

INTERACTIVE CENTRE FOR CHILDREN

By

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in partial fulfillment of the requirements for the degree of
Bachelor of Architecture

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Declaration

It is hereby declared that

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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.
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Approval

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Abstract

Interaction is essentially motivating and offers the children to explore and gain more knowledge from the surroundings. Children think, create, imagine, communicate, make choices, solve problems, take risks, build physical skills and take on a variety of roles as they interact socially. Interaction enhances learning, promotes language, increases social development and enriches creativity in children. Through both the learning and play process, new generation attains skills other than the bookish information, which helps in the future aspect.

Thus, it is essential to create a recreational interactive platform to unite the children of the city as one. As the children of Dhaka city are being deprived of outdoor play and recreation provision which affects negatively on their overall physical and mental development , so it is highly necessary to build an interactive centre , which will help the children of the city to have a healthy, educative, communicative and a creative life.

Keywords: Interaction, Interactivity, Recreation, Children, Play, Learn.

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List of Acronyms

NGO Non-Governmental Organization

WHO World Health Organization

Chapter 1: Introduction

1.1 Introduction to the Project

Engaging in an activity for recreation, innovation and interaction helps the children to build up themselves. Playing is not only fun, but it is also an essential element for a child's mental and physical development. In our country, Bangladesh, maximum children are enclosed by four walls because of the lack of open play spaces, and gradually forced to become cornered from the community. This project requires a serene place with fewer crowds, less noise and more association with nature. Moishanbari, in Gazipur, is surrounded by wide openness and green spaces which brings the whole community connected to nature. There are some prominent resorts around the area, where people mostly visit during their leisure times. It will act as an intermediary space amidst the recreational spots and open spaces. The project is under the charge of Gazipur City Corporation. The possible benefits from this project include the elevation of the recreational facilities specifically for the children, enrichment of the economic status and also in the development of the area.

.Interaction with the surroundings helps children to groom themselves up along with the environment. When a child interacts, he/she tends to gain more knowledge from the outside and as an impact, his/her physical, mental, social well-being, learning and overall development occurs. They tend to learn more effectively through communication. Thus, this project aims to create a recreational interactive space totally dedicated for the new generation to inspire them to imagine, create, share, interact and celebrate.

1.2 Aim and Objectives of the Project

The aim of the project is to create an experience for the children to have an educative, innovative, communicative and a creative environment. It would encourage the new generation to improve their communication skills, learning methods, general knowledge as well as imagination. Integrating with the nature ensures the interactivity of the children with the surroundings along with their connection with the objects, people and the whole environment.

1.3 Project Summary

Name of the Project: Interactive Centre for Children

Implementer of the Project: Gazipur City Corporation

Location: Moishanbari, Gazipur

Site area available for the Project Development: 3.44 acres

Proposed built-up area of the Project: Approximately 90,000 sq ft

Proposed Program of the Project:

- ☐ Administrative facilities
- ☐ Socio-Interactive facilities –
 - General Knowledge
 - Digital Studio
 - Music Studio
 - Innovation and Imagination Studio
 - Arts and Crafts Studio
 - Alphabet trails and Puzzles
 - Animation Studio
 - Discovery Garden
 - Temporary Exhibits
- ☐ Multi-Purpose Hall

- ☐ Cafeteria
- ☐ Library
- ☐ Indoor games room
- ☐ Workshops
- ☐ Guardian's Resting Area
- ☐ Prayer Room
- ☐ Staff and Volunteers Accommodation space
- ☐ Gathering and Recreational area
- ☐ Outdoor play areas

Chapter 2: Literature Review

2.1 Importance of interactive play spaces for children

Socio-cultural interactions are referred as the meetings of people of a community in a certain time, at a certain place and occasion. Possible interactions are religious festivals, cultural festivals, family programs etc. the main thing was the interaction and communication among the people. In Dhaka city, there are approximately two million children. It is one of the fastest growing cities. This remarkable growth of population was not matched with proper physical planning; as a result, Dhaka has become a concrete jungle with an inadequate room for outdoor play and recreational facilities.

Due to land scarcity, outdoor recreational spaces such as parks and playgrounds are being encouraged upon by different profitable land uses. As a consequence, open space for children's play contracted significantly and caused in one of the lowest ratios of open spaces to population in the world. As a result, the children of Dhaka are deprived of outdoor play and recreation provision which affects their overall physical and mental development. Playing is an unavoidable component of a child's overall progress and has a direct influence on physical, mental and social wellbeing. Throughout the play process, a child transforms from childhood to a healthy adult with the required skills such as mental, psychological, health, education, communication and creativity to be a future citizen of a nation. Children in cities need a variety of places in which to play and to learn. They need opportunities for all kinds of sports and physical skills. Interaction with the nature and among peers helps the children to gather more knowledge for their future benefits.

Table 1.1: Recommended area and size of open spaces for Dhaka city

Open Space	Area	Area/1,000 population	Size (Standard)	Size (Maximum)	Size (Minimum)
Play lot	50 sq.ft./child	0.5 acres	5,000 sq.ft.	-	2,500 sq.ft.
Play ground	100 sq.ft./child (6-14 years age)	1.5 acres	3 acres	5 acres	2 acres
Play field	600 sq.ft./person (15+)	1.5 acres	10 acres	20 acres	-
Local Park	300 sq.ft./person	2 acres	-	50 acres	5 acres
City Park	-	0.5 acres	100 acres	-	30 acres

(Source: Nabi, 1978)

Figure 1: A study conducted by Nabi (1978) suggested the following space requirement and sizes of open spaces for outdoor recreation of Dhaka city; (Source: Nabi, 1978))

2.2 Importance of a child's mental health

Development of brain occurs from the birth to an age of 25 of a person. Brain cells richly multiply and branch out widely. Thus, the more they are familiarized to the play process, the less there will be occurrences of stress for the children. When a child stays enclosed and cornered from the exterior environment and people, it hampers the child's mental health in a wider way and stress hormones are released automatically. Stress hormones deliver too much poison and if it is released for a long time it results in loss and destroys the nerve cells of a human body. It closes all opportunities for a child to function normally. A sealed space impacts on the children very negatively. Without connecting with the outer world and encompassed only on the inner world and materialistic things impacts them in a very harmful way leading them in desolation for their future.

Mental health problems affect about 1 in 10 children and young people. They include depression, anxiety and conduct disorder, and are often a direct response to what is happening in their lives. The emotional wellbeing of children is just as important as their physical health. Good mental health allows children and young people to develop the resilience to

cope with whatever life throws at them and develop into well-rounded, healthy adults. The basic of a child's mental health depends on the: unconditional love from family, self-confidence and high self-esteem, the opportunity to play with other children, encouraging mentors and a healthy secured environment. Inspiring children's first steps or their ability to learn a new game help them develop a desire to explore and learn more about their environments. Nervous mannerisms, shyness, withdrawal and aggressive behavior may be signs of childhood fears. A change in normal eating and sleeping patterns may also signal an unhealthy fear. And to overcome these complexities, one needs more attention, affection and interaction with the surroundings which might help to break the ice more easily.

Most children grow up mentally healthy, but surveys suggest that more children and young people have problems with their mental health today than about 30 years ago. That's probably because of changes in the way we live now and how that affects the experience of growing up. Teenagers often experience emotional turmoil as their minds and bodies develop. Assessments and treatments for children and young people with mental health problems put a lot of emphasis on talking and on understanding the problem in order to work out the best way to tackle it. For young children, this may be done through play. To children, play is just fun. However, playtime is as important to their development as food and good care as well. Playtime helps children to be creative, to acquire problem-solving skills and self-control. Good, hardy play, which includes running and yelling, is not only fun, but also helps children to be physically and mentally healthy.

2.3 Benefits of interactive recreational activities for children

Practiced in clinical, residential and community settings, the profession of therapeutic recreation uses treatment, education, and refreshment services to help young people with illnesses, disabilities and other conditions to develop and use their leisure to enhance their

health, independence and wellbeing. Social interaction through recreation breaks down unfamiliarity, fear and isolation, factors associated with racism; and promotes positive contact between different ethnic groups and the broader community. The strength of a community is increased through recreation activities that allow people to share cultural and ethnic differences. According to a research by Afroza Ahmed and M. Sohail Khan "Children's Perception on Play and Recreation in Dhaka City" on existing leisure pattern of children in Dhaka city, it was being analyzed that nowadays children are more dependent on watching television and playing videogames during their leisure time. Sleeping is also mentioned as one of the leisure time activities even.

Activities in indoor and outdoor environments are essential parts of the growth of the children. An outdoor setting can provide for a creative and free environment that encourages self-understanding and exploration. Open-air recreational spaces can help to develop children's sports skill; help them to learn about the world. They have also established a relationship between the way children interact with their environment and their growth (in terms of mental, physical, intellectual, and social). Outdoor adventure activities for people with limited physical ability give participants feelings of success and improved feelings of confidence.

2.4 Learning through play

Play is vital for the emotional, social, cognitive, and physical development of children. A child develops social skills, problem solving and creativity through early play experiences. Physical activity is intellectually stimulating and enhances the learning process and the development of cognitive skills. While improved academics are an important goal, it is also emphasized that the developmental role of play should not be forgotten and the benefits of play should not be traded off in favor of academics. In order to build healthy brain

connections from the outset, young children need responsive and rich social interactions with caregivers, combined with sufficient nutrients and an environment free of toxins. Playful experiences offer a unique context for these supportive and rich learning experiences in early childhood.

Learning-to-learn skills encompass a wide variety of abilities that help children learn information, acquire skills, and deal with new situations (e.g. Care, Kim, Anderson, & Gustafsson-Wright, 2017; Deci & Ryan, 2000; 2012; Dignath, Buettner, & Langfeldt, 2008; Harvard CDC, 2011). They include the ability for children to be motivated drivers of own experiences. The book *The Thinking Child* by Pamela May, thoughtfully discusses the key principles of children's cognitive and intellectual development alongside descriptions of everyday practice. It clearly explains the cognitive strategies that children use to learn new knowledge, the development of cognitive milestones such as symbolism, memories and the imagination, meta-cognition and creativity along with research into how the brain processes information. Play is one of the primary mechanisms that children use to access new knowledge and to consolidate their emerging ideas and concepts.

Chapter 3: Site Appraisal

The proposed site located in Moishanbari, Salna in the region of Joydebpur, Gazipur, is very much suitable for the project Interactive Centre for children.

Gazipur District (dhaka division) with an area of 1741..53 km², is bounded by Mymensingh and Kishoreganj districts on the north, Dhaka, Narayanganj and Narsingdi districts on the south, Narsingdi on the east, Dhaka and Tangail districts on the west. Main rivers includes: old Brahmaputra, Shitalakshya, Turag (sight of Bisho Istema, a Bengali-Islamic festival in January), Bangshi, Balu, Banar.

The following are the reasons to be noted on favor of the proposal:

- the site is located very far from the main city, as a result children will be in a safe and solace environment and would not get chance to be involved in any negative illegal activities
- the existing site is relatively calm, quiet and favorable environment for the study
- the site is surrounded by greeneries and some one-storied residences, so that children from the nearby villages can pass time in this Centre and interact with the children from outside. Hence, they won't feel isolated from the outer world.

3.1 Site surroundings

3.1.1 Surrounding built forms

There are no high rise buildings in the surroundings. Most of the infrastructures are one-storied tin shaded residential buildings of the villagers and some are stores. Few resorts are quite near to the site, e.g. Afrin Resort, Reverie Holiday Resort etc.

3.1.2 Existing structure

There is no existing structure in the site.

3.1.3 Visibility of the site

The site is visible from normal eye level (about 5') from south side road extending from the residential villages. There are no other roads coming from north, east and west sides.

3.2 Historical Development of the Site

Gazipur district was established in 1984. It consists of 5 upazilas, 46 union parishads, 7LO mouzas, 2 municipalities and 1163 villages. The upazilas are Gazipur sadar, Kaliakair, Kaliganj, Kapasia and Sreepur. It consists of 9 wards and 31 mahallas. The area of the town is 49.32 sq km. The town has a population of 23531; male 52.52%, female 47.48%. Density of population is 2505 per square km.

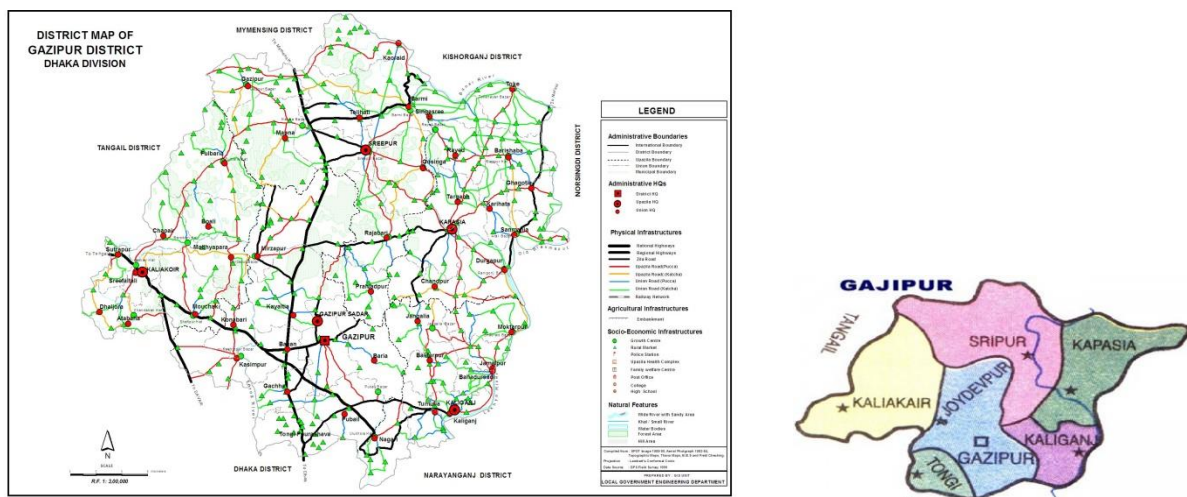


Figure 2: District map of Gazipur district (Dhaka Division); (Source: Banglapedia)

3.3 Geographical Characteristics of the Site

3.3.1 Topography

The site is a flat land. The surrounding of the site is also an open land, apparently using for cultivating purposes.

3.3.2 Vegetation

There are many trees in the site surrounding. But there is no such important tree that can force the design consideration.

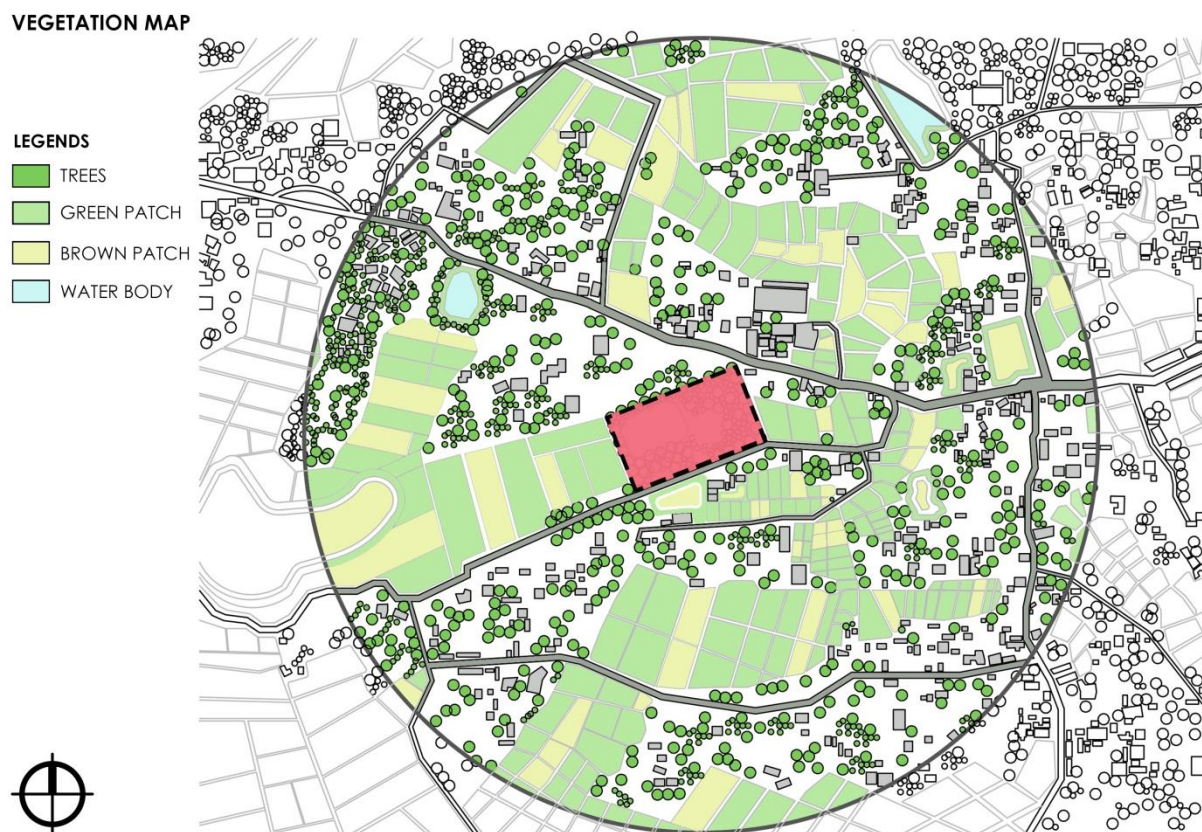


Figure 3: Vegetation map ;(Source: Author, 2020)

3.3.3 Views

There is a water body on the west side inside the site. The nearby four sides are filled with greeneries and open spaces.

