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NEW VERTICAL PUBLIC SPACE
Suggestion for the future city

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Thank you to my advisor and readers
abstract

People's physical patterns are composed of continuity and congestion in their space, which are created as a life realm by movements of people. Perhaps their history, present living, and future are reminded of regrets, efforts, and hope for various kinds of space. Were we born to live in the future? Probably. Our lifestyles have been endlessly influenced by the conveniences and the problems that are related to the preparative technology. If so, how will our lifestyles be affected in the future? Maybe we can take examples from many futuristic movies, science fiction magazines, and novels. Usually the contents of those are superficial but we can with caution predict the potential for new lifestyles and spaces as references. Through these references, we can assume several possibilities in this "future" city. We may discover and recreate new spaces and lifestyles for our future. The assumptions are represented by several suggestions such as "New Vertical Public Space" with new vertical circulation injected into assumed future city blocks. The "Space" would be continuous regardless of changes in time. It will predict how people fill in the space with a certain kind of subject and method. We have tried to imagine this future. Perhaps this will be not only a curiosity but also a big challenge to architects.
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introduction

The public space in a city is a space for pedestrians such as a street, a pedestrian street, a plaza, and greenery. It includes not only the meaning of movement but also physical patterns and activities of human beings. The social activity of a city makes the public space develop as a community itself and its physical or symbolic spaces in the life within a modern city. The city form has been radically changed due to the development of industry from the beginning of 20th century. The development of methods of movement within a city and grid systems by the inventing of automobile have transformed a human scale within a city to a lower level. In addition, an increase in vehicles has resulted in serious environmental pollution and decrease of the pedestrian spaces. Thus, the role of public space in a modern or futuristic city should be the restoration of a human scale again from the value of an old city and the recreation of new communication and relationships between people’s life pattern. As a result, it requires more needs of public spaces. In this thesis, I’d like to look at the major problems that our cities have, analyze them, excavate the problems of the city. In addition, I’ll try to look at historical precedents from several cities and find the merit of public spaces in these cities through research and analysis of public spaces in each city.

The problem of pedestrian space is to make good relationships between the pedestrian spaces for instance, and open spaces, plazas, and streets between buildings without disconnection and recreate new types of city space. Therefore, the purpose of this thesis is to analyze the elements of public space and recreate it in a city by means of these elements. For the purpose of this, I chose the Kangnam district in Seoul, Korea, which has been developed rapidly for 30 years. The urban grid system for vehicles provokes many critical problems. Over population requires more public space for providing a good living condition in the city.

I suggest a new urban vertical space as a solution with assumptions and suggestions in first 4 chapters where I analyze the problems of the city. In chapter 5, I look at the historical precedents and find the elements of public space by means of the analysis of a 20th city. In chapter 6, I apply the result of analysis of the site, which is chosen. In chapter 7, I establish the design concepts for public space with assumptions and suggestions. Finally in chapter 8, I suggest a new design for urban public space as a new landscape or new urban form.
City Public Problem Analysis 1

Generally, public space supplies to people the right to access. It is a space that forms and represents the public. In the modern city the concept of public space has a different aspect due to a decrease in autonomous participation, the spread of commercialism, and media as a substitute.

Through this study, we can understand problems in current cities.

- Skyscrapers- Increasing vertical density & circulation.
- Population- Demanding of more infra-structure.
- Pollution- Decreasing of amenities in the city.

**Bank of China Tower** (Fig. 04.1)
This 70-story skyscraper stands on a steeply sloping 2-acre site in one of the most congested parts of the Central district in Hong Kong.
**POLLUTION**
Decreasing of Amenity in city

**Teheran street in Seoul**
Currently most major cities have problems with air pollution. Increasing population and traffic area cause of city pollution.

**POPULATION**
Demanding of more Infra-Structure

**People in the City**
Most of our future cities have will feature increasing population. Also, our spaces must rapidly adapts towards the convenience of people. The convenience of their life is potentially developed by possibilities of imagination.
City Public Problem Analysis 2

Analysis 1’s results in the destruction of public character or the formal change of public space. Public space provides areas for staying or walking of people, such as pedestrian-roads, streets, plazas, green spaces, and so forth. These following factors have included certain movements and performance for people with planned human-scale.

