FINAL PROJECT – CA234801

CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING

AHMAD NAZALA RIZKY FAJRIN
NRP 5013211048

Advisor

Fardilla Rizqiyah, S.T., M.T.

NIP 19900818 201404 2 001

Bachelor Program

Department of Architecture

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Surabaya

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TUGAS AKHIR – CA234801

KRIMINALITAS DAN TUNAWISMA PECANDU NARKOBA DI VANCOUVER: PERUMAHAN APARTEMEN

AHMAD NAZALA RIZKY FAJRIN

NRP 5013211048

Dosen Pembimbing

Fardilla Rizqiyah, S.T., M.T.

NIP 19900818 201404 2 001

Program Sarjana

Departemen Arsitektur

Fakultas Teknik Sipil, Perencanaan, dan Kebumian

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APPROVAL SHEET

CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING

FINAL PROJECT

Submitted to fulfill one of the requirements

to obtain a Bachelor of Architecture (S.Ars.) degree at

Study Program of Bachelor of Architecture

Department of Architecture

Faculty of Civil, Planning, and Geo Engineering

Institut Teknologi Sepuluh Nopember

By : **AHMAD NAZALA RIZKY FAJRIN**

NRP. 5013211048

Approved by the Final Assignment Examiner Team:

1. Fardilla Rizqiyah, S.T., M.T. — Advisor
2. Dr.Eng. Didit Novianto, S.T., M.Eng. — Examiner
3. Adinda Sih Pinasti Retno Utami, S.T., M.T. — Examiner
4. . Khusnul Hanifati, S.T., M.Ars. — Examiner

SURABAYA
January 30th, 2026

DECLARATION OF ORIGINALITY

The undersigned:

Student Name/NRP	: Ahmad Nazala Rizky Fajrin/5013211048
Study Program	: Bachelor of Architecture
Advisor/NIP	: Fardilla Rizqiyah, ST., MT/19900818 201404 2 001

hereby declare that the Final Project with the title **"CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING"** is all my own work, is original, and written according to the scientific report guidelines. The sources (books, journals, websites, etc.) I referred to are explicitly acknowledged in the report and fully listed in the references.

If in the future there is a discrepancy with this statement, I am willing to accept sanctions in accordance with the academic regulation of the Institut Teknologi Sepuluh Nopember.

Surabaya, February 2nd, 2026

Acknowledged
Advisor

Fardilla Rizqiyah, ST., MT
NIP. 19900818 201404 2 001

Student

Ahmad Nazala Rizky Fajrin
NRP. 5013211048

ABSTRAK

KRIMINALITAS DAN TUNAWISMA PECANDU NARKOBA DI VANCOUVER: PERUMAHAN APARTEMEN

Nama Mahasiswa / NRP	**:**	**Ahmad Nazala Rizky Fajrin**
Departemen	**:**	**Arsitektur FT-SPK ITS**
Dosen Pembimbing	**:**	**Fardilla Rizqiyah, ST., MT**

Abstrak

Defensible Space Theory, yang diperkenalkan oleh Oscar Newman, menyajikan kerangka kerja di mana desain arsitektur dapat mengurangi kejahatan dengan memperkuat kontrol teritorial, visibilitas, dan kepemilikan ruang oleh penduduk. Di sisi lain, tunawisma di daerah padat penduduk di kota dapat menyebabkan kejahatan. Teori ini menjadi lebih relevan di kota-kota yang mengalami peningkatan tunawisma seperti Vancouver, yang menjadi dasar dunia nyata untuk proyek ini. Proyek ini melihat realitas Vancouver yang telah berubah menjadi kota di mana tunawisma dan penggunaan narkoba telah menyebabkan peningkatan kejahatan yang signifikan. Ide utama nya adalah untuk mengintegrasikan pusat tunawisma dengan perumahan apartemen untuk bertindak sebagai gedung pencakar langit di tengah kota, yang juga berarti menciptakan ruang yang aman bagi kedua penghuninya. Proyek ini bertujuan untuk menciptakan bangunan yang mengatasi tantangan perkotaan kota melalui *framework* keamanan yang mengintegrasikan Defensible Space Theory yang merupakan pendekatan dasar desain. Proposal ini mempunyai potensi untuk berfungsi sebagai model yang bisa menginspirasi, eksplorasi suatu topik, atau bahkan solusi untuk masalah kontemporer seperti kekurangan perumahan, kejahatan, dan fragmentasi sosial.

Kata kunci: ***Tunawisma, Kejahatan, Keamanan, Perumahan, Narkoba***

ABSTRACT

CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING

Student Name / NRP	**:**	**Ahmad Nazala Rizky Fajrin**
Department	**:**	**Architecture FT-SPK ITS**
Advisor	**:**	**Fardilla Rizqiyah, ST., MT**

Abstract

Defensible Space Theory, introduced by Oscar Newman, presents a framework in which architectural design can reduce crime by reinforcing territorial control, visibility, and resident ownership of space. On the other hand, homelessness in dense areas of cities can contribute to crimes. This theory becomes more relevant in cities experiencing increasing homelessness such as Vancouver, which serves as the real-world foundation for this speculative project. The project views the reality of Vancouver where homelessness and drug use has led to a significant increase in crimes. The idea is to integrate a homeless center with apartment housing to act as a skyscraper in the middle of the city, and that also means creating a secure space for both inhabitants. The project aims to create a building that addresses the city's urban challenges through a security framework integrating Defensible Space Theory which is the basic approach of the design. The design has the potential to serve as an inspirational model, an exploration of a topic, or even a solution to contemporary issues such as housing shortages, crime, and social fragmentation.

Keywords: ***Homelessness, Crime, Security, Housing, Drug-Use***

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CHAPTER 1 INTRODUCTION

1.1 Background

As cities continue to expand and densify, they become complex arenas where social challenges appear in physical space such as urban criminality that ranges from petty theft and vandalism to organized violence and systemic insecurity. Especially in high-density environments, the concentration of people, limited resources, and lack of social cohesion can create conditions where crime becomes more and more frequent and difficult to manage. The failure of policing alone to address these problems has led scholars and practitioners alike to reconsider the role of the built environment in shaping behavior.

While it is common to treat crime as an issue that needs to be resolved through enforcement, designers could treat crime with a preventive action from the start of criminality itself. An address to the design of space for the prevention of crime within architecture has been a topic for few decades, Defensibility of Space is one of them. Oscar Newman first introduced defensible space theory by talking about criminality in urban America, he argues that if a space lacks clear ownership and visibility, it becomes more vulnerable to crimes (Newman, 1972). This phenomenon can be visible in North America, especially Canada, where crimes and homelessness become much more often in the streets. These issues tend to be concentrated in downtown areas where housing prices have become skyrocketed, and people are not able to afford housing anymore (Karamouzian et al., 2026).

Vancouver has recently struggled with persistent homelessness and drug use. In many areas, the built environment fails to support defensible space principles, resulting in environments where crime can somehow appear (Fleming et al., 2019). As of 2024, the estimated number of homeless people living in Vancouver is around 4,094 according to the Mapping the Carceral Housing Assemblage research project (Crompton et al., 2024). Another source, the Homelessness Services Association of B.C., reported 4,821 homeless individuals in the Greater Vancouver area in 2023, marking a 32% increase since 2020 (McElroy, 2023). The City of Vancouver's own homeless count identified 2,420 people as homeless in 2023, with 605 unsheltered and 1,815 sheltered (Vancouver, 2023).

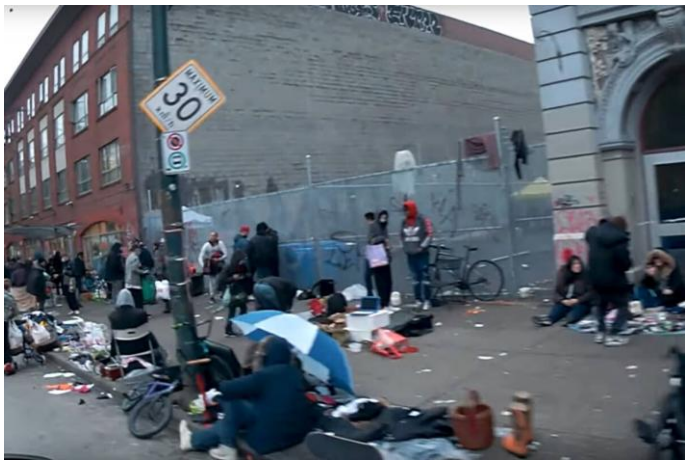

Figure 1.1 Homelessness and use of drugs in East Hastings St. in Downtown Vancouver

Source: Roden (2023)

According to research by Canadian government, many homeless individuals have experienced physical and sexual abuse, family violence, or other traumatic events, which contributed to their housing instability. Once people become homeless, they are at higher risk

of experiencing violence, including sexual assault, particularly for women. Homelessness increases the likelihood of incarceration, which often leads to homelessness. Many individuals are released from custody without proper housing arrangements, increasing their risk of returning to the streets. Homeless individuals are more likely to engage in minor property crimes, drug-related offenses, and violations of municipal bylaws. Those struggling with addiction often resort to theft or drug-related crimes to sustain their dependencies (Institute for the Prevention of Crime (IPC) & Roebuck, n.d.).

Furthermore, Vancouver has also tried and implemented the Housing First approach as a core strategy to address chronic homelessness, focusing on providing immediate, permanent housing without preconditions such as sobriety or psychiatric treatment. Supported by BC Housing and various non-profits, the model is paired with wraparound services like mental health care, addiction support, and case management.

1.2 Design Problem Formulation

Problem formulation is made to research how to implement the theories into existing challenges. The following is the scope of the problem formulation

1. How can Defensible Space be applied in a single building than a low-rise neighborhood typology building?
2. To what extent can defensible space be a solution to crime activities among the drug addicted homeless?
3. How can 2 demographics of homeless and regular residents be integrated without creating social disparity?

1.3 Design Objectives

The objectives of the design are to answer all the research questions that have been formulated, which are determined as follows:

1. To design a high-rise dwelling space that is safe and be an answer to homelessness in Vancouver.
2. Designing a dwelling space for both homeless people and low-income inhabitants in the means of also creating a defensible space for the inhabitants from potential crime activities committed by numbers of homeless people.

1.4 Problem Scope

1.4.1 Location

The project location is limited to the high crime and homeless areas of Metro Vancouver. Specifically, it will likely take downtown Vancouver as the area has the highest rate of homelessness such as Granville St. or East Hastings St.

1.4.2 Typology

The typology of the building mainly focuses on dwelling space, possibly housing (high rise since the site is downtown). While primarily centered on dwelling space, the proposal could also include public spaces and commercial or offices to examine the tension between privacy, control, and social interaction in high-crime urban conditions.

A homelessness problem can become an ill-defined problem, which can go more than a design's power limit, therefore, the design scope can only answer as a provision of housing.

1.4.3 User

The users are both homeless people and low-income residents who, in the future, cannot afford proper housing anymore due to the commercialization of housing.

1.5 Research Contribution and/or Design Criteria

This project can contribute academically by drawing from security design, and surveillance studies, particularly Oscar Newman's Defensible Space Theory on futures for architecture in high-risk urban settings. The proposal offers a conceptual vision of how secure housing could evolve in response to increasing crimes. Practically, the design proposes spatial and technological strategies aimed at maximizing safety, regulating public-private boundaries, and offering inclusive living environments across income levels.

1. For future architects and also for the author, it can serve as a contemporary solution to explore how architecture can respond to worsening urban conditions.
2. For researchers and theorists, the project offers a visual and spatial critique of socio-political issues in modern cities.
3. This work acts as a demonstration of a solution to the problems mentioned, and how can a design suit the context of such site, and therefore it is not an actual proposal for relocating existing buildings within the chosen site.

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CHAPTER 2 LITERATURE REVIEW

2.1 Previous Research/Design Results

For this proposal, the Defensible Space Theory by Oscar Newman is the starting point, and therefore, becomes the sole theory of the proposal. Any other theories that are mentioned, will be limited to just as strategies, not as a supporting theory.

2.1.1 Defensible Space Theory

Oscar Newman, an architect and urban planner, first proposed the idea of Defensible Space Theory in the early 1970s. Newman saw that architectural design could have a big impact on social behavior and crime prevention, which led to its emergence in response to the rising crime rates in public housing, especially in the US.

High crime rates in high-rise buildings are often linked to poor spatial design and population mix. When many families share a single entryway, the crime rate tends to rise, and robberies per 1,000 families increase with floor number. Environments with a mix of elderly residents and families with children, particularly in high-rises, see crime rates against the elderly spike to 3 to 5 times the average. However, when high-rises are occupied exclusively by the elderly, crime can be virtually eliminated. In contrast, buildings dedicated solely to the elderly report almost no crime. A critical issue is the total lack of space definition, everything outside the apartment is public, leading to neglected, filthy, and overrun grounds. For that, open windows that allow residents to hear what's happening outside can create awareness and potentially reduce crime (BBC Horizon, 1974).

Oscar Newman said, *"Every person in a block can fit into a single skyscraper, but it creates a problem we've seen before (case studies), move them to a low-rise block of apartments like north beach and you've still got what architects call high density housing that creates less crime."* (BBC Horizon, 1974)

Pruitt-Igoe development in St. Louis, which was eventually demolished because of its links to urban decay and lawlessness, served as a major source of inspiration for Newman's writing. According to Newman, spaces could be made safer and community ties could be strengthened by altering spatial organization through elements like clearly defined boundaries, opportunities for surveillance, and resident control over common areas.

"Defensible space is a term used to describe a residential environment whose physical characteristics-building layout and site plan-function to allow inhabitants themselves to become the key agents in ensuring their own security. However, a housing development is "defensible" only when residents choose to adopt this intended role-a choice that is facilitated by the development's design. Defensible space therefore is a sociophysical phenomenon" (Oscar Newman, 1976).

According to the Defensible Space theory, social behavior and crime rates can be greatly impacted by the physical layout of residential areas. According to Newman, a defensible space is defined by four essential components:

1. Territoriality: All residents have spaces or territory, distinguishing public and semi-public areas, and their own personal space. This way, the inhabitants can easily comprehend their spheres of influence and have responsibility for spaces they perceive as their own. Placing fences, gates, pathways fences, signs, and landscaping to clearly

separate public and that there are clear boundaries without necessarily obstructing traffic (Newman, 1996). Limiting the number of entry and exit points can also make residents easily keep an eye on who enters the community and help prevent unauthorized access

2. Natural surveillance: Residents can clearly see what is going on in their surroundings. A place can be monitored by different people at different times. To guarantee continuous visual supervision, buildings and apartment complexes should be oriented to face streets and common areas. For example, windows of different houses that overlook into children's park, supported by low hedges or transparent fences that don't obstruct views. features like strategically placed windows and entrances enable residents to naturally oversee their surroundings
3. Image: This aspect is visual wise; the appearance and maintenance of a space contribute to its perceived security. A well-kept and cohesive environment can discourage vandalism and neglect by conveying that space is cared for and watched over. A playground that kept painted, not rusty is less likely to be abandoned and vandalized.
4. Milieu: Which is the broader environment surrounding the development. Proximity to high-crime zones, public facilities, or social services can affect how secure a space feels and how residents interact with it (Newman, 1972). For this, unofficial control systems can be strengthened by creating common spaces that encourage positive social interactions among residents. To encourage use and monitoring increase a community's ability to self-regulate behavior, playgrounds, courtyards, and seating places can be placed in front of housing units.

The redesign of the Clason Point and Twin Parks housing projects in the Bronx, New York, where Oscar Newman first tested his theories, is among the most prominent instances of the theory's application. The communities saw a significant drop in crime and vandalism (Newman, 1972). In these cases, giving residents a sense of ownership and control over their environment.

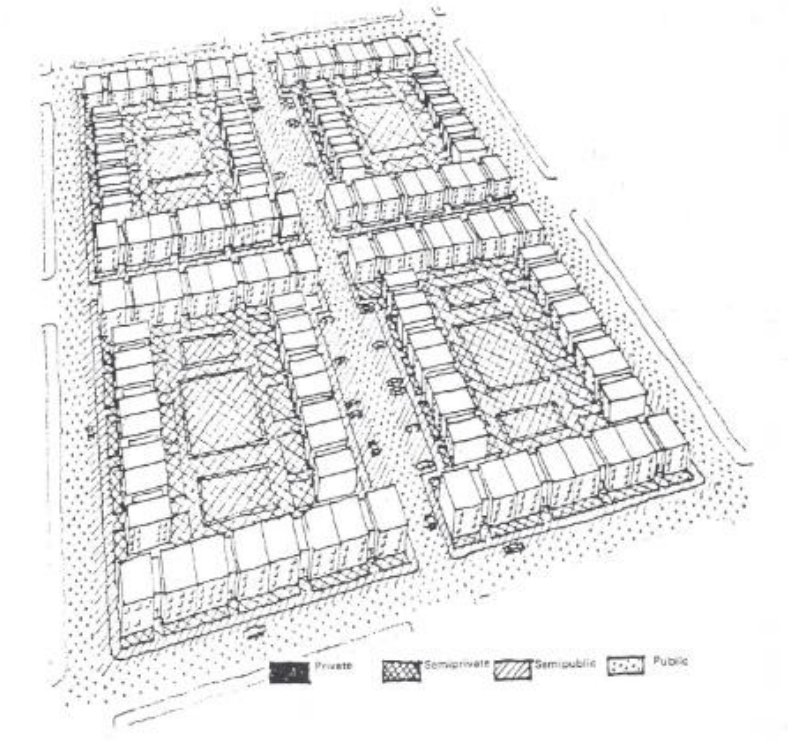

Figure 2.1 Clason Point by Oscar Newman

Source: Oscar Newman (1972)

In addition to housing, the concepts of defensible space have also been used in neighborhood planning and streetscapes. For instance, in order to promote neighborhood watchfulness and natural surveillance, cities like Baltimore and St. Louis have public housing projects that were reorganized to include smaller groups of residences, prominent entrances, and well-defined walkways in place of lengthy, impersonal corridors and open lawns. By combining semi-private front yards and active street frontages that encourage visibility and interaction, the St. Lawrence Neighborhood in Toronto, Canada, integrated defensible space concepts into its low-rise, high-density housing which has a strong sense of community and reducing crime rates.

2.1.2 Precedent 1: Clason Points Garden

Clason Point Gardens is a residence that was originally constructed in the 1940s. By the 1960s, the project faced severe challenges, mainly high crime rates, vandalism, and resident disengagement. Newman was then tasked to intervene to address these issues through architectural modifications in the 1970s, following the concept of Defensibility.

Figure 2.2 Clason Point before it was modified

Source: Newman (1972)

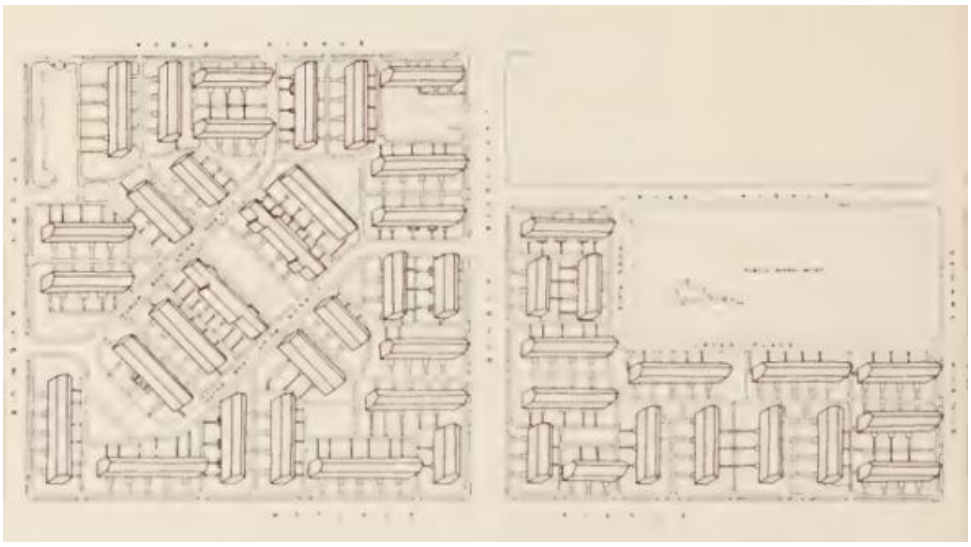

Figure 2.3 Site plan of the residence

Source: Newman (1972)

Firstly, the territoriality. Newman subdivided the project's public grounds into private and semi-private zones using physical and symbolic barriers; 6-foot tubular steel fencing enclosed collective rear yards that assigns them to small clusters of 12–40 families, Low concrete curbs demarcated front yards which creates symbolic boundaries that residents later reinforced with personal fencing and landscaping. And distinctive building facades with varied colors and textures helped residents identify and claim individual units (O. Newman, 1996).

Figure 2.4 Tubular steel fencing that creates territoriality

Source: Newman (1996)

Secondly, the natural surveillance. The pedestrian walkways were narrowed down and redirected to pass in front of units, which creates more visibility. New lighting and planter-seating units were added to encourage resident activity and informal monitoring. A central recreation area was also redesigned to attract diverse age groups (elderly, children, teens), transforming a former "no-man's land" into a more vibrant space that is surveilled (O. Newman, 1996).

Figure 2.5 Changes in Clason Point front yard.

Before (Left) and after (right). Lighting, planters, and seating in the collective front yard.

