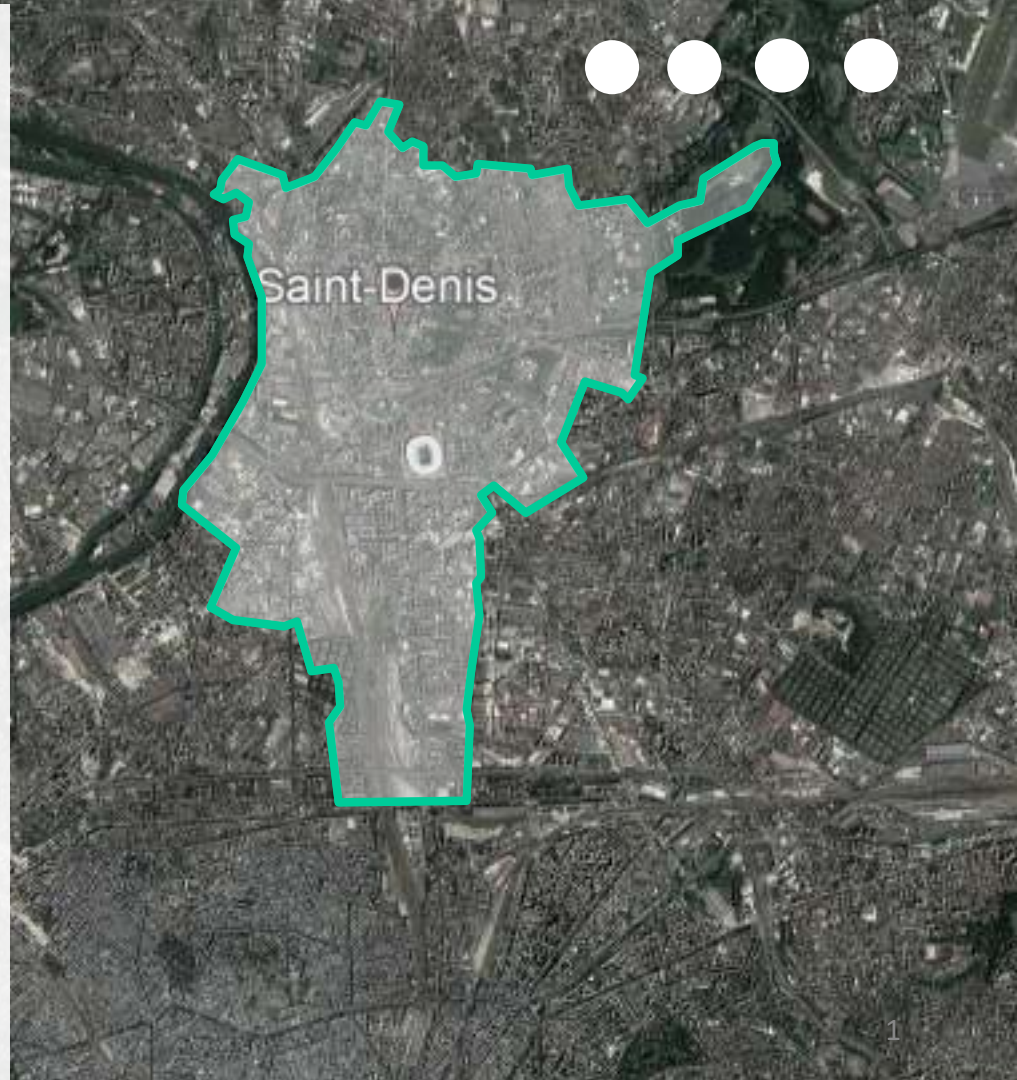




**Multi Comfort Student Contest  
2020**

Saint Denis, Paris, France





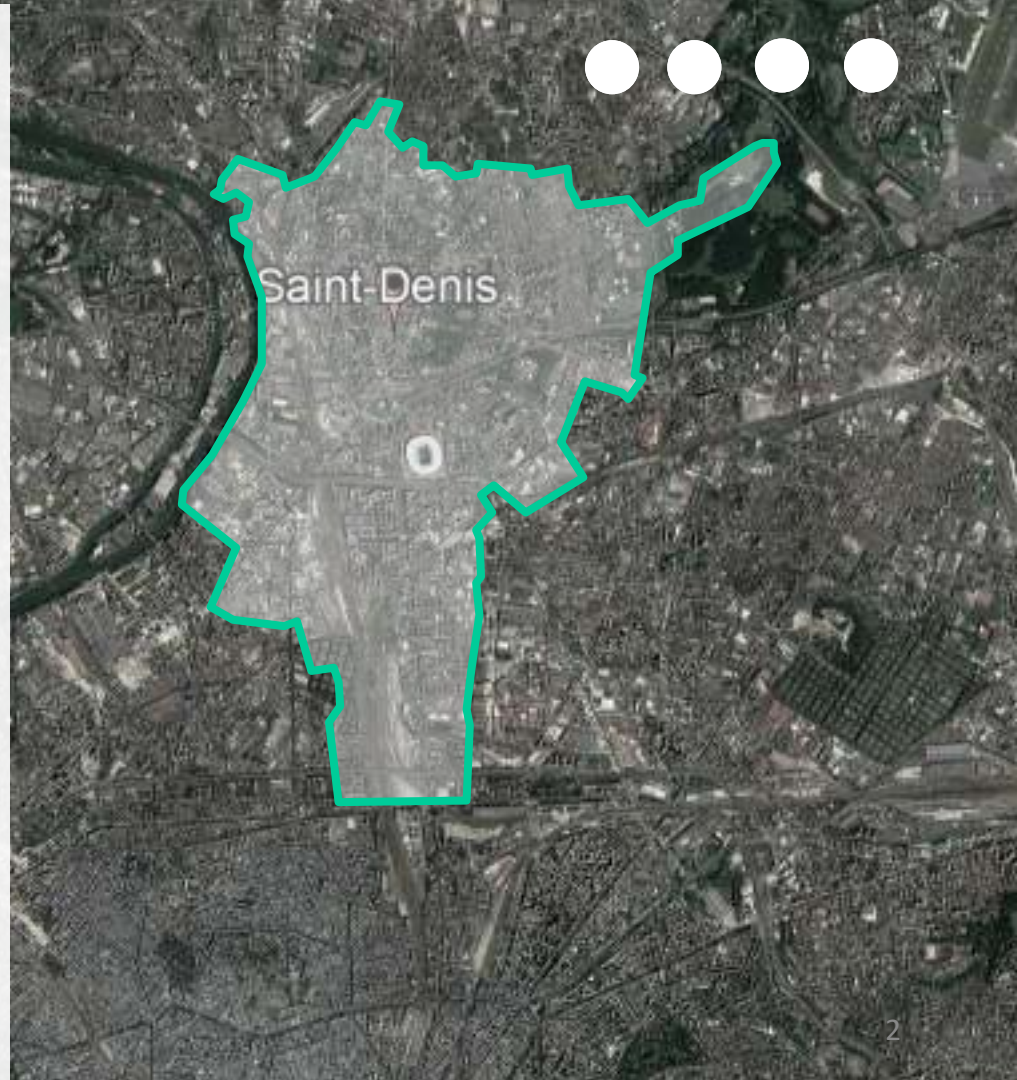


**Egyptian Design Team: 194561**

Ali Abdelmageed  
Bahaa Maher  
Mahmoud Wael

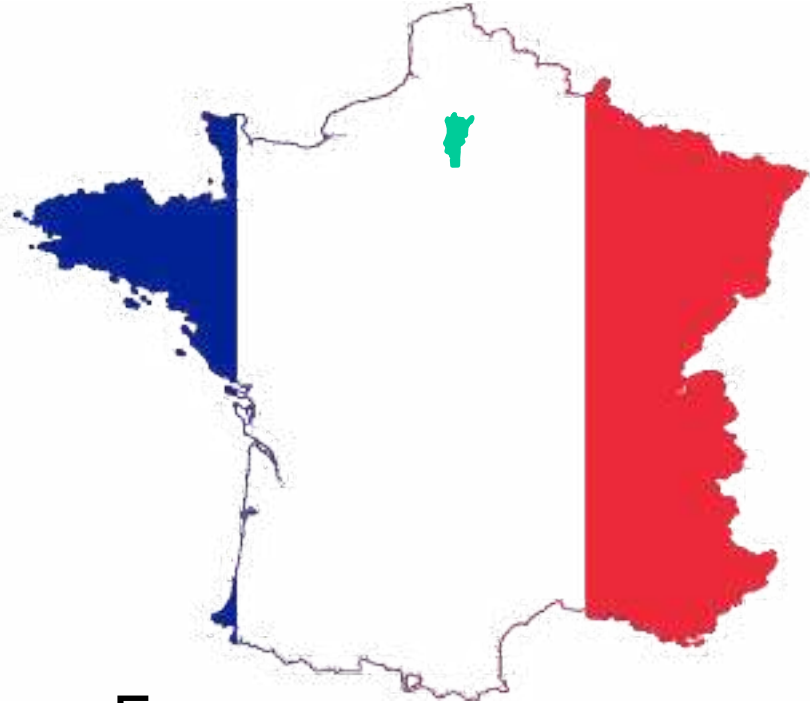
Academic Advisor  
Dr. Ramy Bakir

AASTMT, Heliopolis, Cairo

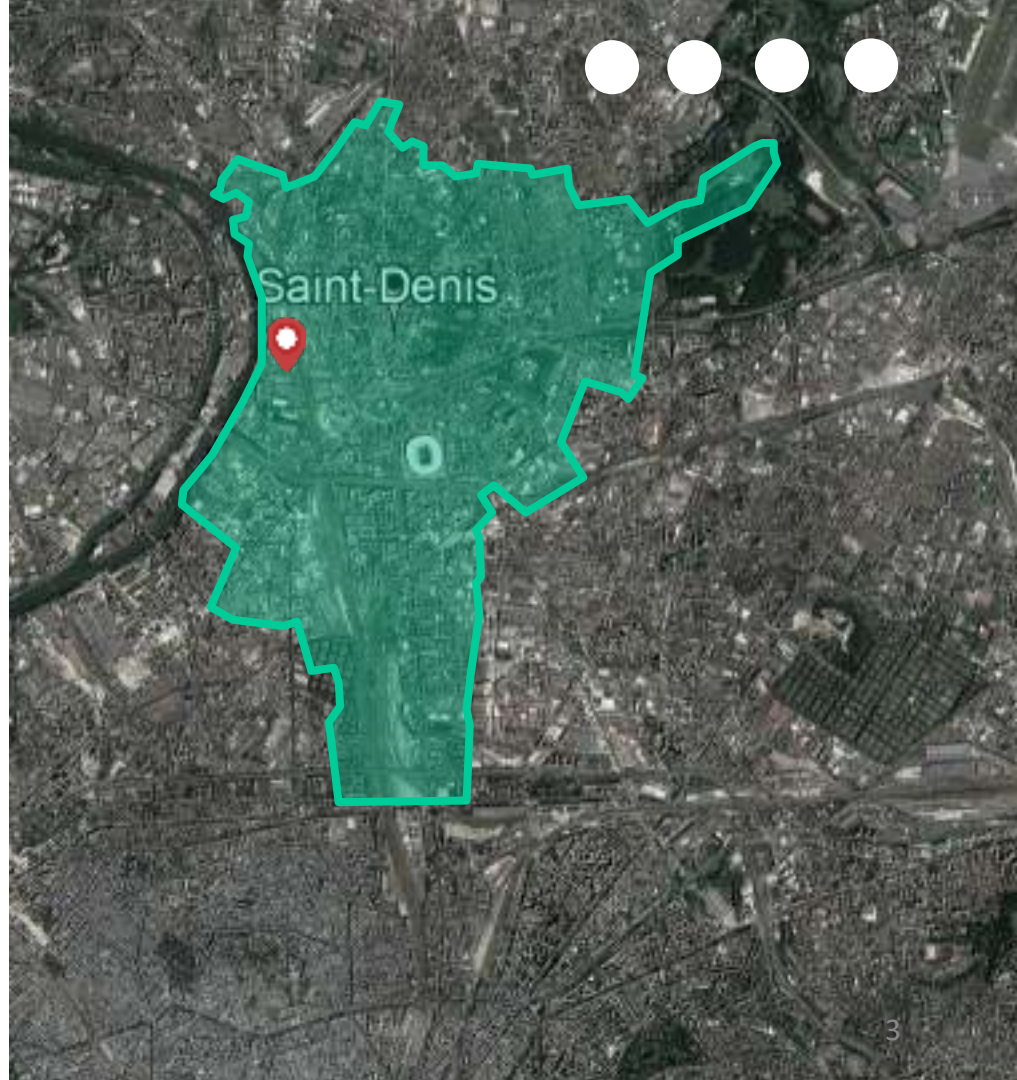




# LOCATION



France







# SITE ANALYSIS / ISSUES



# Macro Scale Analysis



Railways



Seine River



ST. Denis Train Station.



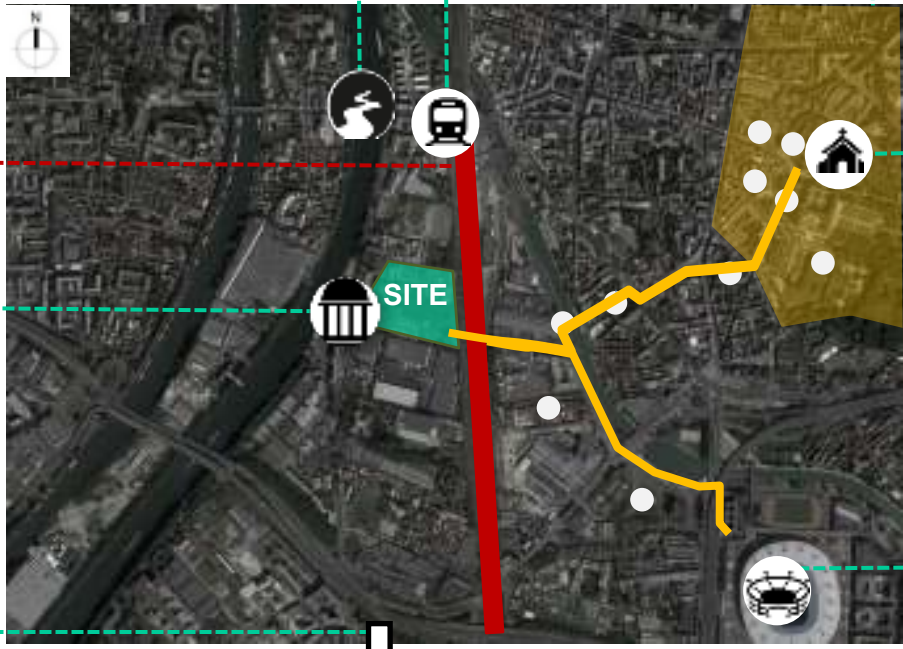
ST. Denis Market.



Maison coignet



Saint Denis playel



Saint Denis Basilica.



France Stadium 5



# Micro Scale Analysis

Zac sud  
Confluence

