ARCHITECTURAL PORTFOLIO

2019 - 2022

ISHA GOEL

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Gender: Female
Birthplace: Ghaziabad

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ABOUT ME

I travelled around a lot as a child. I had to re-discover my house and the town I occupied every two to three years. Exploring the town and learning where all the shops were or where the best food and treats were would generally help me get my bearings. I started learning about the stories and history that shaped a place through this. I fell in love with stories, which inspired me to become a voracious reader. I also grew close to architecture through stories and their contexts. How a place and its inhabitants can change lives. Therefore, I was naturally drawn to pursue a career as an architect since I would be telling tales via my designs.

EDUCATION

2019-PRESENT
SUSHANT SCHOOL OF ART AND ARCHITECTURE
BACHELORS IN ARCHITECTURE
SEMESTER 6: 8.10 SGPA
SEMESTER 5: 7.42 SGPA
SEMESTER 4: 8.00 SGPA
SEMESTER 3: 7.10 SGPA
SEMESTER 2: 7.45 SGPA
SEMESTER 1: 6.45 SGPA

2019
PRESIDIUM, INDIRAPURAM - HIGH SCHOOL DIPLOMA
CUMULATIVE - 87%

TECHNICAL SKILLS

AutoCAD

Adobe Photoshop

Adobe Illustrator

Adobe InDesign

Revit

Grasshopper

Twin Motion

Sketchup

FUNCTIONAL SKILLS

Teamwork

Communication

Creativity and Problem solving

ACADEMIC ACHIEVEMENTS

2023
ECBC Workshop Completion

2023
Archumen Quiz- Top 6 in North zone

2021
ACEDGE - DESIGNERS, KNOW YOUR DUTY

2019
COUERSA - MAKING ARCHITECTURE

2019
Excellent Performance Overall in 12th Board Exams
Mathematics Topper in 12th Board Exams

VOLUNTEER EXPERIENCE

2017-2019
Pleasanton Public Library (California)
Curated events for children to be engaged in the library

COMPETITIONS

2022
Volume Zero- Extreme Habitat

2022
Kaira Looro- Children's House

2021
Anual NASA Design competition

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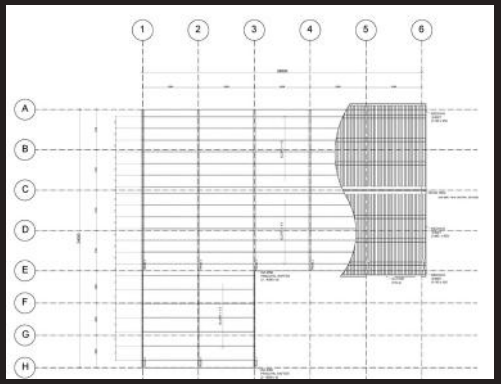
A NEW PERSPECTIVE

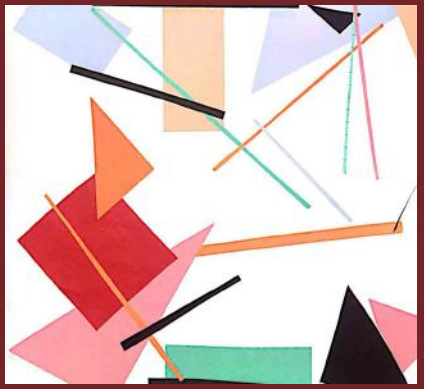
URBAN ACUPUNCTURE
SEMESTER 7
CO DESIGNER: ZO SANG VUNGA

5



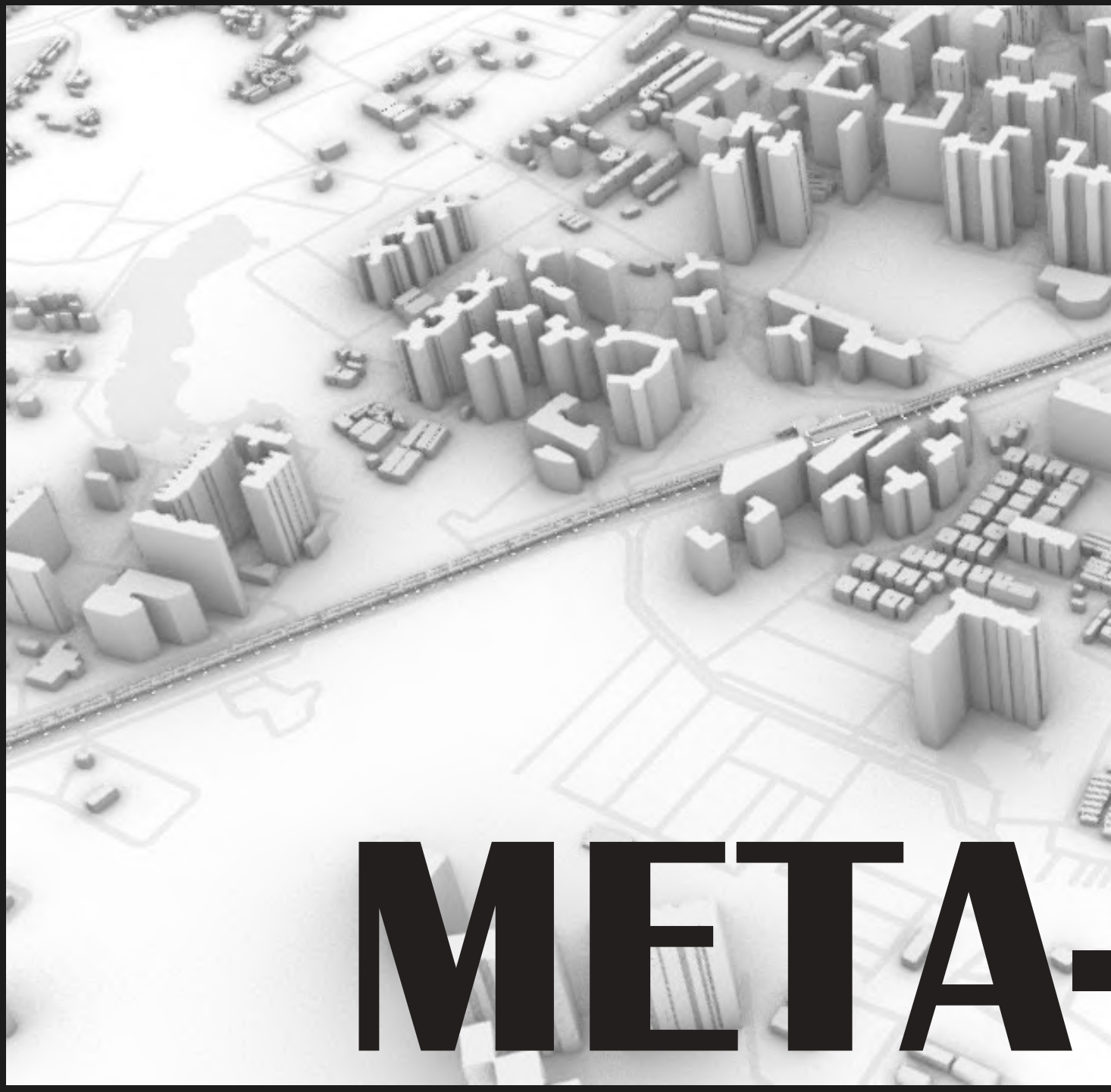
TECHNICAL DRAWINGS

6



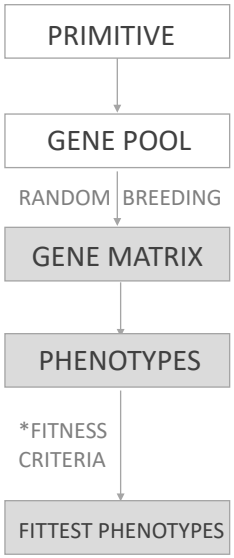
MISCELLANEOUS

SELECTED WORKS 2019- 2022

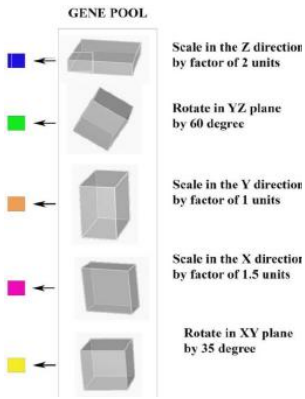

META-

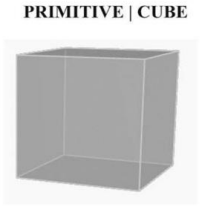

-MEDELA

SEQUENCE 1-GRASSHOPPER STUDY

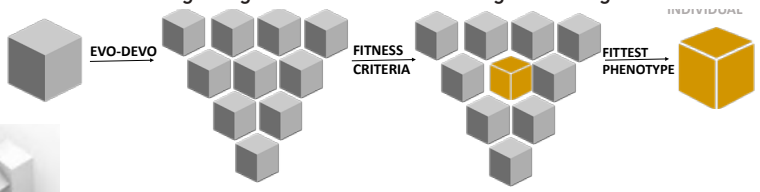


EVOLUTIONARY DEVELOPMENT ("EVO-DEVO")



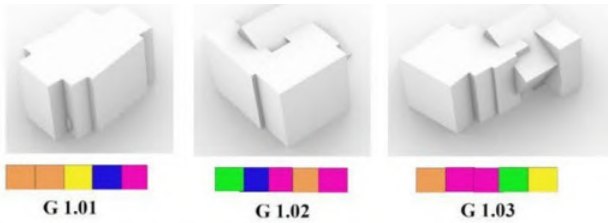


The primary direction for this experimentation was to apply and explore Evolutionary development ("Evo-Devo") concepts in the field of Evolutionary Computation. For this series of experiments a primitive cube with predefined attributes was selected. A gene pool was defined, which consisted of five genes. These genes were scripted with predefined commands inside a 3D software(Rhino). Aim was to propagate the growth of three generations of ten individual (phenotypes) each , by breeding them randomly with each other. To increase variation within the population a random transcription of genes was chosen for the creation of the first generation. Standard-deviation graphs were plotted in accordance with the fitness criteria and used to evaluate the population for each generation. Progressively, the second and third generations were created through the implementation relevant strategies– random crossover. In the end, the three generations were compared to analyze the success rate of the formulated strategies and evaluate which gene gained dominance throughout the generations.

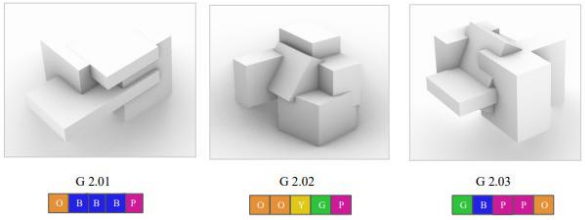


PHENOTYPE

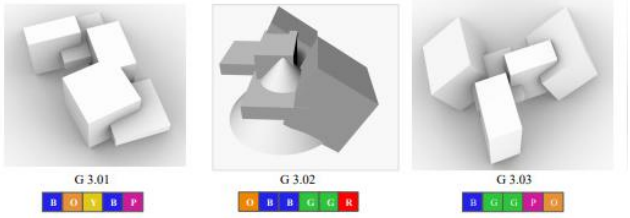
GENERATION 1



GENERATION 2

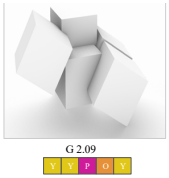


GENERATION 3



OVERALL DATA ANALYSIS

Volume: 506.27
Surface area: 655.02
Fitness value: 0.77



Volume: 635
Surface area: 750
Fitness value: 0.83

Volume: 506.27
Surface area: 655.02
Fitness value: 0.77

SEQUENCE 2 - SITE BASED GRASSHOPPER ANALYSIS

ENVIRONMENTAL (CONTEXT) ANALYSIS

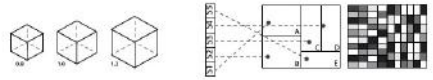
ARE BASED ON CONEXT AND FORM

PRIMITIVE "PARENT" → PHENOTYPES → EVALUATION (FITNESS CRITERIA) → 10 GENERATIONS → FITTEST PHENOTYPES

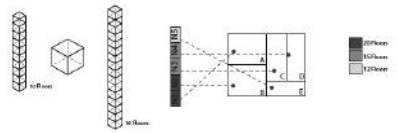
3 DIFFERENT OBJECTIVES ARE BEING CHANGED

PROCESS

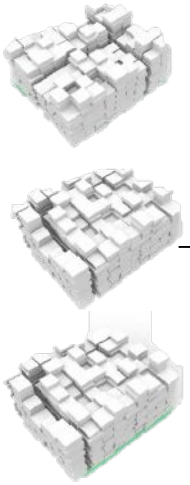
SCALE



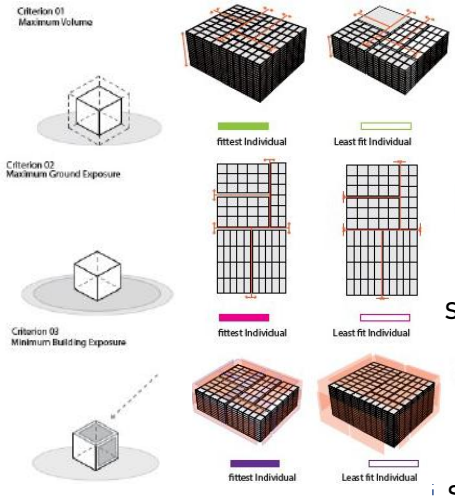
ARRAY IN Z DIRECTION

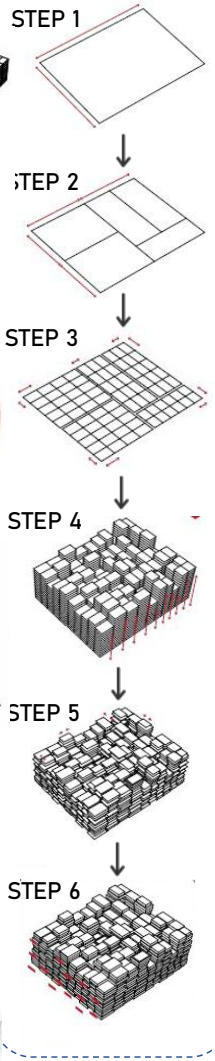


OFFSET



FITNESS CRITERIA





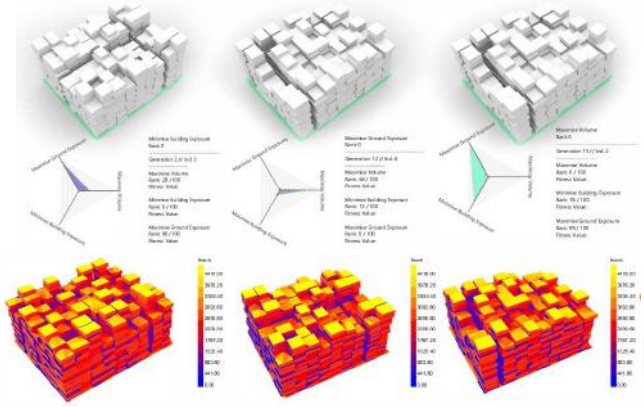
As a part of our experiments, Sequence 02 basically emphasized on testing the evolution of this conguration as an urban block with multiple tness criteria. The evaluation strictly pertains to a criteria based on external environmental pressures in addition to two other tness criteria that are physically explicit in the architectural realm.

To iterate the generations in this sequence, the idea of multi- objective optimization is adopted where the tness criteria were revised to establish a relation with the external changes in the environmental pressure. Svant and measurable.

