

AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

Ashulia Campus, Ashulia Model Town, Savar

By

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A thesis submitted to the Department of Architecture in partial fulfillment of the
requirements for the degree of Bachelor of Architecture

Department of Architecture
BRAC University

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Declaration

It is hereby declared that,

1. The thesis / project submitted is my own original work while completing a degree at BRAC University.
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3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

The thesis/project titled “**Ahsanullah University of Science and Technology**” submitted by Munem Shahariar Galib (20308005) of Spring 2025 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Architecture on 10 October 2025.

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Abstract

The rapid expansion of higher education in Bangladesh has created a need for modern, accessible, quality and sustainable university campuses. To meet this demand, **Dhaka Ahsania Mission** established a private university called **Ahsanullah University of Science and Technology (AUST)** in 1995. However, its current Tejgaon campus faces several challenges. It's too crowded, there is no space to expand, and some of the facilities and programs are obsolete. To solve these issues, **AUST** is going to set up a new campus in Ashulia Model Town, Savar. The new campus will be advantageous to students as it will allow them to learn more, interact more with industry, and be more sustainable in the years to come. The new campus will be **13.10** acres in size including new academic programs, advanced labs, student housing, and eco-friendly features. The goal is to create a better learning environment, encourage industry connections, promote sustainability, and help the local economy. The design uses site studies, local and international examples, and existing regulatory guidelines.

Keywords: University, University Campus Design, Ahsanullah University of Science and Technology, Ahsania Mission, Ashulia Model Town

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CHAPTER 1 : INTRODUCTION

1.1 Introduction of the Project

Albert Einstein once remarked, "***Education is not the learning of facts, but the training of the mind to think.***" This idea shows that education should focus on more than just memorizing information; it should encourage critical thinking and the development of values. University education plays a vital role in shaping students' minds and guiding them to become a responsible member as well as a valuable asset of society, not just in focusing career or jobs. In Bangladesh, this journey started with the establishment of University of Dhaka in **1921** and later spread to other regions (UGC, 2009, p. xvii). By 1992, the demand for more universities led to the creation of private universities (UGC, 2009, p. xx), which now offer education to more than **93%** of students who cannot get admitted to the Public University. (UGC Annual Report, 2022).

1.2 Background

Dhaka Ahsania Mission, a nonprofit organization, grabbed the opportunity to establish **Ahsanullah University of Science and Technology (AUST)** in **1995** as one of the first government-approved private universities, focused on offering programs in engineering, applied sciences, and technology. Although a few private universities are doing well, the majority of them suffer from various problems such as outdated teaching, lack of new facilities, and courses that are not up to the mark to satisfy employers' needs. This leaves many graduates unprepared for real-world jobs, even if they have good academic results. To address these issues, the authority is seeking to expand its capacity through a new campus focusing on new

departments and facilities which are aligned with national development and economy. The expansion will be built in phases on a site in Birulia, Savar, as a residential campus. In the first phase, new departments will be added step by step over a period of time. In the second phase, residential facilities for students will be built to give a complete living and learning environment.

1.3 Problem Statements

Public universities such as University of Dhaka, Bangladesh University of Engineering and Technology, Bangladesh University of Textiles etc. used to offer few seats, pushing many into private universities such as North South, BRAC, Independent University etc. The fee structures are difficult to bear for most families because little financial support is provided. Even the job market takes a hit with the graduates as the study becomes more theoretical rather than offering many practical aspects. Many of the universities also lack new laboratories, research institutions, and industrial relationships. Since major institutions are mostly in urban regions, rural students not only have fewer educational opportunities but also encounter accommodation, transportation, and other necessity issues. **Ahsanullah University of Science and Technology (AUST)** in Tejgaon, Dhaka is facing overcrowding and outdated programs. Popular courses such as Computer Science Engineering, Civil Engineering, Textile Engineering etc. have far more applicants than seats, leaving many deserving students without the opportunity to enroll. The Dhaka campus is congested and lacks room for expansion, depending on outdated laboratories and lacking modern and demanding departments such as AI, Renewable Energy, Biotechnology etc.

1.4 Project Rationale

Universities in urban areas often contribute to challenges like unaffordable housing, traffic congestion, and overcrowded infrastructure, which strain public resources and lower the quality of life for both students and city residents. **AUST**'s future Asulia campus aims to provide affordable living, sufficient space, modern labs, green spaces, and practical training near industrial zones. Its decentralized location will reduce urban traffic, congestion, and pollution, providing a healthier and more productive learning environment than city campuses. With proximity to Savar's industrial areas, the campus will offer easy access for working with various industries and factories, ensuring that the education stays relevant to job market needs and providing practical training. The campus will also use green features like solar power and rainwater harvesting to help protect the environment. Currently, Ashulia Model Town remains largely undeveloped and empty, but the establishment of the campus will attract people and businesses, leading to the growth and development of the area. Campuses like this one can stimulate local economies by creating jobs in construction, retail, and other sectors. By decentralizing education, the new campus will ease a little bit of pressure on Dhaka's infrastructure and drive regional economic growth. Moreover, the university also aims to offer courses such as Advanced Technology (Robotics, Nanotechnology), Environmental Sciences (Disaster Management, Climatology), Renewable Energy, and Urban Planning in Ashulia campus. These modern courses, which are not commonly offered in most Bangladeshi universities, will attract students who are interested in pursuing careers in high-demand fields like automation, climate resilience, and sustainable city planning.

1.5 Aim and Objectives

Aim

To create a university campus that enhances student learning, well-being, and sustainability through modern infrastructure and adaptable educational facilities.

Objectives

- Providing modern classrooms and labs.
- Creating a campus with amenities that support student well-being.
- Implementing sustainable building designs and renewable energy solutions.
- Providing dormitories for convenience and safety.

1.6 Project Brief

Project name: **Ahsanullah University of Science and Technology (AUST)**

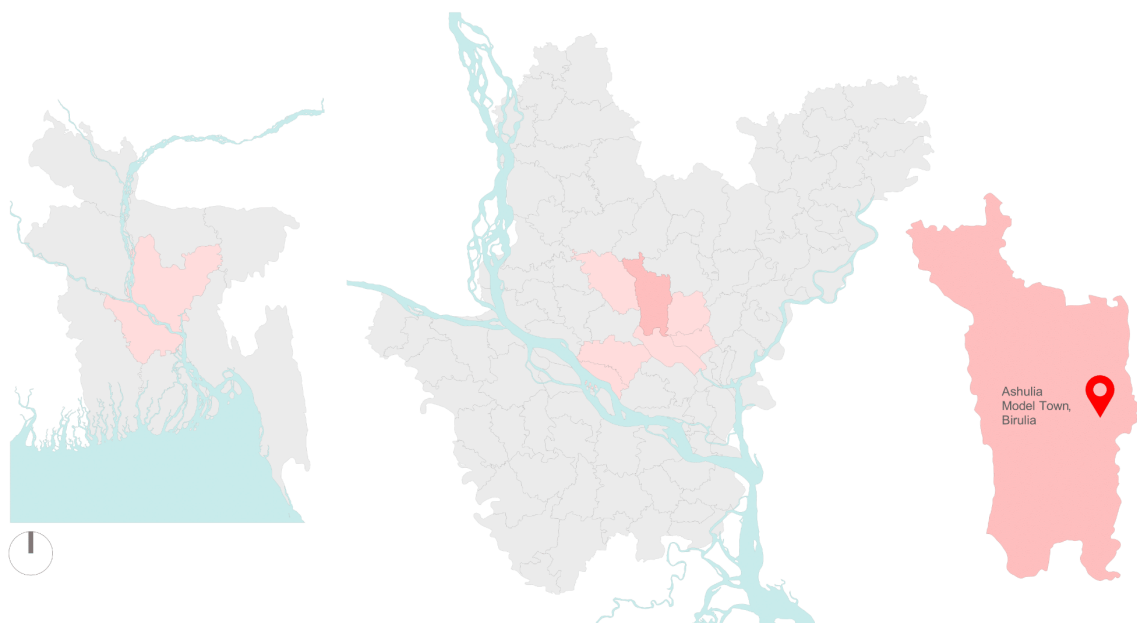


Figure 1.6.A: Site Location (Source: Drawn by Author based on OpenStreetMap)

Location: Ashulia Model Town, Birulia, Savar

Project type: University Campus

Client: Ahsania Mission, AUST authority

Coordinates: 23.867437, 90.333194

Site area: **13.10** acres.

Total built-up area: **578358** sqft (approx)

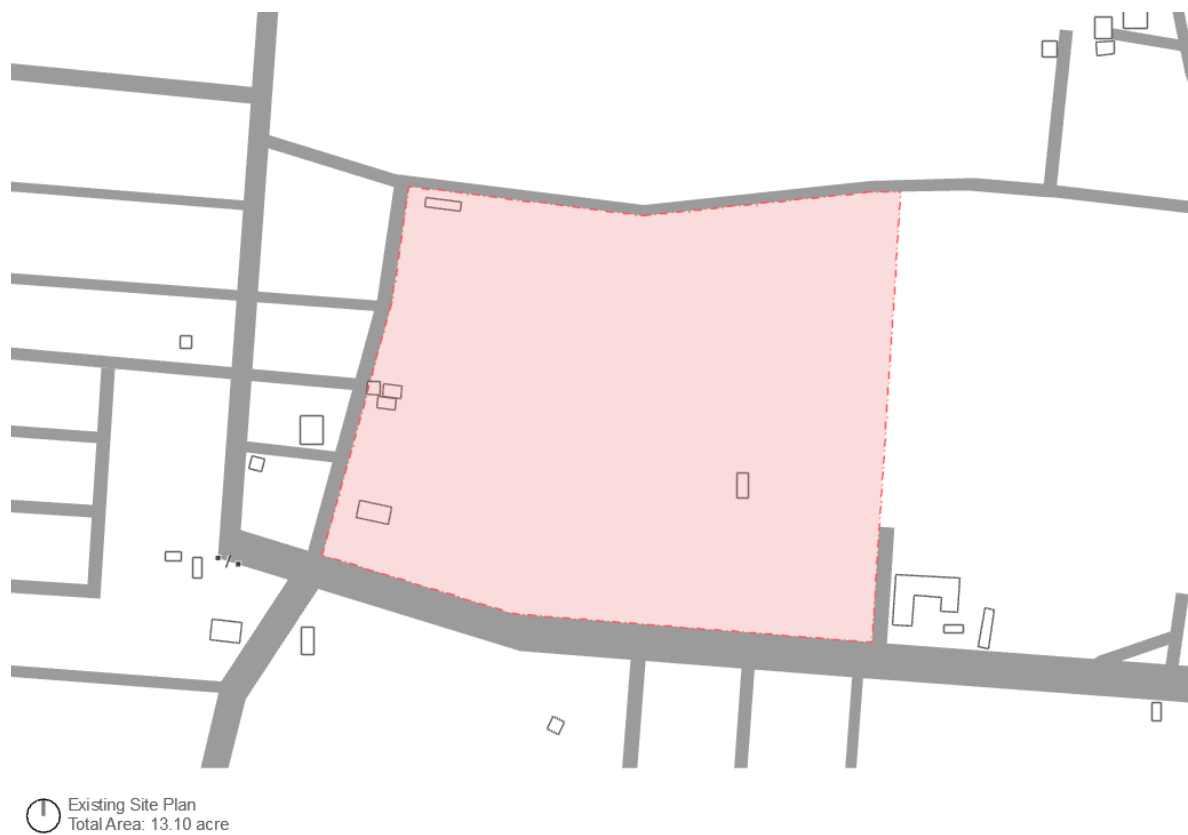


Figure 1.6.B: Existing Site Plan (Source: Drawn by Author based on Google Map)

1.7 Proposed Programs:

Faculty of Advanced Technology:

- Department of Nanotechnology Engineering
- Department of Biotechnology
- Department of Biometric Engineering
- Department of Telecommunication
- Department of Microelectronic Engineering
- Department of Robotic Engineering
- Department of Biomedical Engineering
- Department of Mechatronics Engineering
- Department of Medical Electronics
- Department of Genetic Engineering

Faculty of Environmental Sciences:

- Department of Climatology
- Department of Sustainable Development
- Department of Environmental Chemistry
- Department of Environmental Hazard & Disaster Management

Faculty of Urban Planning and Landscape:

- Department of Landscape
- Department of Urban Planning

Faculty of Pharmacy:

- Department of Pharmaceutical Technology
- Department of Clinical Pharmacy

Faculty of Renewable Energy:

- Department of Renewable Energy
- Department of Energy Efficiency

Common Facilities:

- Residential Facilities for Students
- Utilities (Bank, Departmental store, etc.)
- Playground with Relevant Infrastructure
- Central Mosque, Multi Prayer Space
- Day Care Center, Medical facilities
- Engineering & Maintenance
- Administrative Office
- Library, Study area
- Multipurpose Hall
- IT Server Room
- Students' Club
- Auditorium
- Cafeteria
- Parking

Facilities For Each Department:

- Small Labs, Large Labs
- Seminar rooms
- Classrooms
- Department Offices

CHAPTER 2 : LITERATURE REVIEW

2.1 The Origins Of Higher Education

Higher education started long ago with academies like India's Nalanda Mahavihara (5th century CE), a major Buddhist learning center attracting students from Asia to learn about Buddhism, philosophy, astronomy, medicine, and languages (Mukherjee, 2023). When it comes to universities, Morocco's Al-Qarawiyyin University, founded by Fatima al-Fihri in 859 AD, is the world's oldest surviving university and recognized by UNESCO (Muneeb, 2017). It deals with Islamic studies, law, mathematics, astronomy, and other similar subjects. It is also immensely famous for molding influential scholars like Ibn Khaldun, who has made a great impact on the social sciences (Buttery, 2022).

These universities were established to address and fulfill various aspects. Such as:.

Knowledge Preservation: During times of emperors and political instability, these institutions protected knowledge. As empires rose and fell, they kept learning alive by passing down teachings and restoring lost wisdom. (Mukherjee, 2023).

Training Religious and Administrative Elites: Al-Qarawiyyin University played a pivotal role in the preparation of religious scholars (ulema) and judges (qadis), who were key players in the government and leadership of Islamic empires. By training these individuals, the university supported effective and secure governance in the empires (Buttery, 2022).

Cross-Cultural Exchange: Nalanda hosted scholars from China (e.g., Xuanzang) and Persia, fostering dialogues between Buddhist, Hindu, and Greek philosophies (Mukherjee, 2023)

Practical Problem-Solving: Al-Qarawiyyin made important progress in optics, medicine, and algebra, helping to solve problems like treating diseases and managing water in dry areas (Bari Science Lab, 2022). The formation of these universities changed the provision of education from the informal apprenticeship learning to more formalized and structured mechanisms. This is what helped in molding the universities today with formalized courses and degrees.

2.2 The Development of Higher Education

In the 1800s, Wilhelm von Humboldt, a German philosopher, believed that teaching and research should be closely linked. He thought students and teachers should have the freedom to explore ideas freely, which helped create a culture where learning and questioning were encouraged (Niederhauser, 2023; Von Humboldt, 2022). This way of thinking encouraged students to think deeply and work together in different subjects, shaping how universities teach and do research today.

2.3 Higher Education in Colonial Bengal, Pre Bangladesh, and Bangladesh

2.3.1 Colonial Bengal

During British rule, the University of Calcutta was opened in 1857 to educate an administrative class that would help the British to manage their colonial rule in India (Chakraborty, 2021). The traditional institutions like pathshalas (local schools) and

madrasas (Islamic schools), which were the main schools of learning in the region for centuries, were pushed to the margins (Riaz, 2010). The British educational system focused more on English, European science, and colonial law, as opposed to local languages and religious teachings. This shift disempowered indigenous knowledge and created a long-term dependence on Western thinking, which continued even after independence (Kambala & Mathe, 2023).

2.3.2 Pre Bangladesh Era

Following the 1947 partition of India, East Pakistan (present-day Bangladesh) inherited a British colonial model-driven education system with the University of Dhaka as the nation's highest-ranked academic institution (Mujib, 2021). The central government's neglect of the University of Dhaka caused issues like lack of funding, old infrastructure, and few research facilities, making it harder for the university to compete with better-funded universities like the University of Punjab and Karachi University, which had modern resources (Miah, 2024)

2.3.3 Post-Independence Bangladesh

The Private University Act of 1992 changed higher education in Bangladesh by allowing private institutions like AUST and BRAC University to address the lack of seats in public universities (Yasmin, 2024). Private universities in Bangladesh have played a key role in making higher education more accessible to middle- and lower-income families, enrolling over 45% of students. However, there are concerns regarding commercialization and unequal quality, with only 20% of private universities nationally accredited (Paul, 2025). Despite these concerns, private universities are central to Bangladesh's vision to achieve a 15% higher education enrollment rate by 2030 (Khatun, 2025).

2.4 Modern Universities and Their Evolution

In the past decades, universities across the globe have changed a lot to fit new technology and the needs of society. One of the major changes is the development of online learning. Harvard and MIT universities, for example, now offer many online courses, which make education more accessible to people all over the world (Coughlan, 2012).

In Bangladesh, growth of private universities, such as Ahsanullah University of Science and Technology, BRAC University, and North South University, has helped to fill the gap in seats of public universities and provide more choices to students. The private universities have become more modernized with more courses and associations with world-class universities. For example, BRAC University partnered with foreign universities with a goal of improving its computer science and public health programs (BRAC University, 2025). Although private universities have improved at a fast pace, the public universities are behind, thus making it difficult for them to compete internationally (Jasim, 2022).

2.5 Universities in Bangladesh

2. 5.1 Public Universities

Bangladesh's public universities, including the University of Dhaka and BUET, are severely overcrowded, which has a profound impact on the quality of education. Among the serious problems is the extremely high student-to-teacher ratio of over 50:1, which is well beyond the international standard of 15:1 for quality learning (Alam & Ahmed, 2024).

Type of University	Total in Numbers	Number of Teachers			Number of Students		
		Male	Female	Total	Male	Female	Total
Public	55	11930	4469	16399	428131	297840	725971

Figure 2.5.A: Number of Public Universities with Teachers and Students (Source: Collected by Author based on Bangladesh Education Statistics (2023) Bangladesh Bureau of Educational Information and Statistics (BANBEIS)

The data shows a problem of having a small number of instructors and schools for a significant majority of students, which limits the potential of teachers to deliver individual attention, dialogue, or scholarly research. It is even more challenging because classes, libraries, and laboratories are overcrowded and old, such that students encounter slow advancement in certain areas (Tuhin, 2025). Moreover, dormitories, in which 4–6 students are housed in one room, are also stressful and lead to high rates of dropout, particularly among rural students (Mustak Ahmed, 2024). Thus, education quality declines as 62% of the employers think that graduates of public universities are not ready because they are not equipped with practical skills as well as critical thinking (Islam, 2024). The University Grants Commission (UGC) identifies lack of funding as a big problem because government support hasn't increased with the rise in student enrollment (Tuhin, 2025). For instance, BUET's budget allocation per student has fallen by 27% since 2015, and administrative inefficiencies delay faculty hiring and facility development (Andaleeb, 2022). To solve these challenges, universities need to expand their infrastructure, hire more teachers, create partnerships, and use digital learning to reduce classroom reliance. Without investing in faculty, facilities, and technology, Bangladesh's public universities may fall behind and struggle to meet national development goals (Islam, 2024).

2.5.2 Private Universities

In contrast, private universities such as Brac University, North South University (NSU), AUST (Ahsanullah University of Science and Technology) etc. offer industry-related courses that make the students employable. However, private universities are expensive, and high fees are a limiting factor for most of the students, and despite their important contribution to the higher education of Bangladesh, they are accused of prioritizing profit over the quality of education (Chisty, 2023).

Type of University	Total in Numbers	Number of Teachers			Number of Students		
		Male	Female	Total	Male	Female	Total
Private	114	11173	5072	16245	238464	100841	339305

Figure 2.5.B: Numbers of Private Universities with Teachers and Students (Source: Collected by Author based on Bangladesh Education Statistics (2023) Bangladesh Bureau of Educational Information and Statistics (BANBEIS)

2.5.3 The Role of Private Universities

Private universities in Bangladesh are now playing a tremendous role in higher education by offering industry-focused courses and innovative teaching methods to better prepare students for the job market after graduation (Paul, 2024). University partnerships with business corporations are set up to develop programs that fit the needs of the job market. For example, NSU's Computer Science and Business Administration degrees both have internships and certifications in applications like SAP and Python, while AUST's engineering programs focus on robotics and AI to keep up with the growth of the country's growing tech sector (Nazneen & Hossain, 2013). As a result, 74% of private university graduates secure jobs within six months, compared to 58% of public university graduates (Paul, 2024). Then the high tuition fees at private universities, ranging from BDT 150,000 to BDT 300,000

annually, make education inaccessible to most low- and middle-income students (Nazneen & Hossain, 2013). Along with that, 35% of profit-focused private universities lack proper laboratories, libraries, and full-time qualified teachers, with many part-time lecturers having low academic qualifications. (Tuhin, 2025).

2.6 Campus Architecture and Its Influence on Education

2.6.1 Design Principles

Campus design at universities has a significant impact on students' well-being and academic performance. Biophilic design, which incorporates natural features like open spaces, natural light, and even green roofs, has been shown to aid in better health among students and enhanced cognitive function. For example, BRACU's permanent campus design includes green roofs, energy-saving buildings, water conservation, and waste management. The strategies not only conserve energy but also enhance mental well-being, and creates a peaceful and eco-friendly learning environment

2.6.2 Bangladeshi Context

In Bangladesh, Khulna University has surpassed in the practice of sustainability in campus planning by using wetlands as a means of conserving water resources and promoting biodiversity. AUST at Dhaka, however, is congested since it cannot accommodate more students (Hasan, 2022).

2.7 Challenges in Campus Design

- **Urban Overcrowding:** Overcrowding at the universities of Dhaka is happening at unprecedented levels, and a single university sometimes

houses 1,200 students in a small space. Fewer rooms to occupy have contributed to reduced spaces and lacking infrastructures that compound strain on physical space and weaken student experiences (The Daily Star, 2024).

- **Sustainability Issues:** Even with greater concern for the environment, only up to 5% of Bangladesh's universities have harnessed solar power or other green measures such as rainwater harvesting, green building planning, and waste recycling. This indicates a significant gap in sustainability efforts, especially since universities can serve as models for the rest of society (Chowdhury, 2024).

2.8 The Impact of Decentralized Campuses

2.8.1 Regional Development

The establishment of universities in small towns and cities invites regional development in Bangladesh. For instance, the Jashore University of Science and Technology (JUST) not only offered higher education but also enhanced the density of the local workforce by 20% (Prothom Alo, 2022). Universities create a demand for different professions, such as lecturers, administrators, security officers, caretakers, and caterers, which provide employment. Additionally, the inflow of students generates a demand for accommodation, restaurants, transport, and other amenities, which trigger the growth of local businesses. With the passage of time, this growth develops local infrastructure, attracts investment, and triggers urbanization, and hence universities are regional economic drivers.

