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**Comparative Case Study: Examine Milan's 'So-
cial Housing' Under The Framework Of Pub-
lic-Private Partnerships In Recent Years**

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Abstract./

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This thesis provides a comprehensive exploration of 'social housing' in Milan, tracing its historical trajectory, examining its current state, and evaluating its future prospects. The thesis navigates through the complexities of 'social housing' in Milan, shedding light on issues related to its definition, inventory, and affordability.

The thesis examines the problem of ambiguity and enlargement in the definition of social housing within Milan's urban context through a comparative analysis on the cases of 'social housing' practices and approved practices in the framework of public-private partnerships (PPP) over the last decade. By incorporating housing case studies from abroad, this thesis extends the discourse beyond Milan, fostering a holistic understanding of 'social housing' and 'affordable housing'.

The crux of this thesis lies in its meticulous evaluation of various housing development models in Milan within the PPP context. By exposing their strengths and weaknesses, it offers valuable insights that could guide the future development of affordable and social housing policies in Milan.

Key Words: Affordable Housing; Social Housing; Housing Policy; Public-Private Partnership; Housing Practice

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Glossary

Azienda Lombarda per l'Edilizia Residenziale (ALER)

The Lombardy Residential Building Company is a public body of a commercial nature that owns and manages a public building stock of 70,057 real estate units. The company was formerly known as the IACP, which was founded in 1908.

BREEAM Building Research Establishment Environmental Assessment Method. BREEAM is an assessment undertaken by independent licensed assessors using scientifically-based sustainability metrics and indices which cover a range of environmental issues. Its categories evaluate energy and water use, health and wellbeing, pollution, transport, materials, waste, ecology and management processes. Buildings are rated and certified on a scale of 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding'.

Edilizia Residenziale Pubblica (ERP)

Residential Public Building is understood to mean the direct or indirect construction of housing by the State, at a lower cost, to be allocated to low-income or disadvantaged citizens in particularly favourable economic conditions. It can be succinctly called 'public housing'.

Edilizia Residenziale Sociale (ERS) Social residential buildings are those interventions to meet housing needs, of an indefinite and/or temporary nature, of general interest to increase the availability of housing services at below-market prices

and/or rents, resulting from a specific regulatory act of a procedural or specific nature.

***Edilizia Residenziale Agevolata** Assistance residential building refers to residential building that are available for rent or sale and are built with the assistance of private individuals or institutions in the form of low-interest loans or non-repayable grants.

***Edilizia Residenziale Convenzionata** Conventional residential building represents a new housing service provision dedicated to the dual function of providing housing and sustainable rental costs, with a special focus on young people and new families who are unable to find suitable housing solutions free of charge. They are built by private operators and allocated according to the criteria and rules shared with the City of Milan. The allocation and management of these flats is entrusted to each private operator, but is regulated according to an agreement signed with the government.

***Edilizia Residenziale Sovvenzionata** Subsidised residential building refers to rent-controlled housing built and maintained under the sole responsibility of the local authority and provided to the most needy low-income people. It can be understood as 'public housing'.

* The three aforementioned categories of housing services (Edilizia residenziale agevolata, Edilizia residenziale convenzionata, Edilizia Residenziale Sovvenzionata) are considered as sub-propositions falling under the overarching proposition of **'social housing'**. The imprecise delineation of social housing in contemporary times and the possibility of its convergence with other housing services necessitates

the exercise of discretion in identifying the specific category of housing service being referred to when using the term '**social housing**'. This determination is contingent upon the contextual factors and temporal attributes of the situation at hand.

HUD United States Department of Housing and Urban Development. The purpose of the U.S. Department of Housing and Urban Development (HUD) is to provide housing and community development assistance and to make sure everyone has access to “fair and equal” housing. To achieve these goals, HUD runs or participates in many programs intended to support homeownership, increase safe and affordable rental housing, reduce homelessness, and fight housing discrimination.

Istituto Autonomo Case Popolari (IACP) The Autonomous Institute of Public Housing refers to an Italian institution created in 1908 to promote and manage public housing. In the Lombardy region, in 1996 the IACP was transformed into the ALER (Azienda Lombarda per l'Edilizia Residenziale), a public institution with a commercial character.

LEED Leadership in Energy and Environmental Design is the most widely used green building rating system in the world. Available for virtually all building types, LEED provides a framework for healthy, efficient, and cost-saving green buildings.

PGT2030 Milano PGT2030 Milano is a territorial government plan to be adopted by resolution of the Milan City Council in 2019. The content of the plan can be broadly summarised as a vision for the development of the City of Milan in 2030 and specific improvement measures. Strategies relevant to this thesis are the planning on strengthening the social rented sector, the emphasis on sustainable de-

sign, the discussion on community building and gathering, etc.

Public-Private Partnership (PPP) The public-private partnerships (PPP) is a form of cooperation between public and private partners, with the aim of financing, building and managing infrastructures or providing services of public interest.

Umanitaria The Umanitaria is one of the most important institutions in Milan and its origins date back to 29 June 1893. This non-profit organisation has made a significant contribution to education, poverty alleviation and the solution of the housing problem of unemployment.

1. / Introduction

After World War II, Milan experienced a significant industrialization and urbanisation process. It eventually became Italy's most important economic centre, a metropolis. The urban fabric of Milan has expanded in this process of industrialisation and urbanisation. During this era, Milan experienced a severe housing shortage, as there were not enough homes available at affordable prices to accommodate the city's expanding workforce (Petsimeris, 2018). In response to the housing challenge, several large public housing projects have been launched in Milan to meet the growing demand for affordable housing. But for decades to come, these massive public housing developments place a huge burden on Milan's local finances. In order to lessen

the burden on the city's financial affairs and encourage investment in the housing stock, the government began selling off large amounts of public housing to private investors in the 1990s and continued this practise well into the 2000s (Caruso et al, 2012). In the wake of the global financial crisis that started in the 21st century, people still have problems of lack of housing, despite the efforts of some policy initiatives. Because of the changes in population structures, housing requirements have become more complicated in recent years. It has contributed to an increase in the severity of the housing crisis (Caruso et al, 2012). In the housing market, many young people, single parents, new immigrants, and the elderly who wish to purchase their own homes constitute a demographic 'grey zone.' They have incomes and assets in excess of the poverty line, but cannot afford decent, habitable housing. The housing crisis in the 'grey zone' is not confined to Milan alone. Almost every metropolis in the world faces this challenge of af-

fordability. The existing housing policy tries to bring in more private investors, non-profit organisations to increase the housing stock and make it more attractive. It is too early to draw conclusions about the effectiveness of this range of housing policies, but some of the potential drawbacks are already evident.

One of the most important things that can be done to address Milan's problem of housing affordability is to increase the supply of rental housing, particularly affordable rental housing. When compared to homeownership, it offers incomparable advantages in terms of flexibility, cost-effectiveness, ease of maintenance, as well as community diversity and inclusiveness. When compared to countries like Germany, Switzerland, and the Netherlands, which have a high level of regulation, policy support, and investment in rental housing, Italy's development has been relatively slow in comparison to other countries due to long-standing cultural attitudes towards home own-

ership, policies, and regulations. On the other hand, the official plan for the PGT2030 (Piano di Governo del Territorio) master urban planning vision was published by the Municipality of Milan at the end of 2019 (Comune di Milano, 2020). The Municipality of Milan wants to continue strengthening the affordable rental sector by providing incentives and public support for private operations, as stated in the overview of the housing policy 'Rendere equa Milano. Più case in affitto sociale (Comune di Milano, 2019).' The social value of affordable rental housing is more important to the investment strategy for private companies and public-private partnerships (PPP) than the economic value of the housing itself. The creation of thriving communities, environmentally friendly buildings, and healthy lifestyles are the driving forces behind this social value's mission to make a real social impact. But ahead of these rosy visions is the harsher reality of the housing crisis. Both the public sector and private investors have their own

inescapable weaknesses, and how they can complement each other's strengths and weaknesses in cooperation will be key to the future development of 'social housing' in the context of public-private partnerships in Milan.

The objective of this research is to examine the definition of 'social housing' in Milan over the past ten years, to detect any potential shortcomings, and to indicate a perspective for the future of 'social housing' in Milan by means of a comparative case study and a theoretical framework. The thesis will present a research study into the impact of 'social housing' within the framework of public-private partnerships in Milan on the present and future trajectory of the housing sector. The findings of this study may enhance understanding of the term 'social housing' within the context of public-private partnerships in Milan. This research aims to offer fresh perspectives and international insights to contribute to the future development of "social housing" in Milan.

The second chapter of the thesis will start with an analysis of the developmental process of European housing policies and welfare regimes. The authors aim to analyse the evolution of 'social housing' in Milan from the late 19th century onwards through the examination of particular cases. Using the literature and sources that are currently available, the author will then analyse the housing crisis that Milan experienced from 2008 to the present as well as the housing policies that are being put into place. The third chapter of the thesis will outline a methodology for conducting a comparative analysis of the cases. In the fourth chapter, the author will outline the reasoning behind case selection and the analysis criteria in order to analyse and compare the cases in greater depth. Chapters 5 and 6 will feature an analysis of the chosen cases, both individually and comparatively. Finally, some conclusions and suggestions that merit discussion will be presented in chapter 7.

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2./ Theoretical Framework

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2.1/ An Overview of European Housing Policy and Welfare Regime

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Housing policy broadly refers to the measures taken or planned by governments to achieve their housing goals, including legislation and specific practises. The European housing policy has a lengthy history of evolution. In the past, the guarantee of minimum housing standards, the regulation of private rental rents, and the provision of social housing have dominated European housing policy (European Parliament, 1996). In its 2010 report titled '**Access to Decent and Affordable Housing for All**' the European Parliament called for adequate, energy-efficient, and healthy housing for all Europeans, as well as substantial investments in social, public, affordable, and energy-efficient housing (European Parliament, 2010).

Comparing the European Parliament's housing policy reports from 1996 and 2021 reveals that the provision of affordable housing for all remains the guiding principle. Concurrently, the new housing policy will place a greater emphasis on environmental sustainability in the context of the fight against global warming. In addition, the objective of increasing social diversity and multi-ethnic integration continues to influence the future course of housing policy.

A review of housing policy studies and discussions reveals that the European Parliament stated in a working paper for its session in December 1996 that accessibility, affordability, and quality were at the centre of European housing policy (European Parliament, 1996). Several housing experts from across Europe examine the direction of European housing policy. In terms of research methodology, experts such

as Paul Blachin classify the housing policies of these European nations into four categories (Blachin, 2013) :

1. countries with a higher proportion of privately rented housing than the EU average.

2. countries in which the social rented sector is larger than the EU average and continues to grow.

3. nations where the rate of homeownership is significantly higher than the EU average.

4. nations where housing policy is no longer a tool of state planning and is gradually becoming market-oriented.

The housing policy is affected by the political ideology of the ruling government. In addition, Blachin argues that despite differences in the objectives and actions of government

housing policies, nationally appropriate solutions to housing market imbalances should be proposed, taking demographic changes and macroeconomic trends into account. In addition, the opening chapter of Michael Oxley's *Housing Policy and Rental Housing in Europe* suggests that the broad proposition of analysing European housing policy calls into question the value of international comparisons (Oxley and Smith, 2012). Researchers are said to be susceptible to 'Anglo-Saxon bias' because of the specific example of British rental housing policy. The researchers were confronted with the narrow assumption, as opposed to a broad one, that large differences in policy instruments across nations have significant effects on housing allocation, production, and consumption. Through their comprehensive comparative study of European housing policy in the mid- to late-1990s, researchers such as Blachin and Oxley provide a solid theoretical

foundation for explaining the current policy-making process. Different eras present new and distinct problems. A review of these two theoretical works, written in the mid to late 1990s, in the context of contemporary events reveals that some of the issues raised by the authors are confirmed, but new issues are emerging that were not anticipated at the time. According to Oxley, another source of doubt is the position and bias of the researchers. The article devotes a great deal of effort and ink to the analysis of Western Europe (including France, the Netherlands, and Britain, etc.), while the Mediterranean region and Eastern Europe receive relatively less attention. The article argues that this is a debate about a new set of research methods, suggesting that housing policy research is subject to temporal and regional differences. In addition, it provides the theoretical foundation for the proposed housing policy and welfare regime framework.

This finding corroborates the findings of the European Parliament's discussion on regional differentiation: access to high-quality housing varies by region, as does the support for housing policy.

In European housing policy and welfare research, the debate over the relationship between housing and the welfare system has been an important topic. Housing is described by Torgersen as the unstable pillar of the welfare state (Torgersen, 1987). In contrast, Malpass describes housing as the foundation of the modern welfare state (Malpass, 2008). Kemeny and Harloe agree that housing occupies a unique position within the welfare state, but Kemeny draws different conclusions from their observations. He believed that the public housing sector should be regarded as an integral component of the welfare state. Housing policy can influence the formulation of a

variety of other policies, such as environmental policy, labour policy, and social integration policy, among others. According to Hoekstra's research, the fundamental reason for the difference between Harloe and Kemeny is that they have different methods. Harloe and Kemeny have different definitions and scopes of the welfare state, which is the fundamental reason for their disparity in Hoekstra's research (Hoekstra, 2013). In 'The Three Worlds of Welfare Capitalism', Espin-Anderson proposes a typological framework for differentiating welfare state regimes, filling a gap in prior research. In his 1990 study, Espin-Anderson categorises welfare state regimes into three distinct types (Espin-Anderson, 2013) :

Liberal Welfare Regimes They place a premium on individualism and the importance of the market. They feature minimal government intervention and social spending. Representative nations include the United Kingdom,

the United States, etc.

Corporatist Welfare Regimes

They value traditional family structures and rigid social hierarchies tremendously. Strong social security is regarded as an essential state welfare guarantee. Examples of representative nations include Germany and Japan.

Social-democratic Welfare

Regimes They feature robust state benefits, universal social programmes, and the highest social spending levels. They place a premium on the principle of equality in benefit distribution. Scandinavian countries are representative nations.

In 1999, Espin-Anderson revisited his own typological framework and added the **Mediterranean Welfare Regimes**, represented by Italy. In his 2013 conference paper 'Housing and the welfare state: changing perspectives and a research agenda', George

	Liberal welfare state regime	Social-democratic welfare state regime	Conservative-corporatist welfare state regime	Mediterranean welfare state regime
Decommodification: extent to which a regime promotes an acceptable standard of living independent of one's market value	Low	High	Medium	Low
Stratification: does the welfare state increase or decrease differences between groups of civilians?	Welfare state increases differences	Welfare state decreases differences	Welfare state reproduces existing differences	Welfare state reproduces existing differences
Income distribution and poverty	Large income differences, relatively high incidence of poverty	Small income differences, relatively low incidence of poverty	Medium income differences, medium incidence of poverty	Large income differences, relatively high incidence of poverty
Unemployment	Relatively low	Relatively low	Relatively high	Relatively high
Arrangement between state, market, and family	Dominant position of market parties	Dominant position of the state	Important position for the family, considerable influence of private non-profit organizations	Dominant position for the family
Countries (EU countries only)	United Kingdom, Ireland	Denmark, Sweden, Finland	Belgium, Germany, France, Austria, Netherlands ³	Italy ⁴ , Spain, Portugal, Greece, Malta

Table 2.1.1, The welfare state typology of Esping-Andersen, with the addition of a Mediterranean welfare state regime

Source: Hoekstra, 2010; Vrooman, 2009

Hoekstra examined the similarities and differences of different schools of thought in the research history of housing policy and welfare regimes (Hoekstra, 2013). At the same time he summarises four typologies that include the Mediterranean welfare regimes. From the table 2.1.1 it is clear how housing policy interacts with broad social welfare policies. The framework of Espin-Anderson and Kemney is just a good start for welfare state housing policy research, but not all. There is not enough evidence to show a very strong positive or negative correlation between the two. A conceivable reason is that housing policy is complex, subject to

major changes from society, the state, and the family. At the end of the conference paper, Hoekstra also proposed the direction of future research questions, both positive and negative. This paper also hopes to use this framework as an opportunity to discover the factors that affect housing policies and the impact of housing policies on families and society in comparative case studies.

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2.2/ Looking Back: the history of social housing in Milan

In order to study and analyse the historical development of rental housing in Italy more effectively, this study seeks to define the scope of rental housing and social housing in Italy. According to the traditional definition, the concept of social housing originated as housing for the working class in the late 19th and early 20th centuries. Milan experienced rapid urbanisation and industrialization beginning in the late 19th century, resulting in a growing demand for affordable housing options for the working class. Milan received a large influx of new residents as a result of the expansion of the printing industry, textile industry, and nearby agricultural production. Entrepreneurs, cooperatives, non-profits, and government organisations provided the primary impetus for improving housing and providing social services for workers. In Italy, the concept of the 'residential public building' (ERP) was conceived

after World War II. Today, the definition of 'social housing' is gradually being 'blurred' in order to accommodate various housing requirements. In 2008, Italy provided its first official definition of social housing. Social housing consists primarily of permanently rented dwellings; social housing is also defined as housing constructed or rehabilitated with public and private contributions or public funds, rented for at least eight years, and sold at an affordable price in order to promote social inclusion (Caruso, 2017). Social rental housing accounts for approximately 4 percent of the nation's housing stock when social housing and rental housing are considered together (Osservatorio nazionale sulle politiche abitative e di rigenerazione urbana, 2022). There are three primary categories of social rental housing: subsidised housing, assisted housing, and contracted housing. Social housing is a subset of rental housing in terms of service scope and has stricter eligibility requirements. This distinction will be dissected in the following chap-

ter. In this chapter, it is hoped that the evolution of rental and social housing in Milan from the end of the 19th century to the present will be examined as examples of what can be discovered from the history of Milan's 'social housing'.

'Casa di Ringhiera'

In the late 19th century, industrialists and cooperations were the first to address the issue of the housing needs of the lower and middle classes. Rapid industrial expansion in Milan generated a strong demand for unskilled workers. Industrialists needed to employ a large number of workers for rapid factory development. They were encouraged to build more new buildings through building contractors to accommodate more workers at a cheaper rate. The co-operative housing of the same period belonged to the more affluent working class. After 1890, the workers' cooperatives in Milan realised this and abandoned the construction of new single-family houses. In addition, the 'casa di ringhiera', which means balustrade housing in Italian, appeared in large numbers as an affordable apartment solution on the outskirts of Milan and around the



Figure 2.2.1, Google Map of Ca Longa in Milan

via Pier della Francescan n. 34

factories. 'Ringhiera' is the Italian word for 'balustrade' and it refers to a local Milanese architectural style. Typically, they range from two to six stories in height, and their street-facing facade is unadorned and devoid of individual balconies. As the most important community public space, a communal courtyard is situated in the centre. Typically, external stairwells are connected to open, continuous corridors running the length of a floor (Zacevini, 2021). In this corridor leading to the interior

courtyard, each unit's entrance is located. The word 'balustrade' in balustrade housing derives from the iron railings in the corridor. The design and construction of this early working-class, low-cost rental housing for basic housing needs centred on accommodating more individuals efficiently and saving money. Its superior ventilation was deemed healthy at the time due to its lack of internal access. In terms of practical outcomes, the ventilation improvements were unable to conceal the

poor overcrowding and lack of sanitation facilities. In addition, the balustrade houses embodied the community values of working-class housing at the time, specifically the spacious central courtyard that hosted nearly all of the residents' social life, in contrast to the small interior spaces. In the case of the famous balustrade house 'Ca Longa' at via Pier della Francescan n. 34, the layout and original concept of a working-class balustrade house from the late 19th century are still discernible.

The term 'Ca longa' can be translated as 'longhouse'; it refers to a three-story structure on each side that encloses a long, narrow courtyard (approximately 100 metres long and 20 metres wide). (Figure 2.2.1, Figure 2.2.2) It was fortunate to have survived the bombings of World War II. In the current context, a well-preserved balustrade house such as

Figure 2.2.2, Ca Longa Courtyard taken by author



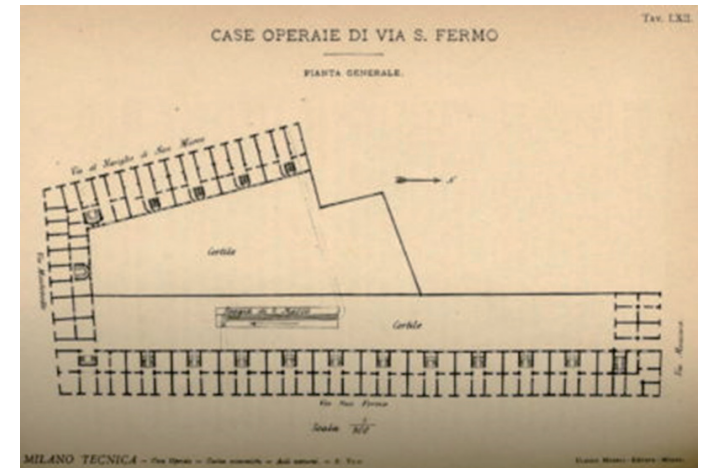
'Ca Longa' adds urban spirituality to its residential and communal characteristics. Numerous films and fashion photographs have borrowed scenes from 'Ca Longa' to imagine the lives of the people who lived there in the past. The message and spirit behind these images is the distinctive way of life of a balustrade house: individuals socialise on the porch in front of the entrance door, sharing life's experiences and pleasures. There is an exclusive 'public-private' zone between the public attributes of the street and the private attributes of the residence, according to the typology of architecture in the community. In contrast to the more 'isolated' lifestyle of most flat houses today, the railing residence offers a century-long perspective on the much-discussed concept of 'co-living': a shared, mutually supportive, community-inspiring way of life.

