SUDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLAGE OF ARCHITECTURE AND PLANNING

ARCHITECTURAL DESIGN DEPARTMENT

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A STUDY SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE B.SC.

RECREATIONAL TOURISM RESORT

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‘’ BE STEADFAST :GOD DOES NOT LET THE REWARDS OF THOSE WHO DO GOOD TO GO TO WASTE ‘’

HUD (115)

ABSTRACT:

The project is a Recreational resort uses the nature in relaxing, it depends totally on the ingredients of nature such as the water elements (lakes ,water falls) , mountains, trees …etc , it's also depends on it to create new ways to entertain tourists and to relax away from the technology and the stressful routine.

The project aims to rise the economic situation and presenting the different cultures.

The purpose of the project is trying to have a healthy society by keeping the tourists away from the work pressure and creating a quiet nature in the resort.

The project contains of many entertaining activates and residential zones.

DEDICATION:

I dedicate this thesis to my family with much love and appreciation. To my mom ,my source of strength and perseverance ,and to my Dad , my hero and role-model ,who has always done more than he could to give us the best out of life .I can't thank you both adequately for all what you have done to me , from loving me unconditionally , sacrificing and rising me up the right way. I could not ask for better . Only Allah will be able to reward you. A special feeling of gratitude to my sisters and brother who always added a joyful supportive flavour to my life .To my baby joe .

To my khosasa' squad "sisters from another misters " , to the amazing Mazin and his box office , To those whom I'm blessed to know them and having them in my life ;shayma', Jozouli , Tejo ,Snooki. a special dedication to my comfort zone the angelic Radwa . To you Ponokio .To my tears which cleared my vision seeing a brighter future full of challenges and goals .To my self , for every time I was ready to quit , but you didn't let me and forever grateful. To my sleepless nights .

I also would like to dedicate this thesis to my many friends ,family and seniors who have supported me all the way through .

ACKNOWLEDGMENT

This project Thesis would not have been possible without the mercy of Almighty Allah . All praise and thanks are due to Allah.

First and foremost I have to thank my research supervisor Dr. Njat Osman El baroodi .

Also I want to extend my profound gratitude to

_Professor . SO'OUD SADIG .

_Administration of faculty of architecture and planning , sudan university of science and technology.

_My dear Mom and Dad .

_Finally , I want express my sincere appreciation to my classmates batch 19 .

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CHAPTER ONE :

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_PROJECT DIMENSIONS.

- 1.Functional Dimensions:
- social dimensions
- aesthetic dimensions.
- constructional dimension.

_CHALLENGES OF THE PROJECT.

ABOUT THE PROJECT

(1_1) PROJECT DEFINITION:

It is a recreational tourism project ,it depends on the mountains nature and the associated activities ,it provides residential services, social and the cultural services, entertainment ,tourist services especially for the highlanders and mountaineers ,in the best ways with an appropriate techniques.

(1_2)THE NEED FOR THE PROJRCT :

*laying a side the daily routine and create a serenity.

*the rareness of such resorts .

*the amount of the wasted and non exploit tourist areas in sudan .

(1_3)AIMS OF THE PROJECT:

- Public Aims:

_Increasing the national economy.
_Providing work opportunities and improving the labor force's skills.
_changing the architectural impression of western sudan.
_ revitalizing the tourism sector .

- Personal Aims:

_Applying the modern structural systems that suit the certain site
_achieving a personal vision of combining different activities & the nature.
_designing a graduation project that leaves an inspirational print in this type of buildings .
_strengthening the social bonds between the state 's residents.

(1_4)THE IMPORTANCE OF THE PROJECT:

*adding an architectural project to be a landmark and a new tourist destination.

*raising the urbanization level in the regions by such projects .

*developing the tourism concept.

*reducing the tourist concentration .

*diversifying the tourist patterns and not to limiting it in monuments and civilizations .

*Spread the concept of summering and the internal tourism to get rid of life's pressures .

*having a project which attracts the tourists from inside & outside of sudan and getting attention to areas with fabulous nature .

(1_5)PROJECT DIMENSIONS:

1.Functional Dimensions:

_presenting a project with it's functions and activities in a high class degree.
_ drawing attention of the tourism investments.
_improving the tourism buildings.
_friction with nature and adopting a project goes in a line with it.

2.Social Dimensions:

_identifying the regions nature and the local cultures and traditions.
_preparing a society with a hospitality essence.

3.Aesthetic Dimensions:

_creating an attractive tourist spot.
_enjoying the contrary nature and climate of the area.

4. Constructional Dimensions:

_using modern construction methods which are more durable and least expensive.
_finding solutions to ensure overlapping the design with the topography.

(1_6) CHALLENGES OF THE PROJECT:

_the flexibility of the design which allows an easily movement between the spaces with it's different facilities.
_creating a functional integration between different elements although keeping the privacy of each element .
_spectacular and logical overlap between functions and scenes .
_considering the aesthetic aspect as the main factor for attracting the tourists.
_caring about the interior design of the building and create a sort of transparency between the internal and external elements .
_getting the best design which integrates with nature using the modern techniques.

CHAPTER TWO :

DATA COLLECTION SOURCES:

1. DESIGN AND PLANNING PRINCIPLES.
   -planning principles.
   -design principles.

2.CASES STUDY.

3.SITE SELECTION.

4. ABOUT TOURISM , TOURISM BUILDINGS IT'S TYPED AND COMPONENTS

DATA COLLECTION SOURCES:

(2_1) DESIGN AND PLANNING PRINCIPLES.

(2_1_1) **PLANNING PRINCIPLES:**

planning of recreational tourism resort is a distribution of a specific programs ,elements ,spaces on the chosen site that achieves proper and appropriate functional relations among the components of the project with different functions.

In addition to the recreational services provided by these resorts ,however, the resort must have special conditions to cover the investment needs which achieve a remarkable economic prosperity. This might be done by giving the resort a distinctive architectural character or creating a strong picture that will always remain in the memory of the tourist .

_ There are several important social factors affecting the planning and the design of most tourism resorts , including:

1. extreme calm.
2. laying a side the daily routine and create a serenity.
3. The possibility of communication with others and integration with them without the need to use names ,and to identify their customs and traditions .
4. The availability of places to exercise as an important recreational elements ,which is difficult to do in cities.
5. The rooms must have individual services to serve the individual and the family at the same time .
6. Provide business service area and telecommunications officials to meet all their requirements.

undoubtedly ,creating a photo or character of a tourism resort in the mind of tourist is an important design foundation,

this can be achieved in several ways including:

1. The maximum use of the site and it’s topography.

2. Having an action plan for the development of the village's future .
3. Optimized Exploitation of available natural resources .
4. Perception of the available services through the site and climate.
5. Providing opportunities to communicate with the local people and exploring the cultural differences.
6. Integrating with mother nature:

   It might be visible as a panoramic terraced ,view or physically where giving the tourists the opportunity to touch the natural elements surroundings as plants , flowers and rocks . often natural elements might permeate inside the resort , therefore, it should be subject to exploit the resort views , whether a park , sea , lake , water fall or a mountain .

(2_1_2)DESIGN PRINCIPLES:

Its placing facilities in the formation of anthropomorphic and integrated of buildings .

Includes :

1. Site selection.
   - The fitting of site's area with the number of buildings.
   - The topography of earth and diversity in the formation with avoiding difficult controlled elements .
   - The nature of the surroundings areas whether green areas ,buildings with different forms and views.
2. Functional bonds .
3. Traffic ,Roads and transportation.

   Corridors and internal transportation are affected by site topography and the various elements that linking them , and should provide several fundamental terms as:

   _The easy access any places of the site safety.

   _transportation network should be should be easy and simple so it helps the clarity of general structure of the design ,therefore ,be the basis of the study of site formation ,it's divided to :

   a. Pathways and walkways .
   b. Internal transportations routes.
4. The study of optical formation.

5. - Hotel components.
6. - Traffic paths.
7. - Entries and exits.
8. -the exterior and the interior views.
9. - Number of rooms
10. Scale .
11. It is the relationship between the dimensions of -part to all- giving the vacuum sense of small and big , unite and split.
12. The colours.

    It affects the psychology of the spaces users.
    Such as:
    -blue gives the feeling of roominess.
    -orange as atonic of digestion.
    -yellow gives the feeling of happiness...etc.
    -the colours that used in residential spaces are:
    Hot colours as maroon red , baigue and pink or cold colours as baby blue or grey .

13. Lighting.

    -natural lighting .

    -lighting fixtures.

(2_2) CASE STUDIES:

(2_2_1) MOUNTAIN BREEZE RESORT:

NATIONAL PROJECT :

Location: Latakia , Qlayla, Syria

Architect: arc. Kassam

Project's area :1.5 hectares (the built area).

Height: 950 m over the sea level .

_30 km away from basil Elassad airport.

FIGURE (1) SHOWS AN EXTERIOR VIEW OF THE RESORT

THE ZONE	AREA
Indoor Residential spaces	1360m2
Outdoor residential spaces	5280m2
Entertainment spaces	1938m2
Athletic spaces	195m2
Recreational spaces	1365m2
Services	1355.5m2
Business center	105m2

TABLE (1) SHOWS THE RESORT ZONES AREAS

CONSISTS OF :

A Summer restaurant

B Tree walkway

C Boutique hotel

D Pine forest

E Cycling route

F Chalets

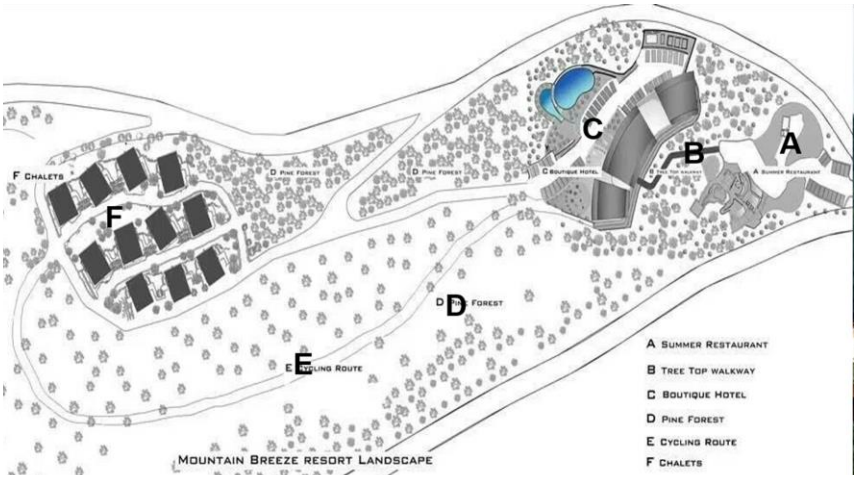


FIGURE (2) SHOWS THE RESORT MASTER PLAN

(2_2_1_1)THE GROUND FLOOR :

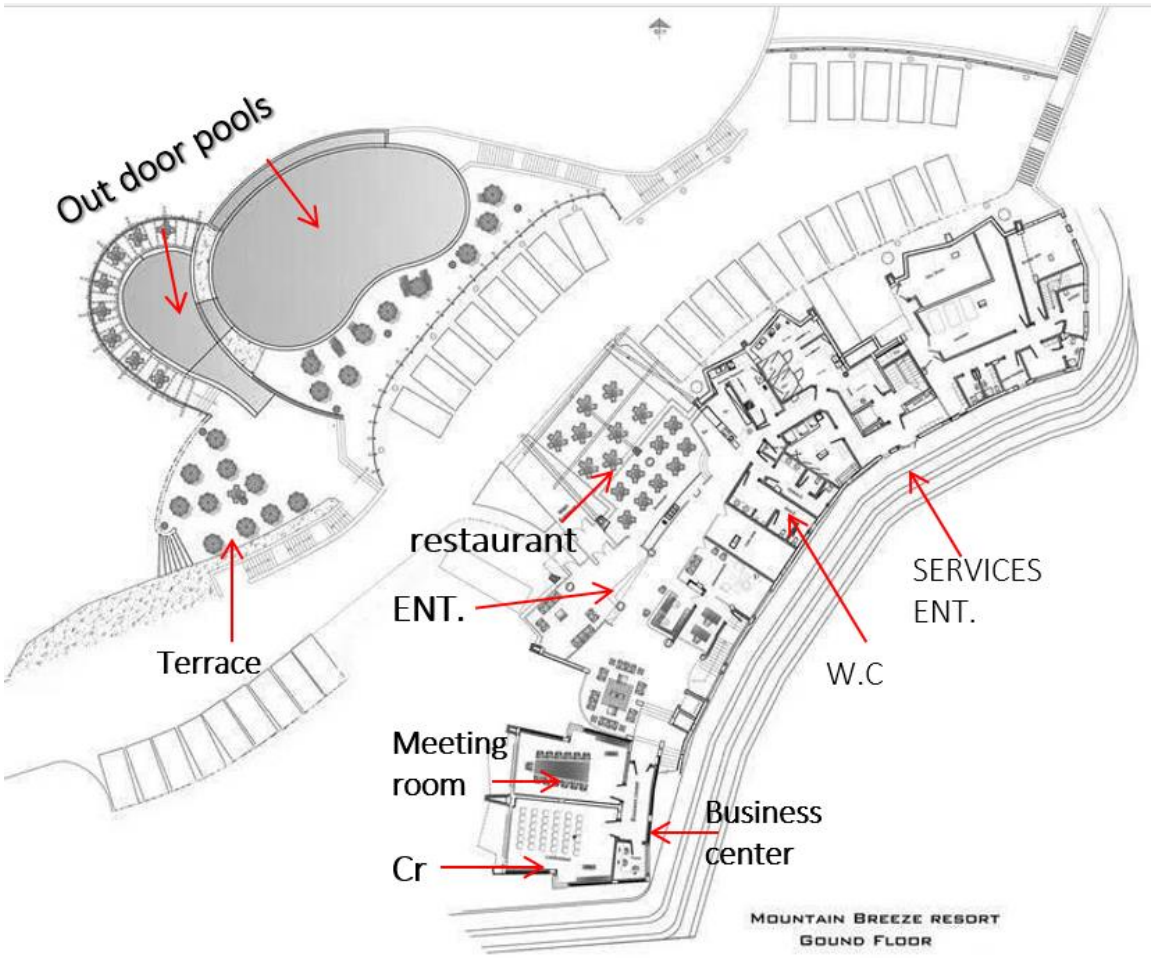


FIGURE (3) SHOWS THE GROUND FLOOR PLAN

FIGURE (4) SHOWS POOL VIEW.

SPACE	AREA	NUM . OF AREAS	TOTAL AREA
RECEPTION	500m2	1	500m2
INFORMATION OFFICE	54m2	2	108m2
SPA	1200m2	1	1200m2
LAUNDRY	56m2	1	56m2
RESTAURANT & PUB	900m2	1	900m2
KITCHEN	65m2	1	65m2
W.C	30m2	1	30m2
TRAVEL AGENCY	35m2	1	35m2
NET CAFE	35m2	1	35m2
MEETING ROOM	42m2	1	42m2
CLASS ROOM	63m2	1	63m2
OUTDOOR POOL '1'	1500m2	1	1500m2
OUTDOOR POOL '2'	525m2	1	525m2
PARKING	17.5m2	33	577.5m2
TOTAL AREA			5636.5m2

TABLE (2) SHOWS GROUND FLOOR AREAS

(2_2_1_2)THE FIRST FLOOR :

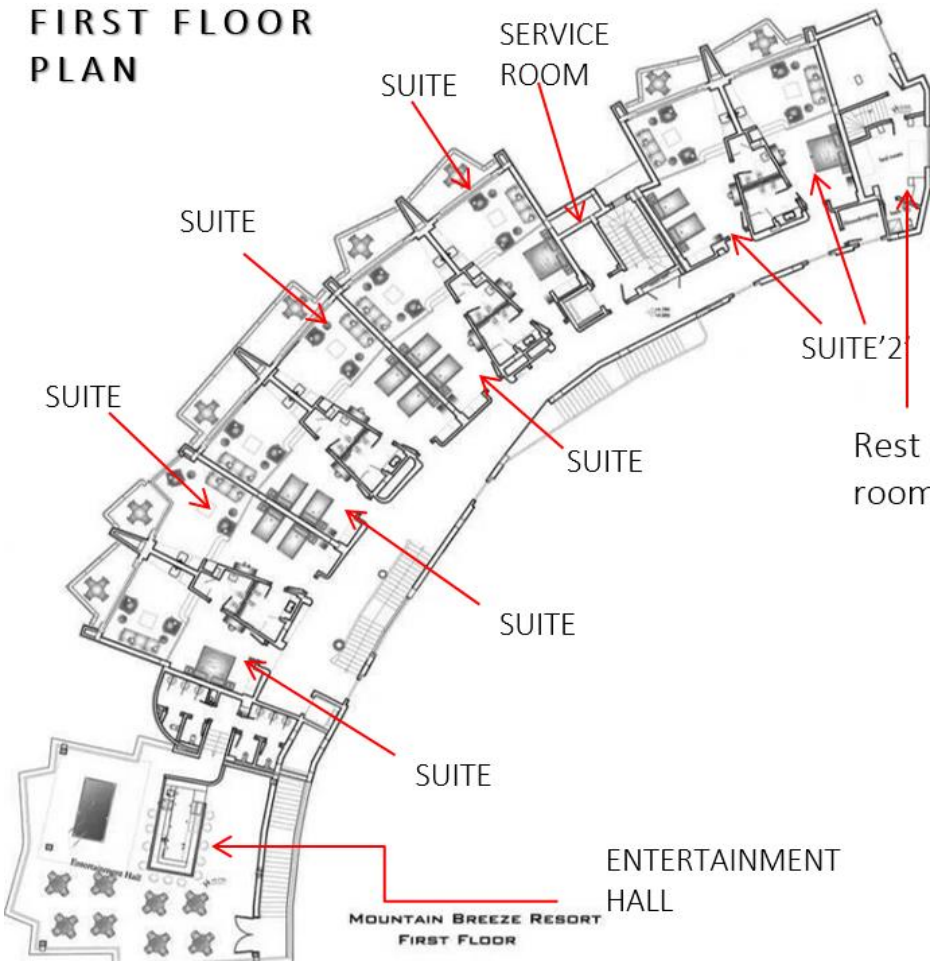


FIGURE (5) SHOWS THE FIRST FLOOR PLAN .

SPACE	AREA	NUM . OF AREAS	TOTAL AREA
SUITE	70m2	6	420m2
SUITE'2'	50m2	2	100m2
SERVICE ROOM	m220	3	60m2
W.C	3m2	4	12m2
ENTERTAINMENT HALL	375m2	1	375m2
TOTAL AREA	_	_	967m2

TABLE (3) SHOWS FIRST FLOOR SPACES AREA

(2_2_1_3)THE SECOND FLOOR :

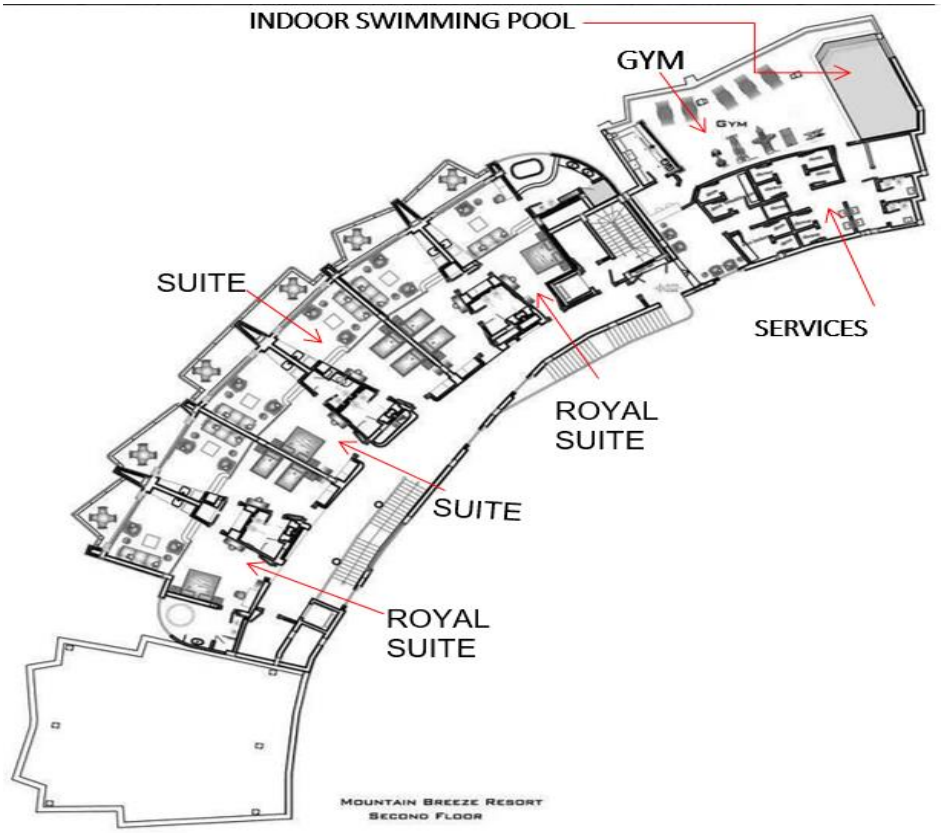


FIGURE (6) SHOWS THE SECOND FLOOR PLAN

SPACE	AREA	NUM . OF AREAS	TOTAL AREA
ROYAL SUITE	120m2	2	240m2
SUITE	50m2	2	100m2
SERVICE ROOM	20m2	1	20m2
GYM	150	1	150m2
INDOOR POOL	45m2	1	45m2
SERVICES	165m2	1	165m2
TOTAL AREA	_	_	740m2

TABLE (4) SHOWS THE SECOND FLOOR SPACES

(2_2_1_4) CHALETS :

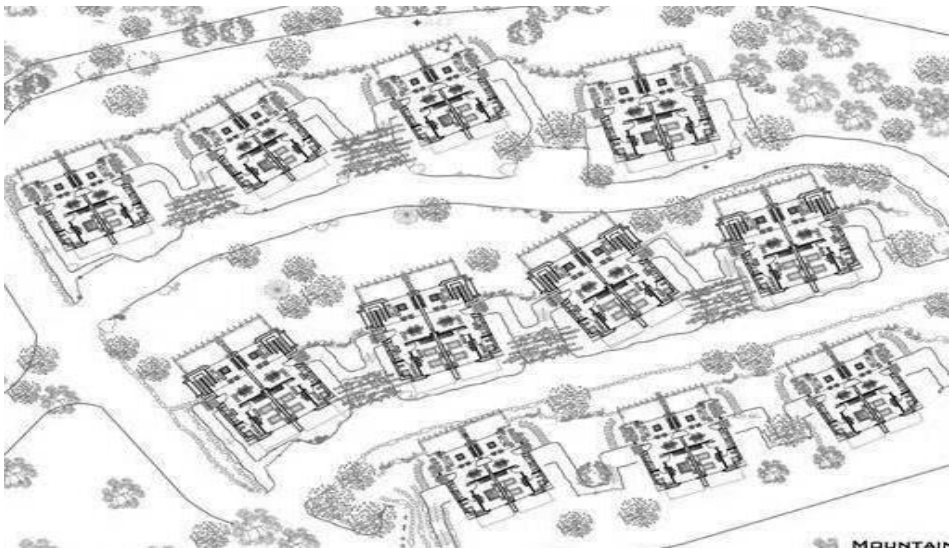


FIGURE (7) SHOWS CHALETS PLANS

-There are two types of chalets :

a. small chalet:

1 bedroom , bathroom ,living room and terrace .

b. family chalets:

2 bedrooms ,2 bathrooms ,salon ,living room and 2 terraces.

FIGURE (8) SHOWS THE CHALETS VIEWS

SPACE	AREA	NUM . OF AREAS	TOTAL AREA
Chalets	220m2	8	1760m2
Family chalets	440m2	7	3520m2
TOTAL AREA	–	–	5280m2

TABLE (5) SHOWS THE CHALETS SPACES AREA

(2_2_1_5) THIRD FLOOR:

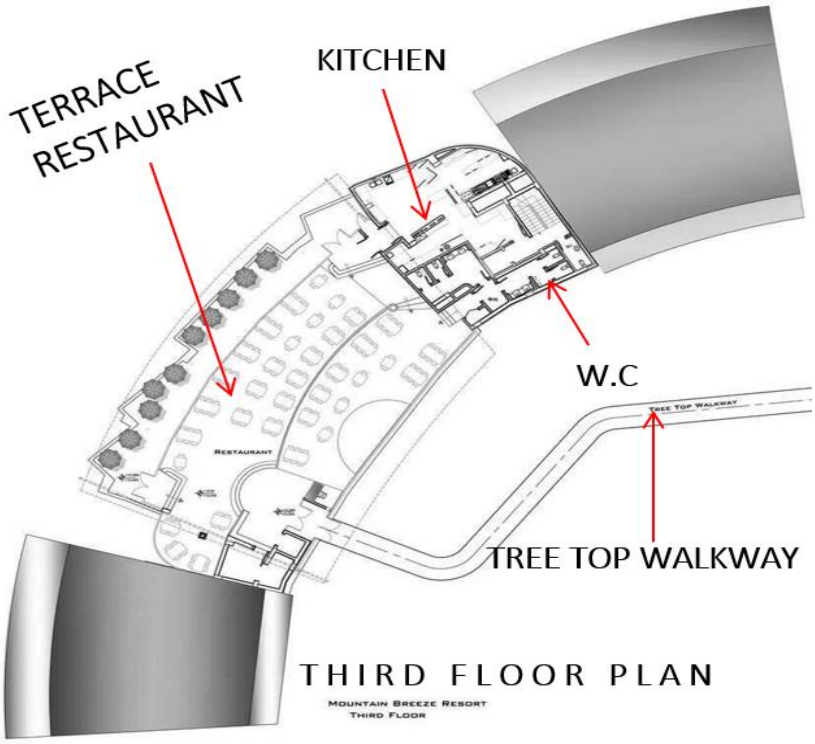


FIGURE (9) SHOWS THE THIRD FLOOR PLAN AND THE TREE WALKWAY (HANGED WALKWAY)

SPACE	AREA	NUM . OF AREAS	TOTAL AREA
TERRACE RESTAURANT	576m2	1	576m2
KITCHEN	63m2	1	63m2
W.C	12m2	2	24m2
TOTAL AREA	_	_	663m2

TABLE (6) SHOWS THE THIRD FLOOR SPACES AREA .

FIGURE (10) SHOWS THE TREE WALKWAY

(2_2_1_6) STRUCTURAL SYSTEM:

_The used foundations are spread foundations .

_ the building is from steel frame(columns) and slabs are made of precast concrete).

_ the roof top restaurant's structure is a steel columns on a trussed roof.

(2_2_1_7) ZONING:

(2_2_1_7_1) GENERAL ZONING:

FIGURE (11) SHOWS THE GENERAL ZONING

(2_2_1_7_2) GROUND FLOOR ZONING:

- Residential zones
- Athletic & recreational zones
- entertainment zone
- Business center
- ADM Zone
- Landscape
- Ent. & Reception
- Parking
- Services

FIGURE (12) SHOWS THE GROUND FLOOR ZONING

(2_2_1_7_3) FIRST & SECOND FLOOR ZONING:

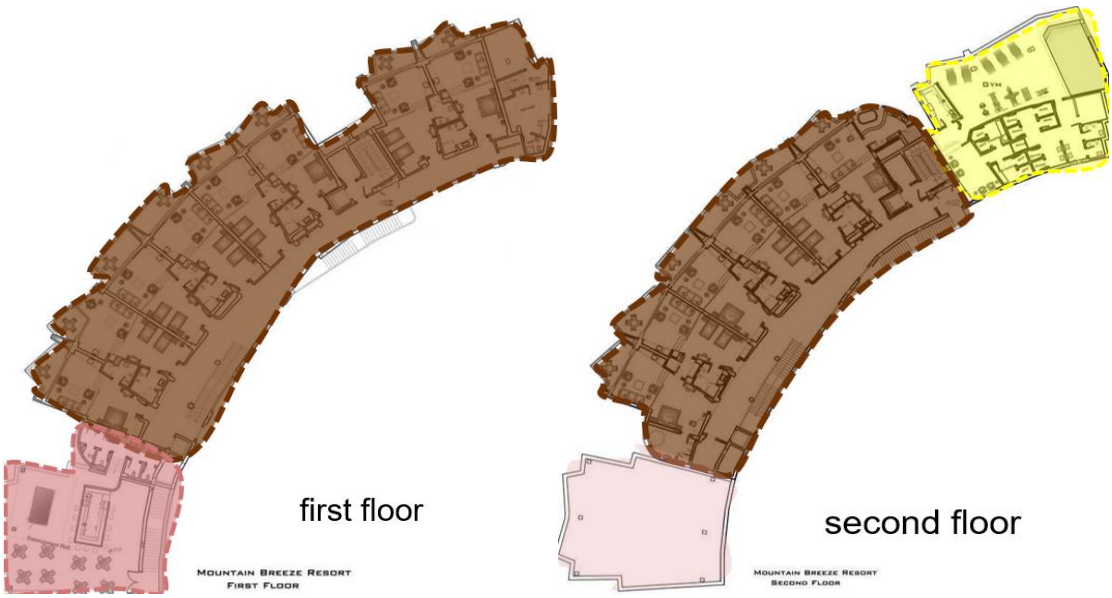


FIGURE (13) SHOWS 1ST AND 2ND FLOORS ZONING

(2_2_1_7_4) ZONING IN SECTIONS:

FIGURE (14) SHOWS ZONING IN SECTION A-A

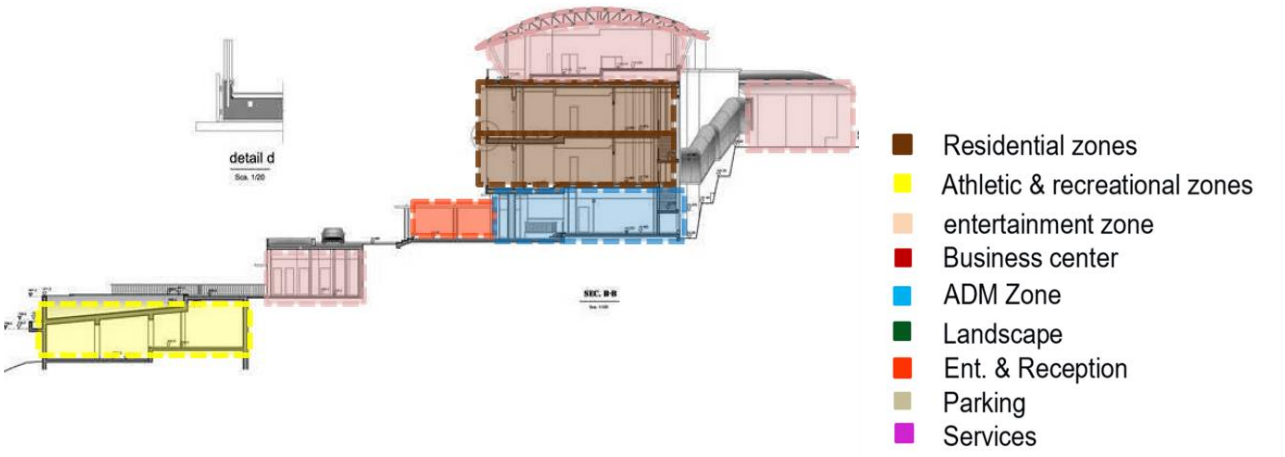


FIGURE (15) SHOWS ZONING IN SECTION B-B

(2_2_1_7_5) PROS AND CONS OF THE PROJECT :

PROS	CONS
_THE PROJECT is in line with the surrounding environment.	_The entrance is unclear.
_The best use of the view of both chalets and suites.	_so many wasted areas and landscape .
_The spa was located in a place so it achieves the reassurance.	_separating the recreational zone from the entertainment zone with the services.
_the restaurant located in the roof top which achieves the best use of the view.	-The services located in the “air flow path” (kitchen & laundry).
_the integration between the function ,nature and personal needs in one project.	_The un use of the PINE forest
	_The residential spaces is not enough for the tourists.