**SITE**

Industrial

Residential

Industrial





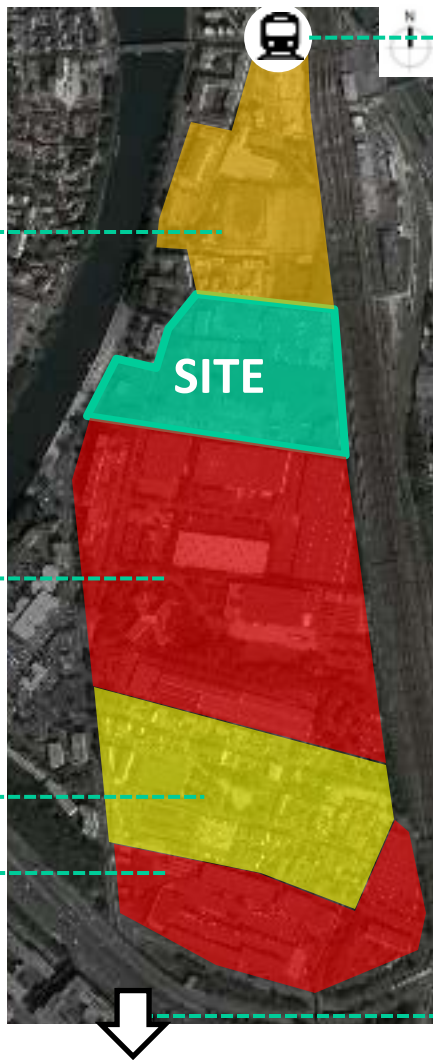
# Micro Scale Analysis

Zac sud  
Confluence

Industrial

Residential

Industrial



Saint Denis  
station



Saint Denis  
playel



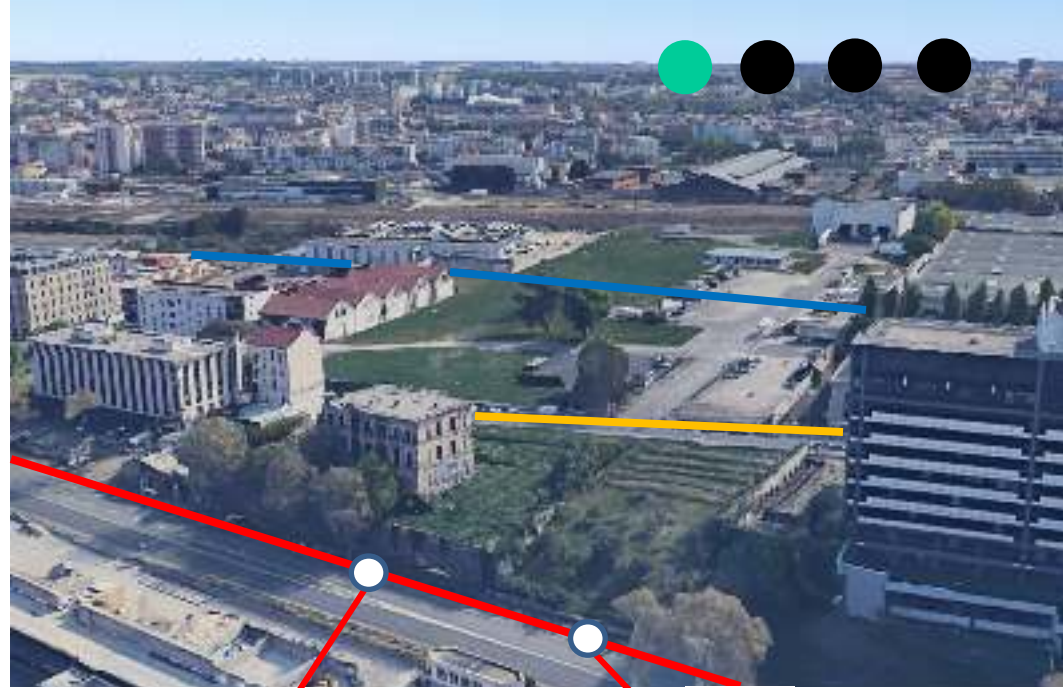


# Micro scale analysis

Boulevard de la  
Liberation

Future Coignet  
street

Rue Charles  
Michels





# 2-THE UNDERUSE OF HISTORICAL PLACES



Warehouses



Maison Coignet



# 3-SITE IS NOT LIVELY



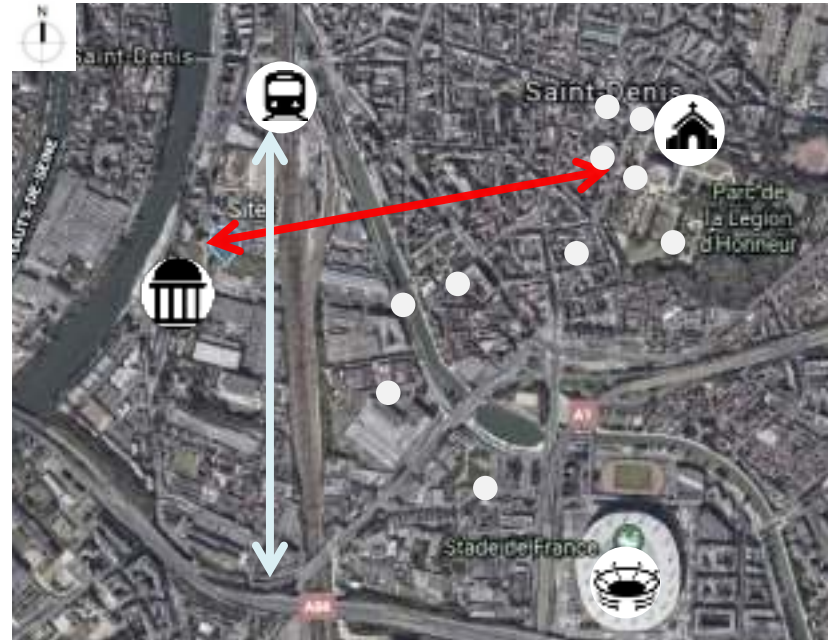


# Our Design Objective



“Injecting vitality into the site by transforming it into several Connective Platforms”

- 1 - Connecting East to west
- 2 - Connecting South to North
- 3 -Connecting History to the context