Source: Newman (1996)

And finally, the image and milieu. Newman added resurfaced buildings with stucco and updated roofing that added aesthetic to the project (which led to create pride within residents). And then play equipment and seating were strategically placed to create activity nodes (O. Newman, 1996).

To improve the appearance and sense of ownership in low-income housing, colored stucco was selected to brighten each house and make them resemble nearby middle-income homes. Mock brick façades were added, and new front doors were painted according to each tenant's choice, replacing the previous grey uniformity with warm, individualized color. Additionally, public ground was redistributed to create defensible space by giving tenants small front and rear patches, enhancing both security and personal investment. Even something as simple as a patch of grass in front of a house can help signal whether someone is an intruder, reinforcing territorial cues and a sense of private domain (BBC Horizon, 1974).

Residents saw a drop in overall crime rates of 50%, with burglaries decreasing by 28% and assaults by 42%. Felonies during nighttime hours fell by over 50%, and residents reported significantly reduced fear of crime (O. Newman, 1996). Over 50% of tenants began maintaining

their front yards, planting grass, and installing personal fencing. The percentage of residents who felt empowered to question strangers doubled from 27% to 50%. The housing authority transferred half the groundskeeping staff to other projects due to resident-led upkeep (O. Newman, 1996).

2.1.3 Precedent 2: Five Oaks Neighborhoods

Five Oaks is a neighborhood located near downtown Dayton, Ohio. It was originally developed with about 2000 households in traditional rectilinear grids of one- and two-family row houses and small apartment buildings. However, by the early 1990s, the neighborhood faced severe problems, that is, violent crime that had risen by 77%, robberies by 77%, vandalism by 38%, and overall crime by 16%, that all happened in just one year. Therefore, the City of Dayton invited Oscar Newman to apply his Defensible Space Theory to the residence (O. Newman, 1996).

Figure 2.6 Today's Map of Five Oaks Neighborhood

Source: Dayton Neighborhoods (2025)

The design has the core strategy to reorganize Five Oaks into 10 “mini neighborhoods,” which are defined by controlled access and clear territorial boundaries. For that, street closures and gating were added; 35 cul-de-sac street barricades and 28 alley gates were installed, converting through-streets into dead-ends and restricting vehicular access (Holmstrom, 1995). Wrought-iron fences and brick columns marked neighborhood entrances, signaling a transition from public to semi-private space that is also discouraging non-resident traffic. Each mini neighborhood had only one entrance/exit that increased enclosure and responsibility.

Figure 2.7 Proposed gates sketched to define territoriality within the neighborhood

Source: Newman (1996)

Within two years, overall crime fell by 25% and violent crime by 50%. Robbery, burglary, assault, and auto theft reached their lowest levels in five years, while crime in Dayton overall increased by 1% during the same period. All crime in the racially integrated neighborhood has dropped 26 percent (and dropped in surrounding neighborhoods by 2 percent). Traffic volume dropped by 67% and traffic accidents by 40%, which is safer streets for residents, especially children (Holmstrom, 1995).

2.2 Basic Theory

Several Aspects of the building would then need to be added, derived from the theories. Firstly, “natural surveillance”, this would help the building to address the suspicious activities. This natural surveillance led to “self-regulation” for people, that they will think several times before doing anything defying the law. Next, the ‘territoriality’ which needs to be implemented as every person or every household needs their own territory for them to possess their own privacy, even though surveillance which somehow at some point reduces privacy, like a stranger trespassing into someone else’s private boundaries would not be a good thing. Lastly, for “image and milieu”, the housing needs this aspect as its main appearance, that residence could have their own sense of pride towards their housing, this way it creates some kind of supportive environment, or healthy environment that drifts people away from harsh ‘gangster’ environment.

The concept is “what if homeless people in Vancouver are sheltered in 1 big building near where they roam around, but also integrate them with the residents nearby, a skyscraper acting as a homeless shelter and an apartment. With that in mind, a safe space for both people needs to be established”. The people that inhabit the building are locals of the high crime area; the demographic is limited to homeless and low-income residents up to middle income residents. This means that the variety of units ranged from very cheap to solve the housing crisis, up to a middle-end unit. It is anticipated that many people have the potential to commit criminality, meaning that the building also needs to be designed in a way that a criminal who becomes a resident would not even try to harm other residents. This could be achieved by defensibility. The concept of this building. The building will adopt the culture of surroundings to create a sense of belonging that they will protect their own territory.

Design principles are taken from theories. The building is inhabited by people with higher authority, such as officials; government, police, or simply residents that never had criminal activity, or even offices. In each of the units, boundaries are boldly designed, there could be multiple gates and such. CCTV is placed evenly. In the image and milieu, buildings should be designed with a strong sense of pride, just like Clason Point Gardens, which can be applied by adding color, texture, or architectural details to differentiate individual units within a larger complex. This helps residents and visitors easily identify spaces. Façade of the building should be unique, so that it would form a psychological feeling of having proper housing. The sensory and experiential environment that is created by factors such as light, material, sound, and movement. For instance, a space with abundant natural light, dynamic shadows, and comfortable microclimates (like a warm, sunlit courtyard) can contribute to a positive milieu for the inhabitants.

CHAPTER 3 METHODOLOGY

3.1 Design Flows/Framework

The design uses the Concept Based Framework provided by Philip D. Plowright from his book Revealing Architecture Design: Methods, Frameworks and Tools, specifically for the conceptual. Concept based framework is chosen due to its flexible and explorative way of perceiving a design. Though previously in the synthesis, a domain to domain has been done briefly, in this chapter, the process will be done thoroughly.

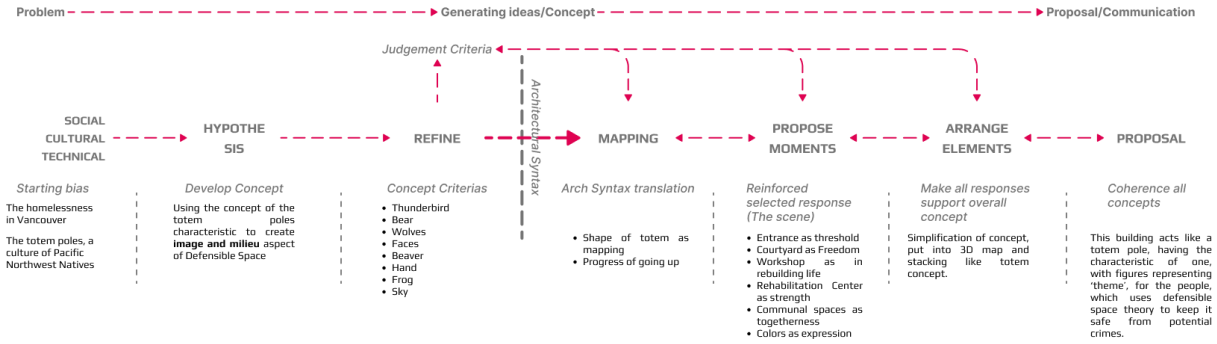

Figure 3.1 Diagram of the concept-based framework approach

Source: Author (2025).

3.2 Methods

The design methodology employed in this project follows a qualitative, concept-based approach that integrates theoretical research with site-specific architectural synthesis. This process begins with a comprehensive data collection phase, focusing on the social pathology of homelessness in Vancouver and the architectural principles of Defensible Space. These inputs are then processed through the Concept-Based Framework (Plowright, 2014), which translates abstract social issues into tangible design criteria. The method is iterative, moving from a macro-analysis of the urban context (Oppenheimer Park district) to a micro-synthesis of unit configurations, ensuring that the final architectural proposal addresses the dual challenge of security and social dignity.

3.2.1 Defensible Space Application

The answer to the design objectives. Defensible space in its application, it can be an object specific design and more than urban design. For example, in the case of Clason Point Gardens, Colored stucco was selected to brighten each house and make them resemble nearby middle-income homes to improve the appearance and sense of ownership in low-income housing. Mock brick façades were added, and new front doors were painted according to each tenant's choice, replacing the previous grey uniformity with warm, individualized color. From here it is clear that the theory of defensible space is practical even in a non-urban scale design.

Therefore, the theory of defensible space becomes the main criterion or a "security gate" for the concept of the proposal. Every single concept is judged with criteria whether one can or is suitable to be classified as defensible, if not, one can be changed and be applied the most relevant principles of defensible space.

1. Territoriality in the Tower

Territorial reinforcement can be embedded at every vertical level. Dividing floors into small clusters with identifiable zones, semi-private corridors, and unique material or signage cues that gives residents a sense of ownership and psychological control over their "neighborhood in the sky." For homeless or formerly unhoused residents, this sense of defined personal space is critical.

2. Natural Surveillance
   Although vertical housing may limit passive street surveillance, design can apply abundant internal visibility. Clear sightlines across shared corridors, communal platforms, and courtyards as well as units overlooking public spaces encourage watchfulness without invasive oversight.
3. Image
   Image or the perceived care and pride of a space plays a powerful role in behavior. If the building expresses respect, warmth, and attentiveness through materials, maintenance, and symbolic gestures (like storytelling surfaces, clean entrances, or natural textures), it invites the same from its users even those with past trauma or instability.
4. Milieu
   Placing the building near supportive services (healthcare, mental health centers), including active ground-floor programming, and maintaining strong edges (landscaping, semi-public front zones) or even incorporating all those facilities in the building itself can help integrate it positively into its neighborhood.

3.2.2 Process

1. Context of totem poles is gathered via credible websites, and books, such as Encyclopaedia Britannica to understand clear the meaning of the culture.
2. Site Analysis and SWOT
   Site analysis is done via online data gathering and compiled together. The data is then processed through SWOT analysis, which then finally synthesized architecturally.
3. Narration and Big Idea
   Through understanding context, writer then creates a narration for the whole concept by text, which is then pictured into concept diagram.
4. Architecture Syntax (domain-to-domain transfer)
   The concept then needs to be translated into architectural syntax. In here, domain-to-domain tool provided by Philip D. Plowright is used for that operation, which finally results in design criteria.
5. Concept Enrichment
   Design criteria are also enriched or strengthened by translating the meaning of figures of totem poles and created a totem figure design. This way, concept becomes much more consistent and easier to understand.
6. Moments Sketching
   Moments from design criteria are sketched manually, to portray what the author intended the design to be.
7. Form-making Iterations
   Those design criteria also become the constraint for the site intervention. Author created different iterations to explore the positive and negative aspects of design choice.
8. Sunlight Simulation
   After one iteration is chosen, it needs to be tested if the massing of residence units can get enough sunlight at any time of the year.
9. Arranging
   Those proposed moments are then arranged along with the 3D visualization of the final iteration, to explain where and how the moments are going to happen within the design.

3.3 Materials and Tools

Table 3.1 Design materials and tools.

MATERIALS AND TOOLS		DESCRIPTIONS
Phase I: Identify Context – Develop Concept – Refine		
1.	Literature study	Used to research theories, information about contexts, and to help develop the concepts.
2.	Precedent study	Used to understand the problems, and solutions from the previously built design.
3.	Mood board and mind maps	Used to ease the process and make everything connected systematically.
Phase II: Mapping – Propose Moments – Arrange Elements		
1.	SWOT Analysis	Understanding what should do and not via the information of the site analysis.
2.	Domain to domain transfer	Syntax from non-architectural object to architectural and typological object.
3.	GIS and online maps	Determining rules, analyzing sites, understanding site environment.
4.	Mind map	Help to process objects, translation, syntax, creating relationships or connection.
5.	Sketching	Visualizing ideas briefly, specifically in proposed moments, for scenes and vibes.
Phase III: Proposal and Final Project		
1.	3D Modelling	Main designing phase, execution.
2.	AutoCAD	Design drawings.
3.	Rendering Software	Visualization of 3D model into desired aesthetics.
4.	Photoshops	Creating diagrams, post-product imageries.
5.	3D Print and Laser cut	Maquette as physical visualization.

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CHAPTER 4 RESULTS AND DISCUSSSION

4.1 Design Results

4.1.1 Homelessness context

Homelessness in Vancouver has reached crisis levels, with the most recent data revealing alarming trends across the region. In the 2023 Greater Vancouver homeless count found 4,821 people experiencing homelessness, representing a dramatic 32% increase from the 3,634 people counted in 2020 (McElroy, 2023). This represents the highest spike between consecutive counts since reporting began in 2005 (McElroy, 2023).

Figure 4.1 Tents erected in the sidewalk of East Hastings St in Vancouver.

Source: Skrypnek (2023)

Within Vancouver proper, the 2023 count identified 2,420 people as homeless, with 605 living unsheltered and 1,815 in sheltered accommodations (Vancouver, 2023). However, experts believe these numbers significantly underestimate the true scope of the problem, as many individuals experiencing "hidden homelessness" are not captured in official counts.

The Downtown Eastside (DTES) remains the epicenter of the crisis, with an estimated population of around 7,000 people living in conditions characterized by high levels of drug use, poverty, and inadequate housing. Of particular concern is the overrepresentation of Indigenous people among the homeless population. Approximately 33% of those experiencing homelessness identify as Indigenous, despite Indigenous people comprising only 2% of the regional population (Matassa-Fung, 2023).

1. Shortage of Shelter
   The housing waitlist situation reflects the broader crisis, with over 3,400 individuals currently on the waitlist for supportive housing in Vancouver. Across Metro Vancouver, 18,865 households were on B.C. Housing's social housing waitlist as of September 2024, representing an increase of 3,500 households since 2022.
2. Crime and Homelessness
   Homeless individuals are more likely to be criminalized for minor, survival-based offenses, such as loitering, panhandling, or sleeping in public spaces. This is partly due to their visibility and the increased use of bylaws and policing to control public disorders. The homeless are often arrested more for public nuisance behaviors than for serious crimes.

Some homeless individuals commit crimes out of necessity, such as theft of food or trespassing for shelter. Drug-related crimes are prevalent, often tied to untreated addictions. Youth, in particular, report increased criminal activity after becoming homeless, often influenced by peer pressure, lack of resources, and survival needs (Institute for the Prevention of Crime (IPC) & Roebuck, n.d.).

Below is a list of top drugs used in Vancouver and its effect by January 2025 (British Columbia Centre on Substance Use [BCCSU], 2025):

1. Opioid (653 samples) Strongly linked to increased rates of non-serious acquisitive crimes (e.g., theft) both before and especially after opioid use begins (Coid et al., 2000).
2. Psychedelic (291 samples) therapeutic benefits in mental health disorders including addiction (Pulido-Saavedra et al., 2025).
3. Stimulant (257 samples): Elevated risk for aggressive and acquisitive crimes while under stimulant influence. increased agitation, paranoia, and psychosis leading to impulsive and sometimes violent behavior (Substance Abuse and Mental Health Services Administration (US), 1999/2021).
4. Depressant (95 samples): reduces aggression but impairs judgment and motor skills. Crime associated may include impaired decision making or risky behavior, but long-term criminal behavior links are weaker than stimulants or opioids. Potential for short-term crimes related to decreased inhibitions (e.g., driving under influence, accidental harm). (Anghel et al., 2023), (Bonnet et al., 2020).
5. Other (43)
6. Unknown (266)

The building design should accommodate the following behavioral patterns of homeless people.

1. Mental health and substance use issues vary between 29% and 75%.
2. Major depression around 40%.
3. Survival-oriented behaviors (unfamiliar spaces, anxious about losing their housing, and initially resistant to engaging with services).
4. 38% of homeless people surveyed reporting cigarettes as their primary substance of use, 33% reporting opioids.
5. According to Kaljur (2021), homeless people receive stable housing and a basic cash infusion, they actually reduce their spending on alcohol, drugs, and cigarettes by an average of nearly 40% within one year. This demonstrates that substance use is partially driven by homelessness itself, not the reverse.

4.1.2 Site Description

(For a complete site analysis and data collection, please see Appendix A)

1. Site
   The site is located at 441 East Hastings Street, Vancouver, BC V6A 1P7, Canada, between E Cordova St and E Hastings St, also Jackson Ave and Dunley Ave. It is situated in a whole city block, just the southern side of the infamous Oppenheimer Park. The length of the site is 130m and the width is 89m, with plot size total 11,087m2.

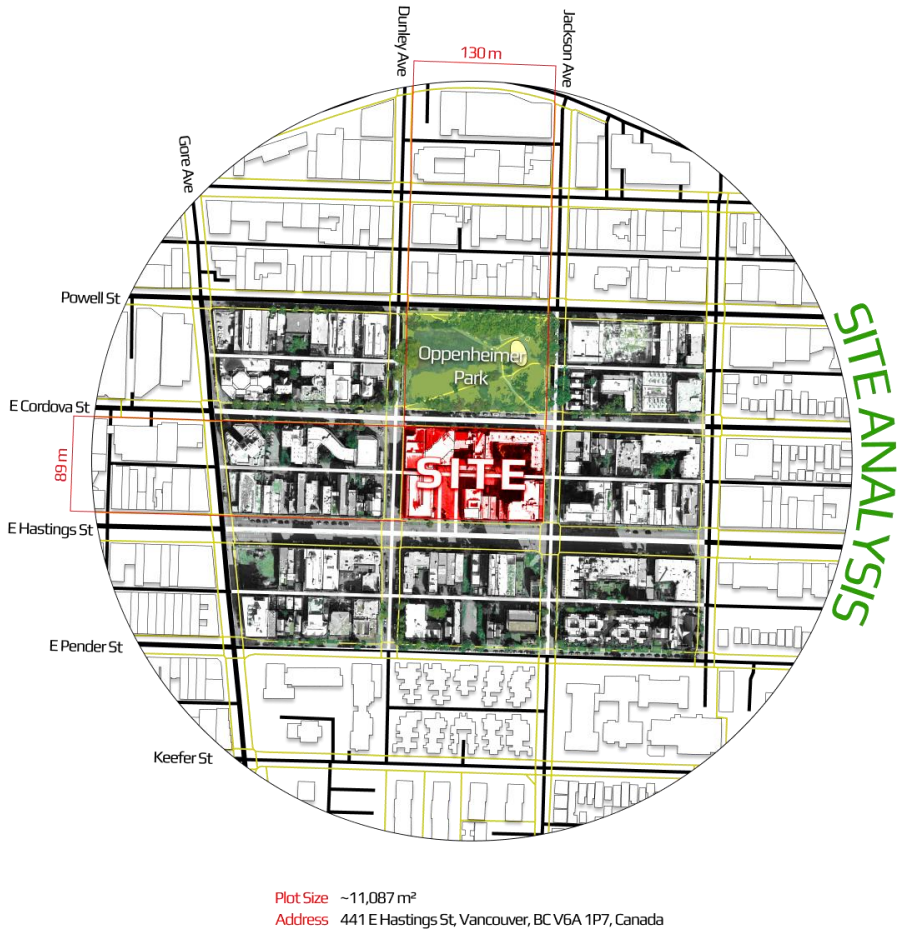


Figure 4.2 Site Plot, roads, pedestrian, dimensions, and vegetations.

Source: Author (2025)

The Oppenheimer Park itself is famous for its First Nations culture presence, however since 2010s, the site is filled with massive amount of homelessness, this making the proposal even more relevant to the surrounding.

The existing site contains the following buildings:

a. ChapelArts.com: Woodworking Workshop for artisans and machining and much more, which can be included within the apartment's workshop center. (Chapel Arts Woodworking, n.d.)
b. Hugh Bird Residence: Provides housing for residents who need fewer supports (not fully social housing). The building has access to laundry facilities. 64 Units (PHS Community Services Society, 2024a)
c. Mavis McMullen Place: Women Led, family focused, sale, affordable housing and a supportive and inclusive community. contains 73 suites for people (Mavis McMullen Housing Society, 2012)
d. Oppenheimer Lodge: Senior Housing, above 55+ and under 55 with disability, contains 146 Units (Built 1973) (Canadian Centre for Architecture, n.d.)
e. Smith Yuen Apartments: Senior Housing has PHS mental health workers, chronic illness management, medication administration, financial administration, a food program, holistic therapies, entertainment and outings. contains 77 units (PHS Community Services Society, 2024b)
f. Patricia Hotel - Hotel

g. Vahs Dental Clinic: Part of Vancouver Native Health Society
h. Vancouver Native Health Society: "Vancouver Native Health Society delivers comprehensive medical, counselling and social services generally to Vancouver's Downtown Eastside Aboriginal community". (Vancouver Aboriginal Health Society, n.d.)

Therefore, the total minimum needed for Social Housing is 360 units with supporting facilities.

