Hi-Low

New Semi public space in the High-Rise

by Bumjin Kim

Bachelors of Engineering in Architecture
Hongik University, 2008

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Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements for the Degree of
Master of Architecture at the Massachusetts Institute of Technology
February 2014

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New Semi public space in the High-Rise

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ABSTRACT

There has been a desire for new and unique design/environment such as by returning to the designs of Korean classic style, inviting star architects or holding international competitions. But, the reality of their design does not really express any new voice. Typical floor -plan is multiplied in vertical, served three or four units, connected by weird mirror-surrounded elevators and emergency stairs. Small and narrow corridors cannot really offer any proper space for social interaction.

Let's talk more about the inside of an apartment housing complex. First of all, even though there is trash in front of the apartment building, nobody picks it up until the cleaning woman does something. This is the irony of high-rise apartment housing. No one wants to behave as if they own the place. After parking their cars in the lot, people try to go to their private space as soon as possible, before they meet someone. That's why the elevator hallway or inside of the elevator is the most uncomfortable space in the apartment building. There is no longer any kind of classic alley as in old villages which was a buffer area between public and private space. Without a buffer, combination of public and private space, there are just two extremely different areas, public and private spaces in apartment complexes.

The thesis proposes a high-rise residential building by means of rethinking circulation and infrastructure. This new type of a high-rise residential building enables residents to have a buffer zone between public and private space with a specific elements such as a elevator, a stair, or more than that. This buffer zone in high-rise building helps to activate a semi-public space as a real neighbor.

Thesis Supervisor: Michael Dennis
Title: Professor of Architecture

ACKNOWLEDGMENT

Thanks to all you for your support

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01 Introduction_dwelling pattern

In Korea, the simple and monotonous design of apartment housing has attracted criticism from people for a long time. In order to escape from it, there has been a desire for new and unique design/environment such as by returning to the designs of Korean classic style, inviting star architects (Daniel Libeskind, Ben Van Berkel) or holding international competitions. But the reality of their design does not really express any new voice. For example, returning to Korean classic style only addresses the interior of Korean style. Apartment housing designed by Daniel Libeskind and Ben Van Berkel is just superficial luxury-'a brand.' Some people say that Libeskind's idea is a striking and exceptional design for apartment housing. Although it is a unique design, it is not about fundamental change of apartments but about the exterior of apartment buildings.

How are architects responding and reply to this current situation, given that we are familiar with the desire for a new kind of "apartment." Actually, there are no architects jumping into designing real apartments because there is a limited menu of standard options for apartment in Korea. As designers, architects are just choosing the a pattern of tiles or brand of bathtub for now. The current apartment system in Korea has another kind of problem, too. There are two separate organizations, which are a dwelling planning group and a site (estate) plan group. None of group members are real architects. The dwelling planning group is just focusing on selling points in order to maximize the area of exclusive use space. The site plan group is just trying to make a good-looking overall picture for their brochure. After they figure out what they want, they put all the playgrounds and senior citizen centers in the leftover space. It does seem ridiculous, but that is the reality right now in Korea. Then, are there any roles we can contribute to apartment housing as 'a real architect'?

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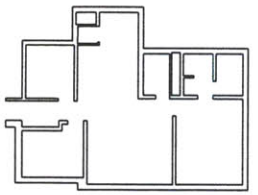
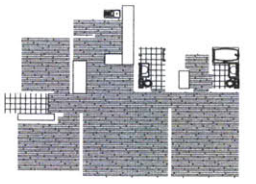
02 Daily Issues_existing situations

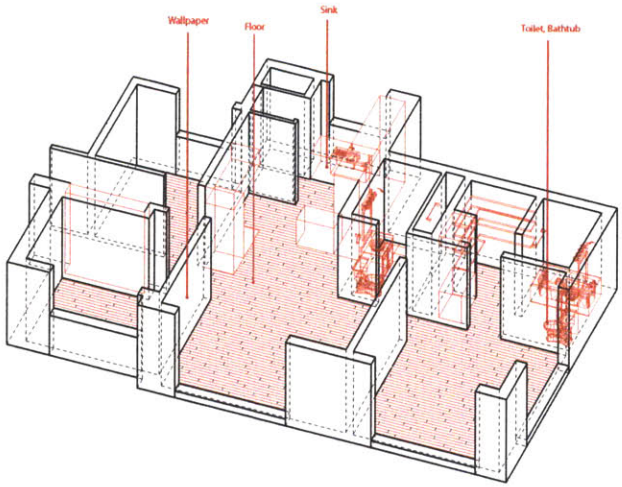
Even though there is trash in front of the apartment building, nobody picks it up until the cleaning woman does something. This is the irony of high-rise apartment housing. No one wants to behave as if they own the place. After parking their cars in the lot, people try to go to their private space as soon as possible, before they meet someone. That's why the elevator hallway or inside of the elevator is the most uncomfortable space in the apartment building.

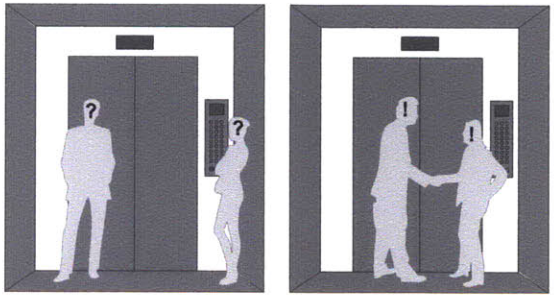


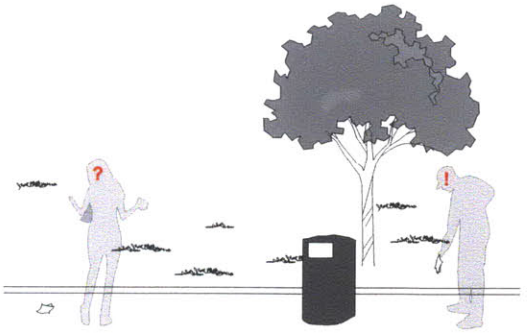
A standard unit type
_walls for spaces



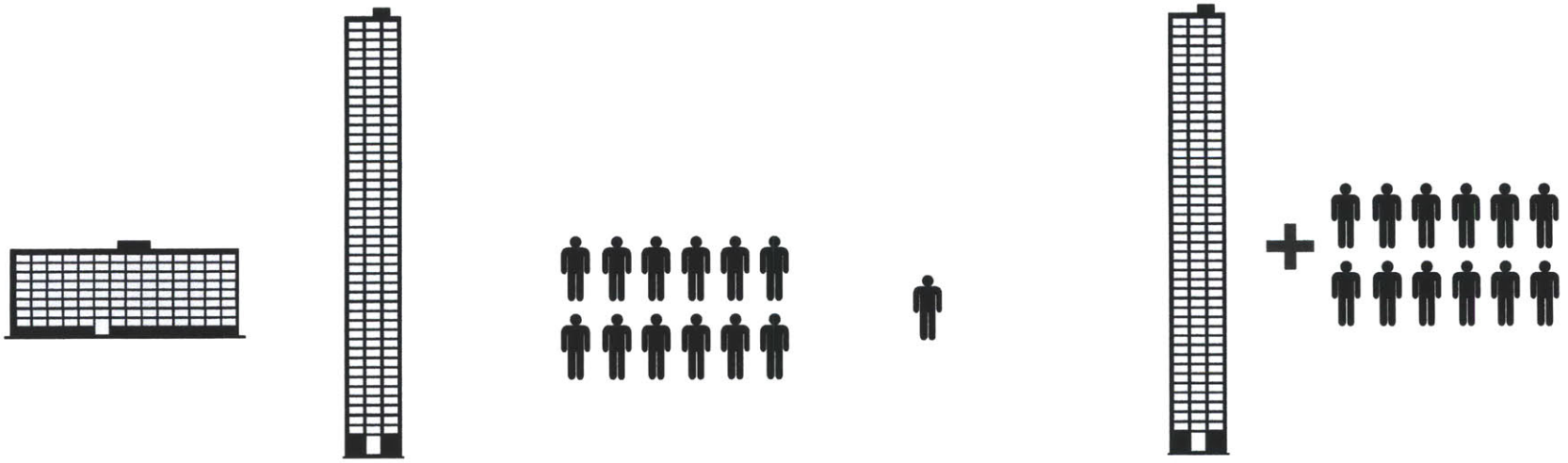
A standard unit type
_ furniture and interior







There is no longer any kind of classic alley as in old villages which was a buffer area between public and private space. Without a buffer, a combination of public and private space, there are just two extremely different areas, public and private spaces in apartment complexes.



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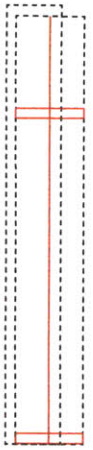
03 Research_reference

Existing conditions

Typical floor -plan is multiplied in vertical, served three or four units, connected by weird mirror-surrounded elevators and emergency stairs. Small and narrow corridors cannot really offer any proper space for social interaction.

An elevator is the only area for semi-public space.
Lobby is public space
A whole floor is for a gathering place such as gym, a community, or a conference room.



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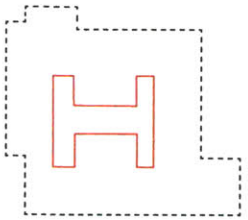
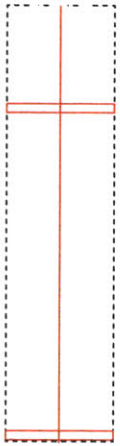


PLAN



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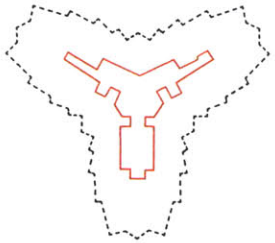

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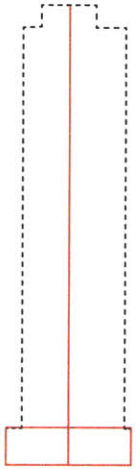

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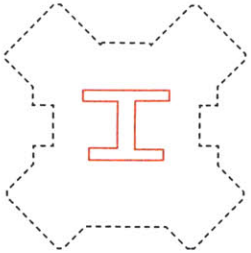
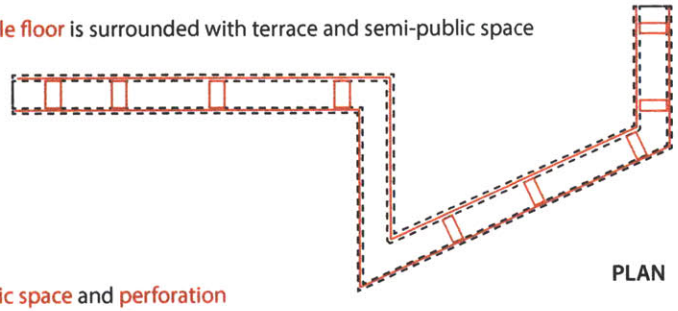


PLAN

Reference

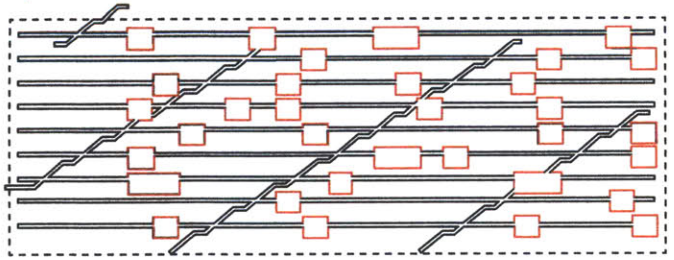
The entrance door is the only element that directly-relates the interior to the out door space. The apartment has at least three entrances and up to five entrances which connect to the exterior. Many entrances help to have more public spaces in a limited spaces. Each entrance would be used in different way, depending on the user's lifestyle.