TABLE (7) SHOW THE PROS AND CONS OF THE PROJECT

(2_2_2) *UBUD RESORT (bali hanging gardens):

Location: GYANIAR , UBUD ,BALI , INDONESIA

Architects: William warren &john pettigrew.

Project's area : 5.1hectares

The height of the project is 110 vertical meters from the bottom to the top .

_ Ubud resort was built on the fast AYUNG flowing river ; the reason behind the breath taking views.

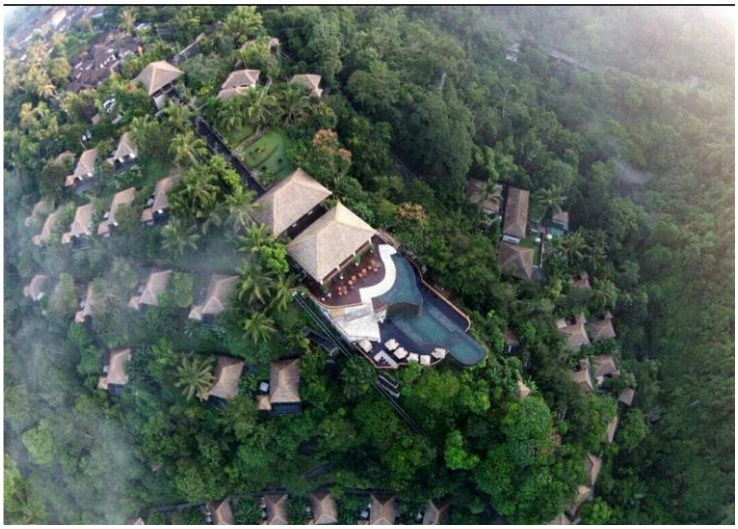


FIGURE (16) SHOWS THE RESORT'S VIEW

(2_2_2_1)Master Plan :

ZONES:

1. Residential (Chalets)

2. Recreational(Spa , Yoga, Restaurants & Coffee Shops)

3.Administration.

4. ATRHELETIC (Pools).

FIGURE (17) SHOWS THE MASTER PLAN

(2_2_2_2)Residential Spaces:

(2_2_2_2_1)**Chalet Types:**

_Small chalets: Bedroom & bathroom and indoor bathroom.

_Royal chalet: bedroom , indoor bathroom ,outdoor bathroom ,terrace and pool .

_Bunk house: bedrooms , big terrace ,indoor bathrooms & pool.

(2_2_2_2_2)**Structure:**

The used structure is steel frame covered with:

_ concrete walls

_ internal finishes.

-plaster .

-porcelain.

-wicker roof hanged on dispensers .

_external finishes:

-jalousie roofs.

- paint (on walls).

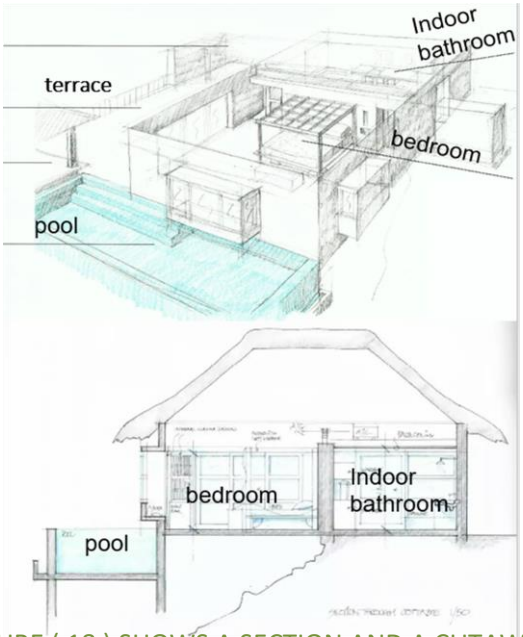


FIGURE (18) SHOWS A SECTION AND A CUTAWAY SECTION FOR CHALETS

Figure (19) shows a room interior

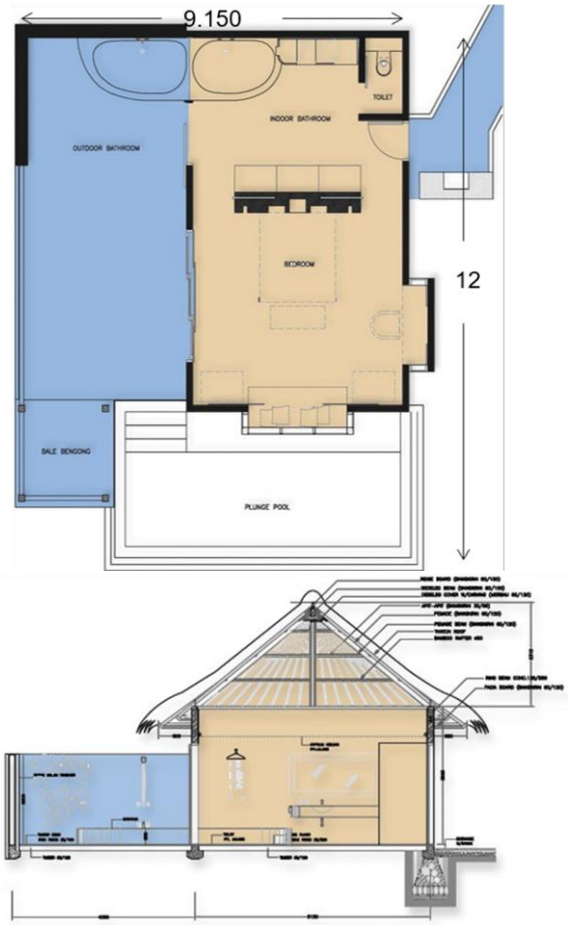


FIGURE (20) SHOWS THE CHALET PLAN AND SECTION

(2_2_2_3)RECREATIONAL SPACES:

FIGURE (21) SHOWS THE RECREATIONAL SPACES SHOWED IN THE VIEW

Space	Area	Num. Of Spaces	Total Area
Spa	108m2	2	216m2
Restaurant & Café's	560m2	1	560m2
Total zone's area	–	–	776m2

TABLE (8) SHOWS THE AREAS OF THE RECREATIONAL SPACES.

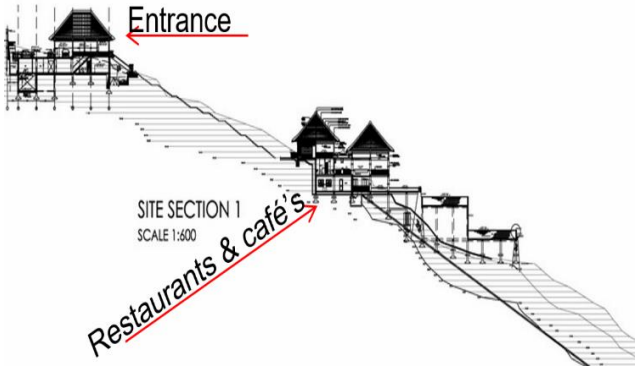


FIGURE (22) SHOWS A PANORAMIC SECTION OF THE RESORT WITH THE ENTRANCE AND SPA SHOWED.

(2_2_2_4)HEALTHY AND ATHELETIC SPACES:

There are two infinity pools in different levels and a Jacuzzi.

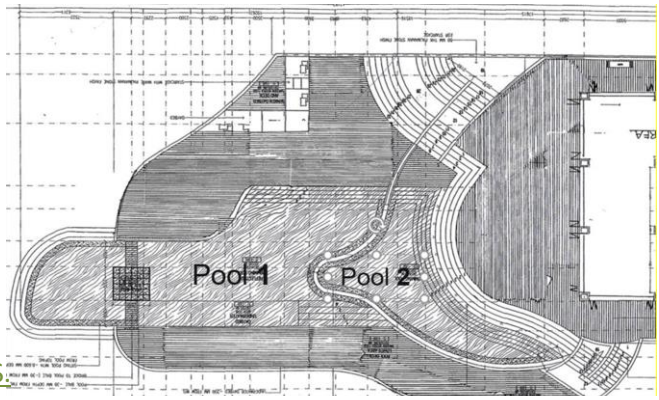


FIGURE (23) SHOWS THE TWO POOLS PLANS

SPACE	AREA	NUM. OF SPACES	TOTAL AREA
Swimming pool ‘1’	255m2	1	255m2
Terrace	274m2	1	274m2
Swimming pool ‘2’	45m2	1	45m2
Terrace	168m2	1	68m21
Yoga hall	144m2	1	144m2
Terrace	51m2	1	51m2
Total zone area	_	_	937m2

TABLE (9) SHOWS ATHELETIC SPACES AREA

(2_2_2_5)ZONING :

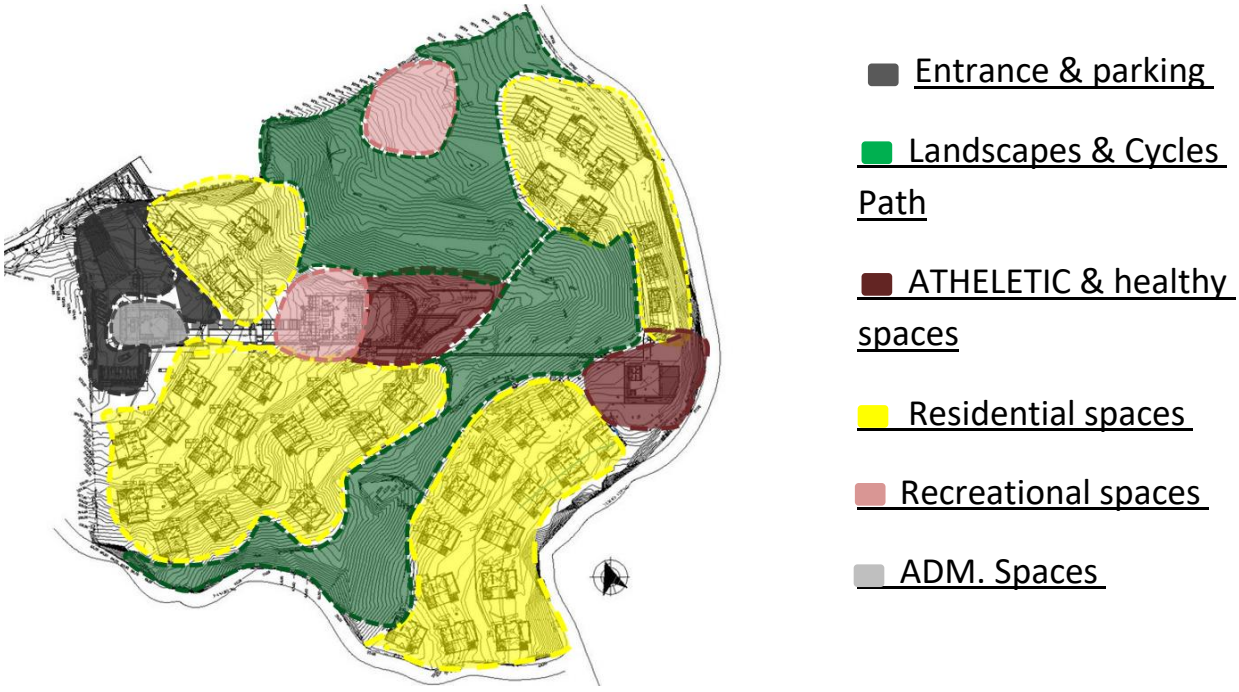


FIGURE (24) SHOWS THE ZONING

(2_2_2_5)PROS AND CONS :

PROS	CONS
_THE PROJECT is in line with the surrounding environment.	_the services ain't enough (no daily needs shops…etc s)
_The best use of the view.	_so many wasted areas and landscape .
_The spa was located in a place so it achieves the reassurance.	_irregular planning of the residential units.
_the usage of the volcanic stones and retaining walls helped in both aesthetic and construction purposes.	_some of the residential units are so far from the other zones.
_the integration between the function ,nature and personal needs in one project.	_the un use of the fast AYUNG flowing river in some entertaining/athletic activities.

TABLE (10) SHOW THE PROS AND CONS OF THE PROJECT

(2_3) SITE SELECTION AND ANALYSIS:

(2_3_1) SITE SELECTION:

SITE PHILOSOPHY:

Site's location should fulfill the recreational and tourism activities with the best use of the view .

1st proposal:

Figure (25) RED SEA Mountains

Red Sea mountains
North east sudan
AREA:
10 Hectares

2nd proposal:

Figure (26) Kasala Mountains

Kassala Mountain
Eastern sudan
AREA:
8 Hectares

3rd proposal:

Figure (27) Marrah Mountains

Marrah Mountain
Western sudan
AREA :
5.4 hectares

	Jabal Marrah	Kassala mountains	Red sea mountains
Seclusion from city congestion	9	6	7
Access to site	8	8	5
The view	10	9	7
Climate & function relevance	10	7	7
Environmental elements (water falls & lakes)	8	6	4
the contour gradient	9	7	5
Ground and soil diversity	8	8	6
Tourist activity of the area	8	8	9
TOTAL RATES	70	59	50

TABLE (11) SHOWS THE COMPARISON BETWEEN THE THREE SITES

_JABAL MARRAH IS THE CHOSEN SITE.

(2_3_2) LOCATION :

(2_3_2_1) LOCATION:

_it's located in western Sudan , south east DARFUR .
It's 1312 km away from KHARTOUM , 120 km away from the nearest airport (NEYALA's airport).
& 120m away from the main road .

(2_3_2_2)THE TOPOGRAPHY:

_ Coordinates :
_ MAREDIANS :
Between 22 ,27 east.
_LATITUDES:
Between 10 , 16 north.

Soil:

A volcanic rocky soil .

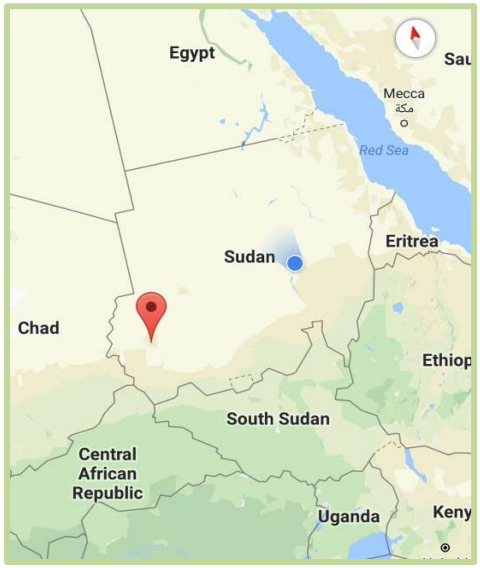
_ H E I G H T :

Highest point on it is 2400 m of sea level rise, starts at 1400 m of the sea level rise .

_TERRAIN:

The contour is 2200m .
_ the vertical height is between 2-10 m.

SUDAN



DARFUR

FIGURE (28) SHOWS DARFUR

FIGURE (29) SHOWS DARFUR MAP

WESTERN DARFUR

FIGURE (30) SHOWS WESTERN DARFOUR MAP

MARRAH MOUNTAIN

FIGURE (31) SHOWS MARRAH MOUNTAIN

THE SITE

WESTERN DARFUR

FIGURE (32) SHOWS THE SITE IN MARRAH MOUNTAIN

(2_3_3)SITE ANALYSIS:

(2_3_3_1) Arrival:

FIGURE (33) SHOWS A VIEW OF THE SITE

_Nearest main ELMA'BED road is 80 KM eastern Marrah mountain

_it Is 120 km away from the nearest airport (Neyala's airport).

Result:

The site's entrance is from east side .

(2_3_2_2)Neighborhood effects site in :

_ The lake is an attraction factor .

Result:

The activities that needs water surfaces or water views should face it or to be located next to it .

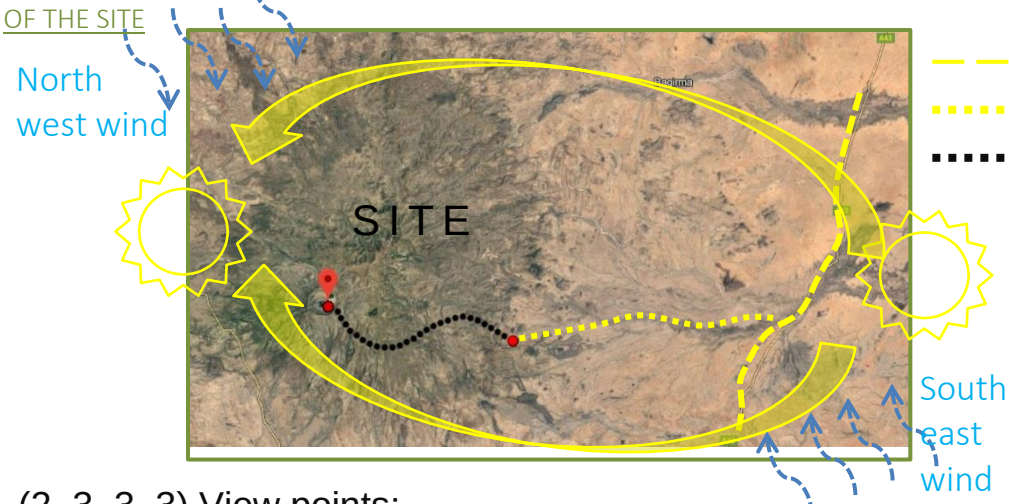


FIGURE (34) SHOWS SITE ANALYSIS

(2_3_3_3) View points:

FIGURE (35) SHOWSTHE VIEW POINTS

The most attractive two views are the deriba lake in the west and the waterfall in north east.

(2_3_2_3) WIND :

The state is in the effect of north west wind in DECEMBER To MARCH (50_61 KM/H)

(2 3 3 4) temperature and seasons :

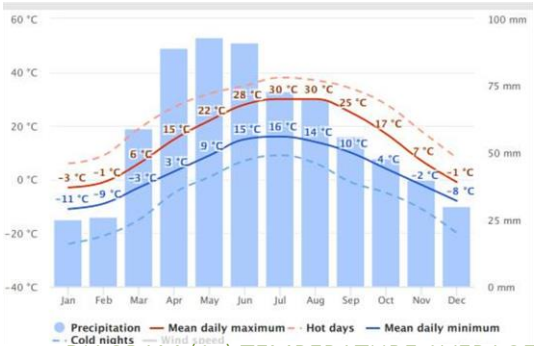


DIAGRAM (1) TEMPERATURE AVERAGES

_Summer starts on JUNE to AUGUST .

_Highest temperature rate is on JULY (>40 C) .

_A rainy winter starts on OCTOBER to APRIL

_Temperature can get till (<-15 C) on JANUARY .

_Highest rainfalls is : on JUNE up to 100 mm.

_lowest rainfall is in DEC, JAN up to 10-20 mm.

(2_4) ABOUT TOURISM , TOURISM BUILDINGS, IT'S TYPES AND COMPONENTS:

(2_4_1)THE MAIN ACTIVITIES OF THE PROJECT:-

(2_4_1_1)FIRSTLY: THE TOURISM ACTIVITY:-

(2_4_1_1_1)TOURISM DEFINITION:-

the tourism is the act of a people leaving where they live ,to

another place temporarily for a visit.

(2_4_1_1_2)TYPES OF TOURISM:-

1. the international tourism:-

it means that a group of people leaves out of their country zone another country.

2. the local tourism:-

its mean that a group of people leaves in the zone of their Country from town to town.

(2_4_1_1_3)TOURIST DEFINTION:-is that person who leaves his country or his town to another town, for more than 24 hour and in a distance more than 80 km away from his home.

(2_4_1_1_4)TYPES OF TOURISTS (PLACES):-

1. international tourist.

2. the local tourists who came from outside the country or from another states.

3. the local tourists.

(2_4_1_1_5)THE TOURISM AFFECTED BY:-

A. GEOGRAFICAL FACTORS:-

1-The area of the country and the climate.

2-providing tourist product.

3-population distribution

4-rivers and beaches.

B. EASY TRANSPORTATION.

C. ECONOMIC FACTORS:-

1-the diversity of the tourism and providing the environment For tourists.

2-to be aware about tourism.

D.ENVIRONMENTAL IMPACTS:-There has to be natural environment, and natural views

(2_4_1_1_6)TYPES OF TOURISM:-

1. Environmental tourism.

2. Sea tourism.

3. Tourism for conferences.

4. Shopping tourism.

5. Sports tourism.

6. Entertainment tourism.

7. Tourism to visit the religious places.

8. Tourism to visit the cultural places.

(2_4_1_1_7)THE TOURISOM COMPONENTS:-

1. The tourists.

2. Tourism places.

TOURISM IN SUDAN:-

Sudan has a lot of tourism components, and it's deferent because of the deferent environmental geography, the deferent histories and cultures.

(2_4_1_1_8)Historical background about tourism in Sudan:-

The first tourist organization was established in 1959, and it had the name of the arena.

In 1966, it was transformed into a social reformer.

- The second part of 1966 it has become an interest to the Department of Transport and Traffic.

- From 1971 it was combined with the interest of the arena and hotels in order to collect the activity of the coast and exploitation of wealth in the country.

- In 1983 the Ministry of the arena was established.

- In 1985, the arena was reorganized to become a second pillar of the military rule.

(2_4_1_1_9)HIGH LANDS IN SUDAN: -

The land of Sudan is a low-lying, low-lying silver plains, with a low plains, it has for different provinces.

1. Red Sea hills in the East.

2 – Jabal Marrah at the west

3 – Alamatong mountains.

The Nile represents as the most important phenomenon and is about 1788 km long and about 285 million

(2_4_1_1_10)THE TOURISM PLACES IN SUDAN:-

- Dinder garden in the East.

-Red Sea State – Swakin. -The beaches of the Nile and its ridge and the islands located at the top Shawwal al-Shabla..

(2_4_1_1_11)THE EFFECTS OF THE TOURISM IN SUDAN:

- The historical effects and the country's history.

- The good location and the different cultures in Sudan.

(2_4_1_1_12)TOURISM CONSTRAINTS IN SUDAN:-

- The constructions of the tourism areas weren't finished.

- There wasn't enough workers.

- Lack of awareness of the concept of the arena in Sudan.

- The distance between the centre and the tourism areas is too far.

- High cost of the field trip

- Travel to the arena by the railways and vehicles need long hours.

(2_4_1_2) SECONDLY-ENTERTAINMENT (RECREATIONAL) SECTION:-

(2_4_1_2_1) THE DEFINITION OF THE ENTERTAINMENT:-

It means the facilitates that help us to be entertained and to spend a good time away from the pressure of work.

(2_4_1_2_2)TYPES OF ENTERTAINMENT:-

1 – Tourism entertainment:-

General Motors - Parks - Financial - Resorts

2 – Cultural entertainment:-

Such as the Art Galleries and the Art Forum.

3 – Commercial entertainment:-

Trade Centres - Duty Free - Exhibitions - Exhibitions

4 – Sports entertainment.

(2_4_1_2_3)PROBLEMS FACING LUXURY IN SUDAN:-

- The low level of living makes the basics of the life more important.

- There is no enough rules to arrange tourism activities.

(2_4_1_2_4) CALCULATING TOURISTS IN JABAL MARRAH :-

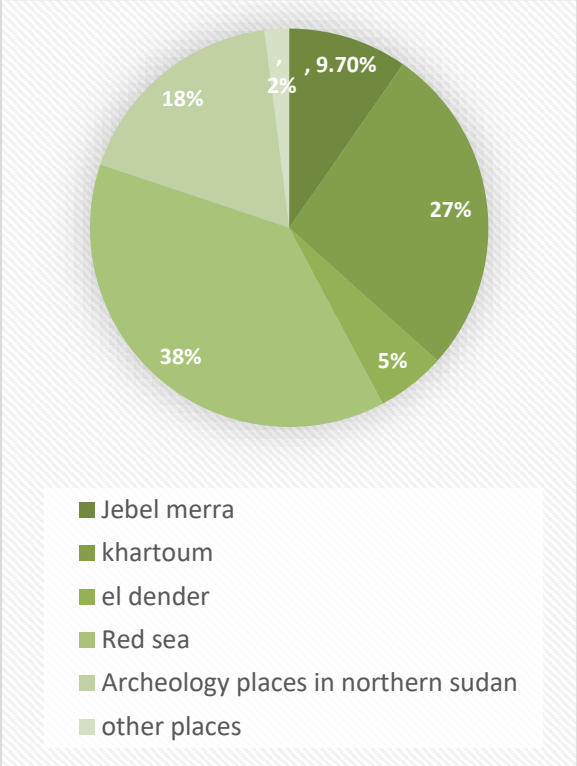


DIAGRAM (2) SHOWS THE TOURISTS PRECENTAGES IN DIFFERENT SUDAN STATES .

*TOURISTS CALCULATIONS:

_Increasing rate average is 7.73
_Total tourist census of sudan 2664994.8
_Tourists rate of Jebel marrah is 9.7% of the total rate =258504.8
_High tourism season rate = 258504.8 * 69% =59481 tourist = 265 tourist per day.

*LOCAL VISITORS:

_western darfur population is 132932 person.
_local visitor's rate = 132932 * 20% = 26586.4.
_Local visitors per day = 73.9 visitor
* Total users of project = 340 person per day.

(2_4_2) THE COMPONENTS OF THE RESORT: -

The resort is generally composed into 4 main components:

1 / hotel building: -

It provides comfort, accommodation, a place to stay in, and food for the tourists, it should be located near the rivers, seas or the mountains, and it should have gym, pools, and playgrounds, big halls for the special occasions.

2 / chalets: -

It is a group of buildings separated from the hotel and has a direct view to the sea.

3 / gyms

4 / the outdoor surfaces

5 / Children playground

6 / Services: -

Restaurants / Mosque / Water courses / First Aid Centre / Shops/ etc.

CHAPTER THREE :

1. PROJECT ANALYSIS:

a. Project Components:

- Activities component.
- Human component.
- Spatial component.

b. Spaces study.

c. Spaces / Areas table.

d. Functional diagrams:

- Bubble diagrams.
- Matrix diagrams.

e. Movement schemes.

2. INDICATORS , DETERMINANTS AND DECISSIONS.

3.THE ZONING.