OVERALL DATA ANALYSIS

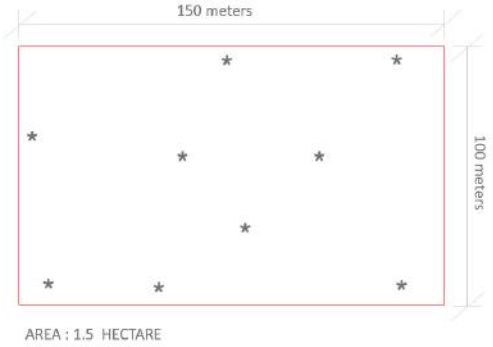
MOST FIT INDIVIDUALS

BUILDING EXPOSURE | GROUND EXPOSURE | BUILDING VOLUME

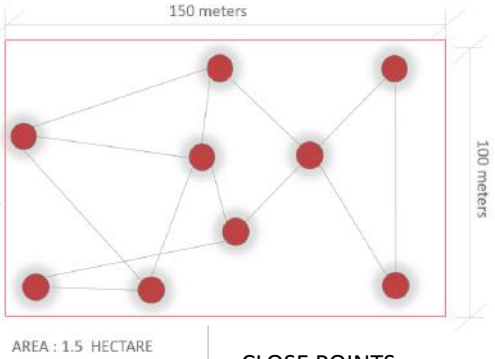


FORM MORPHOLOGY

= SEQUENCE 1 + SEQUENCE 2 + CIRCULATION SYSTEM + RESPONSIVE ECOLOGY



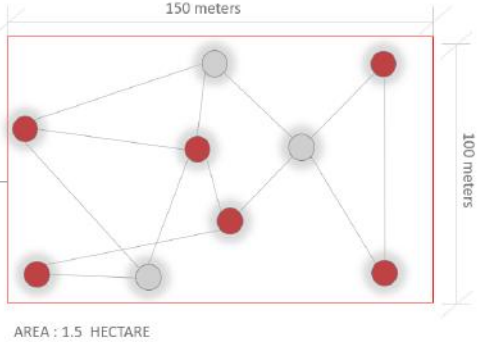
LINKAGES
FITNESS CRITERIA =
SHORTEST DISTANCE



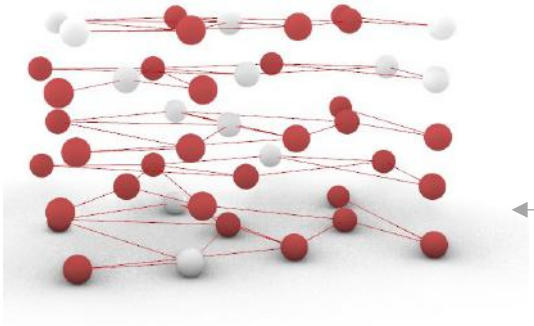
CLOSE POINTS

70% CLOSED SPACES
30% OPEN SPACES

NODES (30%)

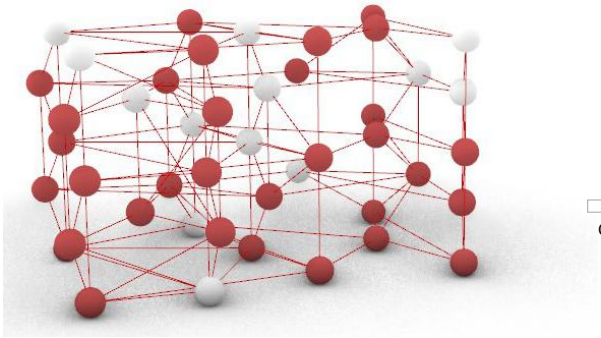


NO. OF LEVELS: 5

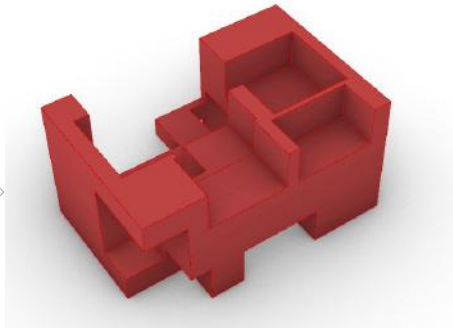


FITNESS CRITERIA =
70% CLOSED SPACES
30% OPEN SPACES

VERTICAL CONNECTION
FITNESS CRITERIA =
SHORTEST DISTANCE



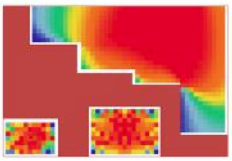
CULL LOGIC



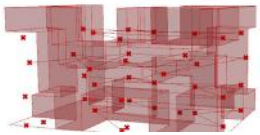
CIRCULATION SYSTEM

- LINKAGES
- NODES
- DEPTH OF NETWORK
- ISOVIST

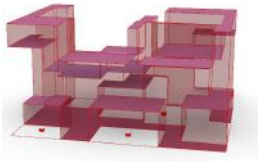
Using the learnings from sequence 1 and 2, we created our own prototypical form algorithm based on environmental factors and fitness criteria to help shape our design



ISOVIST AREA ANALYSIS OF GROUND FLOOR TO MINIMZE AREA VIEW OF THE SPACE

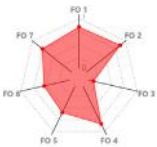


HORIZONTAL PATHWAYS ANALYSIS BASED ON THE BUILT



DETERMINING OF VERTICAL PATHWAYS BASED ON THE XY PLANES ON EACH LEVEL

VERTICAL PATHWAYS ANALYSIS BASED ON THE BUILT



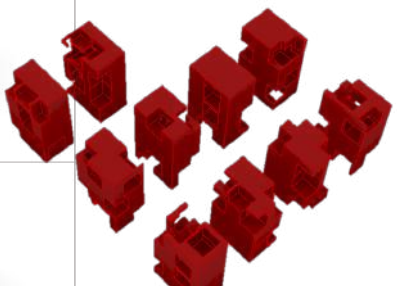
FINAL FORM

Generation 9 | Individual 6

OVERALL DATA ANALYSIS

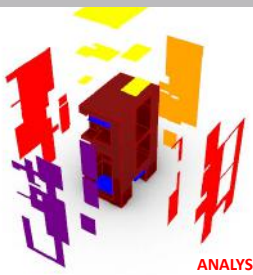
	BUILDING EXPOSURE	GROUND EXPOSURE	HORIZONTAL BETWEENESS CENTRALITY	HORIZONTAL PATHWAYS
MOST FIT	 Generation 0 | Individual 5	 Generation 5 | Individual 4	 Generation 1 | Individual 5	 Generation 4 | Individual 3
LEAST FIT	 Generation 9 | Individual 6	 Generation 7 | Individual 1	 Generation 9 | Individual 5	 Generation 7 | Individual 7

	AREA VIEW	VERTICAL PATHWAY	VERTICAL BETWEENNESS PATHWAYS
MOST FIT	 Generation 3 | Individual 4	 Generation 3 | Individual 5	 Generation 9 | Individual 4
LEAST FIT	Generation 9 | Individual 2 	 Generation 9 | Individual 9	 Generation 9 | Individual 1



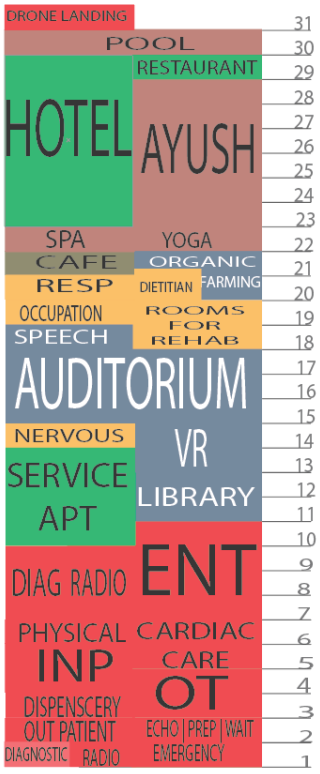
PARETO FRONTS

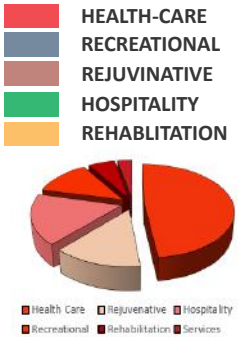
META-MEDELA

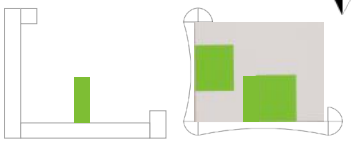


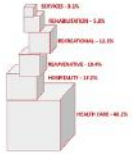
ANALYSIS: MAX HEAT GAIN - SOUTHSIDE

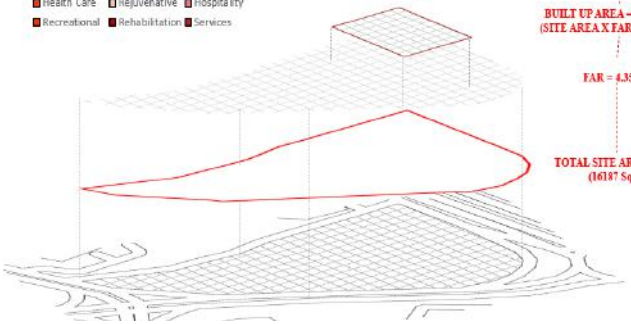
MIN HEAT GAIN - NORTHSIDE



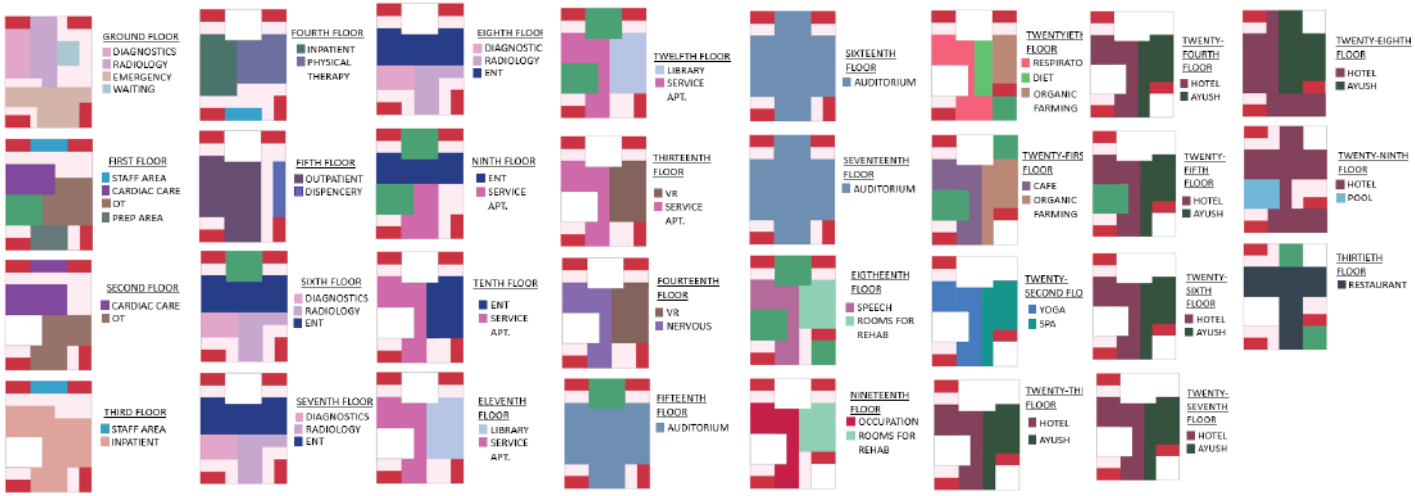




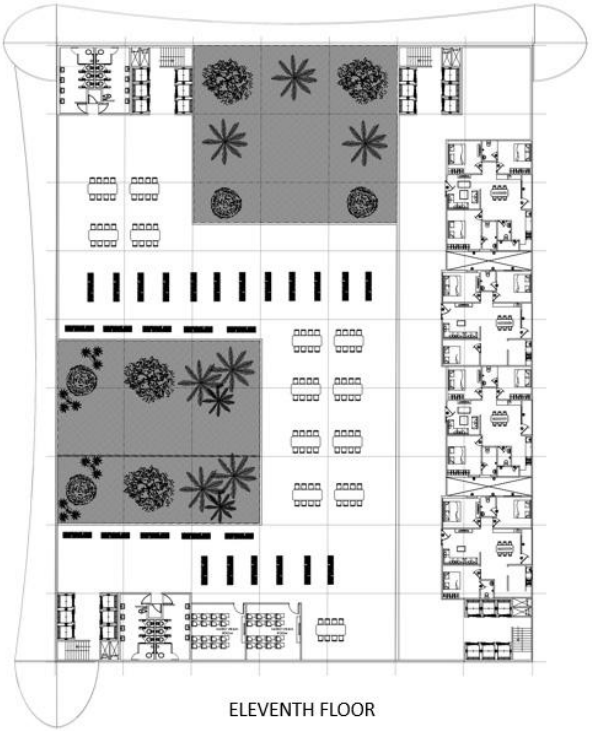




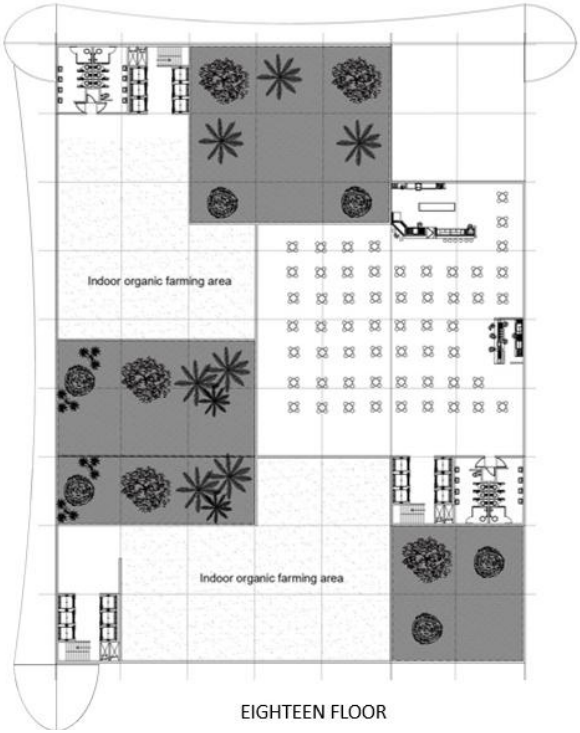
FLOOR PLATES



SITE PLAN



ELEVENTH FLOOR



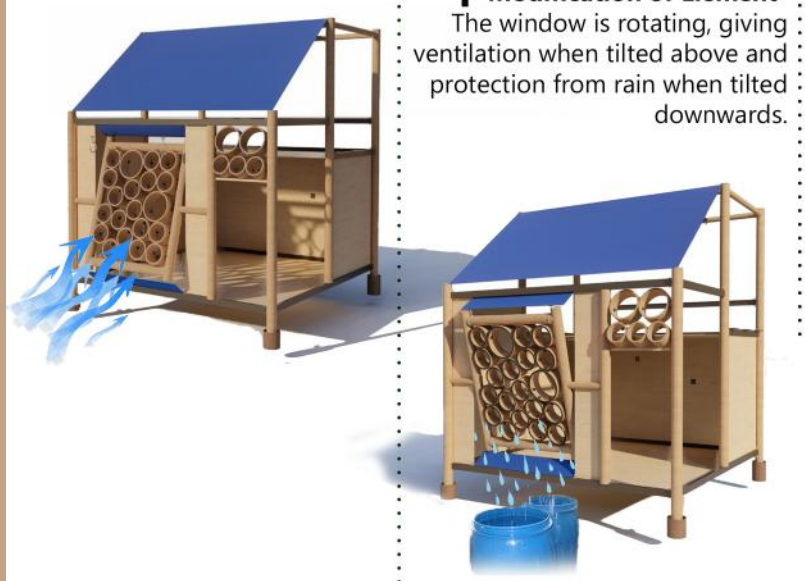
EIGHTEEN FLOOR

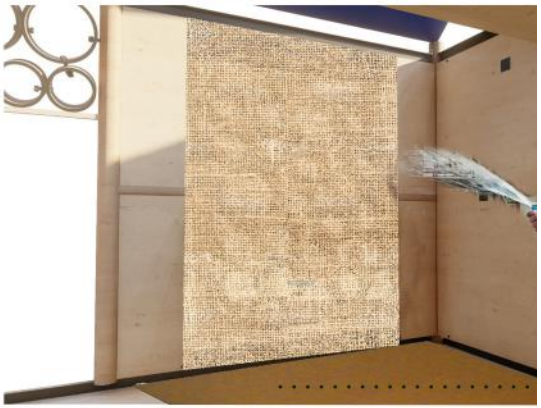

a mask.....or?
voicelessness.

JODAPATTI

The Unit.

1 Modification of Element-
The window is rotating, giving ventilation when tilted above and protection from rain when tilted downwards.





4 Addition of element-
to protect from outer vision permeability and dust, jute layer is dropped. During summers, it acts like a cooler and during winters, double layer of this bag becomes an insulating element.

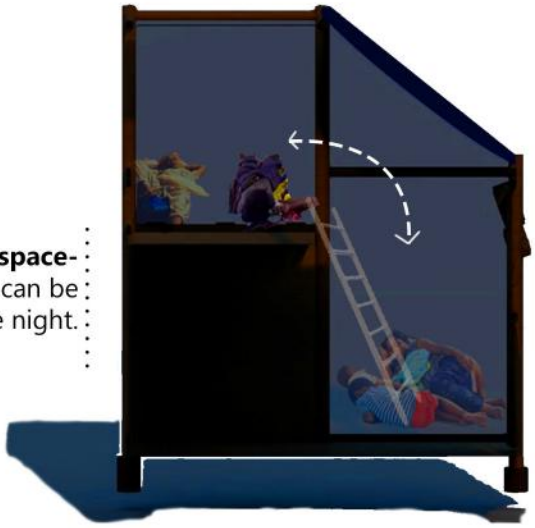
2 Symbolism of element-
Women painting their homes in the tradition way, brings the belongingness to the home, and water protection to the cardboard tubes.

