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EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZA AND MIXED USE BUILDINGS

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**EXPLORATION OF CONNECTIVITY
BETWEEN URBAN PLAZA AND MIXED USE BUILDINGS**

A Thesis Presented

by

YOUNG DUK KIM

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2015

Department of Architecture

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YOUNG DUK KIM

Approved as to style and content by:

Kathleen Lugosch, Chair

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Chair, Department of Architecture

DEDICATION

To my wife Mira for your support and patience throughout this process.
Your devotion has made this and I couldn't have done this without you.

To my family, your support from the very beginning is realized in these pages.

ACKNOWLEDGMENTS

First and foremost I would like to thank Jesus Christ our Lord.

I wish to express special thanks to my advisor, Kathleen Lugosch for all of your guidance and support from the first semester.

I would also like to thank Ajla Aksamija for her persistence and insight.

I wish to give thanks to my best friend Fahim for everything, particularly, I could finish this project because of your help.

I would like to congratulate my classmate, the UMASS Amherst Master of Architecture class of 2015. I am so grateful to have worked alongside each of you over the course.

Finally, to my parents, thank you for everything. Thank you for your unconditional love and for your unwavering confidence in me. To Jueun my daughter, I would like to say this in Korean '사랑해'.

ABSTRACT

EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS

MAY 2015

YOUNG DUK KIM, B.S. IN ARCHITECTURE, HOSEO UNIVERSITY
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Urbanization and development of cities is necessary in contemporary society, however, these advancements are also causing urban problems, such as lack of open green space, density problems, traffic problems, and over population. Also, existing buildings are often lacking certain functions that are currently needed since they have been designed in the past. Thus, plaza and mixed used buildings, which are considered as a unit space, are needed to mention for 'publicity' that is a part of urban components as a wide spatial concept. In particular, mixed used buildings as multiply functioned facilities are needed a specific study for 'publicity' and 'urban plaza'.

In general, the meaning of 'publicity' in a city seems to have started from 'agora', which is from ancient Greek. A plaza as an open space in a city was realized as a solution, which people have pursued in order to improve their psychological safety and deterioration of the physical environment. Furthermore, it was made by necessity that was able to gather people in a place and was an indicator space with culture, political, and social activity. Procuring a traffic space, which is increasing more in a city, is expressed based on declining plaza and maximizing land use, on the other hands, it indicates the importance of a way to vitalize social public space in urban life.

In addition, urban and social modernization have caused proliferation and concentration of urban services and, as a result of it, it has caused population increase and architectural densification. In brief, open spaces and streets for pedestrians have decreased. Expansion of buildings, reduction of streets, and degeneration of urban plazas have started to diminish the space for public activity. This has connected to fall quality of its macro- environment and consciousness of sharing, and thus the quality of the city has

fallen as a result. The urban plaza is an important component of urban open space and the space, which can improve social community.

Thus, the objective of this study is to reconsider the concept 'publicity' in cities as a strategic space in order to vitalize the city. The study includes analyzing connectivity between urban plaza and architectural space and proposing design methods for a mixed use building which will improve interaction between urban context and the buildings.,

In conclusion, the study will be used to suggest a new solution for the urban design, which has had less connectivity by transportation and thoughtless development for the environment, in order to produce pleasant open space to enjoy public life for citizen focused on increasing practical use between people and their city's infrastructure with diverse function and psychological stability.

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CHAPTER 1

INTRODUCTION

1.1 Urbanization and Environmental Quality

The progress of urbanization in modern society is not only a issue of its spatial immensity but also because it causes deterioration of functional and environmental quality with perverting of community based on enormous density, territory trouble, and magnitude of traffic problem. Urban form in contemporary cities has been becoming hazy and this causes amnesia of the concept of urban plaza since architecture is degraded to mean to increase personal assets due to developing of capitalism and prevailing of propensity of materialism, furthermore, in extension of this meaning, it is realized as a tool of infrastructure based on media culture. As a result of this, its instrumental role and individual value have been emphasized without regarding of urban context and connectivity between human activities. Thus identity of contemporary urban environment has become enigmatic through all-round of society under the meaning of respect, which are worth of individual characteristics, free will, and creativity, and it causes obstructing of urban context and shape.



Figure 1 Categorization of Place

Diverse spacing of buildings, which has been designed and constructed recently, are analogous to urban structure based on a tendency of maximizing volume and mixing its function, accordingly, mixed-use building occupied physical territory as a unit space and plaza are needed to consider for 'publicity' as a broad concept of urban elements, particularly, in a case of mixed-

use building, practical and concrete research for the public character and urban plaza is urged.

Jane Jacobs¹ mentioned in her book 'The Death and Life of Great American Cities' that modern architectures has destroyed sustainability of its neighborhood and she asserts that recycling its street in order to keep the city to be healthy has to be emphasized. According to her assertion, the death of streets has broken off communication between human and city and human and architecture, as a result, it leads to disappear the meaning of 'publicity' in a city.

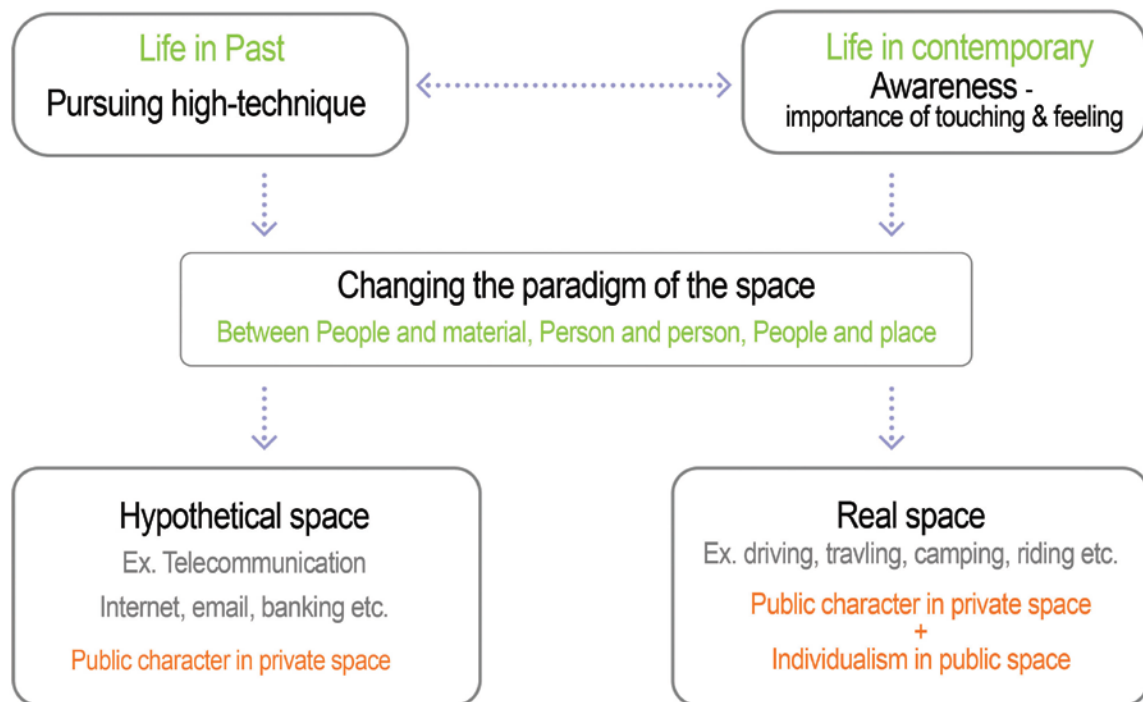


Figure 2 Changing the Paradigm of the space

In addition, urban and social modernization has caused proliferation and concentration of urban services and, as a result of it, it has caused population increase and architectural densification. In brief, open space and street for pedestrians have decayed. Expansion of buildings, reduction of streets, and degeneration of urban plaza have started to diminish a space for public activity, this has connected to fall quality of its macro- environment and consciousness of sharing,

¹Jane Jacobs, "the death and life of great American cities", Random House, 1961

and then the quality of the city has fallen as a result. Urban plaza is important composition of urban open space and the space which can make social community.

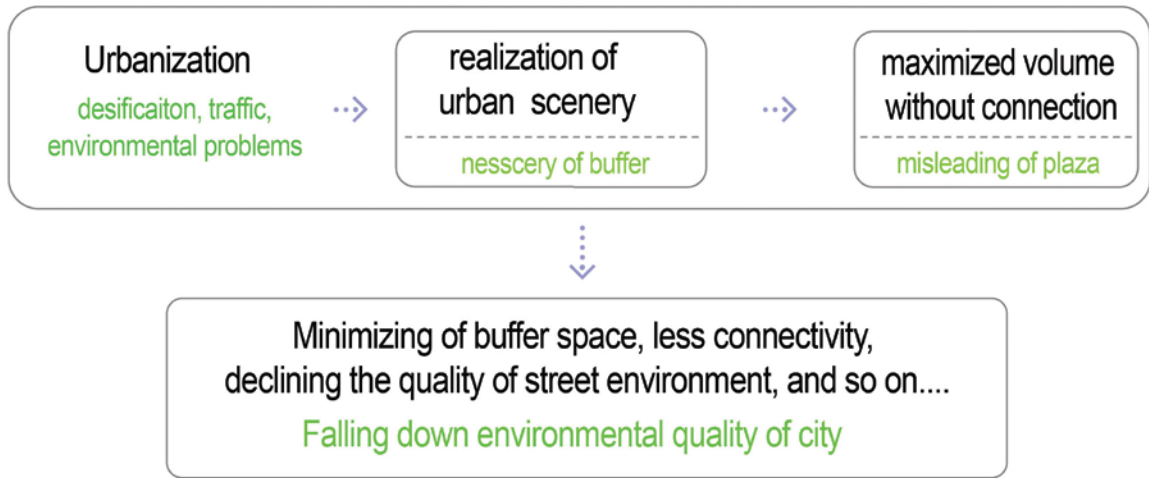


Figure 3 Recent Tendency of Urban Area

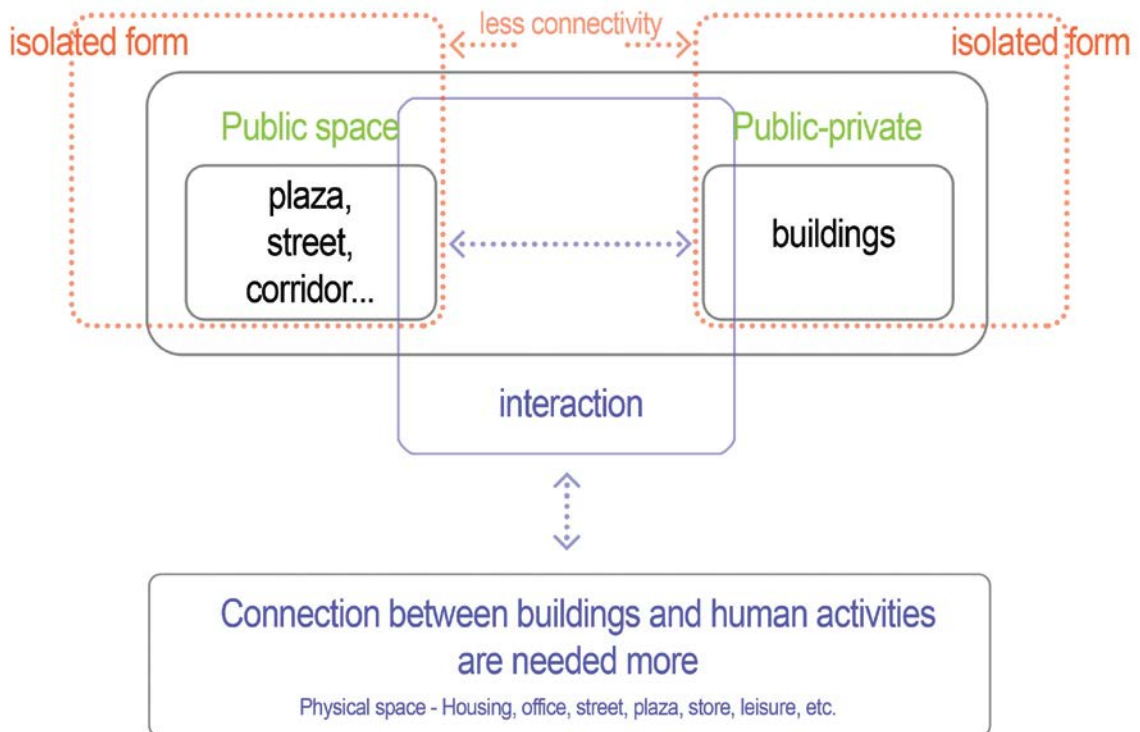


Figure 4 Current Relation Between Public and Buildings

Thus, the objective of this study is to reconsider the concept 'publicity' in cities as a strategic space in order to vitalize the city. The study includes analyzing connectivity between urban plaza and architectural space and proposing design methods for a mixed use building which will improve interaction between urban context and the buildings.,

This thesis examines connectivity between mixed-use building and urban plaza at the site of between Fulton market store and an abandon building in front of FDR road near the Brooklyn bridge in New York City, then study will be used to suggest a new solution for the urban design, which has had less connectivity by transportation and thoughtless development for the environment, in order to produce pleasant open space to enjoy public life for citizen focused on increasing practical use between people and their city's infrastructure with diverse in function and psychological stability.

CHAPTER 2

A PLAZA AS PUBLIC SPACE IN AN URBAN AREA

2.1 Definition of public space

The origin of urban public space has appeared since Agora of Greece, which is an open space to have discussion or civil complaint. In addition, it has been taken a role of market such as displaying some product or human activities. In other words, all kind of common issues for people such as political and commercial issues have been juxtaposed with mixed patterns based on Agora as a public space. In the same view, this is not different from the past when the contemporary public space is mentioned.

The political side of public space means a process of interaction such as determining something official like voting, participating in discussions, or establishing public sentiment, and this is the most important feature to develop and maintain a community. In the case of Agora, some cases of tourist attraction in contemporary society include both commercial activity and political meaning at the same time. However, these mixed or juxtaposed patterns have been changed to separated aspects which emphasize individual activities: political or commercial. In addition, these each characteristics are changing from an independent relation of mutual interchange to unilateral conveying relation.

Expression of space has features which are planning, giving hierarchy, and converting public wishes into physical territory. Steady regulation for occupying subject of area has been taken based on spatial layers, which are planned by architects, in order to maintain stabilization of space.

2.1.1 Public property

This is a sort of a property belonged to local government, therefore, it is connected or separated buildings or facilities as a urban infrastructure, and also, it has openness to approach

between diverse classes with different background easily and naturally without any prejudice. There are a number of characteristics of sharing space, however, this does not have any explicit meaning or interaction with each other. Both occur currently in society.

2.1.2 Commercial space

This space is the most exclusive public space which is opened to user of occupying space or buyer of a specific product in that space as a service space. Department stores or shopping malls do not give a right for commercial activities to all people. In this case, this place is required to buy their product and then they offer high performance service area to people.

2.1.3 Private-public space

This is placed between public property and commercial area and includes some cases that combine private areas and streets or roads and a place, which used to be public area, becomes private territory. Most of them exclude the characteristics of politic issues and it have been used by citizens as a common area. Business activities recently and generally offer this sort of area in order to purchase their own space to sell products.

2.1.4 Open space

This space is a neutral space as a property of national or local government without any sort of features such as green belt or infrastructure. It is generated based on pitch of buildings and green tract of land unrelated with possessing or sharing. However, physical territory, which is expressed as a space, still include social problem such as a way how to design it into an architectural space with sharing space like Italian plaza by Charles Moore in New Orleans and how to make a neglected class of people participate in sharing area equally. Also, it has some problems to maintain between social justice and order with human right of street vendor. According to intension, object, or form of possession, public space is classified a chart below;






Type		Example	Features
Flexible space	Agora		<p>All kind of common issue for people equally such as politic and commercial issues has been juxtaposed with mixed patterns.</p> <p>Ideal space that contemporary city cannot have generally.</p>
Public property	Street, plaza, park		<p>Owned by local or national government officially.</p> <p>Sharing space with all.</p> <p>Connecting or separating space between individual buildings or buildings and infrastructures.</p>
Open space	Social infrastructure		<p>Created by interval space such as pitch of buildings and green area unrelated with possessing or sharing.</p> <p>A neutral space</p>
Private-public space	Arcade, street		<p>Combining both private and public character.</p> <p>A space for citizen as a shared area.</p>
Commercial Plaza	Department store, shopping mall		<p>An exclusive public space which is opened to user of occupying space or buyer a specific product.</p> <p>Stable service is offered to users.</p>

Figure 5 Definition of Public Space and Plaza

2.2 Definition of urban plaza

The meaning of urban plaza is defined as a vacant place for public in city. In the case of western culture, there are a number of cities, which have been developed based on this sort of urban plaza and the plazas of these cities are important elements of European urban structure. The origin of the word 'plaza' is "platte" from Spain and "platea" from France. The former means wide road and the latter means street or county yard. A plaza is a place, which is surrounded by buildings and roads, and these days it is widely seen as a basic place within open space in an overpopulated city. In addition, this has the role of a patch or a connection, which is related to green space in an ecological aspect. Furthermore, there is the role of the media plaza as a communication place or plaza for readers with several kinds of screens. In brief, a plaza is a place where people can interact and share their thoughts and needs within such an open space as was done in the forum in ancient Rome.



Figure 7 Piazza delle Erbe, Verona



Figure 6 Prato della Valle, Padova

2.3 Meaning of plaza in city

In a city, the urban plaza is a sort of basic unit, which is reflected in the contemporary cultural circumstances of its city. "Because a plaza is a vacant space for 'sharing space' or 'meeting' without any barriers or planned houses, it should be noticed as 'an event' or 'situation'".

of people is able to be understood."² In a mention by S.Kostof, existence of plaza is defined not a space formed by a boundary of private territories such as an offering or serving space and/or 'meeting place for people', but it is an obvious 'purposive space'. In addition, it is not only a purposive space in a signification, which existing method is understood by individual



Figure 8 Piazza del Duomo, Pistoia

circumstances, but also it has crucial features, which decide ontological means of human life.

Ancient agora with a concept of democratic space had emerged as a formation of public opinion, and forum in the Roman Era was used as a way to renovate the city. In the early part of medieval times, plazas with a characteristic of narrow and irregular



Figure 9 Time Square, NYC

form was a public event space due to consciousness of community with economical interacting. Also, it was a strong binder linking city social and functional constituents. In the Renaissance, its function had not been developed as much as in previous eras, however, aesthetic value was invested with the improving of

existing shapes while a number of grand scale squares were emerged based on mighty political authority. After the industrial revolution, streets and roads were extended due to the increasing density of population and the number of vehicles and then the centrality so the importance of public areas has been changed from the concept of plaza to block or axis of roads in order to maintain practical value system. As a result of this, the traditional role for vibrant life of citizen and public space for interacting between individuals has been deprived of its meaning. New means of transportation and the development of communication technology have been improved

²Alberti L.B., Geoffrey Broadbent, Emerging Concepts in Urban Space Design, Ban Nostrand Reinhold, 1990

since the modern era has begun, hence human activity has been diffused. This sort of plaza has been altered from a central role of creating urban activities to combining with streets and roads. It is no longer an independent place unto itself and it is no longer simply a wide space but has become a place, which is important to the connectivity between human activities. However, it has developed ambiguity as contemporary life style has changed and this ambiguity results in the isolated existence of fragments without correlation between scale and form. Figure 10 below shows sum of this.

