PLAY AREA STUDY



PLAY AREA DESIGN

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The Northstar School

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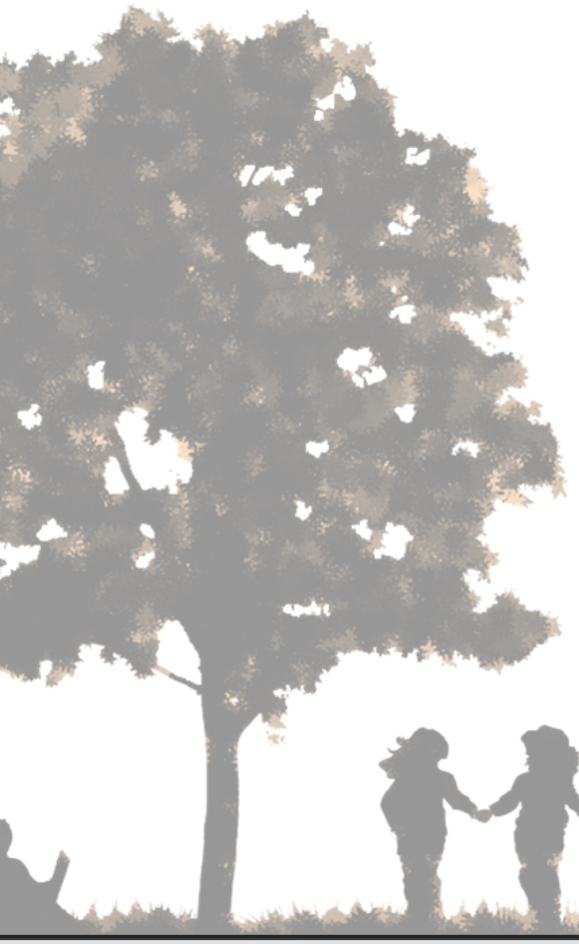
Play Area Design
Research and documentation

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Play Area Design

The Northstar School



PREFACE

'Designing Play Spaces in Landscape' developed from an intensive, and hitherto unavailable study and development of play spaces for contemporary schools in Indian context.

The Client : Northstar School approached Earthscapes with an aim of developing a unique IB curriculum school that demonstrated the best international practices and infrastructure. Diverging from the norm, the founders of the school invited not just leading professionals from the surrounding, but also aspiring parents to develop a model curriculum and infrastructure wishlist for the school. It was an eye-opening session, rarely faced by Indian designers or architects. A community had come together to decide the best future for their children - including ways of learning outside the normal rote classroom learning. The school landscape was required to be a setting for life skills learning - a lofty aim. The school required the play areas for 250 students in 1st phase, with age group varying from 5 to 18 years.

Play is not just about letting off steam or recreating. It is a vital part of childhood that aids in development of physical strength, coordination and balance. It also provides opportunities to learn social behaviour, team work, life skills, survival and interaction with outdoor environment. This requires specific play regimes for varying age groups.

In the first part of this document, a baseline study is compiled about the meaning of play, types of play, as well as behavioural and physical aspects of children. It also covers the types of activities and equipment that are preferred by different age groups, and includes a brief study of some existing play areas in India as well as abroad.

The second part of the document elaborates on the site for the school, design considerations, zoning and the detailed description of proposed play areas.

Earthscapes wishes to acknowledge the collaborative inputs of Mr. Mohit Patel, founder of North Star School, board of trustees of Shri Shamjibhai Harjibhai Talaviya Charitable Trust, Mr. Nirav Talaviya at North Star School who made all the impossible structures possible on ground; Ms Aditi Agrawal and Ms Anjali Menon at M/s Gudgudee for collaborative efforts on play equipment design, M/s Shanmugam Architects for their wholehearted support and M/s Jayant Lakhlani for Structural Design inputs.

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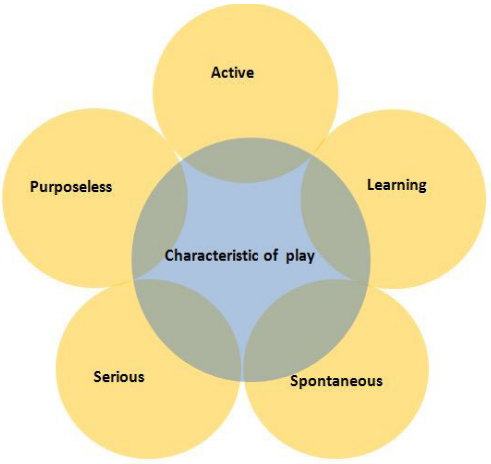
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INTRODUCTION

The baselines studies establish a foundation for design of play spaces for North Star School, providing a wealth of information on global best practices and innovations, current Indian scenario, theoretical underpinnings of the physiology and psychology of play - especially as a part of the learning environment. Collectively, the baselines studies help establish design considerations, standards for safety, ease of access and use, flexibility, and innovation at play.



UNDERSTANDING PLAY SPACES

Play is an exceptionally complex but less understood activity. It has often been associated with childhood and recreation. While the modern viewpoint is changing, and more schools are inculcating play as learning and development tool, the Indian scene has a long way to go.

Characteristics of play

An activity can be defined as play if it has

1. Physical Inputs

Children develop an awareness of their bodies and how they function, learn co-ordination, balance, agility, direction, strength and endurance.

2. Purposeless & Fun

Play has no active goal other than fun and enjoyment of a particular activity.

3. Passive learning and development

Play is a basic way in which children learn. Cognitive, physical, social and emotional growth all are taught to kids through play.

4. Spontaneous

Children express the feeling of being free while playing. Rules of play are loose and open to interpretation by the players.

TYPES OF PLAY

Physical Play

It provides opportunities for kids to develop coordination between nervous and muscular systems`.

Large muscle development

Activities like climbing, jumping, balancing etc. mainly contribute in development of large muscles like arms and feet. Young children (6-12 years) prefer such activities as a natural tendency of the body to explore its limits.



Jumping



Climbing



Balancing

Small muscle development

Activities like art and craft, drawing, playing with toys etc. helps in development of small muscles like fingers, eyes, neck, etc. Infants indulge in such activities till such time as they gain complete orientation and balance.



Playing with sand



Drawing



Digging

Cognitive Play

It provides intellectual and learning enhancements. Each type corresponds to a different age developmental level.

Practice Play

It is the earliest form of cognitive play, occurring during infancy and continuing throughout childhood, whenever a new skill is introduced. The child repeats an action which produces an enjoyable result.

Example: when a child see a toys it stares and tries to hit it. This is practice till the time they master it. Cause (child's activity) results in effect (enjoyable result).



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Symbolic Play

Children begin to use words and images during their initial years to guide their behaviour and help explore and resolve their feelings. An object like toy can be used to represent a something symbolically which may or may not be related to child's mind.

Example: A stuff toy may mean a person very dear to them and hence the way they treat the toy is a realistic character.



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Dramatic Play

Its a highly developed form of symbolic play. Through imitation and imagination, children can pretend to be someone else (teacher, mummy or dad etc) act upon something (pretending to ride a horse etc) or pretend a situation. Dramatic play contributes to cognitive development by expanding creativity and social skills.



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Construction play

It begins around the age of 2 years and continues throughout childhood. Children enjoy manipulating objects or material, books or sand and other material to create something new. It is a way of exploring, testing and understanding the world they live in with different materials, shapes and sizes.

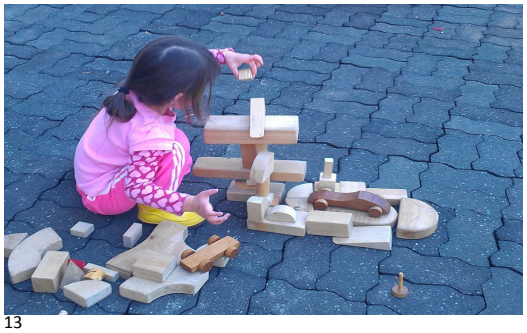
Example: a sand pit, where the kids can build sand art like castle, den etc.



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Social Play

All children develop from playing alone to playing in group:



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Solitary Play
From infancy to age of 2.5 years, children play primarily alone, independent of others. During this period they play little attention to what others are doing and focus on their own activities. Even if the child grows this need of solitary play remains.



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Parallel Play
From age of 2.5 to 3.5 years of age children still play independently, but in the company of other children. No attempt is made for cooperative activity. Children at this stage play beside others, instead of directly with them.



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Co-operative Play
Children aged 4-5 years are often in this age group. It is often a group activity which is organized for a purpose.

DESIGN CHARETTE:

Learning environment workshop at Northstar school

A design charette on learning environment was conducted at Northstar School, around the question: " *How can the campus be designed for supporting learning activities?*"

The main aim of the workshop was to understand the informal spaces that can be used for learning: corridors, courtyards, gardens, steps, etc.

Participants included architects, landscape architects, artists, graphic designers physiotherapists, teachers, parents etc. Together, they brainstormed on the various domains namely science, ecology, arts, mathematics, citizenship and society to understand how the campus , as well as the environment may be used for active as well as passive learning.

IDEAS FROM THE WORKSHOP

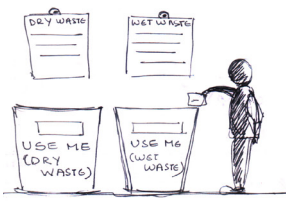
- Farming - learn farming: the root of Indian society - agricultural products, soil ecosystem, interaction with local community and farmers, animal husbandry, basic botany
- Zen garden for meditation
- Fish pond
- Interactive sculptures like mirrors
- Dustbins in corridors to guide wet and dry waste. Wet waste can go as fertilizer to the farm
- Geography game - visit to various places in Rajkot
- Space for making physical art structures from clay, sand, newspapers, plastic bottles, pottery
- Sensory zones for touch and feel, colour transition walls + hues
- Creating time line - yearly, Kiosk art
- Garden which uses plastic bottles in various forms
- Magnetic tiles wall to create a geometric zone and le go wall



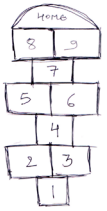
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Dustbins for wet and dry waste

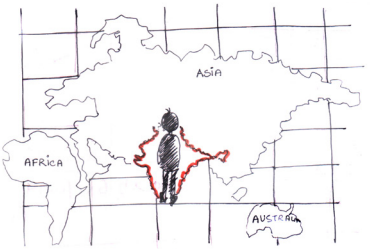


Traditional games On floor

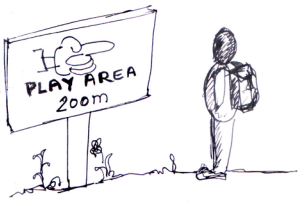


Plastic bottles seats

- Traditional games - snakes and ladders, hopscotch, kho-kho, etc
- Colour transition walls + hues, transition spaces with different doors, different path, tunnels etc
- Eating etiquettes, awareness to good food habits, healthy body
- Terrace as a space to think, learn, interact, create
- Sun clock, tower clock
- A space with sunset and sunrise views wherein different things can be learnt example shadows during entire day. It can also be used to relax and think about something.
- Road sense, traffic sense in the corridors with stop signs or zebra crossing etc
- Body balance learning in outdoors or camping site with different props such as tyres ropes stone wall etc.
- A puzzle wall where a different puzzles or riddles can be displayed everyday
- Outdoor theatre space for plays, cultural programmes, dancing, singing, demonstrations,
- Art gallery space for students to display their work
- Labelled plants and trees with their names as well as their different parts being labelled and useful for children
- Lots of numbers should be used in campus. eg - numbering the staircase, numbering the tiles in specific area to make math learning easy and fun.
- Distance sign boards should be used throughout the campus and also distance signs for farm, university, Rajkot city etc.
- Visiting nearby communities or inviting them to our school and interacting with them or their children. Teaching under privileged children of nearby communities or farmer's children. Visiting nearby community and learning their culture.
- Museum space in school
- World map printed on the floor somewhere, and India being highlighted and marked with all the physical and political features



World map on floor

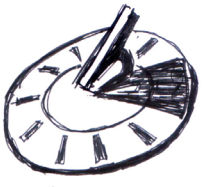


Distance sign boards


Trees with name



Numbers on floor


Sun clock

Case-studies

Before initiating play space design based on the outcomes of the design charette, it was important to benchmark the school against global best practices and innovative play spaces as well as public play areas and schools in the region.

The literature studies provided benchmarks on design language, innovations, design considerations, etc, while site studies of public parks and schools in the region provided benchmarks for material considerations, longevity, practical constraints, etc

FREW PARK ARENA PLAY STRUCTURE AT MILTON

Brisbane Guymer Bailey Landscape

The Arena is a unique play space design in a public park, consisting of complex architecture, unique form developed using a series of parallel walls and a monumental scale.

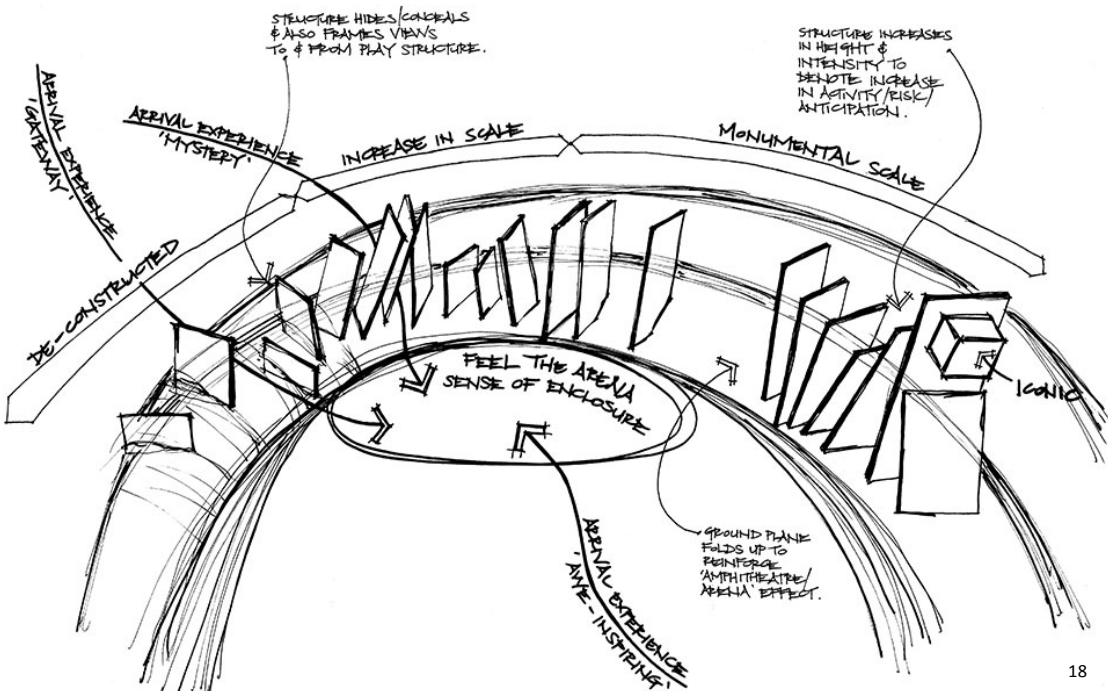
Arena Play Structure is an exploration in deconstruction of play spaces. A central lawn is enclosed within a busy structure consisting of large precast concrete panels of varying heights and angles; suspended concrete slabs, angled steel struts, steel mesh tunnels and barriers and angular folded roof canopies arranged in an arc. The structure integrates within its folds theme-specific play elements and street art that amplify its play value and its visual appeal.

Activities: slides, climbing walls, swings, nets and ropes, hang-out spaces, and interactive components.

Age Group : all age groups but mostly 10 – 15 years

Inferences :

- Moving away from individual play equipment, a unified play area is constructed to serve all age groups.
- A transparent volume ensures that visual connection is maintained between the foreground and the background.
- Age group distribution is achieved within the structure through height and access. Hierarchy is maintained along the entire structure.
- Use of bright colours create a playful environment for kids.



Concept



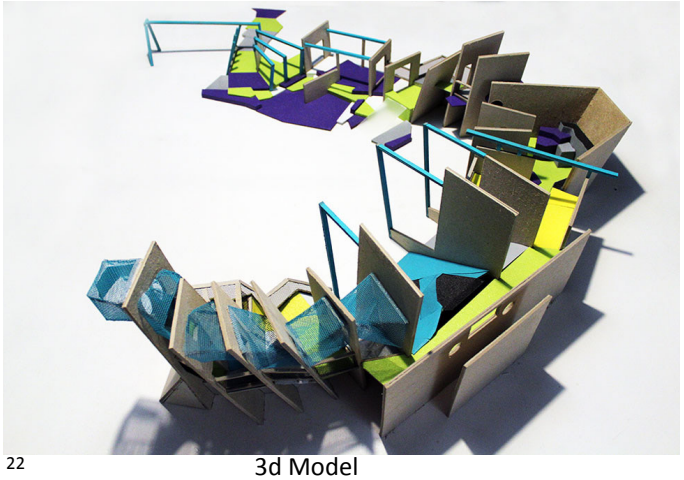
Aerial View 19



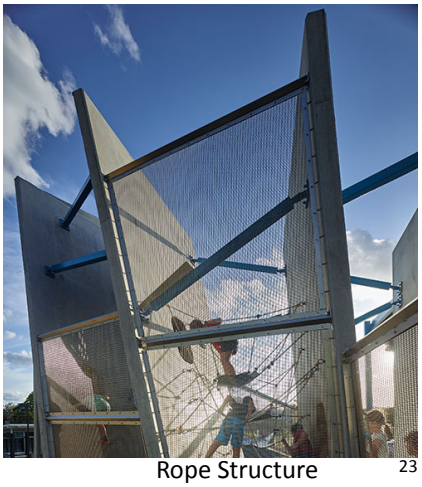
20 Concept



Sound pipes 21



22 3d Model



Rope Structure 23

TODDLERS' PLAYGROUND, ALFORTVILLE

Espace Libre

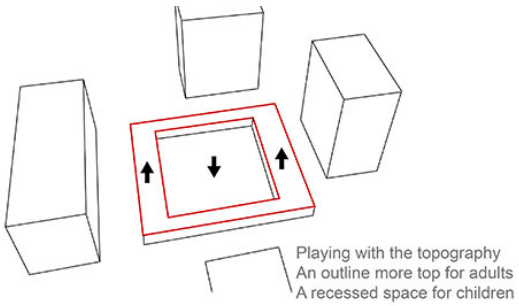
A large dedicated early childhood play space is divided into a raised area for adults and a recessed central area for children. The topographical design includes level changes (steps, slopes), contrasting materials (aggregate concrete, soil, grass, asphalt), various colours, and abundant vegetation. These allow the children to explore a stimulating environment. The play area is bound by a raised walkway to create a sense of security for kids.

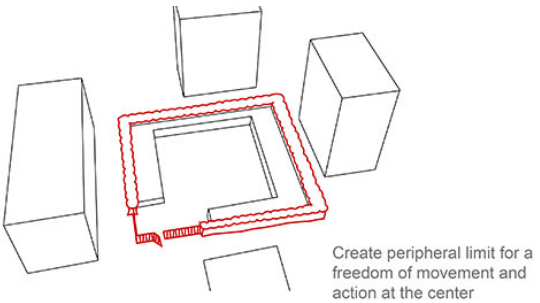
Activities: In order to enable children to take possession of all the components of the space: earth , plants , light , smells , colours , sounds, the playground has furniture that makes sounds and light. There is also a native plant palette that plays with the senses. There is lot of self exploratory play in form of black boards in ground, etc.

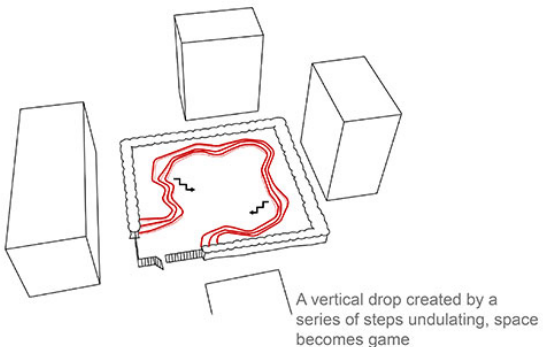
Age Group : 2 - 6 years

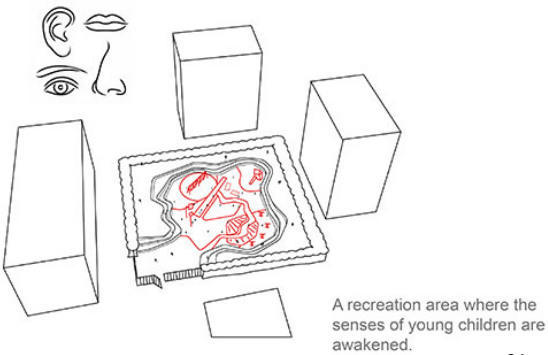
Inferences :

- Division of spaces for kids and adults
- Multiple textures.
- Merging of softscapes and hardscapes
- Limiting the play area with steps and raised walkway for the safety of kids.









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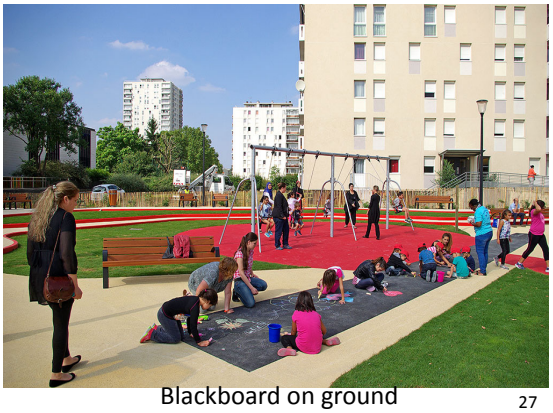
Concept



25 Plan



26 Switch board



Blackboard on ground 27



28 Aerial view



Pathway and seating 29

ZORLU PLAYGROUND, ISTANBUL

Carve Landscape Architecture

The playground is designed as a transition in various zones from a low, brightly coloured artificial space to an steep adventurous natural play environment.

Low hills

The entrance consists of gentle hills to climb on, slide down and explore for young children. The hills have odd shaped play-elements for the young children, like trampolines, climbing nets, and slides.

Deep valleys

The hills give way to valleys when moving inwards from the entrance. A hidden world manifests itself in form of a bridge, giant net structure and a giant slide that can be used by a whole bunch of children concurrently.

