Collective Renovation -
Case Study on the Public / Private Relationship in High-density Low-rise Residential Areas of Central Tokyo

by

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**ABSTRACT**

This thesis starts with the interest in the undefined open spaces of high-density low-rise (HDLR) residential areas in Tokyo. In these spaces, one can witness numerous examples of overlapping public and private uses. For example, public streets are often appropriated as private gardens by a subtle but prominent gesture by residents to place many potted plantations on the street. These phenomena contribute to the vitality and safety of the neighborhood, as well as reflecting an effective use of space in a limited inner-city environment.

The aim of this thesis is to propose a housing development strategy that nourishes these qualities of the HDLR residential environment. The proposal seeks to provide an alternative to prevailing high-rise developments, to allow for more flexibility between public and private spaces. This thesis is a hypothetical and academic exercise, which builds up on premises based on current statistics and characteristics of the project site.

The design maintains and starts with the inherited urban fabric of the HDLR site, and proposes an individual renewal process of houses that collectively metamorphosize into an environment with greater sharing of public and private space. This neighborhood will continue to evolve as the population and lifestyles of residents change in the future.
<table>
<thead>
<tr>
<th>Chapter 1. Introduction</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1. Thesis background</td>
<td>7</td>
</tr>
<tr>
<td>1-2. Thesis purpose</td>
<td>8</td>
</tr>
<tr>
<td>1-3. Thesis keywords</td>
<td>10</td>
</tr>
<tr>
<td>1-4. Thesis method</td>
<td>12</td>
</tr>
<tr>
<td>1-5. Flow of thesis</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2. Relationship of public / private uses in Japan</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1. Public and private space in residents in Tokyo through history</td>
<td>14</td>
</tr>
<tr>
<td>2-2. Contemporary conditions of collective space in Japanese residential areas</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 3. Issues of housing developments in Central Tokyo</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1. Progress of housing developments in Tokyo</td>
<td>24</td>
</tr>
<tr>
<td>3-2. Relationship between public / private space in current housing developments</td>
<td>30</td>
</tr>
<tr>
<td>3-3. Current issues to consider for future housing developments</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 4. Precedent Analysis</th>
<th>34</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-1. Analysis method</td>
<td>34</td>
</tr>
<tr>
<td>4-2. Precedent high-density low-rise housing projects considering collective space</td>
<td>35</td>
</tr>
</tbody>
</table>
Chapter 5. Site Analysis 42
5-1. Defining HDLR residential areas in Tokyo 42
5-2. Existing context of Ebisu Sanchome (“Ebisu Third district”) 48
5-3. Fieldwork at Ebisu Sanchome 57

Chapter 6. Design Proposal - Collective Renovation 70
6-1. Concept 70
6-2. Design Strategy 73
6-3. Demographic premises 76
6-4. Urban scale proposal 80
6-5. Neighborhood scale proposal 83

Bibliography 114
Acknowledgements 117
Chapter 1. Introduction

I-1. Thesis background

This thesis starts with the interest in the undefined open spaces of high-density low-rise (HDLR) residential areas in Central Tokyo. In these open spaces, one can witness numerous examples of appropriation of, or constant private uses in public space. For example, in the image below, the public street is privatized by a subtle but prominent gesture by the residents to place personal belongings on the street (Fig. 1.1).

This interrelationship of public and private use in residential areas is an inherited characteristic of Japanese living, which allows for an active use of open spaces and interchangeable advantages for the private and public realm. Not only do these phenomena contribute to the vitality and safety of the neighborhood, but also reflect an effective use of space in a limited inner-city environment. Furthermore, it enhances the value of collective spaces as a place for informal interaction and information exchange.

The aim of this thesis is to extract and build up on the qualities of this high-density low-rise residential environment, to propose a new housing development strategy that is sufficient for future housing design in Central Tokyo. This thesis will be a hypothetical and academic exercise which builds up on premises that are set based on current statistics of Tokyo and the site area. The final proposal seeks to provide and alternative to prevailing high-rise developments, for a greater sharing of public and private use in collective spaces, while maintaining high population density.
Although the population of Japan is shrinking, Central Tokyo continues to attract more and more population, as can be seen in Fig. 1.2. In accordance to this, the demand for housing continues to grow. Currently, the predominating development strategy for accommodating this population is super-block high-rise design, which claims to use land efficiently by providing more housing and commodious open spaces.

However, these developments have actually created losses in population, exclusionary areas for the elite class, and strict divisions between public and private spaces. In other words, the prevailing housing development strategy lacks focus on the design of collective spaces that allow for flexible uses like those seen in HDLR residential areas.

Therefore, this thesis will explore an alternative design for a new commodious high-density housing development that reconsiders and maximizes the use and role of collective space in a limited inner-city environment. From investigation of the phenomena of private and public mixed use in collective spaces at a specific HDLR site, as well as analyses of high-density low-rise housing projects for architectural reference, this thesis will investigate qualities of HDLR urban environment that allows for these layered uses of public and private, and conclude with a proposal and analysis of a new housing development design.
Fig. 1.2 Increasing population of Tokyo
(data referenced from Japan Statistics Bureau)
The keywords in this thesis are to be defined in this chapter, as there are multiple interpretations for words such as “high-density” and “public/private”, depending on each individual’s perspective and cultural background. In the context of this thesis, the following keywords are defined as follows:

**High-density** refers to the high population density of an area, which in this thesis is defined as areas over 200 people per hectare (net area).

**Low-rise** is defined as buildings no more than three stories in height.

The scope of this thesis is placed on “collective space”, which in this thesis refers to “all exterior space” in the investigated residential site.

Within these collective spaces, this thesis categorizes spaces according to its use and accessibility, as shown in Fig. 1.3.

Here, “**private space**” is defined as spaces with limited accessibility and private uses, only for the resident or residents within that plot, whereas “**public space**” is defined as spaces with that are accessible and can be used by anyone, for public uses.

“**Private uses**” are activities that cannot be shared or are done individually, while “**public use**” is defined as activities that can be shared with other peers.

“**Common space**” is defined as areas within the plot where residents have equal accessibility, and rights to use.
Fig. 1.3 Categorization of collective space

- **Private**
  - Property of: resident
  - Accessibility: closed
  - Categorization of space: Private space, Semi-open Private space, Closed Common space

- **Public**
  - Property of: anyone
  - Accessibility: open
  - Categorization of space: Open private space, Open Common space, Public space

Symbols:
- = resident
- = other residents
- = anyone
I-4. Thesis method

Extensive fieldwork will be undertaken at a selected HDLR site, based on the identified HDLR residential areas within Tokyo's 23 wards. During the fieldwork, activities and specific uses in open spaces will be recorded through mapping and photos. Based on these observations, the spaces of the site will be analyzed by categorizing them into various types of collective space.

Additionally, precedents of high-density low-rise housing projects will be analyzed to research the composition and function of collective space in high-density low-rise environments. The precedents are selected from chosen books specializing in collective housing design. The analysis will focus on the accessibility and availability for public and private mixed use in collective space, by examining how various collective space is created, ranging from public to private.

Based on these two phases in research that investigate various forms of collective space, a new housing development design will be proposed. Finally, this design will then be analyzed to reexamine its generated collective spaces.
First, Chapter 2 will describe the relationship of public and private use in residential areas of Tokyo through a historical overview, starting from traditional Japanese houses, to uses in contemporary residential areas. Next, Chapter 3 will clarify the issues of current housing developments and the characteristics of their public/private space.

The following Chapters 4 and 5 will include research. In Chapter 4, key terms for this thesis such as 'high-density' and 'low-rise' will be defined, followed by selection and analyses of high-density low-rise housing precedents. Chapter 5 will define HDLR residential areas in Central Tokyo, and include fieldwork results of the selected site.

Finally, in Chapter 6 the design for a new housing development will be proposed.
Chapter 2. Relationship of public / private uses in Japan
2-1. Public and private space in residents in Tokyo through history

The overlapping uses of public and private in high-density low-rise residential areas is not only due to the lack of space in these neighborhoods, but is also an inherited consciousness of the Japanese.

