

BAB 3. ARCHITECTURAL ANALYSIS AND PROGRAMMING

3.1 Analysis and Programming of The Building Function

3.1.1 Characteristic of users

Based on the user groups from the discussion of chapter 2, basketball academy users are classified into 3 sectors:

1. Training activity

In training activities, there's a lot of users and each users has their own role. In training activities there are

- Athletes (rookie, starter, all-star, MVP)

According to the curriculum discussed in chapter 2, there are 4 levels for Jr.NBA curriculum which are rookie level, starter level, all-star level, and MVP level. Each level provides different learning system according to the athlete's abilities and each level have a maximum capacity 125 athletes.

- Coach (@level 3 basketball director and 2 technical director)

To maximize the potential of the athletes, they are trained by 2 kind of coach which are basketball director and technical director. Basketball Director and Technical Director provide some learning materials. The difference between basketball and technical director are, the technical director is more concerned with supervision and improvement of practical skills (train in the court), and the basketball director is more concerned with theoretical skills like how to protect the ball, how to shooting correctly, how to dribble correctly, etc.

- Officials (referees, official table, commissioner)

Basically officials has only work when the league is running. So, when athletes just practice normally, officials aren't required.

The referee is someone who runs and enforces the regulations in the court. Official table is tasked with managing the game technically (setting the time, recording fouls, etc). And commissioner in charge of overseeing the work of the officials table and helping referee and collecting in expediting the match.

- Spectator or Supporter

For spectators this only exists when the league is running. according to the ongoing curriculum, the league (mini tournament) is one of the programs used to hone the skills of athletes. So the audience is there when the league is running. In addition, there are several spectators at the time of the training, maybe such as family, partner, driver, etc.

2. Manager's activity

- Chief Executive Officer (CEO) (1)

Owners and managers are responsible for the strategic management of basketball and multifunctional facilities.

- Supervisor (3)

The supervisor works to monitor overall performance. The supervisor must be able to manage subordinate staff. As a bridge between CEO and implementing staff, supervisors must be able to manage the work to be completed by the implementing team.

- Technical staff (6)

As Technical Support Workers (Technical Support), they are assigned to monitor and maintain the basketball training system and network. they will be responsible for diagnosing errors in teaching and learning activities / curriculum. with this system and will solve problems both in practice and in theory

- League staff (3)

Not only practice, according to the curriculum, there are sparing activities so that they can improve the skills of athletes by meeting opponents from outside this basketball academy (other city or other country)

- Medical staff (15)

In maintaining a basketball team, medical staff will face a series of musculoskeletal conditions similar to those you would expect in a group of competing athletes. It also has certain conditions which are more common and

reflect the physical demands of the sport. Such conditions include ankle and knee sprains, chronic back pain and excessive tendon and bone injuries.

While concussions are not common, it is important that medical staff are familiar with contemporary concussion management guidelines.

For an event, the medical team has at least 2 main doctors, 5 doping controls and 8 nurses. But if you only practice enough 2 main doctors and 5 nurses.

- COVID-19 coordinator. (each entrance)

According to new normal era, in accordance with Chapter 2, the basketball academy has a covid 19 coordinator in which they are tasked with monitoring all basketball academy users whether from entry access, during training, to exit access.

- Marketing and Media staff (4)

Marketing and Media staff have more role in the publication of all information about this basketball academy. in order to reach the quality of Indonesian athletes, outreach is also an important thing so that for some athletes or maybe for some people who want to explore the field of basketball, they can apply to this basketball academy

- Equipment staff (5)

Equipment staff has the duty to regularly check all athlete's needs from theoretical training and practical training

3. Service activity

- Cleaning staff

Cleaning staff has the duty to keep clean all the training activities in this basketball academy so as to provide comfort for all facilities used by athlete

- Security employee

Employee security must maintain security when basketball academy users are active, besides security employees also have the duty to maintain circulation so as to avoid physical contact between basketball academy users.

- Foodcourt staff

Food court staff must be able to maintain the flow of the athlete while eating. They are not tasked to cleaning the foodcourt, so the athlete to become independent by themselves

3.1.2 Capacity and Activities of Users

- Training activity

Table 3.1 Training Activities

USERS	NUMBER OF USERS	ACTIVITY	ROOM
Athletes	500	Wake up	Dorm
		Arrive	Lobby
		Monitoring by coordinator of covid-19	Human sterilization in Lobby
		Briefing	Locker room
		Preparation	Locker room
		Endurance training/ cardio	Gym/ garden / sauna room
		Basketball training	Court/ jogging track
		Break	Locker room/ Rest Room
		Pee, poop, shower	Locker room
		Eat, drink	Foodcourt
		Medical check-up	Medical room
		Menerima tamu	Lobby
		Go back	Parking Area/ dorm
		Basketball coach dan Basketball Director	20 (12 coach 10 director)
Monitoring by coordinator of covid-19	Human sterilization in Lobby		
Preparation	Locker room		
Briefing coaching	Locker room/court		
coaching	Court/Gym		
Break	Locker room/ Rest Room		
Medical check-up	Ruang medis		
Eat, drink	Foodcourt		
Pee, poop, shower	Locker room		
Go back	Parking Area/ dorm		
Officials (referees, official table, commissioner)	8	Arrive	Lobby
		Monitoring by coordinator of covid-19	Human sterilization in Lobby
		Preparation	Locker room
		Observe the game	Officials table (court)
		Medical check-up	Ruang medis
		Eat, drink	Foodcourt
		Pee, poop, shower	Locker room
Go back	Parking Area/ dorm		

- Manager's activity

Table 3.2 Manager's Activities

USERS	NUMBER OF USERS	ACTIVITY	ROOM
Staff	30	Arrive	Office Lobby
		Manage the basketball academy facilities, manage the athlete's schedule	Staff office
		Eat, drink	Foodcourt
		Pee, poop, shower	Toilet
		Receive guests	Office Lobby
		meeting	Meeting room
		Go back	Parking Area
Medical Staffs	15	Arrive	Lobby
		Monitoring by coordinator of covid-19	Human sterilization in Lobby
		Medical check-up	Ruang medis
		Eat, drink	Foodcourt
		Pee, poop, shower	Toilet
		Go back	Parking Area/ dorm

- Service activity

Table 3.3 Manager's Activities

USERS	NUMBER OF USERS	ACTIVITY	ROOM
Cleaning staff	15	Arrive	Office Lobby
		Preparation	Staff room
		Clean some space	Whole room in basketball academy
		Eat, drink	Foodcourt
		Pee, poop, shower	Toilet
		Go back	Parking Area
Security employee	15	Arrive	Office Lobby
		Preparation	Staff room
		Maintain security and circulation in the basketball academy building	Whole room in basketball academy
		Eat, drink	Foodcourt
		Pee, poop, shower	Toilet
		Go back	Parking Area
Foodcourt staff	15	Arrive	Office Lobby
		Preparation	Staff room
		Clean some space	Whole room in basketball academy
		Eat, drink	Foodcourt
		Pee, poop, shower	Toilet
		Go back	Parking Area

3.1.3 Space Requirement Analysis Based on Characteristic

In this international basketball academy building, the existing activities will be divided based on the user. User activity is divided into 3 sectors according to user analysis.

