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Fun-ctional Mega-Structure: A Formula for What Is Beyond Necessities in East Asian Cities

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Fun-ctio-nal Meg-a-struc-ture
a for-mula for what is be-yond neces-si-ties in East Asian Cities

A Capstone Project Sub-mitted in Par-tial Fulfill-ment of the
Re-quire-ments of the Renée Crow-n Uni-ver-sity Honors Pro-gram at
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Can-di-date for Ar-chitec-ture De-gree
and Renée Crow-n Uni-ver-sity Honors
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Honors Capstone Project in Ar-chitec-ture

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Abstract

This thesis poses two questions:

1. What is architecture?
2. How does architecture transform contemporary cities?

To the first question, architectural theories and precedents are researched and examined. For the second, a city was selected as testing ground for the project and the urban analysis and design resolution were produced to argue the validity of Functional Architecture.

This book consists of 6 chapters. The first three argue what role an architectural project should play in the contemporary society by setting up the definition for functional architecture, outlining the premises, and analyzing the urban conditions in contemporary cities. The last three chapters propose the idea of mega-structure, re-conceptualized, has great potential and contemporary and future cities. An urban project is conceived based on this argument, thus providing the new typology in Seoul, South Korea, the testing ground for Mega-structure in East Asian Cities.
Acknowledgements

This project is a result of the vast resources provided in the school of architecture. Only through the aids and advices from the faculty and students, the final project was possible. Throughout the year-long process of this thesis, Professor Francisco Sanian, Chair of Graduate Program, advised and supported the research and execution. Professor Michael Pelken had advised for thesis preparation process. Professor Roger Hubeli had joined the project in the design process. For the final presentation of thesis review at the school of architecture, 16 students had participated in model construction. Their names should be mentioned here with the great thanks and respect: Yi-Ting Tong, Francia Mejia, Lysnie Cantwell, Elias Royal, Greg Bencivengo, Mark Sousa, Mark Eichler, Mark Hernandez, Andrew O’Neil, Laya Pattana, Yuko Nakagawa, Annie Youn, Minh Vo, Lindsay Farrel, Mario Ochoa Villivana, Natasha Valledejuly, Peter Martin, and Mike Wolowiec. This project is by no means a product of my own, but a collaboration of many who care and dedicate themselves in the field of architecture.

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Preface

Design is a process of questioning the normal. Construction is a process of meeting requirements—program, efficiency, affordability, sustainability, and safety. A building stands as a result of construction. Architecture is declared as a result of building performing beyond necessity. Architecture is fun ideas that generates creative solutions to politics, culture, and life of place on which the building stands. It is corporeal abstraction of human consciousness of the world. When architecture fulfills necessities and provokes fun, it becomes truly (fun)ctional. (Fun)ctional Architecture levitates status of ordinary to extraordinary moments by questioning the normal.

On Efficiency
Industrial movement provoked manifesto of efficiency. In this manifesto, anything efficient is of value. Speed and economy are the key elements. Quality, satisfaction, process, enjoyment, sustainability, altruism, philosophy, and human dignity come secondary. Consumerism aggravates the situation. As long as goods come cheap and fast, nothing else matters. There is nothing like efficient architecture; it is a contradiction.

On House
In capitalistic society, house is asset. The value of house is determined by real estate market. Having a house is not to live but to possess. In dense urban area, housing complex is designed to provide high density at low cost, opportunity for investment, and symbol of financial stability. Under such circumstance, house is commodity.

On Modernity
Modernism had appeared in variety of discrete contexts around the world. Some had created it as early as 19th century, others have not known it yet. In East Asia, modernization came by one of the most painful ways: by force. It was aggressive modernism that had inflicted drastic shift in life, culture, and philosophy. Many had gained comfort but lost history and tradition.

On South Korea
Though oblivious to many, Korea is still in war. Her state of normalcy is a disguise. Political and economic cultivation of South Korean life had been constantly influenced by her rivalry with North Korea. The intent to develop faster than the North had neglected quality and tradition of life in exchange of rapid growth. The miracle of Han river is often promoted as government propaganda to emphasize development and growth. Prosperity hides the sacrifice of human rights, quality of life, degree of happiness, traditional values and identity. From the ashes of Korean War, South Korea evolved into the world’s 15th largest economy. Yet she has never fully restored what was lost during the period of aggressive modernism.

On Thesis
Thesis is an opportunity to investigate one’s unique theory and philosophy about a particular academic field. It is a process of learning how to question and developing one’s distinctive way of answering the question. I intend to challenge the validity of the perceived normalcy and to argue that what is ordinary is not always appropriate.
Chapter I: Functional Architecture

i. On Architecture

ii. Fun & Function

iii. Functionality at Urbanism
i. On Architecture

Architects design buildings. It means more than producing construction document under intended budget. It provides a new perspective that inflicts innovative solution for the society. Socrates believed philosophers should learn how to question with mind. I believe architects should learn how to question with corporeality. Architects communicate with the world through space they create, space people occupy, dwell and exploit, and space so real and physical that it is inseparable from everyday life. Thus architecture is required to be solid and prudent, not only in its physicality but also with the idea it embodies.

The complexity and diversity of today’s world have created proliferation of questions. There are contentions and problems everywhere. Real objective should be not the mere act of questioning, but the range of socio-political impact of the question. It is important to provide solution to already diagnosed problems. Yet it is more critical to provoke new discussion on what has not been recognized. I intend to challenge the validity of the perceived normalcy and argue that what is ordinary is not always appropriate.
A fundamental question since the word *architecture* was coined is this: “What is Architecture?”
ii. Fun and Function

Is it a building that needs to be awaken? If a city is stagnant, is it her residents that are the boring kind? Unfortunately we lack the law to punish boredom. Thus we shall seek the solution through architecture whose profession might circumscribe ennui as enemy.

