

# **SPORTS ACADEMY**

## **THESIS**

Submitted in partial fulfilment 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 with Grade "A" by NAAC**  
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**JUNE 2021**



**DEPARTMENT OF ARCHITECTURE**  
**BONAFIDE CERTIFICATE**

This is to certify that this Project Report is the bonafide work of J.SAMUEL STEPHEN(3621065) who carried out the project entitled “Sports Academy” under our supervision from January 2021 to June 2021.

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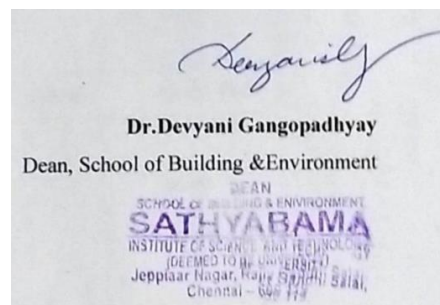
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Submitted for Viva voce Examination held on \_\_\_\_\_

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## DECLARATION

I, **J.SAMUEL STEPHEN** hereby declare that the Project Report entitled “Sports Academy” done by me under the guidance of **Ar.Shanker** (Internal Guide), **Dr.Devyani Gangopadhay** (Internal Review Member) and **Ar.Pradeep Varma** (External Guide). Sathyabama Institute of Science and Technology is submitted in partial fulfilment of the requirements for the award of Bachelor of Architecture Degree.

**DATE:**

**PLACE: Chennai**

**SIGNATURE OF THE CANDIDATE**

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I wish to express my thanks to all Teaching and Non-teaching staff members of the **Department of Architecture** who were helpful in many ways for the completion of the project.

**Abstract:**

Sports as we all know is considered highly as a challenging physical feat, which not every individual is good at. In order to be a good athlete one has to train very hard and be patient and consistent throughout his/her sporting career. Sports is broadly classified into two type's .i.e. indoor sports and outdoor sports. Majority of the famous sporting people have been training since a very young age. In India sports as a whole is mainly correlated with cricket. No doubt there are many other athletes in various dimensions of many sporting events but do not stand out as a majority as the lack of infrastructure, training and guidance. My main focus is on building a world class sports academy which will provide the best infrastructure, facility and guidance to the students in overall sporting aspect. The academy will also make sure every handicap also has a chance to show case and develop his/her ability in the sporting events, thus it will be handicap friendly. It will be overall sports, science, research academy and include practice pitches. It will include all modern amenities to ensure maximum coverage of major sports in order for overall development and fitness of students

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## **Chapter 1**

### **Introduction:**

#### **1.1. Background:**

In recent years, several cities have constructed new sports facilities in concentrated areas or supplemented existing facilities to create a themed sport zone. This thesis report gives a detailed analysis of how to design a sports academy. The real issues, solutions, government roles, society roles, and other specific challenges for architects to deal with Sports academy are not only associated with sports sector but also how deal the need for urban, sustainable community development Today's world health is one of the major concern for every individual sports academy are an option for society to remain mentally as well as physically fit

Sports academy are not gender specific. It involves every individual, from children to senior citizen, from girl to boy, from mother to grandmother. This report deals with designing such a sports academy that has a sustainable environment, sports spirit and a systematic community development.

Here the reason is to understand how sport can be integrated physical in cities and urban environments, to give an overview of inspiring examples, and the spatial and programmatic relation of the sport facility with its direct surroundings. What can be learned from successful examples from sport? What is spatially possible? What organizational aspects are essential for this purpose? How to apply the results by new and renewal projects?

#### **1.2. Aim:**

- To design a sports academy which will work towards raising the standards of Indian sports by improving the grass root level.
- To create an environment including international standards of the game for development of Indian sports.

#### **1.3. Objectives:**

- To encourage development of Sports and Physical Education in India.

- The sports academy should provide both sports facilities and accommodation for sports persons both students and staff.
- To provide a health environment by practicing sports for school going students by conducting sporting events and annual sports meets in the campus.
- Mass participation of children, youth and athletes in annual sports competitions through a structured competition

#### **1.4.Need for the Project:**

- A space needs to be created where the activities of sports are given maximum importance.
- Provide career opportunity for kids & budding sportsman.
- Lack of infrastructure and training centers in the country, hence needed. A necessity to keep people mentally & physically fit
- Sports academies and sports complexes should be done for common mass where they can practice sport on daily basis.

#### **1.5.Scope of the Project:**

- The study aims at development of physical as well as mental attributes of each budding aspirant in the institute.
- This will have a huge impact on an individual's overall personal growth which will impact the countries development.
- A proper grass root training for each individual in physical education will help towards a bright future.
- This project will increases participation of people from children to adults who are interested to make a career in sports which indeed will be beneficial for the development of sports in this country.
- Architectural scope is to learn and understand different architectural features and functions needed by a particular sport or game. Eg master planning, roofing system, services etc.

#### **1.6.Methodology:**

##### **Literature Study:**

- Conduct literature study to understand the impact of sports and physical education in one's life.
- To study about the present & past condition of sports and physical education in India.
- To research about the future of sports and physical education in India.

### **Case Study:**

- Identification of case studies of various prominent examples in India and abroad.
- Conducting studies and tabulating the findings. Identifying the various functions and their working from the case studies.

### **Site Study:**

- Conducting site visit to the proposed site.
- Collecting data about site in terms of climate, geology, past and current usage, etc.
- Collecting data about site surrounding.
- Finding about future development in that area.

### **1.7. Conclusion:**

The idea is to curb this situation and create a sports facility including a sports academy and sports training center with a goal of training aspiring youth in interested sports and provide them with special amenities, accommodation, facilities, equipment, training etc. that make them better at the particular sport and thus create more jobs as coaches, training instructors, sportspersons, etc.

As a sports academy will be more efficiently used for training as well as academical purpose than a sport complex, the site will also be under use 24hrs by students as well as sports trainees.

The thesis aims to establish an architectural framework for the youth that are interested in sports as a career which would provide them with appropriate infrastructure promote its importance at a local, regional, state, national and eventually, a global level.

## **Chapter 2**

### **2.1.Sports and its Importance:**

The first advantage of sports for people is that they help people be healthy. If we don't practice sports, we will be forced to rust, in other words, decomposition of our body; afterwards, we may have some problems with our body when we even need to small walk. In addition, sports balances our body's blood pressure and circulation. According to many researches which have been done by scientists, we can prove the importance of sports for our health because 70 % middle aged people who did not do sports in their youth are now struggling with the problems such as high tension, trouble with blood circulation, easily become tired due to lack of physical activities.

The second advantage of sports for people is that they are required for our daily lives and competing at the international area because of enjoyment of sports. They are sometimes magic as they can catch out attention and give us pleasure as much as we need. Sometimes overwhelming life conditions may be unfair and make us unhappy. However, if there is a sport activity when we are unhappy, we will probably be motivated and be refreshed again after the sport activity. This should be the most important benefit of sports because many people do sports for this reason.

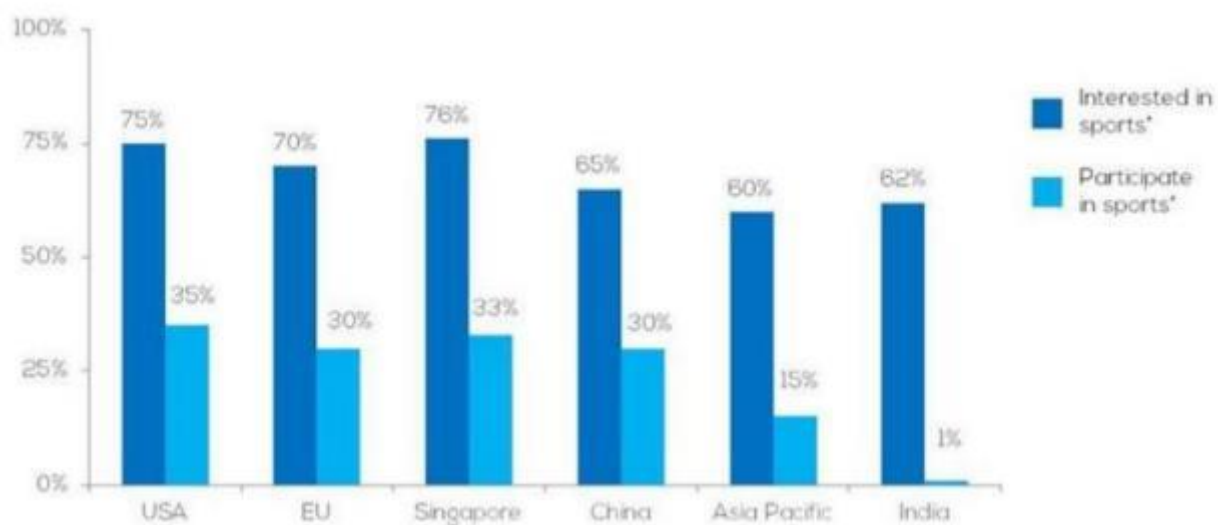
The practice of sport is a recognized instrument for promoting peace, as it disregards both geographical borders and social classes. Sport is a powerful tool to strengthen social ties and networks, and to promote ideals of peace, fraternity. solidarity, non-violence, tolerance and justice. Tackling problems in post conflict situations can be eased as sport has the ability to bring people together.

### **2.2.Current Scenario of Sports in India:**

Sports have been one of the most loved activities in India. Almost everyone indulges in some form of sports from hockey, cricket, football, badminton, tennis to golf, swimming and archery. Gone are the days when different sports were mainly played for recreational purpose or to satisfy the fitness demands. The India of today plays with a competitive frame of mind. People have changed with time and opportunities available. Today, parents encourage their children to play games and earn name and fame for themselves. With the growing demand for all the sports, the need to have a athletic body has also gained importance.

India prides itself on being a sports crazy nation. Sample this - more than 300 million people tuned in to watch the World Cup Cricket 2015 semi-final between India and Australia. Recent trends suggest that the frenzy is not just limited to cricket. The opening week of India's seminal football league, ISL 2014 got nearly 170 million viewers, with the opening day garnering 75 million viewers. The Pro Kabaddi League has reportedly garnered even higher numbers. The burgeoning online population means that the consumption spills over to other media, with popular portals getting more. Intuitive logic says that there must be a strong co-relation between interest & participation in sports. If

you compare India's interest and participation numbers with global figures, a very interesting and rather dismal pattern emerges.



The numbers show the co-relation between interest in sport and participation in organised sport. For every other country/region, there are national sports surveys where participation data are easily available. For India, the participation number is mentioned in this KPMG report titled Business of Sports. The interest figures for India have been extrapolated from analysis of 100 million Facebook users in India by using the Create Ad' segmentation tool.

With a population of 1.3 billion people, India has no shortage of sporting talent. What Sports in India need are good facilities, investment, trainers/coaches and scouting. Over the past few years, different sports have started coming up and several events have taken place which show that India is now starting to move forward in sports apart from cricket.

To take Indian Sports to new heights, the task of governing and promoting them in India have fallen on a number of Indian sports associations. Sports organizations like the Indian Olympic Association and Sports Authority of India are working towards raising the standard of Indian sports through various talent promotion programmes. A host of sports academies and institutes are actively involved in the grooming of Indian sportsmen. Moreover, there are various corporate houses coming to the rescue of sponsors-starved games. India has set up an annual award for companies which promote sports in the nation of more than a billion.

## CHAPTER 3

## CASE STUDIES

### 3.1.SHRI SHIV CHHATRAPATI SPORTS COMPLEX



Location : PUNE

Site area : 150 acres

Architect : AR.SHASHI PRABHU & ASSOCIATES

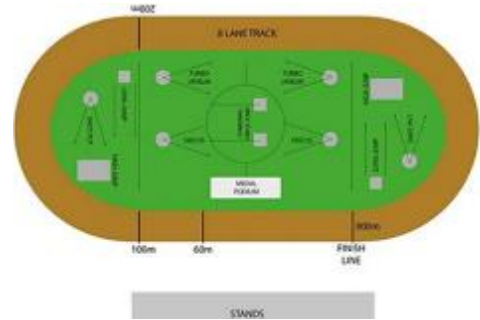
This complex was built in 1994 for the National Games 1994, which were hosted by Pune. The 2008 Commonwealth Youth Games were hosted here. In 2008 the World Junior Table Tennis Circuit was successfully held here. The 2009 FIVB Men's Junior World Championship was held here. It was won by Brazil. The city is also the host of FIBA Asia Under-16 Championship for Women 2009.

1. Aquatic centre
- 2 Water body
3. Badminton hall
4. Parking for visitors
5. Chhatrapati statue
6. Main stadium
7. Athlete stadium
8. Orchid hotel
9. Park
- 10.Future development
- 11 Administrative block
- 12 Residential colony
- 13.Childrens park
- 14Men's hostel
- 15 Staff parking -VIP
- 16 Women's hostel
- 17 Staff quarter
- 18 Table tennis hall
- 19 Centre court tennis
- 20 Outer tennis court
- 21 Boxing
- 22 Wrestling
- 23 Hockey Ground
- 24 Velodrome
- 25 Playground
- 26 Shooting Range
- 27 Decorative Pool
- 28 Restaurant
- 29 Supermarket



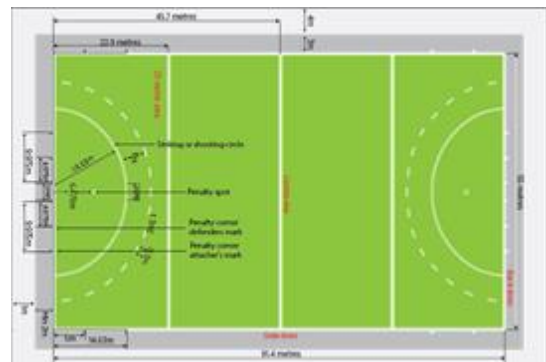
## ATHLETIC STADIUM

The Athletic stadium has a seating capacity of roughly 11,000 people at a time, flood lights and an 8 lane track.