Table 3.4 Characteristic Of Room

SECTOR	USERS	ACTIVITY	ROOM REQUIREMENT	CHARACTERISTIC OF ROOM
Training activity	Athletes	Wake up	Dorm	Private
		Arrive	Lobby	Public
		Monitoring by coordinator of covid-19	Human sterilization in Lobby	Public
		Preparation (change the clothes)	Locker room	Private
		Briefing with the coach	Court Locker room	Public Semi private
		Endurance training/ cardio	Gym/ garden/ jogging track / sauna room	Semi private
		Basketball training	Court, jogging track	public
		Break	Court Rest Room	Public Semi private
		Pee, poop, shower	Locker room	Private
		Eat, drink	Foodcourt	Public
		Medical check-up	Medical room	Semi private
		Menerima tamu	Lobby	Public
		Go back	Parking Area/ dorm	Public
	Basketball coach dan Basketball Director	Arrive	Lobby	Public
		Monitoring by coordinator of covid-19	Human sterilization in Lobby	Public
		Preparation	Locker room	Private
		Briefing to athletes	Court Locker room	Public Semi private
		coaching	Court/Gym	Semi private
		Break	Court Rest Room	Public Semi private
		Medical check-up	Ruang medis	Semi private
		Eat, drink	Foodcourt	Public
		Pee, poop, shower	Locker room	Private
		Go back	Parking Area/ dorm	Public
Officials (referees, official table, commissioner)	Arrive	Lobby	Public	
	Monitoring by coordinator of covid-19	Human sterilization in Lobby	Public	

		Preparation	Locker room	Private
		Observe the game	Officials table (court)	Private
		Medical check-up	Ruang medis	Private
		Eat, drink	Foodcourt	Public
		Pee, poop, shower	Locker room	Private
		Go back	Parking Area/ dorm	Public
	Spectator or Supporter			
Manager's activity	CEO	Arrive	Office Lobby	Public
		Set management strategies	CEO office room	Private
		Eat, drink	Foodcourt	Public
		Receive guests	Office Lobby	Private
		Meeting	Meeting room	Private
		Go back	Parking Area	Public
	Supervisor	Arrive	Office Lobby	Public
		Monitor overall performance and give some input to support CEO	supervisor office room	Private
		Eat, drink	Foodcourt	Public
		Receive guests	Office Lobby	Private
		Meeting	Meeting room	Private
		Go back	Parking Area	Public
	Technical staff	Arrive	Office Lobby	Public
		Maintain the basketball training system and network	Technical staff office room	Private
		Eat, drink	Foodcourt	Public
		Receive guests	Office Lobby	Private
		Meeting	Meeting room	Private
		Go back	Parking Area	Public
	League staff	Arrive	Office Lobby	Public
		Manage sparing schedule	League staff office room	Private
		Eat, drink	Foodcourt	Public
		Receive guests	Office Lobby	Private
		Meeting	Meeting room	Private
		Go back	Parking Area	Public
	Medical staff	Arrive	Lobby	Public
		Medical check-up	Ruang medis	Public
		Eat, drink	Foodcourt	Private
		Pee, poop, shower	Toilet	Private
	Go back	Parking Area	Public	

Service activity	COVID-19 coordinator	Arrive	Lobby	Public
		Monitoring all users (Human sterilization)	Lobby and court	Public
		Eat, drink	Foodcourt	Private
		Pee, poop, shower	Toilet	Private
		Go back	Parking Area	Public
	Marketing and Media staff	Arrive	Lobby	Public
		Provides easy and quick access to information and resources	Media office room	Public
		Eat, drink	Foodcourt	Private
		Pee, poop, shower	Toilet	Private
		Go back	Parking Area	Public
	Cleaning staff	Arrive	Lobby	Public
		Provides easy and quick access to information and resources	Human sterilization in Lobby and court	Public
		Monitoring genset	Genset room	Private
		Monitoring water pump	Pump room	Private
		Monitoring MEE	MEE room	Private
		Eat, drink	Foodcourt	Private
		Rest	Service room	
		Go back	Parking Area	Public
	Security employee	Arrive	Lobby	Public
		keep the entire room safe	Whole basketball academy	Public
	Monitoring cctv	Cctv room	Private	
	Eat, drink	Foodcourt	Private	
	Pee, poop, shower	Toilet	Private	
	Go back	Parking Area	Public	
Foodcourt staff	Arrive	Lobby	Public	
	Preparing food dishes	Kitchen	Private	
	Serving in tenant	foodcourt	Public	
	Eat, drink	Foodcourt	Private	
	Pee, poop, shower	Toilet	Private	
	Go back	Parking Area	Public	

Source : Personal analysis

3.1.4 Space requirement based on facilities

1. General Building Requirements

- Size of the Sports Hall Arena

Table 3.5 Size Of The Sport Hall Arena

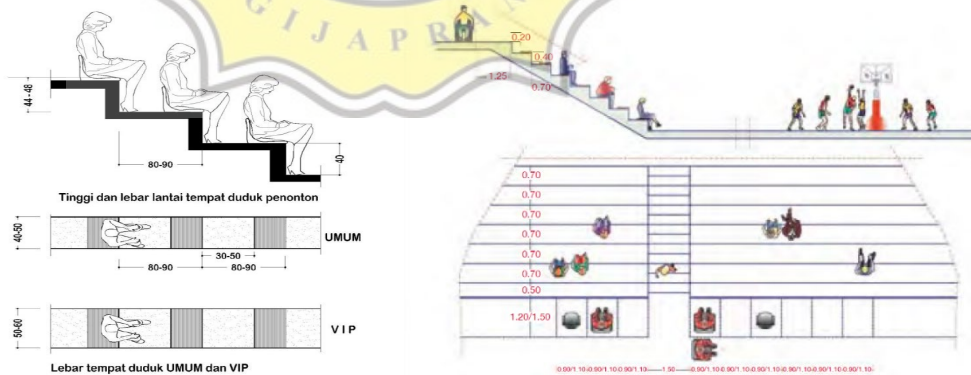
TYPE OF GOR	LENGTH INCLUDES FREE ZONE	WIDE INCLUDES FREE ZONE	HIGH PLAY AREA GAME	HIGH-FREE ZONE CEILINGS
A	50	40	15	5.5
B	40	25	12.5	5.5
C	30	20	9	5.5

Source: Personal Analysis

Based on Sports Hall Arena Size (permenpora standar gor), this basketball academy belongs to group A because curriculum distribution is quite accommodating for many people and requires a large space. This is the requirement that a basketball academy building can create comfort of basketball activities and anticipate the ball is not exposed to hit the ceiling.

- Seating capacity

For the main field where the race has a maximum capacity of 500 people. In addition there are also spectators when there are no league. For example, like parents who are taking their children to practice, or drivers who are waiting for athletes to practice. 500 people is enough because this basketball academy is not a place who is concerned with events, but only a place to practice.



