

Hertzberger
H **Quartier**
Residence & Retail & Recreation

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Centraal Beheer redevelopment journey

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'The future of Dutch structuralism architecture'

AR3AR11 Heritage and Architecture Graduation studio

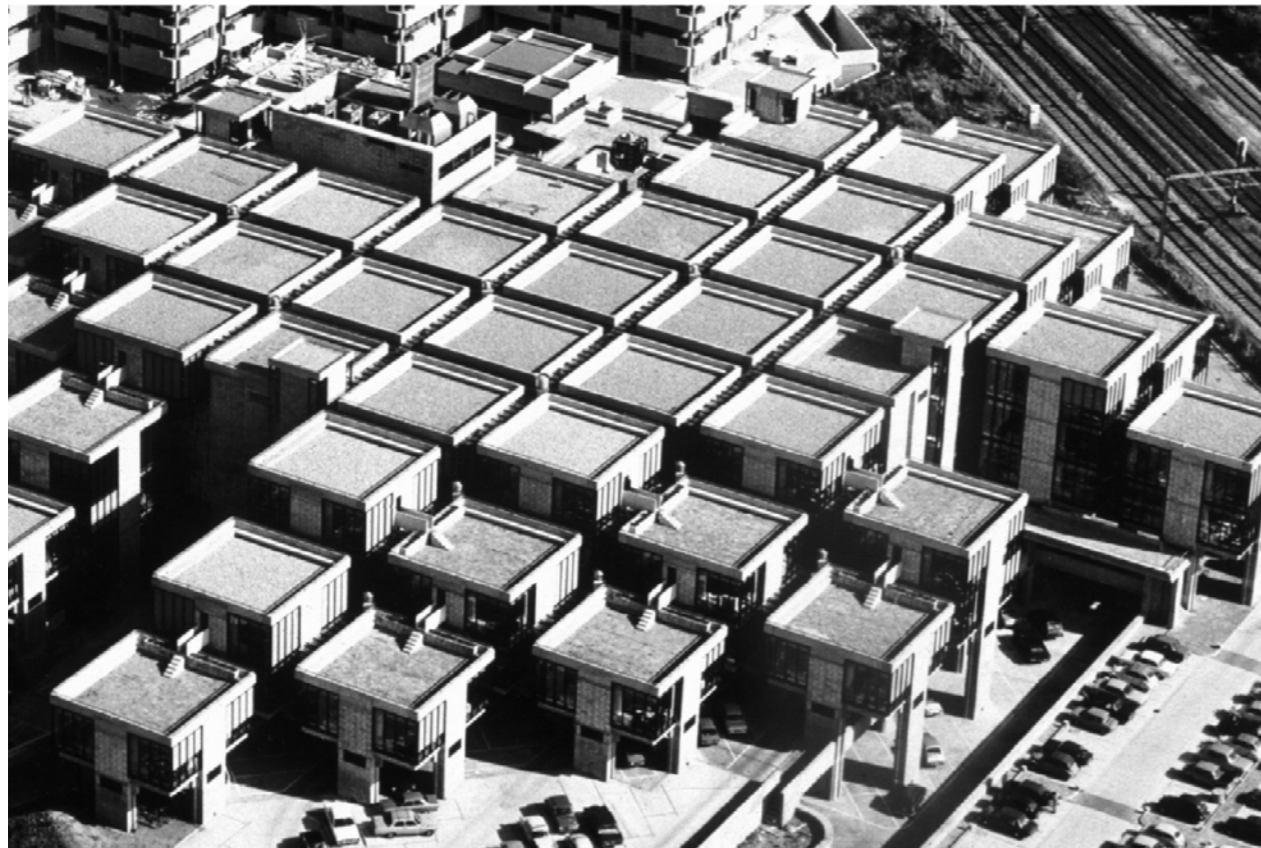
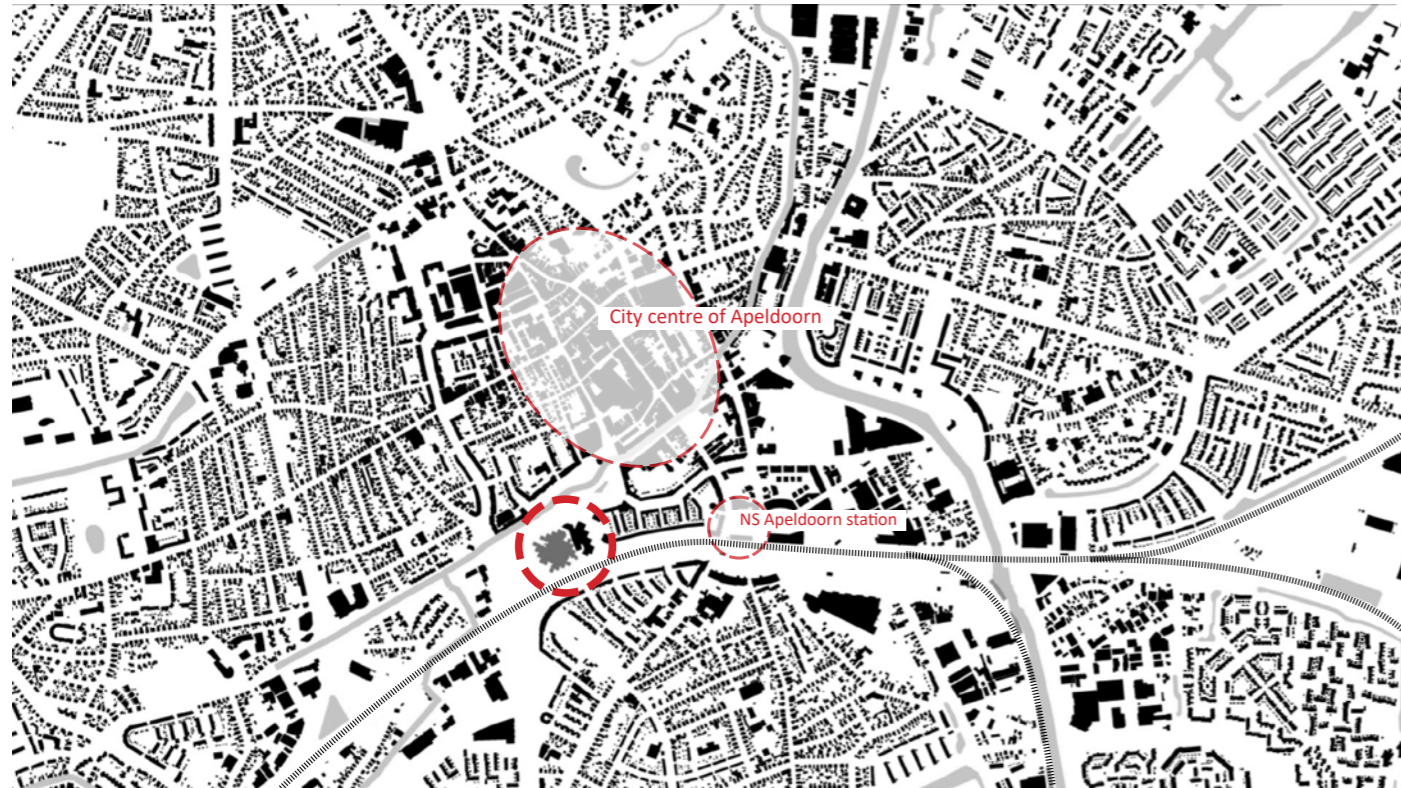


FIG1 : Icon of Structuralism architecture
Retrieved from: <https://www.dh.nl/images/projecten/ubilitzbouw>

CENTRAAL BEHEER

HEAD OFFICE BUILDING

By Herman Hertzberger



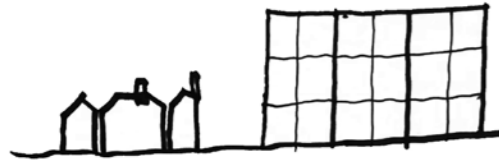
Apeldoorn in 2016
Retrieved from: Analysis Centraal Beheer, scope:time, 2017



FIG1: Site terrain of Central Beheer
Retrieved from: Heuvel,1992

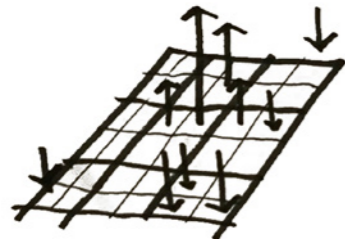
ISOLATED ISLAND

Centraal Beheer is located in a piece of land surrounded by urban infrastructure; railway line, highway and street the inner area of Apeldoorn city. This surrounding context make Centraal Beheer as an isolated art object in the city with limited connection to other fabric.



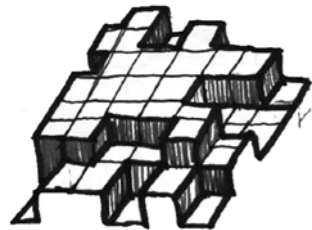
Building Volume

Comparing surrounding buildings height to the volume of Central Beheer office building (volume accommodated all facilities)



Down scale

To reduce the scale of massive building, Herman Hertzberger extrude and compress the envelope of different module.



Variety in height

Different height of module makes the better association of Central Beheer and context dialogue as the scale become more friendly.



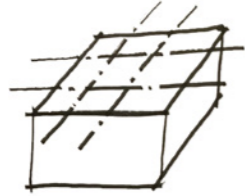
Relationship with context

Gradient of building height from lowest (one-storey) at the edge to highest (five-storey) in the middle. By doing this, the massive building has a smooth connection with surrounding environments.



CASCADING FORM

From exterior, the cascading form has given a character to Centraal Beheer. The form of box stacking up is the result of structuralism design approach, to down scale this massive building at the edge to have an appropriate dimension for the pedestrian and surrounding context.



Subdivide building envelope

To make building envelope correspond to the interior space, the shell is also subdivided into equal size in the same manner as inner unit.



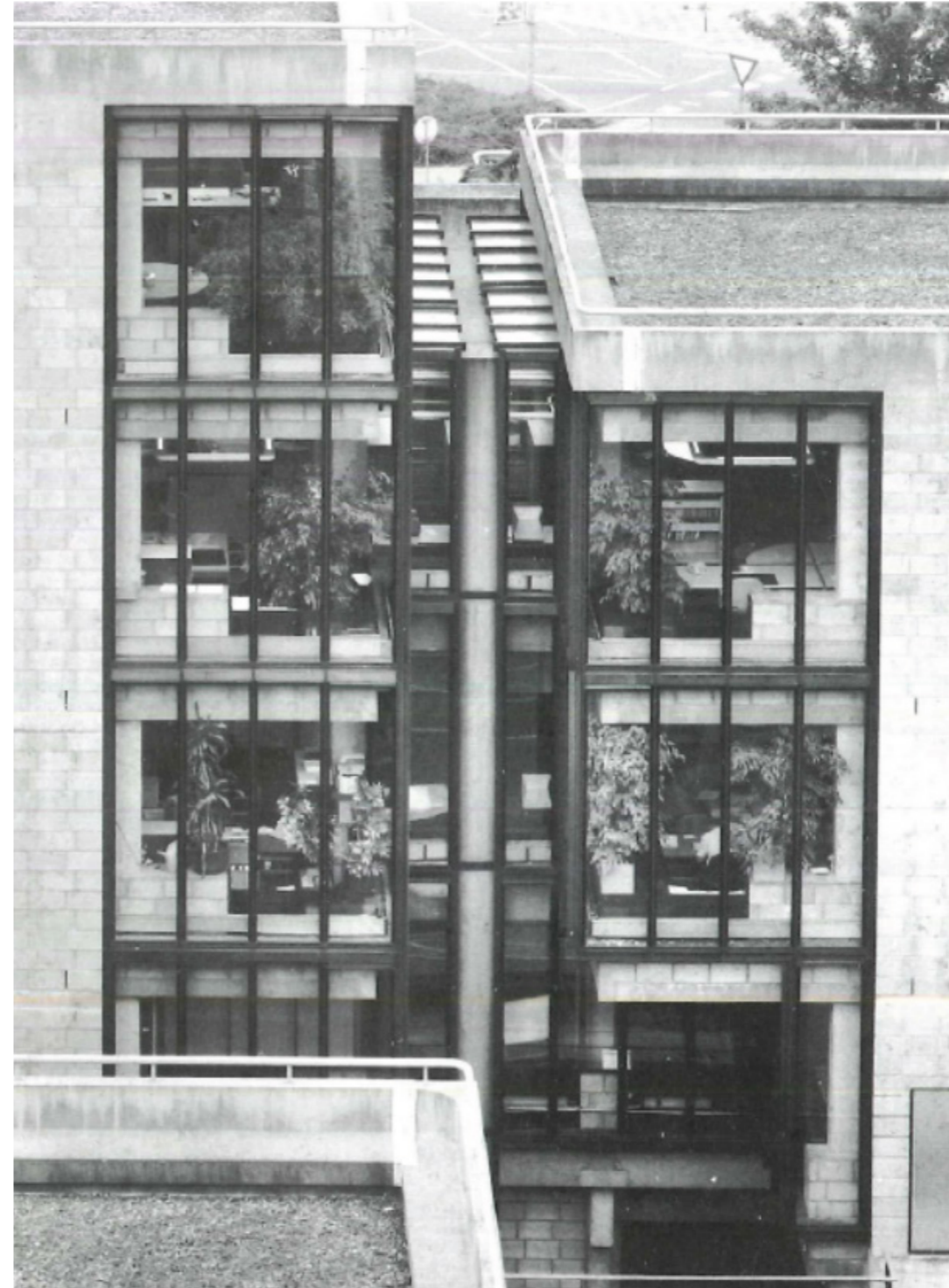
Seperation of building envelope

The envelopes with solid roof are clearly separate from each other where glass roof infilled the gaps. This allow natural light to shine into the building while create the corresponded footprint size with surrounding buildings.



Outside in

By separating building envelope, the building becomes porous and allows interior space to connect with outside environment.



FACADE COMPOSITION

Façade design of Centraal Beheer has very unique character, solid wall in the middle and full height glazing window at the corner. This composition is related to the space division of the interior space. Between each module, glazing window and transparent roof is placed to provided natural light in this massive building.



Empty floor plate

Large and empty platform without any framework creates intimate space for the users.



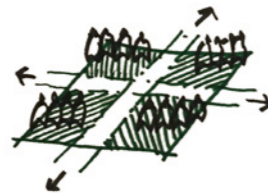
Space division

By divide space in to human scale, it create a better space for human as the dimension is more relevant to human.



Seperation of module

By seperating space apart from each other, it create sense of belonging to the users.



Working corner

Guiding on function zones make the user understand clearly which space is belonging to them.



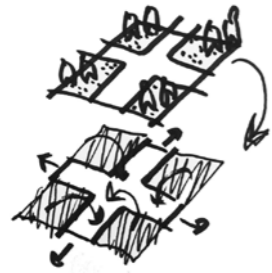
Competence of space

Performance occur variously in the provided area.



INDIVIDUALITY

One of the main idea on interior space is 'individuality', which is resulted in a series of polyvalent space. A neutral design of working corner and materials selection in each universal unit is a competence that is arouse for users interpretation.



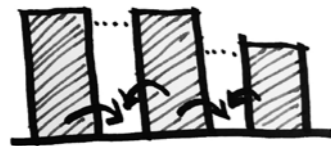
Indication of working space

As Central Beheer was an office building, Herman Hertzberger first started to design appropriate space for working. The gap in between those private function is public zone.



Implement in building scale

The same method for creation of public space is also introduced in building scale. The gaps in-between module form public space for the complex.



Introduction of inner street

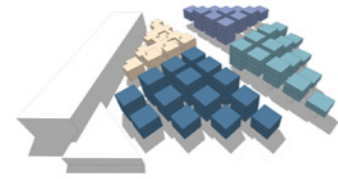
The negative space in between stacks of module become the inner street of Central Beheer where most social interaction occurred.



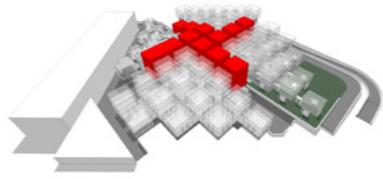
SOCIAL INTERACTION

In Centraal Beheer, Herman Hertzberger put his emphasis on the idea of social interaction. Universal units are set apart of each other to create inner street. This circulation space will hold all the interaction, physical socializing and also visual connection horizontally, vertically and diagonally.

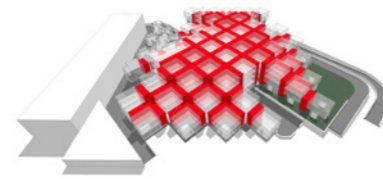
Building form & Composition



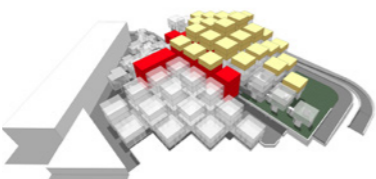
Composition
Four quadrants of function mass



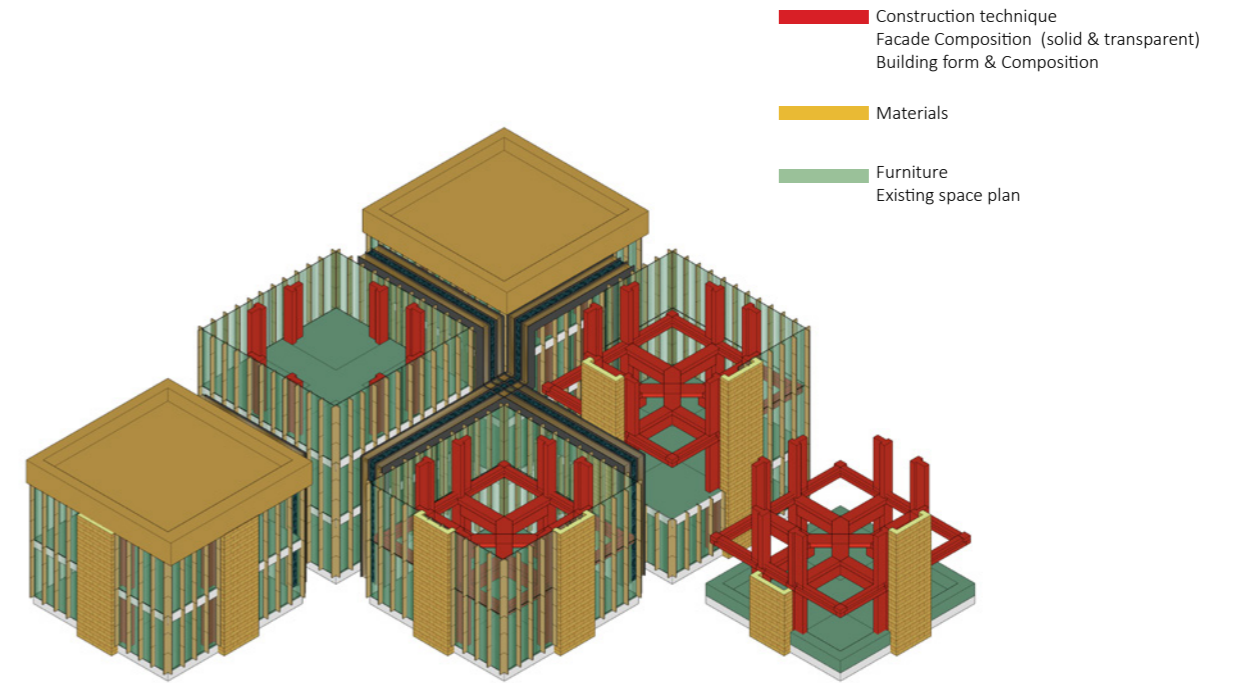
Main axis
Circulation and services venue link four wings together



Inner street
Allow for natural light and social interaction



Building height
Gradient of building height from the edge to the centre



EXISTING QUALITIES

Tangible aspects

Centraal Beheer is an icon of structuralism architecture with a very notable design. The cascading form of universal unit stacking into a hill shape, design language of the façade and the prefabricated construction system have characterize this iconic building. This remarkable design composition is resulted from structuralism design philosophy human-based design. So these physical elements should be well preserve as it is the core idea of structuralism movement.

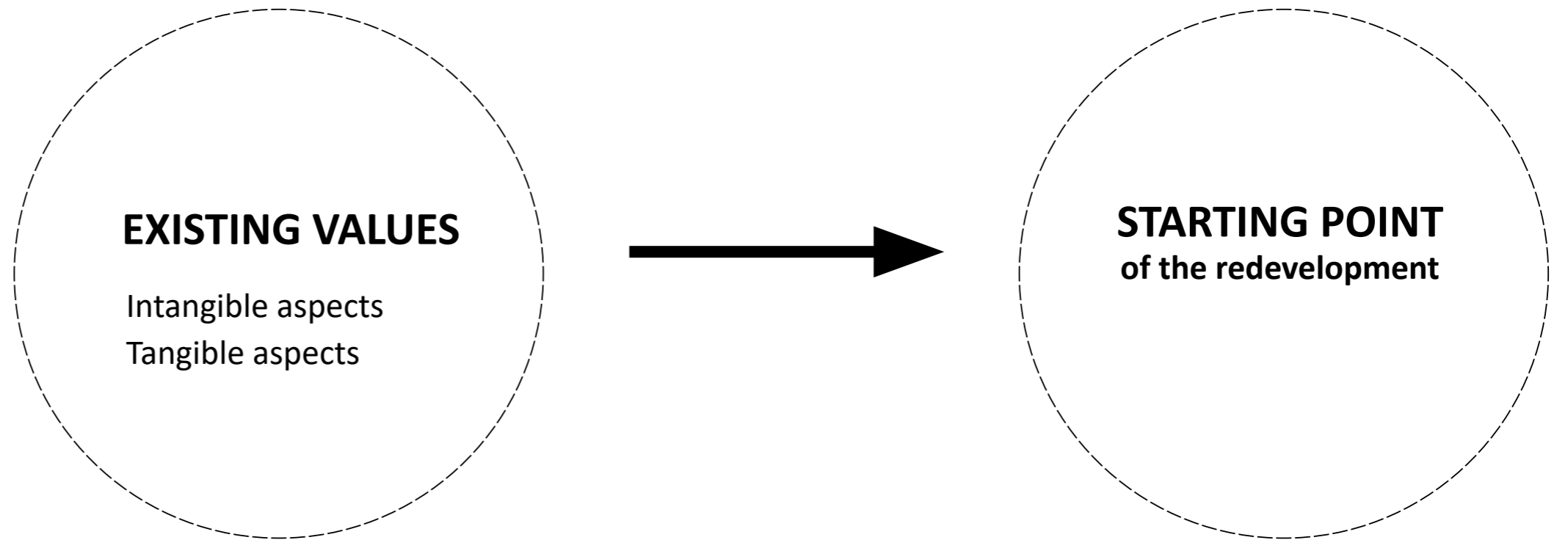
Intangible aspects

The two design philosophies that have major influence on the design of Centraal Beheer is 'Individuality' and 'Social interaction'. Individuality idea is resulted in the repetition of universal unit and raw material finishes, while social interaction had shape the overall composition(systematic of working space & circulation space).