In the city where the standard for right and wrong includes the degree of funness in its spatial quality, the urban structure becomes a quintessential device to restore life in a routine of living.

Urban planning seeks many goals; among those, this thesis intends to propose *fun as a civic goal*. The economic and political goals of a democratic city are imposed by a means of representatives, while this particular architectural goal requires the direct participation of residents and visitors whose reaction will be naturally reflected into the further transformation of the city and architecture. As it is a house not designed for real estate value, it shall perish when the fun-ctional quality cannot appeal to the residents. In this city, public space is not an event of political decision, and it shall lose the users if the space does not encourage the happenings.

Events are uncontrollable, untraceable urban happenings that people bring to the city. Yet architecture can hold a varied degree of capacity for events. The *Instant City* by Archigram provides an earlier insight on this mode of urban proposal. An aircraft brings a circus to a dormant city, reviving the city. When the aircraft left, the city remains active as its motor has started rolling. It is a fun city. However, in contemporary dynamics of dense cities, the ephemerality of such an event cannot sustain the city. The solution must engage with the more complex network of dense urban fabric and while proposing itself as prominent space-holder, transform as the city and its residents changes. It is not to be a machine that rewinds the clock back to the past nor puts the clock-hands forward to uncertain destination of the future. It is to belong to contemporary and transforms to be contemporary at any time. Thus, as Metabolist demanded the architecture to be a machine for living, its organic life presented by cellular structure that could be removed and replaced, the functional architecture contends an open space where various programs can come and go so as to ensure incessant surge of contemporary fun to its urban context. The first step toward the city of fun is to provide a room for fun, as simple as all the beautiful formulas always are.
Figure A: Instant City by Archigram

1. The City is Sleeping
2. The Event Arrives by Aircraft
3. The City is Awakened
4. Event is intensified
5. The Event Aircraft Leaves
6. The City Remains Vibrant

Figure B: Development of Chuggye Creek by Seoul City Government

1. The City is Peaceful
2. The Event (construction of highway) Attacks the City
3. The City is Congested; The City Remains Haphazard

*For the full documentation on Chuggye Creek, please consult Chapter V. Seoul, pg. 37
iii. Functionality at Urbanism

Habitat has been a concept inseparable from human life even before the advent of civilization. Started as a protection, the concept of habitat has evolved into what represents community, production, leisure, and identity in many contemporary societies. In 2008, more than half of entire human species belonged to city, raising the issue of questioning what a city is in the most contemporary sense.

City and its definition had been a consistent discussion since the idea of urbanism has been developed in academic field. Architects and philosophers struggle to understand the nature of city, and ultimately how to establish a proper city. Yet in the age of rapid change, the meaning of city cannot be understood only by dictionary entry or the work of celebrated scholars. There is a need for refreshment to define on what city means in this specific era. The word ‘city’ is often used as antonym of rural, country, or less populated area. This concept excludes greenery and healthy ecology in a city, which many cities desire nowadays. Example of shrinking city opposes the common idea of city being densely populated area. Both Tokyo (15,610.4/sq. mi) and East St. Louis, Illinois (2,242.9 / sq. mi) are categorized as city, even though St. Louis is losing her population rapidly over past decade, while Tokyo is over growing. In small countries, such as Korea, even farm lands and fishing towns are turning into city due to people’s desire of comfort and better infrastructure. It might be said that a city of the 21st century is a wide range of urban network which consists of people, technology, and identity.

As there is no universal formula for a good city, I plan to investigate various methods of designing a fun-ctional city. In the world where efficiency and practicality is one of the most appreciated values, functionalism is rather a requirement than innovation. However, the concept of function should be re-evaluated, considering what people are most interested in the contemporary society. It is fairly recent tradition where amusement, fun, and creativity have risen as great entreprenuership for major population. Many people choose entertainment or leisure over tedious works of necessity, although expected participation on such event is to pursue their own well-being. This trend presents the importance of ‘fun’ in today’s society.

The proposition for Fun-ctional City is a manifesto of new paradigm for urban architecture. We live in an era where people, technology and urban identity form a city anywhere at any time and one of the most important engines for such city is fun-ctionality, aggregate of fun and function.
Figure A: Tokyo at night

Figure B: East St. Louis, Illinois at night
Chapter II: Premises

i. East Asian Cities

ii. Urban Crisis

**The terminology “Asia” is often ambiguous, as it includes large portion of the world geographically (which means Vietnam, India, Singapore and many other countries count as Asia, surprisingly); in United States, it refers largely to China; and it implies Orientalism in cultural term. To prevent further confusion, what is referred as “East Asia” in this work of thesis, should interpret as nations and subcultures of Eastern Asia, its major countries being China, Korea, and Japan.**
i. East Asian Cities: Dynamics and Struggles

The reason for choosing this specific cultural and geographical zone as the testing ground of Fun-ctional City is due to its unique transformation during the period of modernization—or industrialization. Unlike some countries which had naturally evolved into modernism as social interest shifted from religion to science, others were forced to modernize to defend themselves from Western prowess. There are only two options: either to convert the nation inside out with foreign culture and technology or to be colonized. Both would eventually destroy aboriginal life which could have flourished, if the process of “civilization” hadn’t interrupted. Due to increasing social issues and controversies, political dissension had often torn out the traditional society. Among countless examples, two Koreas stand out as the victims of aggressive modernism. In 2012, they are only countries still left split in the world.