2.8.2 Cultural and Social Impact

Decentralized campuses bring cultural and social change to small towns in the form of activities like workshops, exhibitions, and performances. Shahjalal University of Science and Technology (SUST) in Sylhet, for example, organizes cultural festivals that unite students and locals and merge them. Universities also provide social integration through education to students from diverse backgrounds. Local students at Bangladesh Agricultural University (BAU) in Mymensingh have access to higher education, removing inequality and forming a more integrated society.

2.8.3 Environmental and Sustainability Contributions

Universities in small towns also play a role in building sustainability. For example, Khulna University of Engineering and Technology (KUET) has developed waste management systems that are beneficial for the local community (Golap, 2024). Jahangirnagar University, which is biodiversity-rich, has taken steps to conserve local wildlife as well as enhance environmental awareness among students and locals (Billah, 2023). BRAC University's Badda campus has also integrated green building design principles, including rainwater harvesting and energy-efficient systems, to lower its carbon footprint. Such initiatives bring long-term environmental benefits and facilitate sustainable development in the region (Holcim Foundation, 2025).

2.9 The Importance of Industry-Academia Collaboration

Collaborations between industry and academia have led to huge research and economic development across the world. For instance, the Industrial Liaison Program (ILP) by Massachusetts Institute of Technology (MIT) connects over 1,500

companies with researchers, earning about \$300 million from research funding and technology transfers every year. Collaborations ensure that academic research addresses industry needs and provides practical solutions to issues (Wolff, 2023).

In Bangladesh, however, they have not yet made an appearance. Institutions like Bangladesh University of Engineering and Technology (BUET) and BGMEA University of Fashion & Technology (BUFT) are leading the way in developing these relationships, but hardly any other universities have taken a cue from them (Begum, 2017). While some steps have been initiated, particularly in engineering and technology streams, the broader academic community is still to see the true potential of these collaborations.

2.10 Importance of Adaptation and Flexibility

The growth of e-learning has had a major impact on the design of university campuses, spurred by the increasing demand for adaptive learning spaces. At the onset of the COVID-19 pandemic, most universities found it challenging to shift to online learning. Yet, BRAC University quickly reacted by introducing BUX (BRAC University Xperience), an online platform that allows students to streamline their learning process using digital means. BUX offers online and blended learning models, in which students learn lessons online and use their class time for practice exercises and discussions. It was such a model that made learning more convenient by enabling students from various backgrounds to learn from home. By incorporating such platforms as YouTube and BUX, BRAC University ensured that learning was flexible, interactive, and easily accessible, becoming a technology pioneer in education in Bangladesh (BRAC University, 2020). The above example reflects the

necessity for creating flexible learning systems that can be easily integrated with new technologies and adjust to unforeseen challenges.

2.11 Standards for University Functions

Universities have many roles, so they need well-planned buildings and resources to support teaching, research, and community activities. Important facilities like classrooms, libraries, labs, dormitories, and recreational areas should meet international standards for quality education. Such as:

- **Classrooms:**

Student-to-teacher ratio: 15:1 (recommended for interactive learning).

Space per student: 1.4–1.9 m² (global average for comfort and safety)

(Haapanen, 2024)

- **Libraries**

Seating capacity: 25–30% of total student enrollment (Crosbie & Watson, 2005)

- **Residential Facilities**

Dormitory space: 10–12 m² per student for single/double occupancy
(Crosbie & Watson, 2005)

Amenities: Study areas, common rooms, and hygiene facilities.

CHAPTER 3: SITE ANALYSIS

3.1 Site Study

3.1.1 Location

The campus project of Ahsanullah University of Science and Technology (AUST) is located in Ashulia Model Town, Birulia, Savar — an area in the north of Dhaka that is quickly growing as a center for education and housing.

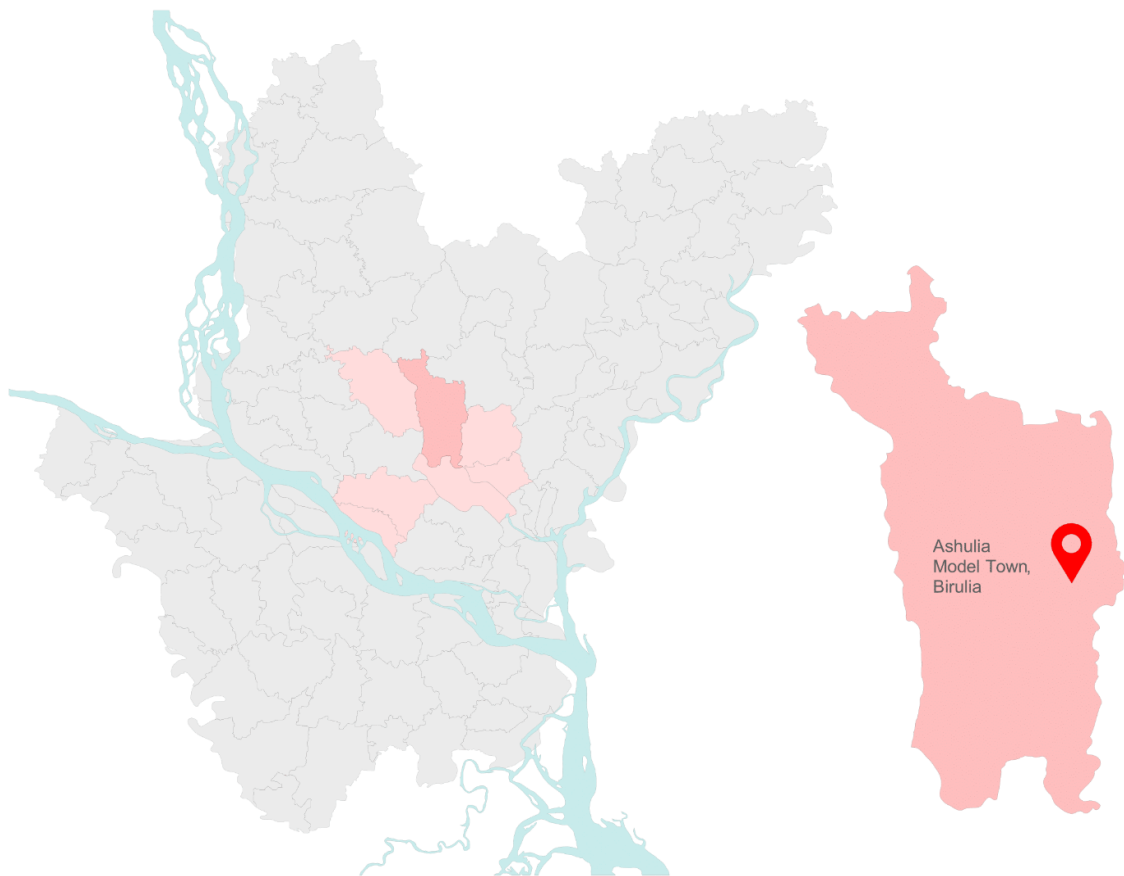


Figure 3.1.A: Ashulia Model Town Location (Source: Drawn by Author based on OpenStreetMap)

The total site area is 13.10 acres (around 573,462 square feet), and the built-up area is about 578358 square feet. Based on coordinates 23.867437°N, 90.333194°E, the

site is just 2 kilometers west of Mirpur Road and close to Ashulia Bazar Road. Key nearby roads include Akran Bazar Road to the west and Ashulia Bazar Road to the north.

3.1.2 Project Details:

FAR (Floor Area Ratio): 4.5 (Total floor area = 2,580,579 sq ft)

MGC (Maximum Ground Coverage): 50% (286,731 sq ft)

Road widths: Amin Mohammad Group plans to make the road 60 feet wide in the front, 25 feet on the west and back, and 30 feet on the east, which is different from the current setup.

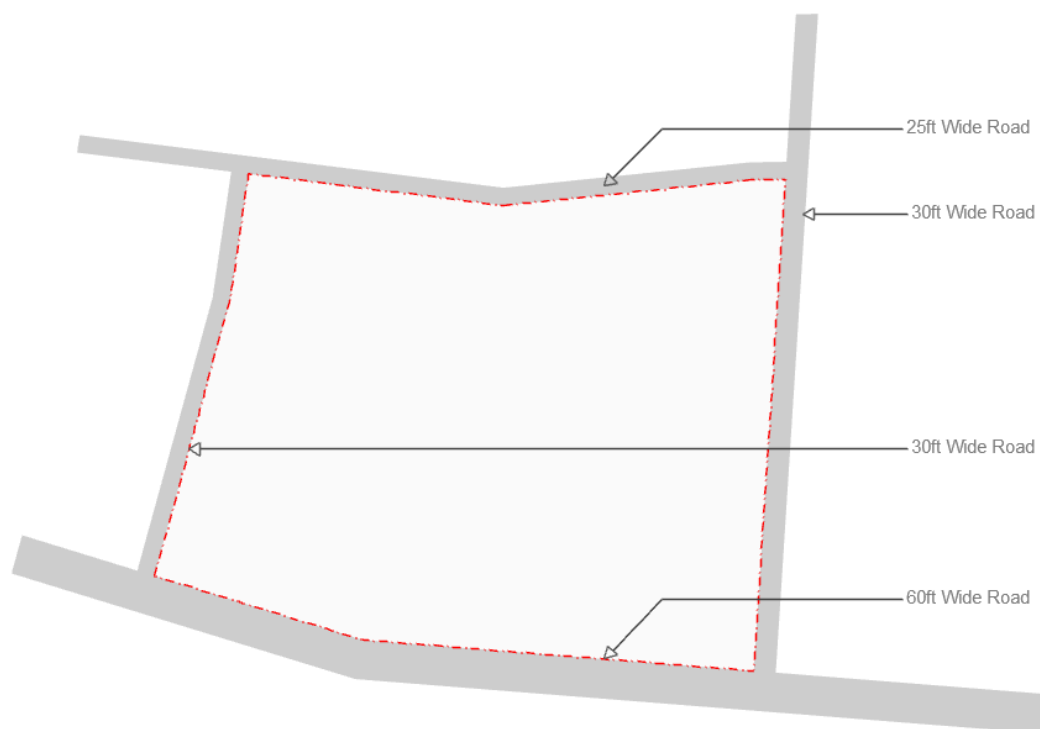


Figure 3.1.B : Site with Surrounding Roads width (Source: Drawn by Author based on OpenStreetMap)

3.1.3 Connectivity & Development:

Most of the roads in the Ashulia-Birulia area are still kacha or semi-pucca, but they are now being improved under the Ashulia Model Town project. These upgrades will help reduce traffic problems and make it easier to get around. As the roads and other facilities between Uttara and Ashulia continue to improve, this area is becoming more popular for students and working people from all over Dhaka.

3.1.4 Site Condition:

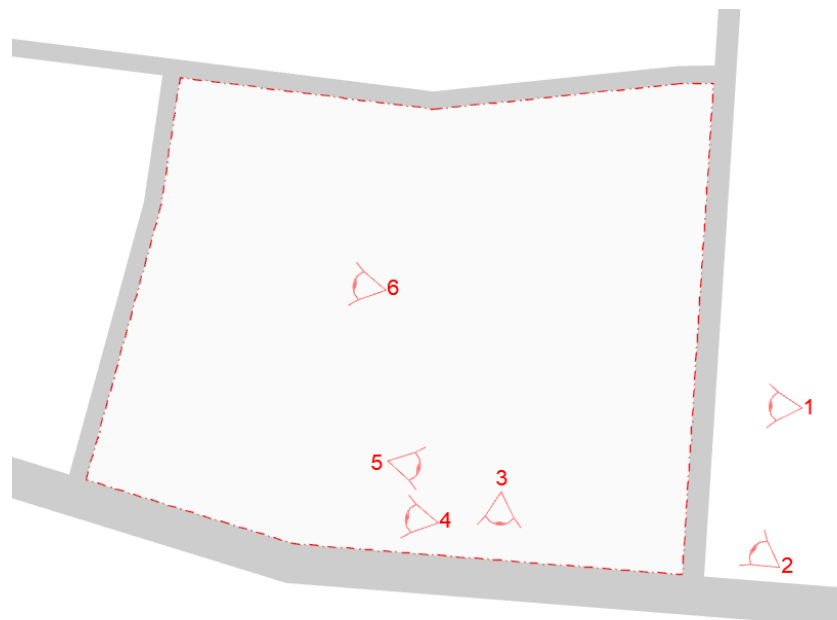


Figure 3.1.C : Views from different points (Source: Drawn by Author based on OpenStreetMap)



1. View From East



2. View From South-East



3. View Towards Entry



4. View From Entry



5. View Towards Ahsania Mission
Vocational Training Institute



6. View From middle of the site

The site currently functions as a nursery, primarily used for growing and maintaining plants. However, a significant portion of the land remains vacant and underutilized. The terrain is mostly flat and even, which ensures ease of movement and accessibility throughout the site. The presence of greenery creates a calm and natural environment, but the large unused areas indicate potential for more efficient land use and future development.

3.1.3 Chronological Development:



2004



2013



2015



2018



2020



2024

Figure 3.1.D: Chronological Development (Source: Google Map)

The site is part of a developing zone that still retains open fields and wetlands. From 2004 to 2024, the area has gradually transformed from largely undeveloped wetlands into partially urbanized land with grid roads and low-density structures.

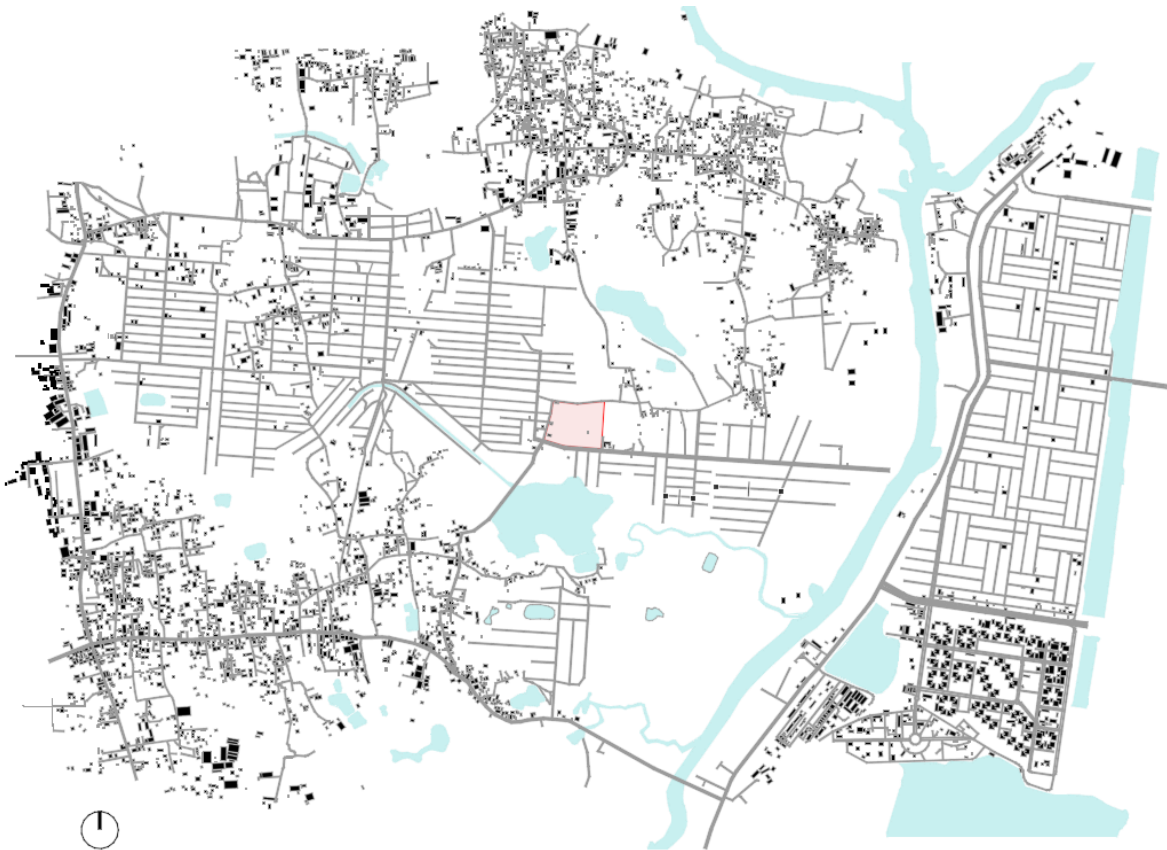


Figure 3.1.E: Figure-Ground map (Source: Drawn by Author based on OpenStreetMap & Google Map)

The Figure-Ground map illustrates a largely open landscape with a few scattered buildings. Most built-up areas are concentrated along the main roads and around industrial zones. The overall density is quite low, leaving ample space for future planned development.



Figure 3.1.F: Site with Road connectivity (Source: Drawn by Author based on OpenStreetMap & Google Map)



Figure 3.1.G: Site with Surrounding Water Bodies (Source: Drawn by Author based on OpenStreetMap & Google Map)

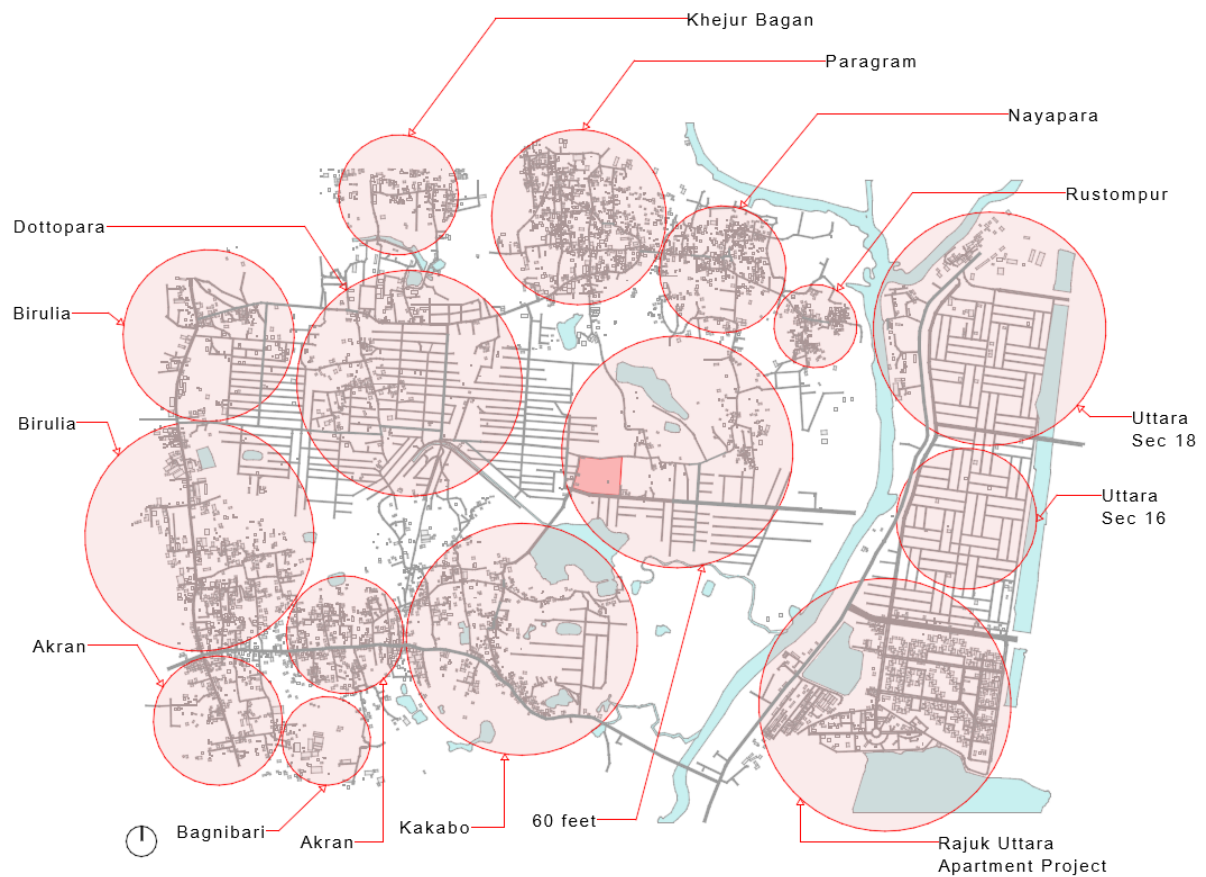


Figure 3.1.H: Site with Neighborhood (Source: Drawn by Author based on OpenStreetMap & Google Map)

To the east and south, there are planned housing like Uttara sectors and Rajuk apartments, while to the west and north, there are villages like Birulia, Kakabo, Akran, and Dottopara. The roads mix grid and organic patterns and provide easy access to schools, industries, and housing. Overall, the location offers both urban services as well as natural green surroundings, therefore making it ideal for a university campus.

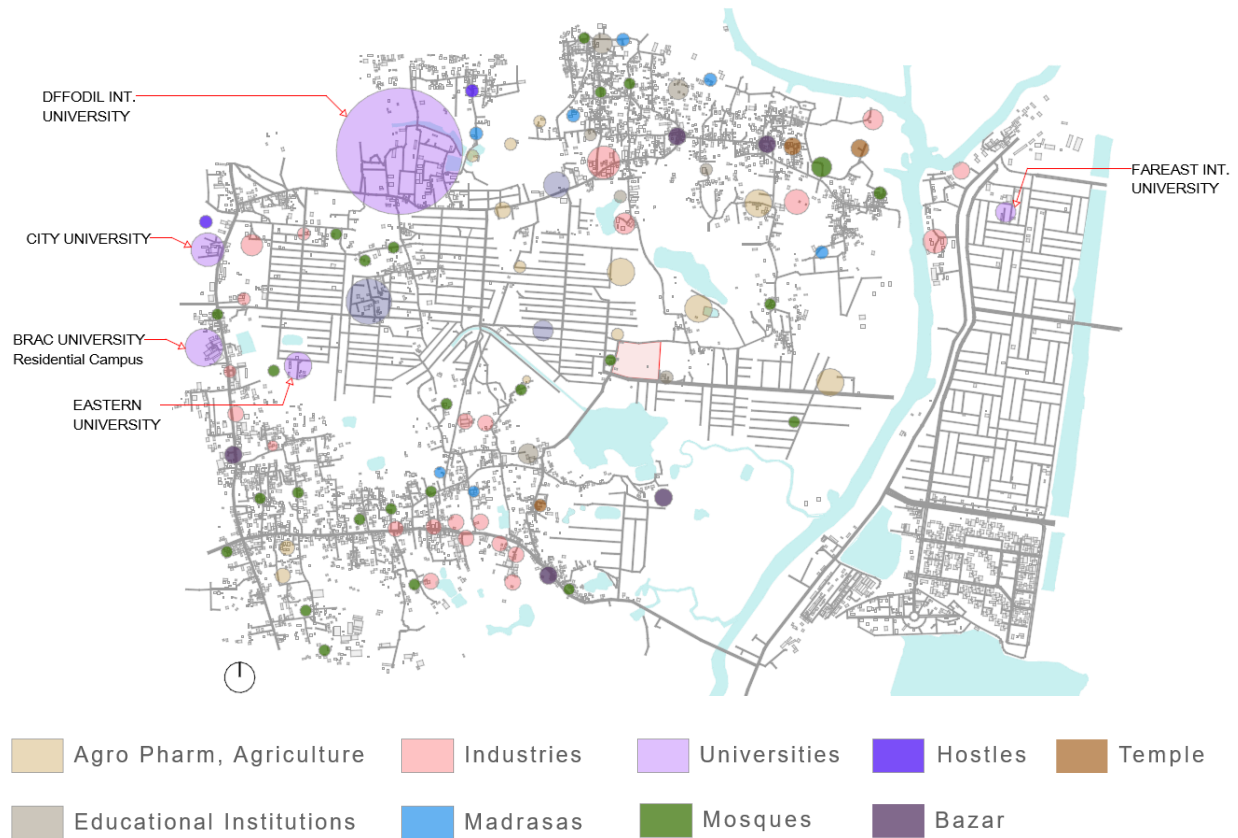


Figure 3.1.I: Site with Surrounding Institutions (Source: Drawn by Author based on OpenStreetMap & Google Map)

The site is surrounded by a variety of educational and community institutions, including universities such as Daffodil International University, City University, BRAC University, Eastern University, and Fareast International University. In addition to universities, the area features hostels, agro-pharmaceutical and agricultural facilities, industries, temples, madrasas, mosques, and bazaars. The mix of these institutions indicates a well-established educational and social network, providing easy access to academic, residential, and commercial amenities for students and residents alike.

