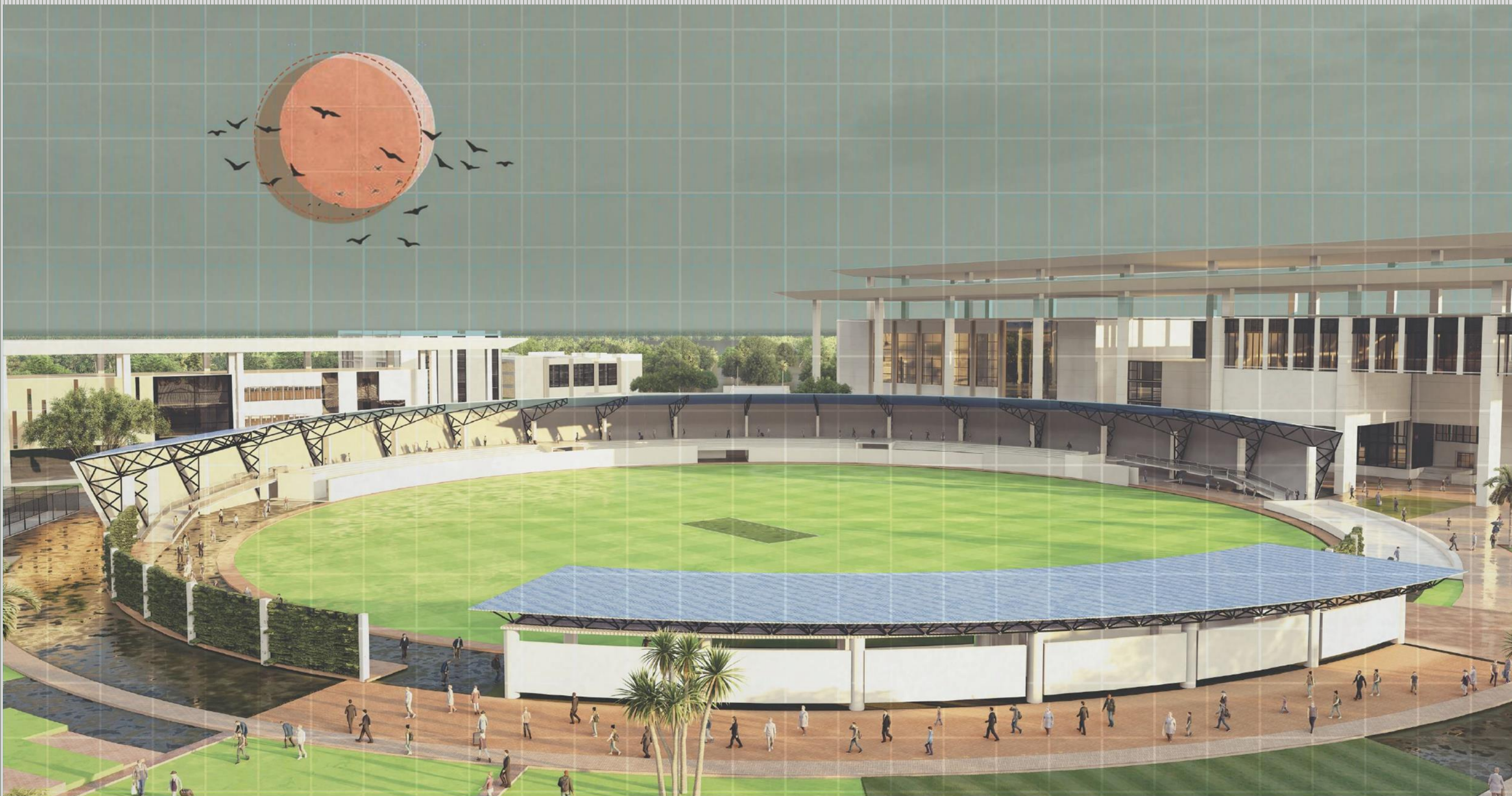


# NATIONAL SPORTS COMPLEX FOR DIFFERENTLY ABLED PEOPLE



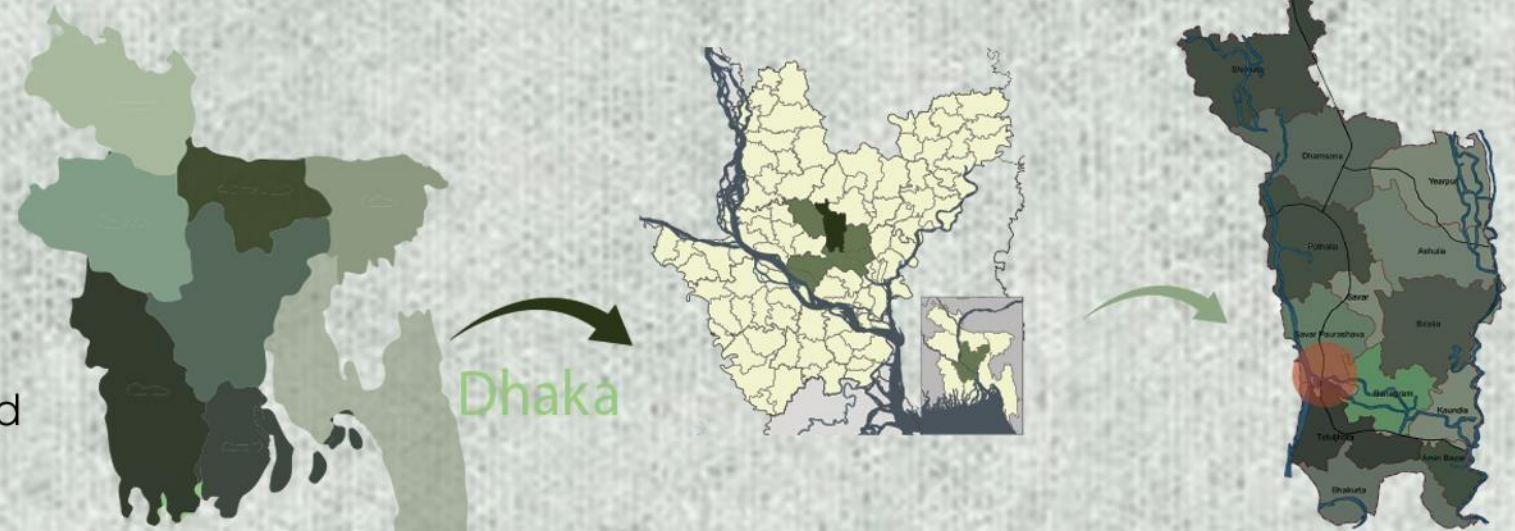
# National Sports Complex For Differently abled people

## An Accessible sports complex

Sports which are accessible by differently abled people are known as adaptive sports and the complex which is avail by this facilities and designed per requirement of differently abled people is known as an accessible sports complex.

### Differently abled ?

A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)



### Why Sports is for differently abled?



Site Area: 14 ACRE  
Site Location: Savar, East Banktown, Dhaka

Client:  
Ministry of Social Welfare, Government of the People's Republic of Bangladesh  
Financing:  
Jatiyo Protibondhi Unnoyon foundation

### EAST BANKTOWN SAVAR, DHAKA



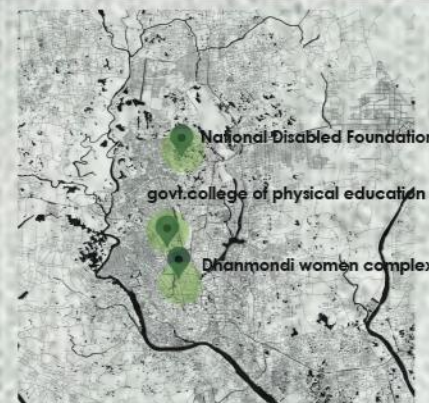
2.8 percent of the population & 1.7% of children have at least one disability, as defined by the Persons with Disability Rights and Protection Act 2013 of Bangladesh.