VIEW MAP



Figure 4: View map; (Source: Author, 2020)

3.3.4 Soil condition

The soil condition of the site is fairly good and the bearing capacity is high enough to construct three or four storied buildings.

3.4 Land-use Pattern of the Surroundings

There is no such remarkable structure around the micro neighborhood area of the site. There are some one-storied residential built forms and some amenities.

LANDUSE MAP

LEGENDS

- RESIDENTIAL
- COMMERCIAL
- RELIGIOUS
- RECREATIONAL

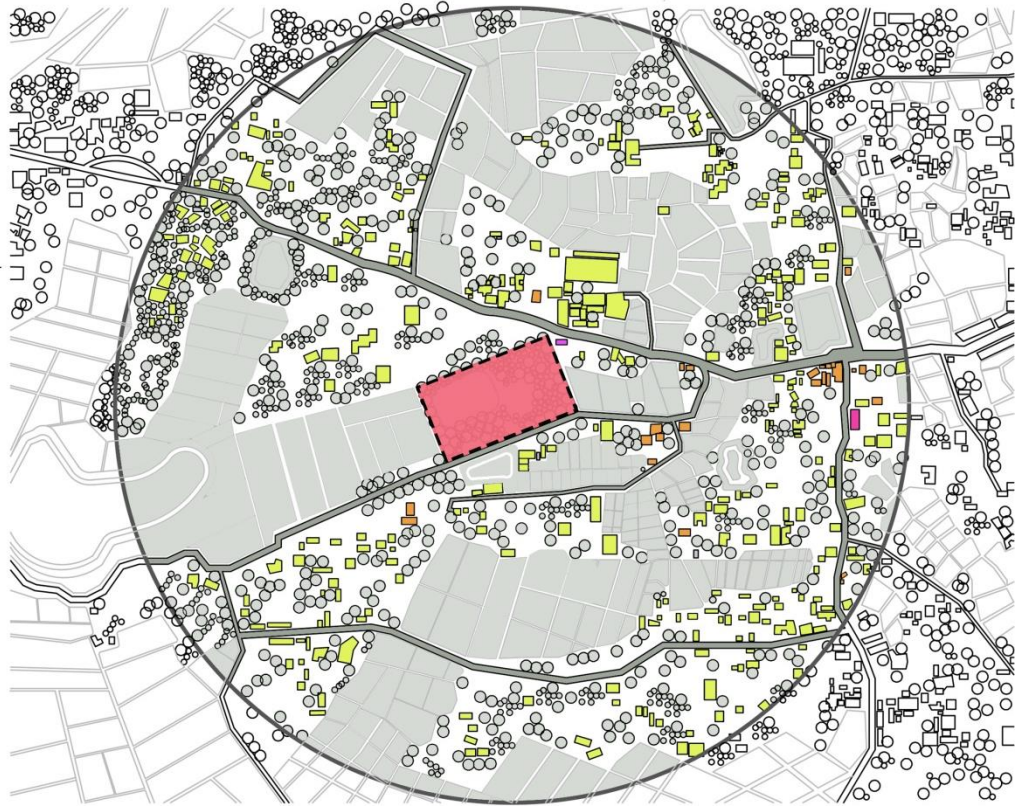


Figure 5: Land use map; (Source: Author, 2020)

3.5 Accessibility and Connectivity

The site is approached from the surrounding areas with a road of (24'-0" wide). The main entry is from the high way road (Dhaka-Mymensingh highway) to secondary road, consists of bazaars, residential areas and industrial areas. And then to the connected road, which leads to the entrance of the site.

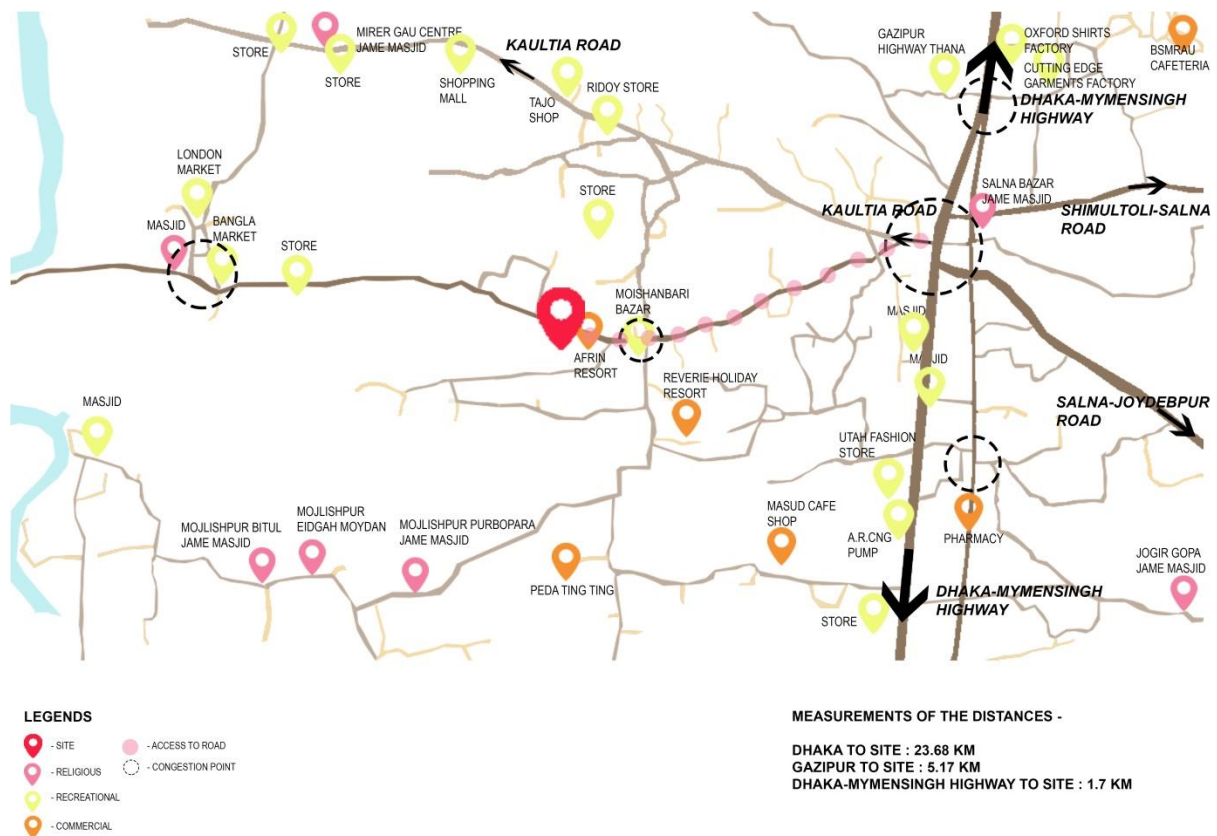


Figure 6: Zoomed out site map; (Source: Author, 2020)

ROAD NETWORK MAP

LEGENDS

- PRIMARY ROAD
- SECONDARY ROAD
- TERTIARY ROAD
- ACCESS ROAD
- CONGESTION POINT

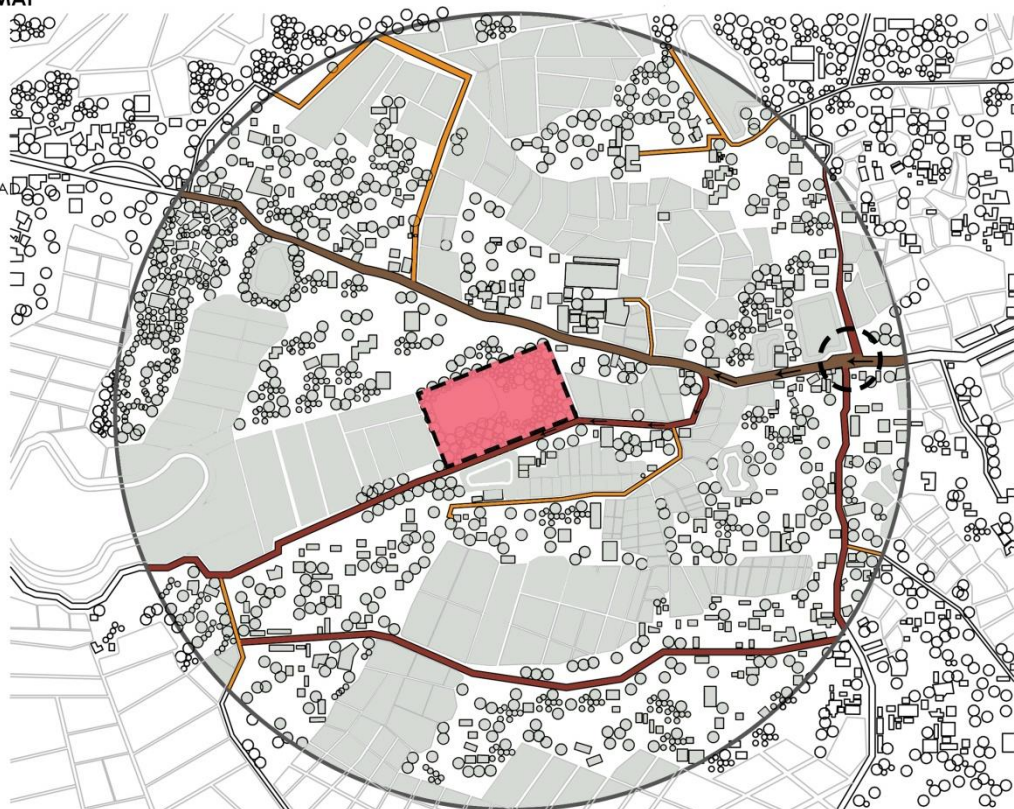


Figure 7: Road network map ;(Source: Author, 2020)

3.6 Climatic Conditions

Gazipur is located in between 23°53' and 24°21' north latitudes and in between 90°09' and 92°39' east longitudes. The site is situated at 24 5.5'N latitude and 25.5' longitude. It is -8.4m or 27'-6" above sea level. Annual average temperature is maximum 36°C and minimum 12.7°C and annual rainfall is 2376 mm.

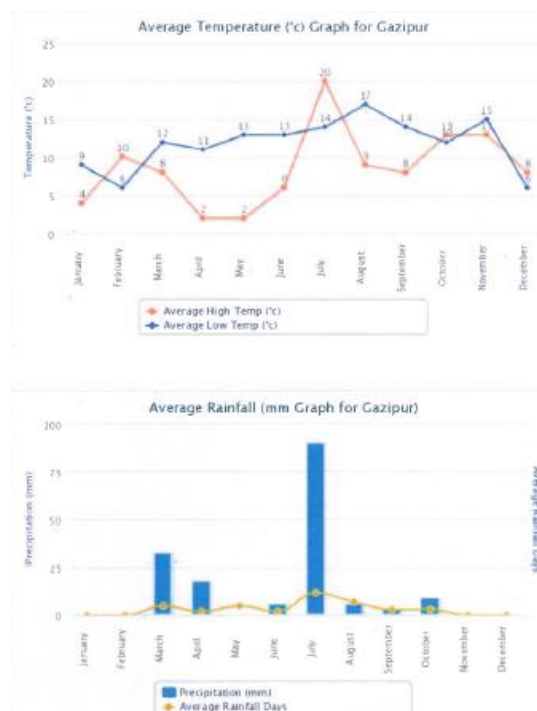


Figure 8: Average temperature and rainfall measure in Gazipur; (Source: Banglapedia)

MICROCLIMATE MAP

LEGENDS

-  WIND FLOW
-  NOISE (HIGH VOLUME)
-  NOISE (MEDIUM VOLUME)

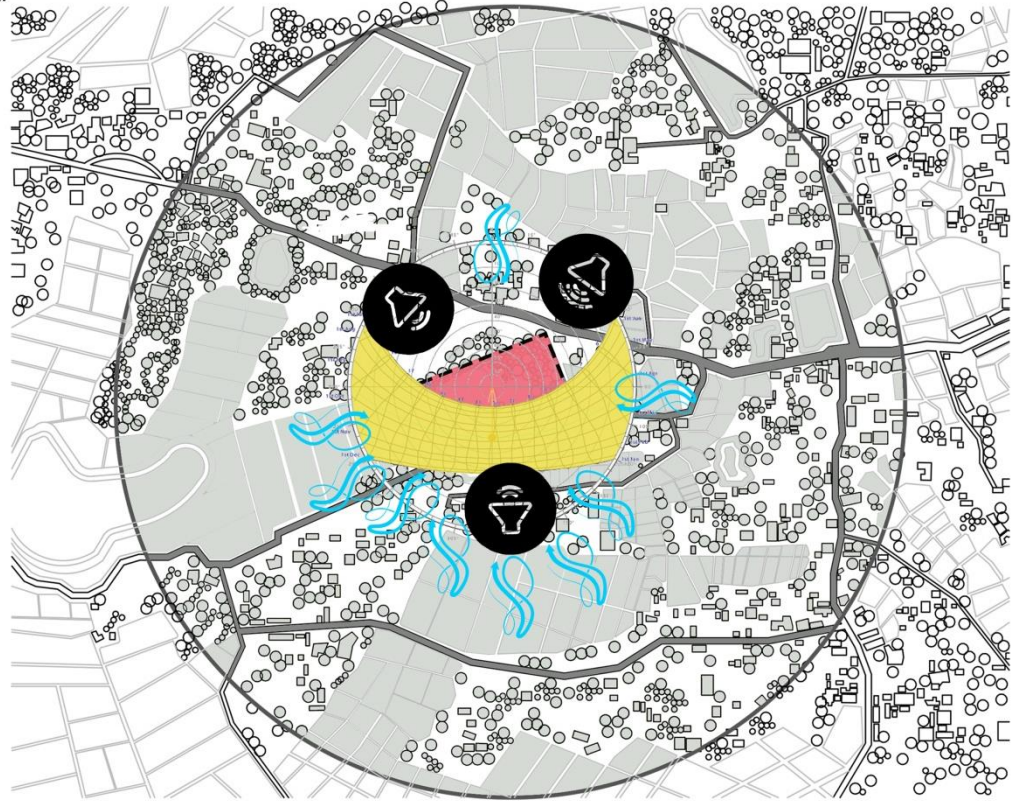


Figure 9: Microclimate map ;(Source: Author, 2020)

3.7 Socio-Cultural and Economic Contexts

Various folk festivals such as Nabanna, pitha (cake) festival, Jamai Shasthi, kite flying, folk dance (performed by the indigenous community Rajbangshi), Kirtan (performed by the Hindu community), are performed by the people of the district. Besides, various folk songs are sung (praying for rain), on the occasions harvesting, driving boat, marriage ceremony and on other folk festivals. During the winter season, drama festival is also held in the district. As the site is situated in the residential zone and away from the main city town, the land value of the site is low, which is about 1 lakh taka per katha.

3.8 Images of Existing Site Condition



Figure 10: Existing site images ;(Source: Google images and Author, 2020)

Chapter 4: Case Study Appraisal

This section of the paper focuses on the case study of the three different international projects. The following projects are somewhat related to the project 'Interactive Centre for Children' and are dedicated mainly to the recreational facilities of the community.

4.1 Zeum – Children's Creativity Museum

Children's Creativity Museum (formerly Zeum: San Francisco's Children's Museum) is a multimedia arts and technology museum for kids of all ages located at the Yerba Buena Gardens in San Francisco, California. It is a part of a major 87-acre (350,000 m²) urban renewal project in the South of Market area by the San Francisco Redevelopment Agency. It is well known for its technology-based exhibits which allow youth to produce their own media through various interactive, creative processes: animation, digital art, live performance, and music production.



Figure 11: Zeum - Exterior view; (Source: Google Image)

4.1.1 Environment and micro-climate

San Francisco has a warm-summer Mediterranean climate characteristic of California's coast, with moist mild winters and dry summers. Its weather is strongly influenced by the cool currents of the Pacific Ocean on the west side of the city, and the water of San Francisco Bay to the north and east. This moderate's temperature swings and produces a remarkably mild year-round climate with little seasonal temperature variation. Among major U.S. cities, San Francisco has the coolest daily mean, maximum, and minimum temperatures for June, July, and August.

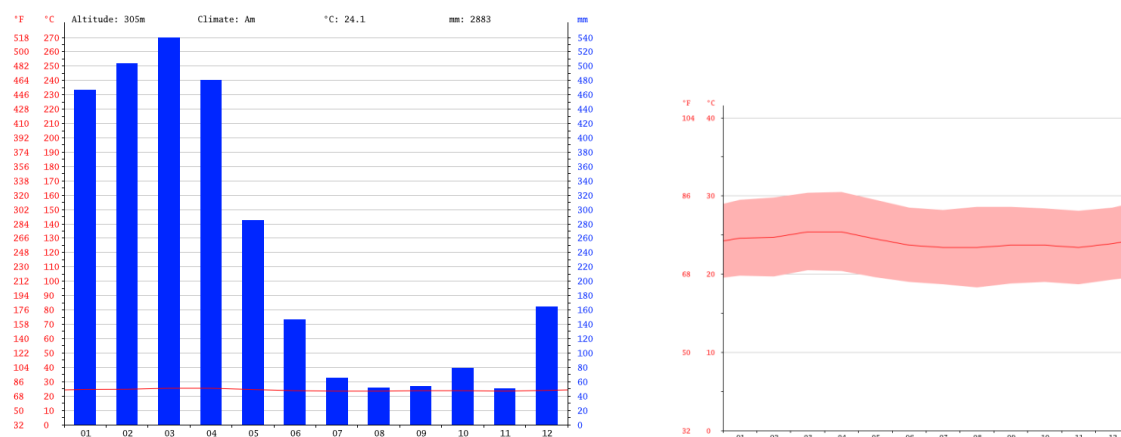


Figure 12: Average climate graph of San Francisco ;(Source: Wikipedia)

4.1.2 User behaviour and requirements

Young creativity is blossoming inside this space-age glass and metal cone. This is the place for budding kid and teen artists to hone their skills while also discovering new ones. Visual, media and performing artists are always on hand to interact with the museum's visitors. Children are encouraged to help with projects, including stop action animation, digital photography, and the cutting-edge, new media form of web casting. There is also a theater on the premises used for various performances of different genres that stem outside the children's genre. This place is a delightful and fun place for the whole family. This project has three requirements and objectives:

- *Educational philosophy* - Their educational approach encourages visitors to imagine, create, and share. They moved from the conventional approach of play to one of invention and shifted the focus from media consumption to media production. They promote collaboration over independence and engagement over isolation.