# Our Design Objective



“Injecting vitality into the site by transforming it into several Connective Platforms”

- 1 - Connecting East to west
- 2 - Connecting South to North
- 3 -Connecting History to the context
- 4 - Connecting Present to past
- 5- connecting the built with the natural

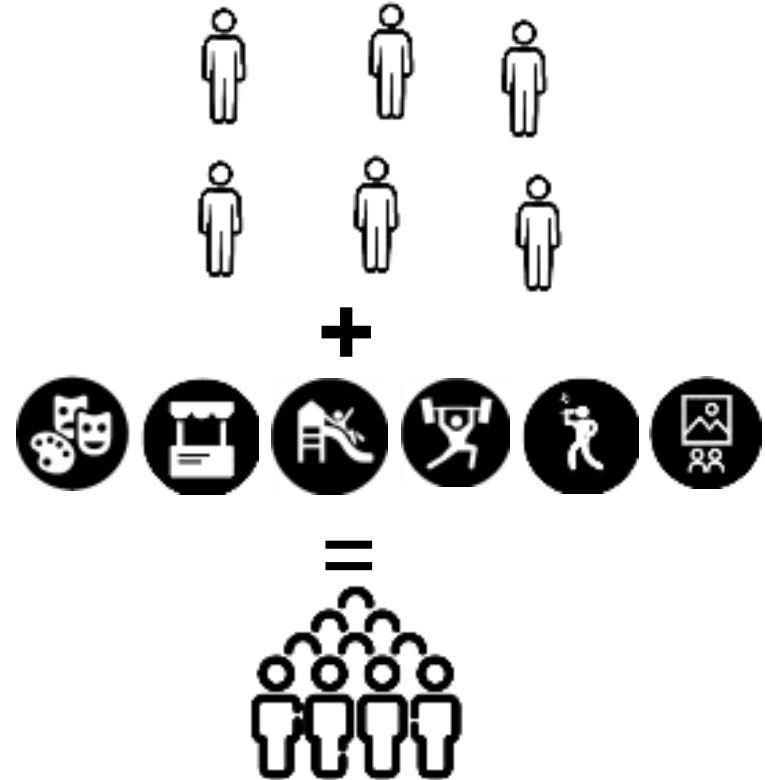




# Our Design Objective

“Injecting vitality into the site by transforming it into several Connective Platforms”

- 1 - Connecting East to west
- 2 - Connecting South to North
- 3 -Connecting History to the context
- 4 - Connecting Present to past
- 5- connecting the built with the natural
- 6- Connecting the individual with the community



