

YOUTH DEVELOPMENT CENTER, RAOZAN, CHITTAGONG

By

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

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
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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Abstract

Juvenile Correctional Facilities have always been associated with punitive ideologies in a confined harsh environment which does not aid to the rehabilitative reformations in the juvenile minds. Due to the evolution of justice systems worldwide, this image is coming to cease and these facilities are treated more like a skill training and development center for the youth. This Youth Development Center provides better learning environment through skill training and integration with the community for interactive learning and psychological development as a means to reform juvenile offenders to the rehabilitative nature of the facility. This paper seeks to establish how the architectural design of Youth Development Center can be used to fulfil the objective of reformation while providing the best suitable environment for all its users.

Keywords: Juvenile correctional facility, skill-training, psychology, community integration, rehabilitation

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Chapter 1: Introduction

1.1 Introduction to the Project

“Youth offending has been and still is a social problem across many countries; it is a problem that affects and shapes the very fabric of society. The problem with the youth in modern society is both a national concern and an important subject for academic study” (Siegel, Welsh and Senna, 2003:9).

Since young people’s deviant behaviour has been considered a social problem, various efforts have been made to reduce young offending through research and community prevention programs which seems to fail due to lack of rehabilitative and restorative built environment for young offenders. Consequently, young offending prevails in alarming rates, and offenders end

up in correctional facilities which are problematic institutions and inhumane environments that deteriorate young minds instead of developing them. The aim of creating Juvenile Detention Centers was initially rehabilitation and protection of young offenders from adult offenders' influence. However noble these intentions were, it had become worrisome that these centers in most parts of the world are brutalizing and not favorable for rehabilitation. (Moses, 2012) This is why new establishment is required to ensure protection of the youth from recidivism and ensure their rehabilitation with proper skill training as well as smooth integration within the society. With this objective, Youth Development Centers are established in order to nurture the development of delinquent young minds and turn them into responsible citizens of the country.

The Youth Development Centers in Bangladesh are established by the Department of Social Services and is funded by the government. According the Child Act, 2013, children from 9 years of age to 18 years of age are brought to these centers for rehabilitation and skill- training depending on the kind of crime committed and the judgement by Juvenile Court. (Child Act,2013). The need for a holistic rehabilitation and awareness program is an obvious deduction for young offenders. Any program that capacitates the provision of medical facilities to address facilities for psychological growth, to address the cause of juvenile detention, occupational amenities to rebuild self-value in society, a safe abode, legal consultation options for protection services and finally a platform to grow up to be a regular adult is what the project wants to achieve.

Juvenile delinquency is on the rise in Chittagong city, as more and more minors are getting involved in serious offences. 48 % of total juvenile offences occur in Chittagong. (Department of Social Services, 2019) Among the 9 Youth development centers that are proposed by the Ministry of Social Welfare, two will be constructed in Chattogram to rehabilitate the youth and train them for the future. One of the proposed sites for rehabilitating children is Raozan which is also the project site. By illustrating the architectural attributes that are needed for effective

reformation and behavioral change within rehabilitation schools, this document will serve as prototype for achievement of successful rehabilitation within any correctional facility in the future.

1.2 Aim and Objectives of the Project

The aim of this project is to design a Youth Development Center with a flexible, supportive, involving and inspiring facilities that provide psychological benefits for physical and mental development of the youth and create a familiar and restorative built environment. To achieve this aim, the following objectives play a huge role:

- Creating a restrictive yet rehabilitative built environment by ensuring better living condition, opportunities and security
- Creating spaces that are responsive and user friendly to inhabitants addressing the needs of daily programming
- Creating a learning center to develop their rudimentary skills and personality necessary to move effectively and safely from place to place within the environment (e.g. in school, home, at work and in the community) that they would miss out in the regular models of Youth Development Center
- Exploring the concept of community integration through the introduction of Youth Development Center within communities and creation of spaces that allow communities to participate in rehabilitative activities for young offenders

1.3 Project Summary

Name of the Project: Youth Development Center

Implementer of the Project: Department of Social Services

Location: Raozan, Chittagong

Site area available for the Project Development: 4 acres (1,74,240 sqft)

Proposed built-up area of the Project: 1,11,710 sqft

Proposed Program of the Project:

- Administrative Facilities
- Academics
- Skill Training Facilities
- Juvenile Court
- Health facilities
- Residential Facilities
- Recreational Facilities

Chapter 2: Literature Review

2.1 Definition of Youth Development Center

Youth development centers are identified as key institutions that contribute to healthy outcomes for youths. Recent researches document several positive impacts, including greater interpersonal skills, self-control, self-efficacy as well as decreased behavioural issues being common in Youth Development Centers, previously known as Juvenile correction Facilities. Juvenile correction facility is such a center for juvenile delinquents where children under the age of 18 are sent to rectify themselves. (Anderson-Butcher, Cash, Saltzburg, Midle, & Pace, 2013)

American psychologist G. Stanley Hall invented the term ‘adolescence’ to outline a period of ‘storm and stress’ observed in young people, mid-way between the dependency of childhood and also the mature stability of adulthood. Youth development has relevancy to any or all ages and stages through adolescence and into adulthood.(Finn, 2000). During this phase, juvenile delinquency is one of the most urgent social problems which deals with factors like prejudicial, emotional, physical and economical effect felt throughout various communities. (Tarolla, 2002). This may not only hinder a child’s growth but also their behaviour and mindset during the crucial stage of their development with manipulative social, physical and environmental factors.(Ansell, 2005). Thus, for a positive development of the “core competencies and characteristics” of the delinquents to continue a healthy and thriving life, they are sent to Youth Development Centers.

2.2 Users and their Psychological Needs

The users of Youth Development Centers are determined according to the justice system for children who come into conflict with law. In this system, the child offender will not be determined as guilty so no punishment will be inflicted on him. Rather, Juvenile justice system

sends them to these centers and nurture them towards positive development to defer them from future illegal acts. These children are generally under the age of 18 and above the age of 10. For young offenders, who do not have any family or family ties, are kept within the facility until they are rehabilitated. (Department of Social Services, Bangladesh, 2019) In the early decade, welfare work began to specialize in the individual because the locus of concern and framed delinquency in pathological terms: boys were affected by stubbornness, offence and mental slowness, whereas delinquency in girls was coupled to their physiological property.(Finn, 2000) To deal with this situation individually, boys and girls are generally kept in different centers so the girls do not fall under ret-traumatization and/or re-victimization.(BCCJ, 2010)

Youth Development Centers need to provide psychological benefits to these young offenders to tend to their mistakes and rise as responsible and matured citizens. This is because, when a child commits a crime, it is always influenced by manipulative factors, internal and external. A report in Illinois Department of Juvenile Justice shows that 65-70% involved children are diagnosed with mental health issues, 70% have experienced a traumatic event, 48% function below their academic grade level or age, 30% have learning disability or have frequent physical/sexual abuse history.(American Institute of Architects, 2015) In 2006, Holman and Ziedenberg stated that the detention of juvenile in facilities with the resemblance of prisons should be discouraged. When juveniles are kept in a retaliatory setting, they learn to become better criminals- which is a reason for recidivism rates to be so high in areas of the country where juvenile justice facilities act like high security prisons. The traumatic picture of a Juvenile Correction Center should be diffused through the creation of a familiar and restorative built environment that attempts at replacing the losses of freedom, personal identity, and the familiar landscape of daily life and supporting the young minds. Better design of these centers could benefit from a connection with family and kin where possible, spaces that are responsive

to inhabitants' and staff observations and behaviour, and addressing the needs of daily programming. These considerations encourage positive responses and cooperation, and a willingness to take advantage of opportunities. This will reduce the feeling of incarceration and promote connection with the community (Grant, 2014).

2.3 Government Policies

The Juvenile Justice System is an exclusive process taken with great care and attention whose focus is to reform children than to penalize them. (Ferdousi, 2012) The Juvenile Justice system asserts that the rights and needs of juveniles are not similar to adults so it must reflect in the way they are treated. It highlights rehabilitation rather than punishment, prevention instead of retribution as the main aim of the justice system. (Partnership for Prison Reform, 2006) According to Bangladesh Penal Code (BPC) (Section- 83), "Nothing is an offence, which is done by a child above 7 years of age, and under 14, who has not attained sufficient maturity of understand to judge of the nature and consequences of his conduct on that occasion". The minimum age of criminal responsibility continues to be 9 years of age, which is below the minimum age of 12 years or higher recommended by the UNCRC. (Child Act,2013)

There are certain salient aspects that need special consideration, when a juvenile is taken in trial. According to the Section 15 of The Children Act 1974 which has been re-enacted in 2013, the Children Court must consider the child's:

- The age, gender and character;
- The circumstances in which the child is living;
- Mental/physical condition;
- Qualification and level of education;
- Socio-cultural and ethnic background;
- The reports made by the Probation Officer;

- Such other matters that may be required to be taken into consideration in the interest of the child (Child Act, 2013)

Under these considerations, a court decides the duration of a child's stay under the Juvenile Facility. Under no circumstances are these children sent to jail with adults.

The Child Act 2013 states the laws of education, training, work, drill etc. in the Juvenile Justice System. According to this, the young offenders must be provided with primary standard education even higher education under certified institutes in special cases. Vocational training of the inmates should be arranged for their rehabilitation. If medically fit, they will also engage themselves in eight hours of work divided in a day. 1 hour allocated for drill and exercise, 3 hours for literary instructions, 4 hours of manual work, 1 hour of recreational activities.

The time slots for literary instructions are increased to 5 hours and for manual work shall be decreased to 2 hours respectively for SSC examinees. Beside, there are various disciplinary measures for the inmates in case of disregarding any rules. (Khair, 2005)

2.4 Physical Characteristics of a Youth Development Center

The built environment affects a Juvenile behaviour and rehabilitation in a youth development center. The built environment refers to the integrated designed context in which a person lives and influences individuals in their perspectives and behavior (Mazumdar, 2000) This environment must be flexible, supportive, involving and inspiring to the residents of the facility as it also affects the cognitive behaviour. Positive activity intervention prevents juveniles from engaging themselves in negative activities by changing where the behaviour occurs. (K. Auwalu & N. Oluigbo, 2018) It is important that juvenile centers are rehabilitative rather than punitive. Thus, when juvenile correctional facility looks and feels more like a camp or a school than a prison, rehabilitation is more likely. In addition to necessary facilities, utilities and functional built requirements provided, the facility must have a comforting image and the suitable sensual

characteristics. This can be achieved with considerations for the built environment under the following:

- **Location and site planning:**

Gendreau and Keyes (2001) stated that juvenile centres are public social institutions which should be integrated into community and blend with the surrounding built environment. This is vital so that juvenile delinquents do not feel disconnected from the community after their discharge.(K Auwalu & N. Oluigbo, 2018)The site of these centers should be deinstitutionalizing through designing of a normal and modern built environment. It should also allow the physical contact with the outside for individual and group activities in open communal areas. (McMillen and Justice Planners International JPI, 2005)

- **Spatial Organization:**

The best spatial organization of a juvenile center is the one where spaces are arranged in functional clusters or linear sequence allowing surveillance, optimum daylight utilization and ventilation, with appropriate and easy access to outdoor spaces.In short, spatial openness is necessary for this facility to ensure less confined atmosphere.(K Auwalu & N Oluigbo, 2018)

- **Provision of Ammenities:**

Juveniles in confinement are deprived of the facilites such as school, sports and other activites. These deprivation should be eliminated from the centers as participating in sports and learning activites not only remove their boredom but greatly helps them develop. Satisfying needs of sports and recreation facilites, skill acquisition facilites, religious facilites is a major part of behavioural interventions. (Jones,2008)

- **Supervision and Security:**

The nature of Juvenile Correction Centers should be both conductive and restrictive.

(Cummings, 2012) An effective design of the center should ensure maximum freedom, mobility and flexibility. (Marmot, 2002) Considerations for circulation corridors to be open and visible, with no blind spots or hiding places provides good sightlines that ensures safety and security. (Waid & Clements, 2001; Griffin and Hepburn, 2013) In addition, direct supervision is also important to promote constant interaction between the staff and young offenders.

- **Visual Character:**

The first impression is always the lasting one, so when a child is brought in this facility, he should not see the stereotypical intimidating image of punishment and incarceration. (Johnson, 1979) The center should be inspiring and foster self-esteem. It must look familiar and personalized. Use of colors to stimulate brain, relax muscles, use of durable but familiar materials, proper flexible furnishings are some of the ways to achieve this characteristics. (Krueger, 2018)

2.5 Present Situation in Bangladesh

At present, there are three Youth Development Centers in Bangladesh. Two of them are for males, located in Gazipur and Jessore and one for female which is in Tongi. The basic programs of these institutions are medical services, psychiatric and psychological treatment, education, recreation, religious and moral education and vocational training. But these centers are not successful due to broken security systems, corruption, use of drugs and drug dealing, weapon making activities and constant rebel of the delinquents against the staff and authority. (Hassan, 2013) In this circumstances, it is required to built a Youth Development Center that ensures positive development of character in the young ones and promote healthy life style even after being discharged into the normal lives.

Chapter 3: Site Appraisal

The site for the Youth Development Center is located at Raozan Upazila in the district of Chittagong. It is 1.5 km along the Chittagong-Rangamati Highway from the main town of Gahira Union. It takes about an hour by road to reach the site from Oxygen. The area of the site is 4 acres (approximately 1,74,240 sqft).

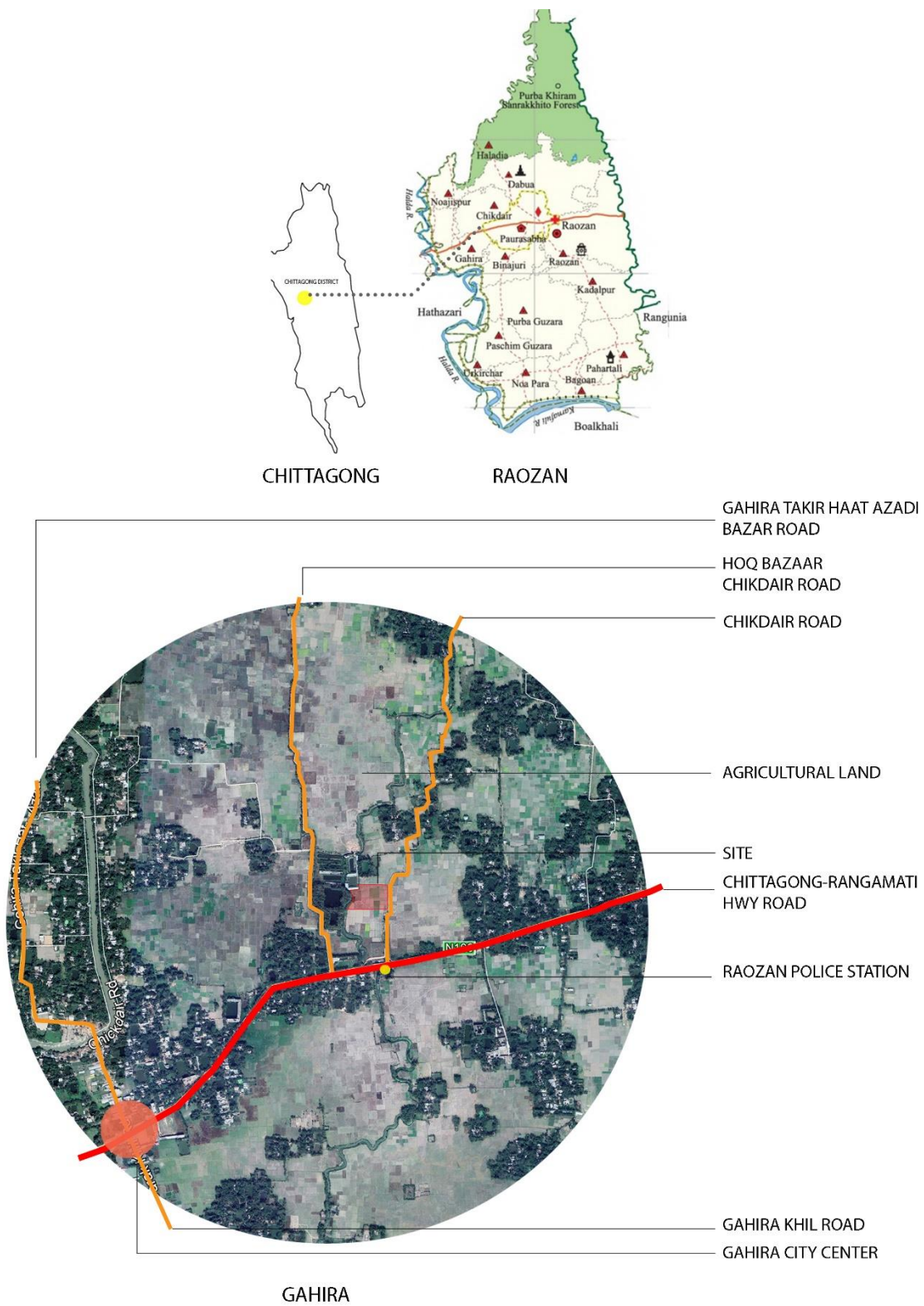


Figure 2: 1km around the site, Gahira; Source: Author, 2019

3.1 Site surroundings

The site is marked in the attached map. The landmark of this site is the Raozan Highway Police Station, which is currently located at the opposite side of the highway but is proposed to be constructed in the land at the south of the site. A canal (khal) originating from Halda's tributary flows along the west side of the site. The north is covered with agricultural lands. On its east, the site has been allocated for new public amenities and institutions. This site is chosen by the Social Service Department as Gahira is emerging as a new growth center in Raozan according to Structure Plan 1995 and will provide complementary amenities like Training Center, Schools, Stadium and other facilities for the youth to engage in as well as making sure they were restricted in the outskirts of Chittagong city.