Whole floor is surrounded with terrace and semi-public space



PLAN

Public space and perforation



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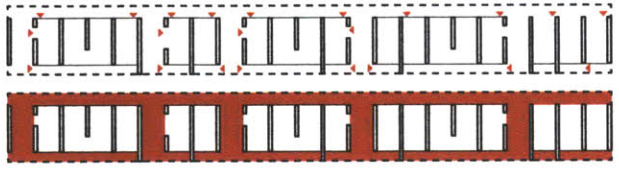
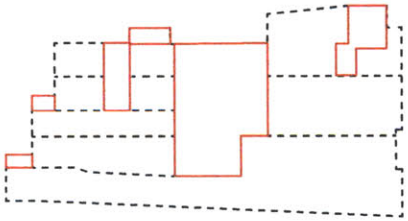


The absolute maximum permissible building volume was created and then 'perforated and slotted' with patios, courtyards and sky gardens for maximum light and air flow. These void spaces, excluded from density calculations, allow for a substantial redefinition and reinvention of an apartment type into the 'sky house/studio'. Each of them, ranging from 800 to 2000 sf in size, features two levels and double story high interior and exterior spaces in seamless continuity. Double story units allow to get more lightings and ventilation with a limited space

Patios, courtyards and sky gardens



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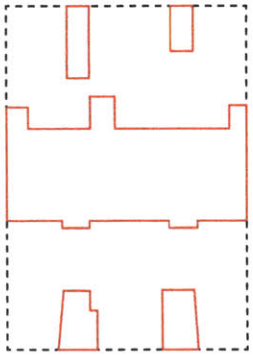

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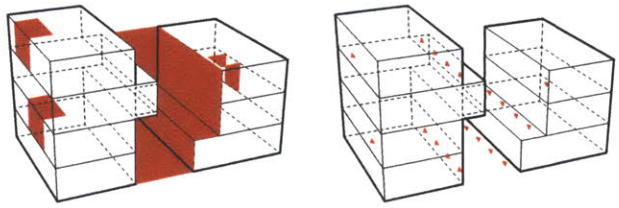

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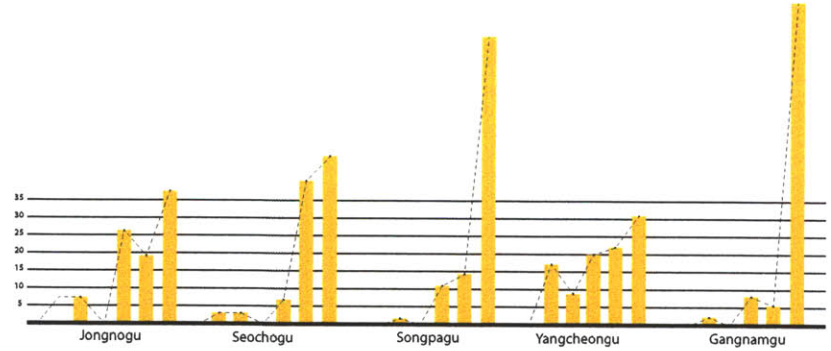
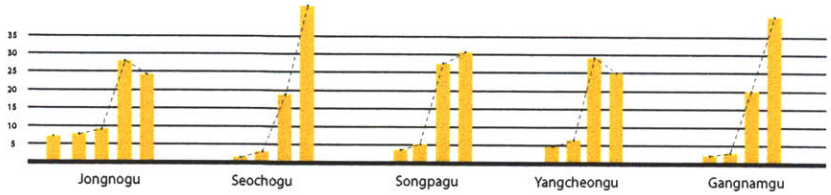
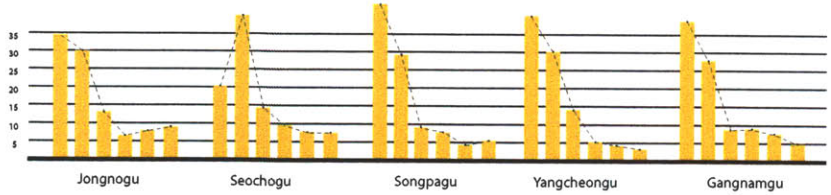
04 Analysis_high-rise

In residential real estate market, the fastest growing market segments are the smaller and single-person households, where space efficiency, speed, and convenience are major considerations. Moreover, From 2012, South Korea's National Statistics office estimates that single-person households are outstripping any other type of households. The changes of population and family organization demand a new type of household. Incorporating single-person households into existing type households with semi-public space elements is going to be challenged. This project would show a possibility that semi-public space, introduced by understanding of a space and social factors on the basis of new paradigm, expands the territory of life and overcomes the negative environment is consistent with new paradigm is demonstrated and the semi-public space's role of stimulation of urban activity is emphasized.







INCOME

	under $1,000	$1,000 - 2,000	$2,000 - 3,000	$3,000 - 4,000	$4,000 - 5,000	over $5,000 (%)
Jongnogu	7.7	7.7		26.9	19.2	38.5
Seochogu	3.6	3.6		7.1	39.3	46.4
Songpagu		2.9		11.8	14.7	70.6
Yangcheongu		17.1	8.6	20.0	22.9	31.4
Gangnamgu		2.9		8.8	5.9	82.4

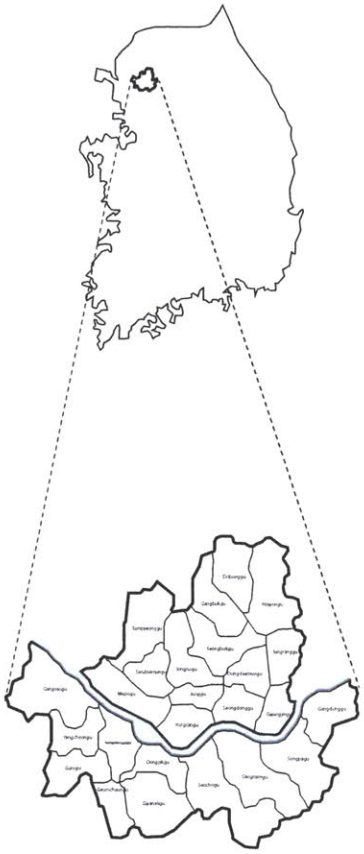
EDUCATION

	elementary	middle	highschool	colleage (%)
Jongnogu	8.2	9.7	28.3	24.8
Seochogu	2.9	3.3	19.4	43.0
Songpagu	4.3	5.5	27.4	31.0
Yangcheongu	5.6	7.5	29.2	25.3
Gangnamgu	3.0	3.3	20.6	41.6

SIZE OF HOUSE

	under 62 m_2	62m_2 - 95	95m_2 - 128	128 m_2- 162	162 m_2- 228	over 228 m_2 (%)
Jongnogu	34.1	30.2	13.1	6.7	7.8	8.2
Seochogu	21.5	40.2	14.1	9.7	7.3	7.2
Songpagu	43.7	29.2	9.3	7.2	4	6.7
Yangcheongu	41.3	30.9	14.9	5.5	4.3	3.1
Gangnamgu	38.2	31.5	8.5	9	7	5.8

Seoul is divided into 25 gu (district). The district vary greatly in area (from 10 to 47 km2) and population (from 140,000 to 630,000). And the residential characteristics also seem to be different according to the regions, districts based on the central place hierarchical structure. It means that the social and class factors are important in choosing house for people, but the characteristics of the neighborhood area play an important role in the selection of resident area. The specific type of housing reveals the tendency to be differentiated in terms of income, education and occupation related with housing and residential area. Moreover, those social issues are related to different districts in Seoul. Finally, the location of certain type of housing can influence the selecting process of residence and it can also determine the characteristics of the resident area .

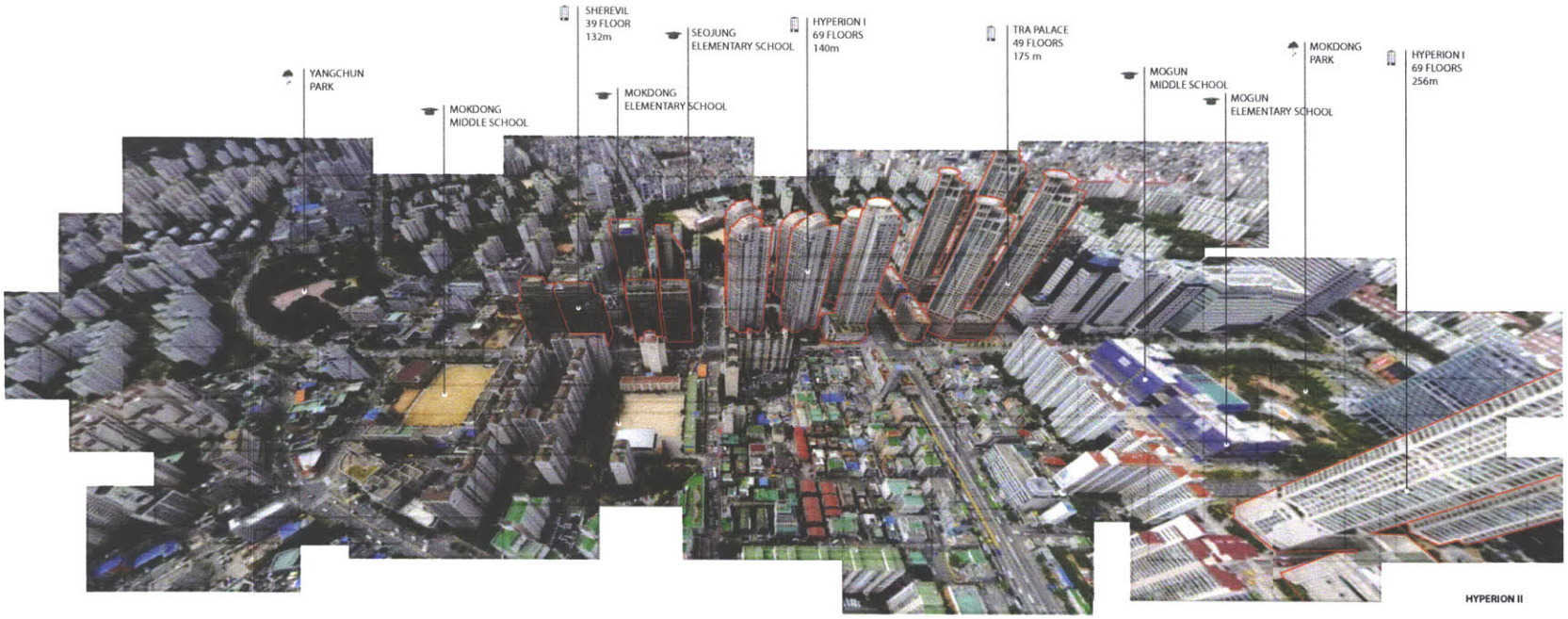


SEOUL

Area: 605.25 km2
Radius : approximately 15 km
People : 10.60 million (2011)
Density : 17,000/km2
Districts : 25 *gu* (district)