Planimetria del quartiere operaio di via San Fermo, from *Milano Tecnica dal 1859 al 1884*, edited by Collegio degli Ingegneri ed Architetti, Milan 1885

Figure 2.2.3 Plan of working-class community in via San Fermo

Figure 2.2.4 Street View of Via San Fermo

(Source: <https://www.milanoattraverso.it/il-primo-quartiere-operaio-di-milano/>)



'Società Umanitaria'

The construction of worker housing yielded enormous profits for private speculative contractors. The rising rents became increasingly difficult for workers to afford. Concurrently, the Italian working class formed mutual associations and various co-operatives to combat this speculation. The first workers' building society, 'Società edificatrice di case operaie, bagni e lavatoi pubblici' (Building Company for Workers' Housing, Public Toilets and Laundries), was founded by the mayor of Milan and established a working-class community in via San Fermo with 400 apartments and amenities in three buildings. (Figure 2.2.3, Figure 2.2.4) However, cooperative housing for the working class did not flourish in late nineteenth-century Italy. Predictably, there were numerous causes for this failure. The most significant was the continued gentrification of cooperative working-class housing,



which took the form of suburban villas as opposed to apartments. This modification was doomed to fall short of satisfying the needs of the vast majority of ordinary workers.

In 1903, the Italian Parliament passed the Luzzatti Act (named after

the senator who proposed it), which provided special financial assistance and loans for the construction of worker housing to co-ops, charitable organisations, and other institutions. This was Italy's first law regarding social housing. In fact, the census conducted between 1901 and 1911 reveals that Milan's population grew by more than 200,000 people during that decade (Colombo, n.d.). The 20 years between the end of the 19th century and the beginning of the 20th century were, according to census data, Milan's most prosperous in terms of population growth. The Umanitaria is a charitable organisation that focuses on addressing the social issues of the disadvantaged. The urgent proposal of workers' homes became Umanitaria's top priority after their research revealed a depressing reality. After conducting a survey of workers' homes, Umanitaria determined that the majority of workers' homes were poorly constructed. As previously stated, the majority of these dwellings lacked adequate ventilation, lighting, and sani-

tation. The most serious of these problems is the lack of sewerage and running water. This non-profit charitable organisation had the desire to build a more progressive community of workers. I° Quartiere Operaio (located in via Solari, a western suburb of Milan) was completed in less than a year. In 1910, the II° Quartiere Operaio (located in the north-east corner of Milan's Viale Lombardia) was also completed. Giovanni Broglio was the architect in charge of both projects, and as one of the few, if not the only architect at the time to focus on housing for the poor, his vision was ahead of its time. The two worker communities provide close to 500 flats with one-, two-, and three-bedroom units. Even the smallest apartments originally included a toilet, a garbage chute, a sink, as well as running water, gas, and a balcony (Selva-folta, 1980). (Figure 2.2.5, Figure 2.2.6, Figure 2.2.7)

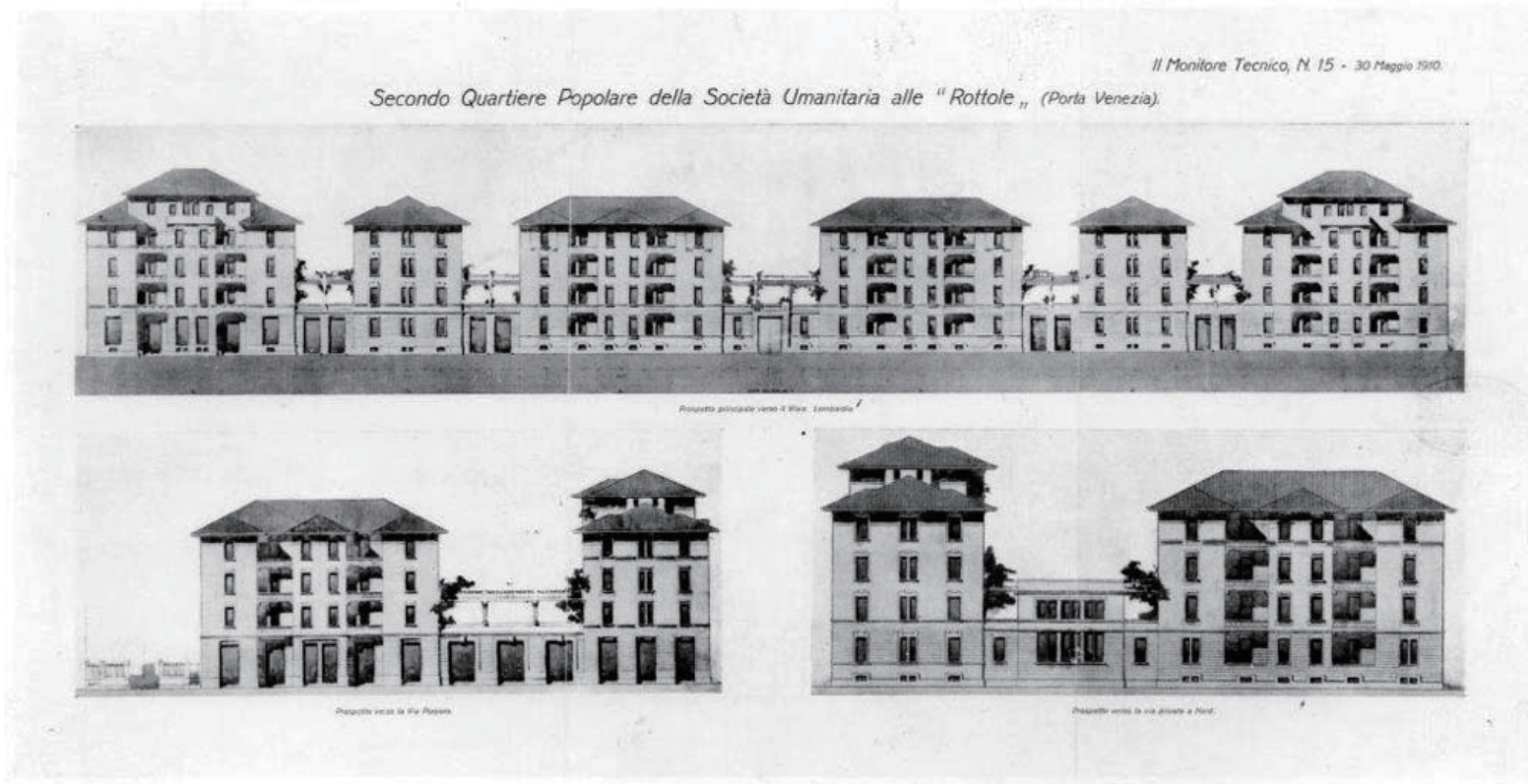
These apartments were arranged around expansive interior courtyards



General plans of the Umanitaria workers' quarters built in Lombardia Street, 1909-1910. Taken from a 1906 publication, the plan to the left illustrates the ground floor and landscaping; the plan to the right is of the second floor.

Figure 2.2.5

(Source: Ornella Selva-folta <Housing the Urban Industrial Work Force: Milan, Italy, 1860-1914>)



Elevation of II° Quartiere Operaio published in 1910

Figure 2.2.6

(Source: <https://www.umanitaria.it/storia/le-iniziative/assistenza/quartiere-lombardia>)

and featured shared amenities such as laundry rooms, communal kitchens, etc. (Arsuffi,2022). Not only in terms of passive design, but also in terms of community services, a review of the Umanitaria workers' community in the context of contemporary social development reveals its continued progress in these areas. The workers' community provides Montessori-based children's

homes and other educational resources, such as libraries and lecture halls. Overall, the workers' dormitories in Umanitaria served as a model for affordable housing in the early 20th century, and Giovanni Broglio's design served as a benchmark for the design of social housing for decades.

First working-class neighbourhood in Via Solaro (today Via Solari) in Milan, built in 1906 by architect Giovanni Broglio for the Società Umanitaria

The photograph shows the courtyard's preserved laundry room with its communal space attributes.

Figure 2.2.7

(Source: Di Paolobon140 - Opera propria, CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=34629494>)



Established in the early 1960s, on the initiative of the Istituto Autonomo Case Popolari di Milano and in collaboration with the Municipality of Milan, 52 buildings were built in the new Gratosoglio district using prefabricated construction techniques for the first time. The Istituto Autonomo Case Popolari (IACP), set up in 1903, is an organisation that builds and manages public housing for the poor.

Figure 2.2.8

(Source: © Fondazione Isec (Istituto per la storia dell'età contemporanea))

IACP and The 'White Tower' in GRATOSOGGIO

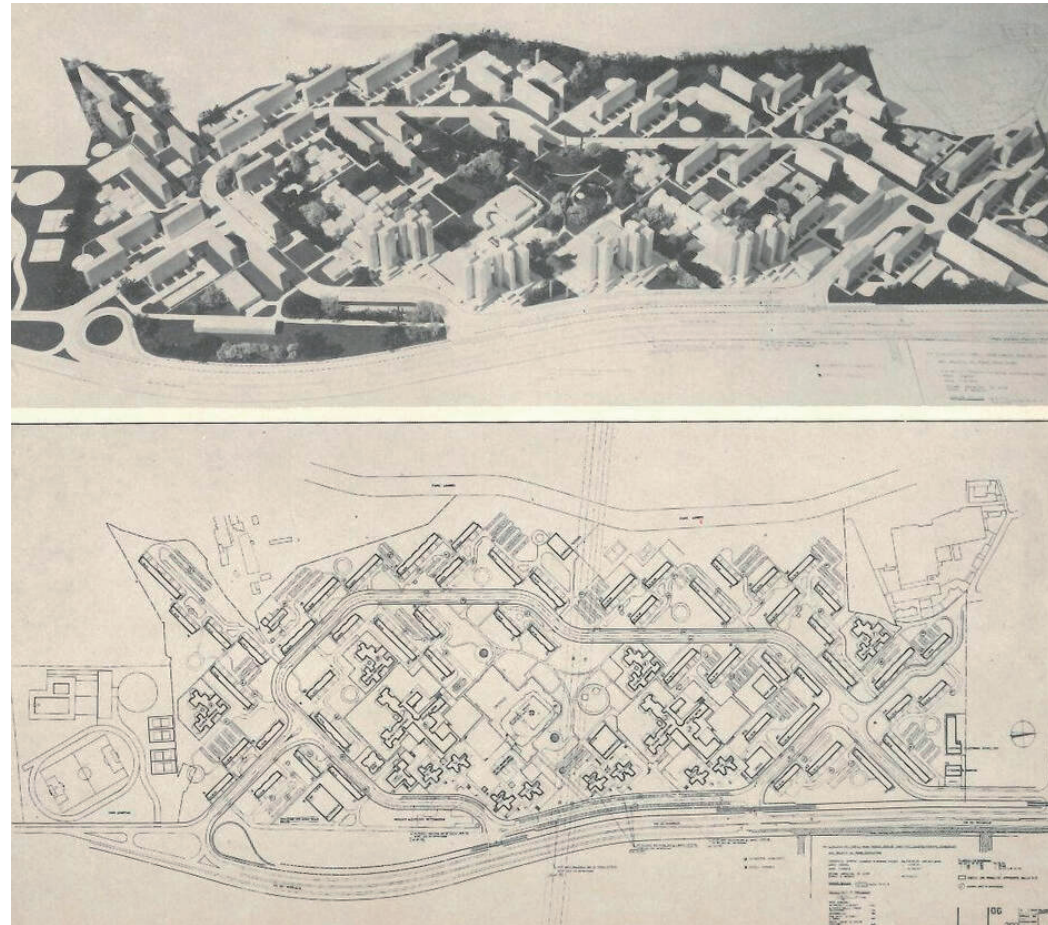
Throughout the history of social rented housing in Milan, public and private actors have attempted various solutions to the housing problem in response to shifting political and historical circumstances. From the second half of the nineteenth century to the beginning of the twentieth century, private actors such as charities, co-operative associations, etc. played an important role. IACP (Istituto Autonomo Case Popolari) was established to mark the emergence of the public sector (Gundes et al, 2012). Giovanni Broglio, an architect, was hired as the director of the IACP's technical office in 1913. In the years that followed, the IACP adopted nearly all of Umanitaria's early designs for its projects.

Due to the massive destruction of the war and the historical accumulation



of housing needs, the IACP played a pivotal role in the production of housing following the Second World War. Between the end of the Second World War and the end of the 1960s, Milan's urban fabric went through significant transformations. Plenty of investments were made in the development of infrastructure to support the expansion of the industrial sector. Milan has witnessed the development of a modern transport network, including the expansion of highways, railroads, and airports. The economic expansion of

Milan has resulted in extensive urban development and expansion. The city experienced a construction boom as new industrial areas, commercial centres, and residential areas were created. Simultaneously, the rapid economic expansion caused a migration from rural southern Italy to the industrial cities of the north, such as Milan, Genoa, and Turin (Ginsborg, 2003). The popular press and economists dubbed this the 'economic miracle' of Italy. Milan's transformation from a large city to a metropolis was accompanied by a dramatic shift in its urban and residential landscape. Agricultural and rural towns on the city's outskirts have been transformed into large residential areas as a result of rapid urbanisation and industrialization (Petsimeris, 2018). Rapid economic growth and high demand for housing (particularly affordable and rental housing) have made the Milanese suburbs a testing ground for the planning practises of these large residential areas. Using the Gratosoglio district to the south of Milan as an example, this



study intends to examine the planning and architecture of Milan's social housing development experience during this time period.

Gratosoglio is a vast residential area in the south of Milan that was constructed in 1962 and designed by the renowned architectural firm BBPR. It is comprised of 21,000 prefabricated units arranged in 52 10-story buildings. 1972 saw the addition of eight 16-story white towers to this development (Fossa, 2014). The Gratosoglio housing

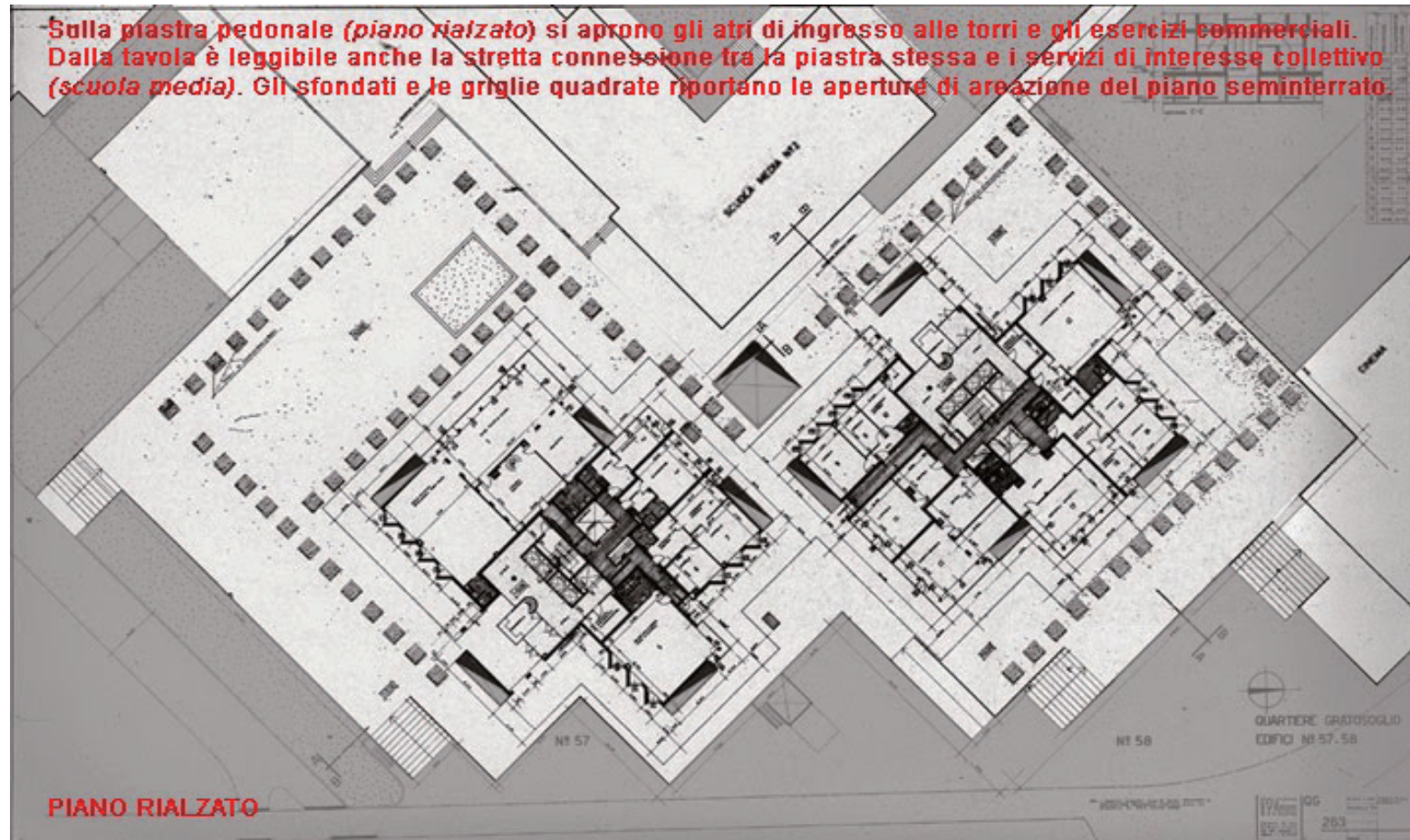
estate was constructed for the first time in Italy using a heavy-duty prefabricated system (FINTECH-Italcamus technology) in response to imminent housing demand (Figure 2.2.8). Originally conceived as a 'satellite area' to the south of Milan, Gratosoglio was founded upon a 'self-sufficient' development model. This self-sufficient model meant that residential buildings were surrounded by community facilities, such as schools, churches, commercial buildings, municipal buildings, and green spaces, to meet the residents'

Planimetry and model of the Gratosoglio district

Figure 2.2.9

(Source: studio BBPR)

daily needs (Figure 2.2.9). The white towers, the centrepiece of the large residential area of Gratosoglio, are the 'flag' that ensures the attractiveness and vitality of the new community. On the side of the main axis (Via dei Missaglia) connecting the city to Milan, the eight white towers are distributed in a mirror image of one another (Figure 2.2.10) (Ludovico B. Belgiojoso, 1972). Each floor of the towers can accommodate five apartments, including two three-bedroom apartments, two two-bedroom apartments and one one-bedroom apartment, according to the floor plans (Figure 2.2.11). One would not consider BBPR's design of Gratosoglio to be flawed if they did not know what is occurring now and what has occurred in the past. Positive influences include ample natural light and ventilation, integrated community services, and an abundance of green space. In the future, however, these good visions were not realised. Gratosoglio has experienced socio-economic changes that have impacted



The ground floor plan of the two towers, which are mirror images of each other. Pedestrian access is connected by awnings.

Figure 2.2.10

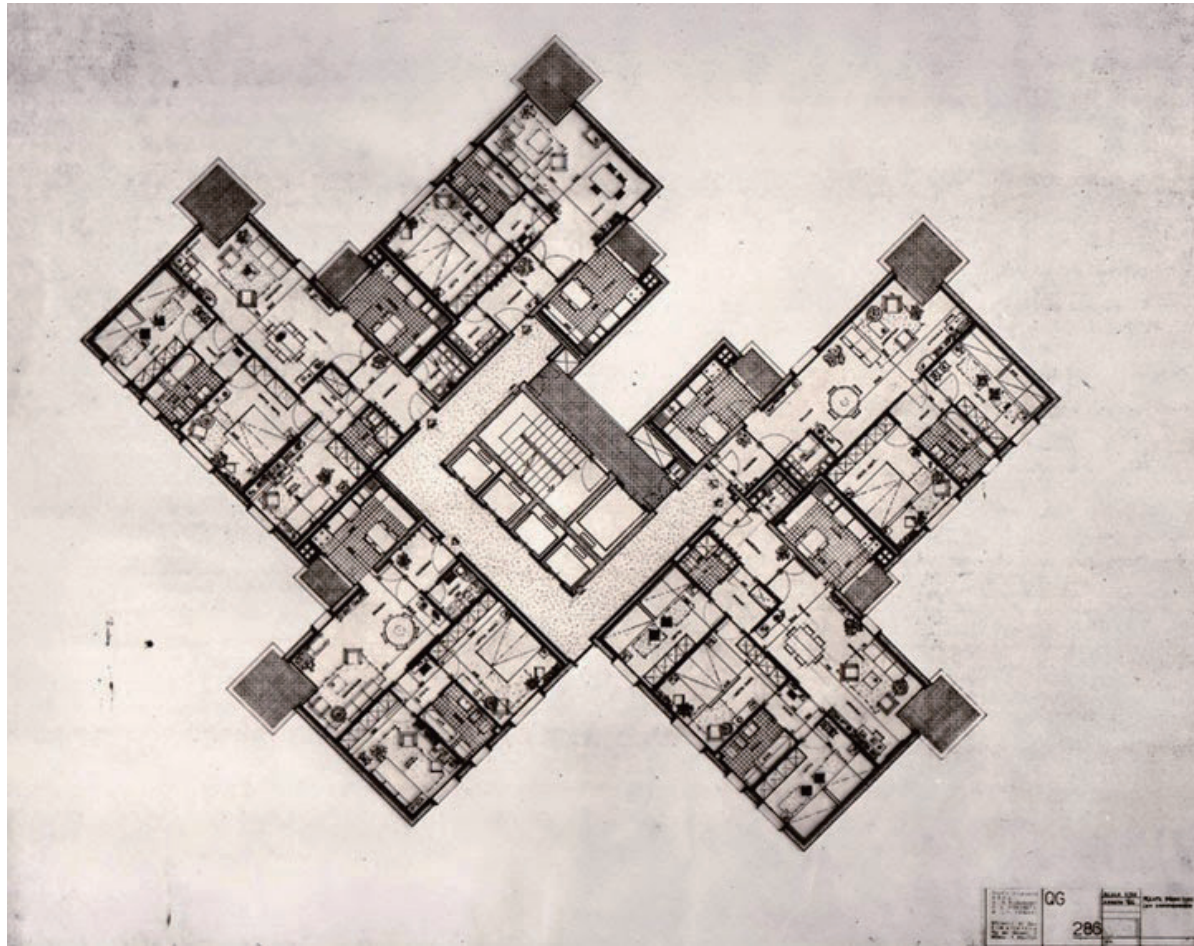
(Source: Studio BBPR original, Cited from Sacceri Pierluigi's blog)

its residents and overall dynamics over time. The community has been affected by economic shifts, employment opportunities, and socio-demographic changes. The area's high concentration of low-income residents has created social problems and a sense of abandonment. Gratosoglio, like many other social housing communities, faces maintenance and upkeep issues. Inadequate funds and limited resources for maintenance and repair have led to the deterioration of the community's buildings and infrastructure. The lack

of maintenance has caused a decline in the community's overall condition. In fact, the majority of commercial spaces in the area are currently vacant, contributing to deterioration and a gradual decline in the residents' sense of safety. Moreover, rationalist housing developments are linked to social issues such as poverty and crime.

