THESIS REPORT ON

TATA CONSULTANCY SERVICES , HEADQUATER NOIDA, SECTOR 157

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

BACHELOR OF ARCHITECTURE

BY

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THESIS GUIDE

PROF. SANGEETA SHARMA

SESSION

2022-23

TO THE

SCHOOL OF ARCHITECTURE AND PLANNING

BABU BANARASI DAS UNIVERSITY

LUCKNOW.

SCHOOL OF ARCHITECTURE AND PLANNING

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

BABU BANARASI DAS UNIVERSITY
B. Arch Thesis 2022-2023

CERTIFICATE

I hereby recommend that the thesis entitled "**TATA CONSULTANCY SERVICES , HEADQUATER NOIDA, SECTOR 157**

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

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

Recommendation

Accepted

Not Accepted

.....	.....
External Examiner	External Examiner

BABU BANARASI DAS UNIVERSITY, LUCKNOW(UP)

CERTIFICATE OF THESIS SUBMISSION FOR EVALUATION

1. Name :SHRISTHIKA PAL

2. Roll No : 1180101042

3. Thesis title: TATA CONSULTANCY SERVICES, HEADQUATER

4. Degree for which the thesis is submitted: …BACHELOR OF ARCHITECTURE……

5. Faculty of the University to which the thesis is submitted YES NO

6. Thesis Preparation Guide was referred to for preparing the thesis. YES NO

7. Specifications regarding thesis format have been closely followed. YES NO

8. The contents of the thesis have been organized based on the guidelines. YES NO

9. The thesis has been prepared without resorting to plagiarism. YES NO

10. All sources used have been cited appropriately. YES NO

11. The thesis has not been submitted elsewhere for a degree. YES NO

12. Submitted 4 spiral bound copies plus one CD. YES NO

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Name:

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Name:

ACKNOWLEDGEMENT

The journey which started 5 years ago has culminated….as I step into the world a series of people flash in my memory without whose support and good will this journey wouldn't have been easy and free flowing….. To start with. First and foremost gratitude towards almighty GOD for his blessings. Then I would like to thank all my faculty members who have supported and guided me all these memorable 5 years. I would like to thank my thesis guide **PROF. SANGEETA SHARMA** who has been extremely co-operative since the very beginning and who helped me to utilize my skills and creativity to the utmost… My sincere thanks to our thesis coordinator **Ar. Aanshul Singh and Ar. Satyam Srivastava** for their corporation and understanding every stage of the study. I would further like to show my gratitude to my batchmates for giving full assistance whenever required and being there with me in all ups and downs. Their motivation and support helped me to be more dedicated and inclined towards my goal. Last but not the least all friends and love one who give their all kind of support and Concern, Colleagues- Rajat , Divyansh. I have put in my best of efforts and worked day and night to make this project a success .hope u too will appreciate my endeavor…… I wish to dedicate this work to my love ones…..Who are always their in my heart.

CONTENT

INTRODUCTION

INTRODUCTION

- Tata Consultancy Services (TCS) is an Indian multinational information technology (IT) services and consulting company with its headquarters in Mumbai.
- It is a part of the Tata Group and operates in 150 locations across 46 countries. In July 2022, it was reported that TCS had over 600,000 employees worldwide.
- TCS is the second largest Indian company by market capitalization and is among the most valuable IT service brands worldwide. In 2015, TCS was ranked 64th overall in the Forbes "World's Most Innovative Companies" ranking, making it one of the highest-ranked IT services companies and a top Indian company.

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HISTORY AND BACKGROUND

1968–2005

Tata Consultancy Services Limited, initially started as Tata Computer Systems, was founded in 1968 by a division of Tata Sons Limited. Its early contracts included punched card services to sister company TISCO (now Tata Steel), working on an Inter-Branch Reconciliation System for the Central Bank of India, and providing bureau services to Unit Trust of India.

NEED OF TOPIC

"Business, as I have seen it, places one great demand on you: it needs you to self-impose a framework of ethics, values, fairness and objectivity on yourself at all times." - Ratan N Tata, 2006

Core values:

Tata has always been a values-driven organisation. These values continue to direct the growth and business of Tata companies.
-providing employment

AIM AND OBJECTIVE

To bring in positive value-laden transformation through compassion and conviction to create symbiotic and collaborative ecosystem that can deliver optimal value and splendid results for all stakeholders and enhances quality of life

1-Gathering for a meeting and idea generation
2-Grouping similar ideas and developing drafts
3- Evaluating the vision statement
4-Customer satisfaction
5-Based on core competencies

SCOPE AND LIMITATION OF THE PROJECT

Customer-centricity is at the heart of TCS' strategy, organization structure and investment decisions. TCS' customer-centric worldview helps spot trends early, embrace business opportunities by making the right investments and mitigating risks while discharging its social and environmental responsibilities.

More involvement can cause aggravation and uncertainty among team members.
Adequate meeting makes this type more time consuming.
A detailed understanding is needed in order to be a part else result in bad performance which affects the total team work.

Services:

Information Technology Consulting, IT Services, Outsourcing, BPO, Software Products

Products:

TCS Bancs, Digital Certification Products,
Healthcare Management Systems.
Revenue: US$ 6.019 billion (in FY 2009-10)
Net income: US$ 1.128 billion (in FY 2009-10)
Employees: 150,000 (As on 1 April, 2010)
Website: http://www.tcs.com

(S)TRENGTHS:

The popularity and the reach all over the global markets made TCS a reputed and known firm in the Global IT Market. The TCS had launched the branches all over the world which can be considered as the primary strength for the TCS. TCS made clear and strong economic presentations around the globe which makes its clients a financial confidence about the company. The International base of TCS, India is known for its skilled employees in IT field which naturally made TCS very strong in Human resource.

(W)EAKNESS:

The excess exposure on the financial service markets which usually need to be kept confidential is considered as the main weakness of TCS. TCS is also lack in effective consulting team which show a strong reflection of decline in the growth cycle of the TCS, Being a company which works on Outsourcing projects usually needs a very good effective consulting team which acts as the bridge between the clients and company. TCS really lacks in that.

(O)PPORTUNITIES:

TCS being a fast growing IT firm is very keen in establishing and expanding its business to almost all the parts of world right from India, China, Latin American countries, Asia-pacific and etc which opened up a great business opportunity for TCS. The Focus in the SMB segments is also lays a very good business opportunity for TCS.

(T)HREATS:

The rapid growth and development in India and other global areas, A common demand for employees arise which result in the increase of cost for employees. TCS has to face a very high competition from overseas and well established companies like IBM, Accenture and etc. The complete merge in the End markets is also a biggest threat for TCS. The advantage on rupees always stands as the biggest threat to all IT companies in general. Increase of competition from low wages is another threat.

PROJECT BRIEF

SITE ANALYSIS

PROJECT BRIEF

INTRODUCTION ABOUT

COUNTRY – INDIA
STATE – UTTAR PRADESH
CITY- NOIDA
AREA-24.87 ACRES
POPULATION-6.42 LAKHS
POPULATION DENSITY – 2463PER SQ.KM

Located in Gautam Buddha Nagar district of Uttar Pradesh State, Noida is a short form for the New Okhla Industrial Development Authority. Noida Is one of the planned cities in India that known for Its modern Infrastructures and best-in class amenities. The city is also known for its greenery, wider and excellent roads

Location Map of Project Site

Map Showing Development Area

PLOT NO. 1, SECTOR 157,
EXPRESSWAY NOIDA ,
AREA -24.87 ACRES

ABOUT SITE

Tata Consultancy Services (TCS) proposes to establish an IT SEZ Campus at Plot no. 01, Sector 157 of Noida, Uttar Pradesh. 29.266 ha (2,92,660 Sq m) of land has been allotted by New Okhla Industrial Development Authority (NOIDA) for development of IT/ITSES project out of which 20.3724 ha (2,03,724 Sq m) is allowed for development. Project will be developed in different phases. At present, Phase I will be developed on area of 13.086 ha (1,30,860 Sq m) and remaining will be developed 10.064 ha (100640 Sq m).

SITE ACCESSIBILITY

INDRA GANDHI AIRPORT-47.9 KM
DADRI RAILWAY STATION-21.0KM
NIZZAMUDDIN RAILWAY STATION-30.9KM
TUGHLAKHABAD RAILWAY STATION-26.4KM
OKHLA BIRD SANCTUARY METRO STATION-17.7KM

Map Showing Project Boundary, Connectivity to the Metro and Road

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SPECIES TO BE PLANTED
No of Trees Proposed -2,900

Bel, Sirisha, Neem, Indian Redwood, Silk floss tree, Teak, Arjun, Jacaranda, Indian coral tree, ETC

SOLID WASTE GENERATION AND MANAGEMENT

Solid waste would be generated both during construction as well as during operation phase. Solid waste expected to be generated during construction phase will comprise of excavated materials, used bags, bricks, concrete, MS rods, tiles, wood etc.

During operation phase, waste generation from the institute will be municipal in nature. Large fraction of the waste will be paper and packaging waste. Municipal waste to be generated from the site is 4697 kg/day.

POWER REQUIREMENT

Power requirement is 10.417 MVA. Power will be sourced from Uttar Pradesh State Electricity Board. Electrical substation (ESS) will be constructed at the site for housing the transformers and other utilities.

WATER REQUIREMENT

During construction phase source of water for construction purpose will be from Noida Authority

Common Sewerage Treatment Plant and private tanker supplier for domestic usage of construction

labor. Source of the water during operation phase is municipal supply.

Water supply line exists in the area and also NOIDA authority is augmenting the network to meet the water requirement of the area.

SITE SHAPE

the site is irregular in shape

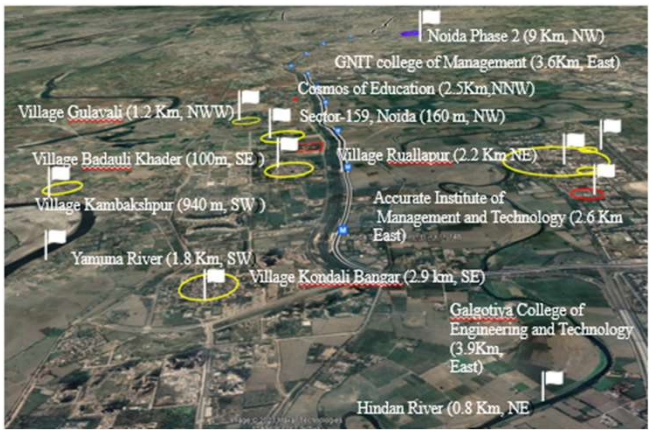
COORDINATES - 28°27'55.65"N 77°27'23.46"E

TENTATIVE REQUIREMENTS

- IDC Block
- Office Building
- Maintenance Staff
- Welcome Block
- Gate House
- Transit Hub
- Visitor

PROJECT COST

Cost of the project is approx. INR 1010.82 Crores.



CLIMATIC ANALYSIS

• BASIN / SUB-BASIN:

The Gautam Buddha Nagar district falls in Yamuna Sub-basin and forms a part of Ganga Yamuna Doab. Major part of the district is covered by Hindon river water shed.

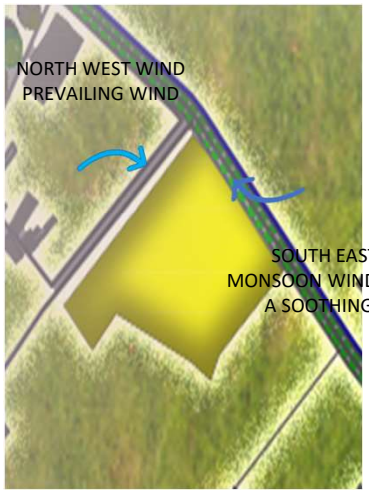
• DRAINAGE:

District of Gautam Buddha Nagar is drained by river Yamuna and its tributaries namely- Hindon River and Bhuriya nadi.

Features	Description
Near-by Residential Area	• Sector-159, Noida (160 m, NW) • Village Badauli Khader (100m, SE) • Village Gulavali (1.2 Km, NWW) • Village Ruallapur (2.2 Km NE) • Village Kambakshpur (940 m, SW) • Village Kondali Bangar (2.9 km, SE)
Nearest Industrial Area	• Noida Phase 2 (9 Km, NW)
Nearest Educational institute	• Cosmos of Education (2.5Km,NNW) • Accurate Institute of Management and Technology (2.6 Km East) • GNIT college of Management (3.6Km, East) • Galgotiya College of Engineering and Technology (3.9Km, East) • Utpal Valley Inter College (4.2 Km, NE)
Nearest Hospital	• ITS Surya Hospital (2.9 Km, ENE) • Sharda Hospital (2.8 Km, NE) • Arya Hospital (3.8 Km, SE)
Nearby Water bodies	• Hindan River (0.8 Km, NE) • Yamuna River (1.8 Km, SW) • Agra Canal (12 Km, SW)

• WIND

The predominant average hourly wind direction in Noida varies throughout the year. The wind is most often **from the east** for 1.5 months, from July 12 to August 29, with a peak percentage of 41% on July 30.



• RAINFALL:

The annual normal rainfall (1901-1970) of the district comes to 700.6 mm as observed in the nearest rain gauge station at Sikandrabad. The maximum rainfall occurs during the monsoon period i.e., June to September having the normal value of 600 mm which is 85.7% of annual rainfall. August is the wettest month having the normal rainfall of 205.8 mm followed by July when normal rainfall received about 194.4 mm.

• CLIMATE:

The climate of the district is sub-humid and characterized by hot summer and bracing cold season. After February there is continuous increase in temperature till May which is generally the hottest month. The district experiences the hottest weather in the month of June with average mean temperature of 32.85°C followed by May with 31.9°C. The coldest month is January with average mean temperature of 14.2°C followed by December with 15.4°C.

• SOIL TYPES:

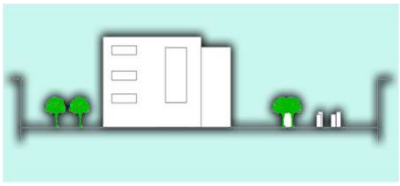
The soil ranges from pure sand to stiff clays and including all combination of the two extreme litho units. The pure sand is called Bhur and clay is called Matiar. The mixture of sand and clay in equal proportion forms Dumat or loam, a good agriculture soil. Several subcategories of Dumat are possible depending upon the contents of clay and sand. The bad land patches (Kallor) which are ingested with Rehat places do not support any vegetation growth. Alluvial soils occurring in flood plain of rivers is called Kemp which yield good crops. Kankars invariably associated with clay and at times retards ground water movement.

• IRRIGATION:

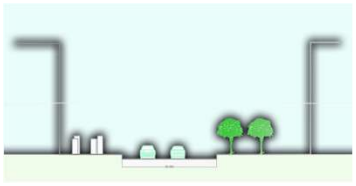
The irrigation in the district is basically met by means of minor irrigation structures such as tube wells, cavity tube wells and occasionally dug wells. The surface water irrigation system i.e., canals is also being used substantially. As per the district statistical records, 9141 hectare of area constituting 10.1% of the total irrigated area is irrigated by canals whereas a total of 81484.0 hectares of area constituting 89.9% is irrigated by Minor irrigation structures.

• LAND USE:

District statistical data (2005) reveal that most of the land is put into active cultivation i.e. 67.93% leaving 1.4% under forest and negligible 0.3% for pasture and 0.23% for orchids & bushes which is much below the state average and environmental standard.



SECTION D



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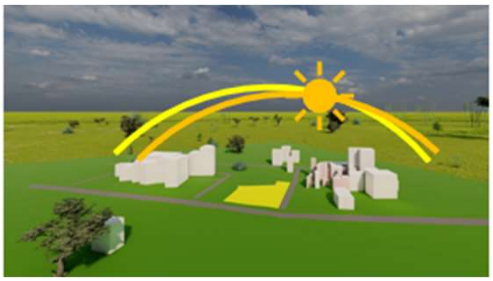
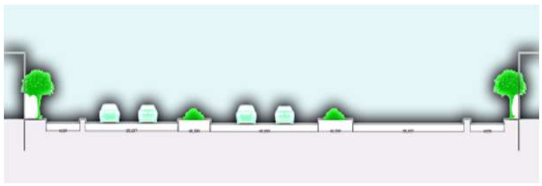
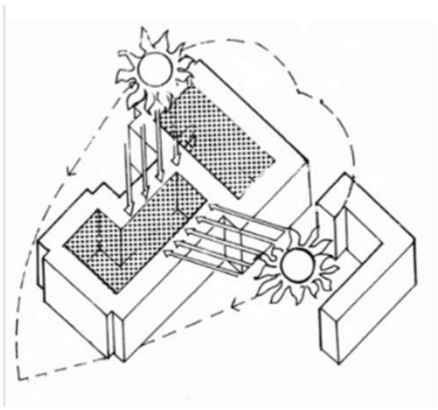


SUN PATH



SECTION A

SECTION C



DESIGN CONSIDERATIONS FOR COMPOSITE CLIMATE

Nature of the Composite Climate

The composite climate is neither constantly hot and dry nor warm and sticky. Their characteristics are ever changing, interspersing between long, hot, and dry ages to shorter ages of downfall and high moisture. There's a significant difference in air temperature, moisture, wind, sky, and ground conditions throughout the time.