04 Analysis_site

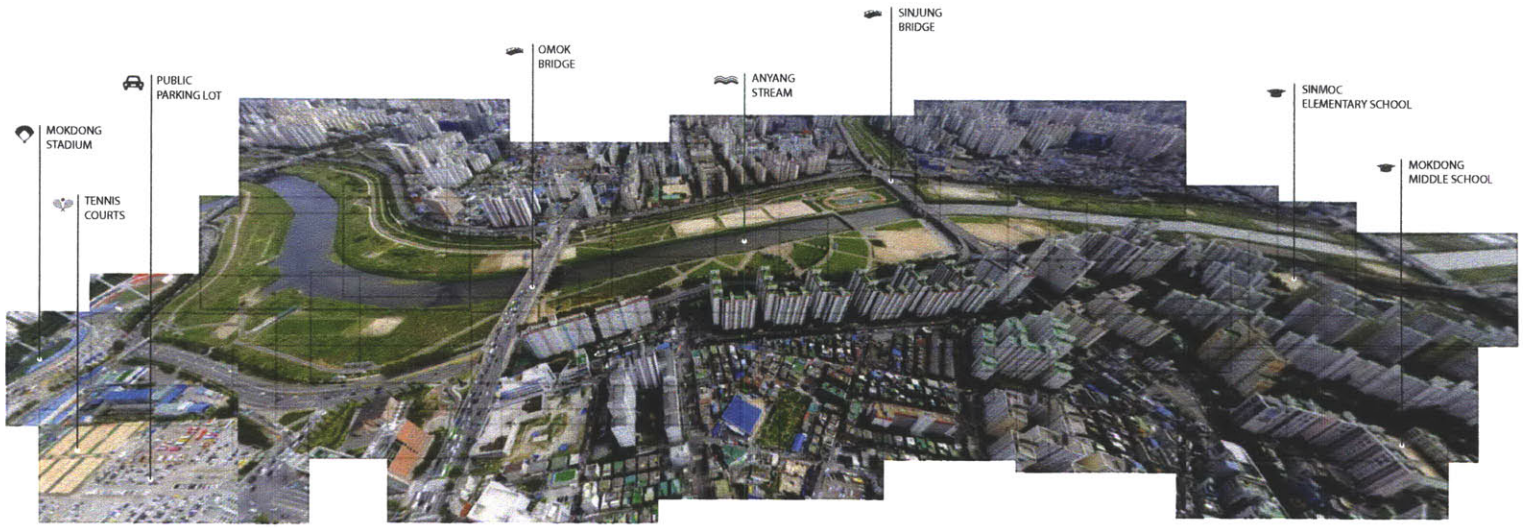
Site_Neighborhood



HYPERION II

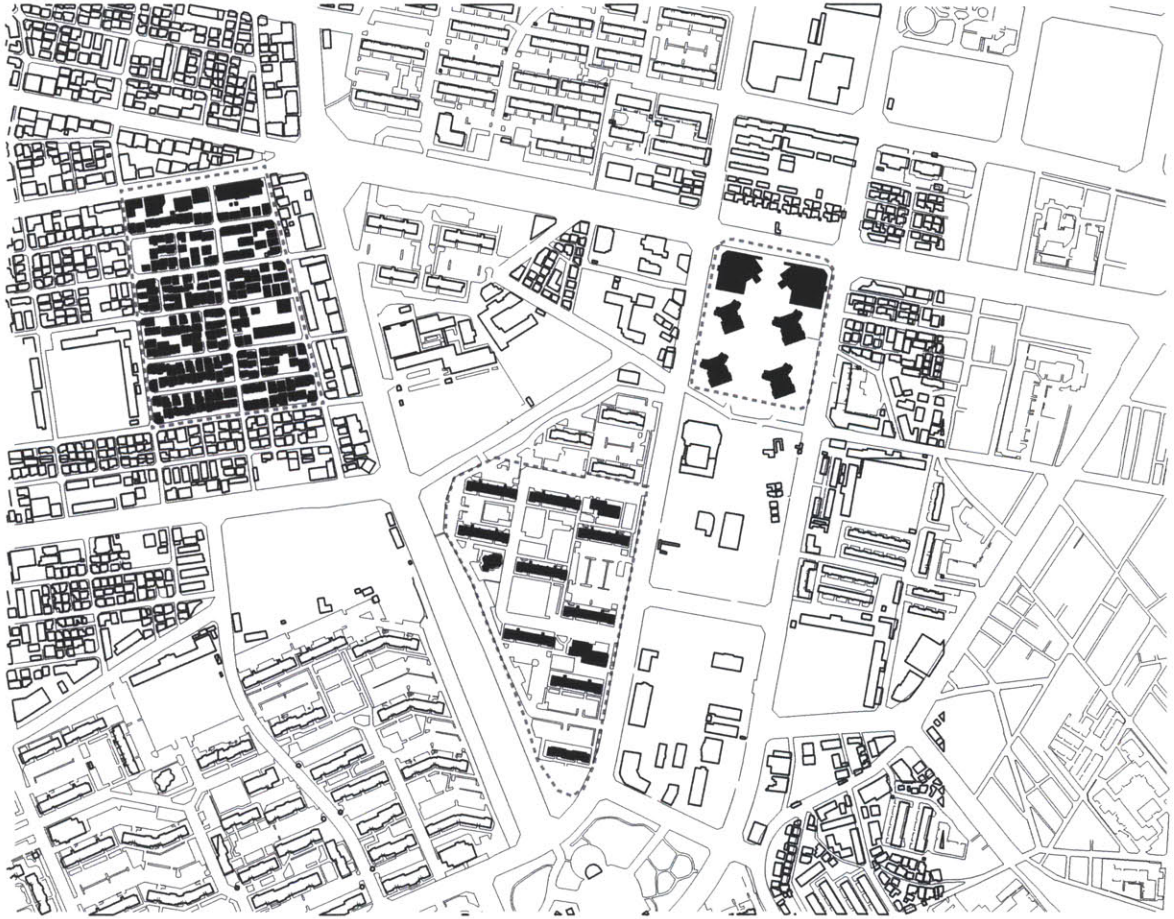
YEAR : 2006
BUILDINGS : 6
UNITS : 979(576/403)
FLOORS : 40(3), 36, 32, 31
PARKING LOT : 1896
TYPE : SQUARE TYPE
LOCATION : MOK1 DONG, YANGCHUNGU, SEOUL

Site_District

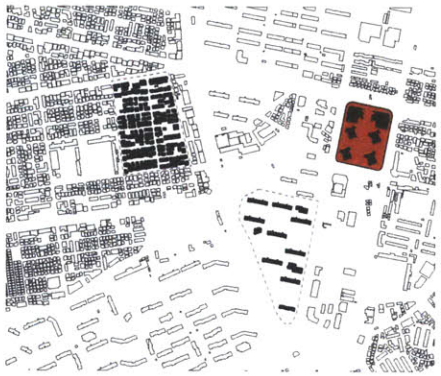


04 Analysis_site comparison

After I looked into Private, Semi and Public space by different type of housing in Seoul; High rise towers, Flat type apartment and low-rise type. According to this study, there is a interesting point which is showing a lacking of semi public space in Tower type housing. Other two types of housing have more semi public space than other spaces. But, there is almost zero semi public space in tower type of housing.

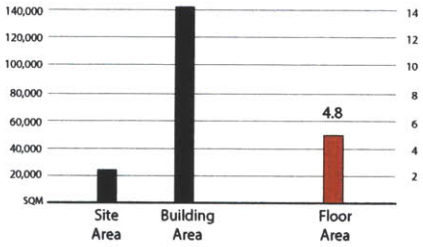


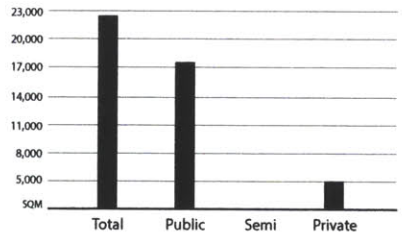
High Rise Towers (30+ floors)



Units : 979
Residents : Approximately 3900
Site area : 22,900 m2
Bldg area : 141,800 m2

Average floors : 37



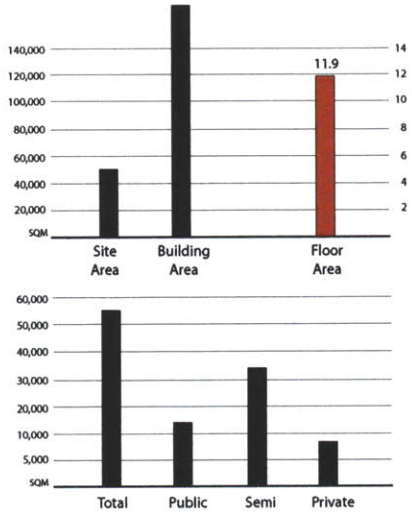


04 Analysis_site comparison

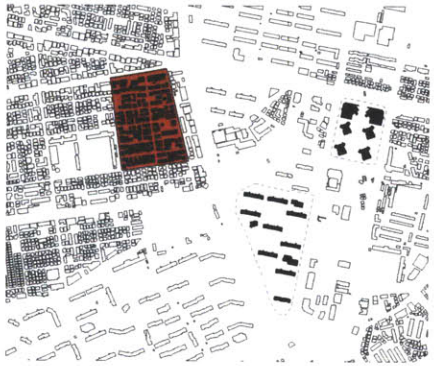
Mid Rise Towers (15-20 floors)

Units : 998
Residents : Approximately 4000
Site area = 56,000 m2
Bldg area = 162,500 m2

Average floors : 20

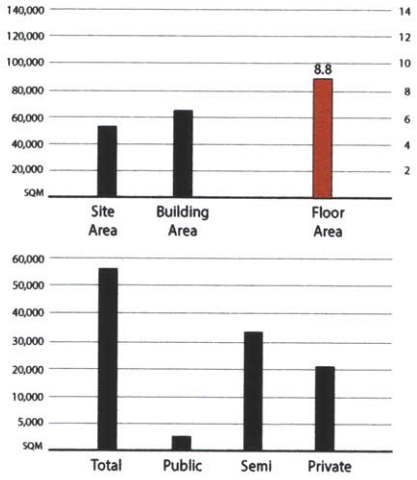


Low Rise Towers (3-5 floors)



Units : 992
Residents : Approximately 4200
Site area = 57,000 m2
Bldg area = 62,500 m2

Average floors : 3



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Core Study / Different Strategies

EXISTING CONDITIONS

Typical floor-plan is multiplied in vertical, served three or four units, connected by weird mirror-surrounded elevators and emergency stairs. **Small and narrow corridors** cannot really offer any proper space for **social activities**.

REFERENCE

The entrance door is the only element that directly-relates the interior to the out door space. The apartment has at least three entrances and up to five entrances which connect to the exterior. **Many entrances** help to have more public spaces in a limited spaces. Each entrance would be used in different way, depending on the user's lifestyle.

The absolute maximum permissible building volume was created and then '**perforated and slotted**' with patios, courtyards and sky gardens for **maximum light and air flow**. These **void spaces**, excluded from density calculations, allow for a substantial redefinition and reinvention of an apartment type into the 'sky house/ studio'.

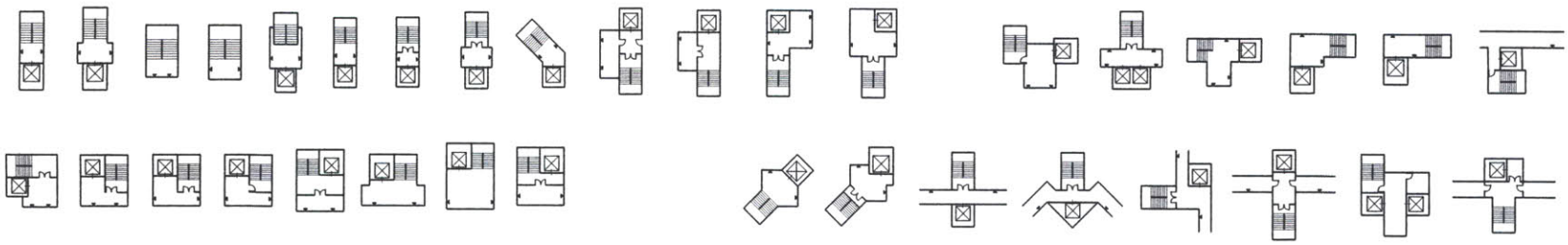
Each of them, ranging from 800 to 2000 sf in size, features **two levels and double story high interior and exterior spaces** in seamless continuity. Double story units allow to get more lightings and ventilation with a limited space.