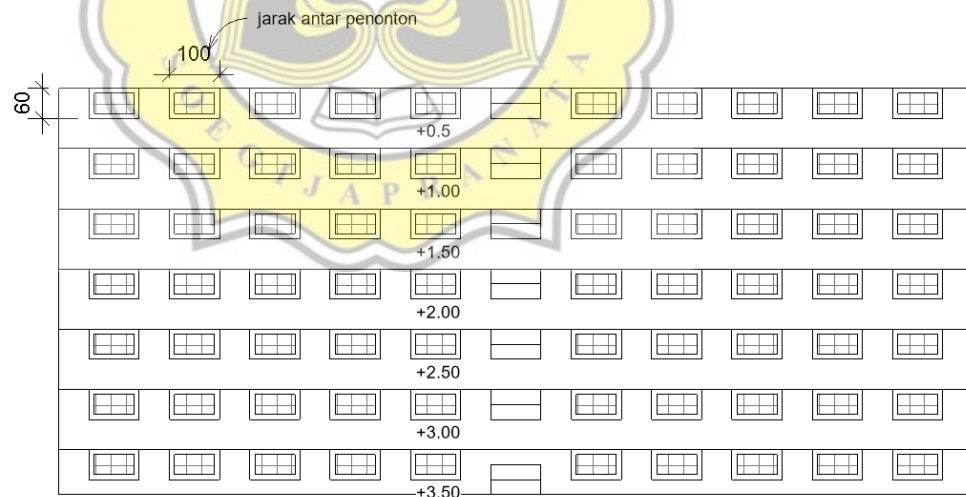
Picture 3.1 Dimension of the tribun

Source : FIBA Guide

The area for the tribune must have easy access to the public, audience circulation in various sectors, visibility of the entire audience, access to the toilet

and exit routes without obstacles from the central hall. The size of this area varies according to the number of viewers and is based on the following criteria:

- The maximum capacity of the stands must be calculated based on the total length of the line in meters divided by 1 m (the minimum space occupied by the audience in accordance with the health protocol in answering new normal)
- the audience must be able to access all sectors which have a width of at least 1.8 m and a maximum of 20 seats on each side and row;
- Steps of each row of seats must have a footprint of at least 0.60 m and a riser between 0.40m and 0.50m depending on visibility curves, shape and layout of facilities.
- Among the tribune there are stairs to access each seat which has a riser 1/2 of the height difference between the tribune.
- Between the seating group (with minimum distance 1 meter), there is a green area (according to chapter 2.2.2). In new normal conditions, in addition to maintaining physical health, it is also necessary to maintain mental health by presenting a biophilic concept with a green area in the tribune.



Picture 3.2 Dimension of tribun
Source : Personal analysis

- **Parking Area**

Parking space must be available at least 3,000 m² (Permenpora Rules).

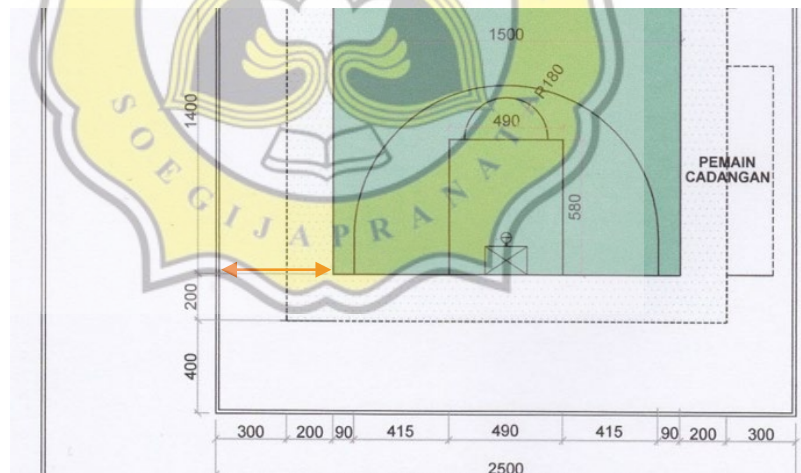
- **Sports Arena Walls**

Wall construction must be strong against the impact of the player or ball. Openings in the walls except the door must be at least 2 meters above the floor. Up to a wall height of 2.0 m, not allowed to be changed or permanent openings. The color must be in harmony and contrast with the ball

2. Specific Building Requirement

- Court Area.

The main field has a size of 28m x 15m according to section 2.1.3. The standard used in the size of this basketball court is the FIBA standard. The basketball court must be level and have a hard surface and be free of anything that blocks the course of the game. The field elements are in the form of a backcourt, frontcourt, boundary line, center line, free-throw line, shooting area to score 3 figures, reserve bench area, semi-circle no-charge area. The length of the field is 28 m, width of 15 m, the length of the diameter of the circle is 1.8 m with a width of the line that is 0.05 m. The length of the end of the circle of attack area is 6 m, while the length of the shot line is 3.6 m.



Picture 3.3 Dimension of Free Area
Source : FIBA Guide

The court has a space with minimum 5 meter so the athletes don't need to worry if they run more and it can be more safety if the court and the tribune/ wall

- Floor Requirement

There are parameters that apply to create a comfortable field for athletes such as Elasticity, Deformation (An excessive value reduces safety when putting down

the foot, increasing the risk of sprains), Superficial friction (To improve superficial friction, synthetic materials are embossed on the surface), etc.

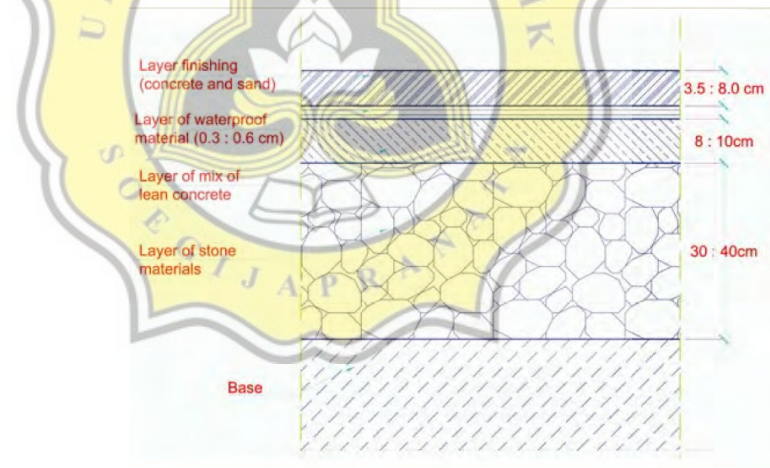
There are According to FIBA Guide, Official Basketball Rules-Basketball Equipment, the floor should:

- Have an antiglare surface.
- The lowest level of floor is the base for the correct floor.
- And for the details according to the following picture.

There are several types of subfloor systems that are most commonly described below:

- Sub-floor on loose stone foundation
- Sub-floor on brick piers and hollow flooring blocks
- Sub-floor on floor
- Loose stone sub-floor

For the selection of floor type is sub-floor on floor.

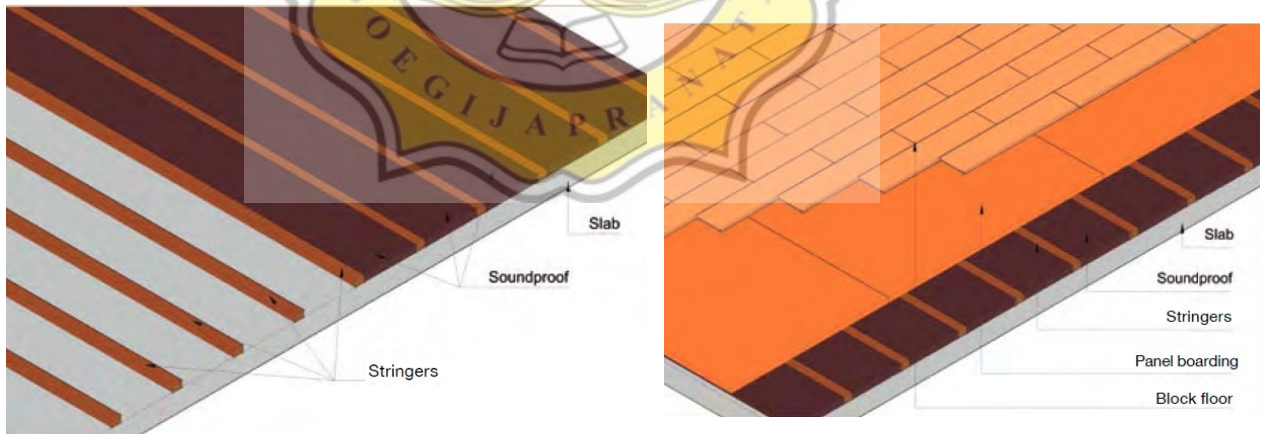


Picture 3.4 Sub-floor on loose stone
Source : FIBA Guide

This type of ground floor is installed on land that is filled and leveled. A well-constructed loose stone foundation must include an airway network with a 15/20 cm section, placed at a distance of 1.5 m from center to center, interconnected, which runs along the wall and has sufficient outlets. Loose stone foundations must be built using stones that are getting smaller and closer to the surface, and the lowest level with a 30-40cm fine gravel surface (layer of stone materials. At any

