SUDAN UNIVERSITY OD SCIENCE AND TECHNOLOGY

FACULTY OF ARCHITACTURE AND PLANNING

ARCHITECTURAL DESIGN DEPARTMENT

FIFTH YEAR BACHELOR

GRADUACTION RESEARCH

PHOTOGRAPHY CENTER

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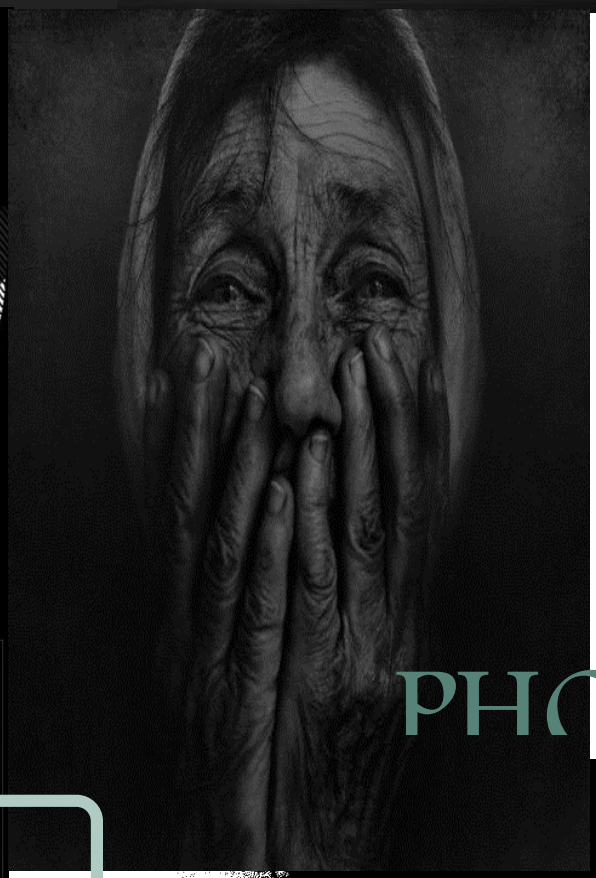

PHOTOGRAPHY

THE
EARTH
WITHOUT
'ART'
IS JUST
'EH'

DEDICATION

-I dedicate this research to my parents for giving me the world.
-My father, my guiding light, my number one supporter who taught me, nurtured me, he gave my life. Though we sometimes agree to disagree, l am forever grateful for your everlasting support and kindness.
-My mom, my queen, I couldn't've made it without your prayers and if it wasn't for support and dedication I wouldn't have been here.
-Also to my backbone my sisters and brothers.
-To my second family, my bundle of joy, my friends for always being there for me,supporting and guiding me.My life without you guys is a salad!
-Also to my famous friend, I really appreciate your existence.

ACKNOWLEDGEMENT

First of all, I am grateful to god for establishing me to complete this journey.
I wish to express my sincere thanks to my supervisor Dr. Saleem Alzain for providing me with all the necessary facilities and guiding me throughout the project, all of the teachers in the college of architecture and planning and the ones associated with it providing us with the needed information and experience through the years.
I also place on record, my sense of gratitude to one and all who, directly or indirectly, have lent their helping hand in this venture.

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ABSTRACT

Photography center is considered as an educational, cultural project that provides a teaching opportunities of the visual arts which contains photography, cinematography and graphic arts. Also provides variety to open and closed galleries, which help promote and sale local art. And provides a displaying areas so that others can increase their expertise and artistic culture.

This research deals with the study of an integrated media center in Khartoum, in five chapters.

The first chapter is a general introduction to the project which breaks into the definition, the objectives, and the Aspects and the causes of choice. The second chapter which consist of the data and information collected and a brief history and the study of the architectural examples and the causes of the site selection and the analysis of the site. The third chapter contains in its first section: the project components and charts, in the second section: there is down to the indicators and guide lines to find the best zoning based on previous studies. Chapter four includes the whole architecture designing process which contains the design philosophy (concept) and how the beginning of the architectural form and the idea of the design came from the project himself and then to modify the design and problems which existed and the ideas for solving it down till reaching the final design and the technical solutions for the project in terms of the method of selecting appropriate structure for the project and which achieves requirements and treatments for the project plus the services and the method of prevision and distribution. Chapter five deals with the final design and in the end there is the references.

ABSTRACT (Arabic)

يتناول هذا البحث دراسة لمشروع مجمع التصوير الفوتوغرافي بمدينة الخرطوم, يعتبر المشروع ثقافي تعليمي ترفيهي يعطي فكرة كاملة عن فن التصوير وتطوره الملحوظ وبشكل خاص (فن التصوير الفوتوغرافي), ابتداءا من التصوير الفني الزيتي وظهور الكاميرات البدائية ثم وصولا الى الكاميرات المتطورة ومن ثم عملية التصوير مع الزمن (الفيديو).كما يوفر مجموعة متنوعة من المعارض المفتوحة والمغلقة ، والتي تساعد على الترويج لهذا الفن ويوفر مناطق عرض بحيث يمكن للآخرين زيادة خبرتهم وثقافتهم الفنية .المحلية وبيعها.

يتناول هذا البحث دراسة مركز إعلامي متكامل بالخرطوم في خمسة فصول.

في الفصل الأول هو مقدمة عامة للمشروع الذي يكسر التعريف والأهداف والجوانب وأسباب الاختيار. الفصل الثاني الذي يتكون من البيانات والمعلومات التي تم جمعها وتاريخ موجز يحتوي الفصل الثالث في .ودراسة الأمثلة المعمارية وأسباب اختيار الموقع وتحليل الموقع قسمه الأول: مكونات ومخططات المشروع ، في القسم الثاني: يوجد أسفل المؤشرات وخطوط يتضمن الفصل .التوجيه للعثور على أفضل تقسيم للمناطق على أساس الدراسات السابقة الرابع عملية تصميم العمارة بأكملها والتي تحتوي على فلسفة التصميم (المفهوم) وكيف أن بداية التصميم المعماري وفكرة التصميم جاءت من المشروع نفسه ومن ثم تعديل التصميم والمشكلات التي كانت موجودة والأفكار لحلها وصولاً إلى التصميم النهائي والحلول التقنية للمشروع من حيث طريقة اختيار الهيكل الملائم للمشروع والذي يحقق متطلبات ومعاملات يتناول الفصل الخامس التصميم .للمشروع بالإضافة إلى الخدمات وطريقة التوزيع والتوزيع النهائي وفي النهاية هناك المراجع.

CHAPTER ONE

INTRODUCTION

*CONTENTS

Project definition:

It's a educational and cultural building, that aims to educate people about the art of photography and provides facilities for talented youth and professional photographers to spread their art.

Definition of the field of the project:

It is a center where you can learn photography, videography and graphic design either by regular classes or attend workshops. Also if you're a professional you can rent a gallery to display your art, and if you are an amateur you can come enjoy the events and attend discussions. Plus there is a rental studios and galleries.

Reasons behind the selection of this project:

For the host country:

-It's a tool for nation branding and development.

- Attract the tourists to the talents of Sudanese photographers.

- Documenting the culture of the art of photography in Sudan.

For the participants:

- It allows international outreach and economic opportunities.

Project Problems:

The problems of culture in Sudan:

- Lack of infrastructure for cultural role.
- The lack of media in directing the message to the outside and inside.
- The lack of cultural resources in curricula for children and young people.
- Lack of interest in cultural heritage.
- Brain drain out of Sudan.
- The importance of cultural role in the specifications that contribute to the dissemination of cultural awareness.

Entertainment problems:

-low standard of living making priority in choice of living requirements.

-The low share of the state for such projects.

-Incomplete tourist laws regulating recreational activities.

- Public awareness of the concept of entertainment is low.

-Lack of interest in establishing recreational role and encouraging the required specifications.

- Lack of media in entertainment attraction and encouraging investors to establish such projects in Sudan

Project objectives:

- Develop and refine students talents in the field of photography..

- Presenting the talents and inventions of the art of photography..

-Introducing the society to the art of photography.

- Promoting art of photography for what it is worth.

- Enhancing the artistic aspect of our region.

- Reflecting the talented minds of our society.

Project purpose:

The purpose of this projects lies in creating a space that adapts the art of photography especially after the remarkable evolution in this filed, also the amount of talented people in this filed which their talents can’t be taken for granted, also to meet their needs for a space that develop their skills and displays their art.

This project also provide

- Educational studios, classrooms workshops.

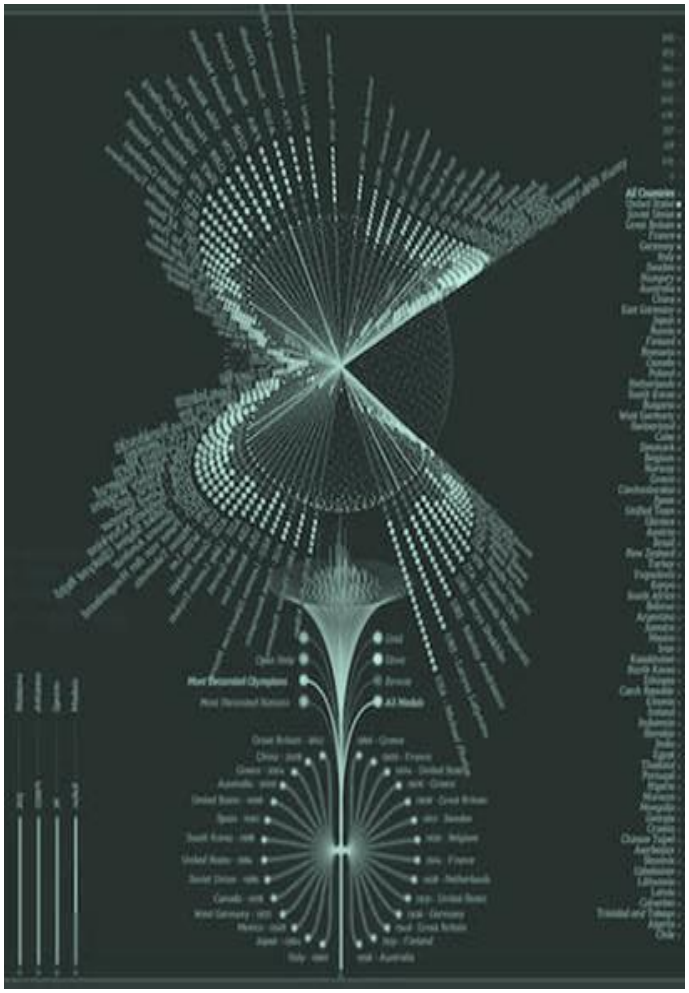
- A variety of open and closed galleries.

- Also investment galleries where international and local photographers are able to display their work.

- Public bazaars and shops which help promote and sale local arts.

CHAPTER TWO

DATA COLLECTION



***CONTENTS**

INTRODUCTION:

Concept of photography:

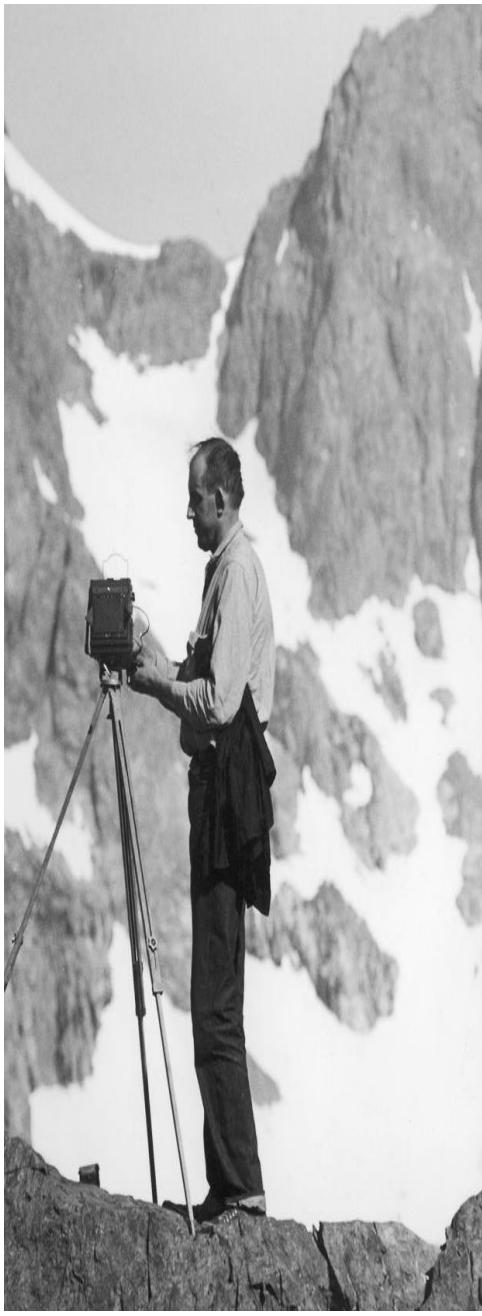
Photography is an art that loves freedom and desires to start at the corners of the universe, in search of surprising and dazzling industry and the search for sources to feed the aesthetic stock in mind and imagination.
Photography is an innovative process, constantly evolving in the mental lenses of every imaginative photographer with creative imagination and eager self to reach the spaces of virgin art did not reach any imagination before.

Photography, is the process of producing images through the effects of light; reflective rays from the scene are imaginative within a light-sensitive material, and then the material is then processed, resulting in an image representing the view. Photography is also called photography. Photography is derived from Greek, meaning painting or writing with light.

Evolution & development of photography:

The art of photography grew in tandem with the appearance of the human being, so the human being tends to be recorded in a certain sense of life from the life of a person. This is due to the diversity of the mind, or to the learning And then adopted centuries after the use of leather and fabrics and fabrics, but it is noted that many of the drawings of those ages - and despite the difference of the same actions - differed between them, a great difference, and can be attributed these differences to several types; the most important memories and the succession and the monopoly of the memory from painter to another, Many of those who have been drawing do not actually notice the events that they are recording, or distort them because of their imagination or their perception of the subject that they express. For example, you have a way to remove these defects and save time, and not only to make mistakes, but to make it a mere support for the Subject to. This led the whole eventually to the emergence of the so-called art of photography.

Talking about the origin of photography brings us to important flashes in the history of this art:



Since ancient times, man seeks to preserve the images of his life and began drawing in the caves and then drawing on the walls (like the ancient Egyptians) and then portrays of the candle.
As usual, and like other sciences and arts, Muslims were the first to invent the camera.
The invention was at the hands of the Muslim Arab world, Hassan bin Haitham, who invented the primitive camera in the writing of the scenes between the years (1015 - 1020)

Which was a large box with a small opening to enter the picture and mirrored on the walls and called the cabin, which means the room with a hole or a single window.

In 1660, Irish scientist Robert Boyle and his co-pilot developed the primitive camera.
In 1685, the German scientist Johann Tazan invented the image system, arranged the color of any picture and built a large wooden camera.

Between 1820 and 1830, the world was invented by Louis Daguerre, the method of photogravure known as the djerotip, which was depicted on copper.
In 1835, French scientist Louis William Fox Talbot created a new photographic system called Calcutip which was on paper.

The first real photograph was in 1826 by the French scientist Joseph Nepps when he used a wood rotor to save the film.

The film was made in Paris by the brothers Charles and Vincent Chevalier.

PHOTOGRAPHY CENTER

Joseph Nepps used the idea of the world of hope, Johann Hitritich, which he invented in 1724, exposing the silver with the tapas to the darkness and then the sudden light and the image is fixed.
In 1850, the German scientist Frederick Scott invented the idea of a picture on glass called colodiot.

The camera was developed in the mid-19th century by many scientists including French scientist Andrea Adolf, who chose the CDO method to make the film in the form of small cards in a row.
The first color picture was in 1861 by the physicist James Maxwell with the help of photographer Thomas Sutton and was considered merely an experiment of color.

Photography Types:

Photography of nature
Cities life
Night photography
Photography of wildlife
White and black
Photography near
Photography of persons
Abstract photography
Press photography
Sports photography
Photography of silent life
Advertising photography
Aerial photography
Architectural Photography
Panorama

Photography Centers:

Main activities in the photography halls
The basic patterns of photography remain the same although there are wide differences in device techniques, fixed and mobile image technology, as well as differences between color and monochromatic films in film development, which include acidification, show, zoom, print, wash, dry, trim and texture.
Other elements of the central photography program include studio work, presentation of films and slides, explanations of usage methods, room instructions and presentations

Design standards for the halls of photography:

- The studio, classroom and hall area, which is versatile, should be designed with a flexible mindset; it should be used as a studio to draw faces and people, and there should be light control at the windows to block the extra light. It is attached to small stores of seats, models, devices and a display screen down when used as a gallery. Therefore, a continuous series of wall systems must be provided for suspension of presentations.It should also include a panel to write instructions with a flexible enclosure that adds flexibility to the use of this space, and the roof must be designed to allow the installation of objective lights to illuminate the displays The studio has all the activities of acidification and printing of films. It begins with the acidification of the film, which is done in a small, dark room. The dark room uses monochromatic processing with safe lighting. Traditional color films require a separate dark room. The advanced standards of color films will undoubtedly reduce the required light safety factors and their requirements, which are available in red glass joints and are made of red plastic over the glass, some photographic laboratories and their areas of operation. Dark rooms require a trap entrance, and room surfaces in the acidification area should not be rough, should be easy to clean and resistant to chemicals.
- The finishing area does not need to be specialized, there is no special lighting or insulation requirements except to provide storage for some devices, there are no special conditions for using the common space for these activities.
- Large imaging services must provide a separate space for the staff office, and a central storage room.
- Natural arrangements can vary from general dark rooms to small activity centers with work areas for two to four people.
- Classrooms, studios and exhibitions should be located near the main entrance, library area, salon, display and office

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Design Guidelines:

Cultural:

Galleries:

Design standards should be followed in galleries:
Excite the visitor and not notice him bored while traveling.
- Easy opening of internal and external doors.
- It is not recommended to use rotary doors to obstruct the movement of older persons and the disabled.
- Make the portal distinctive for easy identification.
-Expansion of corridors of movement within the halls.
It is recommended that the length of the exhibition halls not be more than (6_7 m).

Temporary galleries:
The natural angle of view of man 54 or from the eye 27 above the horizon
Given for a distance of 10 m
The height of the suspension is 4.90 m above the level of view and even lower than 70 cm for large images that exceed the basic dimensions.
Place the image be of 3_5 m 2 of the wall.
The appropriate lighting and movement should be observed.

Educational:

Library:

Educational Spaces Training:
the library :
Consists of the reception and information section.
• Department for the preservation of personal purposes.
• Reading section.
• Department of storage.
The reading section consists of shelves and tables for reading.
Reception and Information Section Area: 15 m2
Section of the conservation of personal purposes.
The area needed for two reservoirs 1 m 2 80 × 1 = 80 m 2
Reading Section Area:
The area of the individual 2,5 m
Storage area: 120 m2

Classrooms:

The space per person in the vacuum is 1.2 m 2
Where the chapter can be for (15_20) students and the area of separation 1.2 x 20 = 24 m 2
Functional requirements:
Tables _ Chairs

THE INTERNATIONAL CENTER OF PHOTOGRAPHY

The center is interested in the art of photography .Followed by a photography center and a photography school but there separated from the center site wise.

FIGURE1: SITE PLAN (CASE STUDY01)

STREET LEVEL PLAN:

Contains

- Reception.

-Lounge

-Two galleries.

-Store and toilets .

FIGURE2: S. LEVEL PLAN (CASE STUDY01)

GROUND FLOOR PLAN:

Contains

-Three galleries

-Storages

- Café

-staff room

-Store

-Toilets and an archive office.

FIGURE3: G. FLOOR PLAN (CASE STUDY01)

STREET LEVEL MODEL

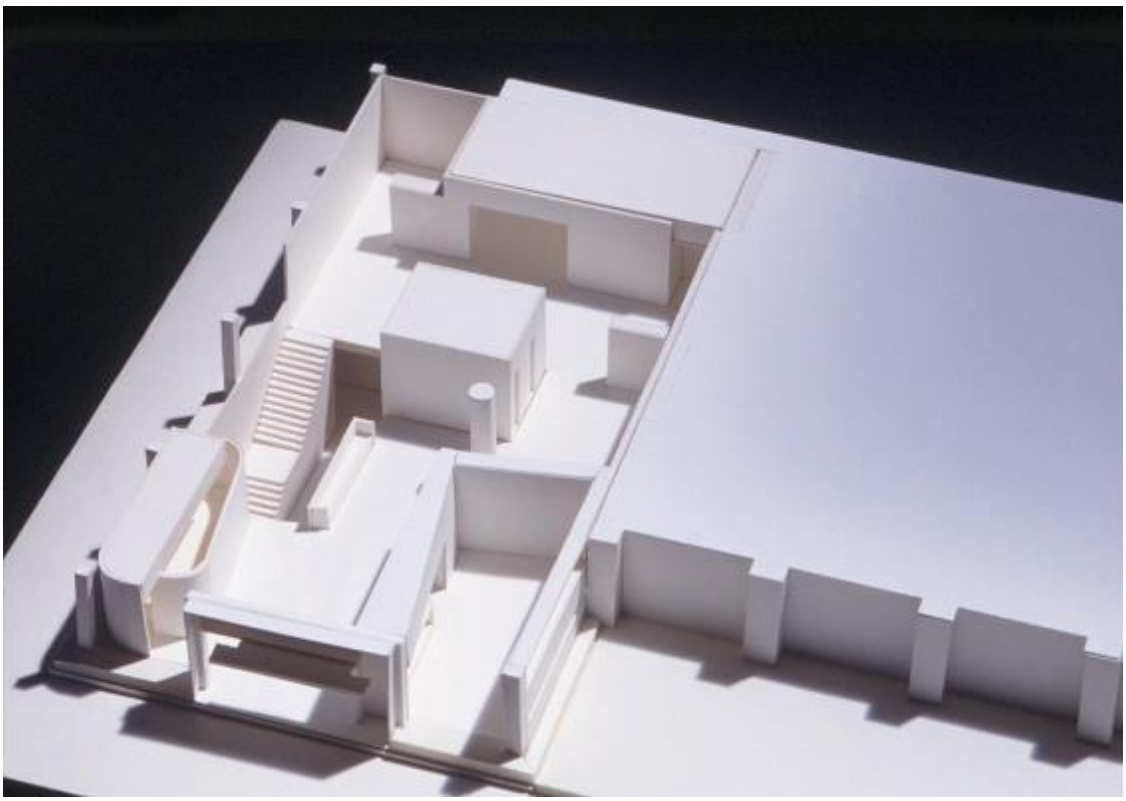

FIGURE4: STREET LEVEL MODEL (CASE STUDY01)

GROUND LEVEL MODEL

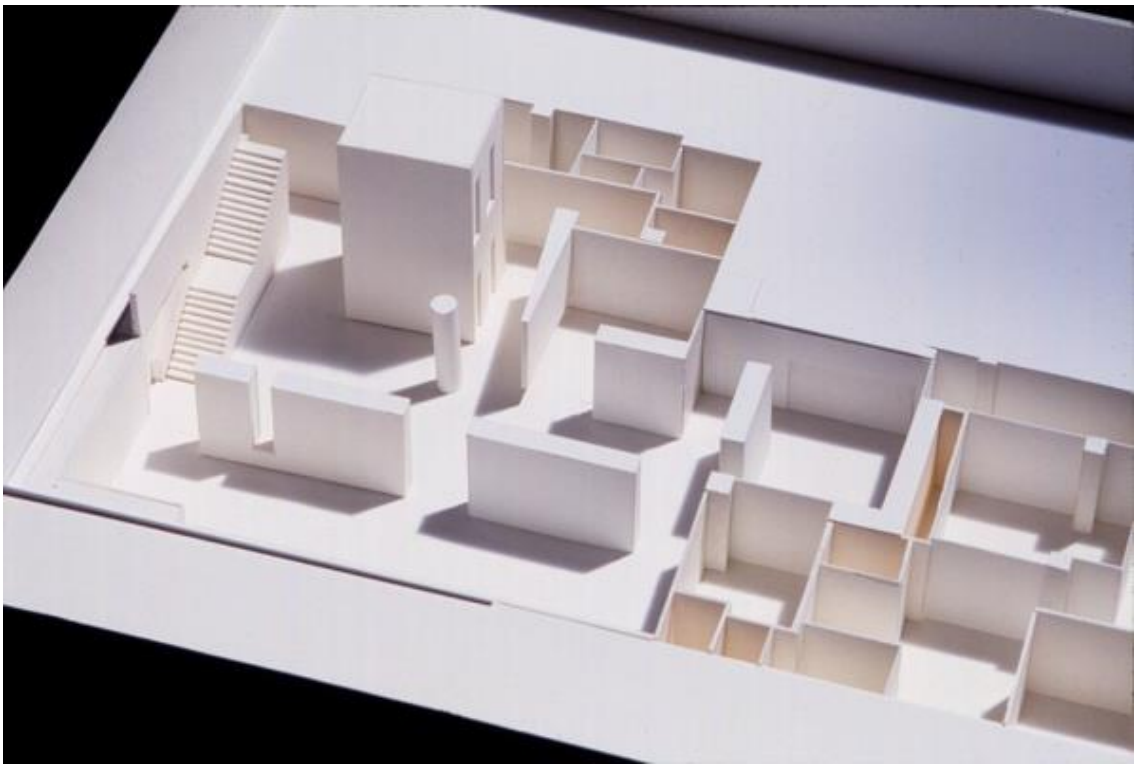

FIGURE5: GROUND FLOOR PLAN (CASE STUDY01)

THE PHOTOGRAPHY SCHOOL:

The school has a faculty of more than 1,000 and a student body of over 3,000.

Contains:

-Classroom

-Studios

-Computer labs

-Workshops

-Library

-Offices and a reception.

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ADVANTAGES:

- Good location
- The entrance is in a main road.
-Separate the administration department from the galleries
-Display of galleries.

DISADVANTAGES:

1-Seprate the school from the centre.
And putting it in another building.
2-The design of the building
Doesn’t simplifies the function of
The building
.

SCHOOL OF VISUAL ARTS

FIGURE6:LOCATION PLAN (CASE STUDY02)

The college's 209 East 23RD ST. building features classrooms, administrative offices, a cafeteria and an amphitheater. The upper floors are mostly designated for the film, video, graphic design, advertising, illustration and cartooning classes. The building also houses the SVA Gramercy Gallery, on the ground floor.

SITE PLAN:

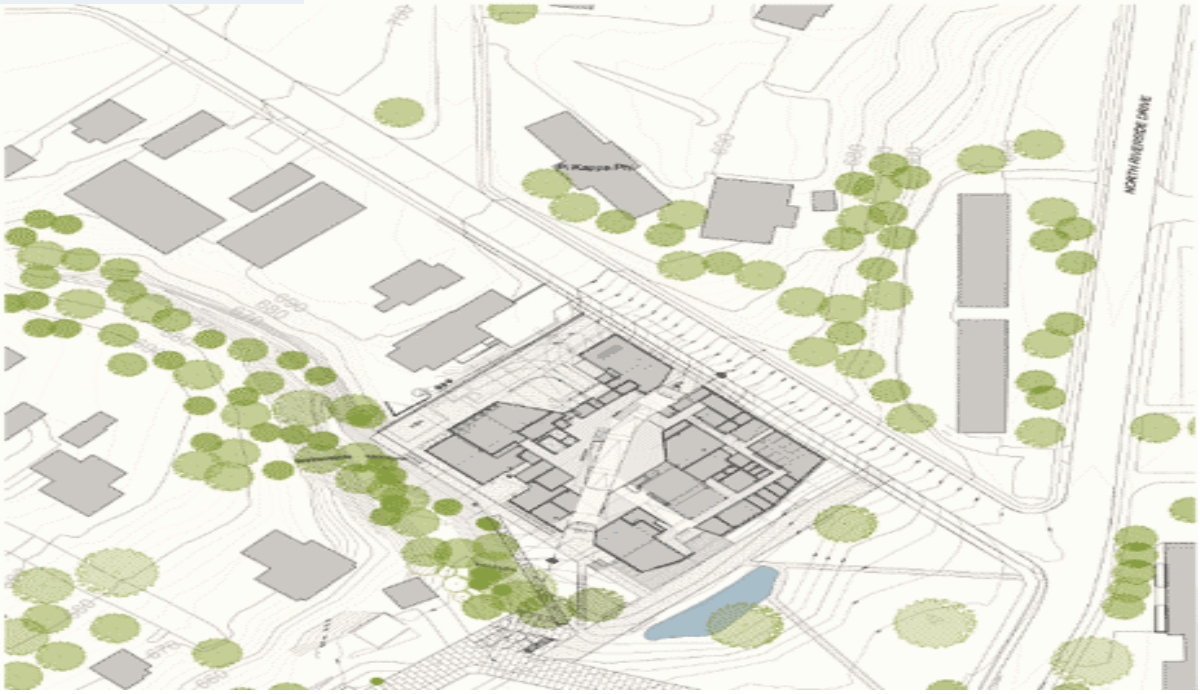

Figure7: site plan (case study02)

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GROUND FLOOR PLAN:

CONTAINS:

-ART STUDIOS.

-PRINTING ROOMS.

-CLASSROOMS.

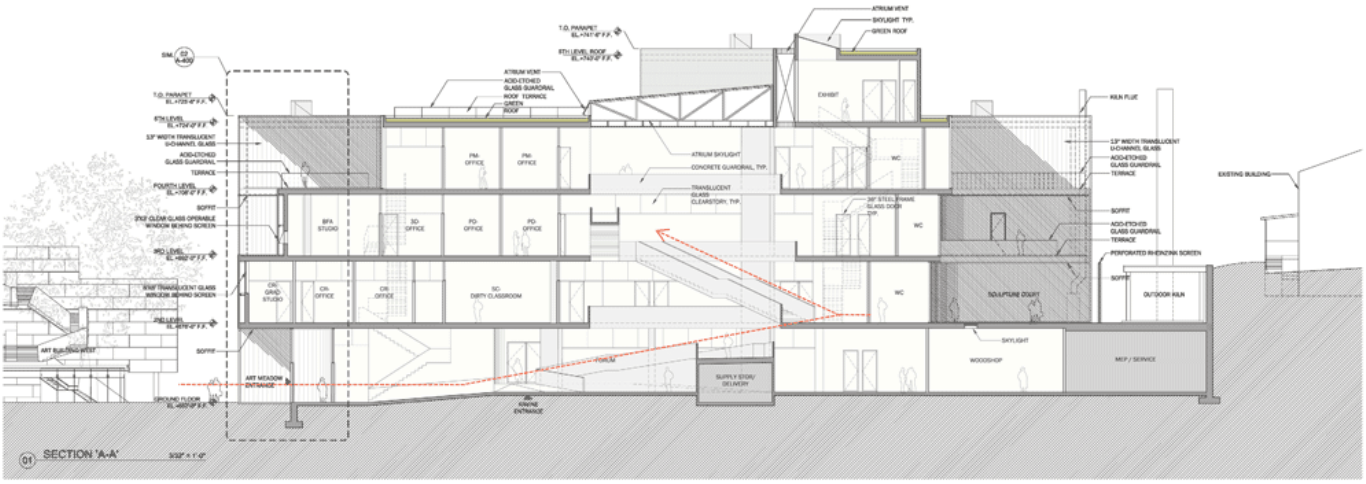
-WOODSHOP STUDIO.

