

INTEGRATED SPORTS PERFORMANCE HUB

A THESIS

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

By

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**DEPARTMENT OF ARCHITECTURE
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY) Accredited**

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BONAFIDE CERTIFICATE

This is to certify that Thesis Report is the bonafide work of **SHABARI SHREE .V (39210080)** who carried out the Thesis entitled "**INTEGRATED SPORTS PERFORMANCE HUB**" under our supervision from December 2023 to May 2024.

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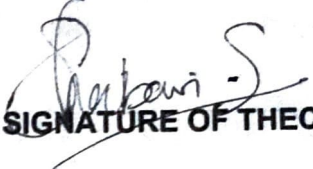
DECLARATION

I, **SHABARI SHREE V** hereby declare that the Thesis Report entitled "Integrated Sports Performance Hub" done by me under the guidance of Ar. Madhuvarshini (Internal Guide), Ar. Esther Kiruba Jebakumar (Internal Review Member) and Ar. Tahaer Zoyab (External Guide) Sathyabama Institute of Science and Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Architecture Degree.

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THESIS SYNOPSIS

The Integrated Sports Performance Hub aims to revolutionize the recovery and well-being of injured athletes through a specialized, comprehensive facility. Its core objectives include promoting optimal physical, mental, and emotional recovery, offering tailored rehabilitation services, and serving as an educational hub for injury prevention. By fostering research and innovation, providing holistic support, and employing a multidisciplinary approach, the facility ensures athletes receive the best care. It also focuses on a safe return to sports, long-term wellness, and collaboration with sports teams and the community.

The need for such a facility is driven by the limitations of small private rehabilitation centres in India, which often face resource constraints, reduced specialization, and limited technological capabilities. These centres, while beneficial, lack the comprehensive support necessary for optimal athlete recovery. The Integrated Sports Performance Hub addresses these gaps by offering state-of-the-art facilities, continuous monitoring, psychological support, and community engagement. By achieving these goals, the Hub will be a pivotal asset to the sports community, enhancing the health, performance, and longevity of athletes, and setting a new standard for sports injury rehabilitation and prevention.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The primary aim would be to provide a specialized and comprehensive facility to support the recovery and well-being of athletes who have suffered injuries. The specific aims for such a building are Optimal Recovery, Specialized Care, State-of-the-Art Facilities, Multidisciplinary Approach, Education and Prevention, Research and Innovation, Holistic Support, Collaboration with Sports Teams, Community Engagement, Safe Return to Sport, Long-Term Wellness.

By achieving these aims, the building Integrated Sports Performance Hub becomes a vital asset in the sports community, contributing to the overall health, performance, and longevity of athletes.

- a) **Optimal Recovery:** Create an environment that promotes the optimal physical, mental, and emotional recovery of injured athletes, enabling them to regain their pre-injury level of performance.
- b) **Specialized Care:** Offer specialized care and rehabilitation services tailored to the unique needs of athletes, considering the demands and requirements of various sports.
- c) **Education and Prevention:** Serve as a hub for educating athletes about injury prevention, proper training techniques, and lifestyle choices that contribute to long-term health and performance.
- d) **Research and Innovation:** Foster an environment that supports research and innovation in sports rehabilitation, contributing to advancements in treatment modalities and techniques.
- e) **Holistic Support:** Provide holistic support, including psychological counseling, nutritional guidance, and other services that contribute to the overall well-being of athletes.
- f) **Multidisciplinary Approach:** Implement a multidisciplinary approach involving physical therapists, sports medicine physicians, nutritionists, psychologists, and other professionals working collaboratively to address all aspects of an athlete's well-being.

- g) **Safe Return to Sport:** Facilitate a safe and gradual return to sports activities, ensuring that athletes are physically and mentally prepared to resume competition
- h) **Long-Term Wellness:** Promote long-term wellness by offering ongoing support, conditioning programs, and resources to help athletes maintain their health and prevent future injuries
- i) **Collaboration with Sports Teams:** Collaborate with sports teams, coaches, and organizations to ensure a coordinated approach to the rehabilitation process and facilitate a smooth return to play.
- j) **Community Engagement:** Engage with the local community and sports organizations to raise awareness about the importance sports injury rehabilitation and prevention.

1.2 NEEDS OF THE PROJECT

The establishment of an Academy for injured sports persons is driven by several compelling needs, all of which revolve around providing specialized care, support, and resources to athletes who have suffered injuries. Here are some key reasons highlighting the needs for such Education is the foundation of any society. It is responsible for the social, economic, and development of society. Schools play an important role in molding a nation's future by facilitating all round development of its future citizens.

- a) Specialized Expertise
- b) Optimal Recovery
- c) Continuous Monitoring and Adjustments
- d) Psychological Support
- e) Community Engagement



Fig 1.1: Intense Training session

It significantly reduces the risk of re-injury while also accelerating the rehabilitation process.

1.3 OBJECTIVES

- a) Give athletes continuing assistance, resources, and training plans, emphasizing the importance of long-term wellness and lowering their chance of recurrent injuries
- b) Establish comprehensive protocols for a safe and gradual return to sports activities, including functional assessments to determine an athlete's readiness for competition.
- c) To develop and implement injury prevention programs to educate athletes on proper techniques, conditioning, and lifestyle choices that reduce the risk of future injuries.
- d) Establish a comprehensive psychological support program to address the mental and emotional aspects of rehabilitation, helping athletes cope with the challenges of injury.
- e) Establish a schedule for regular and consistent practice sessions to reinforce muscle memory through repetition as state or national players.

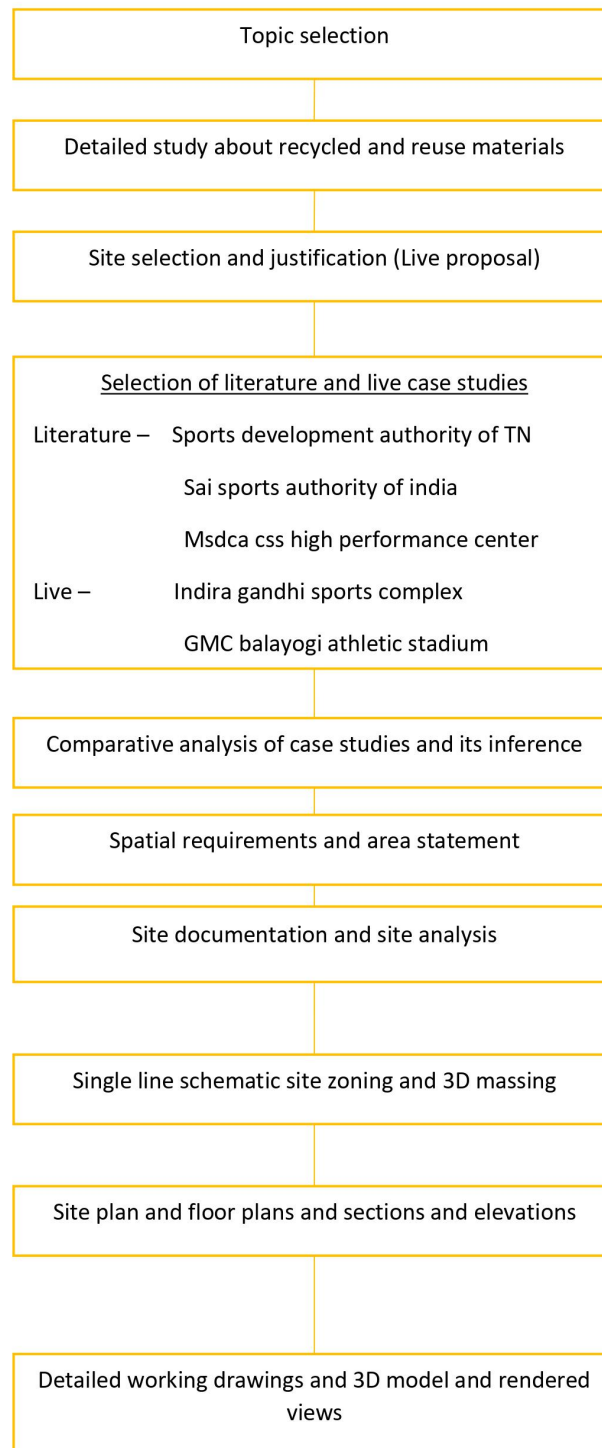
1.4 ABOUT THE PRIVATE SECTOR

In India, there are a few small private rehabilitation centers available, but there are no large corporate universities with all the technology needed to support athletes. There may be some drawbacks to a small private rehabilitation Centre.

Here are some drawbacks:

- a) Limited Resources
- b) Reduced Specialization
- c) Capacity Constraints
- d) Potential for Burnout
- e) Limited Networking Opportunities
- f) Scope of Services
- g) Less Diverse Experience
- h) Competitive Disadvantage
- i) Less Flexibility in Scheduling
- j) Financial Viability
- k) Technology Limitations
- l) Risk of Overburdening Staff &
- m) Limited Research Opportunities.

While these drawbacks exist, they do not negate the positive impact that a small rehabilitation center can have in providing focused and personalized care for injured sports persons. In our academy centers play a crucial role in ensuring that athletes receive comprehensive, specialized, and individualized care to maximize their chances of a successful return to sports.



CHAPTER 2

LIVE CASE STUDIES

2.1 SDAT (SPORTS DEVELOPMENT AUTHORITY OF TAMILNADU)

Location - Egmore, Chennai

Total Area – 8 Acre

Approximate Footfall – 1000 per day

Users

a) Players

- State level
- National level
- Club players
- Students

b) Public

2.1.1 AIM:

The aim of this case study is to conduct a comprehensive analysis of the Sports Development Authority of TN(SDAT) in egmore, with a specific focus on evaluating the existing facilities. The primary objective is to identify and critically assess the gaps in the current framework

2.1.2 OBJECTIVES:

- To promote physical fitness and to inculcate sports and health consciousness amongst the masses for regular participation in games and sports and to make the State
- To implement the existing schemes for the promotion of sports and games and for improvement of standards in sports and games in the state.
- To identify talented sportspersons, to train them and to render suitable financial assistance so as to enable them to participate successfully in National and International sports competitions.
- To plan and develop sports infrastructure at various levels in the State.
- To initiate, undertake, sponsor, stimulate and encourage research and development of sports related medicines, bio-chemicals, psychology and other allied sciences.
- To provide for advance coaching in various games and sports.

2.1.3 ABOUT SDAT:

The Sports Development Authority of Tamil Nadu is the official sports organ of the Government of Tamil Nadu. Its role is to promote sports and physical throughout the State, utilizing resources drawn from Government, Sports Associations, sports minded philanthropists, institutions and anyone committed to sports and physical fitness.

2.1.4 MISSION OF SDAT

To promote and encourage quality participation & performance by Tamil Nadu sports persons at national and international events through recognition, quality training, support schemes, & world-class infrastructure.



(a)



(b)



(c)

Fig 2.1.1(a),(b),(c)SDAT Conducted Events

2.1.5 SDAT FEDERATION SPECTRUMS

The Sports Development Authority of Tamil Nadu (SDAT) in Egmore is home to various federations dedicated to the promotion and development of different sports disciplines. These include the Gymnastics Federation, which focuses on nurturing talent and organizing gymnastics events and training sessions. The Hockey Federation is dedicated to promoting hockey through tournaments and training programs. The Volleyball Federation supports the growth of volleyball by hosting competitions and providing coaching for players. The Boxing Federation works to develop boxing skills through structured training and competitions.

In addition, the Basketball Federation aims to enhance the popularity and skills of basketball among athletes. The Tennis Federation organizes tennis events and training sessions to cultivate talent in the sport. The Athletics Federation oversees track and field activities,

providing a platform for athletes to compete and improve their skills. The Football Federation is committed to the advancement of football by organizing leagues and training camps.

The Badminton Federation supports badminton players through coaching and competitive events. Lastly, the Aquatics Federation focuses on swimming and other water sports, offering training and organizing competitions to promote aquatic sports. These federations collectively contribute to the vibrant sports culture in Tamil Nadu, providing opportunities for athletes to excel in their respective



Fig 2.2 (a),(b),(c),(d),(e),(f),(g),(i),(j)SDAT Sports Federation

2.1.6 SITE OF SDAT



Fig 2.3: Site of SDAT

2.1.7 COMPETITIONS:

The following competitions are conducted by SDAT regularly so as to provide competition exposure to sportspersons:

State games for Chief's Minister Trophy	State Level Inter University Competitions
Competitions for Differently abled persons	Beach Games
SDAT Hockey League Tournament	Anna Cycle Race
Competitions for Government and officials and employees	District and State Level Carrom Competitions
State and National Level Championships conducted by State Sports Associations	Hosting of International Championships in Tamil Nadu
Acrobatics	Advanced Training and Competitions Abroad

Table 2.1.1 Competitions Conducted

2.1.7 INFERENCE:

1.The state of the SDAT Ground in Tamil Nadu is concerning since there has been inadequate infrastructural and management maintenance. It got worse after post-metro construction. This neglect not only affects the visual appeal of the facility but also prompts concerns about the dedication to preserving a crucial sports infrastructure.

2.The construction of a metro station near the SDAT Ground has also positive implications. On the positive side, improved accessibility through the metro can enhance the reach of the sports facility, making it more convenient for athletes, spectators, and the general public. It may also attract a broader audience, potentially fostering increased interest and participation in sports.

3.The absence of proper sports science facilities at the SDAT Ground is a notable concern. Athletes, in their pursuit of peak performance, rely on sports science disciplines such as physiotherapy, nutrition, and sports medicine. The lack of dedicated facilities for these crucial aspects hampers the comprehensive development and well-being of athletes. Without access to specialized support, injury prevention, performance optimization, and recovery become more challenge.

2.2 SAI SPORTS AUTHORITY OF INDIA (BANGALORE)

Location: Bangalore, Karnataka

Total Area – 8 Acre

Approximate Footfall – 1000 per day

Users

c) Players

- State level
- National level
- Club players
- Students

d) Public

2.2.1 Aim

The aim of this case study is to conduct a comprehensive analysis of the Sports Authority of India (SAI) in Bangalore, with a specific focus on evaluating the existing facilities and government schemes. The primary objective is to identify and critically assess the gaps in the current framework



Fig 2.4 Sai Sports Authority of India

2.2.2 Objectives

- a) To train Indian national teams in Olympic sports discipline all facilities for training, lodging, boarding, Rehabilitation, Sports medicine, and Sports sciences.
- b) To run various schemes of Government of India aimed at sports promotion in southern region (SAI training Centre, Special Area Games, Centre Excellence, Adopted Schools, National Sports Talent Context (NSTC), Army boys' sports company etc...)
- c) To conduct Academic programme that is Diploma course in coaching.
(to become a coach, this diploma course is must), certificate course of in-service physical education teachers and coaches from India and abroad) and refreshers course in various sports disciplines.
- d) To organize recreational sports schemes of Government of India like rural sports, Women sports etc.,
- e) To carry out research works in the field of sports, physical education, and sports. sciences.

2.2.3 About Sai Sports Authority of India

Sports Authority of India, Netaji Subhas southern Center, Bengaluru is the regional center of sports authority of India-New Delhi, Under the Minister of Youth Affairs and sports, Government of India.

This center looks after the sports related activities of 3 states. namely Karnataka, Andra Pradesh, and Telangana.

- To promote and broad base sports in India.
- To train National Teams for participation in International Competitions.
- To prepare high calibre coaches and to enrich their competence and knowledge.
- To provide scientific backup to the National Campers and SAI trainees for achieving higher performance in sports.
- To Co-operate with other sports organizations and to provide information promotion, development, and excellence in sports.

