

Chapter III. ARCHITECTURAL PROGRAMING

A. Space Demand and Requirement Analysis

The analysis of spatial requirements in the project of the Youth Olympic Center is influenced by activities and building users. There are several categories of aspects affecting space requirements.

1. Activities Study, Demand, and Traits of Space

Activity Grouping and Traits Based on Users, the activity list each user have showing the order or their activity from drop off to exit the venue, the activities listed below are determined by the Trait and Space Types as:

Space Traits

- P = Public
- SP = Semi Public
- PV = Private
- S = Service

Space Types

- In = Indoor
- O = Outdoor
- SO = Semi-Outdoor

Table 3. 2 Activity Grouping and Traits Based on International Participant

INTERNATIONAL YOUTH PARTICIPANT					
No	User	Activity	Space Demand	Space Traits	Space Types
1.	International Youth Participant	Entering venue	- Venue entrance	PV	O
		Drop-off	- Parking Area	P	SO
		Vehicle parking	- Parking Area	P	O
		Information	- Information booth	P	In
		Class	- Classroom	P	In
		Gathering	- Lobby, Aula	SP	In & O
		Buying snacks / Food	- Vending Machine - Cafeteria	SP	In & O
		Going to Class	- Class Room - Outdoor Amphitheater - Recital or Auditorium	SP	In & O
		Having Confrence	- International Building - Auditorium	SP	In & O
		Practicing	- Athletic Building	SP	In & O
		Watching Performance	- Auditorium - Outdoor Amphitheater	SP	In & O
		Going to toilet	- Lavatory	S	In
		Resting	- Lodging	PV	In
		ATM Transaction	- ATM Center	P	SO

		Shopping	- Gift shop	P	In
		Breakfast	- Cafeteria	SP	In & SO
		Money Exchange	- Money Exchange	P	In
		Praying Call	- Musholla	SP	In
		Exiting venue	- Exit gate	P	O
2.	Coach	Entering venue	- Venue entrance	PV	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O
		Information	- Venue Lobby	P	In
		Class	- Classroom	P	In
		Gathering	- Lobby, Aula	SP	In & O
		Buying snacks / Food	- Vending Machine - Cafeteria	SP	In & O
		Going to Class	- Classroom	SP	In & O
		Having Confrence	- Conference Room	SP	In & O
		Eating snacks	- Outdoor Amphitheater - Waiting Room	SP	In & O
		Watching Performance	- Auditorium - Outdoor Amphitheater	SP	In & O
		Going to toilet	- Lavatory	S	In
		Resting	- Lodging	PV	In
		ATM Transaction	- ATM Center	P	SO
		Shopping	- Gift shop	P	In
		Breakfast	- Restaurant	SP	In & SO
		Money Exchange	- Money Exchange	P	In
		Praying Call	- Musholla	SP	In
		Exiting venue	- Exit gate	P	O
		3.	Non Participant Visitor	Entering venue	- Venue entrance
Drop-off	- Venue Lobby			P	SO
Vehicle parking	- Park area			P	O & SO
Information	- Venue Lobby			P	SO
Shopping	- Gift shop			P	In
Eating full meal	- Restaurant			SP	In & SO
Chatting, Lounging, and Relaxing	- Café - Bar			SP	In & SO
Praying Call	- Musholla			SP	In
Going to toilet	- Lavatory			S	In
Doing nursery	- Lavatory			S	In
ATM Transaction	- ATM Center			P	SO
Exiting venue	- Exit gate			P	O

Source: self-analyzed data

*every activities done by the user are listed in order from their arrival to their departure from the venue.

Table 3. 2 Grouping Activities According to Management Personnel

MANAGEMENT STAFFS					
No	User	Activity	Space Demand	Space Traits	Space Types
1.	Head of Youth Center	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Receiving Reports	- Head office	PV	In
		Meeting	- Meeting Room	PV	In
		Meet Guests	- Private Guest Lounge	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
2.	General Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Receiving Reports	- GM office	PV	In
		Meeting	- Meeting Room	PV	In
		Meet Guests	- Private Guest Lounge	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
Operational Division					
3.	Operation Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Receiving and Sending Reports	- Operation Manager Office	PV	In
		Meeting	- Meeting Room	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
		4.	Operation Staff and Information Officer Staff	Entering venue	- Venue entrance
Drop-off	- Venue Lobby			P	SO
Vehicle parking	- Park area			P	O & SO
Serving the visitor	- Information Post			P	In & SO
Safe belonging	- Staff Locker Room			PV	In
Sending Reports	- Information Post			P	In & SO
Going to toilet	- Lavatory			S	In
Eating full meal	- Pantry			SP	In & SO
	- Cafeteria				

		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO		
		Exit the venue	- Exit Gate	P	O		
Athletic & Office Division							
5.	General Manager	Entering venue	- Venue entrance	P	O		
		Drop-off	- Venue Lobby	P	SO		
		Vehicle parking	- Park area	P	O & SO		
		Receiving and Sending Reports	- Show Manager Office	PV	In		
		Meeting	- Meeting Room	PV	In		
		Checking the operational condition	- Athletic Building - Main Building - International Building	PV	In & SO		
		Going to toilet	- Lavatory	S	In		
		Eating full meal	- Pantry	SP	In & SO		
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO		
		Exit the venue	- Exit Gate	P	O		
		6.	Athletic Office Manager	Entering venue	- Venue entrance	P	O
Drop-off	- Venue Lobby			P	SO		
Vehicle parking	- Park area			P	O & SO		
Meeting	- Meeting Room			PV	In		
Checking the Athletic Hall operational condition	- Athletic Building			PV	In & SO		
Going to toilet	- Lavatory			S	In		
Eating full meal	- Pantry			SP	In & SO		
Chatting, Lounging, and Relaxing	- Cafeteria			SP	In & SO		
Exit the venue	- Exit Gate			P	O		
7.	Projection & Audio Operator			Entering venue	- Venue entrance	P	O
				Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO		
		Safe belonging	- Theater Staff Locker Room	PV	In		
		Meeting	- Meeting Room	PV	In		
		Operating the Visual Arrangement	- Theaters Control Booth	PV	In		
		Going to toilet	- Lavatory	S	In		
		Eating full meal	- Pantry	SP	In & SO		
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO		
		Exit the venue	- Exit Gate	P	O		
		8.	Office Boy	Entering venue	- Venue entrance	P	O
Drop-off	- Venue Lobby			P	SO		
Vehicle parking	- Park area			P	O & SO		
Safe belonging	- Staff Locker Room			PV	In		
Meeting	- Meeting Room			PV	In		
Cleaning	- Athletic Building - Main Building - International Building			PV	In		

		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
9.	Event Promotion	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Safe belonging	- Staff Locker Room	PV	In
		Meeting	- Meeting Room	PV	In
		Checking the theater operational condition	- Althetic Buildidng - Main Building - International Building	PV	In & SO
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
Financial Division					
10.	Financial Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Receiving Reports	- Financial Manager office	PV	In
		Meeting	- Meeting Room	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
11.	Financial and Advertisement Staffs	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Doing office work	- Financial office	PV	In
		Meeting	- Meeting Room	PV	In
		Interacting with advertisement related business	- Financial office	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
Shops Division					
12.	Gift Shop Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Doing office work including receiving and sending report	- Shop Manager Office	PV	In
		Meeting	- Meeting Room	PV	In
		Interacting with shops client	- Shop Manager Office	SP	In