City grows over time, cumulating layers of memory, history, and life. The change might not be detectable by eyes, yet the reminiscence shapes the urban fabric the way it is. When a city is inflicted by artificial force, the link between the old and the new breaks, the layers lost. The enforced “civilization” in East Asian cities had initiated a completely new urban mechanism, bluntly replaced over the old fabric. They struggled with unfamiliar ideology, aggressive economy, and identity crisis. From the routine of everyday life to the urban development plans, everything was fabricated, hostile, and foreign.

Even though the struggle was a huge drawback, many East Asian cities began to prosper again after painful adaptation process. With cultural amalgamation, economic initiatives, and the tradition re-conceptualized, the cities have become dense, diverse, and truly dynamic. The cities are restless in East Asia, as speed and adaption have become the new motto in their life style. Thanks to its precipitate nature, East Asia has grown into the center of manufacturing (China), finance (Hongkong), high-tech (Japan), and pop-culture (South Korea). However, the urban development plans of the past and of the future, remain inefficient, despite of the dynamics of city life. Mega-structural development plans, super blocks, and apartment towers dominate cities and destroy the free flow of unique socio-cultural dimensions of East Asia. The lack of concern in sustainability, environment, cultural influence, and social ramification challenges the validity of functionality.

Therefore, the site presents the ideal condition for a new urban strategy which shall provide true (FUN)CTIONALITY to address the issue of struggles and dynamics of East Asian cities where transformation is a routine.
ii. Urban Crisis: Traditional v. Foreign

Tradition is a thatched or tiled roof house. Tradition is a palace garden. Foreign is a brick building. Foreign is an apartment complex. Foreign is a residential mixed-used skyscraper.

In East Asian cities, there is hardly any “before” left. What remain are “after” and “after after.” It is practically impossible to analyze urban conditions since change is constant. There are phenomena but no substance.

The urban crisis is the lost identity. Yet in the age of globalization, nothing seems to come forward as identity of Asian cities.
Chapter III: Urban Case Study

i. Urban Super Block

ii. Apartment Typology

iii. Sectional Analysis

iv. Aftermath
i. Urban Super Block

a) Identifying urban elements

Using Gangnam District, one of the most affluent districts in Seoul, the development of Super Block during aggressive urbanization is examined.
b) FAR (Floor to Area Ration) and Housing Density

<table>
<thead>
<tr>
<th>Far Area Calculation</th>
<th>1) Residential (apartment) Block</th>
<th>2) Mixed-Use Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site area</td>
<td>448,000 sqm</td>
<td>334,000 sqm</td>
</tr>
<tr>
<td>TGA (total ground area)</td>
<td>73,000 sqm</td>
<td>125,000 sqm</td>
</tr>
<tr>
<td>Residential</td>
<td>806,400 sqm</td>
<td>135,000 sqm</td>
</tr>
<tr>
<td>Commercial</td>
<td>20,480 sqm</td>
<td>518,000 sqm</td>
</tr>
<tr>
<td>School</td>
<td>21,700 sqm</td>
<td>10,700 sqm</td>
</tr>
<tr>
<td>Other</td>
<td>2,125 sqm</td>
<td>501 sqm</td>
</tr>
<tr>
<td>TFA (total floor area)</td>
<td>850,000 sqm</td>
<td>664,000 sqm</td>
</tr>
<tr>
<td>FAR (floor area ratio)</td>
<td>1.89</td>
<td>1.99</td>
</tr>
</tbody>
</table>

Non-building program:

- Playground: 54,000 sqm, 13,900 sqm
- Parking lot: 180,264 sqm, 67,500 sqm
- Green space: 6,500 sqm, 1,900 sqm
ii. Apartment Typology

In the ash of Korean War (1951-1953), South Korea has risen into the world’s 15th largest economy, while North Korea is staggering today under communist economy. The thriving economy through rapid industrialization between 1960s and 1970s had brought distinctive architectural typology in South Korea: apartment house. The origin of apartment house is Europe. It was extensively built to accommodate labor class population in industrialized cities. The architectural potential of apartment house was recognized by Le Corbusier who manifested the concept of house as machine through several urban planning schemes such as ‘radiant city.’ Le Corbusier’s urban ideas projected through CIAM (international congress of architecture) promoted “high-rise in the park” supplemented with transportation infrastructure that interconnect residential, leisure, and working spaces together.

The advent of apartment house in South Korea had similar ideological development: celebration of technology of modern era. The critical difference was that in South Korea, apartment house did become major architectural typology dominating housing market since 1960s as it symbolized modernity, wealth and stability. Today, apartment house is major residence for middle class and upper-middle class population, marking average of 70% in housing type of South Korean cities. By examining history of urbanization and typical middle class housing typology of South Korea, I wish to present urban, social, and architectural issues in Korean houses. Until today, the trend of nuclear family and easy-built apartment house has been considered as the most efficient solution for urban housing demand. The ubiquity of apartment has created match-box skyline in Korean cities, which is something ordinary and normal to “apartment kids,” young generation who had been born and lived in apartment whole life. However, is apartment really the best solution for urban residency?
Three most popular apartment typologies in Seoul

- **CORRIDOR TYPE**: single loaded corridor
  - medium rise

- **CORE TYPE**: single / multiple core
  - medium rise

- **TOWER TYPE**: single core
  - high-rise
iii. Sectional Analysis

a) Scale: Pedestrian, Traffic, and Program

b) Collage: Apartment complex v. Row houses

c) Comparison: Daytime v. Nighttime

d) Zoning: Existing v. Proposed

Existing

Proposed
vi. Aftermath

During the time when urban migration was sped up, the demand for housing was critical issue. In 1970s, the rise of urban middle class had caused another great demand of ‘modern house’ which is distinguished by comfort and utility such as electricity, telephone line, and parking lot. Consequently, apartment, symbol of modernism in South Korea, had proliferated. Soon the city ran out of flat land and developers began to intrude into what was formerly treated as less desirable such as hillside. The lower class residents were kicked out with minimal compensation, land was flattened, and apartment came in. Once the residence settled and commercial development proceeds, the real estate value increases and residents begin to look for new investment. When new development area grows profitable old apartment is sold or rent to others and with the profit, former residents move into bigger and more expensive apartment. In 1990, one out of three household had moved around in Seoul, and 70% did in 2011.