- *Connecting families and communities* - As they are located in one of the world's most culturally diverse and creative cities. Children and families from different backgrounds, communities, and income levels have the opportunity to work side by side to create a dynamic and creative learning environment. This provides an ideal platform for collaboration, inclusion, and the celebration of each person's unique talents.

- *Building on the idea of others* - Sharing ideas with each other increases knowledge and thus, this project aims to focus on interaction more than individual brainwork.

4.1.3 Form and Function

This creativity museum is mainly of two circles merging together with some orthogonal lines. From an exterior view, it is a glass-made cylindrical shaped building covered by strips of aluminum panels.

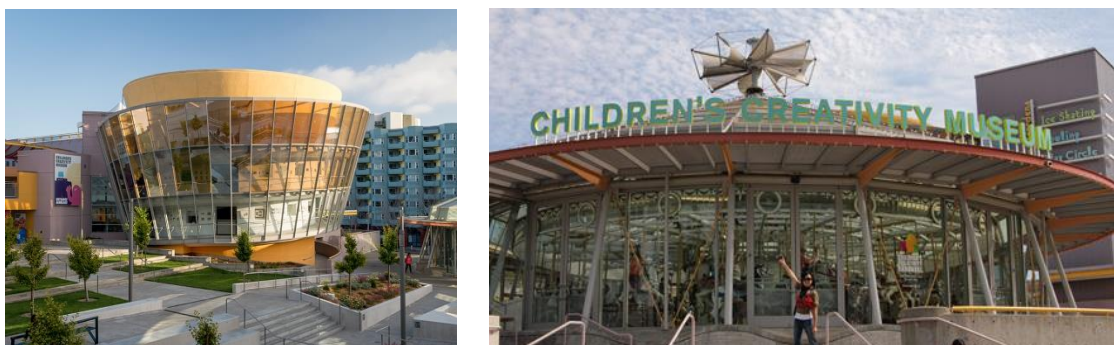


Figure 13: Exterior views of the museum ;(Source: Wikipedia)

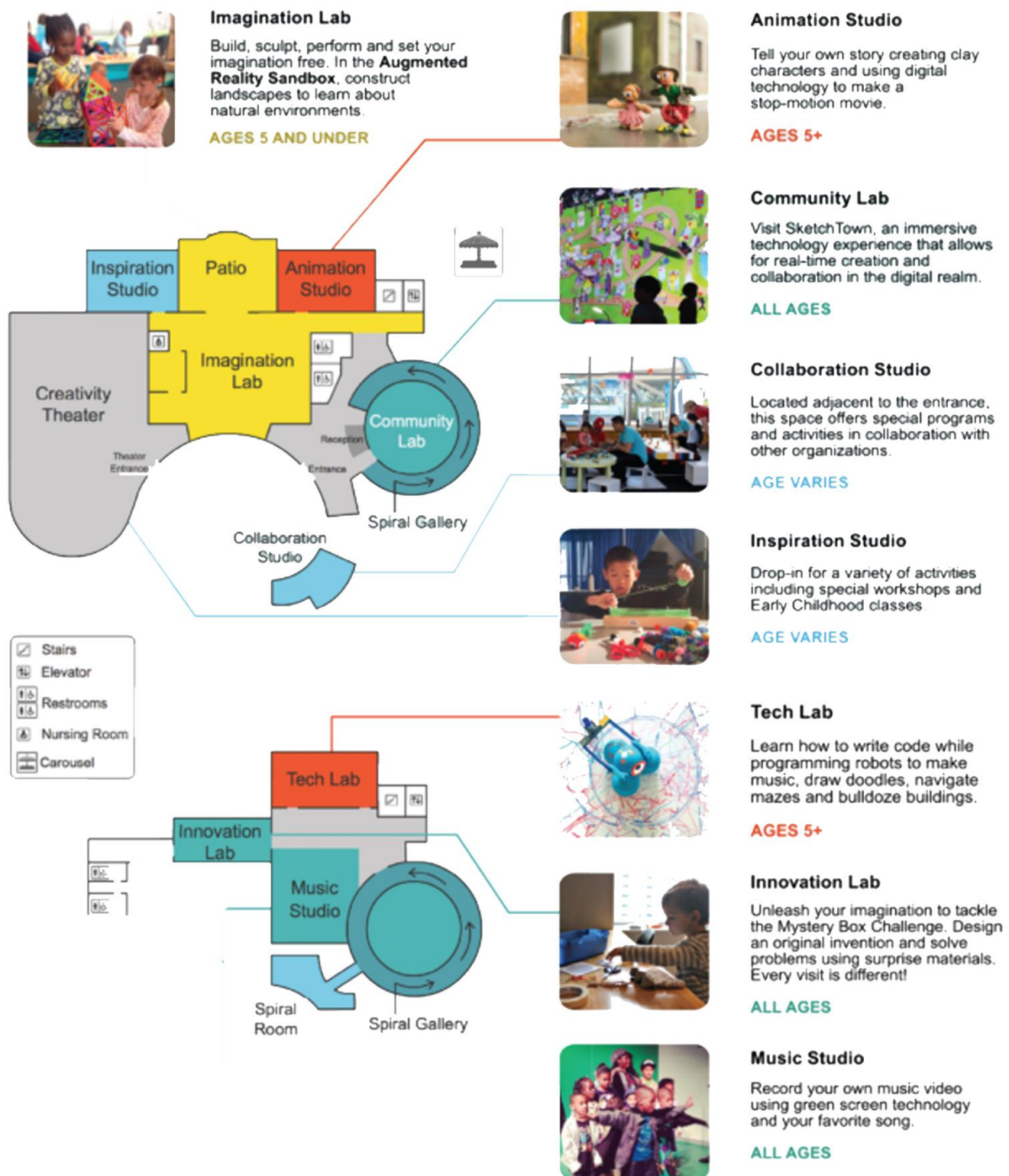


Figure 14: Typology of spaces in Zeum museum ;(Source: <https://creativity.org/map/>)

4.1.4 Horizontal and vertical circulation

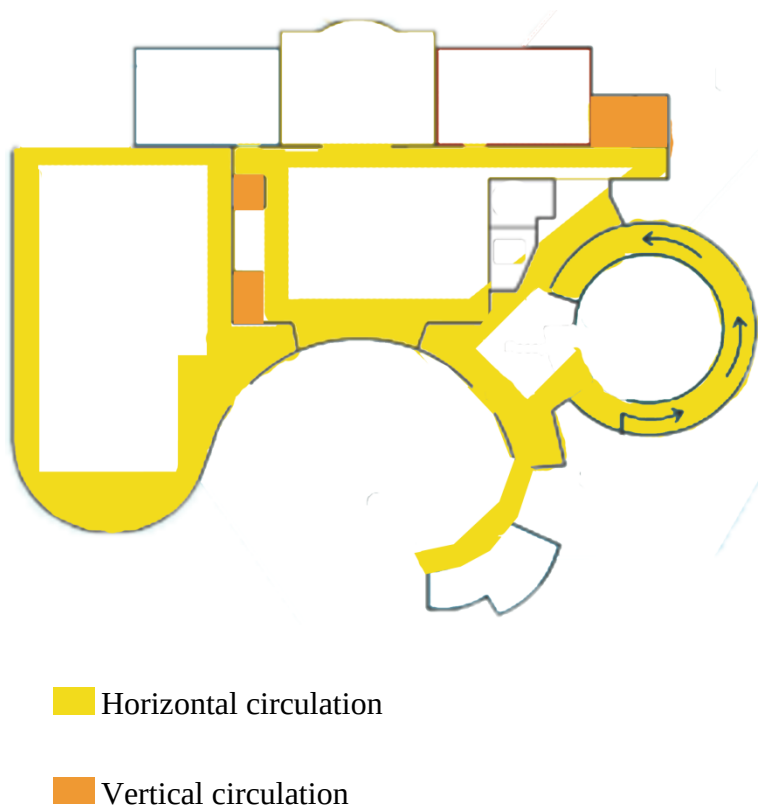


Figure 15: Circulation inside the museum ;(Source: Author, 2020)

4.1.5 Site Planning and Landscape detailing



Figure 16: Planning and detailing of the museum;

(Source:https://yerbabuenagardens.com/gardens/ccm_plaza)

4.1.6 Parking details and standards

Parking is located on the road-side of the area. The vehicles drop the passengers at the end of the plaza and then park either aside the Howard Street or Folsom Street.

4.1.7 Utility planning

Since the museum is a low rise infrastructure, all the utilities and services occur mostly in the ground floor, which is totally dedicated for the electromechanical system room.

4.1.8 Structural details

The infrastructure is of a cylindrical shaped and has circular columns inside. There are several strips of aluminum panels designed around the glass façade which is extended from the interior walls and holding the circular slabs inside. The main cylindrical tower is extended from the roof.

4.1.9 Design detailing

There are ramps designed aligned with the staircase in the plaza, which helps the disabled people move freely without any issues. Amidst the plaza, shrubs and herbs are designed in a very interesting way.



Figure 17: Exterior view: (Source: <https://www.tripsavvy.com/san-francisco-kids-activities>)

4.2 Glazer Children's Museum

This museum in Tampa, Florida and adjacent new Tampa Museum of Art were composed as landmark facilities, of an area of 1.15 acres, to anchor an ambitious downtown riverfront and cultural development plan. Museum exhibits, inspired from extensive community input, focus on the natural resources and cultural history of the mid-Florida region, while advancing fine arts, science and engineering programs designed to meet STEM objectives.

4.2.1 Environment and micro-climate

Florida lies on 259m above sea level and is classified as tropical. The average temperature in Florida is 25.6 °C or 78.1 °F. About 2077 mm or 81.8 inch of precipitation falls annually.

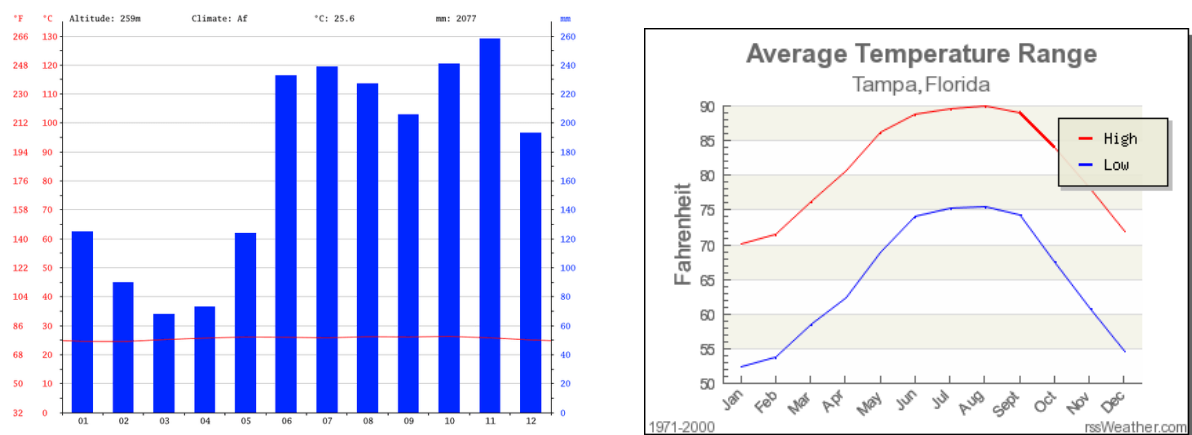


Figure 18: Average climate graph of Florida; (Source: Wikipedia)

4.2.2 User behaviour and requirements

The Museum is a place where children and their parents can learn through play and shared discovery. Created specifically for children under 12, it offers 170 'interactivities' in multiple themed areas for families to explore, connect while having fun along the way. The museum offers the following:

- Exciting daily and weekly programs geared to GROW the minds of children and parents alike.
- Special events throughout the year to keep the Museum experiences fresh and ever changing.
- A unique, interactive look into the world and community we live in. For instance about the weather, art, communication and much more.
- Seasonal camps for all students K-4like: Summer, fall, winter, and spring.

4.2.3 Form and Function

This museum is a solid rectangular block with curvilinear points at two edges.



Figure 19: East and South elevation respectively (from the left);

(Source: <http://www.haizlipstudio.com/project/glazer-childrens-museum/>)

There are many recreational and unique spaces for the children, they are:

- Kids Port Water table



Figure 20: Kids port water table ;(Source : <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum>)

-Water's Journey Climber

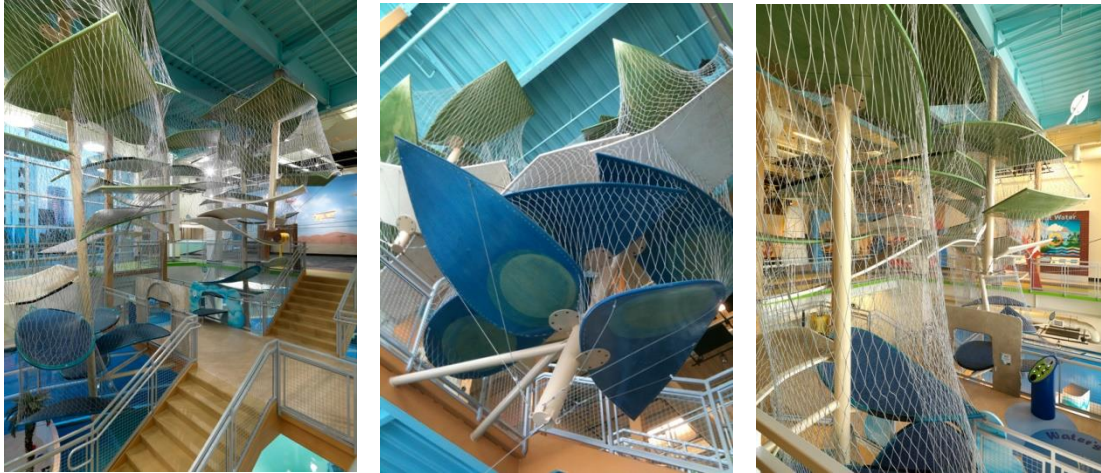


Figure 21: Water's journey climber;

(Source: <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum>)

-Lobby views

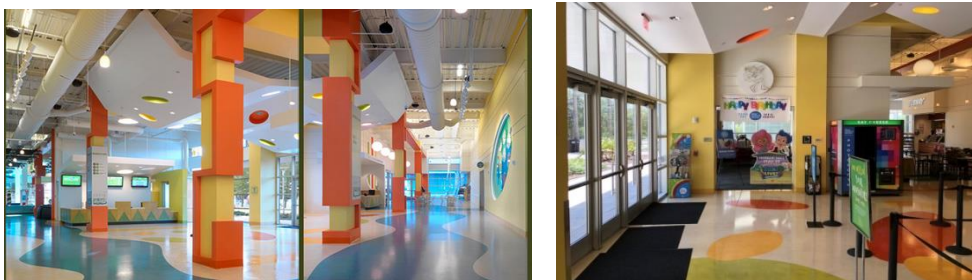


Figure 22: Lobby space ;(Source: <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum>)

4.2.4 Horizontal and vertical circulation



Horizontal circulation

Vertical circulation

Figure 23: Circulation spaces ;(Source: <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum> and Author, 2020)

4.2.5 Site Planning and Landscape detailing



Figure 24: Site plan ;(Source: <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum>)

4.2.6 Parking details and standards

Parking is located in front of the museum in an open space, so that accessibility gets easier and safer for the people.

4.2.7 Utility planning

Since the museum is a low rise infrastructure, all the utilities and services occur mostly in the ground floor, which is totally dedicated for the electromechanical system room.

4.2.8 Structural details

There are square columns inside the building which is placed 24'-0" away from each other. Some ducts and pipes are designed at the ceiling and some are hidden under the false ceiling.



Figure 25: Inside views showing structural considerations;

(Source: <https://www.visittampabay.com/listings/glazer-childrens-museum/5446/>)

4.2.9 Design detailing

There are few ramps designed aligned with the low steeper steps in the plaza, which helps the disabled people move freely without any issues.

4.3 Technological Museum of Innovation

On October 31, 1998, a brand-new 132,000-square-foot (12,300 m²) facility was inaugurated, named The Tech Museum of Innovation. In May 2019, the organization was rebranded as The Tech Interactive, and announced a new partnership with Discovery Education. This museum is located in San Jose, California, USA. The Tech Interactive reflects its social context, capturing Silicon Valley's celebration of technology with a fascination with what the institution's literature refers to as the "gizmos and gadgets" produced by Valley companies.

4.3.1 Environment and micro-climate

San Jose, like most of the Bay Area, has a Mediterranean climate with warm to hot, dry summers and mild to cool, wet winters. San Jose has an average of 301 days of sunshine and an annual mean temperature of 60.5 °F (15.8 °C). It lies inland, surrounded on three sides by mountains, and does not front the Pacific Ocean like San Francisco.

4.3.2 User behaviour and requirements

The 132,000 square feet or 1.4 acres museum is divided among themed galleries that focus on innovation, the internet, the human body and exploration. A 299 seat domed Omni Max Screen Theatre is the architectural and programmatic center of the facility, and is served by an adjacent cafe, a gift shop and a large public lobby or an atrium that features several exhibits, both stationary and suspended from the ceiling. The museum also contains a variety of public meeting rooms and staff offices. The museum is a well-designed, high maintained building with well technologically and developed interactive exhibits, labs and studios. It attracts many visitors and school going students all through the year.