point the surface must be more than 2cm higher than the nominal height and, when verifying flatness using the 4m rule, the width of the gap should not be more than 3cm. Loose stone foundations must be covered with 8-10cm thick concrete screeds made of lean concrete. To avoid the problem of rising humidity, a waterproof layer must be made using two layers of asphalt for heat regulation. The finishing layer consists of a cement screed and mortar sand using a ratio of 3: 4 types of cement 325 per 3 m thickness according to the type of floor. This is placed on a waterproof layer or the leveling material itself to prepare the floor mat.

Parquet is available in various types and forms. The planks are made of solid wood and shaped like a parallelepiped, with the edges and sides so they can be mounted close together when elements are mounted individually. The plank used for sports floors must have a thickness of at least 17mm, a width of 60mm and a length of 400 mm. When laying the parquet, the humidity of the wood should be between $9\% \pm 2\%$. Installation must be carried out at an ambient temperature higher than 12°C with $60\% \pm 5\%$ humidity. If a wooden floor has to be very elastic, it must be placed on a substructure made of double crossed structure. The substructure construction features for wood floors and other floors are explained below.



Picture 3.5 Wooden flooring -on stringers
Source : FIBA Guide

- Lighting Criteria

To guarantee the average lighting recommended, during the entire operation period of the installation, lighting should not fall below the indicated score.

Table 3.6 Lighting Requirement for indoor

Class	Horizontal Illuminance		Colour rendering
	E average (lx)	E min / E av	Ra
I	750	0.7	60
II	500	0.7	60
III	200	0.5	20

Source: Personal Analysis

For outdoor fields, the GR (glare rating) is very useful because with lighting, it also affects reflectivity. For outdoor basketball courts, glare assessments are rated on a 0-100 GR scale where a higher GR value indicates a more uncomfortable situation and a lower GR value indicates a more comfortable situation. The discomfort threshold is determined at a GR value of 50, therefore a GR 55 value is accepted for mounting Class III outdoor basketball lighting.

The lighting design will determine the quantity, type, and position of the luminaire needed to provide athlete comfort when exercising. The illumination value is indicated for a certain level of activity. The design proposal must take into account that the light output from the lighting installation will fall over a certain period of time.

- Medical Room

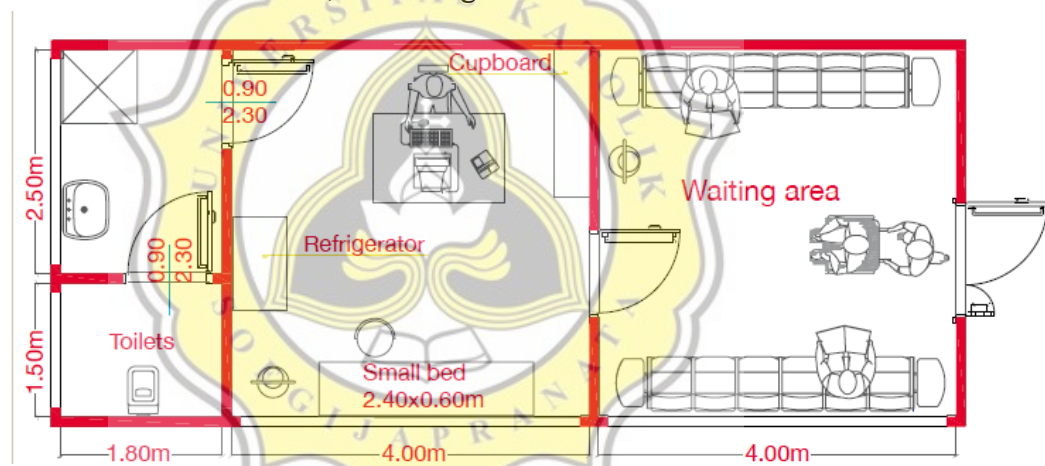
The medical room is divided into 2 rooms which are the room to treat the athlete who's injured, and the other is to do a routine checkup every day before athletes practice. So this room is a determinant where athletes can practice or not because with the procurement of the checkup, we can know which athletes / building users are safe to do activities or run exercises in the field. In addition, by checking up in this room, it is also important to find out who has a comorbidity disease

Minimum area of 1 unit of medical room is 18 m² and must be near the dressing room (Perbasi.co.id). For functional and safety reasons, facilities must include two medical stations for first aid, one for athletes and one for the public. These areas must be used to manage first aid and also offer normal preventive

medical consultations; they are certainly easy to reach from all other areas of the facility. The first aid area should have a waiting room or access room adjacent to the medical examination room, with a toilet and a basin outside (and maybe a shower).

The first aid area must have a waiting room or access room adjacent to the medical examination room, with an outside toilet and sink (and possibly a shower). Furnishings and equipment should mainly include:

- Bed for medical examination, length of about 2.40 m
- 0.60m wide with a maximum bearing load of 150 Kg, with swivel chairs and flexible arm lamps;
- Work desk, minimum size 0.90x1.60m, with three chairs
- Wardrobe with mirror, measuring at least 0.60x1.60m

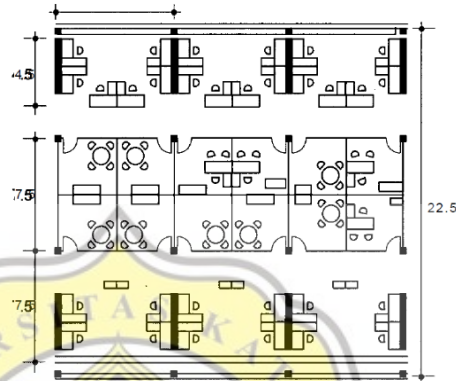


Picture 3.6 Medical Room Layout
Source : FIBA Guide

For the other part of the medical room, the general requirements are more or less the same as the medical room for injury management, only for longer distances + - 50cm and there are insulating curtains because in this medical room the function is to treat some patients whose positive corona is affected or are experiencing general symptoms. For treatment also in this room.