-COMPUTER CLASSROOM.

-GALLERIES.

-SERVICES.

FIGURE6: GROUND FLOOR PLAN (CASE STUDY02)



SECTION A-A

PHOTOGRAPHY CENTER

FIRST FLOOR PLAN:

CONTAINS:

-SCULPTURE STUDIO.

-PRINTING ROOMS.

-CLASSROOMS.

-BFA STUDIO.

-PLASTER STUDIO.

-PHOTO STUDIO.

-COMPUTER CLASSROOM.

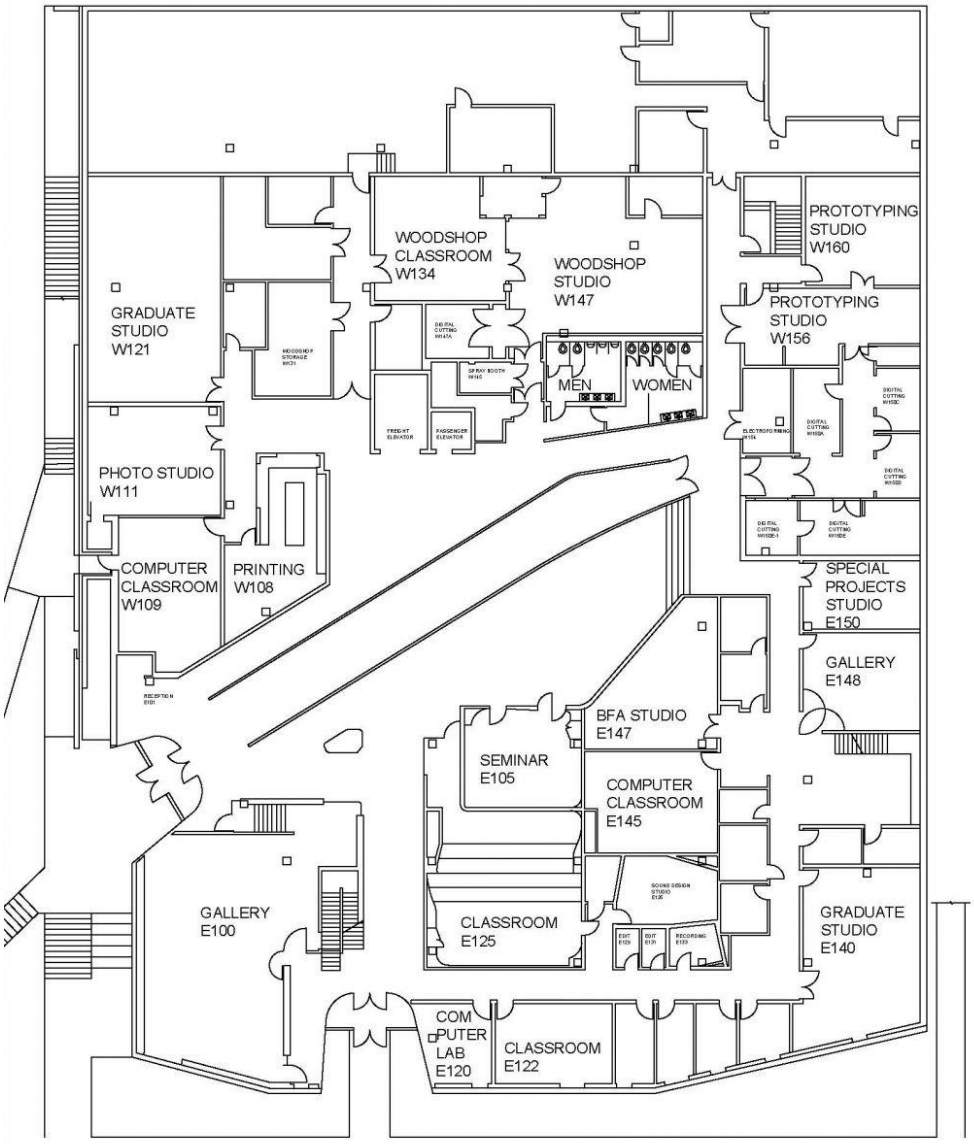


FIGURE7: FIRST FLOOR PLAN (CASE STUDY02)

PHOTOGRAPHY ----STUDIOS

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SECOND FLOOR PLAN:

CONTAINS:

-DRAWING STUDIO.

-SEMINAR HALL.

-CLASSROOMS.

-BFA STUDIO.

-PHOTO LAB.

-COMPUTER LAB.

-GALLERIES.

-SERVICES.

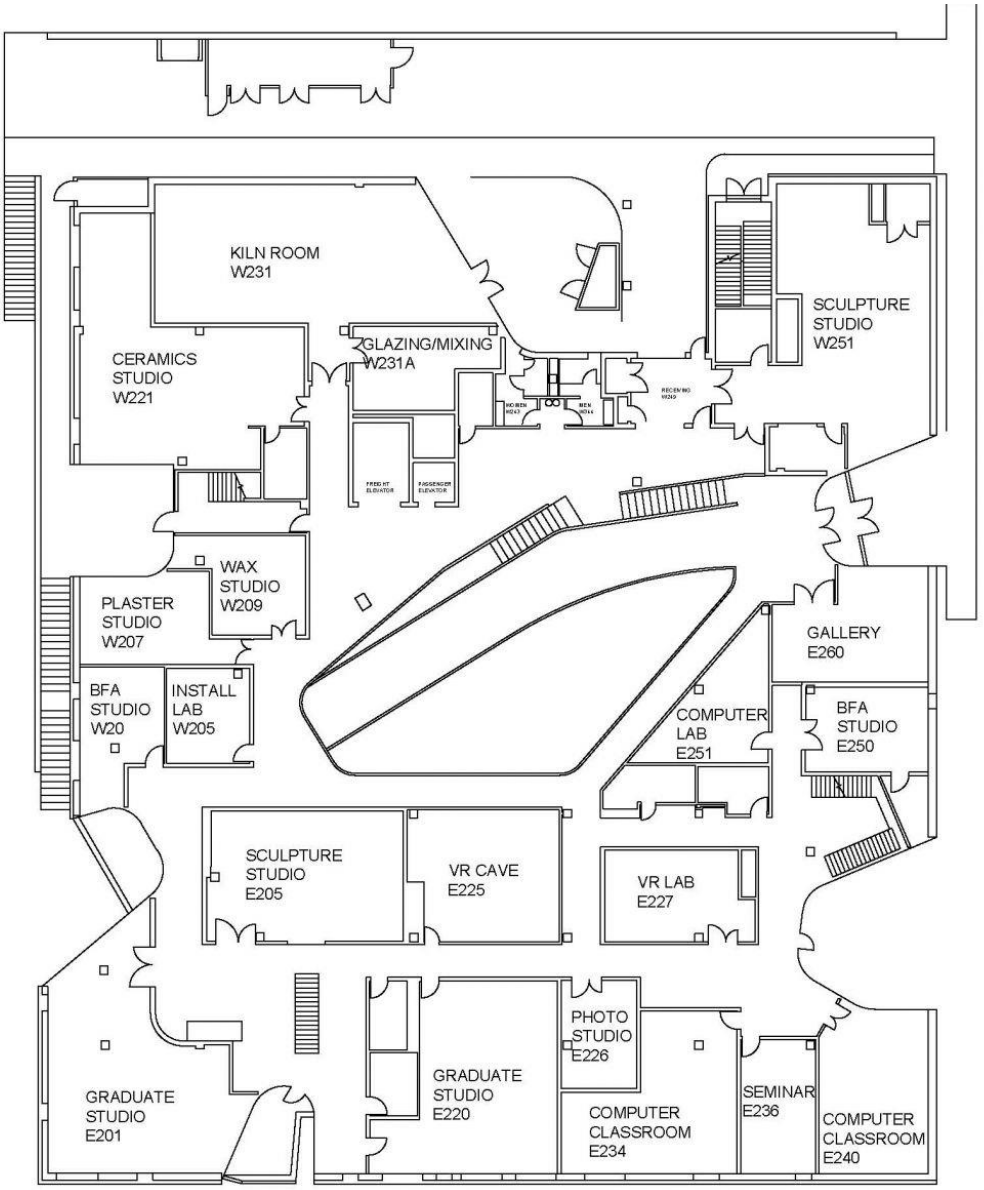
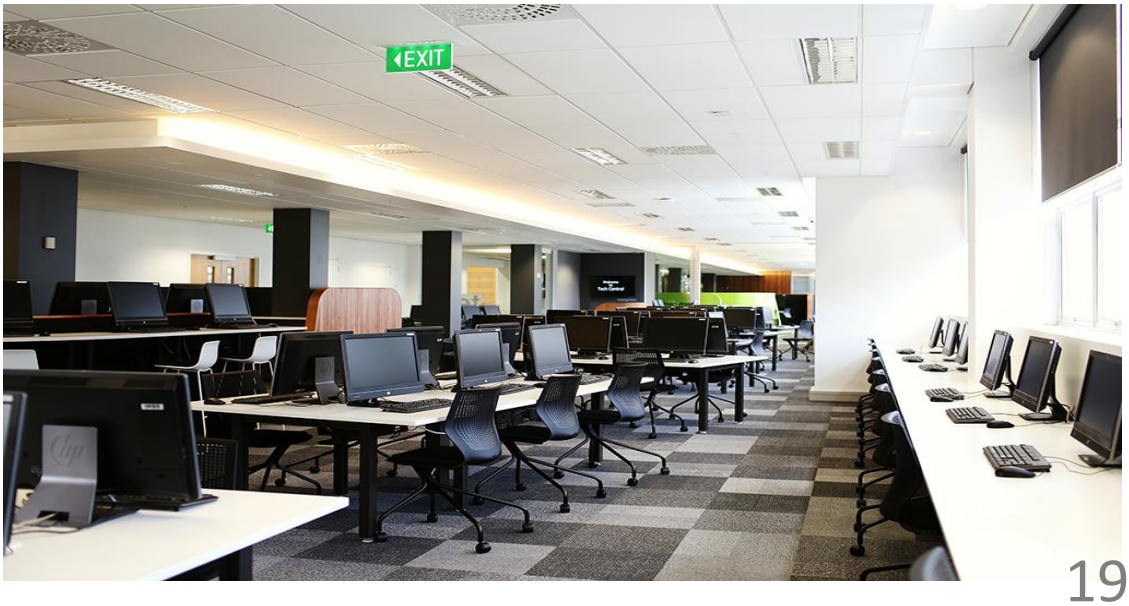


FIGURE8: SECOND FLOOR PLAN (CASE STUDY02)

COMPUTER ---LAPS



THIRD FLOOR PLAN:

CONTAINS:

-DRAWING STUDIO.

-SEMINAR HALL.

-CLASSROOMS.

-STUDIOS.

-PHOTO LAB.

-COMPUTER LAB.

-GALLERIES.

-SERVICES.

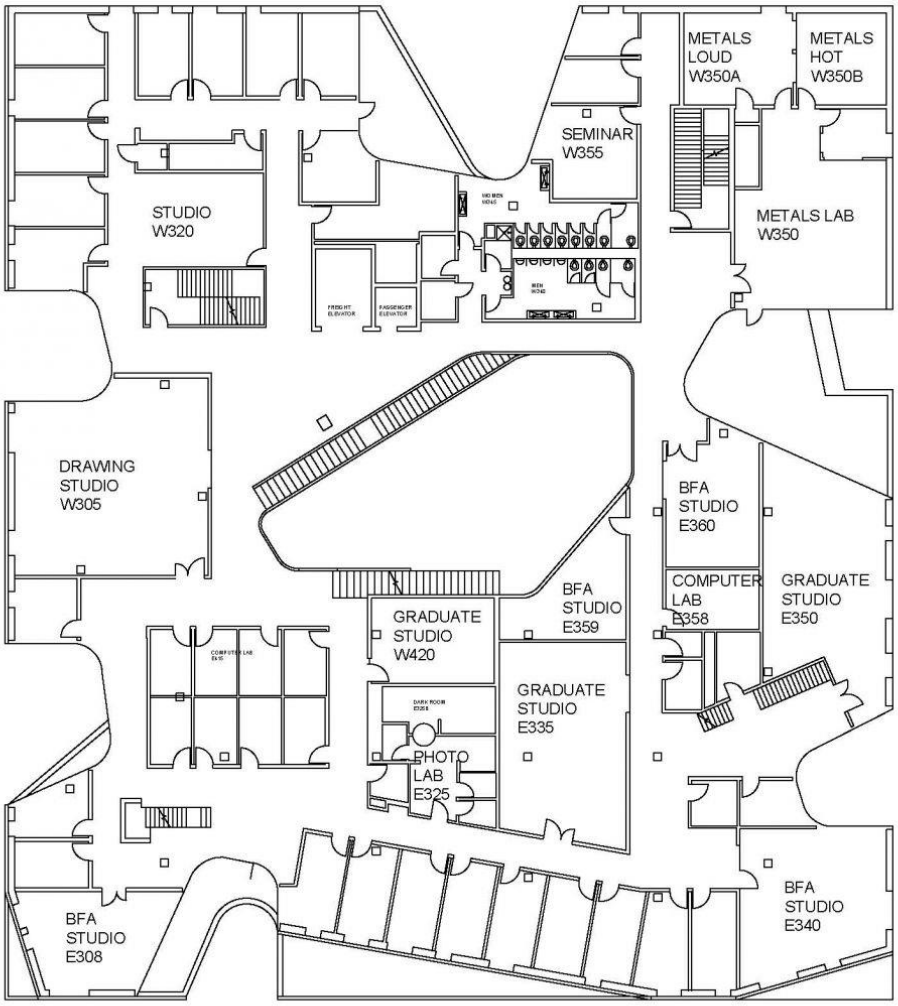


FIGURE9: THIRD FLOOR PLAN (CASE STUDY01)

-DISCUSSION AREA/CLASSROOM

-PHOTOGRAPHY GALLERY

FORTH FLOOR PLAN:

CONTAINS:

-DRAWING STUDIO.

-SEMINAR HALL.

-CLASSROOMS.

-STUDIOS.

-PHOTO LAB.

-COMPUTER LAB.

-GALLERIES.

-SERVICES.

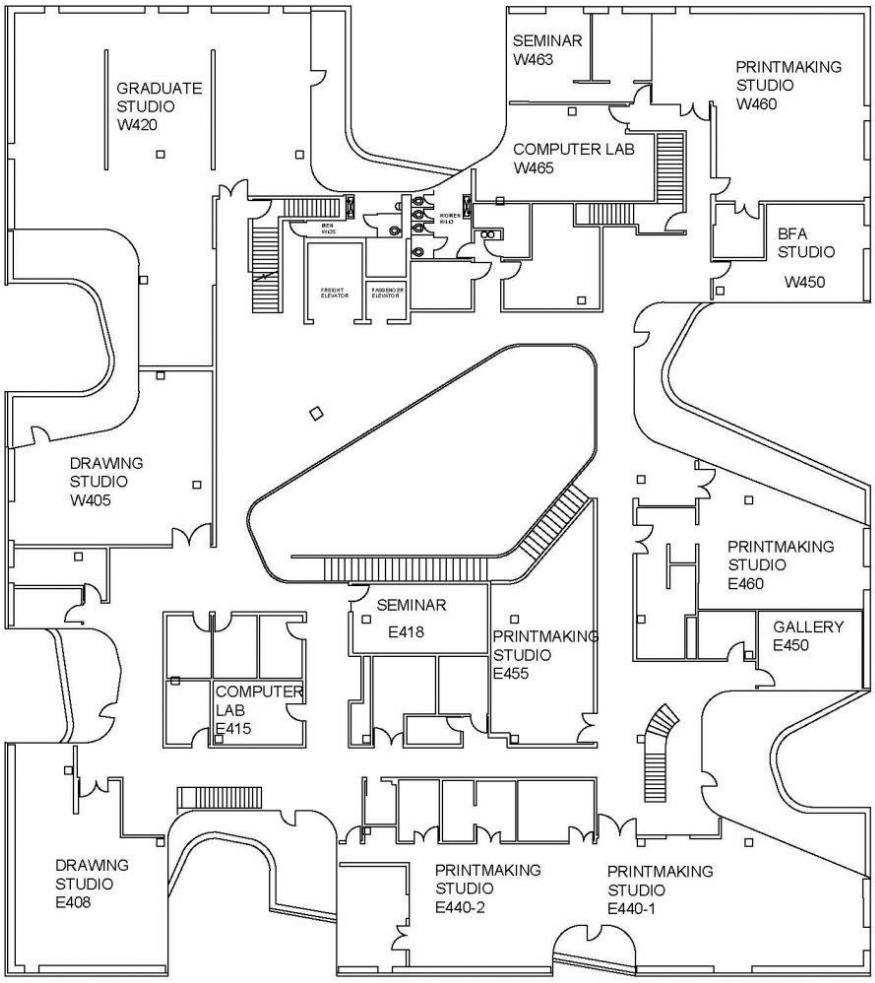


FIGURE10: FORTH FLOOR PLAN (CASE STUDY01)

-DISCUSSION AREA/CLASSROOM

-PHOTOGRAPHY STUDIO

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ADVANTAGES:

-Simple design and good study of movement

-Having various types of studios for the many styles

-There isn't a space designed for public interaction

-The project has good orientation and simple site

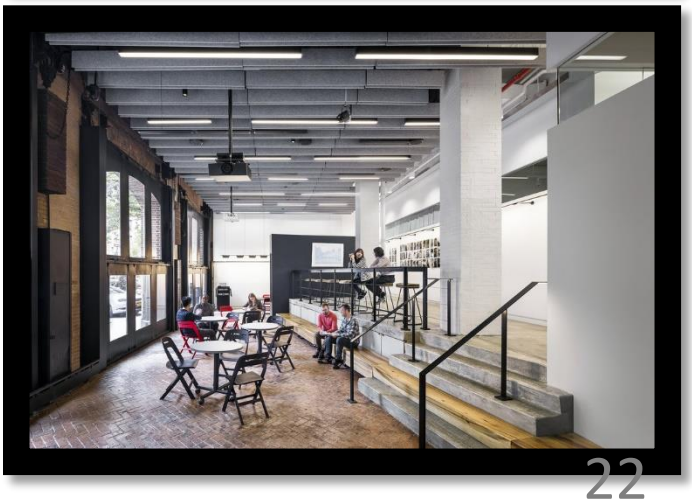
-The good orientation of the building caused natural ventilation and natural lighting.

DISADVANTAGES:

-There isn't a space designed for public interaction.

-There is no outdoor shooting areas.

-Not enough galleries for students work.



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PHOTOPIA

IGURE11: SITE PLAN (CASE STUDY03)

PHOTOPIA is located in Korba, the heart of Heliopolis (east side of Cairo).
15 El Somal St. behind Vodafone Korba

PHOTOPIA is a hub for photographers living in Egypt. We serve any photography enthusiast being an emerging talent or a professional artist:
School /studio

A Photography School
A gallery
A studio
Photopia Store and Gift Shop / Photography Merchandize (accessories & equipment)
Photo book Egypt
Photography courses and workshops
Photography Bookshop/Library
A Socialization spot - Photographers' Cafe
Membership Program "Photopia Republic"
Trips, Forums, Competitions, Technical Assistance Sessions

PHOTOGRAPHY CENTER

The hub also offer a fully equipped photography studio for rent to all photographers: pros, amateurs, rising talents, & students.

PHOTOPIA is founded by three photography enthusiasts for the purpose of creating a permanent destination to the rising photography community in Egypt.
PHOTOPIA offers a wide range of services: a studio, a gallery, courses, workshops, bookstore/Library, photography gear and a spot to socialize over a delicious cup of coffee.
We provide a friendly venue for the Egyptian Photography community in Egypt. We offer unlimited friendly support 7 days a week, 12 hours a day. Photographers will feel at home at PHOTOPIA.

ADVANTAGES:

-The center covers many activities and adapts the talents of the youth and develop them.

-Simple design and good study of movements.

-Good location (downtown)

DISADVANTAGES:

-The center is too small.

-No outdoor areas for outdoor shooting.

- No videography training

PHOTOGRAPHY CENTER

SITE PROPOSALS :

SITE 1:

LOCATION:

-LOCAL: Khartoum.
-OWNER: Sudanese government

A R E A:

1.6 hectare

SITE 2:

LOCATION:

-LOCAL.: Khartoum.
-OWNER: Sudanese government

A R E A:

3.4 hectares.

COMPARISON TABLE:

		SITE ONE	SITE TWO
FUNCTIONAL CONDITIONS			
Proximity to educational buildings	10	8	4
The possibility of orientation to the geographical north	10	7	6
The site ability to attract visitors	10	5	8
A nearby outdoor area	10	9	6
The possibility of horizontal expansion	10	8	5
ENVIRONMENTAL CONDITIONS	10	7	8
Distant from pollution sources	10	6	6
TOTAL MARK		43	35

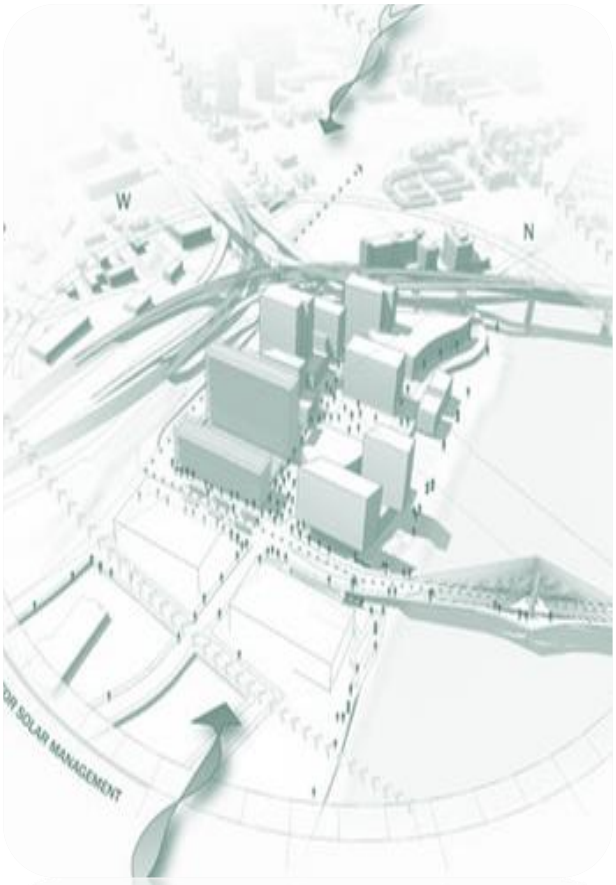
TABLE 01: COMPARISON TABLE

Conclusion:

The selected site is site number one.

CHAPTER THREE

DATA ANALYSIS



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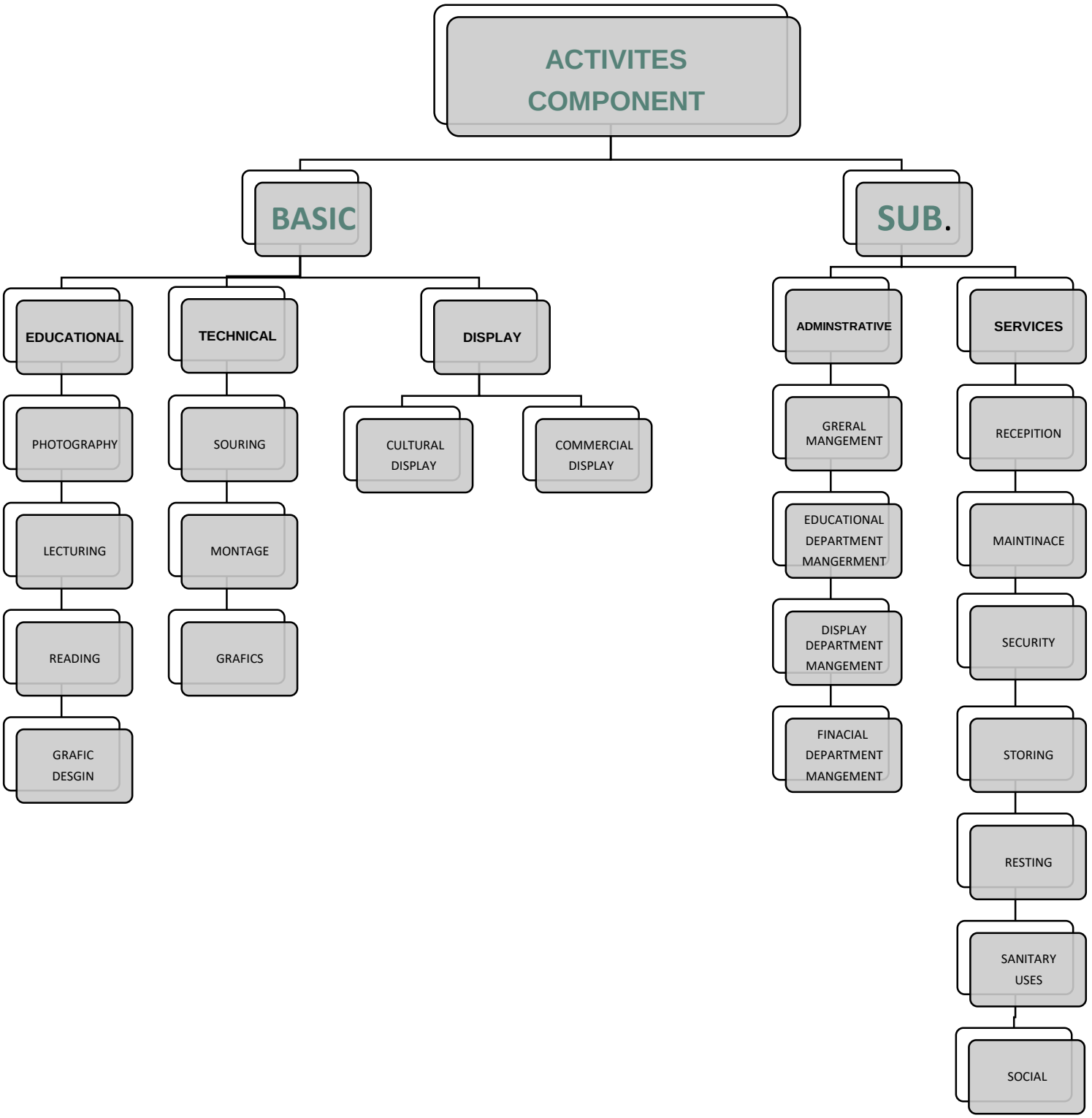
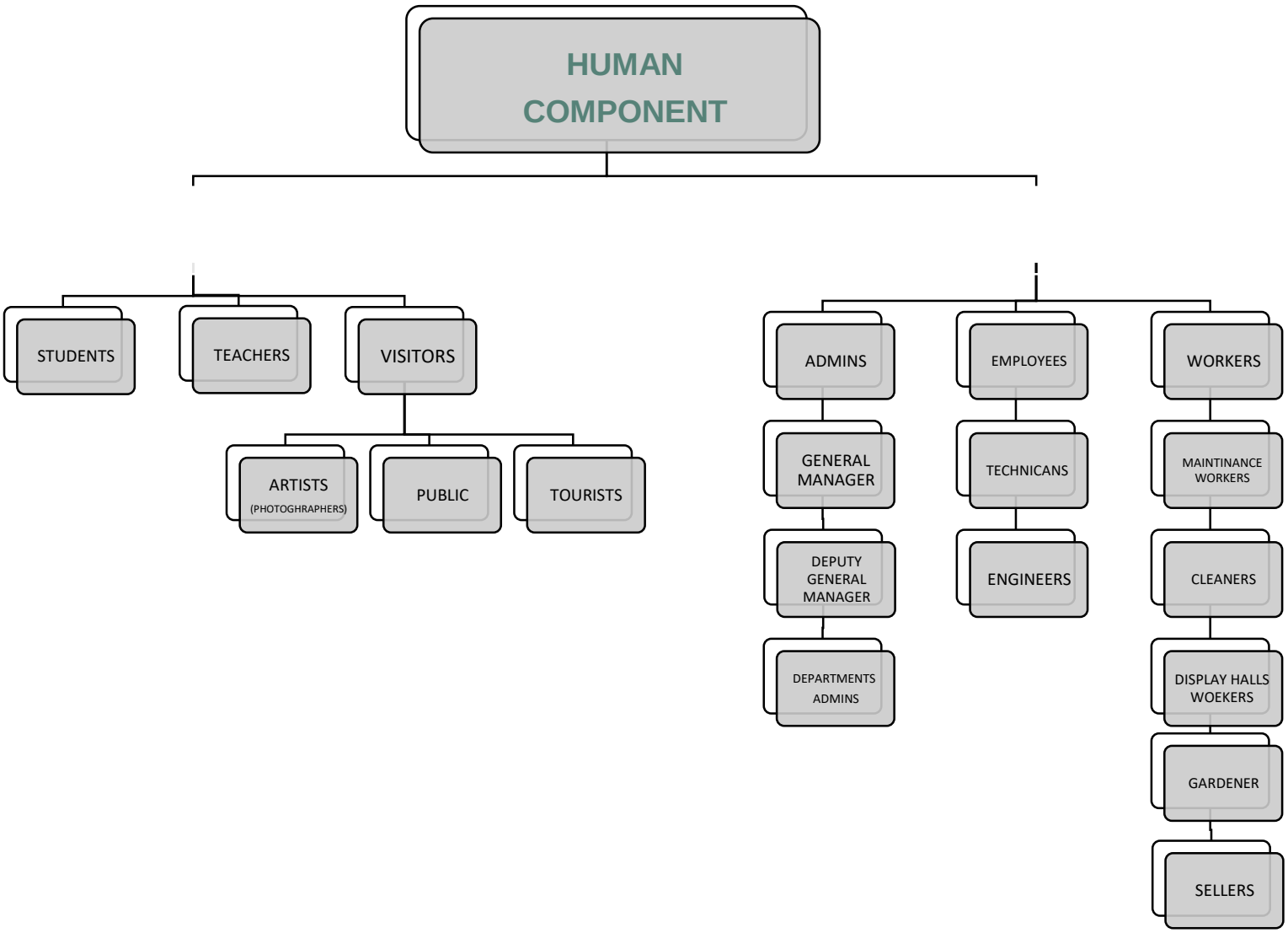
PHOTOGRAPHY CENTER



PHOTOGRAPHY CENTER

-Calculation of tourist ratio in Sudan:
According to statistics, the forecast for the number of tourists to 2020 in -Sudan 15 million tourists, but these expectations fell to 2 million tourists due to the recent tense and deteriorating situation in the country.
-Khartoum's share of tourists is 27% 540000 tourists
The percentage of tourists visiting the artistic and cultural activities represents 32% of the total number of tourists in the state, which is 172000 visitors.
-The number of tourists visiting the center is 500 visitors.
According to statistics, Khartoum's population is expected to reach 8700,000
-The proportion of users of artistic and cultural activities is 85%
Project share Assuming 45%
-The number of visitors to the complex is 1000 visitors.
-The total number of visitors at the peak time is 1500 visitors.