Mountain range backdrop

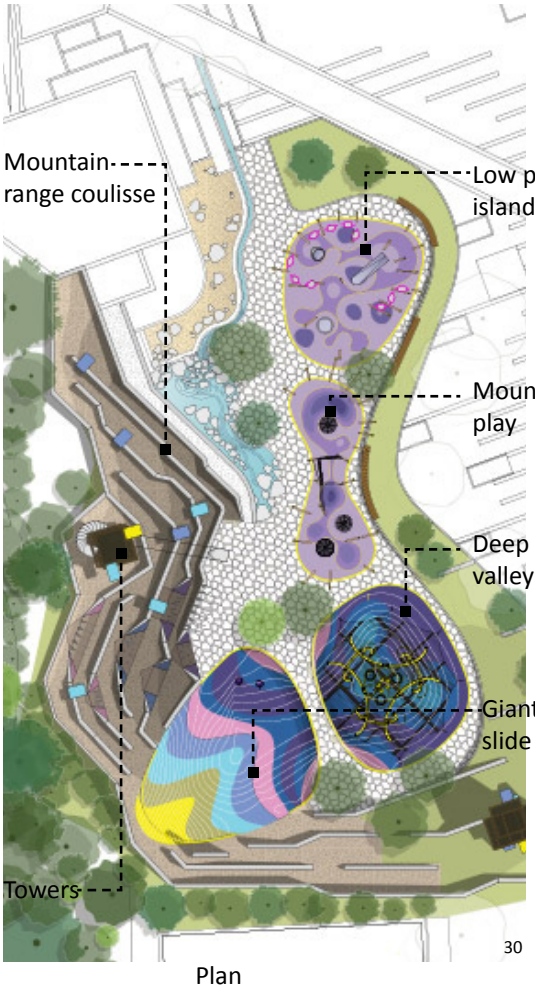
The deep valleys meet a 'mountain range' consisting of several rows of walls that contain within them an endless amount of play possibilities, from climbing, running, hiding, sliding and crawling to playing hide and seek.

Two towers

The playground contains two towers stacked like a series of cubes and clad with wooden slabs. One can observe the whole playground from these towers. Transparent and opaque routes offer an endless amount of possibilities to move up and down.

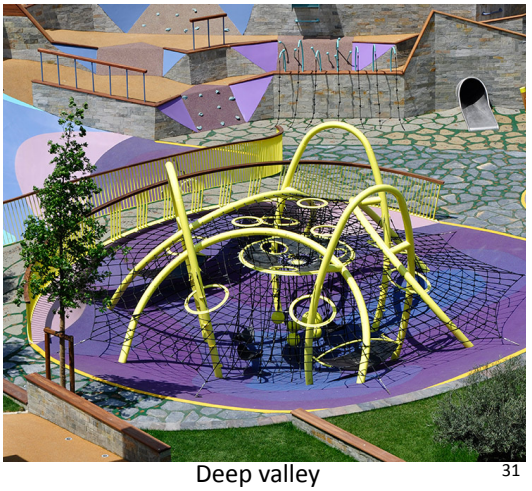
Inferences :

- A wide variety of activities woven together using undulating topography, while also contributing to a unique visual language
- Use of vibrant colours makes the structure more appealing



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Plan



Deep valley

31



32 Mountain range



33 Giant slide



34 Low hills



35 Towers with rope climbers

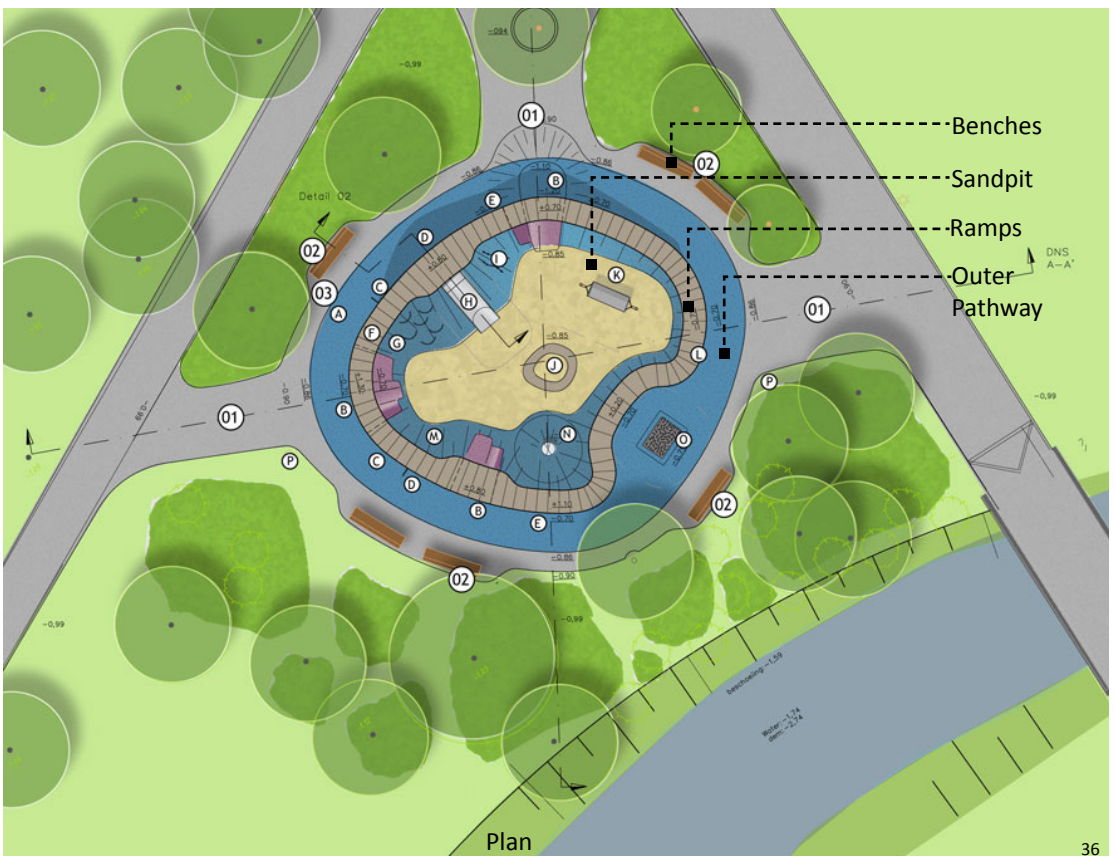
MELIS STOKEPARK
Carve Landscape Architecture

The playground is a large ring that is both a curving route to the slide, and a two-sided climbable boundary. The vertical outer wall is made of strips of wood with perforations and round climbing holds. The ring encloses an inner area with blue rubberized undulating playing slopes and a sandpit. Several passages lead to and from this inner area and offer their own seating and playing possibilities. The privacy of this inner play area offers a secluded spot for young children. The wooden wall with horizontal climbing routes and steep slopes create playing possibilities that each child, depending on his own skills, can use in different ways. Inside, around and on the ring is wide space for challenging active games, repetitive movement games (turning, sliding, jumping and swinging), construction play (sand) and for fantasy games (tunnels, platforms, shelters).

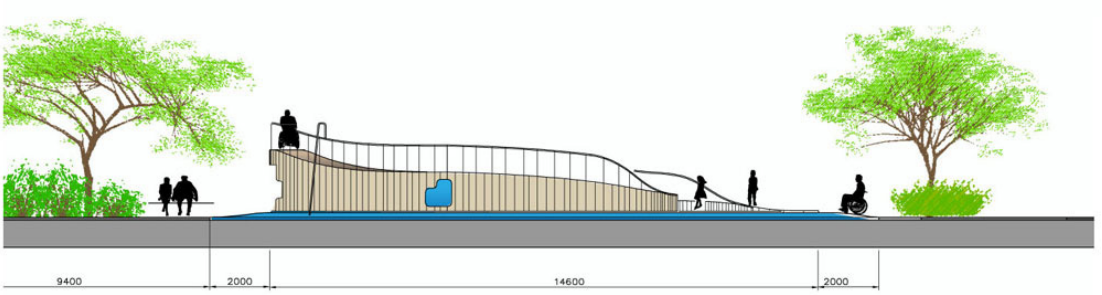
Age Groups: 5-10 years

Inferences :

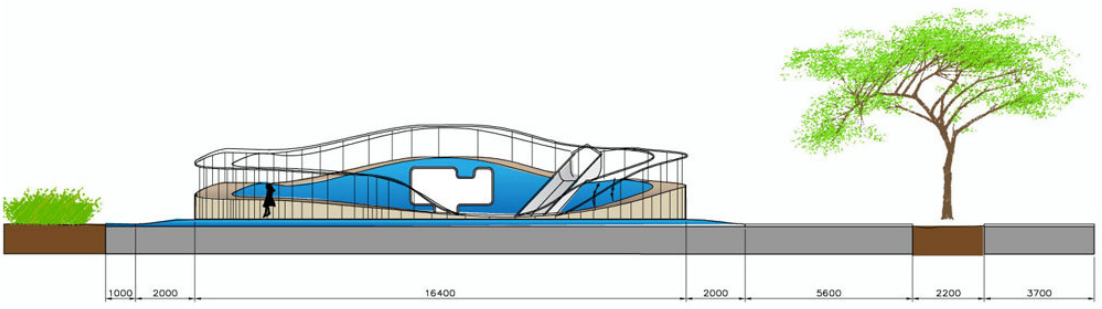
- An isolated area is created for playing but it is still connected to the surroundings through openings in the ramp
- Use of climbing pegs on interior and exterior of the walls makes the ramp more accessible



Plan



Aanzicht 01
schaal 1:100



Aanzicht 02
schaal 1:100

Elevations 37



38 Slopes with tunnel



Sandpit 39



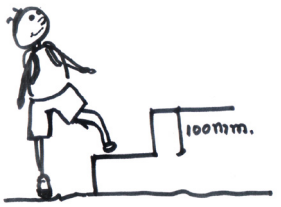
40 Outer wall elevation

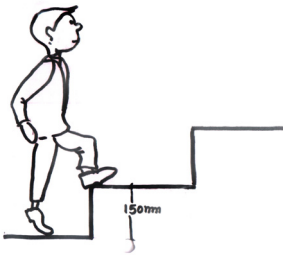


Shapes and niches 41

INDIAN SCENARIO

Site visits were done to understand the anthropological standards for children of various age groups and study about the various play equipment used currently. The study was again divided in two parts: a study of public parks and private parks in schools as well as residential precincts.





Public Parks:

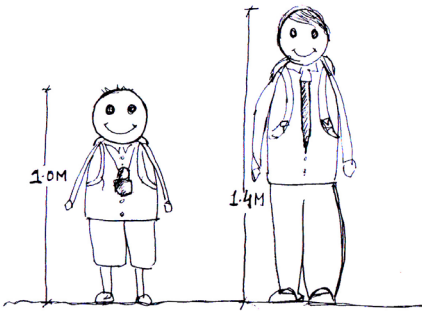
- Parimal garden
- Law garden
- Shahibagh

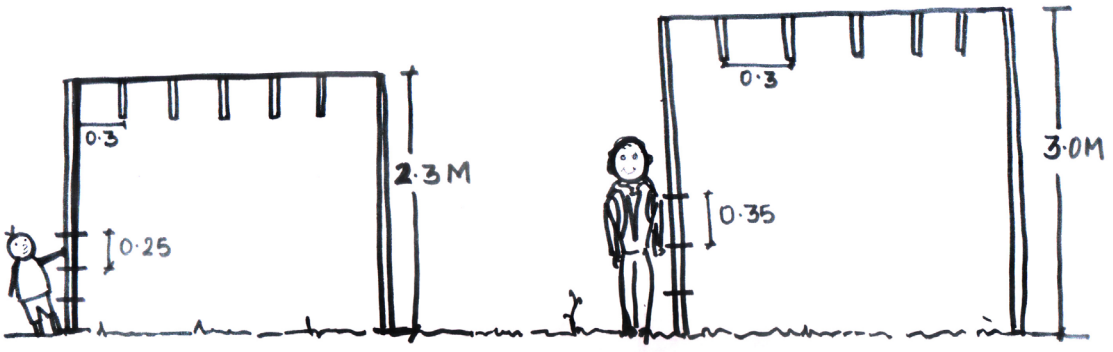
Private Parks:

- Adani Shantigram
- S.G.V.P School

Analysis

- Climbing, sliding , swinging and balancing are the prime activities which present day play equipment serve.
- Use of bright coloured play equipment makes them more interesting.
- Most play spaces look the same, without any underlying theme or target users. The only difference between age group manifests itself in equipment size.






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PUBLIC GARDENS

The public parks studied included:
Parimal Garden and Law Garden: old public gardens located in the core of the city
Shahibaugh: a contemporary public garden recently developed along the riverfront

The play equipment used in public parks, mostly included individual play structures like swings set, slides, climbers, hangers, rock climbing, rollers etc.

All the play equipment observed were built in metal, and locally fabricated. Use of fibre reinforced plastic was also observed in some equipment, like those for rock climbing, rollers etc. All structures were coated with bright oil based paint.

A safe distance of 2-3 metres was observed between individual play equipments that avoid any injuries during the play.

Sand was used as a safe ground texture, for equipment that had a fall height of more then 1.5 metres.

Entire play area, was well shaded with trees along the periphery of sandpit.

Pros:
All the play equipment installed are low cost and easy to maintain.
Since all the activities are covered separately in individual equipment, the play space can cater to several kids at same time.

Cons:
The play equipment are very basic, lack an element of fun for play, are monotonous and don't allow innovative play development either on their own or through the general arrangement of the play space.
All play equipment surfaces become unbearably hot in the sun due to their metal surface, and thus are rendered unusable for large amounts of time , especially in summer.

PRIVATE GARDENS

The private play parks studied included:
Adani Shantigram: a private colony developed on the outskirts of Ahmedabad.
S.G.V.P School: a prestigious private school located in Ahmedabad.

The play equipment used in private parks, mostly included branded composite play structures that included swings set, slides, climbers, hangers, rock climbing, rollers etc. This limits the number of simultaneous users in the space.

Material used in play equipment is metal, but in places where play equipment is to be touched, fibre reinforced plastic is used.

Equipment are highly decorative, and coloured bright.

The play structure themselves contain shading devices, and few trees are observed around the play equipment.

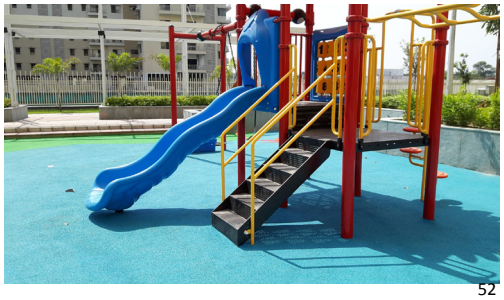
EPDM and granular sand was used as a safe ground texture. Various patterns, colours and games are observed the flooring of play area, making it very interactive.

Pros
Unified visual design of EPDM and articulated play structure increase the interaction between the user and play equipment.
Safety levels are high as compared to public parks

Cons
The initial as well as maintenance cost for the play structure is high
Composite structure can only be used for small groups of users


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MATERIAL STUDY



55 Sand

Sand

Sand is used protective ground texture in low cost play areas. It is easily available, and easy to maintain / replace



56 E.P.D.M Tiles

EPDM Tiles

EPDM tiles are cheaper than in-situ EPDM granular surface. Many colours are available, but the shapes and sizes of tile is restricted. Hence, only few flooring patterns can be achieved with these tiles



57 EPDM granules

EPDM Granules

EPDM Granules are used in expensive private play spaces. Various colours and patterns are available for these products. They are easy to lay, but difficult to maintain or repair.



58 Granular sand

Gravelly sand

Gravelly sand can be substitute for sand, as it does not spoil clothing and is easy to maintain



59 Fibre reinforced plastic

Fibre Reinforced Plastic (FRP)

FRP resists heat and stays touchable even in hot sun. It is used for covering steel structures as well as for seats, slides, climbing pegs, etc

Design

Upon completion of base line studies, a few decisions were made for development of play spaces for North Star School. Play spaces were segregated according to age groups: pre-primary, primary and high school. This allowed easy management as well as minimal conflict between age groups.

The designs unabashedly borrow heavily from forms, colour schemes and innovative play equipment of global case studies. However, the spatial development for physical as well as psychological play is completely developed from scratch by the design team.

DESIGN CONSIDERATIONS

Activities

Activities required for the physical and social development of kids can be most conveniently segregated according to age groups.

Juniors (5-8 years)
Mix of small as well as large muscle movements, opportunity for imagination and innovative play, large open space for co-play

Intermediate (9-12 years)
More emphasis on large muscle development, innovative play combined with strenuous physical exercise, few pockets for shy groups

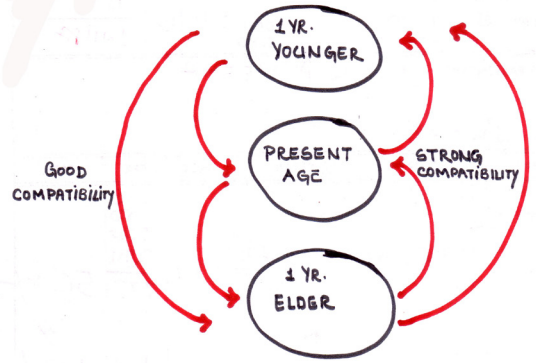
Seniors (13-16 years)
Complete emphasis on large muscle development, combined with recreational spaces, multiple pockets for various groups

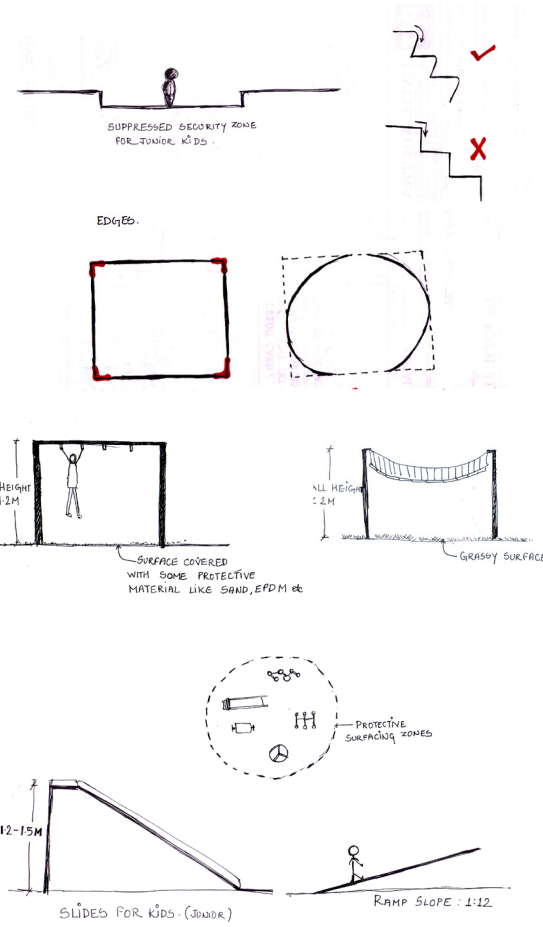
Junior Play Spaces

The junior play spaces should be located in the closest proximity to the school, so that the kids have to walk as minimum as possible, and are within easy visual as well as physical reach.

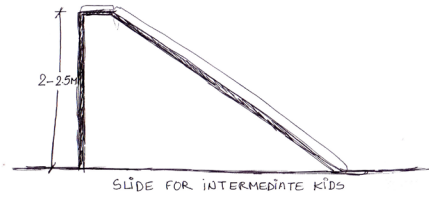
The design form should be mostly organic and edge-free, to avoid any sharp corners that may cause injuries during play. A free flowing cyclical shape also aids repetitive activity and imaginative play, while increasing possibilities for co-play.

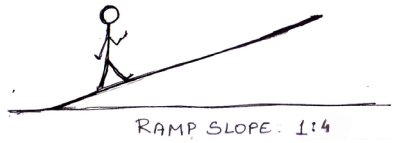
Fall heights from each part of the structure should be closely checked, providing a protective surface material for fall heights more than 1.2 metres and lawn for lesser heights. Play equipment should be placed considering the safe intermediate distance, progressions and combinations. Ramp slopes should not be steeper than 1:12, while maximum height for slides should be not more than 1.5 metres.

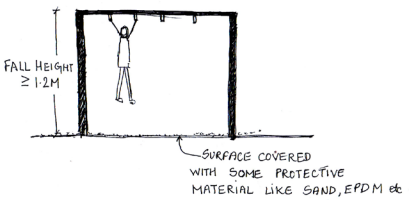


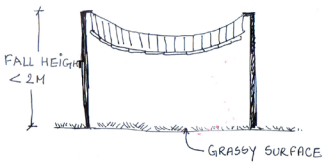


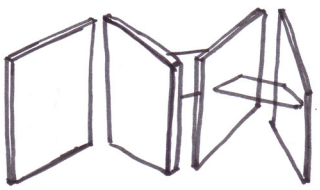














Intermediate Play Spaces

Kids of this age group like to prove themselves, and do not need constant supervision. The structure should be located such that it can be viewed from the staff areas for partial adult supervision.

In order to provide a formidable challenge to kinds while running up and down the play structure, ramps may be maintained to a maximum steepness of 1:4.

The maximum height for the slides may be between 2.5 - 3.0 metres, to provide a thrill value for older children, while ensuring safe free fall heights.

Senior Play Spaces

Children at this age do not need adult supervision and value their privacy, hence it should be placed at a distance from school as well as other play spaces.

Kids in this age group like to loiter around, hence the play space should provide students with spaces for adventure as well as relaxation.

The maximum height of free fall for this age group can be considered to be 2.0 metres and the ground should be covered with a protective surface like sand or natural ground.

Since the students of this age group are always wiling to proves themselves, it is ideal if the play space deals with the challenges related to height, to develop the physical strength in student.

Instead of regular play equipment, different options and material should be considered, to justify the adequate challenge for the students in this age group

PLAY AREA ORGANIZATION

The play area should be organized into activity or play zones. The play zones should be linked together by a connecting pathway system to form a series of progressive play opportunities. Each zone should provide play activities which reinforce a specific physical, cognitive or social development skills of the target age group.

Types of play zones

Passive and Active Play
Large muscle, physical play activities are frequently noisy and should be separate from cognitive or other passive forms of play. There should be a large transition between passive and active play spaces.

Age group
Play zones may be organised according to the age groups with separate zones for those age which has incompatible play and development needs.
Activities can also be distributed according to age groups, so that access and safety standards can be maintained.

Different group sizes
Play zones may be organized according to the different sizes of group who will be using them. Active muscle play happen in big group and mostly older school children. Social play often occurs in moderate size group of 3 to 5 while cognitive play usually occurs alone. Locating a zone of larger group near individual should be avoided.

Ground surface
The different activities required for physical and social development of kids, need different ground surfaces for its proper functioning. A comparative study of this relation can be seen in table 2.