### Disability status



### Bangladesh

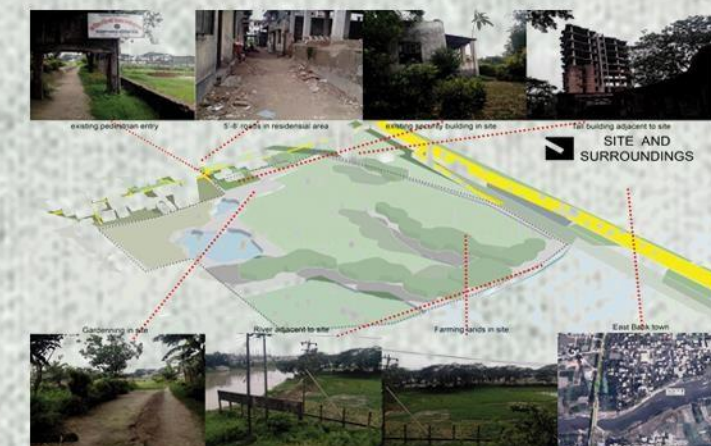
Physical Disability	42%
Autism	1%
Other Disability	2%
Multiple Disability	9%
Deaf-Blindness	4%
Down Syndrome	1%
Cerebral Disability	2%
Hearing Disability	7%
Intellectual Disability	5%
Speech Disability	4%
Visual Disability	14%
Mental Disability	9%



- Lack of infrastructure
- Medical facilities
- Insufficiently trained staff
- Inaccessible sports facilities



### Site & Site Surrounding



# EXISTING SITE ANALYSIS



**Banktown Zoning**

- Residential area (with heavy vegetation)
- Residential Area(with low vegetation)
- Industrial area
- Water bodies
- Residential Area(high rise building)
- Buildings



**Landuse Map**

- Residential
- Educational Institution
- Industry
- Road
- Commercial
- Govt. Office
- Waterbodies
- Bridges
- Mixed Used
- Religious institution
- Site



**Accessibility Map**

- Primary road (highway 60' wide)
- Secondary road 16' wide
- Tertiary road 5-8' wide



**Solid-Void**

- Solid
- Void



**BLUE-GREEN RATIO**

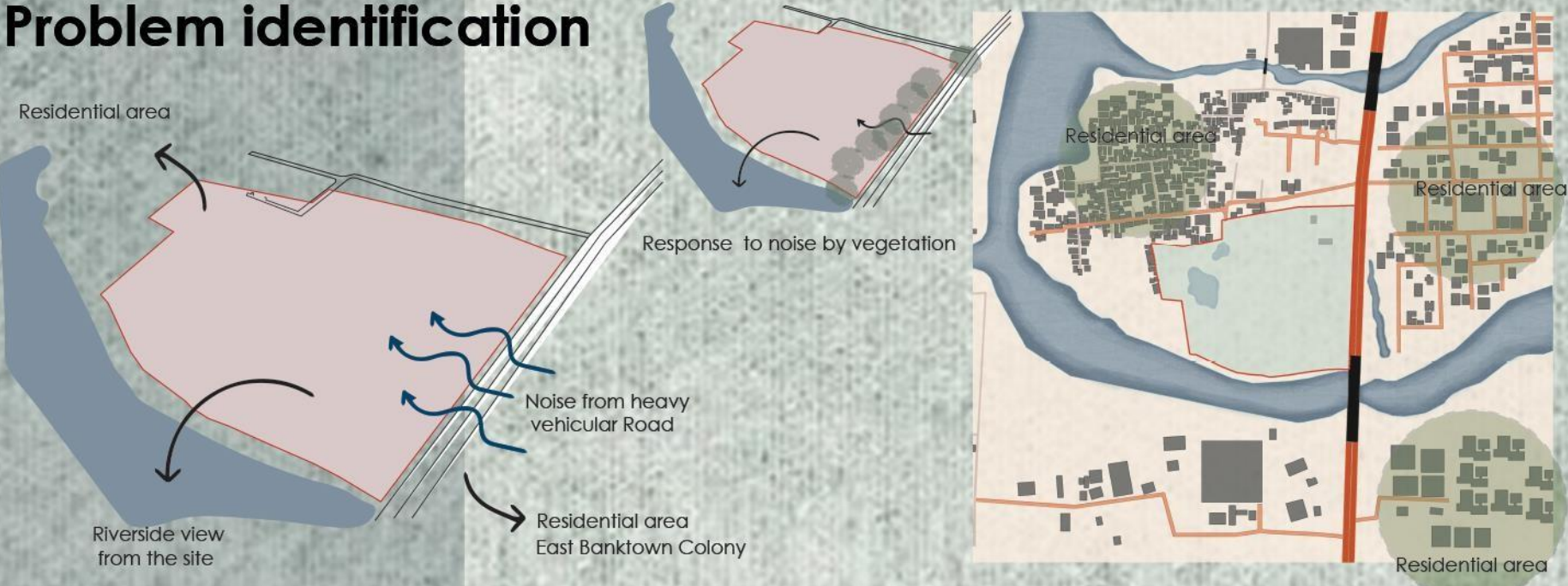
- Blue
- Green



**Height Map**

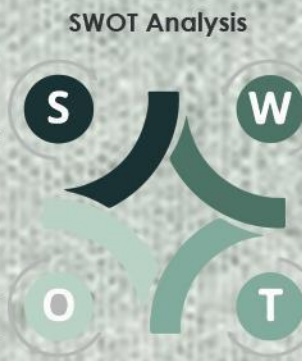
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- Above 10
- Road
- Bridges
- Waterbodies
- Site

## Problem identification



**STRENGTH**  
shade is provided by the canopy trees on the site's southern edge  
strong transport connectivity by road  
site is non-monotonous with river on the southern side and open ground on the west  
residential area is surrounded over the north

**OPPORTUNITIES**  
both nationally and internationally - can foster community development  
can assist those with disabilities in fostering social interactions as the project offers opportunities for neighborhood get-togethers



**WEAKNESS**  
Low land  
Flood prone areas in southern side of site  
Less connectivity with secondary roads  
Noise from heavy vehicle road

**THREATS**  
The sound disturbance from the highway road is a threat

Type of Differently ability

Differently abled criteria

Spaces

**AUTISM/AUTISM SPECTRUM DISORDER**

**Ability**      **Inability**

Visual learner  
Great memory  
Thinking and learning in visual way, Focus, consistency

Social communication difficulties, lack of understanding social cues, limited empathy, repetitive behaviors, adherence to routines,

