

SOCIOGENETIC ARCHITECTURE

fostering connection in urban dwelling



SOCIOGENETIC ARCHITECTURE
FOSTERING CONNECTION IN URBAN DWELLING

by

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SOCIOGENETIC ARCHITECTURE:
Fostering Connection in Urban Dwelling
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Joseph Ball
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ABSTRACT

Modern global metropolises like Toronto are constructing high-density condominium towers to accommodate rampant population growth and to combat the economic, environmental, and social complications associated with sprawl. However, the rapid adoption of the point-tower condominium as a solution to this densification has led to progressively smaller dwelling units poorly suited to family life, and a dwindling supply of shared spaces to provide recreation and respite. Point towers are not conducive to a sense of community between residents, or supportive of the spontaneous social interaction particularly important for children and youth. This thesis investigates design strategies that promote high-density urban living for families and communities. A terraced courtyard typology provides overlook and a gradient of privacy to residents. Transitional recreational spaces provide the amenity, sense of place, community, and therapeutic social benefits of open shared space. The sight and sound of others in these communal spaces encourages social interaction.

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DEDICATION

This work is dedicated to my love Shannon, who makes every day better.

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1 • INTRODUCTION

This section outlines the contextual milieu, current trends, and objectives of the thesis. It expands on the abstract, adding depth and context, and gives indication as to the order of discussion and purpose of the subsequent sections of this thesis.



1.1. CONTEXT: DENSIFICATION

The populations of major global cities have been increasing at a rapid rate ever since the industrial revolution, with large numbers of the population relocating from rural areas to more concentrated urban centres. The population of Canada is projected to increase significantly over the coming years and Ontario is the most populous of the provinces. “Ontario’s population is projected to grow by 30.3 per cent, or more than 4.2 million, over the next 25 years.”¹

Toronto, already Canada’s largest city, is set to increase in density. “Toronto’s population is projected to rise from 2.88 million in 2016 to 3.89 million in 2041, an increase of 35.1 per cent, slightly faster than the provincial growth rate.”² Figure 1-3 illustrates this decline in rural population growth and the considerable shift towards urban living in the proximate future.-

1 Ontario Ministry of Finance, “Ontario Population Projections,” 6.

2 Ontario Ministry of Finance, 14.

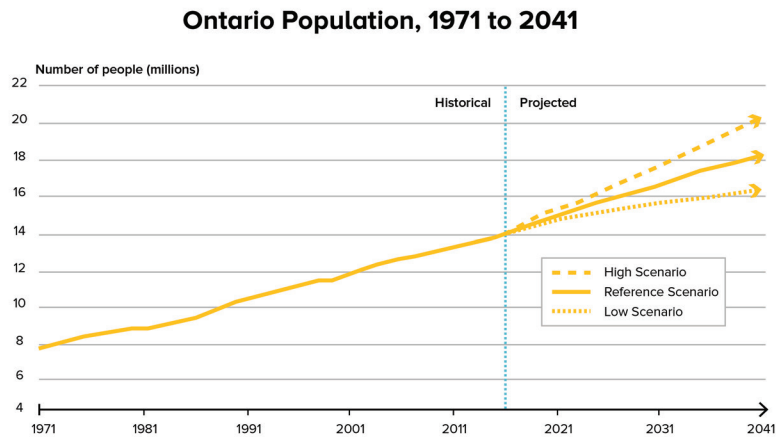


Fig. 1-2 Ontario Population, 1971 to 2041

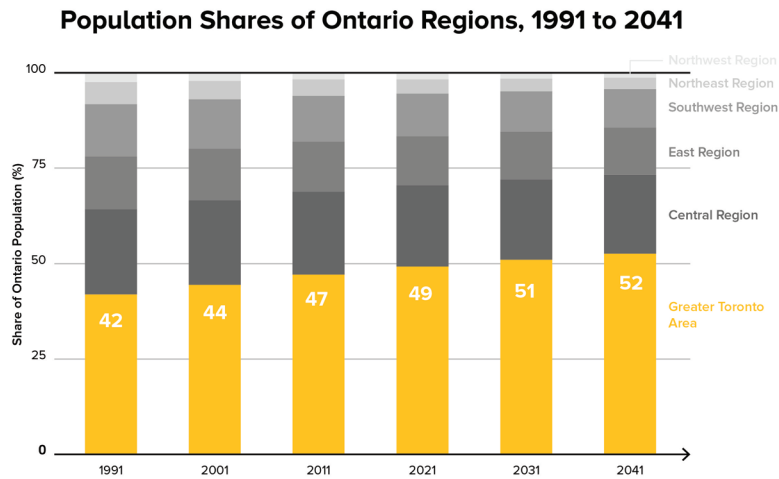


Fig. 1-3 Population Shares of Ontario Regions, 1991 to 2041

This increase in density in the urban core of Toronto has thus far been met with a blanket architectural response—the hyper-development of the urban core with high-rise condominiums. Katerina Cizek, the Toronto-based director of the National Film Board’s Highrise project, sees Canada quickly becoming a so-called high-rise nation. “When Canadians think ‘high-rise nation,’ we tend to look elsewhere, and imagine the density of Singapore, New York City or Hong Kong. Yet, Toronto’s downtown St. James Town neighbourhood has a density of 63,765 people per square kilometre, compared with Hong Kong’s densest district, Kwun Tong, at 57,250.”³ It is not just the tower blocks of St. Jamestown. In fact, Toronto is undergoing an unprecedented boom of high-rise condominium construction in the downtown core, fueled by the increase in people wanting to live downtown. “...Since 2000, a total of 80,762 condo units have been built or are under construction, while nearly 72,000 more are in the planning stages. And all of that construction is located in an area measuring less than 25 square kilometres.”⁴ Condos are swiftly becoming the most numerous housing type in the GTA. This typology certainly increases the quantitative—the capacity for the City to accept newcomers. However, the qualitative aspects of urban design—those that increase the quality of life of the people actually living in and around these developments—are often secondary considerations.

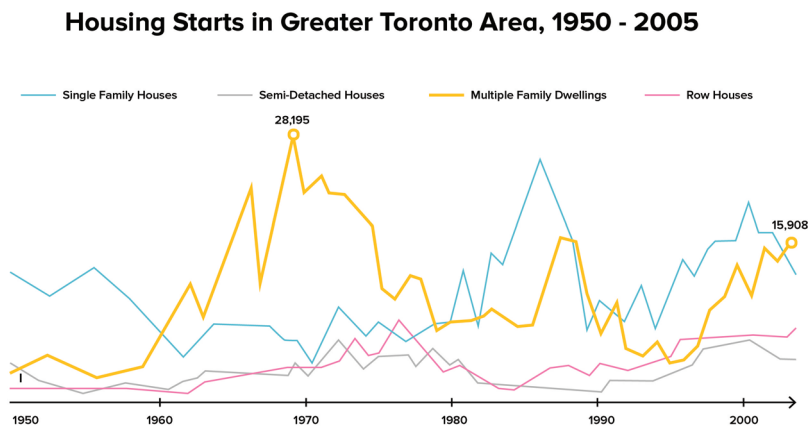


Fig. 1-4 Housing Starts in the GTA

3 Cizek, “We Should Recognize Canada as a Nation of Highrise-Dwellers.”

4 Preville, “The Divided City: Toronto’s Gilded Age Never Made It to the Suburbs.”

1.2. CRITIQUE: CONDOMINIUM CITY

The explosion of the high-rise condominium typology has led to gradually smaller and narrower units poorly suited to family life or shared accommodations, and a diminishing amount of acceptable landscaped open space at the core to provide recreation and respite for this densifying population. This growing scarcity of either private or communal outdoor space to accommodate the recreational needs of this population has led to the growing problem of isolation in the urban core. There are several factors that contribute to this isolation:

Vertical Stratification

Vertical stratification is the separation of a high-rise resident from the ground plane, and from their adjacent neighbours—a severing of a sense of connection with a communal street.

Determinant Circulation

Determinant Circulation refers to the observation that efficiency in circulation—both horizontal and vertical—largely prescribes the form and configuration of high-density residential building design. The lack of a hierarchy of threshold spaces to transition people from the elevator to their units, often inhibits people from interacting with one another despite their proximity.

Declining Supportive Spaces

As more high-density buildings are erected and the population of the urban core densifies, more people will need to use the same limited number of proximate public spaces and amenities—or supportive spaces. The highrise tower typology compounds the sense of social isolation despite the proximity of people to one another. Communal spaces in these buildings are typically inadequate in size, variety and amenity. Insufficient nearby public amenities become a coveted resource.

Unit Uniformity

There is a glut of single-bedroom dwellings, all sharing similar layouts, dimensions and gross floor areas. However, this configuration does not react to the way in which the city is changing—there are major urban demographic shifts that are exacerbating the low variety of living options.

The Automotive City

The North American city was built for the automobile. Traffic planners and commissioners in the early 20th century wielded great power in shaping cities around vehicular traffic, and pedestrians were not prioritized.

Neighbourhood Homogeneity

Many pockets of the city are largely homogenous in purpose. When it comes to the design of large-scale city blocks, care should be taken to diversify the program of these areas. The risk with homogenous neighbourhoods is that if an area contains primarily one programmatic function—business-hours shops for example—this area will cease to be a lively and energized place when business hours are over.

1.3. CHALLENGE: SEEKING AN ALTERNATIVE

If the shift towards condo development is left unchecked, alternatives to the condo living condition in the downtown core will soon become scarce. “One does not have to be clairvoyant to foresee that the swift and unyielding Condominiumization of Toronto has all the right ingredients to become a recipe for the future’s past mistake on a scale that will likely dwarf the Gardiner.”⁵ Unfortunately, it is difficult to imagine working outside of the framework provided by precedents and legislation. “As long as condos sell there is no incentive to change anything, and as long as there is nothing else on the market, people will buy what’s available.”⁶ And that is the necessary step—a better solution needs to be conceived and explored. Urban centres need not be dominated by the high-rise. Paris and Barcelona are examples of cities that build extremely high density with low rise buildings. There is a missing middle that needs be investigated.

Is there a new typology that can add density to a city like Toronto at a more pedestrian-friendly level, perhaps over a larger surface area?

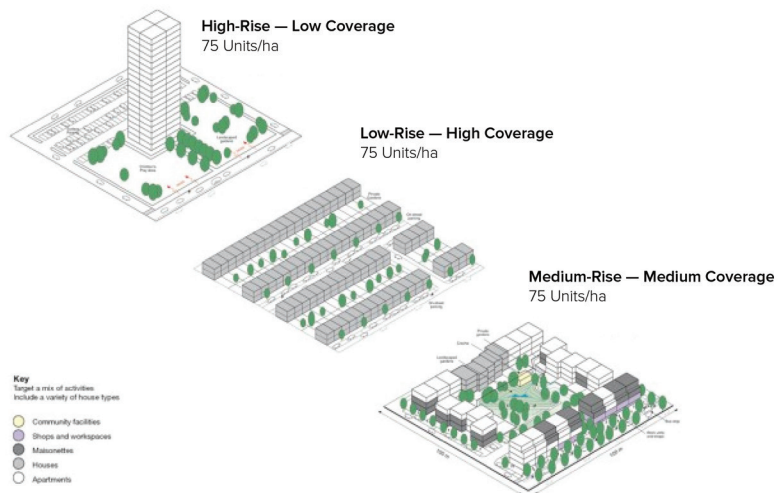


Fig. 1-5 Residential Housing Density

⁵ Ibelings and PARTISANS, *Rise and Sprawl: The Condominiumization of Toronto*, 39.

⁶ Ibelings and PARTISANS, 19.

Conceivably there is hope in alternative, mid-density solutions. A recent report by the Fraser Institute, a Conservative think tank based in British Columbia, compared the population density of high-income cities. It noted that “density doesn’t necessarily correlate to a lower standard of living.” According to the report, all the cities included were identified as high-income by the World Bank last year and each had a population of at least 600,000.⁷ When cross-referenced with annual livability study “Mercer’s Quality of Living Ranking”, an interesting trend appears. It is not the densest cities with the most towers that maintain the highest quality of living. In fact, it is those cities known for a typology for high-density living that runs perpendicular to the ‘high-rise condominium’ trend in cities like Toronto. Josef Filipowicz, author of the report, agrees that high-density living can take many different forms. “Traditionally Brooklyn’s not associated with skyscrapers. It’s known for the brownstone apartments and townhomes. Density doesn’t have to take any particular shape or form. It can offer a whole number of different shapes. That’s ultimately up to the people producing that density, either builders or the city staff.”⁸ Paris is

7 Kalinowski, “Scooch over: Toronto Has Room for More Density, Study Says.”

8 Qtd. in Kalinowski.

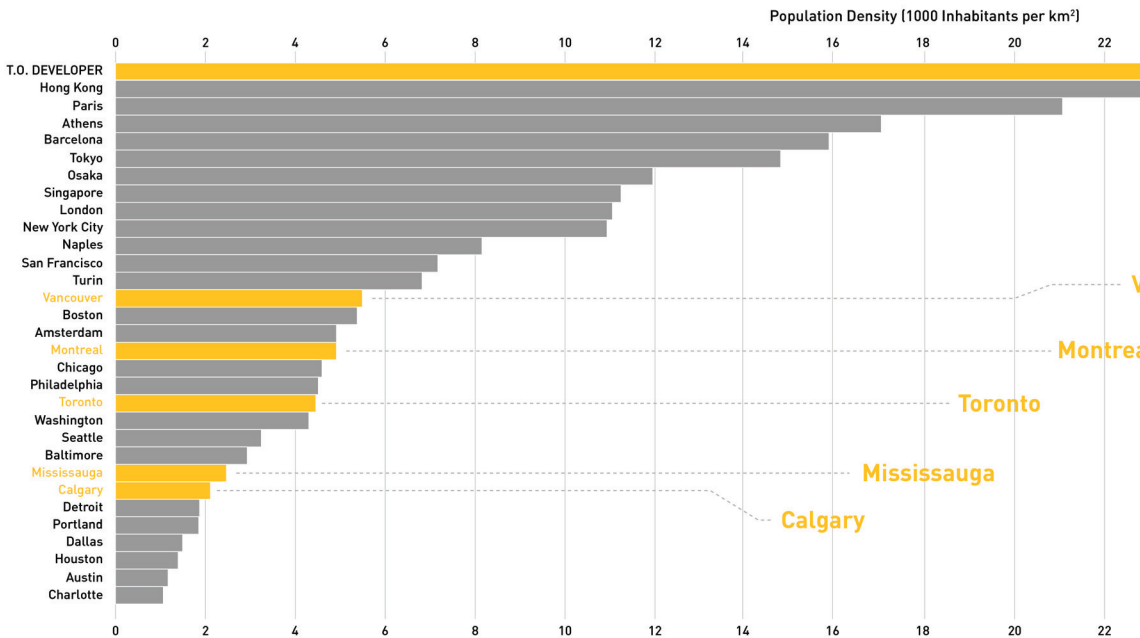


Fig. 1-6 Population Density of High-income Cities

another example of a city that is quite dense, yet achieves that density at a much lower, yet much more consistent building height over a larger swath. This is a result of Baron Georges-Eugène Haussmann's 19th century redevelopment of the city. Barcelona also exhibits formal uniqueness in the quite high-density yet relatively low-rise *Eixample* neighbourhoods. Extremely high density is often exceedingly successful when other quality of life considerations are made a priority as well.



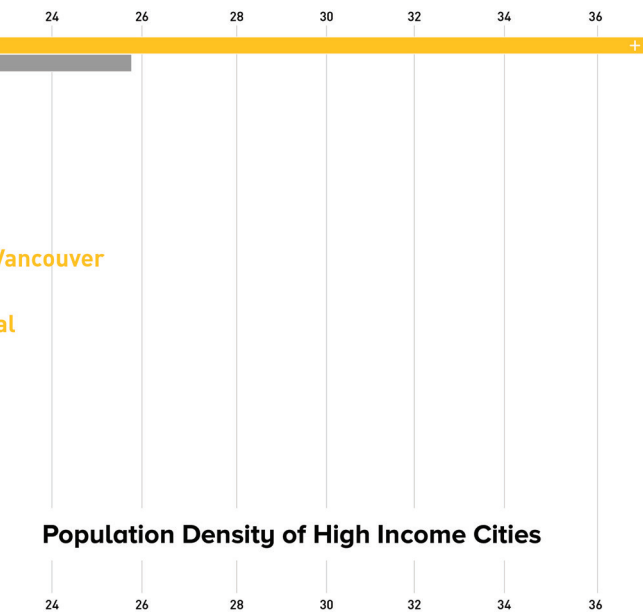
Fig. 1-7 New York Brownstones



Fig. 1-8 Haussmann's Paris



Fig. 1-9 Barcelona's Eixample Neighbourhoods



1.4. IMAGINING THE FUTURE

The housing solutions of the past are insufficient for the present-day metropolis, and the solutions of the present fail to look to the future for inspiration. It is imperative that we examine the trends and patterns that will shape society in the coming centuries in order to address our future needs. French philosopher Henri Lefebvre wrote of the cyclical state of architecture: “The business necessity of architecture limits practitioners’ capacity for social and political imagination. Ultimately, most architecture constructed today simply reconfirms that *there is no alternative*, no possible future outside the system.”⁹ Lefebvre argued that alternatives to the system are impossible, as they are created within that very system.

For Lefebvre, a route out of the presently impossible is to “look to the past for alternatives to the present, and to identify tentative openings in the present giving access to other futures.”¹⁰ This design thesis endeavours to embrace this concept of the “possible impossible”—“that which appears out of the question only if the present moment is taken to be eternal.”¹¹ We must imagine what may be on the periphery of the currently possible in order to drive ideas and design towards a new future for architecture.

By looking to underutilized strategies of the past, the present can be reframed and the *eternal present* can be circumvented. There is a need for a revised approach to urban housing that emphasizes the primacy of the human resident. A high population density coupled with a high quality of life can be a driver for an extremely successful global city. But rapidly densifying cities need

9 Coleman, *Lefebvre for Architects*, 14.

10 Coleman, 14.

11 Coleman, 14.



Fig. 1-10 The Eternal Present

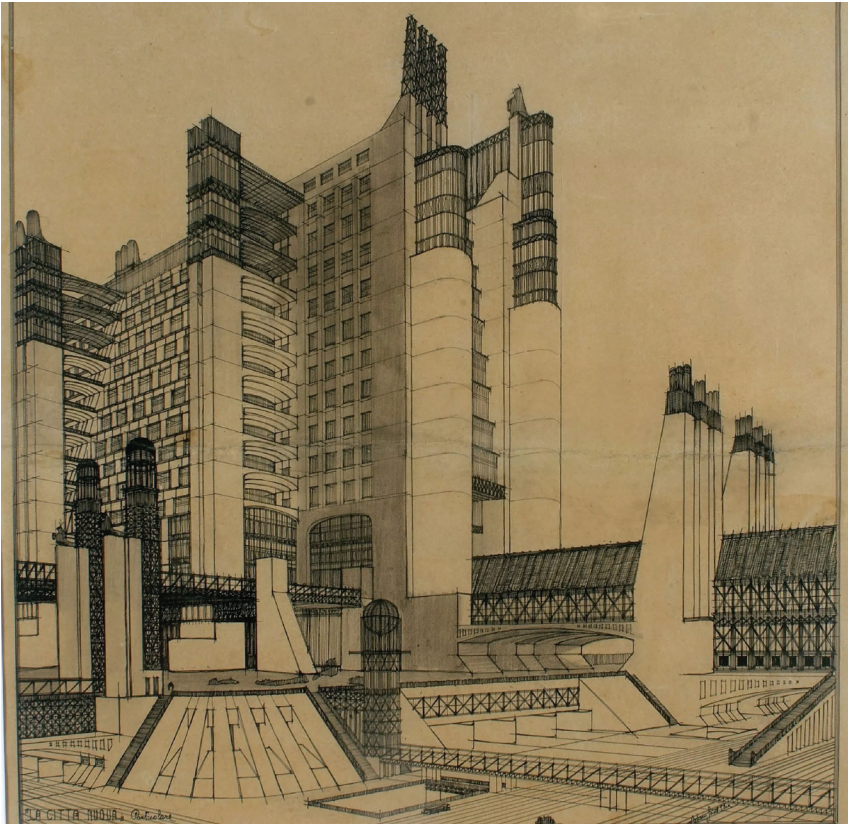


Fig. 1-11 Antonio Sant'Elia's "La Citta Nuova"

to ensure that amenities and shared spaces are designed to keep up with the rapid pace of development. Shared spaces and public areas integrated within larger developments will need to be embraced in order to provide enough space for people to live vibrant lives in the future of the urban core. The spaces in which we live can foster healthy and productive urban life, if we prioritize the human experience, and design spaces that respond to the human as a social being.

This thesis seeks to develop an alternative to the point tower for high-density urban housing—one that disrupts the contemporary urban residential trends in order to liberate the ground plane for public use, create a sense of place at a variety of scales, increase density and diversity of use, and foster social interaction and play in the urban context. In the words of Lefebvre, “what if a new life must actually be preceded by a new space?”¹²

¹² Coleman, 30.

1.5. CHAPTERS

Following are short descriptions of the major sections that comprise this thesis.

1 • Introduction

This chapter outlines the contextual milieu, current trends, and objectives of the thesis. It expands on the abstract, adding depth and context, and gives indication as to the order of discussion and purpose of the subsequent sections of this thesis.

2 • Sociogenesis

There are several urban and architectural factors that seem to exacerbate the isolation felt in the urban context. Multiplied over hundreds of buildings and street corners, and affecting most new developments, the effects become blanketing. This section outlines several urban conditions that amplify the effects of isolation in the metropolitan core.

3 • Common Ground

This chapter identifies social trends that are causing a shift in resident needs for high-density urban housing design. Architects have a responsibility to the residents of the city to do more than increase the number of units on a site. A healthy, vibrant city needs to have a plethora of social spaces integrated into the urban fabric to foster social connectedness.

4 • Urban Dwelling

This section briefly discusses the contemporary milieu of urban dwelling in Toronto. Architectural precedents that attempt to address sociogenesis are noted, outlining successes, failures, and strategies that can be drawn upon in the pursuit of developing sociogenetic residential architecture.

5 • Mat Building

This chapter explores the history and strategies of Mat Building, noting limitations on the traditional strategies, and identifying relevant projects and concepts that will aid in the formulation of a conceptual design strategy for sociogenetic design.

6 • Sociogenetic Architecture

This section builds on explorations and iterations in the preceding chapters, pushing the thesis forward by outlining the strategies of Sociogenetic Architecture. Employing the following strategies aims to promote positive sociogenesis—changing the relationship of the urban high-density architecture with the urban fabric, and intensifying human contact and the growth of relationships between residents, neighbours, and pedestrians alike. These concepts will be tested through the vessel of architectural exploration in further sections.

7 • Sociogenesis: Urban Block

This section further explores the Sociogenetic Dwelling on a large urban block. A site is identified as a testing ground for exploring the strategies of sociogenetic design, including a brief history of the area, site, and the surrounding neighbourhoods.

8 • Sociogenetic Dwelling

The vignettes in this chapter embody the sociogenetic strategies of the design manifesto on an urban block. This design pursues the reduction in amplifiers of negative sociogenesis outlined in the early chapters.

9 • Conclusion

This section concludes the thesis by explaining the merit of the explorations, the adaptability of the strategies for future works, and the next steps for developing the concepts and strategies outlined in the preceding chapters.



2 • SOCIOGENESIS

There are several urban and architectural factors that exacerbate the isolation felt in the urban context. Multiplied over hundreds of buildings and street corners, and affecting most new developments, the effects can be blanketing. This section outlines several urban conditions that amplify the effects of isolation in the metropolitan core.

SOCIOGENESIS noun

: the evolution of societies or of a particular society, community, or social unit

Fig. 2-1 Sociogenesis Definition

2.1. SOCIOGENESIS

We are living through a time where society is burdened by exponential growth in complexity. Technology, urban density, communications, social tensions, and the urban fabric all contribute to the shifting manner in which people interact with one another and with the spaces around them. Sociogenesis describes the “evolution of societies or of a particular society, community, or social unit.”¹ The prefix ‘socio-’ refers to the social, or society, and the word ‘genesis’ indicates the emergence of new phenomena. Sociogenesis is therefore the emergence of new social phenomena—relations, concepts, institutions, or structures—within the larger social context. This process can carry both positive and negative connotations depending on the conditions, causes, and resulting effects of the evolution. One of these sociogenetic processes that is rapidly affecting developed urban residents is social isolation.

¹ “Sociogenesis.”

