



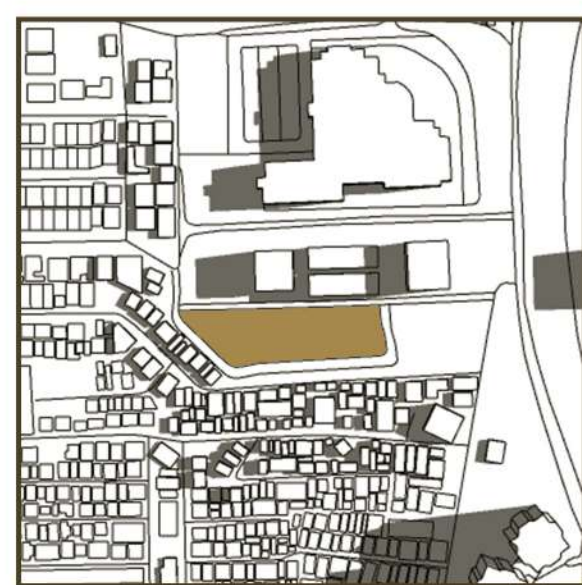
THE COLONY

DFGE-23-0030 - TARUMANAGARA UNIVERSITY

GISELLA THALIA [317222010] - RAFLI ALFIANO [317222007] - AGUNG KURNIAWAN [317221001] - LEONARD [317222011]

CENTRAL COURTYARD VIEW

SITE ANALYSIS



BASIC DATA

Address:
Tanjung Duren Raya No.1, RT.11/RW.1,
Grogol Petamburan, Jakarta Barat, 11470

Main Orientation : North

Coordinates:
-6.170011, 106.785861
6°10'12.0"S 106°47'09.1"E

Area: 7,187.91 m²

REGULATION

KDB : 40% - 60%
KLB : 0.6 - 1.6
KDH : 20%

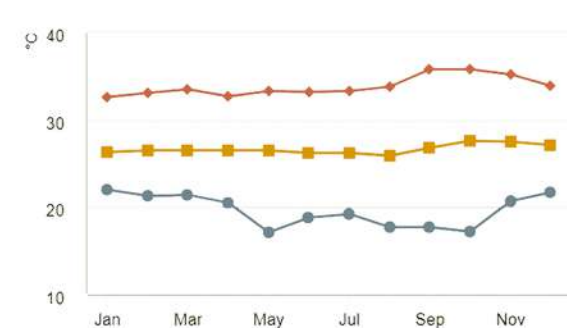
SURROUNDING AREAS

NORTH: Tarumanagara University
EAST: Roadside Access
SOUTH: Residential Area
WEST: Residential Area

Site is accessible from all sides



WINDROSE AND TEMPERATURE

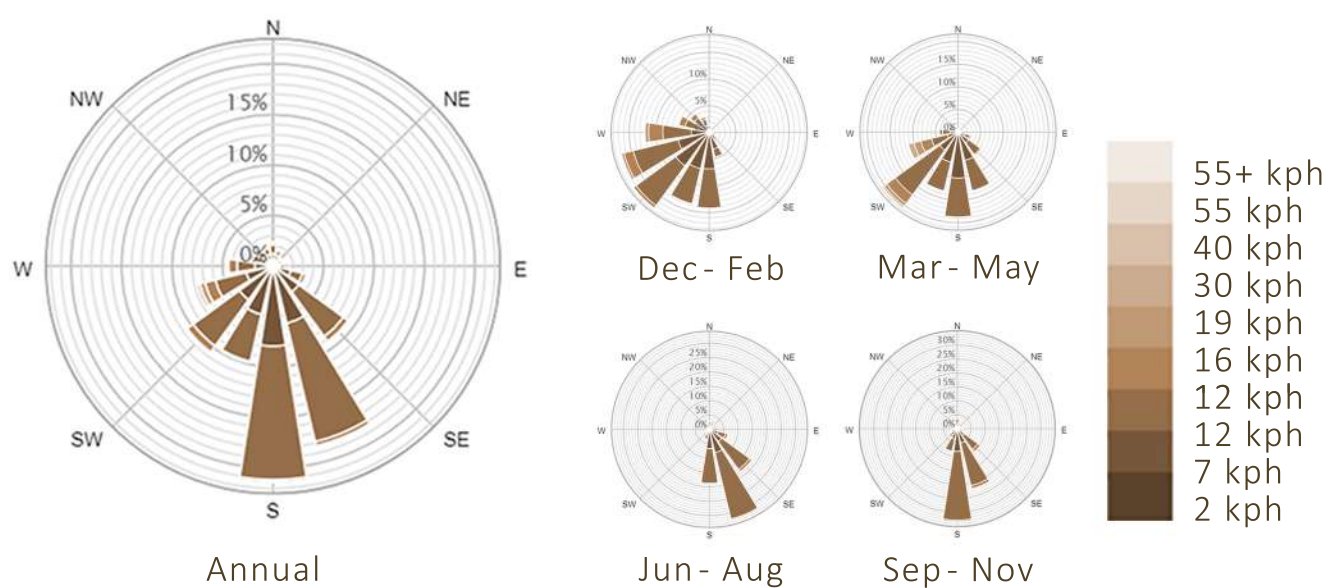


MOTHLY TEMPERATURE AROUND SITE

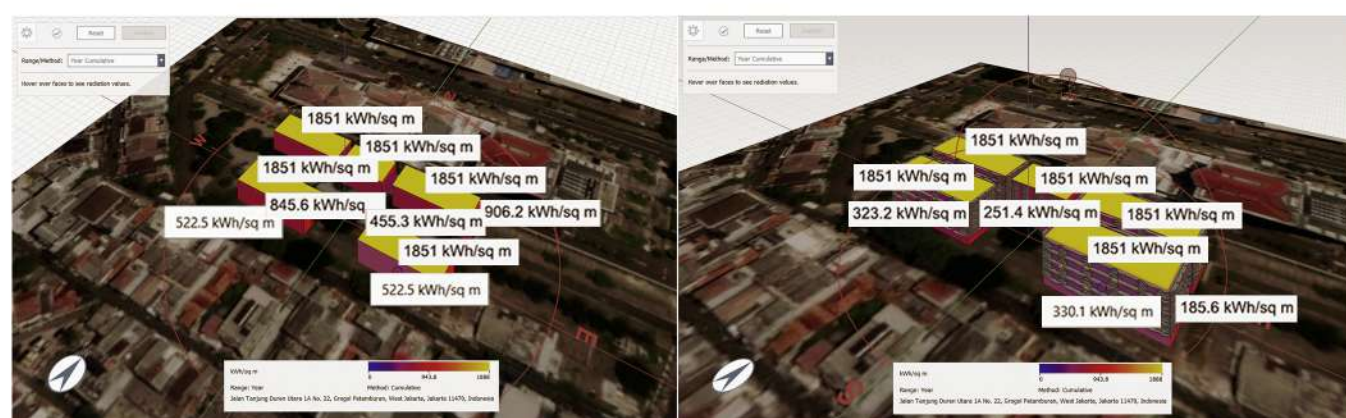
Weather Station ID: 1458677
NW 4.5 km away

● DryBulb Temperature - Minimum
● DryBulb Temperature - Maximum
● DryBulb Temperature - Average