Figure 3: Satellite View of Site; Source: Author, 2019



Figure 4 : Site Surrounding Map; Source: Author,2019

3.2 Historical Development of the Site

The site area was originally perceived as Agricultural lands but after the expansion of growth centers, it has become a mixed- used area along the high way. The site falls under DPZ 08 which consists of the hilly region on the west and flat plains on the east. The area exhibits an admixture of variety of land uses of rural character. This area has been developed as spatial growth of rural character comprising housing, commerce, industries, intuition and services. The remote areas not having good accessibility far away from the major roads have remained with their original rural character.

3.3 Geographical Characteristics of the Site

The area of Raozan is mostly comprised of flat plains. The site area is geologically flat and encompasses a large number of ponds, khals and agricultural lands. The area is flood prone and water remains for weeks during the rainy season because of the hill storm water in the region. Thus, the ponds and khals are important natural drainage courses and storm water reservoirs during monsoon period. The site is approximately 5 feet lower from the Highway and tapers down to the flowing khal on its west. There is a green belt of trees on the other side of this khal.

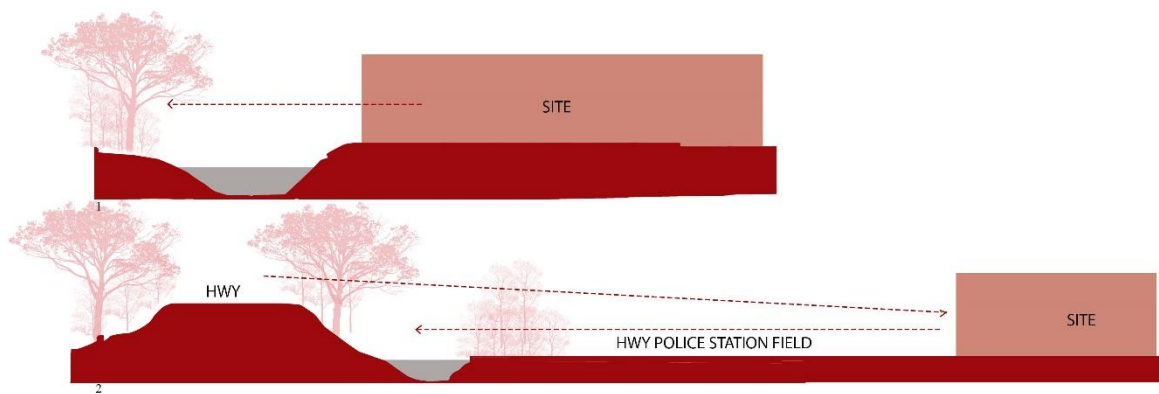


Figure 5: Site Section Sketch 1. Site slopes down 6' to the khal, 2. Road slopes down 5' from site; Source: Author, 2019

3.4 Land-use Pattern of the Surroundings

The land around the site is mostly agricultural lands at present. To its north, there are government lands that are given lease to locals as ponds for fish cultivation and as farming lands. Even though there are no permanent structures around the site, construction of various facilities has already begun in the area. The maps below show both the existing and the proposed features of the land use pattern of the site surroundings.

While designing, the proposed Highway Police Station and the Technical School and College in the site will act as strong design forces.

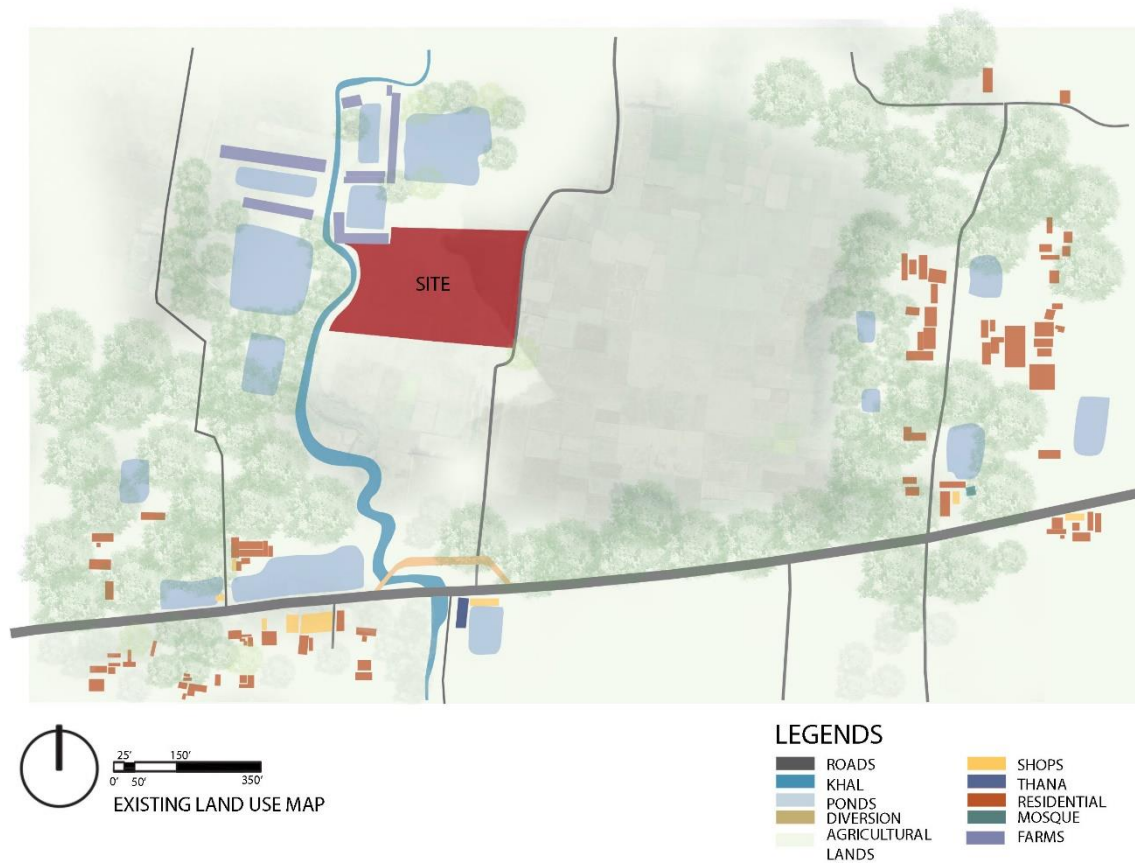


Figure 6: Existing Land Use Map; Source: Author,2019

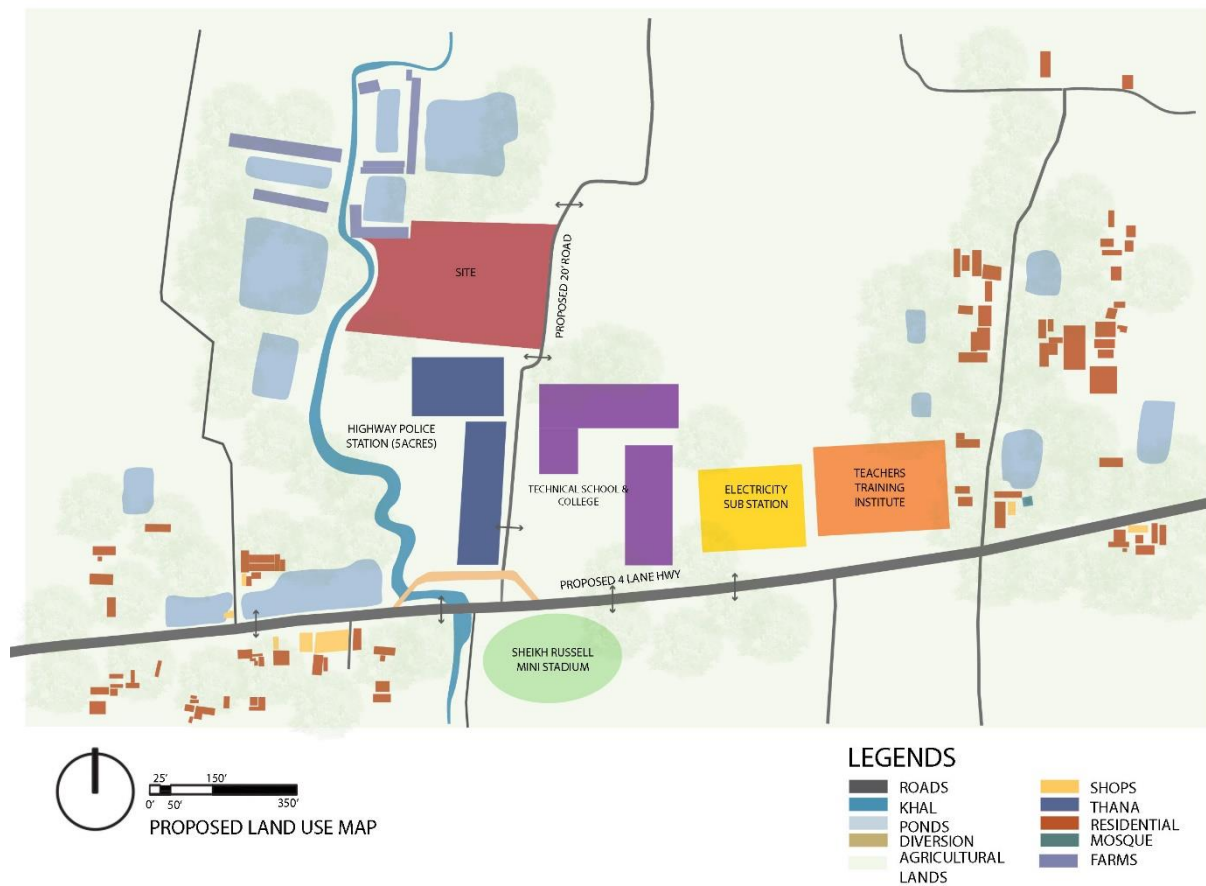


Figure 7: Proposed Land Use Map; Source: Author,2019

3.5 Accessibility and Connectivity

The road running parallel at the east of the site goes towards Chikdair Union and is proposed to be 15 feet wide sloping down about 5 feet from the main road which is the proposed 4-lane Chittagong-Rangamati Highway. The site can be accessed only through the road that goes towards Chikdair. To go to the site from Chittagong, one can use personal cars or take a bus from Oxygen and stop at Raozan Highway Thana to access the site.

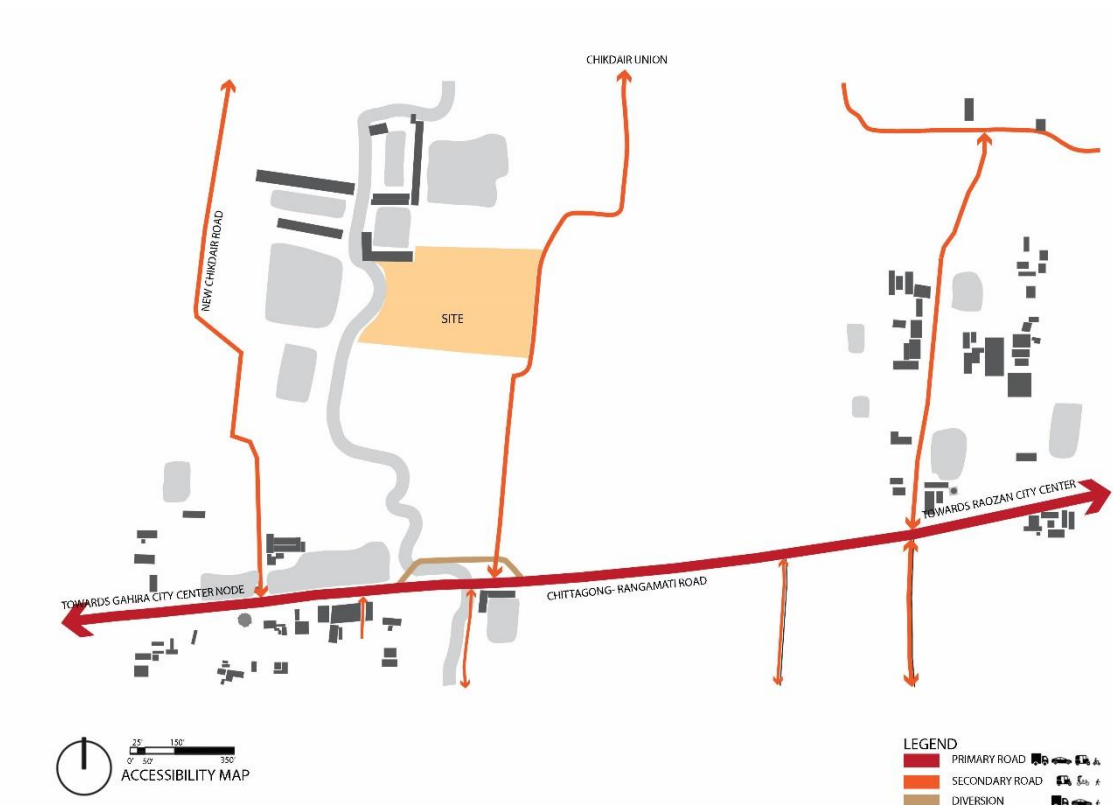


Figure 8: Accessibility Map; Source: Author, 2019

3.6 Climatic Conditions



Figure 9: Average Rainfall and Temperature Chart Of Raozan;

Source: WorldWeatherOnline

As Raozan mostly comprises of plain lands, it is usually prone to flooding due to heavy rainfall from June to October. The highest rainfall of this area stands at 567.63 mm that occurred in October, 2018. The average rainfall of this area stands at +200mm. The temperature of this area can rise upto 36C around March to May and fall to 11C around January February.

While designing the project, these considerations can help to choose the kind of materials of construction and also the types of trees that can be planted at the site of the project. Also, as the site is prone to flooding, retention ponds can be designed as a landscape element for stagnant water.