2.2. URBAN SOCIAL ISOLATION

Architecture has the power to shape how people interact with one another and how they experience space. Just as good design can have a positive impact on how people live in a city, poor or uncaring design can negatively impact the spatial experience of urban dwellers. Social isolation is a mounting concern in modern society. It carries the potential for severe psychological and physiological harm. “Social isolation has an impact on health comparable to the effect of high blood pressure, lack of exercise, obesity or smoking.”² Being alone from time to time rarely causes these negative effects—it is the prolonged experience of loneliness—and in this oft insensitive world, loneliness is becoming far more prevalent. “At any given time, roughly twenty per cent of individuals feel sufficiently isolated for it to be a major source of unhappiness in their lives.”³ Social Isolation can be defined as “the distancing of an individual, psychologically or physically, or both, from his or her network of desired or needed relationships with other persons. Social isolation is a loss of place within one’s group.”⁴ Again, the effects of social isolation can be staggering: “Loneliness not only alters behaviour but shows up in measurements of stress hormones, immune function, and cardiovascular function. Over time, these changes in physiology are compounded in ways that may be hastening millions

2 Cacioppo and Patrick, *Loneliness: Human Nature and the Need for Social Connection*, 5.
3 Cacioppo and Patrick, 5.
4 Biordi and Nicholson, “Social Isolation,” 85.

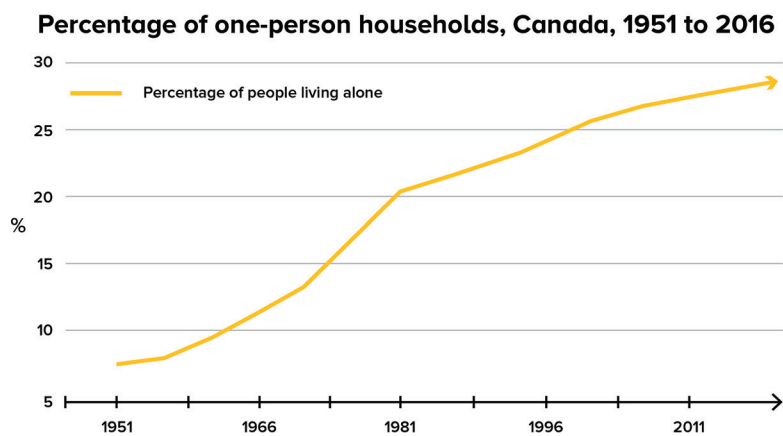


Fig. 2-2 Percentage of one-person households, Canada, 1951 to 2016

of people to an early grave.”⁵ The feeling of acute loneliness may come or go, but social isolation is an extended period of negatively-perceived distancing from one’s social network. This differs from the concept of solitude: “Apartness or aloneness, often described as solitude, may also be a part of the concept of social isolation, in that it is a distancing from one’s network, but this state may be accompanied by more positive feelings and is often voluntarily initiated by the isolate.”⁶

5 Cacioppo and Patrick, *Loneliness: Human Nature and the Need for Social Connection*, 5.

6 Biordi and Nicholson, “Social Isolation,” 85.

2.3. ISOLATION INTENSIFIERS

Following are urban, social, and architectural factors exacerbate the socio-genetic trend towards isolation in the urban core.

VERTICAL STRATIFICATION

High-density vertical dwelling contributes to urban isolation

Vertical stratification is the separation of a high-rise resident from the ground plane, a severing of a sense of connection with a communal street. Riding an elevator and being deposited in a small hallway with many doors can be disorienting. In some ways, the elevator ride to a high-rise unit parallels the drive a suburbanite might make to their house on a cul-de-sac. “With respect to indifference to context, Toronto’s condo towers obey a similar logic to the housing developments that populate the suburbs.”⁷ However, suburbs maintain a social connectivity between dwelling units. Residents share a common street. There are proximate lawns and semi-private areas where neighbours can see and be seen. Human activity is visible, albeit far less dense than city life. Conversely, the vertical circulation of high-rise buildings acts as a social stratifier – separating the residents into stacked floor plates where the units look away from the communal hallway. Living vertically is inherently different than living on the ground-plane.

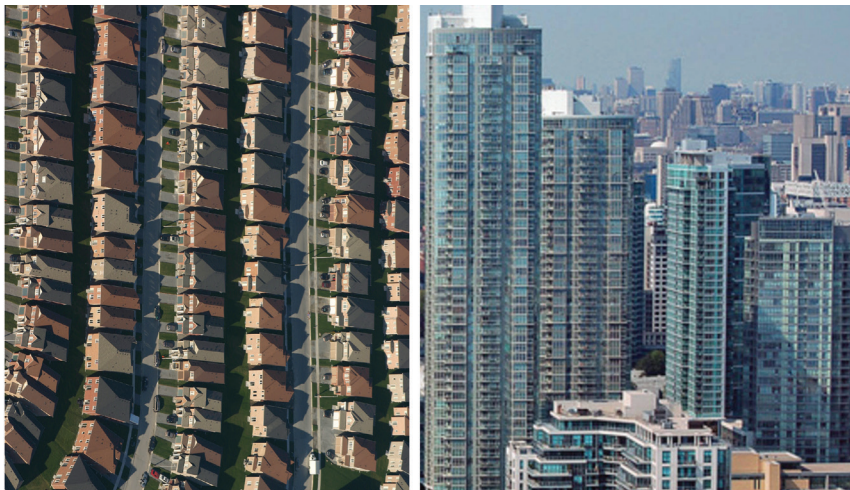


Fig. 2-3 Suburban Drive and Elevator Ride

7 Ibelings and PARTISANS, *Rise and Sprawl: The Condominiumization of Toronto*, 29.

Stratified dwelling can cause residents to feel isolated from the ground plane, and therefore their community. It is imperative that a new typology attempt to de-stratify above-grade units through connection with the ground plane, and with pockets of the building itself, in cases where the ground plane is too far away. Current urban residential typologies prioritize floor plate efficiency and gross floor area. This has minimized the possibility of creating sense of community that many people crave from their home and neighbourhood. For most high-rise buildings, there are few spaces that residents feel agency over that they can gather, make chance encounters, or socialize. “Sure, one has neighbours and shared access to collective spaces, like party rooms and lobbies, but condos are not communal living spaces. They cater to people who are generally happy to go home and close out the rest of the world.”⁸ Perhaps the residents simply have no choice in the matter, as condos are swiftly becoming the only option for most residents of the downtown core.

Residential towers represent an introverted form of dwelling. Point towers and slab blocks focus views and directionality *outward*. Balconies and windows all face out toward the city, and the residents of these buildings become spectators of the city, rather than participants. Can this outward-looking standard be inverted? Can the urban residential unit transform from an outward-looking cell to one focused inward on communal spaces?



Fig. 2-4 View Outward from CASA II

8 Ibelings and PARTISANS, 30.



Fig. 2-5 Cresford's CASA II Condominium

DETERMINANT CIRCULATION

Efficient circulation is causing banal architecture.

A major driver of vertical stratification is the manner in which people are conveyed through the building. Determinant Circulation refers to the observation that efficiency in circulation—both horizontal and vertical—largely prescribes the form and configuration of high-density residential building design. The most severe limitation on the high-density residential building is the space devoted to accessing each unit. As this circulation space is not profitable, the priority lies in maximizing the efficiency of circulation. The resulting typologies are the sort of buildings blanketing the urban core of Toronto—slab blocks and condominium towers, which rely on double-loaded corridors and elevator cores, respectively. Hans Ibelings, architecture critic and lecturer at the Daniels School of Architecture in Toronto, has a very succinct opinion of the condominium buildings that have overtaken Toronto in the past decade: “The number of towers, their size, mass, volume, height and speed by which they are built is astounding. The only thing that isn’t remarkable about the rise and sprawl of Toronto’s condo towers is their architecture.”⁹ The determinant circulation of high-rise buildings is causing urban banality.

Circulation paths prescribe the journey of the resident, and uncaringly designed circulation paths can exacerbate the isolating effect of vertical stratification. Changing the way that people move through a building alters the way in which space is experienced, and the manner in which people interact with one another. It is necessary to break free of the reliance on the most efficient floor plate design, and rather prioritize the social dimension of the users’ experience of the spaces, circulation included. An alternate is needed—a typology which prioritizes passage, procession, and human experience could shift the paradigm of high-density urban dwelling towards positive sociogenesis.

Can an alternative urban housing typology be explored that prioritizes circulation?

9 Ibelings and PARTISANS, 9.



Fig. 2-6 Point Tower and Double-loaded Corridor Circulation

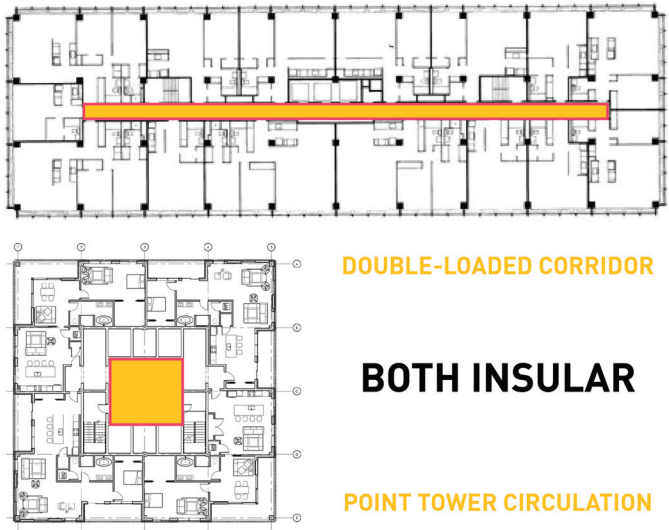


Fig. 2-7 Double-Loaded Hallway



Fig. 2-8 Toronto Waterfront Wavedecks

DECLINING SUPPORTIVE SPACES

As more high-density buildings are erected and the population of the urban core densifies, more people will need to use the same limited number of proximate public spaces and amenities—or supportive spaces. These supportive spaces are often public, oriented towards society’s use and enjoyment, and include public parks, daycare services, water elements, playgrounds, transit services, and other open public spaces. These spaces are pivotal for the use and enjoyment of the city for all residents, and need to be prioritized considering Toronto’s recent explosive growth. Toronto architect Katy Chey explains: “The city has been welcoming the growth and opportunities that the new dwelling units bring, but has been slow at providing support and amenities for the new inhabitants.”¹⁰ She comments on the infrastructural requirements as well: “There is worry among market research analysts that Toronto’s multi-unit dwellings are being developed faster than the rate of the projected population growth and that increases in public transit, infrastructure, and services have not matched its pace.”¹¹

The math here is simple. For every additional resident that moves to an area with ground level amenities or shared space, the per-capita amount of shared space per person in that area shrinks. Consider the effect of a new 1500-unit condominium on the supportive spaces of a small neighbourhood’s amenities

¹⁰ Chey, *Multi-Unit Housing in Urban Cities, From 1800 to Present Day*, 476.

¹¹ Chey, 475.

and public spaces. This transformation is currently affecting many of the traditionally low-rise neighbourhoods of Toronto. Naturally, there has been some backlash among these smaller communities that fear their shared spaces are insufficient to accommodate significant population increases. Jennifer Keesmaat, former Chief Planner for the City of Toronto, believes this opposition to large-scale development proposals has some value above mere NIMBYism: “It’s about the livability of our neighbourhoods. [...] We ought to be having conversations about, ‘Do we have enough park space? Do we have enough schools? Do we have the daycare spaces [...] to be absorbing all this growth?’”¹² A new open parkland will not spontaneously appear in the downtown core—certainly not at the expense of a possible high-rise condo—and most cities did not have the foresight to build a Central Park in the downtown core, like New York City. There are of course large parks and spaces on the periphery of Toronto’s core such as High Park and the Don Valley, but it is the proximate walkable supportive spaces that are the most coveted by residents of Toronto’s many urban neighbourhoods.

“As the downtown core grows, its need for public investment multiplies: there are more sewers to install, more public spaces to tend for the people living in shoebox-size condos and more transit upgrades and emergency services required. The money coming from developers still doesn’t meet all those needs, and there’s not enough tax money to do everything at once.”¹³ Increased density is beneficial when there are strong networks of amenity space and places for people to go and recreate at a local scale. We don’t have the luxury of New York’s Central Park, the shared spaces of the courtyard typology of Barcelona, or the piazzas of Venice. There needs to be a different way to increase the shared public space in the context of the car-first city like Toronto. Shared spaces and public amenities integrated within larger commercial and residential developments will need to emerge in order to provide enough space for all residents to live healthy lives in the densifying future of the urban core.

How can public amenities and shared spaces be integrated into private developments for the benefit of society as a whole?

12 Goffin, “Is ‘Density’ a Dirty Word in a Growing Toronto?”

13 Preville, “The Divided City: Toronto’s Gilded Age Never Made It to the Suburbs.”

UNIT UNIFORMITY

A shift in demographics is necessitating a change in how the configuration of dwelling is achieved. Urban dwelling design today is prescriptive, rather than responsive to the needs of the dwellers. There is a glut of single-bedroom dwellings, all sharing similar layouts, dimensions and gross floor areas. “If suburbia has become more or less synonymous with the ‘cookie-cutter’, then the same homogenizing kitchen tool could be invoked to describe the effects of condominiumization on Toronto.”¹⁴ However, this configuration does not react to the way in which the city is changing—there are major urban demographic shifts that are exacerbating the low variety of living options.

Firstly, more young people are moving to the city. The appeal of a vibrant night life, opportunities to meet new people, and better employment opportunities drive young people to move to the urban core from the suburbs and rural areas. However, the housing options in an urban centre are often not catered to the lifestyles and pocketbooks of young people. There has also been a significant change in the trends of young people’s living conditions over the past 30 years: “In 1981, 44.4% of baby boomers lived in a single-detached home compared with a rate of 35.0% for millennials in 2016. Young adults in 2016 were also more likely to live in apartments than their 1981 counterparts.”¹⁵ Today, “young people want a vertical-living lifestyle with lots of amenities available on foot or via transit.”¹⁶ Of course, many factors are at play in this change. The increased cost of housing, the shift from rural to urban centres, and the emergence of the high-rise condominium among the major causes.

Secondly, more people are living in multigenerational arrangements. According to the 2016 Census of Canada, multi-generational households are the fastest growing type of household. Multi-generational households are households that include at least three generations of the same family. In 2016, the proportion of multi-generational households—was only 2.9% (403,810 households). However, from 2001 to 2016, multi-generational households rose the fastest (+37.5%) of all household types, well above the increase of 21.7% for all households.¹⁷ This increase indicates that people are depending more and more on their family networks for support as grandparents are living longer and children are staying at home further into their twenties. This situation is problematic for the urban dwellers, as the availability of flexible and accessible housing typologies that allow for multi-generational family arrangements are

14 Ibelings and PARTISANS, *Rise and Sprawl: The Condominiumization of Toronto*, 29.

15 Statistics Canada, “Families, Households and Marital Status: Key Results from the 2016 Census.”

16 Marina, “The Future of Vertical Neighborhoods.”

17 Vezina, “Quality of Personal Networks: Does Living Alone Make a Difference?”

MULTIGENERATIONAL FAMILIES



Fig. 2-9 Multigenerational households are on the rise

few and far between. Of particular note, the high-density condominium boom does not respond to this changing demographic. According to Ann-Marie Nasr, manager of strategic initiatives at City of Toronto's City Planning Division, "Toronto is growing vertically. Eighty per cent of the building stock constructed over the past ten years has been at least five stories tall, and yet 60 to 70 per cent of the units are one-bedrooms while three- and four-person households represent about 60 percent of our city's population. There's been a disconnect."¹⁸ A residential typology for the future must be flexible in unit scale and type to cater to rapidly shifting family dynamics.

Thirdly, more families are being raised in condos. "There is a remarkable trend happening in condominium neighbourhoods across the GTA — and especially in the City of Toronto: families are being raised in high-density communities."¹⁹ According to recent census data, "42 per cent of all people in Toronto reside in condos and the City of Toronto reports that, as of 2011, 32 per cent of households with children lived in midrise and high-rise buildings."²⁰ Young people today don't have the purchasing power of previous generations. This,

¹⁸ Statistics Canada, "Families, Households and Marital Status: Key Results from the 2016 Census."

¹⁹ Tuckey, "Families Should Be Focus in High-Density Housing."

²⁰ Tuckey.



Fig. 2-10 Millennials are living differently

coupled with the desire to live in an urban environment, means that children and families of the present and proximate future will be growing up in environments that are largely different than those of their parents.

The old adage ‘It takes a village to raise a child’ will need to come full circle in the urban future. There are increases in family stresses caused by the much more common dual-income nature of contemporary family units. “Children are much more likely than not to grow up in a household in which their parents work, and in nearly half of all two-parent families today, both parents work full time, a sharp increase from previous decades.”²¹ Mary Blair-Loy, a sociologist and the founding director of the Center for Research on Gender in the Professions at the University of California, San Diego, says, “This is not an individual problem, it is a social problem. This is creating a stress for working parents that is affecting life at home and for children, and we need a societal-wide response.”²² Perhaps a solution to these modern stresses resides in the sharing of common yet stressful tasks such as child care with others in the community. It used to take a village to raise a child, but the community-centric village is a rarity these days. Modern parents are taking this responsibility entirely upon

21 Statistics Canada, “Housing in Canada : Key Results from the 2016 Census,” 6.

22 Statistics Canada, 6.

themselves, while juggling fuller work and social lives. Why can't the village help? Perhaps the problem is that the modern village is isolating in nature.

According to a new action plan from Ryerson University, "addressing the growing housing crisis in the Greater Golden Horseshoe means encouraging the construction of a range of housing types."²³ The Action Plan for Improving Housing Affordability in the Greater Golden Horseshoe addresses the deterioration of housing affordability and low housing supply. "The report encourages increasing the supply of a range of housing options—noting the region is made up primarily of two submarkets; ground-related homes and highrise apartments."²⁴ David Amborski, director of Ryerson's Centre for Urban Research and Land Development, said there needs to be a "range of choice" when it comes to housing. According to Amborski, "there also needs to be encouragement of the 'missing middle,'" or midrise densities such as stacked townhouses.²⁵ This missing middle is what needs to be found in order to improve the lives of urban residents. Crucially, there need to be dwelling options available for the young, the old, the family, and the multi-generational—not simply one-bedroom units. Variety in unit size, configuration, and availability must be part of any new approach to residential design. Architecture needs to provide flexibility inherent in the design of a building that allows infinite configurability of unit size and configuration.

Can a flexible building typology respond to changing needs due to the integration of different generations in the same household?

Can urban architecture better support urban family life?
Can an urban community be formed through architectural intervention?

23 Harris, "Build More Diverse Housing Options to Meet Demand, Ryerson Action Plan Advises."

24 Harris.

25 Qtd. in Harris.

THE AUTOMOTIVE CITY

“One of the most venerated of planning concepts has been the separation of vehicular from pedestrian traffic. And for whose benefit has this been? Vehicles.”²⁶ It is no secret that the North American city was built for the automobile. Traffic planners and commissioners in the early 20th century wielded great power in shaping cities around vehicular traffic. “The old common law that every person, whether on foot or driving, has equal rights in all parts of the roadway must give way before the requirements of modern transportation,”²⁷ This was quoted in 1924 by a consultant for the LA Traffic Commission, and indicates the priorities of the time. Compared to European counterparts, American cities boast wide boulevards, multi-lane roads, and expressways that slice the city into parts. It is only recently that the re-pedestrianization of the city has started to take precedence. Bicycle culture is growing, and the North American city is beginning to focus on the pedestrian as the building block of the city, rather than the car, reshaping the way in which urban fabric is articulated.

William H. Whyte believed in the primacy of the street: “It is the river of life of the city, the place where we come together, the pathway to the center. It is the primary place.”²⁸ Truly, the street is the primary among shared spaces in the city. However, it is the buildings along the streets that give shape and character to the streets themselves. In recent years, the street wall has found a resurgence in the tower-podium dynamic, where 3-5 storey podium elements define the street-wall, belying the tall towers that sprout from their roofs. While this has helped in the definition of the street and sidewalk, the scale of these podiums is often catered to the speed of the car rather than the pedestrian, with relatively low number of doors, shops, and other blank facades that only serve to further isolate the pedestrian.

The ground plane of the city is the pedestrian’s primary interface with the urban condition. Continuous street-walls on large blocks prevent pedestrians from connecting to alternative routes and destinations outside of the sidewalk. In *The Death and Life of Great American Cities*, Jane Jacobs wrote: “Long blocks, in their nature, thwart the potential advantages that cities offer to incubation, experimentation, and many small or special enterprises,”²⁹. However, short blocks and frequent avenues of access are valuable, she said, because of “the fabric of intricate cross-use that they permit among the users

26 Whyte, *City: Rediscovering the Center*, 85.

27 Norton, *Fighting Traffic: The Dawn of the Motor Age in the American City*, 164.

28 Whyte, *City: Rediscovering the Center*, 24.

29 Jacobs, *The Death and Life of Great American Cities*, 182.

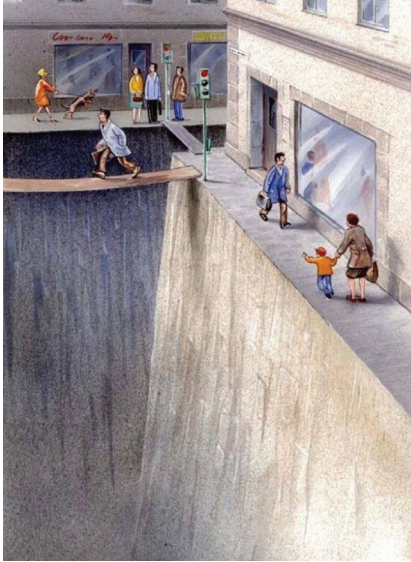


Fig. 2-11 Pedestrian Perception of the Street

of a city neighborhood.”³⁰ This should be approached in high-density and high-coverage urban blocks by perforating the ground-level street wall and inviting the pedestrian to explore not only the journey through the block, but also discover a destination along the way.

The boundary between street and shared space within a block can be blurred, drawing pedestrians inward. “A good space beckons people in, and the progression from street to interior is critical in this respect. Ideally, the transition should be such that it’s hard to tell where one ends and the other begins. You shouldn’t have to make a

considered decision to enter; it should be almost instinctive.”³¹

The ground plane is how pedestrians interact with their built environment. There are opportunities to further open this ground plane up to the pedestrian, to draw them into spaces they may not otherwise venture into, and to provoke interest and detours from more boring sidewalk routes. “The street functions as part of the plaza or square; indeed, it is often hard to tell where the street leaves off and the plaza begins. The social life of the spaces flows back and forth between them.”³²

How can the permeability and prominence of the ground-plane be increased?

³⁰ Jacobs, 186.

³¹ Whyte, *City: Rediscovering the Center*, 147.

³² Whyte, 145.



Fig. 2-12 Yonge and Dundas Square Empty

NEIGHBOURHOOD HOMOGENEITY

Many pockets of the city are largely homogenous in purpose. When it comes to the design of large-scale city blocks, care should be taken to diversify the program of these areas. The risk with homogenous neighbourhoods is that if an area contains primarily one programmatic function—business-hours shops for example—this area will cease to be a lively and energized place when business hours are over. Likewise, an area that primarily serves a residential function will be far less heavily trafficked during traditional work hours. According to Whyte, “many American cities despair on this point. Their downtown spaces go dead when downtown goes dead, somewhere around five to five-thirty... Longer term, there are factors that could make a substantial difference: the creation of more downtown housing; more good restaurants and attractions to draw people to downtown or hold them there.”³³ He advocates the mixture of program to enliven these areas throughout the day. Jane Jacobs echoes this sentiment.

The city core may seem more resilient to the homogeneity, as the level of density is high, and street-level structures are often diverse and fine-grain. But this is often due to older buildings, that are smaller in scope and purpose

³³ Whyte, 170.

than those of today. Large-scale developments spanning whole city blocks are becoming more common, and can serve to propagate an isolating monoculture. Is a building complex comprised of 98% residential program truly mixed-use?

Whyte believes that a change to this pattern can only come from the city, not the developer: “Mixture is too vital to leave up to the developer, or to the presumably objective verdict of the marketplace. It seems rigged against the old and the diverse and the modestly scaled because it *is* rigged. Nor is there any discipline for re-establishing mixture in new buildings. But cities can change these imbalances,”³⁴ Perhaps this change must come from the architect instead. Large blocks should be designed to be truly multi-programmatic, ensuring a lively, active base of people to energize an area and make it feel safe all throughout the day. Integration of shared spaces, mixed occupancies, and the infusion of commercial and civic functions within a larger residential development serve to benefit the social wellbeing of the community. Diversity is strength, and this holds true in the development of our neighbourhoods.

Can a large-scale residential development integrate other programmatic functions to enliven the area at all times of day?