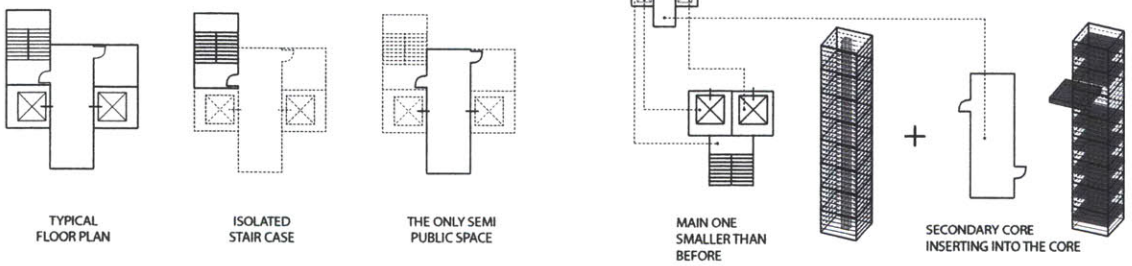
From studying reference and existing conditions, specific elements such as a corridor, an entrance, void space and double stories spaces are going to be key design elements for further development.

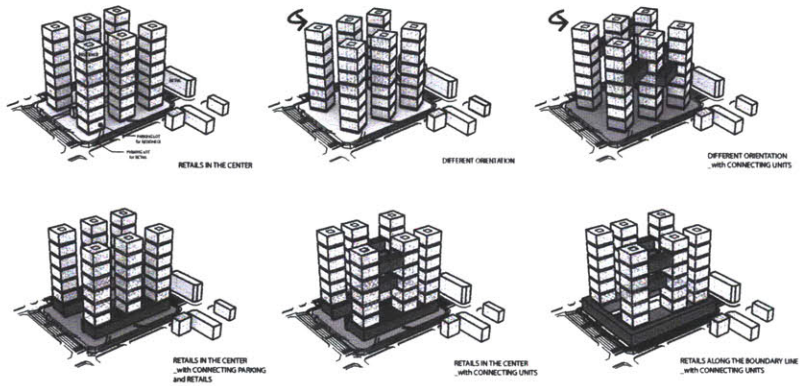
Core study and different strategies

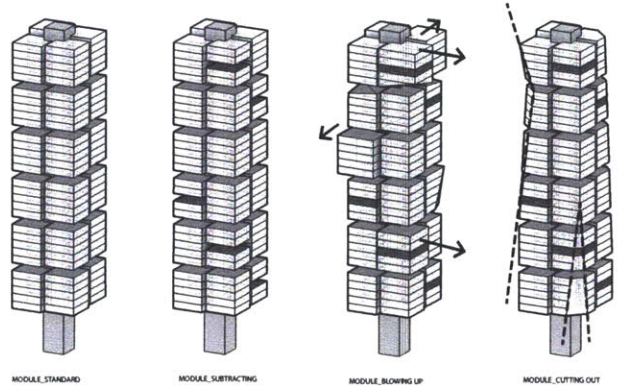
In order to have many entrances for residents, break down and stack it on the top the low-rise buildings instead of having one high-rise.

It allows to have sky lobby in each low-rise building with double story space.




TYPICAL
FLOOR PLAN
ISOLATED
STAIR CASE
THE ONLY SEMI
PUBLIC SPACE
MAIN ONE
SMALLER THAN
BEFORE
SECONDARY CORE
INSERTING INTO THE CORE


RETAILS IN THE CENTER
DIFFERENT ORIENTATION
DIFFERENT ORIENTATION
..with CONNECTING UNITS
RETAILS IN THE CENTER
..with CONNECTING PARKING
and RETAILS
RETAILS IN THE CENTER
..with CONNECTING UNITS
RETAILS ALONG THE BOUNDARY LINE
..with CONNECTING UNITS


MODULE_STANDARD
MODULE_SUBTRACTING
MODULE_BLOWING UP
MODULE_CUTTING OUT

01 Introduction

02 Daily Issues

03 Research

04 Analysis

05 Design Strategy

06 Design Proposal

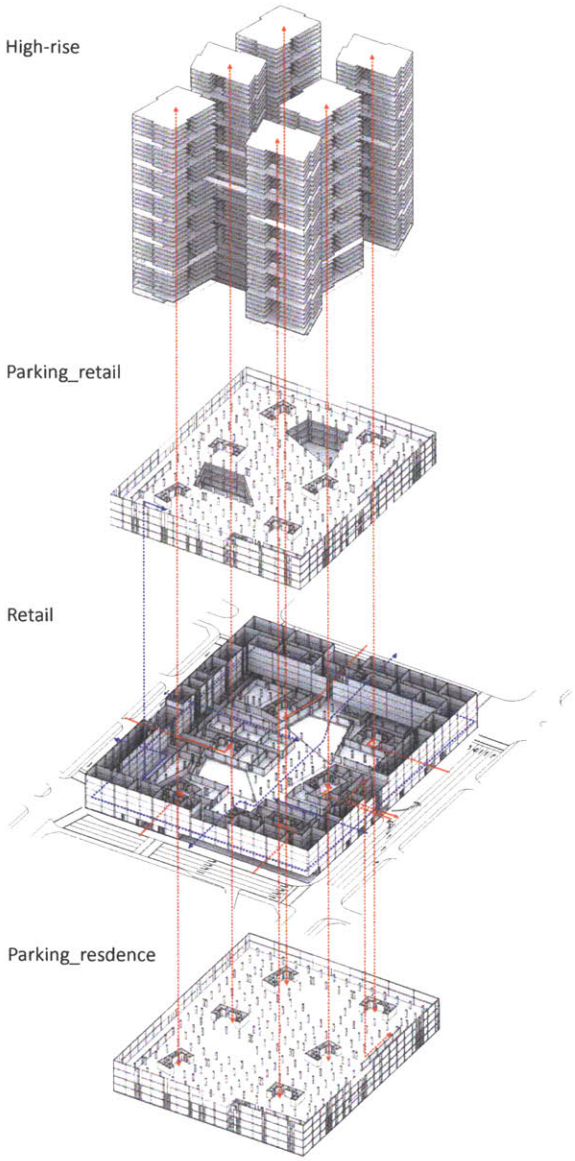
07 Model Archives

08 Bibliography

06 Design Proposal_diagrams

Exploded Axonometric_Programs

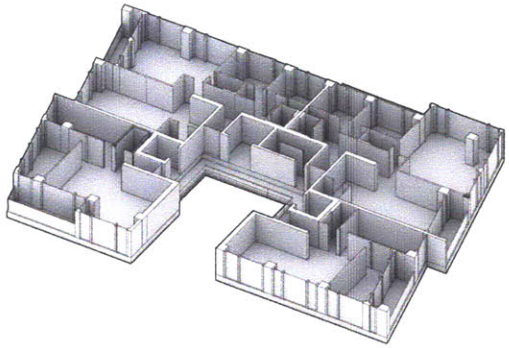
The building consists of six towers that are interconnected by bridges on different levels and have five stories clusters. Under these six buildings, there are parking space for shops and restaurants, and another parking space for residents vertically. Two different circulations coexist separately.



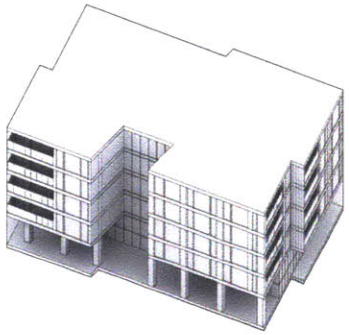
Exploded Axonometric_Units

Each cluster which has four stories unit floors and one or two stories lobby is working by a kind of atrium and a lobby space with all kinds of circulations. This atrium is extended through the whole building and allows to make semi-public space with all kinds of circulations. Under this environment, every floor can have enough sunlight in semi-public area that everybody has to meet and build the social interactions between the residents. This semi-public space which is the atrium become the center of a neighborhood with interconnected lobby and bridges. Public spaces are spread over the whole building up to the roof floors. Functions are arranged in each lobby.