## HOCKEY FIELD

Hockey field is not in regular use and lacks facilities of sitting arena. The present condition of this field is that it is used as a sitting, place for visitors



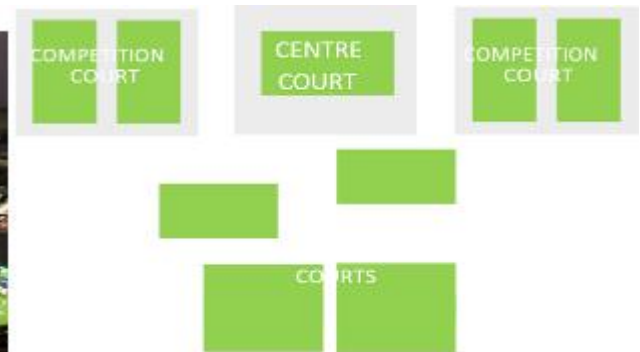
## BOXING RING

The Boxing arena has 3 rings and warm-ups rings, With a seating capacity of 3500 peoples. The hall is air conditioned and has changing rooms for players.



## TENNIS COURTS

The hall with a seating capacity of 1500 people. It has 4 competition tables and 4 warm up tables. The hall is fully air conditioned and has changing rooms for players. Seating and lounges are for VIPs.



## BADMINTON HALL

The Badminton hall has 6 competition courts and 4 warm-up courts and has a seating capacity of 3800 people at a time. It also has Changing rooms, Seating areas and VIP Lounges



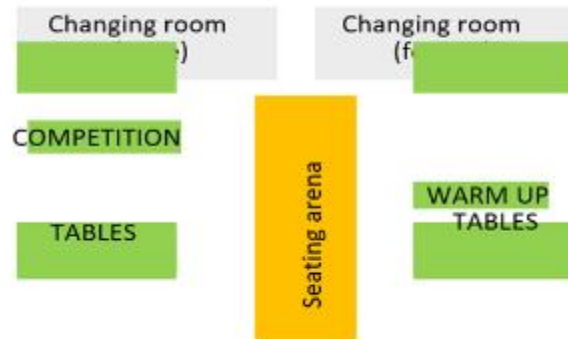
### INDOOR BASKETBALL COURTS

It has 5 courts, and 4 warm-ups with a seating capacity of 4000 peoples. The hall is air conditioned ad has changing rooms for players.



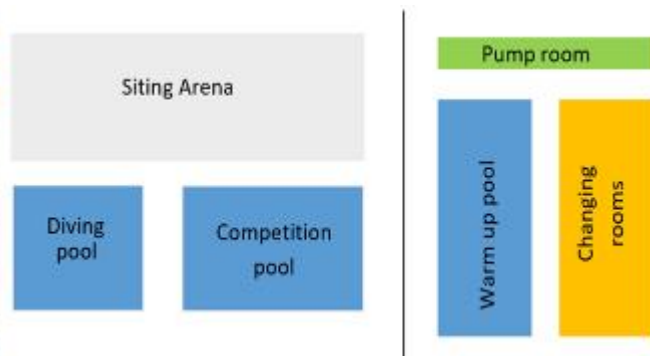
### TABLE TENNIS

The hall with the seating capacity of 1500 people. It has 4 competition tables and 4 warm up tables.



### AQUATIC COMPLEX

It has two 50 x 25 m swimming pools, with a seating capacity of 3,500 people.



## SHOOTING RANGE

The wrestling hall has four rings and six warm-up rings with a capacity of 4,400 people.



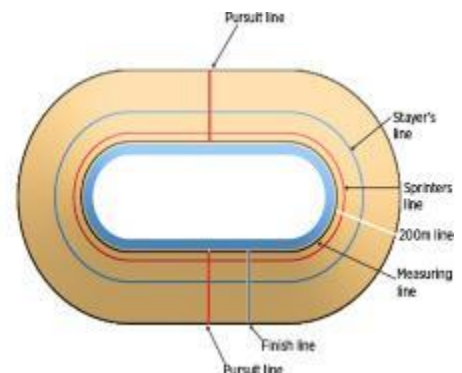
## WEIGHTLIFTING

The hall has seating capacity of 3000 people and has one competition podium and 10 warm-up platforms



## VELODROME

The 333.33 m or 1,0936 ft velodrome is outdoor and the surface is made of concrete. While it was a prime venue for the 3rd National Games in the year 1993-94.



## PARKING FACILITIES

The parking is an essential spaces since this complex hosts international events . There are two parking areas

- One at the entrance – It is mainly for the visitors
- Other at the centre of core – It is mainly for staff and VIPs

The total capacity for car parking is 800 which is less for 150 acres and there is no basement parking facilities.

## SUPPORT SERVICES

\* Residential areas includes 13 apartments which lies separate corner. It has all the facilities.

\* Hostel facilities are separate for men and women. The blocks are near to each other and lies near to residential colony

\* Separate staff quarter is provided

\* The restaurant is situated inside the complex with capacity of 300 .

## STRUCTURAL SYSTEM USED.

A steel structural system is opted for the roofing design of the seating area of the stadium Steel is string both in tension and compression and hence is used for long span structures



## MATERIAL USED.

The main material used is steel for roof covering. Concrete for walls, wooden and glazing tiles for flooring. As steel is high in tension and compression and for clear viewing spaces huge steel trusses above it which in turn supports the light weight flooring of the stadium seating area.

## AREA PROGRAMMING & DESIGN CAPACITY

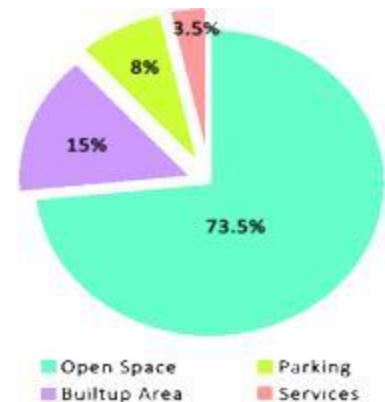
AREA	NO OF AREAS	CAPACITY
Main Stadium	8 lane track	11,000
Aquatic centre	50 x 25	3500
Badminton Hall	6 competition courts 4 warm up courts	3800
Basketball	5 competition courts 4 warm up courts	4000
Boxing arena	3 competition rings 5 warm up rings	3500
Shooting range	15 shooting range	1500
Table tennis	4 competitions 4 warm up	1500
Lawn tennis	1 centre court 4 competition court 6 warm up court	4200
Weight lifting	1 competition rings 10 warm up arena	3000
Wrestling	4 competition rings 6 warm up rings	4400
Velodrome	333.33 m/1093.6 ft	

### 3.2.YAMUNA SPORTS COMPLEX , DELHI



Location : Surajmal vihar, Delhi  
Architect : PEDDLE THROP ARCHITECTS  
Site Area : 62.7 Acres  
Client : Delhi development Authority

The Yamuna Sports Complex is situated in the capital of India, New Delhi. It was inaugurated in the year 1999 and is hosts numerous games such as Rugby 7's, wrestling, boxing, and table tennis. This complex is owned by Delhi Development Authority. It has two court tables, eight-match tables, and ten warm-up tables. There is wooden flooring in match courts and show courts as well. It has facilities for car parking of 504 vehicles.

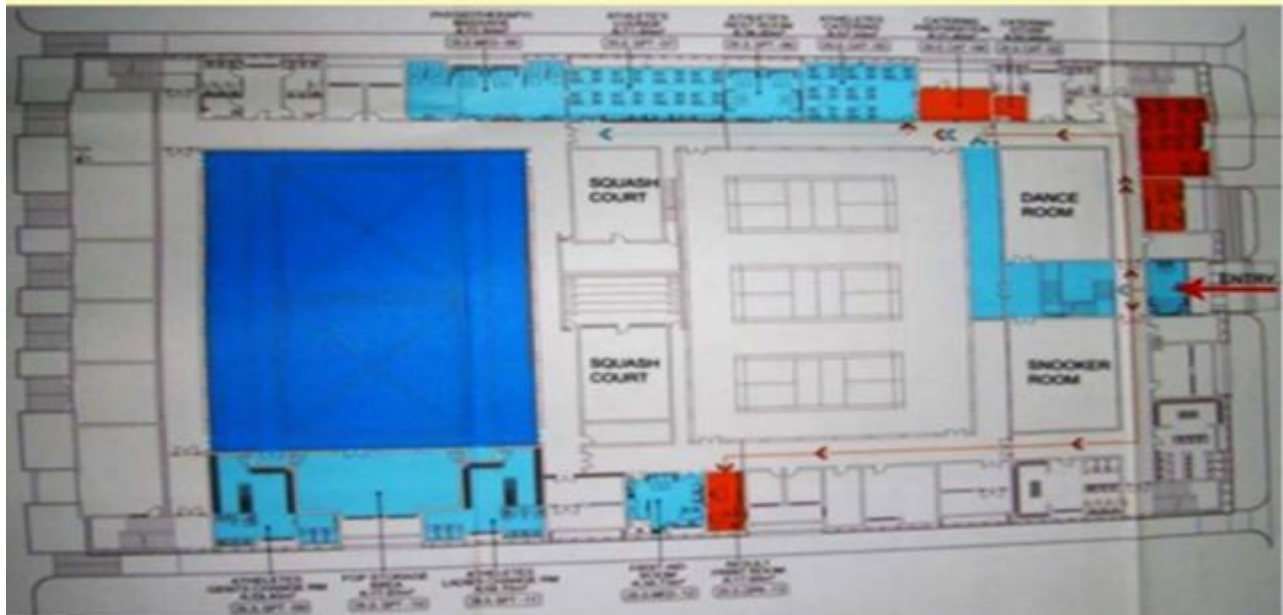




Facilities Available:

Tennis	Hockey	Table Tennis	Squash	Badminton	Swimming Pool
Jogging Track		Aerobics	Gymnastics	Climbing wall	Skating
Carron		Chess	Cricket	Foot ball	





Plan of the Admin Block

The admin block is a G+1 building.

Facilities available:

- |                            |                       |
|----------------------------|-----------------------|
| Billiards                  | Squash Court - 2 nos. |
| Volleyball Courts - 2 nos. | Cafeteria             |
| First aid Room             | Dance Room            |
| Gym - 2 nos.               |                       |

Ground Floor Facilities: Cafeteria and other offices are in the ground floor.

First Floor Facilities: Services area, Cardio Section, Gym, Weight Section are located in the first floor.



The Archery range has a capacity of 1500 people. The total area is 40,000 sq.m.

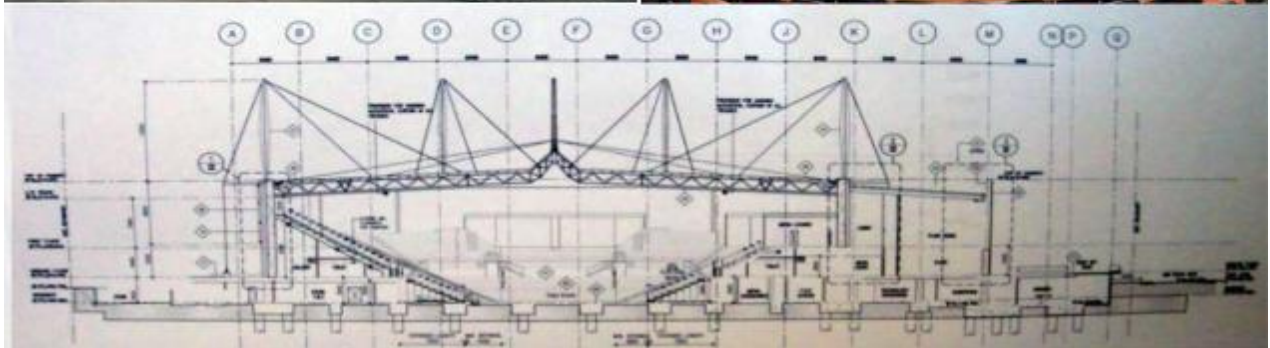
It has 500 car parking slots. Lifts and ramps are provided for physically challenged people.

The depth of the swimming pool is 1.35 mts. Seating are provided along the sides. Waiting hall is provided in both ground and first floor. Changing Room, kids play area and services are provided at the east side. Cafeteria is provided for the guest.



Plan of the Indoor Stadium

It has a capacity of 5000 people. Two show court tables. Eight Match Tables Ten warmup tables Total Plot area is 26000 sq.mt. Wooden Flooring Basement parking - 500 parking Slots Special aisles are provided for physically challenged.



### 3.3.PADUKONE-DRAVID CENTRE FOR SPORTS EXCELLENCE , BANGALORE



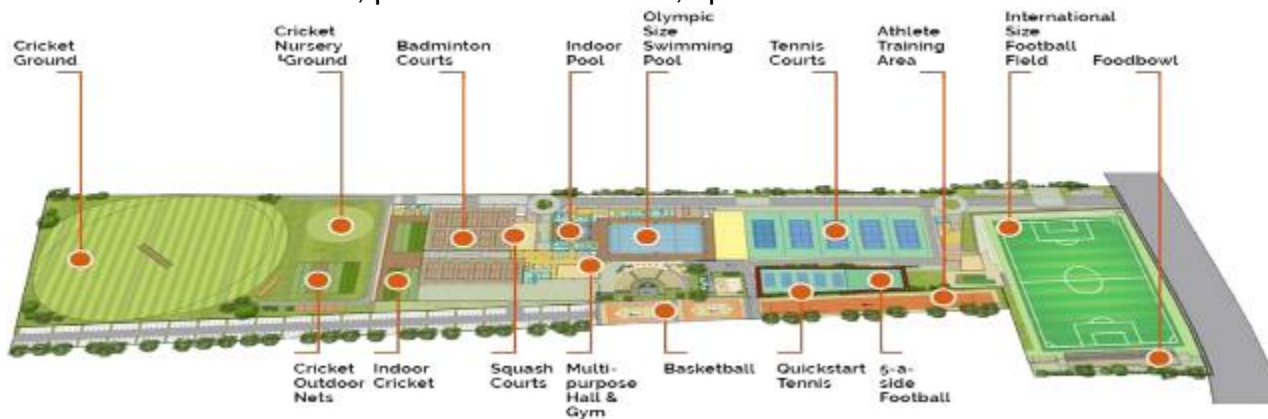
Location : Bangalore

Site area : 15 acres

Architect : Space matrix

Client : Vivek Kumar

The Padukone-Draavid Centre for Sports Excellence (CSE) is a world-class integrated sports complex built on 15 lush acres, near Bengaluru's Kempegowda International Airport. CSE offers state-of-the-art facilities in Badminton, Cricket, Football, Tennis, Swimming, Squash and Basketball. The Centre aims to encourage competitive and recreational athletes, professional coaches, sports academies



## THE CSE CAMPUS

CSE provides competitive and recreational athletes with the very best sports facilities for high-level training and practice, and for state, national and international sporting events.