- To implement and monitor the sports promotional schemes of SAI and Government of India in Southern Region

2.2.4 Site

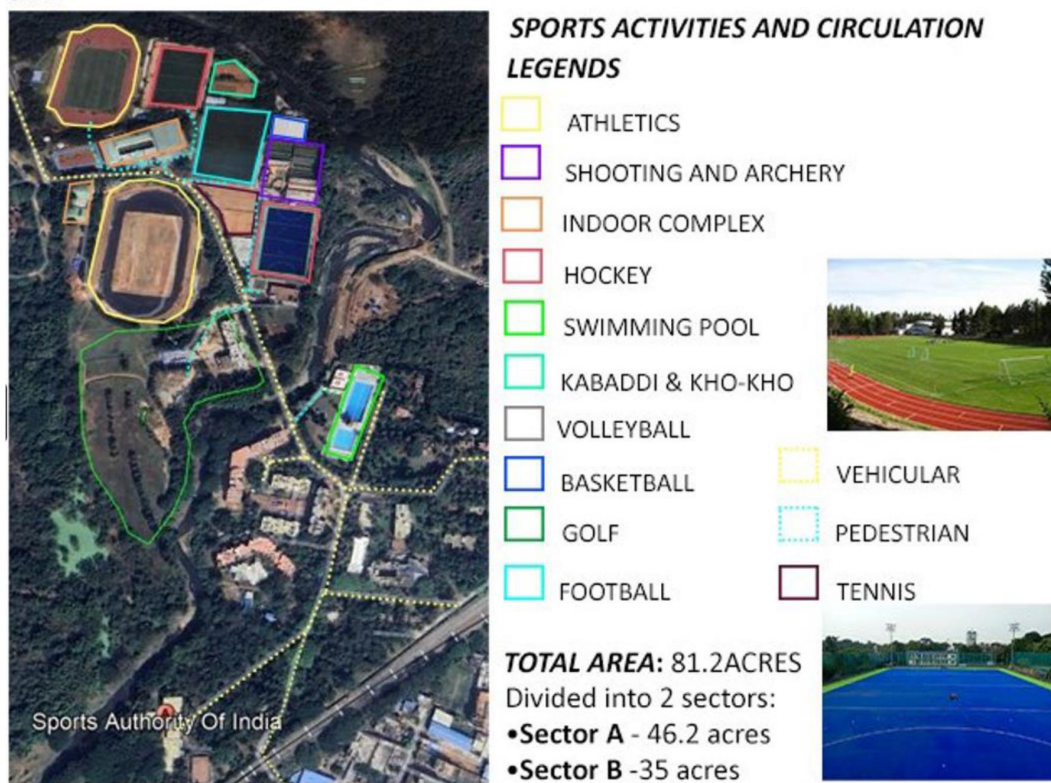


Fig 2.5 Site of Sai Sports Authority of India

2.2.5 Site Surroundings

1. Bangalore University's campus is next to SAI Sports Academy, with access to Sai via an unusual gate from the university's postgraduate dormitory. There are around 300 acres of open unbuilt space.

2. Since it is in outskirts of Bangalore there are more advantages:

- Less population
- Less Traffic
- More Privacy
- More Open spaces
- More of housing unit is near by

- More of vegetation in and around the site

Good atmosphere for national players and outsiders to practice

3.Small channel of water passes through the site and edge of the site.

4. Water Supply main source is Bengaluru water supply and sewerages board (BWSS&B) is situated around 3Km

2.2.6 Programs and Initiatives



Fig 2.6 Programs and Initiatives

2.2.7 Accessibility

Located along the Mysore-Bangalore highway. However, it is only accessible through secondary roads.

- Satellite bus stop is situated in a radius of 4km
- Kempe Gowda station is around 12km
- Kempe Gowda international airport is around 45km
- Metro station is around 4km

2.2.8 Infrastructure Facilities

Sector A

A) Outdoor Facilities:

- Synthetic Athletic Track
- Cylinder Athletic Track
- Synthetic hockey field
- Kho-Kho
- Football field
- Outdoor Basket ball
- Shooting range complex
- Tennis courts
- Outdoor Volleyball clay courts
- Sand Volleyball (beach volleyball) court-1.no
- Sand Running Track
- Hole golf course
- Thap and Skeet Shooting range
- Swimming pool Complex
 - Main Pool
 - Warming Up pool
- Residential Complex
- Administrative & Academic building
- Shopping Complex (with 7 shops)
- Central Stores and Garage
- Camper's hostel
- Guest hall
- Labor office

B) Indoor Facilities:

2.2.8.1 MULTIPURPOSE INDOOR HALL COMPLEX-1

i. Multipurpose indoor hall no.1

- volleyball courts
- 6 Badminton courts and utilized for fencing and kabaddi

ii. Multipurpose indoor hall no.2

- badminton courts& also be used for 1 volleyball or Gymnastics training hall

iii Weight lifting halls

iv. Proposed Boxing Hall



Fig 2.7 Football Turf



Fig 2.8 Turf

2.2.8.2 MULTIPURPOSE INDOOR HALL COMPLEX-2

- i. Wrestling, Judo, Fencing, Table Tennis, and other combat events.
- ii. Conditioning Hall no.1
- iii. General Conditioning Hall no.2

SECTOR B

a) SCIENCE BLOCK

- Physiology
- Biochemistry
- Anthropometry
- 150 Biomechanics.
- In charge person room
- Psychology

b) MEDICAL BLOCK

- Senior Scientific officer
- Pharmacy
- Exercise Therapy Room
- Dope sample collection
- Massage room
- Consulting Room
- Sauna Bath
- Hydro and exercise therapy
- General ward



Fig 2.9 Swimming

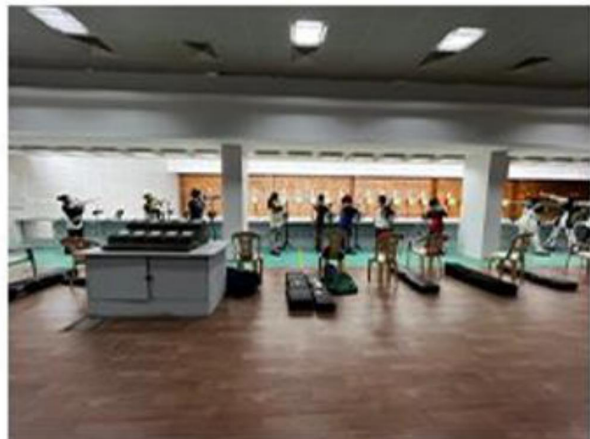


Fig 2.10 Gym

2.2.9 OUTDOOR FACILITY

Athletics Tracks	• Synthetic • Cinder • Clay track • Sand track	• One • One • One (500 meters - 2lanes) • One (120 meters)
Basketball Court	• Mosaic	• Two
Football Field (120m x80m)	• Natural Turf	• One
Synthetic Hockey Turfs	• Artificial Turf	• One •
Kho Kho courts	• Clay	• Two
Kabaddi Courts	• Clay	• One
Lawn Tennis Courts	• Hard court • Cement	• Five • One
Swimming Pool Complex	• 50m x 21m Swimming cum Diving pool • 25m x 21m warming up cum learner's pool	• One • One
Volleyball Courts	• Clay • Sand	• Three • Five
Golf course-9 Hole	• Turf	• One
Shooting range complex	• 25m,50m range and trap and skeet ranges	• One each
Fartlek Running track	• Clay	• One
Archery	• Turf	• One

Table 2.2.1 OUTDOOR FACILITY

2.2.10 INDOOR FACILITY

COMPLEX-1			
HALL	DIMENSIONS	ACTIVITY	No of courts
Multipurpose Indoor Hall-1	45m x 35m x 20m	• Volleyball • Basketball • Handball • Badminton	• Two • Two • One • Six
Multipurpose Indoor Hall-2	40m x 15m x 15m	• Badminton • Gymnastics • Table Tennis	• Four • One • Six
Weight lifting halls	20m x 20m x 7.5m	• Competition Hall • Training Hall	• One • One
General Conditioning Hall	20m x 20m x 7.5m	• Conditioning	• One
COMPLEX-2			
Multipurpose Hall-1	30m x 20m x 5m	• Judo • 10m Shooting range • Wrestling • Fencing • Taekwondo • kabaddi	• One • One • One • One • One • One
Multipurpose Hall-2	20m x 15m x 5m	• Kabaddi • Boxing	• One • One
Multipurpose Hall-3	20m x 15m x 5m	• State of art conditioning hall	• One

Table 2.2.2 INDOOR FACILITY

2.2.10 INDOOR FACILITY

PARTICULAR	No. of hostels	Types of rooms	No. of rooms	CAPACITY	Total capacity
Hostel for National Campers	One	• 2 Bedded • 3 Bedded	• 45 • 36	• 90 • 108	198
Hostel for COE/STC	One	• 3 Bedded	• 65		195
Hostel for Women	One	• 4 Bedded	• 6 • 17	• 12 • 68	80
Hostel for Diploma Students	One	• Dormitory		• 72	72
Hostel for Elite Sports women	One	• 2 Bedded	• 50		100
Hostel for Elite Sports Men	One	• 2 Bedded	• 50		100
			Total		746

Table 2.2.3 INDOOR FACILITY

Particular	No. of Hostels	Types of Rooms
200 Bed Hostel for Men for students and schemes	One	• 2Bedded • 3Bedded
200 Bed Hostel for COE & Jr. National Campers	One	• 3Bedded
100 Bed Hostel for Elite Male sports persons	One	One (with Split Air Conditioning)
100 Bed Hostel for Elite Women Sports persons	One	One (with Split Air Conditioning)
80 Bed Hostel for Women	One	• 3Bedded

Table 2.2.4 INDOOR FACILITY

2.2.11 AMENTIES

1	Sports Medicine Centre	One
2	Sports Science Medical	One
3	Administrative Building	One
4	Shopping Complex	One
5	VIP Guest house	One
6	Staff Quarters	Ninety-One
7	Guest Flats	One
8	Club House	Twelve
9	Auditorium	One(270seats)
10	Conference Hall	One(70seats)
11	Seminar Hall	One(108seats)

Table 2.2.5 AMENTIES

STATE	ANDRA PRADESH	KARNATAKA	TAMILNADU	PONDICHERRY	TOTAL
NCS	-	12	-	-	12
UFS	02	05	-	-	07
COE	-	05	-	-	05
STC	50	26	18	09	103
SAG	-	-	10	-	10
NSTC	04	02	-	-	06
ABSC	02	02	-	-	04
SOUTH CENTRE	-	10	-	-	10
ACAD	-	21	-	-	21
JNV	02	-	01	01	04
TOTAL	60	83	38	10	182

Table 2.2.6 Players Represent

2.2.12 NCS (National Coaching Scheme)

The National Coaching Scheme is designed to identify & support talented coaches to ensure the development of high-quality coaching in various sports disciplines.

2.2.13 COE (Centre of Excellence)

The Centre of Excellence scheme focuses on creating world-class training centers for specific sports disciplines to nurture and train elite athletes for senior National Competitions for training at Regional Centres of SAI. COEs provide state-of-the-art infrastructure, specialized coaching, sports science support, and other facilities to enhance the

overall performance of athletes.

2.2.14 STC (Special Area Games and Sports Talent Search and Training Scheme)

In order to groom the junior level sports persons in the age group of 10-18 years. The scheme is implemented in association with the State Govt. wherever the requisite sports infrastructure is allocated to SAI.

2.2.15 SAG (Special Area Games)

The Scheme envisages tapping of talent from indigenous games and martial arts and also from the regions/comm -unities, which are either genetically or geographically advantageous for excellence in a particular sports discipline. The sportspersons in the age group of 10-18 years are identified and nurtured

2.2.16 NSTC (National Sports Talent Contest Scheme)

Scheme is implemented to scout sports talent in the age group of 8-14 years from schools and nurture them into future medal hopes by providing scientific training.



Fig 2.11 Sai sports academy



Fig 2.12 Sai sports academy Gym

2.2.17 ABSC (Army Boys Sports Company)

A joint venture with Indian Army / Air Force/Navy with a aim to utilize the sports infrastructure available at their regimental centres to train male sportspersons in the age group of 8-14 years to achieve excellence in sports.

2.2.18 INFERENCE

1.The comprehensive analysis of the Sports Authority of India (SAI) in Bangalore, focusing on facilities and government schemes, reveals a scenario where the commendable efforts to develop sports infrastructure and talent are somewhat overshadowed by a significant oversight-insufficient attention to the health and well-being of the players.

2.While the government, through schemes like [e.g., Khelo India, STC, NCS], has demonstrated a commitment to fostering sports excellence and providing cutting-edge infrastructure, the case study underscores a critical gap in prioritizing player health. The existing facilities, though well-equipped, lack a comprehensive approach to sports medicine, injury prevention, and overall athlete well-being.

3. The inference drawn from this analysis accentuates the necessity for an integrated and holistic sports development strategy. Acknowledging that the success of athletes is not solely determined by the quality of infrastructure, the oversight in prioritizing player health requires immediate attention. A more comprehensive approach to sports development would involve incorporating sports medicine professionals, injury prevention programs, and wellness initiatives into the existing framework.

2.3 MSDCA CSS HIGH PERFORMANCE CENTRE (Chennai)

Location: Bangalore, Karnataka

2.3.1 AIM

To investigate and determine what sorts of spaces and facilities are required for an integrated sports performance hub

2.3.2 ABOUT MSDCA CS HIGH PERFORMANCE CENTRE

MSDCA with its unique approach to Cricket Coaching, and CSS with its State-of-the-Art Facilities at Chennai, have come together to offer upcoming cricketers the best grooming facility to grow into proficient cricketers under one roof at its High-Performance Centre and take their game to the next level.

The HPC is positioned as one of the best facilities across the globe for First Class and International teams for conducting workshops and availing specialized training under expert coaches.



Fig 2.13 Indoor Facility Fig 2.14 Bio Mechanic Lab Fig 2.15 Hydrotherapy Fig 2.16 Gym

2.3.3 RAMACHANDRA INTERNATIONAL, NATIONAL PERFORMANCE CENTRE REHABILITATION

The importance of rehabilitation and leisure sports in promoting physical and mental well-being among athletes has gained significant attention. In this chapter, we explore the offerings and programs available at Ramachandra International, a leading institution dedicated to sports rehabilitation and leisure sports. With a focus on excellence and innovation, Ramachandra International provides athletes with state-of-the-art facilities and expert guidance across various sporting disciplines.

2.3.3.1 WEIGHTLIFTING

Strength, power, and technique are paramount in the realm of weightlifting. Our certified coaches at Ramachandra International offer personalized training plans aimed at building muscle, enhancing endurance, and refining lifting techniques. Through rigorous training and expert

guidance, athletes can achieve their peak physical condition and excel in weightlifting competitions.

2.3.3.2 SHOOTING

Precision, focus, and control are essential components of shooting sports. At Ramachandra International, athletes can benefit from specialized training regimens and cutting-edge equipment tailored to enhance their skills in marksmanship. Whether novice or seasoned, our program is designed to elevate performance levels and foster success in competitive shooting events.



Fig 2.17 Shooting Rehabilitation Center

Fig 2.13 Shooting Rehabilitation Center

2.3.3.3 ROWING

Rowing demands a combination of grace, strength, and endurance. At Ramachandra International, our rowing program provides athletes with access to top-notch facilities and experienced coaches. From mastering stroke techniques to improving cardiovascular fitness, our program prepares athletes to perform at their best on the water, whether at a recreational or competitive level.

2.3.3.4 HOCKEY

Hockey enthusiasts can indulge in the thrill of the game at Ramachandra International's premier hockey pitches. Our expert coaches focus on developing essential skills such as dribbling, passing, and goal-scoring, while fostering teamwork and strategic thinking among players of all levels. Through structured training and competitive opportunities, athletes can hone their abilities and excel in the dynamic sport of hockey.

