THESIS REPORT ON

VADODARA SCHOOL OF ARCHITECTURE

VADODARA, GUJARAT

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

BACHELOR OF ARCHITECTURE

BY

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(1180101014)

THESIS GUIDE

(PROF. SANGEETA SHARMA)

SESSION

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TO THE

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY

LUCKNOW.

SCHOOL OF ARCHITECTURE AND PLANNING

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

CERTIFICATE

I hereby recommend that the thesis entitled "VADODARA SCHOOL OF ARCHITECTURE, VADODARA, GUJARAT " under the supervision, is the bonafide work of the students and can be accepted as partial fulfillment of the requirement for the degree of Bachelor's degree in architecture, school of Architecture and Planning, BBDU, Lucknow.

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

Recommendation Accepted

Not Accepted

External Examiner	External Examiner

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Certificate of thesis submission for evaluation

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4. **Degree for which the thesis is submitted:**

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5.	**Faculty of University to which the thesis is submitted:**	**Yes / No**
6.	**Thesis preparation guide was referred to for preparing the thesis.**	**Yes / No**
7.	**Specification regarding thesis format have been closely followed.**	**Yes / No**
8.	**The content of the thesis have been organized based on the guidelines.**	**Yes / No**
9.	**The thesis has been prepared without resorting to plagiarism**	**Yes / No**
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Table of Contents

CHAPTER - 1

1.1. INTRODUCTION OF TOPIC

Architecture education is a 5 year long & expensive affair. Students spend their one third time of the day in the college itself, meaning the spaces of the institute are bound to make an impact on his/her mind. The aim of this brief is to design an Architecture School in India which provides a platform for design debates, wherein the architecture of the institute itself acts as a teacher & an institute. Which focuses on the community learning experience.

The first school dedicated to the explicit training of Architectural students was the Academe d' Architecture In France, which opened on 3 December 1671, during the long reign of Louis XIV. It lasted just over 100 years, until it was dissolved along with other monarchist institutions during the revolution.

1.2. HISTORY OF ARCHITECTURE

From the very early days, humans as a species has been involved is the process of exploring .building & innovating. As humans we. Have the ability to adapt as per our surrounding conditions. The early humans lived in caves which provided them shelter. The Blombos Cave, on the South African coast (southern tip of Africa) is an important archaeological site with evidence of human habitation from 95,000 to about 55,000 years ago.

During Ice Age humans lived in tents made from mammoth bones & skin in order to shield themselves from sheer cold & wild animals. As humans evolved, civilizations started building habitats using mud bricks/sun dried bricks and stones. Moving with time, different empires were established with each having its own architectural style (Greek, Roman , Egyptian etc.). The first known architect in the history is believed to be Imhotep. He de-signed the Pyramid of Djoser (The Step Pyramid) at Saqqara in Egypt. The word architect came into English in the 1560s, from the Greek word architekton meaning 'master builder.

Architecture & Humanity has came a long way .from living in caves to world's tallest building Burj Khalifa. The key driver of this journey are human imaginations & the technology which has supported us in achieving many architectural marvels. Earlier nature acted as a teacher & guided us to build shelters with available resources and today we have architecture schools which helps us to understand more about the field.

Architecture schools helps you in learning & exploring , provides you with A chance of addressing society issues through architecture and most importantly it teaches you to always think outside the box. Architecture education is a 5 year long & expensive affair. Students spend their one third time of the day in the college itself, meaning the spaces of the institute are bound to make an impact on his/her mind. The aim of this brief is to design an Architecture School in India which provides a platform for design debates, wherein the architecture of the institute itself acts as a teacher & an institute. Which focuses on the community learning experience

1.3. HISTORICAL BACKGROUND OF CITY.

In Year 1875, during the enigmatic rule of Maharaja Sayajirao III, it was considered as the Golden Period, as it was an Era of great progress and achievements in all fields. Maharaja Sayajirao Ruled from year 1875 to 1939, and contributed overwhelmingly to revive and reform Vadodara (Baroda) with some best initiatives like…

- Establishing compulsory Primary Education
- Library system
- A University
- Model textile and tile Factories
- Great Museums
- Art and Architecture.
-

1.4. JUSTIFICATION FOR NEED OF TOPIC

WHY ARCHITECTURE INSTITUTE

1. As an Architecture student I have experienced that in every education campus the Faculty of Architecture is located of a single floor with typical Four Studios, Staff rooms, Library, A hall and Classrooms. This decrease the exploration of ideas and scope of creativity and also the students have to share their residential units with the students of other Faculty
2. There is need of an Architecture institute which not only provides education but also to explore construction technique, design method, etc. and such institute are few in state of Maharashtra.
3. And also there are less institutional campus fully dedicated to architecture education.
4. Thus there is need of an Architectural institute in Maharashtra which as research in Architectural field like construction technique and design methods.
5. As the Architecture courses is the stream where hand, heart and mind should work all together in presence of nature.

WHY NEED?

A well designed architecture school needs quality studio spaces, thoughtfully crafted critique & discussions pockets and flexible volumes for conducting workshops, seminars etc. An architecture school should itself be a full-scale teaching tool that helps young students understand the basics of the fields such as structural details , importance of services , the materials and its use case & many other core concepts related to the field.

In toady time, there is great fall in architecture profession due to lack of practical knowledge on the field. The main reason is covid-19 as a everyone learning from online mode as **"***FIELD OF ARCHITECTURE TOTALLY BASED ON PRACTICAL KNOWLEDGE"*

1.5. AIM, OBJECTIVE, SCOPE AND LIMITATION

AIM-

To design a Campus fully dedicated to Architectural research and education with more informal end interacting spaces.

OBJECTIVE-

- To design lively spaces so as to being interaction among the students and teachers to make the building an ideal place for education.
- The Institute should produce student who will assume leadership roles in shaping the built environment. Should be able to answer the challenges by the contemporary society.
- It assures an environment suitable molding young designer to good quality education.
- To study architectural characteristic and requirement of modern architecture of the city to enhance and addition of the new imageability of the city.
- To study the requirement of Architectural Research Centre in the State of Maharashtra. Condition of existing one and requirement of new one.

SCOPE-

- The scope to study Architecture institute and Research.
- It would include the curriculum of Architecture studies for the Bachelor Degree.
- It would include the curriculum for Master Degree in various departments.
- It would include the curriculum for Architectural Research.

LIMITATION-

- The study will be limited to Architectural course and Architectural Research.

CHAPTER – 2

2.1. DATA COLLECTION

While proposing and Designing an Architecture college there is need to collect information about Standards, Norms, Observation, and Calculations. These factors will help us to overcome the problems while designing an Architecture college and while studying some of the existing structure we can take out the best for the proposal design. Thus, Data collection regarding to the project is necessary in order to avoid the flaws and mistakes in design.

SURVEY ON ARCHITECTURE COLLEGES IN GUJARAT

Before Proposing School of Planning and Architecture in Vadodara it is necessary to study the current scenario of Architectural colleges in Gujarat. Because the study of these colleges will help to list down the points essential for design consideration.

NUMBER OF ARCHITECTURE COLLEGE IN GUJARAT

There are total 37 Architecture colleges notified under Gujarat. Association by Council of Architecture (COA). These colleges can be classified into 25 private owned and 3 public / government owned.

2.2. CASE STUDIES

CEPT UNIVERSITY, Ahmedabad

Chandigarh Collage of Architecture, Chandigarh

SURVEY SCHEDULE

- Climatic region of the building and architectural response to the respective climate.
- Site zoning and arrangement of spaces on site according to climate and existing site features.
- Site surrounding, orientation of building, existing building, monument, existing natural feature etc. and impact of existing building on the surrounding.
- Planning of building, arrangement of spaces, relation with open space and built mass, Circulation.
- Study of Studios, Light and Ventilation in Studios.
- Landscape, Hardscape, Landscaping elements on site and surrounding.
- Structural System and Material used for the construction of the building
- Services - Water Supply, Drainage, Electricity, Solid waste management, Storm-water and rainwater management

2.2.1. CASE STUDY CEPT UNIVERSITY, AHMEDABAD

A. INTRODUCTION

- **University comprise of 5 faculties**
    1. **School Of Architecture**
    2. **School Of Planning**
    3. **School of Building Science and Technology**
    4. **School Of Interior Design**
    5. **Faculty of Management**

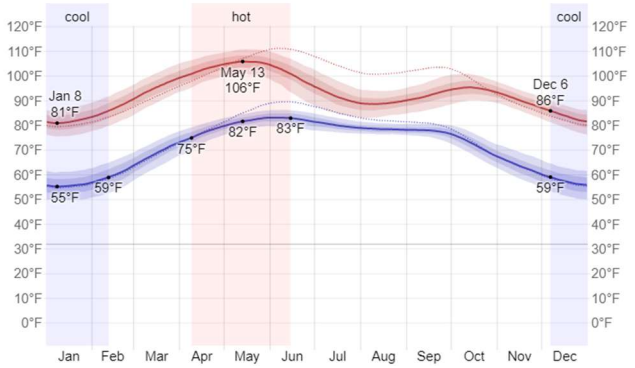
- **Climate:** Hot and semi-arid climate
- **ARCHITECT:** Ar. B.V. Doshi
- **TYPE OF BUILDING:** Institutional
- **BUILTUP AREA:** 8000sqm
- **TOTAL SITE AREA:** 36421sqm
- **CONSTRUCTION TYPE:**

Exposed Brickwork and exposed concrete CEPT University, formerly Centre for Environmental Planning and Technology is an academic institution located in Gujarat university Ahmedabad. It was established in year of 1962, it offers undergraduate and post graduate programmes in areas of natural and developed environment of human society and related disciplines, and designed by Ar. B.V. Doshi CEPT has established Centre's of study in the following area

B. CLIMATE

Ahmedabad has a Hot and Semi-Arid Climate, with marginally less than required for a tropical savanna climate there are three main seasons: Summer, Rainy and Winter. Aside from monsoon season, the climate is extremely dry**.**

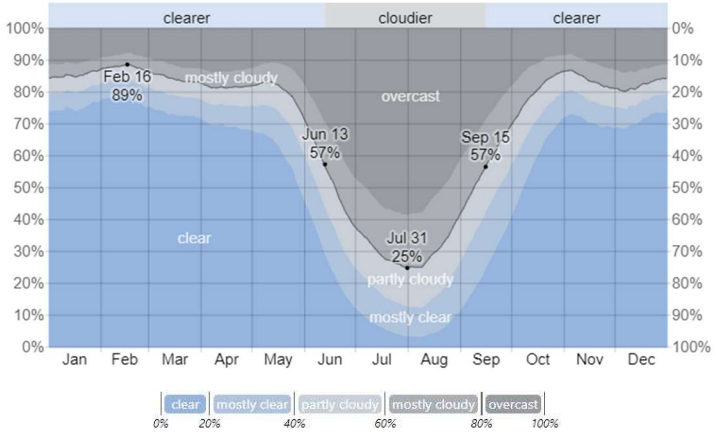
Average High and Low Temperature in Ahmedabad



The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	82°F	87°F	96°F	102°F	105°F	100°F	92°F	89°F	92°F	95°F	90°F	84°F
Temp.	68°F	73°F	82°F	90°F	93°F	91°F	85°F	83°F	85°F	83°F	76°F	70°F
Low	56°F	60°F	69°F	77°F	82°F	83°F	80°F	79°F	78°F	72°F	64°F	57°F

Cloud Cover Categories in Ahmedabad



The percentage of time spent in each cloud cover

Fraction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cloudier	15%	12%	16%	18%	20%	48%	71%	69%	42%	19%	16%	18%
Clearer	85%	88%	84%	82%	80%	52%	29%	31%	58%	81%	84%	82%

The weather is hot-

From Apr to Jun;

The average maximum temperature Is 91° F (32 °C) and average minimum is 80°F (26 °C) .

