Inhabiting Modernities:
Learning from Late Modernist Mass Housing

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Abstract

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Conservative projections state that while a little over a half of the world's population currently lives in urban areas, the next thirty years could see that number rise to more than two-thirds. This is not, however, the first time that humanity has faced a housing crisis of this scale. The years immediately following World War I saw decimated cities in need of reconstruction, with as much as 15% of the world's population living in slums during the 30's. This thesis seeks solutions to the current crisis by looking back to a prior one, analyzing the design solutions that were born out of the post-war years and the Modernist aesthetic movement.

During this period, from 1930 to 1970, the global establishment of government entities funded, designed, constructed, and managed mass housing complexes. The widespread private-public cooperation produced large scale housing developments that promised an equitable future for all, but ultimately fell into disrepair as public opinion and government funding declined. This thesis seeks to critically analyze three late-modernist housing projects – Sarcelles in Paris, Tlatelolco in Mexico City, and Co-op City in New York City - with the aim of reevaluating these often maligned and marginalized spaces. Despite historic and ongoing perceptions that these housing projects dehumanize people and incubate crime, their amenity-dense and resilient designs still allow for the conditions that can support a vibrant urban community.

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Secondly, as none of these pages would exist without the endless care and support of my family, kids, and especially my wife Maddie, I would like to say thank you while knowing well that a few words are not enough. The decision to return to school, move to Seattle, and subsequently jet around the world was not an easy one for any of us to make, and yet you have been my steadfast partner, caretaker, and support. I couldn't have done any of this without you, and this work is as much your accomplishment as it is mine.

A Note

As this thesis deals with case studies in France, Mexico, as well as the United States, some of the texts and graphics found during research are in the original languages. All translations from the original text that are not attributed to another translator are done by the author.

Part I: Introduction

Given the projections of urban populations rising over the next thirty years as well as the massive scale of climate-induced migration to city centers, urban areas will inevitably face housing crisis of unknown proportions. Furthermore, existing housing stock is already lacking, with global houseless and slum-dwelling populations estimated to be at around 800 million people in each category.[1] Even in isolated cases, such as Seattle, the housing need is expected to reach more than 800,000 housing units by the end of the century.[2] The architectural community will have to work creatively and cooperatively with local government, urban planners, and the construction sector to address this need adequately.

This is not the first housing emergency that the global community has faced, however, as the aftermath of the First World War saw a desperate need for housing that elicited an unparalleled response in the form of private-public cooperation, where governments legislated and funded the construction of mass housing complexes. These developments, many of which have been consistently occupied since the 1950's and 60's, were planned and constructed with standardized forms; the efficacy and economics of their local situations determining much of their form. These spaces were also, however, the target of decades of denigration; critics blamed the concrete housing blocks for many of society's ills (e.g., segregation, isolation, inequality, lack of social services). As a result, the post-war mass housing developments have become places of contradiction, and although many of them still provide thousands of apartments for low- and middle-income residents, the nearly universal perception of these spaces is that they are architectural mistakes that allow crime and poverty to fester. This thesis reevaluates these often-maligned places through a comparative



Fig. 1
Staged photo of the first residents arriving at the Tlatelolco-Nonoalco housing complex in Mexico City, showing rural-to-urban migration.

analysis, using quantitative evidence as well as resident testimonies to discern the design's successes from their failures and, ultimately, to learn from both.

This thesis also adopts the understanding that historical and socio-economic analysis is necessary to understand such large and complex projects. This work follows in the particular footsteps of Florian Urban's global study of housing blocks. In seeking a reason for why "the modular apartment block was universally accepted as a visible sign of progress", Urban determined that the seemingly-international movement was also shaped by local legislation, market forces, and sources of funding.[3] Similarly, Jennifer Robinson's distinct version of comparative urbanism honors the cultural multiplicity and diverse histories present in urban spaces while also acknowledging that to be "urban" necessitates global commonalities.[4] This thesis, then, builds upon such work by comparing three international housing complexes that were built under the larger aesthetic and philosophical umbrella of Modernism. This work will diverge from earlier studies, however, in two specific aspects: 1) although it presumes that mass housing blocks are primarily products of their socio-economic and cultural context, they are also works that must be analyzed as architecture so that their particular design might possibly inform future projects, and 2) it also argues that the long life of these buildings has produced a rich history of occupation, and so it is beneficial — when attempting to determine the success of these projects — to analyze the testimonies of the people who have lived and worked there, employing their own words as proof of the positive/negative impacts of the designs. This methodology provides a richness in scale, focusing on both very large scale of urban planning as well as the small scale of individual buildings, apartments, and how people actually live in them. Furthermore, this thesis is designed to avoid the mistake of relying solely on the opinions of "experts" when examining the past (e.g., what Jane Jacobs, Le Corbusier, Jennifer Robinson, etc. say makes for a successful neighborhood) and instead gives a voice to those who occupy the spaces being discussed.

This thesis is divided into four sections, with the first part containing a brief history of the Modernist movement, its origins, responses, and the various thematic elements that arise in the period from 1930 to 1970. The second part presents three mass-housing case studies that explore how local and global history are expressed in the specific cases of Sarcelles-Lochères in Paris, Tlatelolco-Nonoalco in Mexico City, and Co-Op City in the Bronx. This is presented in written and graphic form, examining both the current and past forms of these developments (i.e., what is there) as well as how the development's long history has impacted the lives of its inhabitants (i.e., how it has changed). The third section presents first-hand testimonies, collected from various news and online sources in an attempt to determine what ways these projects have been successful or unsuccessful from the viewpoint of current and past residents. The fourth and final section provides an analysis of the research and attempts to ground this research in the needs of today's urban centers. Thus, this thesis can be best summarized as an exploration of what these projects provide in their current form as well as how people have responded to these prescriptive environments over time, ultimately arguing that despite historic and ongoing perceptions of these housing developments as dehumanizing places that incubate crime, their amenity-dense and resilient designs allow for many of the conditions that can support a vibrant urban community.

Part II: Context

I. Contemporary Crisis, Historical Approaches

While conservative projections state that little over a half of the world's population currently lives in urban areas, the next thirty years could see that number rise to more than two-thirds.[5] Though the general trend of migration from rural to urban has been well documented over the past century, these projections show a rate increase that is wholly unprecedented and driven largely by the ongoing effects of the global climate crisis. In short, as the impacts of this crisis intensify, entire regions will become seasonally uninhabitable, affecting "land productivity, access to clean water, food security, and livelihoods, [as] more and more people will likely be forced to leave their homes and potentially cross borders into other countries."[6] To this point, the *New York Times* reported that 40.5 million people had been displaced in 2020 by increasing heat and ever-more intense weather events, with estimates as high as 142 million people potentially being displaced by 2050.[7] These climate refugees will clearly require new places to settle, and therefore it is expected that urban and suburban zones will experience the highest rates of growth, with most of that expansion concentrating around lower-income areas.[8] If no changes are made, the result of this international migration movement will be the global proliferation of low-quality, high-density informal housing, or slums, with populations reaching 10 million or more residents.[1]



Fig. 2
Informal housing in Jakarta, Indonesia.



Fig. 3
Aerial View of the rolling slums in Caracas, Venezuela

1 The word "slum," which is most often used in a derogatory way, is used here largely because it is difficult to avoid. While it has been historically employed as a linguistic tool for delegitimizing areas and preparing them for demolition or replacement, it has also been used as a point of pride by communities who want to identify with their informal settlements. Furthermore, many official bodies, such the United Nations, provide statistics on sub-standard housing by using this term. Thus, while the term as well as similar terms such as ghetto, blight, or squalor is a historically and racially loaded one, it will continue to be used as a reflection of its use in scholarship at large.



Fig. 4
Kevin Dahlgren, a drug and alcohol counselor, looks on at the tents erected in the downtown area of Portland, Oregon in early 2023.



Fig. 5
Displaced and houseless people on the streets of East London in 1945.

The projections become even more distressing when one recognizes that so much of the global population already lives in informal settlements, with the World Bank estimating that around 1 billion people currently reside in shelter that is "either of poor quality, lacks basic infrastructural services such as water or sewerage (thus making for unsafe living conditions) or is insecure in that the residents have no clear rights to their dwelling places."[9] With the climate crisis creating further displacement, this issue is one that necessarily concerns housing, with both its quantity and quality requiring attention. The World Bank's *Climate Change Action Plan*, published in 2021, acknowledges that responding to climate change necessitates providing "green, resilient, and inclusive development," noting how any proposed housing will need to be not only highly replicable but also equitable and sustainable.[10]

Though the scale of this crisis is alarming, there is some solace to be taken, perhaps, in the realization that this is not the first housing emergency that the global community has faced. The years immediately following World War I saw decimated cities in need of reconstruction, with as much as 15% of the world's population living in slums during the 1930's. [11] The response to this situation was an unparalleled cooperation between private and public actors, with governments around the world stepping in to provide housing solutions for the overflowing city centers. Their reasons for doing so varied greatly, with everything from humanistic altruism to authoritarian control fueling these developments as it was during this period— spanning from the 1920's to the start of the 1970's — that many governments attempted to define (or redefine, as in cases such as Germany and Japan) their national identities on a grand scale through the provision of public projects. These state-funded projects served as symbols of the strong centralized power that would organize and provide for the needs of its citizens by employing industrialized building techniques and

regulated standards of living.[12]

Today, these post-war mass housing projects are divisive places which are largely seen either as crime-riddled ghettos or uninteresting suburbs by the general architectural community .[13] Regardless of opinion, however, they offer a wealth of historical information about how to house large numbers of people, with many having been continuously occupied by the middle and lower classes for over 60 years. Given the existing and increasing need for housing, these projects could also help to inform future designs, with a careful study of their successes and failures providing a better sense of how the global architectural community has attempted to house the many. For example, an analysis of the various funding and legal structures that gave rise to post-war mass housing could inform how private and public entities might work together in today's legal landscape, with private contractors potentially tapping into public funds for the public good. Likewise, an exploration of the location and organization of amenities in these "cities within cities" might give suggestions as to how one might organize current projects and, perhaps more importantly, where in our cities a project of this scale would even be possible. Thus, this thesis seeks solutions to the current crisis by looking back to a prior one, combing through the history and design of Modernist apartment complexes to better understand the mission of contemporary architects related to housing and to inform future designs so that designers can be better equipped to develop housing that is dignified, equitable, and replicable on a massive scale.

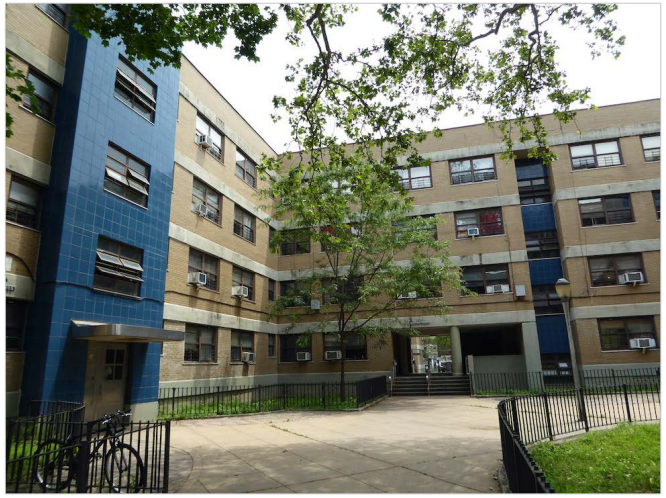


Fig. 6
The Williamsburg Housing Project in Brooklyn, New York, designed in 1938 by William Lescaze.



Fig. 7
Aerial view of the Sarcelles mass housing complex north of Paris.



Fig. 8
The Kensal House, with public play spaces next to the apartment buildings

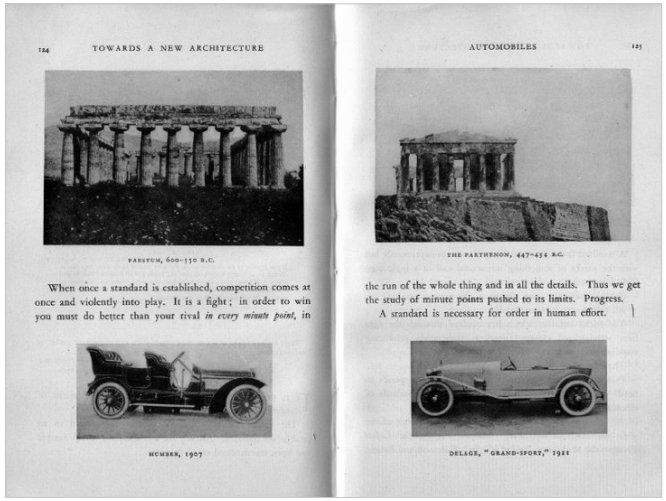


Fig. 9
Pages from Le Corbusier's *Towards a New Architecture* that equate the design of the Parthenon in Athens to the design of automobiles.

II. Developing and Standardizing Modernity

By the time Maxwell Fry's Kensal House, which is generally considered the first Modernist public housing project, opened in the UK in 1937, the core tenets of the movement were already well established.[14] The state-funded designs that sought to standardize the needs of millions found their theoretical foundations in the work of seminal figures such as Le Corbusier, Walter Gropius, and Ludwig Mies van der Rohe.[15] These early Modernists imagined an aesthetic revolution that mirrored the ongoing industrial state of Europe, with materials such as steel and concrete becoming commonplace in the manufacturing sectors. These structural elements, which rose to prominence due to their high strength and low cost, could be cast in clean geometric shapes and free of all decoration save for the necessary bolts or welds that occurred at joints.[16] Likewise, the Modernists sought to streamline architecture and, by extension, living itself, with Le Corbusier famously claiming that "the house is a machine for living" in *Towards an Architecture.*[17] Thus, the spaces that we occupy were set out to be as rationalized and mass produced as machines, with all design decisions being justified by the function of the object – a notion that highly centralized governments would latch on to in the years to come.

While these architects and theorists were rising to professional prominence, the quality of public housing was also being more intensely examined. It was during the late 19th century that the term 'slum' received an official definition, being generalized as areas that suffered from "overcrowding, poverty, and the poor physical state of buildings."[18] It is perhaps no surprise then that, as much of inner-city Europe fit this characterization, the rising political philosophy of the day began to take on a moralistic demeanor, with many arguing that the purpose of the state was to provide sanitary housing, dignified employment, and

safe cities.[19] Even without considering the impact of the two World Wars, political movements (e.g., the Russian Revolutions of 1905 and 1917, the Mexican Revolution of 1910) and economic crises (e.g., the Great Depression of the 1930's) marked an international movement towards nationalistic identities and the enlargement of the state's responsibilities/power.[20] Accordingly, the design principles developed by the Modernists were in response to the contemporary political landscape and the growing industrialization of production.

Grounded in the Bauhaus school's theories about *Gesamtkunstwerk*, a comprehensive artwork where all forms of art come together in harmony, the early Modernists sought to simultaneously push forward into a new kind of designing as well connect to previous forms of creative practice.[2] The school, which opened its doors in 1919 under the direction of Walter Gropius, originally focused on reconnecting the practice of architecture to that of craft and labor. Inspired by the medieval crafts tradition, the teaching style was, by nature, interdisciplinary with students being encouraged to master a traditional handicraft so that the art of architecture and the craft of making would develop simultaneously.[21] Placing such emphasis on the past was done in an attempt to uncover universal design practices and characteristics that have been present throughout time – this approach would also be employed by Le Corbusier. [22]

The school's philosophy changed as Gropius' successor, Hannes Meyer, moved into a decidedly more radical direction, arguing that standardization was the appropriate form for social architecture to take by "cultivat[ing] a particular formal language that for its teachers embodied the spirit of industrialization: raw materials, geometrical shapes, and lack of ornamentation."[23] Since Meyer

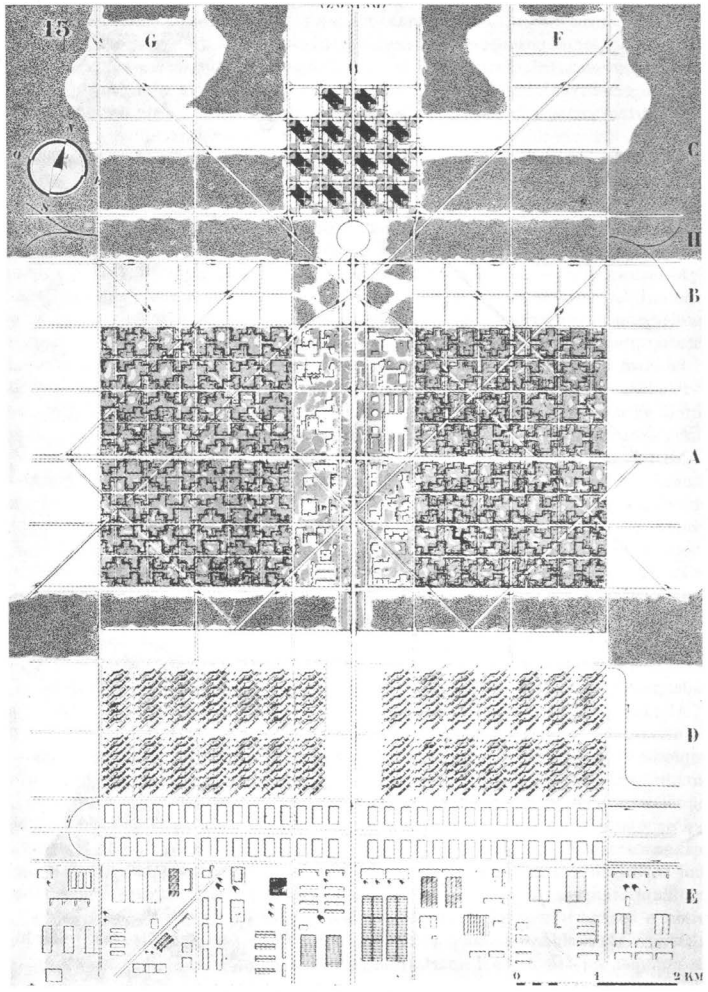
2 The phrase *Gesamtkunstwerk* was not an original one, as previous scholars had used it well before the foundation of the Bauhaus school. One of the most notable examples was Richard Wagner's use of the term in two of his essays where he describes his design philosophy as it pertains to the Ring Cycle Operas. Furthermore, art historians have used to the term to describe some of Lorenzo Bernini's sculptures, such as the Ecstasy of St. Teresa in Santa Maria della Vitoria, where the architectural and sculptural design work together to create a powerful effect.



Fig. 10
Watercolor depicting a violent scene during the Russian Revolution of 1917.



Fig. 11
Walter Gropis, standing in front of rendering of one of his designs.



La planimetria della Ville Radieuse (Le Corbusier).
A, abitazioni; *B*, alberghi e ambasciate; *C*, città degli affari; *D*, industrie; *E*, industrie pesanti (fra le due i depositi generali e i docks); *F*, *G*, nuclei satelliti con caratteri speciali (per es., città degli studi, centro del governo, ecc.); *H*, stazione ferroviaria e aeroporto.

Fig. 12
Plan View of the Ville Radieuse, depicting the various sectors of the city organized by uses and surrounded by parks.

believed that the ultimate goal for any country was an equal, and thereby communist, society, this normalized civilization of the future would necessitate a normalized architecture with equitable structures serving as the appropriate symbols of a class-less culture.[24] In this way, Meyers equated the development of the built environment with the political and social development of humanity itself, with its inevitable zenith being an egalitarian (read: standardized) style of building whose form is driven purely by the functional needs of the structure and program. Such a reorganization of architecture as a practice also changed the role of the architect itself, moving from one of a trained intellectual engaged in creative work into a tradesman who is hired to perform a regular and necessary task with a predictable outcome.[25] Therefore, Meyer's philosophy contends that, once theorists have decided on what constitutes the ideal space, such a space could be mass produced and multiplied regardless of aesthetics or expertise, as a building is "neither beautiful nor ugly, just right or wrong."[26]

Echoing many of these ideas, Le Corbusier's theories on housing culminated in his plan for the idealized city known as the Ville Radieuse, or Radiant City.[3] His proposed urban renovation of Paris would go on to inspire much of the century's mass-housing projects, boldly calling for the demolition of the city's historic center in order to return to a tabula rasa upon which a new ordered city could be built.[27] The plan sought to do away with "the dust, smells, and noise [that] stifle our towns of today" and replace it with sprawling parks punctuated by high rises for both business and residential uses that would be "far removed from all this and set in clean air amidst trees and grass."[28] These parks were designed as a false floor, however, with subterranean levels for vehicular circulation as well as spaces for electrical, sewage, and communication networks so that the systems that make up the urban core could be rationally organized

into a discernible hierarchy, with each system being placed literally one on top of the other.[29]

With the aim of reducing traffic congestion and over-population through a series of replicable structures, Le Corbusier argued that the Ville Radieuse would necessarily create a healthier society through exposure to fresh air and sunlight.[30] While the Ville Radieuse was never built, it would not take long for these architectural theories to influence other built projects, such as those by Georgian-born Berthold Lubetkin. After having previously practiced in Paris alongside Le Corbusier, Lubetkin's work in the UK centered around the same moral philosophy that architecture not only had to provide a practical service to society but also fulfill a larger mission to elevate and change it for the better.[31] His designs, including the celebrated Highpoint I and II apartment buildings, sought to carry out this mission by providing "maximum exposure to sun, light, view, and ventilation" which he believed would act as "a weapon on the side of enlightenment for the betterment of the human condition."[32] Here, Lubetkin echoes both the Bauhaus and Le Corbusier by equating architectural qualities with the betterment of humankind, as if the correct organization of architectural elements could help lift a family out of poverty. Lubetkin's work on similar projects, such as Kensal House, engaged this social mission by attempting to center the desires of the inhabitants. He hired the social housing theorist Elizabeth Denby as a "housing consultant" to ensure that the design met the needs of their residents. It would later be revealed through post-occupation surveys, however, that Denby did not meet with the residents themselves during the design process, which resulted in some of them being unhappy with the layout of their apartments.

Although aspects of these designs were based in real-world concerns, such as Le Corbusier's call for ventilation and sanitary surfaces in the wake of the Spanish Flu pandemic (see fig.15), the results were not always as altruistic as

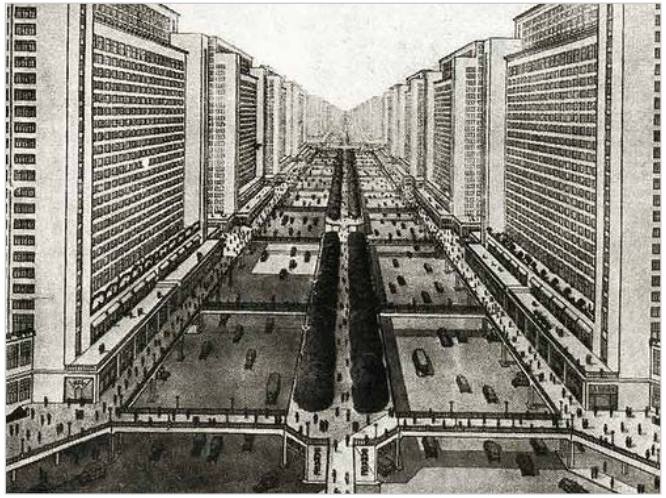


Fig. 13
Rendering of the Ville Radieuse depicting the various vertically stacked layers of pedestrian and vehicular circulation.



Fig. 14
Lubetkin's Highpoint I (left) and II (right) in Highgate, London



Fig. 15
Photo showing the entrance to the Villa Savoy and the sink placed immediately within the front door, showing Le Corbusier's concern for sanitation.

originally intended.[33] Historian Florian Urban notes that as the housing designs proposed by Modernist architects specified the aesthetic and financial need for mass-production, the only way to realistically produce them on a significant enough scale was with the financial support of the new state-sponsored housing programs (e.g., the 1937 Housing Act in the US, the Courant Plan in France, or the 1917 Constitution in Mexico) that arose in the era.[4] This public-private partnership, while seemingly humanitarian in nature, often hid the heavy hand of authority as "measures to house and feed the needy went along with more or less coercive methods to categorize, regulate, and discipline the masse, to enforce moral rule and social hygiene."[34] Thus, these large-scale projects, which reorganized cities and changed the fabric of urban life, were seen as ideal ways to broadcast the primacy of the government in the modern world, inextricably conjoining the Modernist aesthetic with an autocratic view of progress.[35]

In this way, the mission to equitably house the millions flocking to urban centers in the post-war period began with altruistic aims, but the idea that Modernism could determine — and subsequently replicate on an endless scale — the one "correct" way of living was destined for failure. Such a task presumes a singular way of living in a pluralistic world, requiring that designers make vast assumptions about the needs of entire communities. Some assumptions, such as the correct size for a bathroom, have little potential to be damaging while others, such as the correct size for a family, kind of relationship between neighborhoods, or degree of separation between home and workplace, can prove highly problematic once diverse people with disparate value systems start occupying these buildings.[36] Perhaps it is precisely these residents whose interests were the

4 Although mass-production is generally considered to be a cost-effective method of building, it is only economical if done in large enough quantities. This is due to the large amount of high-cost design hours required to prepare something for mechanical reproduction, meaning that if something is not produced on a large enough scale, it can end up being too expensive. For the Modernists, this meant that many of their proposed projects were only cost-effective if produced on a huge scale — a reality that ended up necessitating the private-public cooperation that defined the era.

most absent during of this period. While architects and governments promised to deliver all of modern technology's comforts and solutions in a prefabricated package, the spaces they provided were almost instantly altered by the people who lived in them in an effort to make the environments their own. Therefore, the fate of the modernist housing projects has been determined not by the perfection (or lack thereof) of the architect's all-compassing design, but rather by the people who have lived in, worked in, grown in, and, most importantly, maintained these buildings.

III. Parsing Success from Failure

Possibly more famous than the buildings of the Pruitt-Igoe Housing Complex in St. Louis are Charles Jencks' remark that the day when demolition began was the moment when modern architecture died.[37] That day in March 1972 showed that the Modernist philosophy of rationalized architecture had failed to provide the equitable housing that the movement had promised. In the two decades which followed, many of the state-sponsored programs that had fostered the movement were ended, with legislation passing in France and the US as early as 1973 to remove funding of public housing programs.[38] In less than twenty years, Pruitt-Igoe had gone from a celebrated project equipped with technological advances such as skip-stop elevators into a demonstration all of the failures of public housing, symbolizing "the exclusion of the poor and their confinement to areas of high crime and violence."[39] Although it's ultimate descent into disrepair was caused by a litany of problems – the Recession of 1958, the lack of funding for and mismanagement of maintenance, and white flight have been cited as leading causes[5] — it became clear that the national perception

5 The most famous example of Pruitt-Igoe's maintenance problems was the breakdown of



Fig. 16
Aerial View of Pruitt Igoe before it was demolished in 1972.



Fig. 17
This photo is part of a series that documented the demolition of Pruitt Igoe.



Fig. 18
Staged photo of the Pruitt Igoe complex, showcasing not only the open recreation spaces but also the racial integration that was never actually achieved.



Fig. 19
Jane Jacobs as chair of a Greenwich Village civic group at a 1961 press conference.

was that the Modernist dream had failed. Its promise of a sanitary and egalitarian society, brought about through public housing, ultimately deteriorating as these projects suffered from rampant crime and abandoned buildings.[40]

Interestingly, a study done in 1970 found that most of Pruitt-Igoe's residents still thought highly of their apartments, with 78% answering that they were "satisfied" with their lodgings and 80% reporting that the apartments met their needs "a little better" or "much better" than their previous place of residence.[41] Regardless, these testimonials did not stop non-residents from arguing that the project fell into disarray purely because of its design, claiming that its dehumanizing concrete blocks were the very source of isolation and crime. To this end, many compared the housing complex with the neighboring Carr Village, which was a collection of low-rise, low-density apartments which had "remained both fully occupied and trouble free throughout the period from construction to demolition of its neighboring development."[42] Jane Jacobs was among these critics, whose book *The Death and Life of Great American Cities* sought to detail all the ways that urban planning had failed the citizens of American cities. Although it was published before the demolition of Pruitt-Igoe, Jacob's critiques of Modernist housing still very much applies as Jacobs fiercely castigated the top-down approach to planning that the Modernists had espoused, asserting that "there is a quality even meaner than outright ugliness or disorder, and this meaner quality is the dishonest mask of pretended order, achieved by ignoring or suppressing the real order that is struggling to exist and to be served."[43] Jacobs also attacked Le Corbusier's plan of towers in a park by pointing to how he did not consider the very people who would live in the project, expecting them to gather in rooftop gardens and hallways in the sky while she maintained that the street was the only place where communities can realistically

the stop-skip elevators, which forced residents to regularly take the stairs where thieves would lie waiting. It became impossible for people to traverse the buildings without feeling unsafe, and many abandoned the apartments all-together.

meet, socialize, and protect their neighborhood from criminal elements.[44]

Jacobs was not alone in her critiques ,as the Modernist projects began to take on a negative connotation the world over.[6] In Paris, during the 60's, the term "Sarcellitis" arose as a diagnosable condition which was used to describe "all the psychological evils mass housing inhabitants were supposedly suffering from claustrophobia to dying social relations."[45] This term, derived from Sarcelles-Lochères, the name of a nearby housing development, was useful less as a medical diagnosis than as an indication of the public perception of the place, although there may have also been racial undertones in this phrase as the previous decade had also brought scores of Algerian refugees to Paris in the wake of the Algerian War – with many of them settling in Sarcelles.[46] Thus, it can be difficult to separate the legitimate criticism of the development from biased complaints, be they racist, classist, or simply aesthetic in nature. Even Jacob's concerns become complicated when one realizes that many of the aspects of urbanity that she champions, such as multi-use buildings that are activated by street front businesses at different hours of the day, are central to the Modernist's plans for successful housing.[47]

This is not to say, of course, that there were no legitimate critiques of these housing developments, as many of them suffer from high levels of crime, mismanagement, and lack of funding that inevitably leads to disrepair. Furthermore, many of these spaces experienced both state- and self-organized racial segregation. Many of these same housing blocks around Paris housed refugees from Africa either because they were placed there by the government or because they could only afford to live there.[48] The origins of these developments are also fraught with issues, as finding available/affordable land was the first step

6 A negative public opinion of these large concrete developments was so common that it may be more notable to mention the places where this did not occur, particularly in Shanghai and Mumbai, where tower blocks are still being developed today as residences for the wealthy and upper-middle classes.



Fig.20
Sarcelles and the other banlieues surrounding Paris continue to be a destination for migrants from Africa and the Middle East, and they have been met with both welcome and scorn from the residents.



Fig. 21
Entrance lobby to a type "I" at the Tlatelolco-Nonoalco Housing Complex, which is missing a gate and fallen into disrepair.



Fig. 22
The concept of "modernities" was popularized by historian Florian Urban, pictured here, in his book *Slab and Tower*.

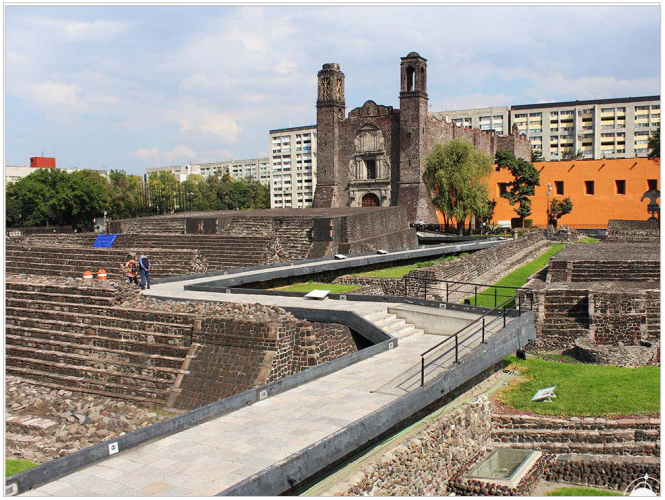


Fig. 23
The aztec ruins and spanish church at Tlatelolco were integrated into the design of Mario Pani's housing complex.

to making such large projects viable and much of the affordable land found near major cities already had (marginalized) people living on it. The history of post-war mass housing is a complicated one because it includes both the collective mission of ensuring the dignity of housing partially through displacement and segregation.

The association of these projects with modernism is complex. In reality, there never was a universally agreed-upon Modernism since "local specificities point to the nature of what has been more aptly described as modernities than modernity, and what all over the world evolved from the continuous tension between an international discourse and local traditions."[49] The general design philosophy laid out in Europe at the turn of the 20th century was constantly changed, adapted, and fused with the local building style whenever it was imported to a different location. For example, Mario Pani's project at Nonoalco-Tlatelolco in Mexico was as massive in scale and ambition as anything designed by Le Corbusier. As migration brought waves of people to the capital city, Pani's project sought to provide over 10,000 apartments in 102 buildings, housing up to 70,000 residents.[50] The final design provided 19 schools,13 daycares, 3 social courts, 3 medical centers, churches, and a movie theater.[51] Unlike Corbusier, however, Pani set aside a huge tract of land for conservation, composing his concrete towers around Aztec ruins and a colonial-era church.[7] The resulting public square is the largest in the housing complex, and is named La Plaza de las Tres Culturas, or the Plaza of the Three Cultures, marking how the indigenous, colonial, and modern identity all have a place in Modernist Mexico.[52] On the other hand, Pani's project also committed many of the era's original sins (e.g., displacement of the original inhabitants, indifference to regional styles of

7 Conservation is not quite the right term to use here, as Pani's treatment of the ruins at Tlatelolco more closely resembled Mussolini's Rome than a natural history museum. Much like Mussolini, Pani kept whatever he deemed important or convenient enough to protect and wiped away the rest. Much has been written, in fact, about how much of the historic site was demolished to make space for Pani's public square, which remains empty on most days.

building) and was rewarded with many of the era's pitfalls (e.g., rundown or abandoned amenities, structural issues, proliferation of crime). The complex is, however, still in use as a generally popular place to live, despite its various drawbacks, providing affordable housing, public transit, and ample green space, all while being close to the city center.[53] This long history is itself a resource in that residents of these buildings have had decades to weigh the benefits and consequences, intended or not, of the structure's design. This thesis contends that there is a great deal to learn from these mass housing projects and their long, often contradictory history. To understand, learn from, and honestly evaluate these places is to analyze at them in time, simultaneously considering the original design intentions, as well as the many years and hands that have changed the places and made them into what they are today.

In selecting the case studies, this thesis sought to highlight the international nature of Modernism by choosing 3 projects from around the globe. As I have personal experience studying Tlatelolco, I felt as though this vast housing project that has fallen into disrepair was a perfect way of discussing the complexities of these publicly-funded developments. Secondly, it seemed important to discuss the European origins and so the housing project at Sarcelles was chosen for its similarity in size to Tlatelolco as well as its importance to the history of French Modernism. Lastly, as I am writing this these while attending a university in the United States, it felt appropriate to include an American example There are, perhaps unfortunately, strikingly few housing projects in the USA that are of a similar scale to Tlatelolco and so Co-op City was also selected for its scale. Although there are significant differences in the way that Co-op City came to be funded and built (when compared with the other two studies), this thesis contends that those differences serve to enrich our understanding of how the Modernist style was applied around the world.



Fig. 24
The aztec history has continued to influence the identity of modern-day Tlatelolco, as seen in the many murals around the complex.