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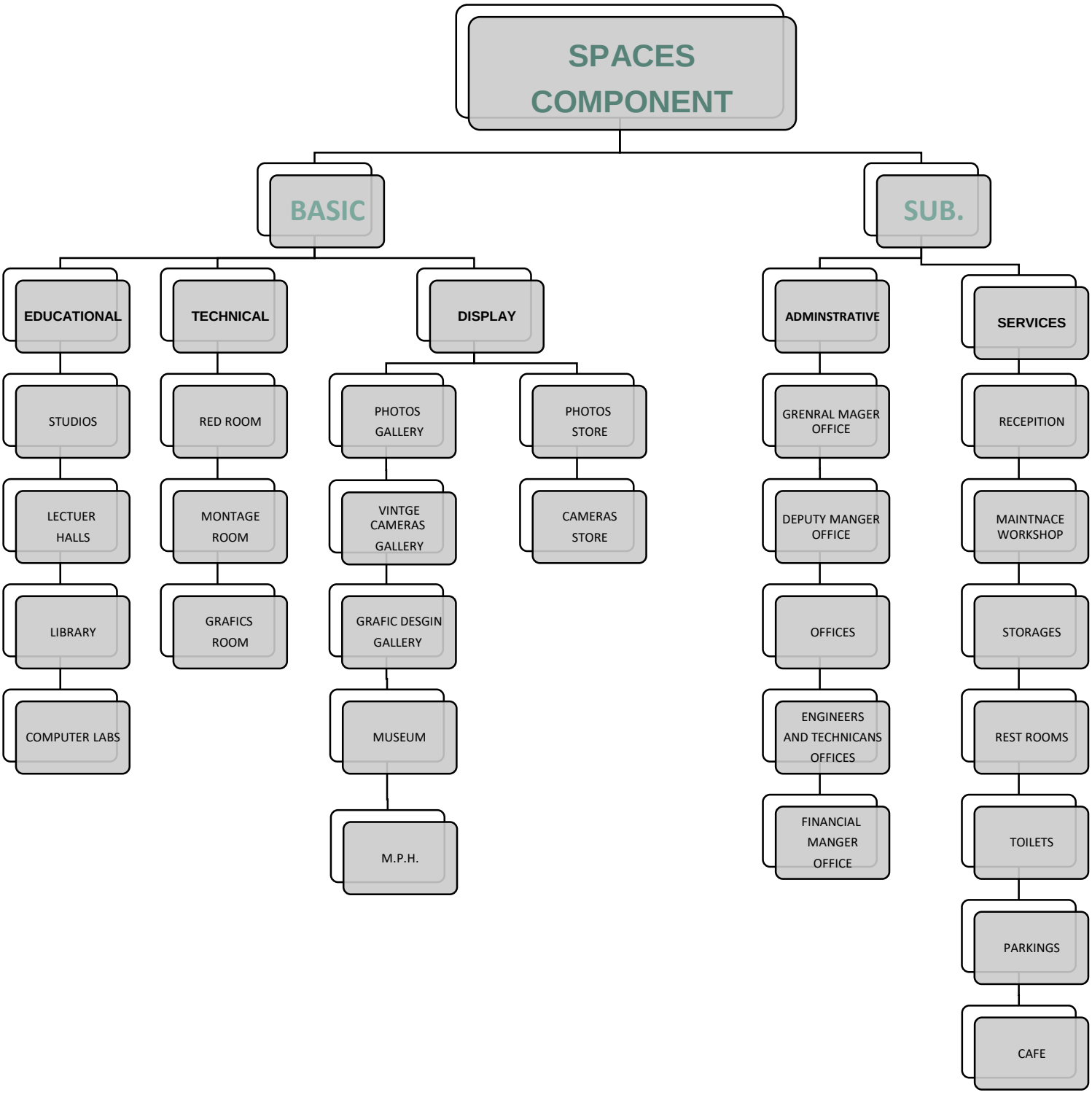

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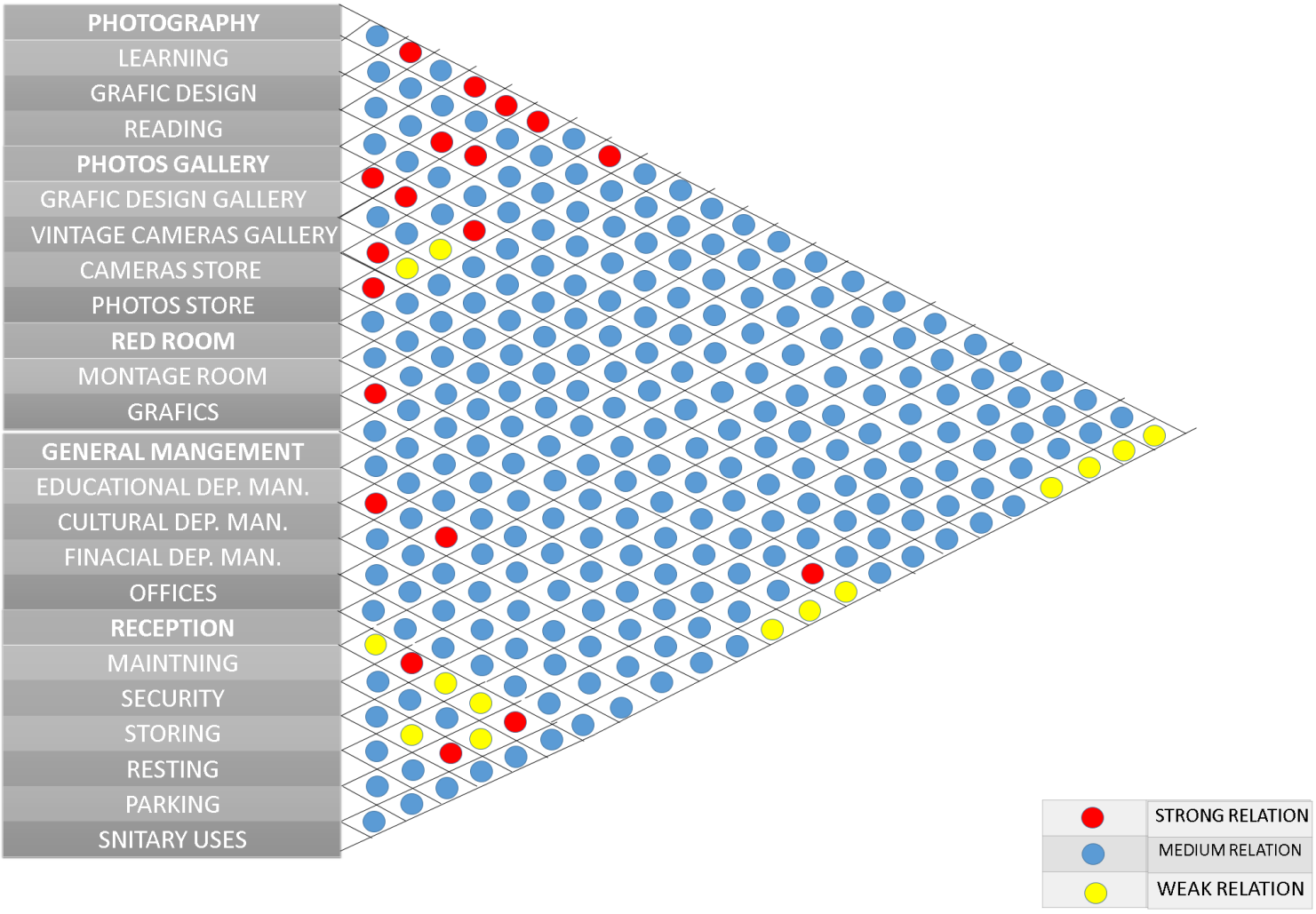
PYRAMID MATRIX DIAGRAM:



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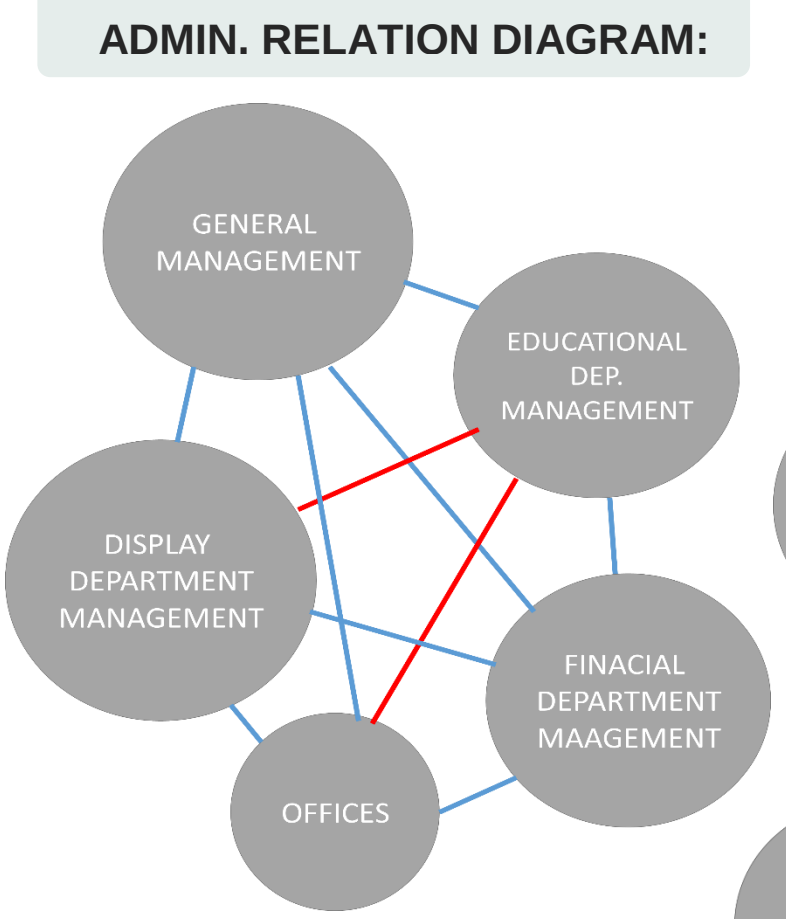
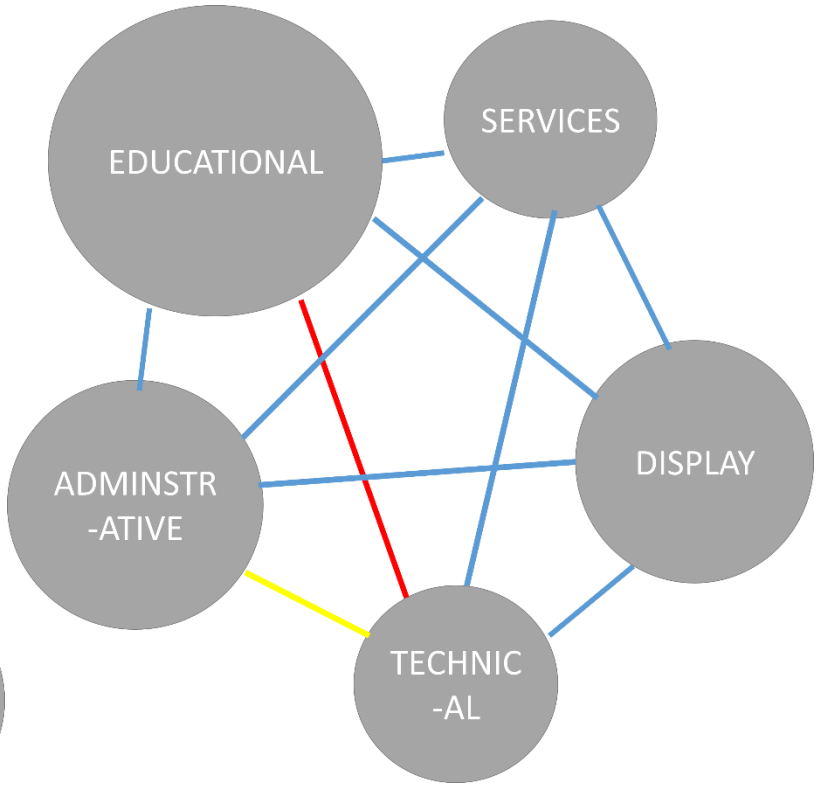
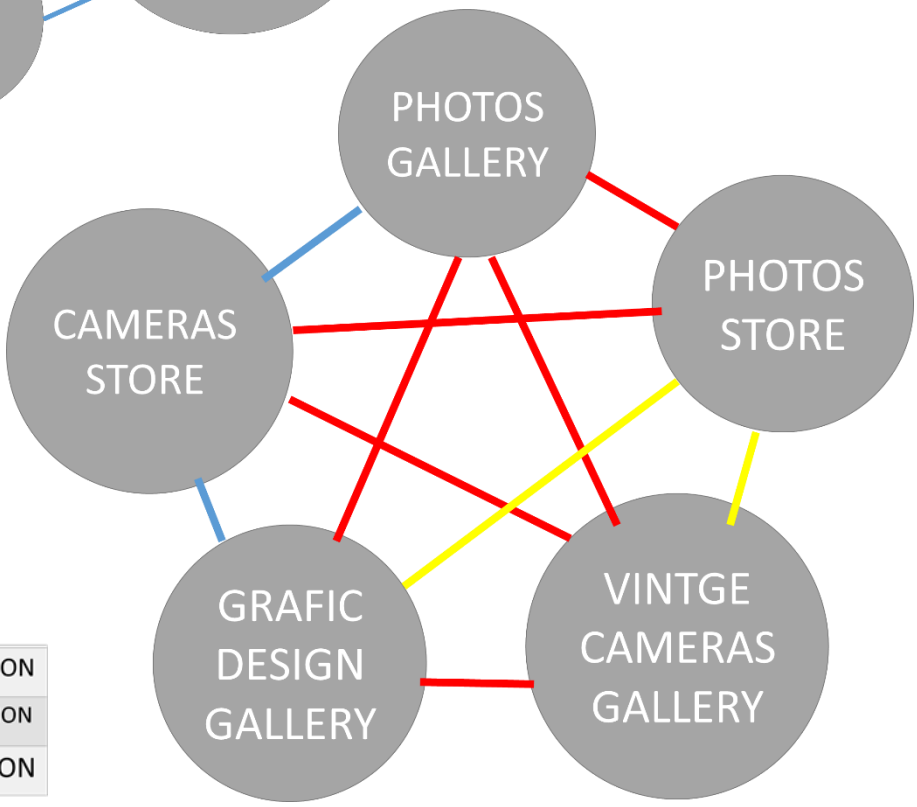
GENERAL RELATION DIAGRAM:

ADMIN. RELATION DIAGRAM:





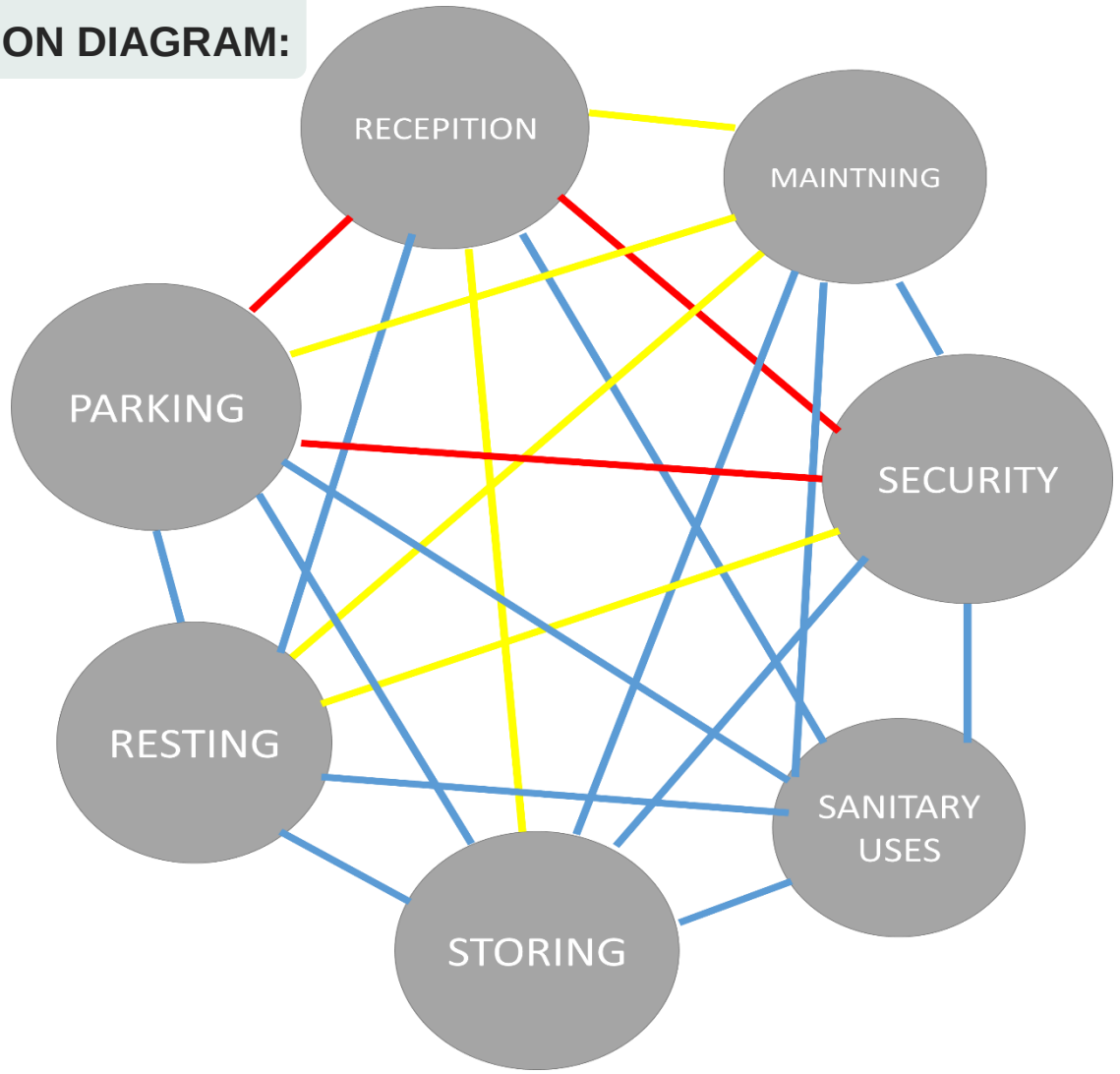


	STRONG RELATION
	MEDIUM RELATION
	WEAK RELATION

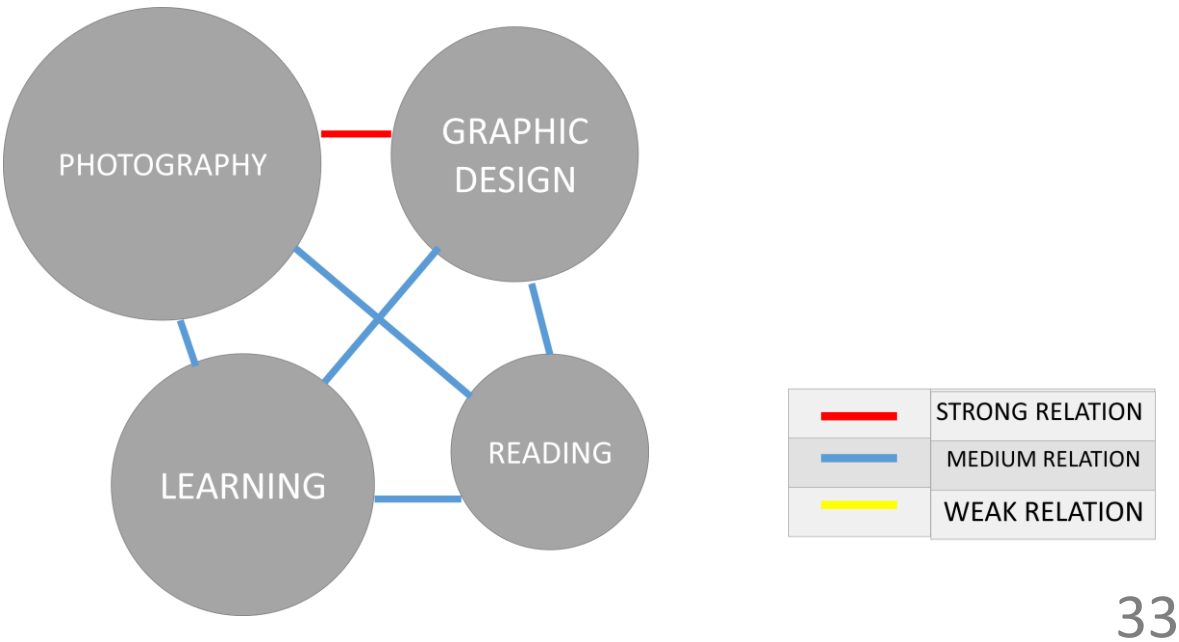
EDU. RELATION DIAGRAM:

PHOTOGRAPHY CENTER

SERVICES RELATION DIAGRAM:

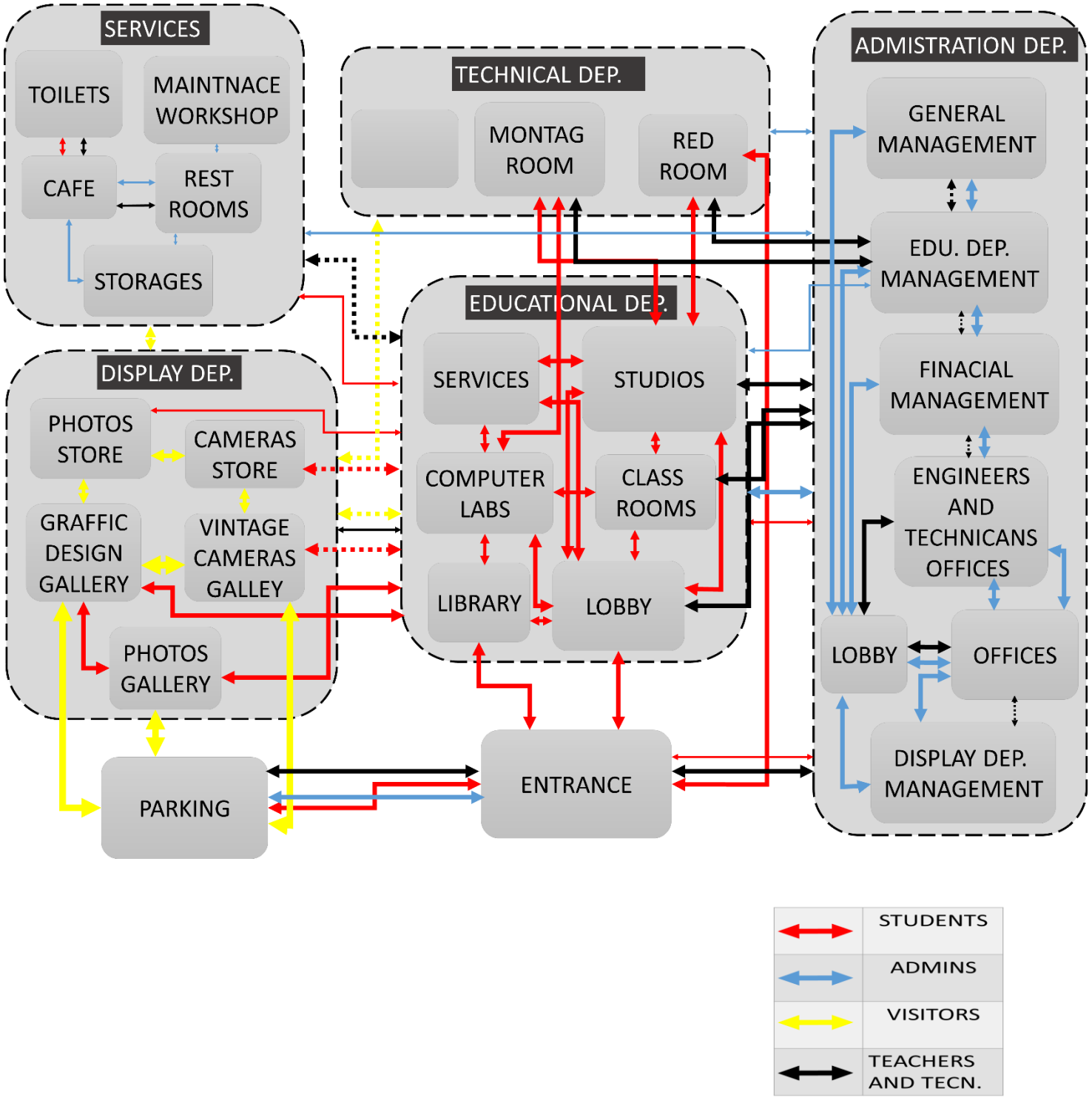


TEC. RELATION DIAGRAM:



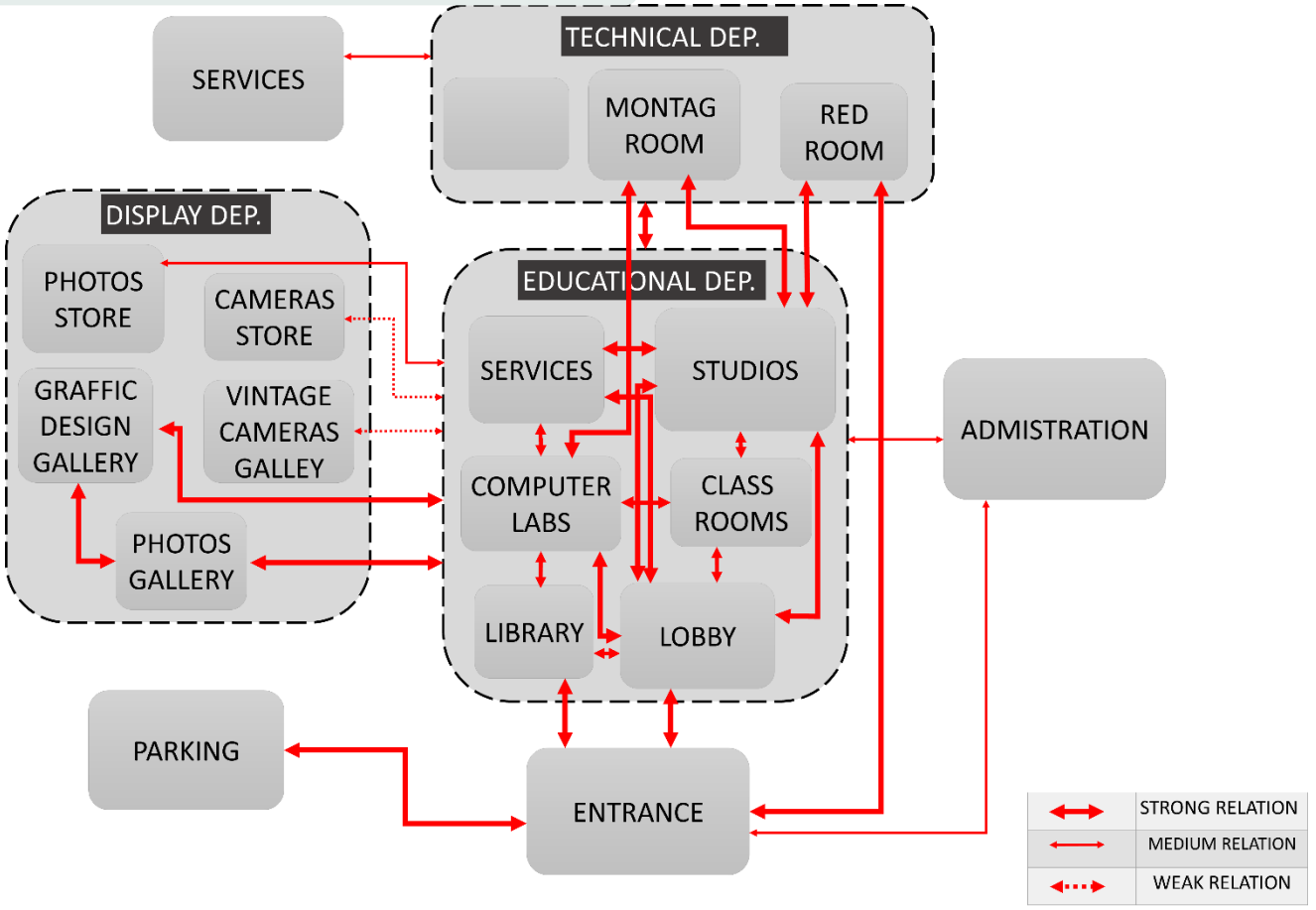
PHOTOGRAPHY CENTER

GENERAL MOVEMENT DIAGRAM:

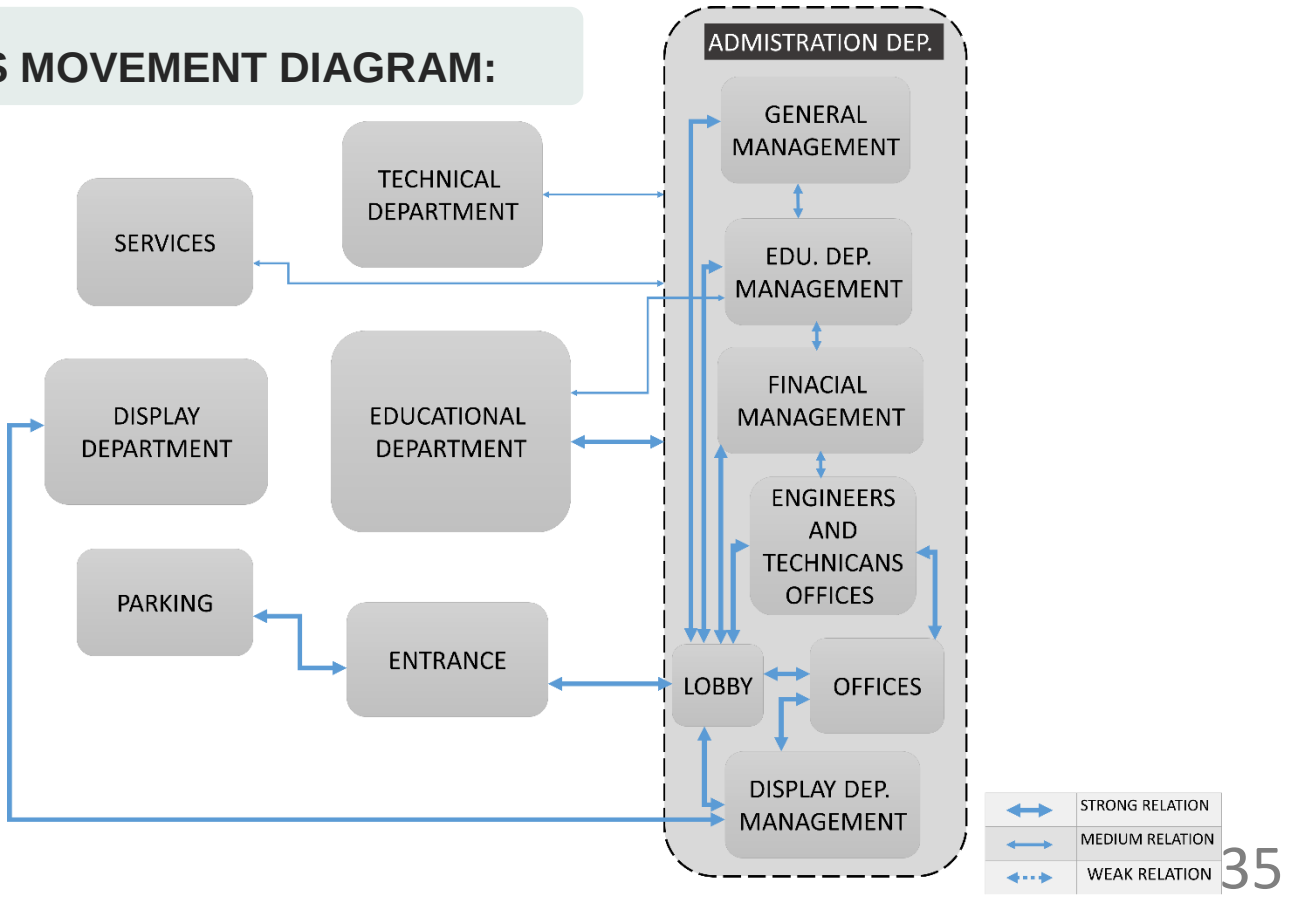


PHOTOGRAPHY CENTER

STUDENTS MOVEMENT DIAGRAM:

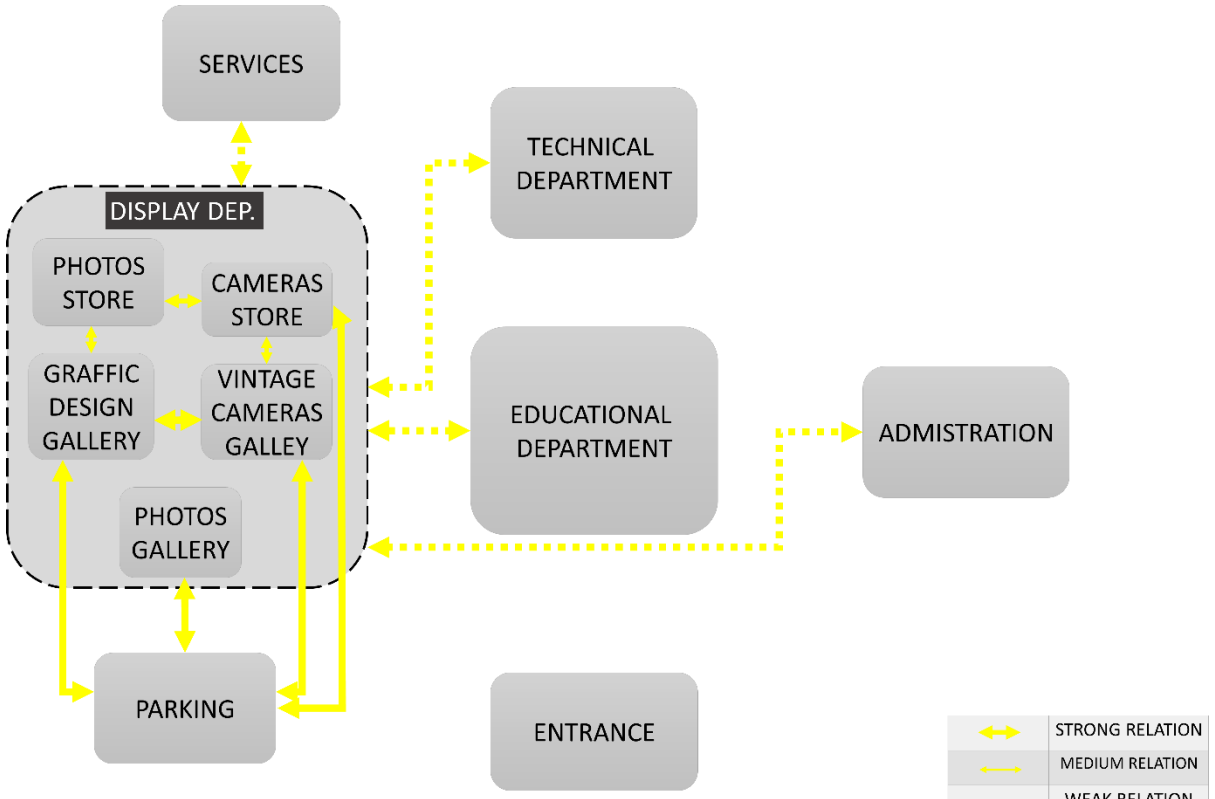


ADMINS MOVEMENT DIAGRAM:

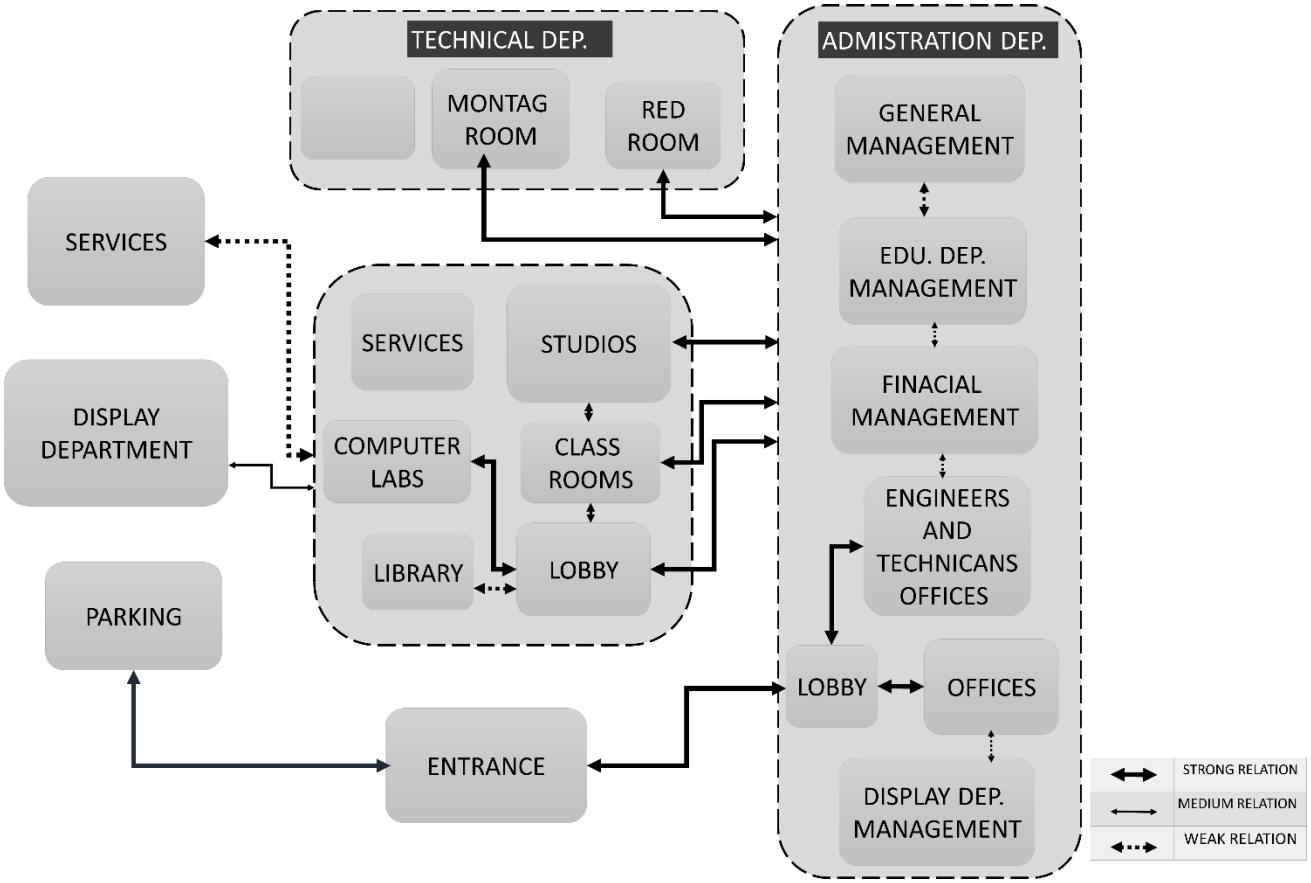


PHOTOGRAPHY CENTER

VISITORS MOVEMENT DIAGRAM:

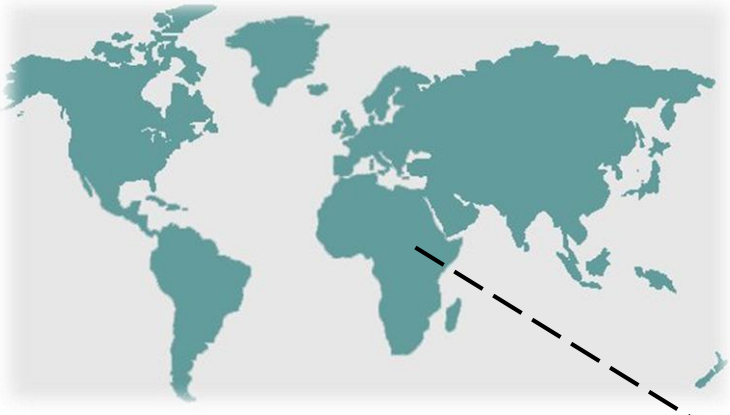


TEA. & TEC. MOVEMENT DIAGRAM:



SITE ANALYSIS:

GENERAL LOCATION:



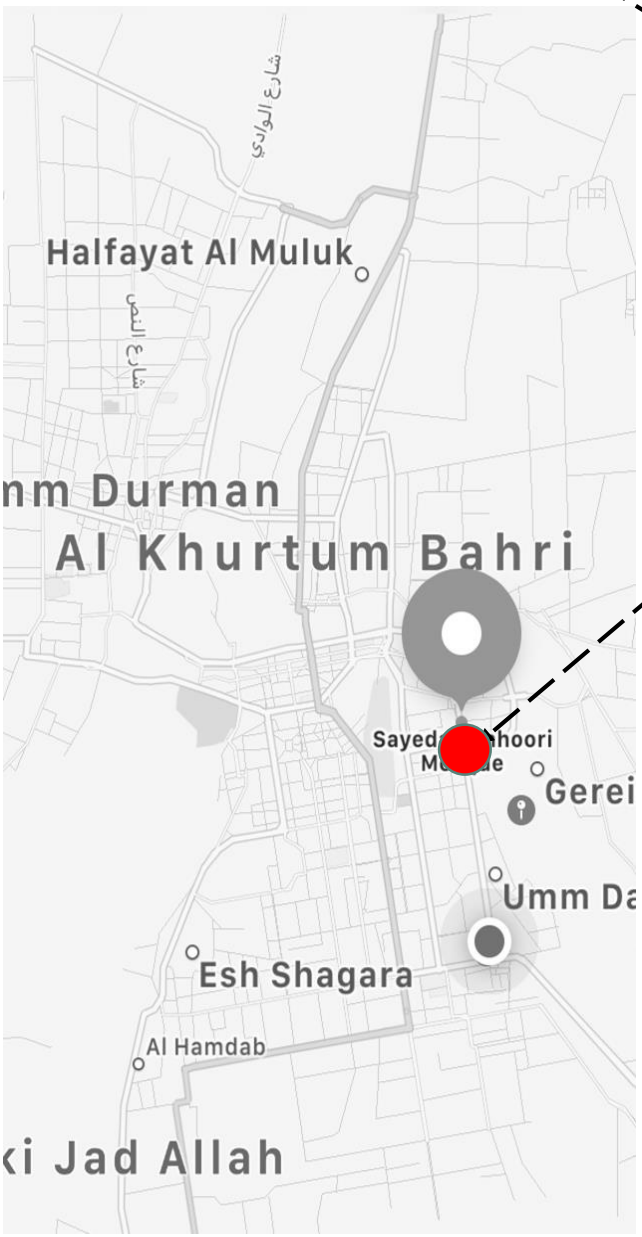
The site is located in Khartoum.

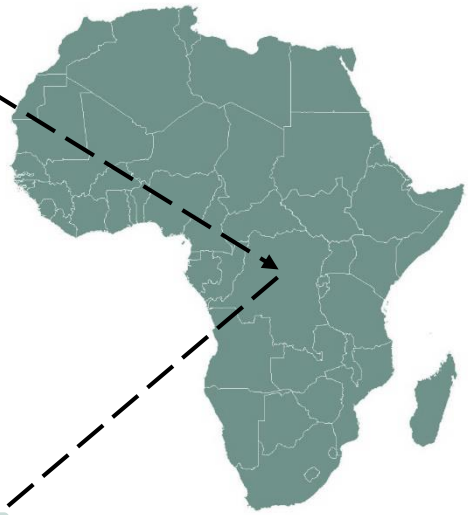
Total area: 3.4 hectares.

Neighbors:

North: Seyeda Sanhoori Mosque

East & West: Residential area





Reasons behind choosing this site:

-It is in a main road.

-The space of this site is perfect for the project incase of future expansion.

-Availability of services.

-It is reachable.

-The location of the site is adequate for educational and cultural use.

Figure12: site location plan

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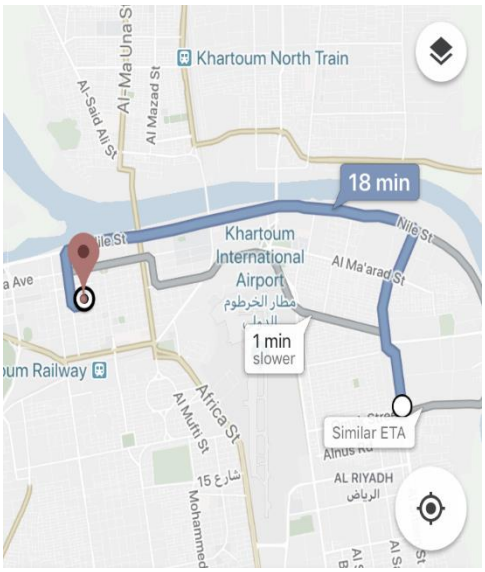
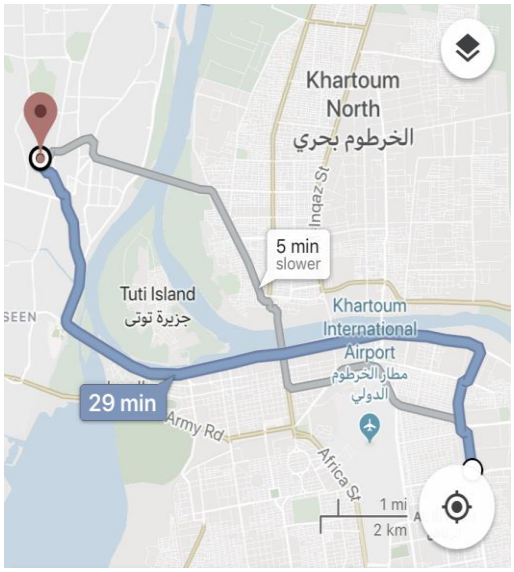
ACCESSIBILITY:

- ALSOUQ-ALARABI:



- OMDURMAN:



- BAHRI:

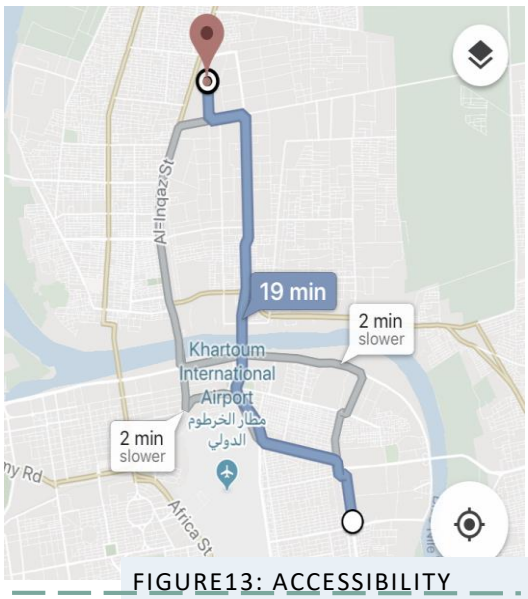


FIGURE13: ACCESSIBILITY

Site refers easily accessible from transportation centers in the capital and can be reached in:

-About 19 minutes by vehicles from and to souq Omdurman.

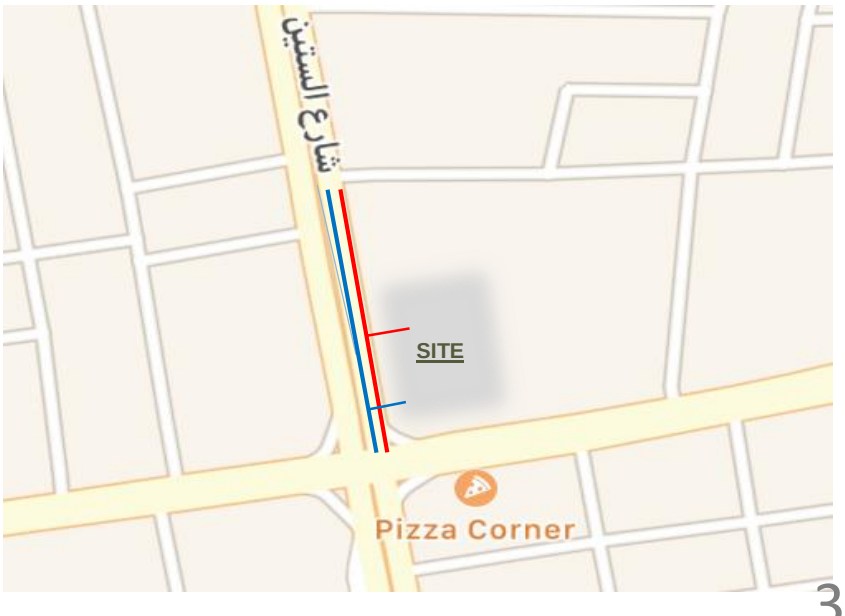
- 29 minutes from and to Alwosta station.

- 18 minutes from and to Al-souq Alarabi.

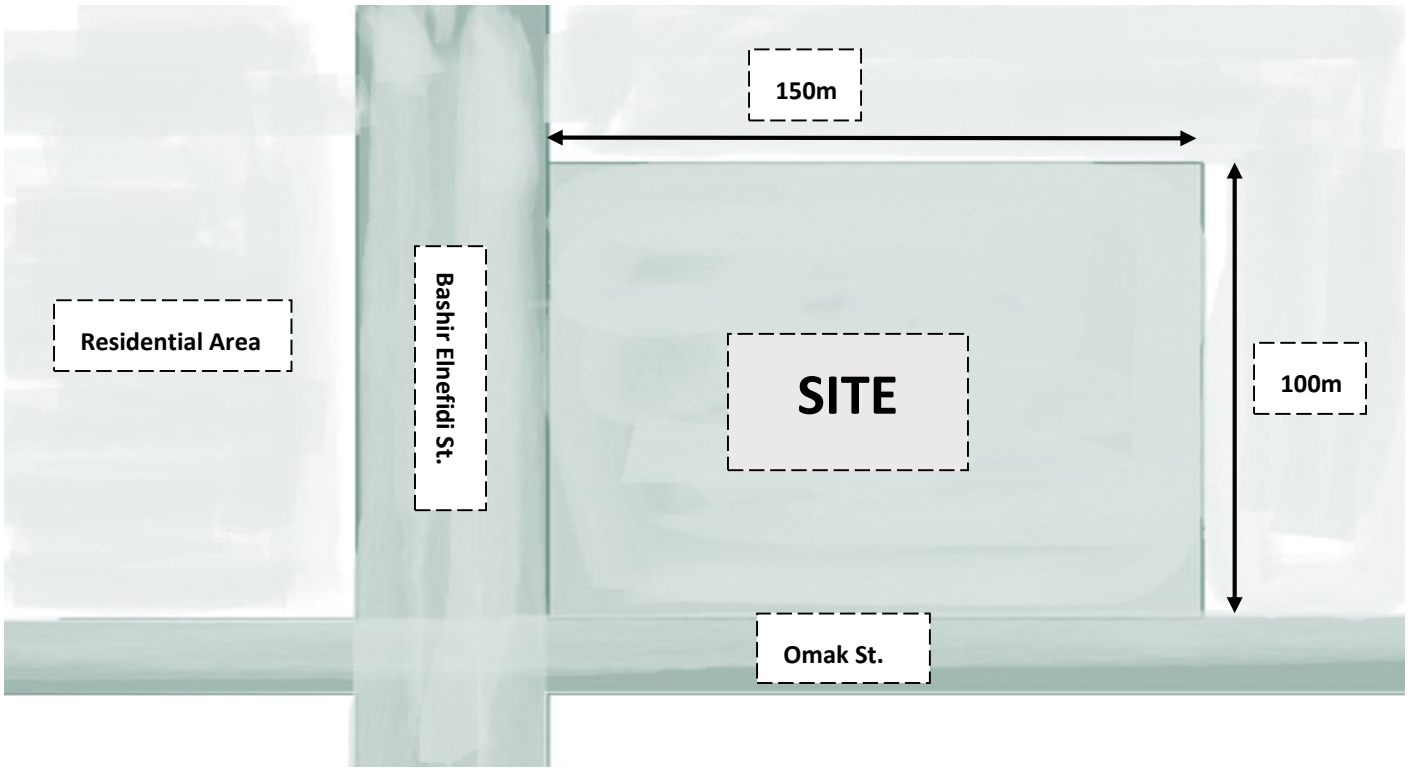
SERVICES:

Electricity extended from the western road. 220v.

Water supplement also from the western road.



ENVIRONMENTAL ANALYSIS:



WIND:

The dominate winds are north-eastern winds and south –western. The wind with highest speed is in the months of April and February and the wind with lowest speed is in June.

AIR POLLUTION:

Air pollution effects the site from southern and western side ‘low effect’.

NOISE POLLUTION:

Noise pollution is low from the north side because of the residential area and medium from the west and south because of the cars.

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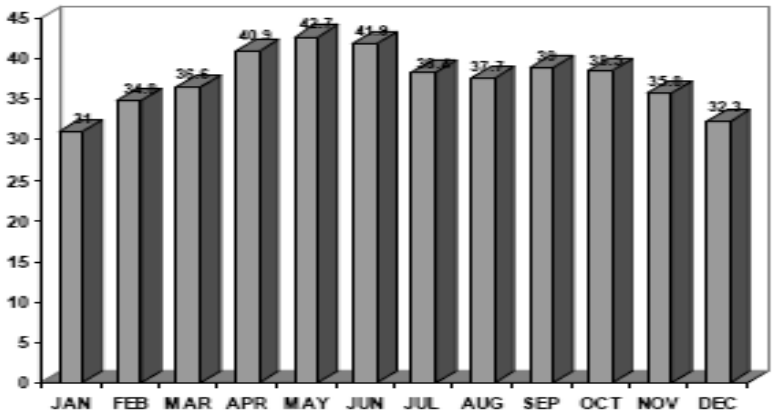
TEMPERATURE:

The highest temperature degrees are in may, where it reaches 42.7 degree. The lowest temperature degree are in January, where it reaches 15 degree.



RAIN:

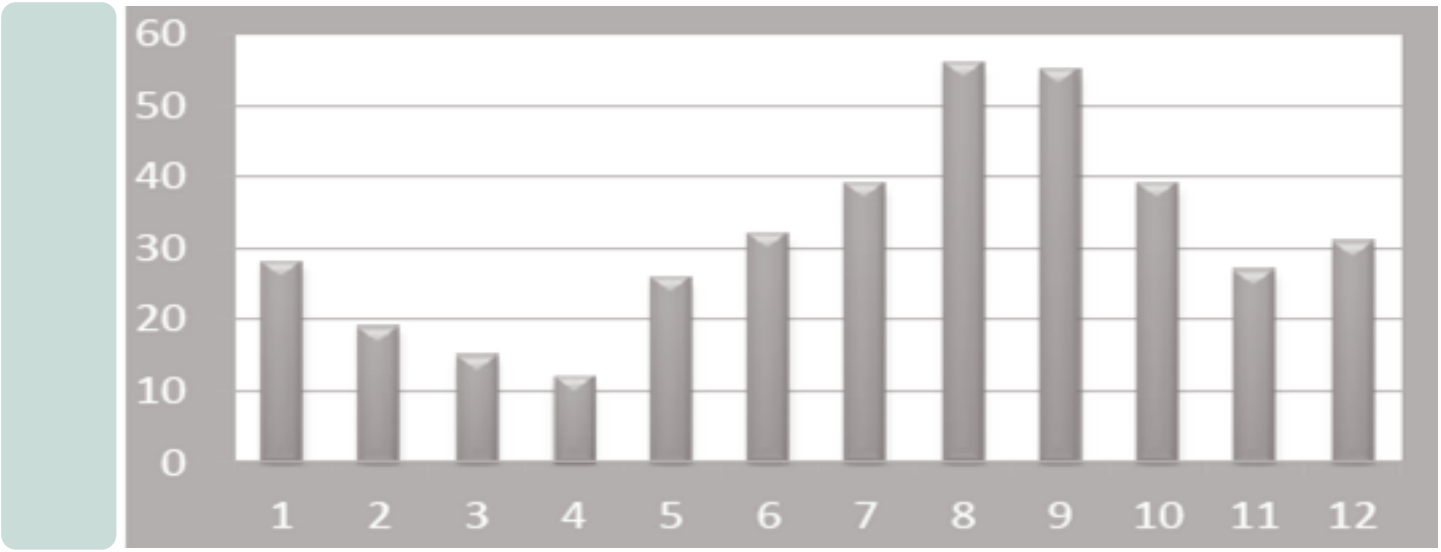
The highest amount of the rain is in august as it reaches 42.7mm The lowest amount of the rain are in January, February ,March, May, November, December.

HUMIDITY:

The highest humidity ratio is in august where it reaches 51%. The lowest humidity ratio is in April where it reaches 13.3%.

CONCLUSION:

Remove the masses from each other to move the air, which leads to reduced humidity.



CONCLUSION:

To reduce heat:
-Use absorbent materials for heat.
-Provide landscape and water elements.
-Provide a large number of shaded covered areas.

CONCLUSION:

-Use building materials with high thermal content with the use of thermal insulation. Use horizontal and vertical sun breakers, to minimize the damage caused by unwanted sun radiation.