From Jun to Nov;

The average maximum temperature is 93°F (33 °C) , the average minimum is 76°F (24 °C) .

The weather is Warm-

From Feb, Mar, Jun to Nov;

The average maximum temperature is 92°F (33 °C) , the average minimum is 72°F (22 °C) .

The weather is Cold-

From December to Feb;

The average maximum temperature is 84°F (28 °C) , the average minimum is 57°F (13 °C)

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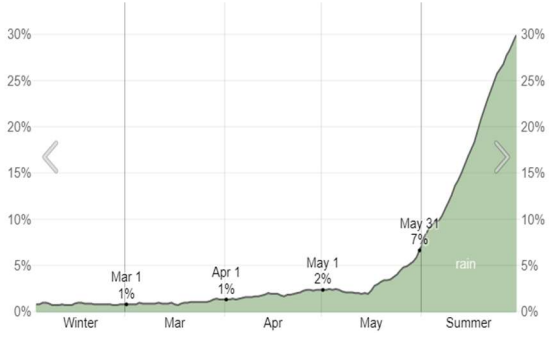
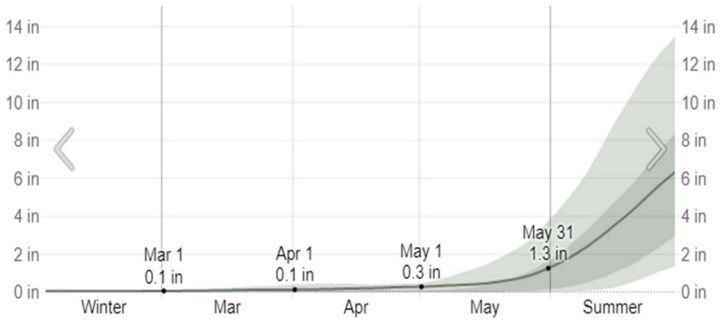
Probability of Precipitation in the Spring in Ahmedabad



Average Monthly Rainfall in the Spring in Ahmedabad



C. Response to Climate:

The campus of CEPT has scattered planning in which small landscape patch are planned to avoid the heating up of the campus and the building. the building is planned with intermediate open spaces including open jury area, interaction spaces and passages. this lower down the heat to the building and building have openings in north direction and large projection are provided on the south side.

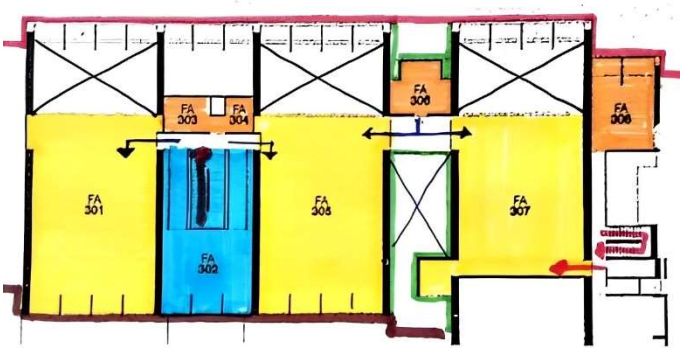
D. *SITE AND SURROUNDING:*

CEPT campus is in Gujarat University. other institutional buildings are the surrounding of the campus. In East Side School of Engineering and Applied Science is located on south side have M.G. Science institute, L.M. College of Pharmacy. Accessibility to campus is from two sides, on west side have main University road.

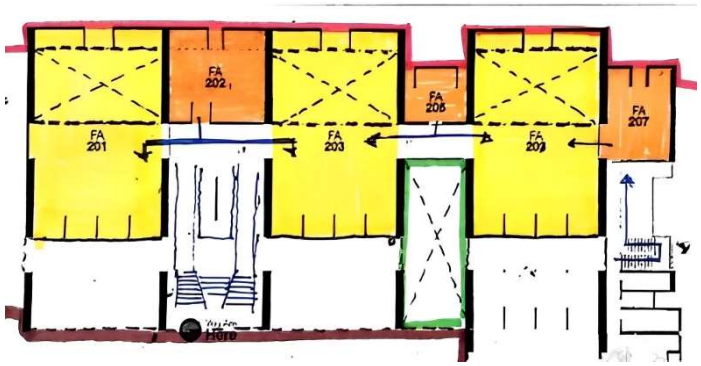
E. *CAMPUS MAP:*

The diagram below shows the is the layout of CEPT campus as we enter the campus the first building we see is Faculty of Architecture and Faculty of Planning and north lawns are in front of the building, Shrenkibhai Plaza is the central plaza of the campus for multifunctional use like sports and cultural activity, on the south side of the campus other two faculties that are Faculty of Technology and Faculty of Design with School of Interior design and New Library building on the south most side there is Hussain Doshi Guffa and canteen and recreational area. CEPT campus has scattered planning creating intermediate open spaces, which are designed for innovative purposes like cultural activity, sports, and interaction and jury spaces. All the buildings follow the same architectural character and have a distinct feature like the large opening on the north side and projection on the south side. The construction is in exposed brickwork and exposed concrete**.**

BASEMENT LVL. PLAN, ARCHITECTURE DEPARMENT



GROUND FLOOR. PLAN, ARCHITECTURE DEPARMENT



GROUND FLOOR. PLAN, ARCHITECTURE DEPARMENT

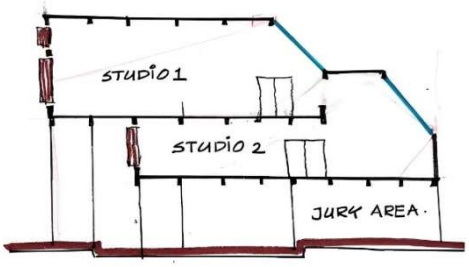
The overall planning is done around a central court with a built mass on sides and green one side which give the campus noise protection from traffic. Architect has included uneven contour into the plan transforming a drawback into a delightful experience of space.

F. *BASEMENT:*

The basement is multipurpose space. It is a very active space of the campus. On one side of the basement rising contour can be seen, and on the other side step towards the central courtyard. thus, the north and south wall have been avoided. Numerous activities are performed here like cultural programs, fest and exhibition, indoor games. Academic juries, open seminars, interactions are held in this basement.

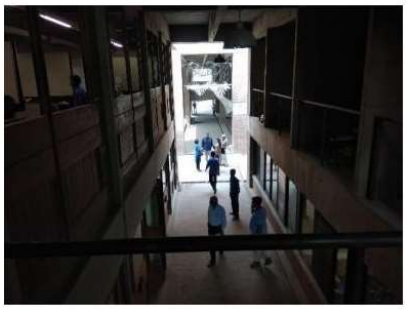
G. *Studio:*

The studios have large openings which open into the greenery outside. Panels at the sides help the students to put up the important and useful sheets. The climatic needs and comfort of its users. The building section and double height studios are well conceived to facilitate air flow, the Building is oriented along. East-West axis with opening on North and South and thick wall are provided on the east and west to keep hot sun.



H. INDOOR CIRCULATION

- Circulation within the building is very complicated with lots of level changes and staircase at different level.
- The corridors are less and short length
- All the places within are visually interconnected



I. OUT DOOR CIRCULATION

- The circulation in this campus is pedestrianized.
- The vehicular access is restricted along the periphery of the campus.
- There are lots of trees within the enclosed spaces from where all the building is accessed which provide ample shade and comfort.

J. LANDSCAPE

The campus is full of neem trees, which were planted over the years since the initial phase make hot Ahmedabad climate cooler.the trees provide a perpetual changing pattern of light and shade. There are many interconnecting pathways with brick paving and terracotta tilling. There are also small plants within the building and plotted plants at places. The steps in fact become external activity organizing informal discussions, performances or even for simply lazing around.

K. STRCTURE

The structural system is load bearing with large parallel structural wall and beams spanned along the shorter span and covering all the studios. the structural load is transferred from slab to beam to structural wall.

L. OBSERVATIONS

- Simple structure of parallel brick wall and concrete beams and floors that is extendable and easy to maintain.
- An open place with hardly any door. No feeling of restriction to exchange of ideas and free scope of teaching and learning anywhere.
- More use of interaction and transition areas like corridors, galleries and courts and foyers throughout the campus.
- Building looking inward makes the environment livelier.
- Circulation is so easy to make all the building accessible.
- The informal interaction spaces with trees and seating make them relaxing and calm.
- Combined studios at two level effects the environmental positivity and negativity.

