

INSTITUTE FOR THE DIFFERENTLY ABLED CHILDREN (PROYASH)

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ABSTRACT

In Bangladesh about 1.8 core people (United Nations ESCAP Survey Feb 2011) with different sorts of disabilities live around us while we do nothing and keep silent as if to deny their existence in the society. Anyone who feels compassionate about them, perhaps, may send them to a distant rehabilitation center, far from their family. An unknown environment makes them feel deserted from society and family further segregating them from the society.

A differently able child who may be in the wheel chair for the rest of his life can be refurbished in an institute under a medical guidance which is not only by medicine or by surgery but also by some special treatment like physiotherapy and occupational therapy which may not be available in the normal hospital or any other institute. These children also need special school where they can get treatment, care and motivation which a regular school can't provide them.

So, there should be no doubt about the necessity of this project as it benefits that part of the society which has been neglected for so long.

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In writing the acknowledgement for this paper, I would start off by thanking the Almighty for having let me complete my thesis and the seminar paper.

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CHAPTER: 01: INTRODUCTION

1.1. Project Specifications

1.2. Rationality of the Project

1.3. Reasons for choosing the Program

1.3.1. Key Functions

CHAPTER: 01: INTRODUCTION

'An issue that is hidden inside the closet' is perhaps the best way one could describe the fate of people suffering from autism and disability in Bangladesh. With no means or hope of leading a decent life and with a public system that lacks the basic facilities; people suffering from autism in Bangladesh are compelled to lead a life that is mostly concentrated within the four walls of their rooms.

Statistics show that, In Bangladesh 10% of the total population are physically challenged. 1 in every 100 individuals in the world suffers from an autism spectrum disorder. In our country about 1.8 corer children (United Nations ESCAP Survey Feb2010) with different sort of disability live around us and we do nothing just keep silent as if they have no existence in the society. Day by day the number of physically and mentally disable children's are increasing. These types of people are always neglected in our society. Anyone who feels concerned about them, perhaps, may have sent them in a distant therapy center far from their family or any institute which is not well organized. We have a good number of disabled people in our society. If they are properly trained, they can substantially contribute instead of becoming burden to others. In developed and developing countries, government takes the responsibility for training and rehabilitating these peoples. In Bangladesh, our government has also taken measures of this kind but those are not enough. To multiply the effort, like many other countries, there are some organizations established and run by the parents and guardians of disabled people.

Autism is a kind of disability usually identified in children at the age between 18 months to 3 years. The affected children suffer from mainly 3 difficulties. These are: Verbal or non-verbal communication, Impaired social inter-action and limited activities/interest with rigidity in thinking and repetitive behavior. These children may improve and live a close to normal life if appropriate intervention and proper training is imparted in time. Though we have many organizations in Bangladesh working with various fields of disability but there is hardly any quality institute developed exclusively for the autistic children.

The problem further aggravated with the unavailability of any training Centre to train trainers or teachers to work with autistic children. Similarly, there is no facility available for the training or motivation of parents or caregivers of autistic children. We neither have any Centre for caring a child for the whole day nor do we have any residential training facility. The dream of rehabilitation is not yet even though off. These types of people are always neglected in our society.

Recently, Bangladesh Army step forwards for this specially disable children. They built a school (PROYASH) for these differently able children. But the school is not well designed and managed. So In my proposal I want to re-design this institute with proper facilities and accommodations.

So, there should be no doubt about the necessity of this project, as it is benefits the part of the society that has been neglected so long.

1.1. Project Specifications

Project Title: Institute for the differently abled children (PROYASH)

Site: Dhaka Cantonment

Area: 4.64 acre or 2,02,120 sqft

Client: Bangladesh Army, Ministry of Social welfare

1.2. Rationality of the Project

A differently able child who may be in the wheel chair for the rest of his life can be refurbished in an institute under a medical guidance which is not only by medicine or by surgery but also by some special treatment like physiotherapy and occupational therapy which may not be available in the normal hospital or any other institute. These children also need special school where they can get treatment, care and motivation which a regular school can't provide them.

1.3. Reasons for choosing the Program

The program for the project is based on the functional requirements of complete physical and mental growth facilities and was established from the proposal of the authority. The program includes all facilities required for a complete disabled institute.

1.3.1 Key Functions:

- Foundation and Administration
- Medical care & treatment
- Special education facilities and classrooms (for 200 max)
- Meditation and Sensory integration
- Food zone
- Classrooms for extracurricular activities.

Therapeutic Unit

- Physiotherapy
- Occupational Therapy
- Hydrotherapy
- Speech and hearing therapy
- Mental health therapy unit

Entertainment Zone

- Multipurpose hall
- Indoor games
- Play ground
- Sensory spaces

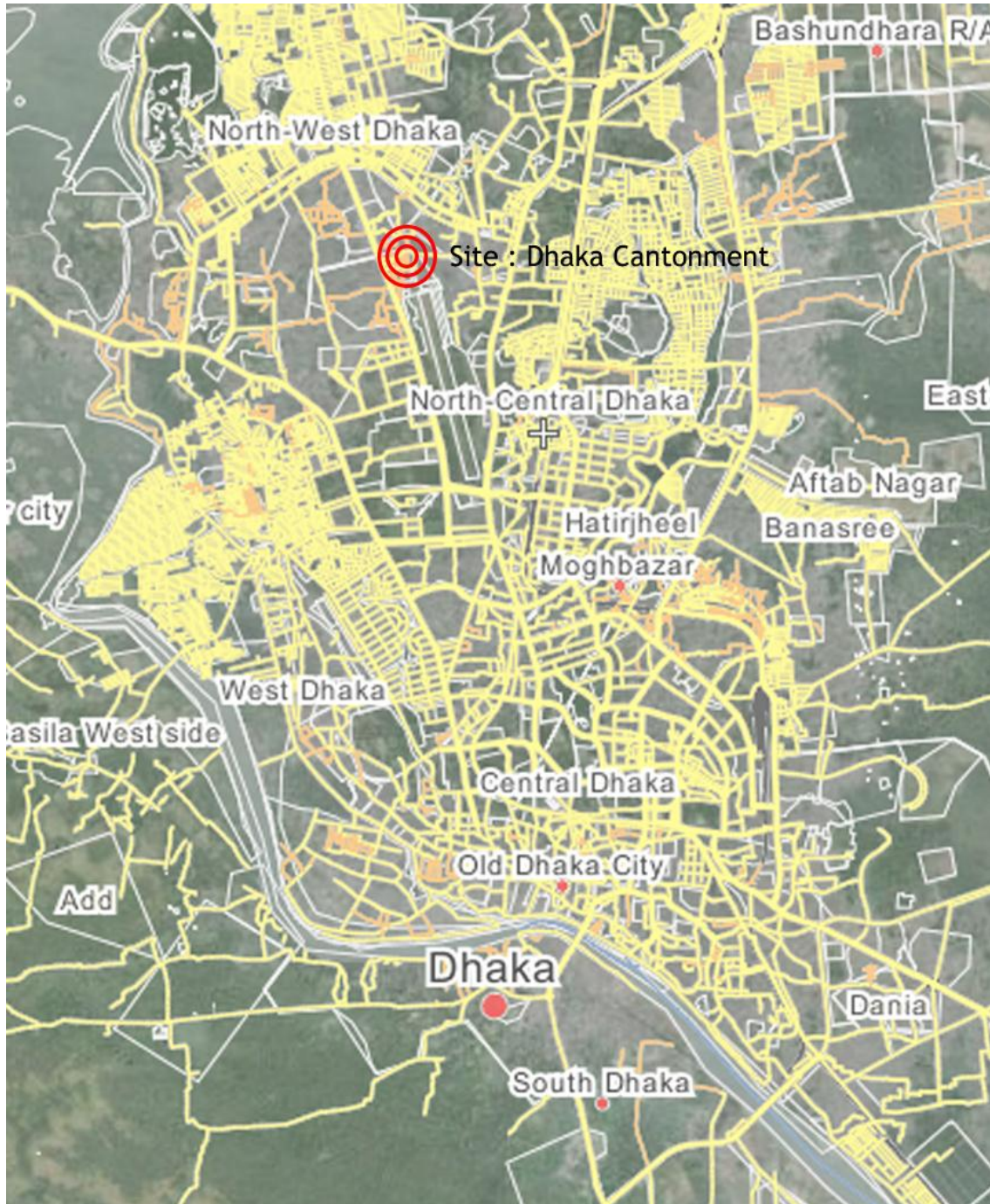
Accommodations (for 50 students)

- Lobby and reception
- Rooms + Toilets (2/3 person for each room)
- Supervisors room with toilets (for each floor)
- Dining hall + study hall

CHAPTER: 02: Site Appraisal

- 2.1. Site Location and zoning**
- 2.2. Site Photography**
- 2.3 Site Surroundings**
- 2.4. Historical or any Social Background**
- 2.5. SWOT Analysis**

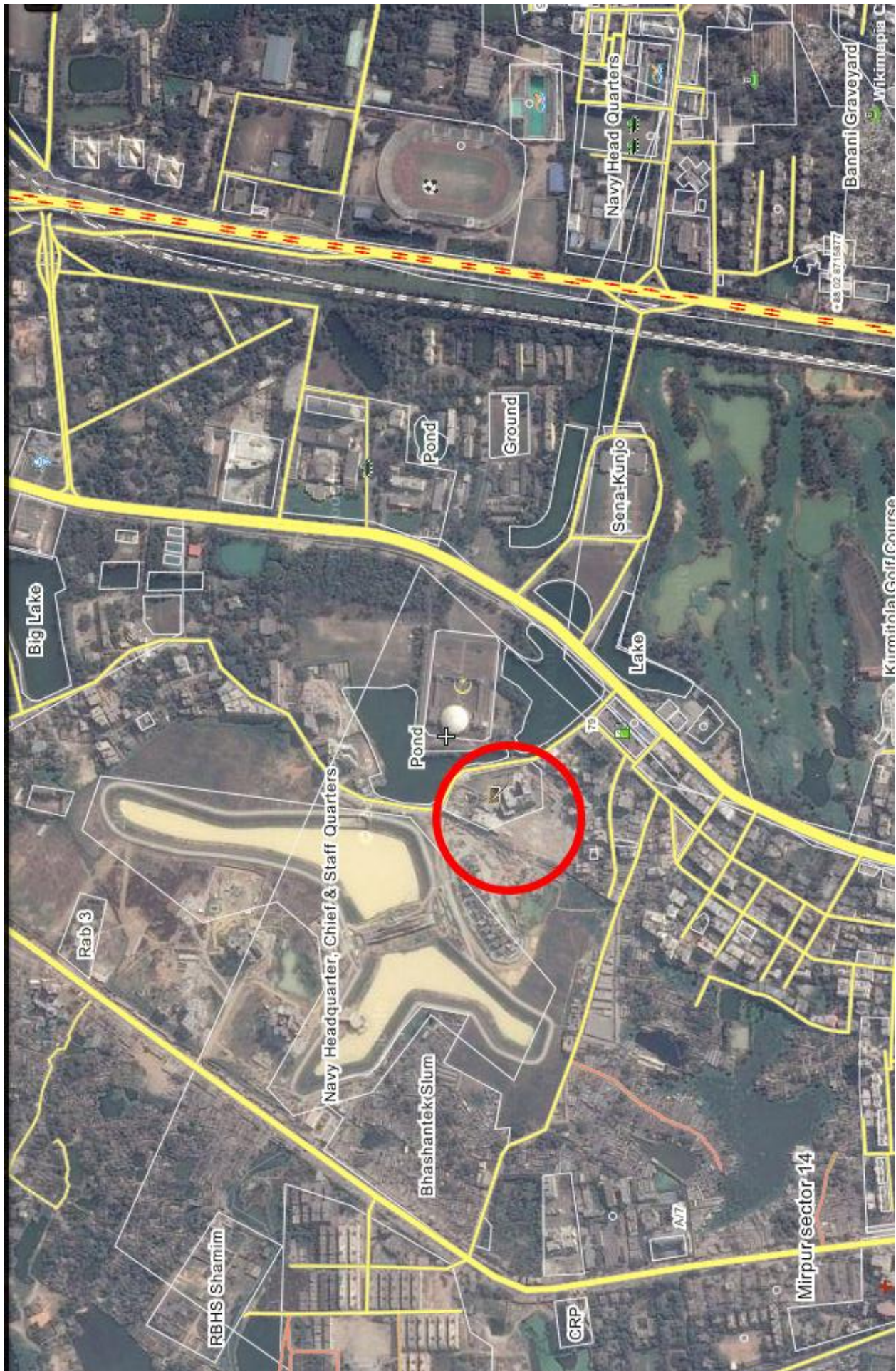
2.1. Site Location and zoning:



Project Title: Institute for the differently able children (PROYASH)

Site: Dhaka Cantonment

Area: 4.64 acre or 2,02120 sqft



Navy Headquarter, Chief & Staff Quarters

Army Headquarters (शक्ति भवन)

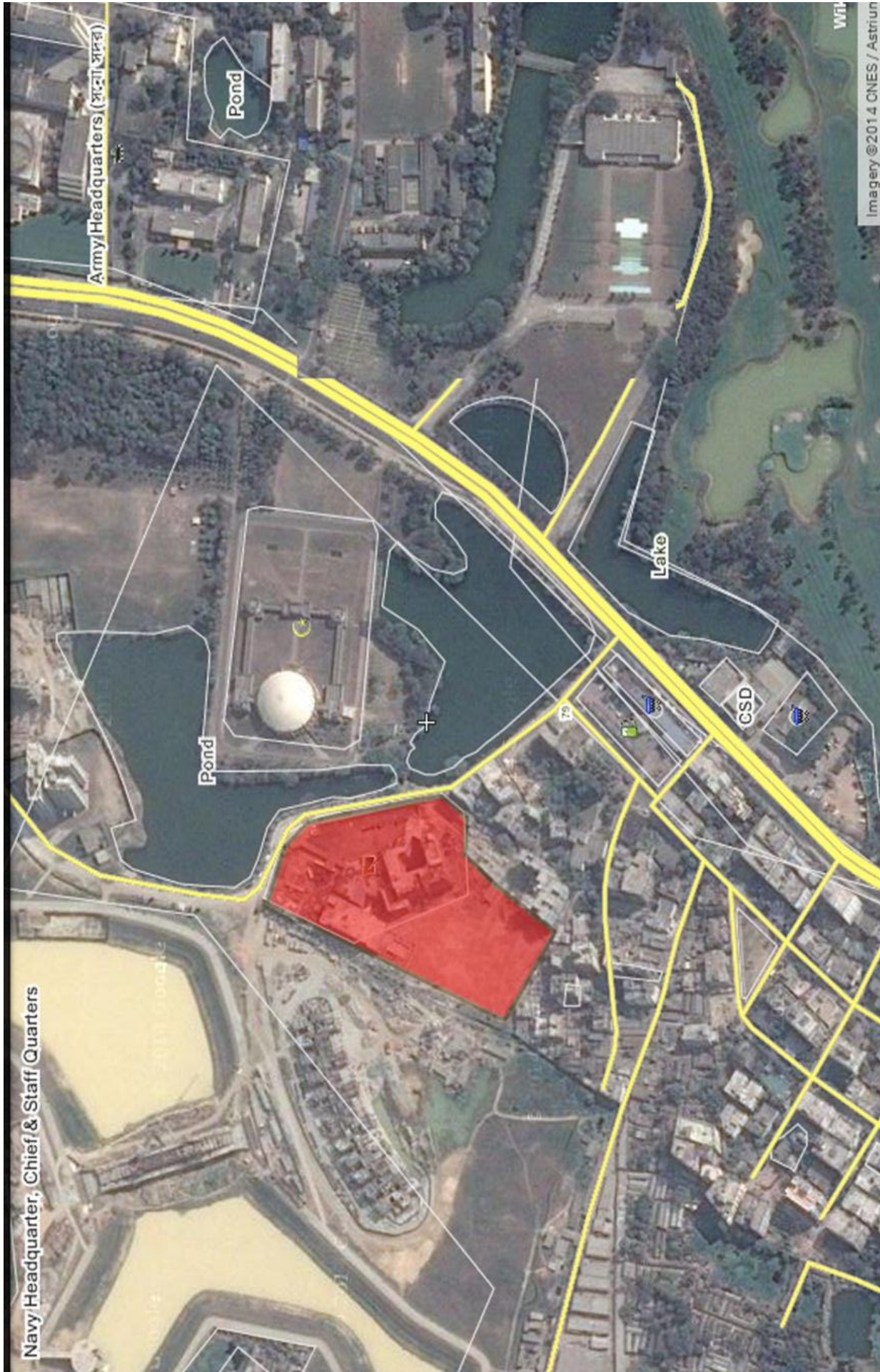
Pond

Pond

Lake

CSD

Imagery ©2014 CNES / Astrium



Site mapping with slid & void, roads & water body:



2.3 Site Photography:



2.3. Site Surroundings:

Site is Surrounded with two lakes, some residential and newly developed urban with housing area. Adjacent road is 40' wide. There are lots of trees in the site and there is also an open field for future extension of this project. No Traffic problem. The site is calm and quiet.

2.4. Historical or any Social Background

Historically, the site was a low land. In the previous time period after dumping the recycle in this site, the low land was covered. And after that Bangladesh Army came out with some project in this area. In the nearby sites there is an urban development for Naval headquarter with their residential facilities. The surrounding site is now in a construction phase. That's the reason the road is not in a very well condition. Otherwise the site is calm and quite. After the urban housing development the site will be one of the very important areas in Dhaka city.

2.5. SWOT Analysis:

Strength:

- Lots of trees in the site.
- The front side of the site is open with main road and lakes.
- Enough land and space for an institutional project.
- Highly secured and maintenance under the military of Bangladesh army.

Weakness:

- Road condition is not well because of the nearby construction.
- No public transportation facilities.
- The site is in a restricted area.