These negative perceptions and stigmatisation have contributed to the community's further marginalisation and lack of investment. After the

1980s, Gratosoglio lost its initial liveability and was replaced by severe social isolation issues. The reasons for this are complex and include changes in the general economic situation and social structure of Milan and even Italy, privatisation and market shifts in housing policy, changes in immigration and welfare policies, etc.



White tower with furnished floor plan of the house combination

Figure 2.2.11

(Source: Studio BBPR original, Cited from Sacceri Pierluigi's blog)

Bird eye's vie of Gratosoglio district

(Source: https://milano.corriere.it/foto-gallery/cronaca/18_novembre_12/dall-alba-tramonto-magie-milano-vista-dall-elicottero-6cf459fa-e6ba-11e8-b579-7cd18dec794.shtml)



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In summary, this chapter focuses on working-class housing (including but not limited to public housing) in Milan from the mid- to late-nineteenth century to the 1980s, describing its historical development from multiple perspectives, including ownership, architectural form, and the composition of the community infrastructure. The history of working-class housing in Milan from the mid-to-late nineteenth century to the 1980s is influenced by a variety of socioeconomic factors and is complex and dynamic. During this time, Milan experienced rapid industrialization and urbanisation, which increased the need for affordable housing among the working classes. In the mid to late nineteenth century, Milan witnessed a wave of industrialisation that attracted immigrants from rural areas in search of employment. The city's inability to accommodate the influx of workers resulted in overcrowding and

unhygienic living conditions in the city centre. During this period, the 'case di ringhiera', also known as the balustrade residence, became a popular form of housing. These buildings had communal terraces overlooking a central courtyard, creating a sense of community with minimal privacy. Milan experienced significant housing reform in the early twentieth century. The success of I° and II° Quartiere Operaio paved the way for the design of housing for the working class during this time period. In addition, the success of charities and co-operative associations in building communities on a small scale demonstrates their capacity to create livable, bottom-up, virtuous circles of small-scale communities. After World War II, Milan faced the challenges of post-war reconstruction and rising housing demand. Large public housing estates such as the Gratosoglio neighbourhood were built in the city. In an effort to provide affordable housing for the working class, these developments featured high-rise apartment complexes

with shared green spaces and basic amenities. Many of the large social housing communities, including Gratosoglio, have experienced deterioration, social isolation, and high vacancy rates over time. Frequently, the architectural design and planning of these complexes failed to meet the evolving needs of the residents, resulting in maintenance issues and a lack of community engagement.

The examination of the evolution of working-class housing in Milan reveals various noteworthy concerns and domains that merit investigation for forthcoming housing planning and design endeavours. The contemporary housing market in Milan continues to present a significant challenge, with the issue of housing scarcity persisting despite a shift in the nature of the obstacles encountered, as compared to previous decades. The examination of this historical progression offers significant insights for the strategic formulation of cost-effective housing in forthcoming

times. Primarily, it is noteworthy to acknowledge the adaptability and flexibility inherent in the architectural design of buildings. The adaptability of housing design to accommodate evolving needs is a crucial aspect that should be considered. The subsequent aspect pertains to the prioritisation of the establishment of inclusive communities that foster social interaction, offer communal areas, and stimulate active engagement among inhabitants in future planning and design endeavours. Furthermore, the governance and administration of communities, as well as the enhancement of community services, are crucial concerns for promoting sustainable community development.

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2.3/ Housing Problems and the 'Grey Zone'

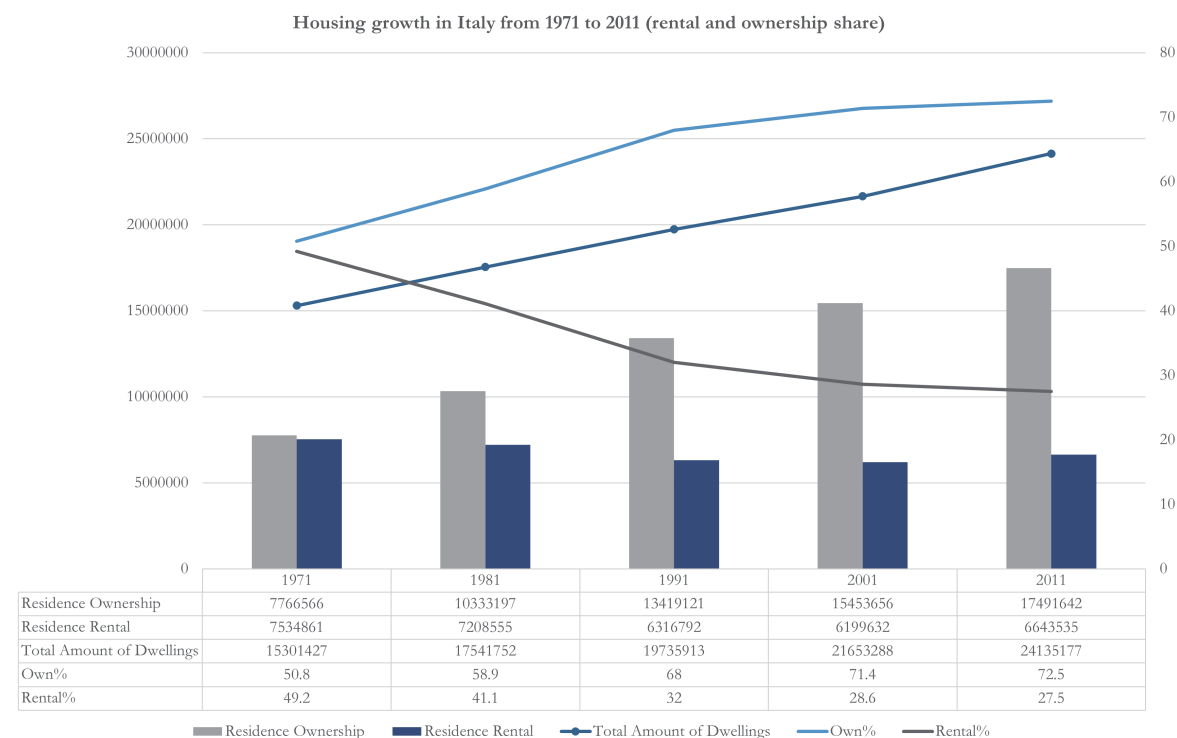
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The issue of housing supply.

Similar to the waning of expansive residential neighbourhoods discussed in the preceding section, public establishments encountered obstacles from the 1990s onward, primarily attributable to the economic downturn. The financial burden of both constructing additional residences and maintaining existing ones was beyond their means. The Italian government addressed this challenge by transferring the responsibility of augmenting the housing inventory to the private housing sector. Although the current state of the domestic economy is not as prosperous as it was during the economic miracle, purchasing real estate has consistently been the optimal method for Italians to allocate their familial savings. During

the period spanning from 1971 to 2011, there was a notable increase of 57.7% in the housing stock. This increase was primarily driven by privatisation incentives, which led to a significant widening of the gap between the ratios of ownership and rental stock, as indicated in Table 2.3.1. Prior to the financial crisis of 2008, the cost of housing in Italy's free market had been increasing in tandem with the surge in land finance, resulting in improved affordability for certain segments of the population. Over time, the private residences that are currently listed for purchase or lease have become increasingly cost-prohibitive. As per the Anci survey conducted in 2005, the national flat rents experienced a surge of 49% between 1998 and 2004 (ANCI e Cresme, 2005). The increase was more pronounced in large cities with a staggering 85% rise and in provincial capitals with a 67% hike. Simultaneously, the inventory of government-owned residential properties has been diminishing, limited by insufficient fiscal means. The European

Table 2.3.1 Housing Growth in Italy from 1971 to 2011, Source: ISTAT



Housing Institute's housing report in 2012 revealed that Italy's social housing stock accounted for only 5.3% of the overall housing stock, which is significantly lower than the corresponding figures for the UK, France, and Austria, which stood at 18%, 17%, and 23%, respectively (Pittini and Laino, 2011). Furthermore, the insufficiency of available housing inventory is indicative of the inflexibility inherent in the housing market's growth and expansion. The adaptability of housing policy is put to the test by the alterations in housing

demand that arise from shifts in social structure, particularly in urban centres such as Milan that are undergoing social development.

Transformations in familial and societal structures

As stated in the first chapter regarding diverse housing policies stemming from distinct welfare systems in Europe, nations in the Mediterranean region exhibit a robust inclination towards familism. The family unit assumes a pivotal function in furnishing assistance and promoting well-being. The prevalence of the extended family model is evidenced by the percentage of youth cohabiting with their parents. According to recent data, the number of individuals between the ages of 18 and 34 residing with their parents in Italy was estimated to be around 6.7 million in the year 2020. This figure corresponds to roughly 65% of the youth population in Italy (Statista Research Department, 2020). The average age at which young Italians vacate their parental household is 30.1 years. According to Table 2.3.2, Croatia, Slovakia, and Malta are the only countries in Europe where young individuals tend to leave

their homes at a later age. Notably, these countries are all located in the Mediterranean region. In the absence of the ‘Mediterranean tradition,’ Italy faces social and economic challenges that impede the complete autonomy of its youth, including elevated unemployment rates, inadequate remuneration, and exorbitant living expenses. Housing policies have been impacted by this phenomenon, as the emphasis has tended to prioritise home ownership as a strategy for promoting family stability and wealth accumulation, rather than on the rental of residential properties. The housing crisis has been somewhat concealed by the family's role as a safeguard for social welfare (Poggio, 2008). Although family support networks can serve as a form of social safety net for individuals and families experiencing hardship, their efficacy may be limited in mitigating the gravity of the current housing crisis.

The discernible phenomenon is the significant metamorphosis of familial and societal frameworks that has occurred in Italy, specifically Milan, in recent decades. To begin with, it has been observed that there has been a rise in non-conventional family arrangements such as families headed by single parents, cohabiting partners, and step-families, in contrast to previous times. Furthermore, within contemporary societies that prioritise self-sufficiency

and autonomy, single households are no longer marginalised entities that can be easily disregarded. The demographic phenomenon of population ageing in Italy is an incontrovertible reality. The housing requirements of varying family structures exhibit dissimilarities. In the context of housing preferences, it can be observed that reorganised families tend to seek larger flats with an increased number of rooms to accommodate additional family members. Conversely, individuals who live alone tend to favour smaller living spaces, such as studios or one-bedroom flats. Moreover, alongside the alteration in the configuration of indigenous Italian households, the rise in the quantity of individuals who are considered social outsiders will progressively transform the populace's demographic compo-

sition, particularly in metropolitan regions like Milan. Milan's increasing trend towards internationalisation has resulted in a growing influx of foreign residents to the city. Immigrants frequently exhibit varying social and familial structures, which are shaped by their cultural heritage and migration encounters. The presence of cultural diversity in the urban setting contributes to the enhancement of the social fabric. However, it also presents a difficulty in terms of integrating housing and catering to the distinct requirements of various communities. The diverse housing demands are incongruous with an inflexible housing market.

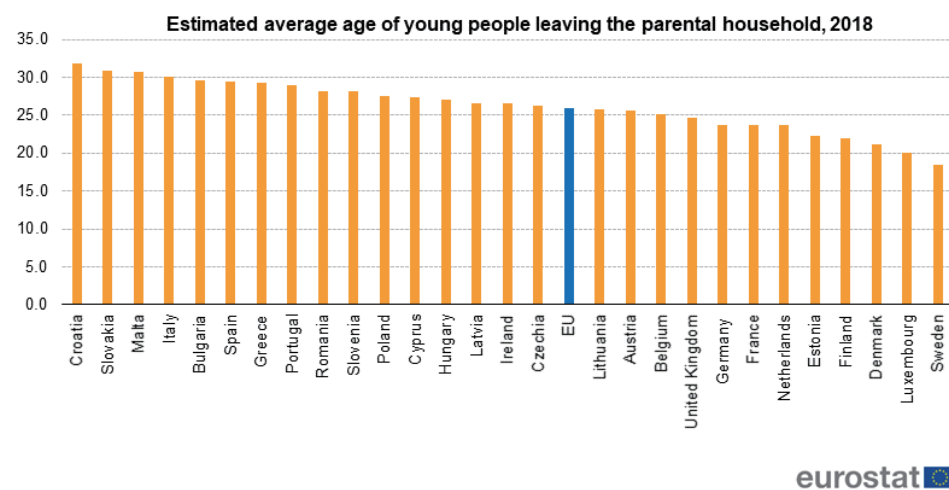


Table 2.3.2 Estimated average age of young people leaving the parental household, Source: ISTAT

The victims of the housing crisis?

The evolving social landscape has resulted in a dearth of housing, posing a significant challenge for a substantial proportion of the general populace. Individuals who have consistently been on the ERP list and have a low socio-economic status are the most apparent casualties. The individuals in question are unable to procure a residence that meets the standards of safety and decency. They satisfy the income requirements for the allocation of public housing and are the beneficiaries of governmental assistance. This is a reflection of the guarantee of safe housing (public housing) as social welfare. Nonetheless, the available data presents a discouraging outlook. Insufficient budgetary allocation by public authorities has hindered the completion of the recovery and renovation of the

entire extant social housing stock. The inefficiencies in the allocation process result in a prolonged waiting period for the renovated houses. On the other hand, governmental entities are also tasked with addressing the issue of unlawful occupancy and delinquent rent payments by tenants. Annually, the Metropolitana Milanese spa and Aler allocate 2,000 housing units for social housing purposes. However, the demand for such housing far exceeds the available supply, with a ratio of ten applicants for every unit (Debiaggi, 2023).

**Milan, 23 February 2022 - The Municipality of Milan has issued a proclamation containing criteria for the allocation of housing for the Public Housing Service (SAP), which citizens living in Milan with an ISEE income of up to €16,000 can apply for... Through the owners' group ALER Milano and MM Sp.A, the manager of the housing units owned by the municipality, a total of 700 flats are available in the city: 650 are available for immediate occupation, while another 50, but allocable, for minor maintenance work will require the grantee to pay a fee of up to €8,000, which will then be deducted from the rent. The equivalent of 20% of the share of available flats, which can be increased to a maximum of 40% through municipal funds, will be earmarked for families declared poor with an ISEE income equal to or less than €3,000; the rest of the citizens with an ISEE certificate of more than €3,000 will pay rent according to their income.*

***The international convention sets a red line of 30% for the rent to income ratio.*

Furthermore, a secondary group of individuals affected by the housing crisis is progressively coming to light. In general, this demographic possesses an income level that exceeds the ERP baseline*; however, they encounter difficulties in securing market housing due to the constraints of the rental market in terms of quantity and price, as well as the exorbitant costs associated with ownership properties. Nomisma's analysis of the sociodemographic characteristics of inhabitants in Italy reveals that in 2014, there were 1.7 million

renting households, accounting for 40% of the total number of non-ERP renting households (Nomisma, 2016). These households faced unaffordable rent difficulties, with rents exceeding 30%** of their income. The majority of affected individuals were young adults facing financial difficulties or unemployment, as well as single elderly individuals. The data analysis of the Italian rental market in *Appendix A* further confirms that high housing costs and imperfect social housing supply have brought a housing crisis to these

‘Grey Zone’ populations. The ‘Grey Zone’ population that is discussed in the thesis actually refers to the evolution of the middle class, whose income and purchasing power are dwindling as a result of the ongoing economic crisis (Ginelli, 2022). These segments of the middle class are indicative of an evolving demographic that is becoming more susceptible to economic instability and inflationary pressures, particularly in relation to essential commodities such as housing. The vulnerability of individuals has been further intensified by the economic crisis and the recent Covid-19 pandemic, resulting in various challenges such as unemployment, decreased working hours, and heightened job insecurity. Indeed, for individuals in the ‘Grey Zone’, housing poses a constraining circumstance that limits their quality of life. Individuals may encounter limitations in their decision-making process regarding significant life events, such as initiating a family, transitioning careers, or achieving autonomy, due to the instability of their housing circum-

stances. The rationale behind this ambiguous situation is closely intertwined with the inadequate affordability of housing and the inflexibility of the housing market, as previously expounded.

The new 'housing scheme'

The housing issues in Italy can be succinctly outlined according to the aforementioned studies' analysis. Changes in family and social structures have led to the emergence of complex housing needs. The inflexibility of the housing market and the escalation of loan interest rates have resulted in a growing number of individuals facing unaffordable housing expenses. There exists a significant disparity in the rental market. It is challenging to implement effective regulation of rents in the private rental market. Simultaneously, the public sector is unable to augment its housing inventory due to financial constraints.

Italy's social housing programme, known as 'Piano Casa'*, was initiated in 2008 as a response to the aforementioned issues. This programme acknowledged the significance of private

capital in catering to the housing needs of the financially underprivileged, marking a significant departure from previous approaches. The Ministry of Infrastructure's 2008 decree is primarily characterised by its expansion of the definition of 'social housing'. The term ERS encompasses a range of housing options, including subsidised housing, assisted rental housing, and conventional rental housing that involves public-private partnerships framework. The three distinct models of social housing that receive public support are

**E' definito <alloggio sociale> l'unità immobiliare adibita ad uso residenziale in locazione permanente che svolge la funzione di interesse generale, nella salvaguardia della coesione sociale, di ridurre il disagio abitativo di individui e nuclei familiari svantaggiati, che non sono in grado di accedere alla locazione di alloggi nel libero mercato.
(DECRETO 22 aprile 2008,MINISTERO DELLE INFRASTRUTTURE)*

**Social housing is defined as housing units used for residential purposes for permanent rental that fulfils the general interest function, in safeguarding social cohesion, of reducing the housing hardship of disadvantaged individuals and households who are unable to access rental housing on the open market.
(DECREEE 22 April 2008,MINISTRY OF INFRASTRUCTURES)*

presented in a tabular format for ease of reference (refer to Table 2.3.3). The promulgation of this edict pertaining to 'social housing' can be regarded as a pivotal juncture in the transition of emphasis on housing concerns in the onset of the 21st century.

Some argue that the change in the decree gives the ERS 'social housing' market an interesting tool, such as the Fondo Investimenti per l'Abitare project to increase the supply of social housing through the Sistema Integrato

dei Fondi operation. It also represents an opportunity to improve the quality of housing (Galdini, 2013). But the change in the decree has also given rise to controversy as to whether 'social housing' is contrary to its social and public character. The author believes that the three mentioned interpretations of social housing do not have accurate boundaries for its definition, unlike the United States or the United Kingdom. Affordable housing and public housing are the two primary categories into which social housing areas

are classified in the United States. As per the definition provided by the US Department of Housing and Urban Development (HUD), affordable housing refers to a residential property that entails a cost that does not exceed 30% of the overall household income, inclusive of utilities, for either the owner or tenant (U.S. Department of Housing and Urban Development, n.d.). On the other hand, public housing is characterised as rental housing that is both secure and satisfactory for low-income households, seniors, and individuals

with disabilities who meet the eligibility requirements. Social rented housing is a category of affordable housing in the United Kingdom. Social rented housing refers to rental housing that is offered at a low cost by landlords who are registered with the Social Housing Regulator, commonly referred to as social landlords. Thus, affordable housing is characterised as a residential unit with a rental fee that is below 80% of the prevailing market rent in the area (Wilson and Barton, 2022). Based on an examination of the Italian, United

Table 2.3.3, The three distinct models of social housing Source: Table elaborated by Caruso, 2017 based on the source Pittini and Laino, 2011

	Definition	financial mechanism	Supplier/Ownership
Subsidised Residential building (Edilizia Residenziale Sovvenzionata)	Rental housing owned by the public sector. It targets those with lower incomes.	The subsidy covers 60% to 100% of the fee, and the rent is proportional to the income of the tenant. Rents in the public sector are very low, averaging 1/4 of market rents.	Municipalities and public housing agencies
Assisted Residential Building (Edilizia residenziale agevolata)	Offers housing for rent and for sale, targeting low- and moderate-income families.	The subsidy for rental assisted housing ranges from 20% to 60% of the cost, and the rent is limited to the lowest price in the market or 4.5% of the construction cost. Assisted housing for sale is subsidised between 10% and 30%, and the price of the dwelling cannot be higher than that of subsidized housing.	Primarily Co-ops/Non-Profits
Conventional Residential Building (Edilizia residenziale convenzionata)	The transfer fee or rent for private housing provided for rent or sale is regulated by a specific agreement established between the municipality and the housing provider.	Providers benefit from discounts on local taxes for building authorisations and a 99-year lease on the land.	Private and public suppliers: the most active are construction companies and cooperatives.