2.2.2. CHANDIGARH COLLAGE OF ARCHITECTURE, CHANDIGARH

A. INTRODUCTION

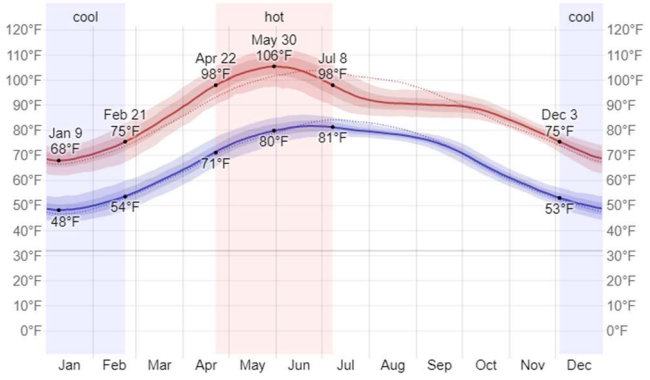
- **CLIMATE:** Humid and Subtropical climate
- **ARCHITECT:** Le Corbusier
- **TYPE OF BUILDING:** Institutional
- **BUILTUP AREA:** 13,570sqm
- **TOTAL SITE AREA:** 20,000sqm
- **CONSTRUCTION TYPE:** Exposed Brickwork and **exposed concrete**

Chandigarh College of Architecture (CCA) is in Sector 12 in PEC University of Technology Campus. It was established on 7th August 1961 and was set up to impart education in Architecture Le Corbusier design this college as a part of Chandigarh experiment. The college offer 5 years program leading to the degree of Bachelor of Architecture affiliated to Punjab University

B. CLIMATE

Chandigarh has a humid subtropical climate characterized by a seasonal rhythm: very hot summer, mild winters, unreliable rainfall and great variation in temperature (8° C to 41 °C or 48°F to 106°F)

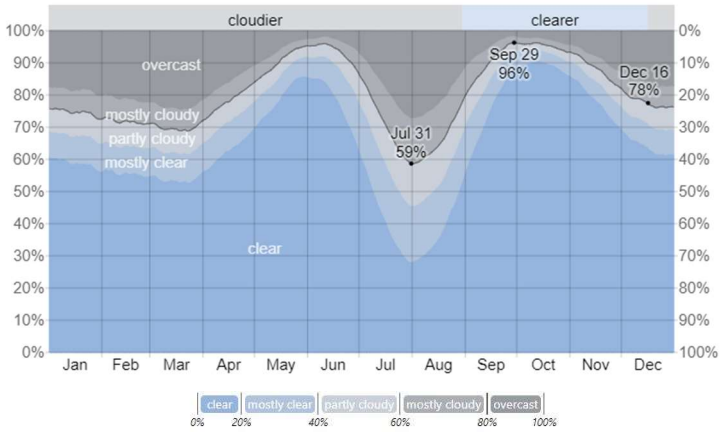
Average High and Low Temperature in Chandigarh



The daily average high (red line) and low (blue line) temperature, with 25th to 75th and 10th to 90th

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	69°F	74°F	84°F	96°F	104°F	103°F	95°F	91°F	90°F	87°F	80°F	72°F
Temp.	57°F	62°F	71°F	82°F	91°F	93°F	88°F	84°F	82°F	75°F	67°F	59°F
Low	49°F	53°F	60°F	70°F	78°F	81°F	81°F	78°F	74°F	65°F	57°F	51°F

Cloud Cover Categories in Chandigarh



The percentage of time spent in each cloud cover band,

Fraction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cloudier	25%	28%	30%	21%	9%	7%	30%	33%	10%	5%	12%	22%
Clearer	75%	72%	70%	79%	91%	93%	70%	67%	90%	95%	88%	78%

From Apr to Jun;
The average maximum temperature Is 101° F (38 °C) and average minimum is 76°F (24 °C) . .

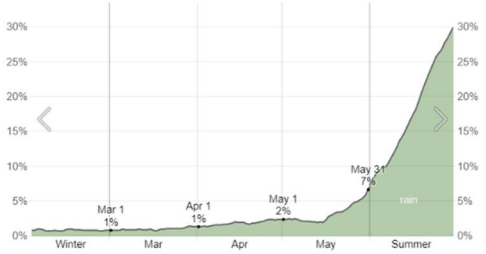
The weather is Warm-

From Mar, Apr, Jul to Nov;
The average maximum temperature is 89°F (31 °C) , the average minimum is 69°F (20 °C) .

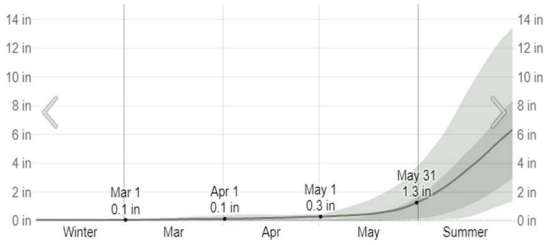
The weather is Cold-

From December to Feb;
The average maximum temperature is 71°F (21 °C) , the average minimum is 51°F (10 °C)

Probability of Precipitation in the Spring in Ahmedabad



Average Monthly Rainfall in the Spring in Ahmedabad



It is observed that climate of Chandigarh is Hottest at its most in summer and Coolest at its most in winter with precipitation throughout the year, proving that "Chandigarh has Humid subtropical climate.

C. *RESPONSE TO CLIMATE:*

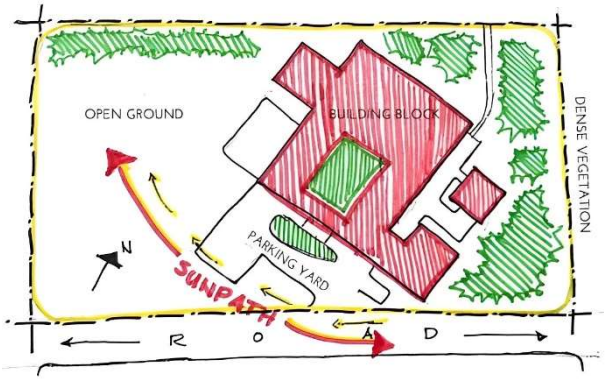
The campus of CEPT has scattered planning in which small landscape patch are planned to avoid the heating up of the campus and the building. the building is planned with intermediate open spaces including open jury area, interaction spaces and passages. this lower down the heat to the building and building have openings in north direction and large projection are provided on the south side.

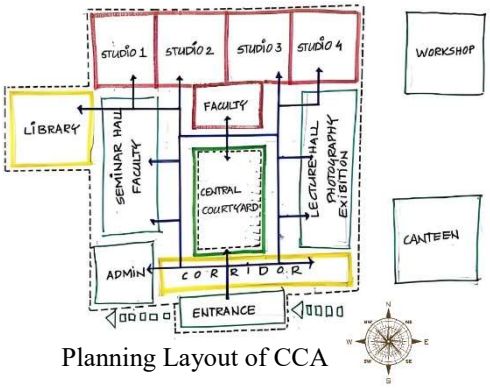
D. *SITE AND SURROUNDING:*

As mention earlier Chandigarh College of Architecture is in PEC University of Technology in Sector 12. CCA is widely spread in 5 acre (20,000 sq. m.) campus with its own open space including cricket ground basketball court, volleyball court and a gym. The boys' hostel is located 250 yards at the back and girl's hostel is in adjacent sector 11. The adjacent image denotes the site of CCA in PEC University of Technology the site is surrounded by sector 11 on east side.

E. *CAMPUS MAP*

The site of CCA is bounded by university internal roads 3m wide on north, east and west side and 6m wide on south side having the main entrance. The area of site is 5 acre (20,000 sq. m.), shape if site is rectangular with larger length on south and north side and shorter length on east and west side. The building is in the east side of the site aligned inclined in the north-south axis with front side facing south direction and rear side facing north direction.





Planning Layout of CCA

On north and east side the site has dense vegetation while on west and south side site has open ground with no vegetation include playground and lawns. The sun path is on from east to west through south thus the side of entrance is facing. The site surrounding mainly include other institutes in the university campus on east and west side and on northern side it has mountains and on southern side it has residential areas and hostel.

Courtyard is the only open space in the college which is well linked to the rest of the college. It is a grassy lawn, used by students to relax during their spare time. There is a large garden at the south side of the college.

F. *STUDIO:*

- The studio are quite spacious and they are separated by low height walls.
- The doubly loaded corridors are dull spaces. The studios and the workshop are intercepted columns in the middle.
- Now days, further partitions have been put in studios to divide them into subspaces.
- The walls are whitewashed while the ceiling have left of bare concrete.

G. OPEN SPACES



The concept of Planning around an open court is used in designing CCA there is central court in the middle of the building and the spaces are planned around that courtyard this court is used for multipurpose and open lectures and workshops thus placed centrally and also as the response to the climatic zone.

H. *ADVANTAGES*:

- Courtyard is the only open space in the college which is well linked to the rest of the college. It is a grassy lawn, used by students to relax during their spare time.
- The classrooms, studios are other spaces deeper on north lights for their lighting. The lighting is good during day time.
- Is from small window, which are present on the outside walls. The north side windows are large and near the ceilings.
- Now days, further partitions have been put in studios to divide them into subspaces.
- The studios are quite spacious and they are separated by low height walls.

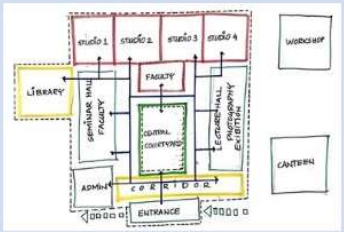
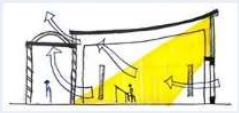
I. DISADVANTAGES:

- There is little room for inter-faculty interaction corridors which are major circulation arteries of the building help circulation in a very uninteresting and boring manner.
- Brick has been used as primary building material for the entire complex walls, columns.
- Being a concrete building it absorbs heat thus it become very cold inventor.
- Surrounding green belt is not well maintain.
- No medical room in the college.

J. OBSERVATIONS

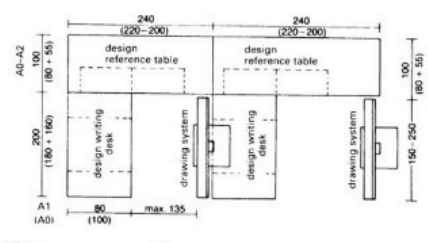
- The structure is design with repetition of modular roof with sloping curvilinear roof and half hemispherical vault to intake the light.
- The spaces are planned around a central court and are connected to each other with partition and wall with lower height.
- Innovation in structural elements for are response to the climate of the city.
- Plenty of light in studios and ventilation through the studio.
- Fluent circulation and accessibility to all the spaces.