(3_1_1) PROJECT COMPONENTS:

(3_1_1_1) ACTIVITIES COMPONENT:

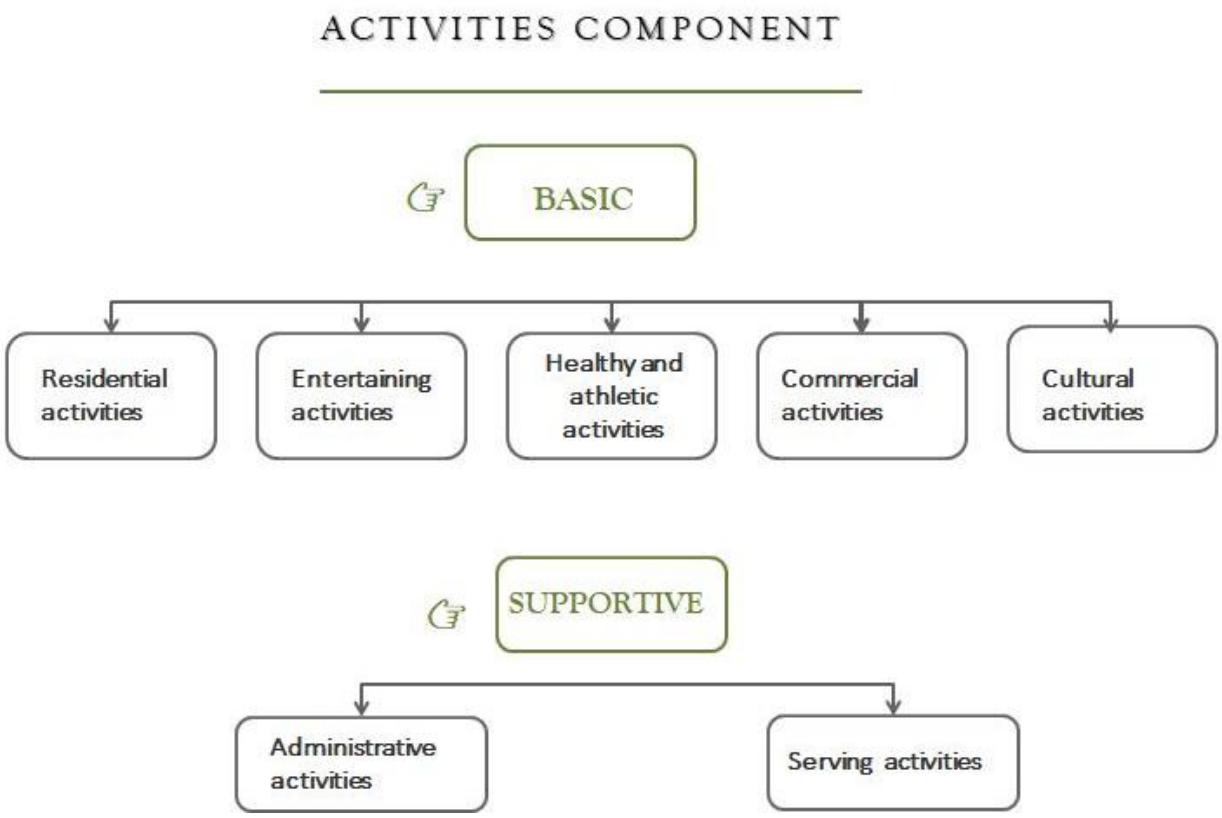


Diagram (3) Shows Activities Components Diagram

(3_1_1_1_1)BASIC ACTIVITIES

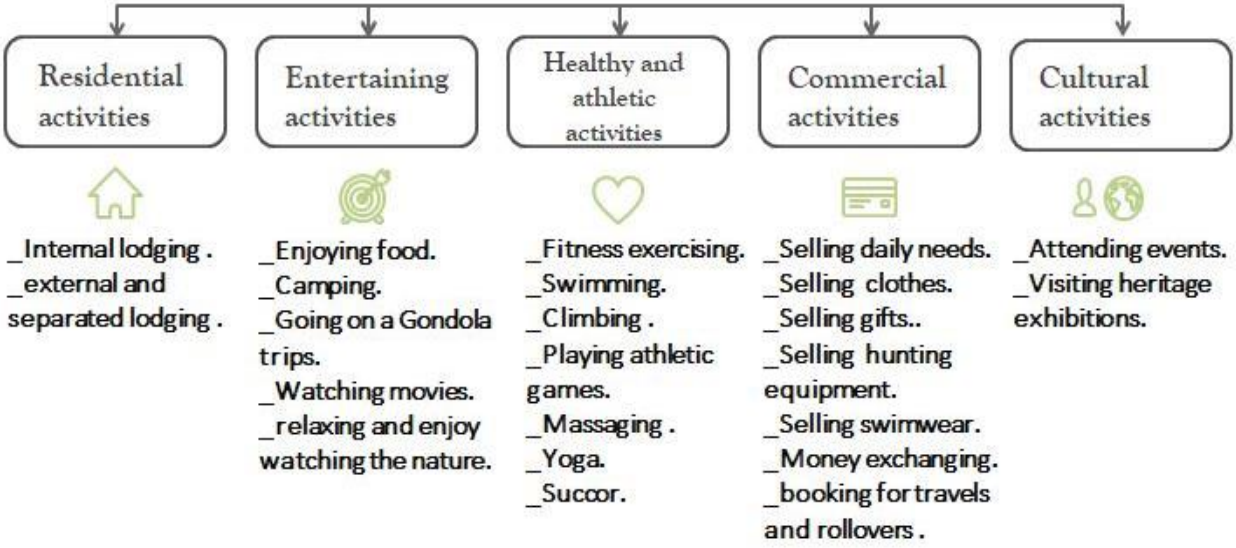


Diagram (4) Shows Basic Activities Components Diagram

(3_1_1_2)BASIC ACTIVITIES

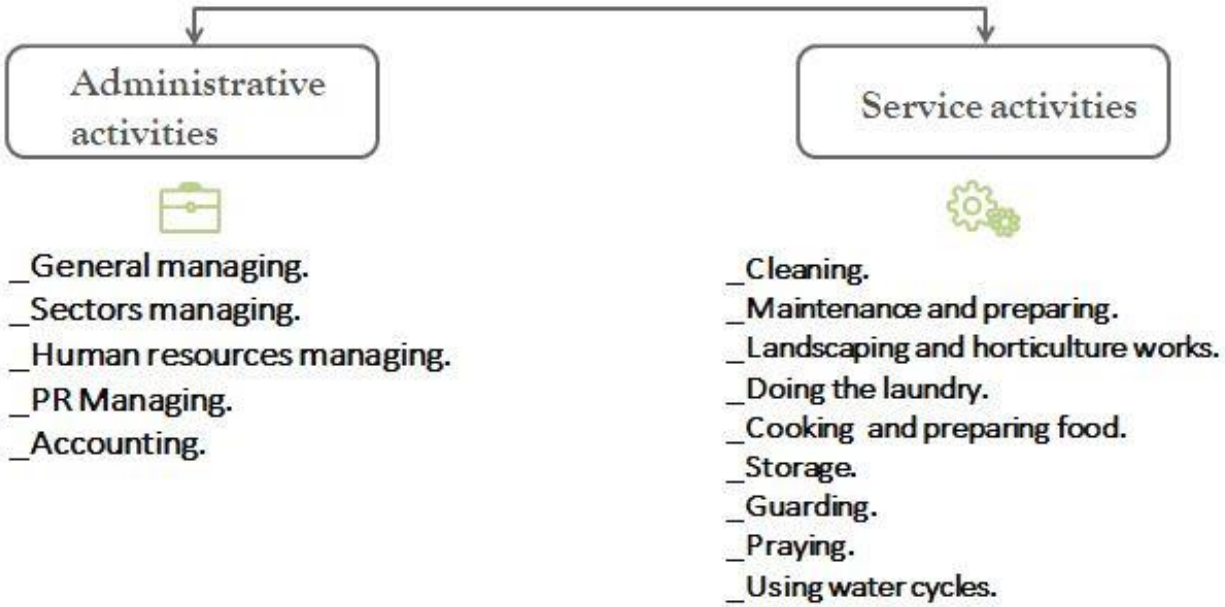


Diagram (5) Shows Supportive Activities Components Diagram

(3_1_1_2) HUMAN COMPONENT:

The project is being used by five types of users.

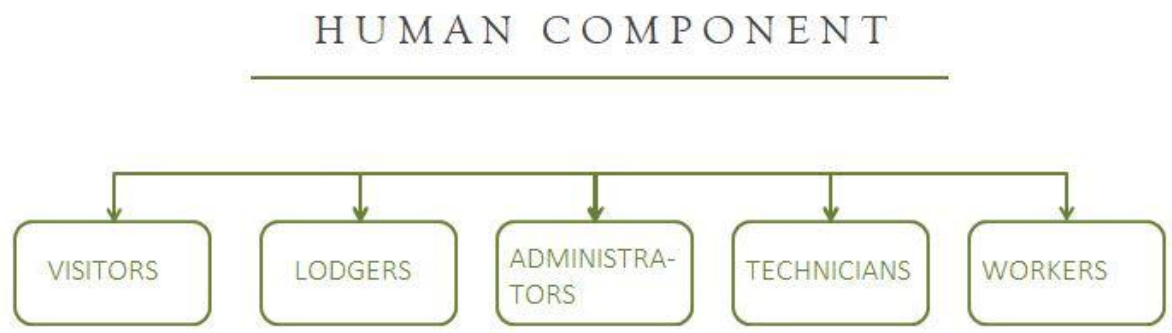


Diagram (6) Shows Human Components Diagram

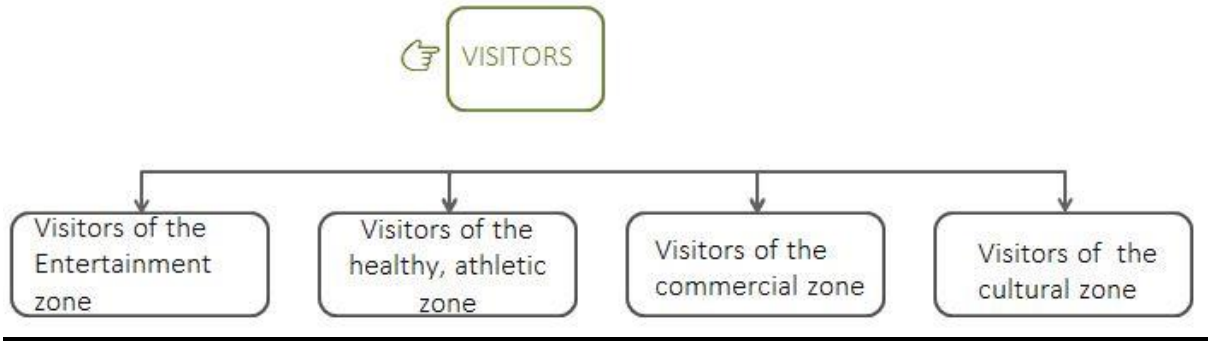


Diagram (7) Shows Visitors Diagram

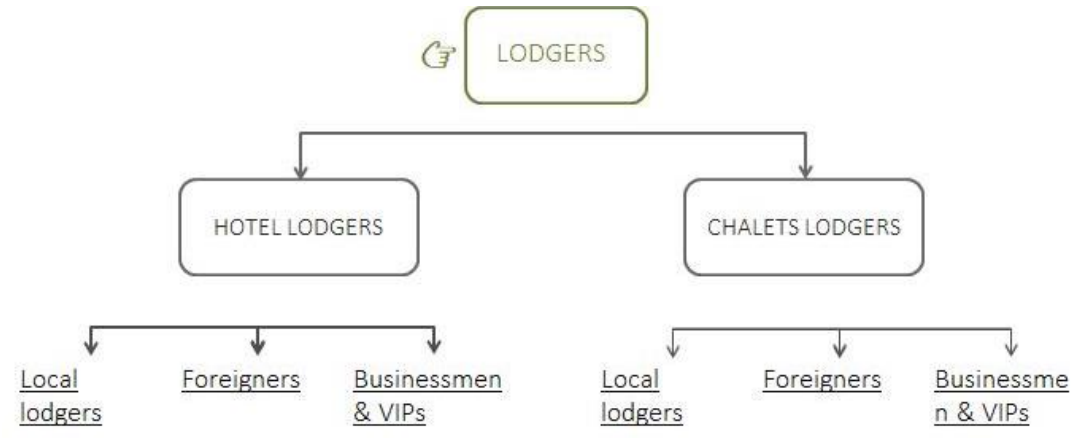


Diagram (8) Shows Lodgers Diagram

Diagram (9) Shows Administrators Diagram

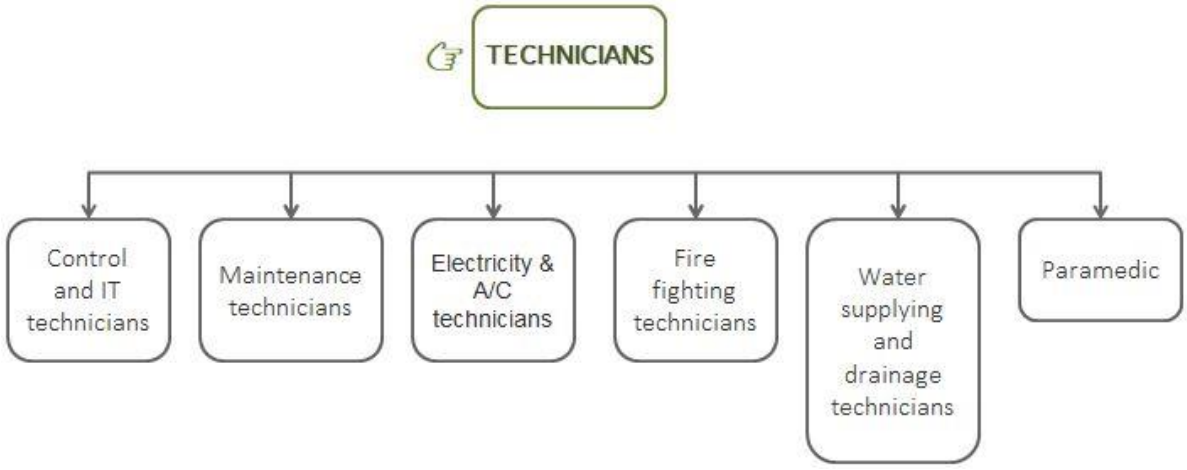


Diagram (10) Shows Technicians Diagram

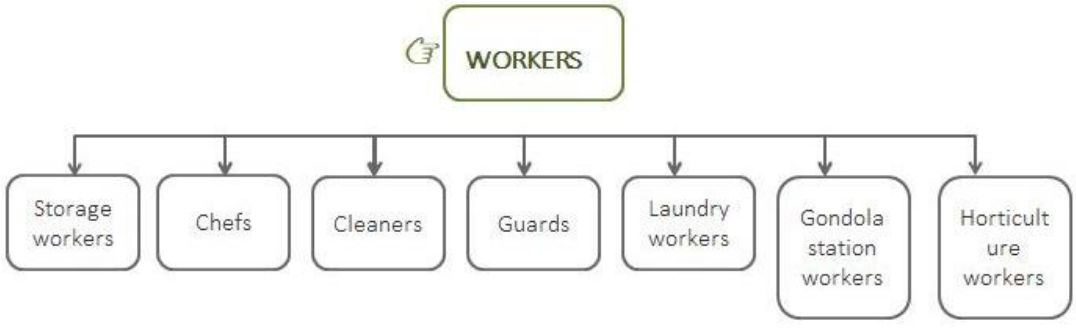


Diagram (11) Shows Workers (Labour) Diagram

(3_1_1_3) SPATIAL COMPONENT:

It's divided into two mainly spaces according to activities.

a. BASIC SPACES.
b. SUB SPACES.

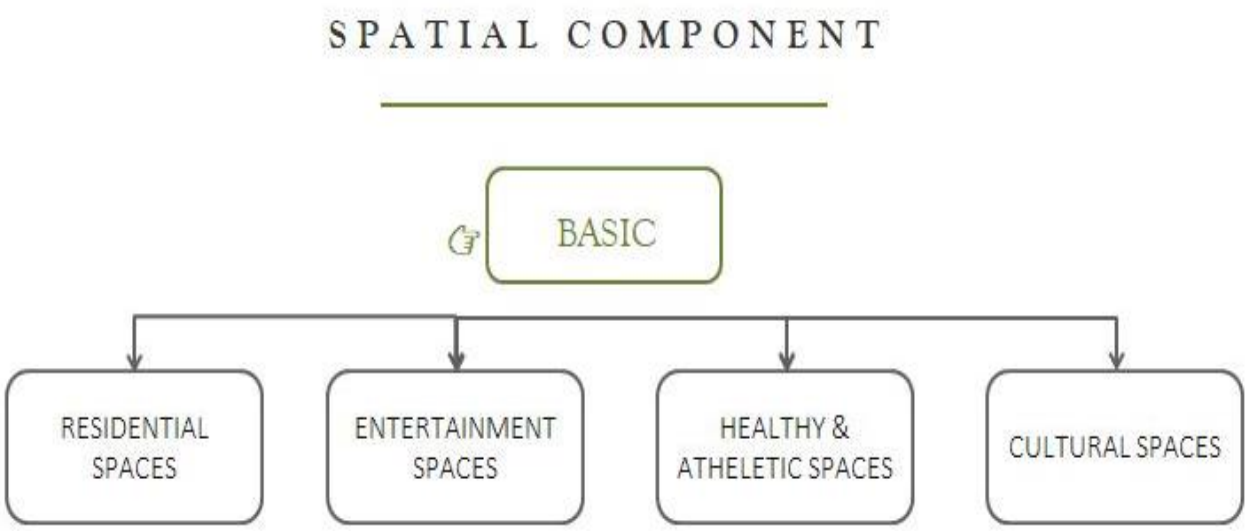


Diagram (12) Shows Basic Spatial Components Diagram

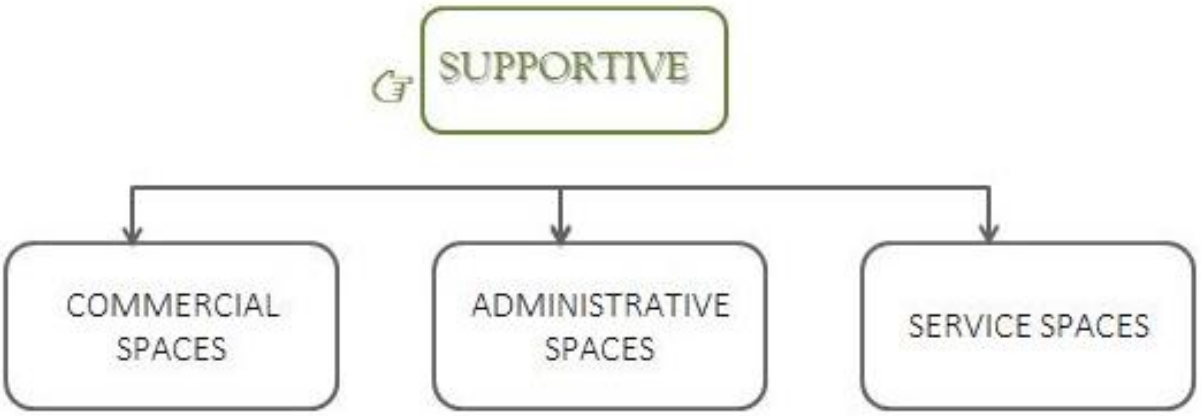
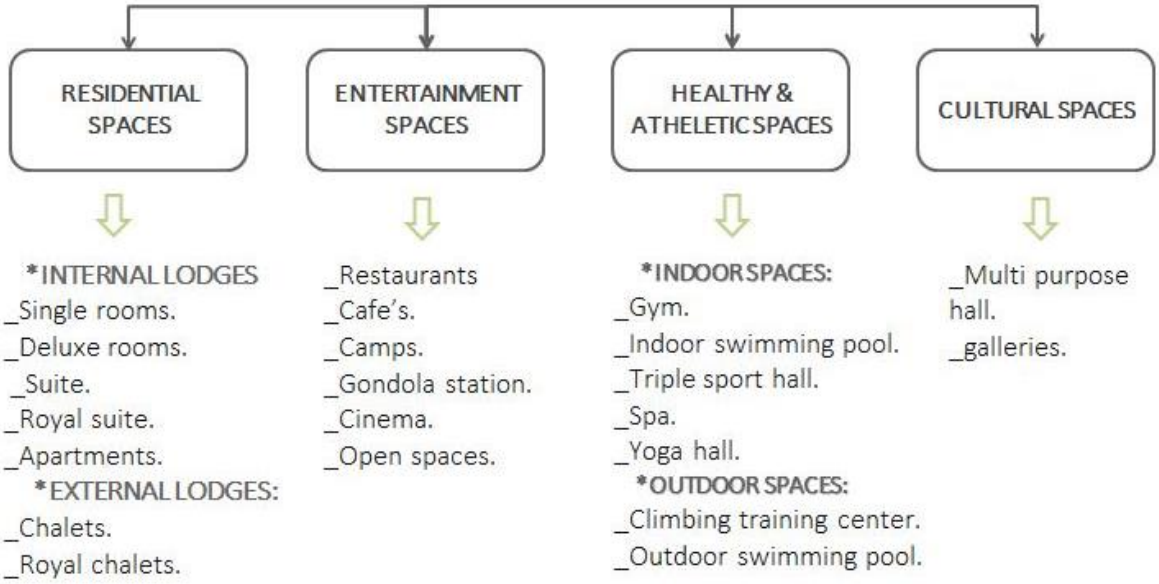


Diagram (13) Shows Supportive Spatial Components Diagram

(3_1_1_3_1)BASIC SPACES



Diagram(14) Shows Basic Spatial Components Diagram

(3_1_1_3_2)SUPPORTIVE SPACES

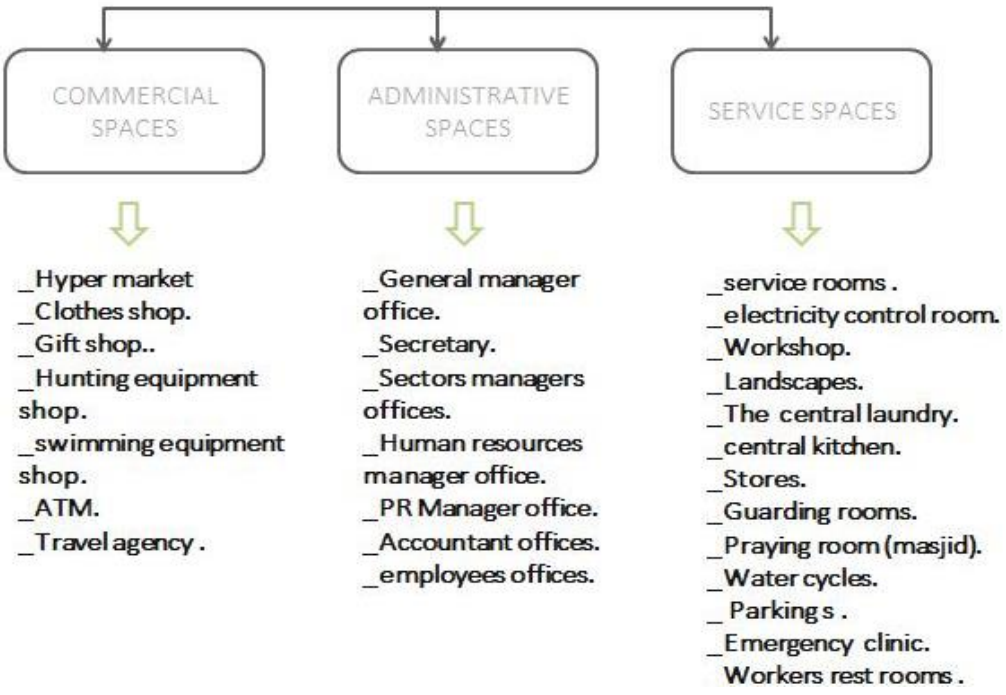
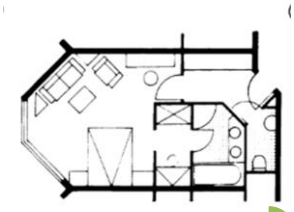


Diagram (15) Shows Supportive Spatial Components Diagram

(3_1_2) SPACE STUDY



(3_1_2_1)RESIDENTIAL SPACES:

(3_1_2_1_1) ROOMS:

a. SINGLE ROOM:

It contains a single bed ,cupboard ,a table and single sofa.

FIGURE (37) SHOWS SINGLE ROOM

b. DELUXE ROOM:

It's prepared for two people, it contains a twin bed, a sofa ,a cupboard , a desk , a dining table for two with a terrace.

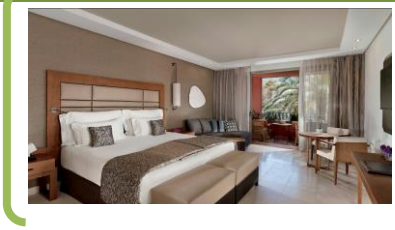


Figure (38) Shows Deluxe Room

c. VIP ROOM:

It's prepared for two people as well, it contains: a queen bed , a cupboard , a desk , a table , dining table in a small dining room.

FIGURE (39) SHOWS VIP ROOM

SPACE NAME	AREA
Single Room	16m2
Deluxe Room	28.7m2
Terrace	10m2
VIP Room	35m2
Terrace	10m2

TABLE (12) SHOWS ROOMS AREAS

(3_1_2_1_2)SUITES:

Its also prepared to hold two people but provided with food preparing area , changing rooms and a wider living room . it's area escalates up to 160 m2 .

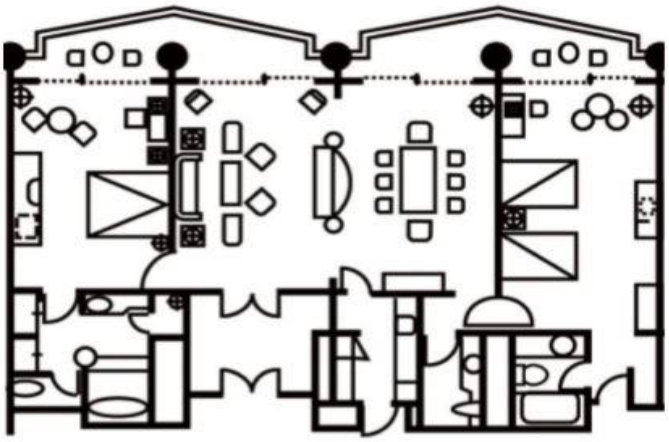


FIGURE (40): SUITE PLAN AND ITS CONTENTS

Space name	Area
Master Bedroom	20m2
Bathroom	9m2
Changing Room	6m2
Bed Room	30m2
Living Room	40m2
Bathroom	4.5m2
Kitchenette	12m2
Balconies	20m2

TABLE (13)SHOWS SUITES AREAS

FIGURE (41) :SUITE INTERIOR VIEW

(3_1_2_1_3)METHODS OF DISTRIBUTING ROOMS:

a. Rooms on one side of the corridor:

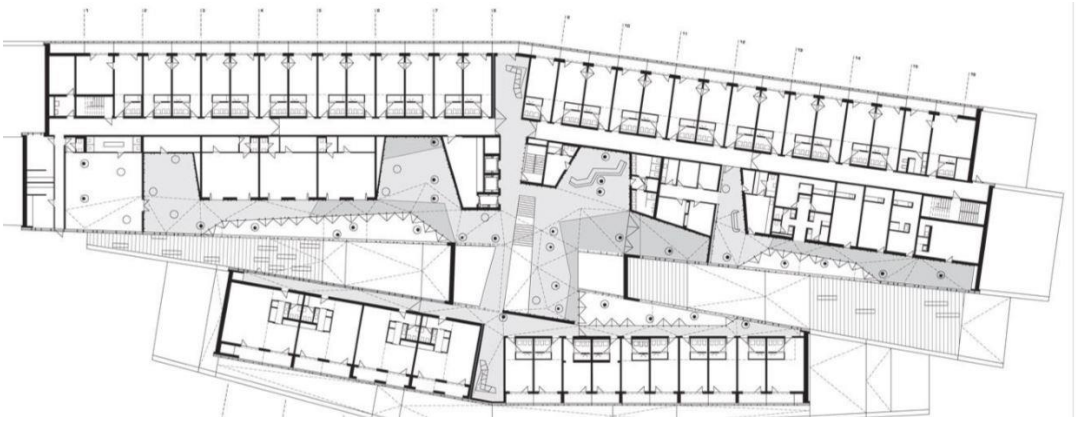


FIGURE (42):DISTRIBUTING ROOMS ON ONE SIDE OF CORRIDOR

b. The corridor between two sides of rooms:

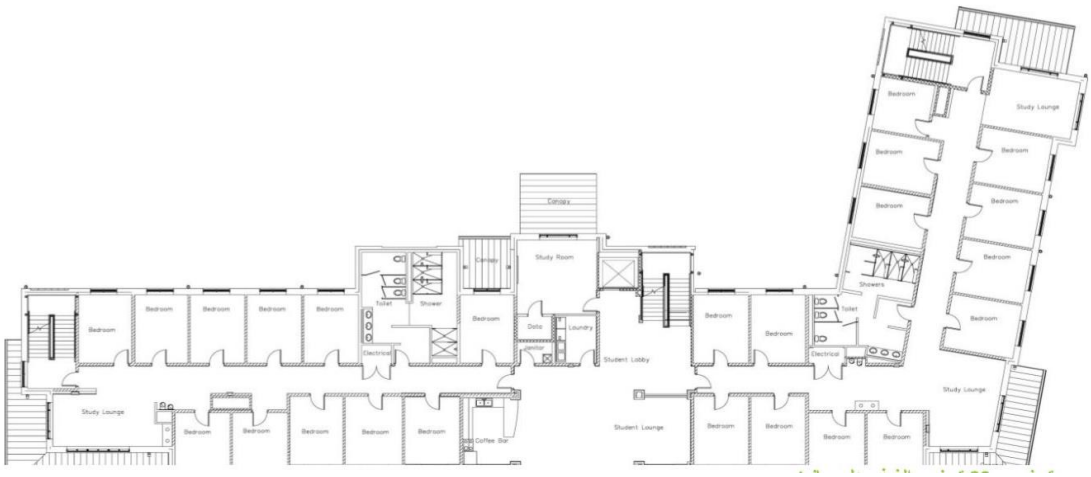


FIGURE (43):DISTRIBUTING ROOMS ON TWO SIDES OF CORRIDOR

(3_1_2_1_4)STORIES PLANNING ACCORDING TO CORRIDORS POSITION AND SERVICES ROOMS:

1. LINEAR ROOM ARRANGEMENT:

2. T SHAPE ROOM ARRANGEMENT:

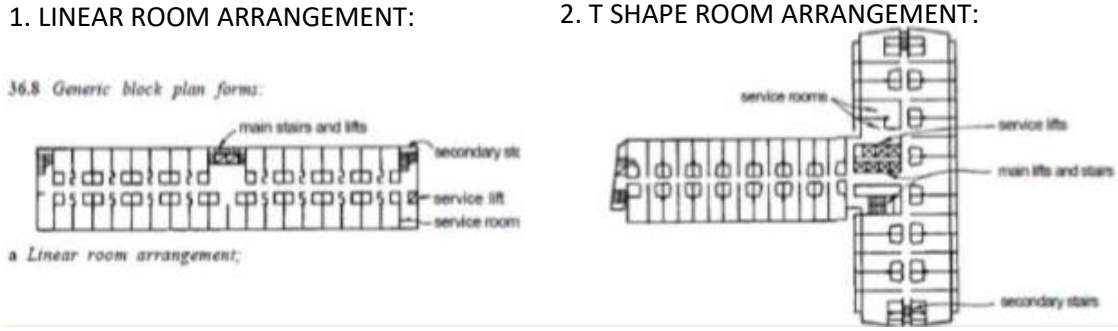
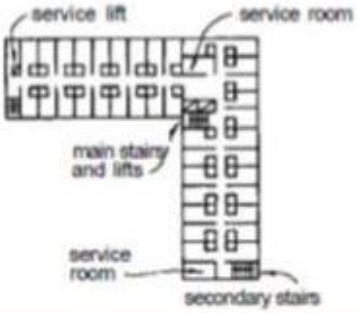


FIGURE (44)SHOWS LINEAR ROOMS ARRANGEMENT AND T SHAPE ARRANGEMENT.

3. L SHAPE ROOM ARRANGEMENT:



4. RECTANGULAR ROOM ARRANGEMENT:

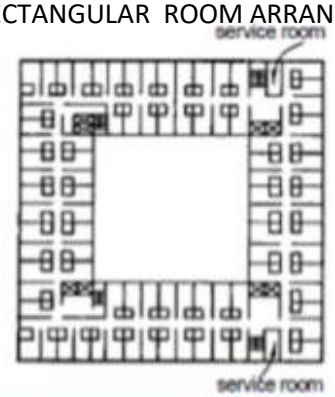


FIGURE (45)SHOWS L SHAPE ROOMS ARRANGEMENT AND SQUARE SHAPE ARRANGEMENT.

5. CIRCULAR ROOM ARRANGEMENT:

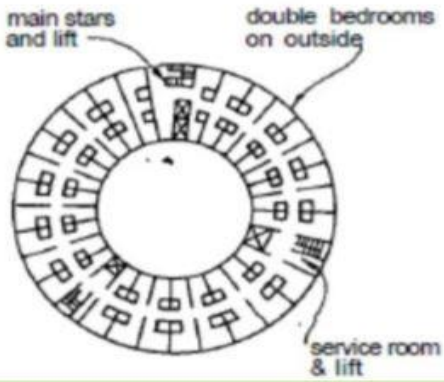


FIGURE (46)SHOWS CIRCULAR SHAPE ARRANGEMENT

(3_1_2_1_5)CHALETS:

It is a small buildings separated from the motel/hotel with more privacy ,joy and a breath taking views.

a. CHALET FOR TWO PEOPLE:

Its prepared to accommodate two people ,newly married couples an any couples ,its area escalates up to 58m2 .