Building Orientation

The building should be located preferably in the North-East and South-West direction. This helps in receiving less radiation and more natural light & ventilation.

Design Criteria

Thermal design criteria recommended for hot-dry climates apply to both the hot-dry season and cold season of composite climate. For the monsoon, buildings should be designed consistent with the standards of warm-humid climate, which might require an entirely special solution. This duality of the matter has got to be handled tactfully by the designer. An analysis of the location climate will help the designer prioritize the requirements.

CASE STUDY

1- ADOBE SYSTEM HEADQUATER

2-INDIA GLYCOL OFFICE

LIVE CASE STUDY - 1

ADOBE SYSTEMS HEADQUARTER

PROJECT DETAIL

Project Type : Office Building
Location : Sector 132, Noida
Architect : SWBI Architects
Client : Adobe Systems
Site Area : 7 acres land (28,322 sq.m.)
Built-Up Area : 4,00,000 sq.ft. (37,160 sq.m.)
F.A.R. : 1.3
Client brief : The brief was to plan a world class Research and Development centre for Adobe Systems, an American multinational computer software company headquartered in California, United States, for over 2000 IT professionals in an energy efficient sustainable Office space.

ACCESS AND APPROACH

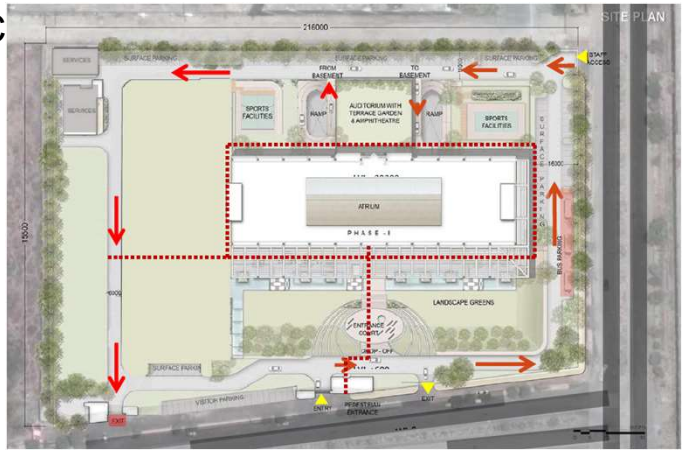
MAJOR LANDMARK – Jaypee hospital

Climatic Zone : Composite
Avg. Temperature (High) : 31.2°C
Avg. Temperature (Low) : 18.8°C
Avg. Precipitation : 715 mm

ADOBE is a Spanish word for sun dried clay bricks, common in ancient cultures and in arid lands. Adobe, the basic building block in mud has been reinterpreted in terracotta, engaged in creating digital /mathematical expressions. The same expressions are used as a core concept in the design of the building.

CONCEPT

A LEED PLATINUM RATED project, true to its inherently green nature, an Efficient, Effective & Expressive, sustainable design.



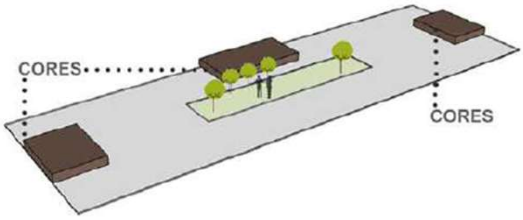
SITE PLAN

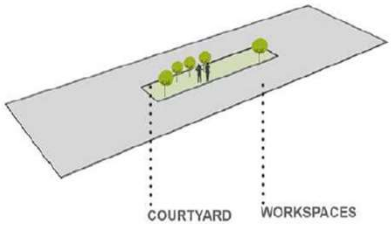
SETBACKS: FRONT: 40 m SIDE: 30 m REAR: 40 m

THE EVOLUTION

☐ TYPICAL FLOOR PLATE

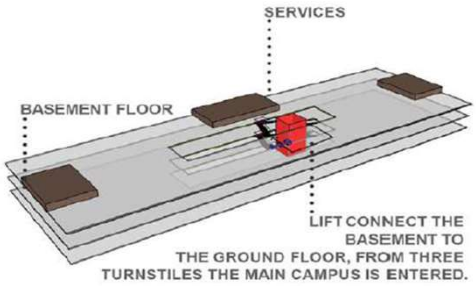
The workspace, the basic building block in an office is enveloping a skylight atrium, there by enjoying ample light, access to views & greenery.





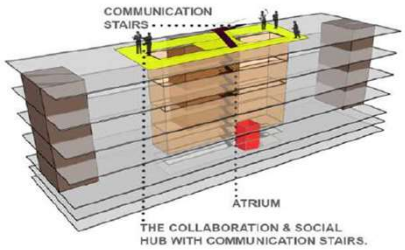
☐ THE EVOLUTION: CORES

Placement of circulation & service core in a distributed manner around the form plate.



☐ CONNECTION TO BASEMENT

Separate parking elevators and staircase connects the 3 parking levels to the main entrance floor.



☐ COLLABORATION & SOCIAL HUB

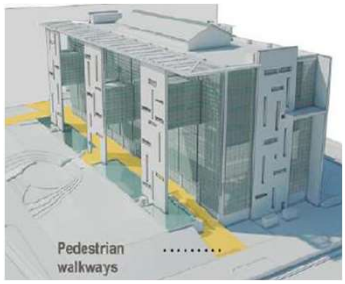
Space and an atrium is placed as a coffee and a conversation zone where employees collaborate and ideate in a casual manner.

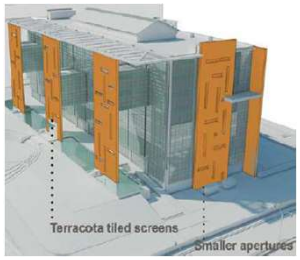
DESIGN FEATURES

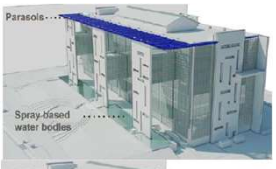
SHADED PEDESTRIAN WALKWAY planned in the campus through the use of terracotta tiled screens and covered roof parasol.

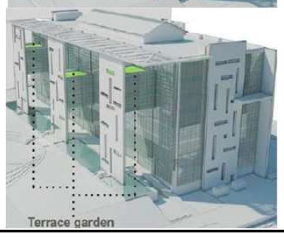
East and west facade have limited glass and smaller apertures to have a glare free working environment. Service cores have been located on these two faces.

ROOF PARASOL shades the Façade Glazing. Wind flowing through, pick up the mist from Spray based Water bodies combined with soft landscaping









Expansive sloping landscaped area in front absorbs the south sunlight leading to glare free facade which gives a clear vision from offices.

HANGING TERRACE GARDENS AND GREEN ROOF at various levels to reduce heat island effects

GROUND FLOOR PLAN

The services for Kitchen is in Stilt level (below ground) like Service Entry, Washing Area, Storage, etc.

FIRST FLOOR PLAN

Atrium (16.6m X 7m)
116 Sqm Open Collaboration Area (Capacity 68 People))
Breakout Zone

Core near data centre:
No. of Lifts: 2 (Basement level 2 to Ground floor) Dimensions: 2400 X 2100 mm (14-person lift)
Width of Staircase: 1800 mm (Basement level 2 to Ground floor)

Guest Rooms + Exe. Lounge
Area: 365 sq.m. (approx.)
No. of Guest rooms: 9 nos. (attached toilets)
Capacity of Lounge: 28 seatings

Central core:
Width of Staircase: 1800 mm (Ground Floor to 4th floor)
No. of lifts: 6 (stilt level to 8th floor)
Dimensions: 2400 X 2100 mm (14-person lift)
It caters around 85 persons at a time.

Data Centre
Area: 275 sq.m. (approx.)
85 server system units

ENTRANCE LOBBY:

Dimension: 10600 mm X 10600 mm

From the Entrance Lobby, one can access:

1. Cafeteria and Recreation
2. Indoor games
3. Public restrooms
4. Training Centre

Areas access through turnstiles:

5. Data Centre
6. Guest rooms and lounge
7. Access to upper floor levels

Capacity: 460 seating
Kitchen Area: 285 Sq.m. (approx.)
Cafeteria Area: 740 Sq.m. (approx.)

Training Centre
Area: 315 sq.m. (approx.)
Capacity: 55 pax (3 rooms)

Indoor Games + Gym
Area: 345 sq.m. (approx.)
Attached changing area:
1+1 changing rooms, 2+2 bathrooms,
1+1 WC, 3 urinals, 3+2 basins
No. – 4 Size- 4.3m X 4.6 M No. – 2 Size- 5m X 6m

Conference Room - Flexible Collaborative Space
(8-10 People Capacity) Lcd Screen

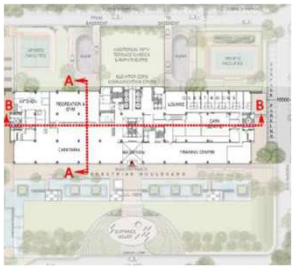
325 Workstations On Every Level
Cubicle Size – 4.3m X 4.6m

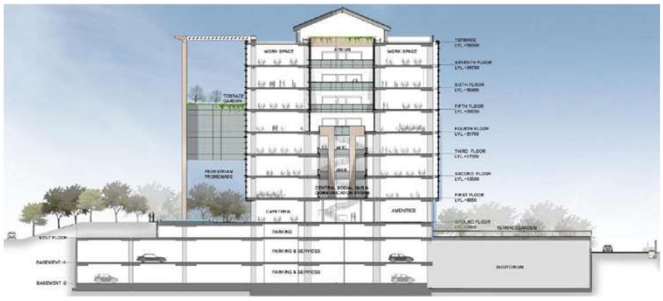
Large Conference Room –
Video conferencing with 2 screens
(14 People Capacity) No - 1
Area – 5m X 7.5m

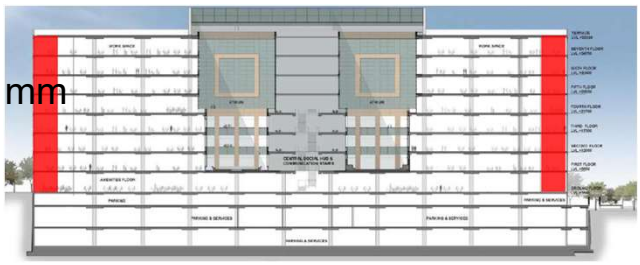
TYPICAL FLOOR PLAN

STILT LEVEL PLAN

Double Height Lobby Area
20000 X 6000
Auditorium
480 Persons
Area – 535 Sq M
UPS Room and Battery Rooms
Critical Lighting - 50 Sq M
Workstations - 130 Sq M
Data Centre - 100 Sqm
AHU Room - 40 Sq M







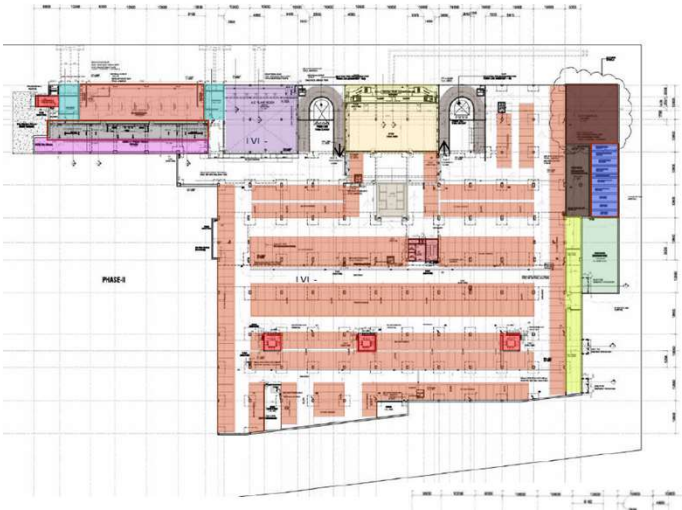
STRUCTURE

- RCC steel structure
- Post tension slabs : Depth – 300 mm
- Beam Depth : 600 mm
- Column grid : 10.6 – 13.6 m
- Floor to floor height : 4.35 m

MATERIAL USED

- RCC
- Bricks
- Glazed glass
- Terracotta tiles
- M.S. Steel

Cutouts
Lift Lobby and Stairs – 1800mm
LIFT - 2400 X 2100 (14 Person Lift)
NO - 2
Lift Lobby
5 Lifts - 14 Person Lifts



Basement Level 2 Plan

Basement Level 1 Plan

LIVE CASE STUDY - 2
INDIA GLYCOL OFFICE

PROJECT DETAIL

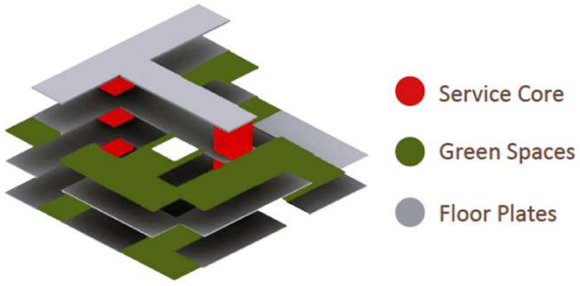
Project Type : Office Building
Location : Sector 126, Noida
Architect : Morphogenesis
Client : India Glycol
Site Area : 2,15,280 Sq. Ft. (20,200 Sq. Mt.)
Built-Up Area : 391,700 Sq. Ft. (36,390 Sq. Mt)
F.A.R. : 1.5
Employees : 250
Energy-responsive design, a workplace catering requirements of the IT, Development of building techniques with modern materials.

ACCESS AND APPROACH

India Glycol is located in sector 126 of Noida (Delhi NCR region). The site is well connected to Delhi and greater Noida by Noida expressway. The map shown above shows the access and approach of site and its distance from the airport, railway station and the bus stand.

Climatic Zone : Composite
Avg. Temperature (High) : 31.2°C
Avg. Temperature (Low) : 18.8°C
Avg. Precipitation : 715 mm

Nearest Metro Station-
Botanical Garden (8.6km)



FORM EVOLUTION

Conceived as a solid perimeter scheme with a more fluid interior, the morphology blurs the interface between the inside and outside. The site surroundings and context along with an optimum enclosed square volume enabled a built form with minimum exposed surface area. The built form configured of 8m wide office bays optimizes the natural day lighting and helps to define the programmatic requirements of the office.

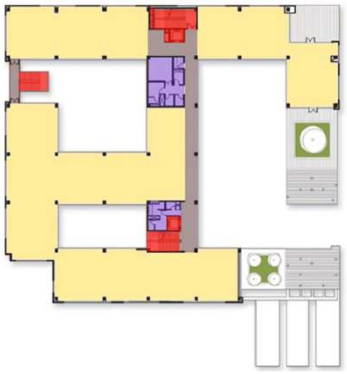
VOLUMETRIC CONFIGURATION

The design's conceptual strength comes from the spatial organization which creates overlaps between the exterior and the interior and between the various programmatic requirements, hence creating a vibrant and creative work environment.

ZONING PLANS

Ground Floor Plan

- Reception
- Corridor
- Office Spaces
- Conference rooms
- Service core
- Washrooms



First Floor Plan

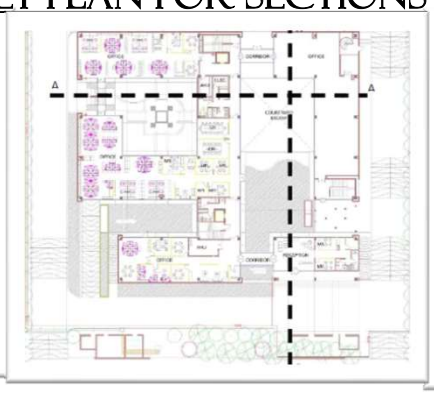
- Corridor
- Office
- Service core
- Washroom

Second Floor Plan

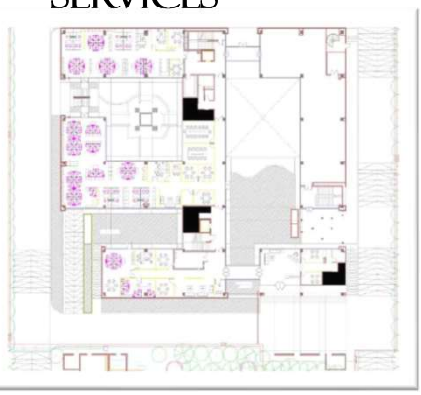
- Corridor
- Office
- Service core
- Washroom
- Terrace Garden

RECEPTION

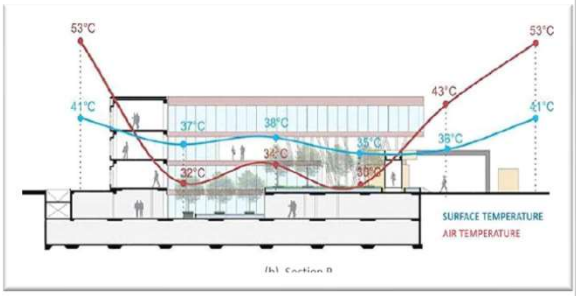
KEY PLAN FOR SECTIONS



SERVICES



Area – 70 sqm



(a) Section A

AHU Room Area - 17 Sqm / Room
Pantry Area - 4 Sqm / Room
Staircase
- Width 1500 mm
- Tread 300 mm
- Riser 150 mm
Lifts Area – 4 Sqm / Lift Room
No. Of Washrooms
- Male 04
- Female 03

GREEN FEATURES

Program, Form Optimization, Morphology, and Orientation

• Energy Consciousness dictates the internal spatial and programmatic composition through a series of open and semi-open spaces.
• Instead of an overlay of an environmental layer, Passive design techniques are employed throughout the scheme.
• The site surroundings and context along with an optimum enclosed square volume enabled a built form with minimum exposed surface area.
• Solar exclusion is achieved by means of a solid external perimeter with minimum fenestration, which only permits diffused daylight into the office environs.