3 Utilisation of element-
The cardboard tube window allows cooking smoke to pass through and create storage spaces.

7 Utilisation of space-
The upper floor can be used as a creche and play area for kids.

Cardboard sheets are added on the flooring when available on construction site to add extra layer of insulation.

6 Utilisation of space-
TThe above convertible area can be used as sleeping space in the night.



5 Utilisation of space-
The upper floor can be used as space to dry clothes in the sun.

Materiality

Cement bags. x4
Height= 800mm, Width=350mm

Excavated earth

Wooden Pole x7
Height variation according to terrain | Dia. 50mm

Reclaimed Timber x15
2400x1200mm = 1panel | Rest cut pieces acc. to the negative spaces.

C-sections x12
Web= 100mm | 75mm, Flange= 50mm, Thickness=25mm

Angle sections . . . . . x as per req.
50x50x5mm

Nuts & Bolts . . . . . x as per req.
100x75x50mm

J-hooks . . . . . x as per req.

Cardboard Tubes . . . . . x 24
Thickness= 25mm
Dia. = 100 | 150 | 350 | 500

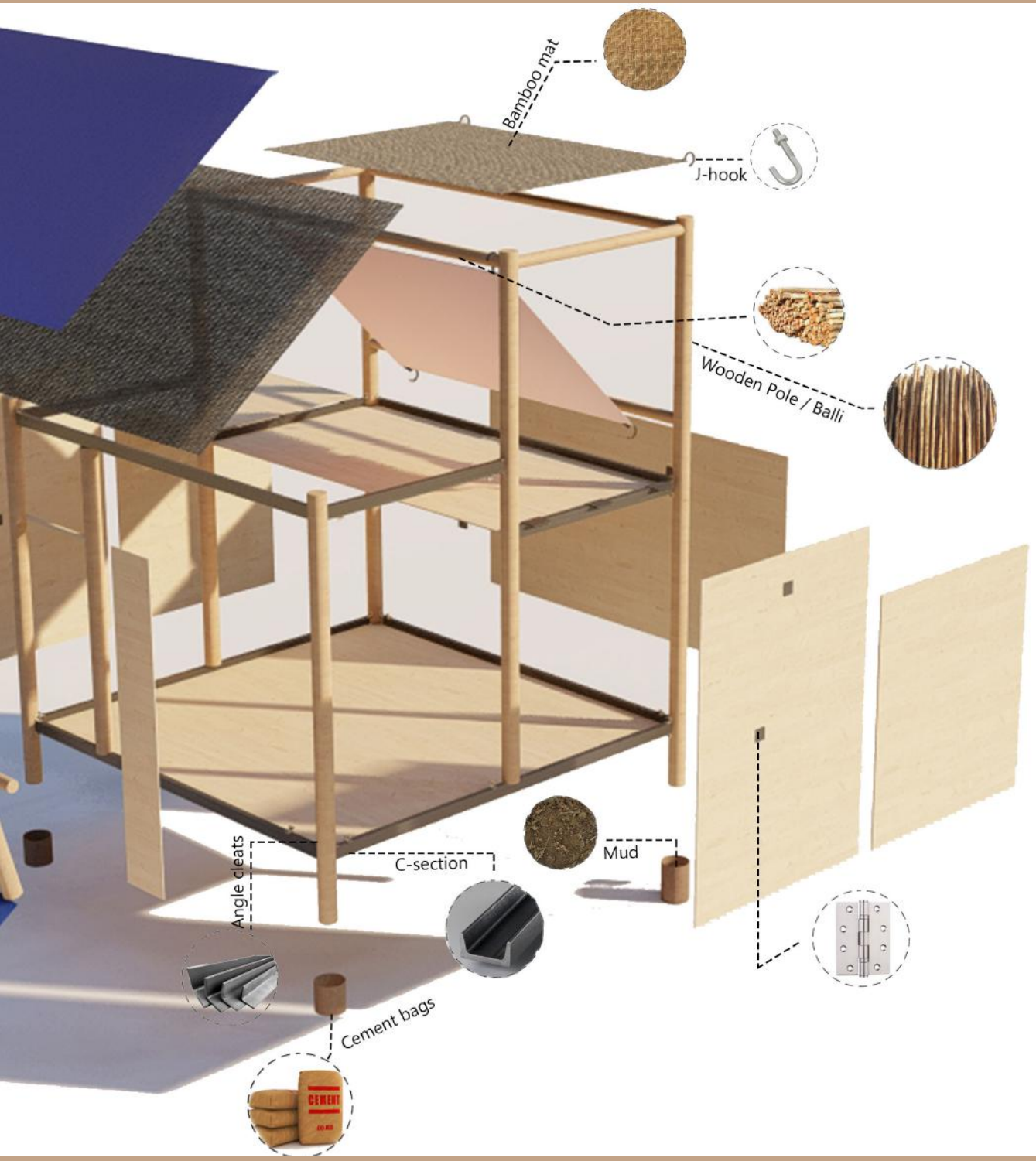
Bamboo Mat . . . . . x as per req.

Wooden tube . . . . . x as per req.
Dia. 20 | 75

Jutebag wall . . . . . x as per req.
Double the no. Required Jutebags in Cold weather

Tarpaulin sheets . . . . . x as per req.

Cardboard sheets . . . . . x as per req.
Dependent on the stage of construction

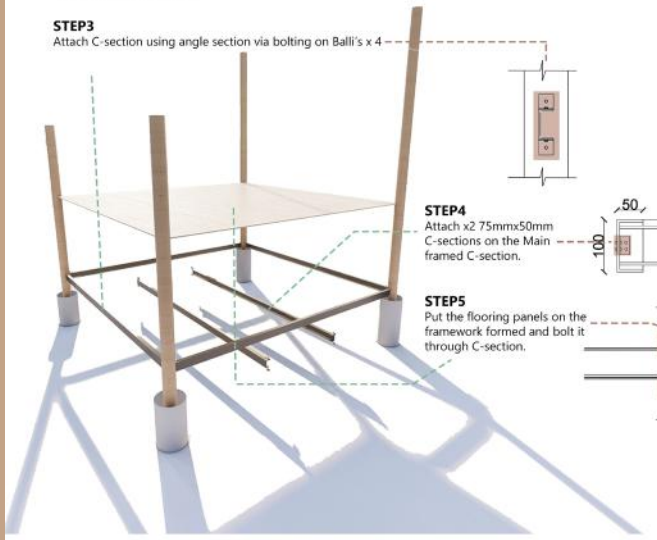

Bamboo mat
J-hook
Wooden Pole / Balli
Mud
C-section
Angle cleats
Cement bags
CEMENT

Assembly of base UNIT.

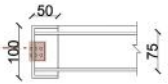
STEP1
Excavate the soil upto a depth of 500mm.

STEP2
Insert cement bags into the excavated area and add some quantity of mud | Balli (According to the level required), standard height=3000mm | Fill up the cement bag with mud.

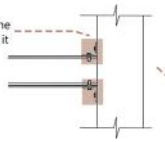
STEP3
Attach C-section using angle section via bolting on Balli's x 4

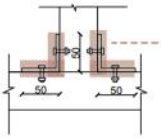


STEP4
Attach x2 75mmx50mm C-sections on the Main framed C-section.

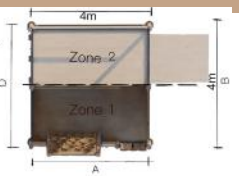


STEP5
Put the flooring panels on the framework formed and bolt it through C-section.

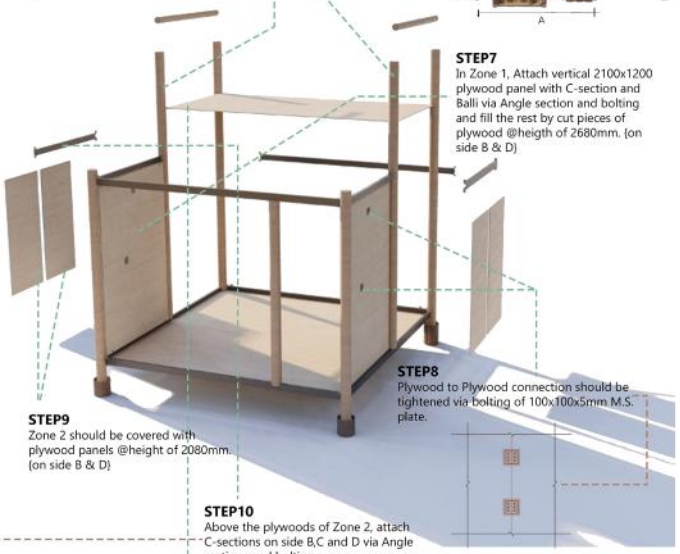




STEP6
Add balli of height 4450 at the distance of 2000mm on side B and D and fix it with C-section via angle section & bolting.



STEP7
In Zone 1, Attach vertical 2100x1200 plywood panel with C-section and Balli via Angle section and bolting and fill the rest by cut pieces of plywood @heigth of 2680mm. (on side B & D)



STEP8
Plywood to Plywood connection should be tightened via bolting of 100x100x5mm M.S. plate.

STEP9
Zone 2 should be covered with plywood panels @height of 2080mm. (on side B & D)

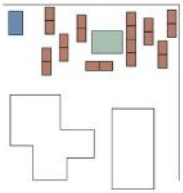
STEP10
Above the plywoods of Zone 2, attach C-sections on side B,C and D via Angle sections and bolting

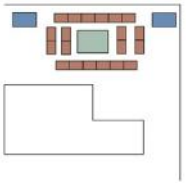
STEP11
Rest the recycled plywood on the c-sections and fix them together via bolting.

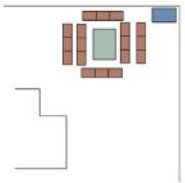
Arrangement of Units ~ Emergence of Community

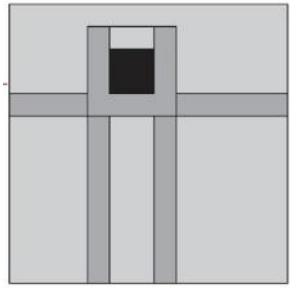
STEP1
Morphological analysis - The shape of the site will dictate the placement of the units.

STEP2
Identify contours and foliage-will help in preventing formation of water basins on usable areas. Foliage will act as a visual relief - as well as provide acces points for utilities / swings to attach onto.

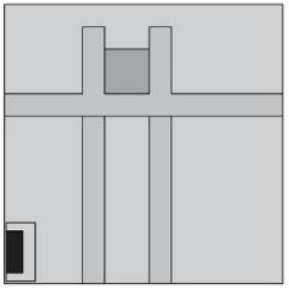

Organic site


Longitudinal site

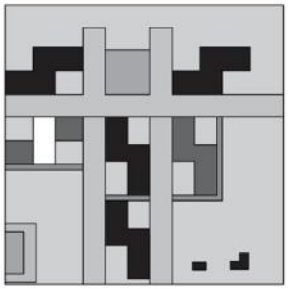

Square-shaped site



STEP1
Place the creche at the highest point of the site, preferrably near foliage.

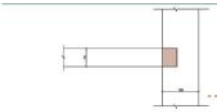


STEP2
Place the W.C/Sanitation units in closed proximity to the creche and towards the open end of the site.

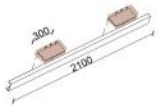


STEP3
Place the initial dwelling units in clusters around the creche and add additional units as per requirement.

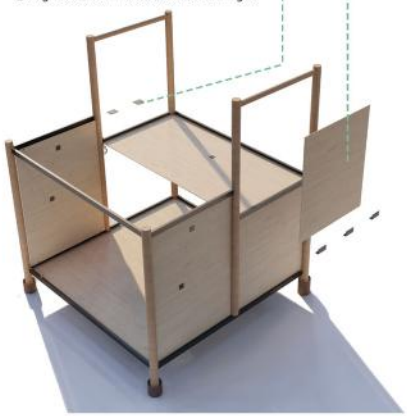
STEP12
Add wooden tubes of dia 75mm on side B & D @height of 2000mm from mezzanine floor.



STEP13
Add 100x200x10mm M.S. plates (x3) on top of the plywood laid at @2080mm height via bolting. (on side B & D)



STEP14
On side B, attach two more plywoods @height of 2000mm on C-channel via hinges.



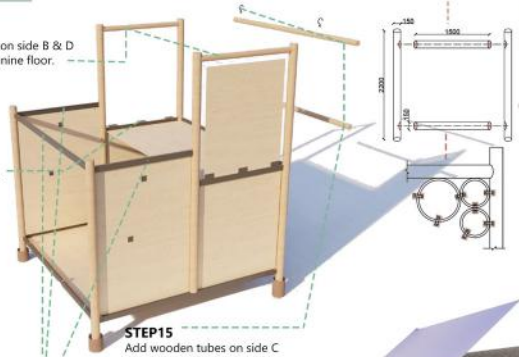
STEP15
Add wooden tubes on side C @height of 700mm from mezzanine floor and @height of 2000mm, with the addition of wooden, nail 2 J-hooks.

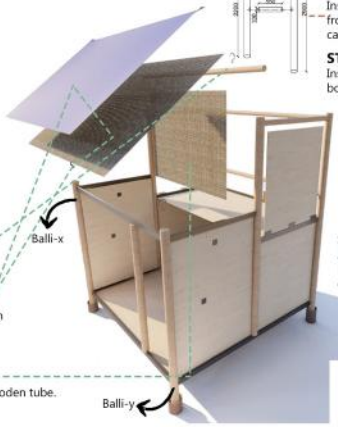
STEP16
In Zone 1, add x3 C-sections on side A,B & D @height of 2675mm by using angle sections and bolting.

STEP17
Join a wooden tube @height of 4300mm by drilling holes in adjacent balli's.

STEP18
Nail J-hooks in balli-x and balli-y and hook first, the bamboo mat layer and then the tarpouline sheet & attach both of them via nails on the wooden tube.

STEP19
Suspend the hook of the pre-fab bamboo mat on the wooden tube.





STEP20
Attach a 100mm dia. cardboard tube on balli-x, and then to the cardbaord tube frame which is formed by connecting horizontal with vertical cardboard tubes via holes. Fill the frame with cardboard tubes held together with nuts and bolts.

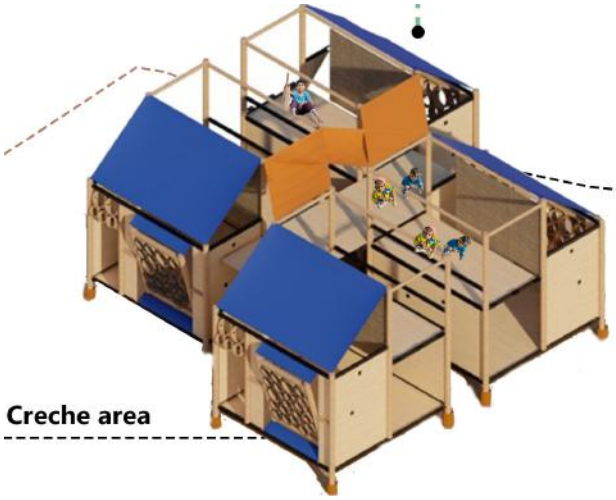
STEP21
Insert a balli on C-section at side A, offsetted from a distance of 1000mm from right. Dril a hole at the mid point of it and attach a 100mm dia. cardboard tube which is further attached with the cardboard frame.

STEP22
Insert plywood on the negative spaces left around the framework via bolting.

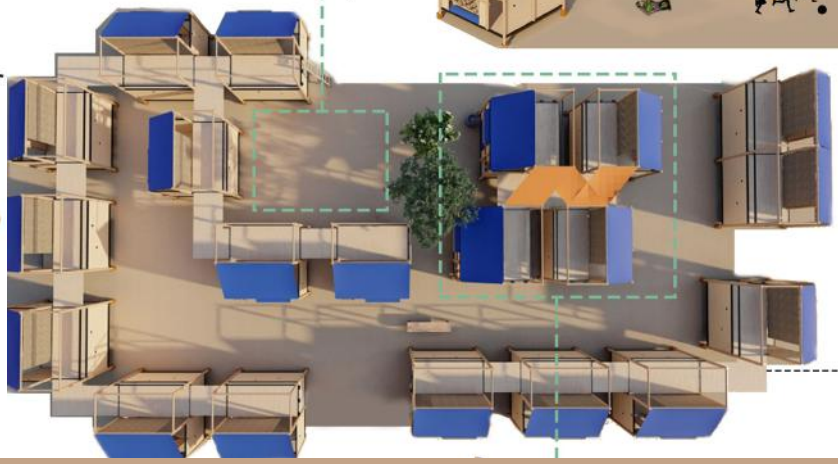
STEP23
Attach tarpoline sheet on the either side of cardboard frame vertically.