- Office Room

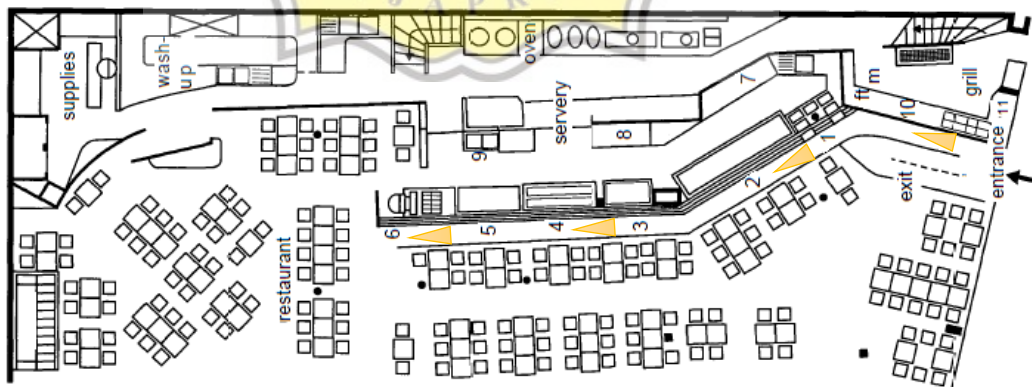
For offices more or less using the same standards as the metric handbook because the distance of each manager is sufficient ± 1 meter. For the allocation of space may be more identical with the provision of distance and there must be free space because of the requirements for more distance, for the empty space is filled as storage (can be a cupboard / drawer)



Picture 3.7 The example of office room layout
Source : Metric Handbook

- Foodcourt

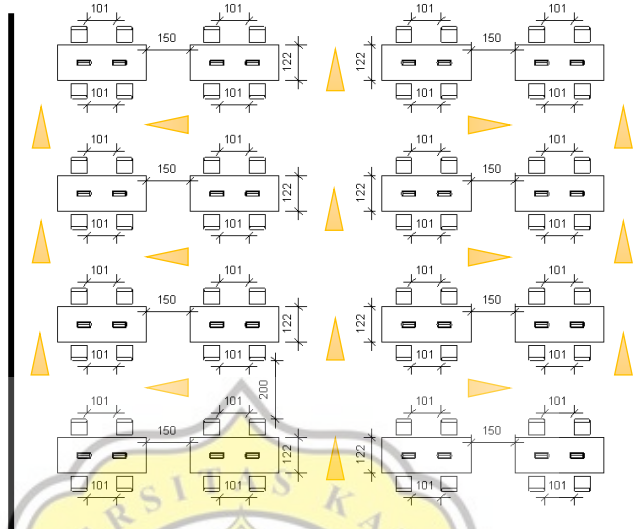
A place for all athletes and other entrants to eat and drink. The adjustment to new normal is still in the food court room still applying one way circulation to avoid physical contact between building users.



18.31 Self-service restaurant in Paris
Architect: Proulx

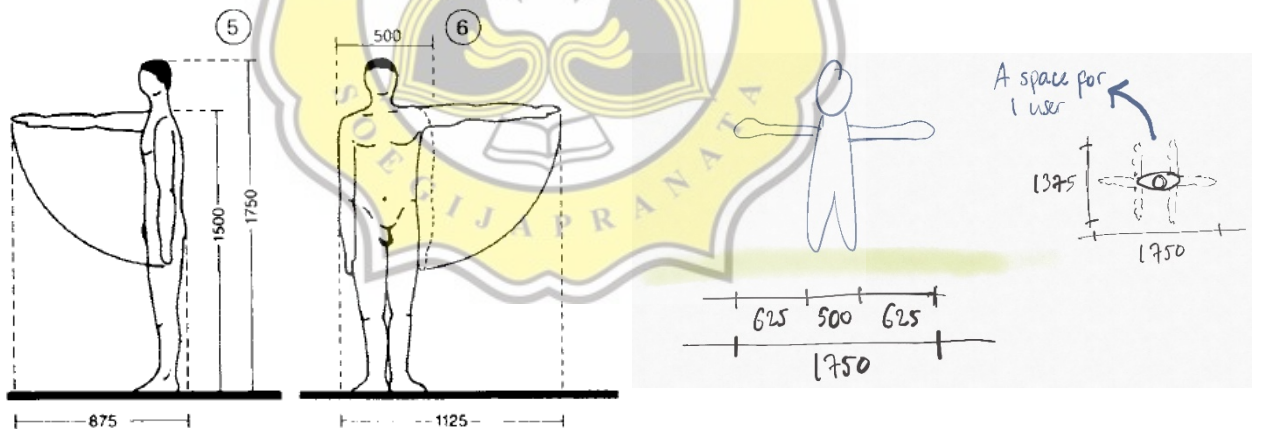
Picture 3.8 Circulation on foodcourt
Source : Metric Handbook

When the athlete order their food, they can only order with one go, if they want to go back to the previous tenant, so they have to turn around to return from tenant 1.



Picture 3.9 Seating group circulation in foodcourt
Source : personal analysis

- Anthropometry of human motion



Picture 3.10 Area requirement for 1 user

Source : Data Arsitek Jilid 3 and personal analysis

Based on the anthropometry of human motion, each human being has a hand width of 62.5 cm and the total space required for 1 user (Architect Data volume 3) is 2.45m (1.4m * 1.75m)

3.1.5 Spacious Needs of Space Study

Table 3.7 Spatial Dimension Table

Room Name	Total of Space	Capacity/ room	The size of space	Total Area (m ²)	Source
Training Area					
Main Court (league management)	1	350	Main Field : 28 m x 15 m = 420 m²	1257.64 m² (include circulation)	FIBA Guide+ PA
			Officials Area : 13 m x 3.2 m = 41.6 m²		
			Tribune = 0.6 m x 0.6 m = 0.36 m ² Space @tribune = 1 meter Total tribune for 336 people 40.4 x 8.1 = 327.24 m²		
			Free area = 5 meter outside from the court = 888.8 m ² 888.8 – 420 = Free Area = 468.8 m²		
Court	4	50	Main Field : 28 m x 15 m = 420 m²	3555.2 m² (include circulation)	FIBA Guide+ PA
			Free area = 5 meter outside from the court = 888.8 m ² 888.8 – 420 = 468.8 m ² Free Area = 468.8 m²		
Lobby (Main Entrance+ Exit Entrance)	1	400	Table of receptionist = 21.7 m²	1051.7m² (include circulation)	NAD + PA
			400 people x 2.45 m ² = 980 m²		
			Chair: 0.5m x 0.5m = 0.25m ² *200= 50 m²		
			Green Area: 10m x 5m = 50m²		
Locker room	6	20	11*7 = 77 m²	462 m²	FIBA
Sauna Room	2	8	5*6 = 30 m ²	60 m²	NAD
Gym Area	1	50	Exercise bike : 0.9m x 0.45m= 0.405m ² *8 = 3.24m²	173.51 m²	NAD
			Bench Press: 2.15m x 0.95m = 2.04m ² *5= 10.21m²		
			Foot Station: 1.4*0.8 = 1.12m ² *5= 5.6 m²		
			Latissimus machine: 2m x 1.2m= 2.4m ² *3= 7.2m²		
			Press Equipment: 1.2m x 1.4= 1.68m ² *4 = 6.72m²		
			Treadmill: 1.9 x 0.8 = 1.52m ² *5 = 7.6m²		