2. Regulation
   a. The site is located in a DEOD (Downtown Eastside/Oppenheimer District), which is unique to the city and is designed to protect the social fabric of the Downtown Eastside by ensuring new development supports low-income and vulnerable populations, preventing rapid gentrification and speculative real estate investment and maintaining a mix of uses and building forms that reflect the area's history and diversity.
   b. Floor Area Ratio (FAR) is 11.0.
   c. Setback of the site is very minimum, can be 0, as long as it retains pedestrian paths.
   d. Maximum height of the building can reach up to 32 stories.
3. Climate Analysis
   Vancouver always have sun to the south side, everytime in the year

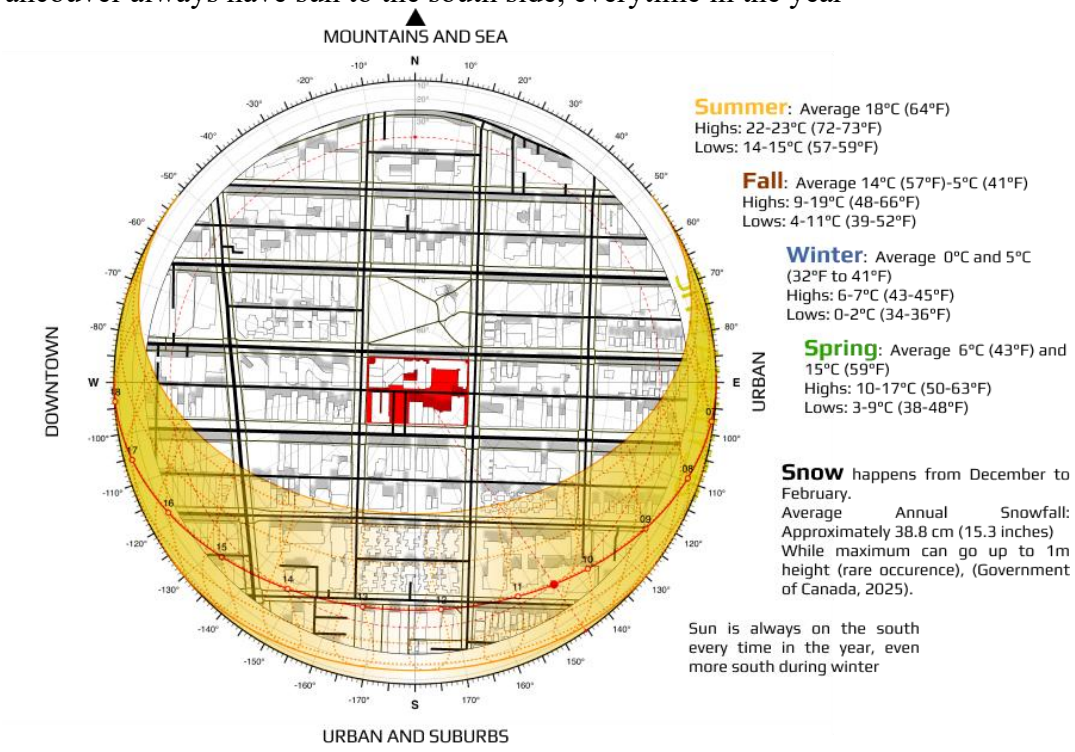


Figure 4.3 Sun analysis diagram and climate report.

Source: Author (2025)

4. SWOT Analysis

Table 4.1 SWOT Analysis table

Strength	a. Located strategically in downtown area, near oppenheimer Park.

	b. Is very large, 1 block size. c. Has no setback limit. d. Easy access, flexible. e. Zoning is suitable with concept. f. Access to electricity and water via road.
Weakness	a. Setback is 0 and is located downtown, so landscape is minimum (though still exist). b. There is an alleyway in the middle. c. There are already retails in the site, could incorporate that into the site.
Opportunity	a. Very close to retail. b. Deep culture. c. View to the mountains in the north (North Vancouver). d. Decent architecture of neighbor buildings.
Threat	a. High amount of rain especially from fall to spring. b. Rare sun. c. Often cloudy. d. Cold weather especially fall to winter.

The synthesis of the SWOT is categorised and also connected into a big concept of totems.

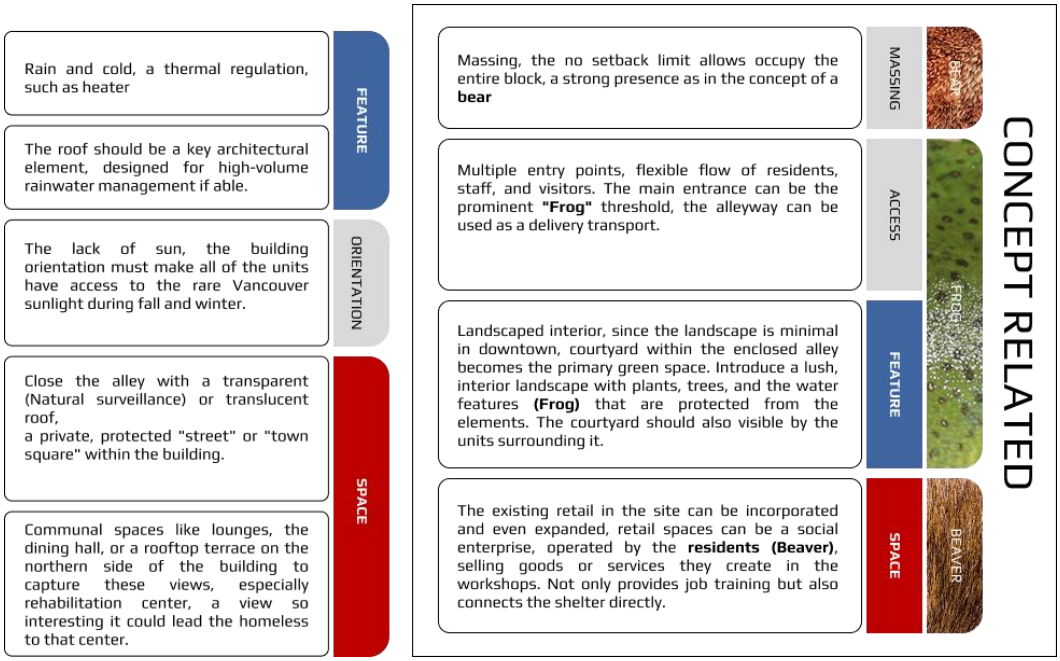


Figure 4.4 Synthesis of the SWOT analysis.

Source: Author (2025)

4.1.3 Design Concept

After the concept has been described for every detail, the process of the framework then continues into the 'mapping' stage. Here, the concept is visualized into a diagram for a better understanding and memorable.

The starting bias is as follows; "What if architecture acted as a totem, not a monument to power, but a vertical narrative carved from stories of lives? A housing project not just as shelter, but as layered memory that rises from the street where survival begins, through spaces of care and pause, to places of dignity and breath, each level is a chapter, each transition a step in the journey from crisis to rooted belonging."

Below is the concept in text

"*Imagine a totem, not carved from cedar but from lived experience. Each figure tells a chapter: the street, the tent, the trembling hands, the first night of sleep, the first meal eaten without rush, the first name spoken aloud again. The bottom still remembers the overdose. The middle still hears the silence. The top still sees the sky. But they are connected now. Like a totem, the story grows upward but stays rooted. It does not belong to one person. It belongs to all who have walked that one street with nowhere to go, all who have fallen without being caught, all who are still trying to rise without forgetting what's beneath them.*

Somewhere in this vertical story is a bird, wings half-carved, not flying, just ready. Somewhere in it is a hand, reaching out, not to save, but to steady. And somewhere near the top, just below the clouds, is a face looking down in recognition. Because every story worth telling remembers where it began. And every soul, no matter how long it's wandered, deserves to be held in the full shape of its becoming. The whole, stacked and sacred, just like a totem."

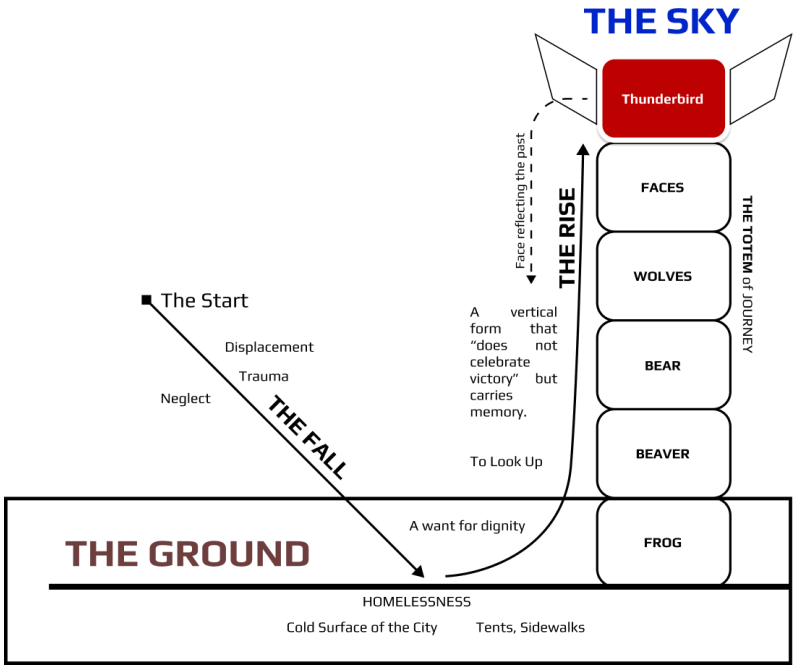


Figure 4.5 Mapping of the concept.

Source: Author (2025).

After the concept has been visualized, it is then broken down into several objects from that text, each with their own attributes:

1. The Totem (vertical, collective, stacked, and witness)
2. Bird (wings, poised, freedom)
3. Hand (reaching, warm-toned)
4. Face (oval/angular, soft, expressive)
5. Sky (openness, breath)

The concept is linear to Maslow's pyramid of needs.

Each element is processed via domain-to-domain translation (refer to Appendix D). The Totem Pole concept functions not merely as a visual ornament but utilizes this transfer method to translate symbolic philosophy into functional spatial programming and vertical zoning.

4.1.4 Refine Concept and Figure Meaning

The following are derived from domain-to-domain transfer.

1. The building begins with a visibly rooted base, can be expressed through heavy stacked masonry or rammed earth walls, anchoring it to the site. Entry plazas and shared courtyards define the public threshold, featuring low-height strategic planting and shrubs under 1m to delineate boundaries while keeping surveillance lines open. The façade at this level may show tapered walls or sedimented cladding, hinting at layers of social or programmatic stratification.

2. Upon entering, visitors move through semi-open halls or communal platforms, designed for gathering or rest, framed by strong territorial cues and natural surveillance from adjacent units. Transitions between zones are marked by shifts in lighting, material textures (like worn concrete flooring or subtly embossed wall panels), and sound qualities, creating distinct atmospheres. Rounded stone thresholds offer tactile transitions into more private zones.

3. Floors are divided into small clusters, each with semi-private corridors and clear territorial boundaries. The building's vertical massing uses stacked or cantilevered volumes, with each stack potentially representing a different programmatic function or economic typology, reinforcing a totem-like vertical identity. These clusters are differentiated via material changes, façade articulation, or access systems.

4. Within these clusters, split levels, stair voids, mezzanines, and vertical gardens allow physical and visual permeability. Open staircases maintain eye-line continuity, and clerestory windows or vertical light wells introduce increasing light as one ascends. Translucent shafts and open atriums visually link levels and maintain vertical surveillance.

5. Many units feature balconies or terraces with built-in benches, overlooking the public or communal areas below. View corridors are used throughout, directing sightlines but stopping short of full visual exposure, preserving privacy. Some rooflines remain incomplete to create a porous sense of enclosure.

6. Approaching the top, the atmosphere softens. Sky-facing gardens, roof openings, and contemplative viewing platforms are introduced — oriented upward but partially enclosed to evoke a grounded, spiritual retreat. Dissolving screens and fading façade patterns at these levels subtly erase the hard massing of the tower and blur the edge between building and sky.

7. Throughout the tower, human-scale design features such as warm wood handrails, fabric-lined seating niches, and rounded thresholds promote tactile comfort and quiet dignity. These elements appear especially near seating areas, communal spaces, and corridors, supporting rest, interaction, and subtle personalization.

Concept enrichment is done to strengthen the overall concept by creating a custom totem pole. This was done first by translating the meaning of each figure in general first nation, and then stacking them up by relating the concept into the needs of the design. The figure below complement the proposed moments written before.

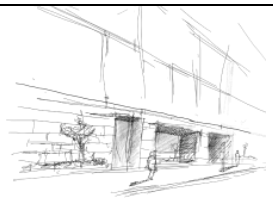
Table 4.2 Concept Enrichment Table

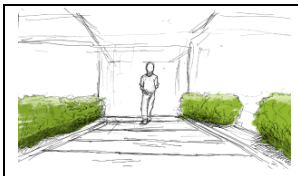
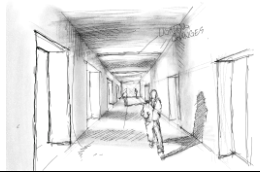
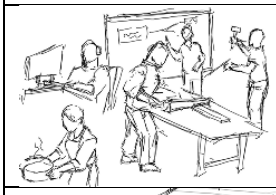
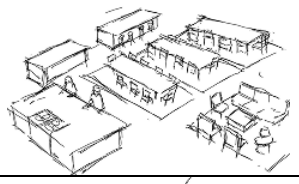
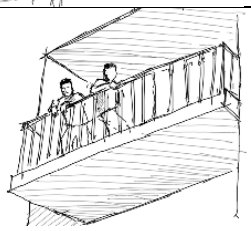
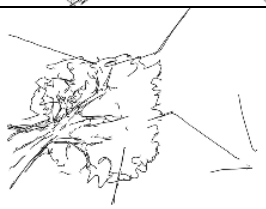
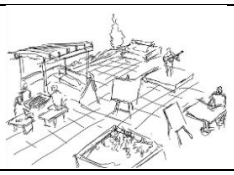
No.	Figure	Icon	Description
1.			Thunderbird, hope and freedom symbol. An open space (exterior); recreate, painting, gathering. courtyard that feels expansive. art into the space
2.			Faces; emotions and expression. An expression, via colors, artistic choice, aligning it with 'Image' aspect of Defensible Space.
3.			Wolves: togetherness, kinship, and loyalty. A Community, a communal space (interior), like communal kitchen, dining hall, shared recreational space, large communal tables, smaller booths, and comfortable lounge chairs.
4.			Bear; strength, and protection. Rehab center, make themselves strong, self-resilient, healthy life by fixing their life in a rehabilitation center. Private offices for one-on-one counseling and a larger, versatile room for group therapy, yoga, or meditation
5.			Beaver, a builder, rebuilding home, rebuilding life. Helps of Workshop center in order to level up their skill for job, small classrooms, and educational programs.
6.			Frog; transition between two world, amphibious, ~homeless who went from the street into home. Threshold space for entrance of the building, enclosed garden area, different flooring materials or changes in lighting, transition between the public street and the private,water features, like a small pond or a fountain (amphibious reference)

Source: Author (2025)

Finally, proposed moments are sketched into 'scenes' which pictures of what the author meant to portray in a specific place.

Table 4.3 Proposed Moments

Scenes	Description	Scenes	Description
	As the visitor gets close. From the pedestrian level showing the brick material and shrubs less than 1 m. a. Strategic planting and shrubs under 1m define space without blocking views, that is territoriality and natural surveillance.		A threshold of 'water' and 'land' as an amphibious frog. Signifying the change from homeless state to a new home.

	Upon entering the building. Depicting the ground base filled with vegetations. a. Supports community engagement		Surrounding the ground base. A semi open hall.
	When ascending to the top, possibly podium. Open staircase and voids. a. Maintain visual continuity and natural surveillance across levels. b. Makes vertical movement more legible and socially connected, rather than isolated.		The 'bear' concept of the totem, where people can strengthen their mentality and soul via rehabilitation program.
	The 'beaver' concept of the totem where people rebuild their life, like a builder, like a beaver, via workshop center where people can actually learn how to work		The 'wolves' aspect of the totem, for togetherness, spending time, cooking, chatting, with this buffer zone.
	On the units, facing inside. Balcony with built-in benches, overlooking the public or communal areas below. a. Encourages residents to observe and be observed, promoting passive surveillance and safety. b. Provides private yet visible outdoor space for social engagement and mental wellness.		On the top. Approaching the top, the atmosphere softens. Sky-facing gardens, roof openings, and contemplative viewing platforms are introduced. a. Offers quiet, contemplative retreats for residents, especially valuable for formerly homeless individuals in recovery.
	Thunderbirds, freedom, expression, hope, a rooftop space where people can recreate.		

Source: Author (2025)

4.1.5 Massing

There are around 2400 homeless people in the City of Vancouver, which is too much to be in one complex, however, the minimum realistic target is 200 people up to 1000, or more than that if any possibility considering the maximum scope of the total area of the building is only 30,000m^2. Based on the SWOT analysis and the totem pole concept, spatial programming along with its associating color theme are as follows (See Appendix C).

There are several justifications to choose a high-rise building than a low-rise or medium-rise ones. Firstly, the weakness of having a low-rise building in downtown area is that it has a small barrier between the road (drug transaction places) and unit doors. High-rise acts as a layered filter which lengthen the 'transition' zone between public and private. After the masses are listed, they are arranged based on the concepts and design criteria, such as view, position, access, green space, stack and many others.

Mass number 3 (Figure 4.6) is chosen due to the fact that it has most efficient massing, unblocked view and the entrance that does not have a roof as it was intended. However, design choice could still change along with the progress. The mass is then tested with shadow simulation done in render machine, which in this case, Enscape.

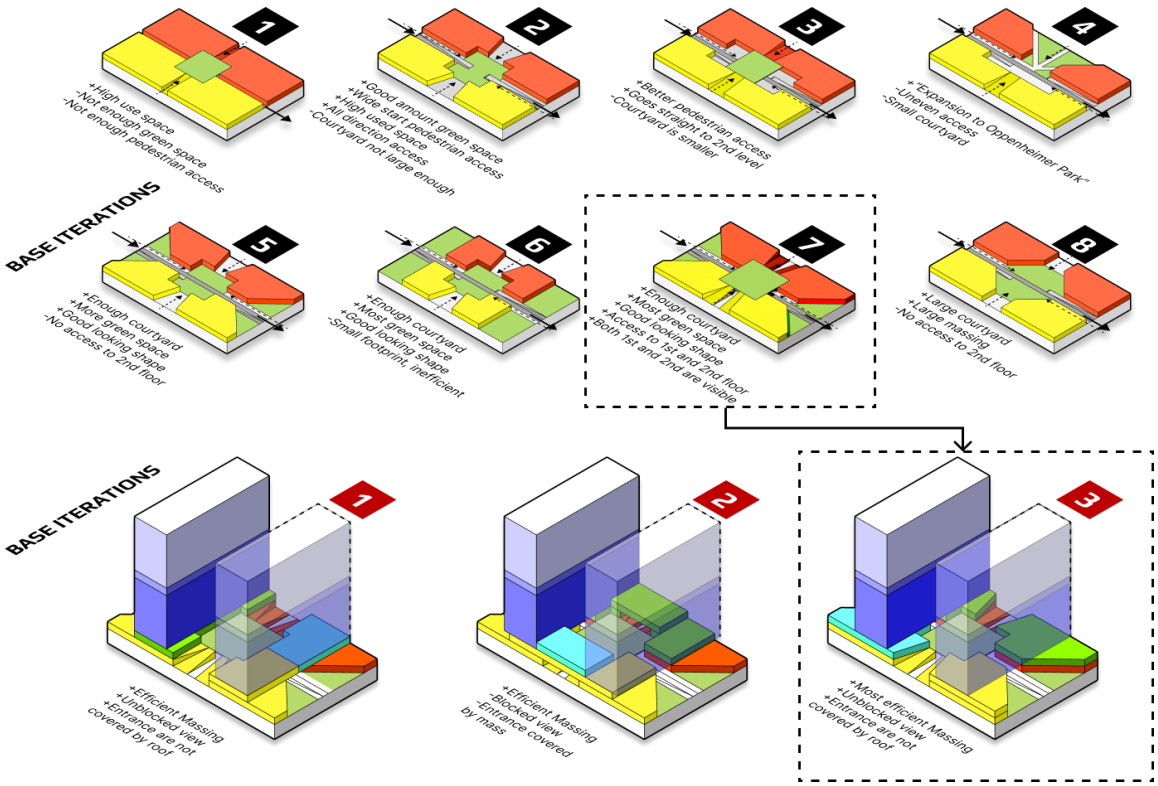


Figure 4.6 Massing iterations and chosen mass.

Source: Author (2025).

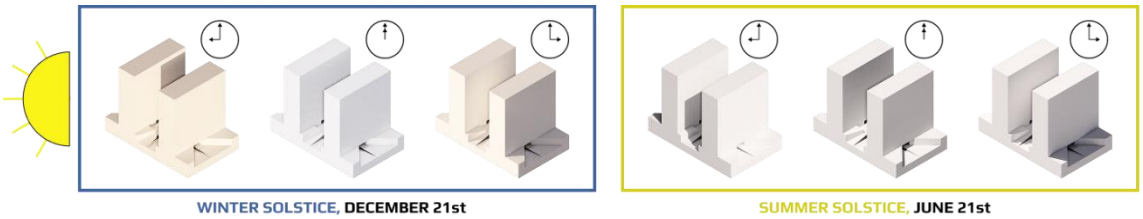


Figure 4.7 Sun simulation.

Source: Author (2025)

The simulation (Figure 4.7) is setting time on 2 different dates with 3 different hours. That is, winter solstice, December 21st and summer solstice, June 21st, with 9AM, 12AM, and 3PM set as time. Based on those pictures, the massing is ideal for the south-dominant sun orientation of Vancouver, as everyday residents can still receive enough sunlight.

Finally, the moments are then arranged into the 3D mass to inform them where they would happen. The final diagram also shows what the available views are (Figure 4.8).