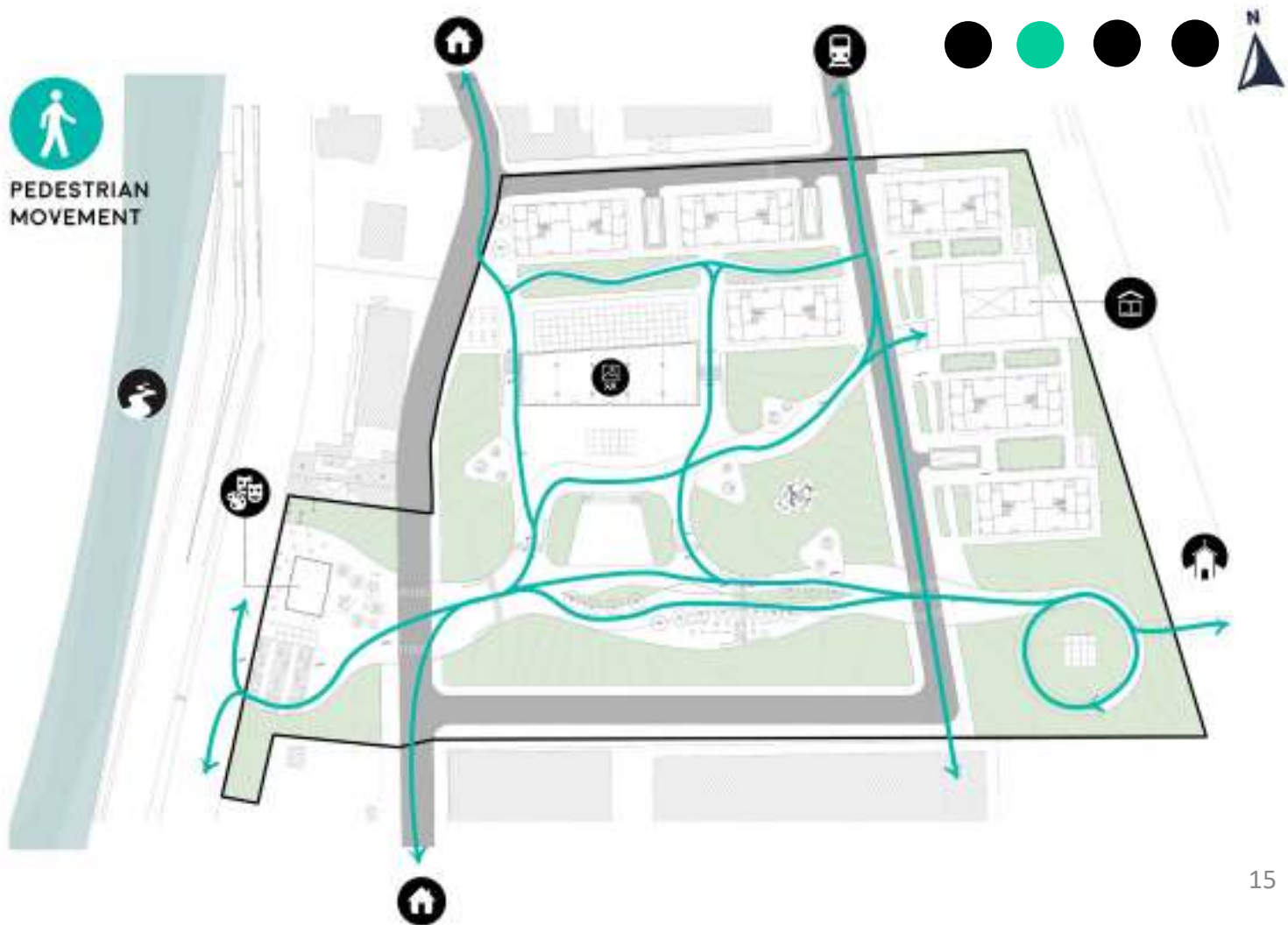




# THE CONNECTIVE PLATFORM

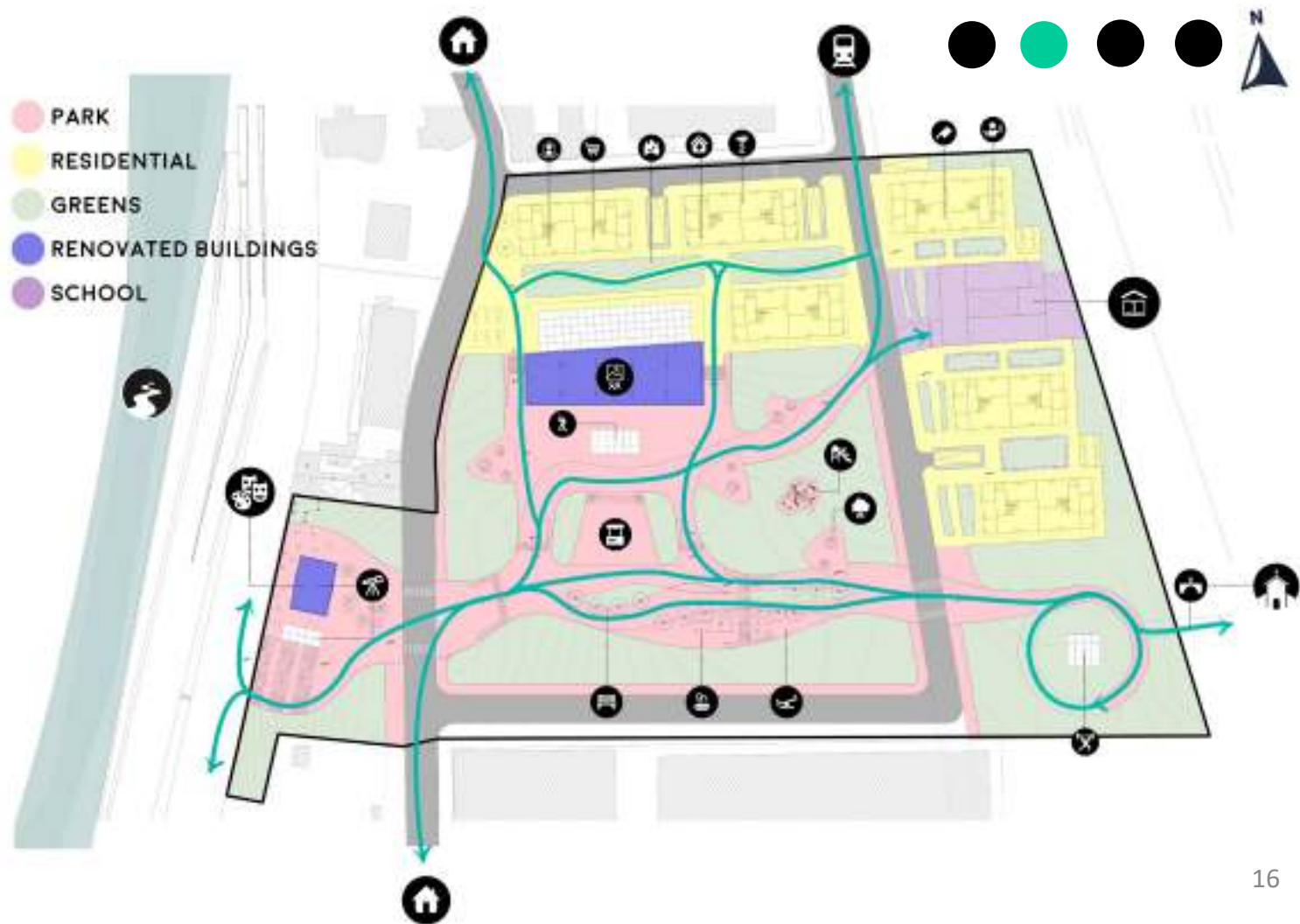


# Pedestrian Movement





# Zoning /Activities



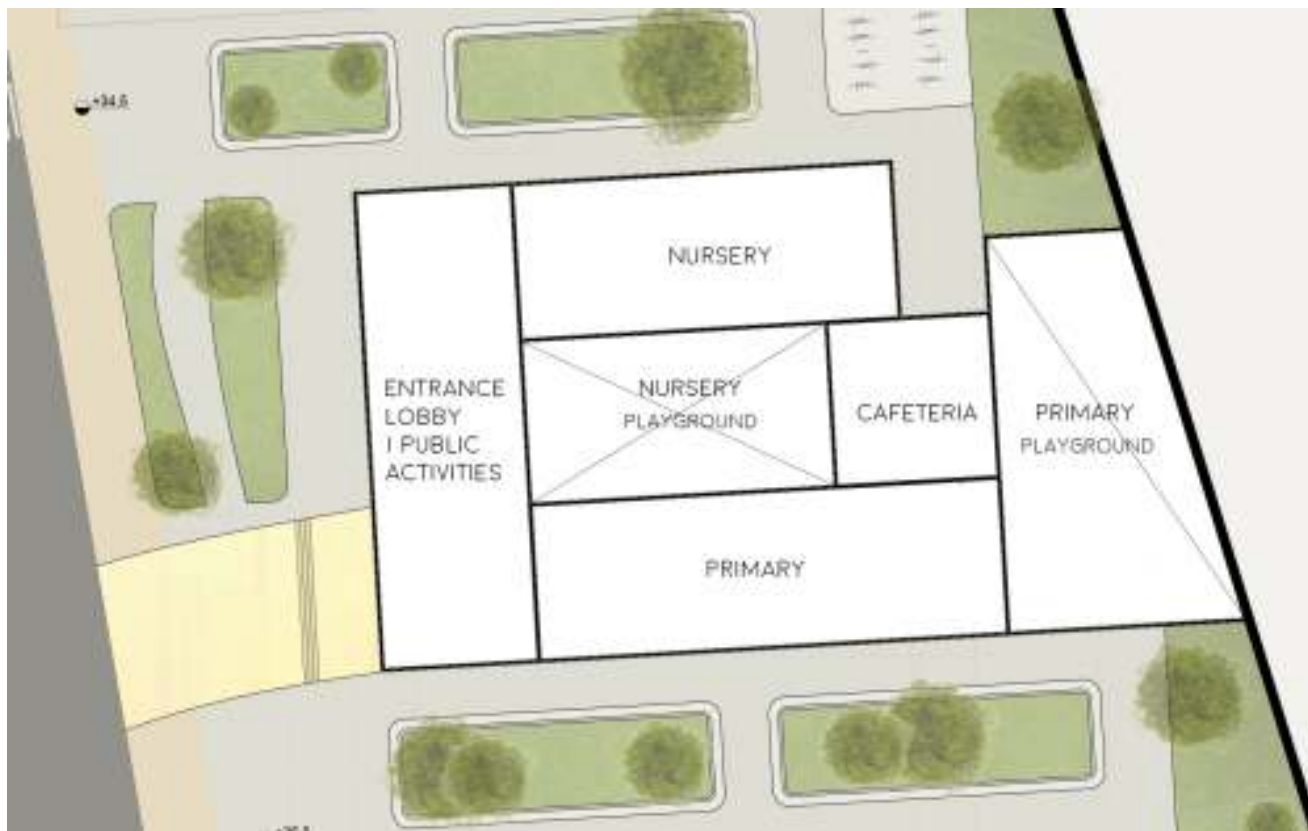


# Masterplan





# School Design





# Before





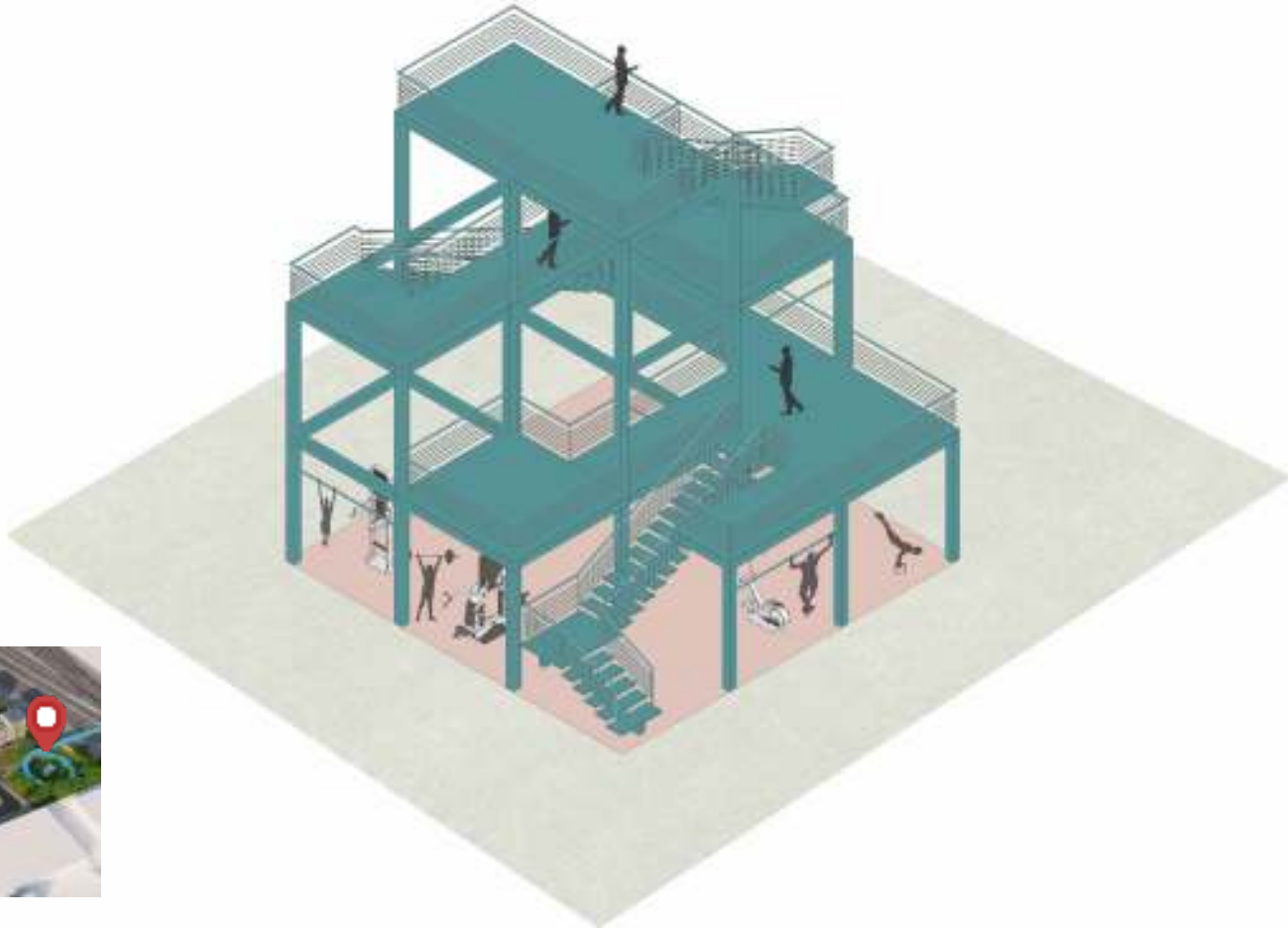








# Sports Platform

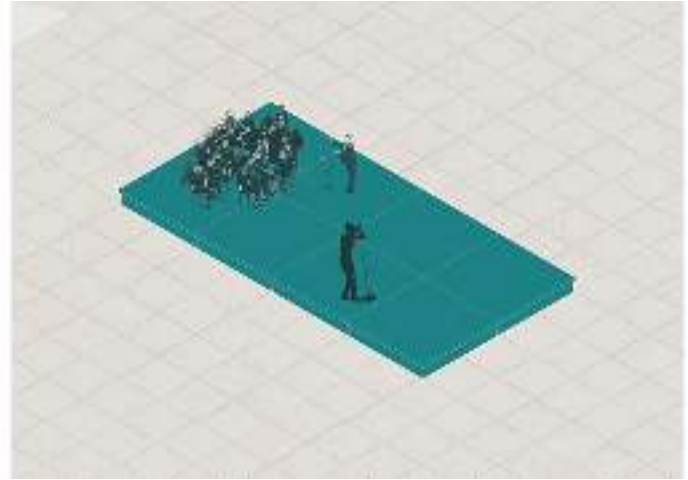
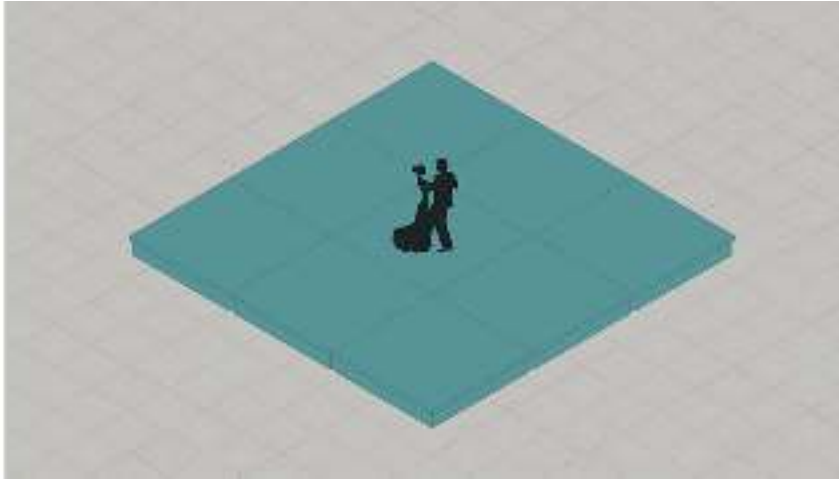