While middle class population move in and out in a search of better investment opportunity, the lower class are constantly being moved around as well because new town projects require the land illegally occupied by them. As a result, typical urban residents in South Korea become nomads. Only few percent of upper class population settle in one place. This trend has caused many unfamiliar social issues previously unknown to traditional Korean life. Since most of housing unit is designed for 4 person family, the separation of older generation has become frequent and divorce rate has increased. Often the elders are forced to live on their own and sometimes people discover their death weeks later. Government was alarmed at high rate of ‘living-alone elder’ and tried to cope with the problem by setting emergency house phone line connecting to local hospital or daily milk delivery service. New policies had been somewhat effective yet they couldn’t touch the essence of problem--collapse of family. Consequently, the concept of community is being forgotten. People move in and out too frequently to form an active neighborhood community and working parents put their children in nursery or private schools since there is no one at home to take care of them.

Houses become more empty during daytime and life starts to take on outside of residential area. Many apartments constructed between 1970s and 1990s lack public facility inside apartment complex other than small playgrounds. Many of problems have appeared as a result of radically transformed social and economic structure. However architecture can contribute to solve them by providing design ideas to change common perception of apartment house. If house becomes desirable place to live, more people will stay at one place. The question is how to overcome financial profit with benefits of desirable living environment. Once the middle class begin to develop long-term residency in city neighborhood, the demand for new house and eviction of lower class would gradually lessen as well. Thus a truly (fun)ctional architecture can restore ideal living environment in Korean cities.
Urban expansion

i. the illegal sprawl of lower class residents is reclaimed by government
ii. land is flattened and regularized into developable blocks
iii. repetitive apartment buildings are planned
iv. middle class finance the construction and gain ownership of house unit
v. urbanization proceeds around the residence and house price goes up
vi. when new development happens in more desirable area, middle class residents invest on new apartment and rent out/sell the old one (usually the profit is very high)
vii. same process repeats
1. **Social Issue**
- real estate speculation has been too heated up; the gap between the wealthy and the poor grows bigger.

**Architectural Issue**
- the concept of house or homeliness is being lost; house becomes commodity and people lose interest in making ‘home sweet home’ but care only about making more money through real estate management

2. **Social Issue**
- increase of nuclear family
- old people are often neglected and divorce rate increases

**Architectural Issue**
- cheap and fast construction become sole driver of housing design

3. **Social Issue**
- real estate speculation / public dissension / urban nomads
- e.g. Yong-San protest(2009)

**Architectural Issue**
- indigenous architectural language and urban fabric being lost
- e.g. Dal-dong’nae
Chapter IV: Mega-X

i. Contention

Claim
Mega-structure as a ‘container for dynamic landscape’ is

i. the past, present, and future typology for the urban planners.
ii. a proposition for new ground space to vitalize East Asian cities.

Statement
Mega-structure is a dream of every urban planner, whether one is architect, philosopher, social scientist, or community leader. Many theorists associate mega-structure with the advent of new technology in the 20th century.
ii. Mega-structure at Urbanism

At the beginning of 20th century, technological advances had triggered aspiration for mega-structure. The idea of a whole immaculate, condensed, encompassing structure of unprecedented scale, containing needs and wants of society, intrigued architectural imagination. The seed of mega-structure began with Le Corbusier’s urban master planning. His idea of residential skyscraper providing ground space for garden and transportation infrastructure fascinated later generations of architects who proposed a building as big as a city to accommodate increasing population, green space, and modern amenities at once. In 1960s, two distinctive groups stand out in Europe and Asia: Archigram and Metabolist. The resemblance between Metabolist and Archigram projects often categorizes them under the discourse of mega-structure. Yet, their works generated divergent implications.

Archigram, a student group based in AA school, UK, embraced the mode of consumerism and intensified the ideology as a consumable city. Their projects actively promoted house as commodity and architecture as city where technology is the major driver of human civilization. Their ideology is almost a direct repercussion of Le Corbusier’s house as machine which reflects how machine age can provide new horizons in human society.

Metabolism, on the other hand, was an anti-thesis to Le Corbusier’s house as machine. Against Western style high-rise residential complex devouring Japan’s traditional urban morphology, Metabolists proposed a mega-system to accommodate increasing population within one building, leaving the rest of the city intact. In their projects, technology fosters the conservation of traditional way of Japanese life and culture. To avoid intruding into existing city fabric, several Metabolist proposals, such as Kenjo Tange’s Tokyo Bay Project and Kikutake’s Ocean city, used oceans as site.

While mega-structural ideas were more of a tool to explore futuristic architecture in the Western hemisphere, East Asian mega-structuralists struggled to define new identity of their cities where the quagmire of modernism and tradition fought over every occupiable ground space.