Social, communication, and sensory processing challenges

Limited mobility and accessibility

**PHYSICAL DISABILITY**

**Ability**      **Inability**

Upper body strength, endurance

Inability to walk, lift objects, or perform other gross motor task

Emotional and cognitive challenges

**MENTAL ILLNESS DISABILITY**

**Ability**      **Inability**

Emotional resilience

Cognitive & psychological disorder  
lack of social interaction

Limited or no vision

**VISUAL IMPAIREMENT**

**Ability**      **Inability**

ability to use their senses through smell, hearing, or touch

no visual perception

Communication challenges

**SPEECH IMPAIREMENT**

**Ability**      **Inability**

Focus, strategic thinking

no verbal perception

Transitional Spaces/ Sensory Zoning	Circulation	Light, Ventilation, Acoustics	Wayfinding (Color & Texture)	Sports/specific Feature	Standards																														
<p>Dom low sensory activity</p> <p>One to one</p> <p>Transitional zone</p> <p>Gym outdoor playing high sensory activity</p> <p>Escape Spaces are to provide relief to the autistic people a small partitioned area or crawl space in a quiet section of a room,</p>	<p>Smooth circulation</p>	<p>Windows should be placed higher to avoid views to the outside, still light in</p> <p>Up light reduces the intensity and softens artificial light</p>	<p>Muted colour</p>	<p>Swimming, Running, Individual sports board games</p> <p>sensory garden</p>	<p>Standard for special children (nbc 2009)</p> <table border="1"> <thead> <tr> <th>ASPECT</th> <th>MIN REQUIREMENT</th> <th>MAX REQUIREMENT</th> </tr> </thead> <tbody> <tr> <td>Stair - Total</td> <td>300mm</td> <td>-</td> </tr> <tr> <td>Stair - Rise</td> <td>-</td> <td>170mm</td> </tr> <tr> <td>Ramp (Slope)</td> <td>Slope 1:12 (For short distances)</td> <td>Slope 1:20</td> </tr> <tr> <td>Ramp (width)</td> <td>900mm</td> <td>-</td> </tr> <tr> <td>Door (width)</td> <td>900mm + 300 mm (for the wheel chair)</td> <td>-</td> </tr> <tr> <td>Door handle position</td> <td>-</td> <td>800mm from PFL</td> </tr> <tr> <td>Wheelchair</td> <td>1400mm x 1000mm</td> <td>1500mm x 1000mm</td> </tr> <tr> <td>Measuring space</td> <td>-</td> <td>800mm wide x 600mm deep x 700mm high</td> </tr> <tr> <td>Working table</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	ASPECT	MIN REQUIREMENT	MAX REQUIREMENT	Stair - Total	300mm	-	Stair - Rise	-	170mm	Ramp (Slope)	Slope 1:12 (For short distances)	Slope 1:20	Ramp (width)	900mm	-	Door (width)	900mm + 300 mm (for the wheel chair)	-	Door handle position	-	800mm from PFL	Wheelchair	1400mm x 1000mm	1500mm x 1000mm	Measuring space	-	800mm wide x 600mm deep x 700mm high	Working table	-	-
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Working table	-	-																																	
<p>Recessed space</p> <p>Barrier free wide pedestrian 4' walkway</p> <p>KERB RAMPS</p>	<p>Wheel-chair accessibility</p> <p>Entrance to any building is ramp &amp; lift</p> <p>Ramp</p> <p>Ramp should have minimum width 1200 mm (code on Accessibility 2007, clause 3.3.3.1)</p>	<p>No special preferences</p>	<p>Concrete paving</p>	<p>Wheelchair sports, Athletics, Powerlifting, 7-a side football swimming pool</p> <p>Accessed by ramp</p> <p>swimming depth</p> <p>2'6"-3'</p> <p>84" in length, width 50" wheelchair basketball</p> <p>Minimum Width for Two Wheelchairs to Pass is 1800 mm</p> <p>1. Accessible corridors should have non-slip floor finishes. Colours and/or textures may be used to aid orientation. 2. There should not be any protruding objects along corridors. If this is unavoidable, ensure that compliance with the code. (Code on Accessibility 2007, Clause 3.7.4.1 and Clause 3.7.4.5.)</p>	<p>Recommended length of the single run</p> <table border="1"> <thead> <tr> <th>Gradient of ramp</th> <th>1:12, 1:14</th> <th>1:15</th> <th>1:20</th> <th>Not greater than 1:25</th> </tr> </thead> <tbody> <tr> <td>Maximum length of horizontal run in metres</td> <td>9</td> <td>11</td> <td>15</td> <td>18</td> </tr> </tbody> </table> <p>When the change in level results in having multiple ramps and landings combinations, other systems should be considered. Code on Accessibility 2007, Clause 3.3.1.2, Note 2</p>	Gradient of ramp	1:12, 1:14	1:15	1:20	Not greater than 1:25	Maximum length of horizontal run in metres	9	11	15	18																				
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<p>One to one low sensory activity</p> <p>Transitional zone</p> <p>outdoor playing high sensory activity</p>	<p>one-way circulation, whenever possible, with minimal disruption and distraction, using Transition Zones</p>	<p>Windows should be placed higher to avoid views to the outside, still light in</p> <p>Up light reduces the intensity and softens artificial light</p>	<p>Distinctive pavers</p> <p>Colour tile</p> <p>picture symbols</p>	<p>Board games</p> <p>Chess, carom, foosball, shooting</p>	<p>Standard for special children (nbc 2009)</p> <table border="1"> <thead> <tr> <th>ASPECT</th> <th>MIN REQUIREMENT</th> <th>MAX REQUIREMENT</th> </tr> </thead> <tbody> <tr> <td>Stair - Total</td> <td>300mm</td> <td>-</td> </tr> <tr> <td>Stair - Rise</td> <td>-</td> <td>170mm</td> </tr> <tr> <td>Ramp (Slope)</td> <td>Slope 1:12 (For short distances)</td> <td>Slope 1:20</td> </tr> <tr> <td>Ramp (width)</td> <td>900mm</td> <td>-</td> </tr> <tr> <td>Door (width)</td> <td>900mm + 300 mm (for the wheel chair)</td> <td>-</td> </tr> <tr> <td>Door handle position</td> <td>-</td> <td>800mm from PFL</td> </tr> <tr> <td>Wheelchair</td> <td>1400mm x 1000mm</td> <td>1500mm x 1000mm</td> </tr> <tr> <td>Measuring space</td> <td>-</td> <td>800mm wide x 600mm deep x 700mm high</td> </tr> <tr> <td>Working table</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	ASPECT	MIN REQUIREMENT	MAX REQUIREMENT	Stair - Total	300mm	-	Stair - Rise	-	170mm	Ramp (Slope)	Slope 1:12 (For short distances)	Slope 1:20	Ramp (width)	900mm	-	Door (width)	900mm + 300 mm (for the wheel chair)	-	Door handle position	-	800mm from PFL	Wheelchair	1400mm x 1000mm	1500mm x 1000mm	Measuring space	-	800mm wide x 600mm deep x 700mm high	Working table	-	-
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Working table	-	-																																	
<p>Implement braille, tactile, auditory guidance</p> <p>braille</p> <p>Tactile</p> <p>Tactile guidance</p> <p>Warning sign indicates hazard ahead</p> <p>Directional sign</p> <p>sensory garden</p>	<p>Clear pathway</p> <p>Warning tile</p> <p>Directional tile</p> <p>Four-way intersection within 1 module warning</p> <p>Change of direction</p>	<p>Acoustic</p> <p>Use of water fountain in nodes</p> <p>LIGHTING</p> <p>Adequate lighting is the single most important aid to vision. The lighting needs of persons who are visually impaired vary according to the individual and their particular eye condition</p> <p>Avoid glare and reflection which are often caused by shiny or glossy surfaces.</p>	<p>Sense of smell</p> <p>Aromatic plant</p> <p>Carex (Carex distachya)</p> <p>Reseda (Reseda luteola)</p> <p>Geranium (Geranium robertianum)</p> <p>Achillea (Achillea millefolium)</p> <p>Melissa (Melissa officinalis)</p> <p>Pimenta (Pimenta officinalis)</p> <p>Sense of Touch</p> <p>Material difference</p> <p>Texture/Tactile tile</p> <p>vertical texture</p> <p>Horizontal texture</p> <p>semi-circular texture</p> <p>Sense of Hearing</p> <p>Echo</p>	<p>Goalball, Judo, Athletics, Swimming, 5-a side football</p> <p>corridor 8' wide</p> <p>5-a side football L - 40m W-20m</p> <p>Trade &amp; Riser</p>																															
<p>One to one low sensory activity</p> <p>Transitional zone</p> <p>outdoor playing high sensory activity</p>	<p>No special preferences</p>	<p>No special preferences</p>	<p>No special preferences</p>	<p>Low-communication sports</p> <p>Badminton</p> <p>shooting</p>	<p>No special preferences</p>																														

Type of Differently ability

Differently abled criteria

Spaces



**Ability** memory, verbal comprehension, reasoning, analysis, and reasoning skills.

**Inability** Difficulty in decision making and sensory sensitivity

**Cognitive delays or challenges**



**No special preferences**

Based on Dr. Magda's research, noise is a major element that impacts autistic users behavior. In this project the architect reduced the noise in educational environment for children by separation between different zones to increase their concentration with respect to hyper and hypo sensitivity of each user- and the use of acoustical material to reduce echo.



Standard for special children (nbc 2009)

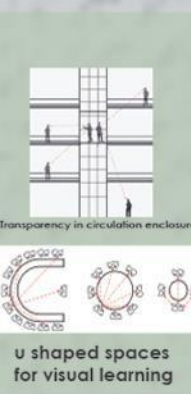
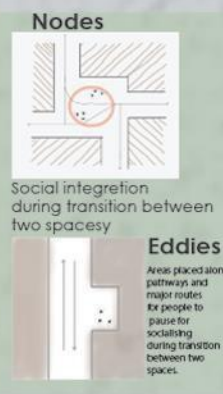
ASPECT	MIN REQUIREMENT	MAX REQUIREMENT
Stair - Total	200mm	
Stair - Rise	-	170mm
Stair - Rise	Stair 1:12 (for short distances)	Stair 1:20
Ramp (width)	1000mm	
Door (width)	900mm + 200mm (for the wheel chair)	
Door head position	-	Minimum from PFL
Wheelchair	1400mm x 1500mm	1550mm x 1400mm
Minimum clear	-	Minimum width + 400mm
Working table	-	depth + 700mm high



**Ability** Strong visual awareness

**Inability** limited or no auditory perception

**Hearing Challenges**



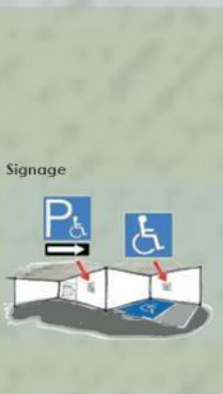
**No special preferences**



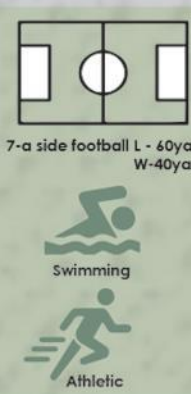
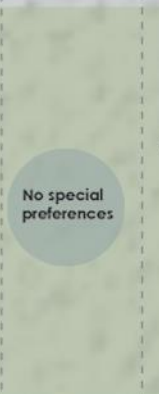
**Ability** Balance, coordination

**Inability** limited movement

**Muscle control and movement issues**



**No special preferences**



(code on Accessibility 2007, clause 3.3.3.1)

