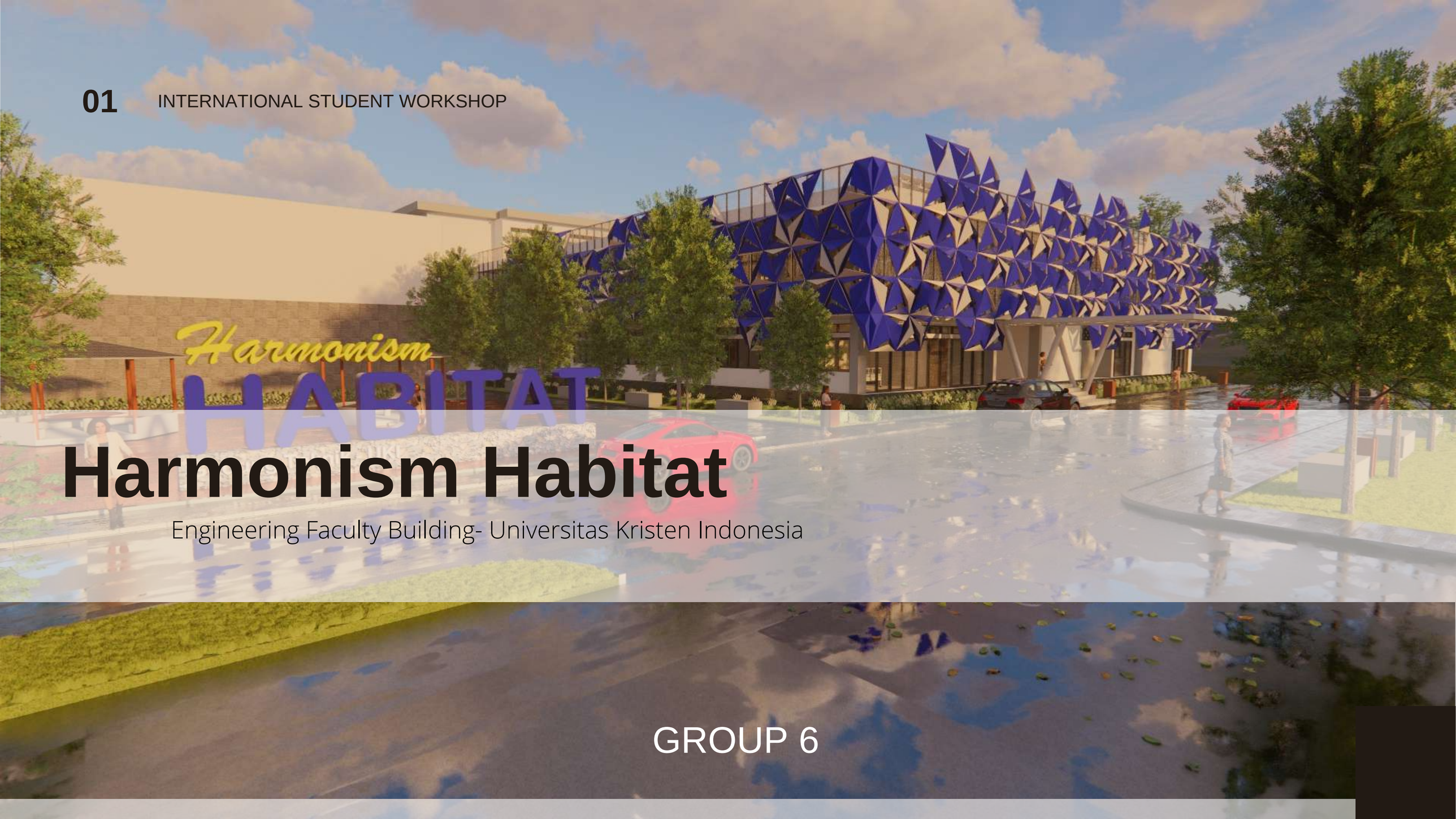
01 INTERNATIONAL STUDENT WORKSHOP



Harmonism Habitat

Engineering Faculty Building- Universitas Kristen Indonesia

GROUP 6

Our Team

IR. MUFLIHUL IMAN, M.T.
Lecturer

BELFRIN ZALUKHU
Universitas Budi Luhur

KRISTIANAWATI
Universitas Bung Karno

M. AGUNG LAKSONO
Universitas Borobudur

ADINDA PUTRI DACHI
Universitas Trisakti

ADRIAL LADENIS TAMA
Universitas Kristen Indonesia

ASTRIE MAULINDAWATI
Universitas Krisnadwipayana

JOELMANSYAH SATRIO HULU
Universitas Kristen Indonesia

SULISTIOWATI
Uniersitas Muhammadiyah Jakarta

DHIA FAUDZAN RAMADHAN
Universitas Muhammadiyah Jakarta

HISTORY

History of The Faculty Of Engineering UKI

HISTORY

The History of Engineering Faculty - Universitas Kristen Indonesia

1963

Machinery & Electro in Jl. Diponegoro

1964

Machinery, Electronics, Civil & Architecture in Jl. Diponegoro

1976

Engineering faculty was established and lectures were centered in Cawang

2000

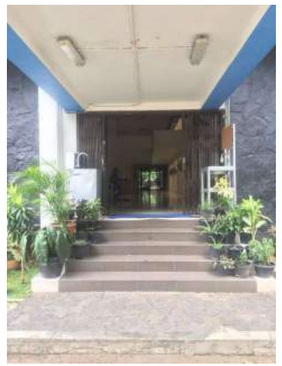
The four majors in the Faculty of Engineering received B accreditation from the National Accreditation Board (BAN)

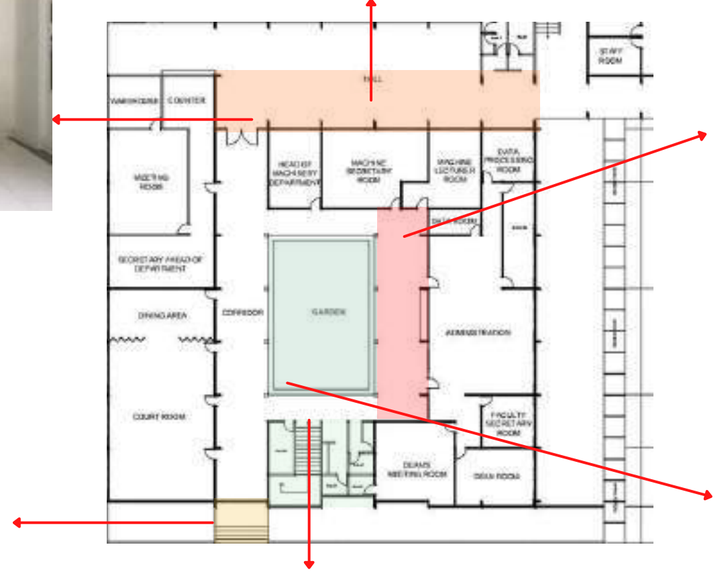
2002

Accreditation is renewed and gets the same score (B)

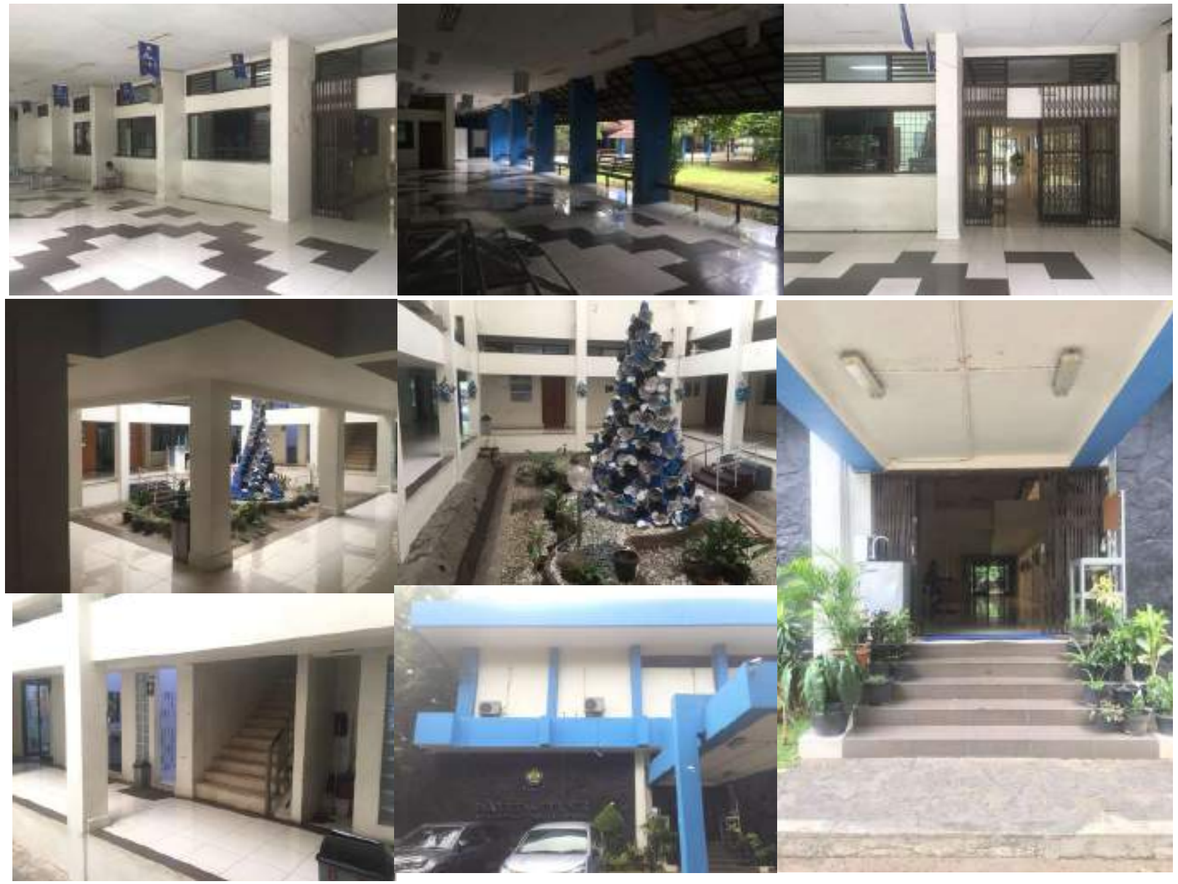
EXISTING DATA

EXISTING CONDITION





EXISTING ANALYSIS



- Rainwater doesn't enter the building area
- Stairs accesible

- Closed building concept
- Minimal Natural Ventilation
-Unstandard Optrade

-Good View
-Strong Structure
- Standard Corridor

S	W
Strength	Weakness
O	T
Opportunity	Threats

- Less Attractive
- Minim Natural lighting
- Old Gate
- Massive wall

- Open building concept
- Max view
- High technology application

- Unhealthy Circulation
- People worry about virus transfer

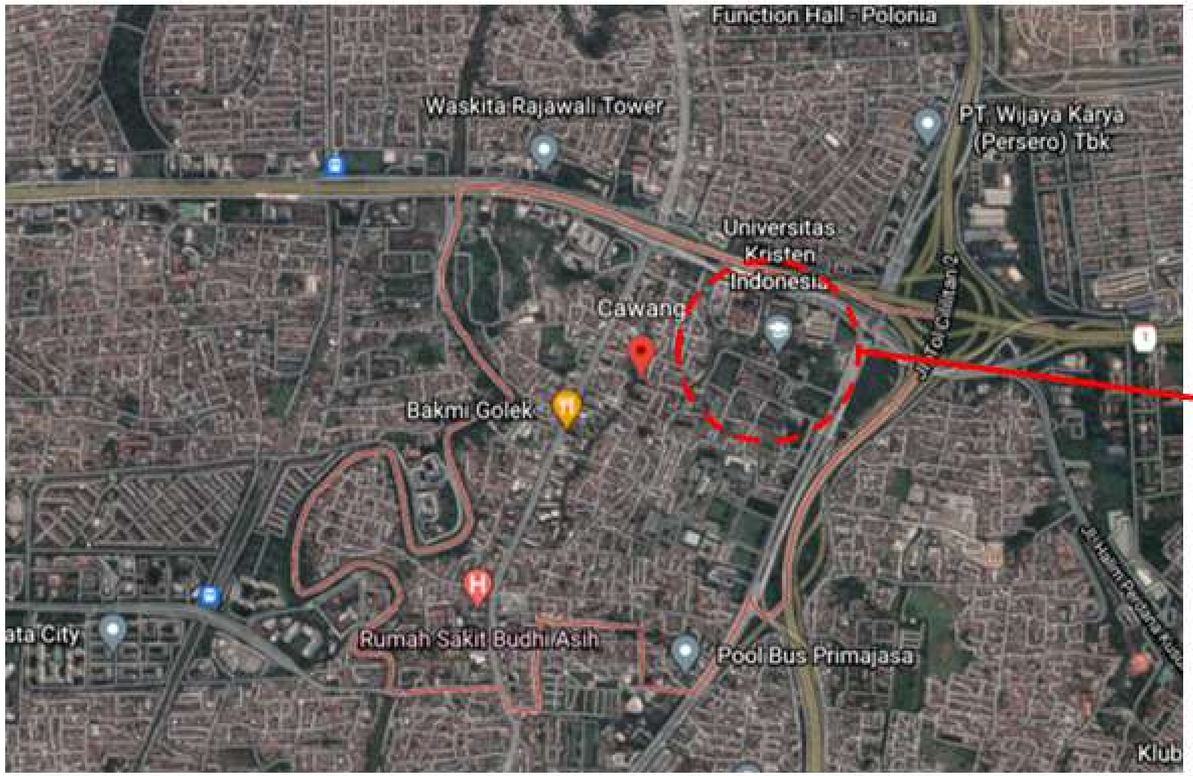
- Natural Lighting
- Natural Ventilation
- Healthy Building

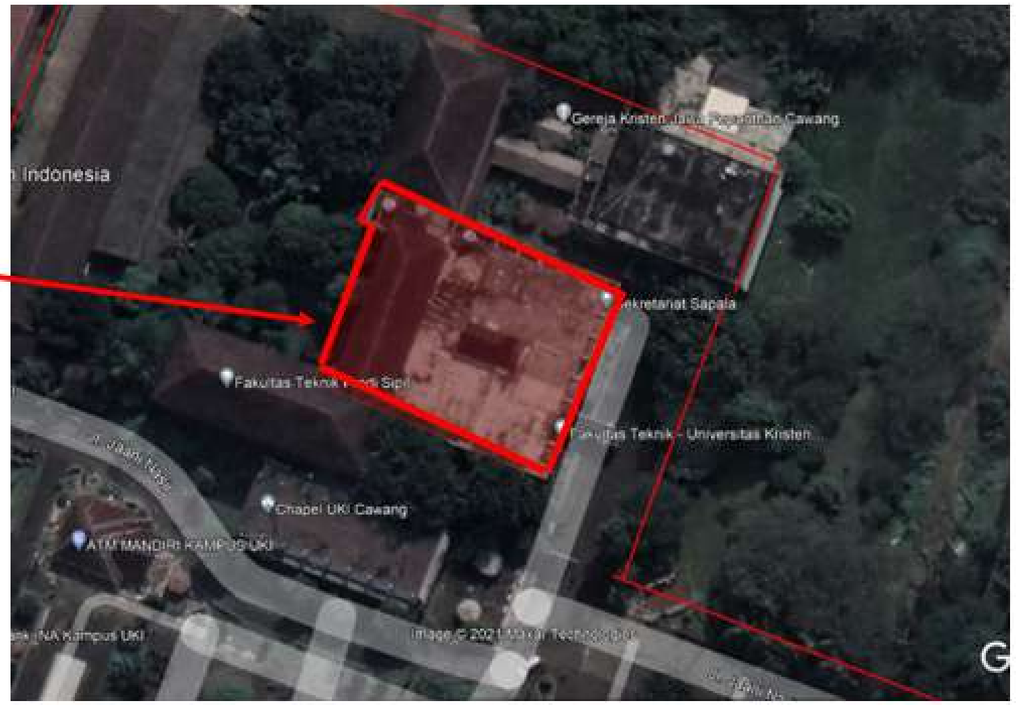
-Users will feel tired faster when using the stairs
- Minim Natural lighting

PROJECT DATA

History of The Faculty Of Engineering UKI

PROJECT DATA

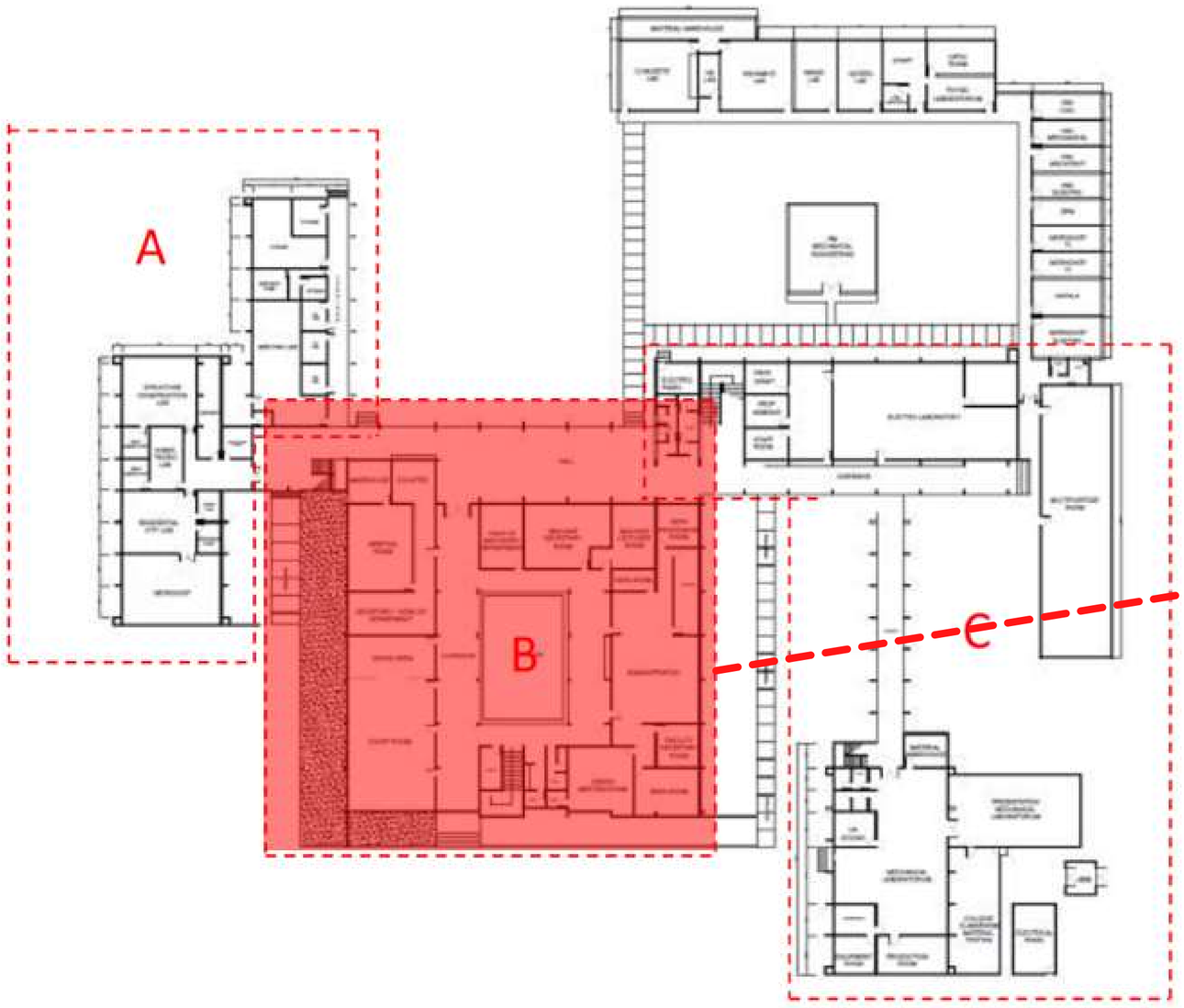




Location :
Jl. Mayjen Sutoyo No.2, Cawang, Kec. Kramat Jati, Kota Jakarta Timur, DKI Jakarta