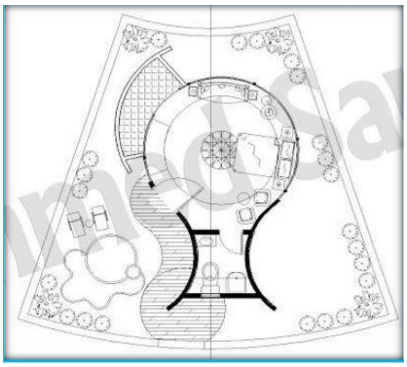


Figure (47) Shows Chalet's Plan

Space name	Area
Bedroom	16m2
Living room	15m2
Bathroom	5m2
Open kitchen	6m2
Terrace	18m2

TABLE (14) SHOWS CHALETS SPACES

(3_1_2_2)RECREATIONAL AND TOURISM SPACES:

a. RECREATIONAL SPACES:

Including landscapes , playgrounds , outdoor games , camps and track.

Figure (48) Shows The Play Grounds And Landscapes

- Landscapes:
- should be planned in a harmonious way so it gives the feeling of joy and comfort.

b. OUTDOOR GAMES AND PLAYGROUNDS:

- Tennis Court:

With a 600m2 area as a separated space near the main plaza so it has a central access .

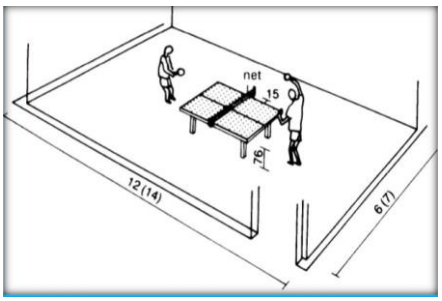


Figure (49) Shows The Tennis Court

(3_1_2_2_1) Camping Spaces:

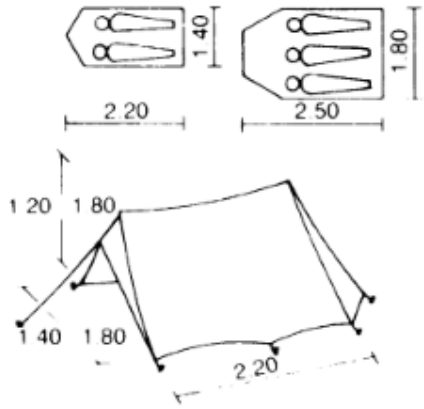


Figure (15) Shows Camping Tent Areas

CAMPING TENT	AREA
For two people	3m2
For three people	4.5m2

CAMPING TENT	AREA
Tent For Three People With Luggage Space	13.8m2

TABLE (16) SHOWS TENT AREA

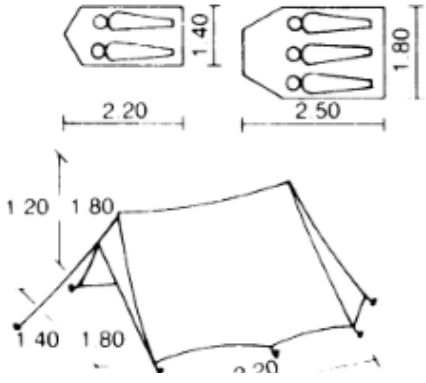


Figure (50) Shows Camping Tent For Three People Area

(3_1_2_2_2) RESTAURANTS:

It is a space prepared for serving/eating different types of food at different times during the day . Whether it's an indoor or an outdoor restaurant the person effective area is 2 square meters per person.

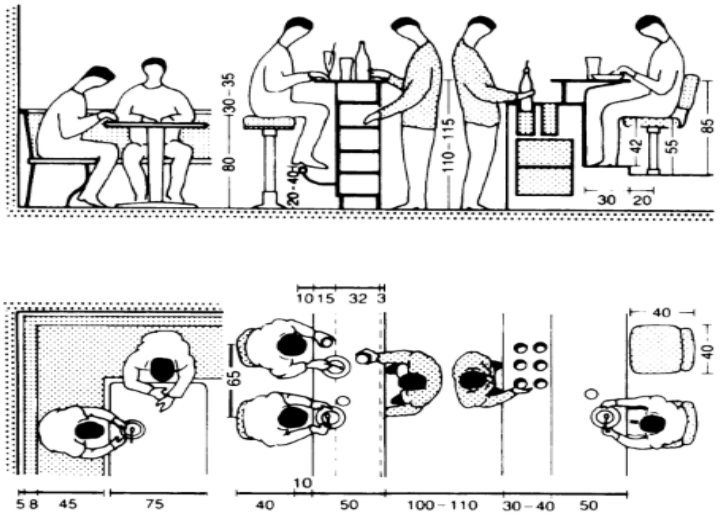


Figure (51) Shows Effective Dimensions Of Restaurants

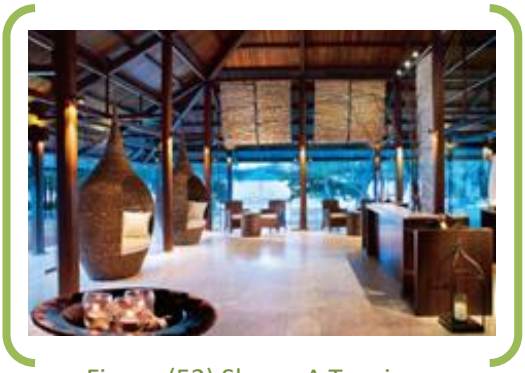


Figure (52) Shows A Tourism Restaurant Interior View

(3_1_2_2_3) CLIMBING ZONE:

It is a simulated contour gradient ,used for creating type of entertainment while climbing it , were built from cement with reasonable heights to avoid dangerous accidents.

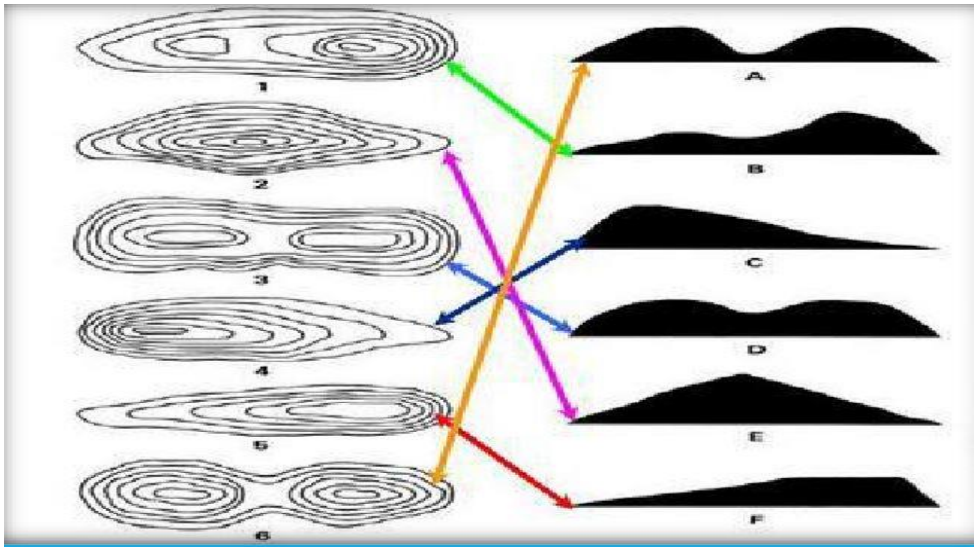


FIGURE (53) SHOWS SIMULATED MOUNTAIN TYPES

(3_1_2_2_4) GYMNAZIUM :

It contains:

_Reception and waiting area .

_exercising sectors with coaches and exercising machines and sports equipments .

_Aerobics section.

-Changing rooms and water cycles.

Each sector absorbs 40 up to 45 person with a 250 m2.

_Rest room with lockers .

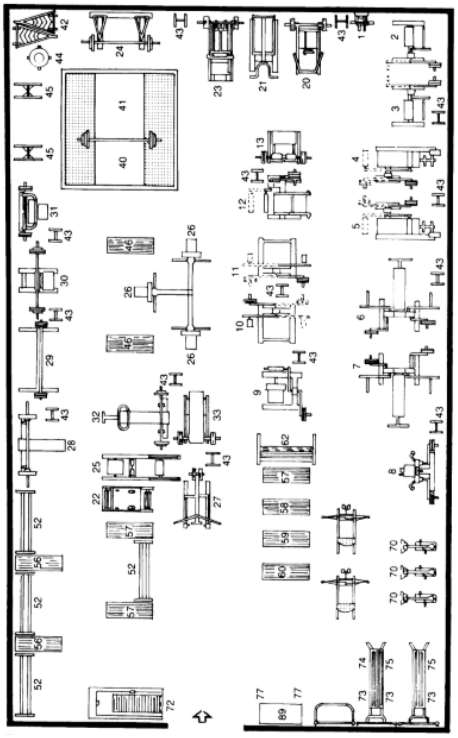


Figure (54) Shows Gym Plan

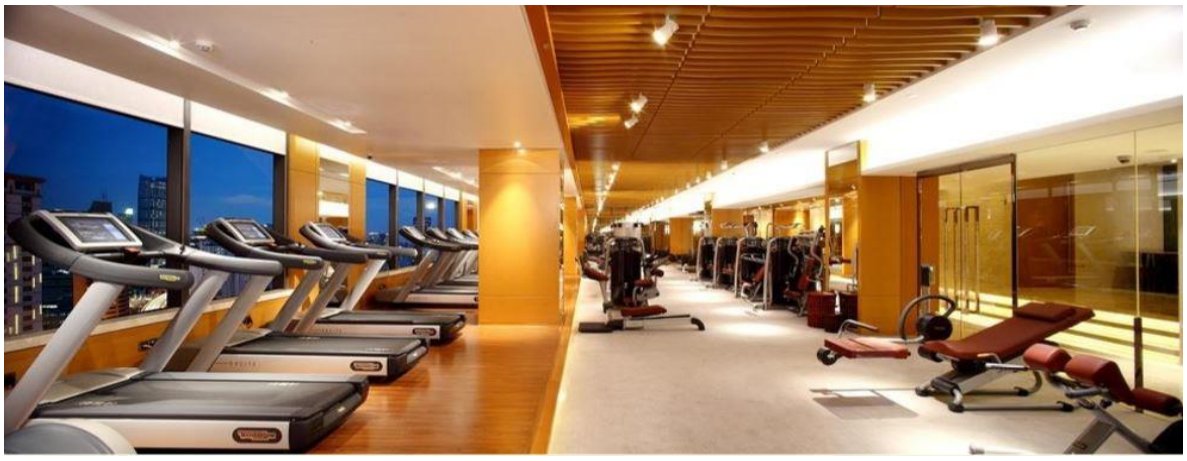


FIGURE (55) SHOW A GYM'S INTERIOR VIEW

(3_1_2_2_5) SPA:

Consists Of:

a. Sauna .

b. Beauty salon.

c. Massage spaces.

a. SAUNA :

it is a bath that uses dry heat to induce perspiration , and in which steam is produced by pouring water on heated stones . A bathhouse or room is usually made of wood, equipped for such a bath. It's built in the form of steps . the heat might increase up to 80 C.

Spaces Name	Area
Changing Rooms	8m2
Sauna (sector)	7m2
Showers	5.29m2
Total area	46.75m2

TABLE (17) SHOWS SAUNA AREAS TABLE

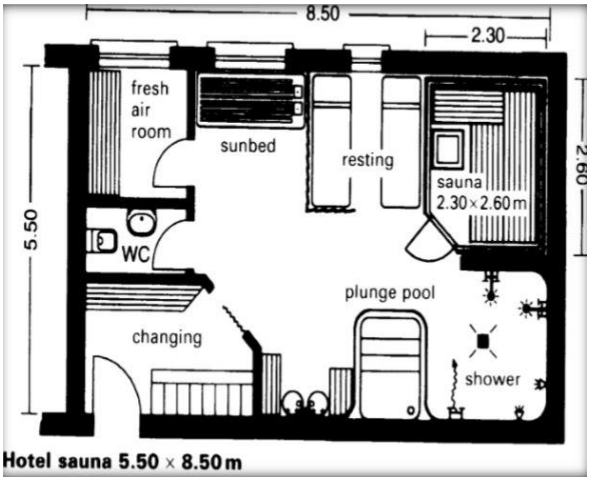


FIGURE (56) SHOWS SAUNA PLAN

b. BEAUTY SALON:

It is an area dedicated to cosmetic purposes for both genders ,the area is estimated at 200 m2 .

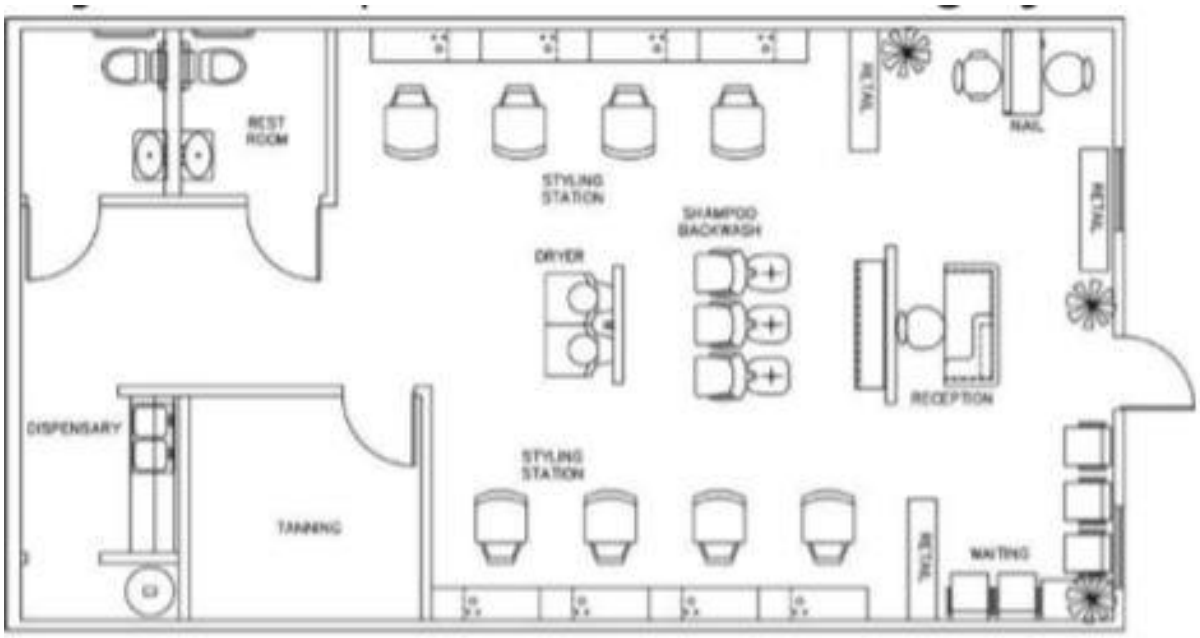


FIGURE (57)SHOWS BEAUTY SALON PLAN

c. MASSAGE SPACES:

Massage is the therapeutic practice of manipulating the muscles and limbs to ease tension and reduce pain ,It can be effective for reducing the symptoms of disorders of or pain in the muscles and nervous system , and it is often used to reduce stress. Will specify 4 rooms for traditional massage , 1 room for Thai massage and one for mud treatments .

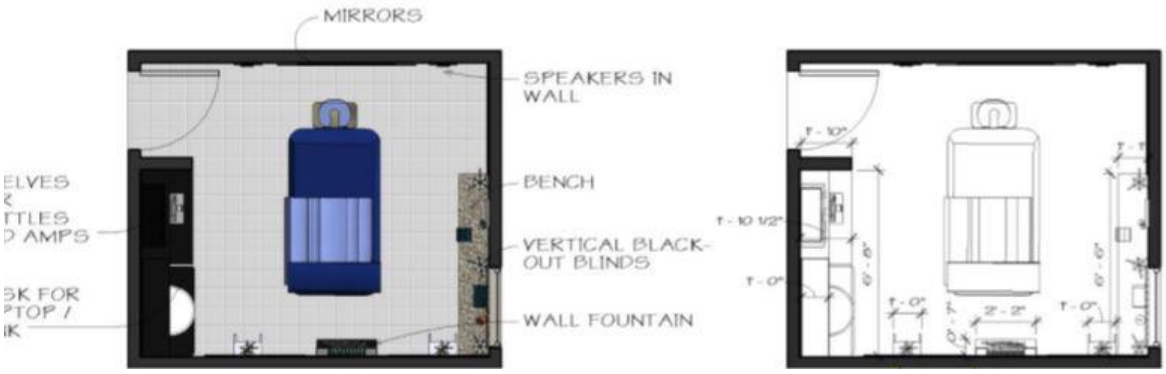


FIGURE (58) SHOWS MASSAGE ROOM PLAN

FIGURE (25) SHOWS MASSAGE ROOM INTERIOR VIEW

(3_1_2_2_6) Pool spaces consists of:

_ The Infinity Swimming pool with different depths.

_changing rooms , showers and lockers.

SPACE NAME	AREA
Swimming Pool	150m2
Changing rooms	40m2
Showers	7m2
Toilets	12m2
Pathways (20%)	8m2

TABLE (18)SHOWS POOL SPACES AREA

FIGURE (59) SHOWS INFINITY POOL

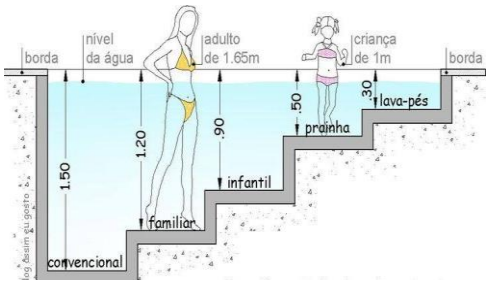


FIGURE (60) SHOWS INFINITY POOL DIFFERENT DEPTHS.

_ THE JACCUZI is a swimming pool with a certain pump to pump water into circular waves that help relaxing .

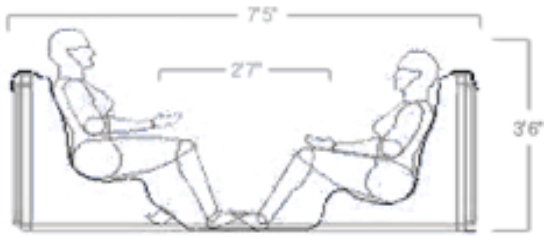


FIGURE (61) SHOWS JACUZZI TUB DIMENSIONS .

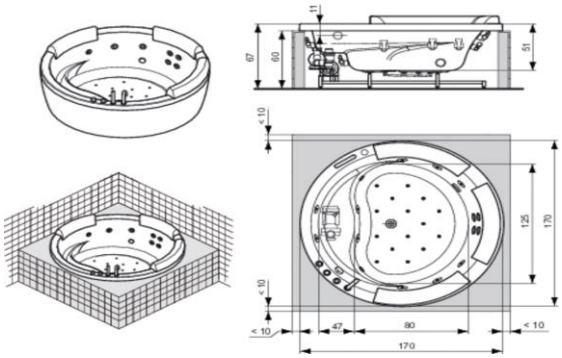


FIGURE (62) SHOWS JACUZZI TUB DETAILS

FIGURE (63) SHOWS JACUZZI TUB VIEW

(3_1_2_2_7) TELEPHERIQUE STATION:

A Telepherique is a cabled carts used for transporting people and raw materials in the highlands , mountains and mountain resorts .the speed of the telepherique starts from 40 km/h and escalates .

SPACE NAME	AREA
Electricity room	25m2
Maintenance room	36m2
Storages	20m2
Life guards office	20m2
Telepherique cart (per person)	0.8m2

TABLE (19)SHOWS TELEPHERIQUE STATION AREAS

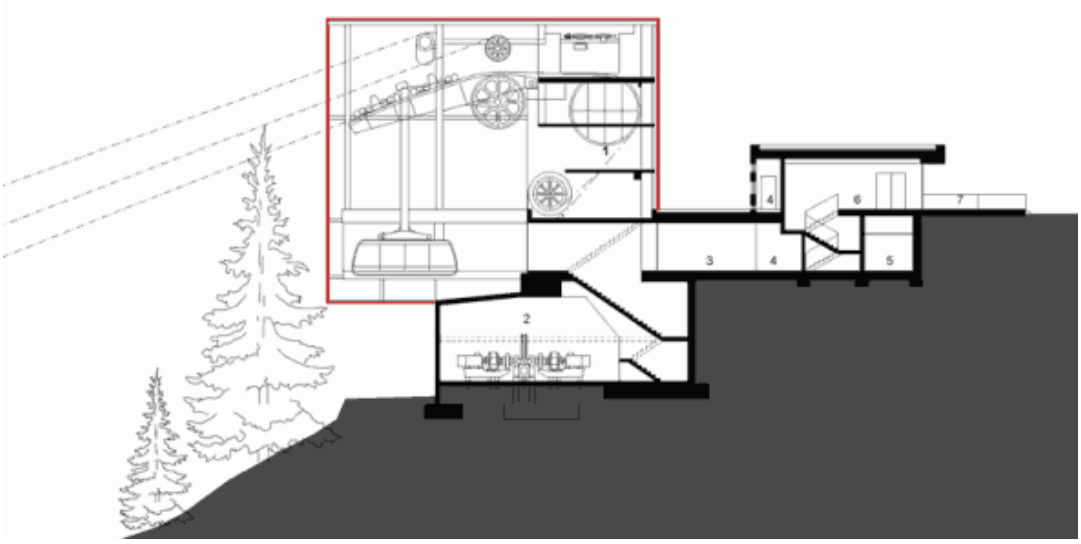


FIGURE (64) SHOWS A SECTION OF THE TELEPHERIQUE STATION

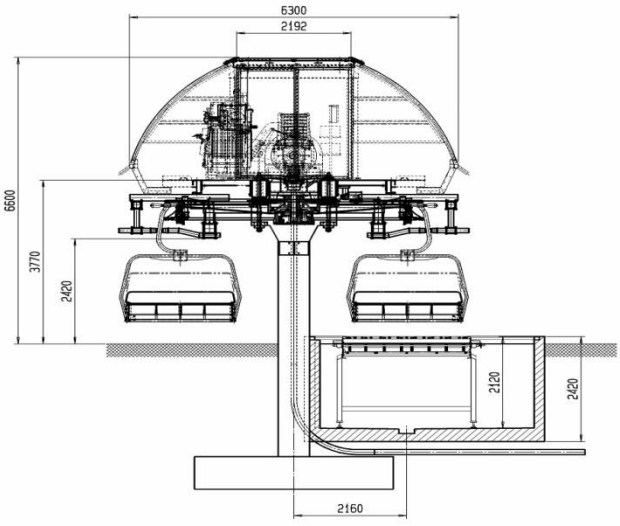


FIGURE (65) SHOWS THE TELEPHERIQUE CART DIMENSIONS AND THE MECHANICAL EQUIPMENTS DIMENSIONS .

(3_1_3) SUMMERIZED SPACE'S TABLES

(3_1_3_1)RESIDENTIAL SPACES :

Residential spaces (basic space)	Area	Number of spaces	Total area
Single room	28.7m2	12	344.4m2
Terrace	10m2	12	1200m2
Deluxe room	35m2	80	4240m2
Terrace	10m2	80	800m2
Suite	60m2	20	1200m2
Royal suite	90m2	10	900m2
Apartment '1'	120m2	10	1200m2
Apartment '2'	160m2	8	1280m2
Chalet	58m2	10	580m2
Royal chalet	72m2	15	1080m2
TOTAL ZONE AREA	_	_	12824.5m2
SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAL AREA

Entrance	600m2	1	600m2
Breakfast hall	625m2	1	625m2
Central kitchen	550m2	1	550m2
Laundry	315m2	1	315m2
Service room	20m2	16	320m2
TOTAL ZONE AREA	_	_	2410m2

*Total residential zone =12824.5 +2410 = 15234.5m2

TABLE (20) SHOWS RESIDENTIAL SPACES AREA TABLE

(3_1_3_2)ENTERTAINMENT SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAL AREA
Main restaurant	850m2	2	1700m2
Café's	225m2	3	675M2
Portable cafe'	94.50m2	4	378m2
Cinema	300m2	2	600M2
Camps	2.4m2	50	120m2
Gondola	282m2	1	282m2
TOTAL ZONE AREA(indoor)	_	_	2975m2
TOTAL ZONE AREA (outdoor)	_	_	780m2
TOTAL ZONE AREA	_	_	3755m2

TABLE (21) SHOWS ENTERTAINMENT SPACES AREA TABLE

(3_1_3_3)HEALTHY & ATHELETIC SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAL AREA
GYM	300m2	2	600m2
Indoor Swimming Pool	1230m2	1	1230m2
Outdoor swimming pool	496m2	1	496m2
Sauna	484m2	2	968m2
Yoga hall	120m2	1	120m2
Massage rooms	15m2	10	150m2
Triple sport hall	1215m2	2	2430m2
Training spaces	405m2	2	810m2
Climbing training centre	225m2	1	225m2
Hunting training centre	216m2	1	216m2
TOTAL ZONE AREA(indoor)	_	_	6749m2
TOTAL ZONE AREA(outdoor)	_	_	496m2
TOTAL ZONE AREA	_	_	7245m2

TABLE (22) SHOWS ATHELETIC SPACES AREA TABLE

(3_1_3_4)CULTURAL SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACE	TOTAL AREA
Multi purpose hall	600m2	2	1200m2
Heritage exhibition	400m2	2	800m2
TOTAL ZONE AREA	_	_	2000m2

TABLE (23) SHOWS CULTURAL SPACES AREA TABLE

(3_1_3_5)COMMERCIAL SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAL AREA
Super market	240m2	1	240m2
Gift Shop s	30m2	2	60m2
ATM	7m2	5	35m2
Clothes shop	50m2	3	150m2
Hunting equipment shop	25m2	1	25m2
Climbing equipment shop	25m2	1	25m2
Travel agency	45m2	1	45m2
TORAL ZONE AREA	_	_	580m2

TABLE (24) SHOWS COMMERCIAL SPACES AREA TABLE

(3_1_3_5) ADMINISTRATION SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAAL SPACE
General manager office	42m2	1	42m2
sectors managers offices	36m2	7	252m2
Secretary office	25m2	8	200m2
Employees office	20m2	16	320m2
Archive	16m2	8	128m2
Receptions	42m2	8	42m2
TOTAL ZONE AREA	_	_	984m2

TABLE (25) SHOWS ADMINISTRATION SPACES AREA TABLE

(3_1_3_6_1)SERVICES SPACES TABLE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAAL SPACE
Mosque	57.6m2	6	345.6m2
Clinic	100m2	1	100m2
Employees rest rooms	50m2	4	200m2
workers rest rooms	50m2	2	100m2
Water cycles	3m2	30	90m2
Parking	17.5m2	150	2625m2
TOTAL ZONE AREA	_	_	6560m2

TABLE (26) SHOWS SERVICES SPACES AREA TABLE

(3_1_3_6_2)GONDOLA STATION SERVICE:

SPACE NAME	SPACE AREA	NUMBER OF SPACES	TOTAL SPACE
Electricity station	25m2	2	50m2
Maintenance workshop	72m2	1	72m2
Stores	40m2	1	40m2
Rescue team office	30m2	2	60m2
Workers rest room	50m2	1	50m2
Control room	16m2	2	32m2
Water cycles	2.5m2	4	10m2
Cafeteria & entertainment hall	225m2	1	225m2
TOTAL ZONE AREA	_	_	539m2

*Total services zone = 6560 + 539 = 7099m2

TABLE (27) SHOWS TELEPHERIQUE STATION SPACES AREA TABLE

(3_1_3_7) ZONES TOTAL AREA:

ZONE	INDOOR AREA	OUTDOOR AREA	TOTAL AREA
RESIDENTIAL ZONE	15234.5m2	_	15234.5m2
ENTERTAINMENT ZONE	2975m2	780m2	3755m2
HEALTHY& ATHELETIC ZONE	6749m2	496m2	7245m2
CULTURAL ZONE	2000m2	_	2000m2
COMMERCIAL ZONE	580m2	_	580m2
ADMINISTRATION ZONE	984m2	_	984m2
SERVICES ZONE	7099m2	2625m2	6560m2
TOTAL AREA	26172.5m2	3901m2	30073m2

TABLE (28) SHOWS TOTAL SPACES AREA TABLE

P R O J E C T T O T A L A R E A

PROJECT TOTAL AREA CALCULATIONS:

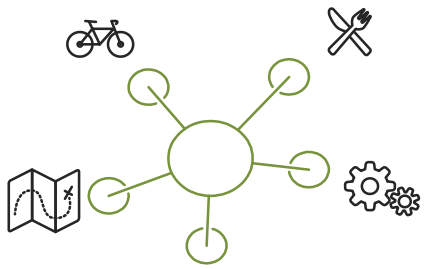
_For Movement paths we add 35% of the built area = 30073*35%= 10525.5m2

_For landscapes we add 60% of the built area = 30073.5*60%=18044.1 m2.

_Total out door area = 22345.1 m2.

_total indoor areas = 25878m2

*TOTAL PROJECT AREA = 25878 + 22345.1 = 48223.1m2 = 4.9 hectares.



(3_1_4) FUNCTIONAL RELATIONSHIPS DIAGRAMS

BUBBLE DIAGRAMS , MATRIX AND THE MOVEMENT DIAGRAMS.