3.7 Socio-Cultural and Economic Contexts

The area is vastly rural in character. Thus, business, trade, and agricultural goods are the dominant sources of livelihood accounting for around 42.91% of the total household monthly income in Raozan (Socio-Economic Survey, DAP, 2007) As the project will comprise of functions that will facilitate the young people, it is necessary to point out the percentage and age group of people that live around Gahira. Out of 322,840 people living in Raozan, 67,074 are of age 0 -9 and 76,249 are of 10 to 19 years of age. Population aged 15-19 years attending school in Gahira is 1108 and 917 are not attending any school. Out of 16,483 people surveyed in the urban areas of Gahira, 13,264 people are Muslims, 1654 are Hindu, 1562 are Buddhists. (BBS,2011)

3.8 Images of Existing Site Condition



KEY MAP FOR IMAGES



1. VIEW OF CTG-RANGAMATI HWY AND THE EXISTING THANA



2. VIEW TOWARDS THE HWY FROM THE EAST OF SITE



3. EXISTING CONDITION OF THE KHAL THAT FLOWS ALONG THE WEST OF SITE



4. PROPOSED ROAD TO ACCESS THE SITE



5. SITE OF PROJECT FROM THE EAST

Figure 10: Site Images; Source: Author,2019

Chapter 4: Case Study Appraisal

To understand the scope of opportunities that can be made available for the development of juvenile minds and body while simultaneously ensuring that these scopes correlate with the context of site, tradition, climate and such other issues, a number of case studies has been added to this paper. As no proper Youth Development Centers are designed locally, international case studies addressing different aspects of the perceived design will be explored to grasp at the possibilities and the issues concerned with such a center.

4.1 Palace of School Children, Kazakhstan

Architect: Studio 44 Architects

Location: Bauyrzhan Momyshuly Avenue, Astana, Kazakhstan

Site Area: 2,01,285.12 sqft

Built Area: 3,72,000 sqft

Proposed Youth Centre Capacity: 10,000 people

Rationale: To analyze functionally the growth and skill development activities that facilitate the youth



Figure 11: Palace of School Children; Source: ARCHDAILY

4.1.1 Environment and Micro- Climate:

The climate in Kazakhstan is typically continental, cold winters and hot summers. For Astana, in January the daily average maximum temperatures are -9°C with the average minimum -19°C , while in June the average maximum is 26°C with a minimum of 12°C . So, buildings need to be designed in accordance with this heavily alternating climate.



Figure 12: Satellite Image of Site, Source: Google Earth

The structure has several openings for natural light during all seasons. The giant disc has openings and skylights providing natural light inside the building, into a central atrium space. The structure is enveloped in curtain walls to resist infiltration of cold air during harsh winters. The patterns on the exterior façade cuts direct light during sunny days.

4.1.2 Form and Function:

The design of the Palace provides allusions for both Supremacist composition and also for local traditions of dwelling construction that is highlighted in the slogan for the project “*Khan Shangyrak. Shelter for the youth*”.

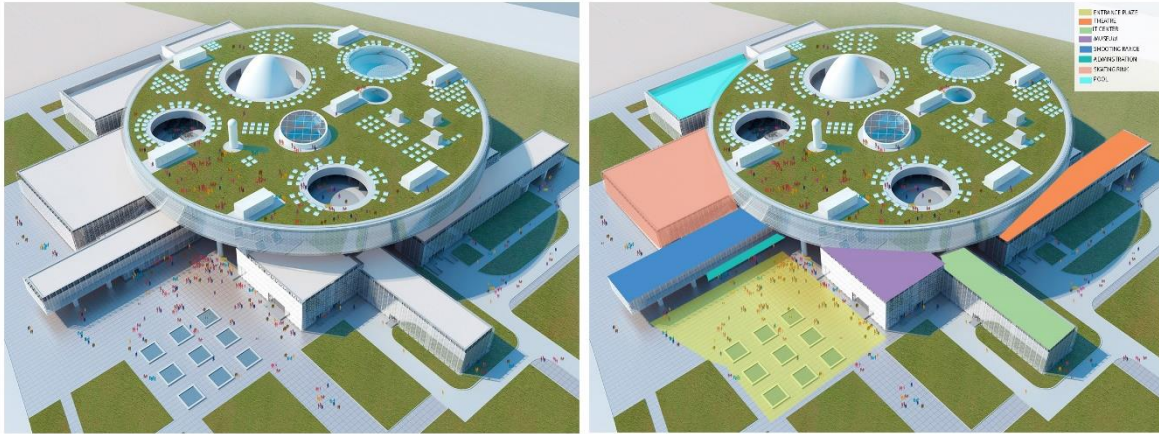


Figure 13: Axonometric View, Source: Arch Daily, Author

The sacral element of a Kazakh traditional dwelling, which is Shangryak is reinterpreted as a cylinder 25 ft in height and 512 ft in diameter. The giant disc has openings and skylights providing natural light inside the building, into a central atrium space. It covers stepped compositions of rectangular “boxes” each containing a functional element – skating rink, museum, shooting gallery, theater, etc. Inside the disc accommodates various hobby groups, clubs and departments of the youth center, while the flat green roof of the building is interpreted as a walking and panoramic-view platform, simulating step landscape in the center of a high-rise city.

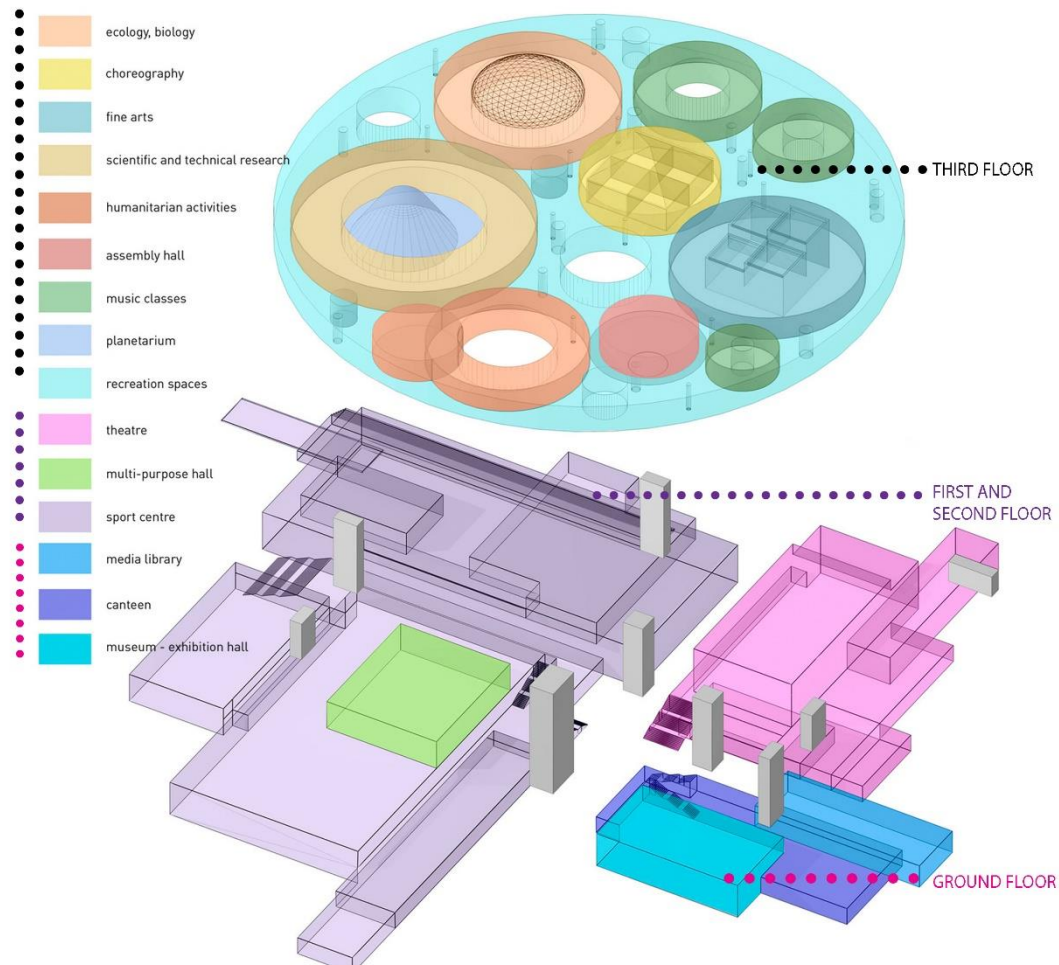


Figure 14: Functional Zoning, Source: Author, Arch daily

4.1.3 Horizontal and vertical circulation:

The horizontal circulation is lobby centric. The entrance opens up in a open to sky lobby space that connects the functions in the peripheral zones. The primary circulation path breaks into tertiary paths leading to different functions and their sub-functions. The vertical circulation comprises of stairways, lifts and fire exits. The main vertical circulation is in the central lobby. Six elevators serve the center accommodating 1000 people. The stairways are mostly in the central lobby, others facilitate their functions, e.g. the skating rink has stairways to access the upper spectator seats in a double height space. There are multiple fire stairs designed in closer proximity due to functional needs.

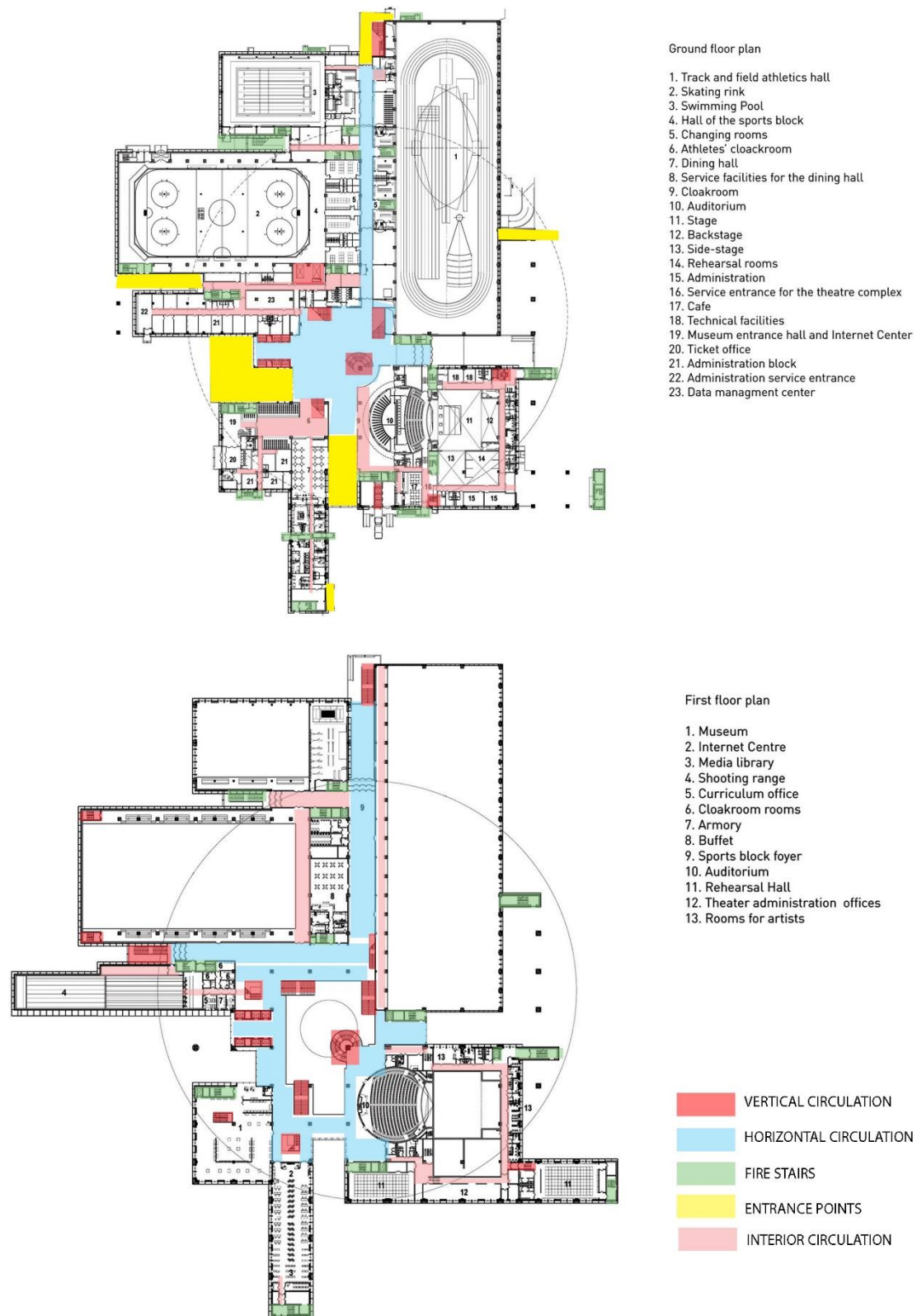


Figure 15: Circulation Diagram of Ground Floor and First Floor; Source: Author, Arch daily

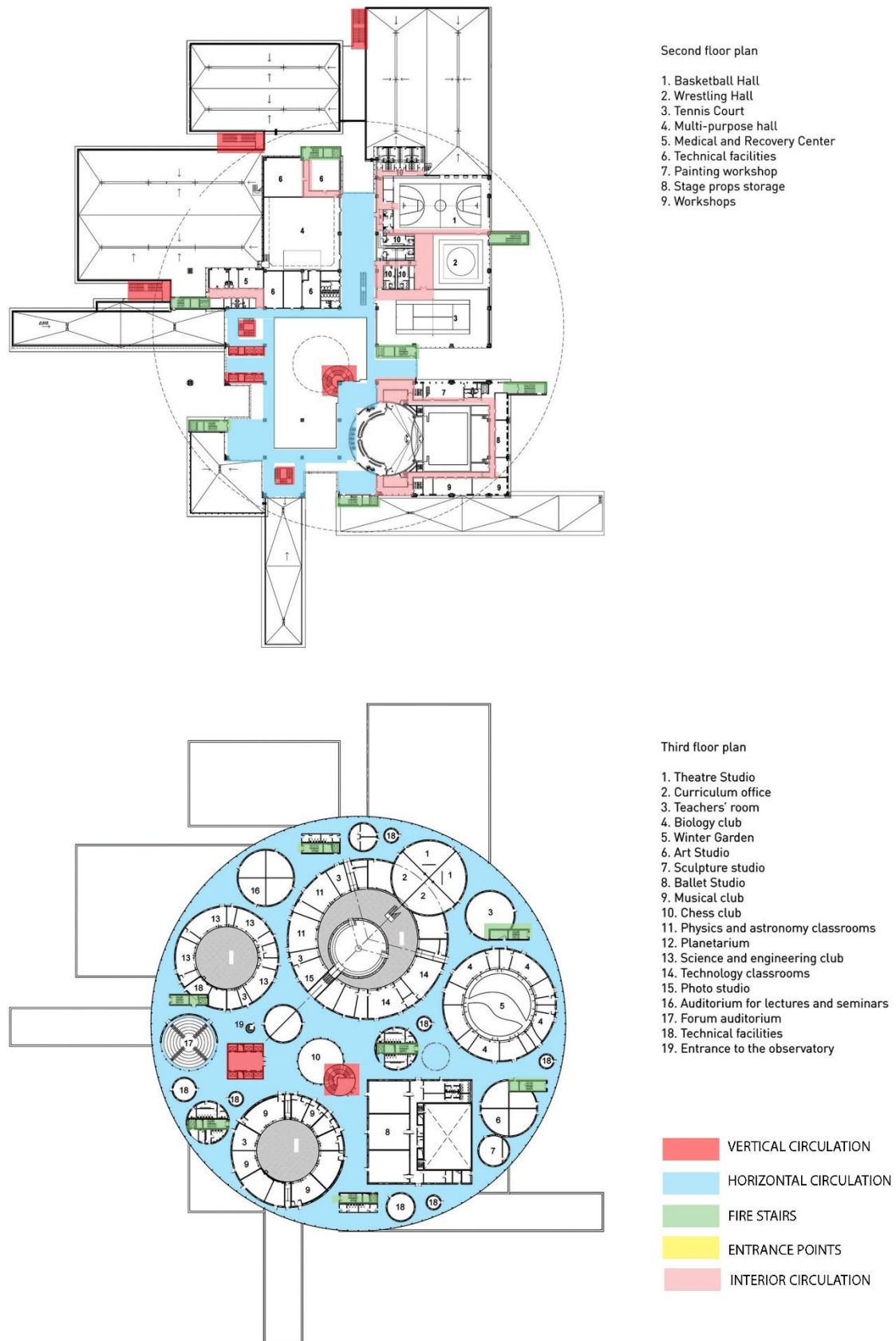


Figure 16: Circulation Diagram of Second and Third Floor; Source: Author, Arch daily