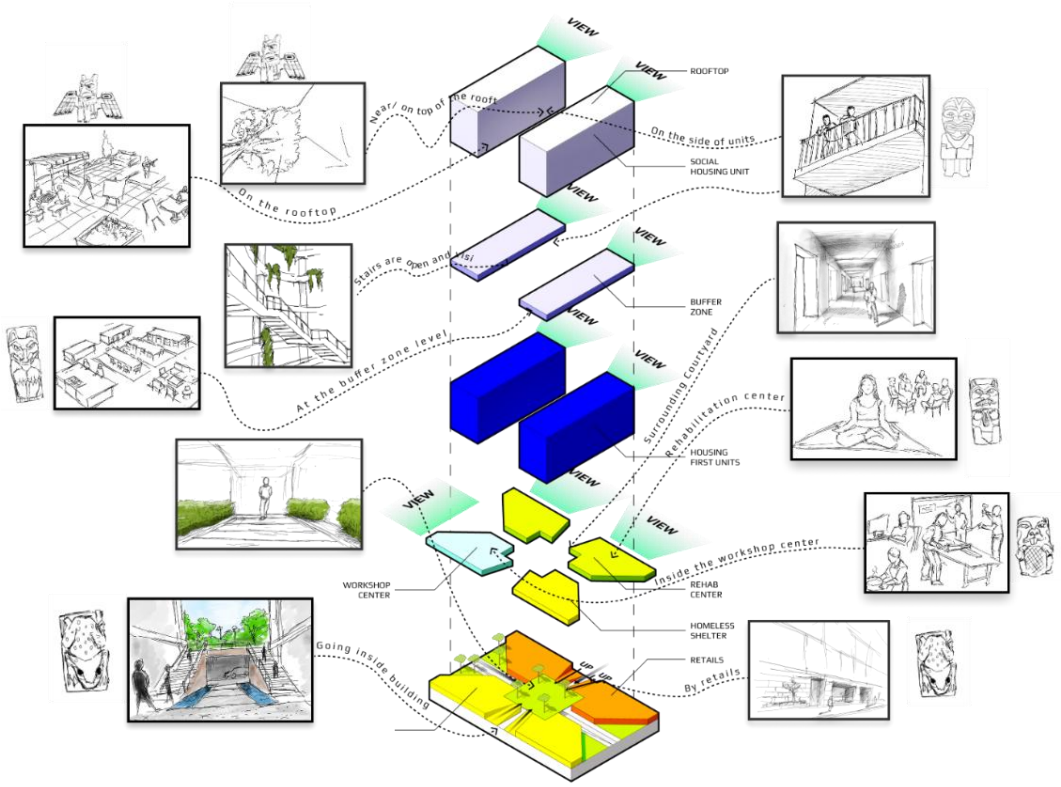


Figure 4.8 Arrangements of moments.

Source: Author (2025)

As the moments have been arranged, the apartment bubble diagram is made to create the territoriality of the units. Bubble diagram (Figure 4.10) is based on the suggestions of Newman (1972) which divided apartments into a more private cluster (See figure 4.9).

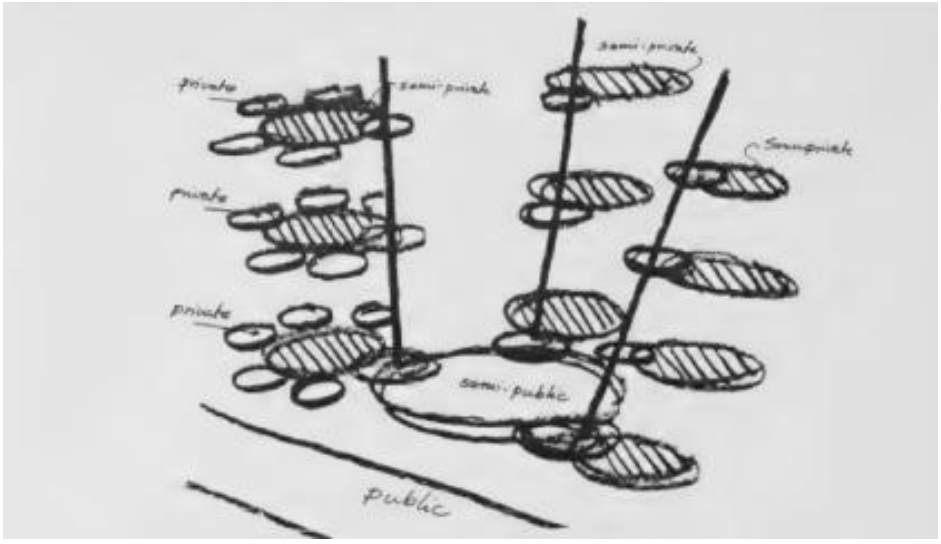


Figure 4.9 Clustering of apartment in defensible space

Source: Newman (1972)

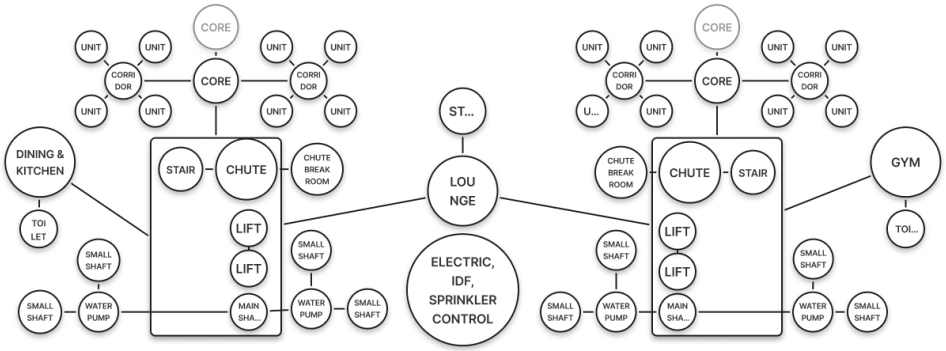


Figure 4.10 Bubble diagram of apartment mass

For these spatial needs, units are clustered around the core which provide vertical movements. In figure 4.11, Oscar Newman has provided an ideal layout in his defensible space guidelines

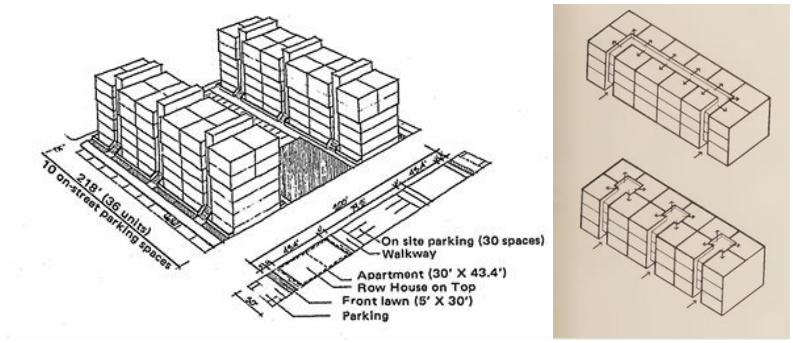


Figure 4.11 Ideal layout of medium-high rise apartment for defensible space

Source: Newman (1976), Newman (1972)

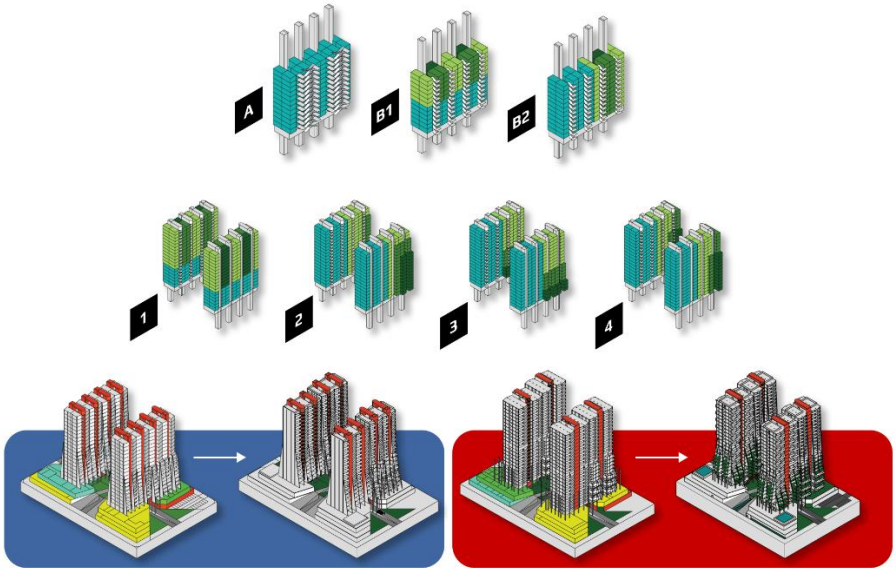


Figure 4.12 Vertical iterations of the building

A and B show the variations of placement of staircase. However, according to Newman, scissor fire stair is not an ideal way to create a defensible place as “Criminals evade pursuit simply by alternating fire stairs as they flee the building.”

Newark and Pruitt-Igoe in St. Louis, have additional sets of stairs which exit to the ground and are connected at every floor through the common double-loaded corridor. Ambiguity of building plans is even more rampant in such designs (Newman, 1972). in B1, the social housing is initially stacked upon the housing first, however that will increase the likelihood of criminality as many former homeless are still addicted to drug use, this is why B2 is a more ideal alternative.

In this design, defensible space theory which 'territoriality' is usually applied horizontally such as fences in front of houses. In this design, it is applied as 'vertical clusters' seen in bubble diagram. This means that floors are not anonymous long corridors but separated into small neighborhoods in the air. Additions of floors make it possible to create a hierarchy of vertical privacy that lower floors (podiums) are public watch, middle floors are community watch, and upper floors are private sanctuary. High-rise in here acts as a separator of danger zone with healing zone extremely that can't be achieved by low-rise.

In high-rise buildings with more than 400 units, there is a critical mass that makes the facilities viable and available for 24 hours, which is crucial for occupants who need instant support without having to relocate to another places via vehicle. In low rise, unit windows still face right into alleyways. High-rise gives a new perspective. Seeing the city from above changes that changes their perception from 'street victim' into 'city residents'.

Pruitt Igoe was used as a benchmark of failure and it failed not because it is high-rise but rather because it disobeys the principles of defensible space which this proposal has applied; unlike Pruitt Igoe which has a long anonymous corridor, the proposal separates into clusters of 4 units, which can easily recognize unknown intruder. The socio-economic integration of Pruitt Igoe was also problematic as they were isolated poor people, while this design emphasizes on demographic integration (homeless and low-income residents) in which the low-income residents act as an example of social stability and social supervision that does not exist in Pruitt-Igoe which was homogenous.

The application of Newman's theory here is a rigid control system of behavior, not an ornament. This is proven by the existence of territorial control in the corridors; not anonymous and very long. The design uses pony wall or small porch in front of every unit. This physically limits which one is public corridor area and which one is semi-private area. For example, podiums such as retail and shelter intake are public area, then buffer zone and workshop center and vertical core become semi-private. Finally, the units which are clustered into 4-6 units are private. Lastly, image as control means that the use of color/façade provides a unique identity so that occupants can be proud and take care of the building from vandalism.

4.2 Discussion

4.2.1 Concept Implementation

Concept is implemented into the design and visualized as below.

Table 4.4 Design perspective and concept implementation

Image	Description	Image	Description
	Earthly facade with vegetations that reflect the building that is on the ground side, the earth side. With cold concrete		Wolves work great in packs, rather than loner. The buffer zone connects the people who are struggling economically

	that holds symbolic stratification. The vegetations also guards visibility and gives privacy to the homeless shelter inside.		with people that are homeless. Socializing in places such as communal kitchen, dining hall, gyms, and lounges.
	Between the water, into the ground, the grass and the tree. This part is a symbolic design of a frog, an amphibious animal, that signifies the changes and starting point of someone's life, especially the homeless and street people who wanted to rebuild their life, from the water, climbing into the trees.		Balconies overlooking the ground, just like a FACE of a totem seeing downwards, making people look at who they once used to be, living in the streets. This is also a natural way to provide surveillance, of who enters the building, of who walked on the ground, acting as a witness.
	A therapeutic area, filled with trees and vegetations as if it is the proper habitat of animals. The low hedges assured the visibility of people, reducing the likelihood of crime. Totem poles are represented in colors of extended columns that also acts as light pole, shining the place during the dark.		To rebuild their lives, people can also be taught to grow plants, giving them a more sustainable food that can be sold in the Market area of this housing complex (The dollar store in Podium 1).
	An entrance corridor that is in between corners of the building, just like what Oscar Newman has suggested to ensure visibility of people who entered and exit the building. The corridor is also open to the courtyard, making movement feel transparent.		The presence of vegetations also gives the housing a more relaxing appearance suited to the mental struggle to get away from drug addiction.
	A beaver builds its own dam from logs, by itself. In this case, people can rebuild their life by attending workshops that give them hard and soft skills to acquire a job to sustain their lives. In this picture, people are learning carpentry which is an already existing workshop on the site. The workshop center makes sure everybody		Rooftop that symbolizes freedom as if it's a thunderbird. A place where people can hang out, enjoy music, painting, having barbeque, coffee, teatime. This is the goal of the idea, that people can enjoy a higher stage of Maslow's Pyramid scheme

	can DO what they need to do by integrating the housing with job market.		
	The rehabilitation center makes sure that everybody can heal from their past, giving them a mentality as strong as a bear. This includes medical attention and psychological help such as group therapy, counseling, dentist, meditation, yoga, and physical therapy.		These stacked massing is an attempt to break down totem poles and recreate it in a building, with the colors and characters that are associated with it.

Source: Author (2026)

4.2.2 Site Plan and Layout

The concept of the site is mostly vegetation oriented in the way that residents can heal themselves by the therapeutic garden in the elevated courtyard. Please see Appendix E for the full drawings. As seen from the site plan (Appendix E), trees are around the building. Which is also enriched by green balconies and urban farming, an important concept for the sustainability of the building, by growing foods or to make profit from it, while also teaching the people how to perform agriculture to give them a chance to work in farming industries in the near British Columbia area that are rich in farmlands. Based on the layout, pedestrians can enter the building from both north and south side while vehicles can enter the building from west and exit in the east.

This project is not standalone as isolated island but rather extension and complement for the ecosystem of the existing Downtown Eastside (DTES). Oppenheimer Park acts as an outdoor ‘guest room’ and cultural heart for the First Nations and homeless community in the area. The mass of the building is designed openly to the north. The balcony and communal area face the park, creating passive surveillance to the public area. The bottom floors are designed with a fluid threshold and are dedicated to public retails (dollar store, thrift shop, bakery, and bookstore). These functions attract pedestrians to enter the area, creating positive ‘crowd rejuvenation’ (eyes on the street). The building lives on the sidewalk, making the pedestrian area around Oppenheimer Park brighter and safer at night.

4.2.3 Floor Plan

The podiums have entrances located just right in the corner, that are visible to many angles, which reinforces the ‘Surveillance’ aspect of the theory (Please see Appendix E for the full podium and buffer zone drawing). This was suggested by Oscar Newman as seen in Figure 4.13.

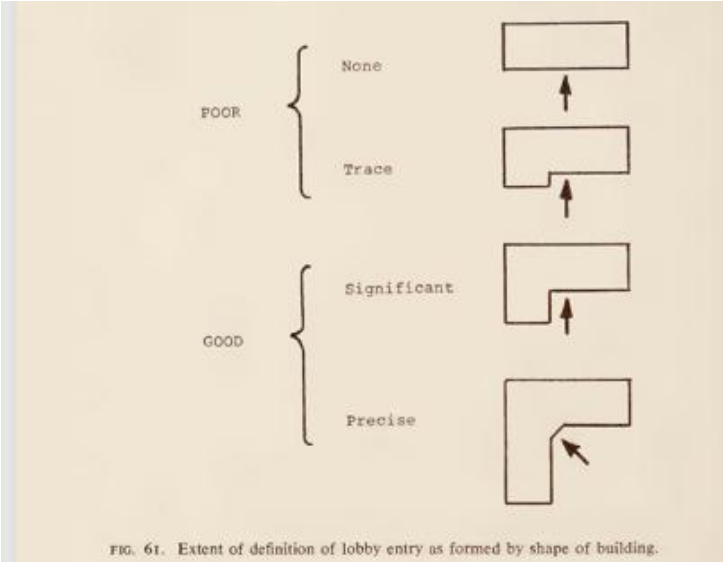


Figure 4.13 Ideal entrance placement of the building by Oscar Newman

Source: Newman (1972)

Figure 4.14 Types of typical floor plans

There are 3 different types of floor plans. Typical 1 is the uppermost floor with studios from both sides. Typical 2 have studios in housing first section while the social housing has 1-bedroom units. Typical 3 is mostly filled with 2-bedrooms though there are some levels where

the housing first unit is a studio. The typical 3 is put on the bottom to act as a supportive, more capacity, or family-oriented unit.

4.2.4 Section

These section drawings show each room and their activities as well as vertical movements. (Please see Appendix E for the full drawings.)

4.2.5 Details

Both types of units use lightweight walls with metal stud as frame. 15cm in thickness, covered in gypsum and filled with insulation.

The housing first unit features a more affordable and safety-oriented design while also looking for a warm design suitable for drug addicts to have less stress levels. Firstly, the unit is guarded by louvres in its balcony to prevent someone from falling if they were in substance influence such as alcohol or drugs while also keeping them safe from attempting to self-exterminate. The heating of the unit is also placed on the ceiling with heating panel to ensure that the device is not reachable by hand to make it safer. The bathroom is a wet bathroom if faucet is left open, it will not create significant damage to the unit. The floor uses wood finish vinyl to create a natural look while maintaining economics and longevity. Drawings below are detailed version of “Housing First” and “Social Housing” studios that shows their differences and emphasis.

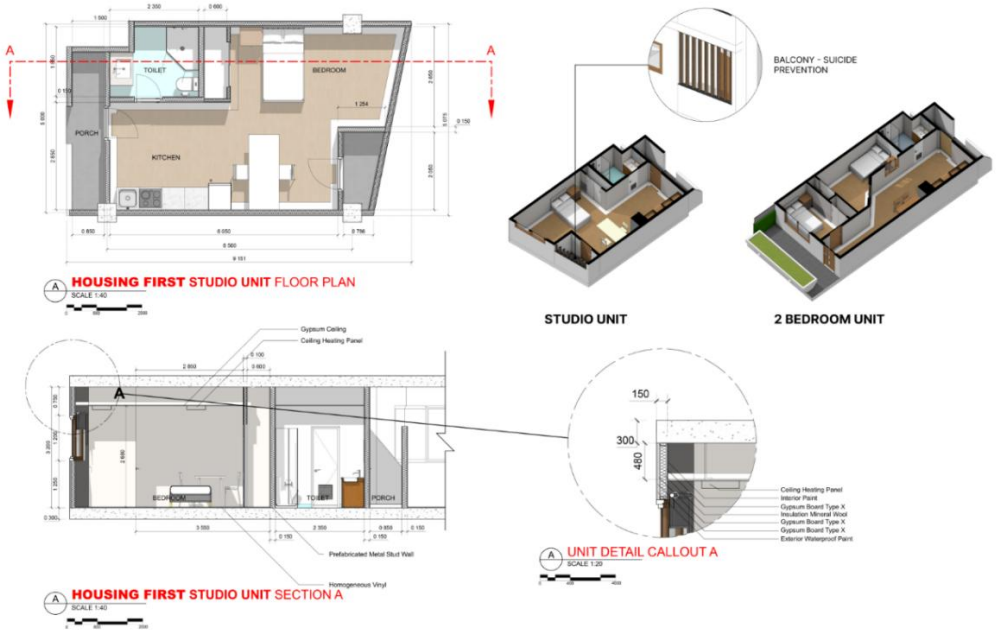


Figure 4.15 Housing first studio unit detail drawing

The controlled environment in this design is an absolute prerequisite to achieve autonomy for people with history of addiction and trauma, where the concept of ‘control’ is redefined not as a ‘prison’ that restricts the occupants, but rather as a ‘fortress’ that protects them from external threat such as drug-dealers. Through this layered access and natural surveillance, the building design eliminates street chaos to establish stability and mental serenity that becomes the foundation of stable life. Furthermore, the high-rise design raises the dignity of the occupants by providing privacy and exclusive views of mountains and sea, a privilege that

asserts that they are precious. While spatial autonomy is realized through porches in front of the units, giving them full control of the personal territory that they have never had before.

The social housing that was meant to be rented have a better quality than the housing first unit. Firstly, the heating is located on the bottom of the floor, that the floor finish is around 10cm including the insulation. This makes a warmer and more cozy feeling as the users aren't likely to damage the floor. The finish uses LVT to create a natural environment.

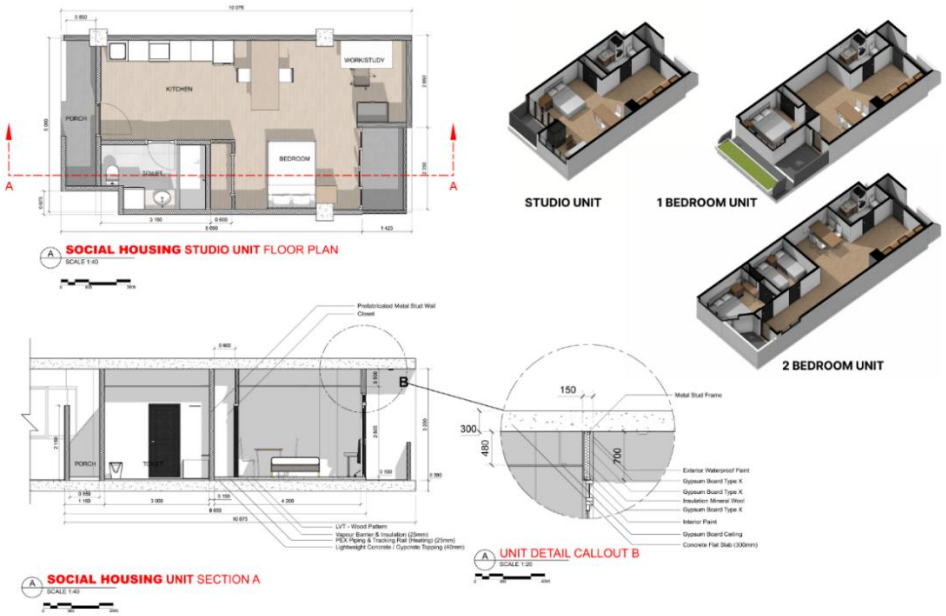


Figure 4.16 Social housing studio unit detail drawing.