34 Whyte, 107.

2.4. SOCIAL CONNECTEDNESS

Social connectedness is the antithesis to social isolation. “Social connectedness refers to an individual’s engagement in an interactive web of key relationships, within communities that have particular physical and social structures that are affected by broad economic and political forces.”³⁵ Social connectedness is dependent on communities—the people, economy, and social context in which the individuals exist, and also about the individual—their age, social status, employment, personality, and other determining factors. “Both the individual and societal aspects of social connectedness must be considered as strategies to improve health are being developed. To address only individual, personal characteristics (i.e. ability to form healthy relationships) without considering the community context (family instability, economic opportunity, community history) would place limits on the effectiveness of the intervention.”³⁶

It is the forging of a sense of community, a sense of place, that is necessary in the modern urban realm. In *The Hidden Dimension*, Edward T. Hall postulates that “City planners and architects should welcome opportunities to experiment with radically new, integrated forms that will hold an entire community.”³⁷ Despite high density and high levels of proximity to other people, there is an isolating effect to living in high-rise buildings. “Proximity, as city dwellers know, does not necessarily mean intimacy. Access to other people is not by itself enough to dispel the gloom of internal isolation. Loneliness can be most acute in a crowd.”³⁸ In addition, “People tend to disconnect themselves from others as a protective mechanism in heavily populated areas because crowding environment is harmful to them physiologically and psychologically.”³⁹ Design explorations must explore alternative strategies to arranging urban fabric that address the issues of density as well as the overarching problem of social isolation. It is important to ask how effectively architecture can address an issue as complex and multi-faceted as social isolation. Denise Scott Brown argues that “architecture can’t force people to connect, it can only plan the crossing points, remove barriers, and make the meeting places useful and attractive.”⁴⁰ But the answer

35 Minnesota Department of Health, “Social Connectedness - Evaluating the Healthy People 2020 Framework: The Minnesota Project,” 13.

36 Minnesota Department of Health, 13.

37 Hall, *The Hidden Dimension*, 178.

38 Laing, “The Future of Loneliness.”

39 Yue et al., “Being Lonely in a Crowd: Population Density Contributes to Perceived Loneliness in China,” 145.

40 Jordana, “Interview: Robert Venturi & Denise Scott Brown.”

lies in that very response—there is massive untapped potential in planning crossing points, removing barriers, and making possible meeting points useful and attractive. We are simply not making the design of social spaces a priority. Shared space where people can interact with each other, see and be seen, and feel comfortable, must be better integrated into the high-density residential buildings of the urban core.



Fig. 2-13 Urban Social Connection

2.5. TOWARD POSITIVE SOCIOGENETIC ARCHITECTURE

The preceding trends are intensifiers of isolation in the urban context, which represent negative sociogenesis. In order for there to be meaningful societal change, there must begin a process of positive sociogenesis. This thesis will investigate the sociogenetic potential of architecture—the ability for architectural developments to disrupt the status quo and prompt evolution of how society, community or social unit function within the context of larger urban environment. This thesis will define and explore the tenets of a *Sociogenetic Architecture*—strategies that shift the present focus of the urban residential design paradigm from the efficient to the humanistic, from the quantitative to the qualitative, in pursuit of an improved human condition in the urban context.



3 • COMMON GROUND

This section identifies social trends that are causing a shift in resident needs for high-density urban housing design. Architects have a responsibility to the residents of the city to do more than increase the number of units on a site. A healthy, vibrant city needs to have a plethora of social spaces integrated into the urban fabric to foster social connectedness.

3.1. SHARED SPACE

Humans are social creatures. From infancy we are taught to share toys with siblings and playmates as a way of conditioning us to life within a larger society. As adults, not only do we share objects and ideas but as humans living in relatively close proximity to one another, we share the *spatial fabric of our society*.

Shared space is all around us. Sidewalks, streets, parks, libraries, open spaces, government buildings, and beaches are all examples of public spaces. Professor of Sociology and Urban Studies Zachary P. Neal defines public space as “all areas that are open and accessible to all members of the public in a society, in principle though not necessarily in practice.”¹ Though clunky, Neal’s definition is accurate. Spaces such as public parks, open plazas and squares are clearly understood as public spaces—those spaces intended for the enjoyment and leisure of all members of society. While people often speak of oases or getting away from the hustle and bustle of the urban streetscape, it is surprisingly the most populous places that people are more likely to congregate. “What attracts people most is other people. Many urban spaces are being designed as though the opposite were true.”²

Shared space is inextricably linked to the urban environment. In fact, spaces which are shared among many people define the urban context. Streets and sidewalks for example are the connective tissue that link disparate urban forms together. In *the Imperative of Public Space*, Setha Low and Neil Smith identify public space as urban space: “Stretching back to Greek antiquity onward, public space is almost by definition urban space, and in many current treatments of public space the urban remains the privileged scale of analysis and cities [remain] the privileged site.”³

Shared space is inherently urban and is an essential aspect of the design of the architectural and urban environment.

1 Orum and Neal, *Common Ground? Readings and Reflections on Public Space*, 1.

2 Whyte, *City: Rediscovering the Center*, 26.

3 Low and Smith, “The Imperative of Public Space,” 3.



Fig. 3-1 Toronto's Grange Park

3.2. IMPACT ON SOCIAL INTERACTION

Shared spaces are inherently social spaces. “The interactions we have with friends in public spaces like neighbourhood streets and local restaurants are the foundation of our social networks; the close social bonds we develop in these settings provide a sense of belonging and security. Similarly, the interactions we have with strangers in public spaces help us to understand our position in the world and how society expects us to act when we are ‘in public’.”⁴ It is logical therefore that a reconceptualization of shared spaces would have an impact on the social interactions of the people who use them. Jane Jacobs believed that it was not the public space that shaped the use and social interactions within that space, but the reverse—that the social interactions gave shape and meaning to the shared space.⁵ It is therefore the people in the space that have the power, through their interactions, to give meaning to their own spaces: “Urban open space is an ideal medium for positive community transformation, in its ability to be continually remolded and shaped to suit community needs.”⁶

Shared spaces are social spaces. Well-designed shared spaces reinforce a sense of community and can help to stave off social isolation.

⁴ Orum and Neal, *Common Ground? Readings and Reflections on Public Space*, 5.

⁵ Jacobs, *The Death and Life of Great American Cities*, 115.

⁶ North, *Operative Landscapes: Building Community Through Public Space*, 20.

3.3. AGENCY OVER SHARED SPACE

An important characteristic of a successful public space is a user's feeling of agency, or ownership over that place. Alissa North, Associate Professor of Landscape Architecture at the Daniels School in Toronto, writes that it is the social interaction between people that forges this sense of ownership. "Whether it is a park, a river corridor, community gardens, a plaza, or a streetscape, the public spaces where people interact provide a shared sense of ownership, and the qualities of these spaces influence how the communities operate and evolve."⁷ In understanding public space this way, these spaces become enlivened by the relations formed by the constituents. "Therefore, as public open spaces evolve with their communities, they can be understood as dynamic rather than static and prescriptive."⁸

The social interactions that occur within public space provide people with a sense of ownership, or agency over that space—they make it their own.

7 North, 13.

8 North, 13.



Fig. 3-2 Toronto's Distillery District

3.4. QUALITY OF SHARED SPACE

Jan Gehl has long been a proponent of quality public spaces. He believes that the quality of shared space is becoming a more pressing issue in today's urban centres: "People are not out in public spaces because they have to, but because they love to," Gehl explains. "If the place is not appealing, they can go elsewhere. That means the quality of public spaces has become very important."⁹ Below Gehl lists the 12 Steps to a great public space:

- 1 • Protection from traffic**
- 2 • Protection from crime**
- 3 • Protection from the elements**
- 4 • A place to walk**
- 5 • A place to stop and stand**
- 6 • A place to sit**
- 7 • Things to see**
- 8 • Opportunities for conversations**
- 9 • Opportunities for play**
- 10 • Human-scale**
- 11 • Opportunities to enjoy good weather**
- 12 • Aesthetic quality**

Fig. 3-3 12 Steps to a Great Public Space

9 Qtd. in "What Makes a Great Public Space?"

3.5. THRESHOLDS OF INTERACTION

Anthropologist Edward T. Hall studied and wrote extensively about the measurable distances between people as they interact with one another. He determined that there are four distinct distance zones with a near and far phase that explain the thresholds of interaction between people. These include intimate, personal, social, and public distances.¹⁰ These thresholds of social interaction can serve as guidelines and be adopted into the design of shared spaces in order to control the way that people perceive the space itself, and to impact the types of interactions that people could expect to have with others in the space.

Intimate Distance

Close: 6" Far: 6-18"

This is the distance for embracing, touching and whispering. "At intimate distance, the presence of the other person is unmistakable and may at times be overwhelming because of the greatly stepped-up sensory inputs."¹¹

Personal Distance

Close: 1.5-2.5' Far: 2.5-4'

This is the distance for interactions between good friends or family members. "A small protective sphere or bubble that an organism maintains between itself and others."¹²

Social Space

Close: 4-7' Far: 7-12'

This is the distance for interactions among acquaintances. "Intimate visual detail in the face is not perceived, and nobody touches or expects to touch another person unless there is some special effort."¹³

Public Space

Close: 12-25' Far: 25'+

This is the distance used for public speaking. "Several important sensory shifts occur in the transition from the personal and social distances to public distance, which is well outside the circle of involvement."¹⁴

¹⁰ Hall, *The Hidden Dimension*, 116.

¹¹ Hall, 116.

¹² Hall, 119.

¹³ Hall, 121.

¹⁴ Hall, 123.

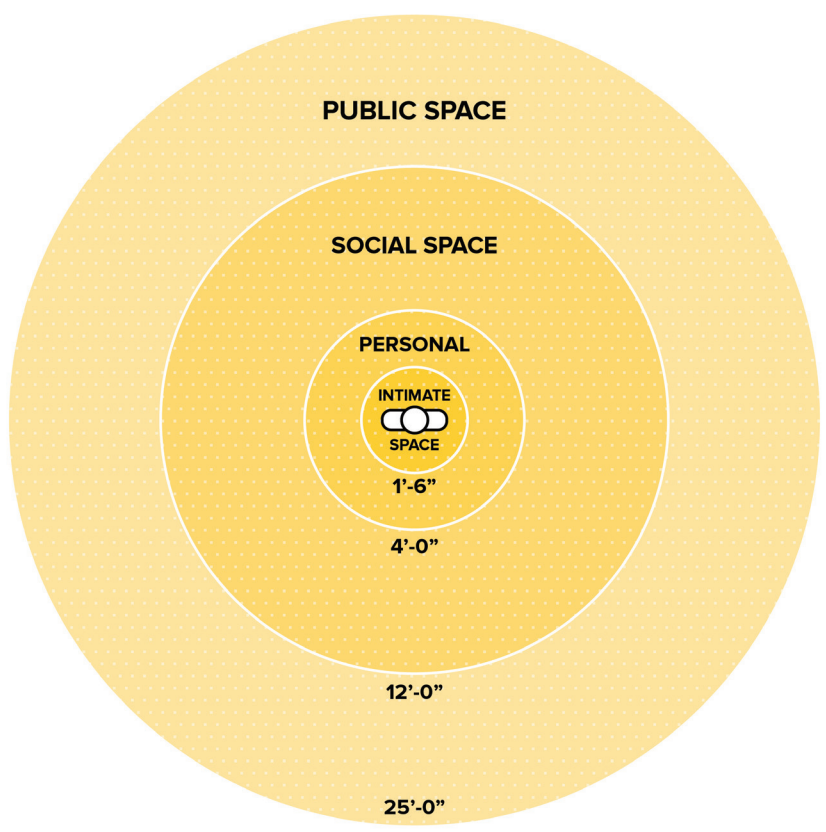


Fig. 3-4 Diagram of Edward T. Hall's Proxemics

3.6. BENEFITS OF GREEN SPACE

The importance of ‘green’—or landscaped—space has emerged in current discourse as overwhelmingly beneficial for the human experience. Due to the hard-surfaced nature of urban centres, Urban residents in particular are liable to reap the benefits of additional green space. A recent extensive review of relevant studies by *Urban Forestry & Urban Greening* came to the conclusion that there was “strong evidence for a relationship between the quantity of green space in the living environment and general health and mortality due to all causes.”¹⁵ This review also found that “the general health of population groups with lower socio-economic status seems to benefit more from green space in the living environment.”¹⁶ A study in the *Scandinavian Journal of Public Health* notes that “numerous research studies have indicated that urban green spaces have a prominent role in promoting health and well-being.”¹⁷



Fig. 3-5 Trinity Bellwoods Park – Toronto Green Space

15 Van Den Berg et al., “Health Benefits of Green Spaces in the Living Environment: A Systematic Review of Epidemiological Studies,” 814.

16 Van Den Berg et al., 814.

17 Reklaitiene et al., “The Relationship of Green Space, Depressive Symptoms and Perceived General Health in Urban Population,” 669.



Fig. 3-6 The High Line in New York

The notion that grass and trees are beneficial for the urban resident was echoed by Whyte in *City: Rediscovering the Center*. “Grass offers a psychological benefit as well. A patch of green is a refreshing counter to granite and concrete, and when people are asked what they would like to see in a park, trees and grass usually are at the top of the list.”¹⁸ Whyte was in favour not only of open parks with green space, but of the installation of trees in the urban centre. “There are all sorts of ways we can greatly increase the habitability of urban spaces. Technologically, one of the greatest is the tree. There are many good reasons for having lots of trees, but for climatic reasons alone we should plant many more of them—big ones, too—on the streets and spaces of our cities.”¹⁹

In *Operative Landscapes*, Alissa North takes the concept further, arguing for a new paradigm for publicly accessible land. She advocates for “a rethinking from the singularly functional or solely representational, to a multifunctional evolutionary landscape that can perform infrastructurally, while also providing the attendant benefits that seeing and breathing vegetative biomass provides, and the ensuing cultural formation.”²⁰ This is the type of healthy shared space that is needed in the development of a new way of living in the urban core.

The fusion of urban and green spaces greatly improves the habitability and quality of life of the users.

¹⁸ Whyte, *City: Rediscovering the Center*, 140.

¹⁹ Whyte, 152.

²⁰ North, *Operative Landscapes: Building Community Through Public Space*, 12.

3.7. THE ARGUMENT FOR SOCIALLY-FOCUSED DESIGN

Ultimately, architecture is the arrangement of space for human use. The way we are arranging space for dwelling in the urban context does not prioritize the social requirements of the urban resident, and must be updated to respond to the complex social requirements of modern life. The vast majority of current solutions for dense urban housing in Toronto are exceedingly successful at efficiently maximizing the number of dwellings on any given site. However, the current solutions willfully neglect the effects that this dramatic increase in density will have on the supporting infrastructure of the urban fabric. There is untapped potential for an increase in the quantity and quality of transitional recreational spaces in urban developments that provide the amenity, sense of place, community, and social and therapeutic benefits of shared space. Developments of the future must:

Integrate social spaces into residential developments

Encourage agency or ownership of shared spaces

Fuse shared urban space with green space



4 • URBAN DWELLING

This section briefly discusses the contemporary milieu of urban dwelling in Toronto. Architectural precedents that attempt to address sociogenesis are noted, outlining successes, failures, and strategies that can be drawn upon in the pursuit of developing sociogenetic residential architecture.





Fig. 4-1 Toronto: A High-Rise City

4.1. TORONTO: A HIGH-RISE CITY

Toronto is a high-rise city—a trend that began as early as the 1950's. Growing density, currently manifesting through point-tower condominium boom, was once addressed through the construction of post-war “towers in a park”. Katerina Cizek, Toronto-based director of the National Film Board’s Highrise project, sees Canada as a high-rise nation. “When Canadians think ‘high-rise nation,’ we tend to look elsewhere, and imagine the density of Singapore, New York City or Hong Kong. Yet, Toronto’s downtown St. James Town neighbourhood has a density of 63,765 people per square kilometre, compared with Hong Kong’s densest district, Kwun Tong, at 57,250.”¹

¹ Cizek, “We Should Recognize Canada as a Nation of Highrise-Dwellers.”

TOWERS IN A PARK

“Nearly one million people in the Greater Toronto Area live in several thousand concrete residential tower blocks which were built between 1945 and 1984.”² This housing stock was promoted, sanctioned, and subsidized by the government as purpose-built rental stock to house the post-war boom in population that wanted the urban life. This ‘tower in a park’ typology was popularized with Le Corbusier’s béton-brut “radiant city” proposal in Marseilles—explored in further depth subsequently. Unfortunately, the implementations of this movement in Toronto were private developments clustered into enclaves that more often than not discarded le Corbusier’s original focus on improving the quality of life of the resident, instead focusing on efficiency of space and floor plate. The shared open spaces are commonly simple, open, green spaces with little sense of ownership for the residents: “Their open spaces, privately owned, effectively belong to nobody.”³ Despite hopes that young professionals would flock to these areas, many of these enclaves become associated with lower-income families and communities, and grew into extremely dense, low-income islands—St. Jamestown and Flemingdon Park to name a few. Due to the high-rise nature of this typology, units are accessed through a lobby and vertical

2 “Understanding the Tower Landscape.”

3 Bozikov, “Toronto Hopes to Revitalize Its Many Postwar Highrises.”



Fig. 4-2 Flemingdon Park Towers

circulation such as elevators or fire-exit stairwells, divorcing the resident from the ground plane. This typology does however often provide a desirable view due to the large open green spaces abutting the buildings and the height of the towers.

Due to changing needs and degradation over time, the buildings of this typology are the focus of the Tower Renewal effort—a revitalization program that would retrofit and renovate the slab towers and parks they sit upon in order to improve conditions for residents and nearby members of the community.⁴

According to the Tower Renewal Partnership, (TRP) the strategies that the Tower Renewal effort is focusing on are:

1 - Retrofit and Rehabilitation of aging units

2 - Investment in Community Amenities, Services and Infrastructures

3 - Integration of infill to support mixed-use growth⁵

These strategies are aligned with the problems and requirements for contemporary urban dwelling design outlined previously in this thesis: High-quality dwelling design, integrated amenity and social spaces, services and infrastructures, and higher, mixed-use density. We are reinventing these postwar towers to better serve our current needs. Why not take the same approach in the design of our new structures?

Postwar Towers were a solution for an era that was simpler in scope and complexity. There is now however a different typology for high-density urban dwelling that is changing the character of Toronto, and similar metropolises around the world, forever: the high-rise condominium.

4 "Understanding the Tower Landscape."

5 "Understanding the Tower Landscape."



Fig. 4-3 Toronto's Towers on Podiums

TOWERS ON A PODIUM

Postwar towers helped to house a growing population at a time when more people wanted to live near the city centre, and were willing to rent and live smaller. Again today, we are seeing an increase in population, and this densification is being answered with the largest boom in high-rise building that Canada has ever seen. "...Since 2000, a total of 80,762 condo units have been built or are under construction, while nearly 72,000 more are in the planning stages. And all of that construction is located in an area measuring less than 25 square kilometres."⁶ Condos are swiftly becoming the most numerous housing type in the GTA, and this is not necessarily a positive sociogenetic trend. "Slow-moving roads, the subway squish and mushrooming skyscrapers might be the most obviously irksome signs of Toronto's growing population density."⁷ By high-rise condominium, this thesis refers to the tower / podium dynamic, where a contextually-bounded low-rise podium blankets most of the site, and point-tower(s) project up at locations advantageous for outward views.

Commendably, the condo typology solves a major issue with the tower-in-a-park solution: It defines a street wall. While it may seem counterintuitive, the large open spaces of the postwar towers can be stark and inhospitable, as they are not scaled to the human size, speed, and experience. The street wall is necessary in defining the public limits of the most primary of the public spaces—the street. However, a continuous street wall also closes off pedestrians

⁶ Preville, "The Divided City: Toronto's Gilded Age Never Made It to the Suburbs."

⁷ Kalinowski, "Scooch over: Toronto Has Room for More Density, Study Says."

and neighbours from exploring paths through the city not clearly defined by car-focused streets. There needs to be a middle ground between the podium and the large urban park.

In her recent book on urban housing typologies, Katy Chey points out the effect that this condo boom has had on the skyline and the character of the city of Toronto: “There is an observable densification in the skyline of the city, with construction cranes protruding in its horizons and high-rise towers ascending all around, and it is this action that has marked Toronto as the city with the most high-rise construction in North America for several years running.”⁸ It is rapidly becoming a city of condominium dwellers. However, this seems to be the only type of housing being built in the city, likely because condos are first and foremost a tool for the accumulation of capital, not a method or result of architectural design. “We’re seeing unprecedented vertical development in cities around the world, but much of it isn’t intended as decent accommodation for the people who actually need somewhere to live.”⁹ In large part, condominium buildings are initiated by developers whose primary interest is financial gain. This leaves little room for innovation, exploration, or breaking out of the status quo. “...if the return on investment has to go up, the level of architecture needs to come down. Return on investment is a self-evident credo of the condo-industrial complex, which is a money multiplier by design.”¹⁰

The heart of the argument against the condo as the typology of the future urban city is that the high-rise condominium was never intended to be a solution for the many complex problems of the urban dwelling. In many ways they manifest as a knee-jerk reaction to densifying the city, maximizing GFA while shoehorning in just enough amenity space and shared elements to satisfy the City Authorities, relying on dwindling nearby resources and amenities. The high-rise condominium is not socially sustainable architecture.

TOWERS OF THE PAST

While the post-war tower and the High-rise condo adequately house people in dense urban environments, the architecture of the future must offer more complete experience to the residents and neighbours. The next step forward in high-density urban residential design must respond more completely to the human experience, and explore the potential for architecture to have a positive impact on the social quality of our shared urban environments. In other words, the next step in urban residential design must promote positive sociogenesis.

8 Chey, *Multi-Unit Housing in Urban Cities, From 1800 to Present Day*, 441.

9 Cizek, “We Should Recognize Canada as a Nation of Highrise-Dwellers.”

10 Ibelings and PARTISANS, *Rise and Sprawl: The Condominiumization of Toronto*, 11.

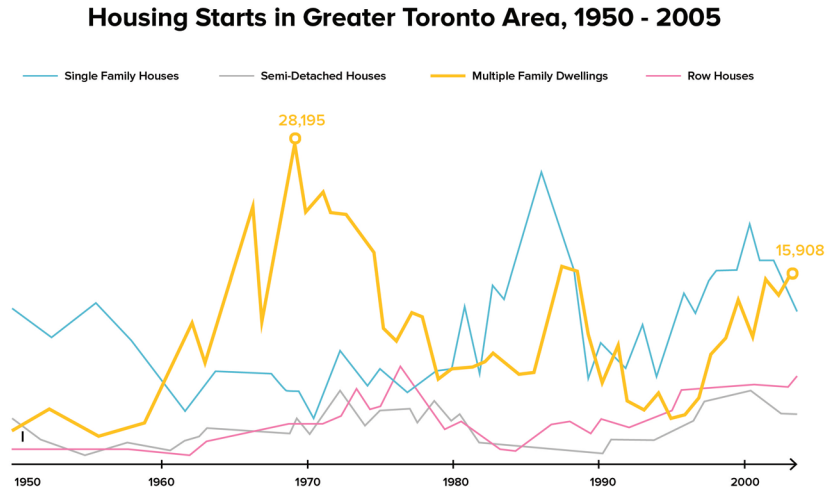


Fig. 4-4 Housing Starts in the GTA

Average Floor Area and Price per Square Foot of Condos in the Greater Toronto Area, 2004 - 2012

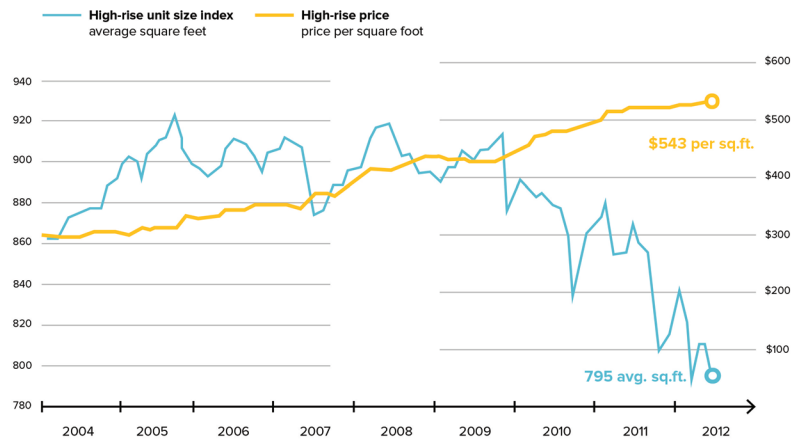


Fig. 4-5 Average Floor Area and cost of Condos in the GTA

4.2. SOCIOGENETIC PRECEDENTS

There are many urban dwellings around the world that promote positive sociogenesis through architecture. Following are high-density residential precedents that attempt to break out of the status quo in order to improve the social relationships and overall quality-of-life of the residents and neighbours.

UNITÉ D'HABITATION

Unité d'Habitation was a conceptual framework devised by Le Corbusier. Translated to mean “housing unit”, it was meant to be a “machine for living” that Le Corbusier saw as the solution to the post-war problem of social housing in the rebuilding France. The first, and likely most well-known, of these explorations was in Marseille, dubbed Cité Radieuse de Marseille, and was inaugurated in 1952. This housing tower contains 337 apartments, separated by inner streets, along with amenities for the residents, and a hotel with 21 rooms. This building epitomises the modern movement in housing design, which is crucial to note as much of what is done today is in some way a response to the design strategies of the Modern age.