		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
13.	Gift Shop Staffs	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Safe belonging	- Shop Locker Room	PV	In
		Assisting customers	- Gift Shop	P	In
		Meeting	- Meeting Room	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Staff Pantry	SP	In & SO
		Exit the venue	- Exit Gate	P	O
14.	Gift Shop Cashier	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Safe belonging	- Shop Locker Room	PV	In
		Receiving payment from customers	- Gift Shop Cashier Booth	P	In
		Meeting	- Meeting Room	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Staff Pantry	SP	In & SO
		Exit the venue	- Exit Gate	P	O
15.	Artist Department Staff	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Creating Arts	- Gift Shop Athelier Studio		
		Assisting the customer works	- Gift Shop Atelier Studio	PV	In
		Meeting	- Meeting Room	PV	In
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
Food and Beverage Divisions					
16.	Cafeteria Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Doing office work including receiving and sending report	- Cafeteria Manager Office	PV	In
		Meeting	- Meeting Room	PV	In
		Interacting with restaurant client and staffs	- Cafeteria Manager Office	SP	In
		Monitoring Cafeteria Situation	- Cafeteria	P	In & SO
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Restaurant	SP	In & SO

		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO		
17.	Chefs	Exit the venue	- Exit Gate	P	O		
		Entering venue	- Venue entrance	P	O		
		Drop-off	- Venue Lobby	P	SO		
		Vehicle parking	- Park area	P	O & SO		
		Sign in	- Cafeteria staff lounge	PV	In		
		Safe belonging	- Restaurant Locker Room	PV	In		
		Cooking	- Restaurant Kitchen				
		Checking food supply	- Food storage	PV	In		
		Meeting	- Meeting Room	PV	In		
		Going to toilet	- Lavatory	S	In		
		Eating full meal	- Pantry	SP	In & SO		
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO		
		Exit the venue	- Exit Gate	P	O		
		18.	Kitchen Porter	Entering venue	- Venue entrance	P	O
Drop-off	- Venue Lobby			P	SO		
Vehicle parking	- Park area			P	O & SO		
Sign in	- Cafeteria staff lounge			PV	In		
Safe belonging	- Cafeteria Locker Room			PV	In		
Helping Chef	- Cafeteria Kitchen						
Preparing Beverage	- Cafeteria Kitchen			PV	In		
Preparing food supply	- Cafeteria Kitchen - Food storage			PV	In		
Loading food supply	- Food supply storage - Loading dock			PV	In		
Going to toilet	- Lavatory			S	In		
Eating full meal	- Cafeteria staff lounge			SP	In & SO		
Exit the venue	- Exit Gate			P	O		
19.	Dishwasher			Entering venue	- Venue entrance	P	O
				Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO		
		Sign in	- Cafeteria staff lounge	PV	In		
		Safe belonging	- Cafeteria staff lounge	PV	In		
		Collecting and washing dishes	- Cafeteria Kitchen	PV	In		
		Take out the garbage	- Cafeteria disposal	PV	In		
		Going to toilet	- Lavatory	S	In		
		Eating full meal	- Pantry	SP	In & SO		
		Exit the venue	- Exit Gate	P	O		
		20.	Cashier	Entering venue	- Venue entrance	P	O
Drop-off	- Venue Lobby			P	SO		
Vehicle parking	- Park area			P	O & SO		
Sign in	- Cafeteria staff lounge			PV	In		

		Safe belonging	- Cafeteria Locker Room	PV	In
		Receiving Payment	- Cafeteria	P	In & SO
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Cafeteria staff lounge	SP	In & SO
		Exit the venue	- Exit Gate	P	O
Maintenance and Service Division					
21.	Maintenance and Service Manager	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Doing office work including receiving and sending report	- Maintenance and Service Manager Office	PV	In
		Meeting	- Meeting Room	PV	In
		Monitoring Maintenance and Service Condition	- Venue public and utility spaces	P	In & SO
		Going to toilet	- Lavatory	S	In
		Eating full meal	- Pantry	SP	In & SO
		Chatting, Lounging, and Relaxing	- Cafeteria	SP	In & SO
		Exit the venue	- Exit Gate	P	O
22.	Technical Mechanic	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Utility staff lounge	PV	In
		Safe belonging	- Utility Staff Locker Room	PV	In
		Repairing utilities	- Utility spaces	PV P	In, SO, & O
		Eating full meal	- Utility staff pantry	PV	In
		Chatting, Lounging, and Relaxing	- Utility staff lounge	PV	In
		Exit the venue	- Exit Gate	P	O
		23.	Office Boy/Girl	Entering venue	- Venue entrance
Drop-off	- Venue Lobby			P	SO
Vehicle parking	- Park area			P	O & SO
Sign in	- Janitor staff lounge			PV	In
Safe belonging	- Janitor locker room			PV	In
Tools collecting	- Janitor room			PV	In
Cleaning and helping management crews	- Whole spaces in the venue			P, SP, & PV	In, SO, & O
Eating full meal	- Janitor staff pantry			PV	In
Chatting, Lounging, and Relaxing	- Janitor staff lounge			PV	In
Exit the venue	- Exit Gate			P	O
24.	Cleaning Service	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Janitor staff lounge	PV	In
		Safe belonging	- Janitor locker room	PV	In

		Tools collecting	- Janitor room	PV	In
		Cleaning and maintaining the hygiene in the building	- Whole spaces in the venue	P, SP, & PV	In, SO, & O
		Eating full meal	- Janitor staff pantry	PV	In
		Chatting, Lounging, and Relaxing	- Janitor staff lounge	PV	In
		Exit the venue	- Exit Gate	P	O
25.	Security Officer	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Security HQ	PV	In
		Safe belonging	- security locker room	PV	In
		CCTV monitoring	- CCTV room	PV	In
		Area guarding and monitoring	- Whole spaces in the venue	P, SP, & PV	In, SO, & O
		Receiving problem report	- Security posts	SP	In, SO, & O
		Exit the venue	- Exit Gate	P	O
26.	Parking Staff	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Parking staff lounge	PV	In
		Safe belonging	- Parking staff lounge	PV	In
		Directing customer's parking vehicles	- Parking area	P	SO & O
		Exit the venue	- Exit Gate	P	O
27.	Valet Staff	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Parking staff lounge	PV	In
		Safe belonging	- Parking staff lounge	PV	In
		Waiting for customer	- Valet booth (Lobby Curb)	P	SO
		Parking and picking customer cars	- Parking area	P	SO & O
		Exit the venue	- Exit Gate	P	O
28.	Gardener Staffs	Entering venue	- Venue entrance	P	O
		Drop-off	- Venue Lobby	P	SO
		Vehicle parking	- Park area	P	O & SO
		Sign in	- Janitor staff lounge	PV	In
		Safe belonging	- Janitor locker room	PV	In
		Tools collecting	- Gardening storage room	PV	In
		Gardening	- Whole green spaces in the venue	P, SP, & PV	In, SO, & O
		Eating full meal	- Janitor staff pantry	PV	In
		Chatting, Lounging, and Relaxing	- Janitor staff lounge	PV	In
		Exit the venue	- Exit Gate	P	O

Source: self-analyzed data

* Each user's activities are reported chronologically from their arrival until their exit from the location.