States, and United Kingdom definitions of ‘social housing’ and their associated affordable housing, the Italian definition of ‘social housing’ has been artificially broadened and muddled, resulting in the overlap of policies and initiatives with very different contents and objectives (Debiaggi, 2023). The original ERP can be observed as analogous to public housing and social rented housing in the United States and the United Kingdom. These housing options were under the direct management of the public sector or local government, with the aim of providing a basic level of housing security and dignity for individuals situated at the lower end of the social hierarchy. The ERS has been expanded to include both its beneficiaries (the poorest sectors and vulnerable people and families who do not have access to housing in the rental market, and the “grey area” population), as well as its providers (public, private, and non-profit organisations). The ERS now includes both public housing and affordable housing.

Substituting the ERS for the ERP reinforces inadvertently the financial characteristics of housing as a commodity. In an ideal scenario, it might make it easier to remodel an already rigid real estate market, including the rental market for affordable housing. The lack of a clear demarcation between the boundaries, however, makes it simple to ignore public housing as an asset to society that can aid the underprivileged. This appears to be a somewhat reluctant decision, as the authorities wish to increase the public sector’s budget for public housing through private sector and foundation investment. With regard to the differences between the definitions of ERP and ERS, Lungarella draws a very compelling analogy: *‘Non si può ignorare che per realizzare l’edilizia residenziale che offre servizi abitativi alle classi meno abbienti, la si aggettivi come sociale o la si etichetti come pubblica, l’amministrazione pubblica non può evitare di mettere mano alla cassa.’* (Lungarella, 2010) In English it means that, it cannot be ignored that in order to realise housing

that provides It cannot be ignored that in order to realise housing that provides housing services to the poorer classes, whether one adjectives it as social or labels it as public, the public administration cannot avoid putting its hand in the till. As delineated in Chapter 2 related to housing policy and welfare systems in Europe, the debate surrounding the classification of housing as either a component of social welfare or a commodity within the free market is an important topic in the realm of housing policy. It is important to note that these two viewpoints are at opposite ends of the housing policy continuum. Most national housing policies fall somewhere in between. The balance between these elements varies from country to country and city to city, influenced by factors such as historical development, political ideology, economic conditions and social values.

This thesis will focus on the affordable housing under Public-Private Partnership framework. In contradis-

inction to the conventional model of ‘public housing,’ which is exclusively financed and administered by public entities, municipal governments are collaborating with private investment agencies and closed real estate funds to establish a novel funding mechanism for housing initiatives. The objective of this approach is to augment the availability of housing for emerging demographics. In this new system, private housing investment funds must simultaneously satisfy economic, social responsibility, and sustainability requirements. The objective is to augment the inventory of affordable housing while guaranteeing a significant yield for investors and simultaneously regulating rental rates. In the conventional development and design of public sector residential areas, there is a noticeable absence of a comprehensive and organised approach to housing initiatives that includes community service support and enhancements to communal living, among other factors. It is a complex, multidimensional syn-

thesis of economic, social, urban environment, and architectural design. In addition, it is the result of continuous learning from past experience as well. The quality of the built environment and community space created in this manner has the potential to reduce the possibility of degradation. It has been fifteen years since the enactment of the decree pertaining to the social housing programme. This thesis will analyse innovative design strategies and policies in housing project practise by examining cases of ‘affordable housing’ in the context of public-private partnerships that are currently in use and still in the construction phase.

Reference:

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3./ Methodology: Comparative Case Studies

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3.1/ A Renewed Emphasis on the Research Subject, Research Objectives and Research Questions

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The challenge of providing housing that is affordable and socially inclusive has gained significant prominence in cities worldwide. Milan, a metropolis renowned for its cultural and economic significance, is not impervious to these challenges. The phenomenon of swift urbanisation, coupled with an increase in population and evolving socio-economic factors, has resulted in a dearth of housing supply in comparison to the demand. As previously stated, the expansion of the scope of the concept of 'social housing' in Italy is a direct manifestation of the inadequacies of the public sector in effectively tackling the housing predicament. Due to financial constraints and bureaucratic inefficiencies, the Italian government

has redirected its efforts towards addressing the housing issue by emphasising the provision of rent-controlled 'social housing' with the involvement of private entities, as opposed to traditional 'public housing.' The social housing initiatives are a manifestation of collaboration between public and private organisations within the context of a public-private partnership model. The primary aim of this thesis is to examine the innovative design strategies that have been employed in social housing initiatives under the auspices of public-private partnerships. The objective of this thesis is to obtain a comprehensive understanding of the efficacy and influence of housing project strategies by analysing cases that are currently in use and under construction. The objective of this thesis is to examine the definition of 'social housing' in Milan over the past ten years, to detect any potential shortcomings, and to indicate a perspective for the future of 'social housing' in Milan by means of a comparative case study

and a theoretical framework. In order to attain the research objectives, the present study will endeavour to tackle the subsequent research inquiries:

1. How has the definition of ‘social housing’ changed in Milan? Whether the ‘social housing’ under construction today can really bring social and public value?

2. What are the commonalities and distinctions observed in the execution of inventive design tactics across various nations and metropolitans?

3 In what ways can the outcomes derived from these case studies be utilised to shape forthcoming housing initiatives and policy formulation in Milan?

3.2/ Description of Data Sources

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Archival Research

In this thesis, archival research was an important source of data. Historical and institutional documents and records related to selected social housing projects were reviewed. This approach ensured a comprehensive historical and contextual understanding of each project, including its objectives, design strategy, development process and outcomes.

Formal Research

Formal research is another key source of data. It involves the review and analysis of academic literature, reports and other formal publications relevant to the topic of interest. This approach identifies best practices,

challenges and knowledge gaps in the existing literature and contributes to a broader understanding of the specific geographical context of social housing, public-private partnerships, urban design strategies and case studies.

In-depth Interviews

The third data source used in this thesis involves in-depth interviews with key stakeholders. These may include project managers, architects, urban planners, residents and representatives of private partners and public agencies. The semi-structured interview format allows for the exploration of pre-defined themes while providing flexibility for unexpected themes and narratives to emerge. This approach provides nuanced and personal perspectives on the case studies, complementing the insights gained from archival and formal research.

3.3/ Brief Description of the Research Methodology

This Thesis will utilise a comparative case study methodology to examine and evaluate housing policies and strategies that have been employed in social housing initiatives under the auspices of public-private partnerships. The methodology of comparative case study research entails the examination and juxtaposition of several cases in order to acquire a deeper understanding of the commonalities and distinctions among the housing models and policy approaches employed in these cases, as well as the ramifications that ensue. Comparative case studies are a valuable tool in the realm of housing research as they facilitate the examination of diverse housing initiatives, policies, or design approaches across various geographical regions or circumstances. The present thesis employs comparative

case studies wherein the researcher will carefully choose cases that are representative of the phenomenon being investigated. The cases will be selected based on their diversity and the distinct developer identities. Prior to undertaking a comprehensive investigation of the various cases, the researcher will establish a set of criteria to assess and identify significant elements, including but not limited to built form, community function, allocation ratio, and sustainability etc.. The initial phase of our analysis entails a comprehensive examination of each individual case by the researcher. drawings, and stakeholder feedback. A thorough analysis of these sources will be conducted to gain a comprehensive understanding of the project's scope and requirements. The proposed task necessitates a meticulous scrutiny of the amassed data, comprising of project documents, architectural designs, stakeholder interviews, observational data, and publicly accessible information. The objective of the thesis is to discern recurring patterns, shared

characteristics, and distinctions among the various instances. Subsequently, the thesis will culminate by presenting conclusions and offering recommendations based on the aforementioned analysis. The objective of this stage is to guarantee that the valuable insights recognised in the case analysis can be efficiently translated into potential enhancements in housing practise in the future.

3.3.1/ Case Selection

The present thesis employs a purposive sampling approach to select case studies, with a specific focus on social housing initiatives that are located within the framework of public-private partnerships. The expectation is that the various instances will showcase a heterogeneous residential environment and offer a more comprehensive outlook on social housing patterns within distinct regulatory and cultural frameworks.

3.3.2 / Case Study Criteria

The establishment of case study criteria constituted a pivotal stage in the current thesis, as it facilitated the identification of suitable and heterogeneous social housing initiatives. The establishment of analytical criteria enables the researcher to undertake a thorough examination of various facets of social housing.

3.3.3/ Case Study and Cross-case Study

The methodology employed in this thesis centres around case analysis and cross-case analysis as its fundamental components.

The process of case analysis entails a comprehensive examination of the specific social housing initiatives that have been chosen for the purpose of conducting case studies. The analy-

sis of each case is conducted in a comprehensive manner by utilising the established criteria for case studies. These criteria encompass various factors, such as the type of housing, communal participation, social and environmental sustainability, availability of community services, and inclusivity. The objective of this thorough examination is to acquire a comprehensive comprehension of the project, encompassing its design methodology, policy stance, and results. This comprehensive examination additionally discerns the distinct or customary elements of every undertaking and the obstacles encountered.

In contrast, cross-case analysis entails the examination and juxtaposition of the outcomes derived from distinct case studies. Upon completion of the case studies, a comparative analysis is conducted to ascertain commonalities, distinctions, regularities, and developments. The present study employs a comparative analysis to offer a comprehensive outlook on the topic,

enabling the researcher to derive universal observations that can be applied to various scenarios and settings. The utilisation of cross-case analysis is of significant importance in comprehending intricate phenomena, such as social housing. This approach facilitates the exploration of the influence of diverse contexts, strategies, and policies on the resulting outcomes.

3.4 / Possible Limitations

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Like any other research, this study has certain limitations that must be taken into account while interpreting the findings.

Limitations of case study selection: The present study is subject to certain limitations in terms of case selection, as the cases under investigation were restricted to particular sites and social housing initiatives that were executed through public-private partnerships. The present study's outcomes may possess limited generalizability to alternative settings or diverse categories of housing initiatives.

Data availability: The extent and comprehensiveness of the investigation are contingent upon the accessibility of data for each individual case study. Certain information may be unavailable due to concerns regarding privacy, lim-

itations imposed by proprietary regulations, or insufficient data collection and preservation.

Interview bias: Interview bias can potentially affect the information gathered from in-depth interviews, as it may be influenced by various factors such as the interviewee's perspective, memory recall, or willingness to disclose information. Despite efforts to reduce bias by cross-checking information from various sources, some degree of bias may persist.

Interpretive: The examination of design tactics and policy methodologies is subject to interpretation and can be impacted by the researcher's viewpoint.

4./ Preliminary Investigations

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4.1/ Case Selection

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The cases chosen for analysis in this thesis are as follows:

From Milan:

Social Village Cascina Merlata, Milan, Italy

A 'social housing' project that started in 2011 in the framework of a public-private partnership. The project is located in the north-west of Milan, near the Rho-Pero area. The initiator of the project is Fondo Housing Sociale Cascina Merlata, while EuroMilano S.p.A., which participated in the creation of UpTown Milano, is the main investor in the social village. The funds for the project are managed by Investire Società di Gestione del Risparmio S.p.A.

L'Innesto, Milan, Italy

A 'social housing' project in the

framework of a public-private partnership starting in 2021. The project is located in the north of Milan, in the area of Scalo Greco Breda, near the Greco-Pirelli train station, and the developer is FONDO IMMOBILIARE DI LOMBARDIA, managed by REDO SGR (FIL 1).

Milanosesto Unione 0, Milan, Italy

A 'social housing' and student housing project in the framework of a public-private partnership that began in 2022. The project is located in the town of Sesto San Giovanni, north of Milan. The Prelios Group is responsible for the project management of the scheme.

From Abroad:

Mehr als Wohnen, Zurich, Switzerland

A social housing project in the form of a cooperative, started in 2007 and completed in 2015. The project is located in the north-east of Zurich.

The developer of the project is the Mehr als Wohnen housing cooperative association.

Cornbrook Hub, Manchester, The UK

A UK 'Build-to-Rent' housing project due for completion in 2021, rooted in the Cornbrook Urban Regeneration Plan, located in west Manchester, on the border between Stretford and Salford. The project was developed by Glenbrook Property and managed by estate agents Allsop.

These three projects from Milan are all 'social housing' projects included in the city's Regeneration Programme, within the framework of a public-private partnership. However, they are developed by different private entities (private non-profit entities, local real estate companies, international real estate companies). Through a comparative analysis, this thesis aims to explore the different objectives and implications of the design strategies brought about

by the intervention of different developers. Furthermore, the introduction of two typical cases from abroad in different housing models to participate in the comparative analysis is intended to provide a comparative framework. These cases will present different social housing models and strategies that have been adopted outside of Italy, thus broadening the perspective and understanding of potential solutions to housing problems.

Why choose the cases of 'social housing' in Milan in the framework of 'PPP'?

Like many cities around the world, Milan is grappling with a complex housing landscape. As a cosmopolitan city with a significant presence in Italy, Milan attracts a wide variety of residents - from students and workers to families and retirees. Understanding the basic strategies that guide the conception, planning and implementation of social housing schemes has the po-

tential to generate critical knowledge that can help address pressing issues within the housing sector. This understanding becomes even more pertinent in the face of escalating urbanisation and population growth, with housing affordability and availability becoming pressing issues in cities across the globe. As social and household structures shift, complex demographic compositions create a higher demand for affordable housing. Assuming that it is no longer possible to use a single lever to address different needs, the general consensus is to diversify the supply of rental housing by introducing different players (Balducci 2004) . (Pogliani, 2014)

Following the introduction of the new 'Social Housing' Act in 2008, the Municipality of Milan has aspired to increase the housing supply through a number of development strategies such as the expansion of the concept of 'public housing', the development of social housing (SAS - Social Hous-

ing Service) and the expansion of the supply of affordable housing through cooperative construction. On the one hand, this process has been accompanied by a reduction of the public stock and a reduction of the State in the field of housing policy. On the other hand, normative innovations have led to the creation of social housing markets, giving rise to a proliferation of private actors (especially non-profit actors) involved in policy development and the proliferation of market-oriented models of social housing (Belotti, 2016) .

After a decade of development, the new 'social housing' model has shown its potential as a new housing regulation tool to bridge the gap between housing supply and demand. At the same time, the problems that have been revealed have put this model of housing development into question. This thesis seeks to explore how its projects have responded to housing challenges, influenced by local economic, demographic and political factors,

from examples of practices that have been built and those that have yet to be built in this decade. And what design strategies have been applied in these housing cases to echo sustainable development strategies.

Why choose these cases from different developers?

Although these three cases from Milan all belong to the same 'social housing' framework of public-private partnerships, different design strategies and financing models adopted by different developers in the same urban context may have led to different results.

The main investor in the Social Village Cascina Merlata is EuroMilano S.p.A, a local private property developer with land ownership and development rights in the Cascina Merlata area. Based on the need to make a profit, it is questionable whether the private property developer will weaken the 'so-

cial housing' and the public and social functions of its community.

The source of L'Innesto's investment is from the Fondazione Housing Sociale (FHS), a private non-profit entity established in 2004 in the Lombardy region by Fondazione Cariplo, the fund project Fondo Immobiliare Lombardia (FIL). The FIL is open to 'non-speculative investors' as an ethical fund and ensures an annual return in the range of 2-4%. The task of the FHS is therefore a complex one: to encourage different participants to pursue common goals, to attract investment in social housing projects, to monitor their results and to develop sustainable management models that can be replicated in contexts outside Milan or Lombardy (Costa, 2016).

Hines, an international property developer, will invest in and develop the Milanosesto Unione 0 'social housing' project. Rooted in the urban Regeneration plan for the overall for-

mer Flak area, their investment aims to build a unique development in Italy that meets the most advanced international standards of environmental and social sustainability, circular economy and ESG principles.

Why introduce overseas cases?

The inclusion of international case studies, such as Mehr als Wohnen, led by the Association of Non-Profit Cooperatives in Zurich, Switzerland, and the 'build-to-rent' high-rise Cornbrook Hub in Manchester, has further expanded the scope of the study by introducing alternative housing models that bring an additional dimension to the discussion. They enhance the understanding of how different socio-political contexts and housing policies lead to innovative housing solutions.

4.2/ Case Study Criteria

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Introduction

In order to analyse the policy and design strategies for social rental housing, the collected direct and indirect data are separated into five dimensions: housing quality, community engagement, social sustainability, environmental sustainability and economic factors. The accompanying comparative analysis will analyse the impact and anticipated outcomes of the same and different design choices for rental housing in different metropolitan locations with respect to each of these five variables. Through the analysis of various aspects such as spatial organisation and energy conservation, these standards facilitate a thorough evaluation of the extent to which each undertaking satisfies the demands of its inhabitants,

the ecosystem, and the broader society. The assessment of Housing Quality involves the consideration of various factors, including but not limited to spatial planning, durability of materials, location, health and safety, and accessibility. The evaluation of 'community engagement' involves an examination of the amenities and resources offered, the accessibility of communal areas, and the integration of digital technologies or intelligent infrastructure. The evaluation of a project's 'social sustainability' is determined by various criteria, including but not limited to, the level of affordability, the quantity and ratio of affordable housing, the provision of tenant support services, and the promotion of social cohesion. The concept of 'environmental sustainability' holds significant importance in contemporary housing. This article explores the topic by examining a range of measures, including international certification, the incorporation of green spaces and sustainable landscaping, the promotion of energy efficiency, and the implemen-

tation of effective waste management strategies. The category of 'economic factors' encompasses an evaluation of the project's cost effectiveness, financial sustainability, potential economic opportunities for local residents, and its impact on the surrounding economy. The implementation of a systematic methodology guarantees equitable and comprehensive evaluation of all case studies, thereby facilitating a lucid comprehension of the merits and demerits of each project. This approach also enables the formulation of suggestions that can serve as valuable inputs for future social housing initiatives.

Table 4.2.1 Case Study Criteria (Next Page)

	Subdivisions	Examples
Housing Quality	Space Planning and Proportions	The number of rooms per unit and their sizes.
	Durability	The materials used in construction for longevity.
	Location and Accessibility	Proximity to public transportation and amenities.
	Health and Safety	Incorporation of safety measures like fire exits, alarm systems, etc.
	Accessibility and Inclusivity	Ease of access for individuals with mobility impairments.
Community Engagement	Amenities and Services	Availability of a shared community garden, gym, etc.
	Community Space and Ratio	Ratio of shared community space to individual housing units.
	Digital Services/Smart Infrastructure	Implementation of smart home technologies and internet services.
Social Sustainability	Affordability	Percentage of household income spent on housing costs.
	Number and Proportion of Affordable Housing	Percentage of total housing units designated as affordable.

Table 4.2.1 Case Study Criteria

Source: Integrated by the author, with references to HUD's Design Guidelines for Supported Housing, Urbanpromo 12 Social Housing Manifesto 2011, LEED Rating System, etc.

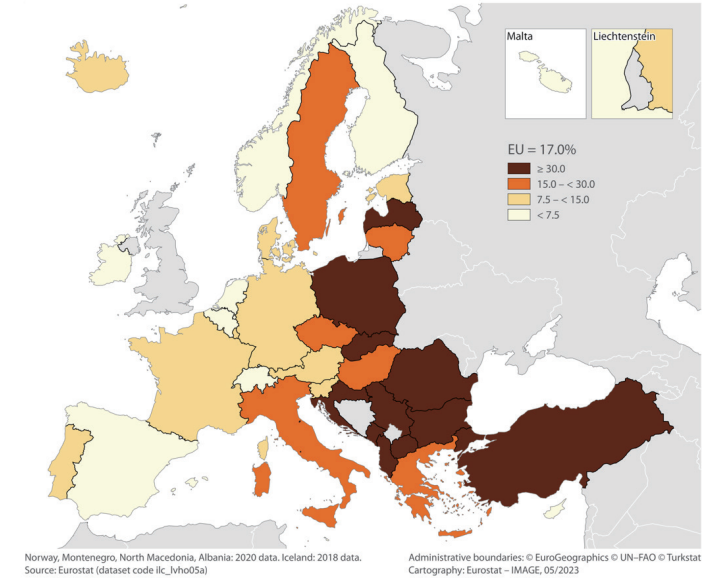
Table 4.2.1 Case Study Criteria

Source: Integrated by the author, with references to HUD's Design Guidelines for Sheltered Housing, Urbanpromo 12 Social Housing Manifesto 2011, LEED rating system, etc.

	Subdivisions	Examples
	Tenant Support Services	Services like job training programs, financial literacy classes, etc.
	Social Cohesion	Initiatives to foster a sense of community, such as communal events or shared spaces.
Environmental Sustainability	International Certification	LEED or BREEAM certification of the project.
	Green Space and Sustainable Landscape	Presence of green spaces and use of native plants in landscaping.
	Energy Efficiency	Use of energy-efficient appliances and renewable energy sources.
	Waste Management	Waste recycling programs and composting facilities.
	Cost-effectiveness	Long-term savings due to energy efficiency or durable materials.
Economic Factors	Financial Sustainability	Financial model ensuring affordability and maintenance of the project.
	Economic Opportunities for Residents	Proximity to job markets or employment created during construction.
	Local Economic Impact	Contribution to local economy via commercial spaces or services.