COMPARATIVE AREA ANALYSIS

NO.	TITLE	ACC. TO CPWD/NBC 2005	ADOBE	GLYCOL INDIA
1.	**WORK STATION**	**(sqm)**		
	EMPLOYEES-WORKSPACE	9.29	11.5	2.2
	MANAGER'S OFFICE	9.29	11.5	11.8
	SENIOR MANAGER'S OFFICE	18.58		20
	DIRECTORS OFFICE(WITH 4 PERSON MEETING TABLE)	23.22		37
	4 PERSON MEETING ROOM	9.29		10.5
	8 PERSON MEETING ROOM	11.61	11.5	24
	BOARD ROOM	20.43		24
	30 PERSON/CONFERENCE ROOM	22-44		150FOR100
	PANTRY	9.29		4.2X2
	1 SERVER RACK SERVER ROOM	3.72		NIL
	4SERVER RACK SERVER ROOM	11.5		NIL
	VISITOR'S LOUNGE	<44	45	39
	RECEPTIONIST	11		14.5
	CANTEEN	0.09/PERSON	1.5	2.1/PERSON
2.	**CIRCULATIONS**			
	LIFT NO.		6+2	2
	LIFT WELL		5.04sqm/lift	4.07sqm/lift
	LIFT DOOR WIDTH	0.9m	0.9m	1
	LOBBY IN FRONT OF ELEVATOR			
	ELEVATOR ON ONE SIDE	1.8m	NIL	2.23m
	ELEVATOR ON TWO SIDE	3.1m	3.3m	NIL
	CORRIDORS			
	SUBSTANTIAL TRAFFIC	1.6m	2m	2.6m
	MODERATE TRAFFIC	1.2m	1.5m	2.2m
	SECONDARY TRAFFIC	1m	1.8m	1.5m
	STAIRCASE STANDARDS			
	MINI. WIDTH	>=1.2 m	1.8	1.5m
	MINI. TREAD	30cm	30cm	30cm
	HEIGTH OF RISER	<=15 cm	15cm	15cm
	HAND RAIL HEIGHT	>=90cm	90cm	90cm
3.	**FIRE SAFETY**			
	MAIN ENTRANCE WIDTH	>6m	6m	7.5
	TURNING RADIUS	9m		9m

NO.	TITLE	ACC. TO CPWD/NBC 2005	ADOBE	GLYCOL INDIA
4.	**HEIGHT STANDARDS**	**(sqm)**		
	FLOOR TO FLOOR HEIGHT	3.6m	4.35m	3.6m
	MINI. CLEARANCE HEIGHT	2.43m	3.75m	2.43m
5.	**WET AREA REQUIREMENTS**			
	AREA OF TOI/LAT-HANDICAPPED	3.5sqm		NIL
	AREA OF TOI/LAT-COMMAN MAN	1.5sqm		2.2sqm
6.	**CORRIDORS**			
	CORRIDOR (ACCESS TO STREETS)	Y/N	N	Y
	OBSTRUCTION FREE	Y/N	Y	Y
	CLEARLY VISIBLE EXIT ROUTES	Y/N	Y	Y
	FIRE EXIT WIDTH	>1m	1.8m	1m
	NO. OF EXITS	min.2 staircase	2+1	2
	EXTERNAL STAIRCASE CONNECTED TO THE GROUND LVL	Y/N	Y	Y
7.	**EXTERNAL STAIRCASE**			
	WIDTH	>1250mm		1500mm
	TREAD	>250mm		300mm
	RISER	<190mm		150mm
	NO. OF RISERS PER FLIGHT	<=15		12
8.	**PARKING**			
	MIN. AREA FOR VEHICLE			
	CARS	13.75sqm	13.75	13.75
	TWO WHEELERS	3sqm	3	3
	CYCLE	1.5sqm		NIL
9.	**METHODS OF VENTILATION**			
	NATURAL SUPPLY &NATURAL EXHAUST OF AIR	Y/N		
	NATURAL SUPPLY & MECH. EXHAUST OF AIR	Y/N		
	MECH. SUPPLY & NATURAL EXHAUST OF AIR	Y/N		
	MECH. SUPPLY & MECH EXHAUST OF AIR	Y/N	Y	Y

DEAD CASE STUDY - 1

HEADQUARTERS FOR GENZYME CORPORATION

Location : Cambridge, USA
Climate : Humid
Development Size : 3,44,000 sq.ft.

- A Leeds Platinum rated office building.
- 12 storied building
- located near river

Understanding the green building features:

- Land use and Site selection
- Energy efficiency
- Material usage
- Indoor Environment Quality

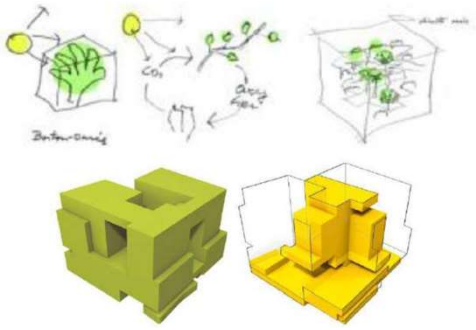
CONCEPT

- A highly integrated design process to develop a building from the inside out.
- A vertical city with individual dwellings.
- Daylight flooded interior, naturally illuminated workstations.

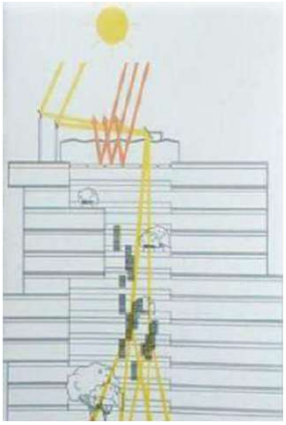
STRUCTURAL SYSTEM MATERIALS USED:

The structural system and materials used can be rated to provide a better rating. Genzyme centre has used the following steps for achieving a better rating:

- 70% - 80% recycled content
- 75% materials from local sources
- Wood - harvested from sustainably managed forest



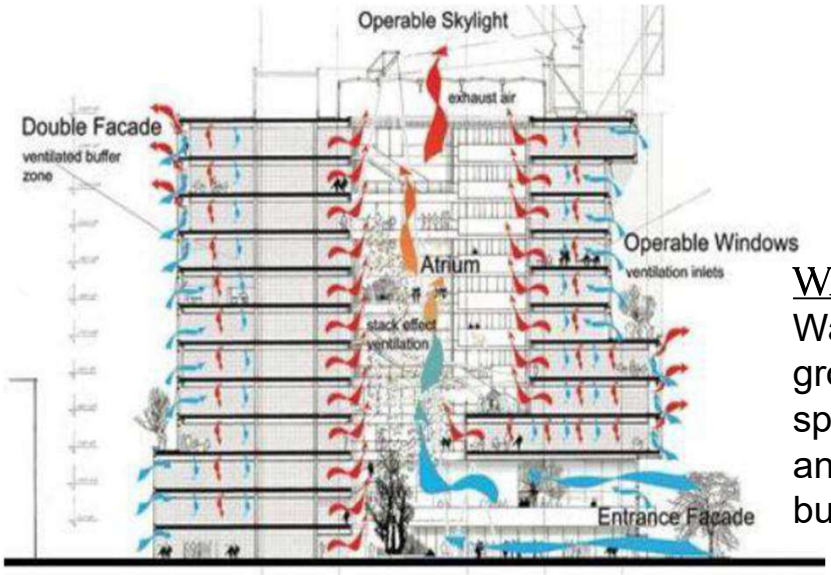
ENERGY EFFICIENCY



- The building planning has been done in such a way that building interior is illuminated by natural light.
- The building envelope is composed largely of glass; 46 percent of the envelope is single glazed glass and 22 percent is solid cladding.
- Eight hundred windows line the building and provide ample daylight.
- Forty percent of the building's exterior is a double façade that is separated by an accessible four-foot loggia space.
- This design helps the building maintain its thermal conditions by trapping heat that is radiated from the building and blocking solar heat that would otherwise enter the building.

Ground Floor of Genzyme Corporation at Cambridge, USA.

Second Floor Plan of Genzyme Corporation at Cambridge, USA.



WATER POOL

Water pool located at ground floor further spreads light in the atrium and helps in humidifying building in dry winters

Conceptual section of Genzyme Corporation at Cambridge, USA. showing the architectural features used for energy efficiency.

HEATING AND COOLING

- steam from neighbouring cogeneration plant used for cooling and heating
- reduces electricity consumption
- Building is also cooled naturally by stack effect
- Reduces load on HVAC system.
- Operable windows help heating and cooling.

RENEWABLE ELECTRICITY

- Electricity purchased from renewable sources
- 10%wind
- 12% landfill gases
- Photovoltaic panels produce 24000-2600 kWh/year

DEAD CASE STUDY-2

INDIRA PARYAVARAN BHAVAN

PROJECT DETAIL

Location	New Delhi
Geographical coordinates	28° N, 77° E
Occupancy Type	Office (MoEF)
Typology	New Construction
Climate Type	Composite
Project Area	9,565 m^2
Grid Connectivity	Grid connected

INTRODUCTION

Indira Paryavaran Bhawan, the new office building for Ministry of Environment and Forest (MoEF) sets is a radical change from a conventional building design.

PASSIVE DESIGN STRATEGIES

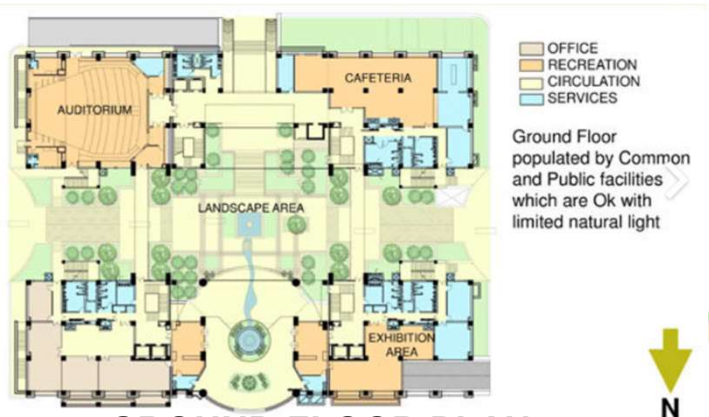
- ***Orientation:*** Building is north south oriented, with separate blocks connected through corridors and a huge central court yard. Orientation minimizes heat ingress. Optimal window to wall ratio.

- ***Landscaping:*** More than 50% area outside the building is covered with plantation.Circulation roads and pathways are soft paved to enable ground water recharge.
- ***Daylighting:*** 75% of building floor space is day lit, thus reducing dependence on artificial sources for lighting. Inner courtyard serves as a light well.
- ***Ventilation:*** Central courtyard helps in air movement as natural ventilation happens due to stack effect. Windows and jaalis add to cross ventilation.

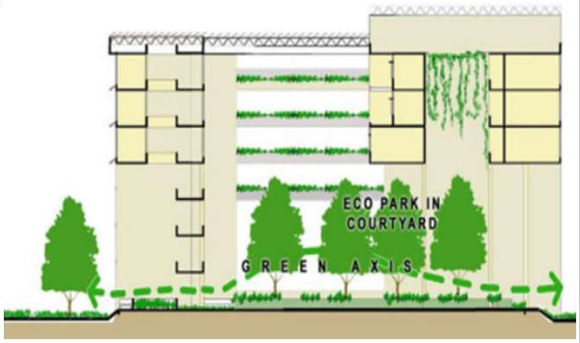
- ***Materials and construction techniques :***
  - AAC blocks with fly ash
  - Fly ash based plaster & mortar
  - Stone and Ferro cement jaalis
  - Local stone flooring
  - Bamboo jute composite doors, frames and flooring
  - High efficiency glass, high VLT, low SHGC & Low U-value, optimized by appropriate shading
  - Light shelves for diffused sunlight

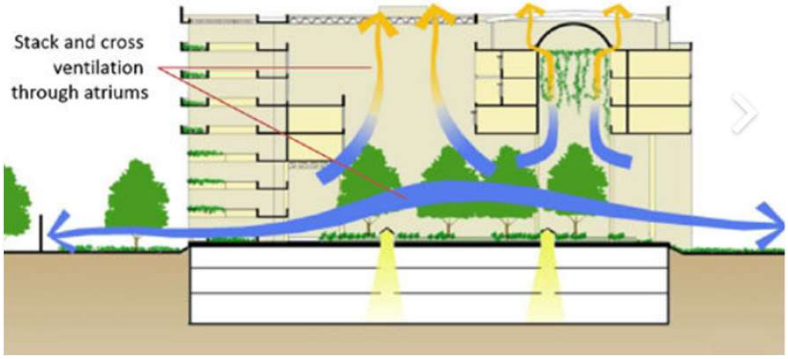
INDIA'S FIRST NET ZERO ENERGY BUILDING:INDIRA PARYAVARAN BHAWAN

- This is a project of the ministry of environment and forests for the construction of new office buildings at Aliganj, Jor Bagh Road, New Delhi.
- The project has been designed to make the net-zero energy building. First in government sector targeted for both ratings of green building (5 STAR GRIHA LEED India Platinum)
- The buildinghas won awards such as the Adarsh/GRIHA of MNRE for ideal illustration of Integration of Renewable Energy Technologies.
- This new office building has been constructed in a composite zone.
- This building sets revolutionary change into conventional building design.
- The building has been designed by CPWD by using an integrated design approach with the help of multi-disciplinary fields experts like Architect, Electric Consultant, HVAC Consultant, Plumbing Consultant, Green Building Consultant, Commissioning Authority, Landscape Consultant, Structure Consultant, and other project team members.



GROUND FLOOR PLAN





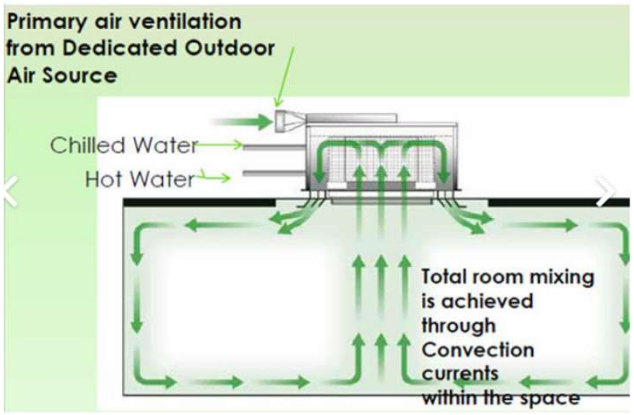
•Building Envelope and Fenestration:

- Optimized Building Envelope – Window assembly (U-Value 0.049 W/m^{2}K),VLT 0.59, SHGC 0.32
- uPVC windows with hermetically sealed double glazed using low heat transmittance index glass

ACTIVE STRATEGIES

Lighting Design

1.Energy efficient lighting system (LPD = 5 W/m^2) , nearly 50% more efficient than Energy Conservation Building Code 2007 requirements (LPD = 11 W/m^2) reduces energy demand further.
2.Remaining lighting load supplied by building integrated photovoltaic (BIPV).
3.Use of energy efficient lighting fixtures (T5 lamps).
4.Use of lux level sensor to optimize operation of artificial lighting.



ACTUAL GENERATION ON SITE (as on 25.01.2014)

•Power supply to grid started on 19.11.2013
•Power generation achieved: 300 kWh per day
•Total generation: 2.0 kWh

GEOTHERMAL HEAT EXCHANGE SYSTEM

1.There are 180 vertical bores to the depth of 80 meter all along the building premises. Minimum 3 meter distance is maintained between any two bores.
2.Each bore has HDPE pipe U-loop (32mm outer diameter) and grouted with Bentonite Slurry. Each U-Loop is connected to the condenser water pipe system in the central air conditioning plant room.
3.One U-Loop has 0.9 TR heat rejection capacity. Combined together, 160 TR of heat rejection is obtained without using a cooling tower.

Renewable Energy

•Solar PV System of 930 kW capacity
•Total Area: 6,000 m^2
•Total Area of panels: 4,650 m^2
•No of panels: 2,844
•Annual Energy Generation: 14.3 lakh unit

LITURATURE STUDY

LITERATURE STUDY

The word office comes from the latin word “officium” meaning service, courtesy etc.

•the word corporate comes from “corporatus” latin, meaning collective.

