DHANMONDI TUTORIAL SCHOOL

BASHUNDHARA BLOCK G, DHAKA, BANGLADESH

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ARC-512
SEMINAR II

Submitted in the partial fulfillment of the requirements
For the degree of Bachelor of Architecture
Department of Architecture
BRAC University

April 2012

ACKNOWLEDGEMENTS

This project would not have been successful without a collaboration of a number of people. First and foremost I would like to thank Almighty God for bringing me till here and blessing me with everything I have. I would like to thank my course teachers Zainab F. Ali, Imon Chowdhuree and Shakil Ahmed profusely for guiding me in doing my best and creating a designing worthy of our class. I would also like to thank my classmates without whose support I would not have been able to survive the five years of rigorous struggle. They have seen me through thick and thin. And last but not least I would like to thank my family who have supported me through all my struggle and always been a pillar of strength specially my mother, to whom I owe everything.

THANK YOU

Shahnaz Masud

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CHAPTER 1

1.1 Project Brief

Title of the project: Dhanmondi Tutorial School

Location: Bashundhara Block G

Total area: 5.5 acre

1.2 Project Background

Dhanmondi Tutorial School is one of the well-known English medium schools of Dhanmondi. It has grown to become a successful part of the education system in Dhaka. The teaching method of the school is highly motivational promoting the students to do well in their school years. They provide an international standard of education along with emphasis on extracurricular activities such as music, dance, drama, debate and quiz, arts and crafts, science lab etc.

The school is for students from kindergarten to the 12^{th} grade or A' Levels. There are about 800 students in total along with 140 teachers and 50 staff. The campus of Dhanmondi Tutorial is now divided into 3 buildings located in different parts of Dhanmondi. The Junior Section is in road no. 11/a. the Middle Section and Senior Section is on road no. 8. The buildings have little to no open space. They are typical buildings not naturally designed for schools. This is probably the biggest short coming of the school.

1.3 Key Aspect

Dhanmondi Tutorial is the school I have studied in, and the one thing we lacked most in our school years was the need for a beautiful campus ground, the playgrounds, and everything that comes with it. We never had any great laboratory facilities or a cafeteria or a multipurpose hall. Therefore when I chose to do a school I decided to do Dhanmondi Tutorial in order to provide a beautiful Campus grounds to go along with the standard of education. The campus will not only provide a comfortable cheerful environment to study but also provide all the other facilities that the school cannot provide now due to space restrictions.

1.4 Reasons for choosing the project

Dhanmondi Tutorial is the school I have studied in, and the one thing we lacked most in our school years was the need for a beautiful campus ground, the playgrounds, and everything that comes with it. We never had any great laboratory facilities or a cafeteria or a multipurpose hall. Therefore when I chose to do a school I decided to do Dhanmondi Tutorial in order to provide a beautiful Campus grounds to go along with the high standard of education. The campus will not only provide a comfortable cheerful environment to study but also provide all the other facilities that the school cannot provide now due to space restrictions.

1.5 Reasons for choosing the project

The reason I chose Bashundhara as a site is because the particular area was already in a school proposal and Dhanmondi had become so congested with more than enough schools, that relocating it seemed like the best idea. Accessibility to the site is also a plus point. The chosen site is a 5.5 acre land which is already in a proposal for a school, located in Bashundhara Block G.

1.6 Site

1.6.1 Location

Bashundhara Block G

1.7 Given Programme

Name	No. of Units
Classrooms	32
Science laboratory	3
Computer laboratory	2
Teachers workstation area	6
Teachers washroom	6
Teachers meeting room	6
Library	1
Multi-Purpose Hall	1
Cafeteria	1
Common Rooms	4
Extracurricular activity room	5
Washroom	2
Basket Ball Court	1
Changing room and Shower	2
Gym	1
Games Coordinator room	1
Mechanical room	1

Storage	1
Principals office	1
Attached Toilet	1
Secretary space	1
Vice Principals office	1
Attached Toilet	1
Secretary space	1
Admin Dir office	1
Board room	1
Admin Staff room	1
Washroom	2
Reception area	1
Break room	1
Front office	1
Visitors lounge	1
Security	1
Student Service office	1
Support office	1
Maintenance	1
Support staff washroom	2
Bus office	1
Drivers Area	1
Washroom	1
Hospital wing	1
Prayer Hall	1
Substation	1

Generator room	1
Water reservoir	1
Caretaker residence	1
Guardian Waiting	2
30 car parking for teachers	
10 car parking for staff	
4 bus parking	

CHAPTER 2

2.1 Site

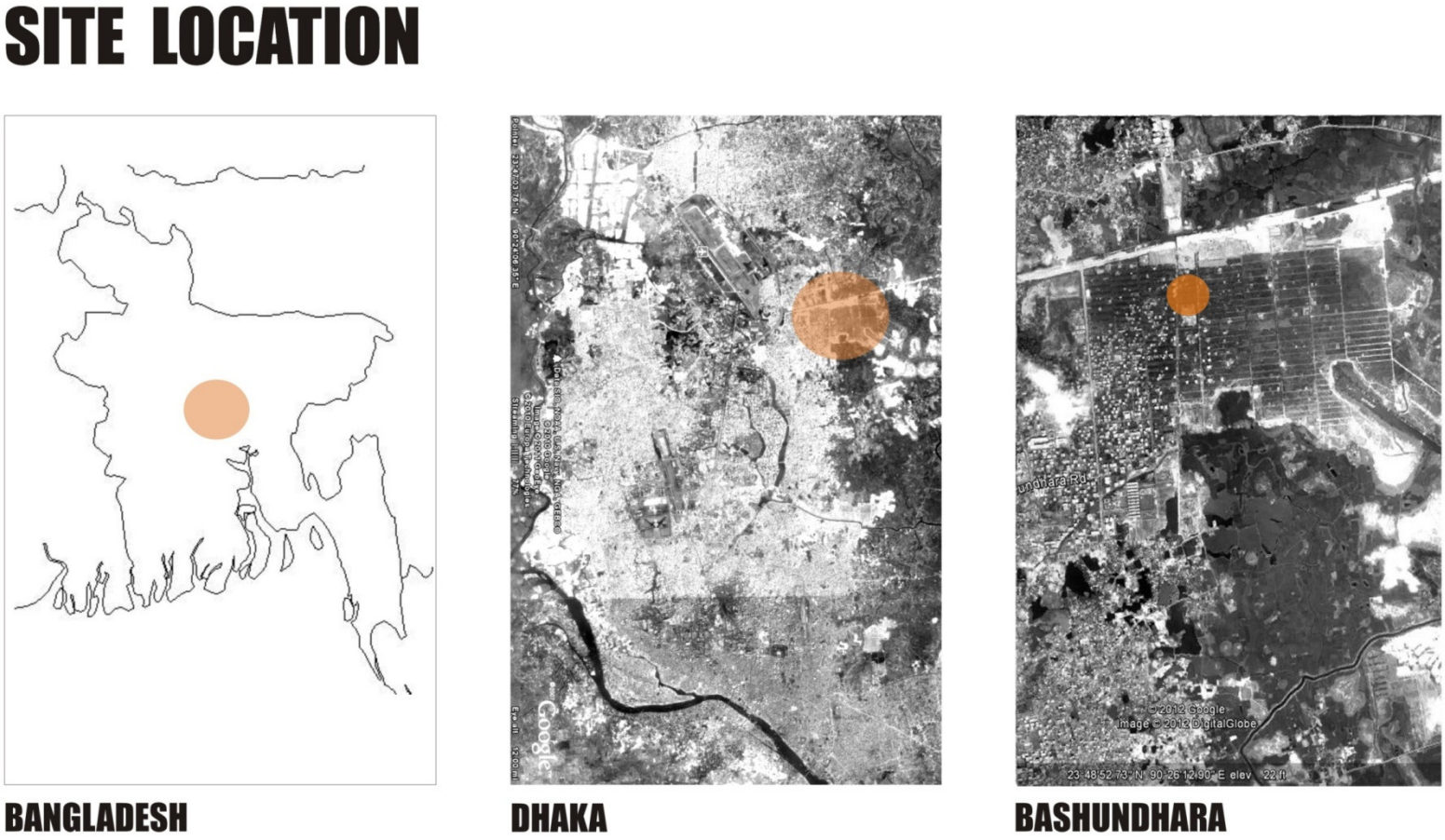

Figure 1 : Site Location

2.2 Site Area

The area of the site is approximately 5.5 acre or 239580 sq ft.