2.3.3.5 FOOTBALL

Football, often referred to as the beautiful game, takes centre stage at Ramachandra International. With a comprehensive training program emphasizing agility, speed, and tactical awareness, our facility provides the ideal environment for players to elevate their game. From refining technical skills to fostering a winning mindset, our coaches are dedicated to helping footballers reach their full potential on the field.

2.3.3.6. TENNIS

The sport of tennis requires precision, agility, and mental fortitude. At Ramachandra International, our tennis program offers players access to pristine courts and expert coaching. Whether honing serve techniques, perfecting volleys, or mastering strategic play, athletes receive personalized instruction aimed at maximizing their performance and enjoyment of the game.

2.3.3.7. CRICKET

Cricket enthusiasts can immerse themselves in the sport at Ramachandra International's cricket program. With a focus on batting, bowling, and fielding skills, our facility provides cricketers with the resources and support needed to excel on the field. Through structured training sessions and competitive opportunities, athletes can refine their techniques and compete at the highest levels of the sport.



Fig 2.18 Cricket Rehabilitation Center

2.3.4 SPACES FACILITIES:

- 1) Yoga and meditation
- 2) Consultation Room
- 3) Physiotherapy room
- 4) Cafeteria
- 5) Psychology Room
- 6) Nutrition Room
- 7) Bio-mechanics Lab
- 8) Bowling Checking Lab
 - 2 floor height
 - Area:3500Sqft
- 9) Multipurpose sports hall

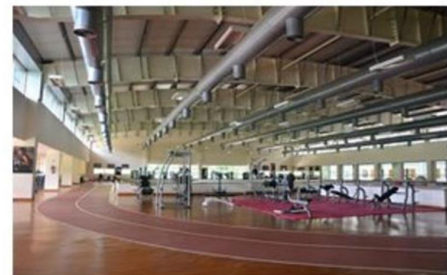


Fig 2.19 Multipurpose Gym

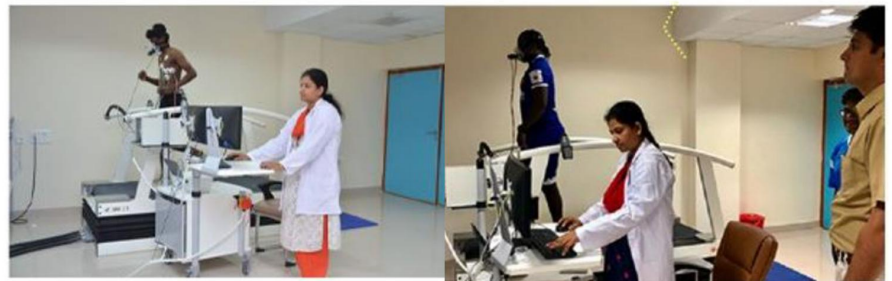


Fig 2.20 Treadmill Lab

10) Multipurpose Gym

- with 2 fire exits
- Area :24000Sqft
- With Running Track

11) Training Pool

12) High Performance Training

- With 2 fire exits

13) Classrooms

- 7 Classrooms- BSc. Sports science & exercise.
- Masters of Sports physiotherapy, psychology, Nutrition.

14) Sports nutritionist room

15) Isokinetic Lab (Lower Body)

- *Area:25 x 25: 400 sq.ft

16) Cycle Ergometry Lab (Upper Body)

17) Psychology Lab

18) Anthropometry Lab

19) Treadmill Lab

20) Medical Room

21) First aid room

22) Server Room

23) Sports Medicine Room

24) Arthroscopy Room

25) Manager Room

26) Admin room

27) Hod room.

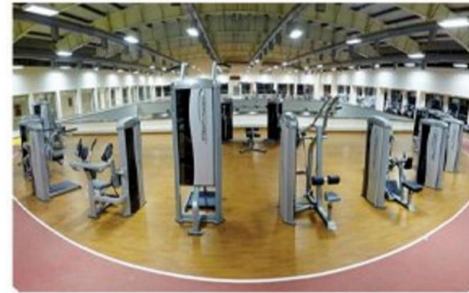


Fig 2.21 High Performance Training



Fig 2.22 Isokinetic Lab



Fig 2.23 Hydrotherapy Lab

2.3.5 HIGH PERFORMANCE PROGRAMS:

1) 1 ON 1 Coaching

2) High Performance Holiday Clinics

- Video Analysis
- Technical Skill
- Development
- Tactical Development
- Fitness & Nutrition
- Match simulations
- Tournaments
- Domestic Cricket Tours

3)Group Coaching

2.3.6 INFERENCE

The MSDCA CSS High Performance Centre in Bangalore, Karnataka, and Ramachandra International National Performance Centre Rehabilitation in Chennai stand as pillars of excellence in the realm of sports training and development. These facilities are meticulously designed to cater to the multifaceted needs of athletes, providing a comprehensive array of spaces and amenities aimed at nurturing both physical prowess and mental well-being. From specialized training areas like the shooting and cricket rehabilitation centers to essential support facilities such as physiotherapy rooms and nutrition spaces, every aspect is carefully crafted to optimize athlete performance. The inclusion of cutting-edge technology like bio-mechanics labs and isokinetic labs underscores a commitment to staying at the forefront of sports science and innovation. Moreover, the High-Performance Programs offered at these centers go beyond mere coaching, offering personalized attention, specialized clinics, and opportunities for competitive growth and exposure. Ultimately, these centers serve as more than just training grounds; they are dynamic hubs where athletes can thrive, grow, and excel on their journey to sporting greatness.

CHAPTER 3

LITERATURE CASE STUDIES

3.1 CASE STUDY-1: GMC BALAYOGI ATHLETIC STADIUM (HYDERABAD)

LOCATION: Gachibowli, Hyderabad, Telangana (Near IIT)

3.1.1 AIM

The major goal of this case study is to research and analyse various sports complexes around the country, with an emphasis on their design, facilities, and functionality

3.1.2 ABOUT GMC BALAYOGI ATHLETIC STADIUM

The GMC Balayogi Athletic Stadium is a sports stadium in Hyderabad, Telangana, India. It has a capacity of 32000 spectators. It is an ultra-modern stadium with 8 lane competition synthetic athletic track and 4-lane synthetic practice track. The stadium was named in the memory of G.M.C. Balayogi, an incumbent speaker of Lok Sabha who died in air crash. In 2003 Afro-Asian games were also held in this stadium.

3.1.3 ACCESSIBILITY:

- a) Situated on the outskirts of Hyderabad, along the old Mumbai highway, where IITs, Infosys, and Hyderabad universities are located.
- b) RGI airport is within a 30-kilometer radius.



Fig 3.1 GMC BALAYOGI ATHLETIC STADIUM

3.1.4 SITE

TOTAL AREA: 80.3 ACRES



Fig 3.2 Site of GMC Balayogi athletic stadium

3.1.5 OBJECTIVES

- a) To train National Players in Olympic Sports disciplines by providing facilities for training, lodging, boarding.
- b) To run various schemes of Government of India aimed at sports promotion in the Southern Region (SAI Training Centres, Special Area Games, Centre Excellence, Adopted Schools, Army Boys' Sports Company etc)
- c) To organize recreational sports schemes of Government of India like Rural Sports, Women Sports etc.
- d) To carry out research works in the field of sports, physical education, and sports sciences.

e) To run academic programmes such as a diploma course in sports coaching (which is required to become a coach in both India and overseas) and refresher courses in several sports disciplines.



Fig 3.3 Balayogi Courts (Track& field, Football & Volleyball)

3.1.6 INFRASTRUCTURE FACILITIES

This modern facility boasts top-tier infrastructure tailored to meet the needs of athletes and spectators alike. Featuring a world-class track suitable for various disciplines like sprinting, long-distance running, and field events, the stadium provides a conducive environment for training and competitions. Spectator seating ensures optimal viewing experiences, complemented by amenities such as locker rooms, medical facilities, and VIP lounges. Beyond its physical attributes, the stadium symbolizes Hyderabad's commitment to sports and serves as a rallying point for the community, inspiring aspiring athletes and fostering a culture of sportsmanship and competition.

G.M.C. BALAYOGI ATHLETICS STADIUM	INDOOR STADIUM A/C (MULTIPURPOSE)	AQUATICS COMPLEX	HOCKEY COMPLEX
400 M Synthetic Track	• Badminton • Volleyball • Basketball • Table Tennis • Boxing & Wrestling • Handball • Gymnastics • Fencing	• Racing Pool • Diving Pool • Warm Up Pool • Seating	2 No's of Synthetic courts

Table 3.1(a) Infrastructure Facilities

PLAYERS' FACILITIES	• Fitness & Gym Centre • Medical Room • Dope Test Room • Player's Change Room (Men & Women) • Toilets	• Medical Room • Player's Change room (Men and Women) • Fitness Centre (with toilets)	• Doctor's Room • Player's Change Room (Men & Women) • Fitness Centre • Sauna & Steam • Dope Test Room • Toilets	• Player's Change Room • Toilets • Dope Test Room
OTHER ALLIED FACILITIES	• Football Field • Press Gallery • VIP Lounges • Office Room for IOA President, Directors & other officials • Radio, Cadio and TV Crew Room.	• Dope Test Room • Medical & First aid rooms • VIP & Player's Lounges • Media Rooms • Change Rooms	• Media Rooms • Change Rooms & Toilet for players • Scoreboard Control & judges' room • Announcement Room • Public Address Room • Lounges	• Covered Spectator's Stands • Press Box & Media Room • Lounges & toilets • Change Room • Office Room • Score board control Room
	• Score Board Control & Games Management Room. • Dormitories, Stores • Dining Area for Players	• Office Rooms • T.V & radio crew rooms • Electrical Rooms • Toilets for Spectators	• Officials, Admin's Room • Pantries & Toilets	• Judges Room
SAFETY	"Fire Detection and protection" & "Emergency Evacuation" during emergency.	"Fire Detection and protection" & "Emergency Evacuation" during emergency	"Fire Detection and protection" & Emergency Evacuation during emergency	"Fire Detection and protection" & Emergency Evacuation during emergency

Table 3.1(b) Infrastructure Facilities

3.1.7 SPACE AND CIRCULATION



	Swimming pool		Skating Rink		Medical Block		Admin
	Badminton		Handball		Men's Hostel		Vehicular/Pedestrian
	Athletics		Hockey		Women's Hostel		Pedestrian

Fig 3.4 Space and Circulation

3.1.8 USERS

- | | |
|------------------|---------------------------|
| a) Players | c) Coaches |
| • State level | d) Spectators |
| • National level | e) Fans |
| • Club players | f) Event Organizers |
| • Students | g) Government Agencies |
| b) Public | h) Media and Broadcasters |

3.1.9 INFERENCE

1) The scrutiny of GMC Balayogi Athletic Stadium in Hyderabad, yields critical insights into the fundamental facilities necessary for a successful sports venue.

2) The significance of well-maintained and technologically advanced playing fields is evident. The quality of turf, track, and field facilities stands out as a cornerstone for athlete training and performance.

3) The stadium's versatility in accommodating various athletic events and sports disciplines serves as a pivotal lesson for the integrated hub. A flexible infrastructure that caters to diverse sporting activities is crucial for fostering a comprehensive sports environment.

4) It elucidates the fundamental facilities and principles necessary for creating a dynamic, technologically advanced, and athlete-centric hub that aligns with the evolving landscape of sports.

3.2 CASE STUDY-2: INDIRA GANDHI SPORTS COMPLEX (DELHI)

LOCATION: Indraprastha, Delhi

ARCHITECTS: Sharat Das and Design Constorium

YEAR OF COMPLETION: 1982

TOTAL SITE AREA: 102 ACRES

3.2.1 ABOUT INDIRA GANDHI SPORT COMPLEX

Another structure developed on the banks of the Yamuna in a spectacular two-year period. The nucleus of the Indraprastha Indoor Stadium Sports Complex is located practically in the middle of the 102 acres of land.

The stadium is the first of its sort in Asia and Europe, and it is the third biggest in the world in terms of size. This stadium was the venue for Gymnastics, Badminton, and Volleyball in the Ninth Asian Games, and it was praised by both national and inter international participants and officials as one of the finest and most impressive sights. It has been certified by all as not only an architectural feature, but also a sporting feature.

3.2.2 ACCESSIBILITY

- Indraprastha metro station is about 2.2km
- New Delhi Railway station is about 7Km
- La la RC Agarwal Chowk is about 3.2km

3.2.3 VEGETATION

Prior to building, the terrain was barren and low lying. Later, around 13,500 trees were planted throughout the complex.



Fig 3.5 INDIRA GANDHI SPORTS (outdoor)



Fig 3.5 INDIRA GANDHI SPORTS (Indoor)