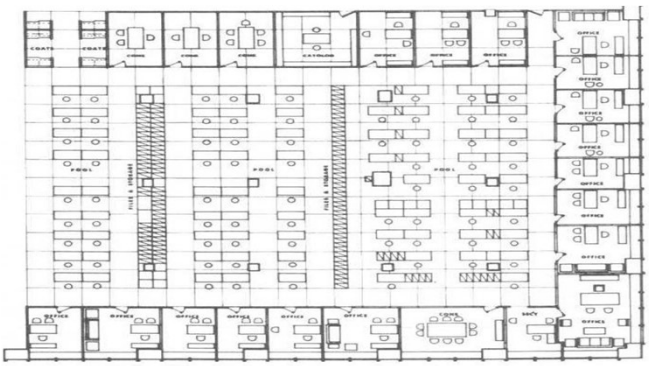
•there are many ways of arranging spaces in an office according to the functions managerial and cultural offices.

•it is guided by how people will work within the same room.

•open plan offices have multiple workers together in same place and improve short term productivity but security and privacy are often issues associated with it.

•in walled office spaces, people set their working desks in such a way that they can see the person entering their offices.

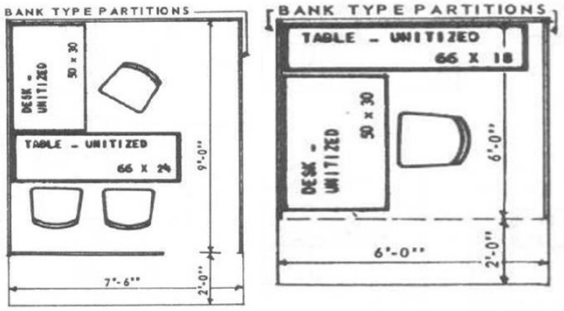
GENERAL OFFICE SPACE



the space allocated to these work stations is based on the furniture and equipment necessary to perform the work assigned as well as on circulation area.

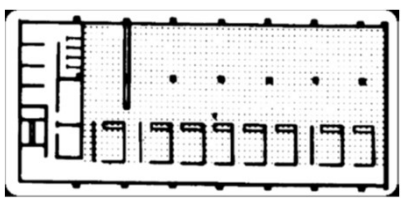
WORKSTATION SPACE -spaces provided to people to accommodate their individual furniture and equipment and allow them to perform their job functions. workstation space may be enclosed or open depending on the confidentiality, security, visual and acoustical privacy requirements of the job.

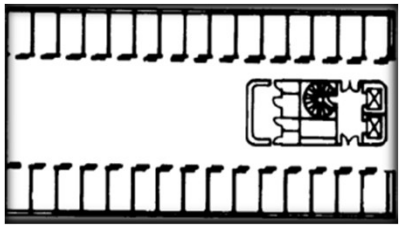
OPEN AREAWORKSTATIONS



CONFERENCE ROOMS

Conference rooms should be designed to accommodate average but not maximum attendance. Extra chairs can be used to achieve additional seating. There is need of 15- 20sqft per person space required for conference room.





OFFICE

anofficeis generally aroomor other area whereadministrativework is done, but may also denote a position within anorganizationwith specific duties attached to it.

SIZE OF A PRIVATE OFFICE:

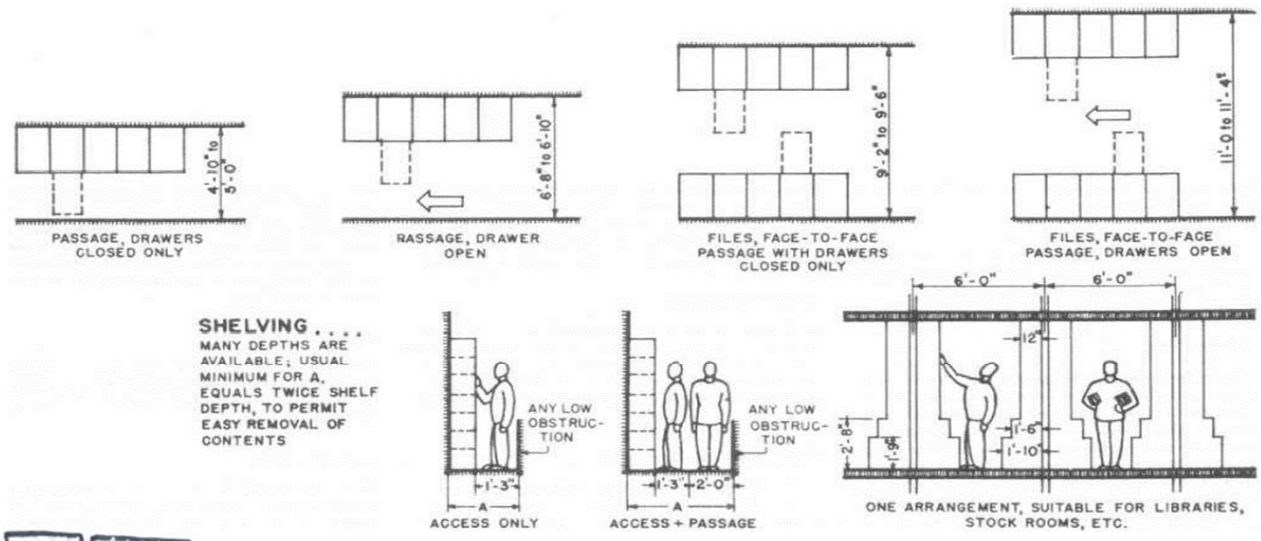
100-200 sq ft (for normal privateoffices
300 sq ft (where occupant meet with 10 or more people once in a day)

EMPLOYEE/VISITOR SUPPORT SPACES

- workstations, convenience store, kiosk, or vending machines
- lobby or general office space: central location for building directory, schedules, and general Information
- atria or common space: informal, multi-purpose recreation and social gathering space
- cafeteria or dining hall
- toilets or restrooms

RECEPTION AREAS AND VISITOR CONTROL

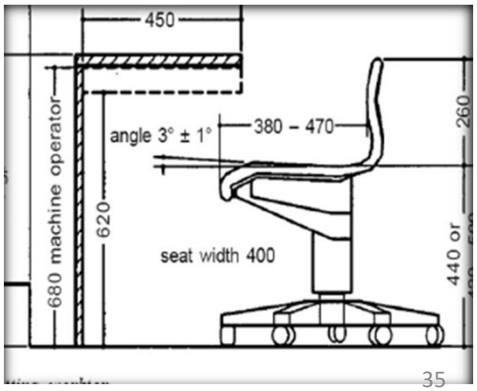
visitors receive their first impression of an organization from the decor and layout of the reception area. it should be attractive, nest, businesslike, and above all, adequate to accommodate normal visitor traffic.



other office spaces like workstations

Executive core

private offices



PLANNING

•floor-to-floor heights are usually about 12 ft, ranging from 11 to 14 ft. ceiling heights are generally about 8 to 8.5ft.
•the space above the ceiling is required for ducts and recessed lighting.
•in order to avoid excessive depths in this utility space, girders are sometimes designed with openings in the web to permit the passage of ducts.

CIRCULATION - 1.aisles leading to main exits from areas which carry substantial traffic (main aisles) should be 5 feet wide.
2.aisles which carry a moderate amount of traffic (intermediate aisles) should be 4 feet wide.
3.aisles between rows of desks (secondary aisles) should be approximately 3 feet wide.

SERVICES IN BUILDING

FIRESAFETY

where openings are permitted, they shall not exceed three-fourths the area of the wall in the case of an external wall and they shall be protected with fire resisting assemblies or enclosures having a fire resistance equal to that of the wall or floor in which these are situated. office building shall have staircase width 1.5m

FIRELIFTS

where applicable, fire lifts shall be provided with a minimum capacity for 8 passengers and fully automated with emergency switch on ground level. In general,
buildings 15 m in height or above shall be provided with fire lifts.

LIGHTING

-broader openings may also be equally or more efficient, provided their sills are raised by 300 mm to 600 mm above the working plane.
-unilateral lighting from side openings will, in general, be unsatisfactory if the effective width of the room is more than 2 to 2.5 times the distance from the floor to the top of the opening.

WATER SUPPLY, DRAINAGE AND SANITATION
WATER REQUIRED IN OFFICE BUILDING 45L PER HEAD PER DAY

Sl No	Fixtures	Public Toilets		Staff Toilets	
		Male	Females	Male	Females
(1)	(2)	(3)	(4)	(5)	(6)
i)	**Executive Rooms and Conference Halls in Office Buildings**				
	Toilet suite comprising one WC, one washbasin (with optional shower stall if building is used round the clock at user's option) Pantry optional as per user requirement	Unit could be common for Male/Female or separate depending on the number of user of each facility		For individual officer rooms	
ii)	**Main Office Toilets for Staff and Visitors**				
	a) Water-closets	1 per 25	1 per 15	1 per 25	1 per 15
	b) Ablution tap with each water-closet	← 1 in each water-closet →			
	c) Urinals	Nil up to 6 1 for 7-20 2 for 21-45 3 for 46-70 4 for 71-100 Add @ 3% for 101-200 Add @ 2.5 % Over 200	—	Nil up to 6	—
	d) Washbasins	1 per 25	1 per 25	1 per 25	1 per 25
	e) Drinking water fountain	1 per 100	1 per 100	1 per 100	1 per 100
	f) Cleaner's sink	← 1 per floor →			

ACOUSTICS AND SOUND INSULATION

•for green belt to act as a sound barrier it should be of 30m thick belt of planting (strong leafy trees)
in all situations a well designed barrier of at least 3m height should be given to ensure no excessive noise.
•room required quite environment should be on quite side, should not on street level, not near parking yards and double windows can be provided.
•noise inside rooms, reverberation should not exceed 0.75 sec for small office and 1.25 s for large office.

FAR PERMITTED: industrial / i.t. park shall have minimum 5 acres of area. In an i.t. park, i.t. component shall have far. 2. in case of industrial park, for industrial far permitted for an industrial component shall be 1.
ROAD WIDTH: the minimum road width with in the industrial unit shall not be less than 40feet .incase, the existing road is less than 40' in width than it shall be widen to 40' by taking equal strip of land from both side of rd.
RESIDENTIAL COMPONENT: residential component in the industrial plot / premises shall not exceed 5% of the area of the site and shall form part of the maximum permissible covered area.
HEIGHT: no height restrictions of the building.

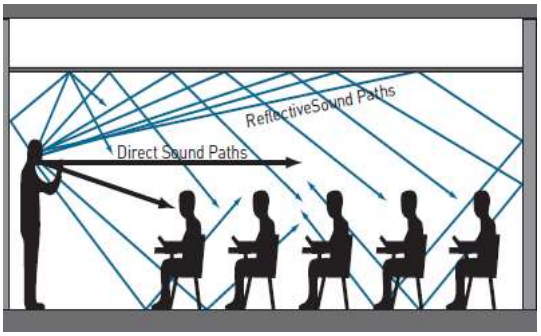
Size of Plot	Site Coverage
For the first 2420 sq yds	50% of the site
For the next 2420 sq yds	33% of the site
In excess of 4840 sq yds	25% of the site
FAR	1
Parking	@ 1 ECS per 100 sq. mtr. of covered area*

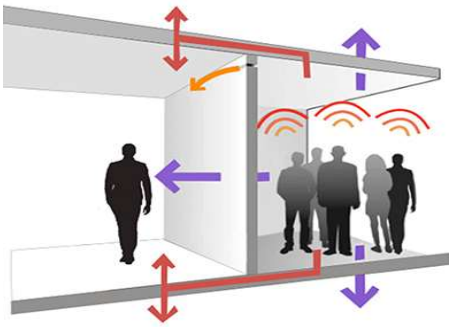
PARKING STANDARDS

parking standards have been prescribed for government 1 equivalent car spaces (ecs) per 100 sq m of floor area.

GREEN BUILDING CRITERIA FOR OFFICE BUILDING

- site selection
- preserve and protect landscape during construction.
- soil conservation
- enhance outdoor lighting system efficiency
- reduce air pollution during construction
- reduce building water use
- use low-energy materials in interiors
- waste water treatment
- reduction in waste during construction
- storage and disposal of wastes
- use of low-voc paints/adhesives/sealants
- minimize ozone depleting substances
- acceptable outdoor and indoor noise levels
- tobacco and smoke control
- provide at least the minimum level of accessibility for persons with disabilities
- operation and maintenance





CONCEPT

INTRODUCTION TO TATA GROUP

TATA IS EVERYWHERE

- TATA MOTORS — TANISHQ
- VISTARA — TATA TEA
- TAJ HOTEL — TATA STEEL
- WESTSIDE — CHROMA

MOST FAMOUS

↑

TATA

↓

MOST SUCCESSFUL

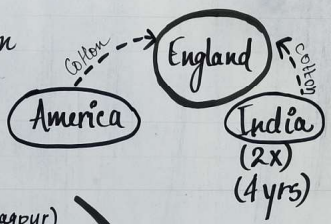
NUSSERWAN JI TATA

- Started cotton trade
- 1822
- Mumbai

JAMSETJI TATA

- Hydroelectric power plant
- World class education
- Steel plant
- 5 star hotel (with electricity) [THE TAJ MAHAL]
- Cotton Production (nagpur)

1861 American Civil war

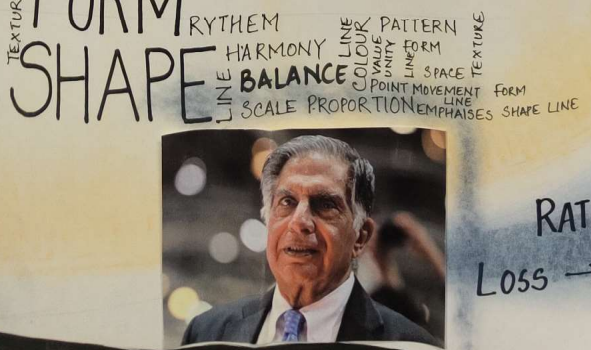


TATA GROUP works on basic needs

(Inspired)

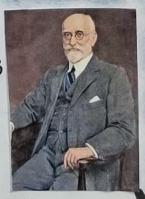
CONCEPT "Always Stick to the Basics"

Evolving the building form from the basic architectural elements and principles.



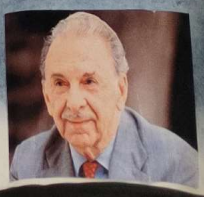
DORAB JI TATA

- Main focus on steel
- Ist World war → British empire needs tata steel.
- Rail tracks
- Weapons
- Tanks



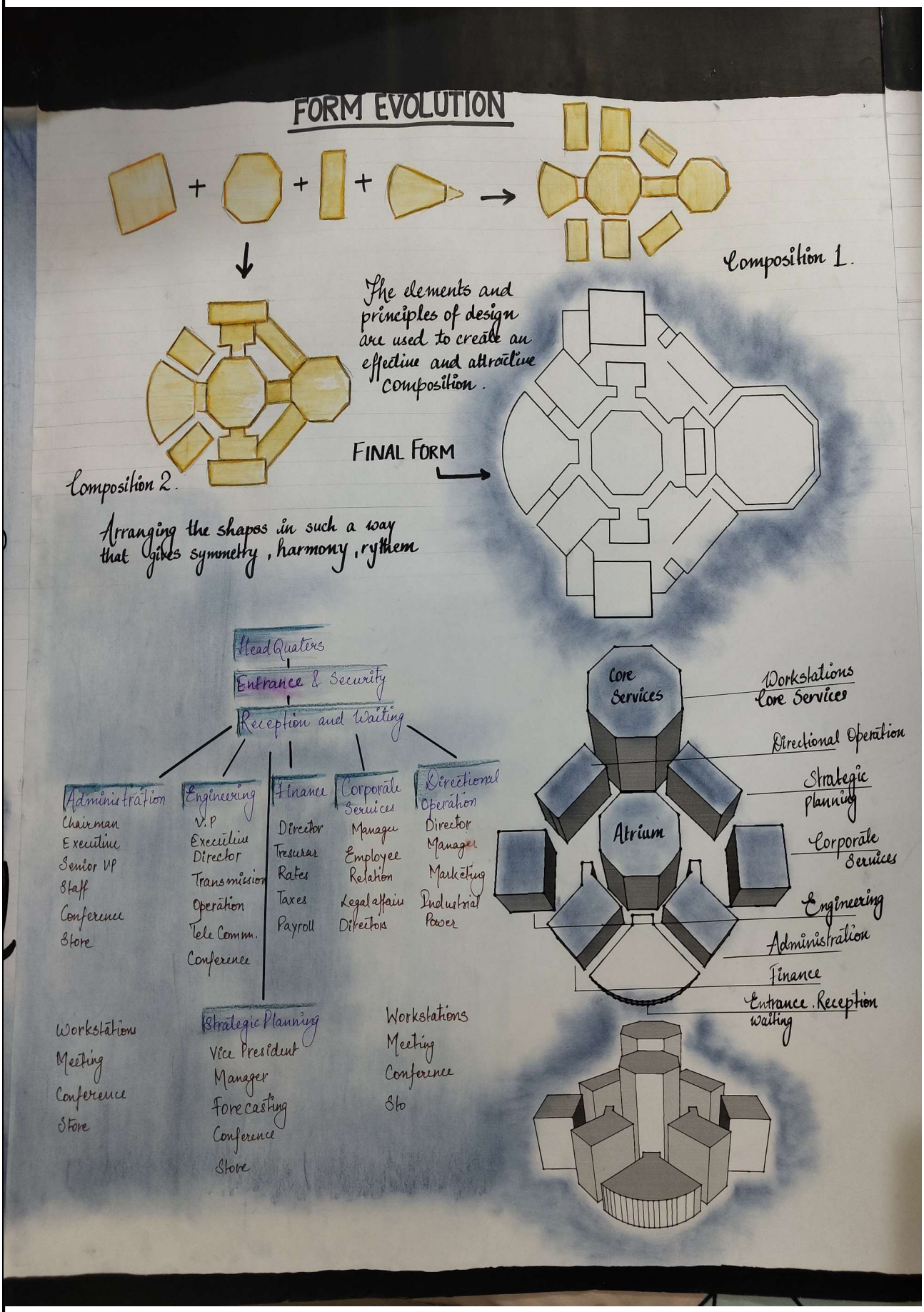
J.R.D TATA

- TATA Airlines
- Leading AIR INDIA
- Locomotive Engine
- TCS
- Cancer Research and Treatment centre