2.3 Site and Surrounding

2.3.1 Surrounding Areas

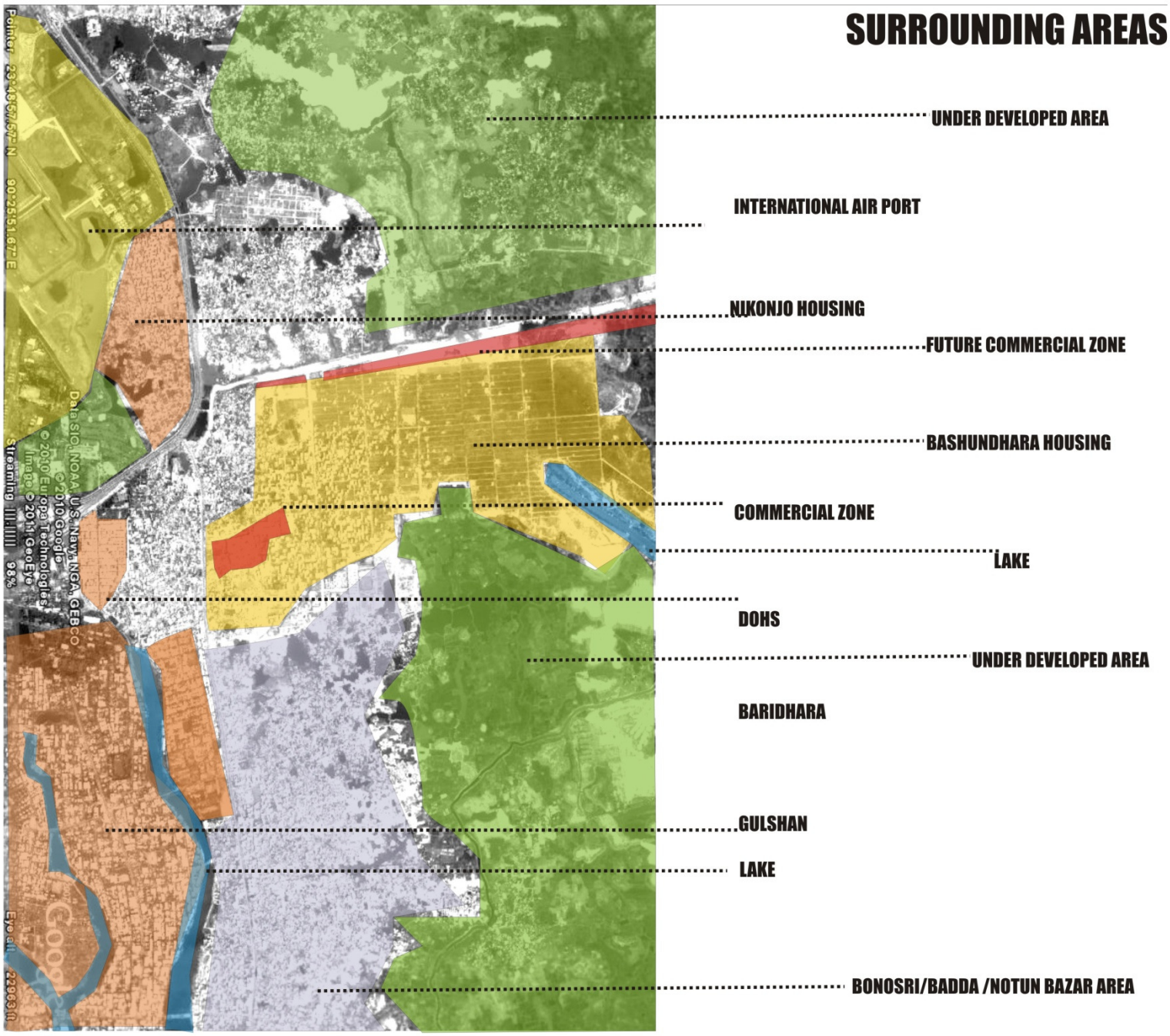

Figure 2: Site Surrounding Areas

2.3.2 Road Network

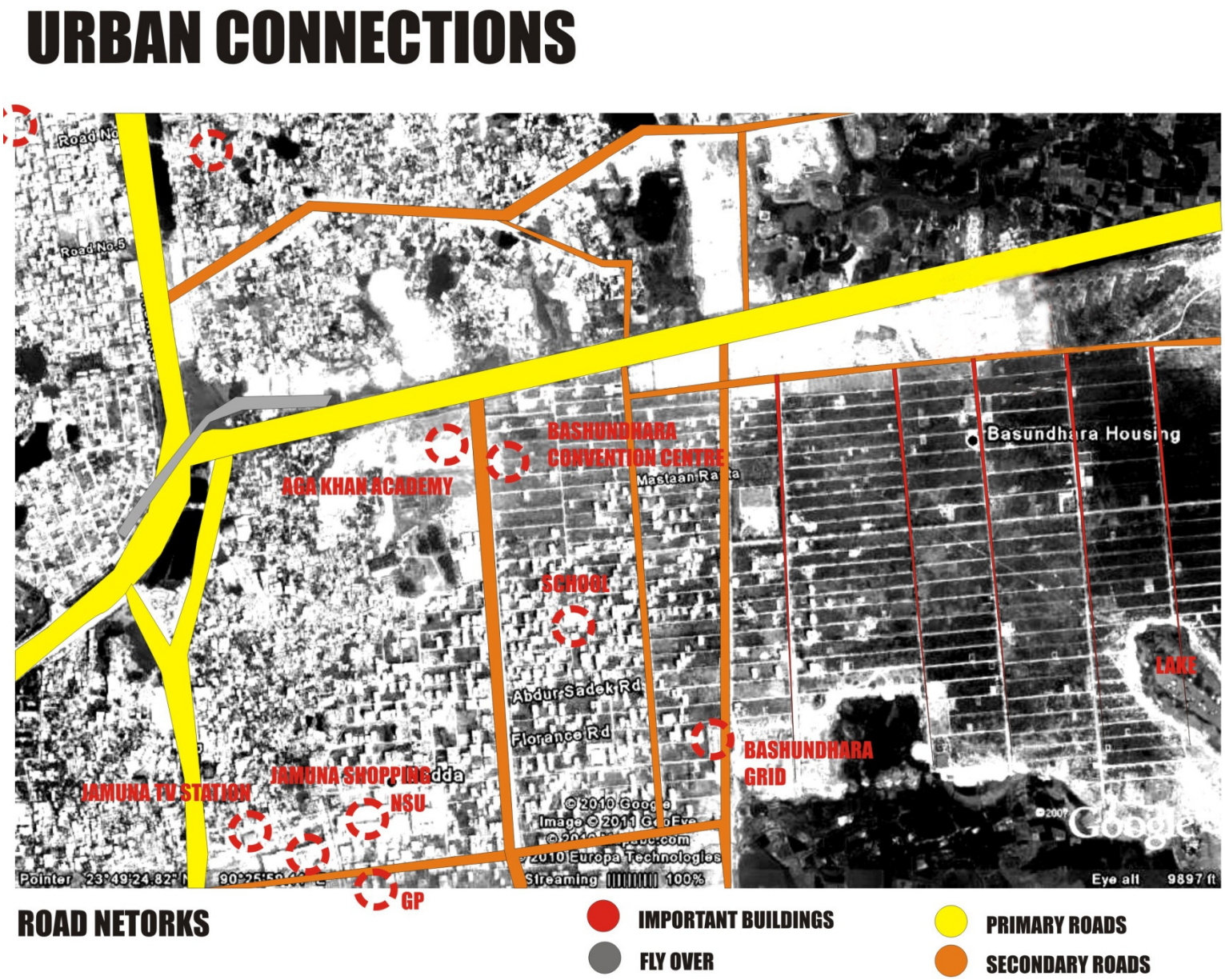

Figure 3: Road Networks

In the above figure (Figure 3) the surrounding infrastructure of the site is shown and color coded. Also surrounding important buildings are marked.