2.4. COMPRISION

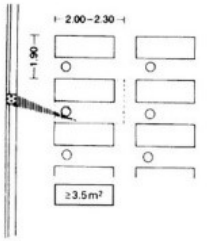
TOPIC	CEPT UNIVERSITY, AHMEDABAD	CHANDIGARH COLLAGE OF ARCHITECTURE, CHANDIGARH	INFERRENCE
1. SITE PLAN			
2. DISCRIBTION	Slightly sloping site, Building centrally placed aligned to North-South axis	Rectangular site, Building Placed aligned to North-South axis in East side	Building should be plan along North South axis to get maximum diffuse light to studio.
3. PLANNING AND ZONNING			
3. DISCRIBTION	The planing is scattered and also blocks are planned around an open space/plaza, the studios are placed on the front site aligned in North South axis. While the other spaces are Scattered	The building is planned around open court, studios are placed at the rear side, faculty and other areas are planned on the either side of the courtyard and admin and exhibition areas are on the front side	The building should be planned so that the spaces are well connected to each other with intermediate spaces with multipurpose use considering climate and other on-site factors and the studios should be facing to north with proper opening
4. OPEN SPACES	Here Both Large central open space and small open space pockets are used to overcome the climatic effect.	A large open spaces is places in the center of the building also acting as multifunctional area	Uniform distribution of Open spaces throughout the building is preferable which act as multiuse space and also help to overcome climatic effect
5. CONNECTIVITY	The connectivity from one space to another is through open spaces and corridor	The connectivity of one space with another is through passages and corridors	The connectivity between two spaces should be of certain use and placed in hierarchy
6. LIGHT AND VENTILATION			
7. STUDIOS			
8. LANDSCAPE	Planned landscape with use of Local vegetation along with lawns and landscaping elements	natural Landscape is used on site with dense vegetation of local trees and lawn	Landscape should be planned and enhancing the site context with the more use of local trees for manageable maintenance
9. TEXTURE AND COLOUR			Contrast colour use with respect to the surrounding. Exposed brickwork use in facade
10. CIRCULATION	Circulation is accord to respective spaces following the path space relationship	The circulation is around central court and then branching to the respective spaces	Circulation of the building should be planned such that it passes through various hierarchy of spaces and are easily accessible i.e. Path space relationship

2.5. ARCHITECTURAL STANDARDS AND REQUIREMENT STUDY

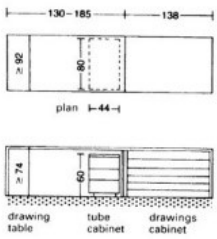
2.5.1 ARCHITECTURAL STANDARDS



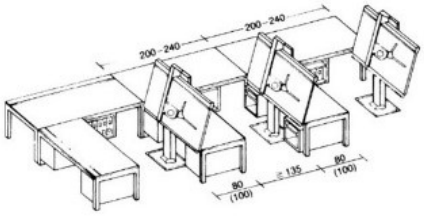
7 Work space plan → ⑧



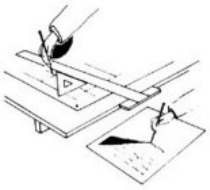
1 Workplace in drawing room



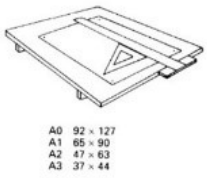
2 Work surface



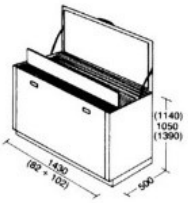
8 Drawing office



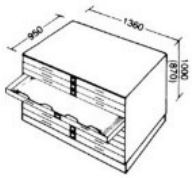
3 Light for writing coming from behind left, and for drawing from the front left



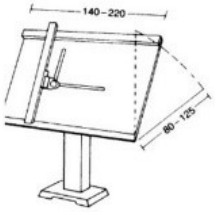
4 Drawing board sizes



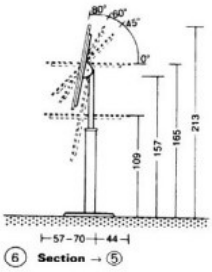
9 Drawings stored upright



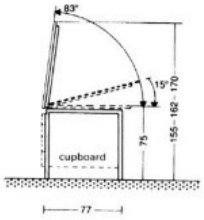
10 Sheet steel drawings cabinet



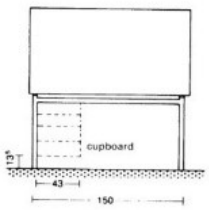
5 Adjustable drawing table



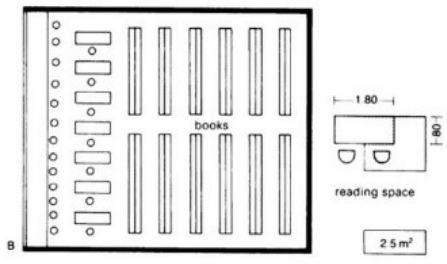
6 Section → ⑤



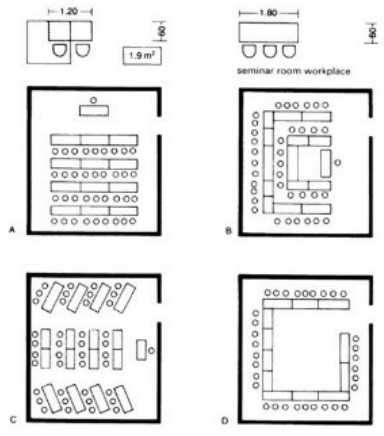
11 Section → ⑫



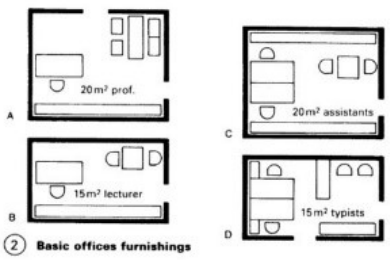
12 Adjustable angle desk and drawing table



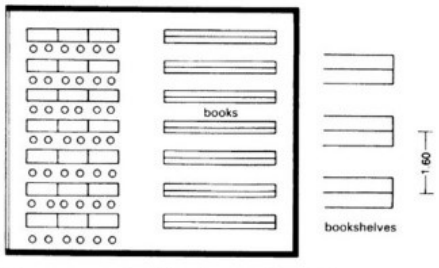
4 Arrangement of reading places and bookshelves



1 Seminar rooms, variable seating arrangements



2 Basic offices furnishings



3 Arrangement of reading places and bookshelves

DRAWING STUDIOS

Various space requirements for technical subjects, including architecture, and art academies (painting and modelling rooms).→ ① – ②

Basic equipment

Drawing table of dimensions suitable for A0 size (92×127 cm); fixed or adjustable board → ②, ⑤ – ⑦. Drawings cabinet for storing drawings flat, of same height as drawing table, surface can also be used to put things on → ②. A small cupboard on castors for drawing materials, possibly with filing cabinet, is desirable → ② + ⑪ – ⑫. Adjustable-height swivel chair on castors. Drawing tables, upright board, adjustable height or usable as flat board when folded down → ⑤ – ⑪. Further accessories: table top for putting things on, drawing cabinets for hanging drawings or storing flat, suitable for A0 at least → ⑨ – ⑩. Each workplace should have a locker.

Drawing studios

Each space requires 3.5–4.5 m², depending on size of drawing table → ①.

Natural lighting is preferable and so a north-facing studio is best to receive even daylight. For right-handed people it is best if illumination comes from the left → ③. Artificial light should be at 500 lx, with 1000 lx (from mounted drawing lamps or linear lamps hung in variable positions above the long axis of the table) at the drawing surface.

Rooms for life drawing, painting and modelling:

Accommodated if possible in the attic facing north with large windows (1/3–1/4 of floor space) and, if necessary, additional top lights.

Rooms for sculptors and potters

Large space for technical equipment such as potters' wheels, kilns and pieces of work, also storeroom, plaster room, damp room, etc.

Basic room requirement for all subjects

General-purpose seminar rooms usually have 20, 40, 50 or 60 seats, with movable double desks (width 1.20, depth 0.60); space required per student 1.90–2.00 m → ①.

Different arrangements of desks for lectures, group work, colloquiums, language labs, PCs, labs and meeting rooms have the same space requirements → ①.

Offices for academic staff:
Professor 20–24 m² → ② A
Lecturer 15 m² → ② B
Assistants 20 m² → ② C
Typists 15 m² (if shared by two typists 20 m²) → ② D
Departmental (open shelf) libraries:
Capacity for 30000–200000 books on open shelves

Book space: → ③
Bookcases with 6–7 shelves, 2 m high (reach height)
Distance between bookcases 1.50–1.60 m
Space required 1.0–1.2 m²/200 books

Reading spaces: → ④
Width 0.9–1.0 m/depth 0.8 m
Space required 2.4–2.5 m² per space

2.5.2 INFRASTRUCTURE REQUIREMENTS

S. No.	Year of Operation →	1st Year			2nd Year			3rd Year			4th Year			5th Year			Remarks
	Sanctioned Intake →	40	80	120	40	80	120	40	80	120	40	80	120	40	80	120	
	Activity Spaces (Carpet Area)																
1.	**Studio** - 120 sq. m each	1	2	3	2	4	6	3	6	9	4	8	12	4/5	9	13	Flexibility in terms of studio spaces can be based on local conditions, provided that area of 3 Sq. M. per student of sanctioned intake is made available. Studios for Stage 2 of the course are to make provision for use of laptops with internet connectivity.
2.	**Lecture rooms**- 60 sq. m each	1	2	3	1	2	3	2	4	6	2	4	6	2	4	6	If studios incorporate lecture spaces within them, then the area of studio spaces shall be calculated at 4 sq m per student. To be provided with OHP and digital projection facilities and sound amplifier system.
3.	**Labs and Workshops** - 40 sq.m each	1	1	1	2	2	2	3	3	3	3	4	4	3	4	4	Climatology/Environmental lab, Surveying lab, Model making and carpentry workshop, Material Museum etc.
4.	**Computer Centre** - 60 sq. m	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	
5.	**Library**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Library shall have 0.6 Sq. m. per student upto total student strength of 200 and 0.3 Sq. m for every additional student beyond student strength of 200. Library shall be provided with reprography and scanning facilities.
6.	**Principal/Director/HOD's Office** - 30 sq.m	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7.	**Administrative Office** -																
	30 sq. m	1	-	-	1	-	-	1	-	-	1	-	-	1	-	-	
	60 sq.m	-	1	1	-	1	1	-	1	1	-	1	1	-	1	1	

A. SPACE

8.	**Staff Rooms / Cabins** - Professor- 12 sq. m each Associate Professor- 8 sq. m each Assistant Professor- 6 sq. m each																As per the faculty norms in the yearly progressive manner
9.	**Staff Lounge**30 sq. m/ 60 sq.m				-	1	1	-	1	1	-	1	1	-	1	1	
10.	**Construction Yard** - 200 sq. m																Open space activity from second year onwards
11.	**Students Common/Rest Rooms**																Adequate as per Building Regulations

Note: Depending on local conditions, the areas mentioned above may vary by up to 10 per cent.

Other Desirable Activity Spaces:

- Canteen
- Stationary Shop
- Reprography Section and Digital printing
- Open air theatre with stage
- Permanent Exhibition space
- Provision for outdoor sports facility
- Girls Common Room.
- Resource Center.
- Submission and Exam Room.

Desirable Labs:

- Climatology / Environment*
- Surveying*
- Materials Testing
- Electrical / Lighting / Illumination
- Plumbing and Sanitation
- Acoustics
- Material Museum*

Recommended Workshops

- Model making and carpentry *
- Fabrication workshop

B. *ADMINISTRATION AREA*

- Administration area must have common facilities which is shared by all office staff and principal and non-teaching staff.
- It should be accessible to all the workers of administration area and visitors can access the reception area directly.
- All data of institution should be available here and it will be enclosed to administration head office.
- Cashier space and locker should be isolated and not accessible to all accept the office worker.