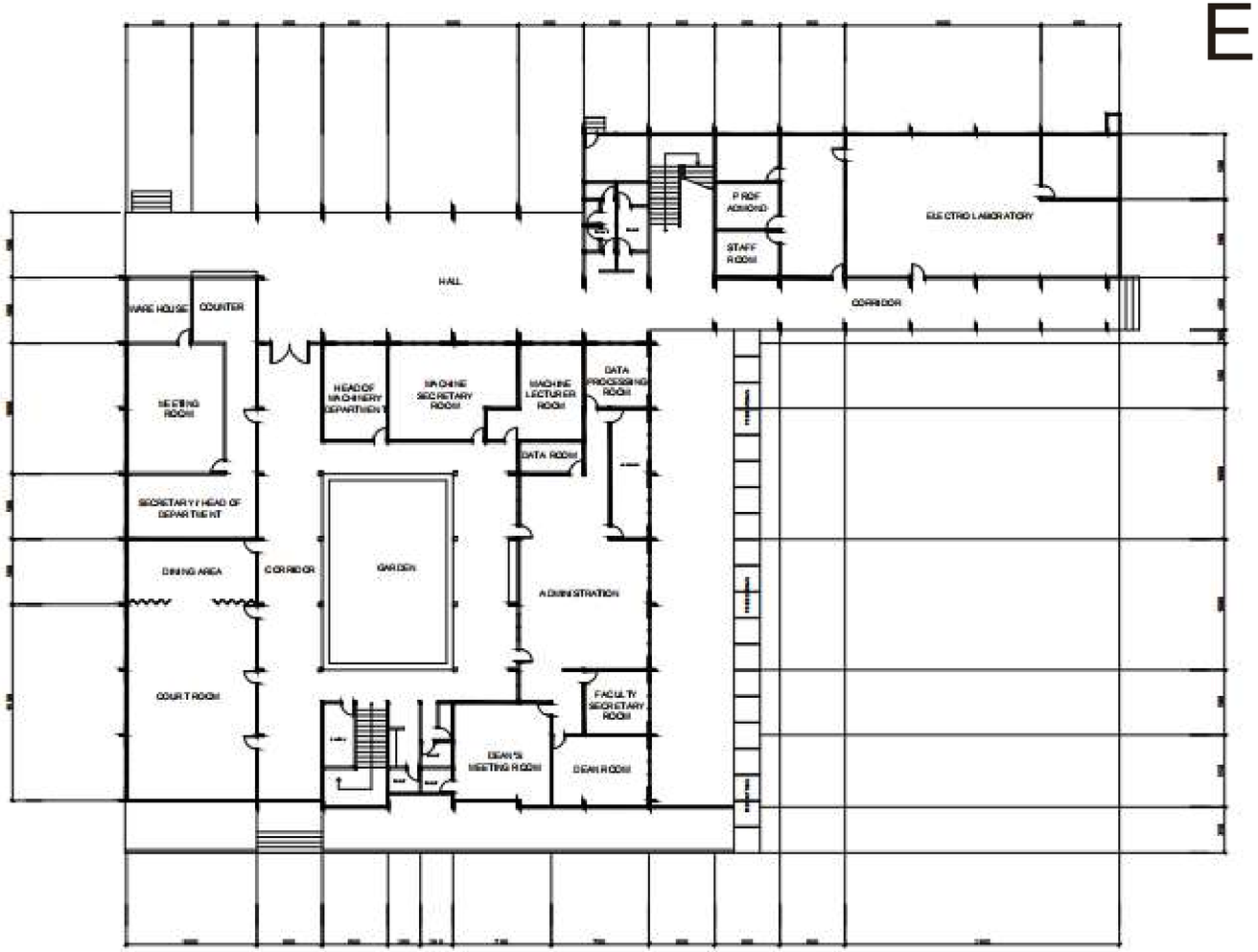
❑	**PROJECT NAME**	**: FACULTY OF ENGINEERING (B)**
❑	**AREA**	**: ± 1.740 m2**
❑	**HEIGHT**	**: 3 FLOORS**
❑	**TYPE**	**: UNIVERSITY**

B ZONE



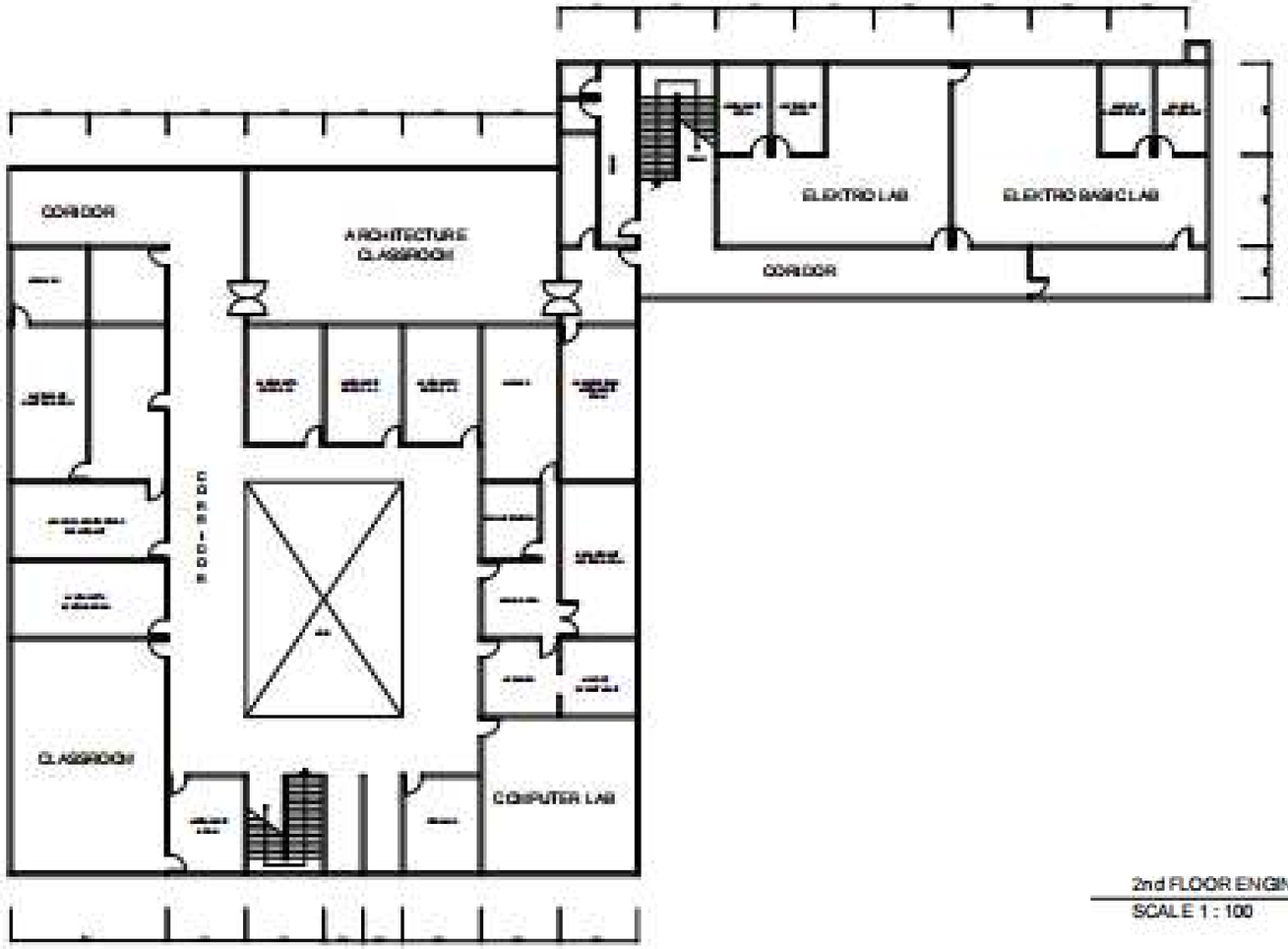
Zones of Building

EXISTING 1ST FLOOR



1st FLOOR ENGINEERING FACULTY BUILDING
SCALE 1 : 100

EXISTING 2ND FLOOR

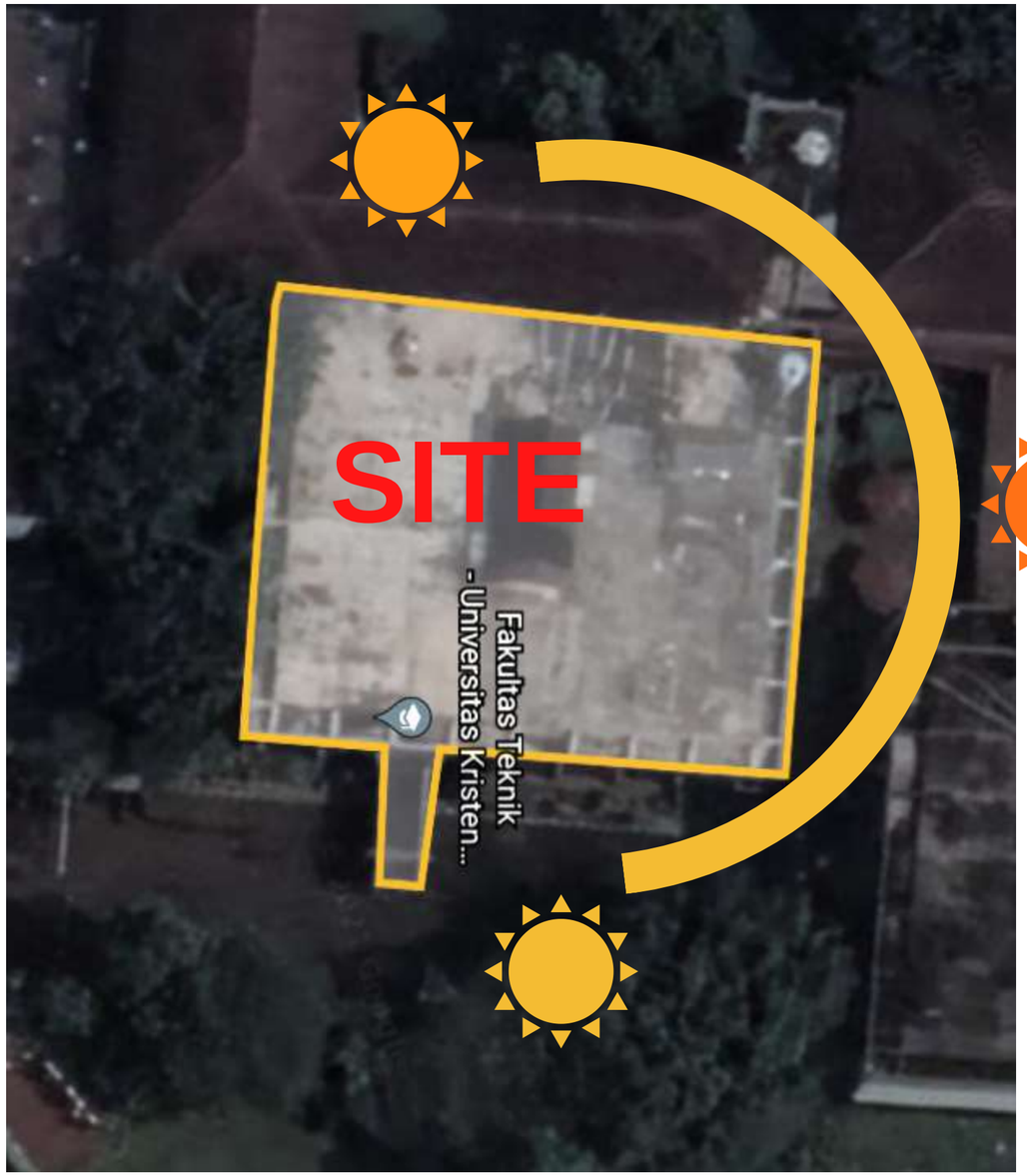


2nd FLOOR ENGINEERING FACULTY BUILDING
SCALE 1 : 100

SITE ANALYSIS

Existing Data

SUN ANALYSIS



Maximize natural lighting	S Strength	W Weakness — Natural sunlight can be hotter
-Secondary skin - Natural lighting, -solar panels	O Opportunity	T Threats — Glare in certain areas (exposed to direct sunlight).

Wind Analysis

Natural Ventilation

S	W
Strength	Weakness
O	T
Opportunity	Threats

The wind brings dust.

-Cross Ventilation
-Good air circulation

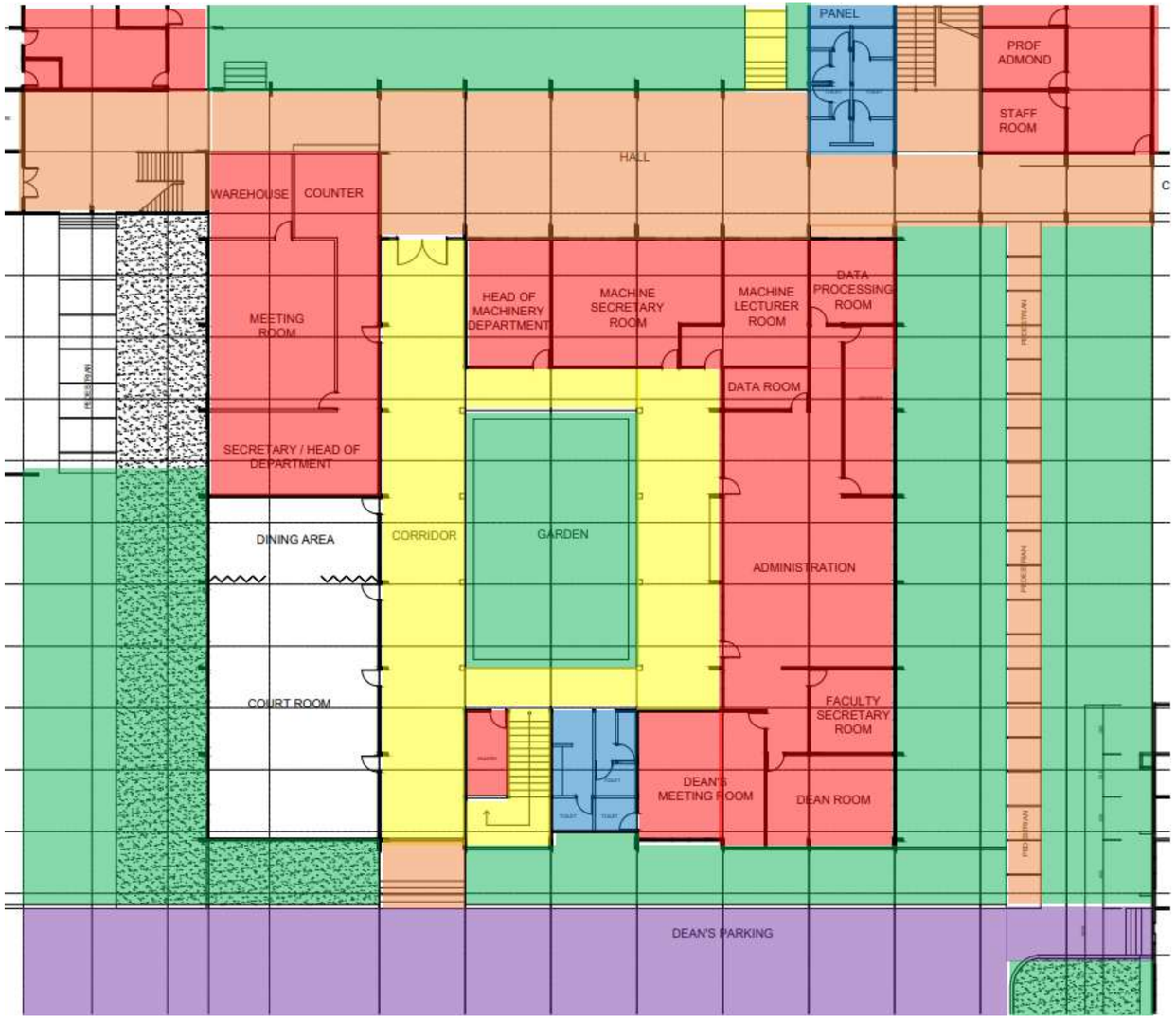
Noise Analysis

S	W
Strength	Weakness
O	T
Opportunity	Threats

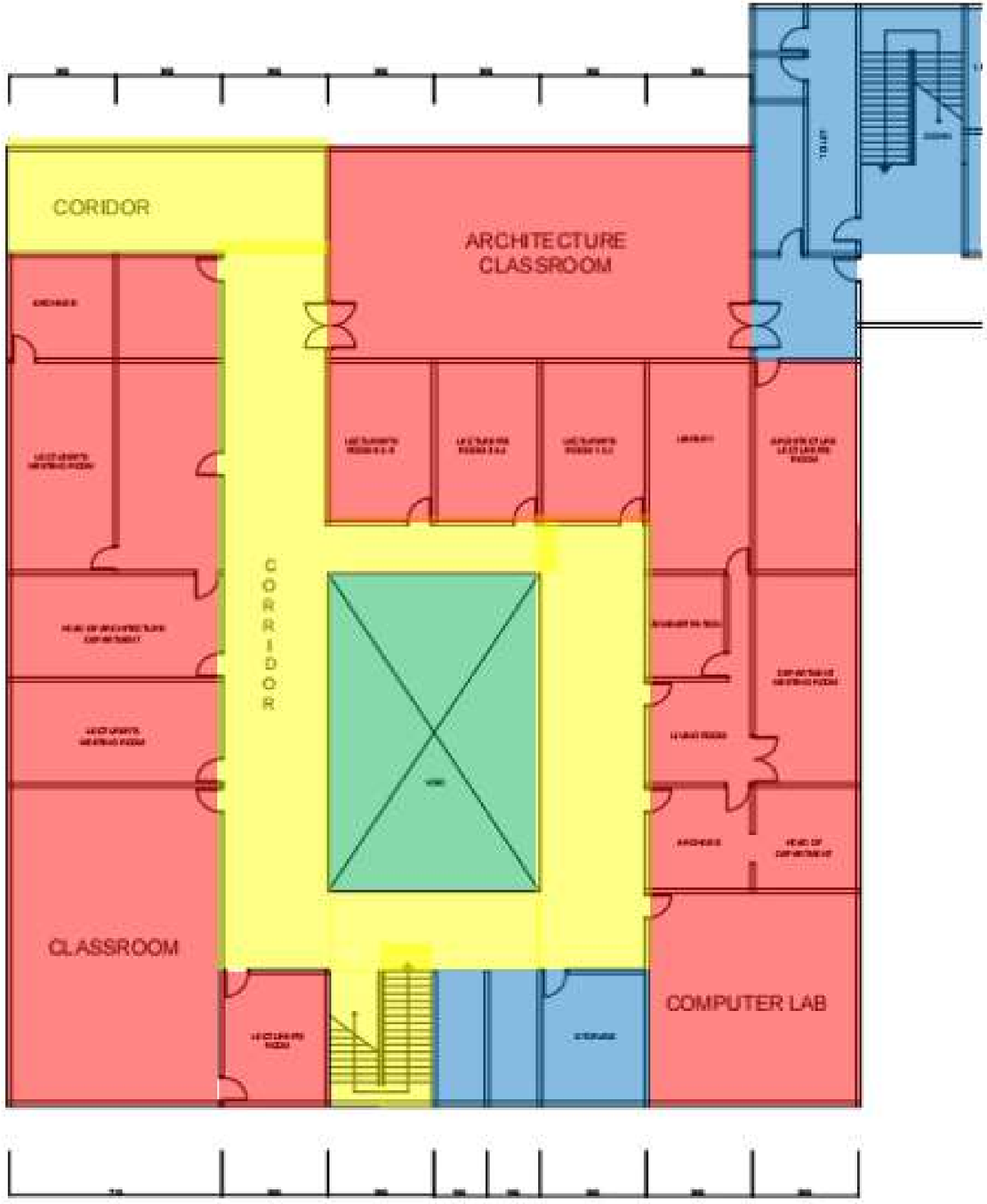
Jl. Mayjen Sutoyo which is the noise level is quite high.