Factors of problems in a city

Wide-streets- Disconnecting public space in city
Building density- Increasing shadows on public space
Traffic- Increasing isolation of public spaces in the city

WIDE-STREET
Disconnecting Public Space in City

Teheran street in Seoul
Teheran street is composed by width 50M street & width 30M sub-streets.
BUILDING DENSITY
Increasing Shadow on Public Space

NewYork City
Many skyscrapers have created massive structures with heavy density in the city. The skyscrapers have made shadows on the public space of the cities.

TRAFFIC
Increasing Isolation of Public Space in City

Seoul City
Many automobiles fill extended wide streets during most day hours and rush hours in Seoul City.
04-02 Futuristic city problem

Architectural Background Scenes of Futuristic Movies

Heavy density, building mass, skyscrapers, new circulation (Flying - Automobiles), new lifestyles, new transportation, and new communications, are predicted for our future city in the images of futuristic movies. In these elements, we can find an urban relationship with current dense urban structures. The urban environment has been unsuitable to pedestrians. Because urban structures are oriented to automobiles, the pursuit of profits, and policies for industry. Recently, the movement of space for pedestrians has gained power, and several plans meet the need were proposed. These plans did not make better environments for pedestrians. This study aims to find the elements and planning methods to make public space charming and vivid for pedestrians with urban assumptions. This study examines "New Vertical Public Space" as a model for public space in and between urban buildings.
New Street Level & Heavy Traffic
Multi-Leveled City have Multi-layered Experiences?

WHERE ARE THE PEDESTRIANS?

WHERE IS PUBLIC SPACE IN CITY?

WHERE IS GREEN SPACE?

The Fifth Element (Fig 04.3)
Plaza for Pedestrians

In generally, "Plaza" or Square means a large open space, particularly public open space in city. A plaza can also be defined as a garden surrounded by walls of buildings on streets, or as the ground used to approach buildings from all directions. It can also be defined as the exterior space of the city where people can get together, the gathering point of streets in the city.

When people get into the Piazza del Compo, they can recognize a wider scope of sight suddenly. A diverse but unified façade strongly defines outdoor spaces. When a Palio (horse race) is held in the summers, the exterior of the buildings transforms into the interior walls of the Palio arena.
Piazza del Campidoglio, Roma

This piazza is open space unlike Piazza styles in early Renaissance. The perspective effect, which provides different types of building facades, creates the unique spatial quality and makes piazzas seem wider than the real dimension.
Characteristics of Plazas

According to Paul Zucker, "There are three spatial qualities; the disposition of buildings that are located around a plaza, large area and the sky above the plaza. It can be distinguished from "open space" by these spatial qualities. A plaza was one of the first ways in which humans used the space of the city. Plazas have existed for a long time in Europe as public spaces of their own. Sometimes a plaza is a closed public space for citizens to open markets and exchange information to one another. In Europe plazas with facilities have provided places where a citizen’s happiness is guaranteed and they can develop their various life styles.

Piazza san Marco, Venezia
Marco is more refined expression than Renascence style. It is an irregular space which is combined with a series of small plazas connected by the sea. The variation of each space gives more dynamic and intriguing characters.

Piazza Navona, Roma
Its unique form derives from a Roman arena once built in this site. The technology of Baroque designers provides visual cohesion in harmony with social cohesive force into piazza. In these days it provides a space for social integration and a playground for children.
The design of this piazza contravenes the regular law of perspective; this effect is amplified by a series of columns following the curve. The huge columns are a buffer zone to connect or screen the city and piazza.
Street for Pedestrians (Arcade)

Street: the most basic and multi-purpose space among open space in city. The priority for cars should be eliminated in order to take advantage of streets in city. Play for children, a festival, an event, market and cafe can emerge in walking space where cars are prohibited.

The characteristics of public space in European cities can be described by two elements (Street and Plaza) with facilities. "Facility" means equipment, which can be added to street space, enhancing convenience and making the space pleasant, such as colonnade, arcade and gallery.