4.1.4 Structural Details:



Figure 17: Images; Source: Arch Daily

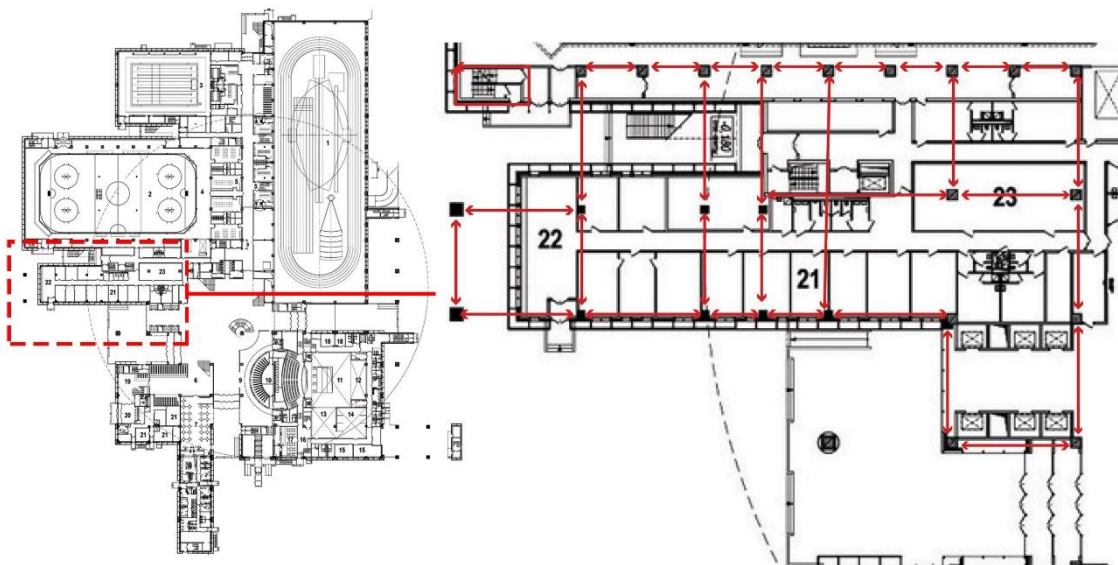


Figure 18: Structural system: Beam and Column System

Column-beam have been used in the structure. Danpalon roofing system has been used for its light-weight structure and excellent thermal performance. It brings in skylight and is suitable for a wide range of weather conditions. The facades are made of aluminium curtain walls giving maximum transparency and thermal insulation. The interiors are mostly cladded in porcelain tiles.

4.1.5 Parking details and Standard:

For a center that caters 1000 people at a time, open car parks are allocated for 250 cars in 7000 sqm area. An open space parking lot with no obstructions might be able to park one car per 32 square meters. But according to the designed area, each car gets only 28 sqm per parking spot. In this study, the parking space is mostly used as plaza in warm weather and as a full-time parking during winter.

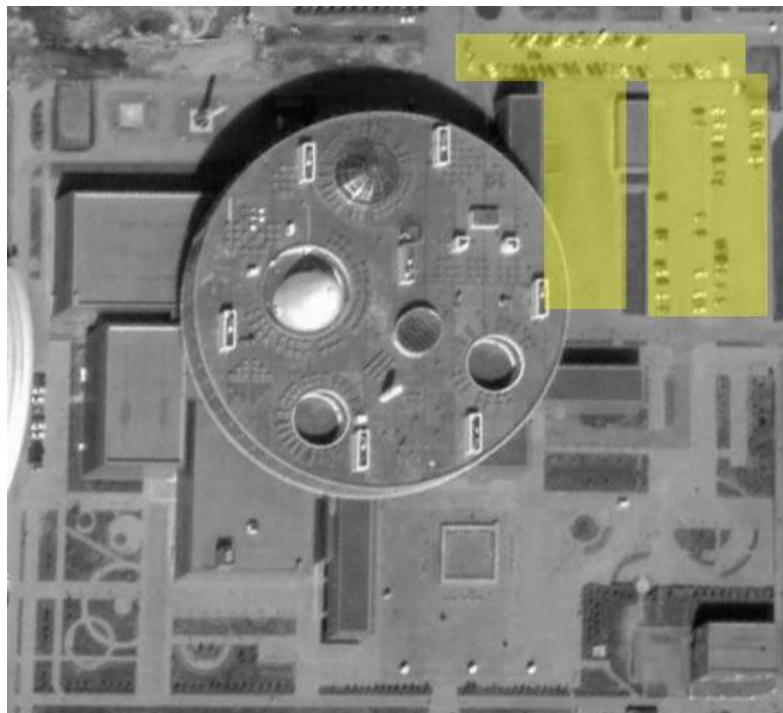


Figure 19: Parking Marked

4.2 Baltimore Youth Development Center

Architect: Penza Bailey Architects

Location: Baltimore, Maryland

Area: 65,034 sqft

Capacity: 60 beds

Rationale: To analyze functional requirements and organizations of juvenile correctional facilities and skill training center



Figure 20: Images; Source: Cam Construction

4.2.1 Environment and Micro- Climate:

The existing site is large enough to accommodate a facility combining all the programs and services required by the youth population, but it required the renovation and replacement of existing aging and deteriorated structures. Both of which were project goals from the owner. The Baltimore Pre-release Unit (BPRU) occupied a 1969 Dormitory building and almost half of 1964 prison industries building called the SUI Building. Their Occupational Skills Training Center (OSTC) occupies the remainder of the 1964 SUI building.

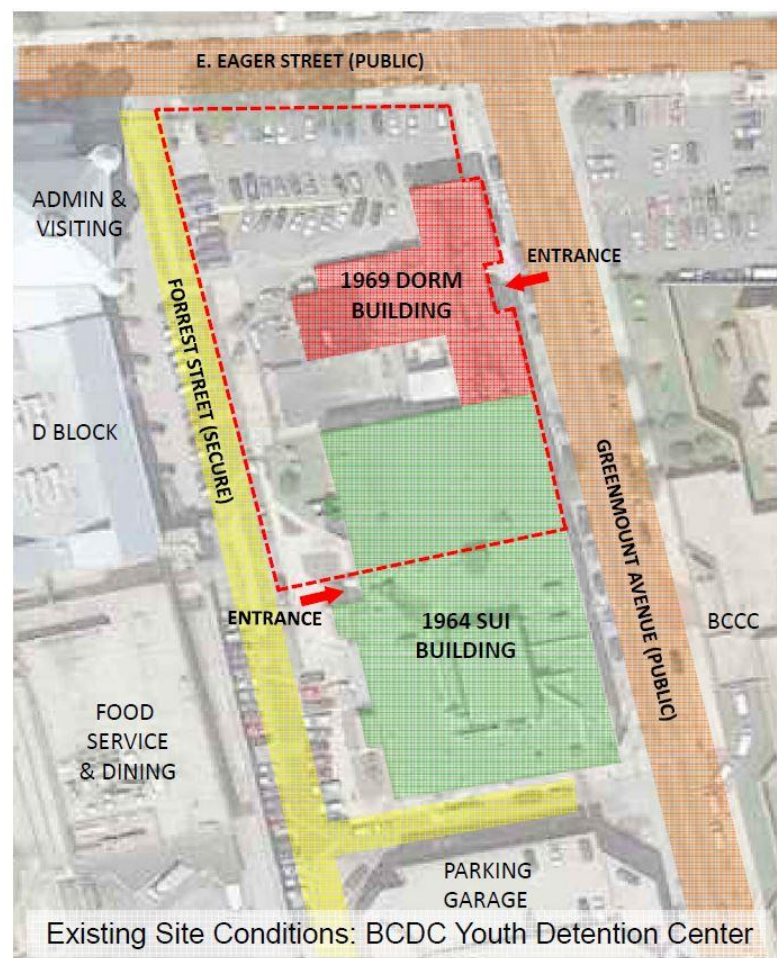


Figure 21: Existing Site; Source: Cam Construction

4.2.2 User behaviour:

The new facility brightens up the local community providing a positive site and the promise of new beginnings.

4.2.3 Form and Function:

The center serves two main programs: education and housing. A 3storied building volume accommodates these programs.

The administration block and visitation area is placed near the entry and is overlooked by the security zone that administers the security and surveillance of the entire area. On the ground floor, food services and medical/health center is located.

The housing units have been divided in all the three floors. The first floor has all the educational facilities like classrooms and labs. There is a recreational zone on the second floor.

The inter relationship of functions and how the entrances to each block has been maintained can be studied from this project for the design of the Youth Development Center.

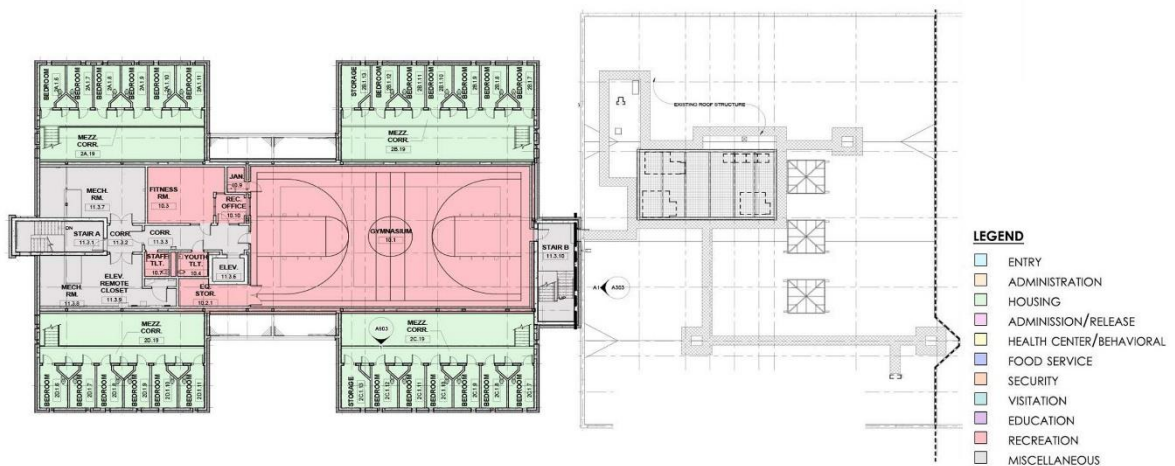
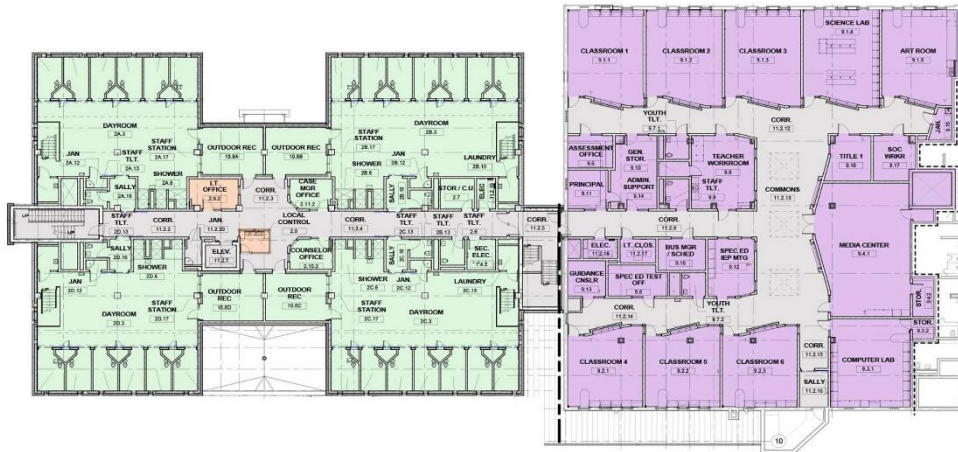
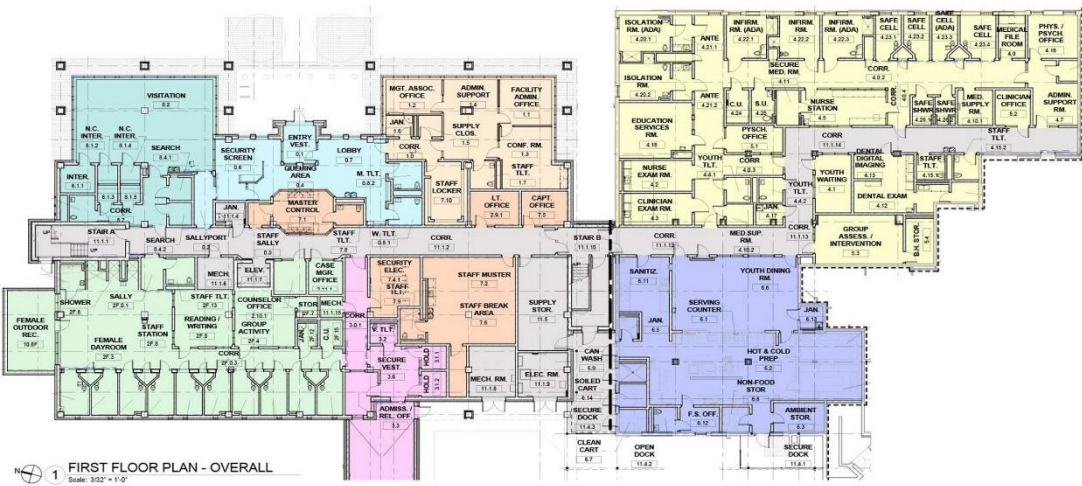


Figure 22: Functional Zoning; Source: Cam Construction, Author

4.2.4 Horizontal and vertical circulation:



Figure 23: Circulation Diagram Source: Cam Construction, Author

The horizontal circulation is corridor like, the negative of which is some prominent dead ends. The entrance opens to a un welcoming lobby space. The vertical circulation comprises of stairways only. Two main stairways also act as a fire exit. Only one elevator serves the entire center. Inadequate number of fire stairs especially on the east wing.