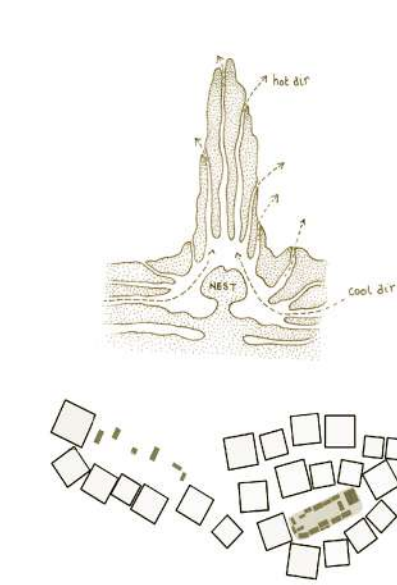
ANNUAL AND SEASONAL WINDROSE SPEED



ANUAL AND SEASONAL WINDROSE SPEED



INITIAL CONCEPT

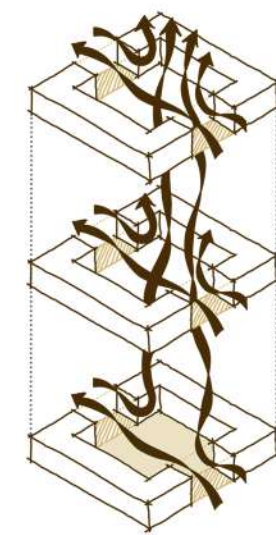


TERMITE MOUND

- Central chimney / void
- Ground/ Basement level used for air intake
- Air flows through the central voids allowing cross ventilation systems through each individual units

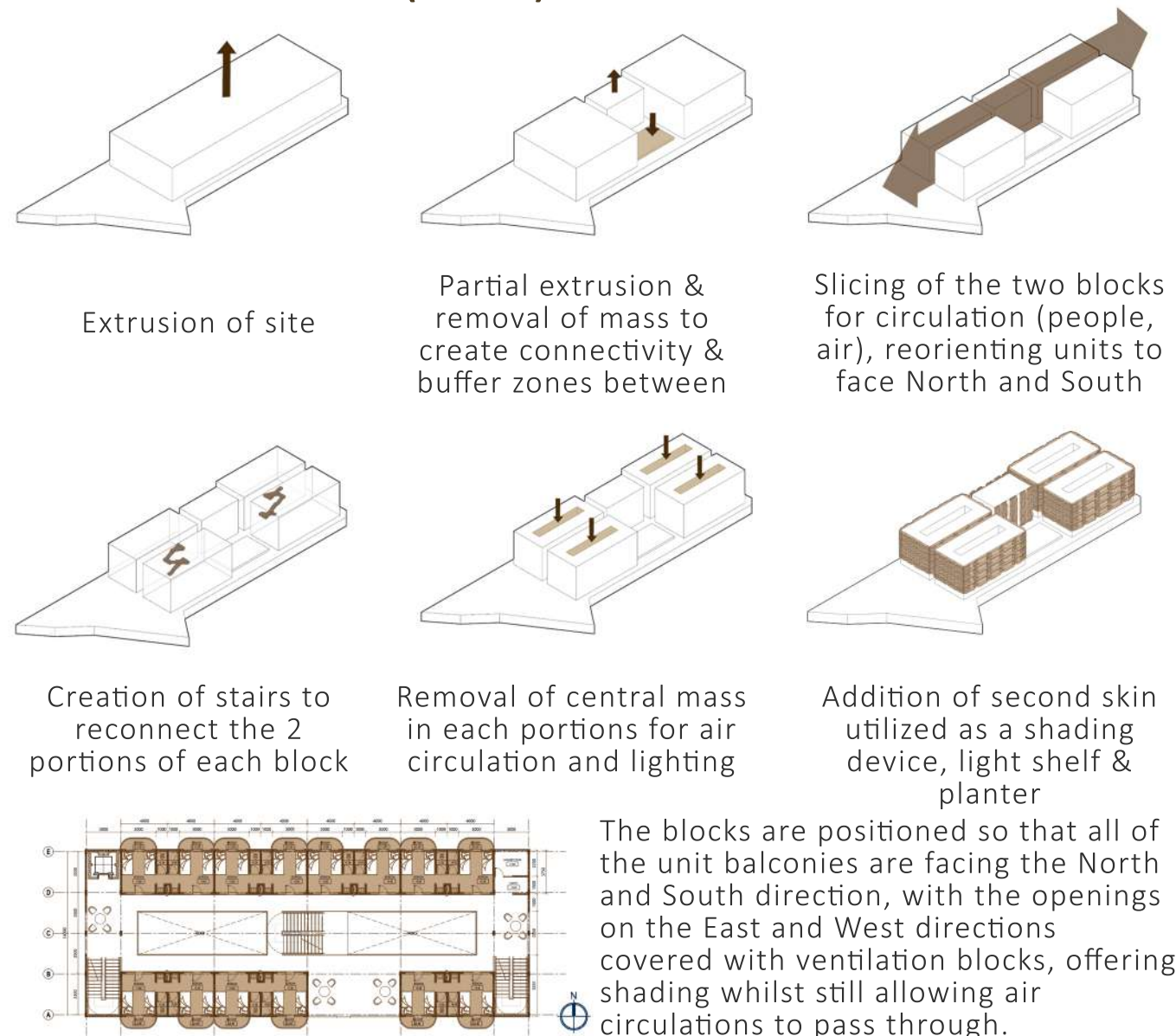
KAMPUNG (VILLAGE)

- Prioritizes "togetherness"
- Inwards Orientation
- Central Communal spaces

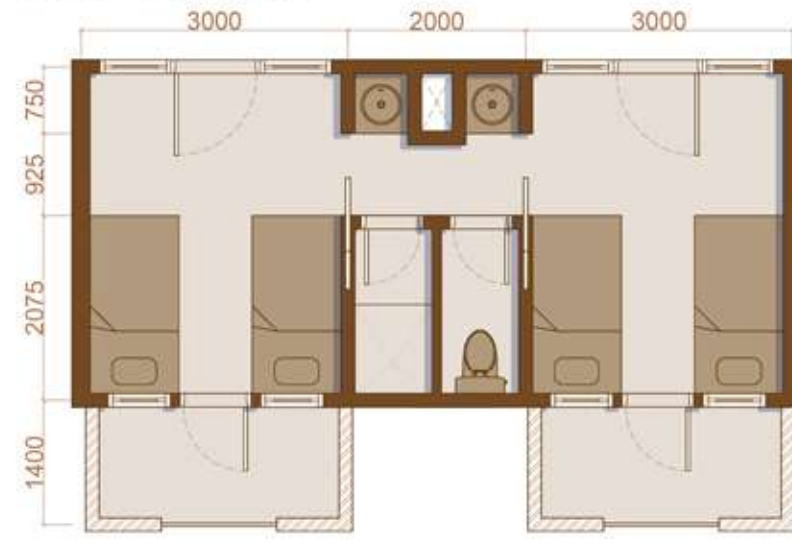


Air flow concept diagram

CONCEPT DIAGRAM (FORM)



UNIT DESIGN



Each unit is designed for 2 people, with a connecting area housing a shared washtafel, shower and toilet. The toilet and shower is separated for usage efficiency. The bed room area consist of a loftbed that houses the workstation and wardrobe area on the lower level, and the bed on top.