2.3.3 Zoning

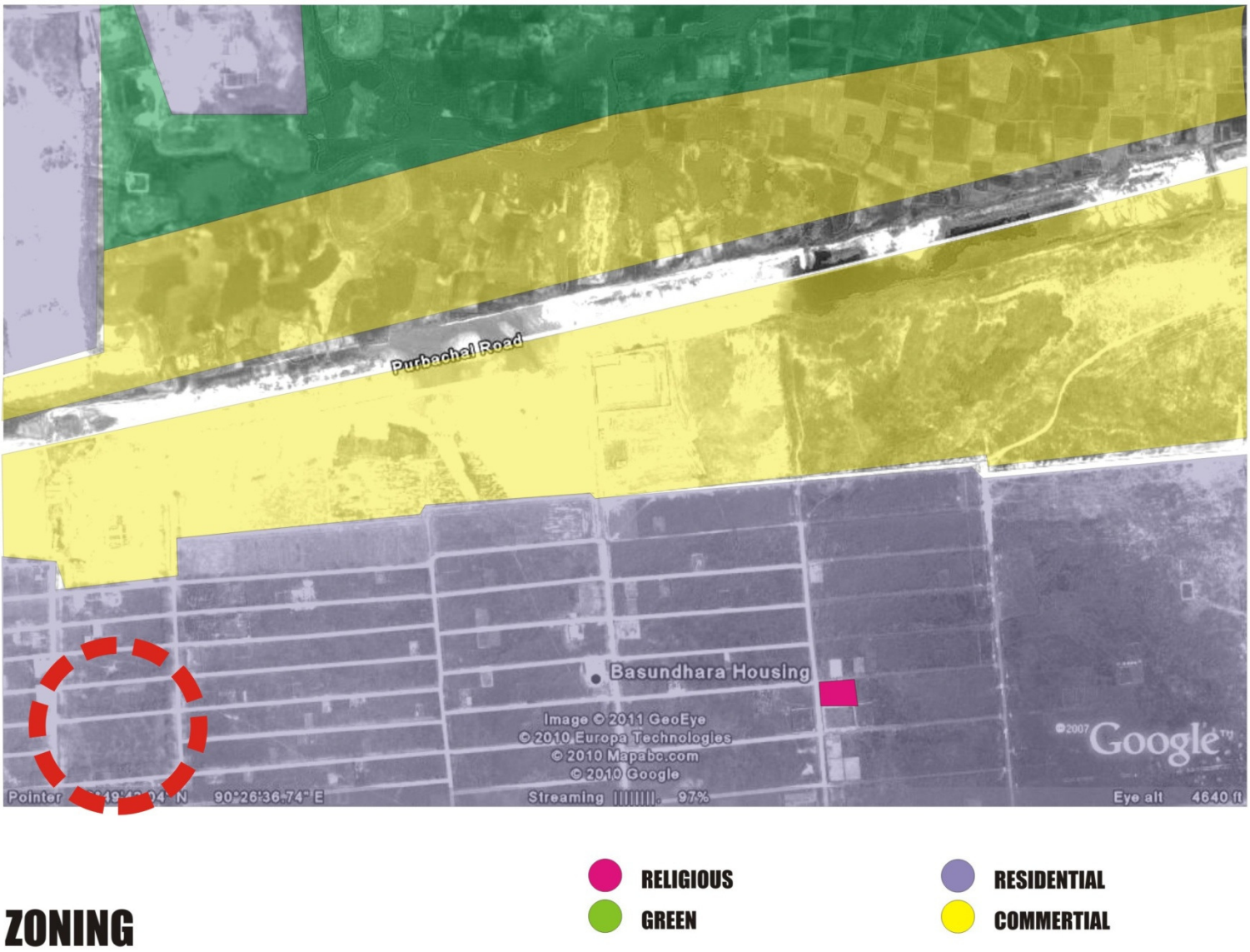

Figure 4: Zoning of the area

2.3.4 Green Placement

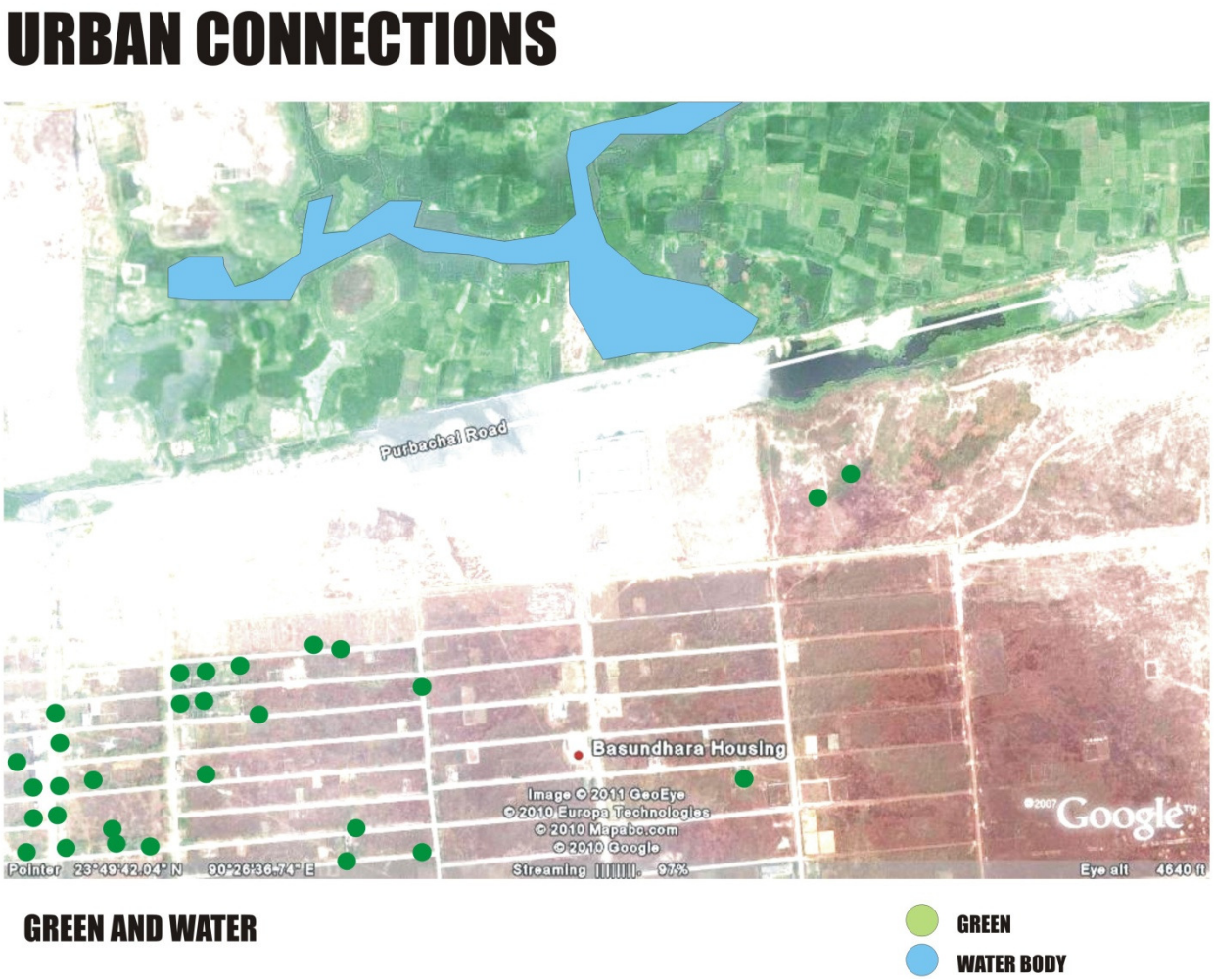

Figure 5: Location of Green and Water body in the area

2.4 Site Analysis

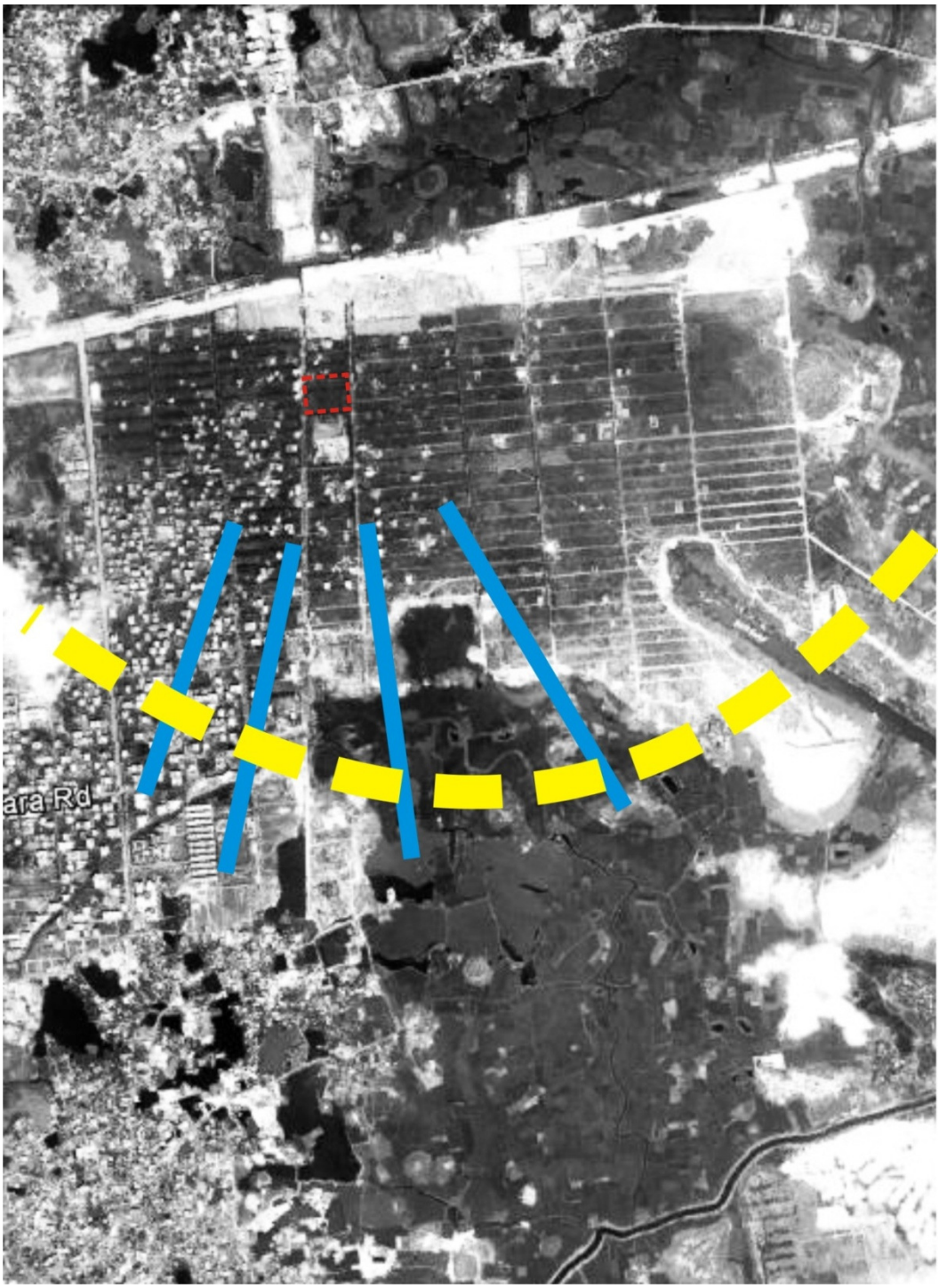

Figure 6: Site Analysis

2.5 SWOT Analysis

Strength:

- The area is largely undeveloped and thus have great potential
- The flat land negates difficulties working over contours
- The adjacent 300 feet road under construction would ensure that in future land price would increase
- Once 300 feet Asian highway project is completed the area may develop into major commercial hub
- The large site area would provide potential for vast green spaces
- The area is a very secure area

Weakness:

- The low-lying land may pose difficulty for the rainy season
- The present access roads are not too wide
- Currently most of the development is largely residential

Opportunity:

- Since the site is mostly undeveloped it has great potential in term of the nature of future development
- At present the site is located at the underdeveloped part of Bashundhara but in later phases will probably be centrally located.
- Direct wind and sunlight to the site

Threat

- The low land poses the treat of flood

- The school might be a disruption to the surrounding residential area
- Future development might
- The ventilation and sunlight might be hampered when the area is further developed.
- Public transportation might not be adequate for the area

2.5 Site Photos

Figure 7, 8, 9, 10: Site Photographs

CHAPTER 3

LITERATURE STUDY

3.1 Shenyang Xiaohajin International Kindergarten

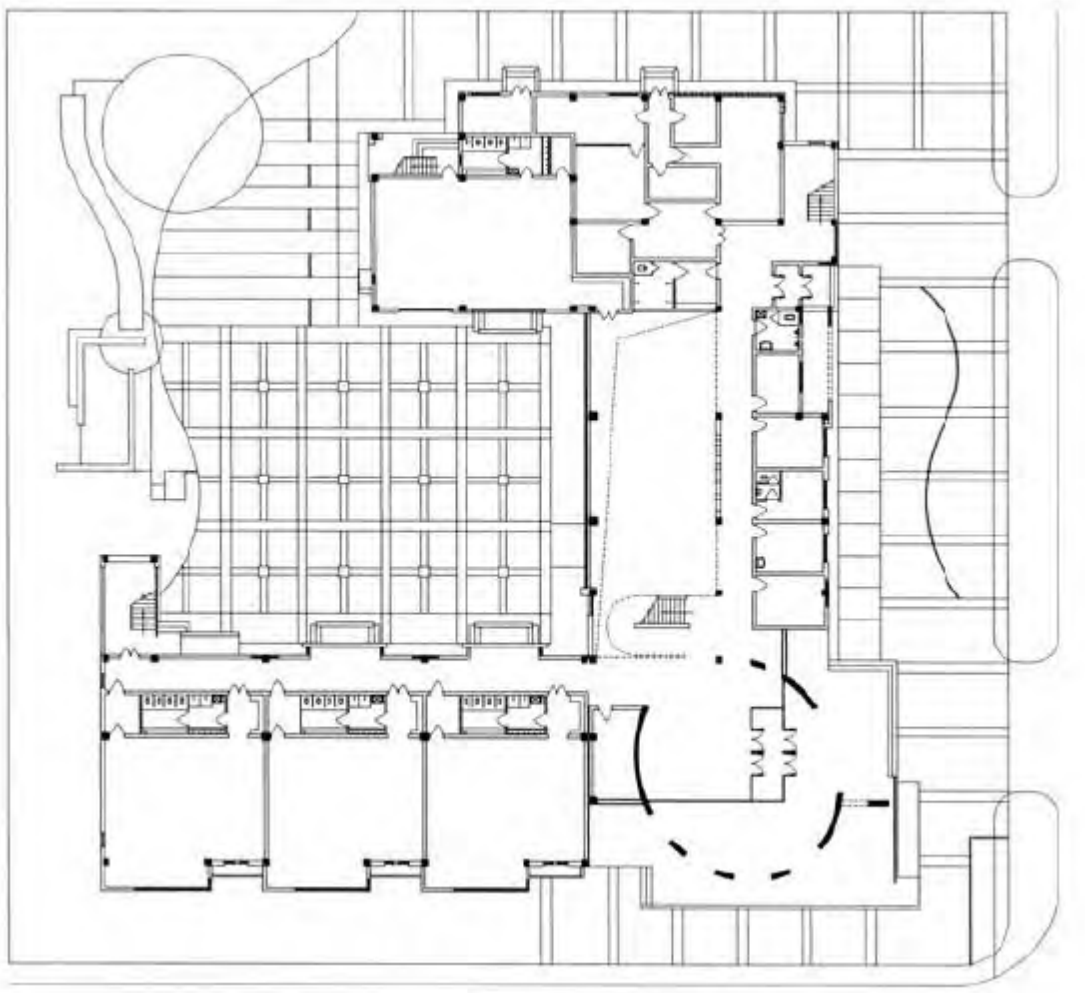

Figure 11: ground floor plan of the school

A constrained site has necessitated a tightly organized arrangement which fits well into its semi-urban setting. According to designer Ma Tao, three principle constraints dictated the planning trategy. Firstly the tight site, secondly the need to optimize south light for internal and external activity areas and finally the residential building which blocks the further development of the kindergarten on its northern end. As a result the building was arranged around a courtyard yet only on two sides.

Conceptually, the designer viewed this as an exercise in urban design, describing it as a castle or a toy house. With three storeys of classroom activity areas on the south side and a two storey block on the north side containing two identical classrooms, all stacked one on top of the other it is easy to understand why. The third element is a linking eastern block which acts as the main communal hall just inside the entrance. It is an almost monumental double-height space with gigantic window-roof lights orientated directly onto the courtyard garden. There is a play of large scale set against smaller and smaller scale parts, all the way down to the children's play houses in the activity areas.

Figure 12: Courtyard around which the building is designed

The choice of facade materials is intended to enhance the idea of the city as collage, with a mixture of red-brickwork and yellow render mingling with large panel bay windows. Other twists such as an elliptical oval shaped access ramp which forms the southeastern corner of the block provides appropriate distractions for the users. This ovoid is directly over the entrance lobby, the concave and convex forms play against each other. The nine classrooms are set out in regular bays each with angled bay windows orientated to the southeast to optimize daylight. There is a sense of rhythm to the facades, with a horizontal emphasis with indented mini balconies, small-scale windows and extract unit feature panels connecting the vertical emphasis of the stacked classroom units.

Figure 9: Interior of the school building

This building illustrates the tentative nature of designing for children in China. It is playful yet serious and functional at the same time. Every child can develop their own particular view of the building, its internal spaces, its external details and its imagery. However, there is something of a mismatch between the architecture and the interior design resulting in some strange junctions and difficult relationships between inside and outside. Yet this should not distract from the fresh vibrant spirit of the architecture itself. (Dudek, 2007)

3.2 Little Village Academy

This is a constrained urban site measuring 36 x 120 metres of which 720 square metres comprise parking spaces. The school is in the form of a three-storey rectangular block which takes up a large part of the available site area. The walls of the school are hard up against three sides of the surrounding streets like a palazzo in urban Rome. Nevertheless the compact plan incorporates a varied range of accommodation including 20 traditional classrooms with specialist science and computer rooms, a dining area at ground floor level, a kindergarten and community room.

Figure 10: Outside view of the school building

There is a library which is articulated architecturally with walls and roof projecting beyond the lines of the urban block. It is open to the local community after school hours, which comprises many recent immigrants with a poor grasp of English; it is a symbolic statement about the importance of education, like a beacon visible to passersby from the surrounding streets. The

perimeter block form is in local red brick with a recessed loggia to the west, playgrounds for the kindergarten on the south and a small play plaza for the main school to the north. The arrangement provides a powerful civic presence, yet with a number of architectural flourishes which add a twist to the otherwise austere form.

Figure 11: Library room with natural sunlight pouring in

Apart from the library picked out in shimmering white metal cladding, there is a dramatic tapering staircase tower clad in colored geometric tiles, an important access and social meeting point within this vertically organized school. Inside the stair tower there is a sun motif in the form of a semi-circular 45 degree roof light; the back wall features a sun dial calibrated to the angle of the sun radiating from above. The motif is echoed on the external street courtyard with the axis mundi graphically set out in colored floor tiles; according to architect Carol Ross Barney, the sundial refers to the role of the sun in Aztec culture and has become an important local landmark.

The advantages of the planning strategy are firstly that it allows a very high density with economical circulation between classrooms. Outside there is no left-over space, its perimeter edges act as secure buttresses against the outside world. Paradoxically the proximity of classroom windows and doors to the street gives it immediacy to the local community, which is welcoming to outsiders, yet in a controlled way. The cafeteria and gymnasium are well used community facilities as are the many adult evening classes which run in classrooms on the ground floor. Perhaps more importantly, it is an extremely economical layout both in environmental terms and in building costs.

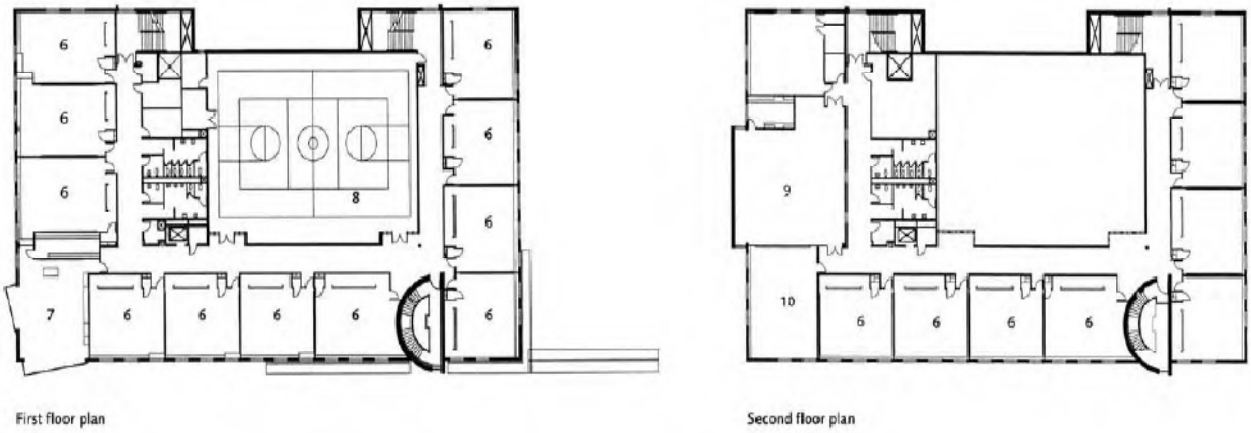

Figure 12: Floor Plans

The heavy external envelope and internalized plan form make good sense in this region which experiences extreme temperature ranges across the seasons. The drawback of the tight planning is that much of the internal circulation areas on the ground and first floors have only restricted levels of natural light. However, good artificial lighting and bright reflective finishes help to reduce this problem. Everywhere there is evidence of thoughtful pragmatic design decisions which have created a building of immense practical value both to the local school children and its disparate community of adult users. (Dudek, 2007)

3.3 Thorncliffe Park Public School

The Thorncliffe Park residential area on the edge of Toronto has been expanding over the last ten years. As the school increased, 45 portable classrooms were gradually introduced to extend the existing school facilities around the quarter's original school building. This ‘temporary permanence' has been a familiar economic exigency not only in Canada. Now as the provision for good quality educational environments has been widely recognized as being a fundamental ingredient in raising standards, new provision for children has tended towards smaller scale neighborhood facilities catering for around 500 children; however at Thorncliffe Park Public School. The entire neighborhood’s required accommodation has been consolidated to create the largest kindergarten to grade 6 schools in North America.