**Recommended length of the single run**

Gradient of ramp	1:12 - 1:14	1:15	1:20	Max profile Rise 1:25
Single maximum length of horizontal run in metres	9	6	3	3

\* When the change in level results in being multiple ramps and landing combinations, after relevant shall be considered. (Code on Accessibility 2007, Clause 3.3.1.2, Note D)

**Minimum Width for Two Wheelchairs to Pass is 1800mm**

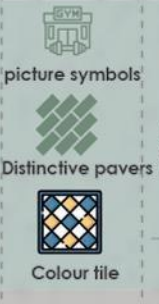
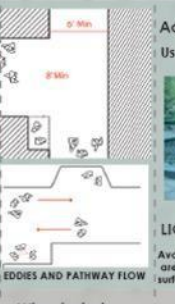
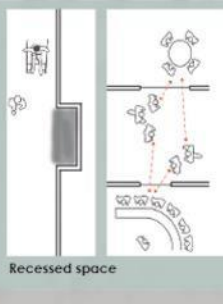
Washroom/door shall open outward



**Ability** Strategic thinking, concentration, strong sensory perception

**Inability** limited or no auditory perception and visual perception

**Combined visual and hearing loss**



**Handrails**

colour marked for visual cues



**Ability** Learning and using signs and gestures

**Inability** Attention problem, Social withdrawal

**Cognitive and physical challenges**



**No special preferences**

**No special preferences**



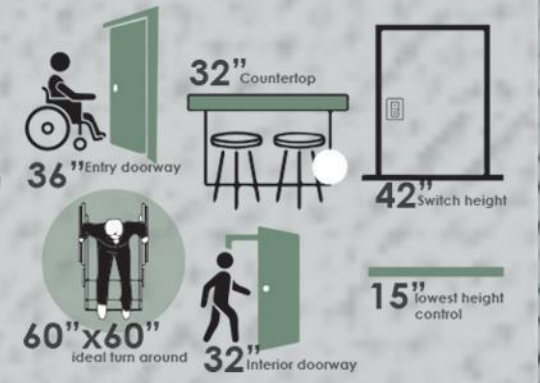
Combination of two or more disabilities



**Ability** Varies depending on the disability

**Inability** Varies depending on the disability

**Combination of disabilities**



Gymnastics

Badminton

Football

Netball

cycling

Cricket

judo

Rowling

Shooting

board games

Sitting volleyball

Blind soccer

Para-Archery

Table tennis

Taekwondo

track and feild

wheelchair basketb

wheelchair tennis

wheelchair fencing

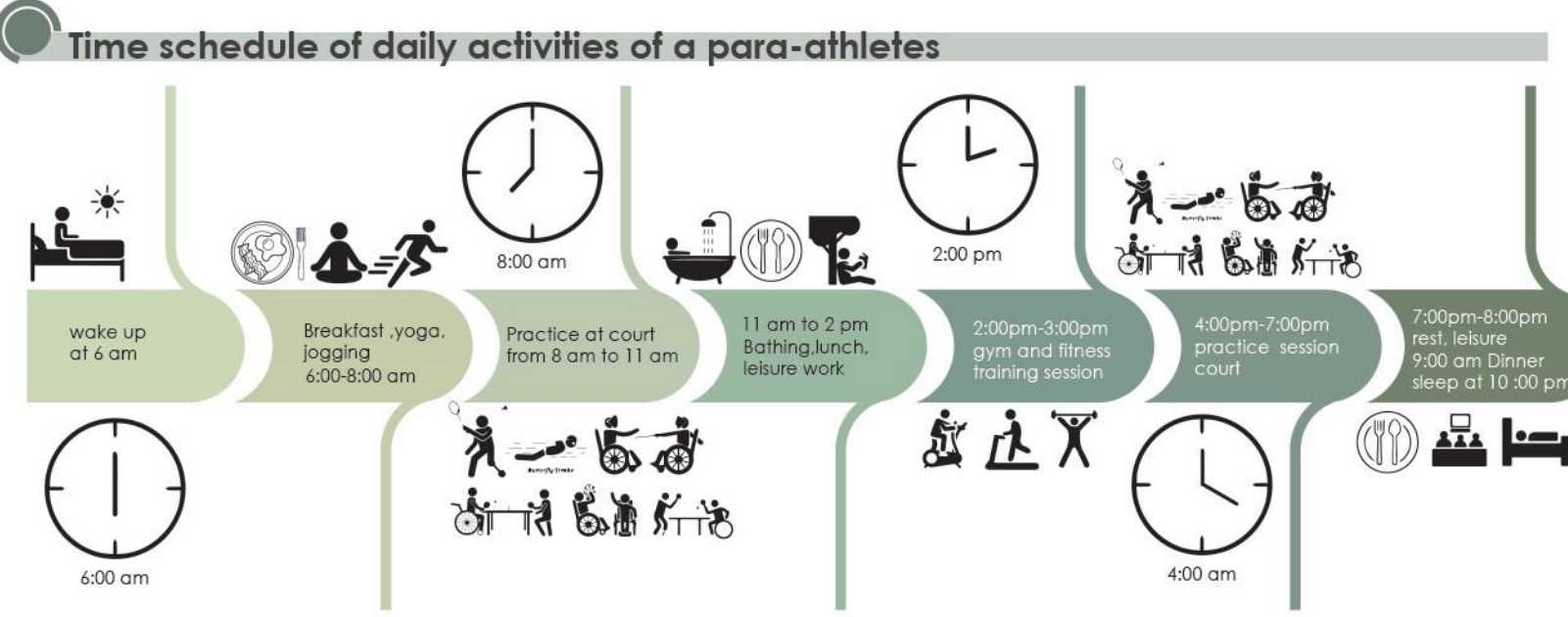
wheelchair rugby

Basketball

Swimming

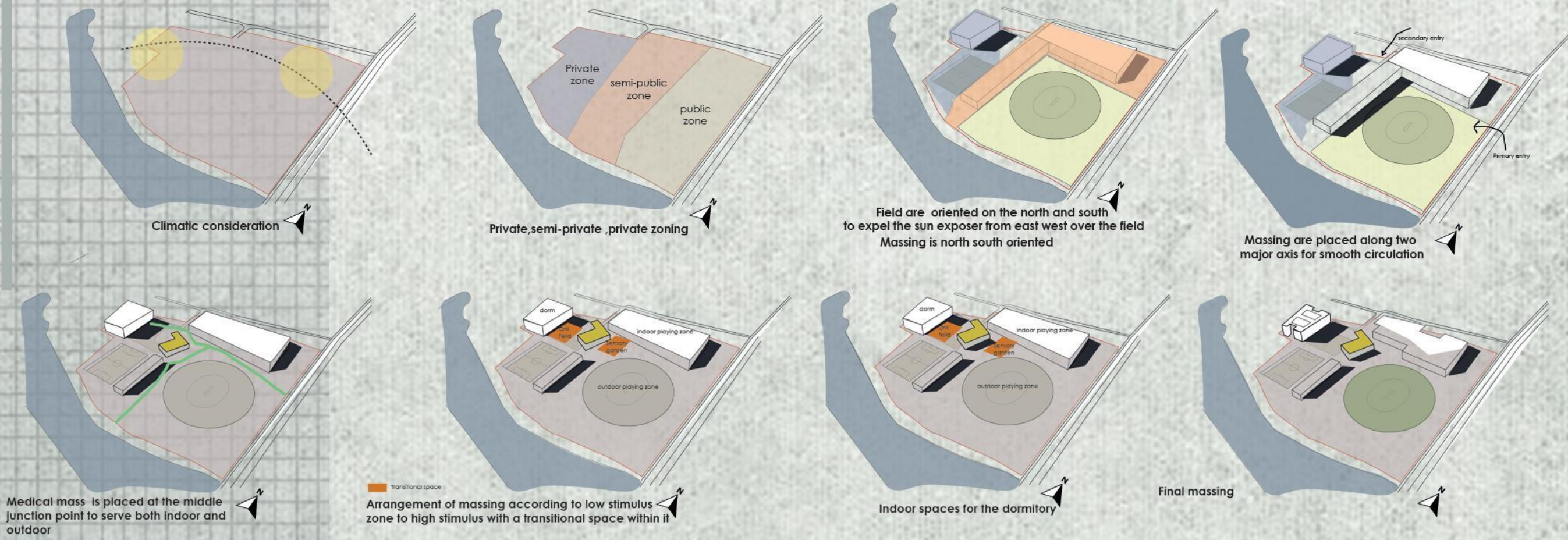
Type of disability	Cricket	Football	basketball	Swimming	Volleyball	judo	Taekwondo	Archery	Shooting	Gymnastic	Boccia	track & feild	Badminton	chess	table tennis	foosball	carom	fencing
AUTISM/AUTISM SPECTRUM DISORDER			●											●	●	●	●	
PHYSICAL DISABILITY	●	●	●	●	●	●	●	●	●		●	●	●		●	●	●	●
MENTAL ILLNESS DISABILITY						●	●		●		●	●	●		●	●	●	
VISUAL IMPAIREMENT	●	●		●	●	●	●		●			●	●					
SPEECH IMPAIREMENT	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
INTELLECTUAL IMPAIREMENT				●		●	●					●			●	●	●	
HEARING IMPAIREMENT	●	●	●		●			●		●			●	●	●	●	●	●
CEREBRAL PALSY	●	●	●		●	●	●	●		●	●	●	●	●				
HEARING AND SPEECH IMPAIREMENT		●			●	●	●	●	●	●				●	●	●	●	●
DOWN SYNDROME				●		●				●	●	●						
MULTI-DIMENSIONAL DISABILITY						●	●							●	●	●	●	●