			Knee Bending apparatus (with weights attachment): 2m x 0.9m = 1.8m ² *5= 9m²		
			Wardrobe: 0.6m x 1.2m= 0.72 m ² *2= 1.44m²		
			50 people x 2.45 m ² = 122.5 m²		
WC/ toilet	2	10	WC: 1.5mx2m = 3m ² *15= 30m² Wastafel 0,7m ² *7= 4.9m² Urinoir 0,7m ² *20= 14m² 10 people x 2.45 m ² = 24.5 m²	244.6 m²	
Foodcourt	1	100	@Teenant: 4m x 4m = 16m ² *10= 160m²	612 m²	PA + NAD
			Seating Group @4: 2.6m x 3m = 7.8m ² *25= 195m²		
			Storage: 4m x 3m = 12m²		
			100 people x 2.45 m ² = 245 m²		
Jogging Track	1	50	1 jogging track = 5 track Each track has a width 2m 2m*5track = 10m. 30m x 17m = 510 m²	510 m²	PA
Total Area Training Facilities				2,062.11 m²	
Total Area Training Facilities (60% circulation include)				2,062.11 m ² + 1257.64 m ² + 3555.2 m ² = 7,926.65 m²	
Medical Area					
Medical Area (Injury handle)	1	10	Small Bed: 2.4m x 0.6m = 1.44m ² *5= 7.2m²	39.1 m²	
			WC: 1.5mx2m = 3m ² *2= 6m² Wastafel 0,7m² Urinoir 0,7m²		
			10 people x 2.45m ² = 24.5m²		
Doctor Room	2	3	Table: 1.8*1= 1 m ² *2= 2m² Chair: 0.5*0.5= 0.25*3 = 0.75m² Document shelf: 0.4m x 3= 1.2m²	22.6 m²	
			3 people x 2.45m ² = 7.35m²		
Lobby / waiting room	1	20	Chair: 0.5*0.5= 0.25*20 = 5m²	54 m²	
			20 people x 2.45 m ² = 49m²		
Medicine room	1	2	Medicine shelf: 0.4m x 3= 1.2m ² *2= 2.4m²	7.3 m²	

			2 people x 2.45 m ² = 4.9m²		
Medical Area (Covid handle)	1	8	Small Bed: 2.4m x 0.6m = 1.44m ² *8 = 11.52 m² Monitor 0.5m x 0.5m= 0.25m ² *8 = 2 m² 8 people x 2.45 m ² = 19.6 m²	33.12 m²	
Total Medical Area				156.12m²	
Total Medical Area (60% circulation include)				249.792 m²	
Manager's Activities					
CEO Room	1	3	Table: 1.8*1= 1 m ² *2= 2m²	12.6 m²	NAD + PA
			Chair: 0.5*0.5= 0.25*3 = 0.75m²		
			Document shelf: 0.4m x 3= 1.2m²		
			Sofa : 1.7*0.77= 1.309m²		
			Mini Table: 0.45m x 0.45m = 0.2025m ² *2= 0.405m²		
			3 people x 2.45 m ² = 7.35 m²		
Supervisor	3	1	Table: 1.8*1= 1 m ² *2= 2m²	17.7 m²	NAD
			Chair: 0.5*0.5= 0.25 m²		
			Document shelf: 0.4m x 3= 1.2m²		
			1 people x 2.45 m ² = 2.45 m²		
Technical staff	1	6	Table: 1.8*1= 1 m ² *12= 12m²	35.4 m²	NAD
			Chair: 0.5*0.5= 0.25 m ² *6 = 1.5 m²		
			Document shelf: 0.4m x 3= 1.2m ² *6 = 7.2 m²		
			6 people x 2.45 m ² = 14.7m²		
League staff	3	1	Table: 1.8*1= 1 m ² *2= 2m²	17.7 m²	NAD
			Chair: 0.5*0.5= 0.25 m²		
			Document shelf: 0.4m x 3= 1.2m²		
			1 people x 2.45 m ² = 2.45m²		
Media and marketing room	4	1	Table: 1.8*1= 1 m ² *2= 2m²	23.6 m²	NAD
			Chair: 0.5*0.5= 0.25 m²		
			Document shelf: 0.4m x 3= 1.2m²		
			1 people x 2.45 m ² = 2.45m²		
Total Manager Area				103.06 m²	
Total Manager Area (60% circulation include)				164.896 m²	

Dorm's Activities					
Bedroom (Bathroom Include)	75	2	Bedroom: 2m x 1m = 2 m² Wardrobe: 0.6m x 1.2m= 0.72 m² Table: 1.5 m x 0.6 m = 0.9 m² Chair: 0.4 m x 0.4 m = 0.16 m ² * 2= 0.32 m² Shower Area: 2.5 x 2.3= 5.75m² 2 people x 2.45m ² = 4.9m²	1094.25 m²	NAD
Lobby	1	50	Table of receptionist = 21.7 m ² Chair: 0.8* 1.7 = 1.36m ² Table: 1.5 m x 0.6 m = 0.9 m² 50 people x 2.45m ² = 122.5m²	146.46 m²	PA
Laundry	3	15	Wasing machine: 0.8m x 0.8m = 0.64m ² *14= 8.96m²	142.14 m²	PA
			Table: 0.76*2.2 = 1.67m ²		
			15 people x 2.45m ² = 36.75 m²		
Communal space	6	10	Seating Group @4: 2.6m x 3m = 7.8m ² *4= 31.2 m²	394.2 m²	NAD +PA
			Green Area: 2m x 5m = 10m²		
			10 people x 2.45 m ² = 24.5 m²		
Foodcourt	1	75	Seating Group @4: 2.6m x 3m = 7.8m ² *18= 140.4 m²	279.4 m²	NAD +PA
			@Teenant: 4m x 4m = 16m ² *4= 64m²		
			75 people x 2.45 m ² = 183.75 m²		
Total Dorm Area				2,056.45 m²	
Total Dorm Area (60% circulation include)				3290.32 m²	
Service activities					
Genset room	2	3	Genset dimension: 8m x 10m = 80 m²	166 m²	NAD +PA
			3 people x 1 m ² = 3m²		
MEE room	3	3	Panel Trafo : 3m x 2m = 6m ² *2 = 12 m²	45 m²	NAD +PA
			3 people x 1 m ² = 3 m²		
Storage Room	5	5	Wardrobe: 0.6m x 1.2m= 0.72 m ² *5 = 3.6 m²	8.6 m²	NAD +PA
			5 people x 1 m ² = 5m²		
Security room	3	3	Chair: 0.8* 1.7 = 1.36m² Table: 1.5 m x 0.6 m = 0.9 m²	2.98 m²	NAD +PA
			Wardrobe: 0.6m x 1.2m= 0.72 m²		
Total Service Area				222.52 m²	
Total Service Area (80% circulation include)				400.536 m²	

Parking Area					
Car park	1	250	Car: 5m x 2.5m/ unit 12.5 m²/ unit	3125 m²	NAD
Motorcycle Park	1	500	Motorcycle: 1m x 2m 2m²/ unit	1000 m²	NAD
Bus Park	1	10	Bus: 3.5m x 12.5m 43.75m²	437.5 m²	NAD
Total Parking Area				4562.5 m²	
Total Parking Area (100% circulation include)				9125 m²	
Total Building Area Requirements (without parking area)				12,032.197 m²	
Total Green Area Space (50% building area)				6,016.1m²	
Total Site Area requirement				18,048.297 m²	

Source: Personal Analysis

3.1.6 Structure of Space

1. Group of space

Based on the nature and function of the space, the rooms in the Basketball academy are divided into 6 groups of rooms:

- Training area
- Supporting room area
- Medical Area
- Manager area
- Residential area
- Parking Area