Opportunity:

- Scope for landscaping
- Scope for creating a soothing space for disabled children.
- Tree act as sound barrier.
- After the urban development there will be a good communication system with transport facilities.

Threat:

- Noise will be created after the urban and housing development.
- There is a high possibility of traffic problem in the near future.

CHAPTER: 03: Literature Review

- 3.1. Theoretical background of Autism and Disabilities**
- 3.2. Key guidance and ergonomics for the disable children**
- 3.3. Designing consideration for School Spaces**

3.1. Theoretical Background of Autism and disabilities:

Definition of Differently able body or disability

Disability is the consequence of an impairment that may be physical, cognitive, mental, sensory, emotional, developmental, or some combination of these. A disability may be present from birth, or occur during a person's lifetime. An individual may also qualify as disabled if they have had an impairment in the past or is seen as disabled based on a personal or group standard or norm. Such impairments may include physical, sensory, and cognitive or developmental disabilities. Mental disorders and various types of chronic disease may also qualify as disabilities.

Autism and some common signs of autism:

Autism (sometimes called “classical autism”) is the most common condition in a group of developmental disorders known as the autism spectrum disorders (ASDs). Autism is characterized by impaired social interaction, problems with verbal and nonverbal communication, and unusual, repetitive, or severely limited activities and interests. Other ASDs include Asperger syndrome, Rett syndrome, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (usually referred to as PDD-NOS). Experts estimate that three to six children out of every 1,000 will have autism. Males are four times more likely to have autism than females.

There are three distinctive behaviors that characterize autism. Autistic children have difficulties with social interaction, problems with verbal and nonverbal communication, and repetitive behaviors or narrow, obsessive interests. These behaviors can range in impact from mild to disabling.

The hallmark feature of autism is impaired social interaction. Parents are usually the first to notice symptoms of autism in their child. As early as infancy, a baby with autism may be unresponsive to people or focus intently on one item to the exclusion of others for long periods of time. A child with autism may appear to develop normally and then withdraw and become indifferent to social engagement.

Children with autism may fail to respond to their name and often avoid eye contact with other people. They have difficulty interpreting what others are thinking or feeling because they can't understand social cues, such as tone of voice or facial expressions, and don't watch other people's faces for clues about appropriate behavior. They lack empathy.

Many children with autism engage in repetitive movements such as rocking and twirling, or in self-abusive behavior such as biting or head-banging. They also tend to start speaking later than other children and may refer to themselves by name instead of “I” or “me.” Children with autism don’t know how to play interactively with other children. Some speak in a sing-song voice about a narrow range of favorite topics, with little regard for the interests of the person to whom they are speaking.

Many children with autism have a reduced sensitivity to pain, but are abnormally sensitive to sound, touch, or other sensory stimulation. These unusual reactions may contribute to behavioral symptoms such as a resistance to being cuddled or hugged. Children with autism appear to have a higher than normal risk for certain co-existing conditions, including fragile X syndrome (which causes mental retardation), tuberous sclerosis (in which tumors grow on the brain), epileptic seizures, Tourette syndrome, learning disabilities, and attention deficit disorder. For reasons that are still unclear, about 20 to 30 percent of children with autism develop epilepsy by the time they reach adulthood. While people with schizophrenia may show some autistic-like behavior, their symptoms usually do not appear until the late teens or early adulthood. Most people with schizophrenia also have hallucinations and delusions, which are not found in autism.

Autism Diagnosed:

Autism varies widely in its severity and symptoms and may go unrecognized, especially in mildly affected children or when it is masked by more debilitating handicaps. Doctors rely on a core group of behaviors to alert them to the possibility of a diagnosis of autism. These behaviors are:

- * impaired ability to make friends with peers
- * impaired ability to initiate or sustain a conversation with others
- * Absence or impairment of imaginative and social play
- * Stereotyped, repetitive, or unusual use of language
- * Restricted patterns of interest those are abnormal in intensity or focus
- * Preoccupation with certain objects or subjects
- * Inflexible adherence to specific routines or rituals

Doctors will often use a questionnaire or other screening instrument to gather information about a child’s development and behavior. Some screening instruments rely solely on parent observations; others rely on a combination of parent and doctor

observations. If screening instruments indicate the possibility of autism, doctors will ask for a more comprehensive evaluation.

Autism is a complex disorder. A comprehensive evaluation requires a multidisciplinary team including a psychologist, neurologist, psychiatrist, speech therapist, and other professionals who diagnose children with ASDs. The team members will conduct a thorough neurological assessment and in-depth cognitive and language testing.

Because hearing problems can cause behaviors that could be mistaken for autism, children with delayed speech development should also have their hearing tested. After a thorough evaluation, the team usually meets with parents to explain the results of the evaluation and present the diagnosis.

Children with some symptoms of autism, but not enough to be diagnosed with classical autism are often diagnosed with PDD-NOS. Children with autistic behaviors but well-developed language skills are often diagnosed with Asperger syndrome. Children who develop normally and then suddenly deteriorate between the ages of 3 to 10 years and show marked autistic behaviors may be diagnosed with childhood disintegrative disorder. Girls with autistic symptoms may be suffering from Rett syndrome, a sex-linked genetic disorder characterized by social withdrawal, regressed language skills, and hand wringing.

Causes of Autism:

Scientists aren't certain what causes autism, but it's likely that both genetics and environment play a role. Researchers have identified a number of genes associated with the disorder. Studies of people with autism have found irregularities in several regions of the brain. Other studies suggest that people with autism have abnormal levels of serotonin or other neurotransmitters in the brain. These abnormalities suggest that autism could result from the disruption of normal brain development early in fetal development caused by defects in genes that control brain growth and that regulate how neurons communicate with each other. While these findings are intriguing, they are preliminary and require further study. The theory that parental practices are responsible for autism has now been disproved.

Recent studies strongly suggest that some people have a genetic predisposition to autism. In families with one autistic child, the risk of having a second child with the disorder is approximately 5 percent, or one in 20. This is greater than the risk for the general population. Researchers are looking for clues about which genes contribute to

this increased susceptibility. In some cases, parents and other relatives of an autistic child show mild impairments in social and communicative skills or engage in repetitive behaviors. Evidence also suggests that some emotional disorders, such as manic depression, occur more frequently than average in the families of people with autism.

Symptoms of Autism:

For many children, autism symptoms improve with treatment and with age. Some children with autism grow up to lead normal or near-normal lives. Children whose language skills regress early in life, usually before the age of 3, appear to be at risk of developing epilepsy or seizure-like brain activity. During adolescence, some children with autism may become depressed or experience behavioral problems. Parents of these children should be ready to adjust treatment for their child as needed.

Autistic people should be treated:

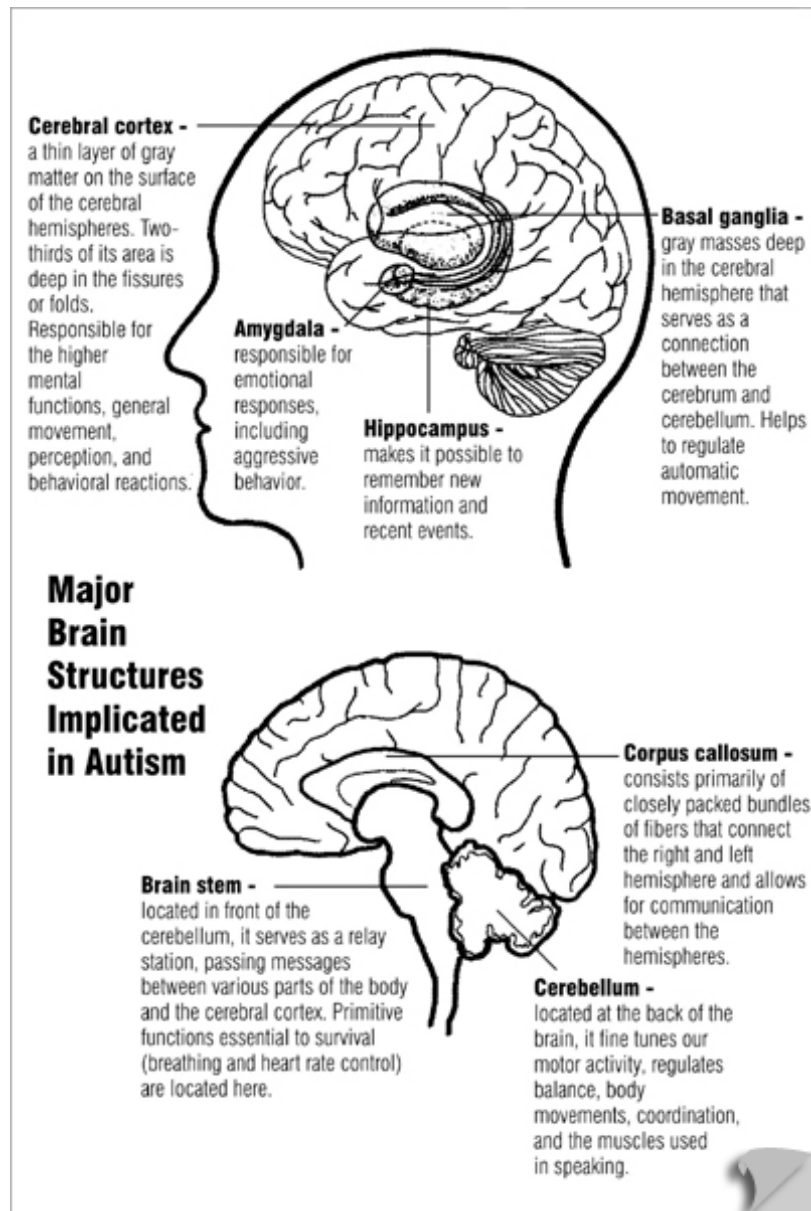
There is no cure for autism. Therapies and behavioral interventions are designed to remedy specific symptoms and can bring about substantial improvement. The ideal treatment plan coordinates therapies and interventions that target the core symptoms of autism: impaired social interaction, problems with verbal and nonverbal communication, and obsessive or repetitive routines and interests. Most professionals agree that the earlier the intervention, the better.

* **Educational/behavioral interventions:** Therapists use highly structured and intensive skill-oriented training sessions to help children develop social and language skills. Family counseling for the parents and siblings of children with autism often helps families cope with the particular challenges of living with an autistic child.

* **Medications:** Doctors often prescribe an antidepressant medication to handle symptoms of anxiety, depression, or obsessive-compulsive disorder. Anti-psychotic medications are used to treat severe behavioral problems. Seizures can be treated with one or more of the anticonvulsant drugs. Stimulant drugs, such as those used for children with attention deficit disorder (ADD), are sometimes used effectively to help decrease impulsivity and hyperactivity.

* **Other therapies:** There are a number of controversial therapies or interventions available for autistic children, but few, if any, are supported by scientific studies. Parents should use caution before adopting any of these treatments.

Signs of Autism:



- Lack of or delay in developing spoken language.
- Stereotyped or repetitive use of language.
- Little or no eye contact.
- Lack of interest in peer relationships.
- Lack of spontaneous or make-believe play.
- Repetitive motor mannerisms e.g., hand-flapping, finger-flicking, twirling objects.
- Persistent preoccupation with parts of objects.
- Inflexible adherence to specific, nonfunctional routines or rituals.

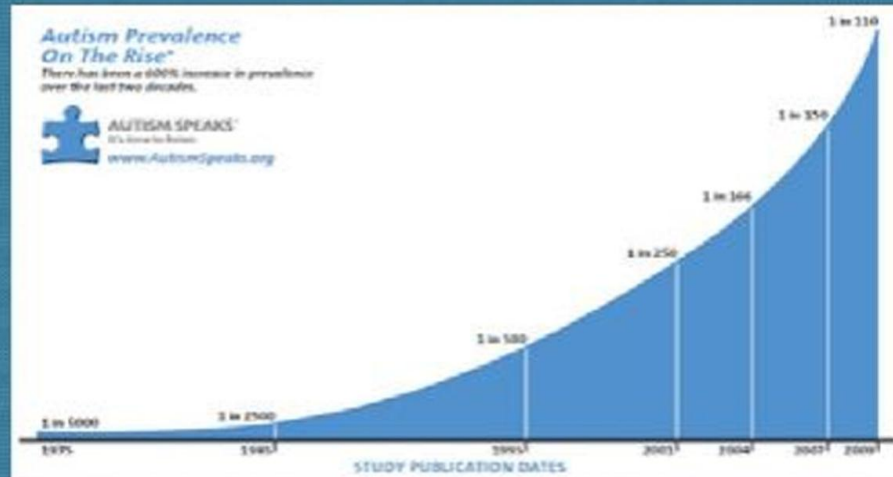
Analysis by Autistic spectrum disorder (ASD):

Autism Spectrum Disorder (ASD) is a group of complex neurobiological, developmental disorders that are typically diagnosed in childhood with symptoms that often last throughout a person's lifetime. Characterized by varying degrees of symptom severity and impact ranging from mild to quite severe, the hallmark characteristics of ASD include deficits in social behavior and communication as well as restricted and/or repetitive behaviors. ASD not only impacts individuals but typically affects the health and wellbeing of the entire family.

The most recent findings from the US and UK indicate that approximately 1% of children have an ASD and this figure has been commonly cited as the estimated prevalence of autism globally. However in 2011, investigators found that a remarkable 2.64% of a general population sample of school-aged children in South Korea had an ASD. This study suggests that ASD may be under-diagnosed with individuals going unrecognized and without interventions in many parts of the world. Available evidence suggests that ASD's transcend social, cultural and geographic boundaries. However, ASD is currently not well documented in many countries around the world. There is no reliable estimate of autism prevalence in Bangladesh to date.

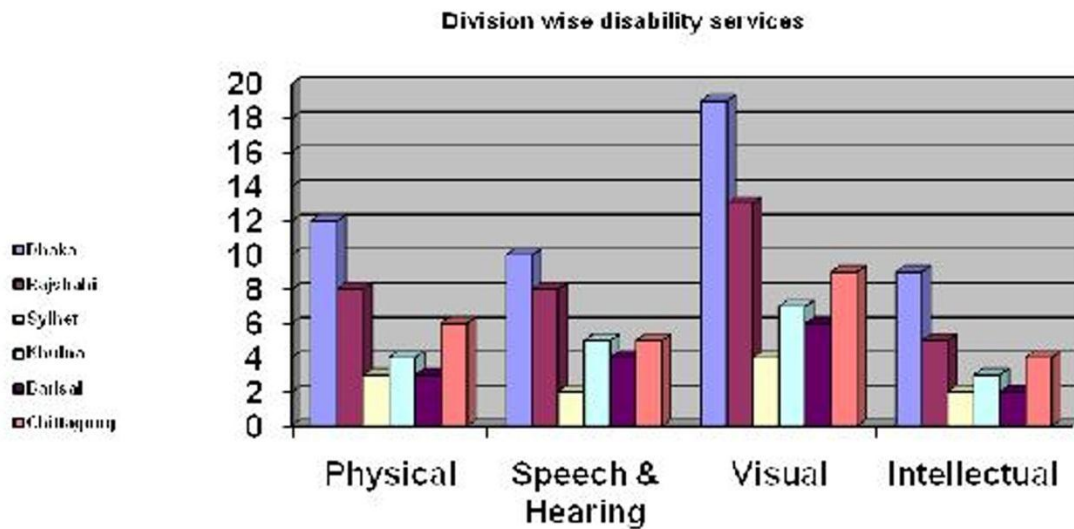
Changing Prevalence of ASDs Over Time

- 1 in 2500 (1980s and before)
- 1 in 166 (late 1990s)
- 1 in 150 (early 2000s)
- 1 in 110 (mid 2000s)



http://www.autismspeaks.org/science/science_news/top_ten_autism_research_events_2009_prevalence.php

The current situation of disability in general in Bangladesh is clearly reflected in the chart below, sourced from (CDD).



3.2. Key guidance and ergonomics for the disable children:

Access and circulation:

Convenient travel routes and distances make life easier for people with disabilities, especially for those with mobility aids, sensory and learning disabilities and autism.

The exact requirements will depend on the school's particular arrangements and who will be coming to the school. Children may arrive on foot, by bicycle or buggy and may be using wheelchairs or other mobility aids. Some will use public or private transport. Designers will need to find out the potential number of vehicles and process of handover to the school. In a special school particularly there may be several vehicles arriving to drop children off at the same time.

Arrival and departure take time and resources, which calls for careful operational planning (and must ensure health and safety). Transferring children in wheelchairs from the rear or side of a vehicle is a slow process, which takes place in all weathers.

The approach from gate to entrance doors should have:

- Vehicular circulation that allows for public and private transport, including set-down and drop-off without congestion (for example, one way or roundabout traffic flow), and makes provision for emergency access and maintenance.
- Designated safe pedestrian routes some people have less awareness of the risks of traffic (or cannot see/hear vehicles) and this should be taken into account when the site is planned.
- Easily accessible, level or ramped slip-resistant and well-drained surfaces along the route, without trip hazards and with an accessible stepped route nearby to give a choice
- Suitable car parking, with accessible parking bays near the entrance (subject to local planning)
- Good quality external lighting for routes, clear legible signage, visual contrast and sensory way finding to help independence.

Circulation

Movement and travel are part of a learning process for many children who are developing independence skills, and they should be able to move around alongside their peers. The aim is to plan for circulation that minimizes travel distances and times. There should be a choice of routes to avoid congestion, conflict, difficult or long travel, and waiting. Children may need different types of support or supervision and might:

- use mobility aids, frames, wheelchairs, shuffle along the floor, use a handrail for support, or have a member of staff to walk beside them
- use varied way finding techniques, such as signs, symbols, color, sound, tactile cues and objects of reference to help them negotiate their environment
- be supported by a sighted guide or learn to use sticks or tactile routes

Outdoor circulation

Outdoor circulation needs to have a clear rationale and provide a variety of accessible routes to suit the whole spectrum of children, minimizing gradients so that they can easily access all outdoor facilities.