The dimensions of Unité were based on Le Corbusier's Modulor, a measurement system based on human morphology, which attempted to shape space based on the human condition. The same respect for the embodied human is evident in the overall concept as well. The philosophy driving Unité was a desire to reformulate high-density urban dwelling for the family, in the wake of the devastating world wars. Unité extended the dwelling outside of the walls of the unit, by incorporating shared amenities and offices, daycare, and library within the building proper. Shared amenities on the roof, the roof terrace of the unit, free public access, is occupied by public facilities: the kindergarten playground, a gymnasium, an athletics track, a small children's pool and an auditorium outside. The inclusion of these spaces ensured that the people living in the building had access to the amenities that enriched their lives without needing to venture into the city.

While the building is largely understood to be a success, there are some negative aspects. The underside of the building however can tend to be gloomy when not lit with direct sunlight. Mirroring this trend, the cloistering of the interior “streets” with no fresh air, natural light, or infusion of joy was a considerable oversight, and a much-maligned aspect of the project. Unfortunately, this is the primary formal characteristic taken and adopted around the world: the stacked double-loaded corridor. (See: St. Jamestown) While not the fault of Le Corbusier, the success of Unité helped propel a dearth of projects worldwide that failed to recognize the aspects of the project that caused its success:



Fig. 4-6 Unité d'Habitation



Fig. 4-7 People Enjoying Roof Amenities

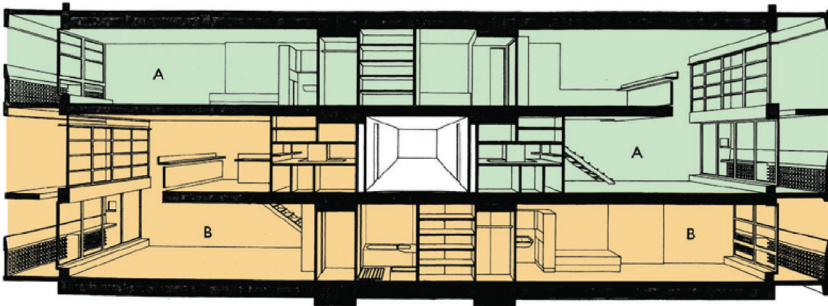


Fig. 4-8 Interlocking Units and Enclosed Hallway

the focus on the family, social spaces, and the search for a new urban form to house people in the future. The formal characteristics were but a result of these desires.

Unité in Marseille was a revolutionary building at the time of its development, and is respected and revered as such today as a UNESCO world heritage site. It became the catalyst for a massive surge in new housing around the world, including Canada and Toronto specifically. This may not have been altogether positive, as the sentiments and approaches brought to the original Unité were largely lost in translation. Nonetheless, the spirit and enthusiasm from the early modern movement are clear in the Unité d'Habitation, and the same spirit in favour of developing healthy, complete urban residences for the family units of the future must be reinvigorated.

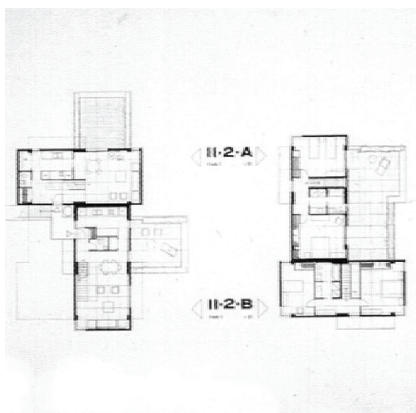


Fig. 4-9 Plans of Stacked Habitat Units

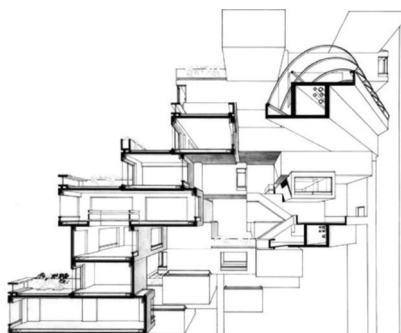


Fig. 4-10 Partial Section through Habitat

HABITAT 67

Habitat 67 was an urban housing model designed by Israeli-Canadian architect Moshe Safdie. Situated on the bank of the St. Lawrence River in Montreal, it was built as a pavilion for Expo 67—the World’s Fair of 1967—and was an extension of Safdie’s Master of Architecture thesis project. Habitat is a 12-storey assemblage of 354 identical prefabricated concrete forms, stacked and arranged in combination to form unique living spaces. Together these units create 146 residences of varying sizes and configurations, each formed from one to eight linked concrete units. There were originally more units, but some have been combined by the owners over time: “The complex originally contained 158 apartments, but several apartments have since been joined to create larger units, reducing the total number.”¹¹

The goal of the project was to combine the perceived benefits of suburban living—open lawns, privacy, fresh air, multistory living, and common “streets”—with the density and efficiency of urban apartment living.¹² The use of prefabricated forms was intended to offset the cost of lower density compared to slab block towers. Much like the lawns of the suburbs, each dwelling unit has access to at least one private terrace, ranging in size from 20 – 90m² (225 – 1000ft²).¹³ In this regard, the project was a great success. The project was well received at the time, and has since become a highly sought-after place of residence: At the time, it “redefined urban living” and has since become “a very successful co-op”¹⁴

¹¹ Safdie, *For Everyone a Garden*.

¹² Fox, “At Home in Habitat.”

¹³ “Information - Habitat 67.”

¹⁴ Fox, “At Home in Habitat.”

However, Safdie's goal for the project to revolutionize affordable housing largely failed. Demand for the building's units has made them more expensive than originally envisioned.¹⁵ Additionally, the apartments in the building have become highly sought-after dwellings—a luxury commodity that runs counter to the vision Safdie had for the propagation of the affordable Habitat housing model. It “ultimately failed to revolutionize affordable housing or launch a wave of prefabricated, modular development as Safdie had envisioned.”¹⁶

Habitat was an amazing opportunity for a young Moshe Safdie, and helped to propel his career forward. The combination of modular forms to create unique spatial relationships created the unique and visually engaging assemblage known today as Habitat. Several design decisions represent positive sociogenetic architecture: Interconnected spaces above grade, decentralized access to units, the focus on community and private terraces, and the idealization of prefabrication and efficiency to reduce cost and provide housing for more people. This form of low-rise, high-density building carries many promising strategies, but the development as it was constructed is not dense enough to be applied in the urban core. These ideas must be filtered and reapplied to be relevant to today's urban housing needs.



Fig. 4-11 Aerial View of Habitat

¹⁵ Fox.

¹⁶ Fox.

STREETS IN THE SKY: ROBIN HOOD GARDENS

Peter and Alison Smithson are often credited with the term “Streets in the Sky”. According to an Architectural Review documentary entitled *Robin Hood Gardens: Requiem For A Dream*, “The Smithsons had first proposed streets in the sky in 1952 in their competition entry for the Golden Lane Estate, just north of the Barbican.”¹⁷ In this context, “streets in the sky” refers to deck-access housing, which can now be defined as front-door access to residential units on a continuous balcony at each floor level, onto which the front door of each unit opens. The idea of putting wide, open exterior hallways on the exterior face of high-rise buildings came from a desire to invigorate the social fabric of the city. “The Smithsons hoped that street life could be designed back in, and the social fragmentation caused by towers could thereby be eliminated.”¹⁸ Unfortunately, Robin Hood Gardens came to epitomize that very social fragmentation. It became that which it was supposed to alleviate.

Robin Hood Gardens was one of the Smithsons’ largest built works, and was surrounded by controversy from the day it opened its doors. The term ‘streets in the sky’ is associated heavily with this project, as it was one of the first buildings in the modern era to employ deck-access to each residential unit.

17 Wilkinson, *Robin Hood Gardens: Requiem For A Dream*.

18 Wilkinson.



Fig. 4-12 Images of Robin Hood Gardens



Fig. 4-13 Robin Hood Gardens Deck Access Housing

Surrounded by a car park moat, the massive social housing project was cut off from the rest of the city by a wall that was intended to offer acoustic protection from a nearby road. Instead, the walls and car park segregated the complex from the surrounding urban network. Deck-access housing ringed the u-shaped buildings that surrounded a central park. This was designed so that even high-rise units would have a front door and the feeling of a street despite being high-rise. The hope for this social housing project was that streets in the sky would provide opportunities for neighbours to meet and socialize near their front doors. “The name gives it away. Like the municipal socialism that built it, Robin Hood Gardens was meant to be a bulwark against the ravages of untrammelled capitalism. But it ended up being accused of *causing* antisocial behaviour.”¹⁹ Due to the separation from the rest of the city, along with poor security features, the buildings quickly fell into disrepair and vandalism, and gained social stigma. “Security doors and key fobs were added later, and residents [say] that these dealt with much of the crime and vandalism that plagued these blocks.”²⁰ These however turned the supposedly social community into a gated one, a far cry from the intended social mixer.

Unfortunately, the concept of ‘streets in the sky’ did not prove successful in Robin Hood Gardens. The project failed due to social, planning, and architectural problems, yet this does not preclude its exploration in future projects. A revived concept of bringing the vibrancy and connected feeling of a ground level street up to hallways in the sky could be very provocative in the contemporary urban core.

¹⁹ Wilkinson.

²⁰ Wilkinson.



Fig. 4-14 8 House Courtyard and Ground Plane

8 HOUSE

8 House is a mixed-use residential building in the suburb of Ørestad, outside of Copenhagen, Denmark. Designed by Bjarke Ingels of BIG, 8 House interprets far more successfully the Smithsons' concept of 'streets in the sky'. The sprawling 61,000 square metre complex is comprised of 50,000 m² of housing, and 10,000 m² of retail and offices. There are 476 residential units, which includes 150 townhomes, apartments, and smaller units. Ingels utilized a layer-cake approach of stacked function accessible by a bike and pedestrian pathway that encircles the building, with commercial units at grade, and residential units stacked above. This stacked nature of the functions means that the offices take advantage of the ground plane integration, while residences get the air, ventilation, and views of the higher levels. "The Smithsons tried to realise this and I think they never really succeeded," noted Ingels, during a talk at the Royal Institute of British Architects in 2016. "I think maybe because the connection to the ground was actually sort of covered over."²¹

With 8 House, Ingels attempts to harness the spirit and connectedness of a village in a large, high-density development. It was envisioned as a three-dimensional neighborhood rather than an architectural object, extending the ground plane up into the building: "An alley of 150 rowhouses stretches through the entire block and twists all the way from street level to the top and down again. Where social life, the spontaneous encounter and neighbor interaction

21 Qtd. in Mairs, "BIG's 8 House Succeeded Where Smithson's Streets Failed."

traditionally is restricted to the ground level, the 8 House allows it to expand all the way to the top.”²² With many smaller-scale social spaces, and the “front yard” that each unit boats, there is a human-speed to the project. “Not only do we optimise the conditions for the individual programmes but we also elevate the social space. You end up getting almost small-scale community life happening inside a big building.”²³

The 8 House succeeds in extending ground-plane access to all units, subverting traditional vertical circulation methods. The inclusion of diverse program in the relatively large complex—including daycare, offices, and retail in addition to the residential program—ensures a diversity of use during the day, and an activation of social spaces. Ingels sees the elevated street as successful in prompting new ways of social engagement: “I think here that a seamless

22 Qtd. in Minner, “8 House / BIG.”

23 Qtd. in Mairs, “BIG’s 8 House Succeeded Where Smithson’s Streets Failed.”

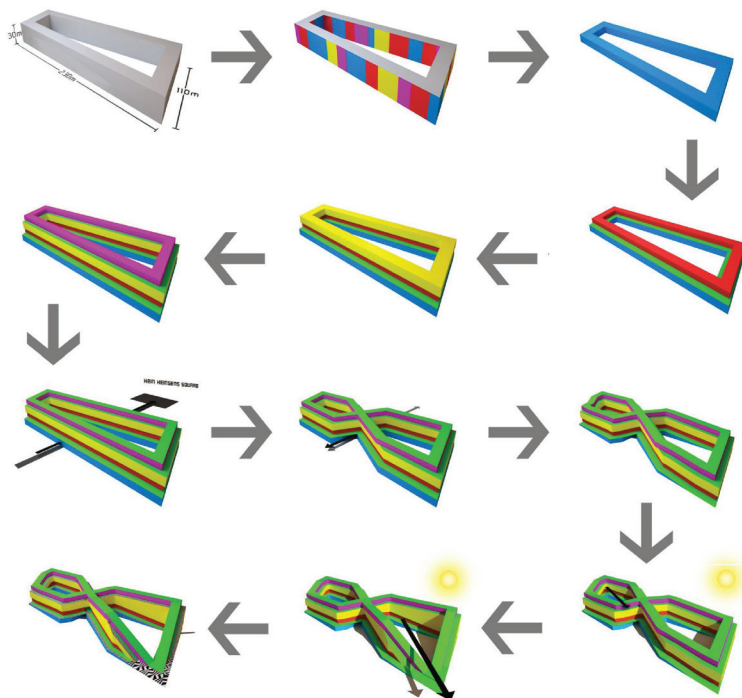


Fig. 4-15 BIG's 8 House Diagrams



Fig. 4-16 Image of 8 House

continuation of the public realm has made it incredibly lively.”²⁴

The success of the building aside, there are some drawbacks. It is important to note that the 8 House is not located in an urban setting. It is situated on the suburban outskirts of a developed area. The majority of the visitors will be residents and occupants of the building, so as successful as the inclusion of commercial and amenity spaces was, it was also necessary, as the building is a drive or bike ride away from many other buildings. 8 House is also fairly low-density, sprawling over a large site with relatively low-rise structure and the luxury of having a large amount of open space. This is not a common condition in the core of many urban metropolises. Nonetheless, there is much to learn from this experimental typology.

As with many of BIG's projects, this project is an alchemical mixture of traditionally disparate elements. In 8 House, it is the fusion of the suburban life with the energy of the city. Ingels has brought the life of the city to the suburbs. However, can this relationship be inverted? Can the benefits of suburban life be brought to the urban core?

24 Qtd. in Mairs.

4.3. CONCLUSION

The preceding buildings have all contributed to the sociogenetic improvement of the way that we dwell in dense urban environments. However, the vast majority of buildings constructed to house people in the modern urban core are lacking in concern for the social dimension of human life. Design strategies that counteract the profit-focused maximum efficiency developments are imperative.

Perhaps it is within the strategies of the past that new ways of designing urban dwellings will be found. The next chapter will investigate the strategies of Mat Building in an effort to inform a new methodology for designing sociogenetic architecture.



5 • MAT BUILDING

This chapter explores the history and strategies of Mat Building, noting historical strategies, and identifying relevant projects and concepts that will aid in the formulation of a conceptual design strategy for sociogenetic design.

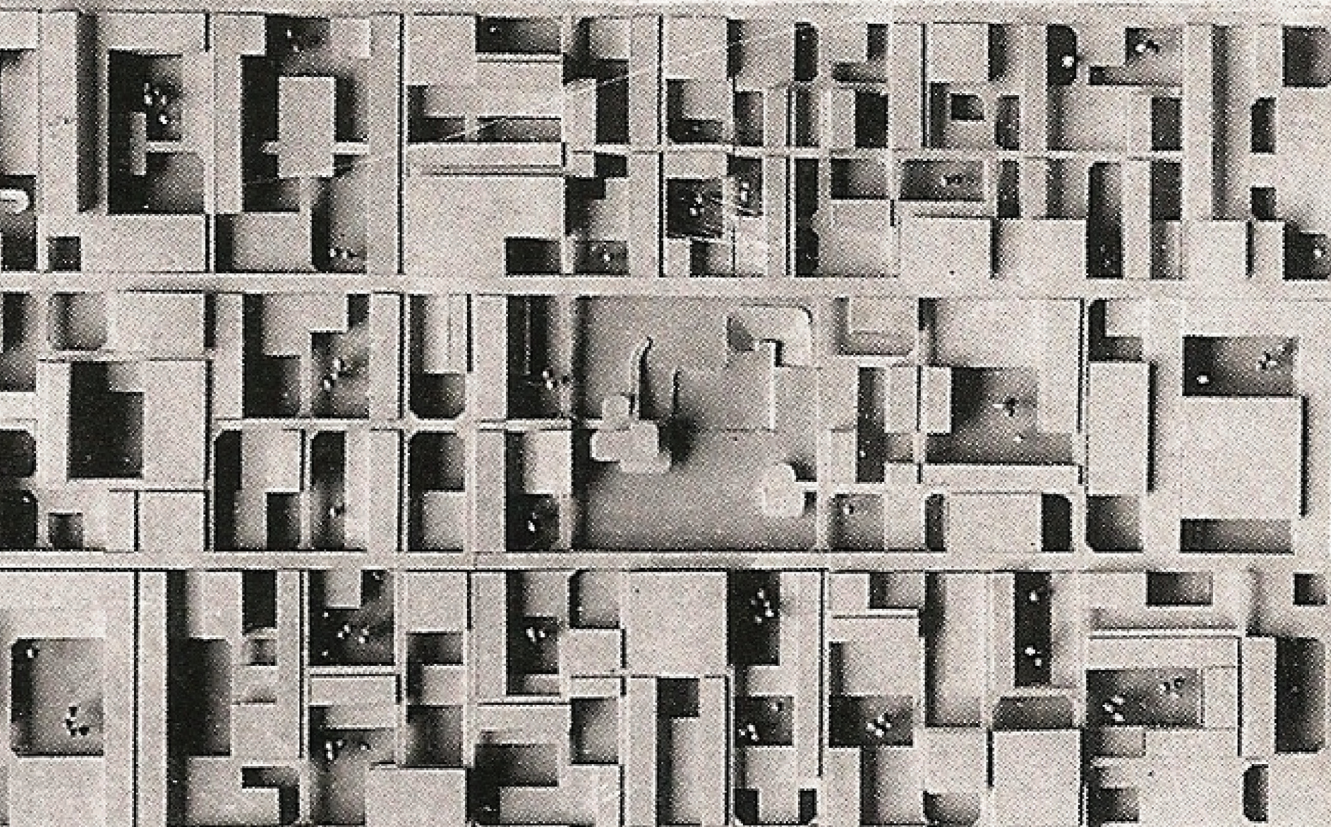


Fig. 5-1 Free University of Berlin - Candilis, Josic, Woods

5.1. ON MAT BUILDING

Alison Smithson was the first to identify the qualities of the Mat Building, in the 1970's. According to Smithson, "Mat building can be said to epitomize the anonymous collective; where the functions come to enrich the fabric, and the individual gains new freedoms of action through a new and shuffled order, based on interconnection, close-knit patterns of association, and possibilities for growth, diminution, and change."¹ Mat building is not a style of building, nor a prescriptive style, but more a set of qualities and strategies that many works of architecture since 1950 have embodied in their own way. What the mat building has to offer is a flexible yet specific set of strategies that can be adopted to improve the social quality of the city: "What is peculiar to the mat phenomenon... is the high degree of flexibility generated in the overall layout by an equally high degree of specificity found in the repeated element."²

As defined by Smithson's 1974 article, "By mat building... architects usually

1 Smithson, "How to Recognize and Read Mat-Building," 91.

2 Sarkis, *CASE Le Corbusier's Venice Hosp. Mat Build. Revival*, 14.

mean a building type that is low-rise and high-density, that is homogenous in its layout, and that consists of a systematic repetition of a simple element such as a column, skylight, or modular room.”³ A more accessible definition of mat building describes the formal architectural nature: “A mat building is a building that has access, layout, daylighting and ventilation solved for a plan unit that’s repeated as often as needed. Variations are allowed.”⁴ In terms of form, a mat building “is governed more by the internal connection of part to part than by any overall geometric figure. They operate as field like assemblages, condensing and redirecting the patterns of urban life, and establishing extended webs of connectivity both internally and externally.”⁵

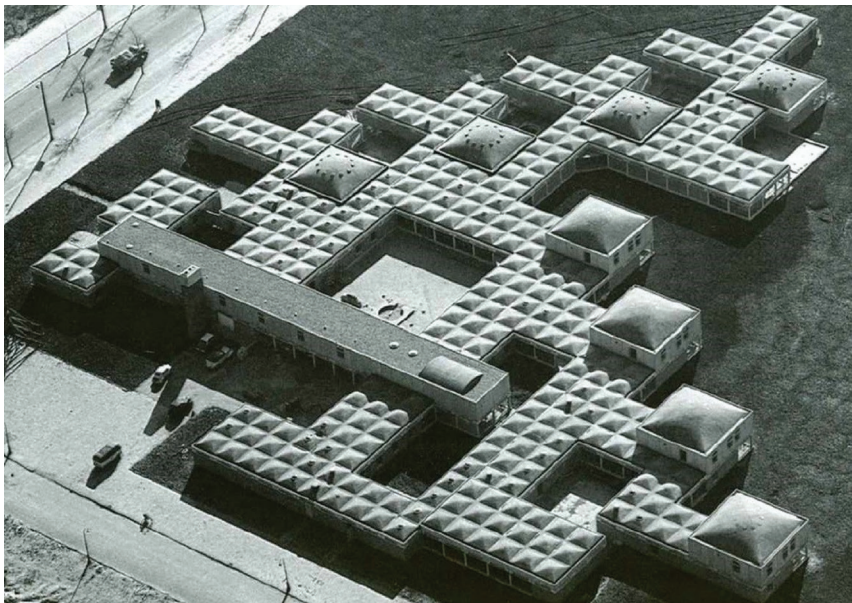


Fig. 5-2 Aldo van Eyck's Amsterdam Orphanage

3 Sarkis, 14.

4 McKay, “The Mat Building.”

5 Allen, “Mat Urbanism: The Thick 2-D,” 122.

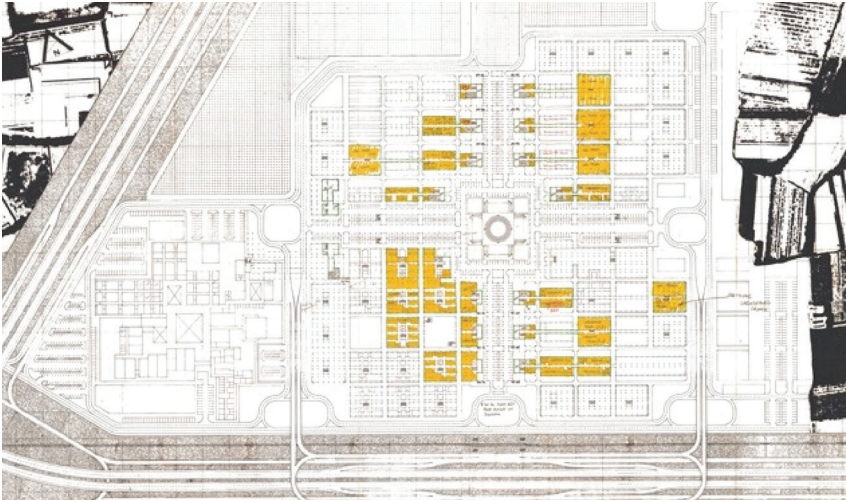


Fig. 5-3 Mat as Urban Strategy: Universitat Politècnica de Valencia

MAT AS URBAN STRATEGY

“Today mats are appearing everywhere. We call them fields, grounds, carpets, matrices.”⁶ But mat building is more than an architectural strategy—it is an urban strategy as well. “The mat is both city and building, both public and private, both structure and infrastructure.”⁷ The large scale of many mats necessitates an interface with the city as they represent a larger and more important piece of the urban fabric. “The mat answers to the recurring calls for efficiency in land use, and mixture in program. It expresses architecture’s increasing encroachment on both city and landscape and the open exchange between structure (building) and infrastructure (context) that this encroachment signals.”⁸

Hashim Sarkis, Dean of MIT’s School of Architecture and Planning, explains that the emergence of mat building was sparked by a need for increasing social interaction in an progressively complex city: “Mat building emerges in architectural consciousness around the late 1950s and early 1960s as a challenge to the segregation between architecture and urbanism and a way to generate more social interaction across segregated uses.”⁹

6 Sarkis, *CASE Le Corbusier’s Venice Hosp. Mat Build. Revival*, 13.

7 Sarkis, 15.

8 Sarkis, 13.

9 Sarkis, 15.

5.2. STRATEGIES OF MAT BUILDING

Below are the most important elements that define the mat building. These approaches will be examined in order to investigate and develop a socially-focused alternative residential design strategy.

1 • GEOMETRIC REPETITION

The most immediately recognizable strategy of mat building is the use of geometric grid systems to facilitate expansion of the mat, and the repetition of forms and elements within this geometric framework. “A mat-building is a large-scale, high-density structure organised on the basis of an accurately modulated grid. A first look at any mat-building geometry shows a ground plan in the form of a regular grid that constitutes the general order.”¹⁰ The modular units follow predetermined patterns inherent in the geometric grid systems which create intricate yet rational systems of enclosure and transition spaces. “What is peculiar to the mat phenomenon... is the high degree of flexibility generated in the overall layout by an equally high degree of specificity found in the repeated element.”¹¹

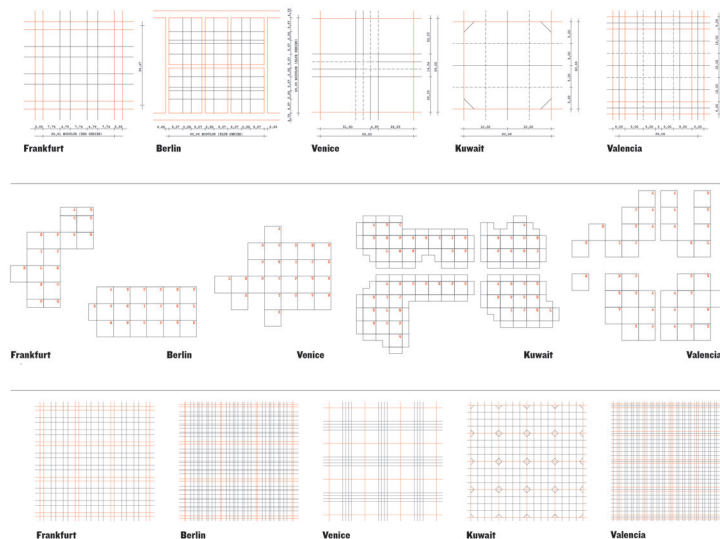


Fig. 5-4 Geometric Patterns in Mat Buildings

¹⁰ Calabuig, Gomez, and Ramos, “The Strategies of Mat-Building.”