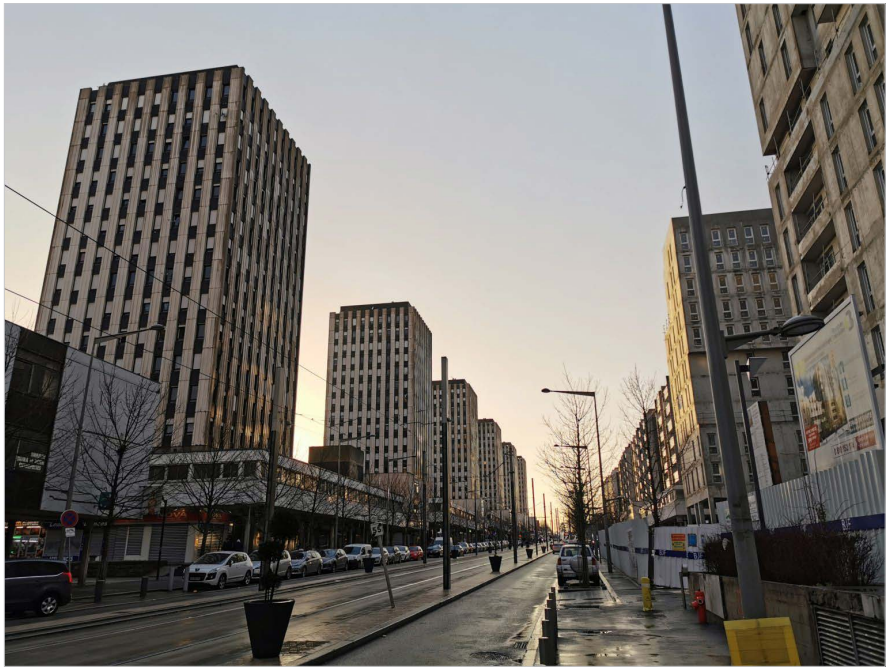


Fig. 25
The main or “ceremonial” entrance to Sarcelles-Locherès, seen here, leads directly to offices, police station, and the main shopping center.

Part III: Case Studies

I. Sarcelles-Locherès in Paris

The end of the Second World War had left France scarred, with no less than 3 million French residents having been left homeless by the fighting and an estimated 1 in 5 buildings damaged beyond repair.[54] To make matters worse, the existing housing stock had been insufficient and outdated even before the war had begun, with a 1946 survey done by the Institut national de la statistique et des études économique, or the National Institute of Statistics and Economic Studies (INSEE), revealing that 48% of French homes lacked running water, 80% did not have an indoor toilet, and at least 95% lacked a shower or bathtub within the unit.[55] The years immediately following the end of the war did little to address this situation, as the country prioritized the development of the manufacturing sector as well as a few isolated reconstruction projects, so that by 1950 “only seventy thousand new homes had been built, a small number considering the pressing need at the time and the yearly production of over 500,000 units a decade later.”[56] Prioritizing the modernization of the country’s industrial sector did, eventually, produce results, with rapid economic advancements creating the revenue that would later fund massive national projects. This period (1945-1975) of post-war economic growth came to be known as les Trentes Gloreuses, or the thirty glorious years, marking the period of prosperity that would transform France from a largely rural country into a highly modernized and urban one.[57]

In the short term, however, the lack of quantity and quality of housing had become a national emergency. As the government focused on cleaning up damaged areas – specifically the historic town centers— and decentralizing industrial production, housing took a backseat in the national discourse. While

the government acknowledged that there did exist a need for more and better housing –with the Ministère de la Reconstruction et de l'Urbanisme, or Ministry of Reconstruction and Urbanism, having been created in 1944 and tasked with replenishing the depleted housing stock – nothing was accomplished on a large enough scale to make an impact.[58] Likewise, the economist and diplomat Jean Monnet would craft a detailed five-year plan for the modernization of both the industrial and housing sector of the government in 1946, commonly known as the Monnet Plan, but its suggestions would not be seriously implemented for almost a decade.[8] The government's inactivity only allowed the situation to worsen, with the same Ministry of Reconstruction and Urbanism citing that many of the problems facing the country were rooted in la lèpre pavillonnaire, or "the plague of single-family houses", which had been built in an unorganized, chaotic density that fostered overcrowding, crime, and disease.[59] Such density was exacerbated by the mass-migration of people to the city centers, particularly the capital, as the war had left the agricultural regions depressed while urban industrial areas grew. Consequently, Paris and the surrounding region of Île-de-France soon became host to an unknown number of bidonvilles, or shantytowns, that filled in the spaces at the edges of the urban boundary – the very locations that would later be suggested as sites for the development of mass housing complexes known as the "grands ensembles."[60] In this way, the housing shortage in France was less a result of the destruction of the war as it was the consequence of a "severe lack of development during the first half of the century."[61]

It was not until the 1953 that the shortage would begin to be addressed as Pierre Courant, the then Minister of Reconstruction, managed to pass a package of laws known as the Plan Courant. These laws were significant in that they

8 Jean Monnet, one of the primary architects of the European Union, developed his plan with funding from the United States, specifically from the Marshall Plan. This initiative, which was meant to provide funding for the reconstruction of Western Europe, was targeted at areas that the United States feared would be influenced by communism, although it ended up funding various social programs.



Fig. 26
The destruction of World War II affected France heavily, with most of the damge concentrated in old city centers.



Fig. 27
Example of the shantytowns or *bidonvilles* that started to populate the areas around Paris.

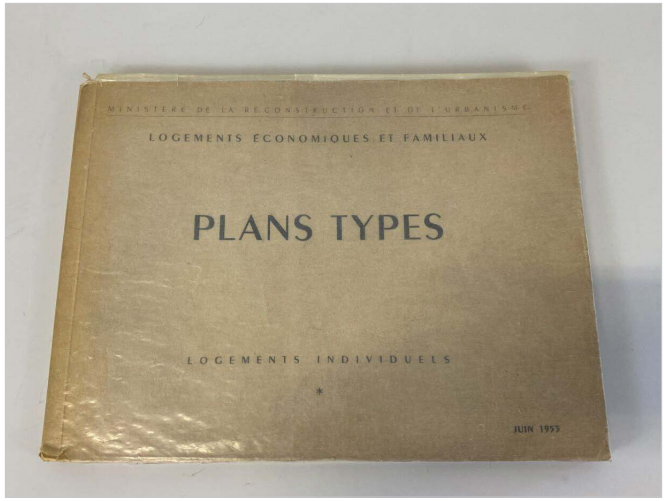


Fig. 28
The *Plans Types* were published and widely distributed as a collection that developers could utilize to easily design low-income housing.

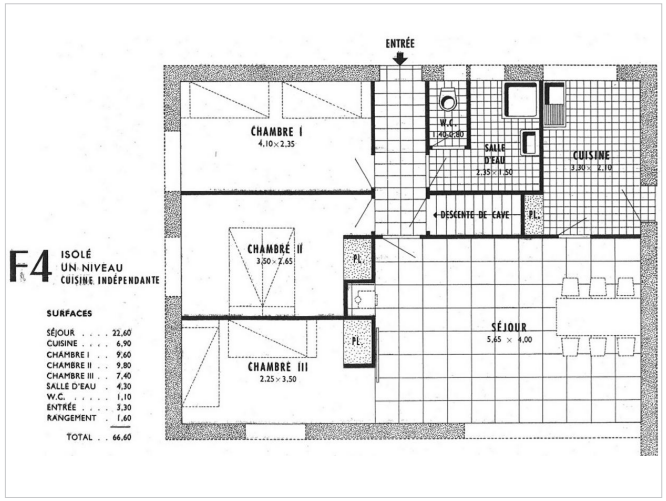


Fig. 29
An example of the most common type of plan in the *Logécos*, the F4 with four rooms, three of which were usually bedrooms.

"tied together land use legislation (to facilitate expropriation), a way to finance housing (through state subsidies) and a program of normalized low-cost dwelling units known as Logécos (logements économiques et familiaux or low-cost family dwellings)."[62] As such, the Plan Courant devised the methods by which the government could seize land, fund projects, and control the quality and design of the work. This legislation, which amounted to a wholesale reworking of national land-use laws, was fundamental as it streamlined the process for acquiring larger stretches of land, allowing the government to begin green lighting massive projects.[63]

The design portion of the plan, known as the *Logécos*, was itself the result of regional committees who had been brought together by the Ministry of Reconstruction to "study housing and, ultimately, suggest a data-driven model for standardization."[64] These committees, which were staffed by architects, urban planners, social scientists, and diplomats, produced a set of prototype apartment plans, or plans-types, that could be endlessly replicated on a national scale. The plans were meant to be as efficient as possible, providing only as much space as was deemed necessary while still offering an improved quality of life. They featured "modern kitchens with running water and new appliances, fully equipped bathrooms, and rooms with large windows," much of which was new to the lower classes of the French population.[65] These designs were then simplified, collected into a two-volume catalog, and published as the *Catalogue des plans types: Logements économiques et familiaux* in June 1953.[66] The function of the *Logécos* was simple: to streamline the design portion of development and speed up construction by offering subsidies if a developer chose a plan from the catalog of typical plans, as "interested developers would receive a state subsidy and be able to borrow 80% of the funds from the crédit foncier for their housing projects, for which the legal procedures, controls, and building permits would

be subsequently simplified."[67]

To further the mission of fast-tracking the development of housing, the government also created its own real-estate developer in 1954, known as the *Société centrale immobilière de la Caisse des dépôts*, or Central Real-Estate Company of the Deposits and Consignments Fund (SCIC), who utilized national funds to both build and manage properties.[68] The SCIC, who would effectively function as the state-led architect, planner, developer, financier, and even landlord, allowed for the social housing wing of the French government to reach new levels of efficiency, with the popular slogan of "massivement, rapidement, économiquement" standing in for the revolutionary cry of "liberté, égalité, fraternité."[69] The Plan Courant intrinsically linked the majority of housing projects to the design aesthetic and political tenents of each passing administration as the suburbs of Paris were set to be transformed into a form of "welfare state city."[70] It was in this environment that construction of the grand ensemble at Sarcelles-Lochères began in October 1955. Located northwest of Paris in the rural area of Val-d'Oise, the housing complex was built in stages over the next twenty years, with its original form being rather modest in scale and initially providing only 440 apartments.[71] This first section, known as Les Sablons, featured 4 apartment buildings and no public services, reflecting the initial difficulty that the government had in acquiring large plots of land to develop (see fig. 33). It would only be after more land was purchased in 1960 that the SCIC-sponsored architects, Jacques Henri-Labourdette and Roger Boileau, would draw up a master plan for the complex, comprised of 11 sections that were planned to provide over 12,000 apartments.[9] The design itself was centered on a simple concept: a series of tall towers and long, squat buildings were arranged in right

9 Henri-Labourdette's selection as lead architect by the SCIC was no mistake, as he already had a history of working with the government. A previous *gran prix de* Rome winner, Labourdette was well thought of in bureaucratic circles, and had even contributed to the plans featured in the Logècos. Unsurprisingly, the first buildings erected at Sarcelles were built using the Logèco plans and were near exact copies of the catalog.

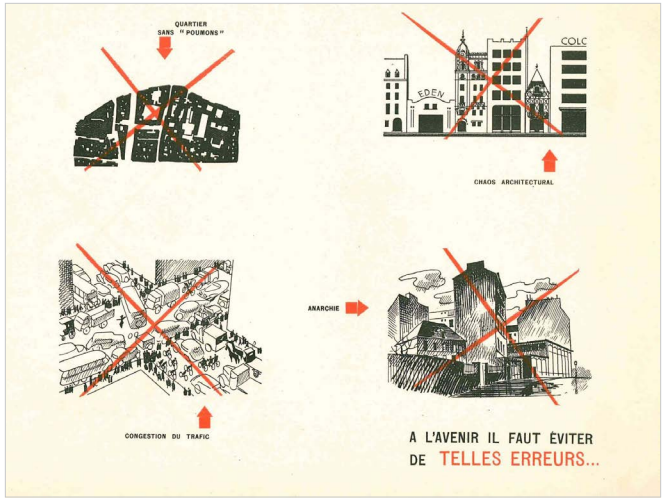


Fig. 30
This figure shows a page from *Principes Directeurs de la Reconstruction,* or the Central Principles of Reconstruction, which was a pamphlet published in 1946 by the Ministry of Reconstruction and Urbanism to clearly detail the goals of the ministry, such as avoiding "architectural anarchy" or "traffic congestion".



Fig. 31
The SCIC was the real estate wing of the *Caisse des Dépôts*, which still functions as the investment arm of the French state .

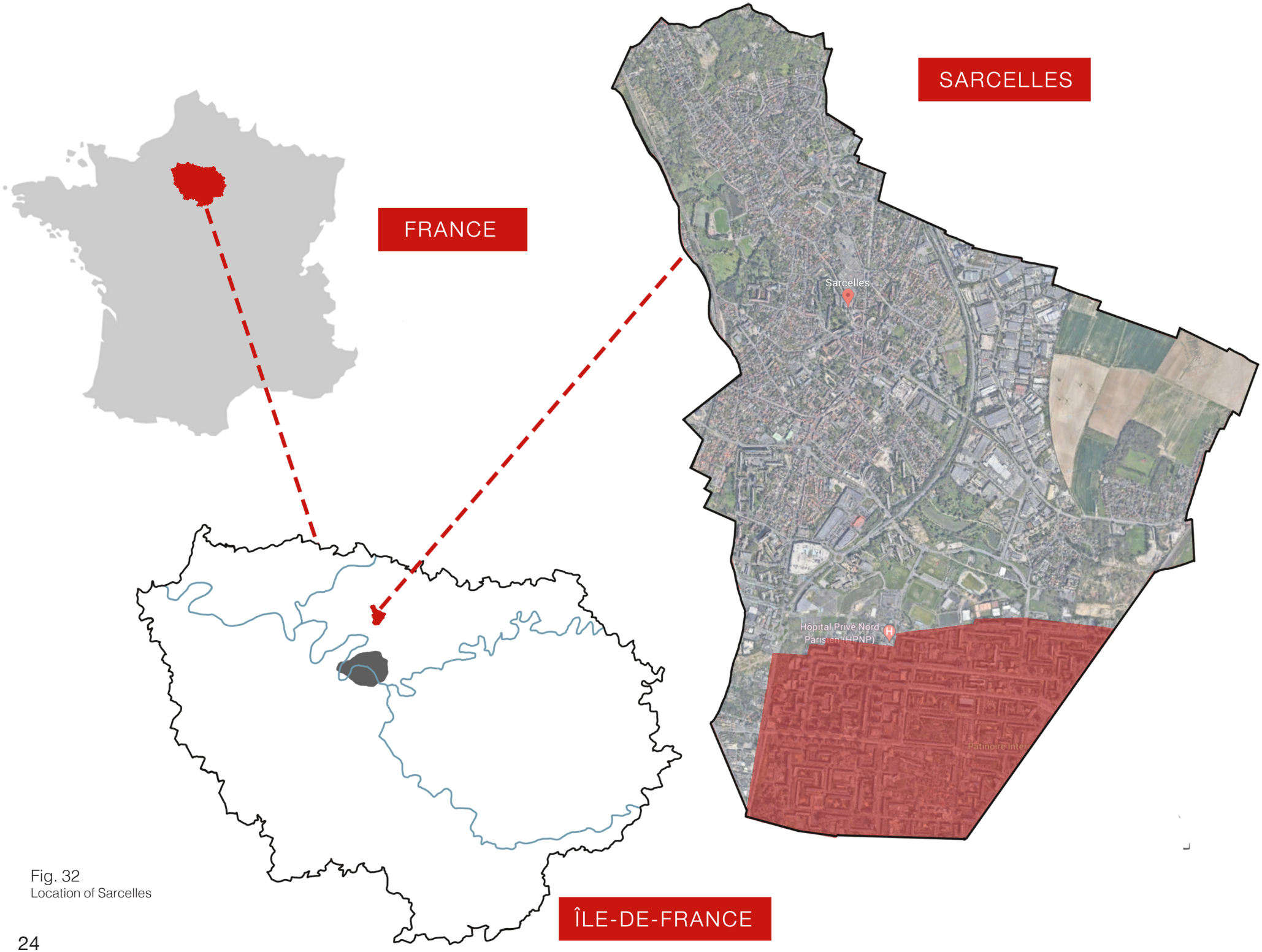


Fig. 32
Location of Sarcelles

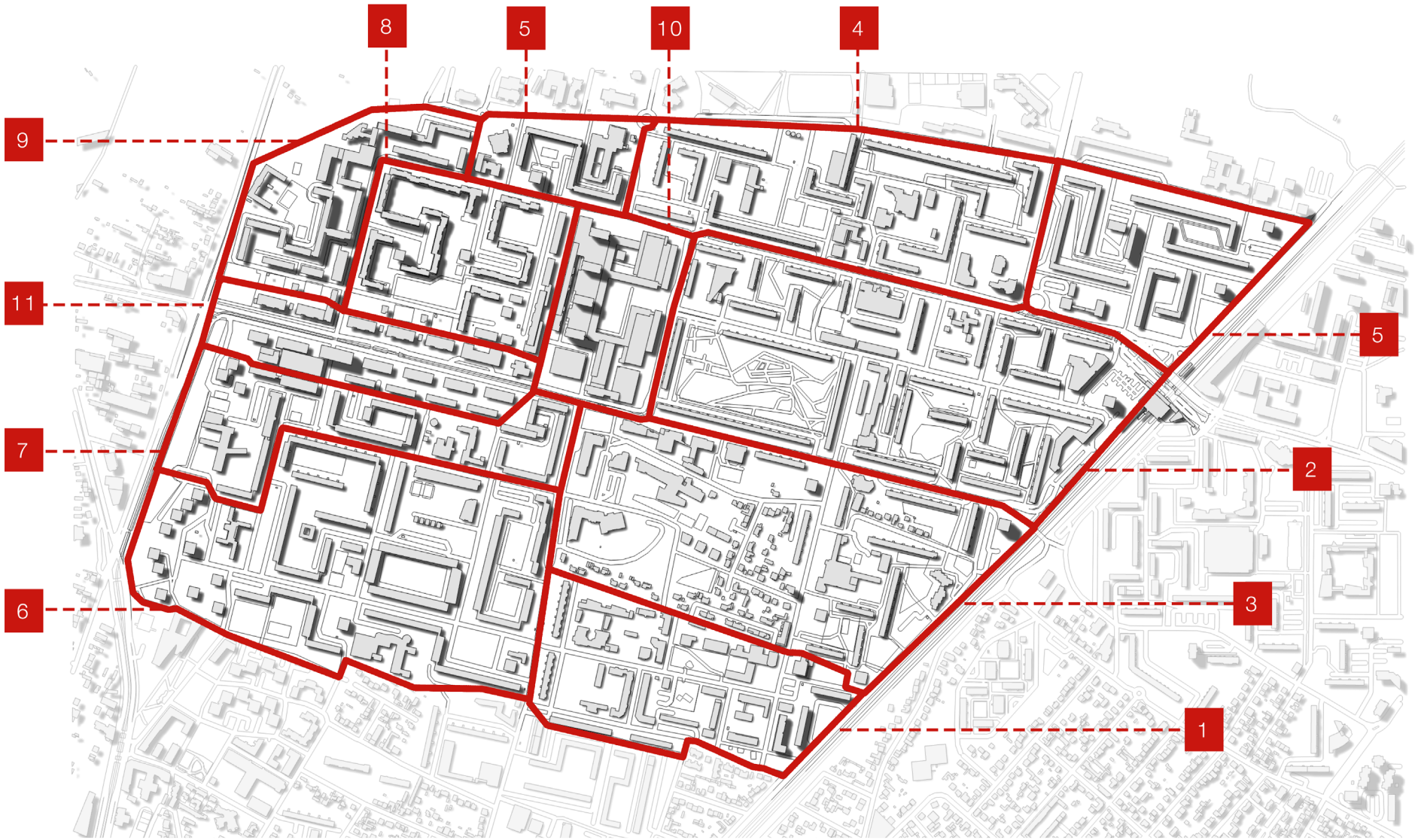
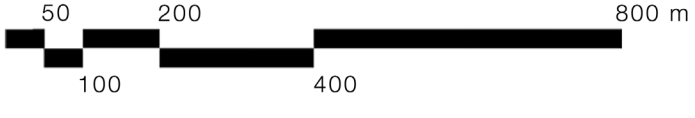


Fig. 33
Map showing the sections of Sarcelles in chronological order, starting with Les Sablons in the SE corner of the development.



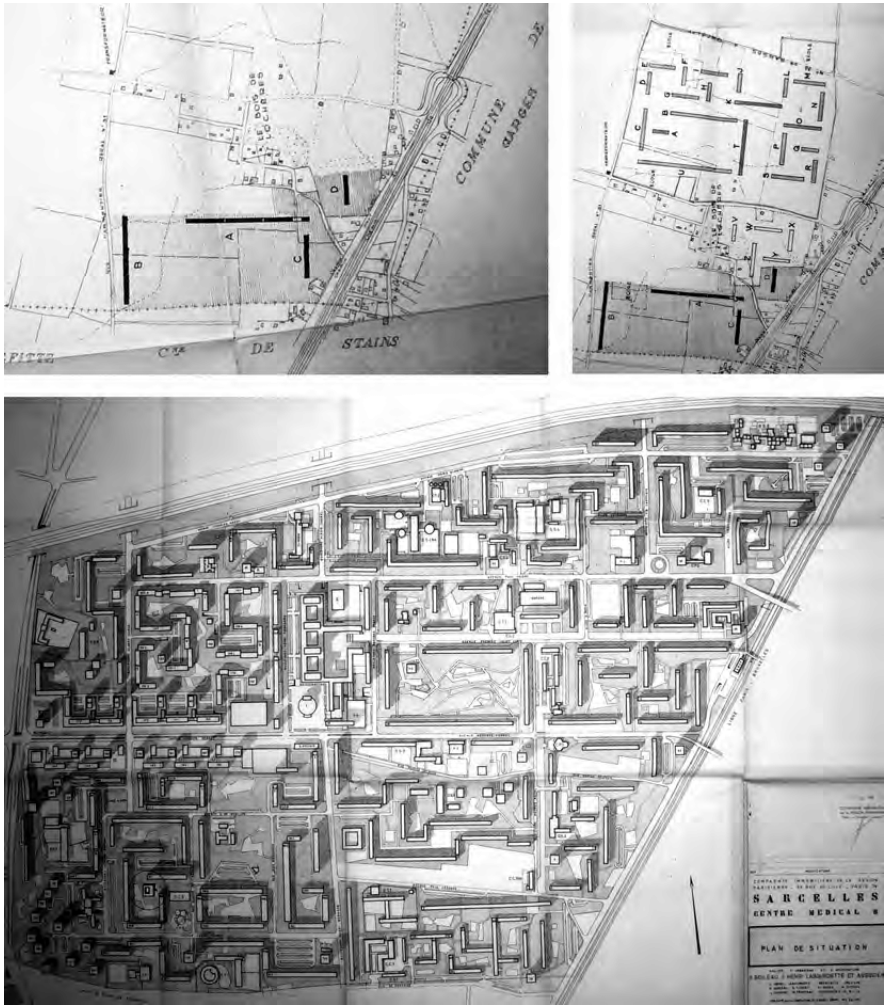


Fig. 34
Starting at the upper left corner, these maps show how the design for Sarcelles grew progressively larger as the SCIC acquired land. The first phase was finished in 1957, the second shortly after in 1958, and the full master plan was not completed until 1964.

angles so that open space would be framed by the structures. This open space would serve as public gathering areas, with the overall composition arranged in a rough 400m x 400m grid.[72] Services, such as commercial centers and schools, would later be distributed throughout the project, forming self-sufficient sub-sections that were then organized around a large central lawn that formed the core of the development.[73] In this way, Labourdette and Boileau's design mirrored the Corbusian concept of the grid as an organizational tool, where small nodes (read: buildings, plazas, commercial centers, anything that makes up a housing development) could be slotted into a larger, rigid organization and therefore achieve a unified composition.[74] Thus, each scale – starting with the individual, residential, and moving up through the neighborhood and city scale – would hypothetically nest into its rightful place within the larger organization, each serving a necessary purpose like cogs in a social machine.

The built reality of the *grands ensembles*, however, never achieved this level of organization and projects such as Sarcelles were planned largely at the neighborhood level with buildings and open spaces being grouped into small, walkable, and, most importantly, replicable units. Likewise, the lived reality of these neighborhoods also fell short of the utopian vision espoused by government agencies, as standardized planning and construction techniques often resulted in geographically isolated buildings with "technical deficiencies and insufficient sound insulation [as] many critics deemed the number of units serviced by the same hall or staircase far too high, giving an impression of crowdedness without intimacy."[75] Early residents also complained about the lack of services, transportation, and the general aesthetic that the concrete structures provided. When interviewed, some residents disclosed that Sarcelles represented a stark change in what they would consider a home, with several of them pining for the pitched roof of traditional housing.[76] As a consequence, the

campaign to build as many of these structures as possible, as quickly possible, began to change the national understanding of what constitutes a building, a neighborhood, and by extension, a French citizen. While state-led apparatuses, such as the SCIC, sought to define a modern vision of the nation whose identity was grounded in the regularity of mass production,[10] the residents struggled with the isolated location of the complexes, as well as the realistic issues that arise when rural populations are placed in a dense urban environment.[77] Again, this is not to say that there was nothing to be gained by moving to Sarcelles (see the introductory comments about the post-war condition of French housing), but rather that the state-led housing apparatus was very intentional in framing the function of the government as provider and, likewise, changing the role of citizen to the being a receiver of social support.[78]

Moreover, the public's opinion of this new role was quick to sour, as the promise of a new France gave way to a problematic reality. Criticism of the *grands ensembles* started appearing not long after the Plan Courant made it easier to build them, with Florian Urban asserting that articles critical of the developments started appearing around the height of the Algerian war in 1959. These critiques, written by prominent psychiatrists and sociologists, declared that the concrete towers had produced a "new social ill, infinitely more frightening than that of the slums."[79] By the early 60's, the term "sarcellitis" had caught on as a catch-all phrase for describing all of the problems and illnesses that residents of the grands ensembles – specifically those at Sarcelles – were supposedly suffering. Sarcellitis, the mass-housing disease, covered everything from anxiety, claustrophobia, social isolation, to ennui.[80] The buildings began to be referred to as "clapiers (rabbit stables), casernes civiles (civil barracks), cage à poules

10 The construction of the *grands ensembles* was accompanied by a propaganda campaign that sought to portray the new housing developments as clean, safe, and futuristic. The images, which were distributed via posters, exhibitions, and in movie theaters, often showed the complexes from a panoramic or aerial point of view, providing an abstraction that resembled architectural drawings.

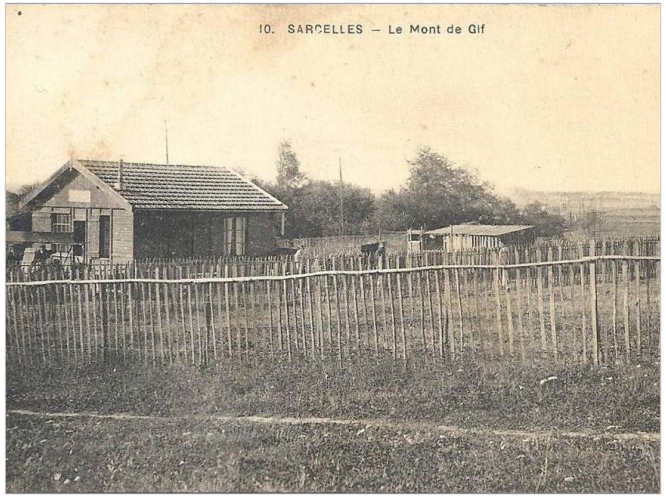


Fig. 35
Postcard showing the general state of the area before construction began on the housing complex.



Fig. 36
These buildings are part of the later stages of development, featuring the then-perfected method of concrete shell with pre-fabricated parts.



Fig. 37
Sarcelles as seen from the air, showing how the buildings are arranged into neighborhoods that surround open space.



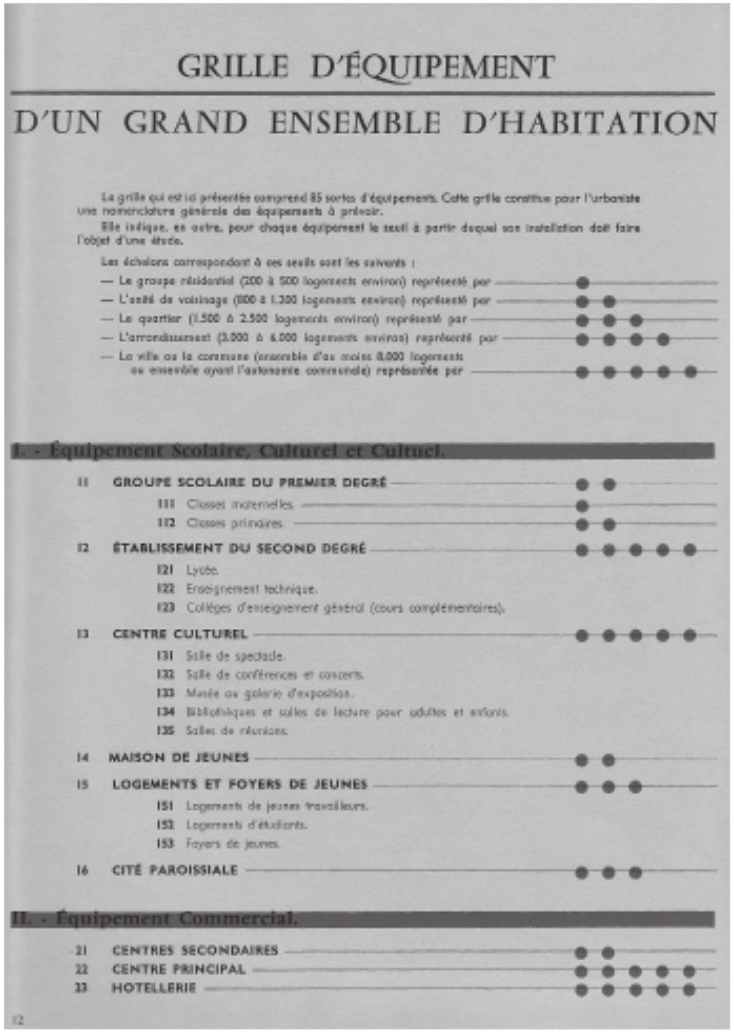
Fig. 38
Charles de Gaulle's autocratic style of governing would go on to define modern France, in policy as well as architecture.

(chicken cages), cités termitières (termite cities), and cités ghettos (ghetto towns)" while films such as L'Amour Exist (Love exists) or novels like "Les petits enfants du siècle" (The Children of the Era) characterized social housing as places of ambivalence, monotony, and the absence of common social values.[81] The sources of these critiques were multifaceted: firstly, the quality of the housing was, as noted above, often low and foreign in aesthetic. Secondly, the long building timelines left inhabitants living in isolated construction zones, as the recreational facilities and social services – central to the idea of the developments— were among the last things to be built.[82] Thirdly, since the standardized designs of the grands ensembles were based in the social sciences, which claimed to analyze and summarize human needs, any criticism was seen as valid. Thus, negative feedback was seen as something that could be incorporated — albeit half-heatedly and much too late — as a way of "fixing" the deficiencies of mass housing. Most often, this approach resulted in designs being changed half-way through the process and longer construction schedules, as "architecture was not only planned and built, but also inhabited, criticized, studied, modified, and revised."[83]

Nevertheless, the proliferation of mass housing was not slowed by public opinion and instead intensified, with "centralized planning remain[ing] unquestioned."[84] This only intensified as Charles de Gaulle, a former army officer, was chosen as Prime Minister in 1958 and given the task of rewriting the constitution. He was ultimately elected President later that year, ushering in the era known as the Fifth Republic as well as a more centralized, autocratic style of governing in which France became an "état planificateur or planning state, in which national pride and economic modernization went hand in hand."[85] Under De Gaulle, Pierre Sudreau was chosen as Minister of Construction and given the task of improving the production and quality of national housing

production. Sudreau – who believed Paris' rapid urban growth and the need for a unified French identity could be solved with the standardization of building practices – established a special committee, the *Commission de la vie dans les grands ensembles*, or the Commission of Life in the grands ensembles. It brought together "architects, urbanists, state administrators, social housing experts, social scientist, representatives of family and women's organizations…. to study the urbanism of the grands ensembles."[86] This commission visited a number of buildings and apartments, interviewing inhabitants and producing surveys of their likes or dislikes, and eventually compiling their findings into a publication known as la *Grille d'équipement d'un grand ensemble d'habitation*, commonly known as the grille Dupont.[87] This document, originally published in 1959 in the journal Urbanisme, proposed recommendations for standardizing space in the name of equality, proposing minute details such as square feet per apartment based on the size of the desired family. In a way, this document was the government's way of codifying functionalism, utilizing social science to determine down to the smallest detail what the "correct" living situation was and, therefore, what the proper French way of being was.[88]

The cornerstone of this work was the proliferation of the 4-room apartment, which is still in use today and known in France as the "F4" (see fig. 29). This style of apartment became common in part because the government considered the residents of these apartments as generally homogeneous. In other words, just as the grands ensembles project sought to produce regular and repeatable spaces that serviced the social average of France, so too did the concept of French people become standardized. The citizenry took on the identity of an "anonymous average" that was neither poor nor rich, male nor female, and decidedly different from the individual-in-becoming that the French revolution had once championed. [89] This average was, however, clearly white, with official


GRILLE D'ÉQUIPEMENT

D'UN GRAND ENSEMBLE D'HABITATION

La grille qui est ici présentée comprend 85 sortes d'équipements. Cette grille constitue pour l'urbaniste une nomenclature générale des équipements à prévoir.

Elle indique, en outre, pour chaque équipement le seuil à partir duquel son installation doit faire l'objet d'une étude.

Les échelons correspondant à ces seuils sont les suivants :

— Le groupe résidentiel (200 à 500 logements environ) représenté par
— L'unité de voisinage (1000 à 1.200 logements environ) représenté par
— Le quartier (1.500 à 2.500 logements environ) représenté par
— L'arrondissement (3.000 à 6.000 logements environ) représenté par
— La ville ou la commune (ensemble d'au moins 8.000 logements ou ensemble ayant l'autonomie communale) représentée par

I. - Équipement Scolaire, Culturel et Cultuel.

11 GROUPE SCOLAIRE DU PREMIER DEGRÉ
111 Classes maternelles.
112 Classes primaires.
12 ÉTABLISSEMENT DU SECOND DEGRÉ
121 Lycée.
122 Enseignement technique.
123 Collèges d'enseignement général (cours complémentaires).
13 CENTRE CULTUREL
131 Salle de spectacle.
132 Salle de conférences et concerts.
133 Musée ou galerie d'exposition.
134 Bibliothèques et salles de lecture pour adultes et enfants.
135 Salles de réunions.
14 MAISON DE JEUNES
15 LOGEMENTS ET FOYERS DE JEUNES
151 Logements de jeunes travailleurs.
152 Logements d'étudiants.
153 Foyers de jeunes.
16 CITÉ PAROISSIALE

II. - Équipement Commercial.

21 CENTRES SECONDAIRES
22 CENTRE PRINCIPAL
23 HOTELLERIE

12

Fig. 39
The table of contents from the Grille Dupont shows the breadth of the project, covering everything from the size of schools to the lay out of public parks.



Fig. 40
The facades of the building, which were cheaply and quickly constructed, were a source of many problems and many buildings have since replaced them for increased thermal and acoustic insulation.

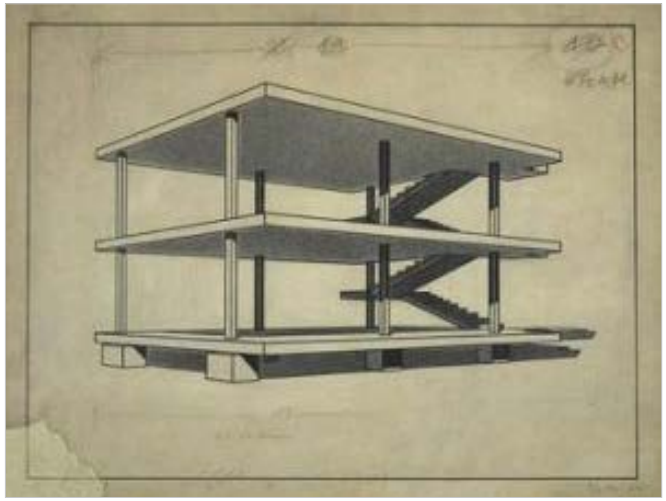


Fig. 41
Le Corbusier's Dom-Ino house, shown here, was a concept for a free flowing floor plan and clearly resembles the post-war apartments.

demographic studies done by the INSEE only allowing for the categories of "French" and "immigrant." Thus, the nuclear white family with 2 children became the expected form that all residents should take, and thus the spaces that were financed, designed, and built by the government catered to this population while ignoring all others.[90] This choice became highly meaningful as non-white populations began moving into the grands ensembles and reshaping them to fit their needs and value systems.