### BADMINTON

16 Badminton Courts built to global standards, equipped for training and hosting national/international tournaments

### CRICKET

A full-sized cricket ground, 12 outdoor pitches, 12 indoor pitches and a nursery ground

### SWIMMING

A top-of-the-line 50 metre, 10-lane pool built by Myrtha Pools, Official FINA Partner, and supplier of aquatics facilities for FINA World Championships and Olympic Games, as well as a heated 20-metre indoor pool for beginners



### TENNIS

5 covered regular hard courts and 5 quick-start courts(specially designed for beginners)

### FOOTBALL

An international Size, flood-lit and FIFA-approved artificialturf football ground

### SQUASH

4 world-class glass-backed squash courts

### SHOOTING

10 meters, 6 lanes shooting range. Option for manual targets for beginners and electronic targets for intermediate and advanced training State of the art air rifles and pistols. A viewing gallery capacity of 50 people



**BASKETBALL**

Full-sized outdoor basketball court 28 x 15 meters floodlit court with 4 layers of synthetic surfacing, fiberglass backboards with dunking rings, a viewing gallery capacity of 50 people, and with an option of Mini Basketball hoops for beginners. Ideal for Street Basketball tournaments. Popular among corporates, recreational users, and young children.

**ATHLETIC TRACK**

100 meters, 10 lanes running track with multiple layers of synthetic surfacing. The track has a cushioned feel to it to reduce the impact on joints while running and to prevent injuries.

**ATHLETIC RAMP**

Incline ramps designed to simulate a hilly terrain. Multiple gradient steps for a plyometric workout. Used extensively by athletes for resistance and explosive training



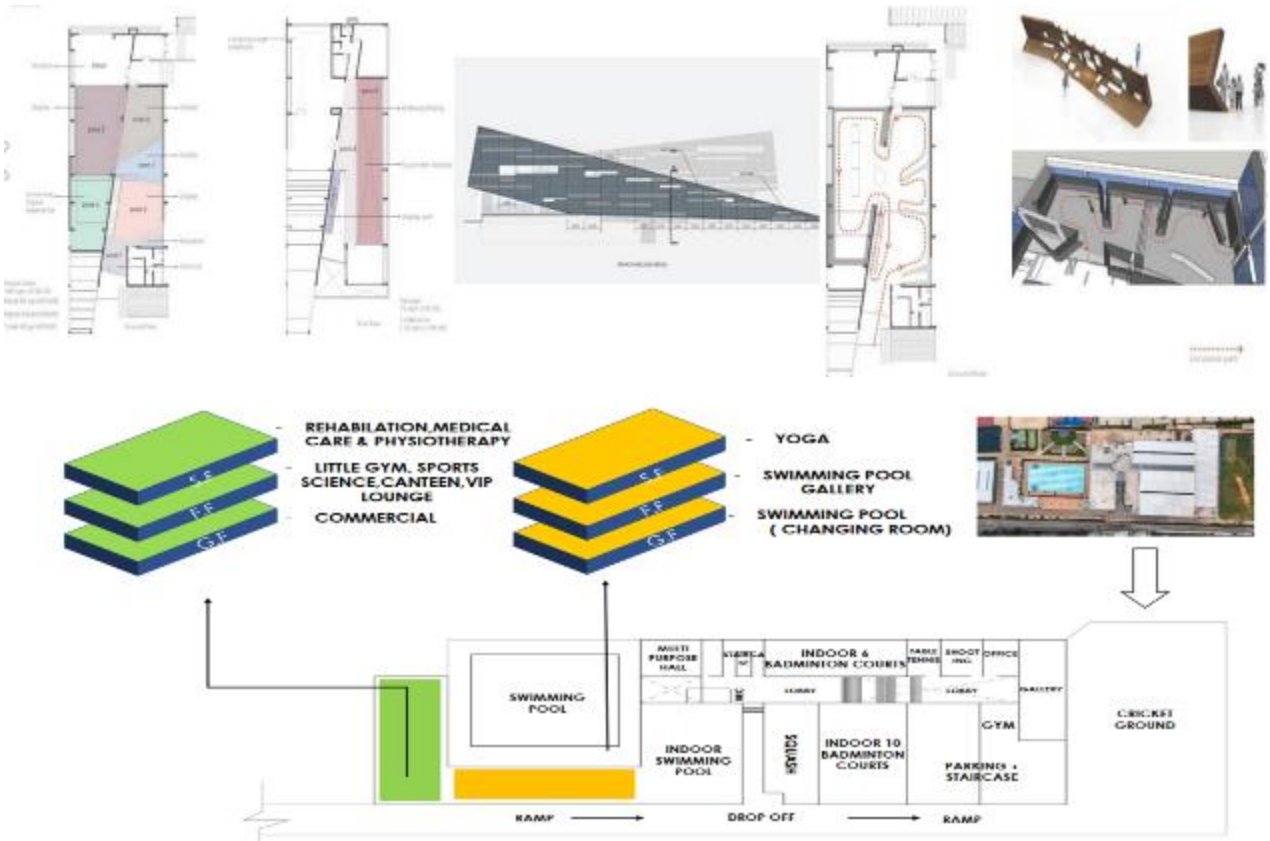
**HALL OF FAME**

The concept of 'infinity' fit apt for this facility which resulted in the unique form of the hall of fame. The two strong diagonal volumes sprouting upwards, creating a perfect abstract loop both within and through the form. The idea to commemorate all the legends under various sports verticals was the main notion of this building. Form followed the function in this design, taking into cognizance both the indoor and outdoor setting.



A dynamic approach to depict action on the façade, like the idea of running, sprinting or jumping, always in motion and movement was attained through the external skin. The material used were Argmax boards from Wienerberger. The entire external skin was a dry clad system. A framework was created to ensure the boards were mounted on them. Size of 2400x300mm with two color pigments placed at a specified location for creating movement trails. The material was flexible, easily craftable and durable, making it ideal for this context.

**Why Argemax?:** One of the main reasons Wienerberger's Argemax composite facade panels were selected because of the flexibility to execute the Architects' innovative design vision. This façade has inimitable design of using 2400 x 300mm panels fixed horizontally and 2 shades of grey color panels were used to create a unique pattern in the façade. The light weight feature of the panels and the unique aesthetic appeal played a vital role too.



### 3.4.DUBAI SPORTS CITY



Location: Dubai, UAE

Architect: Godwin Austen Johnson

Site Area: 1135 Acres,20.5 Acres for sports

Dubai Sports City or DSC a multiveneue Sports complex in Dubai, United Arab Emirates, developed by partners Abdul Rahim Al Zarooni, Abdulrahman Bukhatir.

Facilities Provided:

Cricket Academy

Athletics

Sports Mall

Resort

Community Center

Volley ball

Mosque

Football Academy

Badminton

Residential area

Hotel

Multi purpose Hail

Table Tennis

Parks

Golf Club

Tennis

Retail Shops

School

Basket Ball

Swimming pool





### Sports Facilities:

- \*DSC will feature four state-of-the-art stadiums
- \*10,000 Seat multi-purpose indoor arena.
- \*30,000 capacity cricket stadium
- \*60,000 capacity multi-purpose outdoor complex
- \*10,000 spectator hockey stadium
- \*Cricket Stadium ( Ring of Fire):
- \*25,000 seater stadium which was completed in 2009 and regularly
- \*hosts international matches and concerts.



### Multipurpose Outdoor Stadium:

DSC Multi-Purpose Stadium is a multi-use stadium in Dubai, United Arab Emirates. It can be used for association football (soccer), cricket, Rugby league, rugby union, and athletics. It will have a capacity of 60,000 spectators. It is part of the new mixed-use Dubai Sports City

### Multipurpose Indoor Stadium:

DSC Indoor Arena is a multi-use indoor arena in Dubai, United Arab Emirates. It is mainly be used for basketball, tennis, ice hockey, and other indoor sports, as well as music concerts. It was opened in 2009 and has a capacity of 10,000 spectators.

## Academies in Dubai Sports City

ICC Academy is a cricket academy which helps players, coaches, umpires, curators and administrators to focus on progress, training and world achievement.

Rugby Academy is a Rugby academy. It focusses on the development of talent throughout all age groups and standards up to and including elite club and international level.

Butch Harmon School of Golf is golf academy. It is run by Butch Harmon who is widely regarded as the best golf coach in the world.



Spanish Soccer Schools is a football academy. It is run by Spanish soccer hero Michel Salgado.

Swimming Academy is swimming academy. It the first swimming facility in the UAE to have high performance coaching and training resources offered to the sport.



### 3.5.UNIVERSIAD SPORTS CENTER, CHINA



Location: CHINA

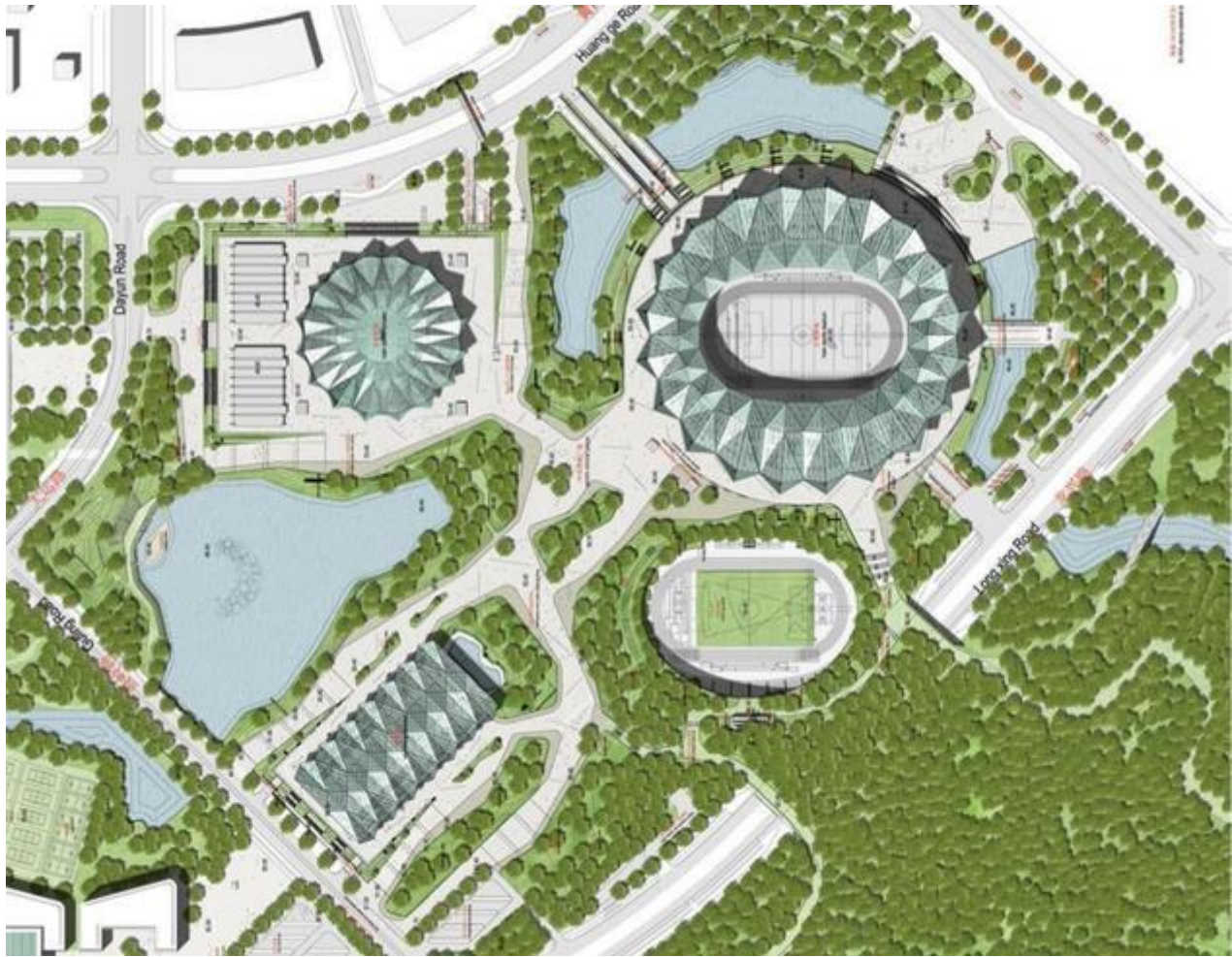
Architect: GMP ARCHITECTS

Site Area: 135 Acres

Client: Bureau of Public Works of Shenzhen Municipality

The Universiade sports center consists of a stadium, a multifunctional hall and a swimming pool. The stadium in the Bao'an district is designed as an athletics stadium. However, during the 2011 Universiade, it is being used for football matches.





- The main stadium is planned to be multifunctional, meeting the requirements of international sports occasions and events.
- Total capacity is 60,000, seated in three stands.
- The total diameter of the roof is 310 m lengthways and 290 m across.
- The indoor sports complex is designed as a circular multifunctional arena for indoor sports competitions as well as for ice-skating and other events.
- The overall capacity is approx. 18,000 spectators. The swimming complex forms the third module of the Shenzhen Universiade Sports Center. The overall capacity is approx. 3,000 spectators, the seats are arranged on two stands.

The roof structure projects up to 65 m, and is designed as a steel prismatic shell on a basis of triangular facets. The crystalline shape of the three stadia is additionally emphasized by the illumination of the translucent facades at night. An artificial lake connects the stadium with the circular multifunctional hall in the north and the rectangular swimming hall west thereof



Translucent fabric allowing light, but not detailed images, to pass through; semitransparent. TRANSLUCENT fabrics are very often lighter to the touch and fall into the silky and soft categories.