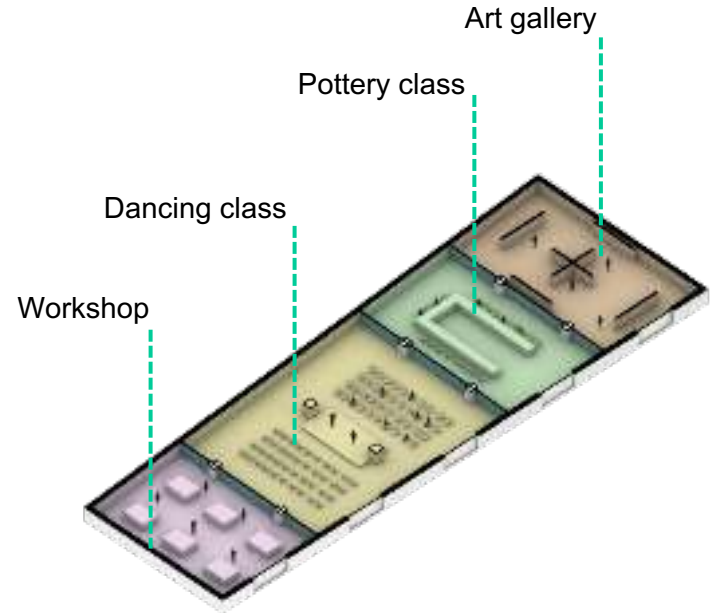
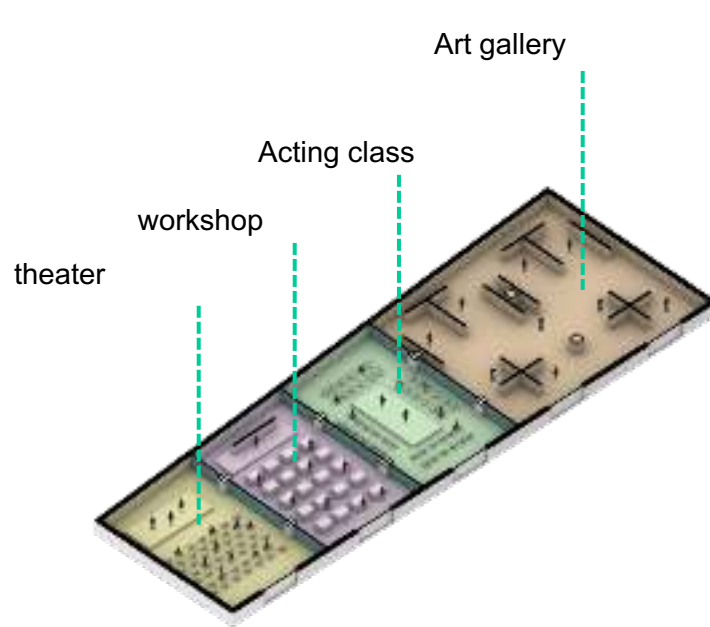


# Performance Platform





# Arts platform



Flexible rearrangement of warehouse  
spaces using partitions to host art activities