STEP24
Add tilted cardboard tubes fixed together via bolting and attach it inside 1000mm offset @height of 2680mm.. Add a C-channel and connect it via angle sections and bolting to form a lintel for the door.

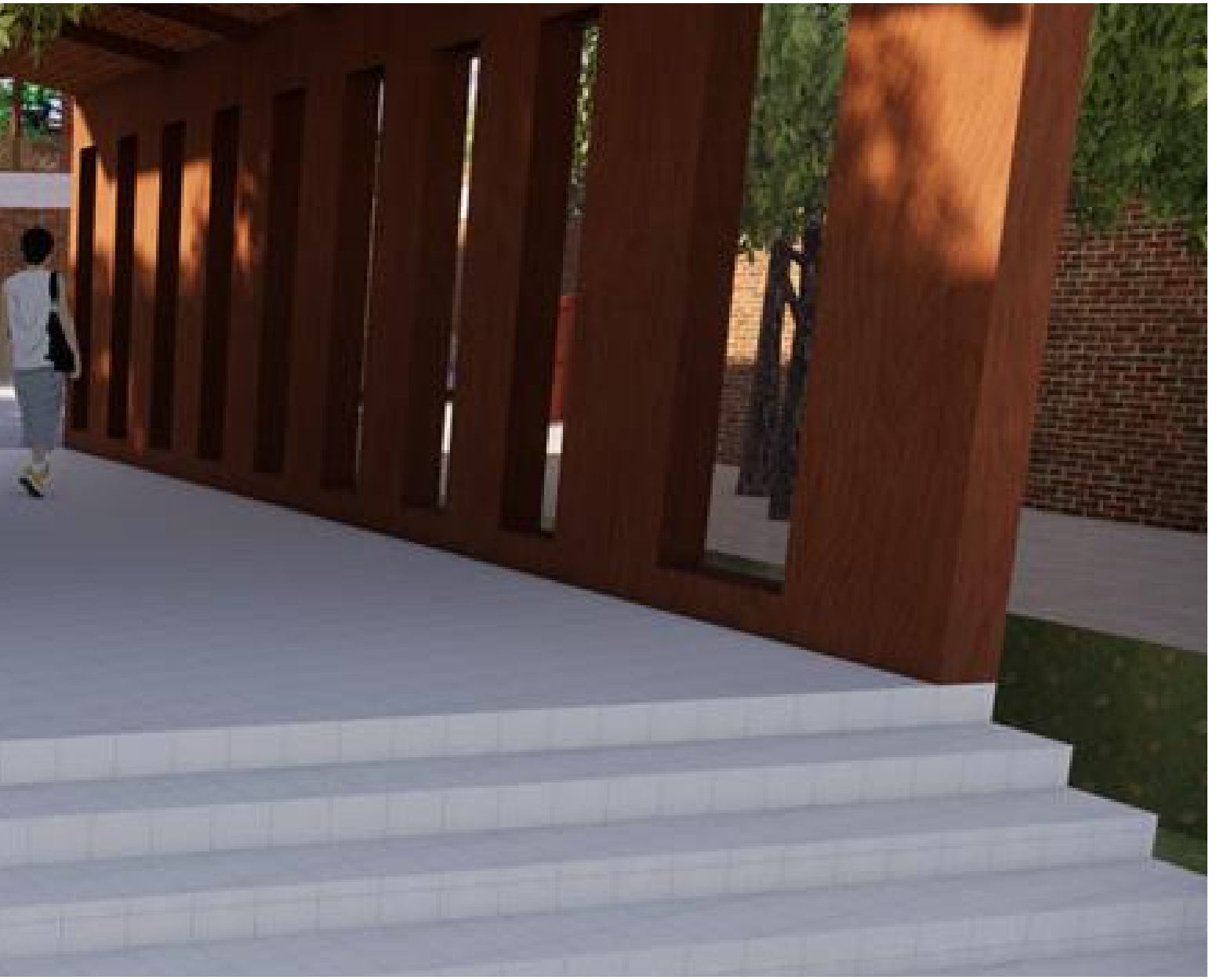
Community Kitchen Space



Creche area



A TOGETHE



ER CEYLON

RECREATIONAL SPACE

DEPENDIBILITY

SHOPS

TOWN HALL

INTEGRATION

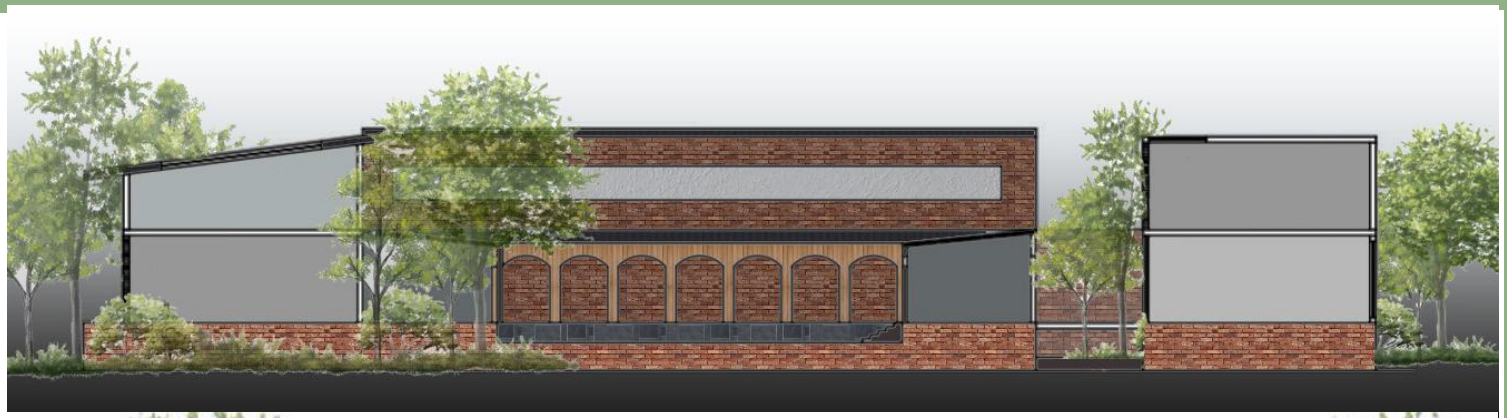
COMMUNITY HALL

WORKSHOP

LIBRARY

ADAPTIBILITY/ EVOLVABILITY

WALKING GALLERY AND RESTURANUT



USE OF NATURAL LIGHT AND PASSIVE DESIGN STRATEGIES

TRANSITION SPACES

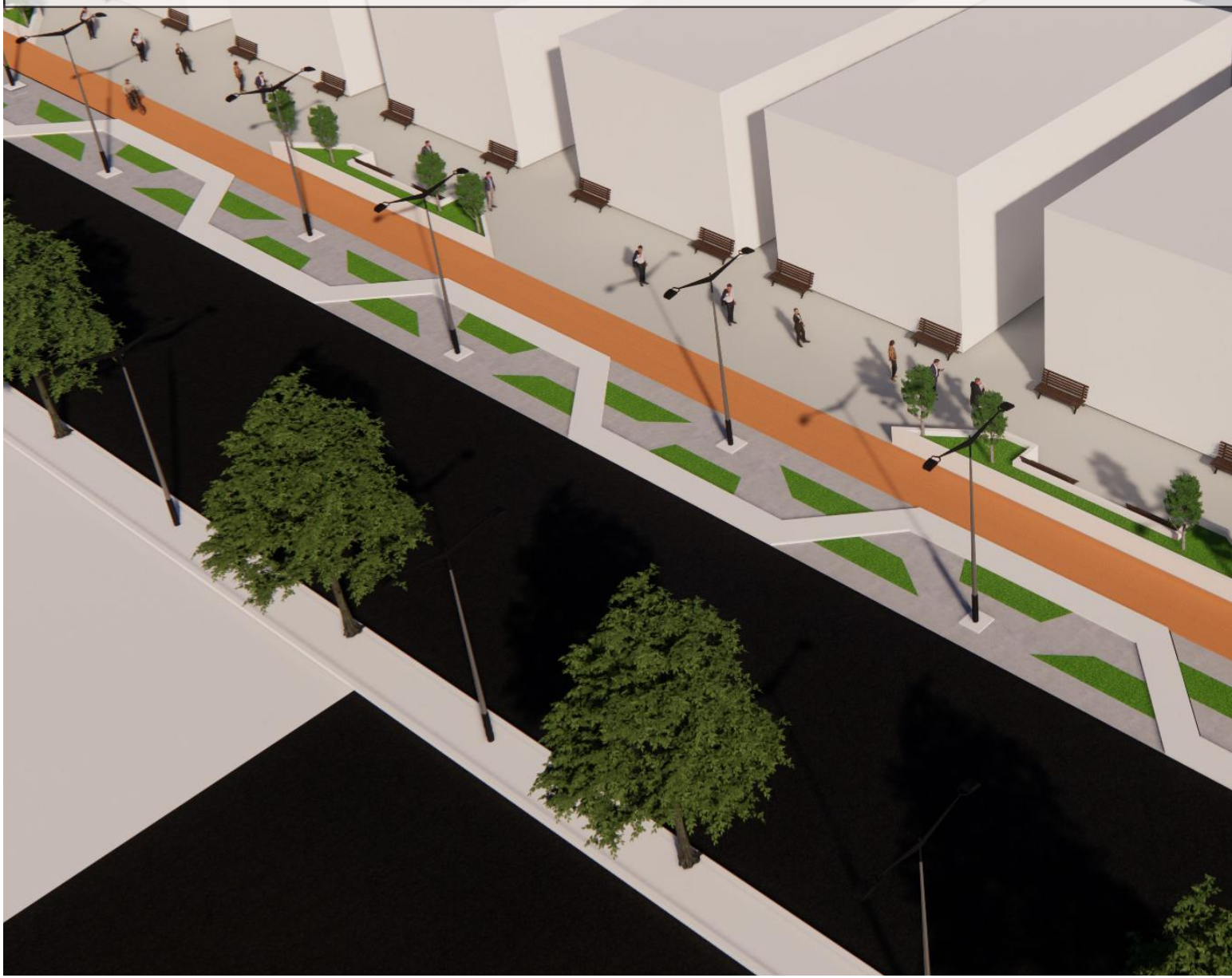
USE OF VERNACULAR MATERIALS

COURTYARDS

FLUID CIRCULATION THROUGHOUT COMPLEX

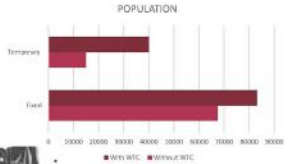

CONNECTION
WITH SURROUNDING
NATURL
VENTILATION
CONNECTION
WITH NATURE
VISUAL CONNECTION
BETWEEN SPACES
OPEN LAYOUT

A NEW PE

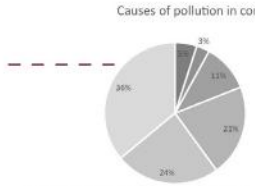


ERSPECTVE

APPLYING ADAPTIVE REUSE STRATEGIESTO CREATE AN INCLUSIVE AND SUSTAINABLE URBAN FABRIC.



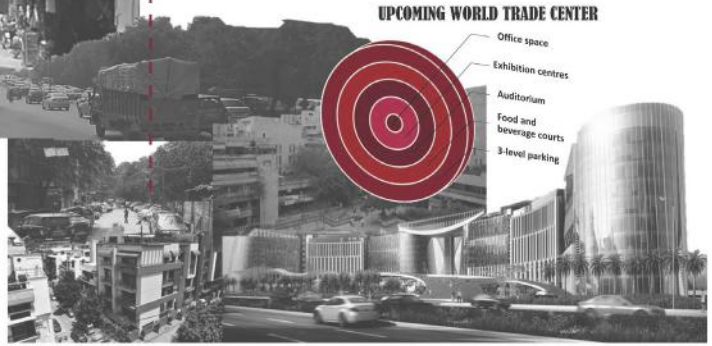
High density zone with lack of space for expected population gain due to infastructure changes



Demolition and erection of buildings is the highest cause of pollution cause by the construction industry

- Less costly
- Less disruptive
- Environmentally responsible
- Preserves historic value
- Provides flexibility

To counter this, adaptive reuse building strategies can be used



ADAPTIVE REUSE: repurposing of an existing structure for new use

Bhikaji has many structures that are recenlty built and are not being used to its put potential.

BENEFITS

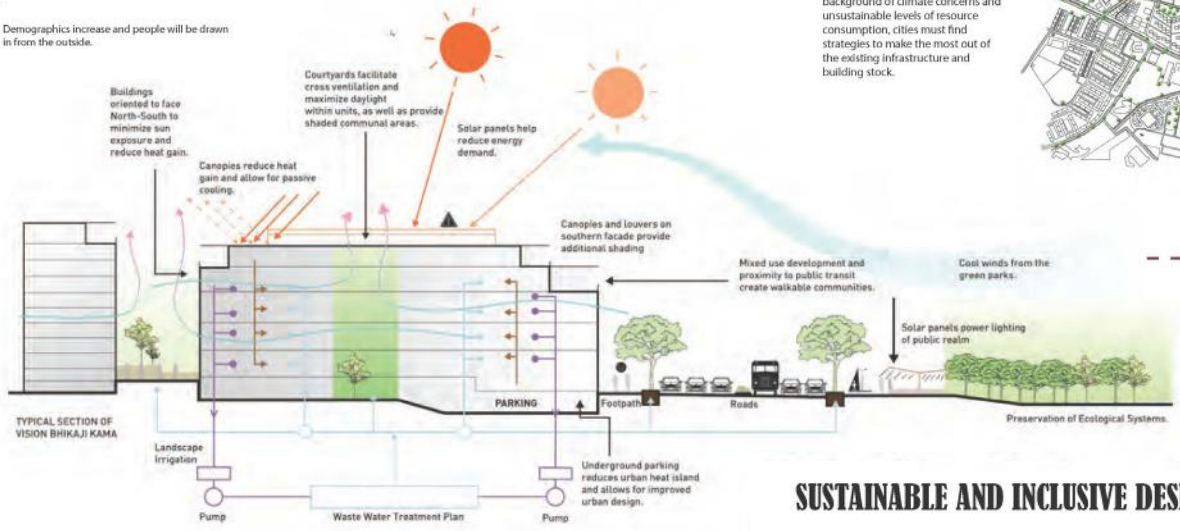
Ensures good transportation to all of the site.

Ensures health and safety to all the people.

Everyone in the household is self-sufficient.

Demographics increase and people will be drawn in from the outside.

With over 2.5 billion people expected to live in urban areas by 2050 on the background of climate concerns and unsustainable levels of resource consumption, cities must find strategies to make the most out of the existing infrastructure and building stock.



SUSTAINABLE AND INCLUSIVE DESIGN STRATEGIES

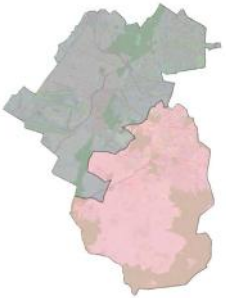
AREAS THAT WILL BE MOST AFFECTED BY WTC

in the Bhikaji cama neighbourhood, many structures are empty/abandoned. After the completion of WTC, the focus of commerical trade will shift from Bhikaji cama place to WTC.

Already many floors of the building are not in use, as well as the fact that this structure does not operate at all times for various demographic groups.

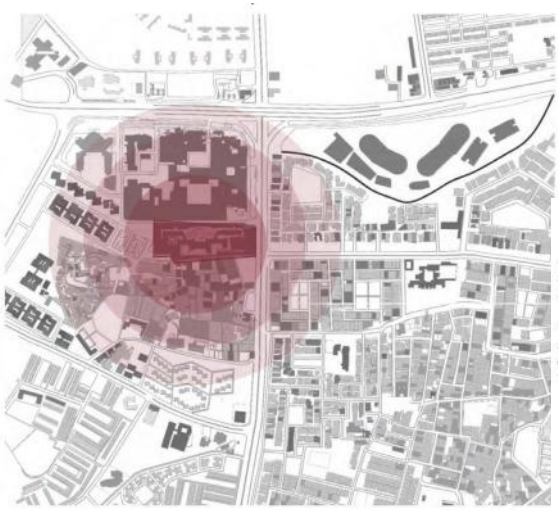
DISTRICT LEVEL

The major commerical districts present in Delhi city, have adjoining retail and hospitality structures present to accomdate the inflow ofpopulation. The conversion of certain sites in the Bhikaji Cama neighbourhood to retail spaces, would create more job opportunities as well as increase the economy of the area.