RATAN TATA

Loss → PROFIT

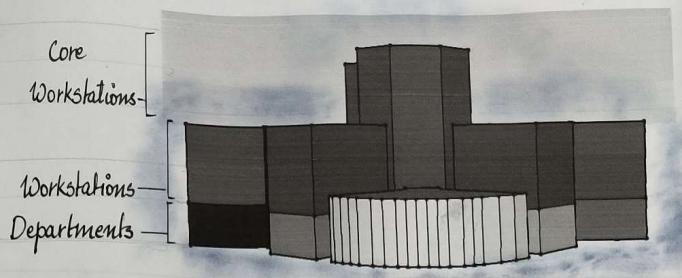

FORM EVOLUTION
Composition 1.
The elements and principles of design are used to create an effective and attractive composition.
FINAL FORM
Composition 2.
Arranging the shapes in such a way that gives symmetry, harmony, rythem
HeadQuaters
Entrance & Security
Reception and Waiting
Administration
Chairman
Executive
Senior VP
Staff
Conference
Store
Engineering
V.P
Executive Director
Transmission
Operation
Tele Comm.
Conference
Finance
Director
Treasurer
Rates
Taxes
Payroll
Corporate Services
Manager
Employee Relation
Legal affair
Directors
Directional Operation
Director
Manager
Marketing
Industrial Power
Workstation
Meeting
Conference
Store
Strategic Planning
Vice President
Manager
Forecasting
Conference
Store
Workstations
Meeting
Conference
Sto
Core Services
Atrium
Workstations Core Services
Directional Operation
Strategic planning
Corporate Services
Engineering
Administration
Finance
Entrance. Reception waiting

TATA CO

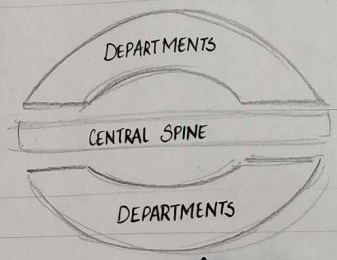
VERTICLE AND HORIZONTAL STACKING

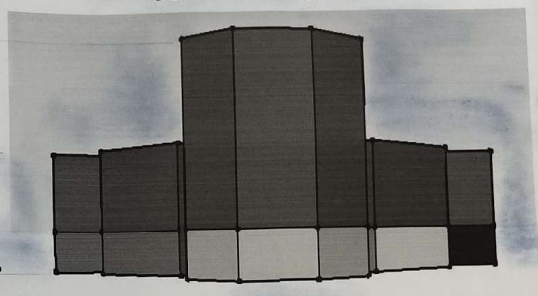
The arrangement of departments and workstations are in such a way that whole block is decided in two parts (symmetrical) and the central spine is reserved for services like core staircase and lifts, atrium and entrance.

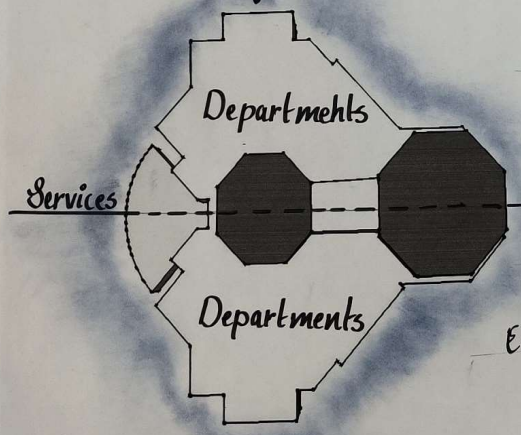
And the departmental blocks are placed around it.

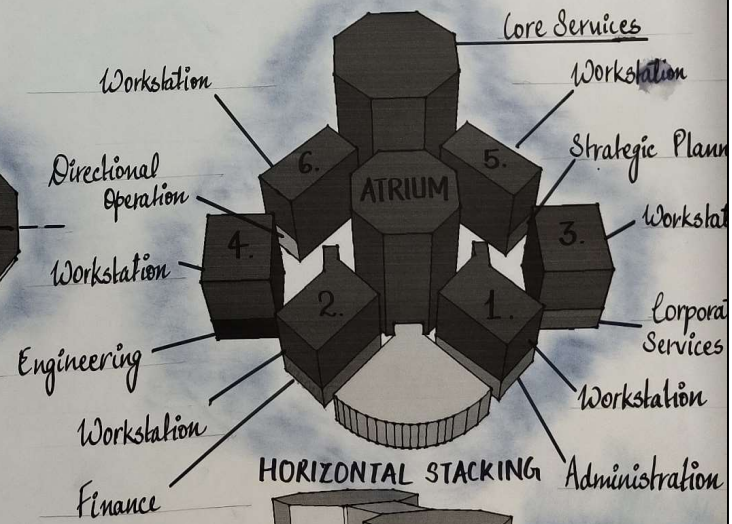


VERTICLE STACKING

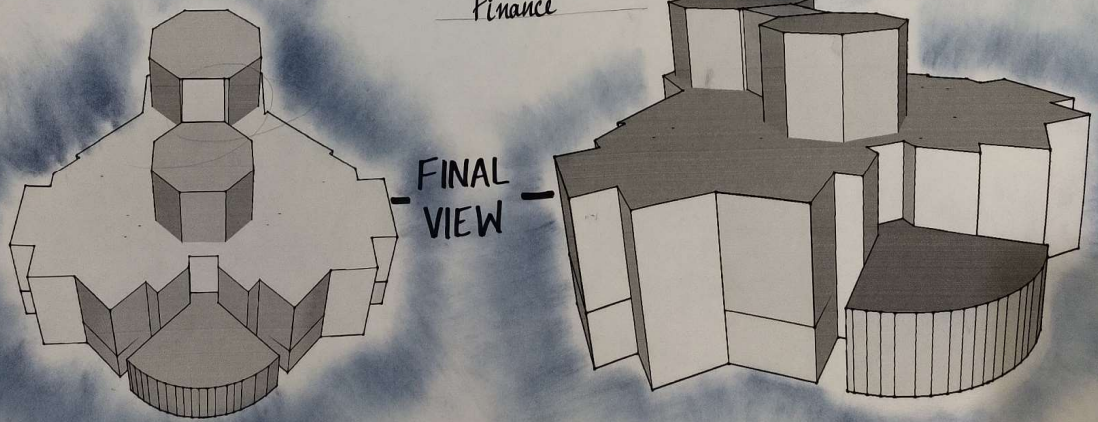






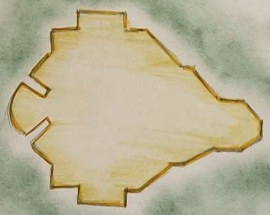


HORIZONTAL STACKING

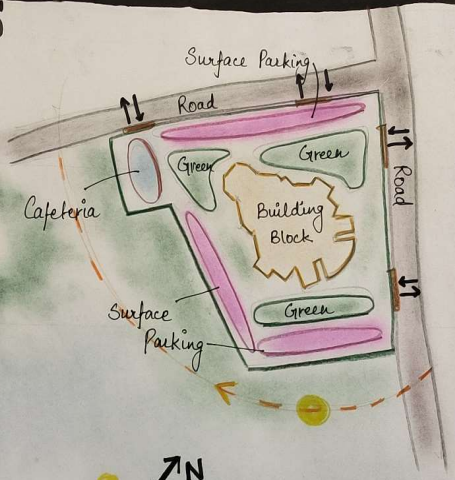


SULTANCY SERVICES

DESIGN STRATEGIES



BUILDING FORM



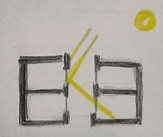
FROM CASE STUDIES

Core is placed in south to reduce the solar heat gain.

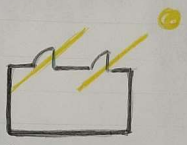
Glass facade is provided in North which brings glare free light in workspace

The shape of a building provides a long north side facade which results in to expense to treat the south - west facade as all the services.

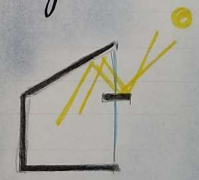
Floor shape direction to reduce the wind load.



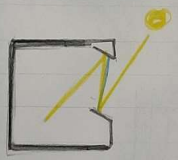
Light Well



Roof monitors

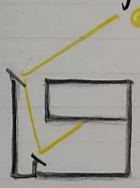


Light shelf

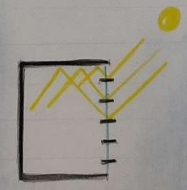


External reflectors

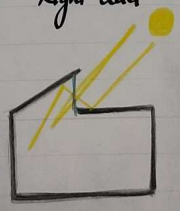
Atrium



Light duct



Reflective Blinds



Clerestory

Roofs and external walls should be constructed of solid masonary or concrete to have a 9 - 12 hour long time lag in heat transmission

The external surfaces should be painted in medium tone colors.

Large openings on walls are suitable which helps in cross ventilation.

Daylight has a major effect on the appearance of space and can have considerable applications on energy efficiency is used properly.

HEADQUATER - CONCEPT

TECHNOLOGY RESEARCH

Sustainability in building | Techniques and it's application | Sustainability Measures | Structure Systems | Material

GRIHA - Green Rating for integrated Habitat Assessment.

LEED - Leadership in Energy and environment design.

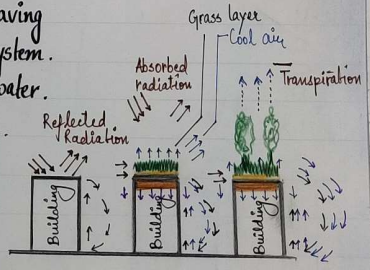
IGBC - Indian Green building council

Layering of a green roof

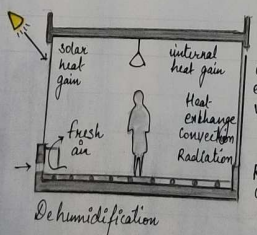
SUSTAINABILITY

GREEN ROOFING

1. Economic benefits through the reduction of energy cost saving money for energy that is consumed in cooling systems in summer and winter heating system.
2. Economic benefits that are manifested through reduced cost for the evacuation of rainwater.
3. Reduced amount of rainwater returning to the process of water circulation in nature.
4. Absorbing negative radiation which improves of the micro climate.
5. Absorbing the harmful effects of pollutants.



RADIANT COOLING AND HEATING

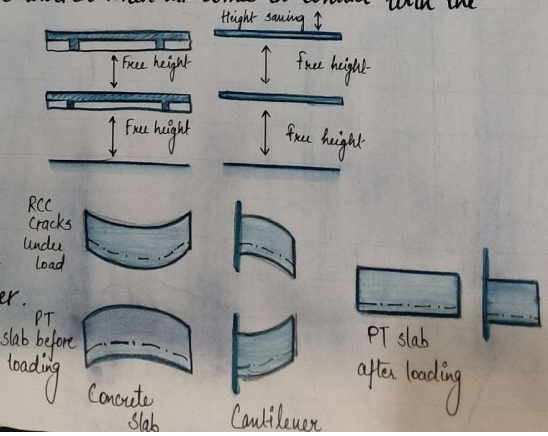


It is a temperature controlled surface that cools indoor temperature by removing sensible heat and where more than half of heat transfer occures through thermal radiation. The process of radiant exchange has a negligible effect on air temperature but through the process of convection the air temperature will be lowered when air comes in contact with the cooled surface.

STRUCTURE SYSTEM

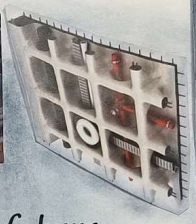
POST TENSIONED RCC STRUCTURE

Thinner concrete section and longer spans between supports.
Affordable prices.
Hold much more weight than average building.
Sleek, require lesser space and give way to dynamic countours.
Post tension slab is thin the material used with it are also lesser.



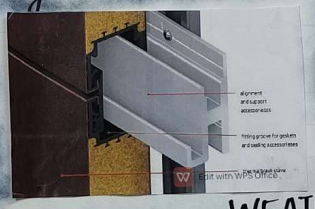
WAFFLED SLAB

Requires 30% less concrete and 20% less reinforcement.
Larger span slabs or floors and used when there is limited requirement
Vibration control capacity because of two directional reinforcement.
System is also known as holedeck.



STEEL FRAME STRUCTURE

Lighter and stronger, far stronger and more durable.
Steel studs, This means they can be customised.
Steel frame construction are heighly resistant to fire, reducing the fire risk to building.
Are immune to the degrading effects.
Good moisture resistant properties depending on it's carbon content.

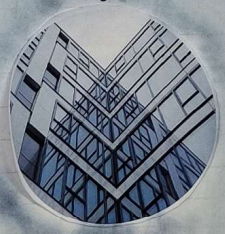


FLY ASH AAC BLOCKS

Offer fire resistance from 2 hours to 6 hours.
Helps preventing termites, damages and losses.
AAC blocks results into enhanced sound absorbtion in auditorium, hotels, hospitals and studio.
Economical and environmentally superior.
Produced from common material lime, sand cement and water.

WEATHERING STEEL

They are ideal where access for future maintenance is difficult or dangerous.
Savings from elimination of the paint system offsets the additional material cost.
Overall construction duration are reduced.
The performance of weathering steel in extreme environments will not be satisfactory.



DYE SENSITIZED SOLAR CELL

Diverse range of shaded and diffuses light location without suffering from angular dependence of sunlight.
Suitable for indoor applications and outdoor applications.
DSSC does not degrade with increased temperature.
Low energy consumption, high efficiency.
Inexpansive and ecofriendly nano-materials
Thin film, flexible, robust plastic susbstrate
Heighly flexible, durable and light weight.

DOUBLE GLAZED UNIT

Ideal energy efficient choice with the added benefit of minimising noise.
Reverse effect in summer, preventing unwanted heat.
Effective at reducing medium to high frequency noise such as human noise.

AREA ANALYSIS

SPACE	NO. OF OCCUPANTS	TYPE OF AREA	NET AREA
ADMINISTRATION (SQ.M)			
Chairman/CEO	1	A-A	55.74
Executive VP.	1	A-A	37.16
Senior VP.	1	A-A	37.16
Vice-President	4	A	111.48 (4@20)
Executive staff	12	A	222.96 (12@20)
Reception	Variable	A-A	37.16
Board room	10	A-A	47
Conference	5-10	A	56 (3@20)
Storage	–	C	14
ENGINEERING			
Vice President	1	A-A	28
Executive director	2	B	38 (2@20)
Director	10	B	140 (10@14)
STP	16	B	223 (16@14)
Fuels	9	B	126 (9@14)
Generation & Const.	10	B	140 (10@14)
Energy Control	20	B	279 (20@14)
Environment Pro.	8	B	113 (8@14)
System engg.	4	B	55 (4@14)
Transmission D.	20	B	300
System engineer	15	B	210 (15@14)
Transmission	12	B	168
Operation	4	B	55 (4@14)
Tele communication	7	B	154 (7@14)
Secretary	15	B	140 (15@10)
Conference	5-10	B	560 (10@20)
Reception	Variable	A-A	210
Print & Store	–	D	30
FINANCE			
Vice President	1	A-A	30
Executive D.	1	A	30
Director	5	B	95 (5@19)
Treasurer	1	B	25 (1@14)
Planning	4	B	55 (12@14)
Rates	12	B	168 (12@14)
Reg. Affairs	24	B	335 (24@14)
Controller	12	B	335 (12@14)
Programming	6	B	85 (6@14)
Audit	6	B	85 (6@14)
Payable	6	B	85 (6@14)
Payroll	24	B	210 (10@20)
Tax	10	B	90 (10@10)
Secretary	5-10	A	335 (24@14)
Conference	–	D	40
Store	Vabiable	A	30
Reception			
CORPORATE SERVICS			
Vice President	1	A	30
Directors	3	B	55 (3@20)
Manager	2	B	40 (2@14)
Employee relation	15	B	210 (15@14)
Purch & store	13	B	180 (13@14)
Management	8	B	110 (8@14)
Legal affairs	8	B	150 (8@20)
Training room	20	A	75 (2@35)
Safety room	4	B	55 (4@14)
Personnel	4	B	55 (4@14)
Transportation	7	B	100 (7@14)
Reception	–	A	30
Storage	–	D	185
DIRECTIONAL OPERATIONS			
Vice President	1	A	30
Executive Dr.	1	A	30
Direlor	3	A	55 (3@20)
Manager	6	A	110 (6@20)
Marketing	8	B	110 (8@14)
Public Relation	20	B	280 (20@14)
Industrial Power	15	B	210 (15@14)
Secretary	10	B	95 (10@9)
Reception	Variable	A	30
Conferance	5-10	A	210 (10@20)
Projection room	30	A	30
Store	–	D	55
STRATEGIC PLANNING			
Vice President	1	A	30
Manager	2	B	35 (2@20)
forecasting	5	B	69 (5@14)
Secretary	2	B	20 (2@10)
Conference	5-10	A	42 (2@20)
Store	–	D	30

Site Area = 100645.32 Sqm.