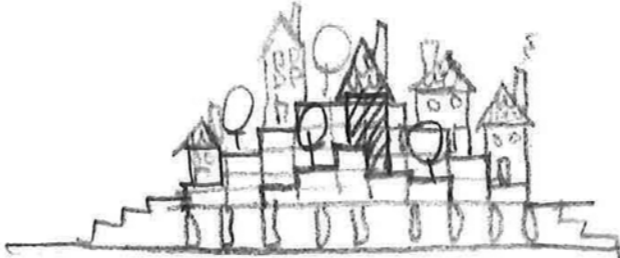

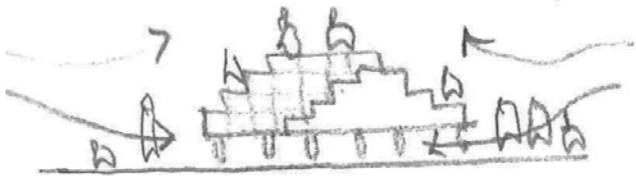


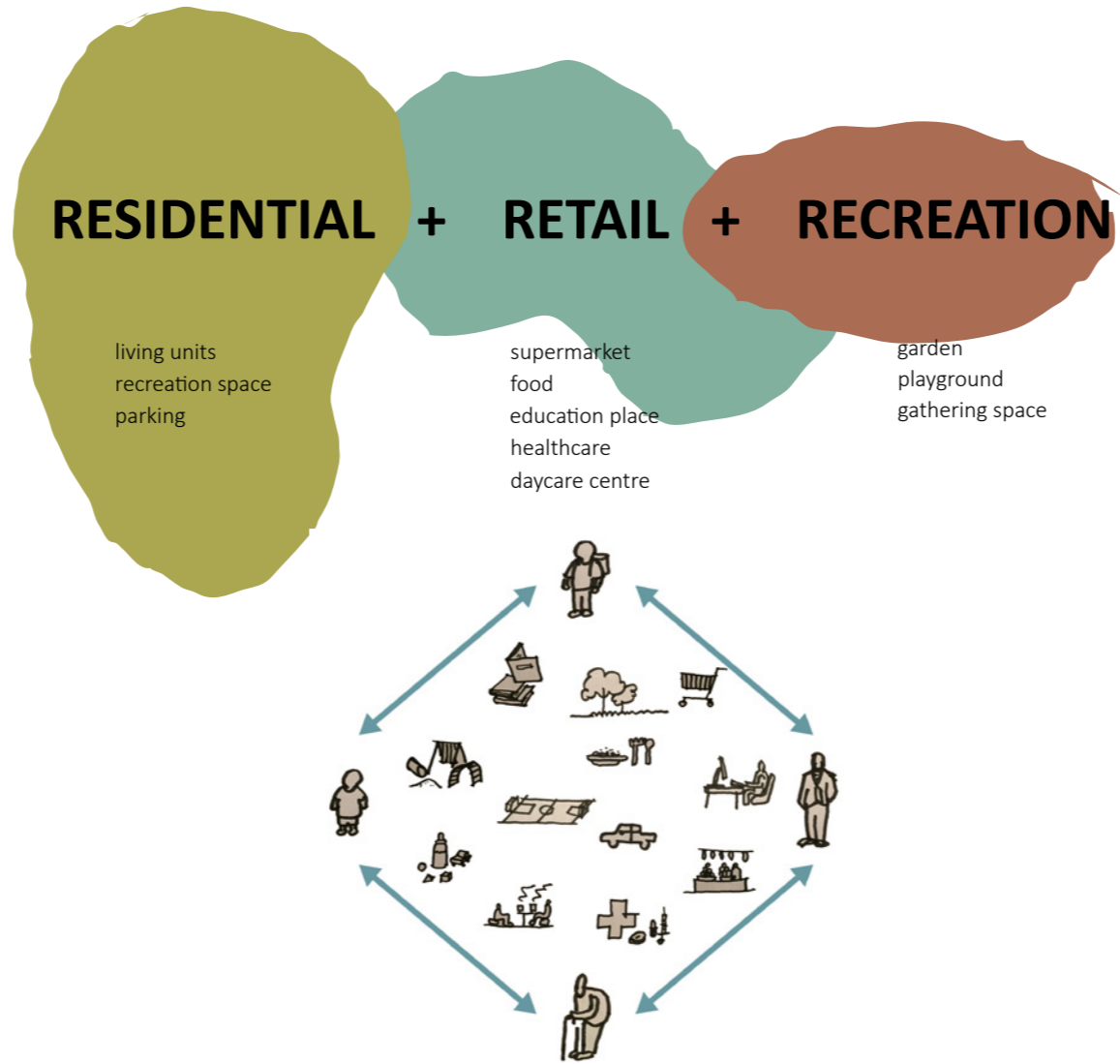
Heritage and Architecture

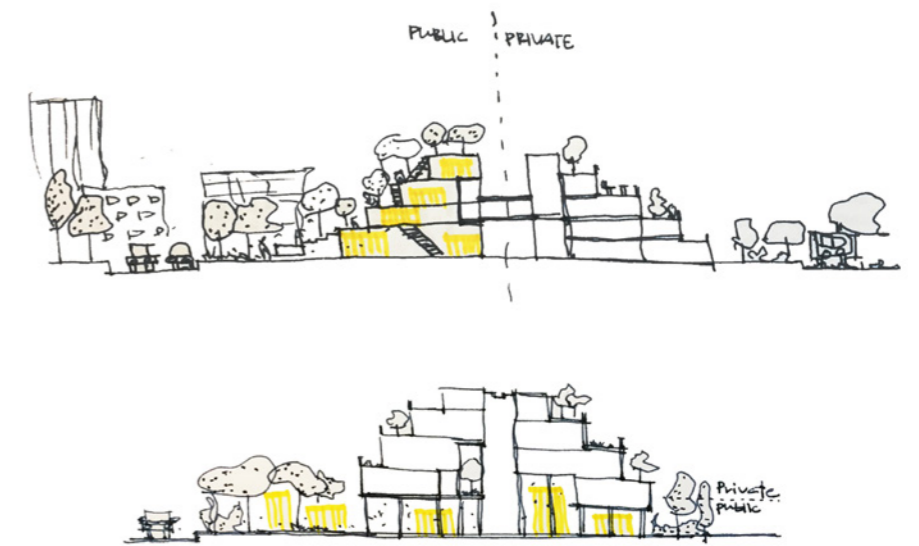
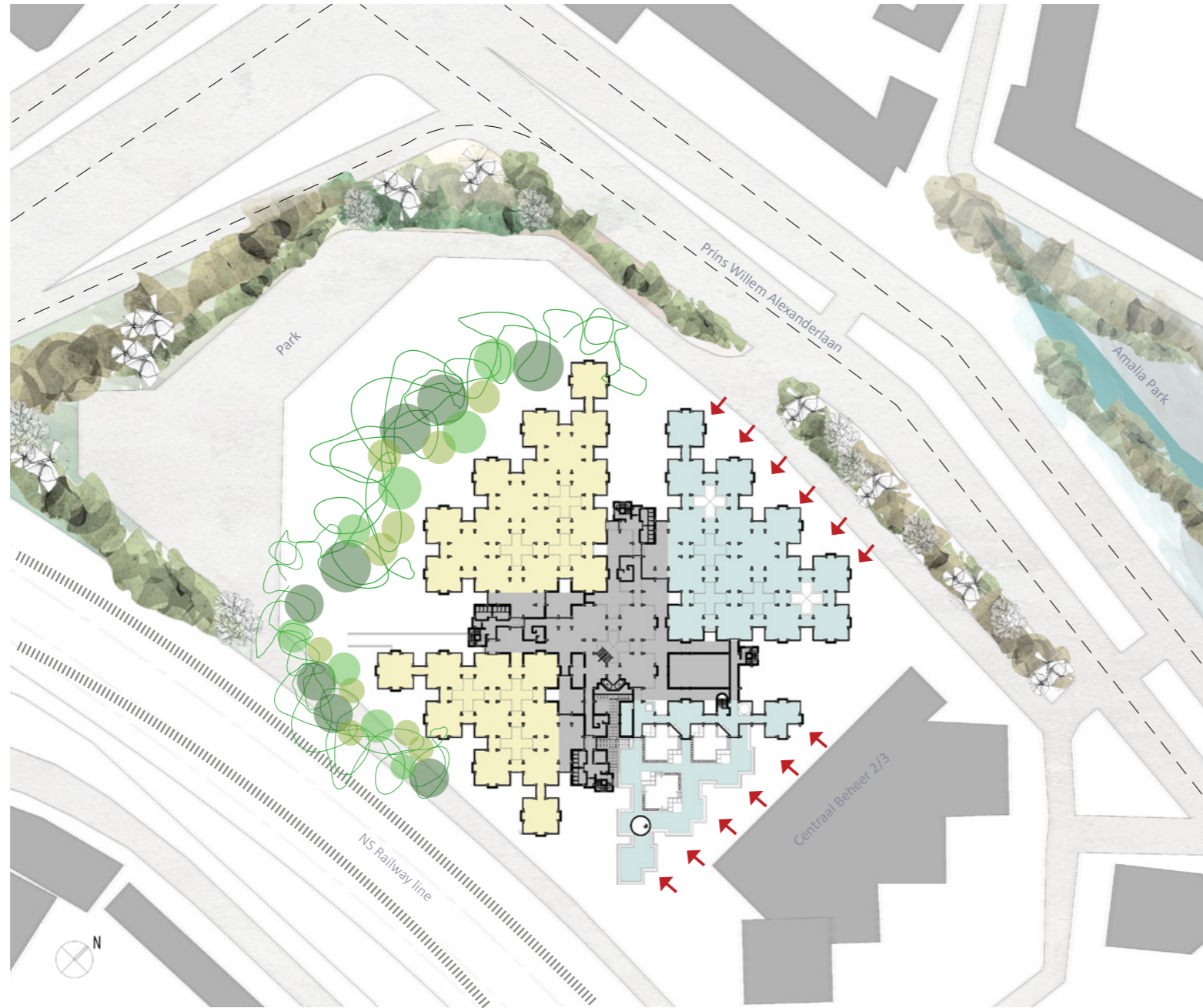
Approach



Key objectives of the redevelopment

ISSUE	PROBLEM	GOAL	DESIGN APPROACH	
<p>1 Design philosophies ‘Individuality & Social Interaction’</p>	<p>Conflict between two design philosophies</p>	<p>Balance individual and social space in the new design</p>	 <p>Individuality + Architecture + Social interaction ‘Elevated Community’</p>	<p>‘RESIDENTIAL DEVELOPMENT’</p>
<p>2 Icon of structuralism architecture</p>	<p>Change of function Office → Residential development</p>	<p>To retain the iconic status of this building</p>	 <p>‘Community for ALL’ intergenerational living</p>	<p>‘VERTICAL COMMUNITY’</p>
<p>3 Isolated monument</p>	<p>Limited connection to urban fabric Art object in the city</p>	<p>Building that belong to everyone</p>	 <p>‘Building of Apeldoorn’</p>	<p>‘BUILDING OF APELDOORN’</p>







RETAIL ZONE

Intervention strategy : Restoration / 90% retain

- Functions :
- Supermarket
 - Retail stores
 - Medical clinic
 - Day-care centre
 - Residential apartments

MAIN STREET

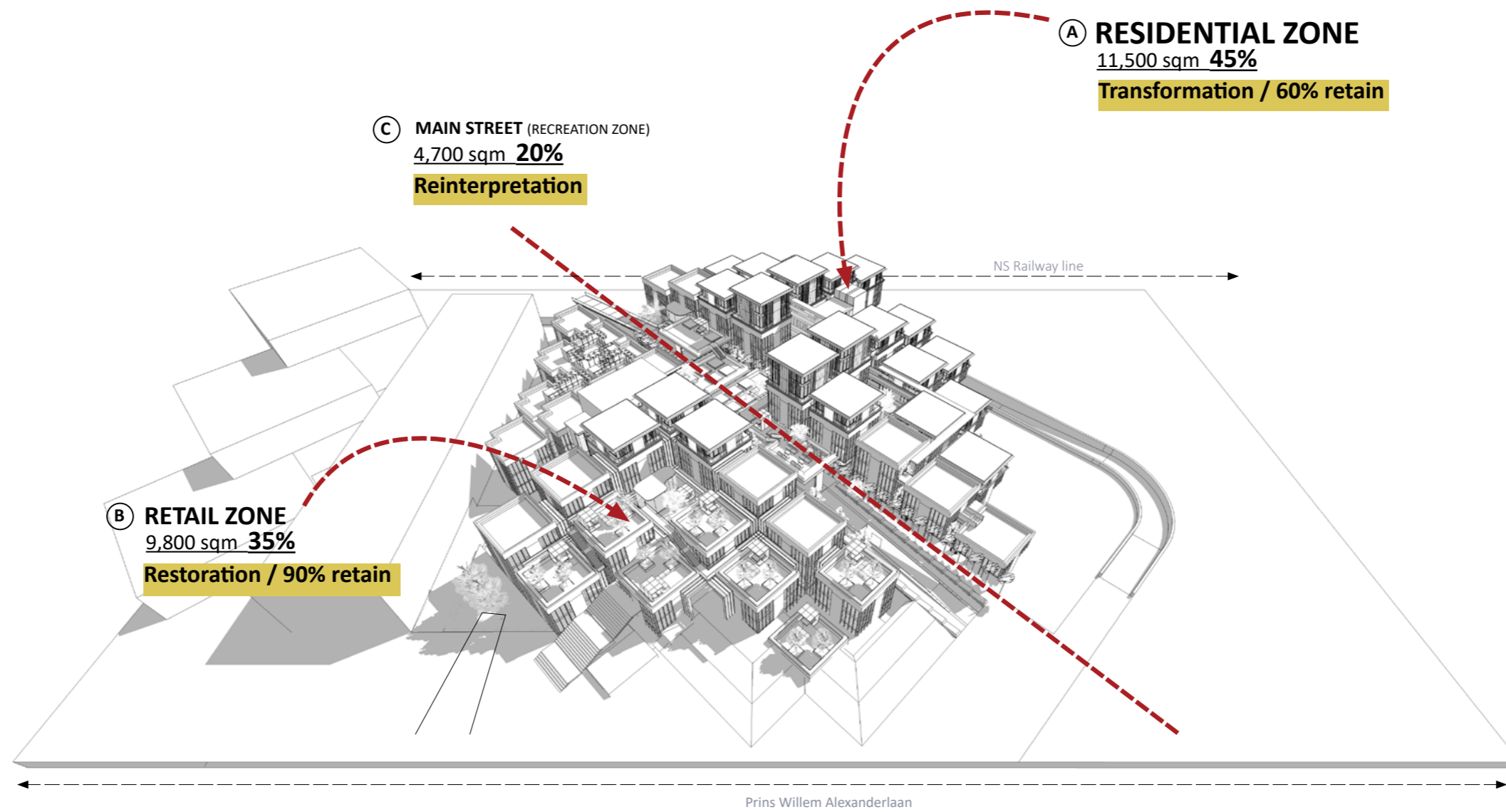
Intervention strategy : Reinterpretation

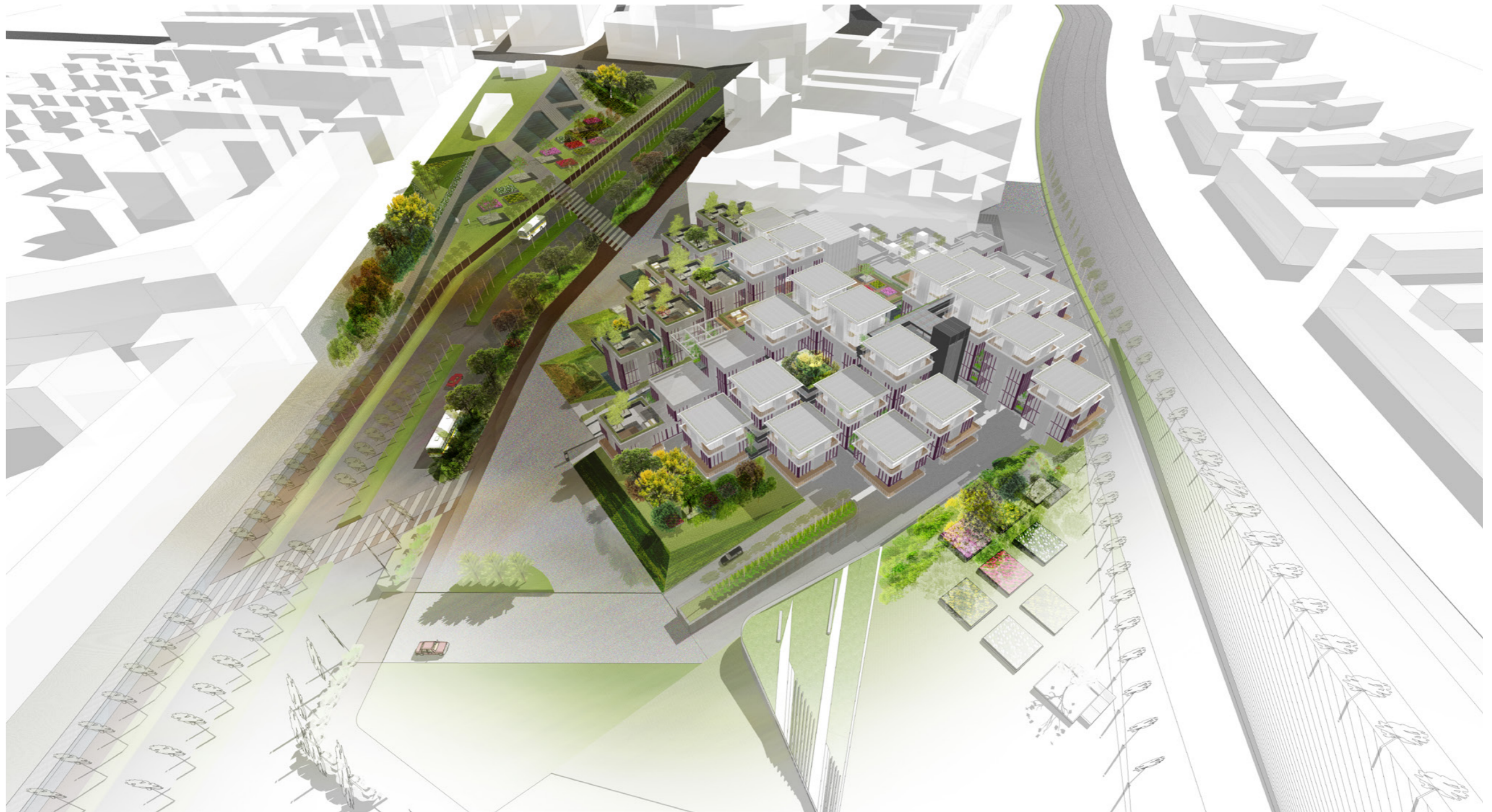
- Functions :
- Main entrance
 - Main circulation
 - Gathering space
 - Recreational space

RESIDENTIAL ZONE

Intervention strategy : Transformation / 60% retain

- Functions :
- Residential apartments
 - Communal facilities
 - Recreational spaces