STAKEHOLDERS

People from ages 17-45 can benefit from this place as for the younger generation it can be for places of gathering anf learning, where as, for older individuals it can be a permaneant or temporary habitat



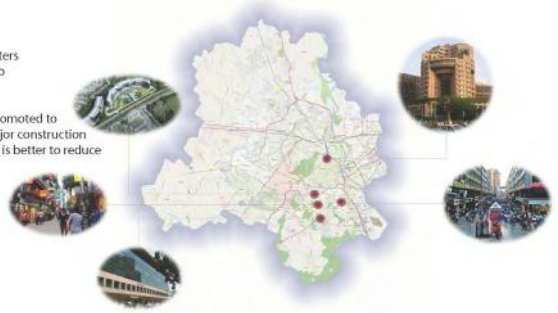
SITE

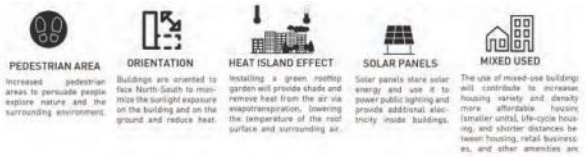
The location of the site is central to Bhikaji connecting all areas, old and new, together. Hence habing a mixed use building will benefit both the office workers as well as the residents.

CITY LEVEL

With the increase in appeal of the area, commuters travelling to CP and Gurgoan will be attracted to visit the area as visually it is full of activity.

With the upcoming chnages, the area can be promoted to an area of prime real estate without making major construction changes. As delhi, overall has a very high AQI, it is better to reduce the pollution causing activities.





Through this intervention we can create urban centers for all people to gather without increasing the carbon footprint of the space even more.

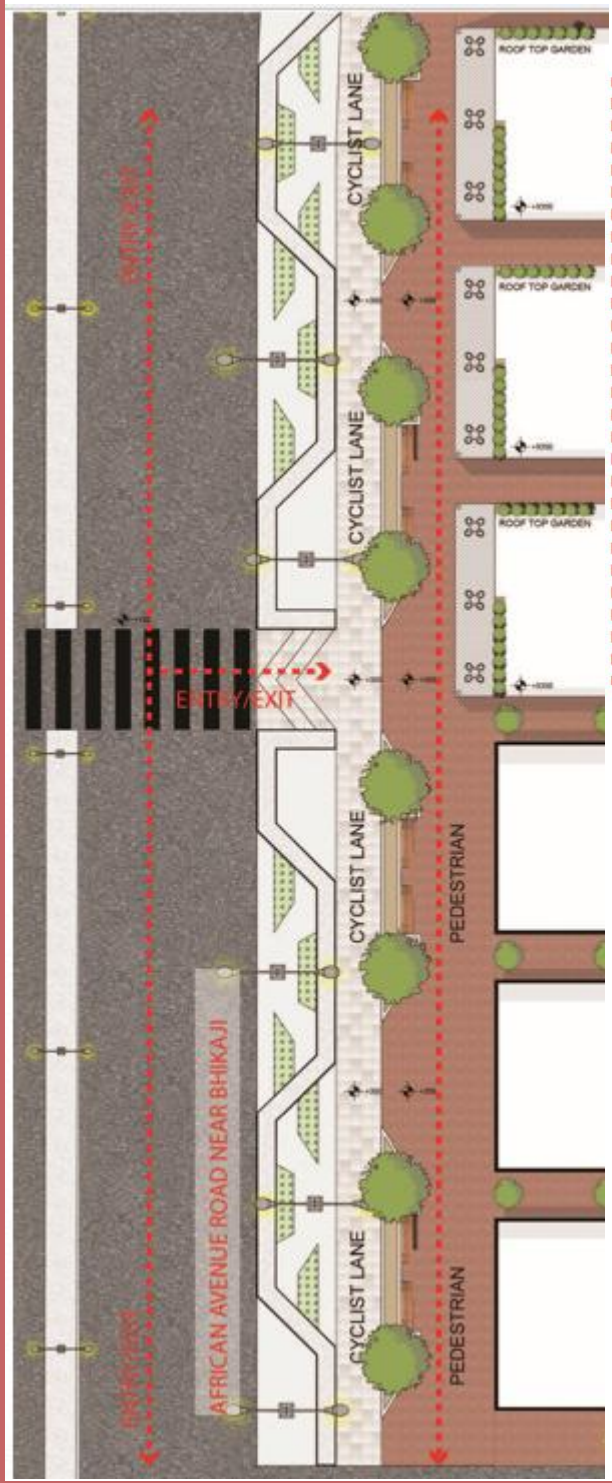
This intervention will promote a sense of community and togetherness, which is currently lacking in the area.

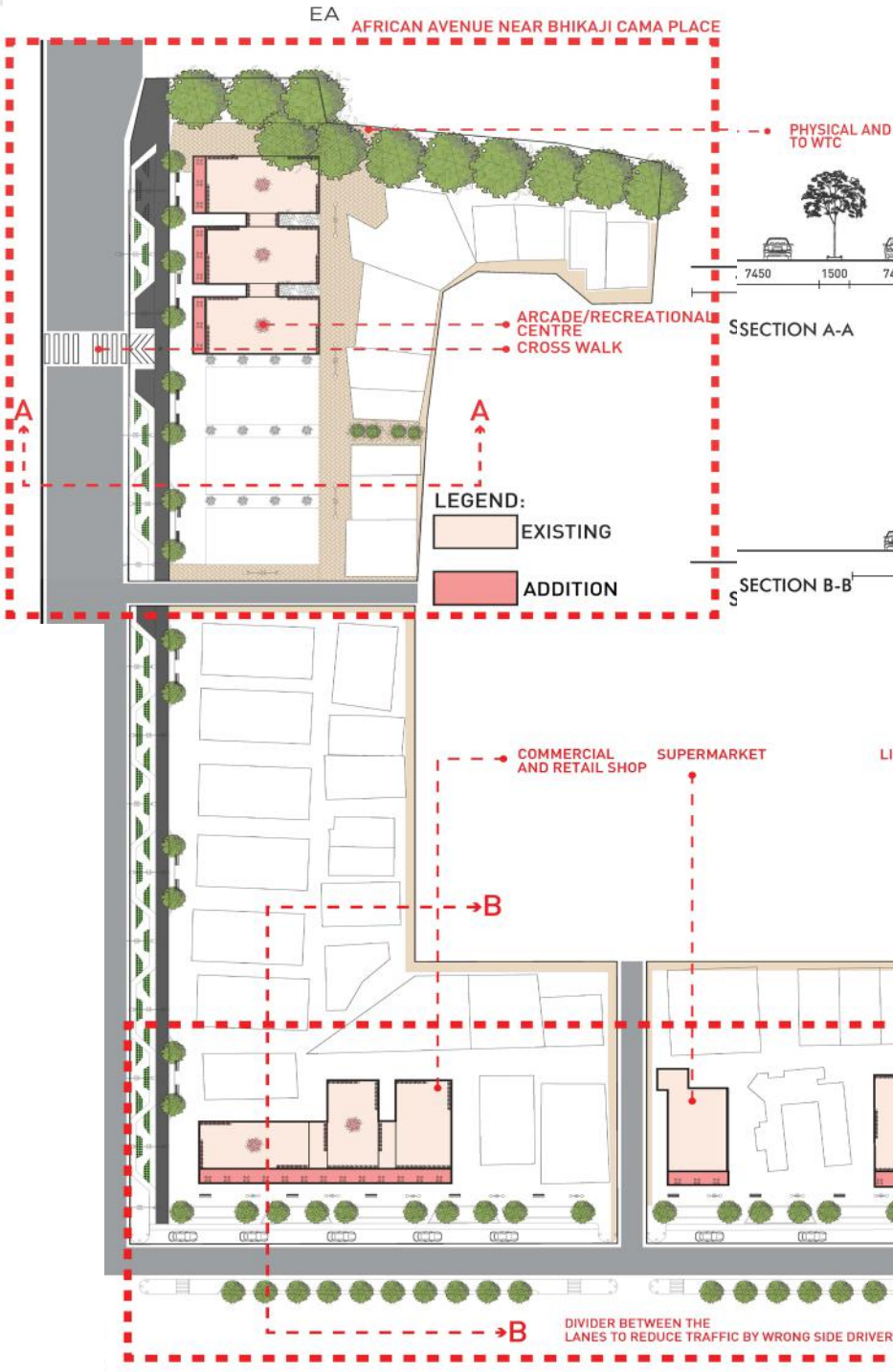
Around the area, spaces like commonwealth games village and AIIMS,exist. Besides these spaces, the rest are tentively residental.

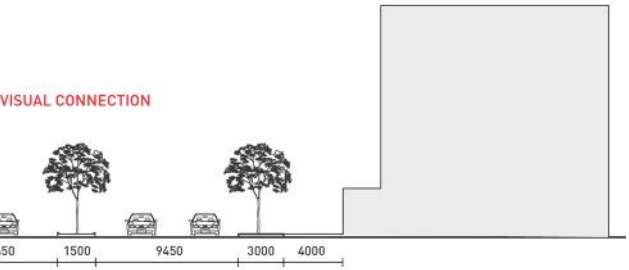
For this residental population, there is a lack of leisure ammenities. For people to shop or go out to eat, they would have to go to nearby spaces like Hauz Khas. Hence interventions like this will increase the appeal to the area, and hence increase its real estate value

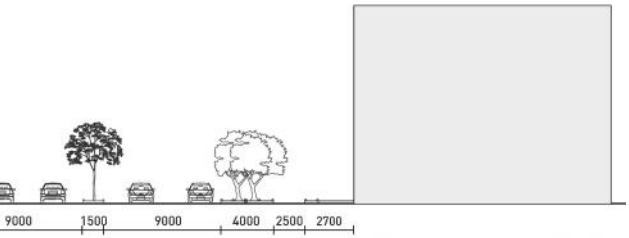
NEIGHBOURHOOD LEVEL

INTERVENTION AREA 1: AFRICA AVENUE



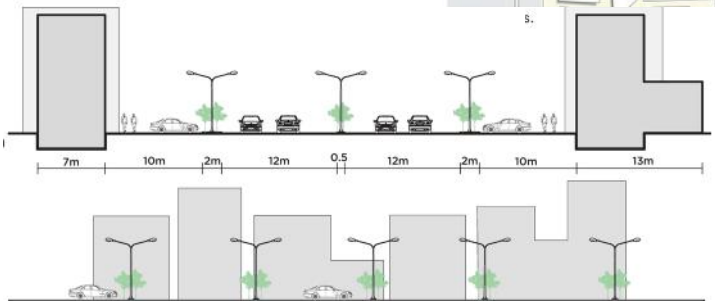


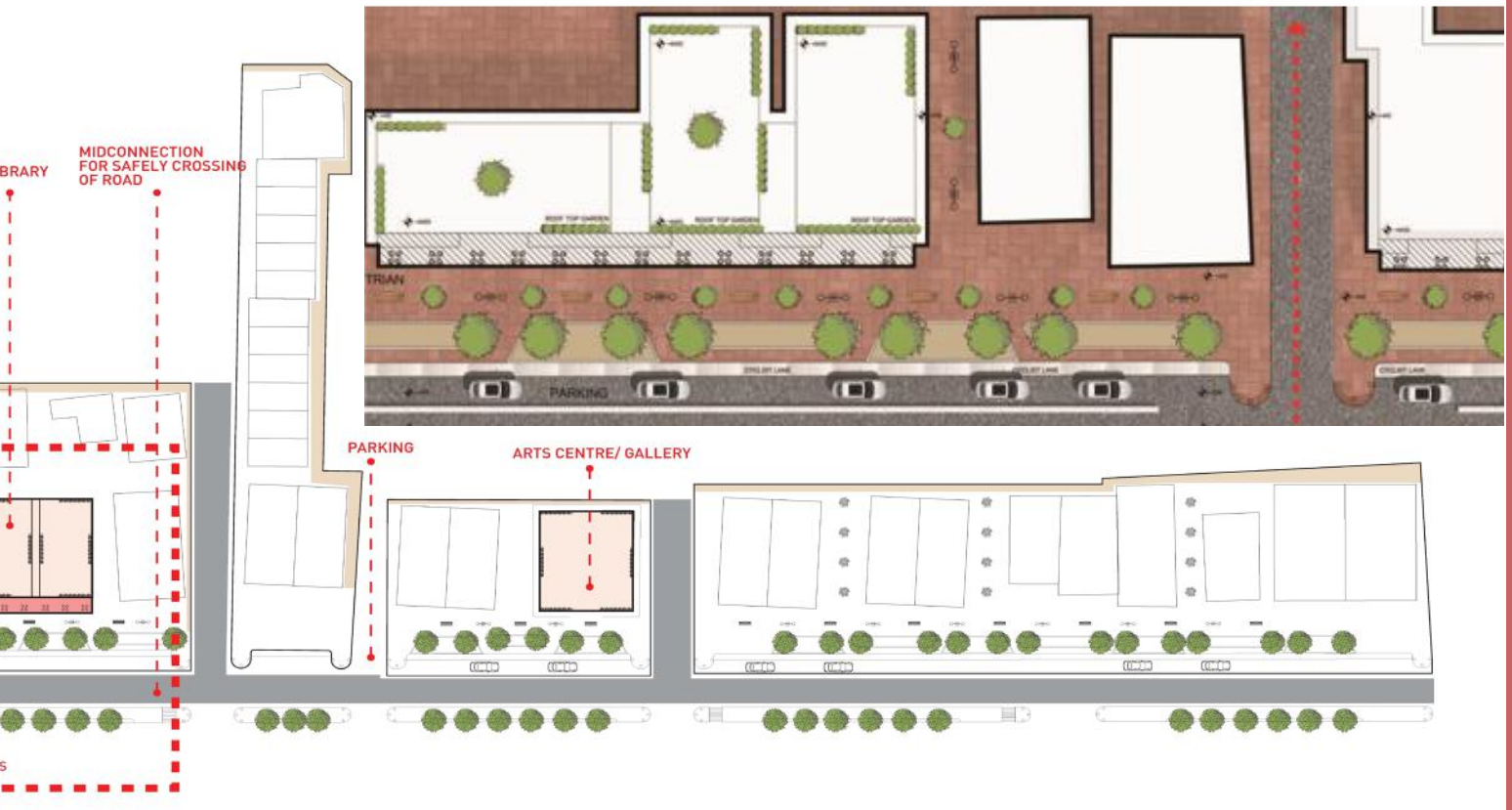




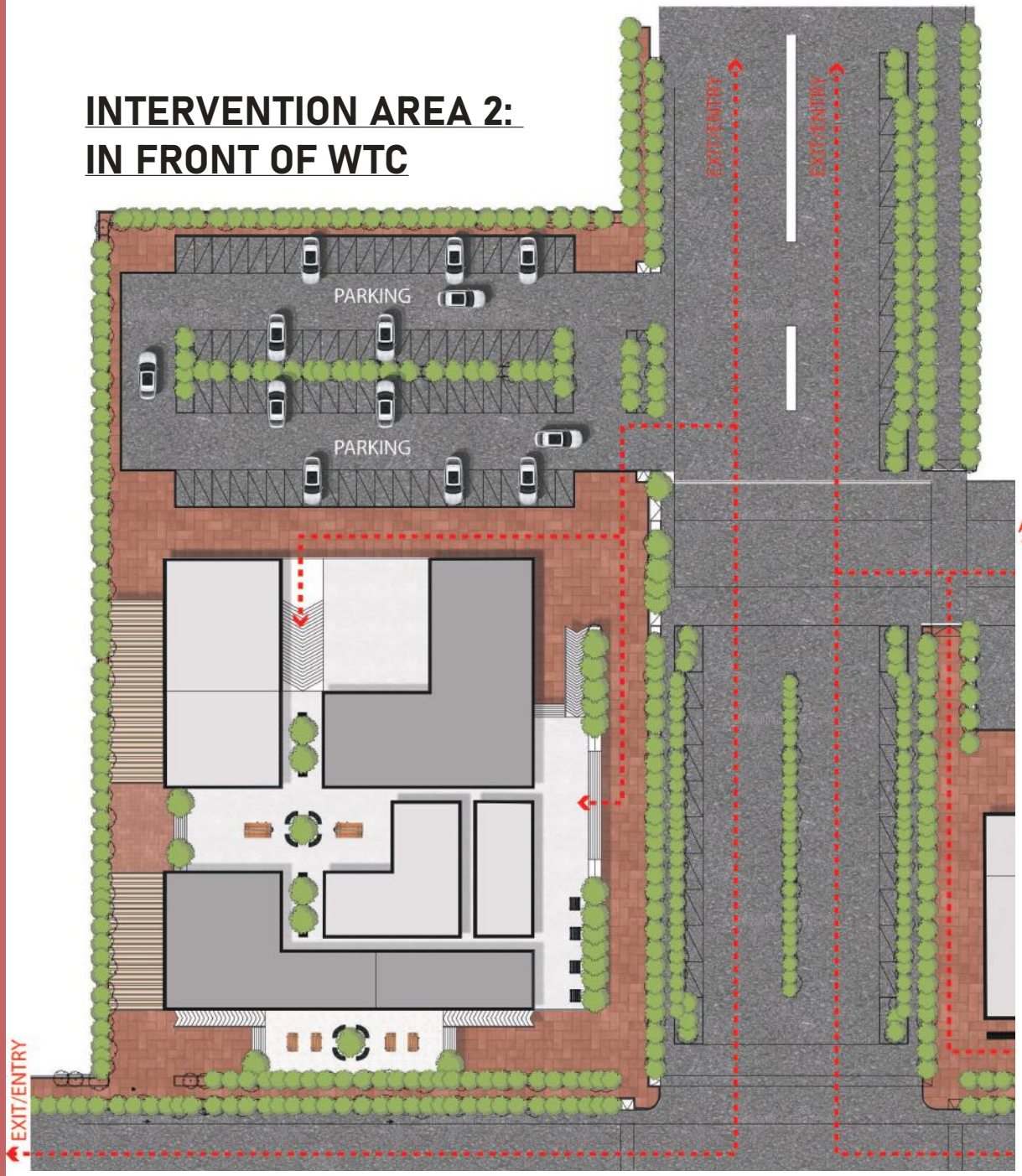
- Unutalized space despite prime l
- High rental cost.
- Lack of activites present for residents.
- Lack of pedestrian pathway.