(3_1_4_1) THE GENERAL DIAGRAM:

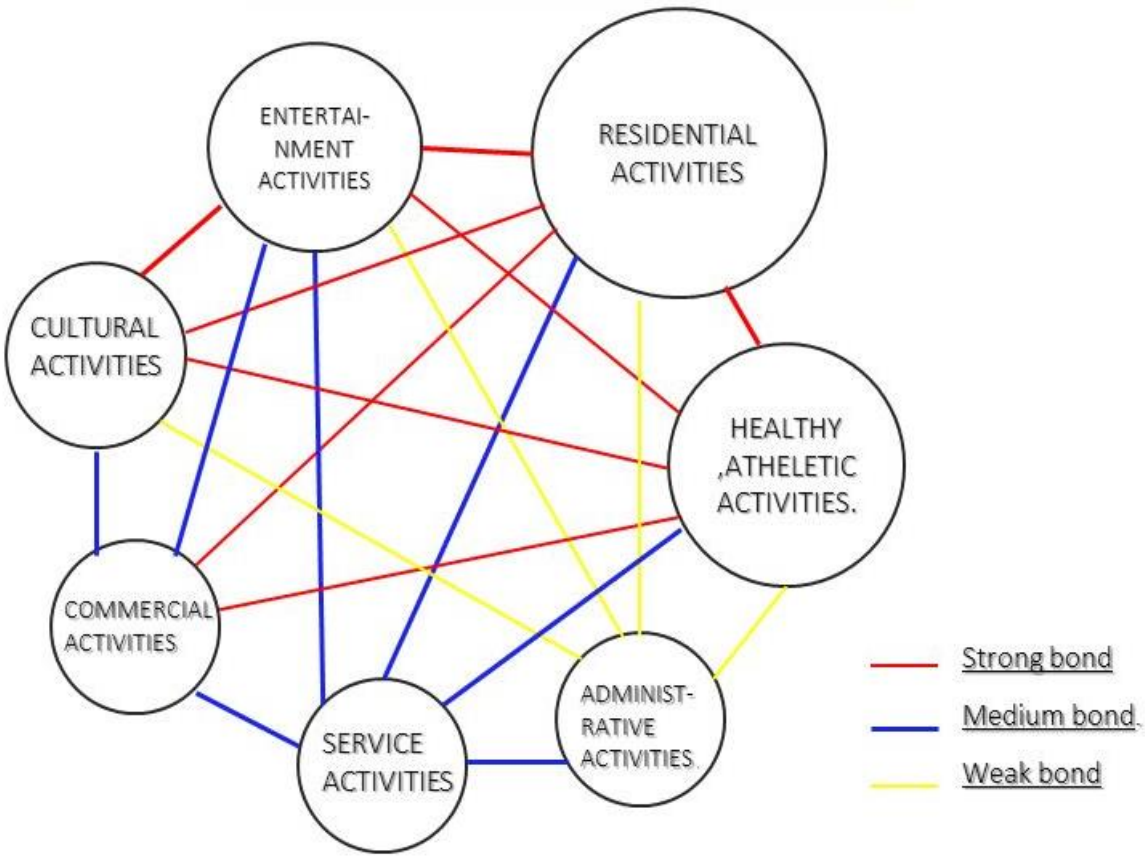


DIAGRAM (16) SHOWS THE GENERAL ACTIVITIES BUBBLE DIAGRAM

(3_1_4_2) RESIDENTIAL ACTIVITIES DIAGRAMS:

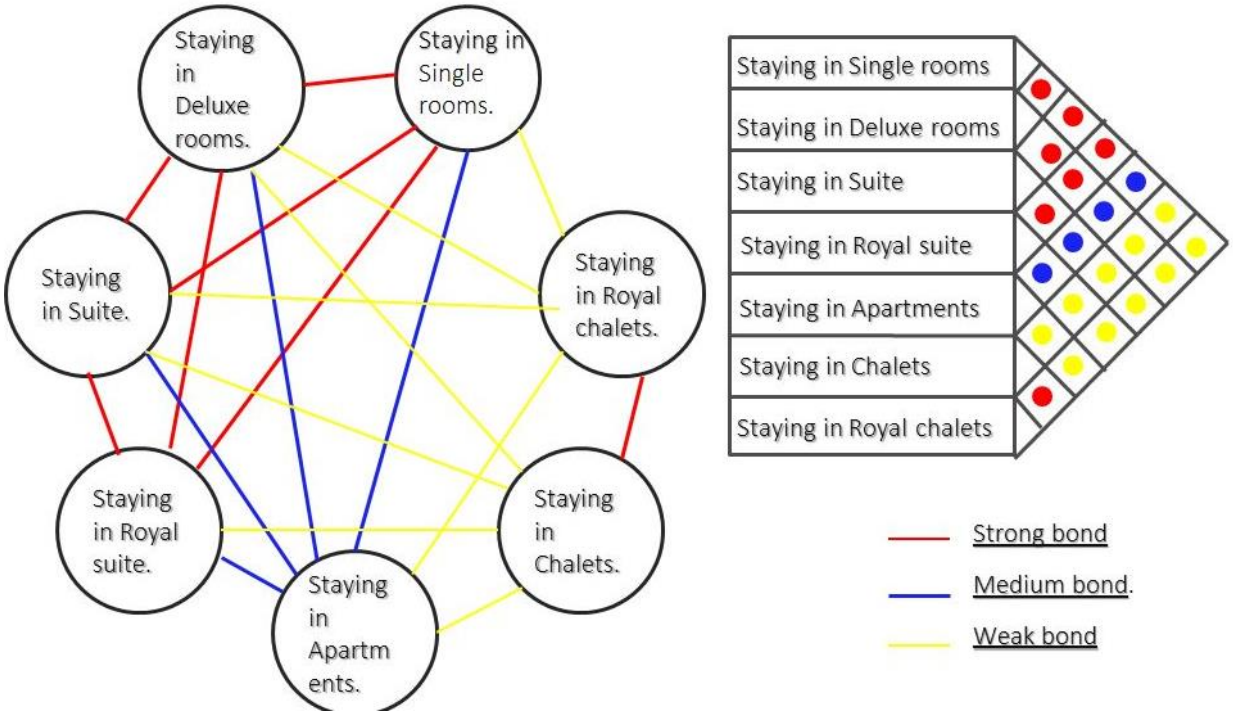


Diagram (17) Residential Activities Bubble and Matrix Diagram

(3_1_4_3) ENTERTAINING ACTIVITIES DIAGRAMS:

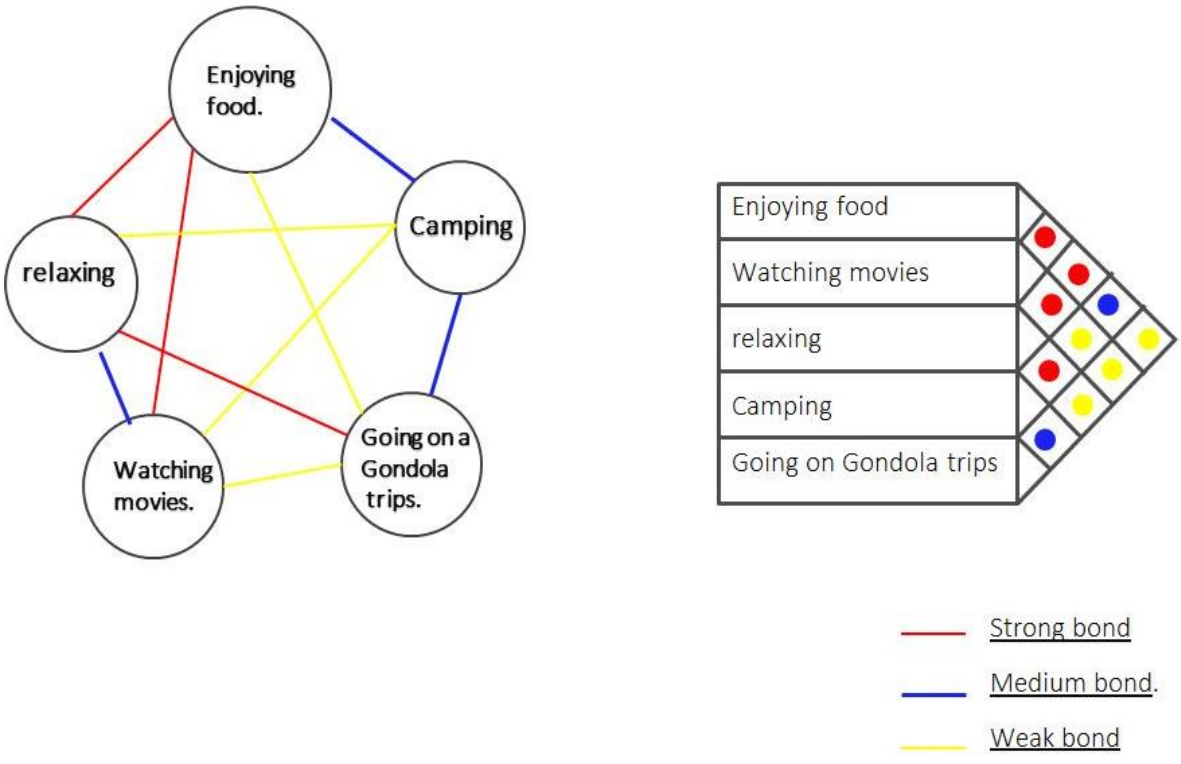


Diagram (18) Entertaining Activities Bubble and matrix Diagram

(3_1_4_4) HEALTHY & ATHELETIC ACTIVITIES DIAGRAMS:

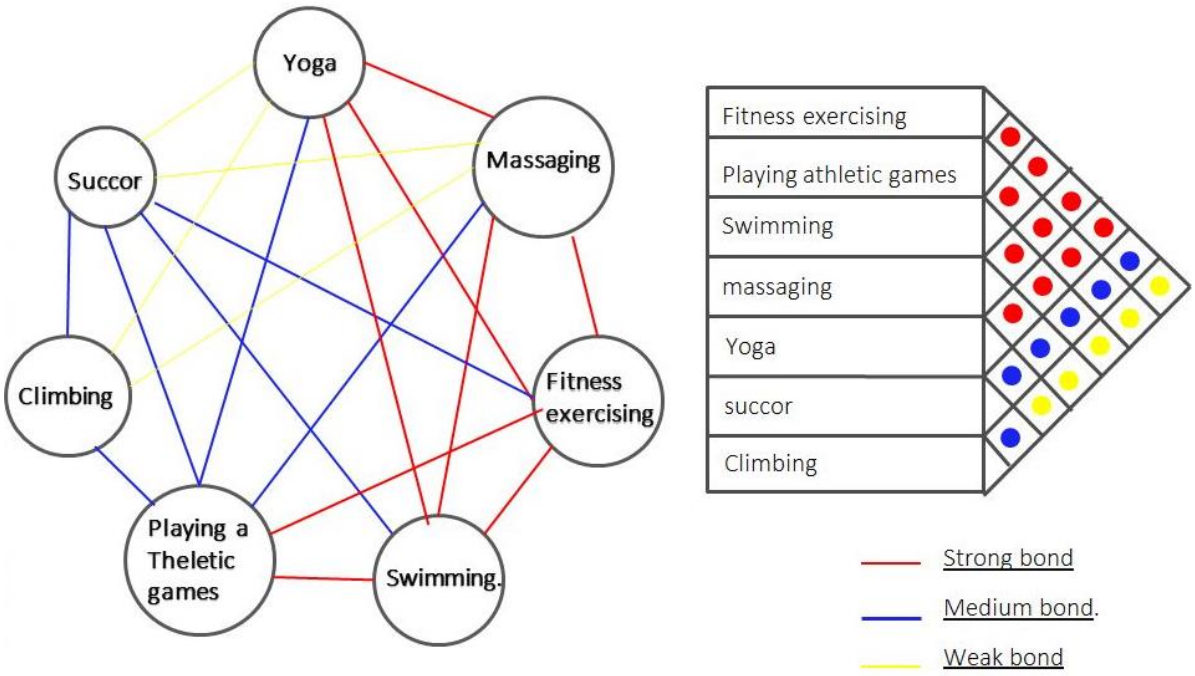


Diagram (19) Healthy & Athletic Activities Bubble and Matrix Diagrams

(3_1_4_5) COMMERCIAL ACTIVITIES DIAGRAMS:

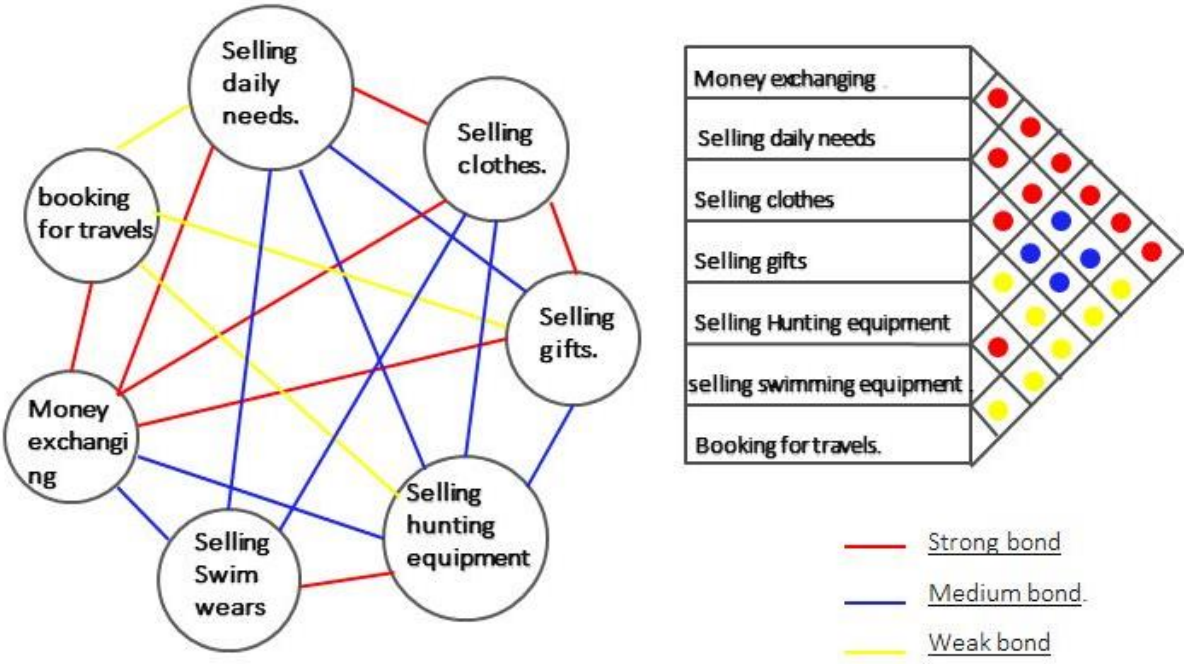


Diagram (20) Commercial Activities Bubbles and Matrix Diagram

(3_1_4_6) ADMINISTRATIVE ACTIVITIES DIAGRAM:

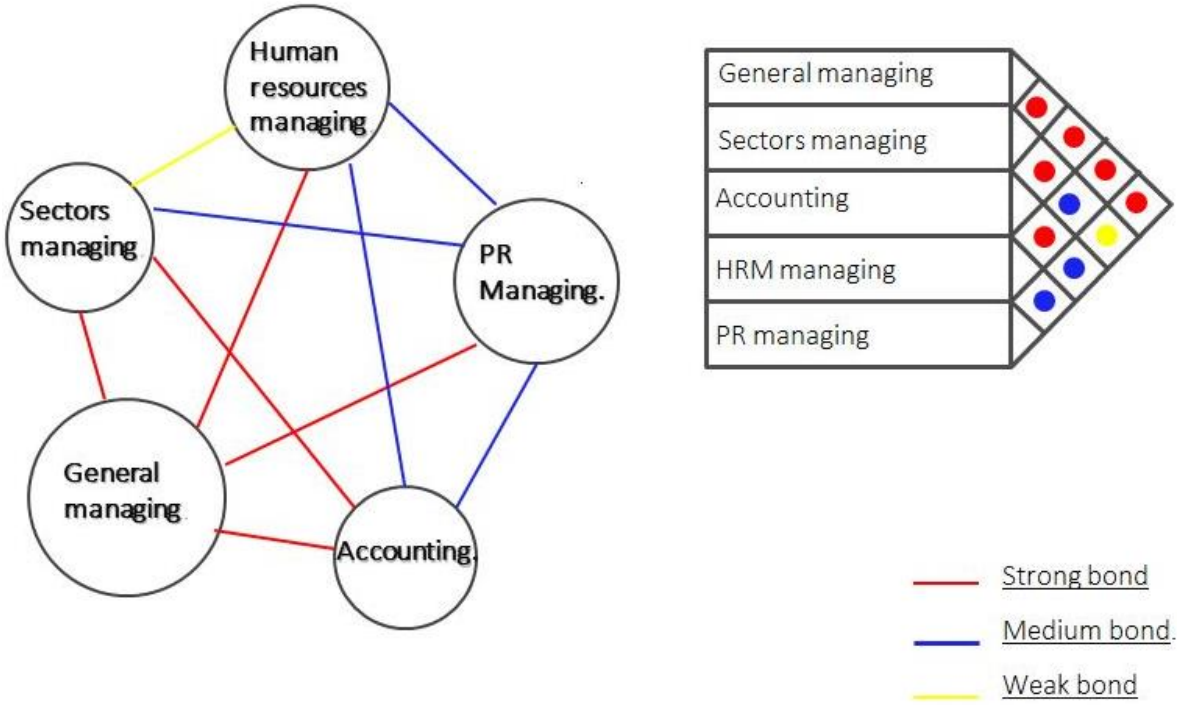


Diagram (21) Administrative Activities Bubble and Matrix Diagram

(3_1_4_7) SERVICES ACTIVITIES DIAGRAMS:

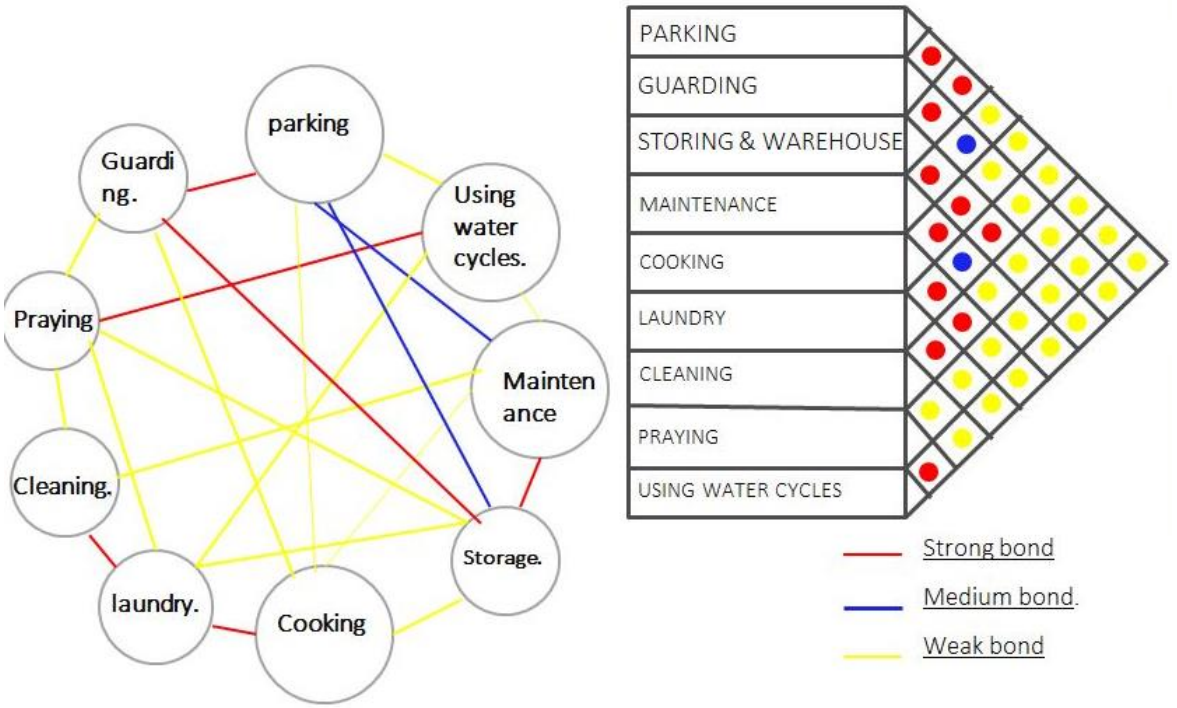


Diagram (22) Services Activities Bubble and Matrix Diagram

(3_1_4_8) GENERAL ACTIVITIES MATRIX:

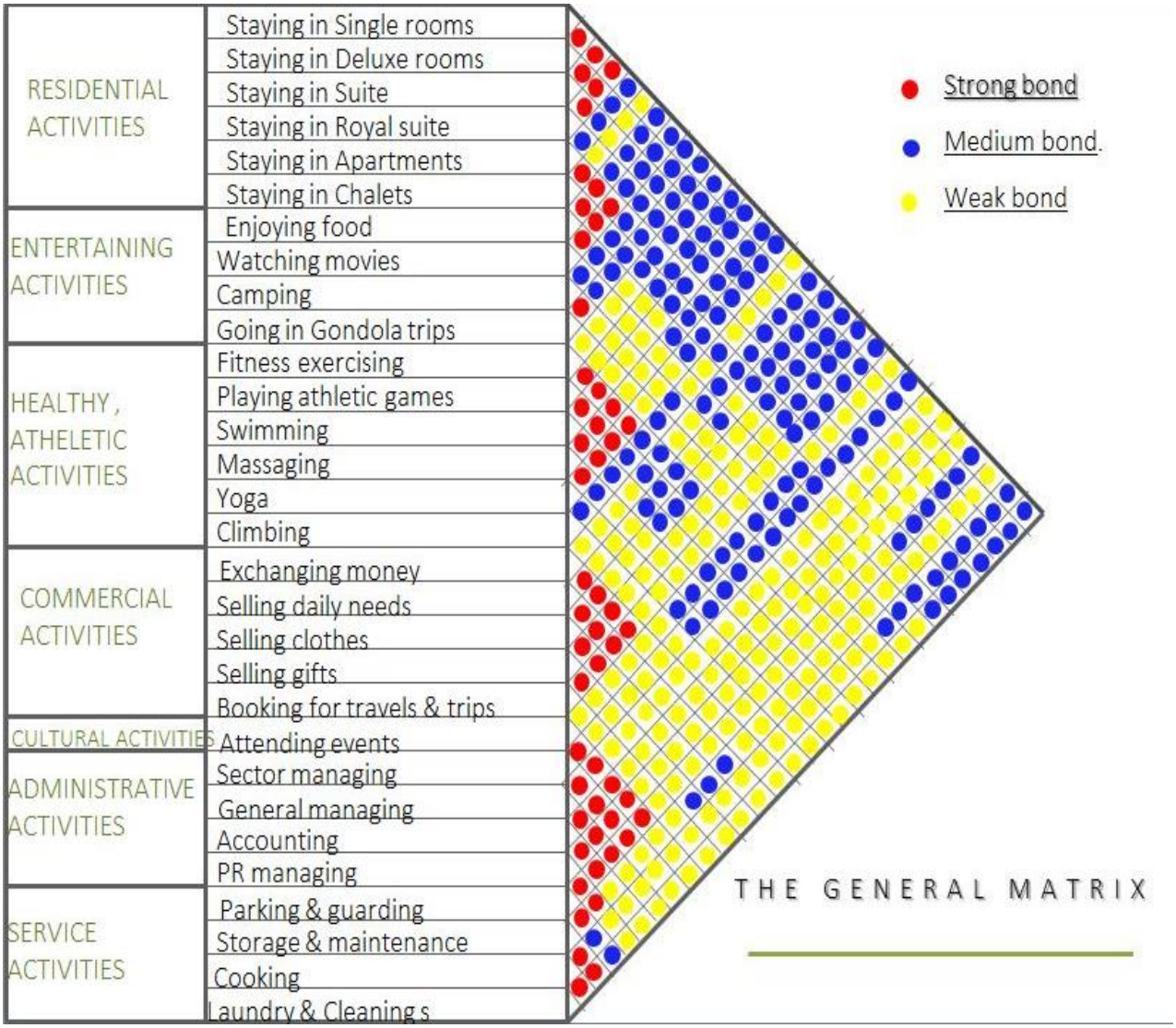


DIAGRAM (23) SHOWS GENERAL ACTIVITIES MATRIX DIAGRAM

(3_1_5)MOVEMENT SCHEMES

EVERY USERS HAVE THEIR OWN PLACES AND MOVEMENT PATHS

(3_1_5_1)GENERAL MOVEMENT SCHEME:

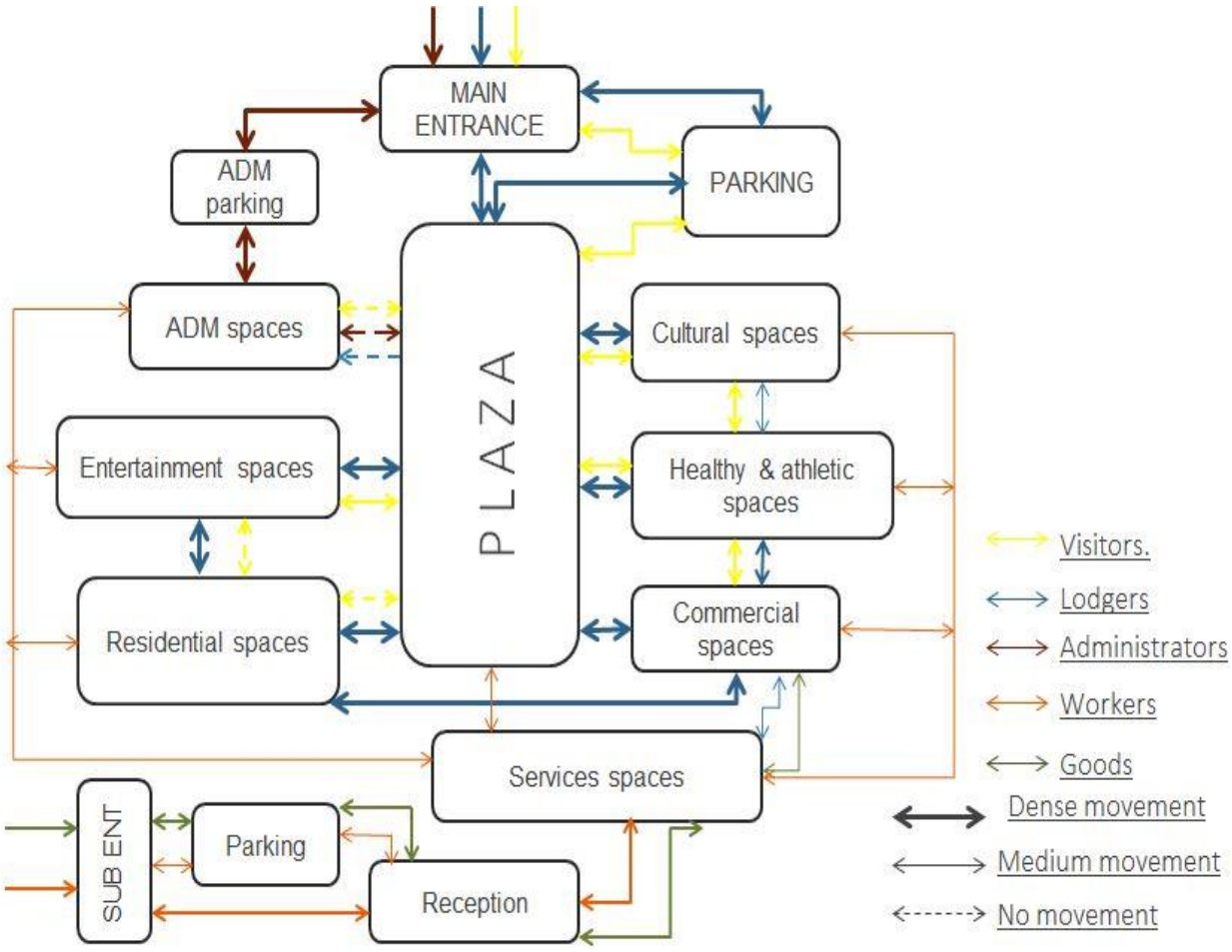


DIAGRAM (24) SHOWS GENERAL MOVEMENT SCHEME

(3_1_5_2)LODGERS MOVEMENT SCHEME:

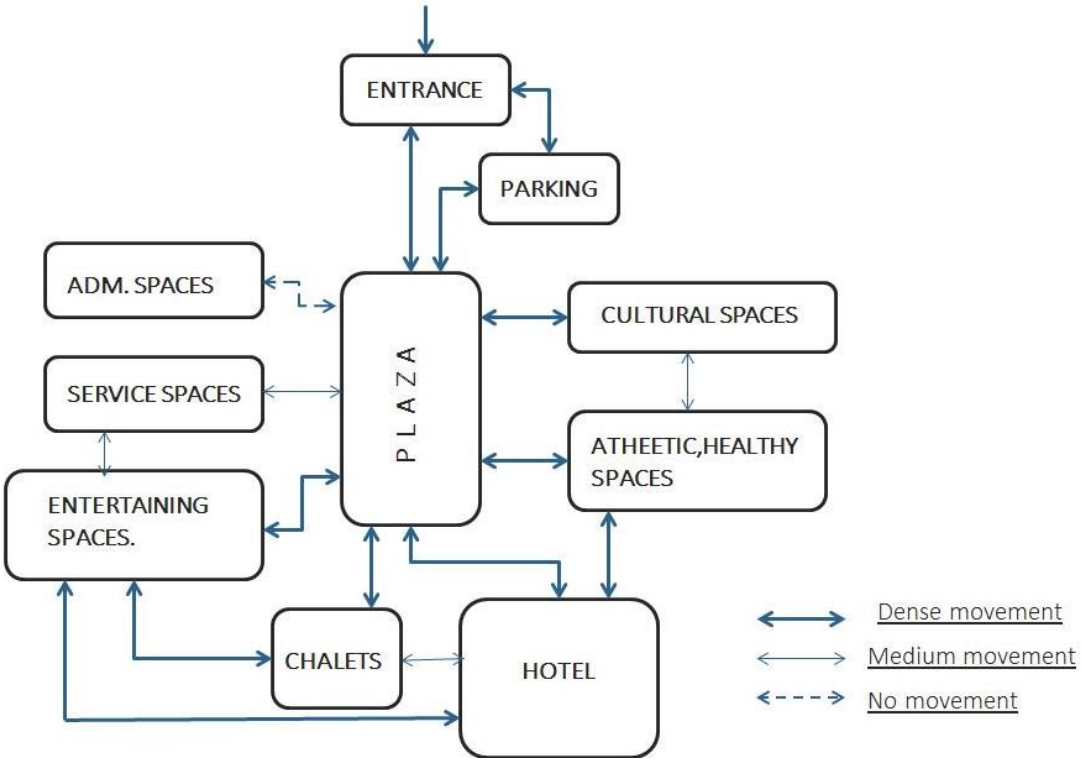


DIAGRAM (25) SHOWS LODGERS MOVEMENT SCHEME

(3_1_5_3)VISITORS MOVEMENT SCHEME:

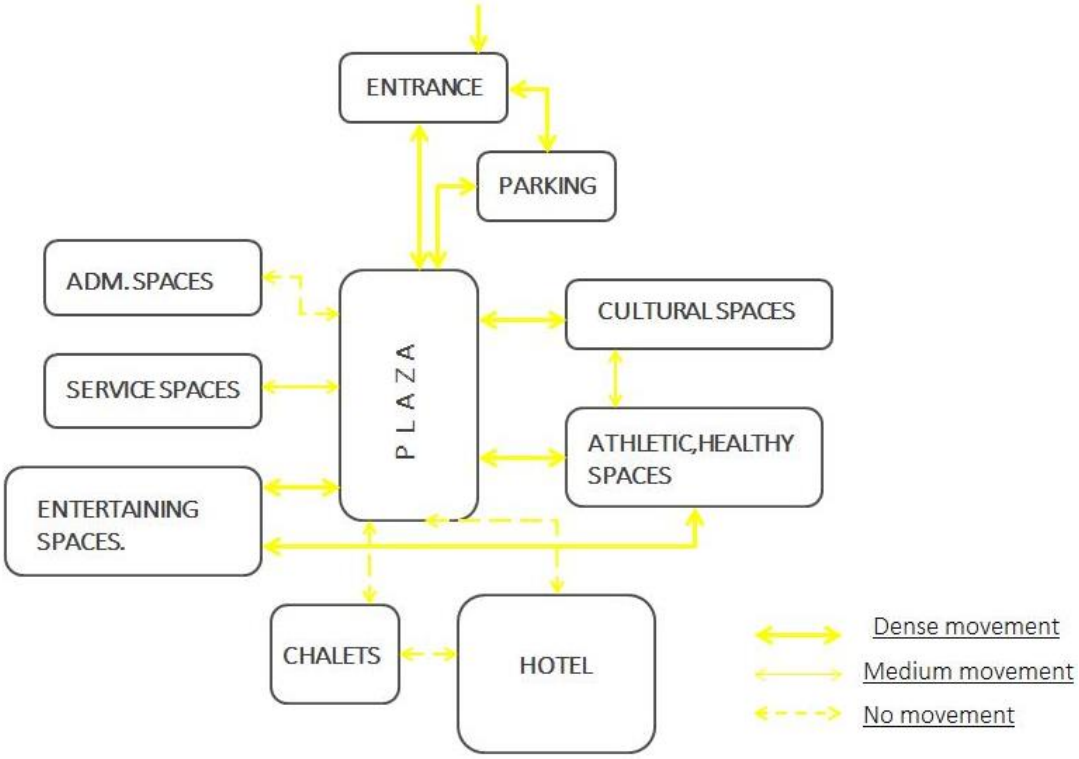


DIAGRAM (26) SHOWS VISITORS MOVEMENT SCHEME.