4.2.5 Structural Details:

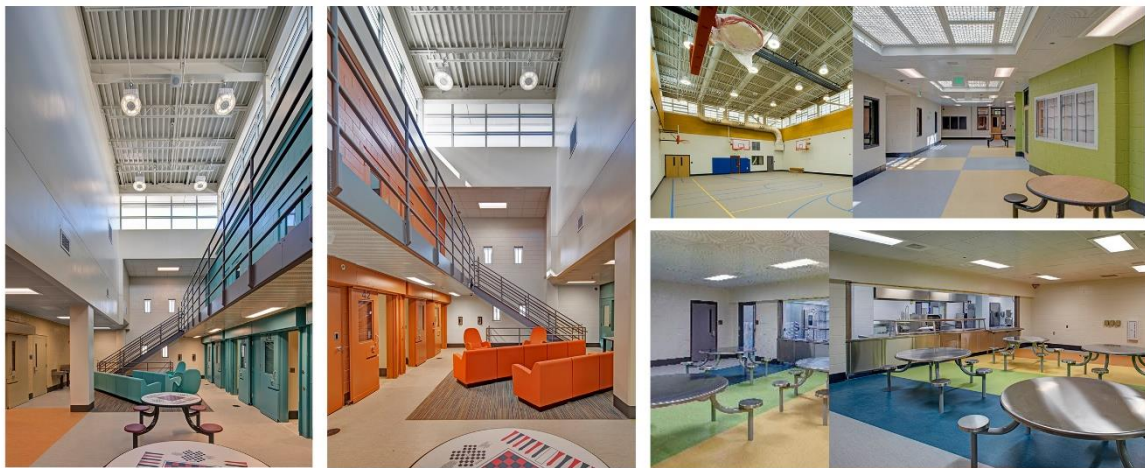


Figure 24: Interior Images; Source: CAM Construction

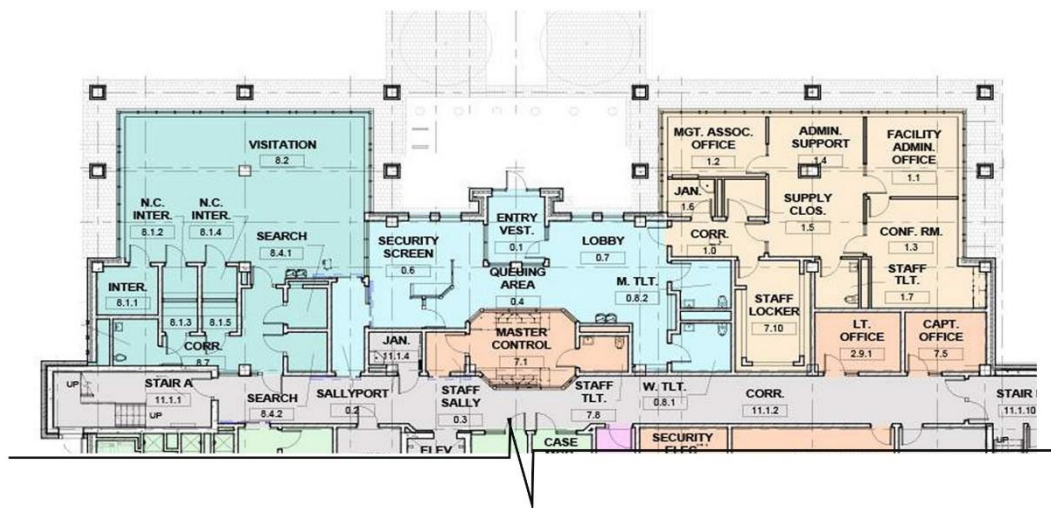


Figure 25: Structural System: Column- Beam Structure; Source: Author, CAM Construction

Column-Beam structure has been used to construct the facility. The facades have been made with Architectural Precast Concrete- which are both structural and decorative in function. It is altered with the form. Besides, Brick and Aluminum Composite Panels have also been used in the construction.

4.2.6 Building Services:

The Baltimore Youth Detention Center is a LEED Gold, Low-Rise, 3-story building, which is not as common in Correction/Detention design. Sustainability is not only met through the building systems, material choice, but also through heavy daylighting using clerestories and skylights for a pleasant staff and occupant experience.

Some sustainable features included reusing an existing building and optimizing its energy performance. Heat- Island effect in the interiors have been reduced through the use of SRI (Solar Reflective Index). Controllability of lighting and thermal systems for user comfort, water efficient landscaping, high performance HVAC system, outdoor air delivery/increased ventilation and daylighting and views all together make this building a LEED certified one.

4.3 Long Creek Youth Development Center

Architect: SMRT Architects

Location: Portland, Maine

Site Area: 41.5 acre

Built Area: 1,70,423 sqft

Capacity: 120 beds

Rationale: To analyze functional requirements and organizations of juvenile training center for total rehabilitative environment



Figure 26: Long Creek Ydc, Source: InmateAid

4.3.1 Environment and Micro- Climate:

The existing site is large enough to accommodate a training center with necessary facilities. Situated amidst the lush greens, the center itself has abundant fields at the back used for different activities. In Portland, the summers are comfortable, the winters are freezing and windy, and it is partly cloudy year-round. The pitched roof aids in easy snow fall. Between each pod, a courtyard like space is kept for proper ventilation and views.

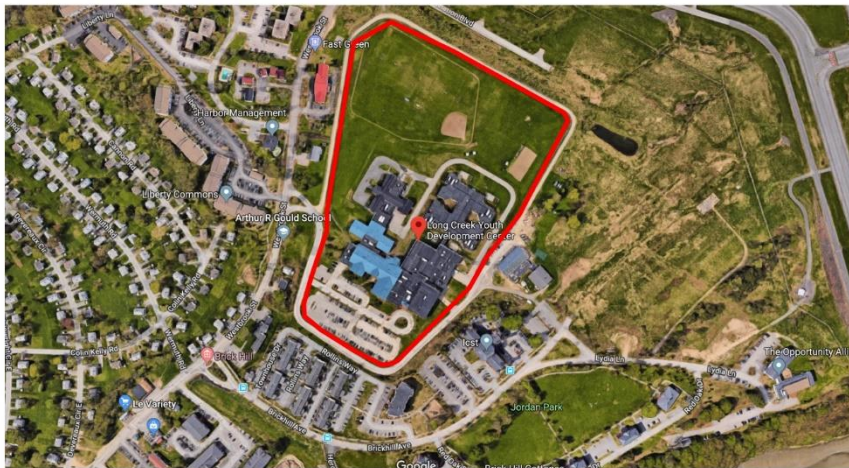
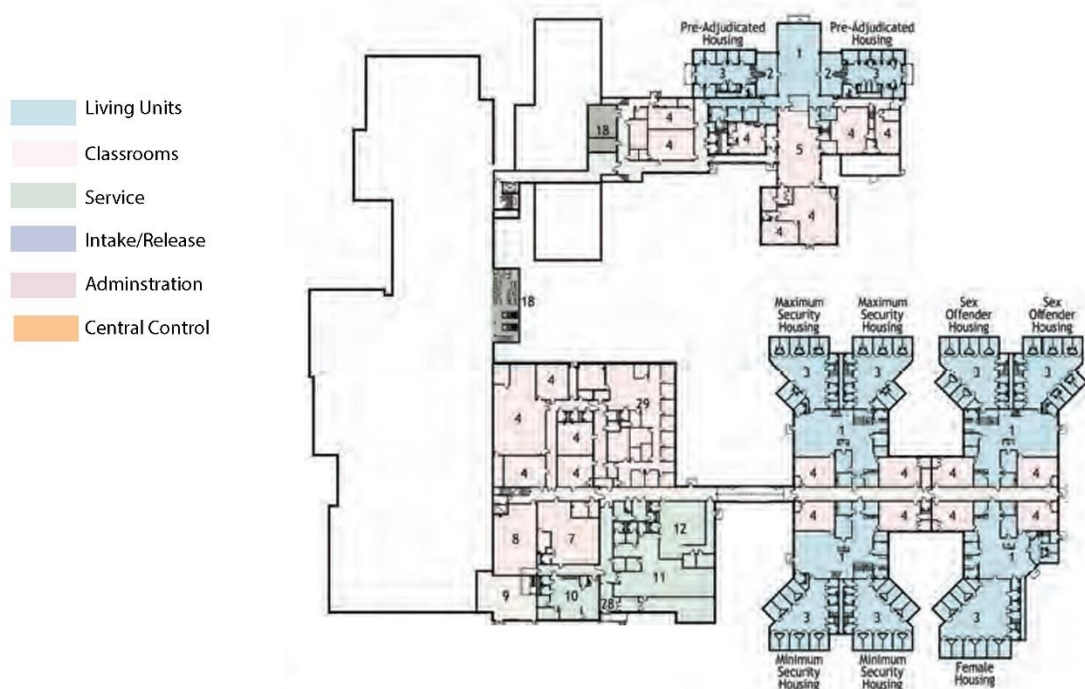


Figure 27: Satellite View of Site

4.3.2 Form and Function:



1. Day Room
2. Living Room
3. Unit Living
4. Classroom
5. Chapel
6. Administration
7. Library
8. Activity room
9. Mechanical
10. Laundry
11. Food Service
12. Dining
13. Intake/ Release
14. Vehicle port
15. Storage
16. Medical
17. In-patient med
18. Electrical
19. Main corridor
20. Staff
21. Visitation
22. Non contacts
23. Covered entry
24. Main Lobby
25. Central Control
26. Maintenance
27. Gymnasium
28. Loading Dock
29. Service

Ground Floor Plan



First Floor Plan

Figure 28: Floor Plans; Source: Justice Facility Review, AIA , Author

The new center is on the original site of the 1853 Boys' Training Center which was a campus design with dorms, cottages, and separate food service, administration, health care, education, and recreation buildings. The center now houses living quarter and services under one roof.

Each pod incorporates dayroom and two adjoining classrooms. & pods with 120 beds are separated according to low-medium and high security and sex offenders and female populations. Pods are divided into 3 living areas for better segregation.

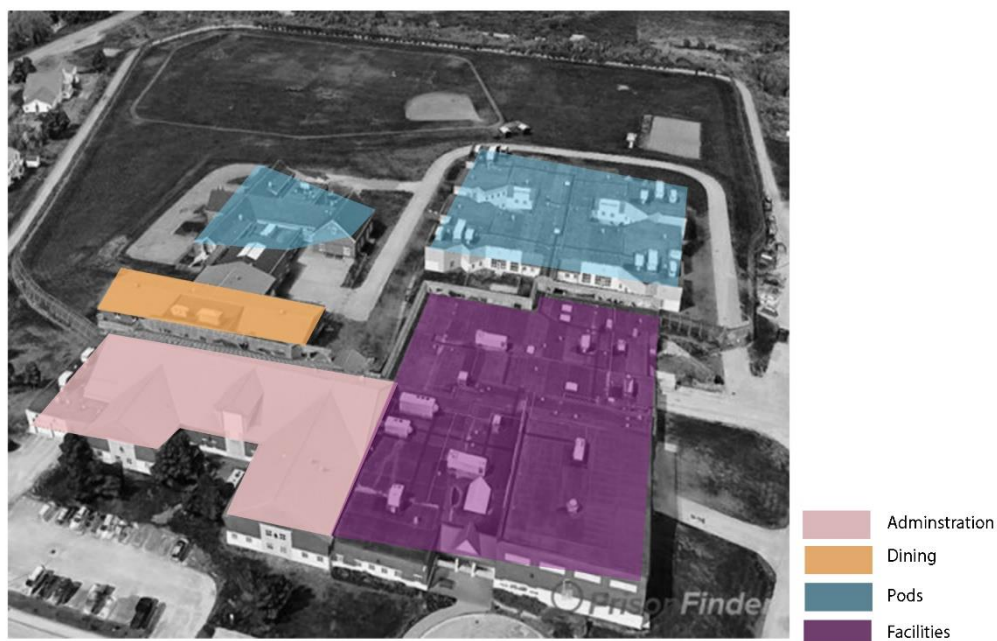


Figure 29: Zoning; Source: CAM, Author

With focus to total rehabilitative environment, recreational activities and educational facilities are provided along with intensive day classes, counselling, health care and mental health services.

4.3.3 Structural Details:

Regular column-beam structure. Materials used are bricks for walls. The interiors are plastered or cladded. The gable roof is made with tin with the flat ones are concrete slabs.

4.3.4 Parking details and Standard:

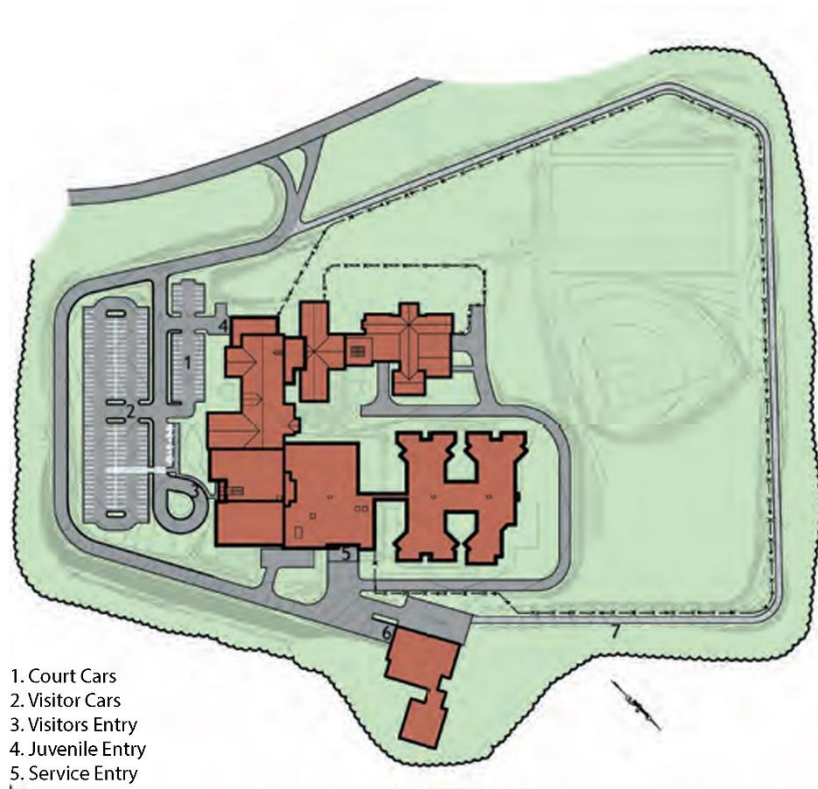


Figure 30: Site plan with annotations; Source: Author

There are visibly 150 car parking allocated in an area of 89,000 sqft with circulation and driveways. Each parking gets about 130 sqft which is acceptable as standard for it is 128 sqft area.

Chapter 5: Program Appraisal

To develop innovative and improvised method of rehabilitation to the juveniles for maximizing their skills and talent to their possible potential and towards self- dependence, they are engaged in productive and remunerative activities. This inspires them to participate in all social, creative and recreational activities in all sphere of life. The Youth Development Center also aims at vocational training to ensure the participation of juvenile in community jobs after being released from the center.

As a result of the above-mentioned aims and objectives, an attempt has been made to categorize the different types of activities that would be taking place in the center in order to determine the programmatic requirements of the center.

5.1 Administrative Facilities

The administrative block consists of functions to facilitate from the entrance of a child to his admission to the center. From the given list of programs, area of office rooms and the large conference hall have been reduced to avoid space wastage. Conference hall has been reduced based on the maximum number of people at once in one conference hall. Additional functions like central control room, copy room, telecommunications room, intake area and its ancillary functions have been added. The children-parent meeting room or visitor's center will flow into the art gallery, which will be the main integrative space. This is where the community meets the young offenders as wells access other spaces within the facility. The reception area will be the main security checkpoint.

	Functional space	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
A.	Administrative facilities				
1	Reception lobby	1	variable	400	400
2	Children-parent meeting room	1	variable	800	800
3	Art Gallery	1	variable	750	750
4	Superintendent room	1	1	250	250
5	Superintendent's PA	1	1	150	150
6	Assistant Super room	1	1	250	250
7	Admin Officer	1	1	250	250
8	General office	1	15	15x80	1200
9	Conference room	2	24	1000	1000
10	Central Control room	1	4	400	400
11	Copy room	1	1	150	150
12	Telecommunications room	1	1	100	100
13	Intake area	1	variable	500	500
14	Scan/Search room	1	2	100	100
15	Interview room	2	2	150	300
16	Medical Examination room	1	4	600	600
17	Clothing +Shower	1	15	15x20	300
18	Store Keeper + Office Store	1	1	200+400	600
19	Record keeper + record room	1	1	200+400	600
20	Electrician + pump operator room	1	1	150	150
21	Staff lounge + gallery kitchen	2	6+12	150+300	450
22	Pantry	1	1	150	150
23	Male Toilet	1(2:2:2)		130	130
25	Female Toilet	1(3:2)		130	130
				Subtotal	9710

5.2 Academic Facilities

The Center presents a unique opportunity not only to educate institutionalized youth but also the general community. The spaces for formal education can be a classroom for young offenders' education during the day and a community evening school for adults. Besides, the library can also be integrated to community use.