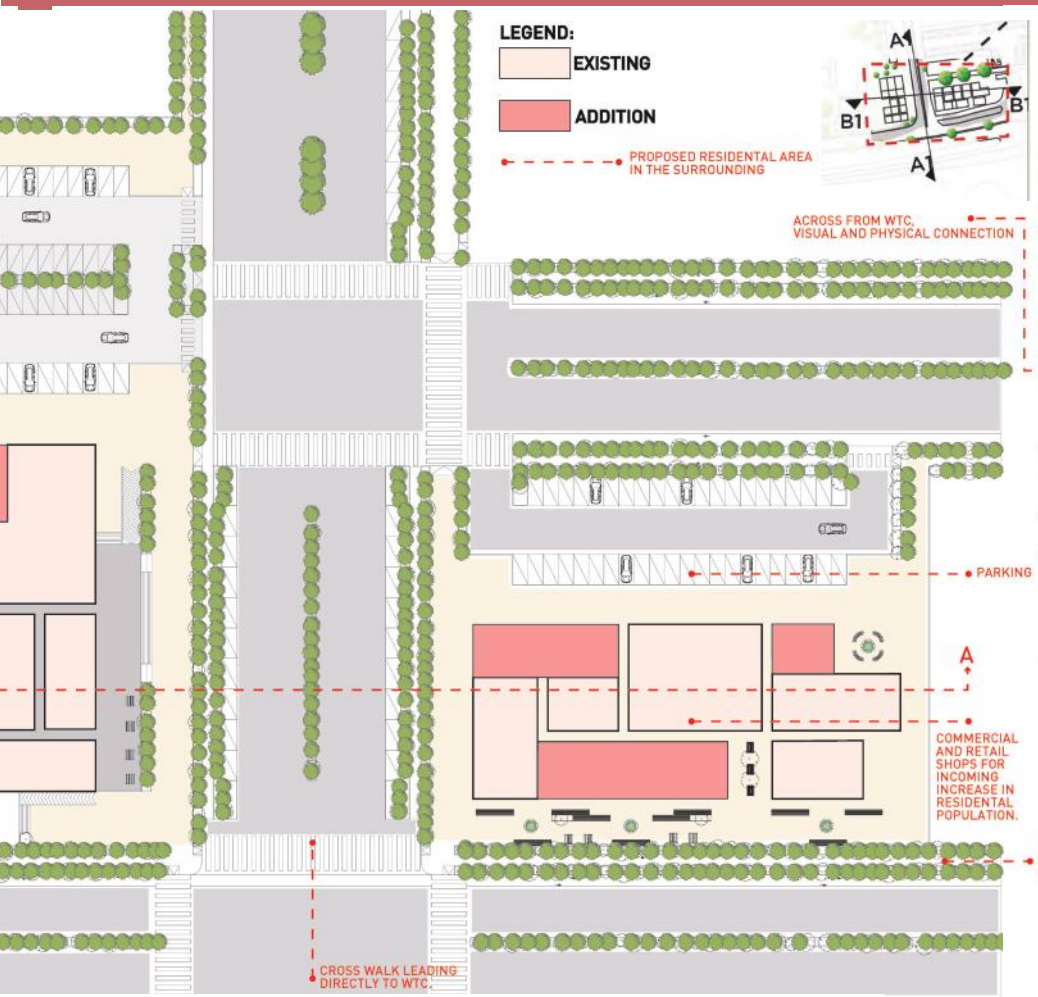
CURRENT SITUATION OF AREA



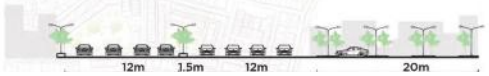


INTERVENTION AREA 2:
IN FRONT OF WTC



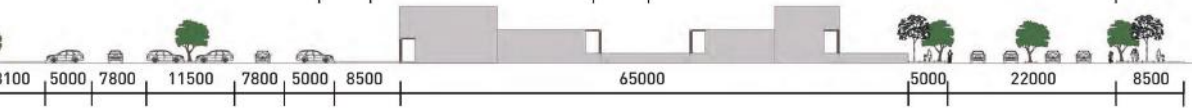


SECTION B1-B1 (SCALE : 1:100)

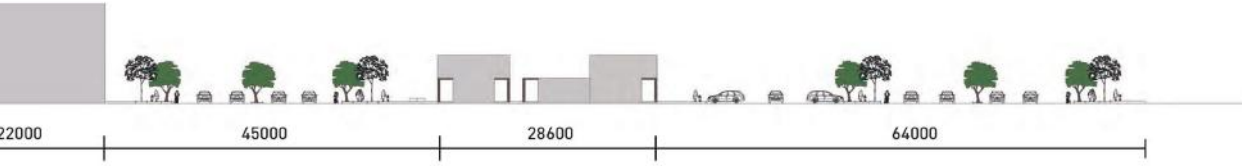


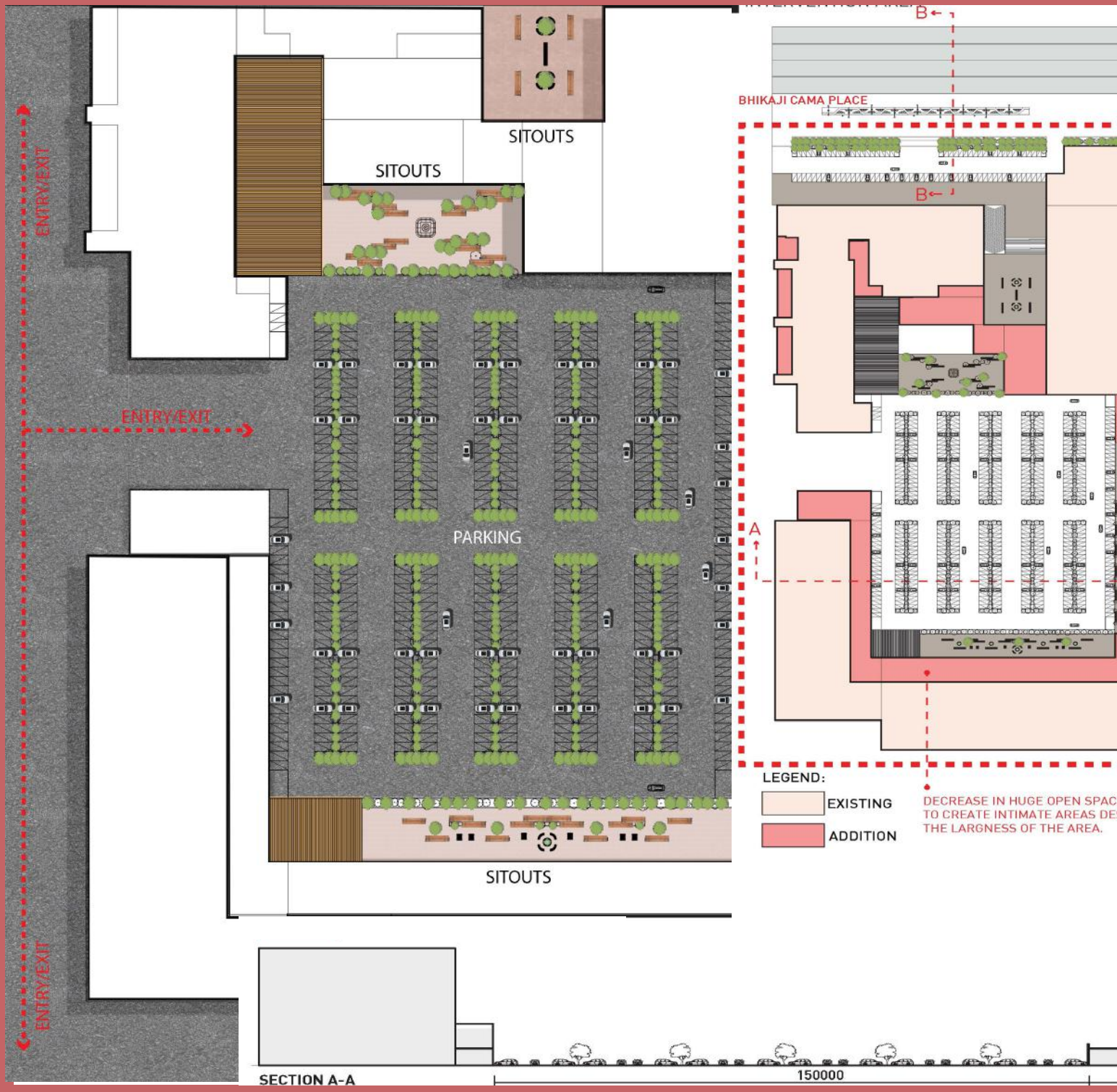
CURRENT SITUATION OF AREA

- Not visited by many people.
- Conjested.
- Lack of proper infrastructure conditions.
- Prime location for commerial and retail space pedestrian pathway overtaken by shops.



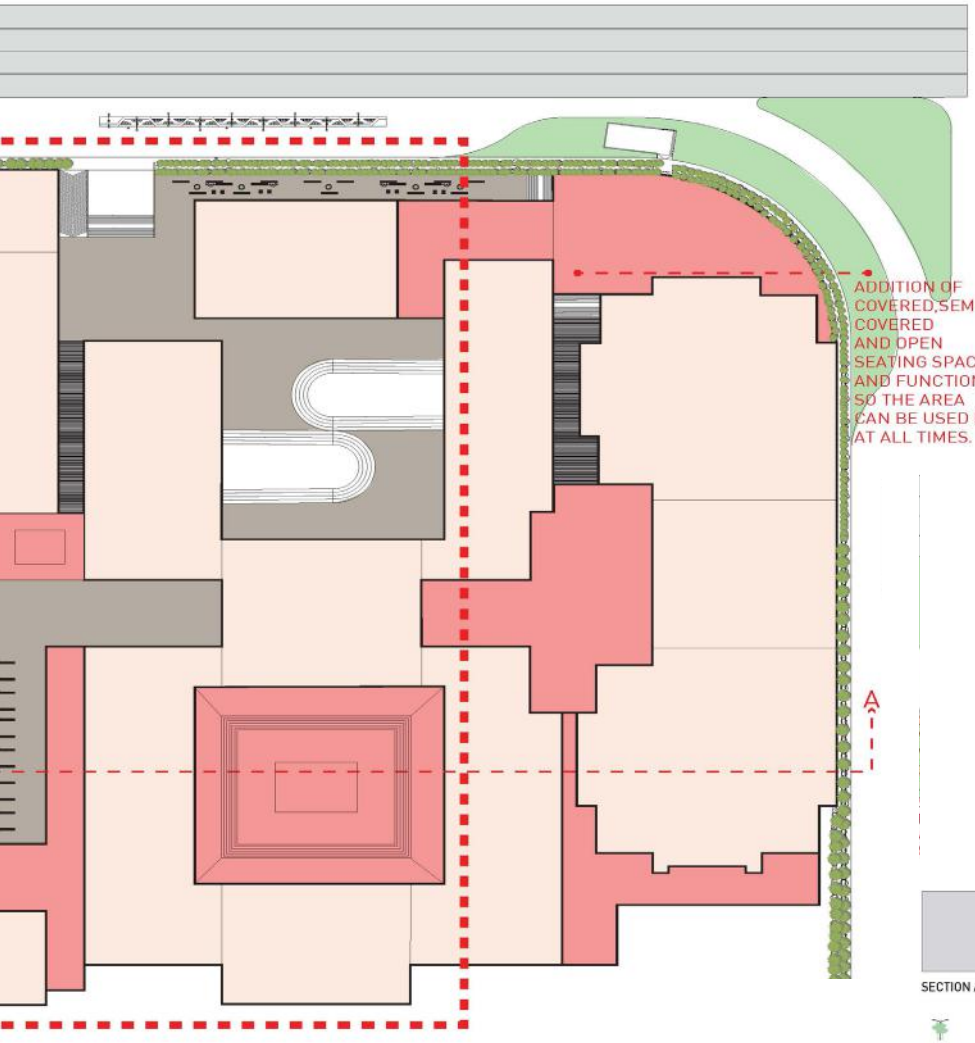
ADDITION OF WORKSHOP AREAS AND COMMUNITY CENTER, AND THEATER ALONG WITH EATERIES.



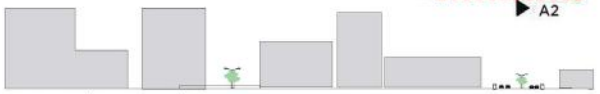

SITOUTS
SITOUTS
ENTRY/EXIT
ENTRY/EXIT
PARKING
SITOUTS
ENTRY/EXIT
B
BHIKAJI CAMA PLACE
B
A
LEGEND:
EXISTING
ADDITION
DECREASE IN HUGE OPEN SPAC
TO CREATE INTIMATE AREAS DE
THE LARGNESS OF THE AREA.
SECTION A-A
150000

INTERVENTION AREA 3: BHIKAJI CAMA PLACE

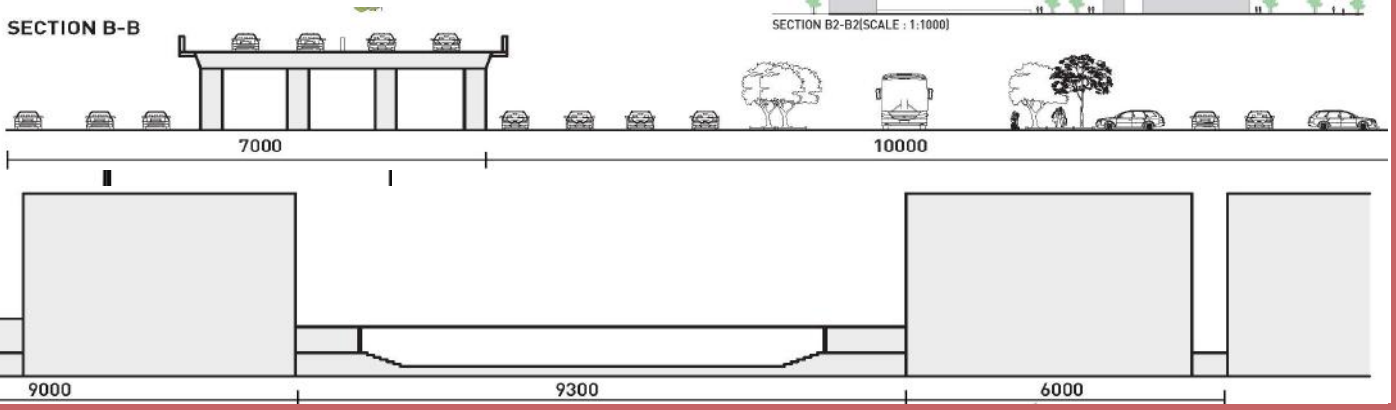
- Not utilized daily at all hours.
- Lack of parking.
- Lack of interactive and sitting spaces.
- Improper pathway used as dumping ground for raw constr materials.



