMITTED TO:- DEPARTMENT OF ARCHITECTURE	AR10

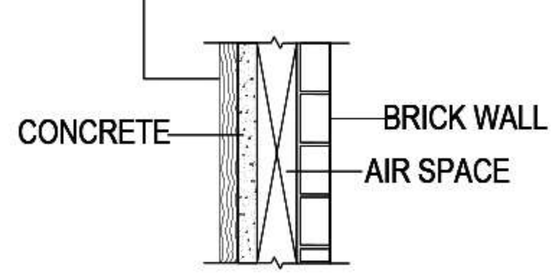
ODEA : PERFORMING ARTS CENTRE- THEATRE





SECTION AT A-A
Scale = 1:150





WALL SECTION FOR ACOUSTIC IN THEATRE

VIEW OF THEATRE INTERIOR VIEWED FROM STAGE

EXTERIOR VIEW OF THEATRE FROM SOUTH

VIEW OF THE STAGE AREA

EXTERIOR VIEW OF THEATRE FROM WEST

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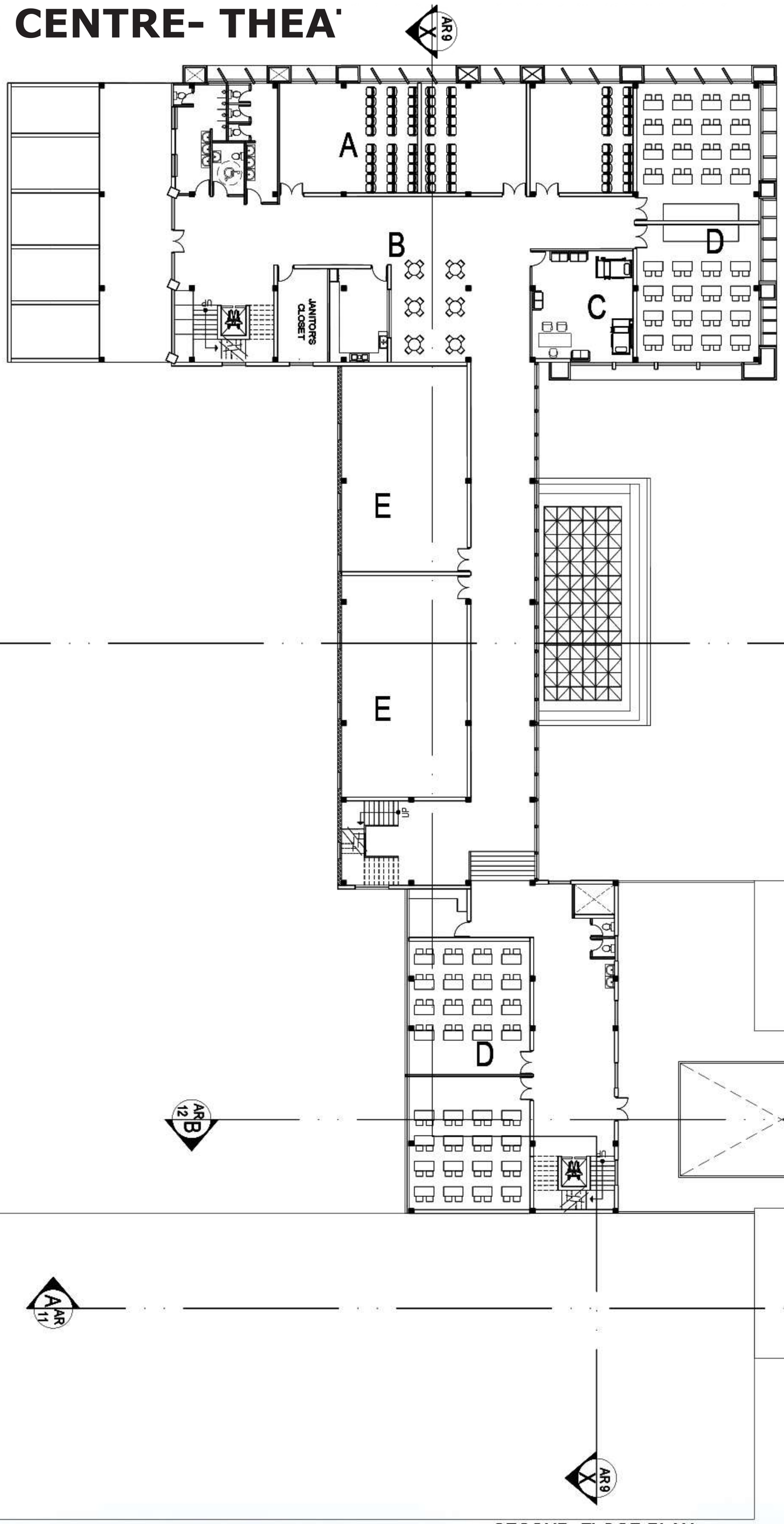
KHWOPA ENGINEERING COLLEGE
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