There are multiple openings and windows which allows for cross ventilation system in each unit



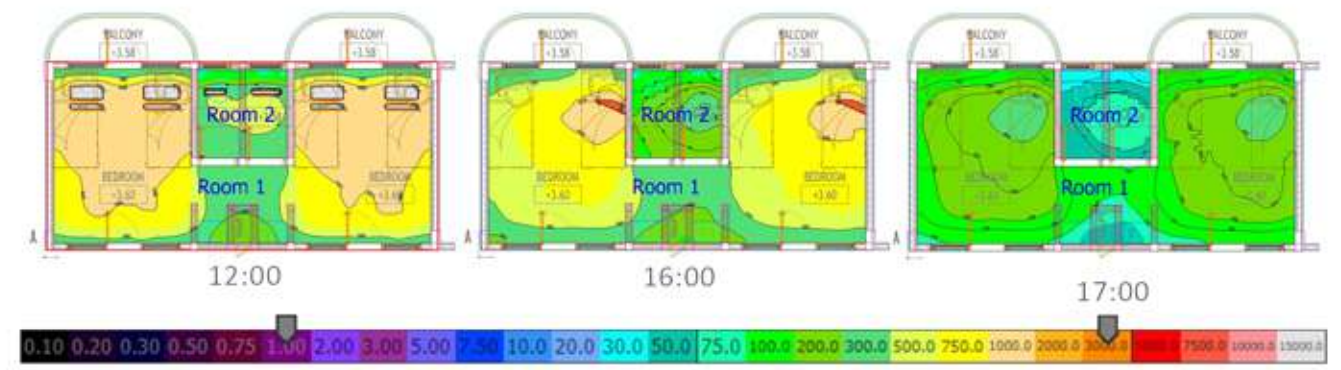
BALCONY FACADE VIEW



STUDENT ROOMS

UNIT LIGHTING & VENTILATION

NATURAL LIGHTING



SNI 03-6197-2000 Lux Standard for bedroom area : 120- 250 Lux

12:00

BEDROOM AREAS : 300-1000 Lux
WASHBASIN & BATHROOM : 300- 500 Lux

Therefore, there is no need for artificial lighting during this hour.

16:00

BEDROOM AREAS : 300-500 Lux
WASHBASIN & BATHROOM : 300 Lux

Therefore, there is no need for artificial lighting during this hour.

17:00

BEDROOM AREAS : 150-300 Lux
WASHBASIN & BATHROOM : 35- 75 Lux

Therefore, artificial lighting would need to start being utilized during this hour.

NATURAL VENTILATION

Opening Type : Cross Ventilation
Maximum D:H Allowed : 5.00
Minimum Required Opening Area (%/m2) : 20%

Room Depth (m) : 3.75 Room Area (m2) : 3.75
Ceiling Height (m) : 3.00 L (m) : 3.00 | H (m) : 1.25
D:H of Space : 1.25 Opening Area : 5.04 (2.1)

Which means that the openings fits the requirements for natural ventilation systems

PROGRAMMES

1ST FLOOR

- Reception
- Hang Out Area
- Dining Hall
- Co-working Space

COMMON AREA

- Lobby
- Hall
- Co-Working Space
- Library

MISCELLANEOUS

- In-Dorm Minimarket

UNIT FLOORS (2-5)

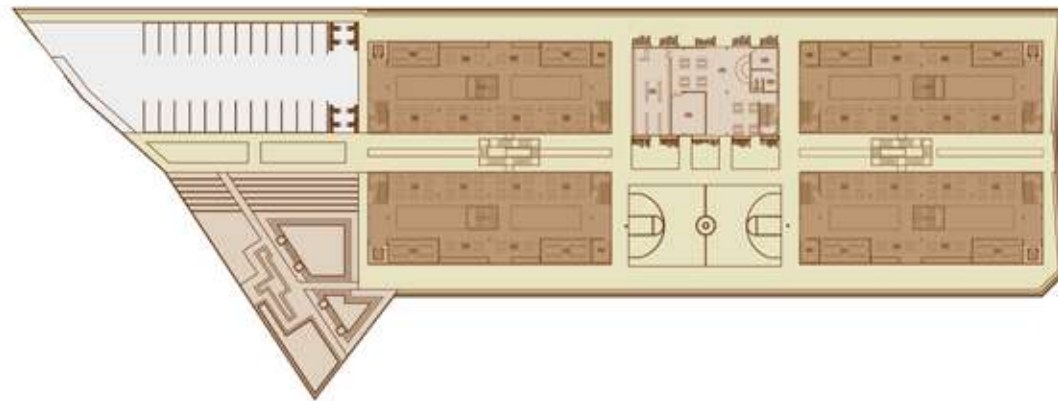
- Units
- Pantry
- Laundry Area
- Leisure Area

OUTDOORS

- Parking
- Multipurpose field
- Jogging Track



COMMON BUILDING



DORM BLOCKS COMMON AREA OUTDOORS PARKING



CENTRAL COURTYARD



BUILDING CORRIDOR



CENTRAL COURTYARD

ENERGY EFFICIENCY MEASURES



Reflective Paint / Tiles for Roof - Solar Reflectivity

Coolroof - Reflecto
Solar Reflection Index: 104.36



Reflective Paint External Walls

Aquaproof Heatgard
Solar Reflection Index: 101



Air Conditioning System

Daikin - Urusara 7
COP 5,70



Energy-Efficient Refrigerators & Clothes Washing Machines

Sharp - 12,5 kg FL K-Pro
J-Tech Inverter- Energy Reduction: 47%



Energy-Saving Light Bulbs - Internal Spaces

Philips Downlight LED
Efficacy : 95



Reflective Paint External Walls

Philips Downlight LED
Efficacy : 120



Indonesia
DfGE Design
Competition 2023

THE COLONY

DFGE-23-0030

2/6



CONNECTING STAIRWELL



EXTERIOR RENDER

MATERIAL EFFICIENCY MEASURES



Floor Slabs

In-Situ Concrete with >30% PFA
 Thickness:150 mm, Steel Rebar: 17 Kg/m2
 Embodied Energy: 605 MJ/m2



Roof Construction

In-Situ Concrete with >30% PFA
 Proportion 100%, Thickness 120mm Steel Rebar: 17 Kg/m2
 Embodied Energy: 606 MJ/m2

External & Interior Walls

Autoclaved Aerated Concrete Blocks
 Proportion : 100%, Thickness : 100mm
 Embodied Energy
 External Walls:317 MJ/m2
 Internal Walls:318 MJ/m2



Flooring (1)

Terazzo Tiles
 Proportion : 60%
 Embodied Energy: 99 MJ/m2



Flooring (2)

Finished Concrete Floors
 Proportion : 40%
 Embodied Energy: 70 MJ/m2



Window Frames

UPVC
 Proportion : 100%
 Embodied Energy: 829 MJ/m2

WATER EFFICIENCY MEASURES



Low-Flow Showerheads

American Standard FFASTS02-006500BF0
 12" Round Stainless Steel Rain Shower Head with Air-in
 3,6 L/Min



Low-Flow Faucets (Bathrooms)

American Standard FFAST823-101500XXX
 Push Basin Mono
 6 L/Min



Dual Flush Water Closets

American Standard CCC02000-XXACTST2B
 Close Coupled Toilet
 3L / 4.5Lpf

SOLAR PANEL CALCULATIONS

Energy Use /month	98.47	Kwh/unit
Energy Use /year	1181.64	Kwh/unit
Number of Units	56	Units
Energy Use 64 Units /year	66171.84	Kwh
80% Solar Photovoltaics	52937.47	Kwh
	35.29	Kwp
Area Required	352.9	m2
Roof Area	470	m2
Roof Area to be utilized	75	%