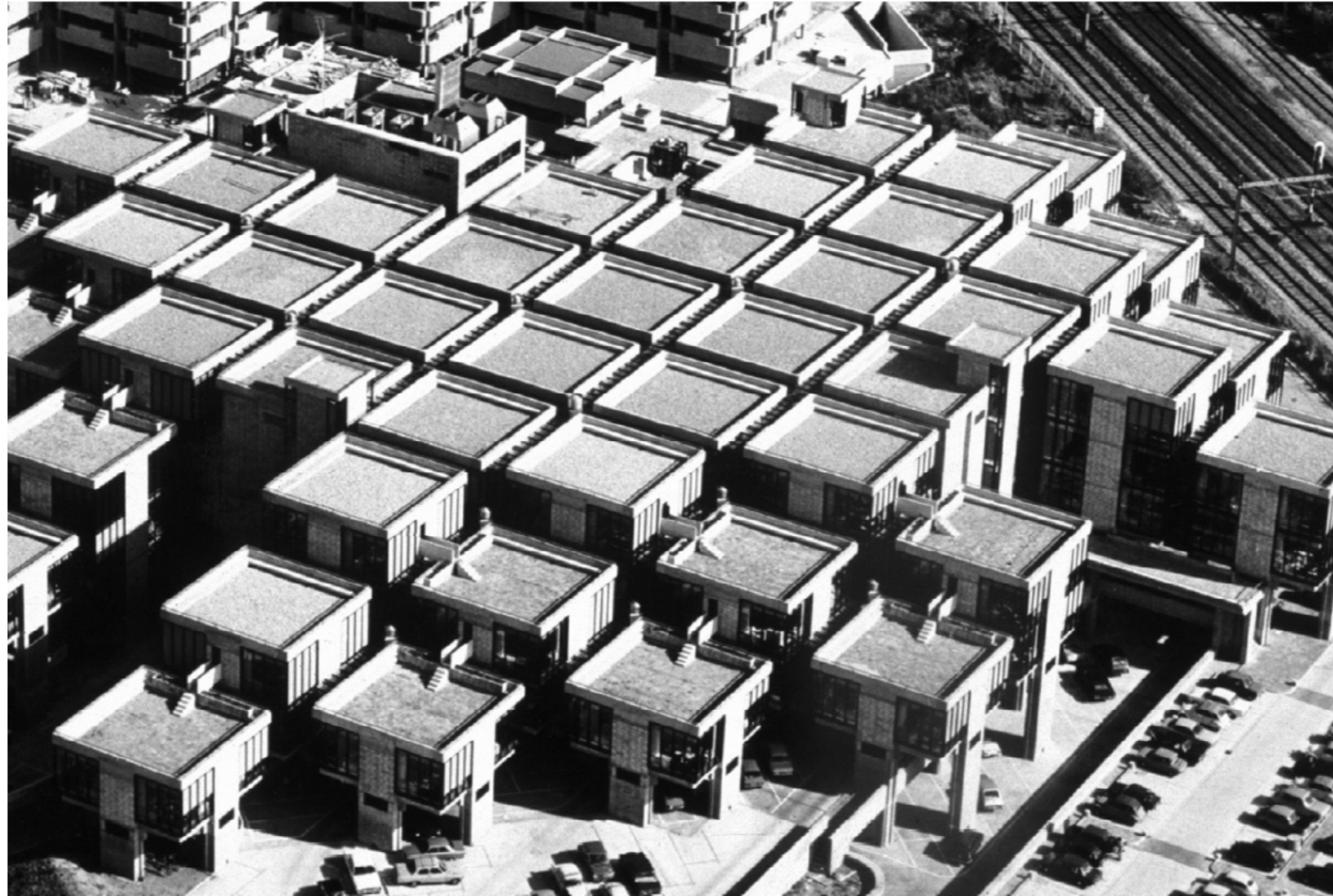


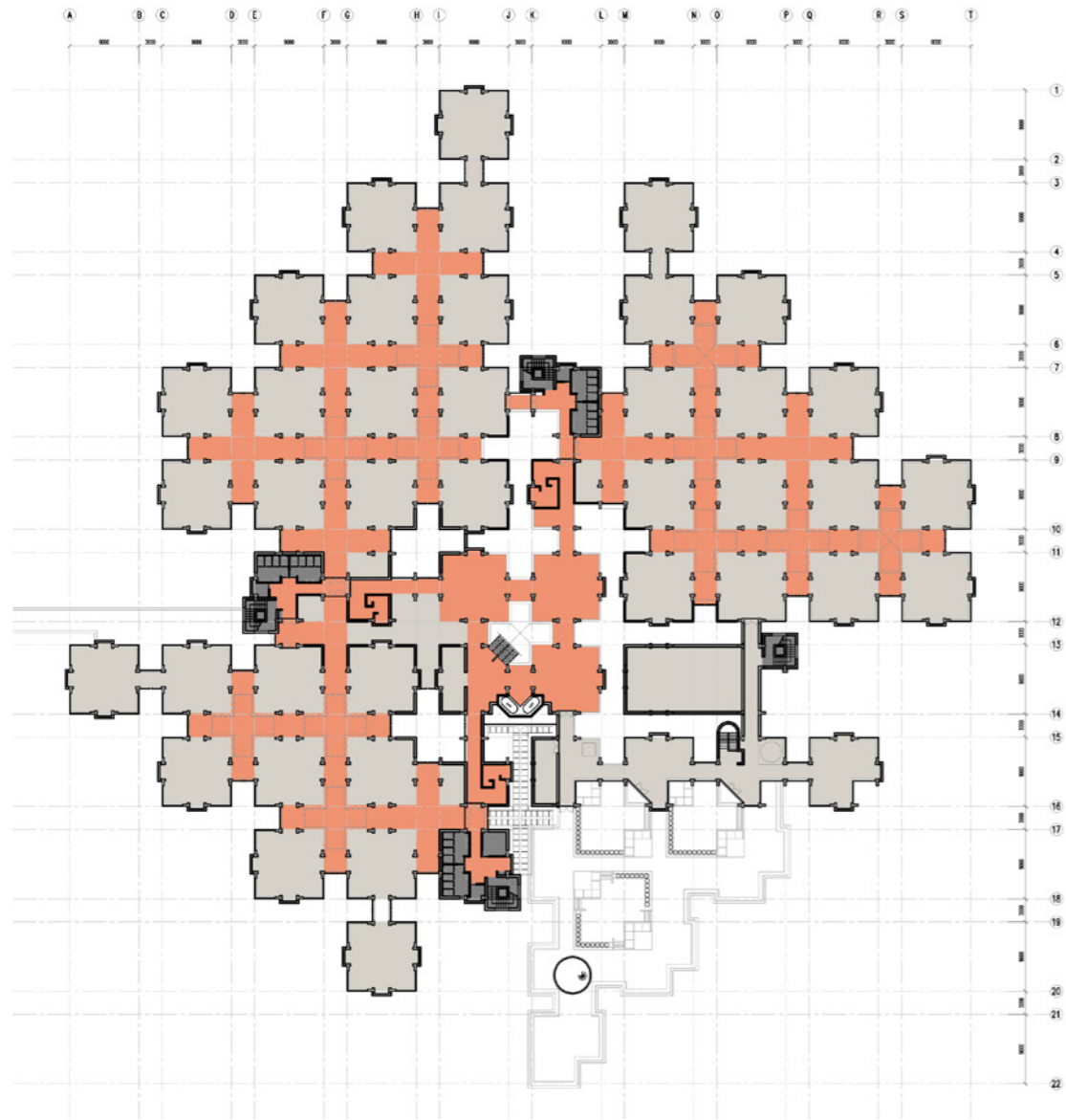


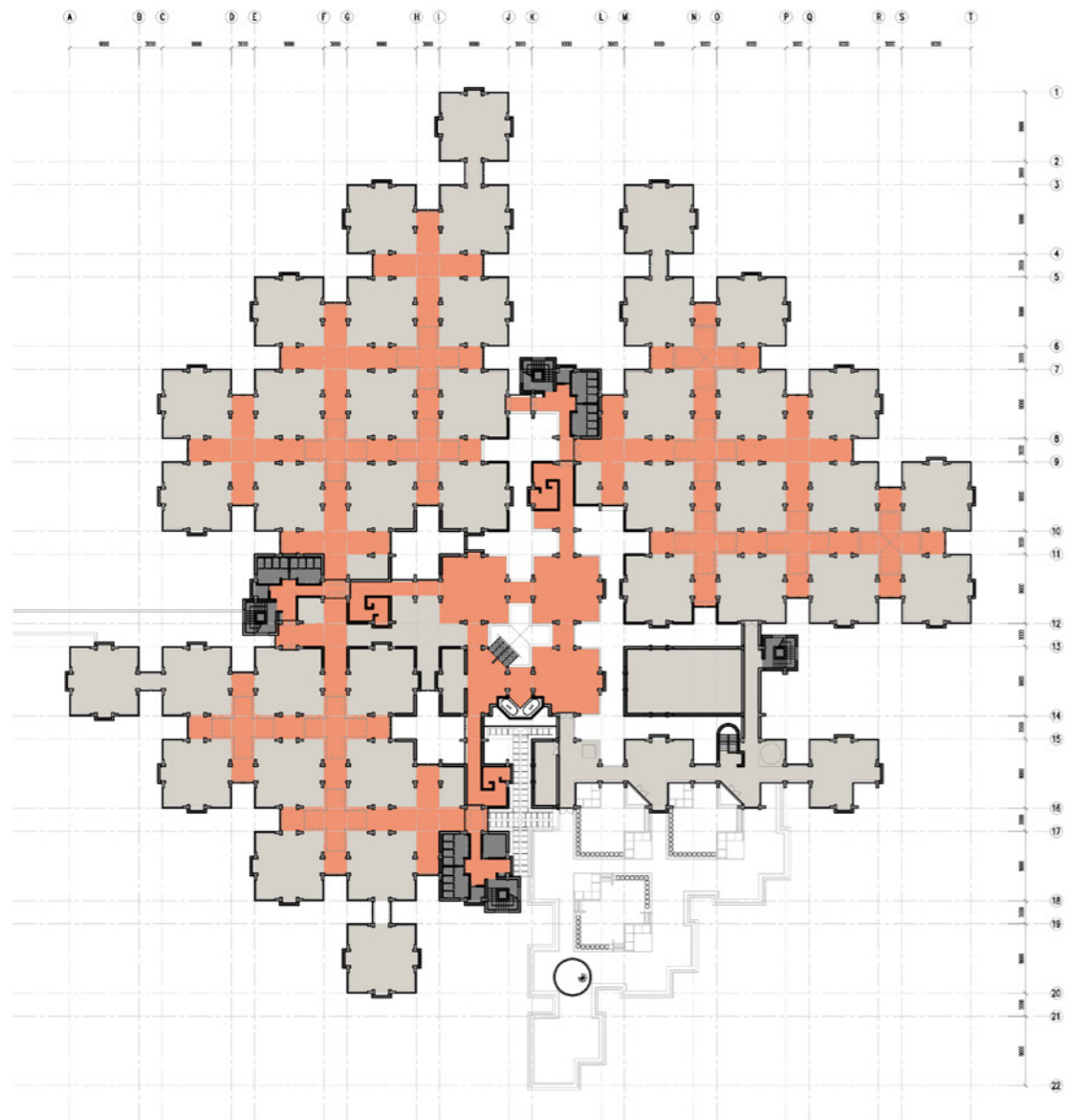


VIEW TOWARD H QUARTIER

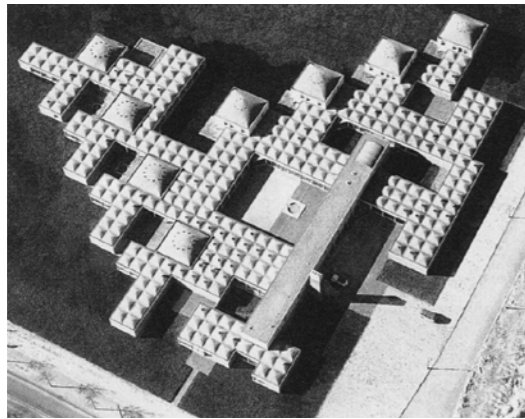
Posed problem in master plan



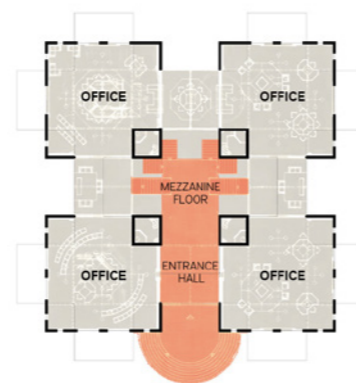




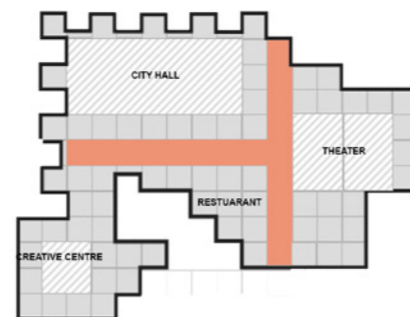
AMSTERDAM MUNICIPAL ORPHANAGE
by Aldo van Eyck



RAADHUIS TER AAR
by Joop van Stigt

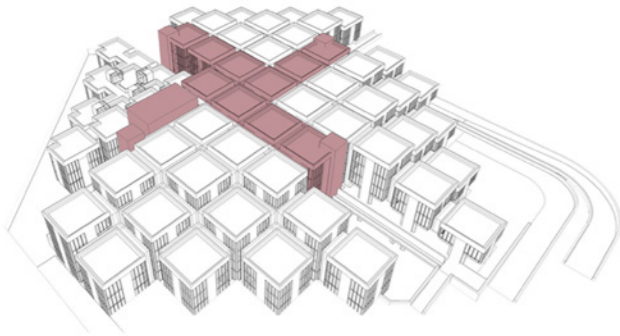


CULTURAL CENTRE DE FLINT
by Onno Greiner



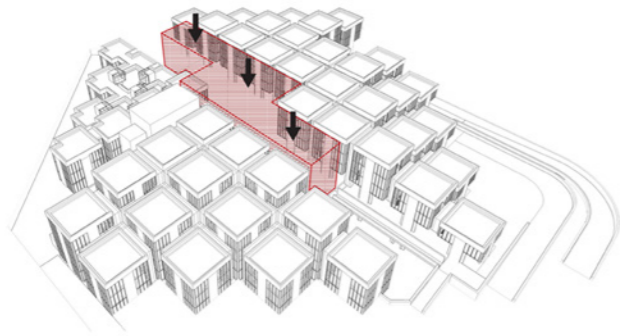
MAIN STREET

Design process



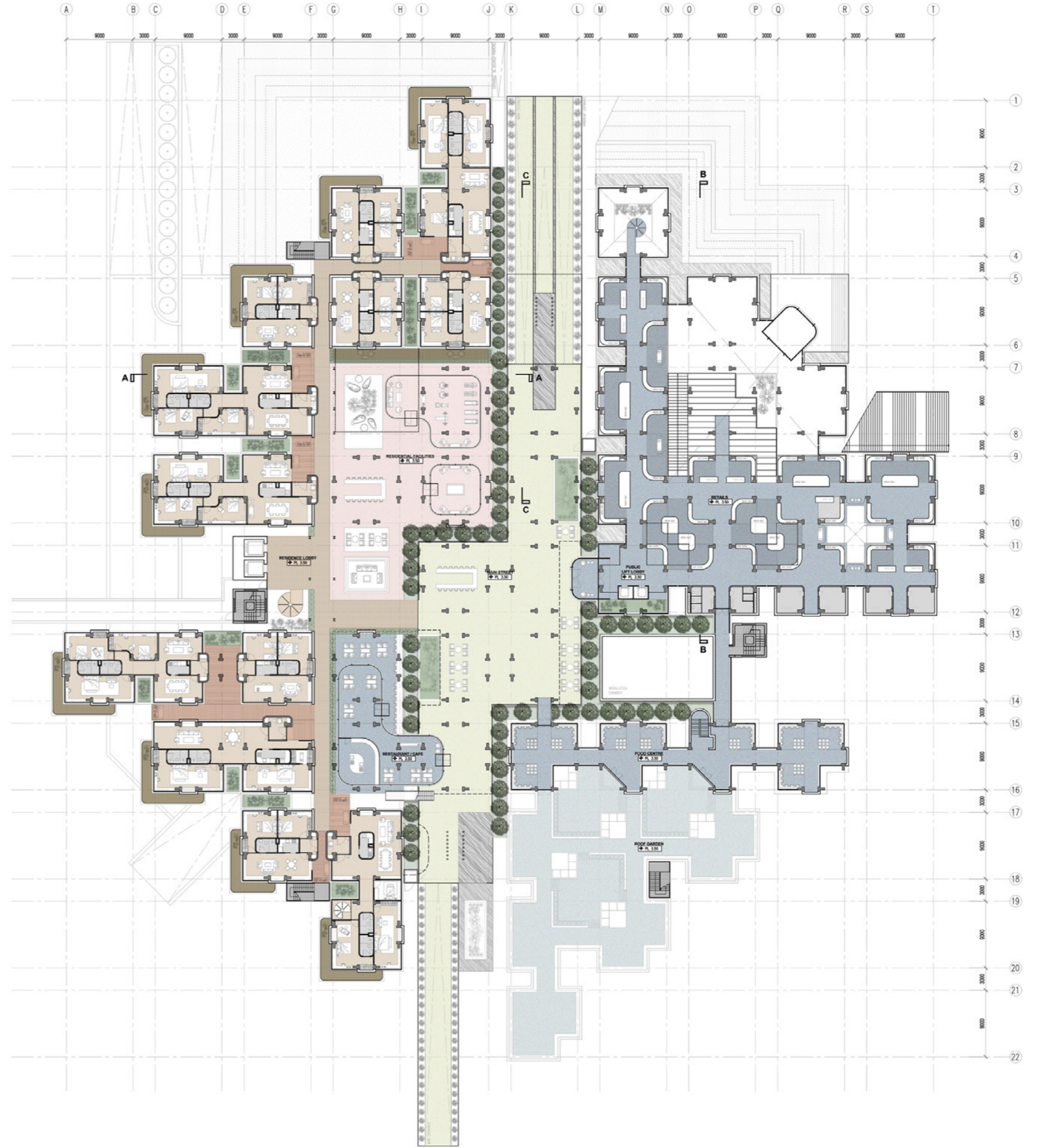
ORIGINAL DESIGN of Central Beheer

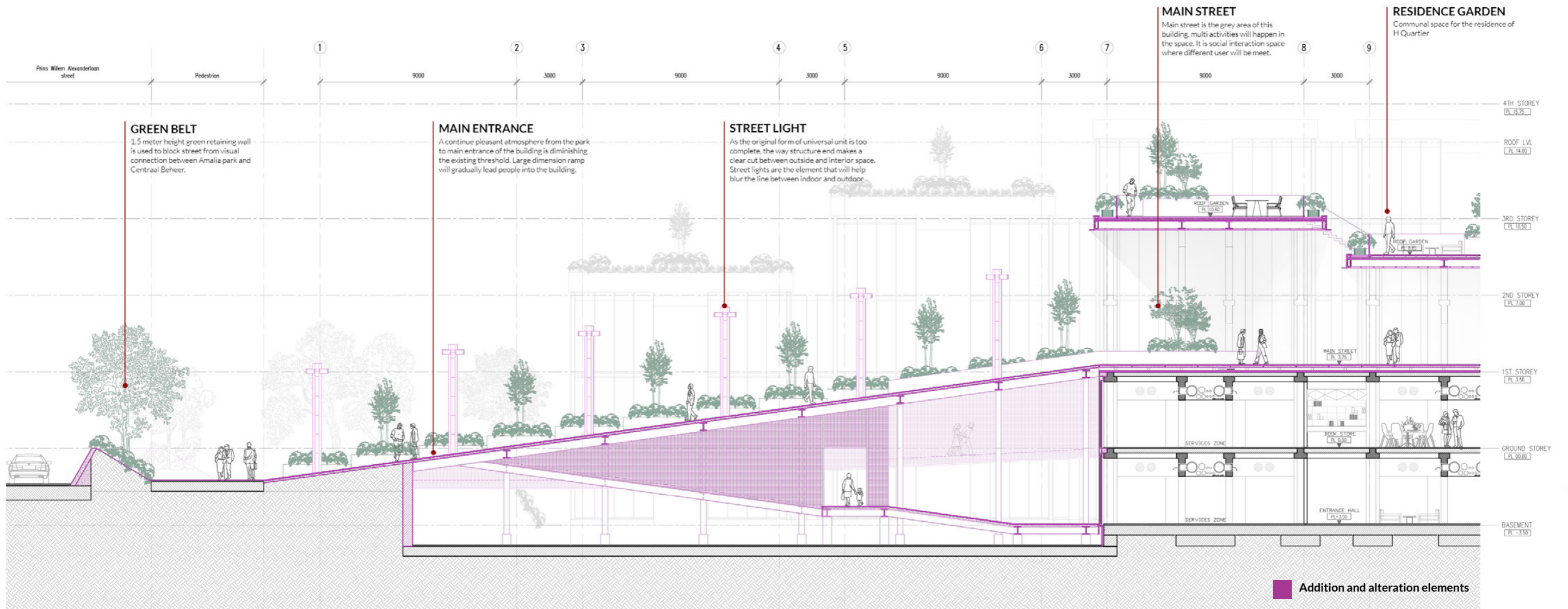
The central core in the original design of Centraal Beheer was assigned to be service zone serving the four quadrants of working space. Vertical logistic, entrance of the building and interaction space also contain in this axis.



SUBTRACTION of service core

In order to make a clear zoning and friend public entrance to this multi-function complex, this existing service core will be transform to a semi outdoor space to create more extrovert building. By subtracting some of universal units out, it helps decrease scale of the building and at the same time improve relationship of this building and urban context.



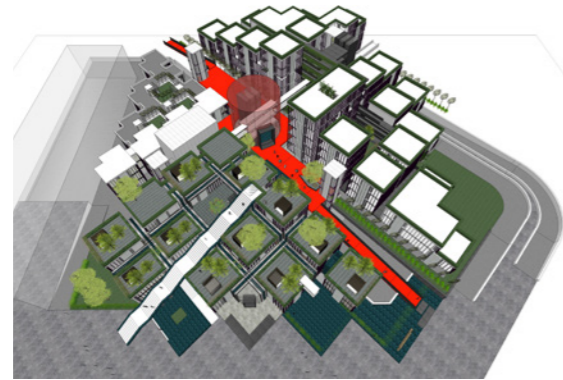


SECTION C-C - Main street
scale 1:250

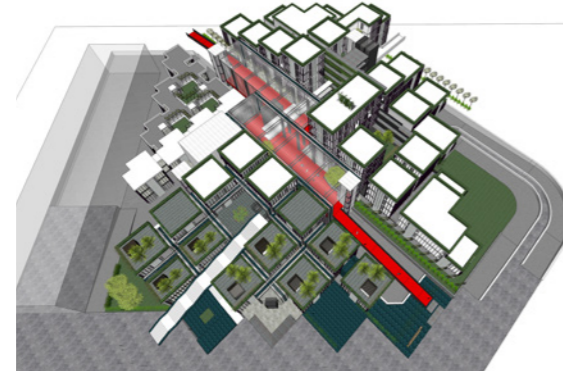


Design experiments

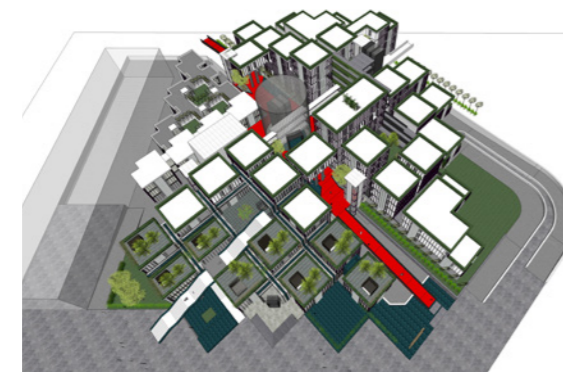
MAIN STREET DESIGN



Option 1 : Clear cut scheme



Option 2 : Glass roof

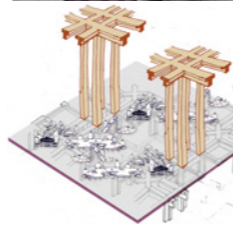


Option 3 : Remain of existing module

CANOPY STRUCTURE



Option 1 : Timber structure



Option 2 : Steel structure



TRANSITION ZONE

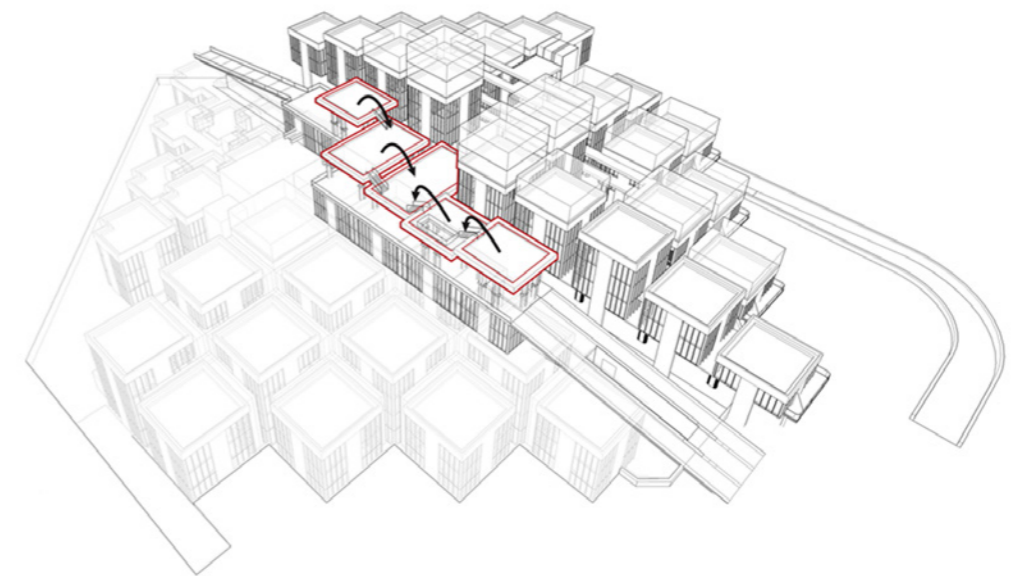


Option 1 : Glass canopy



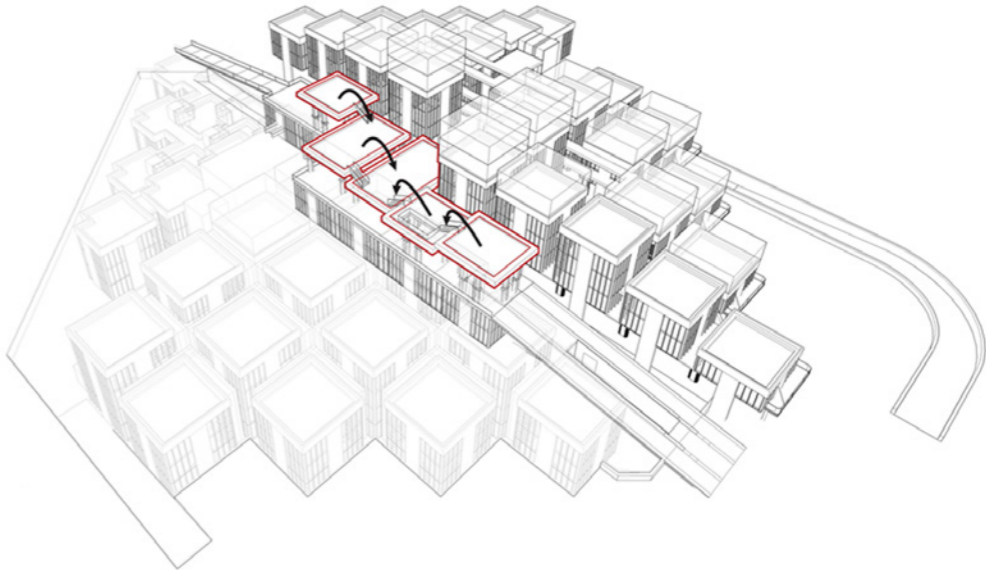
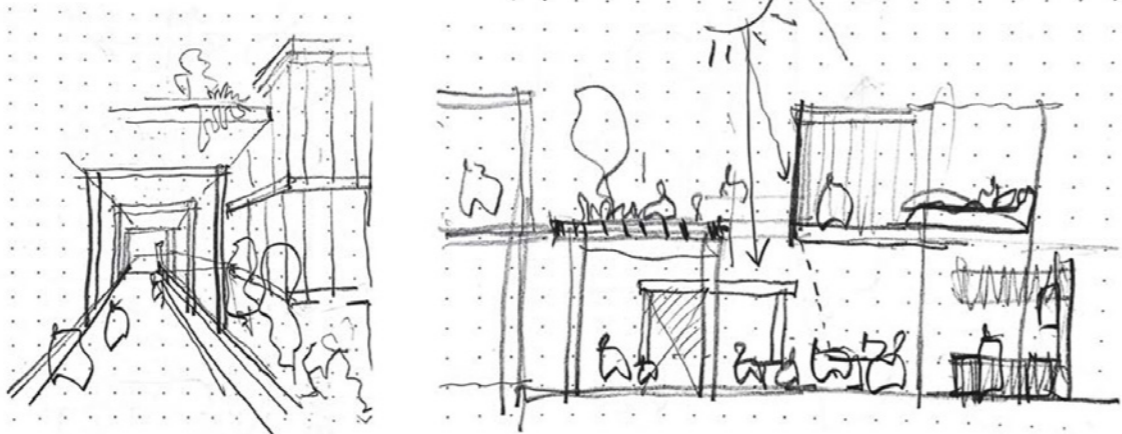
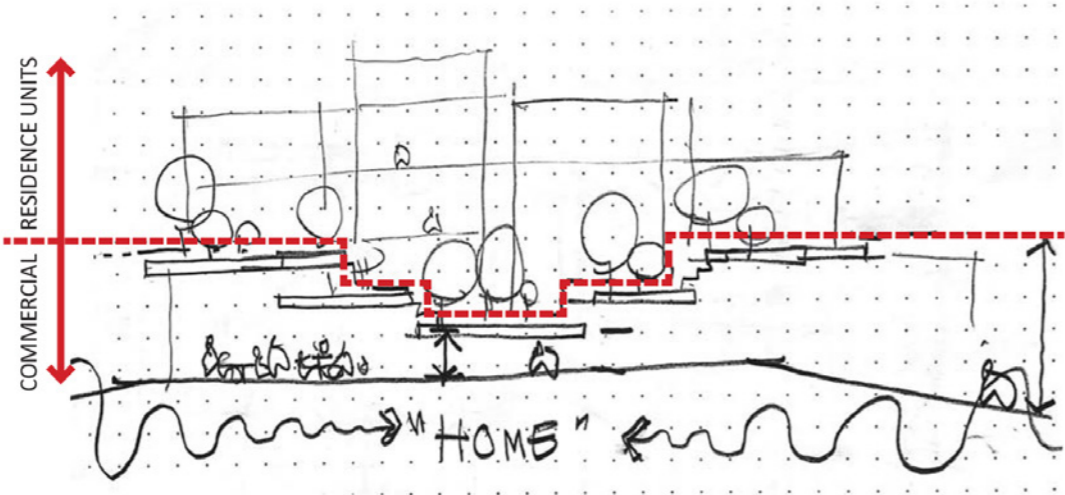
Option 2 : Timber screen canopy