Case Study	Broad Program Comprehensive list																						
	Sports										Medical			Dormitory			Commercial		Recreational/Public				
	Outdoor sports facilities			Indoor sports facilities			Admin		Service		Occupationaltherapy	Physiotherapy	Hydrotherapy	stuff	Female	Male	souvenir shop	Restaurant	Exhibition area	Amphitheatre	Gallery	Conference hall	Media center
Cultural sports complex for disabled Iran				●	●		●	●	●	●								●	●	●	●	●	
Sports and Fitness Center for disabled USA				●	●		●	●	●	●											●	●	
Center for disabled people (agrib. Croatia)							●	●	●	●									●		●	●	
Respondent 1 Jyoti Prabhodhi complex	●	●	●			●	●	●	●		●							●			●	●	
Respondent 2 Troyah	●	●	●		●		●	●	●		●										●	●	
Respondent 3 Proposed Prabhodhi sports complex	●	●	●	●	●		●	●	●	●	●						●			●	●	●	



Sports	Squad Size	Duration	Slots	No. of user
Cricket	22	4-6 hr	2	44
Football	Football 5a- side 10 Football 7a- side 14	40min	4	44
Basketball	10	40min	3	30
Swimmingpool	6	30min	12	72
Volleyball	12	60min	4	48
Judo	2	30min	12	24
Taekwondo	2	30min	12	24
Archery	1(4 in row)	30min	12	48
Shooting	1(6 in row)	60min	6	48
Gymnastics	8	60min	6	48
Track and feild	4	120min	3	12
Badminton	5 men +5 women	40-50min	8-9	90
Table tennis	2	30min	12	144
Fencing	2	45min	8	16

# Functional Zoning



## Concept Generation

Celebrating diversity – a Multidisciplinary sports hub for social inclusion

### Fostering Social activity

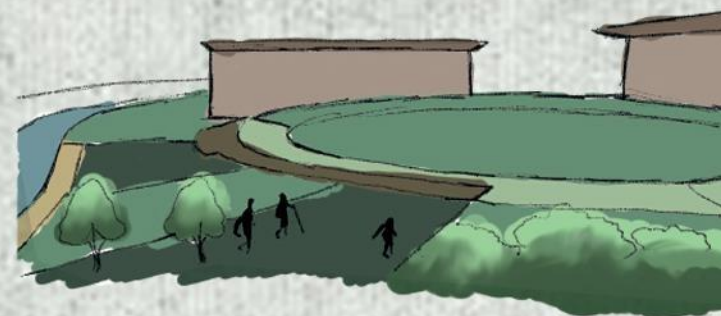
Community space, courtyard can lead to all abilities people engagement in a common space which enhances socially integrated to themselves

### Sense of community

Spatial Organization of Space for all special abilities people can create a sense of community which are enhanced by functional Zoning where the complex will be split up into discrete areas

### Employment

Universal design principle



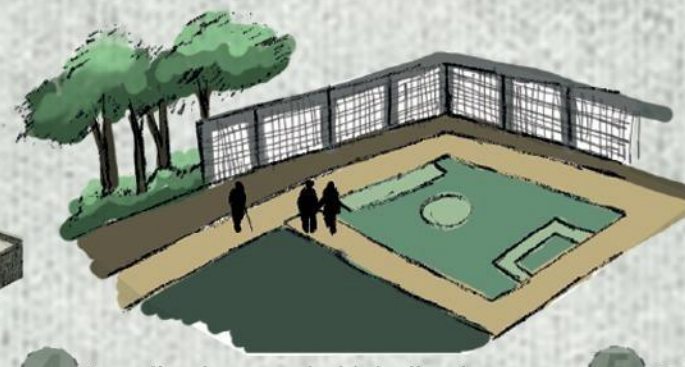
1 Public access enhance community integration



2 Equal Participation in Drill Field



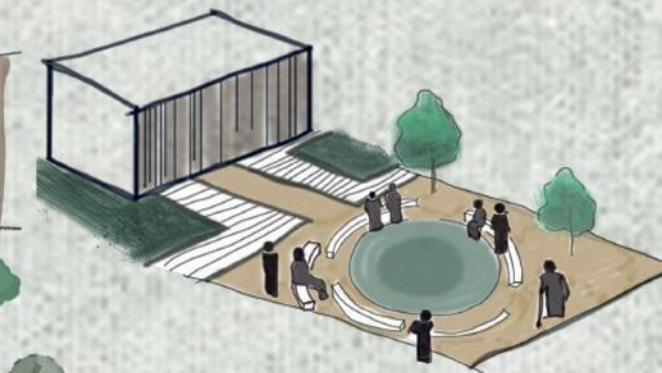
3 Sensory Garden



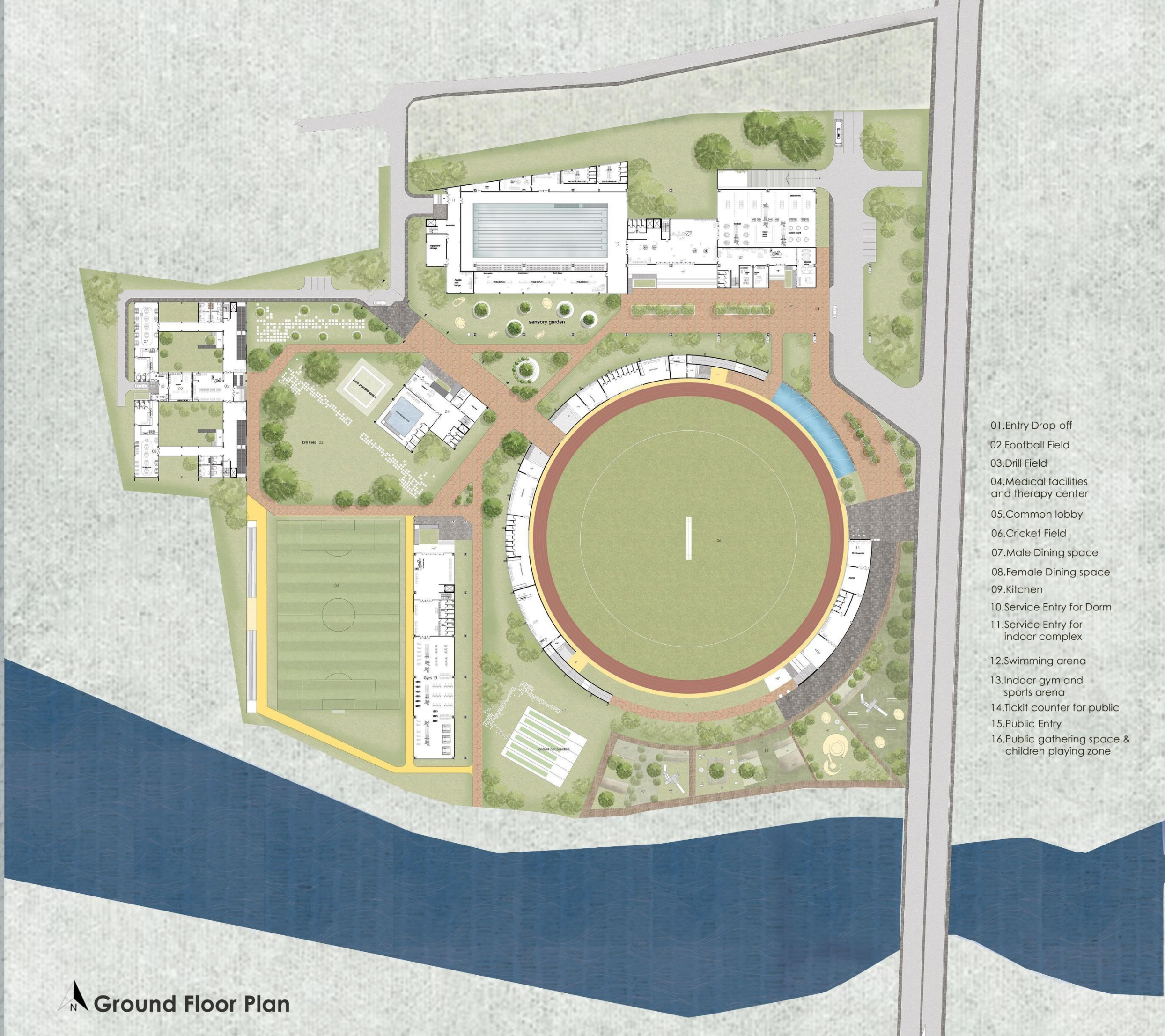
4 Low stimulus zone to high stimulus zone