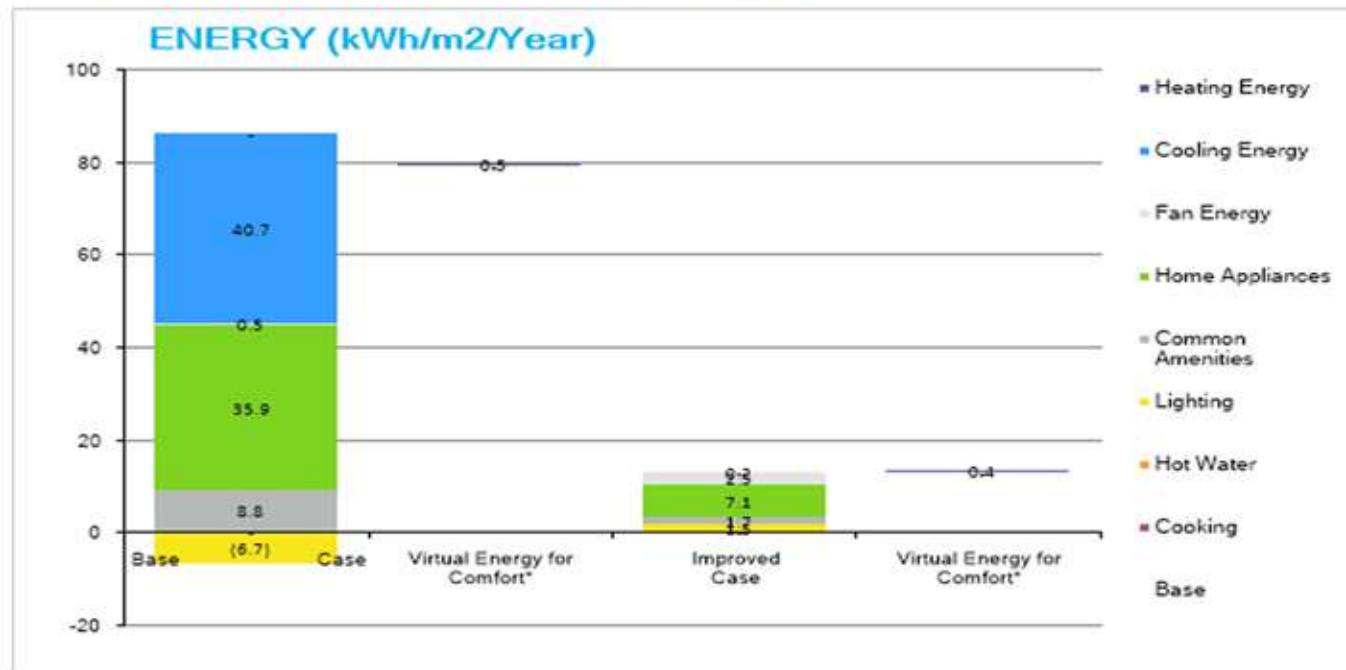


EXTERIOR RENDER

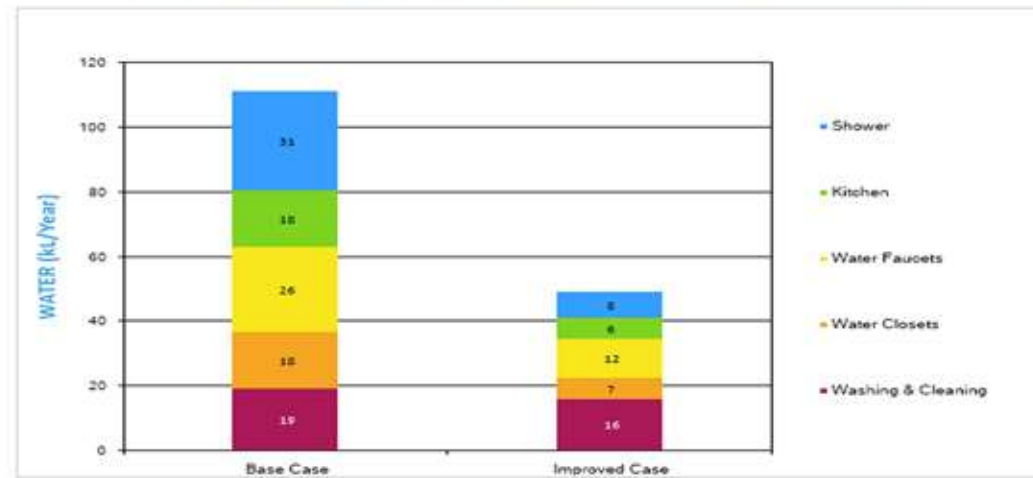


WEST ELEVATION RENDER

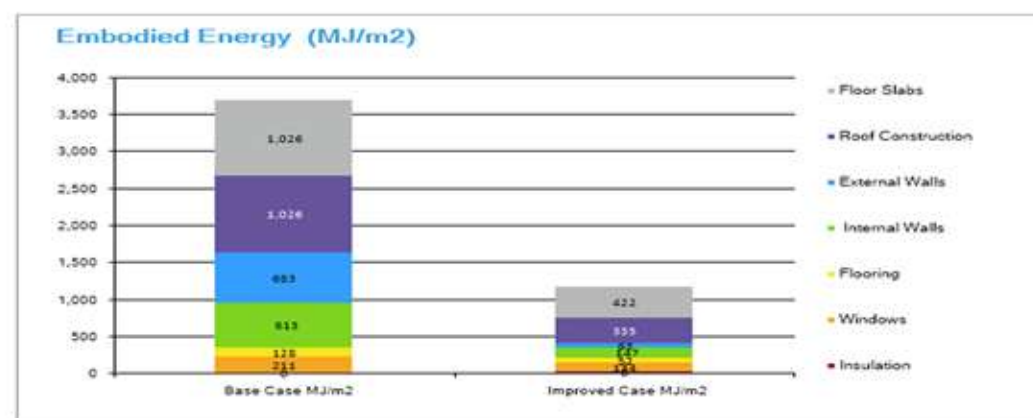
EDGE ENERGY SAVING CALCULATION



EDGE WATER SAVING CALCULATION

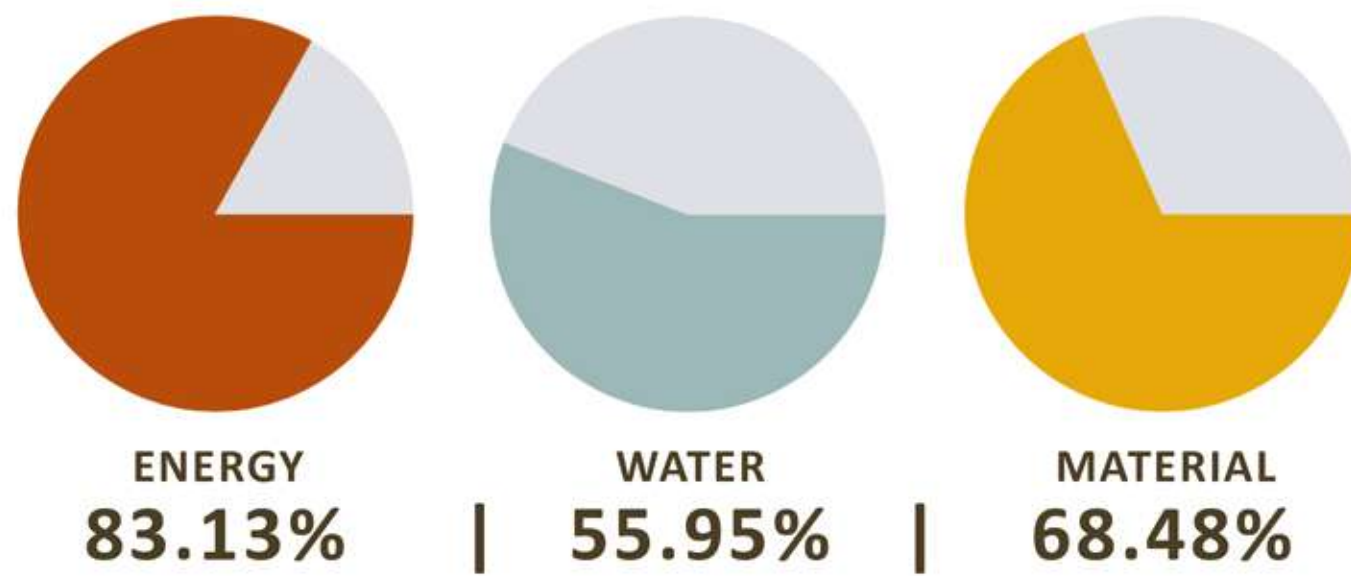