Era	Characteristics
Ancient : Greek, Rome	Agora and Forum : Multi-purpose space for mutual interchange Irregular shape
Medieval times	A place for public events and exchanges Spontaneous order
Renaissance / Baroque	Official area with obvious spatial restriction
Industrial Revolution	Practical system without traditional role for interaction between human activities
Modern	Fragments of urban memory with importance of connectivity

Figure 10 Characteristics of Urban Plazas

2.4 Open space and urban space

2.4.1 Urban shape and architecture

Urban shape is formed based on diverse factors and one of the most basic is the form and scale of buildings, which have been changing since primitive society. This process of changes has seven stages. (Next Page, Fig 11)


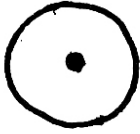

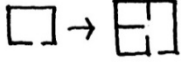

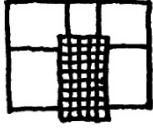







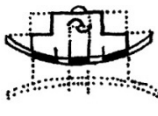
Architectural shape			Plan of building and urban form	
Primitive residential form		Integrated shape with wall and roof		Circular
Differentiation of interior space		Wall and Roof		Division of room
Development of Atrium		Necessary of Diverse space with a number of rooms		Extension of planar space
Multi-stories		Between 2 and 5 Human scale		Three dimensional city
Emergence of high-rise buildings		Functionalism Vertical extension Inhuman scale		Vertical city Simplification of space
Differentiation of high-rise		Land mark Symbolism		Symbolic city
Post-modernism		Personality Using traditional element		Diversification of space Ornament

Figure 11 Changes of Urban Shape with Architectures

2.4.2 Characteristics of Plazas as an open space in a city

Plazas are a significant element of open space in cities and its shape is formed based on nodes of pedestrian passages or roads. In this space, social interaction for personal purposes has been occurred based on people gathering and this formation has a similarity to the living room in a house. This is a place in which people are able to talk or share what they are thinking just as they do in their living room, and its significance is emphasized by the high density of the city in contemporary society.

Urban plaza is a public yard and milestone with symbolic meaning of the center.

i) Urban yard

An urban plaza is similar to the back yard of a house, therefore, social networking and interactions such as meetings and events are performed. In addition, it is formed by the shape of surrounding buildings and roads so that the urban yard has an important role of open space, which people can feel openness.

ii) Urban milestone

Plazas are milestones for people who are passing through the centers of cities. When people passes along path formed by building footprints, then open space is realized without difficulty and it becomes a lingering impression. Thus plazas become obvious milestones within the city and this is a crucial role for public life to function within the urban infrastructure.

iii) The center of cities

It is also the center of activities for citizens owing to gathering them and permitting a variety of events. Furthermore, the most plazas are in the spatial center of the cities because the is in the vicinity of government offices or cultural facilities in the vicinity of it. Thus urban plazas have carried the symbolic meaning of the center in the city socially and spatially.

CHAPTER 3

PLAZA RELATED WITH ARCHITECTURAL SPACE

3.1 Types of Urban Plazas

3.1.1 Patterns of Urban Plazas according to function

Urban plaza has a thing in common that a large crowd is gathered, however, there are varied activities in it and it can be defined traffic, event, passing, or playing of plaza or so on as type of activities.

i) Passing Plaza

This is a sort of an inner court being surrounded by buildings. Passing plaza is restrained to go through for cars and allowed to the pedestrian for meeting, relaxing, or some other kind of activities in order to protect people. Basically, in Europe, plaza or piazza is a place for passing through, however, in contemporary society, diverse shape of plaza such as sunken, meeting, traffic, event, and so on has been come by creating various functioned infrastructures in urban space. Although there are a number of types of plaza, meaning of plaza in common is passing plaza.



Figure 12 Piazza San Marco, Venezia

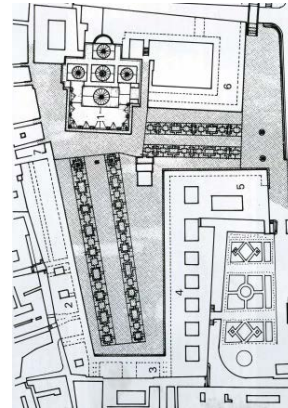


Figure 13 Plan of Piazza San Marco, Venezia

ii) Traffic Plaza

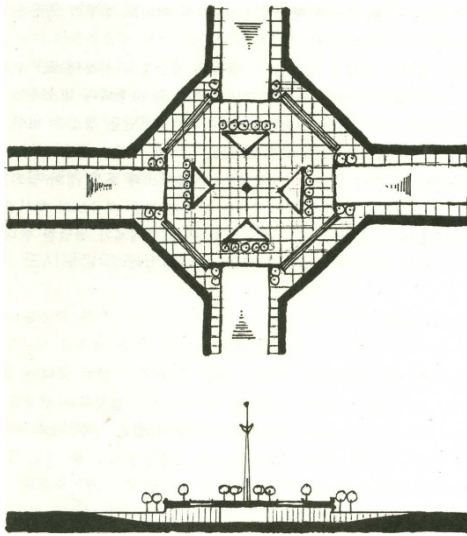


Figure 14 Space system of Traffic Plaza

Traffic Plaza is placed on a node of crossing roads so that it is formed for cars rather than pedestrians. This is not allowed pedestrian to pass through or restrict, therefore, usually it could be inhuman space so that it would be uncomfortable space for people go though. Planning a humane city, vouching for accessing people there is needed and also making a place for having a rest, meeting is advisable. In a big city with great population, traffic plazas of the downtown area should be reconstituted focused on pedestrian. For instance, traffic

plazas could be placed to semi-basement and above of it could be covered as a deck in order to access people so that they could stay for relaxing and meeting or passing cross roads. Thus three dimensional uses could be considered.

iii) Event Plaza

This is designed for any sort of assemblies or parade with grand scale crowd and the size of it is as big as the population is in the city because of its function. However, the events is not frequent in a year, therefore, it remains a simple open space without definite activities so to plan for rest parts of the events should be considered.

iv) Meeting Plaza

Meeting plaza is placed in which people can easily approach as an appointed place such as in front of underground station, train station, public park, or bus station. In here, some benches, fountains which people can enjoy during waiting for someone or time, or sculptures can be placed.

This plaza is able to be regarded a part of passing plaza in wide meaning, or a part of passing plaza is planned to a meeting plaza.

v) Playing Plaza

This is a sort of Oriental expression because, in some Asian countries, there was no conscious about plaza and plaza or street was only for passing to other place not to stay for any other activities and there was no meaning of plaza like in European countries. However, during traditional holiday such as thanks giving, there were a number of event on the street in front of house or backyard. This plaza was not named as a playing plaza clearly, however, when the events came in town then this place had been accepted it. Also, in ordinary time, multiple works such as drying some corns or grains and farm working was performed. Thus public multi-uses of town is playing plaza.³

3.1.2 Plan Types of Urban Plazas

Plan types of urban plaza are defined to three parts which are a plaza faced with roads, connected with roads, and isolated from road.

i) A Plaza faced with four direction roads

A plaza faced with four main road has physically and visually high accessibility. This means that people approach easily and, at the same time, passerby can realize this so that they are clearly advantageous to comprehend urban system. Nevertheless, because of four direction roads, this place has more noisy compare with other plazas. This type is shown grid patterned cities such as Trafalgar Square in London, UK, Tomkins Square in New York, and Washington Square in the U.S. These plazas are located to the center of city and those have a character of the centre plaza in common.

³Seung Bin Lim, A city formed by Landscape, Seoul National University Press, 1998

ii) A Plaza faced with 1 or 2 direction road

Basically, a plaza in front of buildings or gardens are in this type. It has good accessibility with roads and also there is possibility to make silent place toward building side. The characteristic of this plaza is entry place or attached place with building, thus this is used for passing or relaxing by users of building. A place in front of Saint Pierre Basilica in Vatican city and a square of Seoul station in Seoul are examples of this plaza.

iii) Connected Plaza by a street Isolated Plaza

In this case, the main square is isolated from roads, however, this is connected by street for pedestrian or sub-square. Due to depart from main road, the place is quiet compare with others which mentioned above, in addition, it has high accessibility with streets connected roads. There is no opportunity to see whole plaza so that subtle expectation is occurred.

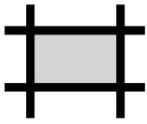
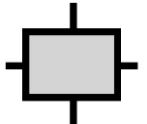



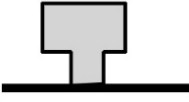

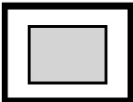
Shapes		Features
With 4 direction road		This place has high accessibility with four direction road physically and visually
		This type is shown grid patterned cities Noisy compare with other plazas
		Using for big events
With 1 or 2 direction road and buildings		This plaza is entry place or attached place with building
		For pedestrian or resting space for user
Beside of road		Main plaza and sub. Plaza
		Quiet and safe to pass
Isolated from road		This has high accessibility with streets connected roads with silence. Subtle expectation is occurred.

Figure 15 Patterns of Plaza in city

3.2 Relation between plaza and architectural elements

3.2.1 Relation between composition of plans and urban plaza

The form, type, and spatial features of plaza are expressed based on depending on location, placement of form, and composition of plan and these are categorized by six groups below;

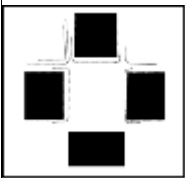
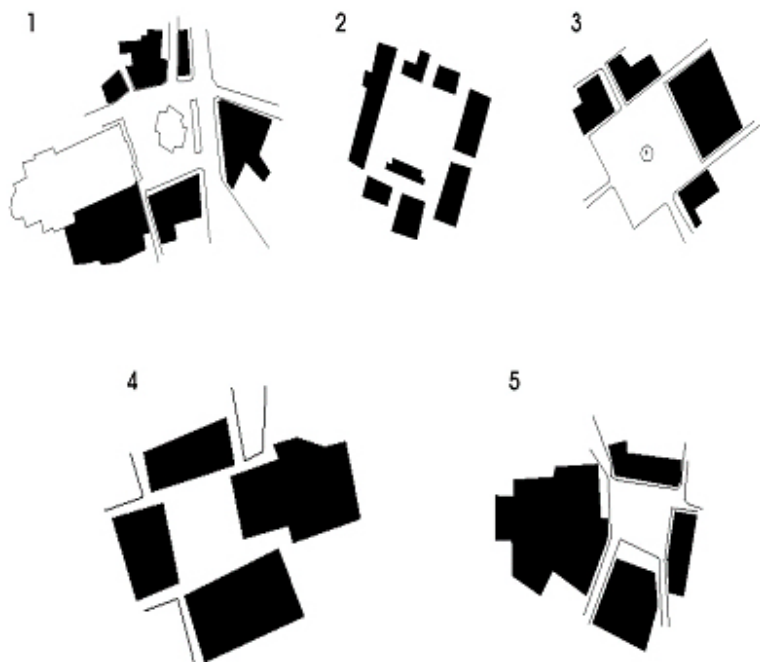
Type	Form	Features
		<p>High accessibility</p> <p>High connectivity</p> <p>For big events</p>
	Examples	
Grid Pattern		
	1. PALERMO	2. BOLOGNETTA
	piazza Domenico	piazza Caduti in Guerra
	3. SASSARI	5. ANDRIA
	piazza d'Italia	piazza Duomo
4. IGLESIAS		
piazza Municipiov		

Figure 16 Grid Pattern Plan of Plaza


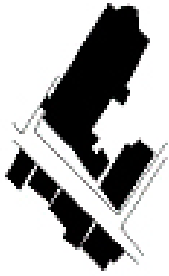

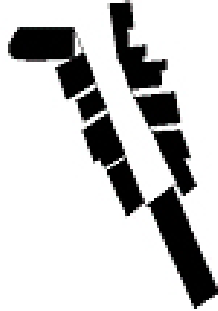


Type	Form	Features
Symmetric Pattern		<p>Symbolic space in urban place</p> <p>Transition space, Similar to foyer in a theatre</p> <p>Continuity with urban space</p>
	Examples	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>1</p>  </div> <div style="text-align: center;"> <p>2</p>  </div> <div style="text-align: center;"> <p>3</p>  </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>4</p>  </div> <div style="text-align: center;"> <p>5</p>  </div> </div>	<p>1. FONDI piazza dellaRepubblica</p> <p>2. FERENTINO piazza Mazzini</p> <p>3. ALCAMO piazza Cluilo</p> <p>4. ORISTANO piazza E.D' Arborea</p> <p>5. PALESTRINA piazza dellacortine</p>

Figure 17 Symmetric pattern Plan of Plaza





Type	Form	Features
Arc Pattern		Plaza as a stage Continuity between urban space and stage as event area Irregular form
	Examples	
	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>1</p>  <p>1 CATANIA piazza S. Nicolo</p> </div> <div style="text-align: center;"> <p>2</p>  <p>2 TERRACINA piazza Garibaldi</p> </div> <div style="text-align: center;"> <p>3</p>  <p>3 BELPASSO piazza Umberto I</p> </div> </div>	

Figure 18 Arc Pattern Plan of Plaza



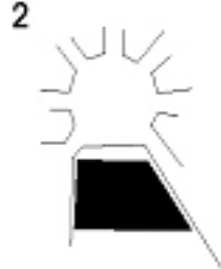



Type	Form	Features
Centered Pattern		<p>Plaza similar to foyer in a theatre</p> <p>Higher connectivity with diverse direction roads</p> <p>The centrality by surroundings</p>
	Examples	
	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 10px;"> <p>1</p>  </div> <div style="text-align: center; margin: 10px;"> <p>2</p>  </div> <div style="text-align: center; margin: 10px;"> <p>3</p>  </div> <div style="text-align: center; margin: 10px;"> <p>4</p>  </div> <div style="text-align: center; margin: 10px;"> <p>5</p>  </div> </div>	<p>1. GRAMMICHELE 2. RAMACCA 3. S.STEFANO</p> <p>piazza Umberto 1 piazza Umberto 1 piazza Duomo</p> <p>4. FERNTINO 5. PATERNO</p> <p>piazza Mazzini piazza 4 Canti</p>

Figure 19 Circular Pattern Plan of Plaza

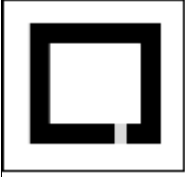
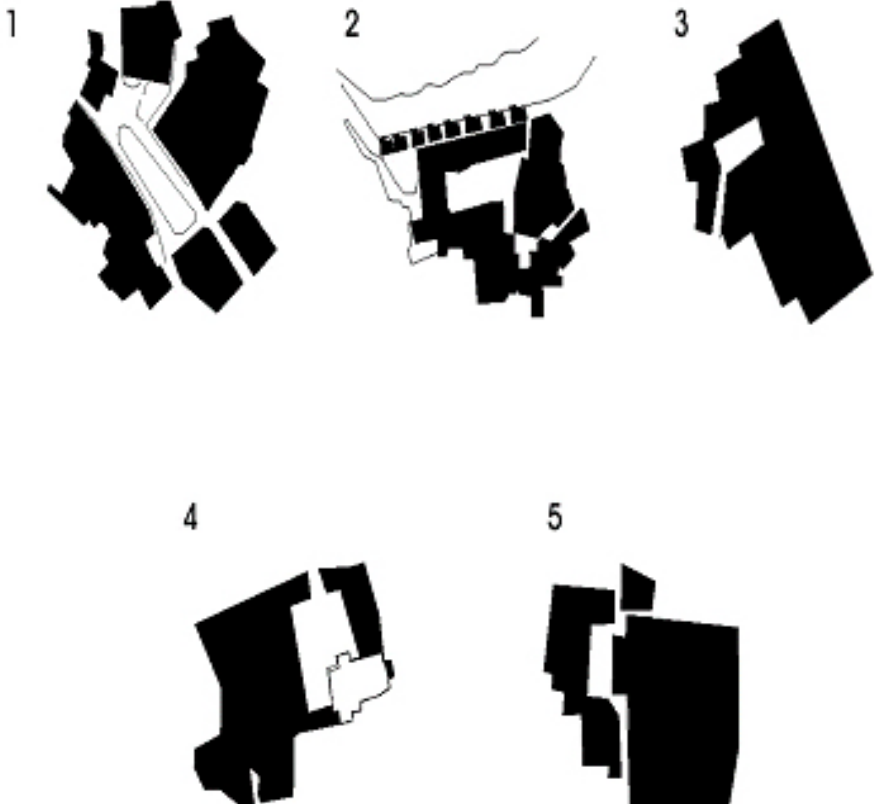
Type	Form	Features	
		<p>Closed form by building</p> <p>Higher psychological stability</p> <p>Semi-public plaza</p>	
	Examples		
Closed Pattern			
	1. BITONTO piazza Cattedrale	2. ATRAMO piazza Umberto 1	3. NAPOLI piazza Gesu
	4. LECGE piazza Duomo	5. S. AGATA DEI GOTI piazza S.Alfonso	

Figure 20 Closed Pattern Plan of Plaza








Type	Form	Features
Amorphous Pattern		<p>Flexibility of space</p> <p>Irregular form - Diversity</p> <p>Continuity with urban space</p>
	Examples	
	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 10px;"> <p>1</p>  </div> <div style="text-align: center; margin: 10px;"> <p>2</p>  </div> <div style="text-align: center; margin: 10px;"> <p>3</p>  </div> <div style="text-align: center; margin: 10px;"> <p>4</p>  </div> <div style="text-align: center; margin: 10px;"> <p>5</p>  </div> <div style="text-align: center; margin: 10px;"> <p>6</p>  </div> </div>	

Figure 21 Amorphous Pattern Plan of Plaza

3.2.2 Relation between architectural elements and urban plaza

Lower part of buildings has diverse features depending on relation between street and infrastructures or characters of pedestrian on the street with characteristics of location. This is a direct space with visual and functional connectivity as a node crossing between horizontal circulation and vertical circulation in urban space. Therefore, this private-public area gives opportunity to access to plaza and building. Thus this features about relationship between plaza and spatial elements are categorized below;