2. Operating Schedule

1. Annual Special Events Agenda

The Summer and Winter YOG last for 12 and 10 days respectively.

Table 3. 3 Annual schedule for special events

Source: self- Source: self-analyzed data

Months	Activity	Used Space	Duration
June	<ul style="list-style-type: none"> Youth Olympic Games 	<ul style="list-style-type: none"> Lodging 	Everyday for the whole month
		<ul style="list-style-type: none"> Central Building 	
		<ul style="list-style-type: none"> Athletic Building 	
		<ul style="list-style-type: none"> International Exchange Building 	
July	<ul style="list-style-type: none"> Youth Olympic Games 	<ul style="list-style-type: none"> Lodging 	Everyday for the whole month
		<ul style="list-style-type: none"> Central Building 	
		<ul style="list-style-type: none"> Athletic Building 	
		<ul style="list-style-type: none"> International Exchange Building 	
August	<ul style="list-style-type: none"> Youth Olympic Games Asean Games 	<ul style="list-style-type: none"> Lodging 	Everyday for the whole month
		<ul style="list-style-type: none"> Central Building 	
		<ul style="list-style-type: none"> Athletic Building 	
		<ul style="list-style-type: none"> International Exchange Building 	
September	<ul style="list-style-type: none"> Asean Games 	<ul style="list-style-type: none"> Lodging 	Everyday for the whole month
		<ul style="list-style-type: none"> Central Building 	
		<ul style="list-style-type: none"> Athletic Building 	
		<ul style="list-style-type: none"> International Exchange Building 	

*real life events that being hold in Indonesia with the actual event's date

2. Normal Daily Operational Schedule

To avoid overcrowding and maximize the visitor experience, the project's facilities operate on a set schedule. The schedule is listed below.

Table 3. 4 Daily Operational Schedule Table

Facility	Activity	Open	Close	Operational Date
Athletic Building	Sport Practice	07.30	20.00	Monday - Sunday
Central Building	Class and Meeting	07.30	20.00	Monday - Sunday
International Exchange Building	Confrence, Screening, Meeting	07.30	20.00	Monday - Sunday
Front Gate	Security	05.00	22.00	Monday - Sunday
Amphitheater	Outdoor Activities	07.00	20.00	Tuesday - Sunday
Gift Shop	Gift Shopping	10.00	20.00	Monday-Sunday
Cafeteria	Daily Opening	09.00	20.00	Monday-Sunday
Food Vending Machine	Daily Opening	24/7	24/7	Monday-Sunday
Lodging	Daily Opening	24/7	24/7	Monday-Sunday
Parking Facilities	Daily Opening	24/7	24/7	Monday-Sunday

Source: self-analyzed

3. User Amount Approach

The user of this project will be divided by two general users, based on their role in the activity.

a. Occupants

The permanent occupants (workers), Coach, Athlete.

b. Visitor

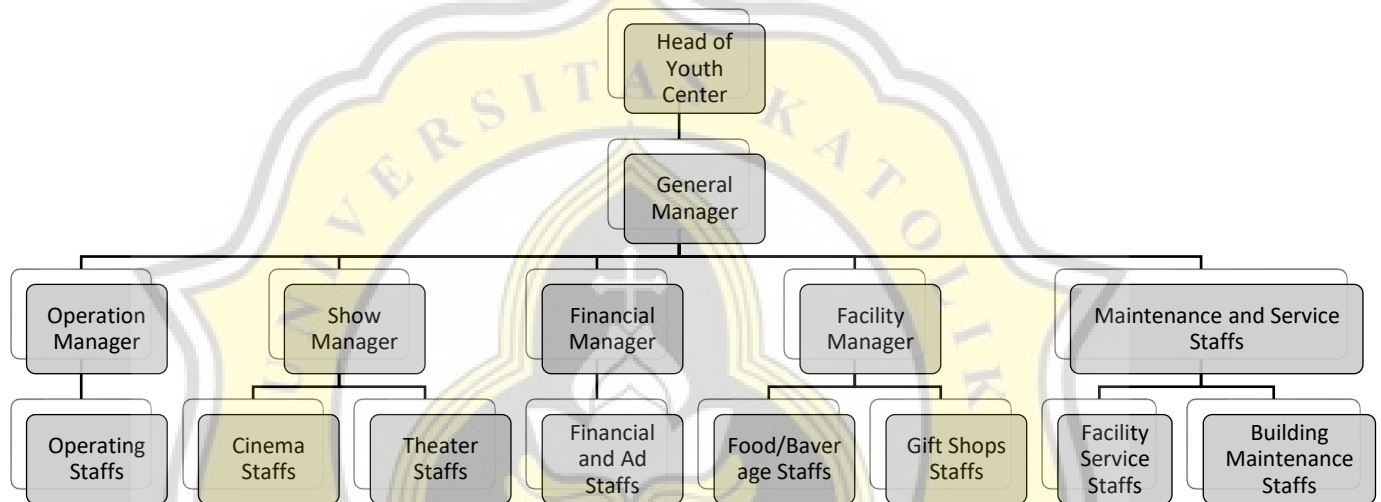
The majority of visitors are family, relatives, and coaches of athletes because sports competitions will still be held at the GOR.

4. User Amount Approach

This project's users will be classified into two categories based on their role in the activity..

c. Occupants

Permanent occupants of the projects include the head of youth, managers, crew, and personnel for the venue management organization, as described in the



structure below:

Diagram 2. 1 Building's Organization Structure
Source: self-analyzed

d. Visitor

Edition	Year	Host City	Host Nation	Opened by	Start Date	End Date	Nations	Competitors	Sports	Events	Top of the medal table	Ref.	
I	2010	Singapore	Singapore	President S. R. Nathan	14 August	26 August	204	3,524	26	201	China (CHN)	[34]	
II	2014	Nanjing	China	President Xi Jinping	16 August	28 August	203	3,579	28	222	China (CHN)	[35]	
III	2018	Buenos Aires	Argentina	President Mauricio Macri	6 October	18 October	206	3,997	32	239	Russia (RUS)	[36]	
IV	2026 ^[a]	Dakar	Senegal		22 October	9 November				35	244	Future event	[37]
V	2030	TBD	TBD									Future event	

Table 3. 4 Youth Olympic Participant

By examining competition participation in the youth olympics from 2010 to 2018, the following formula can be used to forecast the increase in visitor numbers:

TA = amount of visitor in the first variable

TB = amount of visitor in the second variable

$$\text{Visitor Growth Percentage} = \frac{TB - TA}{TA} \times 100\%$$

$$2014 = \frac{3579 - 3524}{3524} \times 100\% = 0.15\% \qquad 2018 = \frac{3997 - 3579}{3579} \times 100\% = 1.16\%$$

$$\text{Average Visitor Growth Percentage} = \frac{0,15 + 1,16}{2} \times 100\%$$

$$= 0,655 \%$$

The project expected to accommodate the facility for the year 2036, from the average visitor growth each year, it is possible to project the visitor growth 15 years ahead with the following formula :

$$Tp = To (p - 1)b$$

Tp = predicted visitor in particular year (2036)

To = amount of visitor in the second variable (2021)

p = number of predicted year

b = average visitor growth

$$PT = Po + (p - 1) b$$

$$= 5.000 + \{ (15-1) (0.655\% \times 5.000)\}$$

$$= 5.000 + (14 \times 32,75)$$

$$= 5.000 + 458,5$$

$$PT = 5.459 \text{ visitors in 2036}$$

5. Specific Space Study

The project's primary purpose is to serve as an International Youth Center, which provides housing, practice, and educational facilities. To identify the functions, characteristics, and unique practices of each space, it is critical to conduct a space analysis prior to programming the project. The amount of circulation in places is calculated in a consistent manner using Time-saver. Building Type Standards⁹:

- | | |
|-------------------------------------|----------|
| a. Minimum Standard | : 5-10 % |
| b. Free-space Standard | : 20 % |
| c. Physical Comfort | : 30 % |
| d. Specific Activities | : 50 % |
| e. Vehicular Circulation Efficiency | : 100 % |
| f. Vehicular Circulation Comfort | : 150 % |

The specialized space study has concentrated on the visual and spatial aspects of theater construction, with the goal of maximizing user comfort in the venue. The spaces listed below are those that require completion of specified standards.

⁹ Time-saver Standards for Building Types by Joseph De Chiara & John Callender (1973)

6. Indoor Space Requirements

Each space's requirement is determined by its illumination, natural and artificial air circulation, acoustics, security, safety, and view.

Table 3. 5 Space Requirements

No	Space	Space Requirements										
		Lighting		Air-flow Circulation		Acoustic		Security & Safety			View	
		Natural	Artificial	Natural	Artificial	Normal	Silent	CCTV	Fire Escape	Tsunami Escape	Inside the site	Outside
General Facilities												
	Drop-off	☀️	💡	🌀		🔊		📹	🔥	🚒	🏠	🚶
	Valet Booth	☀️	💡	🌀		🔊		📹	🔥	🚒	🏠	🚶
	Main Lobby	☀️	💡	🌀		🔊		📹	🔥	🚒	🏠	🚶
	Main Hall	☀️	💡	🌀		🔊		📹	🔥	🚒	🏠	🚶
	Information Center	☀️	💡	🌀		🔊		📹	🔥	🚒	🏠	
	Lavatory		💡	🌀		🔊			🔥	🚒	🏠	
Class and Auditorium												
	Lobby	☀️	💡		❄️	🔊		📹	🔥	🚒	🏠	
	Classes		💡		❄️	🔊		📹	🔥	🚒	🏠	🚶
	Functional Hall		💡		❄️	🔊		📹	🔥	🚒	🏠	
	Auditorium		💡		❄️	🔊		📹	🔥	🚒	🏠	
	Recital Hall		💡		❄️	🔊		📹	🔥	🚒	🏠	
	Projection & Audio Room		💡		❄️		🔇	📹	🔥	🚒	🏠	
	Backstage		💡		❄️		🔇	📹	🔥	🚒	🏠	
	Small Private Meeting Room		💡		❄️		🔇	📹	🔥	🚒	🏠	
	Conference Room	☀️	💡	🌀	❄️	🔊		📹	🔥	🚒	🏠	🚶
	Lavatory		💡		❄️	🔊			🔥	🚒	🏠	
	Staff Locker Room	☀️	💡		❄️	🔊			🔥	🚒	🏠	

	Janitor Room		💡		❄️	🔊		📺	🔥	🦿	🏠	
Athletic Building												
	Gymnastic Hall	☀️	💡		❄️	🔊		📺	🔥	🦿	🏠	
	Swimming Pool	☀️	💡		❄️	🔊		📺	🔥	🦿	🏠	1
	Functional Hall		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Tennis Court		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Badminton Court		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Football Court		💡		❄️	🔊		📺	🔥	🦿	🏠	
Office												
	Pantry		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Meeting Room		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Shops/Storage Area		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Shop and Storage Area	☀️	💡		❄️	🔊		📺	🔥	🦿	🏠	
	Fly System Areas		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Control Booth		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Amphitheater	☀️	💡	🌊		🔊		📺	🔥		🏠	1
	Snack and Beverage Vending Machine	☀️	💡	🌊		🔊		📺	🔥		🏠	1
	Janitor Room	☀️	💡	🌊		🔊		📺	🔥	🦿	🏠	
Supporting Facilities												
	Gift Shop	☀️	💡	🌊	❄️	🔊		📺	🔥	🦿	🏠	1
	Atelier Gift Shop Studio	☀️	💡	🌊	❄️	🔊		📺	🔥	🦿	🏠	1
	Gift Shop Lavatory	☀️	💡	🌊		🔊		📺	🔥	🦿	🏠	
	Gift Shop Staff Lounge	☀️	💡	🌊	❄️	🔊		📺	🔥	🦿	🏠	
	Gift Shop Manager Office		💡	🌊	❄️	🔊		📺	🔥	🦿	🏠	
	Cafeteria (Indoor)	☀️	💡		❄️	🔊		📺	🔥	🦿	🏠	
	Cafeteria (Semi-outdoor)	☀️	💡	🌊		🔊		📺	🔥	🦿		1
	Cafeteria s Kitchen		💡		❄️	🔊		📺	🔥	🦿	🏠	
	Cafeteria Manager Office	☀️	💡		❄️	🔊		📺	🔥	🦿	🏠	

	Cafeteria Lavatory		💡		❄️	🔊			🔥	🦠	🏠	
Management Facilities												
	Head Office	☀️	💡		❄️	🔊		📺	🔥	🦠		📏
	General Manager Office	☀️	💡		❄️	🔊		📺	🔥	🦠	🏠	📏
	Meeting Room		💡		❄️		🔊	📺	🔥	🦠	🏠	
	Operation Manager Office		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Show Manager Office		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Financial Manager Office		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Maintenance and Service Manager		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Office Boy Room	☀️	💡		❄️	🔊		📺	🔥	🦠	🏠	
	Security Headquarter	☀️	💡		❄️	🔊		📺	🔥	🦠	🏠	
	CCTV Room		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Security Posts	☀️	💡	🔌		🔊		📺	🔥	🦠	🏠	
	Janitor Staff Lounge		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Genset Room		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Utility Room		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Parking Staff Lounge		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Gardener Room		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Driver Lounge		💡		❄️	🔊		📺	🔥	🦠	🏠	
	Lavatory		💡	🔌		🔊			🔥	🦠	🏠	
Lodging Facilities												
	Bedroom Dormitory		💡		❄️		🔊		🔥	🦠	🏠	
	Bathroom		💡	🔌		🔊			🔥	🦠	🏠	
	Kitchen		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Genset Room		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Utility Room		💡	🔌		🔊		📺	🔥	🦠	🏠	
	Lavatory		💡	🔌		🔊			🔥	🦠	🏠	
	Living Room		💡		❄️	🔊		📺	🔥	🦠	🏠	