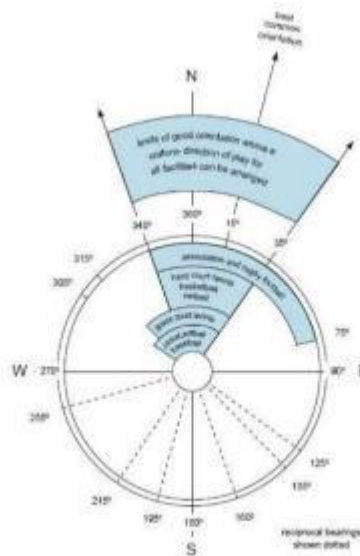
## CHAPTER 4

## STANDARDS:

### 4.1. OUTDOOR PITCHES

(Orientation)

The diagram below illustrates the optimum orientation for various sporting activities. Local conditions may override these recommendations.



North/south orientation is generally desirable for outdoor courts to avoid background glare at dawn

North/south orientation is generally desirable for outdoor courts to avoid background glare at dawn or dusk. Orientation should also take into consideration other structures and features on the site, neighbouring property, vehicle and pedestrian traffic, and prevailing winds .

However, with more sports being played under lights, this may be less of a concern. When installing all track and field facilities, careful consideration must be given to the position of the sun at critical times of day and the wind conditions.

To avoid the dazzling effect of the sun when it is low, the longitudinal axis of arenas should lie along the north-south axis, although it is possible to deviate to the north-north-east and north-north-west

This may result in the main straight being on the eastern side of the arena and will require consideration of the effects of a western setting sun on the spectators in the main stand. However, the most important aspect of design is to ensure that the best possible competition conditions are provided for the athletes.

In outdoor pools, best practice suggests that springboards and platforms are recommended to face north in the northern hemisphere and south in the southern hemisphere. In shooting sports and archery, outdoor ranges should be constructed so that the sun is behind the shooter as much as possible.

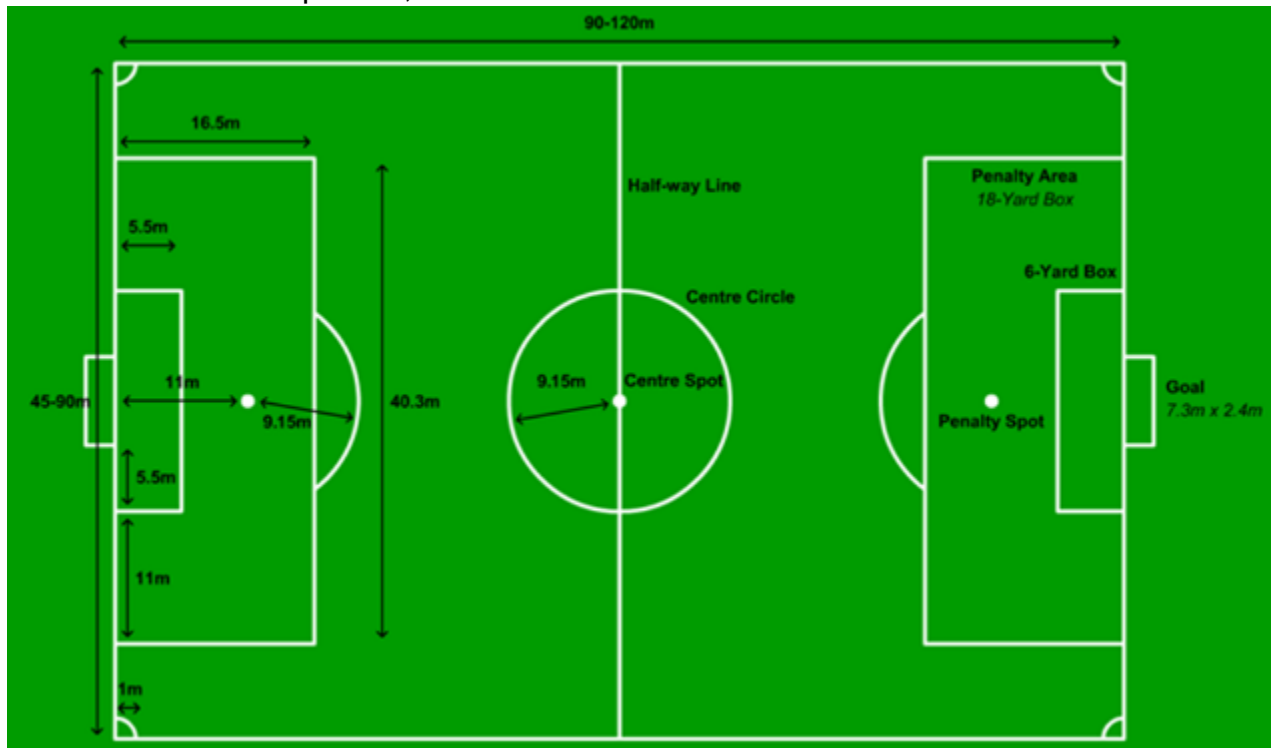
## 4.2.A-SIDE FOOTBALL PITCH MEASUREMENTS

(FEDERATION INTERNATIONALE DE FOOTBALL ASSOCIATION FIFA)

The international football association FIFA has official dimensions for 11 a- side pitches (full size) and 5 a-side pitches.

For full size 11 a-side pitches, FIFA defines minimum dimensions of 45m x 90m and max dimensions of 90m x 120m.

For full size 5 a-side pitches, FIFA defines dimensions of 36.5m x 27.5m.



### 6,7,8 & 9 A-SIDE FOOTBALL PITCH MEASUREMENTS:

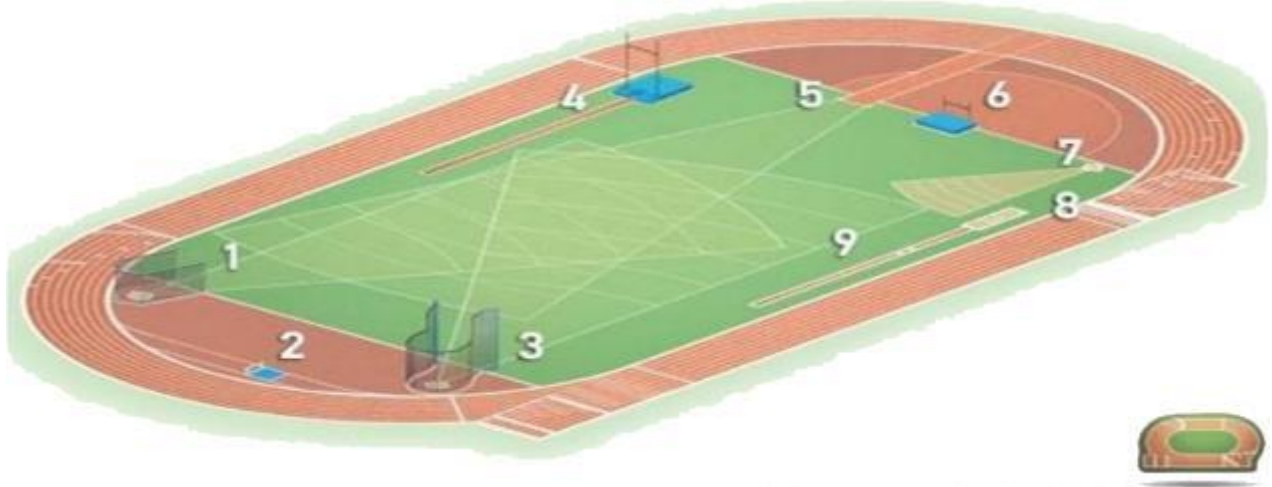
Regarding other football pitch sizes, FIFA has not published any other official dimensions. Some of the recommended measurements are.

Type of football pitch	Minimum dimensions	Maximum dimensions
<b>6 a-side</b>	20m x 40m	25m x 45m
<b>7 a-side</b>	25m x 45m	30m x 50m
<b>8 a-side</b>	30m x 50m	40m x 60m
<b>9 a-side</b>	40m x 60m	50m x 80m

Multiple football pitches can also be used for training purposes.

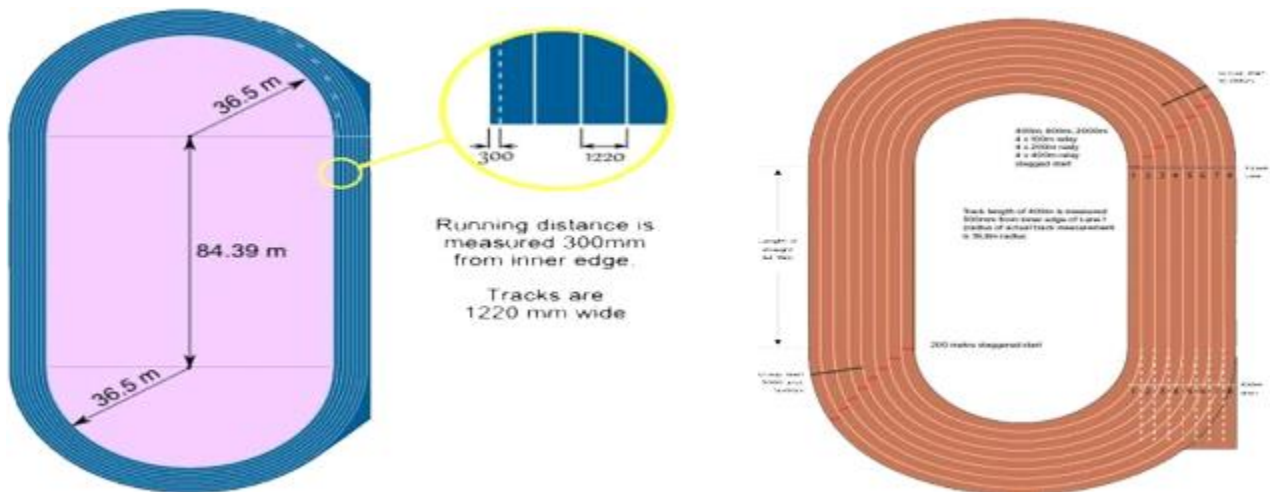
### 4.3.ATHLETICS

(INTERNATIONAL ASSOCIATION OF ATHLETICS FEDERATIONS (IAAF))



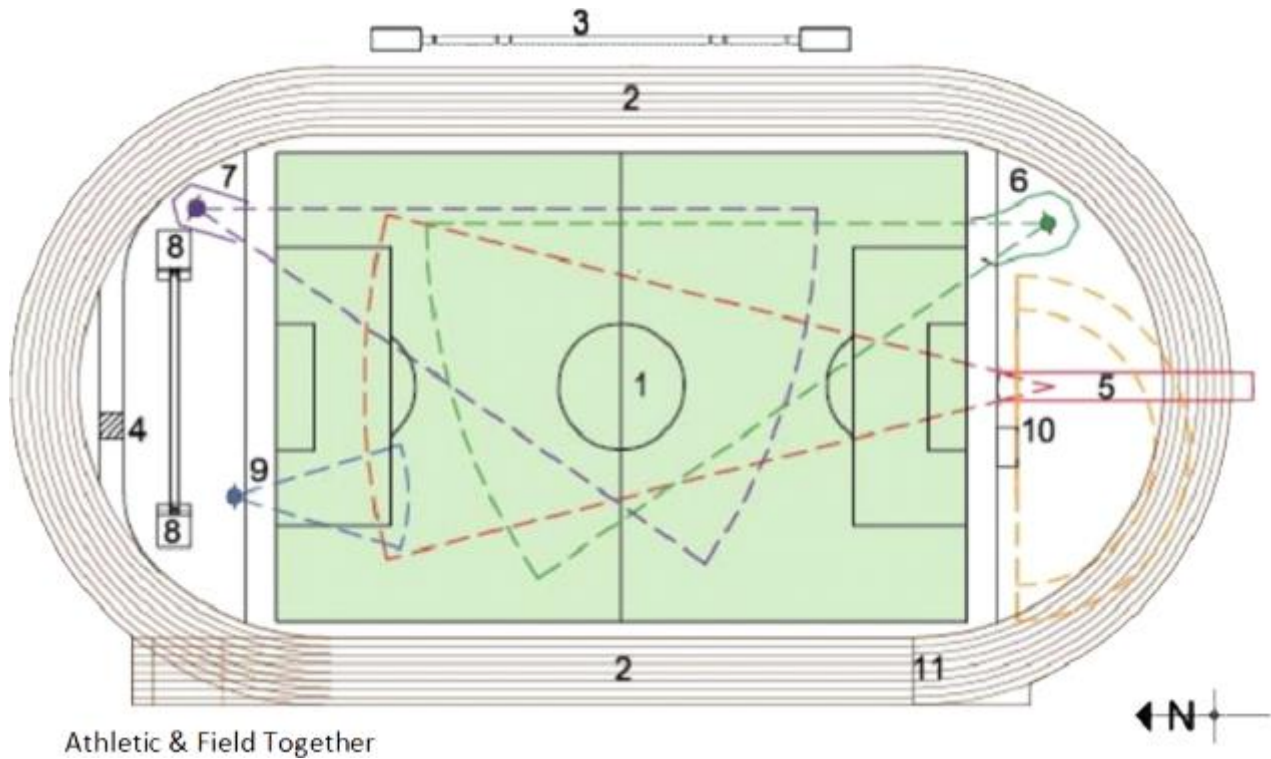
Athletic track & field events

1. Discus
2. Steeplechase Water Jump
3. Hammer Throw
4. Pole vault
5. Javelin
6. High Jump
7. Shotput
8. Track Finish Line
9. Long jump/Triple jump