The discussion on Mega-structure continued throughout post-modern period to contemporary society. With technology and capital of unprecedented scale, mega-structural designs were built and tested all over the world. Giant bridges, skyscraper, airports and urban re-development plans proliferated. Some projects contained political contentions, like Exodus by Rem Koolhaas; others desired to be an urban icon. In general, Mega-structure has involved into inseparable feature of contemporary metropolitan cities. In this chapter, the extent of each period’s mega-structural precedents is examined in order to provide the basis for the next step of mega-structural evolution.
iii. On Precedents

a) Urban Masters

b) Archigram

c) Metabolism

d) Post-modern to Contemporary
a) Urban Masters_Radiant City, Paris, 1935 | Le Corbusier

a) Urban Masters_Magnitogorsk, Russia, 1930 | Leonidov
b) Archigram I_Instant City, Unbuilt, 1960s | Peter Cook

b) Archigram II_Plug-In City, Unbuilt, 1964 | Peter Cook
c) Metabolism I_Tokyo Bay Project, Unbuilt, 1960s | Kenzo Tange

c) Metabolism II_Nakagin Capsule tower, Tokyo, 1960s | Kisho Kurokawa
Post-modern Mega-structure theory is largely influenced by Rem Koolhaas. On his thesis project from AA, Koolhaas designed an urban mega-strip that divides the city into ‘inside’ and ‘outside’ of mega-structure. Unlike precedents from Archigram or Metabolism, Koolhaas focused on political contention of the project and what it implies on the social scale. This new approach was the beginning of using architectural project as a large scale social intervention and how the mega-space can envision political polemic as well as futuristic building typology.

“These drawings come from a series of eighteen drawings, watercolors, and collages called Exodus, or the Voluntary Prisoners of Architecture. The dense pictographic storyboard reflects Koolhaas’s earlier stints as journalist and screenwriter and is intended to be read simultaneously as a factual and a fictional scenario for the contemporary metropolis.

The title of the project alludes to Cold War West Berlin, a restricted enclave encircled by a forbidding wall—in effect, a prison on the scale of a metropolis, and one in which people sought refuge voluntarily. Exodus proposes a walled city in a long strip, with tall barriers that cut through London’s urban fabric—an intervention designed to create a new urban culture invigorated by architectural innovation and political subversion. Here Koolhaas and his collaborators use collage to create vivid scenes of life within these visionary urban confines.”

-From MOMA Gallery Exhibit
d) Contemporary Vanke Center, Shenzhen, 2009 | Steven Holl

d) Contemporary Taichung Gateway Park, Taiwan, Unbuilt | Stan Allen
Chapter V: Seoul

i. History and Future

ii. Lost Dream

iii. Faction
i. History and Future

Sack of Rome in 390 was more than a demise of an empire. It was severe lost in human civilization. Architectural advances were gone; concrete, dome, and aqueduct had disappeared. The Dark Age is named by later people as the period between Roman time and Renaissance, the rebirth of Greco-Roman culture, had been paused by the loss and oblivion of Roman culture. The world had evolved fast after the Renaissance. Science and technology had progressed rapidly and since as early as 15th century, European countries began to seek opportunities outside of their own continent: the Colonial Era had started.

**In East Asia, imperialism had blown a huge impact to every corner of people’s life.** Just like Rome was sacked by the powerful but under-civilized Gaul tribe, Asian people lost their vast culture and tradition by the powerful, under-estimating Westerners. Europeans regarded Asian tradition as immature culture, or savage in more frequent cases, implementing new rules of money and gun. Koreans didn’t escape the fate either, as Imperial Japan, determined to mimic its western role-model, colonized Korea with western weapons.

Even though the colonial rule had brought modern infrastructure into Korea, the main purpose of development was to utilize Korea as resource for Japan. The railroad system and communication technology had advanced, while urbanization had been neglected due to Japan’s need of Korean rice field. Thus the true urbanization of Korea had started around late 1950s, in the ash of Korean War.

**Modernization in Korea has been rapid and aggressive** than anywhere in the world. Not only the country was brutally transformed by the colonization and Korean war, but also the puppet governments each manipulated by USA and USSR had competed for progress without conservation. Dictatorship and New Economy came in, shaking people’s value systems and life style upside down. No other country in the world had experienced all of these events in sequence. Yet to everyone’s surprise, South Korea stood up, as one of Four Asian Dragons, miraculously growing into the World’s leading economy. However, Koreans had sacrificed a lot as well.

Nature and tradition had been long gone. Fields, woods, and farms were bulldozed away, replaced by building forests. The residential community and family structure collapsed. People cannot return to the old home town anymore, since the towns themselves had changed so much that the memories in the place are no longer there. Streets and houses changed. Rivers shifted their flow due to dams and levees. Small creeks were covered by asphalt and concrete. **Koreans lost their culture, history, and identities; so did Koreans cities.** Today, Seoul is striving to re-claim its lost identity. However, her ironic struggle is questionable, as the city only tries to decorate its outside pretty without addressing the essential issues: **how can we adequately restore the lost land?**
History of Chunggye Creek: From urban slum to asphalt-covered high way to decorated aquarium

As part of Seoul’s Development Plan, the city of Seoul decided in 1960 to cover up Chunggye Creek in downtown Seoul, under the concrete and build highway on top of it, in order to resolve increased traffic issue. The slumminized mixed-use urban residences were bulldozed away, allowing modern architecture—or concrete and glass buildings—to be established instead. In 2004, Myungbak Lee, the mayor of Seoul carried out the grand Chunggye Re-development plan, which attempted to re-open the creek and re-vitalize the ecology and cultural life along the Chunggye Creek. However, the scheme only achieved to create a giant aquarium. The lack of ecological research and planning led to a very expensive solution where the creek is fed by Seoul’s drinking water supply. Even though few decades had passed, Seoul’s urban planning hadn’t progressed at all from the money-driven “prettying up” mindset, which never addresses issues of ecology, urbanism, culture, history, and life.
1920s
Jong-myo (Imperial Burial site) and Chunggye Creek before highway construction