When looking through the use of space in traditional Japanese houses, it is clear that Japanese residents have always considered public space as an extension of their living territory. Architect and anthropologist Wajiro Kon (1888-1973) had conducted thorough research on traditional Japanese living environment and established a field of research called ‘Seikatsu-gaku,’ (The Study of Lifestyle). In his research on the living and design of traditional Japanese homes, he illustrated how the traditional house was used to serve public roles such as for weddings or funerals. As seen in the framed diagrams in Fig. 2.2 for both of these events, the used area extends out to the exterior, and the entire house including its surrounding pubic space is being treated as one large room.

Many other traditional events and festivals are held throughout the year in Japanese homes. Most of these events take place inside and also include exterior space. For example, the “bean-scattering ceremony” celebrates the coming of spring, where residents scatter beans inside the house chanting for luck to come in, and outside chanting for evil spirits to leave (Fig. 2.1A). During New Year’s, residents decorate not only the interior but also the exterior of their house and street (Fig. 2.1B). In some western parts of Japan, at New Year’s, gravel paths are created from the neighborhood streets into each residential yards, in order to welcome the Gods into their homes. This traditional act clearly indicates an inherited consciousness of Japanese to consider the exterior environment to be closely tied with their own living spaces.

Fig. 2.1A “Bean scattering ceremony”, scattering beans outside the house to exorcise evil spirits (Miyakawa, 2012)
Fig. 2.1B Exterior decorations of a residence at New Year’s (Kato, 2012)
Fig. 2.2 Public and private uses in traditional Japanese houses (Kon, 1989)
Likewise, the interior private living spaces of traditional Japanese houses served public roles. An example of this overlapping use of public and private, is the largest room with most sunlight, which functioned as both the guest and main bedroom. This overlap was possible as Japanese used fu-ton (portable mattress) for their beds, and most furniture could easily be moved from room to room or put away into closets.

The ‘doma,’ or the hearth (Fig. 2.3) is a feature in traditional Japanese houses, which is an in-between space of the private living space and exterior. The doma mostly functioned as a place for production, including cooking, laundry, and maintenance of work tools, as well as the entrance of the house where visitors could enter and temporarily spend time. Spatially, it is level with the exterior, and the floor is earthen or tile. Although enclosed within the house with walls and roof, shoes were worn in this space, and taken off before entering the interior living spaces that were around 60cm (2ft) higher than the doma. Therefore, the doma is considered an in-between space both in terms of its physical and functional characteristics.
Additionally, for guests that did not require to be entered into the house, the entrance, engawa (porch), and kitchen entry were places where they could be attended. In other words, the traditional Japanese house had various places inside, which ranged in degree of where public uses could enter into the private living spaces.

Especially in the past 50 years, Japanese houses have undergone significant transformation considering overlapping spaces and uses of public and private. Shiotani (2002) explains that as traditional Japanese houses were rebuilt, the doma was renovated to the same level as the interior living space, which physically interiorized the life of residents inside the home, and caused a clear demarcation between public and private spaces. The house was then divided into ‘front’ and ‘back’ spaces; the ‘front’ serving as the space for public uses such as attending guests, and ‘back’ for activities such as cooking or laundry that would not involve others outside of the household. He further states that Japanese people have become conscious to divide their living space from others, leading to the further division of public and private spaces within each house.

This transformation of the Japanese house is stated to have increased during the 70’s, which is the period when Japan was as its economic growth. After the Tokyo Olympics (1964), Osaka Expo (1970), and opening of the Shinkansen (Express trains), the population moved into cities (as can be seen in the growing population of Tokyo in Fig. 1.2) therefore urgently increasing the need for more housing. Furthermore, the introduction of new technologies such as the television, and the ‘Three Sacred Treasures’ - the washing machine, refrigerator, and vacuum cleaner lead to changes in Japanese lifestyle. Both of these factors lead to the concentration of activities within the house, and rationalized functional divisions between public and private spaces. In contemporary houses in Tokyo and most other cities in Japan, the continual sense of space and uses with the interior, exterior living space and doma, changed into a delineated, “mono-dimensional” space (Shiontani, 2002).
2-2. Contemporary conditions of collective space in Japanese residential areas

Although the composition of Japanese houses in the city have transformed, the culture of mixed public and private use in Japanese residential areas still resides. In contemporary high-density low-rise residential areas in Tokyo, one can witness many instances of shared public and private uses in open spaces. Specifically, at times the public streets serve as one's private garden (Fig. 2.3A-C), parking space is used as a local flea markets (Fig. 2.3D), or frontage is used as a path for school outings (Fig. 2.3E).

What these phenomenons all contribute to are the liveliness, and safety of the neighborhood by acting as secondary eyes on the street, as well as reflecting an effective use of land for providing greenery and space in a limited inner-city environment. These aspects were investigated further through intensive fieldwork research at Ebisu Sanchome, which will be introduced in the following chapters.

In order to sustain these shared spaces there exists an innate management of shared space in these neighborhoods. This tacit understanding of shared space between the residents comes from the inherited concept of "Cho" (丁) - as in Ebisu Sancho-me - which dates back to the Heian period (800-1190AC).

In contrast to American cities where streets are the fundamental organizational structure, Japan's cities are organized by blocks, and Cho is the smallest unit, which are labeled with a proper noun. It originates from the organizational structure of spaces by rice fields, counted with the unit "Cho" and continued to be used as the fundamental unit to organize cities. By the mid-15th century, Cho's became distinct areas with self-autonomous organizations, where residents in the Cho built relationships and an individual community within it.

These self-help organizations developed autonomously in the early 20th century as residential areas grew in population. They became known as "cho-naikai" (neighborhood associations), which were mostly responsible for organizing neighborhood scale festivals, shrine management, and neighborhood clean-up or recycling campaigns (Sorensen, 2009). Most of the communication of these activities were done through "cho-nai kanranban," which are circulation notice clipboards to be passed around to each house.

"Cho-naikai" exists in almost all residential areas in Japan, and over 90 percent of all Japanese residents are participants of the cho-naikai in their current neighborhood (Sorensen, 2009). Bestor (1989) had also discovered in his fieldwork of a downtown residential neighborhood in Tokyo in the early 1980's, that "chonai-kai", as well as activities and social structure of the neighborhood had not changed from the results document by Dore (1958) in his fieldwork study at the same neighborhood in the 1950's. Due to
Fig. 2.3A-C (top images) Plantations being placed on a public street
Fig. 2.3D (bottom left) Flea market at a parking space
Fig. 2.3E (bottom right) School outing passing through residential area
(all photographs from fieldwork)
this thoroughly developed tradition of self-autonomous neighborhood-scale organization, most exterior spaces in residential areas are well-maintained, and customary for privately owned land to be used by multiple residents, or public streets to be privatized by the residents in houses fronting them.

The concept of "Cho" is alive to this day, and at times is reinterpreted in architecture such as facilities for the elderly (Fig. 2.4) for building a sense of community between the units. The streets within the "Cho" are mutually shared spaces for children to play, or leave personal belongings. Here, the in-between space of the units serve as the shared daycare space for the units in each "Cho".

An example of a residential neighborhood that perserved its traditional urban fabric and "Cho" community, is the neighborhood of Yanaka. It is an area that survived the Great Kanto Earthquake (1923) and fires from World War II. It is an environment that sustains the indidenous character of residential areas in Central Tokyo, full of alleys just wide enough for pedestrians to pass, and with personal belongings or people on the streets. Andre Sorensen, author of *Neighborhood Street as Meaningful Spaces: Claiming Rights to Shared Spaces in Tokyo*, describes his experince in the Yanaka area as follows;
Currently, there exists an active community movement in Yanaka, that protects the urban condition of shared streets and public spaces that are described above. Yanaka is under increasing pressure for redevelopment by market processes, but withstanding development by remaking the meanings of shared spaces and publicizing the value of its environment that cannot be recreated in any large-scale development. Civic organizations have been central to making efforts to raise awareness of the particularity and fragility of Yanaka.