C. *STUDIO AND CLASSROOM*

- Different type of studios for different departments.
- The studio must have enough working space, storage area, display area and area for interaction.
- The studio must have intake of fresh air and north light.
- Studio size may vary according to number of user and department.

D. *LIBRARY FACILITIES*

- Minimum 300 books on subjects of Architecture shall be available in the library for the intake of 40 (including minimum 100 titles) at the time of 1st Inspection.

- Add 150 books on subjects of Architecture (including minimum 50 titles) for every additional intake of 40.
- From second year onwards, minimum 120 books on subjects of Architecture (including minimum 40 titles) for every year per intake of 40.
- Library of old schools, having more than 5000 Titles; should acquire minimum 10 titles on subjects of Architecture per intake of 40 every year.

E. COMPUTER CENTER

- 1Requisite licensed software and peripherals such as printers, plotters, scanners, etc. shall be available at the computer center.
- Upgrading of systems (hardware and software) shall be done every three years.
- Computers more than three year old shall not be counted as part of lab.
- Broadband internet connectivity of appropriate bandwidth shall be available to all computer.

F. EXHIBITION AND JURY AREA

- There should be two type of exhibition one permanent and temporary exhibition.
- Permanent exhibition should display the work of previous academic year.
- It might be a room or a large space Exhibition area should be easily accessible to the visitors.
- Temporary exhibition area should be place near workshop and studio.
- The common jury area should be provided near to studios so that during jury it will be easily accessible to all.

G. WORKSHOP

- Workshop space shall be placed near the studios.
- Requirement of space may change according to nature of workshop.
- Storage space should be more.

H. SPORT COMPLEX

- Provision of indoor games and gymnasium.
- Long span structure to accommodate more courts of sports.

I. CANTEEN

- It shall be common gathering space.
- It shall be a common gathering space.
- It shall have open and semi-open space.
- It shall also be connected with spo

CHAPTER – 3

3.1. CONSPET

The creative minds of 'generation Alpha, has arrived! most technologically savvy demographic is to date. Their cultural perspective of smartphones, tablets, technology and media is re-shaping traditional classroom/studio layouts and settings. Integration of these tools in studios helps to motivate and engage students in new ways that are fast replacing [old school] didactic/instructional methods. How about architecture impact todays gen. students?

The alveolus spaces

(Learning in fresh breathable/boundless spaces) This helps in boosting

i. iSocial and emotional learning..
ii. Memory and attention,
iii. Attention fatigue.

Best example of a healthy & sustainable strategies (Efficiency, Consistancy and Sufficiency)

Learning-integrated spaces.

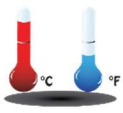
This concept involves the transformation of spaces for the purpose of learning and collaboration inside and outside the building.

A space that educates.

A symphony of volumes, light, materials, bridges, and viewpoints, which in itself provides an opportunity to understand the language of architecture.

It is becoming more generaly underdtood that people who feel more comfortable are more productive there is significiant quantitave data That confirm the main points of the biophilia hypothesis, showing that greater contact with biophilia hypothesis, showing that greater contact with natural elements such as Sunlight, Outdoor air and Living plants has been linked to increased productivity in workers, improvement in learning rated n students, and redused stress,faster recovery time and decreased use of painkillers in patients. Additional many biophilic strategies also reduce energy use: more natural light means less power neede for artificial light.

Sufficient amount of Sunlight can make Brain reaction better than using Artificial Light.



Nature temperature is better than air condition temperature that give effect in study environment.

Doubble energy saving with the usage of nature resources and make the management system better.

By using soloar panel we can reduce the consumption of electricity. Does reducing are reliance on fosil fuels.

To increase brain reaction using fresh air from nature.Is better than using air conditioner,

The usage of green plants will act as main oxygen generator, ample amount of oxygen can make the environment better

3.2 SITE ANALYSIS

location:

The site is surrounded by agricultural Fields, School and residential units.


Vibgyor High School

IIRA International School


Monalisa Lakewood's


Jeco Industries

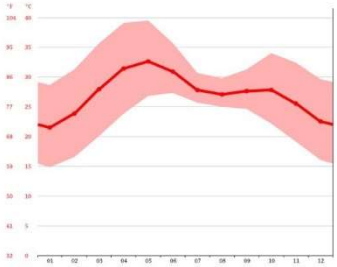
Site Location - Vadodara , Gujarat, India
Site Co- ordinates - 22°16'7.09" 73° 7'46.66"
Site Area -36314 SQ.MT
Ground Coverage- 60% of total site area
Max. no. of Floor allowed - G + 4
Basement - Not Allowed
FSI - 1.8

Margins - On 18 mt. road - 6 mt.
On12 mt. road - 4.5 mt.
Rest Sides - 4.5 mt

3.2.1. CLIMATOLOGY

The climate here is tropical. When compared with winte the summers have much more rainfall. This climate is considered to be Aw according to the Köppen-Geiger climate classification. The temperature here averages 27.2 °C | 81.0 °F. The annual rainfall is 869 mm | 34.2 inch. The Vadodara is situated close to the equator, making summers difficult to define. The most popular time to visit is February, March, September, October, November.

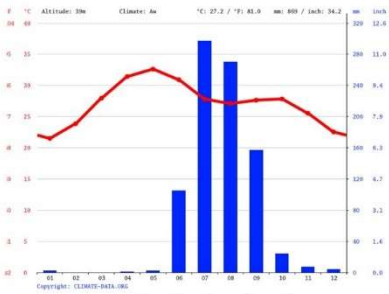
AVERAGE TEMPERATURE VADODARA



source - https://en.climate-data.org/

May is the warmest month of the year. The temperature in May averages 32.6 °C | 90.7 °F. At 21.5 °C | 70.7 °F on average, January is the coldest month of the year.

CLIMATE GRAPH // WEATHER BY MONTH VADODARA



source - https://en.climate-data.org/

The driest month is February, with 0 mm | 0.0 inch of rain. In July, the precipitation reaches its peak, with an average of 297 mm | 11.7 inch

WEATHER BY MONTH // WEATHER AVERAGES VADODARA

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	25.4 °C (77.6) °F	25.6 °C (78) °F	26 °C (78.8) °F	26.9 °C (80.4) °F	27.7 °C (81.9) °F	26.6 °C (79.9) °F	26.7 °C (80.1) °F	26.5 °C (79.7) °F	25.8 °C (78.4) °F	26 °C (78.8) °F	25.9 °C (78.6) °F	25.5 °C (77.9) °F
Min. Temperature °C (°F)	21 °C (69.7) °F	20.9 °C (69.6) °F	21.1 °C (69.9) °F	22.2 °C (71.9) °F	24 °C (75.2) °F	23.8 °C (74.9) °F	23.8 °C (74.9) °F	23.7 °C (74.7) °F	23.3 °C (74) °F	23.3 °C (74) °F	22.8 °C (72.7) °F	21.5 °C (70.7) °F
Max. Temperature °C (°F)	30.1 °C (86.2) °F	30.3 °C (86.6) °F	30.8 °C (87.4) °F	31.5 °C (88.8) °F	31.7 °C (89) °F	29.8 °C (85.7) °F	29.9 °C (85.8) °F	29.6 °C (85.3) °F	28.7 °C (83.7) °F	28.9 °C (84.1) °F	29.4 °C (84.9) °F	29.8 °C (85.7) °F
Precipitation / Rainfall mm (in)	8 (0)	3 (0)	3 (0)	0 (0)	25 (0)	228 (9)	187 (7)	256 (10)	325 (12)	206 (8)	36 (1)	8 (0)
Humidity(%)	70%	67%	66%	66%	70%	81%	83%	85%	87%	86%	80%	74%
Rainy days (d)	1	0	0	0	3	12	12	14	16	13	4	1
avg. Sun hours (hours)	9.8	10.2	10.6	11.1	11.3	10.8	10.8	10.2	9.3	9.0	9.5	9.7

source - https://en.climate-data.org/

Data: 1991 - 2021 Min. Temperature °C (°F), Max. Temperature °C (°F), Precipitation / Rainfall mm (in), Humidity, Rainy days. Data: 1999 - 2019: avg. Sun hours

There is a difference of 297 mm | 12 inch of precipitation between the driest and wettest months. The variation in annual temperature is around 11.1 °C | 20.0 °F.

The month with the highest relative humidity is August (83.38 %). The month with the lowest relative humidity is March (31.50 percent). The month with the most rainy days is July (23.73 days). The month with the fewest rainy days is February (0.17 days)

3.2.2. DEMOGARPHIC

Vadodara City	Total	Male	Female
City + Out Growths	**1,752,371**	912,721	839,650
City Population	**1,670,806**	869,647	801,159
Literates	**1,364,157**	732,121	632,036
Children (0-6)	**165,559**	89,402	76,157
Average Literacy (%)	**90.63 %**	93.83 %	87.18 %
Sexratio	**921**		
Child Sexratio	**852**		

3.2.3. ACCESSIBILITY

3.2.4. S.W.O.T ANALYSIS

STRENGTH

Located in isolated area is no noise disturbance which create sound area for study purpose

WEEKNESS

No Stationary shop available

OPPORTUNITY

To create multi use, multi-level and multi functional spaces as the site.