Figure 4.2.2 Overcrowding rate 2021, Source: Eurostat

Overcrowding rate, 2021 (%)



Housing Quality

Housing is frequently regarded as an essential socioeconomic predictor of health. Widely known is the causal association between faulty house design and construction and harmful results for tenants (Bonney et al, 2003). This study will concentrate on the issue of housing quality at the level of design strategy for new rental housing developments. The proportional distribution and space planning is the first indicator to be evaluated. The proportion of household type distribution is an indication of how real estate and architectural firms interpret the customer profile and a means of balancing housing demand and supply. It is also a significant metric for determining the population density of a location. According to Eurostat, the overcrowding rate in Italy is 28% higher than the European average. (Figure 4.2.2) A logical allocation and utilization of household types can ease the current housing shortage. In addition, the study of the design of

the house type incorporates the length of time a room is exposed to light, air circulation, and the inhabitants' spatial sense. The second indicator to be evaluated is the durability of housing. When designing affordable housing, it is essential to consider its durability. Utilizing high-quality materials and construction techniques helps to ensure that a home remains in good condition over time, thereby reducing the need for costly repairs and maintenance. The study will assess these housing developments' building materials and construction techniques in terms of their health and environmental sustainability. The third indication, unlike the prior two, focuses on the urban design strategy of a residential development. The design outcome is influenced by the pre-emphasis study's on site selection and accessibility as crucial aspects of architec-

tural design. Affordable housing should not be automatically constructed in the most unsuitable areas of a city or town, such as the only home in an industrial district or adjacent to a dump or factory. As a component of the evaluation of rental housing, the connectivity of residential neighborhoods to the public transportation system is a crucial assurance for addressing the daily commuting demands of tenants. The fourth important evaluation criterion is health and safety. Health and safety is a key consideration in assessing the quality of affordable housing. This includes ventilation, pest control, and the presence of smoke detectors, among other safety features. Local climatic characteristics and policing conditions influence, to a certain extent, design strategies. The fifth aspect pertains to the observation that dwellings that are constructed with accessibility as a primary consideration tend to be more flexible in accommodating the evolving requirements of their inhabitants over an extended period. The provision of housing that is

both accessible and inclusive is known to have a positive impact on social inclusion. The provision of inclusive opportunities enables individuals with diverse abilities to engage in community activities and establish social connections with fellow community members, thereby promoting a sense of inclusivity and shared comprehension.

Community Engagement

Community involvement is a crucial component of the design, construction, and operation of affordable housing projects, and it can have a substantial impact on their overall success. Good community engagement can foster a sense of community among residents and produce an environment that is more supportive and inclusive. This research extrapolates three aspects of evaluation criteria from the standpoint of design strategy. The first is the community's public amenities and services; a community with a variety

of amenities and services can offer its residents numerous advantages. A community that provides an abundance of amenities and services can create a thriving and prosperous environment for all by enhancing the quality of life, generating economic opportunities, and facilitating access to resources. This evaluation focuses on the quantity and consistency of features and supply and demand. For established projects, the frequency of use and economic success of the community space can objectively measure the design's success. The second point is the community space and its proportions. HUD (U.S. Department of Housing and Urban Development) suggests that affordable housing projects provide safe and accessible community spaces that are designed to meet the needs of residents and promote community interaction. This can encompass areas for social activities, recreation, and community events. The third point is the digitization of community participation. The Internet of Things and

smart cities could have a significant impact on community engagement by improving communication, enhancing public services, increasing transparency, better informing decision-making, and empowering communities. Digital communities can facilitate residents' access to information, utilization of community spaces, and participation in environmental, safety, and health stewardship initiatives.

Social Sustainability

Social sustainability refers to the present and future well-being of individuals and communities, as well as their capacity to thrive and prosper. It ensures that human needs and rights are met in an equitable and sustainable manner, promoting positive social outcomes such as access to education, health care, and economic opportunities, and reducing social inequality, poverty, and other forms of social hardship. In addition to fostering

strong and cohesive communities, protecting human rights and dignity, and fostering resilience in the face of social and economic challenges, a socially sustainable society also fosters strong and cohesive communities. The affordability of affordable rental housing is the first and most important of the criteria included in the evaluation. The relationship between housing affordability and social sustainability is complex and interdependent. Affordability is crucial to promoting social sustainability, which in turn contributes to housing affordability. The term 'Rent Burden' is commonly used to describe affordability, which is the proportion of a household's income spent on rent and utilities. In many developed European economies, according to Khalid Eifayoumi in 2021, the median share of disposable income devoted to rent is approximately 25%. The burden of paying rent falls disproportionately on low-income households, where the value of the burden can reach 40% (Mineshima et al, 2021). In most Build

to Rent projects, in addition to rents, one of the indicators to be evaluated is the proportion of affordable housing units to the total number of dwellings. In an effort to generate social value in addition to economic value, private real estate investment firms are increasingly investing in affordable housing projects. Thirdly, housing projects should provide tenants with support services, such as vocational training, financial literacy, and childcare, to assist them in achieving greater success and stability. By evaluating these and other relevant factors, an evaluation of the social sustainability of affordable housing projects can provide valuable insights into their effectiveness in meeting the needs of residents and the larger community.

Environmental Sustainability

In the context of the built environment, sustainability refers to the creation of buildings, communities, and cities that can be maintained over time

without diminishing future generations' quality of life. After the Covid-19 pandemic, there has been an increase in the demand for a sustainable built environment. As a first criterion for evaluation, this study considers the availability of green building certification schemes such as LEED, BREEAM, etc. These green building certification programmes evaluate the environmental sustainability of buildings based on a variety of criteria, including energy efficiency, water conservation, indoor environmental quality, and material selection. These certifications provide a benchmark for the design and construction of sustainable buildings by providing a third-party assessment of the built environment's sustainability. In addition, they promote the use of best practises and new technologies in the built environment and encourage building owners and developers to invest in sustainable design and operations. In addition, this study intends to include sustainable landscaping and green spaces as assessment criteria.

In the context of affordable housing, green spaces and sustainable landscapes are essential components of sustainable communities because they provide a place for residents to connect with nature and each other and improve the quality of life for all. The implementation of energy-efficient practises and efficient waste management strategies are crucial in mitigating the environmental impact of residential structures. Residences that are designed to be energy efficient have the ability to decrease their electricity consumption, which in turn can lead to a reduction in greenhouse gas emissions. Additionally, the implementation of effective waste management practises can serve to limit pollution, while simultaneously promoting recycling and the conservation of resources. The implementation of energy-efficient features in residential buildings has the potential to substantially mitigate the cost of utilities for occupants, consequently augmenting the affordability of housing. Likewise, proficient waste management has the

potential to curtail expenses linked with waste elimination and may even yield revenue via recycling initiatives (Legambiente, 2019).

Economic Factors

The design strategy of architectural and urban planning is often perceived to be independent of the economic elements of the case study criteria. The authors contend that economic factors can be integrated into the design strategy when evaluating and contemplating social rented housing initiatives, particularly with regard to the comprehensive design of such projects. The primary factor that warrants consideration, as evidenced by historical precedent, is the cost-effectiveness of social housing initiatives that provide tenants with cost-rental options, often facilitated by regulated rent controls. The cost-effectiveness of social rented housing projects has a significant in-

fluence on the affordability of housing over an extended period. Furthermore, the cost effectiveness of a housing project has implications for the future maintenance expenses of the residences and the financial sustainability of the developer or governing body. The attainment of economic sustainability, coupled with the maintenance of equitable rental rates and superior building standards, is a crucial criterion for evaluating the effectiveness of a social housing initiative, as viewed through the lens of a developer. The correlation between the housing predicaments of a city or community and the economic and employment status of the locality is frequently observed. Collaboration between developers and local authorities can be employed to deliberate on design strategies that promote the construction of sustainable communities and simultaneously stimulate the local economy. Commercial buildings can offer employment opportunities within a designated community services sector, catering to the needs of local

residents. In the long run, the success of housing projects hinges on a design strategy that is both sustainable and cost-effective for social rented housing. Nevertheless, economic considerations do not constitute a criterion for analysis that can be condensed and streamlined. Diverse projects spearheaded by distinct developers encounter varying obstacles across diverse regions and municipalities. The significance of economic factors in project implementation is contingent upon the project's goals and the contextual framework in which it is situated.

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<http://www.programmaurbano.it/attachments/article/148/Allegato%20URBAN%20PROMO.pdf>

5./ Individual Case Analy-
ses

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5.1/ Case Analysis: Social
Village Cascina Merlata, Milano,
Italy

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Introduction

The Social Village Cascina Merlata is a significant social housing initiative situated in the north-western periphery of Milan, Italy. It is a component of the Cascina Merlata urban planning initiative. The area is designed to promote integration, sustainability, and social inclusivity by incorporating residential, commercial, and public spaces. A vast expanse of verdant parkland serves as a unifying link between residential, commercial, and office areas. (Figure 5.1.2) The Cascina Merlata urban area plan is a novel mixed-use urban development strategy that seeks to enhance the sustainability, livability, and connectivity of the Rho-Pero region. The Social Village

Figure 5.1.1 Location of Social Village Cascina Merlata, Source: Basemap From Openstreetmap, illustrated by author

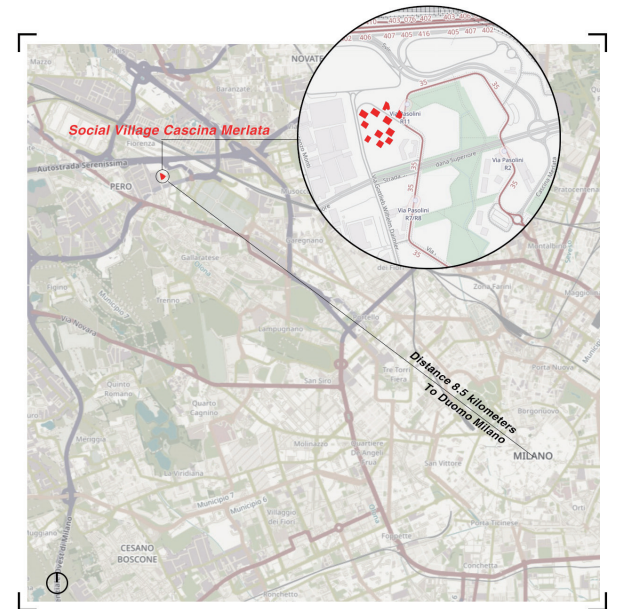


Figure 5.1.2 New Master Plan of Cascina Merlata Urban Planning Project. Source: <https://www.cascina-merlata.net/alla-scoperta-del-nostro-masterplan/>



initiative is situated in the northernmost region of the recently developed Cascina Merlata area, adjacent to the Milano-Mind Urban Innovation Zone, presently in the process of being constructed.

During the initial planning phase of the Social Village Cascina Merlata project, it was decided that seven out of the total eleven high-rise buildings would be designated as accommodation for the Milan Expo 2015. Following the 2015 Milan Expo, the Expo dormi-

tories were converted into multi-family social housing, which, along with four new towers, comprised the Social Village Cascina Merlata project to alleviate the housing shortage. The Social Village Cascina Merlata initiatives to redefine the concept of social housing by offering inhabitants a living space that is socially integrated, ecologically sustainable, and financially feasible. This initiative caters not only to individuals who are socially and economically marginalised, but also to those who fall within the “grey zone” and lack access to public housing while being unable to afford market-rate housing. The aim is to redefine the notion of urban living by offering inhabitants a living environment that is socially cohesive, environmentally sustainable, and economically feasible.

Table 5.1.3 Introduction of Social Village Cascina Merlata Project. Source: illustrated by author

Category	Details
Project Name	Social Village Cascina Merlata
Location	Milano, Italy
Initiation and Completion	2011 - now
Architects	Cino Zucchi Architetti, C+S Architects, MCA di Mario Cucinella Architects, Teknoarch, B22, and P.U.R.A
Number of Buildings	11
Residential Units	684
Key Principles	Inclusion and Diversity ; Sustainability; Mixed-Use Development
Housing Types	Single, 2 Rooms, 3 Rooms, 4 Rooms Apartments
Sustainability Features	Geothermic System, District Heating, Solar Thermal Plant, Landscape Development
Community Services	Gyms, Public Library, Children’s Space, Flexible Classrooms
Ownership	EuroMilano SpA

Housing Quality

The Social Village Cascina Merlata comprises 11 high-rise residential buildings, which were designed by six architectural firms that were selected from an international competition. These firms include Cino Zucchi Architetti, C+S Architects, MCA di Mario Cucinella Architects, Teknoarch, B22, and others. The integration of the proposals for high-rise residences with the master plan was necessary. From the outset of the project, the architects possessed a clear understanding of the requisite flexible flat types that would be necessary to accommodate the diverse needs of the Social Village Cascina Merlata. These flats were designed to be adaptable, capable of transitioning from hotel-style accommodations to family-oriented living spaces. Teknoarch's approach involves grouping housing units into modules of 3*6 around a central core, based on the specific requirements of the household composition.(Fig-

ure 5.1.4) The one-bedroom flat with the smallest dimensions encompasses three modules, with a total area of 50 square metres. This particular type of dwelling is well-suited for individuals or couples who do not have children. The two-bedroom flat, which is the second smallest in size, comprises of five modules and covers an area of 77 square metres. This particular flat is deemed appropriate for families consisting of one child. The most spacious flat available for families comprises of three bedrooms and spans across seven modules, with a total area of 97 square metres. Furthermore, Teknoarch has devised a special floor plan that incorporates exclusive service areas such as lavatories, hallways, and cooking ranges that necessitate internal water and electricity plumbing.(Figure 5.1.5) Upon examination of the building plan prior to and subsequent to the Expo, it is evident that the conversion of serviced flats to family flats necessitated the removal of solely two light partition walls in the two and three bedroom units. As



Figure 5.1.4 Floor Plan Strategy of Teknoarch Building. Source: <http://www.up-lab.it/expo-village/?lang=en>

per the author's analysis of the high-rise residential floor plans, it can be inferred that the Social Village Cascina Merlata is primarily designed to cater to families as its target residents. None of the 11 towers offer individual dwellings in the form of 20 square metre studios. The most diminutive dwelling units are single-bedroom apartments designed for couples or senior citizens, with dimensions that span between 45 to 55 square metres. Approximately 19% of all residential forms are comprised of one-bedroom residences.

The majority of two-bedroom apartments, comprising 55% of the sample, exhibit a floor area between 70 and 80 square metres. Around 23% of the three-bedroom dwellings in the social village Cascina Merlata have a total area exceeding 90 square metres. MCA Studios has designed larger leap-frog flats that constitute the remaining 3% of housing forms.

The Cascina Merlata urban regeneration project necessitated design efforts to ensure that the area did not

Figure 5.1.5 Floor Plan Strategy of Teknoarch Building. Source: <http://www.up-lab.it/expo-village/?lang=en>



become an urban island, with accessibility being a crucial aspect. In 2017, bus route 35 was introduced with the aim of linking the Merlata Park locality to the M1 Molino Dorino metro station, while also catering to the various commercial and public amenities situated along the said route. Furthermore, to complement the existing bus network, Bosch's roboshuttle, an autonomous robotic shuttle, will be deployed on the via Pasolini ring road. In addition to the roboshuttle, there is a deployment of shared electric vehicles

that have already gained widespread usage. (Figure 5.1.6) According to the author's perspective, the provision of a solitary bus route may not be sufficient to enhance the level of accessibility to the Cascina Merlata region. The proposed implementation of an intercity rail station linking the MIND area and the Stephenson area, has the potential to benefit the burgeoning high-density community. (Figure 5.1.7) Furthermore, the Social Village location ensures accessibility and pedestrian permeability through the incorporation of public use

Figure 5.1.6 Sharing Cars and Smart Shuttle Bus Source: <https://www.euromilano.net/news/bosch-ed-euromilano-la-mobilita-del-futuro-presenta-to-primo-pullmino-elettrico-guida-autonoma/>



areas that connect Merlata Park to the main road system in an east-west direction, as well as the meticulous design of access routes and internal pedestrian pathways. (Figure 5.1.8) The design plan of the Social Village, as stated by CZA, addresses the security concerns of the premises. It is mentioned that out of the three primary entrances, the entrance located in close proximity to Merlata Park will be equipped with a security room and concierge. The remaining two entrances will be secured through the implementation of video surveillance, aimed at ensuring the safety of the tenants.

Community Engagement & Social Sustainability

The inception of the Social Village Cascina Merlata initiative stemmed from the aspiration to establish a cooperative cohort of inhabitants. The Social Village has allocated certain public areas for the purpose of fostering knowledge acquisition, social

Figure 5.1.7 Planning of future S-line Train Station Source: <https://blog.urbanfile.org/2018/12/29/milano-trasporti-proposte-due-nuove-stazioni-per-mind-e-stephenson/>

Figure 5.1.8 Social Village Ground Floor Plan Source: Cino Zucchi Architecture



connections, and cooperative efforts among residents. Eleven of the high-rise dwellings situated in the Social Village Cascina Merlata have been specifically designed to incorporate indoor communal spaces on the ground floor. These spaces serve various functions, including communal reading rooms, communal kitchens, and meeting rooms. Apart from the aforementioned shared areas that foster cooperation and camaraderie among inhabitants, provisions have been made for service facilities such as a fitness centre,

laundry room, and concierge services. (Figure 5.1.9) VIVI Village, a residents' association founded in 2018 by its inhabitants, assumes responsibility for coordinating communal activities and overseeing the management of shared spaces. The organisation coordinates a diverse array of events and initiatives, encompassing facilitating affordable product procurement for inhabitants, arranging recreational activities for children, organising outdoor sports activities, and hosting social gatherings, among others. The activities serve to

Figure 5.1.9 Community Service on Ground Floor Source: <https://www.archdaily.com/612821/cascina-merlata-residential-development-mario-cucinella-architects/55120dcbe58ceec369000043-site-plan>



enhance social cohesion within the community and foster greater interpersonal connections among individuals. Last year, the Social Housing Foundation initiated the development of a mobile application named 'Planet App' that is based on the Internet of Things (IoT) technology. The mobile application enables inhabitants to access details pertaining to reservable communal areas, schedules of upcoming events, and other relevant information. (Figure 5.1.10)

Figure 5.1.10 IoT Application on Phone and PC Source: <https://m.facebook.com/fondazionehousing sociale/photos/la-piattaforma-space-h-ideata-dalla-fondazione-housing-sociale-per-dare-agli-abi/2312541338987161/>



UNITA' IMMOBILIARE	CANONE MENSILE UNITA' IMMOBILIARE CON POSTO AUTO E CANTINA (canone convenzionato)	CANONE ANNUO UNITA' IMMOBILIARE CON POSTO AUTO E CANTINA (canone convenzionato)
Bilocale	da € 402 a € 495	da € 4.825 a € 5.940
Trilocale	da € 596 a € 858	da € 7.155 a € 10.295
Quadrilocale	da € 670 a € 745	da € 8.050 a € 8.950



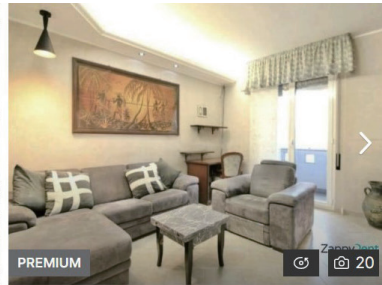
2-room flat via Appennini, Gallarate, Milan

€ 1,150/month



2-room flat via Alex Visconti, Gallarate, Milan

€ 1,000/month



3-room flat via Mario Borsa, Gallarate, Milan

€ 1,250/month

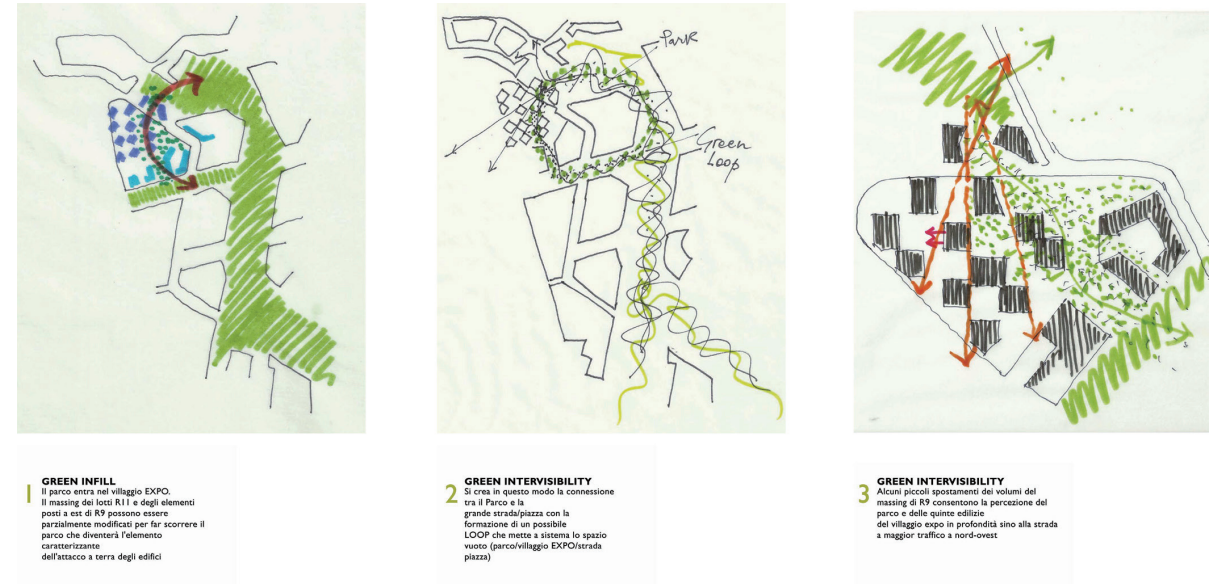
Figure 5.1.11 Publicly announced rents of Social Village Cascina Merlata. Source: <http://www.socialvillagecm.it/>

Figure 5.1.12 Free market Rent Surrounding. Source: <https://www.immobiliare.it/>

In terms of affordability, Social Village Cascina Merlata promotes controlled prices and rents for convenient living. Based on the data pertaining to the rentals and sales of the first phase of Social Village, it can be inferred that out of the total of 397 flats in the first phase, 98 were leased for a prolonged duration at a rate of €65/m²/year. A total of 129 units were leased through the utilisation of redemption agreements for future purchases. As per the rental price chart provided by Social Village Cascina Merlata, the monthly rent for the rental homes varies between €402 per month for the smallest one-bedroom flat and €745 per month for the largest three-bedroom family

flat. (Table 5.1.11) The cost of this housing option is comparatively lower than the prevailing rental rates of private residential properties in the vicinity. (Figure 5.1.12) Individual applicants seeking public housing in Milan must meet the eligibility criteria of having an ISEE income not exceeding €16,000. In contrast, the Social Village Cascina Merlata mandates a range of 14,000 to 40,000 ISEE for individual applicants seeking to enter into the agreement. The Social Village Cascina Merlata presents a promising prospect for enhancing the housing conditions and alleviating the rental encumbrance for the populace residing in the aforementioned 'grey zone'.