3.2.4 SITE

-  Site Boundary
-  Srinagar KanyaKumari Highway
-  Vikas Marg

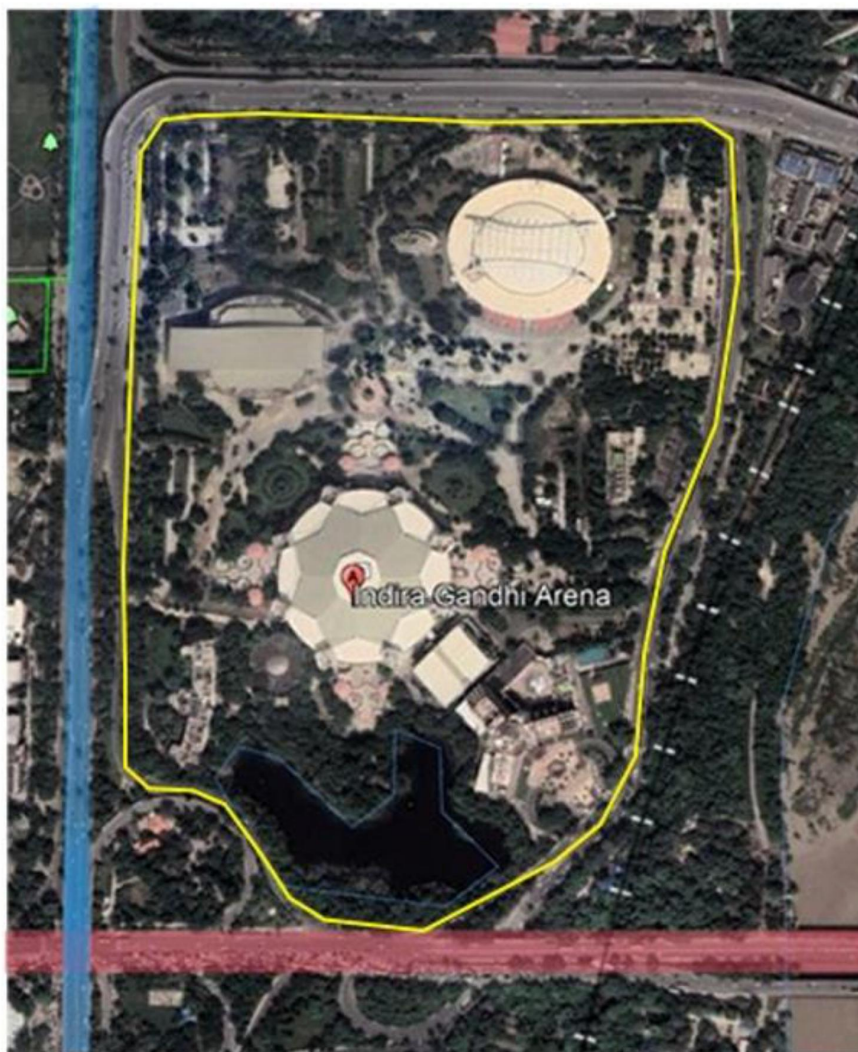


Fig 3.6 Site of Indira Gandhi sports Complex

3.2.5 SPACES AND CIRCULATION

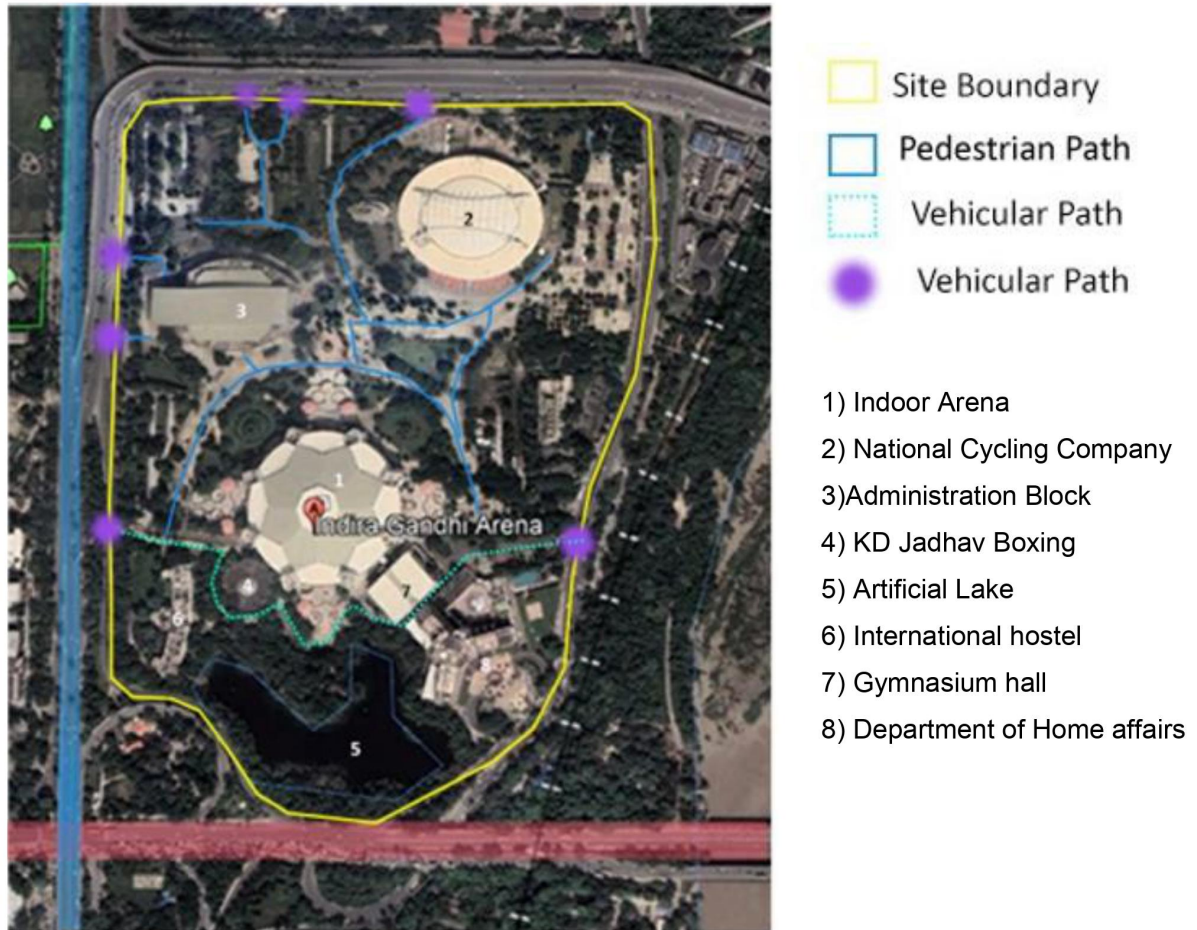


Fig 3.7 Spaces and Circulation

3.2.6 ACCESS ROUTE, TRAFFIC CHARACTERISTICS

The stadium is accessible from all four sides. However, the western plaza is the most popular due to the proximity to the bus station. The property is bounded on the west by the Indraprastha flyover, which has an 80'-0" wide offshoot road serving the stadium.

Northern and eastern routes have less traffic. The railway lines on one side of the property, together with a well-planned road design adjacent, make entry and departure for automotive and pedestrian traffic simple.

3.2.7 INDOOR STADIUM

The Indira Gandhi Sports Complex, a landmark in sports infrastructure, stands as a testament to India's commitment to fostering athletic excellence. This modern indoor stadium, characterized by its circular plan, occupies a sprawling land area of 14,416 square meters in the heart of the city. Standing tall at 42 meters with a diameter of 150 meters, the stadium's imposing presence is complemented by its G+3 structure, featuring eight exits on each floor for efficient crowd management and safety.

Inside, the complex boasts world-class facilities, including 10 badminton courts measuring 13 meters by 6 meters each, providing ample space for training and competitions. Additionally, the stadium accommodates six table tennis tables, each adhering to international standards with dimensions of 2.7 meters by 1.5 meters and a table height of 750 millimeters.

With a seating capacity of 15,000 spectators, the Indira Gandhi Sports Complex offers a vibrant atmosphere for sporting events, encouraging community engagement, and fostering a culture of sportsmanship. Beyond its functional attributes, the complex serves as a symbol of India's sporting prowess, inspiring generations of athletes and enthusiasts to pursue their passion for sports.



Fig 3.8(a) Indoor arena



Fig 3.8(b) Indoor arena

3.2.7.1 BOXING COURT

The boxing facilities at the Indira Gandhi Sports Complex are a testament to India's commitment to fostering athletic prowess. Spanning a generous area of 28 meters by 44 meters, the complex boasts three boxing rings, each measuring 8 meters by 8 meters, providing ample space for training sessions and competitive matches. With a height reaching 13 meters, the facility ensures sufficient vertical clearance, promoting optimal ventilation and comfort for athletes and spectators alike. The wooden flooring adds a professional touch, offering a supportive surface conducive to swift footwork and powerful punches, enhancing the overall boxing experience.

Within this arena, athletes find themselves on a stage set for excellence, with raised rings standing at 1 meter height, ensuring clear visibility for judges and spectators. The Indira Gandhi Sports Complex stands as a beacon of sporting achievement, inspiring boxers to hone their skills and pursue their dreams within its world-class facilities.



Fig 3.9 Boxing arena

BOXING

- 1)Area :28 x 44
- 2)No.of Boxing ring :3
- 3)Height:13m
- 4) Flooring-Wooden

BOXING RING

- 1)SIZE:8 X 8
- 2)Height of ring:1m

3.2.7.2 WRESTLING STADIUM

The wrestling stadium, a formidable G+2 structure, stands as a testament to India's rich tradition in combat sports. With a seating capacity of 5000 spectators, the arena provides an electrifying atmosphere for wrestling enthusiasts. Boasting three courts, each measuring 12 meters by 12 meters, the stadium offers ample space for intense grappling matches and rigorous training sessions. Wrestlers step onto the mats within this arena, where they showcase their strength, agility, and technique in pursuit of victory. As a hub for wrestling excellence, the stadium serves as a platform for athletes to showcase their skills and compete at the highest level. With

its state-of-the-art facilities and vibrant ambiance, the wrestling stadium embodies India's commitment to fostering talent and promoting the spirit of sportsmanship in the realm of wrestling.



Fig 3.10 WRESTLING STADIUM

WRESTLING STADIUM

- 1) It is a G+2 structure
- 2) Seating capacity: 5000
- 3) NO. OF COURTS: 3
- 4) SIZE: 12M X 12M

3.2.7.3 GYMNASTIC STADIUM

The gymnastics stadium, featuring one indoor stadium and two warm-up halls, epitomizes India's dedication to providing world-class facilities for athletic development. This multifaceted complex offers gymnasts an optimal environment for training and competition preparation. The indoor stadium serves as the main arena for performances, boasting state-of-the-art equipment and ample space for routines and exhibitions. Additionally, the two warm-up halls provide dedicated spaces for athletes to refine their skills and warm up before taking to the main stage. With a focus on safety, innovation, and athlete well-being, the gymnastics stadium stands as a beacon of excellence in the sporting world. It symbolizes India's commitment to nurturing talent and promoting the artistry and athleticism of gymnastics on a global scale.



Fig 3.10 GYMNASTIC STADIUM

GYMNASTIC STADIUM

- 1) One Indoor stadium and 2 warm up halls provided

3.2.7.4 ADMINISTRATIVE BLOCK

Within the Indira Gandhi Sports Complex, the administrative block stands as a central hub for operational and residential needs. The two-story circular building, encased in glass panels, represents a modern and transparent approach to administration. On the ground floor, essential facilities including offices, reception areas, and restrooms ensure smooth operations and visitor services. Meanwhile, the first floor accommodates a girls' hostel, emphasizing the complex's commitment to providing comprehensive amenities for athletes and staff. This innovative design not only facilitates efficient administration but also offers a comfortable living space for residents. As an integral part of the complex, the administrative block reflects the commitment to excellence and functionality that defines the Indira Gandhi Sports Complex



Fig 3.11 Admin Block

3.2.8 HOSTED EVENTS

1) Commonwealth Games 2010

It played host to events like weightlifting, archery, and cycling, showcasing India's organizational prowess on the international stage. DELHI 2010

2) National Championships

NATIONAL CHAMPIONSHIP the chosen venue for various national. Over the years, the complex has been championships, attracting athletes from across the country to compete at the highest levels

3.2.9 INFERENCE

1) The focused aim of researching and analysing diverse sports complexes nationwide, with a keen emphasis on design, facilities, and functionalities, converges with the meticulous scrutiny of the Indira Gandhi Sports Complex in Delhi.

2) The inference drawn from this selected case study becomes a pivotal lens through which to discern not only the intrinsic qualities that contribute to the design and operational facets of sporting facilities but also to distil best practices and benchmarks exemplified by the iconic complex.

3) By delving into the specifics of the Indira Gandhi Sports Complex, this case study aspires to serve as a microcosm, encapsulating insights that transcend its singular existence, enriching the broader discourse on the evolution of sporting infrastructure across the nation.

4) The inference seeks to extrapolate principles and paradigms that can inform and elevate the future design, facilities, and functionalities of sports complexes, positioning them as crucibles of athletic prowess and national pride. Explain In simple words

3.3 CASE STUDY-3: NETAJI SUBHAS NATIONAL INSTITUTE OF SPORTS, PATIALA

LOCATION: Indraprastha, Delhi

ARCHITECTS: Punjab, India

YEAR OF COMPLETION: 1973

TOTAL SITE AREA: 222.76 ACRES

3.3.1 ABOUT NETAJI SUBHAS NATIONAL INSTITUTE OF SPORTS

The Netaji Subhas National Institute of Sports, located in Patiala, India, stands as the preeminent sports institute in Asia, occupying a grandiose edifice and expansive grounds originally erected by the erstwhile Maharaja of Patiala. Aptly dubbed the "mecca" of Indian sports, this institution boasts a storied history of nurturing talent and fostering excellence in athletics. Its sprawling lawns and palatial building provide an awe-inspiring backdrop for the rigorous training and academic endeavors undertaken within its halls. Renowned for producing coaches of exceptional caliber, the institute plays a pivotal role in shaping the trajectory of Indian sports, with its expertise contributing significantly to the preparation of national teams for various international competitions.

With a legacy deeply rooted in the fabric of Indian sports culture, the Netaji Subhas National Institute of Sports continues to serve as a venerated institution for athletes, coaches, and sports enthusiasts alike. Its monumental architecture and



Fig 3.12 NETAJI SUBHAS NATIONAL INSTITUTE OF SPORTS

vast expanse symbolize the magnitude of its impact on the sporting landscape of the nation. Through its unwavering commitment to excellence and dedication to the advancement of sports education and training, the institute remains steadfast in its mission to propel Indian athletes to greater heights of achievement on the global stage.

3.3.2 SAI TRAINING CENTRE:

The Sports Authority of India (SAI) Training Centre at the Netaji Subhas National Institute of Sports in Patiala, Asia's largest sports institute, offers comprehensive long-term coaching programs aimed at nurturing budding sportspersons. Situated within the grandiose premises originally constructed by the erstwhile Maharaja of Patiala, the STC provides a conducive environment for athletes to hone their skills and excel in their chosen sports disciplines.

The center offers both hostel and day boarding facilities, ensuring that athletes have access to round-the-clock support and resources to facilitate their training and development. Through structured coaching programs led by experienced instructors, athletes receive personalized guidance and mentorship to enhance their proficiency and performance in their respective sports.

With its state-of-the-art infrastructure and dedicated coaching staff, the SAI Training Centre at the Netaji Subhas National Institute of Sports in Patiala continues to play a pivotal role in identifying and nurturing sporting talent, contributing to the advancement of Indian sports on the national and international stage.

3.3.3 CENTRE OF EXCELENCE

The Sports Authority of India (SAI) has established Centers of Excellence nationwide to elevate the proficiency of exceptional sportspersons for international acclaim. Inaugurated in October 2000, one such center operates as a coaching camp for India's finest talent. This center serves as a focal point for grooming athletes for global competition, offering world-class coaching and cutting-edge facilities. Athletes selected for training undergo rigorous regimens guided by experienced coaches and sports scientists, tailored to the specific requirements of each sport. As a hub for talent identification and development, the Center of Excellence fosters a competitive and supportive environment where athletes can excel. Through its holistic approach to training, the center plays a pivotal role in preparing athletes to represent India on the global stage, contributing to the nation's sporting prowess and prestige.

3.3.4 COME AND PLAY SCHEME

The main aim of the scheme is to impart coaching primarily to beginners to encourage mass participation in sports and for optimum utilization of the available sports infrastructure.

3.3.4.1 AGE GROUP

- 16 years -"come & play" scheme
- >16 years -"pay & play" scheme

3.3.4.2 SPORTS DISCIPLINES COVERED & FACILITIES BEING PROVIDED

In addition to systematic coaching at the NIS center, the "Come and Play" scheme offers a comprehensive range of facilities to cater to the diverse needs of aspiring athletes across various disciplines. These facilities are designed to provide a conducive environment for training and skill development.

For athletics, the scheme provides access to well-maintained tracks and field equipment to hone running, jumping, and throwing skills. Boxers benefit from specialized training areas equipped with punching bags, boxing rings, and training gear. Basketball and volleyball players have access to indoor courts, while hockey and handball enthusiasts can utilize dedicated fields for practice sessions and matches.

Cyclists have access to cycling tracks, while swimmers can utilize Olympic-sized swimming pools for training under expert supervision. Gymnasts benefit from state-of-the-art equipment and dedicated spaces for floor exercises, vaulting, and apparatus routines. Additionally, facilities for disciplines such as fencing, judo, table tennis, lawn tennis, yoga, techno gym, and wushu are also provided, ensuring that athletes receive comprehensive support to excel in their chosen sport within the framework of the "Come and Play" scheme.

3.3.5 OUTDOOR SPORTS

The outdoor sports facilities provided under the scheme offer a comprehensive array of options for athletes across various disciplines. Athletes can benefit from the following facilities:

1. Athletics Synthetic Tracks: Two synthetic tracks cater to track and field events, providing a conducive surface for sprinting, jumping, and throwing disciplines.
2. Endurance Track (Synthetic): Designed for endurance training, this synthetic track offers athletes the opportunity to enhance their stamina and long-distance running capabilities.
3. Basketball Courts: Four courts are available for basketball enthusiasts to practice and compete.

4. Cricket Ground: One cricket ground is provided for cricket enthusiasts to hone their skills and engage in matches.

5. Football Fields: Two fields are dedicated to football, providing ample space for training sessions and matches.

6. Handball Fields: Two fields cater to handball enthusiasts, offering designated spaces for practice and competitions.

7. Hockey Synthetic Fields: Two synthetic fields provide optimal conditions for hockey training and matches.

8. Swimming Pool (Standard): Athletes have access to a standard swimming pool for aquatic training and competitions.

9. Tennis Courts (Synthetic and Cinder): Six tennis courts, including three synthetic and three cinder courts, accommodate tennis players for practice and matches.

10. Velodrome: A specialized track cycling facility, the velodrome offers cyclists a controlled environment for track cycling training and competitions.