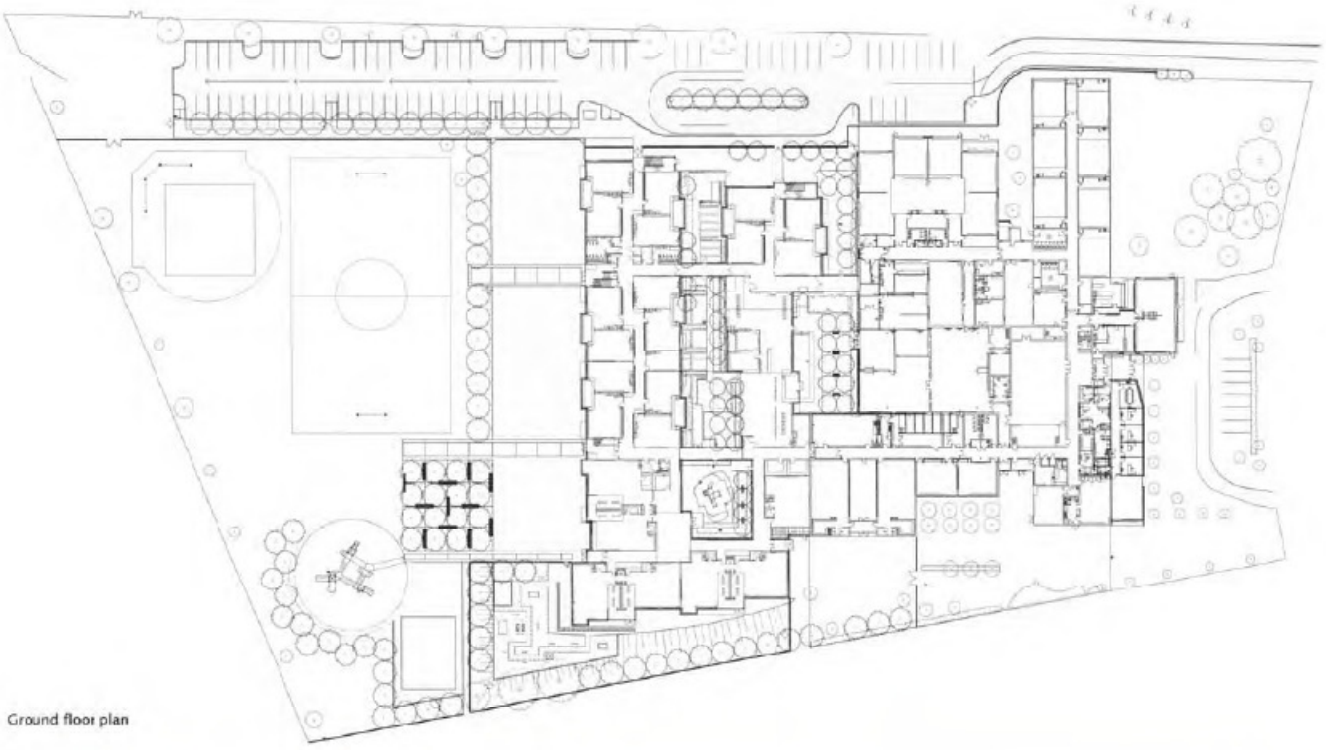

Figure 13 Ground Floor Plan of The school Site

The facility provides places for 400 kindergarten children alone. A significant challenge here was to create a building that was finely scaled, welcoming and anti-institutional to avoid intimidating young and potentially vulnerable children. At the same time, the reality of a large building which would be capable of functioning smoothly and efficiently placed competing

demands on the designers; the plan needed to be compact yet full of light and color. One of the key generators of the design was the existing school building; as it had expanded organically, it consisted of smaller bites of accommodation. These accretions formed slots and courtyards of outside space, which were turned into small gardens and landscaped courtyards by teachers and children. Thus, almost by chance, this process has established a spatial template, a basis upon which the new building has been set out. The major new expansion extends the idea of pocket courtyards.

Figure 14: Connection Between Two Buildings

Captured outside space, or as the designers put it, 'lines of landscape', help to unify the experience of old and new without compromising on the functional efficiency of the whole. The new addition is organized as two wings of accommodation, one containing the library and the other a bar of classrooms, with linear gardens running between each. As children move around the school, these lines of landscape create stimulating views from indoors to outdoors; a sense of nature permeates each child's experience of the entire school, the old and the new melt harmoniously together. The gardens become learning environments in their own right, each one with its own unique theme, using special colors, textures and landscaping ideas. One new wing contains classrooms which are organized into clusters of four each with its own small

gathering space also containing cloakroom areas. Colored shafts of natural light mark these as focal points within the building's circulation system.

Figure 15 Parts of the school

The library is located in the second new wing, strategically at the centre of the new plan, with natural light and views to both landscaped courts either side, a fitting focal point for the new school. A second floor link to the library brings this symbol of learning within reach of all students. A new double gymnasium acts as a major public room in the school. Old and new are bound together by a simple circulation loop which creates a clear path between all parts of the school. (Dudek, 2007)

3.4 Greenwich Academy

Greenwich Academy is a private school for girls with a long tradition of educational excellence. Founded in 1827, the school currently occupies a 16 hectare campus in suburban Greenwich. Despite this, the scope of the project was constrained both in terms of the available site which could be built upon and also in terms of funding available. The new buildings would have to be sandwiched between topographical grades and existing buildings and built at an economical cost of 1,830 USD per square metre. The school's requirement to create a new upper school which would somehow unify the disparate parts of the existing campus provided an opportunity for alternative thinking about how architectural design could support learning.

Figure 16: Birds Eye view of the Building

The theory that student attendance and academic performance are higher the greater their daily exposure to natural light, was adopted as one of the main driving forces behind the

design. New classrooms are clustered around circulation areas which are described as light Chambers'. The new library,maths/science, arts and humanities classrooms which comprise the main elements of the accommodation are organized around these light filled covered courtyards; they act as circulation and communal areas, one for each of the faculty departments.

Figure 17: Glass Facades for maximum light and ventilation

Transparent glass facades and glazed roof lights maximise daylight penetration throughout the structure. Sharon Dietzel, head of the upper school, told *Architectural Record,* 'All the light has a physical and psychological effect on people; it relaxes them.' Grassed roof terraces further integrate the building into its wooded setting and provide a subtle visual extension of the grassed areas around the new building. Strategic orientation and massing integrate the new building into the landscape, opening up views to the surrounding forest and hills.

Unification of the campus was achieved through selective preservation of existing buildings. Planted with sod and flowers, the roof also contributes to this synthesis of nature and architecture. Glazed light chambers perforate the plane of the roof, creating a dynamic sculptural environment. Students and visitors are drawn to the roof by its lush planting, its

views onto the adjacent playing fields, and by its luminous light chambers, whose glass reflects the verdant horizontal rooftop plane into the interiors below. SCM have developed a clever strategy for unifying the campus and providing the school with the new facilities it required.

Figure 22: green roof

The green roof enhances energy efficiency and promotes environmental sustainability. It also provides effective insulation which lowers overall cooling and heating costs for the building. Altogether, the combination of thin semi-transparent glazing throughout with the heavy roof makes this a visually stunning building, giving upper school students the privilege of a distinctive and advanced form of school architecture. (Dudek, 2007)

CHAPTER 4

CASE STUDY

While doing the case studies for a school it was essential not only to look at the overall school but also look into certain aspects of the school which are the main points. These are the parts of the school that should work well in order for a school design to be successful. Designing the physical aspect of the school properly in crucial in having a flourishing school and thus improving the school environment and student productivity making them free to move around, create, and work.

In this chapter these features are highlighted in the local schools of Dhaka city.

4.1 Auditorium

The school auditorium is perhaps the most visited part of the school. While those in the community may or may not see a typical classroom in a school, they have more than likely visited the auditorium for a community event, school performance or graduation ceremony. It is also the most expensive unit of the school building, which is why it is sad when most school auditoriums are idle most part of the day. While building an auditorium function of the schools should be first considered. Thinking about the uses and the main purpose of the space will finally help in creating a space most useful.

A few examples of the auditoriums in local schools are as below:

The auditorium at this school is nothing but a large room with a stage at one end. The ambiguous nature of the room allows it to be used for other purpose such as large gatherings for the school or plays and dramas and other such functions.

Figure 23: Auditorium at the Turkish Hope School

The auditorium at this school is a much larger version of the previous. It is a double height space to give it a larger look. As seem in the picture it is used for various other purposes like playing during the break time.

Figure 24: Auditorium at the Willes Little Flower School

4.2 Corridor

The busiest room in the building is the corridor. Corridors and other communicational areas have to be multi-functional. People use them to move between the different rooms in a building. Corridors are where people meet and where supplies and materials are transported. It can be said that the corridor is a building's most frequented room.

It is what makes the first impression of the building and the activities conducted there - from the entrance right on to the conference room, the classroom or the hospital treatment room. Corridors and other communicational areas are the lifeblood of a building, where function and appearance must have priority.

School corridors are used for breaks and relaxation but also for meetings and study since there is often a lack of fixed workstations for group work. Students and staff pass along the corridors in a steady stream, with the resulting noise disturbing lessons.

Open areas encourage conversation and interaction along the corridor.

It is what makes the first impression of the building and the activities conducted there - from the entrance right on to the conference room, the classroom or the hospital treatment room. Corridors and other communicational areas are the lifeblood of a building, where function and appearance must have priority.

Below are a few examples of school corridors in Dhaka:

Figure 25: Corridor at Saint Joseph High School

Figure 26: Corridor at Saint Joseph High School

The corridors shown above are lypical linear single loaded corridors in the school. It overlooks the ground on one side and has classrooms on the other side. This corridor makes ventilation easier as it is open on one end.

There is nothing decorative about the corridors here. They are purely functional in their use.

Figure 27: Corridor at Willes Little Flower School

Figure 28: Corridor at Willes Little Flower School

The corridors above are of the same school but are from two different buildings of the school. They differ in design and purpose. *Figure.15* shows a corridor that is purely functional and narrow. It is single loaded with classrooms on one side and open field on the other side. On the other hand *Figure.16* shows a corridor that is not only for walking down but there are alcoves created at intervals with planter boxes and built in window seats where the students can sit and chat or spent their free time.

Another purpose the corridors are used for frequently is when children play football or cricket along the corridors after school.

4.3 Stairs

Good accessibility means buildings that are easy to understand and navigate. Designers should ensure that stair locations are convenient, safe and form part of a coherent movement and way-finding strategy. People who cannot use a stair at all because of their disability – for example wheelchair users – are a very small proportion of the total range of people with disabilities. Designers must allow for the needs of a very wide range of disabilities, in particular those with:

• Physical difficulty in movement or overexertion

(Asthma or other breathing difficulties);

• Short stature;

• Visual impairment;

• Intimidation or concern over vertical

Movement and complex spaces.

Good accessible stair design gives the following benefits:

• Shorter journey times, and the ability to travel around the school with friends – Improving inclusion;

• More physical exercise throughout the day – as recommended by Occupational Therapists;

• Generally, better design quality for all building users, able-bodied and physically impaired alike. (Department for children, school and famalies, 2008)

Figure 29: Stairwell at St Joseph High schools

Figure 30: Stairwell at Hermann Gmeiner

The above Figure 17 is the main stairwell of the St. Joseph school. The stair is like a connection between the two buildings. The floors are at alternate level to make it easier to be accessed.

The other figure 18 is the stair well at Hermann Gmeiner School. The stair is straight leading onto the second level corridor. This takes up the least floor area and has good aesthetical value.

4.4 Laboratories

Learning is incomplete without experiments. "[Students] encounter simulacra of the subjects and objects of science: science teacher in place of working scientists and technologists, textbook discourse in place of the spoken and written language of working science, 'school science' topics and information in place of those which might actually occur in any actual context of use or practice of science, school laboratory and demonstration equipment in place of the actual technologies in use everywhere else in our society."
— Lemke, 1992

Hands-on activities are an essential part of school science. Activities conducted in school laboratories are important if students are to learn the processes of science and have direct experiences that capture their interest and maintain their motivation. Therefore it is important to have well equipped laboratories in a school. Below are a few examples of local laboratories in schools.