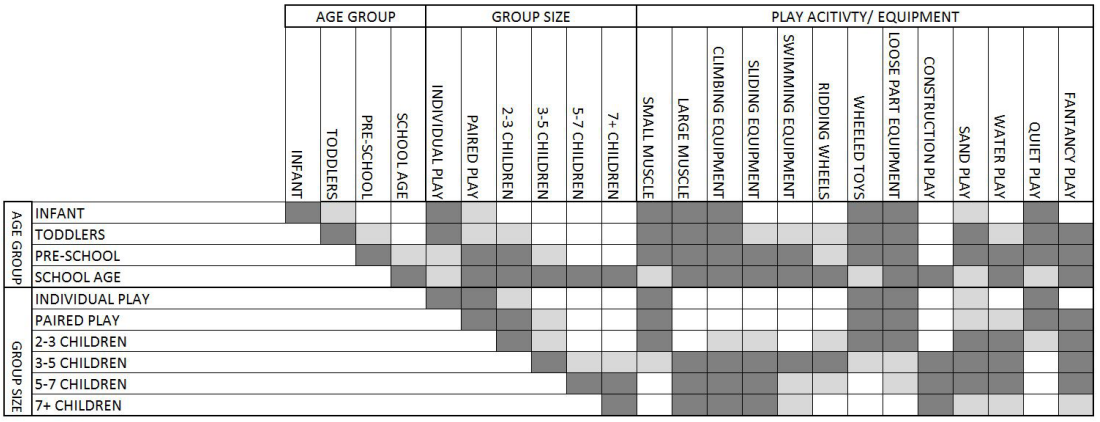


Table 1 : Compatibility of age group, group size and activities

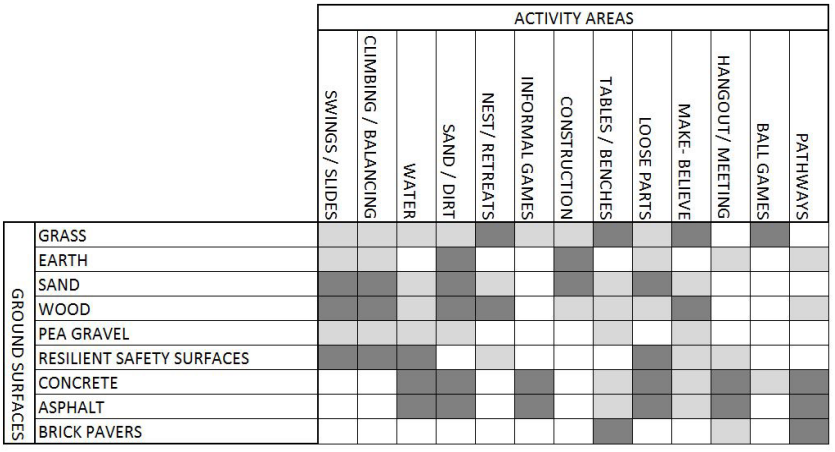
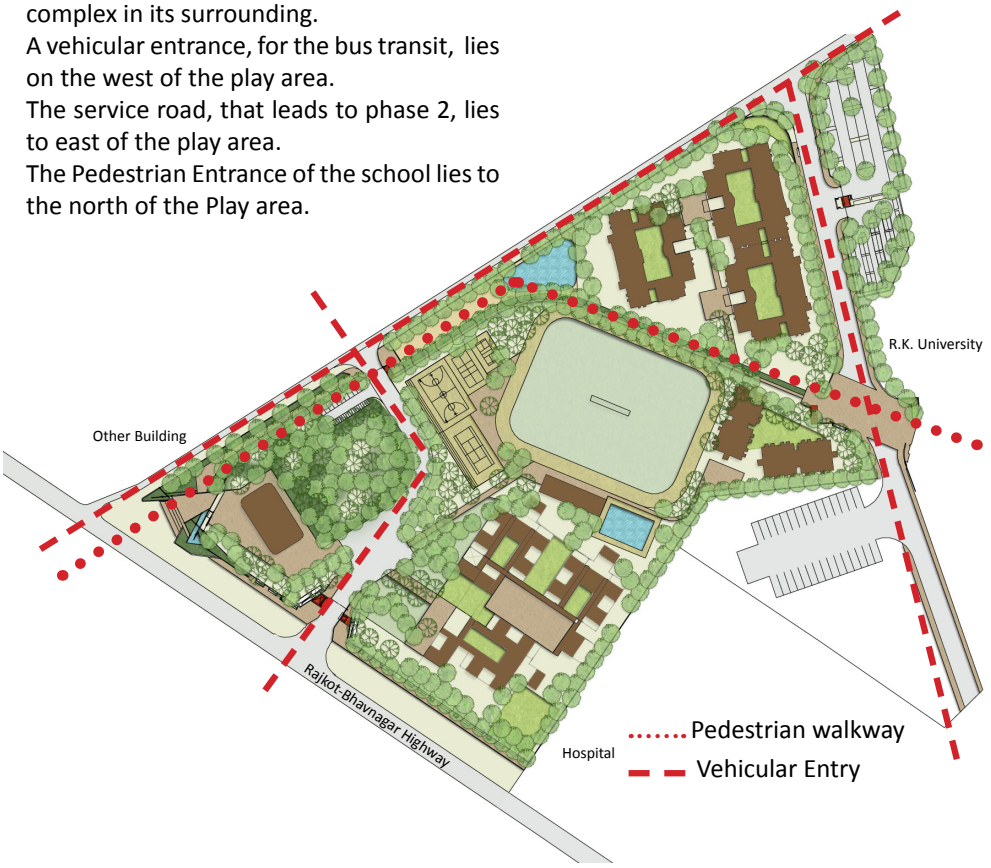


Table 2 : Compatibility of Ground surfaces and activities

Note: darkest colour indicates maximum compatibility, and uncoloured boxes indicate no compatibility

SITE CONTEXT

- Site is located in Rajkot city, At Rajkot-Bhavnagar highway. It is separated by R.K University by a 15m wide Ghadka Village road.
- The site has a hospital and a Residential complex in its surrounding.
- A vehicular entrance, for the bus transit, lies on the west of the play area.
- The service road, that leads to phase 2, lies to east of the play area.
- The Pedestrian Entrance of the school lies to the north of the Play area.

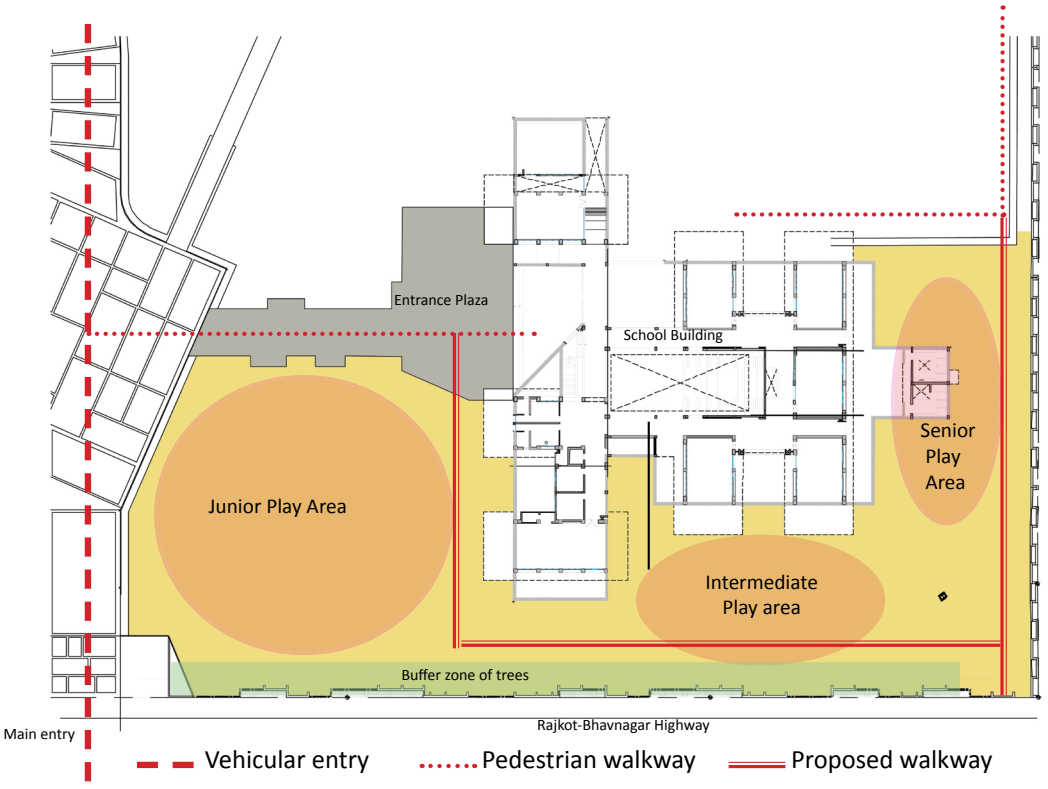


60

Play Area

The school building is oriented in NW-SE

- The footprint of school building is 2100 sq.m
- The area allocated for play structure is 4485 sq.m
- The Play area is proposed to be used by 250 students in phase 1 and 750 kids in phase 2
- The school building has only one entry/exit point, and the circulation of the play area is developed from the same point



61



The academic block has only one entry-exit. Therefore the junior play are is placed closest to it so that kids don't have travel a long distance and they remain in a secure guidance of teachers. Junior play structure spreads over a large area since kids lying in this particular age group are more active and prefer more to play.

Play areas are segregated according to age-groups for the convenience of children and avoid acts like bullying and fighting etc. Intermediate play area is placed next to junior play area which is then connected to senior play area through a pathway.

A buffer zone of trees of about 6M is left from the compound wall to beat the extreme heat of Rajkot and to reduce the noise produced by the vehicles running on the highway.



View from point A 62



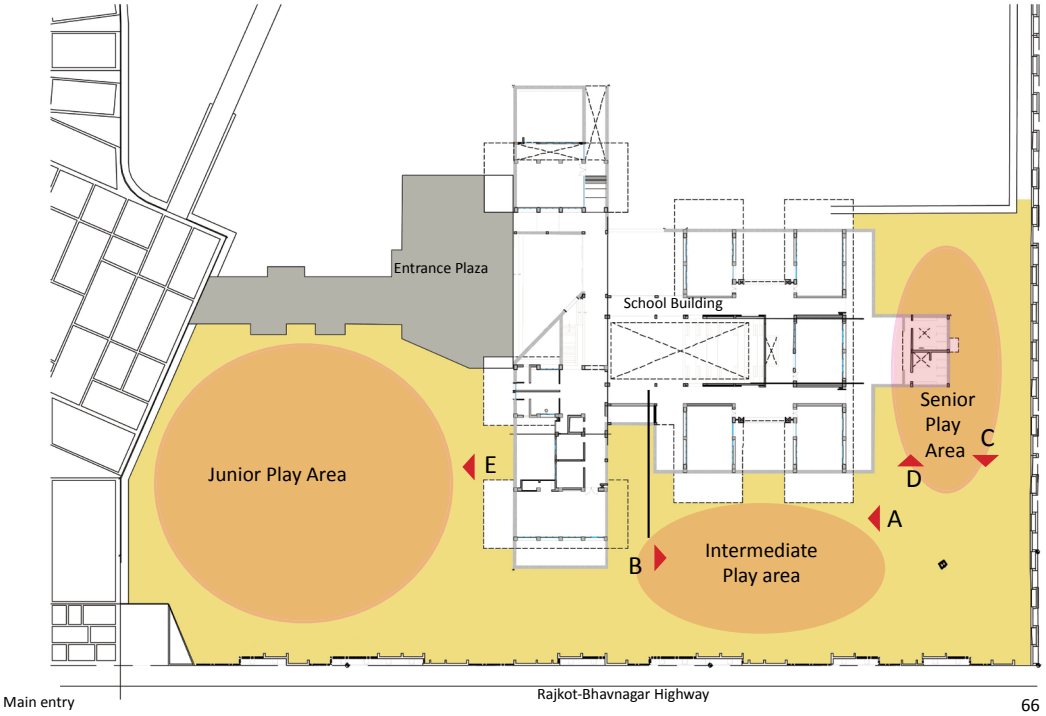
View from point B 63



View from point C 64



View from point D 65



66



67

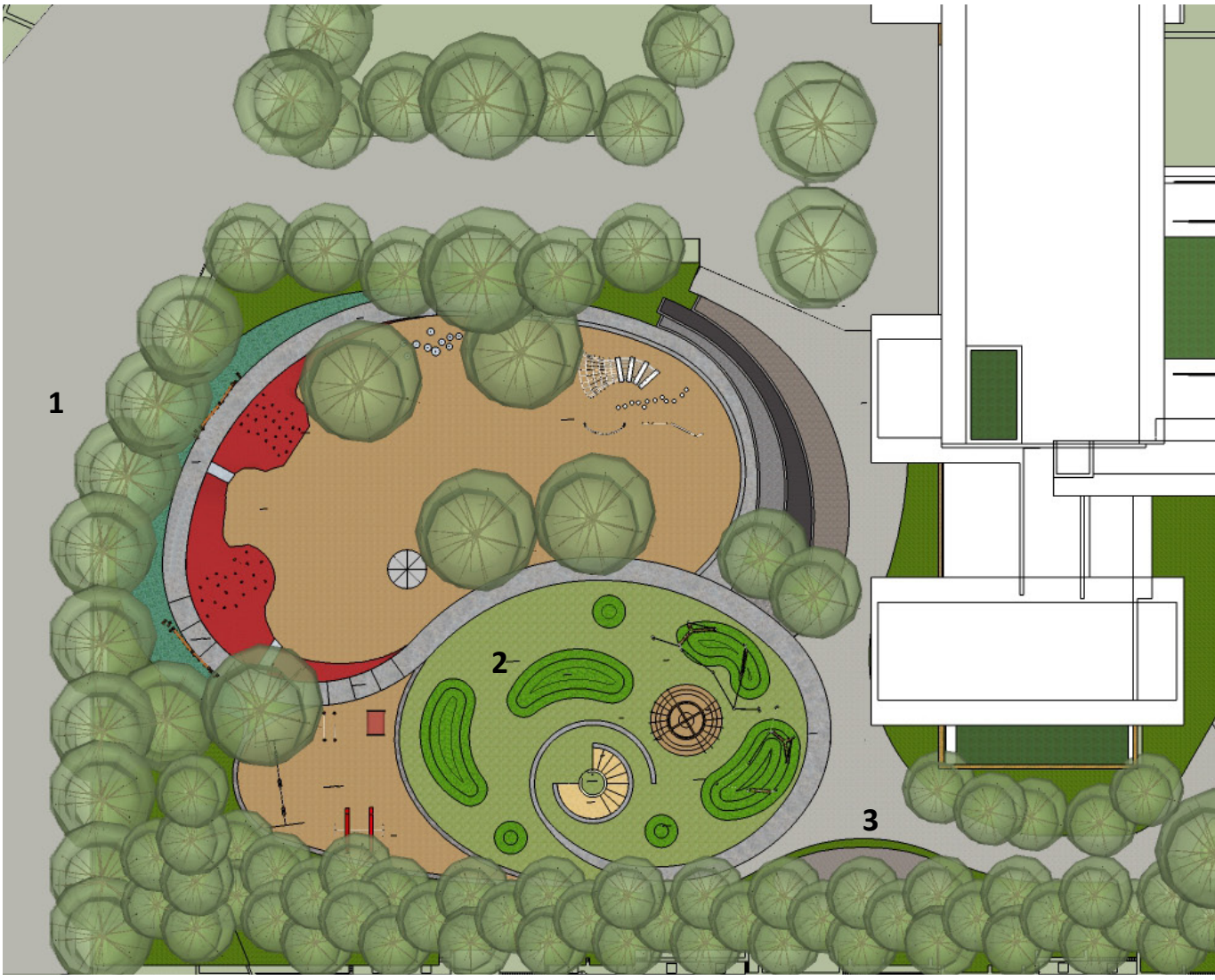
View from point E

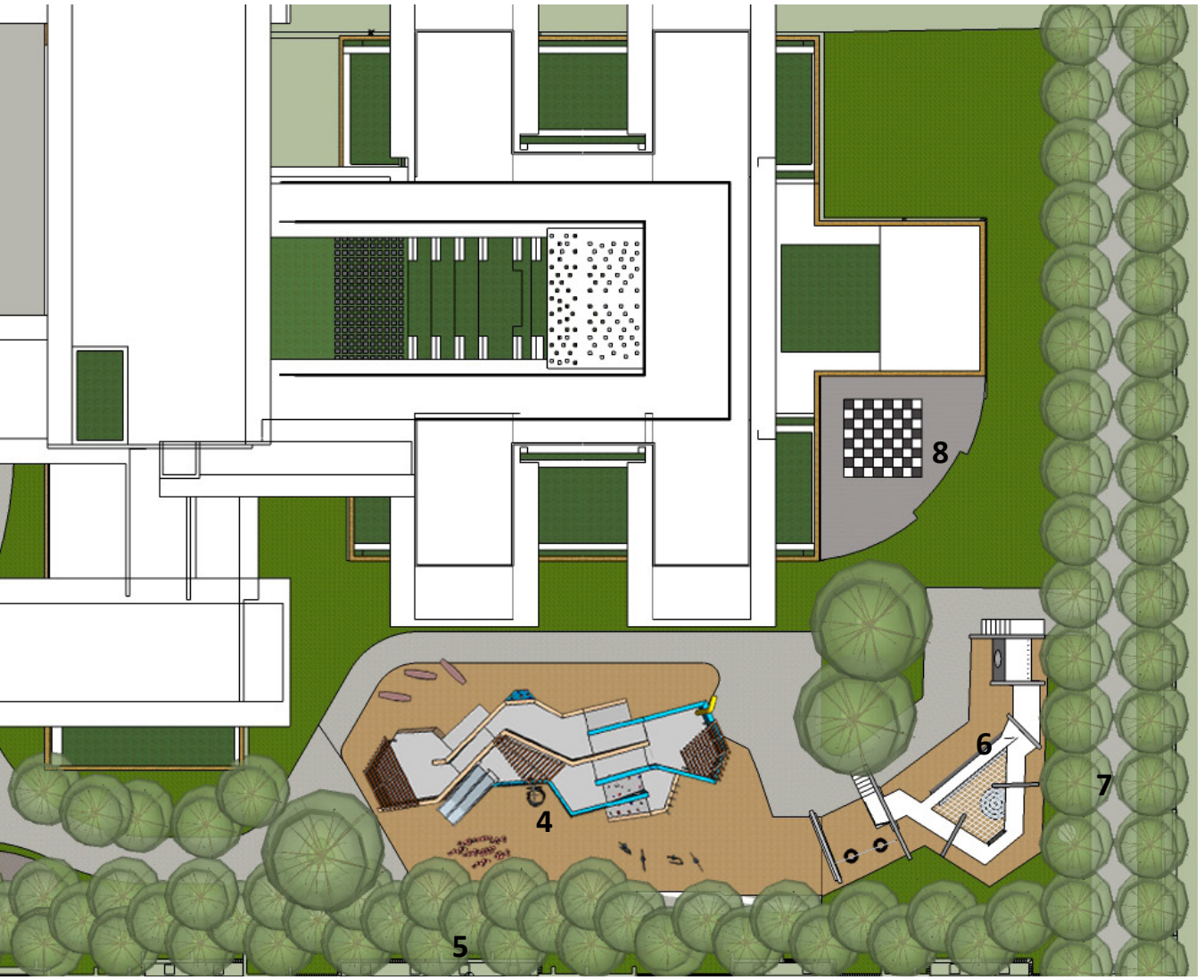


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View from point E

SITE LAYOUT:





LEGEND

1. Internal Road
2. Junior play area
3. Walkway
4. Intermediate play area
5. Buffer zone of trees
6. Senior play area
7. Service road
8. Traditional games

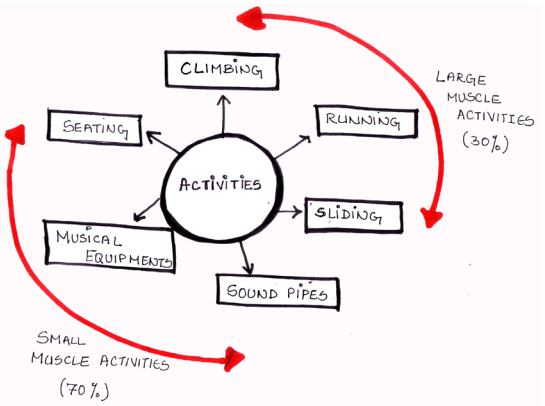
Junior

Objective

To create an environment where young kids can learn, play and enhance their social as well as physical skills.

Activities

Children in this age group prefer a mix of large and small muscle activities



JUNIOR PLAY AREA

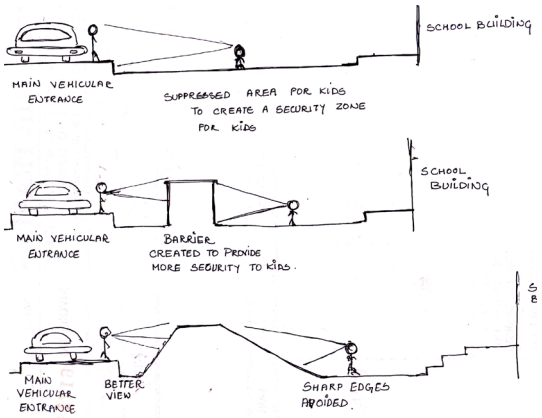
This play structure is heavily influenced by the Melis Stokepark. The junior play area is located in the closest proximity to the school.

Since the area is located beside the vehicular entrance and the entrance pathway of the school, maintaining the security of the kids was the prime focus. To achieve an enclosed space, the play area is sunk into the ground that prevents the kids from straying into the vehicular zone.

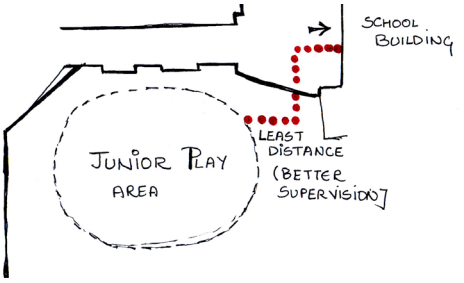
The design form is mostly organic and edge-free. A long ramp runs around the play space and crosses itself in the centre forming a knot like shape. It becomes a barrier between the play area and vehicular street, as well as provides various slopes for physical play on its inner margin.

Fall heights from each part of the structure are closely checked, providing a protective surface material for fall heights more than 1.2 metres and lawn for lesser heights. Ramps of slope of 1:12 are used, while maximum height for slides is 1.5 metres.

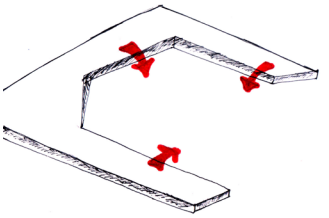
Visibility is controlled such that one sees only plantation from the outside, while children inside feel enclosed in the sunk area, and connected only back to the school entrance through a series of gentle steps.