Two intersecting streets make a cruciform plan with domed octagon at center. Glass-roofed arcade with shops and cafes - an early formal covered street.
"The 640-foot-long north/south axis of its cruciform plan links the secular Piazza della Scala on the north to the spiritual Piazza della Duomo on the south. In 1877, a triumphal arch was added to the southern end of this cruciform gallery, thereby formally terminating this covered urban link between the opera house and the cathedral. The iconography of the inlaid mosaic concourse and the painted pendentives of the 164-foot octagonal dome, raised over the crossing, represents the union of church and state which first came into being with the triumphant nationalist revolution of 1848."
Example;

Le Corbusier wanted to extend 'rationalization' to whole cities, specifically Paris. In 1925 he created a model for 'urban renewal', which he labeled La Ville Radieuse (the Radiant City). The essential problem was congestion in the center of Paris, which was too crammed and old to support the growing motor traffic of the twentieth century. The historic heart of the city was to be leveled and then split by a giant motorway.

The architect as land-hungry monster, T-square in one hand and copy of planning consent in the other, a drawing by the American architect 'Malcolm Wells'
Frank Lloyd Wright’s ‘Broadacre’ city plan gave an acre of land to every household, but the inhabitants still depended for communication on a motorway grid and a helicopter for every family.
Example;

A new commercial and residential core would rise in giant, uniform towers. He declared . . . "Imagine all this junk, which till now has lain spread out over the soil like a dry crust, cleaned off and carted away and replaced by immense clear crystals of glass, rising to a height of over 600 feet. "Both Le Corbusier's contempt for traditional city life and his proposed, civic spaces prepare us for what we now call the 'International' or 'Modern' style of architecture.

A major problem of the imagined early 20th century architects' cities was how the human scale soon became lost as the 'urban renewal' of new glass and steel high-rise buildings drained the life from the core of our modern cities. And another problem is the loss of a pedestrian pocket in the modern city form.

Central Station City (Fig. 05.3)

Earlier this century, Le Corbusier's 'Central Station', was a vision of the city totally dominated by the need for transportation, represented here by car, train and plane.
A fantasy solution to problems of urban pollution: Buckminster Fuller's proposal for a giant geodesic dome to shelter mid-town Manhattan.

A street for people in Norwich, England; urban design on a pedestrian scale.
New open spaces need to consider two main elements; street and plaza. Generally, the street has two requirements for pedestrians; accessibility and amenity. With these factors, public spaces are analyzed for following elements: division from automobile, natural light, commercial, enclosure, connection, and attraction.

"This city is going to hell! That used to be a parking lot." The New York Magazine, 1975, B. B. Tobey
Citicorp Center, New York, New York
Space of elements 2

From this analysis, we can understand what are the elements for successful public space. Also we can ask how it is adapted for pedestrian.
The SAS Building, Frosundavik, Solna, Norway (Fig. 05.12)
06-01 Site Analysis

**Site; Seoul**

For this study, I have considered a site located in Seoul. This area will represent the relationship between rapid development and the requirements of the future considering spatial, environmental, cultural and social conditions. Such factors have coexisted between two cultures: the traditional and a new model of the city. They have also recreated a culture in a short period by accepting the new culture within that of the traditional. Therefore, this region is suitable for assessment. One of the districts that I have selected is the southern part of greater Seoul in Korea, named KangNam District.
The aim of the first development was mainly to distribute the city population condensed in the old town, Kangbuk. The first development was executed with huge scale residential blocks and smaller scale commercial facilities.

This new development lead an exodus to Kangnam, due to the government's encouragement of a new life style of working in the old town and residing in the new housing of Kangnam.

Small-scaled, low-rise commercial, residential spaces were demolished, and combined into bigger, high-rise building groups. These building groups are set back from the sidewalks, providing open public pedestrian spaces facing the main boulevards.
Site; Teheran street

Between the Han River, the traditional city can be found on the northern part and the contemporary on the southern part; they are called Kangbuk and Kangnam, respectively. The attractiveness of Kingman to both high-class consumers and big commercial development companies was the main cause of further developments and their permutations. Kangnam, only through a 30-year change, now plays a vital role as Seoul’s banking, commercial, educational, and cultural center. It has become very dense in population and buildings, and because of the limitations on its social boundaries, it is a suitable site for study in this thesis.
Since mid 1990's introduction of mix-used commercial-residential combined high-rise buildings was seen in the Kangnam area, which showcased another type of residential type to help ease the demand in residency resulting from the population explosion from continuous development of the area.