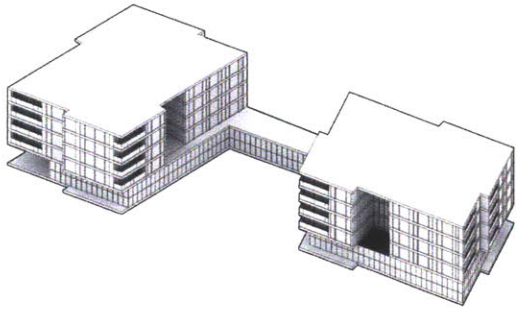
Units



Low-rise

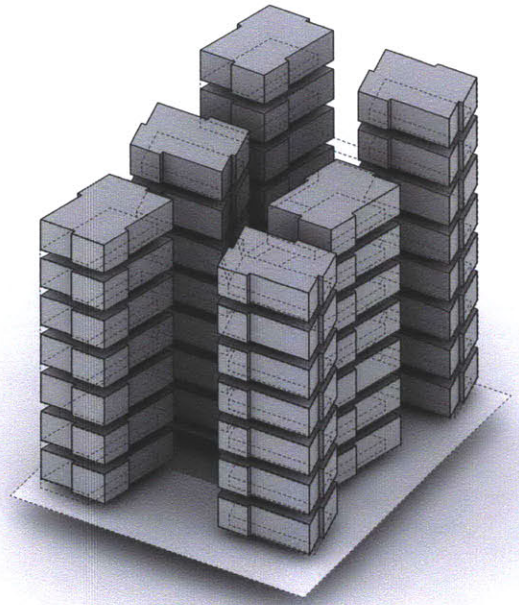


Low-rise
to
Low-rise

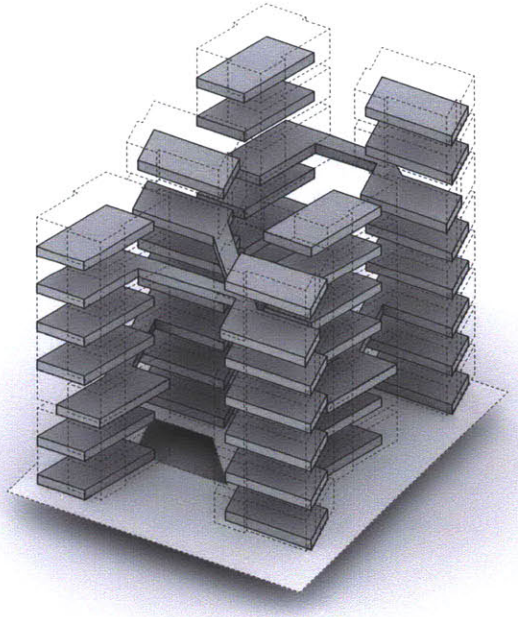


06 Design Proposal_diagrams

Axonometric_Massing

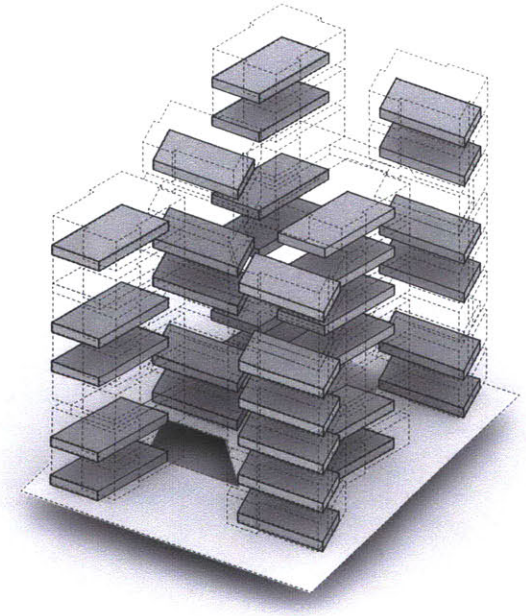


The Units_Units with four stories low-rise

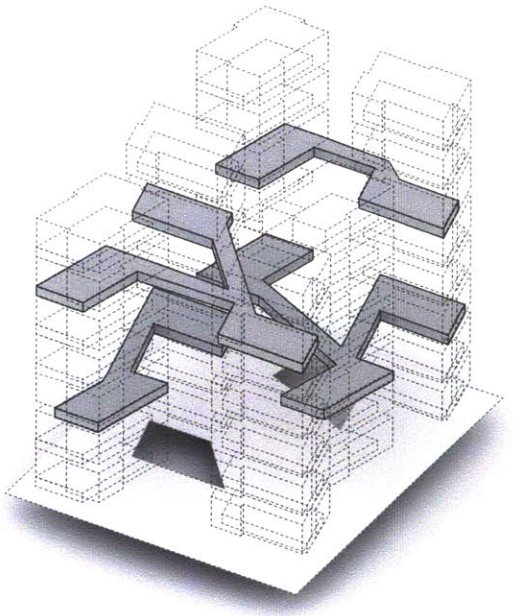


The Semi public space_The lobby and the Bridges

Axonometric_Massing



The Lobby_Semi public spaces for each low-rise

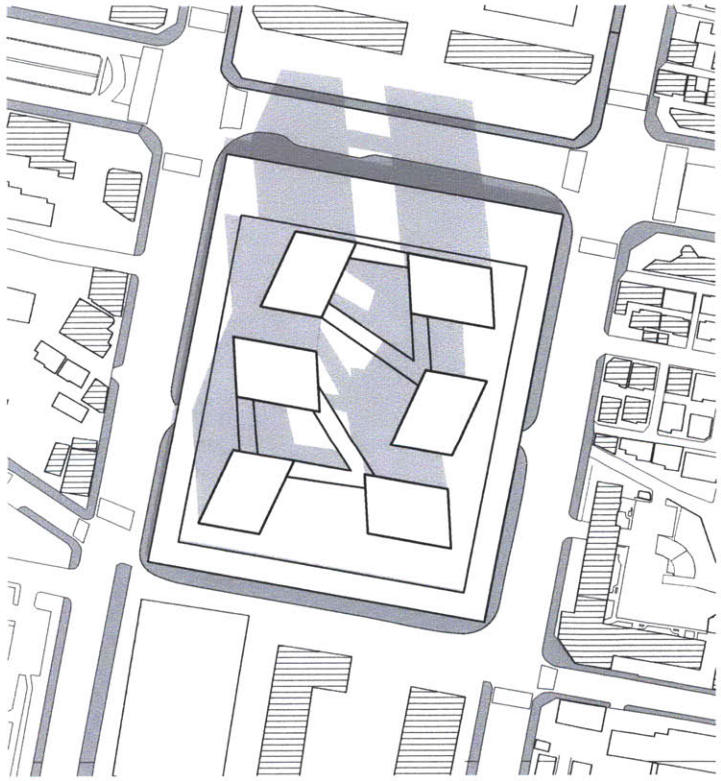


The Bridges_Public spaces with specific programs

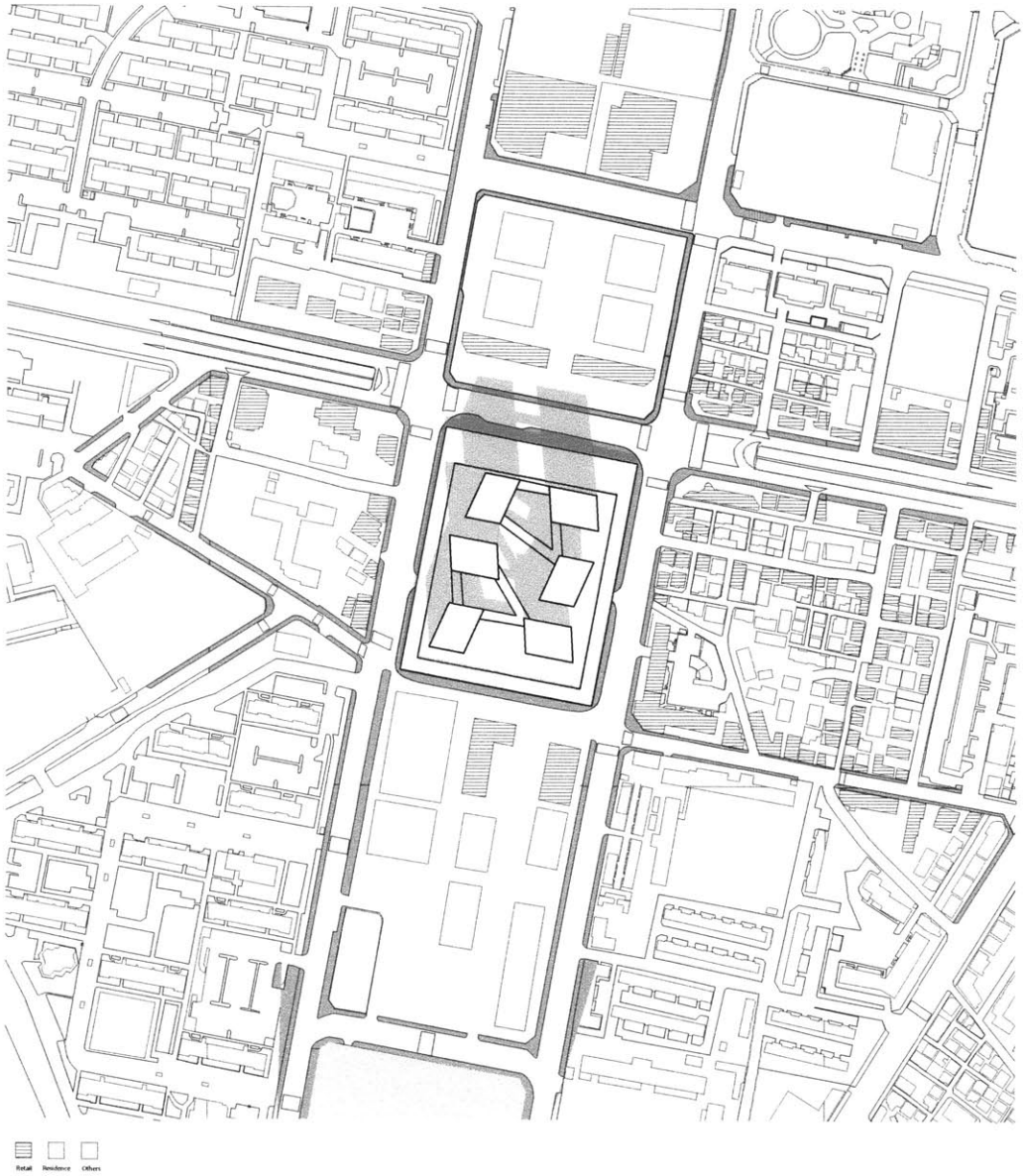
06 Design Proposal_drawings

Plans_Site plan

The building consists of six towers that are inter-connected by bridges on different levels and have five stories clusters. Under these six buildings, there are parking space for shops and restaurants, and another parking space for residents vertically. Two different circulations coexist separately.

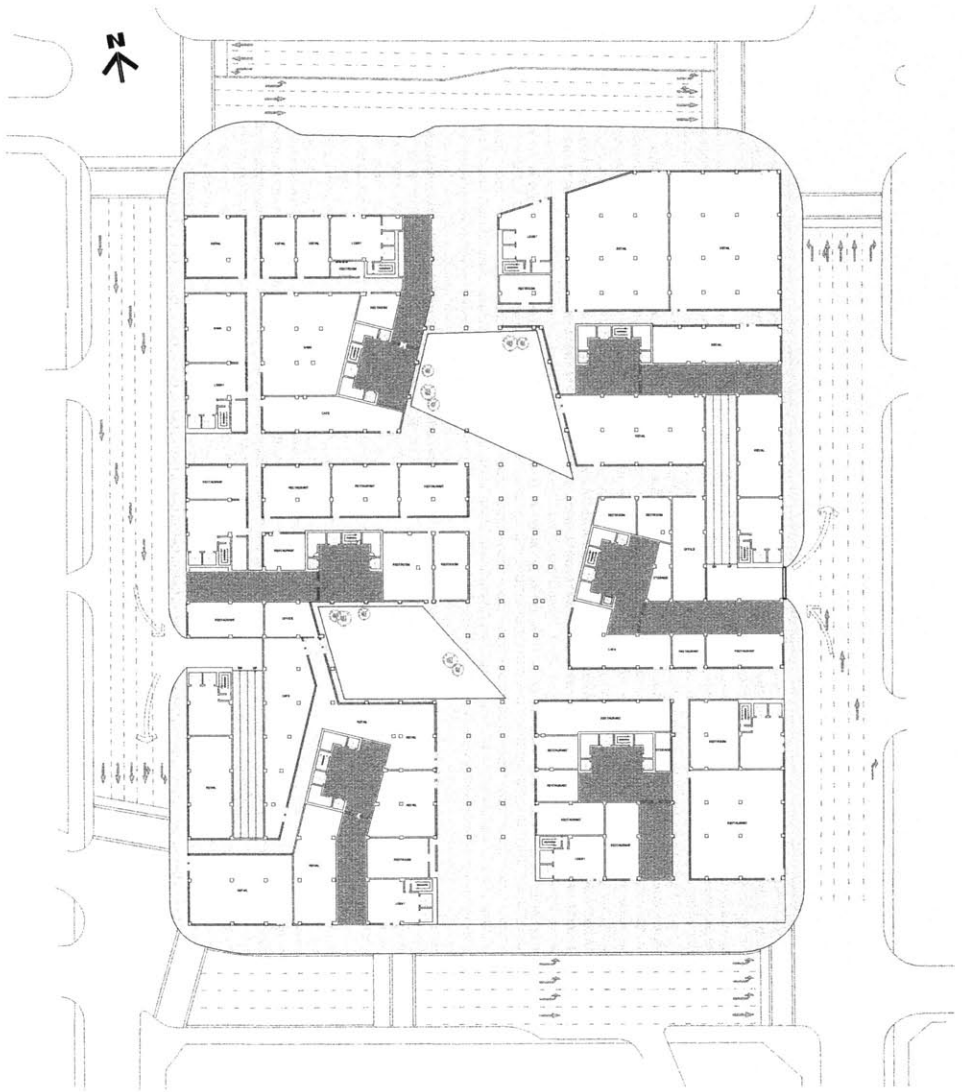


Plans_Overall site plan



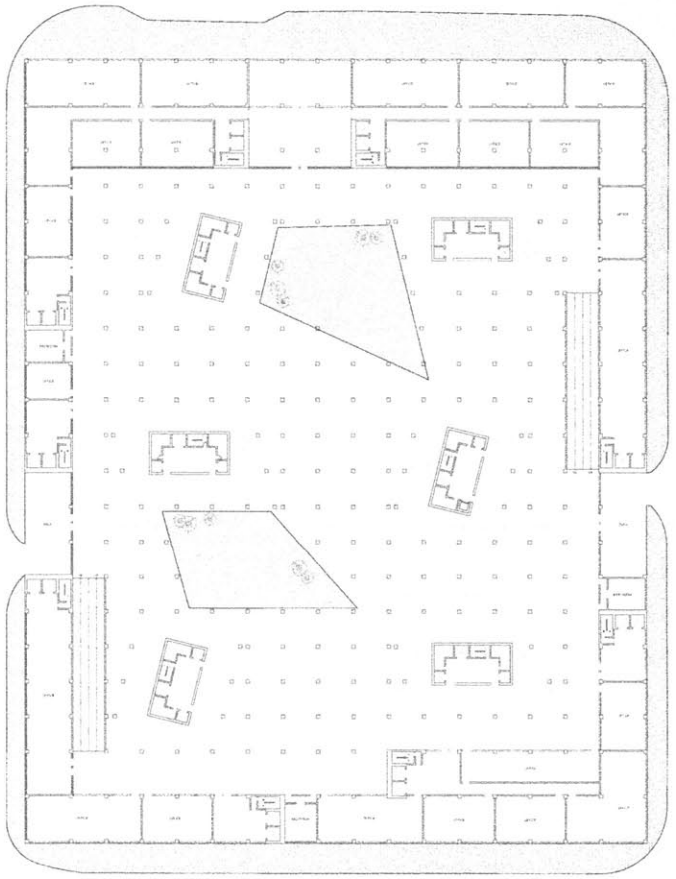
Plans_Gound floor plan

Ground floor retail uses with residential above along urban fabric. Whole ground floor is divided by four blocks and located different type of retails. Four blocks of retails enable to attract people to inside physically and mentally.