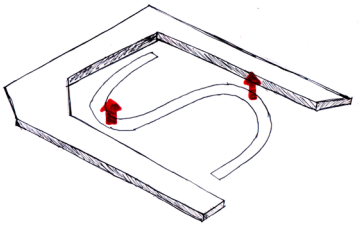
Development of visual barrier along the vehicular pathway



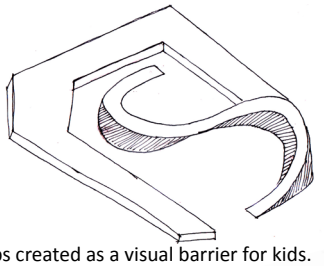
Play area placed to closest proximity of school



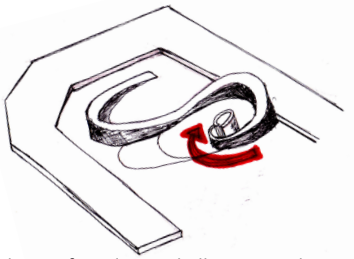
Sunk created for the safety of kid in the play area



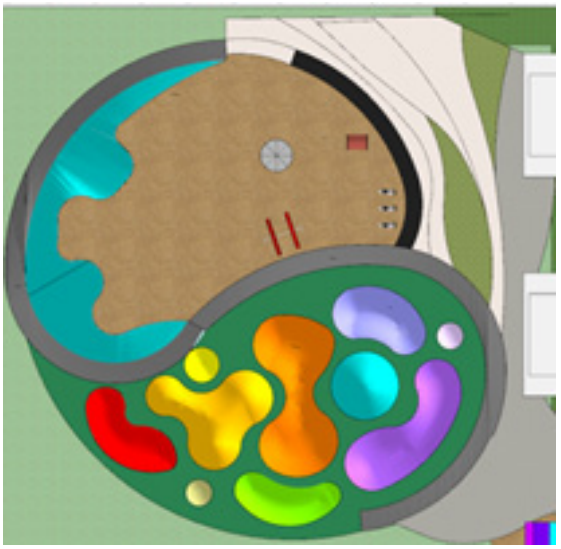
Division of play area in two parts : sand pit and mounds

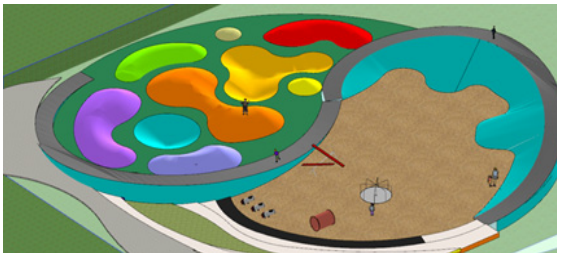


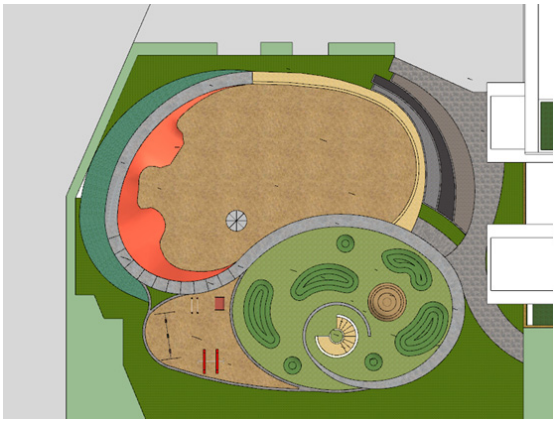
Ramps created as a visual barrier for kids.



Addition of swirl as a challenging and intriguing space









Concept

Enclosure, Security

Play area is located next to vehicular street and entrance pathway. Hence safety of the young kids during the play is one of the prime considerations. The concept is to enclose the play area from the surroundings while still maintaining visual contact.

Process

Stage 1

A free flowing ramp that divides the play area in two zones, one for sand pit other for mounds. Ramp started from the sand pit, and ended in the mounds.

Material selected for the structure were as follows: EPDM on the mounds and the slope of ramp,that added beautiful bright colours for the kids playing area, steps with Bella stone.

Stage 2

Ramp got a mid landing, so that the kids could enter different zones through it, also the ramp contains tunnels and opening, that gives the people a visual contact to the mounds area.

At the end the mounds was revised, a circular swirl was added, that increased the challenge for kids.

Material were revised, instead of E.P.D.M, grass is used to covered mounds. Since the maintenance of grass in Rajkot, would be difficult, mounds zone was reduced and another play area was added.

Since, various colours can be obtained from I.P.S, it is used as a substitute for E.P.D.M in the slopes besides ramp.

Activities

Different play equipment and materials are introduced on the slopes and on the mounds.

For safety purpose, the ramp is given a boundary with bamboo chimes, that can be played while running on the slopes.

The slope of ramp is equipped with pegs and climber, for the kids to roll down into sandpit.

Circular swirl, is equipped with niches, black board, periscope, etc that adds interactive play in the play structure.

Ramps A

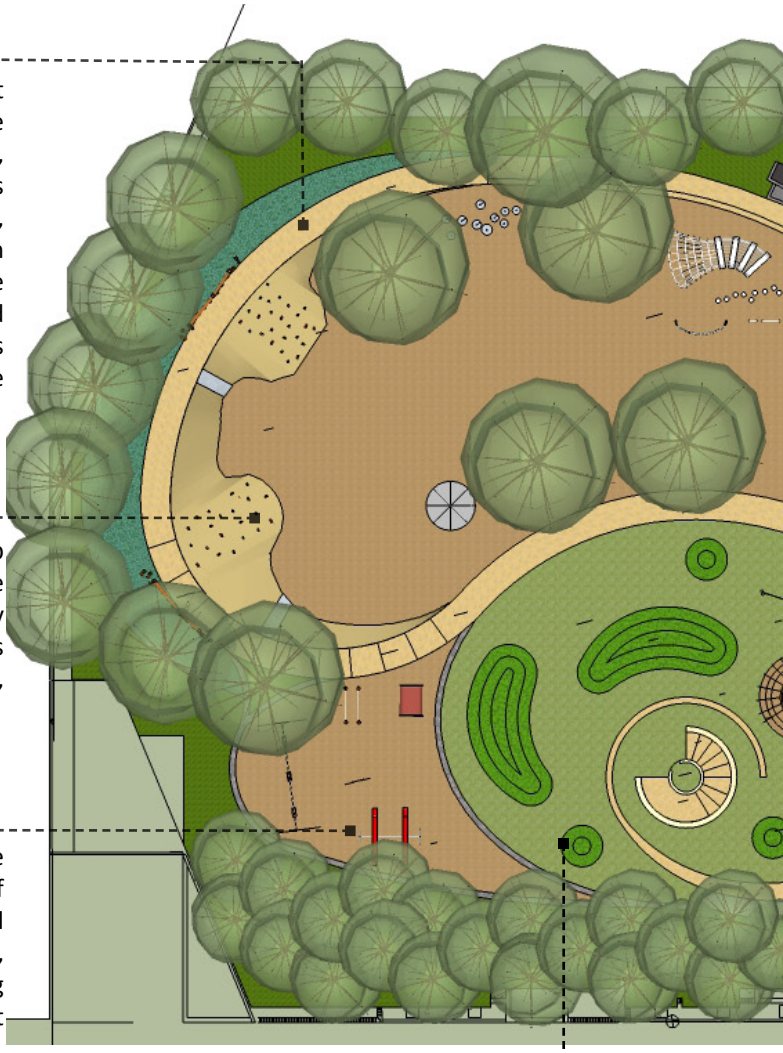
The ramps are flowing throughout the structure, that divides the play area from vehicular road, and also the sandpit from mounds area. Ramp A has a slope down, so that it helps kids to roll down the structure, and play along the slopes. The periphery is covered with bamboo chimes, that gives a protections as well as add the sound elements in the structure.

Slope

The slope is designed form ramp A to the sand pit area. It is made in IPS Since, its in I.P.S, it has many colours on its surface. The slopes caries out varies activity like, slides, rock climbing , rope climbing etc.

Play equipment

Many sort of equipment, have been placed all around the site of junior play area, that gives them all the activities like climbing, hanging, swinging, sliding, jumping, spinning for over all physical development of kids.



Mounds

The mounds are equipped with rope play structure, that helps child in their physical development while playing. Giving them an adventure to complete their task.



Steps

The steps are provided at the entrance of the sandpit, it provide the kids a area to sit and eat in shade, with a Black board on the floor, improves the small muscle developments of the kids at this age, and a place for the solitary play.

Sandpit

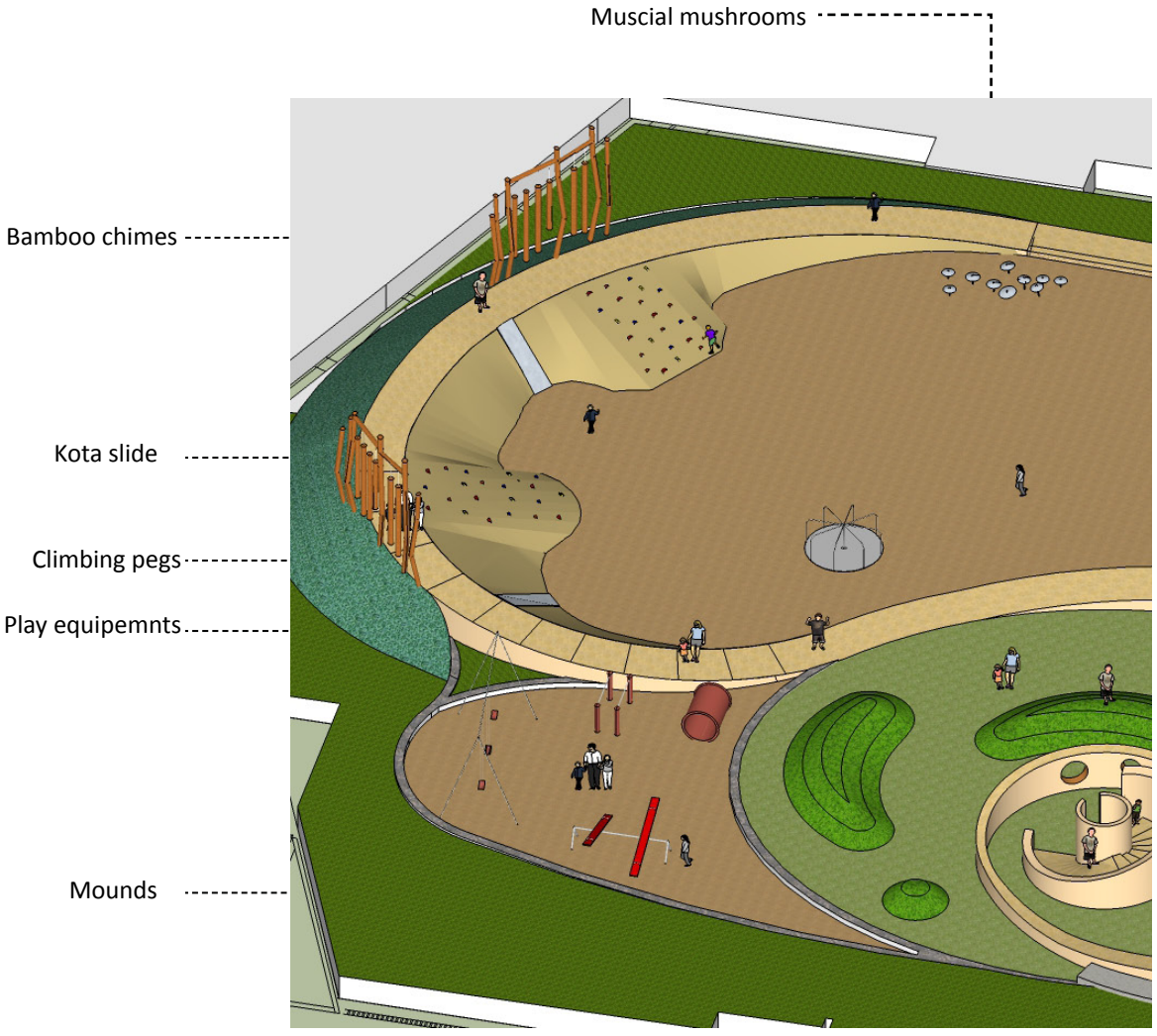
There is vast sandpit, that allowed the kids to run and play on it, fearlessly, the sand pit include as the play equipment like composite structure, balancing beams, slides, the climbing pegs.

Ramps B

The elevation of ramp B is treated with colours and motifs, that enhance the play structure. There are few opening in the play area, that lets the kids crawl from one area into another, the texture are added to make it more playful for kids.

Swirl

The ramp B ends up in a circular swirl. This swirl has a lot of opening and activities. The swirls adds up to the dramatic play of the structure. The swirl has a small circular space in between that has a periscope, that visually connects the kids to the campus.



Large muscle development

- Slides
- Play equipment
- Running on ramps
- Rope structures on mounds

Small muscle development

- Bamboo chimes
- Musical drums
- Sitting area
- Painting
- Drawing
- Periscope
- Sound pipes.

Practise play

- Rope climbing
- Peg climbing
- Sound pipes

Symbolic play

- Imprints on Pathway
- Motifs on Wall



Construction play

- Sand pit,
- Needle and thread games in composite structure.

Solitary play

- Periscope
- Sitting spaces.

Parallel play

- Play equipment
- Blackboards on wall

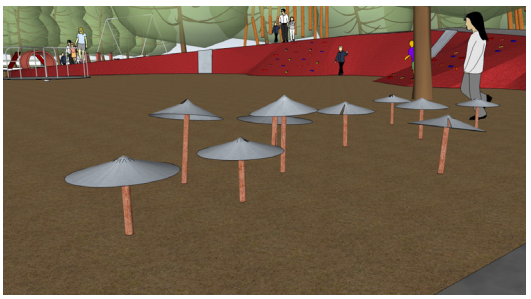
Cooperative play

- Play equipment Sound pipes
- Slides
- Tunnels
- Rope structures

Cymbal mushrooms

Cymbals of different resonance and sizes placed on rods at the height of 30-50 cm hat can be played by children with stick like found object. The form language will be like mushroom placed in bunches together to allow children to experiment with different kinds of sounds at a time.

Small Muscle Movement
Symbolic Play
Solitary Play

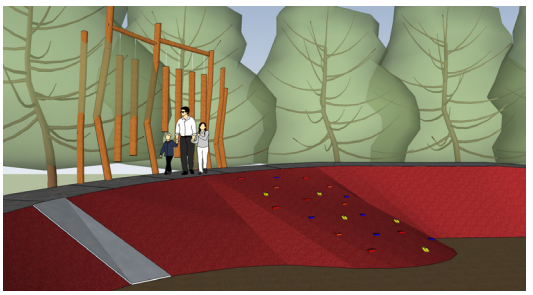


Cymbal Mushroom

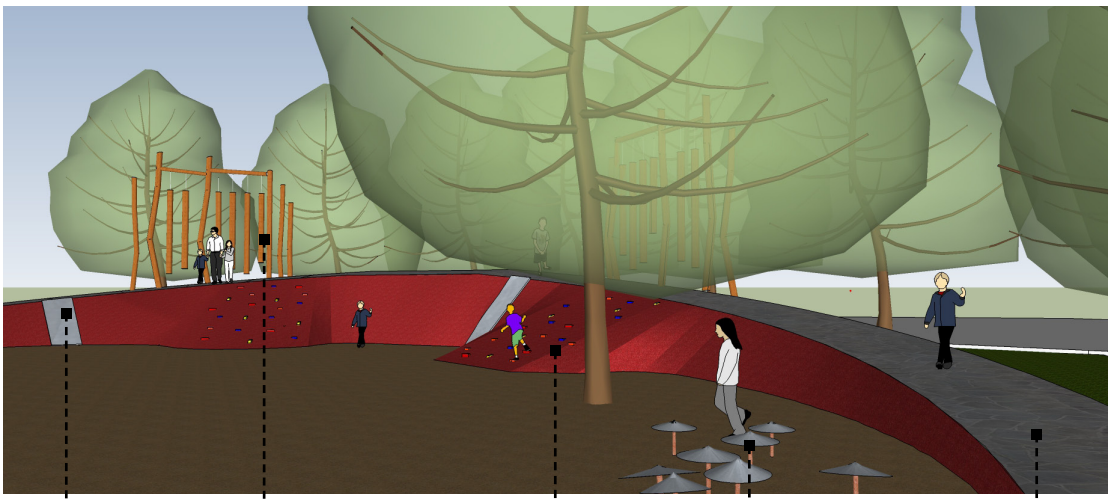
Bamboo chimes

A bamboo fence is placed behind the slopes. It provides a visual barrier to the play area from the open primary entrance area. At regular intervals rigid fence gives way to chimes which make beautiful base sounds.

Small Muscle Movement
Symbolic Play
Solitary Play



Bamboo Chimes



Kota Slides

Stone slides are proposed on the slopes of ramp, stone, to avoid surface heating in hot summers.

Large Muscle Movement
Practise Play
Parallel Play

Climbing pegs

The slope from the ramp is equipped with colourful climbing pegs, that allow the kids climb up the ramp easily.

Large Muscle Movement
Practise Play
Parallel Play

Mounds

Lawn covered mounds, few equipped with rope structure and few free standing, are proposed , to create a active zone in the play area. Mounds promote the balance and co-ordination in kids.

Large Muscle Movement
Practise Play
Parallel Play

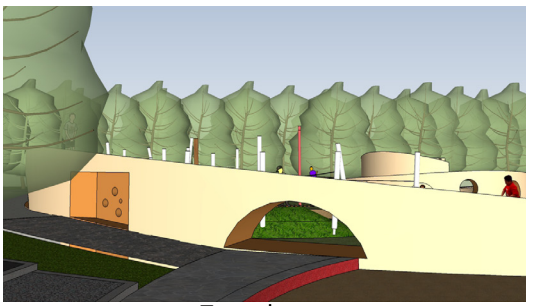
Tunnel

The wall of ramps are provided with tunnels, that provides an easy movement of kids from the pathway to the play area.

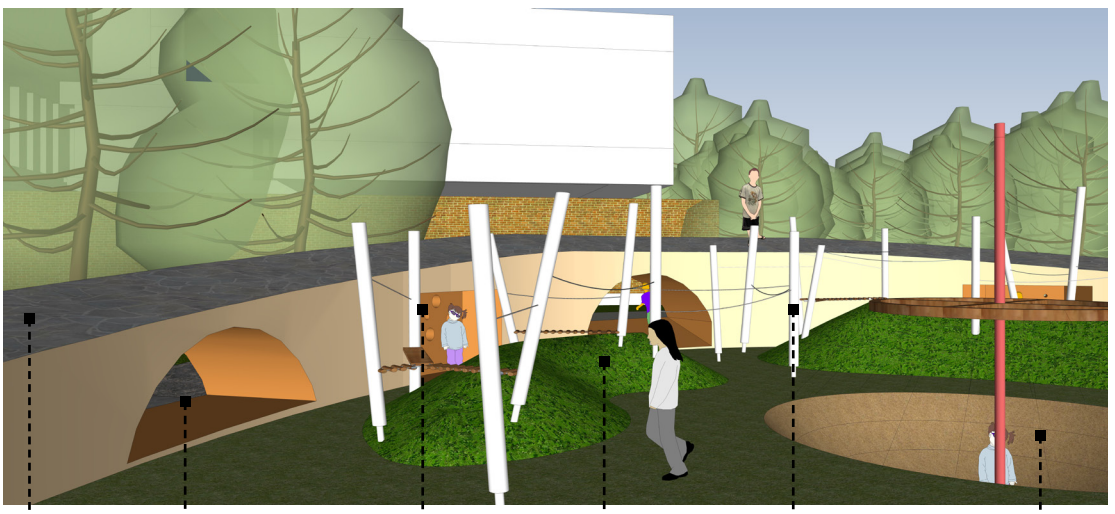
Large Muscle Movement
Practise Play
Parallel Play



Mounds and Rope structures



Tunnels



Sound pipes

Sound pipes are provided, in the play area, that enhance the small muscle movement of kids. It aso builds up co-operation between the kids.

Small Muscle Movement
Practise Play
Co-operative Play

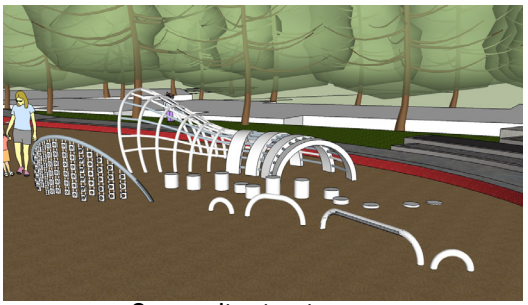
Rope Structure

Various types of rope structure are provided on the mounds, that promotes the ballance and co-ordination activities in kids.

Large Muscle Movement
Practise Play
Parallel Play

Composite structure

Within the sand pit, a composite structure is proposed, that consist of various equipment that enhances the different physical and mental development of kids . The composite structure is specifically design to ensure all the activities that develops kids are covered in sand pit.

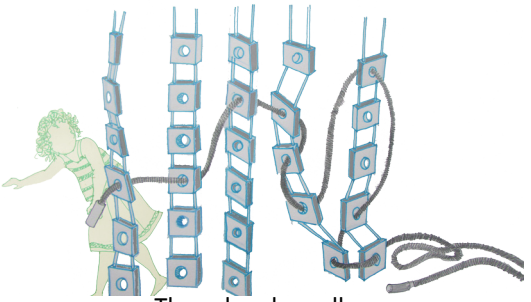


Composite structure

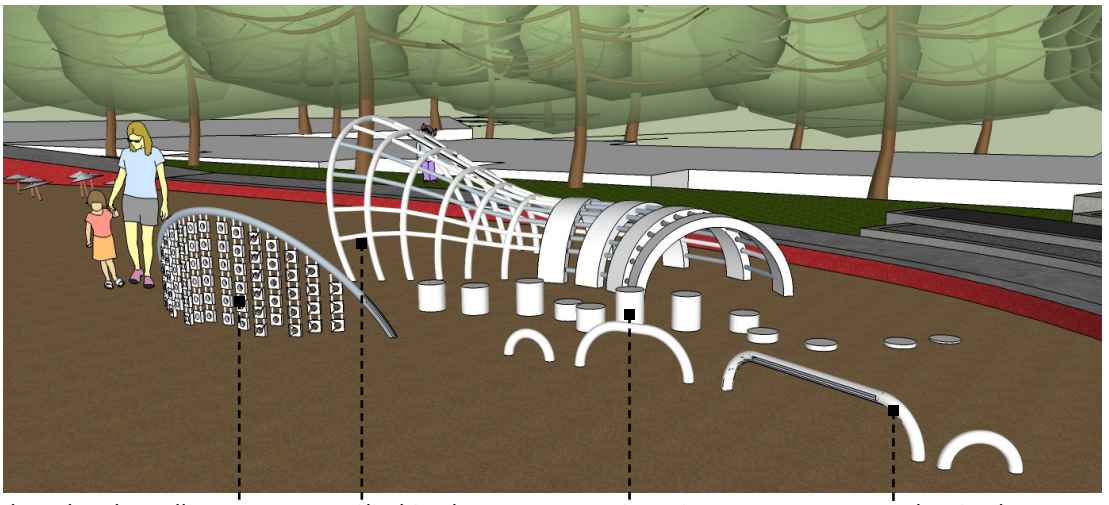
Thread and Needle

A thread and needle game is introduced in the composite structure, which includes, a 2 m long rope and Box made in F.R.P consisting of opening. The activity enhances the problem solving skills of kids, while tieing and untieing a rope.

Small Muscle Movement
Construction play
Co-operative Play



Thread and needle game



Thread and needle game | Climbing bars | Stepping stones | Balancing bars

Stepping Stones / Balancing bars

Balancing activities are provide in the sand-pit which improves the co-ordination of muscle groups that control hands and legs.

Large Muscle Movement
Practise Play
Parallel Play

Climbing bars

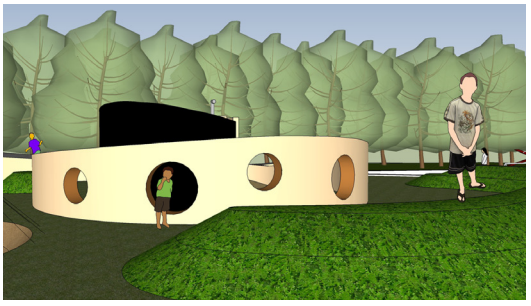
Bars that are visually similar to caves, provides climbing and hanging activities to the kids, are placed in the centre of composite structure.