Different streets were specialized with these trades, and different sections of the cities are now identified with specific trades. These grouping of the trades took place along the major roads, establishing linear form of development, breaking away from the within-the-block development pattern. Public open space has also started taking shape.
Site: Seoul

-LOCATION: SEOUL

LATITUDE 37.5N, LONGITUDE 127E.

-PRECIPITATION:
In Summer- Rainy Season (Jun - Sep)
In Winter- Very Dry (Dec - Jan)

-TEMPERATURE:
In Summer- Very Hot Season (100F) (Jul - Aug)
In Winter - Very Cold Season (10F) (Dec - Feb)

-WIND:
In Summer - From East-South
In Winter - From North-West
In Fall - Typhoon Season
### Precipitation Analysis

<table>
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<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
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<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
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<td>Total</td>
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<td>3.1</td>
<td>30.7</td>
<td>75.2</td>
<td>68.1</td>
<td>114.7</td>
<td>599.4</td>
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<td>18.1</td>
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<td>Mean</td>
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<td>93.7</td>
<td>92.0</td>
<td>133.8</td>
<td>369.1</td>
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<td>Evaporation</td>
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<td>43.6</td>
<td>98.6</td>
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<td>149.8</td>
<td>132.2</td>
<td>117.8</td>
<td>106.2</td>
<td>81.5</td>
<td>49.9</td>
<td>33.0</td>
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**Graph**: Monthly precipitation and evaporation from January to December, with shaded areas indicating total precipitation. The graph shows a peak in July with a total of 599.4 mm, followed by a sharp decline in August and September. The evaporation rates are also depicted, indicating lower values compared to precipitation, with a peak in July as well.
### Yearly Temperature Analysis 2000

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<th>Mean (°C)</th>
<th>Min (°C)</th>
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<td>5.5</td>
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<td>Feb</td>
<td>2.5</td>
<td>-1.7</td>
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<tr>
<td>Mar</td>
<td>13.1</td>
<td>6.3</td>
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<td>Apr</td>
<td>15.5</td>
<td>11.9</td>
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<td>May</td>
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<tr>
<td>Dec</td>
<td>8.1</td>
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**DEGREE (°C)**

**TEMPERATURE ANALYSIS**
WIND VELOCITY ANALYSIS
Condition:

This simulation studied wind and light in public space between buildings.
wind speed - 12 m/s
wind direction - SW

From this study, we can design basic form and locations in between buildings.

Conclusion:
Public Node Height:
7 - 10 Floor
Public Node Form:
Aero dynamic

5 m/s = 11.25 mile/hr
10 m/s = 22.5 mile/hr
15 m/s = 34.0 mile/hr
07-01 Assumptions

Assumption for new public

‘The public’ will gradually become a more important issue in defining shared lifestyles and our sense of space. My thesis will suggest “Next Vertical Public Spaces” with new types of circulation for people’s lifestyles in the future city. As new technologies emerge, we need new policies and viewpoints. Already, the Internet has changed people’s lives and sense of space.

The suggestions and concerns about the future will be among the greatest challenges to future architects. From these assumptions, what kind of suggestions do we need for our life? Human social structures are basically divided between the public and the private sector of the space. Most countries and societies place more importance on the public realm over the private, yet they have also concerned the private space in the public.

CIRCULATION
1. Inserting vertical interior circulation in the city blocks, 2. Connecting horizontal grid to vertical grid.