There should be:

- Shelter available along routes for more vulnerable children, with seats every 50m on long pedestrian routes
- Safe and easily navigable surfaces (wheelchair accessible), with safe changes in level or transitions between surfaces - both ramps and steps are needed where level access is not possible
- Good sightlines for overseeing children's safety, with no hidden spaces
- Noisy busy routes separate from quieter sheltered spaces, so more vulnerable children can make their own way at their own pace
- Level thresholds for access by wheelchair users and to avoid staff lifting mobility equipment
- Wide enough gates
- Wide paths with defined edges.

Internal circulation

Some children need more space than usual between themselves and others: a child learning how to use aids and maneuver equipment will need considerable clearance space; a member of staff walking beside a child with visual impairment will take up a lot of room; children with hearing impairment need space to sign and gesticulate while walking. All circulation areas should be wide enough for wheelchair users to pass safely in different directions (avoiding long narrow corridors or 'race tracks'). This is critical where there is a high proportion of children using wheelchairs, or needing assistance from support workers. Some children may need handrails along corridors. Internal circulation spaces should have a light, airy, uplifting ambience to encourage

positive behavior – displays of children's work and achievements can help with this. Changes in color, texture or proportion can all be used to help children orientate themselves.

Vertical circulation

Ramps, steps, stairs and lifts need to be designed to meet the current regulations and be suitable for people with autism and disabilities. Sometimes climbing stairs is part of the learning process for some children.

Special schools need greater overall area for circulation than a mainstream school usually at least 25 per cent of the gross internal floor area.

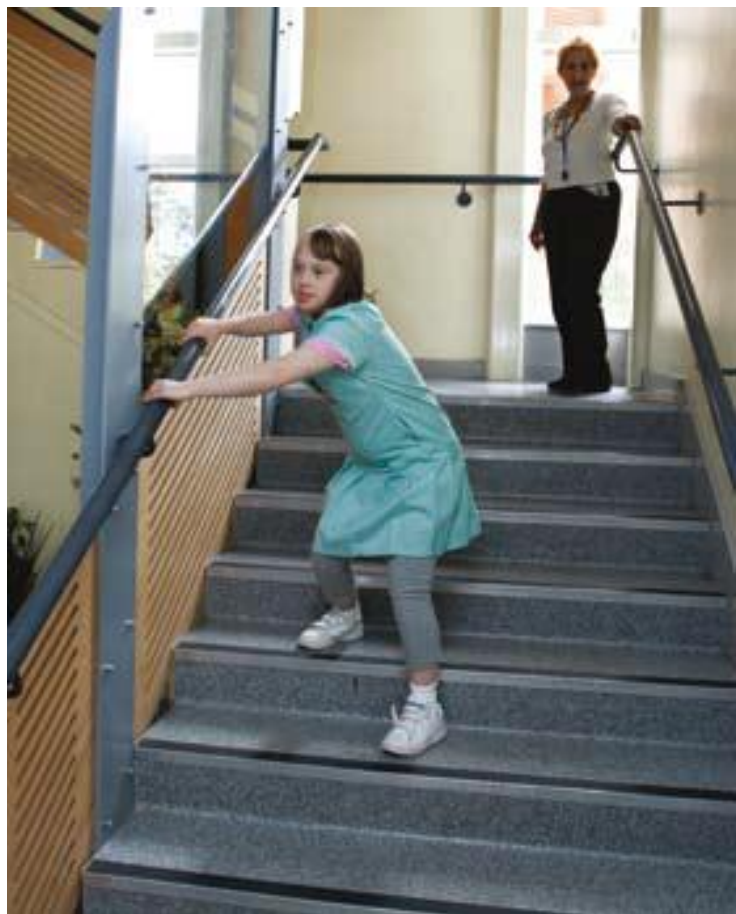
Circulation spaces should have:

- Clear signage with easily understood contrast, signs and symbols at an appropriate height.
- Tamper-proof fittings, no projection points, and hazards clearly identified
- Good lighting and views out, but avoiding glare
- Robust, easily maintained.

Waiting space outside a lift should take account of nearby door openings and passing traffic.



Climbing stairs is part of the learning Process for some children.



Learning and social spaces:

Early years learning:

Learning through play is especially important at this age and children with autism and disabilities take part in a range of play-based communication rich experiences. If they have a higher level of need, greater support can be provided by more staff.

Environments for very young children need not only to be appropriate for their care and support, allowing space for circulation and for specialist staff using bulky equipment, but also

Spacious enough to allow different layouts for a variety of activities, toys and play equipment.



Play spaces should be flexible spaces with good visual and physical connections to outdoors.



Typical early year's spaces:

The exact accommodation will depend on the setting and the type of childcare offered – part- or full-time sessions, for example. Nurseries attached to schools may share facilities such as the kitchen and hall but usually have separate entrances, toilets, support spaces and outdoor play areas. There needs to be enough flexibility to support diverse and fluctuating needs.

The typical range of learning and social spaces comprises:

- One or more play spaces
- A small quiet room for 1:1 support
- A covered outdoor play space
- An outdoor area providing a range of experiences.

These are supported by:

- Storage for belongings, resources and play equipment, and confidential records.
- Storage for buggies and mobility equipment close to the main entrance.
- Staff spaces.
- A parents' room.
- A gated kitchen and laundry nearby.
- Direct access to toilets and changing rooms.

Inclusive early year's provision:

The guiding principles of inclusive design for schools set out earlier also apply to early years, with some additional factors:

- Health and safety considerations are particularly important for very young children with autism and disabilities (for example hygienic sand and water play facilities).
- Ground floor accommodation allows safe, level, easy access to the outdoors, preferably reached directly from indoor play areas.
- While children in early year's settings often eat their meals in the main play area, some children need a more sheltered place and support.
- Signage, vision panels and door handles (where appropriate) need to be low enough for young children to reach.
- Ramps should have very shallow gradients to suit very young children using wheelchairs or mobility aids.
- Changes of level may pose risks for some children, so suitable safeguards such as gates, lower level handrails and guarding should be provided.

Support spaces

The following facilities may be provided to support inclusion:

- A sensory space
- A soft play space
- An additional quiet room or semi enclosed space for support or therapy

- Storage for mobility equipment
- Battery charging for wheelchairs
- A medical room

Primary learning:

Transition from early years to primary is a time of considerable change, especially for those with autism and disabilities, who often need additional support. Generally, mainstream primary school spaces can meet the needs of most children with autism and disabilities but in some cases additional facilities will be needed.

Typical primary learning and social spaces:

Primary mainstream and special schools usually provide:

- Classrooms (or bases with shared areas) for whole group work
- Separate areas for practical activities, such as cooking (although these activities may take place in a class base if large enough and suitably equipped)
- Small rooms for individual and small group work
- Library/resources space
- Larger spaces (likely to be used by the school and wider community out of school hours) for activities such as drama and movement and physical education, dining and assemblies
- A range of easily accessible outdoor spaces (a useful learning and teaching environment and invaluable for recreational, social, extended school and community use)

These are supported by:

- Staff rooms
 - Storage
 - Toilet and changing rooms
 - Kitchen facilities being able to separate noisy and quiet,
- Wet and dry activities easily will help to meet children's diverse needs.

Primary mainstream class bases:

There are three sizes of classroom for primary mainstream schools for the specially disabled children.

Small class bases are no longer recommended for new builds, unless they are supplemented by shared teaching area adjacent (e.g. for practical activities). In an existing mainstream school, however, it is possible to achieve an inclusive environment if, for example:

- Coats, bags and/or resources can be stored nearby (if relevant)
- Fixed furniture can be minimized so staff can re-arrange it as needed
- Class numbers can be reduced to accommodate a child using a wheelchair or mobility aids.

Standard class bases are large enough for all curricular activities, accommodating one child using mobility aids and a wheelchair, with access to some or all of the space depending on the layout.

Large class bases enable full accessibility, including for one or more children using mobility aids and/or wheelchairs. They may also be suitable as a class base in resourced provision for children with physical difficulties.

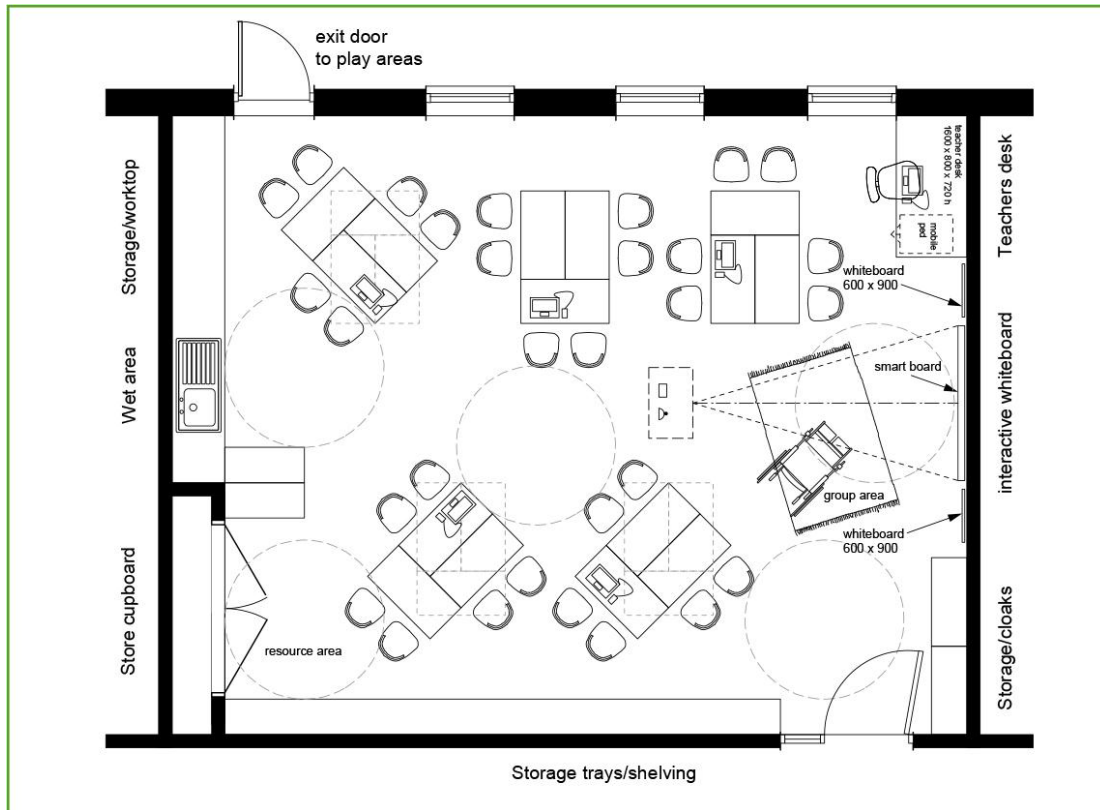
NB A child with learning aids and a teaching assistant may need the same space as two non-disabled children.

A child using a wheelchair and/or mobility aids may need the space used by three non-disabled children.

Floor plans of accessible mainstream class bases:

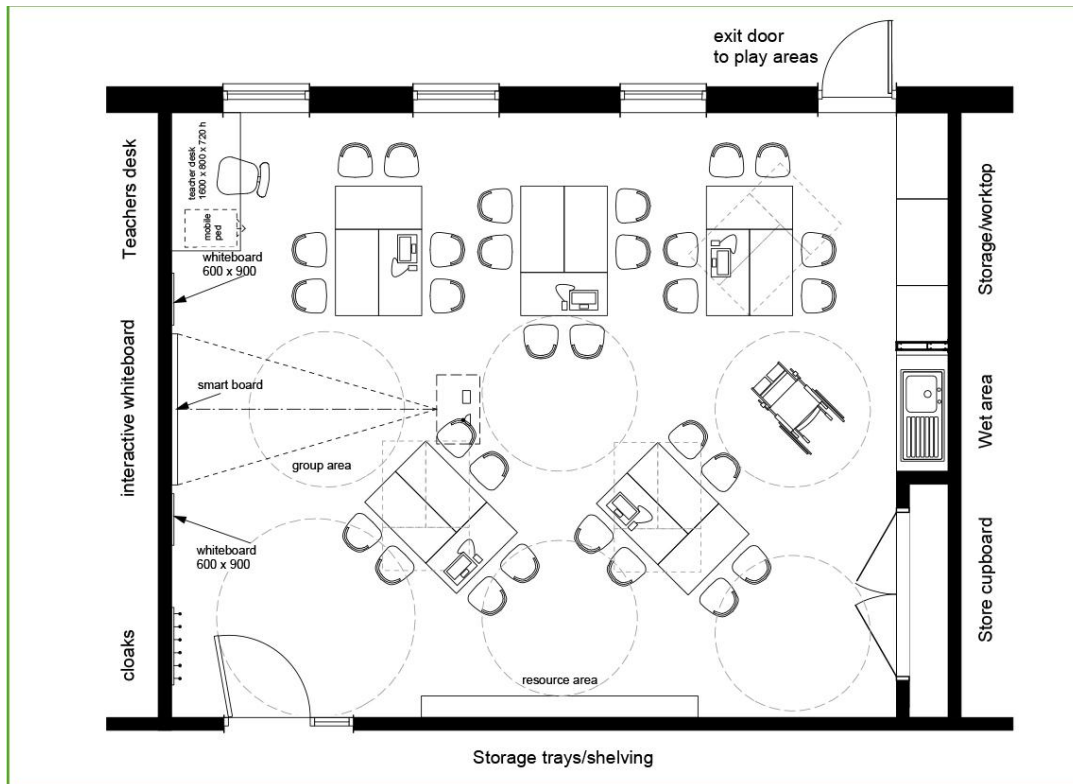
Typical room layouts of accessible class bases, showing:

- Space at the entrance and to access key facilities including the whiteboard, resource and practical zones
- Direct access to the outdoors, providing an alternative learning environment
- Space for a teacher using a wheelchair



Primary inclusion – key design points:

- Classrooms or class bases (which may open onto a shared area) that allows flexibility in learning and teaching
- Easy access to quiet small-group rooms (not accessed from other classrooms, which causes disruption and disturbance)
- The ability for large open plan areas to revert easily to cellular spaces, if need be.
- Access from circulation spaces, not other classrooms (which causes disruption and disturbance).
- The potential for arranging different groupings and activities (for example, sitting in a circle, around a table or for individual work) and for zoning activities and separating noisy and quiet
- Links to a variety of outdoor spaces peaceful quite places as well as noisy active places
- Support spaces and equipment to suit the children at the school.



Primary special schools:

Spaces for primary special schools are broadly similar to those for mainstream but with certain additional considerations. In particular, more space is needed because of the higher proportion of children using learning aids and mobility equipment, and the greater number of staff to support them.

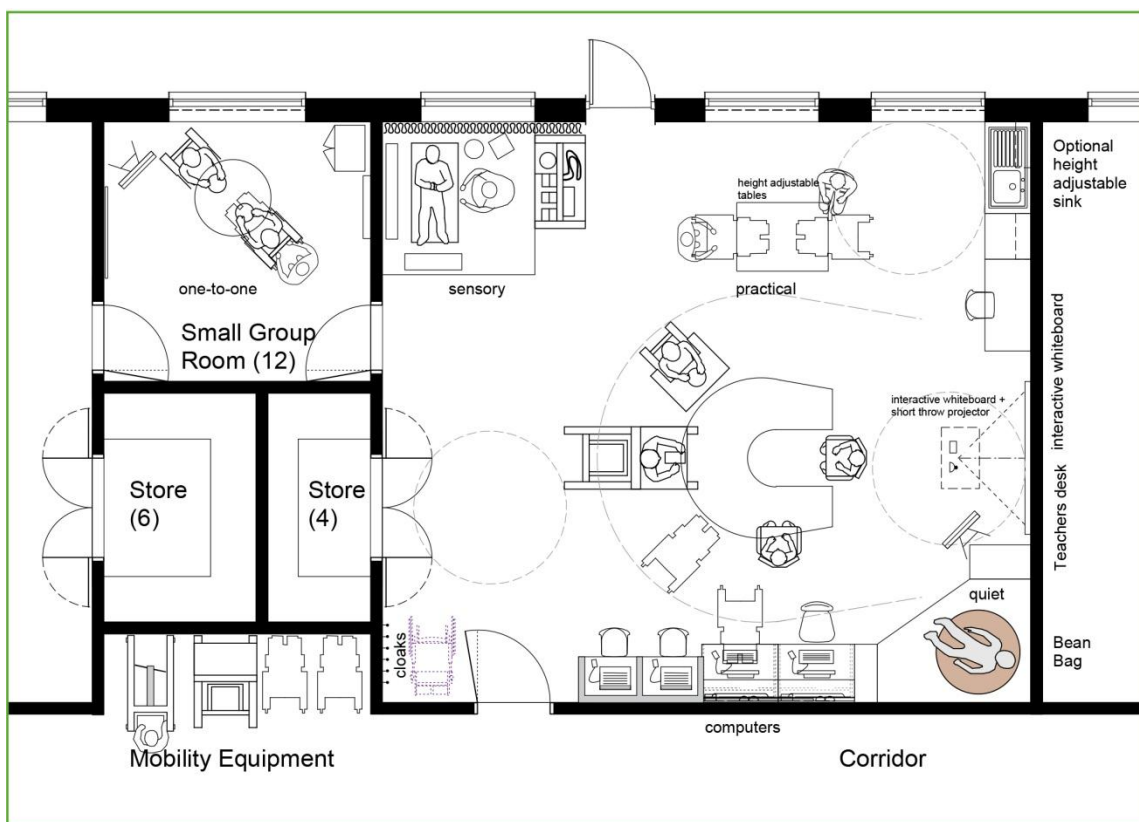
Primary special classrooms/bases:

Because of the high level of support they require, children with severe and complex needs are usually taught in small groups or one to one in a class base, by one teacher with teaching assistants and frequently a number of additional support workers.