SPAE STUDY

EDUCATIONAL STUDIOS:

Functional requirements:

Mobile
Headphones _
Camera Cases _ (soft box)
Divided into places of photography and red rooms

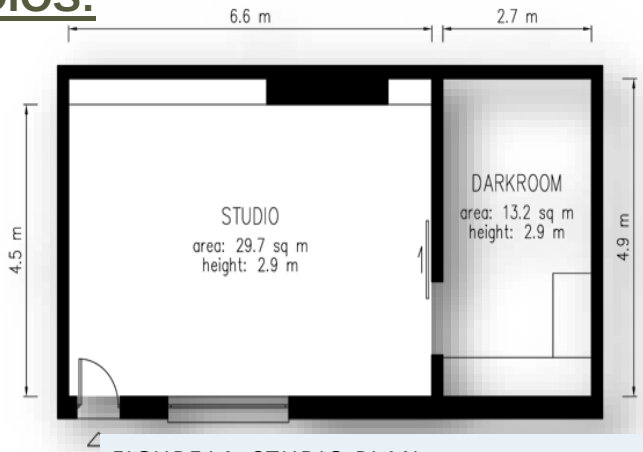


FIGURE14: STUDIO PLAN

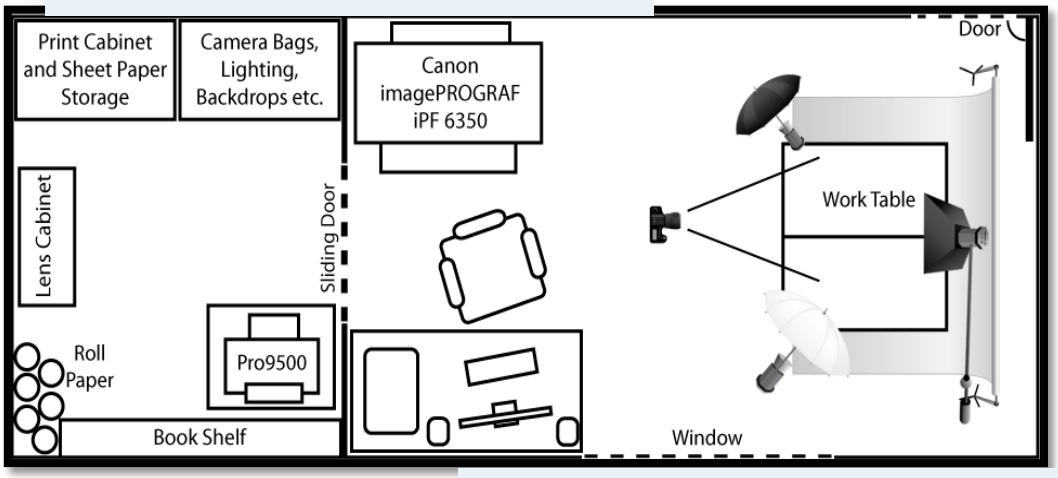
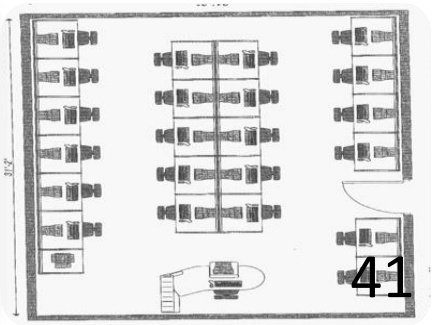


FIGURE15: STUDIO PLUS ROOM PLAN

COMPUTER LAPS:

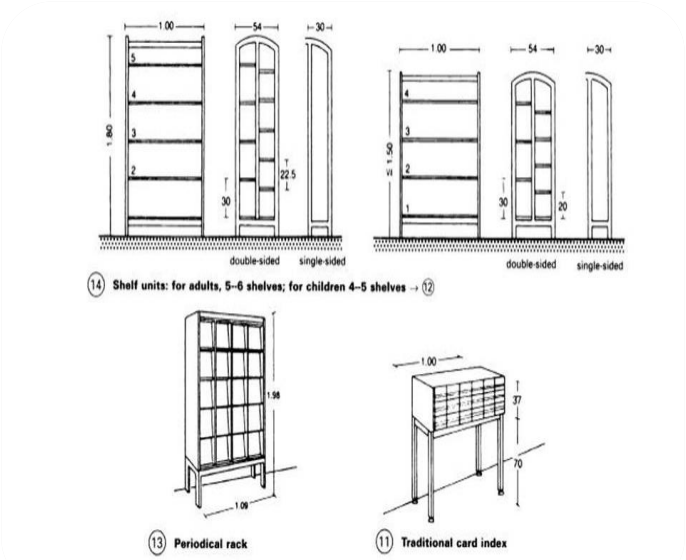
Functional requirements:

Tables _
Computers
The area of the individual is 1.5 m
One plant can accommodate 20 people
Total area: 1.5 × 20 = 30 m 2

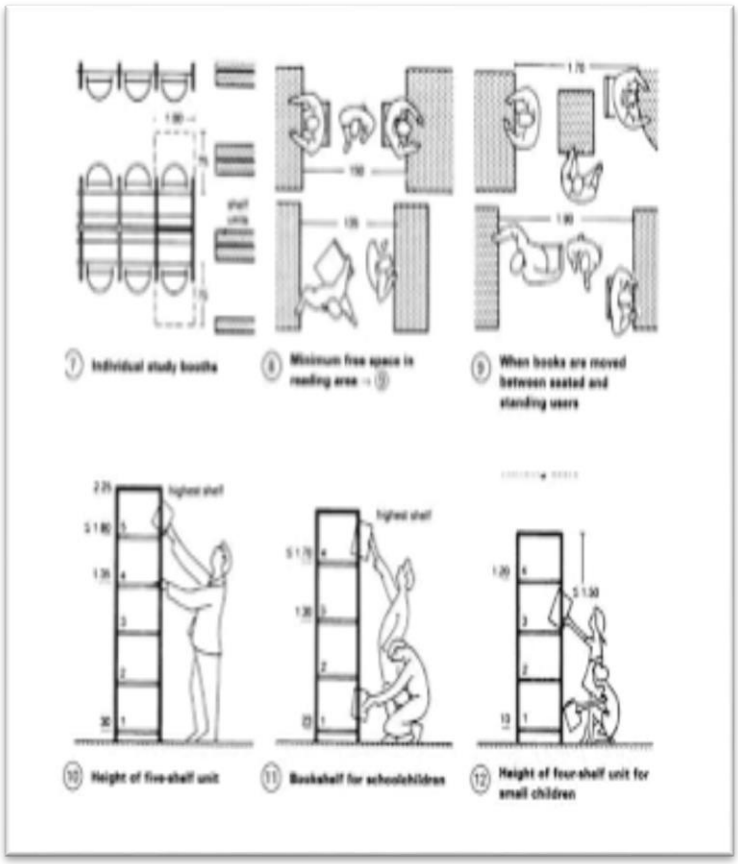


LIBRARY:

-The public library of the photography is also one of the primary spaces of the project. The library is bisected into three main sections: department of index, department of e-readers and department of reading books.it must be considered the design of the indexing department and storing books and calculates movement's corridors



Number of users: 150.
Area of person: 2.5m2.
Total area: 400m2.



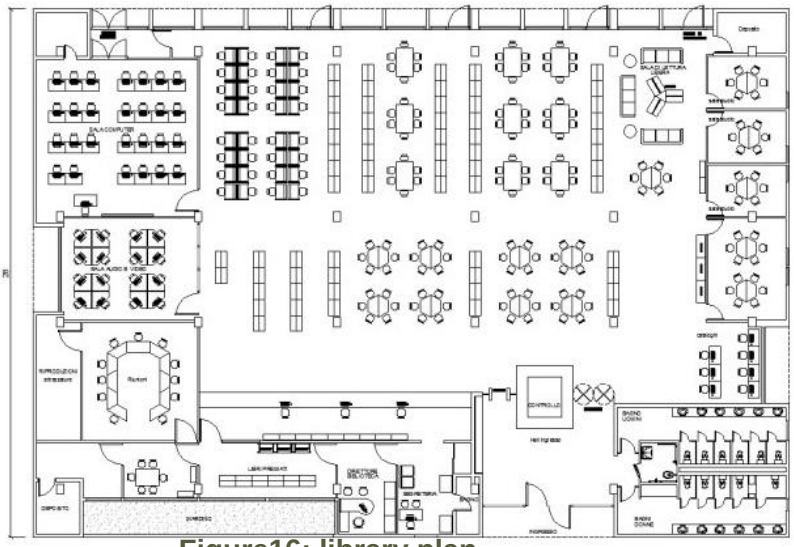
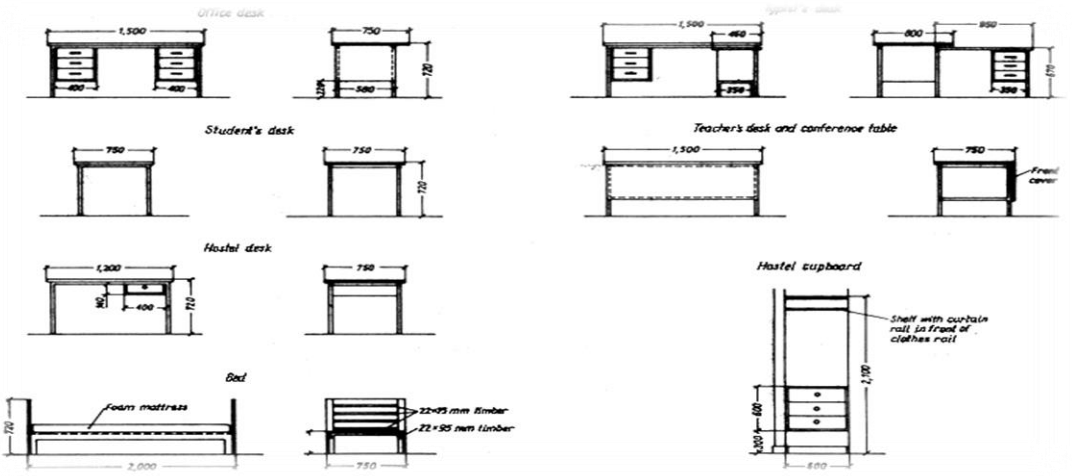


Figure16: library plan

CLASSROOMS:

Where the classroom can be for (15_20) students and the area of each one is 1.2 x 20 = 24 m 2
Functional requirements:
Tables _ Chairs



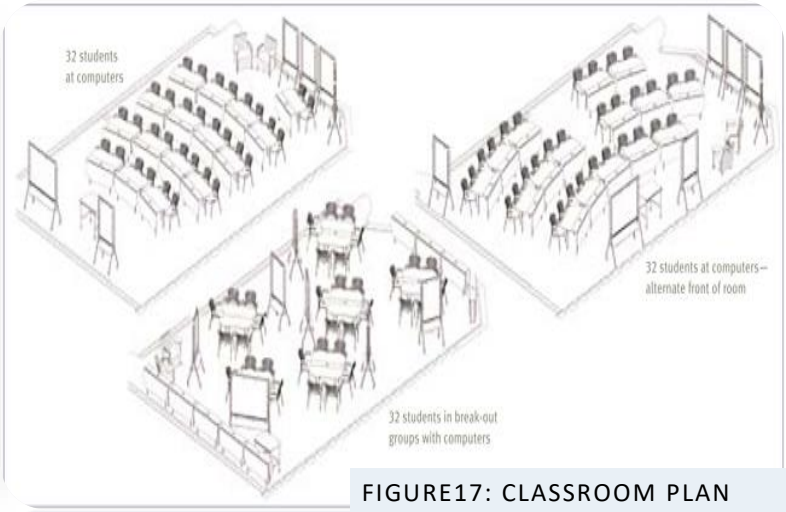
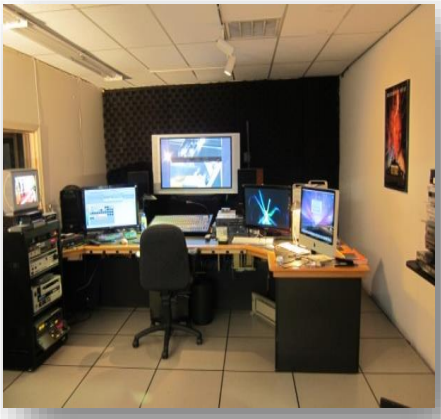


FIGURE17: CLASSROOM PLAN

MONTAGE ROOM:

Is called the video editing (the basic stage of the production of the specific work, where the video is edited and the order of the shots and the removal of unnecessary footage and the addition of the effects. It consists of computers and screens In the past there were many machines to complete the process of editing But the solution of the computer alternative to all machines by Specialized programs consisting of tables



DARK ROOM:

Area of person: 0.80

Number of users:270

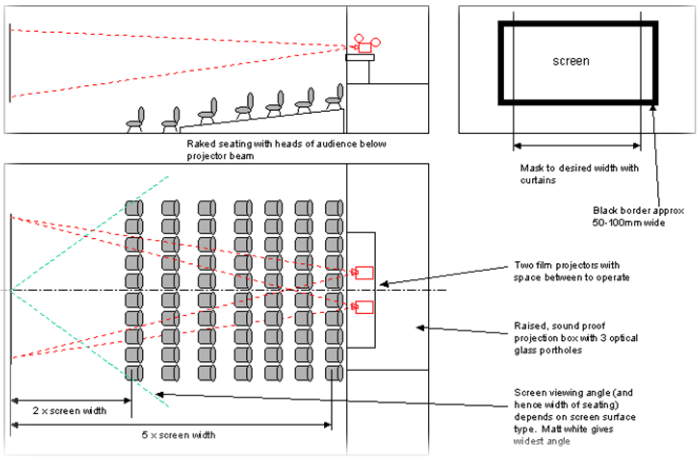
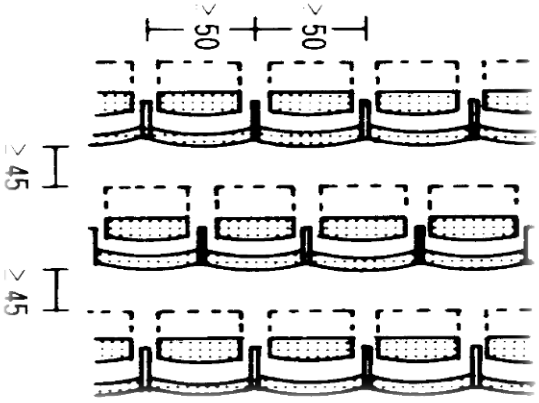
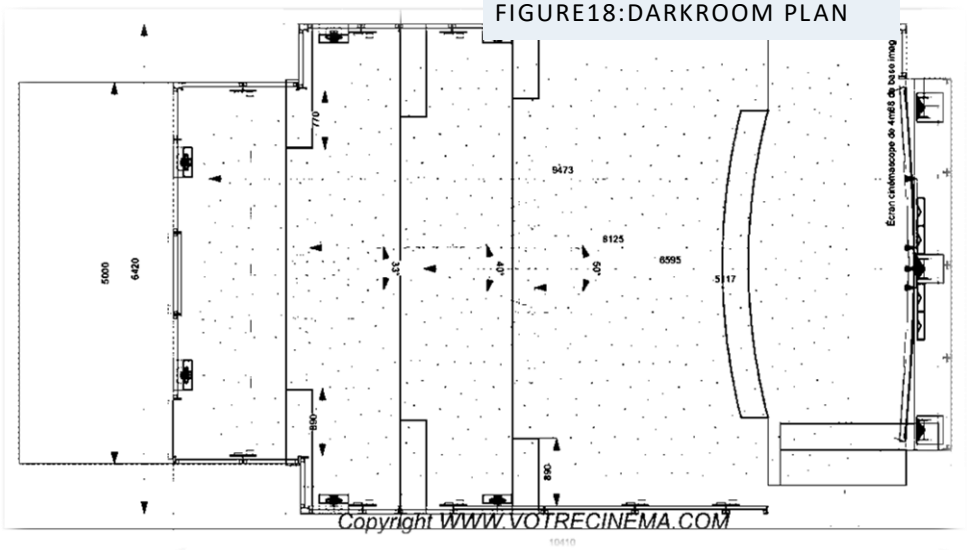


FIGURE18:DARKROOM PLAN





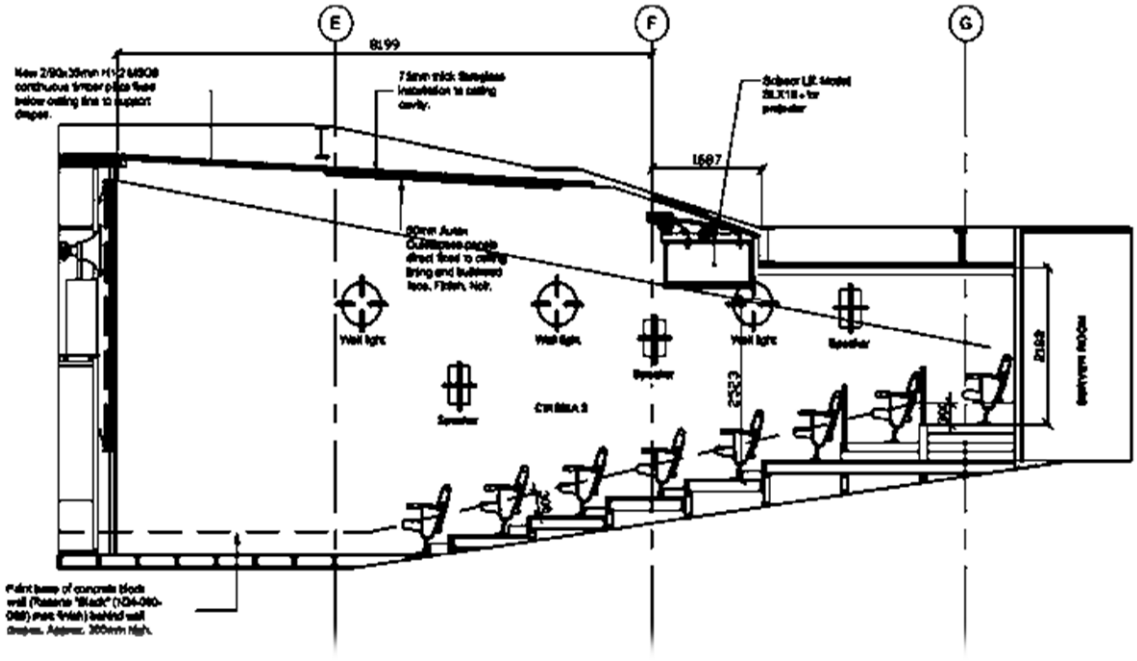


FIGURE19: DARK ROOM PROJECTOR

DARK ROOM:

Permanent Exhibition Hall:

Divided into a group of successive

Halls according to the subject of

The presentation which is

Specialized each hall to present one subject.

A \ History of Photography.

B) Exhibition of Sudanese heritage and civilization.

C / Pioneers exhibition of photography art.

Design standards should be followed in galleries:

Excite the visitor and not notice him bored while exploring.

- Easy opening of internal and external doors.
- It is not recommended to use rotary doors to obstruct the movement of older persons and the disabled.
- Make the portal distinctive for easy identification.

-Expansion of corridors of movement within the halls.

It is recommended that the length of the exhibition halls not be more than (6_7 m).

Area of person: 2m

Number of users: 470

Total area of the museum is 920.

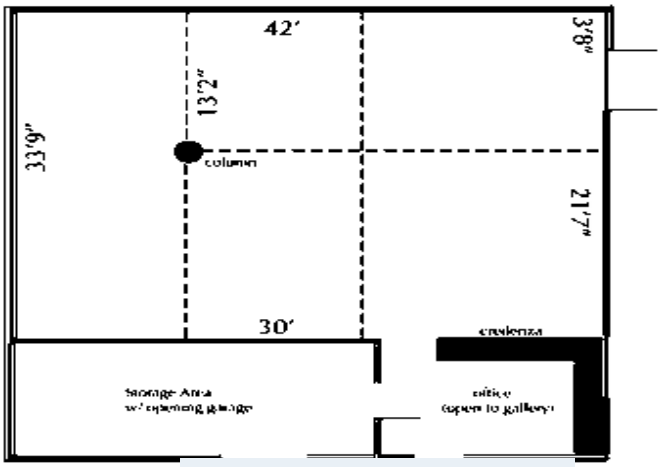


FIGURE20: GALLERY PLAN

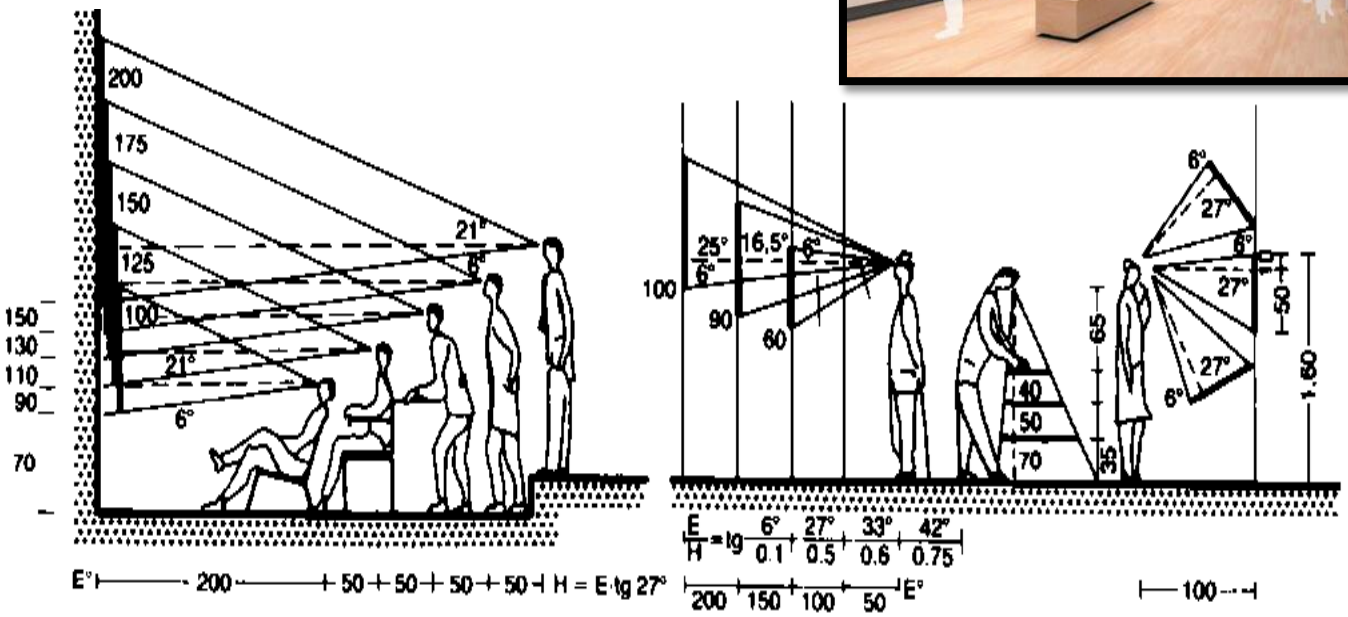


TABLE OF THE EDUCATIONAL AND TECHNICAL SPACES:

ACTVITY	SPACE NAME	USERS	ENVIRONMENTAL REQUIREMENTS	UNIT AREA	NUMBER OF UNITS		TOTAL AREA
EDUCATIONAL	INDOOR STUDIOS	STUDENTS TEACHERS STAFF	-ARTIFICAL LIGHTING -ARTIFICIAL VENTILATION -FIRE FIGHTING AND SAFETY SYSTEM	200	20		4000M
	OUTDOOR STUDIOS	STUDENTS TEACHERS STAFF		150	3		450
	LECTURE HALL	STUDENTS TEACHERS STAFF		36	12		432
	COMPUTER LABS	STUDENTS TEACHERS STAFF		55	30		110M
	LIBRARY	STUDENTS TEACHERS STAFF		350	1		350
	WORKSHOPS	VISITORS TEACHERS		80	2		180
TECNICAL	RED ROOM	TECHNICIANS STAFF STUDENTS	-ARTIFICAL LIGHTING -ARTIFICIAL VENTILATION -FIRE FIGHTING AND SAFETY SYSTEM	50	5		250
	MONTAGE ROOM			50	5		250
	GRAFICS ROOM			50	5		250

TABLE 02: EDUCATIONAL AND TECHNICAL SPACES

TABLE OF THE DISPLAY AND ADMISITRAIONAL SPACES:

ACTIVITY	SPACE NAME	USERS	ENVIRONMANTAL REQUIREMENTS	UNIT AREA	NUMBER OF UNITS	TOTAL AREA
DISPLAY	PHOTOS GALLERY	VISITORS STAFF STUDENTS	-ARTIFICAL LIGHTING -ARTIFICIAL VENTILATION -FIRE FIGHTING AND SAFETY SYSTEM	360	4	1440
	GRAFIC DESGIN GALLERY	VISITORS STAFF STUDENTS		280	2	360
	VINTAGE CAMERAS GALLERY	VISITORS STAFF STUDENTS		280	2	360
	PHOTOS STORE	VISITORS STUDENTS		30	2	60
	CAMERAS STORE	VISITORS STUDENTS		30	4	120
ADMINSTRATIONAL	GENERAL MANGER OFFICE	STAFF	-ARTIFICAL AND NATURAL LIGHTING -ARTIFICIAL AND NATURAL VENTILATION -FIRE FIGHTING AND SAFETY SYSTEM	48	1	48
	DEPUTY MANGER OFFICE	STAFF		36	1	36
	OPEN OFFICES	ENGINEERS TECHNICANS		48	4	192
	MEETING ROOMS	STAFF		50	2	100

TABLE 03: DISPLAY AND ADMINISTRATION SPACES

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TABLE OF THE SERVICES ACTIVITES:

ACTIVITY	SPACE NAME	USERS	ENVIRONMENTAL REQUIERMENTS	UNIT AREA	NUMBER OF USERS	TOTAL AREA
SERVICES	RECEPTION	STAFF VISITORS	-ARTIFICAL AND NATURAL LIGHTING -ARTIFICIAL AND NATURAL VENTILATION -FIRE FIGHTING AND SAFETY SYSTEM	100	1	100
	MAINTENANCE WORKSHOP	STAFF		80	3	240
	STORAGE	STAFF		70	5	350
	RESTROOM	STAFF		42	2	92
	TOILETS	STAFF VISITORS STUDENTS		4		
	SECURITY	STAFF		24	2	48
	PARKING					
	TOTAL SPACE					9818

TABLE 04:SERVICES ACTIVITIES

TOTAL AREA OF THE SPACES:

ACTIVITY	TOTAL SPACE
EDUCATIONAL	5,522
TECHNICAL	750
DISPLAY	2,340
ADMINISTRAITONAL	376
SERVICES	830

TABLE 05: TOTAL AREA OF SPACES

Indicators and Guidelines:

INDICATOR	GUIDELINES
The site is surrounded by two high ways.	The entrances should be one the side of each of them.
The dominate winds are north-eastern winds and south.	The spaces should be oriented in the same direction for natural ventilation.
Noise is medium from the west and south because of the cars.	The library and the spaces that needs quite should be on the other side of the site.
The highest amount of the rain is in august as it reaches 42.7mm.	A slope should be made to ease the surface drainage process.
Air pollution effects the site from southern and western side ‘low effect’	Eastern and northern side is appropriate for the social department of the project.
The dominate winds are north-eastern winds and south.	Use wind breakers.
The north-eastern side of the site is sort of quite.	The educational department of the project will be on this side.

TABLE 06: INDICATORS AND GUIDELINES

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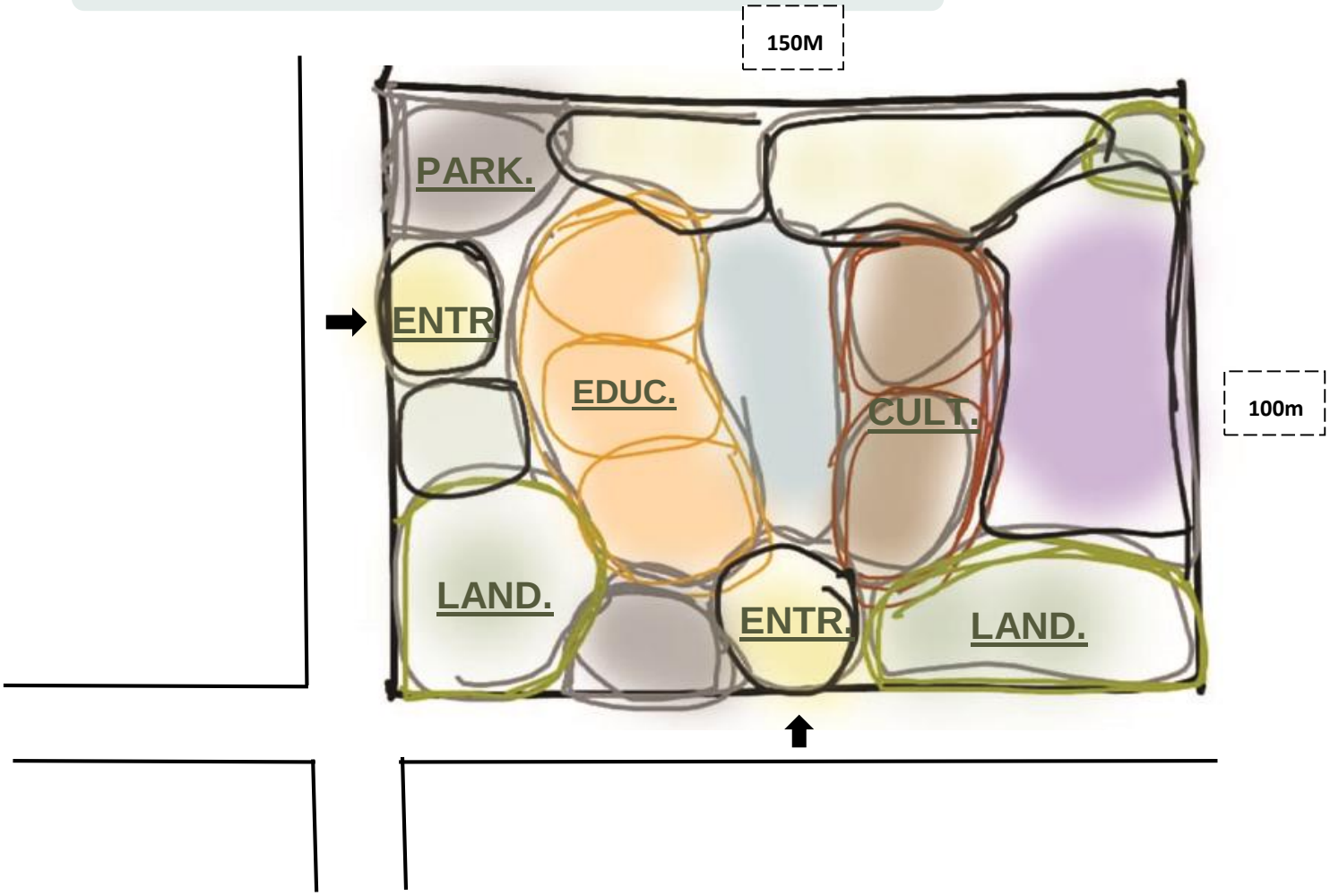
ZONING



EDUCATIONAL

CULTURAL

SOCIAL

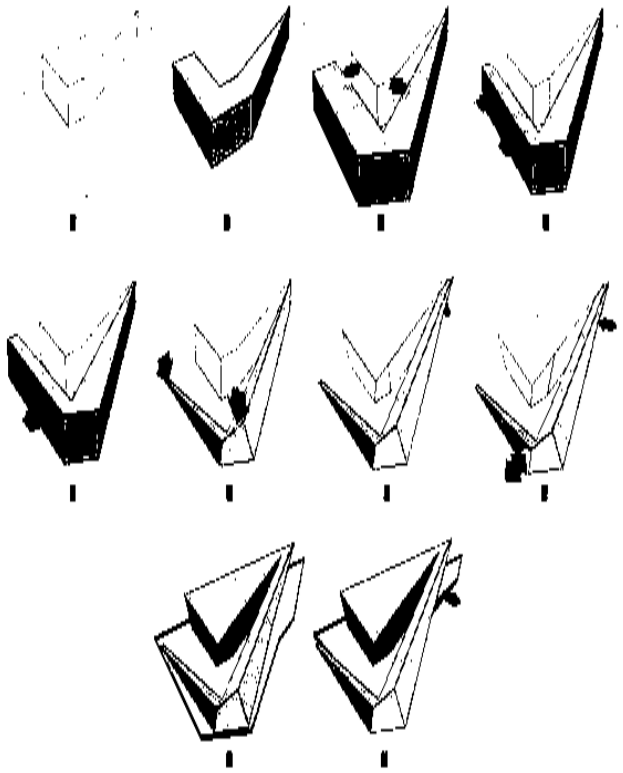
LANDSCAPE

ENTRANCES

ENTIRTANIMENT

CHAPTER FOUR

DESIGN PROCESS



***CONTENTS**

Design concept.

Design process and development.

Technical solution

PHOTOGRAPHY CENTER

DESIGN CONCEPT:

FORM INSPIRATION:

Strong and unique forms are perfectly used when designing these types of projects.

It's because this type of projects may be considered artistic, therefore in order to capture the eye of the visitor, and effort should be made by amusing the

Visual and senses of whomever come across the design.

FORM PHILOSOPHY:

The philosophy of this project is initially oriented towards a new trend of modern architecture. The main objective is to combine several different functions in one complex with modern international methods of design, especially that these activities are compatible with the needs of the city and its nature and the requirements of its inhabitants. And the whole world where Sudan lacks such artistic projects.