Figure 31: St Joseph High School Chemistry Lab

4.5 Classrooms

The layout, design and decor of the classroom have a significant effect upon the quality of education. Attention to the acoustics and color scheme may reduce distractions and aid concentration. The lighting and furniture likewise influence study and learning.

While the classroom is clearly the dominant setting for learning, the flexibility of classroom instruction is often called into question. A classroom should be environment that promotes respect which starts with student involvement, clear expectations and rigor. (Wikipidea)

The physical psychological and visual environments of a classroom are all very important equally.

Below are a few examples of classrooms in schools.

Figure 32: classroom in St Joseph School

Figure 33: classrooms in Turkish Hope School

Figure 34: classrooms in Turkish Hope School

Figure 35: classrooms in Herman Gmeiner

Figure 36: classrooms at Willes Little Flower

In the above figures are the examples of classrooms in our local schools. There are not much done to signify it according to the students need but they do try with colored benches and posters but that is as far as they go.

In figure 20 we can see that there are no specialties in the class, to make it child friendly other than a few colorful posters.

In figure 21 we can see the difference where the seating is in groups and there are centers created around the classroom.

4.6 Open Spaces

Most communities today want to do whatever they can to be "green," and schools are no exception. Many schools should practice energy conservation and adopt environmentally friendly cleaning and recycling programs, but the most overlooked component of a green campus is their athletic fields. With proper design and thoughtful maintenance, any school's athletic fields can be both green spaces for play and green spaces that help ensure a more sustainable campus community.

The first step in creating that plan is to examine how the site will be used. How many sports will be played on the field? How often? Which sports? Answers to these kinds of questions can help direct not only what type of field is most suitable for the school's athletic program, but which environmentally-friendly measures will contribute to a long-term vision for a sustainable campus.

These kinds of environmentally sensitive practices aren't only reserved for expensive private schools and huge colleges — they're feasible for normal schools as well. In fact, adding more sustainable components, and especially synthetic turf, to athletic fields can help schools'

athletic programs become more cost-effective, since they'll need fewer fields, can use their fields more often, can reduce maintenance costs, and can, potentially, rent their fields to other groups.

The costs of resources like energy, land, and water are only going to continue increasing. As schools and communities look for ways to keep their budgets viable, incorporating sustainable design and maintenance techniques into their playing fields will save money, help protect the environment, and provide more attractive and safe spaces for their residents and children to play. (Maguire, 2010)

Figure 37: basket ball court in Turkish Hope School

Many schools that have space restrictions just have a concrete ground which is used as both a basket ball court and a play field.

Figure 38: Open field at Herman Gmeiner

Figure 39: Fields in Willes Little Flower

Other schools have green fields and concrete paving both for the children to play and spend time in.

Figure 40: playing field in Willes Little flower school

Some schools have more than one field for the students often alternating between green and concrete covered for different age and activity proposes.

CHAPTER 5

5.1 Program Analysis

DESCRIPTION OF FUNCTION	Users /Unit	Area/Unit Sq ft	No of Units	Total area sqft	Rational
CLASSROOM:					Each classroom has 25 students and each class has 2 sections therefore there are a total of 32 classes and through study it has been found that 600sq ft is sufficient for each class.
Classrooms	**25**	**600**	**32**	**19200**	
Washroom [male]	**8**	**250**	**8**	**2000**	
Washroom [female]	**8**	**250**	**8**	**2000**	
				28000	
LABORATORIES:					
Chemistry					
Laboratory space	**30**	**1000**	**1**	**1000**	The laboratories have 30 students each and according to timesaver standard 2000 sq ft is enough for laboratories.
Prep space		**300**	**1**	**300**	
Lecture space		**300**	**1**	**300**	
Instructors room		**200**	**1**	**200**	
Storage		**200**	**1**	**200**	
				2000	
Biology					
Laboratory space	**30**	**1000**	**1**	**1000**	
Prep space		**300**	**1**	**300**	
Lecture space		**300**	**1**	**300**	
Instructors room		**200**	**1**	**200**	
Storage		**200**	**1**	**200**	
				2000	
Physics					
Laboratory space	**30**	**1000**	**1**	**1000**	
Prep space		**300**	**1**	**300**	
Lecture space		**300**	**1**	**300**	
Instructors room		**200**	**1**	**200**	
Storage		**200**	**1**	**200**	
				2000	

DESCRIPTION OF FUNCTION	Users/ Unit	Area/Unit Sq ft	No of Units	Total area sqft	
Computer lab	**30**	**884**	**2**	**1768**	Approx. 60 sq ft is allocated for per computer station and through that study the area of the lab is allocated
Instructors room		**200**	**2**	**400**	
Store room		**200**	**2**	**400**	
				2568	
TEACHERS AREA:					
					Teachers' area has been divided into workstation areas for individual teachers with a meeting room and locker area as well as washrooms. Each workstation need 90 sq ft. Therefore the area as been divided likewise.
Workstations	**40**	**1500**	**2**	**3600**	
Lockers	**25**	**50**	**6**	**30**	
Meeting room	**12**	**250**	**4**	**1000**	
Washroom [Male]	**6**	**100**	**2**	**600**	
Washroom [Female]	**6**	**100**	**2**	**600**	
				5830	
COMMON FACILITIES					
Library					According to the timesaver standards a school library for 5000 books needs 4000 sq ft of space and through study of other connected facilities the total area has been found
Prep room		**200**	**1**	**200**	
Library for 5000 books		**100**	**4000**	**4000**	
librarians		**1**	**250**	**250**	
Issuing section				**200**	
storage				**200**	
				4850	
Multi-purpose Hall					
Entrance lobby	**100**	**1000**	**1**	**1000**	The multipurpose area has been found according to timesavers standard and occupancy
Washroom [male]	**8**	**300**	**1**	**300**	
Washroom [female]	**8**	**300**	**1**	**300**	
Hall	**500**	**5000**	**1**	**5000**	
Green room	**20**	**400**	**2**	**800**	

DESCRIPTION OF FUNCTION	Users/ Unit	Area/Unit Sq ft	No of Units	Total area sqft	Rational
Washroom for performers [male]	3	30	1	30	
Washroom for performers [female]	3	30	1	30	
storage		300	1	300	
				7760	
Cafeteria					
Hall	300	3600	1	3600	The cafeteria area has been found according to timesavers standard and occupancy
Hand wash	8	200	2	400	
Executive Dining	40	350	1	350	
Wash room [male]	4	150	1	150	
Wash room [female]	4	150	1	150	
Kitchen manager office	1	150	1	150	
Food prep and cooking area		1000	1	1000	
Washing		200	1	200	
Employee locker	20	300	1	300	
Employee washroom	2	100	2	200	
				6500	
OTHER FACILITIES					
Common rooms		800	4	3200	
Music room	25	700	1	700	
Dance room	25	800	1	800	
Drama room	25	700	1	700	
Art and craft class	30	400	1	400	
News paper and publishing	25	600	1	600	
Washroom	8	200	2	400	

				6400	
DESCRIPTION OF FUNCTION	**Users/ Unit**	**Area/Unit Sq ft**	**No of Units**	**Total area sqft**	
SPORTS FACILITIES					
Basketball Court		84'x54'	1	4200	The basketball court area and gym area has been found according to timesavers standard and occupancy
Changing and shower [girls]	20	600	1	600	
Changing and shower [boys]	20	600	1	600	
Gym		4000	1	4000	
Games coordinator	1	150	1	150	
Mechanical room		400	1	400	
Storage		500	1	500	
				10450	
EXECUTIVE OFFICE FACILITIES					
Principals office	1	500	1	500	The administration office has been allocated according to rank and position. Each officer has been given a separate cubicle and office and there are two reception areas one for the front office and the other for the directors and principals
Attached toilet	1	40	1	40	
Secretary	1	150	1	150	
Vice principals office	1	400	1	400	
Attached toilet	1	40	1	40	
Secretary	1	150	1	150	
Academic directors office	1	400	1	400	
Board room	1	400	1	400	
Admin staff room	10	400	1	400	
Washroom [male]	4	250	1	250	
Washroom[female]	4	250	1	250	
Reception area		100	1	100	
Break room		100	1	100	
				3180	

DESCRIPTION OF FUNCTION	Users/ Unit	Area/Unit Sq ft	No of Units	Total area sqft	
ADMINISTRATION OFFICE					
Front office	**2**	**200**	**1**	**200**	
Visitors lounge	**2**	**200**	**1**	**200**	
Security	**2**	**200**	**2**	**400**	
Student service office	**3**	**200**	**3**	**600**	
Support staff office	**10**	**250**	**2**	**500**	
Maintenance office	**2**	**200**	**1**	**200**	
Storage	**1**	**200**	**1**	**200**	
Support staff washroom [male]	**4**	**200**	**1**	**200**	
Support staff washroom [female]	**4**	**200**	**1**	**200**	
				2700	
BUS OFFICE					
Officer	**2**	**100**	**1**	**100**	A small bus office has been allocated beside the bus parking for the supervision of drivers and a sitting area
Drivers area	**5**	**150**	**1**	**150**	
Washroom	**8**	**200**	**1**	**200**	
				450	
HOSPITAL WING					
Doctors room	**1**	**100**	**1**	**100**	
Check up room	**1**	**150**	**1**	**150**	
Recovery room	**4**	**200**	**1**	**200**	
Washroom[male]	**1**	**30**	**1**	**30**	
Washroom[female]	**1**	**30**	**1**	**30**	
				510	

DESCRIPTION OF FUNCTION	Users/ Unit	Area/Unit Sq ft	No of Units	Total area sqft	
PRAYER HALL					
Prayer space [male]	**10**	**100**	**1**	**100**	A prayer hall is important in the school for the students and teachers who attend their prayers.
Prayer space [female]	**10**	**100**	**1**	**100**	
Wazu space	**10**	**50**	**1**	**50**	
				250	
ANCILLARY FACILITIES					
Subs station		**400**	**1**	**400**	
Generator room		**400**	**1**	**400**	
Water reservoir		**1000**	**1**	**1000**	
Caretaker residence				**1000**	
Guardian waiting	**25**	**500**	**2**	**1000**	Guardians' waiting is very important in a school for the parents who wait for their children during their school hours
				3800	
PARKING					
30 CARS FOR TEACHER					
10 CARS FOR STAFF					
4 BUSSES					
				89248	
			30% circulation	**26774.4**	
			TOTAL	**116022.4**	