MAIN STREET DESIGN



CASCADING CANOPY
of mainstreet

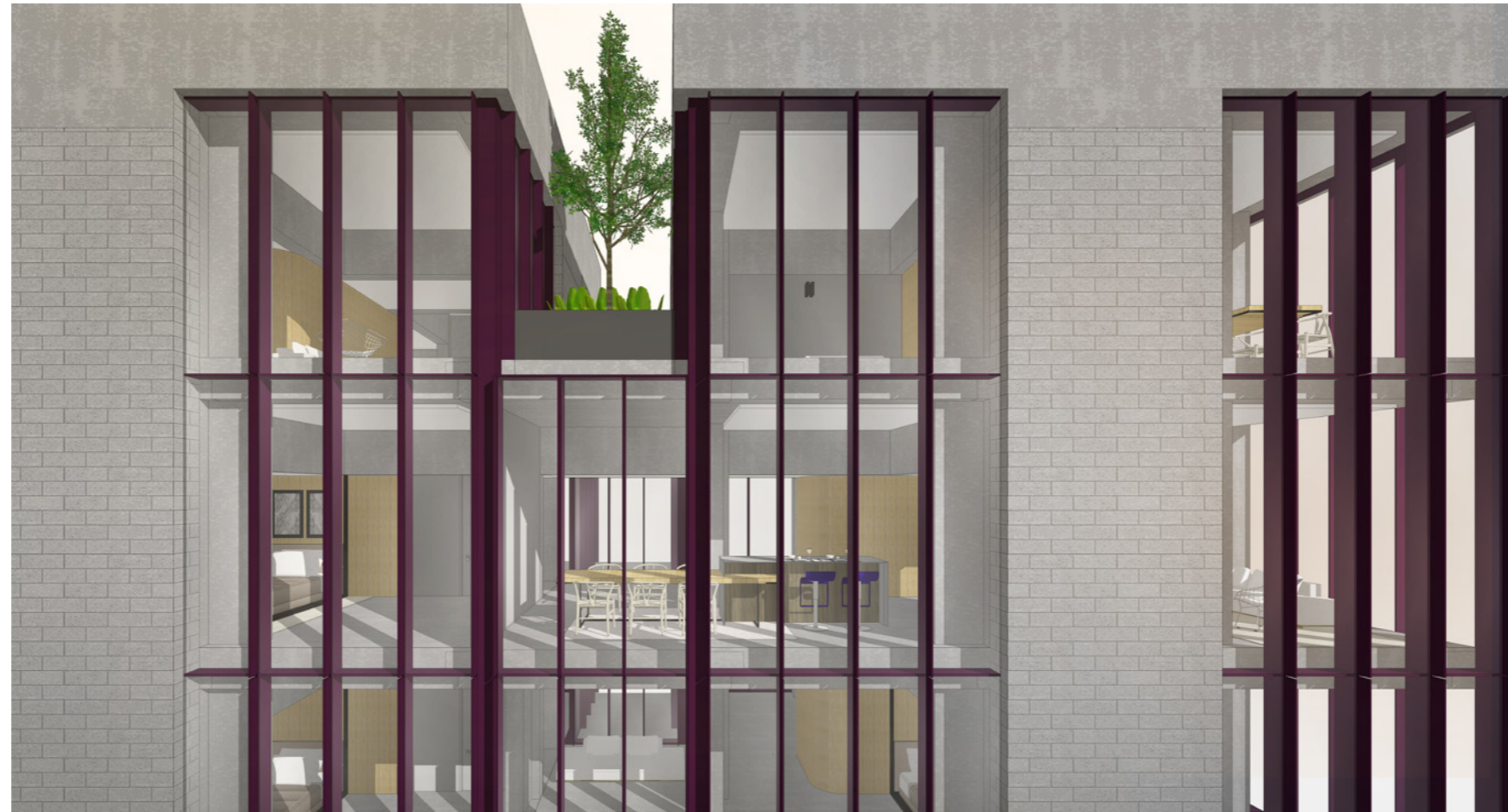
MAIN STREET DESIGN



CASCADING CANOPY
of mainstreet







RESIDENTIAL ZONE

Living unit - Communal facilities - Recreational space

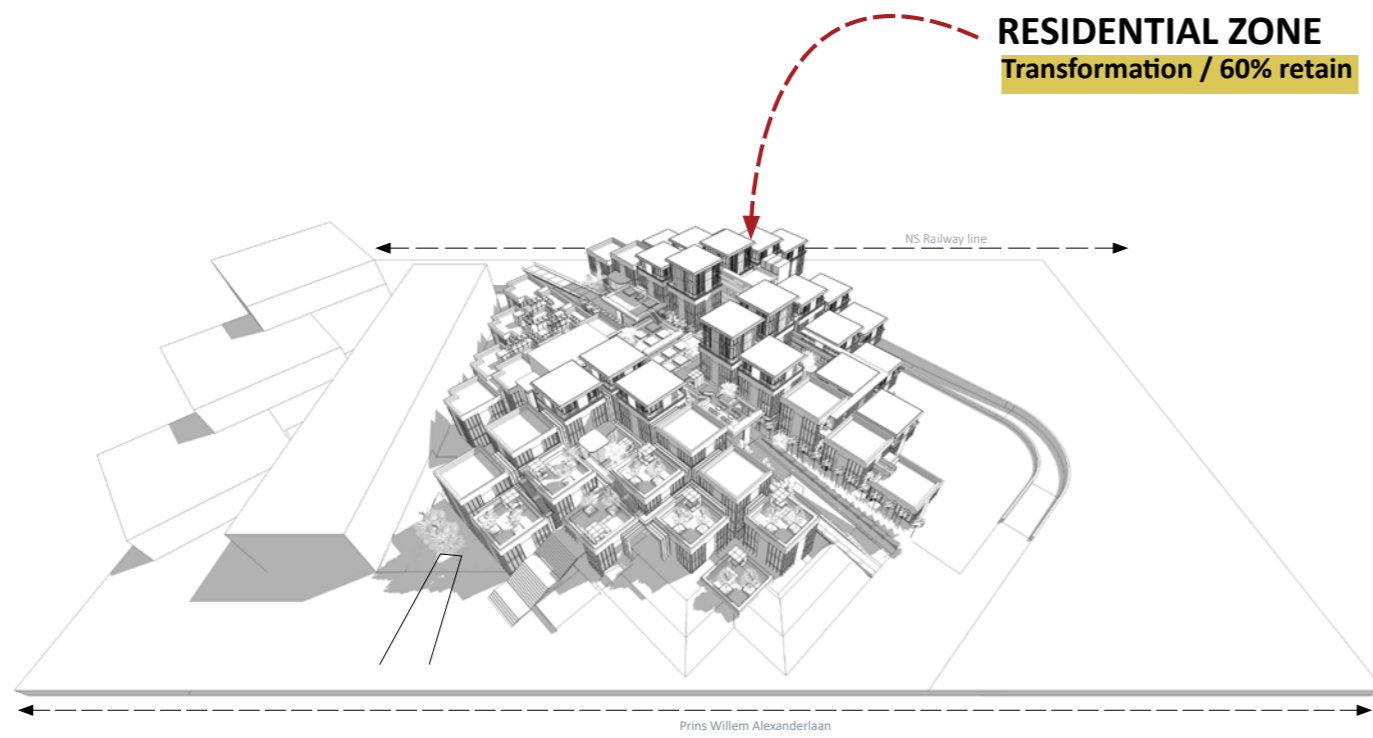
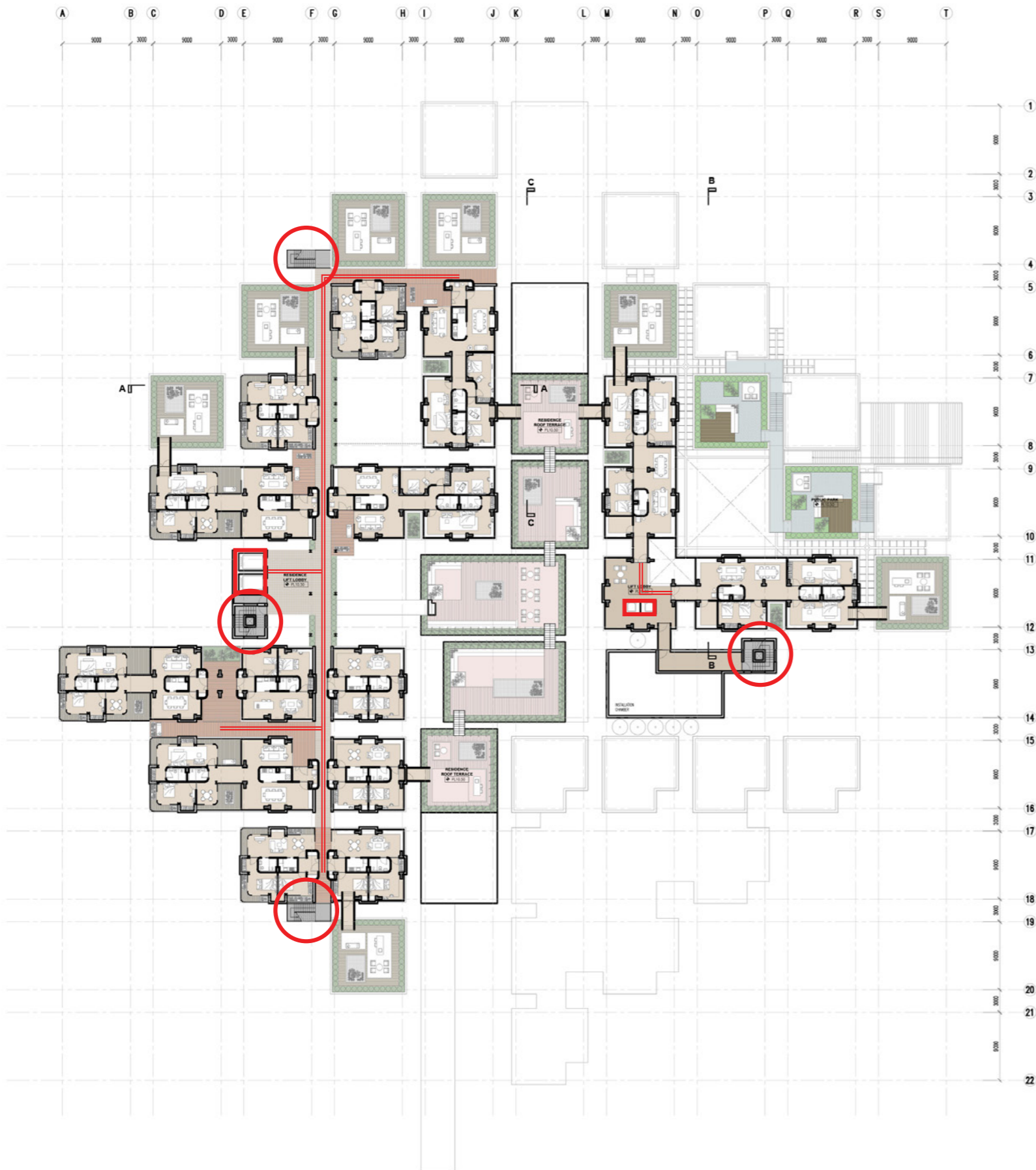


FIG1 : Office function - Centraal Beheer by Herman Hertzberger
Retrieved from: <https://indibout.nl/opelboom>



FIG1 : Housing development - The Kasbah by Piet Blom
Retrieved from: <https://www.flickr.com/photos/lourensh/8633301763>



FRAMEWORK OF TRANSFORMATION

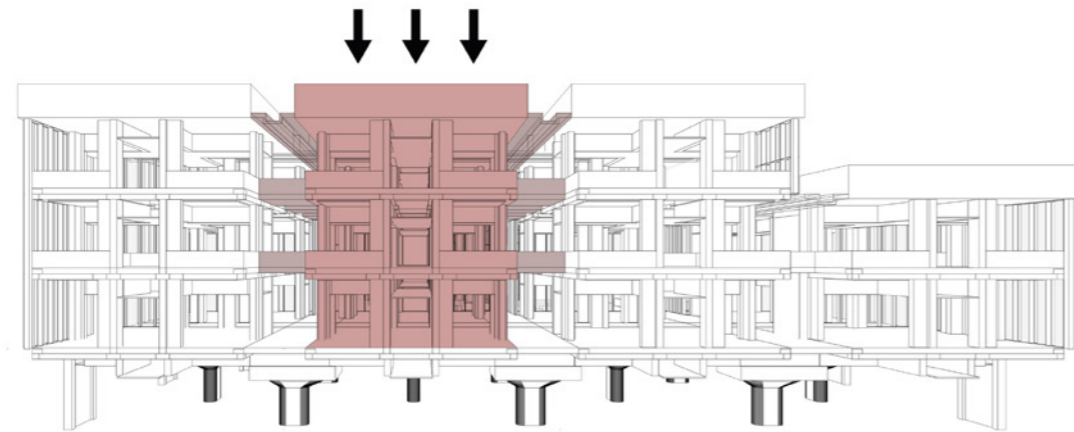
Office function to residential development

The following elements will be provided by architects to transform existing building to be a comfortable living community

- 1. Logistic system**
Main vertical core and corridor

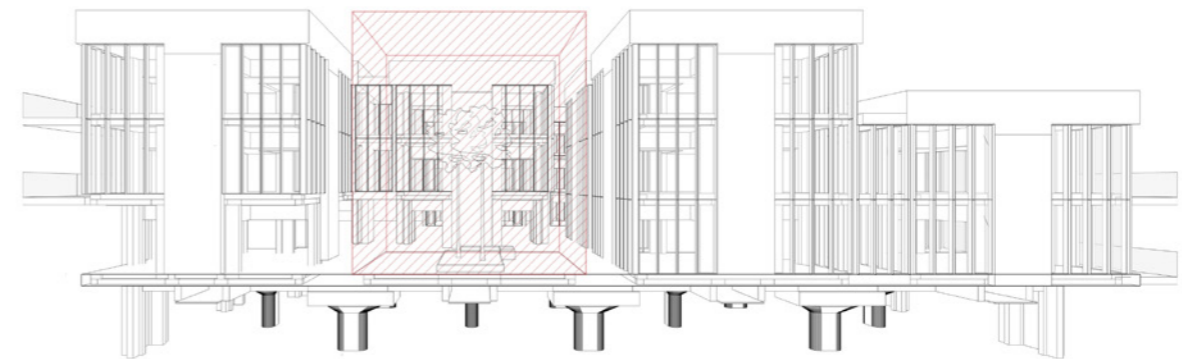
- 2. Safety**
Extra fire protection system

- 3. Built environments**
communal facilities & units arrangement



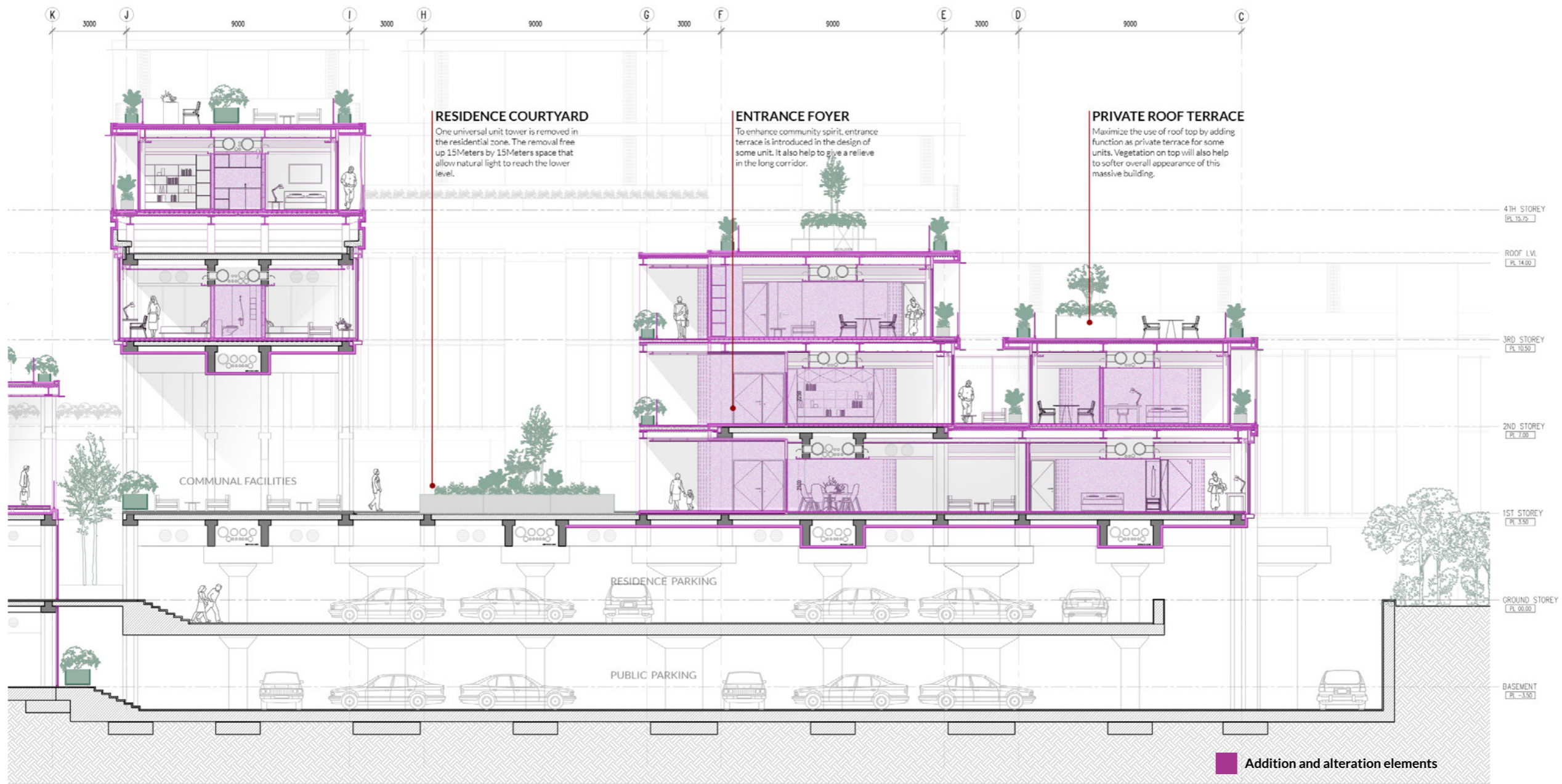
SPACE FOR OFFICE FUNCTION

One big continuous interior space was design for office space. Natural light penetrates through the building by glazing window around building parameter, and by skylight above inner street.



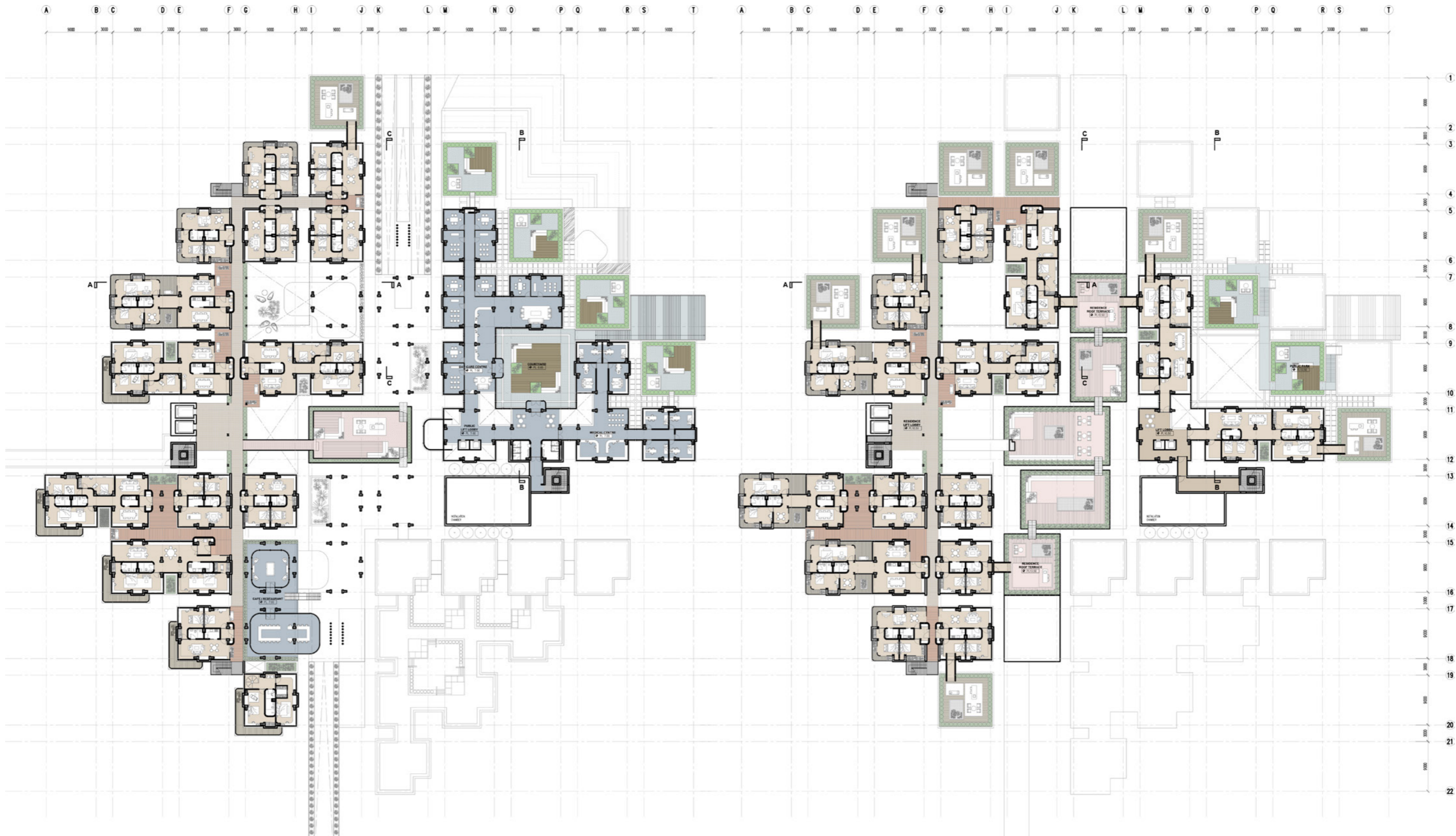
SPACE FOR HOUSING

Subtraction of one universal tower can turn massive building to be a porous space. By removing 15x15 meters, natural light can reach the lower level of this zone which also improve the quality of each universal unit.



SECTION A-A - Residential zone
scale 1:250





RESIDENCE UNITS

Total **46 units 6000 sqm**

(A) Standard:

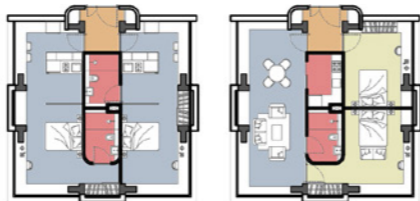
- 1 UNIT, 85 SQM** (studio - 2 bedrooms) **25 UNITS**
- 2 UNITS, 180 SQM** (up to 3 bedrooms) **12 UNITS**
- 3 UNITS, 300 SQM** (up to 5 bedrooms) **3 UNITS**

(B) Duplex:

- 2 UNITS, 160 SQM** (up to 3 bedrooms) **4 UNITS**
- 3 UNITS, 270 SQM** (up to 5 bedrooms) **2 UNITS**

STANDARD

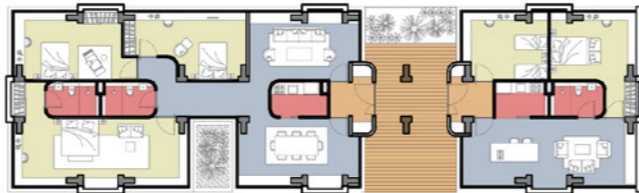
1 Unit, 85 sqm 25 units
(up to 2 bedrooms)