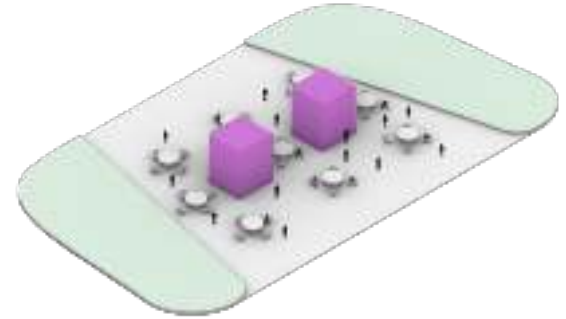
# Commercial platform



Bazaar



Grocery kiosks



Food Kiosks

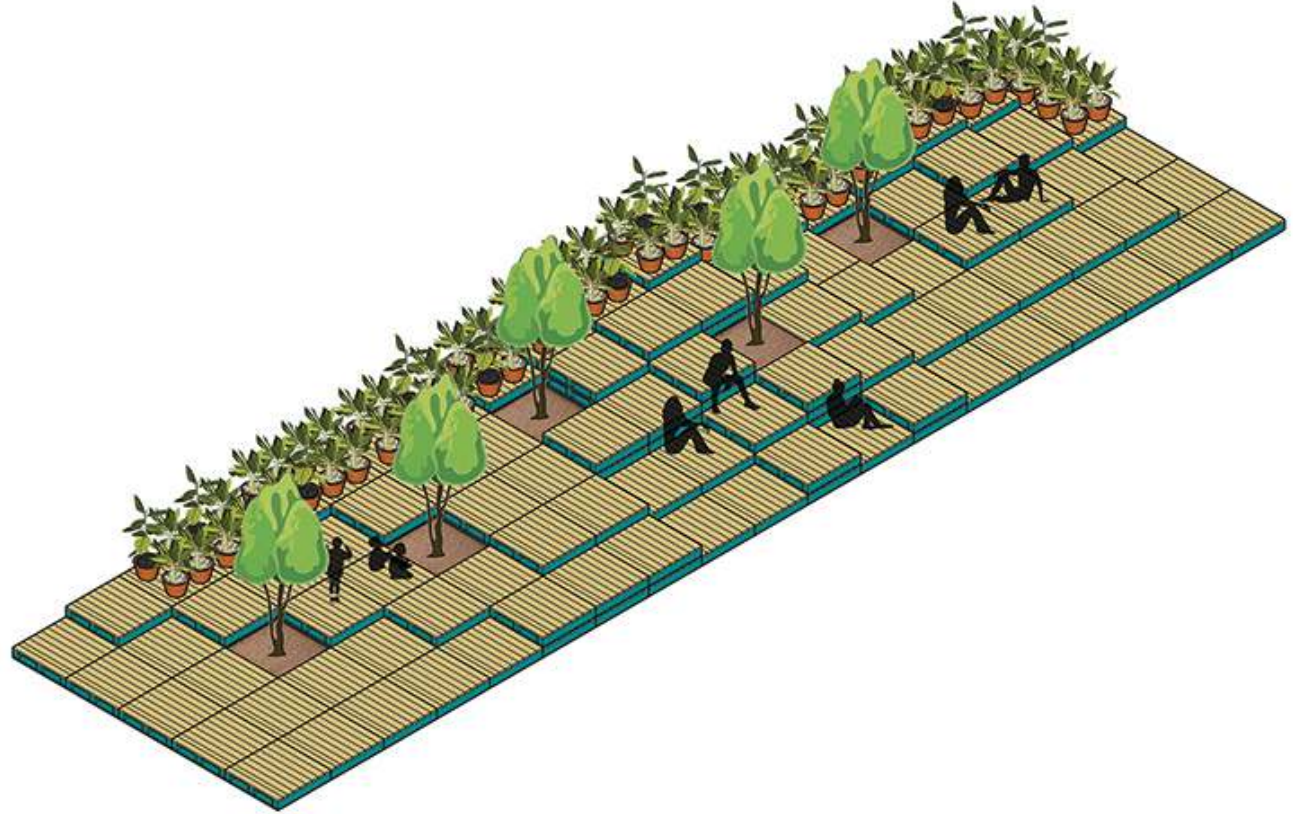








# Gathering platform





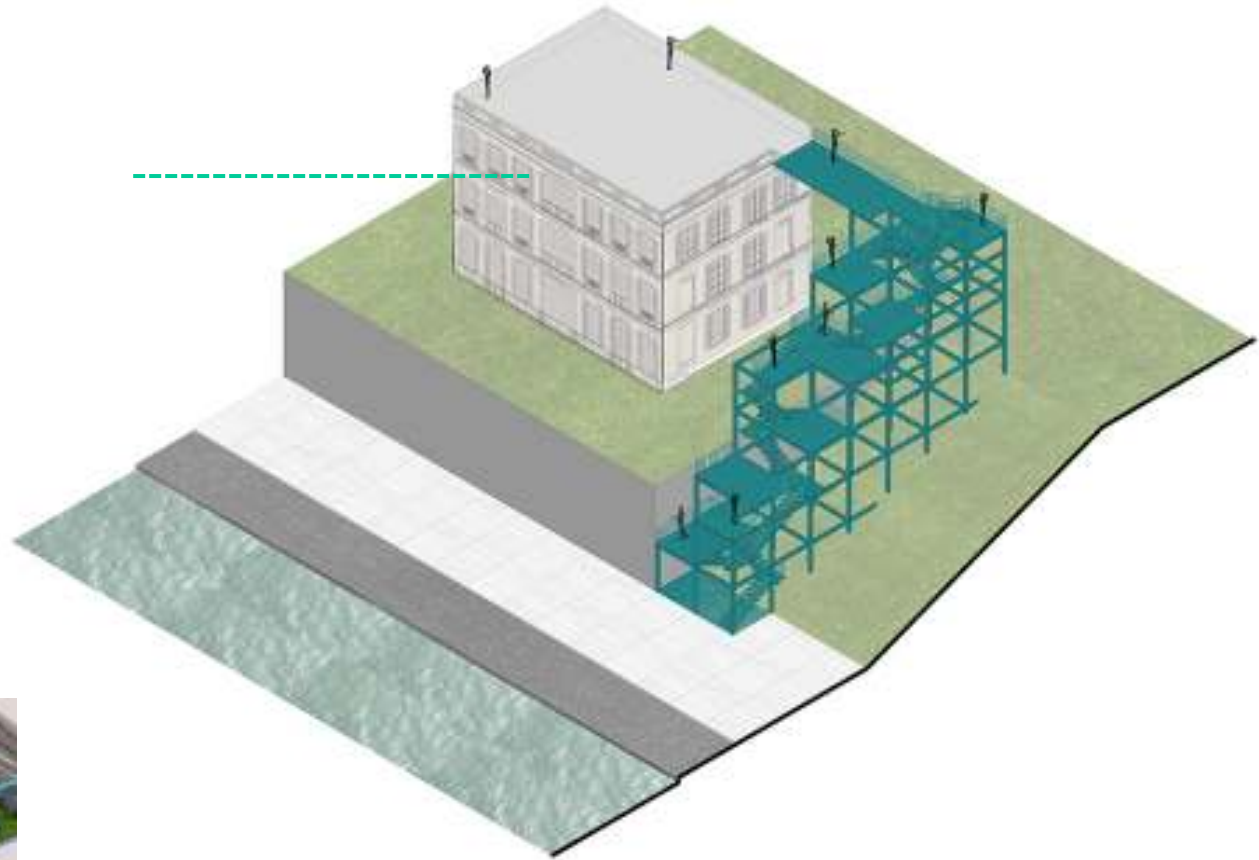




# Observation Platform



Coignet Cultural Center

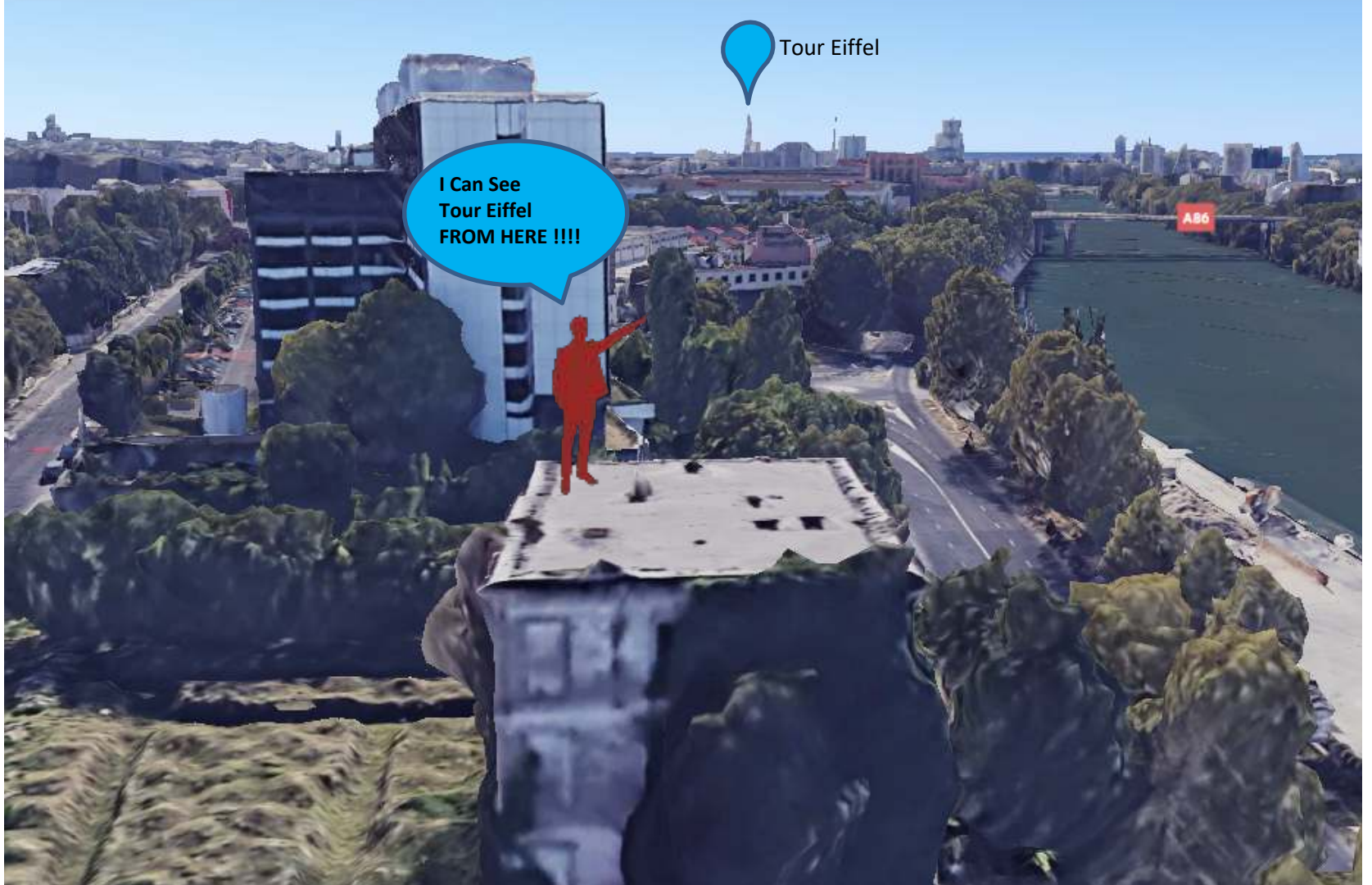




Tour Eiffel

I Can See  
Tour Eiffel  
FROM HERE !!!!

A86







**Before**





After



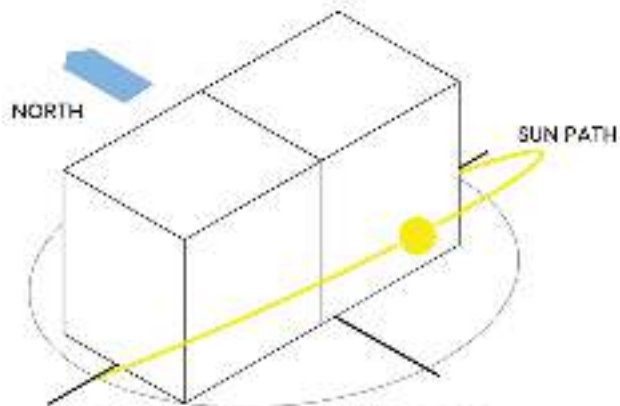


# RESIDENTIAL BUILDINGS

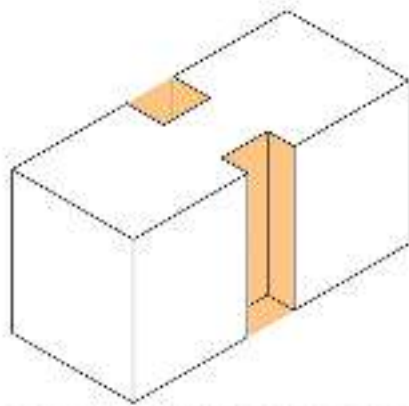




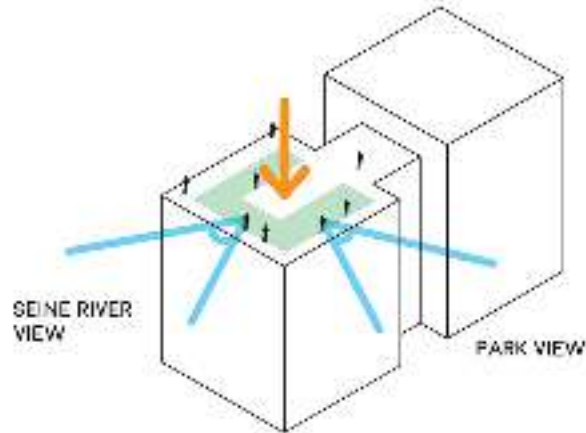
# Form Generation



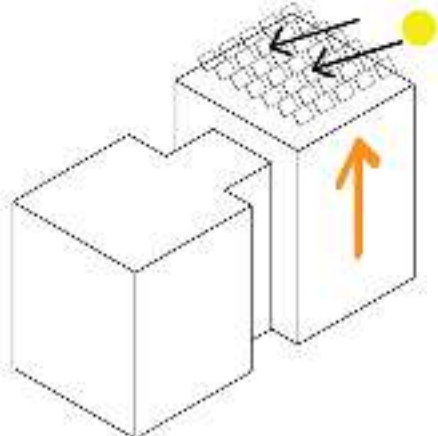
1-STARTING WITH LONGITUDINAL FORM  
TO MAXIMIZE NORTH/SOUTH FACADE



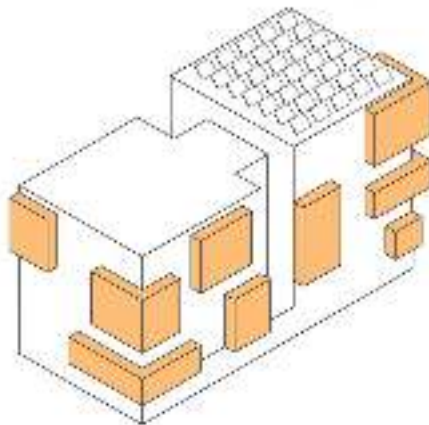
2-BUILDING SUBTRACTIONS FOR EXTRA  
NATURAL VENTILATION AND LIGHTING



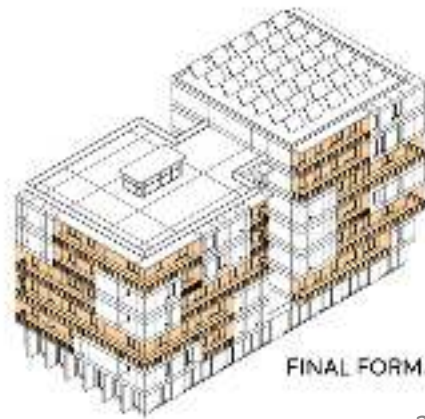
3-BUILDING HEIGHT DIFFERENCE FOR  
SEINE VIEWS AND GREEN ROOF



5-HIGHER MASS TO HAVE SOLAR PANELS  
WITHOUT HAVING SHADOW FALLING ON IT



6-EXTRUDED MASSES FOR BUILDING  
SELF SHADING



FINAL FORM.