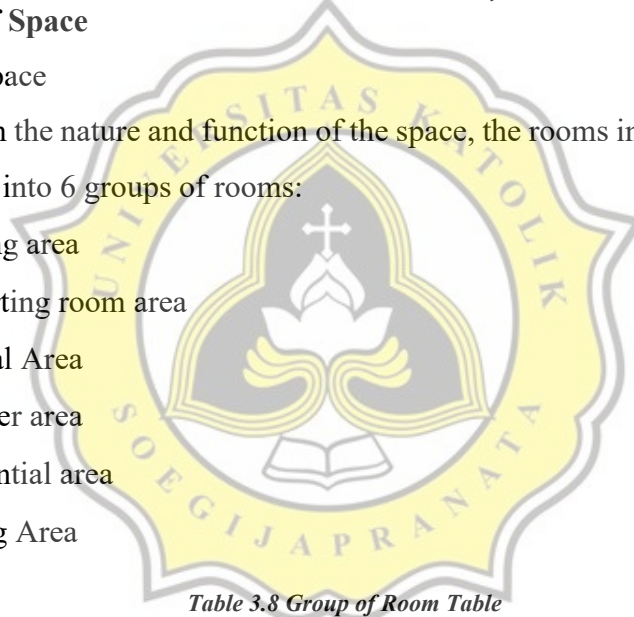


Table 3.8 Group of Room Table

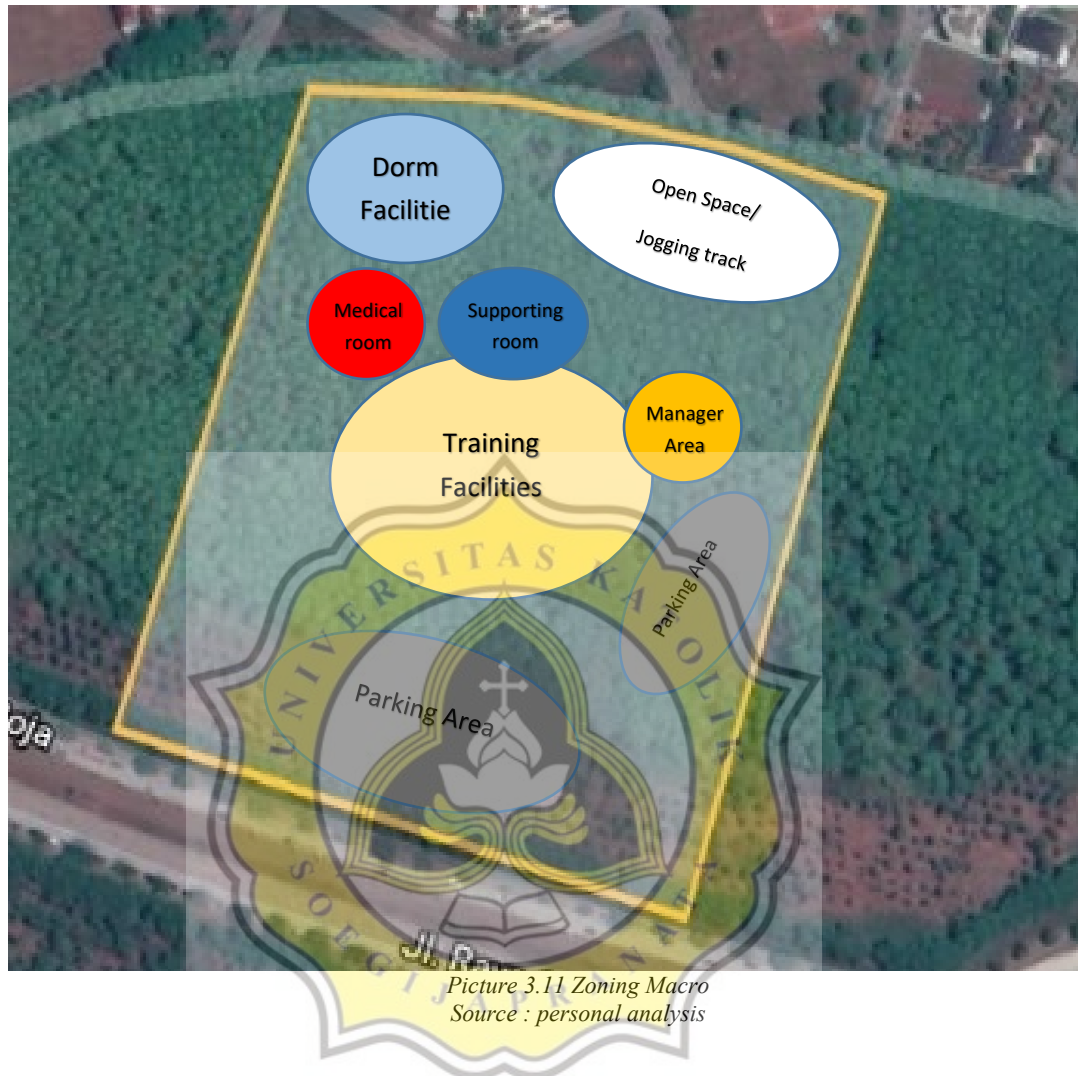
Group of room	Room	Character of room
Training Area	Main Court (league management)	Public
	Lobby (Main Entrance+ Exit Entrance)	Public
	Locker room	Public
	Sauna Room	Public
	Gym Area	Semi private
	WC/ toilet	Private

Supporting Room area	Foodcourt	Publik
	Jogging Track	Publik
	Merch shop	Public
Medical Room	Medical Area (Injury handle)	Private
	Doctor Room	Private
	Lobby	Private
	Medicine Room	Private
	Medical Area (Covid-19 handle)	Private
Manager Area	CEO Room	Private
	Supervisor Room	Private
	Technical Staff	Private
	Leagued Staff	Private
	Media and marketing room	Private
Residential Area (Dorm)	Bedroom	Publik
	Lobby	Private
	Laundry	Private
	Communal Space	Private
	Foodcourt	Private
Parking Area	Car Park	Public
	Motorcycle Park	Public
	Bus Park	Public