4.3.3 Form and Function

The museum is composed of three floors, each with its own significance. The ground floor has the main entrance, a gift shop and cafe, the IMAX Theater, and a recreational area that is reserved for special events. The Tech Store contains various gifts, shirts and souvenirs. The ground level is a location where Segway and other robotic demos are displayed and given.

Four major theme galleries fill the upper level and lower level of the museum: Communication, Exploration, Innovation and Life Tech. These galleries are constantly being revamped and changed to fit the theme movies and exhibits. On the lower level there is also a public piece of artwork titled "Origin", which is inside a 45-foot-tall cylinder.

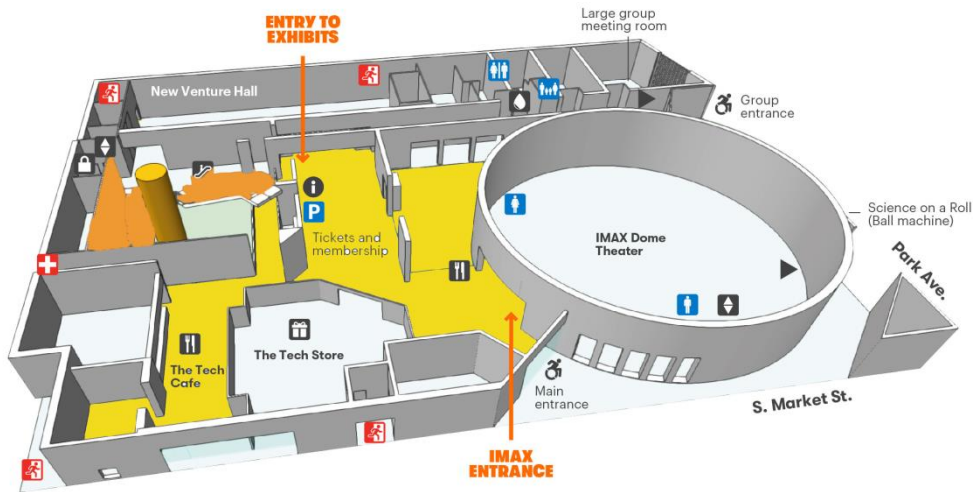
The facades were designed in correspondence with the urban context. One is supported by the massive joist framing the groove that functions as the main entrance. By contrast, the rest of this facade is a long wall with a series of apertures allowing access to the cafeteria, gift shop, and a terrace leading to the park. The other facade is more abstract, functioning as the secondary access for groups coming by bus, and therefore less visible. It also provides access to temporary exhibits and to the 300-seat IMAX auditorium.

A spectacular atrium, of great high, presides as the focal point of each side of the hall. The curved wall of the cinema identifies the north side with its richness in texture and color. The south side is very dynamic with two stairs to the higher level and the other to the lower level - that crosses the atrium from side to side, emphasizing the space's sense of movement, of which the visitor becomes an active participant. A conical dome and a series of smaller square domes above the atrium allow in natural light and create an even more dynamic abstract composition.



Figure 26: Exterior views of the museum ;(Source: <https://sanjosespotlight.com/san-jose-tech-museum-of-innovation-unveils-new-name-and-vision/>)

4.3.4 Horizontal and vertical circulation



Horizontal circulation

Vertical circulation

Figure 27: Circulation inside the museum;

(Source: <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum> and Author, 2020)

4.3.5 Site Planning and Landscape detailing

The landscape is designed in a very simple pattern aligned with the roadside and pedestrian access.

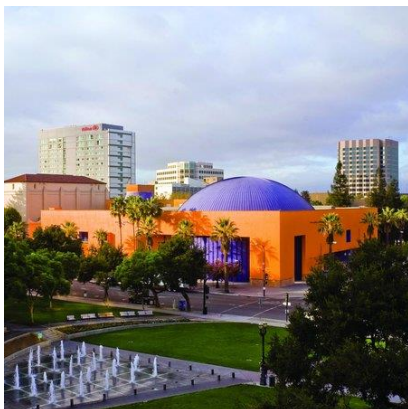


Figure 28: Exterior view; (Source: Wikipedia)

4.3.6 Parking details and standards

Parking is located in front of the museum in an open space, so that accessibility gets easier and safer for the people.

4.3.7 Utility planning

Since the museum is a low rise infrastructure, all the utilities and services occur mostly in the basement, which is totally dedicated for the electromechanical system room.

4.3.8 Structural details

The structure was conceived as a horizontal block "shaped" by the diversity of events taking place inside. There is a cylindrical massive IMAX tower over the whole, culminating in a metal dome, which becomes the focal point on the corner.

4.3.9 Design detailing

There are no ramps designed aligned, but have low steeper steps in the plaza, which helps the disabled people move freely without any issues.

Chapter 5: Program Appraisal

This section covers the required amount of space allocation for the different functions an ‘Interactive Centre for Children’ should be able to serve. As there was no such detailed program lay out, the program brief was prepared after understanding the project through case studies and researches.

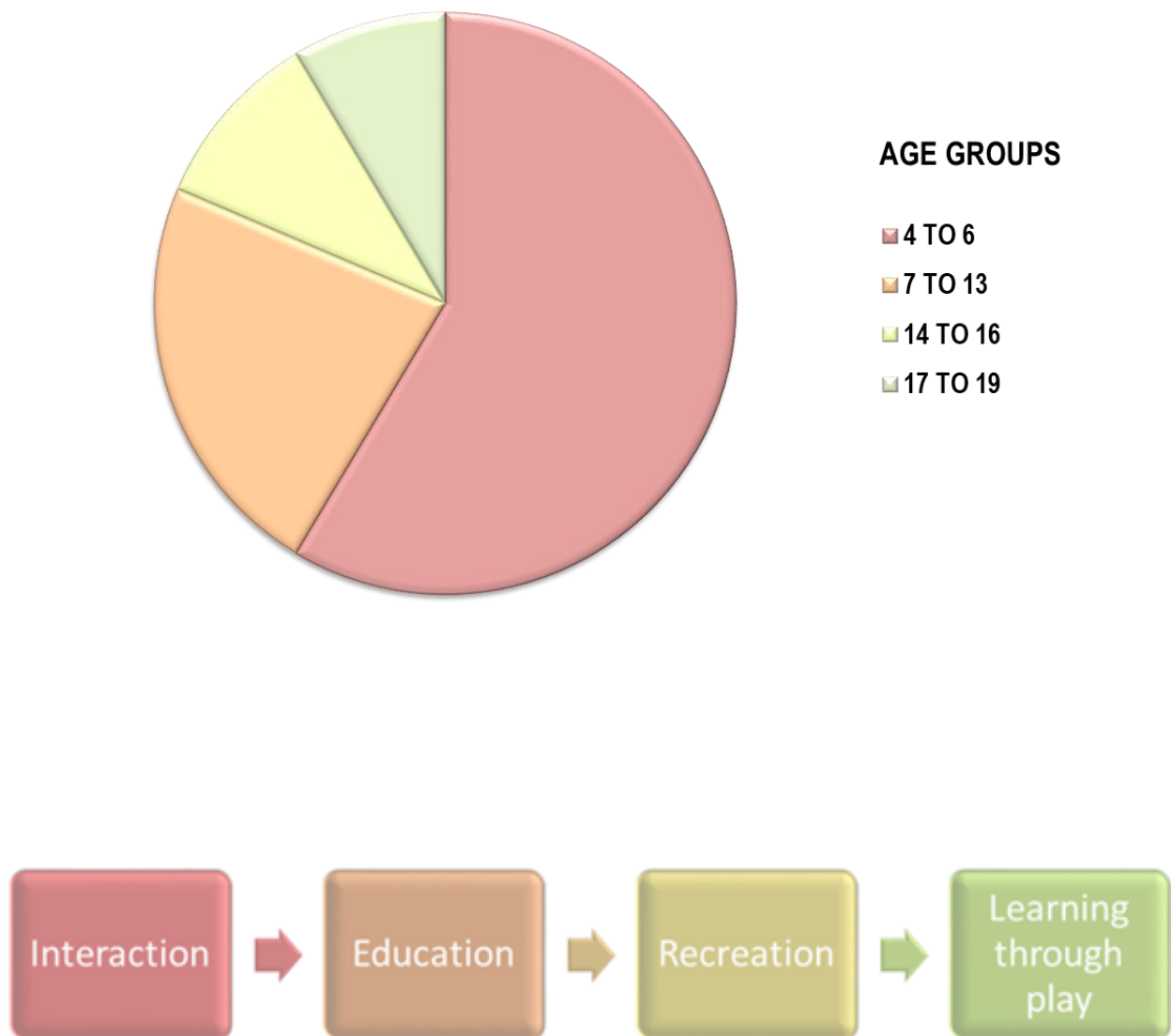


Figure 29: Target Audience (Age groups) ;(Source: Author, 2020)

5.1 Programs for the ‘Interactive Centre for Children’

In order to develop the program, at first the target audiences was developed on basis of the age groups. According to the findings, the program for the Centre was established.

Program for					
	Functional space	Number of units	Number of users	Area per unit (in sft)	Total area (in sft)
A. Administrative facilities					
1	Reception	1		400	400
2	Waiting room	1	50	1000	1000
3	Lounge	1	100	3000	3000
4	Conference room	4	25	500	2000
5	Admin officer room	2	2	500	1000
6	General office section	2	10	1000	2000
7	Store keeper and office store	2	25	300	600
8	Volunteers room	2	10	500	1000
9	Shops	2		100	200
10	Visitor's service office	1	2	300	300
11	Security and supervision	2		200	400
12	Workshops	2		300	600
				Subtotal	12500
B. Recreational facilities					
1	Cafeteria (kitchen+stores+dining)	1	100	4000	4000
2	Library (reading space + stores)	1	50	2000	4500
3	Indoor games room	1	50	2000	2000
4	Outdoor sitting space	5	50	1000	5000
5	Multi purpose hall	1	150	5000	5000
				Subtotal	18000
C. Socio-Interactive facilities					
1	General knowledge	1	50	2000	2000
2	Digital studio	1	25	2000	2000
3	Innovation and Imagination studio	2	50	2000	4000
4	Arts and crafts studio	2	50	2000	4000
5	Alphabet trails and puzzles	1	25	2000	2000
6	Animation studio	1	25	2000	2000
7	Music studio	2	50	2000	4000
8	Temporary exhibits	2	80	2500	5000
9	Discovery garden	1	100	10000	10000
				Subtotal	35000
D. Residential facilities					
1	Staff accomodation	4	8	750	1500
2	Volunteers accomodation	4	8	750	1500
				Subtotal	3000
	Toilet blocks		100	200	2000
	Total(excluding circulation space)				70500
	Circulation (30%)				21150
	TOTAL SFT.				91650

Chapter 6: Design Considerations

This section focuses on the considerations needed for designing the project ‘Interactive Centre for Children’.

6.1 Environmental Effects

The site is mostly surrounded by flat green lands, for which allows the breeze to come from all sides and give a comfortable ambience inside the infrastructure. There are no high rise buildings around the site, which ensure little or none shadow casting. Numerous amounts of trees are encompassed in the periphery of the area.

6.2 Zonings

Public facilities were being prioritized to be arranged at the entrance of the site, so that all kinds of people can gather in those facilities and enjoy children’s activities from a distance and then they can leave the place whenever they would like to without making any kind of alteration to the environment. Since most of the functions of the Centre belong to the semi-public zone, so they were placed in the central distance from the public and private zones, so that children can experience the activities and explore throughout all the zones, hence enhancing the interactivity. Private facilities were being located distant from the other zones considering the privacy of the functions.

To detail out the public, semi-public and private zones, four zones were created along with the process, they are:

- Administrative
- Recreational
- Socio-interactive
- Residential zones

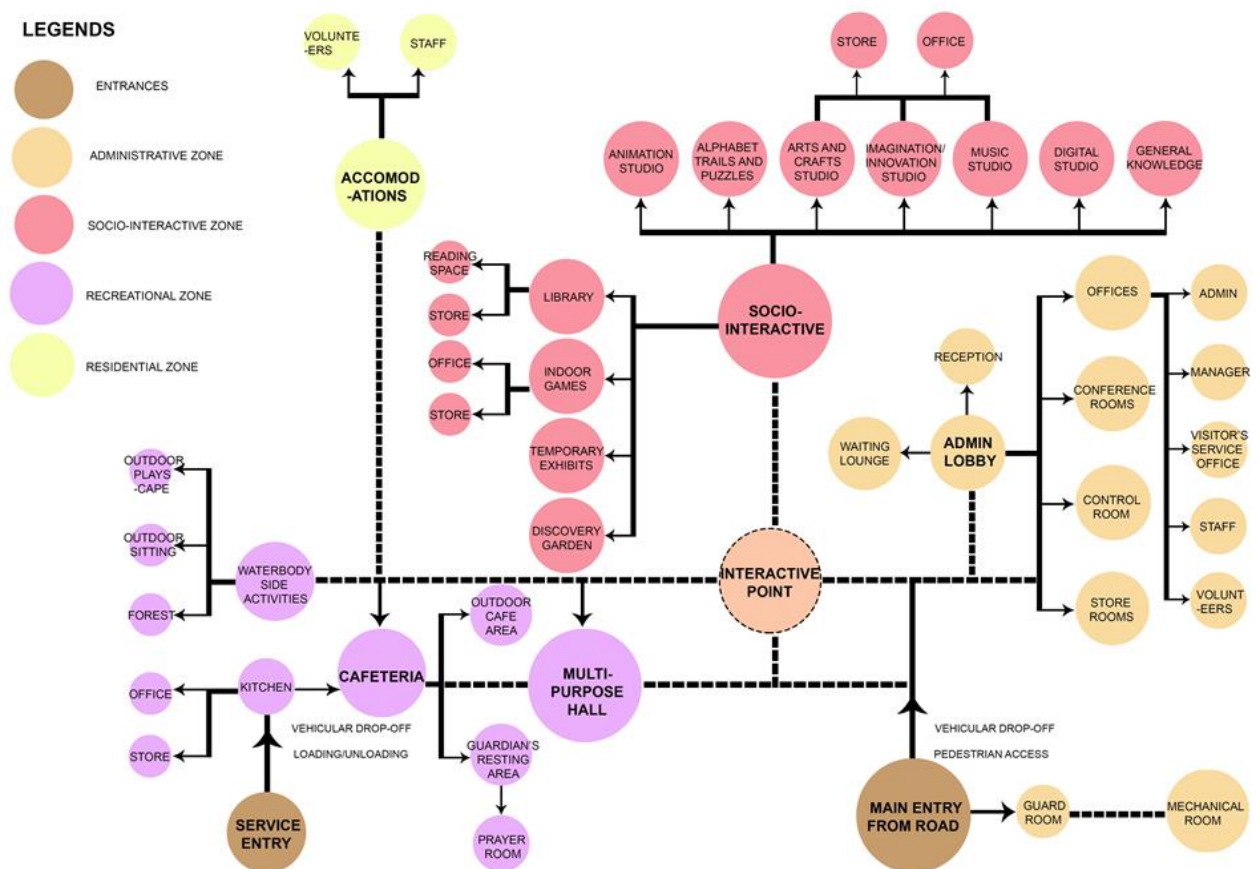


Figure 30: Functional relationship diagram and zonings ;(Source: Author, 2020)

Chapter 7: Design Suggestions

This section focuses on the initial suggestions and development process generation towards final planning during designing the project ‘Interactive Centre for Children’. Design of a children's Centre requires a very imaginative and fun progression. In this project, the notions, imagination, playfulness and interactivity of the children were being more prioritized, so that the interactivity between the peers, nature, objects and overall vision of a child develops.

7.1 Aims and Objectives

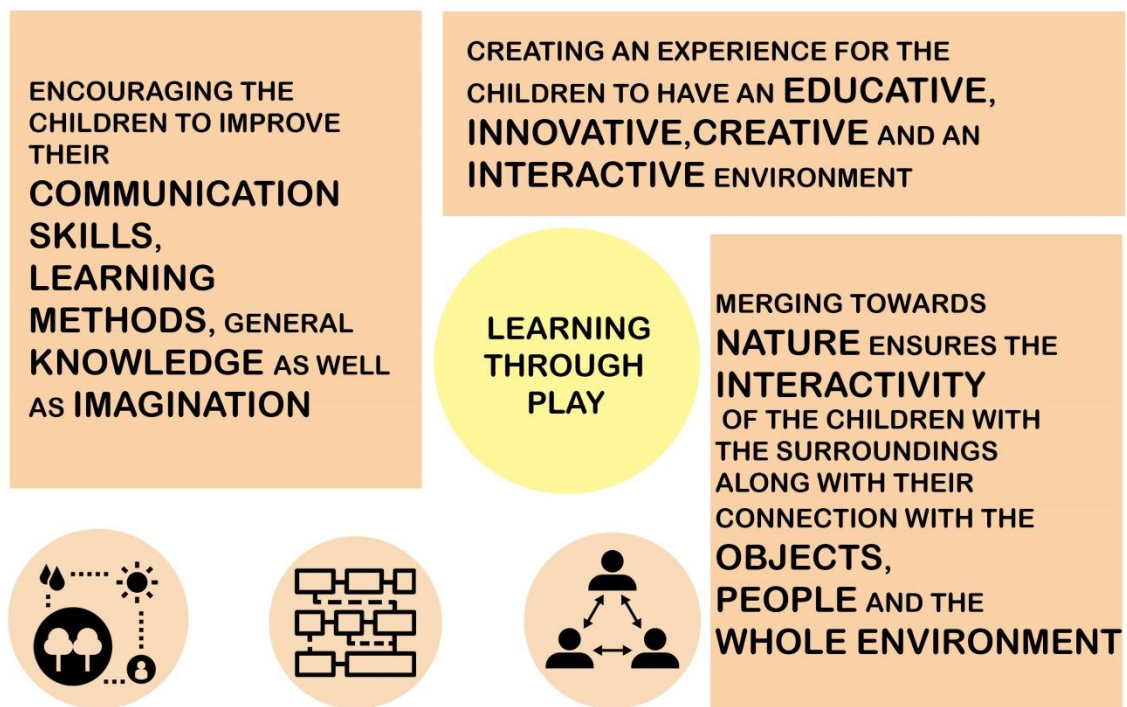


Figure 31: Mission and Vision of the project ;(Source: Author, 2020)

7.2 Ideas of spaces and elements



- USE OF BRICK WALLS AND STEEL CORRUGATED SHEET AS ROOF- TO INCORPORATE WITH THE RURAL CONTEXT AND TEXTURE OF THE SITE.
- TERRACE GARDENS ELEVATE THE GREEN SPACES AND ALSO ENHANCE THE TRANSPARENCY AND INTERACTIVITY.
- STEEL CORRUGATED PITCHED ROOF HELPS TO DRAIN THE RAIN WATER DOWN THE INFRASTRUCTURE MORE EASILY.