EDGE MATERIAL SAVING CALCULATION

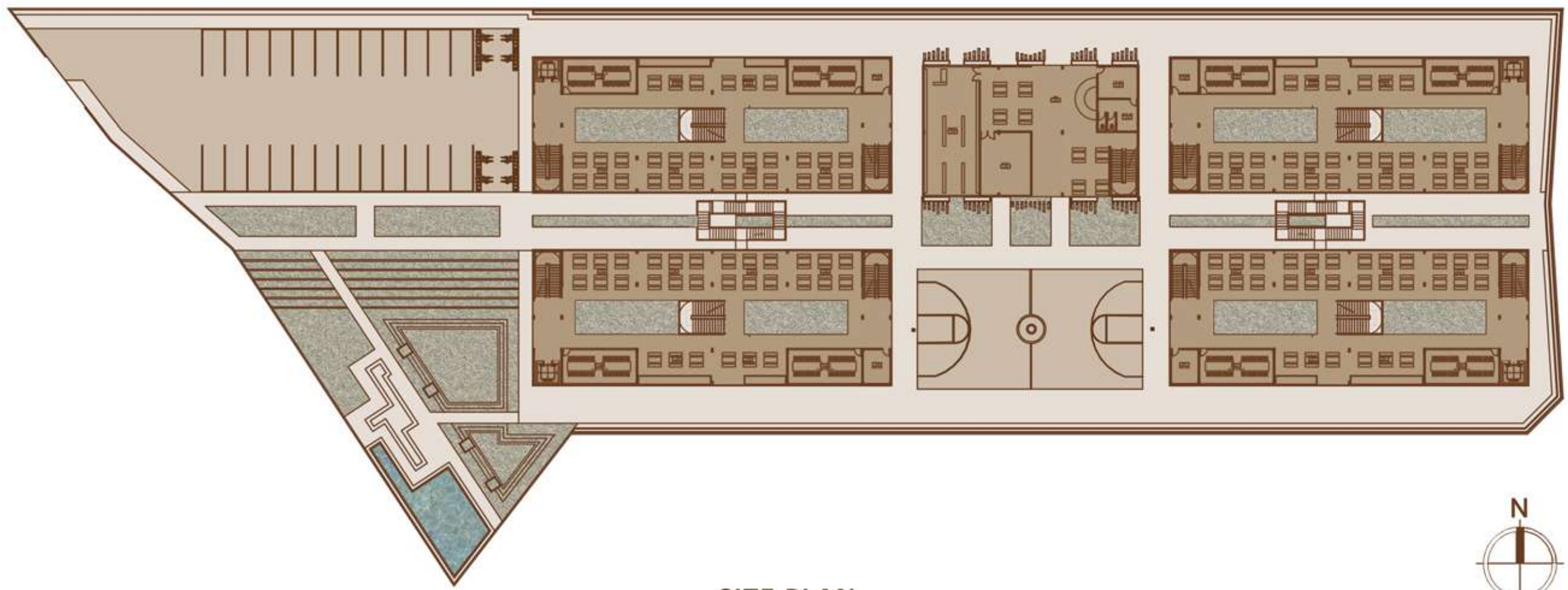


Carbon Emissions: -0.21 tCO₂/Year/Unit

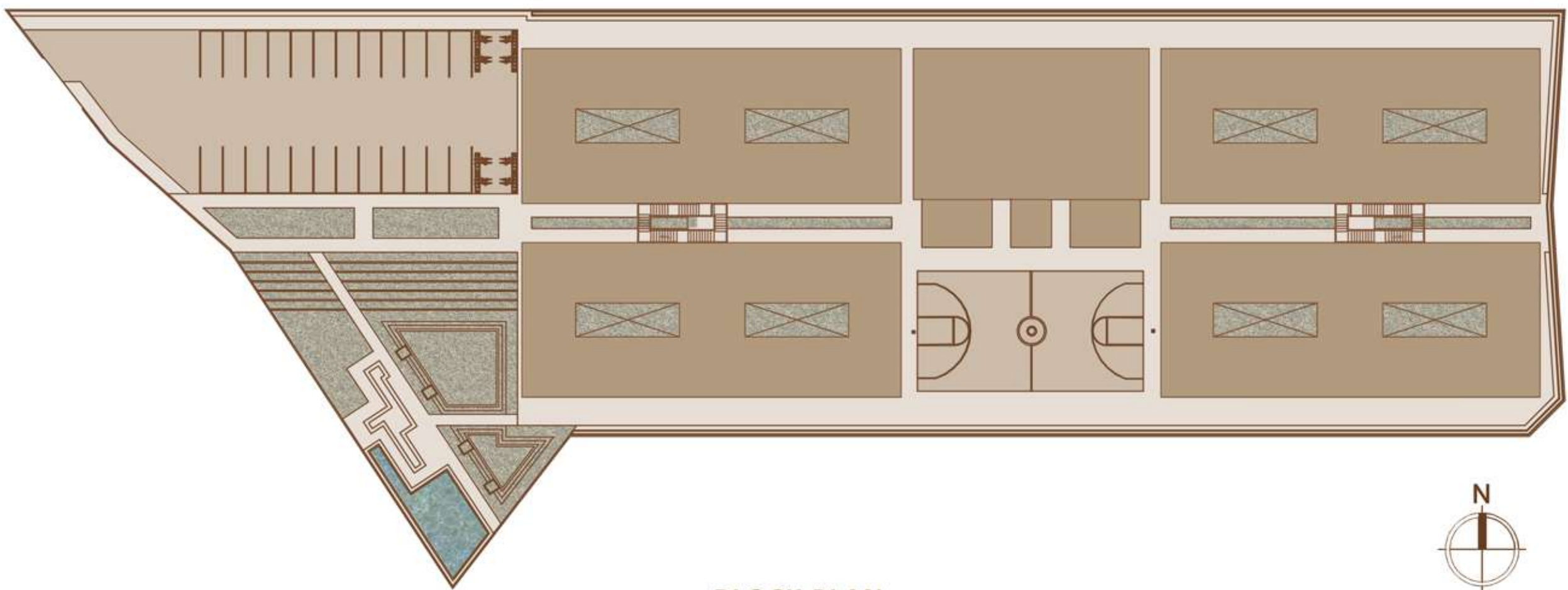
FINAL SAVINGS RESULTS



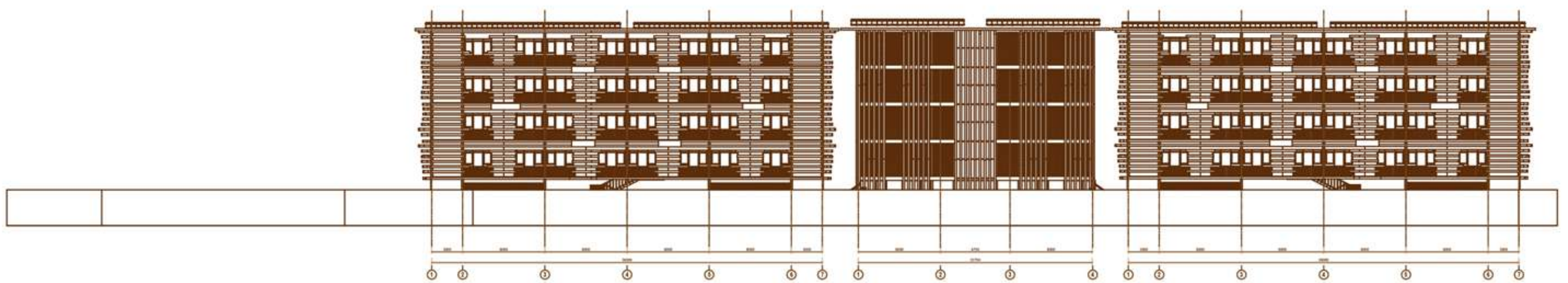
SOUTH ELEVATION RENDER