5 Public-Private integration involves community integration

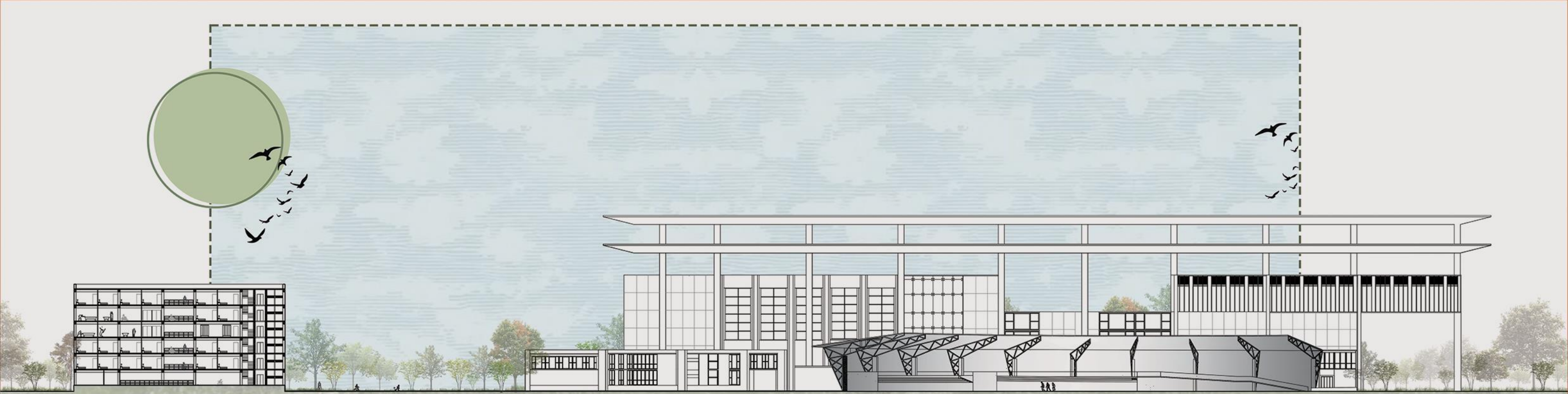


6 community integration

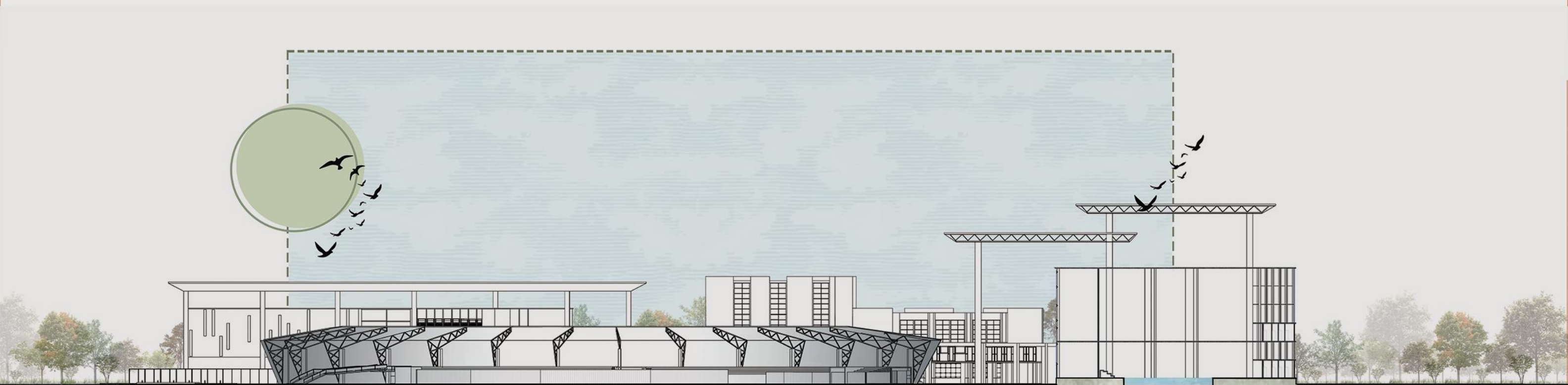


- 01.Entry Drop-off
- 02.Football Field
- 03.Drill Field
- 04.Medical facilities and therapy center
- 05.Common lobby
- 06.Cricket Field
- 07.Male Dining space
- 08.Female Dining space
- 09.Kitchen
- 10.Service Entry for Dorm
- 11.Service Entry for indoor complex
- 12.Swimming arena
- 13.Indoor gym and sports arena
- 14.Tickit counter for public
- 15.Public Entry
- 16.Public gathering space & children playing zone