THREAT

Light poles and footpath are not available. No traffic movement from evening

SITE PHOTOGRAPHS

VIEW 01

VIEW 02

VIEW 03

VIEW 05

CHAPTER – 4

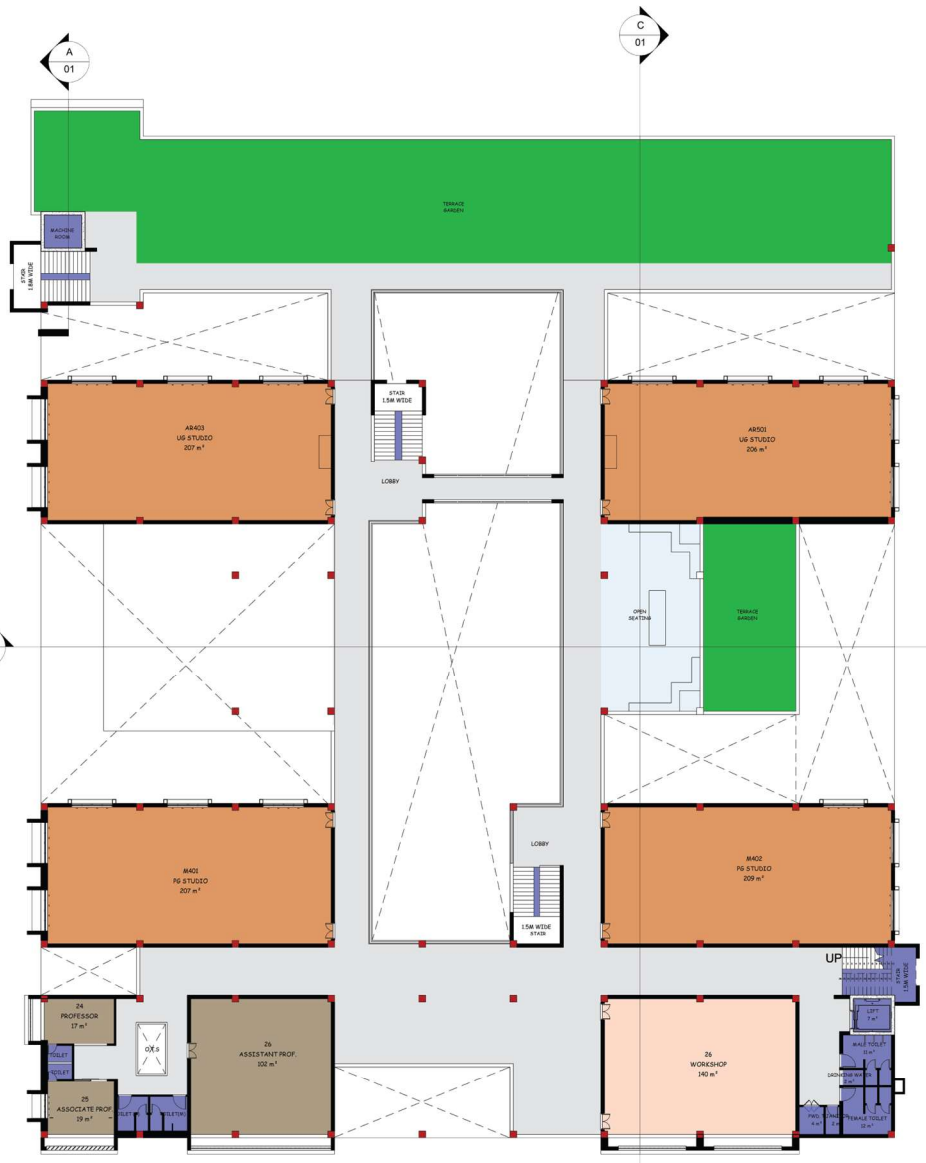
4.1. SITE DETAIL

SITE DETAIL	
SITE LOCATION	VADODARA, GUJARAT
SITE CO-ORDINATES	22°16'7.09° , 73°7'46.66°
SITE AREA	36134 sqm
F.S.I.	1.8
MAXIMUM GROUND COVERAGE	35%(12646.9 sqm)
PERMISSIBLE BUILTUP AREA	22764.42 sqm
ACHIEVED GROUND COVERAGE	7587.41 sqm
ACHIEVED BUILTUP AREA	22541.99 sqm

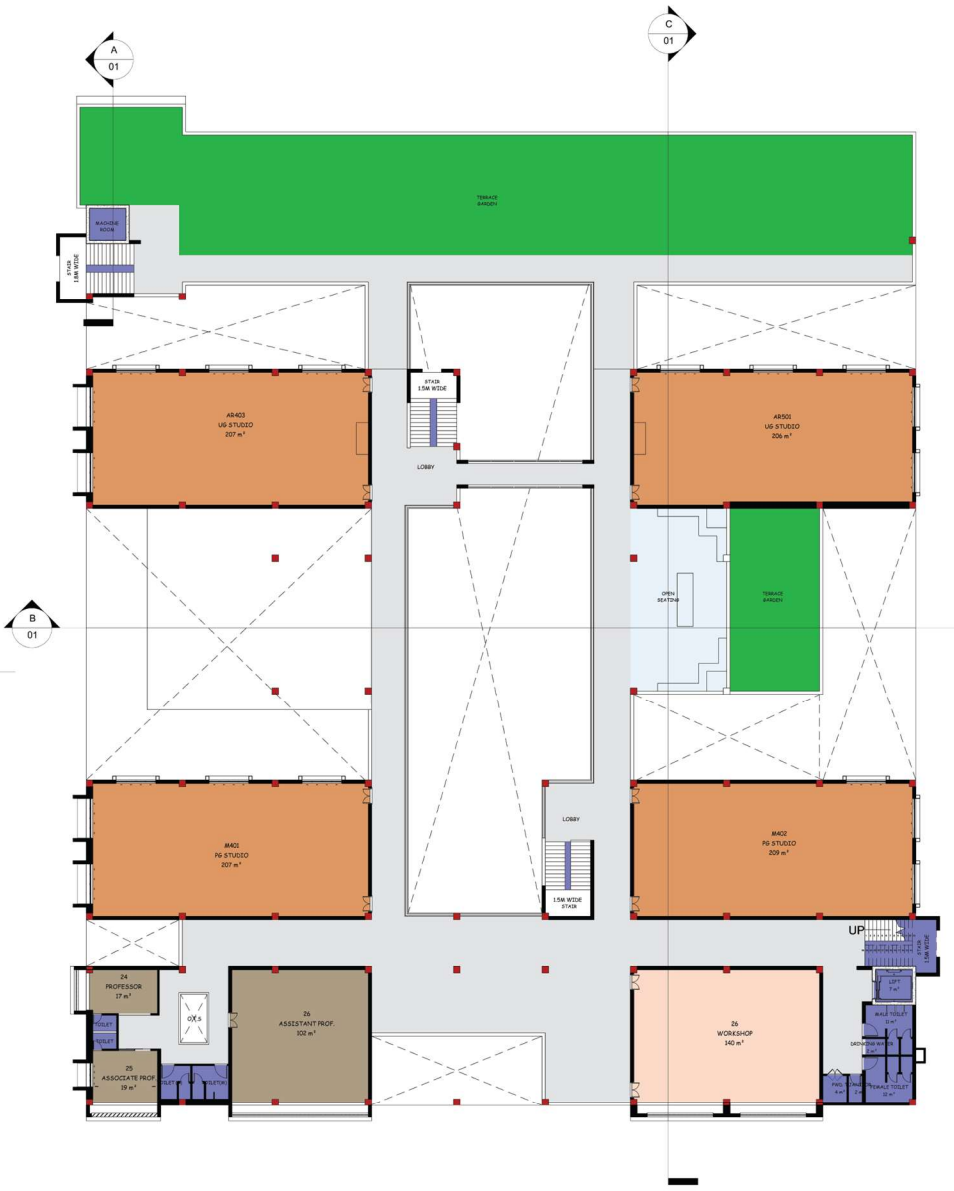
4.2. FLOOR PLAN

PLINTH FLOOR PLAN

FIRST FLOOR PLAN

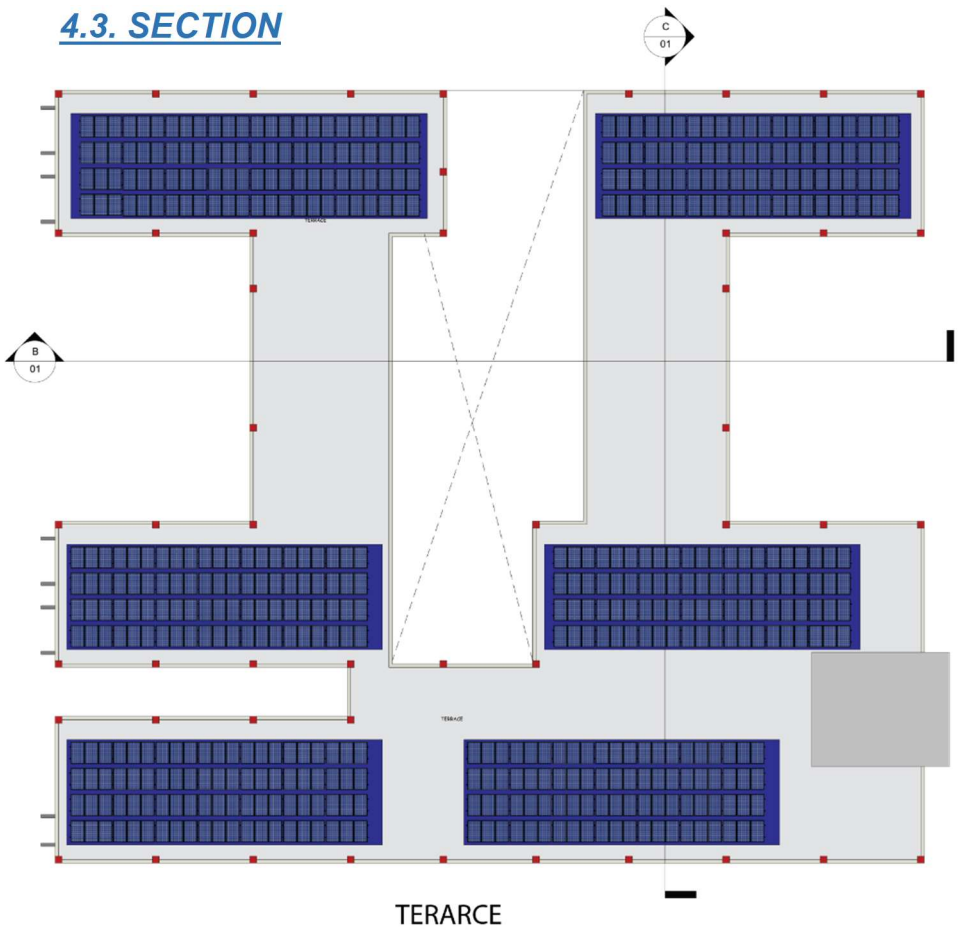


SECOND FLOOR PLAN



THIRD FLOOR PLAN

4.3. SECTION



SECTION 'A'

LEGEND

- ACCOUNT DEPT.
- EXANINATION DEPT.
- PROF. CABIN
- ASSOCIATE PROF.
- ASSISTANT PROF
- CLIMATOLOGY LAB.
- SURVEYING LAB.
- MATERIAL MUSEUM.
- LIBRARY
- UG STUDIO
- PG STUDIO
- WAREHOUSE
- OPEN SEATING AREA
- WORKSHOP
- JURY SPACE
- MULTI PURPOSE HALL
- TERRACE GARDEN
- GREEN PATCH
- SERVICES

BLOCKS	AREA SQM
COVERE AREA OF ACADEMIC BLOCK	4048.59
COVERE AREA OF COUNCLING AREA	250.76
COVERE AREA OF COMPLEX	342.42
COVERE AREA OF STAFF QUARTER (M/F)	775.96
COVERE AREA OF GIRLS HOSTEL	1084.84
COVERE AREA OF BOYS HOSTEL	1084.84
TOTAL	7587.41