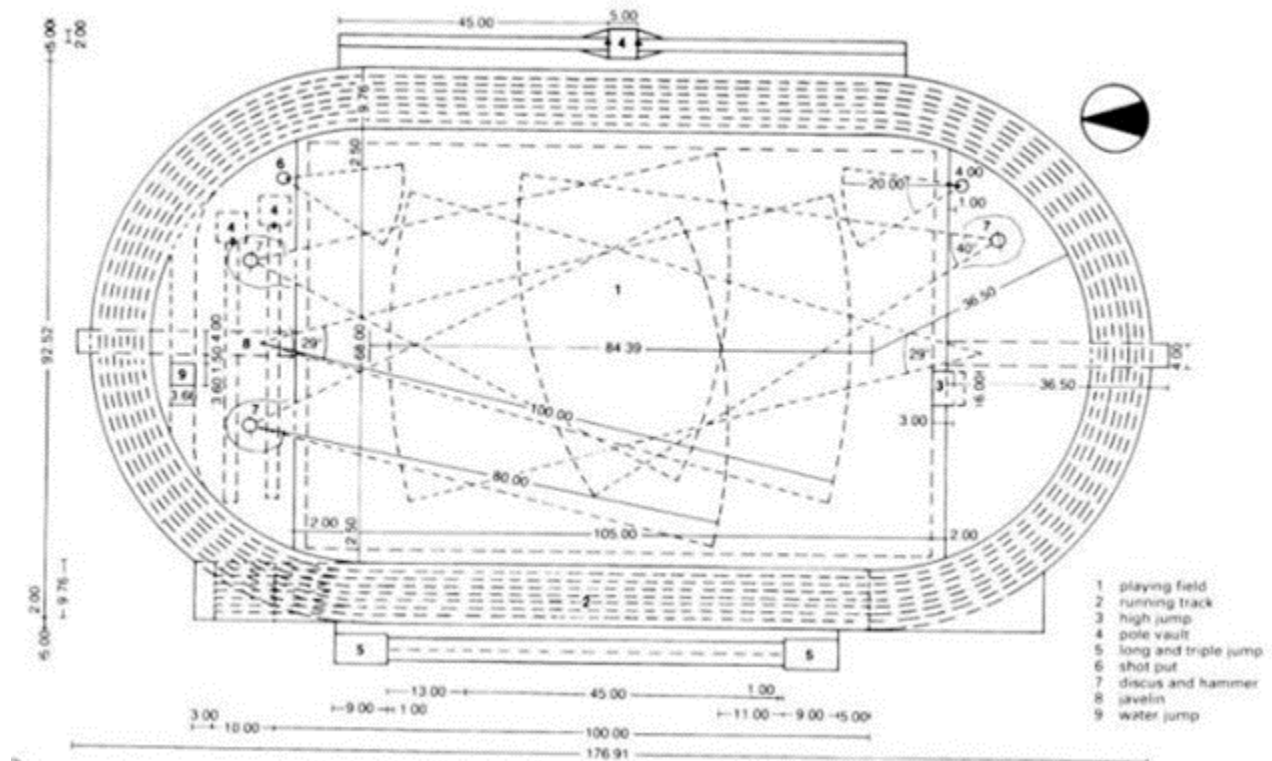
Athletic field dimension

#### 4.4. MULTI PURPOSE GROUND



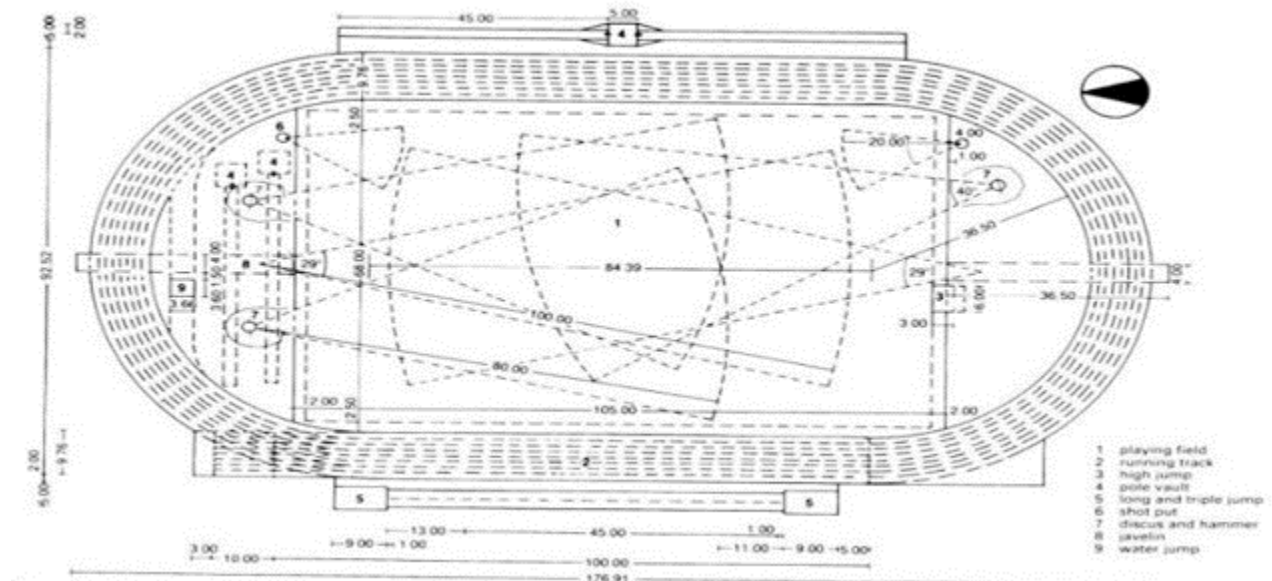
1. Football Pitch
2. Standard Track
3. Long & Triple Jump Facility
4. Water Jump
5. Javelin Throw Facility
6. Discus & Hammer Throw Facility
7. Discus Throw facility
8. Pole Vault facility
9. Shotput Facility
10. High Jump facility
11. Finish line

## ARENA TYPE A



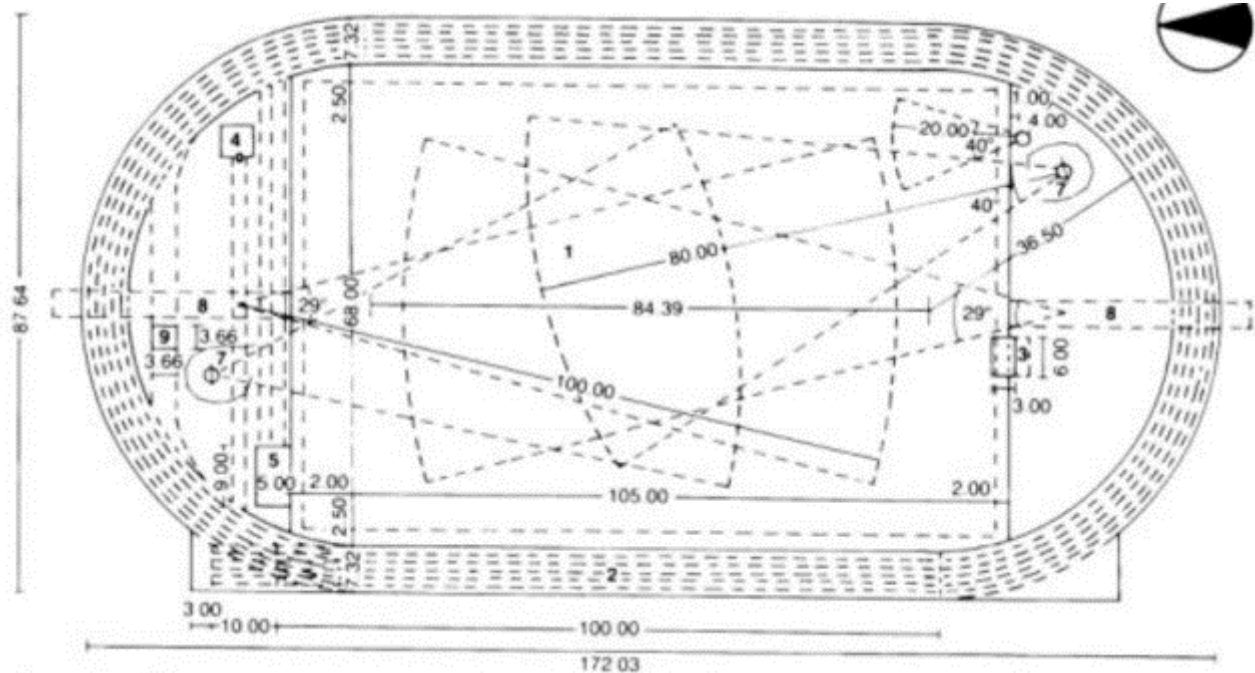
These consist of an eight-lane running track around a central sports field. The field has areas For shot-putting, discuss, hammer and javelin throwing. In the northern sector there is a water Jump for the steeplechase; the high jump takes place in the southern sector. The pole- vaulting Area is outside the running track, as are the pits for long and triple jumping. The former runs parallel to the easterly straight of the track while the latter are beside the straight for the west.

## ARENA TYPE B



These consists of a six-lane running track around the interior field area. The layout is similar to type arenas expect that the pole vault, long jump and triple jump take place within the track, in the northern sector. However, these facilities can also be arranged outside of the running track.

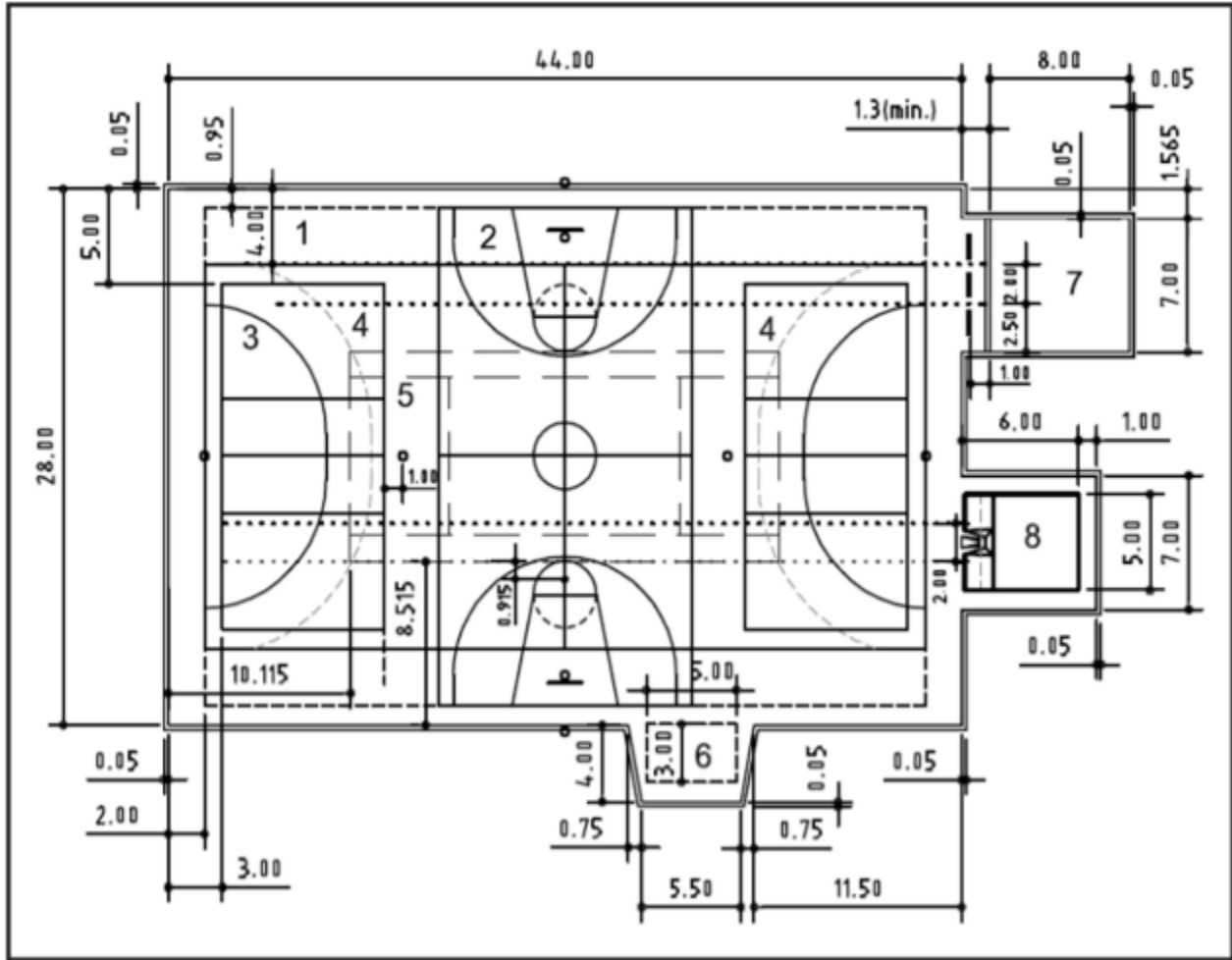
#### ARENA TYPE C



These consists of a four-lane running track around the sports field. Areas for the discus, hammer, and javelin are in the southern sector within the track, as in the high jump. The run-ups for pole-vaulting, long jump and triple jump are in the northerly segment, which also has an area for the shot put.

#### Multi-purpose facility for ball games and athletics

- 1 Rectangular field, 26.10m x 40m
- 2 Basketball court, 14m x 26m
- 3 Handball court, 20m x 40m
- 4 Volleyball court, 9m x 18m
- 5 Tennis court, 10.97m x 23.77m
- 6 High Jump
- 7 Long Jump
- 8 Pole Vault



Multi-purpose facility for ball games and athletics (Dimensions in m)

#### 4.5.TENNIS:

(INTERNATIONAL TENNIS FEDERATION (ITF))

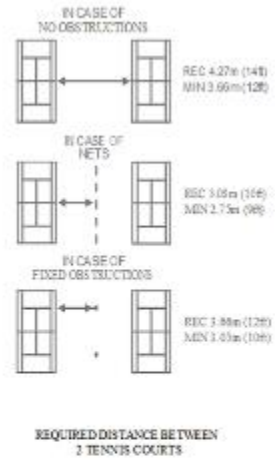
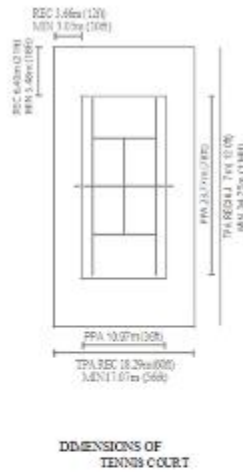
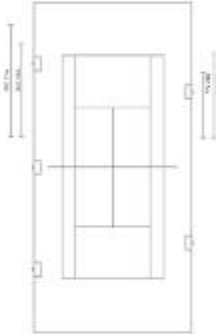
The court is 78 feet (23.77 m) long. Its width is 27 feet (8.23 m) for singles matches and 36 feet (10.97m) for double matches. The service line is 21 feet (6.40 m) from the net.

Outdoor courts should, as near as possible, be orientated in the north-south direction. It is recommended that no more than two courts should be immediately next to one another and if they are behind each other a sight screen must be used to separate them. Artificial lighting should be at least 10 m high and along the sides of the court.