One of the activities for promoting the value of the inherited condition of Yanaka is a monthly magazine called “YaNeSen”. It was created by three local women in 1984, which publicizes information about local history, people and celebrations in the three neighboring districts of Yanaka, Nezu and Sendagi. This magazine was integral to creating a narrative of these neighborhoods and emphasized on the people, traditions, and crafts that were the treasures of these areas. In addition, “Yanaka Gakko” (meaning “the school of Yanaka”) was established in 1989 by alumni and faculty of the Tokyo University of Fine Arts. The goals of this group were to “discover, inherit, and regenerate,” (Sorensen, 2009) Yanaka, by creating projects such as temporary community meeting places, renovating an old public bath into an art gallery, and creating a catalogue of community resources such as wells, and sharable spaces. By promoting, maintaining, or reactivating the use of public/private space and common resources, Yanaka Gakko has succeeded in raising public awareness for valuing these characteristic elements of Yanaka.

Fig. 2.5A (right) Yanaka-Ginza; main shopping strip with small-size retail (Tasca, 2012)
Fig. 2.5B (left) Typical street and scale seen in Yanaka (Louis, 2012)
Compared to the traditional Japanese urban and residential environment, residential areas of Tokyo have undergone severe alterations due to change in population, urban structure, economy and lifestyle.

Some of the issues due these changes are, the lack of open space and loss of greenery in residential areas. Although building coverage limitation in these residential areas is under 60%, in most cases only gap spaces of about 50cm are left around buildings. As a consequence of the random formation of land plots, there are multiple dead ends, and the areas are being further densified. In the case of earthquake disasters, these situations are considered dangerous. Parking spaces were mostly made in front of the houses instead of gardens, to accommodate the increase in automobile traffic (Fig. 2.6), which contributed to the lack of space and loss of greener in residential areas. Another issue that should be considered is the lack of diversity in residential areas of Japan. However, in the current state, development of shops or services is limited due to zoning restrictions placed on residential areas.

One of the main physical factors that lead to the alteration of residential environments is the subdivision of land plots. Firstly, as a consequence of the rapid economic growth in the 1970’s, average-income population increasingly inhabited residential areas once owned by middle to high-class populations. Due to
the demand of housing in the city, as well as the increasing land value, smaller lands plots were created and in them, smaller houses were built. Secondly, the Inheritance Tax Act in Japan has also lead to the subdivision of land. Since plots inherited become subjected to a high tax rate from around 10% up to 50% of the price of the land, many landowners subdivide their land to distribute among relatives, or to sell part of the plot to be able to pay the taxes to inherit the remaining part. Furthermore, the lack of regulation has lead to the limitless and random subdivision of land plots. Currently, in the Japanese Building Standards Law, the only regulation for subdividing plots is to leave at least two meters-wide access space from the front road; no other limitations or guidelines concerning subdivision of plots are not indicated.

Another factor is the repeated deregulation of the Building Standards Law. This has consequently changed the expected spatial density and landscape from the initial conception. By utilizing garages, basements, or other shared spaces, it became possible to build residences that are over 1.5 times the allowed floor area ratio. As a consequence, although the Japanese City Planning Act from 1919 established sufficient plot sizes to be of around 300 sqm, most residential developments did not take on these numbers. It is assumed that the present standards are near a third of this original standard (Koide and Fujii, 2000).

Changes in lifestyles have also contributed to the shift of environment in residential areas. For example, in recent developments, parking spaces were mostly made in front of the houses to accommodate the increase in automobile traffic. As a result, the amount of greenery in residential areas has decreased dramatically in recent years (Tabata and Kim, 1989).

Due to the lack of regulation, high-density low-rise residential areas became a fragile urban fabric easily transformed by subdivision of land, deregulation policies and changes of lifestyle. However, in this loosely regulated and changing fabric a series of urban qualities emerged. It is also essential to recognize the qualities of these areas, the sustained communities and lifestyles embedded in these spaces, which would be destroyed in case of radical urban redevelopment. Criticism of these areas should be carefully examined and necessary measures will be considered in the design phase of this thesis.
Chapter 3. Issues of past housing developments in Central Tokyo

3-1. Progress of housing developments in Tokyo

In order to understand the economic and political reasons behind the alterations of housing environments, as well as issues of past housing developments, this chapter looks at the thorough history of housing developments in Tokyo.

High-density living in traditional low-rise houses was common in Edo’s (old Tokyo) merchants districts. However, most low-rise high-density residential areas are not the direct evolution from Edo’s building types nor are they the vision of planners and architects. Rather, these areas are the unexpected results of social and economic factors since the beginning of the 20th century (Hayada, 1998).

The beginnings of housing policies in Japan was first created in the Edo period. The feudal government organized policies that restricted the structures and heights of buildings, some of which resemble the Building Standards Law of today. During the Meiji period, various restrictions concerning the division, buying and selling of land were created. Then after the Japanese-Sino War (1894-1895) and Japanese-Russo War (1904-1905) Tokyo constructed the first publicly run row houses. In 1888, the city of Tokyo first promulgated the “Regulations for City Development”, which by 1918 became implemented in major cities other than Tokyo.

In the following year, the City Planning Act and Restrictions for Architecture in Urban Districts were issued, which was the start of the government’s policies to streamline the urban planning and building laws of Japan. Following the First World War in 1914, the construction of public housings begun in earnest. During these periods, most developments of residential areas were conducted individually following the policies given by the City Planning Act.

A drastic modification of housing policies in Japan occurred in 1923, due to the occurrence of the Great Kanto earthquake. Before the Great Kanto earthquake, the high-density residential areas in Tokyo and Yokohama, which were composed of wooden structured housings, were acknowledged as dangerous areas in case of an earthquake. However, maintenance of blocks in the area was running late, which consequently resulted in the catastrophic disaster of the area. The Exclusive Urban Planning Law was implemented thereafter to stimulate reconstruction and regeneration of areas in Tokyo and Yokohama, which were the afflicted areas.

In the following year, the Doujunkai Foundation was established. This foundation was created as a part of the process to reconstruct the Kanto district, and offer housings for those who lost their homes in
the Great Kanto earthquake. It first supplied the afflicted areas in Tokyo and Yokohama with wooden structured barracks, then begun designing reinforced concrete apartments for the redevelopment of the area. The Doujunkai Foundation aimed to supply high-quality apartment housings for the middle-class population of the city such as the Aoyama or Edogawa Doujunkai apartment in Fig. 3.1A and B, in accordance with reconstruction and improvement of housings to prevent the growth of slums (Urabe Research Group). These apartments were innovative in terms of using concrete structure, which was new at that time, and that they allowed for mixed use and provided public amenities such as public baths (Fig. 3.1B), and gradually nourished communities within them. However, with the establishment of the Housing Authority in the Japanese government, these business enterprises were transferred, and the Doujunkai Foundation was dissolved.

The characteristic of this period in the early 20th century is that many other private sectors such as electrical railroad companies, acreage estate companies, and educational corporations were the planners of developments and managed these residential areas. The development of Sakura-shinmachi in 1913 by Tokyo Trust Company was the first of these developments. These were followed by den-en toshi (Garden City) developments by the Den-en Toshi Company, which literally spatially incorporated the model of Garden City by Ebenezer Howard, to realize spacious suburban living in the heart of Tokyo. Areas that were once farmlands rapidly developed, creating consolidated urban areas along newly built railway lines (Ward, 1992).

However, throughout the 20th century these residential developments have deviated greatly from their original vision. The most famous exemption is the area of Den-En Chofu, developed in 1923, which has kept its spacious plots and greenery at the cost of becoming one of the most exclusive residential areas for the upper class (Fig. 3.2).
The political and historical constituents that created drastic changes in residential environments were the revision of the City Planning Act in 1933, to be followed by another issue of an Exclusive Urban Planning Law in 1946 for the redevelopment of Japan after World War II. In the following post-war years, redevelopment and construction plans for cities in Japan were swiftly implemented. First, 300,000 emergency residences were constructed, and agricultural lands were opened for development. In 1948, the Construction Ministry was established to supply the housing need for residences. Urban planning regulations such as the Building Standards Law, and Land Readjustment Act were enacted by the next ten years, and they became the first established basis of urban planning principles in Japan.