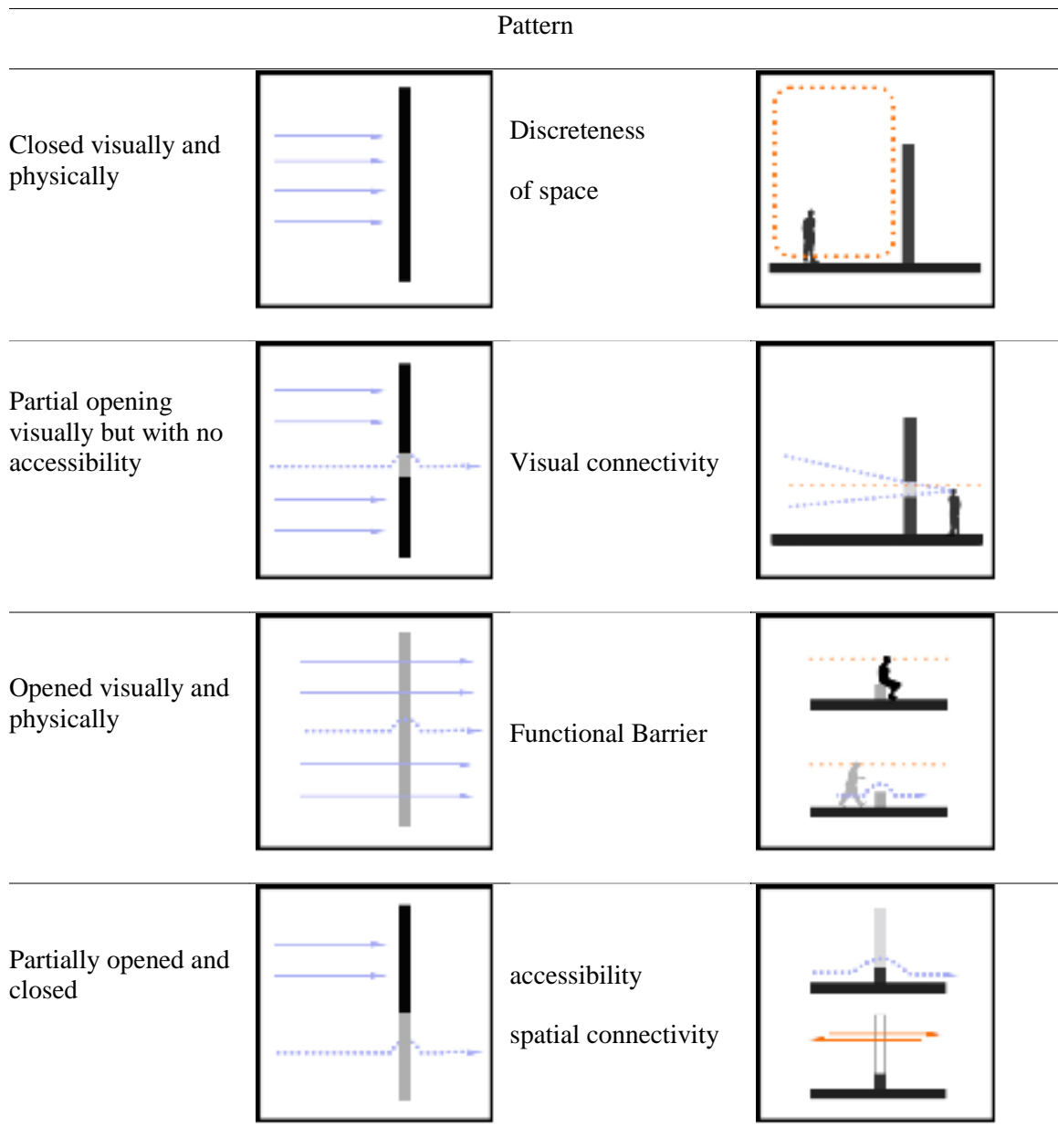


Figure 22 Relationship and Features between Walls and Plaza

Pattern

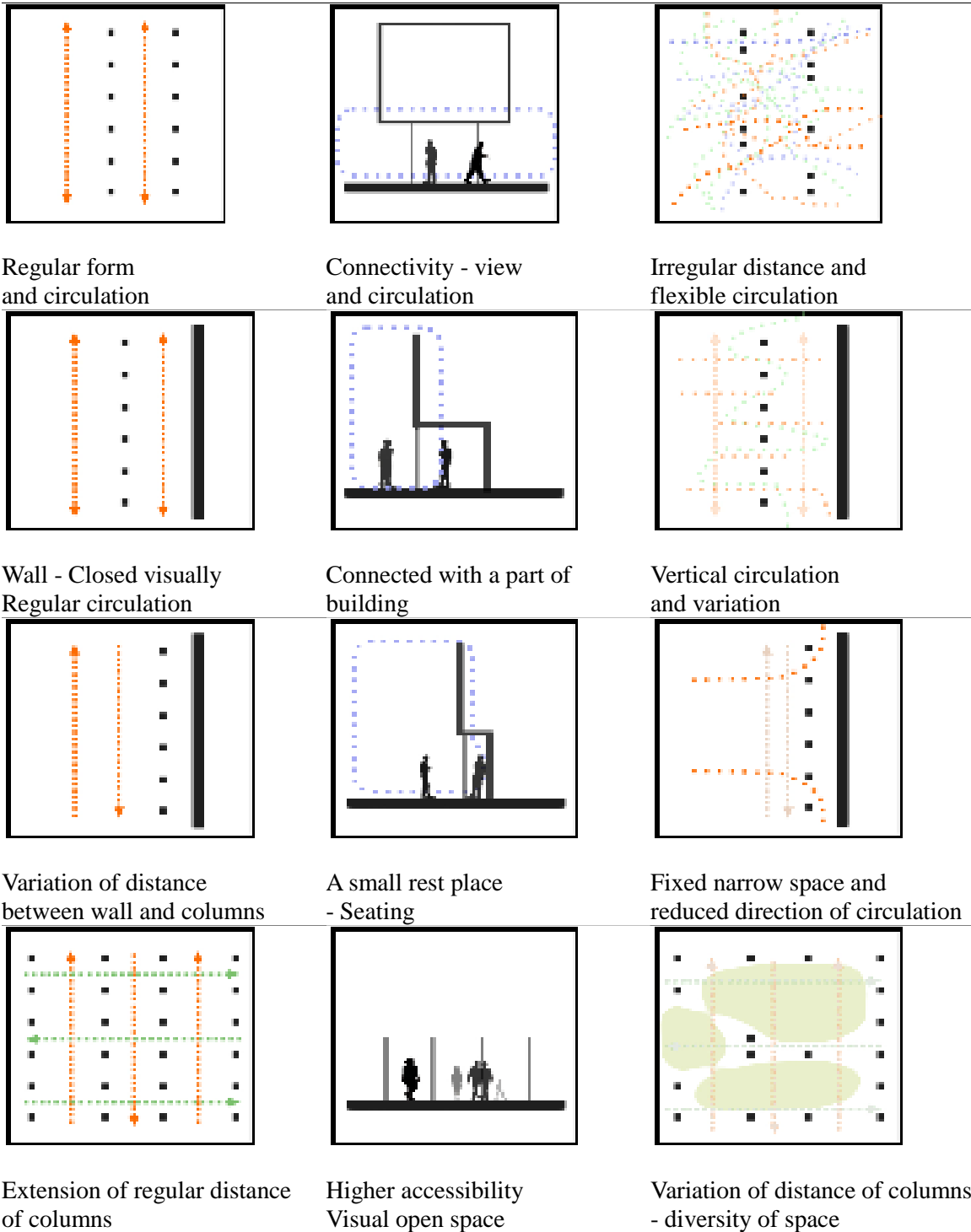
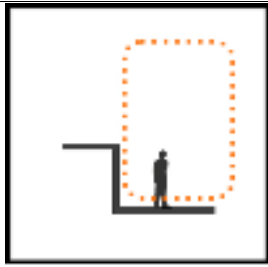
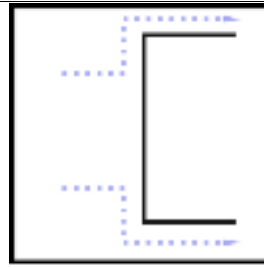


Figure 23 Relationship and Features between Columns and Plaza

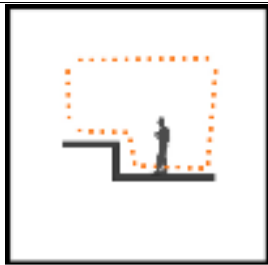
Pattern



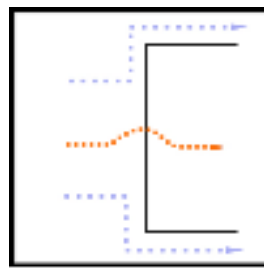
Closed view with lower floor



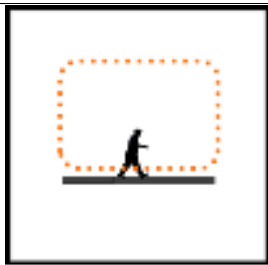
Detour due to no accessibility



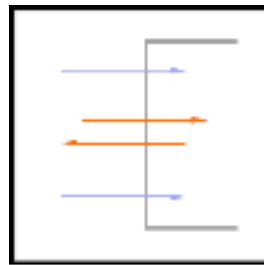
Closed circulation
- Visually opened



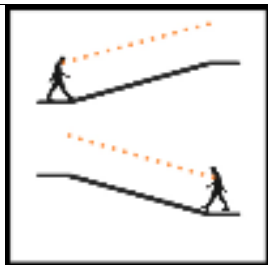
Detour or climb



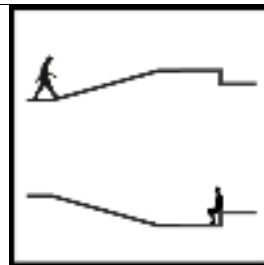
Flat level - unlimited view
and circulation



Unlimited circulation

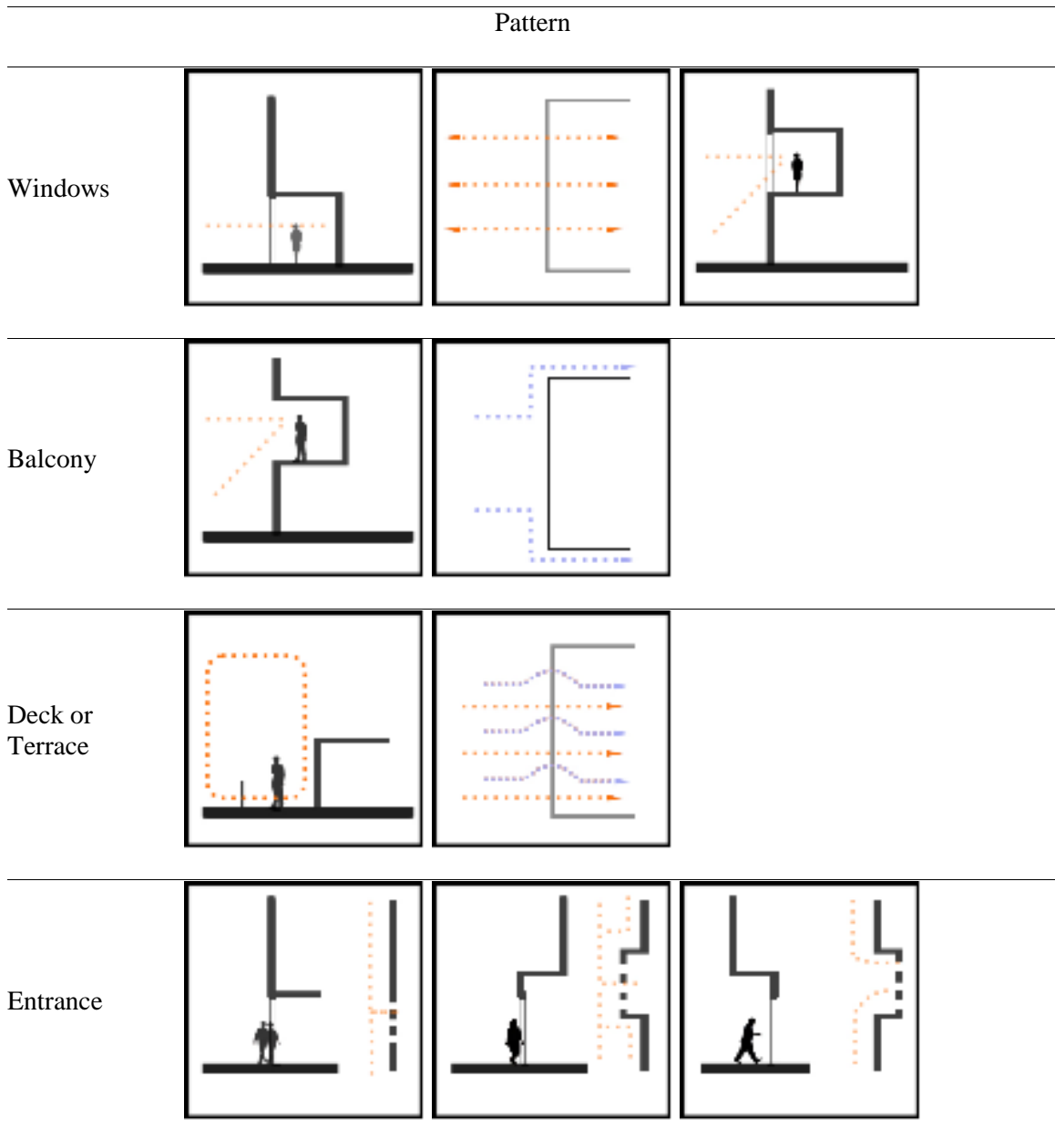


Variation of height
Diversity of space



Variation of floor shape
- Diversity of activity

Figure 24 Relationship and Features between Floor(Level) and Plaza

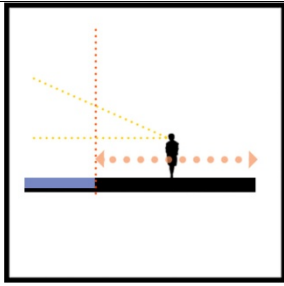


Perceptual and visual experience is changed based on changing location and height.

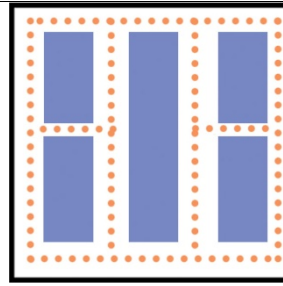
There is not continuity spatially but connectivity visually.

Figure 25 Relationship and Features between Openings and Plaza

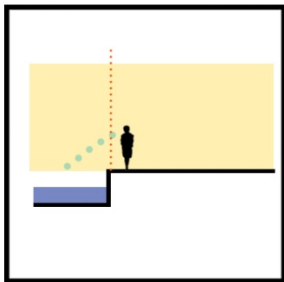
Pattern



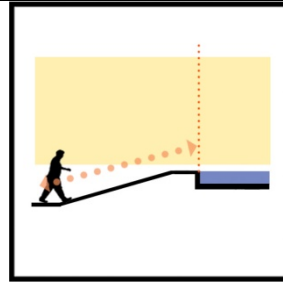
Visually Opened



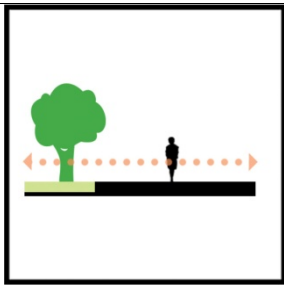
Limited circulation



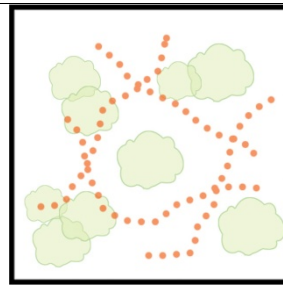
Closed circulation
- Visually opened



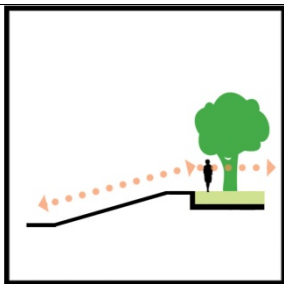
Ramp with waterscape



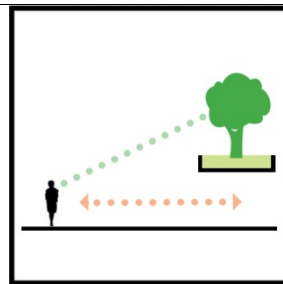
Visually and Physically
Opened with shadow



Flexibility of Circulation
With Shadow



Variation of height
Diversity of space



Variation of floor shape
- Diversity of activity

Figure 26 Relationship and Features between Natural Elements and Plaza

CHAPTER 4

SITE ANALYSIS AND PROGRAM

4.1 Site Overview

One of historically significant buildings along South Street in NYC, Fulton Market is located on the eastern end of the city and is characterized by unique and expressive community with the East River Ferry terminal besides the Brooklyn bridge. While the urban core of Manhattan is characterized by a typical "grid pattern" layout, South street distribution between Fulton market and the East river ferry terminal follows the shape of riverside and its office areas extend into the edges of shoreline and FDR road.



Figure 27 Site Location and Issue

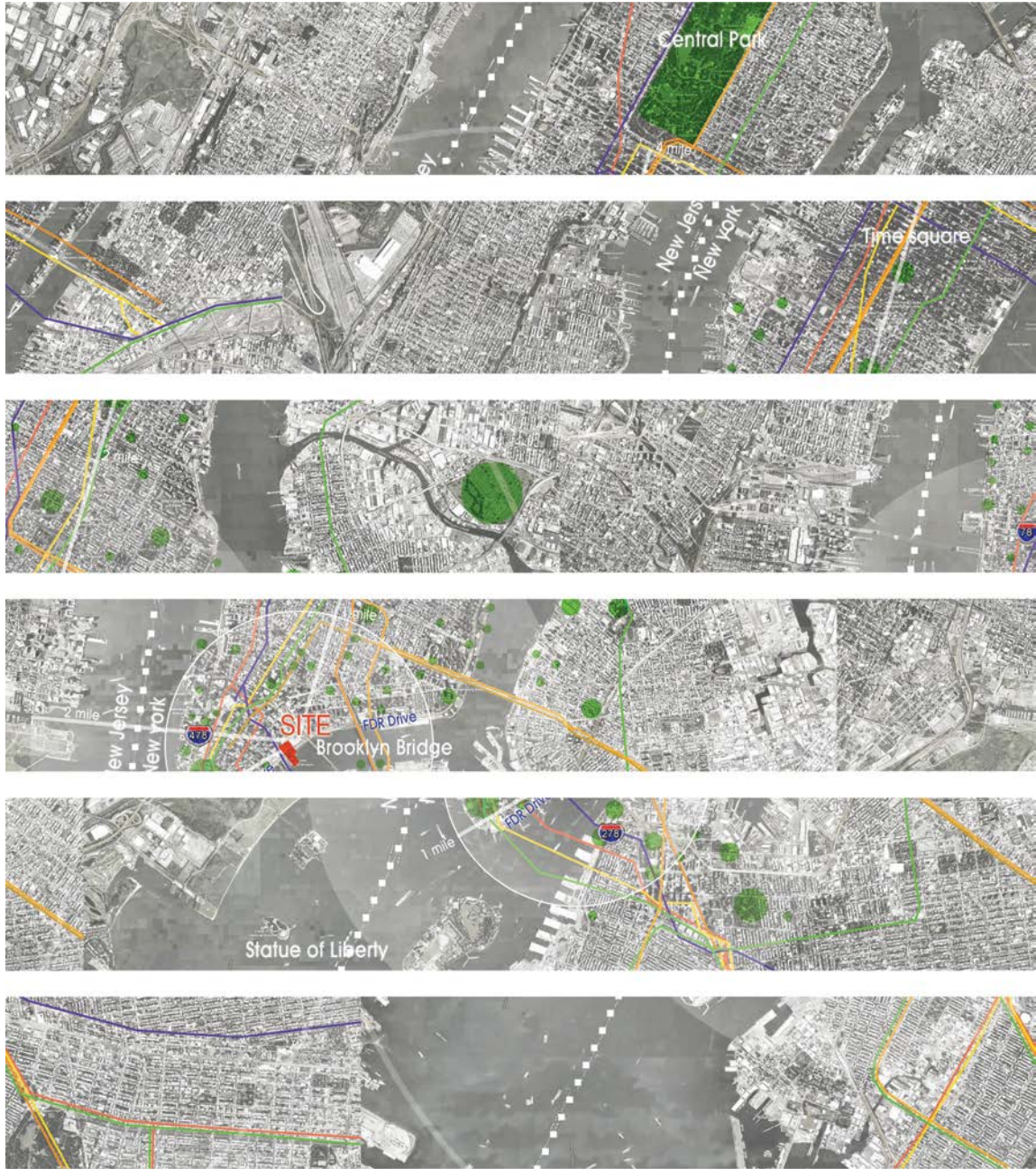


Figure 28 Site Context

The most considerable condition to select the site is connectivity. Darkness under FDR Road and less connectivity between Fulton street and the East of South street in NYC is the main element in this project. Despite huge number of people with great public transportation system(Fig. 12)⁴, this does not mean that all around of this city is well developed or well used.

⁴Green, Yellow, Blue, Purple, Red, Brown, and Orange lines mean metro system.

Solving the lack of connectivity with this condition is a difficult problem. Although there are several kinds of metro lines near the site, no station exists within half mile from Fulton market place. In addition, when people need to arrive the site in order to visit museum or Fulton historical region, then they have to cross at least two roads to use bus station with long walking distance. Comparing with density of population around site itself, open or green space(Fig. 12) ⁵



Figure 30 Zoning of NYC



Figure 29 10 year Capital Plan of NYC

According to a report of NYC DOT(Fig. 13, and 14), the site is historical preservation region and also a number of academic facilities and cultural elements are faced within about half miles. However, in this condition, heavy traffic jam and crowd public transportation in the morning and evening are not a positive element to approach between spaces. In addition, after finishing all official schedule during week day and day time, the site is used as a pass way.