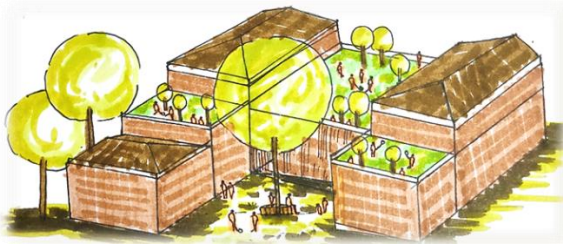
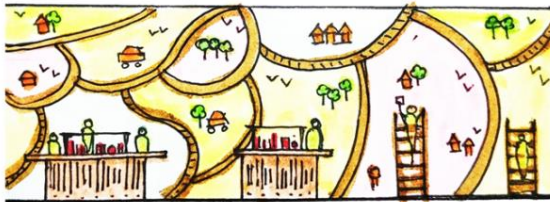


Figure 32: Initial conceptual sketches ;(Source: Author, 2020)

7.2.1 Socio-Interactive Activities



OUTDOOR PLAY AREA



ART STUDIO



IMAGINATION & INNOVATION STUDIO



**PUZZLE SOLVING &
GENERAL
KNOWLEDGE
DISCUSSION**



TEMPORARY EXHIBITS



ALPHABET TRAILS & PUZZLES



CLIMBING MAPS & PUZZLES

Figure 33: Activities; (Source: Author, 2020)

7.2.2 Section of the Socio-Interactive spaces

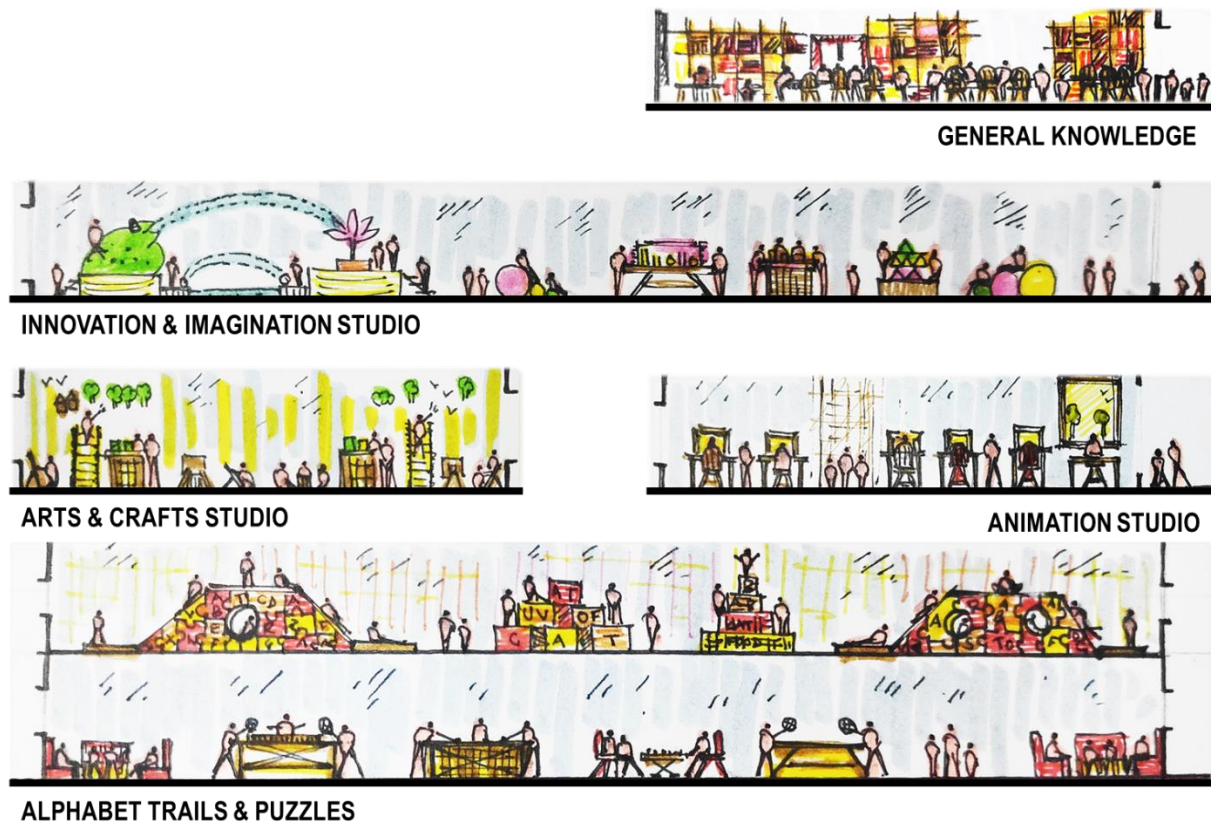


Figure 34: Initial section sketches ;(Source: Author, 2020)

7.3 Conceptual Development

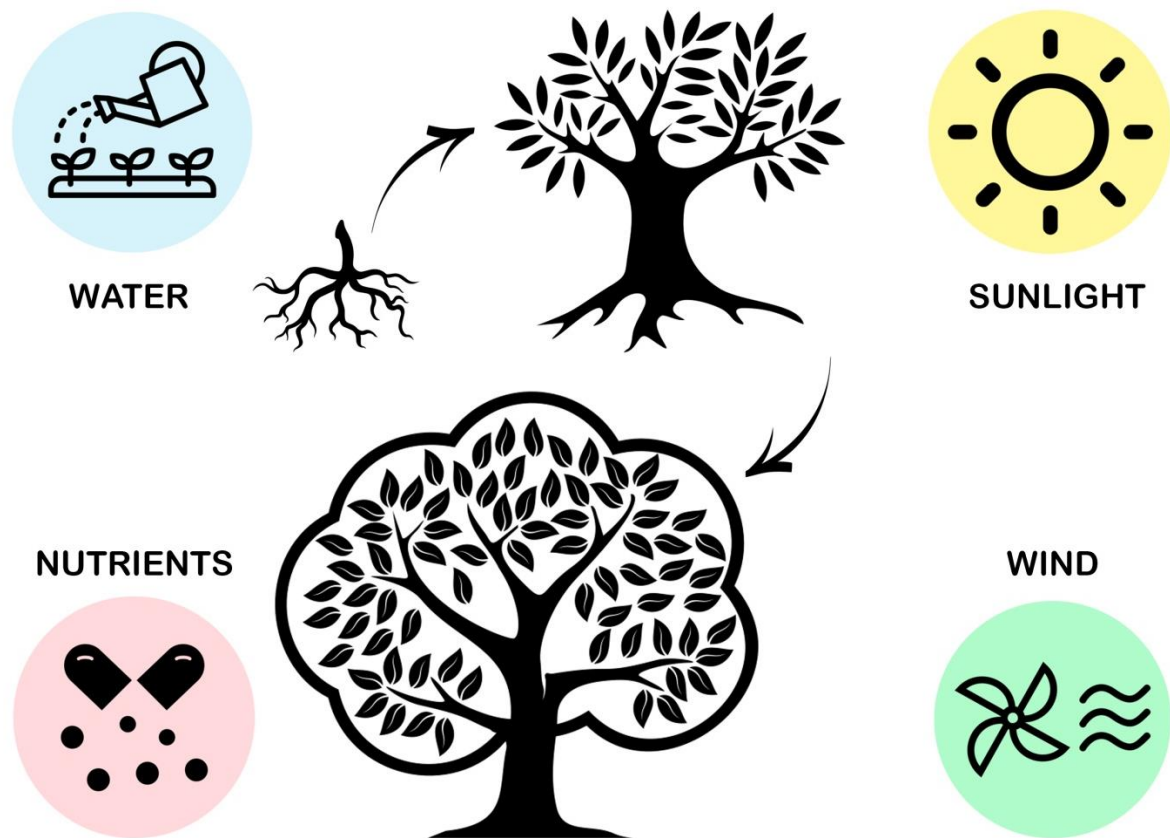


Figure 35: Conceptual analysis ;(Source: Author, 2020)

The concept was about a simple tree, how it gradually grows when basic components like water, sunlight, wind, nutrients etc. are consumed.

The growth of a tree was being compared to the mental (and learning) growth of a child when basic components are being done by the child, like when he/she creates, explores, imagines, innovates and most importantly, when interacts he/she tends to gather knowledge from the surroundings, which is beneficial for future.

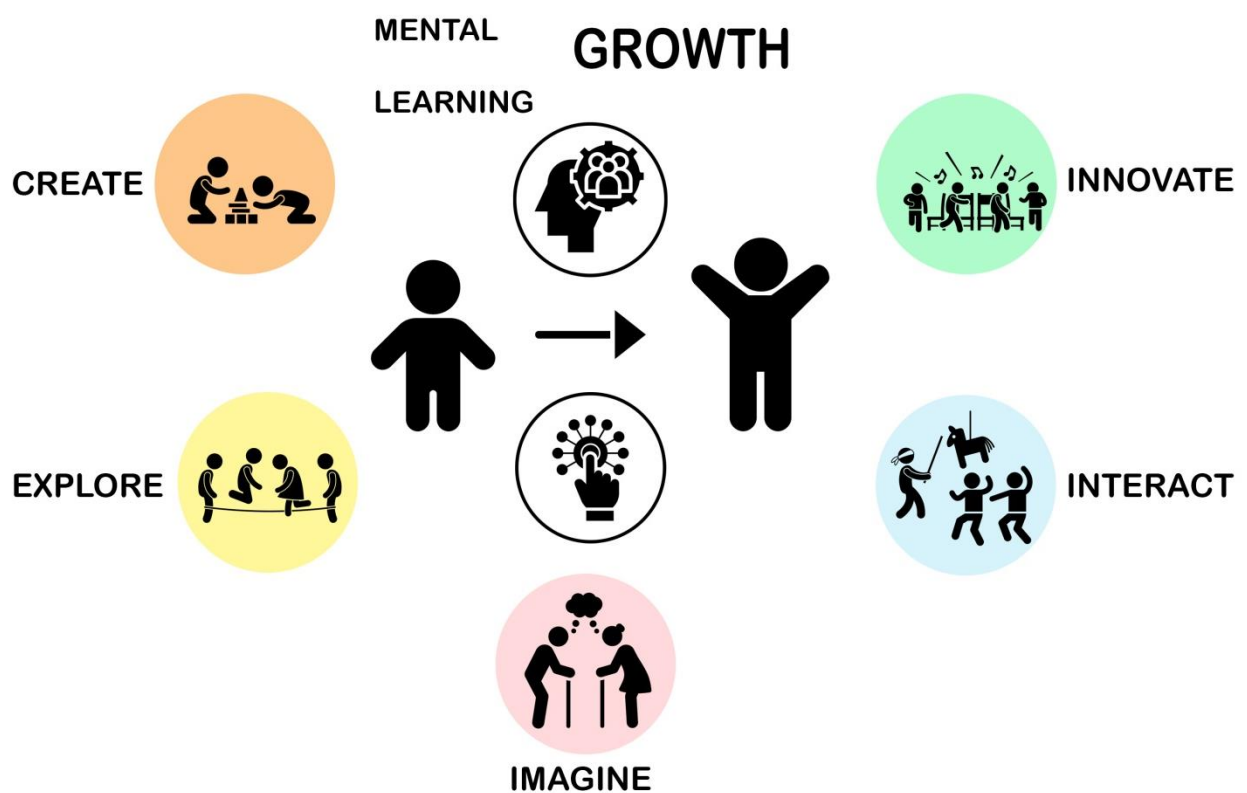


Figure 36: Comparison between a tree and a child's growth ;(Source: Author, 2020)

The Socio-Interactive zone's programs and functions of the project are being analyzed under the components.

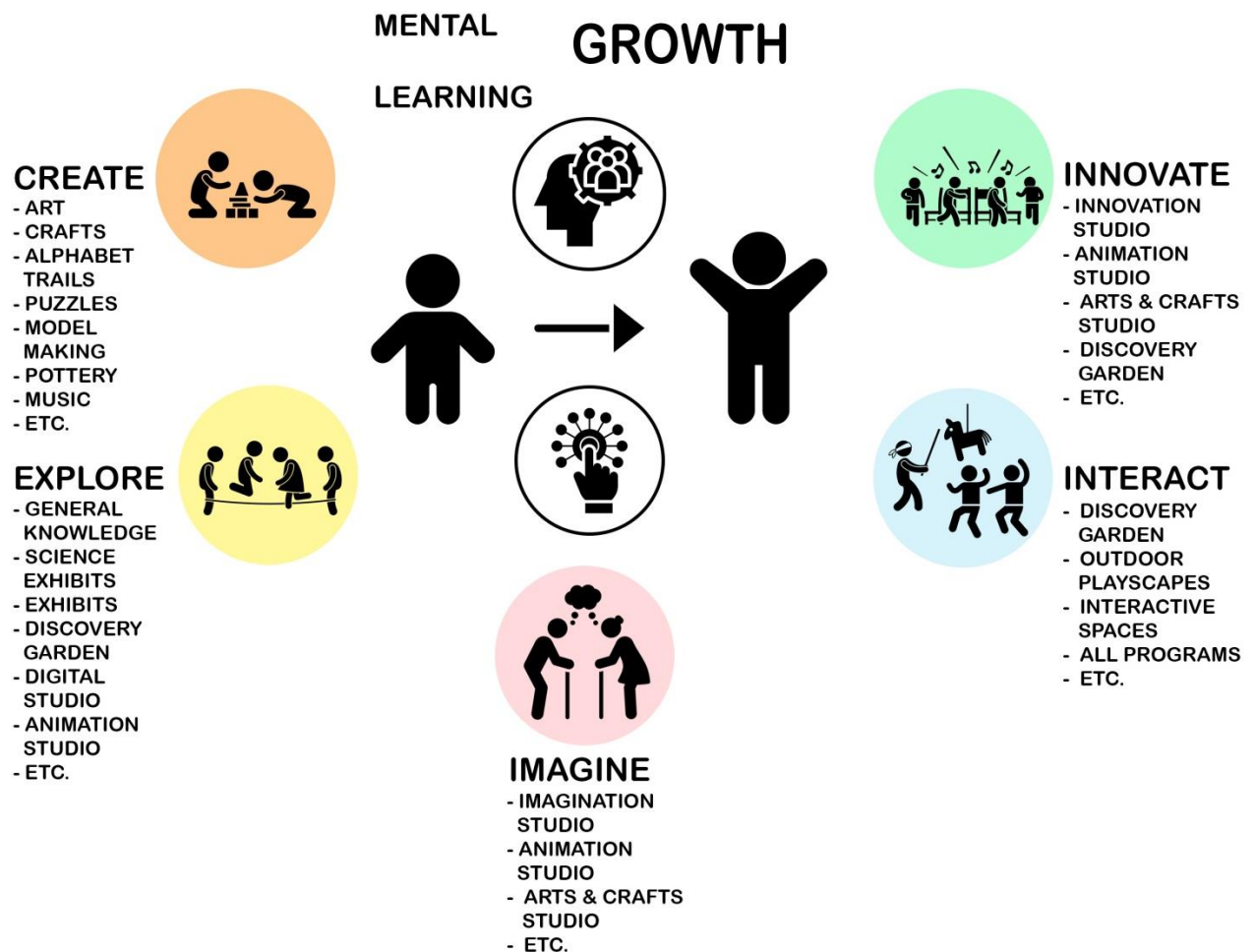


Figure 37: Functions placed according to the conceptual analysis ;(Source: Author, 2020)

7.4 Form Generation Process

After the conceptual analysis phase, form was generated gradually. Since the mental (and learning) growth of a child acting centrally, branching out the components in a certain position. Considering the whole concept and objective, circular courtyards were being arranged and connected through curvilinear pavements according to the zonings discussed earlier, in the first phase of the design.