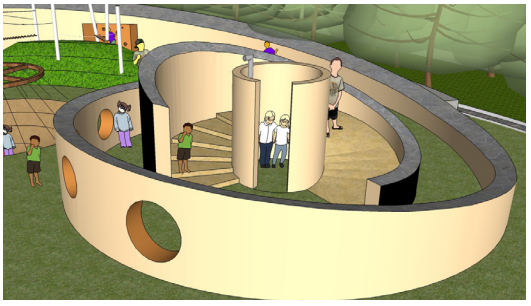
Large Muscle Movement
Practise Play
Parallel Play

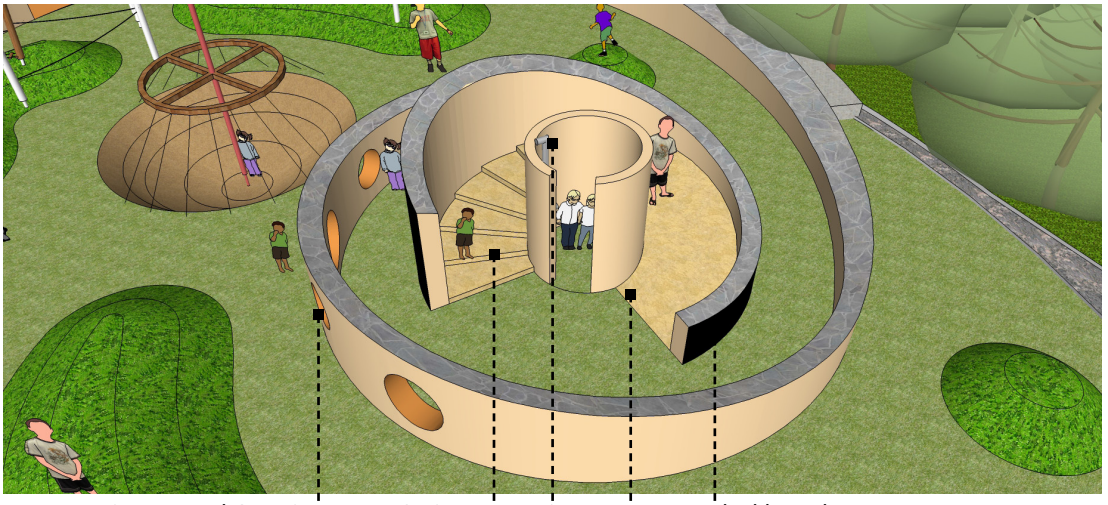
Circular swirl

This area provides cozy niches and corner for quiet imaginative play. It has black colour on one of the wall that allow drawing and making stories throughout the fort.

Stairs and ramp
Along the concentric circles stairs and ramp is provided for the play purpose. The ramp here acts like a circular slide. Along the wall, niches are provided, that helps kids to climb vertically on all as well.
Large Muscle Movement
Practise play
Parallel Play







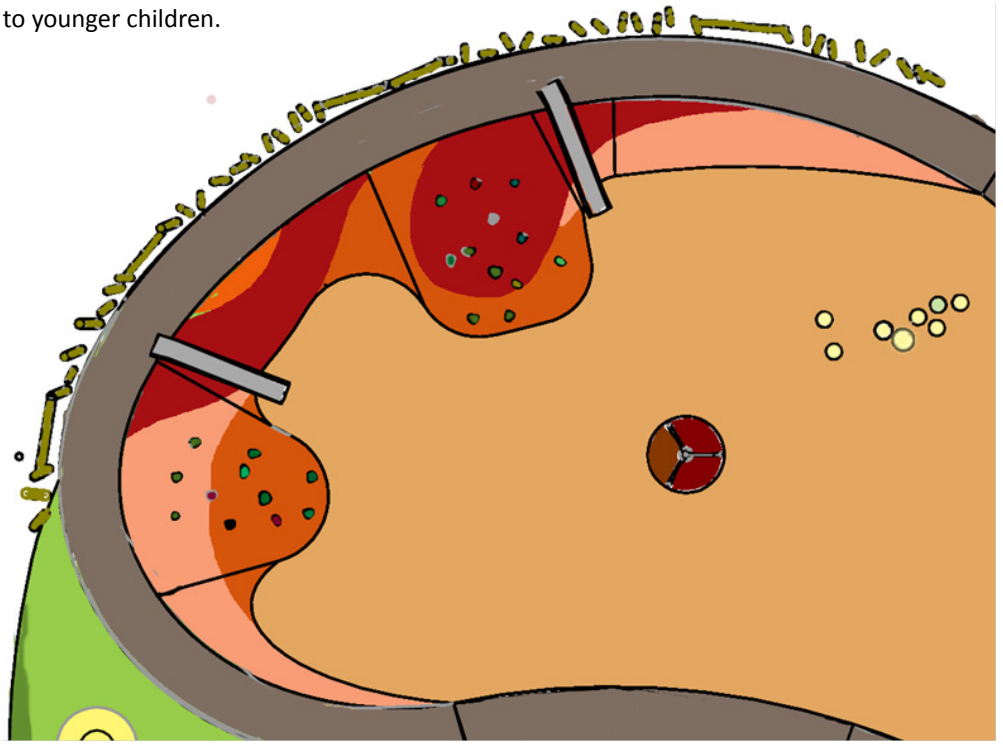
Periscope
On the innermost wall, a periscope is installed, which periscope gives the view of entire play area, and the school building.
Small Muscle Movement
Practise Play
Solitary Play

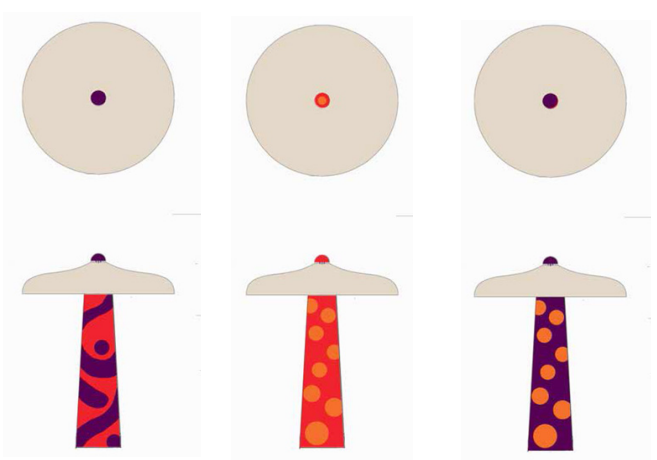
Cutouts and opening
On the outermost wall of the swirl, various circular opening are designed. This opening acts like an informal seating and hurdles for the kids.
Large Muscle Movement
Practise Play
Parallel Play

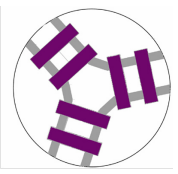
COLOUR SCHEME

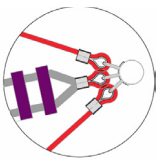
Warm Colours: Red, Orange, Yellow, Maroon
Natural colour of materials used; wood , grass, stone, Cement, sand etc.
Since the majority of the area is grass and sand; shades of red, oranges and yellows would create a beautiful contrast making the area more appealing to younger children.

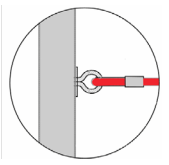
The Graphic pattern from the area is inspired by the form language (curves & circles) of the ramp and the play elements.







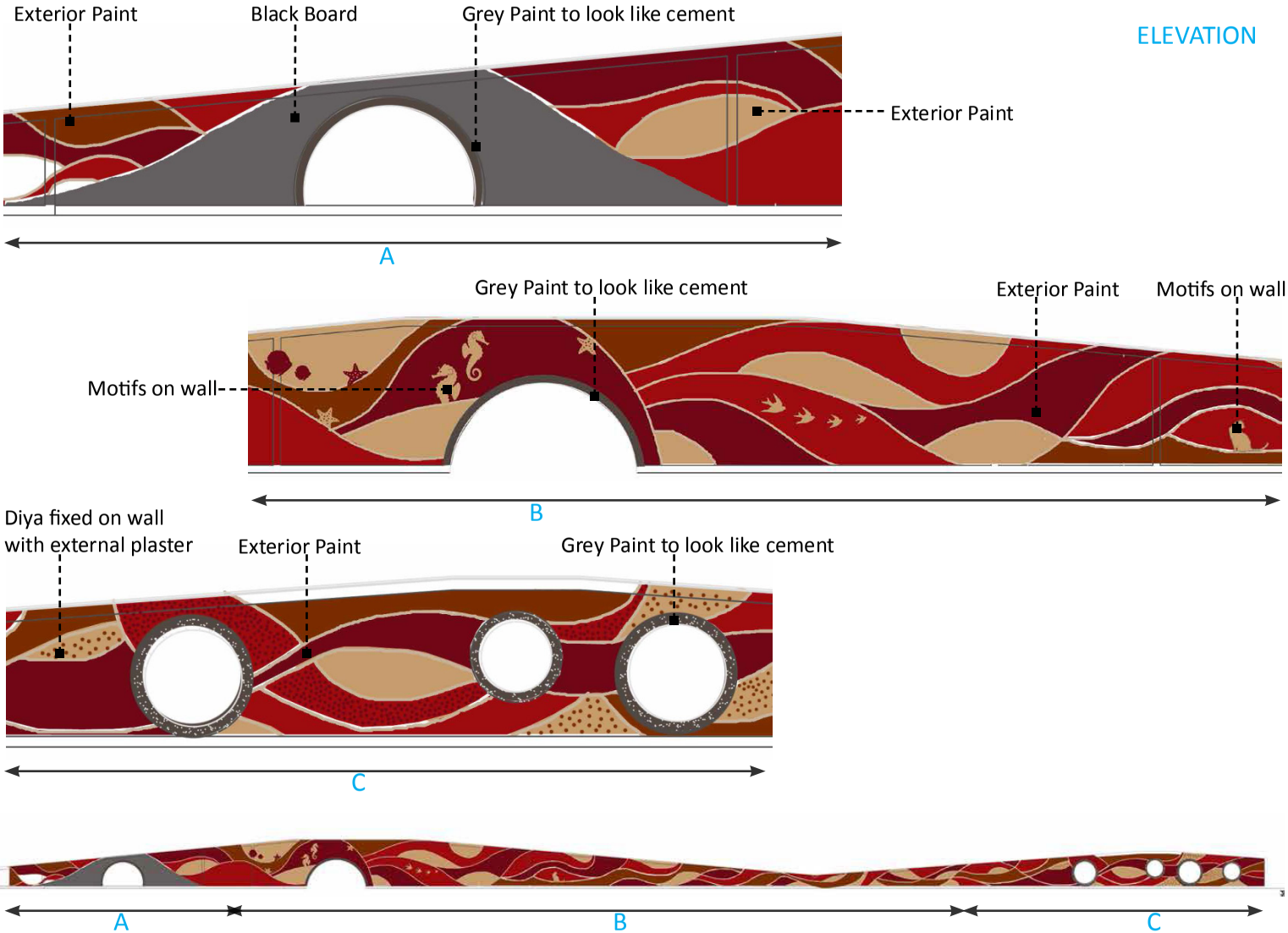




Curtosy: Gudguddee

Curtosy: Gudguddee

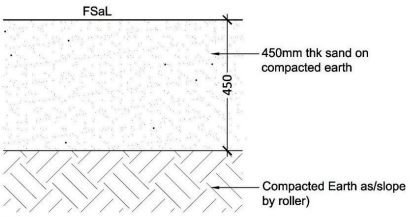
ELEVATION



DETAILS:

Sand pit detail **(D01)**

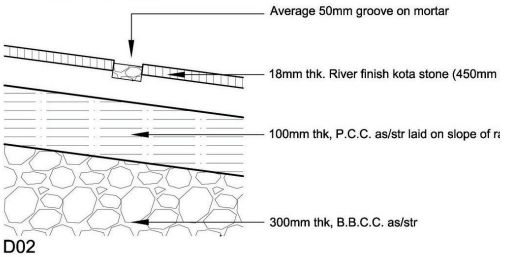
Sand is filled upto 450 mm, if it is 300 mm or less ground will be visible.



D01
Sand Pit Detail [Scale 1:20]

Kota paving on ramp detail **(D02)**

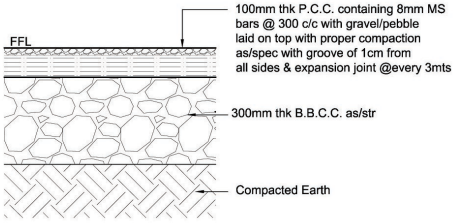
The Kota paving on ramp, is provided with groove, to avoid slipping on the ramp, and to keep the surface rough, aggregate finish was given.



D02
Kota paving on ramp [Scale 1:10]

Gravel/ pebble flooring detail **(D06)**

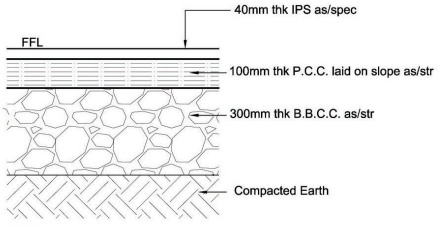
Pebbles/ gravels flooring is used in the stairs, it creates a rough finish and avoids the kids to slip on stairs, in order to maintain gravel, 8 mm MS bars are placed @ 300 c/c to increase the tensile strength of the flooring and expansion joints are provided at @ 3m c/c.



D06
Gravel/Pebble flooring [Scale 1:20]

I.P.S flooring detail **(D07)**

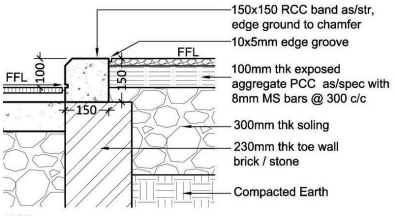
Initially the material decided for the slopes was E.P.D.M but since it was expensive I.P.S was used as substitute for E.P.D.M, since various can be achieved from I.P.S. To avoid cracks in I.P.S groove are provided at a minimum distance of 3m.



D07
IPS flooring [Scale 1:20]

Concrete band- steps detail **(D09)**

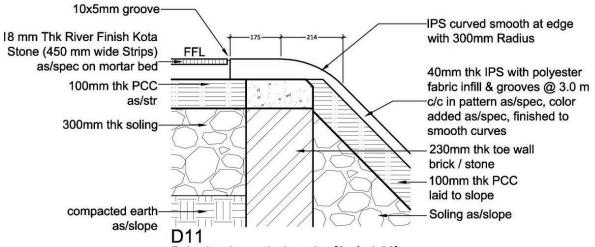
Step are given gravel finish, in order to sustain it, the edging is constructed in Concrete. This concrete band runs over edge is 150 x 150 mm thick and carries groove for finish.



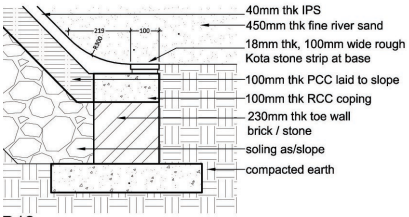
D09

Raised pathway sloping edge detail **(D11)**

Ramp has a slope facing down towards the sandpit, in order to smoothen the joinery of Ramp and slope, I.P.S is taken 300 mm on the ramp, with a smooth finish, to avoid the corners and any injuries during the play.



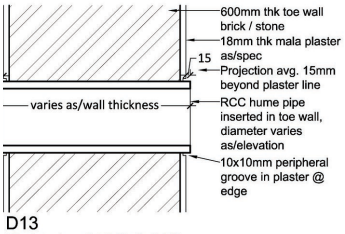
D11
Raised pathway sloping edge [Scale 1:20]



D12
IPS bottom edge detail [Scale 1:20]

I.P.S bottom edge detail **(D12)**

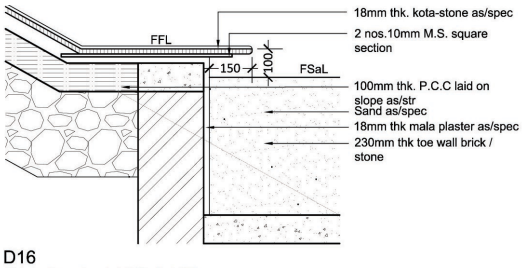
Rough Kota-stone edging is done at the base of IPS to hold IPS and avoid skitting of children while playing.



D13
Viewing pipes detail [Scale 1:20]

Viewing pipes Detail **(D13)**

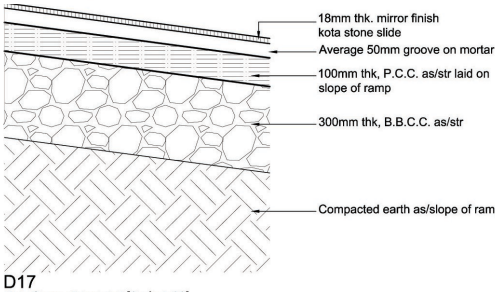
Viewing pipes are installed to make a visual connection between outside and inside of Ramp. RCC hume pipe is inserted in toe wall to provide sturdiness to the viewing hole. The viewing pipes are 15 mm projected to highlight the detail and easy construction.



D16
Slide bottom edge detail [Scale 1:20]

Slide bottom edge detail **(D16)**

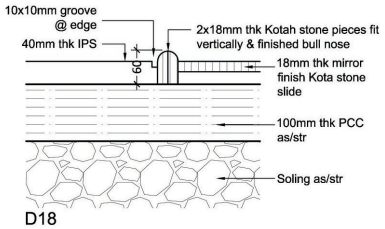
M.S. square section at base to support cantilever so that it does not touch the sand.



D17
Kota Stone slide detail [Scale 1:20]

Kota stone slide detail **(D17)**

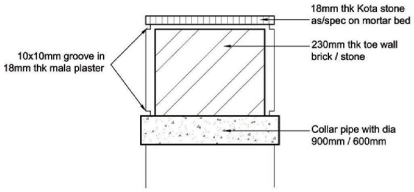
The slide placed on the slopes of ramp is constructed in kota stone, to avoid hot metal slide in sun. 18 mm thick Kota stone is used, and is placed along I.P.S on the slope.



D18
Kota stone slide edge detail [Scale 1:10]

Kota stone slide edge detail **(D18)**

Kota stone slide is place amidst the I.P.S slope of ramp, in order to hold the edge, a vertical piece of Kota stone finished with bullnose is placed between the slide and I.P.S. Groove is provided along the edge of I.P.S and vertical kota stone piece to avoid cracking of I.P.S.



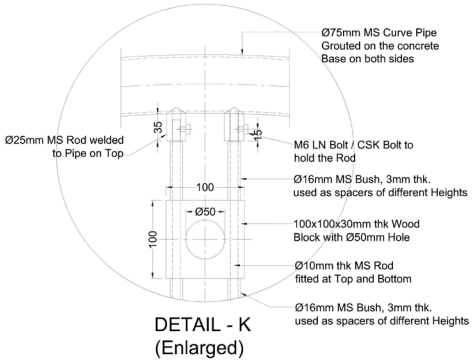
D20
Detail of Collar Pipe [Scale 1:10]

Collar pipe detail **(D20)**

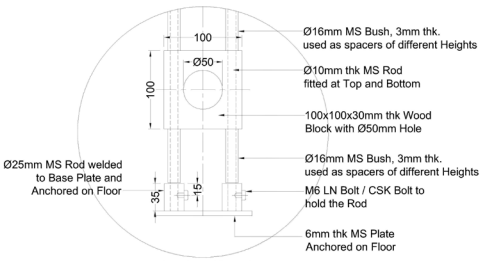
Various opening are provided in the circular swirl, in order to achieve this, collar pipes are used for accurate circles and easy construction.

PLAY EQUIPMENT DETAILS

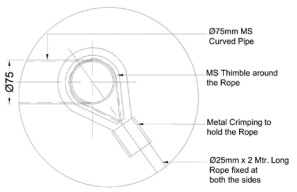
Details of composite play structure



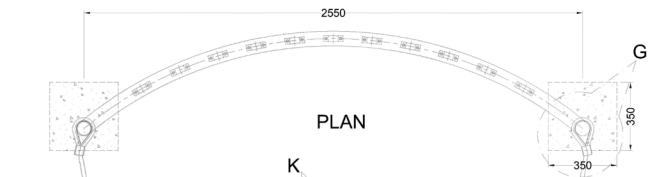
DETAIL - K
(Enlarged)

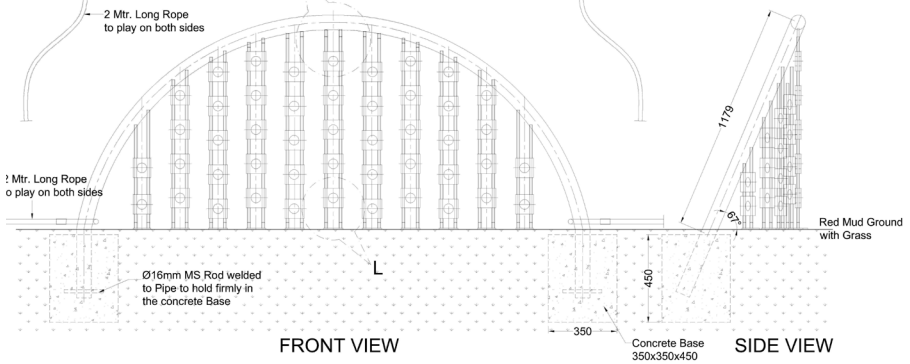


DETAIL - L
(Enlarged)



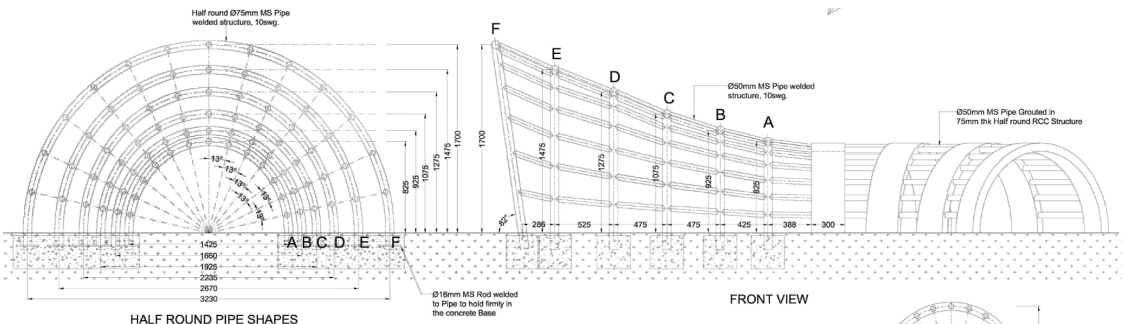
DETAIL - G
(Enlatged)