B.	Academic Facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
1	Classroom	10	25	500	5000
2	Headmaster's room	1	1	300	300
3	Teacher's lounge	1	10	250	250
4	Library	1	100	3500	3500
5	Librarian office	1	1	100	100
6	Magazine room	1		50	50
7	Computer lab	1	35	750	750
8	Open discussion area	5	variable	250	1250
9	Toilets for male students	5:03:06		250	250
10	Toilets for staff	2	1wc, 1 wb	25	50
				Subtotal	11450

5.3 Skill Training Facilities

Many schools extend their in-school education to cooperative programs with local industries, providing the student with actual on-the-job experiences. This mode of training will also be followed in this facility so that upon the release of the juveniles, they can go back to the society and start a normal life. As these functions are essentially industrial in nature, related structural and enclosure systems are different from the rest of the facility. Usually these are one- story structures, though mezzanine space is often developed for storage or seminar use. These programs have proved to play a very important role in juvenile resocialization.

C.	Training facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
1	Training type: Tailoring				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
2	Training type: Electrical				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
3	Training type: Metal work				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Wash	2		50	100
	Welding	1		200	200
	Instructor room	1	2	250	250
4	Training type: Carpentry				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
5	Training type: Automobile				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
6	Training type: Drafting				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
7	Training type: Fine arts and crafts				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
8	Training type: Music, Dance				
	Workspace	1	16x75	1200	1200
	Storage	1		500	500
	Instructor room	1	2	250	250
9	Multipurpose	1		3000	3000
	Kitchen	1		900	900
	Pantry	1		500	500
	Storage	1		900	900
10	Meditation+ utility room	1	24	800	800
11	Training Director's Office	1	1	300	300
12	Staff Lounge	1	10	250	250
14	Staff Toilet	2	2/unit	25	50
15	Toilets for male students	5:03:06		250	250
				Subtotal	16,700

5.4 Juvenile Court Facilities

The area of rooms allocated for the personnel have been decreased according to standards to reduce wastage of space. The rest of the programs have been kept according to the provided program list by the Social Service Department.

D.	Juvenile Court facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
1	Courtroom	1	Variable	1000	1000
2	Magistrate room+ toilet+storage	1	1	250+25+25	300
3	Bench Assistant	1	1	100	100
4	Probation Officer+storage	3	3	250+100	850
5	Prosecution Officer	1	1	250+25+25	300
6	Section Office+storage	1	12	960+40	1000
7	Waiting room	1	20x20	400	400
8	Conference Space	1	25	500	500
9	Toilet (Staff)	2		25	50
10	Toilet (Visitors)	2		25	50
				Subtotal	4500

5.5 Health Court Facilities

Supporting facilities have been added to the given list here according to standards and case studies. A pharmacy has been included for purchasing medical supplements. Along with the psychiatrist's office, group therapy rooms have been added. This may accommodate up to 12 people at once as interactive sessions progress mental healing with mutual support. Dental care unit has been added for regular dental check-ups as there are no nearby dental care units in the area.

E.	Health facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
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1	First Aid/ Sick room	2		500	1000
2	Doctor+ toilet	1		350	350
3	Paramedic staff	1		150	150
4	Counsellor Room	6		150	900
5	Pharmacy	1			250
6	Psychiatrist office+toilet	2		350	700
7	Group therapy rooms	2	10 to 12	450	900
8	Waiting	1	25x10	250	250
9	Dental Care Unit	1		150	150
10	Hospital Kitchen	1	5	150	150
11	Storage	1		200	200
12	Staff Toilet	2	2/unit	25	50
13	Male Toilet	1	2:01:02	100	100
				Subtotal	2500

5.6 Residential Facilities

Smaller family units are very important for child development and highlights that living in a family is psychologically and culturally imperative in societies. Therefore, the residential component of this new center will be designed to house 250 juveniles. To enhance family lifestyle and interpersonal relationship, accommodation of young offenders will be done in small family units which have one house parent to six youngsters, so about 42 units to house them. For staff, two categories of housing have been introduced, type 1 to accommodate 1st and 2nd grade workers with studio apartments and type 2 for 3rd grade workers with each unit having 2 beds and shared washroom facilities.

F	Residential facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
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1	Boys Dormitory	42	292	1000	42000
2	Day room	1		1000	1000
3	Laundry	1	12	600	600
4	Remand home	1	30	1000	1000
5	House keeping	5	4	80	400
7	Superintendent's residence	1		1000	1000
8	Asst. Super's residence	1			1000
9	Staff accommodation (type 1)	18	1	500	9000
				Subtotal	57450

5.7 Dining Facilities

The dining area should be safe and pleasant in design to allow the youth to participate and learn from work experiences in the kitchen. The environment should convey a sense of informality. It should not serve more than 75 people at a time and should be in easy access to the main kitchen and residential spaces. Seating arrangements should be informal so that isolation can be avoided.

G.	Dining facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
	Boys Dormitory				
1	Dining	3	75	750	2250
2	Staff Dining	1	30	300	300
3	Kitchen	1	4	850	850
4	Pantry	1	1	500	500
5	Storage	1	1	850	850
6	Toilet Block	4		25	100
				Subtotal	5100

5.8 Recreational Facilities

These facilities should be easily accessible with freedom of movement. Interior recreational areas should facilitate a diversity of activities. These should range from active activities such as the practice of a sport or indoor games to passive activities (T.V. lounge or reading area).

H	Recreational facilities	Number of units	Number of users	Area per unit (in sqft)	Total area (in sqft)
1	Indoor Games room				
2	TV lounge	3	50	300	900
3	Prayer Area	1	350	3100	3100
4	Prayer Area for others	1		300	300
				Subtotal	4300

Total Built Area: 1,11,710 sqft

Chapter 6: Design Considerations

A well-designed Youth Development Center derives greatly from understanding the needs of the adolescents who are sent here and the authority in charge as they will be using the facility. A good design will depend on creating space that will be responsive to residents and staff, to their daily needs, to the need for safety and security and positive management at all times. To cater this, the following design considerations have been sketched down:

6.1 Creating A Learning & Skill Developing Environment

The juveniles who reside in this facility will be trained to fit into the society as a normal person after their release. For this reason, creating an environment that is suitable for peer to peer learning and skill development through hands on experience will be ideal for the development of the adolescent minds. The space requirements of skill training classrooms than the regular ones. It is vital to ensure proper modules of classrooms and make them interactive by creating open interior spaces that relate to outdoor environment for adaptive use. Besides, the use of color, lighting, spatial variety, semiotics can influence the youths' behaviour through psychological stimulation. For example, classrooms opening into a courtyard can increase the feeling of freedom among the adolescents as well as have a better peer learning experience when they are gathered there during break time.

6.2 Integration with Community

Through research analysis it has been established earlier that the more interactive the adolescents are with the community and their family, the faster they heal towards better living and behavioural pattern. Integrating major activities, like learning, performing religious activities, social service, playing etc. nurtures positive outcome and responsive behaviour in them. It also creates a community friendly environment which leads them to feel welcomed

into the society after their rehabilitation period is over and they restrain themselves from going astray.

6.3 Ensuring security

While mixing with the community is important for the mental growth of the juveniles, it is also crucial for the facility to have surveillance over the private and public interaction. A balance between them can be ensured through the maximization of the degree of visibility on the spaces, by designing an open circulation flow between the spaces and limiting access to certain areas. While creating outdoor areas it must not jeopardize security nor create a threatening environment.

These design considerations work as guidelines while suggesting design solutions in the next chapter.

Chapter 7: Design Suggestions

The previous chapters help build the design approach for the project. The ways to achieve positive rehabilitation for the children is sketched out and spaces are generated according to the characteristics of the age group cluster. Design decisions have been taken to ensure all the objectives discussed earlier.

7.1 Design Approach

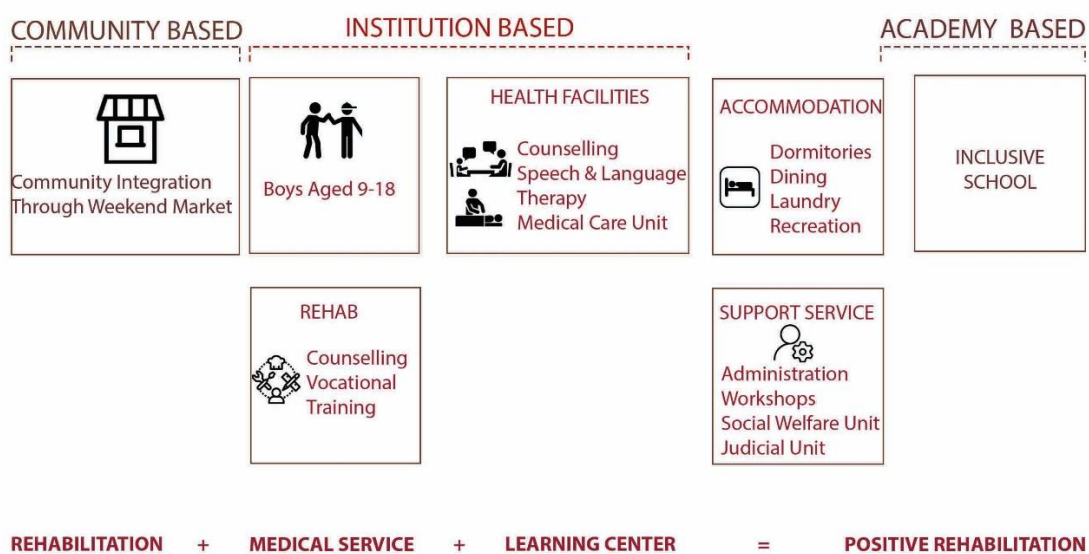


Figure 31: Ways to positive Rehabilitation; Source: Author,2019

AGE	CLUSTER	NATURE	PHYSICAL GROWTH	SPACE TYPE	LEISURE ACTIVITY
9-10	CLUSTER 1 (4,5)	DIFFER	SLOW	ACTIVE, FRIEND CENTERED, IMAGINATIVE	BALL GAMES, ARTS&CRAFTS, CLIMBING EQUIPMENTS
11-13	CLUSTER 2 (6,7,8)	SHY	FAST	ACTIVE: FRIEND CENTERED, CULTURAL	OUTDOOR GAMES, DIGITAL GAMES
14-15	CLUSTER 3 (9,10)	INTERACT	RAPID	ACTIVE · PASSIVE: UNDER OBSERVATION	OUTDOOR GAMES, DIGITAL GAMES, INDOOR GAMES
16-18	CLUSTER 4 (11,12)	INTERACT	SLOW	PASSIVE, FRIEND CENTERED, UNDER OBSERVATION	INDOOR GAMES, GOSSIP

Figure 32 Space Requirement for Healthy Development according to Age Cluster; Source: Author,2019

The design approach for the Youth Development Center began with clustering the age groups of boys to be admitted here and then clustering them according to their age, nature, physical growth, space type and leisure activity. There will be supervision of wardens at all times. The use of jail as security screens are prominent in design wherever open spaces are designed to let in air and light at the same time provide the space visual permeability.

7.2 Concept Development

The bigger idea before starting to design was to keep uninterrupted view to the canal from the entry or for passerby. The zoning comprises of two major zones – academic and residential, that is connected by a mass on upper levels accommodating dining facilities and the multipurpose hall which is served by the service entry on the north. The canal has been drawn in so the kids can enjoy the canal edge and it also acts as a buffer. The north east of the site acts as a zone for the local integration where the boys of the facilities can sell their crafts through shops and the space in front can be used by the locals for weekend bazaar.

The academic zone comprises of administration, juvenile court facilities, workshops and classrooms stacked vertically for security and continuous supervision. The courtyard in this block will serve as an activity courtyard during different times of the day and also as an exhibition and visitation space when parents or visitors visit the facility. The play field is zoned out with segregation for boys aged 9- 11 and 11 -18 according to their nature for safety issues. The private court lies between two residential blocks' wings where recreation zone, prayer space, library and day rooms are on the lower floors, and dormitories stacked above. The court steps down to the canal.

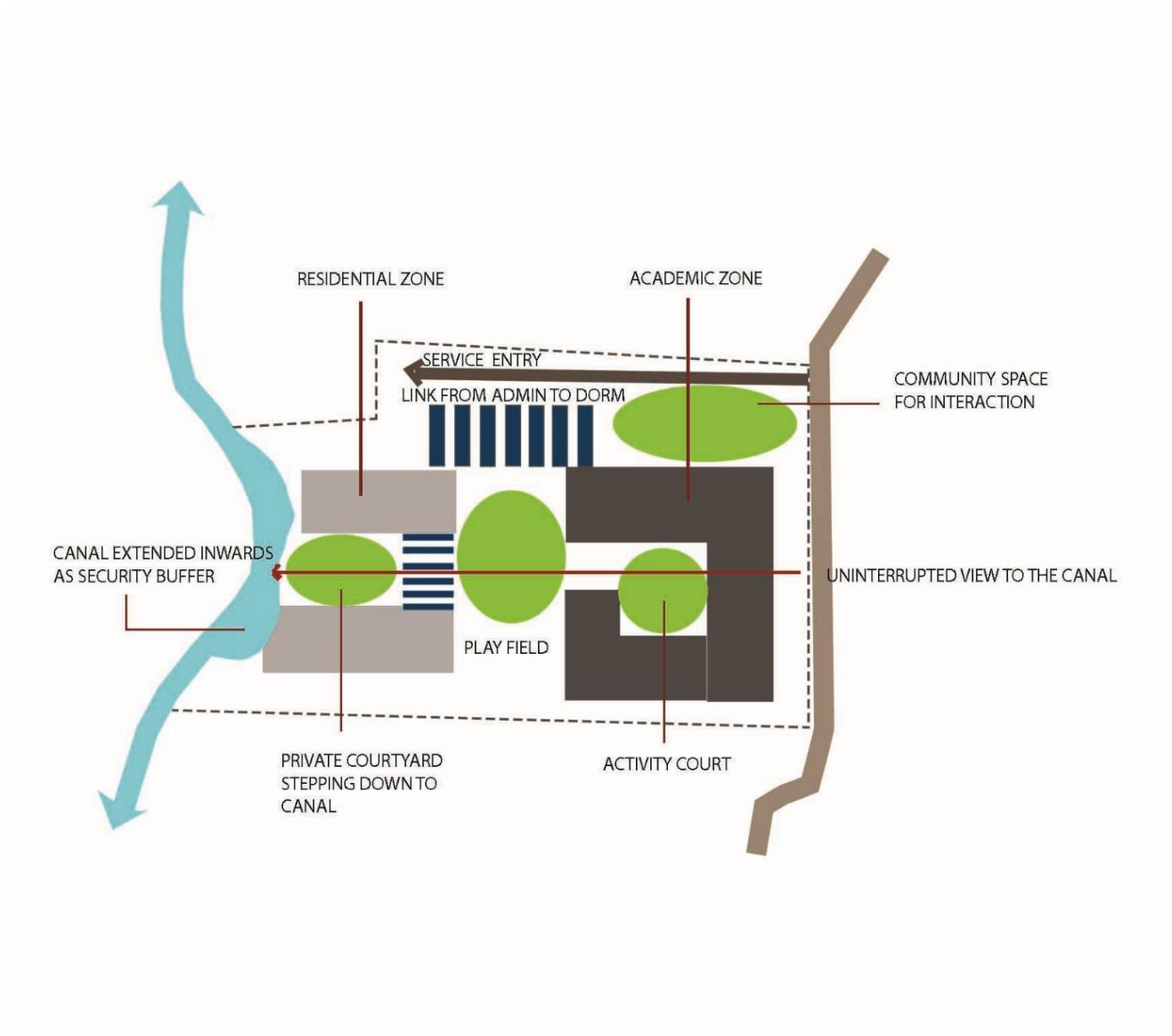


Figure 33 Concept Development; Source: Author,2019

7.3 Form Development

A courtyard based form was taken for ensuring maximum security which is an objective of this project. The masses are linked with bridge connections on upper floors. Spaces are curved out according to the need of the programs.