Figure 32 Existing Condition Under FDR Road



Figure 31 Under FDR Road in front of the Site

⁵Green colored circles indicate public park

4.2 Circulation Analysis

i) Normal daytime between 8 am and 5 pm

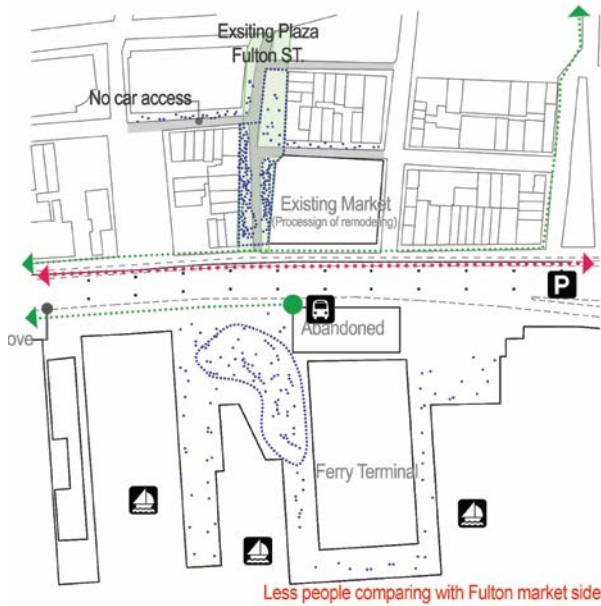


Figure 33 Circulation Weekday and Daytime

There are lots of people on the Fulton St. during daytime in order to use restaurant, cafe, or grocery shop, while opposite side of FDR Road has less people comparing with Fulton market side. Also, there is less connection along FDR road.

ii) Normal daytime between 5pm and 12 am

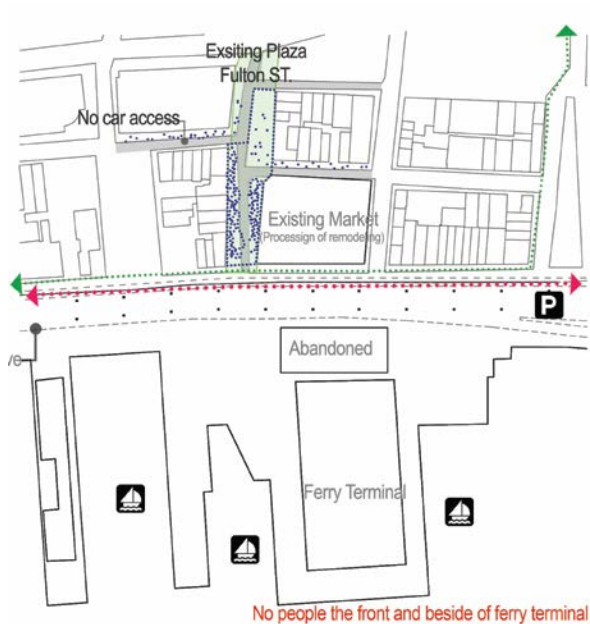
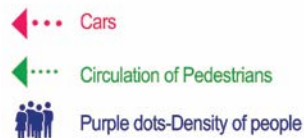


Figure 34 Circulation Weekday and After Sunset

After sunset, some people enjoy their dinner or some drinks in Fulton St, while there is no people the front and beside of ferry terminal. Because there is no infrastructure for enjoying something such as drinking, eating, and sightseeing. Also, public transportation is needed.



iii) Holyday or Weekend between 8 am and 5 pm

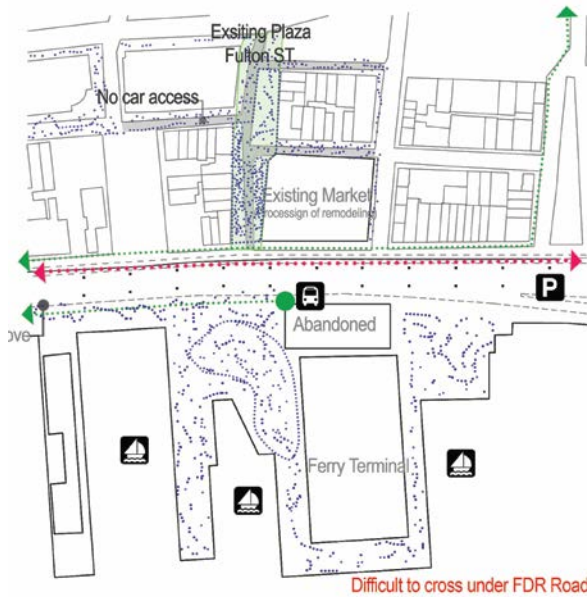


Figure 35 Circulation Holyday and Daytime

Comparing with normal daytime, more people comes to Fulton St. and Ferry terminal side. Also some buses are coming through South St and stop in front of South street seaport. However, although there are a lot of people each side of FDR, just few people cross the South St.

iv) Holyday or Weekend between 5 pm and 12 am

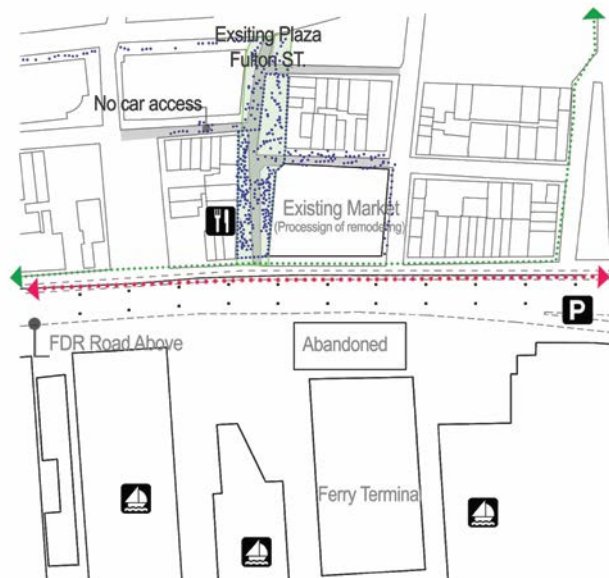





Figure 36 Circulation Holyday and after Sunset

Although comparing with normal daytime and evening, more people comes to Fulton St., after sunset, just few people similar number of people to normal evening time on the Ferry terminal side.

-  Cars
-  Circulation of Pedestrians
-  Purple dots-Density of people

4.3 Sectional Analysis of the site

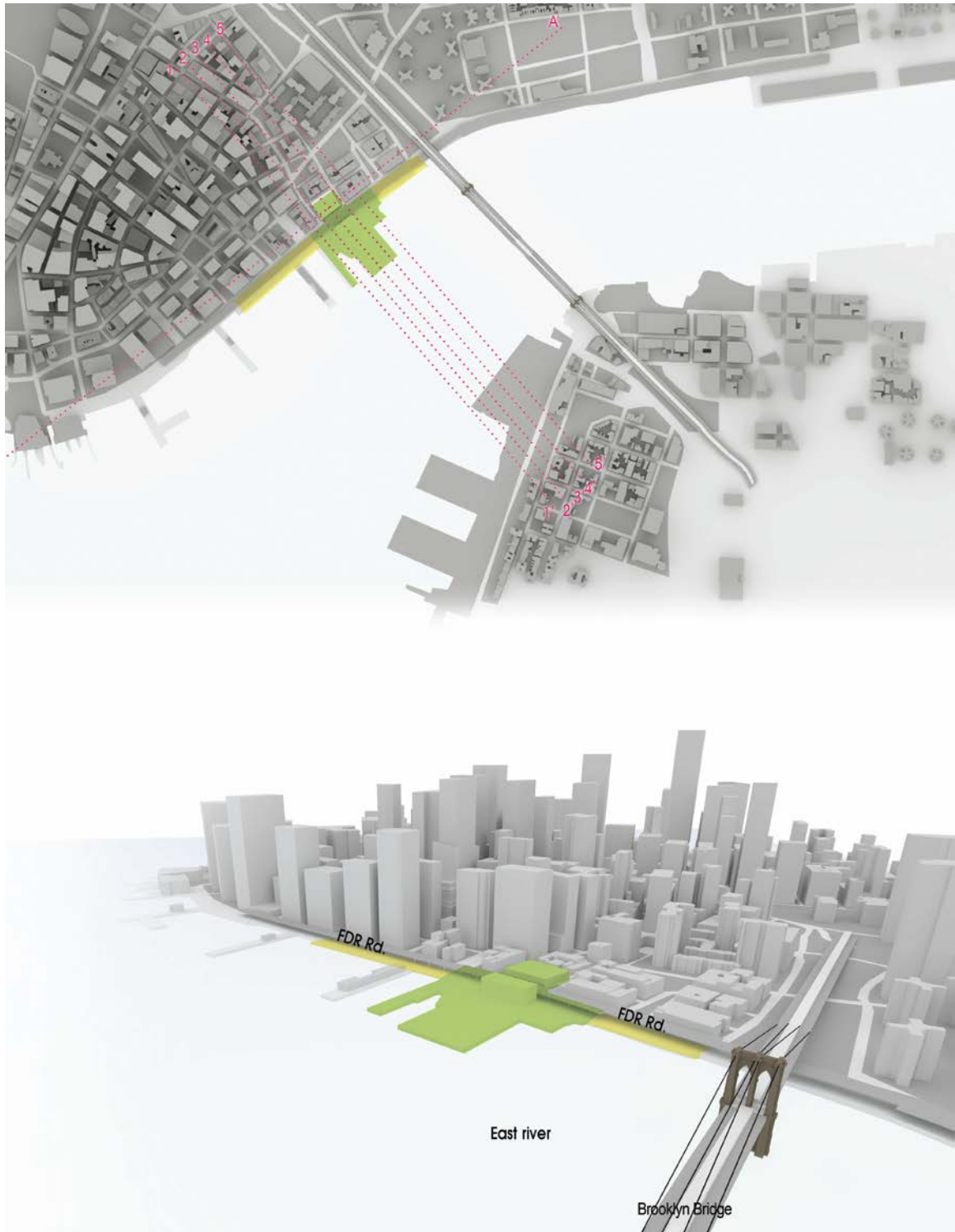


Figure 37 Existing Condition of the Site

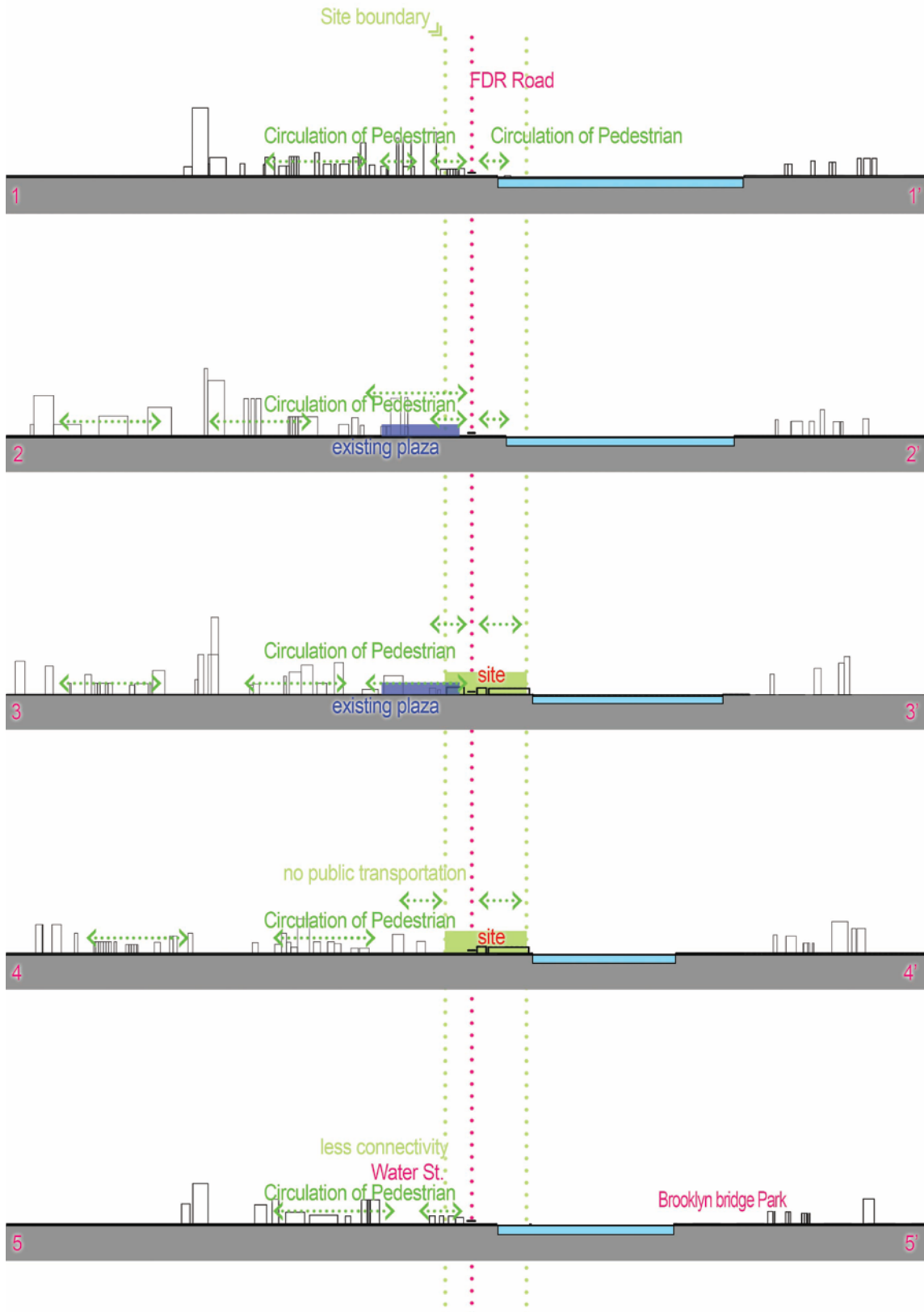


Figure 38 Sectional Analysis of the Site

CHAPTER 5

DESIGN EXPERIMENT

5.1 Conceptual Design

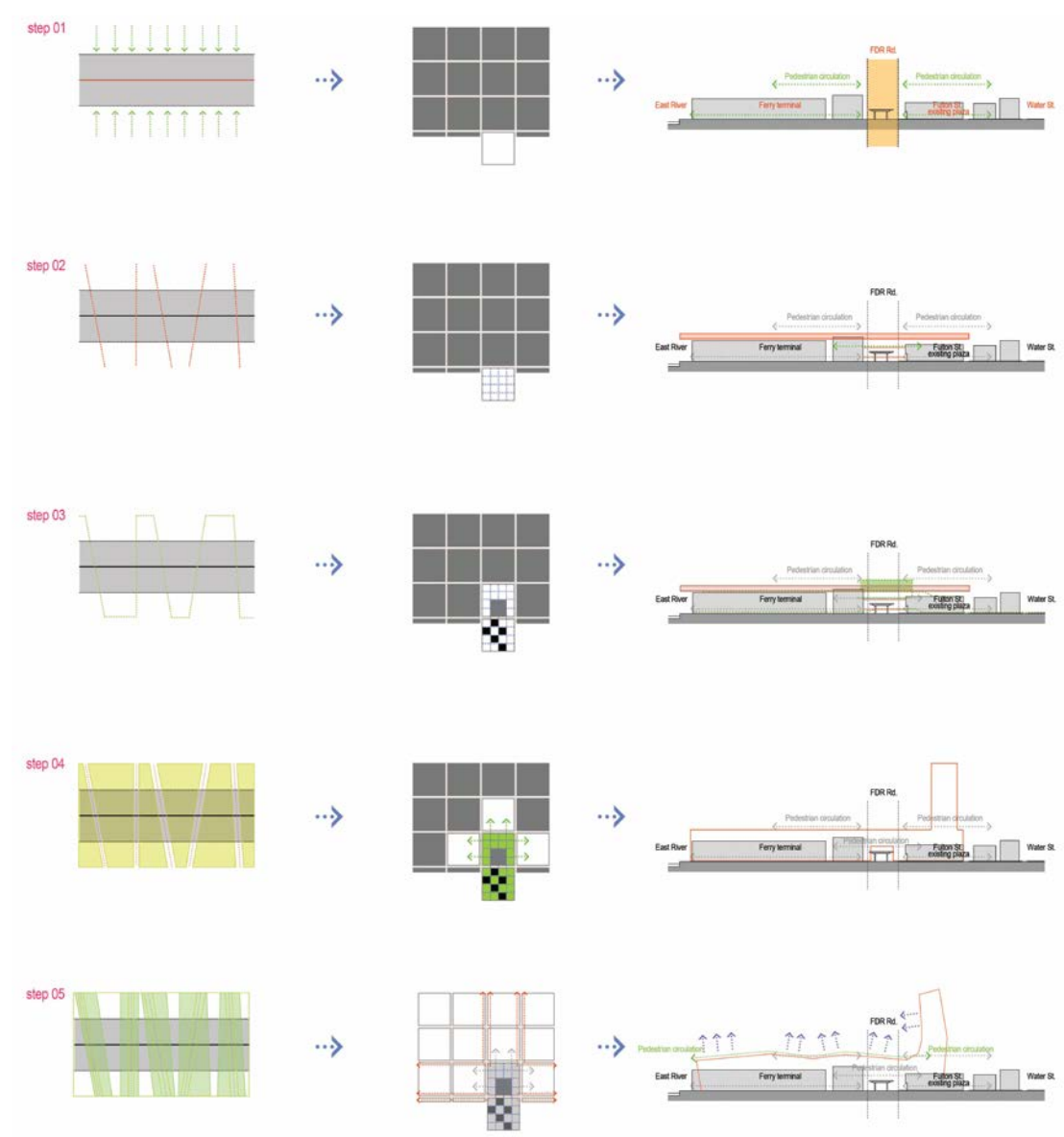


Figure 39 Concept Development

The figure above is the process of design concept and they are deducted based on site analysis from chapter 4. Left column is the first phase with defining of idea, the middle one is the second phase for applying idea into the site, and the last of all is the third phase about process of sectional connection. In addition, there are five steps from the top of the columns to the bottom.