INTERIOR SPACE ANALYSIS

Existing Data



Room Zoning & Open Space Ground Floor



Private Zone

Public Circulation Zone

Semi Public Circulation Zone

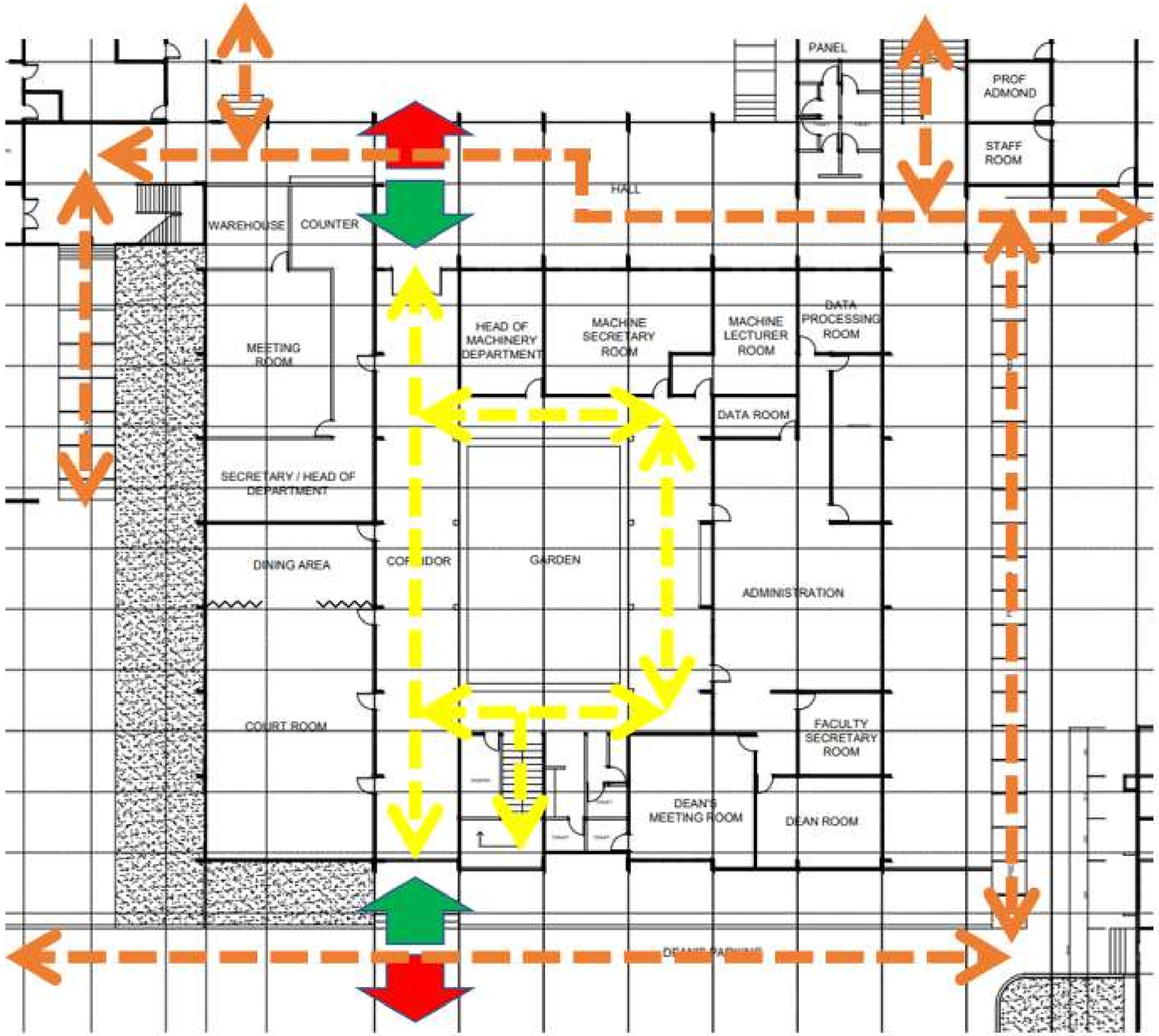
Service Zone

Vegetasi/open space Zone

Parking Zone

North

Room Zoning & Open Space 2nd Floor



North

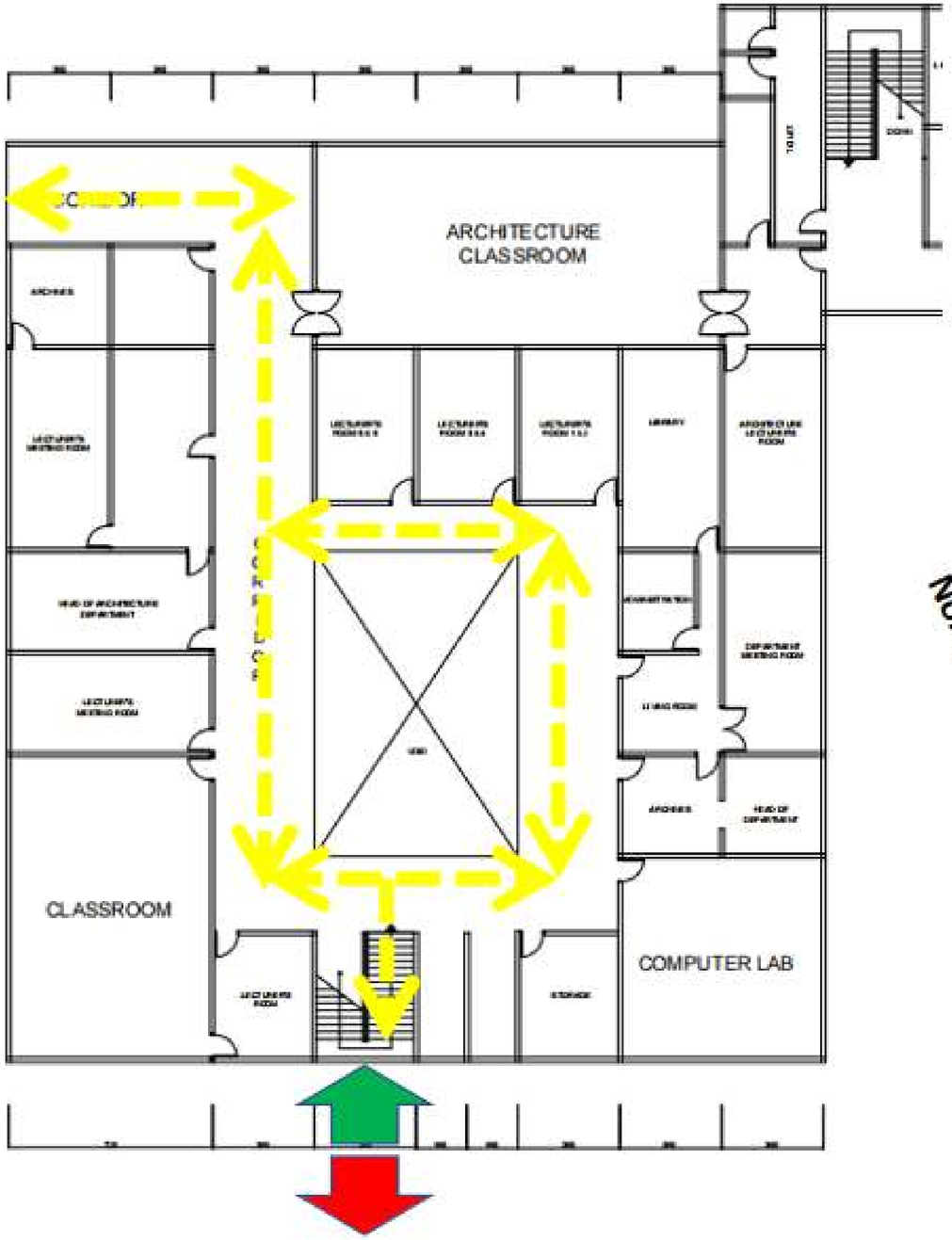
Exit Way

Entrance Way

Restricted Circulation

Public Circulation

Entrance & Circulation Ground Floor

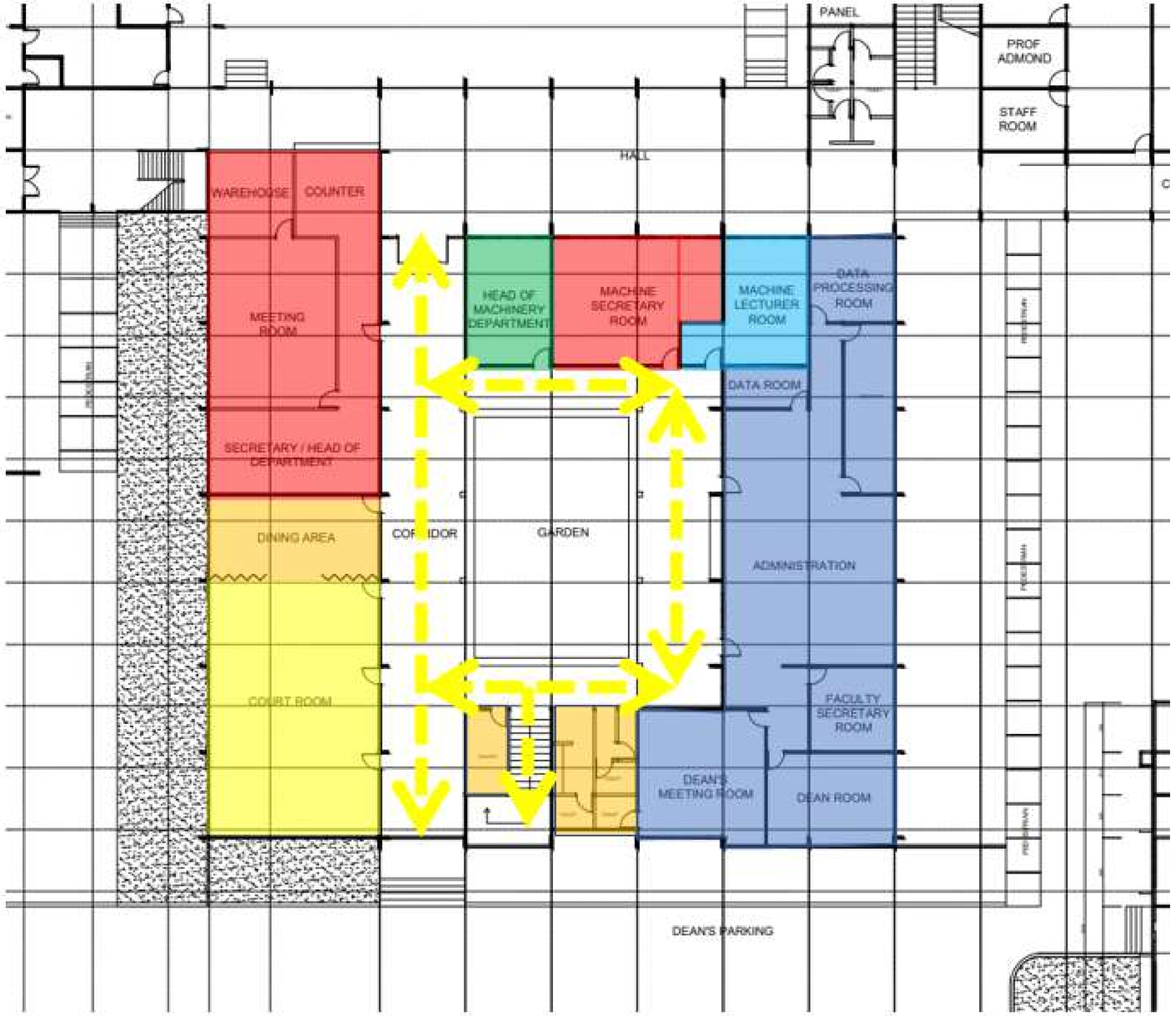


Exit Way

Entrance Way

Restricted Circulation

Entrance & Circulation 2nd Floor



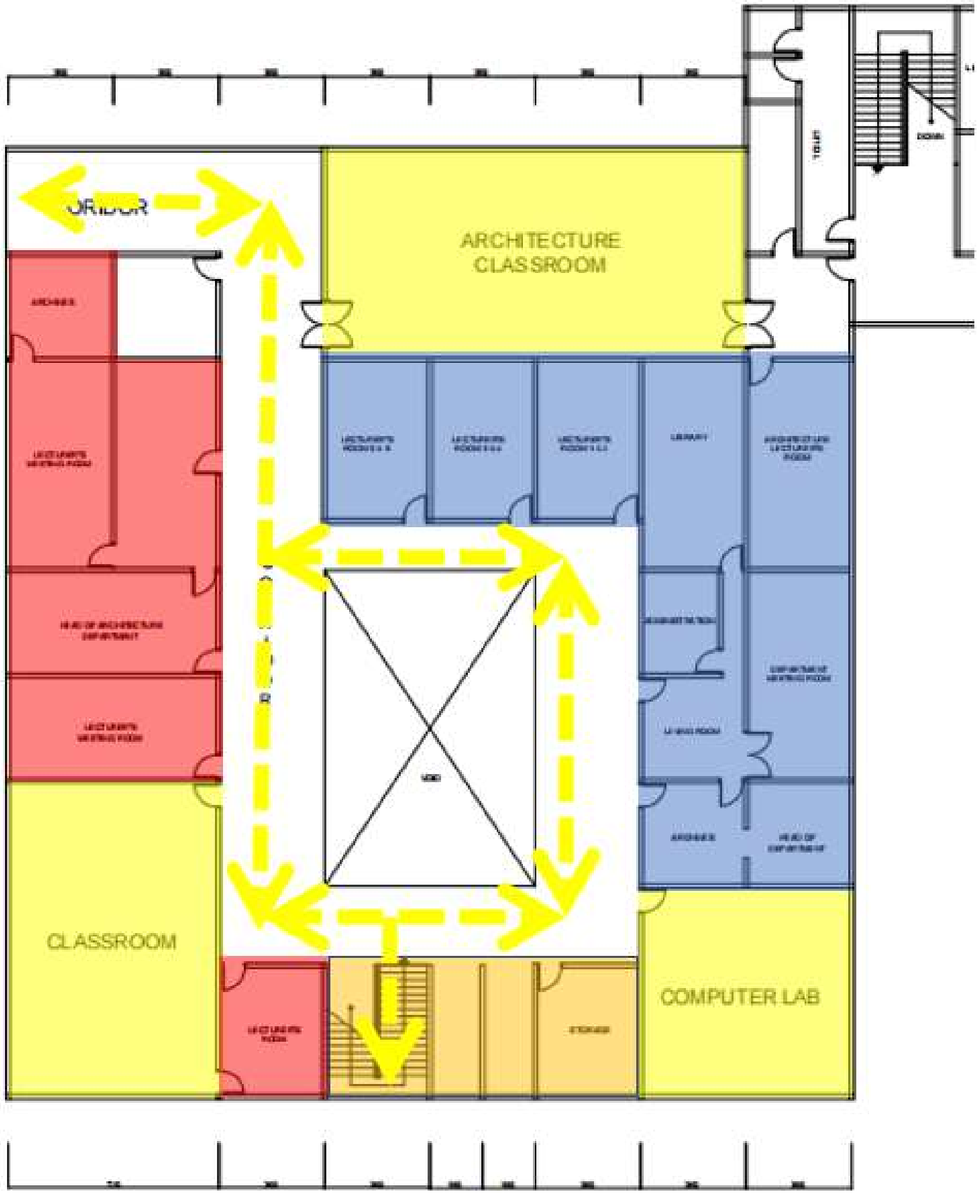
Activity group 1

Activity group 2

Activity group 3

Activity group 4

Room Program Ground Floor



North

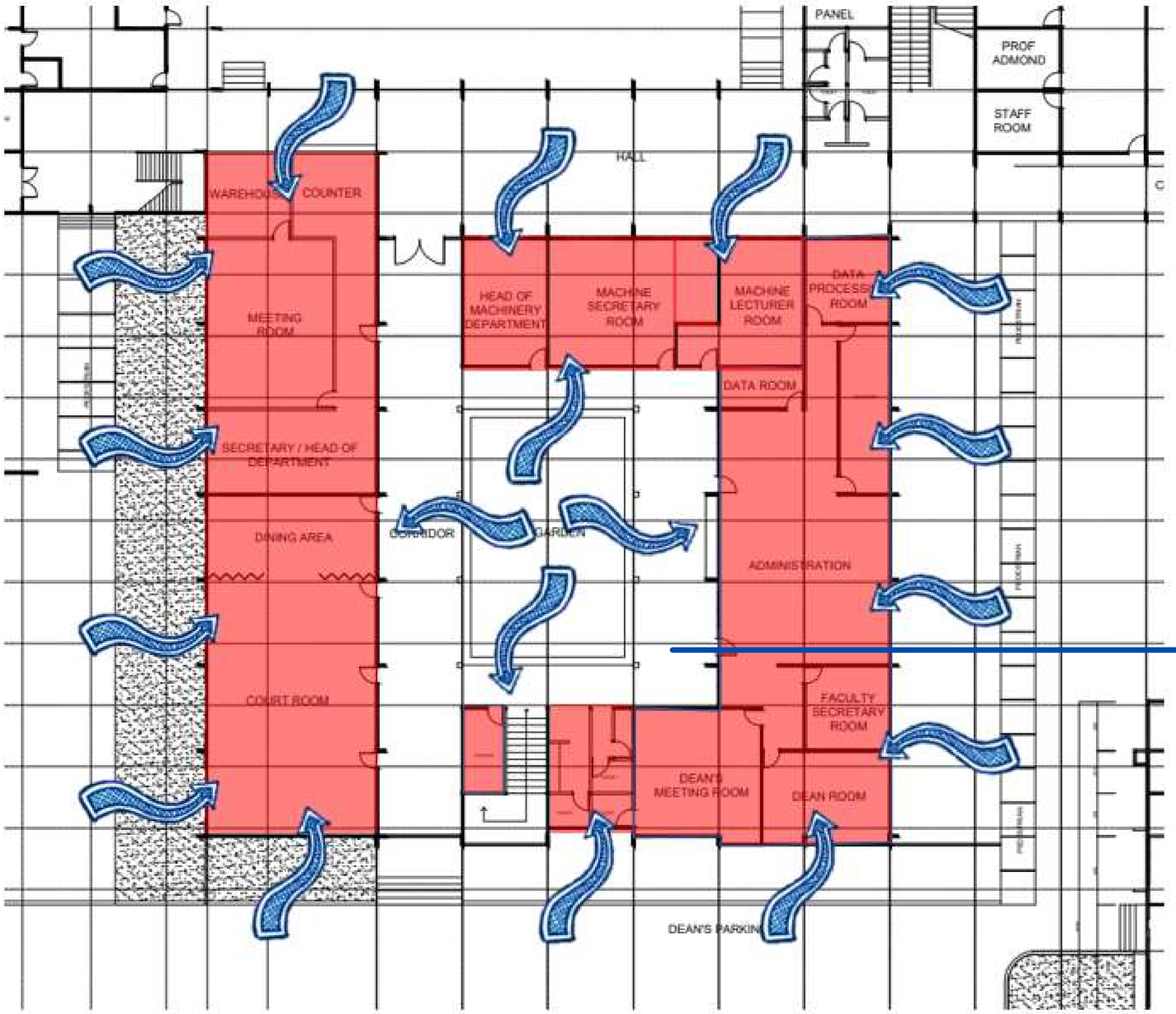
Activity group 1

Activity group 2

Activity group 3

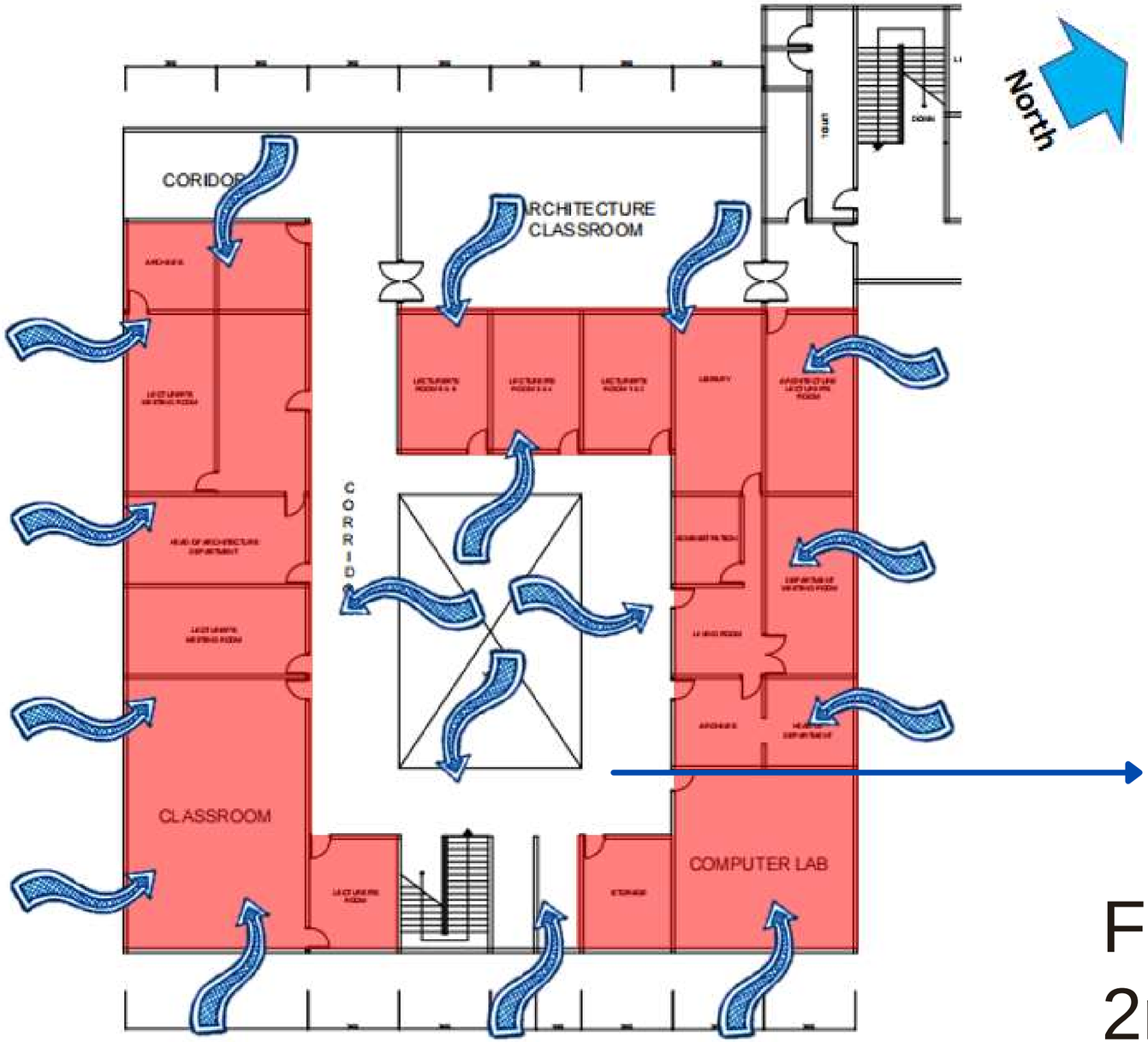
Activity group 4

Room Program
2nd Floor



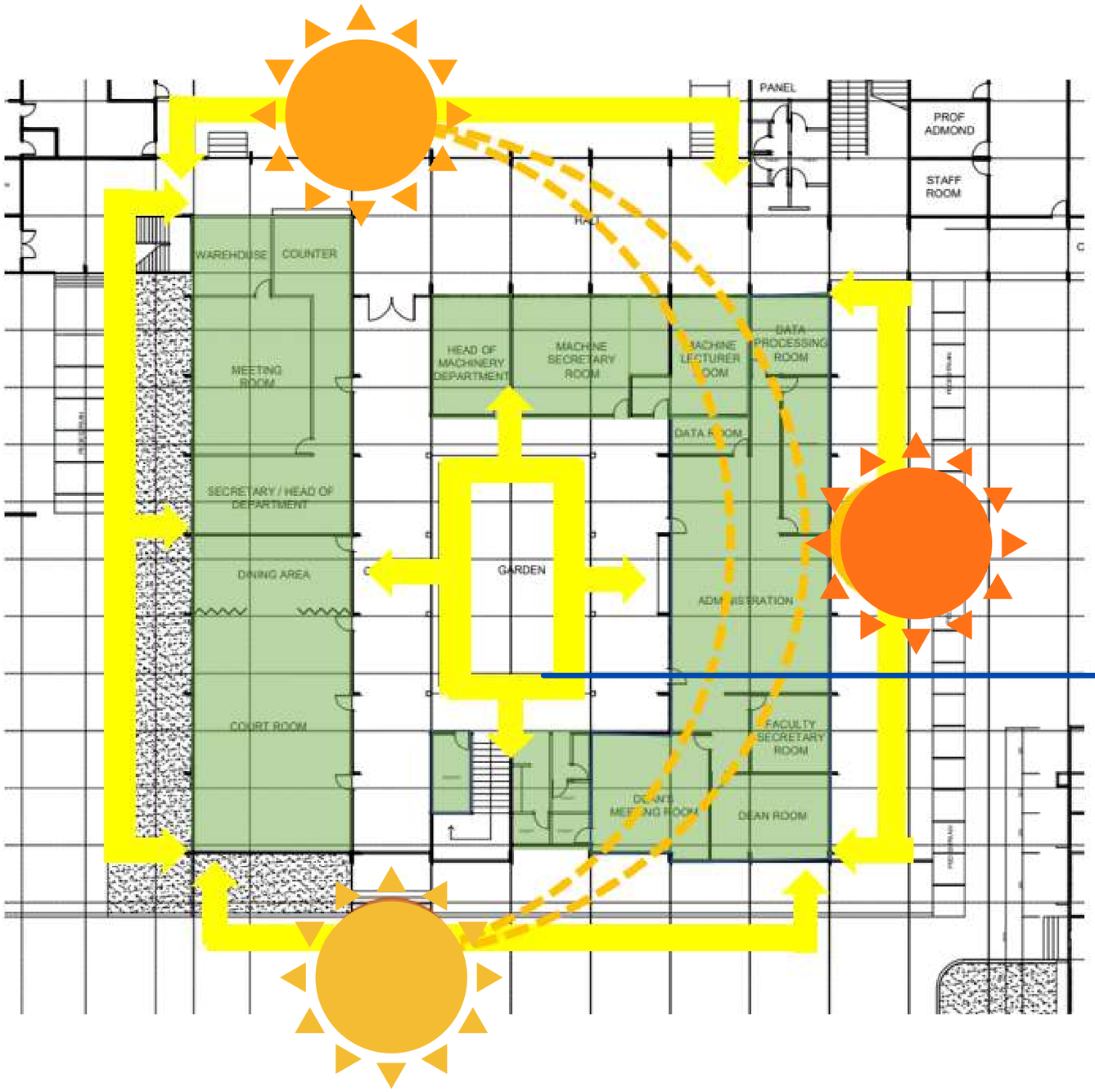
Air Circulation

Fresh Air Circulation Ground Floor



Air Circulation

Fresh Air Circulation 2nd Floor

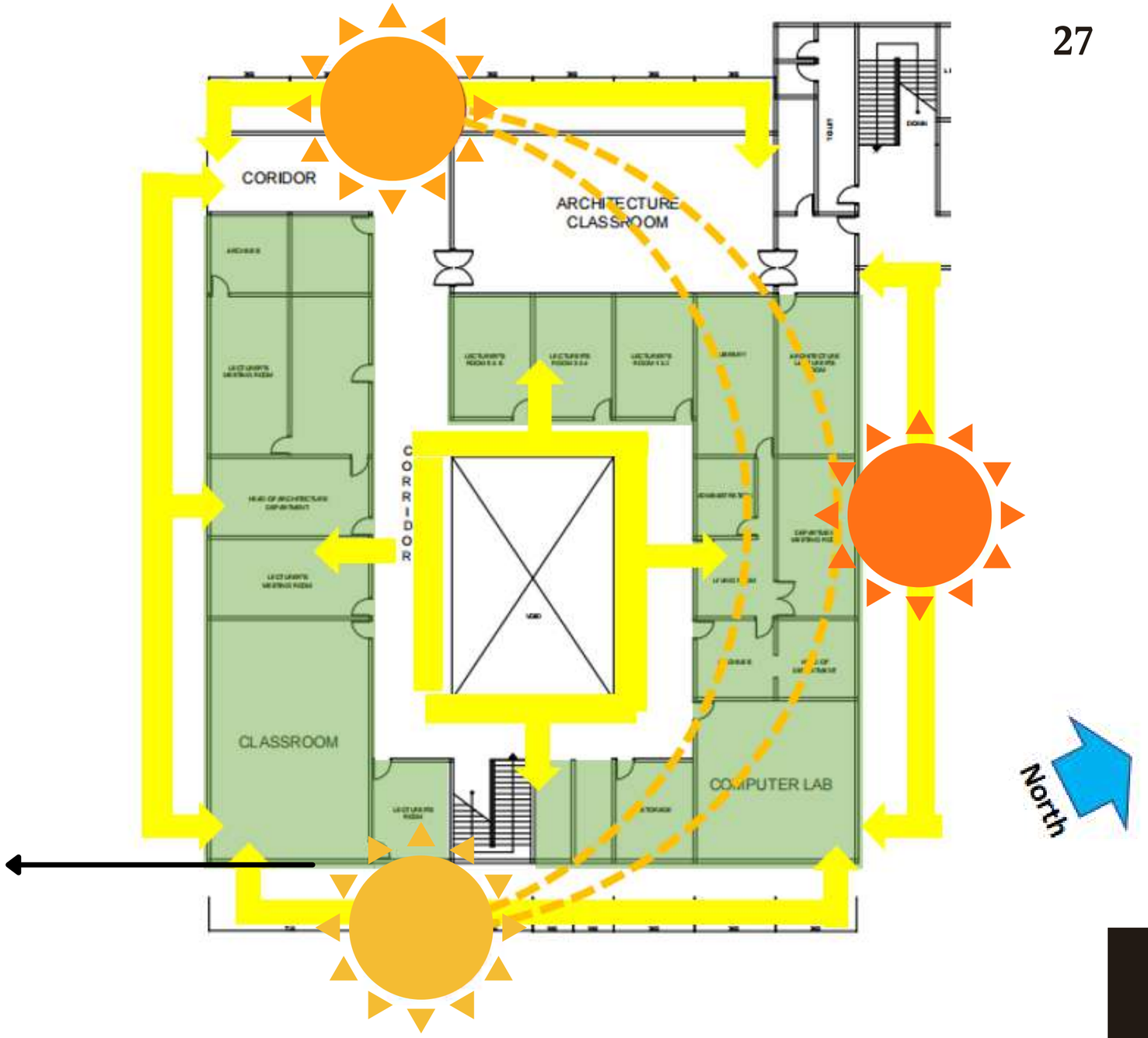


Sun Light

Natural Lighting Ground Floor

Natural Lighting 2nd Floor

Sun Light



BUILDING UTILITY ANALYSIS

Existing Data

Building Utility Analysis

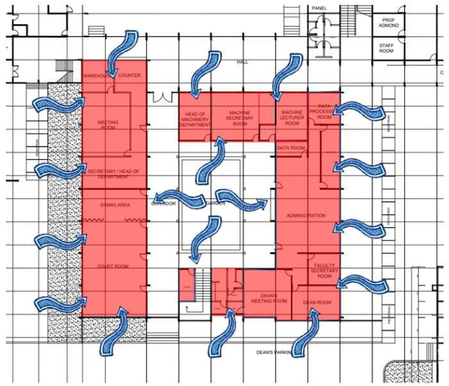
"VENTILATION"

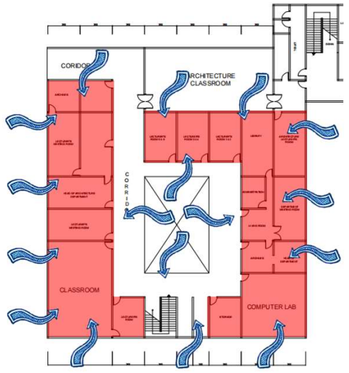
NATURAL VENTILATION

To save energy and reduce the use of artificial ventilation, natural ventilation will be made from the wind.

WIND → **ORIENTATION BUILDING** → **APERTURE BUILDING** → **ROOM IN BUILDING**

NATURAL VENTILATION SCHEME

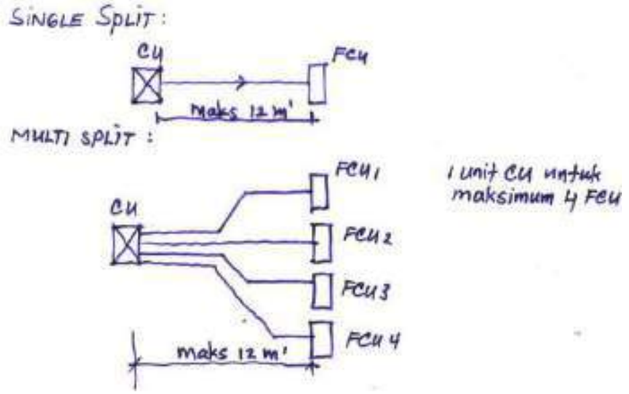




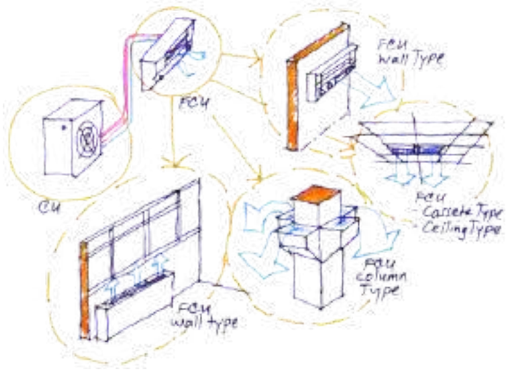
FRESH AIR CIRCULATION GROUND FLOOR & 2ND FLOOR

ARTIFICIAL VENTILATION

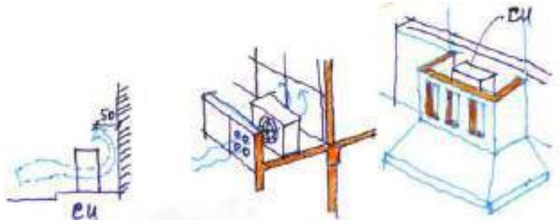
Artificial ventilation uses a Split AC system because the space requirements are not too large and the rooms are separated for different functions and from the air conditioner which is not too noisy when working.



SPLIT AC TYPE



FCU LAYING



CONDENSING UNIT (CU)

Building Utility Analysis

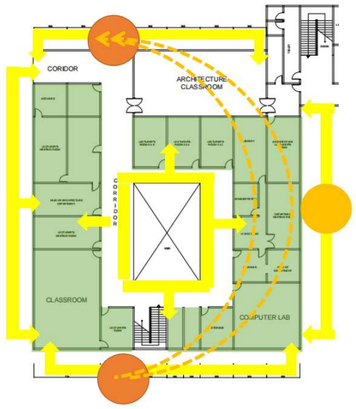
"LIGHTING"

NATURAL LIGHTING

To save energy and reduce the use of artificial lighting, natural lighting will be made from the sun.