¹¹ Sarkis, *CASE Le Corbusier's Venice Hosp. Mat Build. Revival*, 14.

2 • PRIMACY OF INTERSTITIAL SPACE

The spaces between and around the modules are another essential aspect of mat building. These interstitial spaces are part of the circulatory network of many mats: “Mat building is characterized by active interstitial spaces, where matter shapes and channels the space between things, leaving room for the unanticipated.”¹² This flexibility in creation of interstitial spaces within the geometric framework can create unpredictable or unexpected spaces, and unexpected social program. “The interstitial spaces of mat buildings dematerialize the borders of adjacent spaces, rendering the boundaries less distinct and the configuration of spaces more fluid and repetitive. Mat buildings can thus be seen as providing flexible “shells” to support different activities, in contrast to buildings with function-specific enclosures designed to accommodate predetermined activities.”¹³ Mat buildings, “are mostly similar in the way in which the parts fit together, and the character of the void spaces formed by their architectural matter. Internally, nearly all exhibit a porous interconnectivity, in which transitional spaces are as important as the nodes they connect. Externally, they are loosely bounded.”¹⁴

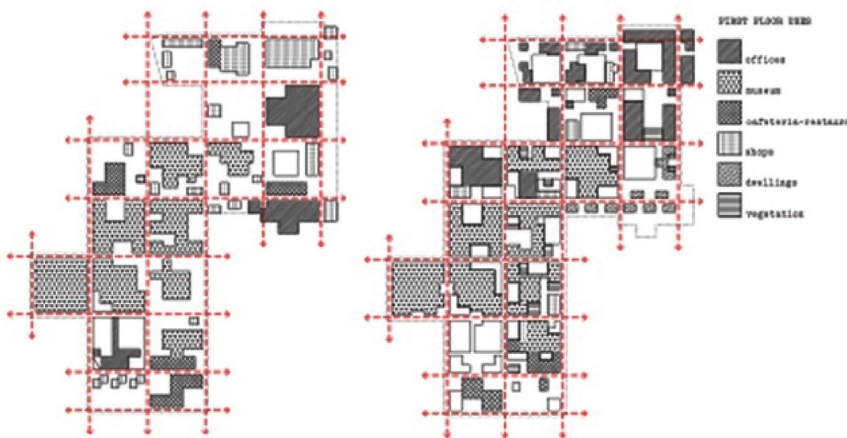


Fig. 5-5 Interstitial Space: Plans for Frankfurt-Römerberg, by Candilis, Josic, Woods and Scheidhelm

12 Allen, “Mat Urbanism: The Thick 2-D,” 122.

13 Addington, Kienzl, and Intrachotoo, “Mat Buildings and the Environment,” 71.

14 Allen, “Mat Urbanism: The Thick 2-D,” 122.



Fig. 5-6 FU Berlin: Pedestrian Focus



Fig. 5-7 Middle Eastern City Fabric

3 • EMPHASIZE HUMAN SPEED AND SCALE

The reason for researching mat building strategies was due to the emphasis many have on the pedestrianization of the urban realm. This is unsurprising as the movement found early inspiration from the complex pedestrian tapestries of Middle Eastern city fabric.¹⁵ “Mat buildings tend to be associated with the image of pedestrian movement, thus providing the basis for the claim that this building type reduces the need for mechanical modes of transportation. Initial considerations of this building type focused on pedestrian zones as social spaces central to the experience of the city.”¹⁶ This is true in more modern mats as well, and one of the most relevant strategies that can be adopted into socio-genetic design. Lewis Mumford describes the condition of the pedestrian North American city:

Now, the universality of motorized transportation, especially in the developing world, along with the decline of older pedestrian environments, has shifted the issue in a direction few architects have begun to consider, but that will become even more critical in the coming decades. The mat approach may provide a productive method to begin to reengage issues that now seem to be a permanent part of the urban condition.¹⁷

¹⁵ Smithson, “How to Recognize and Read Mat-Building.”

¹⁶ Addington, Kienzl, and Intrachotoo, “Mat Buildings and the Environment,” 72.

¹⁷ Mumford, “The Emergence of Mat or Field Buildings,” 64.

4 • RELENTLESS INEFFICIENCY

Mat buildings deprioritize the efficiency of circulation. In fact, mat buildings seem to revel in the *inefficiency* of circulatory space. “From the space-planning standpoint, however, the plan of mat buildings may not be efficient even with increased density, because so much of the building floor area is dedicated to circulation space at the expense of functional space. For example, in the Berlin Free University, 26 per cent of the floor area (excluding lobbies and service spaces) is dedicated to circulation.”¹⁸ It is essential that new strategies do away with the current obsession with efficiency. “By virtue of its seemingly endless repetition, the building becomes an environment unto itself.”¹⁹

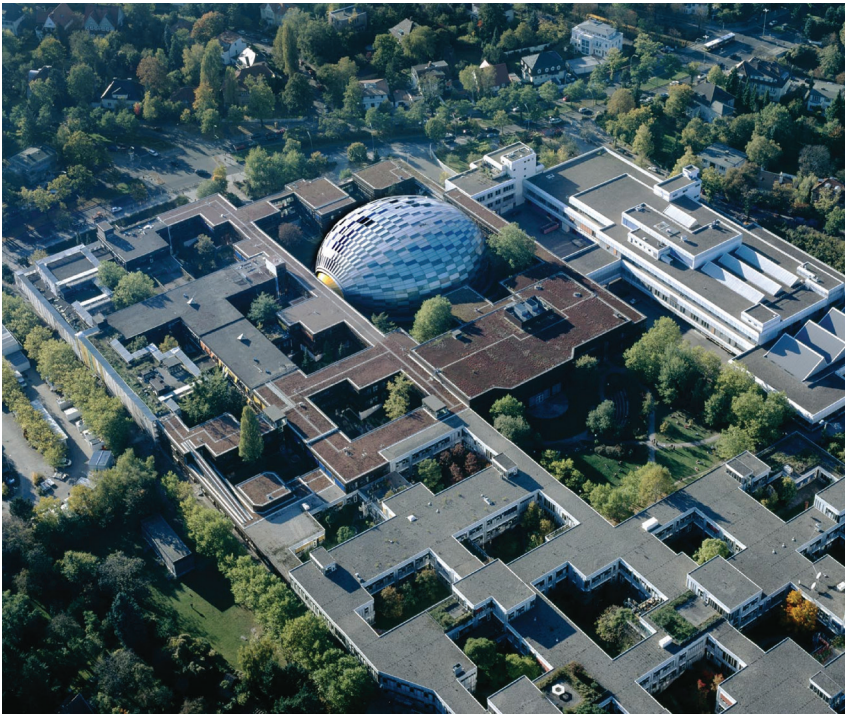


Fig. 5-8 Free University of Berlin Blurs Inside/Outside Space

18 Addington, Kienzl, and Intrachooto, “Mat Buildings and the Environment,” 71–72.

19 Sarkis, *CASE Le Corbusier’s Venice Hosp. Mat Build. Revival*, 14.

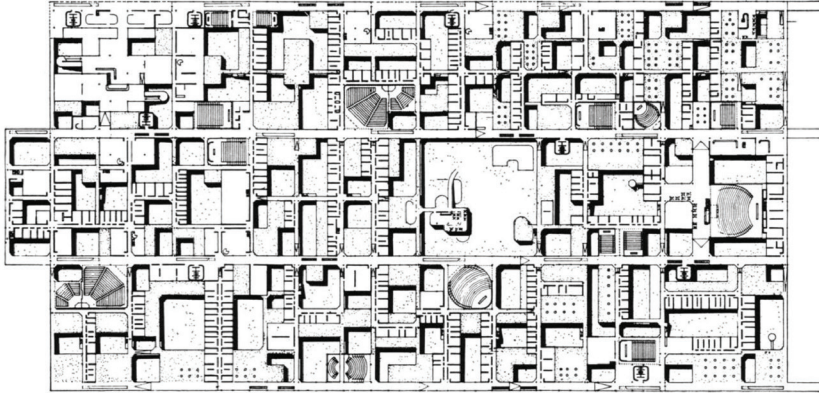


Fig. 5-9 Free University of Berlin: Relentlessly Inefficient

5 • BLURRING INTERIOR AND EXTERIOR SPACE

Mat buildings blur the divide between interior and exterior space, by extending the agency of space into the shared interstitial spaces of the circulation network. “As a challenge to the iconic tall housing block of the modern movement, but with the same objective of countering the existing urban environment, the concept of buildings with interstitial outside spaces was developed to create cities that controlled both the exterior and interior environments.”²⁰ The sense of agency or ownership extends to these ‘outside’ spaces. “Mat building provided a means through which the outside could be controlled, much in the same way as the interior environment was climatically controlled.”²¹

20 Addington, Kienzl, and Intrachooto, “Mat Buildings and the Environment,” 67.

21 Addington, Kienzl, and Intrachooto, 69.

5.3. THE SPRAWLING MAT

In many ways the sprawling mat is the traditional mat building. This is the permutation that in large part defines the term. Generally low-rise, 2-4 storeys, the sprawling mat relies on the availability of horizontal land to grow outward. Due to the flexible nature of framework and program, this form can be unbounded, and has the potential to sprawl endlessly in the horizontal plane.

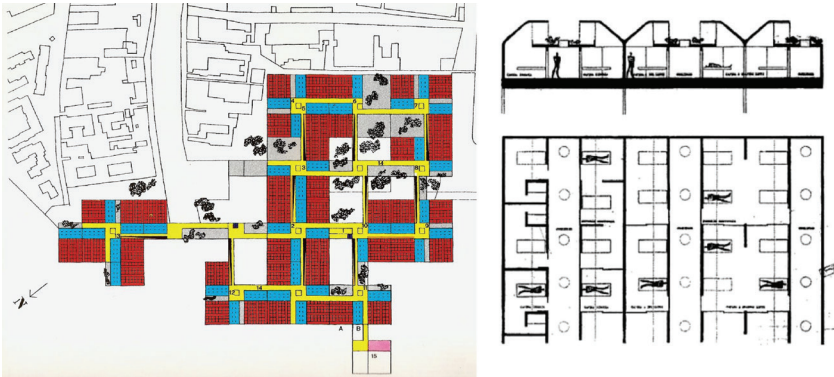


Fig. 5-10 Diagrams of Le Corbusier's Venice Hospital

NEXUS WORLD HOUSING

Nexus World Housing was a residential project designed by OMA. Completed in 1991 in Kashi District of Fukuoka in Japan, it represents a more contemporary iteration of the traditional sprawling mat form and strategies. It is comprised of 24 houses, meshed together and bounded by a perimeter wall that limits the extents of the development. "Each house is penetrated by a private vertical courtyard that introduces light and space into the center."²²

The project is bounded by its site, termed a "superblock" by OMA.

Regarding the idea of buildings as a field of related elements, OMA refers to this condensation of urban form: "Sections of Pompeii, for instance, form continuous tapestries where houses never become objects- and similar experiments by Mies van der Rohe where individual courtyard houses are consolidated to form blocks, so that the substance of modern architecture is condensed to generate urban form."²³

²² OMA, "Nexus World Housing."

²³ OMA.



Fig. 5-11 Nexus World Housing

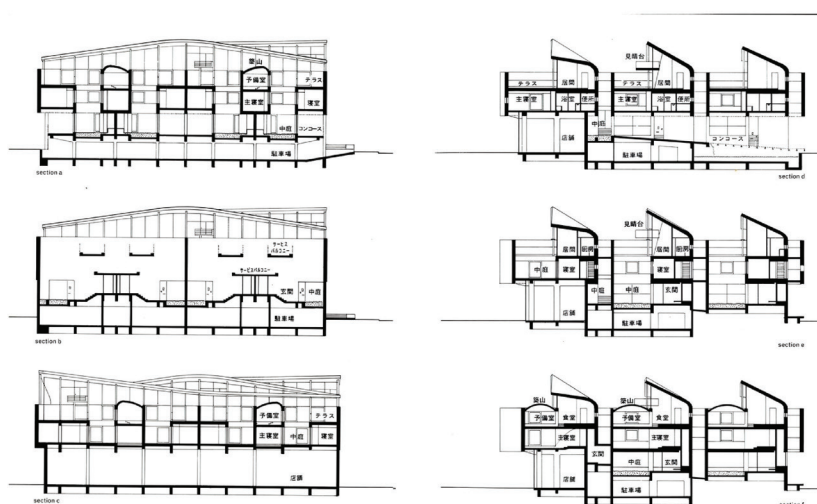


Fig. 5-12 Nexus World Housing Sections

5.4. THE INCLINED MAT

Inclined mat buildings are built on terrain that is naturally sloped. This provides an opportunity for the terracing of the residential units on natural hill-sides. The restriction of course is that this type cannot be built in any location.

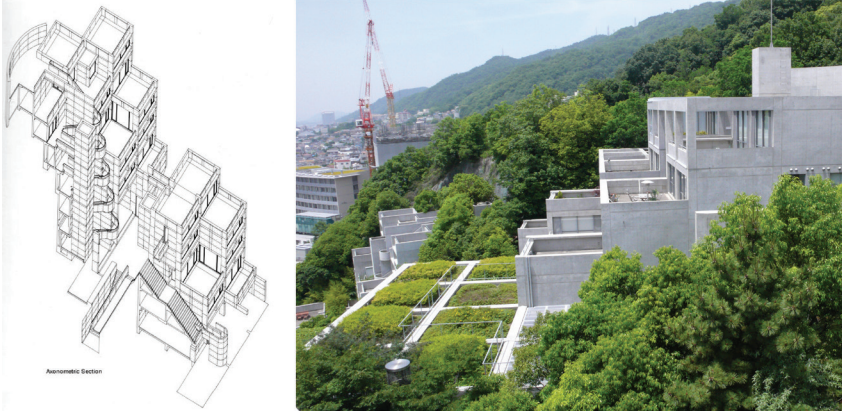


Fig. 5-13 Section and Image of Tadao Ando's Rokko Housing One

PASADENA HEIGHTS – KIYONORI KIKUTAKE

Pasadena Heights is a residential mat building designed by Japanese Metabolist Kiyonori Kikutake, and completed in 1974. It is perched upon a slope, with access to terraced dwelling units from streets upslope and downslope from the building. Units are modular and are accessed from below, or from a street at the front of the dwellings. Skylights, open-air and ventilation are a priority in this building. "Inside, there's no circulation space as such. Going from one space to another is a part of life that doesn't require a dedicated space to do it. In Japanese houses, passing through the living room and saying, 'I'm going to have a bath now' is what happens everyday."²⁴ The drawback to this approach is that it is very specific to the slope it is situated on, and would not be successful on a flat site.

24 McKay, "The Building Is Not Trying to Be a Mountain."

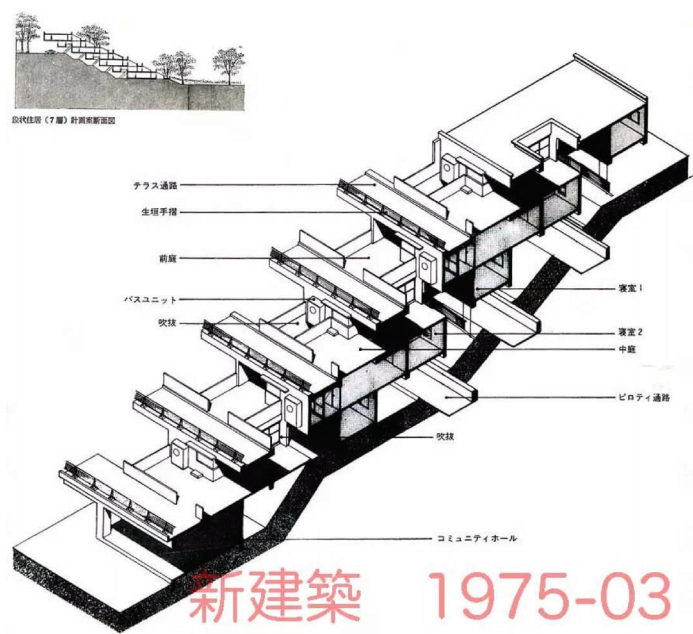


Fig. 5-14 Pasadena Heights Cross-Section

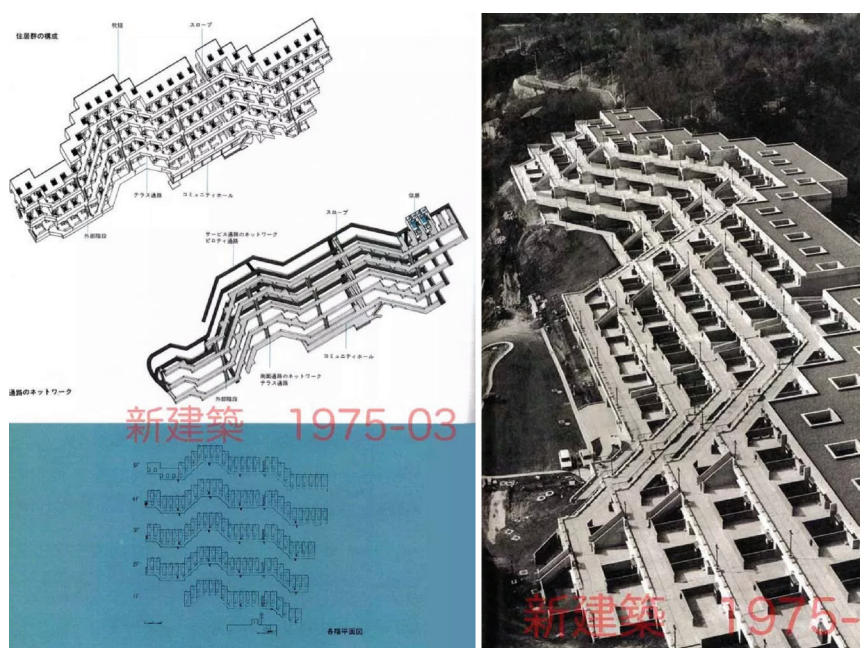


Fig. 5-15 Images of Pasadena Heights

5.5. THE ELEVATED MAT

The artificially supported mat is the next evolution of the mat building, where a mat is perched upon an artificial surface, rather than a natural slope. Perforating and accessing the space beneath the mat provides opportunities for ingress and added program.

MOUNTAIN DWELLINGS

BIG's Mountain Dwelling is an example of an inclined mat built on an artificial slope, comprised of 80 dwellings and 480 parking spaces.²⁵ Stacking residential dwellings atop program rather than earth provides an opportunity for diverse programming at a dense urban scale. The slope in this case is comprised of vehicular parking, which allows the residents to drive to and park right outside their unit—the suburban dream in a high-density building. The terraces that form the sloped matrix each represent a dwelling unit that has access to both light, air, and parking.

25 Minner, "8 House / BIG."



Fig. 5-16 Mountain Parking and Rear Access

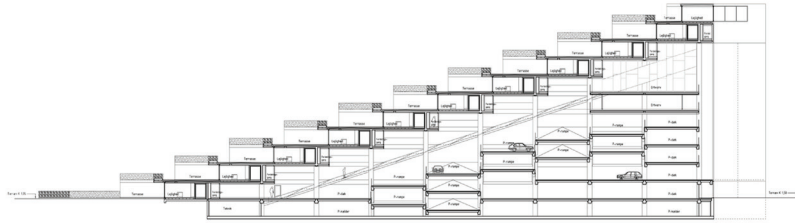


Fig. 5-17 Mountain Terraces

This is a landform building, one which fuses the urban and the architectural to create both city and building at an urban scale. Iñaki Ábalos described landform buildings as the fusion and dissolution of the skyscraper and the urban park:

In these experiments, we witness the simultaneous and synchronized dissolution of two typologies: the skyscraper and the large urban park. And with this dissolution, we see how provisional the traditionally held opposition of these culminating modernist moments truly was in the first place. Everything, from the body to the cosmos, from breathing to publicity, says that there is another world outside these oppositions established by the modern movement.²⁶

BIG's Mountain Dwelling dissolves the urban park into personalized pixels of shared space, distributed between the units in a cascade of visually connected, small-scale spaces that embody a terraced neighbourhood.

26 Allen and McQuade, *Landform Building: Architecture's New Terrain*, 3.

5.6. CONCLUSION

This is not a thesis that will focus on directly adopting the strategies of mat building. Instead, the strategies of mat-building can be used to inform a new approach to building socially-focused high-density urban residential architecture. “The mat approach shifts the architect’s attention from imagery to organization, and from bounded shape-making to the provisional organization of fields of urban activity, which are understood to have a constantly changing character. This is its strength, and it appears to be particularly well suited to the creation of mixed-use pedestrian urban environments.”²⁷ Due to their urban, social nature, strategies of mat building can be borrowed quite effectively in the development of sociogenic architecture. The preceding research and strategies above contributed to the development of the strategies of *Sociogenetic Architecture* in the next chapter.

²⁷ Mumford, “The Emergence of Mat or Field Buildings,” 64.



6 • SOCIOGENETIC ARCHITECTURE

This section builds on explorations and iterations in the preceding chapters, pushing the thesis forward by outlining the strategies of *Sociogenetic Architecture*. Employing the strategies below aims to promote positive sociogenesis—changing the relationship of urban high-density architecture with the urban fabric, and intensifying human contact and the growth of relationships between residents, neighbours, and pedestrians alike. These concepts will be tested through the vessel of architectural exploration in further sections.

6.1. STRATEGIES OF SOCIOGENETIC ARCHITECTURE

Sociogenetic Architecture manifests through a high-density mixed-use urban exploration that adopts some approaches from mat building, including a framework of repeated elements, interstitial shared spaces, and decentralized circulation in order to expand the social dimension of residential development and urban life for the future. These are the strategies of *Sociogenetic Architecture*:

1 • EXPOSE CIRCULATION

Circulation within a residential building must be opened up to the street, through both physical access and visual connection. Corridors insulated within the building sever the resident from perceived and actual connection with the city, and with neighbours. This tackles the vertical stratification of stacked floor plates directly. Employing this strategy acknowledges that circulation is determinant, but takes advantage of this in an effort to revitalize the social quality of urban spaces.

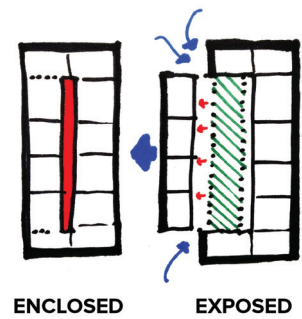


Fig. 6-1 Expose Circulation Diagram



Fig. 6-2 Expose Circulation: Exterior Hallways of BIG's 8 House

2 • LIBERATE THE GROUND PLANE

The urban ground plane must be prioritized for the pedestrian. Cross-block infiltration into shared spaces and networks of green space will revitalize the ground plane and enliven interior block conditions. The urban core demands pedestrian-focused design on interior block conditions including shops, trees, seating, and other elements that interest people and provoke curiosity at a human speed.

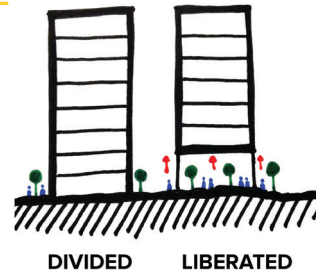


Fig. 6-3 Liberate the Ground Plane Diagram



Fig. 6-4 Liberate the Ground Plane: Le Corbusier's Unité d'Habitation Marseille

3 • FOCUS ON SOCIAL SPACES

Residential units and circulative paths must be organized around shared parks and transitional common spaces. Consistent visual connectivity to the shared spaces ensures a feeling of safety and security without the need for dehumanizing or dystopic security measures. Cross-commons views allow residents to see neighbours when they want to be seen—while on their private terraces—without feeling the same exposure while inside their unit.

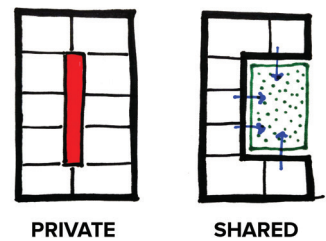


Fig. 6-5 Social Spaces Diagram



Fig. 6-6 Focus on Social Spaces: Campo Bandiero e Moro in Venice

4 • FLEXIBLE UNIT MODULE

Instead of relying on a repetitive stacked floor plate, the dwelling unit must be the foundational element of the aggregate building. A grid system that enables manipulation of a repetitive unit module will allow for unlimited iterations and variations in the size, shape, and configuration of a living space, all while adhering to an overarching logic that guides the tectonics of the architecture.