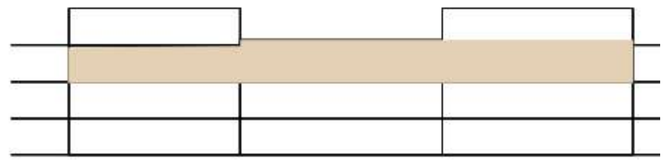
FINAL PRESENTATION

B. ARCH THESIS

NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2081/05/06

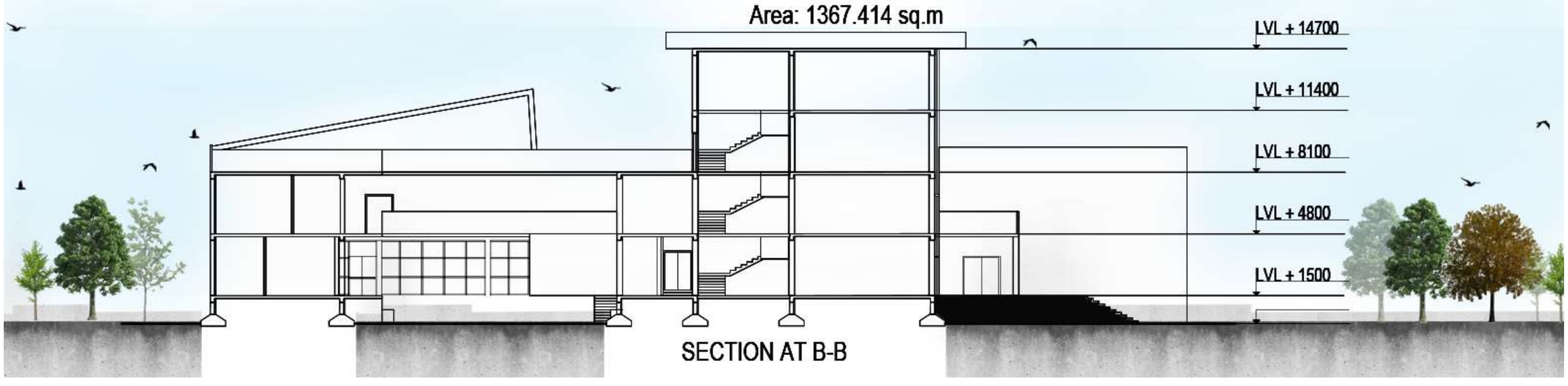
ODEA : PERFORMING ARTS CENTRE- THEA





A REHEARSAL STUDIOS
B REFRESHMENT AREA
C INFIRMARY
D CLASSROOMS
E DANCE STUDIOS

SECOND FLOOR PLAN
Area: 1367.414 sq.m



SECTION AT B-B

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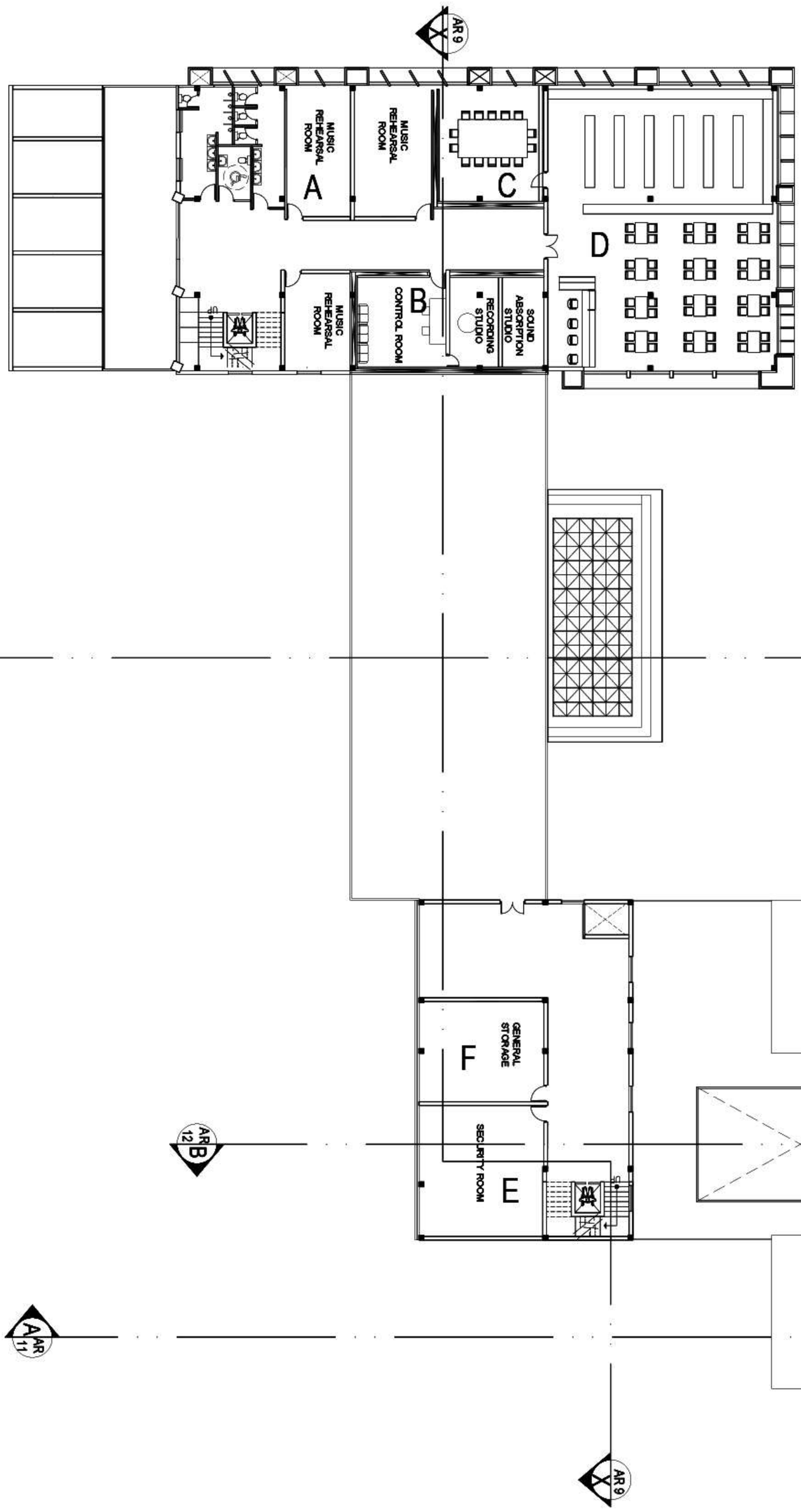