Classrooms or bases in special schools are laid out and equipped for primary curricular activities, differentiated for the range of need.

Class base - primary special:

- A sensory corner, which can be set up on a temporary basis
- A quiet corner where a child can rest or calm down
- Computer workstations, some with screening for children who need additional privacy.



A layout for the special classrooms.

Practical areas

In primary special schools, children have an entitlement to be taught a full range of practical subjects – art, science, food technology and design and technology – either one to one, in small groups or by joining groups together. There may typically be one adult and one assistant for a small group of between two and four pupils. Practical activities may take place in the classroom (which could affect the floor area), in shared areas adjacent, in specialist bays or rooms, or in large group rooms or other spaces, depending on the school and the children's needs. A small practical space, for instance, might not be large enough for children in wheelchairs. A store for resources will be needed close by.

Practical areas in open plan spaces need to be easily identified and sited so as not to impede circulation, distract children, or enable them to wander away. Provision will need to be made for the delivery, use and safe storage of tools, equipment and materials.

Art, science, design and technology:

A typical practical bay or space for art, science, design and technology needs to be able to accommodate a variety of activities and will typically comprise:

- Low-level work tables or benches for small children, a worktop for the teacher, some storage units for equipment and tools, a sink
- One or more height adjustable work tables and sinks
- Space for storage, trolley and trays
- A safe and hygienic room layout incorporating outcomes from health and safety risk assessments
- Floor and wall finishes for wet and dry activities

Access to suitable outdoor spaces enables children to work with sensory planting or vegetable gardens, to study nature trails or pond life.

Performing arts – music, movement and drama:

Music teaching may be delivered in a traditional way, similar to mainstream schools, using musical instruments, keyboards and electronic music, or significantly modified to enable children to access their curriculum (and so may require plenty of space). Sound beam or resonance boards, computer-based sound and light systems may be used in conjunction with physiotherapy, movement and drama. Music therapy may also be provided for children with severe or complex needs to develop their interaction and self-expression. With suitable acoustic treatment, a range of spaces may be used, depending on local circumstances.

Library:

A well-designed library can enhance learning. Children may use computers along with other access technology there, such as Braille readers, touchscreens, audio visual or video display and learning resource packs, with toys and reference objects. Shelves and search systems should be at an appropriate height for access by younger children and wheelchair users. The learning environment should be comfortable and there may be informal seating.

Dining:

Dining together can promote a sense of belonging and inclusion. Some children need further assistance with eating, drinking, developing social skills and managing behavior as part of their curriculum and progress to independence, and they may need to be able to focus in a quiet, sheltered space away from distraction. Most staff help during lunch, and this should be reflected in the space. Some children may have particular dietary requirements or need specially prepared food.

Designers need to consider the following points:

- A space that is too constricted or busy will cause stress for some users.
- There needs to be enough space between tables for children to circulate, including those in wheelchairs.
- Savory counters need to be low enough for children to see the food.

Outdoor spaces:

Experiencing the outdoor environment is an important part both of learning and leisure for children with autism and disabilities, and a clear rationale should be developed so that outdoor spaces enrich learning, teaching and recreation. Outdoor activities at primary special schools can be adventurous and support children's skill-based learning and enjoyment of play.

A range of spaces should be provided, including:

- Outdoor activity facilities
- Informal social and recreational areas
- Habitat and outdoor classroom areas to support the outdoor curriculum, physical and sensory needs, social and independence skills.

Informal social and recreational Activities:

There should be a variety of areas for different types of play and to enable children to make choices and engage in different activities. For instance:

- To run or kick a ball
- For imaginative or adventure play
- Social spaces to sit and talk
- Quiet places to be alone

Areas with a combination of hard and soft areas might have play equipment (with safety surfaces), fixed seating and other fixed features. Dividing areas by

Low fencing and gates can bring variety and help with supervision. It may be necessary to separate boisterous activities from quieter sheltered spaces for more vulnerable children. Some areas should be partially covered.

Typical secondary learning and social spaces:

The range of spaces needed will depend on a school's curriculum, size and organization but will typically provide the following:

- General teaching spaces
- Larger spaces for a range of practical specialist and performance subjects
- Small rooms for individual and group work
- Resource spaces, including library
- Large spaces for physical education and assemblies
- Dining and social spaces
- Outdoor spaces

These will be supported by:

- Staff facilities
- Storage for personal belongings, learning aids and resources
- Accessible toilet and changing rooms

Small classrooms:

(49–56m² for up to 30 children) If many children have autism and disabilities or need a high level of support, adjustments will need to be made to how a space of this size is used. For example, class numbers might need to be reduced to allow adequate circulation space for learning aids and teaching assistants.

Standard classrooms:

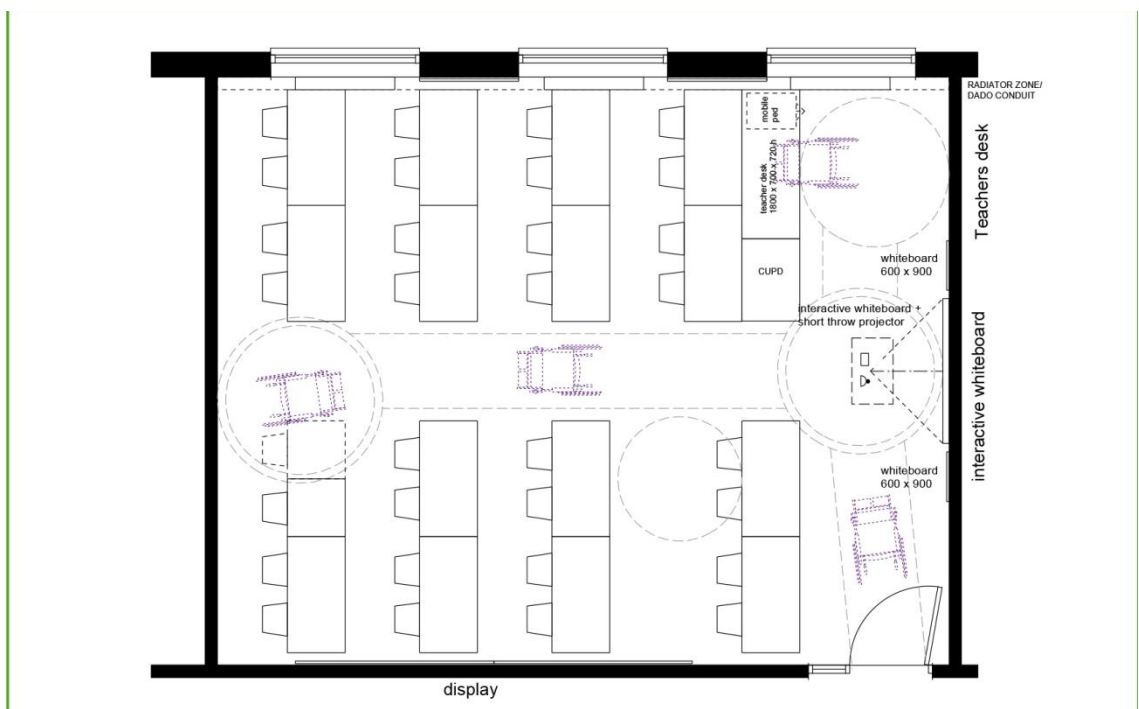
(56–63 m² for up to 30 children) Standard teaching spaces are usually large enough for children with autism and disabilities to access all relevant curricular activities, allowing for one child using mobility aids and a wheelchair, with access to some or all of the space, depending on the layout.

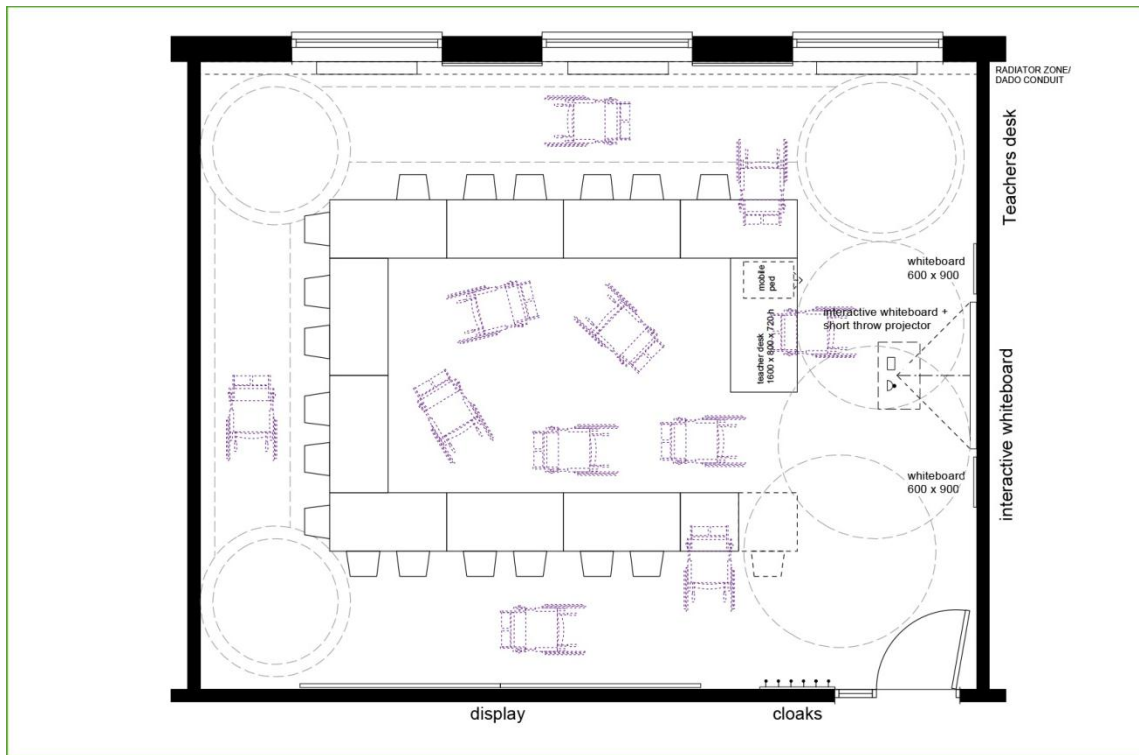
Large classrooms

(63–70 m² for up to 30 children) Large teaching spaces are especially suitable for children with SEN and disabilities, since they provide enough room to accommodate one or more children (or staff) using mobility aids and/or wheelchairs, as well as the necessary support staff. They are particularly useful as a base for children with physical difficulties.

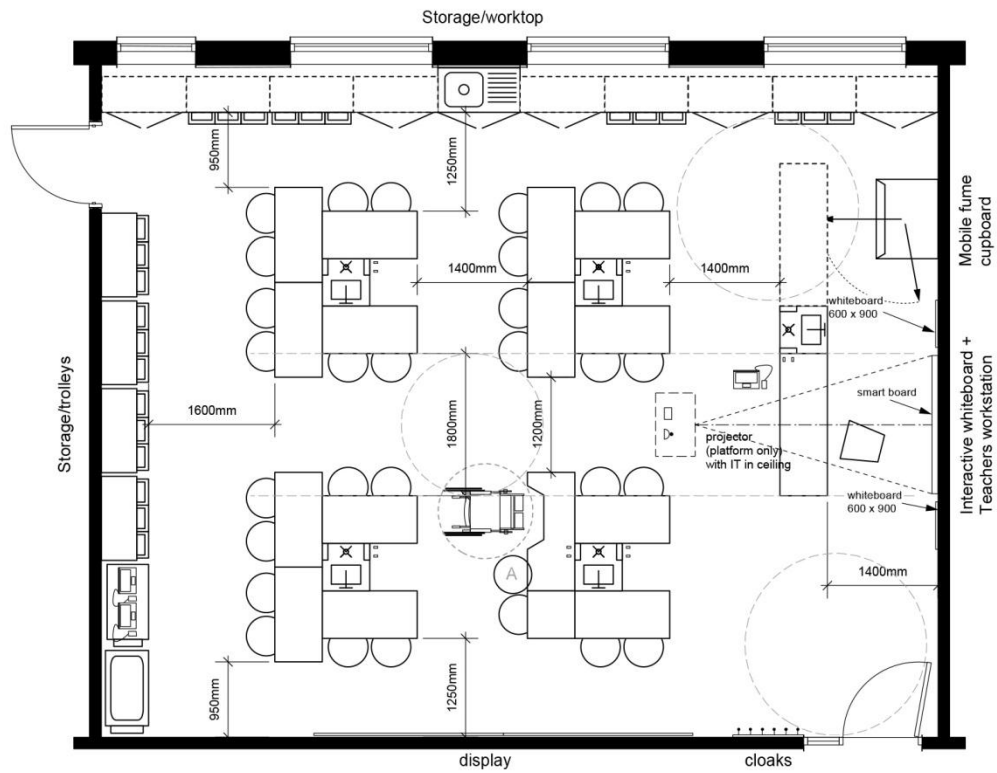
Secondary inclusion – key design points:

- Flexible timetabling allows reduction in group size if required.
- Furniture, equipment and servicing positions should allow a range of layouts to meet different needs.
- There should be sufficient space around equipment and machines in practical spaces for those using mobility aids or specialist/adapted equipment.
- Do not underestimate space needed for wheelchair users. A child with a wheelchair and/or mobility aids may need as much space as three non-disabled children. A child with learning aids and a teaching assistant may need the same space as two non-disabled children.
- Consider the impact of scale on some children. If spaces are too large, teaching and supervision may be hampered, some pupils may become confused or distracted, and acoustic treatment and sound-field systems will be needed.





Layouts for secondary mainstream classrooms



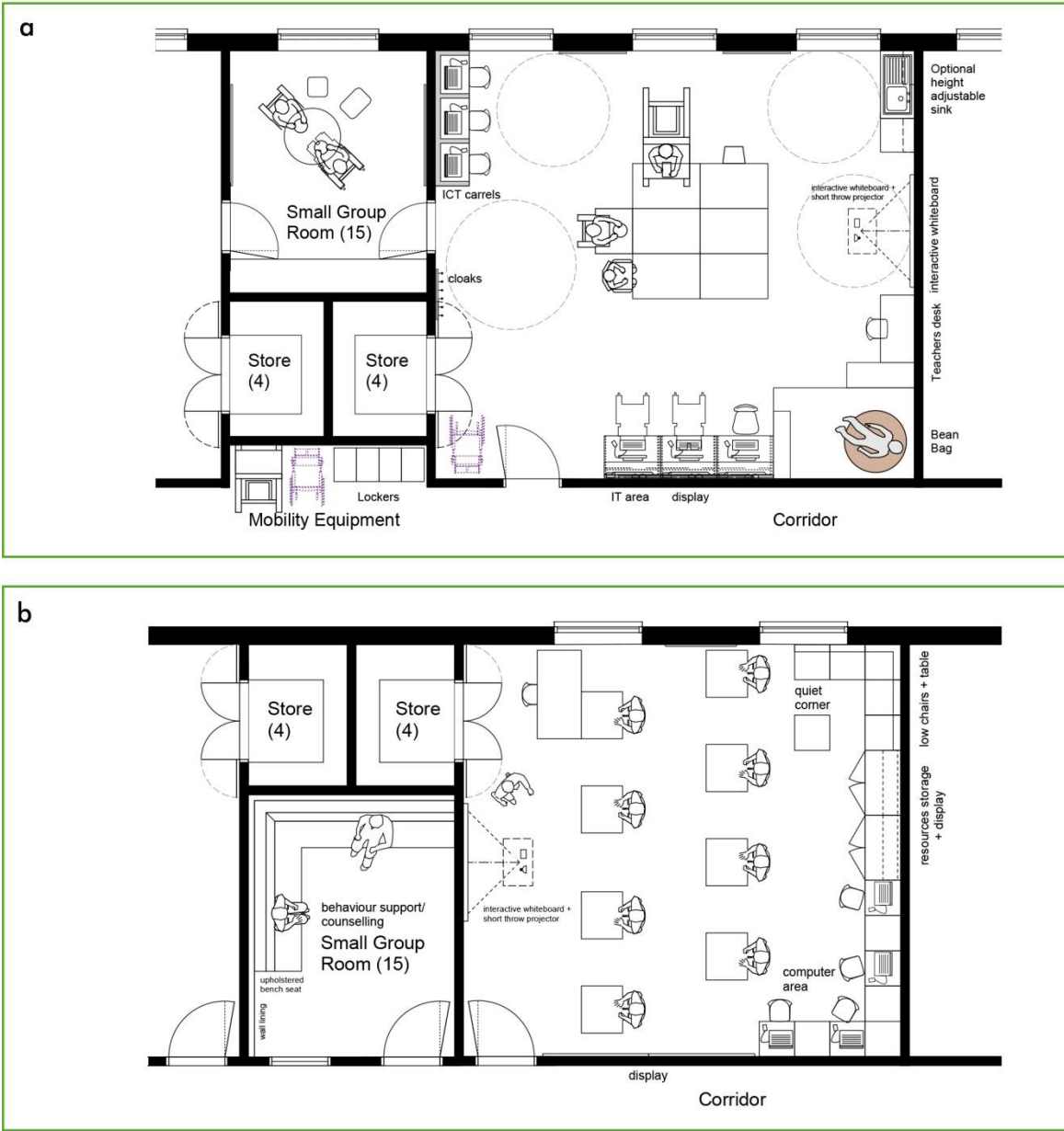
Secondary special schools:

The design of a secondary special school should reflect the older age of the children and help to support their progress to independence and participation in the wider community. In special schools, children are entitled to be taught the same statutory curricular subjects as in mainstream schools, adapted to suit their needs. Since the range of needs may fluctuate over time (as the school population changes and allowing for some needs to be transient), it is particularly important that the accommodation provides enough flexibility and adaptability.