(3_1_5_4)ADMINISTRATORS MOVEMENT SCHEME:

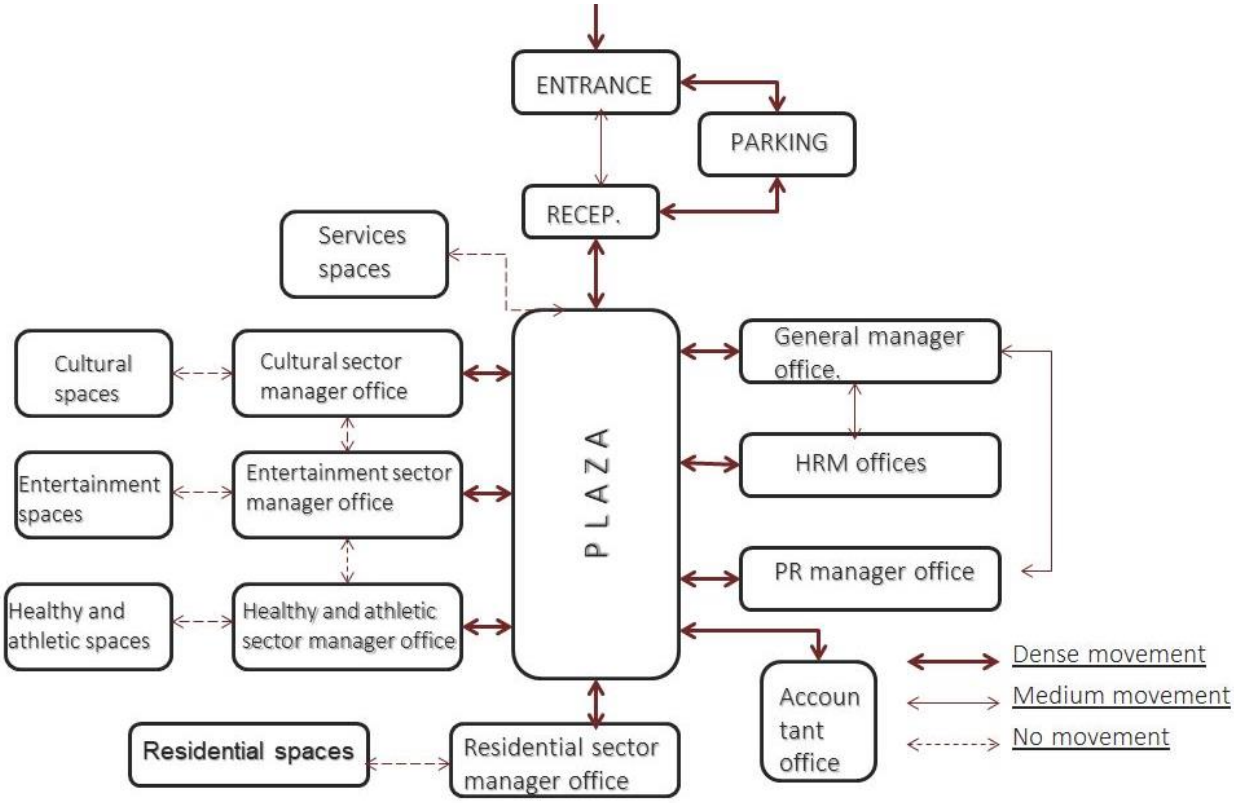


DIAGRAM (27) SHOWS ADMINISTRATORS MOVEMENT SCHEME.

(3_1_5_5)LABOUR & GOODS MOVEMENT SCHEME:

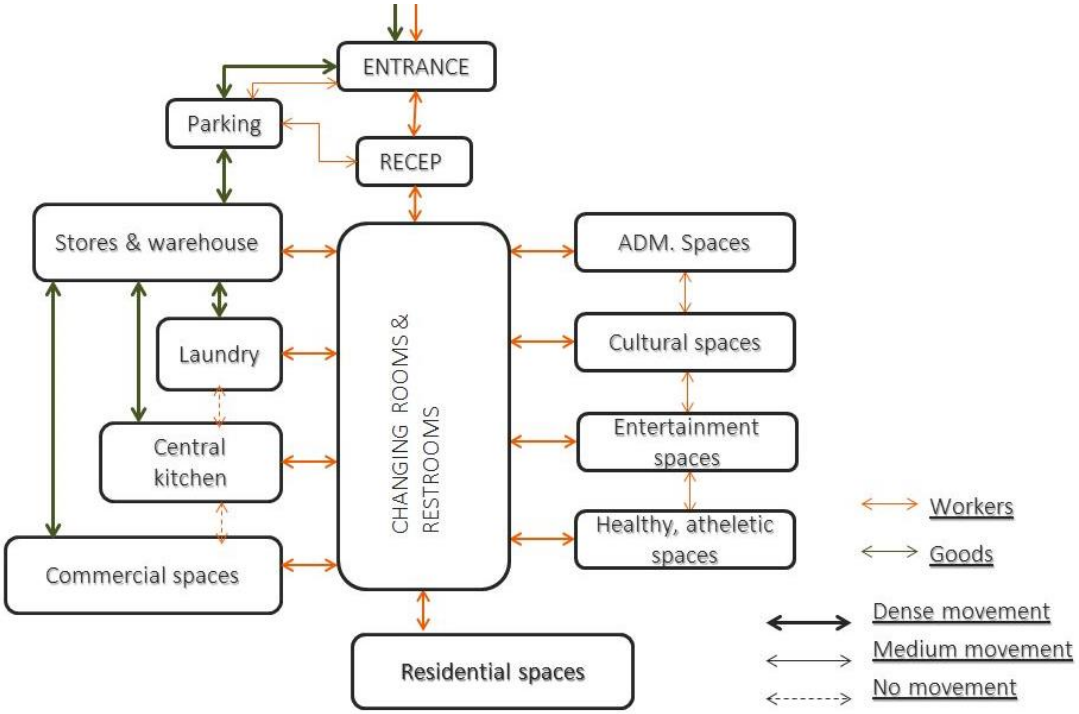


DIAGRAM (28) SHOWS LABOURS AND GOODS MOVEMENT SCHEME.

(3_2). INDICATORS , DETERMINANTS AND DECISSIONS:

INDICATORS	DETERMINANTS	DECISSIONS
Contour leveling	Best use of leveling	Creating views for the residential spaces.
North west wind is the Effective wind	Orienting spaces that needs ventilation to it	Residential spaces orientation into north west , south east.
Differences in heights	Using it in entertainment activities	Applying a gondola station
Rainy climate	Save and use the rain water	Use rainwater tanks and reuse it as substitute way
Terrains	Terrain utilization	Doing activities such as climbing ,camping …etc
Site topography	Use a suitable techniques of structure	Using the pile foundations
Slopes in site	Decrease the usage of technical solution	Helps in drainage rainwater naturally

TABLE (29) SHOWS THE INDICATORS, DETERMINANTS AND DECISSIONS

(3_3) THE ZONING :

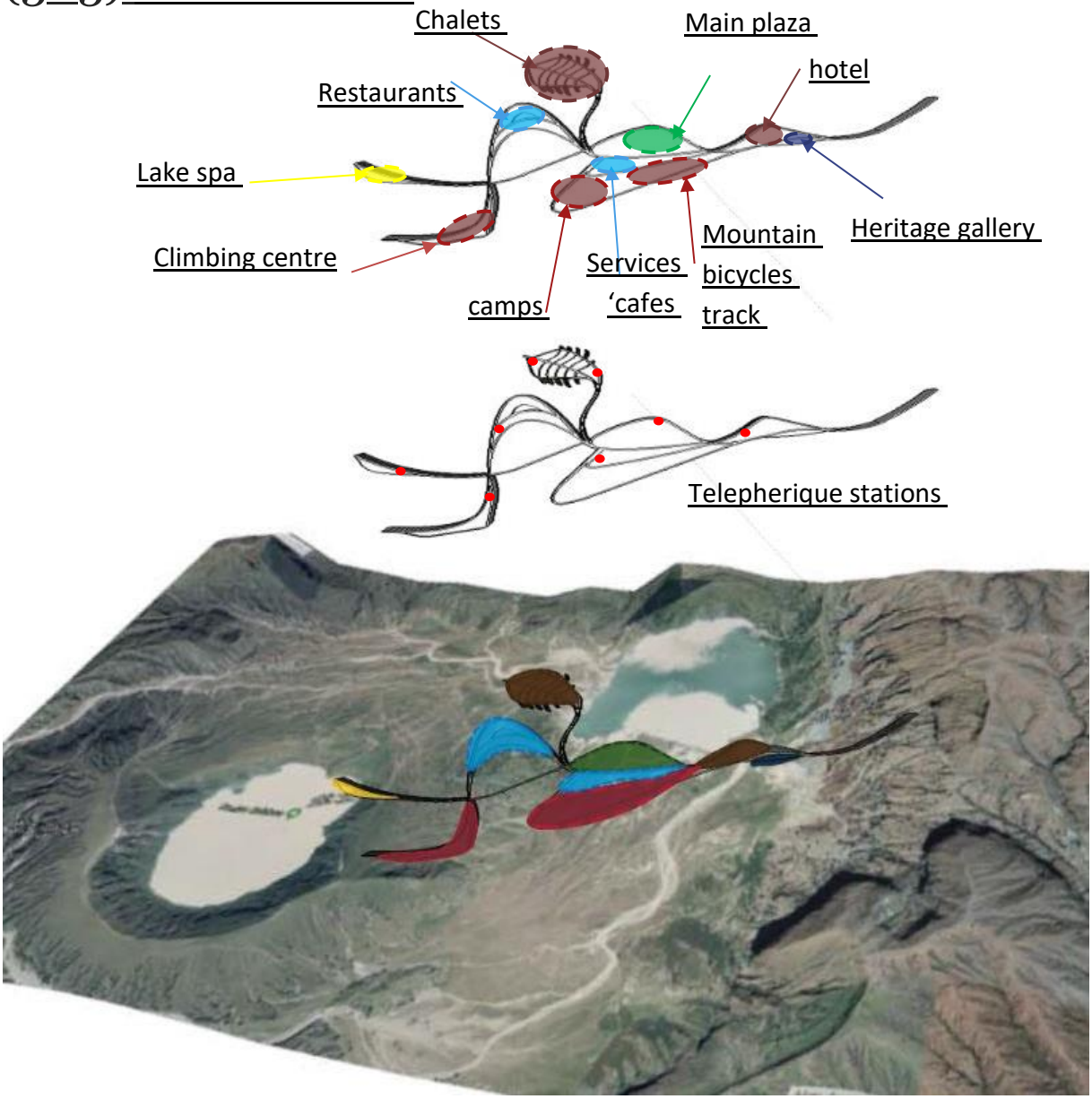


Figure (66) shows the zoning

- Healthy And Recreational Zone
- Residential Zone
- ATHELETIC Zone
- Parking .
- Services
- Cultural Zone
- Gondola (Telepherique) Station

CHAPTER FOUR :

1.CONCEPT PHILOSOPHY

2.THE FIRST CONCEPT DESIGN.

3.THE CONCEPT DEVELOPMENT STAGE.

4. TECHNICAL SOLUTIONS .

_ STRUCTURE SYSTEM.

_ SERVICES:

- Water supply.
- Electricity supply.
- Sewage system.
- Drainage system.
- Air conditioning system.
- Firefighting system.
- Lighting fixtures.

_ SITE TREATMENTS AND FINISHES.

(4_1) CONCEPT PHILOSOPHY:

‘’LIVING IN THE NATURE DEMANDS BEING A PART OF IT ‘’ ...This was the main concept idea ,and it was presented in:

_the simulation of the climbing plants growth behaviour in engaging with the surrounding environment ,this was presented in the planning and corridors shapes.

_Opening the building to the out side world such as using a panoramic stories.

_Using the terrain nature of the site as apart of the project design such as: climbing mountains and lake spa.

(4_2)THE FIRST CONCEPT IDEA :

_the idea of the design was to interference the resort with the nature by forming the masses to suit the terrain and the irregular pathways.

FIGURE (67) SHOWS THE MASTER PLAN OF THE CONCEPT IDEA

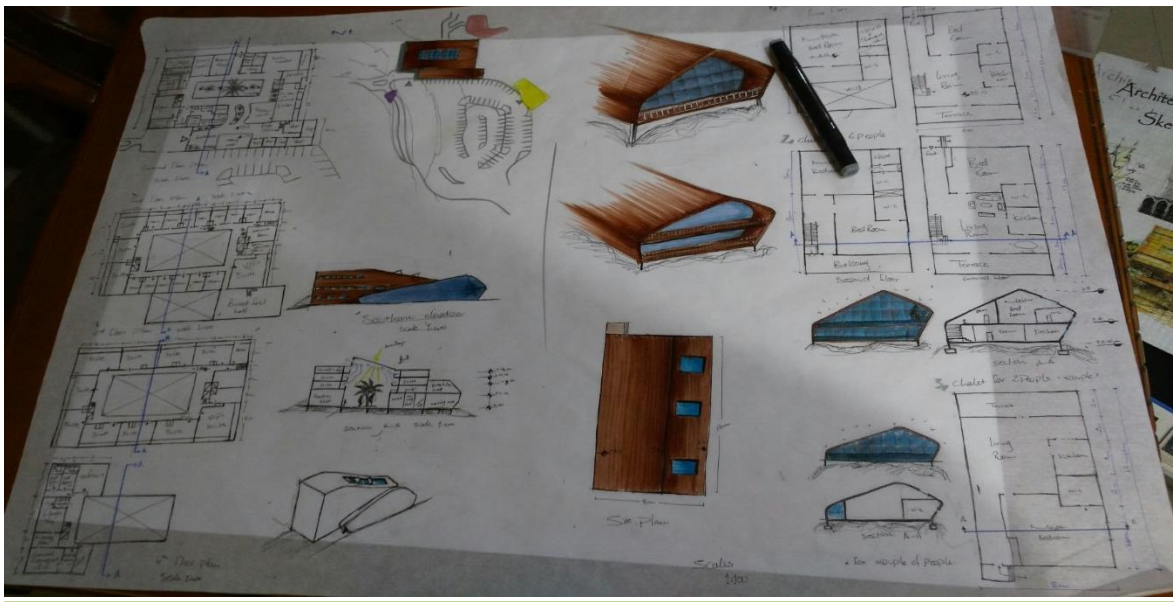


FIGURE (68) SHOWS THE CHALETS DESIGNS AND HOTEL DESIGN

(4_3)THE CONCEPT DEVELOPMENT STAGE:

_organizing the corridors in a geometric way .

_Moving the plaza to the centre ,works as a main lobby .

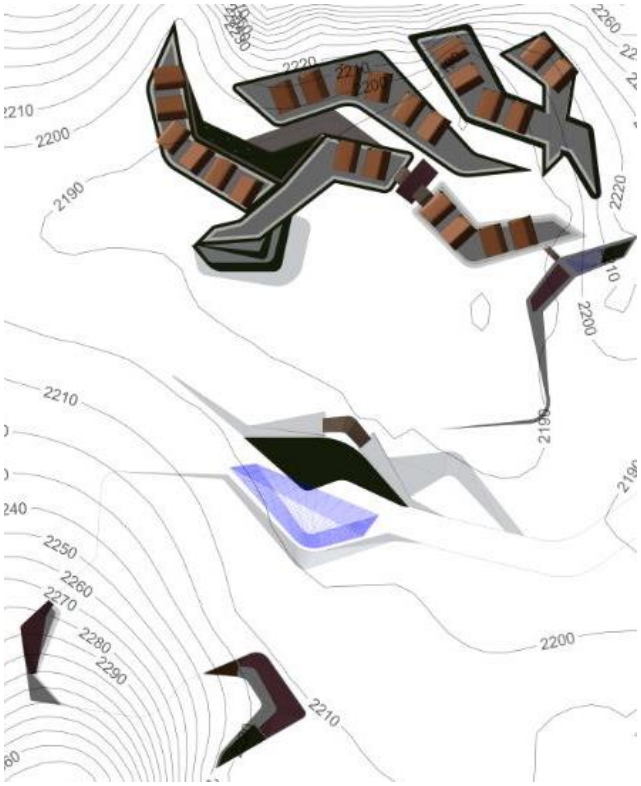


FIGURE (71) SHOWS MASTER PLAN

FIGURE (69) SHOWS SECTION

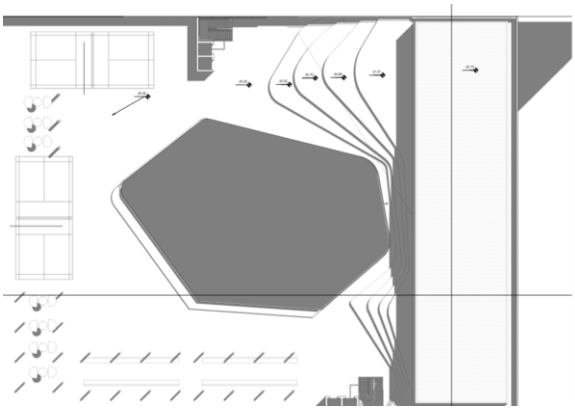


FIGURE (70) SITE

(4_3_1) GROUND FLOOR :

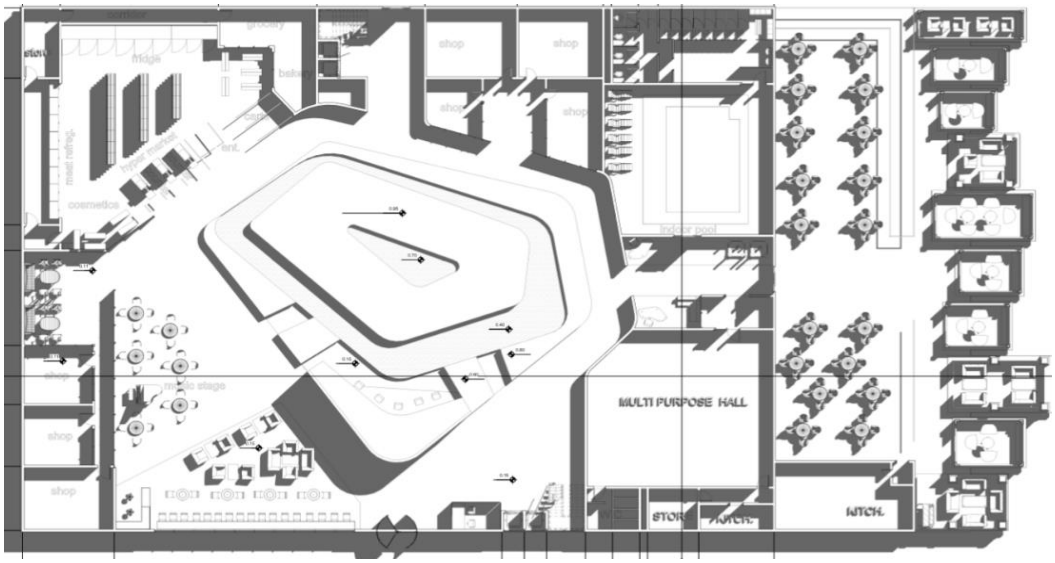


FIGURE (72) SHOWS THE GROUND FLOOR PLAN

(4_3_2)CHALETS :

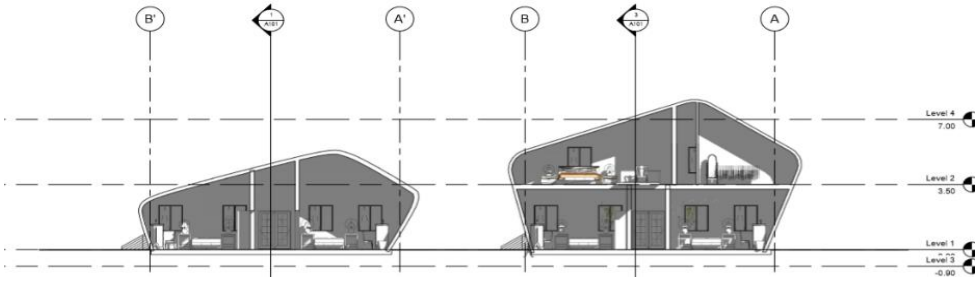


FIGURE (73) SHOWS THE CHALETS SECTION.

Chalets designing idea was : simulating the volcanic rocks in stability while it's existential on unstable surfaces

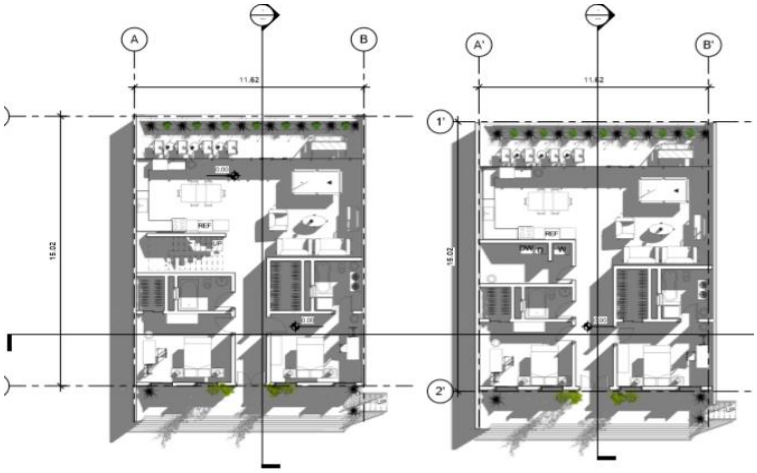


FIGURE (74) SHOWS THE CHALETS PLANS

FIGURE (75) SHOWS THE CHALETS ELEVATIONS AND VIEWS

(4_3)THE DEVELOPMENT STAGE:

_developing the planning form so it becomes a smooth organic shaped.

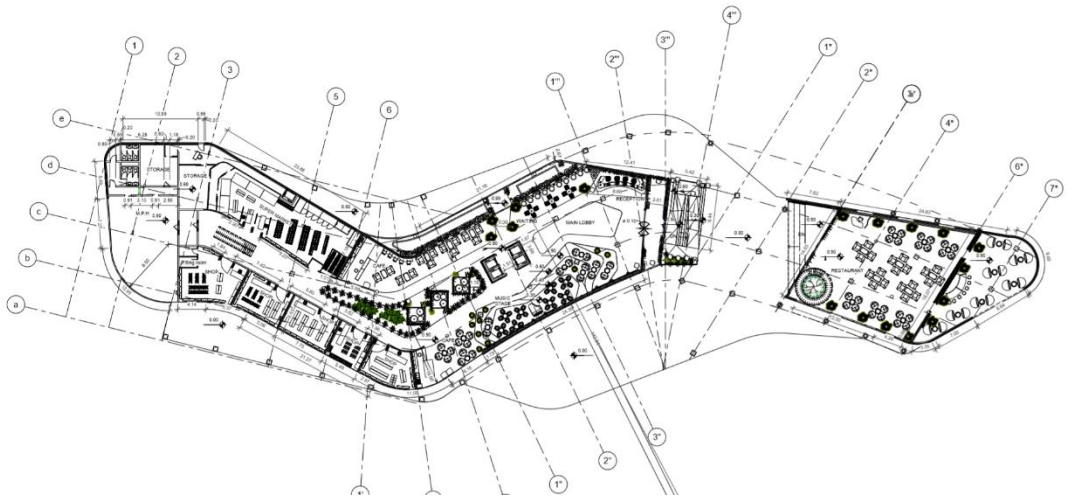


FIGURE (76) SHOWS THE GROUND FLOOR

_Developing the hotel form by allocating the hotel to the whole natural views and achieving the idea of the interference of the hotel with the nature of the site and opening the stories to the outside world.

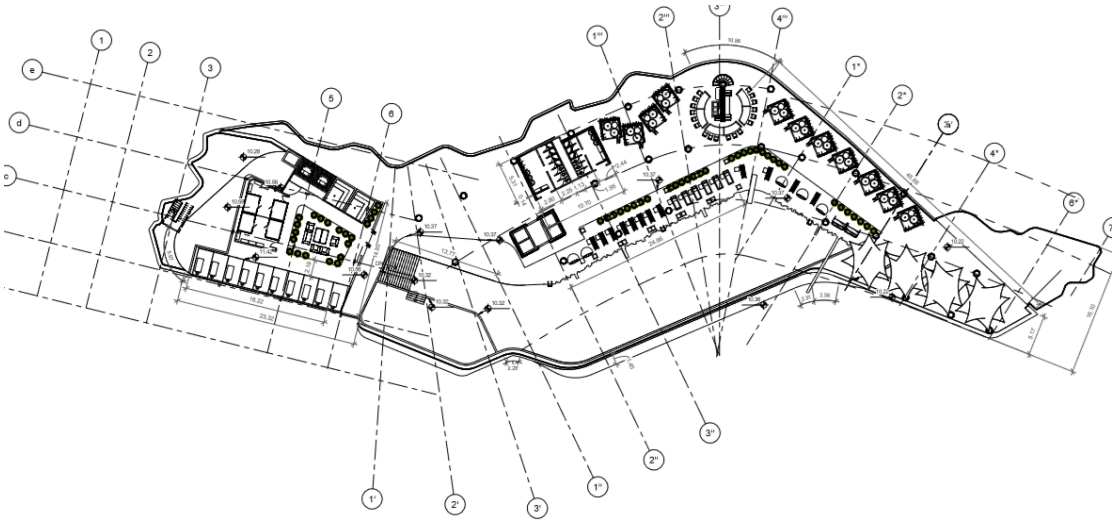


FIGURE (77) SHOWS THE PANORAMIC POOL PLAN

FIGURE (78) SHOWS THE DEVELOPED hotel VIEWS

(4_4) TECHNICAL SOLUTIONS :

(4_4_1)STRUCTURE SYSTEM:

BEAM AND COLUMN STRUCTURE SYSTEM:

-The type of building consists of a frame or skeleton of concrete .Horizontal members of this frame are called beams and slabs, and vertical members are called columns. The column is the most important, as it is the primary load carrying element of the building.

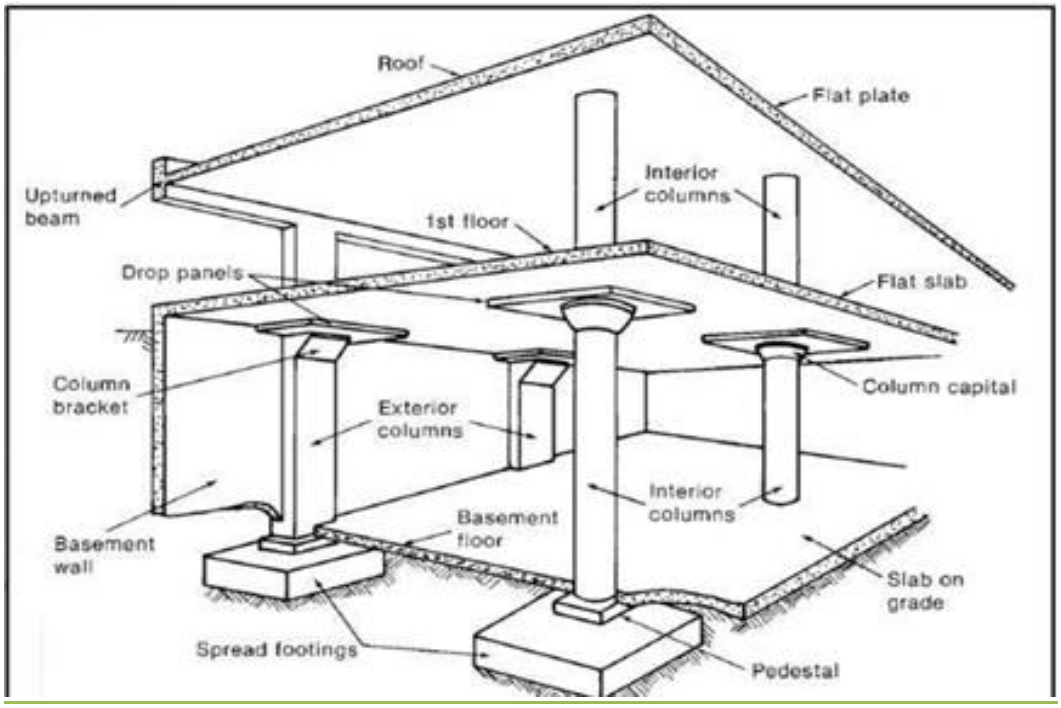


FIGURE (79) SHOWS THE ELEMENTS OF THE BEAM AND COLUMN STRUCTURE SYSTEM.

(4_4_1_1)FOUNDATIONS:

- SPREAD FOUNDATIONS:

-It behaves like an inverted cantilever with loads applied in the upward direction . As a rule , a spread footing is a quite rigid element , therefore ,the applied soil stresses are almost linear .These soil pressure are the loads carried by the footing that behaves like a slab and deformed by the way shown at figure.