Figure 5.1.13 Design Strategy of C+S Building. Source: http://premiobaffarivolta.ordinearchitetti.mi.it/portfolio_page/23_cs-architects-social-housing-cascina-merlata-r11/



Environmental Sustainability

The 11 high-rise residential towers of the Social Village Cascina Merlata have been categorised as A class in relation to their energy efficiency. The building technology encompasses a range of features including photovoltaic panels, district heating, radiant floors, air handling units, and building solutions that ensure high thermal insulation. These solutions include the selection of façade coatings and window and door materials. The architects of the Cascina Merlata building opted for a versatile and high-performance solution for its insulation, namely the Baunit Star external insulation system.

This system features 12 cm thick EPS insulation panels with a high performance rating of 0.035 W/mK. The façade insulation systems offered by Baunit have received Eta certification and adhere to the Etag 004 guidelines, thereby contributing to the optimisation of energy conservation and enhancement of comfort. The implementation of these construction technologies is expected to result in a 50% reduction in winter heating consumption on an annual basis. Renewable energy sources are utilised to power all the buildings in Social Village. Regarding waste management, every tower is furnished with an individual waste disposal chamber that has a negligible

effect on the communal area.

The provision of ample green landscape buffers is imperative for a high-density high-rise residential area like Social Village Cascina Merlata. C+S Architects presented their proposed solution as the architects for the second phase of the project. Their approach involved manipulating and twisting the residential volumes to enhance the views of the majority of the flats towards the park. Additionally, their design aimed to create a seamless connection between the public space of the park and the main street/square. (Figure 5.1.13)

Economic Factors

Given that the Cascina Merlata area remains in a developmental stage, the present analysis can solely anticipate forthcoming progress by examining the current circumstances.

The emergence of social housing

units has resulted in a discerning residential market in Milan. The foundation of this virtuous cycle of development is predicated on effective market surveillance and security measures. In light of the economic ramifications resulting from the Covid-19 pandemic, it is imperative to acknowledge and consider dissenting perspectives and sceptical viewpoints. In his blog, Giacomo Manfredi expresses scepticism regarding the economic feasibility of social housing. The individual acquired knowledge that certain residents of the communal village were experiencing financial hardship and were unable to fulfil their rental obligations due to the impact of the COVID-19 crisis. Insufficient readiness on the part of developers and managers to anticipate such crises is expected to persistently impact the economic viability of social communities.

Summary

In summary, the Social Village Cascina Merlata initiative comprises

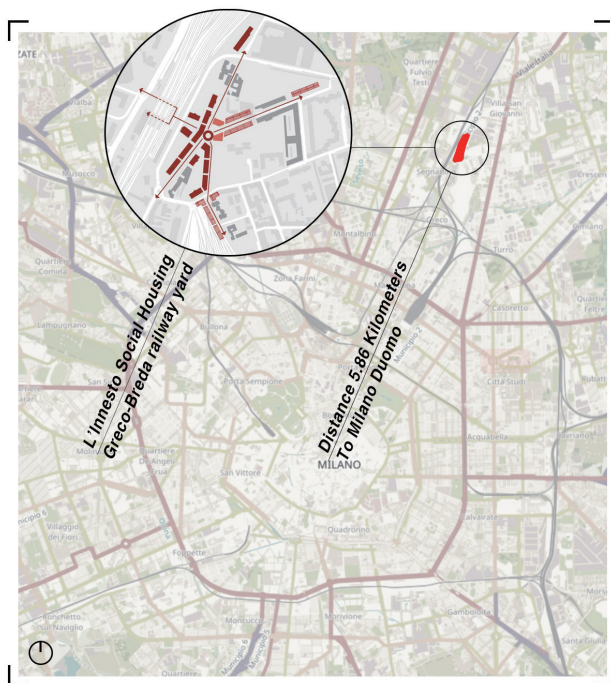
a diverse range of residential accommodations that accommodate various demographic profiles, promoting inclusivity and diversity. The provision of communal amenities, such as gardens, terraces, and community spaces, fosters robust community involvement. Furthermore, it is noteworthy that the aforementioned system is effectively incorporated with digital technologies, thereby enhancing its accessibility and promoting a feeling of communal support. The project's dedication to social sustainability is evidenced by the implementation of controlled rents and the establishment of a residents' association. The incorporation of verdant green areas and eco-friendly landscaping practises contribute to the promotion of a salubrious residential milieu. The Social Village Cascina Merlata project showcases its dedication to environmental sustainability through the implementation of a range of building techniques and certified energy performance. Due to its ongoing developmental stage, the analysis is unable

to ascertain its present economic performance. Nonetheless, there is a basis for the assumption that the expansion of the Cascina Merlata and MIND areas will result in the provision of an increasing number of employment opportunities and infrastructure. Various factors can potentially contribute to the economic sustainability of a social village.

Nonetheless, there exist persistent indications of potential deficiencies in Social Village Cascina Merlata that could impede its sustained prosperity. The prevalence of two-bedroom flats in Social Village Cascina Merlata is notably greater in comparison to other types of flats. Due to the trend of smaller family structures, the current stock of single-occupancy or studio-style flats is insufficient to accommodate the growing population of single individuals. Furthermore, the current uniformity of public transport could potentially impact its level of accessibility. According to the authors,

it is imperative to ensure that residential areas do not become isolated. To achieve this, it is essential to prioritise the synchronisation of infrastructure development alongside housing construction and operation schedules. The Social Village Cascina Merlata operates under the Public-Private Partnership (PPP) model, which can potentially result in a misalignment of interests between the public good and private financial gain. Inadequate management of this aspect may have an impact on the overall affordability or quality of the housing provisions.

Figure 5.2.1 Location of L'Innesto, Source: Basemap From Openstreetmap, illustrated by author



5.2/ Case Analysis: L'Innesto, Milano, Italy

Introduction

The inaugural edition of the 'Re-inventing Cities' global competition, organised by C40, saw the triumph of L'Innesto, a social housing initiative spearheaded by Redo Sgr. The L'Innesto initiative aims to establish itself as a bona fide "new social housing area" in Milan, thereby becoming the foremost "zero emission area" in the country. The objective of this case study is to conduct a comprehensive analysis of the L'Innesto housing project, examining various facets such as housing standards, architectural principles, community involvement tactics, and environmental sustainability features. The evaluation will be predicated upon qualitative data obtained from project documents and planning reports.

Table 5.2.2 Introduction of L'Innesto Project. Source: illustrated by author

Category	Details
Project Name	L'Innesto
Location	Milan, Italy
Initiation and Completion	2019-2025
Architects	Barreca & La Varra
Number of Buildings	24
Residential Units	400 social housing units + 300 student units
Key Principles	Zero-carbon; Sustainability; Diversity; Innovation
Housing Types	Single; family; elderly apartments; Student Accommodation
Sustainability Features	Innovative Fourth Generation District Heating System (4GDH), Bioremediation technology, Community agriculture, Sustainable bus sharing system, Sustainable Water Management
Community Services	Urban agriculture, Community food center, Innovation center (CED),
Ownership and Developer	Fondo Immobiliare Lombardia managed by Redo Sgr

Housing Quality

The L'Innesto project, which falls under the category of social housing, offers a diverse selection of housing options such as individual apartments, multi-family flats with 2-4 bedrooms, and flats specifically designed for students. The apartments exhibit a size spectrum spanning from 46m² to 136m², and encompass a diverse selection of ten distinct floor plans, catering to the need for adaptability (Figure 5,2,3). The L'Innesto project's selection of construction materials exhibits a distinct emphasis on longevity, energy conservation, and ecological responsibility. The residential complex of L'Innesto places emphasis on the welfare of its inhabitants by incorporating design features that foster both physical and psychological health and security. The implementation of secure and illuminated pathways for pedestrians, along with the integration of green zones and open-air leisure facilities that encourage physical exertion and com-

munal engagement.

L'Innesto is an urban regeneration initiative that seeks to establish a cohesive community with robust connectivity and mobility by repurposing a disused railway location. Redo, as a developer, placed emphasis on public transport systems and shared transport systems in the design requirements in response to the international competition "Reinventing the City." Furthermore, within the realm of urban design, Redo aimed to reinstate the cycle paths and associated infrastructure located in and around the designated area. Redo aims to modify the current mobility patterns of inhabitants by implementing various strategies, including the reduction of private car parking and the improvement of public transport services. The transportation hub located on the site will be transformed into a centralised facility for shared transportation, featuring shared electric vehicle charging stations, designated parking areas for BikeMi bicycles, and

various other related amenities (Figure 5.2.4). At this location, individuals have the opportunity to transfer to public transportation in order to reach more distant destinations, resulting in a transportation experience that is truly uninterrupted.

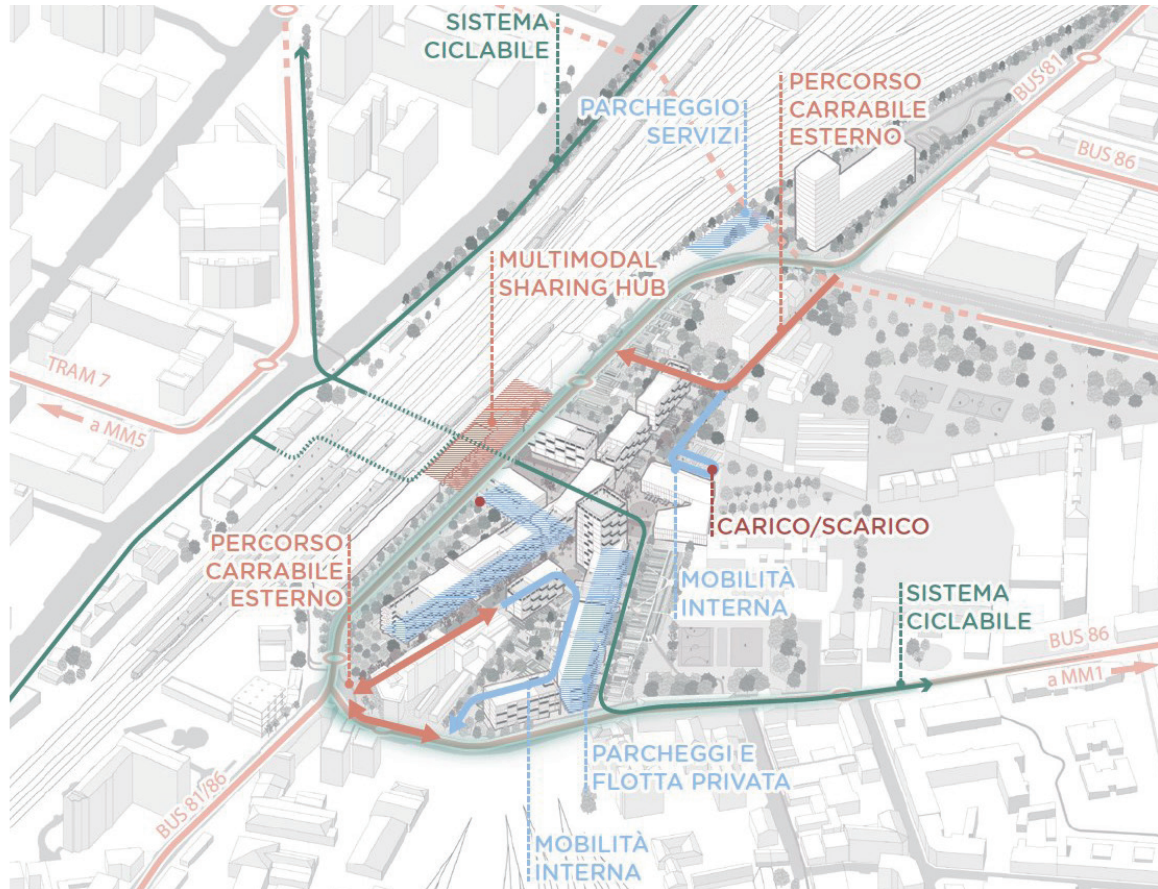
Community Engagement

L'Innesto is more than just a housing project: out of a total area of 62,000 m², in addition to 24 buildings for residential use (400 social housing units and 300 student units), the remaining 45,000 m² will be used for parks, pedestrian space and well-appointed common areas. The project will create an open and collaborative ecosystem where sustainability, innovation and sociality are intertwined. To achieve this goal, it provides services managed in an integrated manner by residents, business entities and non-profit organizations. The Human Adaptive Zone

Figure 5.2.3 Flexibility of housing types. Source: Fase 2, Documento 3, L'Innesto Relazione tecnico descrittiva, 2019



Figure 5.2.4 Mobility. Source: Fase 2, Documento 3, L'Innesto Relazione tecnico descrittiva, 2019



(Figure 5.2.5) will be composed of spaces and services: communal kitchens, living rooms, laboratories, vegetable gardens and green areas, services at city and community scales, engaged in an integrated manner by residents, entrepreneurial entities, non-profit organizations and local stakeholders.

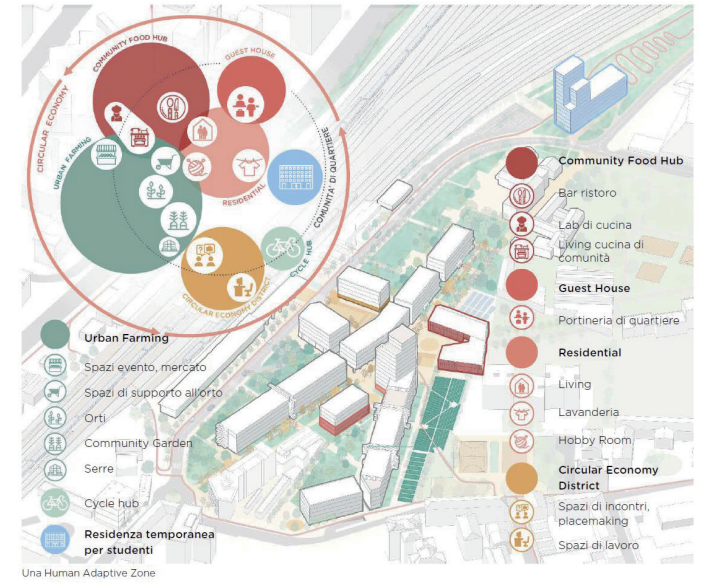
Besides, all L'Innesto's activities can be accessed digitally on the community app, which integrates innovative solutions for each of the 10 challenges,

supporting monitoring, service management and risk management (Figure 5.2.6).

The Circular Economy Demonstration Zone will develop and test innovative models of production, consumption and lifestyles based on circularity and community participation. The district offers entrepreneurship support events, the development of projects among local companies, start-ups and innovative SMEs, as well as training

Figure 5.2.5 Human Adaptive Zone. Source: Fase 2, Documento 3, L'Innesto Relazione tecnico descrittiva, 2019

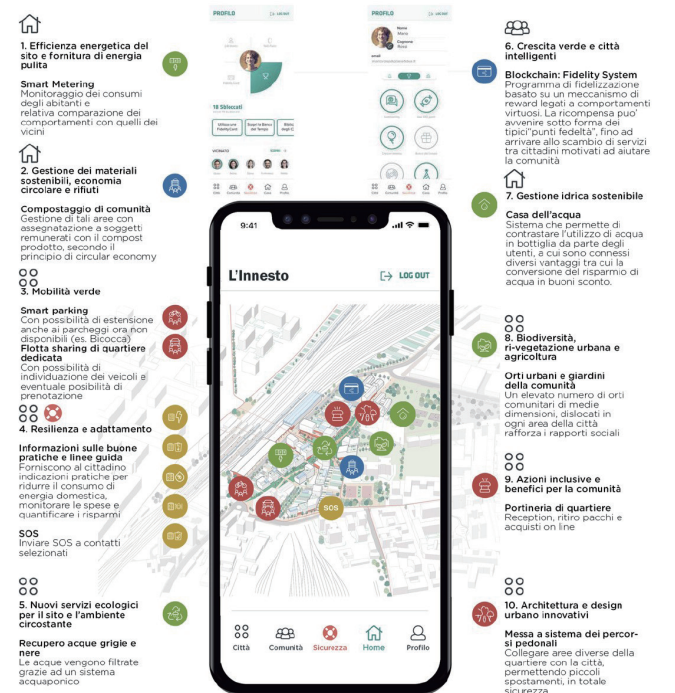
Figure 5.2.6 Smart Communities. Source: Fase 2, Documento 3, L'Innesto Relazione tecnico descrittiva, 2019



sessions focusing on the circular economy. In this way, the circular economy zone becomes a catalyst for job creation on the theme of innovation.

Social Sustainability

Speaking of an important criterion for social sustainability, L'Innesto, as a 'social housing' project, announced their allocation before the projects had even started construction. Of all the 400; 'social housing' units totaling 21,000 square metres, a maximum



Le soluzioni evidenziate nello schema sopraindicato sono quelle più significative per

Tabella di riepilogo della distribuzione delle superfici destinate alle diverse funzioni urbane private e alle funzioni di interesse pubblico o generale secondo la disciplina urbanistica vigente.

SLP ERS		m ²
a	Edilizia convenzionata agevolata	8.324 max
	Edilizia convenzionata agevolata in locazione con PFV	
	Coabitazione con servizi condivisi (Co-housing)	
b	Edilizia in locazione a canone moderato	10.676 min
	Edilizia in locazione a canone concordato	
	Edilizia in locazione a canone convenzionato	
	Residenze per studenti universitari	
	Coabitazione con servizi condivisi (Co-housing) di natura sociale	
c	Edilizia in locazione a canone sociale (non monetizzabile)	2.000 min
TOTALE ERS		21.000 m²
SLP Funzioni compatibili		m²
	Circular Economy District	1.200
	Zero Waste Food Store	500
	Community Food Hub	1.200
	Commercio	100
TOTALE SLP Funzioni compatibili		3.000 m²
TOTALE SLP		24.000 m²
SERVIZI	Residenza Universitaria (SLP Convenzionale)	7.800 m²
VERDE PUBBLICO ATTREZZATO		45.042 m²

Table 5.2.7 ERS Allocation Plan. Source: Fase 2, Documento 3, Relazione tecnico descrittiva, 2019

of 8,324 square metres are allocated to ERS category a, i.e. subsidised price-purchase housing; a minimum of 10,676 square metres are allocated to ERS category b, i.e. rent-controlled rental housing; and a minimum of 2,000 square metres are allocated to ERS category c, i.e. social rented dwellings that are not re-monetisable (Figure 5.2.7). Although the exact amount has not yet been announced, it is conceivable that the initial price will be lower than the free market price in the surrounding catchment area, whether for rent or

purchase.

In addition, L'Innesto has appointed **Delta Ecopolis** as the 'social manager' for the project. In essence, the role of 'social manager' is that of an experienced 'social enterprise' with the aim of establishing a 'bottom-up' management model. In another sense, the social manager is a bridge between the community, the property developer and the territorial government.

Environmental Sustainability

As the first zero-carbon social housing community in Italy, the design team selected the most innovative construction techniques and the most sustainable factory engineering and management strategies in order to achieve a balance of zero carbon dioxide emissions within the predetermined time frame. This goal can be achieved within 30 years thanks to strategies such as fourth generation district heating (DTL 4G) powered by renewable energies, innovative building systems, bioremediation and urban afforestation, active mobility, zero carbon Funds to reduce greenhouse gas emissions and voluntary carbon credits.

Green space

It provides 72% of the well-appointed green spaces, introducing around 700 new trees. 76% of the area will be a filtering surface (not built in or below ground) with a green connection system and equipped green spaces. Private and educational vegetable gardens, orchards, greenhouses and com-

munity gardens round out the green offerings, offering each resident 38m² of self-contained green space. Various open spaces and circular economy zones, community food centers and zero-waste food stores create a series of green "separations" between the houses and public spaces.

Bioremediation

Part of the excavated and reclaimed land (20,000 m³) will be treated in situ using bioremediation techniques, reducing 63 tonnes of CO₂. In addition, the area dedicated to greenery in the project (more than 60% of the total area) is used for vegetable gardens with the possibility to use compost produced on-site from the residents' organic waste.

Urban agriculture

The community will be equipped with educational gardens, orchards and greenhouses. There will also be two aquaponic ponds (a fully organic, ecologically sustainable production

system that combines aquaculture - the reproduction of aquatic species - with hydroponics, ie growing vegetables without using land). The combination of aquaculture and hydroponic gardening will significantly reduce chemical inputs - fertilizers, pesticides, fungicides and waste.

Recyclable material

The buildings of the new district will use prefabricated buildings and technical systems with a high proportion of sustainable materials to control the generation of carbon dioxide and waste as much as possible, and to be able to demolish and 100% recycle the structure. Timber is used to construct floors and infill walls, reinforced concrete (high strength post tension) is used for beams and columns. The use of dry-joint technology allows dismantling of the structure so it can be 100% recycled at the end of its useful life, in line with sustainability and safety, further reducing carbon emissions and thus improving the circular economy.