FORM CIRCULATION:

From the zoning and the form philosophy it had to start with circulation axes that reflect the formation and serving the project's zones.

The main challenge in project that it's a complex consists of many different activities and they must be linked.

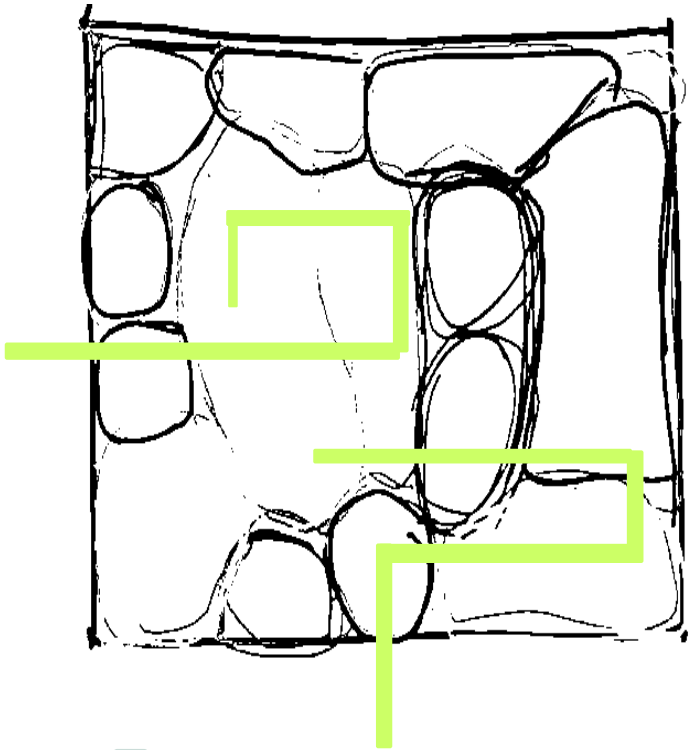
The main concept is having two axes branching into other axes.

Consider the following in these axes:

- The visual connection: by giving sense of continuity.
- Ending axes of movement in functionally important areas.

DESIGN PROCESS

PRIMARY DESIGN:



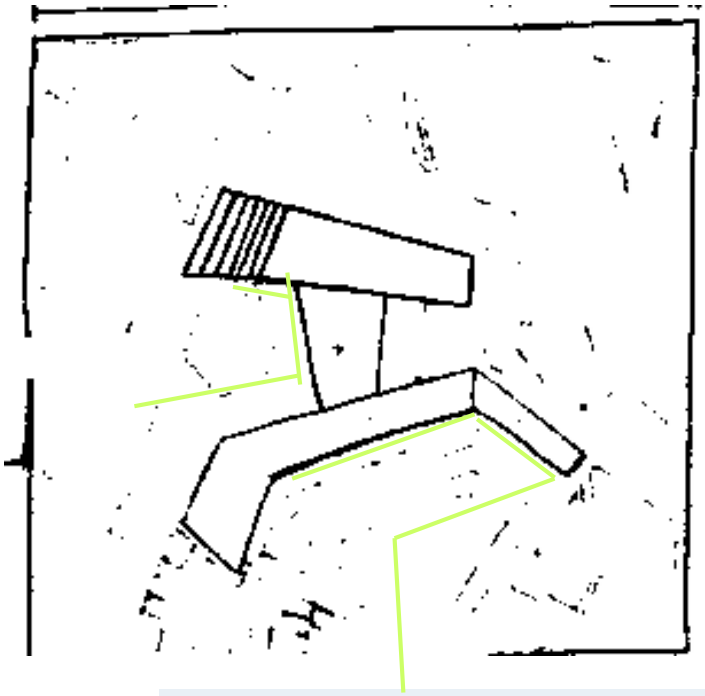


FIGURE20: SITE PLAN (PRIMARY STAGE)

The primary design philosophy was that there two

Circulation in the site, which are one for the visitors and one for the users.

The concept follow each circulation and separate the two users, but also provide a link between the two.

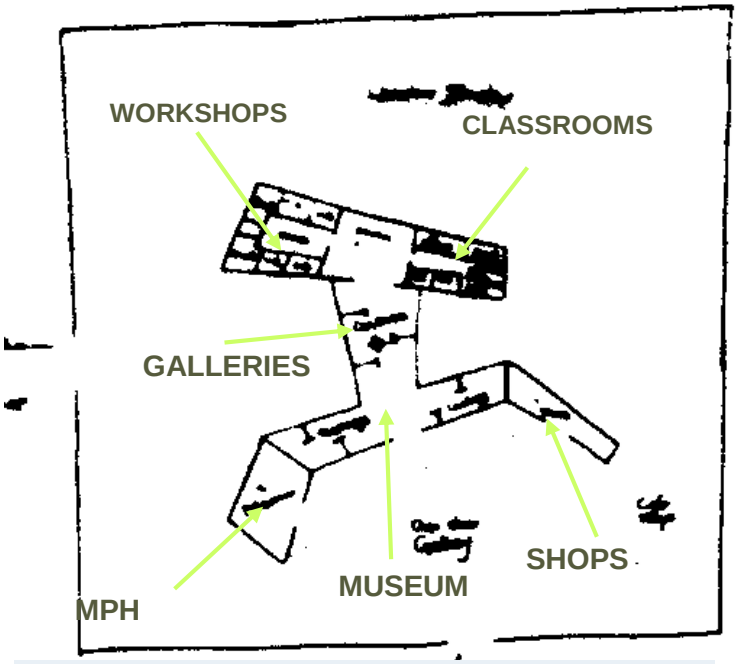


FIGURE21: GROUND FLOOR PLAN (PRIMARY STAGE)

DEVELOPED DESIGN:

Several adjustments:

- Due the simplicity of the first design.
- It didn't accomplish the designs functional purpose.
- Further spaces were added along the development process.

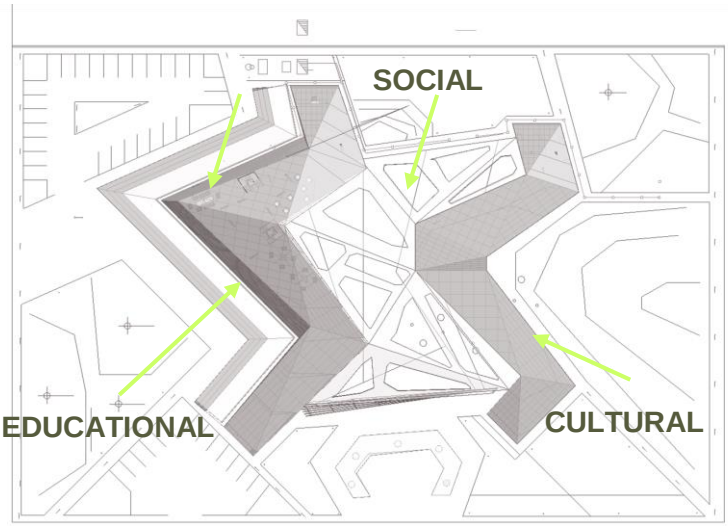
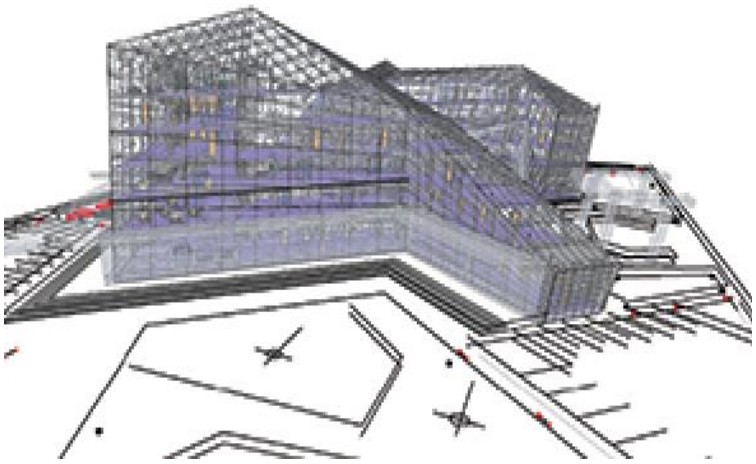


FIGURE20: SITE PLAN (DEVELOPMENT STAGE)

FIGURE22: GROUND FLOOR PLAN (DEVELOPMENT STAGE)

TECHNICAL SOLUTIONS:

STURCTURAL SOLUTION:



One of the most important part of technical solutions yet the hardest to find structural system that can work

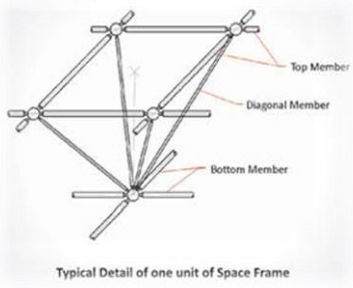
With the complex shape of this type of buildings. In the building there is two main structural systems that used.

Chosen system:

Free form space frame.

System Details:

It is a mix of reinforced concrete, steel frame structure and composite beams and decks.

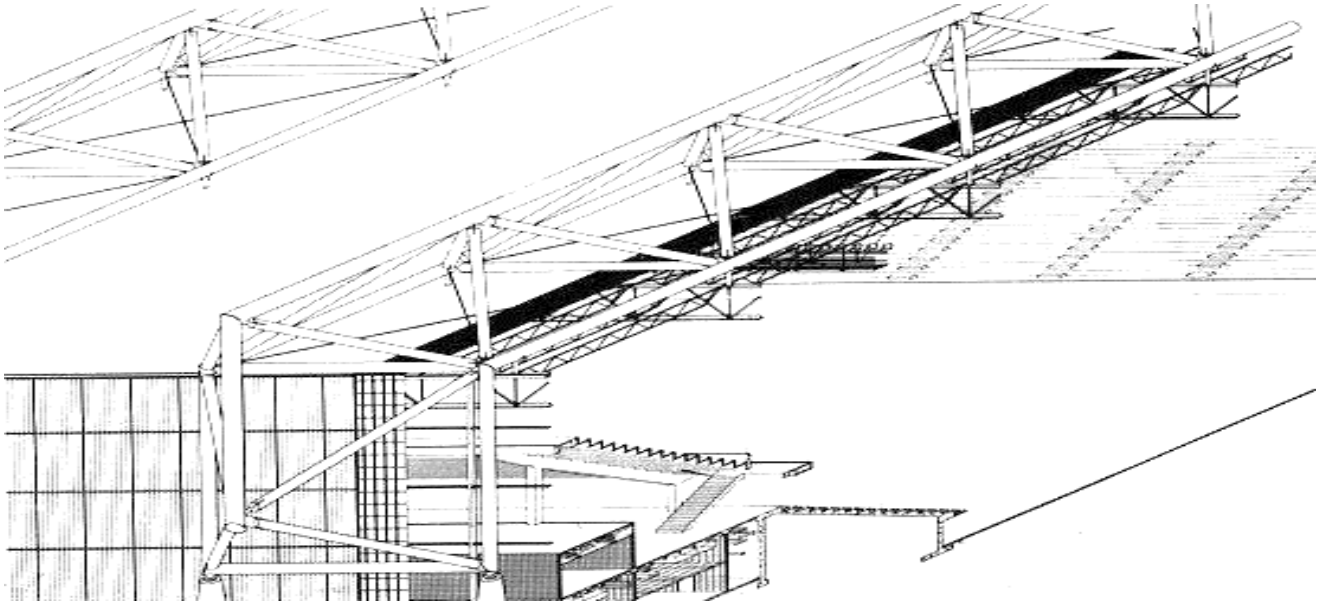


Typical Detail of one unit of Space Frame

Space frame or space structure is a rigid, lightweight, truss-like structure constructed from interlocking struts in a geometric pattern. Space frames can be used to span large areas with few interior supports. Like the truss, a space frame is strong because of the inherent rigidity of the triangle; flexing loads (bending moments) are transmitted as tension and compression loads along the length of each strut. Steel space frames provide great freedom of expression and composition as well as the possibility to evenly distribute loads along each rod and external constraints. With these features, steel space frames can be used to achieve also complex geometries with a structural weight lower than any other solution. The inner highly hyper-static system provides an increased resistance to damages caused by fire, explosions, shocks and earthquakes. Space frames are modular and made of highly industrialized elements designed with a remarkable dimensional accuracy and precise surface finish

Post and beams structure:

- Steel Columns with spans between 5-7m max.
- Steel Deck Slabs d:
- Roof: Plain concrete roof



Reasons behind choosing the structural system:

-The need of long spans in the project without any columns in the middle.

-Flexibility in design.

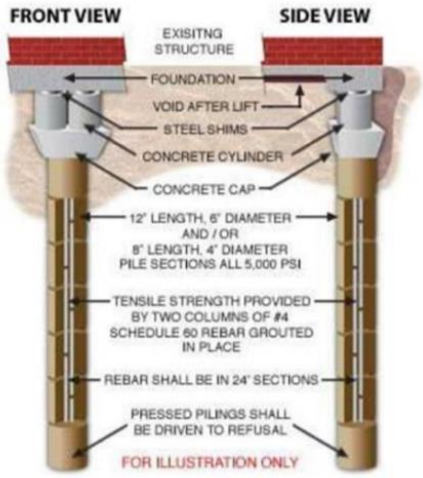
-Ease of constructing.

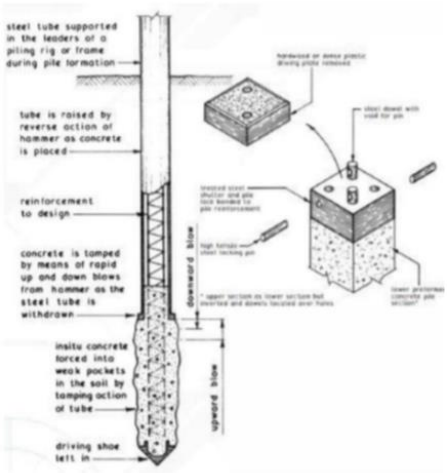
- The need of free form structural system that can suit the shape of the building

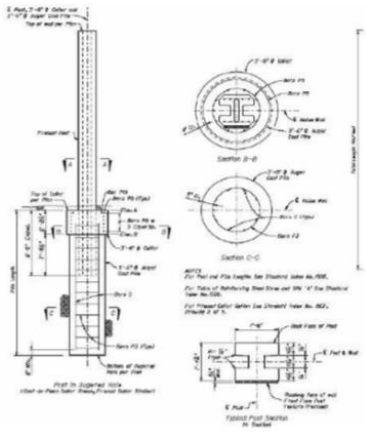
The system is consist of:

Foundations:

Deep piles foundation because the project is located in a place where the ground in muddy at the top , so deep foundation are required to be able to reach the solid grounds plus the deep piles foundations are needed to support the height of the projects in the building.

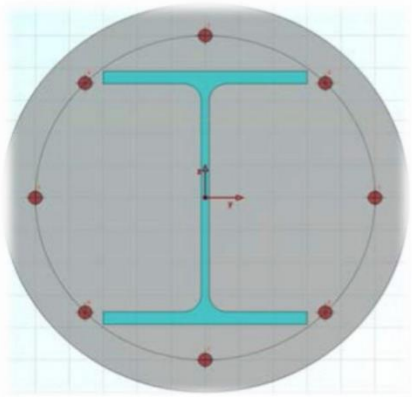


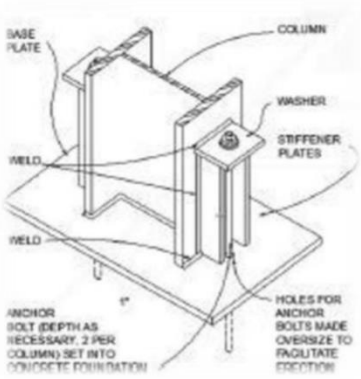


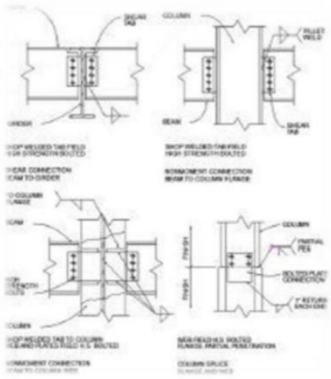


COLUMNS:

The columns in the project are all I-section universal steel columns covered by concrete to insulate the steel and give it more strength to resist fire, the columns are covered by marble to give the luxurious look that represent the project.

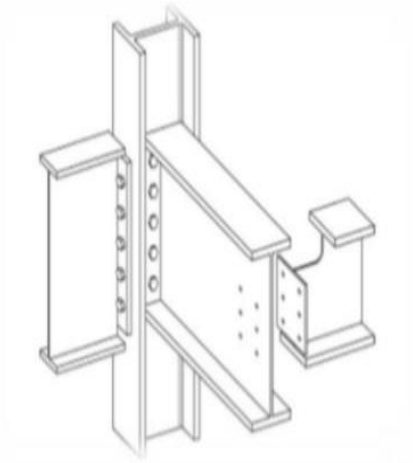


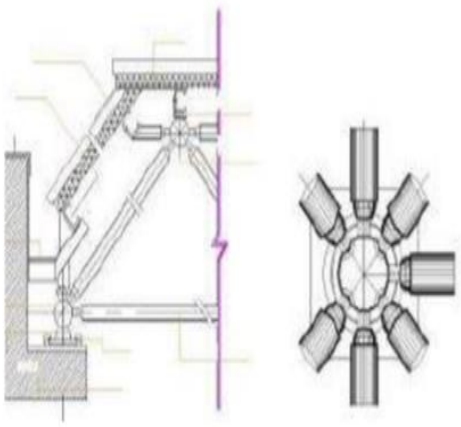


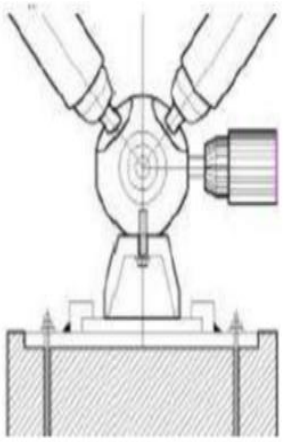


BEAMS:

The project has steel I-section universal beams that connect the columns together to achieve more stability.







ROOFS AND SLABS:

This type of roofs are used for the spaces that needs long spans like galleries, also it's a type of structure allows you to create a different and fixable shapes and masses.

FINISHING'S SOLUTION:

Site finishing and treatment:

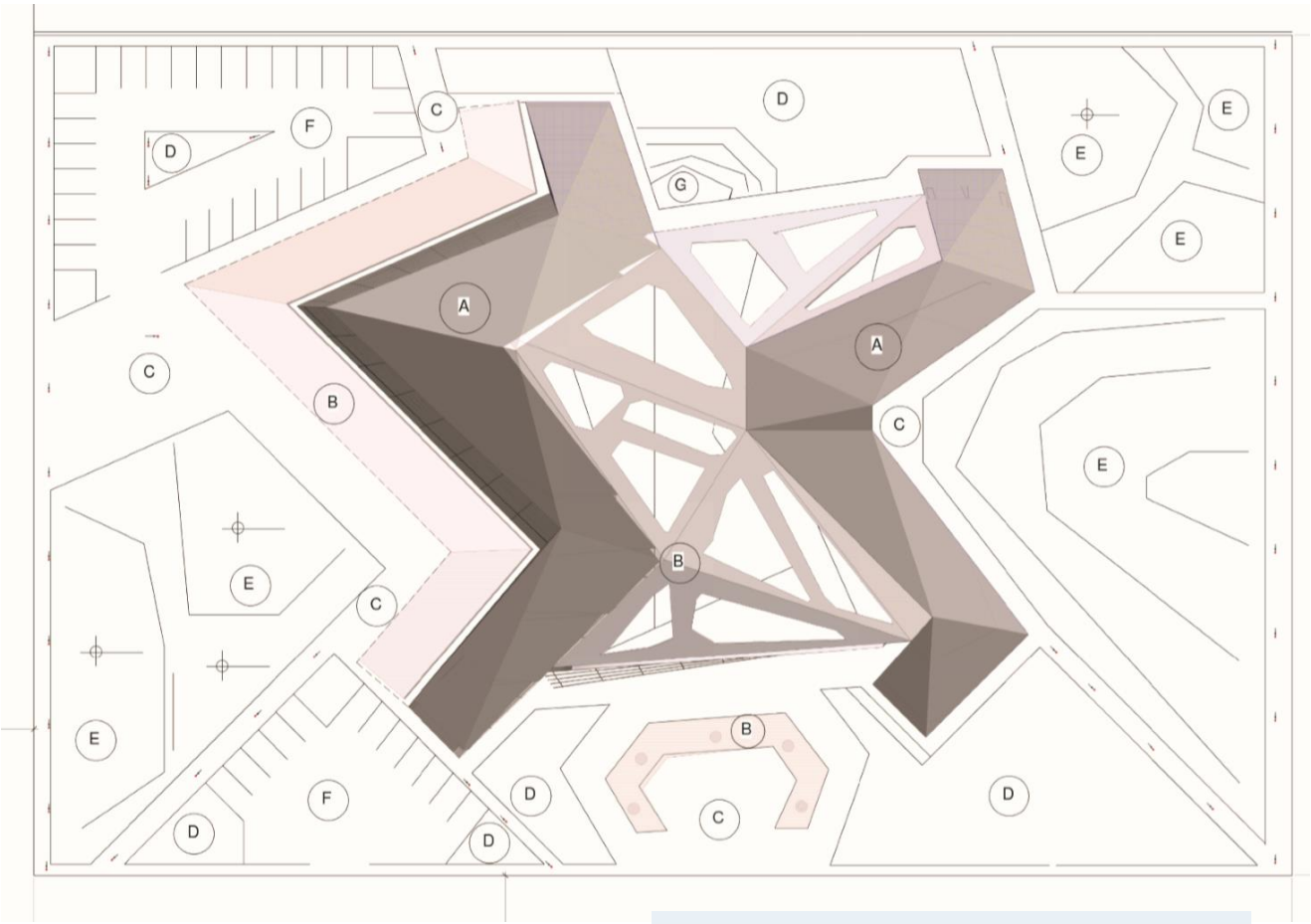
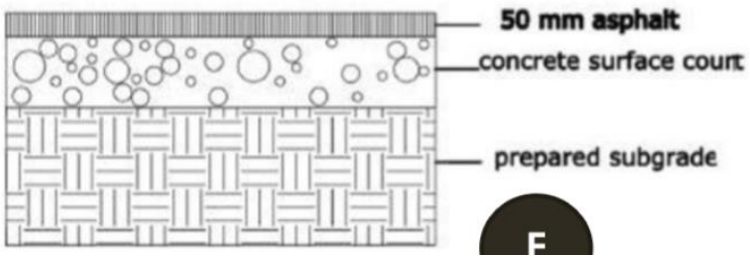


FIGURE23: SITE PLAN (TREATMENT)

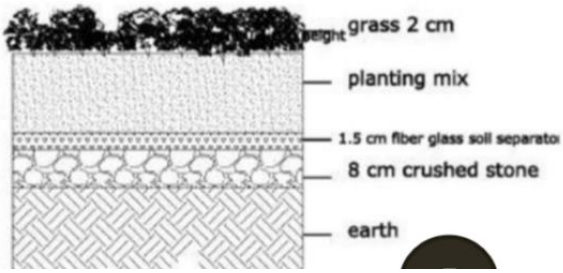
Asphalt for the parking's:

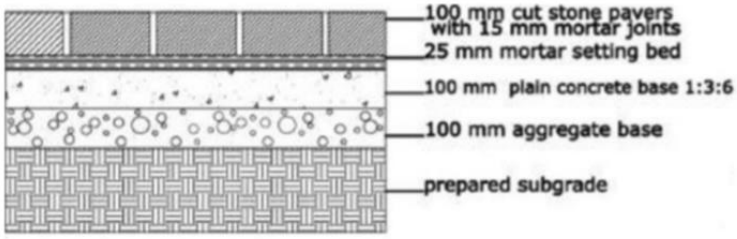


Brick pavement in the pathways and corridors.

Brick was chosen because it can handle the different weather elements and the friction caused by the high number of users in the project.

Green areas:





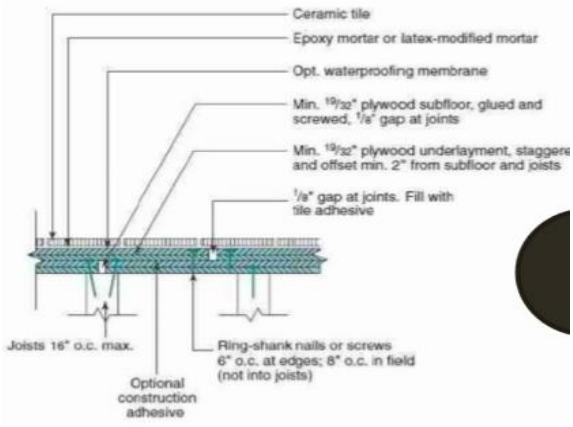
INTERIOR FINISHING:

5-2-1-4 Ceramic tiles:

In the slab around the buildings.

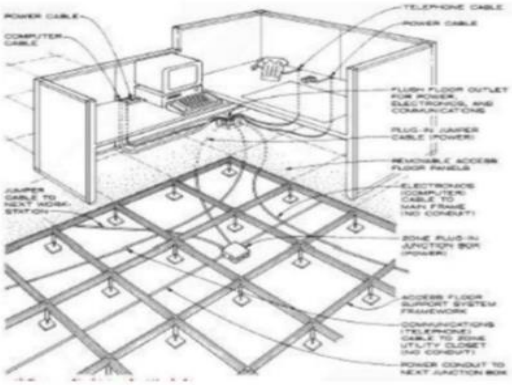
FLOORS:

- **Porcelain tiles 90cm*90cm in the main corridors and in the receptions.**
- **Carpet floor in the offices and theater to reduce the noise in these spaces.**
- **Wooden floors in the meeting rooms and the exhibitions.**



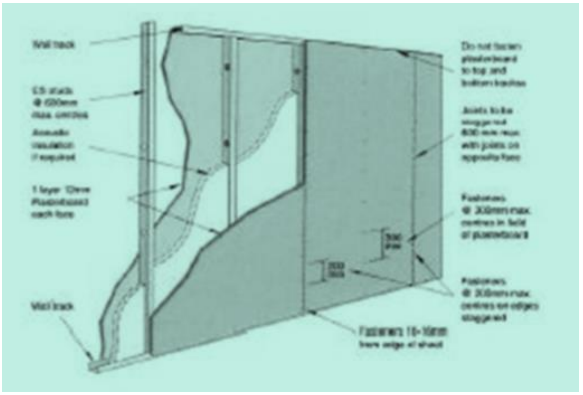
CEILLING:

- Gibson board false ceiling 60cm*60*cm.
- White paint with some colored stripes.



WALLS:

- White paint with some stripes of other colors to motivate the artists and inspire them more.



ELECTRICAL SOLUTION:

The main line that supply the electricity in the site is located in the western side of the site “the main street “.

The electric current is 220 volt the moment of entering the site.

There is a switch key that transfer the electric current from the generators when there is a blackout.

The exterior lightings are designed to work automatically by the solar panels.

Each building on the site has its own electric panel which is connected to the main panel.

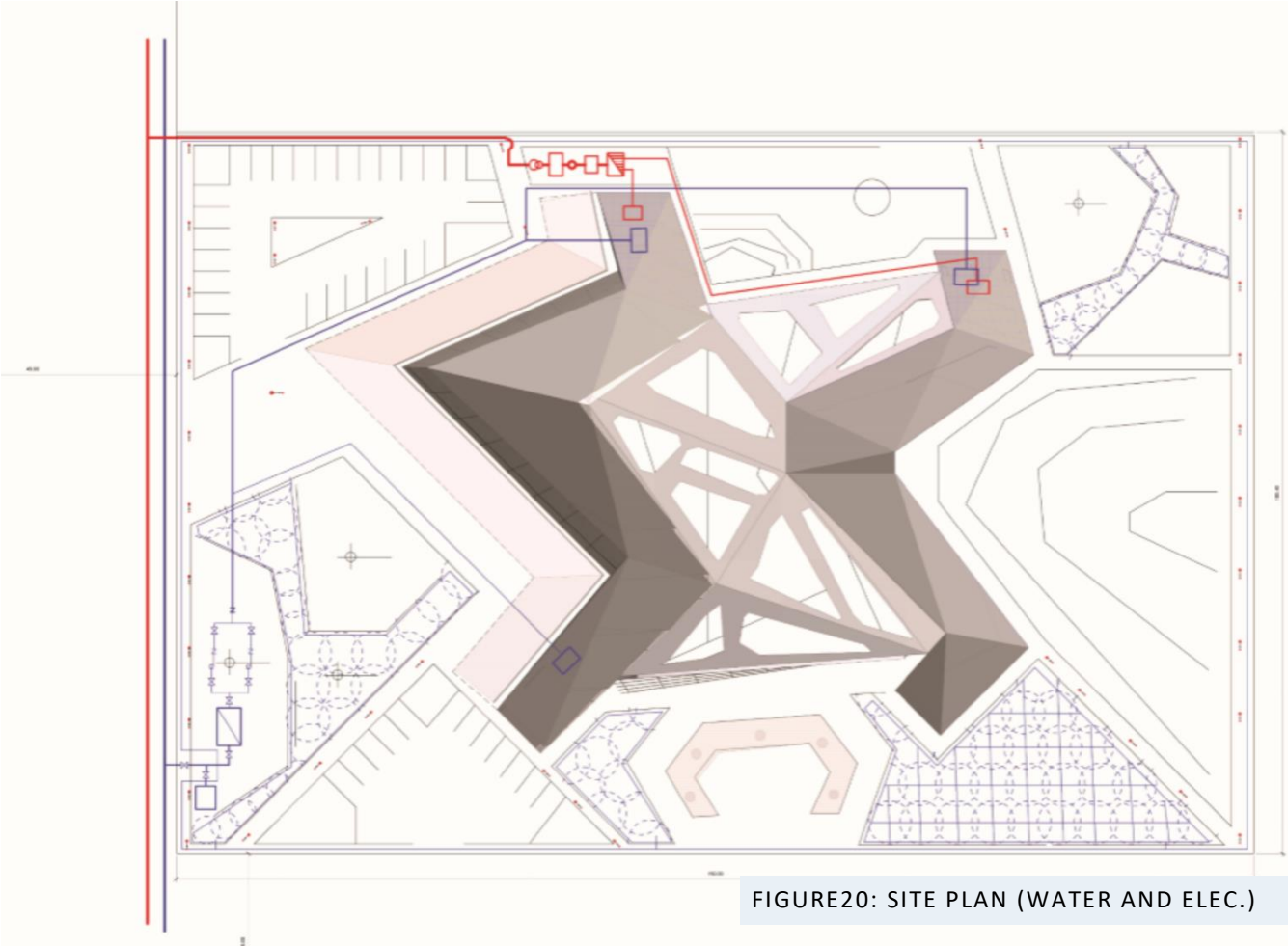


FIGURE20: SITE PLAN (WATER AND ELEC.)