Net area = ~~13500~~ Sqm. 30,193.5 sqm

F.A.R = 2.0 (Permisible)

Maxi. Height = NO. Limit = 45m. = 10 FLOORS.

Ground Coverage = 30% (Permisible)

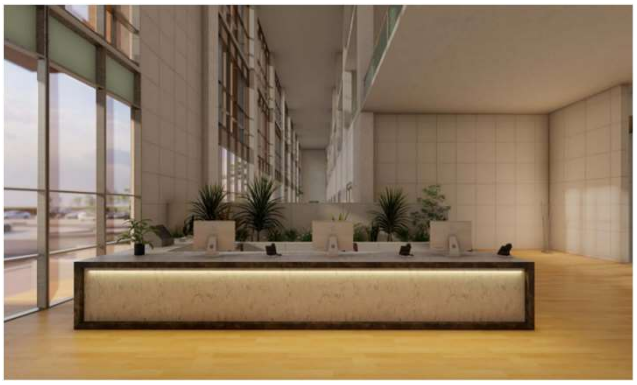
Built up area = ~~27000~~ Sq.m (permissibile) = 60386 sq

SUBMITTED BY - SHRISHTIKA PAL

PLANS

VIEWS

RECEPTION



CORRIDOR

BREAKOUT SPACES

COLLABORATIVE SPACES

BREAKOUT SPACES

BRAINSTORMING AREA

MEETING ROOM

HOT DESKING

EMPLOYEE'S LOUNGE

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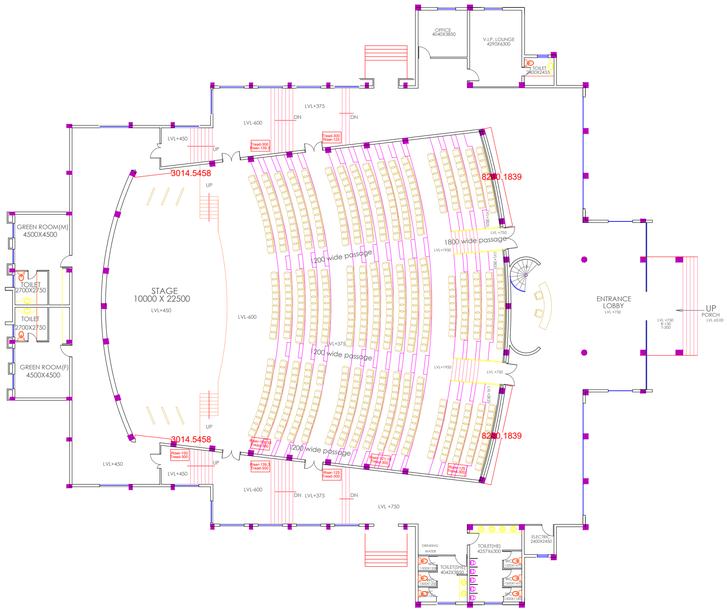
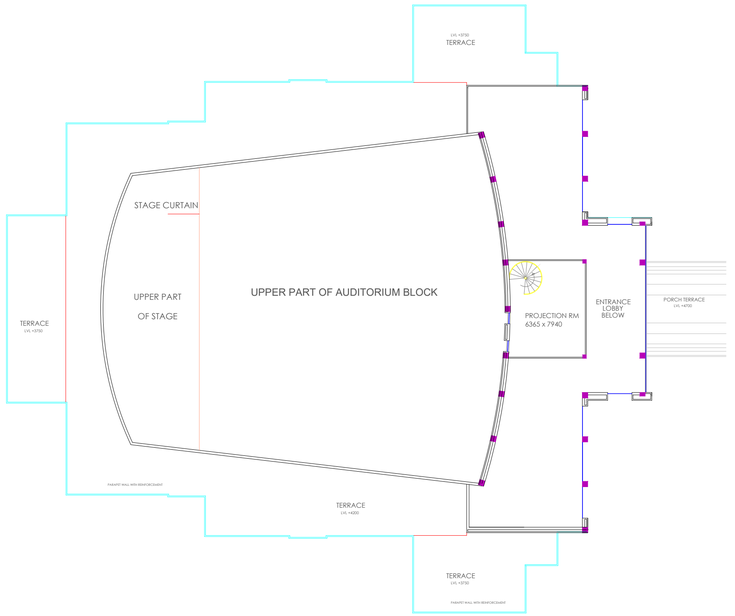
TATA
CONSULTANCY
SERVICES
HEADQUATER

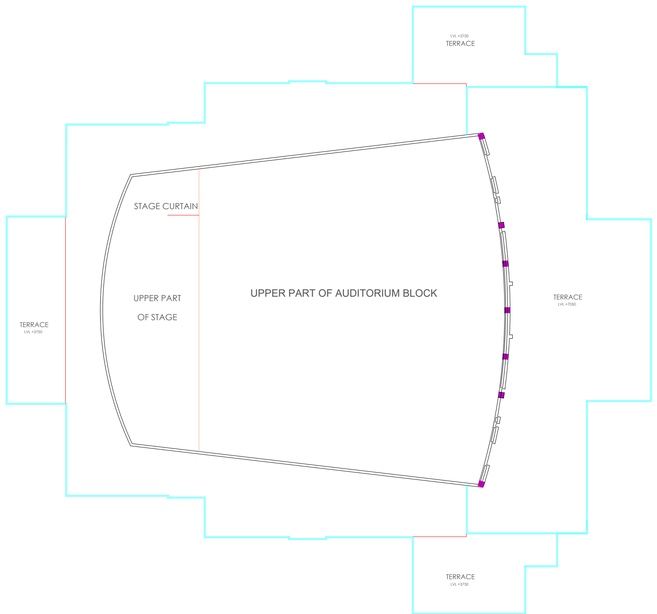
NOIDA
SECTOR -157

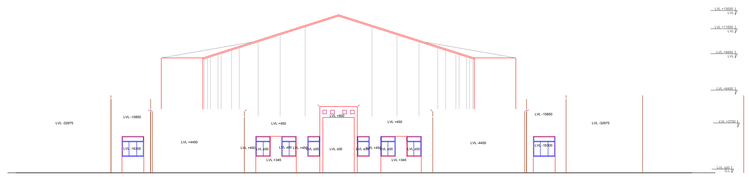
TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157



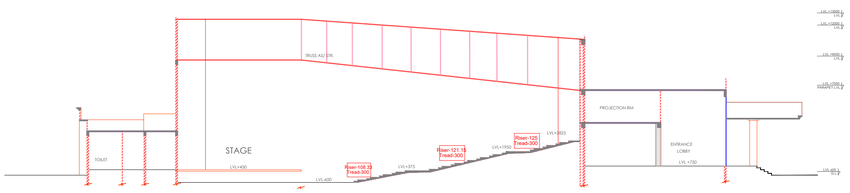


FRONT ELEVATION

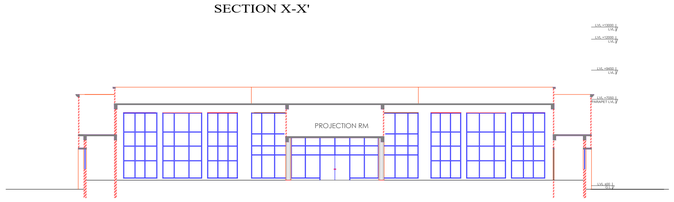




REAR ELEVATION



SECTION X-X'



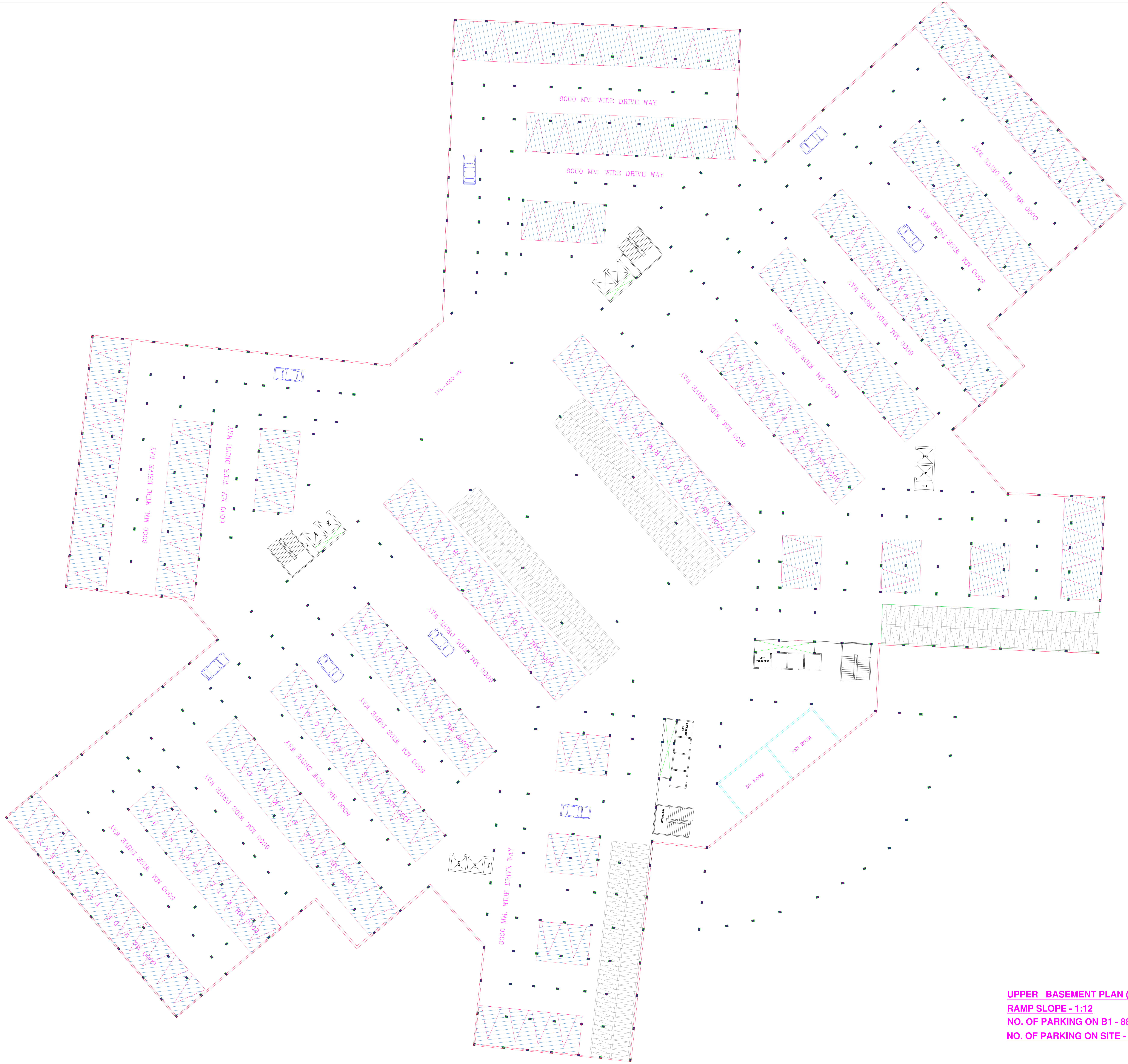
SECTION Y-Y'

RECREATIONAL AREA
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA CONSULTANCY SERVICES HEADQUATER

NOIDA SECTOR -157



UPPER BASEMENT PLAN (-4050)

RAMP SLOPE - 1:12

NO. OF PARKING ON B1 - 88

NO. OF PARKING ON SITE - 123

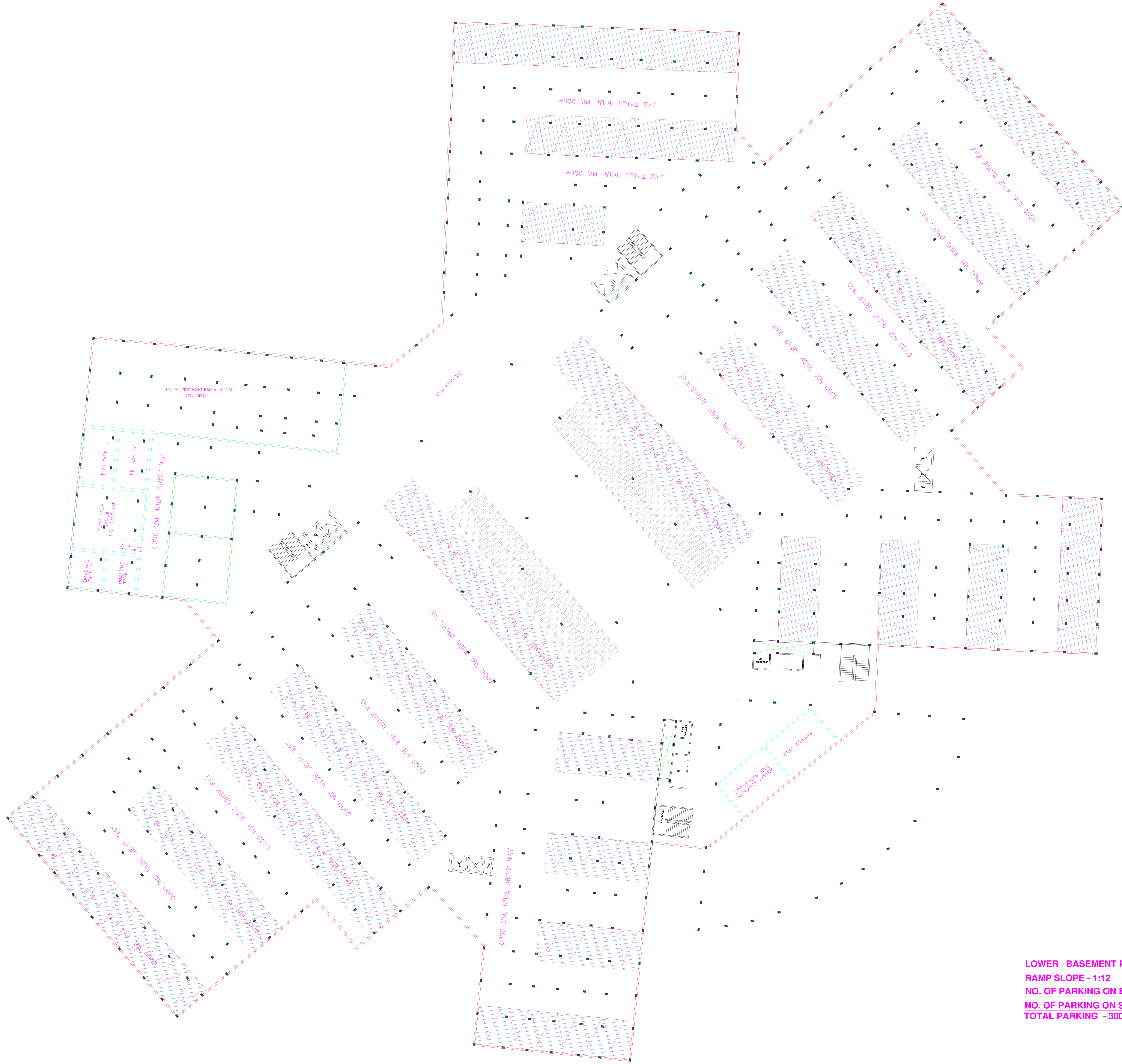
TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