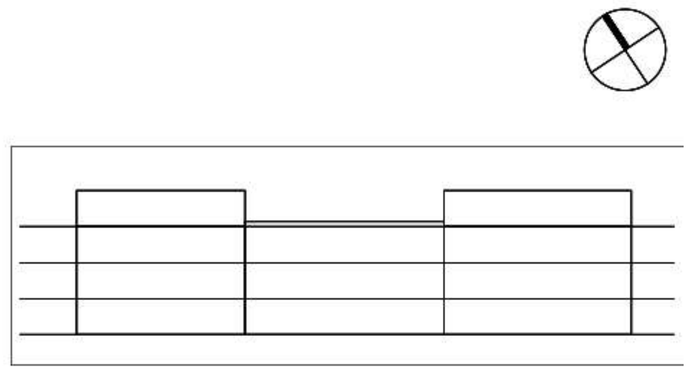
DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION
B. ARCH THESIS

NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2081/05/06

ODEA : PERFORMING ARTS CENTRE- THEATRE





A MUSIC REHEARSAL ROOMS
B RECORDING STATION
C LITERARY INTERACTION ROOM
D LIBRARY
E SECURITY ROOM
F STORAGE

THIRD FLOOR PLAN
Area: 968.76 sq.m

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DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION
B. ARCH THESIS