CHAPTER 4 : CASE STUDY

4.1 Local

BRAC UNIVERSITY, Dhaka



Figure 4.1.A: Birds Eye view of Brac University (Source: www.bracu.ac.bd)

- Area: 5.25 acres (approx)
- Built Up Area: 1700000 sq ft
- Inspired from Sundarban
- Number of Students: 7000 approx
- Design Inception: September 2011
- Height of Building: 150 ft.
- No. of Stories: 13
- Architects: WOHA Architects Pte Ltd



Figure 4.1.B: Top view of Brac University (Source: www.architectureau.com)

The building is located on a site previously contaminated by a swamp, which had detrimental effects on the environment. The polluted water body is now being transformed into a bio-retention pond, surrounded by lush landscaping that serves as a green space for both students and the public to enjoy.

The new design includes smart architectural and environmental features that will create "tropical learning spaces" which don't rely on full air conditioning.

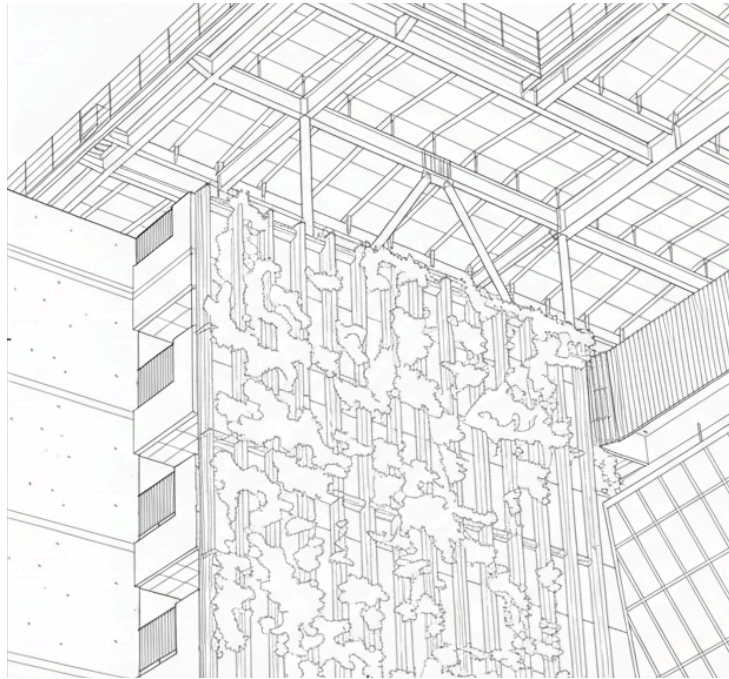


Figure 4.1.C: Façade treatment of Brac University (Source: Drawn by Author)

The design uses sun-shading fins and vertical green walls to help block out heat from the sun, keeping the spaces cooler and more energy-efficient. The green facades function as natural filters, blocking out glare and dust, keeping the rooms cooler, and reducing traffic noise.

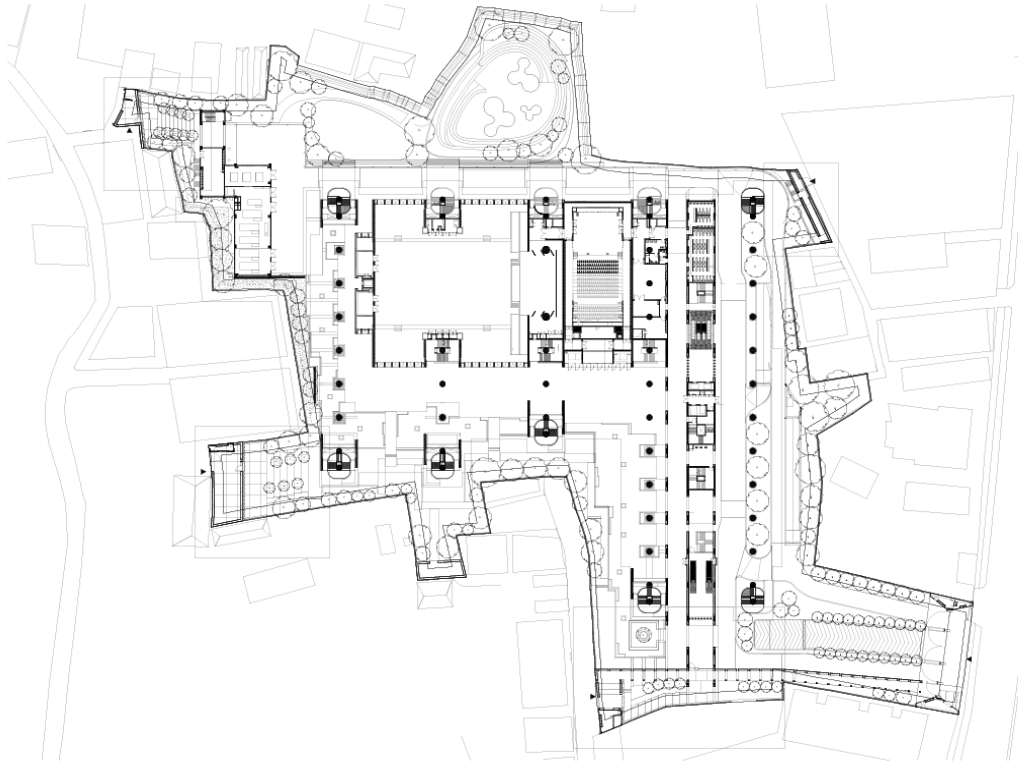


Figure 4.1.D: Ground Floor Plan of Brac University (Source: author)

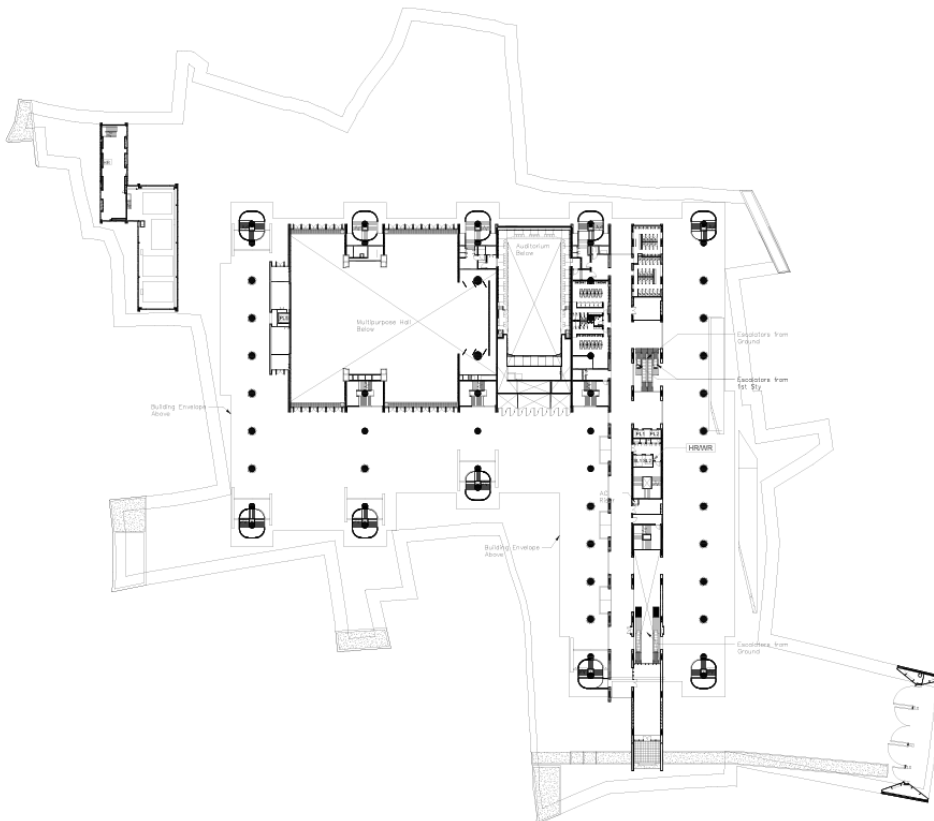


Figure 4.1.E: First Floor Plan of Brac University (Source: author)

The open and spacious floor plans are designed to allow for cross ventilation and plenty of natural light in every classroom, creating a comfortable and healthy learning environment.

The ground floor is open to the public, while the floors above—starting from the 4th—are dedicated to academic purposes. These upper levels house an auditorium, a multi-purpose hall, a gallery, and a concourse level up to the 3rd floor. This design concept is inspired by the two distinct ecosystems of the Sundarbans, with ecosystems both above and below the tidal level.



Figure 4.1.F: Landscaping of Brac University (Source: author)

The campus park, located on the ground floor, is sheltered from the sun and rain by the overhang of the upper floors. It features multiple vertical gardens and is designed to support a variety of bird and fish species, offering an inviting environment for all.

The building is designed to accommodate more than 10,000 students and provides ample space for extracurricular activities, including a variety of breakout and recreational areas. The classrooms are organized in 30' x 30' modules, with columns positioned to allow for future expansion or modification of the space. The campus is well-connected, with one vehicle entrance from the main road and six pedestrian entrances linking the site to surrounding streets.

To accommodate the large span of structural columns and their load, ribbed slabs with beams running north to south are incorporated. The columns in the concourse level divide upwards starting from the 4th floor, creating a more open and flowing space below, which enhances the public experience.



Figure 4.1.G: Ventilation of Brac University (Source: www.transsolar.com)

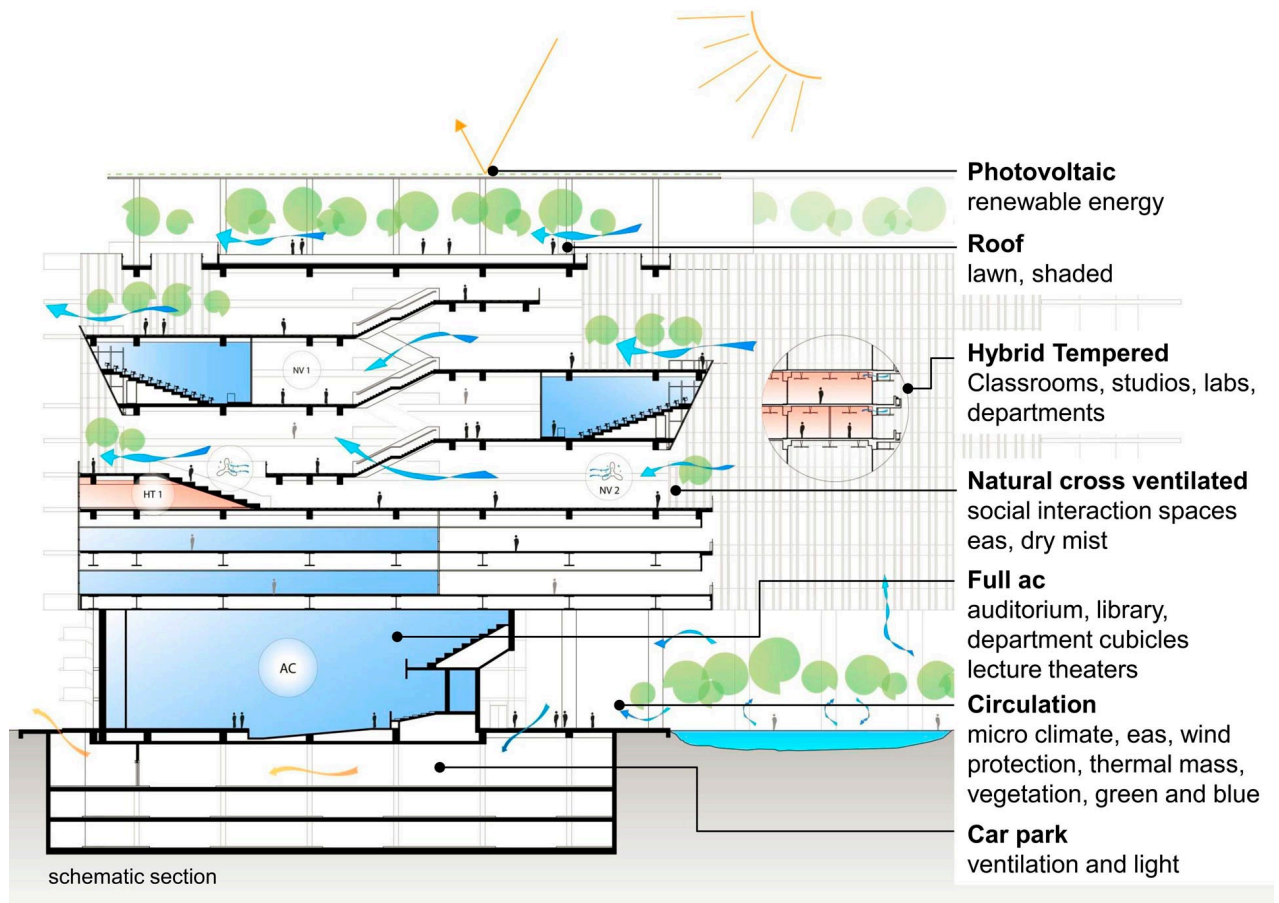


Figure 4.1.H: Cooling Strategies of Brac University (Source: www.transsolar.com)

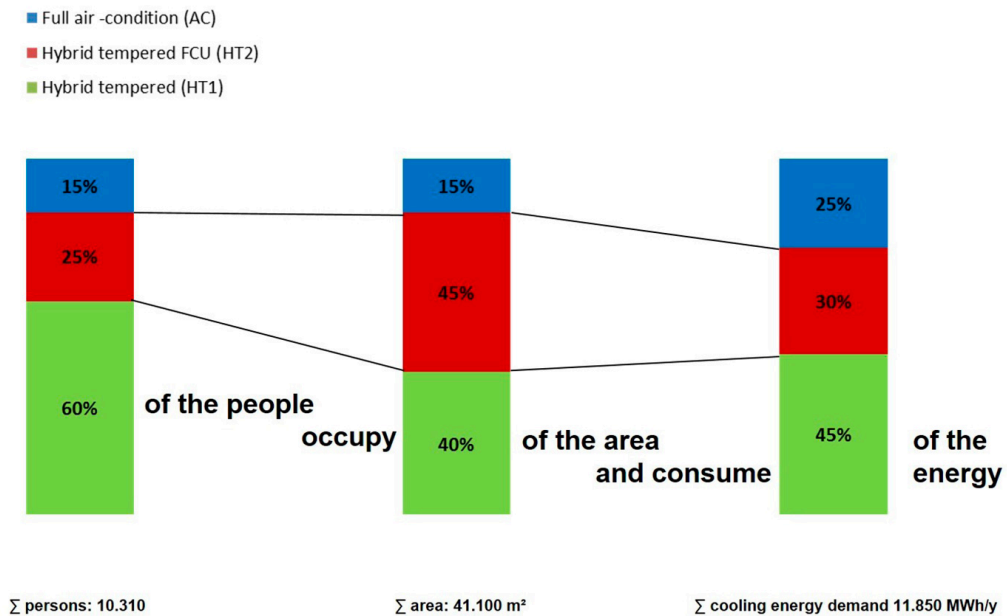


Figure 4.1.I: Energy Consumption (Source: www.transsolar.com)

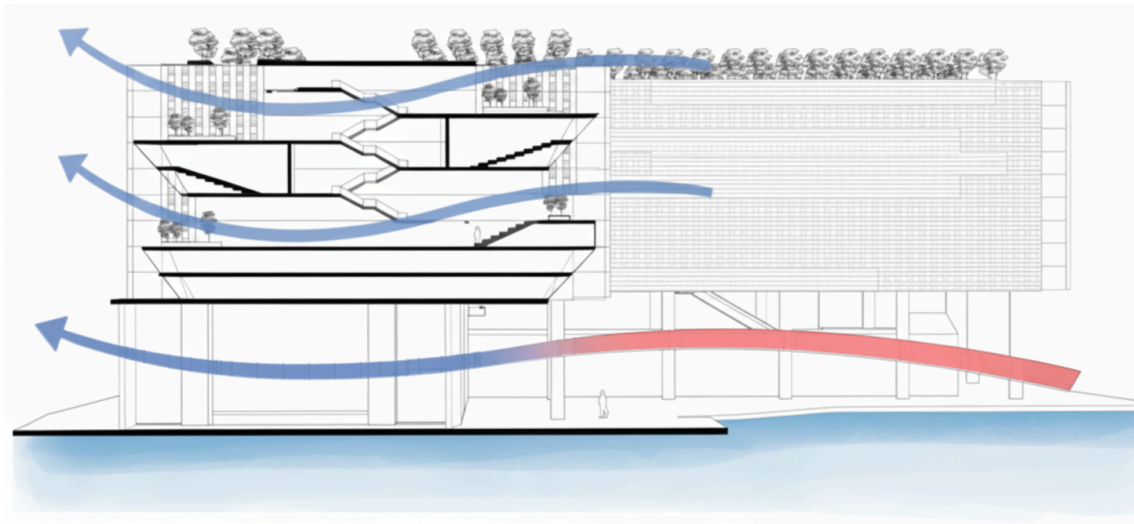


Figure 4.1.J: Airflow through campus building (Source: www.transsolar.com)

Looking ahead, the design embraces sustainable strategies that align with the city's climate, aiming to set an example for future generations. The building will feature five types of ventilation systems: natural ventilation, hybrid tempered ventilation, hybrid tempered ventilation with fan coil units (FCUs), full air conditioning, and mechanical ventilation. Additionally, solar panels will reduce cooling demand by up to 40%. Natural airflow through breezeways will cool the outdoor recreational spaces, while classrooms and studios will benefit from hybrid ventilation systems. Larger spaces, including the library, auditorium, galleries, and lecture halls, will be fully air-conditioned.



Figure 4.1.K: Running Track of Brac University (Source: www.transsolar.com)



Figure 4.1.L: Green field on Roof of Brac University (Source: author)

The recreational areas, roof, and façades are all covered with plants and creepers, which shield the building from noise, air pollution, and heat. The total green area exceeds the footprint of the building site itself. Solar panels will power energy-efficient lighting and charger sockets, while rainwater harvested on-site will be used to maintain the landscape plants. Additionally, dark water will be recycled for toilet flushing.



Figure 4.1.M: Connectivity among different levels of Brac University (Source: www.transsolar.com)

Despite spatial constraints, the design ensures ample interaction and social spaces on every classroom floor. These areas are designed with open sections, reaching up to three floors high, and feature seating steps and greenery to improve the environment. The campus also includes an indoor basketball court, a sports field, a running track, and a swimming pool on the roof.



Figure 4.1.N: Rain chain Irrigation of Brac University (Source: author)



Figure 4.1.O: Grey water Recycling in Brac University (Source: Prothom Alo)

Biotope (Grey water Recycle from washroom)

The rain chain system channels rainwater from the roof through a series of linked cups, gently guiding it down to the ground where it irrigates surrounding plants and helps with groundwater recharge. The greywater recycling system, or Biotope collects used water from washroom sinks and filters it naturally through gravel, plants, and soil, allowing it to be reused for landscaping. Together, these systems support sustainable water management while maintaining the campus's green environment.

4.2 International

DY Patil University Centre of Excellence, Navi Mumbai, India



Figure 4.2.A : Birds Eye view of DY Patil University Centre of Excellence

- Area: 75,000 m²
- Height: 10 stories
- Sky Garden: 2 acres
- LEED Rating: Platinum (highest)
- Architects: Foster + Partners
- Completed: 2022
- Capacity: 3,000 students

The campus is also characterized by a two-acre sky garden that is native-planted with ponds and relaxation spaces for relaxation. It has 3,000 students.