11. Volleyball Courts: Four courts are available for volleyball enthusiasts to practice and compete.

12. Sand Running Circuit: Four circuits provide athletes with a challenging surface for sand running workouts.

Games	Quantity
Athletics Synthetic Track	2
Endurance Track (Synthetic)	1
Basketball Court	4
Cricket Ground	1
Football field	2
Swimming Pool(standard)	1
Tennis Courts (Synthetic)	3
Tennis Court (cinder)	3
Velodrome	1
Volleyball court	4
Handball field	2
Hockey Synthetic Field	2
Sand Running Circuit	4
Cross Country Circuit	1
Golf Course(9holes)	1

Table 3.1 Outdoor Sports

13. Cross Country Circuit: A dedicated circuit offers athletes the opportunity for cross-country training and competitions.

14. Golf Course (9 Holes): A nine-hole golf course is provided for golf enthusiasts to practice and enjoy the sport amidst natural surroundings.



Fig 3.13 Athletics Track



Fig 3.14 Hockey Field



Fig 3.15 Basket Ball



Fig 3.16) Velodrome

3.3.6 INDOOR SPORTS

The indoor sports facilities provided under the scheme offer athletes a variety of options for training and competition across different disciplines. These facilities include:

1. Badminton Courts: Four courts are available for badminton enthusiasts to practice and compete.
2. Basketball Courts: Three indoor courts cater to basketball players for training and matches.
3. Boxing Rings: Two rings are provided for boxing training and competitions.
4. Billiards Room: Athletes can engage in billiards in the dedicated room.
5. Conditioning Hall: Three halls offer space for conditioning exercises to enhance athletes' physical fitness.

6. Gymnasium: Three gymnasiums are available for athletes to engage in strength and fitness training.

7. Handball Court: One indoor court is dedicated to handball training and matches.

8. Judo Hall: Two halls provide space for judo training and competitions.

9. Sauna and Steam Rooms: Two sauna and steam rooms each offer athletes the opportunity for relaxation and recovery.

10. Squash Courts: Two courts are available for squash enthusiasts to practice and compete.

11. Table Tennis Hall: Two halls cater to table tennis players for practice and matches.

Games	Quantity
Badminton Courts	4
Basketball Courts	3
Boxing Rings	2
Billiards Room	1
Conditioning Hall	3
Gymnasium	3
Handball Court	1
Judo Hall	2
Sauna and Steam Rooms	2
Squash Courts	2
Table Tennis Hall	2
Volleyball Hall	1
Wrestling Hall	1
Weightlifting Hall	1
Strength Training Hall	1

Table 3.1 Outdoor Sports

12. Volleyball Hall: One indoor hall is dedicated to volleyball training and matches.

13. Wrestling Hall: One hall provides space for wrestling training and competitions.

15. Strength Training Hall: One hall is dedicated to strength training exercises to enhance athletes' power and muscle development.



Fig 3.17 Wrestling Hall



Fig 3.18 Boxing Hall

3.3.7 MONITORING OF PROGRESS OF COACHING OF TRAINEES

The trainees will be monitored by the coaches/sports scientists on a quarterly basis & if satisfactory progress is not achieved at the end of 6 months after enrolment, he/she will be weeded out.

3.3.7.1 SCIENCE BLOCK

The Science Block is a dedicated facility within the sports complex, encompassing various disciplines essential for athlete development and performance enhancement. It houses specialized departments including Physiology, Biochemistry, Anthropometry, JSO Biomechanics, and Psychology. These departments provide crucial scientific support to athletes, offering insights into physiological functioning, biochemical processes, body composition analysis, biomechanical movements, and psychological factors affecting performance. Additionally, the Science Block features an IN-charge Person Room, serving as a central hub for administrative and coordination purposes. With its comprehensive range of scientific facilities and expert personnel, the Science Block plays a pivotal role in optimizing athlete training, injury prevention, and overall performance improvement within the sports complex.

3.3.8 INFERENCE

The scheme offers a diverse array of indoor and outdoor sports facilities, catering to athletes of all levels and interests. Specialized amenities like boxing rings and weightlifting halls demonstrate a commitment to supporting athletes in their pursuit of excellence. Emphasizing mass participation, particularly targeting youth under 16, the scheme aims to foster talent from a young age. Additionally, amenities for relaxation and recovery, such as sauna and steam rooms, underscore a holistic approach to athlete well-being. Overall, the scheme serves as a cornerstone in promoting sports culture, nurturing talent, and providing essential infrastructure for sporting success.

CHAPTER 4

INTEGRATED SPORTS PERFORMANCE HUB

4.1 FENCING

Fencing has gained attention in India over the years, particularly with increased exposure through international competitions and the Olympics. While it may not be as mainstream as some other sports, there has been a gradual increase in interest and participation. The FAI is responsible for promoting and organizing fencing events in the country. They work on developing infrastructure, coaching programs, and fostering talent at various levels. Indian fencers have been representing the country in international competitions, including the Asian Games, Commonwealth Games, and other global tournaments. The exposure gained through these events helps in raising the

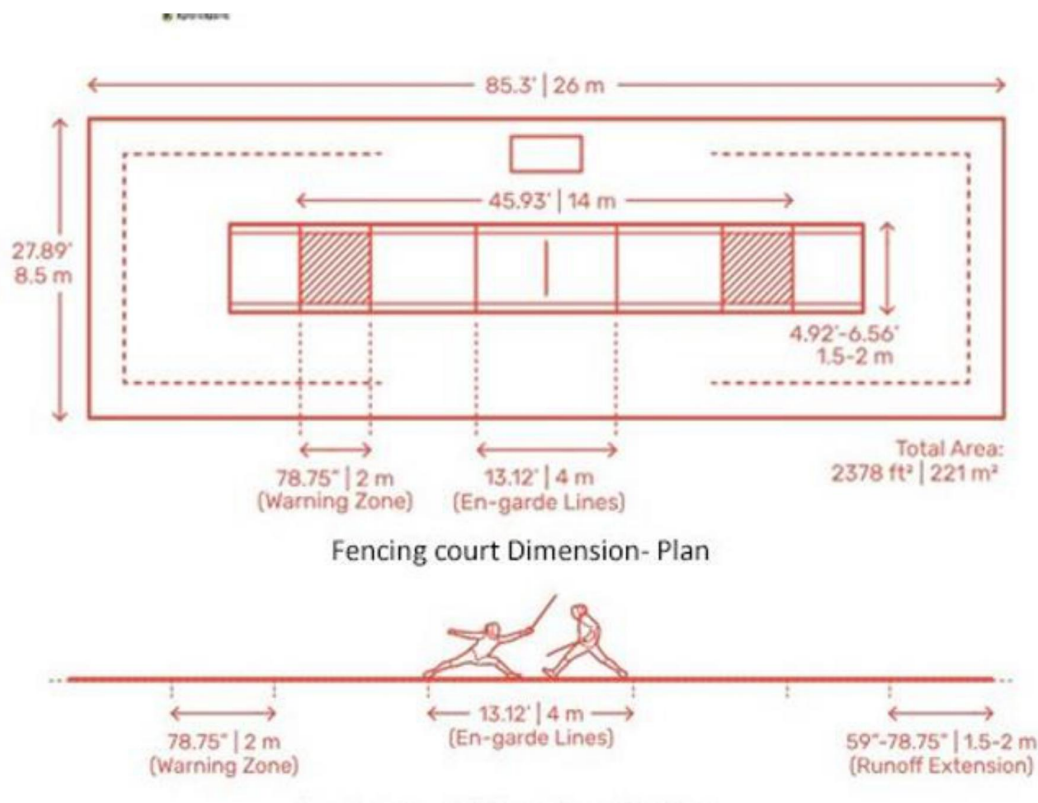


Fig 4.1 Fencing court

4.2 KABADDI

Kabaddi is a popular sport in India with distinct court dimensions for men and women. The standard kabaddi court for men measures 13 meters by 10 meters, while for women, it is slightly smaller at 12 meters by 8 meters. The court is divided into two equal halves, with a midline separating the teams. Each half has a baulk line, bonus line, and end line, which are crucial for scoring points. The game involves two teams of seven players each, and the objective is to raid the opponent's half and tag as many defenders as possible without getting caught

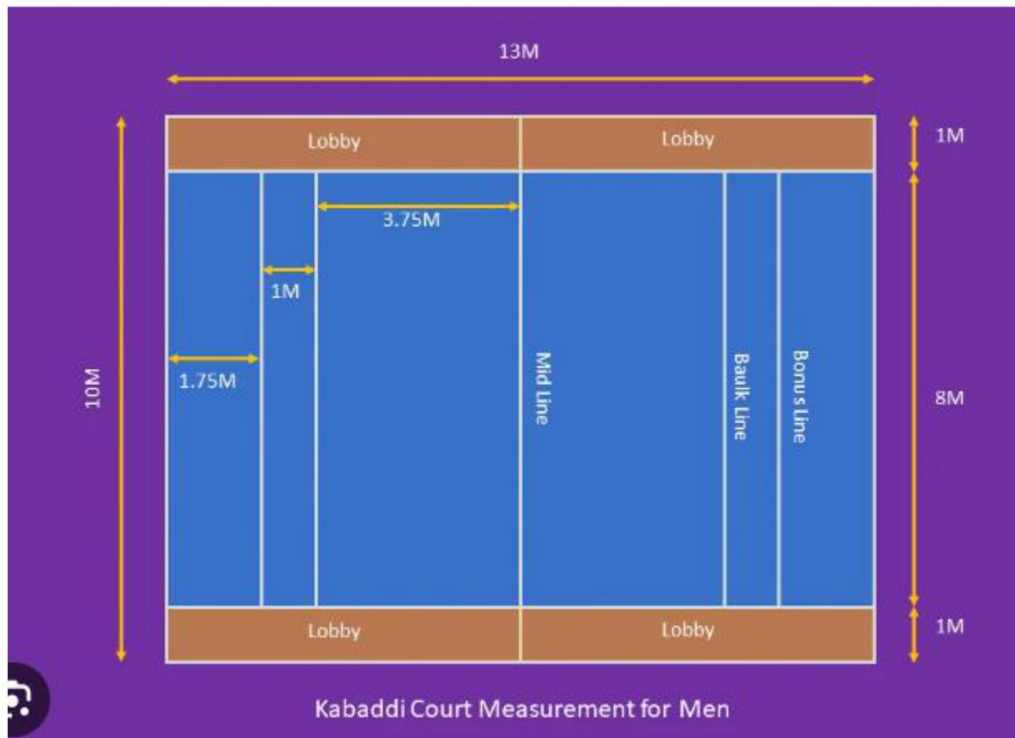


Fig 4.2 Kabaddi court Dimension Plan for Men

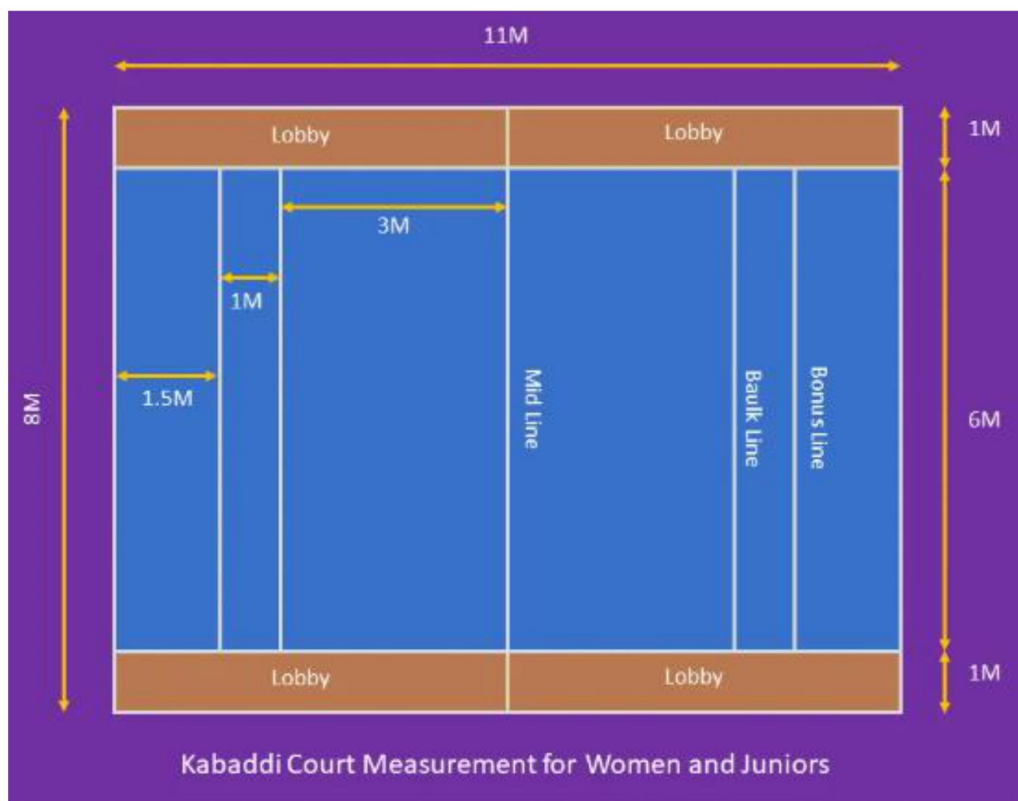


Fig 4.3 Kabaddi court Dimension Plan for Women and Juniors

4.3 TAEKWONDO

Taekwondo as a martial art and sport is slowly gaining popularity in India. Though it does not enjoy many fans following in the country India possesses some Tightly talent ed taekwondo in who have brought laurels to the nation.

The Taekwondo Federation of India is the governing body overseeing the sport in the country it is responsible for organizing events, promoting the sport at various levels, and ensuring adherence to international standards.

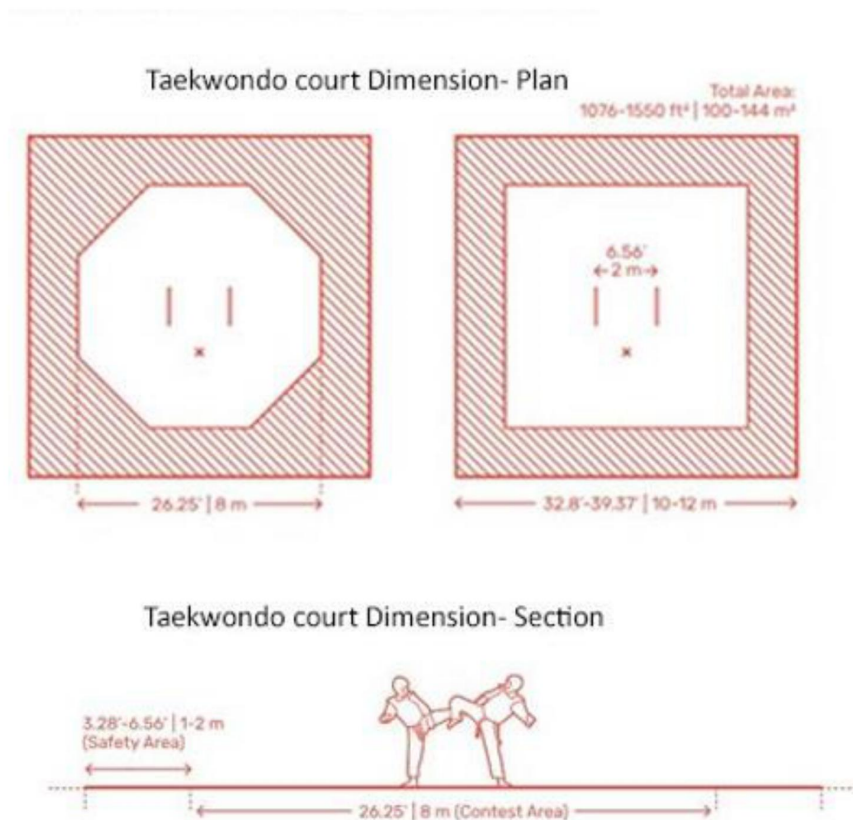


Fig 4.4 Taekwondo court Dimension-Plan

4.4 SQUASH

4.4.1 SINGLE SQUASH COURT

A single squash court in India adheres to international standards, measuring 9.75 meters in length and 6.4 meters in width. The front wall stands at a height of 4.57 meters, while the back wall is 2.13 meters high. The service line on the front wall is placed at 1.83 meters, and the tin, located below the service line, is 0.48 meters high. The court features a short line that divides it into front and back halves, located 4.26 meters from the front wall. Additionally, service boxes, each measuring 1.6 meters by 1.6 meters, are positioned in the back half on either side of the court.