Each unit has small 'porch' used as territory in corridors, can also be used to put personal belongings such as shoe rack. This idea was suggested by Newman (1972) shown in Figure 4.17.

Figure 4.17 Pony walls and barriers that define territoriality by Oscar Newman

Source: Newman (1972)

4.2.6 Structure

The building uses a flat slab structural system which is suitable for its height (25> stories), in which such system has a lightweight advantage and has no beams under the floors. However, this means that the walls can only be drywalls instead of concrete ones.

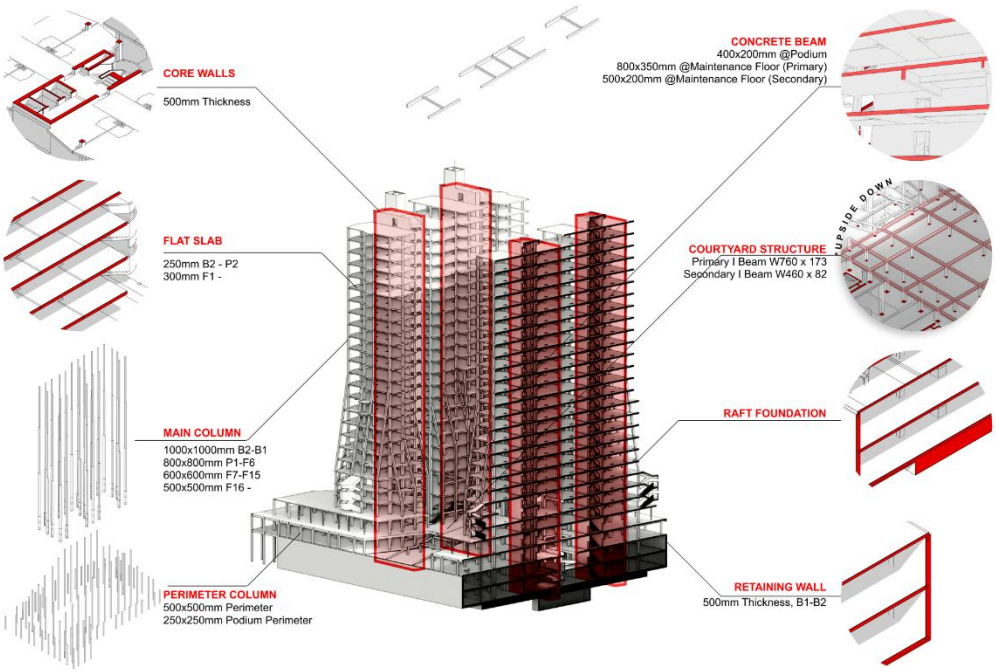


Figure 4.18 Structural Diagram of the Building

Source: Author (2026).

1. The core is 500mm thick, standing from foundation up to the highest point.
2. The building uses flat slab structure as it is faster to construct and much cheaper labor cost, which is more important in Canada, though the material cost is a bit more expensive. It uses 250mm slab for basement and podiums while the upper floors use 300mm of thickness.
3. The main column is uniform, but its size varies depending on height, going from 1000x1000mm, 800x800mm, 600x600mm, and 500x500mm.
4. Perimeter column only supports cantilever and podiums which aren't as tall as the tower columns, making it smaller. It is uniform in size at 500x500mm.
5. Concrete beams are placed under certain floors that require concrete or brick walls such as maintenance rooms, and podium 1 level.
6. The courtyard uses steel beams, mainly W760x173 for primary beam and W460x82 for secondary beam.
7. Raft foundation is used for such type of skyscraper. However, its exact size depends on calculations done by soil engineers and civil engineers.
8. Retaining wall to enclose the basement is 500mm thick.

4.2.7 Utility

The building hosts a complex utility system which is simplified within this project to explain it strategically rather than tactically. The building has 4 types of utility systems which

are cold water and hot water, sewage system, electrical, and fire system as well as its evacuation route.

4.2.8 Demographics and Capacity

The building is designed as large scale mixed-tenure community with total of 760 living units and separated shelter. Total population is estimated to be 1400-1688 fixed occupants with 368 daily check-in shelter guests. Social Housing is dominant with 888 occupants (63% of total occupants), consists of families and workers (2BR & 1BR) along with individuals (Studio). It also acts as anchor of stability, as they are the majority, they shaped social norms and healthy environments. Housing first is around 512 occupants (37% of total occupants), consisting of 400 units (combinations of 2BR and studios). It functions as rehabilitation target, with the ratio, they will not be isolated but also will not dominate the environment. Therefore, the risk of establishing 'ghetto' can be prevented. On the other hand, homeless shelters have around 368 occupants (184 bunk beds). Which functions as a transition zone (The Frog/Base) for the mitigation before a person is ready to step into housing first unit.

The mobility mainly relies on public transit (Vancouver Translink) as well as downtown area walkability which suits the economy profile of the majority of the occupants (Low Income & Housing First), this is supported by the adjacent line of electric bus stops along the street. The private vehicle capacity is expected to be less than usual apartments, with total of 444 parking slots to serve 760 units and commercial functions. With 104 slanted large cars parking, 68 parallel parking spaces, 240 slanted small parking spaces, and 32 outdoor parking spaces.

4.2.9 Economics

Below are the economic considerations and renting scheme of both types of units. Showing how different demographics needs and treatments are. With table 4.5 fpr Housing First and table 4.6 fpr the Social Housing.

Table 4.5 Economic scheme of housing first units.

Step 1	Pays 0$. Focus on stabilization of mental/physique. Still dependent on narcotics.
Step 2	Stability (Welfare/Disability Support). Pay flat rate around $300-$500 monthly
Step 3	Employment/Stable Job (The "Beaver" Phase). It happens when occupants receive stable jobs from workshop center. Will turn into RGI (Rent-Geared-to-Income), which is 30% of gross salary.
Step 4	Mechanism of 'Graduation'. Occupants will not be evicted once they have job (to not punish success), but will be given transition time (6-9 months) to relocate into Social Housing in the other

Table 4.6 Economic scheme of social housing units.

Rent System	a. Rent-Geared-to-Income: Rent is fixed at 30% of gross household income. b. Example: If a family has $3000 monthly salary, their rent will only be $900. If the salary drops, their rent will also drop.
Contract Duration & Review	a. Contract: Month-to-month, giving flexibility. b. Review: required to do "Annual Declaration of Income". Annually, management checks paycheck/tax report to adjust rent price for the upcoming year.

CHAPTER 5 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The project has explored the way defensible space theory is being applied to. Many of Newman's proposals were to apply the theory in a low-rise neighborhood that circulation is usually exposed to the public area. However, in this project the theory is being adapted to the shape of a high rise, requiring less footprints of land, especially in the crowded downtown area of Vancouver as relocating homeless people away from the area would just mean displacement of demography. The project attempted to adapt the theory by breaking down its meaning to pieces and reconstruct it again while also occasionally pulling one of the elements straight away. For example, there are numerous ways to establish 'territoriality' inside the building, such as providing a 'porch' in front of every unit or separating the building into different clusters which gives residents more privacy yet accessible directly to circulation. The concept-based framework by Philip D. Plowright has helped the project adapt by how local context integrates with the main theory.

While defensible space was made to prevent crime, it is not a direct active solution but rather a more subtle yet impactful. Crime activities, especially by drug addicted homeless can surely be addressed by defensible space, but the theory itself is not sufficient for such a complex and ill-defined problem. Defensible space can alter the way the residents interact with each other. However, for individuals struggling with active addiction and homelessness, physical design alone often fails to address the underlying socio-economic drivers of crime, such as the necessity of the underground economy to support a dependency. Defensible space must be integrated with robust social services and "Housing First" supportive frameworks to be truly effective; otherwise, the architectural measures may simply displace criminal activity to adjacent, less-monitored areas rather than resolving the behavioral root causes.

The two main demographics of the building can be integrated and interact with each other by treating them equally, but in different ways. The goal was to make homeless people live just as normal people would and create a place where people can mingle around and chat or dine together while also making sure that these places are adjacent to circulation to establish surveillance, creating safety.

5.2 Recommendation

So far as this proposal has been done, few things need to be considered a lot more. For example, consideration of the economics of the building can be further delved into the idea that the proposal could have become more realistic. During the development of the proposal, the heaviest challenge was to address such a complex topic which can include different fields of studies in order for it to be realized. Architecture alone can barely give an absolute solution to homelessness within the city of Vancouver, and thus, the scope of this project can only address the interaction between homelessness and drug addiction.

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APPENDIX A SITE DATA

A. City and Potential District

The City of Vancouver (not to be confused with Metro Vancouver as a whole) is chosen to be the location of the proposal. Multiple criteria are then listed to relate the site with the proposal.

1. Number of homeless people in Vancouver.
2. Criminality level in Vancouver.
3. Located in a densely populated area, not suburban, but downtown areas.
4. Ability to build high-rise housing according to zoning regulations.
5. Access to Public Services
6. Presence of Underused or Vacant Land (optional)

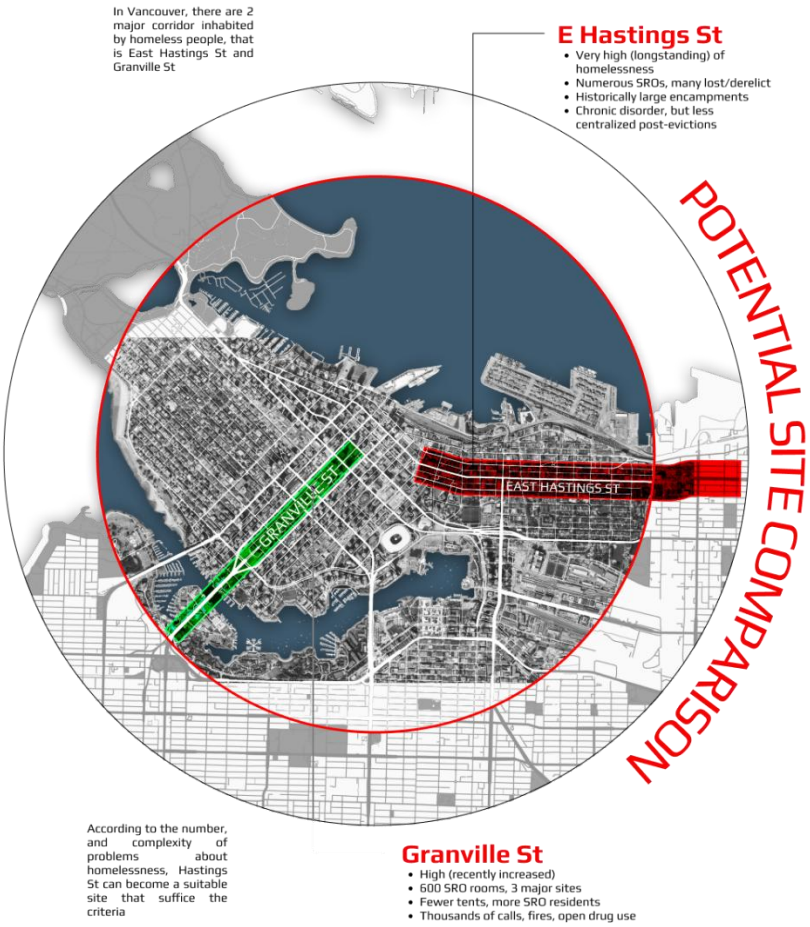

Figure A1 Potential Site Comparison

Source: Author (2025)

B. Crime activity

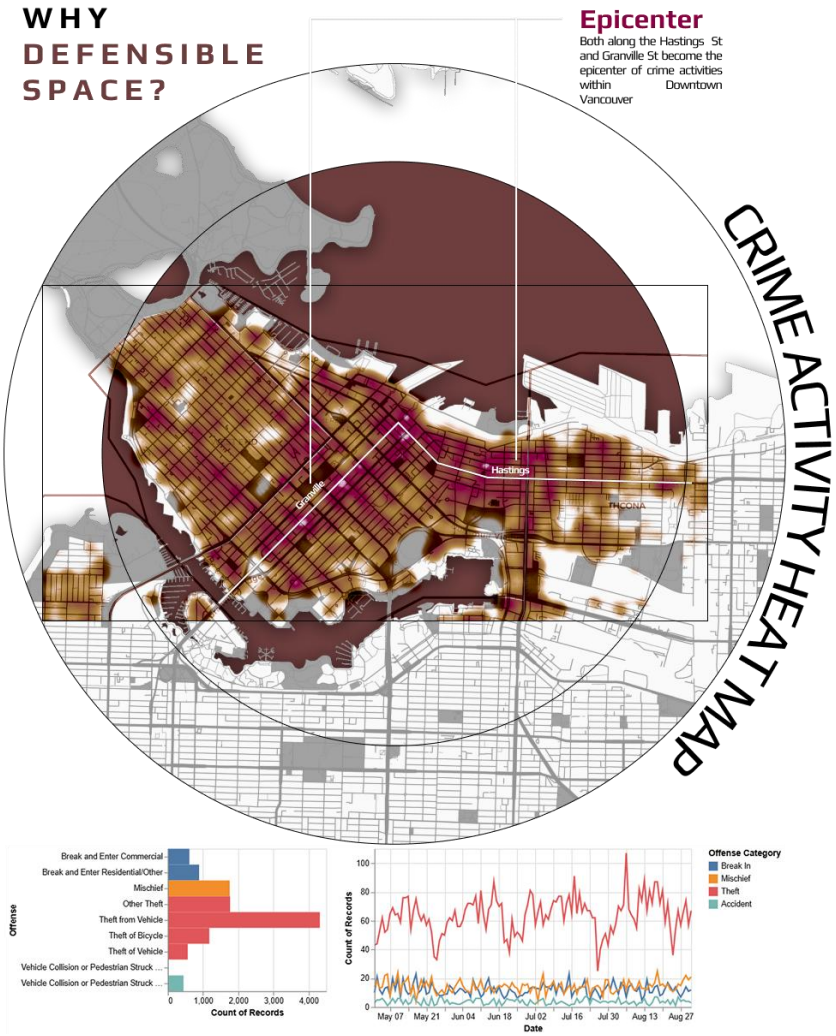

Figure A2 Crime activity heat map near Downtown and its surroundings

Source: Author (2025)

This heatmap shows the example of the amount of crime within a specific area in Downtown Vancouver from a subset data from Summer 2016. From here, it can be seen that crime activity centered along the corridor of Granville St and Hastings St where homelessness and dense activity of the city located, this is why defensible space theory become relevant to the issues (Drlynb, 2023).

C. Zoning and Regulation

The DEOD (Downtown Eastside/Oppenheimer District) is a uniquely zoned area in Vancouver, centered around Oppenheimer Park within the Downtown Eastside (DTES). It is distinct from other parts of the city due to its specific zoning regulations and its own Official Development Plan (ODP) (Vancouver City Council, 2014). The DEOD's zoning framework is designed to protect the social fabric of the Downtown Eastside by ensuring new development supports low-income and vulnerable populations, preventing rapid gentrification and speculative real estate investment and maintaining a mix of uses and building forms that reflect the area's history and diversity.

Figure A3 Zoning of Regulation of potential site, and the location of potential site (red outline).

Source: Author (2025)

The ODP specifically aims to retain and create new affordable housing, upgrade existing stock, and ensure that new developments primarily serve low-income residents. The area is often referred to as a "no-condo zone," with strict limits on market-rate housing to prevent gentrification and displacement.

The criteria below are defined by the Official Development Plan of Downtown Vancouver created by Vancouver City Council (2014) and also Downtown Eastside/Oppenheimer design guidelines: City of Vancouver Land Use and Development Policies and Guidelines by City of Vancouver Planning, Urban Design and Sustainability Department (City of Vancouver, 2022).

1. Function
    a. Residential (with a strong focus on social housing)
    b. Commercial
    c. Light industrial
    d. Parks and open spaces
    e. Public uses and facilities
    f. Urban farming (Class B)
    g. Other accessories or comparable uses, provided they conform to the ODP and relevant guidelines
2. Setback (IDN: GSB)

    a. The ODP and design guidelines emphasize pedestrian-oriented development with retail continuity on the ground floor along Hastings Street.
    b. Specific setback requirements are not rigidly fixed but generally encourage minimal or no front setbacks to maintain street engagement and continuity.
3. Height
    a. The maximum building height allowed in the Main/Hastings sub-area is approximately 30 meters (about 8 stories). 11 meters min. (approx. 3 stories) in part of the sub-area.
    b. The height is intended to establish the area as a gateway to downtown while respecting adjacent historic neighborhoods like Gastown and Chinatown.
    c. Some flexibility in height may be granted through rezoning if it supports social housing or community amenities
4. Building Coverage Ratio (IDN: KDB)
    a. The Official Development Plan does not explicitly state a fixed building coverage ratio for Hastings Street plots in the DEOD.
    b. However, the plan encourages high-density, mixed-use development with active commercial frontages, implying significant site coverage to support urban intensity.
    c. Coverage is managed through floor area ratio (FAR) limits and setbacks rather than a strict coverage percentage
5. Floor Area Ratio (FAR) (IDN: KLB)
    a. The base FAR for the Main/Hastings sub-area is 1.0 for typical development.
    b. Higher FARs are allowed for projects including social housing:
        i. Up to 3.0 FAR for residential social housing.
        ii. Up to 3.0 FAR for non-residential uses.
        iii. Up to 5.0 FAR for mixed residential and non-residential uses.
    c. These FARs support the goal of increasing affordable housing and mixed-use density along Hastings Street
6. Additionally
    a. Retail continuity on the ground floor is required to enhance pedestrian activity.
    b. Office use on the ground floor is limited, and office use above the ground floor requires at least 50% residential use in the building.
    c. The zoning and development permit process allows discretion by the Development Permit Board to ensure conformity with the ODP's intent and community goals.
    d. Recent policy proposals suggest potential increases in height and FAR to incentivize social housing, with possible FAR up to 11.0 and tower heights up to 32 stories in some cases, but these are subject to ongoing consultation and approval.

APPENDIX B CONTEXT

1. Totem Poles Context
    a. Totem poles are allowed to decay and return back to earth, "If it falls you don't lift it. You let it go back to mother earth", (Billock, 2024).
    b. 2. Tells a story and dreams from legends.
    c. Memories and ties.
    d. For example, war, kinship, and leaders
    e. Made out of Cedar woods
    f. There are 6 types of totem poles (Gadacz, 2007).
        i. Heraldic poles - Story of families, clan, or village.
        ii. House post - For big roofs and act as a column which supports structure inside the house
        iii. Mortuary poles - Is for urn, casket, for ashes, rare and is the tallest up to 70ft
        iv. Memorial poles - After someone died a year ago
        v. Welcome poles - To welcome, and consists of humans, animals, myths, and is 40ft or taller.
        vi. Shame poles - To shame people, like owing a debt, (Encyclopaedia Britannica, 1999).
    g. Heraldic poles - Story of families, clan, or village.
    h. House post - For big roofs and act as a column which supports structure inside the house
    i. Mortuary poles - Is for urn, casket, for ashes, rare and is the tallest up to 70ft
    j. Memorial poles - After someone died a year ago
    k. Welcome poles - To welcome, and consists of humans, animals, myths, and is 40ft or taller.
    l. Shame poles - To shame people, like owing a debt, (Encyclopaedia Britannica, 1999).
2. Additional Homelessness Context, from the TED Talks of Lloyd Pendleton, Director of Utah's Homeless Task Force since 2006, (TED, 2017)
    a. Housing first model has been used in New York City.
    b. Homeless people can be severe alcoholics.
    c. It will take a while for a homeless person to develop a sense of belonging until a homeless person can make sure that the apartment/housing they live in is actually theirs.
    d. 3 major categories of homeless people:
        i. Temporary homeless.
        ii. Episodically homeless.
        iii. Chronically, which can consume 50-60% of the total homeless support resource.
    e. Homeless people are allowed to take drugs and drinks just like in their homes.
    f. Homeless people hardly trust anybody.
    g. Homeless people are also needing to learn many things before getting into the housing.

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APPENDIX C BUILDING NEEDS AND STANDARD

1. Homeless Shelter at 2280m^2

   "Design decisions should consider cost effective building operations, which can be impacted by the number of beds per floor, ease of supervision, and sightlines for common spaces. Consideration of required staffing levels is also important." (BC Housing, 2017)

   List below is derived from the Shelter Design Guidelines provided by BC Housing.
   a. Check-in areas 160m^2
   b. Common lounge/living area 250m^2 Seating for 100 people, high visibility
   c. Shared dining hall 350m^2
   d. Shared kitchen 250m^2
   e. Case worker offices 100m^2 for 6-8 workers
   f. Laundry room 120m^2
   g. Storage rooms for personal belongings 200m^2, 400 lockers near check-ins
   h. Dormitory area 750m^2 for around 300 beds
   i. Dorm Supervisor Office, 30m^2, placed centrally, for high visibility
   j. Toilets 70m^2 for around 200 people
      i. 6 common toilets
      ii. 2 accessible toilets
      iii. 10 showers
      iv. 20 sinks
2. Homeless shelter, 2nd floor 1440m^2
   a. Dormitory area 900m^2 for around 400 people
   b. Dorm Supervisor Office, placed centrally, for high visibility, 50m^2
   c. Toilets & Showers 490m^2
      i. 12 Toilets stalls (including accessible)
      ii. 15 showers (including accessible)
3. Housing First Unit

   5 story, 400 units minimum.