Plans_Second floor plan

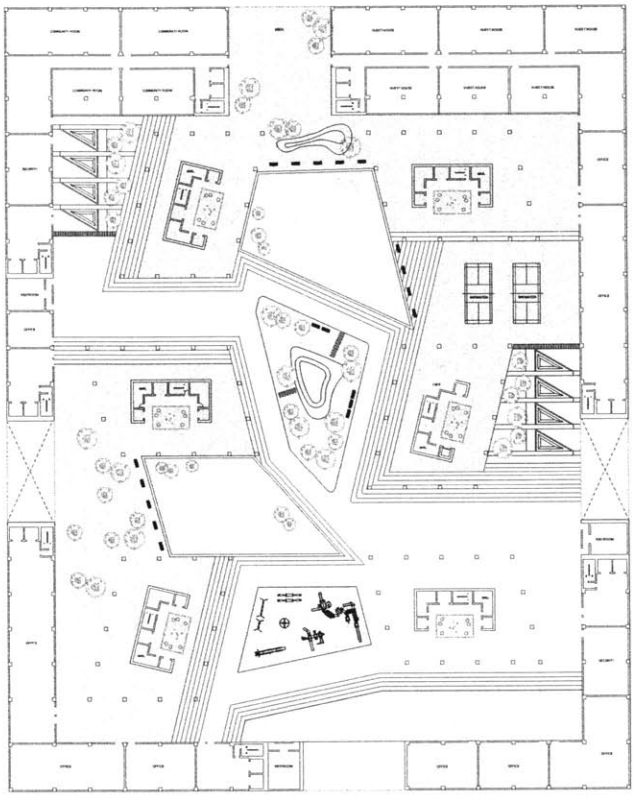
From second to fourth floor are for non-residents parking spaces. Although these are parking floors, they have enough sun-light with two big courtyards inside. Offices are located the perimeter of the building.



Plans_Fifth floor plan

Fifth floor which is a roof garden for residents have all kinds of amenities; community rooms, playground for children, exercise courts etc.

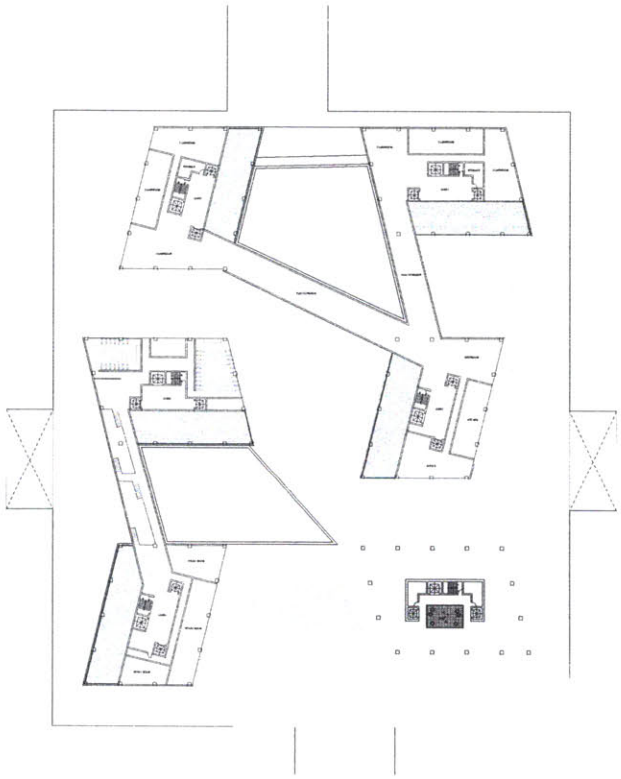
Fifth floor is going to be new first floor for residents.



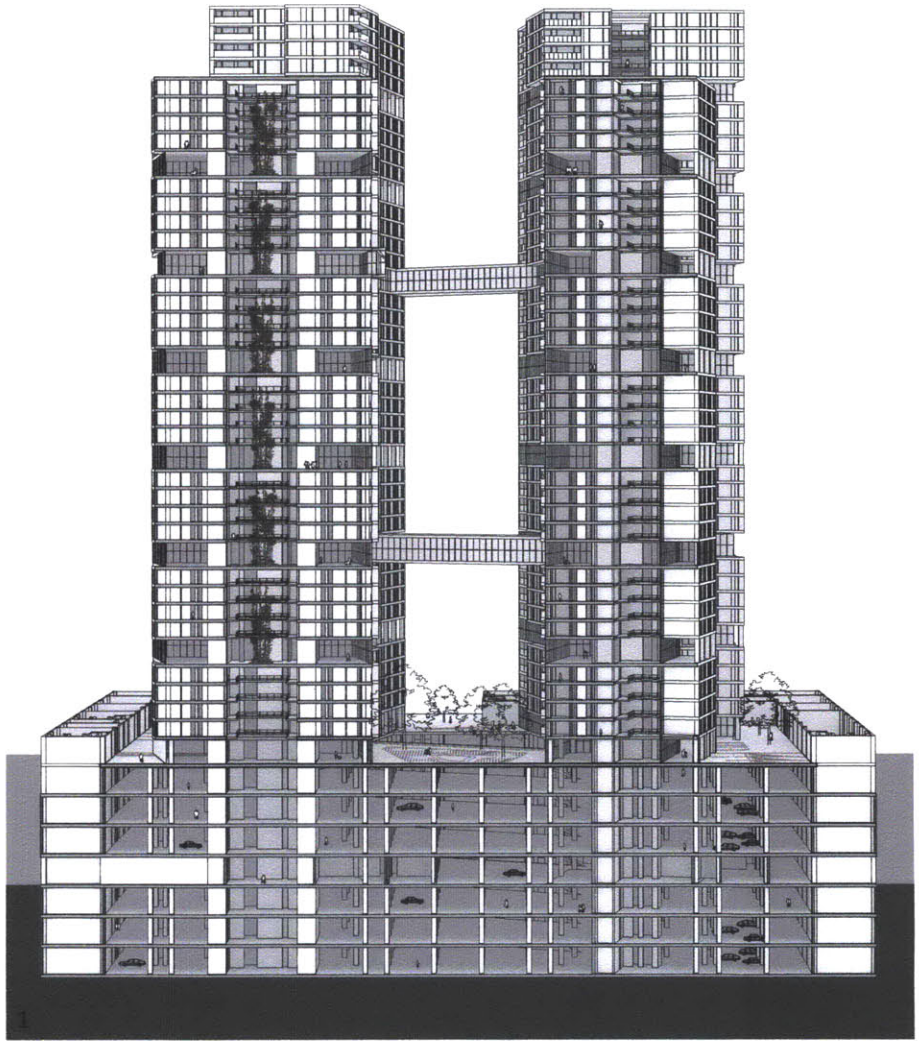
Plans_Twenty fifth floor plan

Twenty fifth floor which has the bridges is one of linkage floors in this complex.

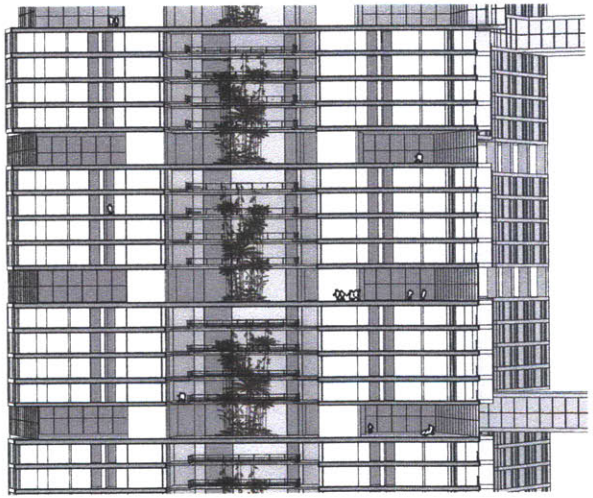
There are library and daycare center for residents in this floor.



Sections_Section perspective



1. Overall section perspective
2. Units with atrium
3. Parking floors under a roof garden



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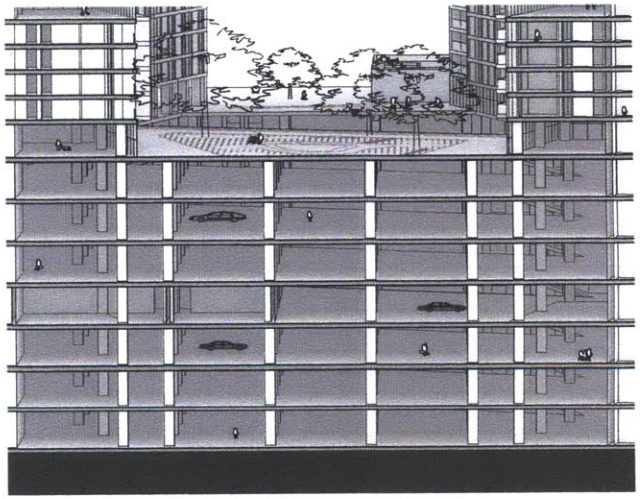


3

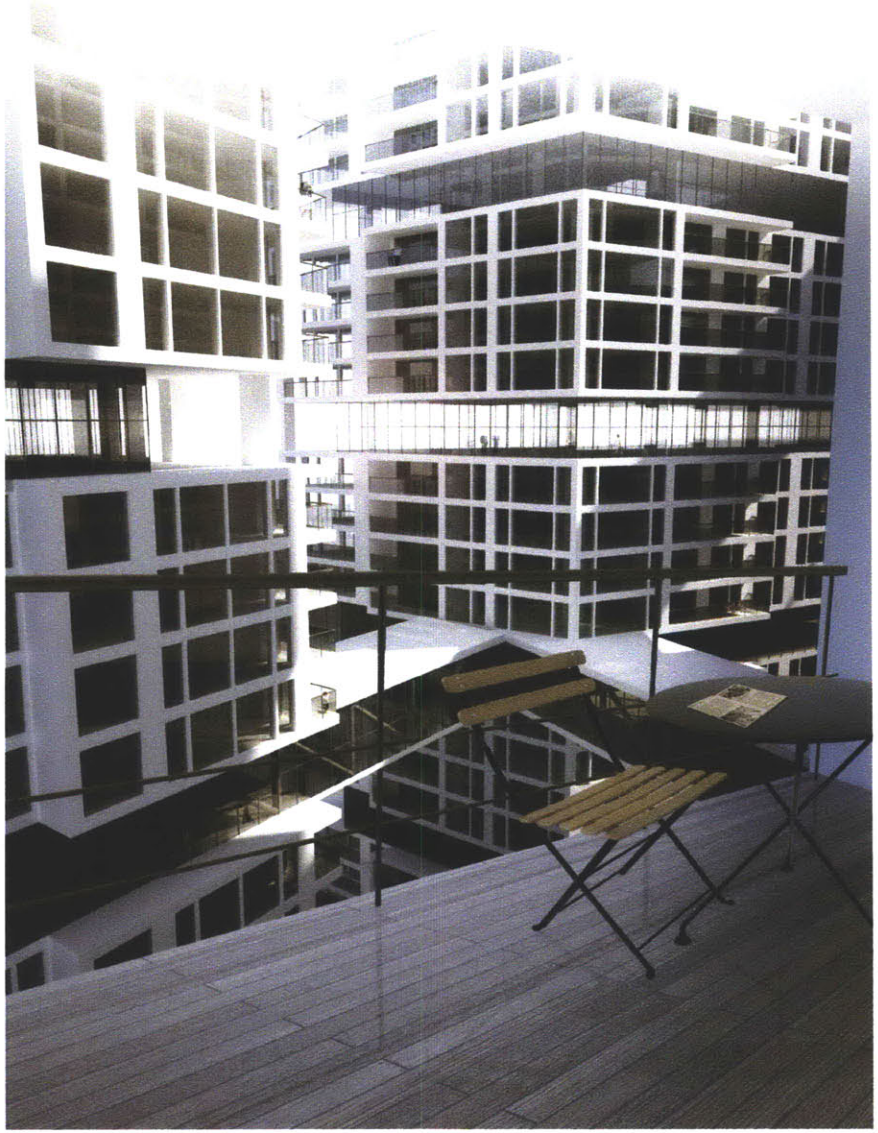
Perspective view_Looking down from second floor
Parking space with courtyard