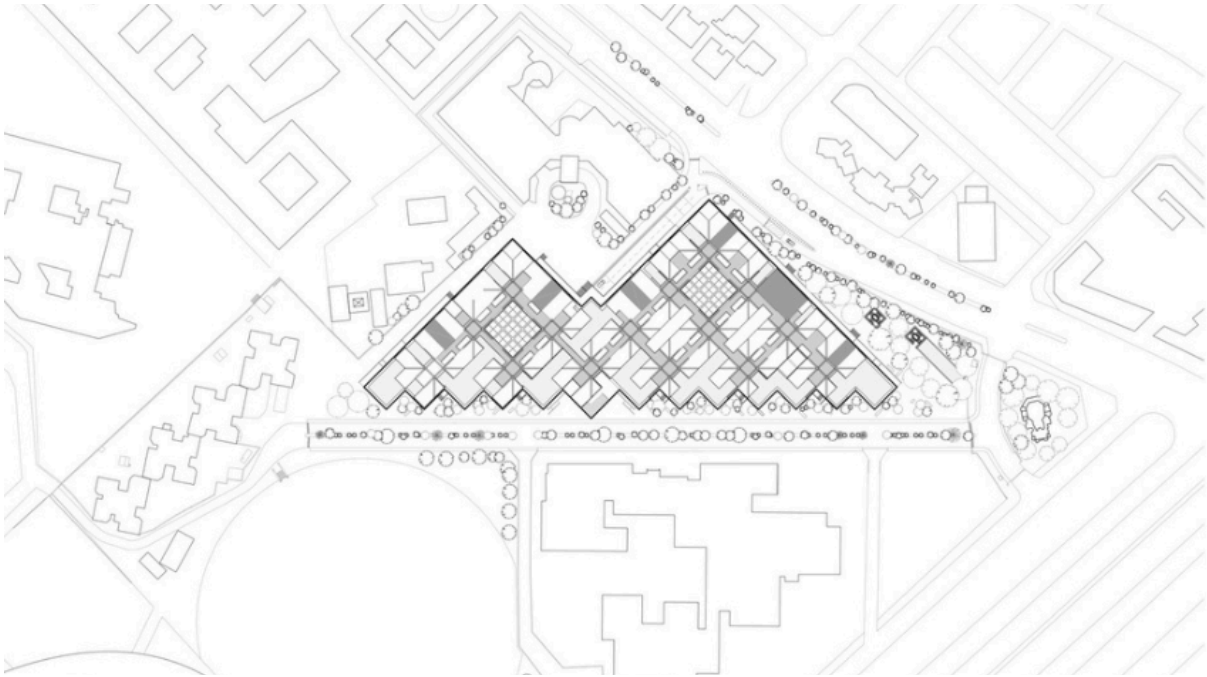


Figure 4.2.B : Site Plan of DY Patil University (Source: www.archdaily.com)

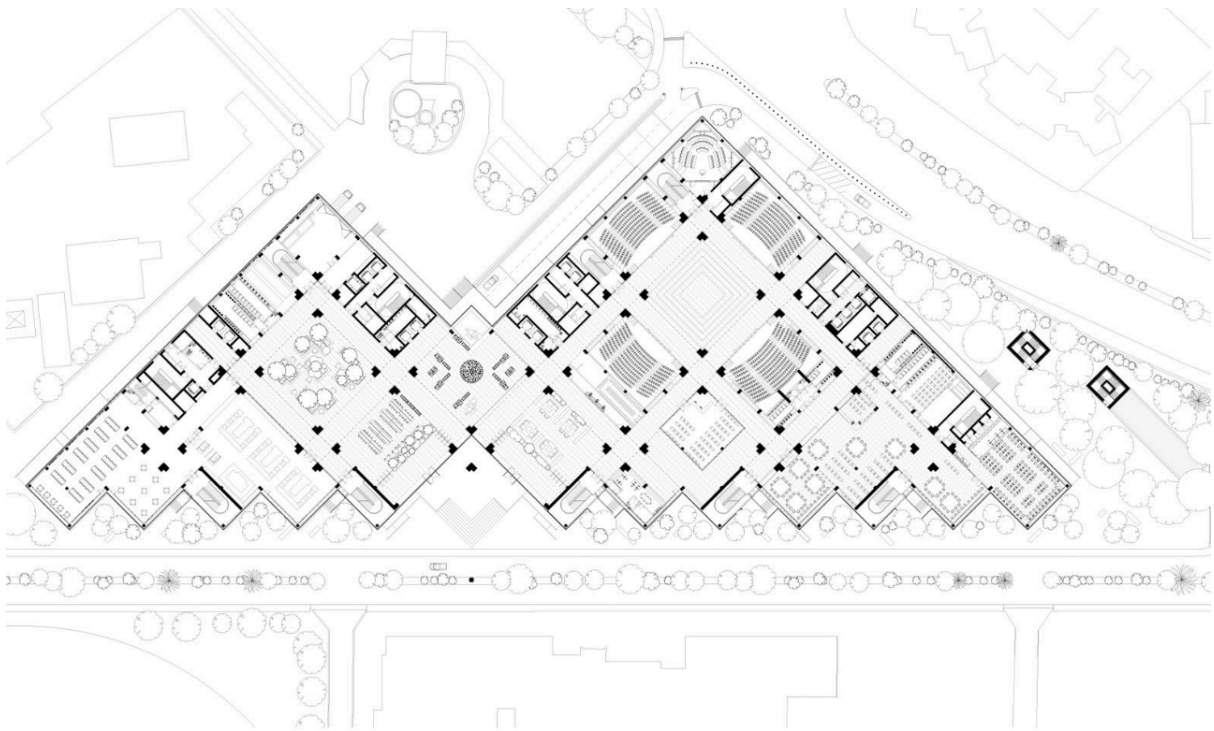


Figure 4.2.C : Floor Plan- Ground Level of DY Patil University (Source: www.archdaily.com)



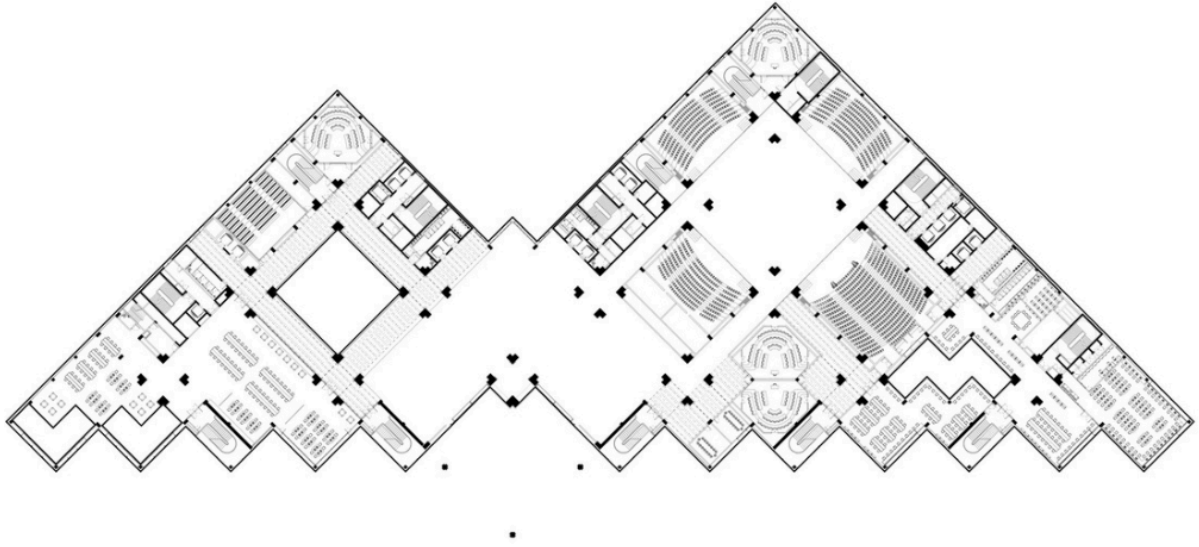


Figure 4.2.D : Floor Plan-Level 1 of DY Patil University (Source: www.archdaily.com)

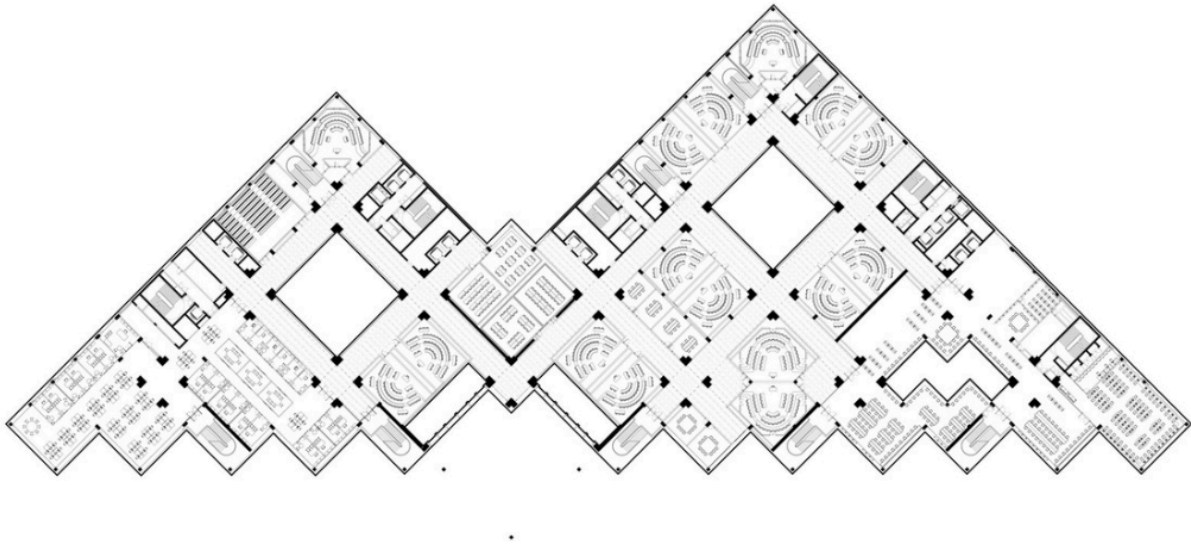


Figure 4.2.E : Floor Plan-Level 2 of DY Patil University (Source: www.archdaily.com)



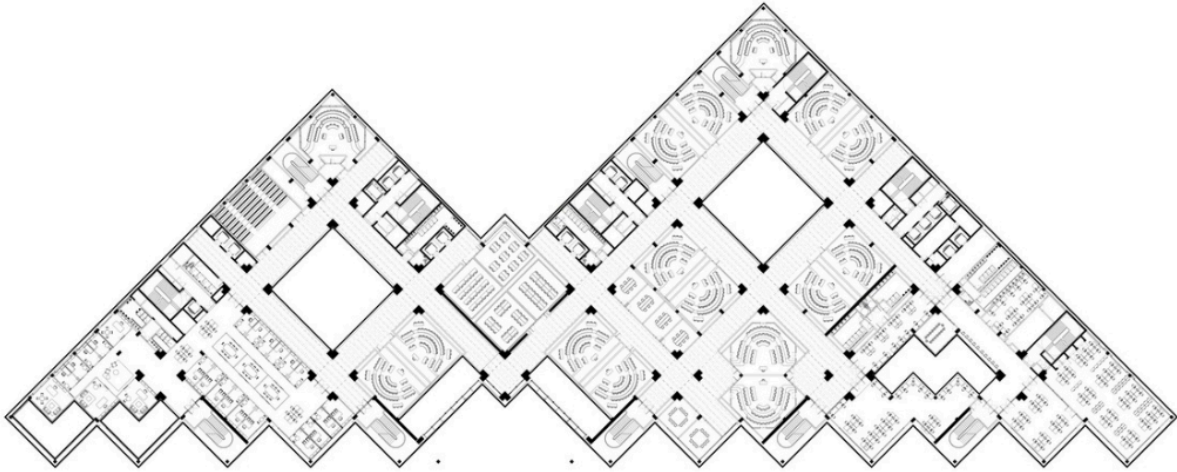


Figure 4.2.F : Floor Plan-Level 3 of DY Patil University (Source: www.archdaily.com)

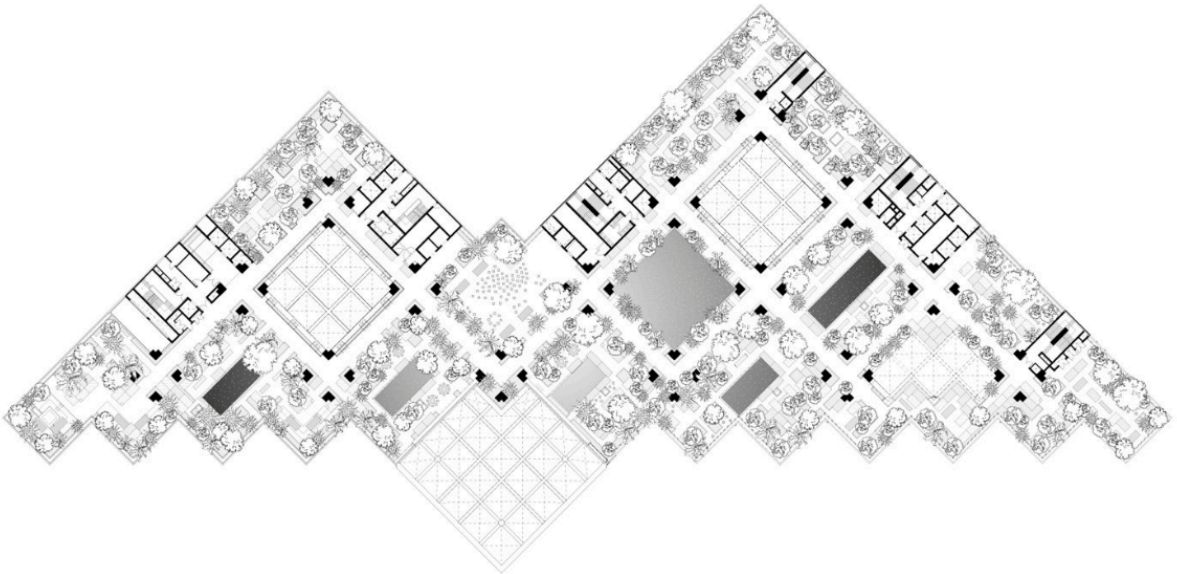


Figure 4.2.G : Floor Plan-Level 4 of DY Patil University (Source: www.archdaily.com)



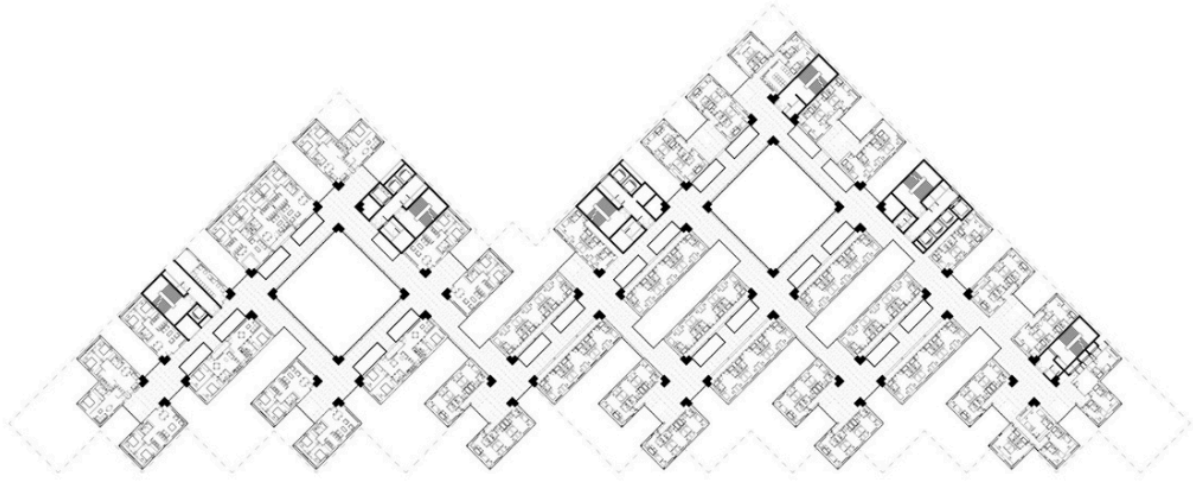


Figure 4.2.H : Floor Plan-Level 5 of DY Patil University (Source: www.archdaily.com)



Academic utilization is accommodated in the first four floors that consist of classrooms, lecture theaters, a library, a cafeteria, exhibition spaces, and administrative spaces. The housing for the students and the faculties is accommodated in the five top floors. The sky garden connects the residential and academic spaces.

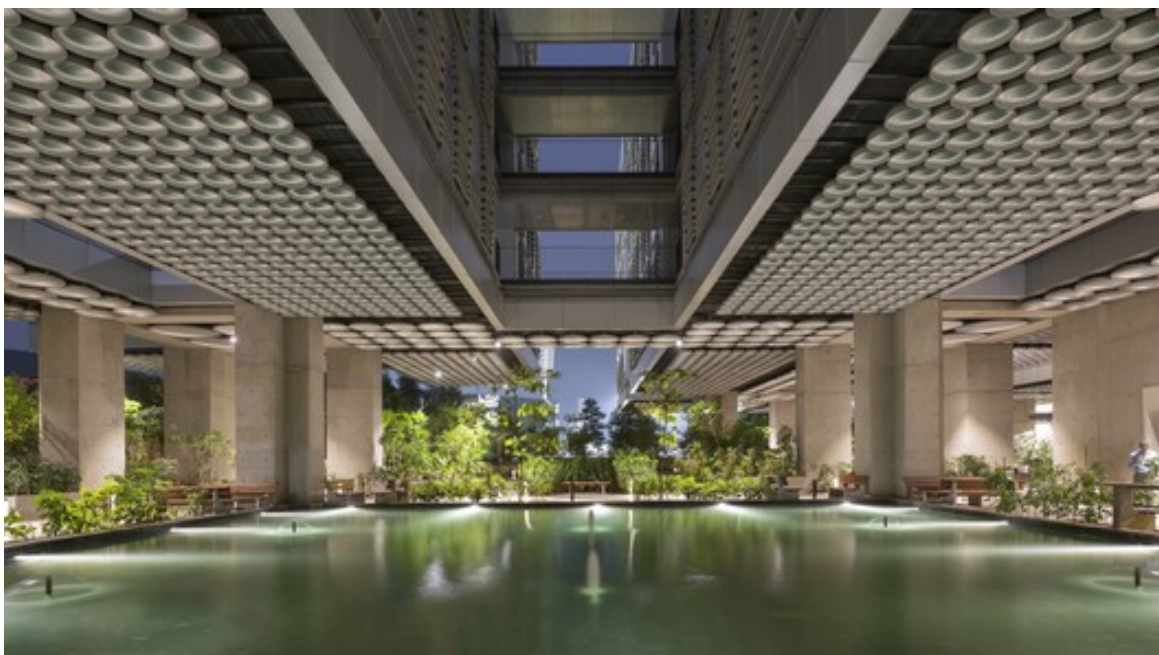


Figure 4.2.I : Waterbody of DY Patil University (Source: www.archdaily.com)

The building is also energy and water efficient. The use of shading devices reduces air conditioning. There is extensive daylight admission, though glare is regulated. Wind towers are used for cooling facilities like the auditorium and concourse. Water-conserving systems are used across the building.



Figure 4.2.J : Courtyards of Dy Patil University (Source: www.archdaily.com)

The School of Business has four shaded courtyards where natural light and air flow. The building has a four-story canopy entrance with a glass roof, which provides rainbow-colored shadows to the walls. There is also a sunken amphitheater in the

center of the building, which is surrounded by four large auditoriums. These are used for events, performances, and graduations. There are four levels in the library with balconies and stairways that lead to a layered inside.

Local workers helped in building the building. The group, for a decade, tried out materials and building methods to develop the design. Materials used include travertine, timber, aluminum, glass-reinforced concrete, and low-carbon concrete. The design group created bespoke furniture for comfort and usability.

The lower part of the building seems to be robust and built using different types of panels. The top part is lighter, built using cast and extruded aluminum. Corridors are naturally ventilated and provided with access to sky garden views.

The building encourages learning, interaction, and relaxation, with a strong focus on sustainability and student experience.

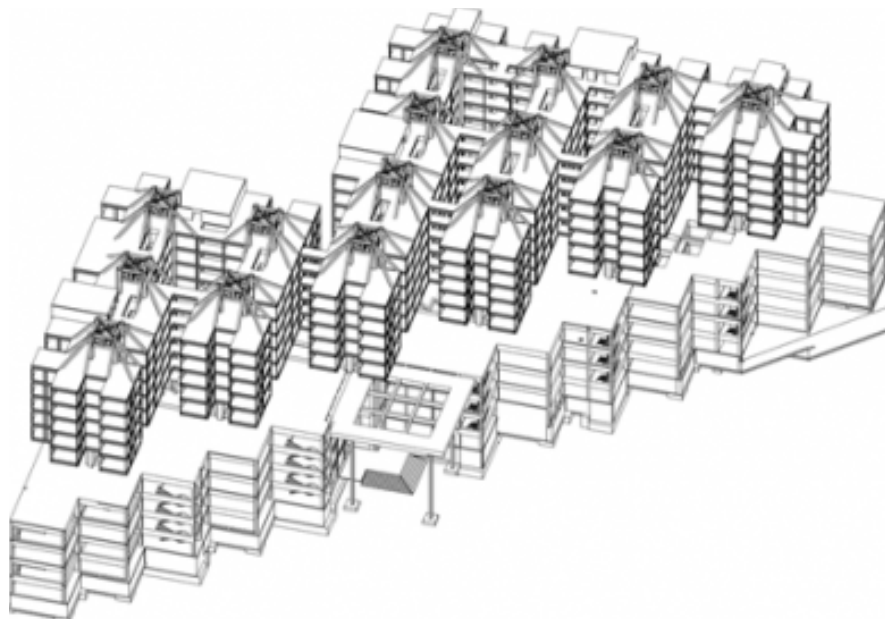


Figure 4.2.K : Birds Eye view of DY Patil University (Source: www.steelconstruction.info)



Figure 4.2.L: North-East Elevation of DY Patil University (Source: www.archdaily.com)



Figure 4.2.M: North-West Elevation of DY Patil University (Source: www.archdaily.com)

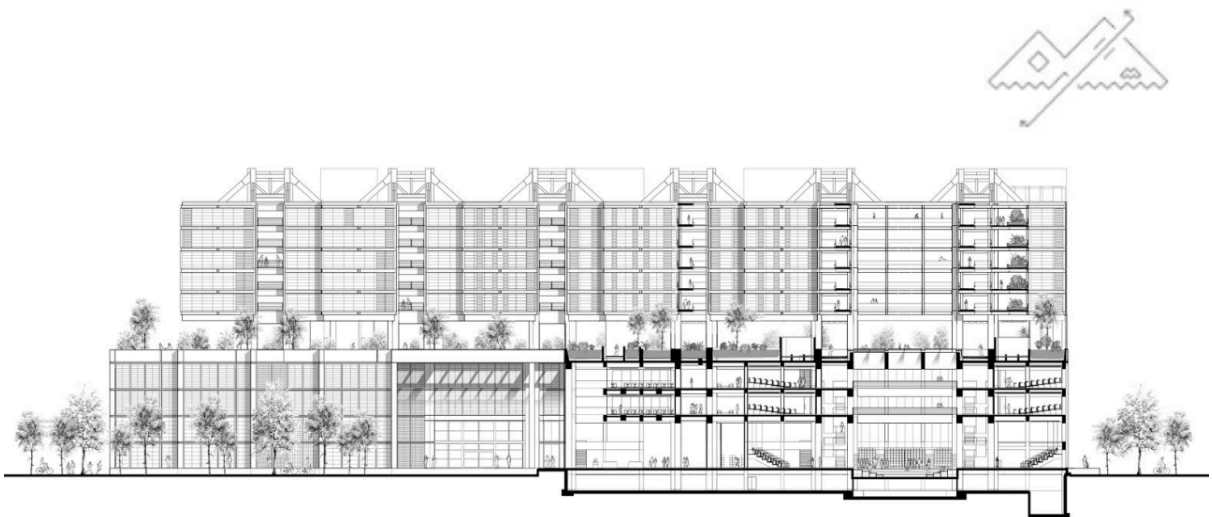


Figure 4.2.N: Section from South-East of DY Patil University (Source: www.archdaily.com)



Figure 4.2.O: Section from North-West of DY Patil University (Source: www.archdaily.com)

CHAPTER 5 : PROGRAM ANALYSIS

5. 1 Administration Block

The administrative block includes 3 parts; Institutional Governance, Service division and Operational Division. The Institutional Governance includes Registrar's Office, Proctor's Office, Vice Chancellor Office and Pro Vice Chancellor office. Room space is as per standard office layout (100 to 250 sq ft for every officer or function), which suits comfortable working areas, reception, Pantry, File room and other necessary spaces. Each block provides 20% area for services (toilets, storage, and electrical) and 30% for circulation (corridors and lobbies) as suggested by Time-Saver guidelines and institutional design norms. This allows optimal performance, accessibility, and smooth flow of space for employees and students.