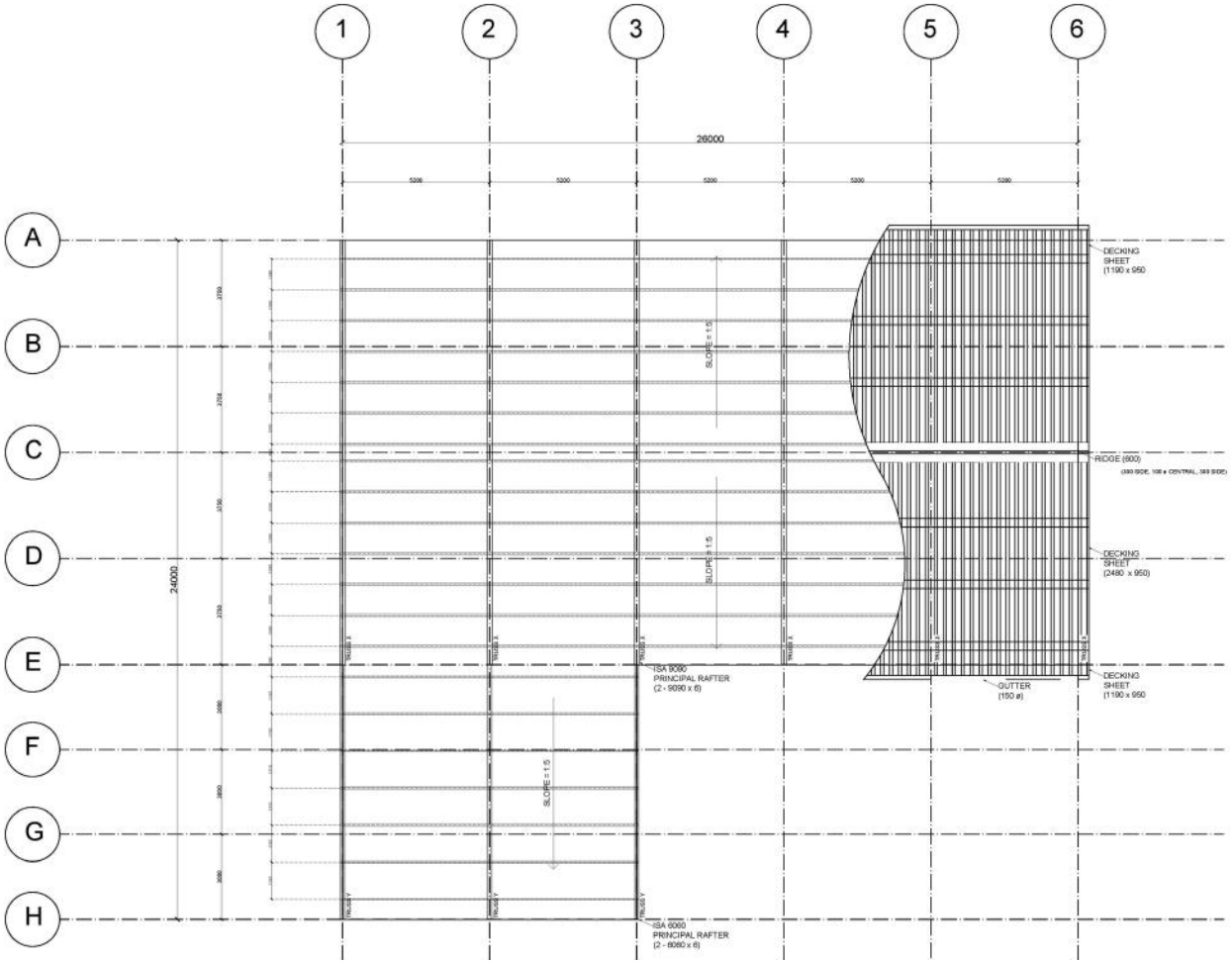
CURRENT SITUATION OF AREA

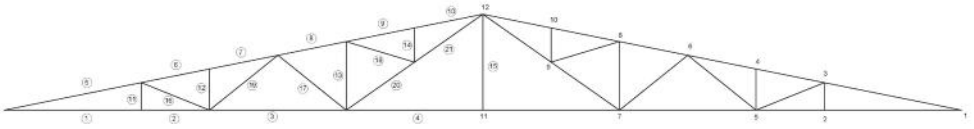


ES
SPITE

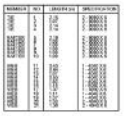


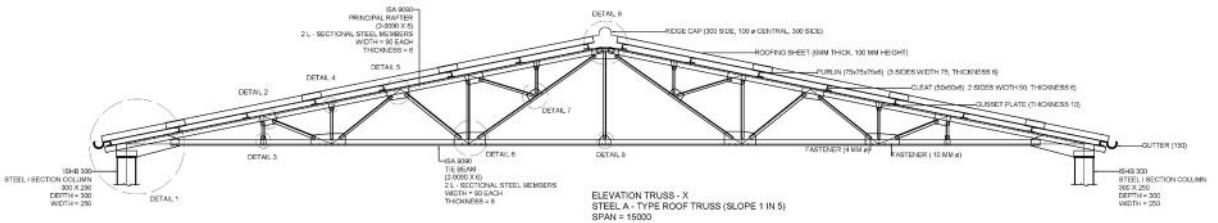
TECHINICAL DRAWINGS



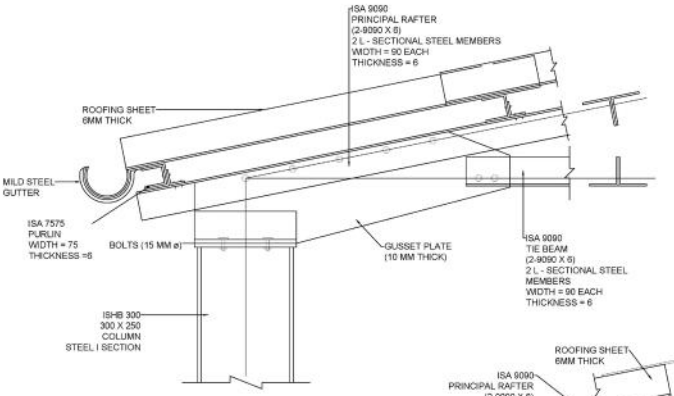


TRUSS - X
STEEL A - TYPE ROOF TRUSS (SLOPE 1 IN 5)
SPAN = 15000

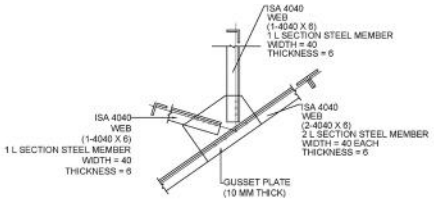




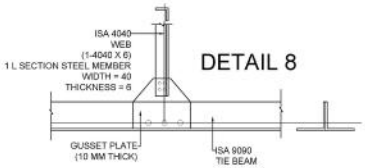
ELEVATION TRUSS - X
STEEL A - TYPE ROOF TRUSS (SLOPE 1 IN 5)
SPAN = 15000



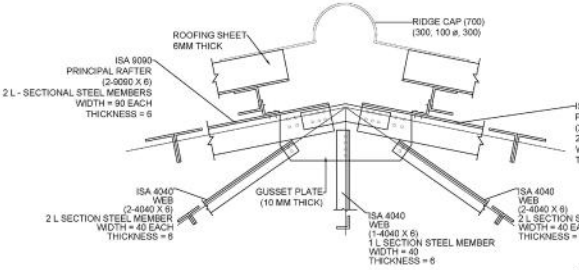
DETAIL 1



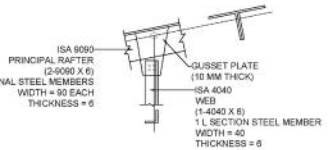
DETAIL 7



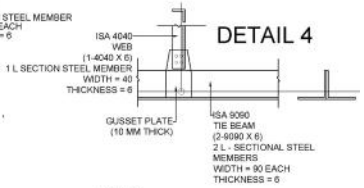
DETAIL 8



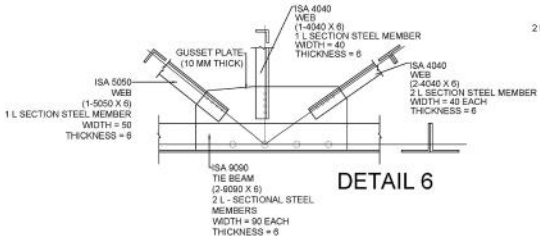
DETAIL 9



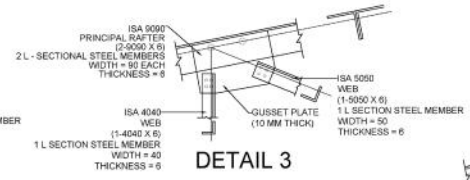
DETAIL 2



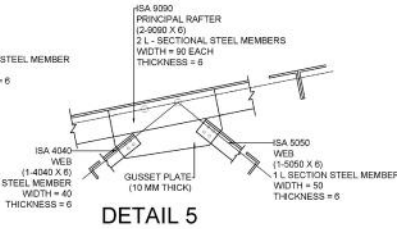
DETAIL 4



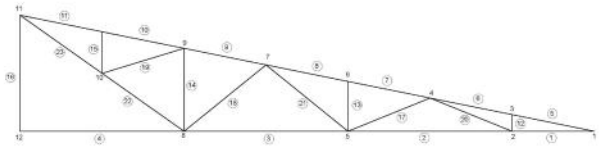
DETAIL 6



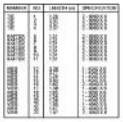
DETAIL 3

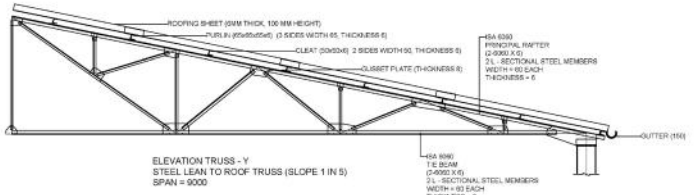


DETAIL 5

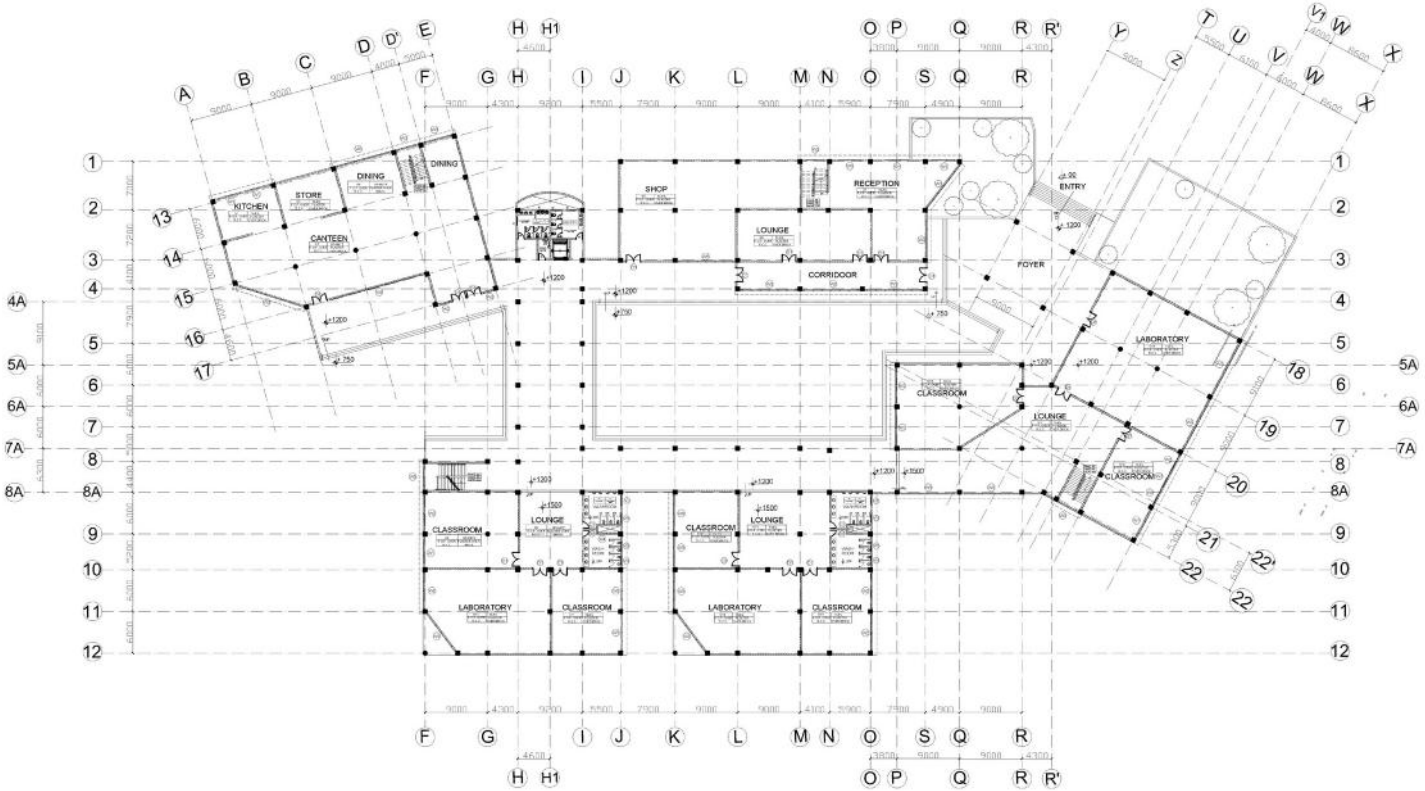


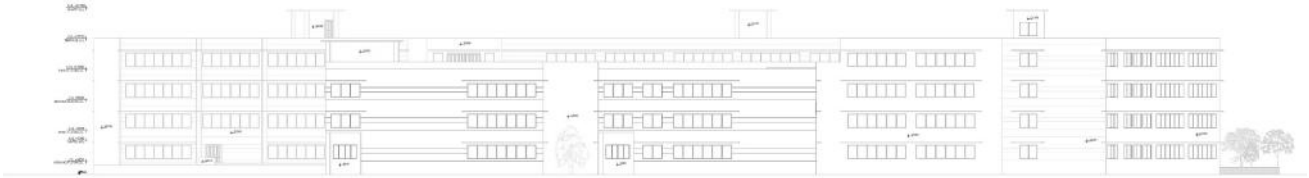
TRUSS - Y
STEEL LEAN TO ROOF TRUSS (SLOPE 1 IN 5)
SPAN = 9000