2 Units, 180 sqm 12 units
(up to 3 bedrooms)

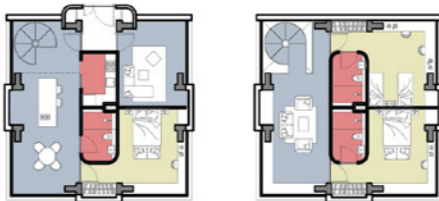


3 Units, 300 sqm 3 units
(up to 5 bedrooms)

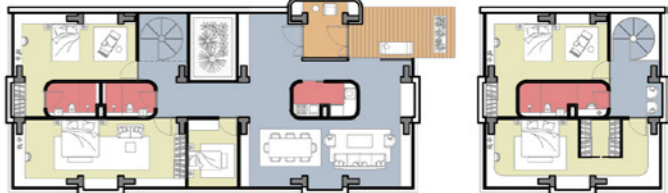


DUPLEX

2 Unit, 160 sqm 4 units
(up to 3 bedrooms)



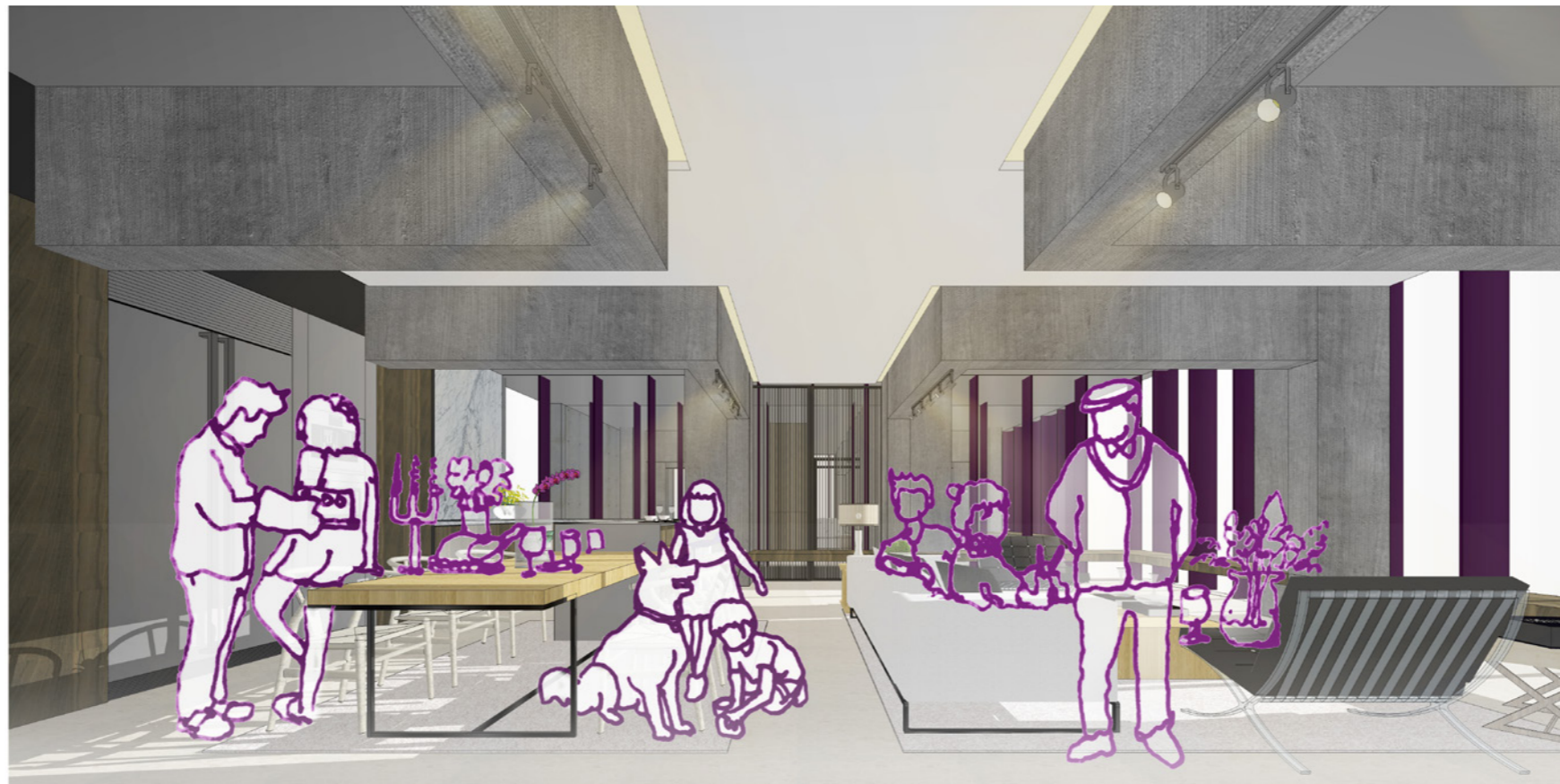
3 Units, 270 sqm 2 units
(up to 5 bedrooms)



COMMUNITY SPIRIT

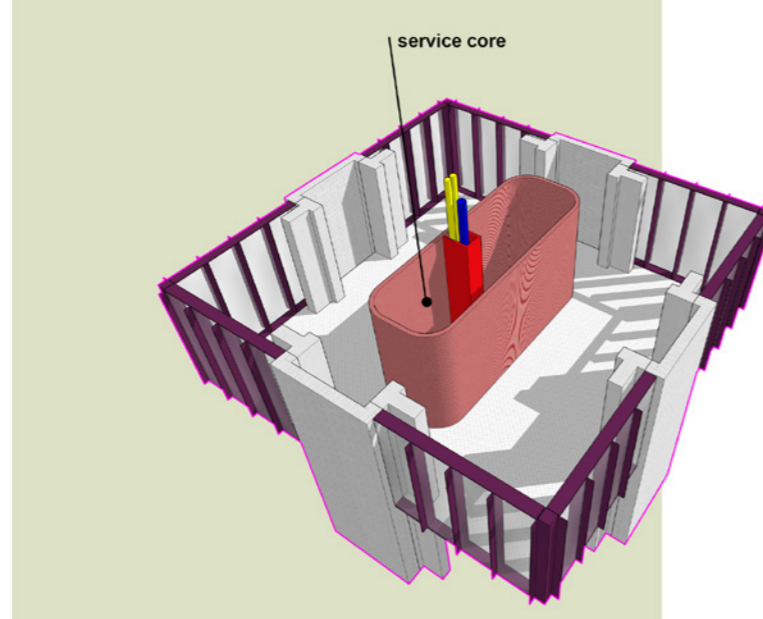
Corridor design





INITIAL DESIGN IDEA
Apartment layout

Residential function

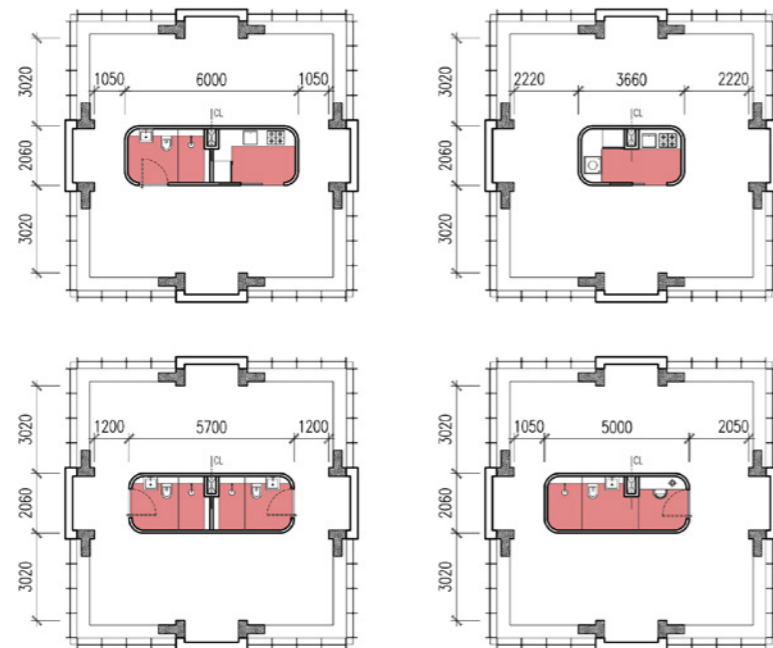


FUNDAMENTAL ELEMENTS

essential for living unit

1. Service core: an essential area in residential unit apart from living space is service zone. This area need both vertical and horizontal connection. The most logic service system in vertical housing is to place this service shaft at the same location of every floor. In the case of Centraal Beheer, it is located in the centre of universal units. This unit can house various functions both living and services. Adding this box in the middle help to divide an appropriate space for housing function.

2. Entrance hall: one of the important element in Dutch housing is the entrance reception. This hall will be transitional zone between exterior and interior which also help to prevent the strong wind entering living space. different in time of the two designs.

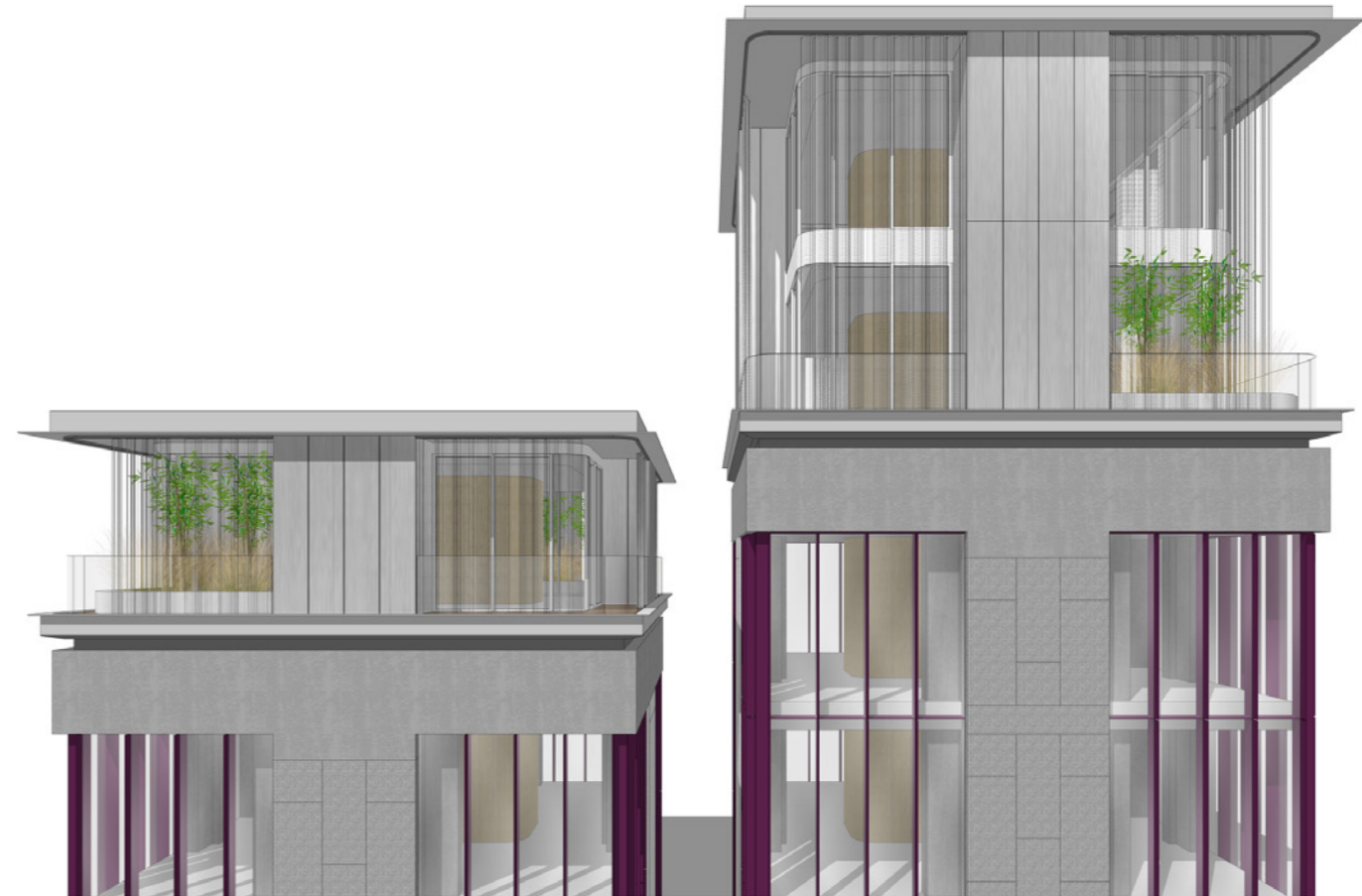




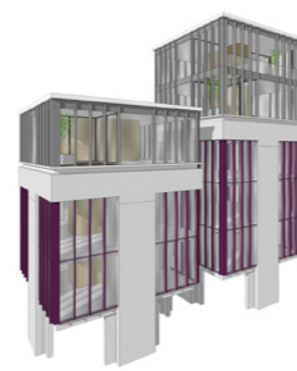


Composition:

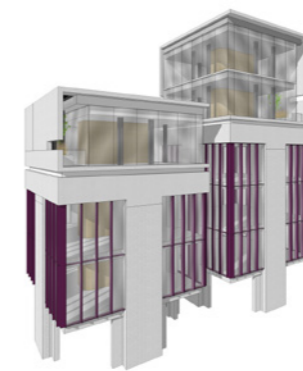
According to the high value of existing façade composition, as it gives the idea of space division inside which come from human relation, new module will duplicate this design language to tie the old and the new together. Modern construction technique of thin slab and sharp edge will give the different in time of the two designs.



OPTION 2
COMPLETED CUBE



OPTION 4
CURTAIN WALL STRUCTURE



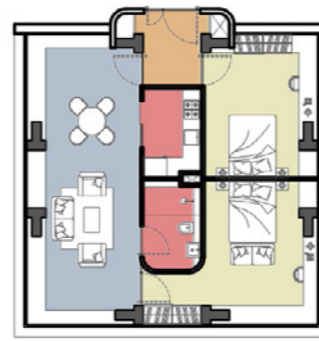
OPTION 3
TRANSPARENT BOX

Layout design:

Structural grid line is offset in by 600MM to create in between space. This balcony will be transition zone from outdoor to indoor space. It will also help to improve quality of interior space as plants can be grow in this area. In term of building technology, these canopy will also block direct sunlight during summer time.

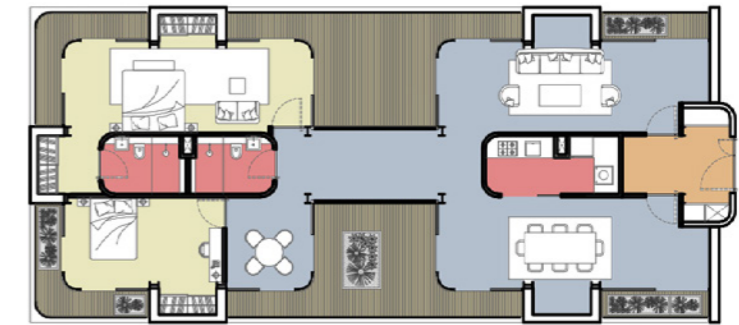
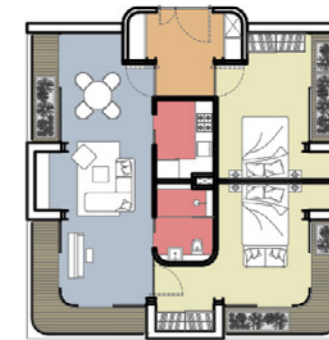
EXISTING MODULE

1 & 2 units - Standard



NEW MODULE

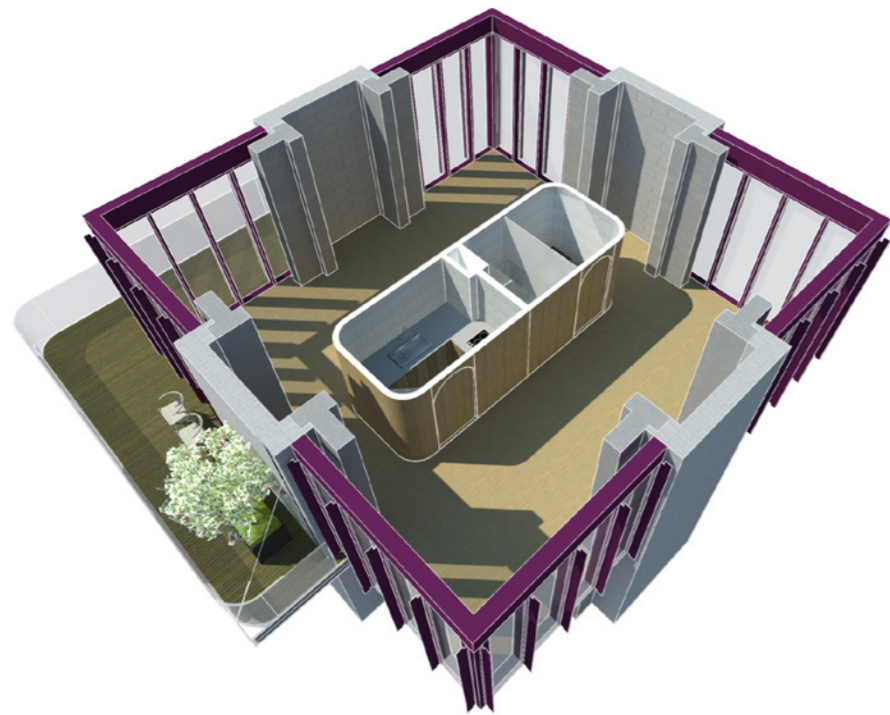
1 & 2 units - Standard



Materials:

Selection of material will indicate the different in time of construction and also program in the units. In this residential zone, full-height transparent window is selected to maximize daylight coming in. Neutral texture and light color will be used to create an appropriate atmosphere for living. Curtain mesh will be provided outside for the users to define their own level of privacy.





EXISTING MODULE - MODIFY
Residential unit

For residential unit, internal atmosphere will be modifying to have a warming and softer appearance. Still most of existing elements and composition will be kept to be as a remnant of original unit design. Timber finished will be used for additional elements, as service box and radiant floor. Balcony will be adding to these residential units, offer resident in between space.



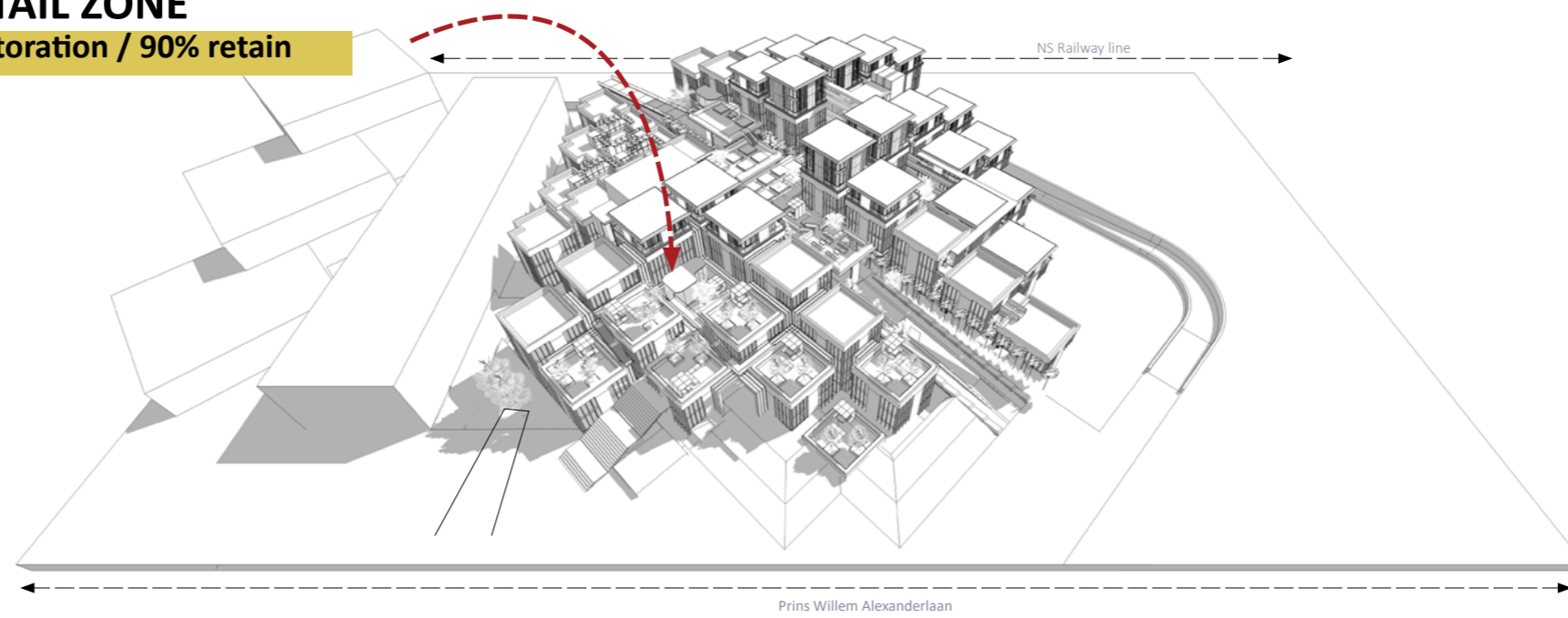
NEW MODULE
Residential unit

In the new module, structural composition will be at the same location. Material selection principle is similar to the principle of Herman Hertzberger. Color and texture will be neutral to arouse for user interpretation but at the same time give warm feeling. Curve edge is used as the typical design language to soften the atmosphere and light coming through.



RETAIL ZONE

Restoration / 90% retain

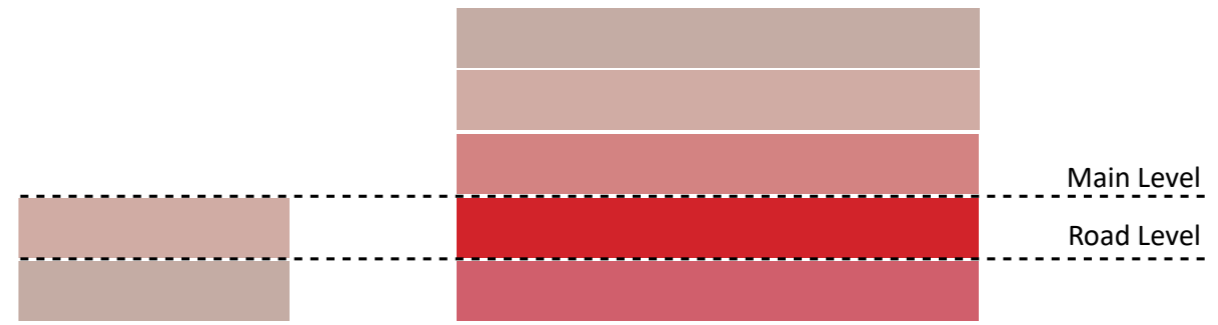


RETAIL ZONE

Daily functions - Department store - Public recreational

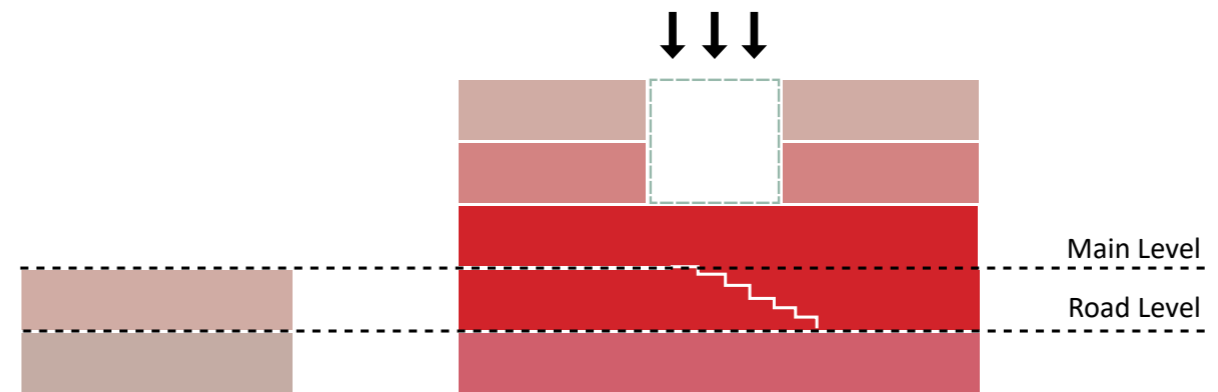


RECREATION RETAIL



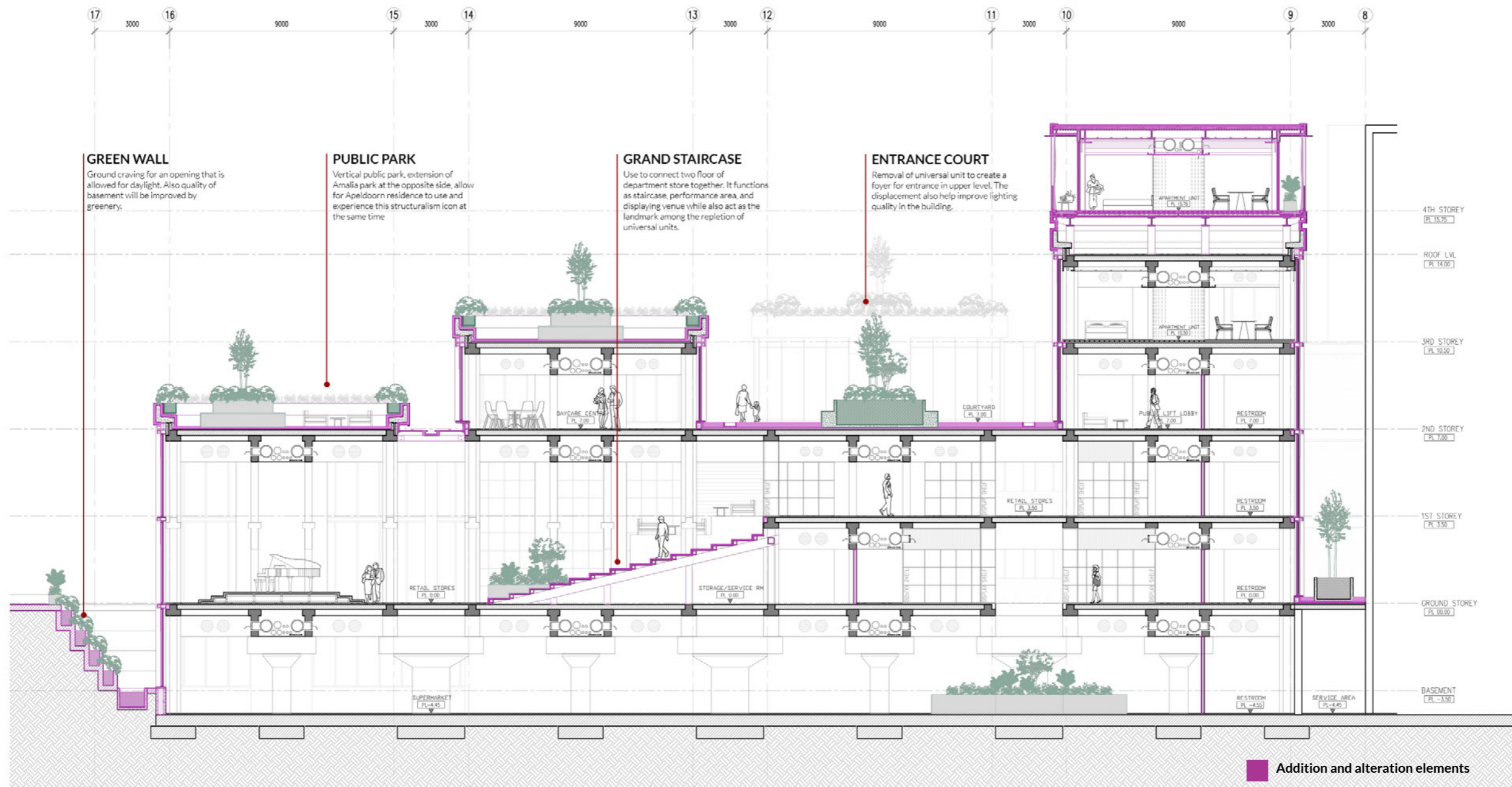
EXISTING ACCESSIBILITY LEVEL

Gradient of accessibility is start from the main entrance in road level



SUBTRACTION & CONNECTION

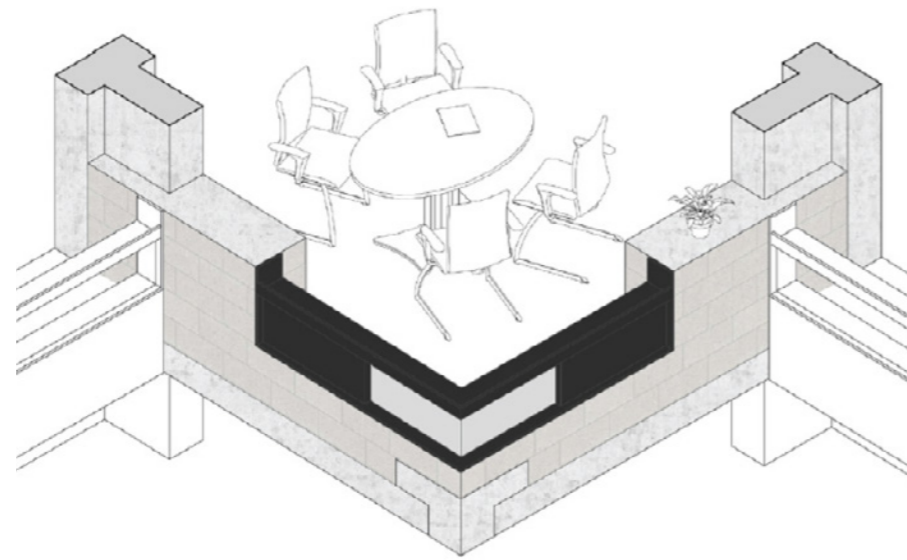
To improve accessibility level to retail zone, grand staircase is introduced to connect different level. Removal of unit to create entrance hall for upper level