CHAPTER 6

DEVELOPMENT PHASES

6.1 Phase 1

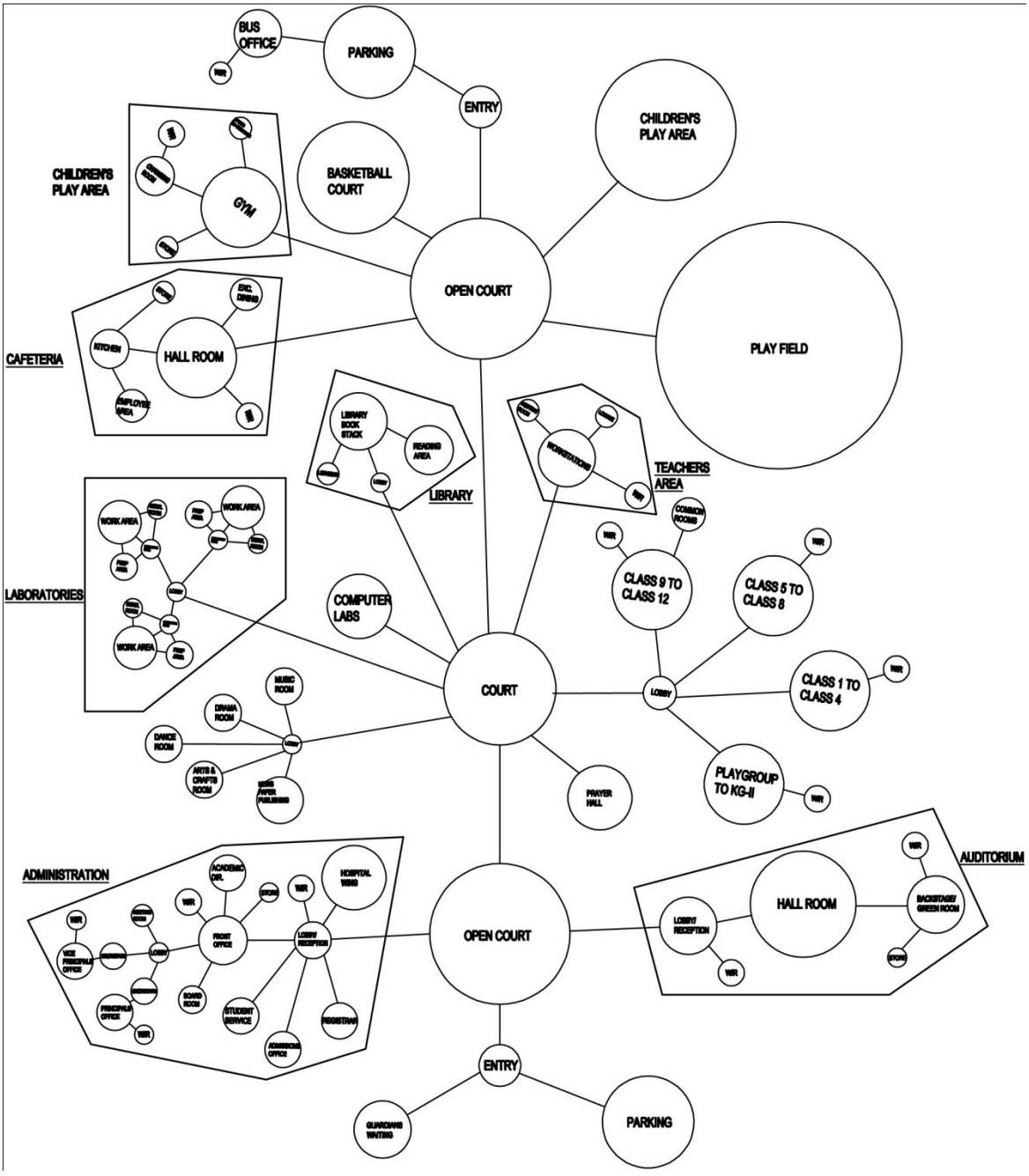

Figure 41: Bubble Diagram

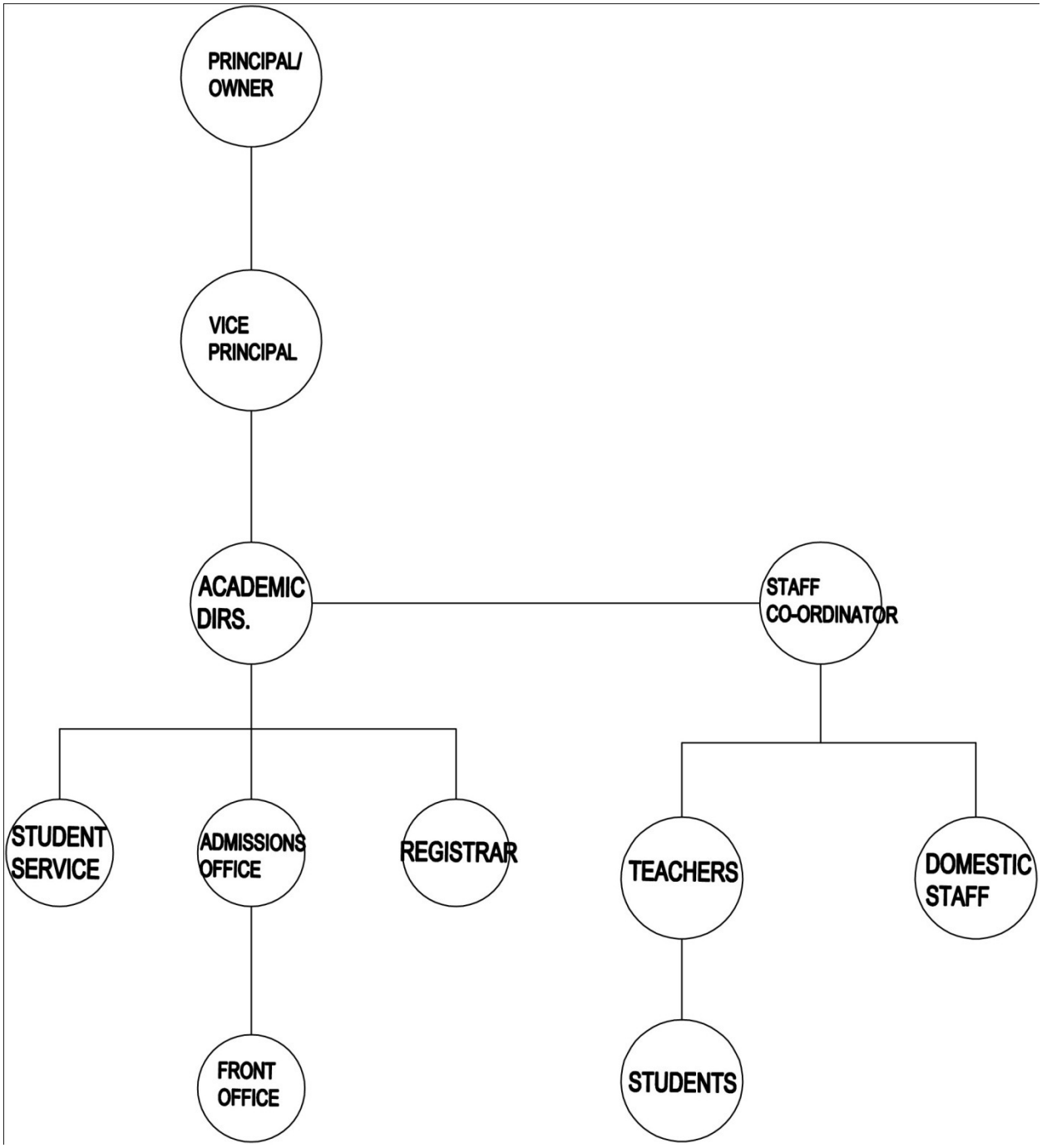

Figure 42: Personnel diagram

Phase one of the design process was doing the basic zoning and bubble diagram. The whole program was taken and a flow chart was created to know the basic zone and area of the functions as shown in above figures. A flow cart of the staff and executive body was also created to show the relationship of the different sets of people involved in the school.

6.2 Phase 2

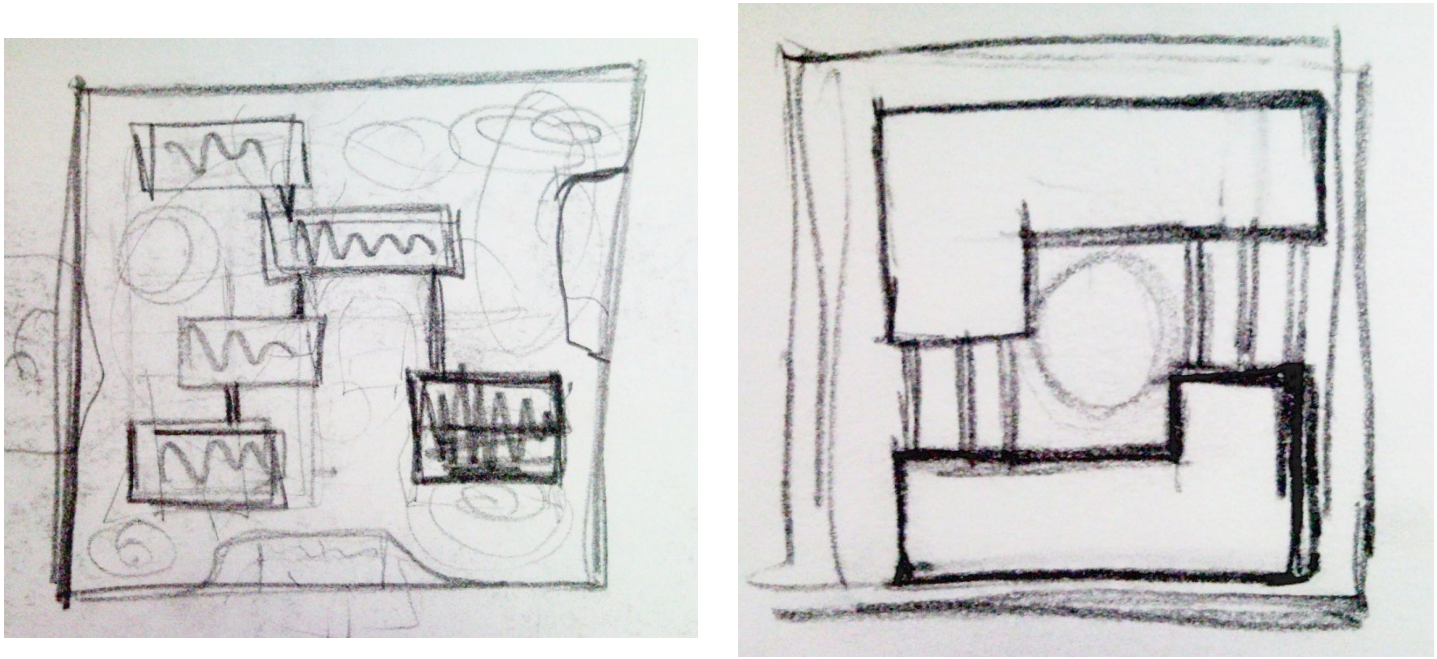

Figure 43: Conceptual Sketches

In Phase 2 a rough diagram of the form and spaces was to be fashioned. The concept was to generate two or more independent structures linked by courtyards to create introverted spaces and extroverted spaces for different use of the children.

In the above diagrams are a few initial sketches of the kind of pattern that was to be made considering the functions of the school as well as the spaces needed.

In the end it was decided to be two structures, one the academic building and the other the common functional building with a connection in between.

6.3 Phase 3

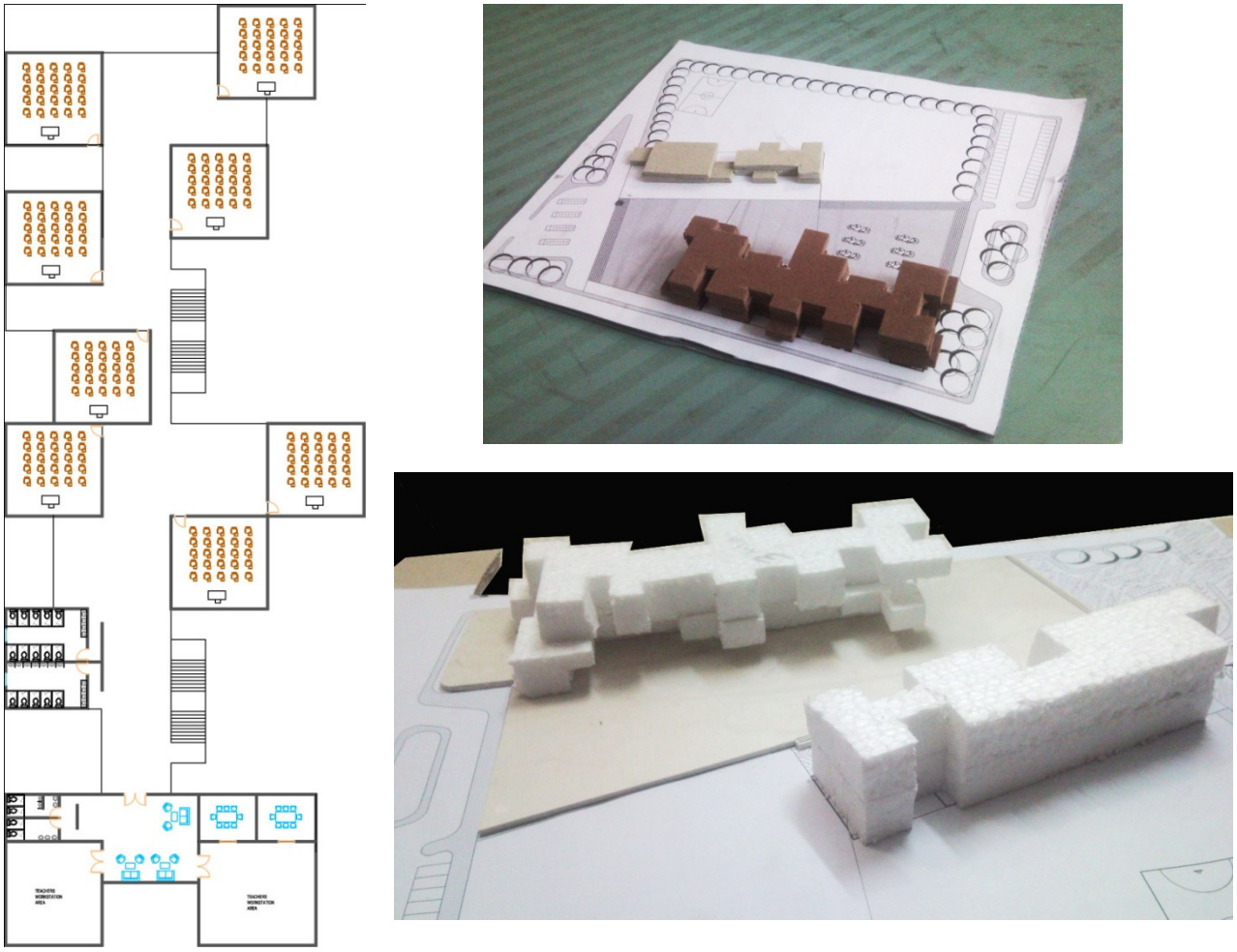

Figure 44: Floor plan (left), and Model pictures (right)

In this phase, a initial plan was created, with the classroom modules and other functional spaces. The above plan is a typical floor plan of the school building and accompanying it are models from said phase.