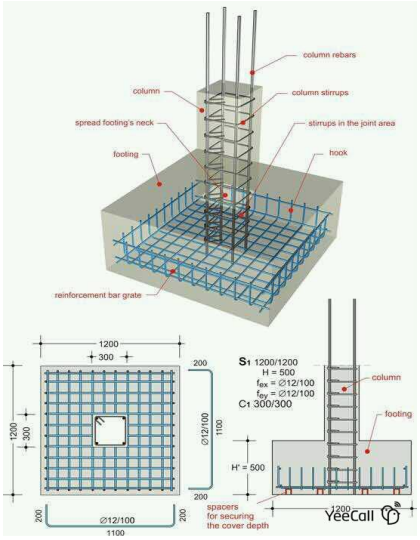


FIGURE (80) THE SPREAD FOUNDATIONS.

(4_4_1_2)FLOORS:

-THE FLAT PLATE (SLAB):

The flat slab is a two-way reinforced concrete slab that usually does not have beams and girders, and the loads are transferred directly to the supporting concrete columns.

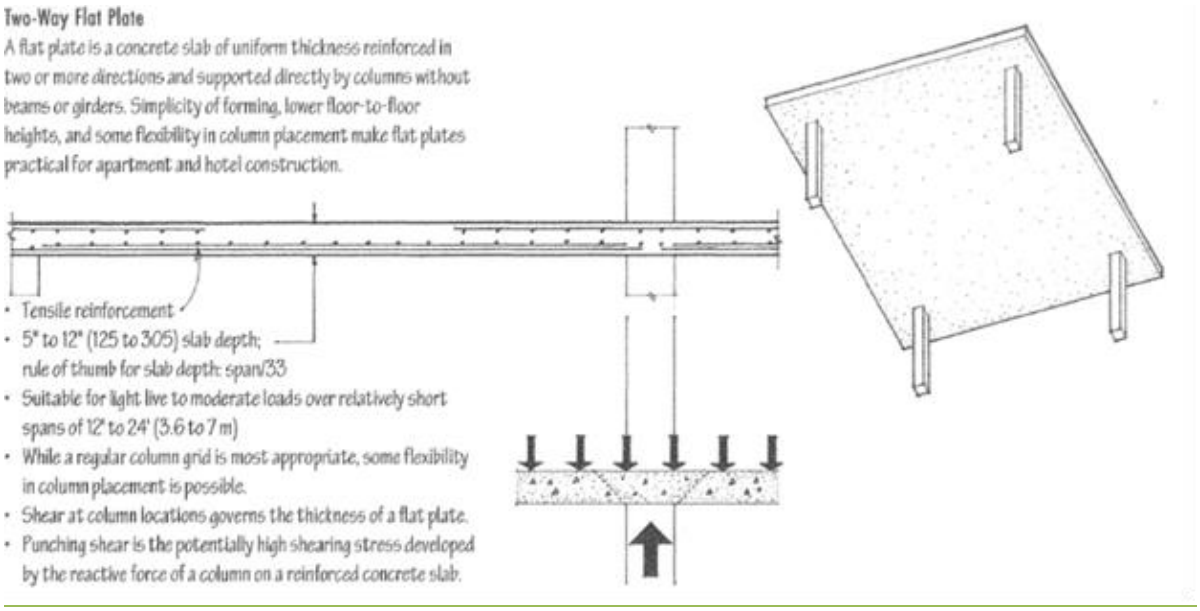


FIGURE (81) SHOWS THE FLAT SLAB .

(4_4_1_3)COLUMNS:

***THE COLUMN TENDS TO PUNCH THROUGH THE SLAB IN FLAT SLABS, WHICH CAN BE TREATED BY THREE METHODS:**

a. Using a drop panel and a column capital in flat slab

b. Using a drop panel without a column capital in flat slab.

c. Using a column capital without drop panel in Different types of flat slab.

_Uses of column heads:

Shear strength of flat slab is increased by using column heads.

Column heads reduce the clear or effective span, and therefore, reduce the moment in the flat slab floor.

Uses of drop panels :

1. Drop panels increase the shear strength of flat slab floor.
2. Drop panels increase flat slab's negative moment capacity.
3. Drop panels reduce deflection by stiffening the flat slabs

ADVANTAGES	DISADVANTAGES
Flexibility in room layout	Span length is medium
Reinforcement placement is easier	Not suitable for supporting brittle (masonry) partitions
Reinforcement placement is easier	drop panels may interfere with larger mechanical ducting
Ease of Framework installation	Critical middle strip deflection
Building height can be reduced.	Higher slab thickness
Less construction time.	
Prefabricated welded mesh.	
Auto sprinkler is easier	

TABLE (30) SHOWS THE ADVANTAGES AND DIS ADVANTAGES OF THE FLAT SLAB SYSTEM.

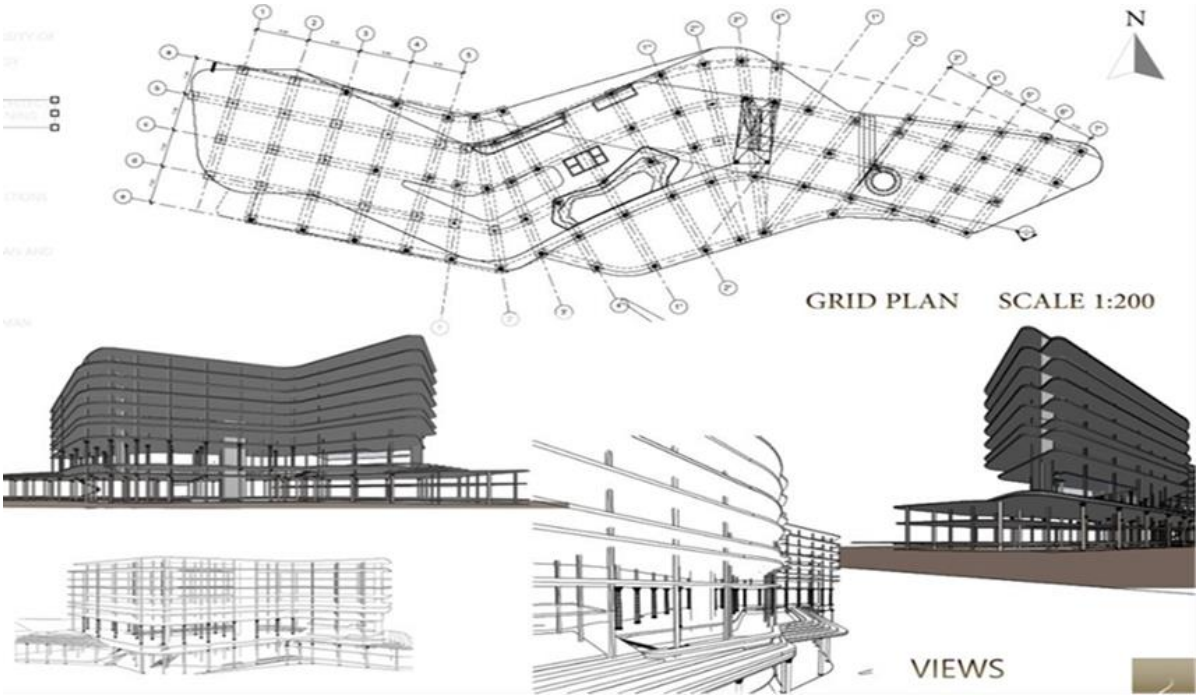


FIGURE (82) SHOWS THE GRID PLAN , AND THE SKELETON VIEWS.

(4_4_2) SERVICES:

(4_4_2_1) WATER SUPPLY:

The used system: (ANNULAR WATER SUPPLY SYSTEM):

The water supply system is indirect and feedback system that by placing a ground tank and then work the upper cabinets after dividing the building parts and pump water to the upper reservoir through pumps for upper cabinets.

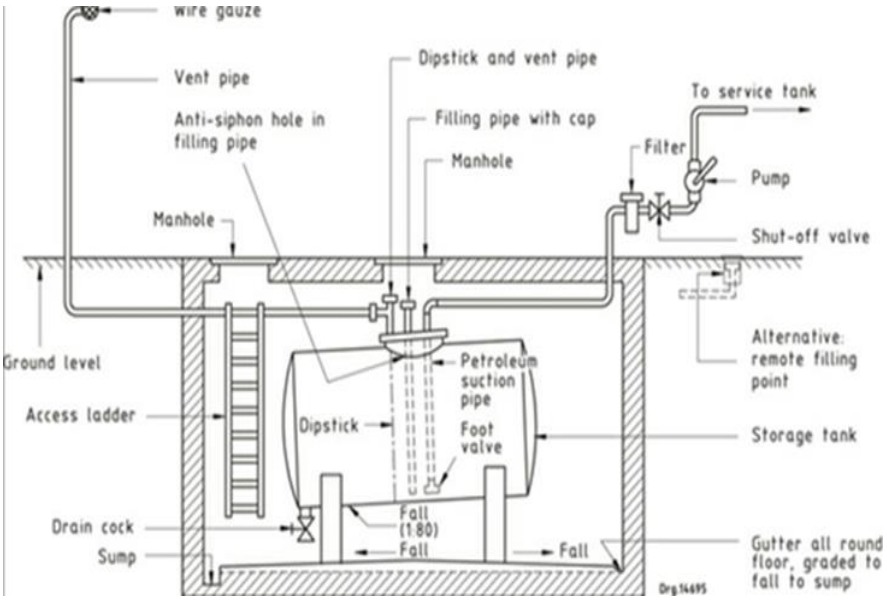


FIGURE (83) SHOWS THE GROUND TANK CONNECTIONS

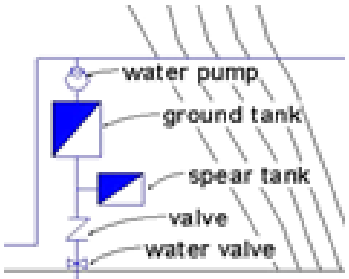


FIGURE (84) SHOWS WATER SUPPLYING.

(4_4_2_1_1)**CALCULATIONS OF CONSUMED WATER PER DAY :**

THE TOTAL AMOUNT =(water for daily use by lodgers + water for irrigatition + water for the fire distinguishing)

a_The Minimum Quantity of water per person per day :

Hotels with private bathrooms :60 gallons "per person ".

The daily need of water per person per day = 60*3.8=228 liter.

The daily need of water per day for lodgers = 228*240=54720 Liter.

b_Water For Irrigation :

-5 liters per square meter -->1460*5=7300 liters .

C_Fire Extinguishing:

-1800liter for each hose reel.

A fire hose every 400square meter =1800*26=46800 liters.

THE TOTAL AMOUNT OF WATER = 54720+7300+46800=108820 LITER

(4_4_2_1_2)SPECIFICATIONS OF THE WATER TANKS AND PIPES :

a. **WATER TANKS :**

_Are Made Of Polyethlene with an insulating layer of of light and anti bacterial layer.

_A ground water tank to cover the need for 3 days with 231450 liters capacity.

_ water tank for the recycled waste water .

_Upper tanks to cover the need of 1100505 liters per day .

_3 water tanks to cover the need of 7300 liter for landscapes irrigating .

b.**PIPES & SPRINKLERS**:

-irrigation sprinkler's diameter 18m with a 3/4 pipe's diameter.

-fire fighting sprinkler's diameter 4m.

-A main supply pipe with diameter of 8" to the upper tanks ,a 4" pipe's diameter to the ground water tank and 2"pipe's diameter to different floors ans 1" pipe's diameter to the

_the system is annular it works by sorrounding the site with a closed pipe to maintain the high pressure of water inside the pipes .

(4_4_2_1_3)LANDSCAPE IRRIGATION:

(4_4_2_1_2_1)DRIP IRRIGATION:

Is a type of micro irrigation system that has the potential to save water and nutrients by allowing water to drip slowley to the roots of plants , ither from above the soil surface or below the surface .The goal is to place water directly into the root zone and minimize evaporation .Drip irrigation system distribute water through a network of Valves , Pipes , Tubing and Emitters . Depending on how well designed , installed , maintained and operated .

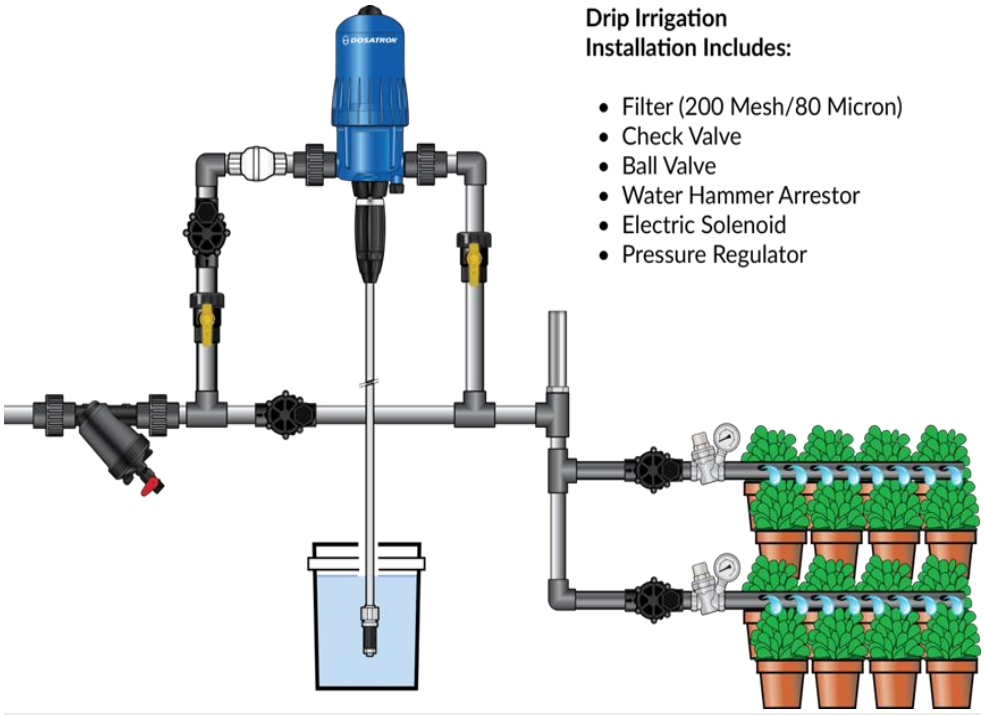


FIGURE (85) SHOWS DRIP IRRIGATION ELEMENTS AND TECHNIQUES

(4_4_2_2) ELECTRICITY SUPPLY:

Electricity cables were extended from the nearest stations (NEYALA) .Then it's stepped down by a transformer to 3000V Then reduced again by a step down transformer to 415V to 220V at the main distribution panel then to sub distribution panels .

(4_4_2_3) SEWAGE SYSTEM:

TWO PIPES SYSTEM: The system used in sanitation is the tubes system Swithin the site processing unit exists because there is no global network area where runoff is collected inside the processing unit via the manholes are distributed within the site. Slope in pipe is 1:120 pvc with diameter of 12" and 6m length. inspection rooms (manholes) is a meeting point between the two different counselors barrelled so you should put that in mind about choosing the right depth.

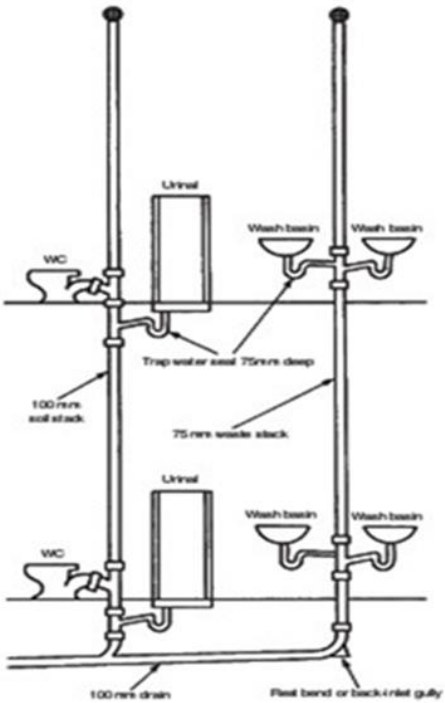


FIGURE (87) SHOWS THE TWO PIPES SYSTEM.

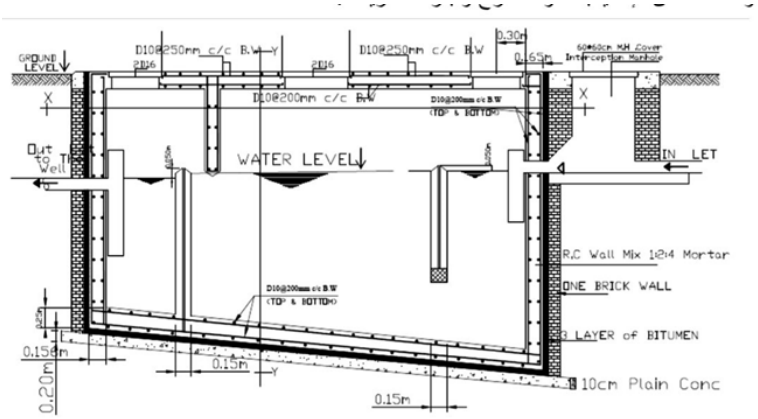


FIGURE (86) SHOWS SEPTICTANK

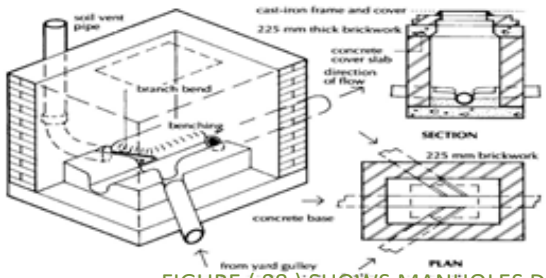


FIGURE (88) SHOWS MANHOLES DETAILING

Name	Depth	Lenghth	Width
MH1	45 CM	60 CM	45 CM
MH2	47 CM	60 CM	45 CM
MH3	49 CM	60 CM	45 CM
MH4	54 CM	60 CM	45 CM
MH5	58 CM	60 CM	45 CM
MH6	64 CM	75 CM	57 CM
MH7	70 CM	75 CM	57 CM
MH8	76 CM	75 CM	57 CM
MH9	82 CM	75 CM	70 CM
MH10	88 CM	75 CM	70 CM
MH11	94 CM	100 CM	75 CM
MH12	45 CM	60 CM	45 CM
MH13	51 CM	60 CM	45 CM
MH14	57 CM	60 CM	45 CM
MH15	63 CM	75 CM	57 CM
MH17	75 CM	75 CM	57 CM
MH18	81 CM	75 CM	57 CM
MH19	100 CM	100 CM	75 CM
MH20	106 CM	100 CM	75 CM
MH21	112 CM	100 CM	75 CM
MH22	118 CM	100 CM	75 CM
MH23	124 CM	100 CM	75 CM
MH24	130 CM	100 CM	75 CM
MH25	136 CM	100 CM	75 CM
MH26	139 CM	100 CM	75 CM
MH27	145 CM	100 CM	75 CM
MH28	151 CM	100 CM	75 CM
MH29	157 CM	100 CM	75 CM
MH30	163 CM	100 CM	75 CM
MH31	169 CM	100 CM	75 CM
MH32	175 CM	100 CM	75 CM
MH33	181 CM	120 CM	75 CM
MH34	187 CM	120 CM	75 CM

TABLE (31) SHOWS MANHOLES DIMENSIONS

(4_4_2_4) DRANIAGE SYSTEM:

(4_4_2_4_1) Buildings:

Building surfaces with a slope of 1:25 divides into parts that gathers and goes down through p.v.c down pipes → 2" diameter and passes through gully trap then to the tranches which sorrounds the building.

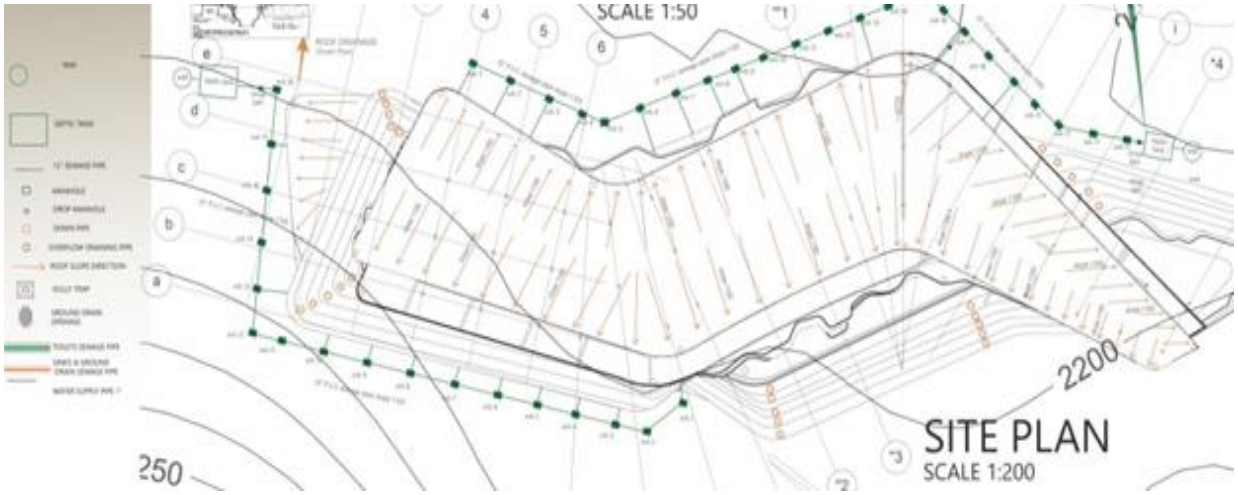


FIGURE (89) SHOWS SEWAGE AND DRAINAGE SYSTEM

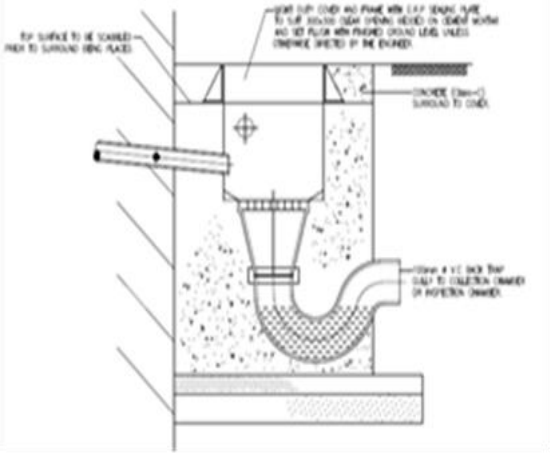


FIGURE (90) SHOWS GULLYTRAP

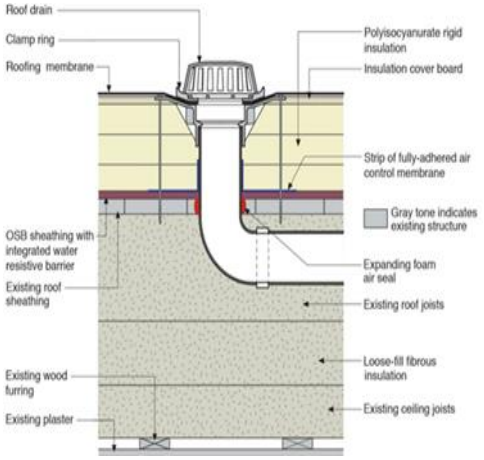


FIGURE (91) ROOF DRAINAGE USING DOWN PIPES.

(4_4_2_4_2) Pathways :

The drainage of water through slope 1:15 towards openings that leads directly to main tranch tranches.

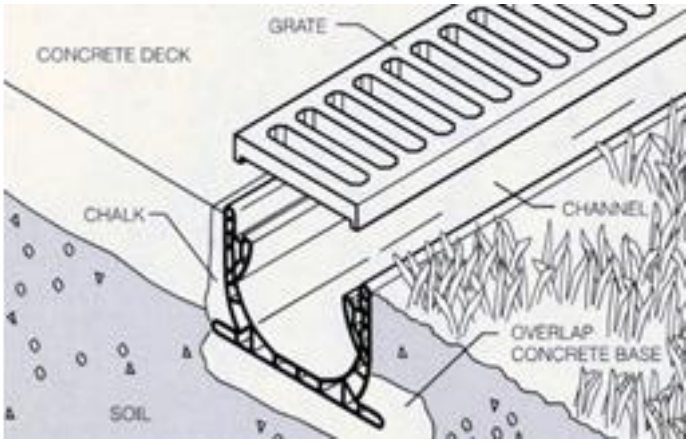


FIGURE (92) SHOWS TRANCHES WHICH USED FOR DRAINING PATHWAYS RAIN WATER .

(4_4_2_4_3) Landscapes:

The excess water is gathered by overflow pipes at the corners and middles of landscapes when the area is large then to a 2" diameter pipes leading to the main sewage line .

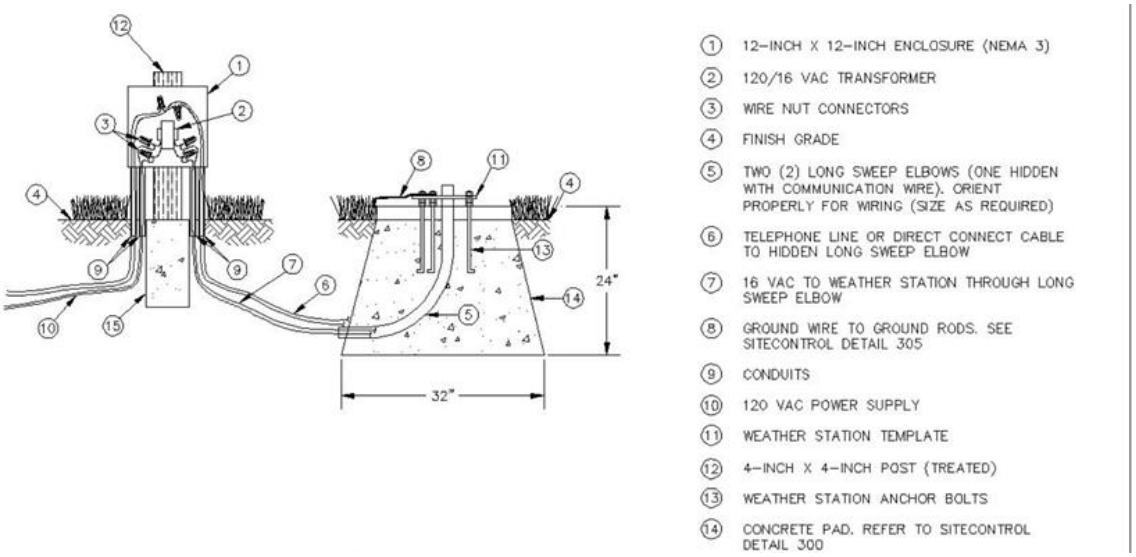


FIGURE (93) SHOWS LANDSCAPE DRAINING (GETTIG RID OF OVERFLOWED WATER.)

(4_4_2_5) AIR CONDITIONING SYSTEM :

The determination of the HVAC system depends on specifying the buildings with its parts and sectors and this will be through the table below.

(4_4_2_5_1) *Building Specifications:*

	Space Function Type		***Main Use of the AC System***		***Important Requirements***		***Less Important Requirements***		***AC Control System***		***Spaces Sizes***
*	***Large main space***	*	***Cooling or heating***	*	***Temperature***		*Temperature*		*Central*		*Large*
	Multiple Spaces		*Cooling or heating big quantities*		*Air recycling*	*	***Air recycling***	*	***Single space control***	*	***small***
		*	***Variable temperature***	*	*Quiet sounding*		*Quiet sounding*				
				*	***Humidity***		*Humidity*				
					Sterilized Air	*	***Sterilized Air***				

TABLE (32) SHOWS BUILDING REQUIREMENTS FOR AIR CONDITIONING _According to the building specifications the chosen system is ALL AIR SYSTEM (AAS).

_(4_4_2_5_2) The Definition of the All Air System:

This type of system only use the flow of air in the operation of cooling or heating, the air cycle goes with direction the exhausted air outside, and then supplying the building interior with fresh air that flows through ducts to all the sectors of the building.

(4_4_2_5_3) The Components of the (AAS):

1. An outdoor air handling unit (AHU) horizontal type.
2. An interior variable air volume unit (VAV) inlet.
3. Air ducts (squared, Round and flex).
4. Air terminal diffuser.

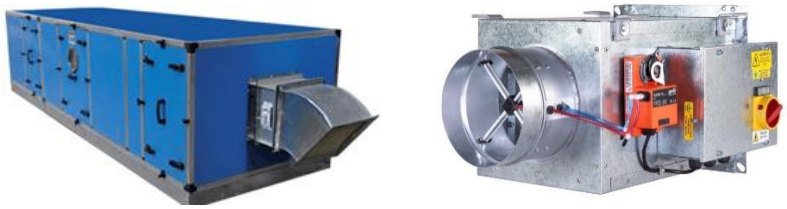


FIGURE (94) SHOWS AHU AND THE VAV (VARIABLE AIR VOLUME UNIT)

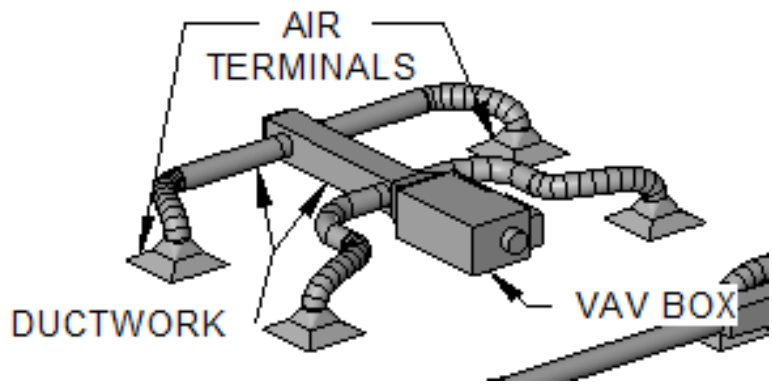


FIGURE (95) SHOWS THE DUCT WORKS , VAV Box AND THE AIR TERMINALS .