The layout should be designed so as to allow adaptation to meet future needs and planned so that any future building activity can take place without interrupting the playing activities.

**STANDARDS OF A TENNIS COURT**

Standards of Tennis court provided by IITF (International Tennis Federation)  
Orientation of tennis court - NORTH-SOUTH



FloodLight options and Distance between two posts

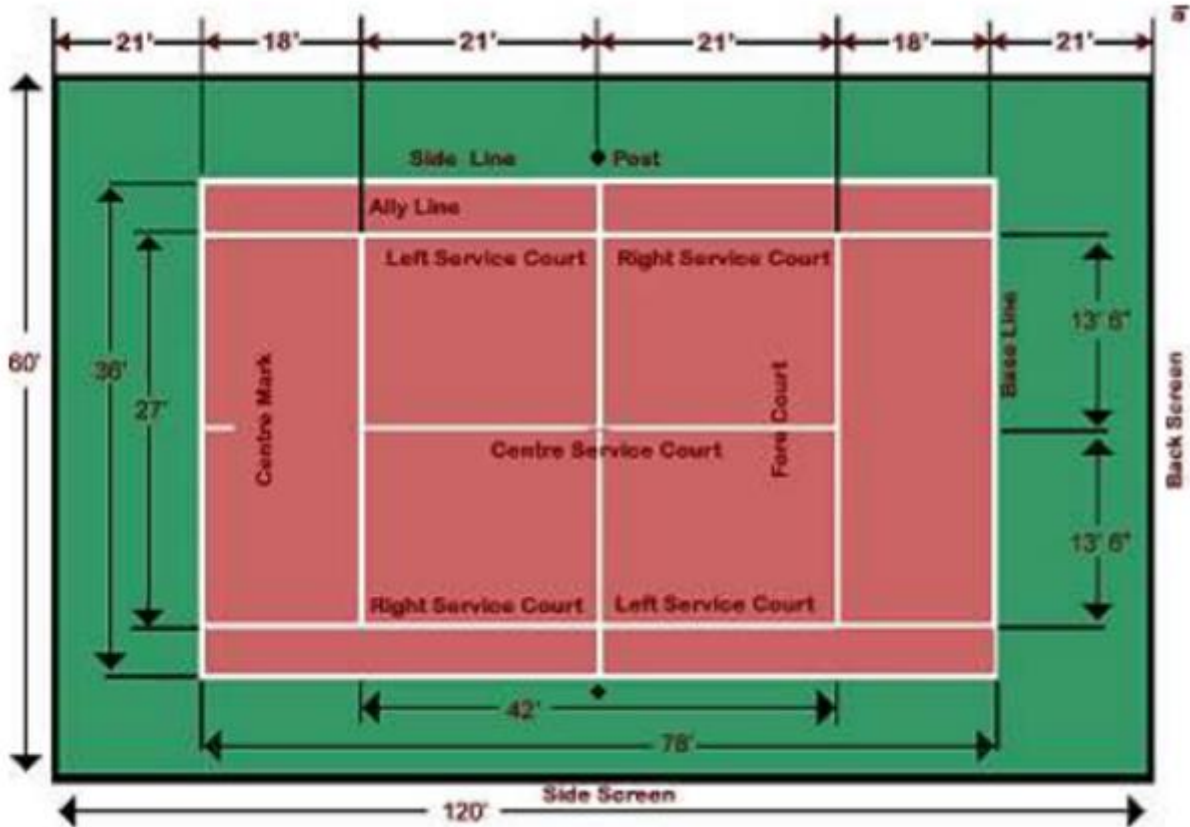
**OPTIONAL**

	TPA (Low)	TPA (High)
Recreational	250	150
Club competition	350	250
International / National	1000	800

Play Level  
Recreational  
Tournament  
Davis Cup

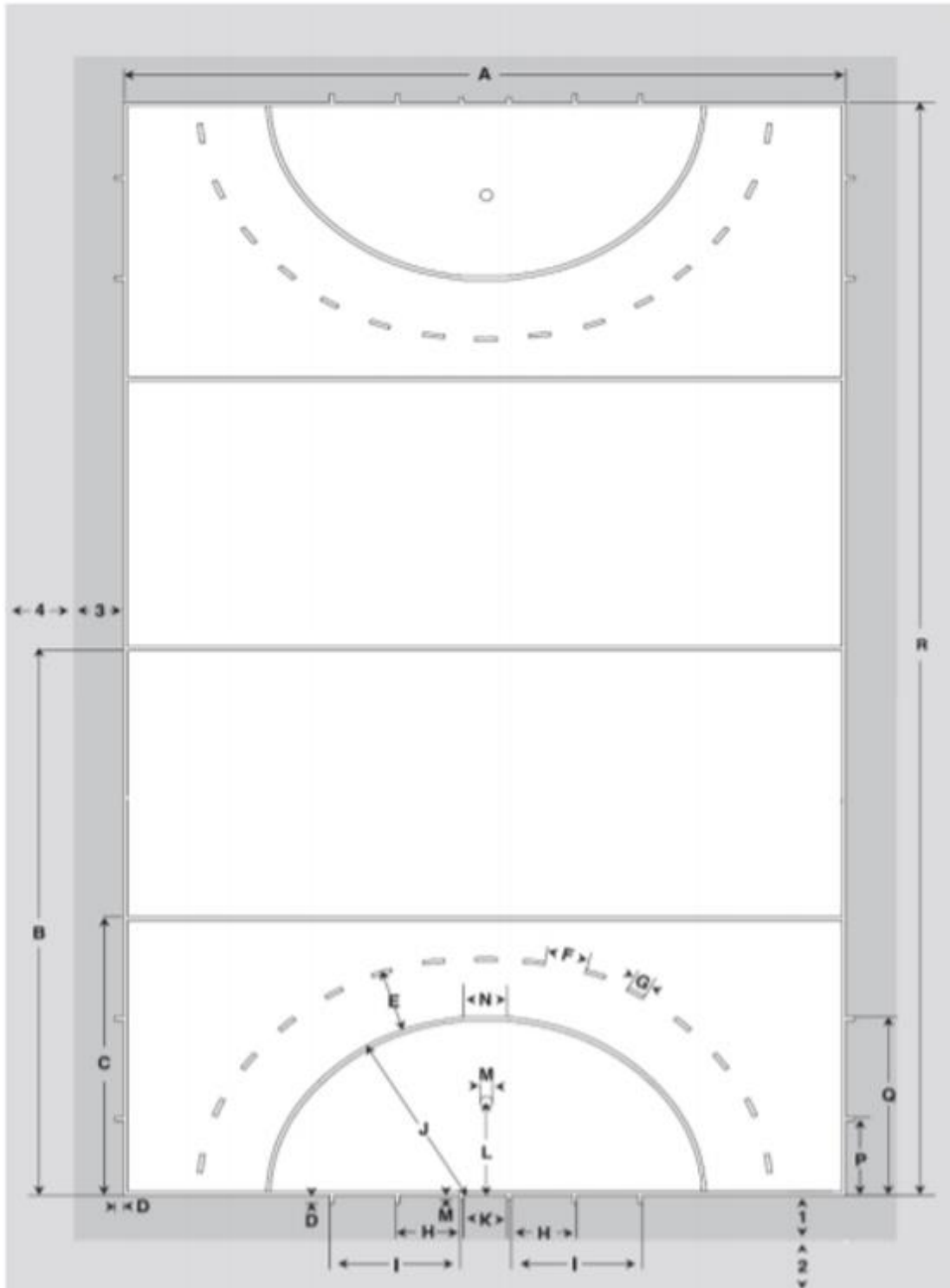
Minimum height measured from the court surface at the...

Net (m)	Baseline (m)	Backstop (m)
10.67	6.10	4.88
12.19 minimum (9 minimum (12 for World Group))	12.19 minimum (9 minimum (12 for World Group))	12.19 minimum (9 minimum (12 for World Group))



## 4.6.HOCKEY

(FEDERATION OF INTERNATIONAL HOCKEY FIH)

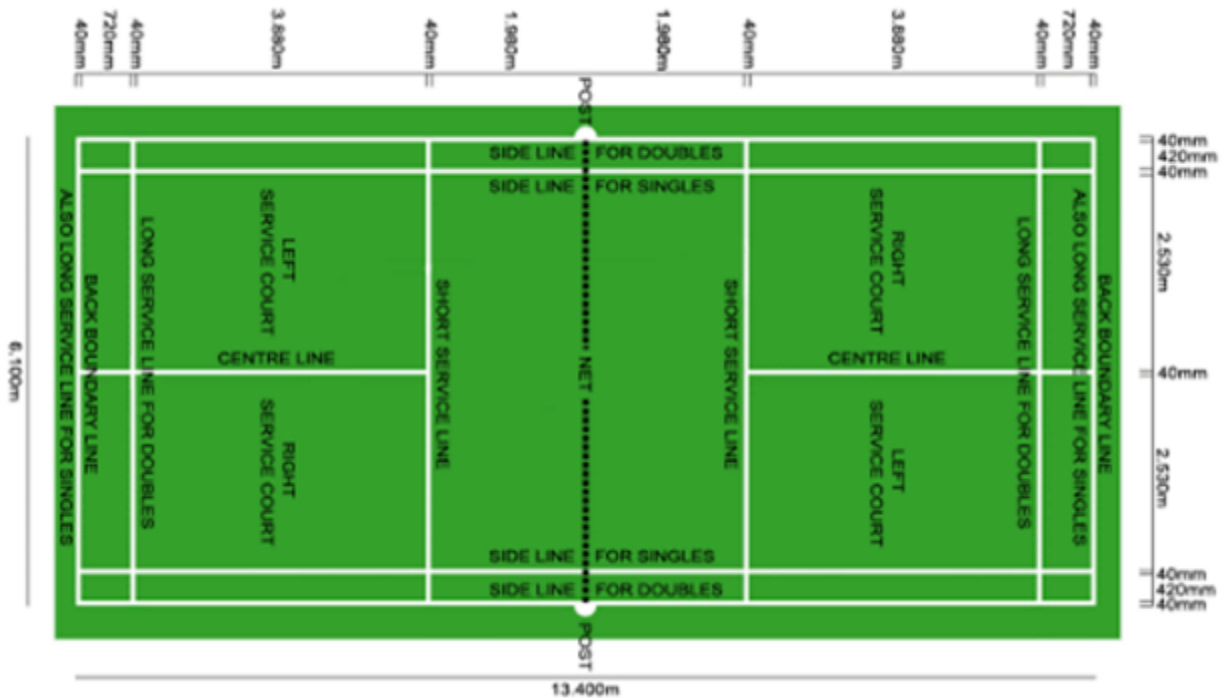
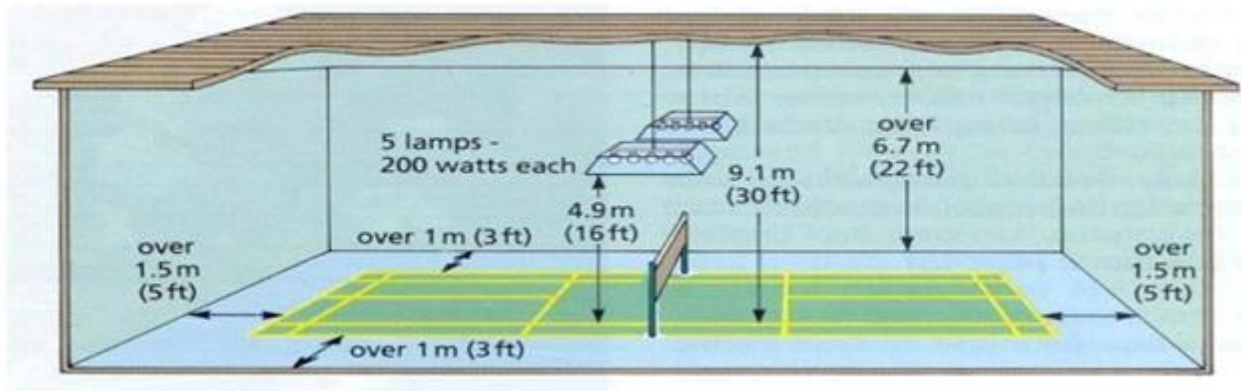


Code	Metres	Code	Metres
A	55.00	M	0.15
B	45.70	N	3.66
C	22.90	P	5.00
D	0.30	Q	14.63
E	5.00	R	91.40
F	3.00	1	minimum 2.00
G	0.30	2	1.00
H*	4.975*	(1 + 2)	minimum 3.00
I*	9.975*	3	minimum 1.00
J	14.63	4	1.00
K	3.66	(3 + 4)	minimum 2.00
L	6.475		

#### 4.7.BADMINTON:

(BADMINTON WORLD FEDERATION (BWF))

The overall dimensions of a badminton court is 20 feet x 44 feet. The lines along these measurements mark the side-lines for double play and long service lines for single play. The net line mark the middle of the court where the net is placed, creating 22 feet x 20 feet area on each side of the net.