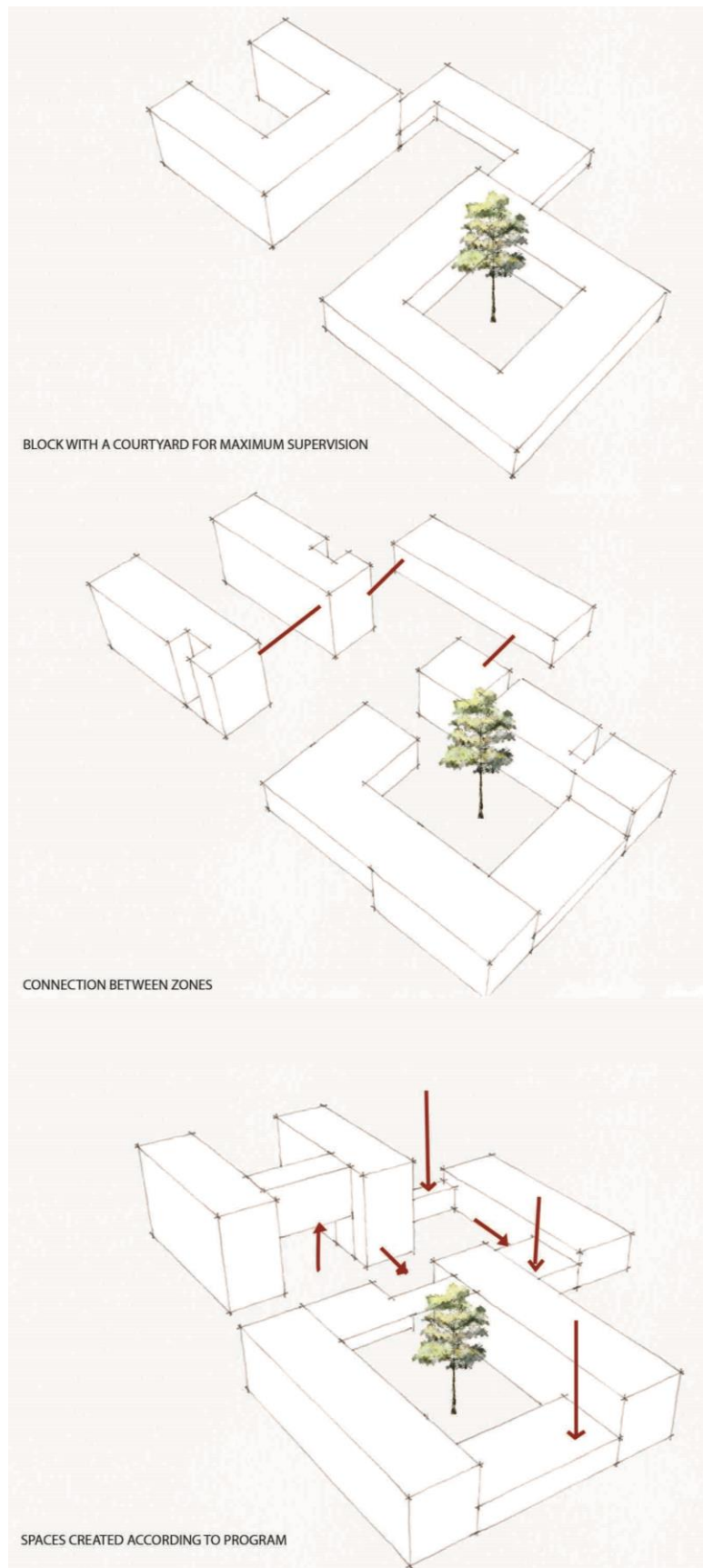


Figure 34 Form Generation

7.4 Zoning

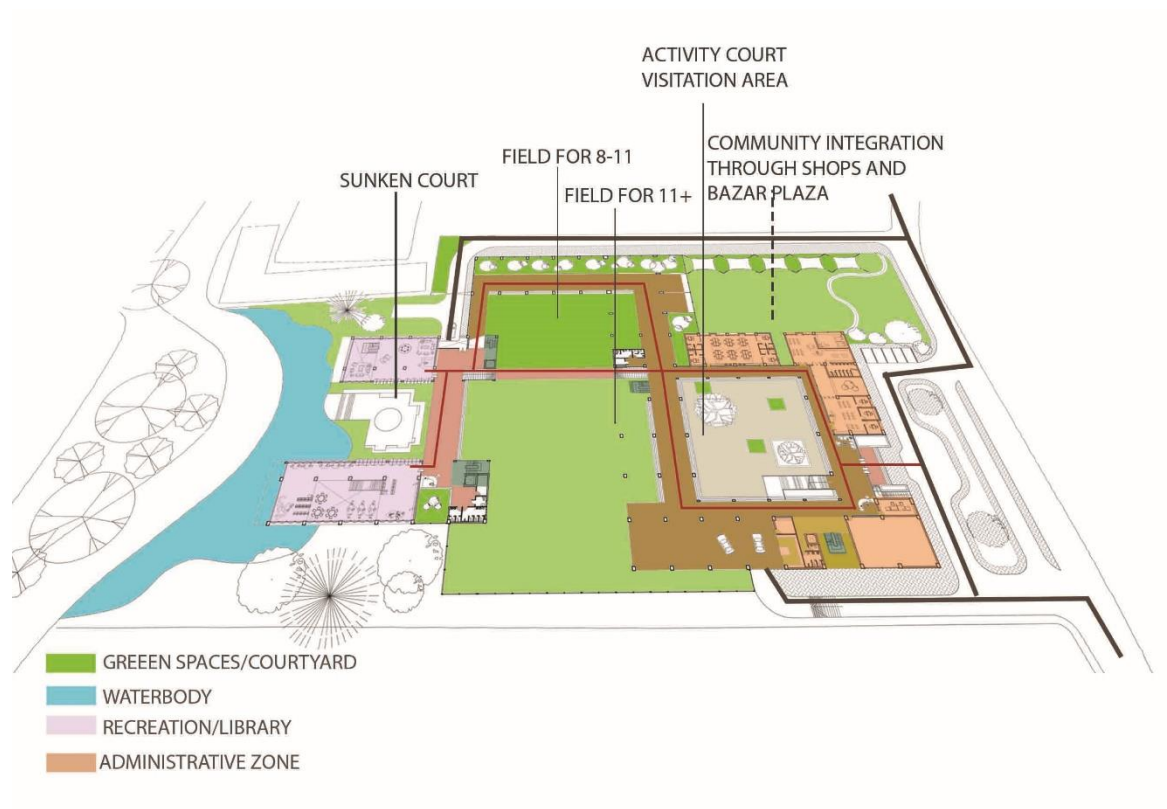


Figure 35 Site Zoning; Source: Author,2019

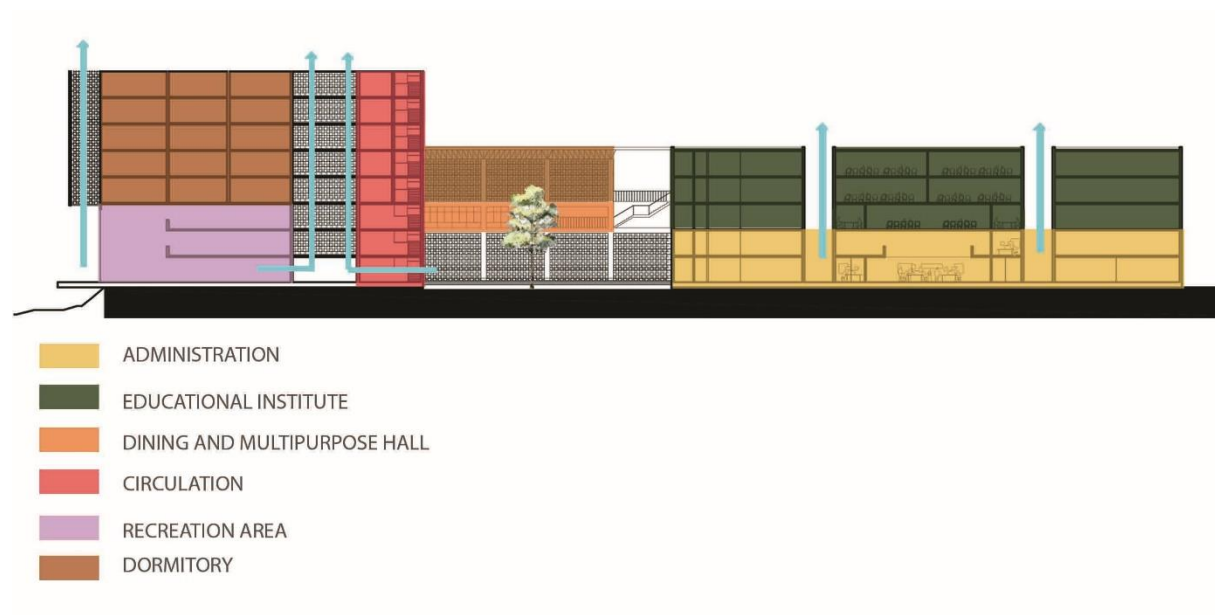


Figure 36 Vertical Zoning; Source: Author,2019

FOURTH FLOOR

- DORMITORY
- SCHOOL

THIRD FLOOR

- MULTIPURPOSE
- DORMITORY
- SCHOOL
- SKILL DEVELOPMENT CLASSROOMS

SECOND FLOOR

- SKILL DEVELOPMENT CLASSROOMS
- HEALTH CENTER
- DINING FACILITY
- RECREATION ZONE

FIRST FLOOR

- RECREATION ZONE
- JUDICIAL DEPARTMENT

GROUND FLOOR

- ADMINISTRATION ZONE
- RECREATION ZONE
- AUTOMOTIVE CLASS

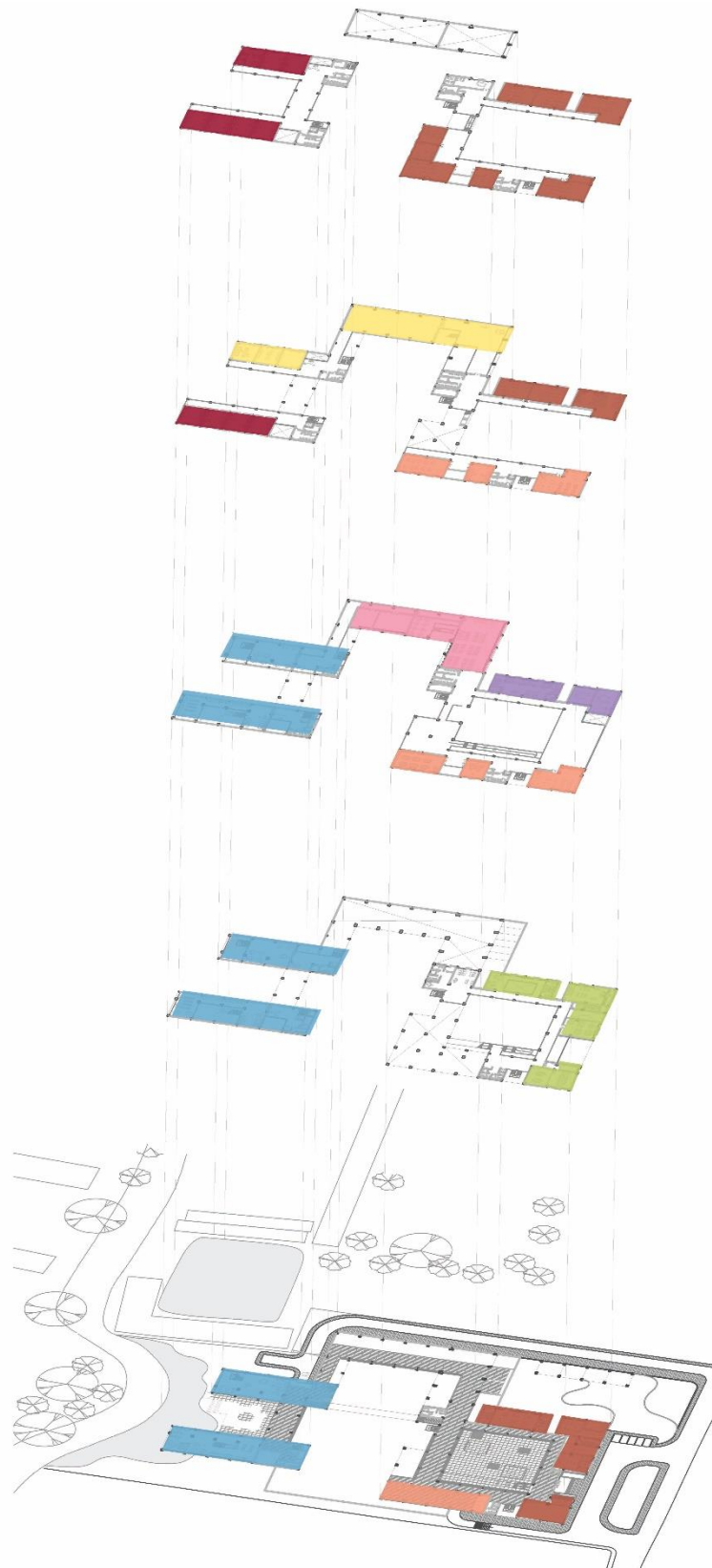


Figure 37 Zoning by Floors; Source: Author,2019

7.5 Floor Plans

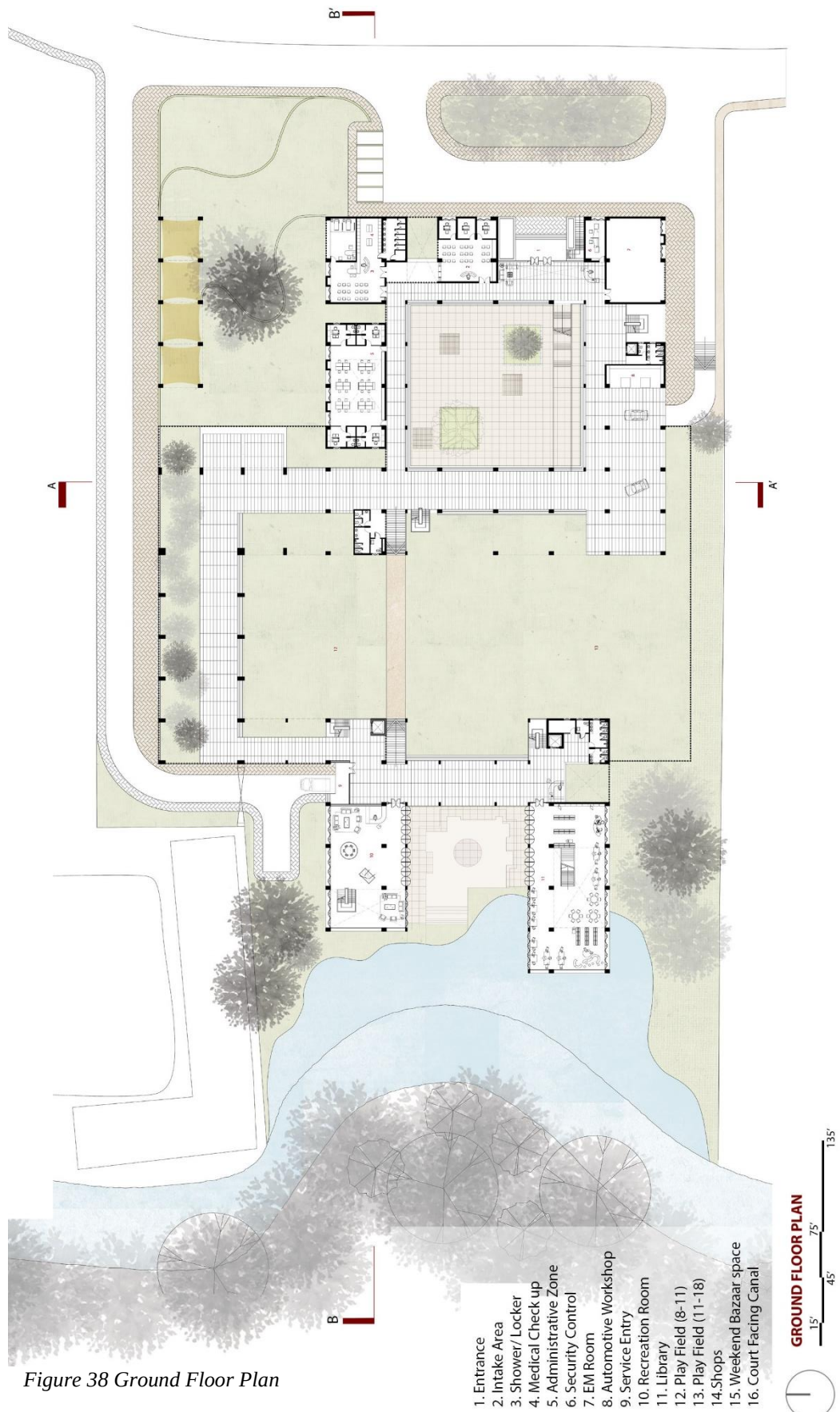
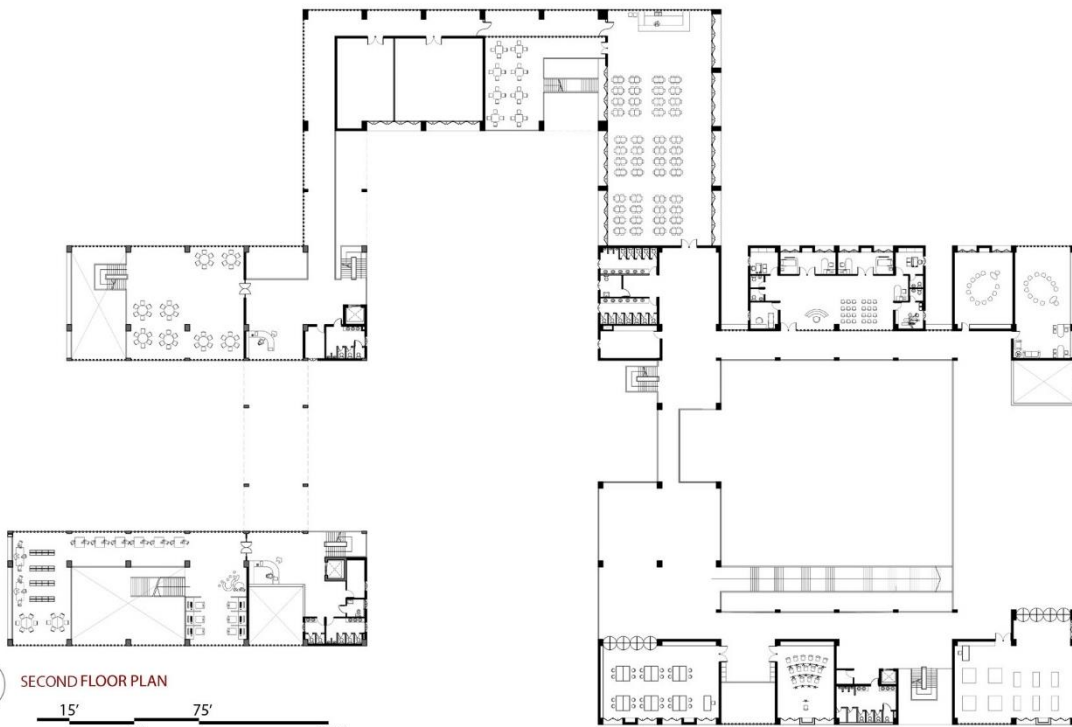


Figure 38 Ground Floor Plan



FIRST FLOOR PLAN

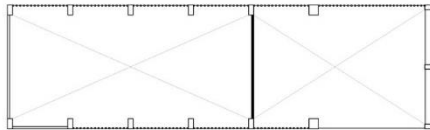


SECOND FLOOR PLAN

15' 75' 135'
45'



THIRD FLOOR PLAN

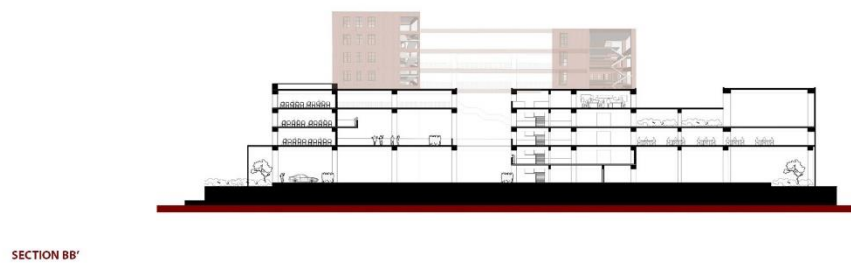
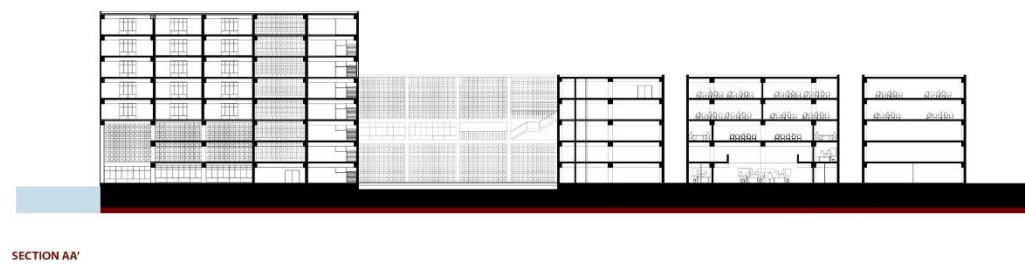
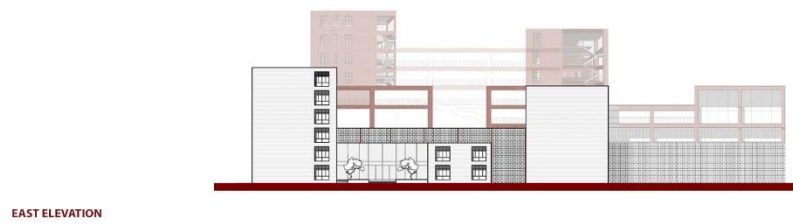