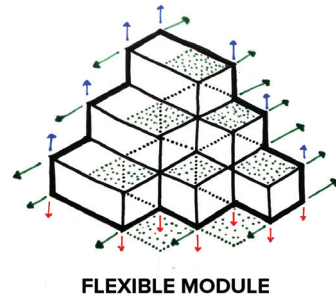


Fig. 6-7 Flexible Unit Module Diagram

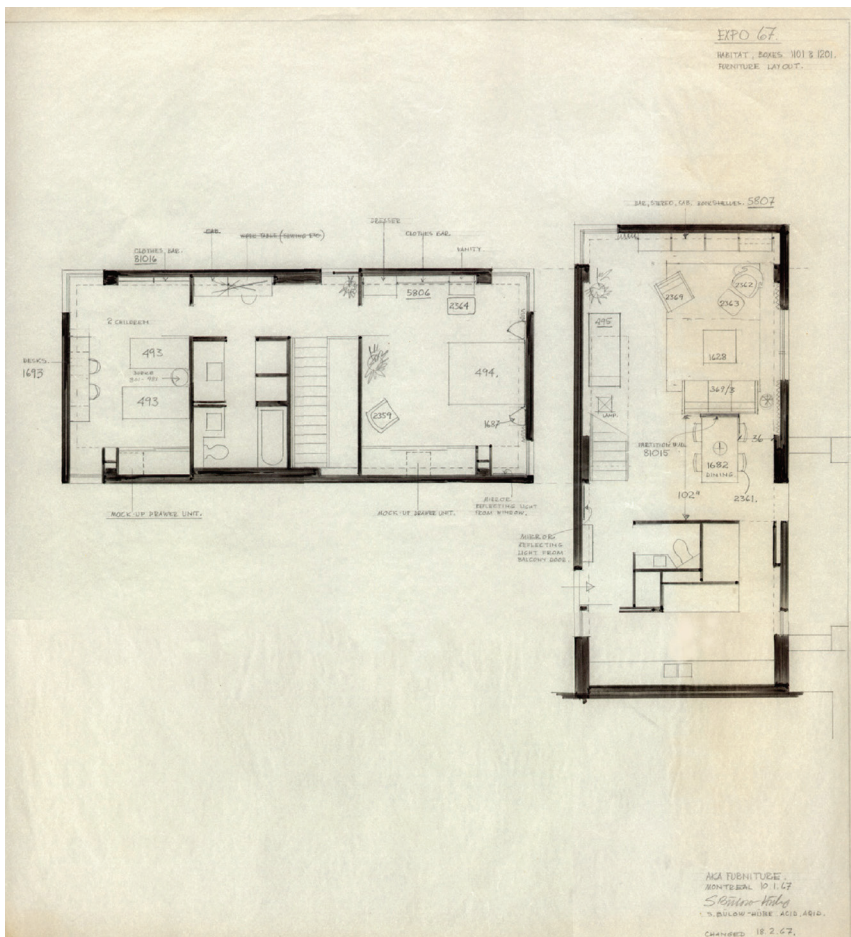


Fig. 6-8 Flexible Unit Module: Habitat '67

5 • PROGRAMMATIC DIVERSITY

Integrating diverse functions into a large urban project is essential for the activation of the neighbourhood at different times of the day. Integrating uses such as shared office space, small shops and childcare services provide the necessary supportive spaces for the large influx of residents to the area, without taxing existing systems. Larger social amenities like museums, libraries, and cultural services help to attract pedestrians and neighbours into the shared spaces and common ground-level parks.

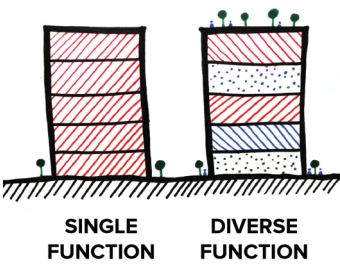


Fig. 6-9 Programmatic Diversity Diagram



Fig. 6-10 Diverse Program: MVRDV's Markthall in Rotterdam



7 • SOCIOGENESIS: URBAN BLOCK

This section further explores the Sociogenetic Dwelling on a large urban block. A site is identified as a testing ground for exploring the strategies of sociogenetic design, including a brief history of the area, site, and the surrounding neighbourhoods.



Fig. 7-1 Map outlining extents of the Southeast Core

7.1. TORONTO'S SOUTHEAST CORE

The location of interest for this investigation is the downtown core of Toronto, east of Yonge St., bordered by the Don River on the east, Queen St. to the north, and the railway to the south. This area contains several neighbourhoods with unique historical character, such as Old Town, Corktown, the Canary District, and the Distillery District.

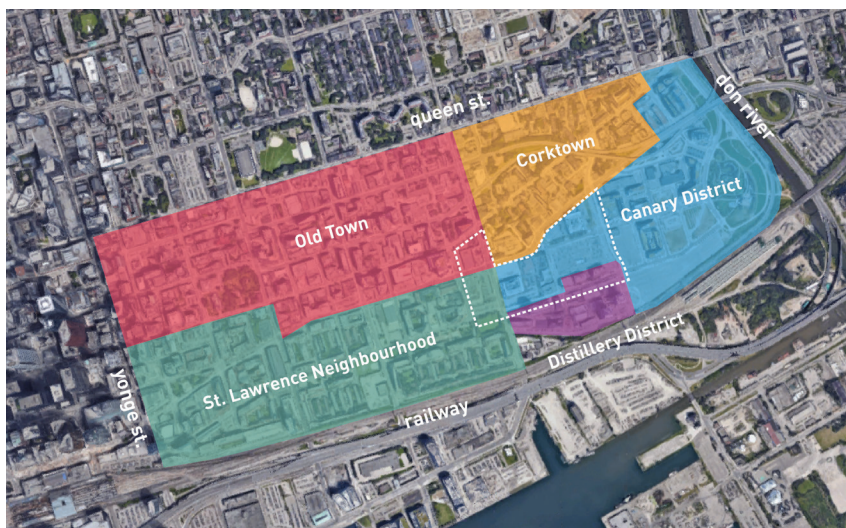


Fig. 7-2 Map showing extents of Neighbourhoods in the Southeast Core

7.2. NEARBY NEIGHBOURHOODS

OLD TOWN

Old Town was the first named neighbourhood in Toronto, having acquired the name when York was expanding northward around 1815. It contains the first 10 blocks in the history of the city, and now spans from Queen St. to Front St., and from Jarvis St. to Parliament St. These blocks are considerably smaller than some of the surrounding city blocks that were developed at a later date.

CORKTOWN

Corktown is a residential neighbourhood just east of Old Town that housed the employees of the Distillery District in the early 19th century. It is believed that the name came from either the producers of cork stoppers and brewers in the vicinity, or from the Irish settlers, many from County Cork. Today it contains many small residences and re-purposed industrial buildings.

CANARY DISTRICT

The Canary District is a relatively new development, built under the design guidelines of the West Don Lands Precinct Plan, organized and orchestrated by Waterfront Toronto. It is a mixed-use neighbourhood of mid to high-rise residential and commercial buildings that open onto a large park which acts as a berm to prevent the threat of a flooding Don River. While the core of this new district is complete, many lots on the periphery remain undeveloped and currently sit as parking lots and brownfield sites.

DISTILLERY DISTRICT

The Distillery District is a National Heritage site, located just south of Corktown. It is a pedestrian-only zone with historic buildings and many boutique shops and stores. It is named after the Gooderham and Worts distillery buildings that remain as tourist attractions to this day.

7.3. ST. LAWRENCE NEIGHBOURHOOD

The St. Lawrence Neighbourhood is an area stretching from Yonge to Parliament, and from the Railway to Front St. Conceived and built in the late 1970's, it is regarded by some as Toronto's best example of a planned community. Mayor David Crombie was instrumental in the success of the project, and several parts of the development bear his name. "In the late '60s and early '70s, there was strong concern in the city about housing and neighbourhoods. The model at the time was to tear everything down for what was called 'urban renewal.' Much of the city was being sacrificed on the altar of growth, and it was being done in such a hurry people were worried about what would happen in their neighbourhood."¹ These are echoes of the fears that the residents currently have about the surrounding area. Instead of rushing to build upwards, the planning committee broke the urban planning orthodoxies of the time."² This neighbourhood was the first community to integrate community and amenity spaces into mixed-use buildings in Toronto. "All neighbourhood amenities were phased into the development to ensure equitable access to childcare, school and a community centre."³ This is a strategy that is rarely seen in development of residential buildings in Toronto today. The low- to mid-rise buildings all face a linear public park used by the school during the day. "The park is a major open space structuring element for the neighbourhood that helps to spatially define the community and provide it with an identity." The 23-hectare site houses 4310 residential units, and 42 per cent of the land is devoted to parks and public streets.⁴ These public spaces are extremely important to the overall success of this development. The challenge for the rest of the area will be to channel the spirit and ideals behind this project into new developments. As Toronto Star columnist Christopher Hume opines, "It is an established city neighbourhood, newer than most, but as much a part of the city as any and there for all to see. If only we could remember how we did it."⁵

1 Hume, "Big Ideas: Learning the Lessons of St. Lawrence Neighbourhood."

2 Hume.

3 "St-Lawrence Neighbourhood: Crombie Park Apartments & Downtown Alternative School."

4 "St-Lawrence Neighbourhood: Crombie Park Apartments & Downtown Alternative School."

5 Hume, "Big Ideas: Learning the Lessons of St. Lawrence Neighbourhood."



Fig. 7-3 Image of the St. Lawrence Neighbourhood

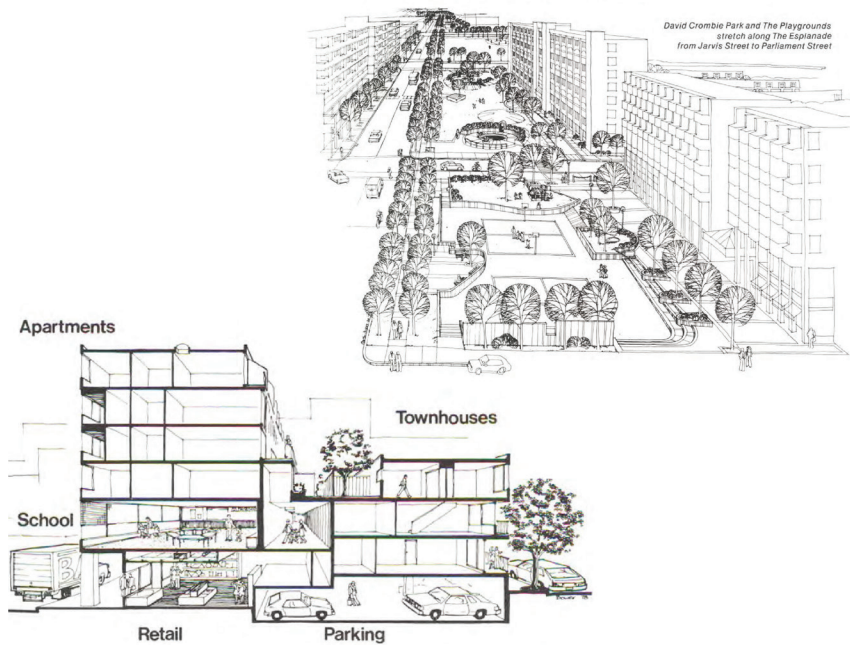


Fig. 7-4 Drawings of the St. Lawrence Neighbourhood



Fig. 7-5 Map showing extents of the Dealership District



Fig. 7-6 Map identifying dealerships and parking lots in the dealership district

7.4. THE DEALERSHIP DISTRICT

The *dealership district* is an area at the periphery of the previously described neighbourhoods in the vicinity which—through design or neglect—seems to have fallen through the cracks of city planning. Labeled thusly for a fairly simple reason: there are an inordinate number of auto dealerships concentrated in the vicinity along Front Street. Where there are auto dealerships, there are parking lots. Large ones, to store the cars these dealerships have for sale. Most of these dealerships are lacking in specific architectural quality. In fact, many would seem more at home deep in the suburbs. Hume wrote of these buildings, “dealers such as Downtown Toyota at Queen and Broadview are noisy attention-seeking spaces lined with flags. It looks like something you’d expect to see on a suburban highway, not a busy downtown corner. It won’t be around much longer, however, condos are on the way.”⁶ And that, of course, is a most important facet of these one-storey parking lot structures—it is not that they currently pose a pressing problem to the urban core, apart from

6 Hume, “Toronto’s East Side Car Dealerships — the Good, the Bad and the Ugly.”



Fig. 7-7 Google street view image from a desolate corner: Front St. and Trinity St.

seeming out of place. The issue is that they will inevitably fall under the eye of real estate investors and developers keen to maximize floor area ratio and density.

Many of the lots in this area are considerably large with extremely low-density which makes them prime real estate for developing large-scale complexes. Where point-tower condominiums would rise up on smaller sites, the sheer scale of some of these blocks call for an altogether different approach, at a much larger scale. As Hume notes, these lots are placeholders until developers figure out how to make a profit on them. “Another row of car retailers, on Front east of Parliament, make no pretence at anything more than basic utility. They are occupying space until the condo builders show up.”⁷ However, the lots are so large that a single point tower is not an effective solution.

The city is changing. At a time when improved public transit, a burgeoning cycling culture, and high fuel and parking costs are making car ownership in the urban core even more a luxury, it’s not difficult to envision a proximate future where cars no longer rule the urban core—where pedestrians take precedent once again in the design of our cities. “One wonders how much longer cars as we know them will be around. Even in Toronto, where the mayor’s focus is vehicular congestion, it’s clear the auto has taken us about as far as it can.”⁸ It is no longer necessary to build a modern city core around the personal automobile. Let these dealerships go the way of the farrier and the stable. This is an area with a history in successful urban planning and the area should be rigorously conceptualized, rather than allow a great opportunity for community development and precedent setting to be lost.

⁷ Hume.

⁸ Hume.

7.5. FRONT & PARLIAMENT: OPPORTUNITIES FOR CONNECTION

The site selected for exploration is within the so-called dealership district. It is located on the southwest corner of Parliament and Front Streets, facing a soccer pitch to the south, and is currently occupied by a one-storey auto dealership, auto rental company and a large parking lot. The only caveat is that the soil beneath the asphalt is contaminated with heavy metals and other pollutants due to the industrial history of the site. Nonetheless, this site presents a brilliant opportunity to connect to the pedestrian link from the St. Lawrence neighbourhood on the west through to the Canary District to the east. It is a direct continuation of the St. Lawrence neighbourhood and the proposal should strive to maintain the success of that area at a much higher scale and density.



Fig. 7-8 Google Image of the proposed site

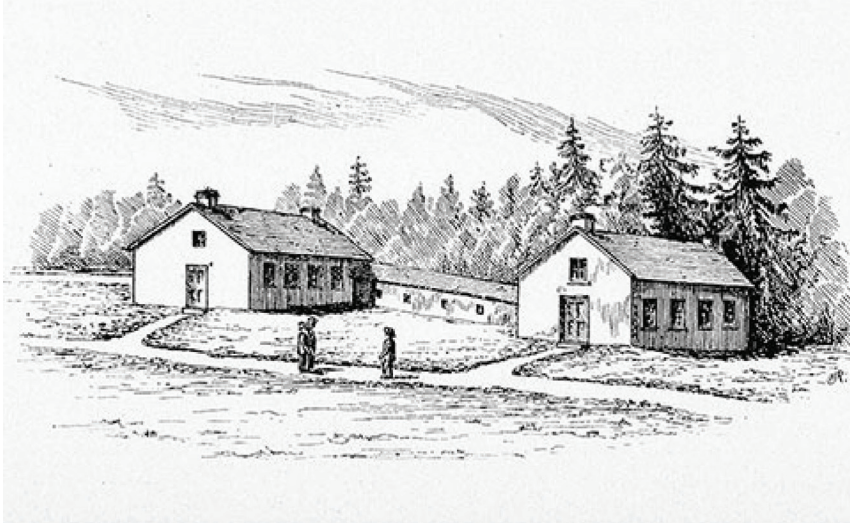


Fig. 7-9 Site of First Parliament

SITE OF FIRST PARLIAMENT

The chosen site, though derelict and seemingly unremarkable, is in fact home to an important local history. It was the site of the first parliament of Upper Canada, and is colloquially referred to as *First Parliament*.

Founder of Upper Canada John Graves Simcoe was responsible for the construction of Ontario's first parliament building: "Simcoe and his officials designated an area just east of the town for Upper Canada's first parliament, a low-slung pair of brick-frame structures—the upper and lower houses—connected by a walkway. The colonialists, who had been using Newark (Niagara-on-the-Lake) as their seat of government, wanted to relocate for defensive reasons, but rejected London. The parliament opened in 1797."⁹

These original buildings were burned down by the invading Americans in 1813, during the War of 1812. After the fire, the parliament was rebuilt, but succumbed to an *accidental* fire, and parliament was eventually moved to the site of the current CBC headquarters on Front Street. The First Parliament site sat derelict for many years until a jail was constructed in 1840, yet eventually Toronto was expanding and needed a larger jail. The Don Jail was built in 1864 and the First Parliament site lay fallow until "in 1887, Consumers, in full expansion mode, acquired the long-derelict jail site, using the land for a coal shed, rail spur and eventually a looming 'retort' building, where the gasification process

9 Lorinc, "The Remains of Ontario's First Parliament Are Buried and Long Forgotten in Downtown Toronto."

occurred.”¹⁰ The old jail building was torn down by Consumers Gas. “But with the end of coal gas production in the 1950s, Consumers began selling its real estate holdings, including the First Parliament block, by the mid-1960s. Most of the buildings were razed, the contaminated land capped by asphalt and ‘car-oriented’ uses.”¹¹ This describes the present-day conditions of the site—a parking lot and car rental services that certainly belie the rich history of the location

The soil condition, not the historical value of the site, may be the reason it has yet to be developed in the modern age. “The wrinkle is that the land is heavily contaminated, and it’s not clear how the city plans to fund the remediation, or whether the other archeological materials buried beneath the asphalt, some dating back to the presence of the jail and the gasworks, can even be salvaged from their tomb of highly toxic soil.”¹² It may be better to leave the majority of the contaminated soil below ground and give homage to the original parliament buildings through the construction of a museum of parliamentary and provincial history.

WATER’S EDGE: A PLACE OF EROSION AND TIME

Front St. was originally named for its proximity to the waterfront. “Although it’s difficult to picture today, this piece of land once sat at a point where Taddle Creek flowed into an inlet on the lower Don, just north of the lakeshore. The southern border of the First Parliament site, now a parking lot that backs onto the Esplanade, would have been just metres from the water’s edge.”¹³ This is an area of considerable change, both in appearance and function. The impact of water and erosion on the area over time have had great symbolic impact.

10 Lorinc.

11 Lorinc.

12 Lorinc.

13 Lorinc.

7.6. SITE STUDIES AND LOCATION

SITE PHOTOS

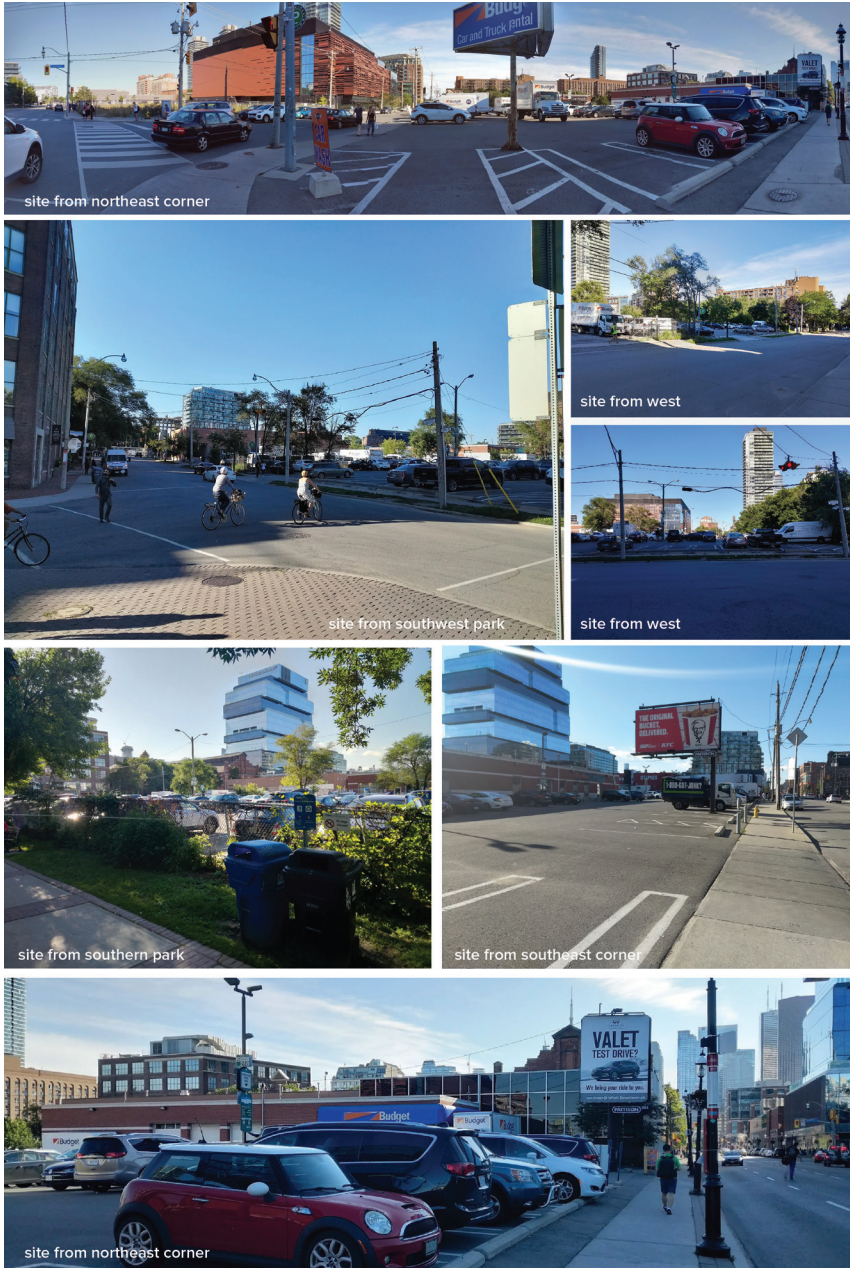


Fig. 7-10 Site Photographs

7.7. DEVELOPER PROPOSAL

A development proposal is currently under review by the City of Toronto for a site in the vicinity of the dealership district. Akin to adjacent sites, it comprises a full city block. This site is currently home to a closed-down single-storey grocery store and parking lot—a prime candidate for development.



Fig. 7-11 Location of the developer proposal

The proposed development spans the entirety of the block, and effectively closing it off to pedestrian through-block access. Excepting the driveway at the core—where dwelling units would be unfeasible, the entire proposed site is packed with residential units.

In a neighbourhood where the buildings range from 4-12 storeys, the height of the proposal crests 30 storeys, with the highest point a sheer wall straight along front street, stepping down towards the south end of the lot. At grade level there are no tenable public spaces provided, despite adding thousands of residents to a quiet, low-rise neighbourhood. This proposal, disregarding the history of the context, seeks to redefine a new scale as a precedent for the area.

However, since there are no explicit design guidelines for this specific area, the proposal—which is in a fairly advanced stage—seems to be progressing towards approval.

To avoid the costs of mitigating contaminated soil and excavation of parking structures, the design proposes lifting resident parking up to 10 storeys into the sky, in the space at the core of the building. A fortress, with a mountain of cars at the core.

To give some perspective to the massive scale of this block, the entirety of

the West Don Lands Canary District development to the east of this site is estimated to contain 6,000 residential units.¹⁴ This developer proposal alone contains 1,500 units. One quarter of the residents of the entire neighbourhood of the Canary District could reside in this building. This is all without any beneficial return to the ground plane condition. This is not sustainable city development. In the words of Toronto Councillor Pam McConnell, “Developers are coming in and trying to sell (buyers) on a vibrant, pedestrian-friendly community that their buildings would destroy.”¹⁵

There is notable pushback against this breed of development from the local community. According to Suzanne Kavanagh, President of the St. Lawrence Neighbourhood Association, “People in the mixed-income neighbourhood aren’t anti-development or anti-condo...They just want developers to consider the impact of height and density on the community, not just the site, so it doesn’t become another Toronto ‘concrete canyon.’”¹⁶ The community needs to know that their well-being is a priority when a major site of this character is developed.



Fig. 7-12 Rendering of the Developer Proposal

¹⁴ “West Don Lands.”

¹⁵ Rider, “St. Lawrence Neighbourhood Suffers Highrise Fever.”

¹⁶ Rider.