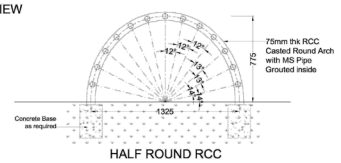
FRONT VIEW

SIDE VIEW



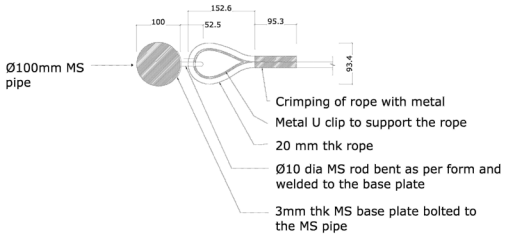
HALF ROUND PIPE SHAPES

FRONT VIEW

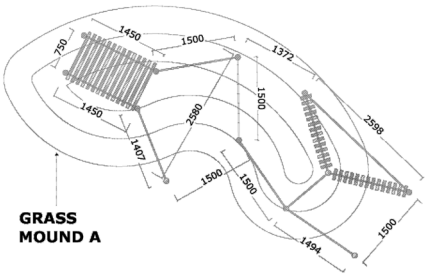


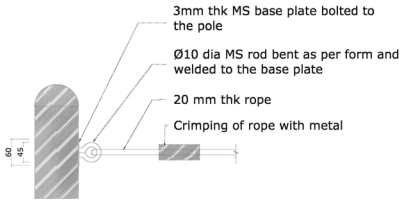
HALF ROUND RCC
CONCRETE SHAPE

Details of Rope structure

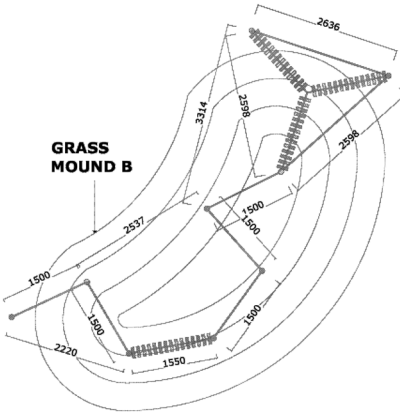


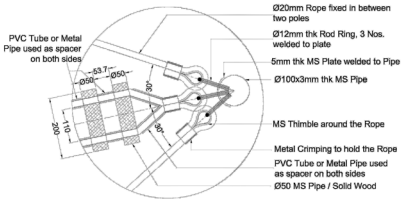
PLAN

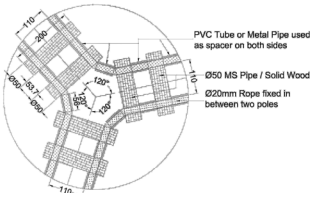




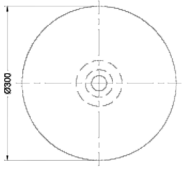
FRONT ELEVATION



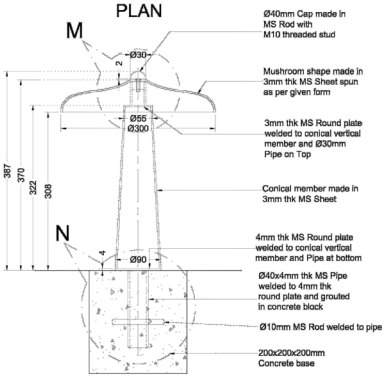




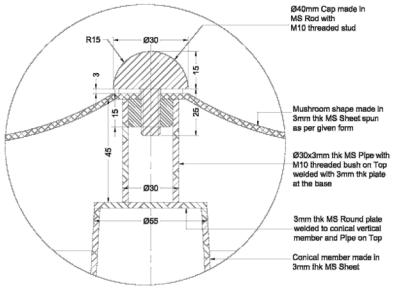
Details of Cymbal mushroom



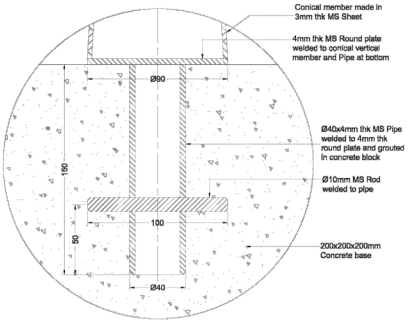
PLAN



FRONT ELEVATION



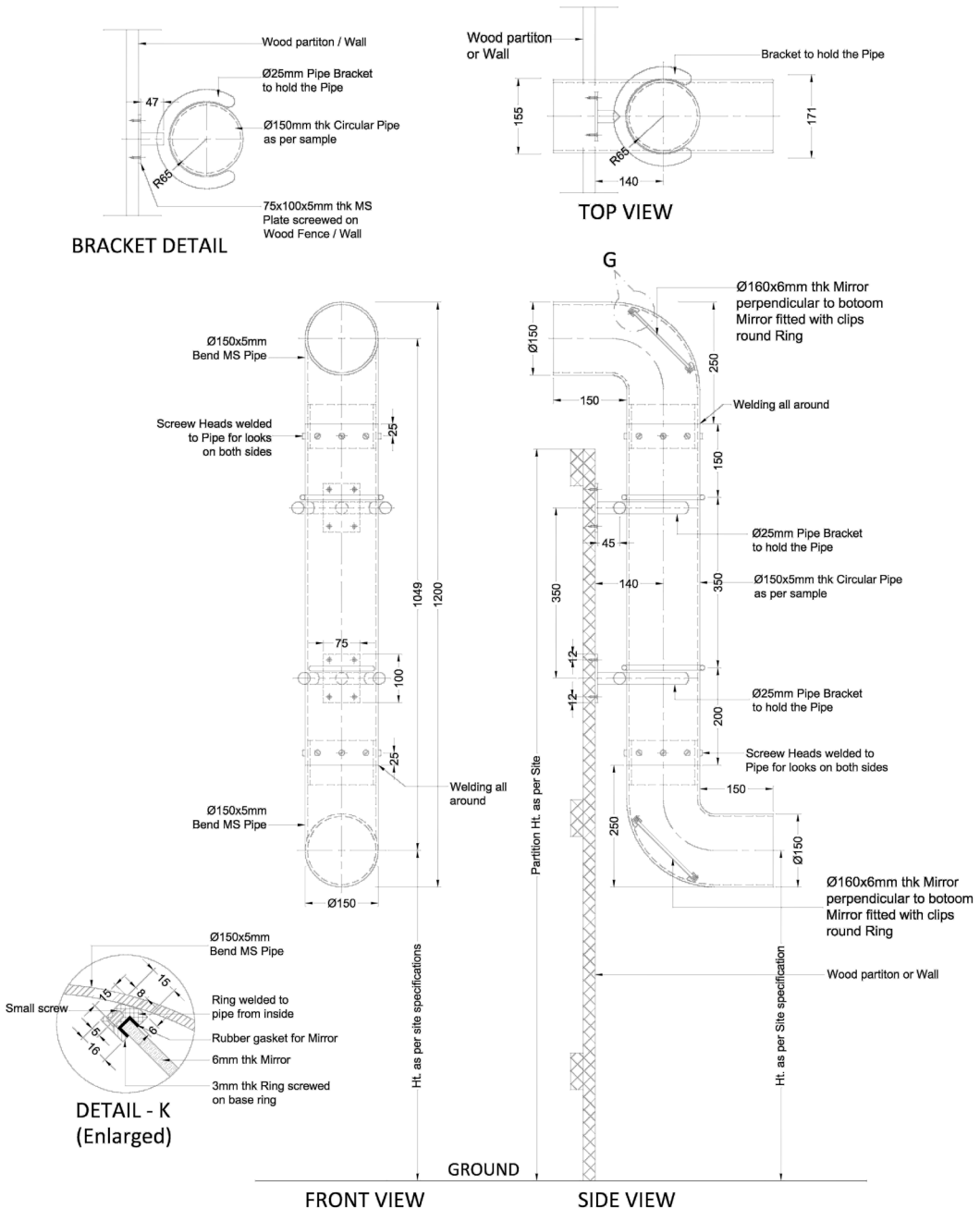
DETAIL-M (Enlarged)



DETAIL-N (Enlarged)

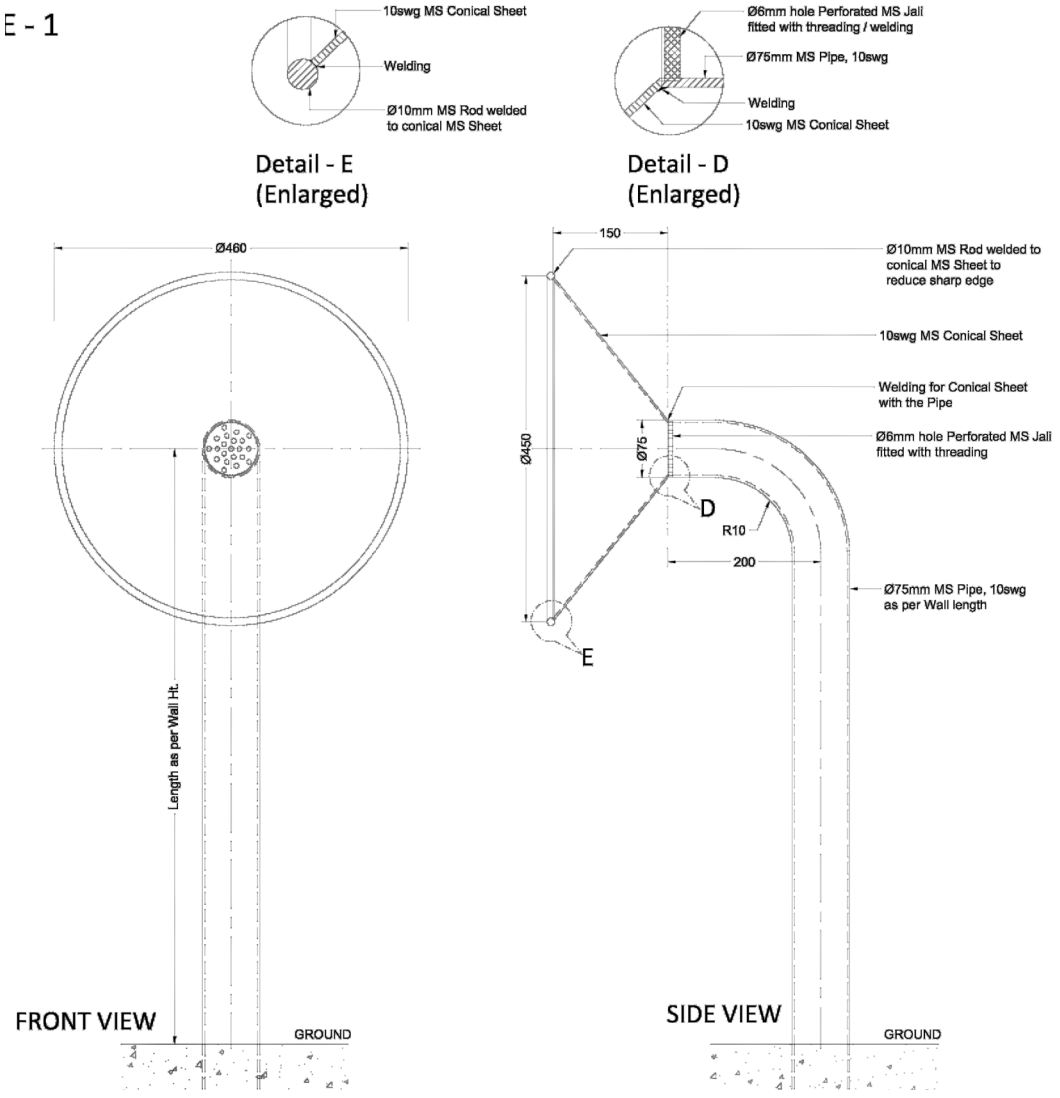
Curtosy: Gudguddee

Details of Periscope



Curtosy: Gudguddee

E - 1



Curtosy: Gudguddee

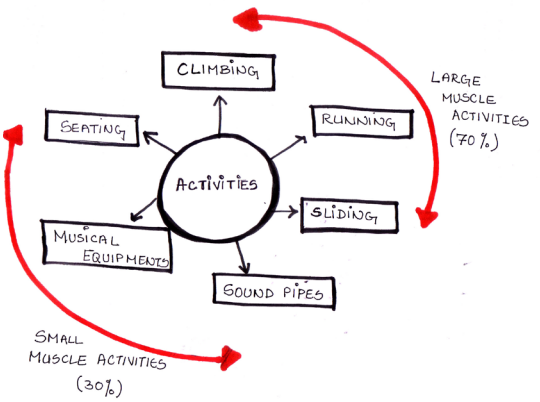
Intermediate

Objective

To create a composite structure comprising of all the activities like jumping ,climbing, sliding etc that is essential for the physical development of a child in age group of 9-12 years

Activities

Children belonging to this age group prefer more of large muscle activities and collaborative play

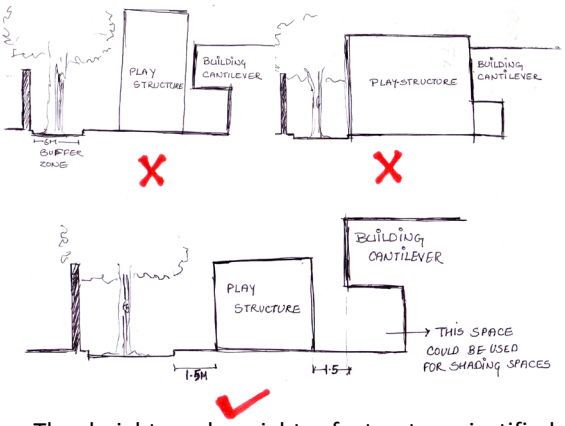


INTERMEDIATE PLAY AREA

An intermediate play area is located between the junior and senior play area, amidst a buffer zone of trees along the highway. This play structure is specifically designed for the kids of age group of 9-12 years old, and influenced heavily from the mountains part of the Zorlu play space.

The play structure is proposed in shape of a hill that allows the kids to run up and down on varying slopes and aids in their physical development. The open form also allows for various imaginative group play possibilities.

The maximum height of the structure is restricted to complement the building as well as manage the maximum fall height. The structure has a maximum height of 3.0 metres, that also allows views of the first floor corridor inside the school. This contributes to a sense of achievement upon



The height and weight of structure justified according to site surrounding

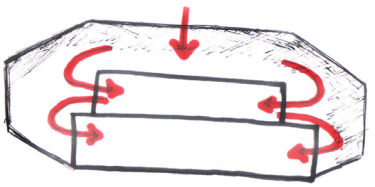
Concept and process

Initial Concept
To create a raised platform for adventurous play



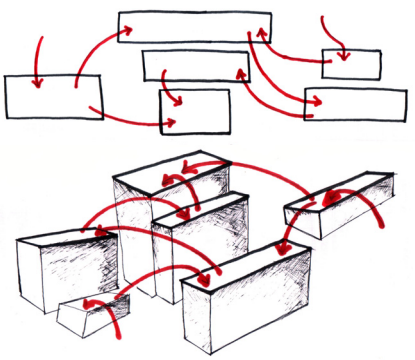
Initial concept

Stage 1
Two platforms were created and were raised to different heights such they could be accessed through ramps.

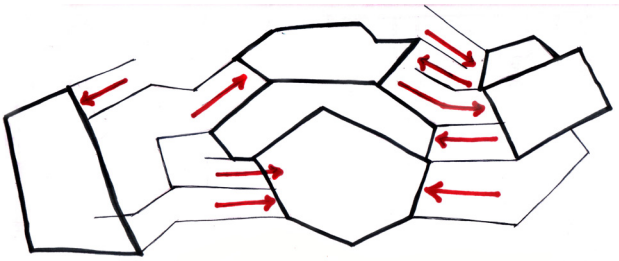


Stage 1

Stage 2
Intermediate platforms were developed, which divided the structure into 3-4 levels. These platforms were linked to each other through ramps



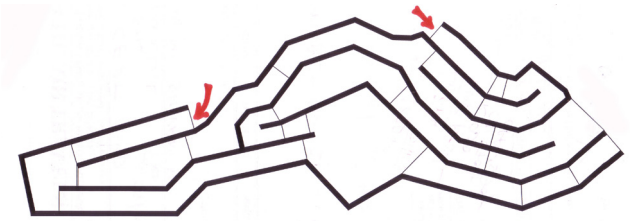
Stage2



Stage 3

Stage 3

Fortification: The structure was given a fortification look by providing supporting walls around the platforms. Use of bold forms was incorporated to enhance the overall dynamism of the structure. Various activities like slides, climbing walls etc were added. Ramps were made of varying slopes.

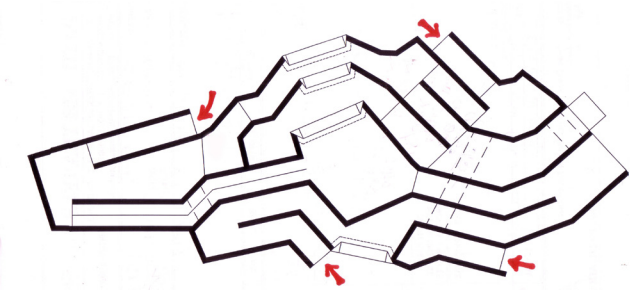


Stage 4

Stage 4

The first structure which was planned extended upto 32m in length and spread across a width of 9.3m, reaching a height of 3.75m comprising of various activities like rope climbing , sliding , climbing with the help of pegs.

Since the structure could be accessed only through one side, a suggestion of making the structure accessible from other sides was made.

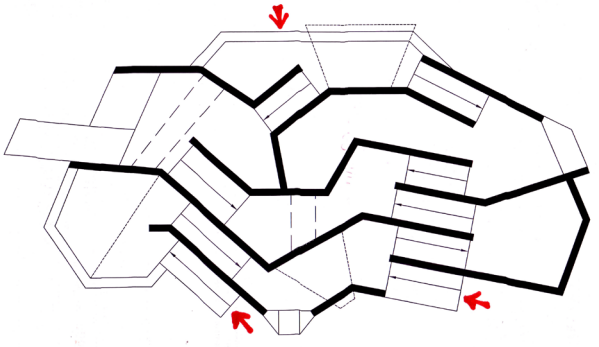


Stage 5

Stage 5

The second structure which was planned extended upto 32m in length and spread across a width of 13.5m, reaching a height of 3.75m comprising of an another access to the structure from the other side also. Various activities like rope climbing , sliding , climbing with the help of pegs, crawling across a tunnel etc

Since the scale of the structure was too large with respect to the surrounding building, reduction in size of the structure was mandatory.



Stage 6

Stage 6

The third structure which was planned followed the same concept but its length was reduced to 22m and width upto 12m and height was limited to 3m.

Pergolas were added at few places in the structure to provide shade

Climbing Walls

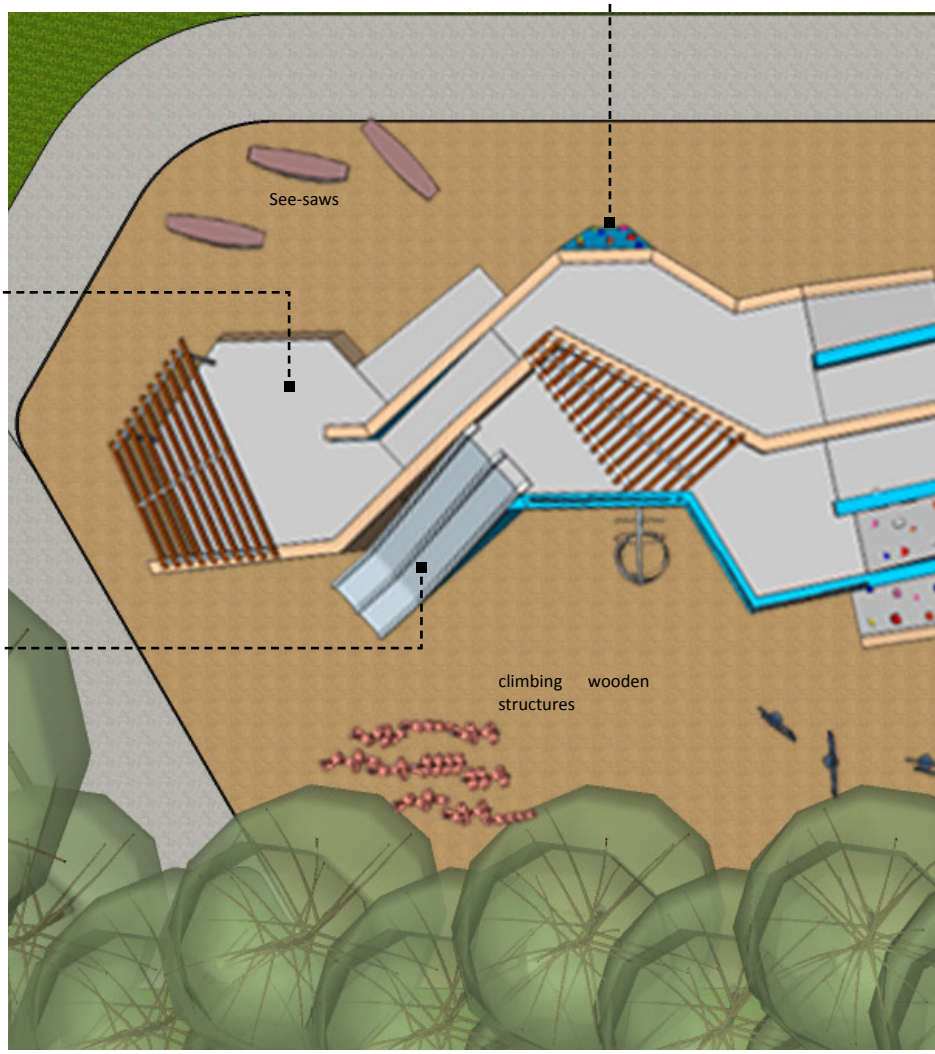
Climbing walls with pegs are provided. Children can scale the walls using pegs. Climbing helps in large as well as small muscle development .

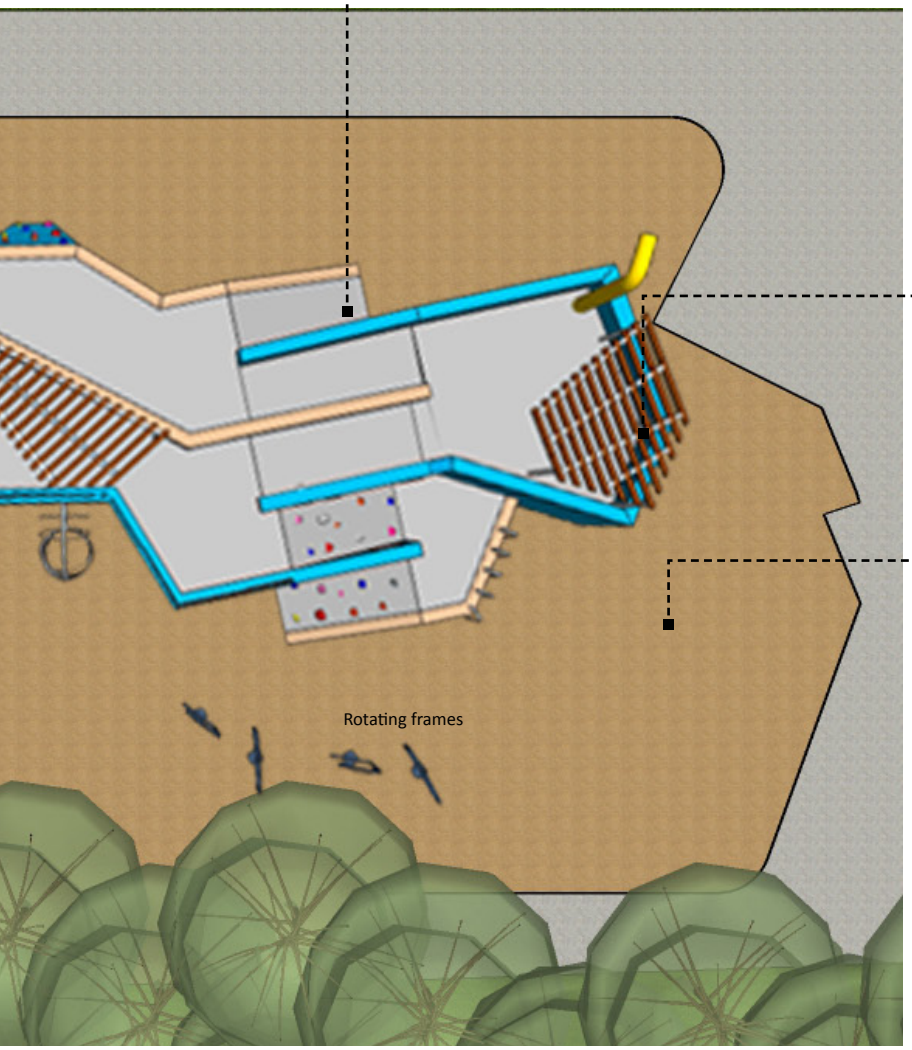
Platforms

Several flat platforms are provided at different levels. These platforms are connected to each other through ramps. The platforms host activities like slides, climbing walls, tunnels etc.