The next alteration in the development of residential areas of Tokyo was in the Showa period from around 1955, due to rapid economic growth and concentration of population into cities as seen in Fig. 3.3. By 1956, the situations in cities of Japan were not that of post-war, but were advancing by means of technological innovation and modernization. Furthermore, new urban planning laws concerning parks and regulation of roads became implemented, which produced developments of well-maintained residential areas.

In 1968, the City Planning Act was reestablished to prevent urban sprawl. The Urban Renewal Policy established in 1969, became the national standard for redevelopment in cities. The economy during this time was amidst the izanagi boom (Japanese metaphor describing the long term economic growth), and rapid development was seen in major cities such as Tokyo. It was during this period that “New Towns” were developed in the suburbs to accommodate housing for the working population.

In accordance with these situations, in 1966, the “Housing Scheme in 5 Years Span” was implemented. This scheme was designed to supply cities with enough housings for the increasing population. The first and second phases from 1966 to 1970, and 1971 to 1975, aimed to resolve the lack of housings, constructing 15,000,000 dwellings in total. In the third and fourth phases from 1976 to 1980 and 1981 to 1985, qualitative standards for the housings were placed, and around 14,000,000 more dwellings were built. However, this number did not reach the planned amount of dwellings to be built due to the oil crisis in 1971. At this era, there was not a large market for houses due to the lack of increase in land prices.

After the economic growth in the 1970’s, Japan’s economy weighed heavily on development and construction. According to Sorensen (2009), “the share of GDP devoted to infrastructure, and the share of the workforce employed in construction are both double the rate to the other developed countries.” During this period, Japan was known as the “dokken kokka” meaning “construction state.” Furthermore, Prime Minister Kakuei Tanaka presented the “Recreation of Japan Theory.” Within this theory were plans for the further development of residential areas, and aim for having “one dwelling for each”.

...
Fig. 3.2 Den-en Cho-fu (Garden City) Master Plan (Ward, 1992)

Fig. 3.3 Fluctuation of Tokyo’s population
By the 1980's Japan's economy had grown into a bubble economy, when "real-estate speculation reached a feverish pace in Tokyo, and redevelopment pressures mounted in many relatively forgotten and declining corners of Tokyo," (Sorensen, 2009). During this era, many developments were implemented through eminent domain, where “jiyageya” - or land sharks - would forcefully displace residents of a prospective development site for new large-scale constructions.

After the collapse of the bubble economy, land prices decreased and governmental policies were created to ease development regulations. The regulation zoning plan was implemented in 1990, and revisions in the Building Standards Law and City Planning Act and were made. As a result, larger amounts of land were altered to allow for development.

In Central Tokyo, high-rise residential developments became popular, responding to the influx of population into the city from the mid 90's (Fig.3.3), and stacking as many floors of housing in limited spaces for efficiency. Most of this new population were students, young business people, or nuclear families, which accelerated the demand for efficient and individualized living spaces that high-rises provided (Fig. 3.4, 3.5). This residential typology is detached from the surrounding environment, and deviates greatly from the traditional living spaces which were closely related to the surrounding streets and neighborhood community.
Fig. 3.5 Changes in housing typology per era (Japan Institute of Lifology, 2002)

**Japanese era**

- **Student housing (Tokyo)**
  - Doujunkai Daikanyama Apartment
  - Apartment in Shinjuku; office, baths on 1F
  - Row housing in Edo
- **Tokyo/Shiodome Redevelopment**
  - Construction of large-scale redevelopment projects
  - Construction of public housing
  - Booming construction of apartments
- **Highrise comparisons**
  - 1K apartments popular to students
  - Typical floor plan of privately owned rental apartment

**Student housing (Tokyo)**

- **Row housing in Edo**

**Doujunkai Daikanyama Apartment**

- Apartment in Shinjuku; office, baths on 1F

**Wooden rental apartments**

- Wooden rental apartments

**Typical floor plan of private rental apartment**

- Typical floor plan of private rental apartment

**Highrise comparisons**

- 1K apartments popular to students
3-2. Relationship between public / private space in current housing developments

The current prevailing method of residential development is still high-rise housing. The high-rise developments claim to provide more housing for densification and commodious open spaces, but in fact have created losses in population and only exclusionary areas for the elite class. For example, the developments shown in Fig. 3.6 have almost doubled their FAR, but have had significant loss in population. (Arc Hills: FAR growth=380% to 740%, Population loss=567 to 252 people; Roppongi Hills: FAR growth=321% to 719%, Population loss=1154 to 921 people; Izumi Garden: FAR growth=375% to 755%, Population loss=489 to 137 people) (Ichikawa, 2009).

High-rise developments have created an isolated boundary from trying to squeeze in all of the desired necessities of productivity, livability, and sustainability with efficiency. Therefore, in terms of its contextual continuity with the surrounding environment, these developments are detached and are complete communities within themselves. There are also social and physical barriers that strictly delineate spaces that are accessible to the public, from private spaces restricted to certain groups of people.

Fig. 3.6 Recent high-rise developments in Tokyo
(left and middle: Mori Building, 2012
right: Sumitomo Real Estate, 2012)
The Roppongi Hills development completed in 2003 is a representative example of this development strategy. Being centered in the heart of Tokyo, the Mori Tower is home to Tokyo headquarters of large international companies such as Goldman Sachs, Morgan Stanley, Ferrari, Coach, Google and many others that promote the progressive, high-end, and international image of Roppongi (Fig. 3.7A). The social composition of the site are mostly people of high class - famous actors, executives, and diplomats - who are able to pay the high rents. There are also membership clubs in the highest floors of the Mori Tower for these people to hold parties, converse, and create communities (Fig. 3.7B). For reference, the entrance fee for the Roppongi Hills Club is $15,000, with an additional yearly membership fee of $2,400.

In terms of the physical barriers of high-rise developments, due to the enforcement of security in these residents, it is difficult for visitors to enter the premises casually. At times entrances are fenced, or have multiple layers of security in the form of raised ground level and secured doors (Fig. 3.8A, B). Furthermore, the common or “public” spaces, whether it be exterior or interior space, tend to serve only as circulation space. This is due to the lack of attachment by residents to these spaces, especially as the residents at higher levels have no connection to those spaces usually located at ground level.

Fig. 3.7 Social barriers of high-rise developments
A (left) Progressive and high-end image created by built environment
B (right) Exclusive Roppongi Hills Club
(Mori Building, 2012)

Fig. 3.8 Physical barriers of high-rise developments
A (left) Raised ground level of high-rise residential building
B (middle) Large open space used solely for circulation, and layered security doors to enter
C (right) Empty hallway inside high-rise residential building
(NOS Estate, 2012)
3-3. Current issues to consider for future housing developments

Especially in the past decade, Tokyo continues to attract more and more population, although the population of Japan is shrinking (Fig. 3.3). This is because most institutions, job opportunities, commercial and cultural activity are all concentrated here. Additionally in terms of demographics, Japan is a super-ageing society, and it is estimated that one third of the population in Japan will be over the age of 65 by the year 2050.

Although population is concentrating in Tokyo, communities in residential neighborhoods have become weak, due to factors mentioned previously, such as the architectural changes in houses, development of high-rise residential typologies, and increase of nuclear families and individualized lifestyles. For a super-ageing society, it can be stated that community and awareness of the conditions of neighbors are an important factor to consider for future residential developments in Tokyo. There have been numerous incidents of solitary death of elderly reported in Tokyo, which may have been prevented if there were daily communications and awareness between neighbors.