The influence of Le Corbusier on these projects is also worth discussing, as his shadow hangs heavy over all of Modernism but especially that of the French variety. It would be understandable, perhaps, to paint the development of mass housing in France as the natural combination of Corbusian ideas and the government's need to rebuild and expand housing stock. After all, Le Corbusier himself proposed, in a 1948 article published in the French journal *Population*, that his Unité d'Habitation in Marseilles was the perfect model to serve as a national prototype, one which could be mass produced to solve the housing crisis.[91] Consequently, it has been a common straw-man argument to pin the blame for mass housing's perceived failure on Le Corbusier's ideas, reducing three decades of design, planning, and building to an unfortunate consequence of one man's hubris. In reality, the concrete towers that would come to define the suburbs outside of the péripherique –the circular highway that has replaced Paris' nineteenth-century city wall but has the same effect of separating the historic center from the rest — had little in common with the Unité d'Habitation, which promised a "city in a building" with streets set in the sky, away from the overcrowding and grime of the old city center.[92] Furthermore, the architects of these projects, including Henri-Labourdette and Boileau, were not adherents to the Bauhaus' Modernist principles of clean, social design, but rather graduates of the Beaux-Arts school of thought which emphasized a more artistic expression

of composition.[93] Thus, the post-war housing projects were defined more by legislation, economics, and the campaign to redefine French identity than by the aesthetics of the early Modernists.

The effort to create a regulated set of plans that could be chosen from should not, however, give the impression that French mass housing was wholly conceived of and planned beforehand. As mentioned before, this process largely developed during (and often after) construction had begun. Sarcelles is a good example of this, as both the master and individual building designs were altered over the course of its twenty-year construction history. For instance, the later sections of the project were constructed using prefabricated elements that were produced off site and then assembled at Sarcelles. Nonetheless, where these elements were used reflected the larger trends of the country's industry, such as how the concrete production juggernaut that provided the materials for the grands ensembles took some time to be established – once the production centers of large construction companies such as Camus, Coignet, and Boussiron were set up, the aesthetic of public works in the country and Sarcelles in particular became dominated by the grey panels of béton brut, or roughly finished concrete.[94] The very first phases of construction at Sarcelles, however, did not have this industrial pipeline to depend on and so were built using common techniques, such as load-bearing masonry.[95] This is, of course, not to say that industrialization of the building sector did not play a part, as studies done in the late 1960's found that "industrialization…did lead to a significant increase in speed and a reduction in both cost and working hours – in many cases by more than half."[96] Therefore, although the image of housing in France came to be seen as one prioritizing preconceived designs, rationalized layouts, and industrial building processes, the reality was far more about the evolution and inconsistent application of state-sponsored mechanisms.

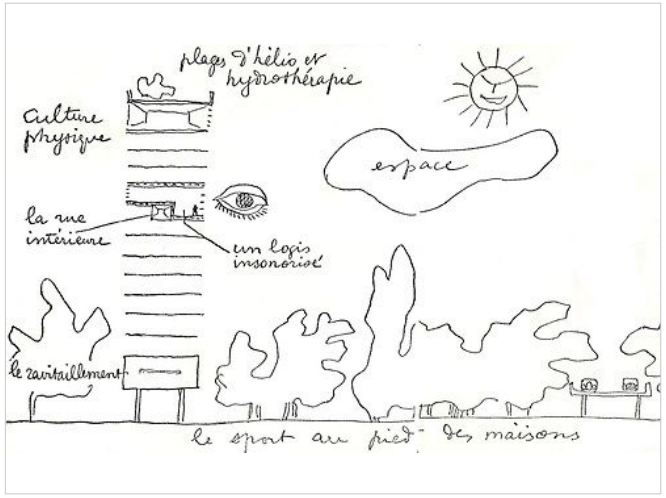


Fig. 42
Le Corbusier's ideas for the Ville Radieuse did not really resemble the grands ensembles in any way other than being towers, as the latter lacked open ground floors and "streets" on the upper floors.



Fig. 43
The war had facilitated a manufacturing sector that was accustomed to producing high quantities quickly.



Fig. 44
Residents had to live in a constant state of construction as the development took 15 years to complete.

The long construction history of Sarcelles also allowed for cooperation and changes to be made by the very people who resided in the development. As the complex came to be known as “Europe’s largest construction site” due to its vast scale and slow pace of development, the first residents of Sarcelles were forced to live in an unfinished and often hostile environment.[97] The first few years of life at the development saw the absence of a nearby bus or train station (the RER train, which connects Sarcelles to Paris, was not functional until 1966), public services like a post office or grocery store, and even, at times, reliable roadways.[98] To try to address these concerns, the early residents formed groups, most notably the Association Sarcelloise, or l’AS, which helped organize and mobilize residents.[11] Since the SCIC, which acted as Sarcelles’ developer and landlord, had been established only a year before construction began, the organization was not properly set-up to run numerous complexes across France. Those first years of dust and construction noise saw the government entity receive countless letters from the Association, with residents complaining of “technical problems like collapsing staircases, about the lack of public transportation and local amenities – schools in particular – and about undue rent increases, collective charges and insufficient maintenance.”[99] As these concerns and conflict escalated, the Association argued that the source of the problem was SCIC’s management structure, and, to this end, the Association managed to arrange a meeting at Sarcelles on January 11, 1964 where the SCIC signed an agreement that would a) fund a study of public life at the grands ensembles, b) create resident-led organizations of elected members that would work as a liaison between the inhabitants and the developer in 3 important areas:

11 These first residents were, by design, homogeneous. As Kenny Cupers notes, there were “almost no poor, rich, adolescent, elderly, or Non-French among them.” It would not take long, however, for the white middle-class identity of Sarcelles to change, as Algerian immigrants fleeing the Algerian war of Independence started moving in not long after –albeit in small numbers, as the waitlists for residency were very, and perhaps illegally, long for people who were deemed not-French-enough. Thus, the contemporary residents of Sarcelles, who hail from a diverse set of countries, stand in sharp contrast to the intended residents.

rent, maintenance fees, and socio-cultural amenities.[100]

During the first years after their establishment, these resident-led councils were very active, creating newsletters and hosting events to try and drum-up interest in the social life of the complex. They even managed to after having suffered 10 years of sporadic development that under emphasized the need for public resources – force the SCIC and their architect, Henri-Labourdette, to redraw the master plan for Sarcelles in 1965 to include more public and collective facilities.[101] Likewise, the influence of l'AS was key in changing the grand entrance to Sarcelles – this entrance was, interestingly the last section of the grand ensemble to be completed in 1968 — by lobbying to include a pedestrian through way that runs parallel with the grand automotive avenue.[102] Despite these successes, however, many residents were disillusioned with the lack of influence that the resident-led organizations actually held. While the results that these councils achieved were few and modest in scale, it is nonetheless remarkable how the SCIC came to regard them as an extension of its own planning and organizational structure.[103] The cooperative and iterative nature of co-designing Sarcelles stands in direct contrast with the commonly held belief that the development of the grands ensembles was done solely by the distant and uninterested social arm of the state.

These resident-led councils saw a decline in importance and efficacy as the first generation of leaders left and a new wave of immigrant families took their place.[104] As the French middle-class gained economic security through les Trentes Gloriueses, white families tended to leave the grands ensembles in favor of purchasing their own houses or apartments in the suburbs of Paris. This change coincided with an economic downtown caused by the oil crisis of1973 as well as the official end to government subsidies for public housing in the same year.[12] Consequently, buildings devoid of renters became more

12 The SCIC started selling its properties in the 1970's and, in 2003 was restructured as the



Fig. 45
Residents gathered on the Association's election day.



Fig. 46
A protest against SCIC staged by the residents of Sarcelles in the early 1960's.



Fig. 47
The local market is centrally located and full of food and necessities, and is regarded as the heart of the community, where people from all backgrounds can gather regularly.



Fig. 48
As with other economically marginalized cities (e.g. Compton, Brooklyn), a rich rap culture has emerged in Sarcelles.

affordable and immigrants –the majority hailing from southern Europe and Northern Africa – moved in and began to change the social dynamic of Sarcelles through the 1970's and beyond.[105] This was also spurred by legislative change, as prior administrations had systematically denied housing to non-white groups through "interminable waiting lists." With nowhere left to go, immigrants settled in bidonvilles, or shantytowns, scattered around Île-de-France until 1970 when the Vivien law was passed, giving local government officials the legal right to declare buildings unsanitary and evict tenants, most of whom were minorities.[106] These tenants were then assessed for their "French-ness" and ultimately placed in the grand ensembles which had, at the time, a 15% limit on immigrant populations in order to "encourage social heterogeneity and support the French mission civilatrice (civilizing mission)"[107]

As the numbers of immigrants and other marginalized groups began to increase in Sarcelles,[13] the perception of the complex as poor and crime-riddled only intensified, as it — along with more than 700 collective housing areas — was officially marked as an "urban problem area by the French government, stigmatizing more than five million inhabitants [nationwide], predominantly from ethnic minorities."[108] Many of the its residents have felt the direct impact of this designation, with studies suggesting that the prejudice associated with the grands ensembles results in inhabitants having "chances of getting invited to a job interview [that] are significantly lower than those of a Paris resident, even if his first name Is Olivier or Gérard rather than Mohammed or Saïd."[109] Moreover, the very location of Sarcelles and other Parisian complexes have played a part in

Immobilière Caisse des Dépôts or ICD. This new organization is a multinational real estate investment trust that funds, invests in, and manages properties, as well as being publicly traded. In 2013, the company went through a merger and is now known as ICADE. It has since sold most of the buildings in Sarcelles to private property managers, although it still owns many of the buildings in La Défense.

13 The use of the term "immigrant" as opposed to a specific ethnicity is largely due to how the local and national record keeping entities did not acknowledge race or ethnicity as a demographic marker until very recently, and so it is nearly impossible to discern the actual extent to which minority groups were historically excluded.

segregating the inhabitants, as their placement beyond the city limits of “the only capital in Europe that has not extended its borders in one and a half centuries” further defines them as non-Parisian and, therefore, non-French, “thus reinforcing an already exclusionary identity and continuing the marginalization of disfavored groups.”[110]

The simultaneous removal of government funding and the rise of minority populations (estimates gathered in 1999 stated that almost 50% of mass housing residents were immigrants, with this number not including the children of immigrants who were born in France) has resulted in countless isolated and under supported ethnic enclaves, with youth unemployment rising as high as 30% in some developments.[111] The scarcity of economic opportunities, coupled with racial discrimination and police violence, were cited as the reasons behind a series of protests and riots against these marginalized conditions, most notably in October and November of 2005.[112] Today, Sarcelles is still seen as a problematic place, and although the development offers public transit, centrally located retail options, ample greenspace, and average rents well below that of Paris and the surrounding area, it continues to struggle with the stigma of the past. To this end, there have been efforts to renovate the existing buildings as well to demolish and replace them with townhouses or newer 5-over-1 style apartment buildings.[113] There has also significant re-investment in the schools of Sarcelles in recent years, specifically in the northern sections of the development, in addition a new master plan was released in 2019 and revised in 2020, although this plan only currently covers the southeastern sections of the complex.[114] All of this, coupled with a growing sense of community and pride among the residents of Sarcelles speaks of a place that is intent on overcoming its difficult past, and yet the question still remains if it was the design of the grands ensembles that produced these difficulties or the failure of the state to maintain and fund the dream of



Fig. 49
This mural, which reads” When I was little, there were Muslims, Jews, Christians, Blacks, and Whites..They were just my friends” does, in some ways, reflect the official position of the French State towards the multicultural communities that have sprung up in the *banlieues*: it does not deny the diversity, but would much rather think of them as soon-to-be French citizens instead of migrants from elsewhere.

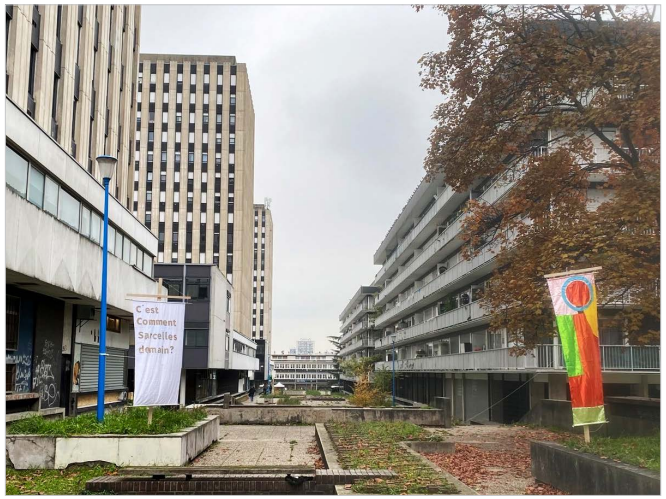


Fig. 50
Many spaces, including this pedestrian walkway that is parallel to the central entrance, have fallen into disrepair largely due to lack of funding.

universal housing? Unfortunately, an examination of the period provides no clear culprit, as the form of mass housing developments was shaped more by what was financially and legally possible at the time than by any grand ideology. All the same, Sarcelles still stands today, providing housing for those who need it most, and perhaps that affordability is enough to justify the continued presence of its towers on the skyline of Paris.



Fig. 51
Aerial view of the eastern-most corner of Tlatelolco, including some of its tallest apartment buildings.

II. Tlatelolco-Nonoalco in Mexico City

Although Mexico had not participated in either World War to the extent that France had – having only sent a handful of soldiers and aid to the allied powers – the country still started the twentieth century in its own post-war period defined by political instability and the Revolutionary War. This war, which began in 1910 as an unprecedented coalition of politicians, military officials, and bandolier-adorned indigenous farmers rose to overthrow the authoritarian — and, coincidentally, francophile — Porfirio Díaz, left the traditional social and economic functions of the country badly damaged.[115] Even before the war ended in 1920, the residents of war-torn agricultural towns had to leave their homes and head to the more-or-less stable capital of the country in search of work and safety, resulting in a mass migration that cemented Mexico City as the focal point of to the country. The population of the city would go on to grow almost 10 times in less than a century and, likewise, the factories and foundries that would later be employed in modernizing the nation began to coalesce around the capital.[116] Therefore, while the degree of success that was won by the revolutionary coalition is still debated today[14], the Mexican post-war period

14 The author and poet Octavio Paz notably wrote of the revolution in his *novel El Laberinto de la Soledad* as an impossible dream with inevitable consequences as, according to him, it had not "been capable of organizing its explosive values into a world view, and the Mexican intelligentsia has

certainly saw the consolidation of power, population, and resources in its largest city. The combination of those three things reshaped its urban form, giving rise to modern Mexico City, its institutions, density, and ultimately, its challenges.

While the Revolution is generally regarded as having ended in 1920 with the death of former president Venustiano Carranza and the election of Álvaro Obregón, the years immediately preceding and following these events were marked by continuous military skirmishes, as groups who had once been allies turned on each other in a tussle for power (e.g., the southern armies of Emiliano Zapata had placed Carranza in a position of power, which he then used to capture and execute Zapata via firing squad).[117] In reality, it wasn't until the election of the Lázaro Cárdenas in 1934 that the Mexican State started to settle into a stable and predictable rhythm. These post war years eventually saw a slow but steady economic growth that was overseen (read: dominated) by the political party founded during the revolution, known as the Partido Revolucionario Institucional, or PRI, which held the presidency until the election of Vicente Fox in 2000.[118] The entirety of Mexico's history in the twentieth century was defined by the social and political structures which emerged during this period, with — arguably — the most impactful document being the Constitution of 1917.

Although the Constitution could be interpreted as serving the will of then-President Carranza by reinforcing the autocratic powers of the executive branch, it also provided legitimacy to the reforms that were fought for during the revolution. Notably, the document gave the government the right to confiscate land from wealthy landowners, guaranteed basic workers' rights, and limited the powers of the Roman Catholic Church, which had often been used as a tool of the oligarchy.[119] Moreover, the influential Article 123 of the Constitution[15],

not been able to resolve the conflict between the insufficiencies of our tradition and our need and desire for universality."

15 "In any agricultural, industrial, or mining enterprise or in any other kind of work, employers shall be obliged to furnish workmen comfortable and hygienic living quarters for which they may collect rent that shall not exceed one half percent monthly of the assessed valuation of the property.



Fig. 52
Porfirio Díaz, who ruled over Mexico for 32 years as a *de facto* dictator, was controversial in that his oppressive and autocratic methods managed to stabilize the political and economic functions of the country, although the resulting prosperity was only enjoyed by the wealthy ruling class.



Fig. 53
In the center is Pancho Villa, a revolutionary general who led the División del Norte, one of the armies that fought to oust Díaz.

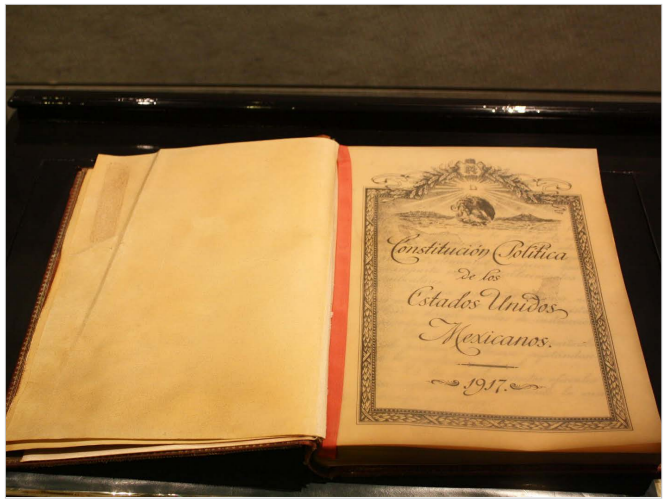


Fig. 54
The Constitution of 1917 would later be amended heavily, setting presidential term limits and changing the state's obligations to its citizenry, but it still remains one of the most important documents of the era.



Fig. 55
Lázaro Cárdenas is responsible for ushering in a new era of propsperty, although it can be argued that the gains were again only seen by a few.

which guaranteed housing for workers, formed the basis for the mass housing program that would reshape Mexico City.[120] It took some time, however, for the social values outlined in the document to be put into practice, as the tumultuous governments led by the Caudillo presidents, or former military Generals, rarely lasted long enough to follow through on their platforms. Carranza himself was killed while attempting to flee after being deposed and his successor, Obregón, was shot in 1928 after having been elected a second time.[16]

It was not until after the Cristero War –an armed conflict between supporters of the Roman Catholic Church and the increasingly secular State – and the election of the Lázaro Cárdenas that Mexico was able to enter a period of political stability in which presidents regularly completed their 6-year appointments without having to resign or risk being assassinated. Cárdenas was a staunch nationalist and socialist who reformed the economy by nationalizing the railway and oil industries as well as raising the amount spent on public construction projects from "20% to 40%, vigorously stimulating the construction of roads and highways as well as carrying out agrarian reform."[121] This newly invigorated Mexico also found itself in an opportune position to produce and export goods to the European countries whose manufacturing centers had been badly damaged by the war. While nationalizing the oil production angered many foreign investors, especially those in the United States, the change in policy catapulted Mexico into a new global position and an era of prosperity known as the "Mexican Miracle" that would see economy grow at an average rate of 6% until the oil crisis of the 1970's.[122]

They also must establish schools, hospitals, and any other services necessary to the community. If the enterprise is situated within a town and employs more than one hundred workers, it shall be responsible for the first of the above obligations." Mexican Constitution of 1917, Article 123, section XII. February 5, 1917.

16 While the 1917 Constitution stipulated that presidents would serve a single 4-year term, 1926 saw an amendment that allowed for non-consecutive re-election. This allowed Obregón to run and win a second term, although he was assassinated before his term began. This amendment was repealed in 1934 by Lázaro Cárdenas as well as establishing the now-regular 6-year presidential term with no possibility of re-election.

Some of the most important social services were also established during this period, such as the Mexican Institute of Social Security (IMSS) in 1943, the Institute of Social Security and Services for the Workers of the State (ISSSTE) in 1959, and the Urban Mortgage and Public Works Bank (originally known as SNC but later known as BANOBRAS) in 1954. These entities sought to capitalize upon the recent economic gains by providing funding for public projects and, in turn, attempted to realize the radical promises of the Constitution.[123] Such a focus on social advances was intensified with the election of Miguel Alemán Valdés in 1946. This marked the end of the caudillio period, as the government's priorities shifted from stabilizing the country to modernizing it. Alemán pushed for further industrialization and domestic development in the capital and outside of it, funding projects such as the new campus for the National University (UNAM) and the tourist coastal city of Acapulco.[124] In short, the 40's and 50's saw the Mexican state employing the 1917 Constitution as the legislative basis for rapid expansion, which was paid for by the newly established social institutes. In this way, the government became "a promoter, organizer, regulator and watchdog of the quality of the projects, taking them to completion with state investments, fed by the management of taxes."[125]

While the Alemán years saw a proliferation of state-funded projects, housing developments had been already been built in the capital to a greater or lesser extent since before the end of the Revolutionary war. For example, the Balbuena and San Jacinto housing complexes by Juan Lagarreta offered 108 and 205 apartments, respectively, and were completed in 1935. These experimental projects were among the first in the country that were funded by the government with the intention of housing local farmworkers, and they attempted to do so in the most economical way possible.[126] The designs, which were much smaller than future projects, still sought to supply as many amenities as possible by



Fig. 56
The institution that funded most of the public works during this era, BANOBRAS, still exists today as the office that manages the investment of public funds.

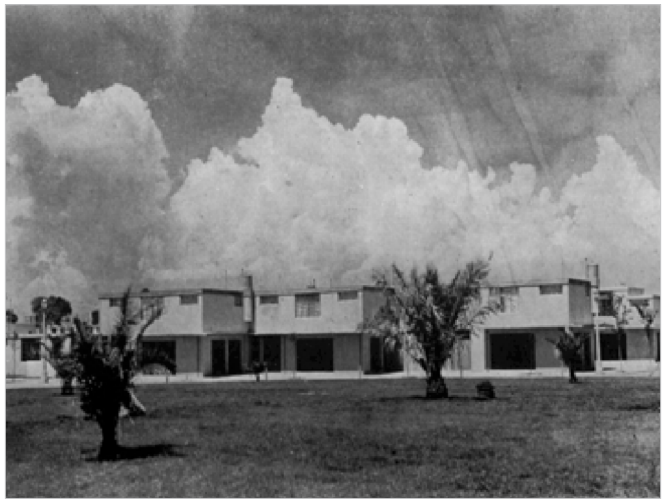


Fig. 57
The Balbuena and San Jacinto housing complexes were meant specifically to house *obreros*, or workers of the state.

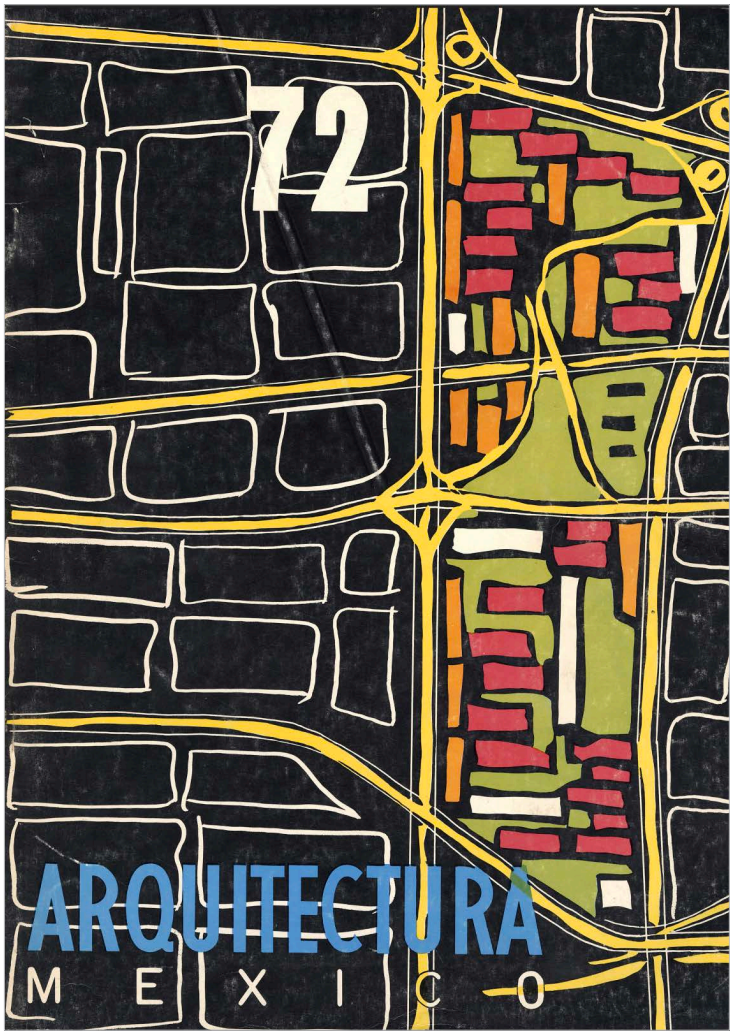


Fig. 58
Pani's *Arquitectura México* no.72 features his designs and justifications for the housing complex at Tlatelolco-Nonoalco, including detailed plans and sections of the various building types.

providing small bedrooms for families and children as well as communal parks, playgrounds, and schools. Their one and two-floor designs were, unfortunately, vastly insufficient as they never allowed for the type of density that was necessary to address the housing need.[127] As such, the local and federal government began looking elsewhere for ways to increase the quantity and quality of developments in Mexico City.

It was then, just before a period of intense urban expansion, that a young Beaux Arts-educated architect named Mario Pani returned to Mexico. Pani, who hailed from a well-connected family, had spent much of his life abroad due to his father's career as an ambassador. His education and lineage provided a link to the intellectual tradition of Europe. In 1938, Pani started publishing the journal *Arquitectura México*, which "had the objective of disseminating the architecture of the modern movement developed not only in Mexico, but also internationally."[128] The publication was serialized until 1979, making it one of the most influential and longest-run specialized magazines in the country. The publicity garnered from the magazine — along with the support of his family, especially his uncle Alberto — allowed Pani to quickly become the go-to architect for the various projects of the state.[17]

Amid soaring demand for housing, Pani met with the Directorate of Civil Pensions and Retirements to promote the idea of a new style of apartments: high rise towers in the Modernist style that would not only house more people but also provide open areas for recreation at the base of the buildings. This style also allowed for a method of construction that would take advantage of the newly nationalized industrial complex by using pour-in-place concrete structure

17 Alberto J Pani was, in his own right, an incredibly interesting person, having served as Director of Public Works for Mexico City, the first Secretary of Industry, Commerce, and Labor, Secretary of Foreign Relations, Minister of Housing with Presidents Pascual Ortiz Rubio and Abelardo Rodrigues, as well as the founder of the Bank of Mexico. He had been charged with supervising the relations between Mexico and France during the presidency of Plutarco Elías Calles and was absolutely essential to the rise of Mario Pani.

and prefabricated elements, lowering costs and producing buildings faster.[129] The group was taken with the idea and they awarded Pani his first major project, which came to be known as the Centro Urbano Presidente Alemán (CUPA) in 1949. The project would house more than 4,000 residents and provide just over 1,000 apartments. He continued developing these multifamily designs with the Centro Urbano Presidente Juárez (CUPJ) in 1952, which took the place of the old National Stadium and provided nearly 1,000 units.[130] In 1957, the IMSS asked Pani to build a housing development on a plot west of Mexico city and it was here that his designs started growing in scale, providing 2,200 apartments in 4 story buildings and townhouses, as well as "various facilities were erected as educational, sports, cultural, commercial and social security centers to assist its nearly 13,000 inhabitants."[131] He also went on to cooperate in major urban planning projects, such as designing the layout for the commuter neighborhood to the Northwest of Mexico City known as Satélite, which was planned as a way of spreading out the rising density that was resulting in overcrowding and unsanitary conditions.

Having successfully worked alongside various government agencies for almost a decade, Pani was asked in 1958 to develop a large housing complex in an area just northwest of the historic city center. The plot, which was then occupied by an old rail yard as well as a large block of informal housing home to nearly 100,000 families, was given the name *herradura de tugurios*, or the horseshoe of slums by Pani.[132] As part of his original proposal, Pani and his studio conducted a study of the area and determined that "the surrounding neighborhood…had a density of 500 inhabitants per hectare, with all housing being of a single floor, lacking basic services, and suffering terrible overcrowding. Pani's proposal offered 1,000 inhabitants per hectare, with 75% of that area devoted to green space and all of the services being integrated into the



Fig. 59
Mario Pani was young and ambitious when he returned to Mexico City, and his connections helped him integrate into the rising urban renewal programs that were being championed by the Alemán administration.



Fig. 60
The serpetine design at CUPA shows Pani's early attempts to create open space that is then bordered by high-rise apartments



Fig. 61
Location of Tlatelolco

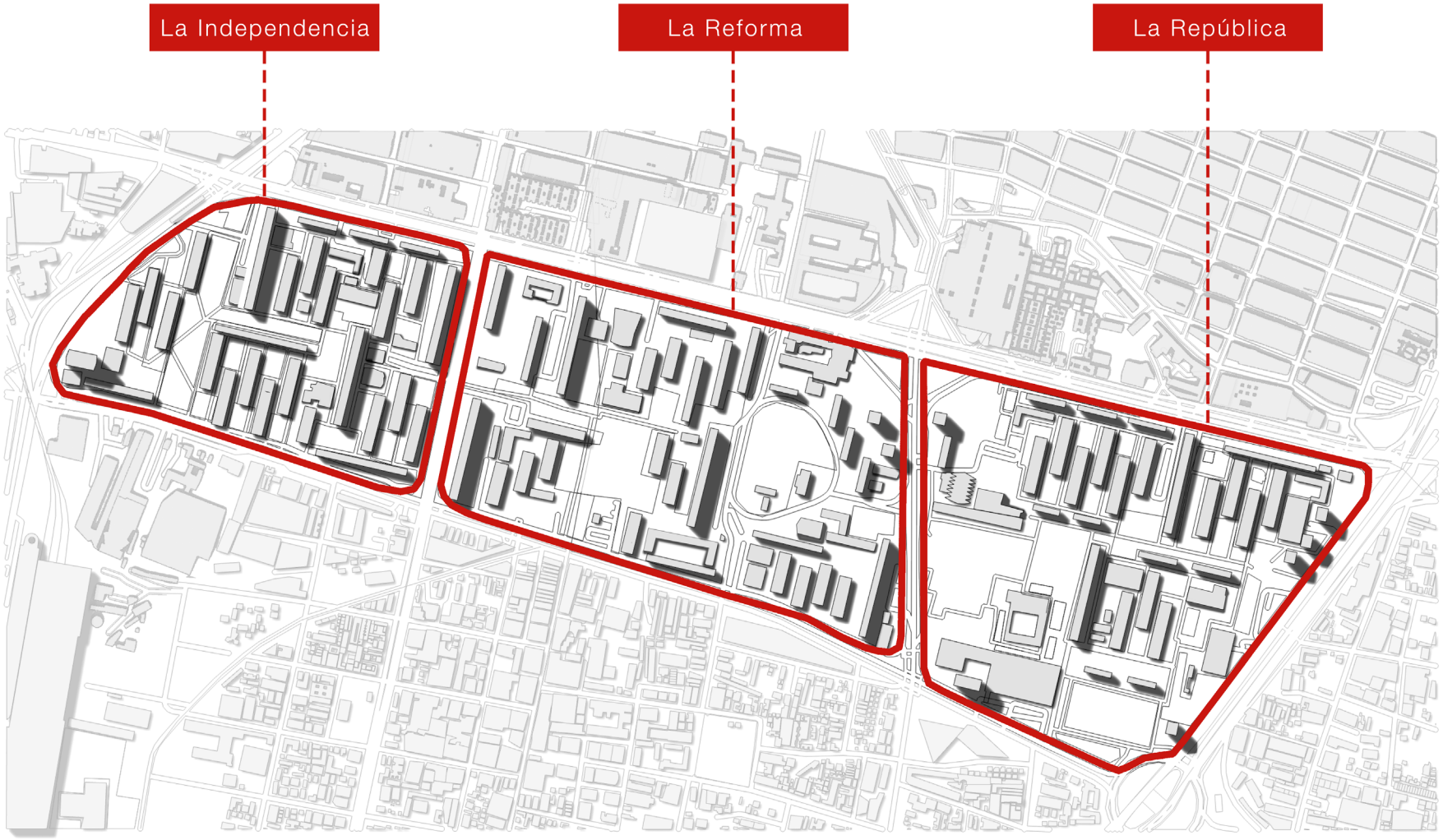


Fig. 62
Map showing the sections of Tlatelolco which are surrounded and divided by major roadways. Each sections is then connected by pedestrain walkways.

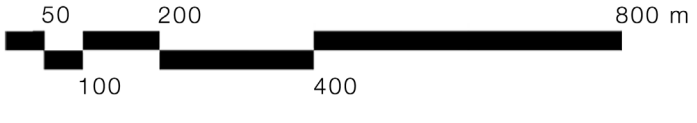




Fig. 63
This graphic shows the full extent of Pani's urban renewal project. Tlatelolco, which was ultimately the only section that was built, is in the upper left side. The rest of the project, which was intended to stretch down into the city's historic center, did not recieve funding and is today one of the most marginalized areas in the city.



Fig. 64
Before construction began, the area that Pani named *herradura de tugurios* was home to many communities that were ultimately displaced.

building."[133] In this way, the new master plan was meant to be a rational answer to the chaotic and "un-designed informal city", imposing order on an area that was – in his mind— so unsalvageable that "the only benefit of bad [neighborhoods] is that they are so bad, one has to entirely demolish them to build them right."[134] As a replacement, Pani recommended a city-within-a city with an even distribution of housing, commercial, and recreational areas so that residents would only have to leave if they wanted to. Furthermore, the apartments themselves were calculated down to the square meter so that they could provide "what each family needed according the number of its members, [calculating] the parking spaces, the distance between buildings and commercial areas, the square meters of garden that was required for each inhabitant."[135] Although the project was larger than any that the government had ever funded, the possibility of a rational, monumental, and verdant solution to the city's housing problems was too attractive to ignore, and so construction of the Conjunto Urbano Nonoalco Tlatelolco began in 1960.

Although less than half of the full design was built, the final form still resulted in the largest and last housing complex of its kind in the entire country, providing 102 buildings and over 12,000 apartments for up to 80,000 residents.[136] Unlike the two-decade long construction timeline of Sarcelles, Tlatelolco received a complete master plan from the onset as the design would be integrated into larger urban projects that the President's administration had prioritized, such as the expansion of the Paseo de Reforma.[18] The project was to be built in stages, with the 96-hectare property of Tlatelolco-Nonoalco acting as the pilot project and future stages being located east of Paseo de Reforma where the neighborhood of Tepito is today.[137] This larger project sought to fundamentally reshape Mexico City by demolishing the entire herradura de tugurios area

18 Paseo de Reforma is a main thoroughfare that dates back to the short-lived Hapsburg empire in Mexico. It was originally built by Maximilian I in 1864 and was modeled after the grand boulevards of Europe, although several other figures have expanded it. The project at Tlatelolco was designed to integrate into the latest expansion.

— displacing residents with the promise of affordable modern units in the future — and rebuilding the area with over 30,000 new apartments.[138] The buildings, which varied in length and height but generally conformed to unadorned rectangular layouts, do not point north, but rather are orthogonally aligned along a grid that Pani super-imposed on the site so that everything would correspond to the highways immediately north and south of the project. This model, as Pani would admit in the publication *Los Multifamiliares de Pensiones*, was directly influenced by the work of Le Corbusier and the Modernist movement, although Pani claimed that his own project was ""much more important than the work of the same architect Le Corbusier in Marseille, with a set of 300 apartments" since Tlatelolco would go on to provide more units.[139]

An economic crisis, presidential election, and subsequent change in housing policy put an end to the full scale of the project before it could be completed, and so Tlatelolco stands today as a rarity in the fabric of the city. The concrete buildings soar over the surrounding areas in a regular rhythm, and the contrast between Tlatelolco and the neighboring barrios is noteworthy in that it reflects not only a stark change in style and quantity of greenspace but also the changes in policy and funding. Originally, the project was meant to supply housing for all socioeconomic groups,[19] with rents being subsidized to a greater or lesser extent based on the inhabitant's income.[140] The apartments were to be owned by BANOBRAS and managed by state-owned corporations so that prices could be controlled and the specifics of this financial structure were organized around the delicate arrangement of using rents to repay the original loan that BANOBRAS secured from the Bank of Mexico – which had an original interest rate of 4%. Just as the first section of Tlatelolco was finished, however, a recession hit the country and drove interest rates north of 10%,

19 Pani divided up the speculative population of Tlatelolco into three groups: 1) Low income 2) Working class and 3) Middle/upper Class. These groups were then assigned floor plans for 1-, 2-, and 3-bedroom apartments, which established the nine types of units that are offered at the complex.