Slides

The structure incorporates slides from various heights which may either end on a lower platform or directly in the sand pit.





Ramps

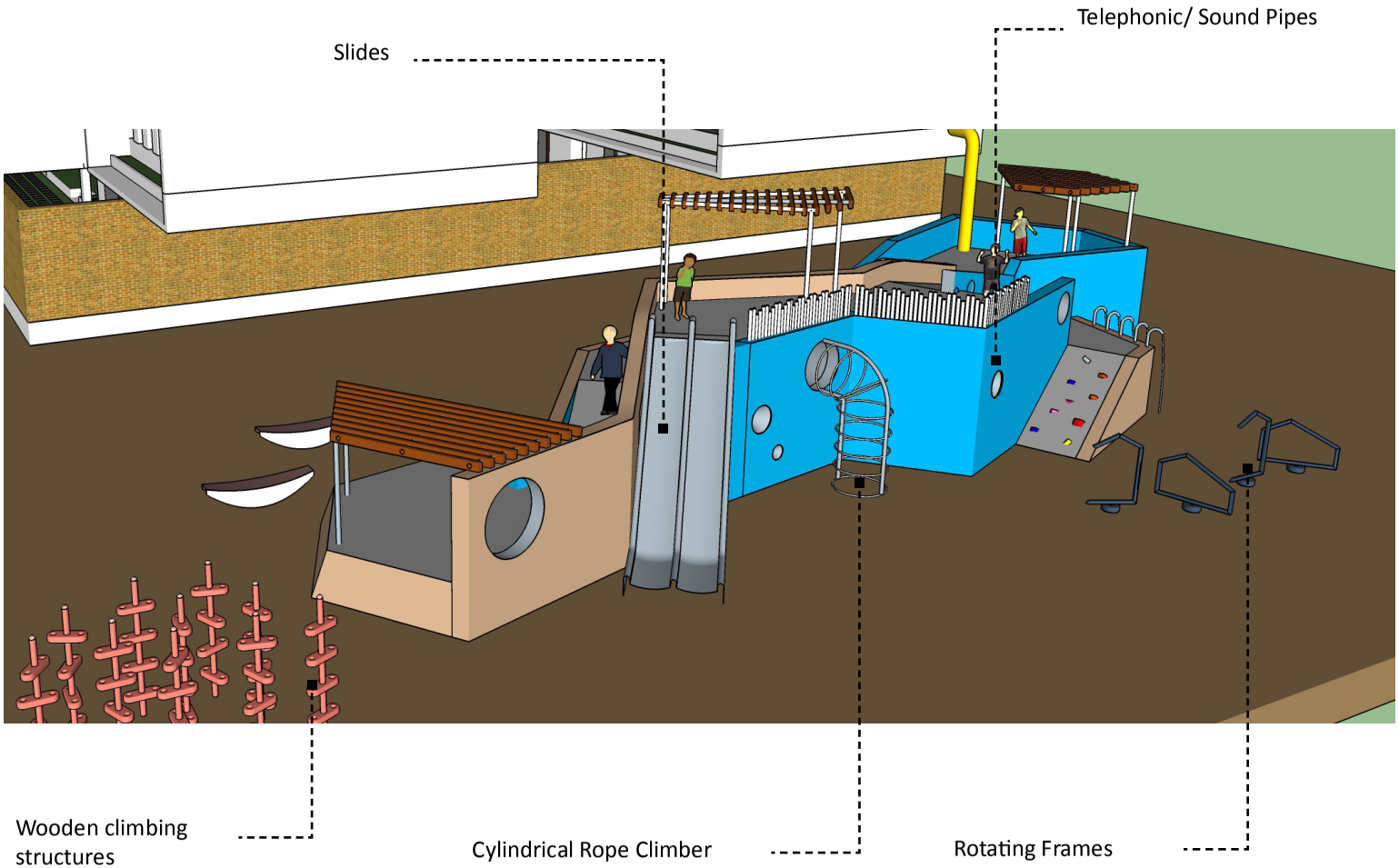
Ramps of varying slopes are provided at multiple locations to access the platforms at different levels. Certain activities are placed along the ramps so that children could play with them while climbing.

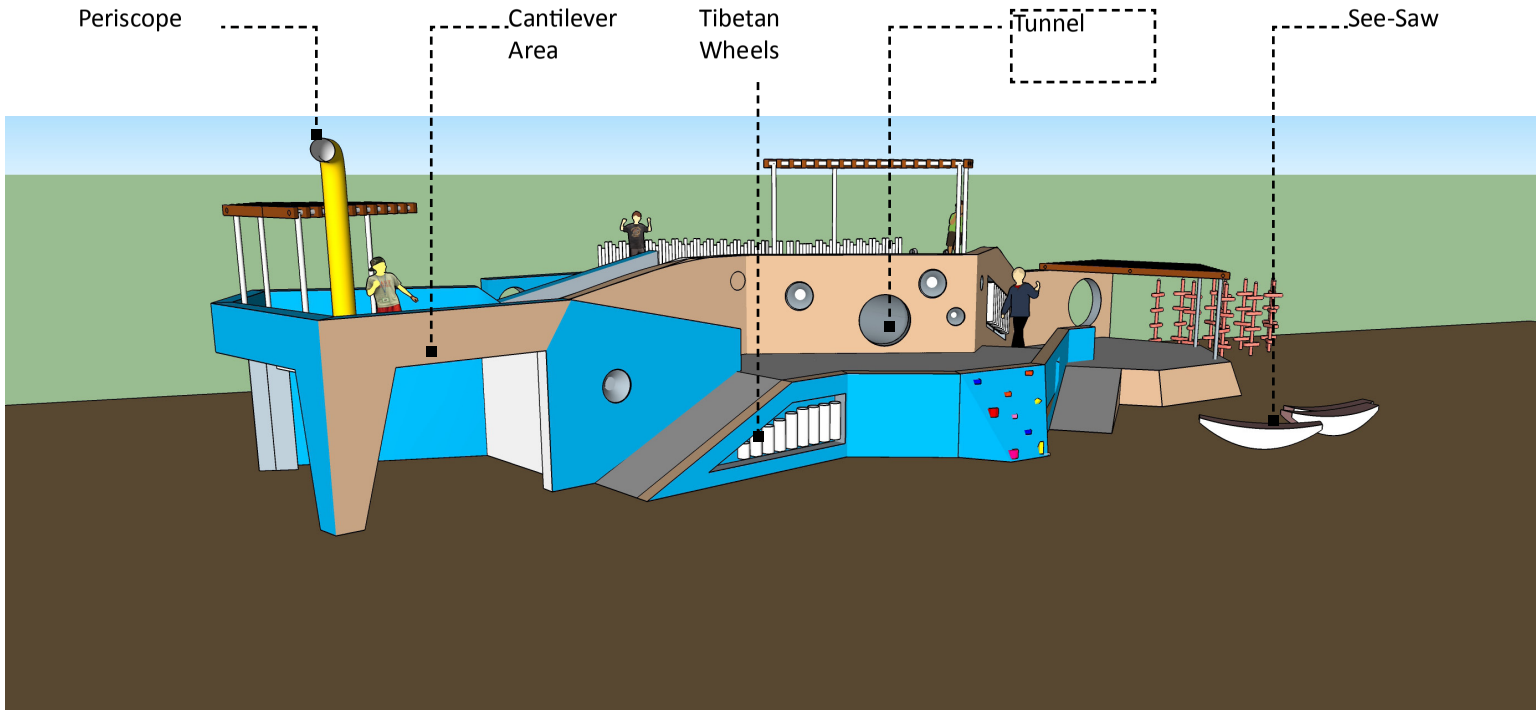
Pergolas

Three wooden pergolas are designed to provide shade as well as act as landmarks

Sandpit

A large sandpit encloses the intermediate play structure. Various equipments like see saw, rotating frames and climbing wooden structures are placed in it to complement the play structure.


Slides
Telephonic/ Sound Pipes
Wooden climbing structures
Cylindrical Rope Climber
Rotating Frames



Large muscle development

- Slides
- Climbing pegs
- Rope climber
- Ramps

Small muscle development

- Bamboo chimes
- Tibetan wheels
- Sitting area
- Periscope
- Sound pipes
- Tunnel
- Rotating frame

Practise Play

- Rope climbing
- Peg climbing
- Sound pipes

Parallel play

- Climbing using pegs
- Slides
- Wooden climbing structures

Solitary play

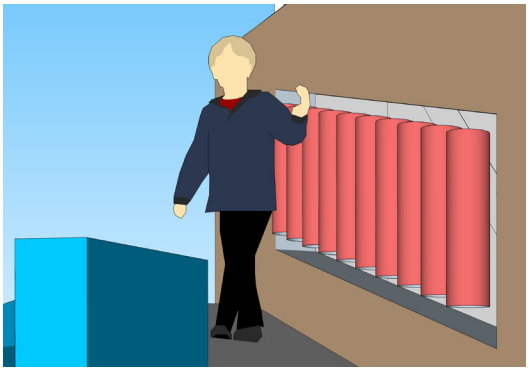
- Periscope
- Sitting spaces
- Tibetan wheels

Cooperative play

- Sound pipes
- Slides
- Tunnels
- Rope structures
- See-saw
- Rotating frames

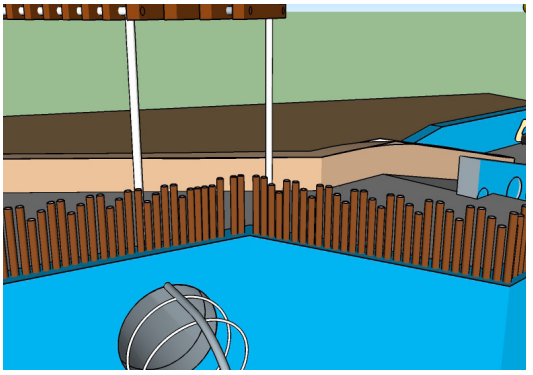
Tibetian wheel

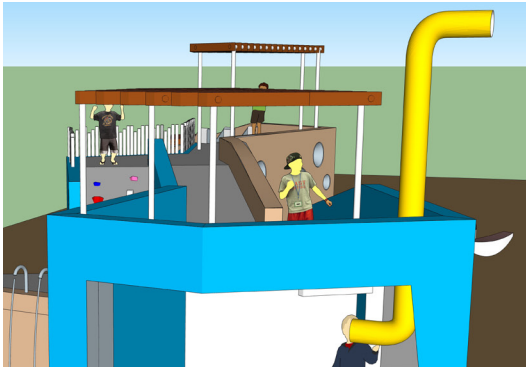
Tibetian wheels add dynamism, movement and intrigue while moving along the pathways or ramps in the structure. They can be covered with varying messages from time to time for discovery and learning process.
Small Muscle Movement
Solitary Play

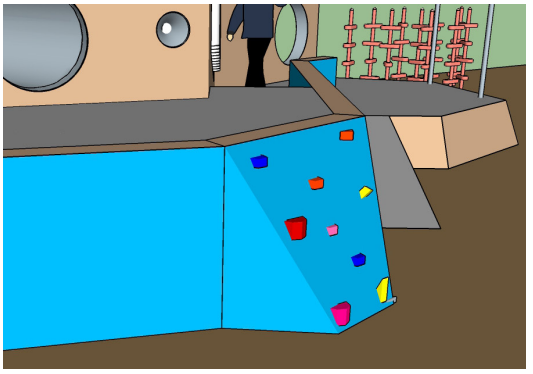


Bamboo chimes

A bamboo fence is placed at the highest platform for safety. Chimes are inserted at regular intervals to create an ambient sound
Small Muscle Movement
Solitary Play







Periscope

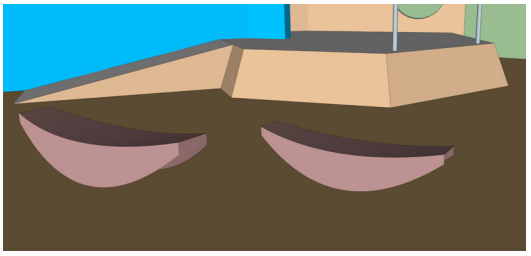
Periscopes were added at various places to create intrigue, sense of discovery and imaginative as well as geographical play and visualization
Small Muscle Movement
Solitary Play

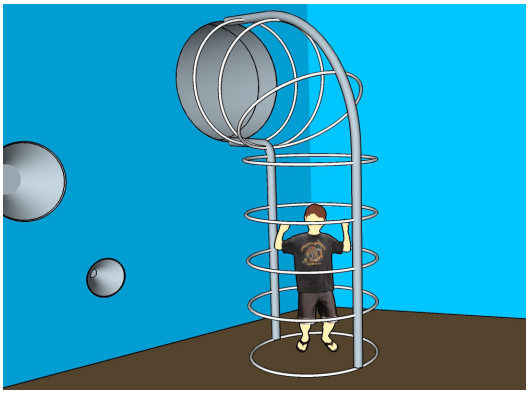
Climbing pegs

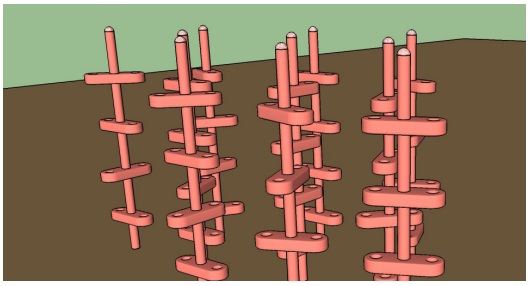
Climbng pegs are provided on steep ramps to aid in climbing
Large Muscle Movement
Practise Play
Parallel Play

See-saws

Crescent shaped see-saws will create a landmark element as well as sense of intrigue and volume
Small Muscle Movement
Co-operative Play





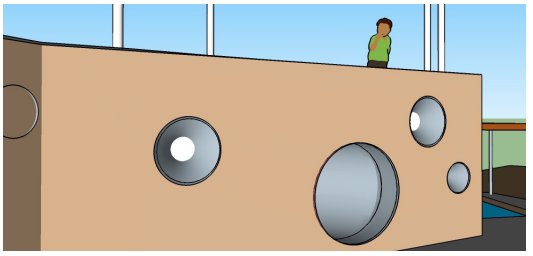


Wooden climbing structure

A bunch of wooden climbing poles are placed in sandpit. On each pole there are many rotating wooden blocks helping the kids to climb.
Large muscle movement
Co-operative Play
Practice Play

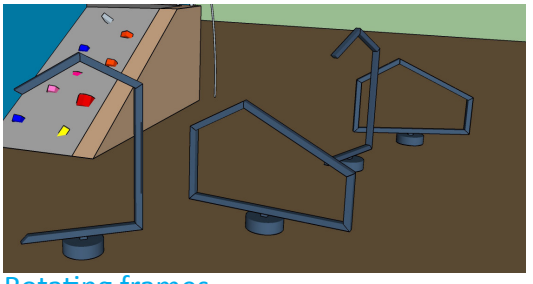
Sound pipes

To improve the communication skills, curiosity and imaginative play amongst children sound pipes are installed at various places
Small muscle movement
Co-operative Play
Practice Play



Tunnel with a rope climber

A tunnel connects two different parts of the structure. One has to wriggle through a cylindrical rope climber and crawl through the tunnel as an adventurous activity.
Small muscle movement
Co-operative Play
Practice Play



Rotating frames

Rotating frames symbolises the entrance gate of a building where the kids step on them and swing to and fro. These frames are designed in varied shapes and sizes with a pivot attached at the bottom, and rotate 360°.
Small muscle movement
Co-operative Play
Practice Play
Symbolic Play

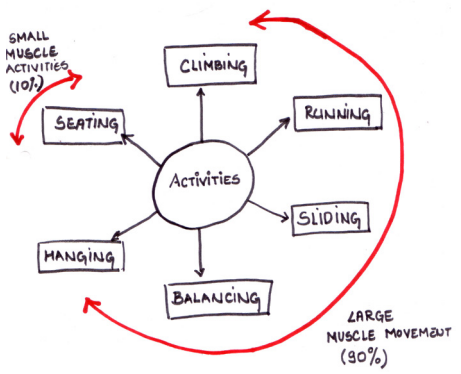
Senior

Objective

To create a complex structure that gives the senior students a space of adventure as well as relaxation.

Activities

Senior students generally prefer more of large muscle movement like climbing, running, balancing etc. but they also require some of the relaxing activities.



SENIOR PLAY AREA

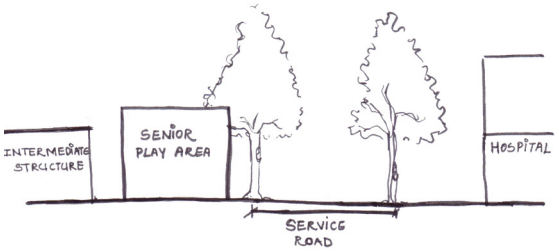
The senior play area is located in the farthest part of the play zone, behind the academic building. The play area is designed for the age group of 14 - 16 years.

The height and width is constrained due to presence of hospital on the periphery, and cantilevers of the building. A service road also passes behind the structure.

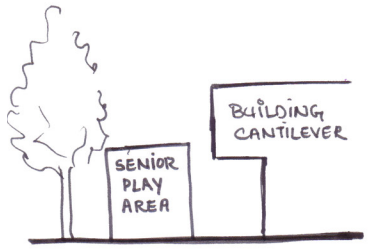
An elevated platform is proposed at a height of 2.0 metres, that acts as a spinal circulation for the entire play structure. All the activities are provided along this platform.

Instead of regular play equipment, walls of different shapes and angles provide opportunities for imaginative play. Various openings in the play structure act as informal seating spaces.

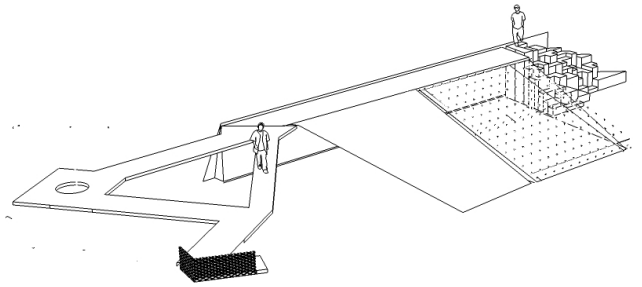
A net is provided in the centre of the play structure for recreational use.



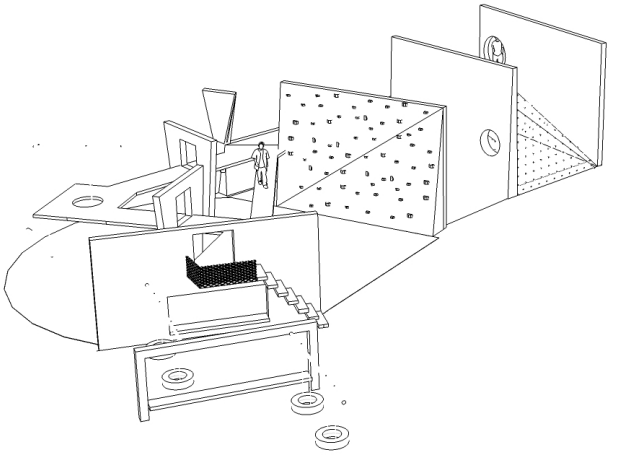
A buffer created, to distant the play area from hospital at the periphery of school



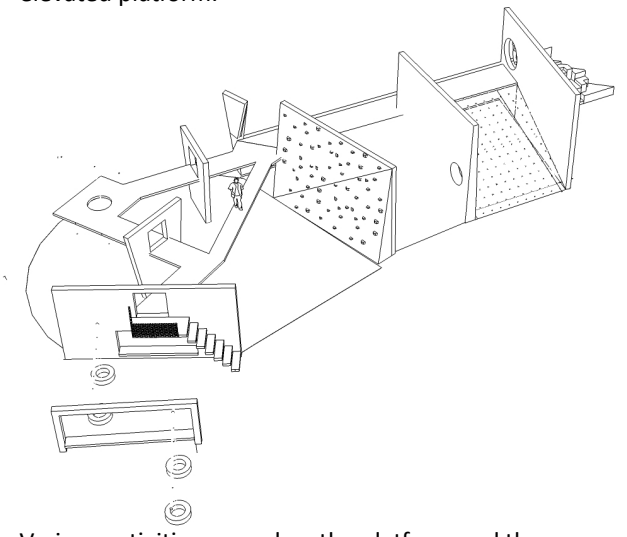
The height of senior play, in reference to the school building.



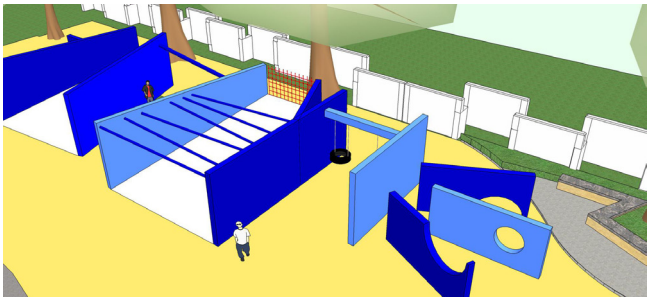
Elevated platform with various activities

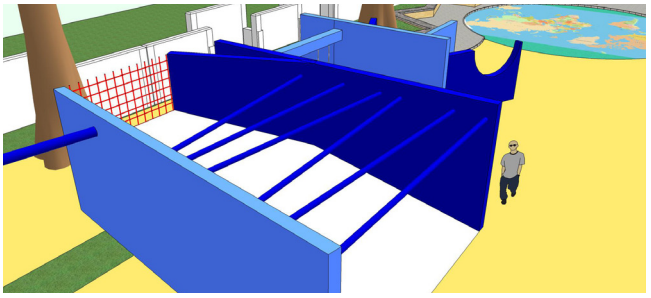


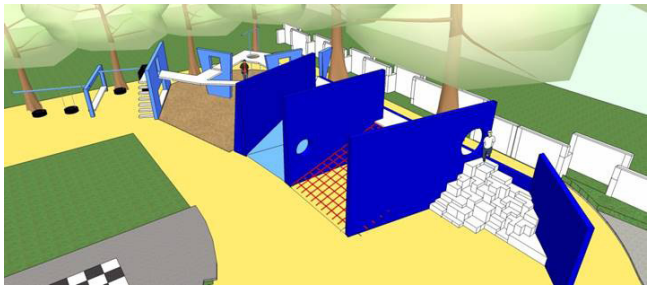
Wall of various sizes purposed hat support the elevated platform.