In this phase the design lacked a language. It lacked a certain module thus making the plan look haphazard and unfinished. The core/stairs were also not solved in the correct way for the students needs.

6.4 Phase 4

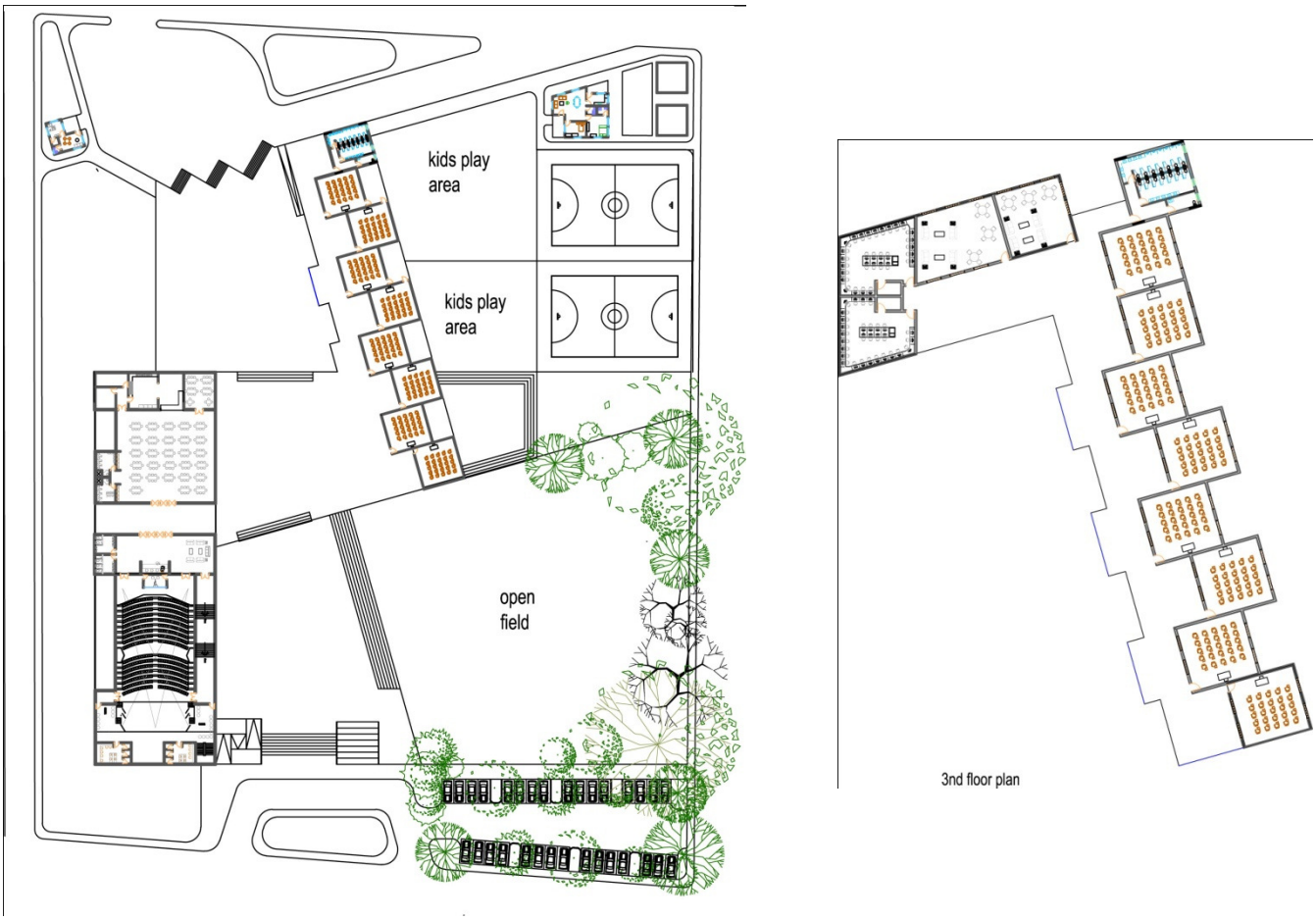

Figure 45: Master plan (left), and floor plan (right)

In this phase the zoning of the buildings were finalized. The placement of the fields and courts were correct but the parking and the core of the building were still not working. The functions of the second building were also not correct as the zoning of the different functions on the various floors were unsolved.

In the above plan shows master plan of the site and a typical floor plan of the school block. The master plan had several lacking mentioned above and the floor plan did not have a proper core or fire escapes needed for the safety of the children.