FLOOR-BASEMENT
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA
CONSULTANCY
SERVICES
HEADQUATER

NOIDA
SECTOR -157



LOWER BASEMENT PLAN (-8100)
RAMP SLOPE - 1:12
NO. OF PARKING ON B2 - 69
NO. OF PARKING ON SITE - 123
TOTAL PARKING - 300

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

FLOOR-BASEMENT
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
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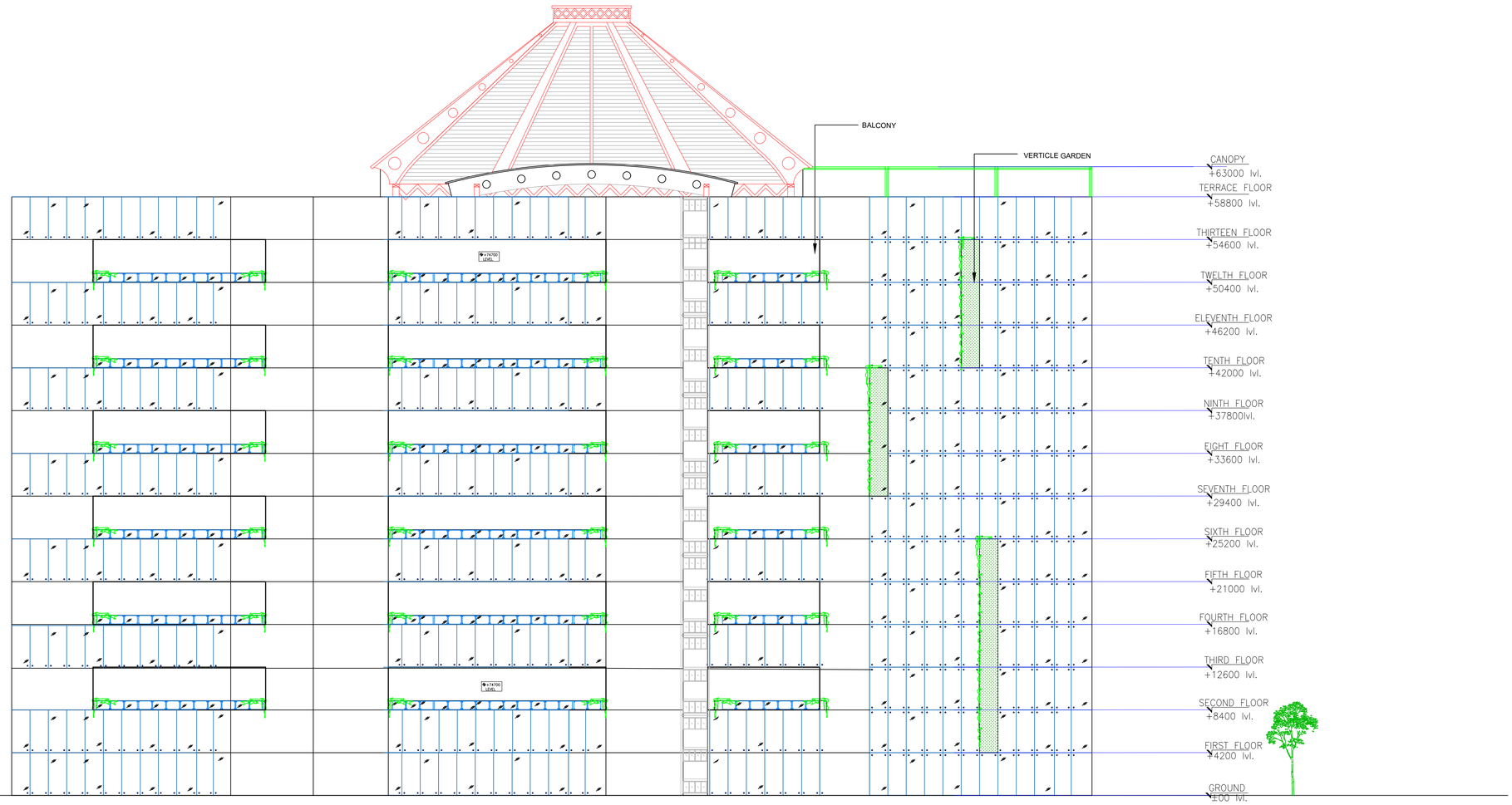
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA CONSULTANCY SERVICES , HEADQUATER



SIDE ELEVATION

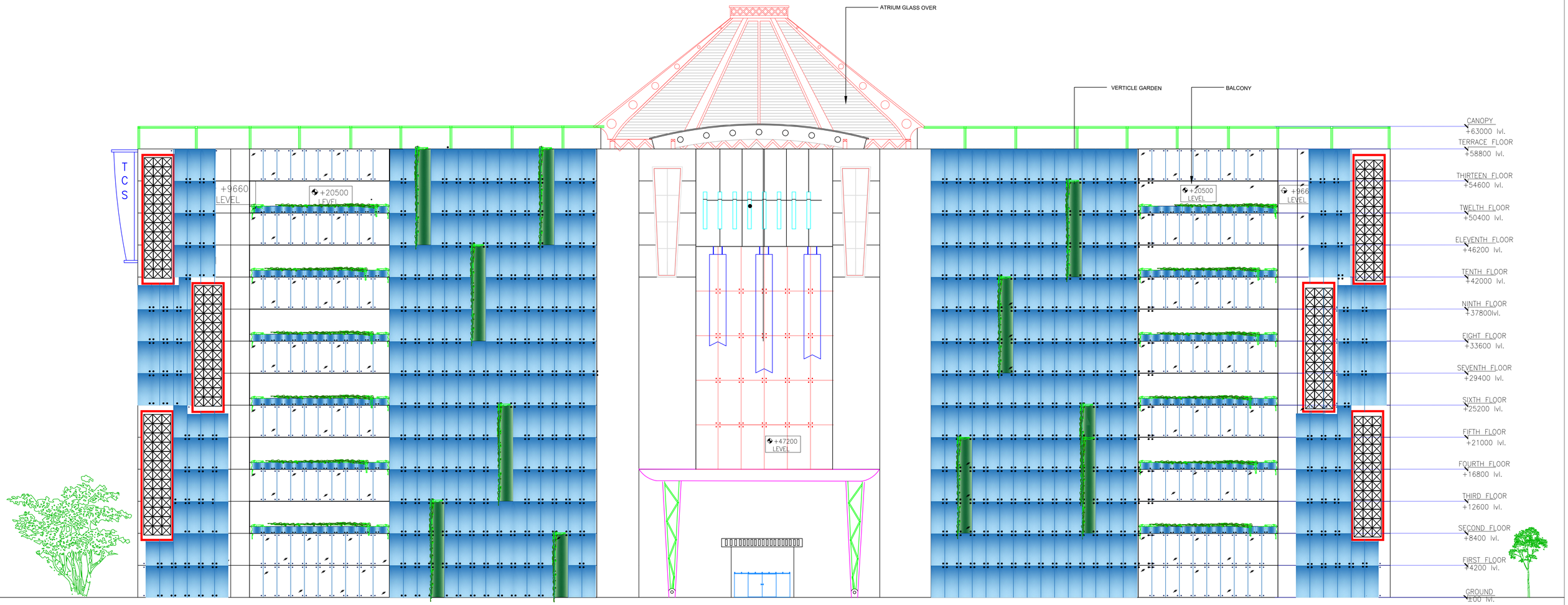
TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

ELEVATION
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10

SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA CONSULTANCY SERVICES , HEADQUATER



FRONT ELEVATION

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

ELEVATION
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10

SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA
CONSULTANCY
SERVICES
HEADQUATER

NOIDA
SECTOR -157

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

FLOOR-FIRST FLOOR PLAN
SCALE-1:250

FIRST FLOOR

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

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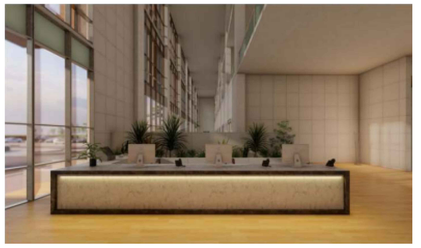
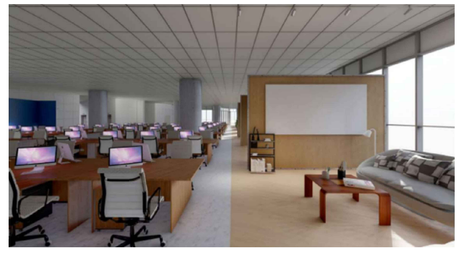
SERVICES
HEADQUATER

NOIDA
SECTOR -157



TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

FLOOR-GROUND FLOOR PLAN
SCALE-1:250



NAME-SHRISHTIKA PAL
ROLL NO-1180101042
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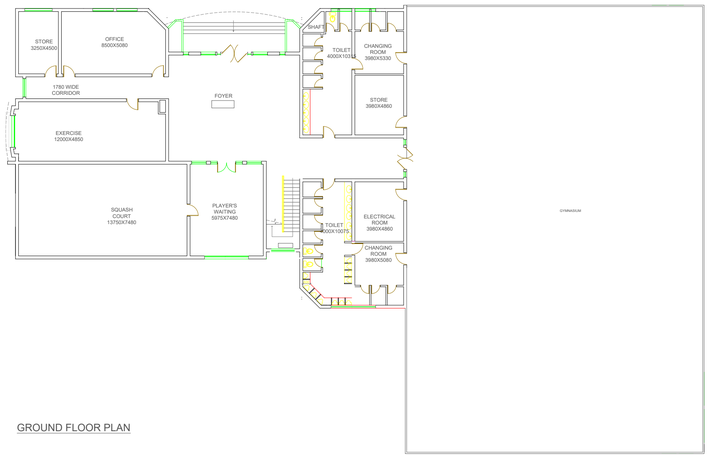
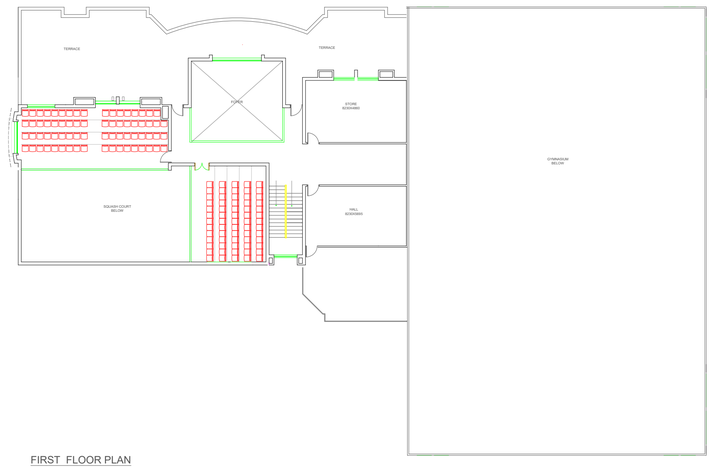
BBDU , LUCKNOW
SESSION - 2022-23

TATA
CONSULTANCY
SERVICES
HEADQUATER

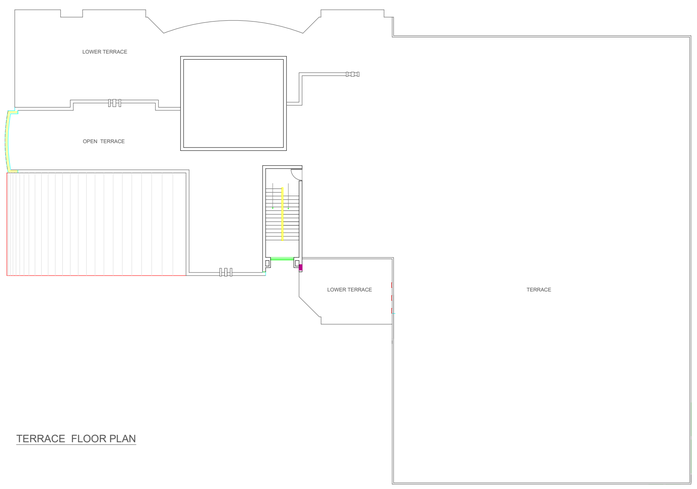
NOIDA
SECTOR -157



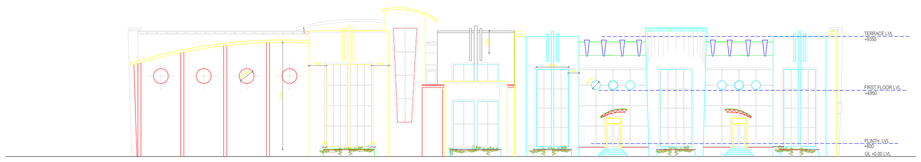
GROUND FLOOR PLAN



FIRST FLOOR PLAN



TERRACE FLOOR PLAN



REAR ELEVATION

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

RECREATIONAL AREA
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
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TATA CONSULTANCY SERVICES , HEADQUATER

S.NO.	SYMBOL	AREA	IRRIGATION TYPE
1.		LAWN	GH (GARDEN HYDRANT)
2.		PLANTING	DI (DRIP IRRIGATION)

S. NO.	(A) NAME OF TREES		PHYSICAL DIMENSIONS		FOLIAGE			FLOWER		FRUIT	TABLE -A	
	SCIENTIFIC NAME	POPULAR NAME	HEIGHT (FEETS)	DIAMETER (FEETS)	FORMATION	COLOUR	HABIT	SEASION	COLOUR	SEASION	PRAPAGATION	CLIMATIC CONDITION REQUIRED
A1	CASSIA FISTULA	AMALTAS	20 - 35	15 - 20	ROUNDED		DECIDUOUS	MAY,JUNE & SEPT.	YELLOW		SEED	NORMAL
A2		NEEM									SEED	NORMAL
A3	DELONIX REGIA	GULMOHR (DELONIX REGIA)	20 - 30	20 - 30	ROUNDED				ORANGE OR FIRE RED		SEED	NORMAL
A4	SARACA INDICA	ASHOK	12 - 15	25 - 35	CONICAL						SEED	NORMAL
A5		PINE	20 - 35	15 - 20	ROUNDED		DECIDUOUS	MAY,JUNE & SEPT.	YELLOW		SEED	NORMAL

S. NO.	(B) NAME OF SHRUBS		PHYSICAL DIMENSIONS		FOLIAGE			FLOWER		FRUIT	TABLE -B	
	SCIENTIFIC NAME	POPULAR NAME	HEIGHT (FEETS)	DIAMETER (FEETS)	FORMATION	COLOUR	HABIT	SEASION	COLOUR	SEASION	PRAPAGATION	CLIMATIC CONDITION REQUIRED
B1	HIBICUS ROSA SINENSIS VARIGATED	HIBISCUS	4 - 6	3 - 4							CUTTING	NORMAL
B2	CESTRUM NOCTURNUM	RAAT - KI - RANI							WHITE AROMATIC		CUTTING	NORMAL

S. NO.	(C) NAME OF HEDGES		PHYSICAL DIMENSIONS		FOLIAGE			FLOWER		FRUIT	TABLE - C	
	SCIENTIFIC NAME	POPULAR NAME	HEIGHT (FEETS)	DIAMETER (FEETS)	FORMATION	COLOUR	HABIT	SEASION	COLOUR	SEASION	PRAPAGATION	CLIMATIC CONDITION REQUIRED
C1	GOLDEN DURANTA		3 - 4								CUTTING	NORMAL
C2	GREEN DURANTA		3 - 4								CUTTING	NORMAL
C3	VARIGATED DURANTA		3 - 4			SPLASH OF COLOUR					CUTTING	NORMAL

S. NO.	(D) NAME OF EDGING / CLIMBERS		PHYSICAL DIMENSIONS		FOLIAGE			FLOWER		FRUIT	TABLE - D	
	SCIENTIFIC NAME	POPULAR NAME	HEIGHT (FEETS)	DIAMETER (FEETS)	FORMATION	COLOUR	HABIT	SEASION	COLOUR	SEASION	PRAPAGATION	CLIMATIC CONDITION REQUIRED
D1	PHILODENDRON	MONEY PLANT									CUTTING	SHADE
D2	JASMINE OFFICINALE	CHAMELI				LIGHT GREEN			WHITE AEROMATIC		CUTTING	NORMAL

S. NO.	(E) NAME OF GROUND COVERS		PHYSICAL DIMENSIONS		FOLIAGE			FLOWER		FRUIT	TABLE - E	
	SCIENTIFIC NAME	POPULAR NAME	HEIGHT (FEETS)	DIAMETER (FEETS)	FORMATION	COLOUR	HABIT	SEASION	COLOUR	SEASION	PRAPAGATION	CLIMATIC CONDITION REQUIRED
E1	IPOMIA GOLDEN										CUTTING	NORMAL
E2	IPOMIA VARIGATED										CUTTING	NORMAL