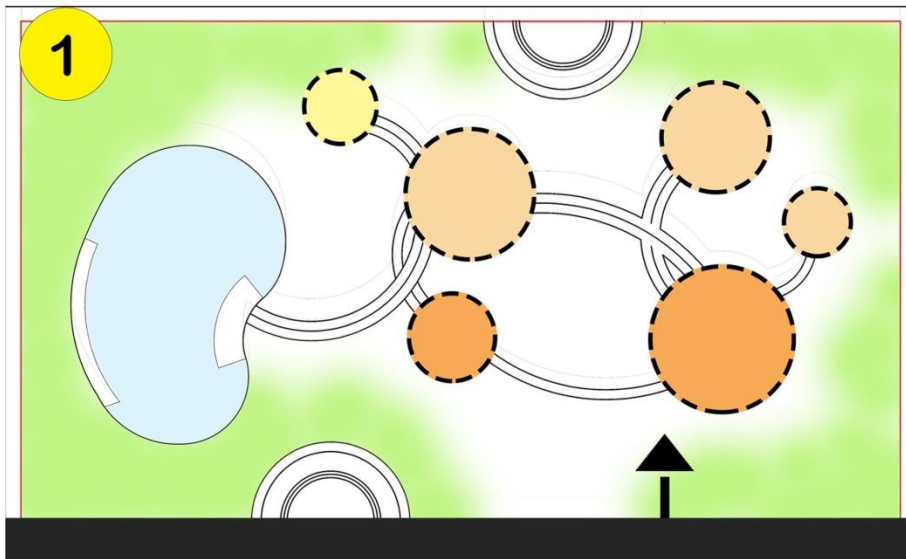


Figure 38: Circular courtyards linked by pavements zoning wise ;(Source: Author, 2020)

In the second phase, the built forms of the functions were arranged horizontally and vertically around the circular courtyards.

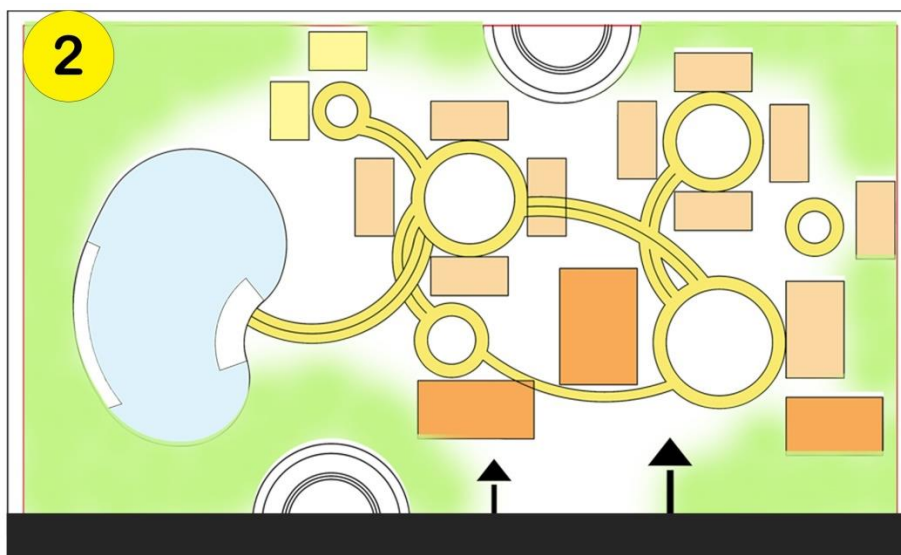


Figure 39: Blocks around the courtyards ;(Source: Author, 2020)

Since the beginning, the objective was about interaction and integration towards nature, site was being analyzed again more in detail and the existing trees in the periphery of the site were being considered highly. In the third phase, the built blocks were being arranged in a certain way so that maximum amount of existing trees is preserved and natural site forces are respected.

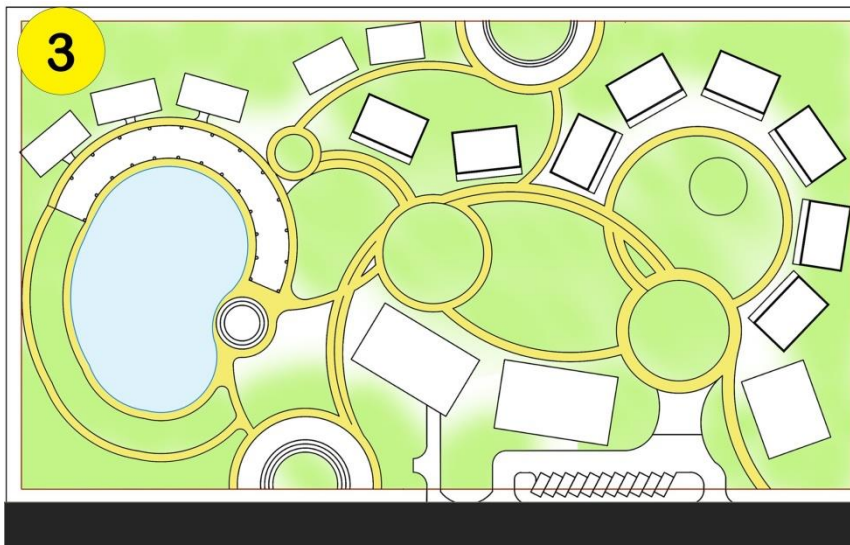


Figure 40: Blocks arranged with respect to the site existing trees ;(Source: Author, 2020)

In the fourth and final phase of the design development, the integration of the natural existing resources, infrastructures and the courtyards were being fully focused along with the proposed programs. Incorporating with the existing trees, the built forms were placed around the circular courtyards according to the zones. The circular courtyards acted like gathering interactive spaces, where different age groups of children would assemble together and experience outdoor activities. Outdoor play spaces branched out at intervals between the zones to create a playful environment along with the educative functions. The elevated circular court right in the center was represented as an interactive point, where all the other zones were connected.



Figure 41: Final phase form development ;(Source: Author, 2020)

7.5 Drawings

7.5.1 Plans

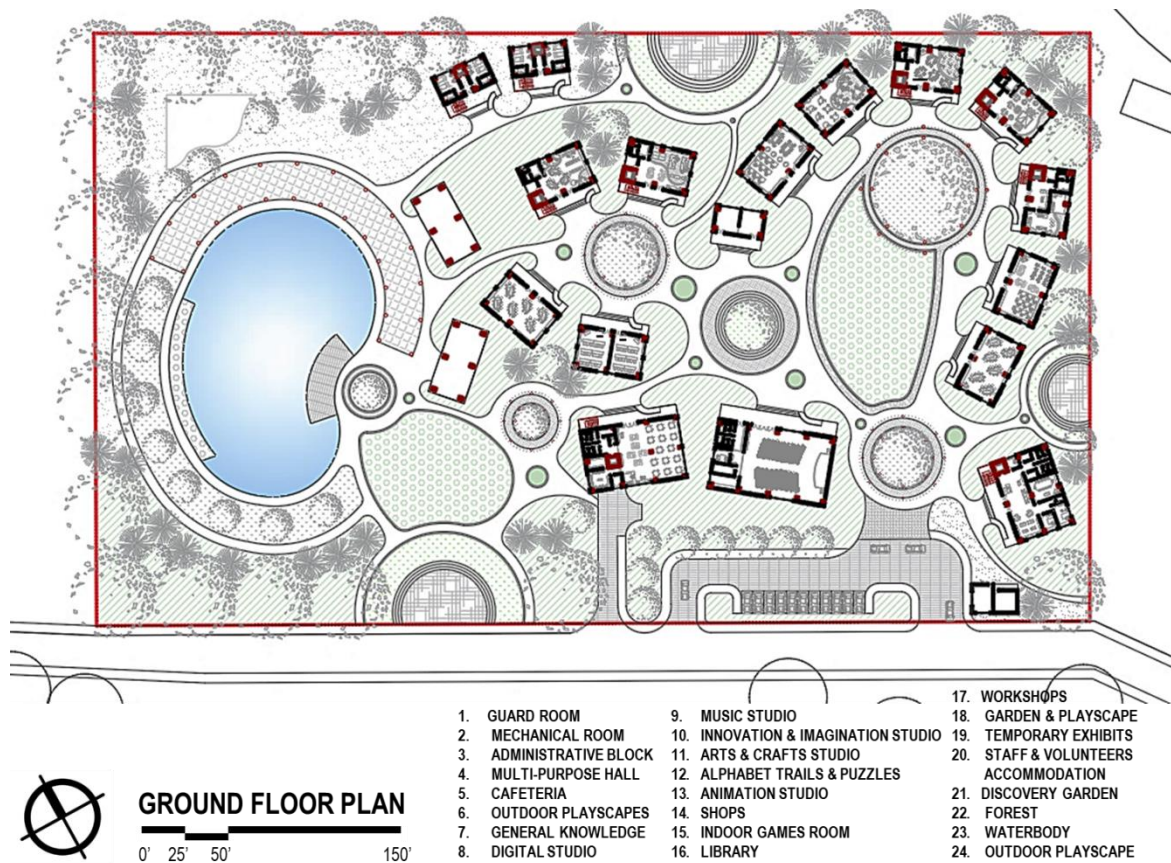


Figure 42: Ground Floor Plan ;(Source: Author, 2020)

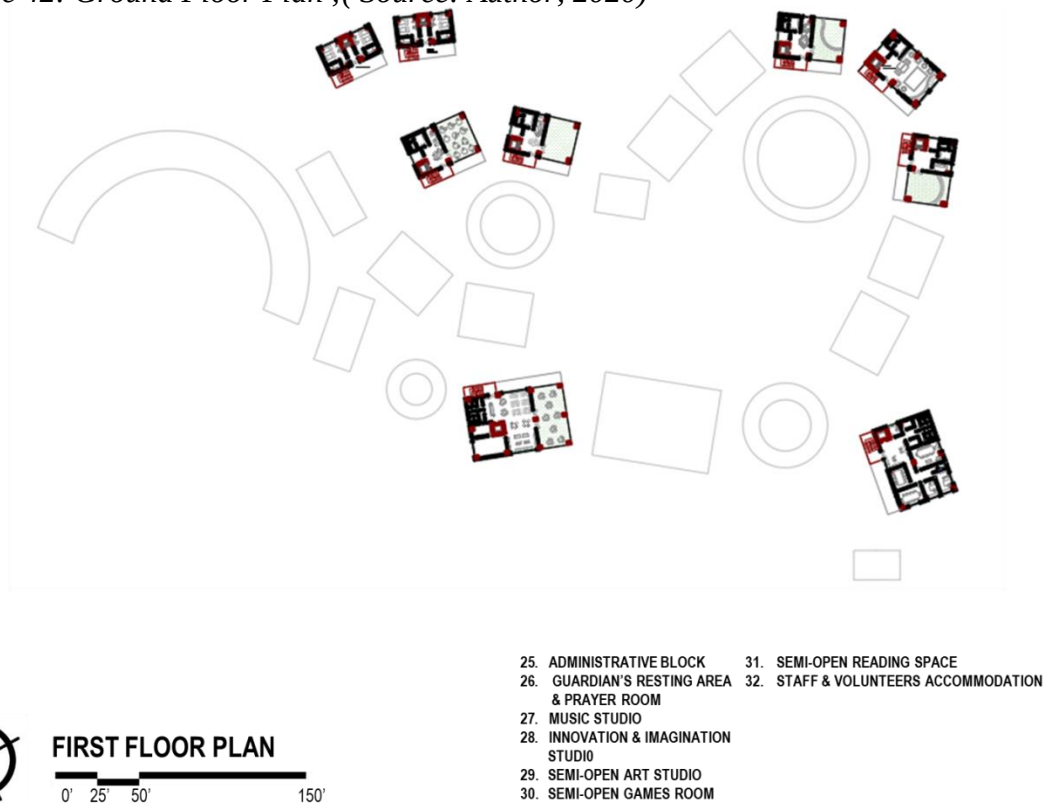


Figure 43: First Floor Plan ;(Source: Author, 2020)

7.5.2 Sections with blow-up plans

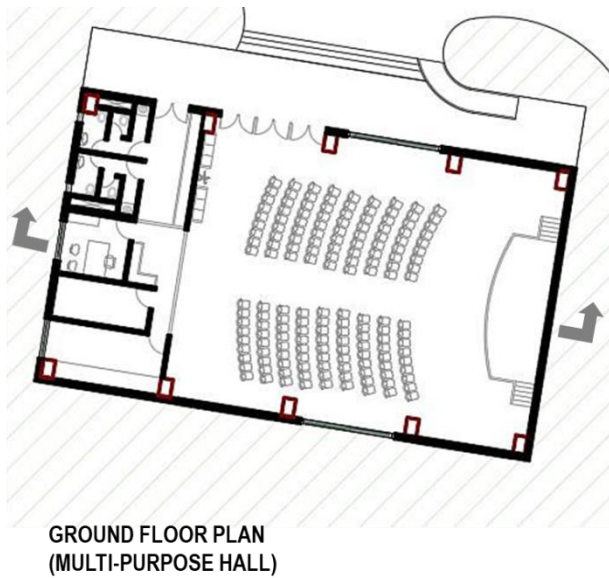


Figure 44: Multi-purpose hall plan ;(Source: Author,2020)

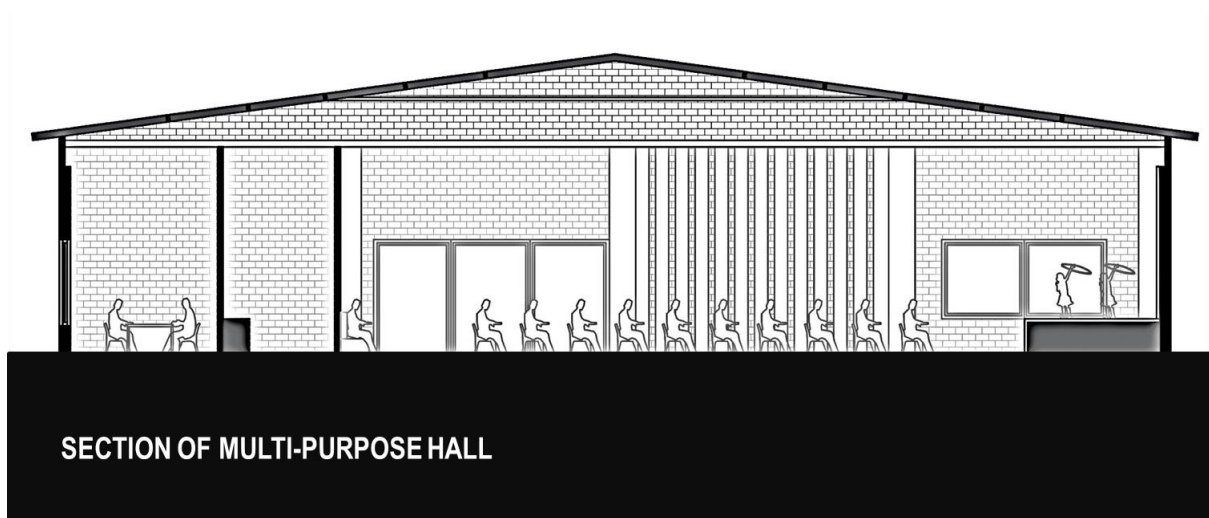


Figure 45: Section of Multi-purpose hall ;(Source: Author, 2020)

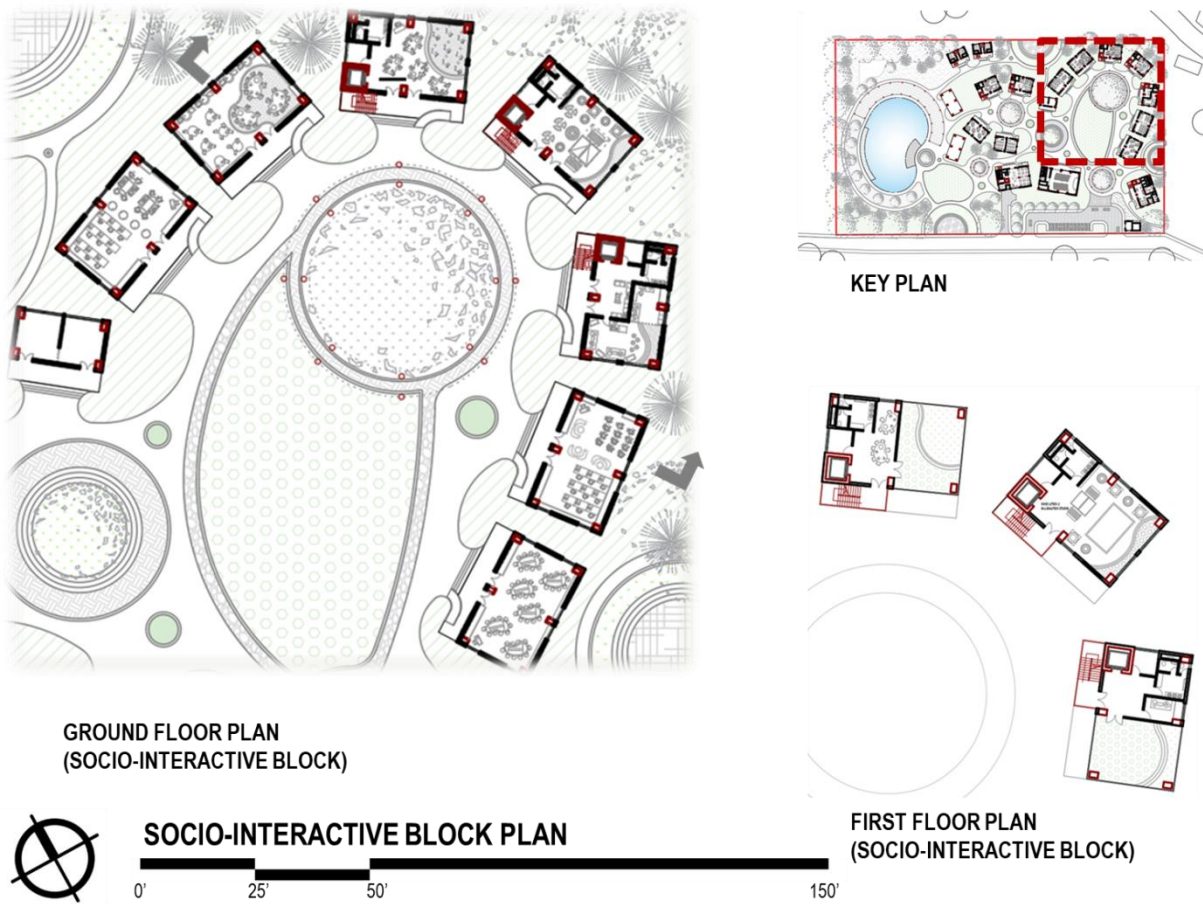


Figure 46: Socio-Interactive block plan ;(Source: Author, 2020)