Institutional Governance	
Registrar's Office	
Description	Area (sqft)
Registrar	500
Deputy registrar	250
Assistant registrar	150
Workstation Area	500
Reception / counter	500
File room	300
Pantry	200
Service (20%)	440
Circulation (30%)	852
Total	3692

Proctor's Office	
Description	Area (sqft)
Proctor	200
Assistant proctor (5)	300

Workstation Area	500
Reception / counter	500
Conference room	300
File room	300
Pantry	200
Service (20%)	420
Circulation (30%)	816
Total	3536

VC Office	
Description	Area (sqft)
VC Office	500
Workstation Area	500
Reception/counter	500
Conference room	300
File room	300
Pantry	200
Service (20%)	420
Circulation (30%)	816
Total	3536

Pro VC Office	
Description	Area (sqft)
Pro VC Office	500
Workstation Area	500
Reception/counter	500
Conference room	300
File room	300
Pantry	200
Service (20%)	420
Circulation (30%)	816
Total	3536

Total Required Area for Institutional Governance (sqft)	14300
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Service Division which comes with IT office, ASW (Ahsanullah University Student Welfare) Office, Accounts and Finance Office and Scholarship office. While space making, similar types of approaches like Institutional Governance are taken here.

Service Division : IT, Asw, Accounts & Finance , Scholarship	
For Each Section	
Description	Area (sqft)
Head	200
Executives	500
Pantry	200
Meeting	300
Reception/counter	500
Workstation Area	500
File room	300
Service (20%)	500
Circulation (30%)	900
Total	3900

Total Required Area for Service Division (sqft)	15600
--	--------------

Similarly Operational Division Includes HR office, Maintenance Office, Security and Procurement Office

Operational Division : HR, Maintenance, Security, Procurement	
For Each Section	
Description	Area (sqft)
Head	200
Executives	500
Pantry	200
Meeting	300
Reception/counter	500
Workstation Area	500
File room	300

Service (20%)	500
Circulation (30%)	900
Total	3900

Total Required Area for Operational Division (sqft)	15600
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5. 2 Academic Block

The academic block is equipped with several faculties, each having about 340 students per department. The classrooms have an area of 800 sqft following a 32-student occupancy basis in accordance with the advice of 20–22 sqft per student. Large Labs are 1800 sqft to meet technical education standards for the handling of equipment safely and in groups. Other facilities such as seminar rooms, office spaces of the faculties, and lounges are included to support academic functions. A 20% service and 30% circulation area is dedicated to maintenance and circulation so that a flexible, functional learning environment is accommodated.

Space Allocation				
Space Description	No. of Users	Quantity	Required Area (sqft)	Total Area (sqft)
Classrooms (6) and Small Labs (2)	32	8	800	6400
Large Lab		1		1800
Workstation Area				500
Professor	1	1	200	200
Asst. Prof. & Assoc Prof.	6		60	360
Pantry				200
Meeting room		1	300	300
Reception + Waiting area				300
Storage + Service (20%)				2012
Circulation (30%)				3621.6
Total				15693.6

Faculty of Advanced Technology		
Name of the Department	Total Students	Total Area (sqft/dept)
1. Department of Nanotechnology Engineering	Maximum 320 students for each department	15693.6
2. Department of Biotechnology		
3. Department of Biometric Engineering		
4. Department of Telecommunication		
5. Department of Microelectronic Engineering		
6. Department. of Robotic Engineering		
7. Department of Biomedical Engineering		
8. Department of Mechatronics Engineering		
9. Department of Medical Electronics		
10. Department of Genetic Engineering		
Total	3200	156936

Faculty of Urban Planning and Landscape		
Name of the Department	Total Students	Total Area (sqft/dept)
01. Department of Landscape	Maximum 320 students for each department	15693.6
02. Department of Urban Planning		
Total	640	31387.2

Faculty of Pharmacy		
Name of the Department	Total Students	Total Area (sqft/dept)
01. Department of Pharmaceutical Technology	Maximum 320 students for each department	15693.6
02. Department of Clinical Pharmacy		
Total	640	31387.2

Faculty of Renewable Energy		
Name of the Department	Total Students	Total Area (sqft/dept)
01. Department of Renewable Energy	Maximum 320 students for each department	15537.6
02. Department of Energy Efficiency		
Total	640	31075.2

Faculty of Environmental Sciences		
Name of the Department	Total Students	Total Area (sqft/dept)
01. Department of Climatology	Maximum 320 students for each department	15537.6
02. Department of Sustainable Development		
03. Department of Environmental Chemistry		
04. Department of Environmental Hazard & Disaster management		
Total	1280	62150.4

Total Required Area for Academic Block (sqft)	312936
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5. 3 Residential Block

The residential area is designed for 6400 students, with a ratio of 1:10 seats, for a total of 640 dormitory beds. There are 2 students per room in 200 sq ft, which is standard in student shared living. Dormitories include dining halls, superintendent offices, and common rooms, with areas allocated for services (20%) and circulation (30%) for easy living. Teachers and supporting staff are also accommodated, in line with a 1:30 ratio of teachers to students, with rooms and shared facilities set aside for both groups. Such floor plans follow university residential planning principles for increased safety, fairness, and livability in campus life.

Students Accommodation	
Total Students	6400
Student to Dorm Seats ratio	10 : 1
Total Dorm Seats	640
Female Dorm Seats	300
Male Dorm Seats	340

Space Allocation for Students	
Bedroom with study (for 2)	200sqft

Male Dorm			
Space Type	User	Required Area sqft	Area (sqft)
Total accommodation room area (for 2 students in each room)	340 (170 rooms)	200	34000
Hostel superintendent (1: 100)	4	100	400
Kitchen+ Dining Hall			5000
Common Room			1000
Medical Room			200
Reception + Waiting			200
Storage + Service (20%)			7880
Circulation (30%)			14604
Total			63284

Female Dorm			
Space Type	User	Required Area sqft	Area (sqft)
Total accommodation room area (for 2 students in each room)	300 (150 rooms)	200	30000
Hostel superintendent (1: 100)	3	100	300
Kitchen+ Dining Hall			5000
Common Room			1000
Medical Room			200
Reception + Waiting			200
Storage + Service (20%)			7060
Circulation (30%)			13128
Total			56888

Total Required Area for Accommodation (sqft)	120172
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5.4 Others

This part describes general facilities like the auditorium, mosque, library, cafeteria, medical center, IT server room, and student clubs. Space is assigned according to standard use cases—like 10 sq ft per auditorium seat or 10000 sq ft for libraries with reading and digital spaces.

Other Services		
Space Description	No. of Users	Total Area (sqft)
Central Mosque		15000
Auditorium	500	10000
Library + Study Area		10000
Cafeteria		10000
Multi Purpose Hall		5000
Student's club		4000
Student's Common Rooms		4000
Seminar Rooms (3)		3000
Multi Prayer Room		1000
Bank		1000
Day Care Center		1000
Counseling Room		1000
Medical Room		1000
Pharmacy		500
Service (20%)		13300
Circulation (30%)		19950
Total		99750

5.5 Total Builtup Area

Blocks	Total Area (sqft)
Administration Office	45500
Academic Block	312936
Accommodation	120172
Others	99750
Total	578358

CHAPTER 6 : DESIGN DEVELOPMENT

6.1 Form Generation

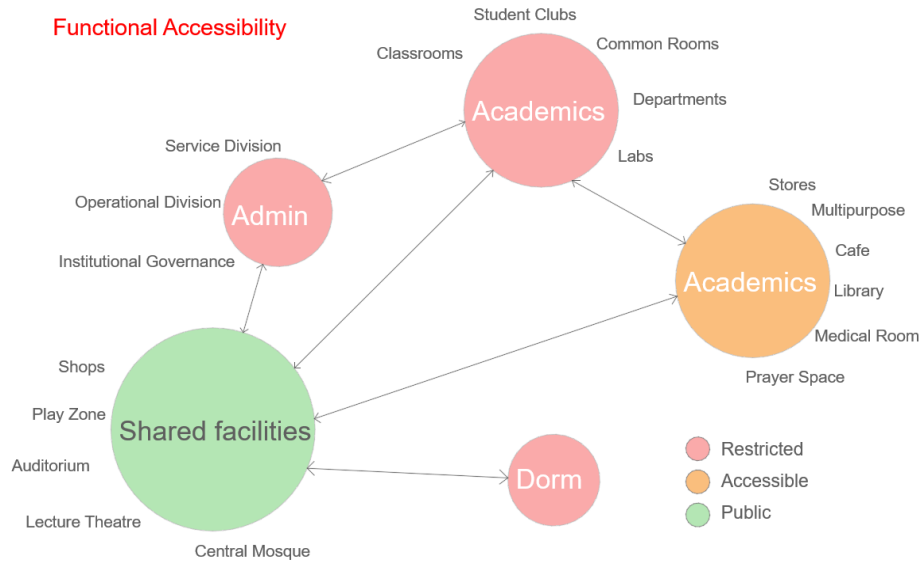


Figure 6.1.A: Functional Accessibility

The design evolved through five main phases, moving from broad zoning ideas to a detailed, functionally efficient final plan.

6.1.1 Phase 1 — Initial Zoning

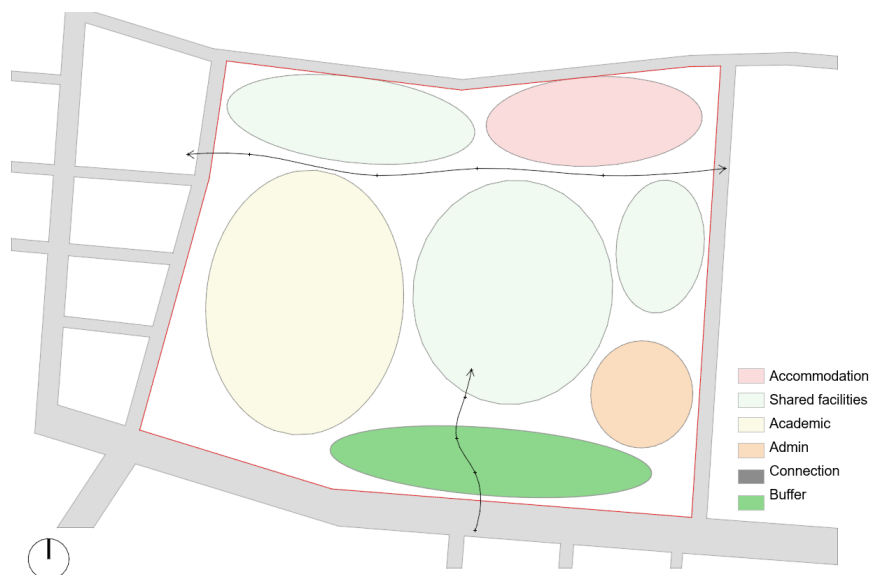


Figure 6.1.B: Initial Zoning

The site was divided into clear zones for academics, residential facilities, and administration.

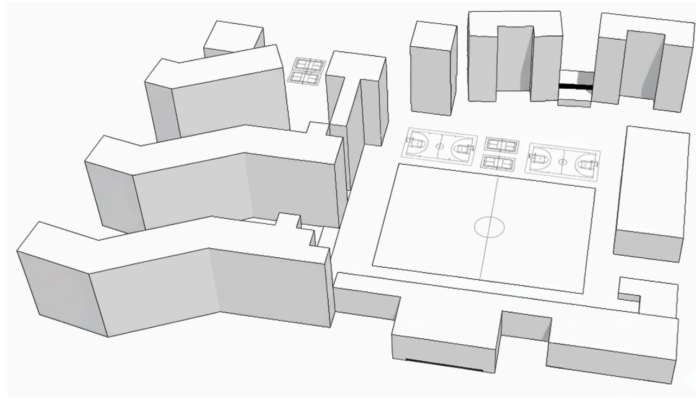


Figure 6.1.C: 3D of Phase 1

The design focuses on keeping a strong link between learning and living areas through open courtyards and plazas that encourage movement and interaction. Only 42% of the land is built, so there's plenty of open space for greenery, sports, and walking paths. A main central path connects the entrance, main academic block, mosque, and dormitories. On both sides of this path, smaller zones naturally form with study spaces on one side and living and recreation areas on the other.

6.1.2 Phase 2 — Functional Refinement

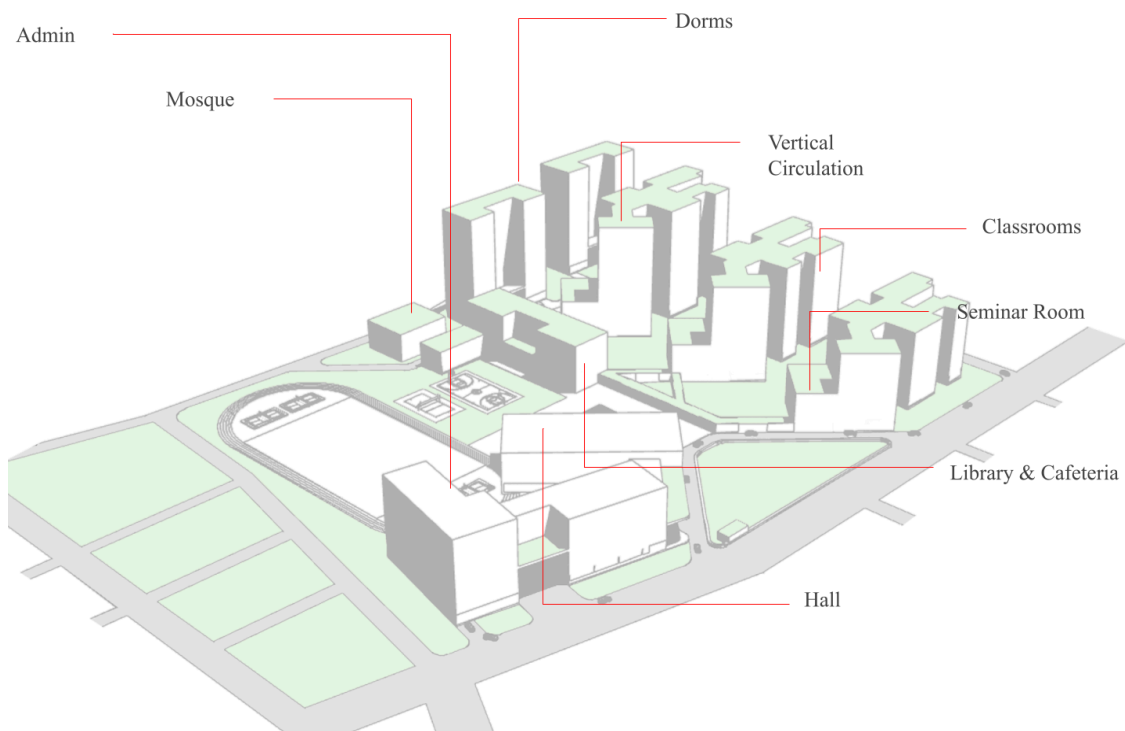


Figure 6.1.D: 3D of Phase 2

Programs and functions were arranged based on their needs and relationships:

- The mosque is near the dorms so it can be easily accessed from both dorms and academic blocks.
- The library is in the north, a very quiet space for study.
- The cafeteria is on the west, next to the sports zone, with a mezzanine floor so students can eat while enjoying activities.
- Classrooms and labs are placed on quieter, shaded sides for better focus.
- Dormitories are slightly away from academic blocks
- Teachers, staff, and students have separate spaces on each floor for proper organization.

6.1.3 Phase 3 — Volume and Circulation Study

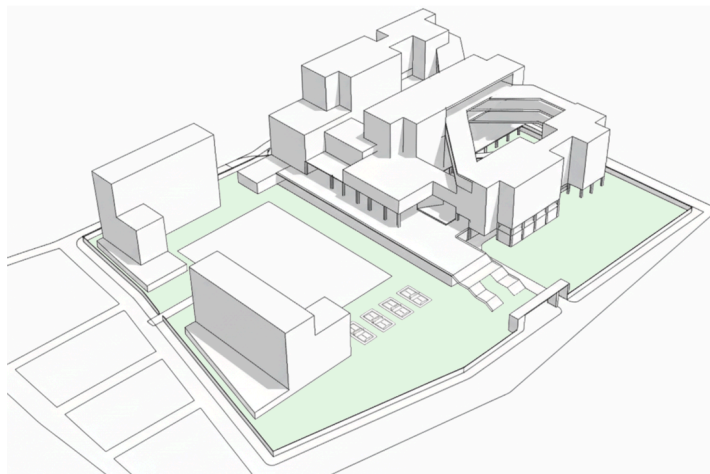


Figure 6.1.E: 3D of Phase 3 (a)

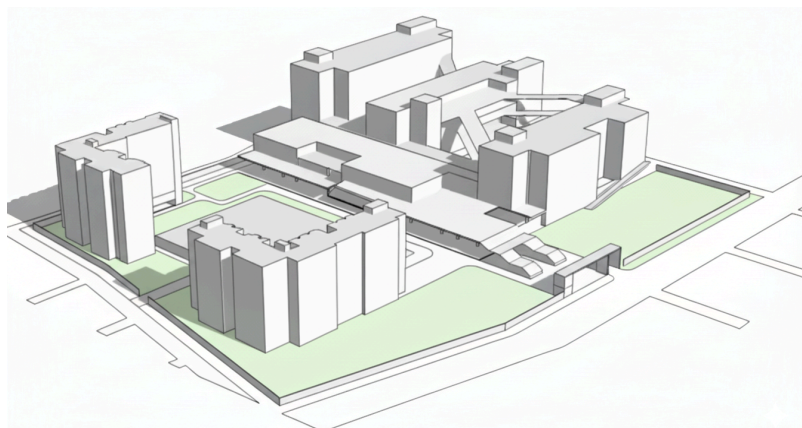


Figure 6.1.F: 3D of Phase 3 (b)

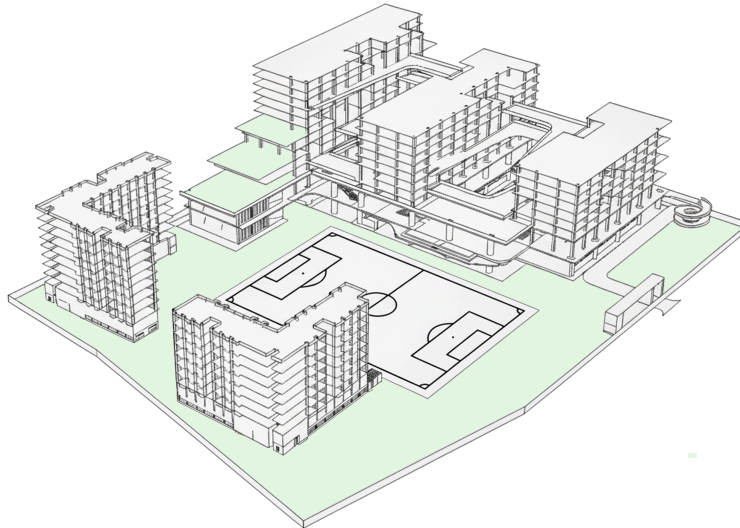


Figure 6.1.G: 3D of Phase 3 (c)

The academic building grew vertically with different functions on each level:

- Lower levels for public and communal use
- Middle levels for classrooms and offices
- Upper levels for labs, small classrooms, and roof gardens

Stairs, lifts, corridors, and bridges were planned to reduce travel time and encourage interaction. The auditorium is double-height by connecting two floors.

6.1.4 Phase 4 — Orientation Shift: North–South to East–West



Figure 6.1.H: 3D of Phase 4

- The three academic buildings and dorms are rotated from north–south to east–west, making the campus more efficient and organized.
- The rotation improves sunlight, airflow, pedestrian and vehicle access, and leaves more open space for sports, gardens, and seating areas.
- A waterbody is placed on the south for evaporative cooling, which was not possible in the old north–south orientation.

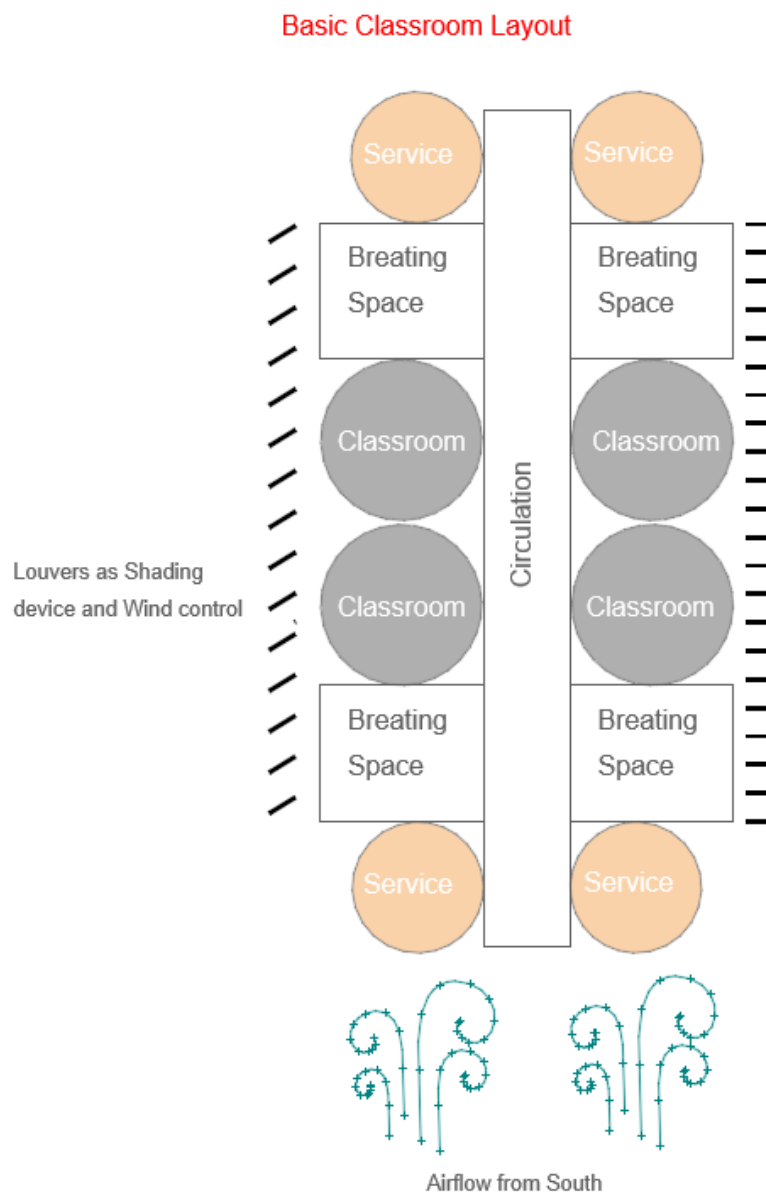


Figure 6.1.1: Basic Classroom Layout

6.1.5 Phase 5 — Final Design and Space Integration

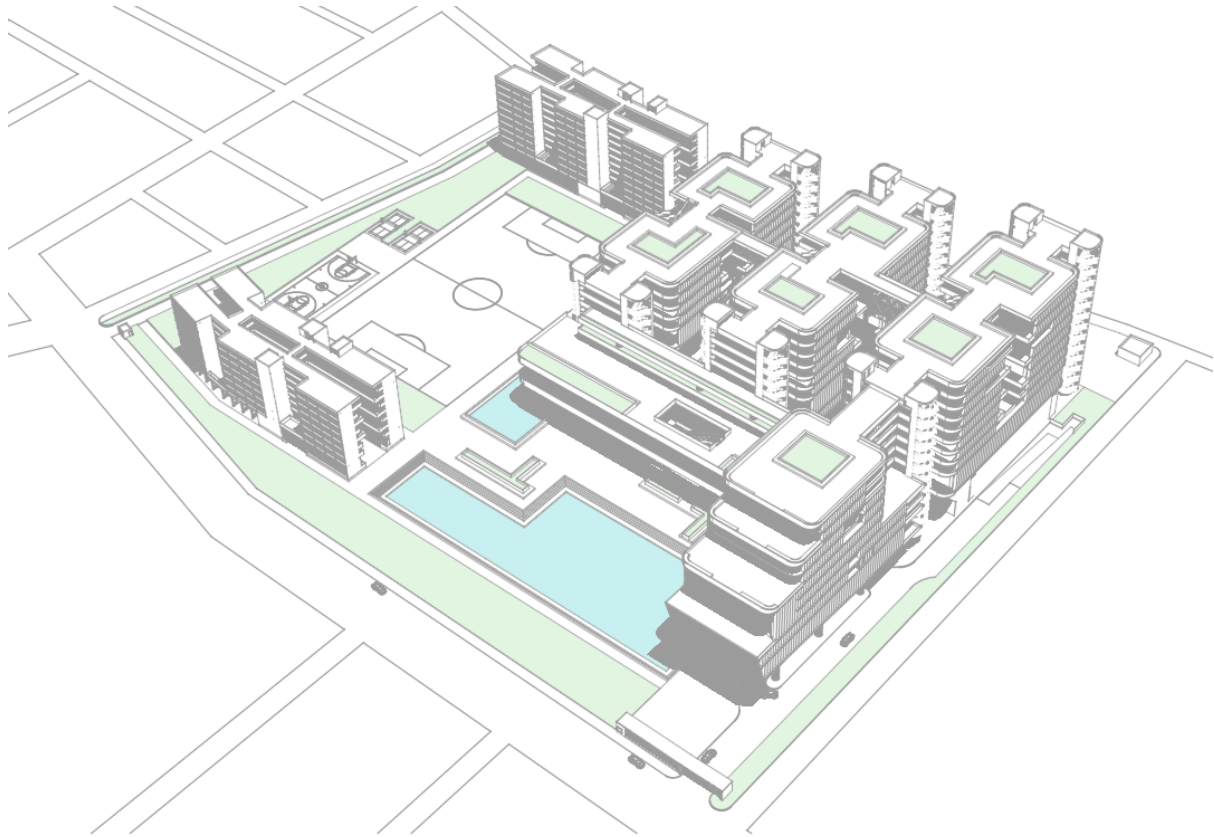


Figure 6.1.I: 3D of Phase 5

By the final phase, the design became a complete ecosystem — a self-contained yet open university environment. The design has three academic buildings connected together, surrounded by green fields, sports areas, and dorms. The open ground floors allow light and air, while upper floors hold classrooms and other academic spaces.