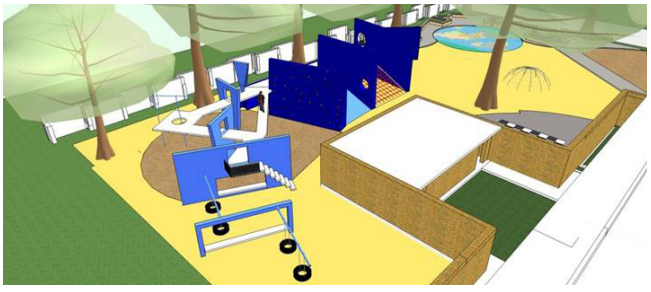


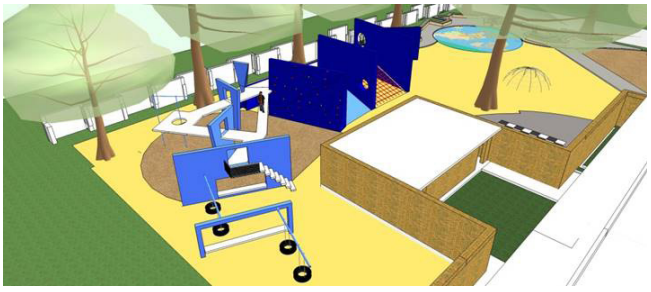
Various activities prosed on the platform and the walls.











Concept

Hierarchy

The complexity of the play structure is in accordance with the target age group of 12-16 years. Since the structure deals with older children, regular play equipment is not directly used; instead wall in different sizes and angles are used as play components.

Process

The process started with design of a 2.0 metres high platform, that would act as a core for all activities and become a circulation spine for the entire structure.

The platform was dissected using vertical surfaces that support as well as diversify it with varying activities.

To restrict running on the elevated platform, and avoid fall injuries, the intersecting walls have only 1.0 metre wide opening, which also become hurdles to cross.

The height of the walls is lowest towards to the ends and highest towards the centre.

Various activities like, rope climbing, rock climbing, swings, bridges were added to the platform to make it more interactive.

Different punctures were created in walls, some act like seating , while some act like play element.

Bridge

A connecting bridge is provided on the elevated platform. It also supports the net structure for relaxation.

Seats in Wall

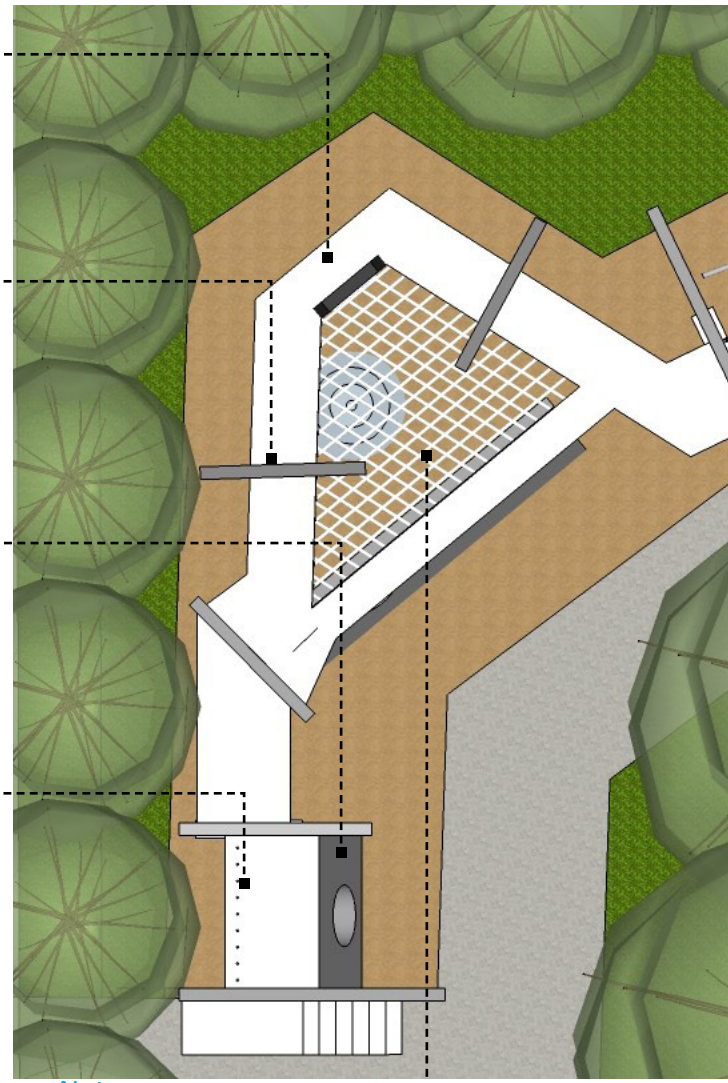
Multiple punctures are provided in walls, forming informal seating and play spaces. Seats protrude 100 mm outside the wall.

Rock Climbing

A climbing wall allows vertical access to one part of the platform. Inclusion of a strenuous physical activity provides a respite from largely recreational intentions of older students

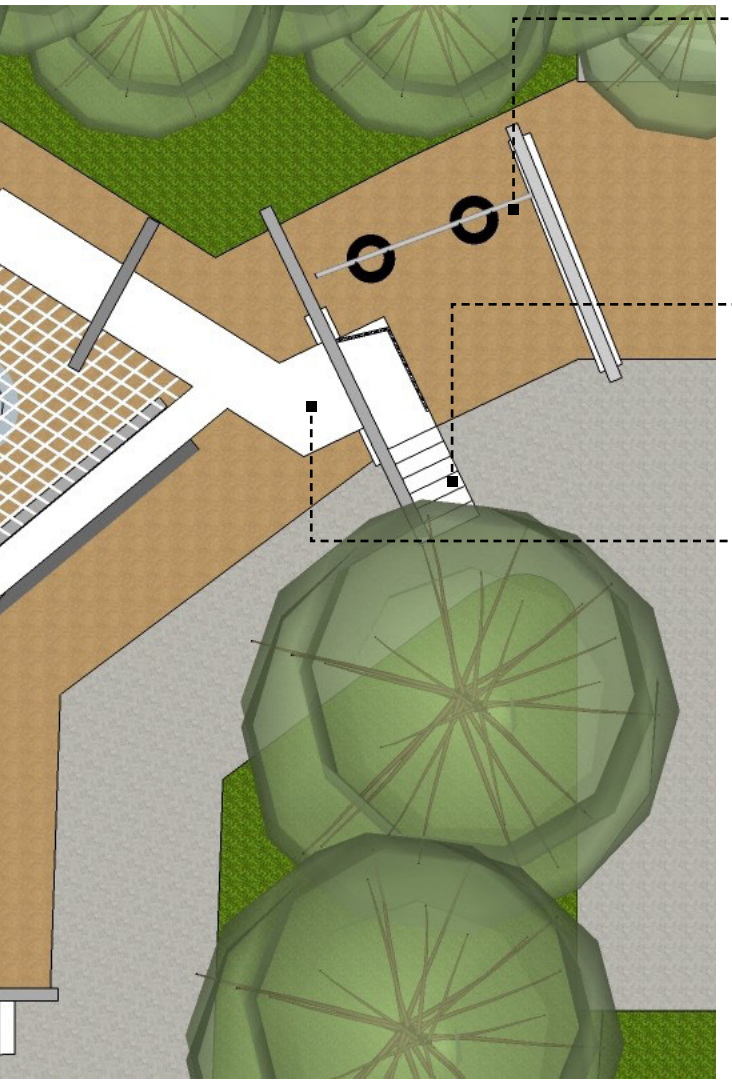
Play Equipment

Different types of play equipment like climbers, sliding poles, etc are used to connect the elevated platform to the lower ground surface.



Net

A giant net, is proposed, along the bridge area, at a height of 1.7 m, this will give a space for relaxation as well as adventure for the kids.



Swings

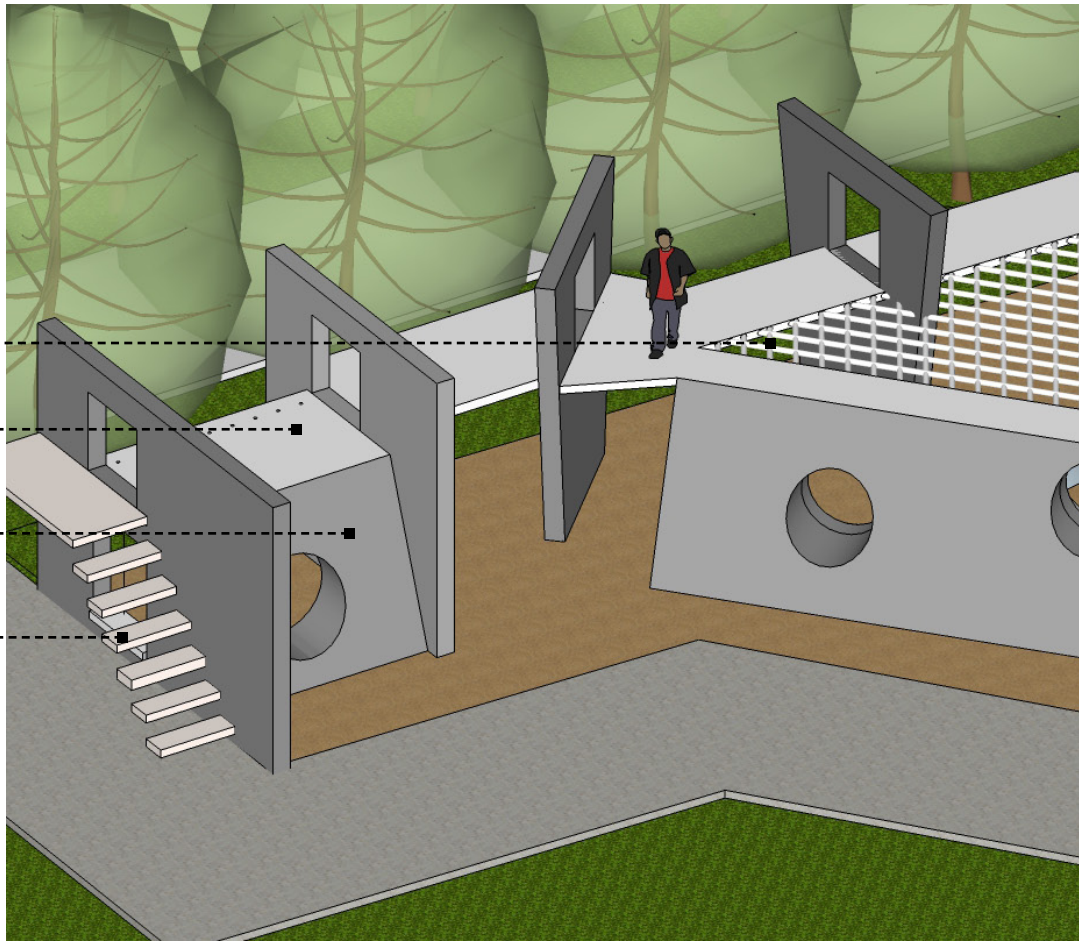
Swings made of tyres are provided at the start of senior play structure, they become a transition space between senior play structure and intermediate play structure.

Steps

Steps at both ends of play structure connect to the raised platform, and also act as an informal sitting.

Platform

A large spinal platform extends across the walls and frames, unifying the structure



Large muscle development

- Rock climbing
- Running on Pathway
- Rope structures on Pathway

Small muscle development

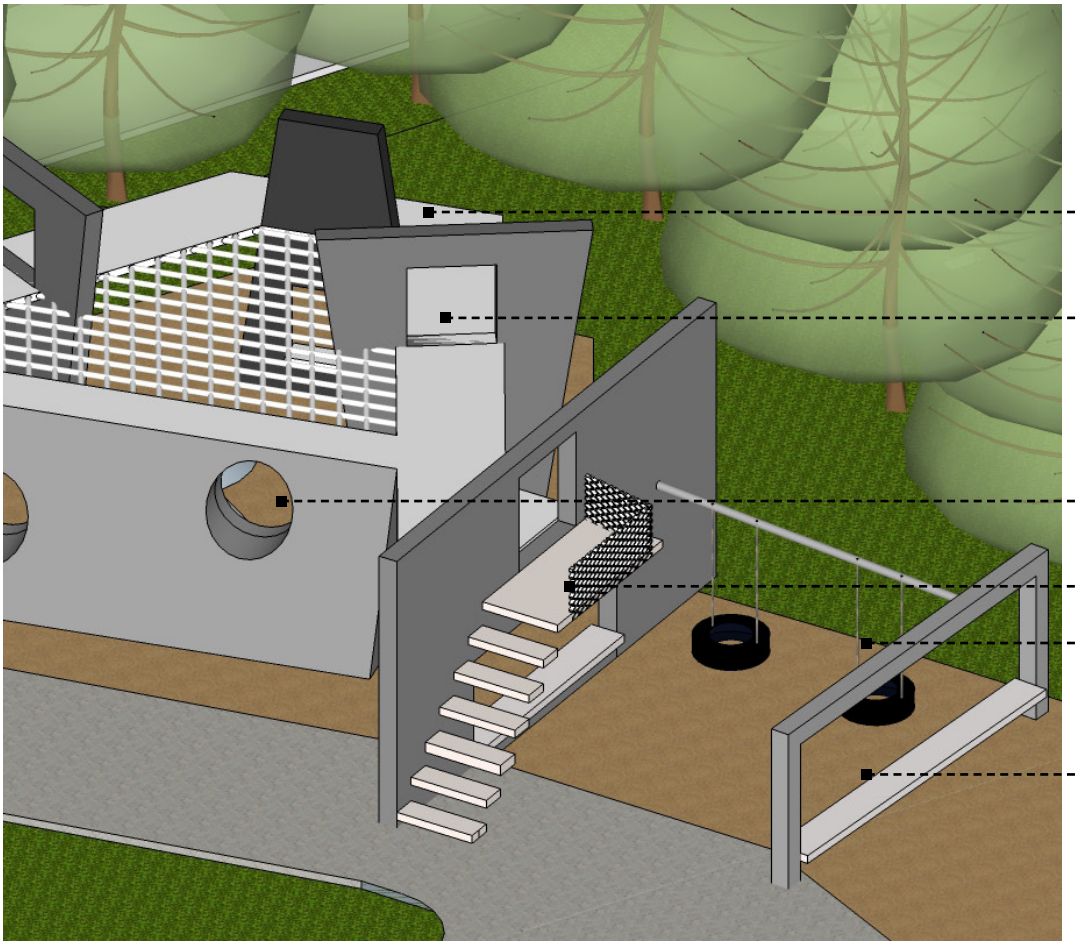
- Net

Practise play

- Rope climbing
- Peg climbing

Symbolic play

- Imprints on Pathway
- Motifs on Wall



Construction play

- Sand pit

Solitary play

- Sitting spaces

Parallel play

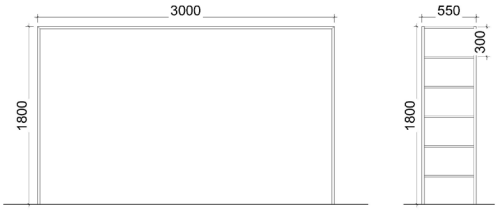
- Play equipment

Cooperative play

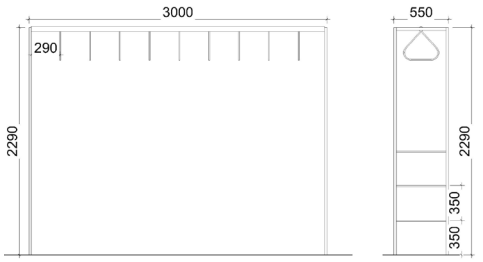
- Rope structures

ANNEXURE

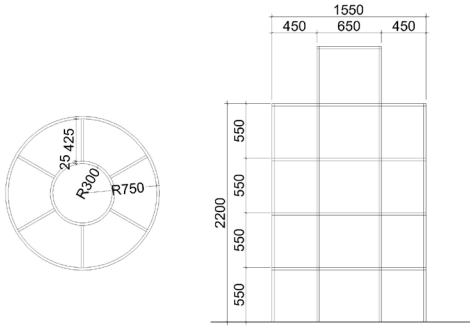
STUDY OF PLAY EQUIPMENT



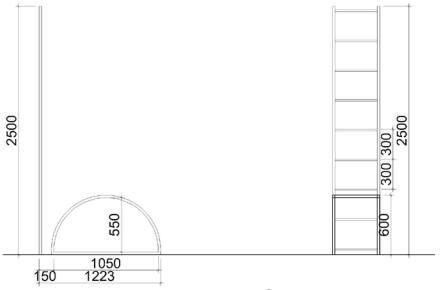
Climber for kids



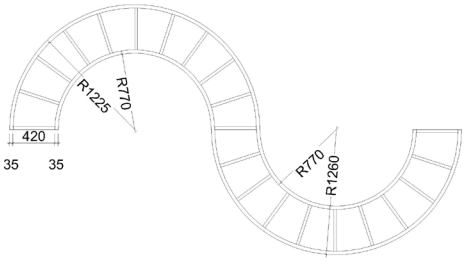
Climber for adults



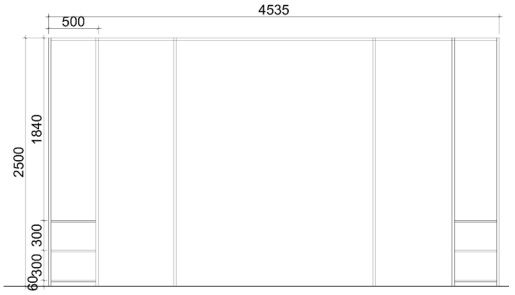
Circular climber



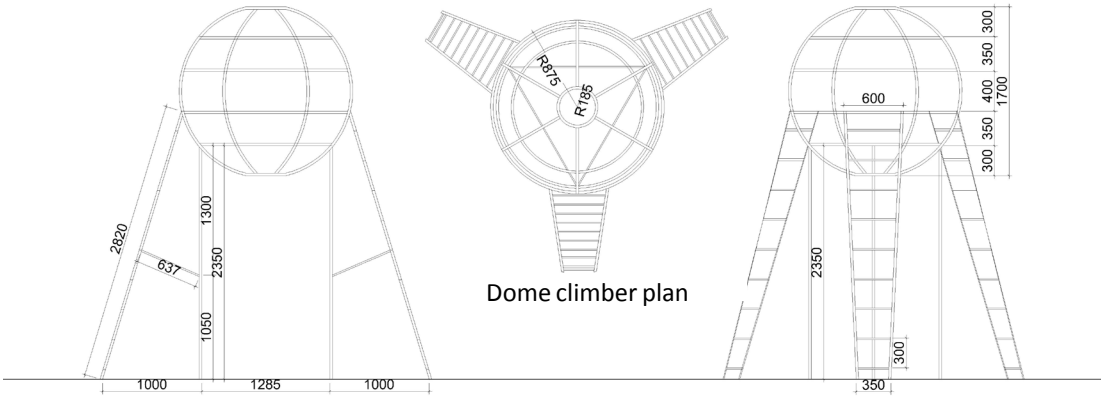
Simple climber for kids



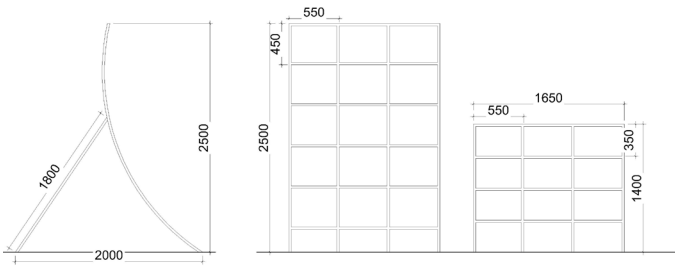
S climber plan



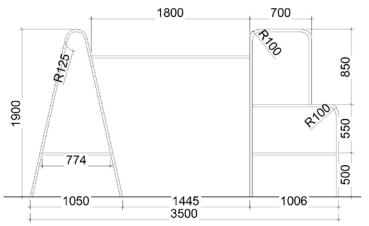
S climber elevation



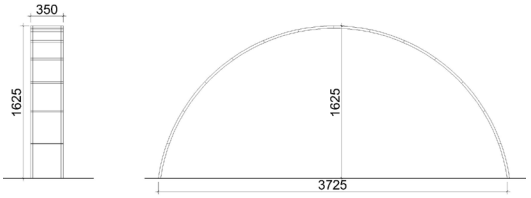
Dome climber plan



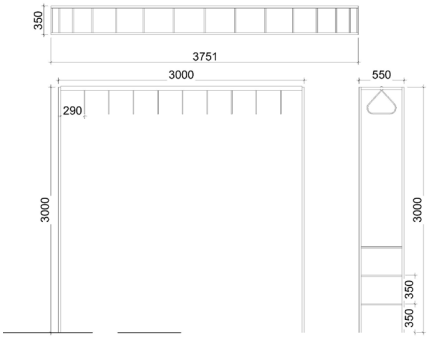
Y climber



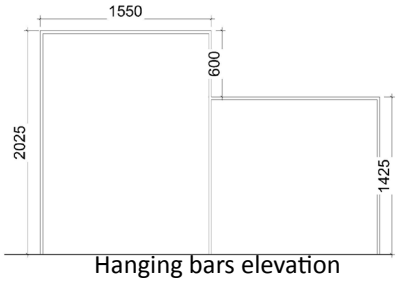
A-B climber



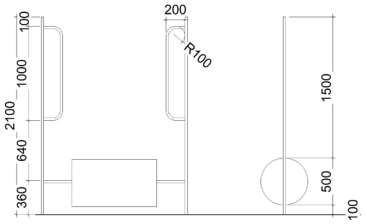
Semi circular climber



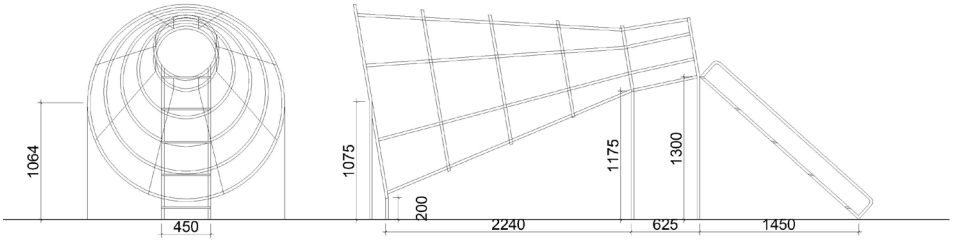
Monkey bars



Hanging bars elevation



Roller



Tunnel climber

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42-59. Live Case-studies, photographed by *author*

60-68. Site Images, photographed by *author*

Note: all the sketches, 3d views and drawing are by author.

Documents

1. Mishra jyotsna. (2015). *Parameters For Design Of Play Spaces In Urban Context,* Ahmedabad. Seminar, unpublished.

Table

1-2. Mishra jyotsna. (2015). *Parameters For Design Of Play Spaces In Urban Context,* Ahmedabad. Seminar, unpublished.