Secondary special school – general teaching spaces:

- The small group room is shared between a pair of classrooms.
- ICT carrels provide individual workstations for concentrated work.
- Loose tables can be arranged to suit needs.
- Wheelchair users can move comfortably around the whole room.
- Some ICT workstations may house equipment specific to one child's needs.
- There is plenty of space around the entrance door and space to 'park' mobility equipment when not in use.
- Mobility equipment and personal belongings are close to the classroom and easy to access.
- Loose tables are arranged to give each pupil their own space but tables can be rearranged to suit activities and need.
- The small group room can be used for counseling, learning and behavior support. Opening off the corridor, it can be shared with other classes.

Secondary special school – general teaching spaces layouts:



3.3. Designing consideration for School Spaces:

This section sets out the accommodation that may be needed in primary and secondary mainstream and special schools to support children and young people with autism and disabilities and the school workforce:

- Medical, therapy and other support
- Staff accommodation
- Storage
- Toilets and changing facilities

Medical, therapy and other support:

The range of professionals (full-time or sessional) working with children with special needs and disabilities, wherever they go to school, will vary but may include:

- School nurse
- Visiting doctor
- Physiotherapists
- Occupational therapists
- Speech and language therapists
- Specialists for hearing and visual impairment and mobility officers
- Psychiatric support

Medical rooms:

All schools must have a designated space for visiting medical staff and the treatment and care of children. There also needs to be somewhere for first aid emergencies and where a sick person can be closely supervised by a member of staff.

There need to be:

- Window and door security (to protect medicines and confidential records)
- Non-abrasive wall surfaces and slip resistant floor surfaces that is easy to clean and maintain for good standards of hygiene
- appropriate furniture and equipment, such as a desk and chairs, an adjustable couch, a treatment trolley, a filing cabinet and lockable cupboard and/or fridge for drugs, clinical Wash-hand basin, some soft furnishings and shelves
- Visual privacy for general medical examination, with portable screens, blinds or curtains

- Good sound insulation for privacy (with specialist acoustic treatment for hearing testing, if necessary)
- Ceiling-mounted or portable mobile hoists with the area needed for their use
- Enough length for vision testing
- a suitable place for resting or recovery after a seizure (if required) (Space requirements should be assessed if there is a need for resuscitation and equipment.)

Physiotherapy

In a school setting, a physiotherapist carries out assessments and devises treatment plans, working with teaching and support assistants to instruct them on how to deliver programs to meet the needs of children individually or in small groups.

Some physiotherapy can be carried out in the corner of a teaching space

- A multi-purpose support space (25–30 m²) (if suitably fitted out, e.g. with a couch, a clinical wash hand basin, and a curtained or screened changing space)
- A large medical room (18–25 m²) with an adjustable height couch and equipped with a ceiling-mounted hoist (If portable hoists are used, 25–30 m² may be needed.)
- A fully equipped physiotherapy room (25–30 m² is recommended) – where there is a higher level of need it may also be used by other therapists, as appropriate, on a timetabled basis

Storage space (4–10 m²) will be needed to support any of these spaces, for inflatables, physical aids and equipment. It should be directly accessible from the space, with outward-opening doors.

A physiotherapy room should be robust and functional, daylight, with a pleasant outlook.

Sensory spaces:

Multi-sensory spaces contain light, sound and other equipment for multi-sensory work.

Sensory rooms, used for one-to-one and small group work, are highly resourced spaces, often entirely white or black, which use a range of equipment to create different light, sound and other stimuli for multi-sensory work. Mirrors and mirror balls, bubble tubes, fiber optics and interactive switch equipment are often used (but too many stimuli may confuse or limit effective use). 'Dark rooms' tend to have black walls and ceilings and/or perimeter black curtaining to support light-stimulation work for a child with very poor vision. Visually tracking moving lights can help children develop coordination skills.

Provision varies but typically a school may have one large white room of 24–32m² or two small rooms of 12–16m² to provide separate ‘light’ or ‘dark’ rooms. Some schools may choose to create a temporary sensory environment in the corner of a learning space. Typically for sensory rooms there should be:

- A clear area just inside the door, with enough space for the removal of shoes or outer clothing
- Sufficient clear space to transfer from wheelchairs (by hoist) to the main cushioned platform area
- An appropriate ceiling height and construction for overhead hoists (2.6–2.8m high is suitable, see page 164.)
- Plastic covered cushioned linings to walls, to half or full height (fire-rated foam products should be checked for health, safety and fire prevention with the supplier).

Toilets and changing facilities:

Provision depends on children’s needs and the school’s approach to managing toileting arrangements. Schools are likely to have some combination of:

- changing facilities for the very young
- Standard toilet cubicles
- Larger toilet cubicles for children who need more space to use training aids, or to move around using mobility aids
- Wheelchair-accessible toilets
- Specially equipped hygiene rooms for changing and showering some children with severe physical or profound and multiple disabilities.

There need to be:

- separate facilities from those for staff and/or visitors (although shared unisex accessible facilities are permitted in some cases)
- Separate facilities for younger and older children in all-age schools
- Separate toilet provision for boys and girls aged eight and above (and ideally for hygiene rooms too).

Toilets and hygiene rooms – key design points:

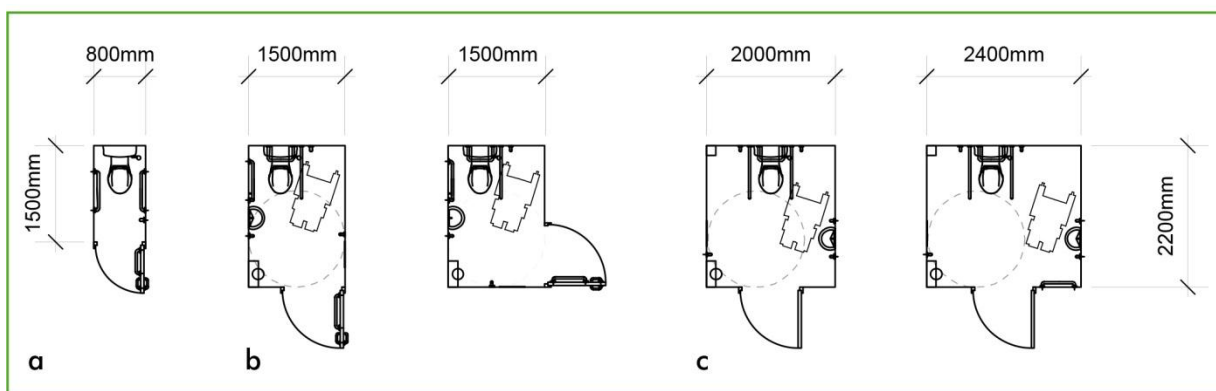
Toilets and changing rooms should be designed with the following in mind:

- There should be enough room for non-ambulant children to move around and for staff (at least two adults for a secondary age child using a wheelchair), to help them if

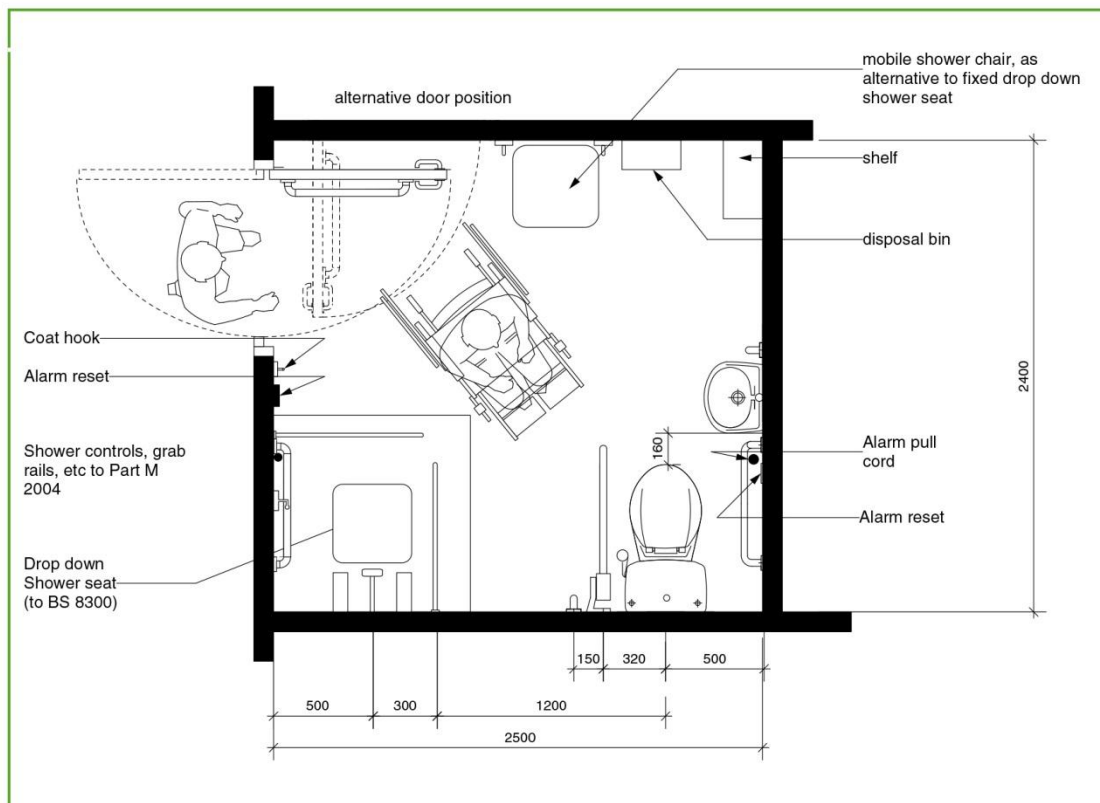
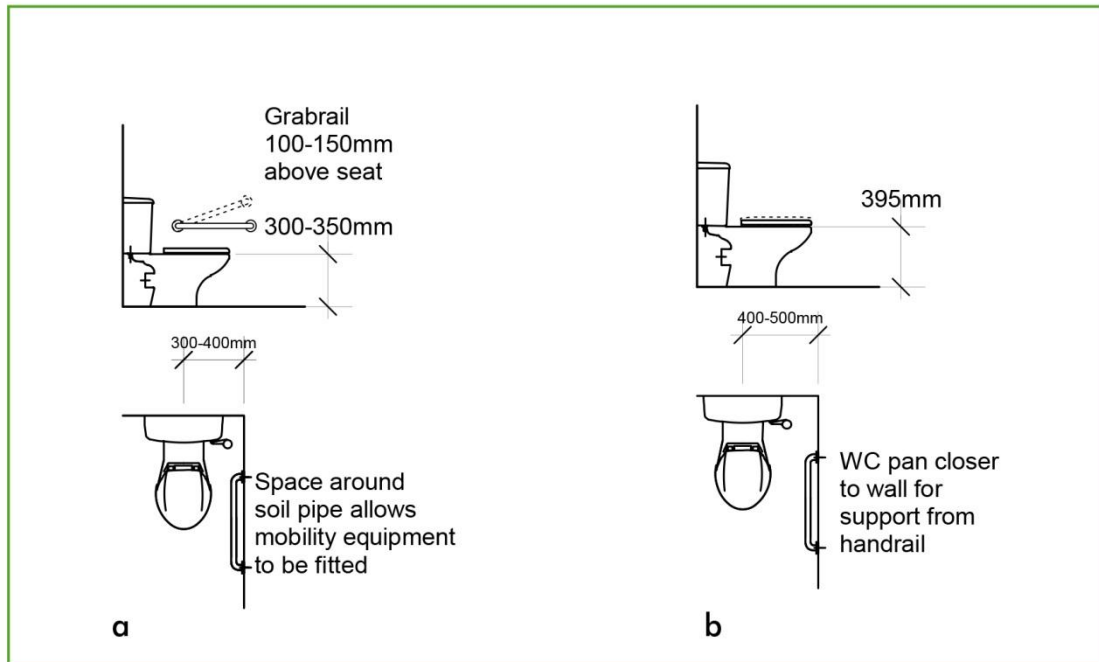
necessary, taking account of manual handling and transfer arrangements, including the use of portable or mobile hoists. Space is also needed to store the hoist and wheelchair when not in use.

- Fixtures and fittings should be robust and at an appropriate height (some may need to be height adjustable) and within easy reach of users. For wheelchair users, wash hand basins may be adjustable height or fixed height with a knee recess.
- The layout, fixtures and fittings should reflect the age of the children and help them develop personal care skills. For example, children in early years settings have lower-height cubicles and smaller toilet fittings.
- Screening needs to allow for supervision while maintaining children's privacy.
- Where a school has pupils with motor disabilities, particular attention needs to be paid to fittings such as taps. Long lever handles or infra-red fittings may overcome these difficulties. Soap dispensers and towel dispensers should be specified and positioned to encourage their use, considering both dexterity and reach.

Accessible toilets – examples of provision:



Plans and sections showing key dimensions around the wc pan in accessible toilets: for nursery and infant age children (a) and older primary and secondary age children (b).



Ceilings:

Ceiling layouts will be needed to ensure coordination between tracking for hoists and other elements such as services, roof lights, and equipment such as projectors. The following key issues should be considered:

- Where there is a risk of tampering or damage, such as toilets, indoor activity spaces or calming rooms, secure fixings will be needed (such as security clips to suspended ceiling tiles). Services should be concealed to avoid damage and interference.
- The structure must be able to support hoists and tracking in toilet/changing, physiotherapy spaces.
- Homogeneous ceilings with recessed light fittings may be needed in medical treatment or 'clean areas'.
- Pool areas may need to allow for air movement above the ceiling to avoid mold growth.
- Sound-absorbent surfaces are required for most children with disabilities, to ensure good sound quality. An acoustic consultant will need to advise on specialist spaces such as audiology suites.

Walls:

Drawing internal wall elevations is important because of the level of specialist equipment needed. It helps to ensure that fixtures and services are fully coordinated with fixed furniture, fittings and equipment.

The following key issues should be considered:

- Sliding folding partitions between spaces can increase flexibility but it may be difficult to provide enough sound insulation, especially for children with hearing impairment.
- Walls may need to support heavy equipment and the force of a child pulling on equipment (for example, wall bars in a physiotherapy room, grab rails in toilets). Where lightweight construction is used, additional framing supports and impact-resistant boards may be needed.
- Walls need to be easy to repair if there is any accidental or deliberate damage. Exposed corners may need to be protected. Dado rails and handrails offer protection both to the wall and the children, but need to be carefully detailed near openings and in relation to services, fixtures and fittings.
- Smooth, cleanable, relatively impermeable surfaces will help infection control. Full tiling is needed in hygiene areas, kitchens and toilets.

- Smooth non-abrasive materials are less likely to cause harm if a child falls or brushes against the wall, if there is boisterous behaviour, or if accidents occur. In some spaces (for example calming rooms), walls need to be clad with smooth but firm, impact-resistant, non-abrasive materials or linings, to reduce risk that a child can self-harm.

Internal and external ramps:

- Gradients should be as shallow as practicable, as steep gradients create difficulties for some wheelchair users who lack the strength to propel themselves up a slope, or have difficulty in slowing down or stopping.
- Some children who can walk but have restricted mobility can find it more difficult to negotiate a ramp rather than a short stair, so a choice of routes should be provided.
- Approved Document M notes that ramps have a surface width of 1500mm between walls. Wider ramps should be considered where there is likely to be a high proportion of disabled users.

Steps and stairs:

- The minimum clear width permitted by Approved Document M is 1200mm but this is only advisable in schools for little used stairs. Standard Specifications, Layouts and Dimensions (SSLD) 6 recommends a clear width of 1600mm, which enables two adults to pass each other with ease and permits three people to safely carry down a wheelchair.
- There should be visual contrast between stair nosings and the treads and risers. For external steps, tactile information should be provided, such as corduroy tactile paving to the top and bottom of the steps.
- There should be safe protected refuges of a suitable size on all staircases for evacuation, with appropriate communication links.
- Additional low handrails should be provided for children under 12.

Colour

Colour should be considered in relation to light levels, visibility, maintenance and psychological effect. The following points may be useful:

- A bright surface against a dark background can be glaring and reduce visibility (such as a window in a dark wall or frame).
- Bright colour in large areas, or busy patterns, can confuse or over-stimulate.
- Some patterns can produce a strobe effect and should be avoided.

- Pastel subdued colours can be soothing.
- Layering colour will define objects for some visually impaired people. Remember, however, that some people are colour blind (particularly between red and green).
- Colour on architectural features is useful for signalling a change in activity.
- Colour coding can identify spaces.
- Colour or tonal contrast can be used to identify objects such as light switches against a wall or utensils or tools on work surfaces or possible hazards such as step edges.

Ventilation:

Effective ventilation, with adequate fresh air, is important in all schools. Stale air with high levels of carbon dioxide affects concentration and can cause drowsiness. This effect may be more pronounced in children with special needs. For schools where there are children with complex health needs, ventilation systems can be a potential source of contamination, and may need to be designed for infection control or to maintain standards of hygiene.

Room layouts and furniture:

The classroom layout should meet the needs of those likely to use the space. For example, a U-shaped layout with a whiteboard may be suitable for children with hearing impairment. A whiteboard or plasma screen should be positioned so that everyone can have a clear view and (where relevant) touch the screen. The following need to be considered to ensure comfortable working positions.

- The type of table and seat (for example height adjustable)
- The ability to see the computer screen clearly, without glare or shadowing
- Sufficient space to be able to use access devices (such as flat-panel screens, with the computing device located under the desk or to the side, which allows more space for access switches and keyboards)
- Sufficient space for wheelchair users, who may have ICT resources mounted on a tray attached to the wheelchair, on height adjustable tables – alternatively they may use trolleys equipped with a workstation and access devices
- Individual study areas or carrels (which must be large enough for keyboards and other devices) may be used to reduce distraction - useful when speech recognition software is being used.