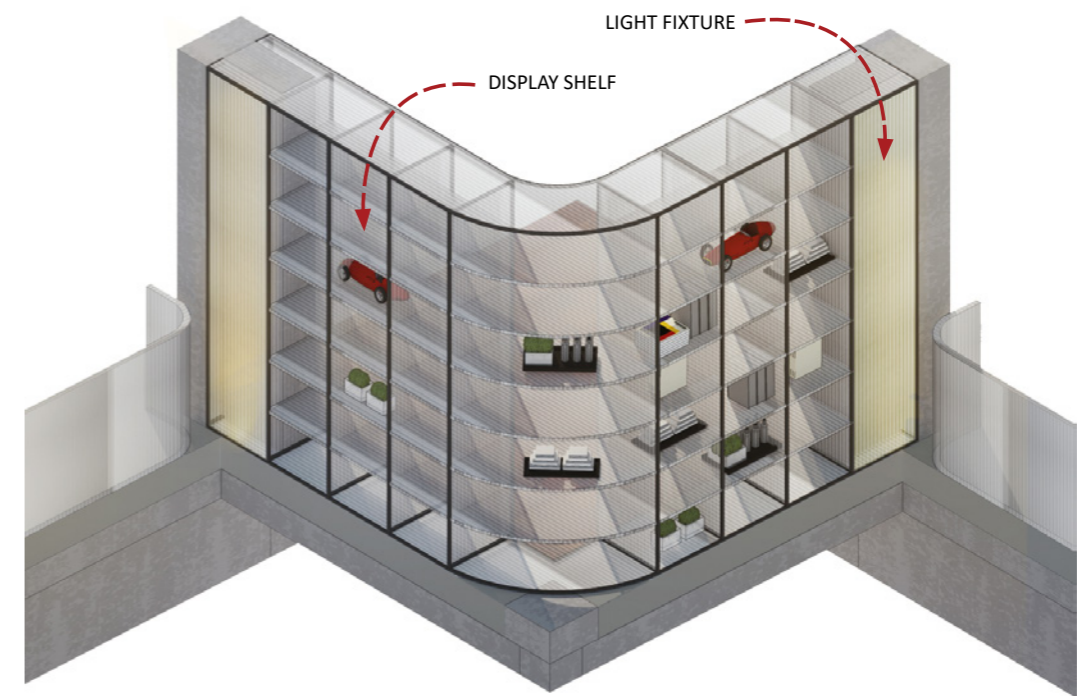
SECTION B-B - Retail zone
scale 1:250





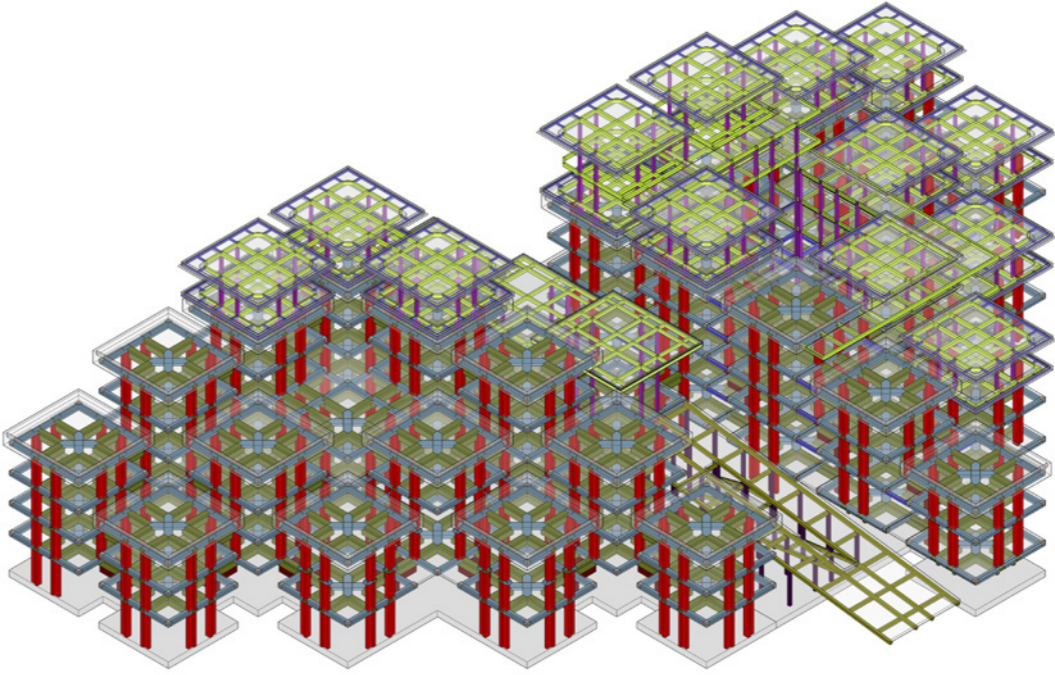


OFFICE FUNCTION

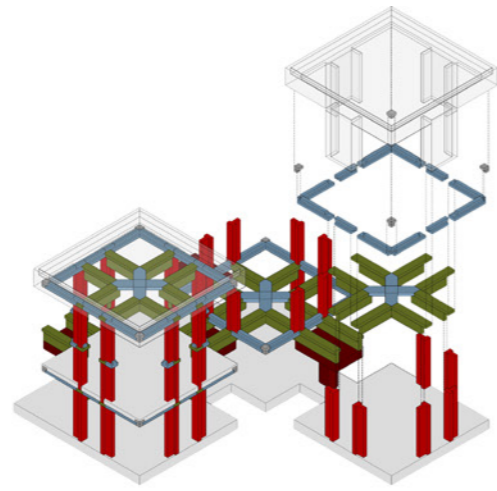


RETAIL FUNCTION

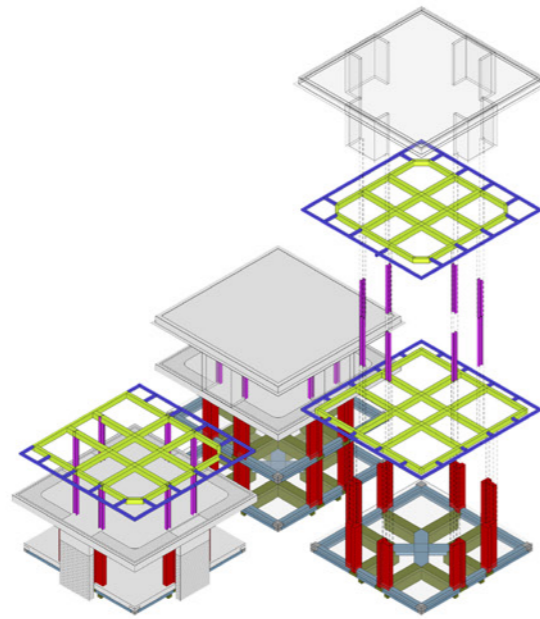




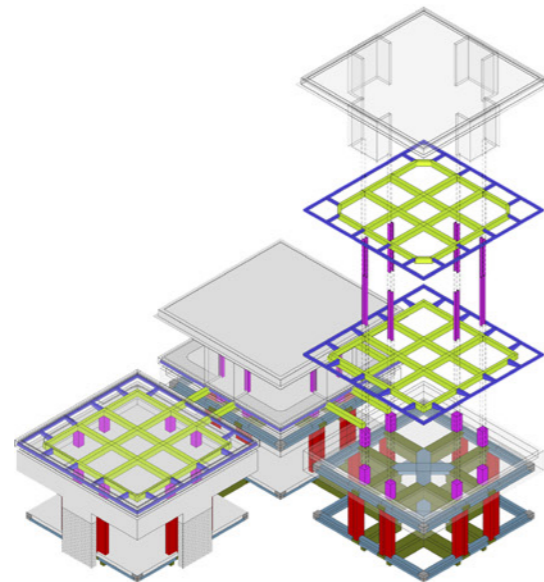
**CONSTRUCTION &
BUILDING TECHNOLOGY**



Existing prefabricated structure
structure exploded diagram



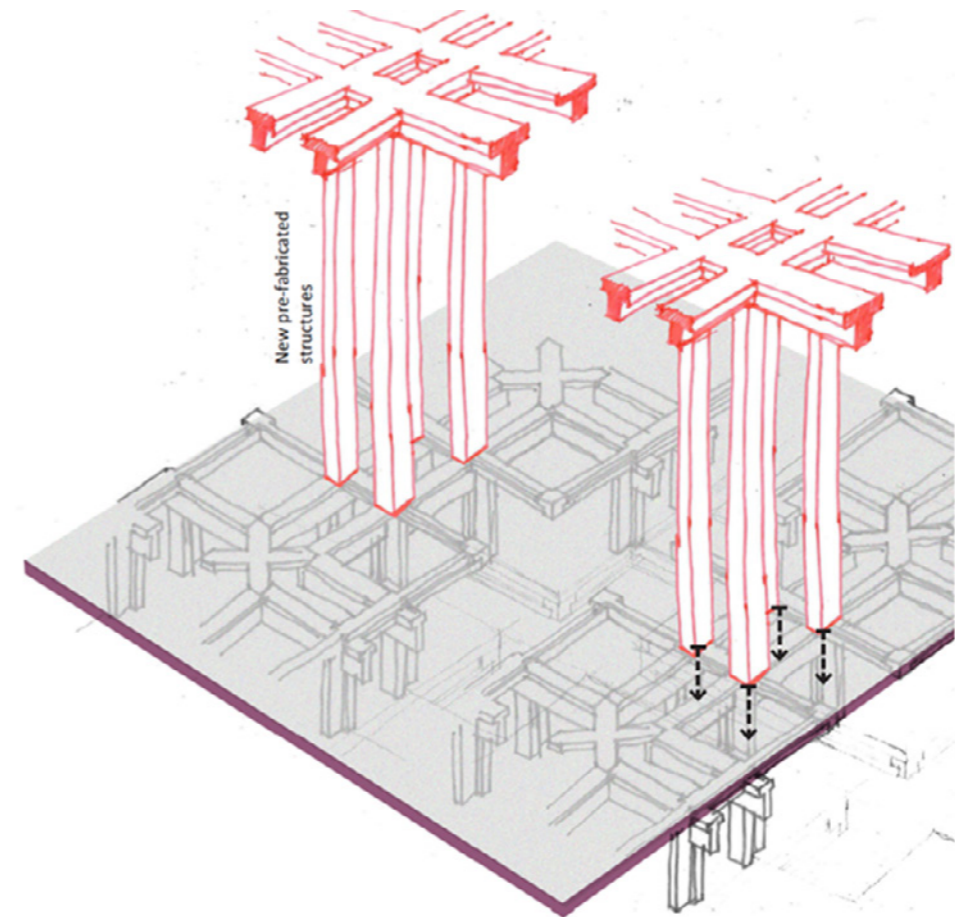
Existing modify & addition
structure exploded diagram

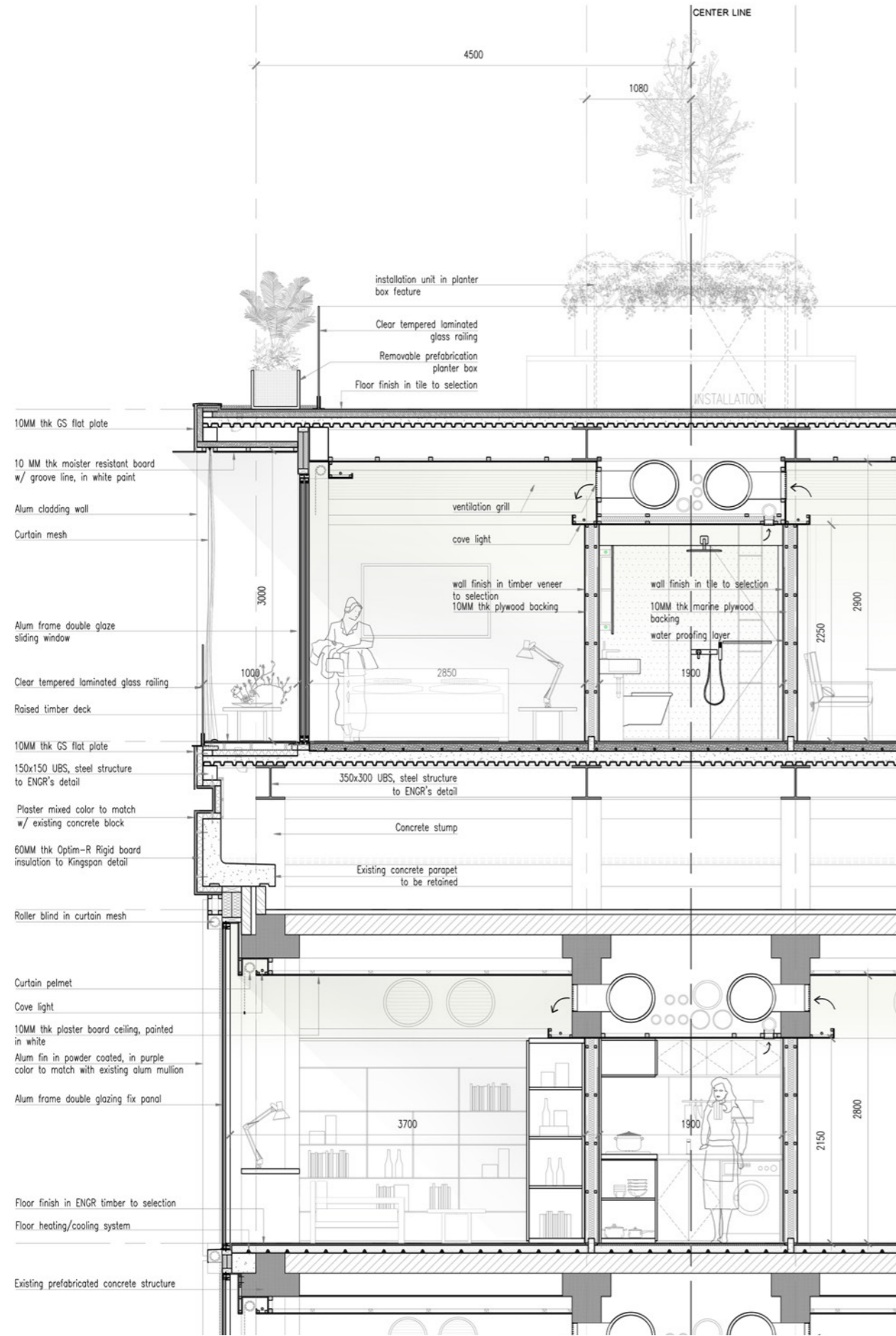


Additional structure
structure exploded diagram

STRUCTURAL CONCEPT

For the redevelopment of Centraal Beheer, there are addition and alteration elements throughout the building which need a new support system. The original skeleton of this building is prefabricated concrete structure, constructed module by module, any additional support will be constructed by light weight steel structure. From the over view of structural diagram, there are three main construction technique; original concrete structure; original column and new steel beam; total new structure.

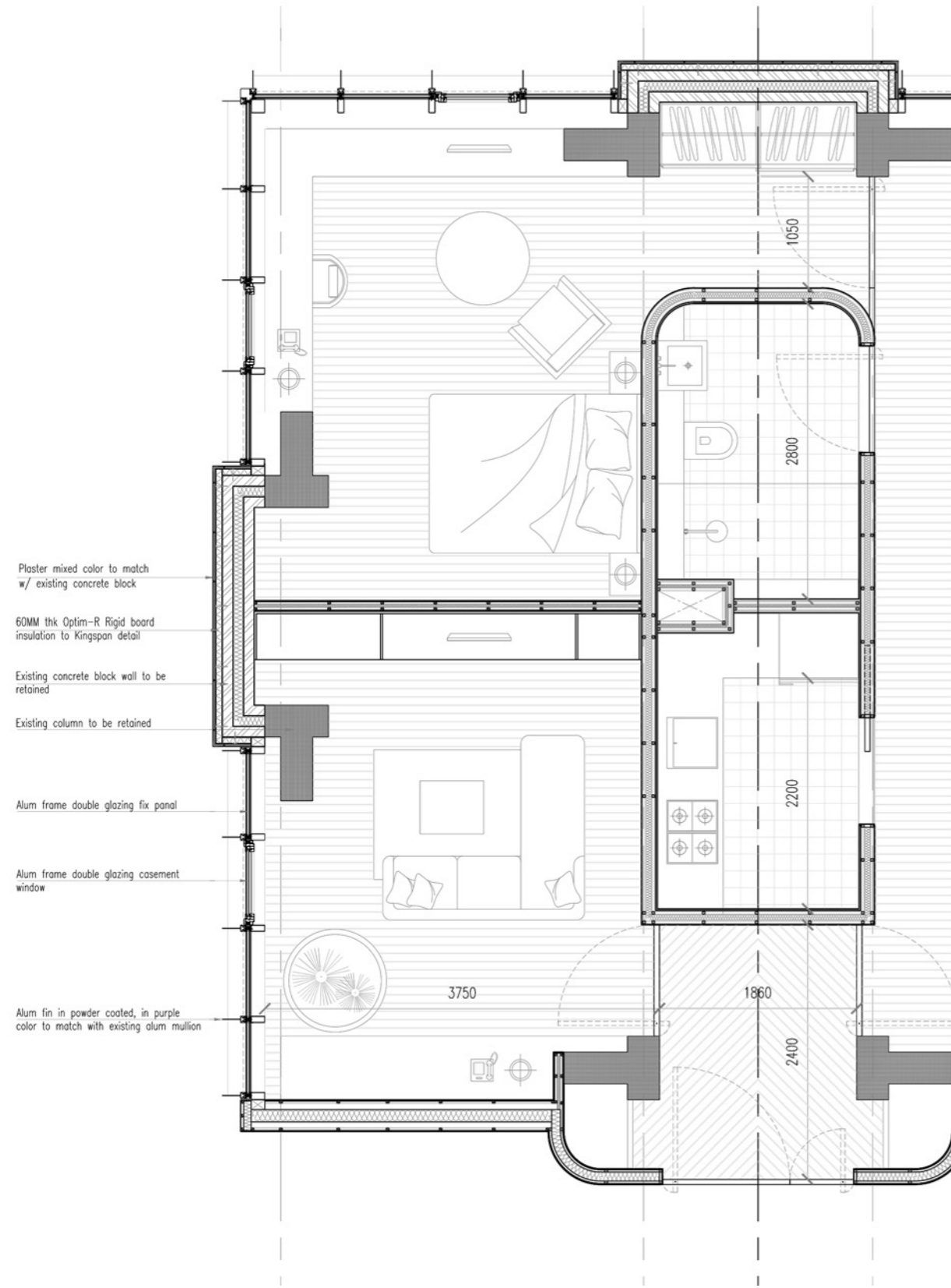




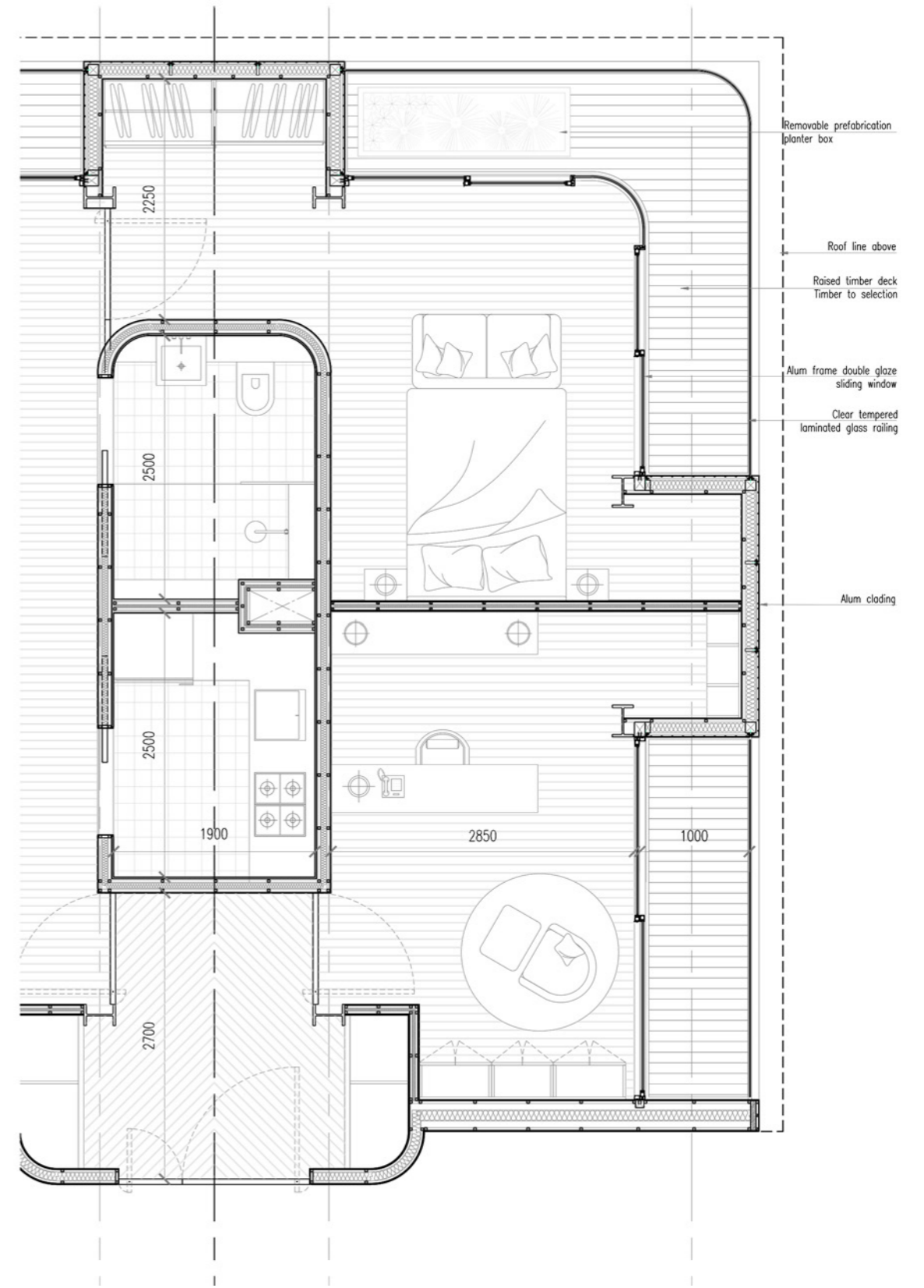
DETAIL SECTION
 Connection of existing and new module
 scale 1:50