8- CREATING BALCONIES FOR MORE  
SELF SHADING AND SITE VIEWS



# APARTMENT TYPES

SMALL STUDIO- 32M2



SMALL TWO BEDROOM APT - 62 M2



THREE BEDROOM APT - 90 M2



LARGE STUDIO - 46M2



LARGE TWO BEDROOM APT. 73 M2



## USER TYPOLOGY

SINGLE PARENT



MARRIED COUPLE



SMALL FAMILY



LARGE FAMILY



## APARTMENTS NUMBERS

T1 60 APARTMENT

T2 54 APARTMENT

T3 54 APARTMENT

T4 66 APARTMENT

T5 66 APARTMENT

TOTAL : 300 APARTMENT



# PLANS



FIRST FLOOR



GROUND FLOOR



SECOND FLOOR



THIRD FLOOR



FOURTH FLOOR



FIFTH FLOOR

TYPE 1

TYPE 2

TYPE 3

TYPE 4

TYPE 5

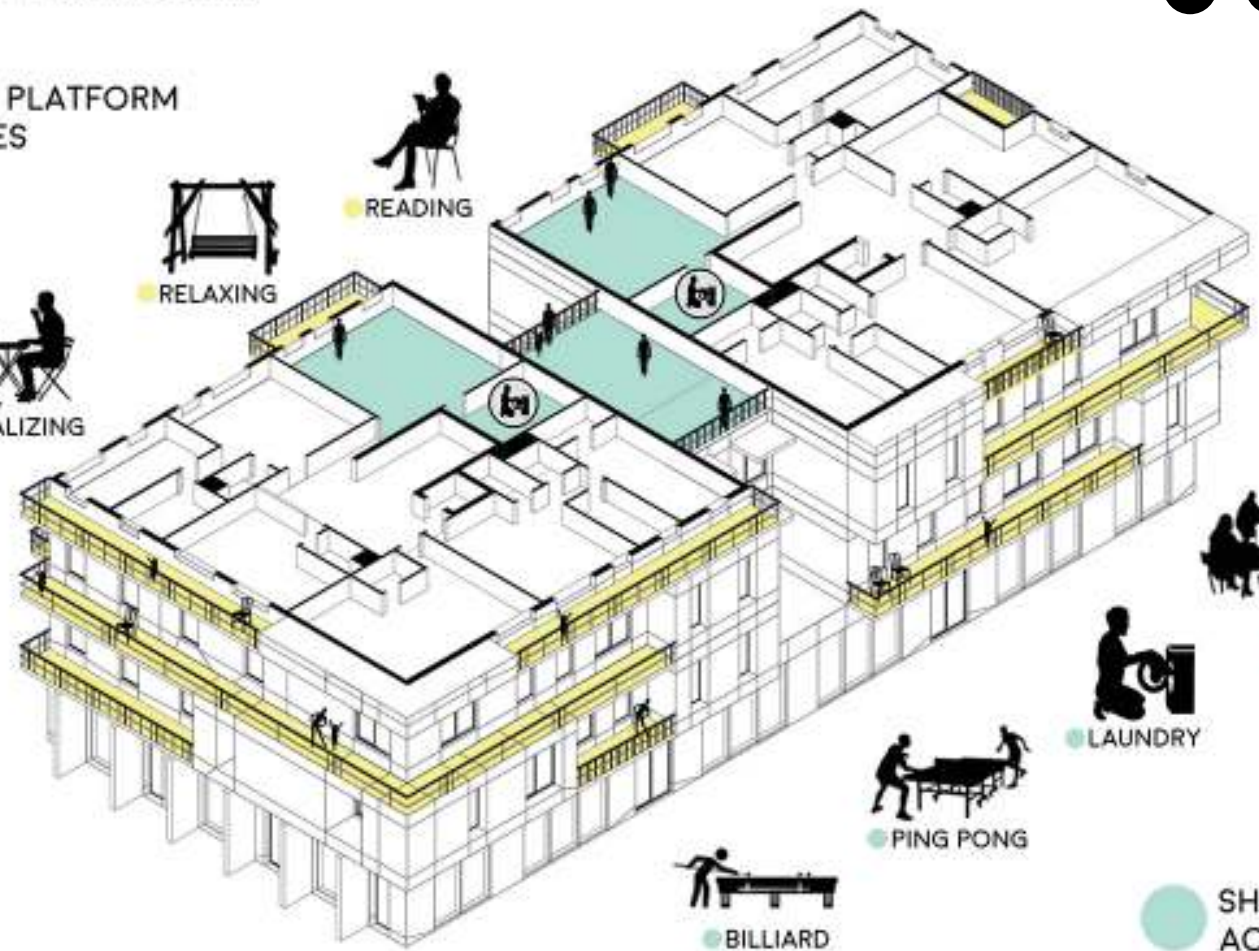
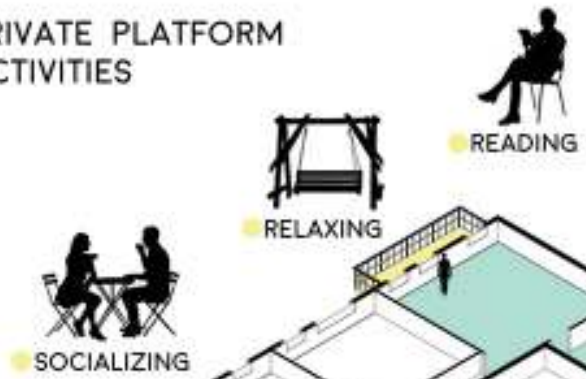
COMMUNAL SPACES



# COMMUNAL PLATFORM



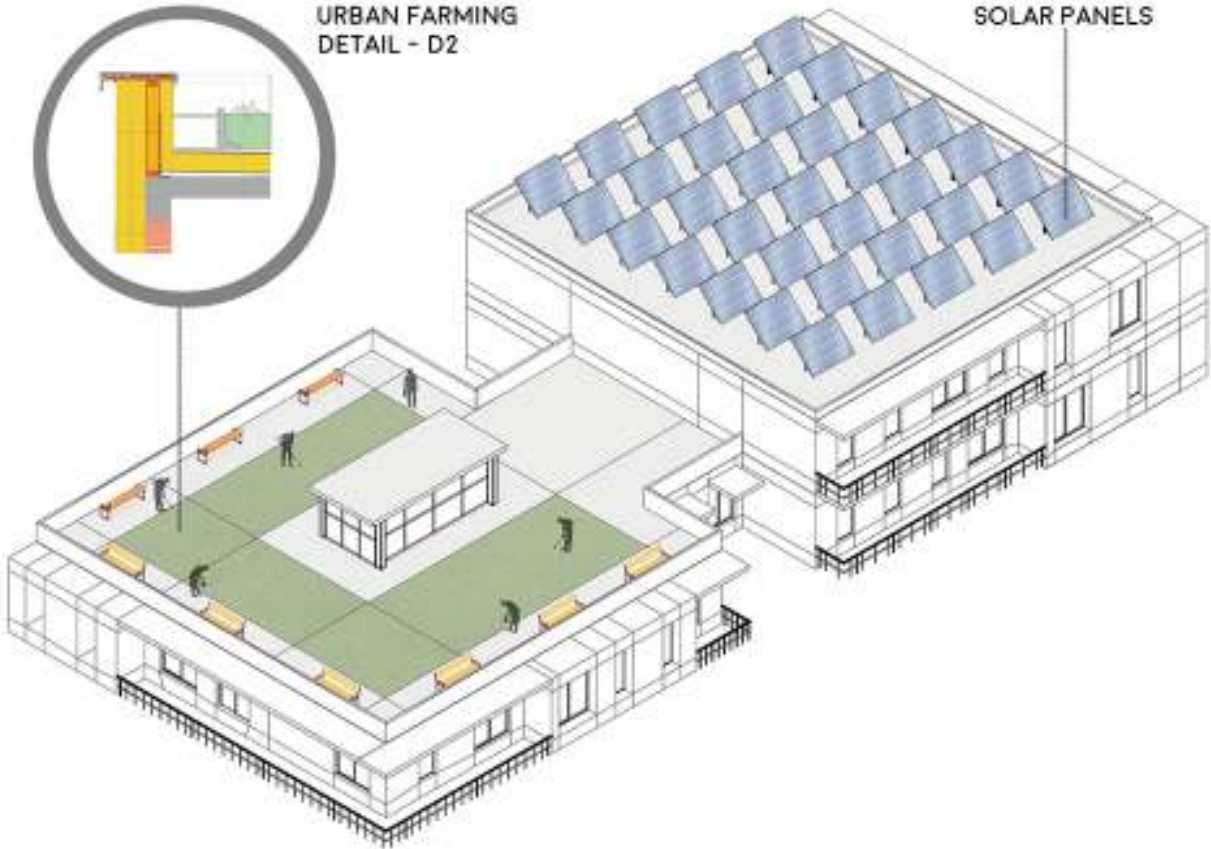
PRIVATE PLATFORM  
ACTIVITIES



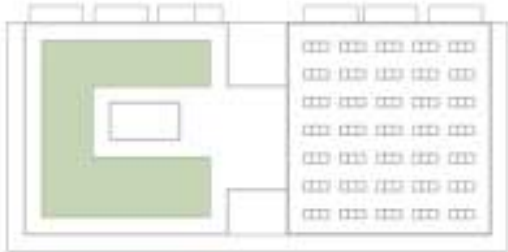
SHARED PLATFORM  
ACTIVITIES



# ECOLOGICAL PLATFORM



SIXTH FLOOR



ROOF PLAN



# SECTIONS

- RESIDENTIAL SPACES
- CORES
- COMMUNAL SPACES
- COMMERCIAL
- PARKING
- URBAN FARMING



CROSS SECTIONS



LONGITUDINAL SECTIONS



ELEVATIONS



SOUTH ELEVATION



EAST ELEVATION





# TECHNICAL PARAMETERS



# THERMAL AND VENTILATION STRATEGIES



**ISOVER** WARM ROOF WITH PEBBLES

SOLAR PANELS  
TOWARDS TO SOUTH

SOLID CONSTRUCTION  
WITH INTERMEDIATE  
CEILING

URBAN FARMING  
FOR ROOFING  
THERMAL INSULATION

**Leca**

**WEST**

**EAST**

GREEN BALCONIES  
FOR AIR FILTRATION  
AND HUMIDIFICATION

**Leca**

SOLID CONSTRUCTION  
WITH CIS

**ISOVER**

**GLASSOLUTIONS**

SAINT GOBAIN TRIPLE  
GLAZING GLASS

TREES SUPPLYING  
COOL HUMID AIR

FRESH AIR SUPPLY

EXIT AIR

SOUTH  
SHADING  
DEVICE

Communal spaces

Communal  
spaces

Outdoor  
Communal spaces

Communal spaces

Commercial

Commercial

Commercial

Commercial

Parking

EXHAUST AIR

SUB-SOIL HEAT EXCHANGER  
33% EFFICIENCY

SOLID CONSTRUCTION  
WITH UNHEATED  
BASEMENT

**ISOVER**

AIRTIGHTNESS 0.6

NATURAL VENTILATION  
IN SUMMER

EXTRUDED MASSES  
ALLOWS SLEFSHADING  
ON THE FACADE

EXTRUDED SHELVES  
ALLOWS SELF SHADING  
ON THE FACADE

PASSIVE HOUSE DOOR  
0.7 W/M2K



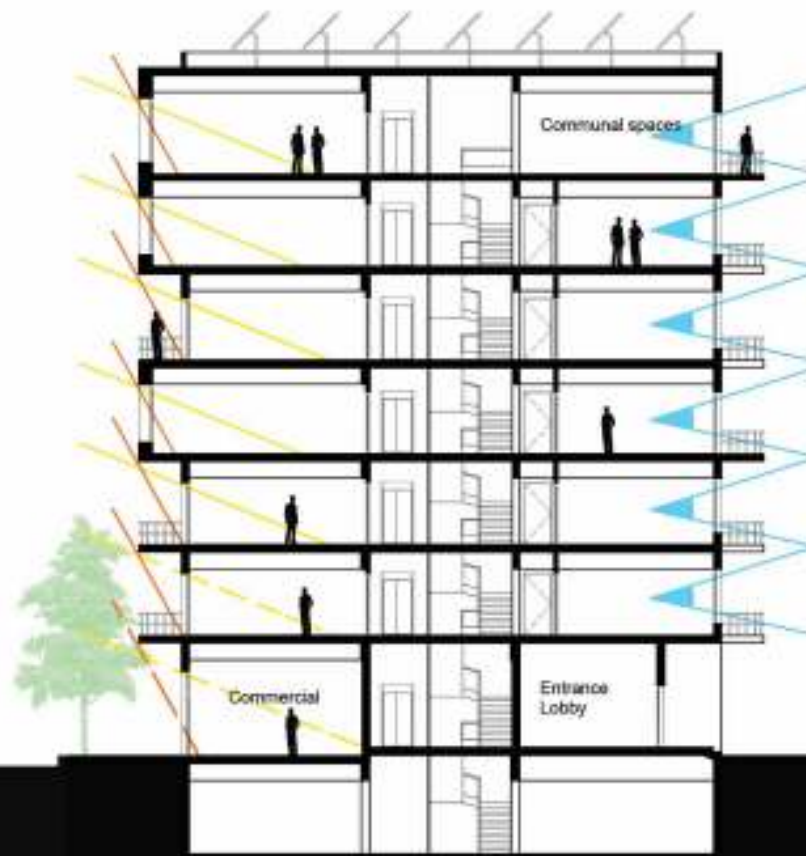


# VISUAL AND THERMAL COMFORT STRATEGIES



- SUMMER SUN -  $62^{\circ}$
- WINTER SUN -  $25^{\circ}$
- VISUAL COMFORT

SEINE RIVER VIEW  
PARK VIEW



NORTH

SEINE RIVER VIEW



# FIRE SAFETY AND ACOUSTIC COMFORT STRATEGIES



USING NON-COMBUSTIBLE MATERIALS FOR BETTER BUILDING RESISTANCE

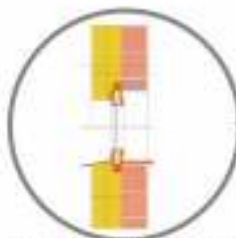
MAXIMUM MOVEMENT FOR STAIRS <15 M

MAXIMUM SOUND NOISE AFFECTING SITE 45 DB FROM TRAIN (REDUCED 20 DB BY SOUND BARRIER)