CHAPTER: 04: CASE STUDIES

4.1. International Case Studies:

4.1.1. Hollywater School

4.1.2. Heritage Park Community School

4.1.3. Baytree Community Special School

4.2. National Case studies:

4.2.1. SOS HermannGmeiner School and college

4.1. International Case Studies:

Case study 1: Hollywater School

Client: Hampshire County Council

Architects: P, B & R Design Services

Type: Community special school for pupils with complex learning difficulties

Age range: 2–19

Date completed: 2006

Area: 3000m²

The site:

The new buildings were positioned to make the greatest use of the site, and form a close relationship with the landscape. The general teaching classrooms at the southern edge have views over farmland, shaded by mature oak trees. The mature boundary landscaping and the new building enclose an external play area divided into hard surfaced and grassed play areas, with a fully accessible adventure playground and sensory gardens.



Floor plan of Hollywater School:



Key:

- 1 Main entrance lobby
- 2 Reception/admin
- 3 Waiting
- 4 Family/therapists
- 5 Medical
- 6 Store
- 7 Therapists
- 8 A/V room
- 9 Head
- 10 Music
- 11 Music store
- 12 Soft play
- 13 Pool changing
- 14 Hydrotherapy pool
- 15 Caretaker
- 16 Pool chemical store
- 17 Pool plant
- 18 Pool store/changing
- 19 Shower

- 20 Staff changing
- 21 Cleaner
- 22 Kitchen
- 23 Food store
- 24 Kitchen toilet
- 25 Servery/store
- 26 Hall store
- 27 Toilet
- 28 Accessible toilet
- 29 Hall/dining
- 30 Library
- 31 Small group room
- 32 Art store
- 33 Store
- 34 Art
- 35 Calm room
- 36 Services/plant
- 37 Primary PMLD base
- 38 Hygiene

- 39 Kitchenette
- 40 Reception class
- 41 Quiet room
- 42 Class base (primary)
- 43 Staff room
- 44 ICT resource
- 45 General teaching (secondary)
- 46 Leavers' base
- 47 Life skills
- 48 Bathroom
- 49 External store
- 50 Laundry
- 51 Design and technology
- 52 Secondary PMLD base
- 53 Science
- 54 Food technology
- 55 IT server

Colour key:

- Primary
- Secondary
- Specialist teaching/resource
- Admin/staff
- Toilets/changing
- Storage/prep
- Ancillary/plant/clnr/kitchen
- Dining/hall
- Medical/therapy/other support

Case Study 2: Heritage Park Community School

Client: Sheffield City Council

Architects: Sheffield Design and Project Management

Type: Community special school for pupils with behavioral, emotional and social difficulties

Age range: 7–16

Date completed: September 2005

Area: 2320 m²

The site

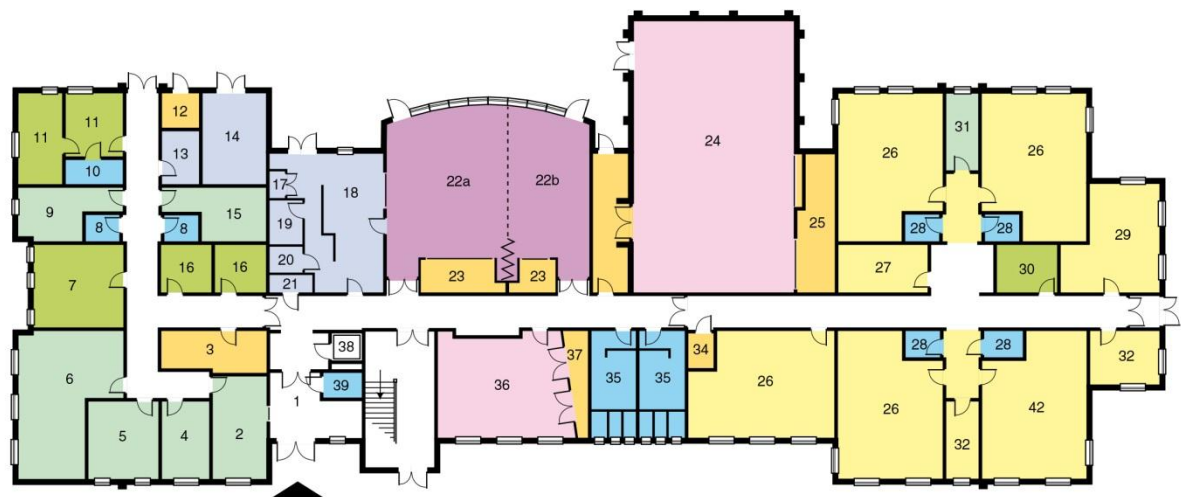
The school is on the lower part of a sloping site, set in attractive landscaping. The split level building exploits the site: there is an entrance level car park, zoned play areas for each age group, a hard court for team games and an upper level grass pitch. Perimeter fencing and CCTV cameras provide security.



Floor plans of Heritage Park Community School:



First floor



Ground floor

Main entrance

Key

- 1 Main entrance lobby
- 2 Reception/admin
- 3 Central store
- 4 Head teacher
- 5 Staff resource
- 6 Staff room
- 7 Parents room
- 8 Staff toilet
- 9 IT technician/server
- 10 Toilet (disabled)/shower
- 11 Medical
- 12 External PE store
- 13 Laundry
- 14 Plant
- 15 Caretaker
- 16 Interview
- 17 COSHH store
- 18 Kitchen

- 19 Kitchen store
20 Kitchen office
21 Cleaner
22a KS3/4 dining/meeting
22b KS2 dining/meeting
23 Chair store
24 PE
25 PE store
26 Class base
27 Library
28 Toilet
29 Food technology
30 Soft play
31 Office
32 Small group
33 Store
34 ICT trolley store
35 Changing room

- 36 Music class
37 Music store
38 Lift
39 Toilet (disabled)
40 General teaching
41 Learning mentor
42 Art
43 ICT resource
44 Design and technology
45 Materials prep/store
46 Quiet room
47 ICT class
48 Food technology
49 Food store
50 Science
51 Science prep
52 Art store
53 Kiln

Colour key

- Colour key
- KS2
 - KS3/4
 - Specialist teaching
 - Admin/staff
 - Toilets
 - Storage/non-teaching
 - Ancillary/plant/clnr/kitchen
 - Dining
 - Medical/therapy/other support

Case Study 3: Baytree Community Special School**Client:** North Somerset Council**Architects:** David Morley Architects**Type:** Community special school for children and young people with severe learning disabilities and profound and multiple learning difficulties.**Age range:** 3–19**Date completed:** 2004**Area:** 2000 m²**The Site**

The external space is designed to allow easy access by the children as well as the community. The building has two main entrances – one for the community facilities and one for school use. The roof over-sails a long entrance wall to give a sheltered drop-off for the eight specially equipped mini-buses that bring the special school's students. Outside there are multi-use games areas, a skate park, bike track, nature garden, adventure area and playing fields.



Floor plans of Baytree Community Special School:

Key – first floor

1. Primary school class base (KS2)
2. Store
3. Toilets
4. Special school class base
5. Calming room
6. Hygiene
7. Life skills
8. ICT room
9. Art and design
10. Office/admin
11. Staff room
12. Meeting room
13. Adult education
14. Community rooms
15. Plant
16. Void



First floor

Key – ground floor

1. Primary school class base (foundation stage)
2. Primary school class base (KS1)
3. Store
4. Medical room
5. Toilets
6. Shower and changing
7. Music
8. Special school class base
9. Calming room
10. Hygiene and changing
11. SEN resource base (PMLD)
12. Multi-purpose room
13. Language and special needs
14. Food technology
15. Speech therapy
16. Schools' reception
17. Soft play
18. Hydrotherapy pool
19. Kitchen
20. Servery
21. Dining
22. Hall
23. Meeting
24. Police office
25. Interview
26. Library and resource centre
27. Library and community reception

Key colours

- Community facilities
- Shared school and community
- Shared support
- Primary school
- Special school



Ground floor

4.2. National Case study:

Case Study 1: SOS Hermann Gmeiner School and college

Client: SOS

Architects: Late Architect RaziulAhsan, Nahas Khalil

Type: Community school for orphanage children.

Age range: nursery- HSC

Area: 5858 m²

The Site

The fundamental programme of the SOS village is to provide home for orphan, where they are raised by a mother and live a normal family life. The the boys grow up they move to the youth village. while the girls however, remain in the children's village. The client wanted to have a youth village to house 120 youth and various other ancillary facilities, such as a common room and dining room, kitchen, director's residence and office. The brief asked for four residential buildings and married tutor in the other two. On the 5858 sq m plot, 6 buildings are arranged around a rectangular courtyard. The director's office cum-residence was centrally located so that he could have visual control over the houses. A large open hall served as a dining area and a common room. Brick vaults, 12" thick were used, in two directions for the roof, and provide natural ventilation, better heat insulation and also give a comfortable visual sealed, when used in conjunction with sloping, projecting eaves. The eaves also protect the brick walls on all sides from rain and sun, and are in harmony with the traditional architecture of the country. A plot of land beside the main road measuring approximately 8094 sq m and only a few plots away from the SOS youth village was procured for constructing the Hermann Gmeiner School, which has class from nursery up to college level. Other facilities included an administrative section, five laboratories, a library, gymnasium-cum-auditorium, a projection room, a basket ball court and a playfield.

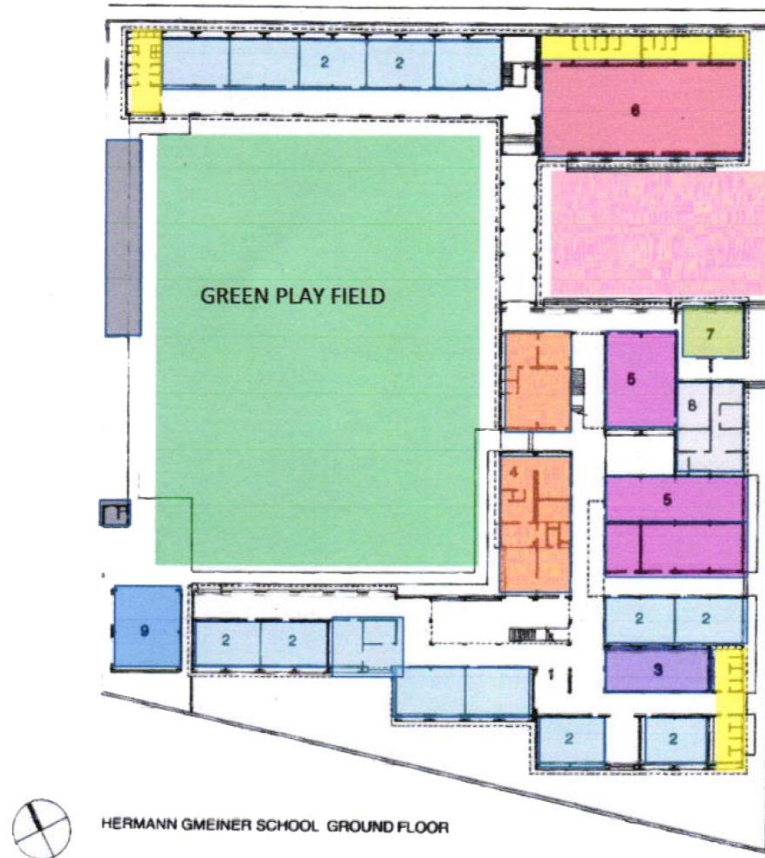
Two blocks for junior and senior classes were placed on the northern and southern side of the plot separated by a play field. All other facilities were placed on the eastern block running north-south. The entire school is linked by a single loaded corridor which connects the class rooms and provides better light and air in the interior. Deep overhangs and projecting eaves similar to SOS youth village run all around the building protecting the exposed brick work. Small courts provide ventilation and light and

serve as play areas for the children. Open to sky terraces and wide corridors become play spaces during the recess hour. The wide corridor provides ample exhibition spaces. An elaborate children's play area with play equipment is provided adjacent to their class rooms.

RC column and spread foundation was used for the extra depth below grade and composite brick and RC columns were used for load bearing. The structural system of the youth village consists of brick foundations, load bearing walls, vaulted roof and RC eaves. Exposed machine made bricks, virtually maintenance free, are used both inside and outside of building.



Floor plan of SOS Hermann Gmeiner School and college:



	Laboratories
	Class room
	Toilet
	Office and faculties
	Library
	Basket ball court
	Garage
	Storage
	Audio visual
	canteen

CHAPTER: 05: PROGRAMME AND DEVELOPMENT

- 5.1. Administration Building**
- 5.2. Medical care & treatment**
- 5.3. Therapeutic Unit**
- 5.4. Meditation and Sensory integration**
- 5.5. Vocational Training units**
- 5.6. Special Education (for 200 children)**
- 5.7. Food Zone & Entertainment Zone**
- 5.8. Accommodations (For 50 children)**

5.1. Administration Building

1.	Entry + Entry Lobby	= 500 sft	
2.	Administration + Admission	= 1000 sft	(03 Rooms)
3.	Reception+ Information + Inquiry	= 400 sft	
4.	Display	= 200 sft	
5.	Principal's Room		
	With P.A. Room + Toilet+ Waiting	= 700 sft	(03 Rooms)
6.	Vice Principal's Office	= 300 sft	
7.	General Staff	=300 sft	(for 04 staffs)
8.	Fund raising authority	= 150 sft	
9.	Teachers room	= 800 sft	(for 10 teachers)
10.	Account Manager	= 150 sft	
11.	Conference Room	= 700 sft	
12.	Toilets + Stores	= 1800 sft	
		Total = 7100 sft	

5.2. Medical care & treatment

1.	Lobby + Reception	=150 sft	
2.	Doctors Lounge	= 200 sft	
3.	Clinical Support Room	= 800 sft	
4.	Nurse Station	= 150 sft	
5.	Toilets + stores	= 50 sft	
		Total = 1350 sft	

5.3. Therapeutic Unit

1.	Physiotherapy	= 500 sft	
2.	Hydrotherapy	= 500 sft	
3.	Speech and hearing therapy	= 250 sft	
4.	Mental health therapy unit	= 300 sft	
5.	Toilets + stores	= 50 sft	

Total = 1600 sft

5.4. Meditation and Sensory integration

- | | | | |
|----|--|------------|------------|
| 1. | Special class for Activities Daily
Living and Life-skill training | = 300 sft | |
| 2. | Yoga and meditation classrooms | = 1600 sft | (04 rooms) |
| 3. | Toilets + stores | = 100 sft | |

Total = 2000 sft

5.5 Vocational Training units

- | | | | |
|----|--------------------|------------|------------|
| 1. | Lobby + waiting | = 200 sft | |
| 2. | Workshops | = 2000 sft | (04 rooms) |
| 3. | Sewing Training | = 300 sft | |
| 4. | Mental workshops | = 300 sft | |
| 5. | Computer Training | = 300 sft | |
| 6. | Dance classroom | = 500 sft | |
| 7. | Music classroom | = 500 sft | |
| 8. | Painting classroom | = 500 sft | |
| 9. | Toilets + stores | = 150 sft | |

Total = 4750 sft

5.6. Special Education (for 200 children)

- | | | | |
|----|---|-------------|--|
| 1. | Class room assuming 200 students
(approx) at a time with the capacity of
20 students in a class.
(10 nos x 1000 sft) | = 10000 sft | |
| 2. | Studio Workshops | = 3000 sft | |
| 3. | Relative equipment's + Store | = 300 sft | |
| 4. | Activity Room | = 500 sft | |
| 5. | Teachers Common Room | = 1000 sft | |
| 6. | Teachers Workshop | = 800 sft | |
| 7. | Teachers training Room | = 800 sft | |

8.	Exhibitions Room	= 1500 sft
9.	Toilets + Store	= 1500 sft
Total = 19400 sft		

5.7. Food Zone & Entertainment Zone

1.	Cafeteria + Kitchen & Pantry	= 2500 sft
2.	Restaurant	= 2000 sft
3.	Multipurpose hall	= 5000 sft
4.	Indoor games	= 5000 sft
Total = 14500 sft		

5.8. Accommodations (For 50 children)

1.	Lobby + reception room	= 400 sft
2.	Rooms + Toilets (2 person for each room)	= 15000 sft
3.	Supervisor room + toilet (for each floor)	= 2000 sft
4.	Dining hall + study hall	= 4000 sft
Total = 21400 sft		

Total built Area = 72400 sft

Circulation Area = 21700 sft
(30% of total Built Area)

In Total = 94100 sft

Other for the Site Development:

1. Drop off point of students taking public transport.
2. Car parking as much close to code requirement.
3. Pedestrian walkways for access to school building as much may be incorporated.
4. Vehicular drop off under porch of school building.
5. Courtyard + landscaped sitting for Students.
6. 2 separate Parent's waiting with toilet inside and outside of the school compound.
7. Sanctuary garden and playground placement properly.