SUNLIGHT → **ORIENTATION BUILDING** → **APERTURE BUILDING** → **ROOM IN BUILDING**

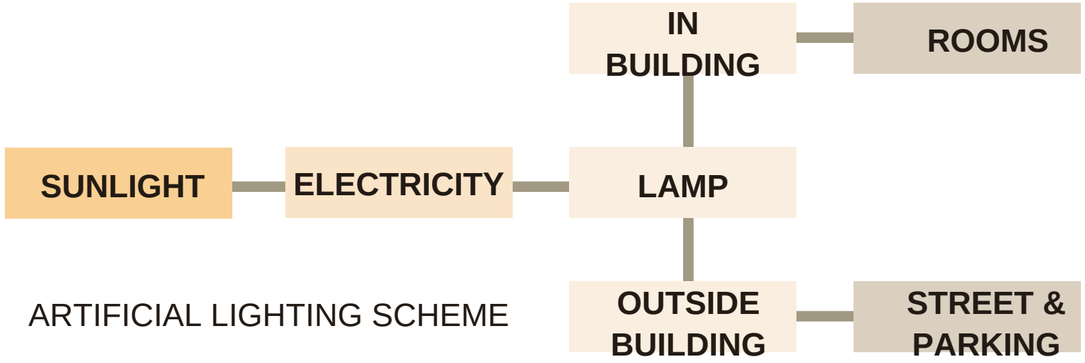
NATURAL LIGHTING SCHEME



NATURAL LIGHTING GROUND FLOOR & 2ND FLOOR

ARTIFICIAL LIGHTING

The source of energy for artificial lighting comes from lamps whose energy source comes from the central electrical system at PLN. Artificial lighting will use lamps that are energy efficient, durable and have brightness according to space requirements.



ARTIFICIAL LIGHTING SCHEME

TYPES OF ENERGY-SAVING LIGHTS

INCANDESCENT LAMPS

NEON LAMPS

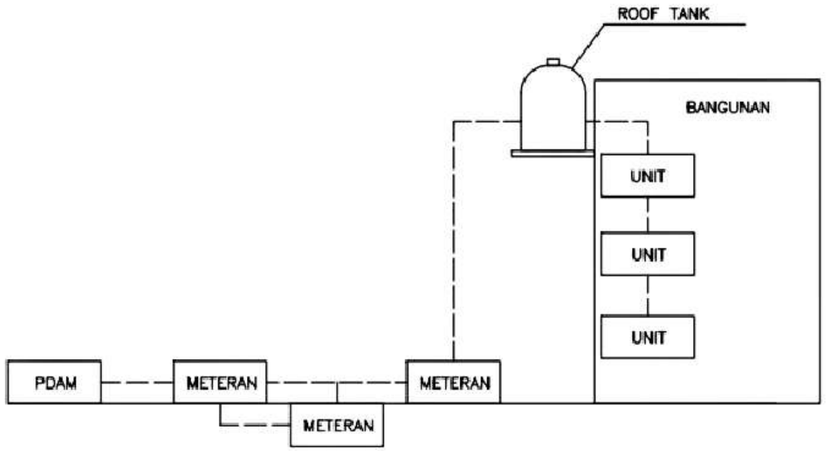
LED LAMPS

Building Utility Analysis

"WATER INSTALLATION"

CLEAN WATER INSTALLATION

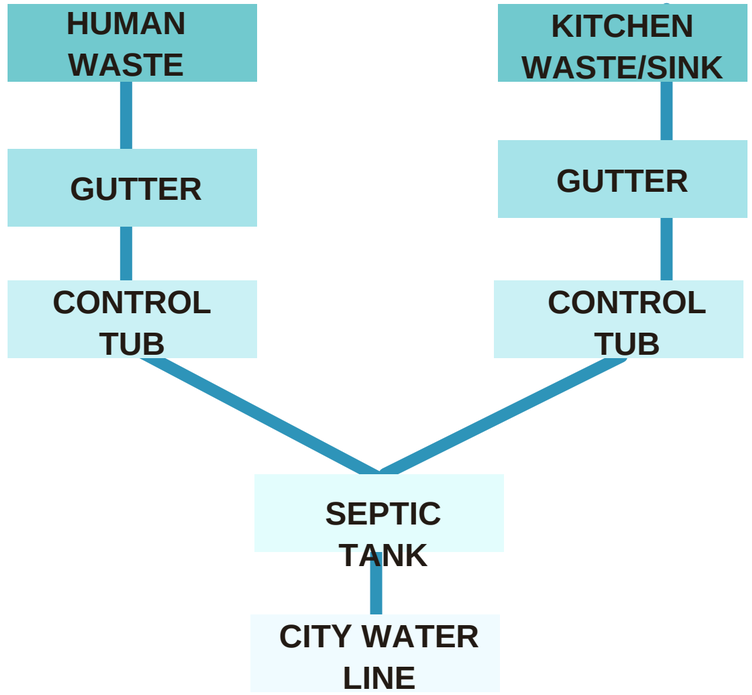
The distribution of clean water uses a down pipe system. Where the down pipe system is a clean water distribution system from a water reservoir (tank) placed on the roof of the building, then the water is distributed down to the floors of the building through pipes.



CLEAN WATER DISTRIBUTION SCHEME WITH DOWN PIPE SYSTEM

DIRT WATER INSTALLATION

- Liquid waste is directly channeled through the vertical gutter of the lower channel and is continued to the control tank and city drain.
- Solid waste is channeled through a septic process and is broken down by bacteria.



DIRTY/WASTE WATER SCHEME

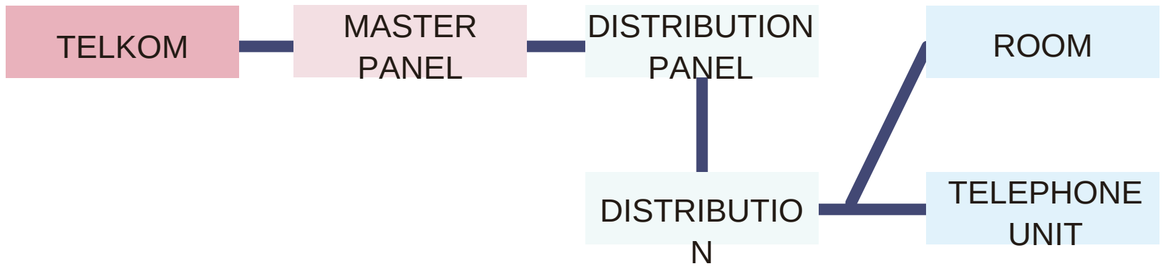
Building Utility Analysis

"COMMUNICATION SYSTEM"

INTERNAL COMMUNICATION (ONE WAY)

Communication that occurs within the building. The equipment used are:

- Speaker sound system, 1-way general communication
- Local Area Network (LAN) computer network, which is a data communication system, in the form of exchanging information and data between computers in one building for internal purposes.
- Parallel telephone, used for communication between management rooms

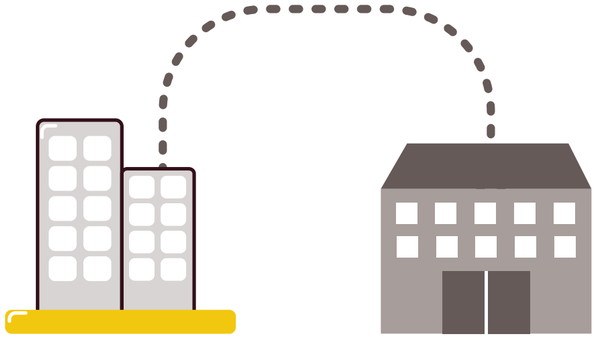


ONE WAY COMMUNICATION SCHEME IN BUILDINGS

EXTERNAL COMMUNICATION (TWO WAY)

Communication out of the building and using certain equipment such as:

- Telephone, two-way communication.
- Facsimile, communication via telephone network in written form.
- PABX (Private Automatic Branch Exchange), as a controller for incoming and outgoing connections
- Computer network (Internet), as a medium of information and communication.