Studio	32.5 (37 m² for Vancouver)	1 – 2 persons

City of Vancouver (2025)

Each housing first unit is basically the same as entry-budget apartment. 40m², per floor can hold up to 40 units of housing first. Which allows 400 units in 2 masses, reaching the minimum target, which in effect, can hold from 400 people to 800.

a. A private keyed entry door
b. At least one bedroom with an operable window 27m²
c. A full bathroom (sink, toilet, and bathtub or shower) 4m²
d. A kitchen or kitchenette with appliances like refrigerator, stovetop, oven, and range hood 5m²
e. Adequate storage space appropriate to resident needs
f. Independent climate control within the unit.
g. Balcony 4m²

(Manitoba Housing, 2017) (City of Vancouver, 2025)

4. Social Housing Units
    a. 16 Studio Unit 40m^2
    b. 9 1-Bedroom unit 52m^2
    c. 6 2-bedroom unit 75m^2

Social housing units have slightly better features than housing first which is larger unit and more bedroom number options.

    d. A private keyed entry door
    e. At least one bedroom with an operable window
    f. A full bathroom (sink, toilet, and bathtub or shower)
    g. A kitchen or kitchenette with appliances like refrigerator, stovetop, oven, and range hood
    h. Adequate storage space appropriate to resident needs
    i. Independent climate control within the unit.
    j. Balcony
    k. In-Suite Storage: Each unit must have 3.7 m² (40 sq. ft.) of interior storage
    l. Each unit must have a closet near the entrance.
    m. In-Suite Laundry: For units with 2 or more bedrooms and all accessible units, electrical, plumbing, and exhaust hook-ups for side-by-side laundry appliances are required.
    n. This already includes Core

(City of Vancouver, 2025)

Unit Type	Size (m²)	Occupants
Studio	32.5 (37 m² for Vancouver)	1 – 2 persons
1-bedroom	55.4 (46 m² for Vanc)	1 – 2 persons
2-bedroom	72.4 (66 m² for Vanc)	2 – 4 persons
3-bedroom	89.2 (84 m² for Vanc)	3 – 5 persons
4-bedroom	105 (105-117 m² for Vanc)	4 – 7 persons

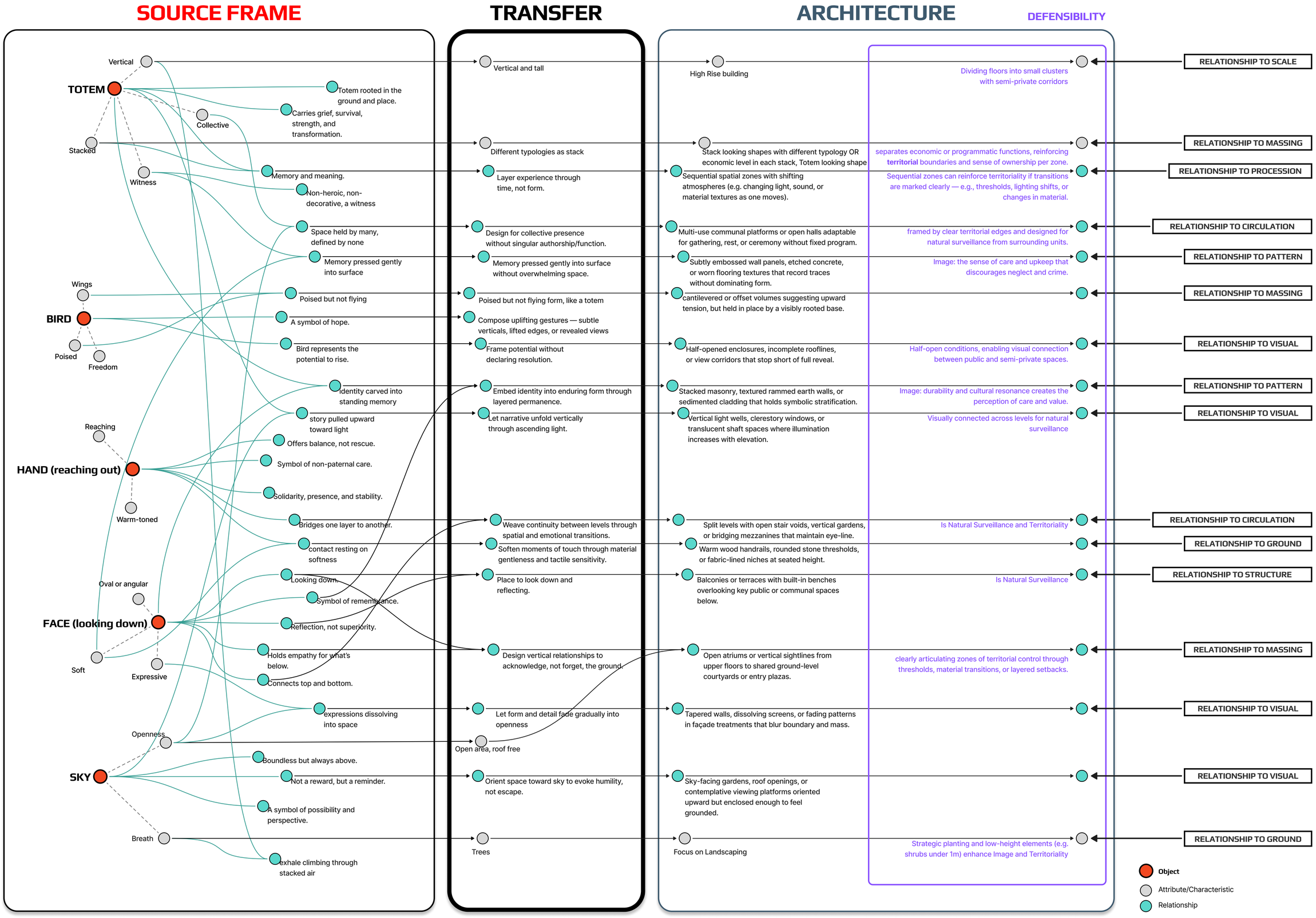
Source: Manitoba Housing (2017), City of Vancouver (2025)

Source: Author (2025), City of Vancouver (2025), & Manitoba Housing (2017)

No	Facilities	Standard Minimum	No. Unit	Area in m2	Note
A	**Retail Mass**			**1500**	
1	Garbage		1	40-60	
	Large room, multiple bins	20	1		
	Access to alleyway				
2	Loading Dock	30	1	80-120	
3	Dollar Store		1	600	
	Aisles and shelving	250	1	420	
	Cashier	15	3 to 4	15	15 is total area
	Storage Room	50	1	105	
	Manager's Office	10	1	9	
	Employee's break room and toilet	12	1	22.5	
4	Thrift Shop		1	500	
	Aisles and shelving	200	1	265	
	Cashier	10	3 to 4	12	12 is total area
	Storage Room for Donations	40	1	160	
	Manager's Office	10	1	8	
	Employee's break room and toilet	12	1	37	
	Changing Room	15	1	18	
5	Café and Bakery		1	200	

	Customer Seating Area	50	1	80	Approx. 100 ppl.
	Order counter and display	15	1	25	
	Kitchen/baking area	40	1	60	
	Food prep and storage room	10	1	15	
	Customer restrooms	10	1	10	
	Employee's break room and toilet	10	1	10	
6	Book Store		1	200	
	Main sales floor	100	1	140	
	Cashier and desk	8	1	20	
	Children section	20	1	25	
	Lower shelving and colorful		1		
	Back office and storage	22	1	15	
B	**Homeless Shelter Mass**		**1**	**4020**	
1	Mechanical Services		1	300	
	Fire sprinkler system		1		
	Electricity		1		
	Water system		1		
2	Shelter Facility 1		1	2280	
	Check-in areas		1	160	
	Common lounge/living area		1	250	For 100 people
	Shared dining hall		1	350	
	Shared kitchen		1	250	
	Case worker offices		1	100	
	Laundry room		1	120	
	Storage rooms		1	200	Around 400 lockers
	Dormitory area		1	750	For 300 people
	Dorm Supervisor Post		1	30	
	Toilets			70	
	Common toilets		6		
	Accessible Toilets		2		
	Showers		10		
	Sinks		20		
3	Shelter Facility 2		1	1440	
	Dormitory area		1	900	For 400 people
	Dorm Supervisor Post		1	50	
	Toilets			490	
	Toilet stalls		12		
	showers		15		
C	**Courtyard**			**1368**	
1	Trees and Relief Space		1		
2	Therapeutic garden		1		
3	Artistic Expression Zone		1		
4	Totem pole spaces		1		
D	**Workshop Center**		**1**	**1440**	
1	Multipurpose Classes		1		
	Technology teaching		2	75	
	General skills		2	60	
	Culinary arts		1	90	
2	Studio Room				
	Carpentry and working space		1	200	
	Textile sewing		1	120	
	Agriculture teaching class		1	150	
3	Storage room for tools		2	60	
4	Office for instructors		1	60	
5	Restrooms		2	20	M/F, 20m2 each
E	**Rehabilitation Center**		**1**	**2880**	
1	Small lobby	20	1	80	
2	Group therapy room	35	1	100	
3	Counseling room	12	5	25	
4	Medical exam room	15	2	25	
5	Patient rooms	30		100	For 30 people
6	Small dining hall and kitchen	50	1	85	
7	Admin office		1	120	
	Reception	10	1	30	
	Meeting Space	15	1	25	
	Work area	20	1	45	

	Storage	8	1	20	
8	Security			40	
	Security office	10	1	20	
	Reception	10	1	20	
9	Toilets			180	
	10-Toilet room	40	1		
	Rehab common areas 2 sets	40	1		20m2 each
	Admin/staff	10	1		5m2 each
	2 Sets common (M/F)	10	1		5m2 each
F	**Buffer Zone**		**2**	**800**	
1	Kitchen	25	1		
2	Dining Hall	60	1		
	Dining Tables				
3	Lounge	50	1		
	TV				
	Sofas				
	Tables				
	Floor mat for children				
4	Laundry room	25	1		4-6 washers and dryers
5	Small gym area	30	1		3-4 equipment
6	Toilets	15	1		
7	Mechanical Services	10	1		
G	**Housing First**		**10**	**800**	
1	Housing First Studio Unit	37	17	37	
	Private keyed entry door				
	Bedroom and living	18	1	18	
	Full bathroom	3.5	1	5	
	Kitchen/kitchenette	4	1	4	
	Storage	1.5	1	3	
	Climate control	0.5	1		
	Balcony	3	1	7	
H	**Social Housing**		**10**	**800**	
	Units				
1	Studio Unit	37	7	40	
2	1-Bedroom Unit	46	3	50	
3	2-Bedroom Unit	66	2	66	
	Each Unit				
	Bedroom	8 to 9	Depends on		
	Full bathroom	3.5	1		
	Kitchen/kitchenette	4	1		
	Storage	1.5	1		
	Balcony	3	1		
	Climate control	0.5	1		
	Laundry room	2	1		
I	**Rooftop**		**2**	**800**	
1	Garden and small trees				
2	Podium				
3	Chess				
4	Tables				
5	Toilets				
6	Mechanical space				
7	Elevator				
J	**Additional**				
1	Core				Already included in each floor
	Elevators		4	10	10 for each shaft
	Hallways	3m width			
	Emergency Stairs				
	Shaft				
	Janitor				
K	**Basement Parking**		**1**	**5000**	
Total Building Space				**34040**	
Total Outdoor Space				**1368**	


SOURCE FRAME
TRANSFER
ARCHITECTURE
DEFENSIBILITY
TOTEM
Vertical
Totem rooted in the ground and place.
Carries grief, survival, strength, and transformation.
Collective
Stacked
Witness
Memory and meaning.
Non-heroic, non-decorative, a witness
BIRD
Wings
Poised
Freedom
Poised but not flying
A symbol of hope.
Bird represents the potential to rise.
HAND (reaching out)
Reaching
Warm-toned
identity carved into standing memory
story pulled upward toward light
Offers balance, not rescue.
Symbol of non-paternal care.
Solidarity, presence, and stability.
Bridges one layer to another.
contact resting on softness
FACE (looking down)
Oval or angular
Soft
Expressive
Looking down.
Symbol of remembrance.
Reflection, not superiority.
Holds empathy for what's below.
Connects top and bottom.
SKY
Openness
expressions dissolving into space
Boundless but always above.
Not a reward, but a reminder.
A symbol of possibility and perspective.
Breath
exhale climbing through stacked air
Space held by many, defined by none
Memory pressed gently into surface
Vertical and tall
Different typologies as stack
Layer experience through time, not form.
Design for collective presence without singular authorship/function.
Memory pressed gently into surface without overwhelming space.
Poised but not flying form, like a totem
Compose uplifting gestures — subtle verticals, lifted edges, or revealed views
Frame potential without declaring resolution.
Embed identity into enduring form through layered permanence.
Let narrative unfold vertically through ascending light.
Weave continuity between levels through spatial and emotional transitions.
Soften moments of touch through material gentleness and tactile sensitivity.
Place to look down and reflecting.
Design vertical relationships to acknowledge, not forget, the ground.
Let form and detail fade gradually into openness
Open area, roof free
Orient space toward sky to evoke humility, not escape.
Trees
High Rise building
Stack looking shapes with different typology OR economic level in each stack, Totem looking shape
Sequential spatial zones with shifting atmospheres (e.g. changing light, sound, or material textures as one moves).
Multi-use communal platforms or open halls adaptable for gathering, rest, or ceremony without fixed program.
Subtly embossed wall panels, etched concrete, or worn flooring textures that record traces without dominating form.
cantilevered or offset volumes suggesting upward tension, but held in place by a visibly rooted base.
Half-opened enclosures, incomplete rooflines, or view corridors that stop short of full reveal.
Stacked masonry, textured rammed earth walls, or sedimented cladding that holds symbolic stratification.
Vertical light wells, clerestory windows, or translucent shaft spaces where illumination increases with elevation.
Split levels with open stair voids, vertical gardens, or bridging mezzanines that maintain eye-line.
Warm wood handrails, rounded stone thresholds, or fabric-lined niches at seated height.
Balconies or terraces with built-in benches overlooking key public or communal spaces below.
Open atriums or vertical sightlines from upper floors to shared ground-level courtyards or entry plazas.
Tapered walls, dissolving screens, or fading patterns in façade treatments that blur boundary and mass.
Sky-facing gardens, roof openings, or contemplative viewing platforms oriented upward but enclosed enough to feel grounded.
Focus on Landscaping
Dividing floors into small clusters with semi-private corridors
separates economic or programmatic functions, reinforcing territorial boundaries and sense of ownership per zone.
Sequential zones can reinforce territoriality if transitions are marked clearly — e.g., thresholds, lighting shifts, or changes in material.
framed by clear territorial edges and designed for natural surveillance from surrounding units.
Image: the sense of care and upkeep that discourages neglect and crime.
Half-open conditions, enabling visual connection between public and semi-private spaces.
Image: durability and cultural resonance creates the perception of care and value.
Visually connected across levels for natural surveillance
Is Natural Surveillance and Territoriality
Is Natural Surveillance
clearly articulating zones of territorial control through thresholds, material transitions, or layered setbacks.
Strategic planting and low-height elements (e.g. shrubs under 1m) enhance Image and Territoriality
RELATIONSHIP TO SCALE
RELATIONSHIP TO MASSING
RELATIONSHIP TO PROCESSION
RELATIONSHIP TO CIRCULATION
RELATIONSHIP TO PATTERN
RELATIONSHIP TO MASSING
RELATIONSHIP TO VISUAL
RELATIONSHIP TO PATTERN
RELATIONSHIP TO VISUAL
RELATIONSHIP TO CIRCULATION
RELATIONSHIP TO GROUND
RELATIONSHIP TO STRUCTURE
RELATIONSHIP TO MASSING
RELATIONSHIP TO VISUAL
RELATIONSHIP TO VISUAL
RELATIONSHIP TO GROUND
Object
Attribute/Characteristic
Relationship

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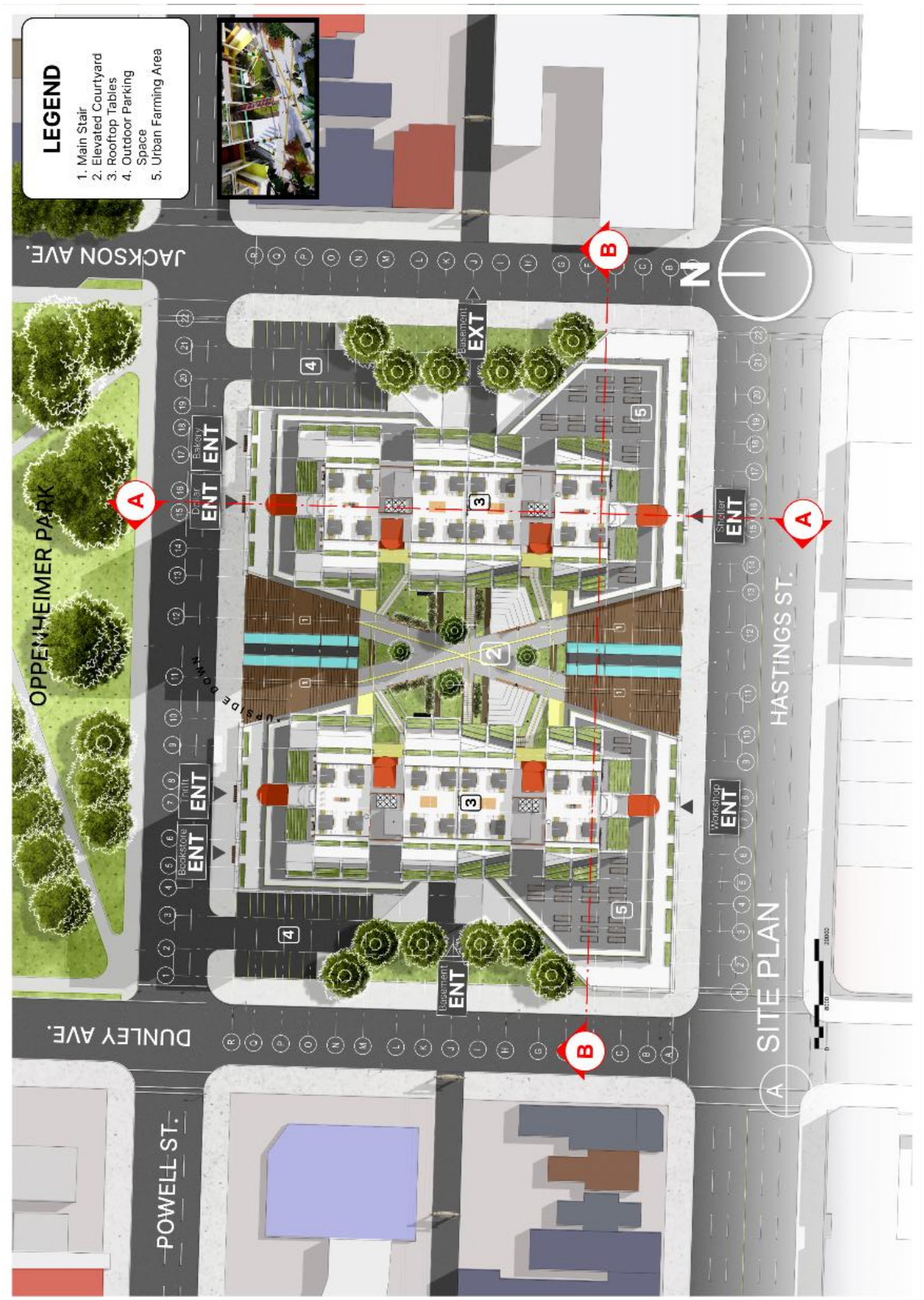
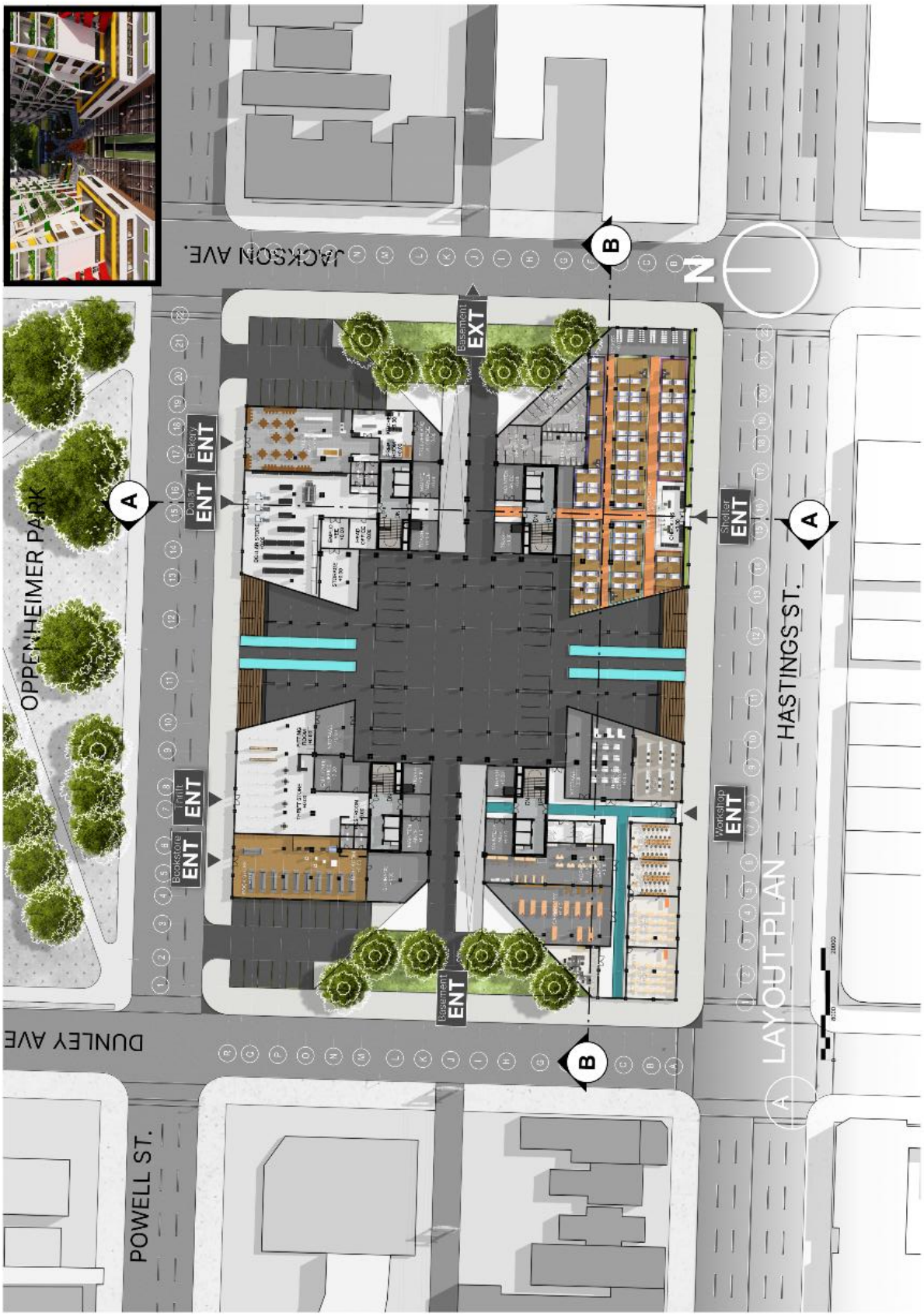
APPENDIX E SCHEMATICS DRAWINGS