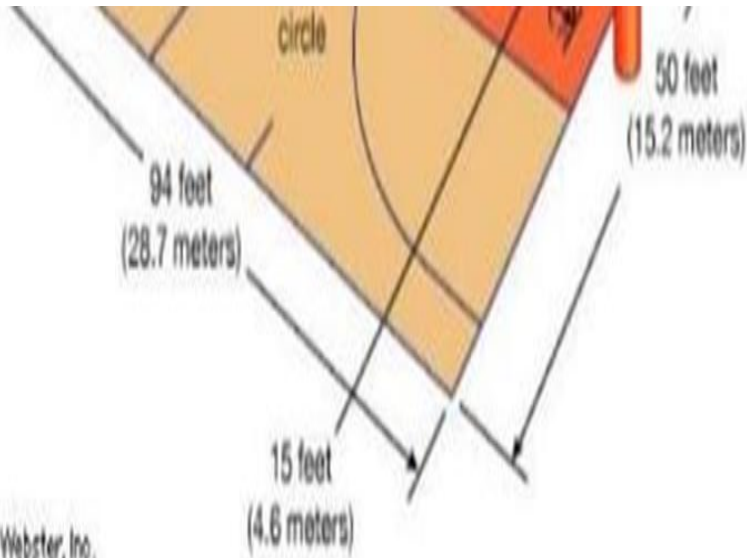
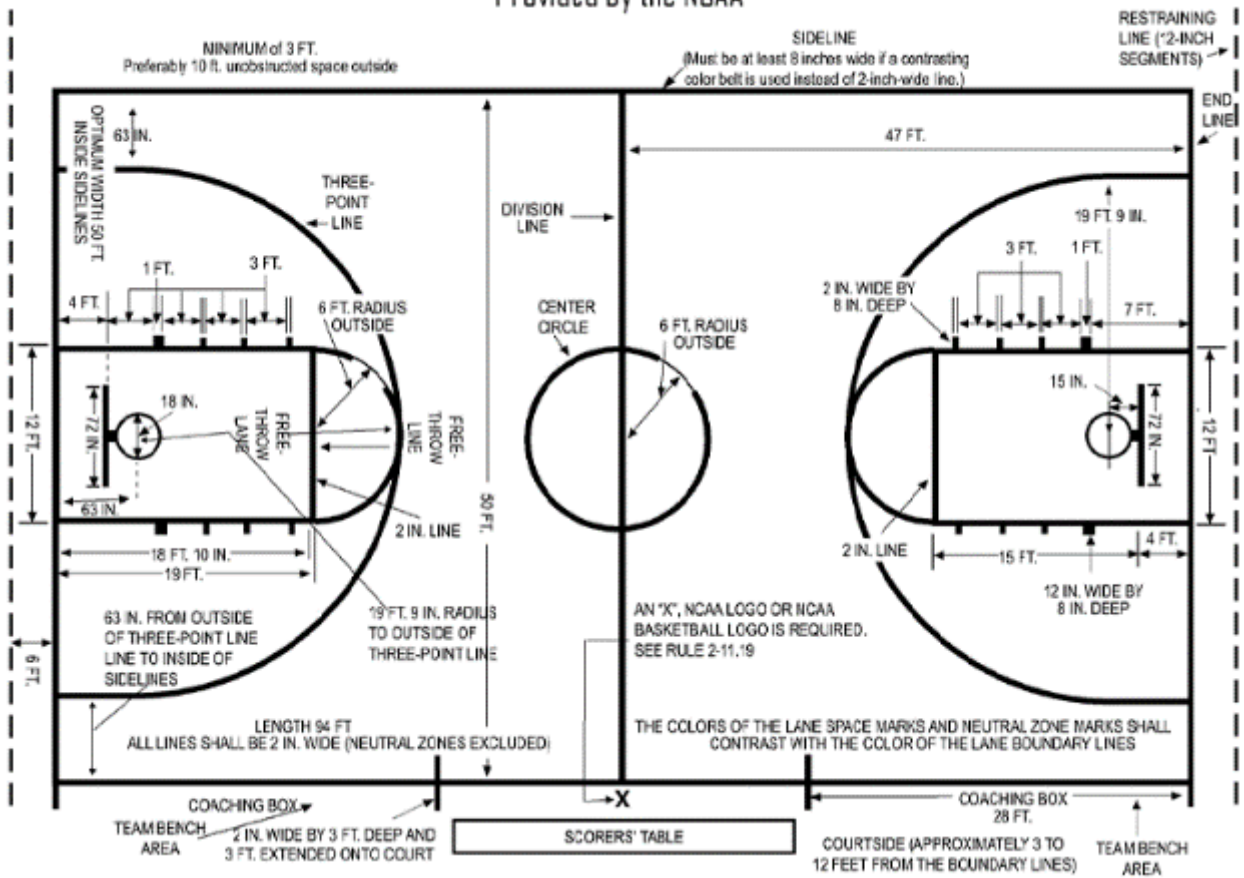
#### 4.8.BASKETBALL:

(INTERNATIONAL BASKETBALL FEDERATION(FIBA))

Basketball courts come in different sizes and colours. In the NBA, the court is (29 x 15m). Under International Basketball Federation (FIBA) rules, the court is minutely smaller Measuring exactly 28 x 15 m

A high school court is slightly smaller at (26 x 15 m). In amateur basketball, court sizes Varywidely. The baskets are always (3 m) above the floor (except possibly in youth Competition).

Provided by the NCAA

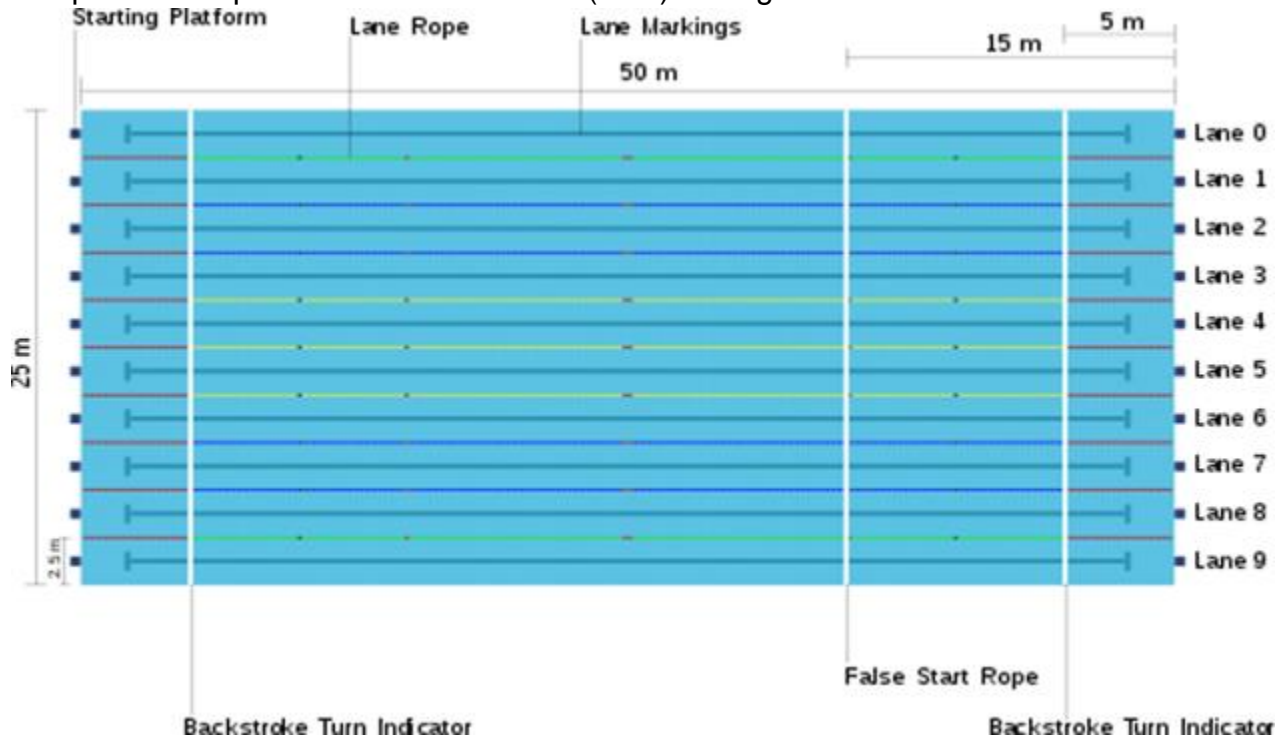


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#### 4.9.SWIMMING POOL:

(FEDERATION INTERNATIONALE DE NATATION AMATEUR (FINA))

An Olympic-size swimming pool is the type of swimming pool used in the Olympic games, where the race course is 50 meters (160 ft) in length. This is typically referred to as “long course”, distinguishing it from “short course” which applies to competitions in pools that are 25 meters (82 ft) in length

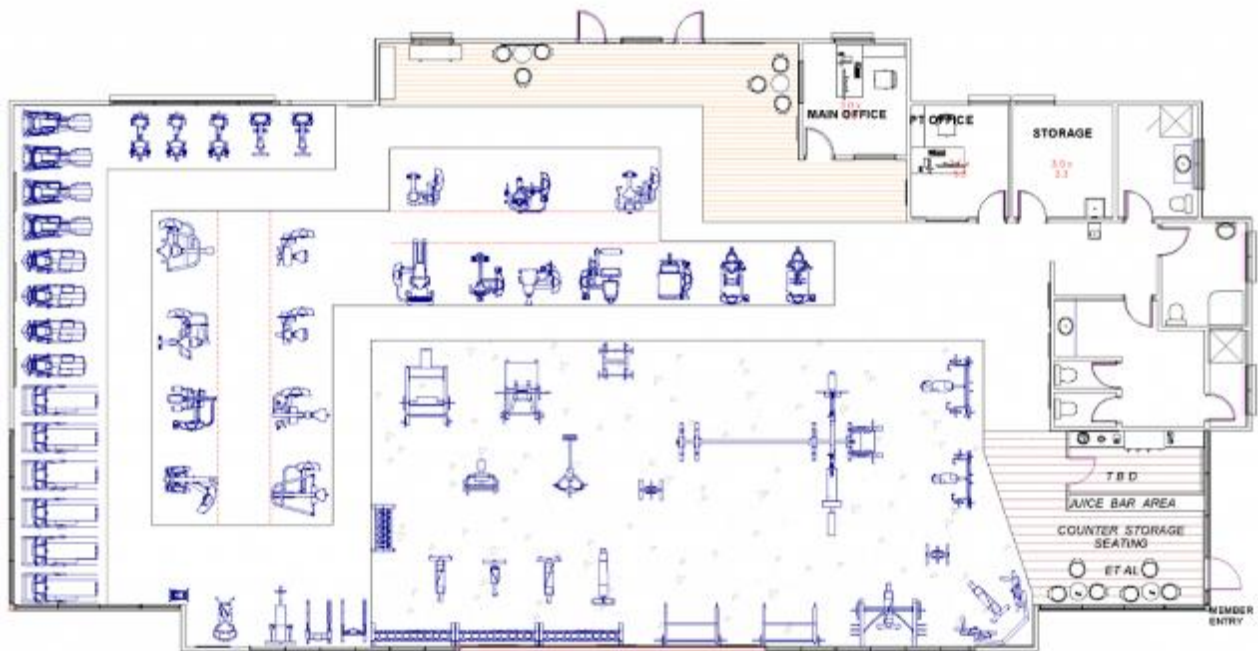






#### 4.12.GYM:

For 40 – 45 users a room size of at least 200 sq.m is needed. Clear room height for all rooms should be 3m. For an optimum double-row arrangement of machines, the room should be at least 6m wide. To allow clear supervision of all training, the room length needs to be 15m or less. The minimum room size of 40 sq.m is suitable for 12 users.



Type of sport	Net usable area				Additional obstruction-free zone		Obstruction-free gross usable area		Clear height
	Permissible dimensions		Standard dimensions		Long sides m	Short sides m	Length m	Width m	
	Length m	Width m	Length m	Width m					
badminton	13.4	6.1	13.4	6.1	1.5	2.0	17.4	9.1	9
basketball	24-28	13-15	28	15	1	1	30	17	7
Boxing	4.9-6.1	4.9-6.1	6.1	6.1	0.5	0.5	7.1	7.1	4
cricket	29.12-33.12	3.66-4.0	33.12	4.0	1	1	35	6	4.0-4.5
football	30-50	15-25	40	20	0.5	2	44	21	5.5
handball	40	20	40	20	1	2	44	22	7
hockey	36-44	18-22	40	20	0.5	2	44	21	5.5
judo	9-10	9-10	10	10	2	2	14	14	4
netball	28	15	28	15	1	1	30	17	5.5
gymnastics	52	27	52	27	-	-	52	27	8
Bicycle poo/stunt bicycle	12-14	9-11	14	11	1	2	18	13	4
wrestling	9-12	9-12	12	12	2	2	214	14	4
Roller skating/ hockey	40	20	40	20	-	-	40	20	4
tennis	23.77	10.97	23.77	10.97	3.65	6.4	36.57	18.27	7
Table tennis	2.74	1.525	2.74	1.525	5.63	2.74	14	7	4
volleyball	10	9	18	9	5	8	34	19	12.5

Type of hall	Dimensions(m)	Usable sports area(m2)	Indoor games	Number of training courts/ pitches	Number of competition courts/ pitches
<b>Games hall</b>					
Single hall	22x44x7	968	Badminton Basketball Football Handball Hockey volleyball	6     3	5 1 1 1 1 1
Triple hall	44x66x8 Divide into 3 section(22x44)	2,904	Badminton Basketball Football 20x40 30x60 Handball hockey Volleyball	24     9	15 4 3 1 3 3 3
Quadruple hall	44x88x9 Divide into 4 section(22x44)	3,872	Badminton Basketball Football 20x40 40x80 Handball Hockey Volleyball	32 5    12	25 4 4 1 4 4 4

Type of hall	Dimensions(m)	Usable sports area(m2)	Indoor games	Number of training courts/ pitches	Number of competition courts/ pitches
Multifunctional halls					
Single hall	15x27x55	405	Badminton Basketball volleyball	4 1 1	
Triple hall	27x45x7 Divide into 3 section(15x27)	1,215	Badminton Basketball Football handball Volleyball	12 3  3	5 1 1 1 1
Quadruple hall	27x60x7 Divide into 4 section(15x27)	1,620	Badminton Basketball Football Handball Hockey Volleyball	16 4  4	7 2 1 1 1 1
Alternate double hall	22x44x7 Divide into 2 section(22x28+22x16 or 22x16+22x18)	968	Badminton Basketball Football Handball Hockey Volleyball	6   3	5 1 1 1 1 1

#### 4.13. Development Rules and Regulations:

##### 1. Front Open Spaces

The following regulations shall apply to buildings of all land uses except Industrial

Land Use.

- a. The front, side and rear open spaces shall not be less than 3 M. in width where the height of building does not exceed 10 M
- b. For height of building above 10 M and upto 24 M, in addition to the minimum width of the open spaces required for the height of 10 M, there should be an increase in the width of the minimum open spaces at the rate of 1 M per every 3 M or fraction thereof, for height above 10 M.
- c. For heights of buildings above 24 M and upto 30 M the minimum width of the openspace shall be 10 M. 118
- d. For heights of buildings above 30 M in addition to the minimum width of the open space required for heights upto 30 M. There shall be an increase in the width of the open space at the rate of 1 M per every 5 M or fraction thereof. For heights above 30M., the width of the open space need not exceed 16 M.

## 2. Parking

> Car 2.5 mx 5.0 m

> Scooter 2.5 mx 1.2 m

> Bicycle 2.0 mx 0.7 m

> Truck 3.75 mx 10.0 m.