PABX, TELKOM, MAN, SEVERAL PCS JOINED IN ONE CENTRAL SERVER AND CONNECTED VIA A WIRELESS NETWORK

TWO WAY COMMUNICATION SCHEME IN BUILDINGS

Building Utility Analysis

"FIRE SYSTEM & ELECTRICAL INSTALLATION"

FIRE SYSTEM

- Each building must have a fire protection system.
- A fire protection system is a system consisting of equipment, completeness and facilities, both installed and built in buildings that are used for the purpose of active protection systems, passive protection systems and management methods in order to protect buildings and their environment against fire hazards.

EVACUATION ROUTE :
- EMERGENCY STAIRS
- EMERGENCY LIGHT
- ASSEMBLY

DETECTION :
- SMOKE DETECTORE
- FLAME DETECTORE
- EMERGENCY BUTTON

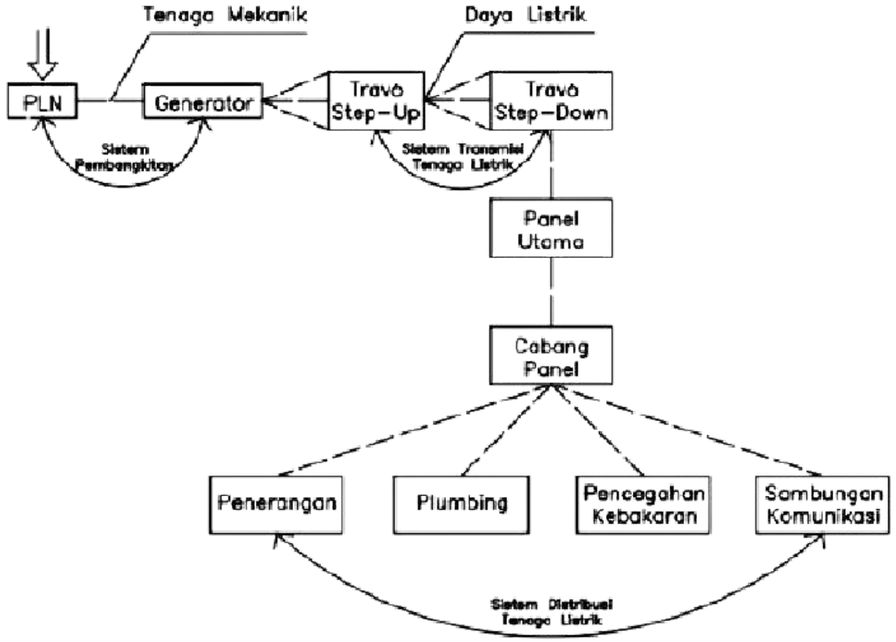
FIREFIGHTER :
- SPRINKLE
- FIRE HYDRANT
- FIRE EXTINGUISHER

FIRE SYSTEM EQUIPMENT

ELECTRICAL INSTALLATION

Power source:

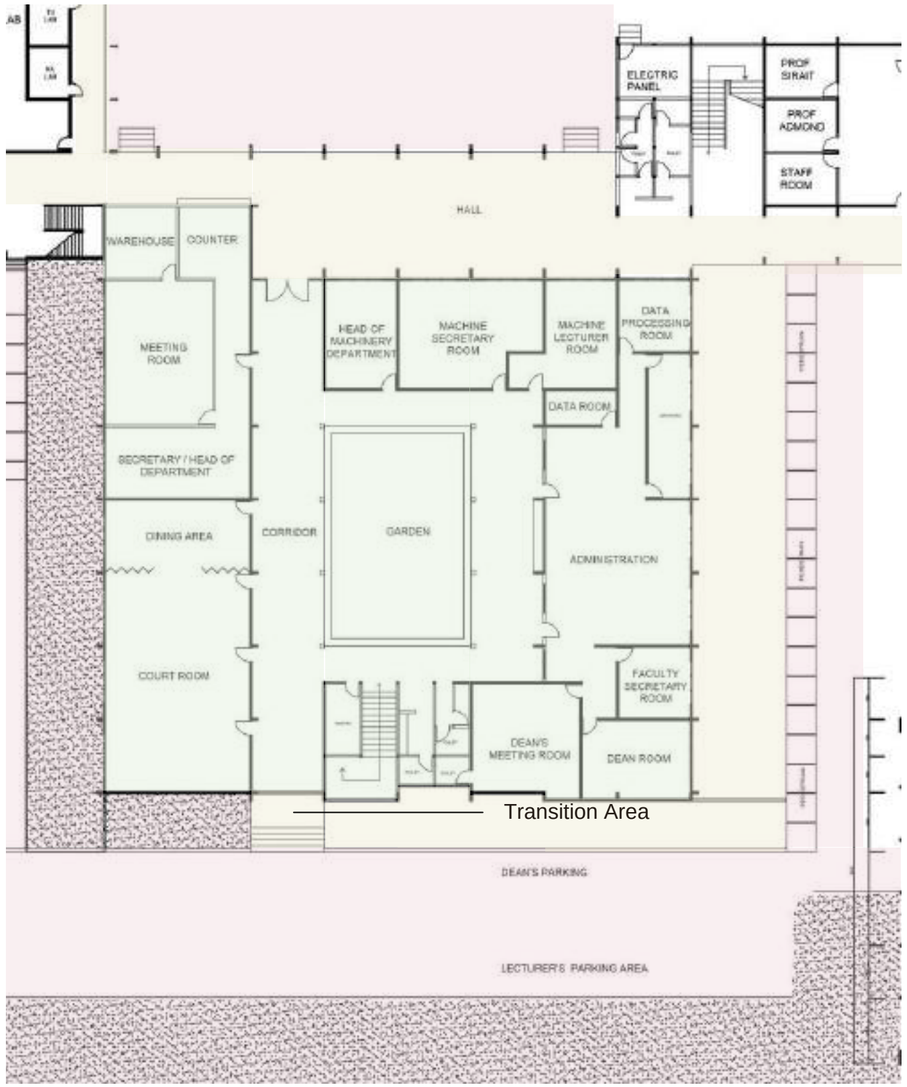
- Derived from the power plant center at PLN and then distributed to the building.
- The use of generators as an alternative source of electricity



ELECTRICITY DISTRIBUTION SCHEME

ZONNING

Existing Data



Infected Area

Semi Steril Area

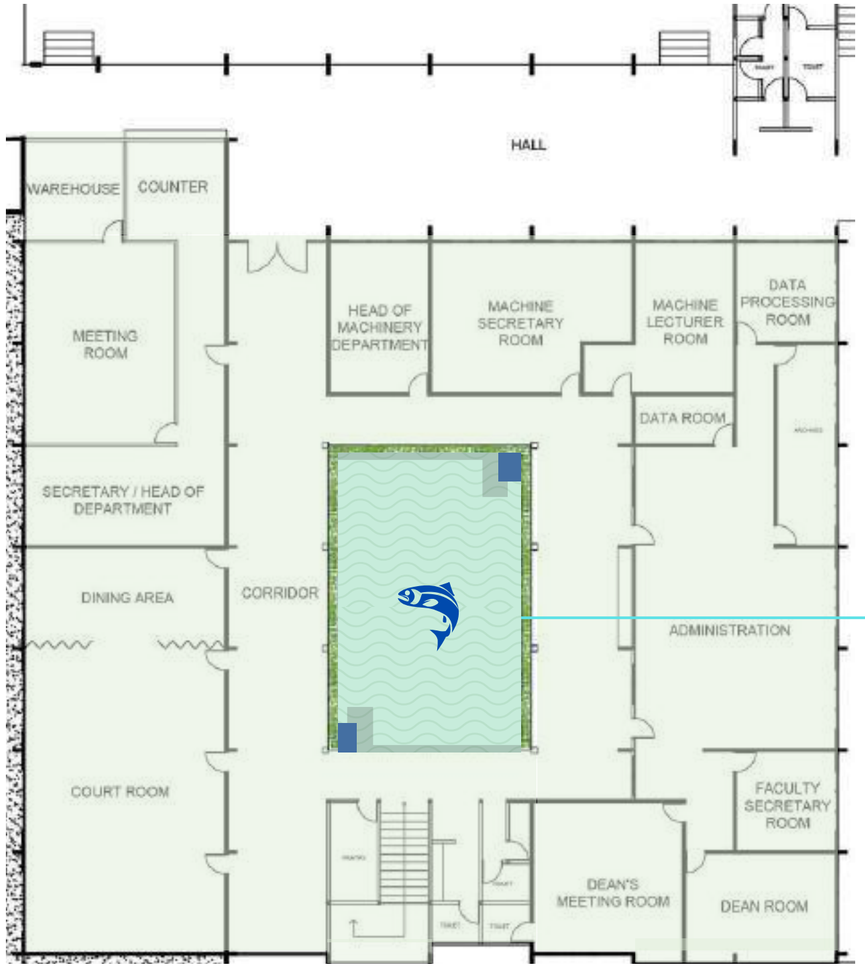
Steril Area

ZONNING AREA

PLANNING

Existing Data

Steril Area



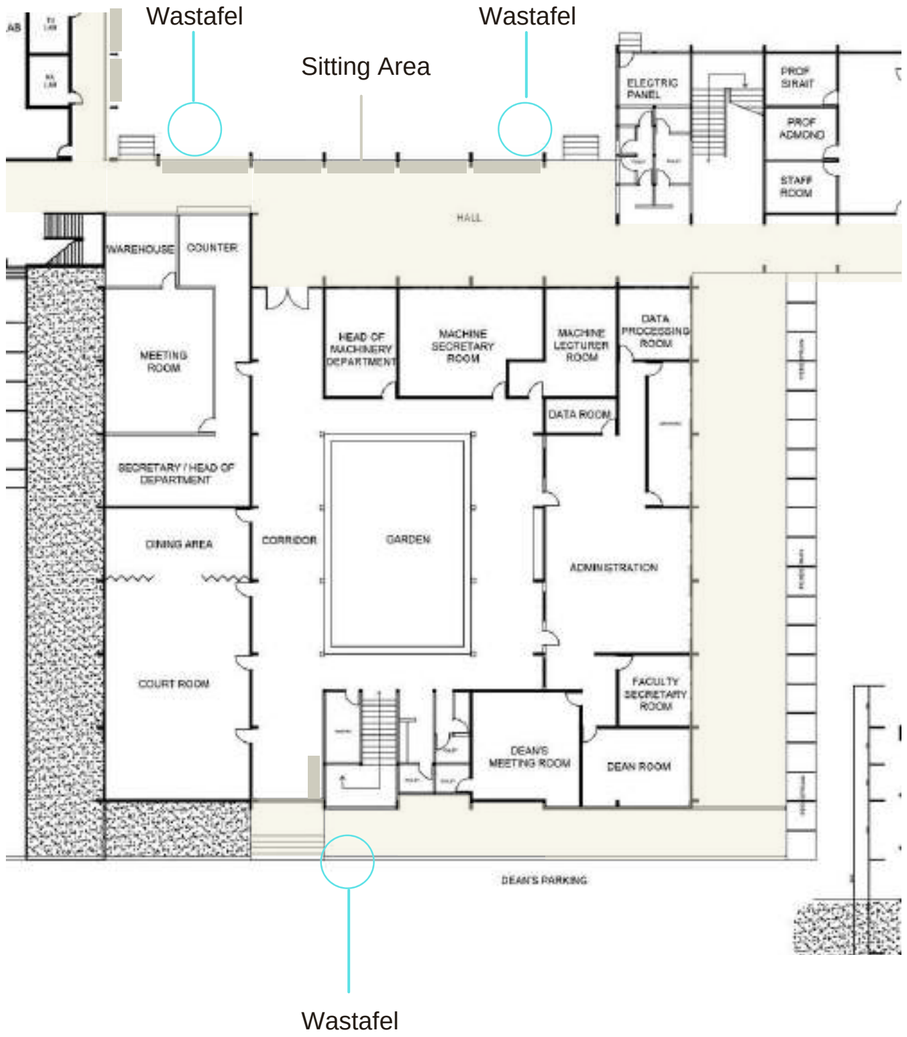
Ground Floor Plan

Garden and Fishpool

This garden and fish pond in the middle serves as a refresher, because the activities in the building are quite busy, this park can be used as a healing spot for everyone.

Garden and Fishpool

Semi Steril Area



Ground Floor Plan

Wastafel

The sink is placed in this area as a user facility to ensure the cleanliness of his hands in doing something before entering the sterile area.

Touchless Faucet

Aqua Auto faucets are perfect for this purpose because the sensor shuts off immediately when not used, thus eliminating the risk of water wastage when a user fails to turn the tap off.

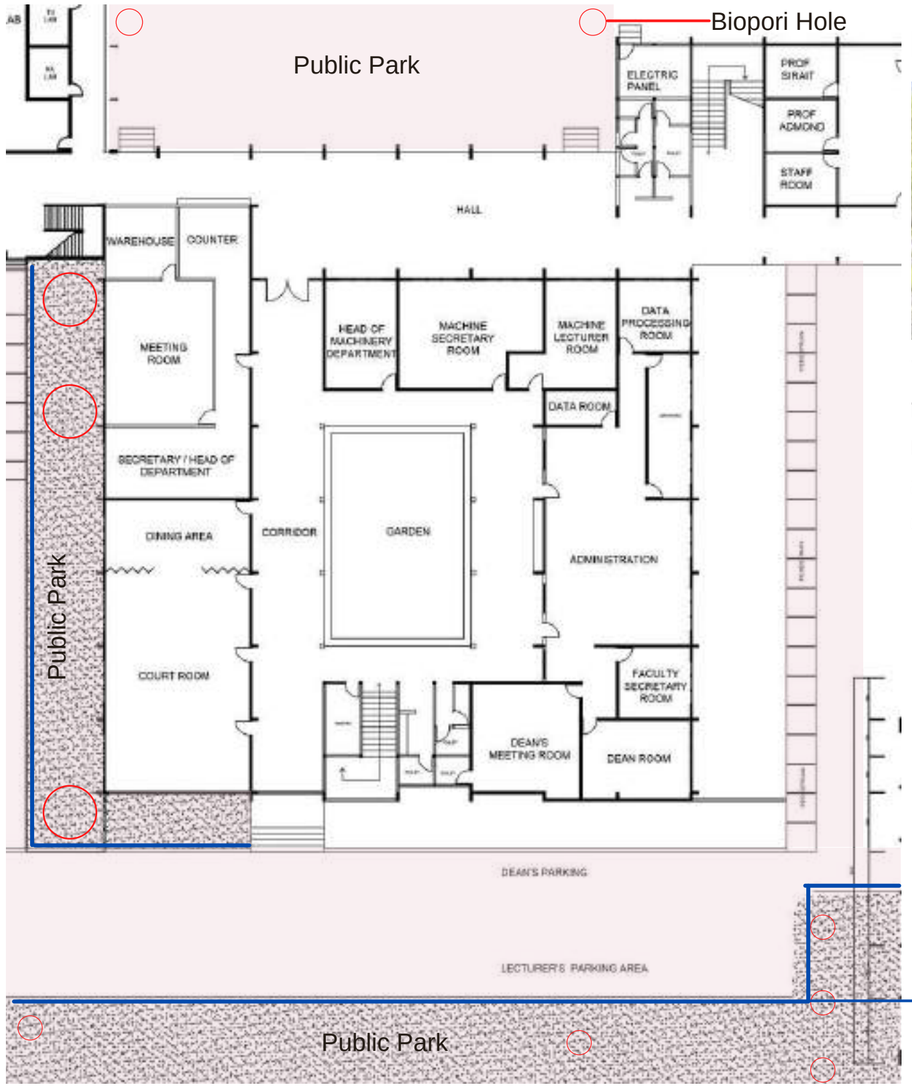
Automatic Sensor Door

A door that will only open when an automatic footstep sensor is detected. Made without touch as one of the high technology that responds to covid-19.

Sitting Area

A multifunctional seat that can provide oxygen and relax the user when looking at the plants.

Infected Area



Ground Floor Plan

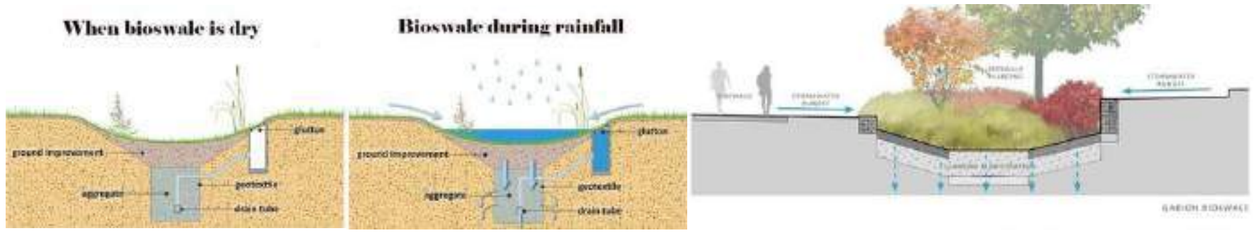
Public Park

The large garden can be utilized by planting trees that have a wide canopy so that the area can be utilized by the surrounding students. These trees are also one of the producers of fresh air that can create a microclimate in the region.

Biopori Hole

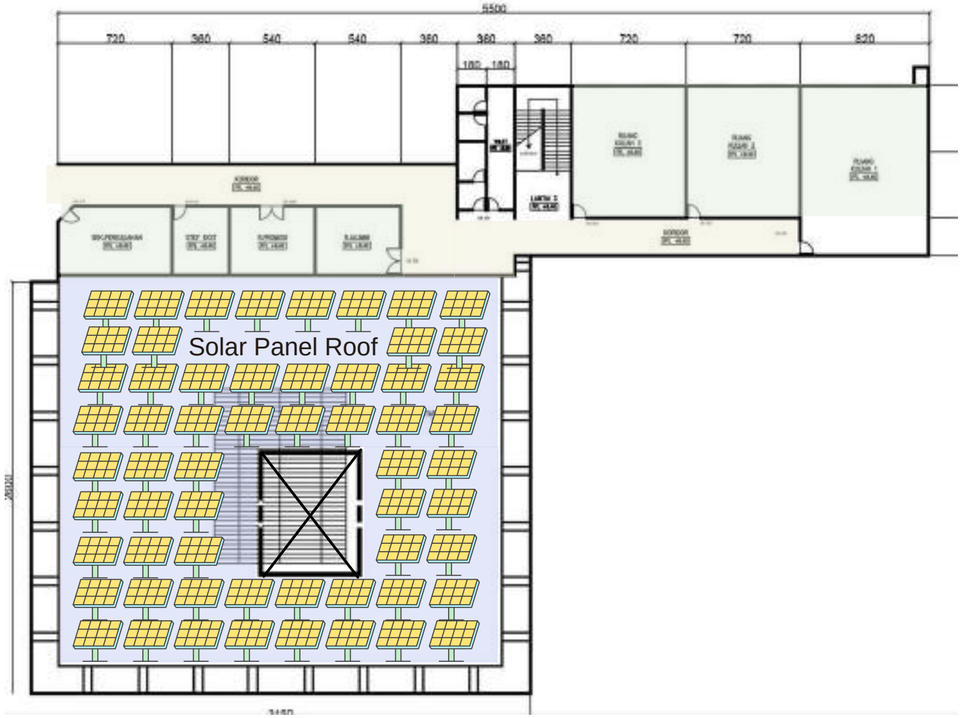
Biopore infiltration holes are cylindrical holes that are made vertically into the ground as a method of water absorption aimed at overcoming waterlogging by increasing the water absorption capacity of the soil. This area is a flooded area so it is very suitable to improve the quality of the existing soil.

Bioswale



Bioswales are channels designed to concentrate and convey stormwater runoff while removing debris and pollution. Bioswales can also be beneficial in recharging groundwater. Bioswales are useful low-impact development work to decrease the velocity of stormwater runoff while removing pollutants from the discharge. They are extremely beneficial in protecting surface water and local waterways from excessive pollution from stormwater runoff.

Roof Area



3rd Plan

Solar Panel Roof

Indonesia has a tropical climate where the sun is almost 12 hours shining brightly. We can use this as an effort to save energy by using a solar panel roof. A roof full of solar panels can reduce energy by up to 58%.