1960s
Se-Un Arcade during construction

late 1970s
Highway construction over the former Chunggye Creek

1920s
Jong-myo(Imperial Burial site) and Chunggye Creek

1980s
Se-Un Arcade fully at function

2010
Park Addition

2012
Future Scheme Presented (Unbuilt)
ii. Lost Dream for Modernity: Se-Un Arcade

Among the very few built Mega-structure projects of early era is Se-Un arcade, a mega-scale residential mixed-used block in Seoul, South Korea. It is a reminiscence of the struggle between aspiration of modernity and reluctance to eradicate the past. Taking over an entire strip of urban block between two prominent mountains and cutting through a major traffic intercourse, Se-Un arcade stands on the site of two thousand buildings that were demolished for its construction. Originally planned as apartment housing, mall, and a hotel complex, Se-Un arcade gradually turned into conglomerated market consisting of small retailers who sell and trade all kinds of goods. Today’s Se-Un arcade has its own universe contained in a mega-crate.

After 40 years of its grave presence in Seoul’s urban planning, Se-Un arcade is to be demolished and transformed into a civic park. Se-Un Arcade may not be the ideal Mega-structure of Seoul, yet it is the legacy of Korea’s 20th century which was the time of uncontrolled growth and transformation. Some may regret, others, praise. Whichever is the case, the blunt annihilation of history cannot resolve the problems at hand. At the downfall of Se-Un, the urban crisis of contemporary Seoul comes even closer to the reality.
iii. Faction: Fact + Fiction

**FACT**

**Population density in 1km²**

<table>
<thead>
<tr>
<th>City</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seoul</td>
<td>16,700</td>
</tr>
<tr>
<td>London</td>
<td>5,100</td>
</tr>
<tr>
<td>Tokyo</td>
<td>4,750</td>
</tr>
<tr>
<td>Paris</td>
<td>3,550</td>
</tr>
<tr>
<td>New York</td>
<td>2,050</td>
</tr>
</tbody>
</table>

**Population increase in Seoul**

![Graph showing population increase in Seoul from 1910 to 2010.](image)

unit: 1million
Figure A: Transportation Infrastructure: metro system, highways, and bridges
FICTION

Figure B: The hard program transforms into “FUN” space
Metro stations as gallery, performing stage, and art installation. Bridges as Seoul’s most popular dating spots at night.
Figure A: Typical office buildings, Department store, and retail spaces.
Figure B: The required 1% Art Space of total building square footage (by Seoul’s city government); Aquarium hidden underneath generic office building; and Theme park with Ice rink in Department store.
Chapter VI: Design Resolution

i. Site Investigation

ii. Urban Strategies

iii. Site Issues

iv. Zoning Strategies

v. Mega Functional Landscape
i. Site Investigation
a) Selection
Site A: Island City

Both Yeo-ui island and Sun-yu island are distinctive examples of interactive relationship between Han river’s island and city district along the river. Despite of their physical proximity, the operation of two islands differs drastically. Yeo-ui island is a small scale city where media centers, national congress, river park, apartment complex, and cultural center co-exist.

Sun-yu island, however, is a renovated civic park, which was previously a water purification facility. Even though Sun-yu island is not as densely programmed or populated as Yeo-ui, its small park interact with nearby city district through linear pedestrian bridge.

Site B: Riverside Apartment Complex

Ichon and Bampo districts, facing each other across Han river, have practically identical urban formation which is equally problematic on both sides. They are typical apartment complex of 1970s, when Han river was never recognized as useful source for ecology and leisure. As a matter of fact, residential zone is cut off by 8-lane highway that runs between the city and the river, causing pollution and traffic instead of letting the city mix into nature. This urban situation is identified as a simple formula: city + bridge + highway = no use of river

Site C: Ttuksom Cultural Center

A culture center, called “J-Bug,” due to its worm-like form, is a celebrated moment in Ttuksom river park. One of the largest civic parks along Han river, Ttuksom was designed to accommodate various water sports and public events. Interesting urban formation along Ttuksom resort is not only the park, but also the infrastructure that began to form around the river. The city approaches to river park through subway (line 7), the pedestrian promenade under the bridge and highway is being utilized as exhibition and leisure space. Even though the severance between the river and the city can still be detected here, an attempt to ameliorate separation begins to develop in Ttuksom area.
b) Primary urban research

Identifying Urban Programs

**Living**: Apartment complex, Row houses, Mixed-use residential towers

**Working**: Commercial, Retail, Office, School, and Public Office

**Education**: Kunkuk University, Secondary schools, Primary schools, Kindergarten, and very few Daycare

**Leisure**: Seoul Forest, Han River civic park (Ttukson Resort), Children’s park, Lotte Theme Park, and Olympic Stadium
c) Existing Condition

The Jayang District is a medium size urban site, one of many riverside developments that had occurred throughout 1970s through 2000s. First it started with the construction of Gangbyun Expressway, a 6 to 10 lane highway that circumscribes the riverside promenade. During 70s and 80s, low-rise row houses came into chucks of space chopped by highways and major roads constructed on the site. Then one by one, small and large apartment complexes were built on the sites, which bulldozed off row houses. Last, the high-rise mixed-use residential buildings, often 80 to 100 floors with retails on first 4-story from the ground, were inserted on the leftover areas between apartment complexes. As a result, the site had become haphazard cluster of row houses, apartment complexes, skyscrapers, and civic park, with no infrastructure or urban connection to link discrete elements. Nevertheless the site has many potentials since it has public, cultural, and natural resources in the area, waiting to be re-structured as a harmonizing urban complex.
d) Disparity