Green travel

L'Innesto aims to be a role model for Milan in terms of future urban mobility: bike sharing, car sharing and community fleets will reduce the sector's motorization rate to 66%, while increasing bicycle and pedestrian zones by linear kilometers and Reduction in CO2 emissions associated with the movement of residents.

Water management

L'Innesto envisions sustainable water management throughout the water cycle, enhancing and reusing stormwater, avoiding the saturation of sewage systems and minimizing consumption and waste of potable water. 100% of rainwater is reused on site, drinking water consumption is saved by 30%, and 15% of black water is directly treated and recycled on site.

Renewable Energy

The Innovative Fourth-generation District Heating System (4GDH) will

be powered by renewable energy and will include a waste water heat recovery system. The Aquaponics tank will integrate two normally separate cycles, aquaculture and hydroponic gardening, minimizing chemical input and waste output.

Summary

The L'Innesto social housing initiative offers a noteworthy illustration of a pioneering housing resolution under the auspices of a public-private collaboration in Milan, Italy. The L'Innesto initiative exhibits a praiseworthy degree of community involvement by endeavouring to engage local stakeholders in the developmental process and fostering social interaction among inhabitants via communal amenities and public areas. The project's dedication to environmental sustainability is evidenced by the utilisation of energy-efficient materials and technologies, alongside the integration of green spaces and the advocacy for public transport. These measures

serve to diminish the carbon footprint and foster sustainable lifestyles. Nevertheless, the undertaking may encounter certain potential obstacles. Given that the project is still in progress, potential challenges may emerge with respect to meeting project deadlines, preserving housing affordability, and sustaining the delivery of superior services and amenities. Moreover, among all the housing types provided by the ERS, the aggregate area of non-monetizable social housing constitutes merely 9% of the total housing capacity. The affordability of various forms of ERS housing is being undermined due to frequent price hikes and diversion to the secondary market. A 9% allocation appears insufficient in effectively mitigating the ongoing housing crisis.

5.3/ Case Analysis: Milanosesto Unione 0, Milano, Italy

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Introduction

The case of MilanoSesto Unione 0 provides a distinctive prospect to explore the intricacies of urban regeneration within the framework of Milan's progressing social housing milieu. The aforementioned initiative, led by the globally recognised real estate corporation Hines, is located in the municipality of Sesto San Giovanni, situated on the northeastern periphery of Milan.

The master plan (Figure 5.3.2) signed by Foster + Partners offers a progressive development with green spaces, residential areas, new squares, retail and office spaces, as well as a public centre and research in the Health City, with the Besta Institute of Neurology and the Cancer Institute and a

private university centre in San Raffaele in the coming years.

As a first step in the overall plan, all of the Milanosesto Unione 0 project (Figure 5.3.3) comprises seven buildings containing student accommodation, free market housing, affordable housing (social housing in the Italian context), offices and a hotel.

The mentioned expansive development, which spans across a vast expanse of 1.5 million square metres, represents a significant urban undertaking that aims to revitalise a once-industrial locale. The urban regeneration initiative in Italy is anticipated to be the largest of its kind, symbolising the city's transition from an industrialised history to a future that prioritises sustainability, innovation, and social inclusivity. Unione 0 'affordable housing' project continues to explore housing models for affordable housing in Milan as an important part of the urban regeneration project.

The design principles and implementation strategies of the project can provide insights into the obstacles and possibilities encountered by comparable urban renewal endeavours on a large scale. The MilanoSesto Unione 0 affordable housing case study provides valuable insights into the complex task of promoting urban development and revitalization while simultaneously ensuring social inclusivity and affordability. In the course of this analysis, we shall examine the multifaceted economic, social, and political factors that influence this ambitious project and its potential ramifications for the future of urban housing development in Milan and other regions.

Figure 5.3.1 Location of Milanosesto Unione 0 project in Milan. Source: Openstreetmap, Illustrated by author

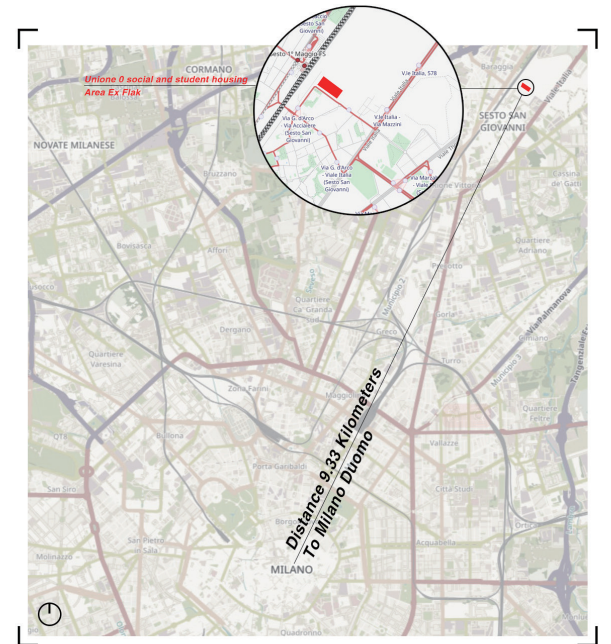


Figure 5.3.2 Masterplan of Milanosesto project. Source: <https://blog.urbanfile.org/2022/01/11/milano-sesto-san-giovanal-via-il-cantiere-unione-0-per-milano-sesto/>

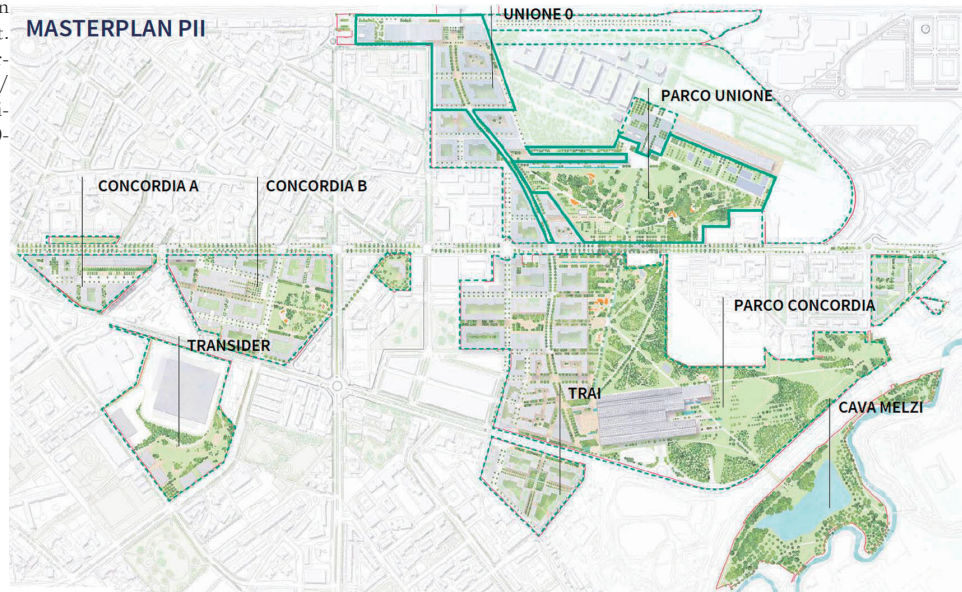


Figure 5.3.3 Unione 0 Plan Allocation. Source: <https://www.milanocittastato.it/archistar/rigenerazione-faraonica-a-milano-il-via-a-unione-zero/>

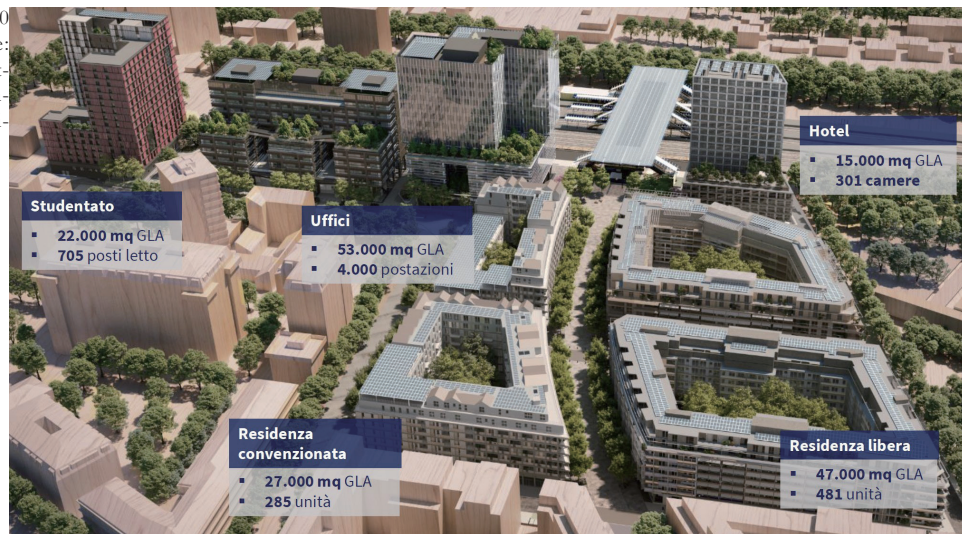


Table 5.3.4 Introduction of Milanosesto Unione 0 Project. Source: illustrated by author

Category	Details
Project Name	Milanosesto Unione 0-'social housing'
Location	Milan, Italy
Initiation and Completion	2022-2025(Anticipated)
Architects	Barreca&la varra
Number of Buildings	2
Residential Units	481(free market housing)+285(Affordable housing)+705(students accommodation beds)
Key Principles	Mixed-use development, Environmental sustainability, 'Build to Rent' housing model
Housing Types	One, two, three, four-rooms apartments
Sustainability Features	Use of renewable energy, Recycling and disposal of waste; Creating a green, low-carbon zone
Community Services	Aggregation spaces, gym facilities, sports activities, laboratories, laundry, cinema, game room, study rooms
Ownership & Developer	Milanosesto SpA and Hines

Housing Quality

While the complete details of the MilanoSesto Unione 0 social housing initiative have not been disclosed, the existing data suggests that the scheme for Unione 0 emphasises a mixed-use development approach. According to the report by the Unione 0 project team, the housing units at MilanoSesto are intended for families who seek to enhance their lifestyle by relocating, with regard to their household allocation preferences. (The European House - Ambrosetti,2021)

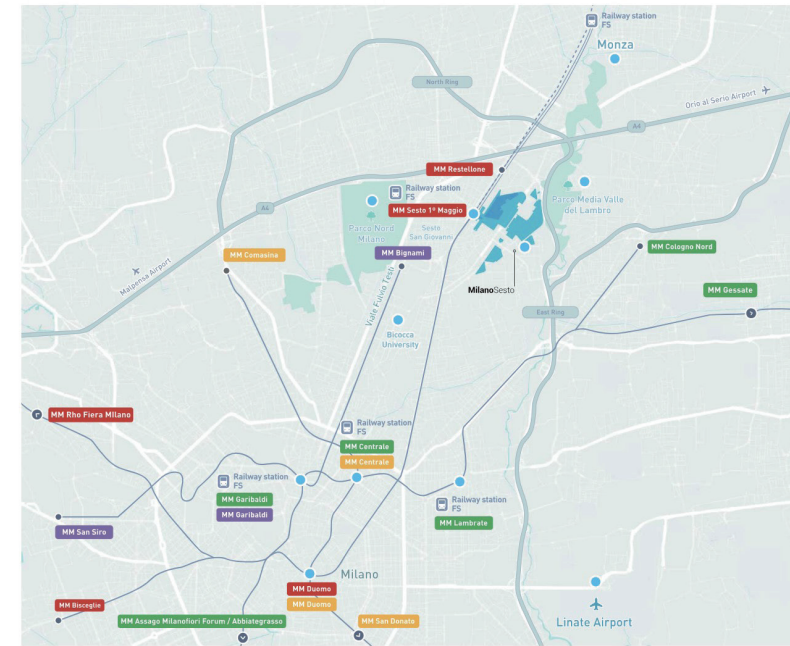
MilanoSesto Unione 0's favourable location offers advantages in terms of commuting times and connectivity to the centre of Milan. The project site is in close proximity to the Sesto San Giovanni train station, which offers convenient and effective public transport options to the city centre. The mentioned station is a constituent of the suburban railway system, specifically Line S, and provides a regular service

to Milan's principal railway station, Milan Central.(Figure 5.3.5) Typically, the duration of the commute spans between 15 to 20 minutes, rendering it a favourable alternative for denizens who are employed or enrolled in academic pursuits within the central business district. Furthermore, the proximity of the site to the Milan Metro Red Line (M1), a rapid transit system that serves the city, facilitates connectivity between Sesto San Giovanni and various significant regions of Milan, such as the city centre, the university district, and the financial district.

Housing quality encompasses various dimensions, including health. The development is making significant progress, particularly due to the incorporation of ample open areas, cycling and pedestrian routes, and other facilities that promote physical exercise. The prioritisation of sustainable building techniques and materials is known to enhance the quality of indoor environments, thereby promoting the overall

Figure 5.3.5 Connectivity and Mobility. Source: <https://www.milanosesto.it/en/>

MilanoSesto



Area Map

MilanoSesto	
Duomo	18 minutes by metro
Garibaldi FS	13 minutes by train
Centrale FS	20 minutes by metro
Lambrate FS	11 minutes by train
Bicocca University	5 minutes by train
Sesto 1° Maggio FS	1 minute by foot
Parco Nord	1.8 km / 20 minutes by foot
Parco Media Valle del Lambro	2 km / 10 minuti by bike
Monza FS	5 km / 5 minutes by train
Linate Airport	14 km / 14 minutes by car

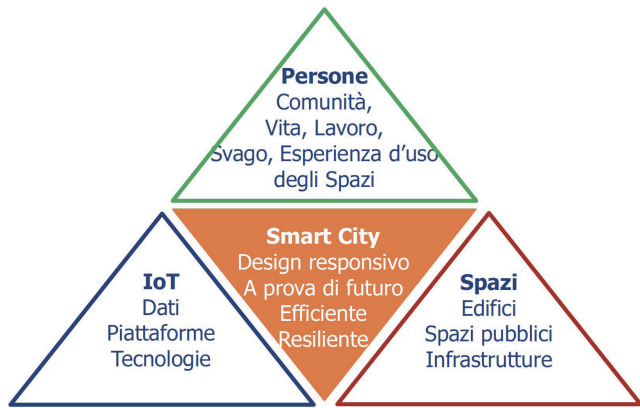
health and well-being of inhabitants. According to the architectural firm barrec&la varra, the residential design incorporates a feature wherein each flat is equipped with a balcony that seamlessly extends from the family living area.

In general, the MilanoSesto Unione 0 initiative appears to exhibit a significant dedication towards various aspects of housing quality. Nonetheless, a comprehensive evaluation of the standard of housing can only be conducted once the project is fully

functional. When it comes to social housing initiatives that are integrated into urban renewal schemes, there may be a discrepancy between the rate of housing development and the rate of development of urban amenities, which could lead to an inadequate living environment. The synchronisation of construction activities is a crucial factor in ensuring the efficacy of urban regeneration initiatives.

Community Engagement

Figure 5.3.6 Smart Community System. Source: Gli impatti della rigenerazione urbana delle ex aree Falck e la creazione di valore per il Sistema Paese - Executive Summary - Forum 2021, The European House - Ambrosetti



The milanosesto unione 0 social housing initiative is currently lacking a designated individual to fulfil the role of a social manager. During the initial public unveiling of Unione 0 in 2022, Mario Abbadessa, the Senior Managing Director of Hines Italy, expressed the company's desire to engage with a wider range of stakeholders in the region. This includes citizens, schools, local associations, as well as traders and other operators, in order to better understand their perspectives and incorporate their feedback into the project.

The 2019 report by Hines provides clarification on the developmental trajectory of Milanosesto Unione 0 with respect to community intelligence and digitalization (Figure 5.3.6). The community has been conceptualised as a smart city in various domains such as transportation, parking, traffic management, waste disposal, air quality, electricity, and other related areas. Hines aims to enhance the connectivity of commercial and community functions in the urban space through the implementation of an integrated IoT system, with the ultimate goal of improving management and efficiency.

Social Sustainability

Regarding affordability, Hines' 2019 project report indicates that Milanosesto provides housing at a reasonable cost, as evidenced by increased living space, reduced rental rates, and improved household services. As per Hines' computations, Milanosesto has

Chart 5.3.7 Comparison of living space available for the same price.

Source: Gli impatti della rigenerazione urbana delle ex aree Falck e la creazione di valore per il Sistema Paese - Executive Summary - Forum 2021, The European House - Ambrosetti

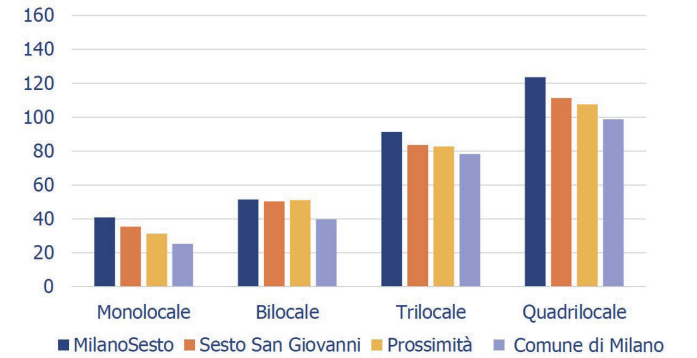
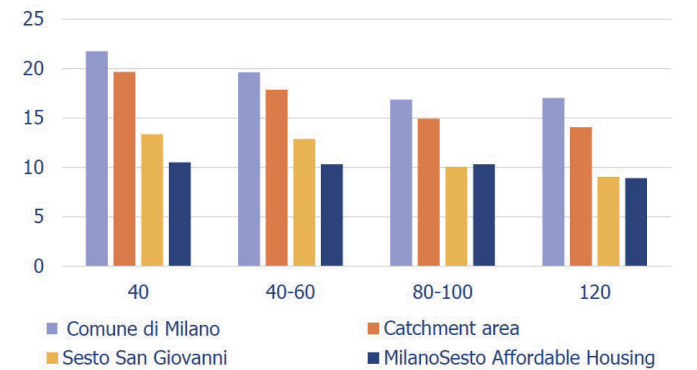


Chart 5.3.8 Comparison of residential unit prices.

Source: Gli impatti della rigenerazione urbana delle ex aree Falck e la creazione di valore per il Sistema Paese - Executive Summary - Forum 2021, The European House - Ambrosetti



the capability to provide more spacious apartments while presenting identical housing alternatives at an equivalent rental cost. The data indicates that, for a given price point, a studio flat offers 62% more space in comparison to a studio flat of similar cost in Milan. Similarly, the studio flat provides 31% more space than those available in the catchment area, and 17% more space than those in the town of Sesto San Giovanni (Table 5.3.7). Moreover, Hines asserts that the housing units located in Milanosesto exhibit a cost

reduction ranging from 39% to 52% in comparison to housing units of comparable size situated in Milan, without considering any supplementary amenities (Figure 5.3.8).

It is noteworthy to mention that the precise rental rates and payment modalities for Milanosesto Unione 0, which is the inaugural project to have commenced construction, have yet to be disclosed. The housing scheme implemented in Milanosesto Unione 0 comprises of a combination of rent-controlled 'social housing' and

Figure 5.3.9 The impact of energy efficiency and emissions reduction.

Source: Gli impatti della rigenerazione urbana delle ex aree Falck e la creazione di valore per il Sistema Paese - Executive Summary - Forum 2021



‘free market housing’, with the latter being twice as abundant as the former. The dataset utilised by Hines to gather these comparisons is unspecified. The inquiry pertaining to the specific housing type utilised by Hines in gathering these comparisons remains inconclusive within the context of this thesis. Simultaneously, it is widely recognised that the ‘build-to-rent’ housing paradigm entails the provision of both lodging and residential amenities to lessees as an integrated package. The issue of whether the inclusion of residential amenities such as gyms, care centres, shared office spaces, etc. in rental costs maintains affordability warrants further investigation.

Environmental Sustainability

The reclamation of Milanosesto, an urban regeneration project situated on a brownfield site in a former industrial area, holds significant importance for the attainment of environmental sustainability objectives, particularly in

the context of urban environments. The Milanosesto Unione 0 project is intended to attain global energy efficiency and construction standards, such as LEED, LEED for Neighbourhood Development, and WELL. The Unione 0 edifice is set to incorporate building solutions that are intended to curtail CO2 emissions. This will be achieved through the procurement and automated generation of renewable energy via solar panels, as well as the appropriate disposal of non-recyclable and recyclable waste. The implementation of high building standards is expected to result in a 30% reduction in energy demand in the area, in comparison to conventional building systems. Additionally, the incorporation of renewable energy sources and green areas is projected to prevent the release of 5,500 tonnes of CO2 emissions annually, which is equivalent to the emissions generated by 21,000 cars (Figure 5.3.9). The impact on environmental sustainability is expected to have a widespread reach across various domains.

Economic Factors

As previously stated, one of the key goals of Hines’ investment in the Milanosesto project is to stimulate the economic dynamics of the Ex Falck region. The investment made in Unione 0 amounted to €372.7 million and resulted in an indirect impact of €603.3 million by stimulating the supply and outsourcing chain across all economic sectors of the economy. Furthermore, this investment provided direct support for approximately 475 full-time positions, along with an additional 1,100 indirect positions and 590 induced positions, resulting in a total of 2,165 prospective employment opportunities.