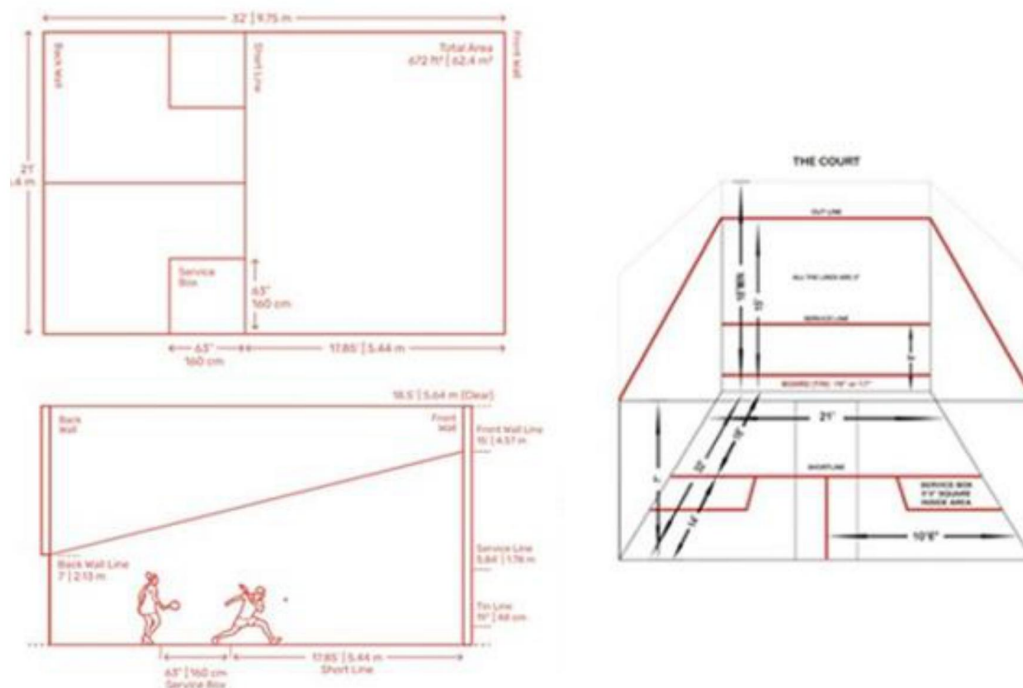


Fig 4.4 Single Squash Court-Plan & Section

4.4.2 DOUBLE SQUASH COURT

A doubles squash court in India, adhering to international standards, is larger than a singles court to accommodate four players. The court measures 13.72 meters in length and 7.62 meters in width. The front wall is 4.57 meters high, and the back wall stands at 2.13 meters. The service line on the front wall is positioned at 1.83 meters, while the tin, located below this line, is 0.48 meters high. The court is divided by a short line placed 5.49 meters from the front wall, creating front and back sections. Each service box, where players serve the ball, measures 1.6 meters by 1.6 meters and is located in the back half of the court on either side. The larger dimensions of the doubles court allow for more dynamic play, accommodating the needs of two players per team and ensuring ample space for movement and strategic gameplay.

4.6 ATHLETICS-TRACK

A standard 400-meter athletics track, commonly seen in stadiums worldwide, is oval-shaped with two straight sections and two curved sections. The track has eight lanes, each lane being 1.22 meters wide. The total length of the innermost lane is precisely 400 meters. The straights measure 84.39 meters each, while the semi-circular curves have a radius of 36.5 meters from the track's center point to the innermost lane.

The track surface is typically made of synthetic materials like polyurethane, providing a durable and fast-running surface. In addition to the running lanes, the track includes a finish line, starting blocks, and staggered starts for races of different lengths to ensure all competitors run the correct distance. Surrounding the track, there are often facilities for field events such as long jump, high jump, and pole vault, making it a comprehensive venue for track and field athletics.

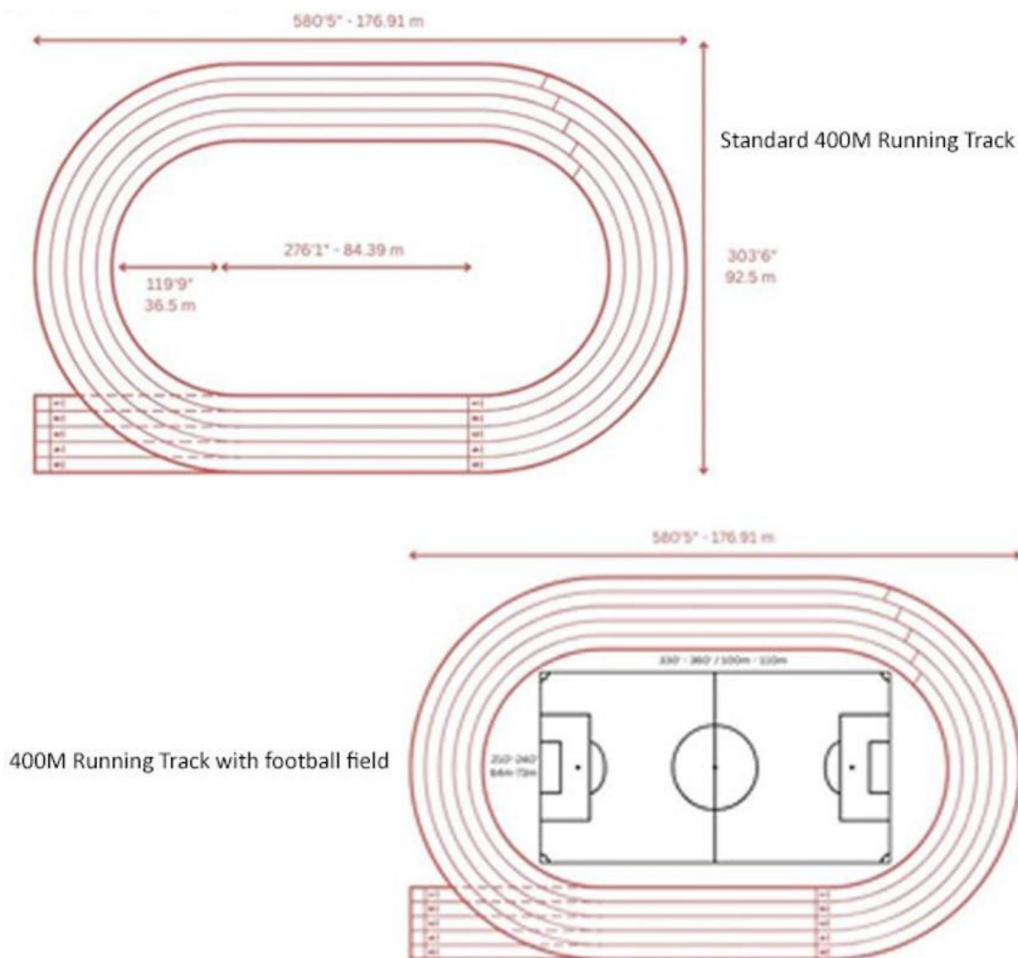


Fig 4.7 Athletics track Court-Plan & Section

4.7 FOOTBALL

Football, also known as soccer in some countries, is a globally popular sport played on a rectangular field with specific dimensions. The standard dimensions for a football field are 100-110 meters in length and 64-75 meters in width for international matches, while the dimensions for domestic matches can vary slightly.

Each end of the field features a goal that is 7.32 meters wide and 2.44 meters high. The penalty area, extending 16.5 meters from the goal line and 16.5 meters on either side of the goal, marks the zone where the goalkeeper can handle the ball and where penalty kicks are taken. The goal area, a smaller rectangle within the penalty area, measures 5.5 meters from the goal line and 5.5 meters on either side of the goal.

The centre circle, with a radius of 9.15 meters, is where the game starts and restarts after goals. Corner arcs with a radius of 1 meter are located at each corner of the field, marking the area for corner kicks. The pitch is typically made of natural or artificial grass, providing a suitable playing surface for the fast-paced and dynamic game of football



Fig 4.8(a) Football Court-Plan & Section

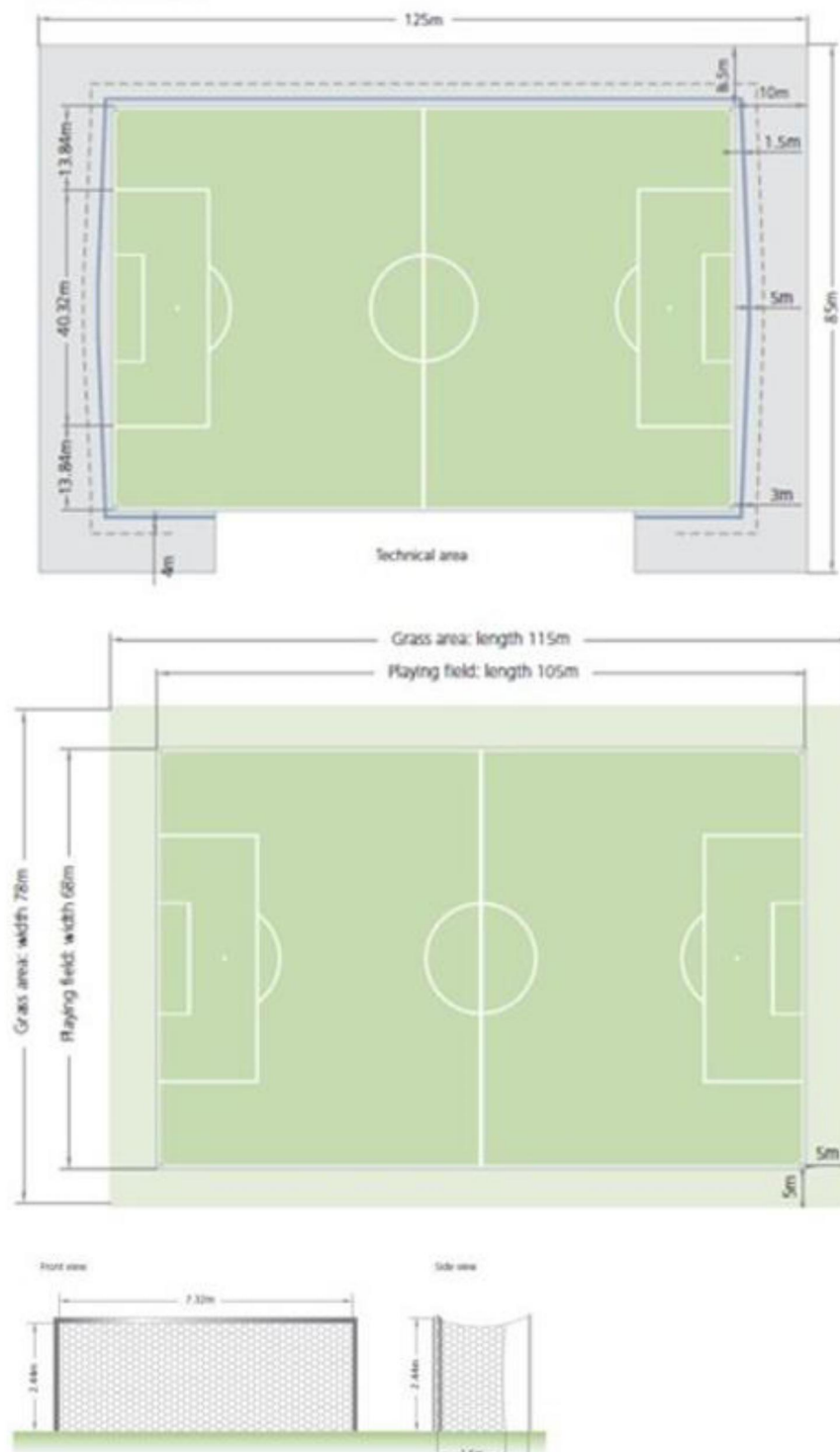


Fig 4.8 (b) Football Court-Plan & Section

4.7 BASKETBALL

A regulation basketball court measures 28 meters (91.86 feet) in length and 15 meters (49.21 feet) in width. The court is divided into two equal halves by the midcourt line, with a centre circle at the midpoint. Each half contains a hoop, mounted 3.05 meters (10 feet) above the floor, with a rim diameter of 45.72 centimetres (18 inches). Beneath each basket lies the key, a rectangular area often called the paint or free-throw lane. In the NBA, it spans 4.9 meters (16 feet) in width.

Distinctive lines mark different zones on the court. The three-point line delineates the perimeter from which three-point shots are attempted. In the NBA, it's 6.75 meters (22.15 feet) from the basket at its farthest point. Free-throw lines, where players attempt uncontested shots, are set 4.57 meters (15 feet) from the backboard.

Traditionally, basketball courts are made of hardwood, though synthetic materials are sometimes used. Lines on the court are typically painted in contrasting colors to ensure clarity for players and referees. These standardized dimensions and markings provide a consistent playing surface for basketball games across different levels of competition worldwide.