DETAIL ELEVATION
 Connection of existing and new module
 scale 1:50



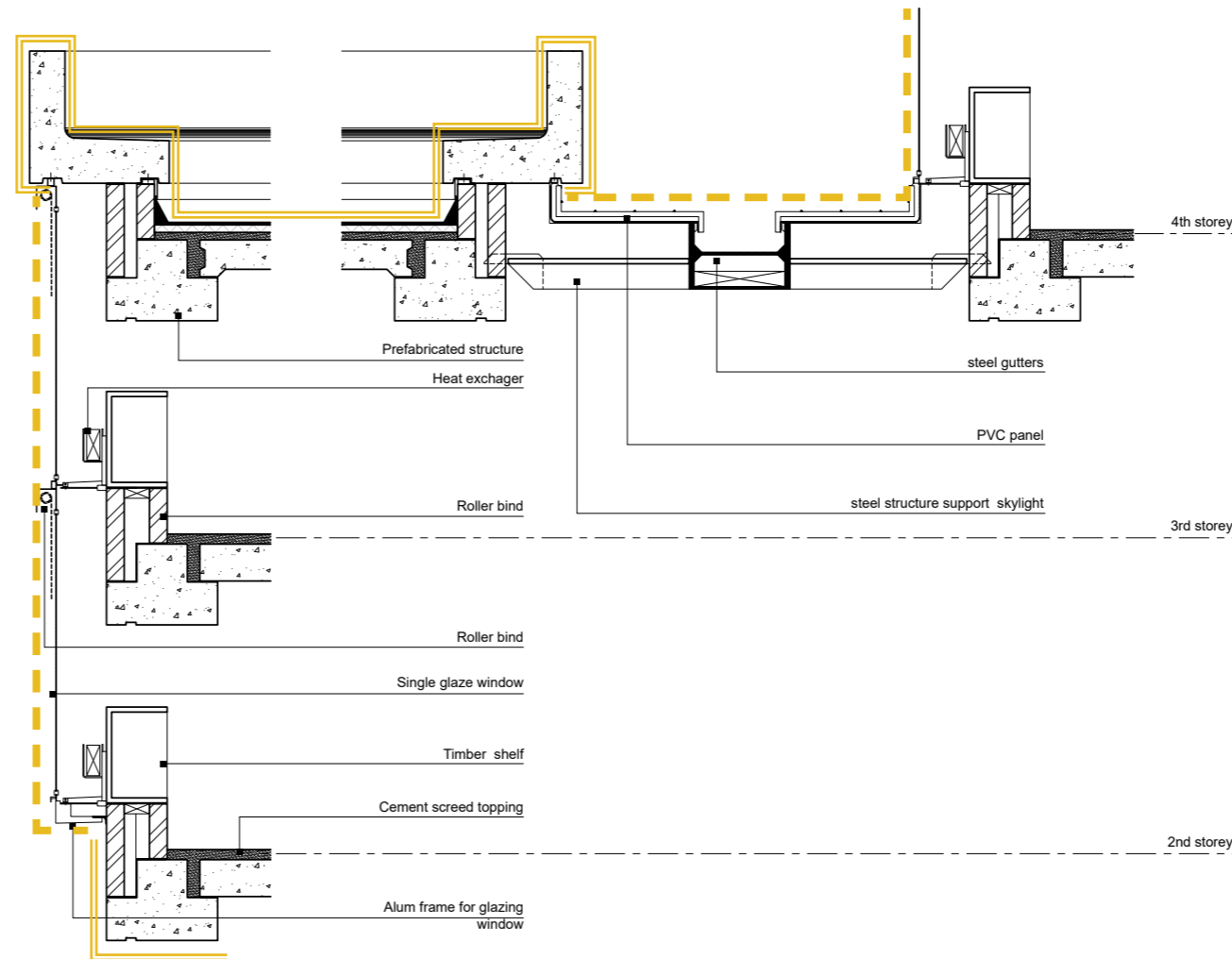
DETAIL PLAN - EXISTING MODULE
scale 1:50



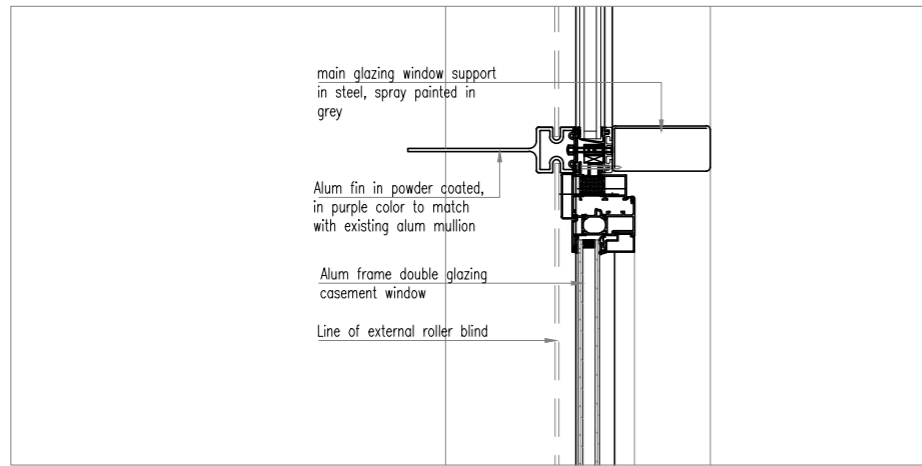
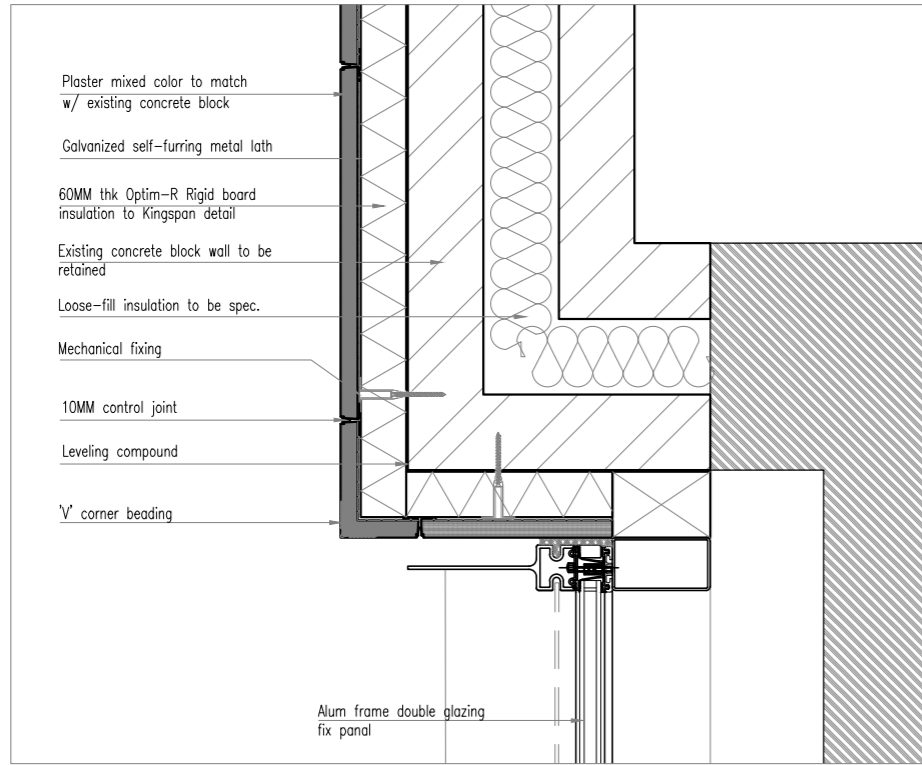
DETAIL PLAN - NEW MODULE
scale 1:50

INSULATION SCHEME

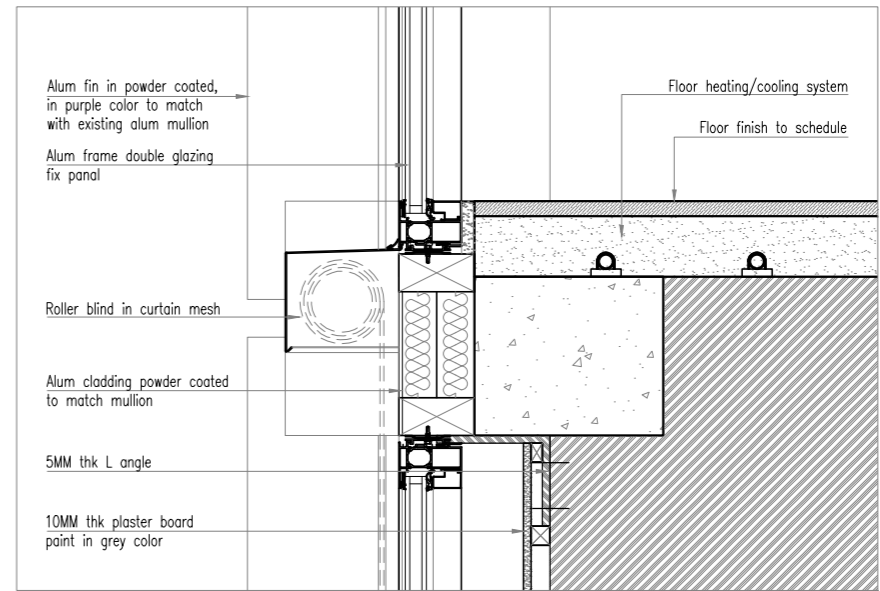
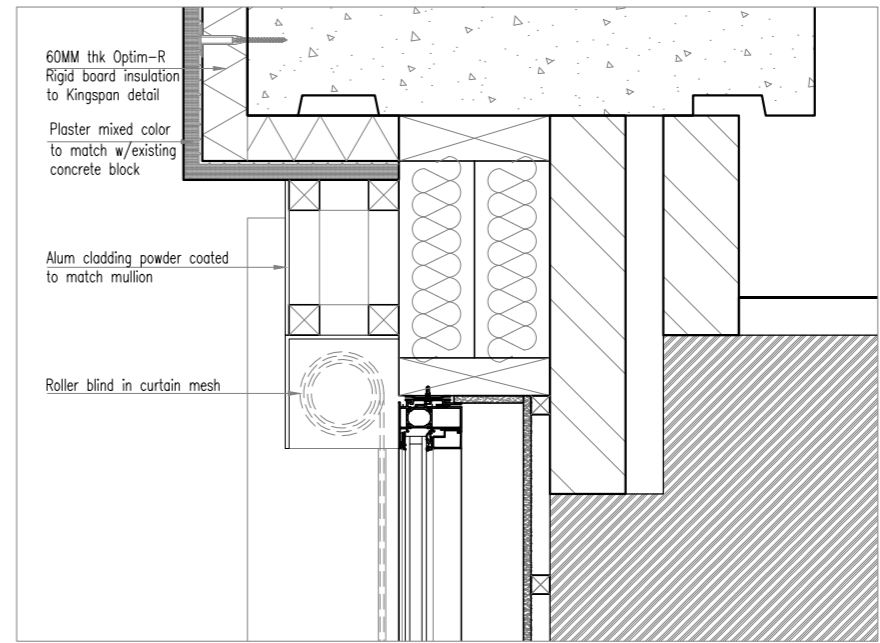
Existing & new module



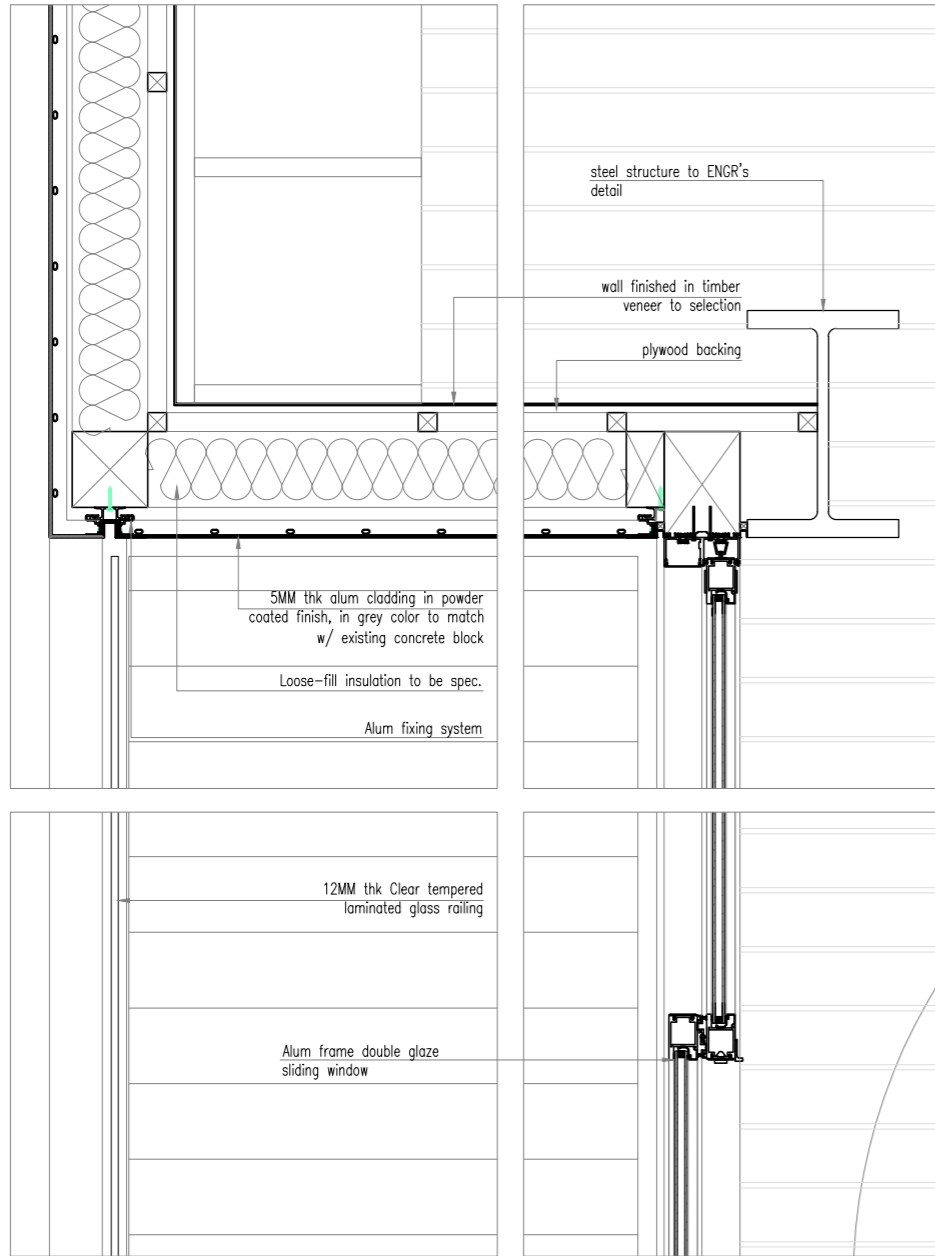
- To be changed**
 to double glazing window to improve energy efficiency, design and composition to match with existing window
- To be insulated**
 with rigid board to spec, finish in plaster mixed color to match with existing material



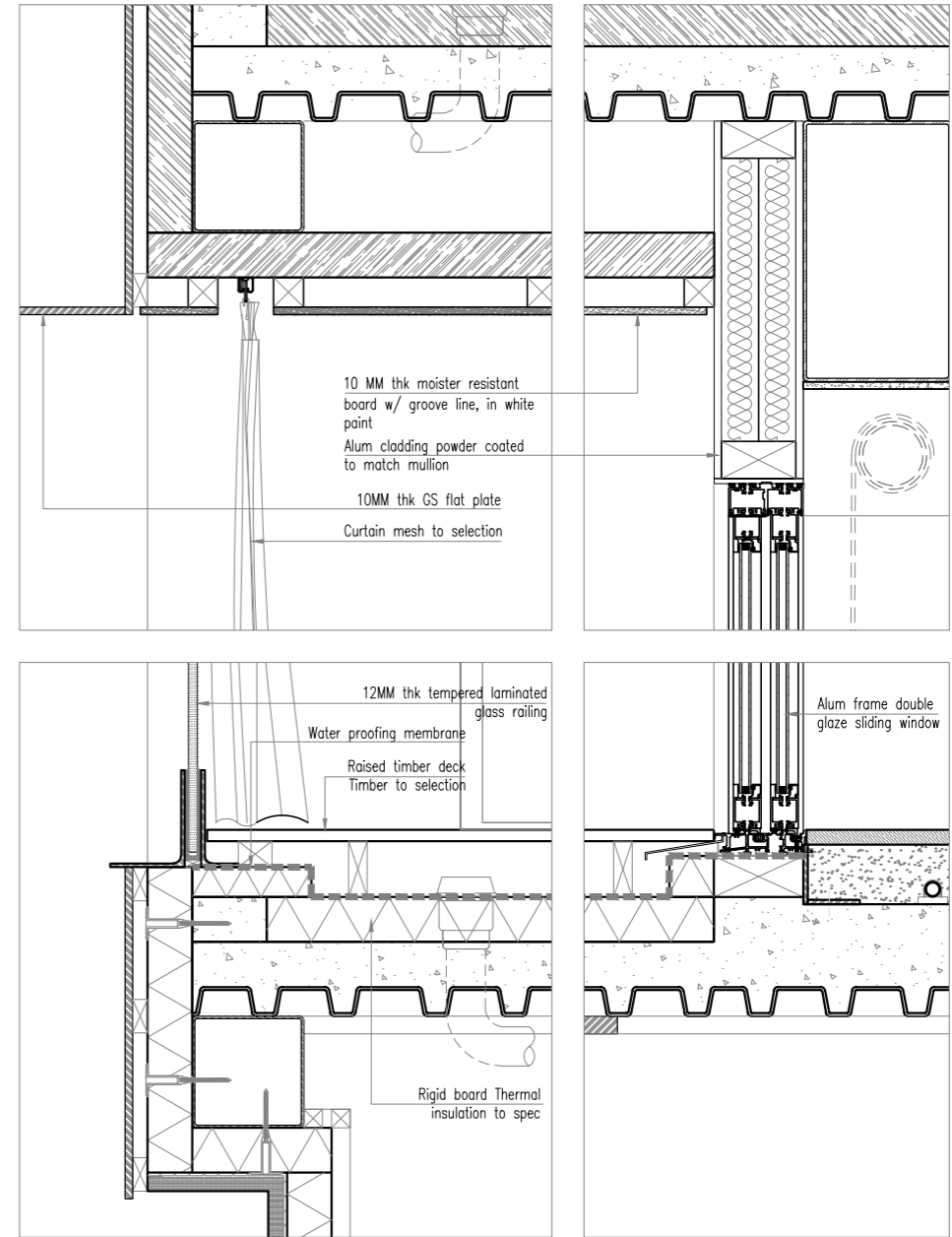
DETAIL PLAN - EXISTING MODULE
scale 1:10



DETAIL SECTION - EXISTING MODULE
scale 1:10



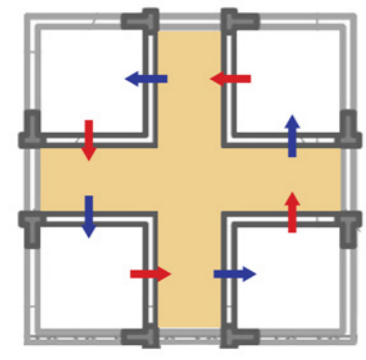
DETAIL PLAN - NEW MODULE
scale 1:10



DETAIL SECTION - NEW MODULE
scale 1:10

CLIMATE CONTROL SCHEME

Residence & Retail



Air circulate diagram

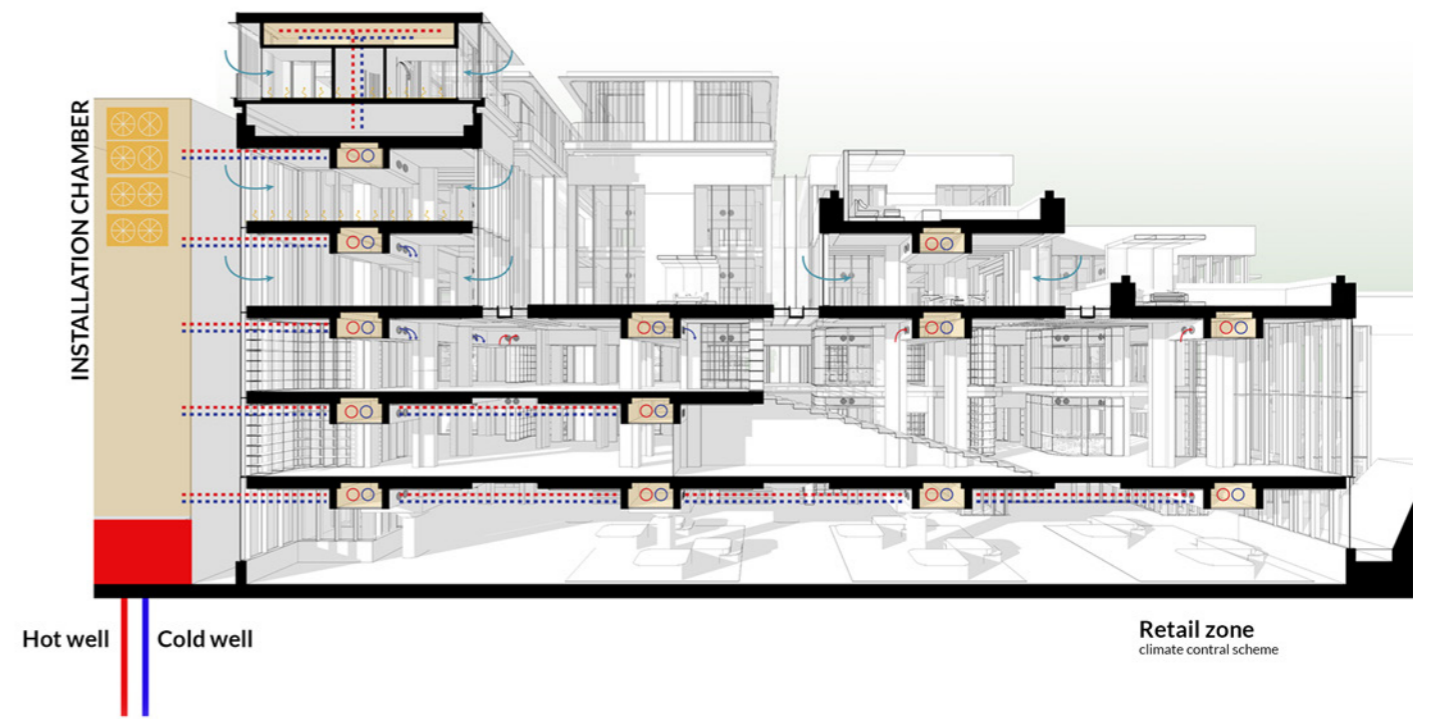


Residential zone
climate control scheme



Residential zone
climate control scheme

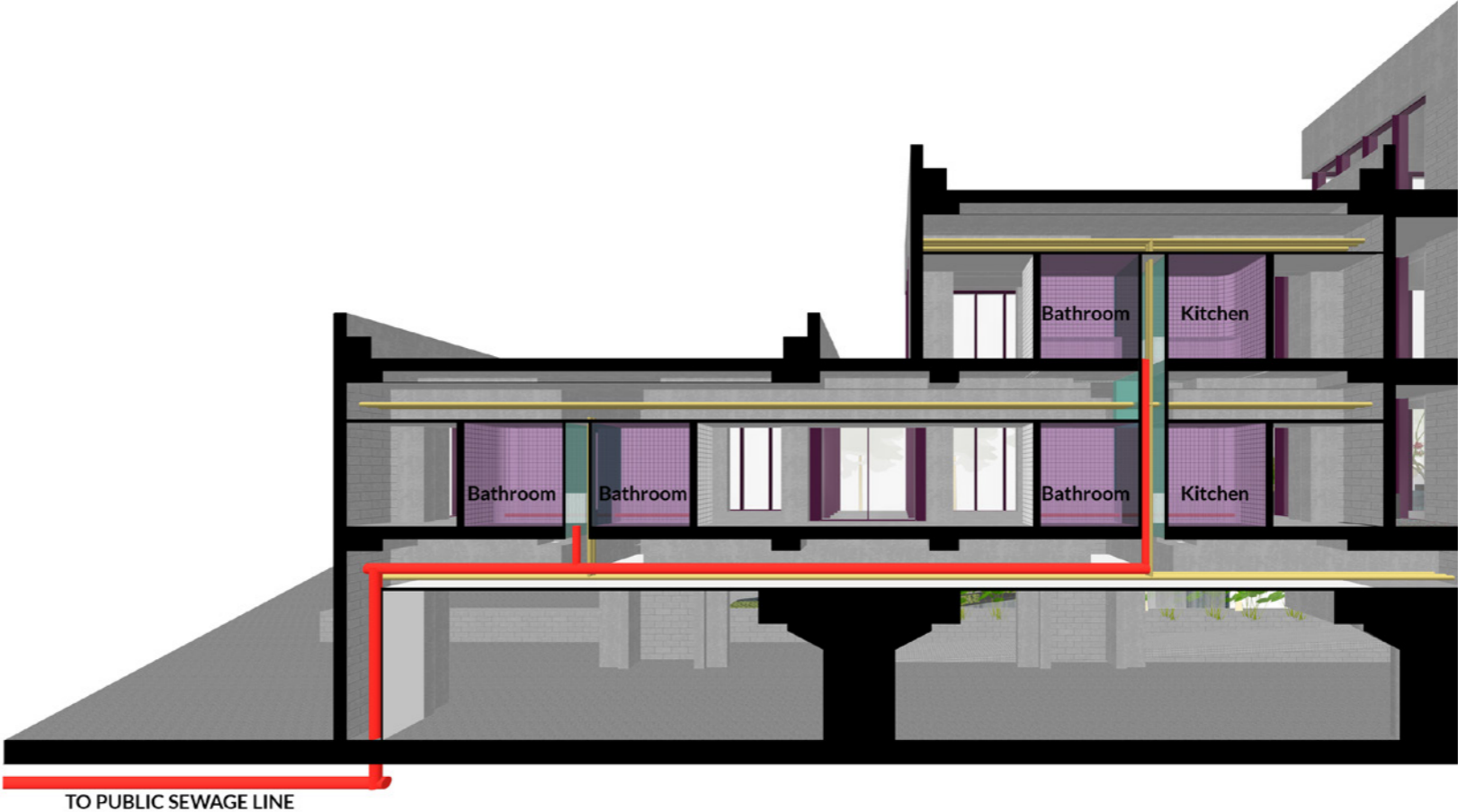
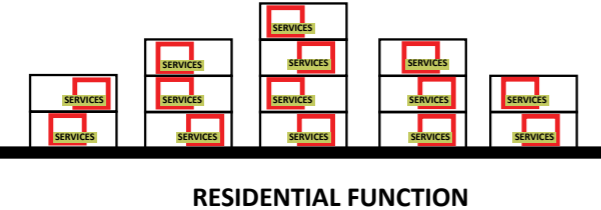
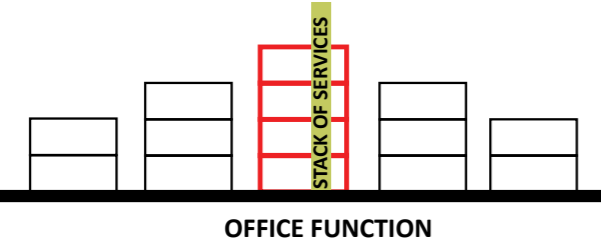
Retail zone
climate control scheme