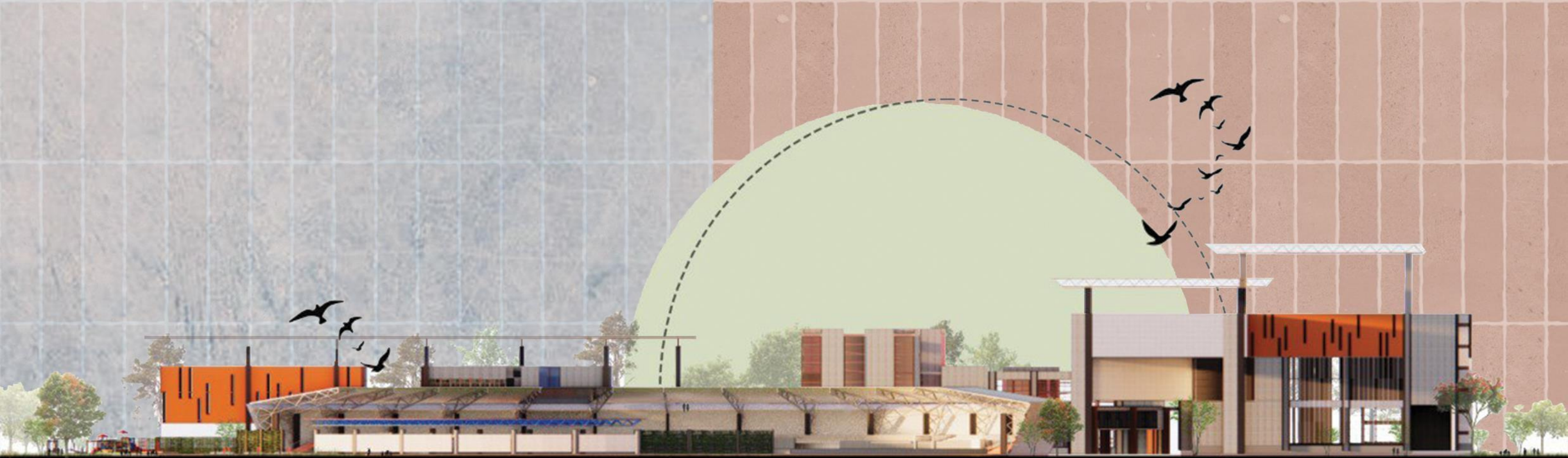
 **Ground Floor Plan**



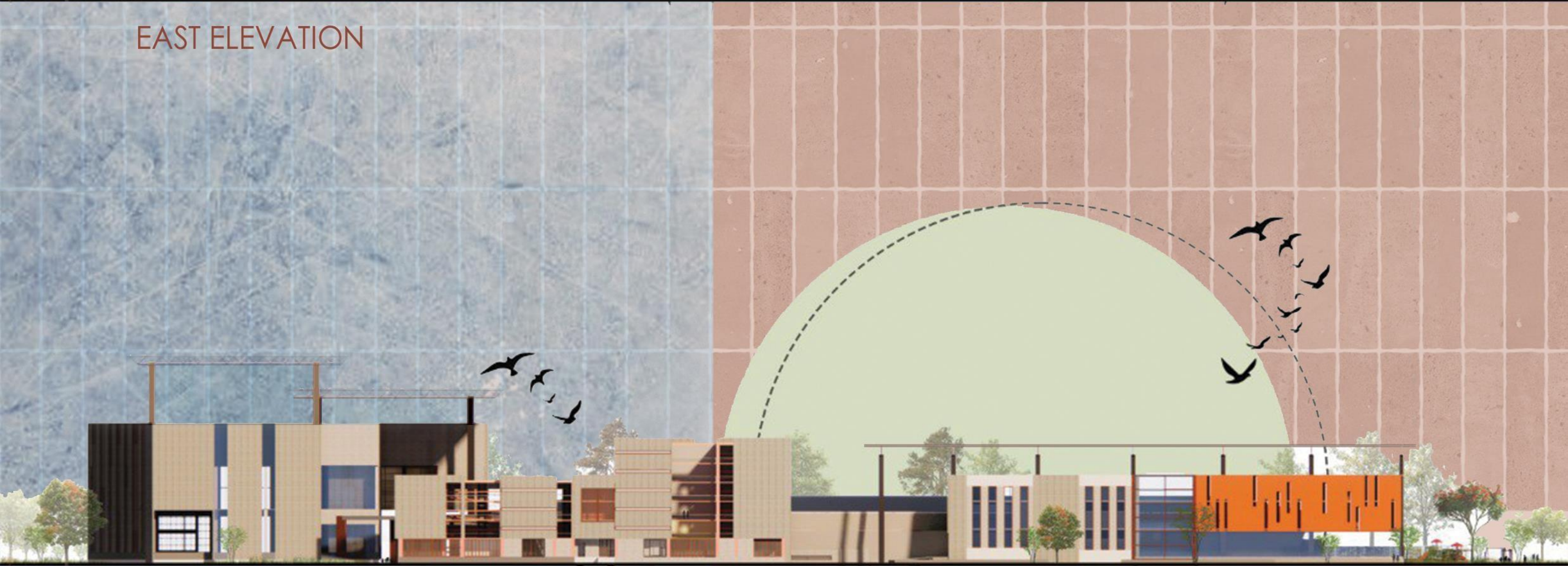
SECTION AA'



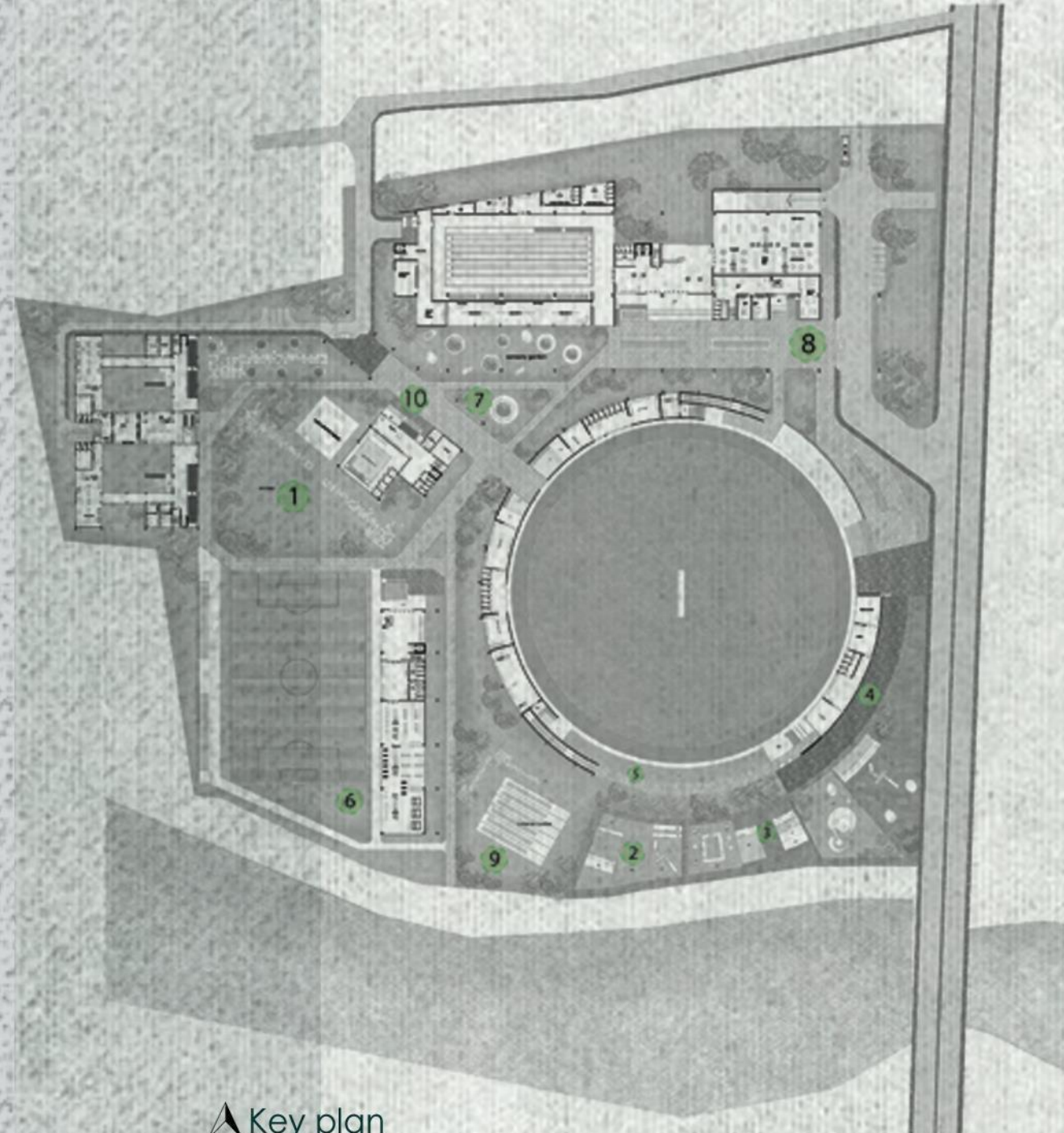
SECTION BB'