The existing housing developments are not enough to respond to these demographic and social changes that will occur, and a clear evidence of this was illuminated on high-rise developments after the earthquake on March 11, 2011. Originally, residents in the high-rise residential towers in Tokyo preferred strict privacy, and associating with neighbors was an unneeded aspect in their lifestyle. However on 3.11, residents experienced blackouts, broken telephone service, and difficulty to evacuate, which exposed the vulnerability of this isolated lifestyle at times of emergencies. Furthermore, there was no place for them to evacuate and take refuge after the earthquake, as these buildings are considered structurally disaster resilient. The strict delineation of public and private space had escalated the division between the surrounding neighborhoods of these developments, and between the residents themselves, exposing these fundamental issues (Fig. 3.9A). Currently, residents of high-rises are making efforts to build community inside as well as extending out by participating in neighborhood events (Fig. 3.9B).

Other issues to consider in future housing developments are earthquake resilience, and accessibility for ambulance, firetrucks. This thesis will focus on the social and demographic issues of the site to be addressed in the proposal design.
Blackout, broken telephone service

A (top) Photo of high-rise residential towers during blackout after earthquake

B (bottom) Efforts to build community and prepare for future disasters

Fig. 3.9 Images from News 9 February 29, 2012 “Changing conscious of high-rise residents towards disaster protection”
Chapter 4. Precedent Analysis

4-1. Analysis method

In order to understand various architectural approaches for creating flexible collective spaces in a high-density environment, precedent housing projects are examined in this chapter. The precedents were selected according to density (minimum 200 people per hectare) and their emphasis on designing collective space. The analysis consists of categorizing spaces within the plot from private to public space, and diagrammatically illustrating the architectural composition of how flexible spaces are created.

For each precedent, along with a diagram analysis of collective spaces, their characteristics, issues, and ideas for further implementations are described. These precedent analyses will extract architectural references for developing design ideas in the final design.

Fig. 4.1 Categorization of collective space

- = resident
- = other residents
- = anyone

Private

Property of: 

Accessibility: 

Categorization of space:

Private space

Semi-open Private space

Closed Common space

Open private space

Open Common space

Collective space

Public
4-2. Precedent high density inner-city housing projects considering collective space

The precedents examined are as follows;

- Moriyama House by Ryue Nishizawa (Tokyo, built 2005) 6 unit apartment
- Tokyo Apartments by Sou Fujimoto (Tokyo, built 2010) 4 unit apartment
- Yokohama Apartments by ondesign & Partners (Yokohama, built 2009) 4 unit apartment
- Donnybrook Quarter by Peter Barber (London, built 2006) 50 units & commercial on ground floor

The relationship between these precedents, based on population density and height, is shown in graph Fig. 4.2.
Moriyama House / Ryue Nishizawa 2005

259 ppl / hec  1–3 F  290.07 m²

Characteristics:
- No clear demarcation of private / public other than interiorized individual space
- Boundaries created by layout of buildings (unit D), extension of wall line to plot line, change in ground material (entrances)

Issues:
- Too much separation of the unit
- Lower density than high-rise
- Creates a labyrinth

Ideas to new implementation:
- Creating more gradation from public to private space in open areas
Tokyo Apartments / Sou Fujimoto 2010

600 ppl / hec 3 F 83.14 m²

Characteristics:
- External entrance staircase over private house

Issues:
- Internal staircase allows for complete internalized individual spaces, making external staircase merely function as circulation
- Direct multiplication of this housing may not be possible due to lighting, creating labyrinth

Ideas to new implementation:
- Incorporating public programs within the complex
Donnybrook Quarter/ Peter Barber  2006

289 ppl / hec  2–3 F  3,329 m²

Characteristics:
- Open street within plot
- Abundant terrace space
- Office / retail space on ground floor

Issues:
- All individual space is interiorized

Ideas to new implementation:
- More connectivity to open street
- Shared terrace among adjacent or upper and lower floor neighbours
**Characteristics:**
- Ground level is open to public
- Events, private parties, workshops are often taken place at the ground level
- Each unit is reached via ground level plaza from staircase

**Issues:**
- Each unit only for single resident use

**Ideas to new implementation:**
- Allowing maximum freedom at the ground level for various activities, while dividing private space by level
- Allowing maximum freedom at the ground level for various activities, while dividing private space by level
- More connectivity to open street
- Shared terrace among adjacent or upper and lower floor neighbours

Fig. 4.3 Collection of architectural references for new implementations

1 Moriyama house
- Creating more gradation from public to private space in open areas

2 Tokyo Apartments
- Incorporating public programs within the complex

3 Donnybrook quarter

4 Yokohama Apartments
- Allowing maximum freedom at the ground level for various activities, while dividing private space by level
The common characteristics of these precedents are that they 1. possess an ambiguous plot border, 2. have open spaces that are accessible to anyone, and 3. the intimate scale of these open spaces are suited to be tailored for daily activities of the residents. These factors create spaces that can be appropriated or shared by residents and visitors, and function to liven the environment of the residents.

Furthermore, from each precedent, ideas for new implementations were extracted as shown in Fig. 4.3. These factors were to create a gradation from public to private by proximity and positioning of volumes, allowing for maximum freedom at ground level, providing shared terraces for adjacent neighbors, and incorporating public programs within the residences, such as public baths or reading rooms seen in the Dojunkai Aoyama Apartments.

The common issue of these precedents are that they do not affect or activate the surrounding environment beyond their plot lines. In order to design a housing development strategy that allows for flexible use of public/private space, it is crucial to consider the environment beyond each plot, and treat the block or neighborhood as one collective residence. These factors will be considered in the design to create a vibrant residential environment with overlapping public/private spaces.
Chapter 5. Site Analysis
5-1. Defining HDLR residential areas in Tokyo

In order to define high-density low-rise residential areas in Central Tokyo, three maps - population density, building height, and residential areas of Tokyo's 23 wards (Fig. 5.2A-C) - were layered, and extracted as shown in Fig 5.1.

As seen in Fig. 5.1, high-density low-rise residential areas are located in a ring disposition around Tokyo’s center with a clear concentration in the West area, most of which were originally farmlands. Starting from around the 1920's, consolidated residential areas developed rapidly along newly built railways, which were planned and managed by private railway companies. These residential developments were originally planned for middle to upper class residents, planned as suburban developments around the city core. However, as population flowed into Tokyo, the increasing demand for housing and land value overrid the original development plans, transforming these regions into highly condensed environments of randomly formed small plots and diversified forms of housing.
Fig. 5.1 High-density Low-rise residential area in Tokyo’s 23 wards
Fig. 5.2A Population density of Tokyo’s 23 wards

Population density (per net area)
- Under 50 people/hectare
- Under 100 people/hectare
- Under 120 people/hectare
- Under 150 people/hectare
- Under 200 people/hectare
- Over 200 people/hectare
Fig. 5.2B Building height in Tokyo’s 23 wards

Building height
- One-story buildings
- Two-story buildings
- Three-story buildings
Fig. 5.2C Residential areas in Tokyo’s 23 wards
5-2. Existing context of Ebisu Sanchome (“Ebisu Third district”)

The selected research and proposal site is Ebisu Sanchome (meaning ‘Third district in Ebisu’). Its population density is 224 people per hectare, or approximately 100 people per acre. In 1994, a large redevelopment project of a beer factory - Ebisu Garden Place - west of the site (Fig. 5.4), transformed the adjacent neighborhoods into a fashionable hot spot. The research and proposal site is also undergoing change, where small boutique shops are opening and old houses are being rebuilt.

Fig. 5.3 Research site - Ebisu Sanchome - within Tokyo’s 23 wards
Fig. 5.4 Urban fabric of research & proposal site

① Ebisu Sanchome  ③ Proposal site
② Research site  ④ Ebisu Garden Place
Ebisu Sanchome is a neighborhood of mid to high level income families, where land has always kept its high value and prices as shown in Fig.5.5. Although land prices decreased from after the Lehman Shock in 2008, the current land price for Ebisu Sanchome is 1,000,000 yen/m² (= apx. $13,121/m² at currency rate $1=76yen as of February 2012), which is much more expensive than the average land price for Tokyo, which is 764,649 yen/m². Especially after the construction of Ebisu Garden Place, the name value of “Ebisu” increased, maintaining the neighborhood brand as a high-class residential area.