5.1.1 Alternative Study

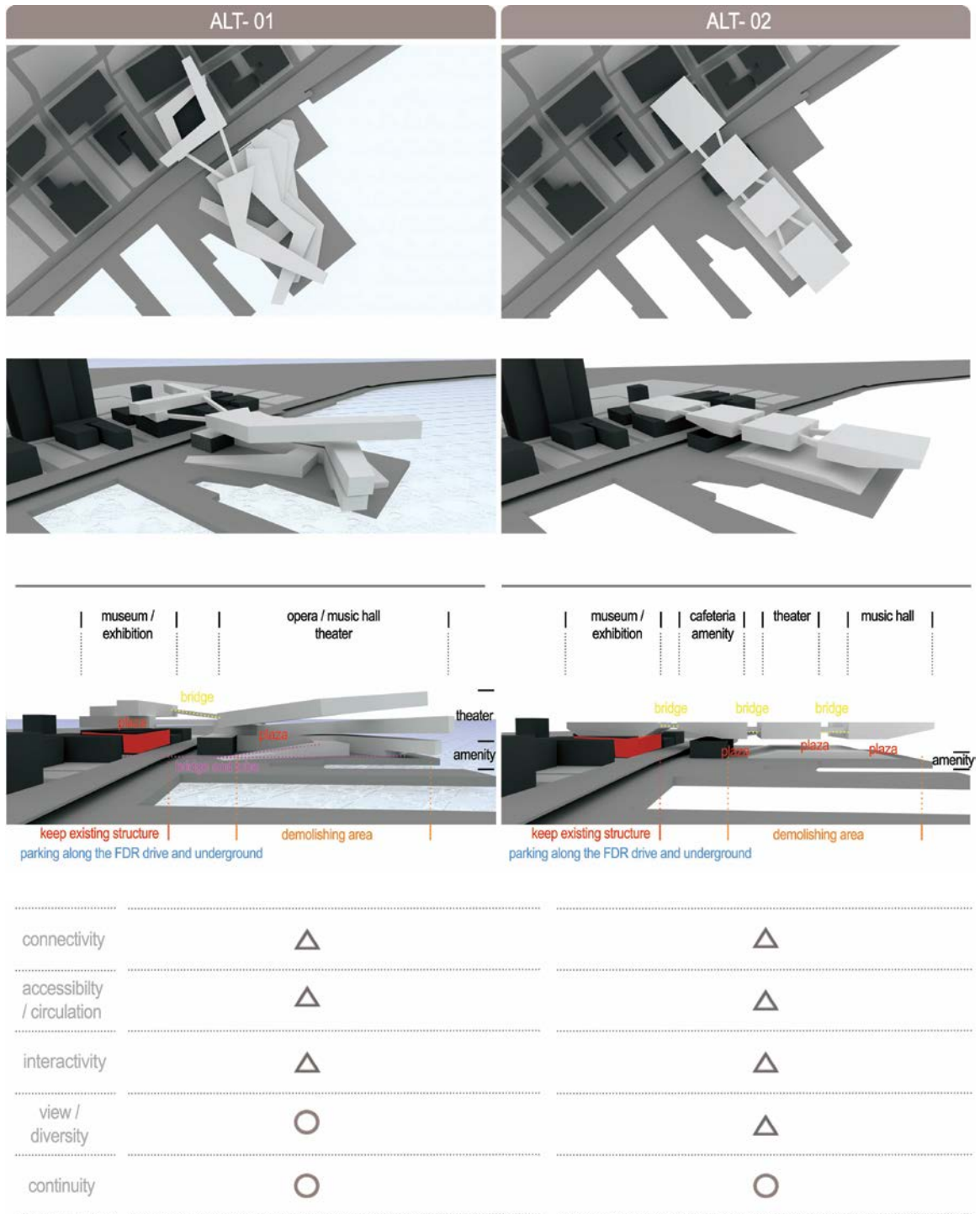


Figure 40 Alternative 01 and 02

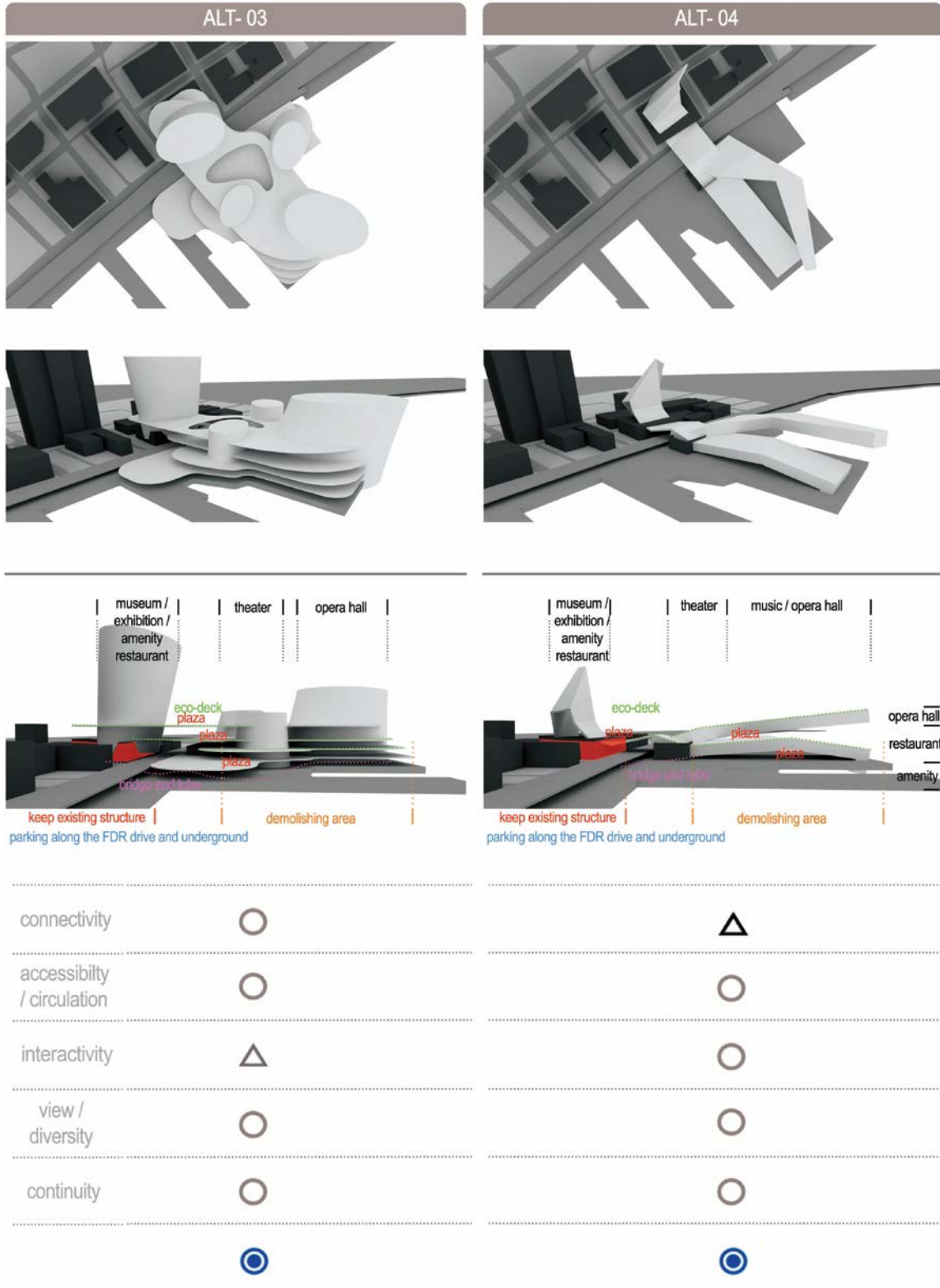


Figure 41 Alternative 03 and 04

5.1.2 Design Process



Through the alternatives study, potential possibility has been founded in ALT 03 and 04. (Tab. 17) Using combined advantages between them is needed in order to maximize features between urban plaza and mixed use building.

Step 01 Original Condition

Road and car access has brought comfortable life, also, this is a kind of a barrier for pedestrians. it breaks and interrupts human activity between divided areas by itself. (Fig.24)

Step 02 Set a Connector

Urban plaza has been separated due to little convenience. Using urban context and continuing context of plaza cause to expand territory of human activities. (Fig. 24)

Step 03 Break Existing Condition with Urban Context

Existing severed area is deconstructed by expansion of urban context.(Step 03. Fig. 24)

Step 04 Reconstitute New Place with Urban Demand

New territories is reconstituted by existing context. (Step04. Fig.24)

Step 05 Hugging, Folding, and Unfolding

The folded and unfolded shapes interact with surroundings and building itself is participating to human activity.(Fig23)

Figure 42 Design Process

5.2 Schematic Design

5.2.1 Program Description

Building program is mixed-use with public plaza on the roof. Apartment is located on the north of the site while hotel is opposite of it. Cultural facilities are placed the East and the West along the FDR road. In addition, there are several kinds of event space between these programs in the site as a plaza in order to offer diverse experience through the every openings.

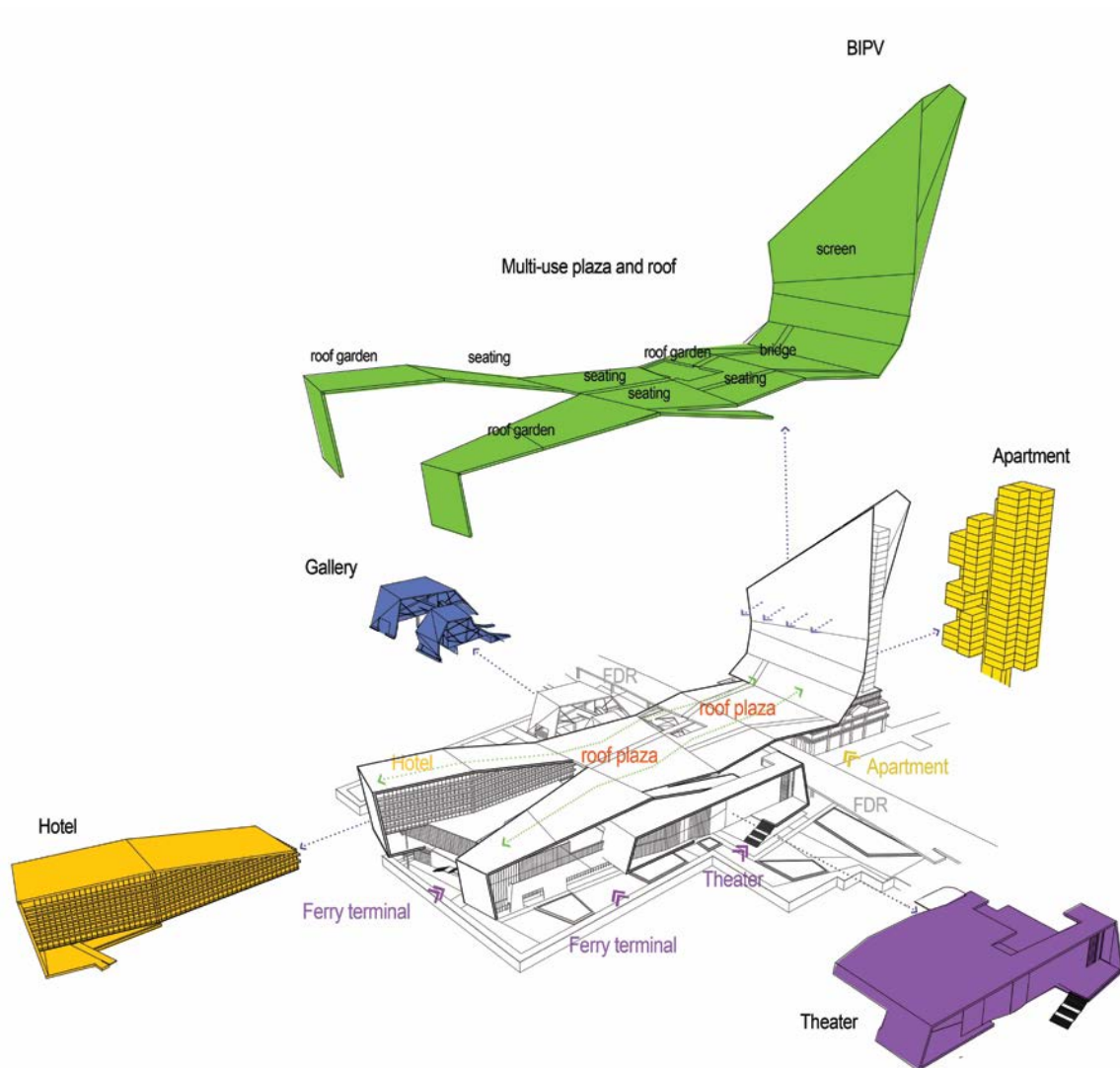


Figure 43 Program Description

5.2.2 Circulation through whole site

Each function has distinguished entrance as user's needs, however, they are connected by bridges, lamps, stairs, terraces, and roof plaza. In addition, there are various connections with surrounding buildings of site by under pass of FDR road.

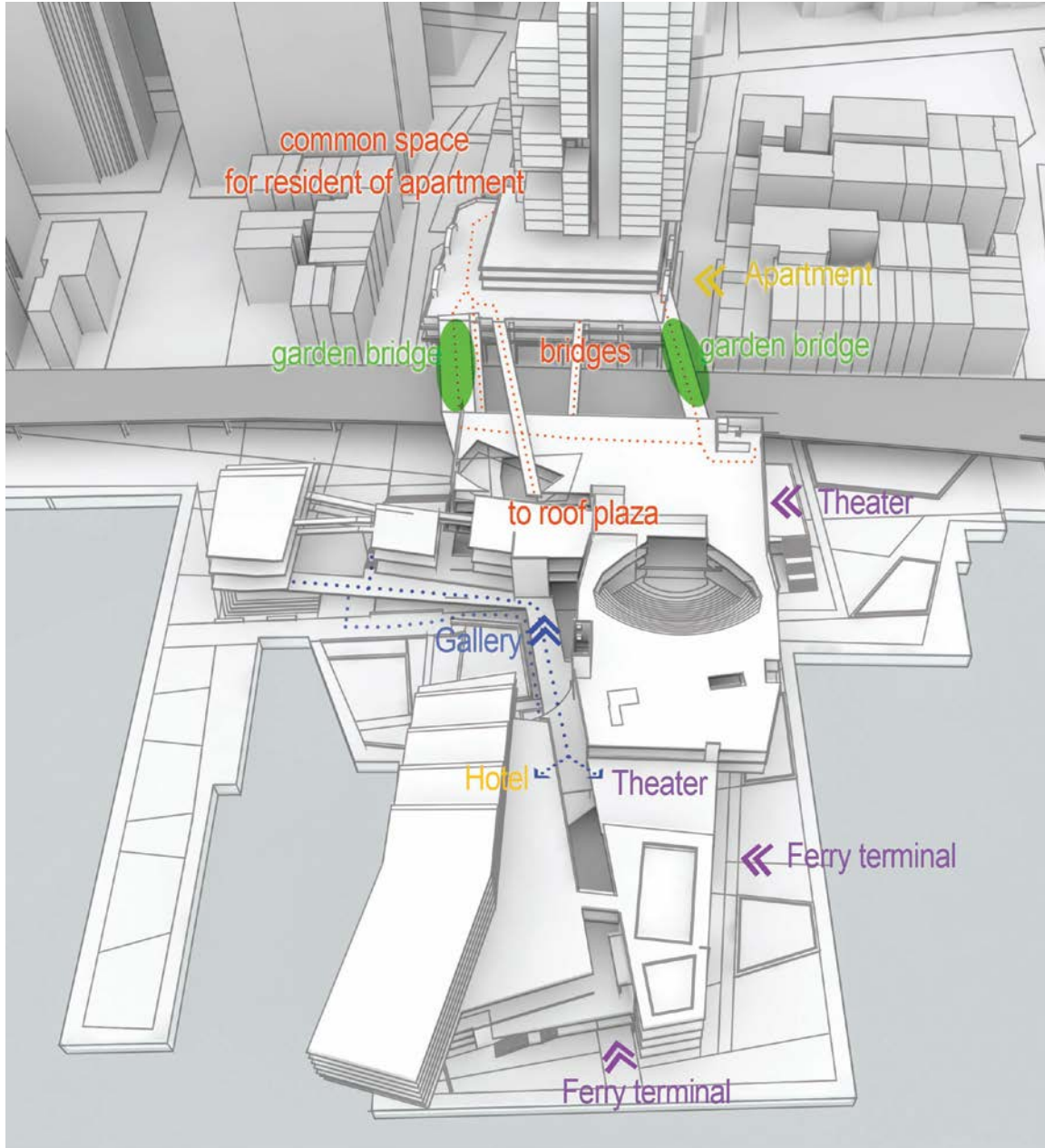


Figure 44 Circulation Concept

5.2.3 Concept of plaza in Apartment

Plazas on every 3 floors in apartment offers new experience to residents and it vitalizes better quality of life.