Fig. 65
The strict orthogonal orientation of the buildings corresponds to some of the existing streets, and each building type has only one orientation (e.g. Type C buildings always face north-south).



Fig. 66
This aerial view of the BANOBRAS tower shows just how prominent the building is on the skyline of the city.



Fig. 67
A view of early stages of construction, which consisted of poured concrete frames filled in with prefabricated elements or brick walls.



Fig. 68
This section of an Aztec codex shows the defeat of Tlatelolco and its subsequent incorporation into the empire of Tenochtitlan.

causing BANOBRAS to abandon the "practice of direct rental systems, and began to reorganize the entire complex as a condominium arrangement in order to maintain the set lease prices."[141] While the government chose to finish the remaining two sections, the rising prices of apartments and maintenance fees in Tlatelolco shut out many of the intended residents, including those who had been displaced to build the complex in the first place.[20] Furthermore, while these state-sponsored organizations were designed to function as the institutional arm of Article 123, the need to operate these properties so that they generated a profit led to the social exclusion of those whom the Constitution sought to protect.[142]

The site of the project was also a source of complications, as it is also home to a vast archaeological area that contains both Spanish and Aztec ruins of the historic city of Tlatelolco. The initial phases of Pani's project displaced the original residents and placed the arrangement of the apartments around and on top of existing structures and ruins. Originally founded by a splinter group of Mexicas in 1325, Tlatelolco was eventually conquered and incorporated into the larger fabric of the Aztec capital of Tenochtitlan.[21] It was, in some respects, the twin city of Tenochtitlan, and "featured, for example, a templo mayor, or central temple, that was taller than that of its neighboring city – a construction that made even Moctezuma jealous who wanted the largest temple for himself and for the god Huitzilopochtli."[143] At the height of its power in the early 16th century, Tenochtitlan-Tlatelolco was home to 200,000 people and therefore larger than any city in the Americas and Europe at the time, with the two exceptions being

20 The restructured lease agreements for the apartments also included a possibility that, once residents of a particular building had paid for the value of the development, they could opt to buy the property and own it in a co-operative model. BANOBRAS did not honor this clause, however, and in 1973 after a 20% increase in costs, residents boycotted the maintenance payments until BANOBRAS recognized the amounts already paid towards purchasing the buildings. After 6 years, and with support of the presidency, the clause was honored, and many buildings transitioned over into a self-administration model.

21 Tenochtitlan's main ceremonial square, which was home to the main temples and ceremonial functions of the state, is today known as the Zócalo. The temple was disassembled, and its stone bricks were used to erect the city's Cathedral and Presidential Palace.

Constantinople and Naples.[144] When Tenochtitlan fell to the Spaniards, the residents of Tlatelolco were the only ones who remained loyal to the empire, and it was there that Cuauhtémoc, the last Aztec tlatoani, or leader, organized the final battle against the European invaders. After the Spaniards drained Lake Texcoco and established the exclusion zone for Europeans, Tlatelolco was allowed to continue as the symbolic capital for the Indigenous power structures whose only purpose was "keeping the commercial and tributary networks of the long-gone Aztec empire churning."[145] Eventually, a Franciscan convent was built in the area, functioning as the first university in the Americas. As all church property was expropriated during the latter half of the 19th century, however, Tlatelolco's function changed regularly; becoming a military garrison, warehouse district, ammunitions depot, and, ultimately, the rail yard that Pani was charged with reimagining.[146]

As the history of the future housing complex was already complicated, the role that the historical patrimony and archaeological areas would play in Pani's design was a source of almost-immediate criticism.[147] By the time that Pani began designing the complex, some of the area's significance was already acknowledged by the government, such as the large pre-Hispanic pyramid and Franciscan church being protected by the Institute of National History and Anthropology's (INAH) historic monuments law. Thus, Pani was had no other option but to respect and protect those monuments.[148] Conversely, while it was presumed that there existed larger ruins in the area, archaeologists from INAH were not allowed on site after construction began. Instead, a private team of archaeologists was "hired directly by the Bank of Public Works with dubious priorities as they rushed to meet construction deadlines"[149] The destruction of the area was therefore carried out in much the same manner that Mussolini employed in Rome, with ruins being moved, altered, or removed wholesale to make space



Fig. 69
This mural by Diego Rivera, which is part of a series that shows the indigenous tribes and history of Mexico, shows the famous market at Tlatelolco in the foreground with the temples of Tenochtitlan in the background.



Fig. 70
An aerial photo of the railway and surrounding area that would become the site of the Tlatelolco housing complex.



Fig. 71
The colonnade shown here was part of the Tecpan, which served as the seat of Aztec government while under Spanish rule. This colonnade was removed and reattached to a different building by Pani. It is assumed that Pani and his team only bothered with the colonnade because it is featured in a prominent Aztec codex,and was therefore historically significant enough to keep.



Fig. 72
Another aerial photo showing how significantly different the fabric of the surrounding area is to the newly finished housing complex.

for the new design. For example, the Spanish-era buildings around the Jardín de Santiago were all destroyed while the structure that had housed the Tecpan – the functional seat of Aztec governance during Spanish Occupation and which could be seen in the 1565 Codex of Tlatelolco, was demolished save for its stone façade — which was removed and then oddly reattached to the rear side of the convent.[150]

Nevertheless, Pani did not seem to be bothered by the loss of historic patrimony. Instead, he believed his project to be the next, rational step in the evolution of the country and therefore could utilize or discard whatever aspects of the past that he deemed necessary. The modern Mexico would be linked to its former eras but not dependent on them, utilizing only what was useful as it strove towards a new, modern epoch.[151] In this way, Pani desired a new, modernist way of living as well as a connection to the previous identities, following "the idea of preserving the physical legacy of the past and its link to a wider, historically contiguous notion of 'Mexicanness'."[152] The large plaza at the heart of the 3rd section is the perfect example of this worldview, as the Plaza de las Tres Culturas was designed to unite the country's precolonial history, the Spanish Catholic institutions, and Pani's future vision for the country, presenting a shared past and, therefore, a unified future. While a romantic reading of the plaza could argue that the 80m x 80m public square modernizes the ancient form of the tianguis, or open air markets, which date back to pre-Aztec times, it must also be noted that Pani's concrete plaza was cast directly on top of ruins that were deemed insignificant.[153] Thus, while Pani sought to promote a unified and marketable sense of identity that could be shared by all Mexicans through his designs,[22] such unity was only possible through destruction and displacement.

22 Mario Pani was far from the only architect espousing such a view of history, as José Vasconcelos — a contemporary of Pani who was also famous for winning large state-sponsored projects— also sought to provide Mexico with a unified version of itself and its history. His design for the Museum of Anthropology is perhaps the best example of this philosophy.

After the complex opened to residents in 1965, the project was the source of both celebration and criticism. The former was largely carried out by the state, who used Tlatelolco as a symbol of a modern Mexico, staging photo shoots of farmers leaving their homes and resettling in the concrete apartment blocks of the future. Several government agencies also rented spaces in the office buildings, with the complexes' two largest structures housing BANOBRAS in the triangular Torre de Insignia and the Office of Foreign Relations in the Torre de Relaciones Exteriores just east of the Plaza de las Tres Culturas.[154] Tlatelolco was also chosen to represent the country in 1967 when the Treaty of Tlatelolco was signed to establish Latin America and the Caribbean as a nuclear-free zone following the events of the Cuban Missile Crisis.[155] Despite the government's PR campaign, the complex was also derided by residents and critics who complained of the building's faulty design and general lack of maintenance in the area. Not unlike Sarcelles, the pre-fabricated facade elements were among the first to degrade, as the "corrugated fiber glass spandrel panels were extremely flammable and had to be removed by 1972."[156] Likewise, the common areas around the buildings, "which were essentially property of all of the inhabitants and yet at the same time were not the responsibility of anyone" were quickly forgotten about, and outside organizations had to be brought in to manage the grounds.[157] Many of these problems continue today since the complex was originally meant to be managed by a single entity (BANOBRAS) but has since been broken up into a series of independently owned and operated buildings, creating an organizational nightmare that often leaves the greenspaces ignored and the trash piled high.

The two events that have come to define the modern identity of Tlatelolco had little to do with maintenance and publicity, however, and more to do with the tragic loss of life. The first was the student massacre that took place on



Fig. 73
The church, Aztec ruins, and green spaces shown here were interegrated into the Pani's design by means of the large public square. While it mimics the open square that was once at the center of Tenochtitlan's ancient temple complex, several existing ruins were destroyed in the process of building it. .



Fig. 74
Later rebuilding efforts were poorly managed and fraught with corruption and low quality materials.



Fig. 75
The student protest on October 2, 1968 brought several thousands of people to Tlatelolco, who congregated in the central square to protest the abuses of the police.

October 2nd, 1968, only ten days before the '68 Olympic Games were set to start. In the lead up to the day, student groups had been organizing and staging marches in the historic center and the university in response to police violence and the socially conservative state. The student groups were calling for police reform, criminal charges for those who had perpetuated violence on students, and freedom for those imprisoned for protesting.[158] Meanwhile, much of the local government was concerned with preparations for the Olympics, where Mexico was set to present itself to the world as a safe and modern nation and so, in an attempt to quell the unsightly protests, the Mexican Secret Service — which was also in charge of security for the Olympic games — deployed a secret division to Tlatelolco where a rally was taking place.[159] In the afternoon with most of the crowd still in the Plaza de las Tres Culturas, the special division took positions in the buildings around the plaza and opened fire on the crowd of 8000 students, professors, and bystanders killing anywhere from 40 to 300 people.[23]

As photographs showing the scramble of bodies, both lifeless and running for cover in the building's halls, began to circulate in the news, the image of Tlatelolco was changed forever. After having been heralded as the first step to a future of prosperity and equity, the housing complex was now redefined as a symbol of an autocratic state that was willing to punish dissenters. Moreover, many blamed the buildings themselves for allowing the atrocity to occur, as the buildings had "few access points, walkways that all point down to the Plaza de las Tres Culturas, and towers that created a panopticon-like scenario."[160] Pani, however, seemed annoyed that his largest project was now tainted in the minds of the country, "complain[ing] that many Mexicans thought of his complex

23 These estimates vary so widely for two main reasons: First, as the massacre was an act of state sponsored violence, much of the early reporting was intentionally suppressed so as to push a narrative that the event had not been as bad as witnesses were claiming. Secondly, after the initial violence had passed, students were rounded up by the special Olympics division and thrown in prison. Many of those taken never returned, and it is the lack of clarity around how many disappeared that makes it difficult to determine a concrete estimate.

as 'a place where students were killed.'"[161] It would be thirty years before the Mexican Government would open an investigation into who was responsible for the massacre, and it would not be until 2001 that documents relating to the event would be unsealed, showing that previous presidents, heads of Federal Security, and the CIA all participated in the preparation, execution, and cover up of the atrocity.[162] Although genocide charges were brought against then-President Luis Echeverría, they were eventually dismissed and no one has been since been charged, "destroying all credibility of the political party founded on the inheritance of the social revolution." Today, the event is remembered with a stone placed in the plaza.

Though residents were able to recuperate and go on living as usual, the second transformational event, an 8.0 earthquake in 1985, irreversibly changed the social and physical state of the complex. As much of Mexico City is built on a drained lake bed, any seismic activity that makes its way into the valley is intensified, regardless of the absence of any major fault lines.[163] Consequently, when an earthquake struck the Pacific Coast of Mexico, the shock waves traveled north and shook the Valley of Mexico for 90 seconds at 7am on September 19th. In that time, two sections of the type "C" building named Nuevo Leon collapsed, killing over 200 people.[164] This initial shock, along with aftershocks that continued for over 24 hours, destabilized several buildings and 12 were ultimately deemed as irreparable and torn down. Other than the horrific loss of life, the most immediate effect of the earthquake was a mass exodus out of the complex, as the area was declared a disaster area. Thus, all residents were moved out of the buildings and the government promised to return residents to their units after repairs had been completed. Unfortunately, the project lasted until late in the 1990's, and this lengthy timeline ate up much of the proposed budget in the first 6 years, compromising the quality of the work.[165] The repairs focused on stabilizing



Fig. 76
The military response to the student protest was well-funded, organized, and decisive. Snipers were set up in the surrounding buildings and tanks were organized around the perimeter of the square. The results were brutal and anything but accidental. Photographs of the massacre have only become available since 2001 when the ruling political party, the PRI, was defeated.



Fig. 77
In the hours following the military opening fire on the crowd, many were rounded up by the special forces, and some were never seen again.



Fig. 78
This photo shows the wreckage of a type C building that fell during the earthquake. As the initial quake happened during the early morning, many residents were sleeping and thereby unable to escape before this structure collapsed.



Fig. 79
The earthquake forced several structural changes, the most notable being a concrete exoskeleton that was added to the tallest buildings.

the structures, with thirty buildings having their upper floors removed and the largest structures receiving complete concrete exoskeletons. The interiors were also repaired, although many were done as quickly and cheaply as possible, with inferior materials being used to replace the nicer original fittings.

When Pani and his team were asked about their responsibility for the structural failures, they all denied culpability. The structural engineer Jorge Gonzáles Camarena was quoted saying, "How can we be guilty of an earthquake? All the buildings fulfill the safety requirements as to their characteristics" while Pani, in an interview with Impacto Magazine, stated "I am not guilty, my conscience is clear."[166] Thus, while many accused that the design of the buildings – specifically the use of thin pilotis in a seismic zone – of being responsible for the catastrophic failure, no one was formally charged with any wrongdoing. Instead, the complex continued to limp along, though many residents chose to sell their units at a loss for fear of future earthquakes or a declining quality of living.[167] Over the course of the 90's, structures that were designed to house almost 80,000 people dropped to a population of 20,000, leaving apartments empty as squatters moved in and buildings fell into disrepair.

Many of the problems that plague the complex today began in this period, as a declining population correlated with rising rates of crime. Today, the most common problems are robbery, drug use, and public intoxication, although many residents blame the surrounding neighborhoods for this issue— neighborhoods that are poorer and more disenfranchised than Tlatelolco.[168] Furthermore, this period saw the effects of previous changes in funding policy, as "President Luis Echeverría [had] amended Article 123, replacing the obligation to provide housing with a program of nationwide income contribution…where 5% of all workers' salaries are collected to provide housing mortgage products."[169] This policy, put in place in 1972 and responsible for the halting of Pani's city-wide

project, cut funding for the building and maintenance of larger complexes, as the “the institutions that regulated housing projects were transformed and almost dismantled and became simple construction finance companies,[24] putting aside attention to the qualities of urban and architectural projects.”[170] The lack of government support allowed the buildings of Tlatelolco to degrade further, although current residents have fought back by self-organizing into groups that help to maintain common areas. The population has also started to rise, as young professionals have realized that Tlatelolco is centrally located, affordable, connected to public transit, and supplies various amenities within a walking distance.[171] As residents begin to move back in, empty storefronts are being rented out and the complex is once again becoming home to a community who prides itself in its long history and resilience. After so many years of merely-surviving, it appears that Tlatelolco may just be on the verge of a revival.

III. Co-op City in New York City

While Co-op City is included in this thesis to serve as an example of how Modernist mass housing has been employed in the United States, the reality is that it is a distinctly non-American place. Unlike France, this style of housing never became popular outside of Chicago and New York City.[172] Such projects were rarely, if ever, built with substantial federal support, so the story of Co-op City is chiefly concerned with regional power structures as opposed to national ones. It is more a story about New York State, and how local government and



Fig. 80
The huge scale of Co-op City necessitated a huge site, which placed the project further from the city center than Tlatelolco. This also meant that the project’s residents were and still are dependent on cars, as Co-op City is not well connected to public transportation. The subsequent need for parking lots and garages therefore shaped the design of the development.

24 These finances companies replaced the centralized functions of BANOBRAS, and now they are responsible for the current type of housing expansion in Mexico. The housing sector is now focused not on high rises in urban centers but rather horizontal expansion in areas that are often far from any types of services. These sorts of houses have been criticized for providing sub-par structures and living conditions, as they are far more focused on selling units for profit than they are in supplying spaces that support thriving communities.



Fig. 81
Looking north across 141st Street at the Drew-Hamilton Houses in Harlem, which are among the first public housing developments of the post war era but also some of the most marginalized and, consequently, dangerous.

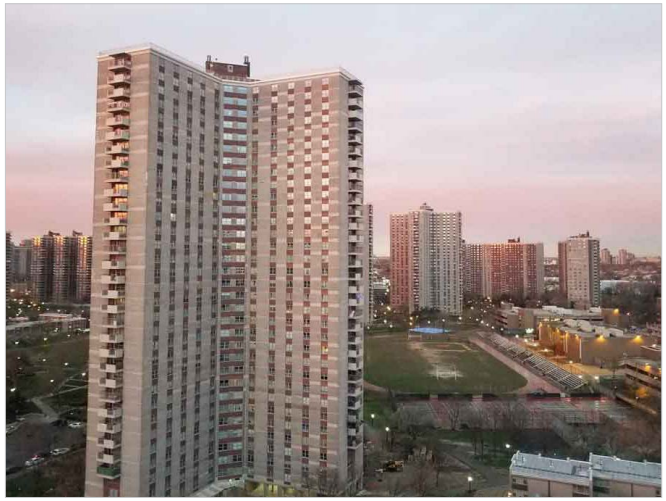


Fig. 82
Co-op City's scale is remarkable, especially when compared to the surrounding neighborhoods, which are made up of single family homes.

organizations such as the United Housing Foundation (UHF) were able to pool together resources at an opportune moment, creating much needed housing stock. While national events inform the local response, such as the economic hardships of The Great Depression intensifying rural-to-urban migration, the specific cooperative housing movement that flourished in New York City could not have happened in any other place.[173]

Taking advantage of local legislation like the Mitchell-Lama program, which allowed local jurisdictions to acquire property by eminent domain and prepare it for development by providing tax-abatements to developers if they built low- and middle-income housing, Co-op City was constructed from 1965 to 1973 to accommodate nearly 60,000 middle-class people in 15,382 apartments and townhouses.[174] The program is perhaps best described through its superlatives: principally, it is the largest cooperative housing complex in New York City as well as in the entire United States.[175] It is also, by far the largest project built under the Mitchell-Lama Program, accounting for "approximately 15% of the 104,000 apartments" built during the twenty year history of the program. The mortgage that paid for its construction amounted to $390 million and was, consequently, the largest ever issued by the New York Housing Finance Agency. Interestingly, if the complex were to "secede from the City, it would immediately become New York State's tenth largest city."[176] Thus, Co-op City is unique in the national landscape, and many argue that its almost 60-year history of continuous occupation is a crowning testament to the success that is possible under cooperative and limited-profit-style housing.[25] On the other hand, the rarity of the project begs the question as to why this style of building did not become more common in a

25 In limited-profit/equity style cooperative housing, residents (who are often referred to as cooperators) are able to purchase units for a low, subsidized price, often set as a price-per-room. They then also must pay monthly carrying charges for maintenance, which functions much in the same way as a monthly rent. When a resident sells the unit, they sell it back to the Co-op for the same price that they paid, and so the only profit that they make is whatever interest the unit has earned. This style of housing is not lucrative for the cooperators but is meant to keep units affordable and reward long-term occupancy.

country that desperately needed it.

Despite these claims to fame, perhaps the most remarkable thing about Co-op City is its ordinary nature, as Annemarie Sammartino – a historian and former resident— notes that the housing complex "is a paradox: it is an extraordinary place that was built for ordinary people, middle- and working-class New Yorkers."[177] Though its scale is imposing, the development has been uniquely able to weather the turbulent history of the area while supplying thousands of apartments to ordinary people.[26] Therefore, it should be noted that while Co-op City is distinctly a product of New York, it was also far enough away to be isolated from many of the troubles that plagued New York City during the 1970's and 80's. For example, a 23-hour long power outage on July 13,1977 sent New York into chaos as "looting and vandalism hit neighborhoods across the city."[178] Economic tensions were high, as only two years earlier the local government had just barely avoided bankruptcy by cutting funding to local services. That summer was also when the "Son of Sam" serial killer – another former Co-op City resident – terrorized New Yorkers by killing 8 people and wounding another 7.[179] At Co-op, however, spirits were high as during "the very week of the blackout, Co-op City and the State of New York agreed to a final settlement to the largest rent strike in US history, which had lasted from June 1975 to July 1976." The development thus suffered no looting and only three reports of attempted robbery (two of which were foiled) and the local Pizzeria gave out free pizzas to residents.[180] In this way, Co-op City's geographic isolation protected it from the lowest points of New York's history, but also cut the complex off from the city's economic resurgence during the 1990's. Thus, while Co-op could not have been built in any other state, its residents were often forced to

26 This continuous quality of living can be seen in the families who have lived in the complex for multiple generations, as well as the fact that Co-op is the largest NORC, or naturally occurring retirement community, in the United States. The cooperative price structure and supportive community has allowed many residents to acquire and maintain affordable housing in one of the most expensive markets in the country.



Fig. 83
People looting an A&P supermarket on 66th Street in the Bronx, just twenty minutes south of Co-op City.

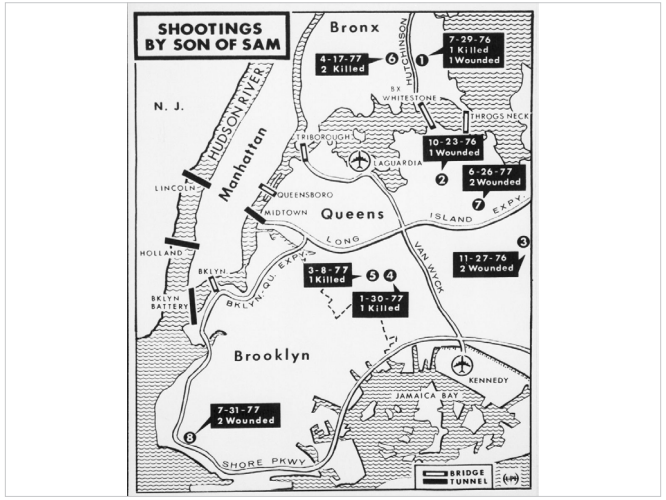


Fig. 84
Locations of the Son of Sam shootings, 3 of which took place only 15 minutes south of Co-Op city.



Fig. 85
Aerial photo of a Levitown suburban development, which boomed in the post-war prosperity. Between 1946 and the early 1960s, Levitt & Son built more than 17,000 homes.

NEW YORK CITY
HOUSING
AUTHORITY

Fig. 86
Current logo of the New York City Housing Authority.

rely on each other – and not the larger forces of governments or unions — to persevere.

The idea for Co-op City came about out of a great need for affordable housing. Although the United States had not suffered the damage of war seen in Europe and Mexico, its rapidly industrializing economy encouraged scores of people to flee the countryside and settle in cities. In just a few years, the post war period of the 1940's had pushed New York City into a new role of economic dominance as the city became the world's largest manufacturing center, port, and the financial capital of the world. Jokingly referred to as "headquarters city" since it was home to 135 of the 500 largest companies "including Standard Oil, General Electric, U.S. Steel, Union Carbide, IBM, and RCA," New York City was flush with workers but with nowhere to house them.[181] A severely underdeveloped housing stock — partially a consequence of most construction having been halted during the Great Depression — was negatively affecting quality of life in the city even as it became the home to the United Nations and, in many ways, the "capital of the world." While previous legislation had tried to address the quality of housing, such as the Act for the Regulation of Tenement and Lodging Houses in 1867 that laid out basic standards of habitability, little had been done to address the financing or quantity of housing itself.[182] Thus, in 1919 the then-Governor of New York Al Smith founded the State Reconstruction Commission which was "empowered to make loans, and local housing boards permitted to buy land and build housing."[183] Seven years later, the State passed the Limited Dividend Housing Companies act, which was the first law in the country that sought to offer subsidies for affordable housing.[184] New York City regularly led the country in such housing measures, even founding the New York City Public Housing Authority (NYCHA) so that working class families could apply for publicly-owned apartments.[185] Unfortunately, all of these efforts were not enough to deal with the

housing shortfall, and a study done in the late 1950's revealed that New York still lacked 430,000 units.[186] This issue continued through the following decade with the overcrowded and underfunded inner city combating "deteriorating conditions on numerous fronts, including white flight to the suburbs, declining infrastructure, economic deindustrialization, and growing violence."[187]

In search of solutions to the housing crisis, local politicians threw their support behind housing schemes that would never have become popular in other states, particularly cooperative housing. In reality, the city's first co-ops had been built decades before in 1916 when "where immigrant workers from Finland found themselves overcharged for subpar housing" and realized that they could "build higher quality housing for less than it would cost to rent from a landlord."[188] These members formed the Finnish Home Building Association and, having collected $500 contributions from each family as well as a bank loan, were able to complete the first building that housed 16 families. By the end of the 20's, there were almost thirty of these Finnish-owned co-op buildings in Sunset Park whose monthly maintenance fees were "around half the rent of similar apartments in privately owned buildings."[189] This style of financing was so new that there were no laws governing it, but its success inspired others to follow in their footsteps. Notably, the Jewish unions and political associations, such as the United Workers Cooperative, the Arbeiter Ring, and the Jewish National Workers Alliance, took to the idea of cooperative style building as the groups "were interested in improving the lives of workers beyond the factory floor."[190] The most successful of these early projects were apartments built by the International Ladies Garment Workers Union (ILGWU) and the Amalgamated Clothing Workers of America (ACWA). These two unions notably employed the 1926 New York State Housing Law — which gave 20-year tax exemptions for apartment buildings developed by limited-dividend corporations which restricted



Fig. 87
The Alku and Alku Toinen apartment buildings were built in 1916 by the Finnish Home Building Association in Brooklyn, New York City. They are credited as being the first nonprofit housing cooperative in the city.



Fig. 88
International Ladies Garment Workers Union was one of the largest in the country and one of the first to give women full membership.

Fig. 89
Location of Co-op City

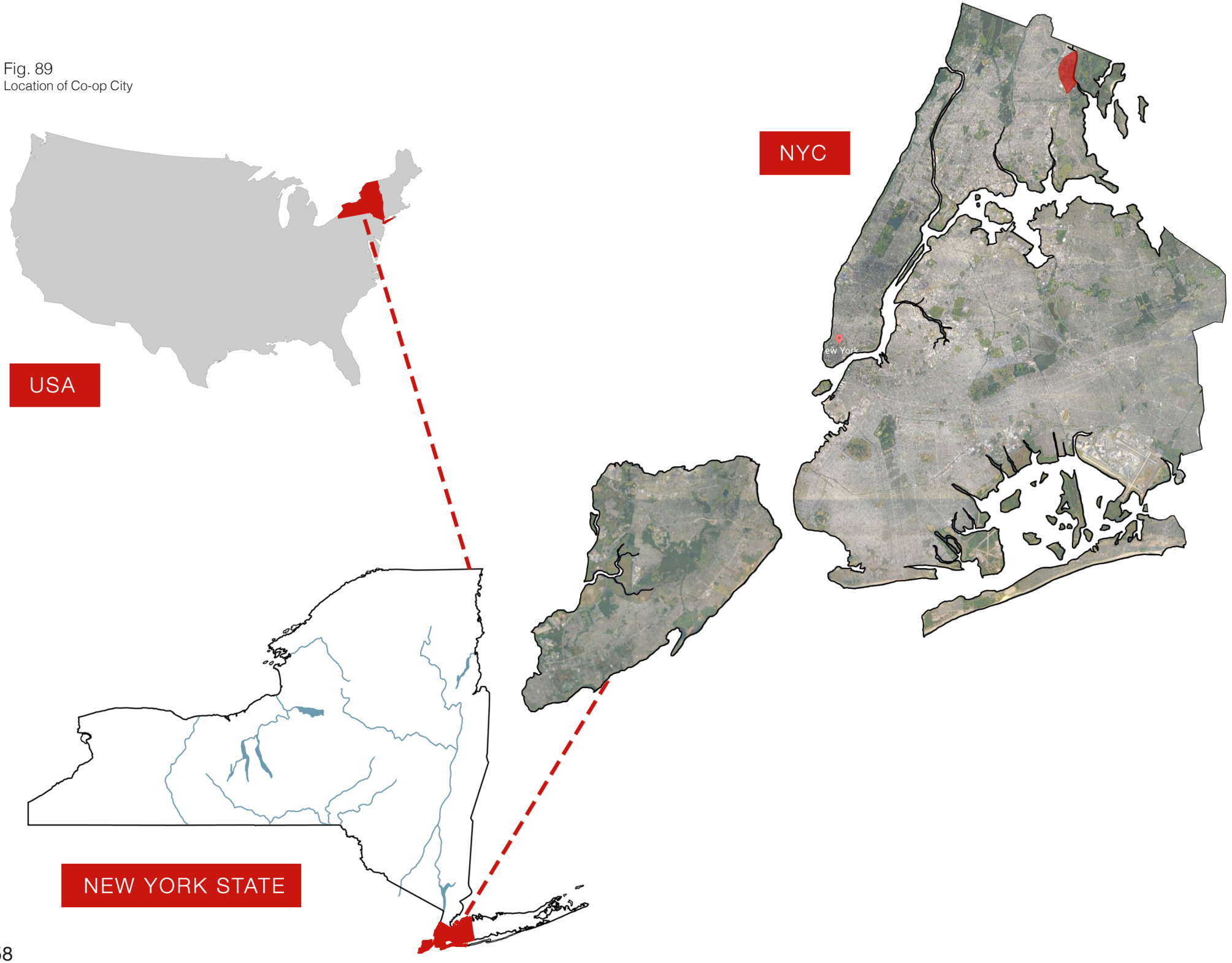


Fig. 90
Map showing the sections of Co-op City. There is a school complex in between section 1 & 3, a shopping complex in between 4 & 5, and the development's power station along the Hutchinson river.

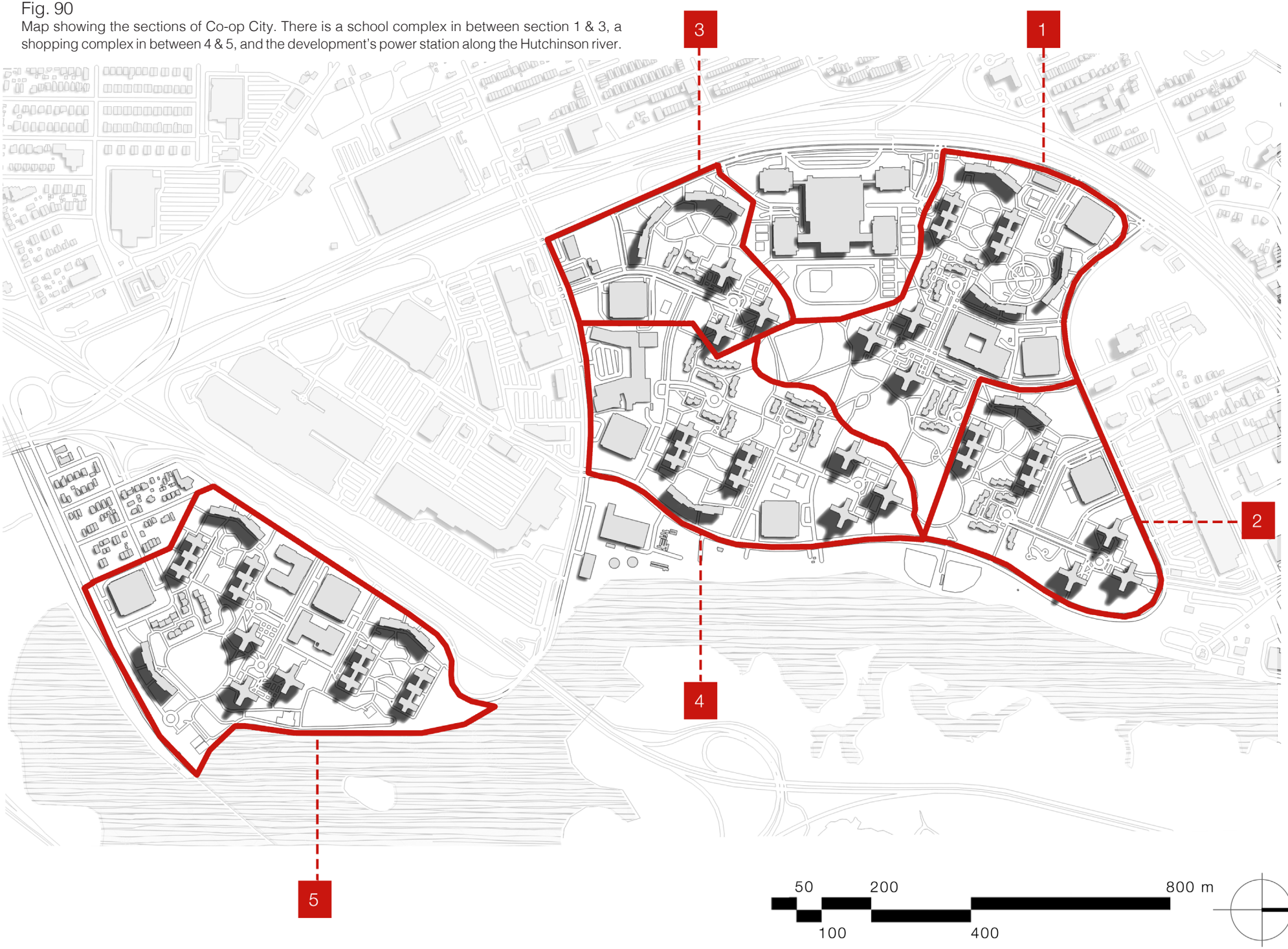




Fig. 91
Altohugh the Amalgamated Apartments on Sedgwick Avenue are no longer standing, they stood for decades as a symbol of how commmunity cooperation could produce affordable housing.

their own profits to 6% — to build a series of apartment buildings in the Bronx, the most significant of which was the Amalgamated Cooperative Apartments built from 1927 to 1930. [191]

The organizing force behind the Amalgamated Apartments was a Ukrainian immigrant named Abraham E. Kazan who had worked for both the ILGWU and the ACWA, subsequently incorporating the groups into a single entity known as the ACW Corporation.[192] Kazan had formed this corporation as a way of concentrating the buying power of the unions and using it as funding for building cooperative housing,[27] which he hoped to expand into an entire cooperative sector of the economy.[193] Like many other Jewish immigrants, Kazan had found a home on the political left and saw the cooperative style of building as nearly utopian, considering his efforts as the first step towards the "metropolis of the future."[194] The success of the Amalgamated Apartments, which consisted of 303 units and "a wide array of social and educational facilities including a day care center, library, classrooms, art studios, and a community hall," proved that Kazan's method worked, and he would go on to spearhead dozens of projects and come to be known as the "father of U.S. cooperative housing."[195]

After the federal Housing Act of 1949 allotted nearly $1 billion in funding for public housing and slum clearance, Kazan managed to unite sixty-one unions, organizations, and housing cooperatives to create the United Housing Foundation (UHF) in 1951.[28] The UHF's first project was modest in scale, providing cooperative housing for 123 families, but the group's ambitions grew with each successful complex. The actual construction was carried out by a

27 Although Kazan and others tried to gain federal funding for cooperative projects, they never achieved it as private housing developers pressured the government to exclude such provisions from the 1934 and 1937 National Housing Acts. Instead, both pieces of legislation focused on subsidizing single-family homes through mortgage guarantees and tax incentives, pushing the country towards a suburb-centric style of urban planning.