Ebisu Sanchome is surrounded by arterial transportation networks, including the metropolitan highway, and Ebisu station of the Yamanote Line, which is the main circular train line that encompasses the core of Central Tokyo (Fig. 5.6A, B). Although Ebisu Sanchome is surrounded arterial roads, due to the narrowness and complex configuration of streets, once inside the neighborhood, the area is quiet and few cars pass through. At a local scale, Ebisu Sanchome is easily accessible to Ebisu station via bus, as there are two bus routes that circulate the area on a frequent schedule (Fig. 5.6C).

When looking at the architectural height of Ebisu Sanchome, it is much like a basin, where a neighborhood of low-rise small-scale urban fabric is surrounded by high-rise super block facilities. (Fig. 5.6E) large-scale commercial, service, recreational facilities and educational institutions are in close proximity, one of them being Ebisu Garden Place (Fig. 5.6B).
Due to these conveniences and comfortable neighborhood, Ebisu Sanchome has been an appealing place to live within Central Tokyo. In a magazine focusing on information of Tokyo called *Tokyo Walker*, Ebisu has continuously been ranked in the top 10 desired cities to live in Tokyo, based on a questionnaire to residents in Japan.

The area of Ebisu is rich in topography, and Ebisu Sanchome is located on a gradual hill (Fig. 5.6D). There is also a large hill south of the site preserved as the National Science Museum Park. Although in close proximity, due to the political boundary that divides the park from Ebisu Sanchome, there is currently no direct entrance from the north of the park. In the urban design scale of the proposal, a new direct entrance connecting Ebisu Sanchome to the park is intended to be opened.

As shown in Fig. 5.7, the population of Ebisu Sanchome has grown significantly in the past decade. From the reputation and factors of Ebisu Sanchome explained above, it can be expected that Ebisu Sanchome will continue to attract more population. The future of Ebisu Sanchome can be projected as a mid-income to high-end neighborhood with a dominant population of young and retired couples.
Fig. 5.6A Street network

Ebisu Station

Ebisu Garden Place

National Science Museum Park

Research Site
Fig. 5.6B Major transportation nodes and surrounding programs

- Ebisu Station
- Ebisu Garden Place
- Keio Elementary School
- Kitasato University & hospital
- France Embassy
- Hiroo Hospital
- Seichin Girl's highschool
- Tokyo University & Hospital

Index:
- Transportation
- Commerce
- Public service
- Park
- Institution
Fig. 5.6C Political boundary & bus route

- Ebisu Station
- Ebisu Garden Place
- National Science Museum Park
- Research Site
Fig. 5.6D Topography

- National Science Museum Park
- Ebisu Garden Place
- Ebisu Station
- Research Site
Fig. 5.6E Building height
In order to further understand the current urban condition and utilization of space in Ebisu San-chome, extensive fieldwork, and mapping of the elements in the neighborhood was conducted. Although maps created from this fieldwork are a slice of the urban condition at a point in time, site visits and recordings were carried out several times during January 2012 to observe, experience, and analyze the urban environment of Ebisu Sanchome. From these observations and analyses, four major qualities of high-density low-rise environment were identified; gap spaces, liveliness, greenery, and safety.

In low-rise high-density residential areas the architectural footprint coverage is very high. Architectural gross footprint coverage in Ebisu Sanchome is 44.3%, which is approximately the same architectural building coverage as Back Bay, Boston (gross building coverage is 41.9%). In Back Bay the Victorian row house typology configure a clear wall along the street, and visual openness is concentrated in line with the road (Fig. 5.8C). In contrast, in high-density low-rise residential areas in Tokyo, an overall transparency of the neighborhood is achieved by gap spaces. Perspectives penetrate the area and it is possible to see past the building into other’s backyards or verandas of homes, or onto the other side of the block. While securing open perspectives throughout the area, the gaps become a window where one can take a glimpse of what is occurring inside residences of others (Fig. 5.8A, B).

Fig. 5.8A, B Gap spaces between houses that create transparency of the area (images from fieldwork)
Gaps not only play a visual role, but also compensate the limited interior residential space. As shown in Fig. 5.8D, many personal belongings such as bikes, bicycles, and potted plantations are seen in the gaps. Some elements are placed out of the plot boundaries but no one is persecuted by this action. This phenomenon is very common in low-rise high-density residential areas and has been called afuredashi ("overflow") in Japanese by several researchers (Kim and Takahashi 1995, Aoki and Yuasa 1993). Due to this overflow of personal belongings onto the gaps, the area holds an unclear definition of possession border and function.

Fig. 5.8C (top) Visual openness in line with the road in Back Bay, Boston. (Nagasue, 2012)
Fig. 5.8D (bottom) Effective use of gap spaces to compensate for limited space in high-density environment. (photograph from fieldwork)
Liveliness, or the animation of streets, is an often mentioned quality of public space. Less consensus is achieved when it comes to define what constitutes “liveliness”, but the number of people on the streets is a commonly accepted way of measuring the liveliness. In Tokyo’s low-rise high-density areas especially during noon on weekdays, there are few people are on the streets, as was observed during fieldwork at the research site. However, in spite of the lack of people on the street during periods of the day, dense inhabitation leaves personal belongings or “remnants of activities” of people to be seen. Cars, bicycles, plantations and laundry were frequently present in public spaces (ref. afuredashi phenomenon). These are not abandoned objects, but left temporarily, and indicate evidence of activity. It is fair to say that these remnants offer liveliness to the area in the same sense that people do, by providing a presence of human activity. The abundance of personal belongings left on the streets in Ebisu Sanchome were mapped as shown in Fig. 5.9A.

This is a kind of secondary interaction that can be positioned as the lowest level of intensity of interaction, according to Jan Gehl’s table of possible interaction (Fig. 5.10). Gehl stresses the importance of passive contacts in public space (“see and hear” contacts). The view of remnants of activity indicates human activity in the near past or imminent future and can be said to play a similar role to Gehl’s “low intensity” contacts. One can collect information about the surrounding social environment such as the composition of a neighboring family or their lifestyles, in the same way that can be achieved through by seeing and hearing people.

Fig. 5.10 Intensities of human interaction (Gehl, 1987)
Fig. 5.9A Personal belongings on the street in Ebisu Sanchome
Greenery was seen throughout the research site in various forms such as trees, bushes, plantation hedges, and potted plantations placed outside by the inhabitants. The amount and layout of greenery of Ebisu Sanchome is mapped in Fig. 5.9B. Although there are no large concentrations of greenery such as individual gardens, parks or tree-lined streets, a fine-grained greenery is present in the whole area. As a kind of natural reaction to compensate narrowness, the density of greenery put by inhabitants appears thicker along narrower streets (Fig. 5.11). This self-managed greenery is cultivated because of a strong awareness of other neighbors’ eyes and a sense of responsibility towards common space. Very often, private greenery grows beyond the private boundaries of each site (Fig. 5.12A, B). This can also be seen as an appropriation of space, or a furedashi of greenery, which plays an important role in contributing to liveliness in the residential area.

Jane Jacobs (1961) famously described how streets can contribute to safety by providing “eyes on the streets”. People, windows and shop entrances facing the street act as a deterrent of crime in public space. The research site; Ebisu Sanchome cannot be considered as a literal example of “eyes on the street” since the view from the windows is covered by blinds, screens and vegetation, there are no shops and few people are to be seen. However, the intimate scale, articulation and remnants of activity acts as secondary “eyes on the streets.” Specifically, the narrowness of streets and the small distance between houses create a space uncomfortable for visitors to step in boldly, and remnants such as bikes, bicycles, cars, maintained pot plantations and gardening imply daily movement and activity.