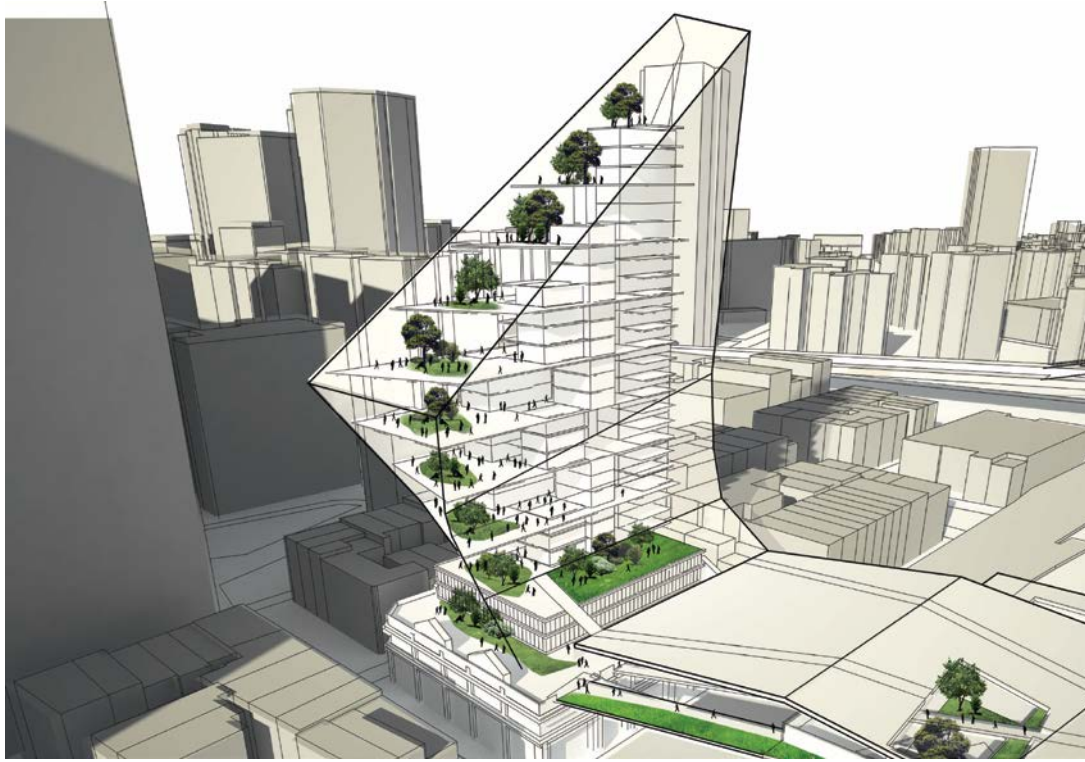


Figure 45 Concept of plaza in Apartment

Mechanic system of Urban Screen

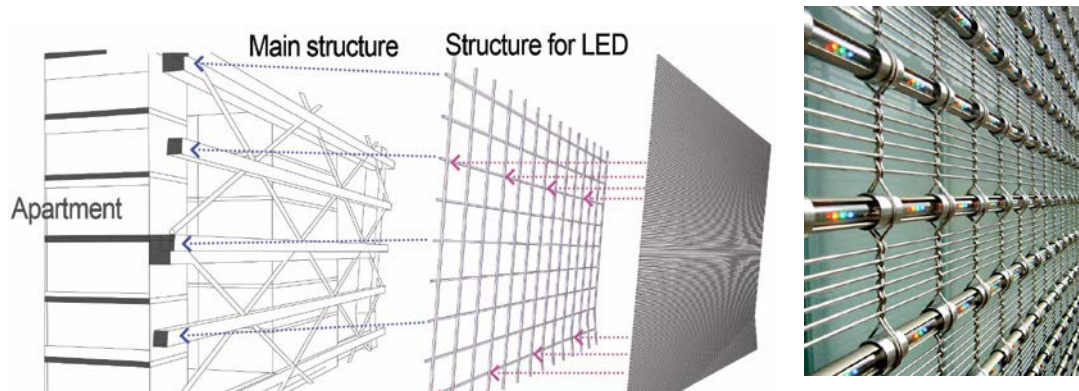


Figure 46 Concept of Urban Screen

5.3 Design Development

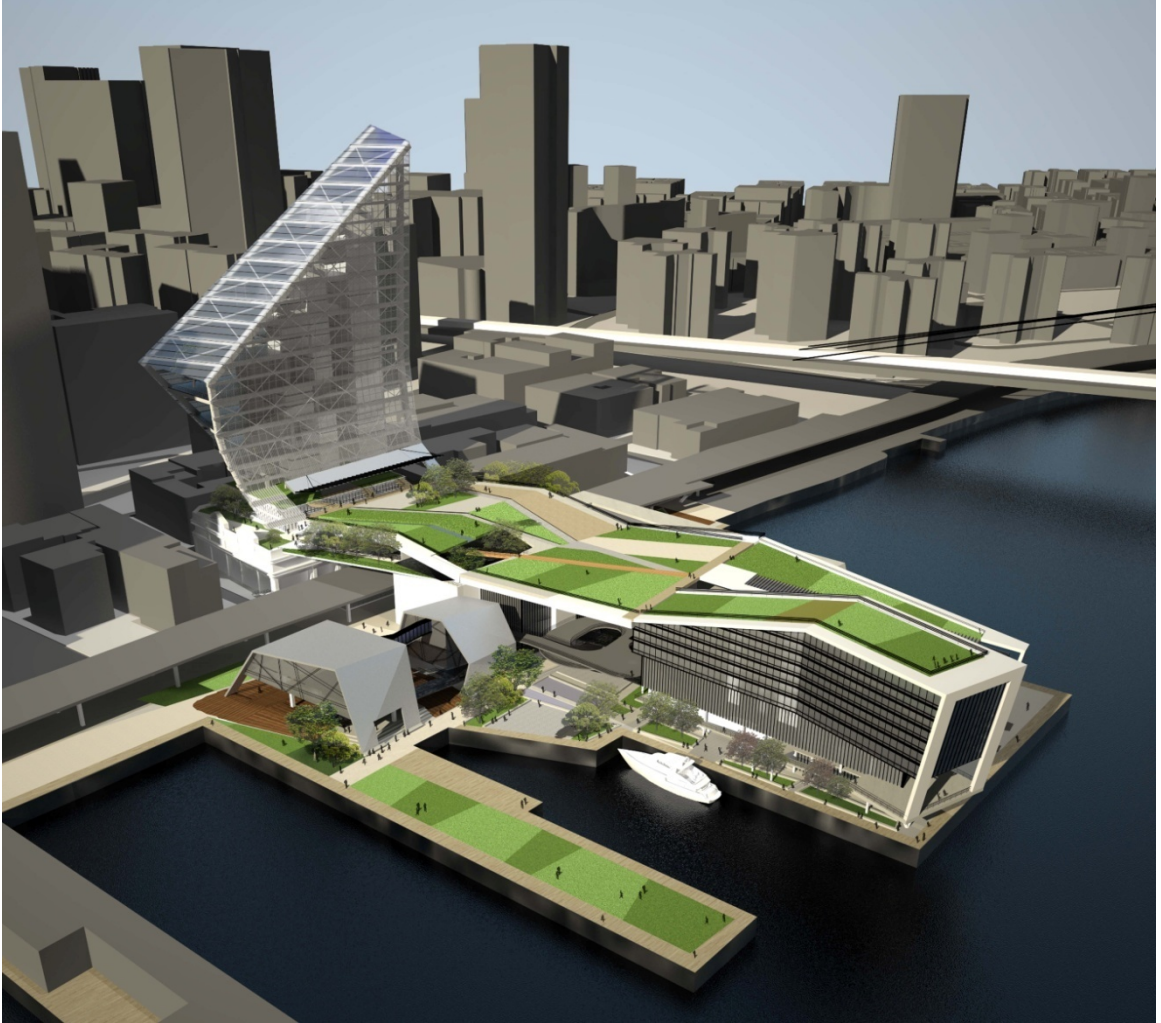


Figure 47 Bird's-Eye View from East River

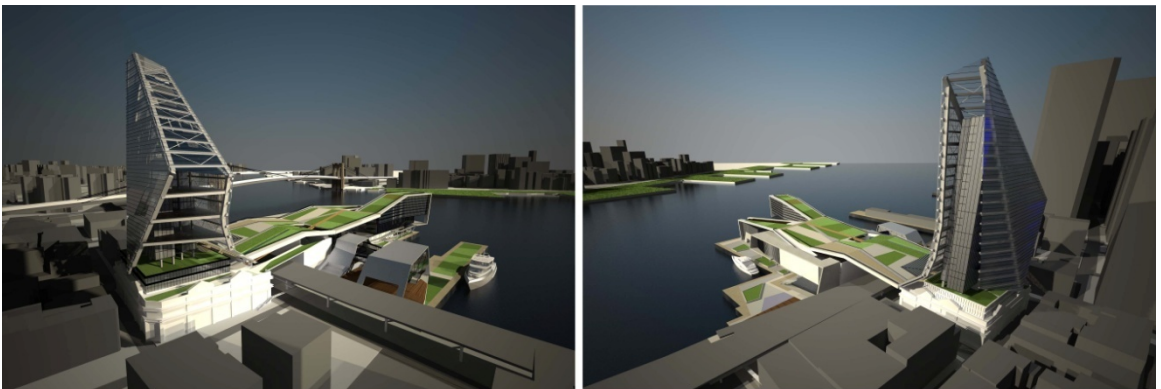


Figure 48 Bird's-Eye View from North

5.3.1 Floor Plans

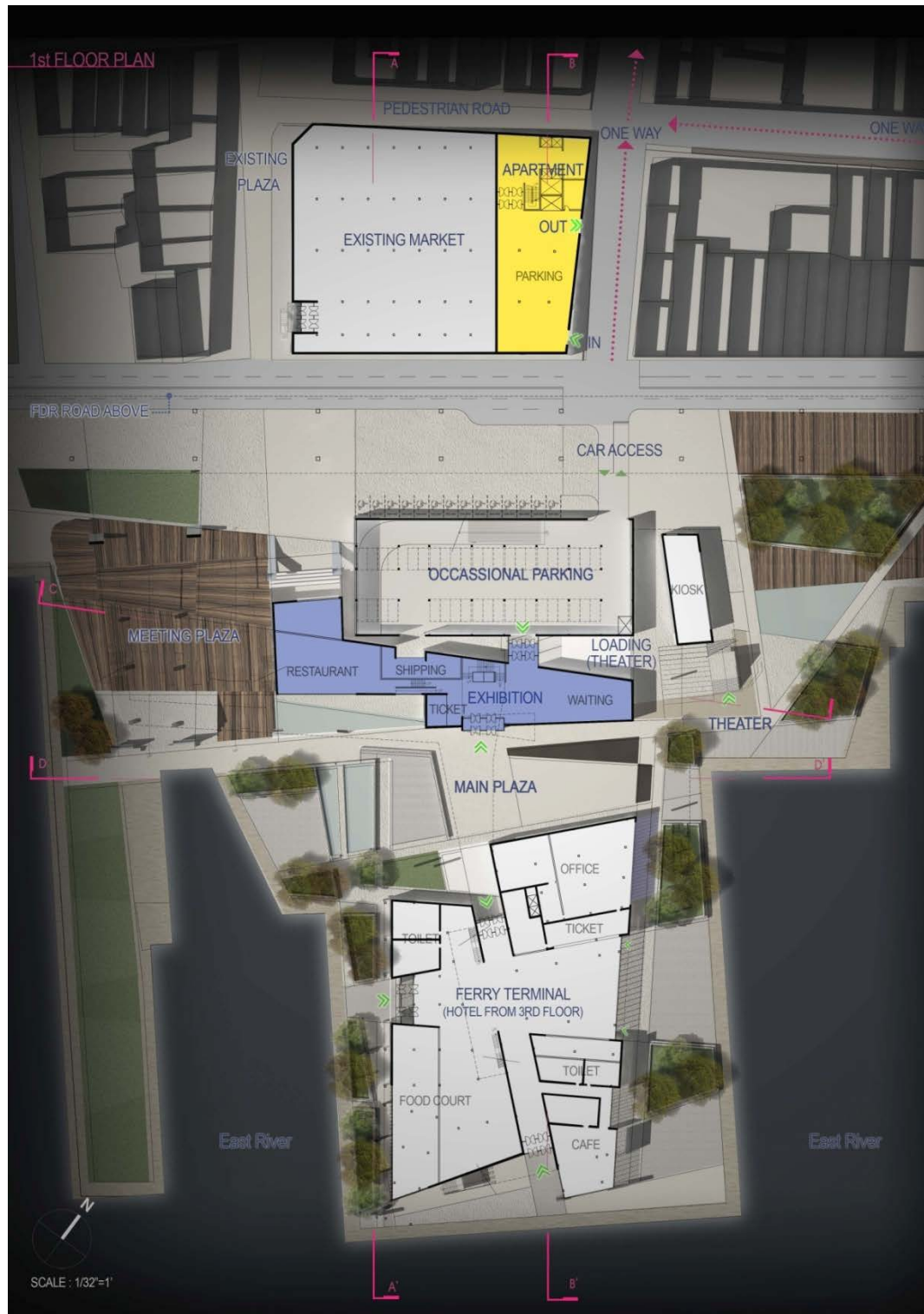


Figure 49 1st Floor Plan

i) 2nd Floor Plan

There are stairs between South St. and under FDR road with some bridges to link with riverside walk way and roof garden of new mixed-use building. It gives a lot of opportunities to approach each other. Particularly, the second floor is connected with pedestrian road under FDR as a new suggestion, this offers river side view and higher connectivity.

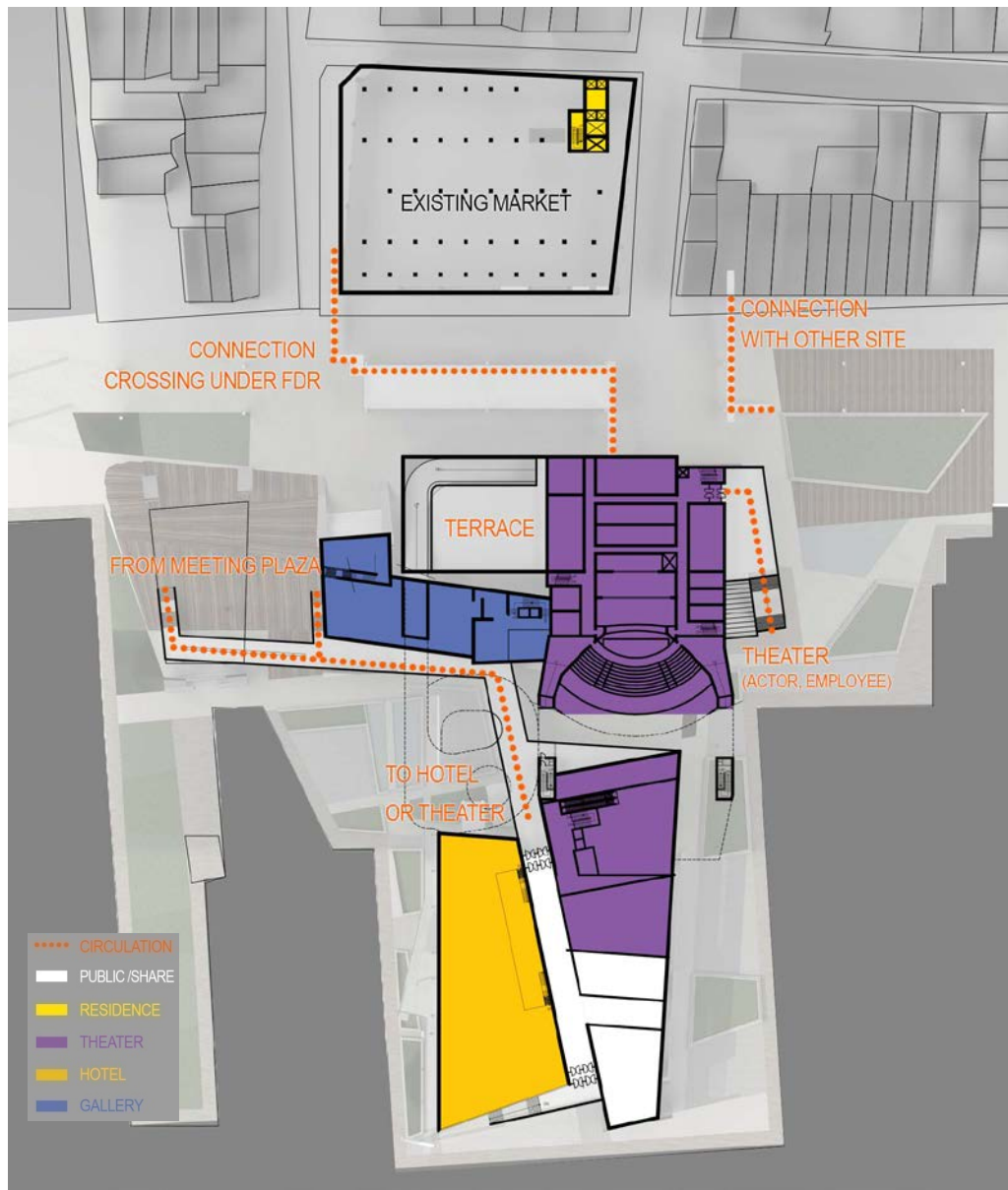


Figure 50 2nd Floor Plan

ii) 3rd Floor Plan

The 3rd floor plan is higher than the height of FDR Road, therefore, it is possible to install bridges between apartment and a building of riverside. Thus users of Fulton Market and around of it is able to use and access over FDR road.

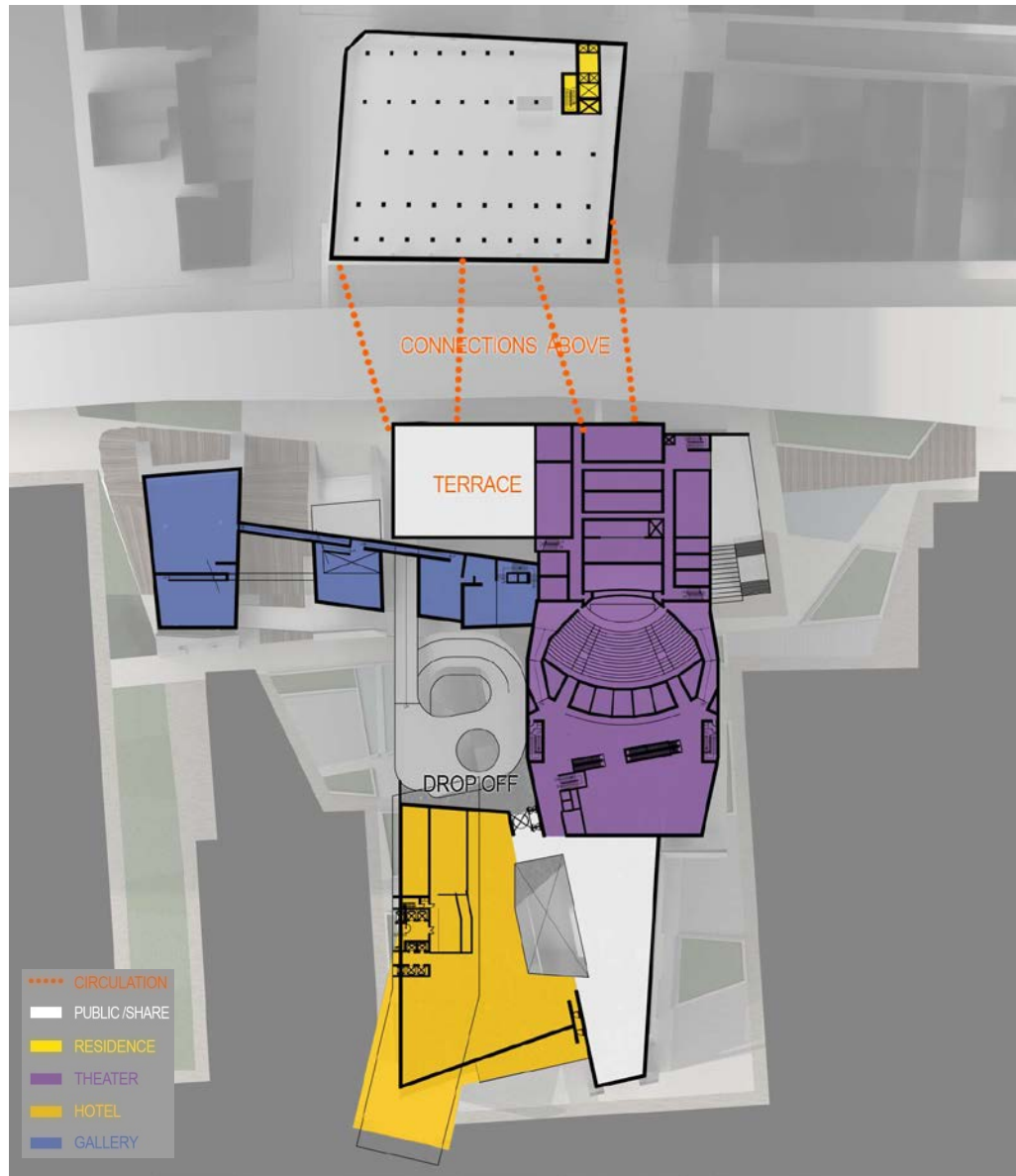


Figure 51 3rd Floor Plan

iii) Roof Floor Plan

Roof garden is started and connected between the tower, which is residential part of the project, and cultural facilities, which is located in front of the East river. Roof garden offers diverse experience such as seating place for watching movie from the facade of the tower, seating towards river to see riverside with the Brooklyn bridge, and some walk way for having relax.

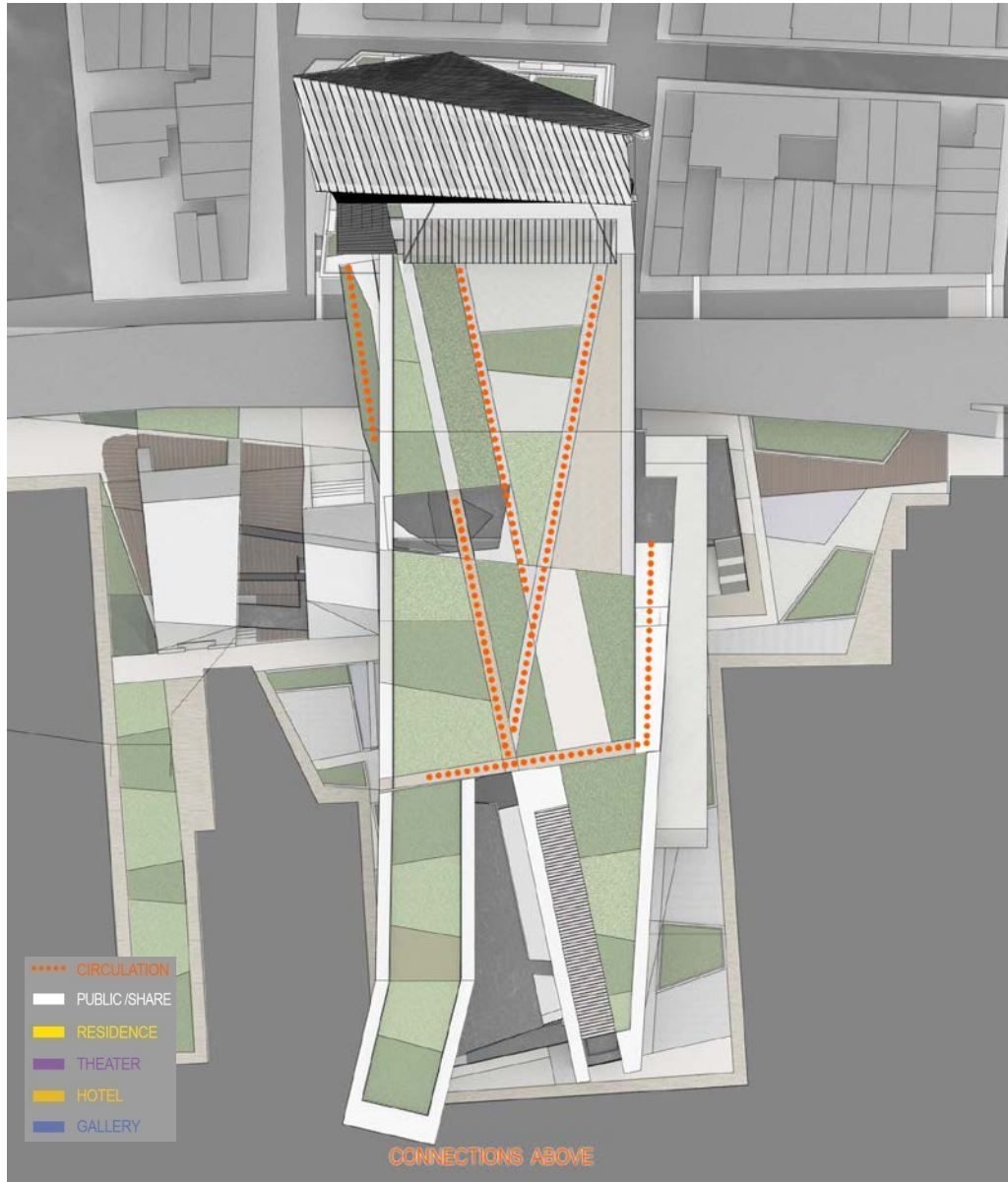


Figure 52 Roof Plan

5.3.2 Section and Perspectives

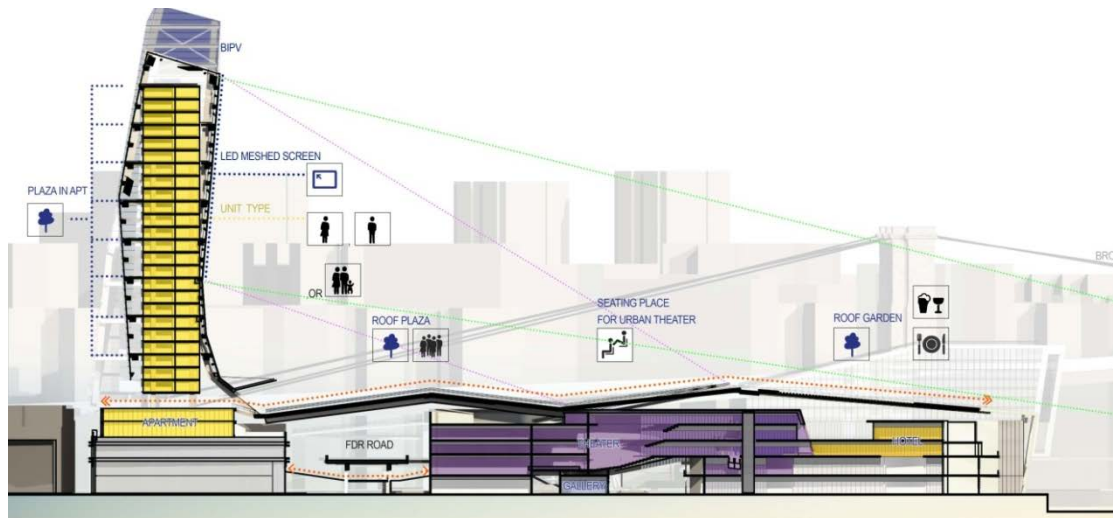


Figure 53 Section B-B'