28 Title I of the 1949 Housing Act has been the most impactful in New York City, as it provided federal assistance for land acquisition and relocation costs for residents displaced under "urban renewal" efforts, which generally amounted to poor neighborhoods being bulldozed and residents displaced.

second group – also founded by Kazan – named Community Services Inc. which acted as the UHF's exclusive general contractor.[196] It was with the passing of the 1955 Limited-Profit Housing Companies Act, also known as the Mitchell-Lama program after the two state senators who championed the legislation, that the UHF began building in much larger quantities. As the Mitchell-Lama program establish the N.Y.S. Housing Finance Agency to provide "low-interest mortgages and tax abatements for limited-equity cooperatives and affordable rentals," the law was uniquely formulated to support Kazan's mission and so, during the 1950's and 60's, the UHF was responsible for constructing "more than half the publicly subsidized limited-income housing built in New York City."[197]

The UHF's prolific ability to provide housing for a relatively cheap construction cost soon attracted the attention of New York's "master builder" Robert Moses, who would become a close ally of Kazan, offering both funding sources and political support.[198] Moses had dominated the majority of urban construction projects in both New York City and State during this period and maintained significant political clout, "holding at one point the titles of parks commissioner, chairman of the New York Power commission, as well as ten other offices."[199] Bolstered by federal and local subsidies – most of them from the 1949 Housing Act – Moses had become "famous not merely for what he built, but also for what he destroyed," bulldozing sites and sometimes entire neighborhoods under the claim of "slum clearance."[200] These neighborhoods, which almost always housed the poor and people of color, were destroyed to build highways and high-rise apartments which, as stipulated by Title I of the Housing Act, should have been entirely low-cost public housing.[29] Moses, however, regularly built middle-class developments on cleared land, using federal subsidies to further

29 Moses was not alone in these efforts, as several public agencies were specifically to carry out slum clearance projects, namely the New York Housing Authority, the nation's largest public housing program, and the Slum Clearance Committee. Together with Moses, these agencies displaced well over 100,000 people to build Title I projects all over the city while using federally subsidized funds.



Fig. 92
Abraham Kazan was known as a master organizer and is credited with providing over 35,000 apartments to the residents of New York City.

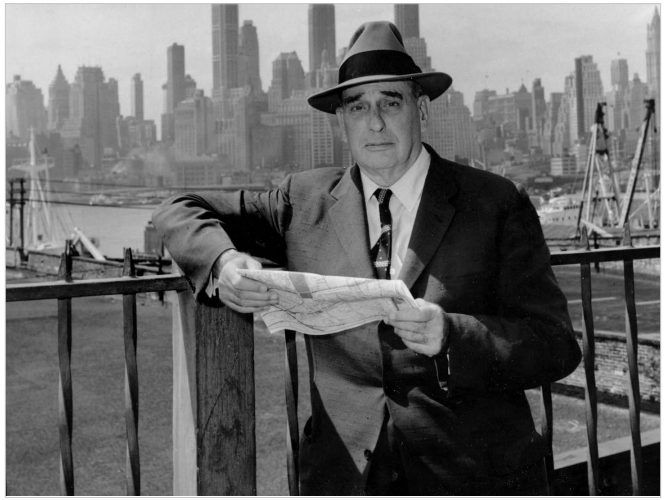


Fig. 93
Moses, who contributed to racial segregation and marginalization in the city, was also a staunch defender of the urban in the age of suburbs.



Fig. 94
Former Mayor Bill de Blasio, pictured here in 2017 announcing that the city would invest $250 million to protect 15,000 Mitchell-Lama apartments from going to market rate, showing how much of an impact the program still has on the housing market although it has not built any new apartments in decades.



Fig. 95
View of Penn South, one of the UHF's first cooperative housing projects that recieved the support of Moses and the Commitee of Slum Clearance

his plan of a "racialized hierarchy of urban housing: public housing for the poor (mostly people of color), cooperative housing for middle-income workers (mostly white), and private-market luxury for the white ruling class."[201]

Moses and Kazan were aligned in their shared mission of using public housing to reshape the city. They held many beliefs in common, such as how they were both publicly and "vocally dismissive of the utopianism and architectural determinism of Le Corbusier and other European modernists" although many accused them of employing the European style outright. For both Moses and the UHF, the use of "towers in a park" was mostly for density and cost-saving reasons.[202] A smaller footprint was generally cheaper, and so stacking apartments was more about economics than about a world view. Still, it is worth mentioning that the collaborative efforts that brought together unions and government agencies to build public housing had more in common with European-style social democracy than with any sort of construction happening in other major American cities.[203] Regardless, this "foreign" style of building found footing in New York largely because the union-based cooperative housing development "aligned with the 'urban renewal' paradigm charted out by men like Parks Commissioner Moses," and so, with his political support, the UHF began taking on larger projects.[204]

The first collaborations between Moses and the UHF were constructed on already-inhabited sites that were consequently cleared, but criticism from locals and public figures such as Jane Jacobs forced Kazan to reconsider building on inner city sites.[30] If slum-clearance was off the table, then the UHF had no

30 This resolution to avoid building on slum clearance sites was done more to keep face than out of any moral obligation. The UHF's chief architect, Herman Jessor, wrote in response to Denise Scott Brown and Robert Venturi 's article on Co-op City and the UHF that "the "social fabric" so dear to the hearts of Jane Jacobs and her ilk does not exist. The people living in the miserable slums are not there by choice...they live there because it is the cheapest place they can find, horrible as it is. The only solution is large scale urban renewal -- the 'Bulldozer Approach.' United Housing Foundation has been very successful with this approach....All of the families residing in the area prior to demolition of these old rookeries were relocated to habitations superior to the ones they had formerly occupied."

choice but to search for large plots of land further away from the city center. As fate would have it, a very large tract of land had just come on the market in 1964 as Freedomland, a theme park located in the northern Bronx, had just declared bankruptcy.[205] Built in 1960 with the intention of competing against Disneyland –having spent $65 million as opposed to Disneyland's initial cost of $17 million – Freedomland featured areas themed with parts of American history "such as Little Old New York, the Great Chicago Fire (which burned down multiple times a day), and a Wild West that included a recreation of the 1906 San Francisco earthquake."[206] After several years of disappointing ticket sales and a series of incidents that included a stagecoach tipping over and injuring guests, the park had no choice but to close. While Webb & Knapp, the real estate development company who owned the Freedomland property, originally did not want to sell the plot for a price that the UHF could afford, Robert Moses was able to haggle down to $1.50 per square foot.[207] The 300 acre site was almost entirely marshland, however, and so the UHF had no choice but to buy five million yards of sand fill, bringing the final price up to $2.50 per square foot.[208] Thus, with a $390 million mortgage from the New York Housing Finance Agency – which came packaged with a 50% city tax abatement for 30 years — the UHF started construction on Co-op City in 1965.

At a Press Conference in February 1965, Governor Nelson Rockefeller[31] announced that the future of Freedomland would be a massive cooperative housing complex and, within four days, the UHF had received "4,464 requests for



Fig. 96
An advertisement for the newly opened Freedomland theme park.

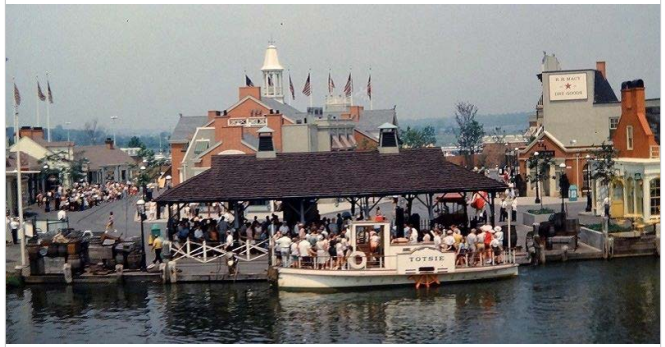


Fig. 97
Freedomland was so expensive to build as it was hugely ambitious, creating false mountains and lakes to mimic the American landscape.

31 Governor Rockefeller was a key figure in the success of not only Co-op City but also the Mitchell-Lama Program as a whole, as he was responsible for funding the first few years of the program. The issue came years later, however, as this funding had come through the sale of "public moral obligation bonds", which stipulated that these bonds would be used to build cooperative housing which, under normal situations, would be paid back through tenant rents or carrying charges. If these failed to cover the bond payments, then the state government itself had a "moral obligation" to pay the bondholders. This became a problem down the road, because even though the wording was intentionally murky, it put the State on the hook when the rent strike occurred in the following decade.



Fig. 98
Although this photo is of the Great Swamp Watershed which is an hour north of Co-op City, it resembles what the original site conditions would have been at the housing development and communicates just how much of a challenge the constantly sinking swamp grounds were and continue to be.



Fig. 99
Herman Jessor, seen here, spent his entire career working for the UHF.

applications" with "2,018 completed applications with a $500 deposit" arriving three weeks later.[209] An additional $32 million was sourced through the resident's equity shares, but the entirety of these funds were ultimately insufficient to cover the complicated construction costs. The swampy land required that the construction crews drive thousands of piles into a marshland with "bedrock [that] was highly irregular – as much as 155 feet below the surface in some places and as little as 10 feet below in others."[210] Despite the UHF's best laid intentions, the construction costs – which would affect the projected fees that residents would soon shoulder – started to spiral out of control well before the first building was even out of the ground.

To design on the difficult site, the UHF contacted their long-time architect, Herman Jessor, who had spent his entire career designing cooperative apartments for the group. Jessor, who himself was a Ukrainian immigrant, had started his career as a draftsman on a project for Kazan's ACW Corporation and, with the patronage of the UHF, was able to start his own firm. Over the course of 20 years, Jessor's firm "turned out an extraordinary quantity of work for Kazan and the UHF, designing and supervising the construction of over 35,000 apartments."[211] Known for his exacting approach, Jessor calculated each aspect of the design – from window sizes to placement of doors –in terms of the cost per room and how that would impact the monthly carrying charge that each cooperator would have to pay.[212] Such precision was necessary for the project, as every unforeseen cost threatened to derail the project,[32] and so "UHF brochures proudly list[ed] the number of bricks, gallons of paint and buckets of cement…to illustrate the effectiveness of Jessor's strategy."[213]

Co-op City would be his largest project, and Jessor chose to use the

32 Though Jessor was not necessarily popular in the architectural community – even the AIA would criticize the design of Co-op City— he was well known for being a master of building efficiently. His knowledge of the legal and technical aspects of construction, such as maneuvering zoning issues or arranging basic building systems in an efficient way, made Jessor famous for completing his projects at a lower cost than most.

project to highlight his “vernacular style: unadorned reddish-brown brick towers set in ample green space” that many complained was overly simplistic and drab.[214] Jessor believed, however, that the exterior of the buildings was hardly as important as the interior – a belief shared by Kazan who set the original design parameters.[215] To this end, Jessor turned to technology, using mechanical ventilation in the bathrooms to “increase the distance between exterior wall and corridor” making for more spacious units.[216] The buildings themselves had 3 main styles — a 33-story tall Tower, a 26-story Triple Core, and a 22-story Chevron — as well as 236 3-story townhouses scattered around the site, 80% of which was dedicated to greenspace.[33] The height of the towers was essential to achieve the density sought by the UHF, but it also necessitated that each circulation core service a huge number of residents, resulting in overcrowding becoming a common complaint among tenants.[217] The site planning was also a source of criticism, as it lacked a discernible organization which could easily be seen as “closer in form to a Sun Belt golf course community than to other super block developments.”[218] This layout was, unsurprisingly, also part of cost-saving measures as it kept expensive road infrastructure to a minimum while focusing funds on providing well-designed units with hardwood floors and air-conditioning to people who would otherwise be unable to afford them.[219]

Surprisingly, the aspect of the project that was initially the most enticing also become its most serious complication: the location of the site. On the positive side, the far-flung plot was vacant, meaning that the UHF did not have to evict and relocate any residents or businesses to start construction.[220] Unfortunately, being so far from the city center meant that the site was poorly serviced by

33 Some of the project’s nicest features, such as the vast amounts of greenspace, were actually forced onto Jessor by the Planning Commission. The two substantive changes that the Commission made were to a) force the UHF to varying the brick color on the buildings to provide some amount of diversity and b) include eight multi-story parking garages in the design. The latter decision freed up space which was then turned into parks and playgrounds, where the original design that Jessor proposed allowed for up to 70% of ground area to be devoted to above-ground parking lots.



Fig. 100
Aerial View of Co-op City under construction in the early 1960’s.



Fig. 101
Another view of construction that details the materials used. The larger structures were concrete frames filled in with brick, but many of the smaller townhomes were built using steel or even timber-framing systems.



Fig. 102
Jessor's design was inspired by Le Corbusier's "towers-in-the-park" although many have critiqued it as unused space that is always empty.

transit lines, as the "the nearest subway stations, the Dyre Avenue Station on the Seventh Avenue line and the Pelham Bay station on the Lexington Avenue line, were about a mile away."[221] This meant that a trip into Manhattan would require a short bus trip (or a long walk) and then a long ride on the subway, often taking well over an hour. While numerous governors promised a subway extension that would stop at Co-op City, it was never built and so residents have always had to rely on private cars or lengthy public transit.[222] Therefore, as the plot was bordered by the expansive I-95 highway on the West and the Hutchinson River to the East, the act of getting to and from the development would prove lengthy and complicated for its inhabitants, turning it into its own self-contained enclave.

In Jessor's mind, at least, this isolation was partially a benefit, as he and the UHF were attempting to create a "self-enclosed world" that would function as a village within the larger city.[223] To this end, on December 10, 1968, the first families started moving into a brand new development that would soon boast six schools, grocery stores, community centers, shopping centers, restaurants, sports courts, and a 25 acre park.[224] The people moving into the complex were firmly part of the working- and middle-class and among them were "steam fitters, schoolteachers, shop clerks, policemen, druggists, hotel workers, grocers, college professors."[225] Furthermore, estimates drawn from census records state that around 75-80% of these residents were white, the majority of whom were Jewish. This means that around 20% of residents were from minority groups – which, when compared with similar housing developments of the time, could be interpreted as a well-integrated population.[226] The truth was, as is usually the case, far more complicated since Co-op City was hardly the pinnacle of integration that the UHF marketed.[34] Instead, Co-op was equally a symptom

34 The UHF took out full-page advertisements in local magazines to advertise the new Co-op City, with one advertisement showing two children, one of whom was black and the other white, playing while another page showed a black woman and a white woman laughing and walking. It was clear that, the UHF thought it would be attractive to present a vision of unproblematic integration that was far from the protests and conflict of the Civil Rights Movement.

and symbol of the racial tension rocking New York City during the late 60's as traditionally white neighborhoods began to change and take on more brown and black residents.

During the period of 1940 to 1970, neighborhoods in the West side of the Bronx saw the "percentage of whites drop from 90 to 47 percent, the percentage of blacks rise from 6 to 28 percent, and the percentage of Puerto Ricans increase from 3 to 25 percent."[227] Consequently, many of the generally wealthier white residents moved out, taking much of the economic vitality with them and leaving marginalized populations in newly marginalized spaces. Rising crime rates and falling real estate values was a natural consequence. This "white flight" was occurring all over the city, and Co-op City played in a part in it by accepting many of those who felt the need to desert the inner-lying boroughs. Although the UHF's official party line stated that Co-op was "'an open city, open to all people with various backgrounds both racially and ethnically," the actions of the foundation spoke differently, as they both openly rejected resident's requests to reserve 30-40% of units for minority applicants and rebuffed the city's offer to buy units that it could then rent to low-income people.[228] Likewise, when the local planning commission tried to build a highway overpass to help connect the complex to the surrounding neighborhoods, UHF shut the plan down by claiming that it was "an affront to Co-op City and its residents" and a "blight on the community."[229] In this way, while Co-op City seemed like an exception in the city as it was a neighborhood inside the city limits where white New Yorkers actually wanted to move to, it was also far enough away that those fleeing from rising diversity could feel safe.[230] The development's history with racial integration is therefore a complicated one, as although the Riverbay Corporation, Co-op City's management company, has been sued more than once with claims of racial discrimination against applicants of color, the 1990 census showed that the



Fig. 103
Seven different streets in the Bronx lost an estimated 97% of their buildings to arson during the 1970's and 80's, including this building on Tremont and Grand Avenue. This instability drove many long-time residents out to the suburbs.



Fig. 104
The Riverbay Corporation is the the corporate entity of Co-op City, which governs with a Board of Directors made up of 15 residents.



Fig. 105
This photo of the groundbreaking ceremony shows the racially-integrated vision that Co-op City and the UHF hoped to market to its residents. Seen here are Moses (in a hat on the left), Jessor (next to Moses on the right), Governor Rockefeller (under the word "Governor" in the sign), and Kazan (next to Rockefeller on the right).

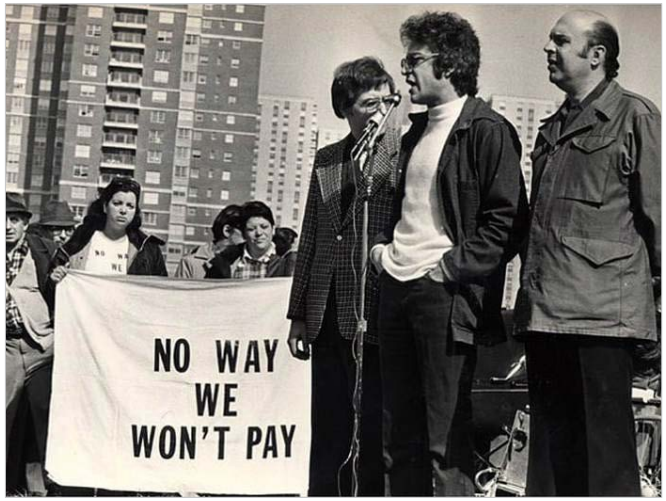


Fig. 106
Strike leader Charles Rosen speaking during a rally on February 29, 1976.

population composition was 50% white, 30% black, and 20% Hispanic – an unusually well integrated group even for New York City.[231]

Though the complex would not be completed until 1973, financial problems plagued the project from the onset. The project suffered from a perfect storm of a setbacks, as the UHF had to contend with a complicated plot of land, rising construction costs, labor strikes, and the rocketing price of energy, meaning that the huge mortgage that the foundation had taken out would hardly to be enough to cover its losses.[232] Although the UHF refinanced the mortgage to gain an additional $60 million, rising interest rates meant that the group had to pass some of the costs onto the residents and – as residents had begun living at the development since 1968 – the natural place to do was by raising the monthly carrying charge. When residents applied to live at Co-op City, the promised monthly rate was $23.04 per room but by 1974 it had ballooned to $42.57 per room.[233] Instead of working with the tenants to resolve the financial shortfall, the Riverbay Corporation cut off communications and created an "'us versus them' mood — a sad turn of events in a complex built by organized labor for union workers."[234] The residents of Co-op sued the corporation in 1972, claiming securities fraud, but as federal lawsuits take years to be resolved and the carrying charges continued to rise, a rent strike was organized in 1975 around the leadership of resident Charles Rosen and with the support of approximately 80% of Co-op's tenants.[235]

This rent strike would drag on for 13 months and become the longest rent strike in U.S. history, with its resolution bankrupting the UHF. During those 13 months, the residents of Co-op banded together, "organizing to take care of buildings and grounds, and meeting weekly in the Co-op City High School," using their collective power to outlast the housing powerhouse.[236] The strike was ended when the state transferred ownership of the complex to the tenants and

allowed them to elect their own board of directors. Interestingly, the success of the strike produced a paradox in that it simultaneously saved Co-op City, allowing it to continue as one of the most affordable places to live in New York City, while also playing a large part in killing the cooperative housing movement nationwide, as most developers now saw the idea as far too risky to attempt.[237] This contradiction was true within the extents of the city as well, since the survival of Co-op City contrasted with New York's financial crisis which "ended with devastating cuts to city services, including fire stations, hospitals, and schools, which a wave of protest and strikes were largely powerless to stop."[238] As the strike drained the UHF's finances, the group was forced to sell Twin Falls, its second-largest development, and consequently cease all construction operations. While some within the UHF's leadership blamed the strike for its downfall, the reality is that it was not the actions of the cooperators but rather "the disequilibrium between worker wages and housing costs that drove the UHF out of the housing business."[239] In the decades since, the effect that the UHF – and its subsequent absence – had on the housing stock of New York City has become clear as the quality and quantity of low- and middle-income housing has dwindled just as public opinion of such spaces has also deteriorated.[240] Thus, Co-op became even more of a rarity in the city, in that it is still able to provide affordable apartments, maintain a generally positive public image, and has financially subsisted for the decades after the strike.

As the newly successful strike leaders would learn, subsisting would be a difficult challenge as they would inherit a "massive and rapidly aging development" that was in desperate need of repairs and, consequently, money.[241] The first resident-led and -elected board of directors tried to keep costs down by drawing on the volunteer efforts of the residents themselves, but eventually the price of maintenance and repairs forced them to raise rents



Fig. 107
This advertisement shows that the appeal of Co-op City was never about modern amenities or sleek architecture, but rather about low prices and space, both of which were and are nearly impossible to find in New York City.



Fig. 108
Children playing in one of the many playgrounds at Co-op City in 1972.



Fig. 109
Despite its geographic isolation, Co-op City has been a rare success in that it continues to provide affordable housing to at-risk communities.

anyway. The original group of directors were voted out of office within the first year.[242] Several tenants were forced to move out due to rising maintenance fees and by the 1990's the complex regularly had around 1,500 unoccupied units. These vacancies did not last long, as New York City's inner boroughs began to gentrify and rising rents brought new residents out to Co-op in search of a good deal. Today, the complex maintains a long waiting list – often in the neighborhood of 8,000 people long – hoping for a chance to buy into the program, essentially bringing the vacancy rate down to zero.[243] Therefore, while the marshes and the defects from the original construction continue to drain the development's resources,[35] the residents of Co-op continue to receive significant value by choosing to live there.[36] Furthermore, recent political trends that hope to make New York City more sustainably affordable to live in have reinvigorated support for cooperative housing, with Co-op City receiving a $622 million federal loan to be applied towards renovations, upgrades, and the creation of additional affordable housing in 2022. This loan was possible due to the support of the New York State government, who hosted a publicly televised event at Co-op City to celebrate with many of New York's political elite, including Senator Chuck Schumer, attending.[244]

35 Apart from the structural problems of a constantly sinking site, many of the original construction and design decisions still plague the buildings, most of which were a result of keeping costs as low as possible. Notably, asbestos has been difficult to remove as so many of the construction materials contained it.

36 While the racial makeup of the development – which today is around 60% African American and nearly 30% Hispanic— shows how the cooperative model can provide apartments to those who are most often marginalized in the housing market, the model also rewards long-term tenancy and has thusly resulted in Co-op City being the largest naturally occurring retirement community in the U.S. The Riverbay Corporation has supported programs that allow for forms of rent control for seniors, which is fantastic for maintaining a stabilized community and allowing tenants to age in place. Critics have noted, however, that such a model does little help new tenants.

Part IV: Graphic Analysis

Having considered the complicated history of the three case studies, the question remains as to how one might go about analyzing of the quality of life found in these places today. To this end, this thesis suggests that a mapping exercise might arrive at something resembling truth, providing a sense of a place by giving name and quantities to the intangibles that make up one's lived experience. On the pages that follow, a series of maps seeks to investigate the contemporary state of the the three case studies, exploring the aspects that impact residents on a day to day basis. This analysis is not meant to be comprehensive, but rather to highlight some of the characteristics that make these places unique within each of their respective urban fabrics. As each case study approaches the Modernist design and moral ethos differently, the aim of the following graphics is to - by providing distinct and verifyable pieces of each study's current state - layer together a realistic portrait of what it is like to live in each distinct location today.

Of course, the accounts presented here are necessarily incomplete as it is impossible to fully know a place without actually inhabiting it. Furthermore, there are aspects of a place that have been under– or innacurately-reported, such as crime statistics, and have therefore been left out of the analysis intentionally. This is not to say that these aspects do not impact the livability of a place, but rather that, during the course of researching them, conflicting accounts resulted an incomplete understanding. Others, such as density and transit, have been paired in the hopes of showing inherant relationships, with one supporting, hindering, or giving rise to the other. Lastly, the following graphics are meant to be considered alongside the prior historical analysis, representing the current culmination of years of design ideas, decisions, and challenges; ultimately resulting in the neighborhoods that so many now call home.

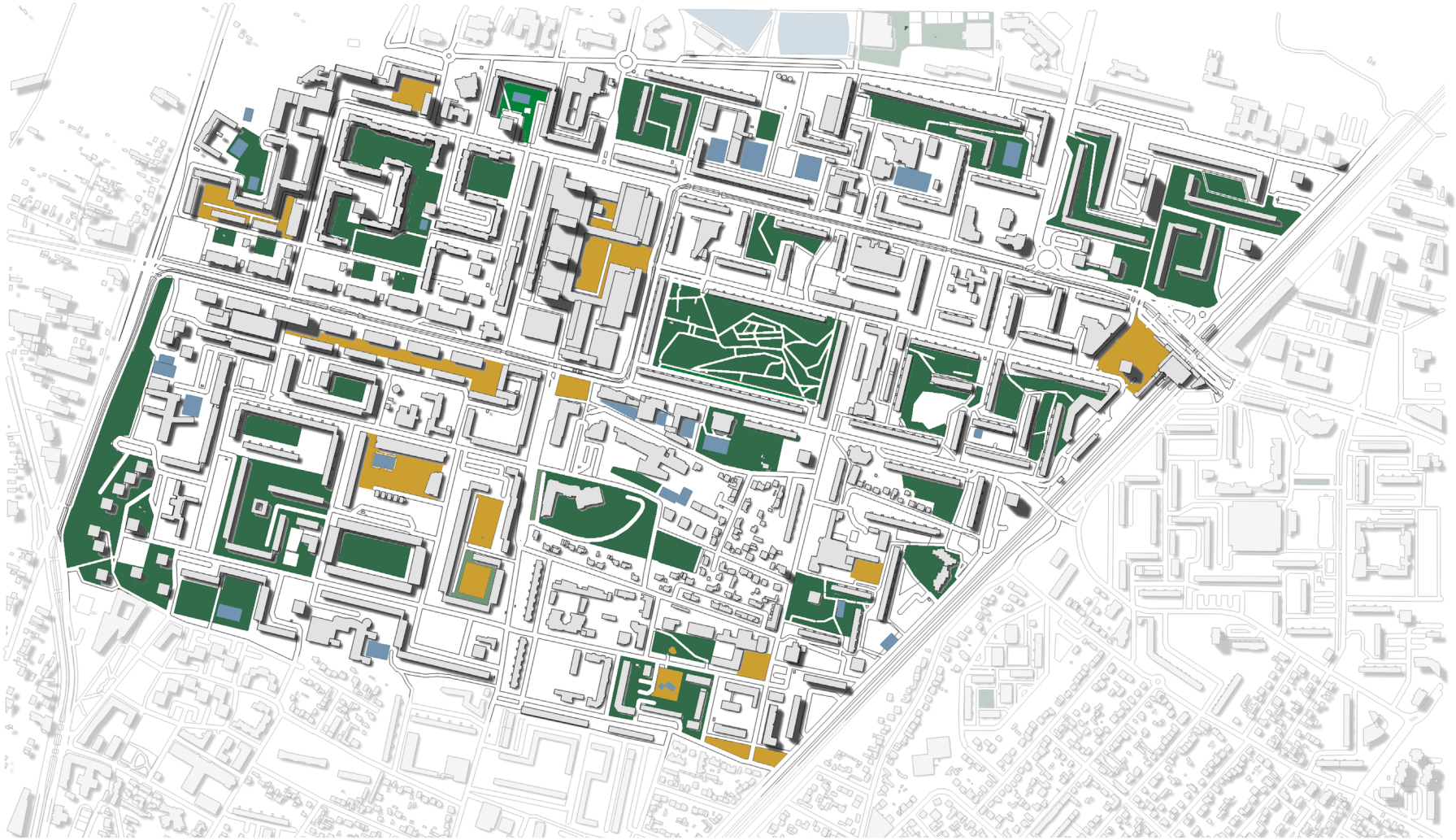


Fig. 110
Tlatelolco is dotted with parks, gardens, and paved public spaces, all of which come alive in the afternoon as families fill the playgrounds.

Green Space

In every case, the developments studied here provide far more green space and public paved spaces than their surrounding cities. Sarcelles' master plan claims that well over 60% of its area is dedicated to green, permeable land, while the parks of Paris make up less than 20% of the city. Likewise, Tlatelolco stands in stark contrast to the concrete that dominates Mexico City and Co-op City is itself a version of Le Corbusier's vision of towers in a park, with its rolling – and often empty – parks having been compared to a retirement community's golf course. In this way, each design has a unique approach to the application of green space (notice how Tlatelolco's verdant areas are interspersed equally with paved courts, while Co-op City's winding pedestrian walkways lead to sports courts and the neighboring river), but all detail the clear importance of areas of vegetation providing spaces for development's residents to gather and play.

Fig. 111
Sarcelles-Locherès: Green and Public Spaces



Green Space

Paved Public Areas

Sports Courts

50 200 800 m

100 400

Fig. 112
Tlatelolco-Nonoalco: Green and Public Spaces



Green Space

Paved Public Areas

Sports Courts

50 100 200 400 800 m

Fig. 113
Co-op City: Green and Public Spaces

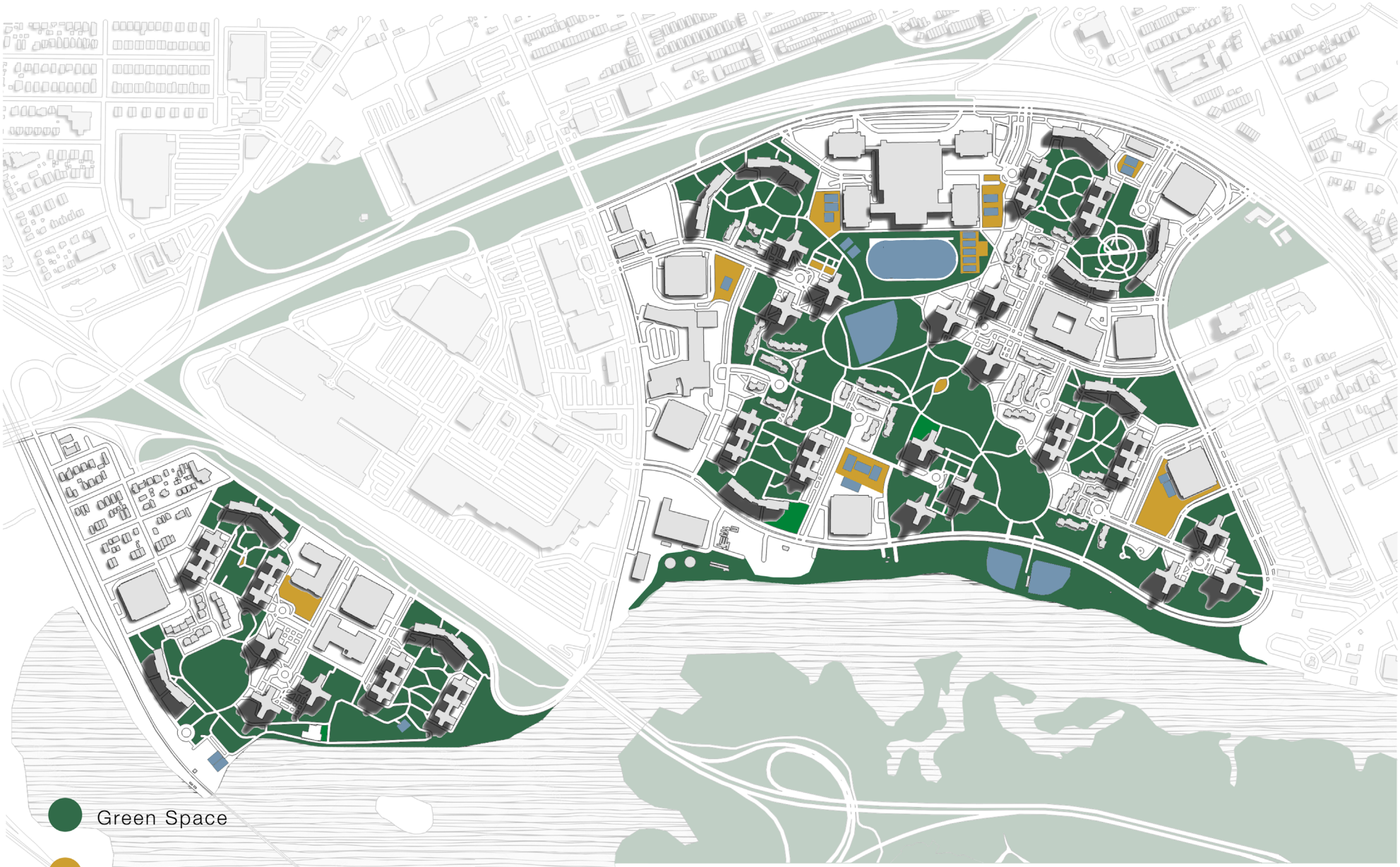




Fig. 114
The distant location of Co-op City has forced its residents to rely on private cars and often-unreliable buses for transportation. Although there have been promises of a metro stop coming directly to the development, those promises have never materialized.

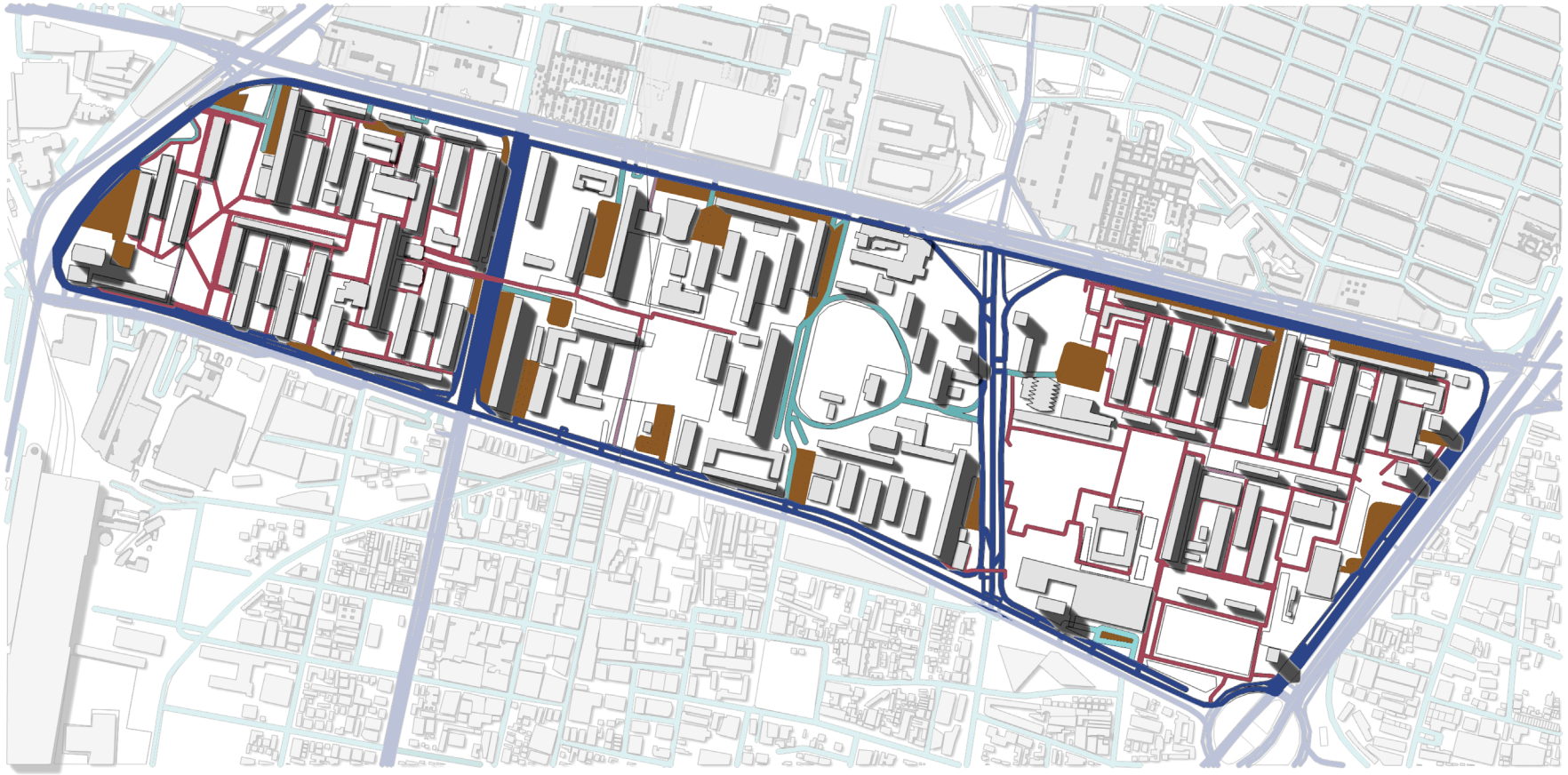
Roadways

Given the era that the Modernist style developed, the incorporation of cars has always been central to its design ethos. The resulting roadways and parking structures have defined the quality of life in these spaces, carving up open areas and creating neighborhoods or islands in their wake. The three case studies are no exception to this, as again each complex approaches the organization of roadways and pedestrian walkways in their own unique manner. Sarcelles uses its main roads to divide up the masterplan and create smaller neighborhoods, which are then serviced by their own schools and commercial areas. Tlatelolco and Co-op City keeps cars on the periphery, creating a boundary of roads that, while it maintains the green spaces open for pedestrian activity, also separates the complex from the surrounding areas. Co-op City is particularly guilty of this, as the road that surrounds it is one of the busiest highways in the state, meaning that crossing over into the surrounding neighborhood is difficult or, in many places, impossible.