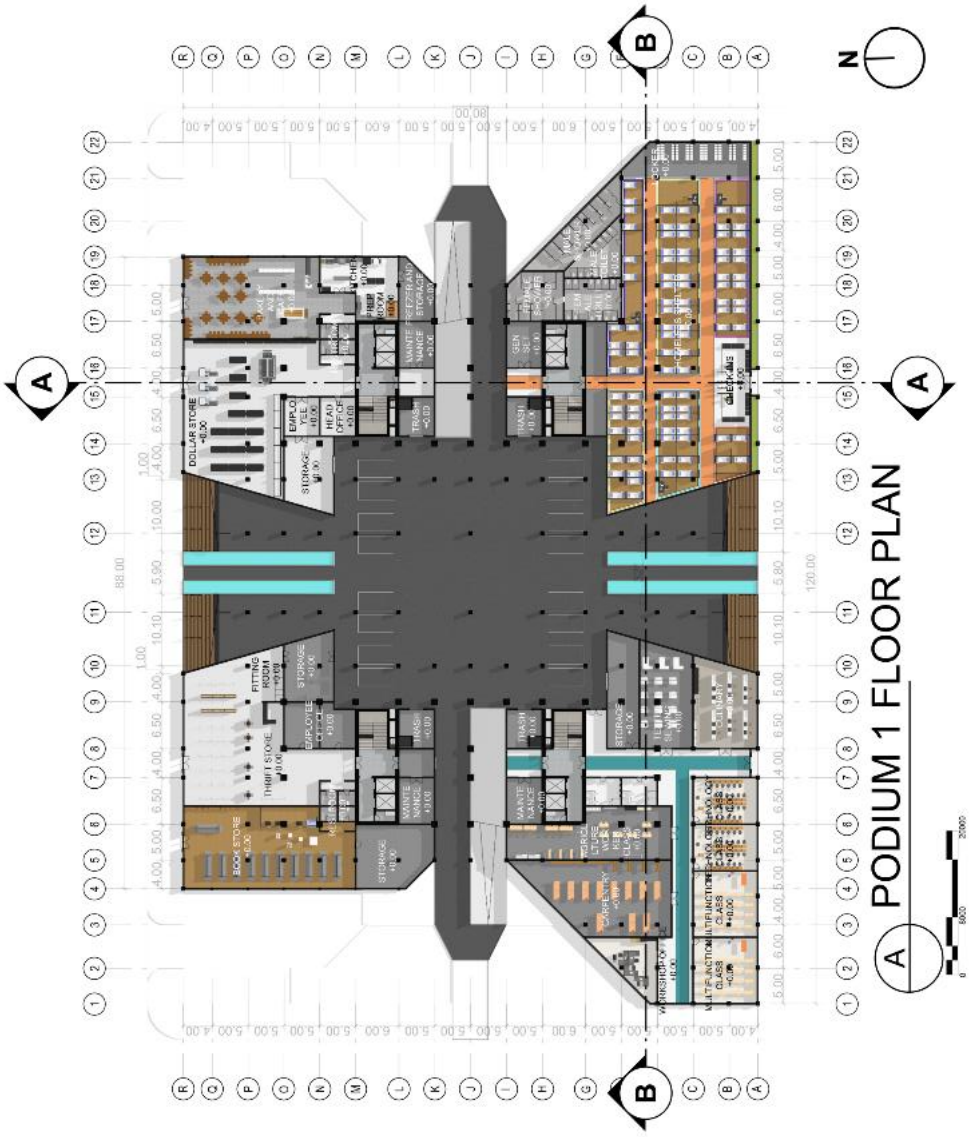
1. Site Plan



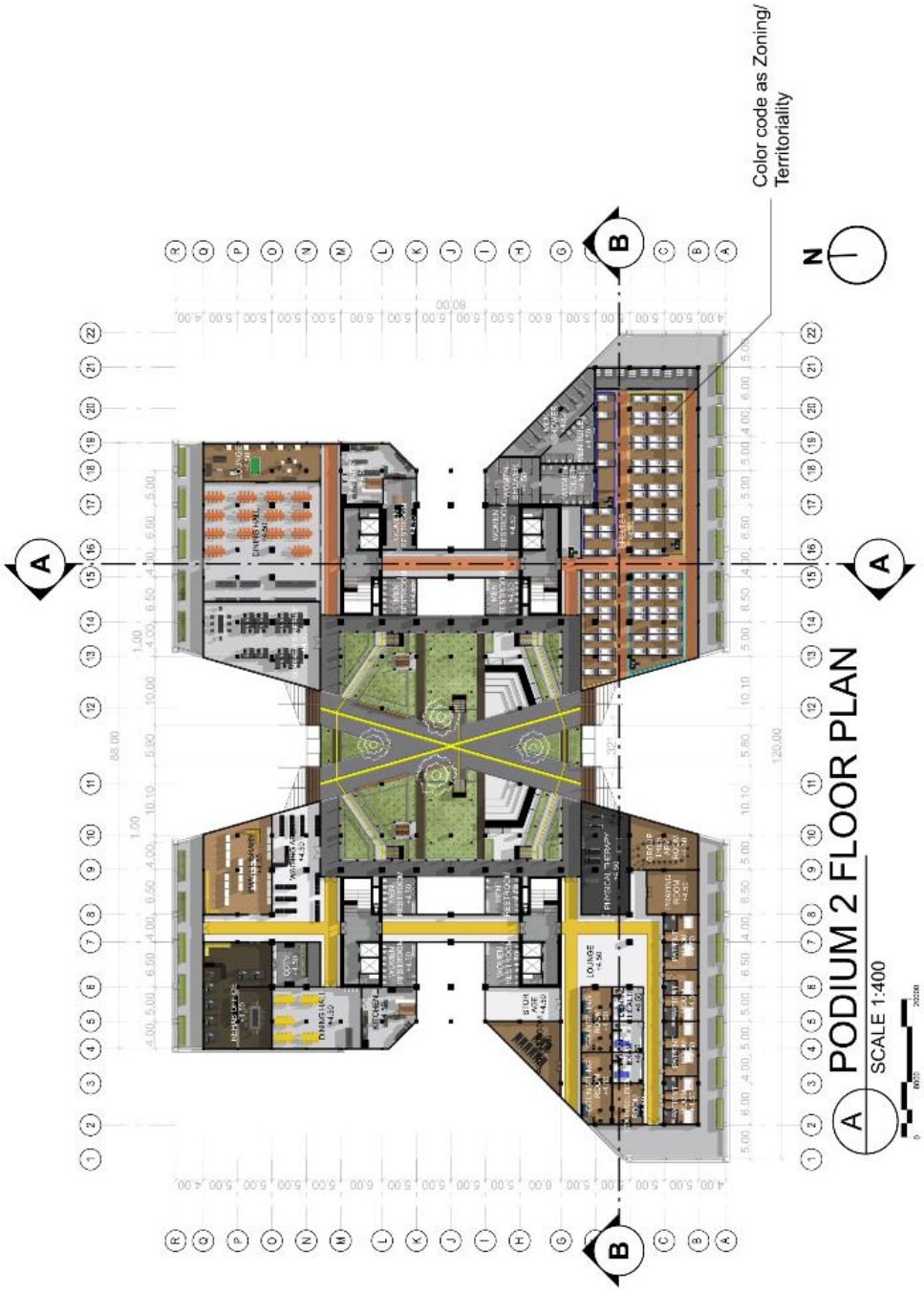
2. **Layout Plan**



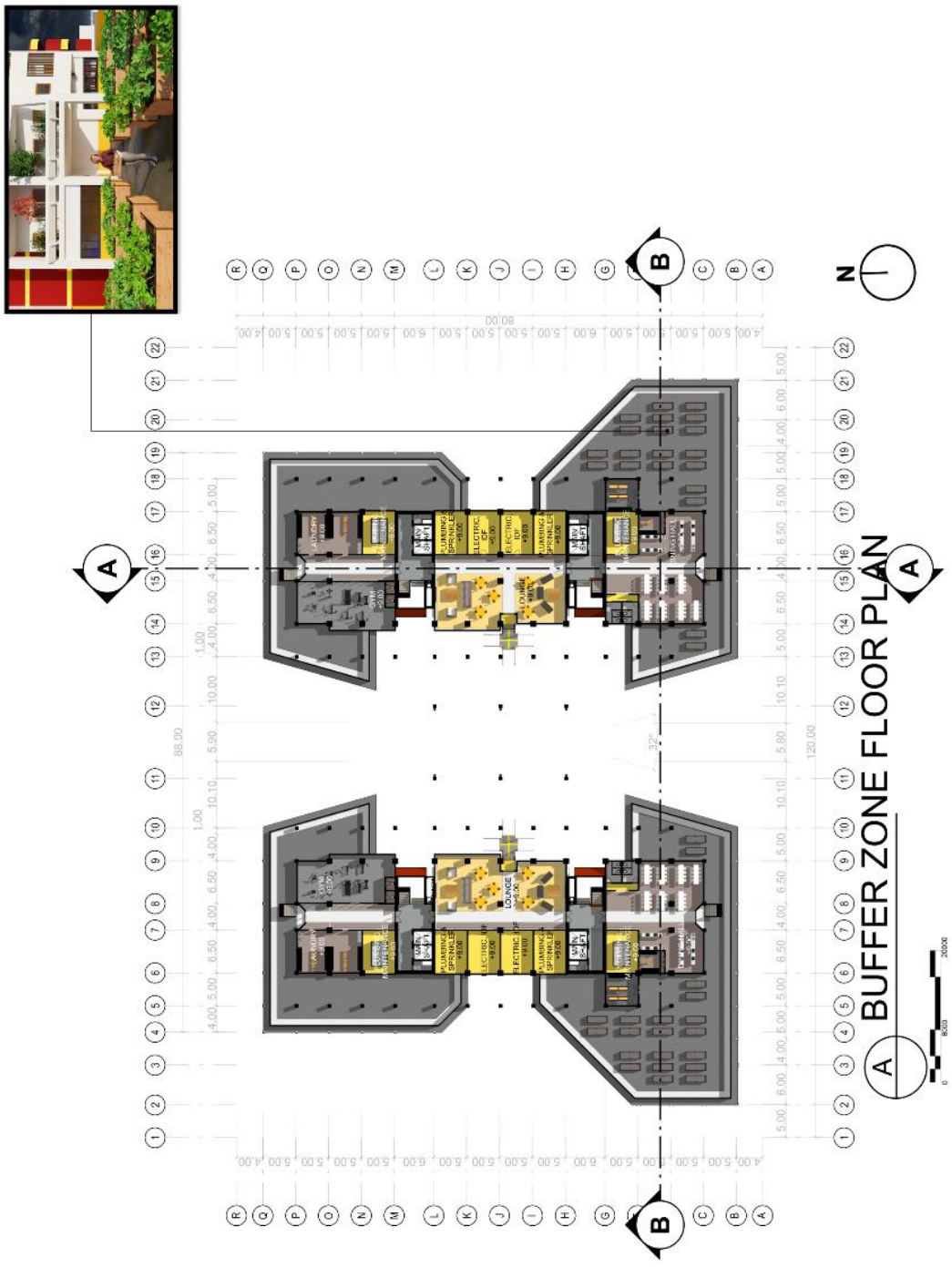
3. **Podium 1 Floor Plan**



4. **Podium 2 Floor Plan**



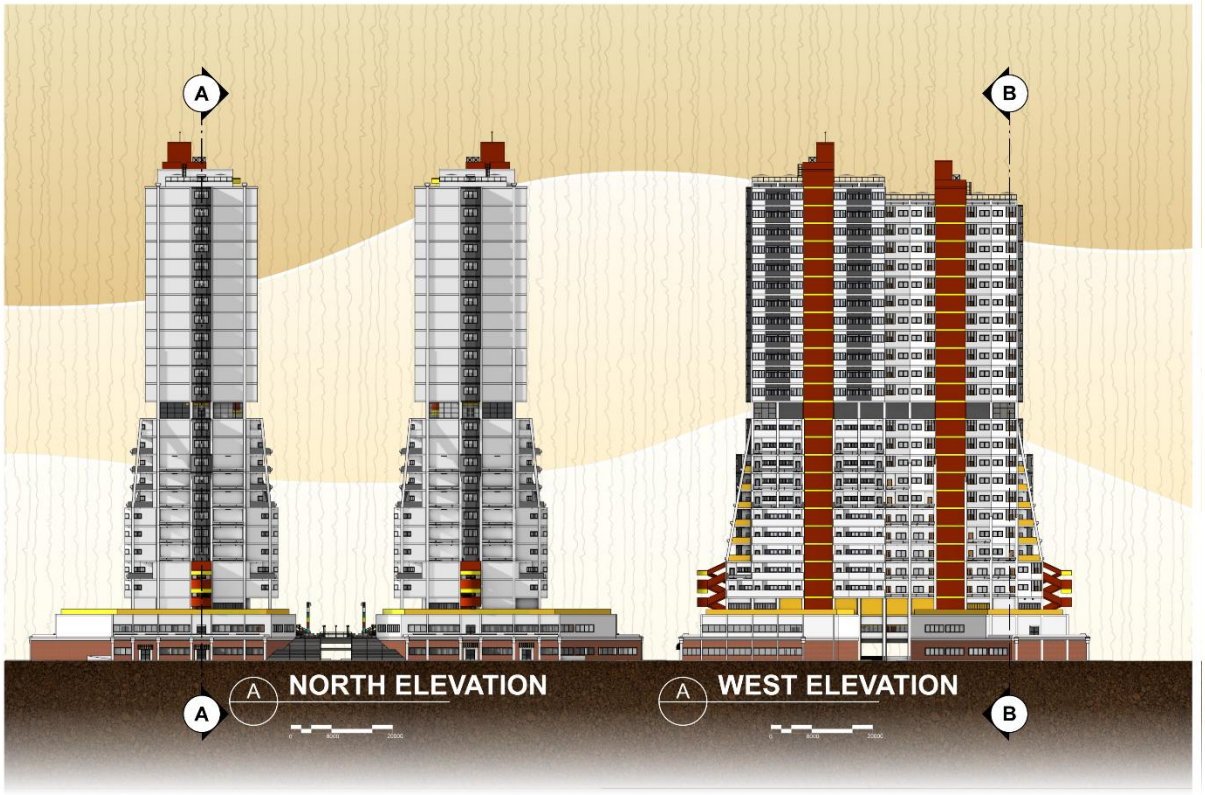
5. **Buffer Zone Floor Plan**

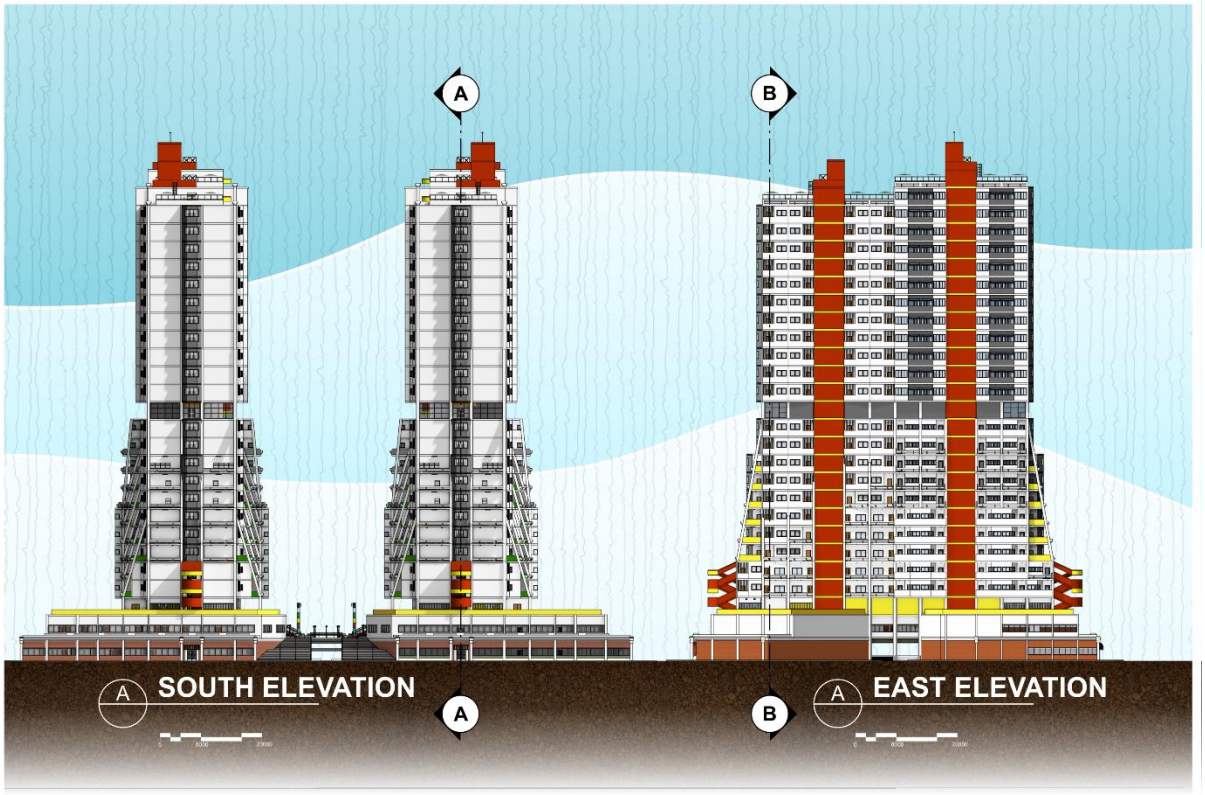


6. **Section Plan**

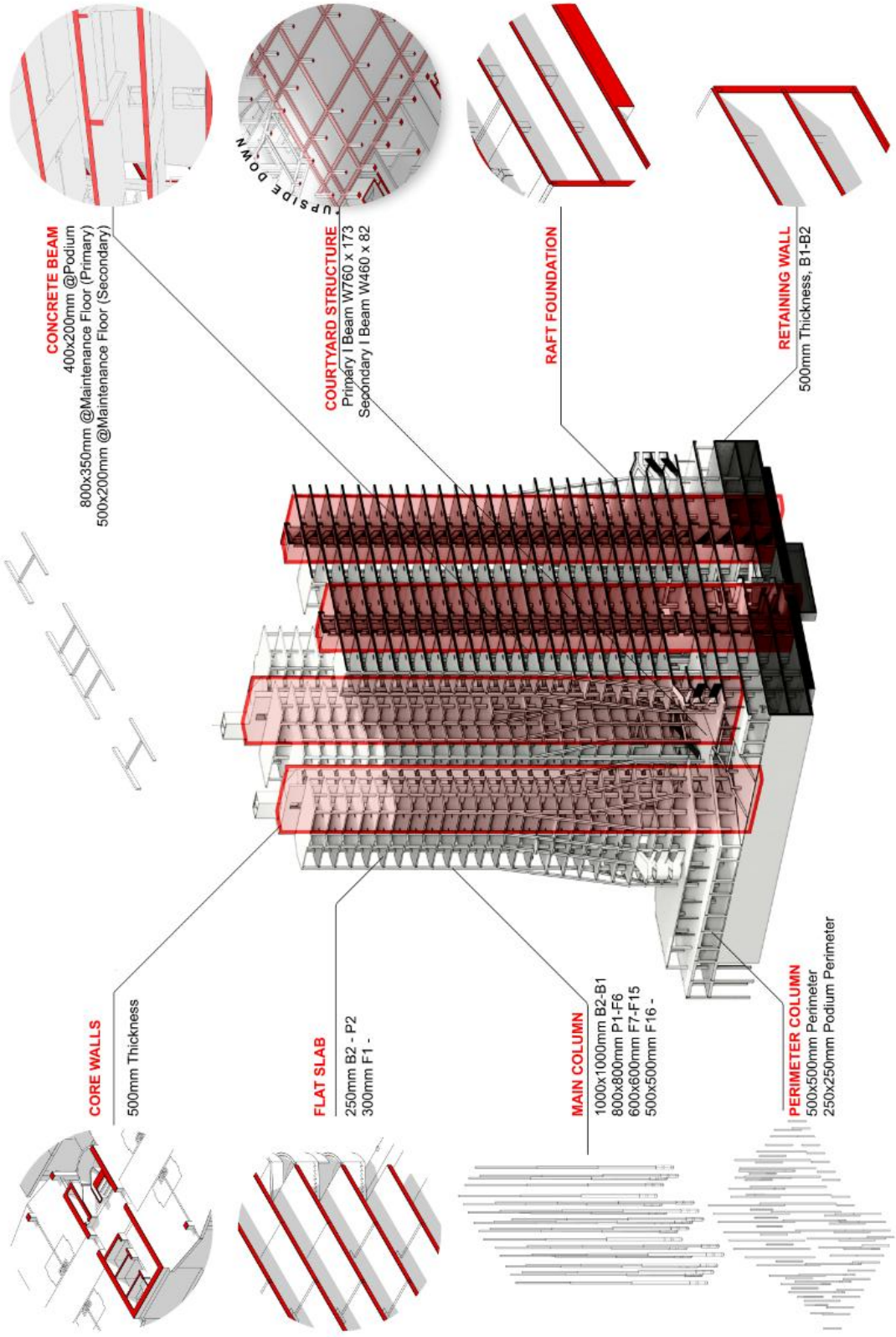
A 3D SECTION B-B

7. Elevations

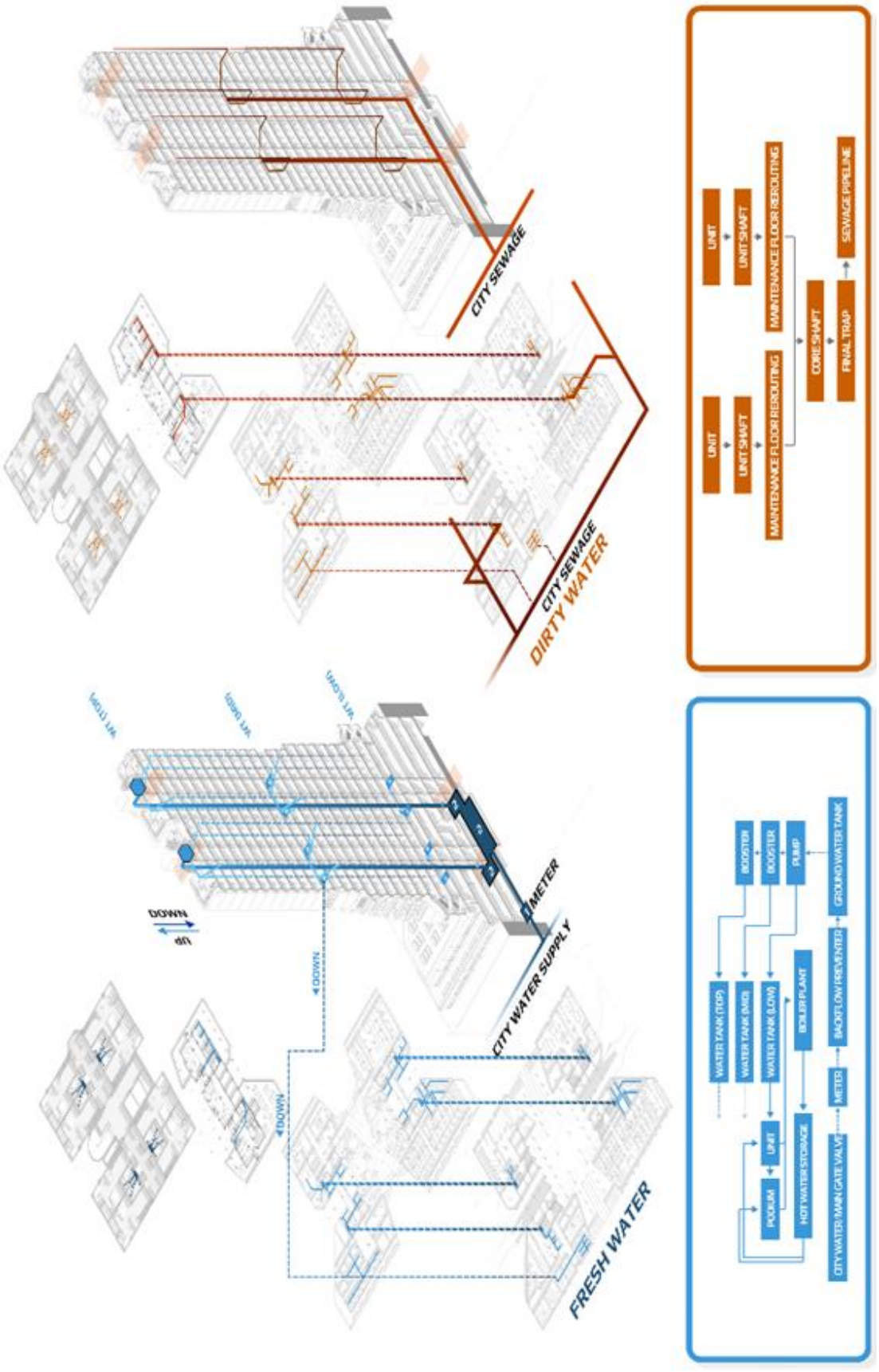


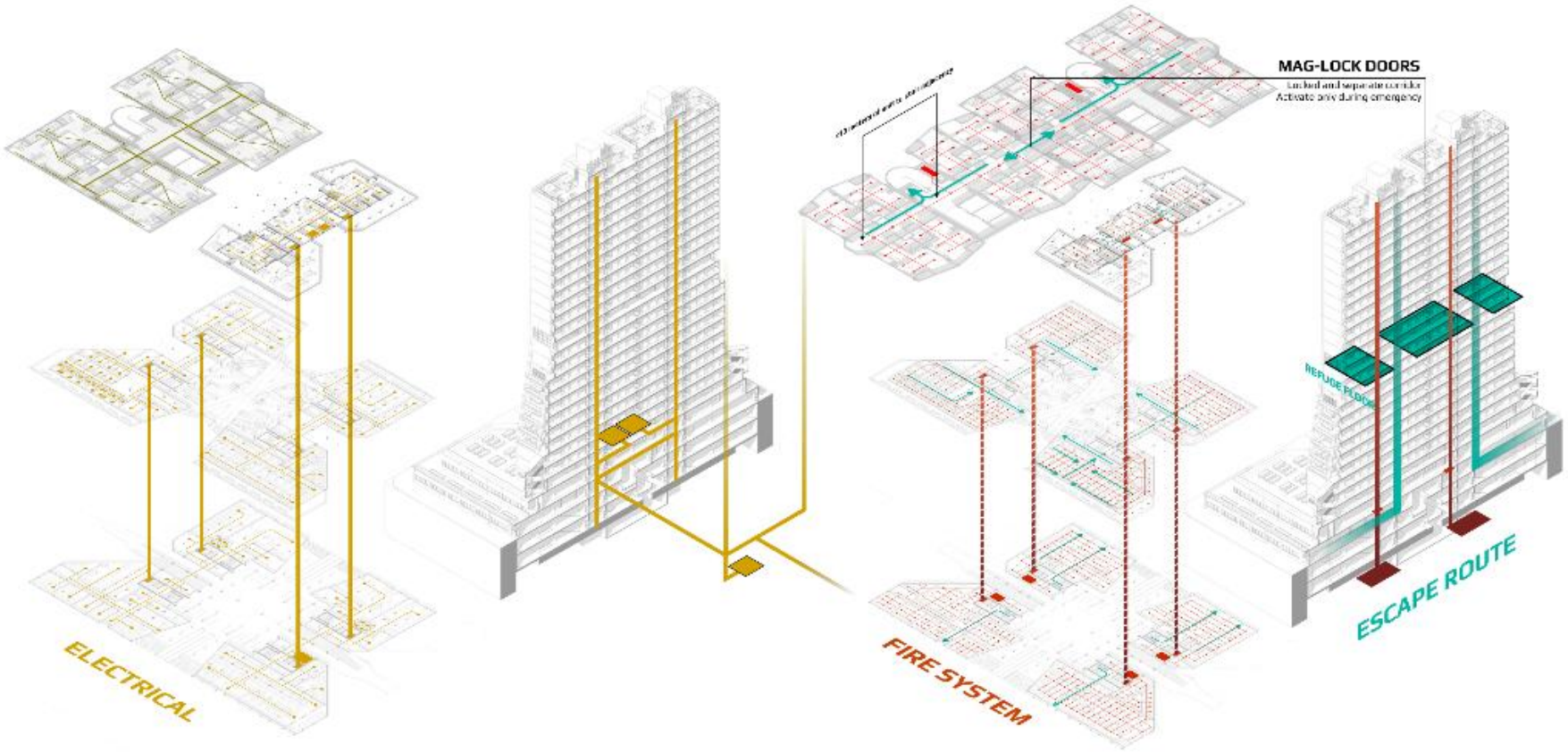


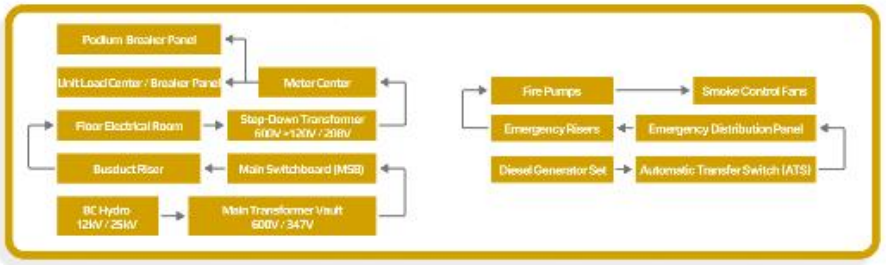
8. **Structural Diagrams**

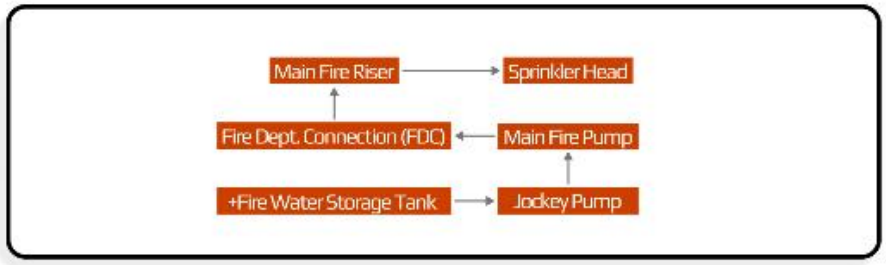


9. Utility Diagrams




MAG-LOCK DOORS
ELECTRICAL
FIRE SYSTEM
ESCAPE ROUTE


Podium Breaker Panel
Unit Load Center / Breaker Panel
Meter Center
Floor Electrical Room
Busduct Riser
Main Switchboard (MSB)
BC Hydro
12kV / 25kV
Main Transformer Vault
600V / 347V
Fire Pumps
Smoke Control Fans
Emergency Risers
Emergency Distribution Panel
Diesel Generator Set
Automatic Transfer Switch (ATS)


Main Fire Riser
Sprinkler Head
Fire Dept. Connection (FDC)
Main Fire Pump
+Fire Water Storage Tank
Jockey Pump

FINAL PROJECT REVISION SHEET

STUDENT NAME : **AHMAD NAZALA RIZKY FAJRIN**

REGISTRATION NO. : **5013211048**

FINAL PROJECT TITLE : **CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING**

SUPERVISOR : **FARDILLA RIZQIYAH, S.T., M.T.**

No.	REVISION
1.	***Note*** **:** Elaborate on the architectural translation of the Totem Pole figures specifically whether it extends beyond a mere visual metaphor, and explain how this symbolism integrates with Defensible Space theory; do these concepts operate in parallel or do they overlap to reinforce one another? ***Response*** **:** The Totem Pole concept is applied as a vertical zoning strategy rather than just visual ornamentation, utilizing "Domain-to-Domain Transfer" to translate symbols like the Frog, Beaver, and Wolf into functional spatial programs. This methodology ensures that symbolism serves as an operational tool for organizing the building's hierarchy rather than acting as mere decoration. *(See Subchapter:* ***4.1.3 Design Concept)***
2.	***Note*** **:** How does the design ensure that "Defensible Space" functions as a concrete social mechanism rather than just a visual metaphor, particularly given that the spatial distinctions between private, semi-private, and public zones currently appear unclear? ***Response*** **:** Newman's Defensible Space is applied as a rigid behavioral control system through physical design rather than metaphor. Territorial definitions are enforced by "Pony Walls" and porches that clearly delineate semi-private zones within corridors, while the massing establishes a strict hierarchy from public podiums to private residential clusters. Additionally, the unique Totem facade satisfies the "Image" principle, fostering resident pride to naturally deter vandalism. *(See Subchapter:* ***4.1.5 Massing)***
3.	***Note*** **:** How does the project address the surrounding urban context, particularly regarding building heights, given that the current proposal appears to focus solely on the building itself without clearly illustrating whether its height is average or imposes a significant visual impact relative to the existing neighborhood? ***Response*** **:** Located in the Downtown Eastside/Oppenheimer District (DEOD), which permits heights of up to 32 stories, the project responds to the surrounding mid-to-high density context by establishing a vertical landmark. Urban integration is preserved through a podium mass designed to respect the pedestrian scale, while balcony

	orientations provide passive surveillance ("Eyes on the Park") over the adjacent public park. *(See Appendix: **Appendix A, Page 43**)*

Surabaya, 30 January 2025
Examiner,

Dr.Eng. Didit Novianto, S.T., M.Eng.

FINAL PROJECT REVISION SHEET

STUDENT NAME : **AHMAD NAZALA RIZKY FAJRIN**

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No.	REVISION
1.	***Note*** **:** Why is it vertical with a highly environment in here? ***Response*** **:** A highly controlled environment is established not as a restriction, but as a protective "fortress" against external threats, serving as a necessary prerequisite for autonomy among residents recovering from trauma. This stable ecosystem eliminates street-level chaos through layered access, while the high-rise typology restores dignity by providing privileged mountain and ocean views, typically reserved for the wealthy and granting individual territorial control through private unit porches. *(See Subchapter:* ***4.2.5 Details****)*
2.	***Note*** **:** Given that most Housing First precedents are low to mid-rise, what specific problems does a high-rise typology solve that horizontal planning cannot? ***Response*** **:** The high-rise typology generates the critical mass necessary to sustain 24/7 on-site support services, thereby eliminating the relapse risks associated with commuting for care. Furthermore, vertical elevation physically dissociates residents from street-level triggers, fostering a psychological shift from "street victim" to "citizen" through a restorative bird's-eye perspective that breaks the visual connection to past trauma. There are also vulnerabilities of low-rise structures where the boundary between street-level threats and residential units is perilously thin. By increasing physical separation from urban trauma triggers, the design adapts Oscar Newman's typically horizontal concept of territoriality into a protective system of "Vertical Clusters." *(See Subchapter:* ***4.1.5 Massing****)*