	Lavatory		!	≡		🔊			🔥	🏠	
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Source: self-analyzed data



7. Indoor Space Dimension

Table 3. 6 Space Dimensions based on the Space Demand

No.	Spaces	Capacity (person)	Amount of Spaces	Information and/or Area-Length x Width (m ²)	Total Area (m ²)	Source
General Facilities						
1.	Drop-off Curb	50 ppl	1	50 x 1,8 m ²	90 m ²	NAD
		10 cars	1	10 x (2,5 m x 5 m) + 150% physical comfort circulation	312,5 m ²	TS
2.	Main Lobby	50 (assumption people passing through in one time)	1	50 x 0.9 m ² (human dimension) + 30% (physical comfort)	58.5 m ²	NAD+ TS
3.	Main Hall	500 (standing)	1	500 x 0.9 m ² (human dimension) + 30% (physical comfort)	585 m ²	NAD+ TS
4.	Press Room	150	1	150 ppl x 2 m ²	300 m ²	NAD
5.	Information Center	3	3	3 x 3 frontline desk (0,8 m x 1m) + 30% circ. (physical comfort)	9,36 m ²	NAD+ TS
6.	Lavatory	20	3	5 m x 6 m	90 m ²	SSD*
Class & Auditorium						
7.	Small Class	14	40	5 m x 9 m	1.800 m ²	SSD*
8.	Conference Room	256	4	4 x 240,25 m ² + 26,25 (projection booth)	1.064 m ²	SSD*
9.	Auditorium	110	1	204 m ² + 26,25 m ² (projection booth)	230,5 m ²	SSD*
10.	VIP Lounge	150	1	150 ppl x 1,8 m ²	270 m ²	NAD
11.	Snack Bar Manager Office	3	1	4 m x 4 m	16 m ²	SSD*
12.	Lavatory	20	2	5 m x 6 m	60 m ²	SSD*
13.	Staff Locker Room	4	2	2 m x 3 m	24 m ²	SSD*
14.	Janitor Room	3	1	2,4 m x 4,1 m	9,8 m ²	AHFG
Athletic Facility						
15.	Snack and Beverage Vending Machine	4	1	4 vending machine x 0,8 m x 1,1 m x 20% circulation (free-space standard)	4,2 m ²	NAD+ TS
16.	Visitor Lavatory	20	1	5 m x 6 m	30 m ²	SSD*
17.	Auditorium	640	1		443 m ²	SSD*
18.	Backstage House	Capacity for 80 performers and 43 crews & staffs		Total Area	2.150,9 m²	SSD*
19.	Amphitheater	476	1	476 seat-less concrete amphitheater (each space of 0,75 m x 0,9 m)	442 m ²	SSD*
20.	Snack and Beverage Vending Machine	4	1	4 vending machine x 0,8 m x 1,1 m x 20% circulation (free-space standard)	4,2 m ²	NAD+ TS
21.	Janitor Room	3	1	2,4 m x 4,1 m	9,8 m ²	AHFG
General and Supporting Facilities						
22.	Gift Shop	100	1		332 m ²	SSD*
23.	Atelier Gift Shop Studio	50	1	(4,5 m x 15 m) + (8,5 m x 15 m) + (7 m x 15 m)	257,5 m ²	SSD*
24.	Gift Shop Lavatory	12	1	2 x (2 m x 1 m) + (2,8 m x 4 m)	26,4 m ²	SSD*

25.	Gift Shop Staff Lounge	10	1	6 m x 10 m	60 m ²	SSD*
26.	Gift Shop Manager Office	3	1	4 m x 4 m	16 m ²	SSD*
27.	Cafeteria (Indoor)	100	1	100 ppl x 1,8 m ²	180 m ²	NAD
28.	Cafeteria (Semi-outdoor)	60	1	60 ppl x 1,8 m ²	108 m ²	NAD
29.	Cafeteria's Kitchen	14	1	160 x 1,4 m ² *including kitchen lavatory, manager room, storage, and staff room, based on Neufert's AD	224 m ²	NAD
30.	Cafeteria Manager Office					
31.	Cafeteria Lavatory					
Management Facilities						
32.	Head Office	1	1	5m x 5m	25 m ²	NAD
33.	General Manager Office	1	1	4m x 5m	20 m ²	NAD
34.	Meeting Room	16	1	16 ppl x 2 m ²	32 m ²	NAD
35.	Operation Manager Office	1	1	4m x 4m	16 m ²	SSD*
36.	Show Manager Office	1	1	4m x 4m	16 m ²	SSD*
37.	Financial Manager Office	4	1	4 x 2,5 m ²	16 m ²	NAD
38.	Maintenance and Service Manager Office	5	1	5 x 2,5 m ²	12,5 m ²	NAD
39.	Office Boy Room	7	1	7 x 2 m ²	14 m ²	NAD
40.	Security Headquarter	9	1	9 x 2,9 m ²	26,1 m ²	NAD
41.	CCTV Room	1	1	3,96 m x 4,72 m	18,7 m ²	RCMP
42.	Security Posts	1	5	5 x 1,5 m x 2 m	15 m ²	NAD
43.	Janitor Staff Lounge	8	1	8 x 2 m	16 m ²	NAD
44.	Generator Set Room		1	7 m x 10 m	70 m ²	Pre
45.	Utility Room (Mechanical Electrical including Air Conditioning System)		1	10 m x 15 m	150 m ²	SSD
46.	Parking Staff Lounge	4	1	4 x 2 m ²	8 m ²	NAD
47.	Gardener Room	7	1	7 x 2 m ²	14 m ²	NAD
48.	Driver Lounge	15	1	15 ppl x 1,8 m ²	27	NAD
49.	Lavatory	20	2	5 m x 6 m	60 m ²	SSD*
TOTAL SPACE					9.763,96 m²	

Source: self-analyzed data

SOURCE ABBREVIATION:

1. SSD* = Specific Study Dimension, based on self-illustrated space dimension
2. NAD = Neufert's Architect Data

3. RCMP = Royal Canadian Mounted Police publication (CCTV: G1-013 Security Control Centre Space Requirements)
4. Pre = Precedence Study
5. AHFG = Australian Health Facility Guidelines

8. Indoor Space Grouping

1. Space Grouping

There are five primary areas in this project, with the General Facilities room serving as the central hub for all of the other spaces in the building.