6.5 Phase 5

Final Design

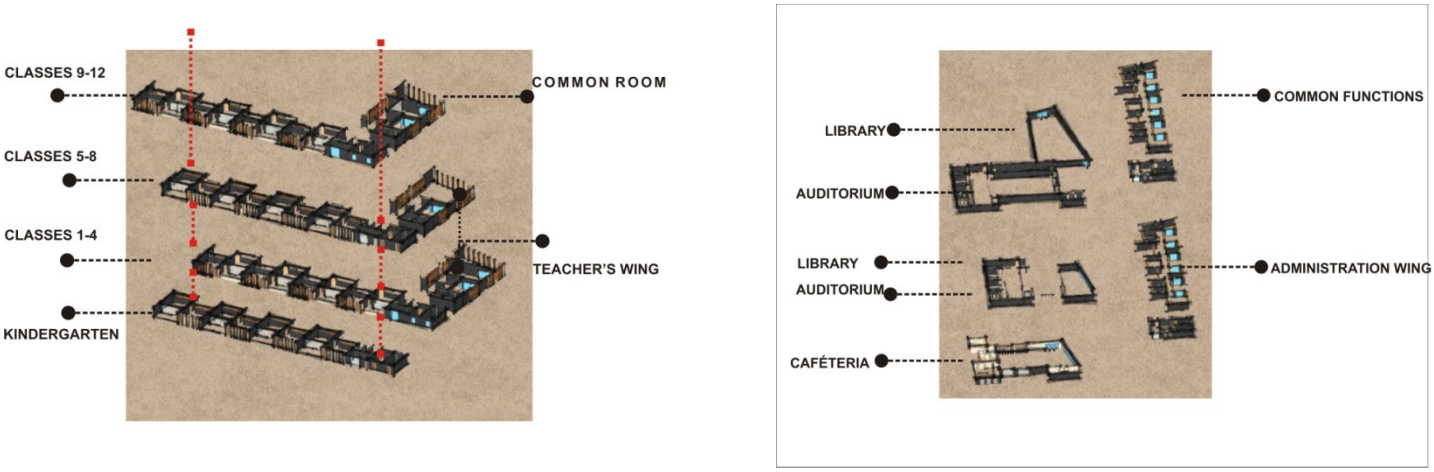

Figure 18

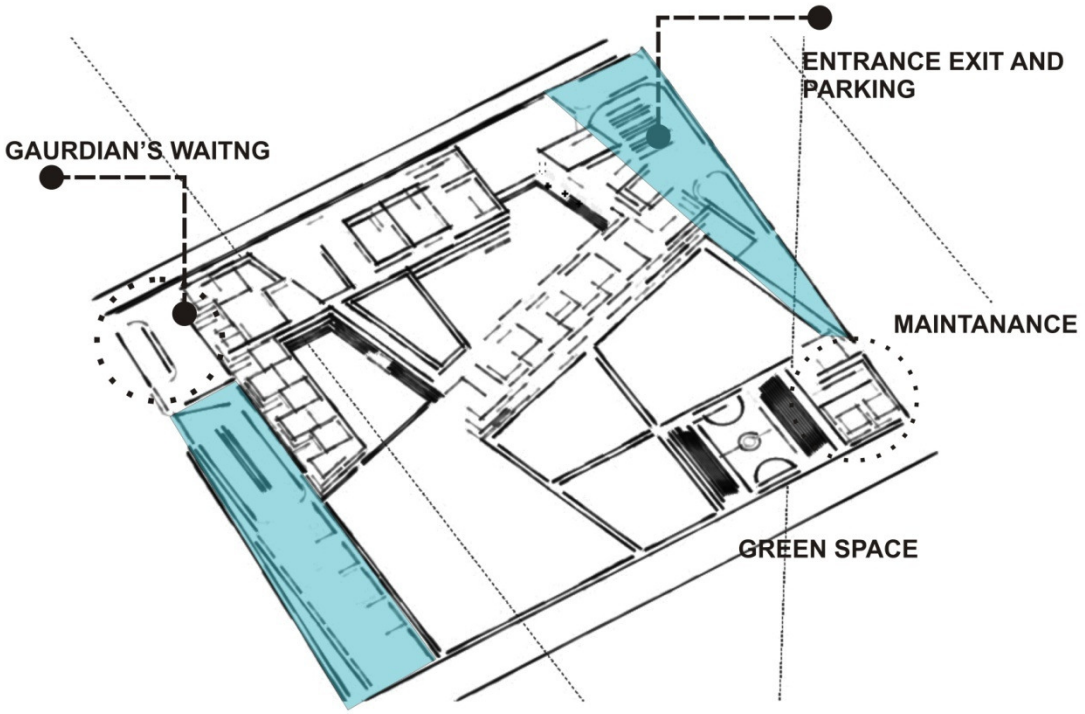

Figure 46: Colour coded zoning diagrams

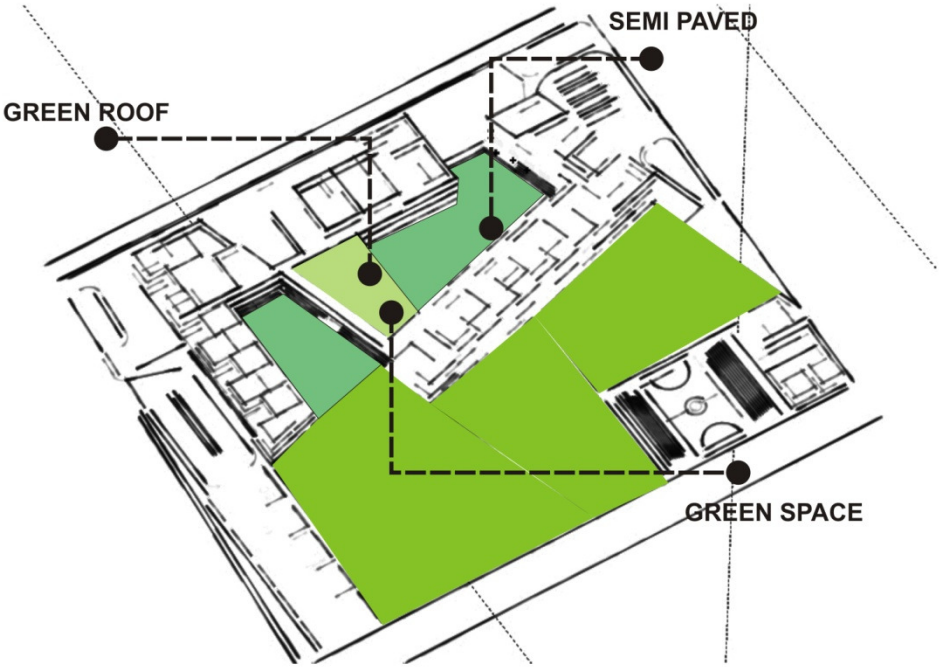

Figure 19

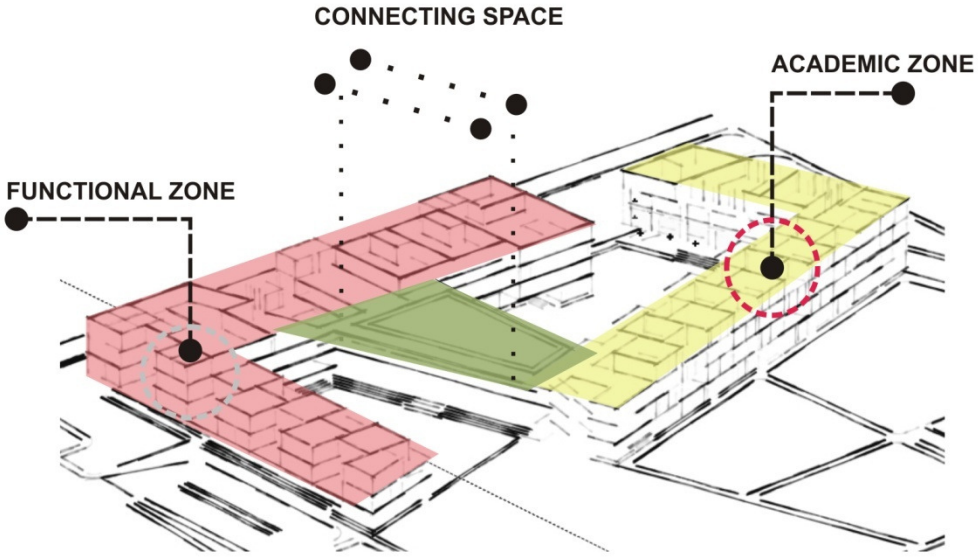

Figure 47: Colour coded zoning diagrams

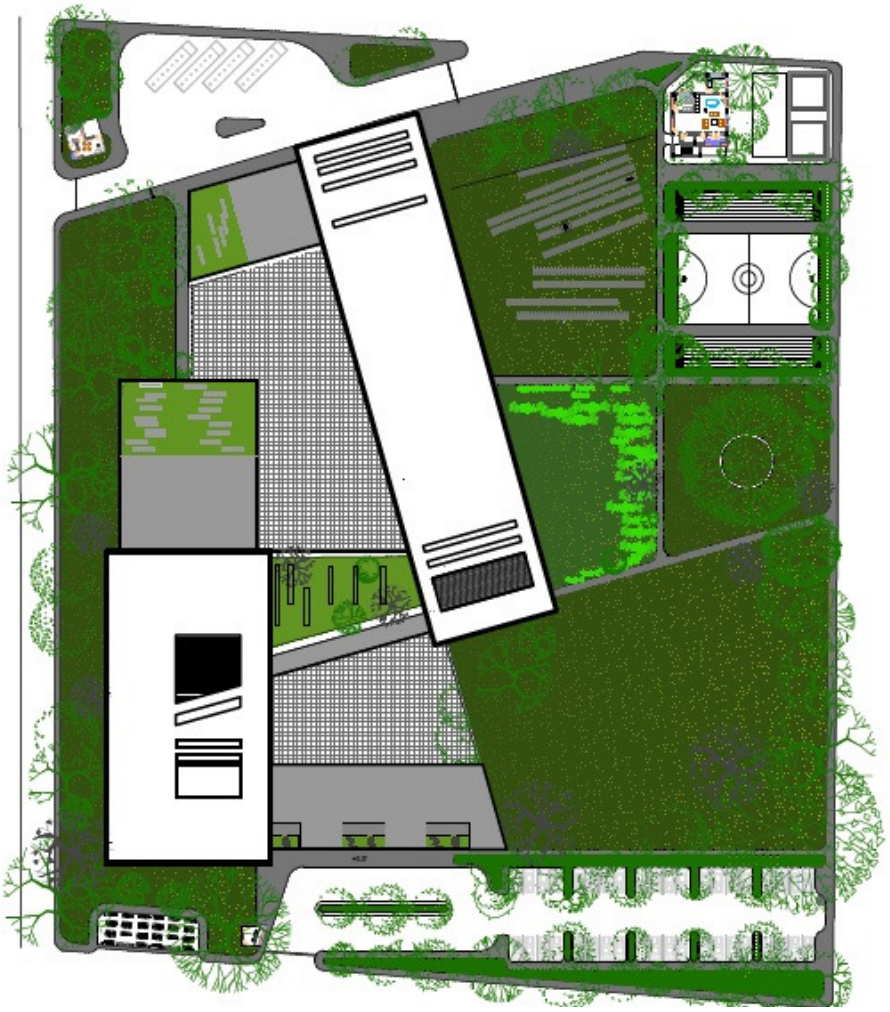

Figure 48: FINAL DESIGN ROOF PLAN

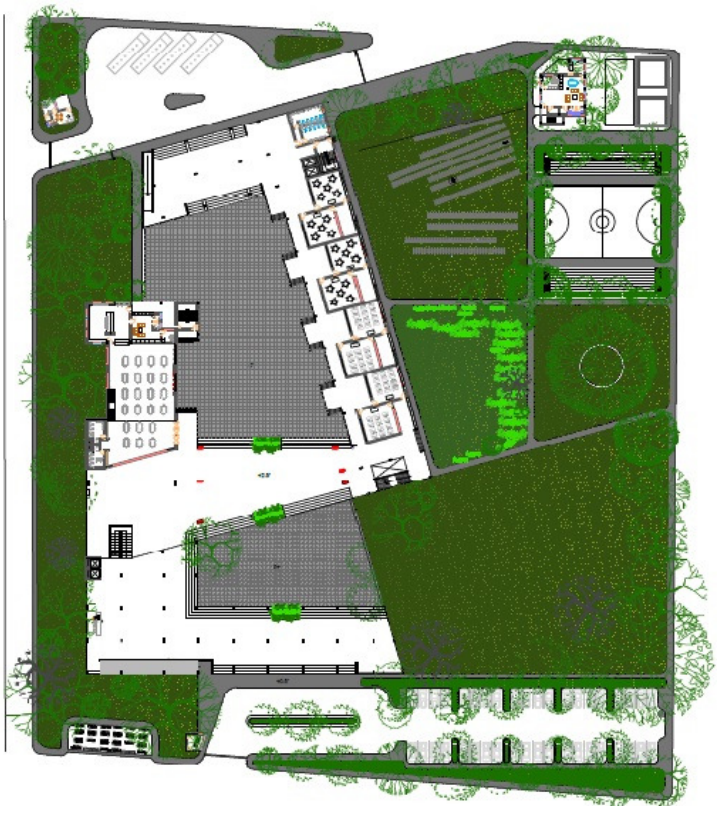

Figure 49: FINAL DESIGN MASTER PLAN

Figure 50: FINAL DESIGN 3RD FLOOR PLAN

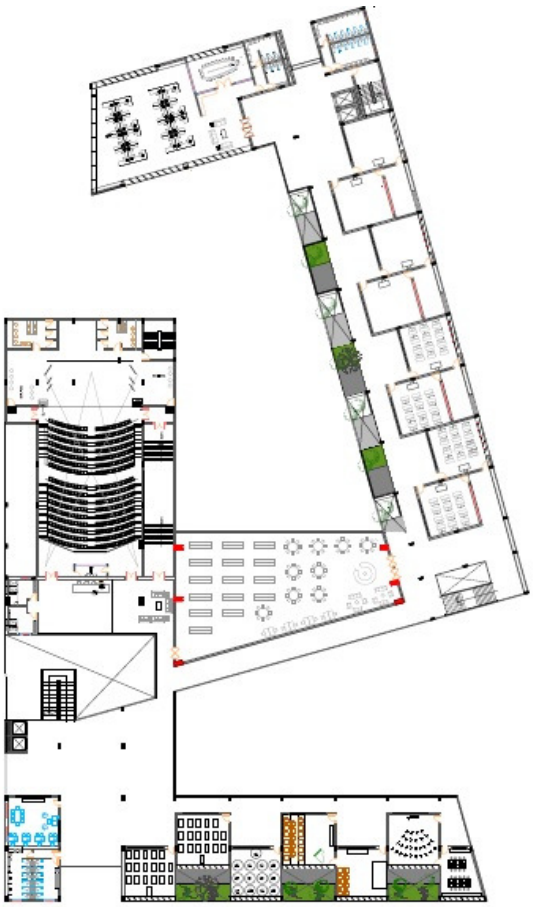

Figure 51: FINAL DESIGN 2ND FLOOR PLAN

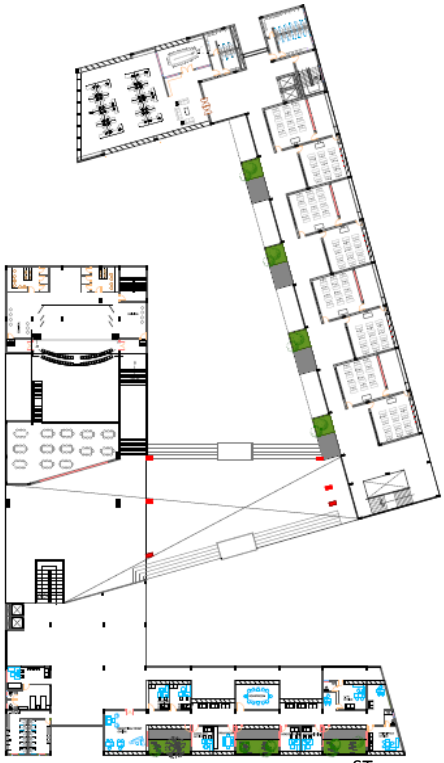

Figure 52: FINAL DESIGN 1ST FLOOR PLAN

Figure 53: FINAL DESIGN 3RD SECTION

Figure 54: FINAL DESIGN 3RD ELEVATION

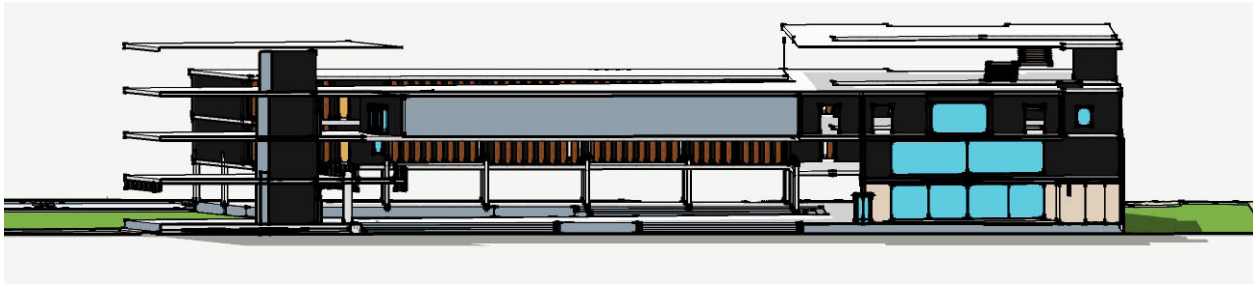

Figure 55: FINAL DESIGN 3RD SECTIONAL PERSPECTIVE

Figure 56: FINAL DESIGN 3RD ELEVATIONAL PERSPECTIVE

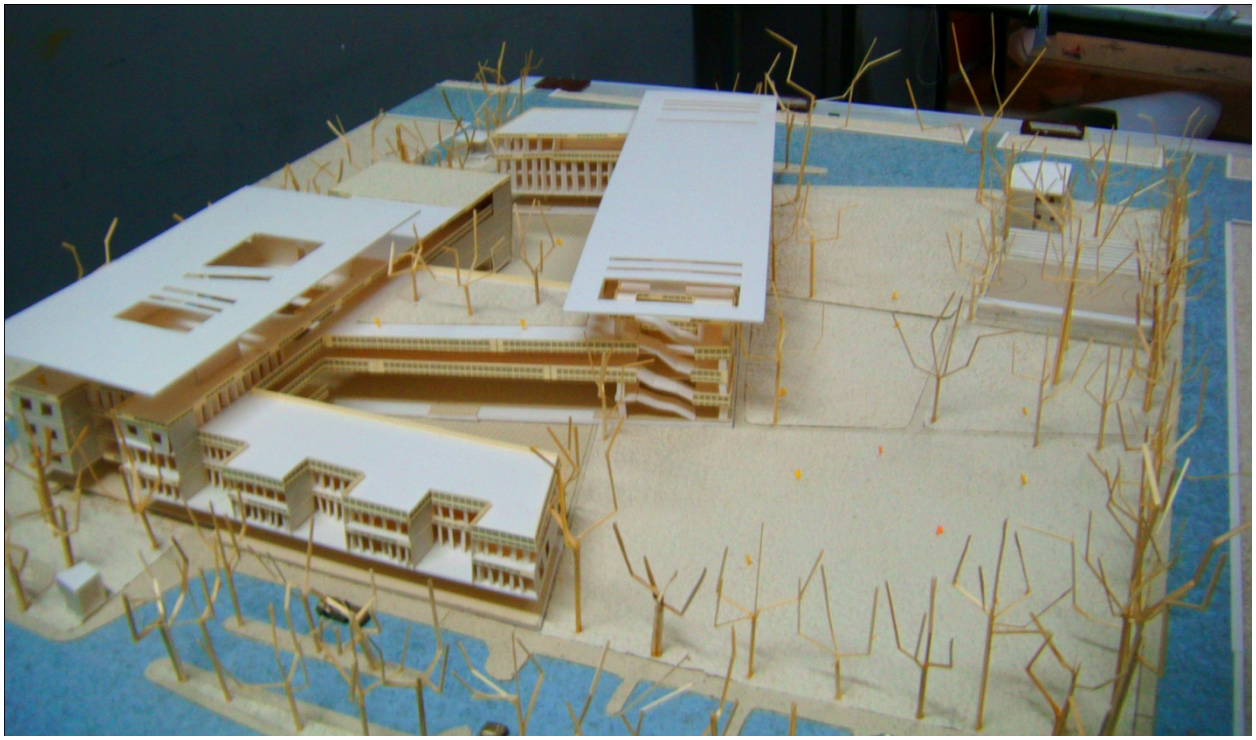

Figure 57: FINAL MODEL PICTURE

Figure 58: FINAL MODEL PICTURE

Figure 59: FINAL MODEL PICTURE

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