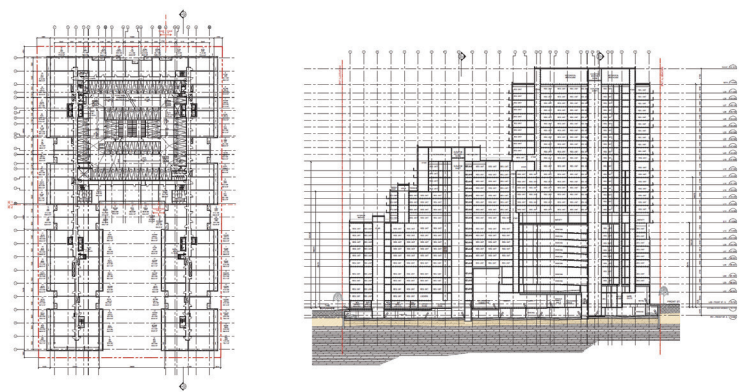


Fig. 7-13 Section / Floor Plan of Developer Proposal

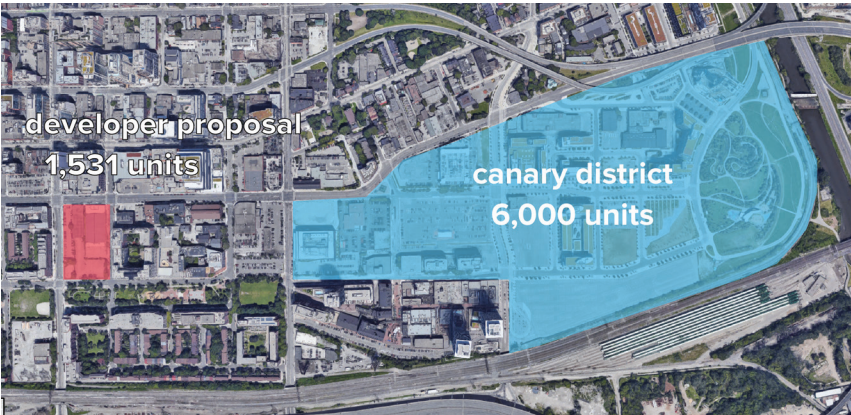


Fig. 7-14 Plan comparing Canary district with Proposal in Population Density



Fig. 7-15 Bird's Eye view of Proposal extrapolated to other at-risk sites

7.8. CONCLUSION

The site chosen for exploration is typical of the reclaimed industrial plots of land in many North American cities. As demonstrated on the west end of Toronto in Liberty Village, this type of urban site can easily be developed into an amalgam of point tower condominiums which—as noted in earlier sections—carry many inherent issues for future habitability of the city. The site could also very likely be developed into an extruded street wall like the developer proposal outlined above. As an alternative, this site can and should support a vibrant urban community of dwellings and amenity units complete with integrated social spaces. Considering the history of the adjacent St. Lawrence neighbourhood and the social potential of the site, there is a crucial opportunity to develop something truly impactful—a new mutation of sociogenetic urban dwelling.



8 • SOCIOGENETIC VALLEY

The vignettes in this chapter embody the sociogenetic strategies of the design manifesto on an urban block. This design pursues the reduction in amplifiers of negative sociogenesis outlined in the early chapters.

8.1. DESIGN SYNOPSIS

Whereas a mountain landform looks outward, to distant views and outlying lands, the valley landform inverts that relationship, with strong relationship between the supporting slopes. The valley is directional and unbound, with a clear directionality, caused in nature by the erosion of flowing water. The slopes of the valley face one another.

The Sociogenetic Valley landform relies on the cascading views and relationships across the valley to provide a constant flow of connection from one side to the other. The flowing water in this exploration is personified by the flow of pedestrian traffic through the ground plane, with whorls and eddies of slowness in the side parks. The piers that support the valley walls are reminiscent of undulating cliff faces, which also have strong cross-park views of other balconies and of the ground level parks themselves.

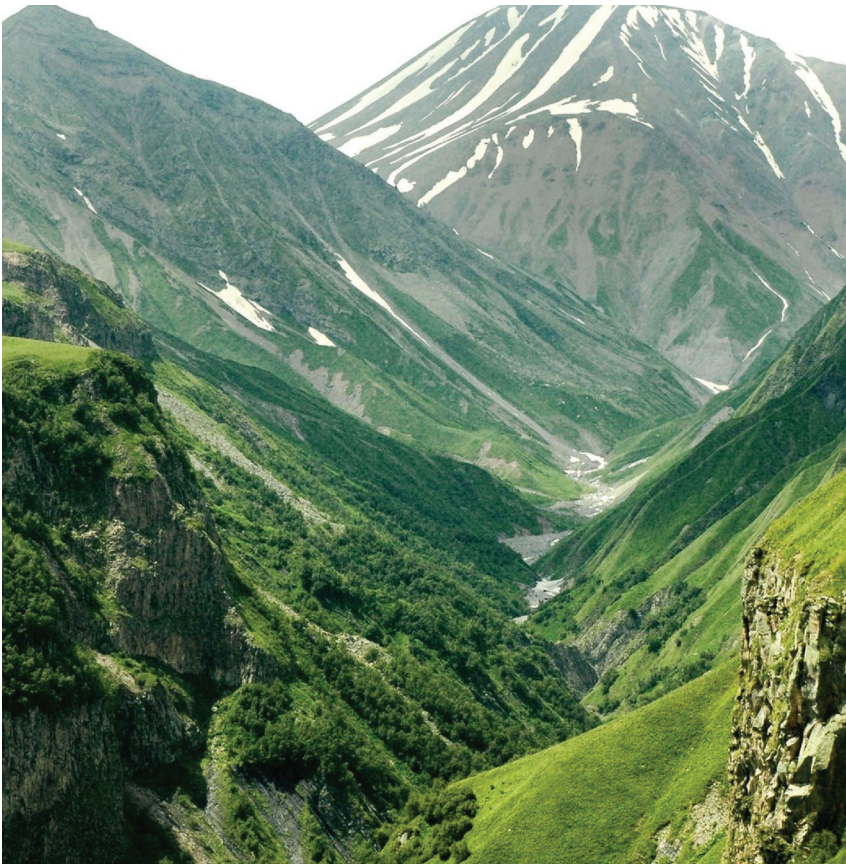


Fig. 8-1 Valley Landform



Fig. 8-2 Sociogenetic Valley

The Sociogenetic Valley is an urban landform that spans the entirety of a large urban block in Toronto. Unlike most other urban developments, the pedestrian's ground-level experience is prioritized. The site is bisected by a large urban park boulevard, intended for pedestrians to use as a path through the city, bereft of automobiles and other, faster forms of traffic. The site is also punctuated by three transverse parks, which perforate the building at the ground plane. These transverse parks allow for through-block connections and also serve as small urban parks for the immediate residents and the neighbours of the area.



Fig. 8-3 Location Plan

Fig. 8-4 Site Plan (right)



FRONT ST. E.

COMMERCIAL

COMMERCIAL

TRANSVERSE PARK

TRANSVERSE PARK

BUILDING
AMENITIES

CHILDCARE
SERVICES

TRANSVERSE PARK

SOCIAL NEXUS:
MUSEUM / LIBRARY

MAIN
PARK

PARLIAMENT SQUARE PARK

SITE

BERKELEY ST.

BERKELEY ST.

ESPLANADE

8 • Sociogenetic Valley

Formally, the building is a hybrid. The dominant move is the Valley Field, the terraced matrix of balconies and domiciles, which builds from the stepped terraces in BIG's Mountain and Kikutake's Pasadena Heights. This field of dwellings is accessed through circulation behind and beneath the valley that extends outside of the building, and reaches out to the ground plane as a visible connection between the interior of the structure and the urban context. The piers supporting the terraced field are disruptive iterations of the double-loaded corridor tower. Unfolding the traditionally closed-loop system of the slab tower into the circulation network beneath the valley mat, the access routes are opened up to light and ventilation of the open-air hallways. By altering the traditional outward-facing building orientation and opening up the interior ground plane of the site, the Sociogenetic Valley builds off some revolutionary typologies to form a hybrid urban housing typology that promotes positive sociogenesis.

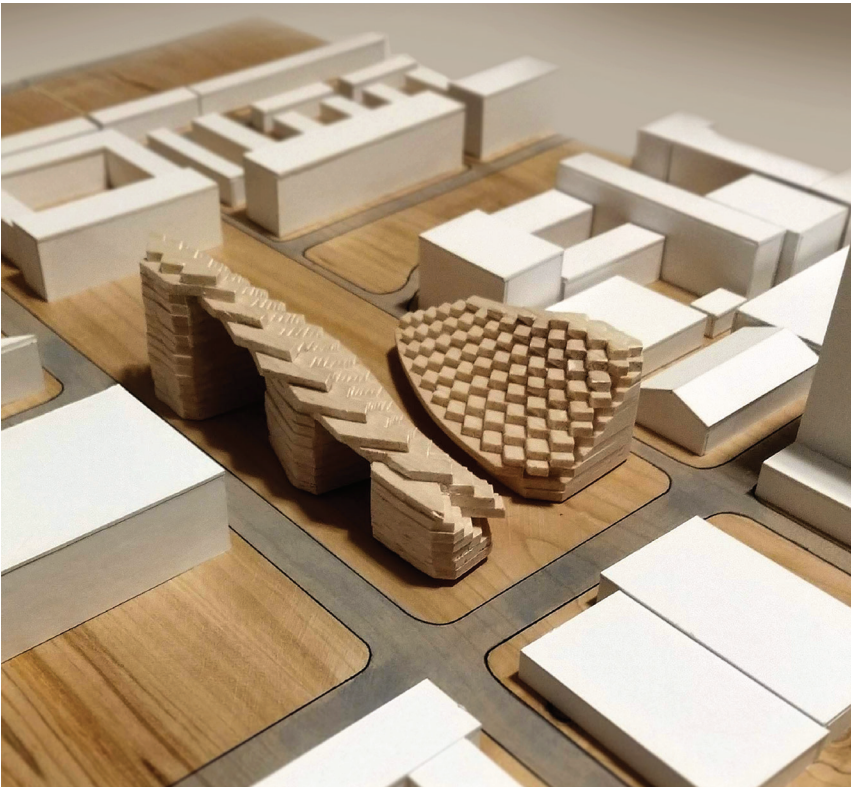


Fig. 8-5 Site Model

Fig. 8-6 Functional Axonometric (right)

Fig. 8-7 Floor Plans (next spread)

RESIDENTIAL

SHARED PARKS

COMMERCIAL

BUILDING AMENITY

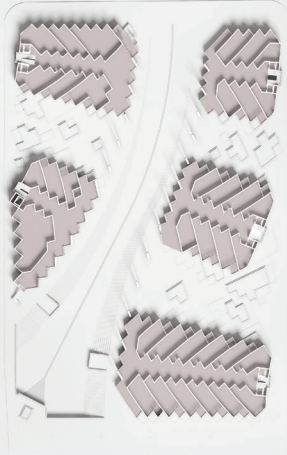
CHILDCARE SERVICES

LIBRARY + MUSEUM

GROUND



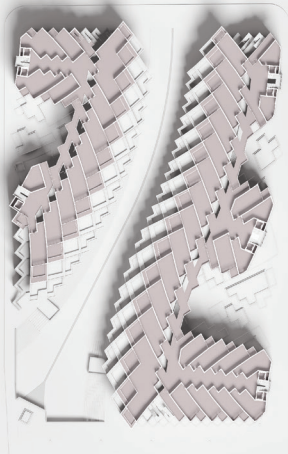
SECOND



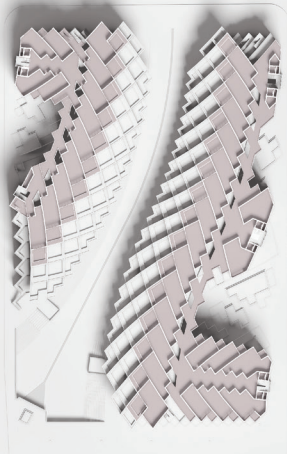
TH



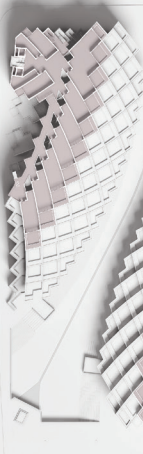
SIXTH



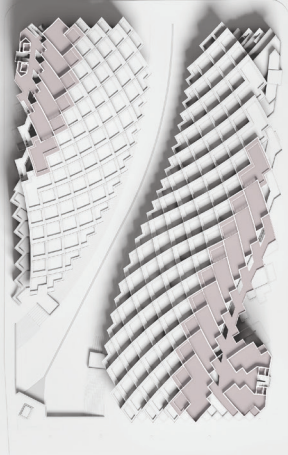
SEVENTH



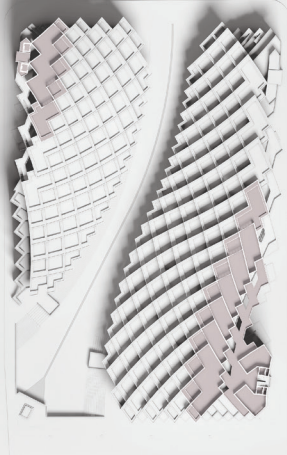
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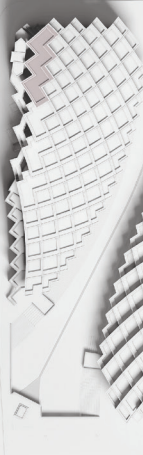
ELEVENTH



TWELFTH



THIR

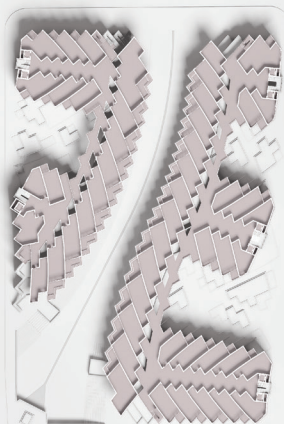


PLANS

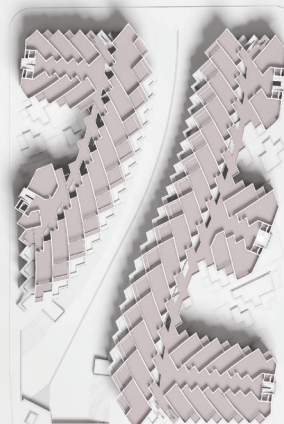
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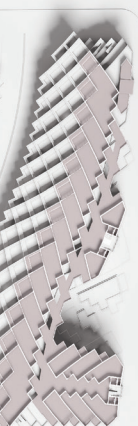
FOURTH



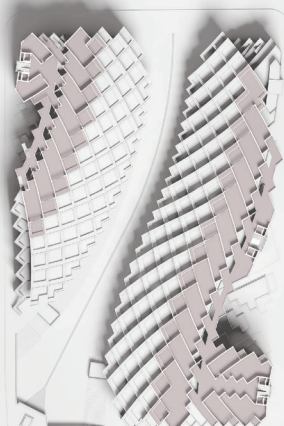
FIFTH



SIXTH



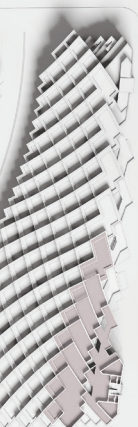
NINTH



TENTH



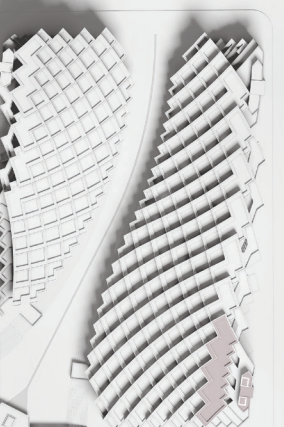
ELEVENTH



FOURTEENTH



FIFTEENTH



The Valley is comprised of 365 residential units, from single-bedroom units to larger multi-storey units with three or more bedrooms. The building is split between residential, commercial, civic, and amenity spaces, with the program stacking vertically.



Fig. 8-8 Shared Park from the Street

The sociogenetic qualities of the Valley will be detailed through strategic vignettes. These are illustrated purviews into the most relevant components of the design with some descriptive text to convey the design decisions and their impacts on the resulting city, space, and building.

8.2. STRATEGIC VIGNETTES

1 • EXPOSED CIRCULATION

This is related to the Mat Building strategies of both Interstitial Space, and Human Speed.

Exposing the circulation of the building to the urban realm is a major tenet of this sociogenetic design approach. Perforating the building and visibly pulling circulation down to the ground plane inverts the traditionally closed loop system of high-density urban residential circulation. Exposing the circulation is an evolution of the mat building strategy that emphasizes circulatory space, and the importance of the interstitial spaces that *inefficient circulation* can produce.

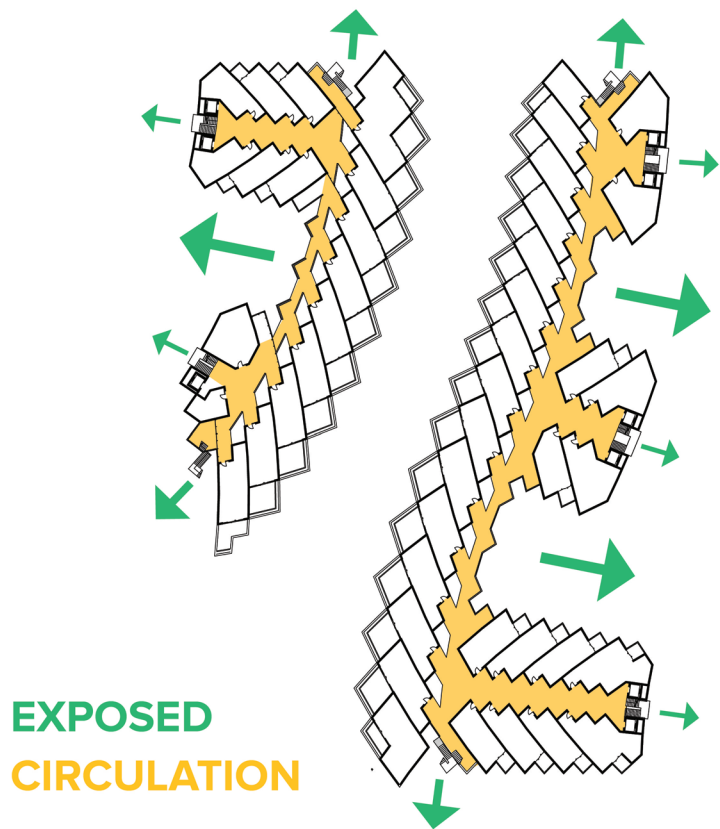


Fig. 8-9 Exposed Circulation Diagram

Lateral circulation through the building

Lateral circulation through the building is an essential aspect of the design. It is imperative that residents maintain the freedom to explore the building and the different routes of possible access to their suite.

The main hallways beneath the Valley spill out at the north and south terminus, providing open-air access to the urban context. Being able to see the city from a hallway strengthens the perceived connection with the city, despite being enclosed within a building.

The hallway is also perforated vertically to allow for visual connection to floors above and below, and to provide a glimpse of the ground plane from many floors. This visual connection grounds the resident in space in an endeavour to disrupt the vertical stratification that stacked floor plates often propagate.

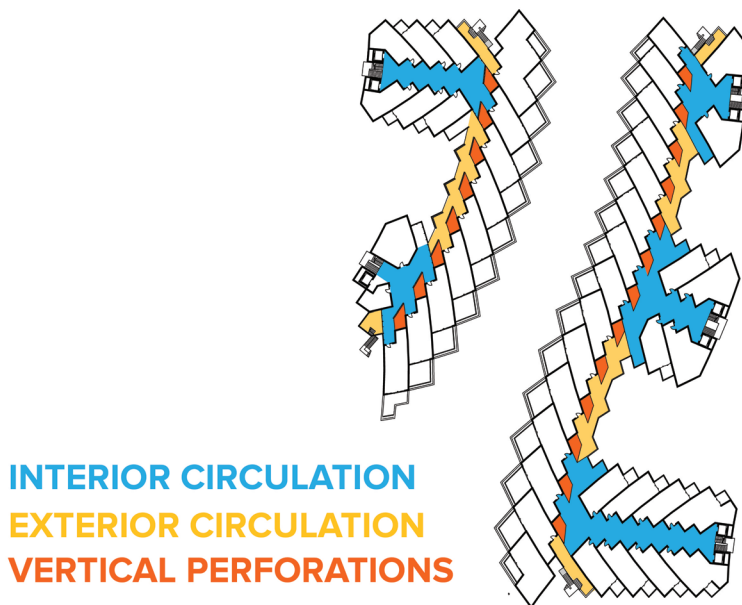


Fig. 8-10 Vertical Perforation and Circulation Spaces

Decentralized access to residential suites

A significant issue with high-density urban residential design is the determinant vertical and horizontal circulation through the building. The Valley allows residents to choose and follow their own path to their dwelling, by opening up and decentralizing the circulation.

Vertical connection to levels above and below

It is imperative that residents have the ability to circulate the building vertically and freely, without the aid of mechanical circulation solutions such as elevators and escalators. Although, elevators are part of the vertical-access strategy for accessibility concerns. The open-air stairways at the north and south ends of the building provide access up to all levels for the residents to use in both entering and exiting, as well as accessing different levels to visit other amenities or neighbours in the building. A more traditional combination of fire exit stairs and elevators at the street edges of the supporting pier elements ensures that the building is still serviced by mechanical vertical circulation despite the terraced nature of the Valley walls.

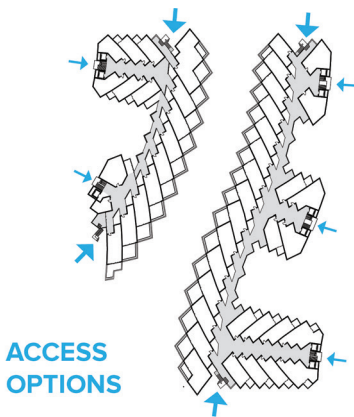


Fig. 8-11 Access Options Diagram



Fig. 8-12 Exiting Diagram



Fig. 8-13 Exterior Vertical Circulation

2 • LIBERATED GROUND PLANE

The ground plane of a development as large-scale as the Sociogenetic Valley must cater to the pedestrian, and open up to the city. A large percentage of floor area at grade is dedicated to the public in the form of shared parks. Since the site spans an entire city block, there is an opportunity for the development of a considerable shared space at grade while still increasing the density with private residential units above grade. Liberating the ground plane for the pedestrian builds from the mat building technique of emphasizing the human speed and scale.

Connection to existing pedestrian and green networks

In order for the parks and green spaces to become successful enlivened public spaces, there must be people there to activate them. This is also a key to successful urban spaces—people draw more people in a snowball effect. Therefore, the ground-level parks must act as both paths and destinations. Connecting to existing pedestrian and green networks strengthens them, while drawing those passersby into the spaces. The shared spaces at grade are intended for use by both residents of the building and the proximate neighbours, increasing the amenity and shared public space that the area has to offer instead of taxing the city’s existing stock.

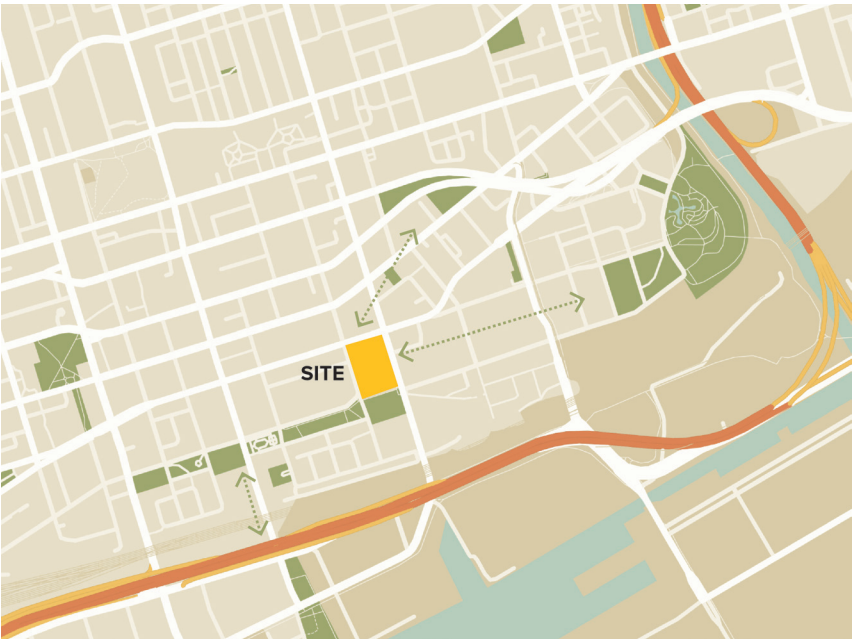


Fig. 8-14 Connection to Existing Green Networks



Fig. 8-15 Bisecting Park as Both Path and Destination.