Fig. 115
Sarcelles-Locherès:Roadways and Parking



Fig. 116
Tlatelolco-Nonoalco: Roadways and Parking



Major Roads

Minor Roads

Pedestrian Walkways

Parking

50 100 200 400 800 m

Fig. 117
Co-op City: Roadways and Parking

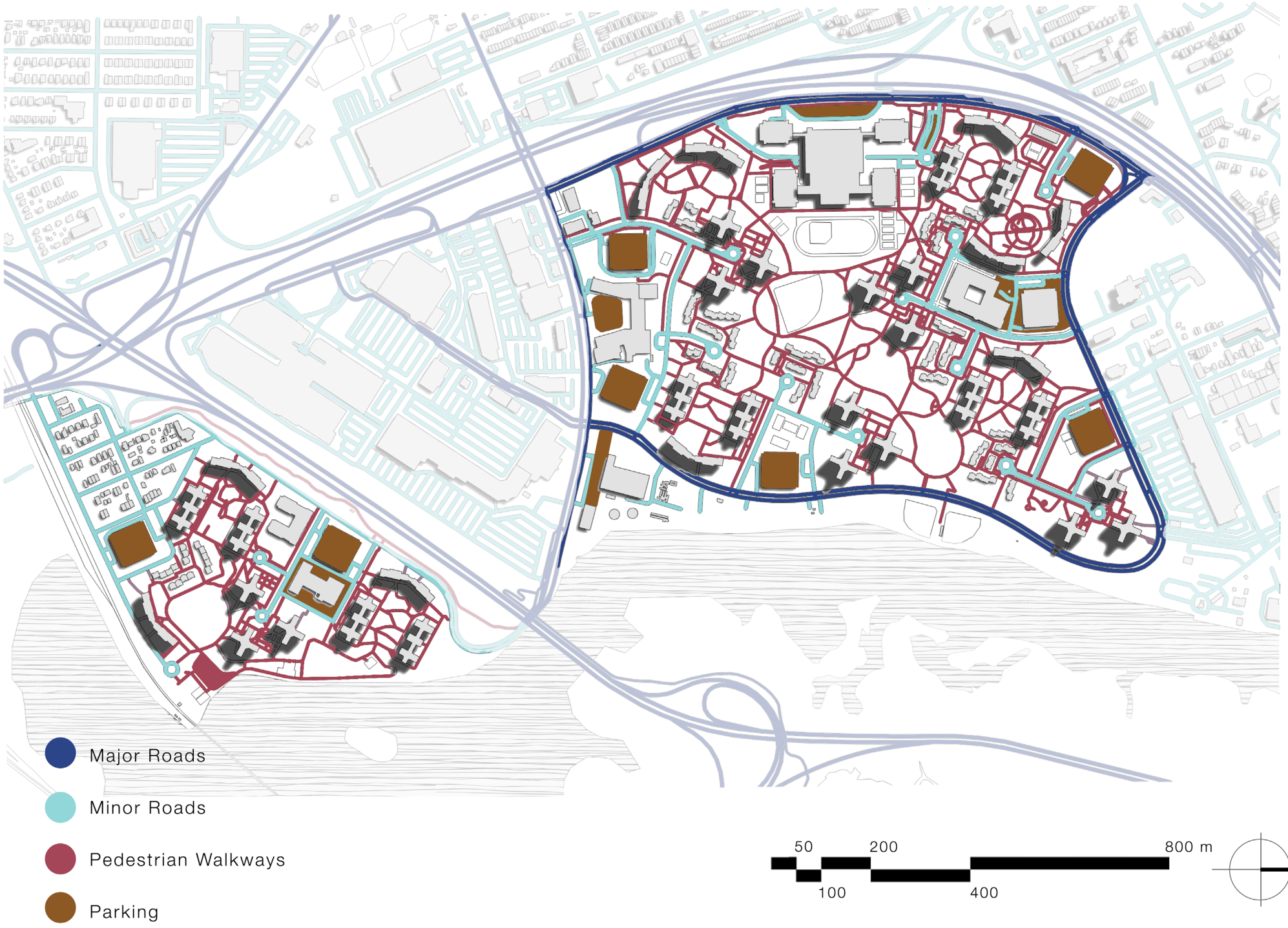




Fig. 118
Sarcelles is, in its current form, very well connected to public transit. The presence of the RER train and the local street car makes moving within the complex as well as to Paris easy and reletively cheap.

Transit + Density

Various contemporary urbanists and planners, such as Carlos Morena with his 15-minute City concept, have argued that increased population density could be used to create more livable urban centers. To this end, all three projects present a vision of how large housing developments can help increase a city's density, as all of the case studies are more densely populated than their surrounding city. These density statistics should not, however, be taken as a cut and dry proof that mass housing developments are necessarily more dense than cities as a whole, since the various neighborhoods within large urban boundaries tend to be inconsistently populated. Mexico City is a great example of this, as the northern half of its urban boundary contains nearly 80% of its total population. The southern half is, as a result, very sparsely populated, which helps explain why Tlatelolco appears to be almost three times as dense as one of the largest cities in the world.

In the following graphics, each case study's density statistics are paired with a map showing how the public transit is organized in each design. This juxtaposition is intended to show how public transit, when appropriately planned, could service huge numbers of residents within a relatively small area. Sarcelles and Tlatelolco are very well connected to their surrounding city -making it easy to live in the developments and commute to work - while Co-op City is not. Consequently, the many residents of Co-op City have consistently complained about the long transit times as well as their geographic isolation.

Fig. 119
Sarcelles-Locherès:Public Transit and Density

In 2012, Paris was the most densely populated city in the EU, with 21,616 people per km2

As a contrast, Sarcelles had a population density of 28,947 people per km2



Fig. 120
Tlatelolco-Nonoalco: Public Transit and Density

In 2020, Mexico City had an average population density of 6,206 people per km2
As a contrast, Tlatelolco-Nonoalco has a population density of 16,784 people per km2



Metro
Metro-Bus
Bus Lines

50 200 800 m
100 400

Fig. 121
Co-op City: Public Transit and Density

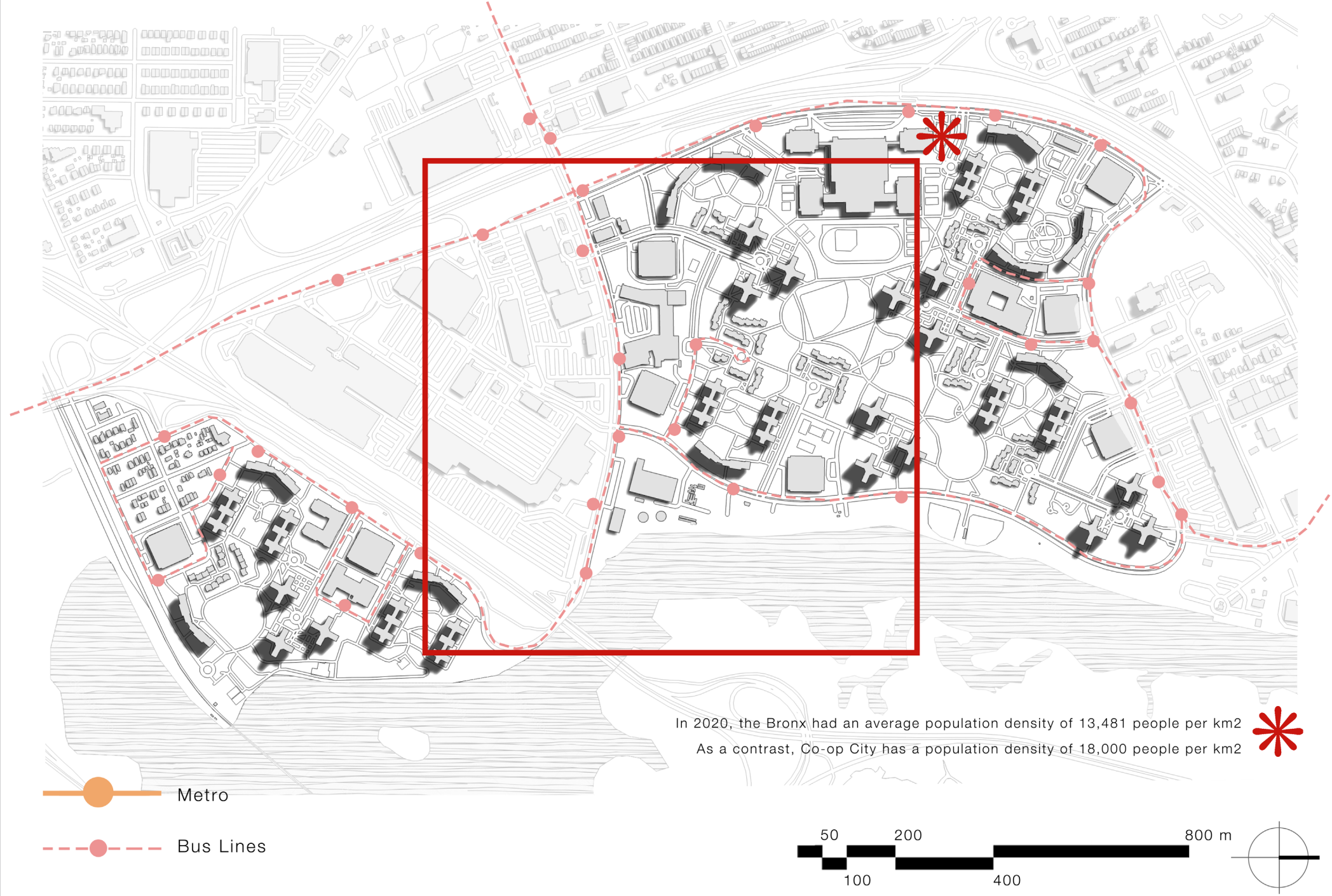




Fig. 122
While some of the available commercial spaces are run-down or unoccupied, the ground floors of many buildings in Tlatelolco are dedicated to providing a rich pedestrian experience. Seen here are the many businesses, such as a laundromat and nail salon, that populate the type “I” buildings. These businesses also look out over patios and playgrounds, helping to create a friendly and communitarian experience.

Walkability + Amenities

Another important aspect that is highlighted by urbanists who argue for more walkable or livable cities is the proximity of everyday necessities, such as schools and grocery stores, to residential areas. Again, the three case studies present an almost utopian vision of this idea (as a resident of a car-dependent American city, it is difficult to imagine the availability of 6 daycare centers all within a 15 minute walk, as seen at Sarcelles), and the amenity-dense lifestyle is one of the strongest arguments in favor of the Modernist mass housing designs. While the availability of public services and commercial spaces is often used as a justification for the more austere building designs, it is still worth noting how easily a resident of all three case studies could walk to nearly all of their every day needs. When paired with the availability of public transit (which, of course, is far more complicated at Co-op City), it is entirely plausible that the residents of these complexes could spend most of their time without having to use a car. This also has implications in terms of the carbon footprint of these designs, as a walkable lifestyle tends to be far less dependent on fossil fuels.

Fig. 123
Sarcelles-Locherès: Walkability and Amenities



Fig. 124
Tlatelolco-Nonoalco: Walkability and Amenities

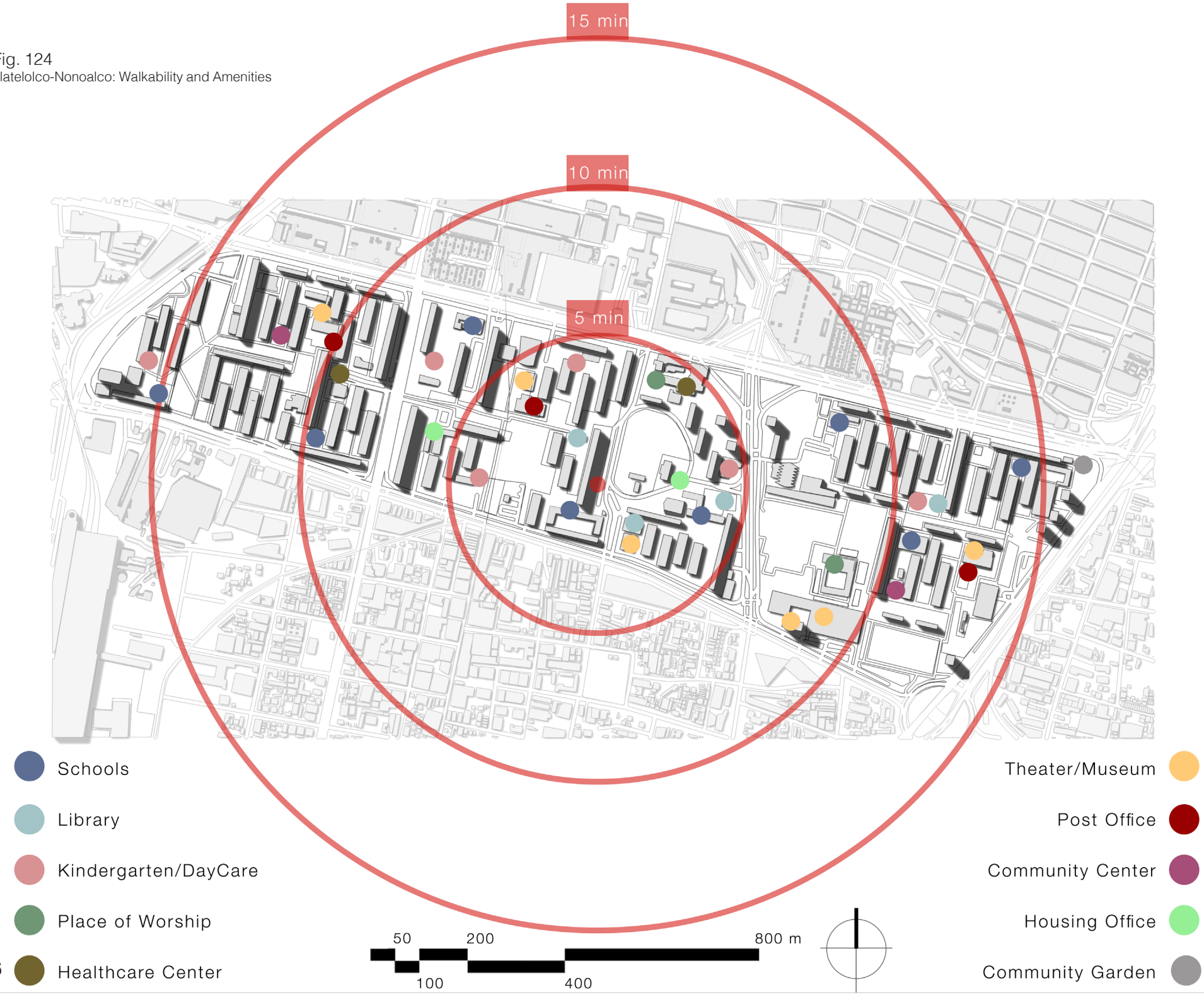


Fig. 125
Co-op City:Walkability and Amenities





Fig. 126
The Flanades commercial center, located at the heart of the Sarcelles housing development, was opened in the 1980's. It is flanked by both apartments and office buildings, and is across the street from the main police station and rental offices. As such, the commercial center serves as an organizational hub.

Commercial Spaces

The incorporation of commercial spaces into the design of a mass housing complex is less defined by the Modernist design ideology (if such a thing can even be claimed to exist) and, therefore, the case studies shown here display a variety of approaches. Since Sarcelles is, generally speaking, broken up into smaller neighborhood-units that each have their own schools and greenspaces, the inclusion of a large commercial center directly between the "ceremonial" entrance to the community and the largest park shows a clear attempt to provide a functional center to the complex. Conseuqently, much of community life tends to congregate in this area, as well as in the smaller market to the east of the main park that hosts a flea market every weekend. Similarly, Co-op City places a large shopping center direcly in the middle, although the vast parking lots have an unfortunate effect of isolating the northern buildings from the section on the southern end.

On the other hand, Tlatelolco was designed to have the ground floor of its largest residential buildings function as the development's main commercial spaces, so that businesses could be found evenly distributed throughout the design. Unfortunately, this idea did not play out as expected as the earthquake of 1985 damaged many of the buildings that could have supported commercial spaces. As a result, the various businesses that occupy ground-floor spaces in Tlatelolco are scattered unevenly throughout the complex, and residents tend to rely on the private businesses that surround the complex - especially the large Walmart found to the north - although walking to these stores can be complicated as it always requires crossing very large streets.

Fig. 127
Sarcelles-Locherès: Commercial Spaces



Commercial Center

Grocery Store

Ground Floor Retail Occupied

Ground Floor Retail Vacant

50 200 800 m

100 400

Fig. 128
Tlatelolco-Nonoalco: Commercial Spaces



Commercial Center

Grocery Store

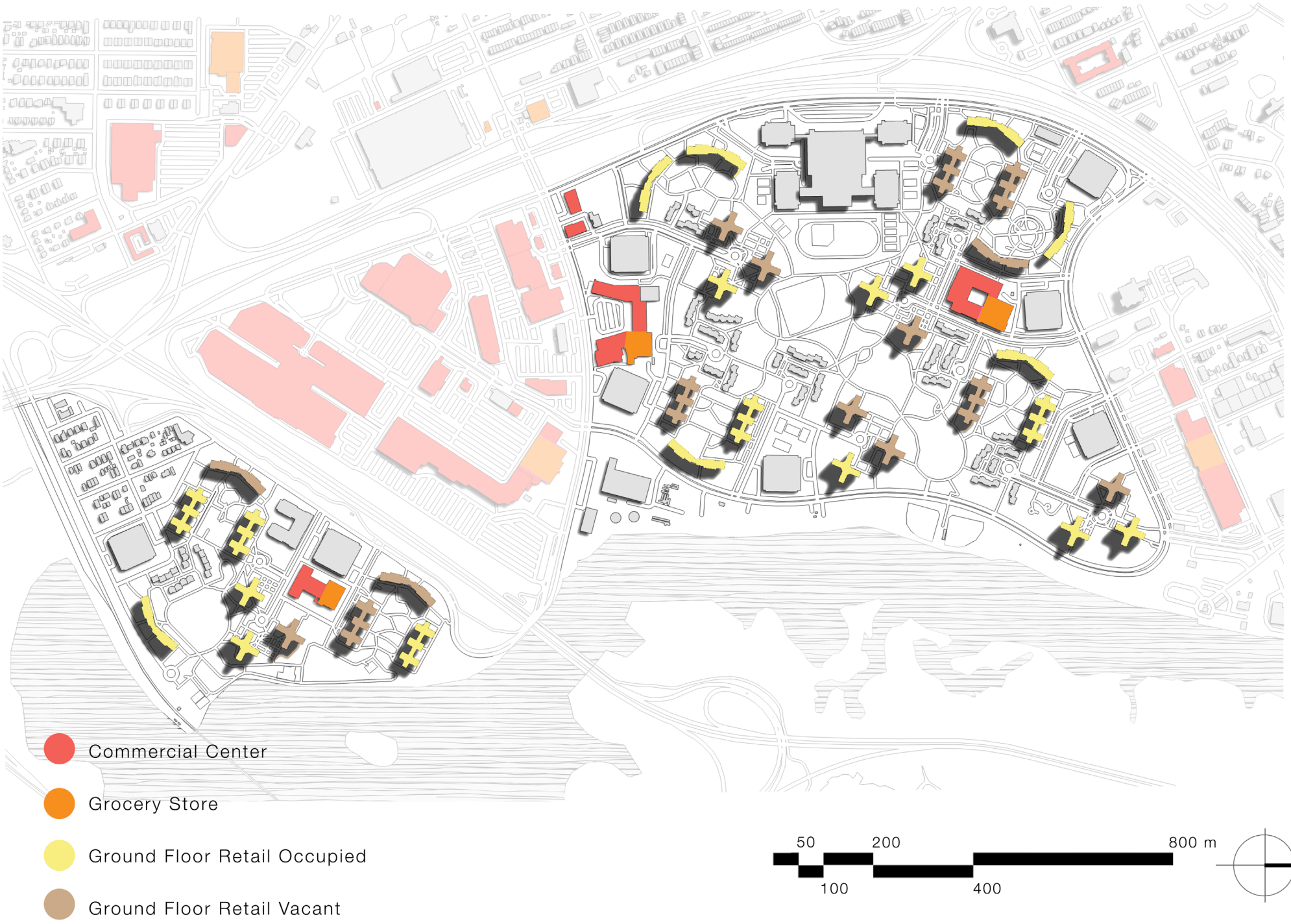
Ground Floor Retail Occupied

Ground Floor Retail Vacant

50 200 800 m

100 400

Fig. 129
Co-op City: Commercial Spaces



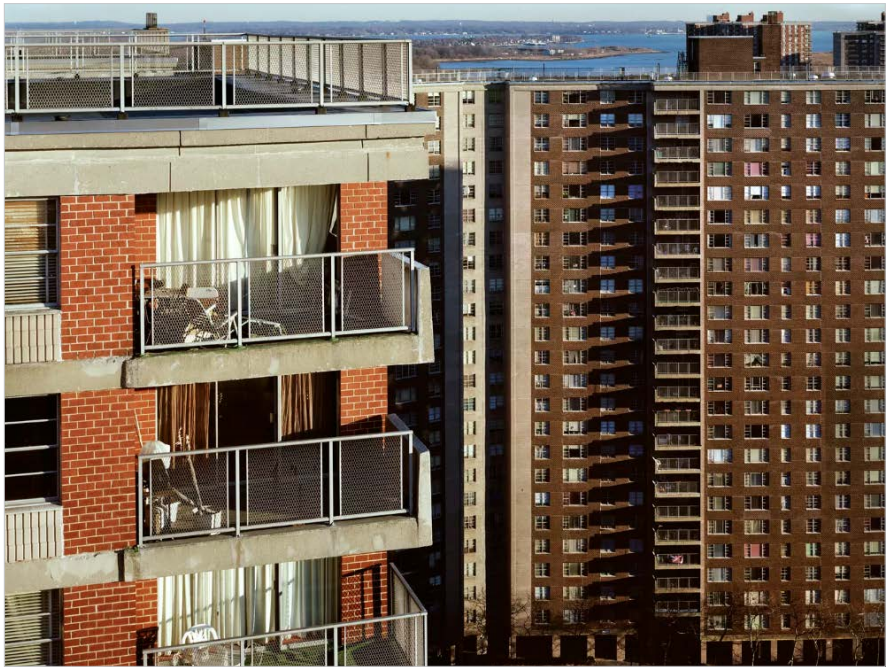


Fig. 130
One of the successes of Co-op City's design is the variety of apartment types that offer a variety of price points for potential residents. Pictured here are the larger corner apartments with outdoor patios, which are limited in quantity and highly desirable.

Rent

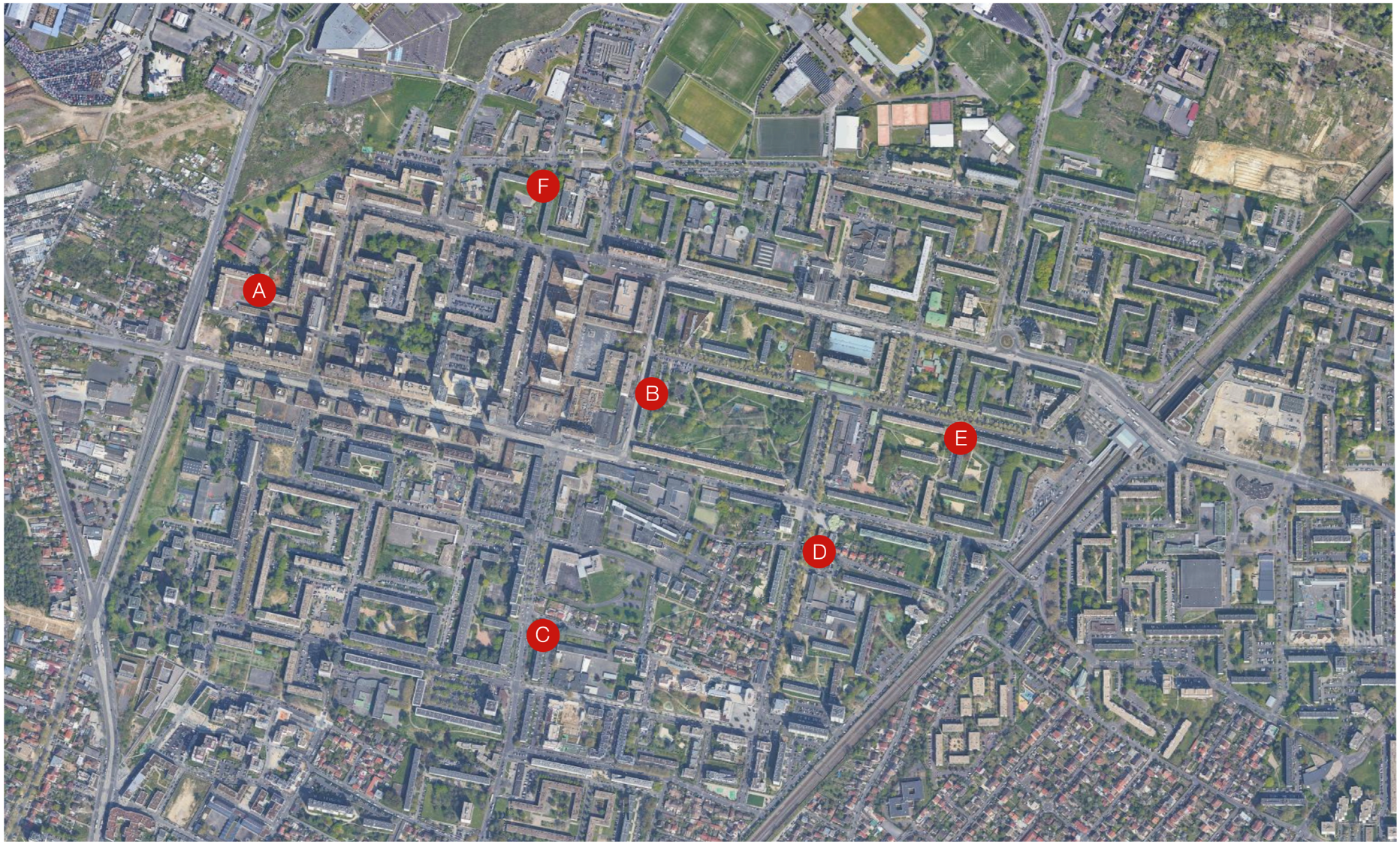
In an attempt to analyze rents in a standardized manner, the following graphics present the cost of rent in the unusual meteric of dollars per square meter per year. This is due simply to the international character of the project, where each case study has its costs in a different currency and two of the projects use metric instead of imperial measurements. Furthermore, each case study has the rents of 6 different apartments compared against the average in both its surrounding district as well as the city for the sake of context.

While, in all three cases, the rents in nearly all of the apartments presented are lower than the average cost for both the city and district, it is worth analyzing why this is the case. It may be tempting to ascribe the lower costs to the efficiency of the buildings or density of the units (many make the argument that more units per area necessarily brings the consumer-side cost down as it lowers competition), but a historical analysis shows that the cause is more complicated than buildinga simply being well designed. While Co-op City's costs are a direct result of the complex's financial organization, the other two cases struggle from problems of perception. For example, since the 1985 earthquake has been seared into the minds of Mexico City's residents, many are still hesistant to live in Tlatelolco, and it is this negative connotation that forces apartment prices down. This is changing, however, as time passes and people - typically the younger generations - prioritize the convenience of a central location. The same is true for Sarcelles, which still struggles with the reputation of being a underfunded racial ghetto.

Lastly, the conversion of Mexican Pesos and Euros to Dollars was done on April 5th, 2023 when the Peso was 18.3 to each dollar and the Euro was 1.09 to each dollar. It can be expected that these prices have since changed.

Fig. 131
Sarcelles-Locherès: Rental Prices

50 200 800 m
100 400



A $1,483.31: 3 Bed 110 m2: **$161.81/m2/yr**

B $529.75: Studio 38m2: **$167.29/m2/yr**

C $1,271.41: 2 Bed 70m2: **$217.96/m2/yr**

D $1,324.39: 3 Bed 80 m2: **$198.65/m2/yr**

E $1,218.44: 2 Bed 72m2: **$203.08/m2/yr**

F $1,165.46: 2 Bed 70m2: **$199.79/m2/yr**

Average for Paris:
$245.58/m2/yr

Average for Sarcelles:
$218.26/m2/yr

Source: immuebles24.com

Fig. 132
Tlatelolco-Nonoalco: Rental Prices

50 200 800 m
100 400



A $538.60: 2 Bed 90m2: **$71.81/m2/yr**

B $708.69: 2 Bed 97m2: **$87.67/m2/yr**

C $490.41: 2 Bed 56m2: **$105.08/m2/yr**

D $680.34: 3 Bed 108m2: **$75.59/m2/yr**

E $640.65: 3 Bed 117m2: **$65.70/m2/yr**

F $538.60: 2 Bed 89m2: **$90.00/m2/yr**

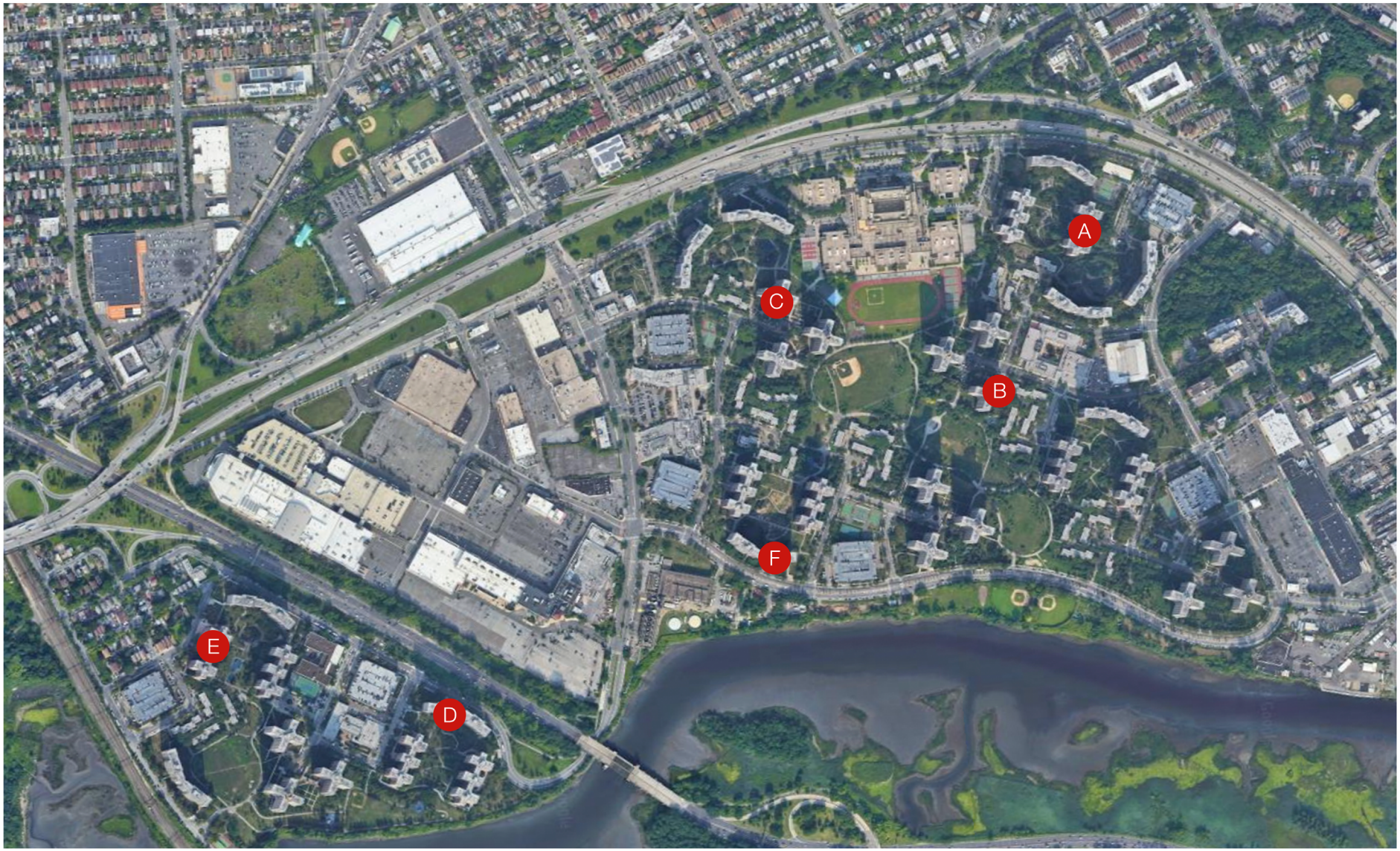
Average for CDMX:
$139.00/m2/yr

Average for Cuauhtemoc:
$179.28/m2/yr

Source: immuebles24.com.mx

Fig. 133
Co-op City: Rental Prices

50 200 800 m
100 400



A $965.00: 1 Bed 84m2: **$137.85/m2/yr**

B $1085.00: 2 Bed 72m2: **$180.83/m2/yr**

C $1447.00: 3 Bed 95m2: **$182.77/m2/yr**

D $723.00: 1 Bed 60m2: **$144.60/m2/yr**

E $1205.00: 2 Bed 113m2: **$127.96/m2/yr**

F $1557.00: 3 Bed 108m2: **$173.00/m2/yr**

Average for NYC:
$297.50/m2/yr

Average for the Bronx:
$270.90/m2/yr

Source: apartments.com



Fig. 134
This tower type building in Sarcelles has had its entire exterior replaced as the original panels, which had badly rusted, offered little-to-no thermal or sound insulation. See fig.158 for a close view of this exterior.

II. Elevations

The immense scale of these projects has become not only one of their defining features, with the Modernists being tasked with housing as many people as possible as efficiently as possible, but also one of the hardest aspects to replicate in today's housing market. While the financial sources and building methods used have changed greatly, it is notable that Modernist apartment buildings around the world generally took two two general forms: firstly, the rising "tower" style of building with a central circulation core and, secondly, the long "bar" style of building that tended to be shorter and have several entrances and circulation cores. All three case studies use these two forms, though they do so at vastly different scales. Since the enormity of the projects is still one of the hardest aspects to for contemporary audiences to understand and conceptualize - especially when considering whether or not this typology has any use today - the following pages seek to communicate that sense of scale through simple elevations. For each case study, two building types were chosen: one representing the "tower" style and the other representing the long "bar" style. The scale is kept the same for all three case studies for the sake of comparison, and there are also scale figures included, though they are admittedly hard to see.