One of the most visible disparities on the site is the difference in scale between two major residential zones. Condition A is a cluster of low-rise row houses, brick-walled and 3 to 4 floors, often mixed use with first floor for retail and upper floors for residential. Condition B is apartment complex or skyscraper residential tower. A is more vibrant, morning to night, with street markets, retails, community events, and easy connection from ground space to upper floors. B is well-equipped with high technology, amenities, and modern life style. Thus, A desires conveniences provided in B; B needs programmatic profundity in A.
e) Intervention

A desires conveniences provided in B; B needs programmatic profundity in A.

The urban intervention that ameliorate contradicting conditions of A and B is crucial on the site. Mega-X is proposed to foster public amenities and liveliness for A and B respectively. It is to offer a new concept of mixed-use residential different from generic “retail on ground + residential on top” building typology. It is to create an urban landscape where live, work, and leisure come together in unprecedented scale in order to bring fun, liveliness, and comfort to the banal residential zones of Seoul.
ii. Urban Strategies

To intervene in the site with many complicated issues identified above, the research for the effective urban strategies was done with three criteria:

1. create an urban corridor that links presently discrete site elements,
2. re-configure the structure and effect of highway and major roads on site, and
3. develop nodes of interest that provides the potential and the needs of the site.

Four major strategies were studied to satisfied the aforementioned criteria, which are: a) Network, b) Cluster, c) Landscape, and d) Mega-block. The four strategies are specified as:

a) Network

The three important networks that could be promoted on site were identified as Education network, Market network, and Leisure Network.

Education Network is one of the most critical demands in South Korean society as education is always featured as highest values historically emphasized by Korean people. Many real estate business boomed over major ‘Hak-gun’ (which means education network) and families often move to different district or city to find better Hak-gun.

Market Network is usually very prominent in row houses or any congested low-rise, high-density residential zone. In Jayang district, two most vibrant Market Networks are Jayang Street Market and Kunkuk Food Street. Jayang Street Market is long, linear axis that cuts through row houses diagonally and performs as a critical public space for residents. Kunkuk Food Street has naturally formed nearby Kunkuk University, as the students and the faculty populate the restaurants and shops across the campus.

Leisure Network is the most under-developed feature in many districts of Seoul. Leisure facilities are often scattered in numerous retails and mixed-use buildings, unknown to visitors and populated by locals. The site also includes Han River civic park, called ‘TTuksom Resort,’ which could be utilized as huge leisure space. The park is well-equipped with sports facilities and public amenities, yet severed from the rest of urban fabric by highway.
b) Cluster
The clusters on the site are identified with program zoning and urban development plans imposed on Jayang district in previous era. The land-use plan designed by city government is too generalized to promote amalgamation of various programs. The project contends to establish more creative and specified zoning map to foster the urban variety on site.

c) Landscape
There are two landscape aspects on site. One is green-scape; the other is street-scape. Residential zone A is rich in street-scape, which means street performance, night culture, and active use of ground space. Residential zone B is planned with more greens: rows of trees, small plots of garden, and grass strips are placed strategically among apartment complexes. Yet both fabric need further planning in green and street-scape.

d) Mega-Block
The Mega-Block examines *tabula rasa* condition on the proposed project site by identifying FAR (Floor to Area Ratio), existing programs, and housing density. Since the ultimate goal of the project is to claim the long strip of land and replace it with Mega-Block, data from this analysis is crucial information for the project.
a) Network

b) scale: Ja-yang district

Education Network

Market Network

Leisure Network

1. Green spots
2. Leisure program

Land use map

Transportation

Culture & Education Network

Market / Industry Network

27,000 sqm * ave 2.5 floor = 67,500 sqm

1 unit = ave 60 sqm; 67,500 sqm = 1,125 unit

1,160 unit

1,125 unit

1. College
2. Cultural education
b) Cluster
c) Landscape
d) Mega-Block
iii. Site Issues

a) Highway  

b) Riverside Amenities  

c) Housing
a) Highway

Highway is one of the most prominent features on the site. It divides one residential zone from another, residential zones from riverside civic park, and residential zones from university. Providing a new design for renovating highways to create more smooth connection among residential zone, civic park, and university is necessary objective for the project.
b) Riverside Amenities

Civic parks along Han River have been re-considered as dynamic urban space for people living in Seoul Metropolitan Area. Even though new programs and amenities are being introduced to the green area abutting the river, the actual civic park is highly disconnected from major residential area due to multi-lane highways and other transportation infrastructure.

By re-designing the urban promenade between the park and the city, the residual urban space underneath the bridge and pedestrian passage can transform into incubator of urban events.
c) Housing

Housing density has been critical issues in urban planning in South Korea since 1960s when the cities began to expand to accommodate the influx of domestic migration from village towns. On the given site, the density from both Condition A (low-rise row houses) and B (high-rise apt complexes) is quite high. Mega-Block aspires to create a buffer zone of FUN for both A and B, thus intends to provide some housing far below existing density in order to offer work and leisure for high-density residential zones in the surrounding.
iv. Zoning Strategies

One of the most critical strategies applied on the project is creative zoning of the site to re-configure Mega-Block. By analyzing programs by typology, specification on adjacent buildings, and identifying clusters of food, public amenities, and education, the site for Mega-Block is examined of its possibilities and needs. Each diagram explains how the exiting condition of the site influences the new zoning of Mega-Block.