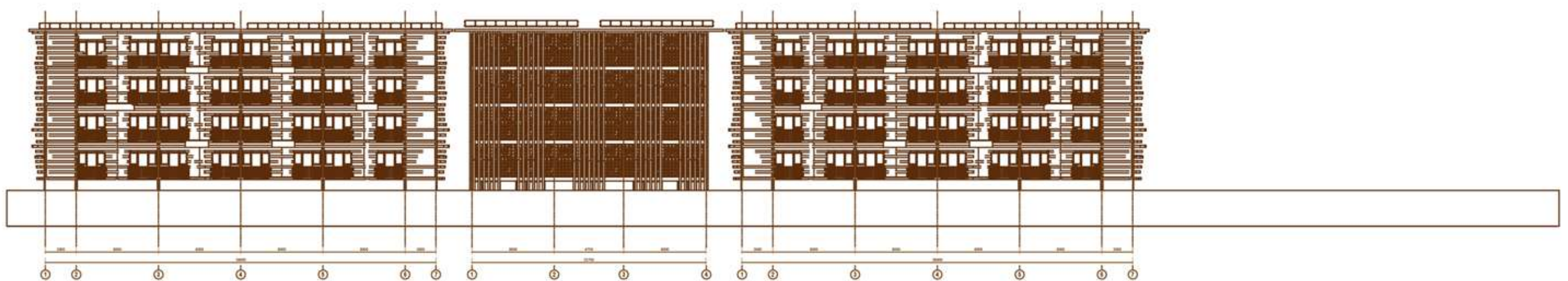
SITE PLAN



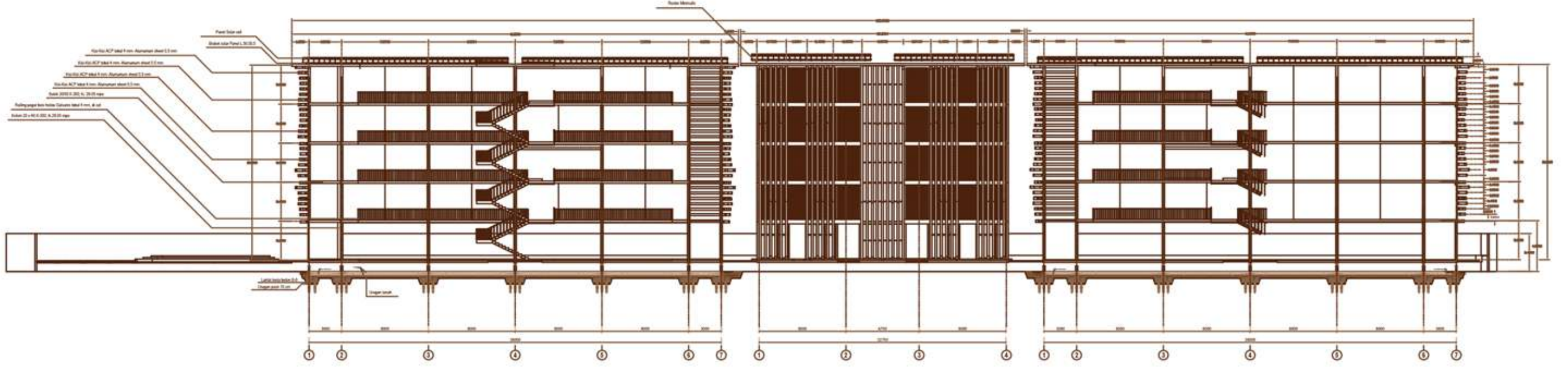
BLOCK PLAN



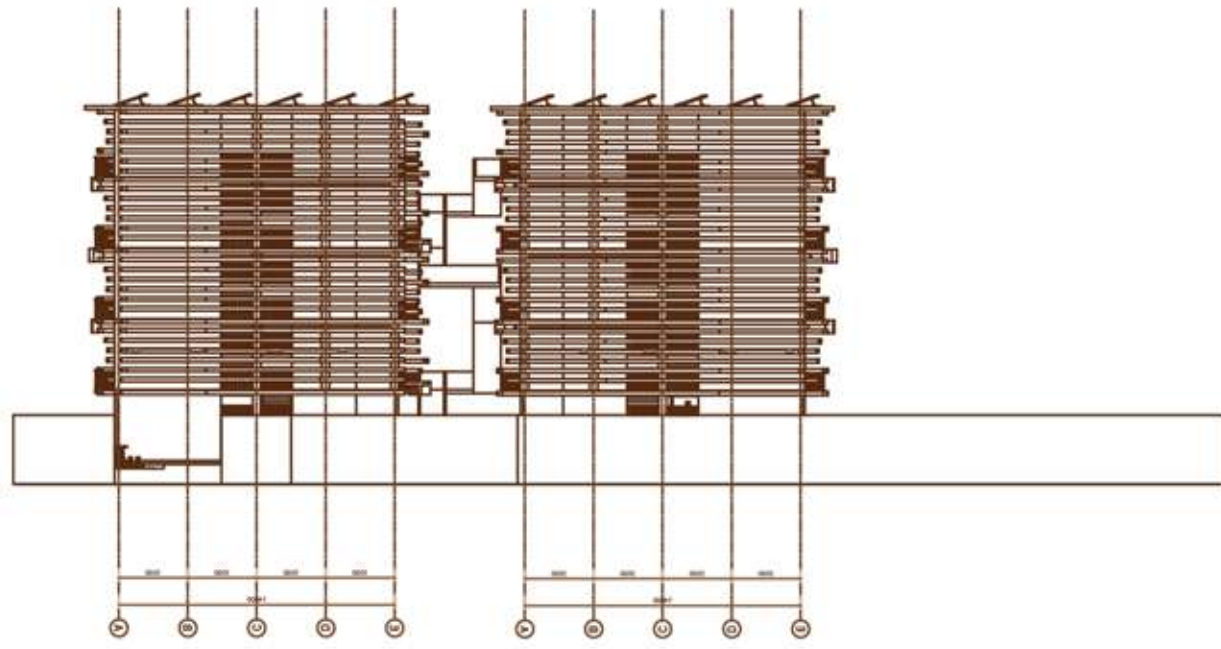
FRONT ELEVATION



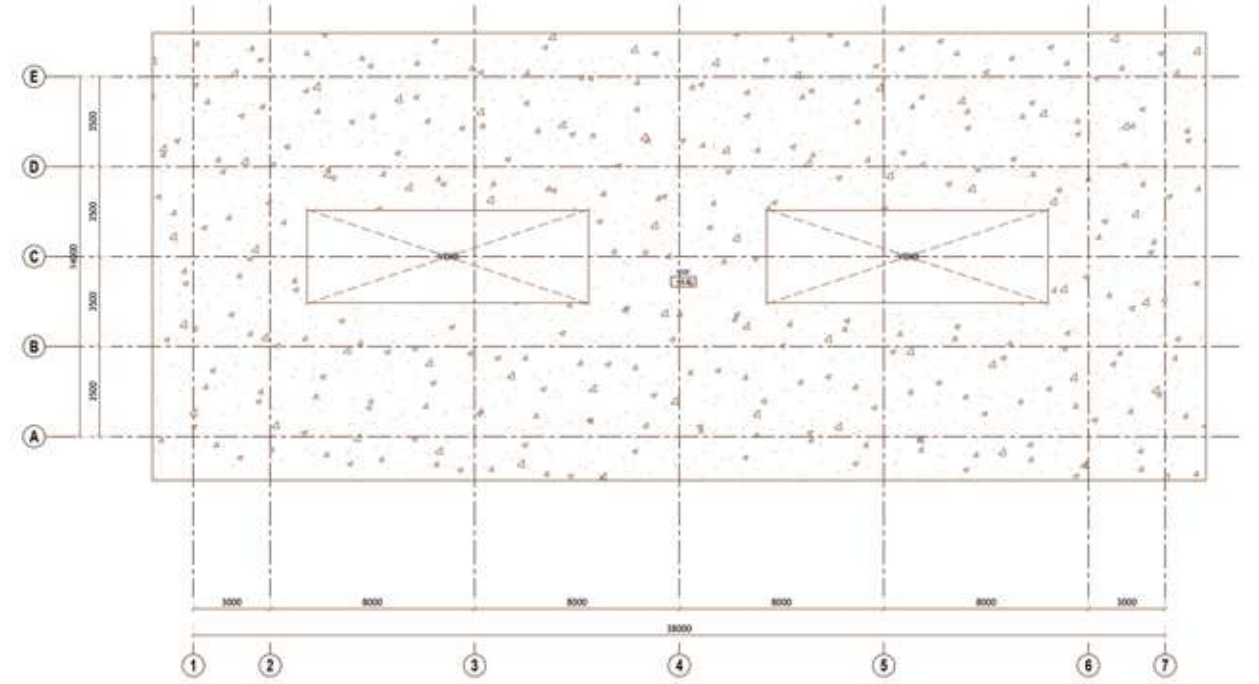
BACK ELEVATION



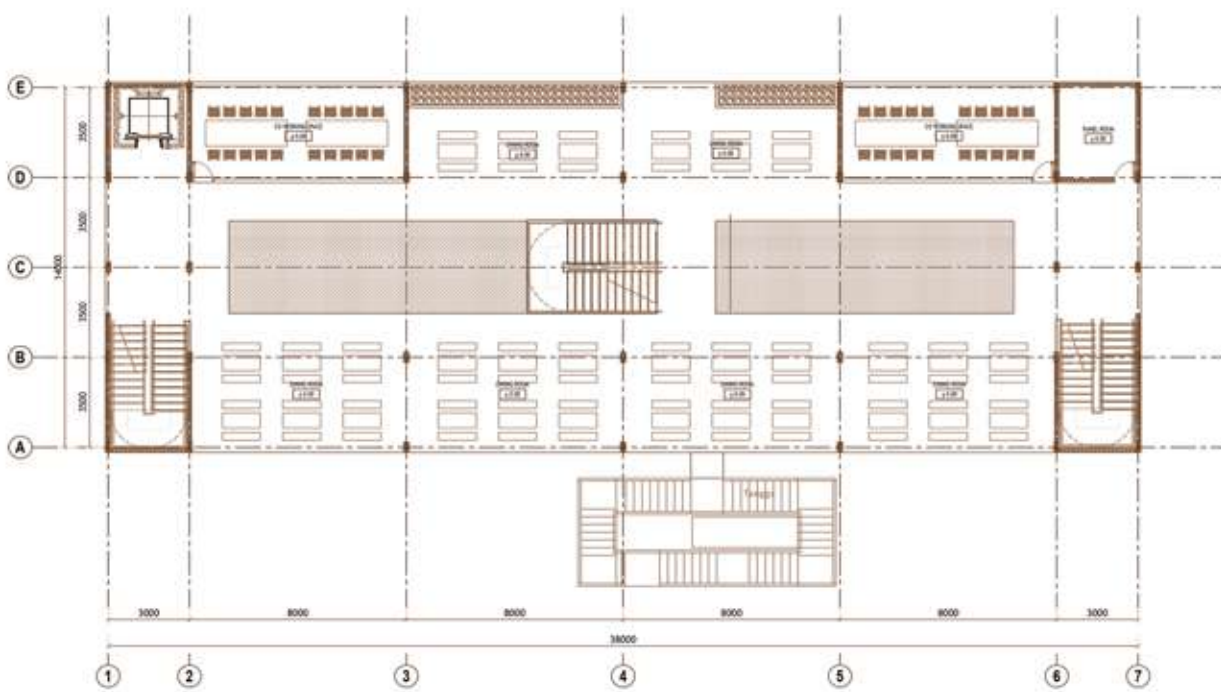