There is no clear demarcation of public and private; rather, the border is blurred due to the abundance of personal belongings on the streets. However, the hierarchy of the streets by width (Fig. 5.9C) creates the gradual boundaries of public and private areas of the city. This gradation from public to private is clearly visible when overlaying the map of personal belongings left on the street with the street hierarchy map (Fig. 5.9D). It can be seen that there are more personal belongings left on the narrower streets, since they have a higher level of privacy.
Fig. 5.9B Greenery in Ebisu Sanchome
Fig. 5.9C Street network of Ebisu Sanchome
Fig. 5.9D Layering of personal belongings on the streets and street network
In these fragile urban fabrics a series of patterns that facilitate a satisfactory living environment have emerged and developed in local, original ways. The rich variety of semi-public spaces, intimacy of scale, and a spatial layout that encourages self-management of exterior spaces are no doubt qualities related with the specific Japanese urban context (Fig. 5.13A-G). This thesis aims to incorporate and nourish these qualities in order to propose a remedial urban design that would maximize the potential of the qualities in high-density low-rise residential areas.

Fig. 5.13A-G Photos illustrating urban condition in Ebisu Sanchome (places labeled on Fig. 5.9D)
Laundry visible to the public, indicating presence of residents and creating a sense of intimacy and safety.

Resonant spaces used as storage space.

Multiple forms of dispersed greenery.
Fig. 5.9E Parking condition of Ebisu Sanchome
Fig. 5.9F Building types in Ebisu Sanchome
The aim of this proposal is to create a housing development design that rebuilds the community of the neighborhood by allowing a greater sharing of public and private space, while maintaining and gaining a higher population density. The design proposal will preserve the indigenous fine-grained urban fabric, which creates human scale and supports the public/private exchanges observed through the fieldwork and analysis. This respectful attitude as start point represents a different approach from the modernist tabula rasa ideal of destroying the existing to create a new “rational” urban order as illustrated in Fig. 6.1.

Furthermore, a residential neighborhood is an agglomeration of housings, much like a large collective housing project, therefore this design will take several neighborhood blocks as an integrated single site. The target of design is “collective space”, as defined previously is “all exterior space” in the residential area. Through the creation of small urban spaces and multitude of elements that allow for flexibility in collective spaces, this design will recreate the Ebisu Sanchome neighborhood into a social and productive area.

Fig. 6.1 Alternative proposal to high-rise developments
From an internalized living environment that strictly delineates public and private,
this proposal will explore housing design that reconsiders shared use of public and private in collective spaces, as the key to take advantage of a dense inner-city environment.
6-2. Design Strategy

As this is a long term process, the goal of the design is projected for the future of Ebisu Sanchome in 20 years. The design strategy is a gradual renovation process composed of four design steps to be implemented on each individual house. Each design step responds to the needs and changes of the residents in each home, and also contributes to creating an environment for flexibility in public/private use. The residents have the authority to choose whether they would like to implement these steps; in this thesis, it is assumed that most residents will agree to participate in this renovation process. As illustrated in Fig. 6.4A, the four steps are:

- **Connect** - to create a safe sharable space between neighbors
- **Greenery** - opening unneeded rooms to provide more greenery into the area
- **Expose** - to invert an inward focused lifestyle and animate collective spaces
- **Divide** - for a family with an individualized lifestyle, or for shared housing, which is a popular lifestyle for young people in Tokyo. An example of a current shared housing concept is TENTMENTS (Fig. 6.3), which is a shared housing for people who have common interest in outdoor activities.

Furthermore, these design steps will become the core structures to shape the next generation of houses of Ebisu Sanchome (Fig. 6.4B):

- **Connect** becomes *Secured path* - to maintain a desired distance between houses
- **Greenery** becomes *Courtyard* - to incorporate greenery into the homes
- **Expose** becomes *Rooms* - the exposed structures serve as new infrastructure or structures for the new houses
- **Divide** becomes *Structural wall* - serving as fundamental structures for the new houses
Fig. 6.4A Design Steps

Connect - to create a safe sharable space between neighbors

Expose - to invert inward focused lifestyle and animate collective spaces

Greenery - opening unneeded rooms to provide more greenery

Divide - for a family with an individualized lifestyle or shared housing
Fig. 6.4B Design Steps shaping the next generation of houses

Secured path - to maintain a desired distance between houses

Courtyard - to incorporate greenery into the homes

Rooms - exposed structures serve as new infrastructures or structures

Structural wall - serving as fundamental structures for new houses
6-3. Demographic premises

This design addresses social and demographic aspects of the site, and the design steps correspond to these changes in each home. To reiterate, the aim of this proposal is to create a housing development design that rebuilds the community of the neighborhood by allowing a greater sharing of public and private space, while maintaining and gaining a higher population density.

The current population density of Ebisu Sanchome is 224 ppl/hec (apx. 100ppl/acre). As stated in the previous description of Ebisu Sanchome, it can be expected that the neighborhood will continue to attract more population due to its convenient proximity to transportation and facilities, as well as its high-brand image. The future of Ebisu Sanchome can be projected as a mid-income to high-end neighborhood with a dominant population of young and retired couples. This design will aim for higher population density of at least 300 ppl/hec (apx. 120ppl/acre).

Based on these premises and population statistics from Japan Statistics Bureau, the population distribution is hypothesized for each home in the proposal site, which are two blocks in Ebisu Sanchome (Fig. 6.6A). The current condition of the design site is hypothesized as an area of 26 single family houses and 3 apartments (3, 4, and 6 units), or 80 residents. The demographics were then projected for the conditions 10 and 20 years later, where population increases to 100 residents (300ppl/hec) and there is a dominant population of young and retired couples (Fig. 6.6B, C).

The design steps are then implemented on each house, accommodating the changes in the population in each home, or lifestyles as shown in Fig. 6.5, and population distribution maps in Fig. 6.6B and C. Example scenarios for each design step are as follows:

- **Connecting** houses with similar family composition to have a shared balcony,
- **Adding greenery** when a family member moves out, or less space is needed for an elderly couple
- **Exposing** a part of the house for a space to gather, or have temporary activities such as small shops or galleries
- **Dividing** the home for individualized family or shared housing
Fig. 6.6A Current population distribution

Diverse population of young families to elderly couples who have lived in the neighborhood most of their life

Total 80 people

index 0~9, 10~19, 20~29, 30~39, 40~49, 50~59, 60~69, 70~79, 80~

- 7.25%  
- 8.5%  
- 10.75%  
- 11%  
- 16%  
- 21.25%  
- 14.25%  
- 5%  
- 6%
Fig. 6.6B Population distribution and implemented design steps 10 years later

Grown children of families move out of their homes while young couples start to move in vacant houses

Total 85 people
Dominant population of young and elderly couples, with a number of them living together in shared housing.

Fig. 6.6C Population distribution and implemented design steps 20 years later.
6-4. Urban scale proposal

As seen in Fig. 6.7, Ebisu Sanchome is dominantly residential, but diverse in terms of building typology. Most houses are wooden structures, which have an average lifespan of 30 years. Therefore, there is constant rebuilding and construction taking place in various plots in the neighborhood, as well as vacant lots for potential to build, and old wooden structures that are in need of reconstruction.

In Ebisu Sanchome, there are fashion schools, studio spaces, cafes, ballet schools, and other small-scale recreational services existing. This proposal seeks to tap into these activities and pull in pedestrian flow from the adjacent residential towers or major nodes of transportation. Most programs in Ebisu Sanchome will be small-scale self-owned services, contrasting to the large-scale development of Ebisu Garden Place, and some services may be temporary, such as flea markets or daily medical checks for the elderly.

From the west there will be pedestrian flow from Ebisu Station, Ebisu Garden Place, and the Ebisu Residential Towers adjacent to the neighborhood. Pedestrian flow to the bus stop on the north-east of the site is also expected, which also currently exists. By promoting a spread of a green corridor throughout the neighborhood, the proposal seeks to create a circulation connecting the neighborhood to the Natural Science Museum Park at the south of the site. As illustrated in Fig. 6.7B, the inner streets of the neighborhood will serve as the cores for new programs, which tap into programs that exist.