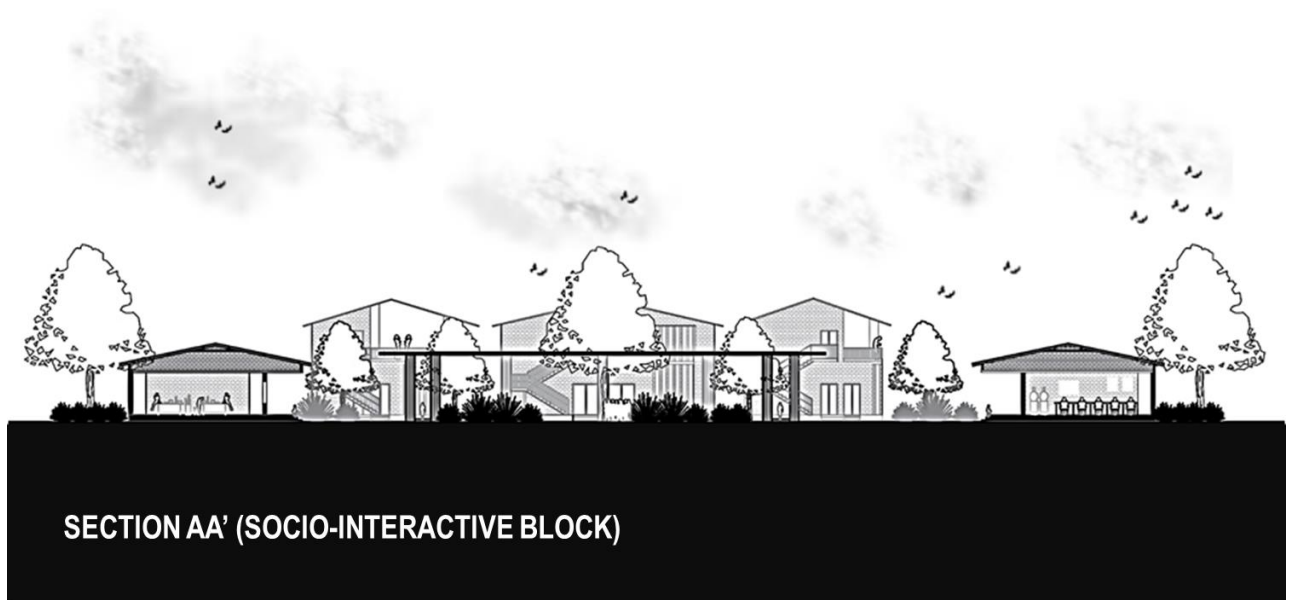


Figure 47: Section of Socio-Interactive block ;(Source: Author, 2020)

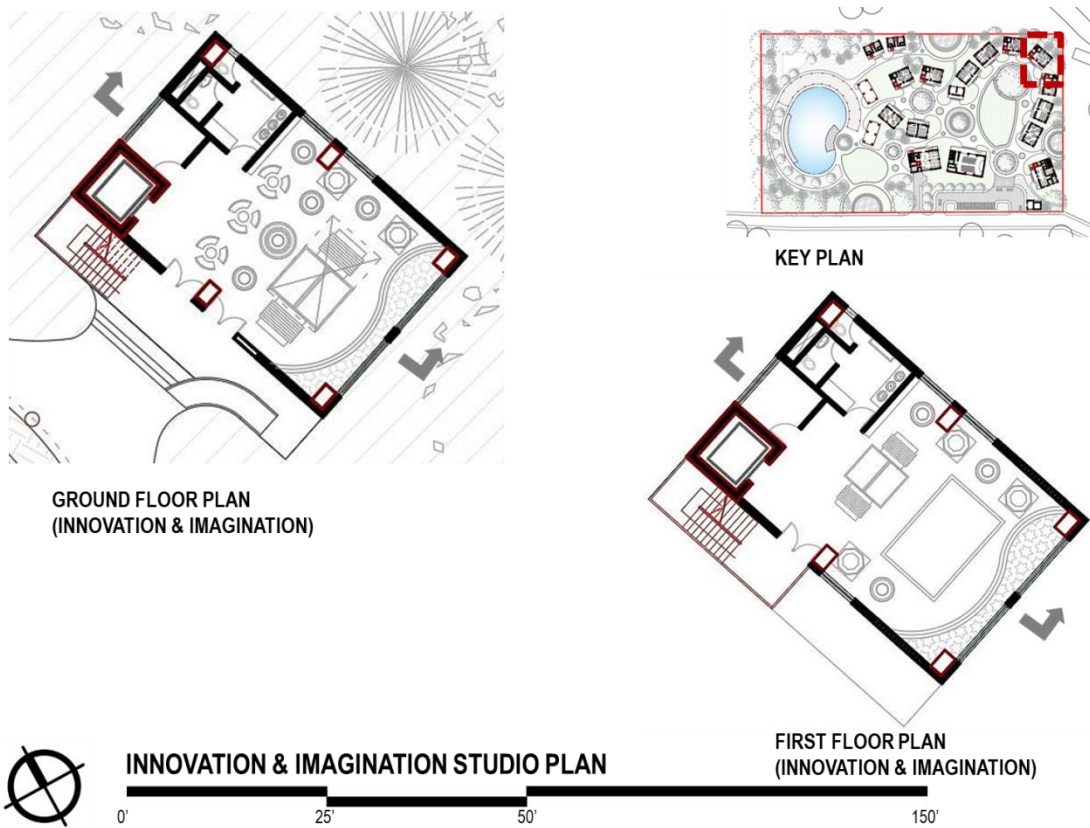


Figure 48: Innovation and Imagination studio plan ;(Source: Author, 2020)

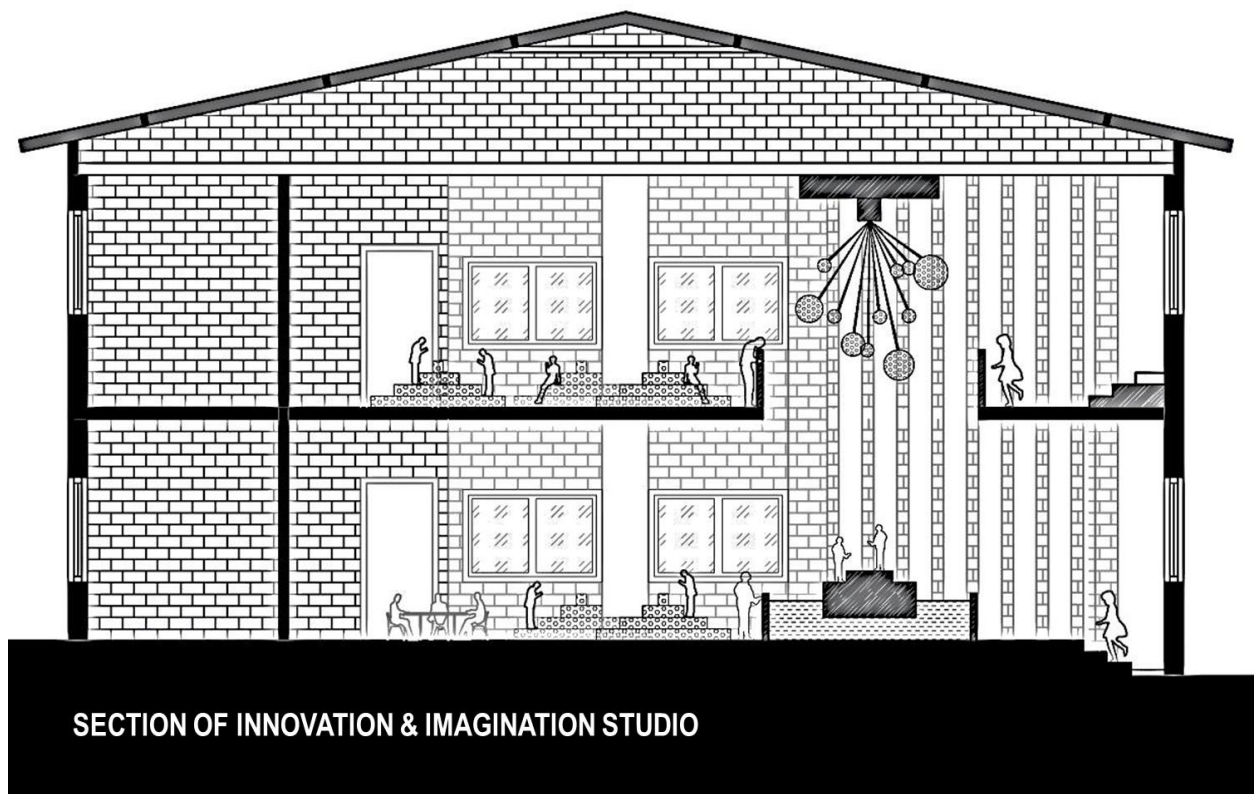


Figure 49: Section of Innovation and Imagination studio ;(Source: Author, 2020)

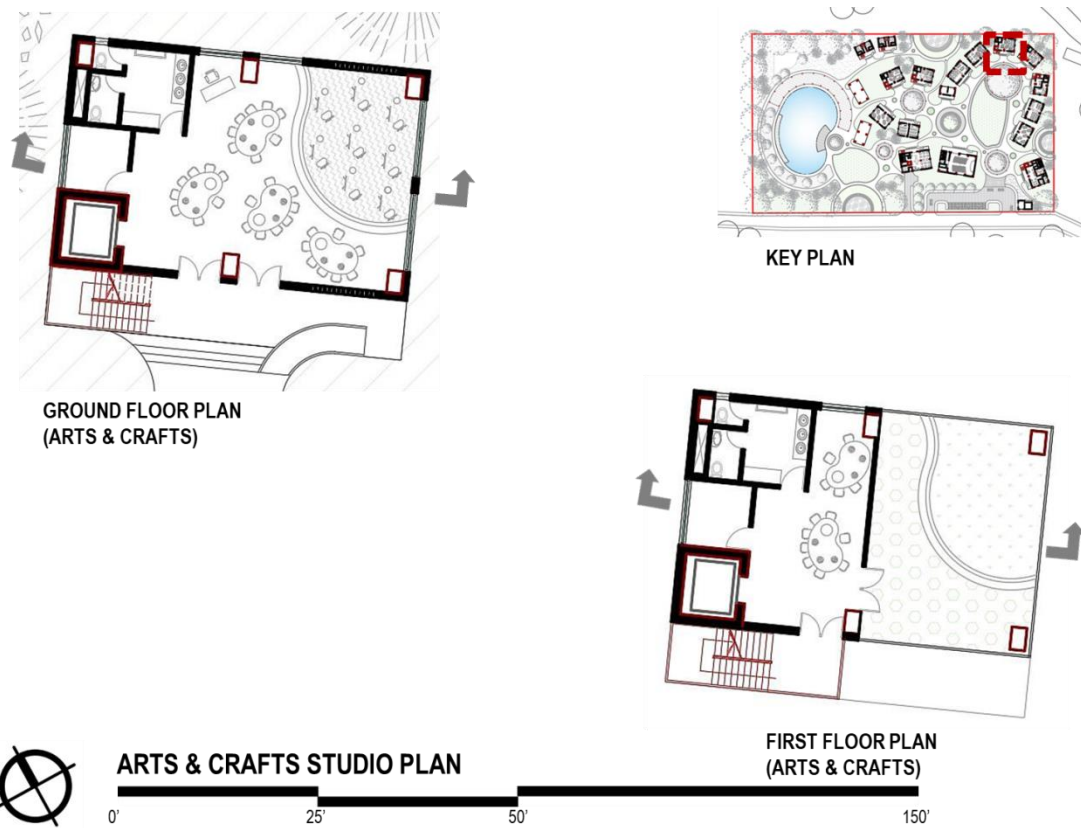


Figure 50: Arts and crafts studio plan ;(Source: Author, 2020)

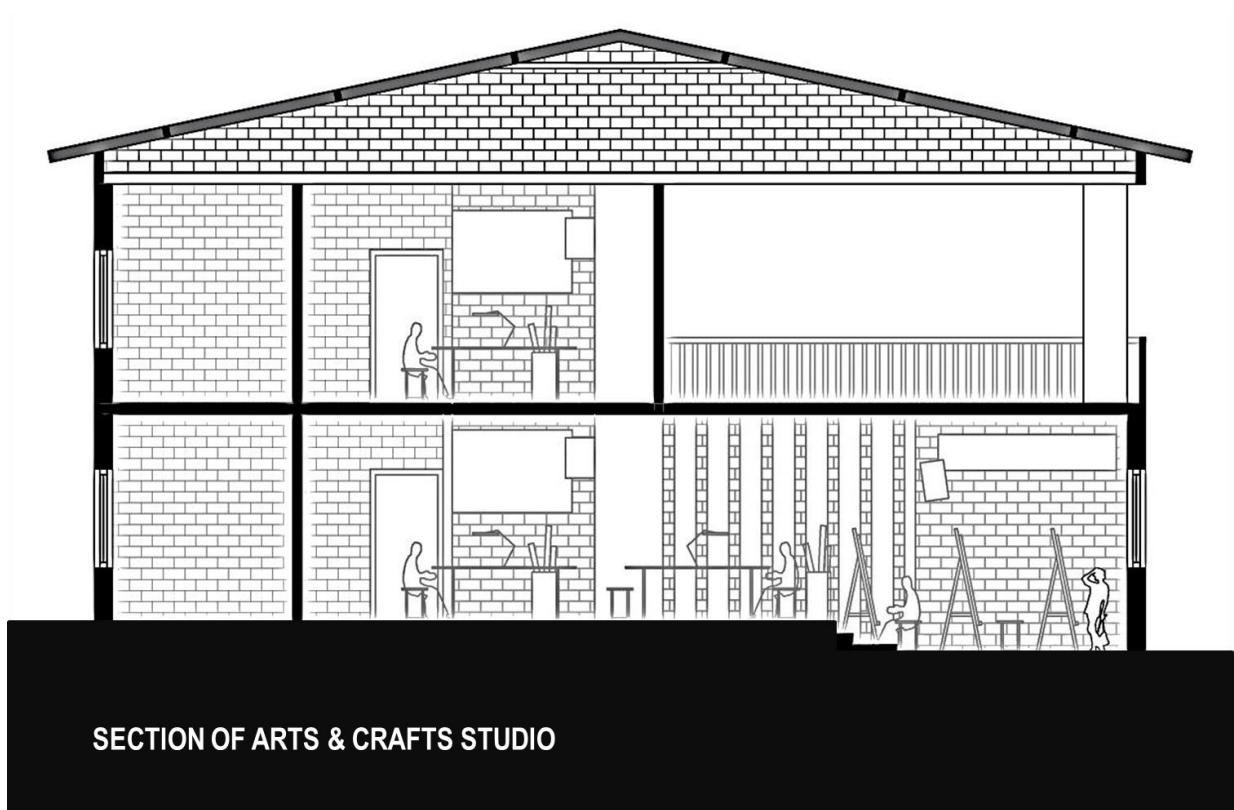
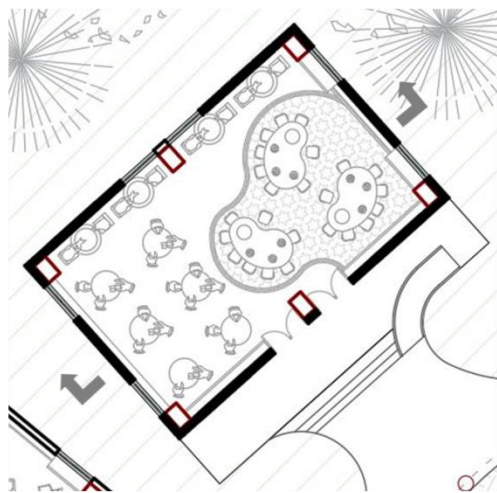
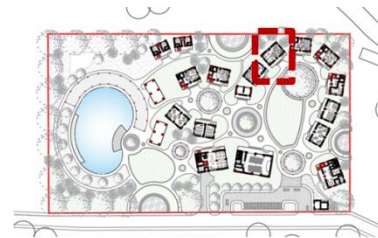


Figure 51: Section of Arts and crafts studio ;(Source: Author, 2020)