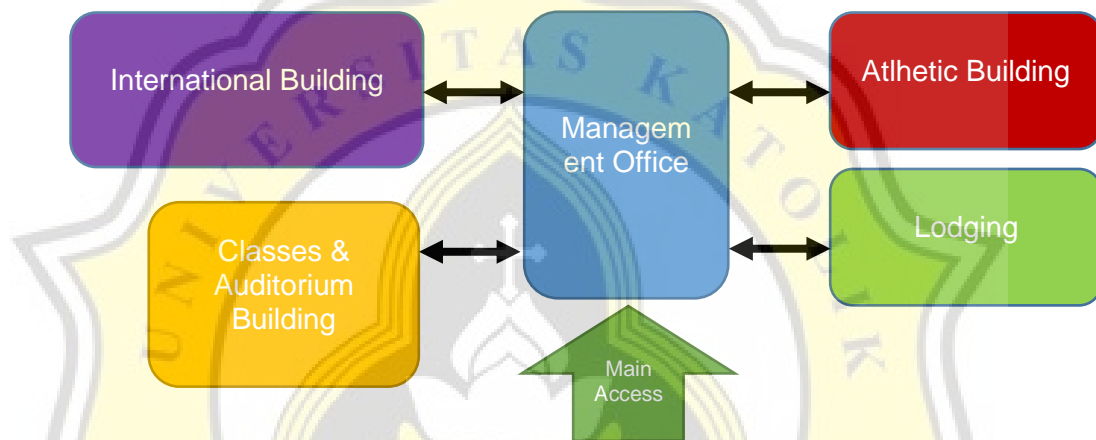


Figure 3. 2 Diagram of Space Grouping
Source: self-illustrated and analyzed figure

2. Indoor Space Zoning and Organization

General Facilities

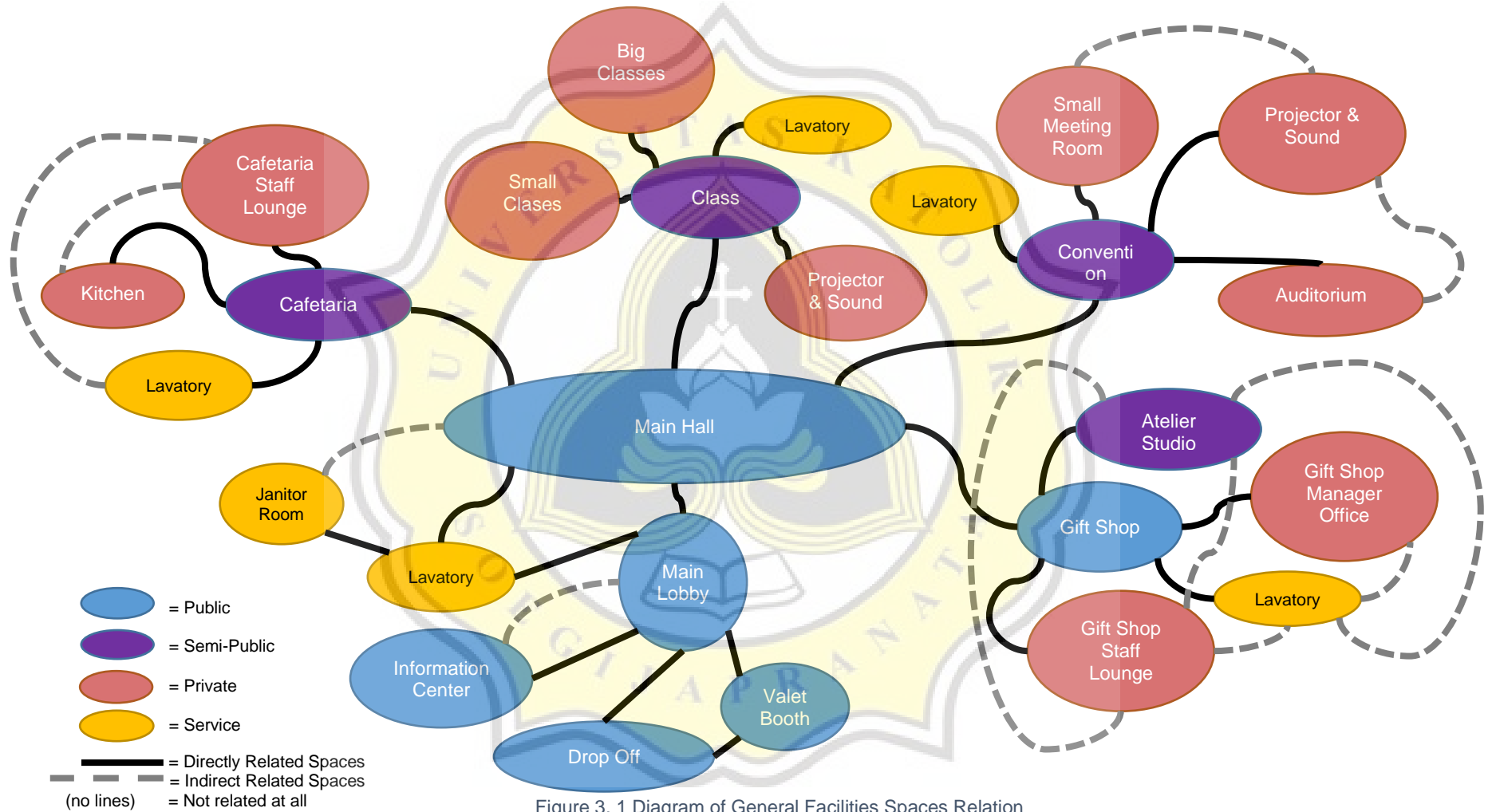
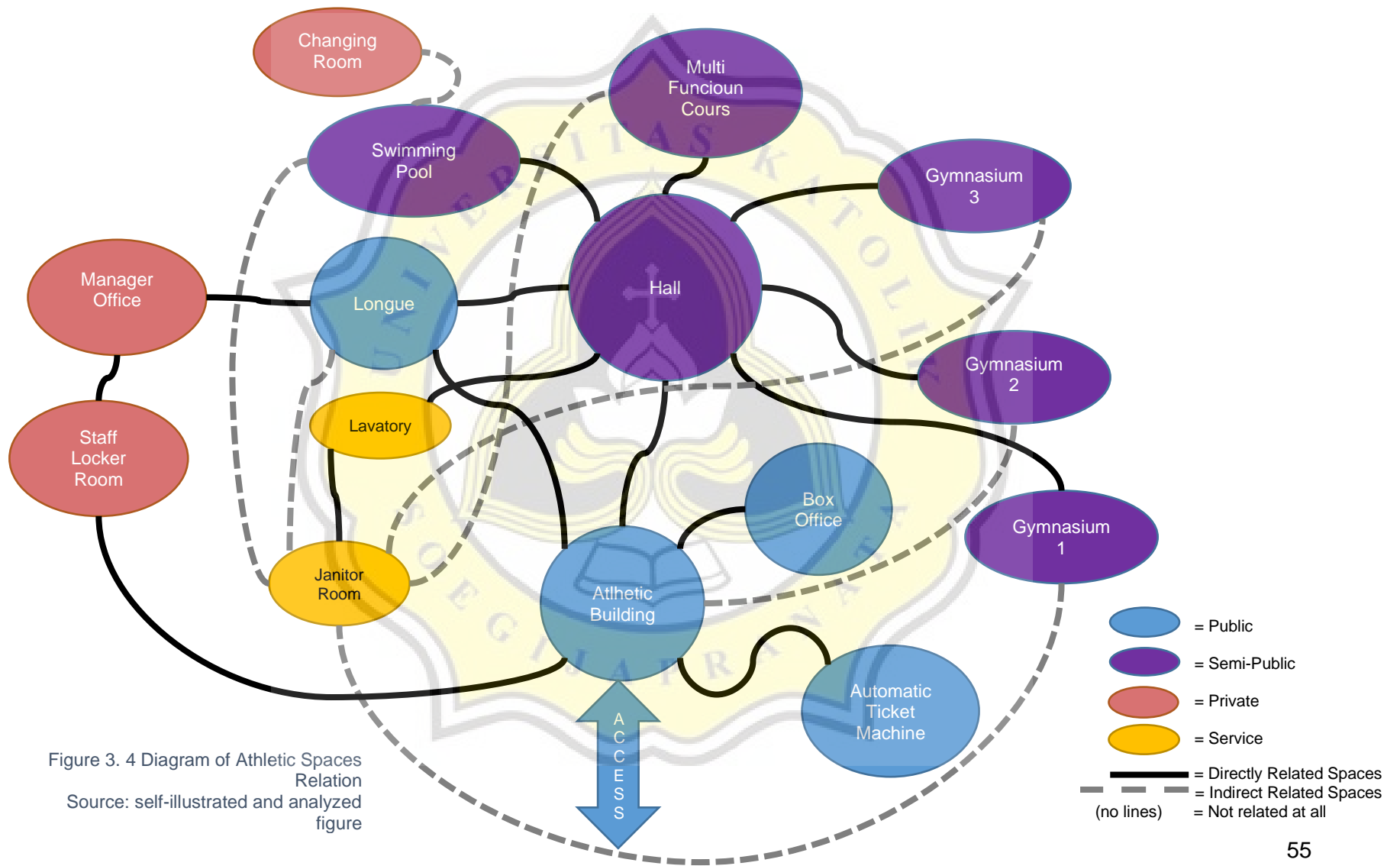