LIGHTING SOLUTION:

The exhibitions:

-Flood lights on the sides of the exhibition.

-Spot lights above the different types of the art works.

-Fluorescents lights in the offices and the colliders.

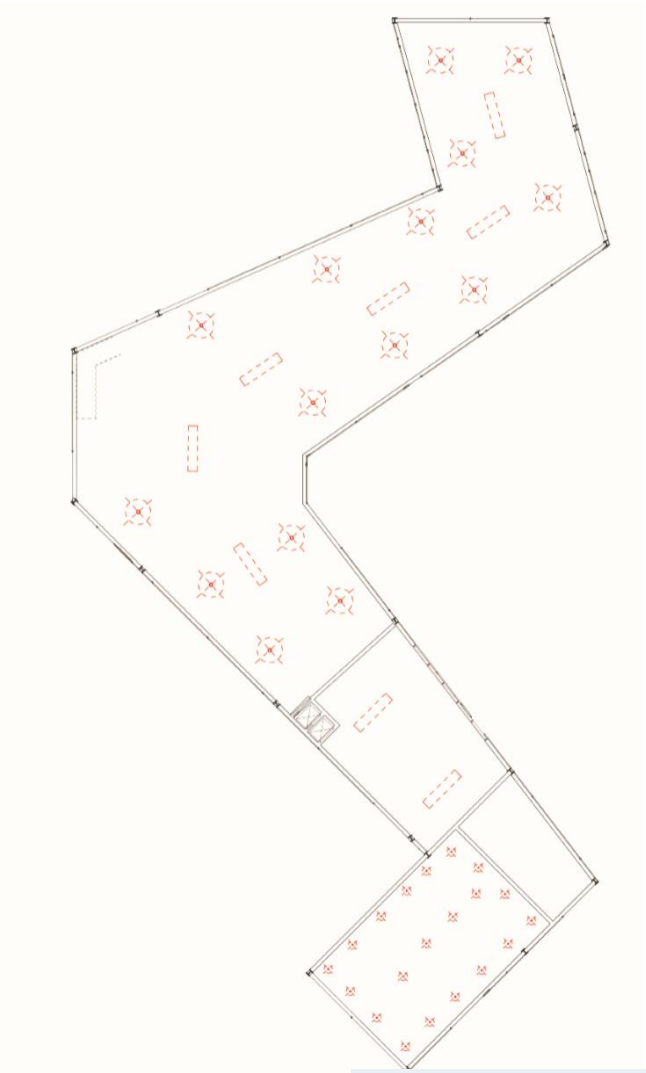


FIGURE24: PART PLAN

-Museum:

1-Fresnel: it is a soft – edged spotlight that allows for a variable beam spread from spot to flood. Used to create large washes of light, sometimes highly colored

2-Spotlights:

Are used above the seating and in the corridors between the steps, as shown in the picture

WATER SUPPLY SYSTEM:

Water Supply System:

-Calculation of the amount of water=
Daily usage water + firefighting water.
Daily usage of water =personal usage + irrigation water
-From the daily usage of water
-Consumption of the exhibitions
And galleries=5 gallons per day.
-consumption of the institute users =15 gallons per day.
-consumption of the employees and the administrators=15 gallons per day.
-total consumption= number of users*daily consumption.
-exhibitions and galleries users = 6700
-institute users = 1650
Employees and administrators=600
Total daily consumption=
(6700*5)+(1650*15)+(600*5)=33500+24750+9000
=67250 gallons per day.
67250*4.4=295500 liter.
Garden irrigation:
Each square meter needs 5 liters daily.
Total of green spaces= 12000 square meter.
Consumption of irrigation= 12000*5=60000 liter per day.
-Total consumption of the daily usage =
-295500+6000 =3555500.

The system that used for water supply:

Water is supplied to the building with the use of a pump and an upper water tank to keep the water pressure stable for all the floors of the buildings, that with the help of another water tank that will be at the middle of each building to help supply the higher tank and the lower floors too. Two tanks are used to fix the issue of the water pressure of the farthest floors from the tank plus to keep the tanks full and make sure the water doesn't run out of the buildings. The water tanks will be located on the top of the bathrooms duct being the place needing most water supply.

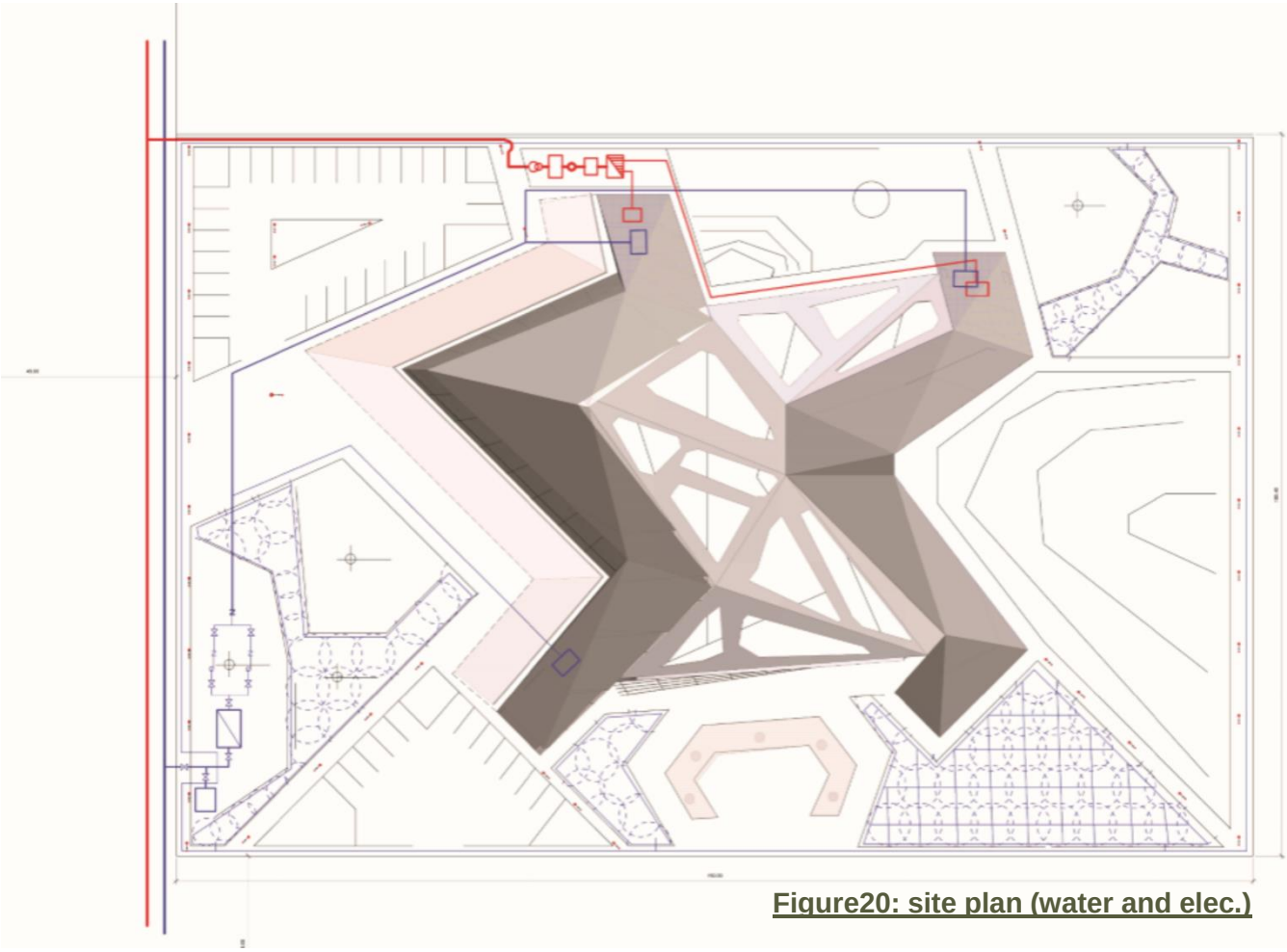


Figure20: site plan (water and elec.)

Sewage System:

The two pipes system is used for the sewage of the bathrooms to get rid of the smell and to make sure that the pipes don't get close, by helping to maintain the air pressure inside of the pipes, then the waste is transferred into the lines where it goes through the manholes till it reaches the main sewage line that is surrounding the building.

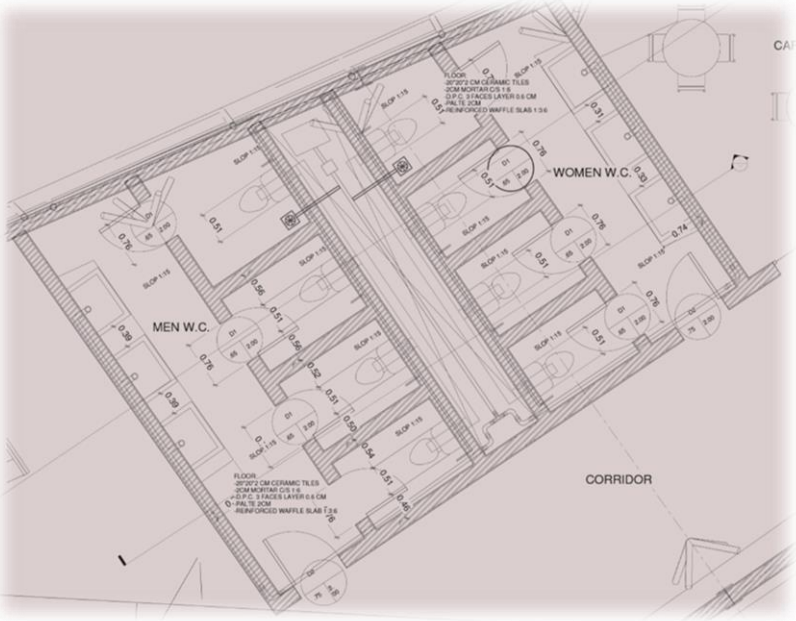
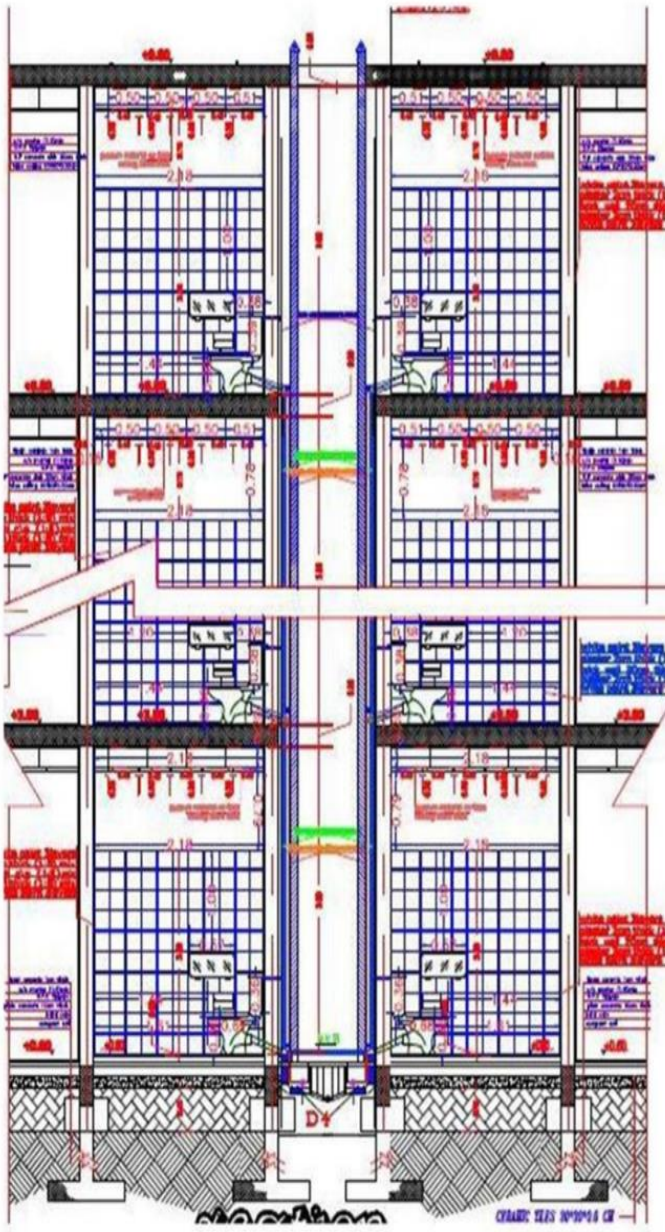


Figure24: part plan (toilets)



The pipes used are plastic (P.V.C)

Drainage System:

Draining the water from the roofs of the buildings from the rain is done by slope of 1:100 directing the water towards the down pipes placed inside the ducts of the buildings which will affect the elevations and so on. The water will then be drained towards the landscape of the project then the angle of the landscape will take it outside.

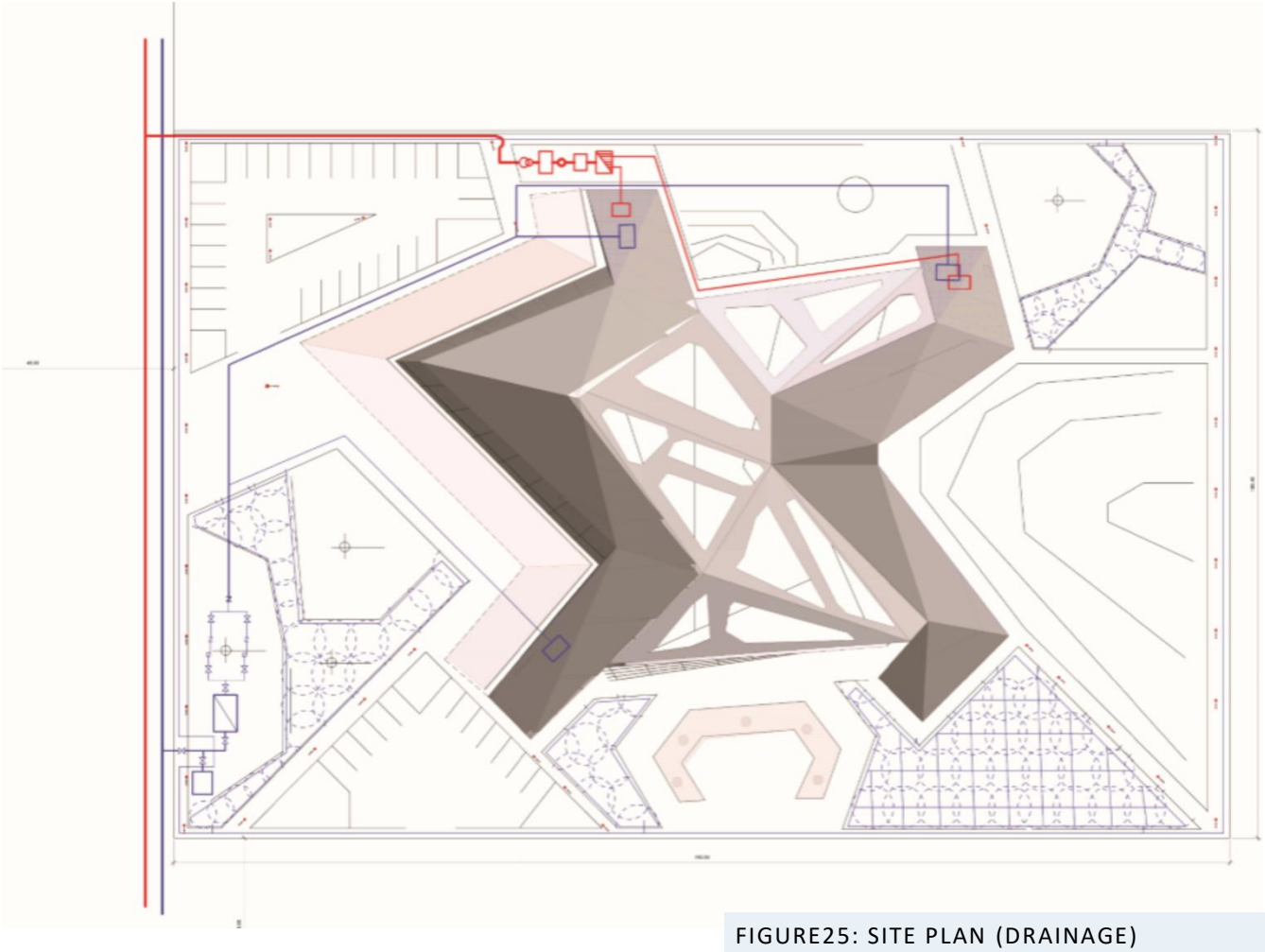


FIGURE25: SITE PLAN (DRAINAGE)

HAVC and Firefighting System

Air conditioning system:

Choosing the right HVAC system depends on many factors and major points which lead to choosing “All Air System”.

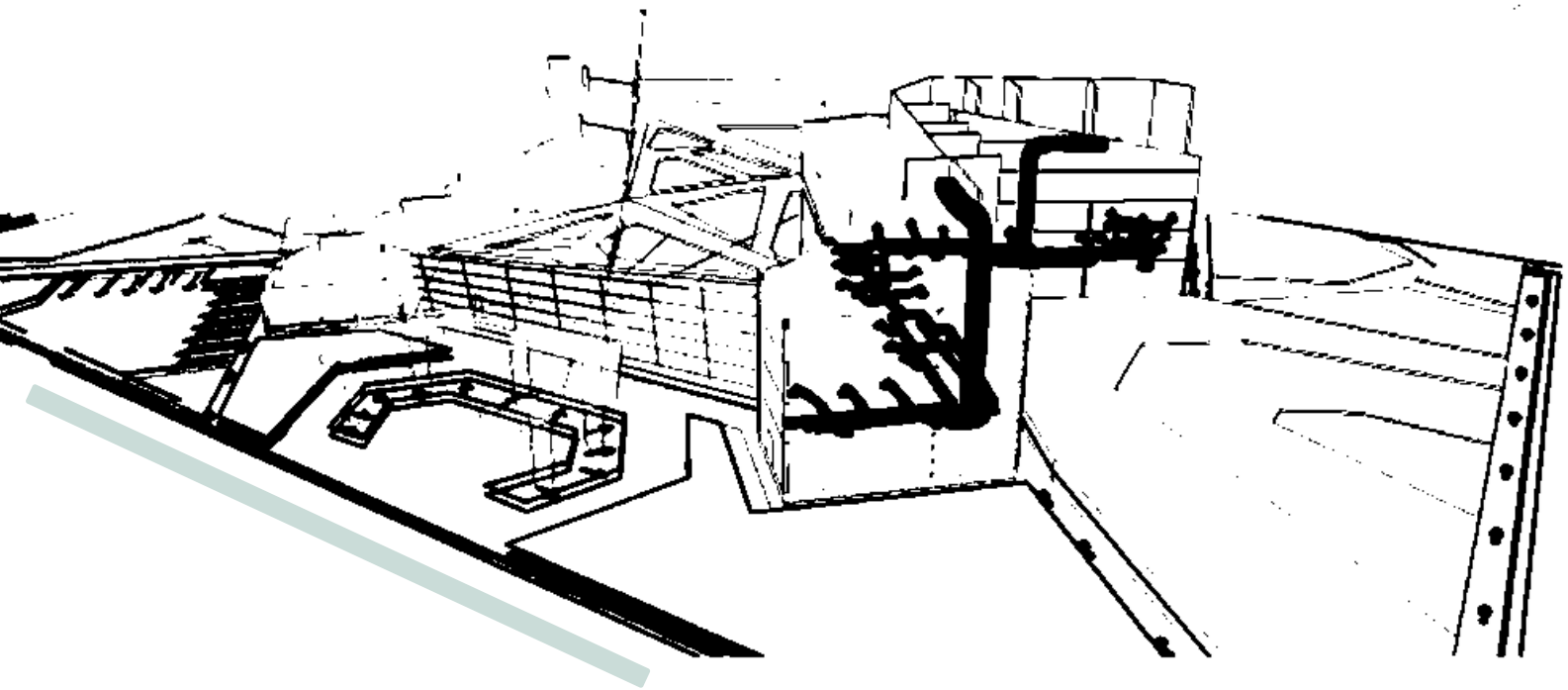
The main factors are:

-the project consist of many spaces.

-the HVAC system needed for this project should be able heat or cool the spaces.

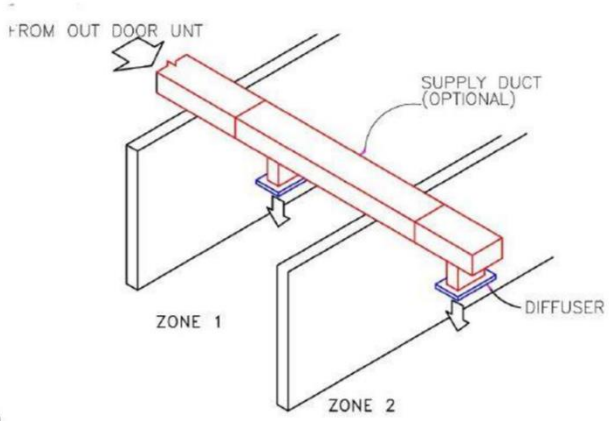
-the HVAC system should be controllable from all of the spaces.

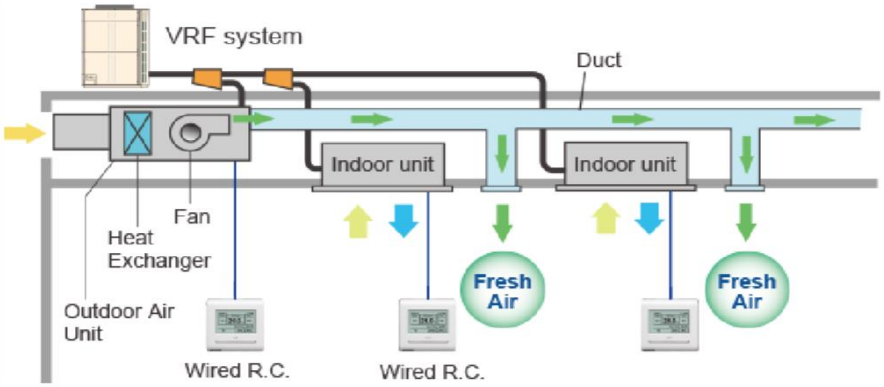
The above points were the reasons of choice of the “all air system” because it supplies the needed things for the project.

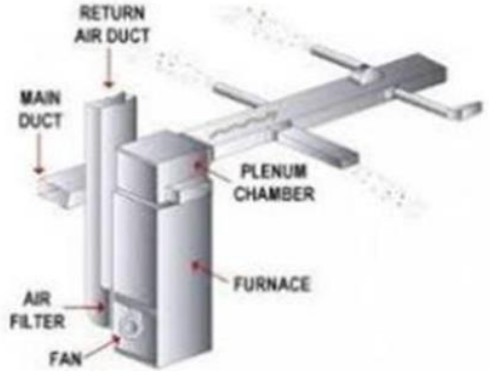


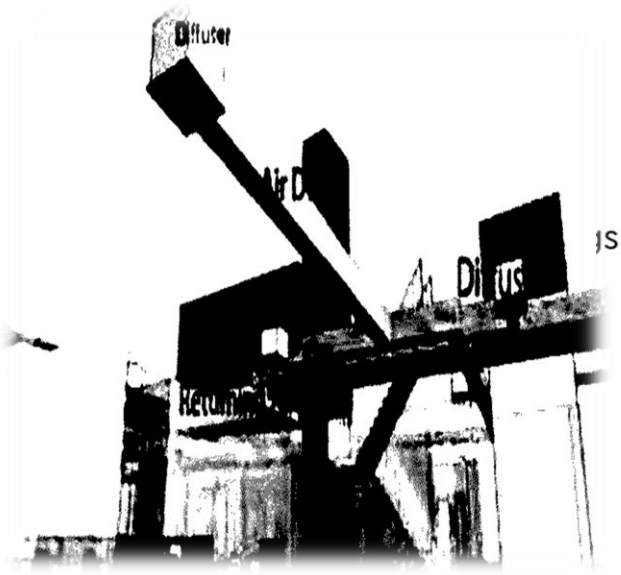
HVAC Operating:

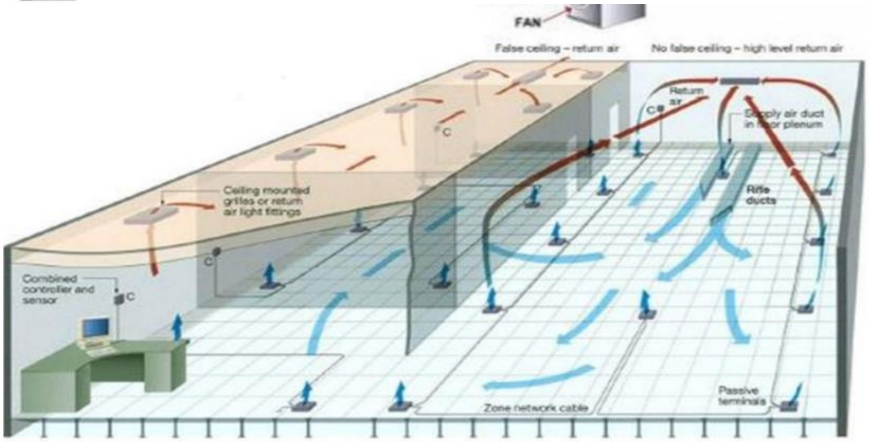
All air system transfer cooled or heated air from a central plant via ducting. Distributing air through a series of grills or diffusers to the room or rooms being served. The system is consist of air supply duct and a return duct, the HVAC unit could be placed in the basement or on the top of the building. Also it consists of a fan coil unit, chiller, supply diffusers and return diffusers.

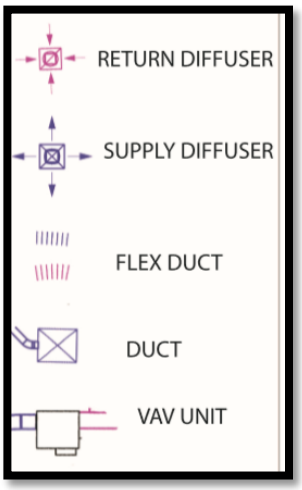


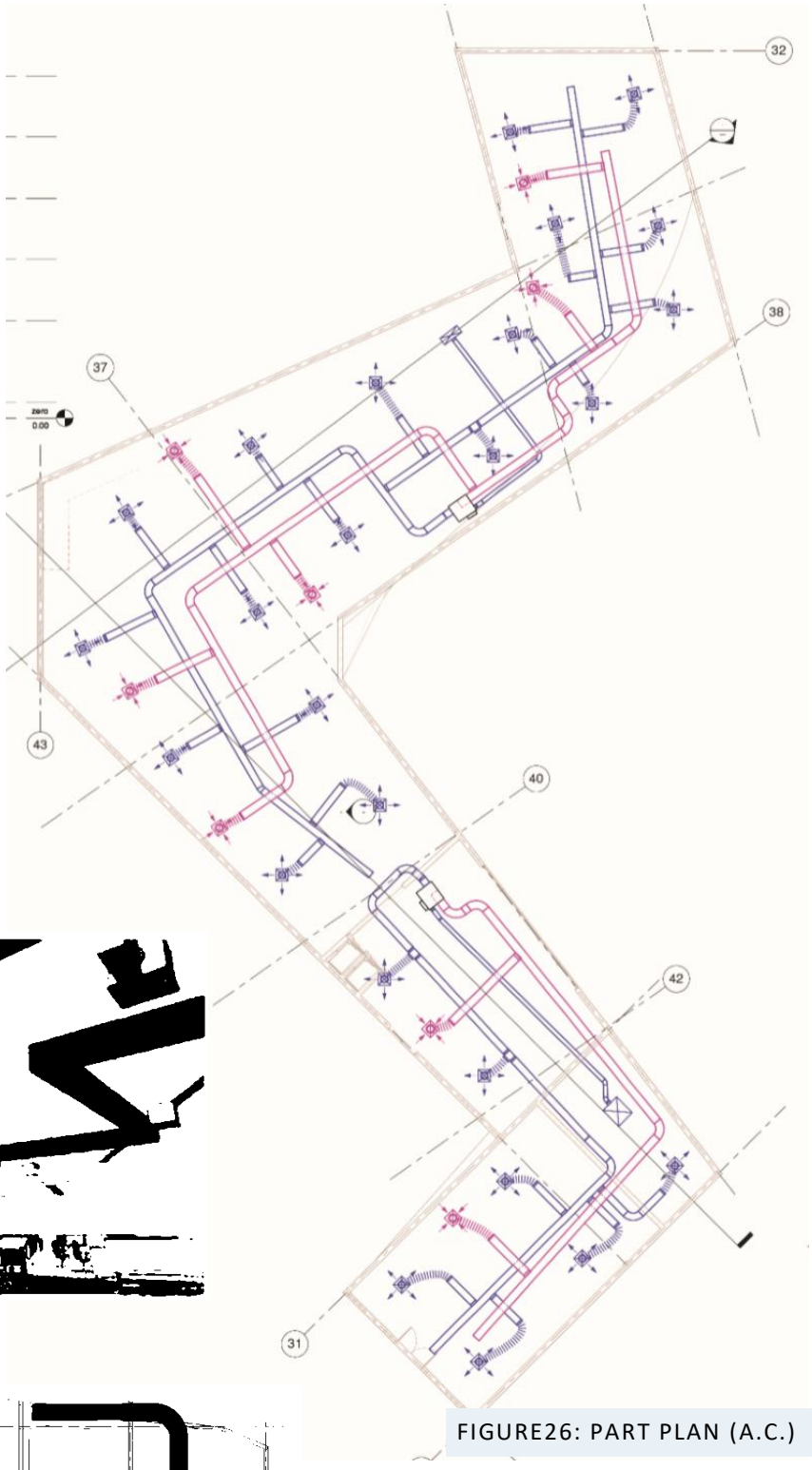


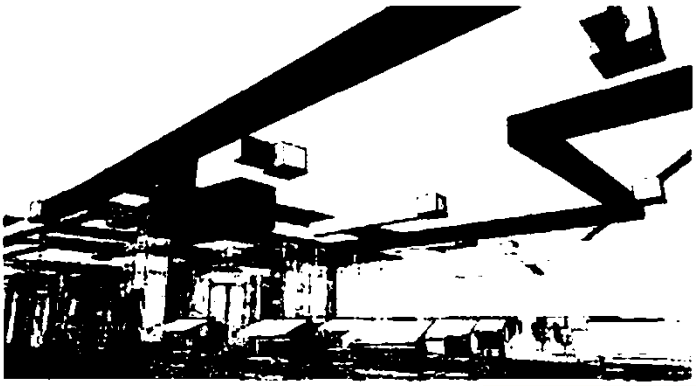












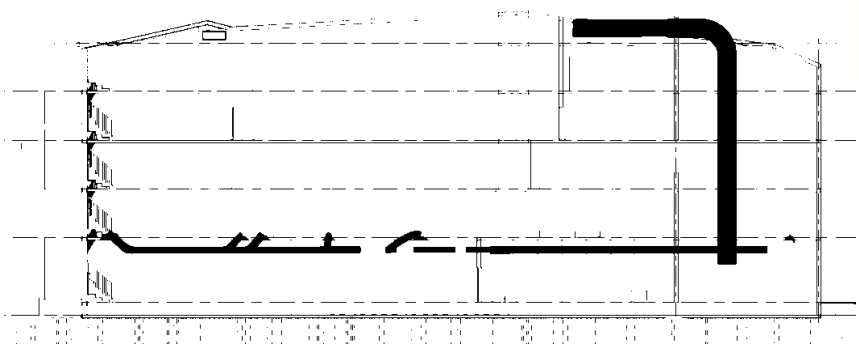


FIGURE26: PART PLAN (A.C.)