3
2

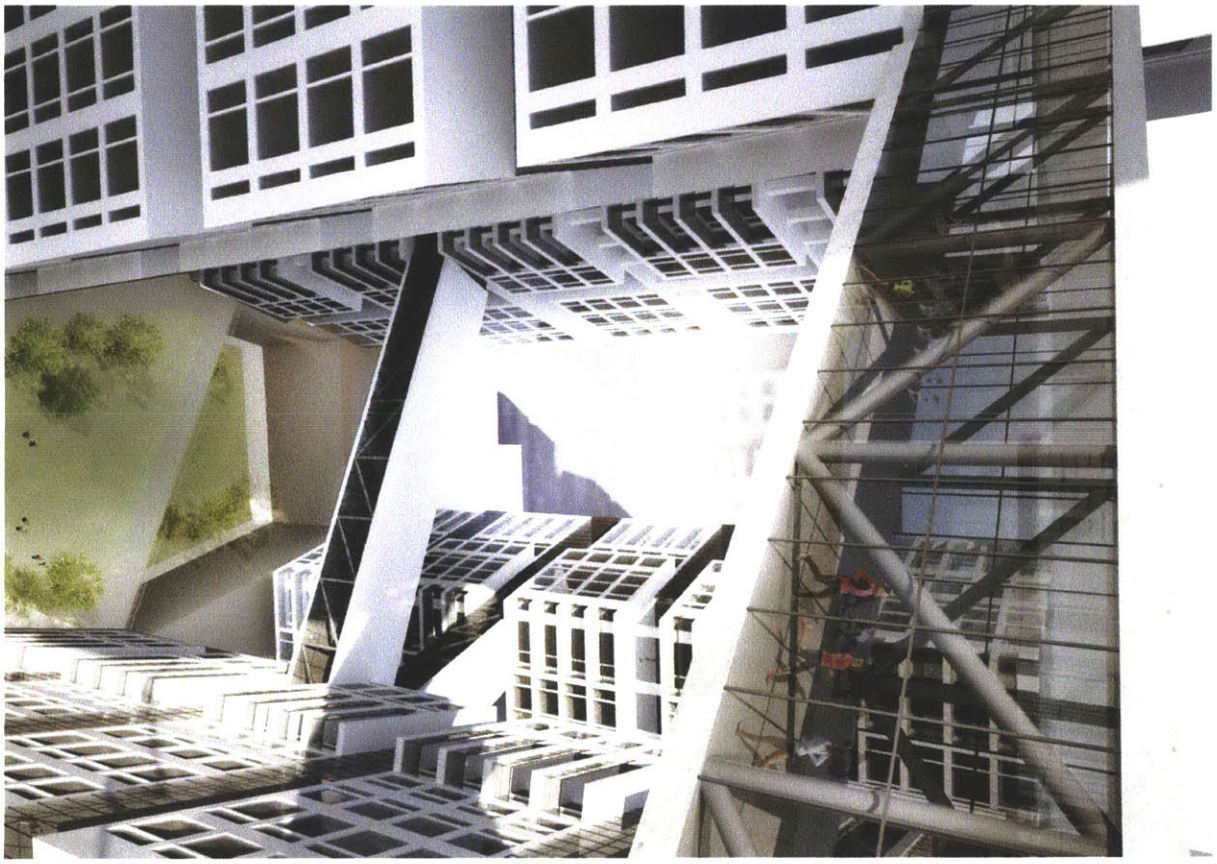
Perspective view_Looking down from fifth floor of low-rise
Corridor space with atrium

Perspective view_Looking up from a roof garden
A roof garden with a bridge above

Perspective view_Looking down from a terrace
The relationship between buildings



Perspective view_Looking down from a higher bridge
The relationship with bridges



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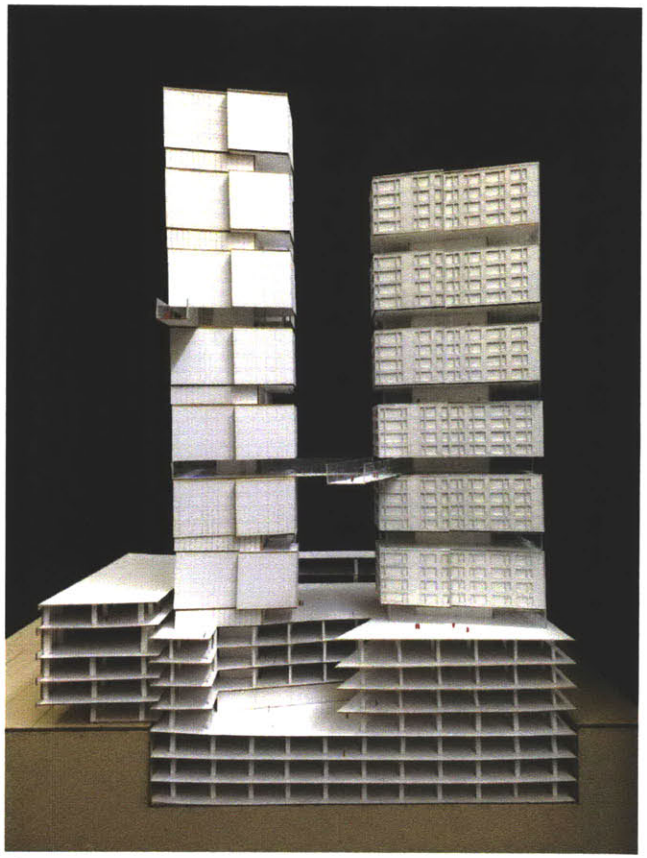
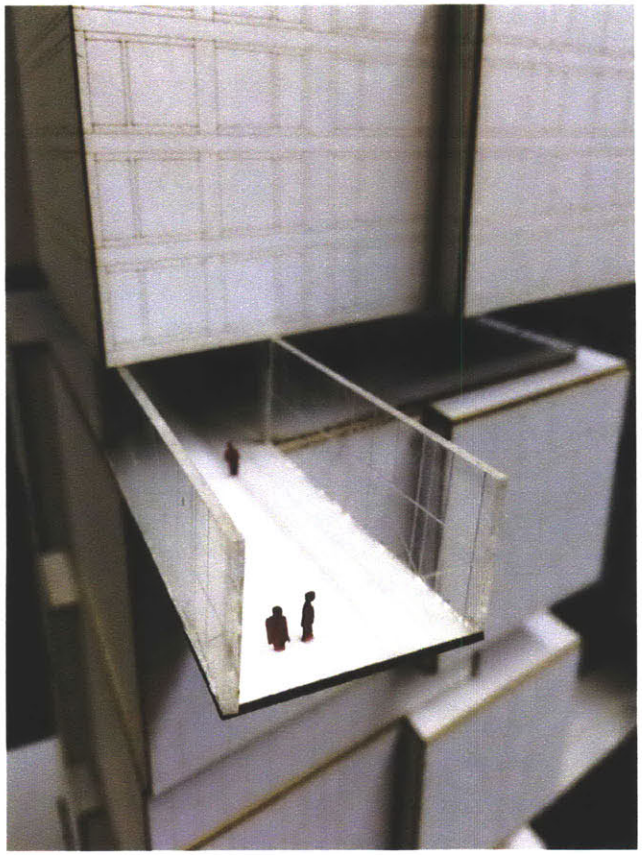
SECTION MODEL

Scale: 1:150
One third of site model



1

1. Side view of overall model
2. A bridge
3. Inside view from a bridge



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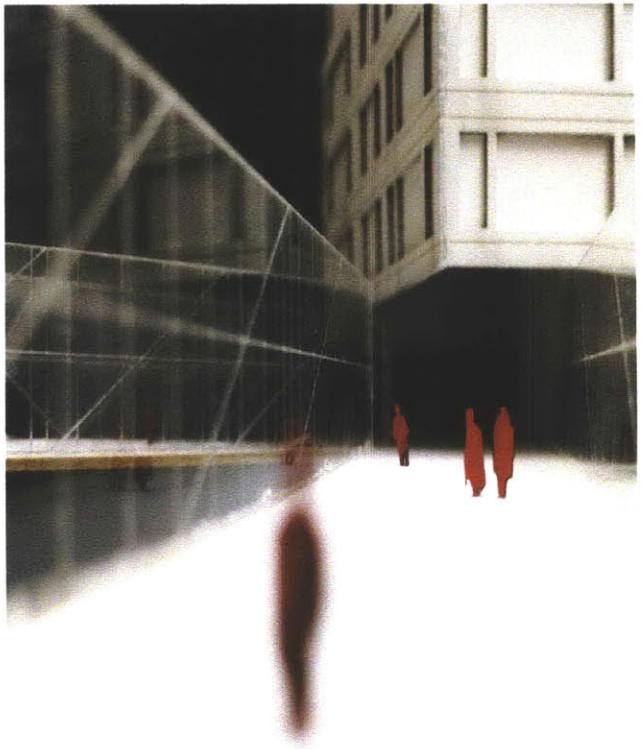

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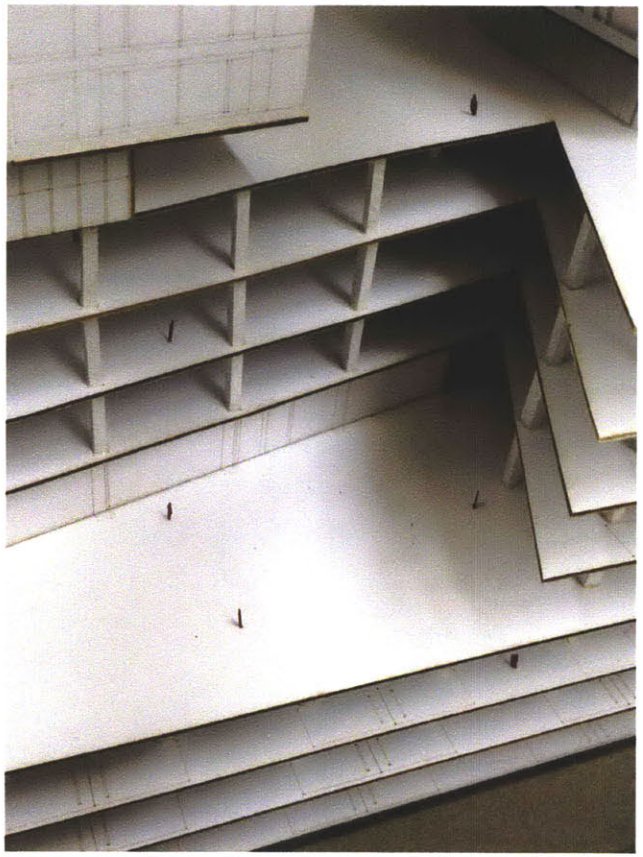