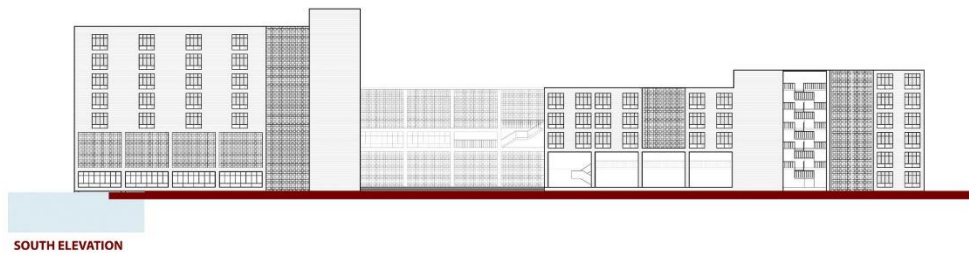


FOURTH FLOOR PLAN

15' 45' 75' 135'



7.6 Elevations and Sections



7.7 Perspectives

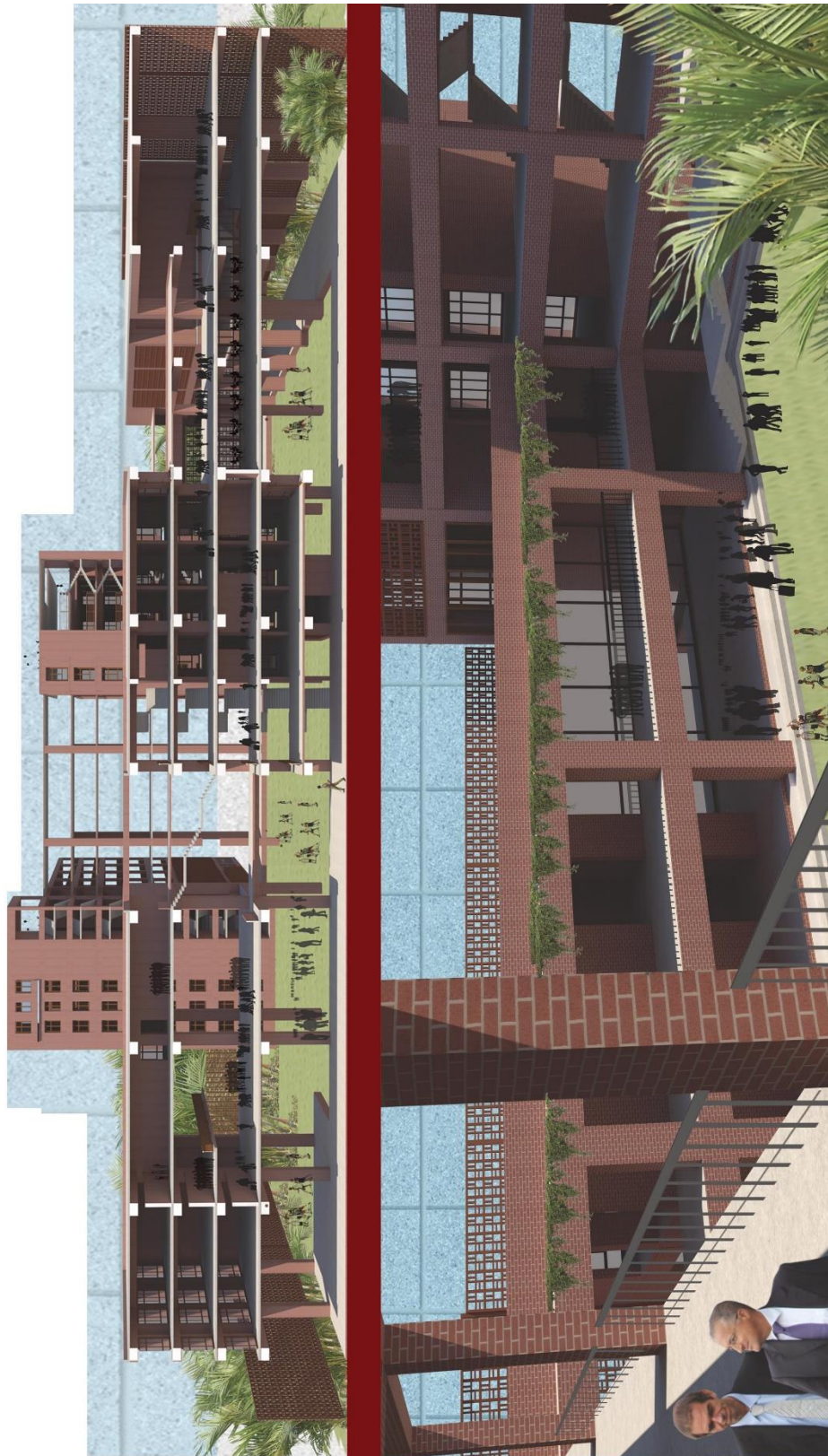




Figure 39 View towards Activity Courtyard

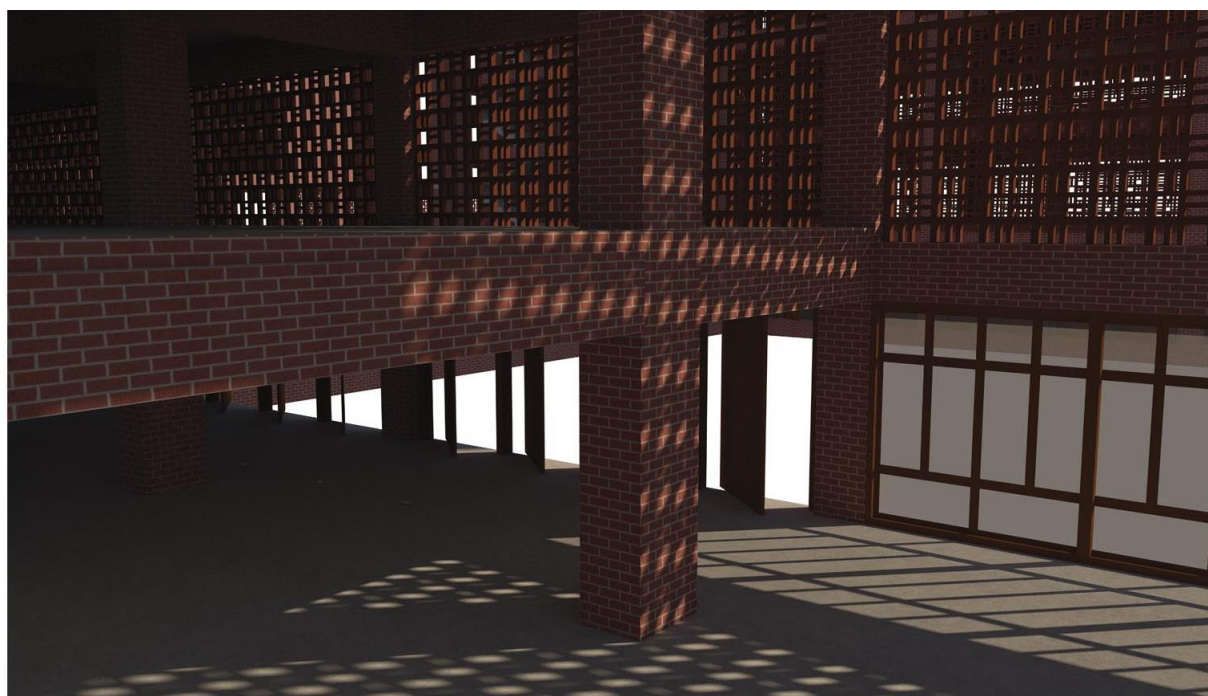


Figure 40 Interior of Recreation Zone

7.8 Model Images

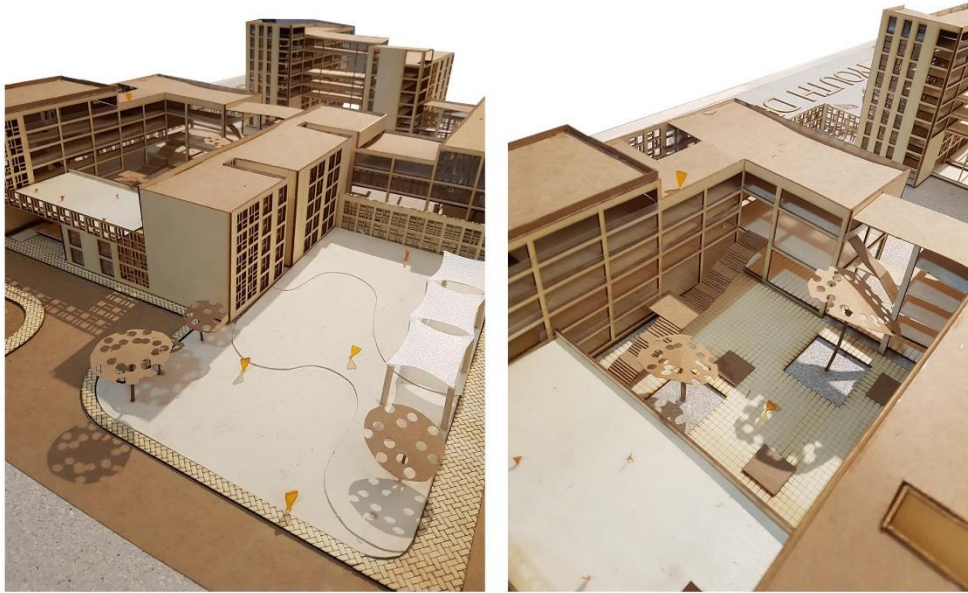


Figure 41 Model Images, Source: Author

Chapter 8: Conclusion

The youth comprises one- third of the entire population of Bangladesh. (UNFPA, 2019) It is disheartening to witness that the hands that should uphold the nation falls into the claws of crimes at such tender ages. The aim of this project was to raise awareness on juvenile delinquents and to sketch out a different approach to rehabilitate them for a positive future through design. The project aims to propose a Youth Development Center that ensures positive development of character in the young ones and promote healthy life style even after being discharged into the normal lives.

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