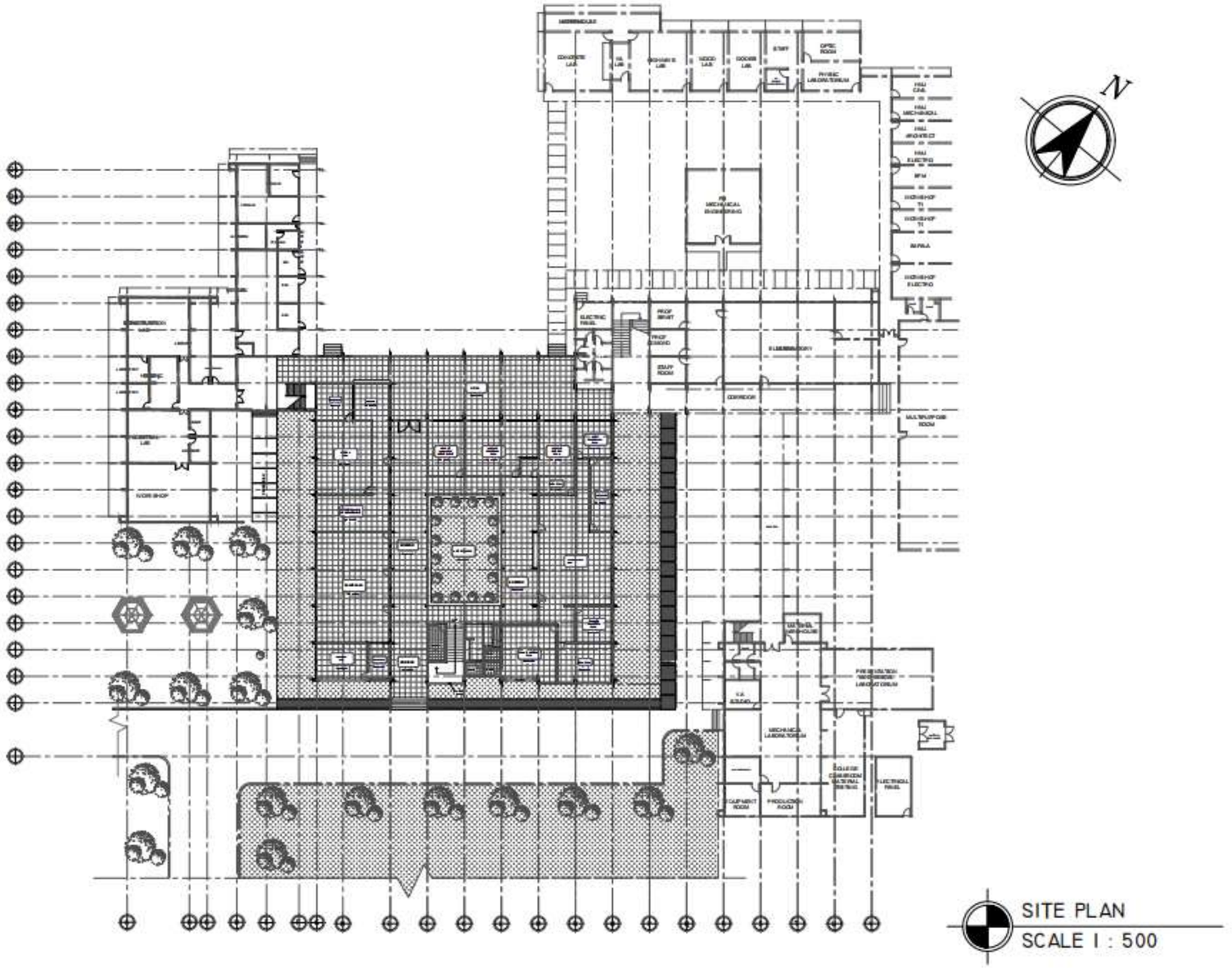
Automatic Skylight

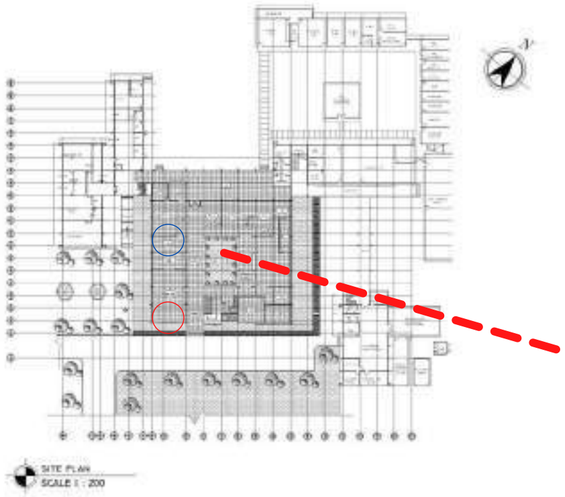
This automatic skylight serves to provide more light in the center area of the building. Can open and close automatically using the remote so it can adjust the weather.

SCHEMATIC DESIGN

Existing Data

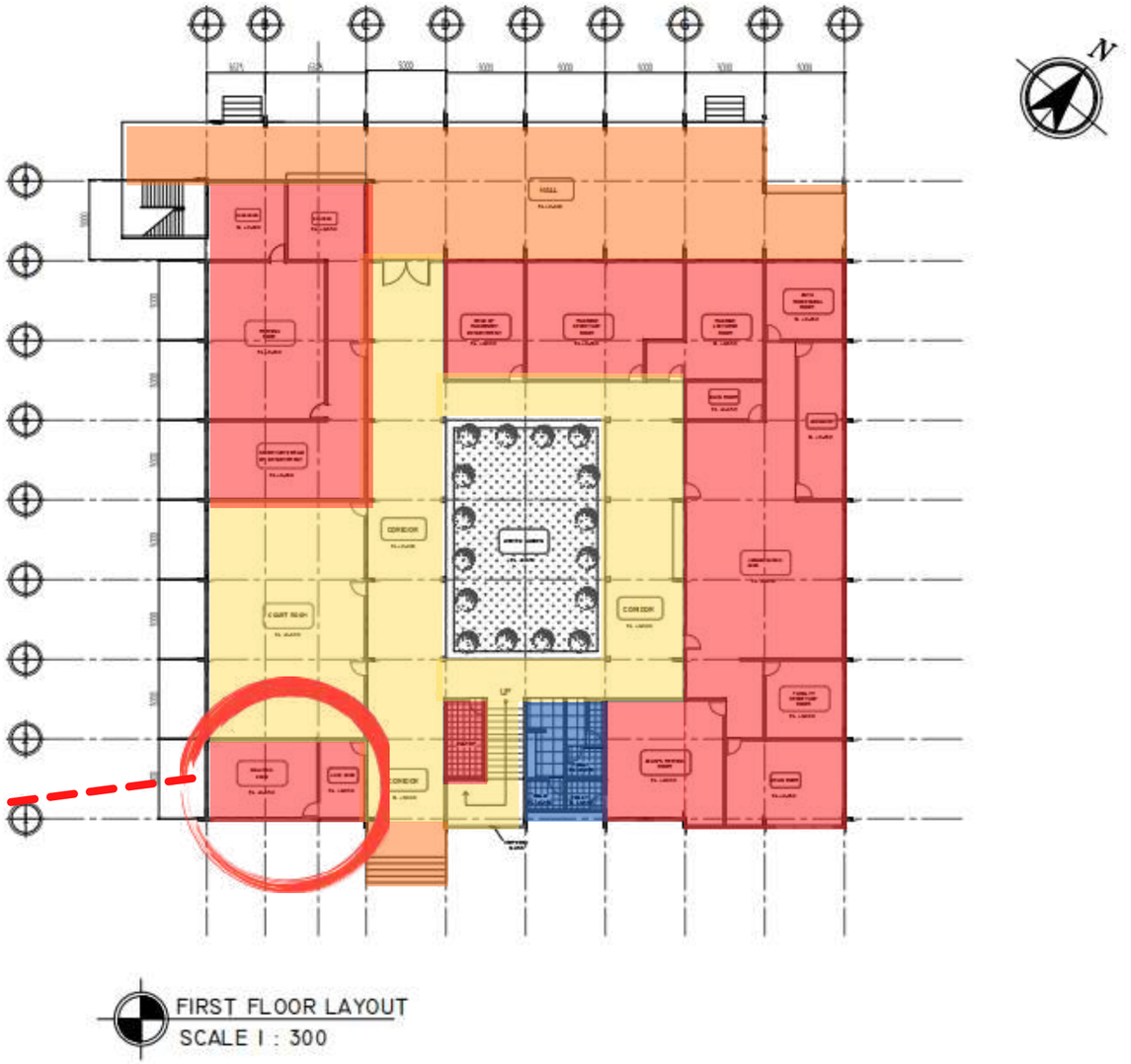
Site Plan





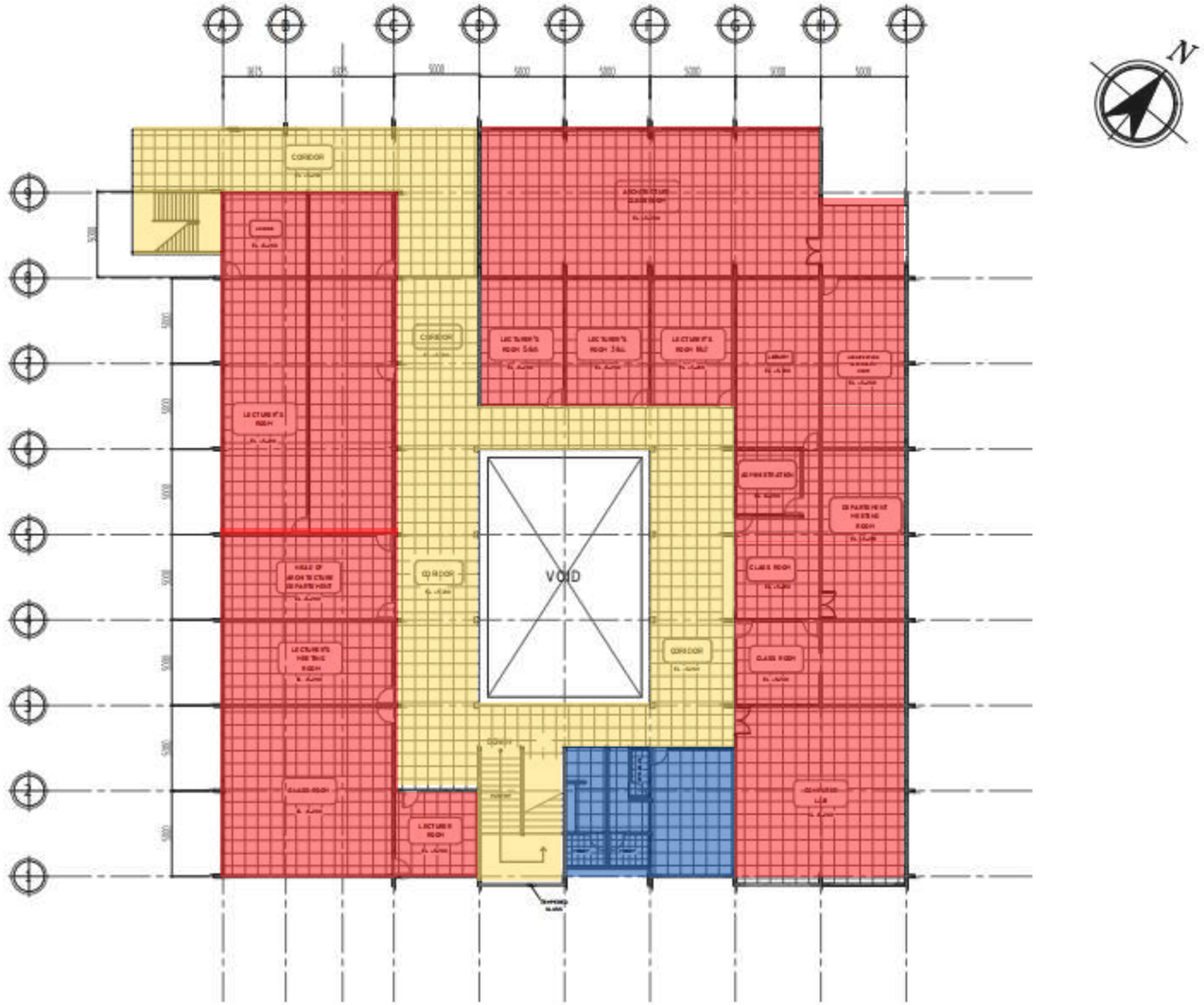
There was a change in the layout on the 1st floor where the dining area was removed and then replaced with an isolation room and an ante room which was placed at the front.

Isolation Room and Ante Room



2nd floor plan there is no layout change

2nd Floorplan



DESIGN CONCEPT

Existing Data

HARMONISM HABITAT

Engineering Faculty Building - UKI

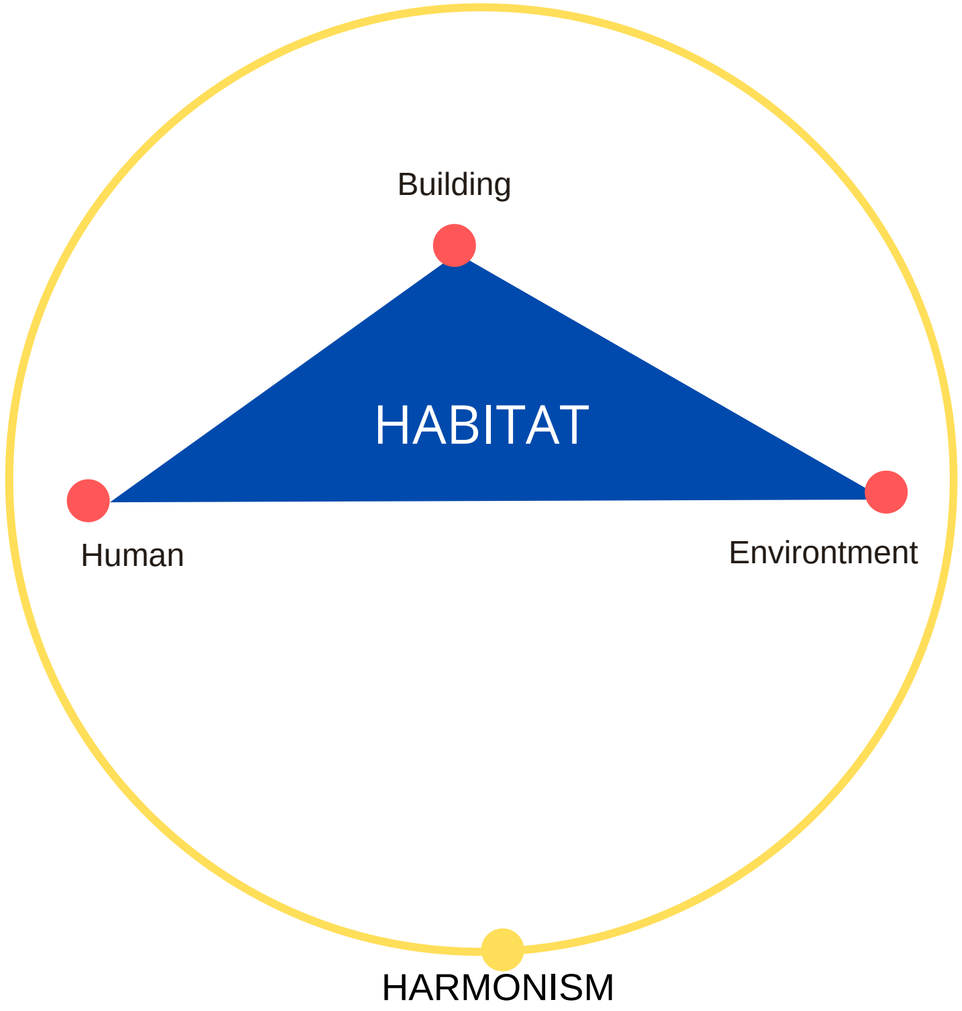
Harmonism Habitat is a building designed with green architecture concept, which is a form of response to the effects of the current covid-19 pandemic. With a design that maximizes natural lighting and ventilation, this building is expected to provide comfort, health and safety for engineering students in the new normal era.

HARMONISM HABITAT

Harmony is a collaboration between several factors, namely humans, buildings and the environment. Where a healthy building will have a good impact on the environment and humans.

Habitat is the place where living things live.
Since the covid-19 pandemic everyone is working from home, we want to create a habitat (a comfortable and safe place to live) for students.
The campus is designed to follow standard health protocols so that students don't have to worry about going back to study on campus (New Normal).

FACADE PHILOSOPHY



Triangle

The basic shape of this facade is a **Triangle**.

The triangle is a symbol of the 3 elements that make up the "habitat" namely humans, buildings and the environment that have a harmony.

FACADE PHILOSOPHY

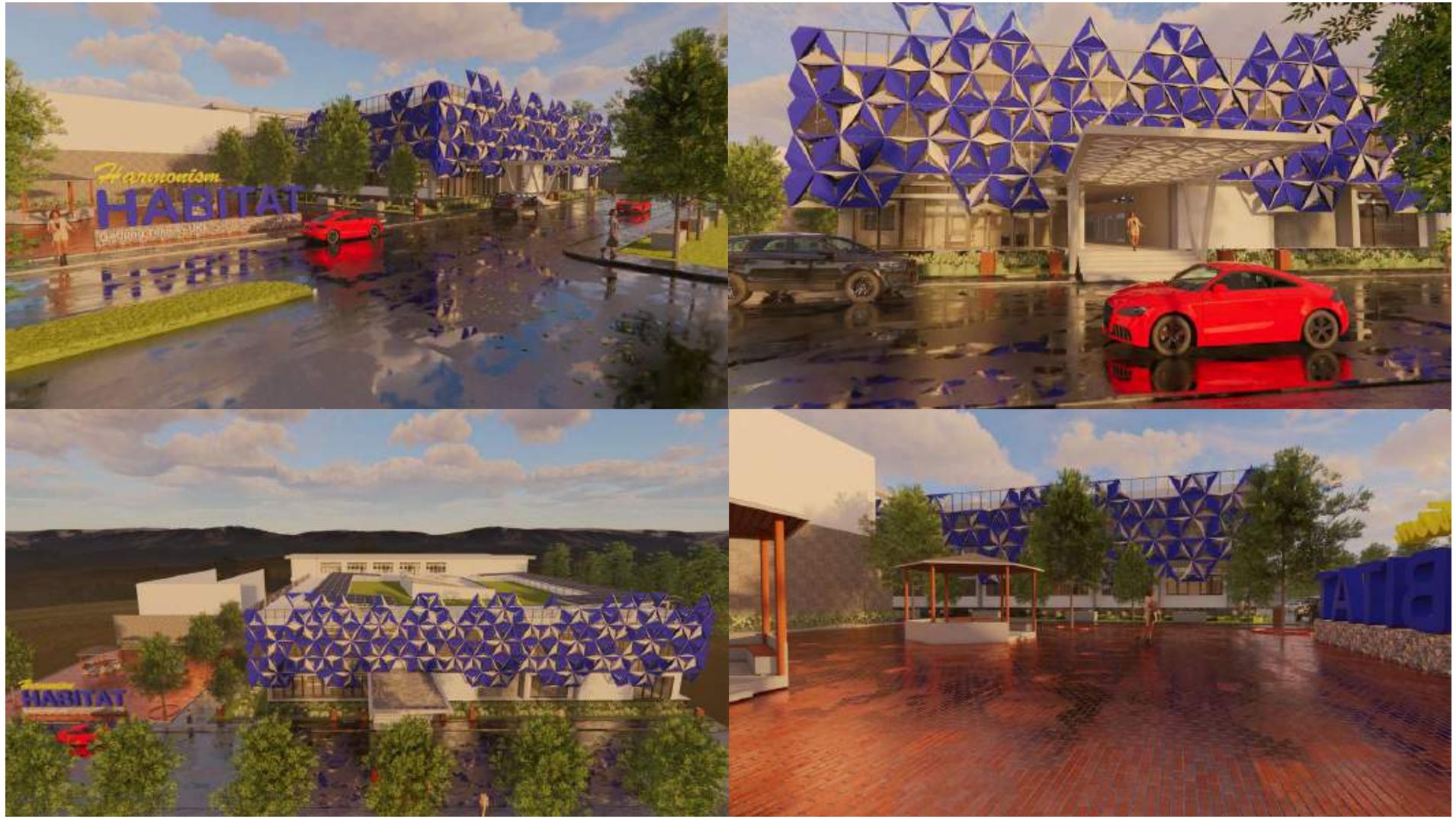
ACP facade

The triangles are combined into a harmonious whole to form a facade that resembles a pile of leaves on a tree.
where trees are an example of a habitat.

Blue and **White** colors are used as elements of the identity of Universitas Kristen Indonesia.