Parking Rule: by CIDCO-1 CAR FOR 150 SEATS

By NBC-1 car for 260 seats

Stadia & clubs included under assembly occupancy)

One parking space for every 75 seats plus additional parking as in the Regulations for occupancies like those of restaurants, etc with such stadia or clubs

### Storage

One parking space for every 100 sq.mt. thereof to a minimum of two spaces

### Restaurant

One parking space for every 12.5 sq.mt. of built up area of restaurant including hall, dining room, pantry

### Additional Parking Spaces

In addition to the above 10% of total parking spaces shall be provided for visitors parking and 10% for two wheelers parking. Further in case of plots exceeding 1000 sq m. in area for all land uses except industrial and storage land use, suitable lay-by (as shown in appendix No II (A) (B) & III (A), (B) & (C) shall be carved out for visitors parking in the front area within the plot by means of compound wall In addition to the above, loading and unloading spaces shall be provided for mercantile, industrial and storage land uses as one space for every 100 sq mt of floor area or part thereof upto 500 sq mt and one for every 500 sqmt or part thereof thereafter. The loading space shall be 3.75 mx 10.0 m

## 4. LIFTS

Wherever lift is required as per bye-laws, provision of at least one lift shall be made for the wheel chair user with the following cage dimensions. Clear internal depth: 1: 100 mm Clear internal width: 2000 mm. Entrance door width 900 mm.

## 5. TOILETS

One special W.C in a set of toilet shall be provided for the use of handicapped with essential provision of wash basin near the entrance for the handicapped.

a) The minimum size shall be 1500 x 1750 mm 126

- b) Minimum clear opening of the door shall be 900 mm and the door shall swing out. ci
- Suitable arrangement of vertical/horizontal handrails with 50-mm. clearances from wall shall be made in the toilet. d) The W.C. seat shall be 500 mm from the floor.

6. Recreational Open Space -

The proportion of recreational open spaces to the net residential area in the layout shall be 10 percent.

PROVIDED that the proportion of such open spaces together with areas under school and playgrounds, where provided, shall be 8.5 per cent of the total gross area of the project. However, the percentage shall not be less than 9.5 per cent exclusive of the areas of roads (11 mtr and above) and other facilities such as schools, hospitals, markets, etc.

**CHAPTER 5 SITE**

5.1. Site location :



The Site Is Located In Madurai. This site is the main sport venue in madurai was constructed in 1970 this stadium is out dated and not properly maintained so i took this site for reconstruction mgr stadium with new facilities RACE COURSE ROAD,

SITE AREA – 42.78 ACRES

## SITE ANALYSIS





Site is located at Zone 2 of madurai corporation  
 This site is urban settlement area surrounded  
 with hotels, govermental buildings, and  
 residential area . This site is easily accessible .  
 Total population of madurai is 25,782,01.







Location : Race Course  
 road .  
 Maduri-625020  
 Area  
 FSI  
 : 42.78 acres  
 : 1.5






-  M.G.R bus stand 2.5 km
-  Madurai railway station 5.3 km
-  Madurai airport 18 km

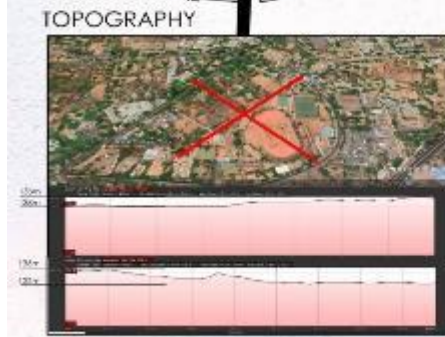
-  Government buildings and commercial buildings
-  Residents



-  Alagar kovil main road
-  Madur main road
-  Go-hale road
-  Race course road
-  Namam road

### NEAR BUS STOPS

-  Dotted court stop - 500 M
-  Lotus tank stop - 600 M
-  Panayan hotel stop - 900 M



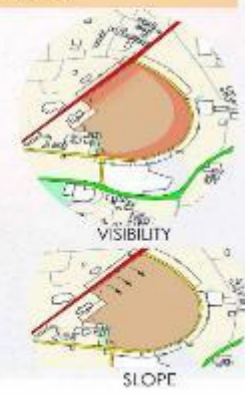
### MORPHOLOGY



### SITE ANALYSIS

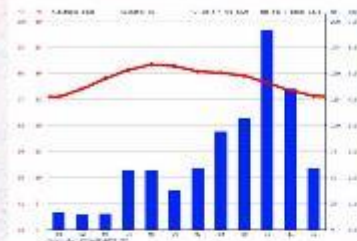


SOIL TYPE : Red soil  
 WIND DIRECTION : Southeast to Northwest  
 CLIMATE : Subtropical  
 ANNUAL RAINFALL: 806mm - 964mm

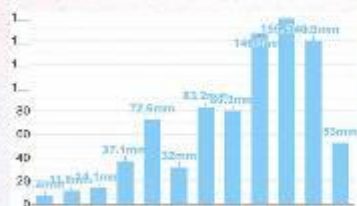


## SITE ANALYSIS

### CLIMATE



### RAINFALL



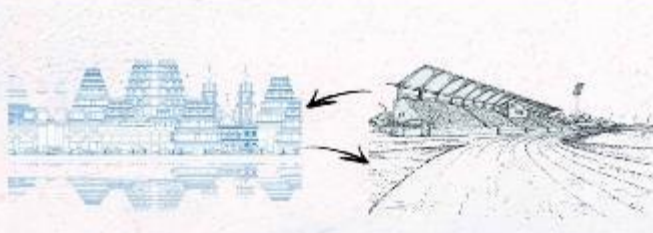
### DAYLIGHT



Madurai is one of the ancient cities in India. There are numerous Historical Monuments in Madurai and some of them are in their ruins. Most of the Historical Monuments are still the major attractions for the tourists in India and is visited by many.



MADURAI CITY OF MONUMENTS



## CONCEPT BRUTALISM

An undeniably honest approach to architecture that demanded form follow function and avoided unnecessary elements. The Brutalist approach is all about showing its tendency to transfer a built form to an monuments.



**EXPRESSION OF STRUCTURE**  
Creating a memorable and powerful image

**ROUGH SURFACES**  
Use of varied or contrasting textures and materials

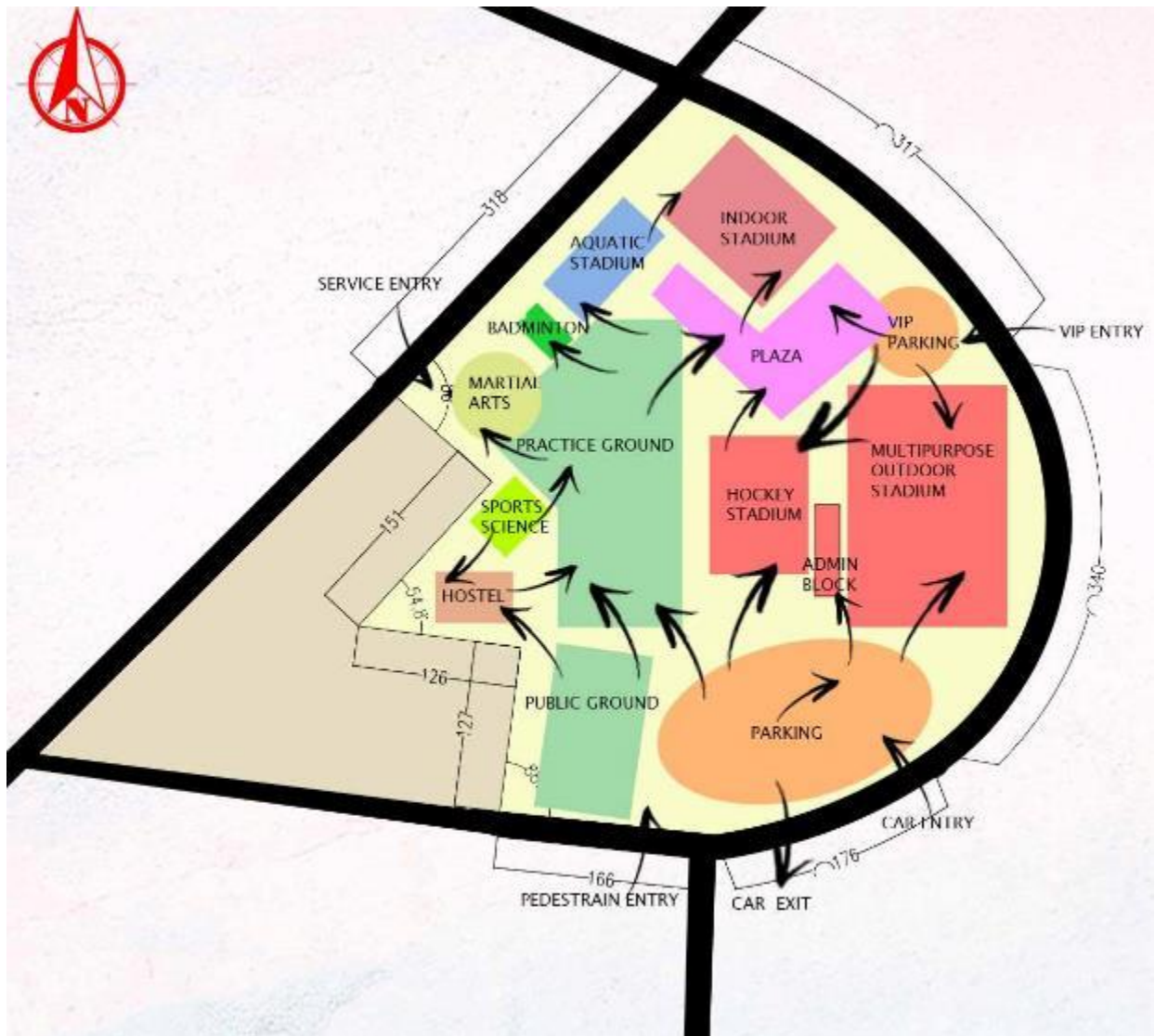


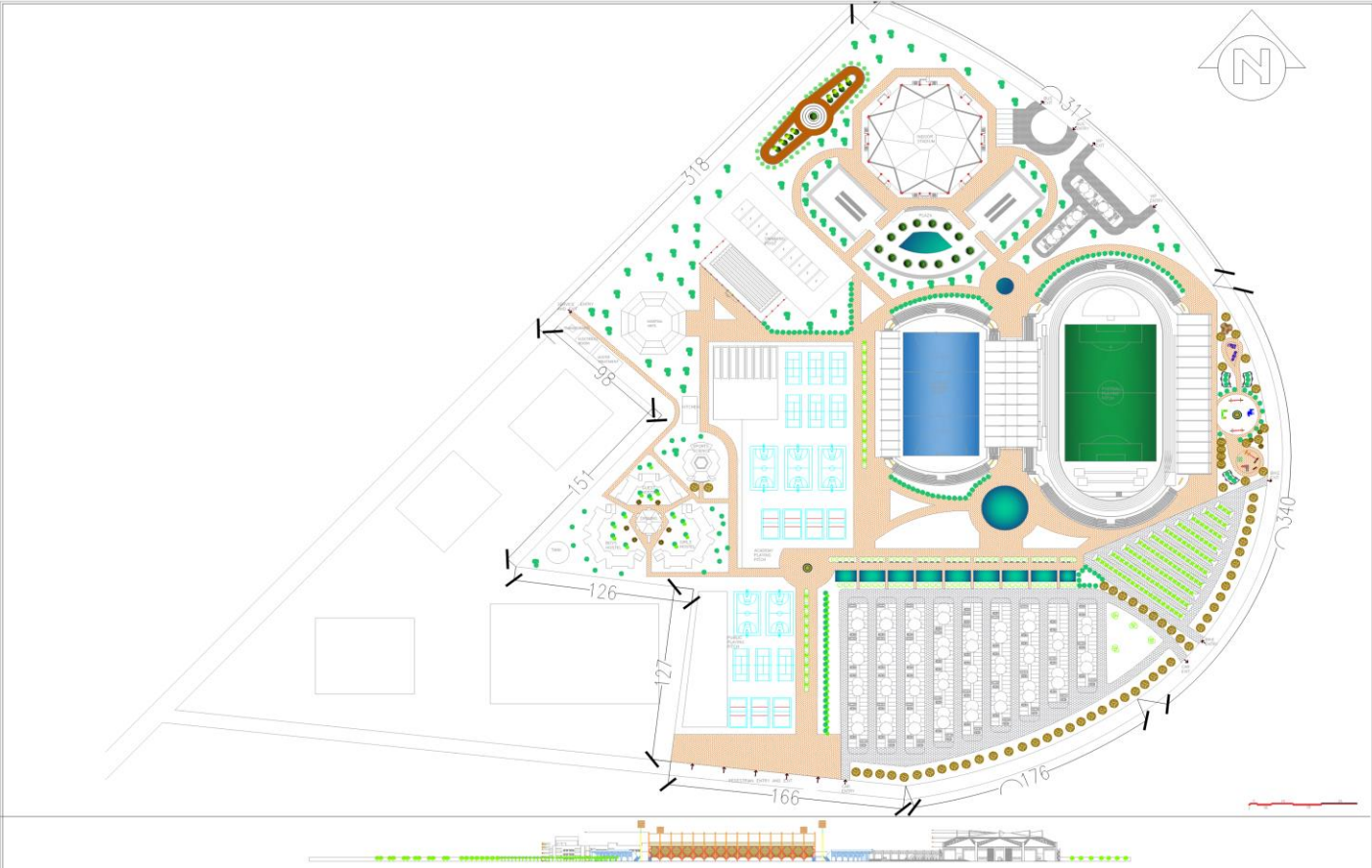
**MASSIVE FORMS**  
Creating a sense of mass, weight, and scale.

**UNUSUAL SHAPES**  
Parts of the building can be differentiated for dramatic effect



ZOONING:





<p><b>PROJECT:</b> SPORTS ACADEMY</p>	<p><b>DRAWING TITLE:</b> MASTER PLAN AND SITE ELEVATION</p>	<p><b>NAME :</b> J.SAMUEL STEPHEN <b>ROLL NO :</b> 3621065</p>
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