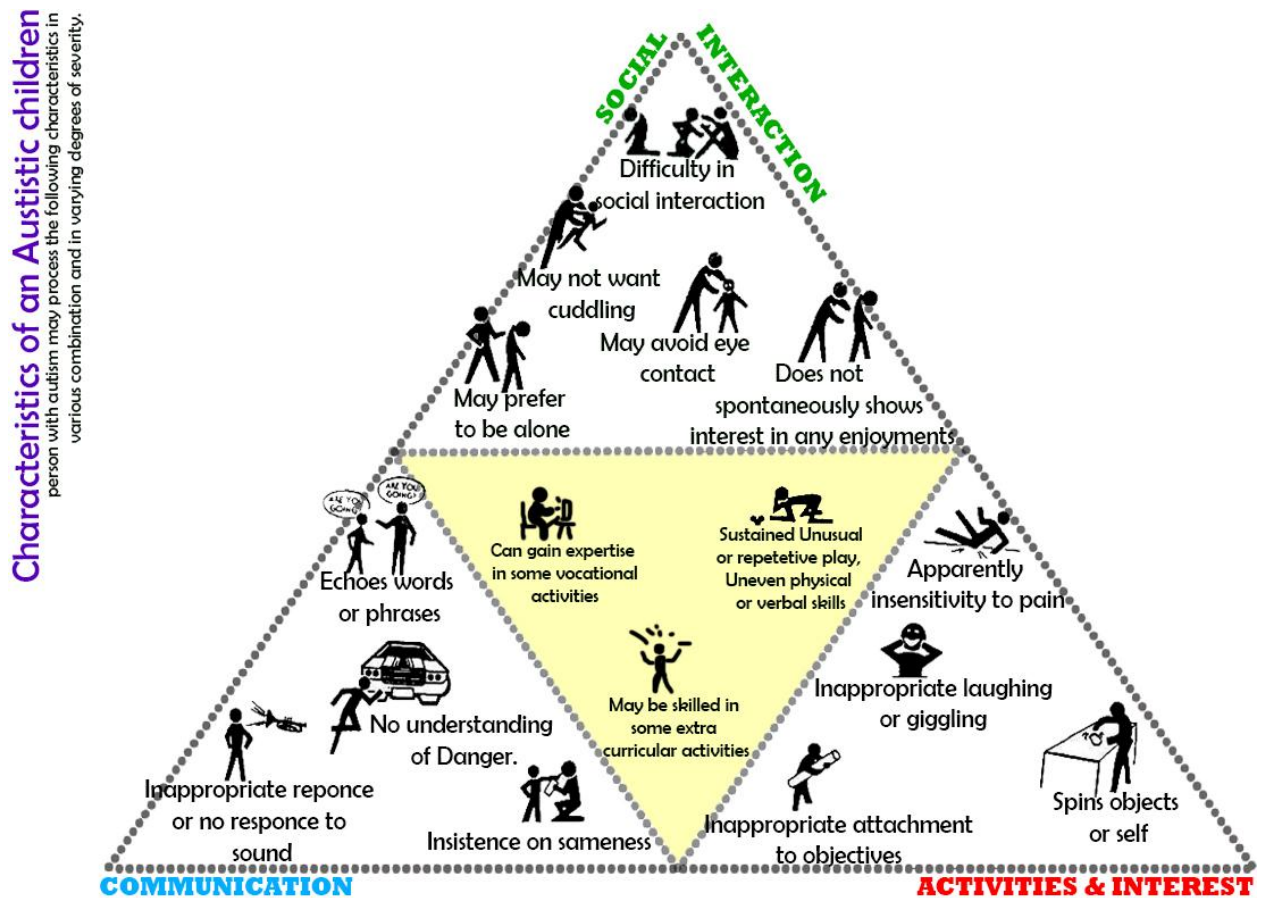
CHAPTER: 06: DESIGN DEVELOPMENT

- 6.1. Concept & Design Considerations
- 6.2. Program development
- 6.3. Conceptual sketch
- 6.4. Site with Master plan
- 6.5. Plans
- 6.6. Sections
- 6.7. Elevations
- 6.8. Model Images
- 6.9. 3D Views & Renders

6.1. Concept & Design Considerations:

Study and approaches for autism:

Design of an institute for autism requires a very conceptual progression. In this design process it's more important than the experience, logic, justifications. When I started to study about the Autistic children. I was looking for their notions, philosophies of their life, their way of thinking, everything which includes the way of their lifestyle for designing this project.



Sensory Awareness:

Sensory elements - using color, light, sound, texture, Green landscape and aroma therapeutically, in particular for children with complex health needs.

Healing Therapy:

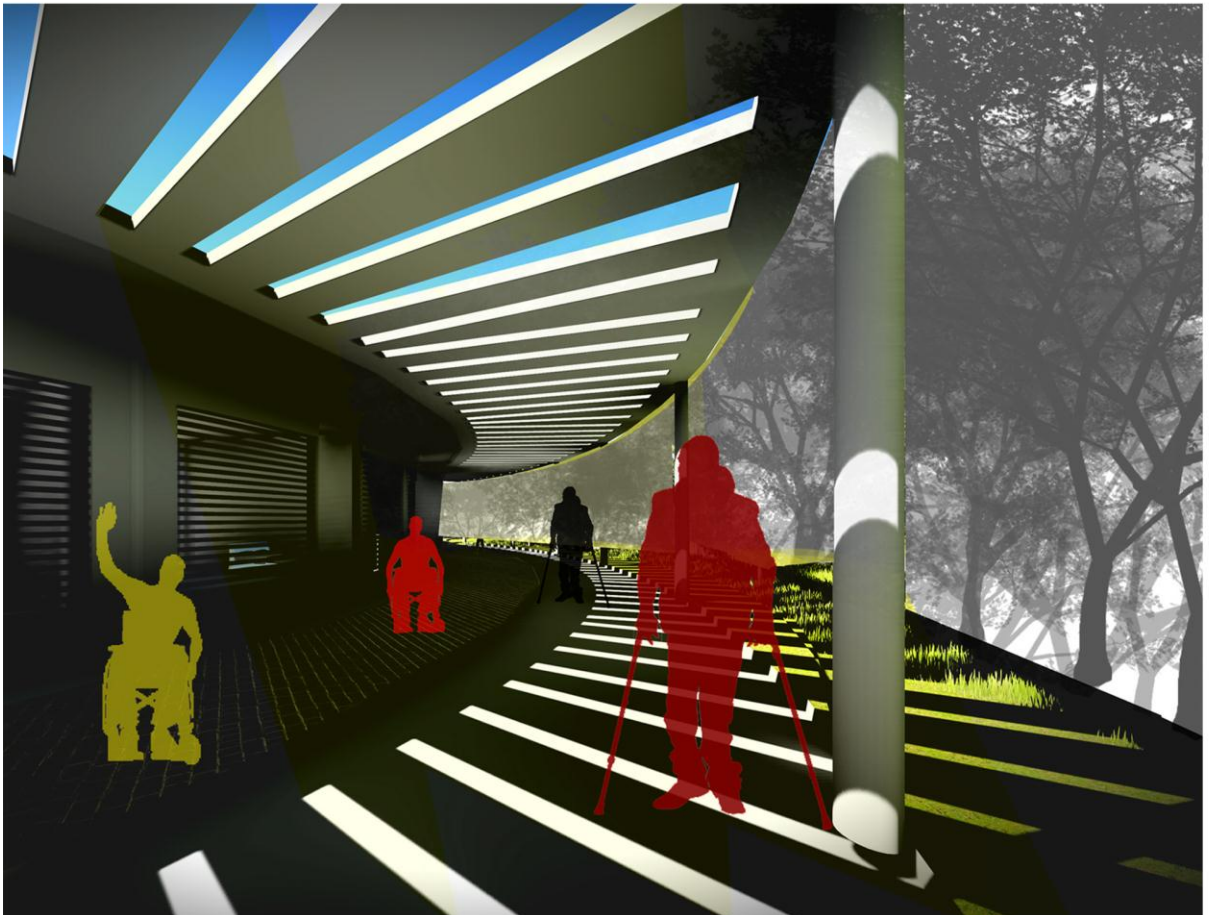
An accessible environment helps children with disabilities take part in school activities alongside their Peers. Accessible circulation routes, Green with landscape help them to have their healing therapy.

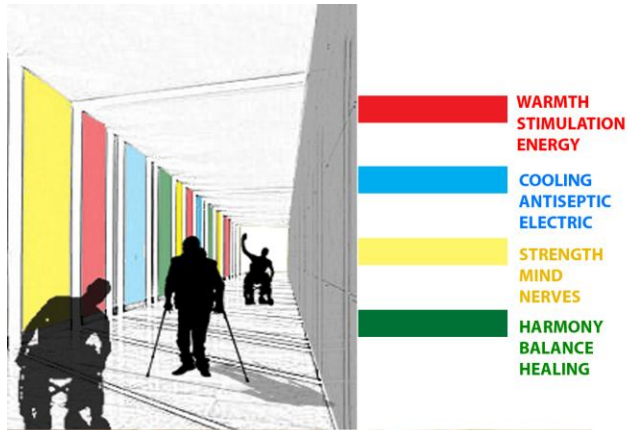
Color Therapy:

Color should be considered in relation to light levels, visibility, maintenance and psychological effect

Light Therapy:

Multi-sensory spaces contain light, sound and other equipment for their therapy.





Color therapy

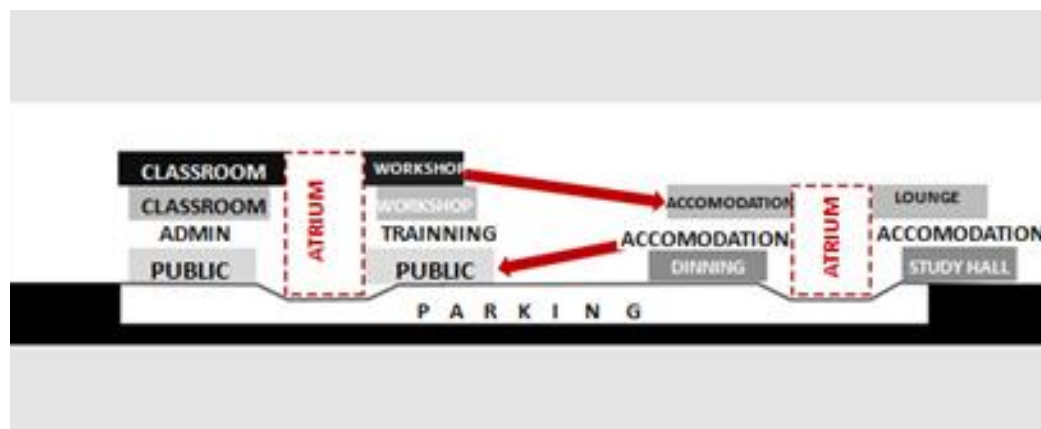
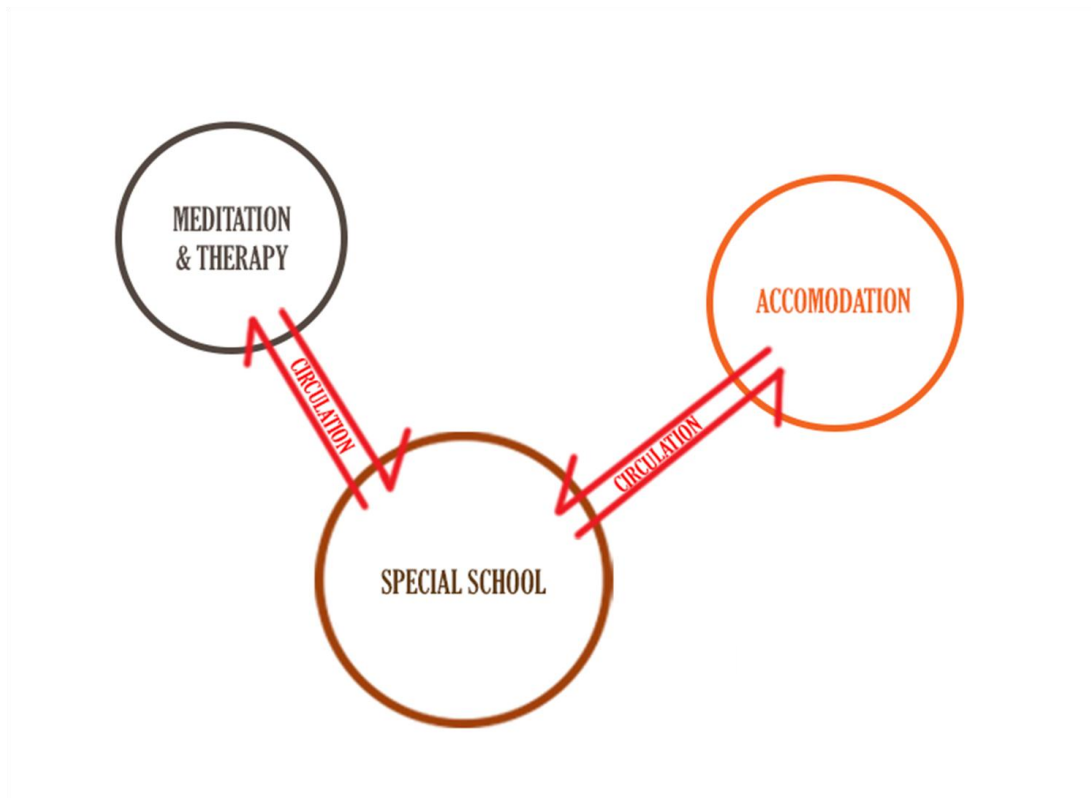


Healing therapy

Design Considerations:

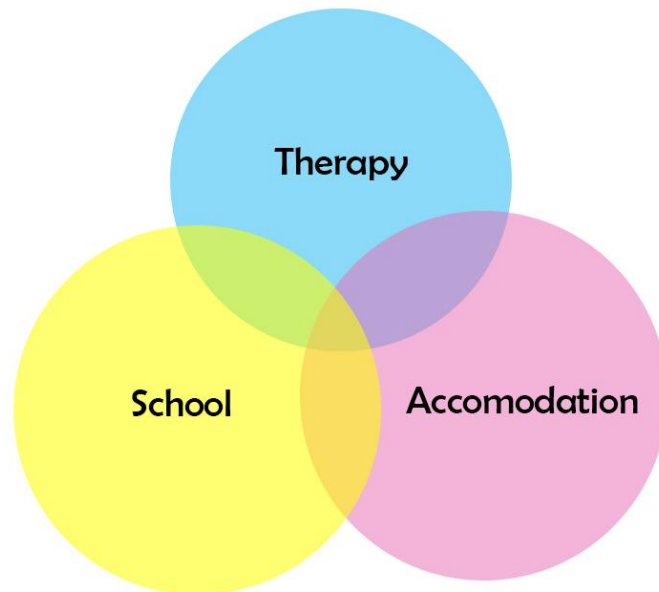
A circle is a simple shape , which has only one point and that is center. For autistic children , something which has only one center point can make them less confused and helped them for their easy accessibility.

All building elements must be carefully assessed for children with disabilities, who may be particularly vulnerable. Avoid hard-edged corners or rough textures for designing a space for Autism.

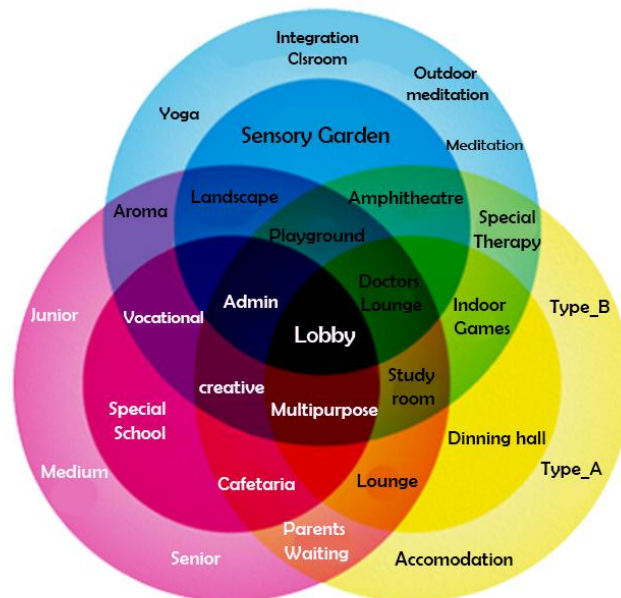


6.2. Program development:

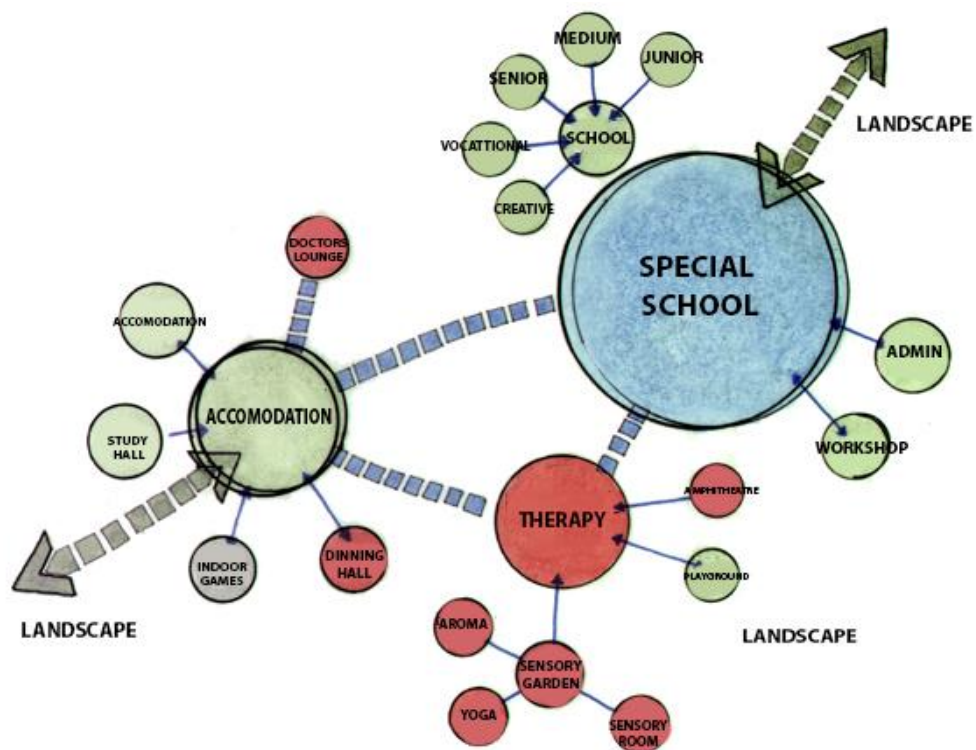
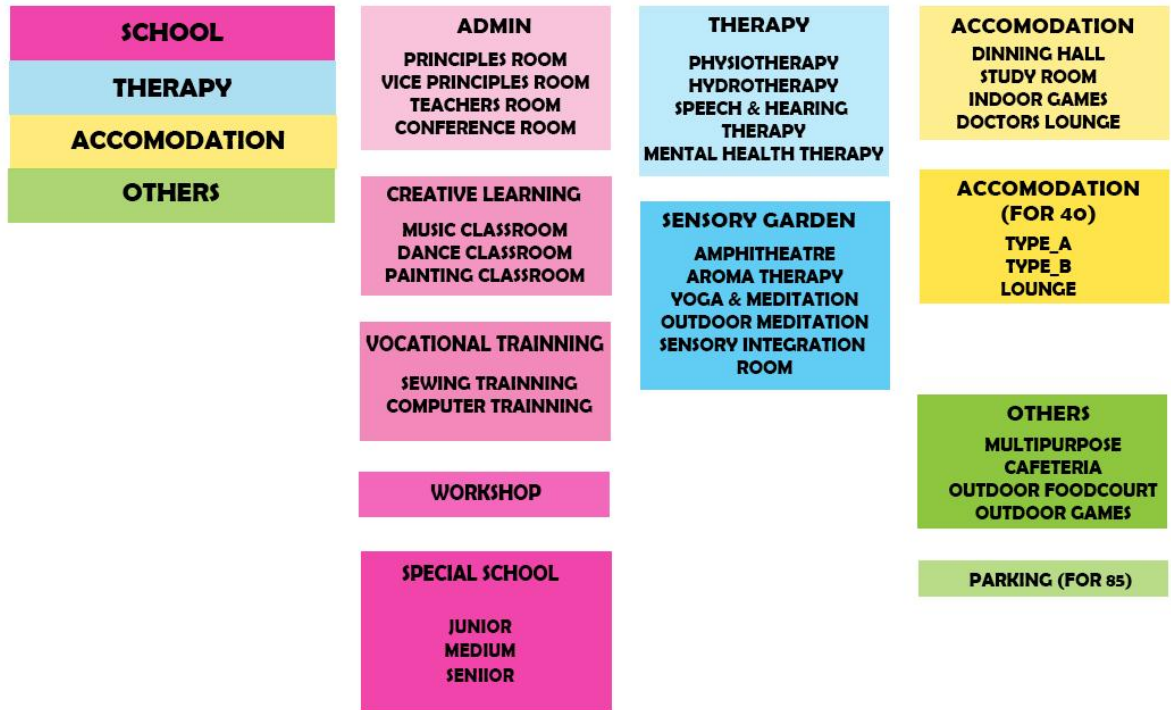
Phase_01