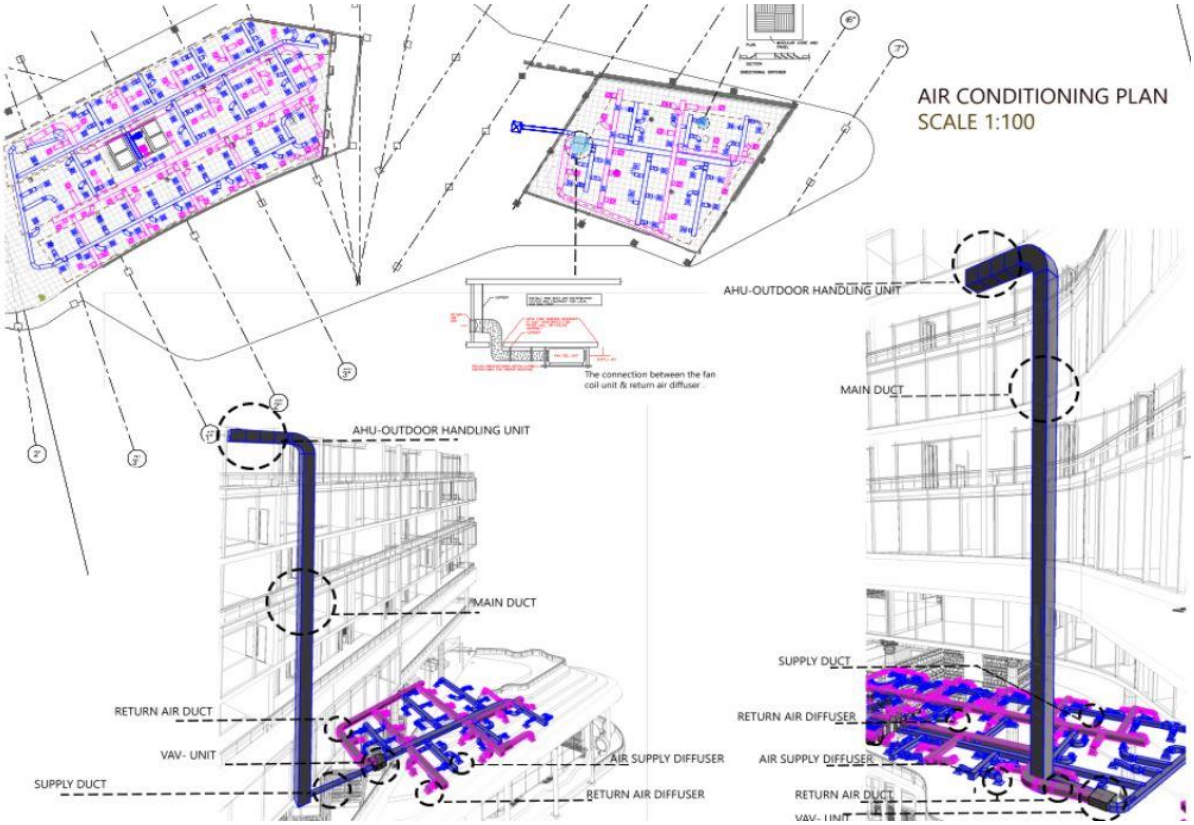


FIGURE (96) SHOWS AIR CONDITIONING PLAN WHICH SONTAINS: THE DUCT WORKS , VAV Box AND THE AIR TERMINALS .

(4_4_2_7) FIRE FIGHTING SYSTEM :

Building Specifications:

Building Masses		Building Risk Users Rating		Building Risk Components Rating		Space Function		Fire Rating Material Type		Building Dimensions	
*	***Single Mass***	*	***Theater, Restaurants, Hospitals, Airports***		*High Hazard*		*Storing*	*	***A Hard carbon materials***		*2 floors with 1000 m^2 of area*
	Single main mass + Scattered masses		*Banks, Universities*	*	***Ordinary Hazard***	*	***Education Admin Housing and Hosting***		*B Flammable Liquids*		*5 Floors (Wet Pipes)*
			Schools and Kindergartens		*Light Hazard*		*Quiet sounding*		*C Electrical Equips*	*	***Above 5 Floors (Dry Pipes)***
			Factories				*Industry*		*D Metallic and chemical Materials*		

TABLE (33) SHOWS FIRE FIGHTING REQUIREMENTS ACCORDING TO THE BUILDING SPECIFICATIONS.

According to the building specifications , the fire fighting fixture are:

-Flame detector in each space.

-Emergency exits.

- Central Emergency alarm in each floor .

-Fire hose next to each entrance and meters away from the other .

-Sprinklers with 4m Diameter using the foam.

-Fire blankets in kitchens.

-Fire extinguisher "MFE type" every 23m or in each space in smaller areas.

FIGURE (97) SHOWS FIRE FIGHTING FIXTURE IN ROOMS PLAN .

(4_4_2_8)LIGHTING FIXTURES:

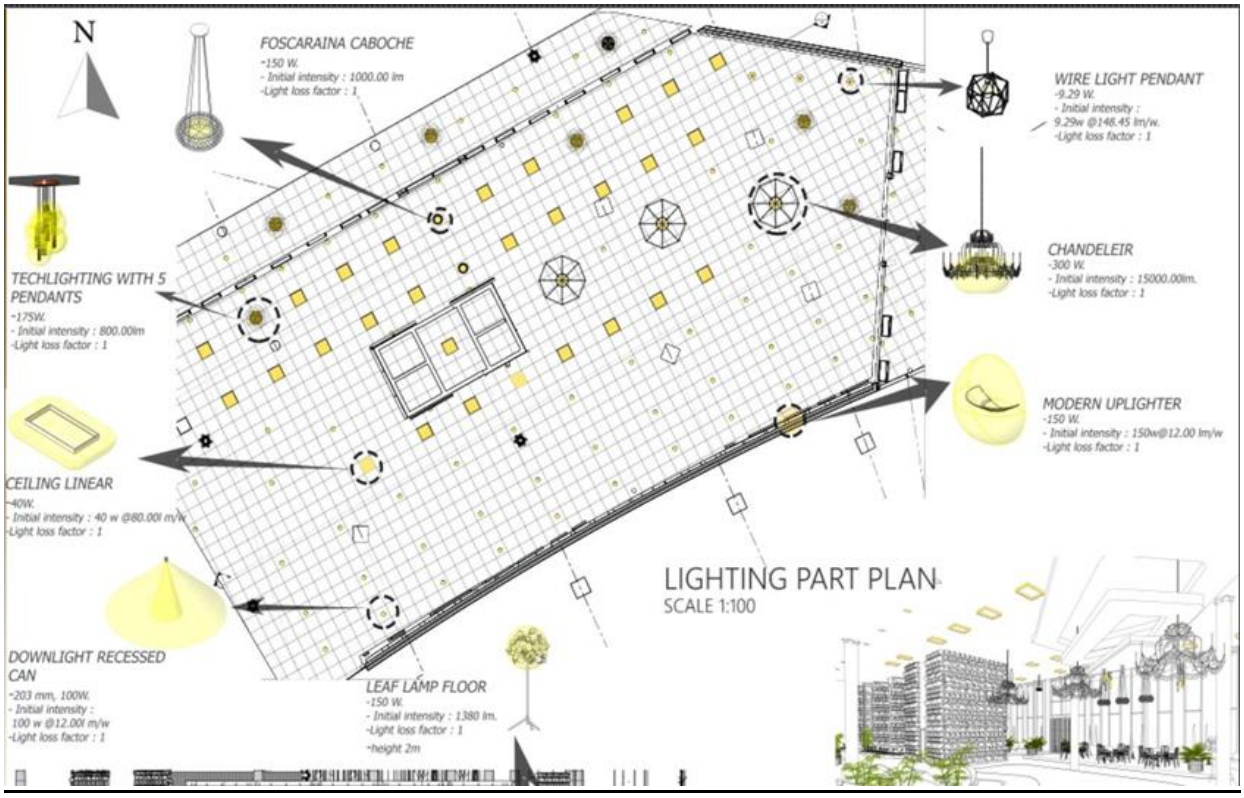


FIGURE (98) SHOWS THE USED LIGHTING FIXTURES IN THE MAIN LOBBY

(4_4_3)SITE TREATMENTS AND FINISSHINGS:

(4_4_3_1)HOTEL & CHALET ROOFING:

-Concrete Tiles 20*20*2cm
- C/S Mortar 5cm (1:8) Mixed
- D.P.C Layers ,Insulation layers.
-Reinforced Concrete 20cm (1:2:4) Mix.

-Plane Gypsum Board False Ceiling-

(4_4_3_2)LANDESCAPING:

- English Grass 10cm.
-Flattery Layer 10cm.
-Water Proof Layer.

-Normal Sand With
-Hard Core 15cm.

(4_4_3_3)PARKINGS AND MAIN ROADS :

-Asphalt Main Layer 10cm

-Asphalt Sub Layer 5cm

-Water Proof Layer 2mm

-Hard Core 10cm

-Natural Soil

(4_4_3_4)MOUNTAIN PATHWAYS :

Natural Terrained Mountain Surface

(4_4_3_5)WALKWAYS:

Composite Wood Boards .

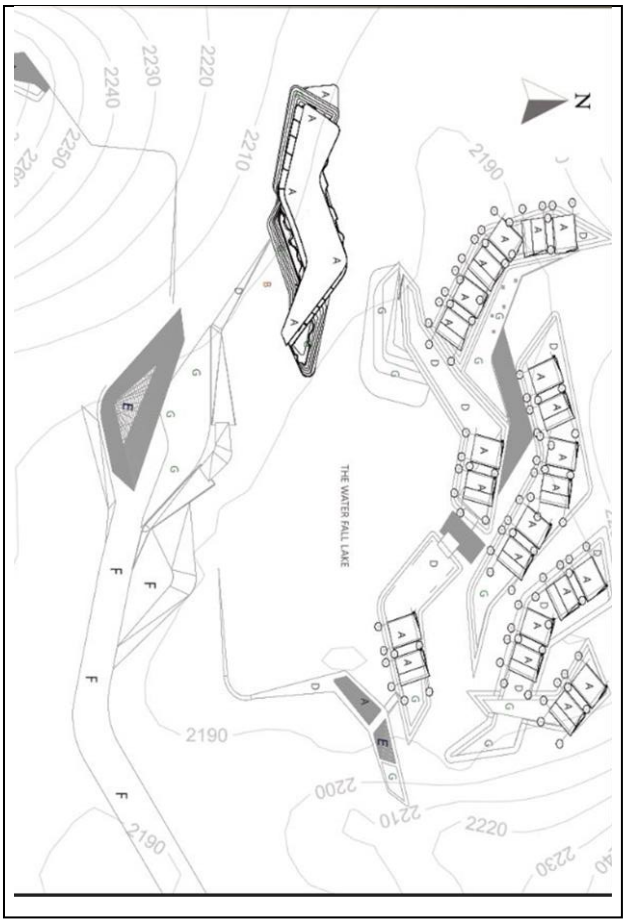


FIGURE (99) SHOWS SITE TREATMENT

(4_4_3_6)HOTEL FINISHINGS :

(4_4_3_6_1)ENTRANCE:

(4_4_3_6_1_1)FLOOR:

. Precast concrete landing Boards .
.packers (riser) 15 cm height-
. Precast concrete (tread) unit 30cm -
. mm Packing to underside of stairs25-
Concrete slab 20cm-
Earth-

(4_4_3_6_1_2)Wall:

.Concrete board 10cm-
.Cavity fill 3mm-
.Brick wall 10cm-
Concrete board 10cm-

(4_4_3_6_2) LOBBY:

-(4_4_3_6_2_1) WALLS:

.Concrete board 10cm-
.Cavity fill 3mm-
.Brick wall 10cm-
.Concrete board 10cm-
GREEN WALL :

-Plants
-continuous back layer of fibrous growth media.

-waterproof backer board.

-Air gap.
-Sheet waterproofing.-Brick wall 10cm.
-C/S mortar 1:6 mix 5 cm

-Concrete board.

(4_4_3_6_3) WAITING AREA FLOORING :

-Turkish maroon carpet.

-Mastic glue layer.
– Metalized PET carrier.

.-cement 1cm.

-Foam underlay 8mm.
-Screed 1:6 mix.
-P.C 1:8 mix.
-Reinforced concrete slab.

(4_4_3_6_4) LOBBY'S CORRIDORS:

-Lacquer layer.
-Parquet boards.
-Adhesive 7.2 mm.
-Underlay damTec 3mm.
-Adhesive layer.
-Damper resistant layer.

(4_4_3_6_5) CAFÉ'S AND RESTAURANT FLOORING :
-Porcelain flagstone.
-outdoor grade tile adhesive applied with notched spreader.
-mass concrete base.
-damp proof membrane layer.
-C/S mortar 1:8 mix.
-Reinforced concrete slab.

(4_4_3_6_6) RESIDENTIAL SPACES FINISHES:

(4_4_3_6_6_1) ROOMS:

(4_4_3_6_6_1_1)WALL:

-Room walls are from plasters and paint and the main wall in the room is a green wall .

-Bathrooms walls are made of ceramic or marble (royal suites , VIP rooms).

(4_4_3_6_6_1_2)FLOORS:

-Rooms floors are made of parquet .

-Carpet flooring in living rooms and corridors.

-Bathrooms floors are ceramic or marble (Royal suites and VIP rooms).

-(4_4_3_6_6_1_3)ROOFS:

-Main lobby roof is a plane Gypsum boards panel with wooden elements.

-Rooms , living rooms and bathrooms have a gypsum boards roofs.

-Plaster and paint roofs in Chalets rooms , living rooms , kitchens and bathrooms.

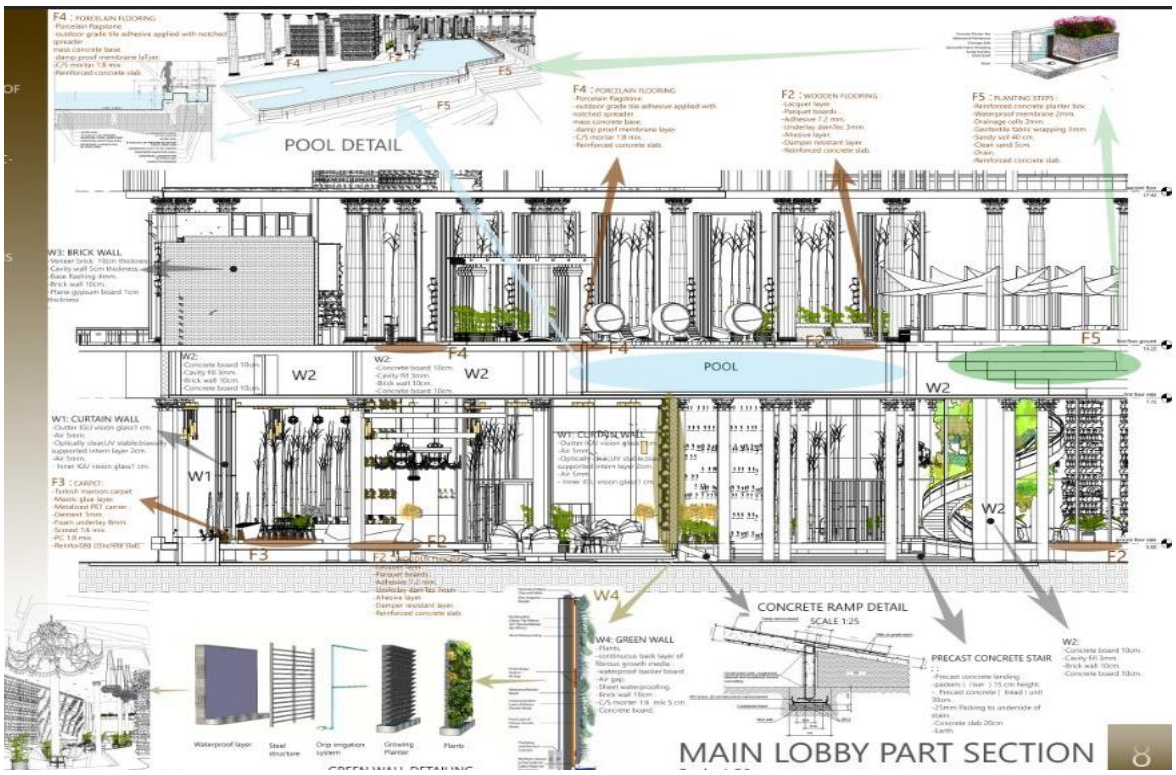


FIGURE (100) SHOWS SITE TREATMENT

CHAPTER FIVE :

_RESULTS.

_FINAL DESIGN DRAWINGS.

_CONCLUSION

_REFERENCES.

(5_1)RESULTS:

1. A designed resort using the ideas that goes with the functions that depends on the nature and the natural views.

2. achieved the idea of interference the resort with nature in two ways :

a. Visually:

using the visual contacting with the natural views and the rest of the resort .

b. By Forming :

using the technique of simulation in the corridors pathways and in the main mass .

3.used a design style that suits the users traditions and the different natures .

4. achieved the recreation for the user ,created a suitable nature that helps them to relax away from crowded cities and the killing life routine.

5. glad that I exploited one of the greatest and most breath taking natural places in sudan.

(5_2)FINAL DESIGN:

(5_2_1) the ground floor ,perspective and views .

(5_2_2) FIGURE (101) SHOWS THE GROUND FLOOR PLAN the

mezzanine floor ,first floor and panoramic pool floor .

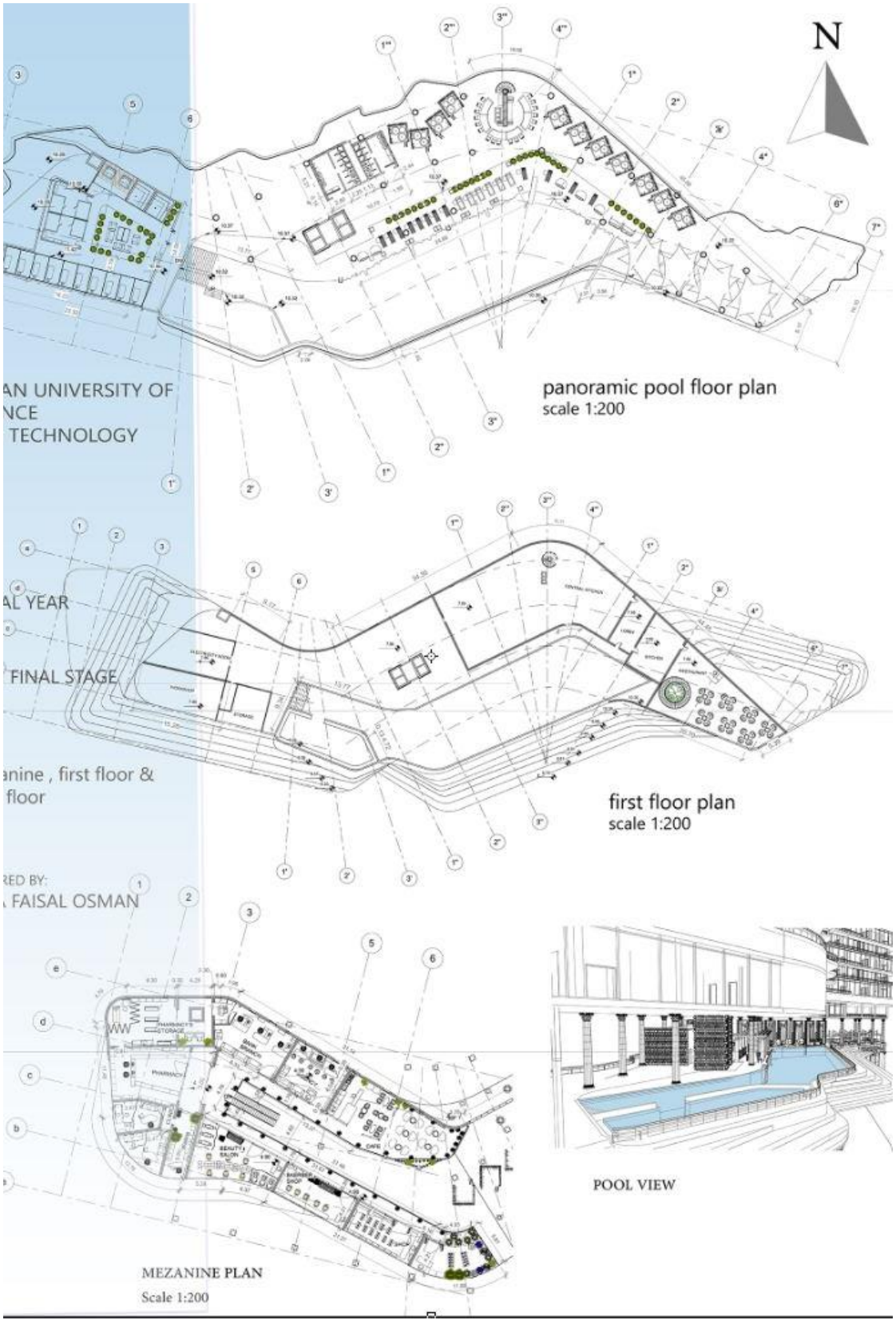


FIGURE (102) SHOWS MEZZANINE FLOOR ,FIRST FLOOR AND PANORAMIC POOL FLOOR .

(5_2_3) the services floor ,3rd .to 7th floor .

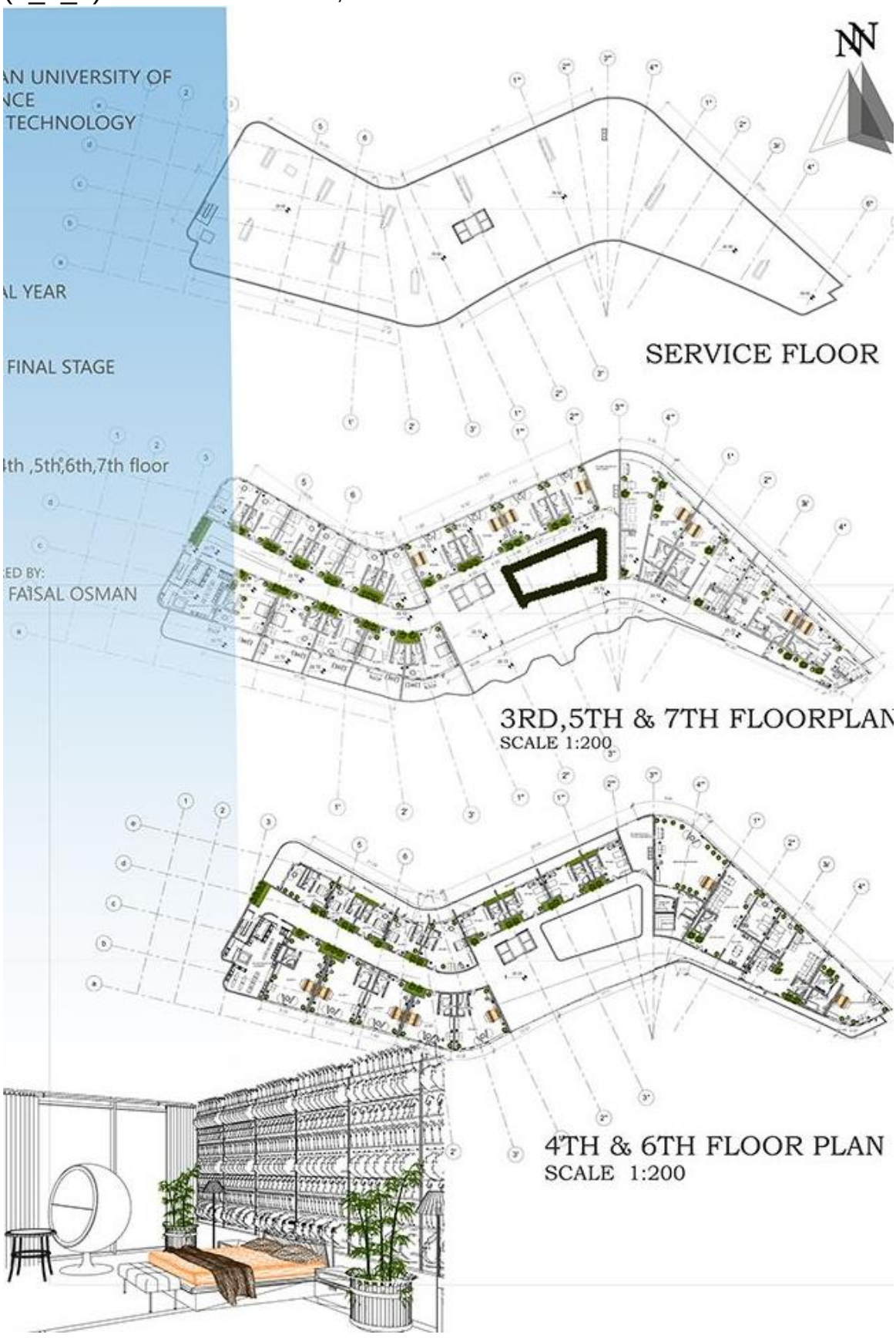


FIGURE (103) SHOWS SERVICES FLOOR ,3RD .TO 7TH FLOOR

(5_2_4) the Sections:

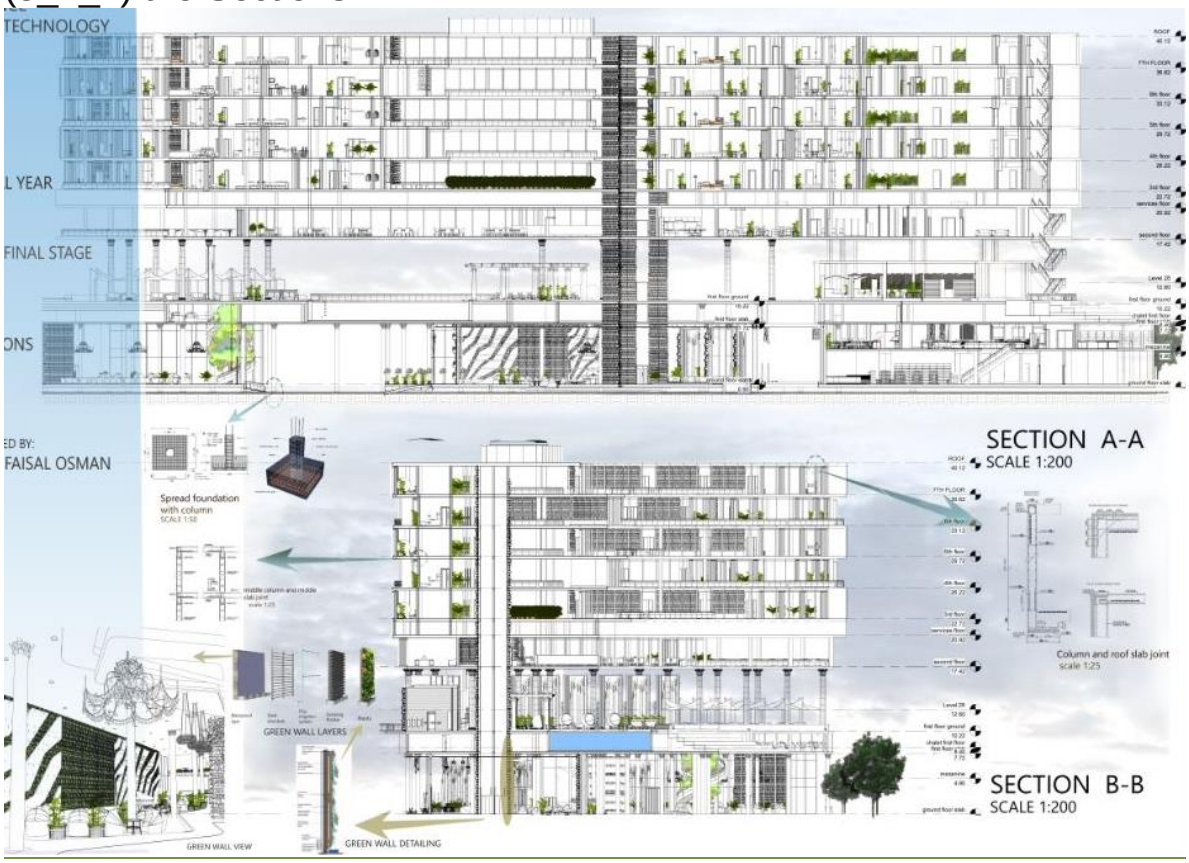


FIGURE (104) SHOWS SECTIONS

(5_2_5) the chalets:

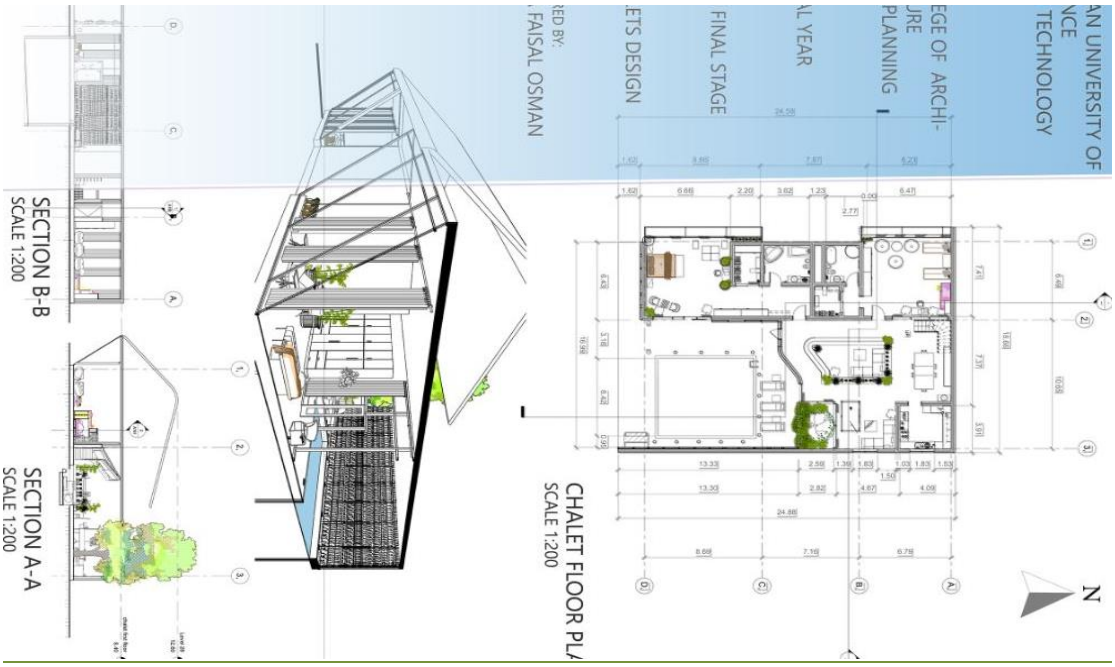


FIGURE (105) SHOWS CHALETS.

(5_3)CONCLUSION:

Last but not least ,

It’s all about the challenges we take to achieve our goals , and problems are not stop signs , they’re always a guidelines ,they’re the reason beyond feeling our goals value ... that exactly how my life as an architecture student was ... and it’s the exact how I am going to enjoy living .

(5_4)REFERENCES:

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THANKS