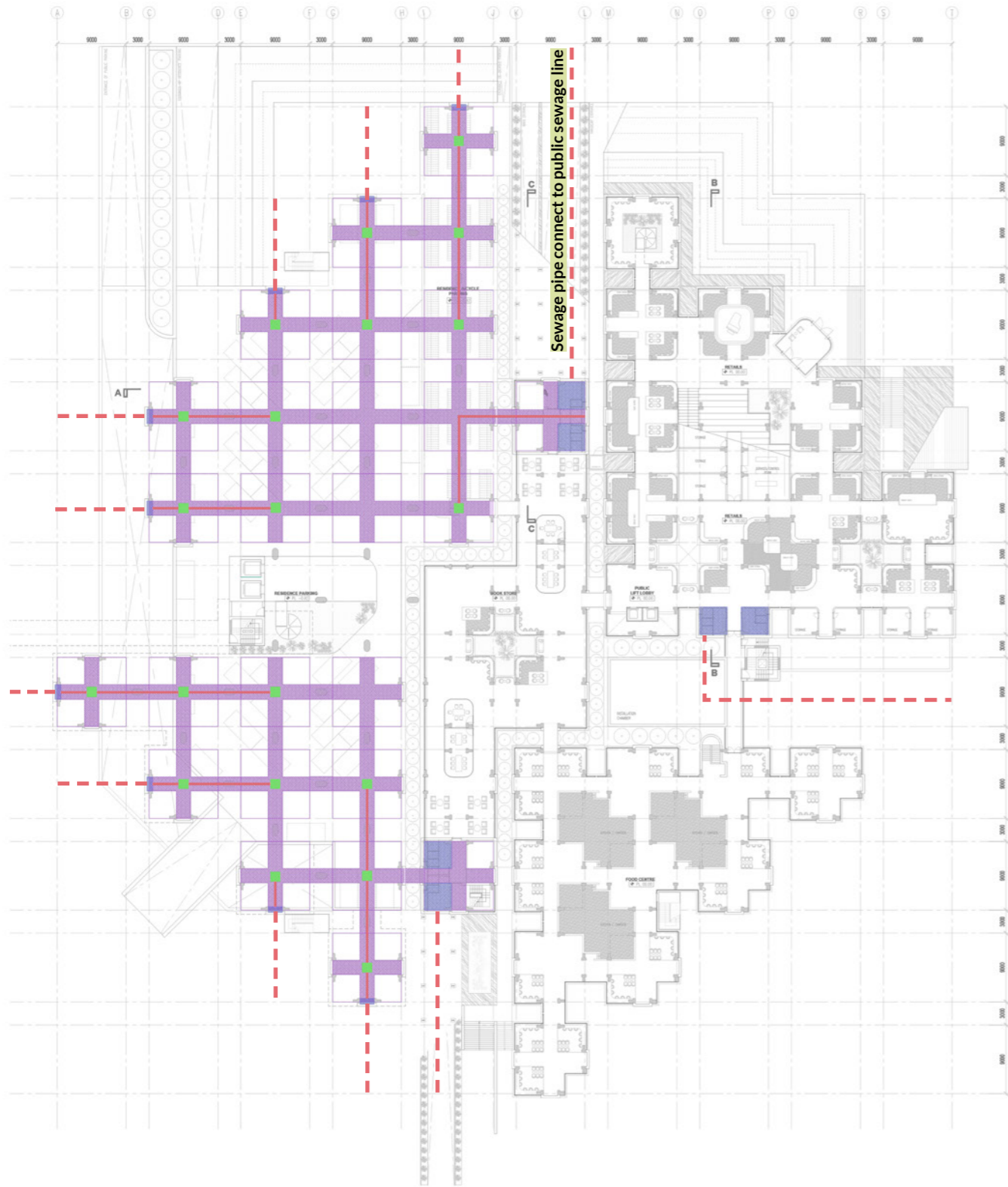


Retail zone
climate control scheme

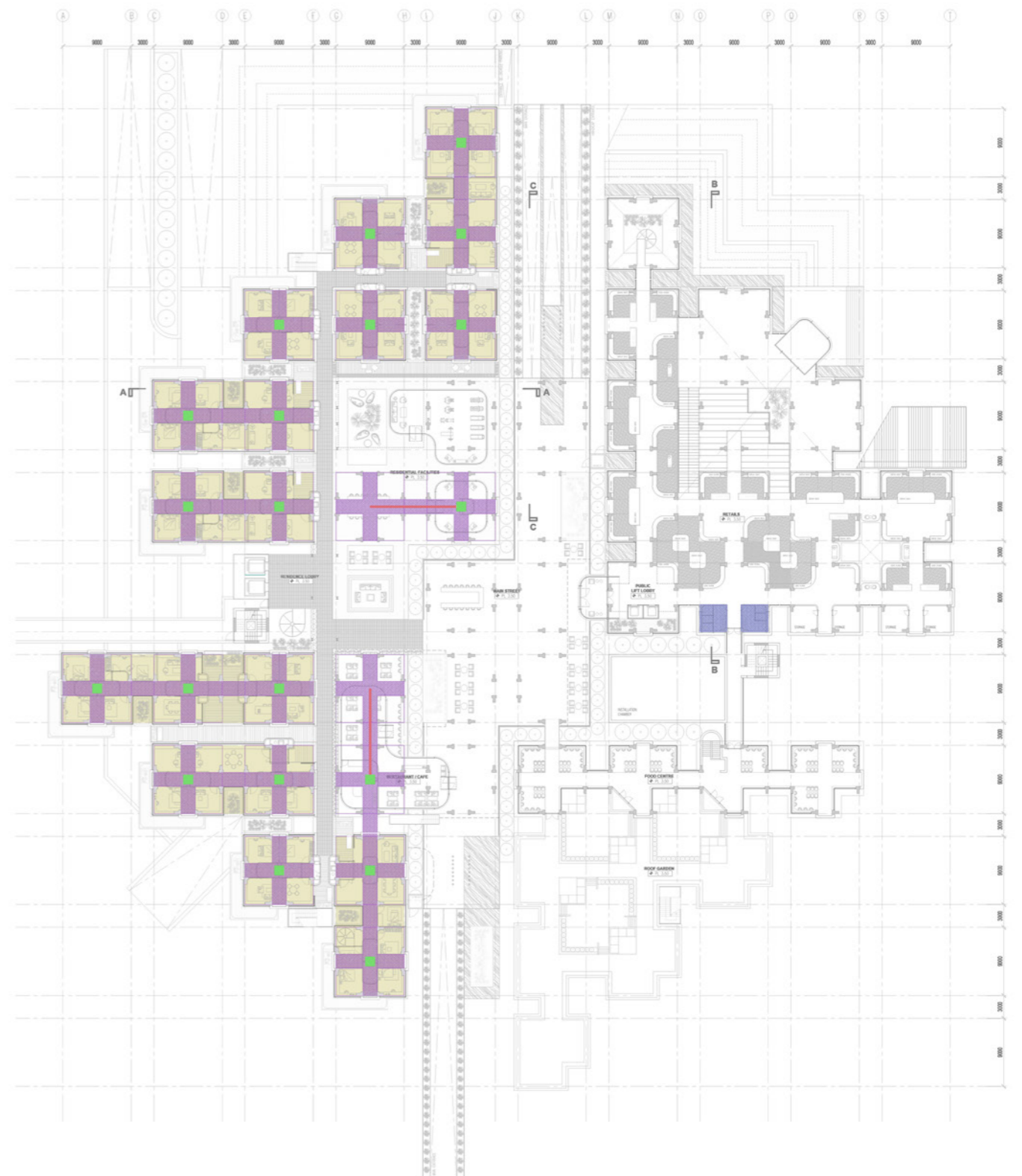
SEWAGE ROUTING

concept





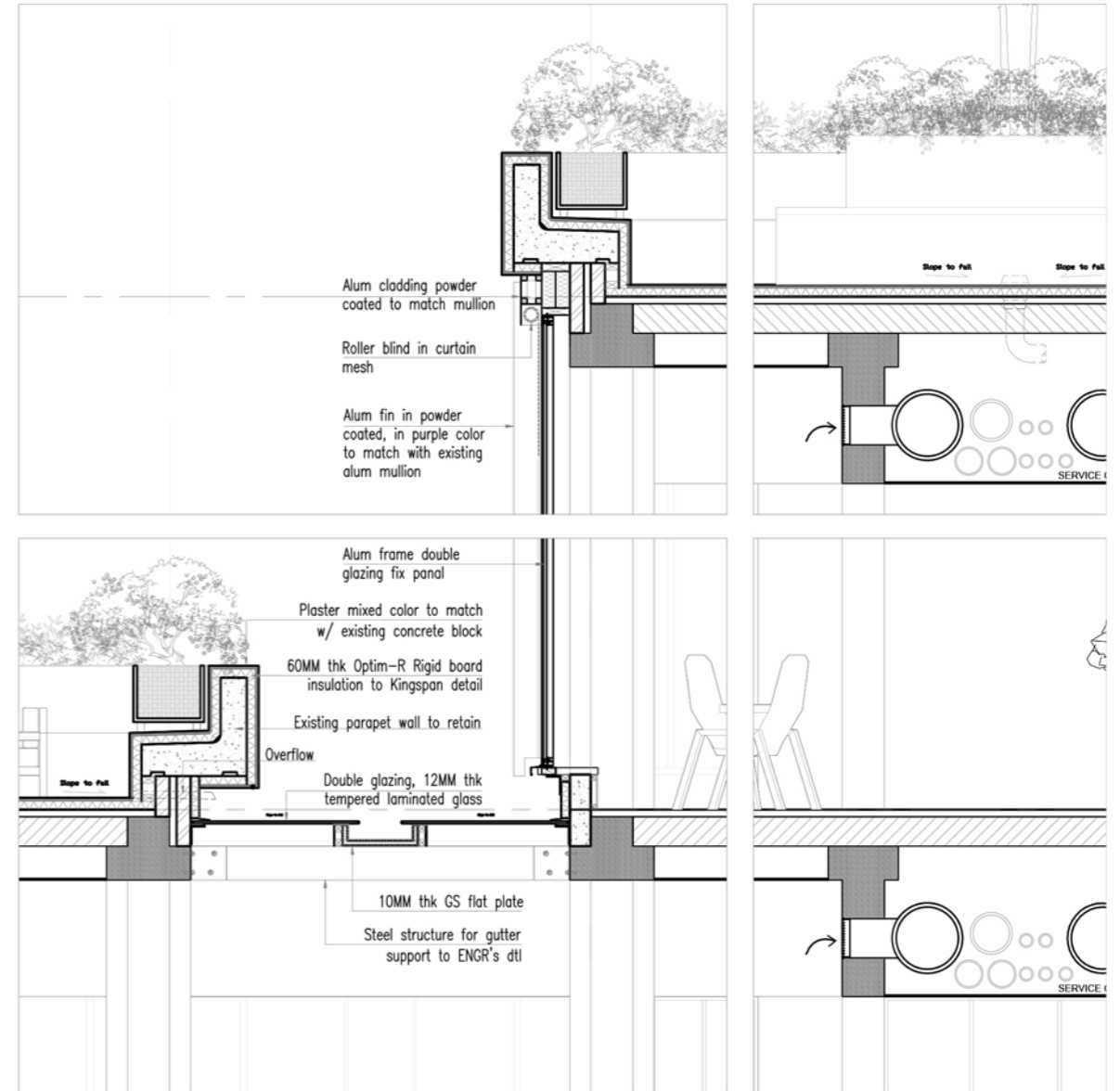
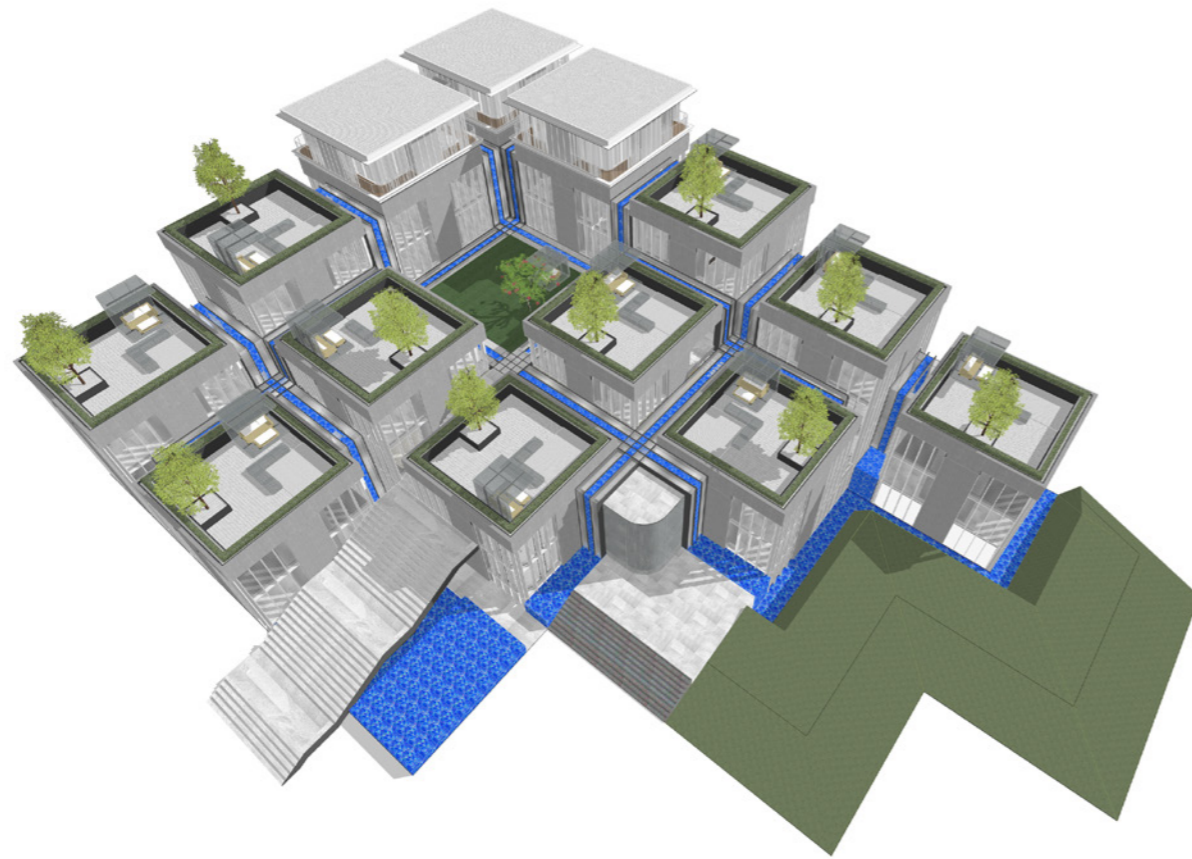
SEWAGE ROUTE- G STOREY PLAN
scale 1:750



SEWAGE ROUTE- 1ST STOREY PLAN
scale 1:750

WATER MANAGEMENT

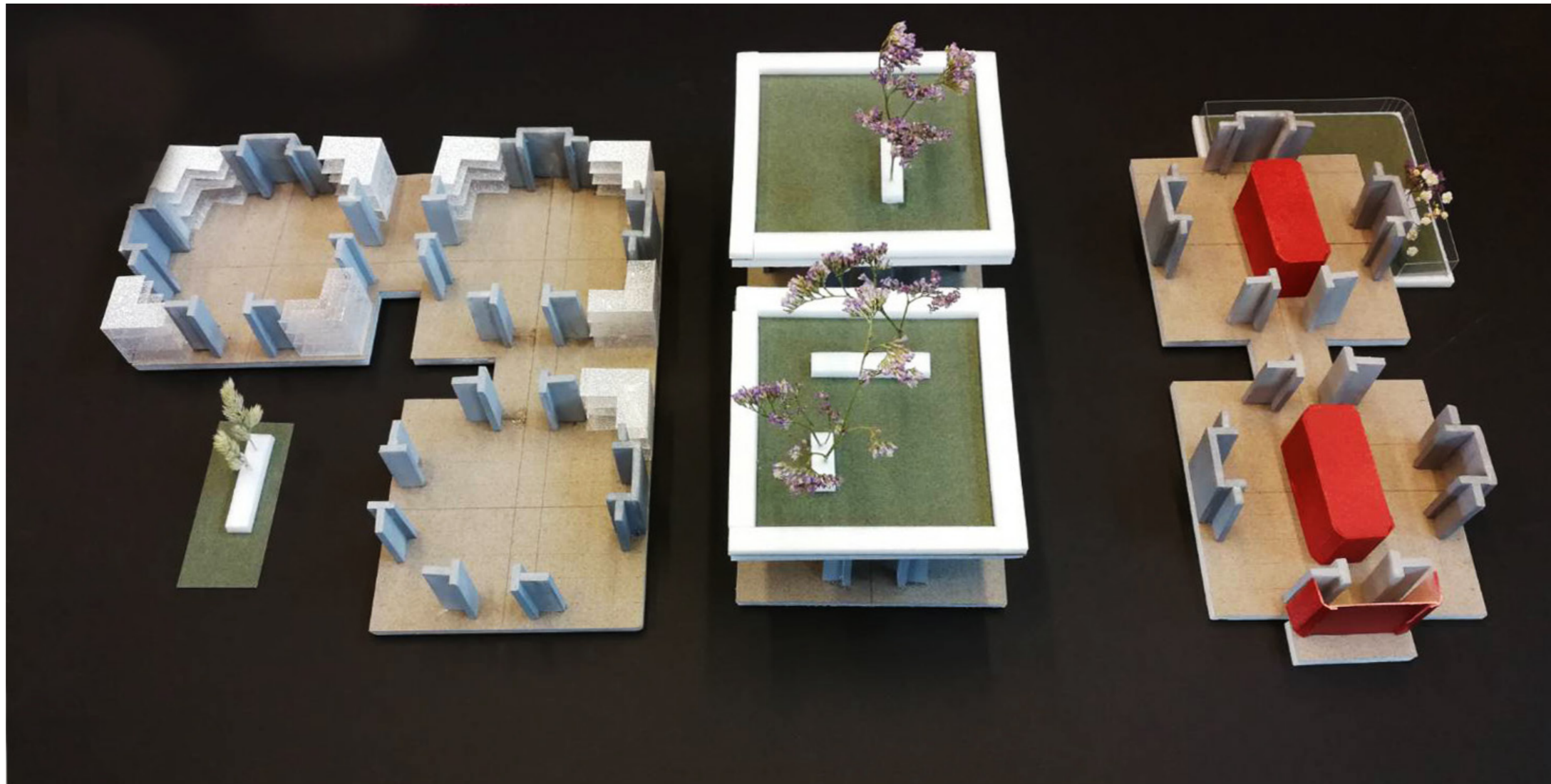
Retail zone



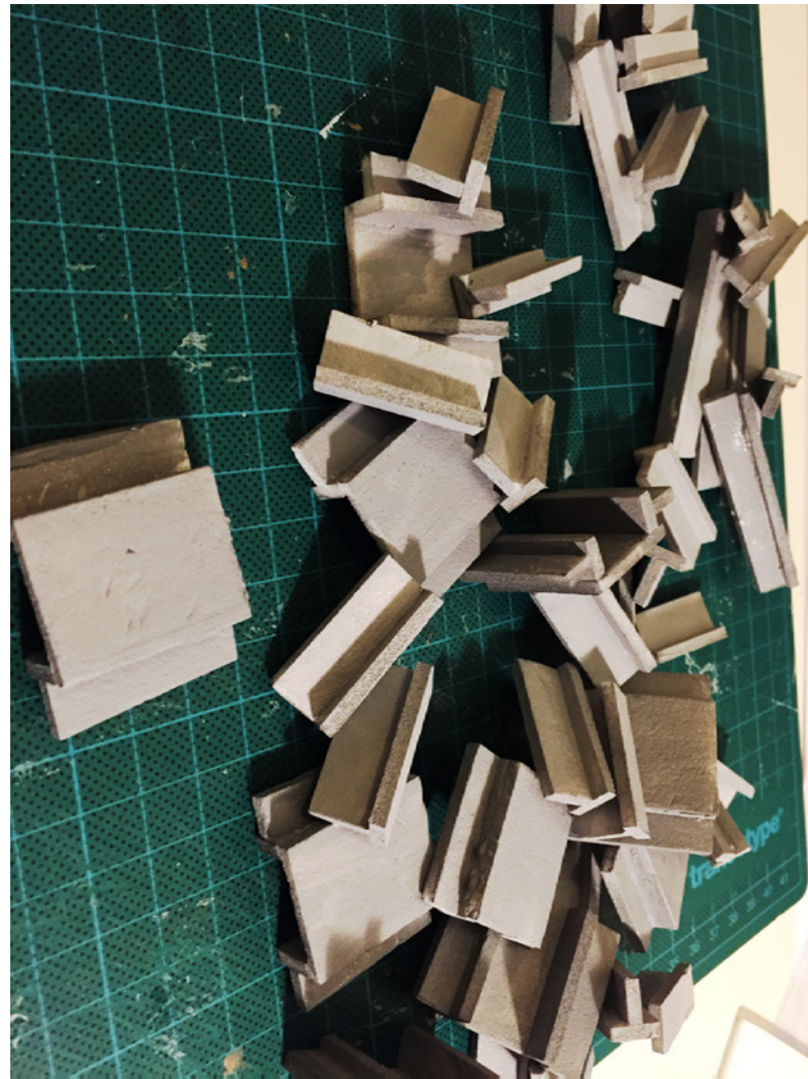
DETAIL SECTION - WATER GUTTER
scale 1:50

HERTZBERGER QUARTIER

Residence & Retail & Recreation



The future of Dutch structuralism



Testing of design interventions

The research of design method and approach in this graduation project is not only limited to the use of structuralism architectures, but also can be a design manual for other similar type of architecture.

THE DESIGN OF MAIN STREET

ART MUSEUM OF SAO PAULO
Sao Paulo, Brazil

Architect: Lina Bo Bardi
Year 1956 - 1968



INTERVENTION TO MODULAR SYSTEM

PETROLEUM RESERVE TERMINAL

Texas, USA
The Houston Fuel Oil Terminal Company



Intervention framework : Transform single function to multi-function complex

Design method

: Main circulation routing
To lead user from the entrance to different function, and provide safe and secure feeling.

Characterize
To transform existing structure to an appropriate design for each function