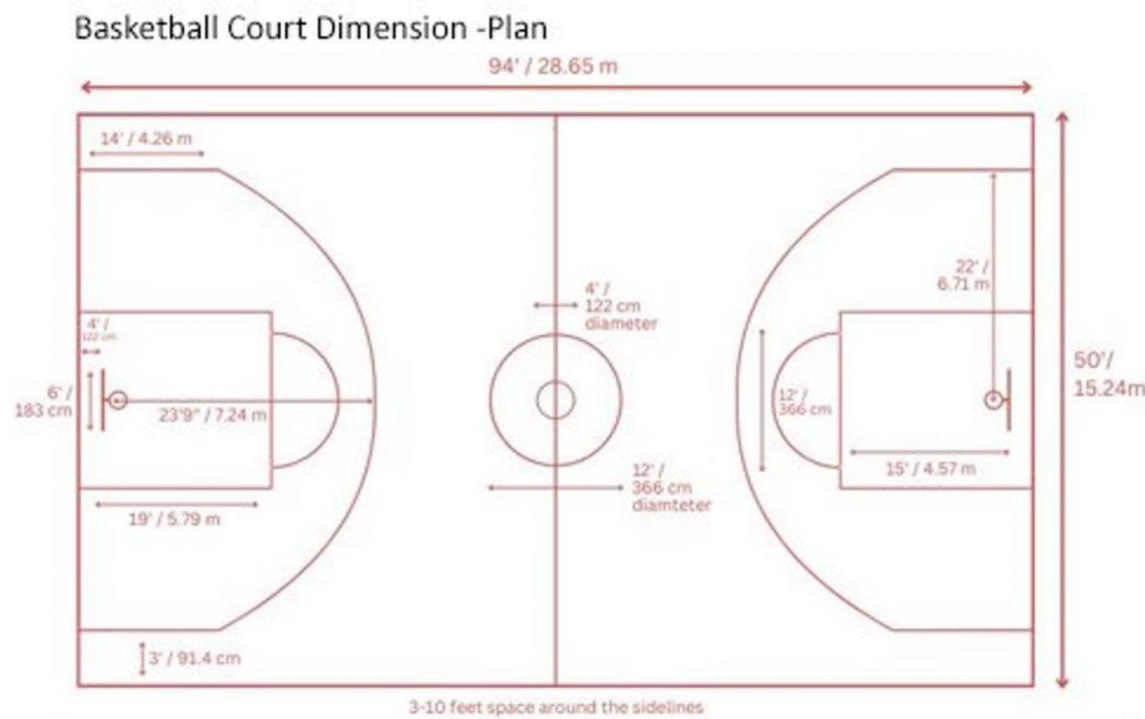


Fig 4.9 Basketball Court-Plan & Section

CHAPTER 5

AREA STATEMENT

5.1 ADMIN

SPACES	TYPES OF ACCESS	NO. OF UNITS	USER	TOTAL AREA
RECEPTION	PUBLIC	1	PUBLIC/STAFF	25 SQM
ENTRY LOBBY, WAITING AREA	PUBLIC	1	PUBLIC/STAFF	19 SQM
ACCOUNTANTS ROOM	PRIVATE	1	STAFF	10 SQM
MANAGER ROOM	PRIVATE	2	STAFF	15 SQM
PANTRY AREA	PUBLIC	1	STAFF	10 SQM
CONFERENCE ROOM	PRIVATE	2	STAFF	60 SQM (EACH 30 SQM)
MEETING ROOM	PRIVATE	2	STAFF	50 SQM (EACH 25 SQM)
INDIAN OLYMPIC ASSOCIATION *PERSONAL CABIN *CUBICLE WORKSTATION	PRIVATE	1	OFFICIALS/STAFF	30 SQM
CABINS FOR FOR 6 SPORT FEDERATION OFFICERS *PERSONAL CABINS *CUBICLE WORKSTATIONS	PRIVATE		OFFICIALS/STAFF	180 SQM (NO. OF CABINS 6 & AREA PER SQM 30)
MANAGEMENT TEAM	PRIVATE	1	OFFICIALS/STAFF	20 SQM (AREA PER 20SQM FOR 10 MEMBERS)
SECRETARY CABIN	PRIVATE	1	OFFICIALS/STAFF	10 SQM
DIGITAL MARKETING MANAGER & TEAM OF 5 MEMBERS	PRIVATE	1	OFFICIALS/STAFF	12 SQM
RECORD ROOM	PRIVATE	1	OFFICIALS/STAFF	25 SQM
PRESIDENT CABIN	PRIVATE	1	OFFICIALS/STAFF	20 SQM
VICE PRESIDENT	PRIVATE	1	OFFICIALS/STAFF	15 SQM
TOTAL AREA		CIRCULATION AREA:50 SQM		551 SQM

Table 5.1: Admin

5.2 OUTDOOR SPORTS

SPORTS	TOTAL AREA
- ATHLETICS TRACK 400M - FOOTBALL FIELD	16364.17 SQM
BASKETBALL	
*PLAYING AREA	440 SQM
*SPECTATORS AREA	200 SQM
TOTAL AREA	17004.17 SQM

Table 5.2: Outdoor sports

5.3 CAFETERIA

SPACES	CAPACITY	USERS	TOTAL AREA
DINING OUTDOOR	50	STUDENTS, VISITORS, STAFFS	100 SQM
DINING INDOOR	50	STUDENTS, VISITORS, STAFFS	100 SQM
KITCHEN		STAFFS	50 SQM
*COLD+DRY STORAGE *WASHING AREA *LOADING & UNLOADING DOCK			
CIRCULATION AREA			50 SQM
TOTAL AREA			300 SQM

Table 5.3: Cafeteria

5.4 RECOVERY SPACES

SPACES	NO. OF UNITS	USER	TOTAL AREA
HYDROTHERAPY POOL	2	PLAYERS/STAFF	240 SQM (120SQM EACH)
PHYSIOTHERAPY ROOM	2	PLAYERS/STAFF	28 SQM (14SQM EACH)
CRYOTHERAPY CHAMBER ROOM	1	PLAYERS/STAFF	35 SQM
RELAXATION AREAS WITH COMPRESSION THERAPY	1	PLAYERS/STAFF	40 SQM
NUTRITION STATIONS /SNACKS BAR *HYDRATION STATIONS WITH ELECTROLYTE *FOOD COURT/CAFETERIA (HEALTHY SNACKS AND RECOVERY FOCUSED NUTRITION) *GUIDANCE FROM NUTRITIONIST FROM POST TRAINING MEALS)	1	PLAYERS/STAFF	120 SQM
SPORTS PSYCOLOGY CONSULTATION ROOM	1	PLAYERS/STAFF	20 SQM
MASSAGE ROOM	1	PLAYERS/STAFF	45 SQM
OUTDOOR RECOVERY SPACES *STRETCHING & FLEXIBILITY ZONE *LANDSCAPED JOGGING OR WALKING TRIALS			

YOGA & MEDITATION	1	PLAYERS/STAFF	45 SQM
GAMING AND ENTERTAINMENT ZONE	1	PLAYERS	60 SQM
VIDEO ANALYZE ROOM	1	PLAYERS/STAFF	45 SQM
CYLE ERGOMETRY LAB (UPPER BODY)	1	PLAYERS/STAFF	45 SQM
ISOKINETIC LAB (LOWER BODY)	1	PLAYERS/STAFF	45 SQM
ANTROPOMETRY LAB	1	PLAYERS/STAFF	40 SQM
ANTHROSCOPY	1	PLAYERS/STAFF	35 SQM
SURGERY ROOM	1	PLAYERS/STAFF	50 SQM
TREDMILL LAB	1	PLAYERS/STAFF	35 SQM
FIRST-AID ROOM	1	PLAYERS/STAFF	18 SQM
BIOMECHANICS LAB	1	PLAYERS/STAFF	65 SQM
HIGH PERFORMANCE TRAINING	1	PLAYERS/STAFF	1672.25 SQM
MULTIPURPOSE GYM	1	PLAYERS/STAFF	2787.09 SQM
BOWLING CHECKING	1	PLAYERS/STAFF	371.61 SQM
AUDITORIUM (FOR LECTURES, SEMINARS AND EDUCATING ANTI-DOPING)	1 (1500 CAPACITY)	PLAYERS/STAFF	1003.35 SQM
CLASSROOMS (FOR LECTURES, SEMINARS AND EDUCATING ANTI-DOPING)	3 (25 EACH)	PLAYERS/STAFF	110 SQM

Table 5.4: Recovery spaces

5.5 INDOOR SPORTS

SPORTS	CAPACITY	TOTAL AREA
FENCING		
ENTRY LOBBY		35SQM
WARMUP COURT	50 (4Sq m)	200SQM
LECTURE ROOM	50 (1.2Sqm)	60SQM
STORAGE ROOM		35SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	50 (5Sqm)	250SQM
TOTAL AREA		610SQM
TAEKWONDO		
ENTRY LOBBY		35SQM
WARMUP COURT	50 (4Sq m)	20SQM
LECTURE ROOM	50 (1.2Sqm)	60SQM
STORAGE ROOM		35SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	50 (16Sqm)	800SQM
CICULATION SPACE		30SQM
TOTAL AREA		1190SQM
KABBADI		
ENTRY LOBBY		35 SQM
WARMUP COURT	50 (4Sq m)	200SQM
LECTURE ROOM	50 (1.2Sqm)	60SQM
STORAGE ROOM		35SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	50 (17.3Sqm)	865SQM
CICULATION SPACE		30SQM
TOTAL AREA		1255SQM

SPORTS	CAPACITY	TOTAL AREA
SQUASH		
ENTRY LOBBY		35SQM
WARMUP COURT	50 (4Sqm)	60SQM
LECTURE ROOM	50 (1.2Sqm)	35SQM
STORAGE ROOM		30SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	5 (75Sqm)	375SQM (5 SQM EACH)
CICULATION SPACE		30SQM
TOTAL AREA		595SQM
FOOTBALL		
ENTRY LOBBY		35 SQM
WARMUP COURT		200SQM
LECTURE ROOM		60SQM
STORAGE ROOM		35SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	3 PRACTISING NETS	300 SQM (150 SQM EACH NET)
	*2 FOOTBALL COURT	
	*1 ARTIFICAL TURF	
CICULATION SPACE		30 SQM
TOTAL AREA		1338 SQM

CRICKET		
ENTRY LOBBY		35 SQM
WARMUP COURT		200SQM
LECTURE ROOM		60SQM
STORAGE ROOM		35SQM
RESTROOM AND CHANGING ROOM		30SQM
PLAYING AREA	6 PRACTISING NETS	334.44 SQM (55.74 SQM EACH NET)
CICULATION SPACE		30SQM
TOTAL AREA		724.44 SQM

Table 5.5: Indoor Sports

5.6 ACCOMODATIONS

SPACES	CAPACITY	USERS	TOTAL AREA
LOBBY			45 SQM
• ENTRY PORCH • CHECK IN			32 SQM
ROOMS	40 ROOMS	PLAYERS	2800 SQM (EACH 70 SQM)
ROOMS	40 ROOMS	PLAYERS	2600 SQM (EACH 65 SQM)
LAUNDRY ROOM	1		25 SQM
MAIN DINING	1(50 CAPACITY)		100 SQM
KITCHEN	1		100 SQM
PASTRY SHOP	1		40 SQM
SWIMMING POOL (OUTDOOR)	1		320 SQM
TOTAL AREA			6062 SQM

Table 5.5: Accommodations

5.7 SERVICES

SPACES	NO. OF UNITS	TOTAL AREA
SURVEILLANCE ROOM		
HVAC		

Table 5.6(a): Services area

TOTAL SITE AREA	
FSI	
OSR 10%	
SETBACK	
BUILDUP AREA 60%	

Table 5.6(b): Services area

5.8 PARKING

5.8.1 EXTERNAL PLANNING PARKING STANDARDS

1) Car parking

- Minimum of 1 parking space to 10-15 spectators
- Area of 255qm per car (including circulation space)

2) Bus parking

- 1 bus space for 120 spectators
- area of 605qm per bus (including circulation space)

5.8.2 PEDESTRIAN ROUTES

- On leaving their cars, spectators' players should be able to proceed directly to a safe pedestrian passage.
- Hence, feeds through the car park to the ground entrance gate.
- Distance should be no more than 500m maximum of 1.500m
- If the distance becomes too great there should be an internal transport system of regular pickup and drop off buses in which waiting areas must be provided.

5.8.3 PARKING DIMENSION

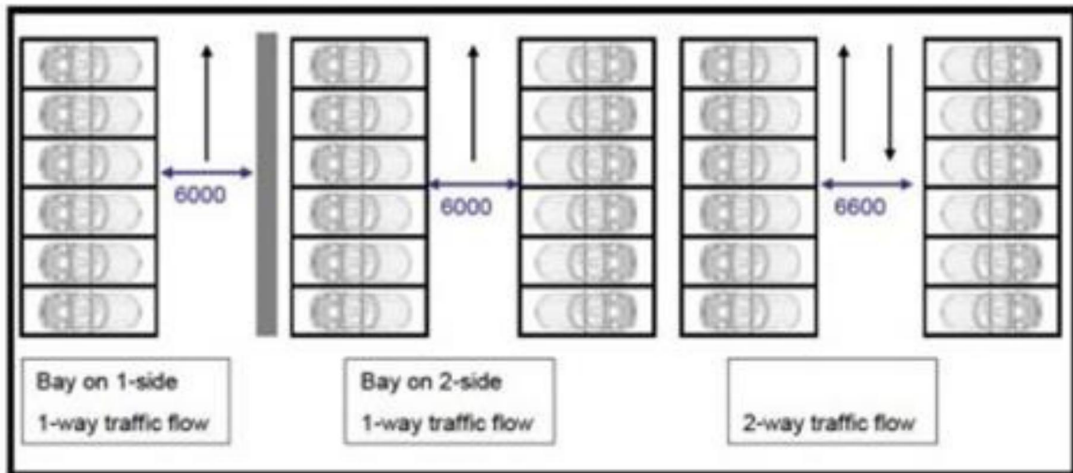


Fig 5.1: 90 Degree angled parking aisle

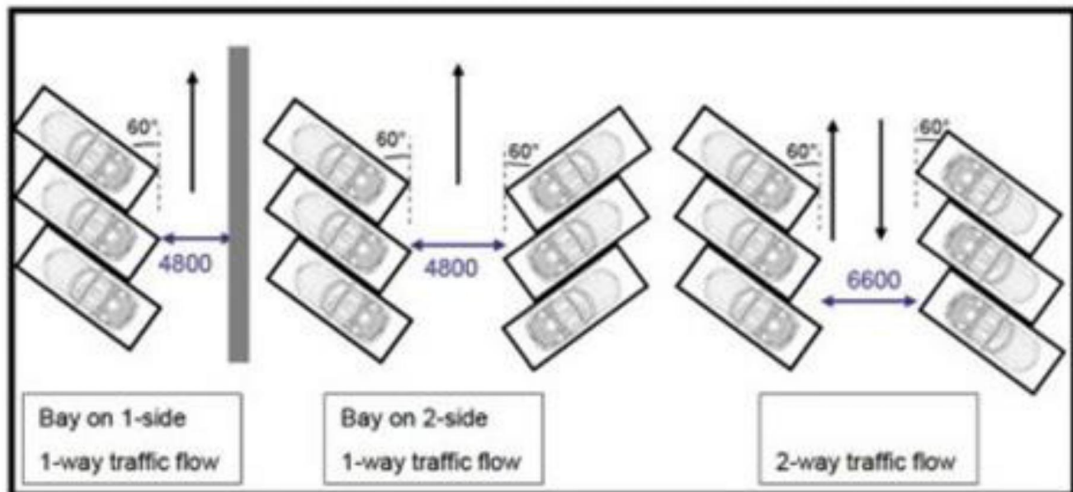


Fig 5.2: 45 Degree angled parking aisle

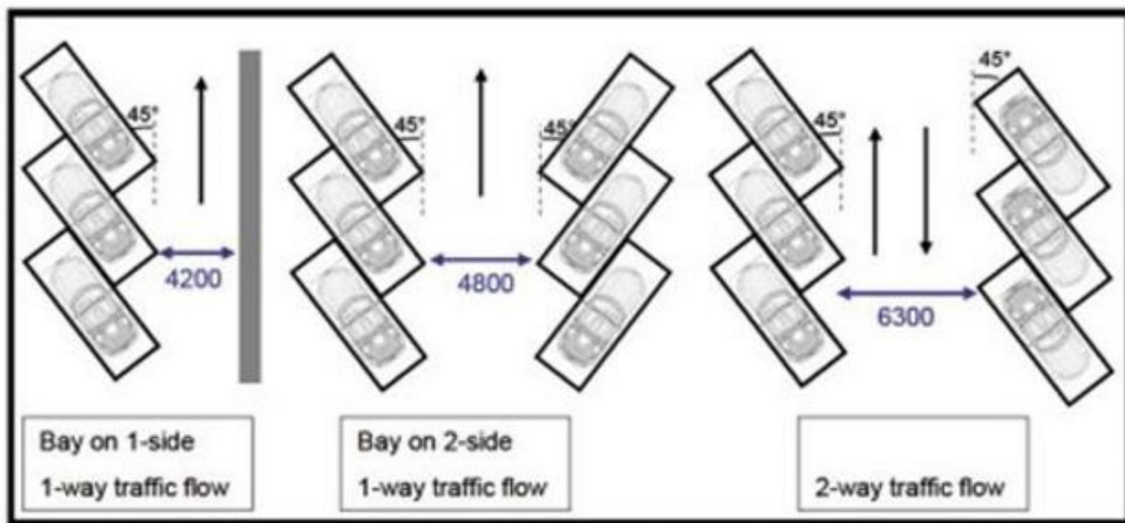


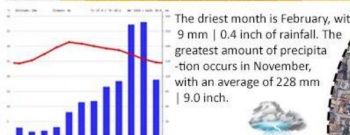
Fig 5.3 60 Degree angled parking aisle

SITE DOCUMENTATION & ANALYSIS



CLIMATE

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C	28.5	28.8	29.1	29.4	29.7	30.0	30.3	30.6	30.9	31.2	31.5	31.8
Max. Temperature °C	35.2	35.5	35.8	36.1	36.4	36.7	37.0	37.3	37.6	37.9	38.2	38.5
Min. Temperature °C	21.8	22.1	22.4	22.7	23.0	23.3	23.6	23.9	24.2	24.5	24.8	25.1
Humidity (%)	78	79	80	81	82	83	84	85	86	87	88	89
Precipitation (mm)	12	15	18	21	24	27	30	33	36	39	42	45
Relative Humidity (%)	78	79	80	81	82	83	84	85	86	87	88	89
Avg. Rainfall (mm)	12	15	18	21	24	27	30	33	36	39	42	45



The driest month is February, with 9 mm | 0.4 inch of rainfall. The greatest amount of precipitation occurs in November, with an average of 228 mm | 9.0 inch.