DENSITY
1. Placing more high density blocks in the city, 2. Small spaces in between skyscrapers.
INNOVATION
1. Finding new public spaces by trimming, digging out, and penetrating, 2. Connecting new vertical circulation

RENOVATION
1. Inserting new architectural modes in the block, 2. Inserting new structural systems and materials.
07-02 Suggestions

Suggestion for new public space:

APPLICATION
1. Inserting new public programs, 2. Creating new people's lifestyle
1. Inserting new public Spot in between buildings, 2. Connecting each public Spot with circulation.
08-01 Site Plan Study

Condition:

Public interest emerges as a big issue of a developing society in a civilization because capitalism determines many issues around communication and mass media. For example, if we use the Internet at home, we already expose ourselves to another public space. If the private sector belongs to the public boundary. If so, how will the public position itself to demand use of the private sector? What kinds of methods will be present for life in the futuristic city? The public space comes to the fore with new circulation for people's lifestyles. In this site plan-study, multiple-nodes are understood in sequence. (In relation to each other)

Void Space Study
maximum available void space
Site-Plan Space Study
public nodes with circulations
08-02 Proposal for a Single Node

Condition;

The new spaces and circulation will be developed related to elements of the environment. With basic ground circulation, streets will be organized as high-level circulation paths to create expediency for people, and thus the new circulation needs to provide the service space for supporting infrastructure. 'The public' will gradually become a more important issue in defining shared lifestyles and our sense of space. My thesis will suggest "Next Vertical Public Spaces" with new types of circulation for people's lifestyles in the future city. As new technologies emerge, we need new policies and viewpoints.
SPACING for A SINGLE NODE

LAYERING for A SINGLE NODE

SCHEMATIC MODELING STUDY
Morphology

New spaces will be found in the existing high-density buildings. Sometimes existing buildings will be reconstructed by trimming, digging out, and penetrating. New circulation paths with public space will connect newly constructed spaces. The public space will be found as new parks, running tracks, theatres, and shopping malls as supporting spaces for these new lifestyles in city blocks.
3D Schematic Plan Study

This space study represents a community public space in the building block. A new form and space creates a new society in lifestyle of people.
08-04 Perspective

Condition;

The "Space" would be continuous regardless of changes in time. It will predict how people fill in the space with a certain kind of subject and method. We have tried to imagine this future. Perhaps this will be not only a curiosity but also a big challenge to architects.
08-05 Plan (level 1)

Program

GREEN SPACE:
Winter Garden
Open Theater
Water Park

COMMERCIAL SPACE:
Market Place &
Food court
Gallery
Health Care Center
08-06 Plan (level 2)

Program

GREEN SPACE:
Winter Garden
Open Theater
Water Park

COMMERCIAL SPACE:
Market Place &
Food court
Gallery
Health Care Center
08-07 Site Section

Program

GREEN SPACE:
Winter Garden
Open Theater
Water Park

COMMERCIAL SPACE:
Market Place &
Food court
Gallery
Health Care Center
08-08 Model

Site Model 01
Site Model 02
Final Model
This study proposes new ideas for urban public space and suggest recreation of city forms that have been destroyed by over population and increases in vehicle traffic.

“Public space for pedestrians” requires four elements.
1) Attraction to bring people into the space
2) Various sensory experiences
3) Cozy and restful spaces
4) Intriguing programs

The design strategy of this thesis is,
1. The element of attraction to bring pedestrians to the space. It can enhance various activities, curiosity and be seen from a far. I also suggest a symbolism to memorize the space by means of giving the different types of identities to each space. The program of each public space provides a new natural space, thus gives a different sensory experience to pedestrians with trees and water scope.
2. Experience. Natural light is the method of an entrance and circulation. An interior space is a buffer zone, which can be transformed by the effect of light. At the same time, natural light improves the existing condition and gives a visual, spatial connection of circulation.
3. A sense of security and coziness. It can be defined as an enclosure and human scale. Various layer changes of floors and a morphological design of programs give a sense of security and coziness. At the same time, a variety of performances in harmony with circulation enhance very comfortable human scale spaces.
4. Intriguing space. “New Vertical Public Space” which is designed with two basic elements of plaza and street is one suggestion for intriguing street and space. Program elements include an arcade above, among the buildings, a sunken garden, a winter garden, a water park, a healthcare, a gallery, a market place and an open theater. These are all new possibilities for people escaping from vehicles and ordinary life.

The continuity of public spaces, separation from the automobile, reduced circulation from high-rise buildings, easy access, and amenity, the proposal will provide “NEW VERTICAL PUBLIC SPACE” for human beings in this multi-media, internet-based world.
Image Credits

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