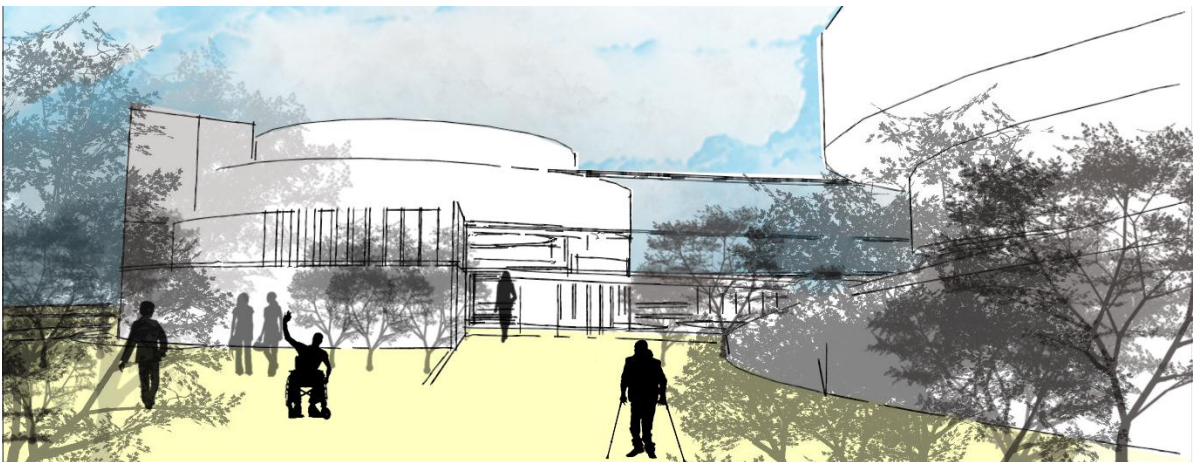
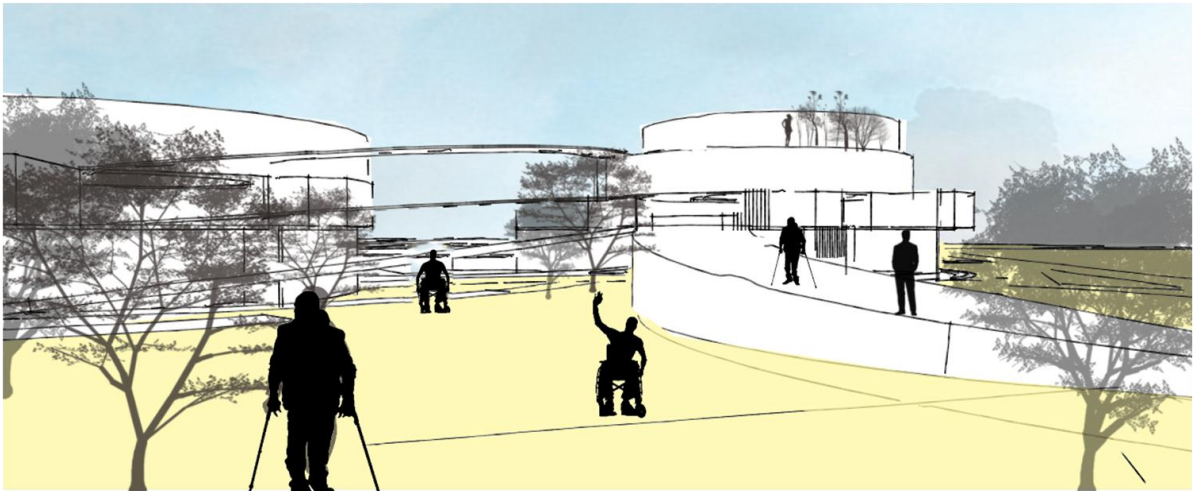
Phase_02



PROPOSED PROGRAMME



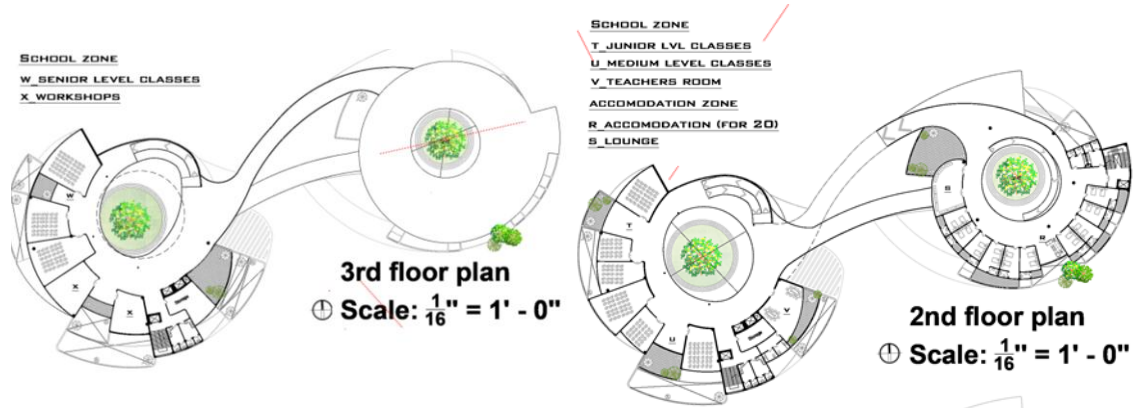
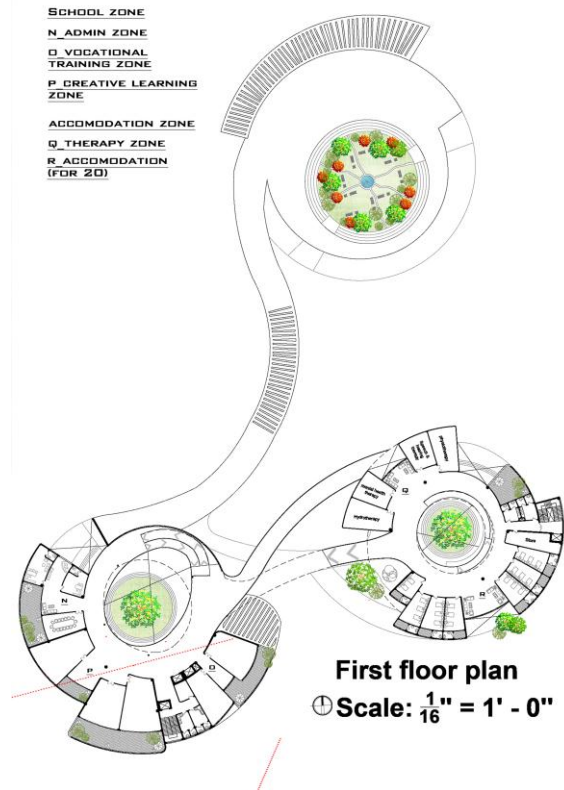
6.3. Conceptual sketch:



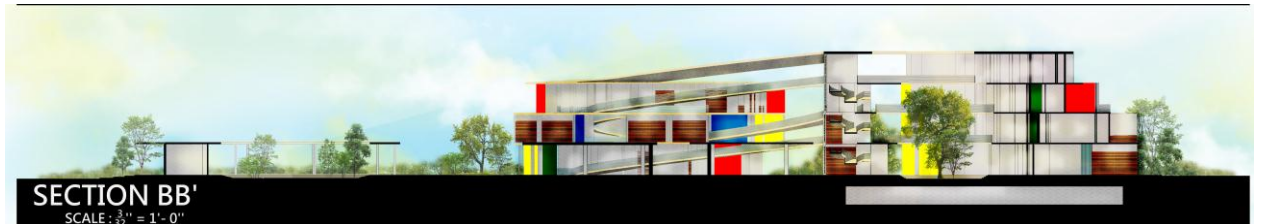
6.4. Site with Master plan:



6.5. Plans:



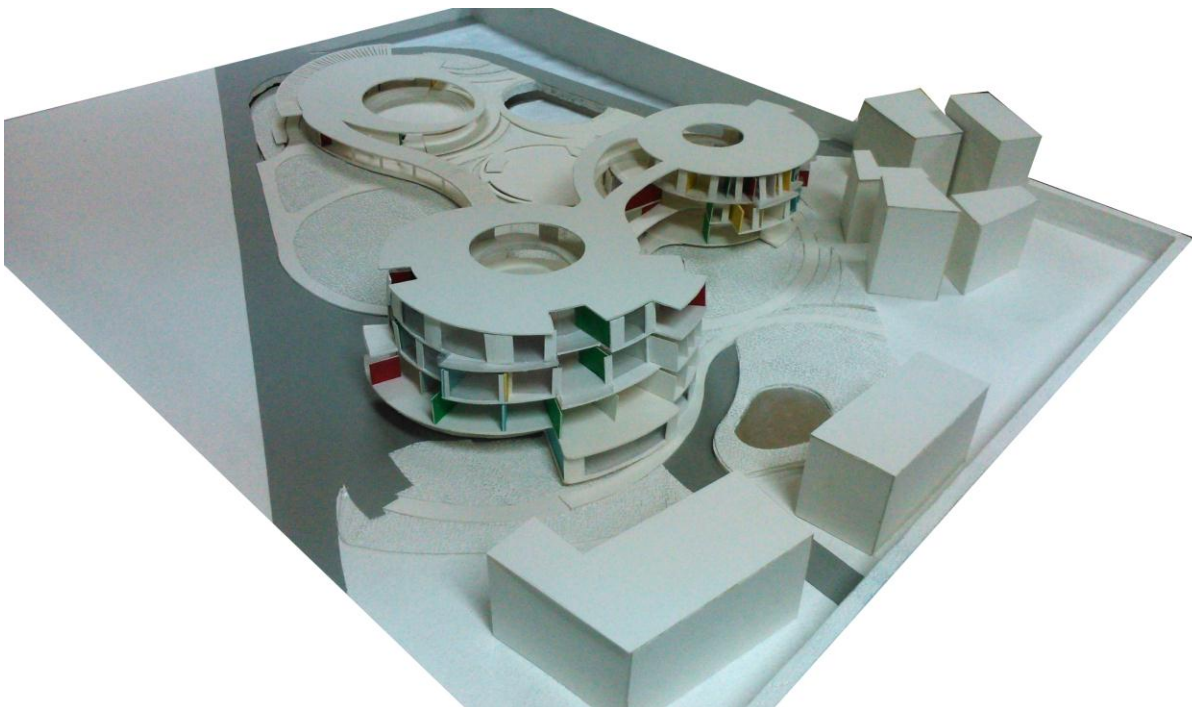
6.6. Sections



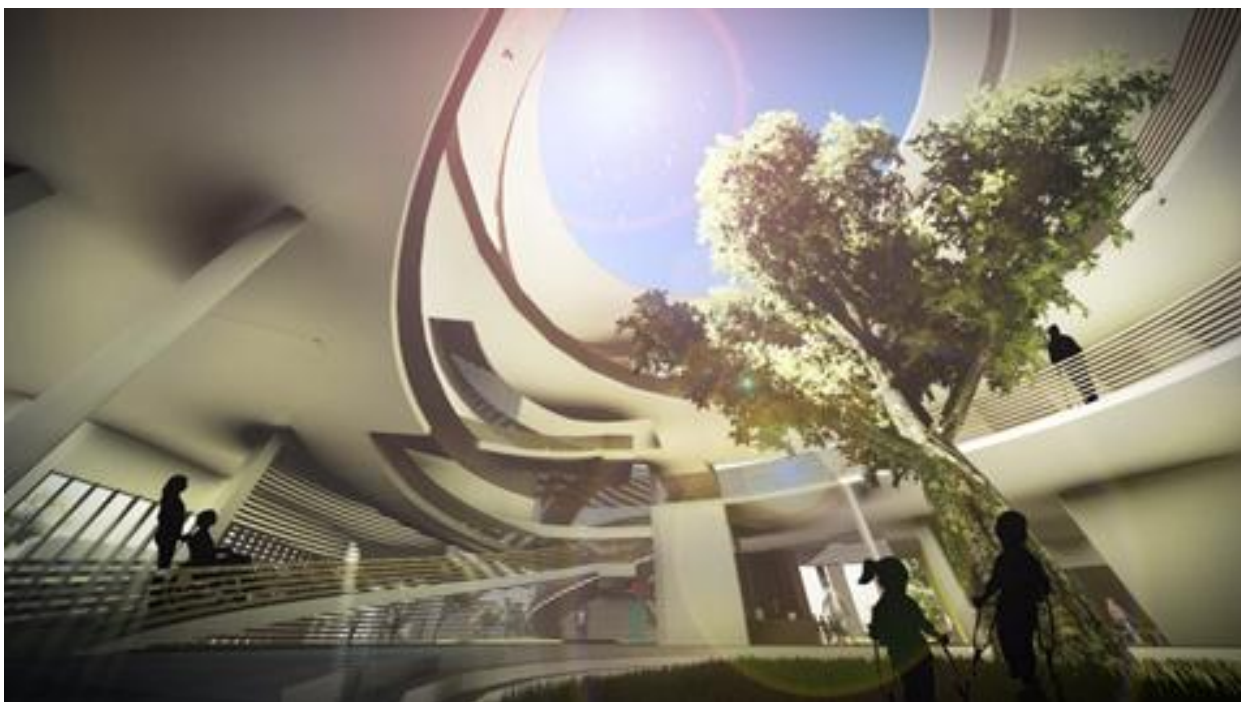
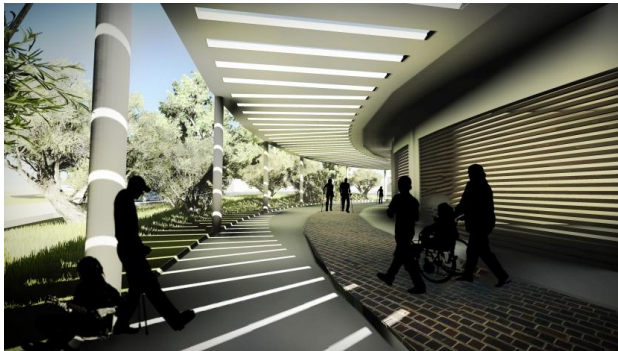
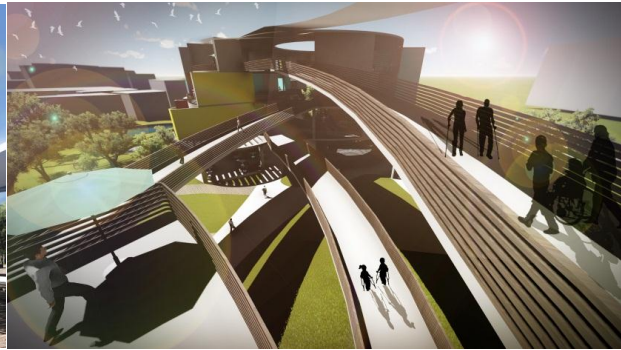
6.7. Elevations



6.8. Model Images



6.9. 3D Views & Renders





Conclusion:

The design has finally ended with effective and prospective output and has to desire to have a healthy and survival and breathable as well as learning environment which will enhance and enrich the maximum potential and confidence standup independently with the outside world.

References:

- <http://en.wikipedia.org/wiki/Autism>
- <http://www.proyash.edu.bd/>
- <http://www.cnacbangladesh.org/>
- <http://dera.ioe.ac.uk/1145/1/Special%20education%20needs%20and%20disability%20review.pdf>
- <http://bangladeshprotibondhifoundation.org/Brochure%20of%20Bangladesh%20Protibondhi%20Foundation%20-%20Final.pdf>