**GROUND FLOOR PLAN
(APLHABET TRAILS & PUZZLES)**



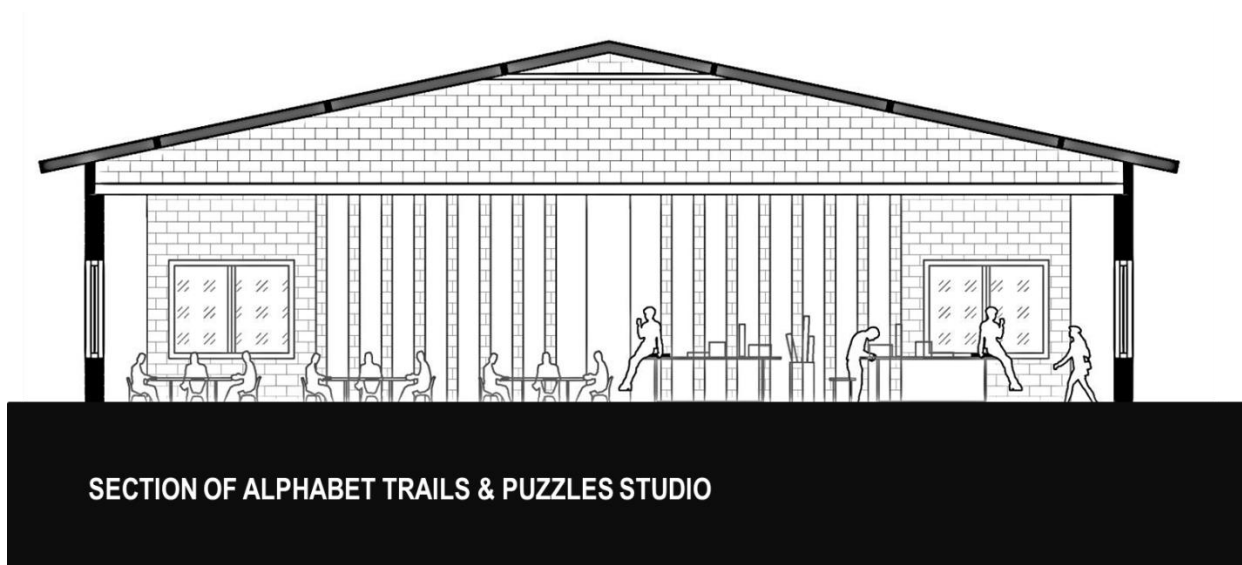
KEY PLAN



ALPHABET TRAILS & PUZZLES STUDIO PLAN

0' 25' 50' 150'

Figure 52: Alphabet trails and puzzles studio plan ;(Source: Author, 2020)



SECTION OF ALPHABET TRAILS & PUZZLES STUDIO

Figure 53: Section of Alphabet trails and puzzles studio ;(Source: Author, 2020)

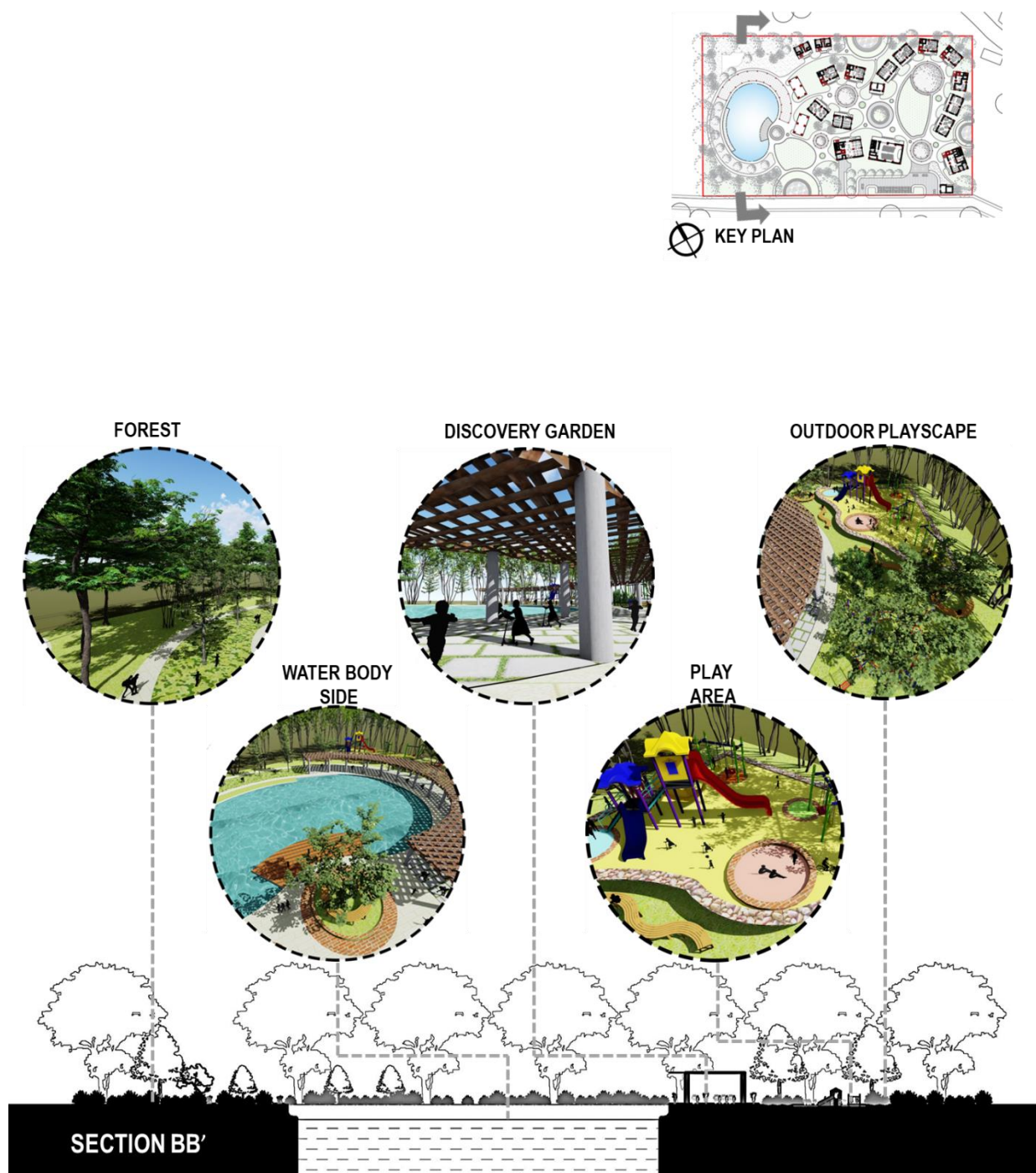


Figure 54: Section of the forest, water body, discovery garden and outdoor play space ;(
Source: Author, 2020)

7.5.3 Elevation

Maximum blocks were oriented in the north-south direction for proper ventilation purpose.

Large openings or windows were planned in the north-south orientation, so that certain amount of natural ventilation occurs. The openings were designed using traditional materials complimenting with the brick surfaced wall and steel corrugated roof.

In some facades, louvers were used in case of air circulation, liveliness of light and shadow and for aesthetic purpose.

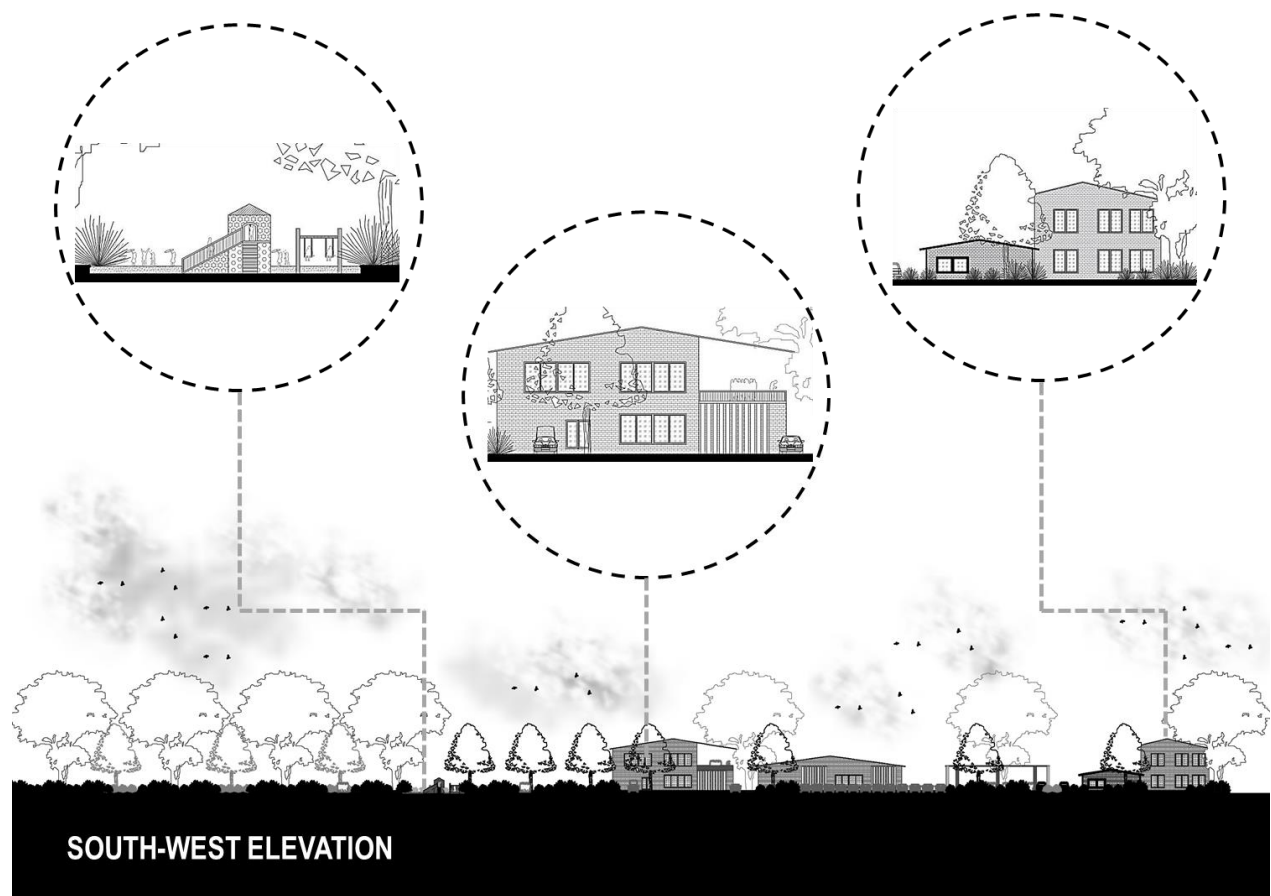


Figure 55: South-West Elevation ;(Source: Author, 2020)

7.5.4 Roof Details

Steel corrugated sheet used as the roof material because of the assimilation with the built forms around the site. Pitched roof helps to drain off the rain water easily by sloping it down through the inclined structure.

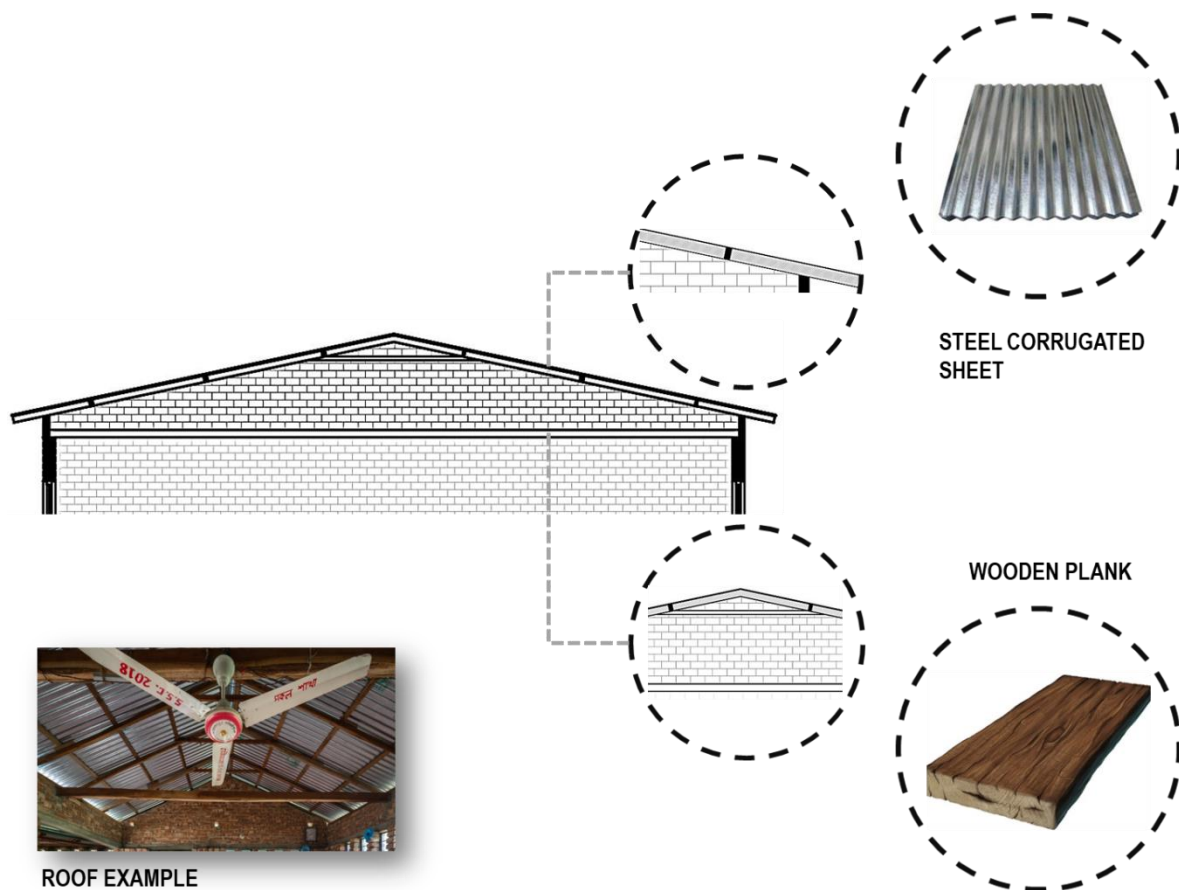


Figure 56: Roof details ;(Source: Author, 2020)

8.1 Rendered Images



Figure 57: Entrance to the site ;(Source: Author, 2020)



Figure 58: Entry court;(Source: Author, 2020)



Figure 59: Outdoor play space at interval space between two blocks ;(Source: Author, 2020)



Figure 60: Socio-Interactive block ;(Source: Author, 2020)



Figure 61: Interactivity between outdoor play space and terrace garden ;(Source: Author, 2020)



Figure 62: Outdoor playscape and activities along with the flower garden;(Source: Author, 2020)



Figure 63: Water body and discovery garden view ;(Source: Author, 2020)



Figure 64: Outdoor playscape and natural elements integration ;(Source: Author, 2020)



Figure 65: Water body side activities and outdoor sitting ;(Source: Author, 2020)



Figure 66: Connected paved areas and blocks along with greens ;(Source: Author, 2020)



Figure 67: Central interactive point ;(Source: Author, 2020)

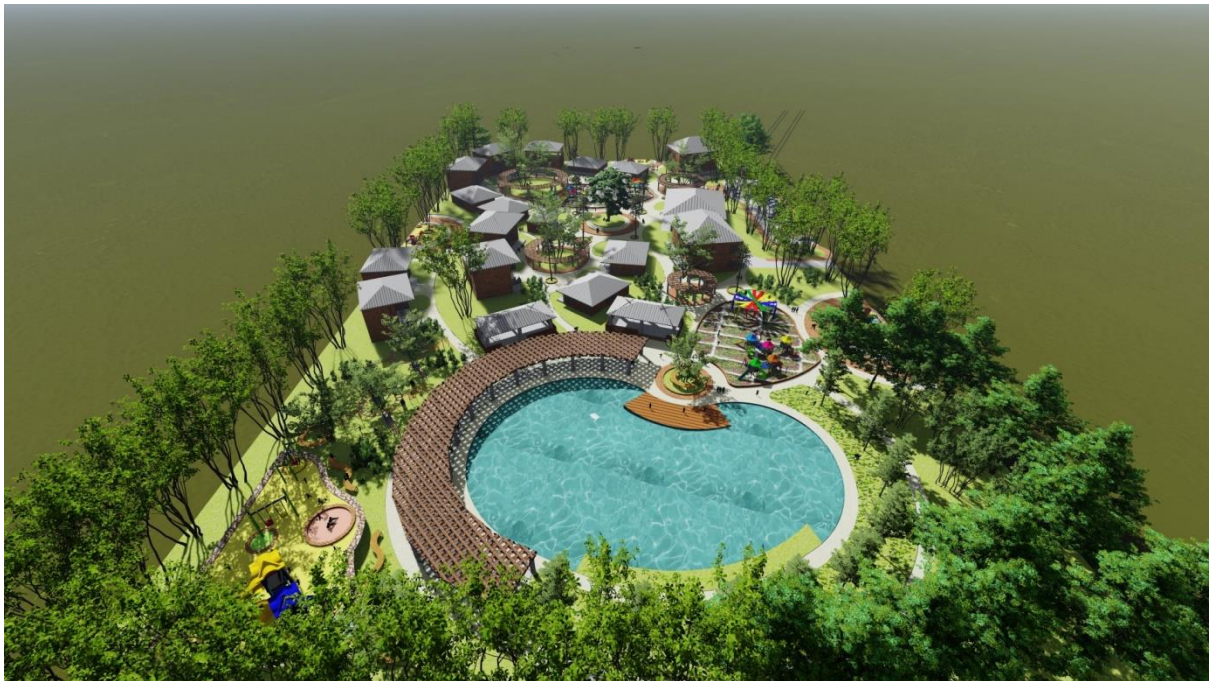


Figure 68:North-west side from top view;(Source: Author, 2020)



Figure 69: Perspective view ;(Source: Author, 2020)



Figure 70: Top view ;(Source: Author, 2020)

References

- [1] <https://www.ukessays.com/essays/young-people/importance-of-play-in-children-development-young-people-essay.php>
- [2] https://www.legofoundation.com/media/1063/learning-through-play_web.pdf
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- [5] https://www.rch.org.au/ccch/cph_d4_l2_moore_childcentrereview.pdf
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- [7] <https://www.mentalhealth.org.uk/a-to-z/c/children-and-young-people>
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- [11] <https://www.behance.net/gallery/1392229/Glazer-Childrens-Museum>
- [12] <http://www.hawaiiimomblog.com/2016/10/visit-san-francisco-childrens.html>

Appendix A.

[Add project related official letter and program from the client]