Figure 3. 1 Diagram of General Facilities Spaces Relation
Source: self-illustrated and analyzed figure

a. Athletic Building



b. Management and Service Facilities

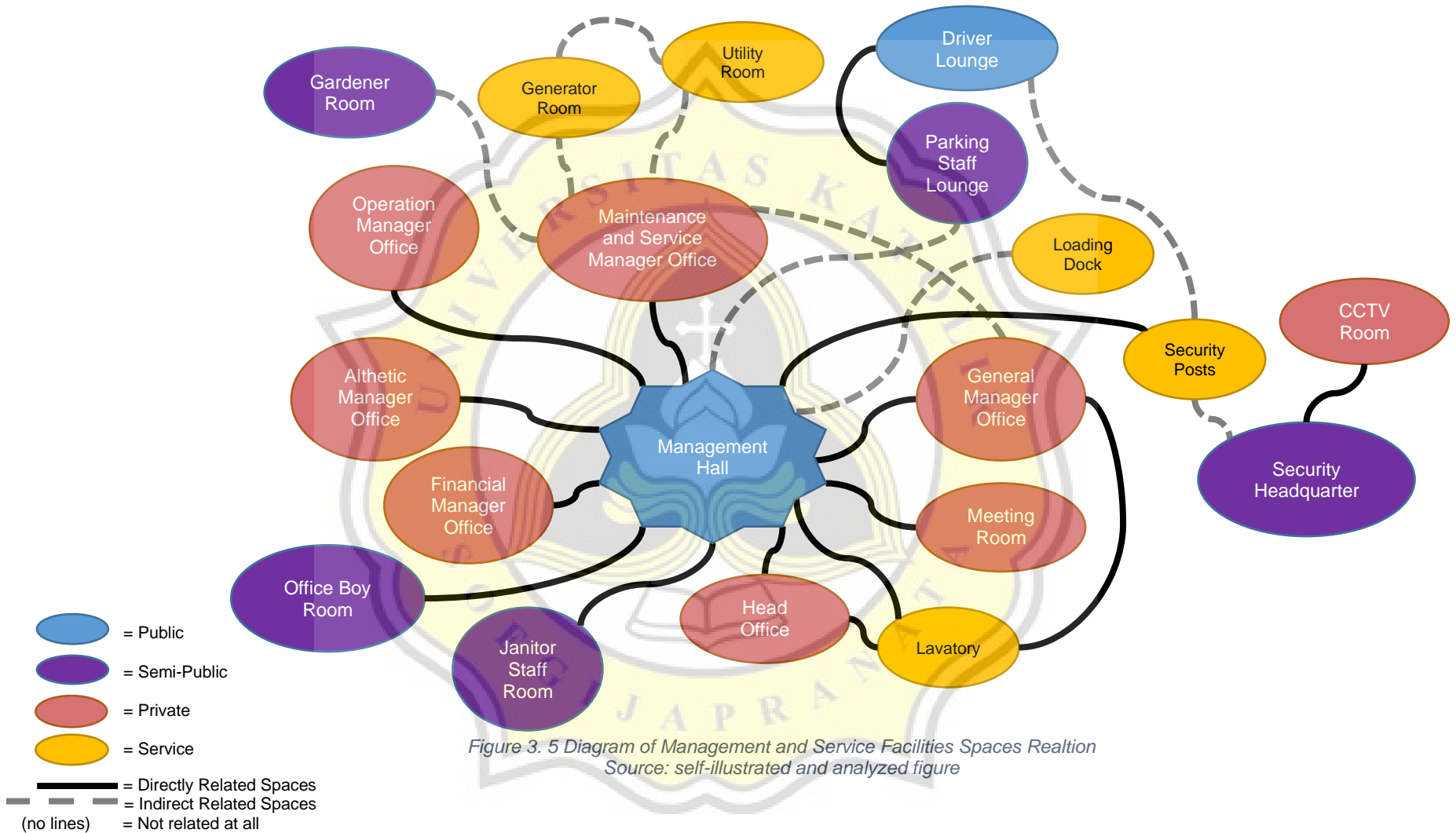


Figure 3. 5 Diagram of Management and Service Facilities Spaces Relation
 Source: self-illustrated and analyzed figure

B. Site Analysis

9. Outdoor Space Forms

a. Outdoor Space Demand

The outdoor space in this project is being used as a running track, garden, health center, entertainment area, and parking area, in addition to providing vehicle circulation and green open air space in the form of passive and active gardens.

b. Outdoor Space Dimension

The available parking space in the project is calculated based on the venue's capacity. Because the market for this project is primarily composed of tourists who commute via public transportation, rented motorcycles, online transportation, and walking, the division of each parking category is presumably as follows: car parking space (40 percent), motorcycle parking space (30 percent), and the remainder is assumed to be of another type. The dimensions of the parking spaces below were determined using data from the Direktorat Bina Sistem Lalu Lintas Angkutan Kota, Pedoman Perencanaan dan Pengoperasian Fasilitas Parkir, Jakarta (1998).