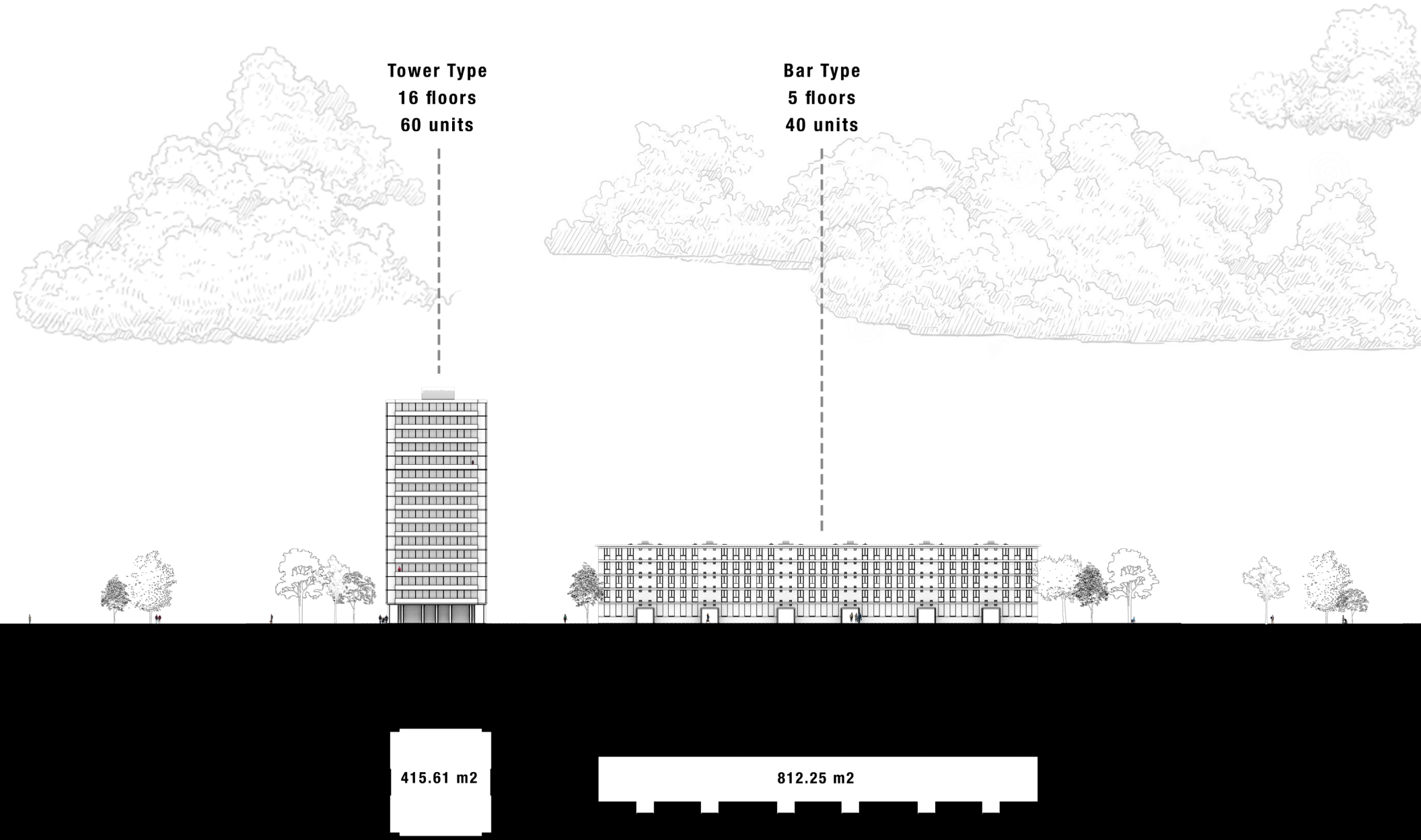


Fig. 135
Sarcelles-Locherès: Elevations

1:1000

5 20
0m 10 50m

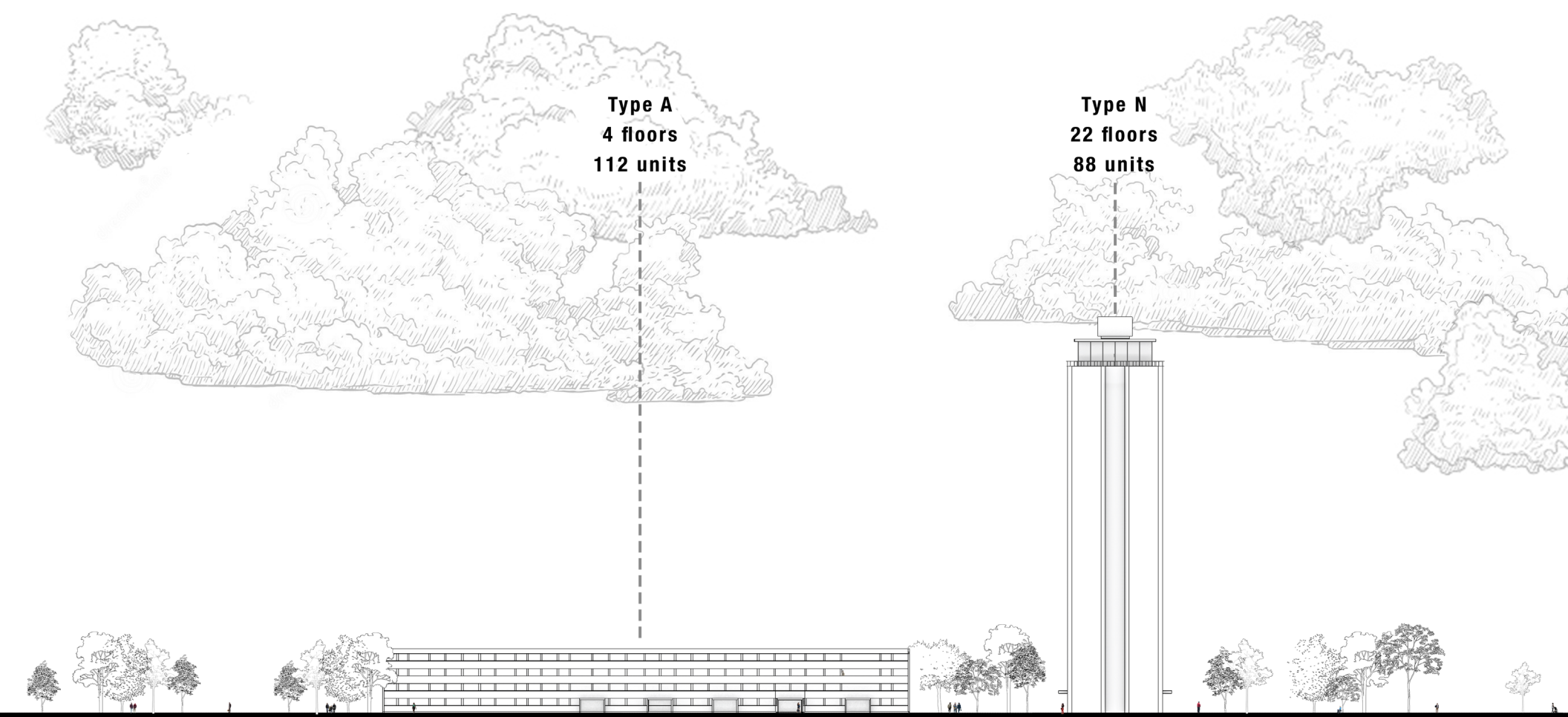


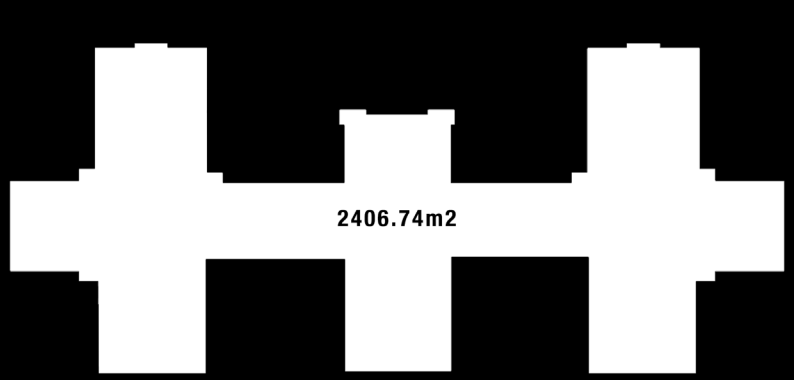


Fig. 136
Tlatelolco-Nonoalco: Elevations

1:1000







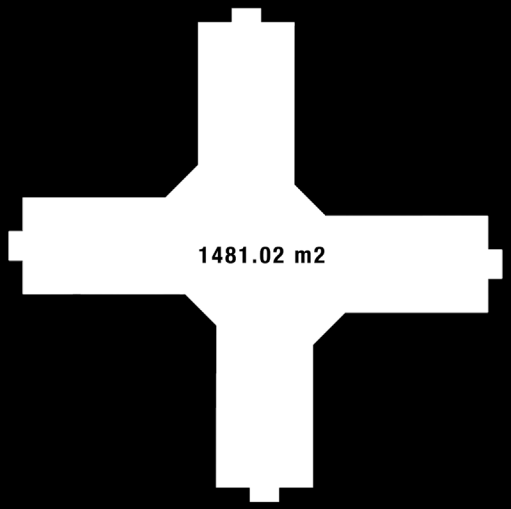


Fig. 137
Co-op City: Elevations

1:1000





Fig. 138
Since Tlatelolco has moved to a private ownership model, the state of each buildings varies drastically. Some are desperately in need of structural and aesthetic repairs, while others have been renovated or maintained very well. Shown here is a kitchen in the desireable “K” type building, whose apartments feature large porches.

III. Floor and Selected Room Plans

In contrast to the vast scale of the case study’s master plans, the individual apartments that make up the projects tend to be more modest in size. The building- and individual unit-scale considerations, such as the location and size of circulation cores and corridors or room quantity and size may not be the first thing that comes to mind when evaluating this typology, but such design decisions tend to have the greatest effect on resident’s lives. Some building and apartment styles have become popular with residents, such as the Tower Type building at Sarcelles - which features two balconies per unit - or the Type A building in Tlatelolco - which utilizes the traditional technique of open-air circulation through shared light-wells to help connect small units to the expansive outdoors.

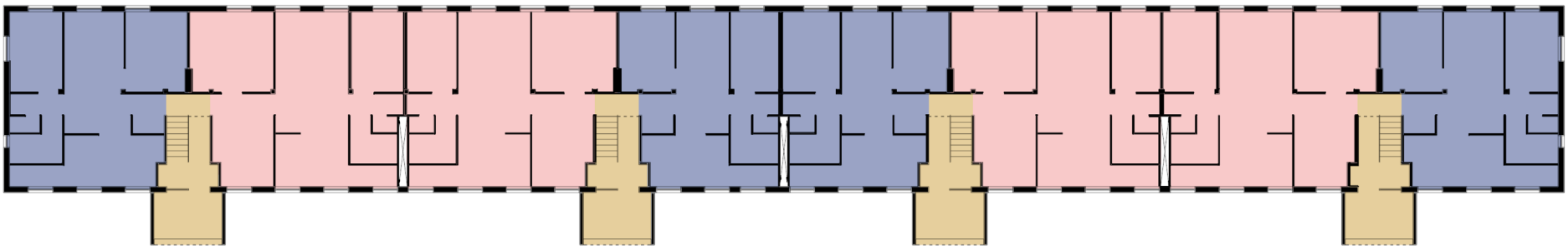
Other buildings have been less popular, such as the Triple Core style in Co-op City, due to the overcrowding of shared spaces. Since this style of building has 26 floors, there is no way to live in it without using the elevators. As each elevator services anywhere from 25-30 residents per floor, it can easily become a long wait simply to move around the building. Though previously mentioned, it is worth repeating that this sort of organizational issue was precisely the type of problem that began the degradation of Pruitt Igoe.

The following pages detail plans from 6 building types, two for each case study, as well as selected unit plans with accompanying photos. These graphics are meant to remind that although mass housing is meant for the multitudes, the individual scale amenities are what define the success or failure of a project.

Fig. 139

Sarcelles-Locheres

Bar Type Building
8 units/floor
5 floors
40 units



2-Bedroom Units x4

3-Bedroom Units x4

Circulation

1:300

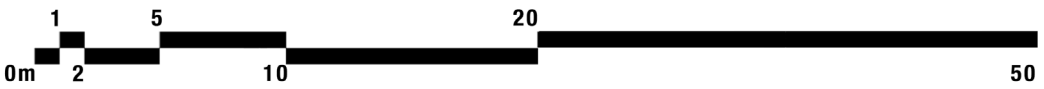
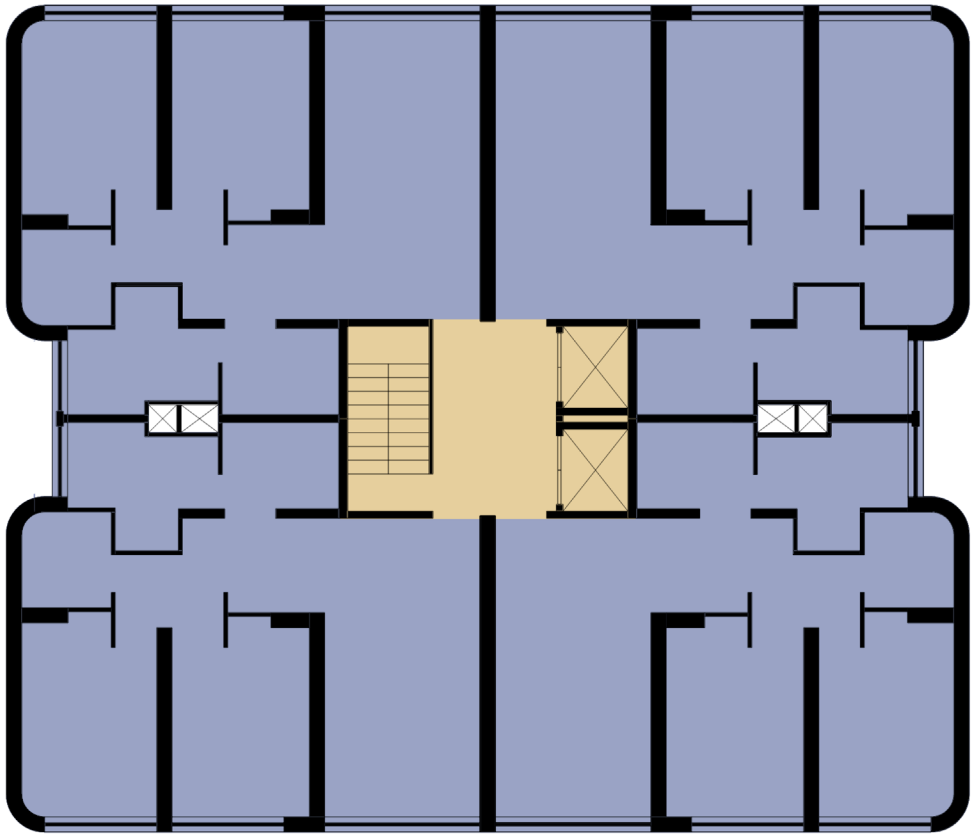


Fig. 140

Tlatelolco-Nonoalco

Type N Building
4 units/floor
22 floors
88 units



2-Bedroom Units x4

Circulation

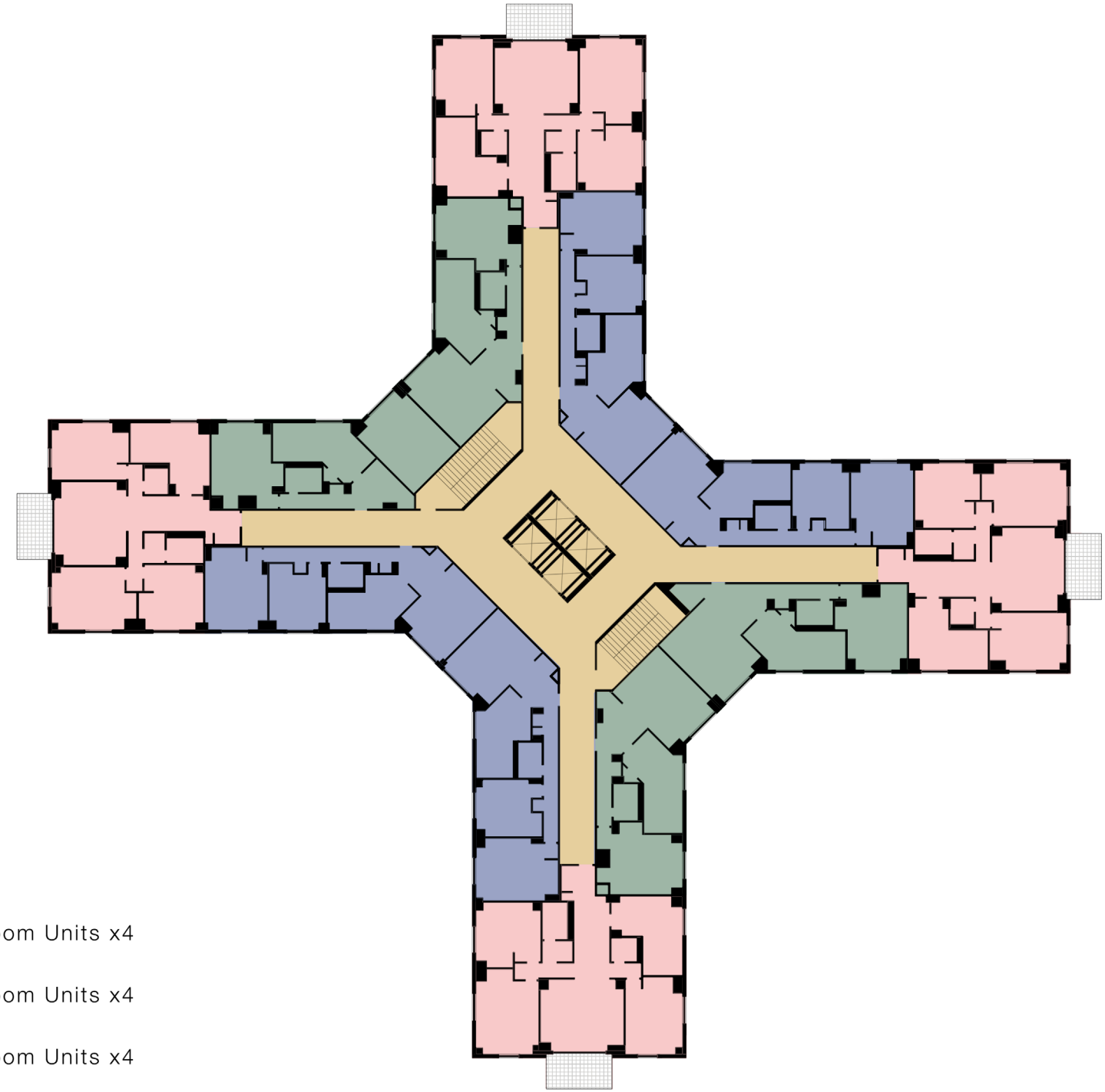
1:150



Fig. 141

Co-op City

Tower Type Building
12 units/floor
33 floors
384 units



1-Bedroom Units x4

2-Bedroom Units x4

3-Bedroom Units x4

Circulation

1:350

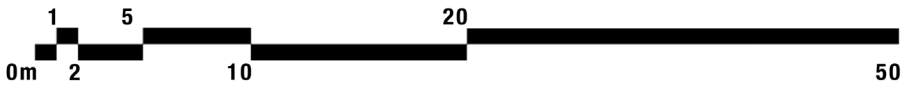
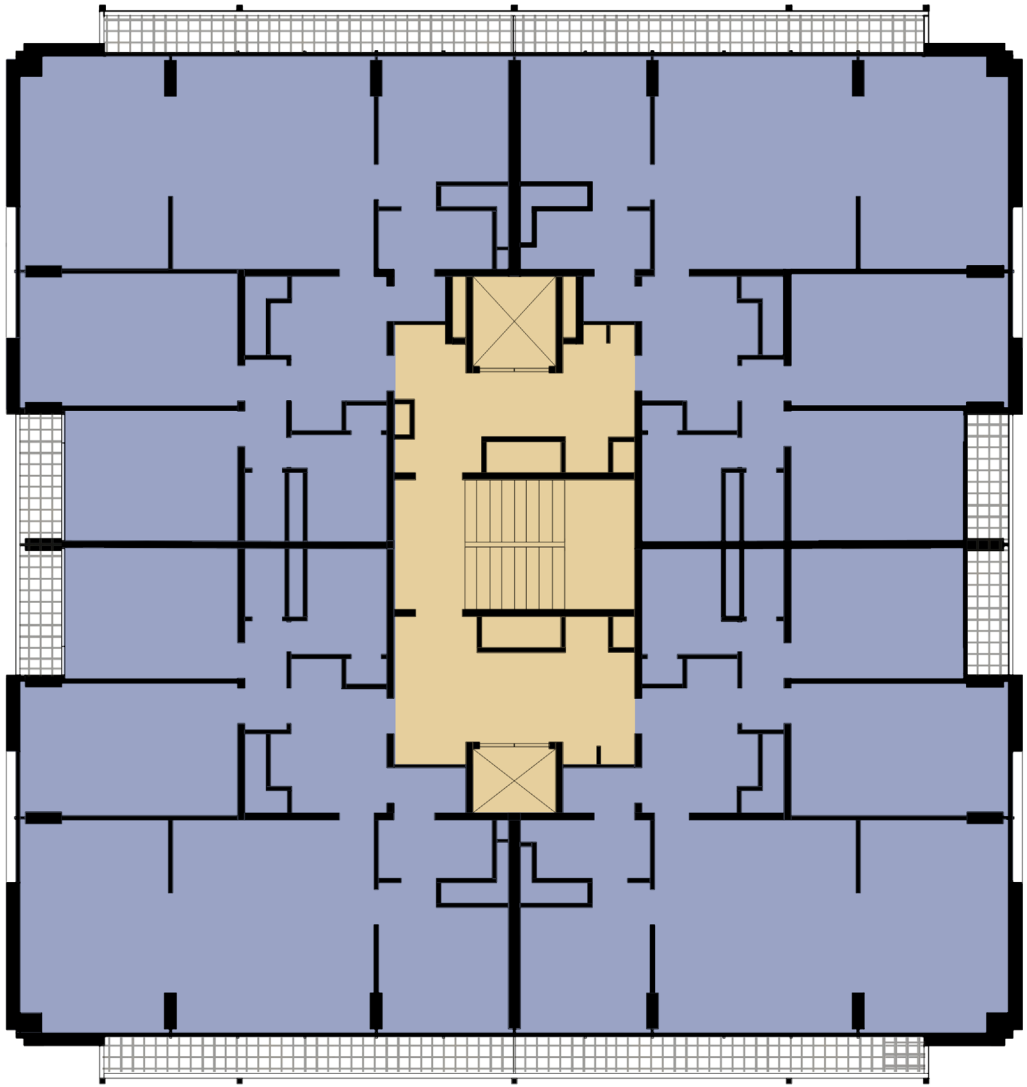


Fig. 142

Sarcelles-Locheres

Tower Type Building
4 units/floor
16 floors
60 units



2-Bedroom Units x4

Circulation

1:150

0m 1 2 5 10 20

Sarcelles-Locheres

Tower Building

2-Bedroom Apartment

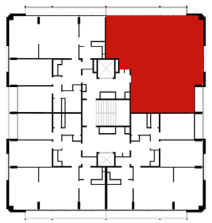
75.8 m2 or 815.9 ft2

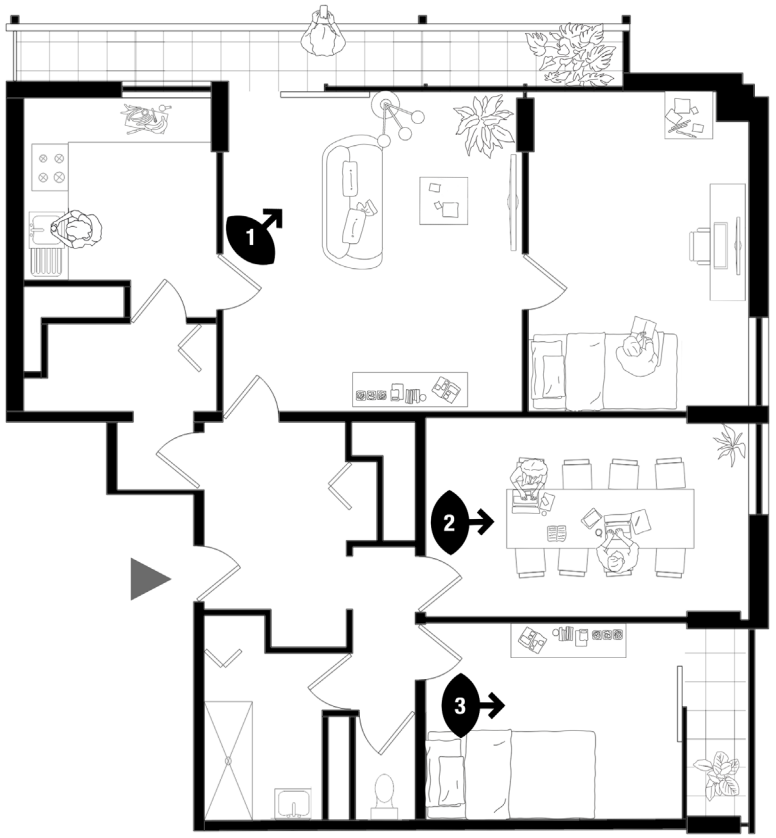






Fig. 143





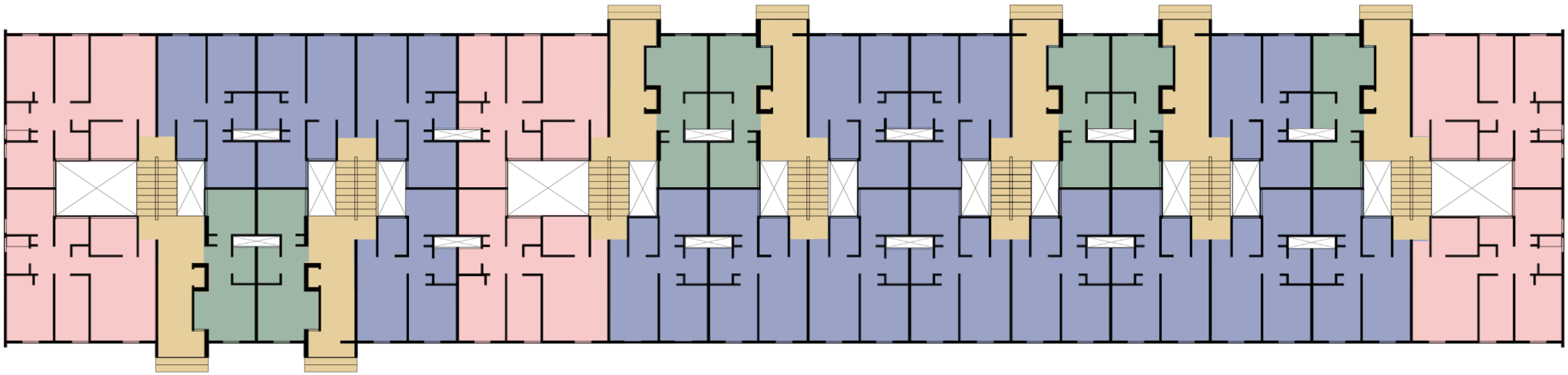
1:100



Fig. 144

Tlatelolco-Nonoalco

Type A Building
28 units/floor
4 floors
112 units



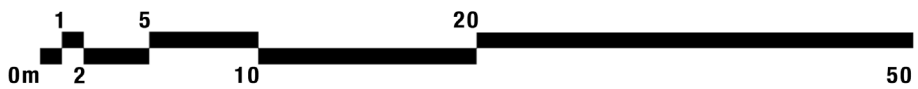
1-Bedroom Units x7

2-Bedroom Units x15

3-Bedroom Units x6

Circulation

1:350



Tlatelolco-Nonoalco

Type A Building

1-Bedroom Apartment

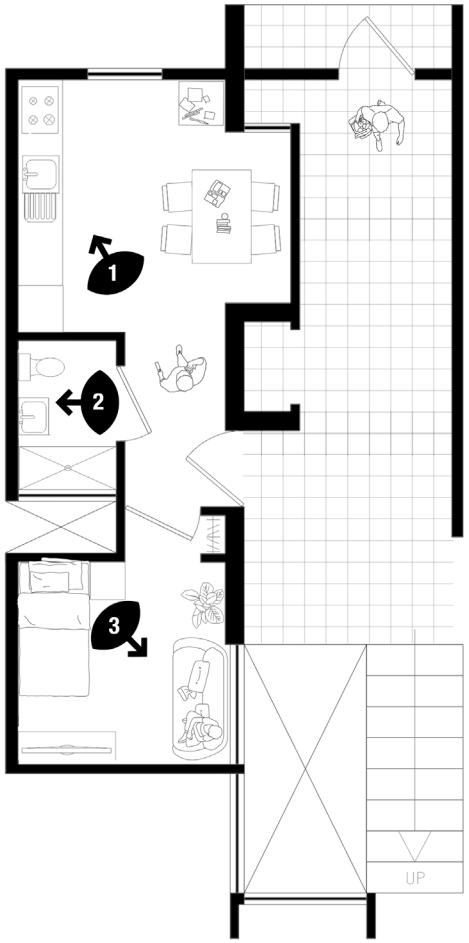
25.82 m2 or 277.92 ft2

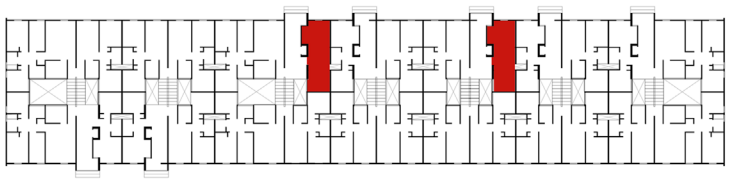






Fig. 145





1:100

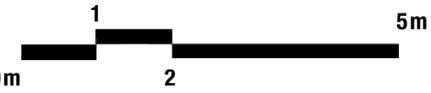
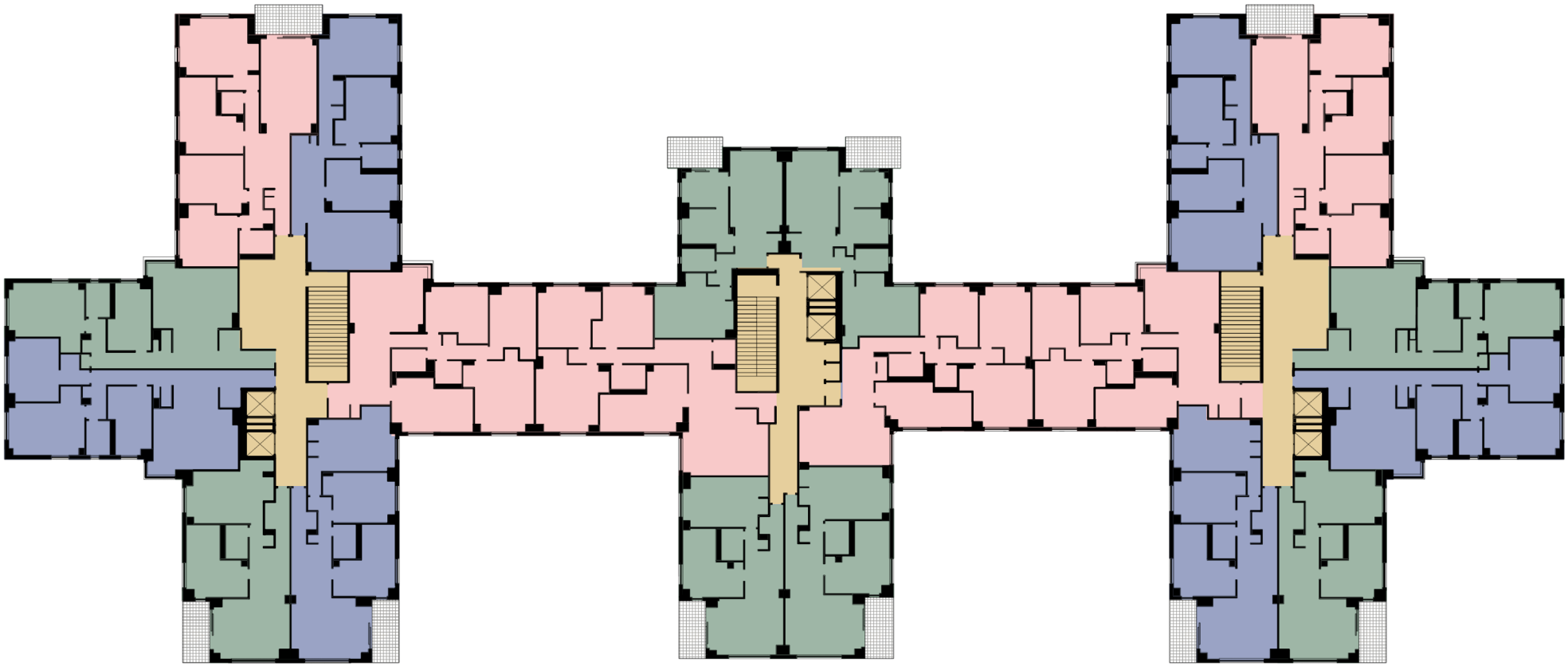


Fig. 146

Co-op City

Triple Core Building
20 units/floor
26 floors
500 units



1-Bedroom Units x8

2-Bedroom Units x6

3-Bedroom Units x6

Circulation

1:400

1 5 20
0m 2 10 50

Co-Op City

Triple Core Building

2-Bedroom Apartment

84.06 m2 or 904.81 ft2







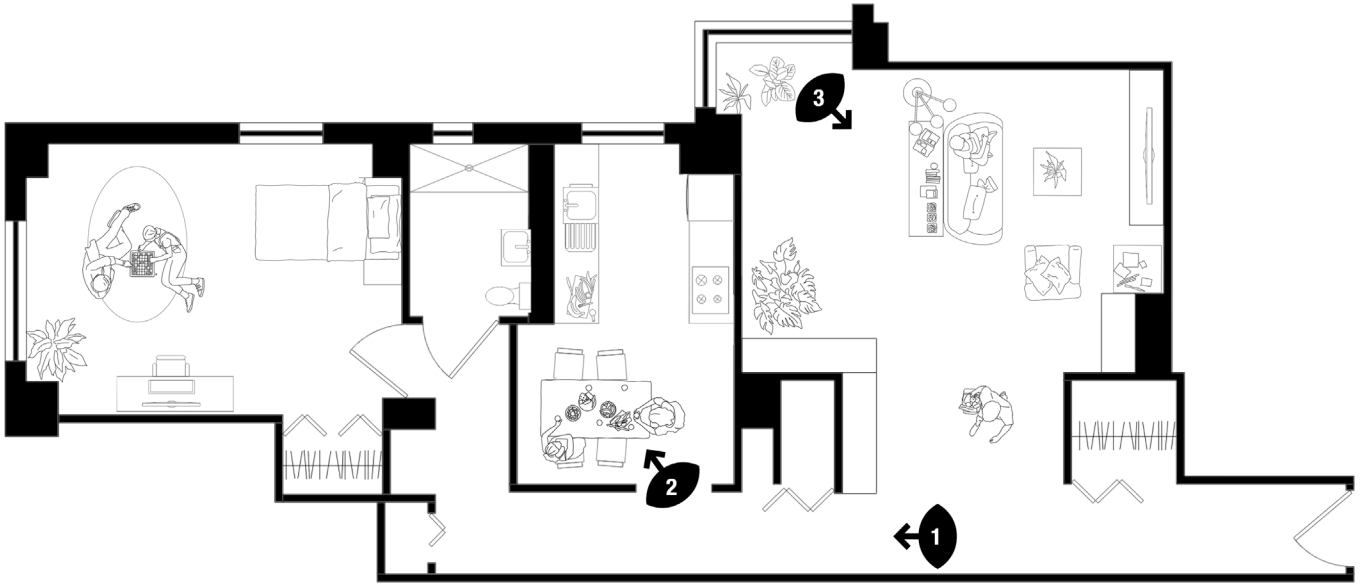
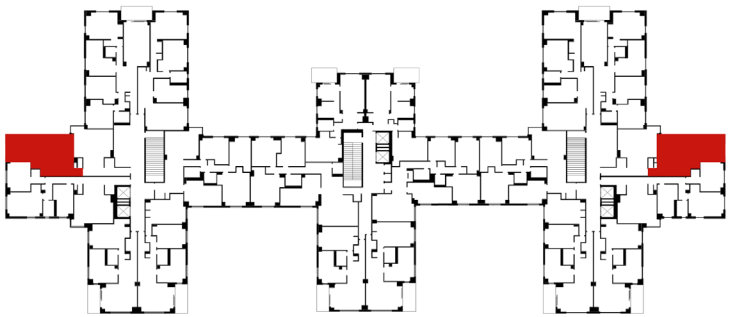


Fig. 147



1:100

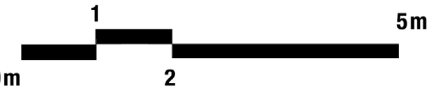




Fig. 148
Aztec celebration taking place in Tlatelolco's main square

Part V: Testimonials

Until this point, the analysis presented has been that of an outside observer examining spaces and not as an insider inhabiting them. In an ideal case, however, the residents of these developments would be able to give their own account of how well these spaces have served them, both historically and contemporaneously in their everyday comings and goings. While such a task could presumably be carried out through surveys or interviews, the far-flung nature of the case studies made these approaches expensive and impractical. Luckily, there exists a wealth of interviews and first hand accounts of life in these spaces online. These videos are rich in that they show life in the mass housing complexes from the view point of the intended audience, the very people for whom these spaces were designed. As such, it is only fair that the residents have the last word on how successful (or not) these spaces and the Modernist ideals ultimately became. Some seem perfectly happy with the buildings and communities that inhabit them, while others feel as though the maligned spaces leave them with no choice but to leave.