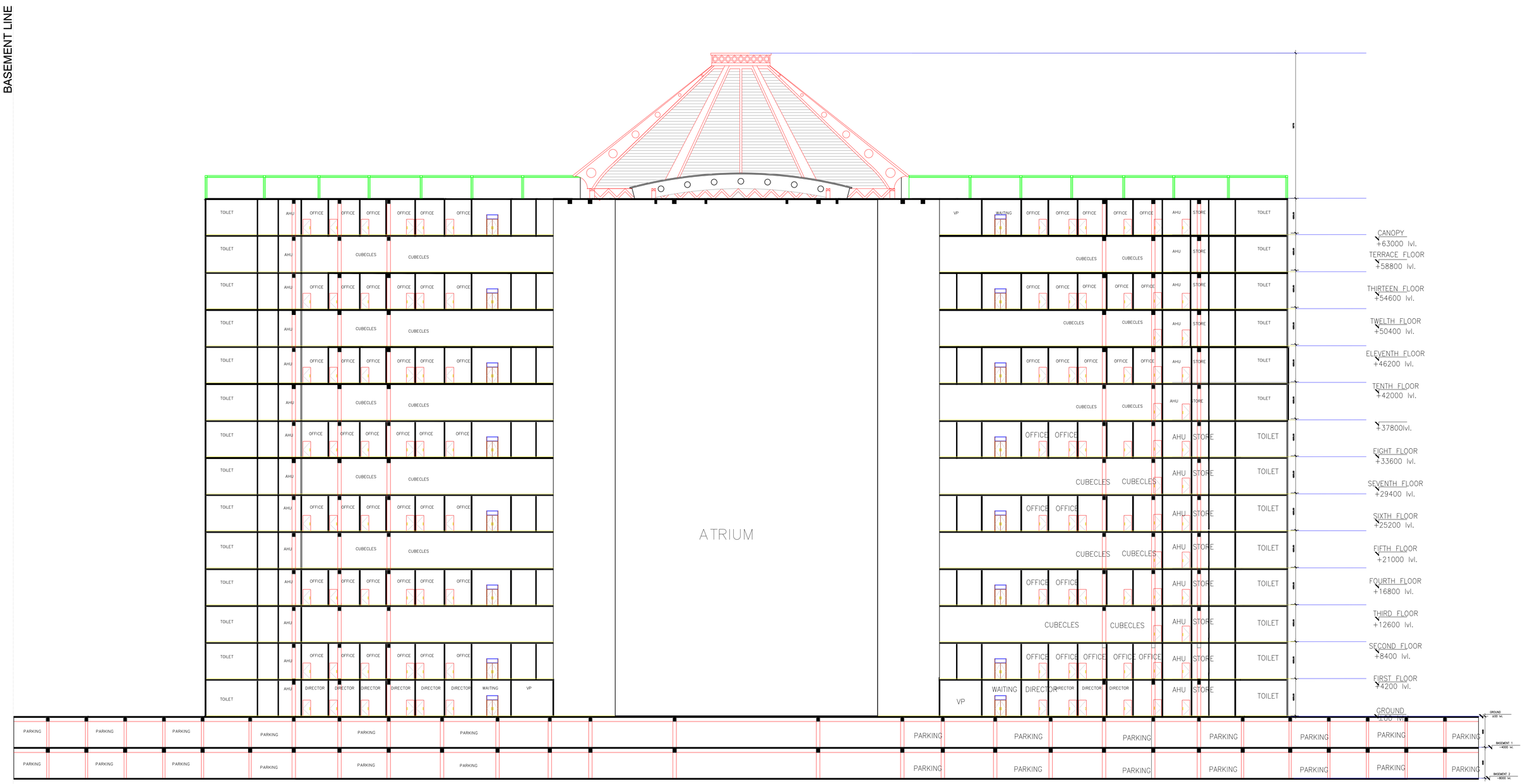
TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

LANDSCAPE
SCALE-1:500

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10

SCHOOL OF ARCHITECTURE AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA CONSULTANCY SERVICES , HEADQUATER



SECTION A-A'

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

SECTION
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10

SCHOOL OF ARCHITECTURE
AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA CONSULTANCY SERVICES HEADQUATER

NOIDA SECTOR -157

TYPES OF SECURTIY IN THE OFFICE COMPLEX

AUTOMATIC RISING ROAD BLOCKER- a rising road blocker provide a formidable obstacle to on coming traffic widely used at unmannered site and premises.

BARRIER SYSTEM- there are two types of barrier system used in the site entrance, first is the electronic barrier, which scans the car for any explosives. and second is the ground embeded, this type is fully automatic system which scans the vehicles from beneath.

OCCUPIED CAR SCANNERS- This type od scanners scans the whole car from roof height. It detects the presence of any unwanted materials.

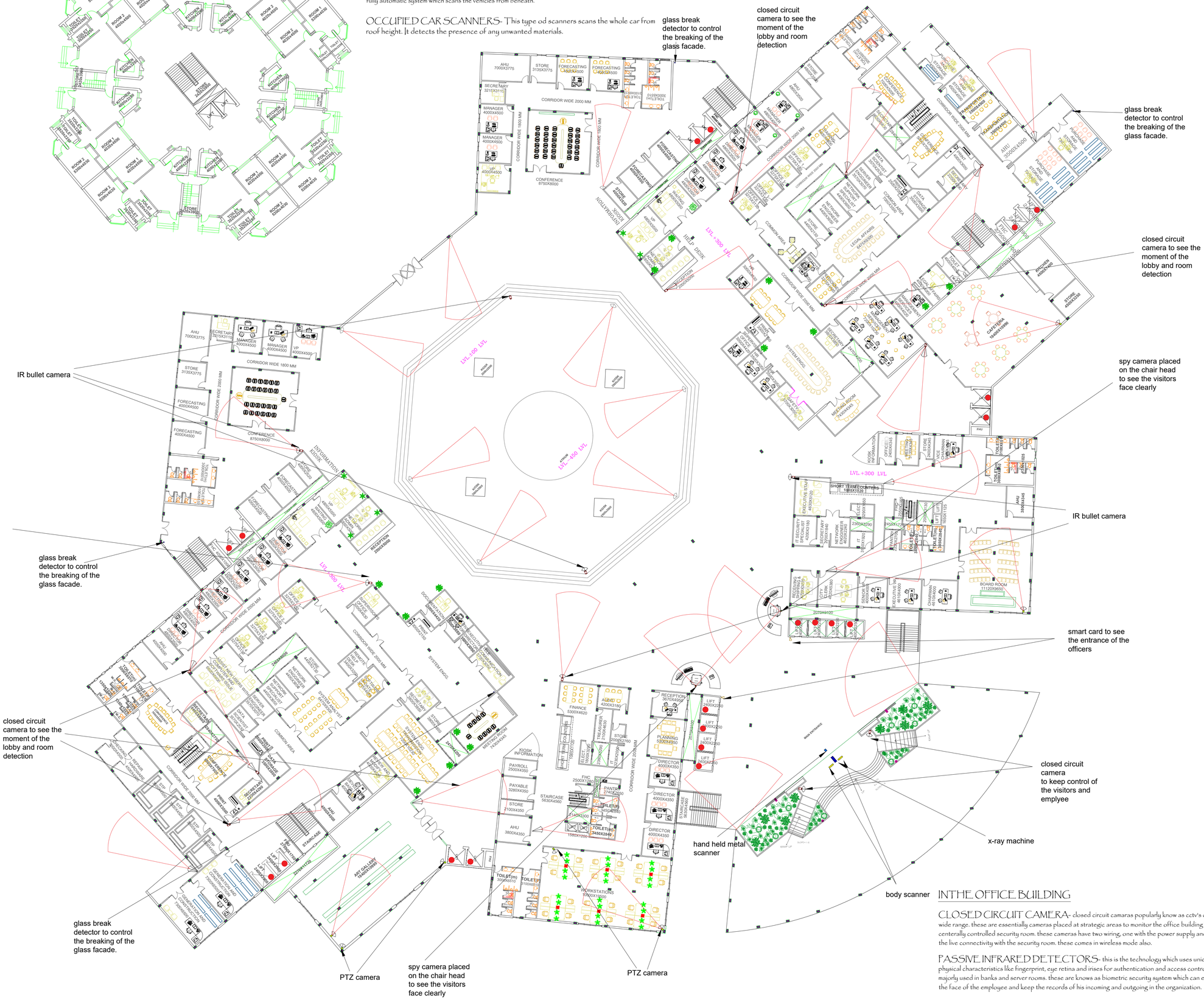
GARRETT MAGNASCANNER- It is used to scan the visitors before entering the building has a sensitivity of 200 level.

HAND HELD METAL DETECTOR- Use mannually to check the visitors. Comes in 330mmx110mmx38mm, weighing 300gms.

IR BULLET CAMERAS- Rich with the heritage of the world's finest night vision, the WZ series includes a family of infrared day/night bullet cameras- WZ-20, WZ-16 an WZ-14 are some integrated day/night IR dome cameras.

GLASS BREAK DETECTORS- glass break detectors are sensors which are fitted to the indirect entry points like glass, windows. it works by being able to detect vibrations. any attempt at unauthorised entry imediately sets of the alram signal. brands like visonic and satel are popular.

SMART CARDS- smart card technology though is a decade old security technique but still it is hugely popular. smart cards ensure complete data security and enables controlled data access in the organization.



TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

THE PRIMARY OBJECTIVE OF "SECURITY" IS TO SHEILD AN ORGANIZATION FROM UNWANTED EXTERNAL OR INTERNAL INTERFERENCE.
BEFORE WE SET OUT TO INSTALL VARIOUS HI-TECH OFFICE SURVILLIANCE WE NEED TO UNDERSTAND WHAT WE NEED TO SECURE.
INSTALLING SEVERAL GADGETTS DOES NOT NECCESSARIALY ENSURES THE SECURTITY OF THE OFFICE.

AN INTEGRATED SYSTEM OF SECURITY WHEREBY ALL THE DEVICES
ARE CONTROLLED CENTRALLY, IS THE MOST EFFECTIVE AND INTELLIGENT WAY TO A SAFE OFFICE. THIS ALSO ESSENTIALLY MEANS
THAT EVERY OFFICE MAY UNDERSTAND ITS UNIQUE SECURITY NEEDS
AND PLAN ACCORDINGLY.

FLOOR-GROUND FLOOR PLAN
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

IN THE OFFICE BUILDING

CLOSED CIRCUIT CAMERA- closed circuit camaras popularly know as cctv's come in a wide range. these are essentially cameras placed at strategic areas to monitor the office building from a centerally controlled security room. these cameras have two wiring, one with the power supply and other with the live connectivity with the security room. these comes in wireless mode also.

PASSIVE INFRARED DETECTORS- this is the technology which uses unique human physical characteristics like fingerprint, eye retina and irises for authentication and access control and is majorly used in banks and server rooms. these are knows as biometric security system which can even detect the face of the employee and keep the records of his incoming and outgoing in the organization.

TATA
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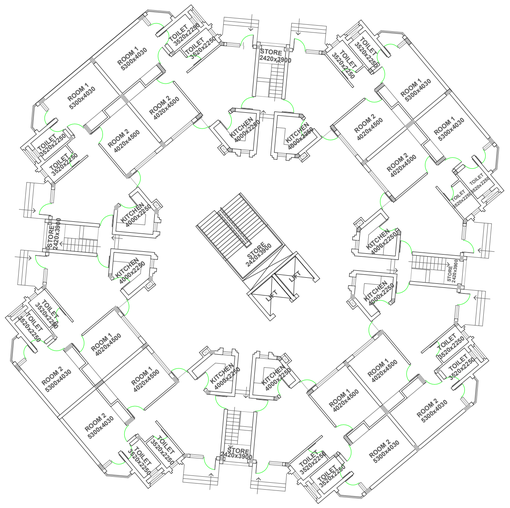
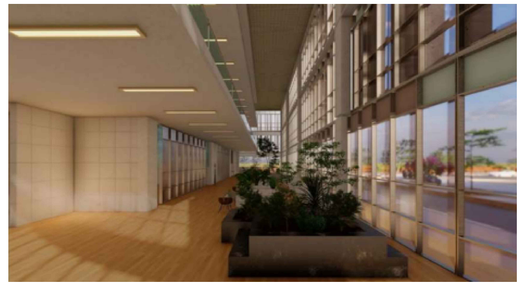
HEADQUATER

NOIDA
SECTOR -157



TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

SECOND FLOOR
TYPICAL FLOORS TO 4 ,6,8,10,12



FLOOR-SECOND FLOOR PLAN
SCALE-1:250

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10
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BBDU , LUCKNOW
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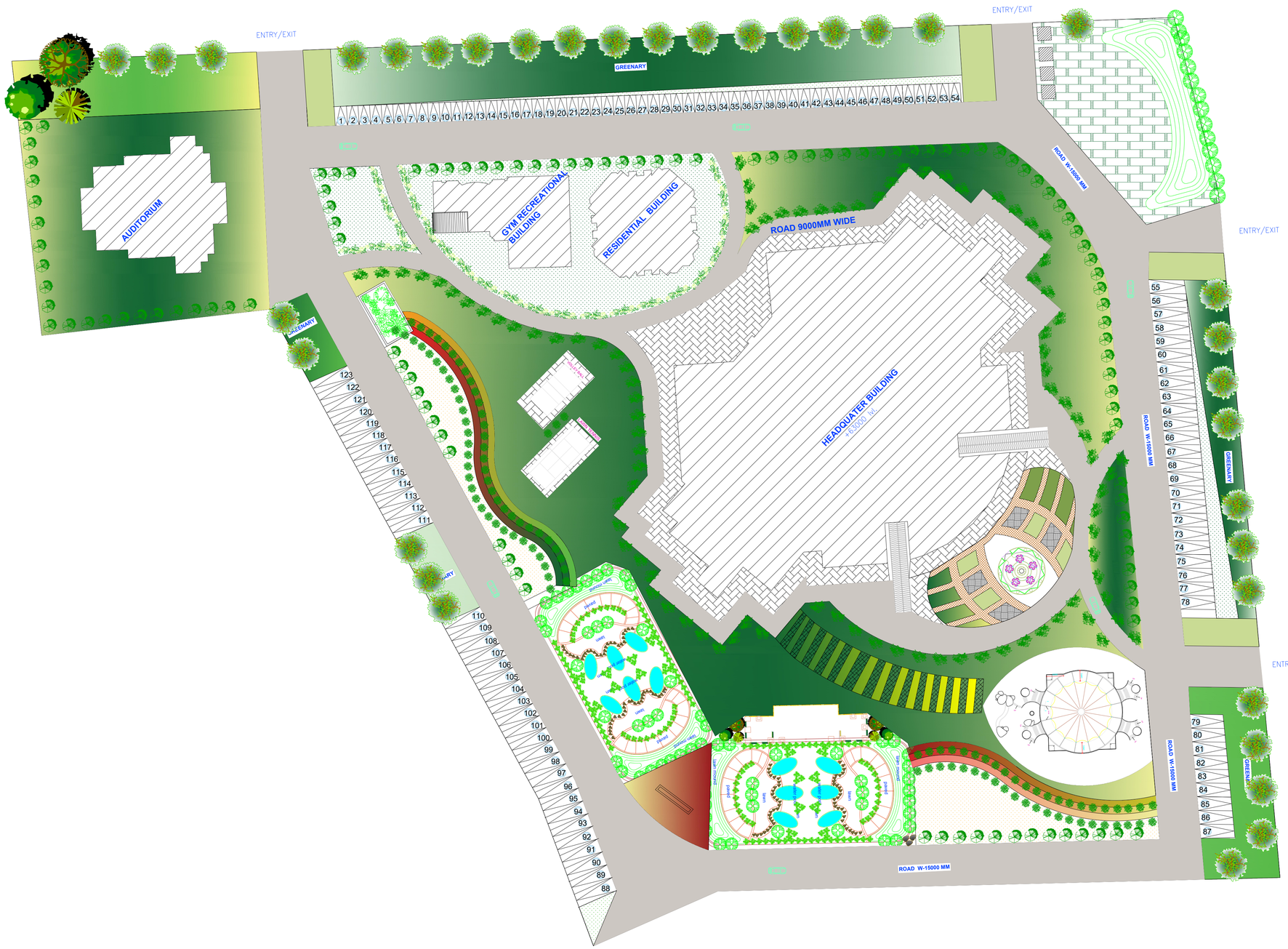
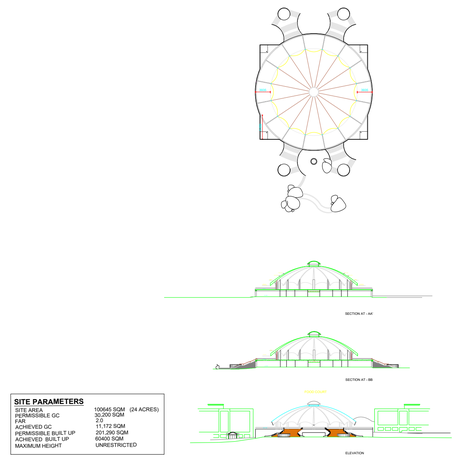
TATA CONSULTANCY SERVICES , HEADQUATER





SITE PARAMETERS	
SITE AREA	100645 SQM (24 ACRES)
PERMISSIBLE GC	30,200 SQM
FAR	2.0
ACHIEVED GC	11,172 SQM
PERMISSIBLE BUILT UP	201,290 SQM
ACHIEVED BUILT UP	60400 SQM
MAXIMUM HEIGHT	UNRESTRICTED

SITE PLAN (SCALE-1:500)

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

SITE PLAN
SCALE-1:500

NAME-SHRISHTIKA PAL
ROLL NO-1180101042
YEAR-5
SEM-10

SCHOOL OF ARCHITECTURE AND PLANNING
BBDU , LUCKNOW
SESSION - 2022-23

TATA
CONSULTANCY
SERVICES
HEADQUATER

NOIDA
SECTOR -157

TOPIC - TCS HEADQUATER
LOCATION - NOIDA SECTOR 157

FLOOR-THIRD FLOOR PLAN
SCALE-1:250

THIRD FLOOR
TYPICAL FLOOR TO 5,7,9,11

NAME-SHRISHTIKA PAL
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YEAR-5
SEM-10
SCHOOL OF ARCHITECTURE
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