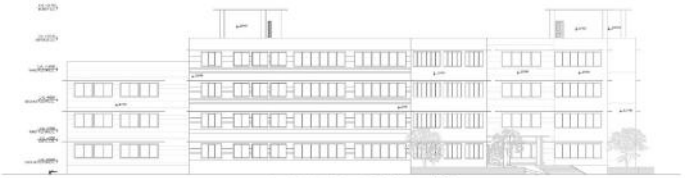


ELEVATION TRUSS - Y
STEEL LEAN TO ROOF TRUSS (SLOPE 1 IN 5)
SPAN = 9000

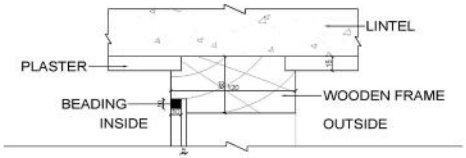




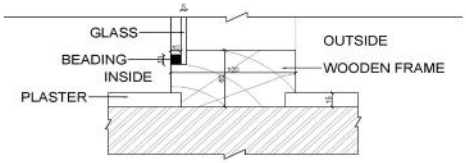
ELEVATION A



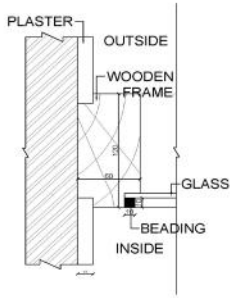
ELEVATION B



DETAIL 1

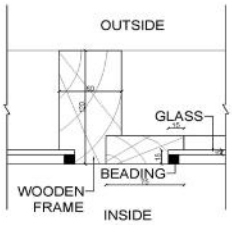


DETAIL 2

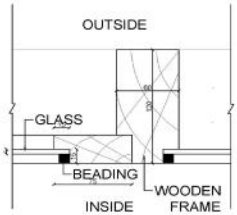


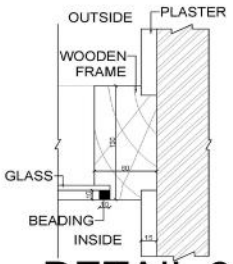
DETAIL 3

DETAIL 4



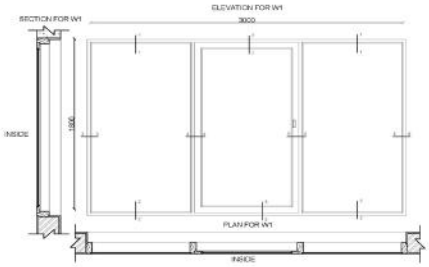
DETAIL 5

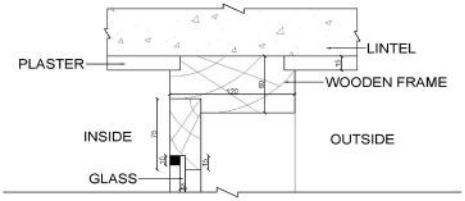




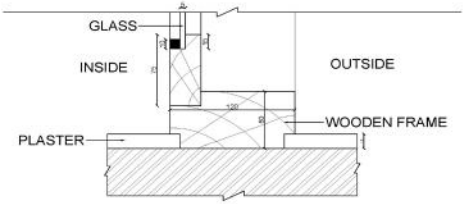
DETAIL 6

WINDOW 1

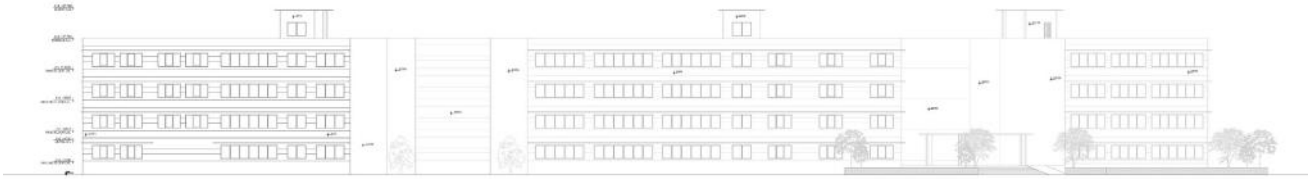




DETAIL 7

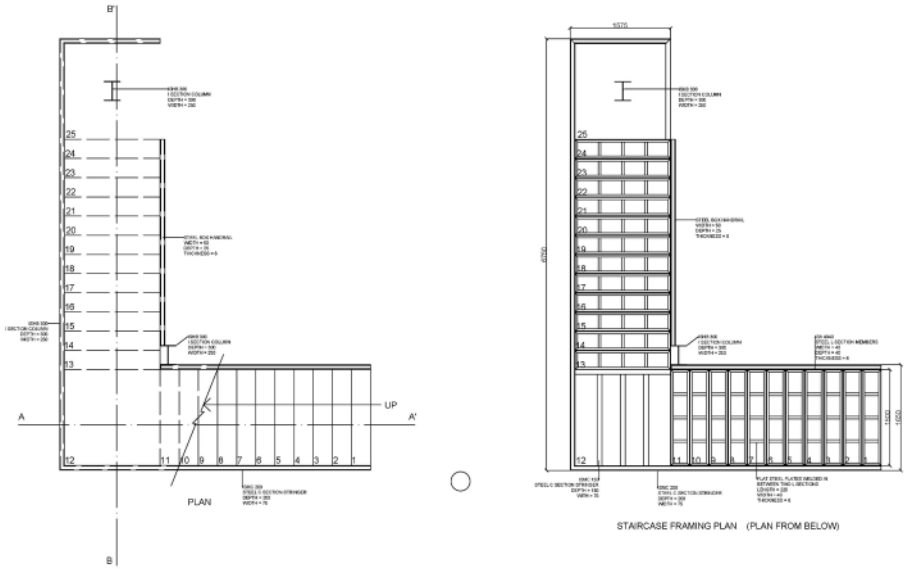


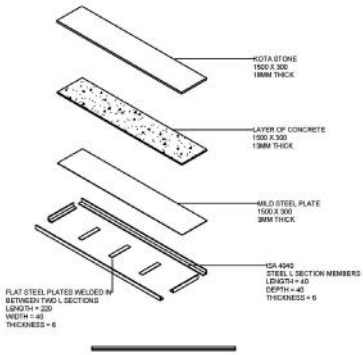
DETAIL 8

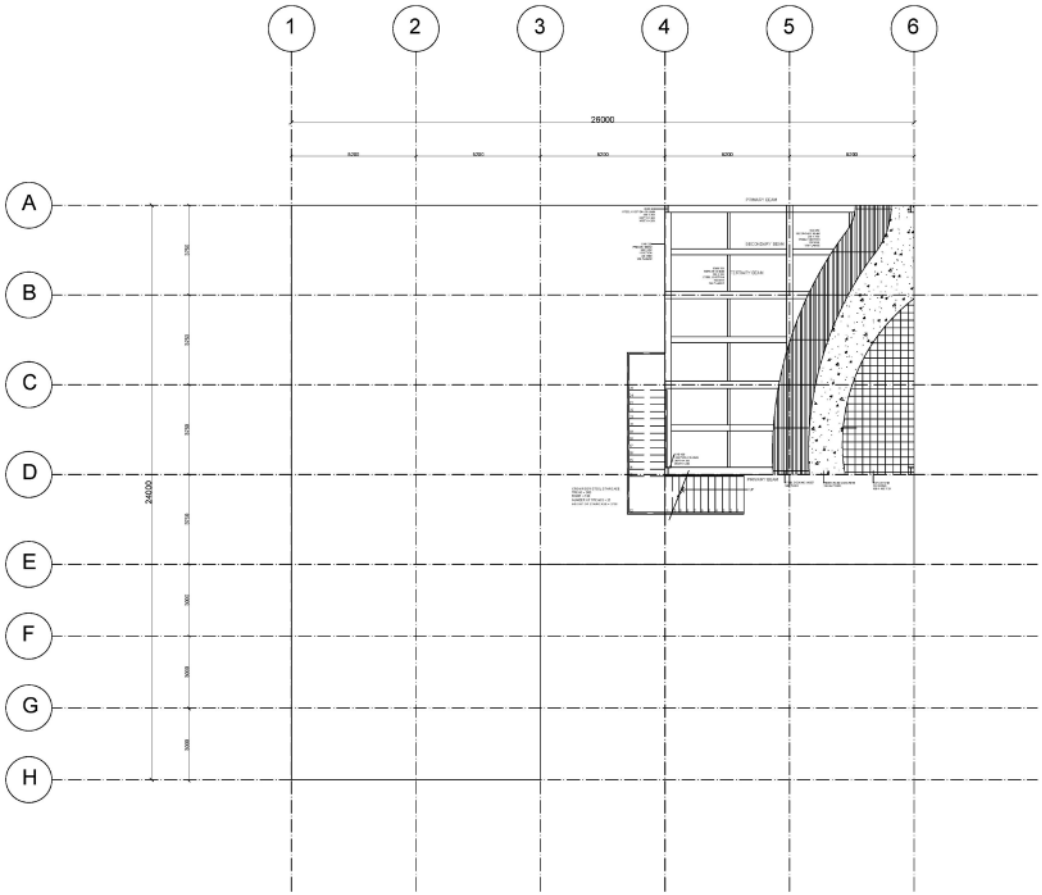


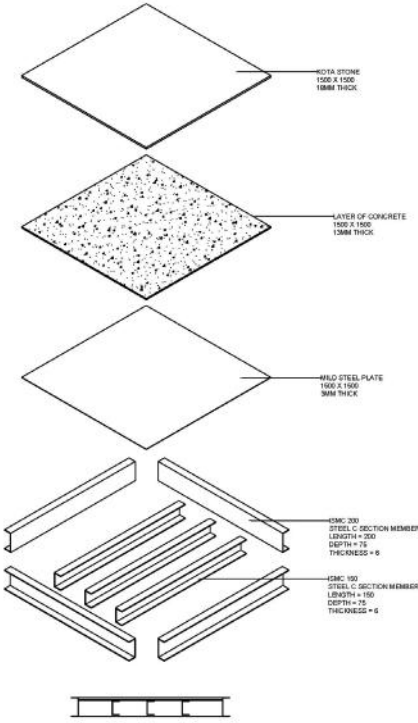
ELEVATION C

ELEVATION D

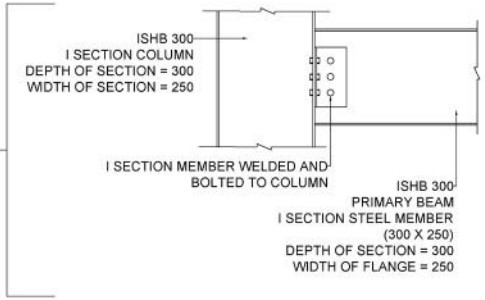

B'
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11 10 9 8 7 6 5 4 3 2 1
UP
A
A'
B
PLAN
STAIRCASE FRAMING PLAN (PLAN FROM BELOW)

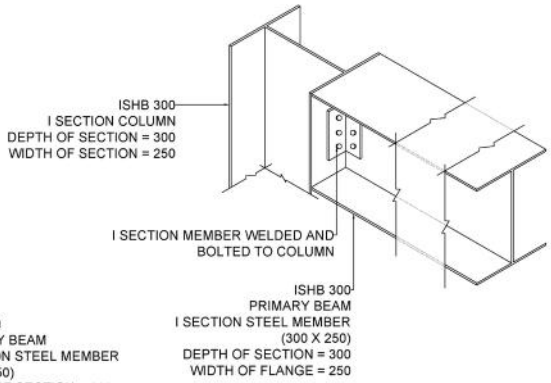

KOTA STONE
1500 X 300
18MM THICK
LAYER OF CONCRETE
1500 X 300
13MM THICK
MILD STEEL PLATE
1500 X 300
3MM THICK
ISA 4040
STEEL L SECTION MEMBERS
LENGTH = 40
DEPTH = 40
THICKNESS = 6
FLAT STEEL PLATES WELDED IN
BETWEEN TWO L SECTIONS
LENGTH = 220
WIDTH = 40
THICKNESS = 6


1
2
3
4
5
6
A
B
C
D
E
F
G
H
28000
24000

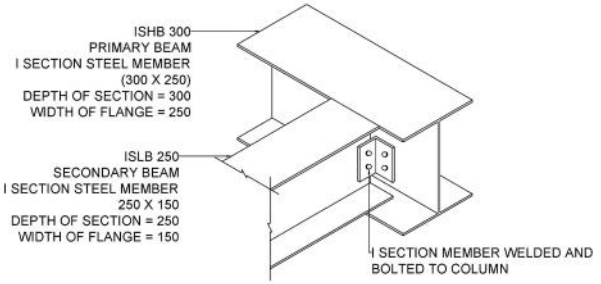

KOTA STONE
1500 X 1500
18MM THICK
LAYER OF CONCRETE
1500 X 1500
13MM THICK
MILD STEEL PLATE
1500 X 1500
3MM THICK
ISMC 300
STEEL C SECTION MEMBER
LENGTH = 300
DEPTH = 75
THICKNESS = 6
ISMC 150
STEEL C SECTION MEMBER
LENGTH = 150
DEPTH = 75
THICKNESS = 6

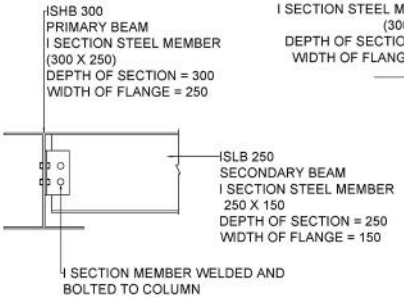
COLUMN AND PRIMARY BEAM CONNECTION DETAIL



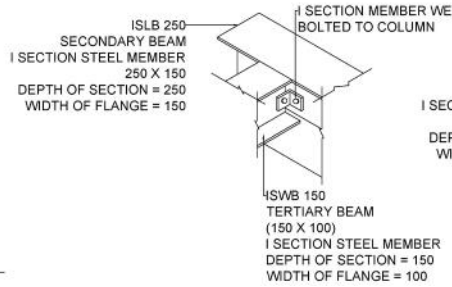


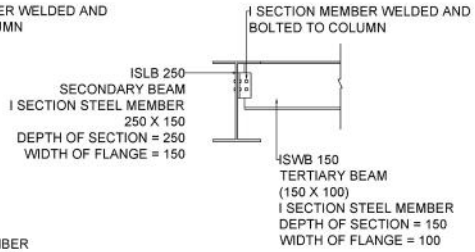
PRIMARY AND SECONDARY BEAM CONNECTION DETAIL

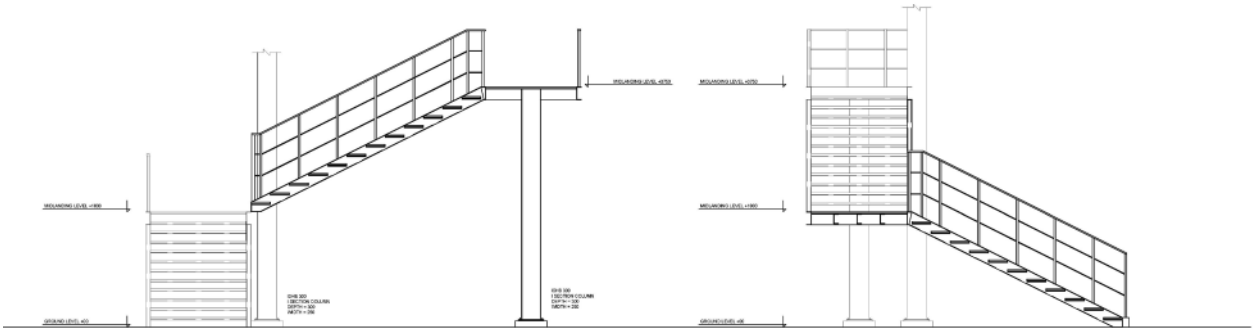




SECONDARY TO TERTIARY BEAM CONNECTION DETAIL



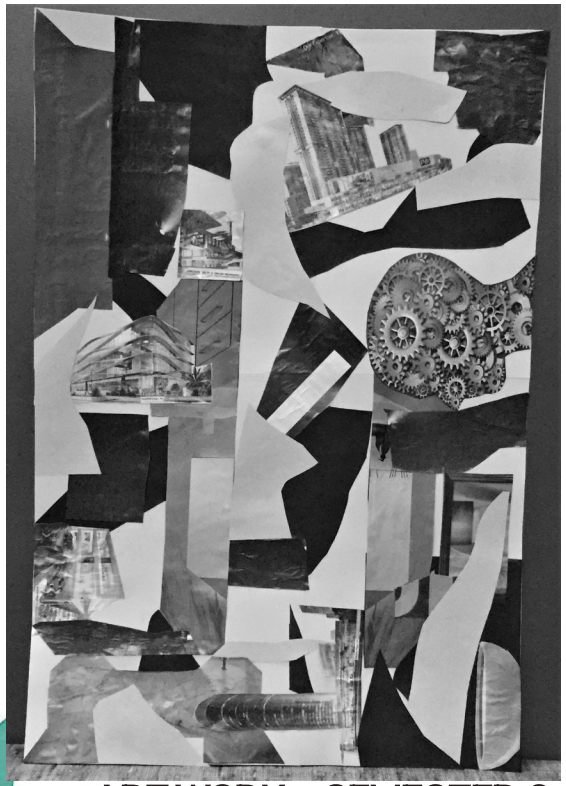


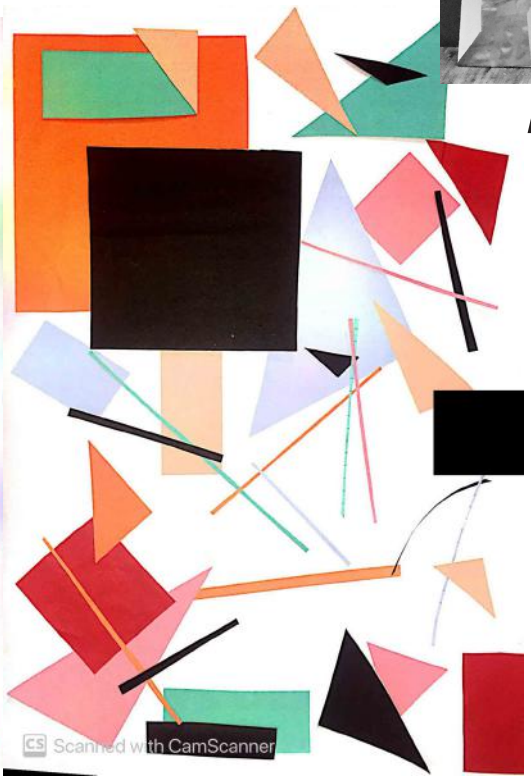


SECTION BB'

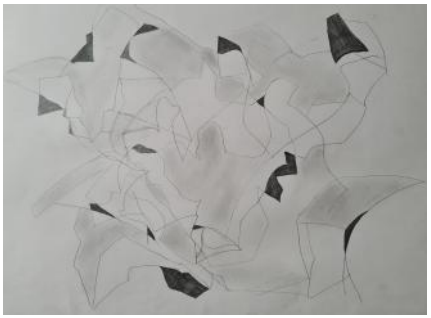
SECTION AA'

MISCELLANEOUS





ART WORK - SEMESTER 2



MODELS- SEMESTER 3