Firefighting System

Sprinklers system.(GAS AND WATER)

Reasons behind choosing this system:

-The project consists of main buildings with some scattered units.

-It has an ordinary level of hazard.

-Spaces are divided into: storage, offices, classrooms and galleries.

-In case a fire took place the materials that would catch fire are divided into: carbonic solid materials, electrical equipment, metals and chemicals.

-The building go higher than 5 floors

After keeping the above points in mind, the firefighting system should have the following stuff in it:

-having fire blankets in the workshops.

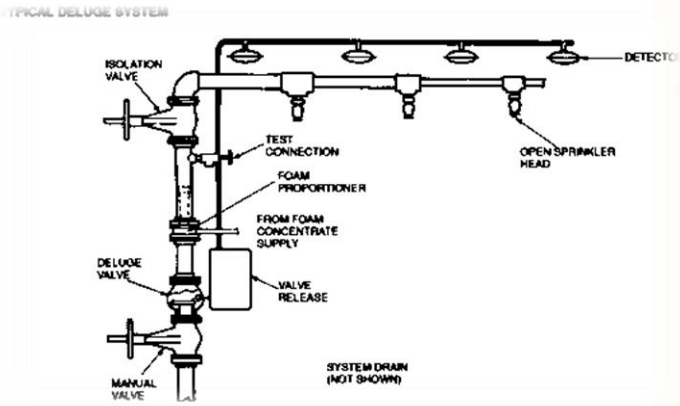
-using co2 and dry powder to put down the fire so it doesn't affect the electrical equipment.

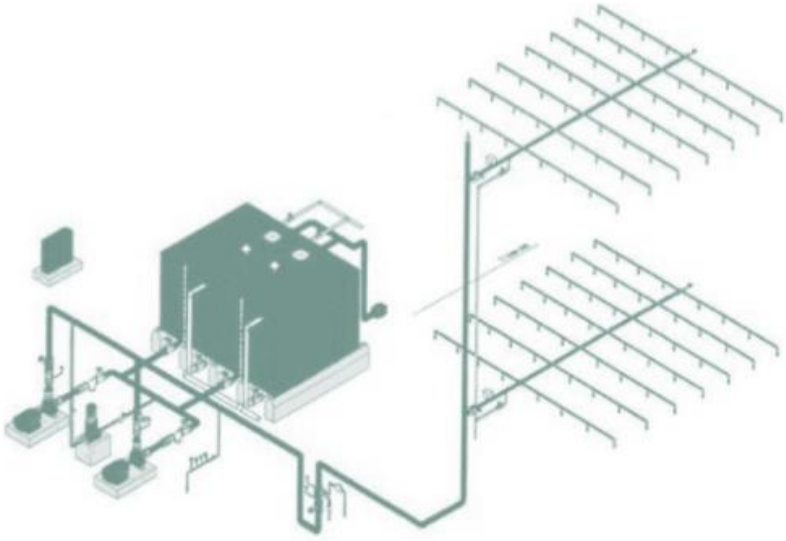
-the use of sprinklers is a must because of the height of the building plus putting hand held fire extinguisher inside of the spaces too where they are put beside of the door of each space.

-each sprinkler will cover 8 square meters.

-for the fire detecting an ionic detector is put in the storage areas to detect the smallest sigh of fire in them.in the offices and classrooms a smoke detector is needed. And in the cultural building smoke detector are put there too.

Firefighting System





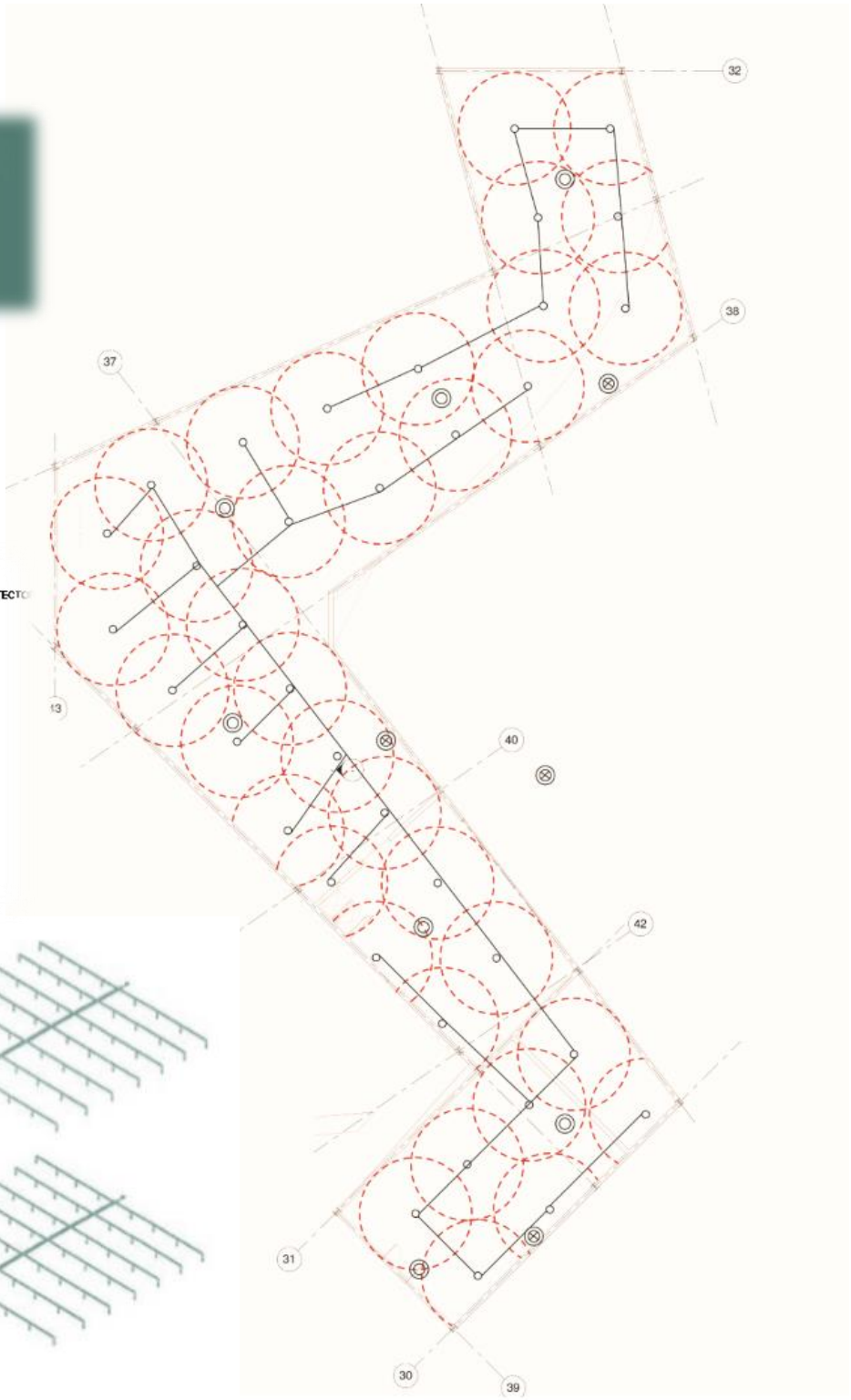
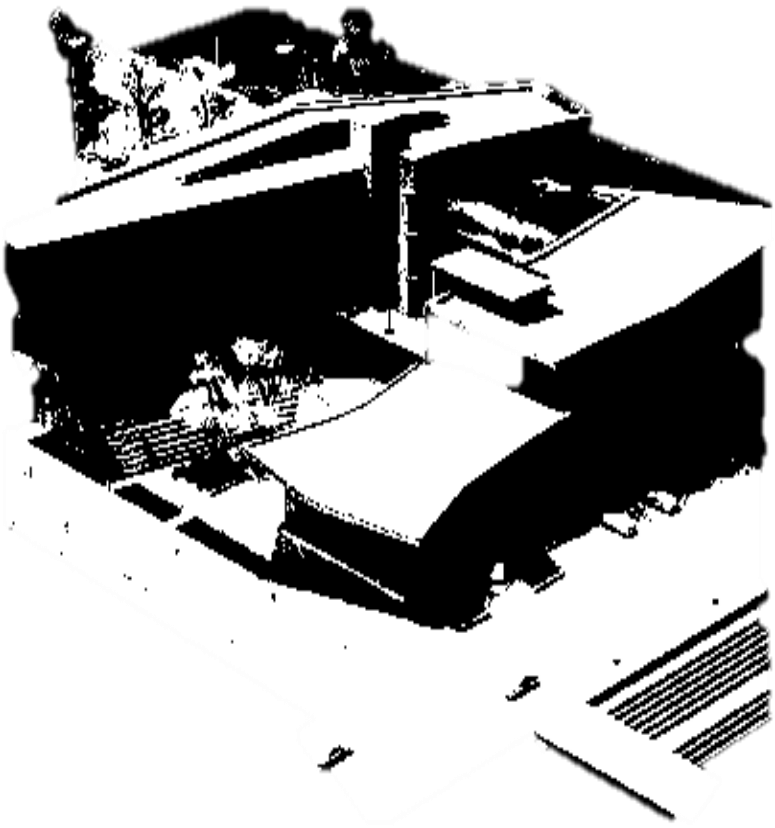


FIGURE20: PART PLAN(FIRE FIGHTING)

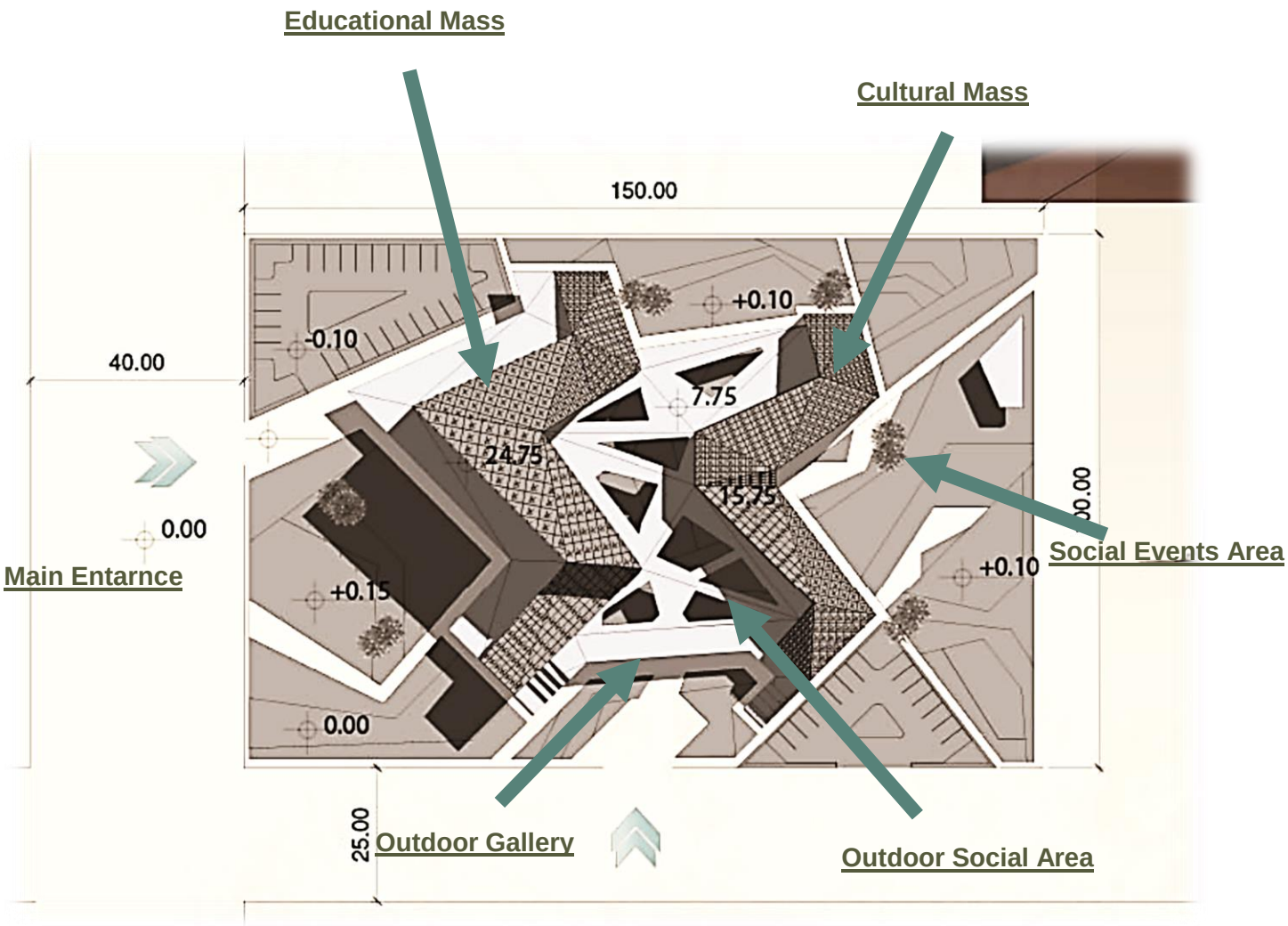
CHAPTER FIVE

SEMI-FINAL DESIGN



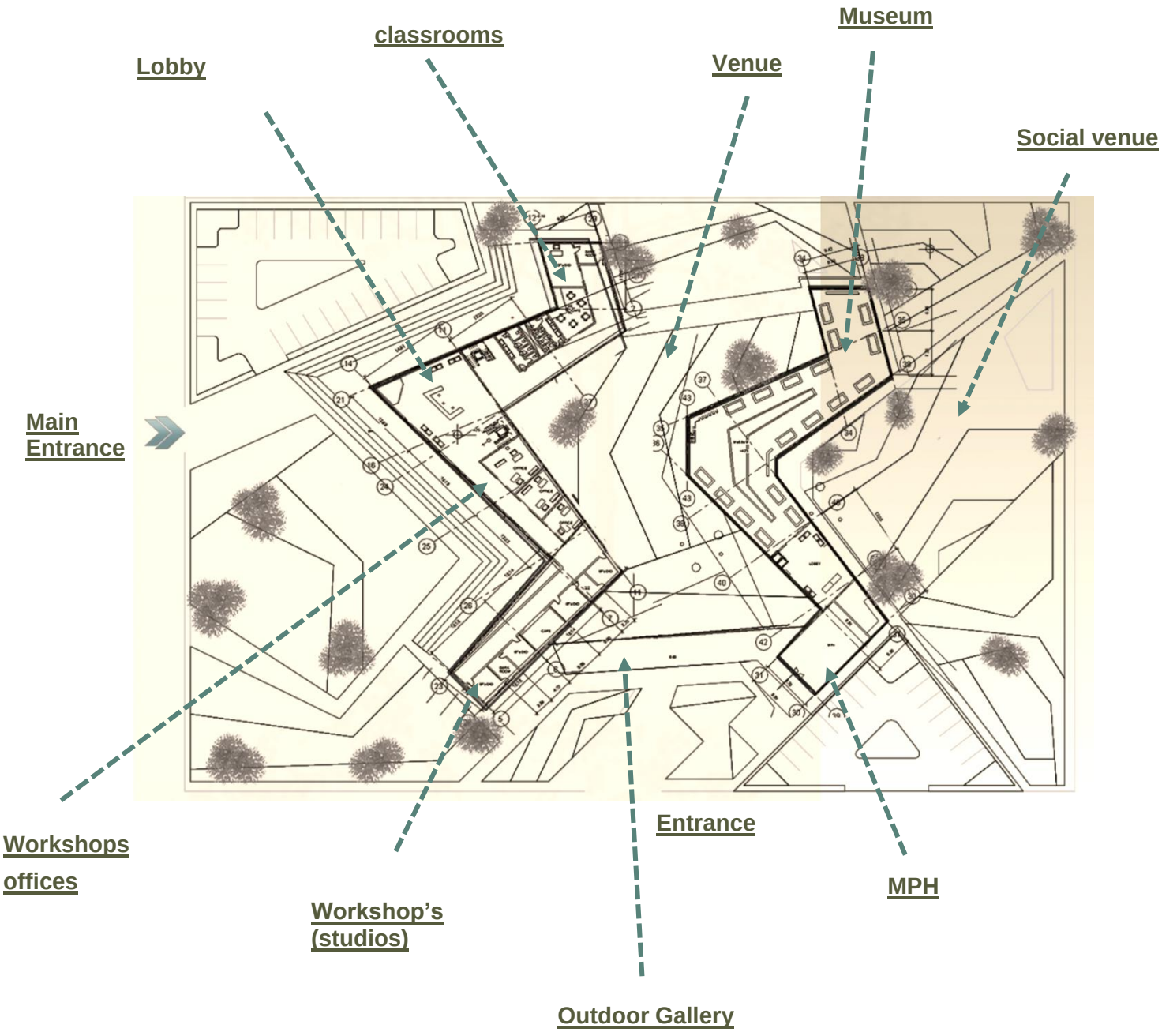
SEMI FINAL:

SITE PLAN:

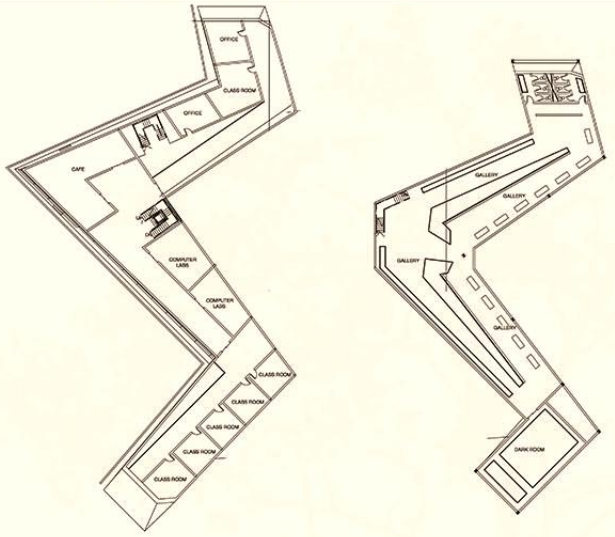


PHOTOGRAPHY CENTER

GROUND FLOOR PLAN:



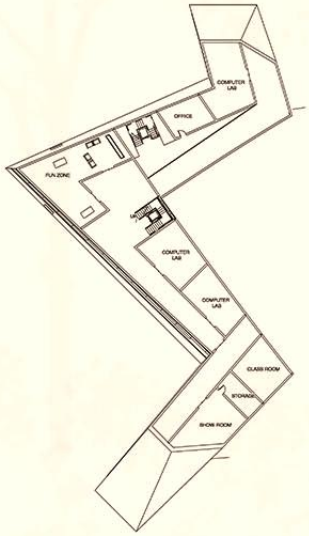
PHOTOGRAPY CENTER

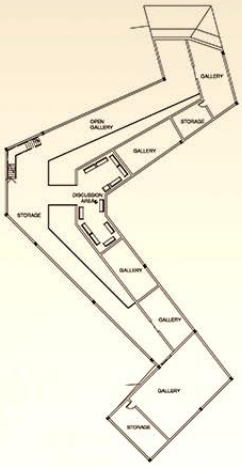


FIRST FLOOR PLAN
SCALE 1:500

The educational mass contains :
Offices , Class Rooms , computer labs and a cafe

The cultural mass contains :
Dark room , Galleries and a services area.

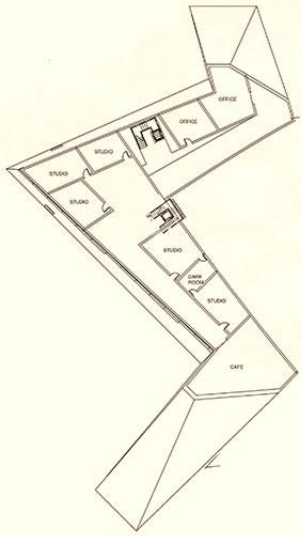


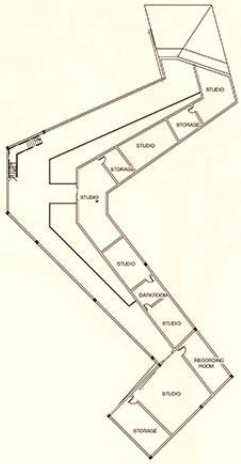


SECOND FLOOR PLAN
SCALE 1:500

The educational mass contains :
Offices , Class Rooms , computer labs , fun zone and a show room.

The cultural mass contains :
Galleris , disscusion hall and storages areas.





THIRD FLOOR PLAN
SCALE 1:500

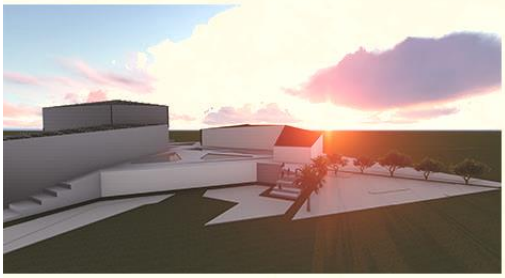
The educational mass contains :
Offices , Studios and a cafe

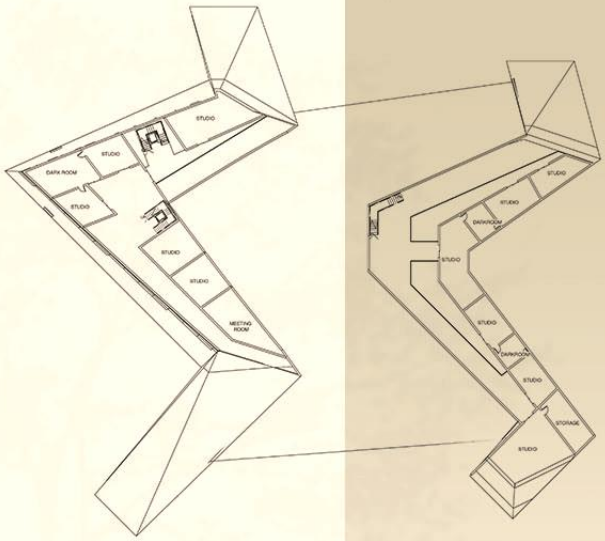
PHOTOGRAPY CENTER

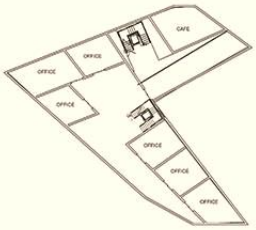
FORTH FLOOR PLAN
SCALE 1:500

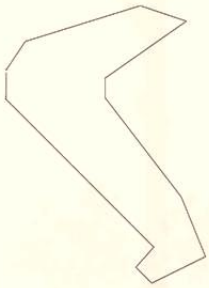
The educational mass contains :
Studios , dark room and a meeting room.

The cultural mass contains :
Studios , storage areas and a dark room.





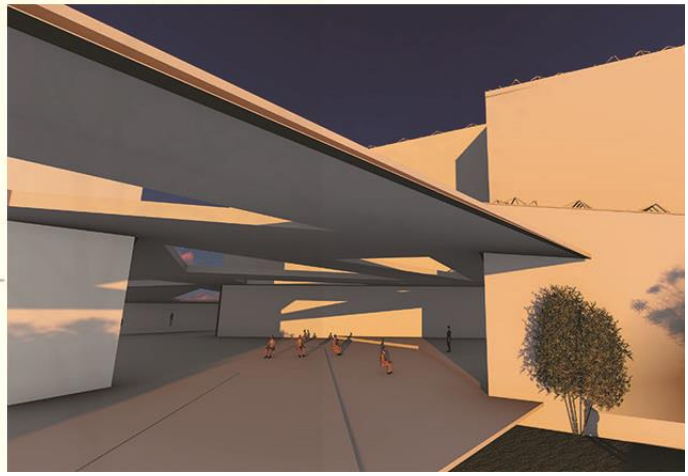




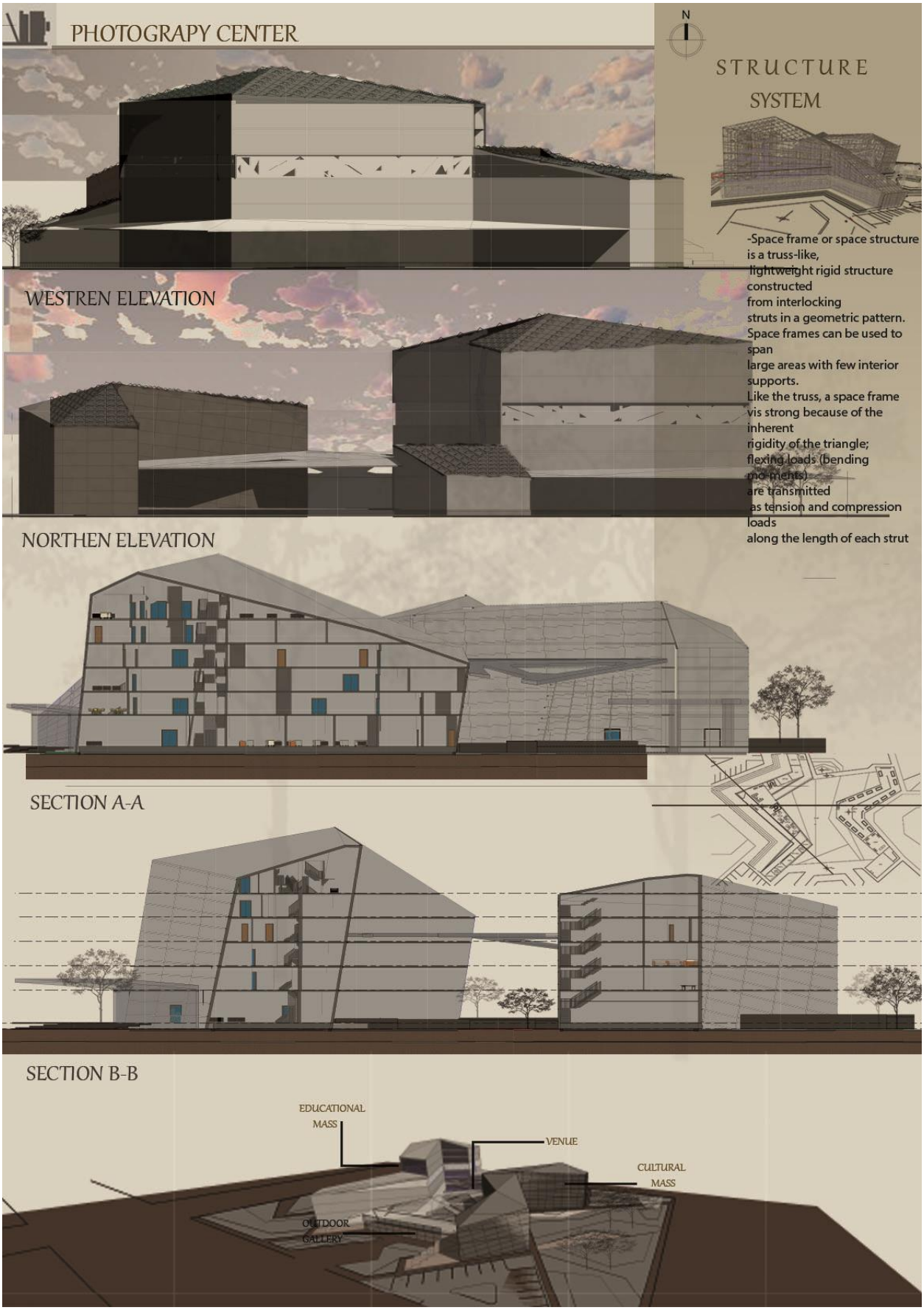
FIFTH FLOOR PLAN
SCALE 1:500

The educational mass contains :
Offices , Class Rooms , computer labs and a cafe

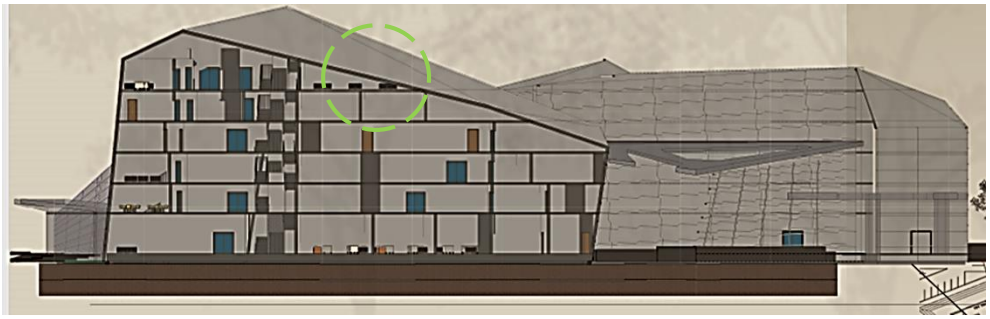
From inside the venue which is the connection between the visitors and the students of the center



PHOTOGRAPHY CENTER



PHOTOGRAPHY CENTER



NOTES GIVEN:

1-Use only one main entrance for both sections of the project (educational-cultural).

2-Turn the outdoor venue into a closed area for more control.

3-Extra work in the elevations.

4-Check the formation of the mass.

R E F E R N C E S:

- Wikipedia.
- Google
- Archdaily.com
- Architects handbook.
- Time saver for building 2nd edition joseph de Chiara &john calendar.
- Ministry of national planning in Khartoum.

blessed

grateful.

thankful

CREATIVE

MINDS

SUDAN

IDEAS

INSPIRATION

ARCHITECURE

CULTURE

OPEN SPACE

PHOTOGRAPHY