EAST ELEVATION



WEST ELEVATION



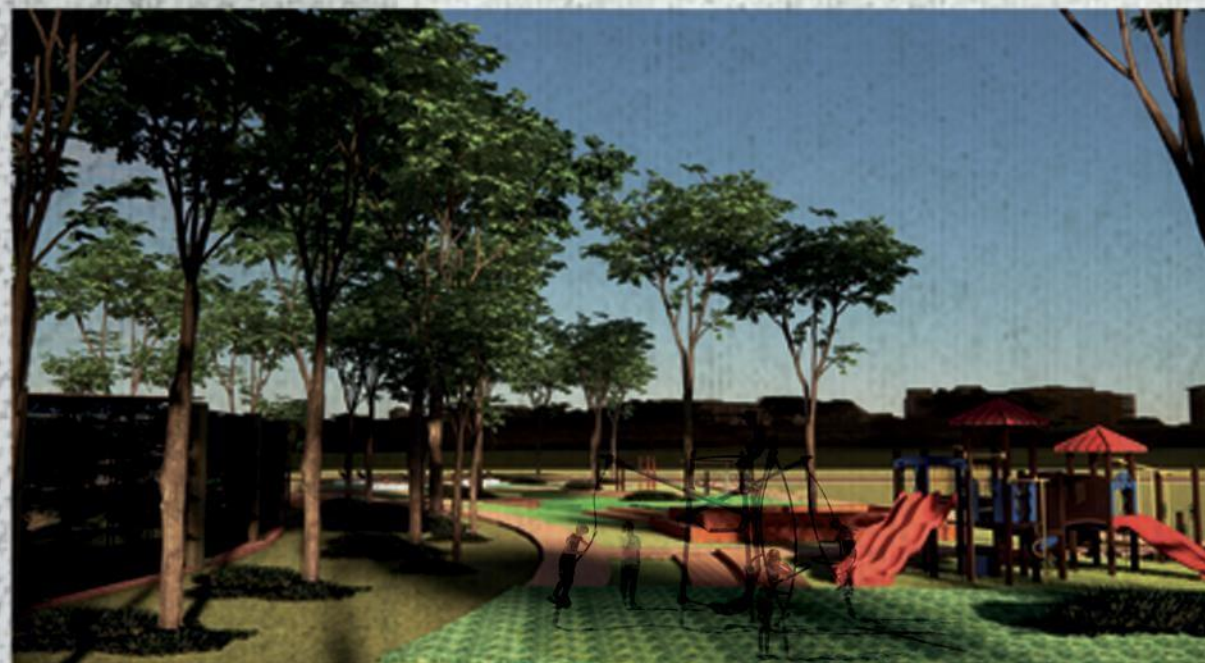
▲ Key plan



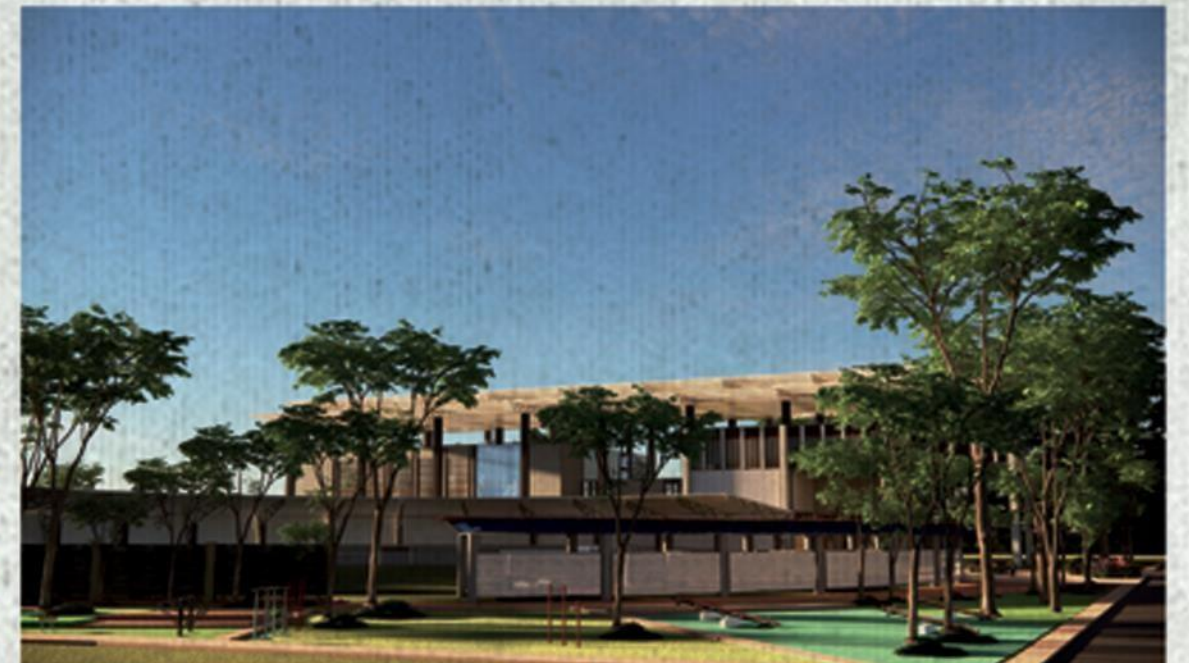
1 Drill Feild



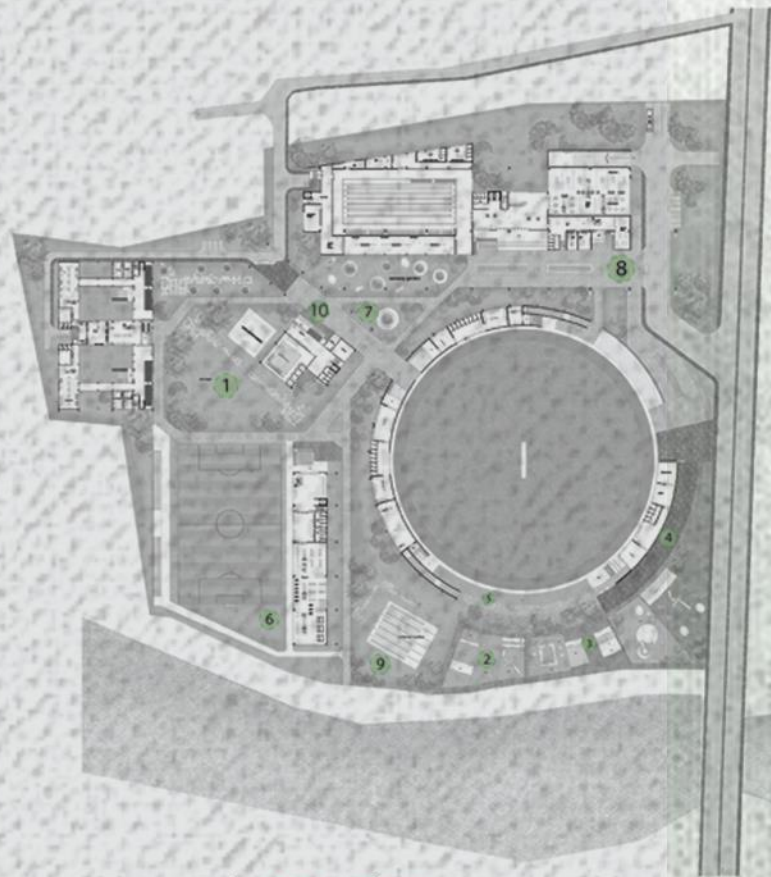
2 Public communal space



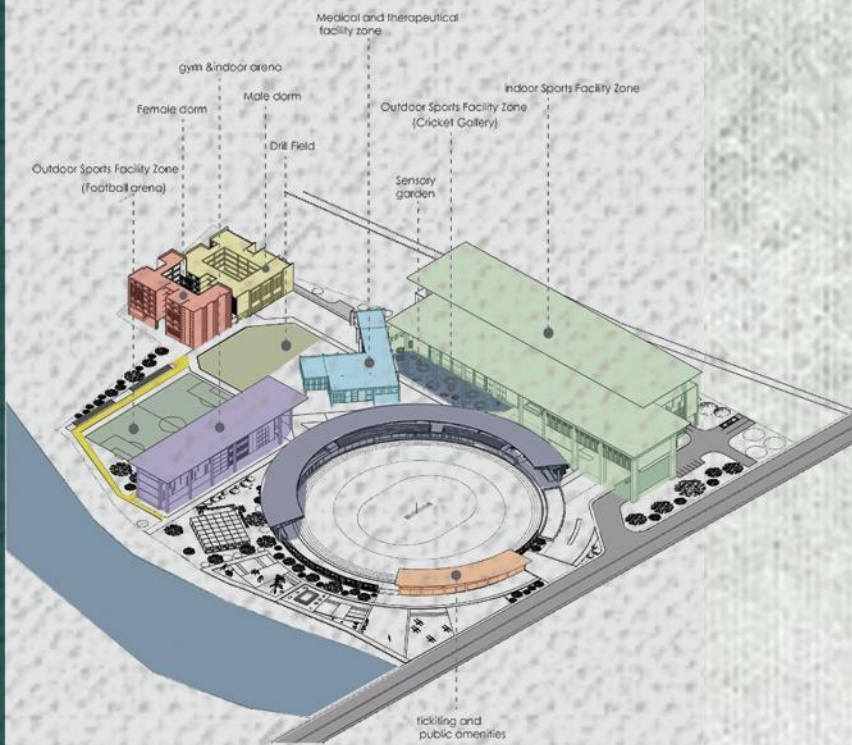
3 Public Activity Space



4 Tickiting and public amenities



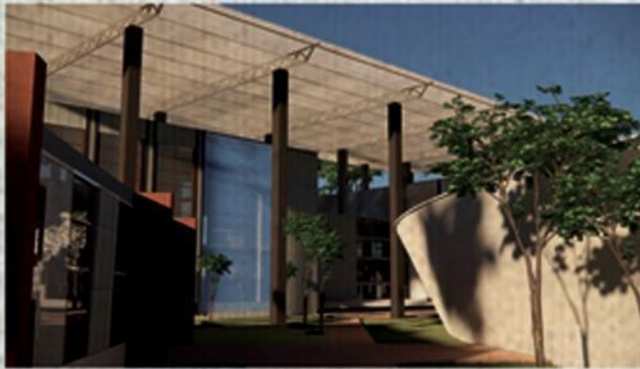
Key plan



5 Entry to gallery



6 Indoor sports arena



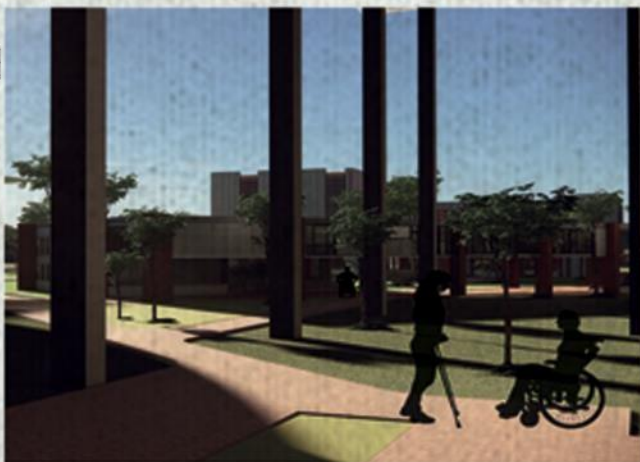
7 Node point



8 Entry



9 Cricket Net Practice



10 Medical & therapy