SECTION A



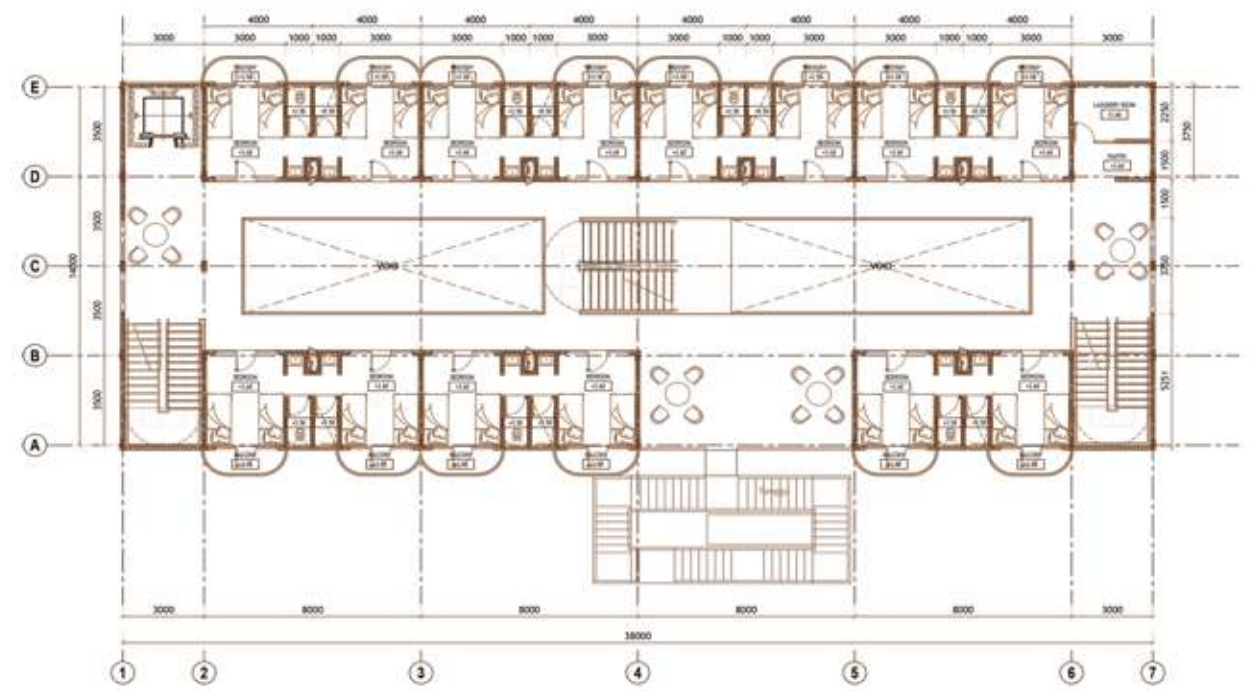
WEST ELEVATION



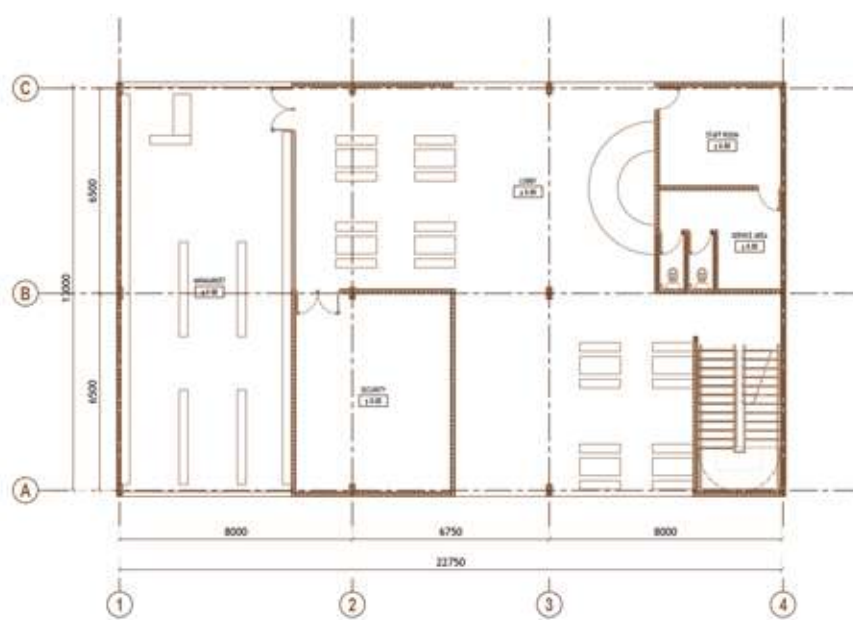
DORM BLOCKS - ROOF PLAN



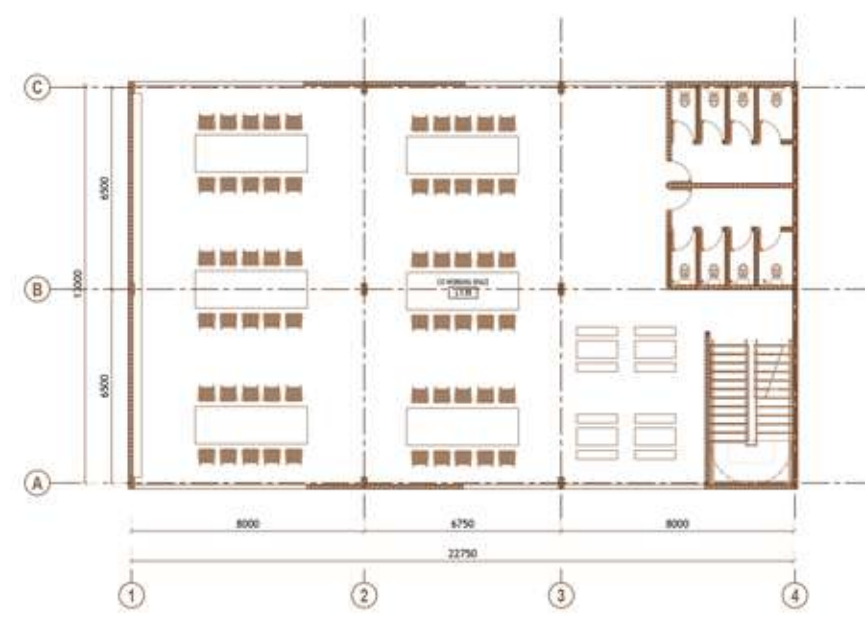
DORM BLOCKS - 1ST FLOOR



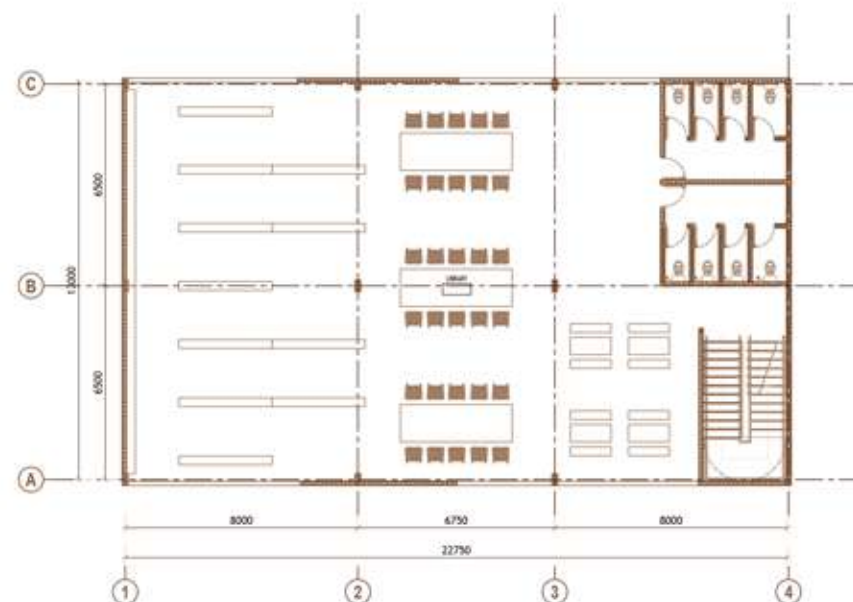