In brief, section shows the relation and connectivity with building itself and surroundings. First of all, plaza in apartment is placed on every 3 floors(Left of Fig. 53 and 54), so it provides semi-public space apart from other users and visitors of the site. Secondly, LED meshed screen on the facade of apartment and seating place of the middle of the roof plaza provide urban theater after sunset(Purple dots, Fig. 53), consequently, this leads high connectivity and usage compare with before. In particular, the urban screen projects films to Brooklyn park and this gives unique opportunity to interact from the site to opposite side.(Green dots, Fig. 53)



Figure 54 Section A-A'

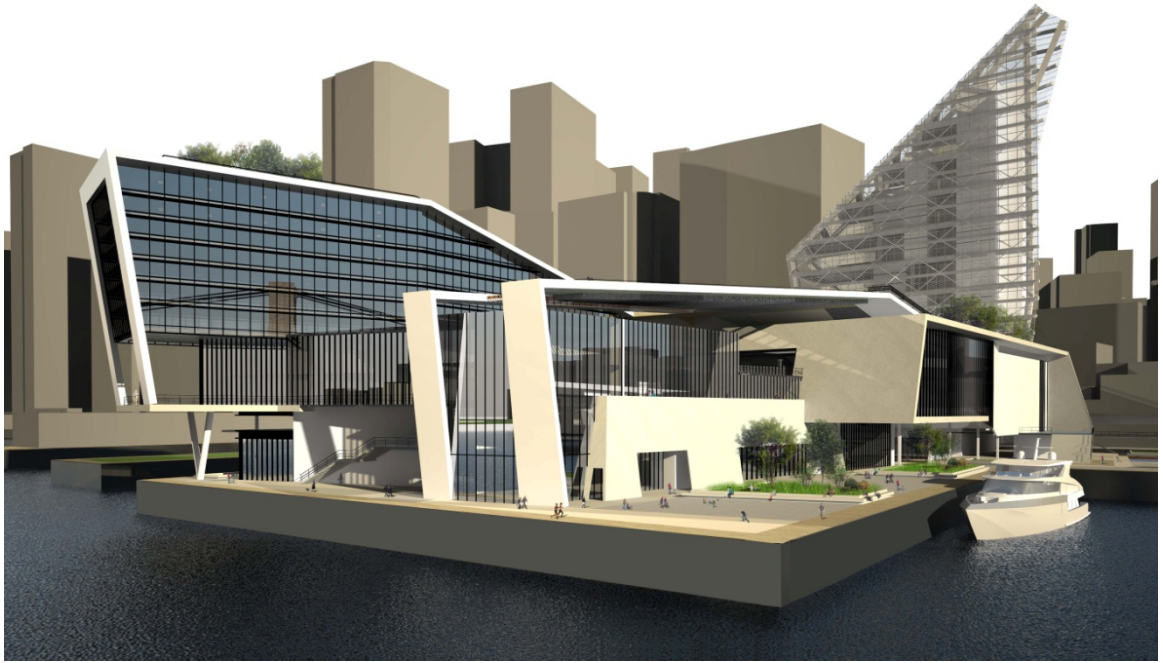


Figure 55 Perspective from the Brooklyn Bridge before Sunset

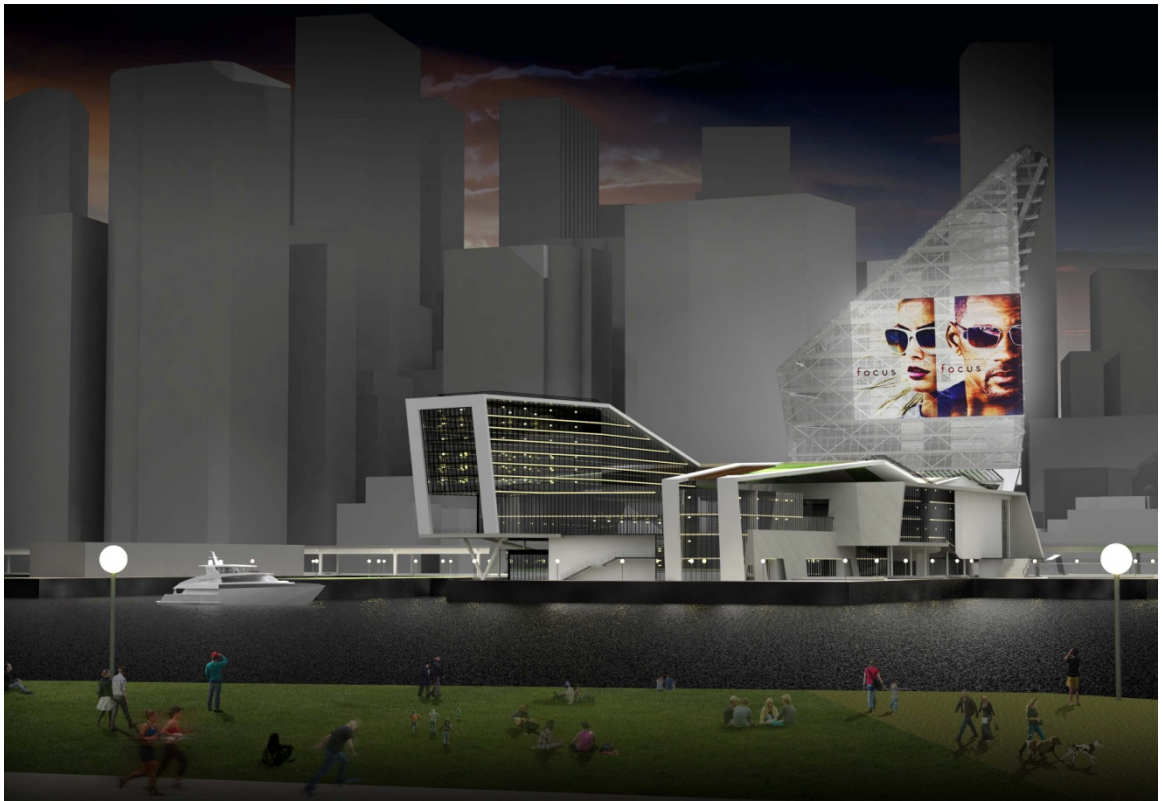


Figure 56 Perspective View from Brooklyn Bridge Park after Sunset

CHAPTER 6

CONCLUSION

The intrinsic value and the original intention of this thesis was to create a succession of strategic solution in cities, which have had less connectivity by thoughtless development and road occupied by transportations, and to promote city life with interactively vitalized events in mentally desolate environment daily. In this proposed design, there are two main issues that all communities in metropolises should be considered: (1) gathering people from high density area to less usage space and (2) producing emotionally and physically comfortable and safe space in order to stay more. Thus this design exploration is suggested in order to vitalize exhausted urban area with improving environmental quality of city through reinterpreting the meaning of plaza, which is a key of public life, and linking space between buildings and plazas focused on the circulation of users and passengers.

Although there are a number of visitors around South St. in Manhattan, NYC, only few opportunities to enjoy open space are produced with limited number of events. Darkness and less connectivity is the key element in this area and it is a sort of proof that urbanization and development of cities in contemporary society does not mean that all around of it is well developed or well used. In addition, existing plaza in front of Fulton Market place are often lacking certain events that are currently needed since it has been planned in the past. Accordingly, connections with existing condition and mixed-used buildings, which are considered as a unit place in order to meet the demand of the times, are needed to increase 'publicity'.

As a result of this, this design exploration suggests a linkable unit space in order to unify separated community gathering spaces together. In this design, diverse level changes in height are used on the ground level between existing plaza and ferry terminals with various architectural elements such as columns with regular or irregular distance, seat in front of fountains or riverside, and bridges under FDR roads. In addition, several kinds of bridges are used between mixed-use building on the South of the site and apartment upper of existing condition on the North of the

site and between mixed-use building each facilities such as green bridge over FDR road and different level of bridges between galleries. Moreover, the roof plaza across two blocks between the apartment and ferry terminal offers maximized connectivity with several kinds of rest place such as roof park, seating place for watching movie and for sightseeing, and walkway. Finally, urban screen on the main facade of the apartment interacts with public and offers unique experience to citizens. Thus this design proposal is not only pursuing to connect within the site but also interacting and communicating with its citizen all-around of the site.

In conclusion, as cities and techniques have developed, the quality of living environment also has to be improved. Accordingly, architecture must be changed as life style has been changed with the needs of the times. For progress of this, the meaning of 'publicity' and plaza, which has been misleading in contemporary ear, has to be reinterpreted for betterment of connectivity with infrastructures. Thus this design experiment is expected to use to discreet discussion as a beginning of new solution in order to enhance urban experience.

APPENDICES

A. REDERING OF CONNECTIONS

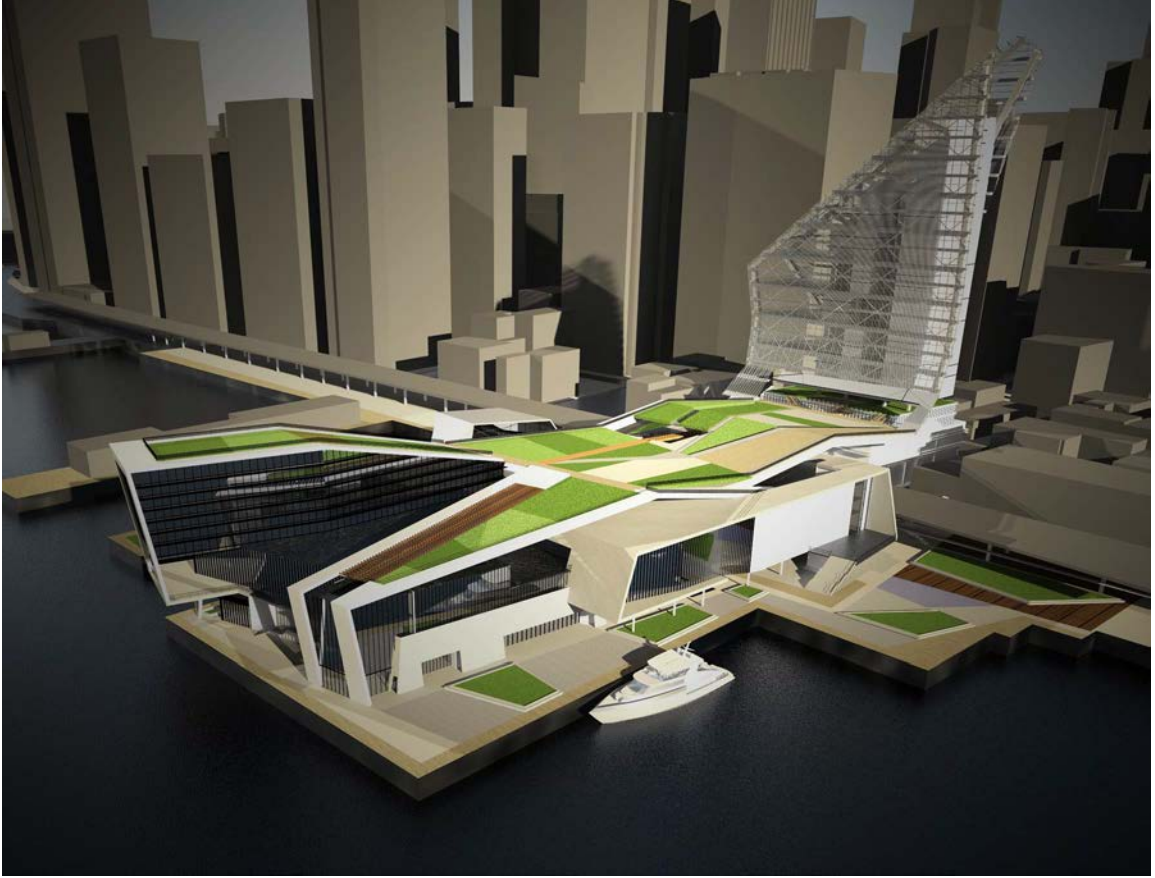


Figure 57 Perspective from the Brooklyn Bridge

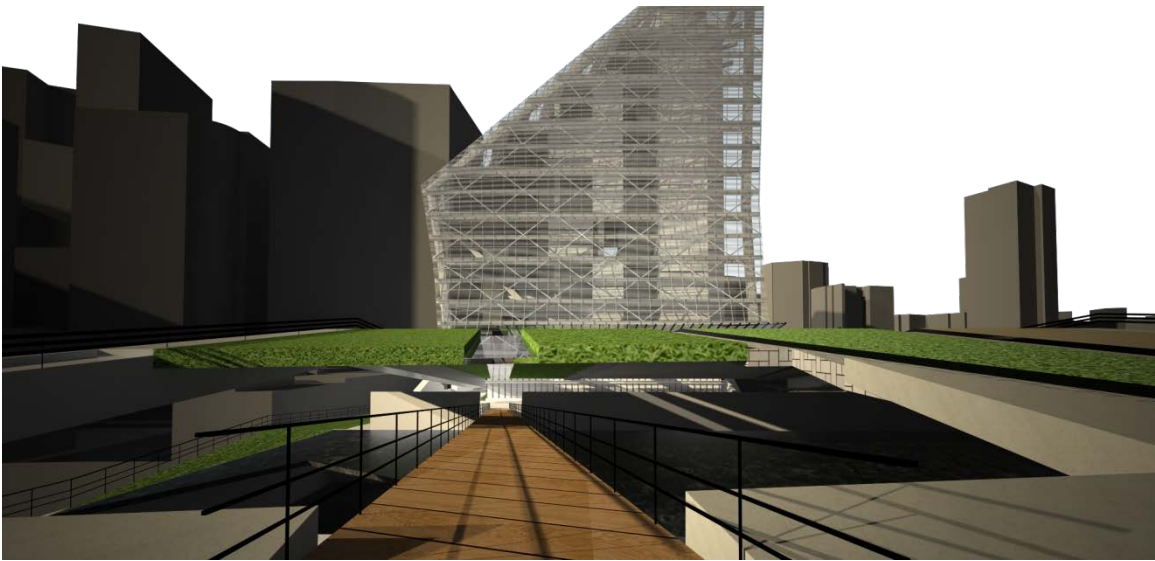


Figure 58 Bridge into the Apartment from Roof Plaza

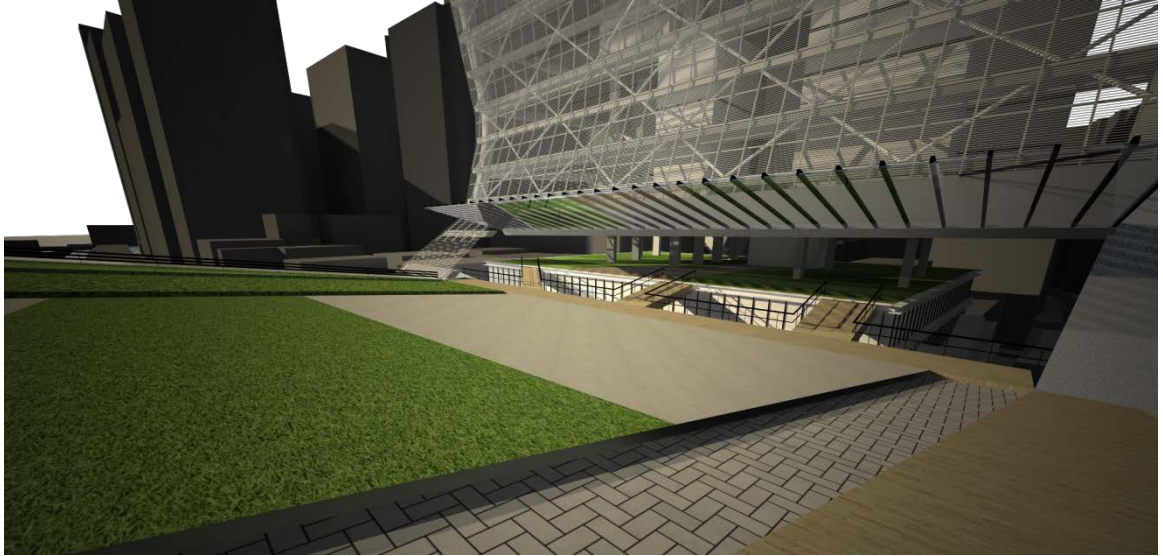


Figure 59 Connection Between Roof Plaza and Lower Floor of Apartment

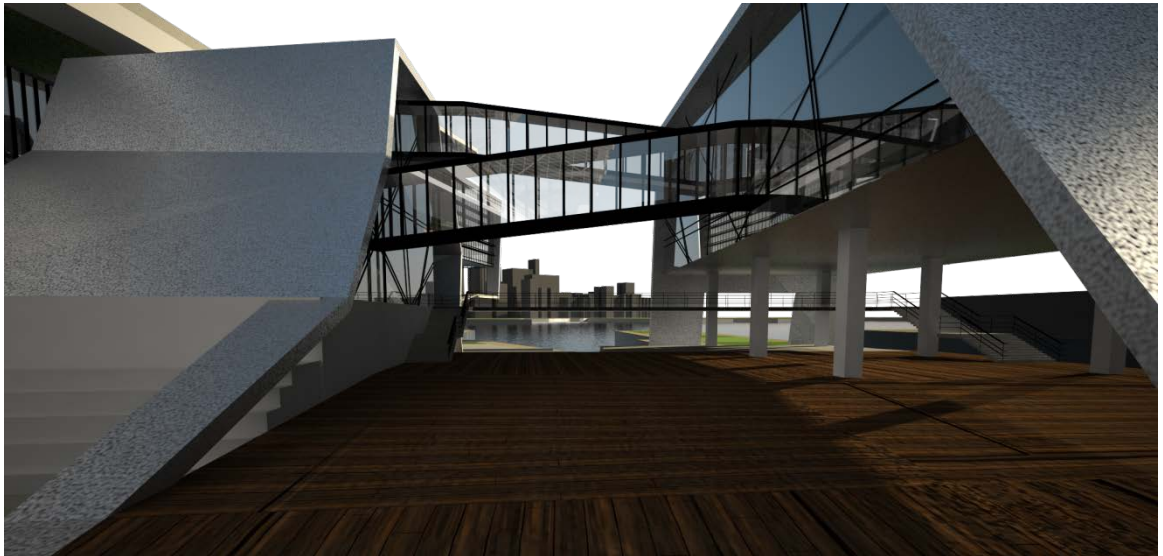


Figure 60 Bridges Between Galleries

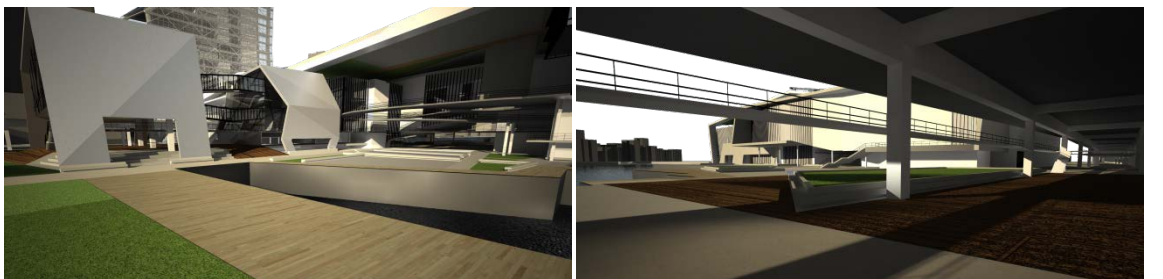


Figure 61 Perspective View Galleries and Under Space of FDR Road

B. PRESENTATION BOARDS

The following images are the boards presented on April 14, 2015. The original size of four boards from this page was 36" x 60" and three boards were 36" x 72".

EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS



Abstract

Urbanization and development of cities is necessary in contemporary society, however, these achievements are also causing urban problems, such as lack of open green space, density problems, traffic problems, and over population. Existing buildings offer various living functions that are currently needed since they have been designed in the past. Thus, plaza and mixed-use buildings, which are considered as an open space, are needed to maintain the quality of urban environment as a viable quality concept. In particular, mixed-use building as a highly functional facility is needed to provide a quality of life for people.

In general, the meaning of publicly in a city seems to be derived from 'public', which is from ancient Greek. Public as an open space in a city was realized as a public, which accepts the public in order to improve the psychological well-being and observation of physical environment. Furthermore, it was realized by recognizing that an urban public space is a space and an urban space with public, architectural, and social values. Having a public space, which is necessary in a city, is expressed based on building plaza and surrounding land use. On the other hand, it requires a space to be a way to realize open public space in urban life.

In addition, urban and environmental factors such as land use and construction of urban environment and, as a result of it, the social, political, economic and architectural development. In fact, open space and need for public places have developed. Expansion of buildings, reduction of streets, and degradation of urban places have started to divert a space for public activity. It has connected to full quality of the urban environment and construction of living, and then the quality of the city has been as a result. Urban plaza is a typical component of urban open space and the space which can help urban environment.

Thus, the objective of this study is to recognize the concept 'publicly' in urban as a strategic space in order to realize the city. The study includes analyzing connectivity between urban plaza and architectural space and proposing design methods for a mixed-use building which will improve environmental quality and urban life.

In conclusion, the study will be used to suggest a new solution for the urban design, which has had been conducted by transportation and landscape development for the environment, in order to produce pleasant open space to enjoy public life for urban based on increasing product and better people and their city infrastructure with diverse in function and psychological stability.

Definition of public space and plaza

Type	Example	Features
Flexible space	Agora	All kind of common issue for people equally such as public and commercial leaves has been juxtaposed with mixed patterns. Ideal space that contemporary city cannot have generally.
Public property	Street, Plaza, Park	Owned by local or national government officially Sharing space with all. Connecting or separating space between individual buildings or infrastructures.
Open space	Social infrastructure	Created by interval space such as pitch of buildings and green area unrelated with possession or sharing. A neutral space.
Private-public space	Atrium, Street	Coexistence both private and public features A Space for citizen as a smaller area
Commercial Plaza	Department store, shopping mall	An exclusive public space which is opened to user of occupying space or buyer a specific product. State service is offered to users.

Relation between architectural elements and urban plaza



Patterns of plaza in city

With 4 direction road		High accessibility, Heavy Big event
With 1 or 2 direction road and buildings		Extra place in a building for pedestrian or resting space for user
Beside of road		Main plaza and sub. Plaza Quiet and safe to pass
Isolated from road		Quiet and safe Similar to atrium



Relationship between columns and plaza

Relationship between height and plaza

Relationship between walls and plaza

Relationship between openings and plaza

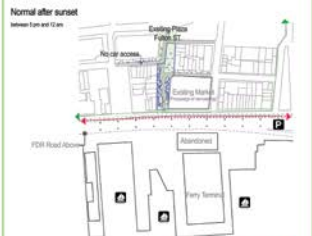
Relationship between natural elements and plaza

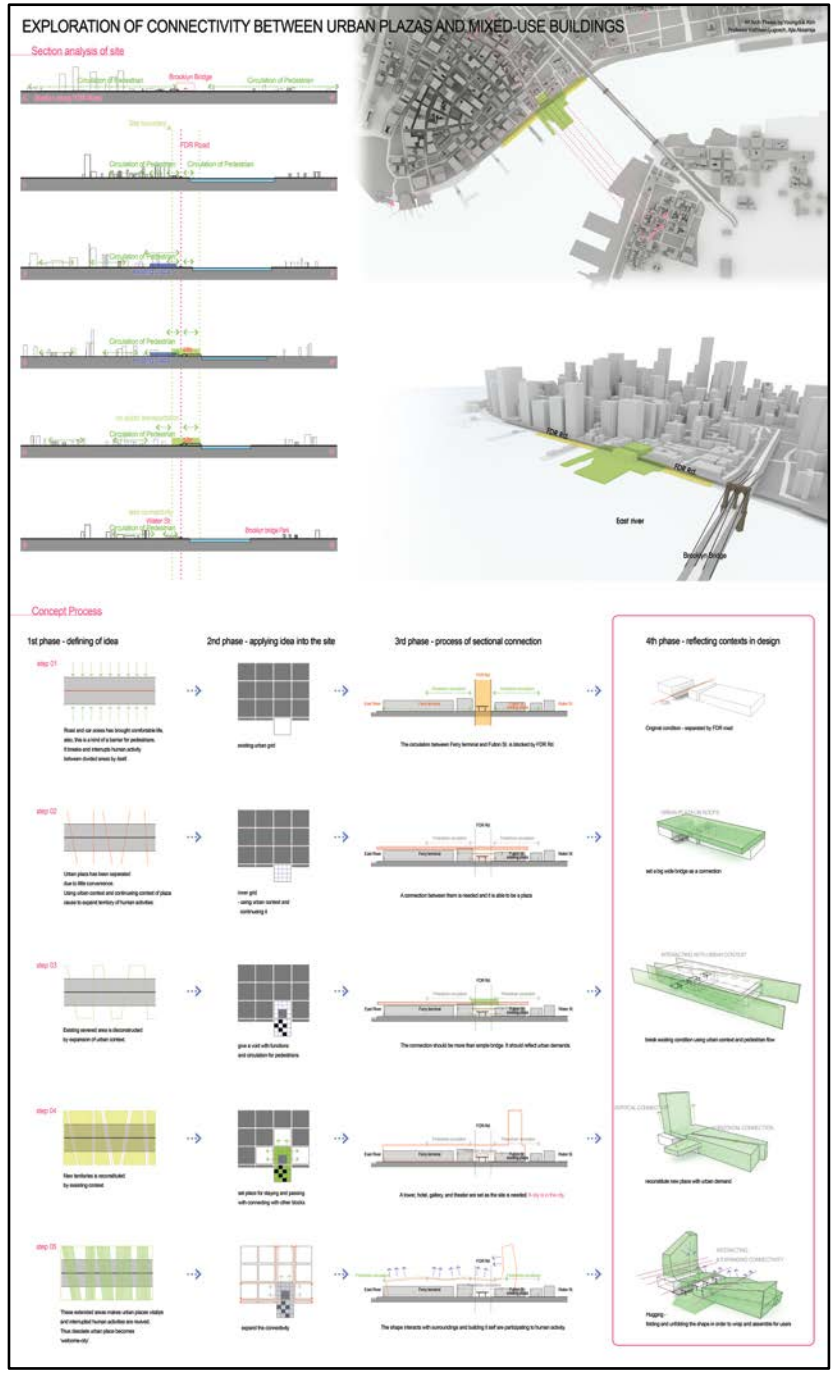
Visually opening, Diverse circulation, Simple type of circulation, Relation with height, Visual connection

EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS

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Site Analysis
 The location of project site is 40 South St in New York City NY. The road connectivity condition is tested by site connectivity. Clack and less connectivity in urban place is the main concern in this project. Although New York City has high number of people with great public transportation system, this does not mean that all aspect of connectivity is well-developed or well used.





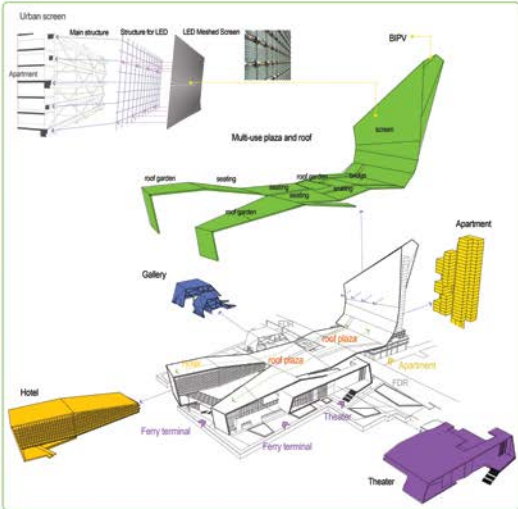
EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS



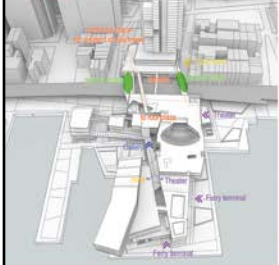
Concept of plaza in Apartment



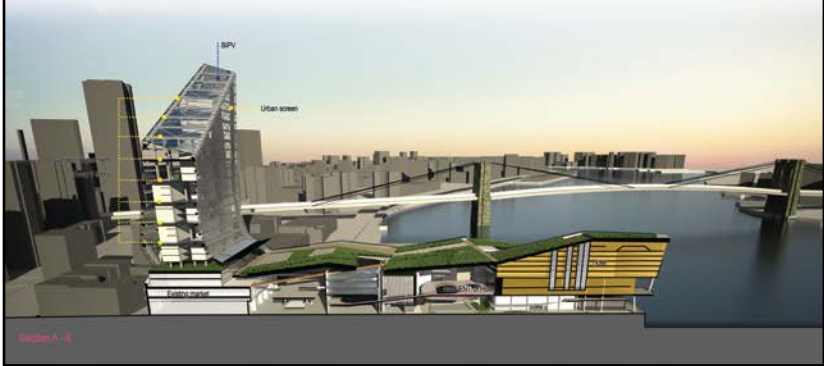
Program description



Circulation concept

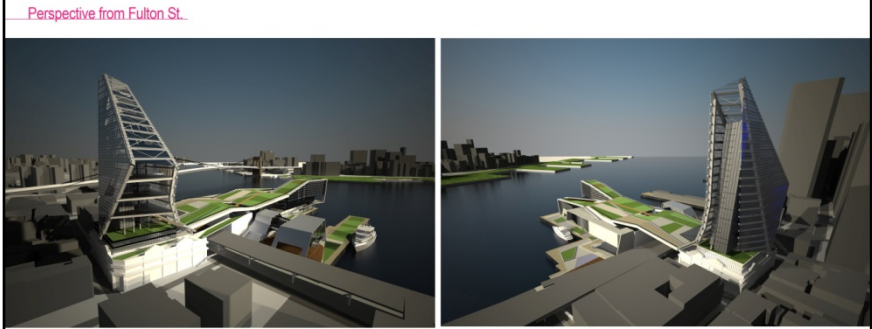
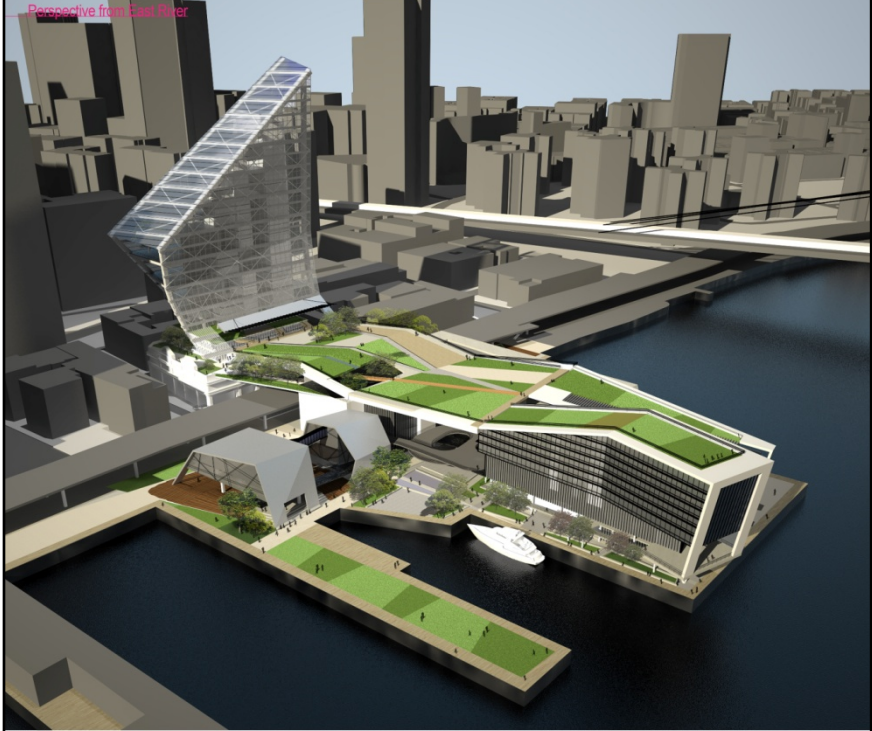


Section perspective

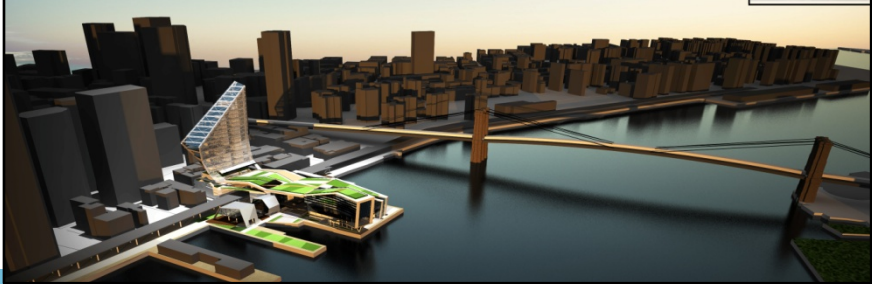
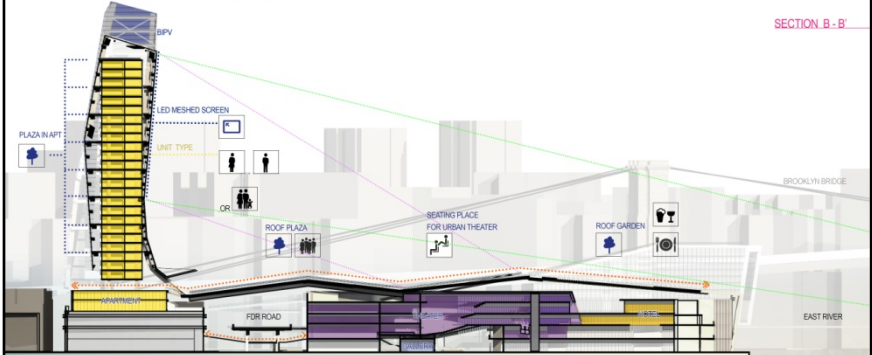
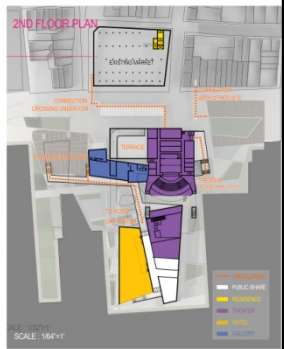
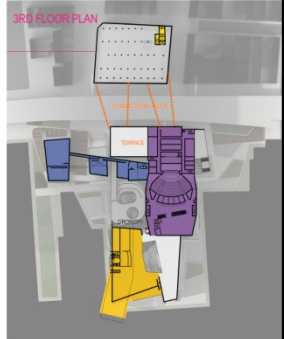
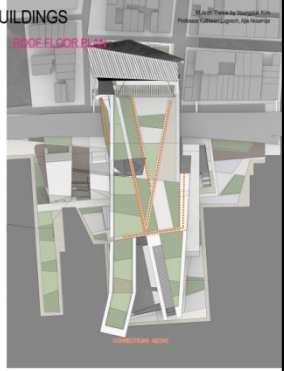
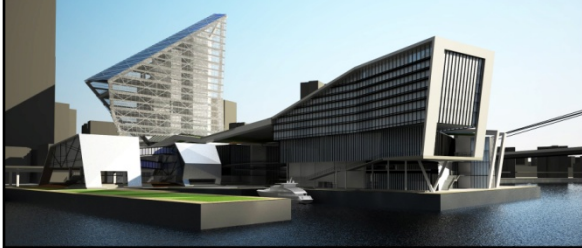


EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS

M. Arch Thesis by Hongjial Kim
Professor Matthew Leggett, MGS University

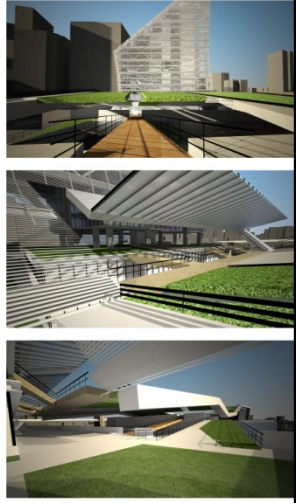
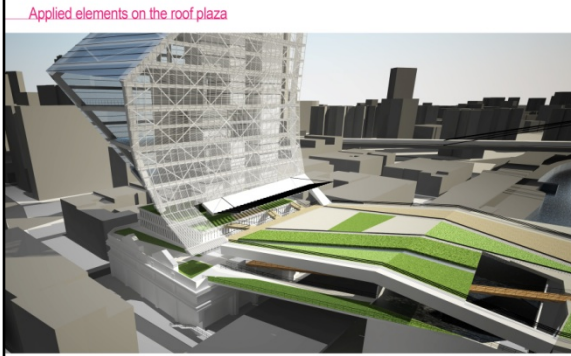
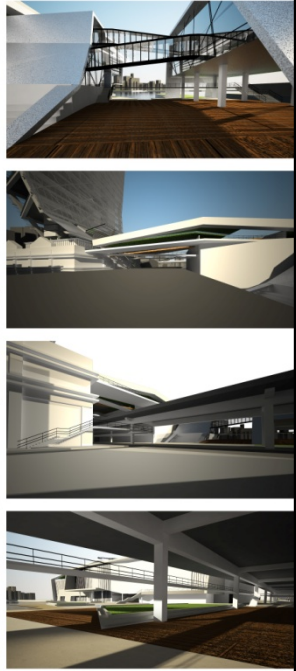
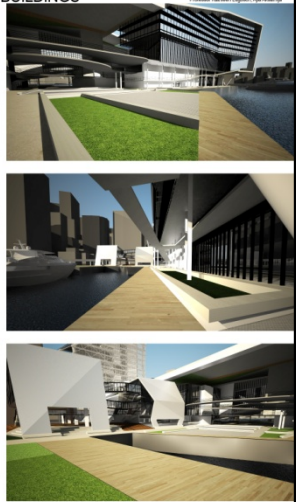
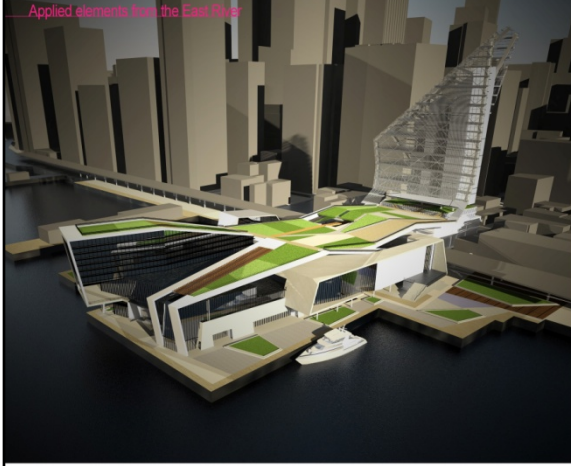


EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS



EXPLORATION OF CONNECTIVITY BETWEEN URBAN PLAZAS AND MIXED-USE BUILDINGS

M. Arch Thesis by Yungwan Kim
Professor: Huiwen Lu, Yoon, M. A. H. Kim



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