Source: Personal Analysis

3.2 Analysis and Space Program

3.2.1 Zoning Macro

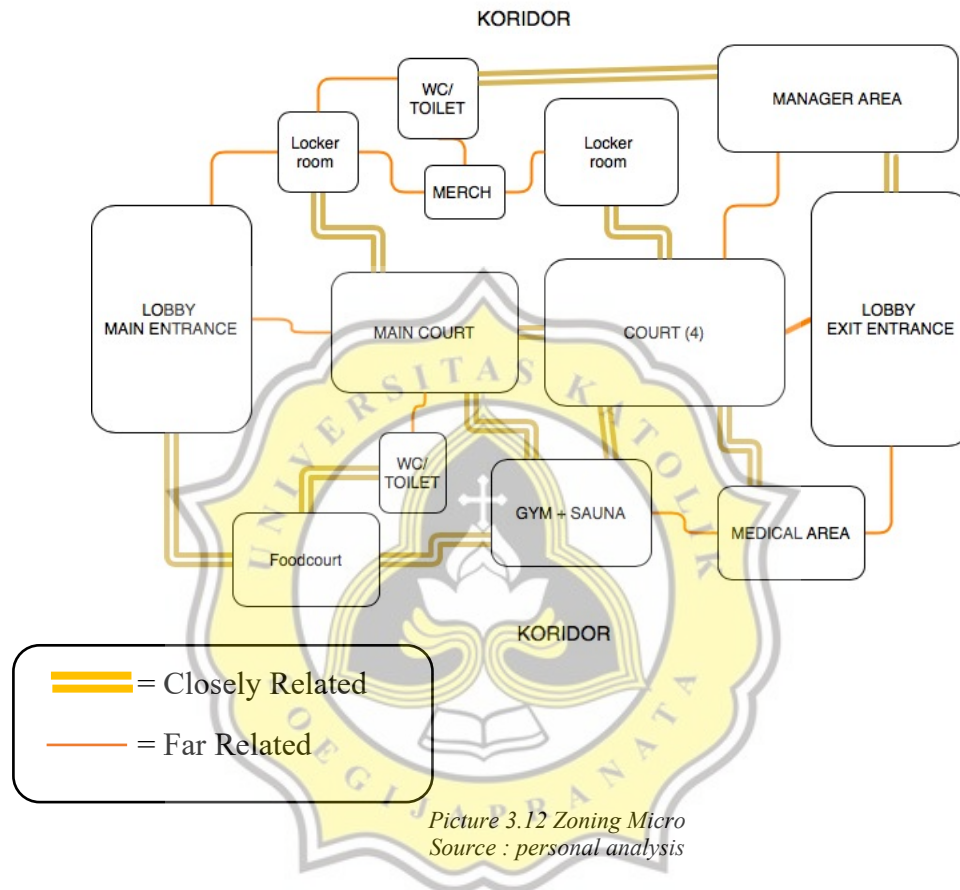


Picture 3.11 Zoning Macro
Source : personal analysis

For athletes training facilities in the middle of the site so that it is easily affordable. In addition, the center of the basketball academy building is training practice which are located in the center. And then for the medical room divided by 2 which are Injury handle and Covid-19 handle. The medical room is located in between the dorm and the training area so that mobilization when there is an ally affected by covid disease can be isolated directly in the dorm to undergo quarantine. For the manager area is located in a part that is not more private to avoid the noise that exists when the exercise goes. Area manager is placed in the part where the area is slightly skipped or does seem private. The northern part of the site is maximized for the processing of green open spaces where not only the green space dies, the retape is also used by the intila to practice their endurance skills. In

addition to technical training, penning also intends athletes to exercise their stamina. This facility also has international standards where they are not only facilitated by the field, but many off-field facilities such as saunas, jogging tracks, gyms to help protect their endurance.

3.2.2 Zoning Micro



Picture 3.12 Zoning Micro
Source : personal analysis

For the arrangement of micro space made in such a way, for the placement of spaces that are private placed on the side of the side, which is more dominant public are placed in the middle. Then for space circulation, 2 accesses are made and all circulation access is only 1 direction. then for food court and lobby, it must be easily accessible for everyone, both athletes and non-athletes.

3.3 Analysis of the Potential and Obstacles of Building Functions

This chapter discusses the analysis of the potential and constraints of building functions related to site and environmental aspects in which some data related to site and environmental features have been described in section 2.3.3.

3.3.1 Analysis of Potential and Site Obstacles

In section 2.3.3, general representation of the site has been described the site conditions and the environment. Which will be the basis of potential and constraints analysis as follows:

- The site is located on Jalan Raya Semarang-Boja, Kedungpane, Kec. Mijen, Kota Semarang
- The site has a relatively flat topographic area
- The location is next to a residential area that is not too crowded. And with the existence of a basketball academy on the site, it will be able to "revive" the environment of BSB itself because the BSB area is in full bloom building commercial and educational buildings.

1. The Potential of Site

In accordance with the summary above, the following potential sites are obtained:

- a. The site is located on Jalan Raya Semarang-Boja, Kedungpane, Kec. Mijen, Kota Semarang, which has potential near the park and has close access to the BSB center soon to be (malls and universities)



*Picture 3.13 A mixed use building is under construction (Mall)
Source : personal analysis*



*Picture 3.14 A University is under construction (Unika)
Source : personal analysis*

- b. Although the location is close to public facilities, the circulation of the site is relatively smooth because the public facility is located in the southern part of the site (+ - 1km). So between Basketball academy building and public facilities still have a space and not to close.
- c. According to section 2.3.3, BSB has the concept of structuring the environment with lots of green areas which means that it is very supportive of the approach used in the basketball academy building, biophilic. By existence of nature and green area, this element can make the people realized that we all come from nature.

2. The obstacle of the Site

In accordance with the summary above, the following obstacle of the sites are obtained:

- a. There are many trees in the site
- b. Because the site is located close to cluster arga golf, so noise factor is the most important part that must be maintained.

- c. The accessibility from the north, People who want to enter the site must make a U-turn in a place not near the site. maybe if you can break down the green area located in front of the site so that people coming from the north can directly enter the site and don't need to make a U-turn.



Picture 3.15 The obstacle of the site
Source : Google earth



Picture 3.16 The obstacle of the site
Source : Personal Analysis

3.3.2 Analysis of Potential and Environment Obstacles

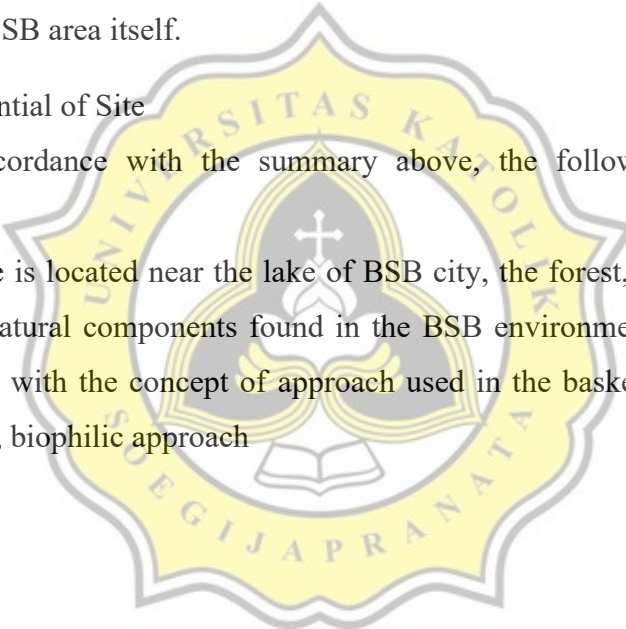
In section 2.3., general representation of the site has been described the site conditions and the environment. Which will be the basis of potential and constraints analysis as follows:

- BSB environment is rife to develop infrastructure, with the existence of basketball academy will make the environment more advanced and developed
- Related to the location environment, there is a arga golf house located on the west side of the site. the noise in the basketball academy building can disrupt the arga golf housing area if it does not pay attention to the materials used
- A university and mall will be built near the site so that it can support development in the BSB area itself.

1. The Potential of Site

In accordance with the summary above, the following potential sites are obtained:

- a. The site is located near the lake of BSB city, the forest, which means there are many natural components found in the BSB environmental area, which is very suitable with the concept of approach used in the basketball academy building, namely, biophilic approach



- b. BSB environment has a wide enough road width of + - 8 meters for each section, so the BSB environment has good circulation and is very protected from traffic jams if it has wide vehicle accessibility.



*Picture 3.17 The obstacle of the site
Source : Personal Analysis*

- c. BSB environment is doing infrastructure development so that with the existence of basketball academy will have a positive impact on the BSB environment itself
2. The obstacles of the Site
- In accordance with the summary above, the following obstacle of the environment are obtained:
- a. For all accessibility, there are mostly green areas in the distribution of roads so it is a bit of a hassle if you want to cross (have to turn around)