6.2 Structural Planning

The building's structure uses a 1-meter radius circular column system with 19.5-meter spans and 750mm deep beams. This large-span approach created open, flexible interior spaces, allowing multifunctional use and adaptability over time.

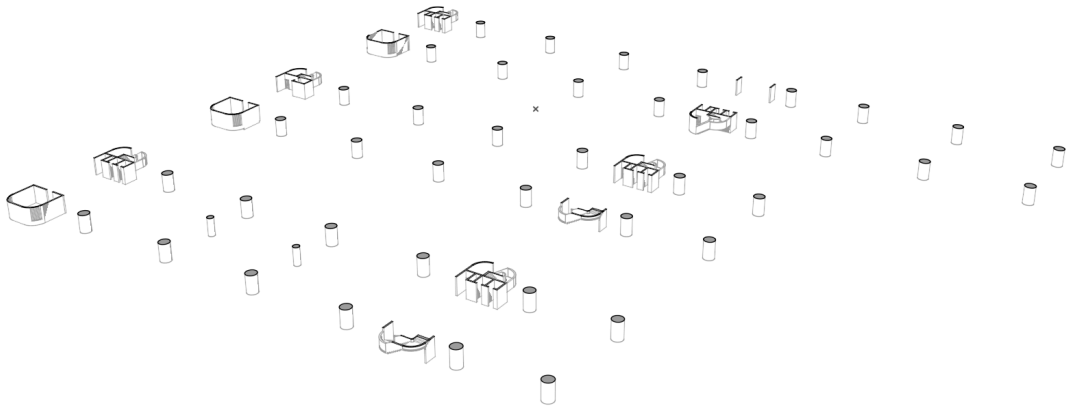


Figure 6.2.A: Column Placement

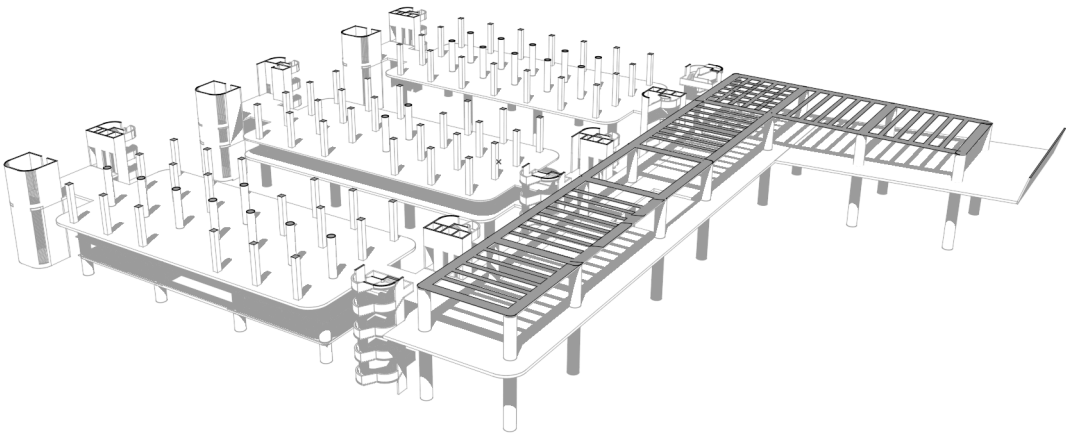


Figure 6.2.B: Beam and Girder Placement (a)

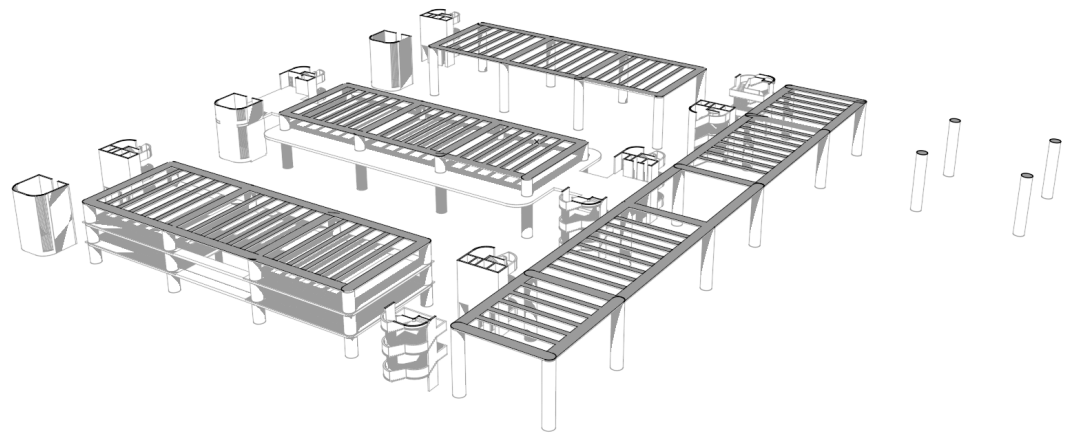


Figure 6.2.C: Beam and Girder Placement (b)

Massing was refined to feel strong at the bottom and light at the top. The lower floors are solid, and the upper terraces are open. Roof gardens and terraces helped break the bulk of the building while providing visual and environmental relief.

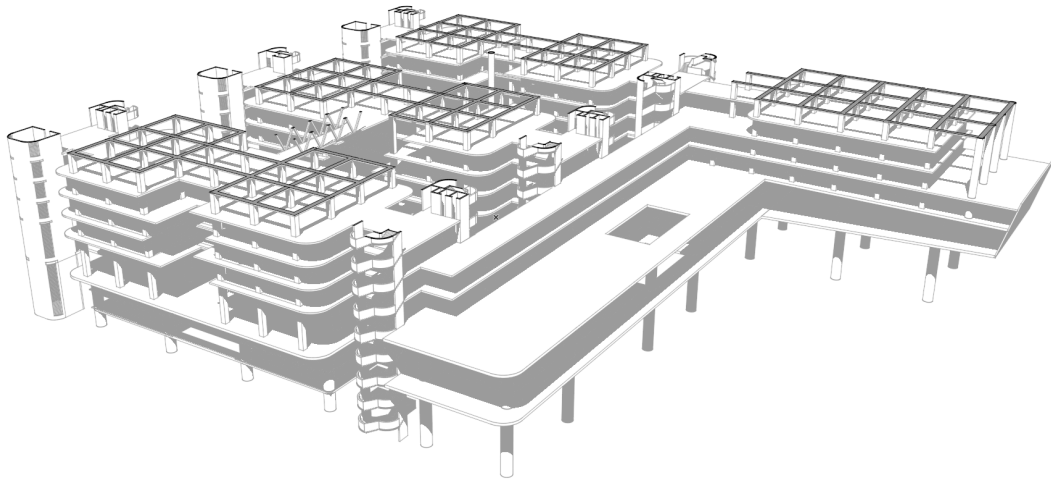


Figure 6.2.D: Column-Beam Layout of Upper Floors (a)

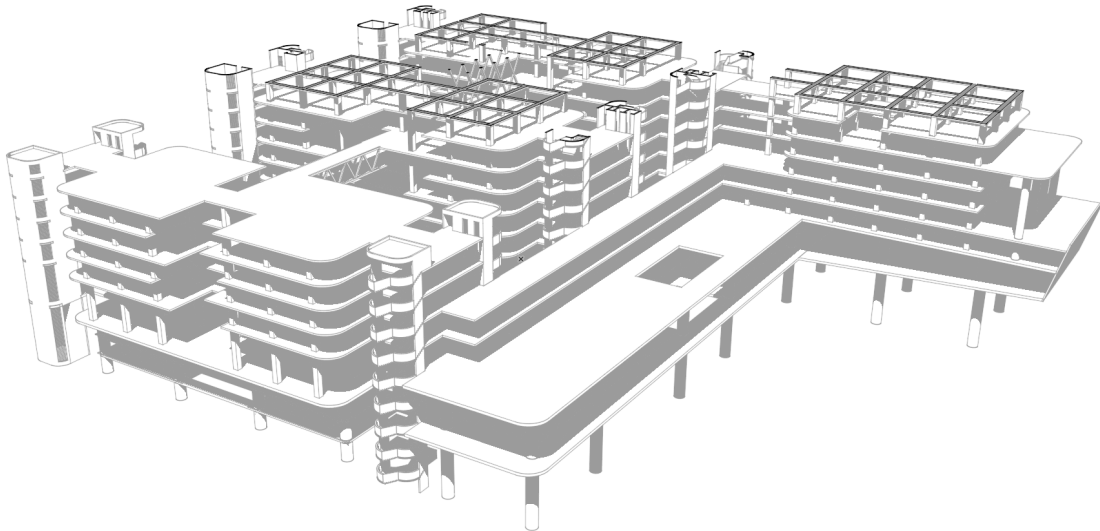


Figure 6.2.E: Column-Beam Layout of Upper Floors (b)

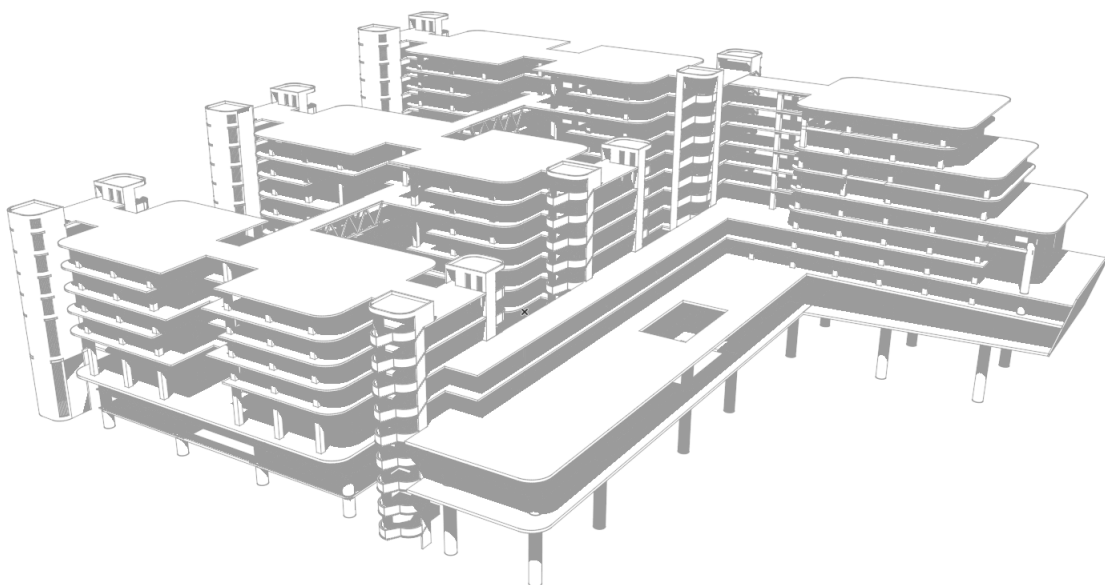


Figure 6.2.F: Complete Structure

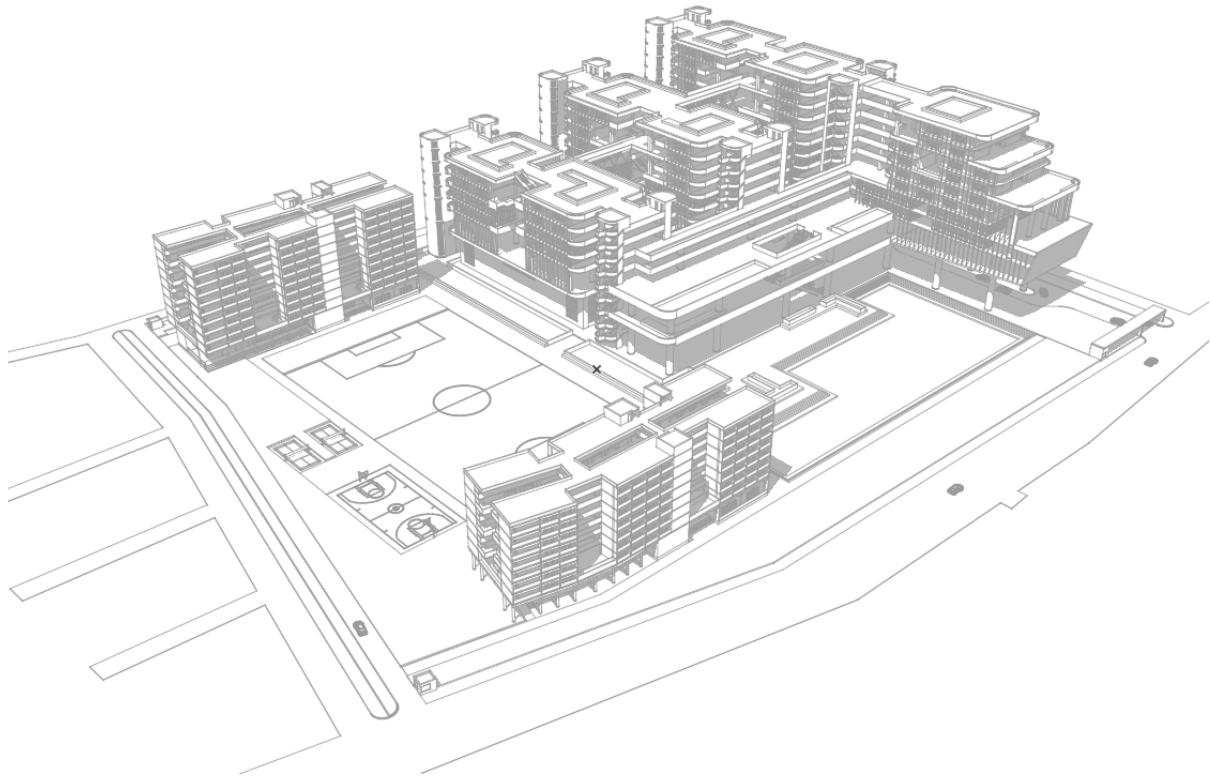


Figure 6.2.G: 3D with vertical louvers and Roof Gardens

The design is simple, logical, and fits well with the surroundings. It has a modern look but also responds to the local climate. It uses:

- Deep shades and louvers to block harsh sunlight.
- Open courtyards to let air flow and keep the spaces cool naturally.
- Roof gardens and green terraces to bring nature into every level.
- Wide open spaces inside for flexible use and free movement.

The campus design focuses on being eco-friendly and energy-efficient. It includes:

- Green roofs and a southern waterbody for evaporative cooling.
- Rainwater collection within the landscape.
- Pedestrian-friendly circulation with minimal car movement.

6.3 Plans

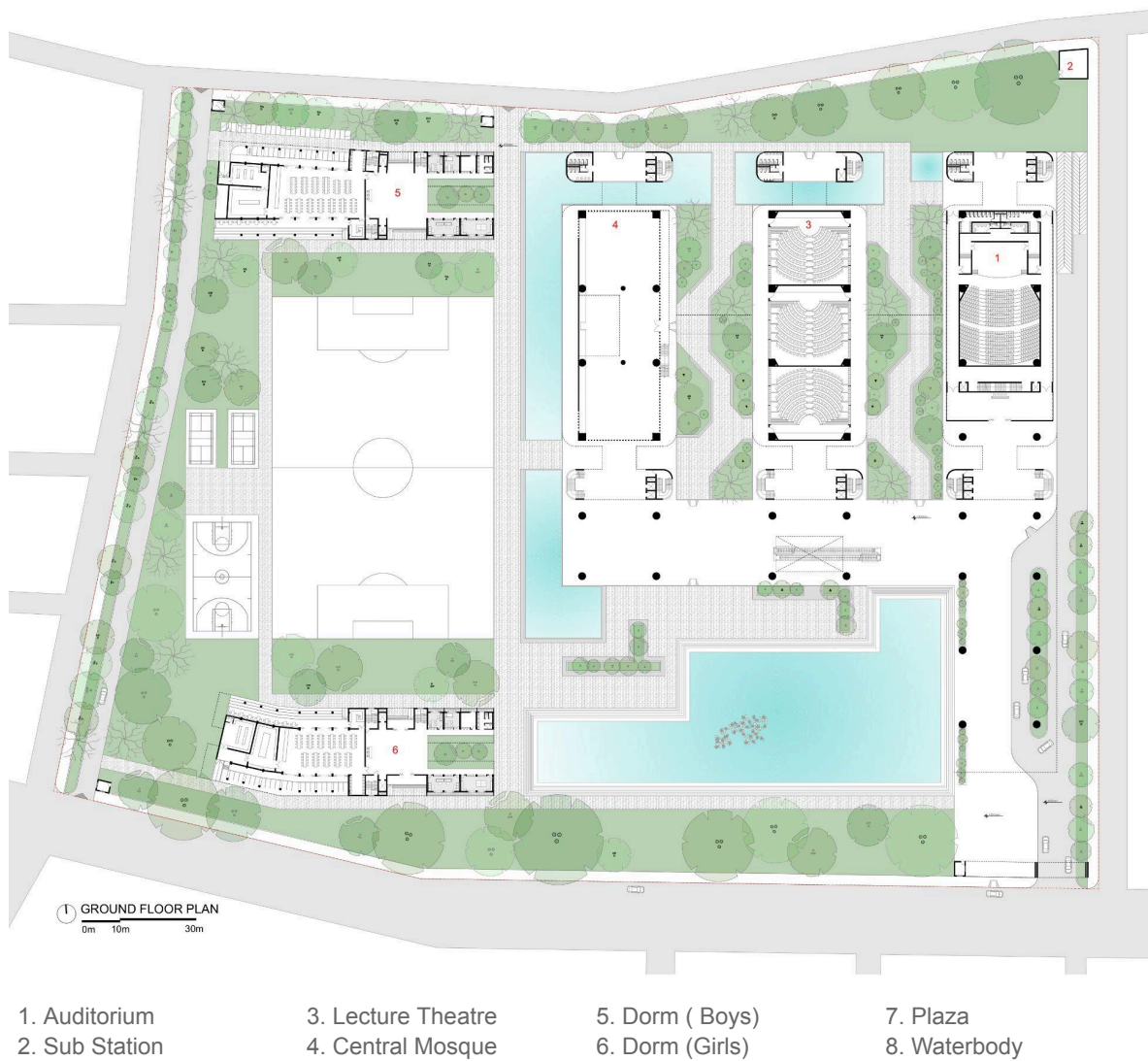


Figure 6.3.A: Ground Floor Plan



Figure 6.3.B: Ground Floor Plan of Boys' Dorm (Blow-up)

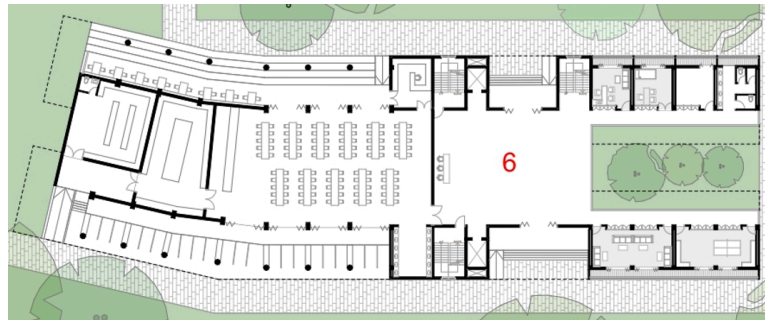


Figure 6.3.C: Ground Floor Plan of Girls' Dorm (Blow-up)

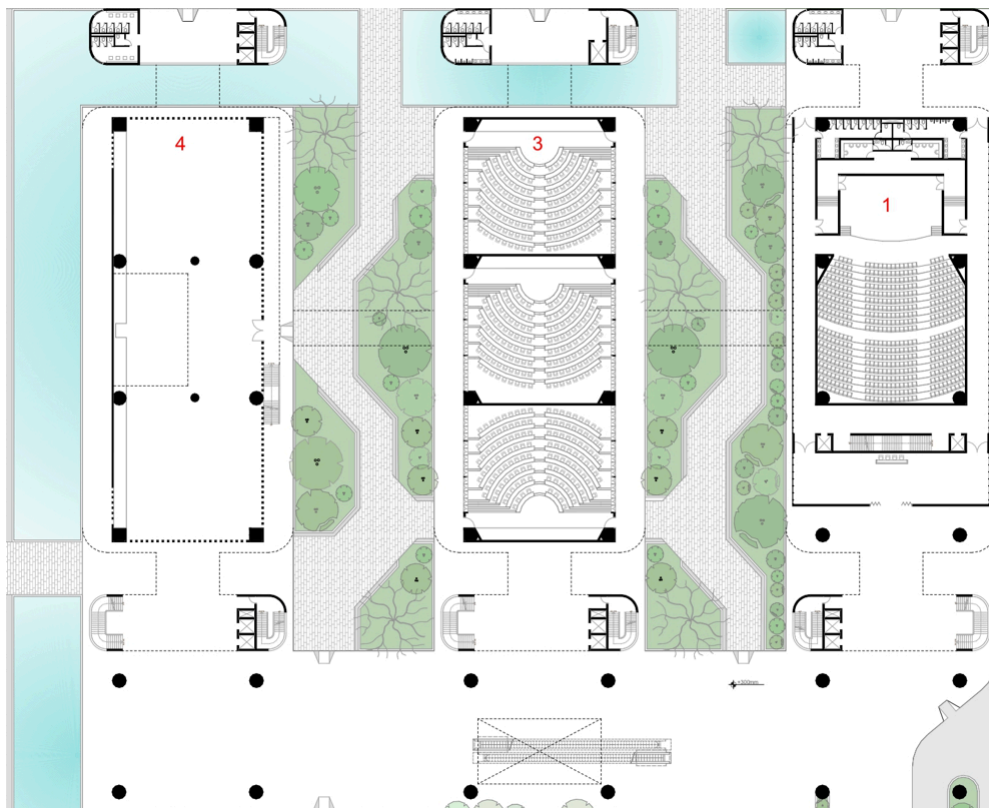
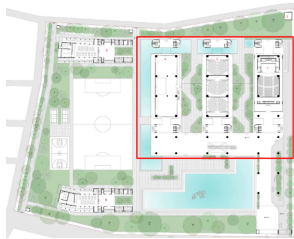


Figure 6.3.D: Level 1 plan of Mosque, Lecture Theatre and Auditorium (Blow-up)

The ground floor holds the main public and active areas, including:

- A 500-seat auditorium for events and gatherings.
- Three large lecture theaters and a central mosque.
- Boys' and girls' dorms are placed nearby with a plaza and a large waterbody in the South.
- Sports zones with football, basketball, and badminton courts, plus some surface parking for easy access.