DESIGN PRODUCT

HARMONISM HABITAT



HARMONISM HABITAT

INTERIOR

Isolation Room

HARMONISM HABITAT

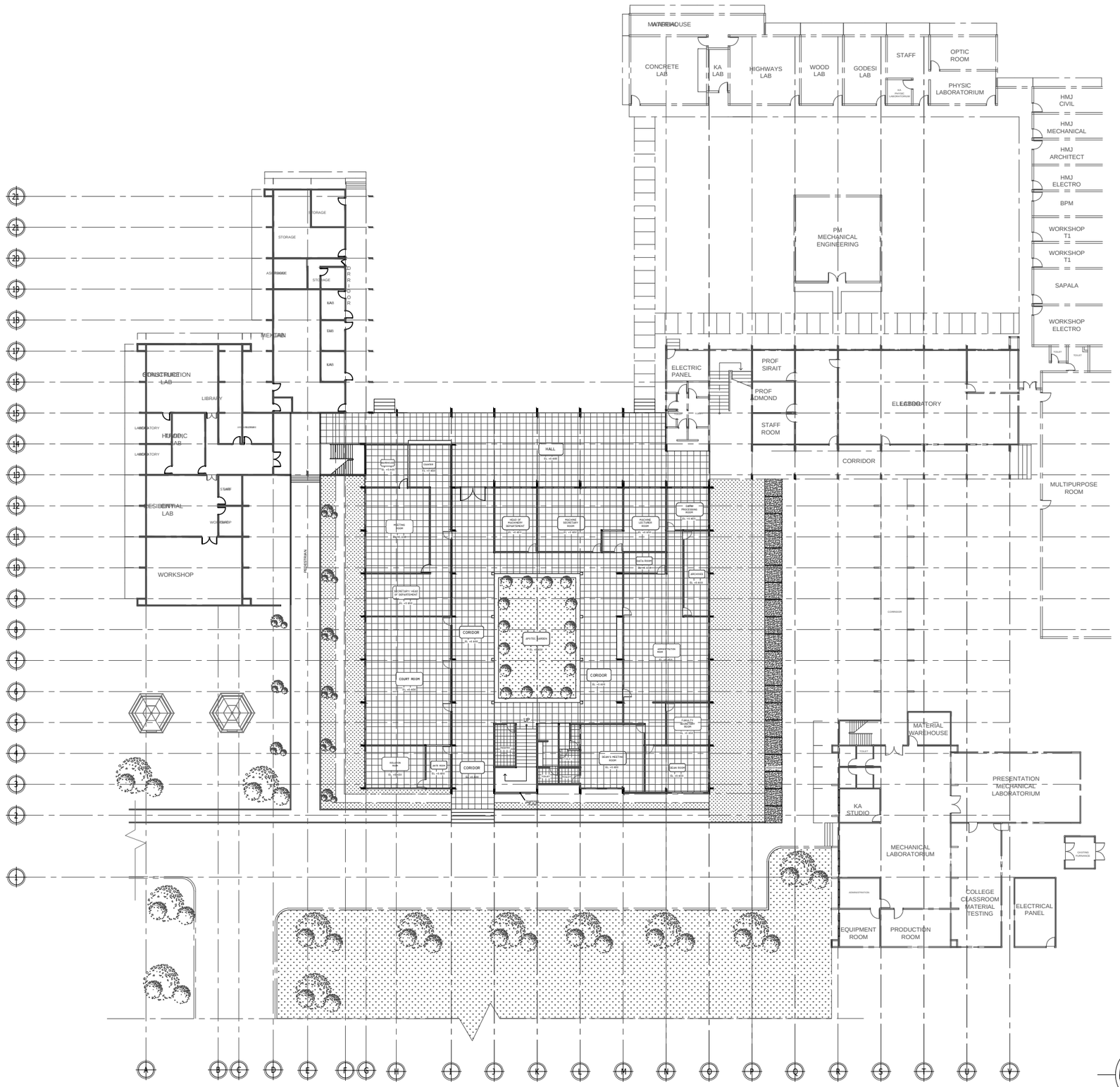
INTERIOR

Classroom

HARMONISM HABITAT

INTERIOR

Indoor Garden



SITE PLAN
SCALE I : 500

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

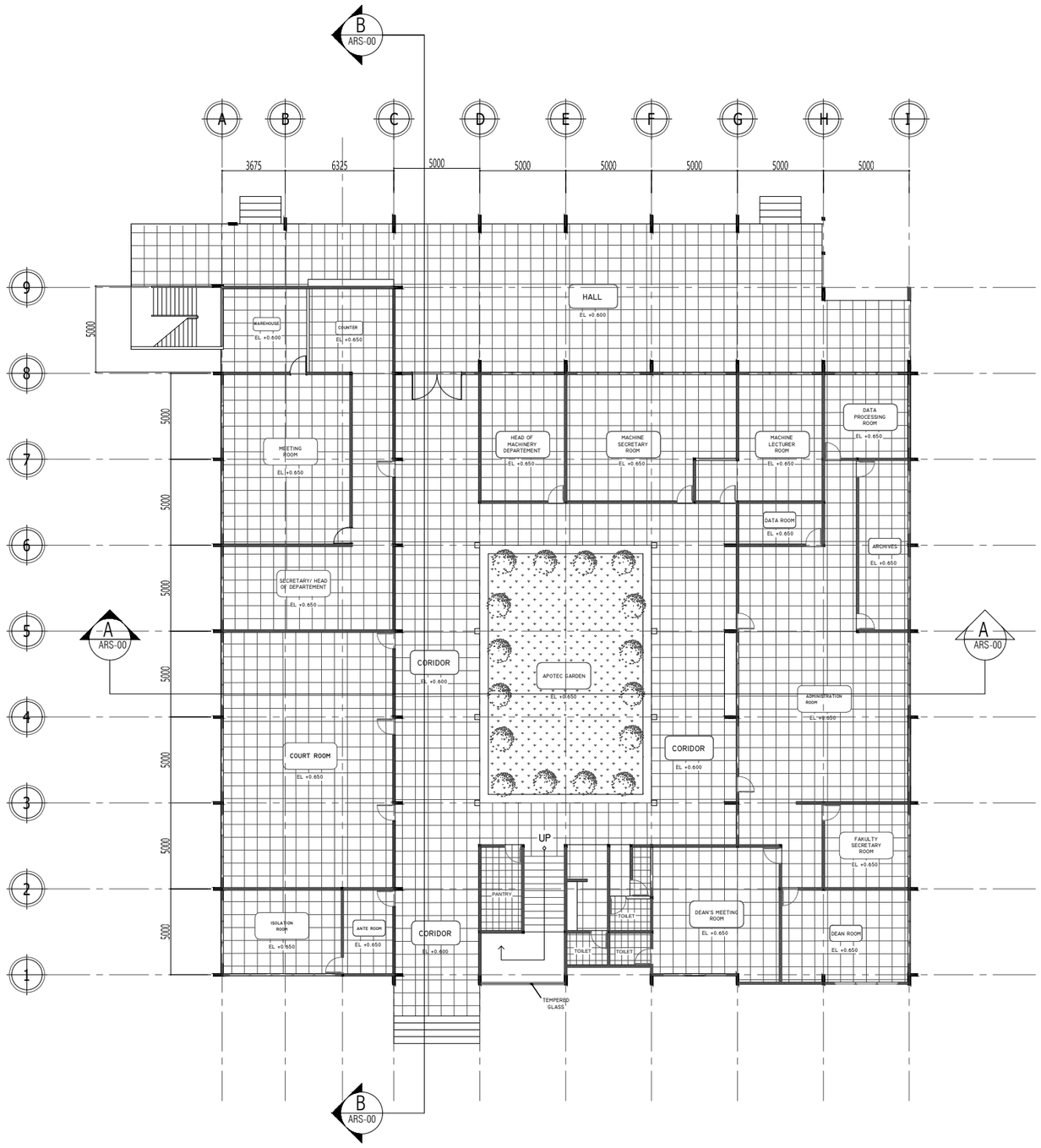
LAYOUT

SITE PLAN

SCALE

1:500

A3



1ST FLOOR LAYOUT

SCALE 1 : 300

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

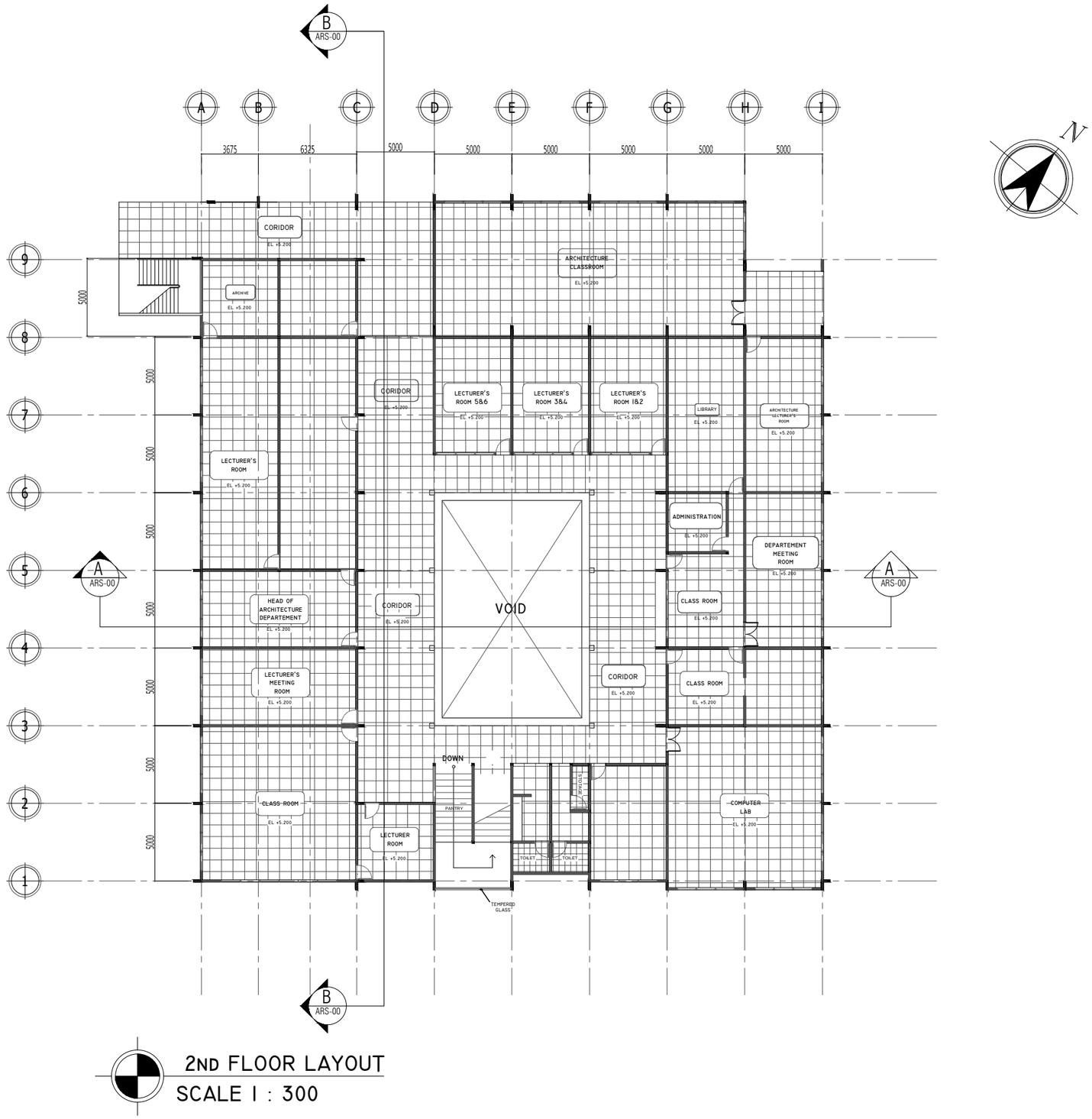
LAYOUT

1st FLOOR LAYOUT

SCALE

1:300

A3



2ND FLOOR LAYOUT

SCALE I : 300

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

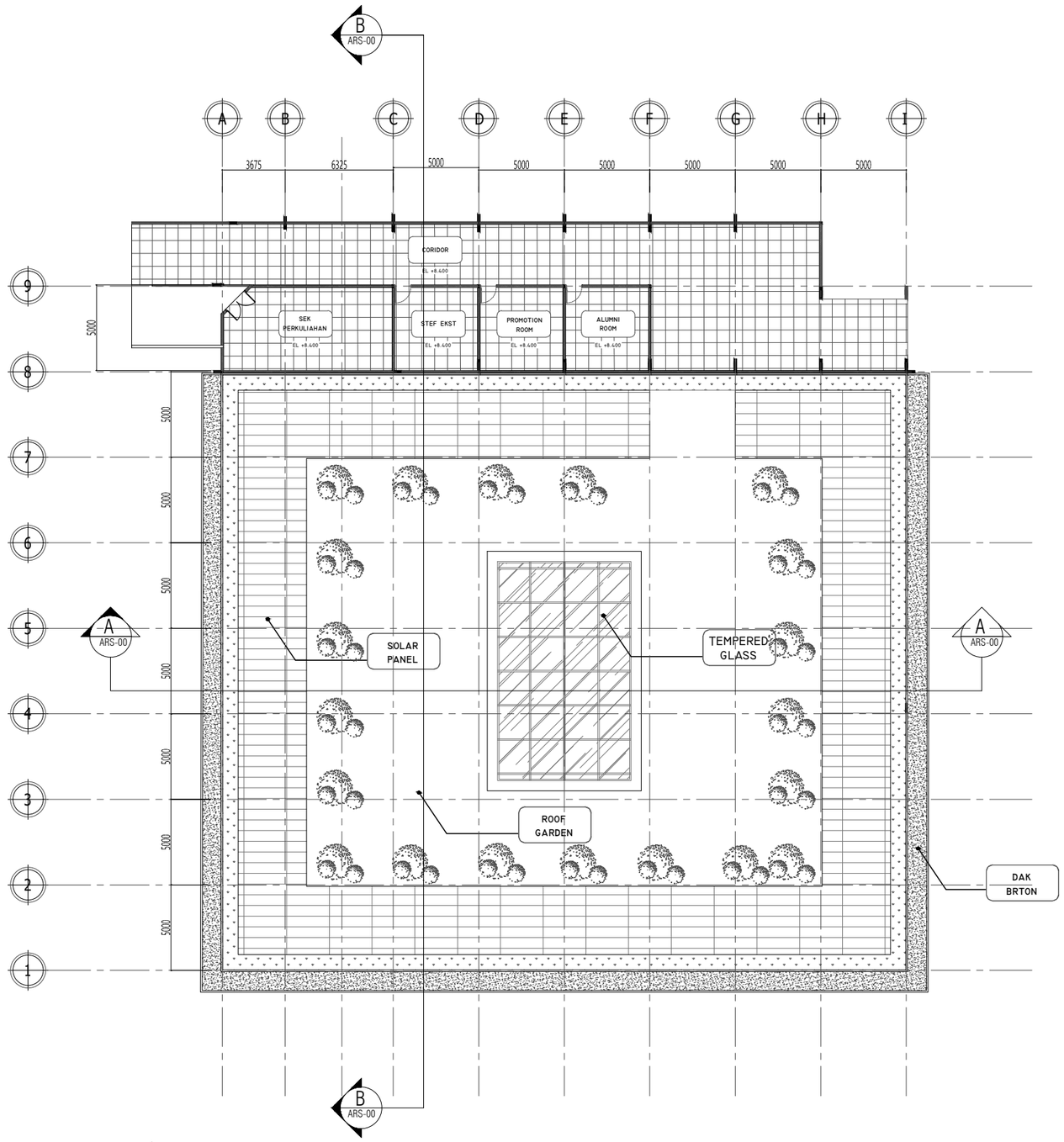
LAYOUT

2nd FLOOR LAYOUT

SCALE

1:300

A3



3RD FLOOR LAYOUT

SCALE I : 300

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

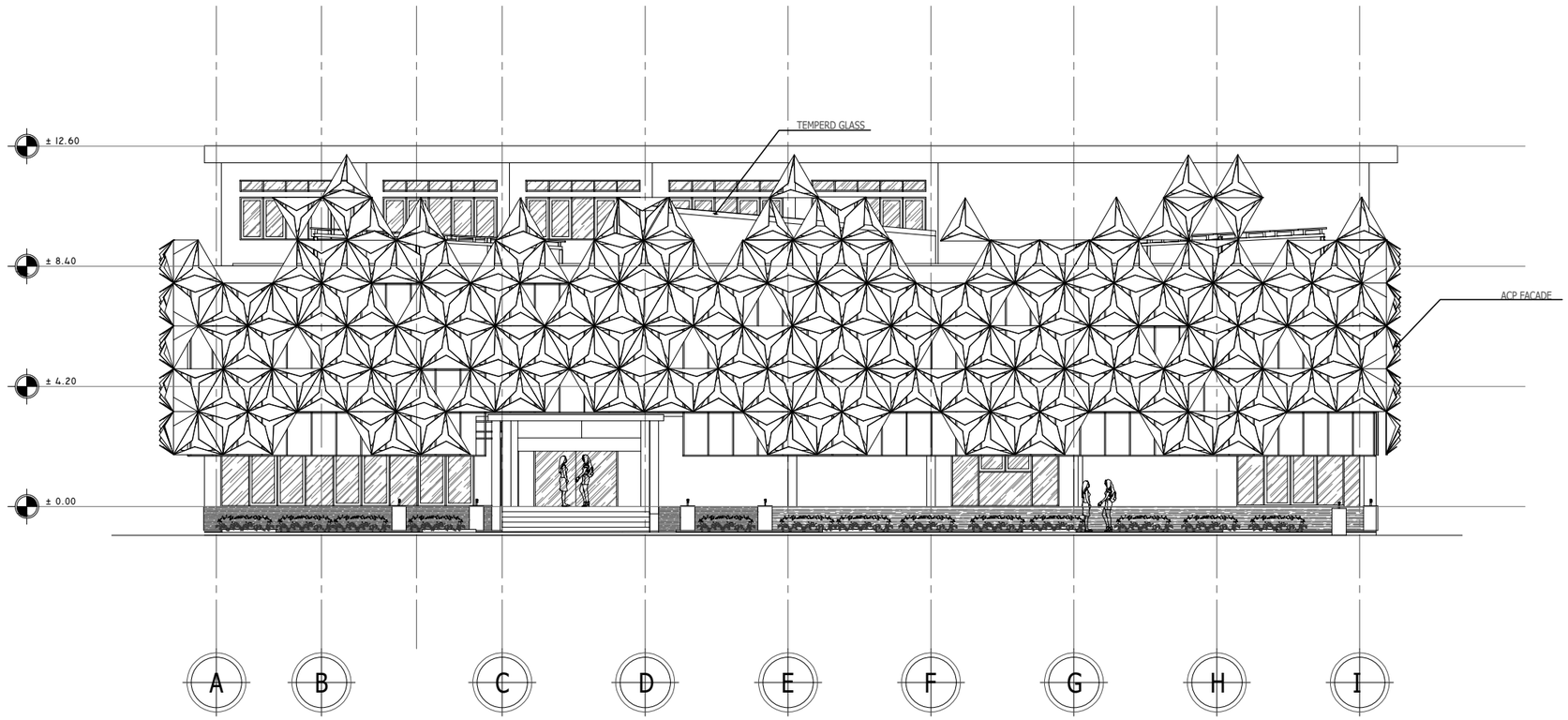
LAYOUT

ROOF TOP LAYOUT

SCALE

1:300

A3



FRONT VIEW
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

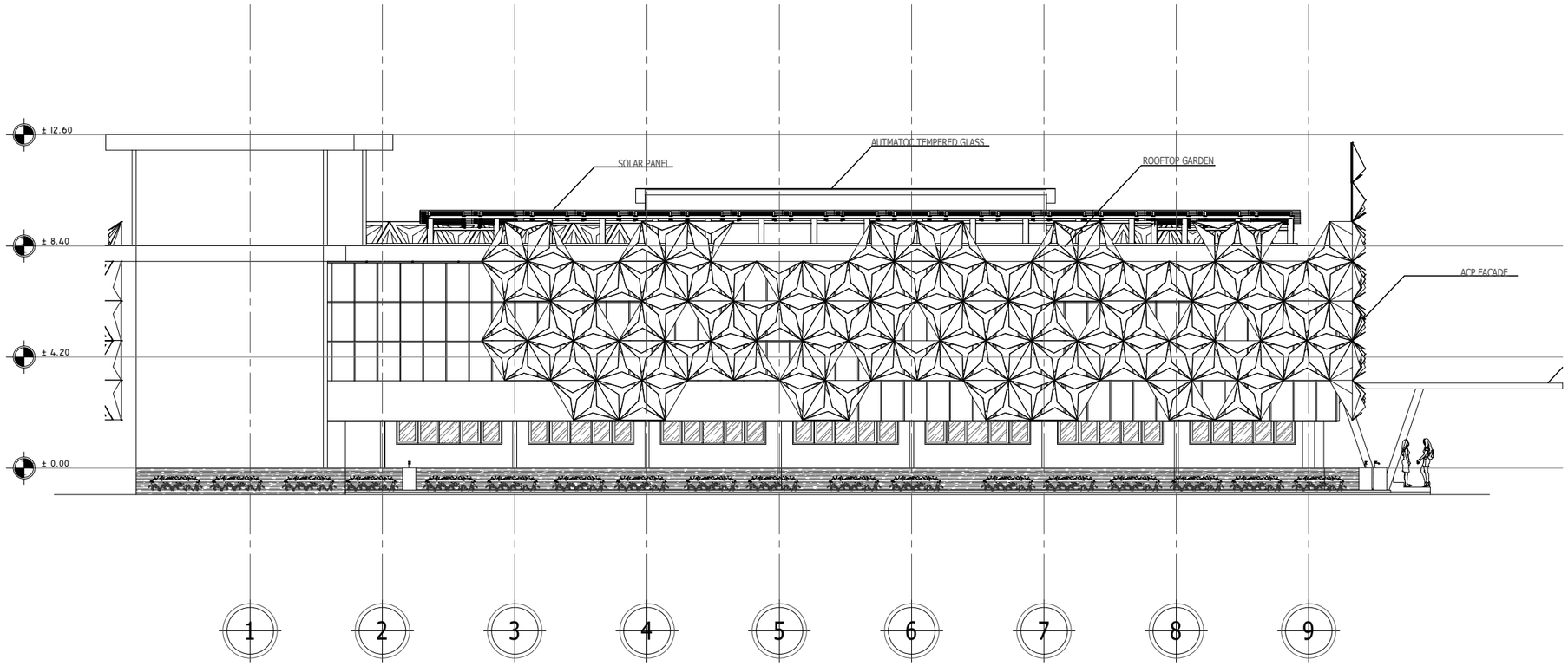
LAYOUT

VIEW

SCALE

1:200

A3



RIGHT VIEW
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

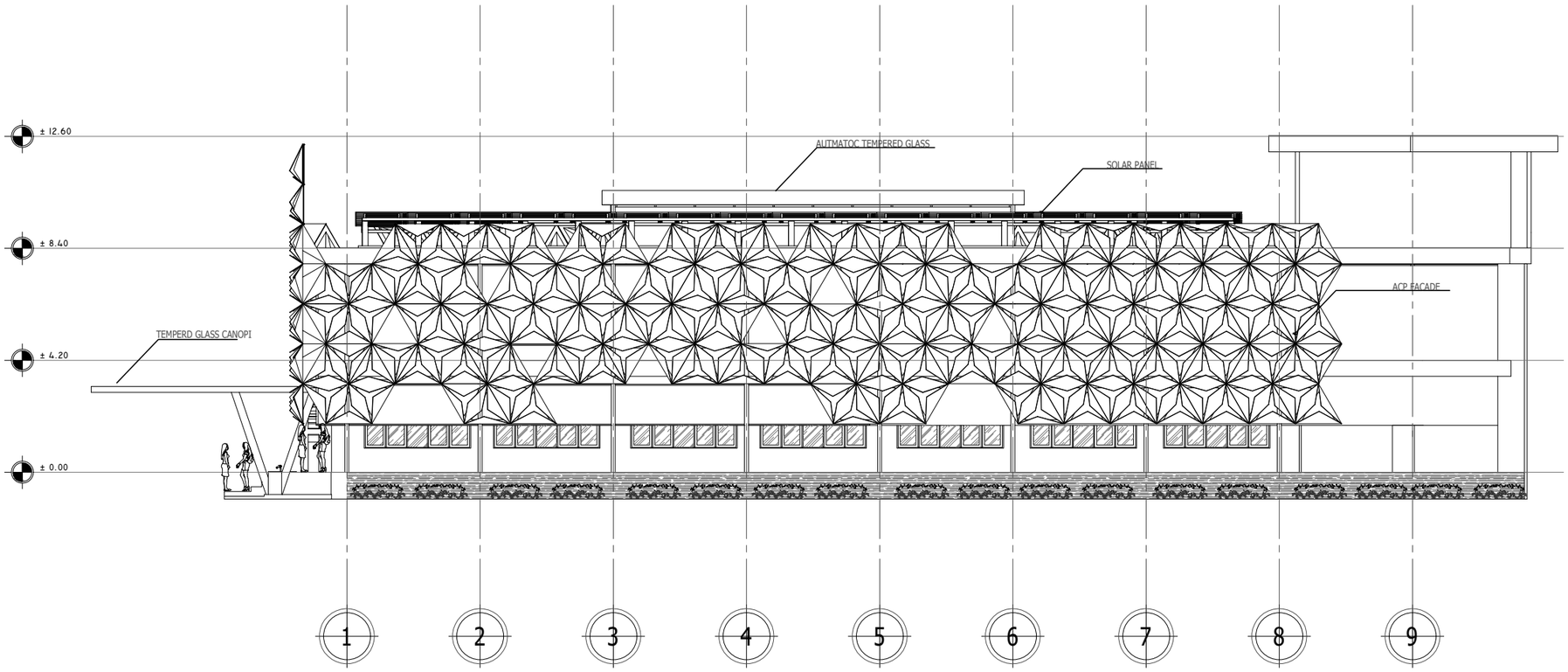
LAYOUT

VIEW

SCALE

1:200

A3



LEFT VIEW
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

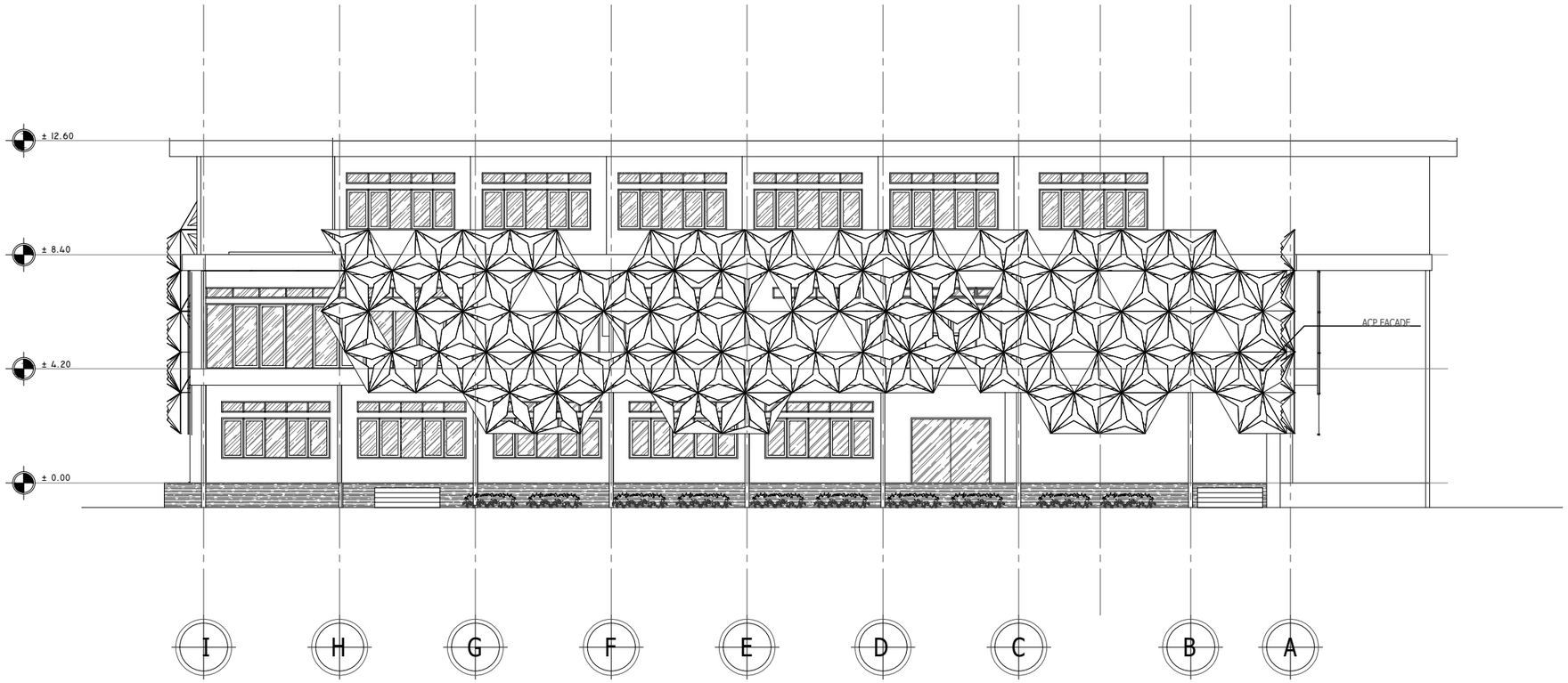
LAYOUT

VIEW

SCALE

1:200

A3



BEHIND VIEW
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

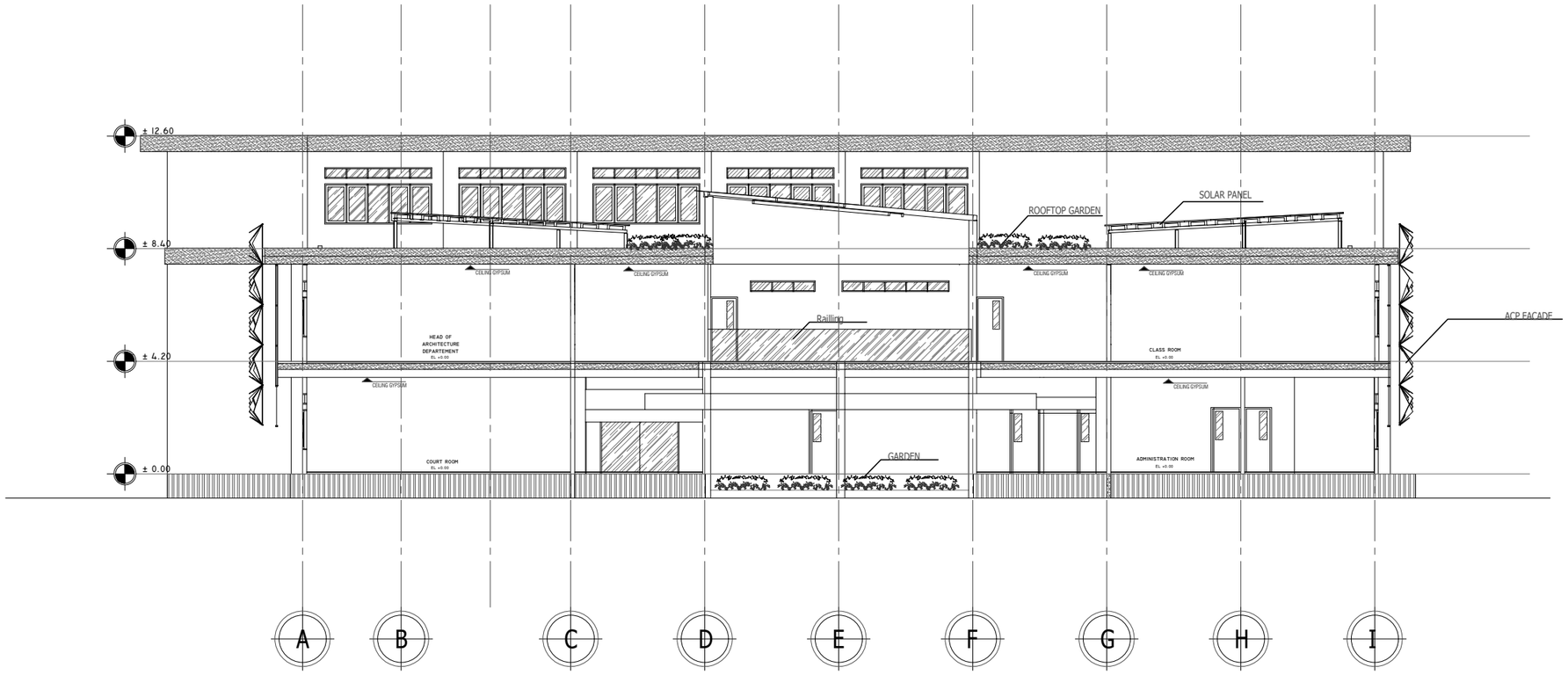
LAYOUT

VIEW

SCALE

1:200

A3



A-A SECTION
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

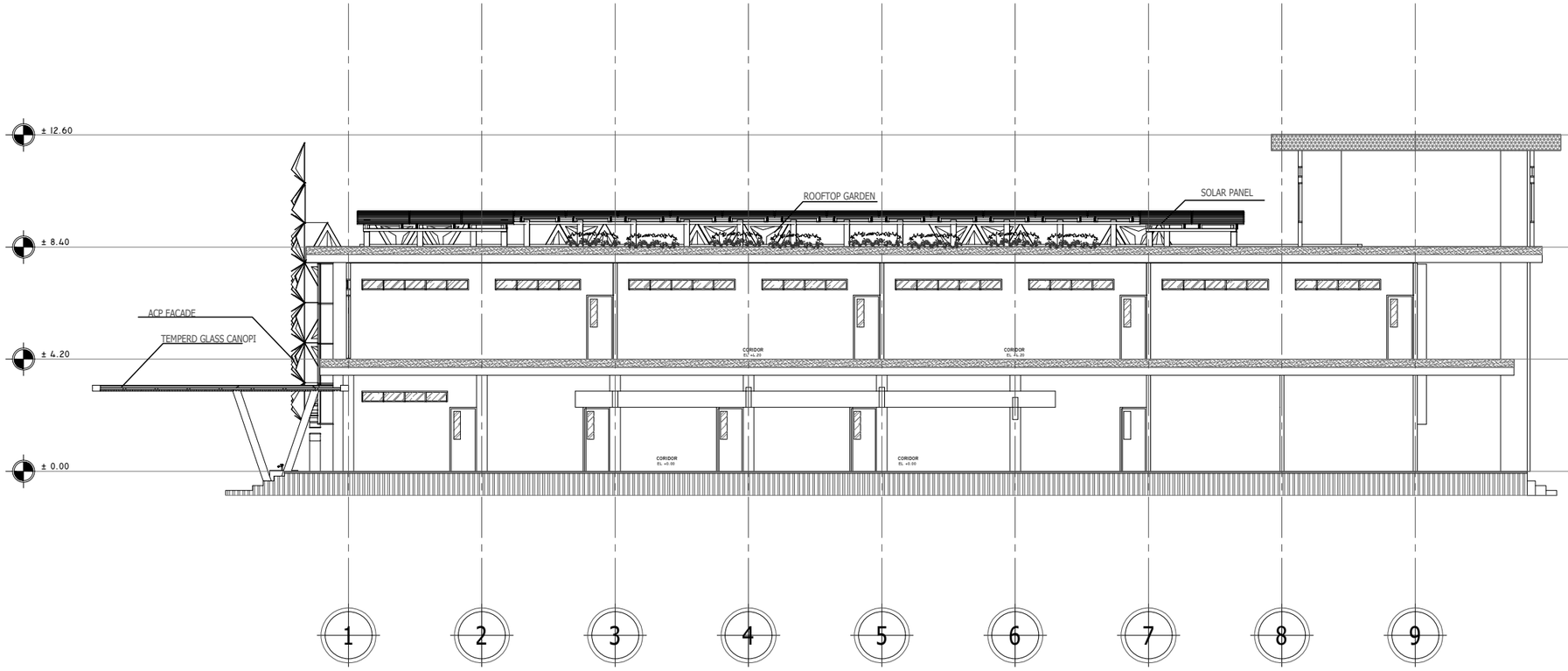
LAYOUT

SECTION

SCALE

1:200

A3



A-A SECTION
SCALE I : 200

UNIVERSITAS KRISTEN INDONESIA

LECTURER

Ir. Miflihul Iman, S.T

PROJECT

INTERNATIONAL STUDENT WORKSHOP

GROUP

6

LAYOUT

SECTION

SCALE

1:200

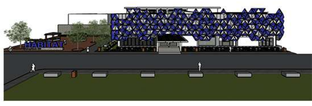
A3

HARMONISM HABITAT

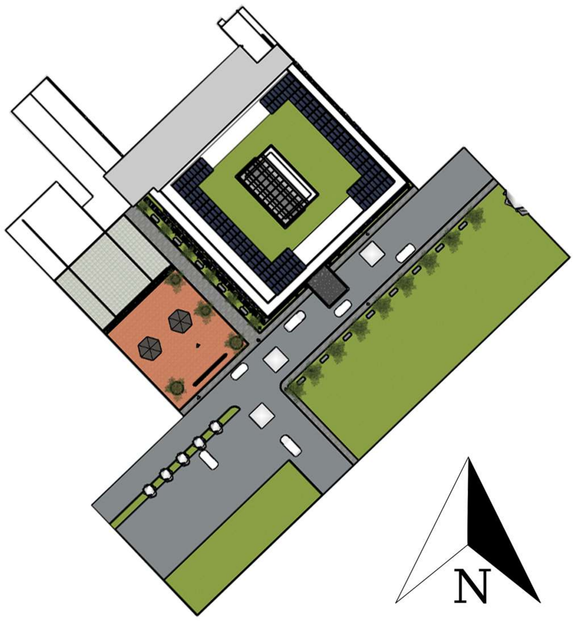
Harmony is a collaboration between several factors, namely humans, buildings and the environment. Where a healthy building will have a good impact on the environment and humans.

Habitat is the place where living things live.

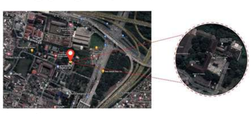
Since the **Covid-19** pandemic everyone is working from home, we want to create a habitat (a comfortable and safe place to live) for students.