BUILTUP AREA

ACADEMIC BLOCK	AREA sqm
PLINTH FLOOR	4032.14
FIRST FLOOR	3174.14
SECOND FLOOR	3480.66
THIRD FLOOR	2036.46
TOTAL	12723.4

COUNCLING AREA	AREA sqm
PLINTH FLOOR	250.76
FIRST FLOOR	152.25
TOTAL	403.01

COMPLEX	AREA sqm
CAFTERIA	322.68
CAFTERIA	374.57
STUDENT CENTER	289.91
TOTAL	269.84

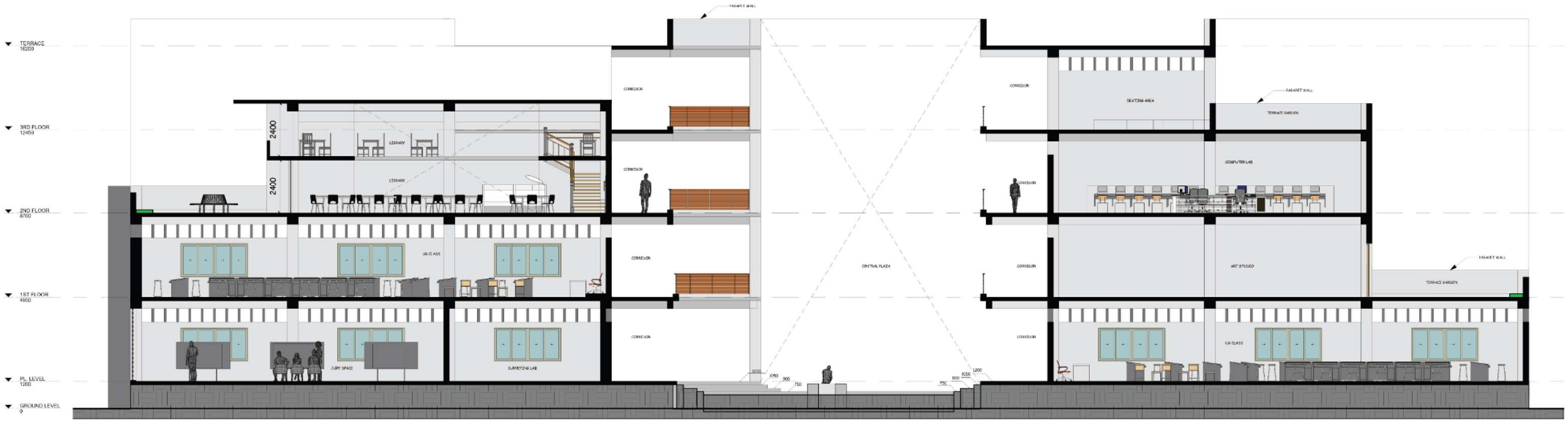
STAFF QUARTER (M/F)	AREA sqm
PLINTH FLOOR	801.03
FIRST FLOOR	722.67
TOTAL	1523.7

GIRLS HOSTEL	AREA sqm
PLINTH FLOOR	1070.16
FIRST FLOOR	706.35
SECOND FLOOR	678.17
THIRD FLOOR	678.17
FOURTH FLOOR	678.17
TOTAL	3811.02

BOYS HOSTEL	AREA sqm
PLINTH FLOOR	1070.16
FIRST FLOOR	706.35
SECOND FLOOR	678.17
THIRD FLOOR	678.17
FOURTH FLOOR	678.17
TOTAL	3811.02

COMPLEX	AREA sqm
CAFTERIA (PL. FLOOR)	322.68
CAFTERIA (1ST FLOOR)	374.57
STUDENT CENTER	289.91
TOTAL	269.84

TOTAL BUILTUP AREA 22541.99

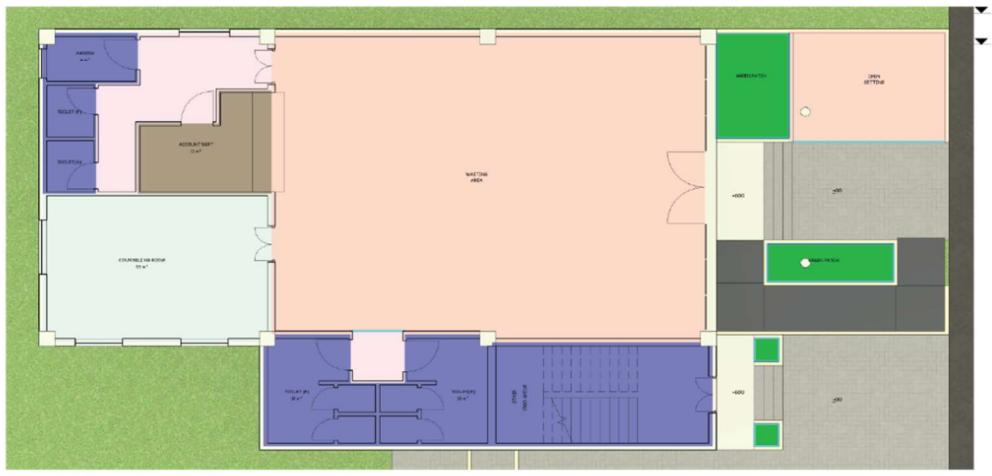


SECTION 'B'

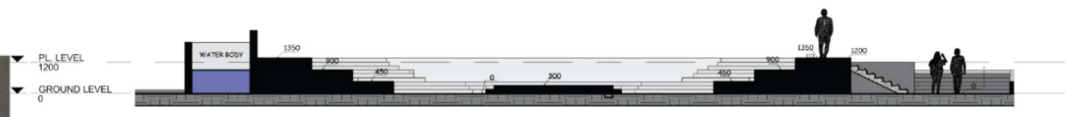
SECTION 'C'

4.4. ELEVATION, EXPLODED VIEW, AERIAL VIEW AND LANDSCAPE

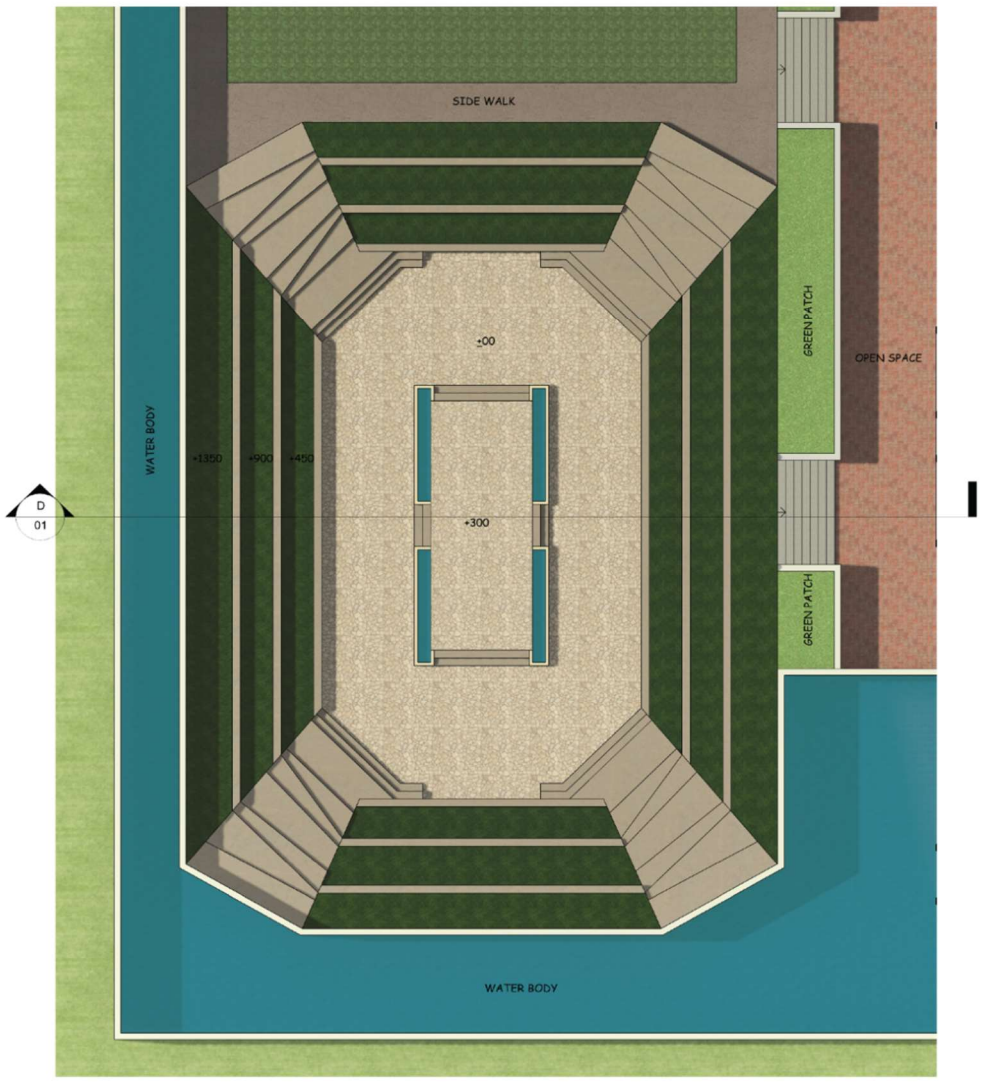
ELEVATION



ADMISSION FLOOR PLAN



SETCION 'D'