The proposal site are two blocks in the heart of Ebisu Sanchome, which is a major passage of the proposed circulation and between the core inner streets, and also has several old wooden structures to be rebuilt. These two blocks will be the beginnings of this collective renovation development, which is intended to spread over the entire neighborhood of Ebisu Sanchome, and surrounding HDLR neighborhoods.
Fig. 6.7A Urban scale proposal - new circulation

Proposal site

- From Ebisu Station and Garden Place
- From Ebisu Residential Towers
- To/from Bus Stop
- To/from Natural Science Museum Park
- Proposal site

Index:
- Open lots
- Old wooden house
- Single family house
- Apartment
- Public amenities
Fig. 6.7B Urban scale proposal - inner streets as new cores for program

- Office / studio spaces
- Religious facility
- Event office
- Dental clinic
- Fashion design school
- Cafe / restaurants
- Herb medicine shop
- Hair salon
- Ballet school
- Chinese Embassy
- Beauty treatment clinic
- Fashion design shops / galleries
- Health services / office space
- Small parks and greenery
- Proposal site
- Cafe / small shops
6-5. Neighborhood scale proposal

The circulation for the proposal site are based on the urban scale proposal (Fig. 6.7A), and a central public pedestrian path is designed, which crosses and connects the blocks, as well as serve as a short cut to major points of destination (Fig. 6.8). There will also be shared spaces for adjacent neighbors, and programs are allotted for the needs of residents there. For example, between houses with elderly couples, will be a shared balcony and meeting place for regular medical checks.

Through fieldwork and mapping, it could be seen that currently, the site has large areas of enclosed private space that are fenced, or resonant spaces (that are blank) between plots (Fig. 6.10A). However, this proposal sees these spaces as potential to serve as shared or open spaces for the residents. The existing configuration, dimensions and location of the houses in relation to the designed circulation suggested the characteristics of these spaces in terms of being public or private. In order for these areas to be used actively, and maintain the sense of safety in the site, new entrances were made along the designed circulation and major open spaces to serve as “eyes and feet on the street”.
Fig. 6.8 Neighborhood circulation and zoning
The terms public space / private space are defined by the ownership and accessibility of the spaces as shown in Fig. 6.9A. The design aims to increase the variety and area of collective spaces on the site. The various activities that may take place in these collective spaces are illustrated in Fig. 6.9B. The design aims to deconstruct the strict barrier of public private, first by taking away the fences that strictly demarcated the plots, then implementing the design steps to create the anticipated environment for the future in 20 years (Fig. 6.10A-D).
Fig. 6.9B Activities in Public/ Private space

- **Public space**
  - Streets

- **Open Common space**
  - Parties
  - Work
  - Events
  - Walking

- **Open private space**
  - Gallery
  - Gardening
  - Small shops / cafes
  - Cooking class

- **Closed Common space**
  - Common laundry
  - Shared kitchen
  - Play area
  - Shared gardening

- **Semi-open Private space**
  - Private balcony
  - Entrance
  - Storage

- **Private space**
  - Sleep
  - Bath
Fig. 6.10A Current relationship of public / private space
Fig. 6.10B Relationship of public / private space after removal of hedges
Fig. 6.10C Relationship of public / private space 10 years later
Fig. 6.10D Relationship of public / private space 20 years later

- Safe play area for children
- New construction
- Shared kitchen and balcony
- Common lounge space
- Common laundry place and meeting place for medical checks
- Small shop along main path
- Greenery along block perimeter
- Greenery on corner
- Small shop along main path
- Greenery on corner
- Greenery on corner
- Greenery on corner
In order to maintain the small-scale urban fabric and its qualities of Ebisu Sanchome, the design starts with the current built condition of the site (Fig. 6.11A). Along with the current condition, three underground lateral organization is planned on the site to reorganize the infrastructure for the future in 20 years (shown in Fig. 6.11A'). From the plans, a framework is extracted for the future design. The framework plan is the combination of existing structures, which characterize the urban environment of the site, and new architectural structures that respond to the changes in each home. The current framework is shown in Fig. 6.11B.

Furthermore, for implementing design steps in the development process, standard typologies and dimensions are defined, as shown in Fig. 6.12.

Permanent walls are walls that are along infrastructure to be kept, permeable walls are those that can be punctured for a new entrance or circulation, and ephemeral walls are those that can be deconstructed. As renovations take place on the houses, the framework plan grows and evolves, creating a new framework plan for the next steps to development (Fig. 6.13B and Fig. 6.14B).

Working from the framework plan, areas in Ebisu Sanchome will continue to evolve, but maintain the human scale environment and desired shared spaces (Fig. 6.13A and Fig. 6.14A). What is achieved in the final design 20 years later (Fig. 6.14A), are varying collective spaces that allow for flexibility of use, while maintaining the HDLR urban character.

Activities that take place in these spaces encourage interaction among residents, and people to spontaneously encounter others and activities. There are common lounges at multiple entrances for residents to naturally gather, and in-between spaces are effectively used for shared balconies of extension of houses. The design inherits the qualities of HDLR environment such as maintaining a sense of safety, an overall transparency through gap spaces, and creating a sense of vitality and community. It also provides more greenery and small scale public programs along the main streets. Boundaries are undefined, but subtly divided by the implemented structures (Fig. 6.15-27).

From the framework plan extracted from the plan in 20 years (Fig. 6.14B), Ebisu Sanchome will continue to evolve, but maintain the intimate scale environment and desired shared spaces. Newly constructed houses will also be incorporated in this development method, and become integrated into the design. Furthermore, it is anticipated that this collective renovation development will spread through the entire neighborhood of Ebisu Sanchome, as well as the surrounding neighborhoods. As not all houses are in the same renewal process, there is no definite end to this development design. This neighborhood will continue to evolve, as the population and lifestyles of the residents change in the future.
Fig. 6.11A: Current ground floor plan with new lateral organization of infrastructure
Fig. 6.11B Current framework plan

- Permanent wall: walls to be kept for duration of 20 years
- Permeable wall: walls that can be punctured for new entrance and circulation
- Ephemeral wall: walls that can be deconstructed
- Persisted infrastructure
Fig. 6.12 Typology and dimensions for newly incorporated structures

- **Kitchen**: 3ft x 11ft
- **Toilet**: 3ft x 6ft
- **Sink**: 3ft x 6ft
- **Bathtub/Shower**: 3ft x 6ft
- **Storage**: 3ft x 11ft
- **Stairs**: 2.5ft x 13.5ft

New infrastructure within proximity to lateral organization should be kept at least 6 ft apart from walls.
Fig. 6.13A Ground floor plan 10 years later
Fig. 6.13B Framework plan 10 years later

New infrastructure

New circulation
Fig. 6.15 Perspective of Ebisu Sanchome 20 years later
Fig. 6.16 The main interior street is used freely by residents and visitors for various gatherings and activities to take place.
Fig. 6.17 Residents spontaneously encounter people and activities in the various collective spaces
Fig. 6.18 Collective spaces between homes are designed to preserve intimate scale for a sense of safety, and can be used freely to the needs of the residents.
Fig. 6.19 Residents meet naturally on a daily basis in the common lounges.
Fig. 6.20 In-between spaces are used as shared spaces and extension of homes
Fig. 6.21 Entrances of closed common spaces are subtly separated by permeable walls
Fig. 6.22 Although high in building footprint, an openness is maintained throughout the neighborhood by gap spaces.
Fig. 6. 23 Collective spaces act to create vitality and sense of community in the neighborhood.
Fig. 6.24 Main streets are animated with daily activities and greenery
Fig. 6.25 Public programs such as cafes are along main streets.
Fig. 6.26 Gradual transformation of houses create various spaces for public and private use while maintaining sense of safety.
Fig. 6. 27 Openings induce passerby's to enter collective spaces
Fig. 6.14B Framework plan 20 years later
Fig. 6.28 Roof plan in urban fabric 20 years later
Bibliography


**IMAGES**


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