NAME: MONIKA DHITAL
ROLL NO: 750122
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ROOF PLAN

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LIBALI, BHAKTAPUR

FINAL PRESENTATION

B. ARCH THESIS

NAME: MONIKA DHITAL
ROLL NO: 750122
DATE: 2081/05/06

ODEA : PERFORMING ARTS CENTRE- THEATRE

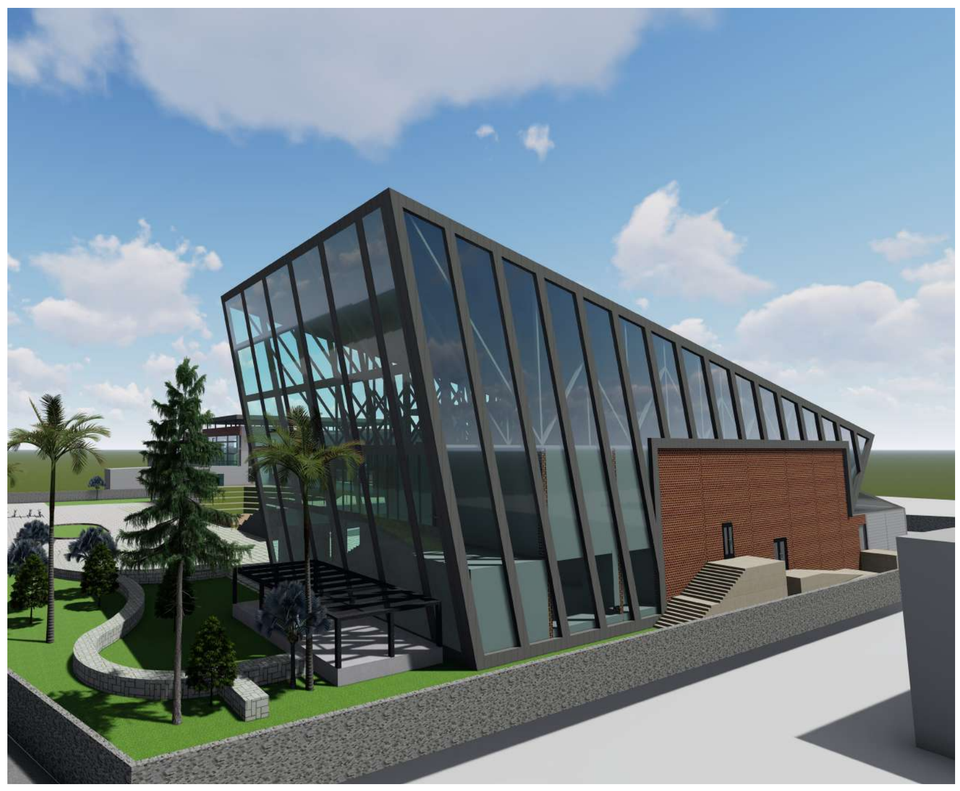
3D VIEWS

VIEW FROM SOUTH VISIBLE FROM THE MAIN ARANIKO HIGHWAY

VIEW FROM THE PARKING LOT /MAIN ENTRY

THE INTERACTION SPACE

VIEW FROM THE CONNECTING ROAD OF COLONY



STREET VIEW OF THE THEATRE

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DEPARTMENT OF ARCHITECTURE
LIBALI, BHAKTAPUR

FINAL PRESENTATION

B. ARCH THESIS

NAME: MONIKA DHITAL
ROLL NO: 750122

DATE: 2081/05/06

ODEA : PERFORMING ARTS CENTRE- THEATRE

FINAL MODEL

3D VIEW

REAR VIEW OF MODEL

SIDE VIEW OF MODEL

SIDE VIEW OF MODEL

FRONT VIEW OF MODEL

AFFILIATED TO PURBANCHAL UNIVERSITY KHWOPA ENGINEERING COLLEGE DEPARTMENT OF ARCHITECTURE LIBALI, BHAKTAPUR	FINAL PRESENTATION B. ARCH THESIS	NAME: MONIKA DHITAL ROLL NO: 750122 DATE: 2081/05/06