OBJ D >45 DB  
OBJ D >38 DB  
OBJ D >36 DB  
OBJ D >34 DB  
OBJ D >31 DB

SITE MAP SHOWING NOISES AFFECTING THE SITE FROM EACH SIDE

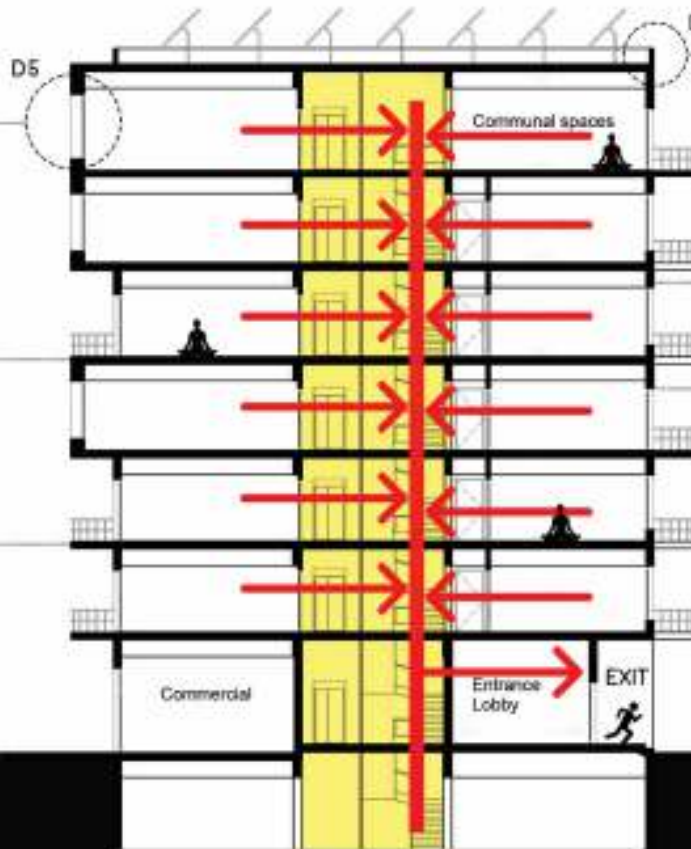


SOLID CONSTRUCTION WITH WINDOW

SOUND PROOF TRIPLE GLASS SGG CLIMATOP LUX 35 DB



NON-COMBUSTABLE MATERIALS  
ISOVER



WARM ROOF WITH PEBBLES (MW) EAVES

WALL SOUND INSULATION 46 DB



HIGH AIRTIGHTNESS REDUCES SOUND AND SOLAR RADIATION 0.6

SOUND BARRIER FOR FLOOR WAVES

SOUND BARRIER - 20 DB

TRAIN

-LOUD NOISE-





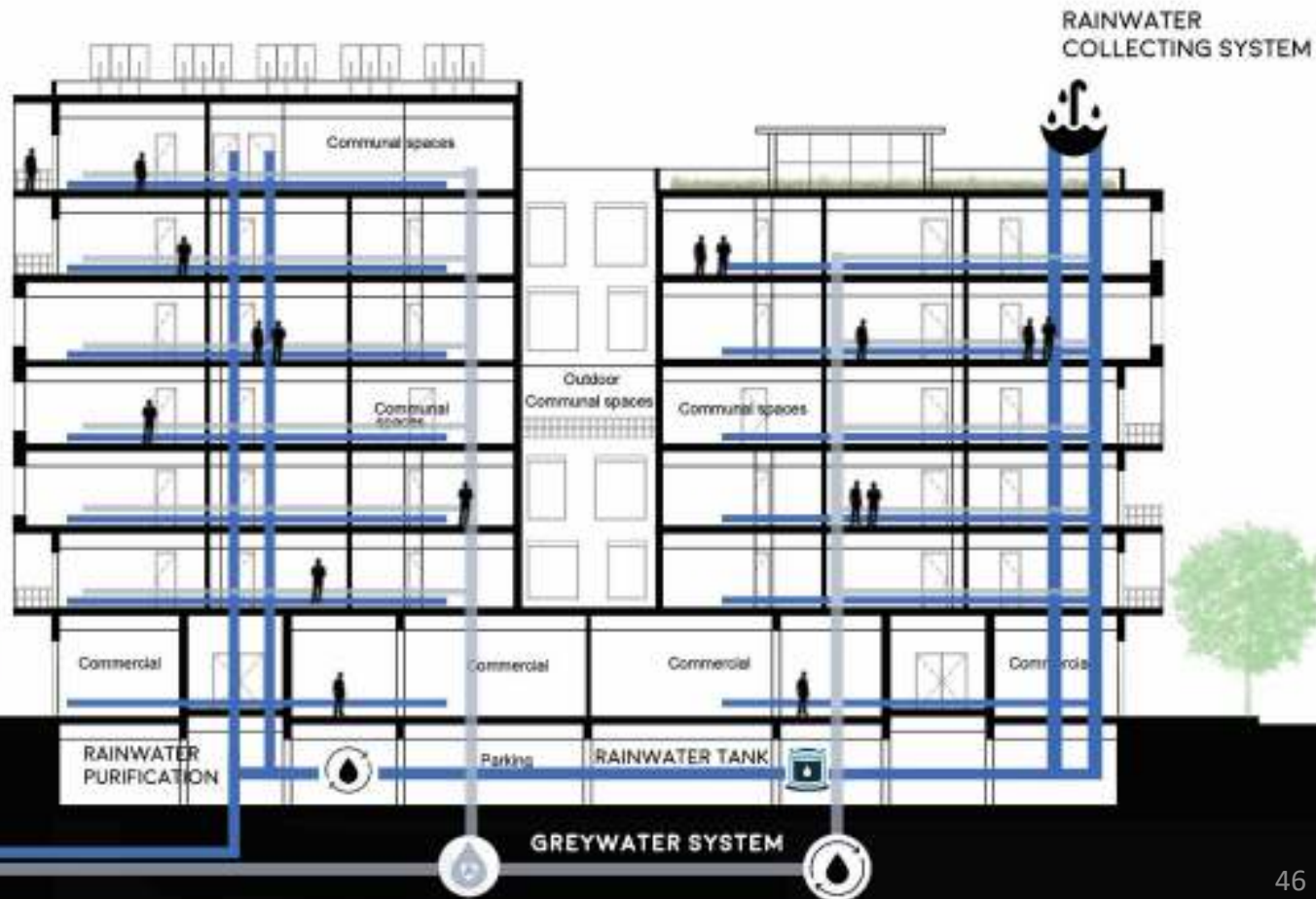
# WATER STRATEGY



RAINWATER TREATMENT



GREYWATER TREATMENT





# BUILDING CALCULATION

## PROJECT DATA

OBJECT: RESIDENTIAL BUILDING  
COUNTRY: FRANCE  
CITY: PARIS  
CONSTRUCTION: NEW BUILDING

## AREA INPUT

HEATED SPACE AREA: 3.354 M2  
HEATED SPACE VOLUME: 11.068 M3  
AIV: 0.33  
SUM OF THERMAL ENVELOPE: 2.800

## OPAQUE ELEMENTS

ROOF FLAT: 0.11 W/(M2K)  
WALL AGAINST AIR: 0.11 W/(M2K)  
SLAB AGAINST UNHEATED CELLAR: 0.17 W/(M2K)  
WALL AGAINST NEIGHBOR: NOT TAKEN  
INTO CONSIDERATION

## TRANSPARENT ELEMENTS

WINDOWS: 0.55 W/(M2K)  
DOOR: 0.7 W/(M2K)

## QUALITY

AIRTIGHTNESS: 0.6  
THERMAL BRIDGE - FREE: YES

## SHADING

0: 0.7  
90: 0.46  
180: 0.48  
270: 0.46

## HVAC

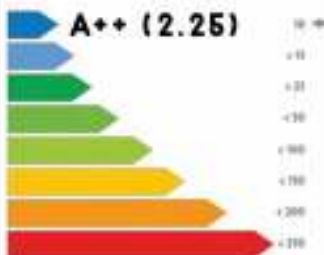
EFFICIENCY HEAT RECOVERY SYSTEMS: 95%  
EFFICIENCY SUBSOIL HEAT EXCHANGER: 33%

## CALCULATIONS

### 1. Heat Demand Calculations

Transmission Heat Losses:	41300.07
Ventilation Heat Losses:	15077.51
Total Heat Losses:	56377.59
Internal Heat Gains:	33428.66
Available Solar Heat Gains:	28021.80
Total Heat Gains:	48883.51
Annual Heat Demand:	7494.07
Specific Annual Heat Demand:	2.25

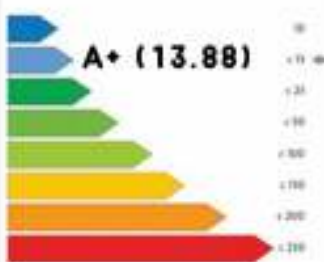
### Energy efficiency class



### 3. Cooling Demand Calculations

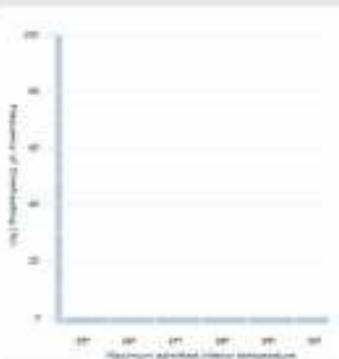
Negative Heat Loads:	9066.93
Ventilation Heat Losses:	56955.58
Total Heat Losses:	66022.51
Internal Heat Gains:	12102.69
Available Solar Heat Gains:	23471.26
Useful Heat Losses:	19775.11
Useful Cooling Demand:	46247.40
Specific Annual Cooling Dema...	13.88

### Energy efficiency class



### K. Overheating Calculations

Exterior Thermal Transmittan...	577.32
Ground Thermal Transmittance:	48.03
Ventilation Transmission Ambi...	725.93
Ventilation Transmission Gns...	0.00
Solar Aperture:	10.38
Frequency of Overheating:	0.00







Thank you.