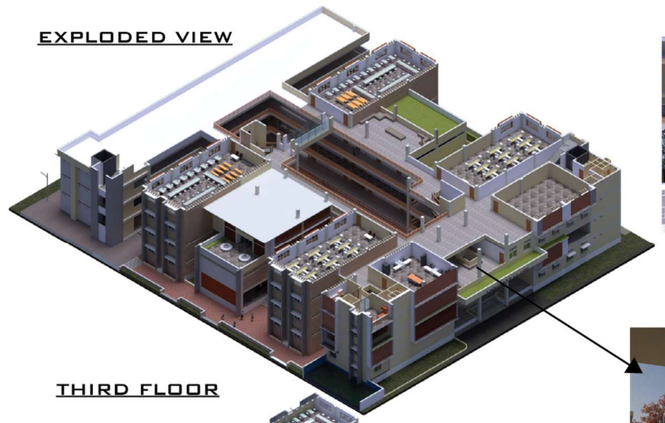


AMPHITHEATER PLAN

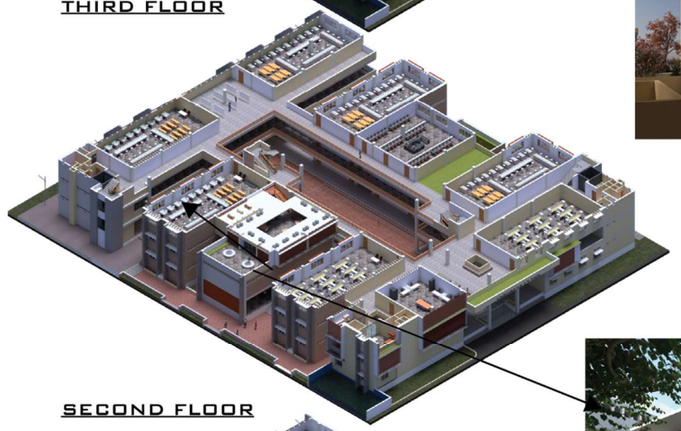
HOSTEL BLOCK

AMPHITHEATER VIE

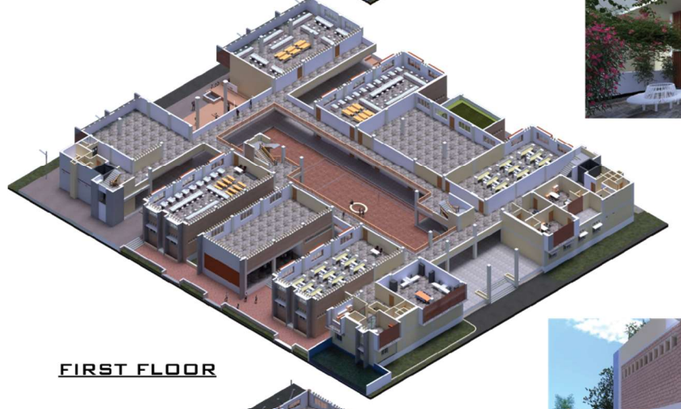
EXPLODED VIEW



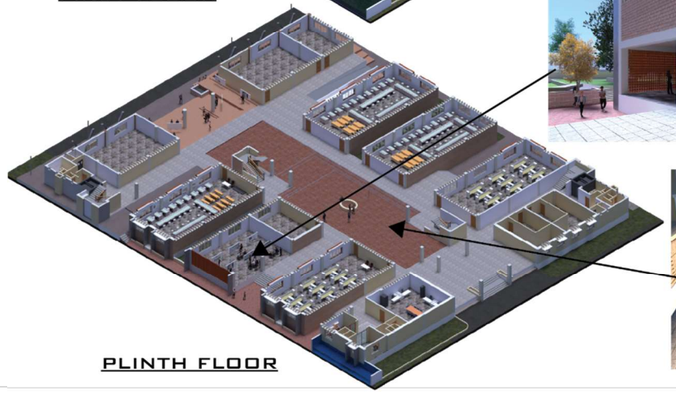
THIRD FLOOR



SECOND FLOOR



FIRST FLOOR



PLINTH FLOOR

LANDSCAPE

SACRED FIG TREE / BODHI / PEEPAL

BOTANICAL NAME: FICUS RELIGIOSA
GUJARATI NAME: JARI / ASVATTHA
HEIGHT: UPTO 35m
SEASON: RAINY SEASON
USAGE: THE LEAF JUICE OF THE PEEPAL TREE MAY BE HELPFUL FOR COUGH, ASTHMA, DIARRHOEA, EAR PAIN, TOOTHACHE, HAEMATURIA (BLOOD IN URINE), MIGRAINE, SCABIES, EYE TROUBLES, AND GASTRIC PROBLEMS.

BANYAN TREE / BARGAD

BOTANICAL NAME: FICUS BENGHALENSIS
GUJARATI NAME: BAR / VAD
HEIGHT: UPTO 25m
SEASON: NOV-AUG
USAGE: THE BANYAN TREE HAS BEEN USED FOR MANY MEDICINAL PURPOSES FROM ANCIENT TIMES. THE BARK OF THE BANYAN TREE IS CONSIDERED USEFUL IN BURNING SENSATION, ULCERS, AND PAINFUL SKIN DISEASES. IT CAN ALSO BE USED IN INFLAMMATION AND TOOTHACHE.

NEEM TREE

BOTANICAL NAME: AZADIRACHTA INDICA
GUJARATI NAME: DHANUJHADA / LIMDO
HEIGHT: UPTO 30m
SEASON: JAN-MAY
USAGE: THE TREATMENT OF INFLAMMATION, INFECTIONS, FEVER, SKIN DISEASES AND DENTAL DISORDERS THE MEDICINAL UTILITIES HAVE BEEN DESCRIBE ESPECIALLY FOR NEEM LEAF.

ROYAL POINCIANA TREE / GULMOHAR

BOTANICAL NAME: DELONIX REGIA
GUJARATI NAME: GULMOHAR
HEIGHT: UPTO 12m
SEASON: APR-MAY
USAGE: IT CAN BE USED AS ANTIBACTERIAL, ANTI-INFLAMMATORY, ANTIFUNGAL, ANTIMICROBIAL, ANTIOXIDANT, ANTIMALARIAL, GASTRO-PROTECTIVE, CARDIO-PROTECTIVE ALONG WITH WOUND HEALING PROPERTIES.

CCOCONUT PALM TREE / NARIYAL

BOTANICAL NAME: COCOS NUCIFERA
GUJARATI NAME: NARIYEL
HEIGHT: UPTO 16m
SEASON: APR-SEPT
USAGE: TRUNKS ARE USED IN CONSTRUCTION AND FURNITURE MAKING, AND LEAVES ARE USED IN A VARIETY OF WAYS IN DOMESTIC ECONOMIES. THE AFRICAN OIL PALM IS IMPORTANT CHIEFLY FOR THE PALM OIL OBTAINED FROM THE FRUIT COAT AND FOR KERNEL OIL FROM THE ***SEED.***

MAST TREE / FALSE ASHOKA

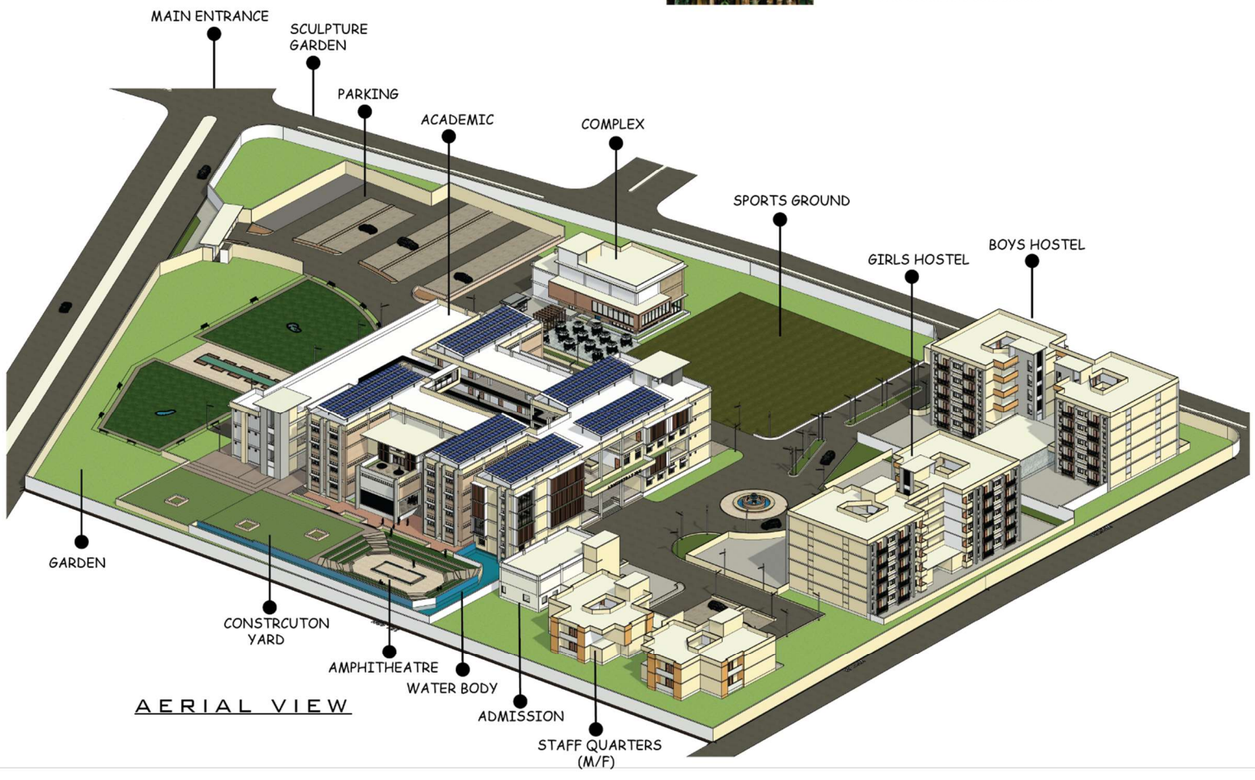
BOTANICAL NAME: POLYALTHIA LONGIFOLIA
GUJARATI NAME: ASOPALA
HEIGHT: UPTO 15m
SEASON: FEB-APR
USAGE: ASHOKA TREE MAY ACT AGAINST CANCER. IT MAY BE USED FOR BACTERIAL INFECTIONS, ARTHRITIS, ULCERS AND DEPRESSION. ASHOKA TREE MAY PROTECT THE HEART AND HELP TO REDUCE BLOOD SUGAR LEVELS.

FRANGIPANI TREE / CHAMPA

BOTANICAL NAME: PLUMERIA
GUJARATI NAME: AHOLO CHAMPO
HEIGHT: UPT 8m
SEASON: MAR-AUG
USAGE: IT'S THE FLOWERS AND LEAVES OF THIS TREE THAT ARE THE MOST USEFUL PART WHEN IT COMES TO HEALTH BENEFITS. KANAK CHAMPA FINDS USE IN AYURVEDA, WHERE ITS FLOWERS AND LEAVES ARE USED IN TREATING HEADACHES, ULCERS, WOUNDS, COUGHS, COLDS, BLEEDING DISORDERS, ETC.

BAMBOO TREE / BAANS

BOTANICAL NAME: BAMBUSOIDEAE
GUJARATI NAME: VAANS
HEIGHT: UPTO 16m
SEASON: MAR-JUN
USAGE: BAMBOO HAS MANY USES, MAINLY IN CONSTRUCTION (FLOORING, ROOFING DESIGNING, AND SCAFFOLDING), FURNITURE, FOOD, BIOFUEL, FABRICS, CLOTH, PAPER, PULP, CHARCOAL, ORNAMENTAL GARDEN PLANTING, AND ENVIRONMENTAL CHARACTERISTICS, SUCH AS A LARGE CARBON SINK AND GOOD PHYTOREMEDIATION OPTION, IMPROVING SOIL STRUCTURE AND SOIL EROSION.



AERIAL VIEW