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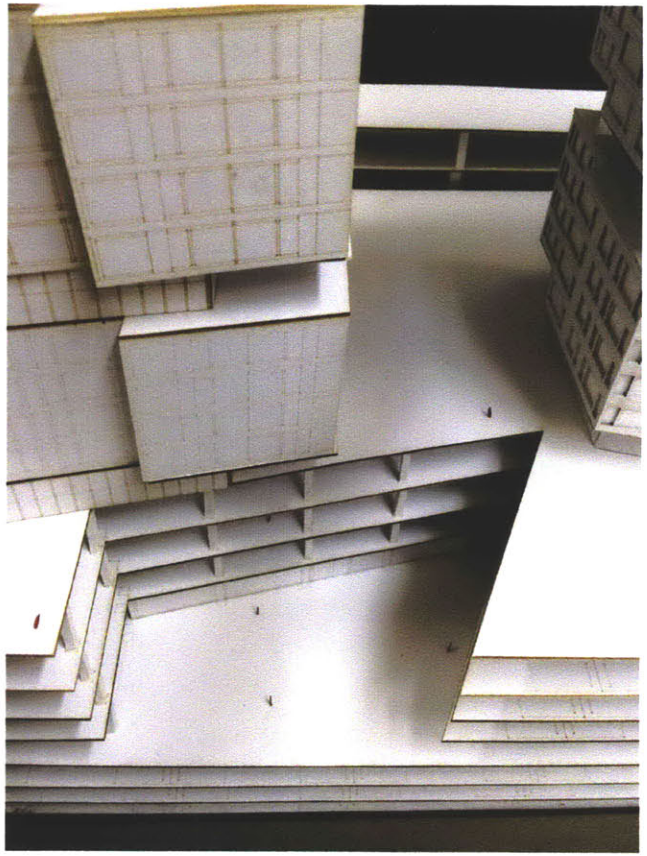
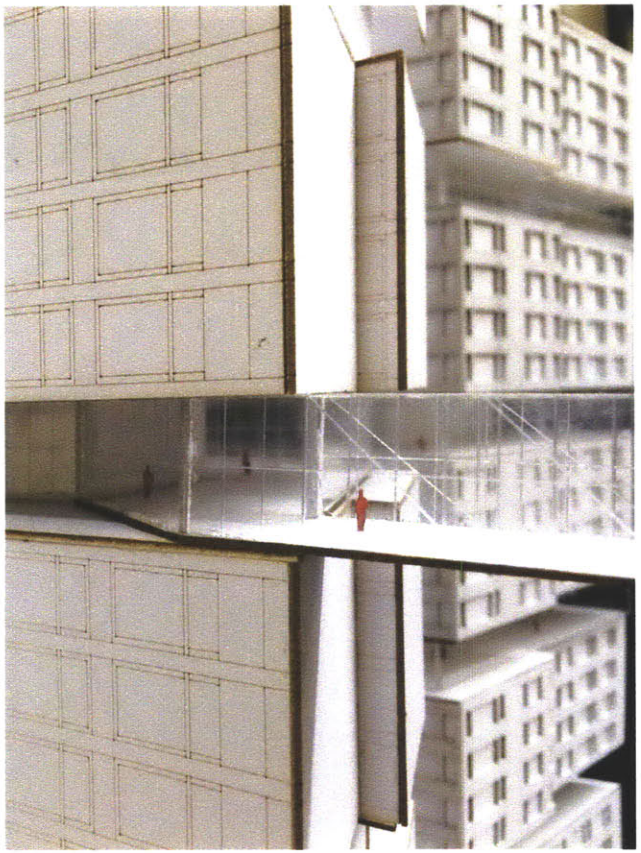


2

1. A courtyard with parking
2. A roof garden with a courtyard
3. Side view of a bridge
4. Top view of a bridge



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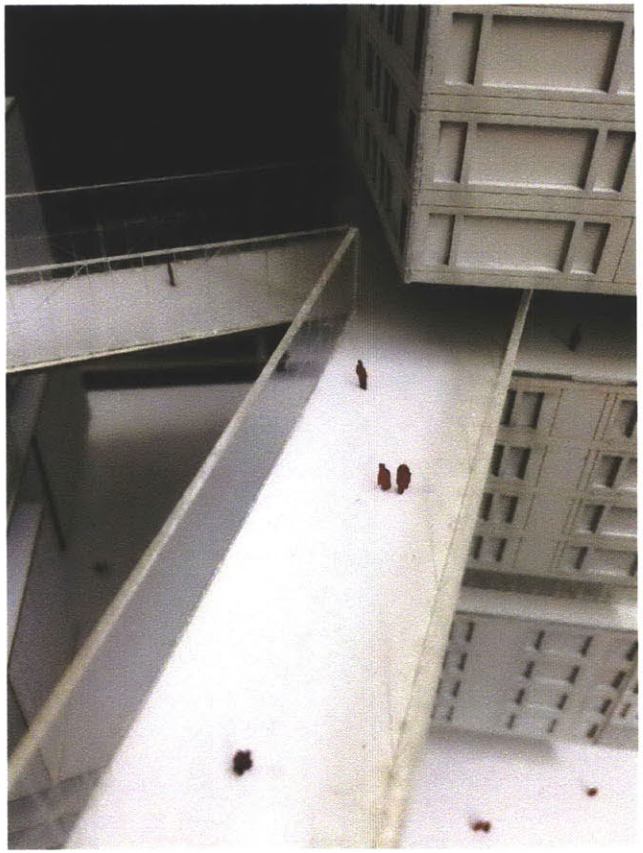
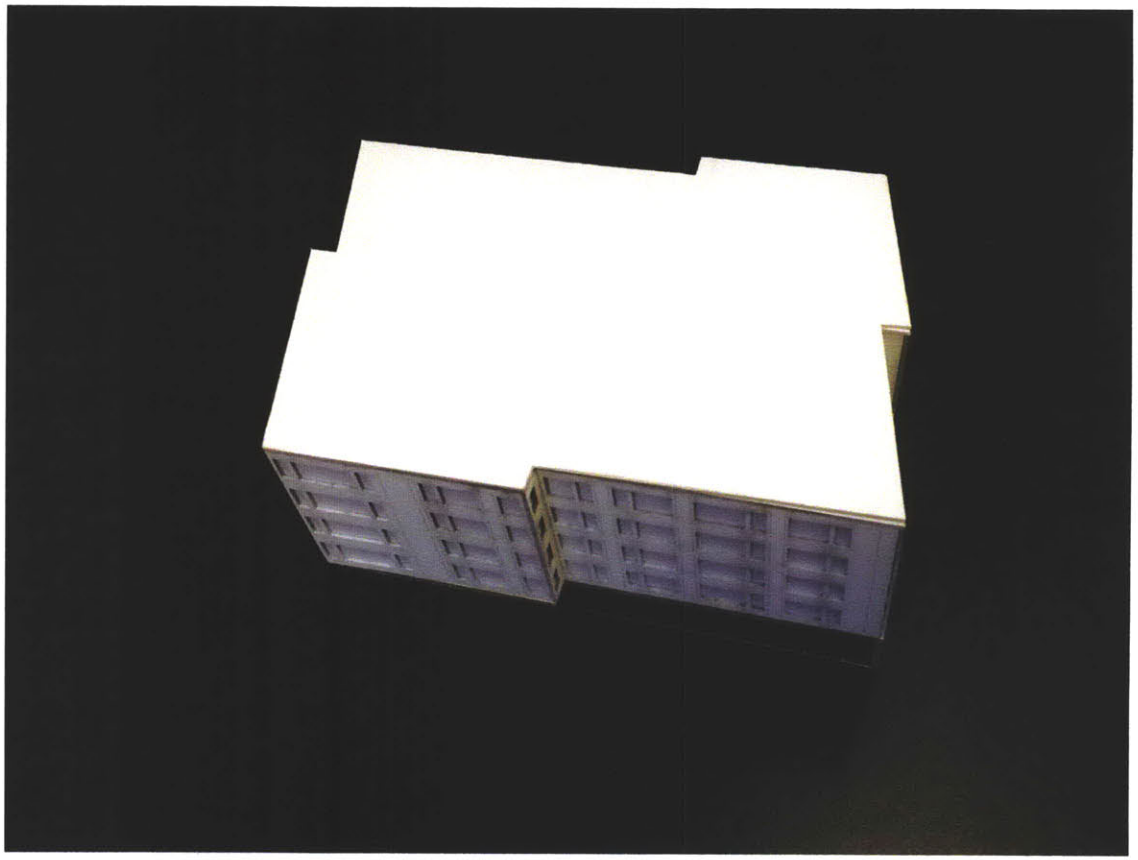


4

UNIT MODEL

Scale: 1:150
A Low-rise building



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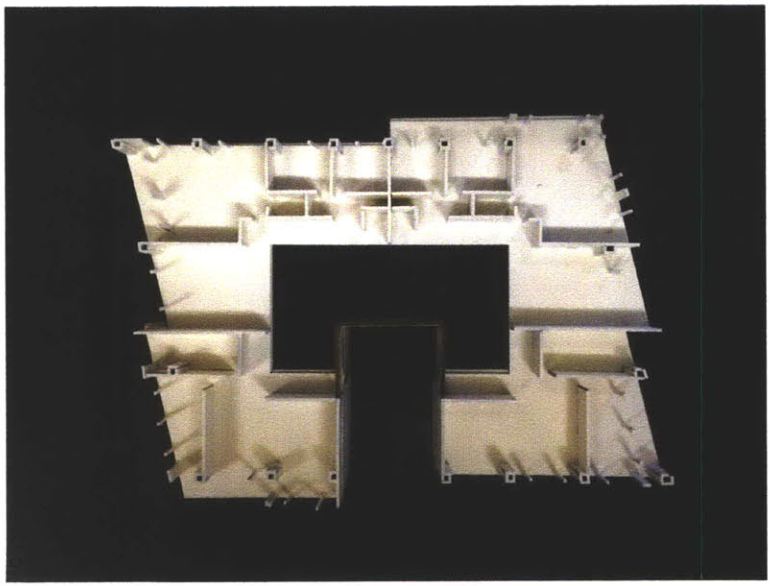

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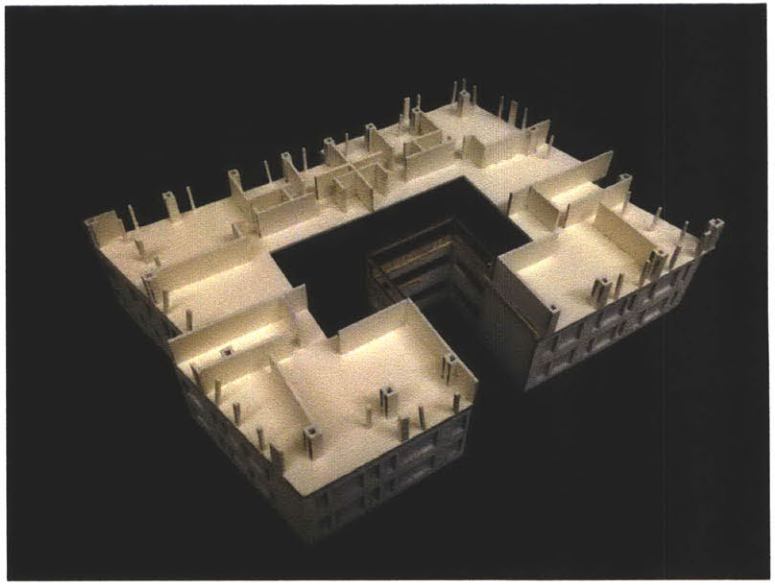

3

1. Low-rise building
2. Top view of one floor units
3. Open top of low-rise building

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