Table 3.7 Outdoor Space Dimensions

No.	Spaces	Capacity	Amount of Spaces	Information and/or Area-Length x Width (m ²)	Total Area (m ²)	Source
PARKING AREA						
1.	Parking Area	Cars	674	$= \frac{\text{Total Venue Capacity}}{4 \text{ (assumption capacity for one car)}} \times 40\%$ $\times (2,5\text{m} \times 5\text{m}) + 100\% \text{ vehicle circulation}$ $= \frac{5.393}{4} \times 40\% \times 12,5\text{m}^2 + 100\%$	10.111 m ² (basement)	NAD + TS

				$= 6.741,25 \text{ m}^2 (539 \text{ cars}) + 100\% \text{ (of total car capacity)}$ $= 6.741,25 \text{ m}^2 + 6.741,25 \text{ m}^2$ The end result are divided by 2 section, 25% outdoor parking area and 75% basement parking area	3.370 m ² (outdoor)	
		Motorcycles	1.064	$=$ $\frac{\text{Total Theaters and Employee Capacity}}{2} \text{ (assumption capacity for one bike)}$ $\times 30\% \times (0,75\text{m} \times 2\text{m}) + 100\% \text{ vehicle circulation}$ $= \frac{2.129}{2} \times 30\% \times 1,5 \text{ m}^2 + 100\%$ $= 479 \text{ m}^2 (319 \text{ motorcycles}) + 100\% \text{ (of total car capacity)}$ $= 479 \text{ m}^2 + 479 \text{ m}^2$ *all motorcycle parking area is in the basement	958 m ²	PPFP* + TS
		Disabled Cars	6	Amount of Parking Space x 50% x (3m x 5m) + 100% vehicle circulation $= 6 \times 15 \text{ m}^2 + 100\%$ $= 90 \text{ m}^2 + 100\% \text{ (of total car capacity)}$ $= 90 \text{ m}^2 + 90 \text{ m}^2$	180 m ²	PPFP* + TS
2.	Loading Dock	Mid-Class Box Truck	4	4 dock x 3,4m x 12,5m + 100% vehicle circulation $= 170 \text{ m}^2 + 100\% \text{ (of total capacity)}$ $= 170 \text{ m}^2 + 170 \text{ m}^2$	340 m ²	PPFP* + TS
OVERALL PARKING AREA					14.959 m²	
GARDEN AREA						
3.	Passive Garden	Non-accessible Vegetation	1	Site Area - (Indoor Space Area+Outdoor Parking Area) x 50% (50:50 ratio of Passive & Active Garden Green Areas) $= 31.030 \text{ m}^2 - (10.583 \text{ m}^2 + 3.370\text{m}^2) \times 50\%$ $= 31.030 \text{ m}^2 - 13.953 \text{ m}^2$ $= 17.077\text{m}^2 \times 50\%$	8.538,5 m ² (Passive Garden)	NAD+T S
4.	Active Garden	Accessible Pathway	1		8.538,5 m ² (Passive Garden)	
OVERALL OPEN GREEN AREA					17.077 m²	

Source: self-analyzed data

c. Outdoor Space Traits

The outside area has functional spaces with distinct characteristics determined by the degree of seclusion afforded to each place.

Table 3.8 Outdoor Space Traits

No	Space	Activity	Space Demand	Space Traits	Space Types
1.	Parking Area (Basement)	Vehicle Parking	Car Parking Area Motorcycle Parking Area Disabled Parking Area	P	In
		Loading Items	Loading Parking area	P	In
2.	Parking Area (Outdoor)	Vehicle Parking	Car Parking Area	P	O
3.	Passive Garden	Provide open green area	Sightseeing	P	SO & O
4.	Active Garden	Walking through the pathway and enjoy the garden	Sitting on park bench Walking Sightseeing	SP	SO & O

Source: self-analyzed data

10. Outdoor Space Zoning

The outdoor zoning in this project is decided by the link of the outdoor area to the inside space and the accessibility of the various locations offered.

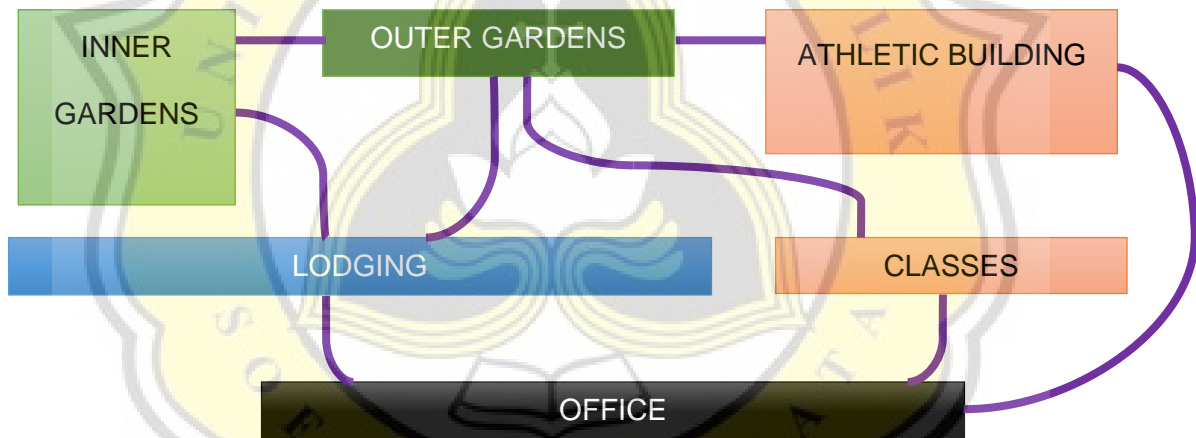


Figure 3.9 Diagram of Outdoor Space Zoning based on spaces relationship

Source: self-illustrated and analyzed figure

- = Directly Related Spaces
- = Indirect Related Spaces
- (no lines) = Not Related at all

The only distinction between the outer and inner gardens is the access to them from the outside. Residents of the inn area can receive therapy and healing in the storage area, which is located outside in the garden for active area activities. With this increase in seclusion, it is intended that this will improve the overall level of tranquility in the resting area.

11. Effective Area based on the regulation and site condition

- a. **Zone Focus** : Lodging & Athletic Building
- b. **Maximum land use buildable area (KDB)** : $40 \% \times 114.778 \text{ m}^2 = 45.911 \text{ m}^2$ of buildable land area meanwhile the calculated space demand is **9.763,96 m²** (qualified with the maximum space allowance)
- c. **Maximum height** : 15 meter above the land surface, roof excluded
- d. **Green Area Coefficient (KDH)** : $10\% \times 114.778 \text{ m}^2 = 11.477 \text{ m}^2$, based on the calculation on the green area in the project, resulting in 17.077 m².
- e. **Site setback** : 1,5 times the existing road, 10 meter from the axis of the road (front or street)
- f. **Maximum Fence Height** : 1,8 meter (front), 2,5 meter (side and back)