The campus is designed to follow standard health protocols so that students don't have to worry about going back to study on campus (New Normal).



Harmonic Habitat is a building designed with green architecture concept, which is a form of response to the effects of the current covid-19 pandemic. With a design that maximizes natural



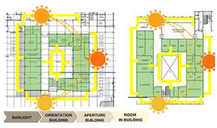
PROJECT DATA

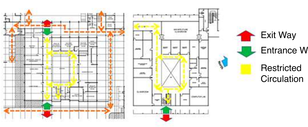


Location :
Jl. Mayjen Sutoyo No.2, Cawang, Kec. Kramat Jati, Kota Jakarta Timur, DKI Jakarta

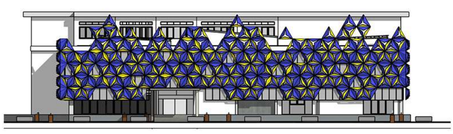
B ZONE

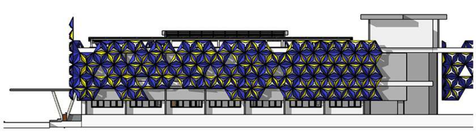
ANALYSIS

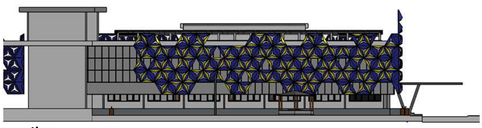


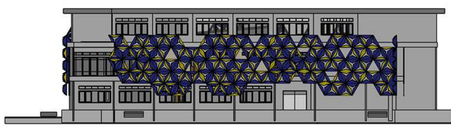


VIEW



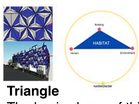






section

FACADE PHILOSOPHY



Triangle
The basic shape of this facade is a Triangle. The triangle is a symbol of the 3 elements that make up the "habitat" namely humans, buildings and the environment that have a harmony.

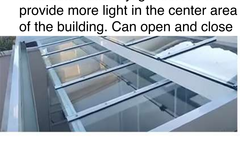
HIGH TECH

Garden and Fishpool
This garden and fish pond in the middle serves as a refresher, because the activities in the building are quite busy, this park can be used as a healing spot for

Wastafel & Touchless Faucet
The sink is placed in this area as a user facility to ensure the cleanliness of his hands in doing something before entering the sterile area. Aqua Auto faucets are perfect for this purpose because the sensor shuts off immediately when not used, thus eliminating the risk of water wastage when a user fails to turn the tap off.

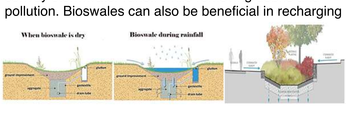
Solar Panel Roof
Indonesia has a tropical climate where the sun is almost 12 hours shining brightly. We can use this as

Automatic Skylight
This automatic skylight serves to provide more light in the center area of the building. Can open and close



Biopore Hole
Biopore infiltration holes are cylindrical holes that are made vertically into the ground as a method of water absorption aimed at overcoming waterlogging by

Bioswale
Bioswales are channels designed to concentrate and convey stormwater runoff while removing debris and pollution. Bioswales can also be beneficial in recharging



Automatic Sensor Door
A door that will only open when an automatic footstep sensor is detected. Made without touch as one of the high technology that responds to covid-19.