3.	***Note*** **:** How are you sure that Pruitt-Igoe mistake will not be repeated again? ***Response*** **:** The failure of Pruitt-Igoe was not inherent to its verticality but to its violation of Defensible Space principles, which this project rigorously rectifies by eliminating the anonymous "no-man's land" that breeds crime. Unlike Pruitt-Igoe's dangerous skip-stop elevators and isolated corridors, this design fragments floor plates into small clusters of 8-10 units to enforce intruder recognition and maximizes visual permeability through open staircases and voids. Furthermore, the project prevents

	social isolation by integrating public retail and mixing demographics, ensuring that working-class residents provide the social stability and surveillance that were absent in Pruitt-Igoe's homogenous population. *(See Subchapter: **4.1.5 Massing**)*

Surabaya, 30 January 2025
Examiner,

Adinda Sih Pinasti Retno Utami, S.T., M.T..

FINAL PROJECT REVISION SHEET

STUDENT NAME : **AHMAD NAZALA RIZKY FAJRIN**

REGISTRATION NO. : **5013211048**

FINAL PROJECT TITLE : **CRIME AND DRUG ADDICTED HOMELESSNESS IN VANCOUVER: AN APARTMENT HOUSING**

SUPERVISOR : **FARDILLA RIZQIYAH, S.T., M.T.**

No.	REVISION
1.	***Note*** *:* Detail the user demography and social composition of the complex, specifically addressing the building's maximum capacity, the percentage of residents experiencing homelessness or drug use, and the socio-cultural background of the community, including immigrant and First Nation populations? ***Response*** *:* The project is designed as a large-scale mixed-tenure community comprising 760 residential units and a separate shelter, accommodating approximately 1,688 permanent residents and 368 emergency guests. To ensure operational stability, the demographic composition applies to a specific ratio where 63% of the population are general Social Housing residents acting as a "social anchor," while 37% are supported Housing First residents. Additionally, the podium level features a 368-person emergency shelter that serves as a transitional zone for intake before individuals are ready to progress to permanent housing. *(See Subchapter:* ***4.2.8 Demographics and Capacity)***
2.	***Note*** *:* The economic logic regarding affordability and tenure, specifically detailing the unit ownership scheme, whether it is fully subsidized, rented, or time limited as well as the protocols for residents who relapse or lose income, and how these factors integrate with existing Vancouver programs? ***Response*** *:* The project adopts BC Housing's tiered tenure model, utilizing a "graduation scheme" for Housing First residents that progresses from fully subsidized living during survival stages to flat rates and eventually income-based payments as they achieve stability. For general Social Housing, the project enforces a Rent-Geared-to-Income (RGI) system that caps rent at 30% of gross household income, ensuring that rent obligations automatically decrease to prevent eviction if a resident faces income loss or relapses. This flexible economic logic allows for a transitional approach, where high-income earners eventually "graduate" to market housing while vulnerable residents remain protected by month-to-month contracts and annual income reviews. *(See Subchapter:* ***4.2.9 Economics)***
3.	***Note*** *: Mobility and private vehicle assumption*

	Response **:** Mobility strategies prioritize the Vancouver Translink system and Downtown walkability, aligning with the economic profile of the Low Income and Housing First residents. Consequently, private vehicle capacity is intentionally limited to below standard ratios, providing a total of 444 slots for the 760 residential units and commercial functions. To optimize spatial efficiency, the layout favors compact vehicles, consisting of 240 small, slanted spots, 104 large, slanted spots, 68 parallel spots, and 32 outdoor public spaces. *(See Subchapter:* ***4.2.8 Demographics and Capacity)***
4.	***Note*** **:** The fundamental differences between the Housing First and Social Housing models, particularly regarding how architectural design choices influence resident behavior? ***Response*** **:** Housing First units prioritize survival and harm reduction through "tamper-proof" safety features, such as ceiling-mounted heating, louvred balconies, and wet bathrooms designed to mitigate risks associated with intoxication. In contrast, Social Housing units focus on retention and dignity by replicating market-rate apartment standards for long-term comfort. These spaces feature aesthetic and functional upgrades, including underfloor heating, luxury vinyl flooring, and increased storage capacity to accommodate personal belongings. *(See Subchapter:* ***4.2.5 Details)***
5.	***Note*** **:** Connection with surroundings, how is the urban integration ***Response*** **:** Positioned south of Oppenheimer Park, the project integrates with the Downtown Eastside ecosystem, serving as a complementary extension rather than an isolated enclave. The design ensures safety and community connection through park-facing balconies that provide passive surveillance and a fluid ground-floor threshold. Additionally, active retail frontages revitalize the streetscape, attracting public foot traffic to create a safer and more vibrant pedestrian environment. *(See Subchapter:* ***4.2.2 Site Plan and Layout)***

Surabaya, 30 January 2025
Examiner,

Khusnul Hanifati, S.T., M.Ars.

AUTHOR BIOGRAPHY

The author was born in Depok, May 19th, 2004, the first child of 2 siblings. The author has undergone formal education, namely in SD Curug 03, SMP 02 Depok, and SMA 6 Depok After graduating from high school in 2021, the author took the SBMPTN and was accepted at the Department of Architecture FT-SPK ITS in 2021 and registered with NRP 5013211048.

In the Department of Architecture, the author was active in several academics and non-academics activities such as sketch competition, architecture competition, event organizing, and exchange study scholarship to Canada.