Figure A: Typology by Program
The program around site is classified into 6 general categories and ‘mixed-use,’ which contains two or more of categories aforementioned. 6 categories include: (1) Retail, (2) Amenity, (3) Supplementary Education, (4) Education;K-12 and university, (5) Service, and (6) Ground usage.

Figure B: Program Analysis of Adjacent Buildings
Along the boundary of Mega-Block, every building is documented with specific programs in detail. In case of mixed-use facilities, programs for all floor are listed. This analytical drawing was made to help conceptualize the particular conditions adjacent to Mega-Block.

Figure C: Food Zones on Site
Food zones are particularly interesting on the site chosen due to the district of restaurants and cafe nearby Kunkuk University and the street market in the middle of residential zone. Red boxes indicate where potential food zones are located in Mega-Block.

Figure D: Public Amenities on Site
Public Amenities are documented to emphasize the demand for more public services on the site.

Figure E: Education Cluster on Site
Education Cluster is one of the most important factors in residential zone in South Korea. Identifying the existing cluster and providing the new education center on the site is crucial in this project.

Figure F: Proposed Zoning (I)
Proposed Zoning (I) breaks down possible zoning blocks on Mega-Block.

Figure G: Proposed Zoning (II)
Proposed Zoning (II) specifies general program typology for each potential zoning block.

Figure H: Proposed Zoning (III)
Proposed Zoning (III) identifies the specific programs that could be housed by each potential zoning block.
Figure A: Typology by Program
Figure B: Program Analysis of Adjacent Buildings
Figure C: Food Zones on Site
Figure D: Public Amenities on Site
Figure E: Education Cluster on Site
Figure F: Proposed Zoning (I)
Figure G: Proposed Zoning (II)
Figure H: Proposed Zoning (III)
v. Mega FUN-ctional Landscape

“...urban planning seeks many goals; among those, this thesis intends to propose fun as a civic goal.”
a) Ground Level: Urban Corridor
Cultural Facilities

1. Children’s Library
   - Library
   - Green Roof
   - Connection to the underground pool

2. Extracurricular Activity Center
   - Dance studio
   - Green Roof
   - Yoga/Aerobic
   - Art Studio
   - Daycare
   - Performance Stage
   - Connection to the underground pool

3. Organic Food Restaurant

4. Concert Hall
   - Stage
   - Dance studio
   - Parking Lot Access
Hotel & Convention Center

Hotel and Convention Center Complex was designed to invited people to Mega-Block. Since the project intends to provide a new prototype of future housing, it is also important to showcase the building to non-residents. The complex is linkage from the city to the river and by having most public program allows smooth transition from residential area to the civic park.
Commercial zone + College culture
b) Mezzanine Level: Event Corridor

Figure A: Cellular Structure

Figure B: Cellular Program
Event Scenario #1

Event Corridor supports variety of programs and events that could be held on open space in mezzanine floor. Scenario #1 and #2 are the examples of different gatherings that happen in the same space. #1 brings people in for the art bazaar, cafe, and small shops along the bike and pedestrian paths.

Event Scenario #2

#2 shows the potential event space for runway fashion show, exhibition, or performance art works. Besides the shown scenarios, there are endless possibilities. The main concept of Event Corridor is not providing tailored space for specific program but providing structured bay for cellular programs that could come and go, as the Mega-block transforms over time.
c) Upper Level: Residential Corridor

Type A: Dormitory Units

Type B: Linear Courtyard Units

Type C: Four Courtyard Units
d) Rooftop: Sky Corridor
e) Infrastructure
f) Longitudinal Section
g) Night View
h) Addendum Model Pictures
Works Cited

Banham, Reyner.

Cho, Se-hui.
2006 The Dwarf, USA: University of Hawaii Press.

Christopher Alexander,

Isozaki, Arata.

Jeon, Sang In

Kallander, George

Kurokawa, Kisho.

Lefaivre, Liane.

Lin, Zhongjie.

Lucarelli, Fosco.
2011 Exodus, or the voluntary prisoners of architecture. Socks Media Art Architecture. March 19.

Maki, Fumihiko

Seung, H-Sang

Steven Holl Architects.

Tschumi, Bernard.

Wall, Alex.

Yeang, Ken.
2000 Green Skyscraper. Germany: Prestel Publication
Summary of Capstone Project

Mega (FUN)ctional Landscape: A Formula For What is Beyond Necessities is East Asian Cities

Project Site: Jayang District, Seoul, South Korea
Project Brief: As a response to East Asian urban crisis, Mega (FUN)ctional Landscape contends to re-structure the lost identity of city. The new definition of ‘FUNCTIONAL’ architecture—as what is FUN is truly (FUN)CTIONAL—encourages citizens of Seoul to re-examine the value of living in futuristic residential typology where live, work, and leisure come together to establish a place for life. The project is envisioned at the site of polemic urban fabric where Gangbyun highway divides the land into three discrete blocks: i. Riverside public park, ii. High-rise Apartment Complex, and iii. Low-rise urban slum.

The site is in dire need of re-structuring. A Mega-block is proposed on the site to provide Urban Corridor, which connects park and residence; Event Corridor, which houses various public events; Residential Corridor, where urban community can spring; and Sky Corridor that consists of a rooftop garden, jogging track, and sun space. The project is named Mega (FUN)ctional Landscape as it aspires to create new landscape in typical post-industrial site where aggressive urban development had in-fluxed into the dominion of Life.

01. Contention

function

Building = function

Architecture = fun + function

Testing Ground

02. Urban Analysis

04. Final Design