Bisecting park as social intensifier

The main park bisects the site, and represents both path and destination. Funneling pedestrian traffic through the centre of the site activates the space, the shops, amenities, and storefronts along this circulatory spine. Paths as vast and long as the main park path must be tempered by fine-grain borders that respond to the human walking at human-speed. After all, a new street-wall condition is being developed. The faceted nature of the building's design at grade ensures that the ground-plane experience is slowed enough for people to interact with storefronts and entrances to amenities at grade. This park starts at the north end of the site as a wide pedestrian boulevard, meant to draw in passersby. It slowly opens up at the south end to a large urban park that connects to the soccer pitch to the south, and the David Crombie Park network to the southwest along the Esplanade.

The transverse parks as through-block connections

The transverse parks pierce the block perpendicular to the main park, and provide the opportunity for through-block pedestrian access.

These parks are closer in spirit to the piazzas of Venice than traditional open urban parks, as they are encircled by built form. Largely hardscaped, the vegetation elements are denser at the street edge, where there is more sun to support them, and diminish in a gradient towards the central spine of the block.

The dichotomy between the open-air bisecting park path and the canopied transverse parks creates a variety of interesting shared social amenity spaces at grade for both residents and neighbours to use.

Fig. 8-17 Transverse Park as Through-block Connection

Fig. 8-18 Cross-Section Through Transverse Park (next spread)



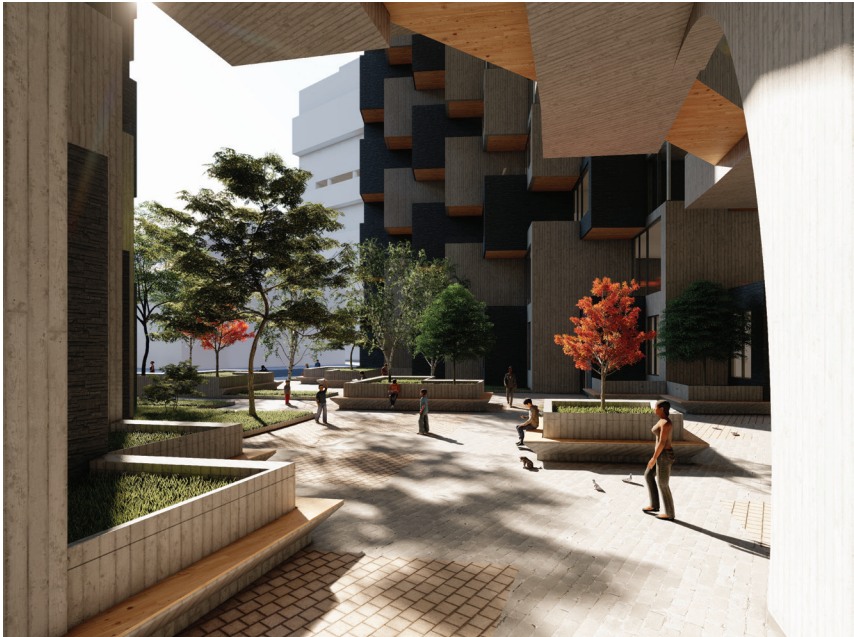


Fig. 8-16 Transverse Park as Livable Shared Space







3 • MODULAR GEOMETRIC FRAMEWORK

Employing a geometric framework in the design of a project at this scale allows for several decisions to be made at the scale of a dwelling unit, and propagated throughout the site. This rational and predictable expansion of a few well-curated moves is modeled after the mat building strategy of metrics and repetition of elements.

Radial Grid Framework

Rather than employing a rectilinear grid, which would lead to a simple slope such as that seen in BIG's Mountain, the Valley adopts a set of radial grids. This collision of radial grids gives the project a more curvilinear form that resembles its namesake. A geometric framework ensures that modular elements can be repeated at an urban scale.

Despite the overall appearance, there are no curved walls in this exploration, only facets, or straight connections between the grid intersections. It is only when viewed at a macro-scale that the building reads as curvilinear in nature. At the micro-scale of the dwelling unit, the geometric relationships are rectilinear.

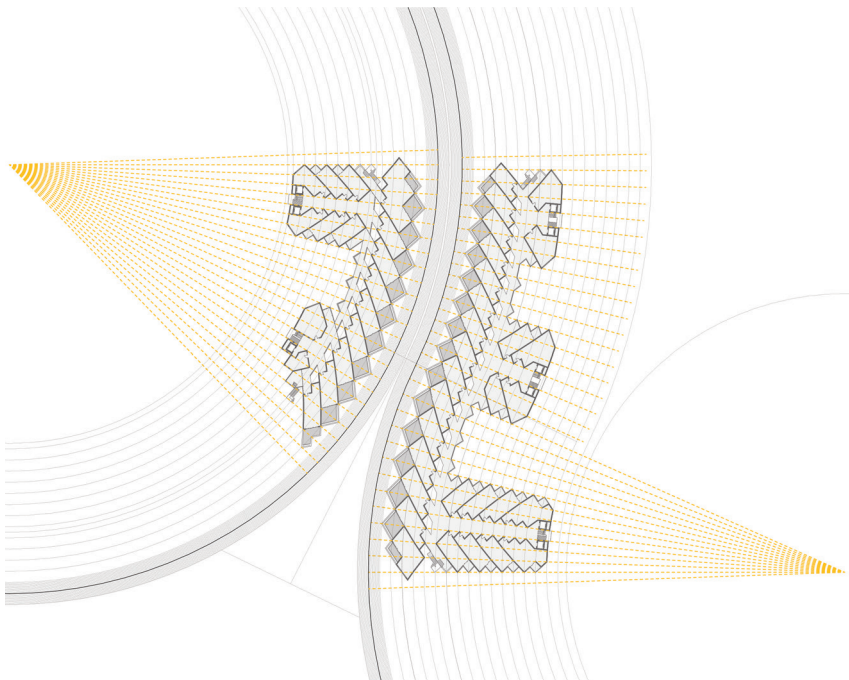


Fig. 8-19 Radial Grid Framework

Flexible Unit Module

The modules expand and contract depending on the position along the radial grid, but the baseline dimensions of a unit module are 18' x 36'. This represents the smallest dwelling unit in the Valley: a single-storey one-bedroom living unit at 650 square feet. The combination of unit modules can result in a myriad different iterations of the base unit type. Units can also be combined vertically into multi-storey units with multiple bedrooms and double-height spaces depending on where in the building they are located.

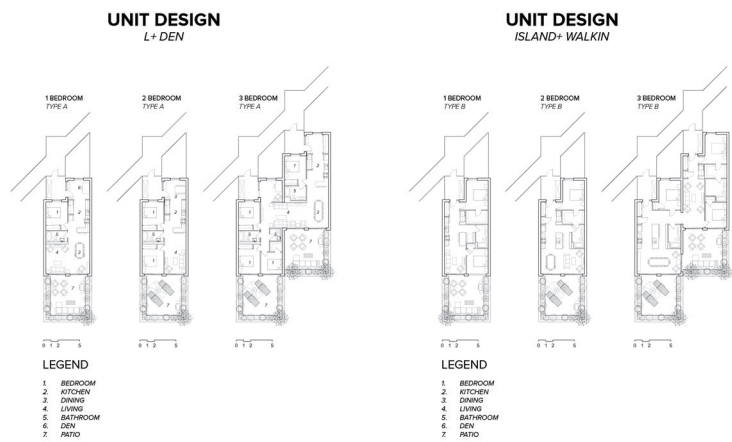


Fig. 8-20 Module Plans

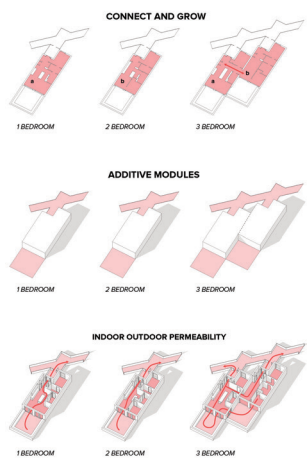


Fig. 8-21 Module Flexibility

Serriform Terraces

The serriform, or serrated, terraces and patios give texture to the otherwise monolithic piers supporting the Valley structure. The offset serrations also ensure that there are no projecting balcony slabs. Every terrace is located above the roof structure of a dwelling unit below, including the balconies on the supporting pier elements. In terms of thermal efficiency, there is a larger exposed building surface area, but the elimination of commonly used projecting floor slab balconies eliminates the thermal bridging this would otherwise cause.



Fig. 8-22 Serriform Terraces

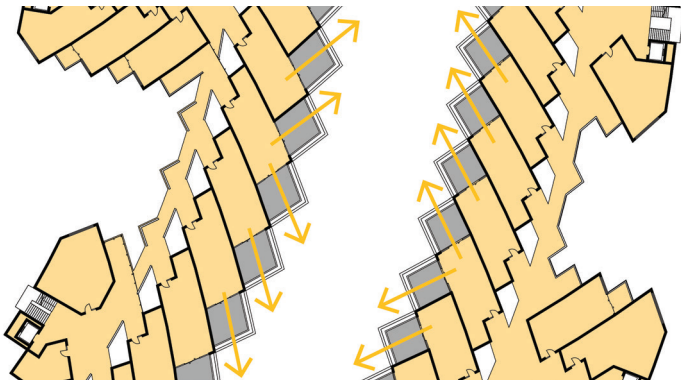


Fig. 8-23 Directional Glazing Diagram

4 • PROGRAMMATIC DIVERSITY

It is essential that the project not simply add residential units, without adding any other valuable social function to the city as a whole. A large development such as the Valley must add a diverse range of public and socially-oriented uses in order to ensure that the parks and shared areas are lively at all times of the day. This approach is related to the mat building strategy of ensuring heterogeneity of program.

Tiered program

Taking cues from BIG's 8 House, the program of the Valley is stacked to reflect the required relationship between function and the ground plane. Due to the large ground level footprint, considerable floor area can be devoted to the most relevant uses to the ground plane. Commercial and mercantile use face the transverse parks on the ground plane. Social and amenity program faces the large park on the ground level. This ensures that the entirety of the ground level is catered to the public, to the city as a greater whole, so that the increase in residents does not tax the existing systems and networks of amenity in the area. Stacked directly above the ground plane are the shared informal office spaces, intended for office sharing use. The remaining second floor area is dedicated to amenity space, childcare, and other social spaces. Above the second floor, the residential units are stacked up to the very top level, peppered with floor-specific shared spaces.

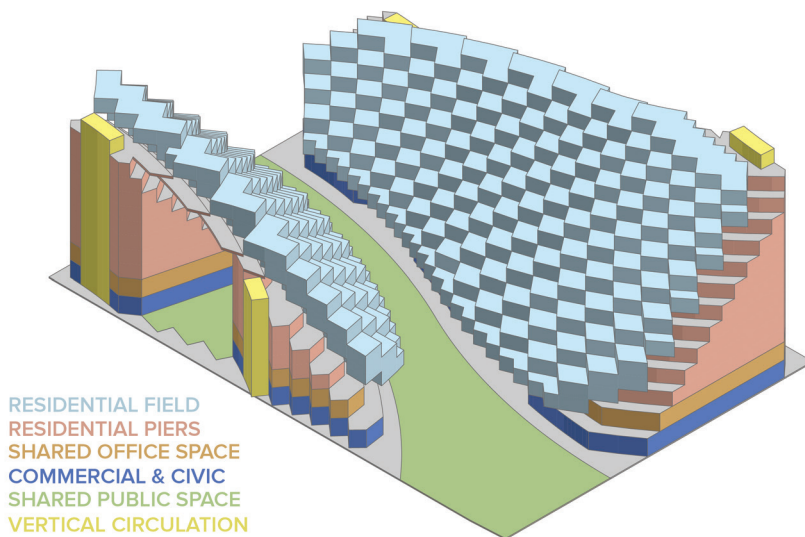


Fig. 8-24 Tiered Program

Social Nexus

A social nexus is a core programmatic element of the building. A museum housed within the pier nearest the park would aid in the activation of the space at different hours of the day, and diversify the otherwise homogenous residential program. Since the site is the location of the first parliament, a museum in homage to Ontario’s parliament building and a related library would be an appropriate thematic solution.

Dedicated Childcare Services housed within another pier are an essential social component of the amenity services for the building, and the surrounding neighbourhood. Kindergarten and daycares are in high demand in the city, and the integration of childcare within the building would make raising a child in the urban core a much more tenable idea.



Fig. 8-25 Bisecting Park as Social Space

Shared / Informal Office Space

More people are working from home but residential spaces are small, and often lack the space required for a dedicated office. Shared office space solutions already exist, but the integration of the office spaces within the larger residential building has not been explored. The possibility of a dedicated space within the building that a resident can rent or work from provides flexibility and added value to the resident in a world where the very nature of work is in flux.

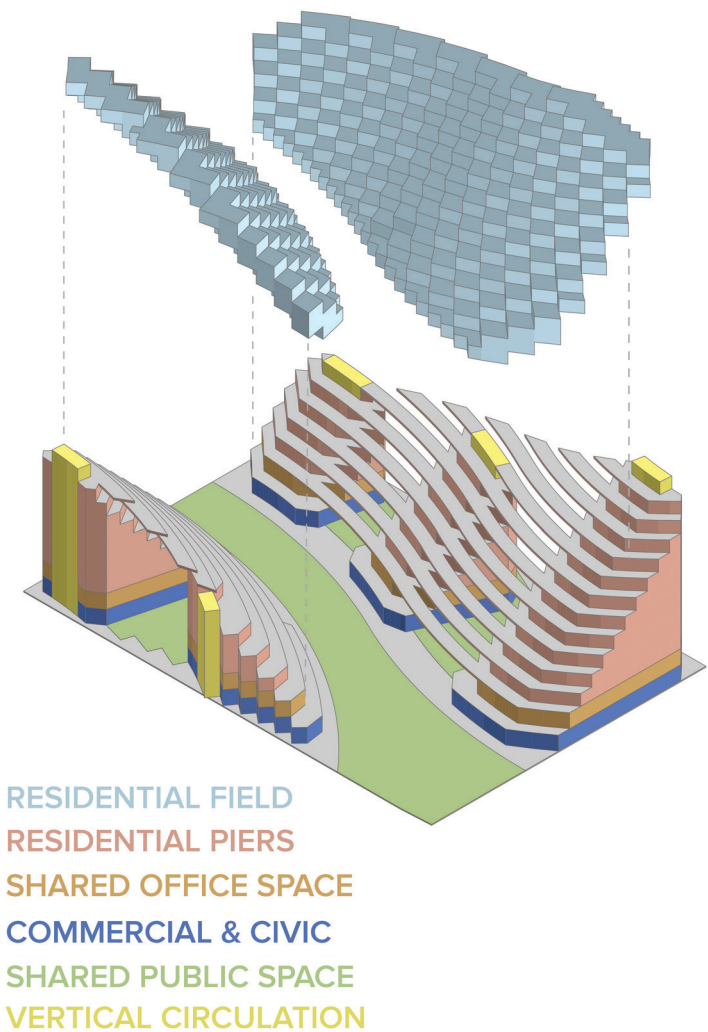


Fig. 8-26 Tiered Program

5 • FOCUS ON SOCIAL SPACES

An essential aspect of Sociogenetic Design is the focus on social spaces. This strategy mirrors the mat building's emphasis on interstitial spaces as opportunities for the development of social spaces.

Privileging Cross-commons views

A great advantage to the Valley form is that it is comprised of two valley walls which face one another. Rather than looking out to other buildings, or flat glass facades, residents have the opportunity for constant visual connection with the residents on the opposing valley wall. During the warmer months, the terraces will be alive with activity and life, with people extending their private lives into the semi-public realm of their terraces. By venturing to the terrace, a resident is shifting themselves into the public realm. This allows for people to see other people living their lives, an important aspect of social connectedness.

A similar strategy was employed in the terraces of the pier elements, with cross-park views looking out towards the city, while sliding by neighbour's terraces and looking down upon the shared transverse parks. The intent is a constant perception of resident's eyes on the ground-level shared spaces, as Jane Jacobs would argue.

The serrated nature of the balconies orients the dwellings on a diagonal, rather than straight outwards. This ensures that units never look directly across the valley at one another, but rather the view from inside the unit slides past and focuses on further units' balconies.

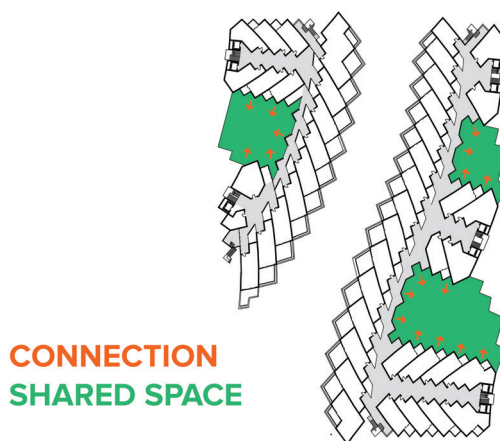


Fig. 8-27 Plan showing visual connections

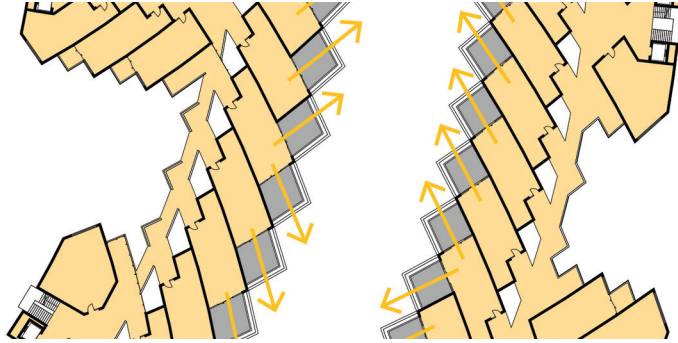


Fig. 8-28 Diagram of serrated edges showing directionality of views

Overflow Spaces

The enclosed spaces in the alcoves of the hallways where the pier elements meet the circulation hallway function as internal shared overflow spaces for the residents of each floor. These larger shared spaces are up to the residents of the floor to adapt to their own communal requirements, but are intended to supplement the relatively small spaces of modern condominium dwelling with a larger common area. A parallel in dormitory dwelling would be the common room for a shared floor. This is a type of space that has not become commonly used in urban residential buildings, but would result in much more potential for social interaction between residents than the contemporary equivalent—the double loaded corridor.



Fig. 8-29 Diagram of enclosed overflow spaces

Upper Shared Terraces

At the highest levels of the building, the sense of connection to the parks at the ground level is far less pronounced. On the floors above Level 8, a floor-specific shared terrace projects from the tail end of each high-level floor, that residents of both the floor and the rest of the building can use. These terraces are intended to act as shared outdoor spaces that are easier for the residents of higher floors to access as an alternative to venturing down to the ground plane for walking their dog or playing with their children.



Fig. 8-30 Upper shared terraces

8.3. CONCLUSION

This design is but one formal exploration into the benefits of Sociogenetic Design on a large urban block. The limits placed on the design by imposing a specific site and location were severe, but ultimately resulted in the complexity and quality of the Sociogenetic Valley. A more extensive development of the strategies on the same site could include the development of adjacent sites as a more macro-scale master planning exercise, extending the network of ground-level green spaces beyond the extents of the site outlined above. More varied design solutions could be envisaged given different site conditions, as the strategies of Sociogenetic Design are intended as a flexible framework for improving social qualities of the urban realm, rather than rigid, prescriptive guidelines.

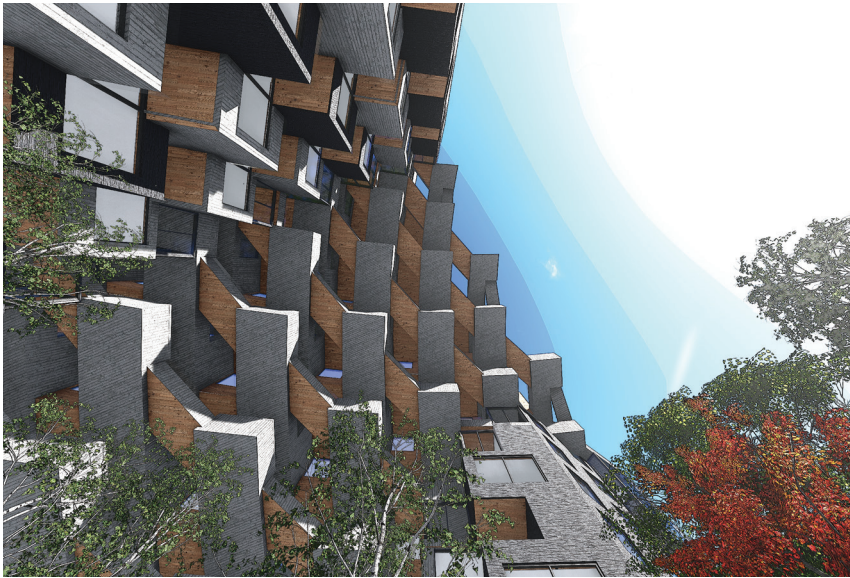


Fig. 8-31 Sociogenetic Valley



9 • CONCLUSION

This section concludes the thesis by explaining the merit of the explorations, the adaptability of the strategies for future works, and the next steps for developing the concepts and strategies outlined in the preceding chapters.

9.1. SUMMARY

This thesis is an exploration that strives to improve the social quality of built spaces in the urban core for the benefit of the residents, with a particular focus on high-density residential dwelling in the urban core of high-income cities like Toronto. In pursuit of this, the thesis:

- Details trends in society and urban dwelling design that are exacerbating the impact of social isolation in the city.
- Emphasizes the importance of shared and social spaces to the overall health and wellbeing of the urban resident.
- Acknowledges several architectural precedents that attempt to have a positive impact on the social quality of the high-density dwelling.
- Outlines strategies of mat building and their applicability to inform sociogenetic strategies of this thesis.
- Proposes a methodology for urban dwelling that would promote positive societal change, or *sociogenesis*. The strategies of this *Sociogenetic Architecture* include:
 - Exposing Circulation
 - Liberating the Ground Plane
 - Focal Social Spaces
 - Flexible Unit Module
 - Programmatic Diversity
- Explores the formal possibilities of these strategies on several common sites.
- Focuses on the urban block as site, and identifies a suitable location in Toronto for further exploration.
- Demonstrates a formal solution that employs the strategies of *Sociogenetic Architecture* on a large urban block site, through the presentation of selected vignettes of the design to showcase the application of the strategies.



Fig. 9-1 Sociogenetic Vignette

9.2. IMPACT OF THE RESEARCH

The research, design strategies, and explorations of this thesis provide a valid counterpoint to the high-rise condominium typology that has exploded across the world, and in Toronto specifically. The design strategies represent a critical response to the current drivers of urban dwelling design, and the resulting design represents an alternative typology to the traditional point-tower condominium. The research into preceding architecture demonstrated that the desire to improve the social quality of the urban dwelling is not a novel idea, but that the specific approaches of the past are not entirely relevant in the vastly more complex world of the present. Strategies must be revised and updated in order to remain relevant, and the execution of those strategies is entirely dependent on the zeitgeist of the day.

9.3. ADAPTABILITY OF STRATEGIES

The strategies of *Sociogenetic Architecture* outlined in the preceding chapters were based on successful aspects and tactics derived from case studies, research into the importance of social spaces and social interaction, and worrisome projected trends in the future of the city.

An advantage of the recommended strategies outlined in this thesis is that—much like those of mat building—they are not prescriptive. How they are interpreted and executed in a project is dependent on the will of the designer, but serve as an overarching guideline that informs a Sociogenetic Architecture. The overall concepts can be interpreted and applied to a specific and highly-focused iteration, such as the one presented in this thesis, or to a much more general high-level master planning exercise.

The limitations of this exploration are related to the previous point: there are endless iterations and permutations of design possible, and the Sociogenetic Valley presented in this thesis is but one avenue of possibility that could have been explored. Any site could have been chosen, any typology, in any city, and the outcome of the design project would have been completely different. However, the tenets of the design strategies would have ensured that the outcome met the same thematic and sociogenetic patterns of the design pursued in this thesis. It was the parameters of the site and city that gave form and context to the design. These parameters placed on the final design exploration were in fact quite restrictive: the city, neighbourhood, site, and context contributed to the overall form, while restrictions such as egress, zoning, building codes, required daylighting further complicated the freedom in design. However, the limitations caused by the strict parameters were essential to the success of the design. The specificity of the site and contextual conditions allowed a much more specific solution to be explored than what a generalized site could have provided.

9.4. CONCLUSION + FUTURE EXPLORATIONS

Future research and design work by the author in this field will build directly from the lessons learned during this research. The strategies of *Sociogenetic Architecture* are applicable to any and all scale of residential design, and it will be interesting to explore the possibilities of this application as new projects develop. Progress is never complete, look to Safdie, who believes he is still working on Habitat conceptually, over 50 years after his thesis was constructed for Expo '67.¹

It is recommended that readers of this thesis integrate the strategies outlined above into the design of urban dwellings of the future. At minimum, this will serve to improve the social connectedness of the city by focusing on the social human being as the essential formative element of our urban fabric. Optimistically, it will usher in a new generation of socially-focused design.

A good thesis should provoke interest, thought and discussion. It is sincerely hoped that this thesis prompted the reader to pause and think critically about the problems with urban dwelling today, and demonstrated why architects must start building communities and structures that foster social connectedness.

¹ Design Build Network, "A Life Less Ordinary."

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