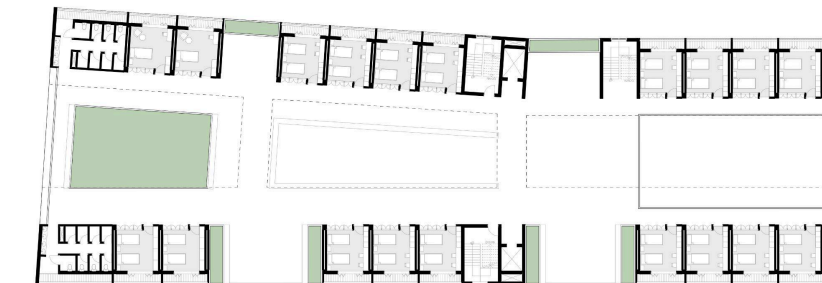
09. Mosque (Female)
10. Day Care Center
11. Bank

12. Counseling Room
13. Pharmacy
14. Medical Room

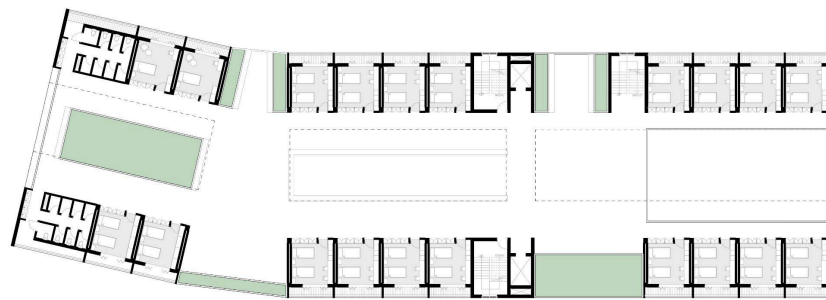
15. Multi Faith Room
16. Auditorium (2nd Level)

Figure 6.3.E: Floor Plan at +8.4m

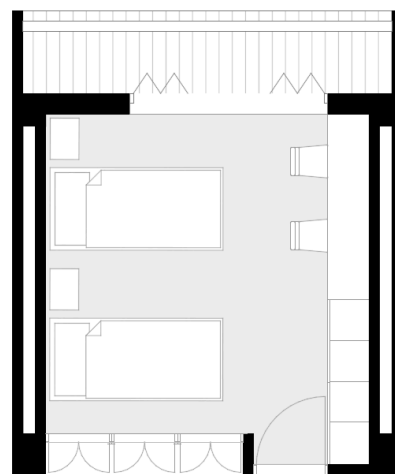
At +8.4m there are welfare and community spaces such as Female Prayer space, daycare center, counseling room, pharmacy, and medical room, along with a multi-faith room and the second level of the auditorium.



First Floor Plan of Boys' Dorm
0m 10m 30m

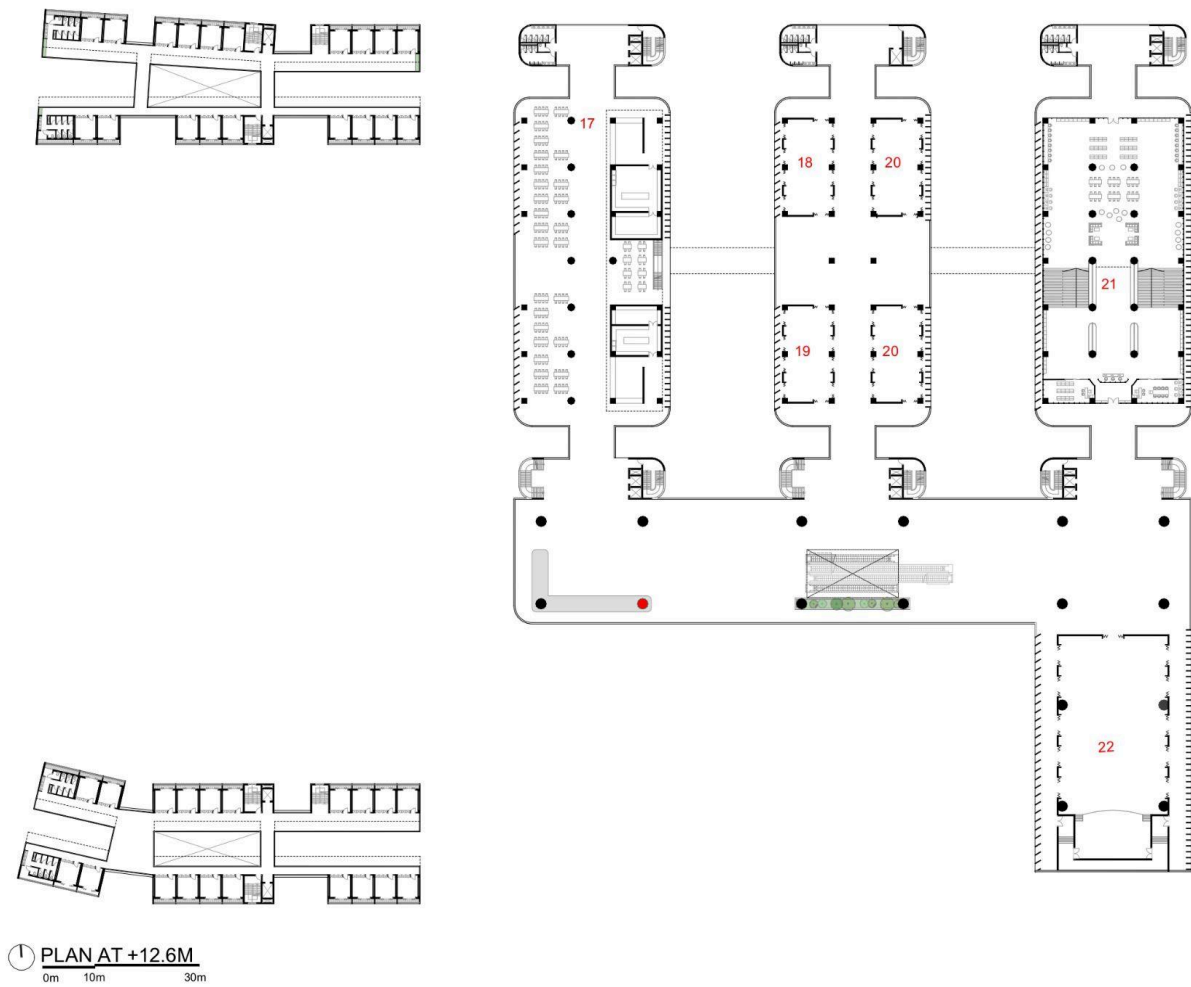


First Floor Plan of Girls' Dorm
0m 10m 30m



Room Area (2 seated)
(3.75m x 3.75m) + (1.25m x 4.5m)

Figure 6.3.F: First Floor Plan of Boys' and Girls' Dorm with Room Layout



- | | | |
|------------------------|-------------------------|-----------------------|
| 17. Cafe | 19. Common Room (Girls) | 21. Library |
| 18. Common Room (Boys) | 20. Clubs | 22. Multipurpose Hall |

Figure 6.3.G: Floor Plan at +12.6m

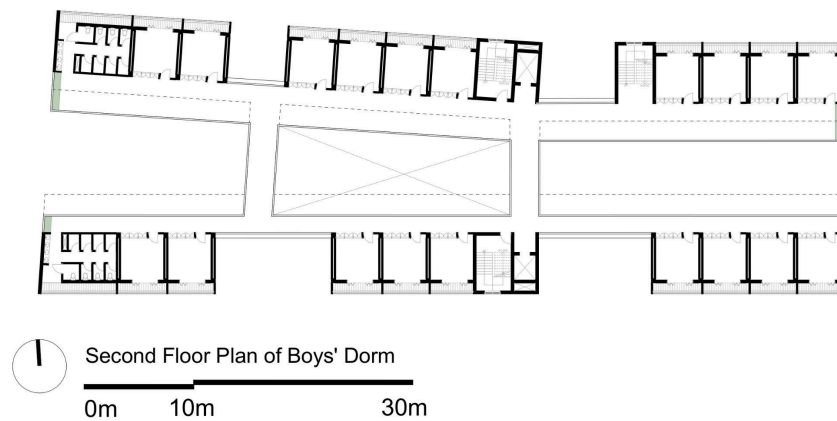


Figure 6.3.H: Second Floor Plan of Boys' Dorm

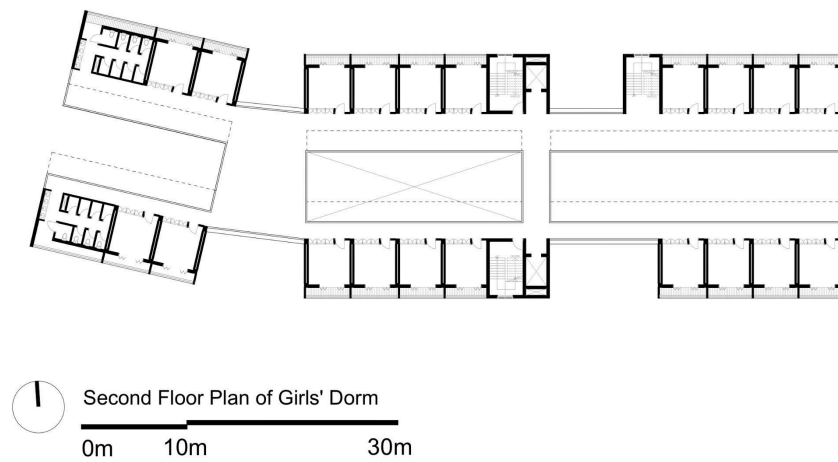


Figure 6.3.I: Second Floor Plan of Girls' Dorm

At +12.6m, the floor becomes more social and academic, with a cafeteria beside the Football Field, common rooms for boys and girls, club rooms, a library in the North-East, and a multipurpose hall in the South-East.

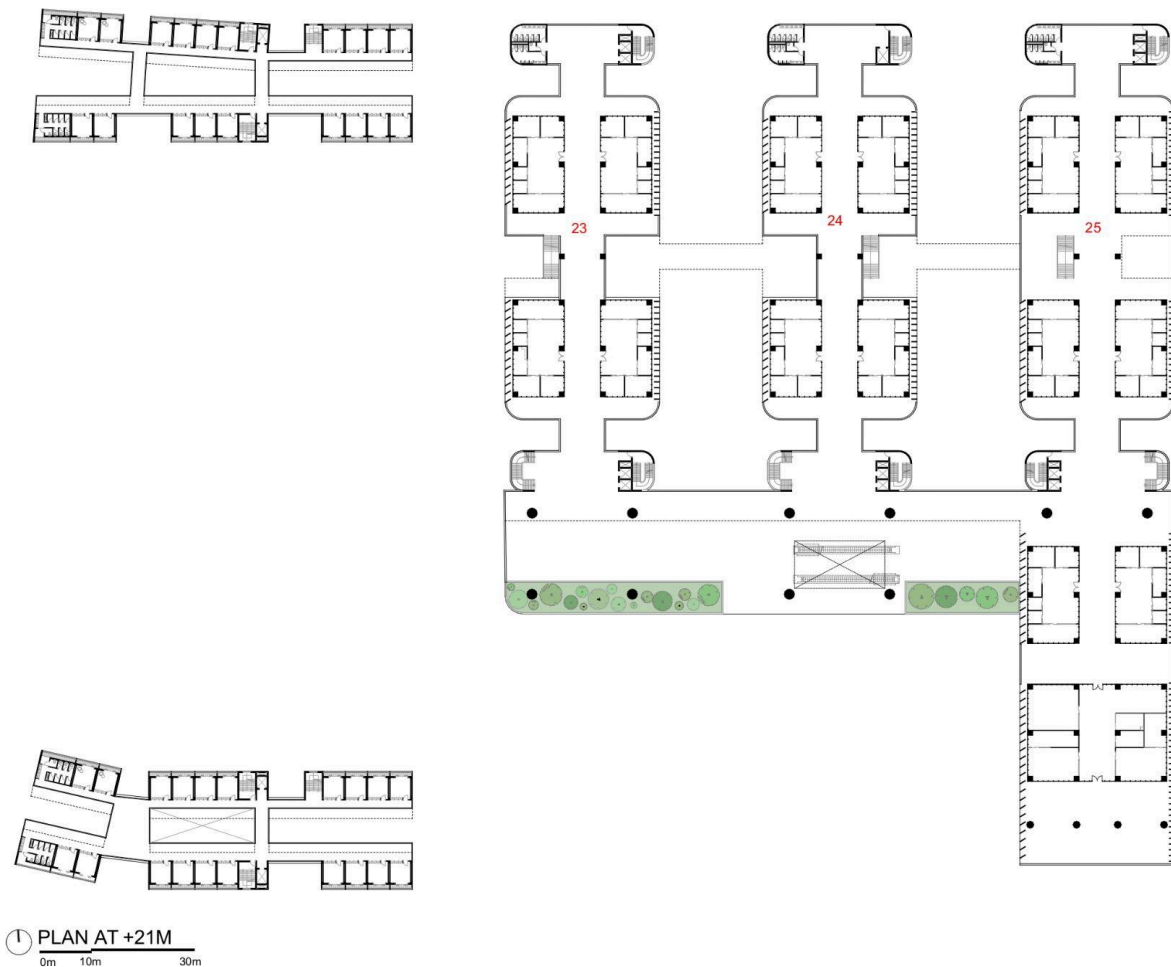
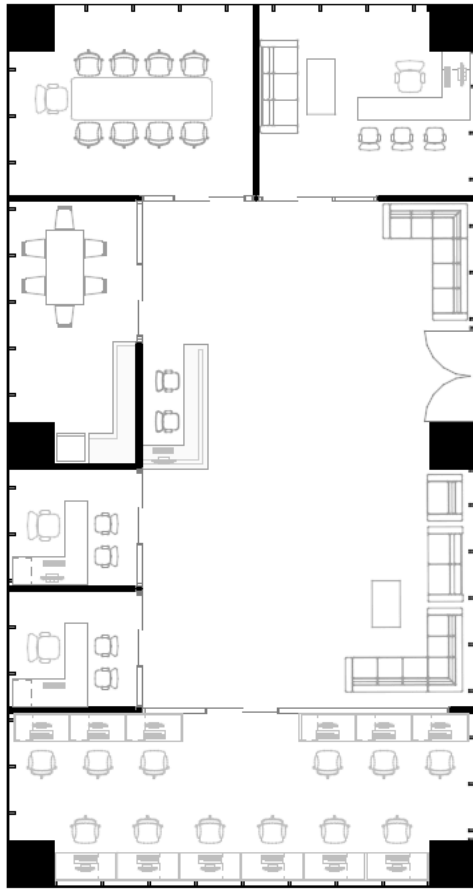


Figure 6.3.J: Floor Plan at +21m

23. Service Division
(IT, Accounts & Finance,
Scholarship, ASW)

24. Operational Division
(HR, Maintenance, Procurement,
Security)

25. Institutional Governance
(VC, Pro VC, Register, Proctor)



Area for Administrative staff: 10m x 19m

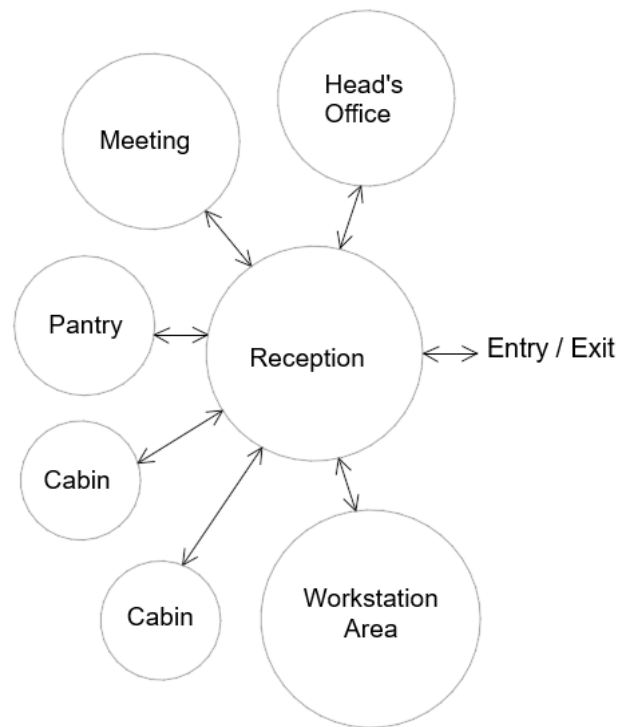


Figure 6.3.K: Cubicles for Administrative Staff

The +21m level holds the administrative offices, divided into three zones. They are: the Service Division (IT, Finance, Accounts, Scholarship), the Operational Division (HR, Maintenance, Procurement, Security), and the Institutional Governance offices (VC, Pro VC, Registrar, Proctor)

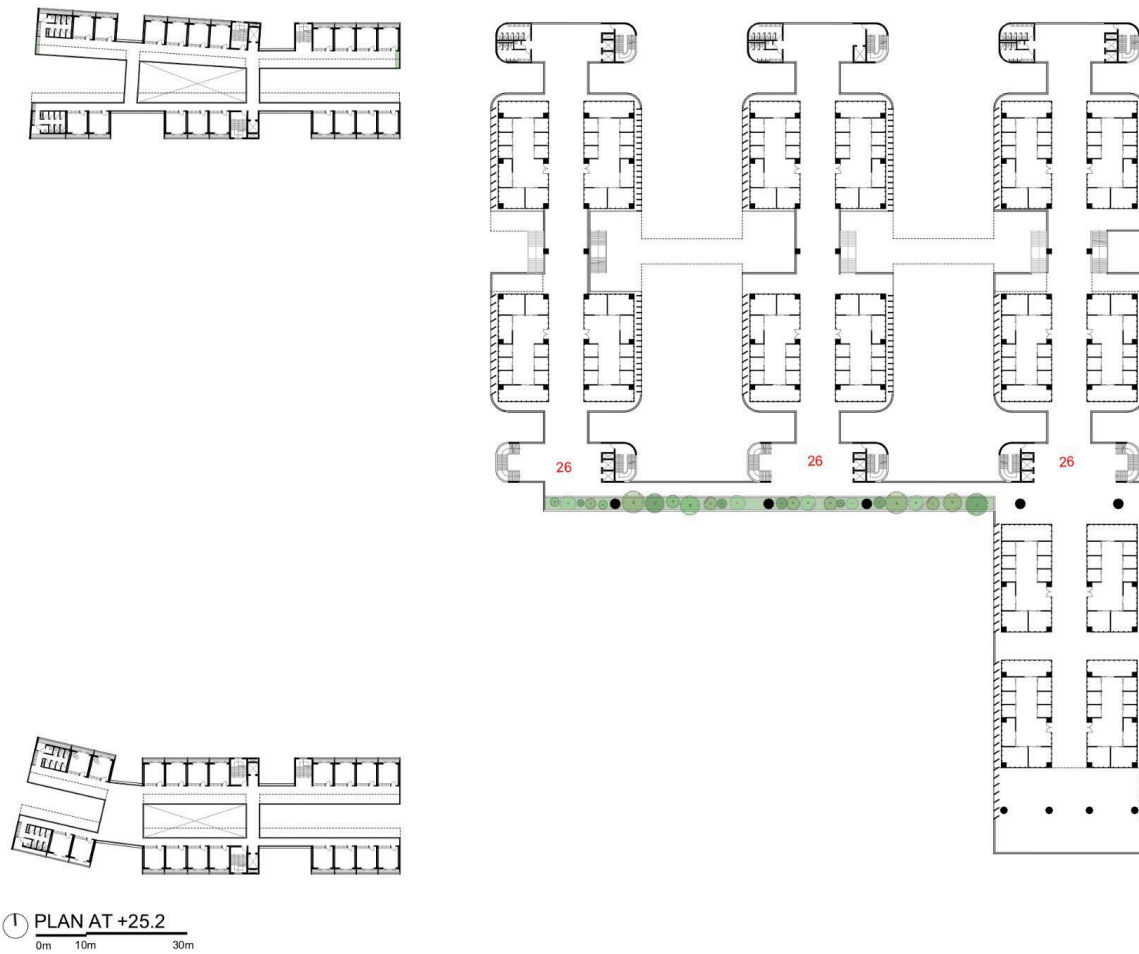


Figure 6.3.L: Floor Plan at +25.2m

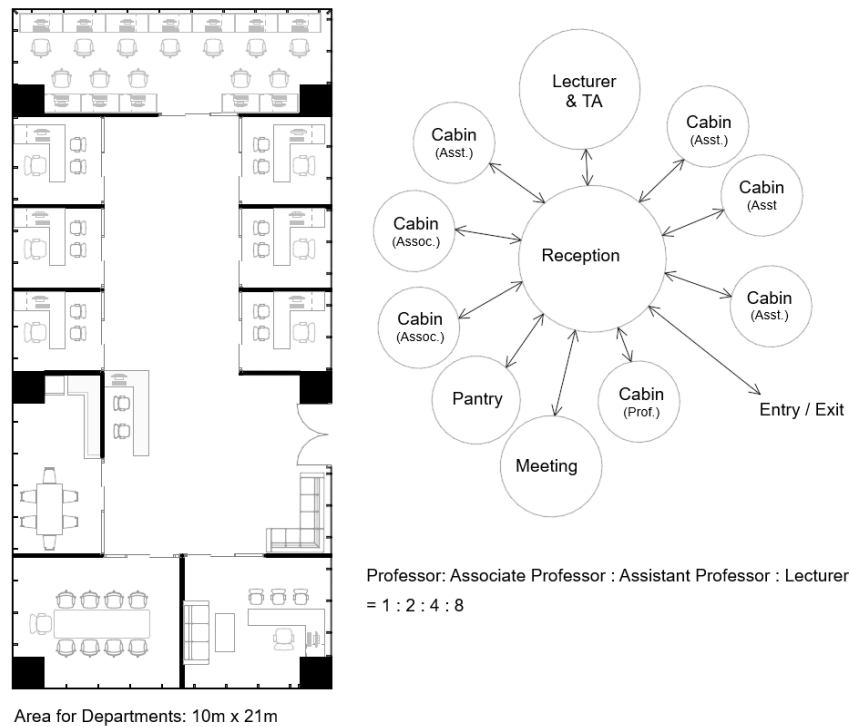


Figure 6.3.M: Cubicles for Departments

At +25.2m, there are different academic departments with Separate Reception, Waiting Space, Pantry and File Room.