The month with the highest relative humidity is November (80.23 %). The month with the lowest relative humidity is June (61.74 percent).



This city has a tropical climate. The summers are much rainier than the winters in Porur. The Porur are located close to the equator, making the summers difficult to define.

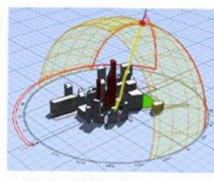
KEVIN LYNCH ANALYSIS

LEGENDS
 EDGES (Red line)
 NODES (Blue dot)
 LANDMARK (Yellow star)
 SITE BOUNDARY (Yellow line)
 PATH (Red line)

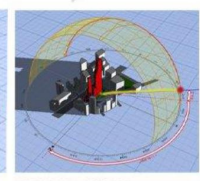


SENSORY ANALYSIS

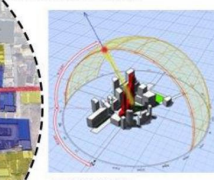
LEGENDS
 PATH (Red line)
 SITE BOUNDARY (Yellow line)



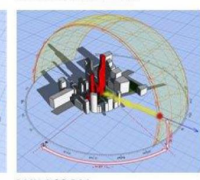
DECEMBER - 10:30 P.M.
 Azi/Alt: 159.18°/52.07°
 SHADOW ANGLE :111.68°



DECEMBER - 4:30 P.M.
 Azi/Alt: 115.50° / 8.49°
 SHADOW ANGLE :39.00°



MAY-10:30 P.M.
 Azi/Alt: 71.89°/74.77°
 SHADOW ANGLE :127.04°



MAY-4:30 P.M.
 Azi/Alt: 75.98°/19.31°
 SHADOW ANGLE :11.15°

LAND USE

LEGENDS
 COMMERCIAL ZONE (Blue)
 RESIDENTIAL ZONE (Yellow)

RESIDENTIAL ZONE: Situated in a predominantly residential zone, the hub becomes an intrinsic part of the community's lifestyle. Increased participation from the local community, supporting grassroots sports development.

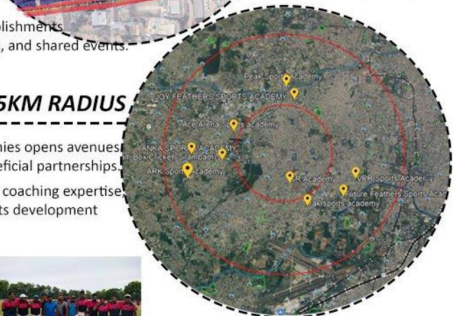
Commercial Synergies: Presence of commercial establishments provides opportunities for partnerships, sponsorships, and shared events. Eg..Vasanth & co

SPORTS ACADEMY WITHIN 2KM ,5KM RADIUS

Resource Sharing: Proximity to existing sports academies opens avenues for collaboration, resource sharing, and mutually beneficial partnerships.

Coordinated Programs: Joint training sessions, shared coaching expertise and collaborative events can enhance the overall sports development landscape.

Infrastructure Upgrades



- a) Peak Sports Academy
- b) SR Academy
- c) MSR Sports Academy
- d) Yak Sports Academy
- e) Anka Sports Academy
- f) ARK Sports Academy
- g) Ace Arena Sports Academy
- h) VPR Sports Academy
- i) Future Feathers Sports Academy
- j) Joy Feathers Sports Acad

Plate 6.1: Site Documentation & Analysis - I

SITE DOCUMENTATION & ANALYSIS

LOCATION: PORUR, KANCHIPURAM

LATITUDE: 13° 2'24.11"N
LONGITUDE: 80° 9'42.51"E

ACCESSIBILITY:

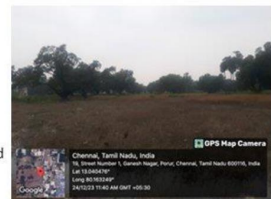
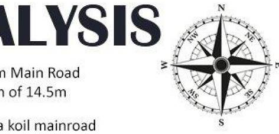
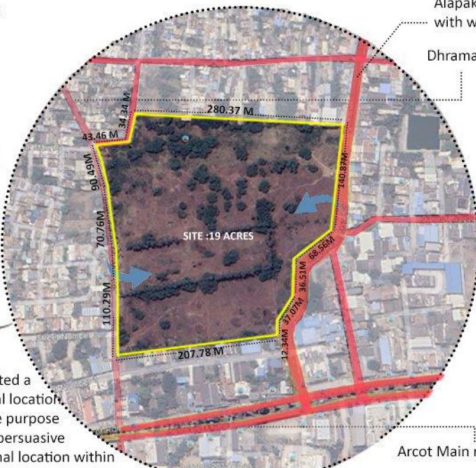
The Koyembedu bus terminal is about 6.2 km away.

The Central Railway Station is about 15.5 km

Chennai International Airport is about 13.4 km away.

SITE JUSTIFICATION

- 1)Already, the government has suggested a sports centre at Porur. While the actual location inside Porur has not been selected, The purpose of the following points is to provide a persuasive argument for the selection of an optimal location within the proposed area.
- 2)Porur's strategic location on the outskirts of Chennai provides a well-connected and easily accessible site. The proximity to major roads and transportation hubs facilitates convenient access for all the state players.
- 3)The presence of an overhead tank in close proximity of 3km offers advantages in terms of water supply and management. The facility can leverage this existing infrastructure for sustainable water usage, landscaping, and other water-related requirements.
- 4)Porur's residential zoning may be ideal for income creation from an integrated sports performance hub. The sports hub's proximity to residential areas makes it easy for local citizens to join and actively engage in sports and fitness programmes. A strong local membership base may be a steady and reliable source of revenue.
- 5)Bringing a Integrated Sports Performance Hub might make the neighbourhood and surrounding region much more infrastructure developed, as well as serve as a beacon in the area.



S Strategic Location and Economic Potential **W** Competition from nearby sports facilities necessitates strategic differentiation through distinctive offerings and experiences to establish a unique identity. **O** *Community Engagement Programs
*Regional Event Hosting
*Technology Integration
*Cultural and Entertainment Integration **T** *Market Saturation
*Economic Volatility
*Environmental Considerations

BY LAWS for Institutional Building

SL.No.	Description	Continuous Building Areas	Other areas
1	Minimum width	7.20m	
2	Maximum Height	18.30m	
3	Maximum FSI	2.0	
4	Minimum Setbacks	Where Street Alignment/new road is prescribed, it shall be from that street alignment/turning line. In the case of others, it shall be from the property boundary.	
5	Front Setback	6m	
6	Side Setback	NI	6m
7	Rear Setback	NI	6m

SL. No.	Sanitary Unit	Boarding Institutions	Other educational Institutions
1	Water Closet (W.C.)	One for 8 boys or part thereof	One for 40 boys or part thereof
2	Ablation Taps	One in each W.C.	One in each W.C.
3	Urinals	One per every 25 pupils or part thereof	One per every 20 pupils or part thereof
4	Wash Basins	One for every 8 pupils or part thereof	One for every 40 pupils or part thereof
5	Baths	One for every 8 pupils or part thereof	One for every 40 pupils or part thereof
6	Drinking Water Fountains	One for every 50 pupils or part thereof	One for every 50 pupils or part thereof
7	Cleaner's Sink	One per Floor minimum	One per Floor minimum

DRAINAGE & SANITATION STANDARDS

Table 3 Cinema, Multiplex Cinema, Concert and Convention Halls, Theatres and Stalls (Clause 4.2.5.1)					
Sl. No.	Floors	Public		Staff	
		Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
(i) Water closets	1 per 100 up to 400 One 400-800 & 1 per 200-400 & 2 per 400-800	1 for up to 200 1 for 200-400 & 2 for 400-800	1 for up to 15 1 for 15-30 2 for 30-45	1 for up to 12 2 for 12-25	
(ii) Ablution taps	200 or part thereof 1 in each water closet	100 or part thereof 1 in each water closet	1 in each water closet	1 in each water closet	
(iii) Urinals	1 male to every 250 persons or part thereof	NI	1 for up to 20 2 for 20-45 1 for up to 15 2 for 15-25	1 for up to 12 2 for 12-25	
(iv) Wash basins	1 per 200 or part thereof	NI	1 for up to 15 2 for 15-25	1 for up to 12 2 for 12-25	
(v) Drinking water fountains	1 per 100 persons or part thereof	NI	1 per floor	NI	
(vi) Cleaner's sink	As per trade requirements	NI	NI	NI	
(vii) Showers/bathing rooms	As per trade requirements	NI	NI	NI	

SANITATION STANDARDS

Table 1 Minimum Safety Distances (Clause 11.4.1.2, 11.4.1.4 and 11.4.1.5)					
Sl. No.	LPG Storage Water Capacity of Building Tank	Distance from Building		Distance between Tanks	
		Above Ground	Under Ground	Above Ground	Under Ground
(1)	(2)	(3)	(4)	(5)	(6)
(i) Up to 2000	5	5	5	5	5
(ii) Above 2000 and up to 10,000	10	10	10	10	10
(iii) Above 10,000 and up to 40,000	15	15	15	15	15
(iv) Above 40,000 and above	20	20	20	20	20

NOTE: - If the aggregate water capacity of a multi-tank installation is 40,000 litres or greater, the above minimum safety distances shall apply to the aggregate storage capacity rather than the capacity per individual storage tank.

PLUMBING STANDARDS

In conclusion, the site in Porur is not merely the foundation for the Integrated Sports Performance Hub; it is an integral catalyst that amplifies the project's impact.

Water Requirements for Buildings Other than Residences

Sl. No.	Type of Building	Domestic Per Day	Drinking Per Day	Total Consumption Per Day
(1)	(2)	(3)	(4)	(5)
(i) Factories (including canteens where bulk stores are required to be provided)		20 per head	15 per head	35 per head
(ii) Hospitals (including laundry and kitchen/canteen) (Note 2)		20 per head	15 per head	35 per head
(iii) Number of beds not exceeding 100		250 per head	150 per head	400 per head
(iv) Number of beds exceeding 100		200 per head	150 per head	350 per head
(v) The person dependent on others		90 per head	45 per head	135 per head
(vi) Nurses, nurses and medical quarters		90 per head	45 per head	135 per head
(vii) Hotels		120 per head	60 per head	180 per head
(viii) Boarding up to 3-star (including laundry, kitchen, staff and water bodies)		200 per head	100 per head	300 per head
(ix) Board of star and above (including laundry, kitchen, staff and water bodies)		250 per head	125 per head	375 per head
(x) Offices (including canteens)		25 per head	20 per head	45 per head
(xi) Restaurants and food stores including water requirement for kitchen		55 per seat	15 per seat	70 per seat
(xii) Restaurants		25 per seat	10 per seat	35 per seat
(xiii) Clubhouse		25 per head	20 per head	45 per head
(xiv) Stadiums		4 per head	3 per head	7 per head
(xv) Cinema, concert halls and theatres and multiplexes		5 per seat	10 per seat	15 per seat
(xvi) School & educational institutions		25 per head	45 per head	70 per head
(xvii) Welfare housing facilities		90 per head	45 per head	135 per head
(xviii) Shopping and retail (small)		25 per head	20 per head	45 per head
(xix) Hotel		75 per head	20 per head	95 per head
(xx) Valetians		75 per head	20 per head	95 per head
(xxi) Traffic terminal stations (see Notes 7 and 8)		40 per head	30 per head	70 per head
(xxii) Airports		40 per head	30 per head	70 per head
(xxiii) Railway stations (stations) with building facility		40 per head	30 per head	70 per head
(xxiv) Railway stations (stations) without building facility		30 per head	10 per head	40 per head
(xxv) Railway Stations (termini) with building facility		25 per head	20 per head	45 per head
(xxvi) Railway Stations (termini) without building facility		15 per head	10 per head	25 per head
(xxvii) Interstate bus terminals		25 per head	20 per head	45 per head
(xxviii) Interstate bus terminals (Mini Stations)		10 per head	5 per head	15 per head

"In what ways does the chosen location elevate and optimize the effectiveness of this project?"

- 1)Community-Centric Engagement
- 2)Economic Synergy and Partnership Opportunities
- 3)Cultural Integration and Local Identity
- 4)Future-Ready Planning and Scalability

Plate 6.2: Site Documentation & Analysis – II

Master Plan

7.1 SCHEMATIC MASTER PLAN



Plate 7.1: SCHEMATIC MASTER PLAN

7.2 Floor Plan

INTEGRATED SPORTS PERFORMANCE HUB

GROUND FLOOR PLAN
SCALE- 1:200



COLUMN AND BEAM DETAILS:
 *Connecting bridge
 *Self supporting truss structure (Criss Cross)
 *Steel columns-30m x 300m
 *Circular columns- supporting columns 400mm radius

Columns-900m x 500m(10 to 12 span)
 Beams- Flat slab/Truss based beams
 (for more columns with less space)



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Plate 7.2: Ground floor Plan

INTEGRATED SPORTS PERFORMANCE HUB

FIRST FLOOR PLAN
SCALE- 1:200



COLUMN AND BEAM DETAILS:
Connecting bridge
*Self supporting truss structure (Criss Cross)
*Steel columns-30m x 300m
*Circular columns- supporting columns 400mm radius
Columns-900m x 500m(10 to 12 span)
Beams- Flat slab/Truss based beams (for more columns with less space)



- 1.Squash**
*Waiting Area-110.8sqm
*Locker & Dressing room-80.5sqm
- 2.Football**
*Waiting Area-47.4sqm
*Locker & Dressing room-77.3sqm
- 3.Fencing**
*Warmup & stretching area
*Lockers with dressing room
- 4.Isokinetic Lab-111.85sqm**
- 5.Video Analyzing-105.4sqm**
- 6.Anthropometry Lab-86.3sqm**
- 7.Anthropometry - 32.9sqm consultant**
- 8.Hydrotherapy Pool- 331.5sqm**
- 9.Massage room- 232.4 sqm**
- 10.Table Tennis-1648.4sqm**
*Entry & waiting area
*Warmup & stretching area
*Locker & dressing room
- Accommodation**
Room-27.4sqm
Restroom-24.4sqm
Janitor room-29.8

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FLOOR PLANS FOR SPORTS HUB

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Plate 7.3: First floor Plan



Plate 7.4: Second floor Plan

INTEGRATED SPORTS PERFORMANCE HUB

THIRD FLOOR PLAN
SCALE- 1:200



COLUMN AND BEAM DETAILS:

Connecting bridge
*Self supporting truss structure
(Criss Cross)

*Steel columns-30m x 300m

*Circular columns- supporting columns 400mm radius

Columns-900m x 500m(10 to 12 span)

Beams- Flat slab/Truss based beams
(for more columns with less space)



16 FLOOR PLANS FOR SPORTS HUB

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Plate 7.5: Third floor Plan

CHAPTER 8

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