Although most of these interviews were conducted by news stations or third-party videographers interested in the developments, it is important to mention that a couple of the interviews presented here were published by the complex's management company. Clearly, these videos are meant to serve more as marketing material than as a news source, but the content of the interviews is still relevant enough for the purposes of this thesis.

“Je connais bien la ville, j’ai une très bonne relation avec mes voisins, mes clients, les sarcellois que ce soit à la mosquée, Que ce soit la mosquée ou que je veux aller à l'église, j'entre de la même façon que si c'était la mosquée.”

“I know the town, I have a good relationship with my neighbors, my clients, the people of Sarcelles. Whether it’s the mosque or if I want to go to the church, I can enter in the same way as if it were the mosque.”.



Amadou Daff
Interview by Canal 2
Posted on May 3, 2015

Es una mini-ciudad que, la gente que vive en esta zona se ha nutrido con toda su cultura, con todas sus tradiciones...se ha vuelto una inter-culturalidad genial porque, ¿a quién no le gusta conocer otro tipo de cultura, otro tipo de tradiciones?

It is a mini-city where, the people who live in this area have been raised by their own culture, their own traditions...it has turned into a great intercultural thing because, who doesn't like to learn about other kinds of cultures, other kinds of traditions?



Gerardo Villavicencio
Interview by Easy Spanish
Posted on August 7, 2019

“I think Co-op city is the best housing deal in the city of New York... during your time here, you get a two-bedroom apartment for roughly $1,300 a month with all utilities included.

Co-op City is 15,000 affordable housing units. We have very little crime, we have a great, great community here.”

* Bob’s company, Douglas Elliman Real Estate took over managing Co-op City in November 2014 after the previous property manager, Marion Scott Real Estate, was fired over racial discrimination lawsuits and rampant mismanagement.



Bob Klehammer
Interview by CUNY TV
Posted on August 8, 2019

“C’est toujours les nôtres qui meurent ! C’est toujours les nôtres qui sont enfermés. La mort, l’emprisonnement, ça n’est pas anodin. On veut agir, on veut être sur le terrain.”

“It's always ours who die! It is always ours who are locked up. Death, imprisonment, it is not trivial. It ruins lives...We want to act, we want to be on the ground.”

* Mara decided to run for public office after Ibrahima Ba, 22, died in October 2019 in a motorcycle accident during a chase involving police. The incident was captured on surveillance cameras.



Mara Kante
Interview by Street Press
Posted on March 13, 2020

“Aquí apenas oscurece y ya no podemos salir. ¿Por qué? Pues porque siempre nadamas están esperando, si de día te roban, imaginate de noche.”

“Here, when it gets dark we can’t go outside. Why? Well, because they are always waiting, if they will rob you in the daytime, imagine it at night.”



Vanesa Villafuerte
Interview by El Universal
Posted on November 8, 2018

“I take the express bus to and from my destination, but at times it can be a bit of a problem because the express bus stops running, I think the last bus is around 1:30 am, on Sunday I think the last bus is around 11:00 pm.

And then you have to take the train, which means its a very long trip because no train stops in Co-op City.”



Mike Rich
Interview by Bronx Narratives
Posted on December 19, 2015

“C’est à dire que le logement que j’occupe n’est pas tellement spacieux, il n’y a aucune porte,..On ne peut pas avoir un petit coin à soi pour lire, pour être tranquille. Les bâtiments sont terriblement sonores, on vit avec le voisin aussi bien dessus ou en dessous qu’à côté.”

“This is to say that the apartment where I live is not very spacious, there are no doors...You can't have a little corner to yourself to read, to be calm. The buildings are terribly noisy, you live with your neighbor as well above or below as next door.”



Unnamed Resident
From the film “Le Nouveau Sarcelles”
Shown on February 12, 1960

“Mucha gente de aquí se fue, precisamente por el temor de que volvería a ocurrir otro sismo o se volviera a caer otro edificio, es el temor de todos los que vivimos aquí.”

“Many people from here have left, specificially because of the fear that there would be another earthquake or that another building would fall, that is the fear that we all all have who live here.”

Adriana lives in a type N building, which is one of the many buildings that had to be reinforced or torn down after the 1985 earthquake.



Adriana Morales Castillo
Interview by El País
Posted on September 18, 2018

“There’s a philosophy amongst many, particularly the long-term individuals who’ve lived here, that affordable housing in New York City is a must.

These types of programs need success stories and, for us, Co-op City is a success.”



Noel Ellison
Interview by Riverbay
Posted on August 5, 2020

“Autour du moment où j'ai 18 ans on m'a dit «tu vas chercher un emploi ou un stage» ou quoi, que dans mon CV toujours écrit Sarcelles et après tu vois ma tête ou ma dégaine et forcément il n'y a pas de confiance.”

“Around the time when I was 18 years old I was told ‘you are going to look for a job or an internship’ or whatever, but in my CV it is always written Sarcelles and after they see my look or my clothes, of course they have no faith in you.”



MJ
Interview by Street Press
Posted on July 21, 2020

“Hijole, mira, te podría contar que es un lugar mágico lleno de mucho amor y de viviendas de muchas familias que han pasado por aca por muchas generaciones...me agrada poder salir de casa y encontrarme con mis raíces. Ver lo prehispánico, de donde provengo.”

“Damn, look, I could tell you that it is a magical place full of lots of love and experiences from many families that have been here for many generations...it makes me happy to be able to leave my house and encounter my roots. To see the prehispanic, where I come from.”



Francisco Calderan
Interview by Easy Spanish
Posted on August 7, 2019

“There was a time when the senior center was the place to go for just lunch and bingo. Now, we have older adults coming here that are very active and they expect more out of the programming...they want to learn about new opportunities, they want to travel.”

Roughly 12,000 seniors live in Co-op City, making it the largest naturally occurring retirement community in NYC.



Aisha Parillon
Interview by CUNY TV
Posted on August 8, 2019

“Quand je fais de la musique à l'extérieur, on me dit «Tu habite a Sarcelles?!» Il y a toujours cette image de Sarcelles. Je dit, venez nous voir, vous allez voir le vrai Sarcelles. Le vrai Sarcelles, on vit tranquillement.”

“When I perform music abroad they tell me, ‘You live in Sarcelles?!’ There is still this image of Sarcelles. I say, come see us, you will see the real Sarcelles. In the real Sarcelles, you live peacefully.”

Sarcelles, along with other disadvantaged banlieues outside of Paris, has become an epicenter for Rap music. Most French rappers are of Caribbean or African descent, and many are of the Muslim faith.



Tiburce
Interview by Jean-Yvon Lafinestre
Posted on March 1, 2013

“Hemos tenido como cuatro campañas que hacen vecinos aquí organizados para limpiar áreas comunes...Ahorita acabamos de pasar esa situacion, casi tres semanas sin recolectar la basura.”

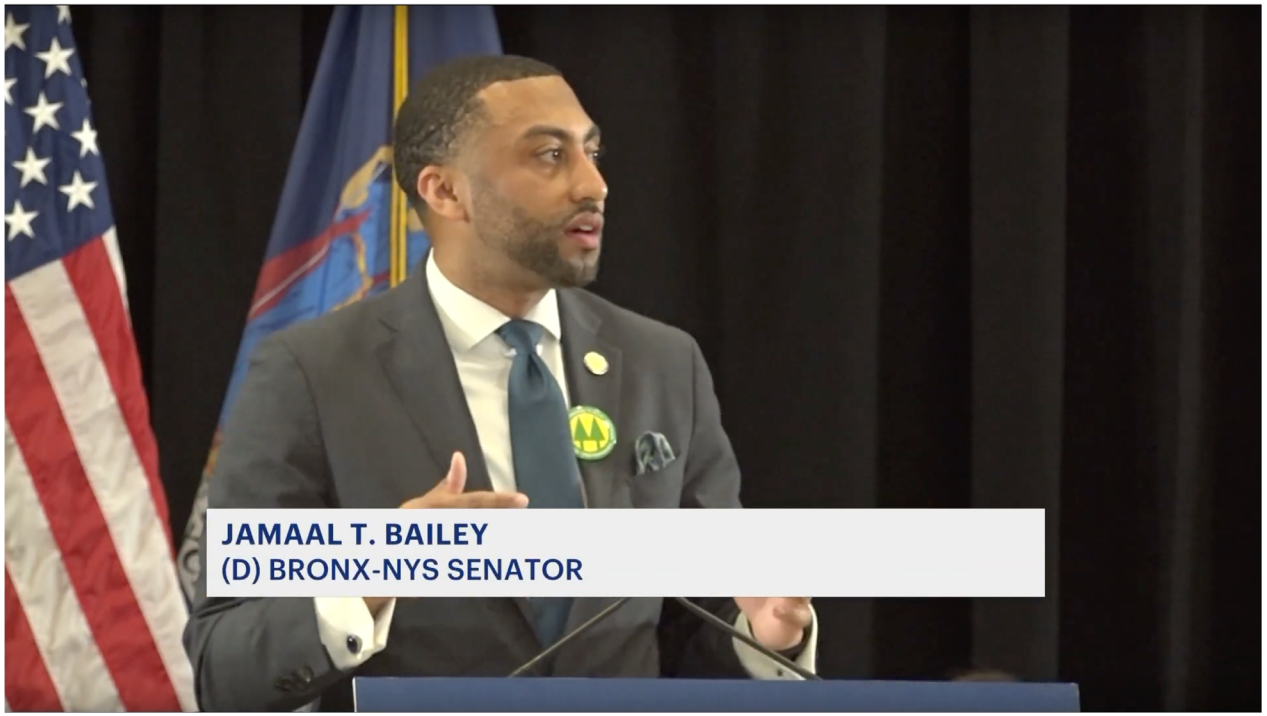
“We have had four campaigns which organize the neighbors here to clean the common areas...We just went through that situation, with almost three weeks without collecting the trash.”



Luis Arellano Mora
Interview by TV UNAM
Posted on August 16, 2016

“You are going to see the the elevator improvements, you are going to see the grounds improvements and I believe that work will speak for itself.”

In 2022, the Riverbay Corporation, with support from the New York State government, received a $622,000,000 federal loan which is set to be applied towards renovations, upgrades, and the creation of additional affordable housing.



Jamaal T. Bailey
Interview by News 12
Posted on May 4, 2022



Fig. 149
3 “Type N” buildings under construction at Tlatelolco. The two structures on the right, which were originally found along Paseo de la Reforma, were demolished after the 1985 earthquake due to damaged foundations.

Part VI: Analysis

The difficulty in assessing these three projects – and thereby in conducting this thesis – is that while Pruitt Igoe presents a seemingly clear picture of what it is like when housing projects fail, determining what constitutes success is far more difficult to determine. It cannot be ignored that these three projects are, to differing extents, guilty of many of the charges that are raised against mass housing: racial segregation, lack of maintenance that leads to deteriorating spaces, green spaces that are uncared for and unused, cramped apartments and poorly designed circulation spaces, and poor construction that prioritized expediency and affordability over long-term livability, to name a few. The reality also remains, however, that these projects provide thousands of units that are and have been continually in use for more than half a century. They generally offer higher density and more greenspace than their surrounding city, cheaper rents than the surrounding area, grocery stores and shops within walking distance, connection to public transit, and varied apartment types that service families and elderly populations – all within some of the largest and most desirable (and expensive) urban areas on the planet. While discussion of these benefits must be conducted with some skepticism,[37] the analysis presented in this thesis has shown that despite their complicated history and negative public opinion, the mass Modernist housing developments have much to offer in terms of quality of life.

37 For example, the reason for cheaper rents in these developments might not be straightforward, as some rents are a result of unique financial structures (e.g., Co-op City) while others might simply be cheap because they are regarded as undesirable or dangerous (e.g., Sarcelles). Therefore, the idea that something is better because it is affordable might be misleading and should be challenged.

A supplementary argument could be made about the positive effects that these complexes have on their residents by looking at how design impacts health and wellbeing. Several studies have focused on specific ways that a walkable and transit-oriented quality of life can affect urban residents, such as how lifestyles where most daily necessities are found within a walkable distance have been found to produce lower rates of heart disease, the number one killer in the United States.[245] Other studies have focused on the effect of open areas and greenspace, with one specifically noting how access to recreational green space can have positive effects on low-income and racially-minoritized people, suggesting that "green space might be a tool to advance health equity."[246] Therefore, it stands to reason that the architecture of any housing development has direct health benefits or detriments, and while this train of thought is rich enough to fill several more theses, it is worth noting that the idea is not far-fetched. Consequently, when quality of life is discussed in this thesis, it pertains not only to whether these spaces are enjoyable or aesthetically pleasing but also to their ability to support a healthy community. Since many of the Modernist housing developments– as is the case in the projects presented here – were designed for the most marginalized social classes and funded with public money, the designs impacted the well-being of the most vulnerable populations. Sometimes these effects were positive, supporting at-risk communities for multiple generations, while other projects did exactly the opposite, further isolating already marginalized groups.

Therefore, the question of success boils down to whether the benefits offered outweigh the drawbacks. As mentioned earlier, this thesis has tried to center the experiences of the residents when making such judgments, recognizing that the examples presented here are complicated places with several testimonials showing that they can be places that people want to leave. They are also, however, places where people have stayed to raise their families and grow into old age. Thus – even for the tenants – the developments are paradoxical as their design and history present challenges for residents while also providing resources that can be relied on. It is interesting to note that this analysis could also be applied to urban areas in general, as residents of cities trade access to ample space for the economic and social opportunities that exist in densely populated centers. Perhaps then, the tenants of mass housing projects could be seen as making a similar trade, sacrificing social standing, mobility, or even individual expression for affordable, reliable housing that is close to transit and employment. Ultimately, the question of whether the housing complexes presented here are successful places to live might depend on who is living there – where they come from, what their race/ethnicity is, and what they are willing to sacrifice in order to gain the stability of housing. The experience of public housing is very different for a young man of African descent looking for work than it will be for a retired Jewish woman in a rent-controlled apartment. As the testimonies have shown, some are willing to live in what many of their countrymen believe to be a stigmatized area alongside marginalized neighbors, while others desperately seek a way out. The designs are subsequently successful for some and a failure for others — there is no universal takeaway.

This conflicting response was present not only in the testimonies of the residents but also in the critiques of the architectural community. While Jane Jacobs famously railed against Co-op City by calling its towers "marvels of dullness and regimentation, sealed against any buoyancy or vitality of city life" and the AIA itself argued that the that "the spirits of the tenants would be dampened and deadened by the paucity of their environment," Denise Scott Brown and Robert Venturi famously wrote in defense of the project, claiming that "there exists a type of utilitarian beauty in the efficiency of their economics.[247]



Fig. 150
Co-op City's financial structure, where all "cooperators" literally and figuratively buy into a shared ownership structure, has also had social consequences, such as the common presence of community events. Seen here is one of those events, which was staffed and organized by the residents themselves.



Fig. 151
Much of Seattle resembles this photo, with low-to-medium density single-family homes, which has helped to create the current crisis.

In their 1970 article "Co-op City: Learning to Like it,", Venturi and Scott Brown argued that Co-op City did not supply a housing that was pleasing to the eye but that was instead necessary for the community, serving as the kind of housing that people actually wanted and – more importantly – could afford to live in.[248] They maintained that the negative effects which critics assigned to the design of the complex were overblown at best, stating that "there exists no body of evidence linking social pathology with bleak or beautiful architecture and some evidence that people carry their social patterns, as well as their social ills, with them from housing type to housing type."[249] To Venturi and Scott Brown, the sheer presence of affordable housing outweighed any complaints about the Modernist aesthetic, and the social cohesion found in Co-op City was proof that a community could arise and persist wherever people were given space to call their own. Even the residents of Pruitt Igoe famously tried to purchase and thereby save a couple of buildings for themselves after the complex was condemned to be torn down.[250] To some, even the stereotypical example of this typology's failure was, for several of the residents, worth saving as it meant an affordable place to live.

To further underscore this point, perhaps the most important takeaway is that the existence of affordable housing can outweigh almost all other factors, as – to play off of William H Whyte's observation that "people tend to sit where there are most places to sit" –people will seemingly form communities wherever there are suitable places to live.[251] Today's housing crisis is in part about quantity and, just as in the postwar period, the architectural community is faced with a vast need for units meaning that at some point the numbers might be more important than anything else. In Seattle alone (where this thesis was written), projections state that the area will require around 800,000 new apartments by the end of the century, with 244,000 required by 2040. [252] Current construction trends have not kept pace with this demand, unfortunately, and this has resulted

in rents increasing 45% from 2010 to 2021 and 1 in 3 “households in King County spending more than 30% of their income on housing.”[253] In short, the international housing crisis has a very real and very local impact that is expected to intensify, and so the sheer presence of housing, however controversial its aesthetics and/or politics, will be a central concern to urban centers. While the scope of this thesis is mainly historical in nature and does not seek to suggest any specific designs or contemporary applications of the Modernist style, it does seem that certain aspects of this style, such as the focus on economic ways of building high density developments in urban centers, will soon become necessary to a certain extent.

If the Modernist mass housing projects present an example of how to build at a large scale and it is highly likely that the need for high-density housing will increase in the near future, would it be possible to employ this style in today’s cities? Clearly, no one is clamoring to propose a one-for-one revival of the stigmatized typology, but as there are aspects of the style that are still desirable today – such as affordability, walkability, and access to greenspaces – there must be some way of applying the lessons learned over the past century of building. In fact, the two great exceptions to the idea that this style should be avoided are China and India, where complexes of this scale have been built with great speed. The issues with implementing this typology in the west, however, can be placed into three general categories: legislative, financial, and location.[38] Firstly, the projects discussed in this thesis were all possible because of extensive legal frameworks. As in the case of Mexico, the procedural foundation for building such structures was written into the constitution of the

38 A fourth possible category is the issue of sustainability and materiality, as the concrete and prefabricated elements of the typology have been the source of many issues, such as lack of thermal and sound insulation. Furthermore, the increasing climate crisis is enough of a reason to discourage the use of carbon-intensive materials, such as concrete, meaning that these sorts of structures would have to be completely redesigned if they were to be newly employed with contemporary concerns in mind.



Fig. 152
The two big exceptions to the idea that concrete frame Modernist mass housing is no longer built has been China and India. This housing development in India is currently under construction but resemebles the towers of Sarcelles or Tlatelolco in style and structure.

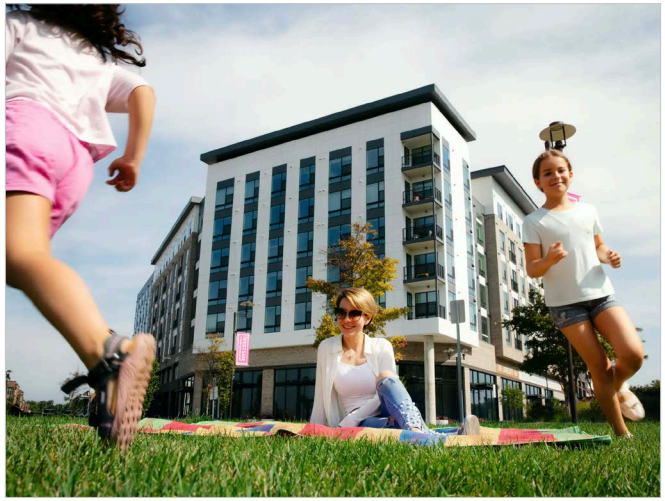


Fig. 153
The Laureate Apartments in Montgomery County, Md. is one of several that offers a high percentage of affordable units for families in need.

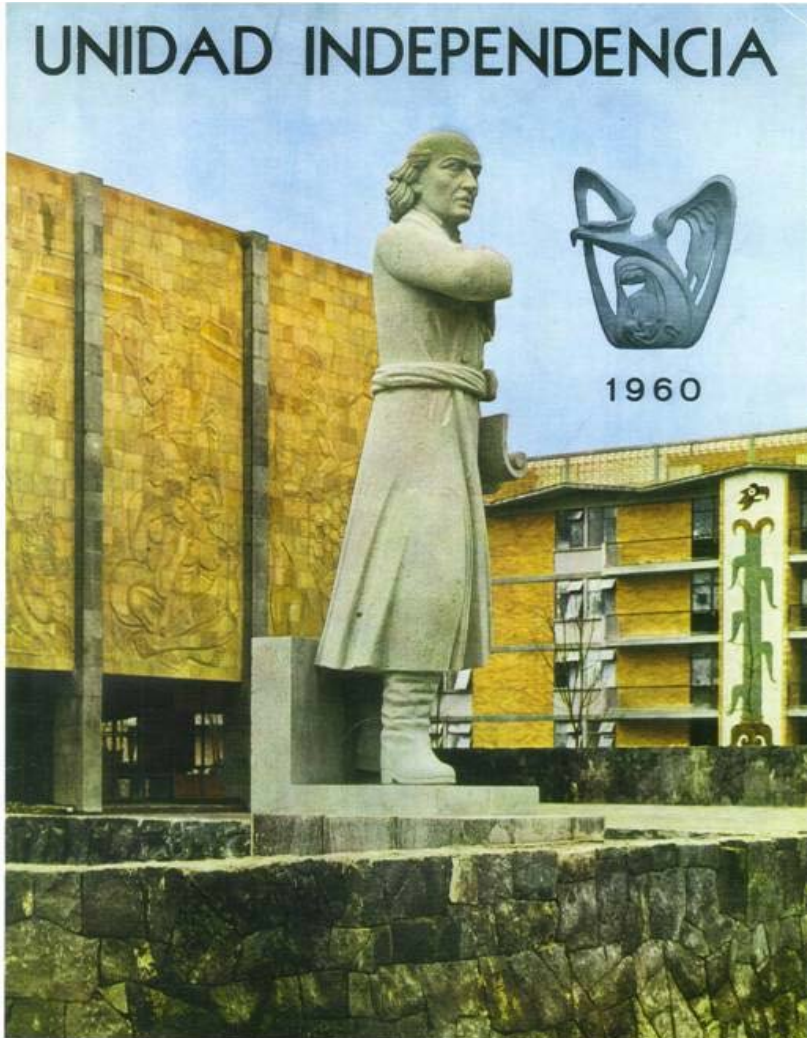


Fig. 154
This promotional image of the Unidad Independencia Housing complex in Mexico City shows the prominant statue of Miguel Hidalgo, a revolutionary hero. These publicly funded projects were always visually and symbolically connected to the images of the republic as a way of linking public housing to the very identity of the country.

country, while France and the United States both passed legislation in response to great suffering, in the wake of WWII and the Great Depression, respectively.[39] The reality is, however, that many of the legislative structures that allowed for this typology to be propagated around the world have largely been repealed and/or replaced by market-focused schemes, making it unlikely that they can be utilized to encourage future building. Without laws in place to help facilitate the construction of gigantic developments, it is likely that attempting anything even resembling the scale of the Modernist developments might never be approved and certainly never be completed in a timely-enough manner. Again, if a central part of the appeal of this typology is that it begins to address the ongoing housing crisis, then it must do so quickly, and without the legislative framework in place to grease the wheels of planning and permitting, it could be difficult if not impossible to construct at a large-enough scale. In fact, this is one of the central issues that current housing experts are concerned with, as there is no way to pass legislation, fund projects, take years to construct them, and still somehow address the overwhelming need that exists today. As such, planners around the country are looking into private-public options such as creating tax incentives for market-rate developers to offer a higher percentage of affordable apartments in market-rate buildings. The problem is, however, that these apartments are too few in number to address the real and present housing crisis in any significant way.[254]

Secondly, the financial structures that paid for the construction and maintenance of the complexes– and which were always comprised of some combination of government and private money – are (mostly) no longer available

39 One should not, however, count out the role that great suffering could play in the future of housing since, as was discussed in the introductory section, there is projected to be massive climate-driven migrations to urban centers. If the current housing crisis grows to such a point that cities have no place for migrants, planners may have no choice but to approve and fund the construction of high-density housing. The concern with this scenario, however, is that desperate need most often leads to cutting corners and, consequently, sub-par quality and design — the very things that the original Modernist projects were criticized for.

due to legislative changes. While federal and local groups still exist to rent and manage the complexes, such as the Mitchell-Lama program in New York City or the ICADE in France, construction on new projects has stopped in most of the western world due to lack of federal funding. This is not to say, however, that there does not exist any funding for new projects, as in the US there is still financing available through Low Income Housing Tax Credits and tax abatements given at the state level, but rather that the centralized federal programs which consolidated funding and streamlined the application for and acquisition of loans have been repealed.[255] Moreover, the current global economic situation is vastly different than it was at the end of the second World War, as the great need for reconstruction also created great industrial demand for product, inflating the coffers of countries that were prepared to invest in manufacturing. The Mexican Miracle, les Trentes Gloreuses, and the post-war industrial boom have all ended, resulting in a lack of economic largess that has made it more difficult to secure the type of funding required for massive architectural projects. This is not to mention that the manufacturing boom of the post-war era also created a national and international supply chain that kept the price of materials and pre-fabricated elements low, a supply chain that has now been replaced and – as is the case in the US and parts of Europe –largely outsourced to countries with cheaper labor.[256]

Lastly, the acquisition of land that is large enough to function as a mass housing site but also close enough to cities is maybe the hardest issue to overcome. While the projects presented in this thesis had a variety of ways of getting around this problem, ranging from seizing land by force to finding empty plots just far enough away to be affordable, the issue of available land has only become more difficult as cities have continued to grow. As population growth has fueled ongoing development, land has become increasingly scarce and,



Fig. 155
The Mexican government, under the then-radical leadership of President Fox, started a program in 2000 that aimed to house all Mexicans. This program paid private developers over $100 billion of public funds to build sprawling housing complexes, but it was mired by corruption and poor planning. One of those complexes, seen here, still lacks running water or sewage lines.



Fig. 156
The tower at 160 Water Street in Manhattan is undergoing a conversion to residential apartments, another strategy to provide enough housing.

consequently, prices have also increased. Thus, there seem to be two main ways to procure larger plots of land: reuse industrial areas close to city centers or take advantage of areas that are further away but connected to transit. To the first point, the "Twentieth-century urbanization and deindustrialization" in the US and abroad has led to economic changes that have changed urban centers, leaving "behind scores of empty buildings in cities that had once been used for manufacturing and heavy industry."[257] Conversely, these now-defunct manufacturing center have presented opportunities in that many of these sites are in or close to city centers and could potentially be retrofitted to serve new purposes, such as housing. These sites are not simple solutions, as many require environmental clean-up efforts, but at the very least they provide a possible way forward to sizable plots of land that are close to employment and services.

The second possibility for large sites is to look further out from urban centers to areas that are connected by public transit, especially light rails or subways. As suburban growth has pushed cities outward, transit has had to be stretched further and further. This has, perhaps, decentralized cities and deemphasized the main downtown area, but it has also managed (in the best cases) to connect distant plots and towns to business and employment centers. Sarcelles, in terms of connectivity to Paris, is a successful example of this while Co-op city is very much the opposite. Thus, if housing is to be placed further from city centers, then transit becomes one of – if not the – most important part of a complex's success. This concept of distant-but-connected housing cores is one of the many suggestions for addressing the housing crisis, as Rick Mohler and Al Levine have proposed for Seattle. Since King County, where Seattle is located, has recently committed to a $60 billion transit expansion, Mohler and Levine have suggested that placing low- and affordable-income housing at light-rail stations is the best way to both provide much needed apartments and capitalize upon the tax investment.[258] They warn that the arrival of transit stations will make surrounding areas more attractive, consequently drive up the price of land and pricing out those who need housing the most. Instead, local zoning must be changed in anticipation of transit, so that the available land can be directed towards the needs that serve the city best, namely housing.[259]

This is to say that despite the many complications that face high-density housing, creative approaches also exist to overcome them, specifically in the context of the United States. Just as transit Co-op City's labor-union based funding could potentially serve an example of how to get around the lack of federal funding, with the cooperation of many small entities stepping in for a large government entity.[260] It is also worth examining the alternative to this model: namely, instead of a high-density scheme that utilizes public funding, what are the consequences of the standard market-driven low-rise model which has produced suburban developments around the world? As seen both in Mexico and the United States, a movement away from high rises has led to sprawling communities of low-rise private housing, complete with thousands of miles of roads and infrastructure that must be developed and maintained to sustain the suburban model. This model, which presumed that "by replacing high rise units with low rise townhouses, the social pathology of desperate poverty will be wiped away" has had stark ecological and social effects, isolating and segregating communities on a city-wide scale.[261] Mexico's current housing market "in which 65.4% is held by state-backed mortgages" is driven solely by profit, resulting in the infamous poorly-designed and -built developments that are sold to the lowest social classes while lacking not only green spaces but, many times, actual running water and electricity.[262] France is likewise still struggling with providing enough housing stock, and while the banlieues are receiving some funding for replacement, it is hardly happening at the scale that the city needs. The

first section of Sarcelles has, since 2012, been part of a redevelopment phase that is replacing the earliest buildings of the complex with new 5-over-1 style apartment buildings. These structures boast energy and thermal efficiency but are notably more expensive to rent than the neighboring buildings.[263] In this way, the replacement of the low-income housing often leads to gentrification and social segregation, producing a situation where the movement away from public housing also marks a movement away from a federal commitment to care for its most vulnerable citizens.[264]

We thereby arrive at the end of this thesis faced with a situation where the need for housing will increase, the ability to provide it has been limited, the spaces that could accommodate it are few and/or distant, and the methods for funding it are scarce and complicated to access. All the same, opportunities to address the need remain, and the high-density Modernist style of housing should once again be viewed as one of many tools at our disposal – certainly not the answer, but also not the malignant boogieman that it has often been made out to be. As such, what of this typology can potentially be applied today? Beyond what has already been mentioned, the analysis of this thesis has produced three additional characteristics of a successful design that are worth highlighting: the best projects, both past and future, must a) design for the resident's quality of life, b) design with public transit in mind, and c) expect to continue maintaining the developments for a long time. First and foremost, designing for a high quality of living for the residents must be done from the onset, as an affordable housing development cannot be simply about getting as many people in as cheaply and quickly as possible. To wit, the everyday, ground floor experience of the tenants must be considered if it is to be a successful and pleasurable place to live. This is as much about the variety and density of amenities as it is about the layout of the buildings and access to greenspaces. This human scale consideration



Fig. 157
The Capitol Hill Transit Apartments, which opened in 2020 and has 428 units, including 178 affordable units, combines a light-rail transit station with much-needed housing.

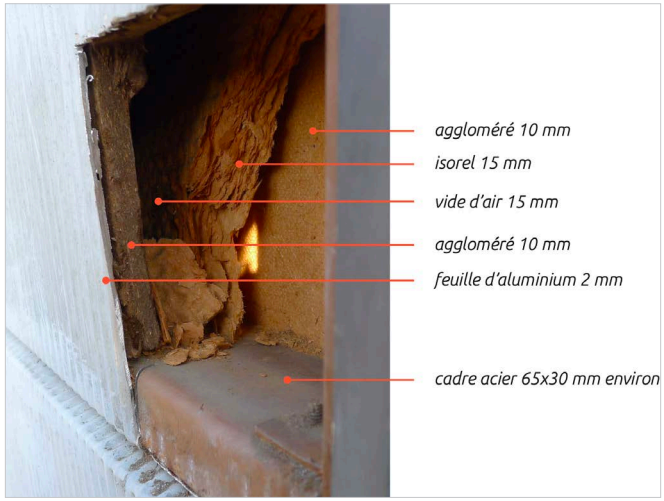


Fig. 158
Detail of siding that was replaced on a building in Sarcelles. The siding was a major issues and future designs should be built to be reparable.

cannot be overstated, as it is key to the formation of lasting communities.

Secondly, a design that is well connected to transit is far more likely to do well, as this connection will afford the development's residents easy connections to work, amenities, surrounding communities, and whatever the development may be lacking. Isolation – economic, racial, or geographic – is one of the greatest dangers facing large housing complexes, as it forces residents to rely solely on what is immediately available and, conversely, go without what is absent. This means that if the complex is lacking in any way, (e.g. grocery stores, banking or financial institutions, greenspaces, schools, etc.) then the development's community will also be lacking and, ultimately, suffer for it. While the Modernist compositions sought to provide everything a person would need, the best designs were never truly isolated from the larger urban fabric. A city within a city should never be an island unto itself, lest it wither away in separation from the resources of the urban fabric.

Lastly, it is crucial that designs for high-density housing, public or private, be conceived as something that will have a long life and, therefore, need to be funded and maintained in perpetuity. Many, if not most, of the issues that arise are linked to failures of maintenance and financial support, and so funding structures must, as much as possible, be sustainable. In an era of "record-high construction costs," where most projects are barely able to buy land and build "with enough cost efficiencies in its construction that it could both remain affordable and pay off its mortgage," this is one of the hardest challenges to overcome.[265] It is possible, however, by linking a complex's funding to public resources, such as the EPA's recent Green Bank – which helps funnel money into low-income communities through projects that provide sustainable strategies – or by employing the previously mentioned tax-abatements for low-income housing that are available in many major cities.[266] Using public funding sources, especially when done so in cooperation with private companies, will keep the cost burden off of the residents by giving management companies the room to keep rents/maintenance fees affordable for longer.[267]

This last remark touches on the central concepts of the typology in that these are both spaces of longevity – with occupational lifespans that are generally longer than other typologies – and service. Housing, especially public housing, bolsters society by providing a basic human need and, therefore, is an architecture of service in that, if it does not provide for the needs of its residents, it is a failure regardless of its style or economics. This is precisely why this thesis has sought to center the opinions and lives of the complex's residents instead of the aesthetic responses of the political and architectural communities – although both have certainly played their part in forming the identity of the complexes. Despite their complicated histories, Modernist mass housing complexes were conceived as places that could supply all that communities need to gather, grow, flourish, and remain for generations. The examples discussed have exhibited both successful and problematic aspects of this mission, impacting the well-being of the communities that inhabit them for better or worse. Though the histories of the projects are long and complicated, they offer a window into how prior designers addressed a great need, albeit imperfectly. Thus, the ongoing mission of addressing an increasing shortage of housing must be informed by past attempts to do the same, learning from the long life of its communities and, hopefully, continuing to design spaces that honor and support its residents.



Fig. 159
A indigenous celebration taking place in the main square of Tlatelolco, which is next to the Aztec ruins and the site of the 1968 student massacre

Part VII: Appendices

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III. Interview Sources

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p.114	Interview by Street Press	https://www.streetpress.com/sujet/1584098505-mara-kante-parole-quartiers-mairie-sarcelles
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p.125	Interview by News 12	https://www.youtube.com/watch?v=GUNsy1p7hyw

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