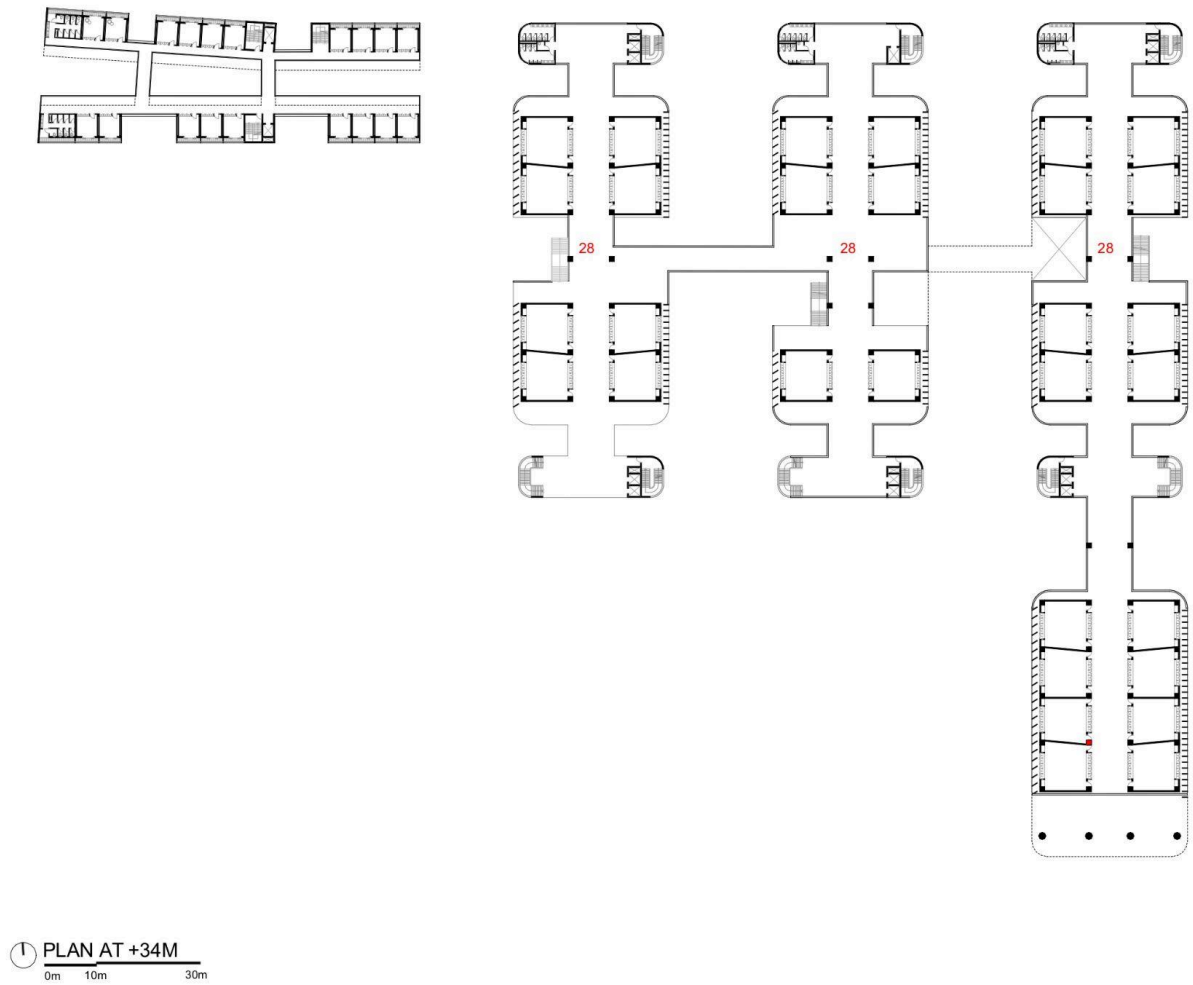


26. Departments

27. Labs

Figure 6.3.N: Floor Plan at +29.6m

The +29.6m level includes both departments and Large Laboratories, connecting teaching with practical learning.



28. Small Labs and Classrooms

Figure 6.3.O: Floor Plan at +34m

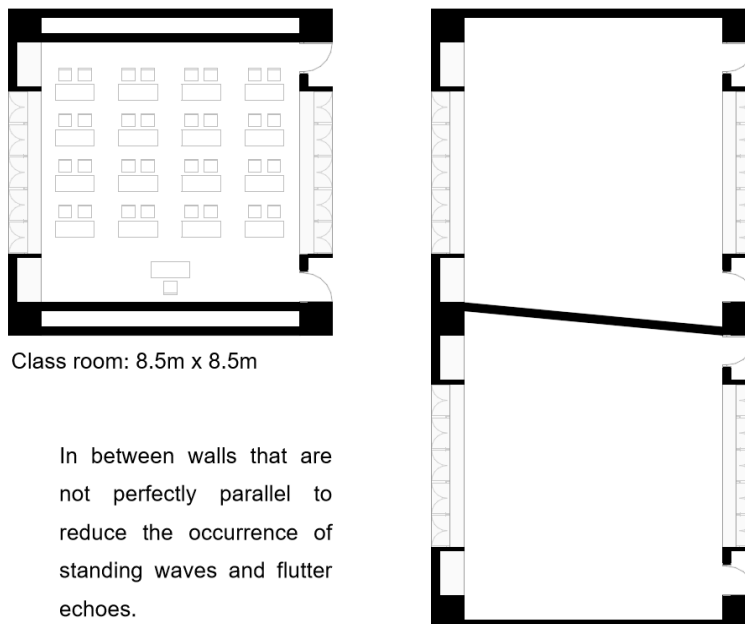


Figure 6.3.P: Classroom Design

At +34m, there are small labs and classrooms which are naturally ventilated.

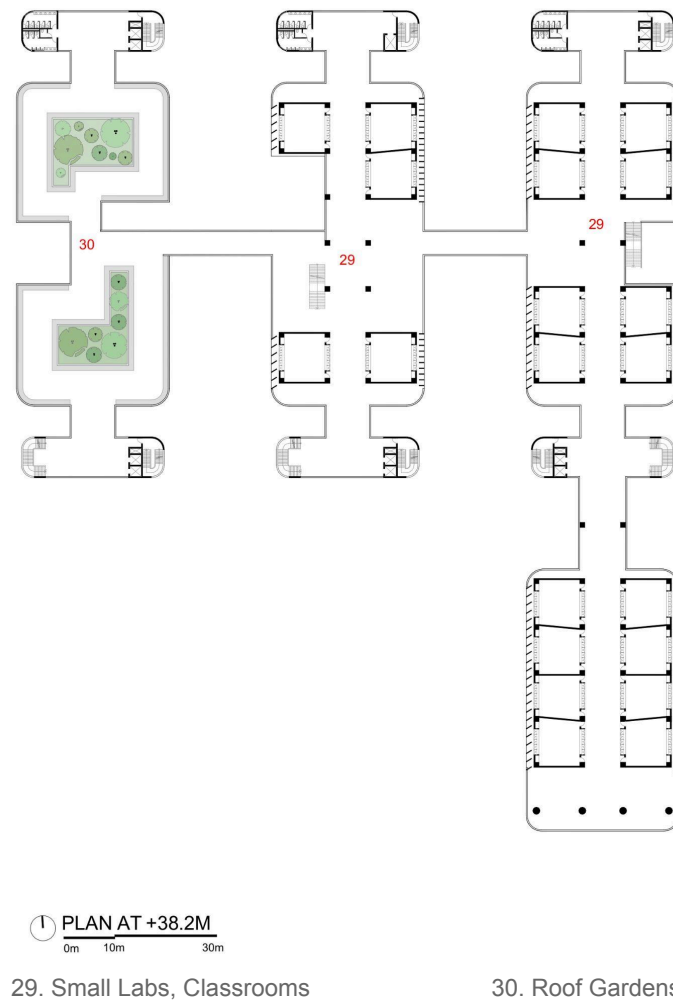
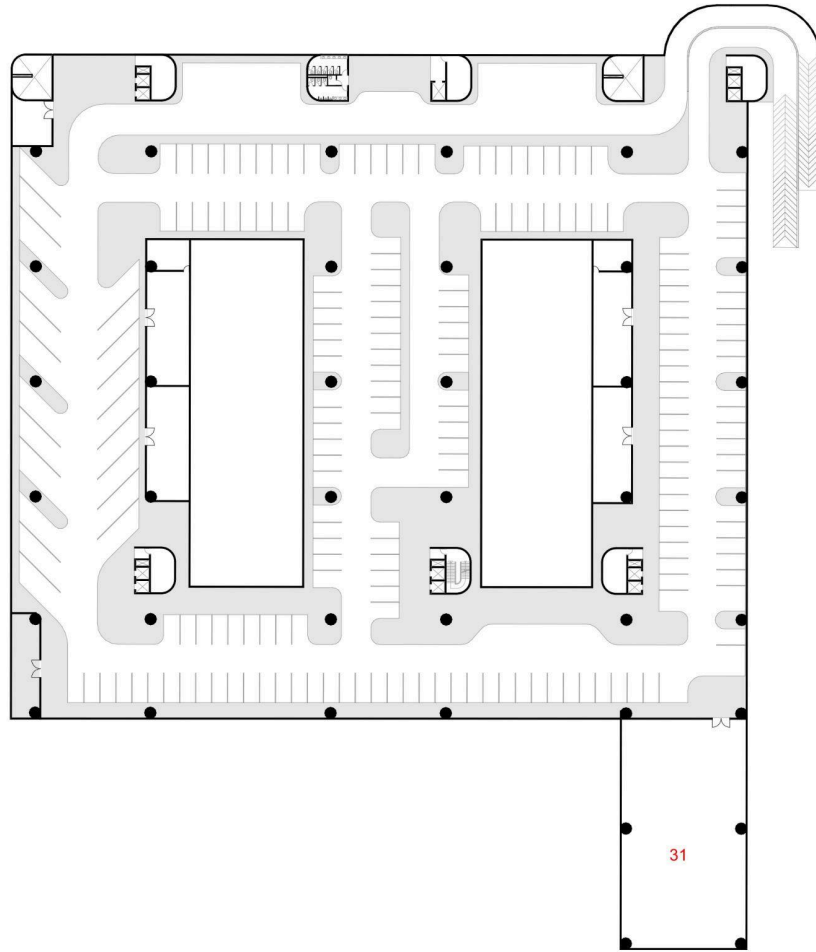


Figure 6.3.Q: Floor Plan at +38.2m

From +38.2m, there are more small labs and classrooms along with Open terrace for relaxation, interaction and outdoor study.



① BASEMENT PLAN
0m 10m 30m

31. Maintenance

Figure 6.3.R: Basement Floor

On the basement level, there is a large parking area that can accommodate more than 200 cars and buses, ensuring that the entire campus has enough space for vehicles used by students, staff, and visitors. This level also includes maintenance and service zones to support building operations.

6. 4 Elevations



Figure 6.4: Elevations

The elevations, especially from the west and north sides, display a nice balance between windows and walls. The building looks simple with clear floor levels and vertical lines that make the design lively. Sunshades are added to block extra sunlight and reduce glare inside.

6.5 Sections

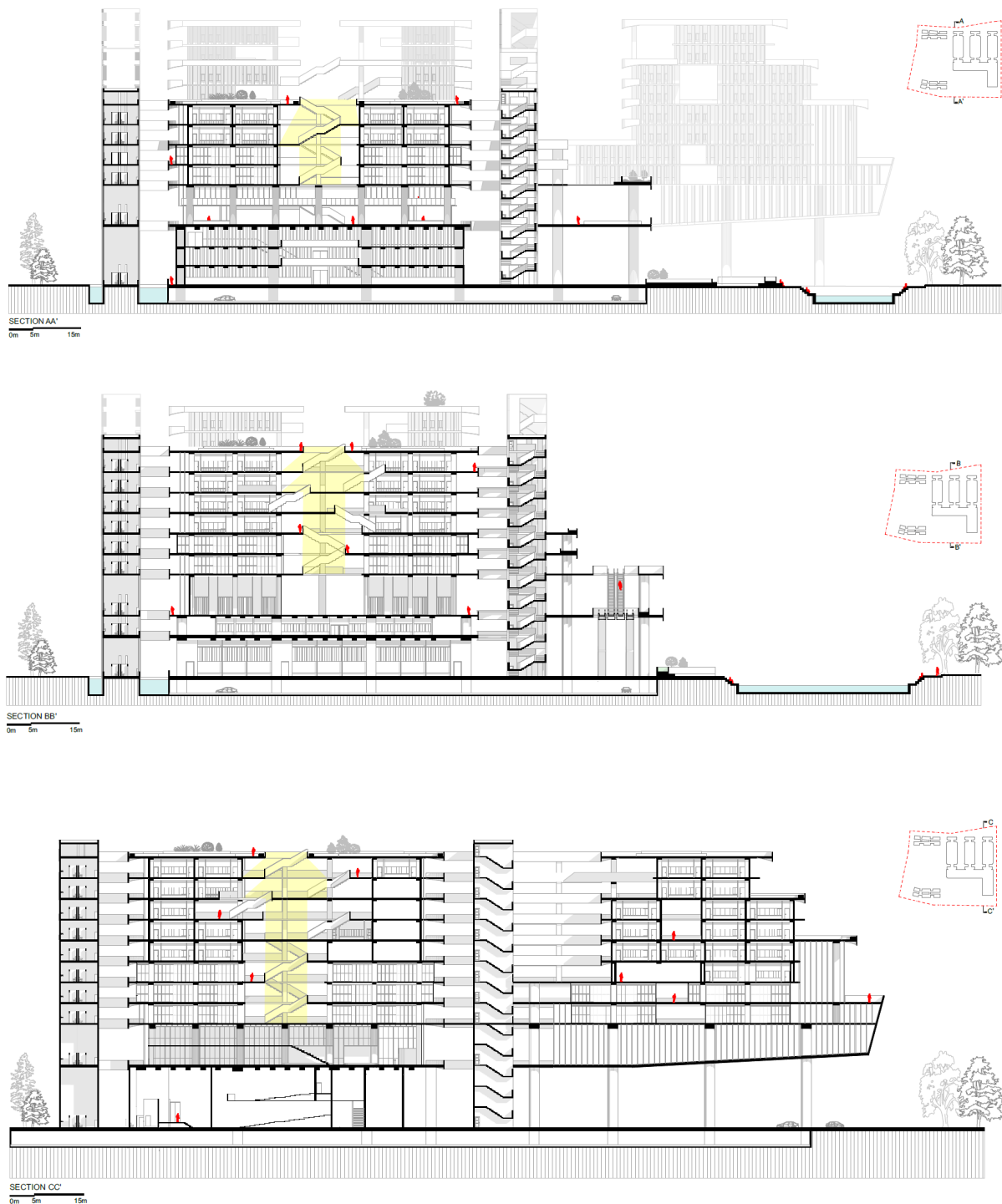


Figure 6.5.A: Sections



Figure 6.5.B: Dorm Sections

The sections (AA', BB', CC') show how the building goes from an open, busy ground floor to a quiet, green roof on top. They also show how big spaces join with small classrooms and how sunlight comes in through courtyards. The BB' section shows the tall auditorium and its link to the outside plaza, and the CC' section shows the dorms looking toward the open field.

6.6 Sectional Perspective

- 13. Small Lab, Class
- 12. Small Lab, Class
- 11. Small Lab, Class
- 10. Small Lab, Class
- 09. Small Lab, Class
- 07. Small Lab, Class
- 06. Large Labs
- 05. Departments
- 04. Departments
- 03. Admin Office
- 02. Library
- 01. Auditorium
- 00. Auditorium

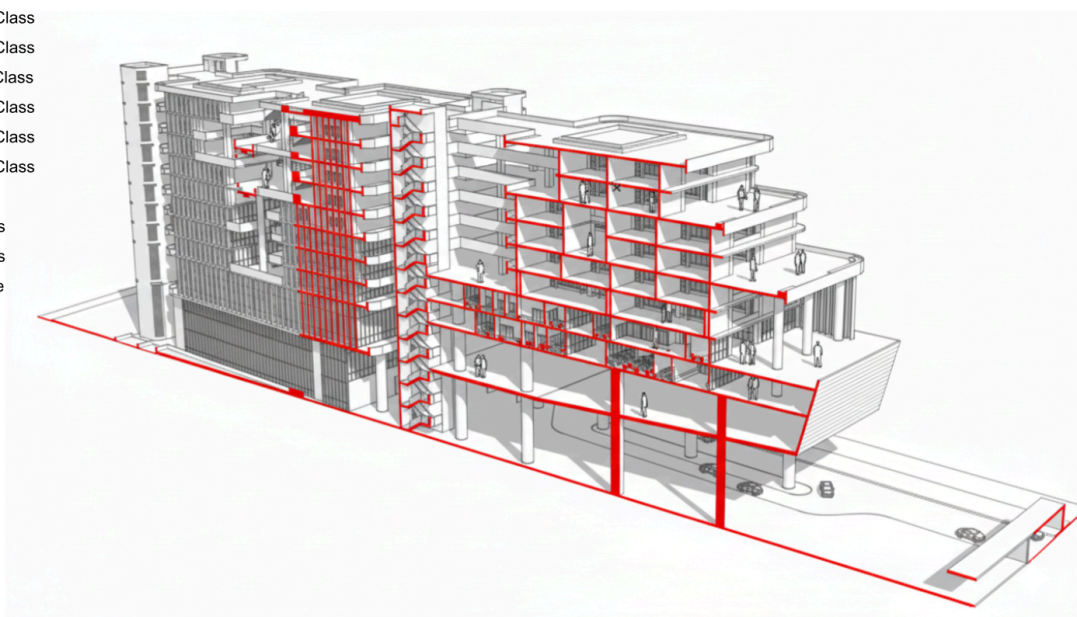


Figure 6.6: Sectional Perspective

6.7 3D Views and Renders



Figure 6.7.A: Birds Eye View from South



Figure 6.7.B: Birds Eye View from South-West

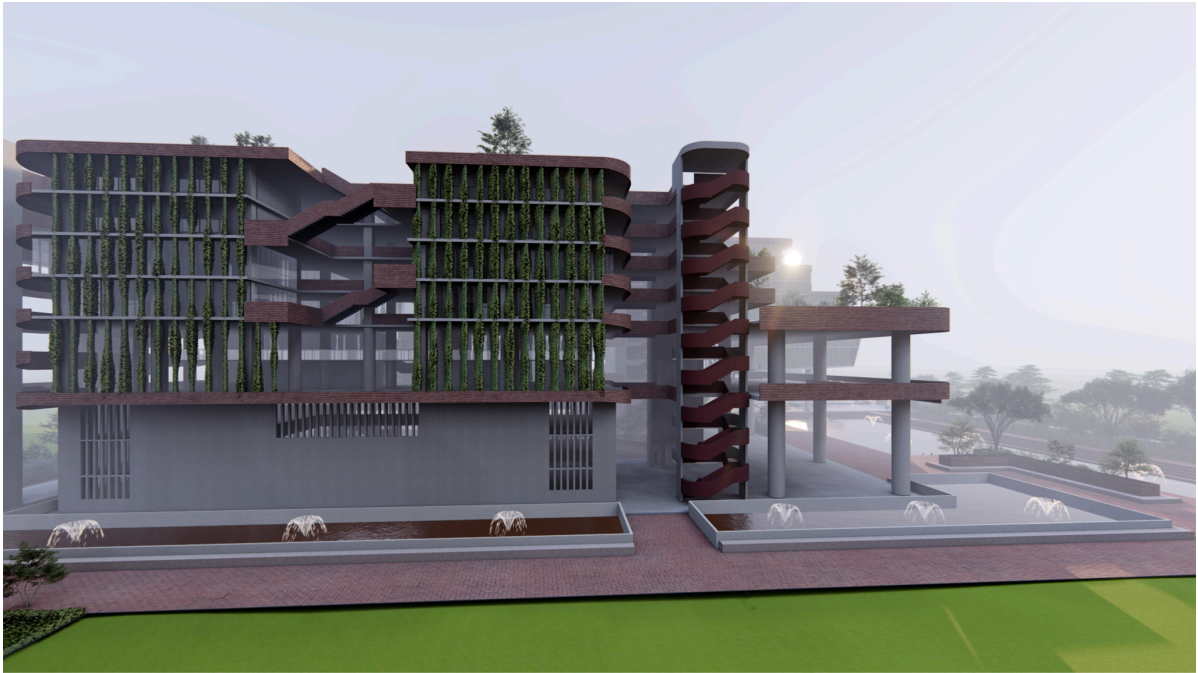


Figure 6.7.C: View from West



Figure 6.7.D: Sunken Steps with Waterbody



Figure 6.7.E: Terrace



Figure 6.7.F: In between Space of 2 Academic Buildings from North



Figure 6.7.G: In between Space of 2 Academic Buildings from South



Figure 6.7.H: In between Space of 2 Academic Buildings from East

CHAPTER 7 : CONCLUSION

Private universities are of immense importance in the context of the rapid growth of higher education in Bangladesh. However, since most private universities do not have their own campuses, students are confined to temporary office buildings, which deprives them of the open environment, freedom of movement and the experience of real campus life. In such a situation, the proposed Ashulia campus of Ahsanullah University of Science and Technology (AUST) stands as a groundbreaking initiative. Located in Ashulia Model Town, Savar, this 13.10-acre campus has a total built-up area of about **578358** square feet, where modern learning-centric spaces will be located. Each academic unit will have modern classrooms, laboratories, seminar areas and office spaces, which will not only provide students with opportunities to acquire knowledge, but also to be creative, interactive and mentally developed.

The campus design integrates academic, administrative, residential and support activities. With an emphasis on sustainable and sustainable architecture, priority has been given to the use of renewable energy, rainwater conservation and extensive greening, which will fill the green gap in the developing area of Ashulia and create a peaceful, eco-friendly place for students and local residents. This campus is not just an educational institution, but will redefine the standards, concepts and architectural vision in private higher education - through the connection of art and education, adaptability and flexibility.

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