DORM BLOCKS - 2ND FLOOR



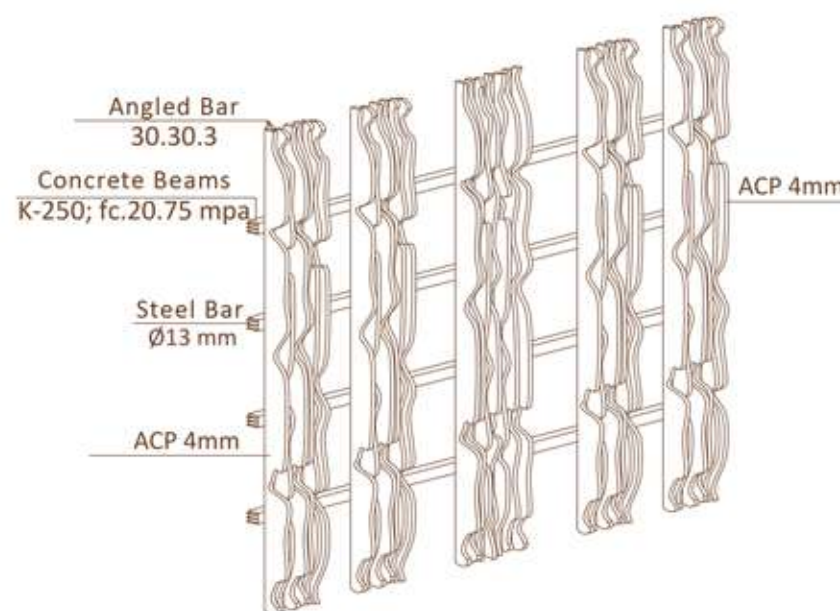
COMMON BUILDING - 1ST FLOOR



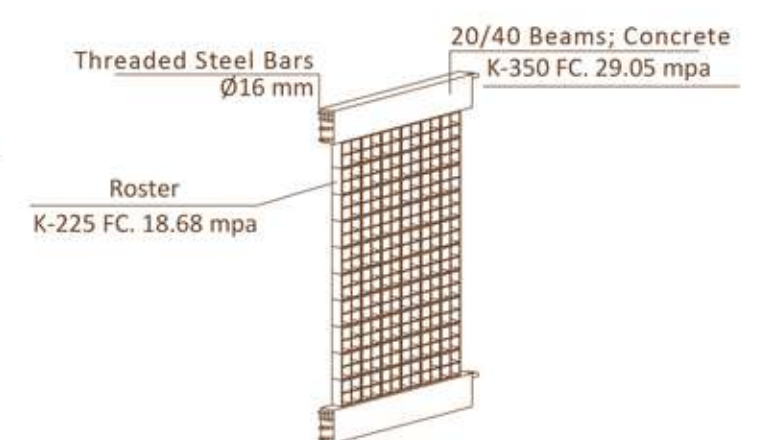
COMMON BUILDING - 2 TO 3 FLOOR



COMMON BUILDING - 4 TO 5 FLOOR



LOUVERED SKIN DETAIL



CONCRETE ROSTER DETAIL