Summary

In general, it is evident that the Milanosesto Unione 0 initiative exhibits a notable dedication to urban governance and housing standards, as evidenced by a comprehensive analysis of

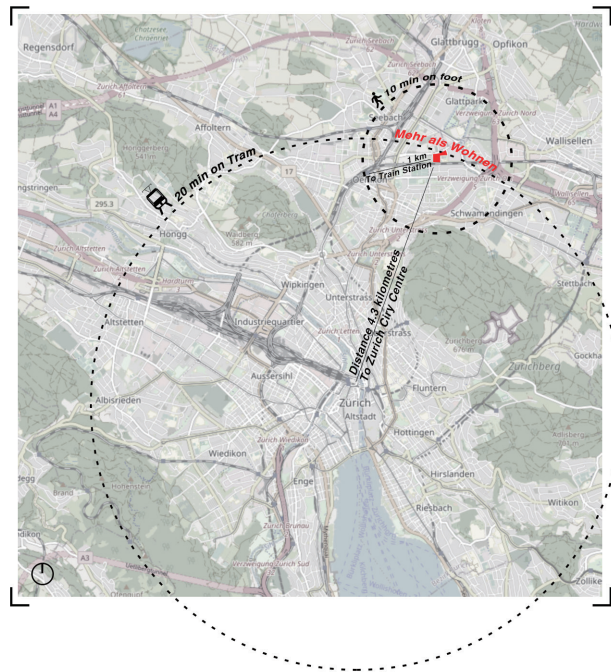
various publicly accessible data, pertinent media coverage, and Hines’ vision report. However, it should be noted that these initial assessments are solely founded on the perspectives of the developers and investors, rather than empirical outcomes. Further empirical analysis will be necessary after implementation to determine the precise impact of these initiatives. The efficacy of the project is contingent upon its execution and continual administration to ascertain its attainment of social, economic, and environmental goals.

Table 5.4.2 Introduction of Mehr als Wohnen Project.
Source: illustrated by author

Figure 5.4.1 Location Map of Mehr Als Wohnen.

Source: Openstreetmap, Illustrated by author.

5.4/ Case Analysis: Mehr Als Wohnen, Zurich, Switzerland



Introduction

"Mehr als Wohnen" (More than Living) is a pioneering social housing project located in Hunziker Areal in Zurich, Switzerland. This project is a large cooperative housing development initiated in 2007 and completed in 2015. The "Mehr als Wohnen" development is a real-life experiment in sustainable living and community-building, comprising 13 buildings with 397 residential units, along with commercial and communal spaces. Mehr als Wohnen redefines the concept of housing by integrating sustainability, diversity and innovation. This case study aims to analyse the unique features of this collaborative housing development, from its distinctive architectural features to the various community-building elements embedded in its design.

Category	Details
Project Name	Mehr als Wohnen (More than Living)
Location	Zurich, Switzerland
Initiation and Completion	2007-2015
Architects	Futurafrosch Architektur; Duplex Architekten; Müller Sigrist Architekten; Miroslav Šik Architekten; poolarch; Müller Illien Landschaftsarchitekten
Number of Buildings	13
Residential Units	397
Key Principles	Sustainability; Diversity; Innovation
Housing Types	Single; family; elderly apartments; shared flats; cluster apartments
Sustainability Features	Low-energy buildings; Heating system powered by renewable energy; mobility concept
Community Services	Day-care Centres, Grocery Stores, Restaurants, Offices, Studios, Event Spaces
Ownership	Mehr als Wohnen Cooperative Housing Development

Figure 5.4.3 Masterplan of Mehr als Wohnen Source: Duplex Architekten

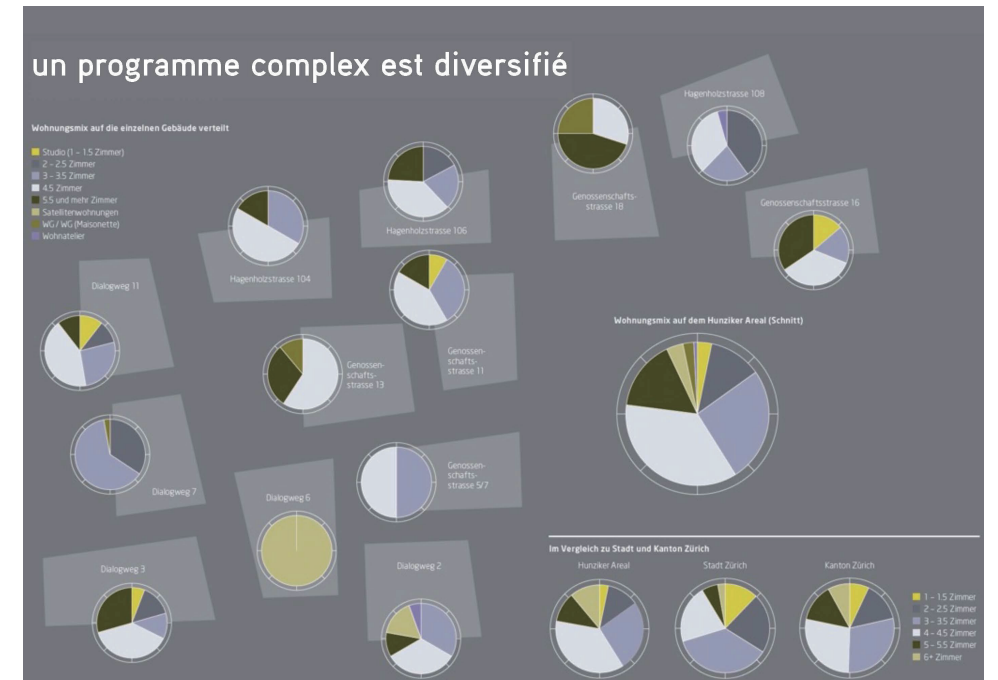


Housing Quality

In order to examine the proportional allocation of housing types and the design of individual housing units, it is necessary to trace the assignment of design tasks in Mehr als Wohnen. The urban design was initially chosen through a community-wide selection process that involved evaluating winning entries from an international competition. The master plan was subsequently developed by two architectural firms, namely Futurafrosch

and Duplex, with the primary goal of creating a contemporary and model urban district, rather than a mere extensive residential complex. In order to accomplish this objective, the building entity has been partitioned into thirteen irregular cube block that are densely arranged on the premises, as depicted in Figure 5.4.3 Masterplan. As a result of the substantial architectural workload, the participants in the competition were redistributed, and Duplex formulated six regulations for the masterplan that prioritise the interdependence of the

Figure 5.4.4 Unit distribution Source: Hugentobler et al, Mehr als Wohnen: Genossenschaftlich planen - Ein Modellfall aus Zürich



buildings, thereby satisfying the requirements of urban design. As a result, the four groups of architects, among them Duplex, were required to collaborate internally to address matters such as the consistent design of the building units, the allocation of settlement configurations, and the advancement of spatial and functional innovation.

Andreas Hofer, in his capacity as a member of the management board of the housing cooperative, characterised the strategy for allocating house

types in Mehr als Wohnen as intricate and multifaceted, as depicted in Figure 4.6.4 entitled "A complex and diverse programme ". In the housing project of Mehr als Wohnen, single studios constitute a minor proportion of the total units, specifically 3.3 per cent. On the other hand, households with 2-2.5 rooms, 3-3.5 rooms, 4-4.5 rooms, 5-5.5 rooms, and 6 or more rooms account for 11.7 per cent, 25.8 per cent, 36.7 per cent, 11.1 per cent, and 11.3 per cent, respectively. The figure (Figure 5.4.4) displays the precise distribution



Figure 5.4.5 'satellite flat' source: Wohnungs-Bewertungs-System WBS

Figure 5.4.6 photo of Haus G, source: POOL ARCHITEKTEN

Figure 5.4.7 photo of Inside Haus G, source: POOL ARCHITEKTEN



of household types per building. The diversity of flat types available at Mehr als Wohnen is evident. Regarding the Duplex-designed House A situated in the central region of the southern part of the site, the floor plan displays a staggered arrangement of one-bedroom and two-bedroom apartments on the upper floor. The diagram depicted in Figure 5.4.5. The term 'satellite flat' is commonly used in Switzerland to refer to this particular type of flat cluster. Multiple autonomous residential units are consolidated into a singular,

expansive unit. The users of a particular cluster are provided with exclusive amenities such as a private kitchen, bathroom and shower. Simultaneously, they partake in communal space facilities including spacious lounges, dining sections, and outdoor terraces. The allocation of design work for the 13 buildings in Mehr als Wohnen was distributed among four distinct architectural firms, resulting in a diverse range of architectural perspectives with regards to both facade and plan distribution. The centrally located House



G is a capacious, nearly square edifice designed for residential purposes. The substantial capacity of the space allows for the inclusion of a greater number of multi-family dwellings and more expansive shared living arrangements. To optimise the ingress of natural light into the indoor spaces, the light-receiving side of the building is configured such that the living rooms feature double-height windows, akin to the approach employed by Le Corbusier in the design of the Marseille flats. (Figure 5.4.6. and Figure 5.4.7) The architects of Mehr als Wohnen have employed varying approaches to construction materials with the shared objective of ensuring durability while adhering to cost constraints.





Figure 5.4.8 Function distribution on ground floor of Mehr als Wohnen, Source: DAB Deutsches Architektenblatt Translated by author

Community Engagement

The concept of community engagement was a pivotal factor in shaping the design strategy of Mehr als Wohnen. The housing project encompasses 13 buildings footprint of 40,000 square metres, of which 85% is allocated for residential purposes. The residual 15% of the internal area encompasses diverse communal areas such as commercial, corporate, and collaborative spaces. The functional distribution of public spaces, includ-

ing restaurants, retail areas, concierge services, laundry facilities, children's rooms, shared workshops and offices, workshops for individuals with disabilities, and unspecified public spaces, is illustrated in the ground floor plan. (Figure 5.4.8)

Social Sustainability

The cooperative housing model is exemplified by the Mehr als Wohnen project, which has become an emblematic initiative in tackling the challenge of housing affordability. As a result of the computed cost-rental expenses, the mean expense of a flat is 20-30% beneath the prevailing market rate of a corresponding flat. As per a statistical analysis disseminated by the city of Zurich, a 4-room flat is obtainable at a monthly rental rate of less than CHF 2,000, which is lower than the average market price of CHF 2,500 to 3,000. The primary factor contributing to Mehr als Wohnen's commendable outcomes in relation to affordability is the housing cooperative's non-profit character. The primary focus of the housing cooperative is to prioritise the affordability of tenants rather than maximising profits. Furthermore, the cooperative has established a private-public partnership with the Zurich government, which facilitates the ac-

Figure 5.4.9 photo of children join in a community event, source: Mehr als Wohnen official site: <https://www.mehralswohnen.ch/hunziker-areal/aussenraum/>



quisition of land at minimal or no cost, and consequently, the cooperative is able to secure bank loans at preferential interest rates. Apart from the expenditure on rent, communal facilities also aid occupants in curbing their living costs.

Zurich is widely recognised as one of the most costly cities to reside in throughout the European continent. As per the author's field interviews, residents of Mehr als Wohnen have the opportunity to purchase produce

such as eggs, vegetables and fruit from local farms within the community at a reasonable cost. As a reciprocal arrangement, it is mandatory for them to render their services on this agricultural land for a total of five days annually. The event in question is a self-organized, grassroots initiative led by the residents.

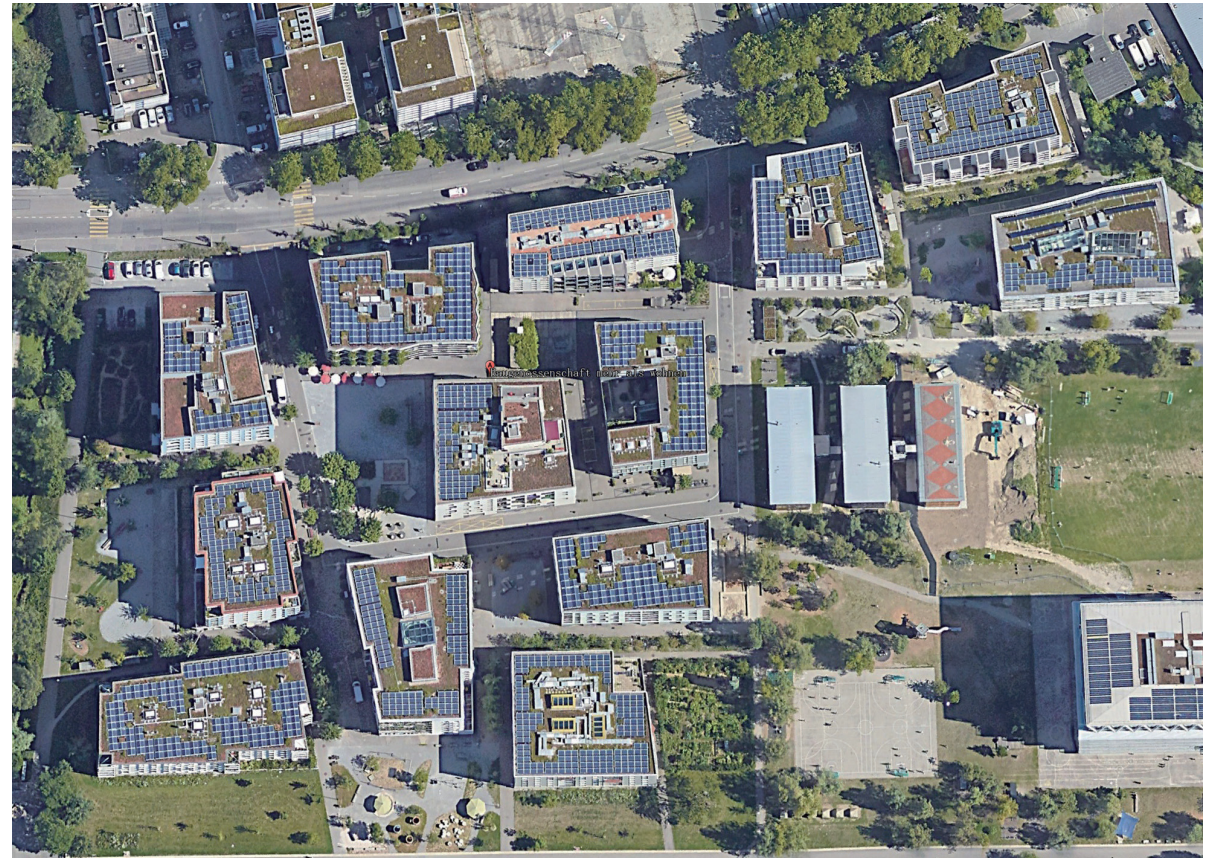
Apart from the spontaneous activities, Mehr als Wohnen's residents' committee is accountable for several other socially beneficial undertakings. Upon moving in, each tenant is required to pay a share capital of CHF 250 per square metre, which is subsequently refunded to the tenant upon surrender of the property. The fund provides an annual budget of CHF 80,000 for the tenants to utilise towards community activities and venues, including but not limited to grocery shops, cafés, dances, yoga practises, children's activities, communal gardens, German teaching groups, and shared office space. (Figure 5.4.9)

Figure 5.4.10 Solar panel on the roof, source: Google Earth photo

During the author's fieldwork, tenants of varying ethnicities and age groups consistently reported to the author that the housing committee of Mehr als Wohnen places a strong emphasis on promoting social inclusion through their housing allocation policies. Despite the fact that the rental fees in the Mehr als Wohnen residential complex are already comparatively low in relation to the prevailing market rates, a proportion of 20% of the dwellings are allocated for subsidised rental purposes, aimed at providing support to individuals who are experiencing financial difficulties.

Environmental Sustainability

The Hunziker Areal's Mehr als Wohnen housing initiative has obtained the distinction of being the first residential complex in Switzerland to receive the '2000 Watt Zone' certification. The 2000 Watt Zone certification is granted by the Swiss Federal Office for Energy and acknowledges regions



where the singular energy usage per individual during the construction and functioning of a structure is within the designated limit. The heating system employed in the residential buildings of Mehr als Wohnen is sourced from the residual heat generated by the servers located in the neighbouring municipal data centre. Photovoltaic power generated on all roofs accounts for 45% of the total electricity demand. The diagram depicted in Figure 5.4.10. Fur-

thermore, ground source heat pumps are employed across the residential development to optimise the utilisation of ambient heat. The utilisation of a ground source heat pump in conjunction with a high level of insulation in the building's heating and cooling system enables the maintenance of a consistent indoor temperature of approximately 22 degrees Celsius throughout the year.

Apart from prioritising energy efficiency, the housing committee of Mehr als Wohnen underscores the significance of non-motorized and public transportation systems. At the architectural level, the provision of temporary parking spaces for deliveries, visits, and other purposes has been limited in number. The premises do not provide any designated parking areas for vehicles owned by residents. Mehr als Wohnen warmly welcomes users of public transportation and bicycles. The cooperative's objective is to advance the principles of sustainable development by omitting automobile services from the roster of communal amenities.

Economic Factors

Mehr als wohnen enters into land lease agreements with the municipal government of Zurich. The cooperative organisation took advantage of the opportunity to convert the barren land into a developed urban space. The aforementioned metamorphosis was

accomplished through the implementation of the concept of constructing a community rather than a mere housing district, and by minimizing the potential hazards through the consolidation of well-established cooperative entities. The housing cooperatives' efforts in revitalising dilapidated neighbourhoods are viewed as a significant contribution by the city. As previously stated, housing cooperatives, being non-profit entities, possess the capacity to maintain transparency in their expenditures over an extended period of time with regards to the operation and upkeep of their communities. Sustainable and efficient design and construction methods can result in long-term cost savings in areas such as clean energy utilisation and housing maintenance, as compared to conventional housing projects.

Summary

In conclusion, Mehr als Wohnen exemplifies an all-encompassing and ground-breaking strategy for social

housing that successfully satisfies the five crucial standards mentioned. Mehr als Wohnen is reputed for its meticulous spatial arrangement, robustness, emphasis on health and safety, and advantageous geographical placement, alongside its convenient access to local amenities, with regards to the quality of housing. The commendable community engagement efforts of the organisation are evidenced by its provision of diverse services and community spaces. The incorporation of social sustainability is a fundamental aspect of the developmental process, with a particular emphasis on ensuring affordability and providing support services to tenants. The organisation places significant emphasis on environmental sustainability, as evidenced by its adherence to global sustainability certification standards and its dedication to preserving green areas. Mehr als Wohnen showcases cost-effectiveness and financial durability in the realm of economic considerations. The organisation achieves this by upholding rents that are 20-30% lower

than market rates, thereby generating higher disposable income and economic prospects for its residents.

Notwithstanding these benefits, it should be noted that the Mehr als Wohnen housing project is not without its imperfections as a housing endeavour. The first topic of discussion pertains to the rigorous selection process that has emerged due to the disparity between the availability of housing units and the demand for them. The author engaged in a discussion with Alex Kneer, a partner at HOSOYA SCHAEFER ARCHITECTS and a resident of Mehr als Wohnen, regarding the current state of the residential area. Kneer noted that there is currently no vacancy rate, and instead, there exists a significant number of individuals on the waiting list who are unable to secure a rental opportunity. The author posits that the cooperative housing model encounters a challenge in meeting the demands of a larger market due to its limited size and complexity. Moreover, the suit-

ability of the ‘co-housing’ paradigm, frequently observed in the Mehr als Wohnen project, within a broader cultural and economic framework remains a topic of discussion.

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5.5/ Case Analysis: Vox-Cornbrook Hub, Manchester, UK



Figure 5.5.1 Location Map of Vox-Cornhub, source: Openstreetmap, Illustrated by author.

Table 5.5.2 Introduction of Vox-Cornbrook hub Project. Source: illustrated by author

Category	Details
Project Name	Cornbrook Hub-VOX
Location	Manchester, United Kingdom
Initiation and Completion	2014-2020
Architects	Sheppard Robson
Number of Buildings	1
Residential Units	280
Key Principles	Health and well-being, Build-to-Rent
Housing Types	Single; 2 Bedroom and 3 Bedroom Apartment
Sustainability Features	Reduce carbon footprint; Net-zero strategy
Community Services	Rooftop residents' lounge, fully equipped gym, fitness room and, 130m external track on roof and retail area on the ground floor
Ownership	Glenbrook under Barings Real Estate support

Introduction

The Vox-Cornbrook Hub initiative, located in Manchester, UK, serves as an illustration of the Build-To-Rent (BTR) housing paradigm that is extensively utilised throughout the United Kingdom. The development of the project is being undertaken by Glenbrook, while the architectural design is being executed by Sheppard Robson Architects. To date, more than 280 residential units have been constructed with the sole purpose of being rented out.

The development is situated in Cornbrook, which is strategically positioned on the western urban periphery of Manchester. It is in close proximity to Cornbrook tram station, thereby offering exceptional connectivity and accessibility to other parts of Manchester. The geographical placement of the development plays a crucial role in its dedication to fostering sustainable lifestyles, diminishing reliance on personal

vehicles, and bolstering the utilisation of public transportation. Vox endeavours to cater to the requirements of a heterogeneous spectrum of inhabitants, encompassing young professionals and families alike. The residential complex provides a diverse range of flat sizes, ranging from one to three bedrooms, along with an abundance of communal amenities aimed at enhancing the quality of communal living. The mentioned amenities comprise communal lounges, shared outdoor areas, a fitness facility, and collaborative workspaces.

The Vox-Cornbrook project exemplifies the trend in the UK for the Build-To-Rent (BTR) model, which has become an increasingly important part of the housing market in many of the UK's major cities. It marks a shift in the market towards purpose-built rental accommodation that offers professionally managed, high quality housing and a range of amenities. By analysing the Vox-Cornbrook Hub project, this thesis hopes to further explore the rele-

vance of the build-to-rent model to the housing market.

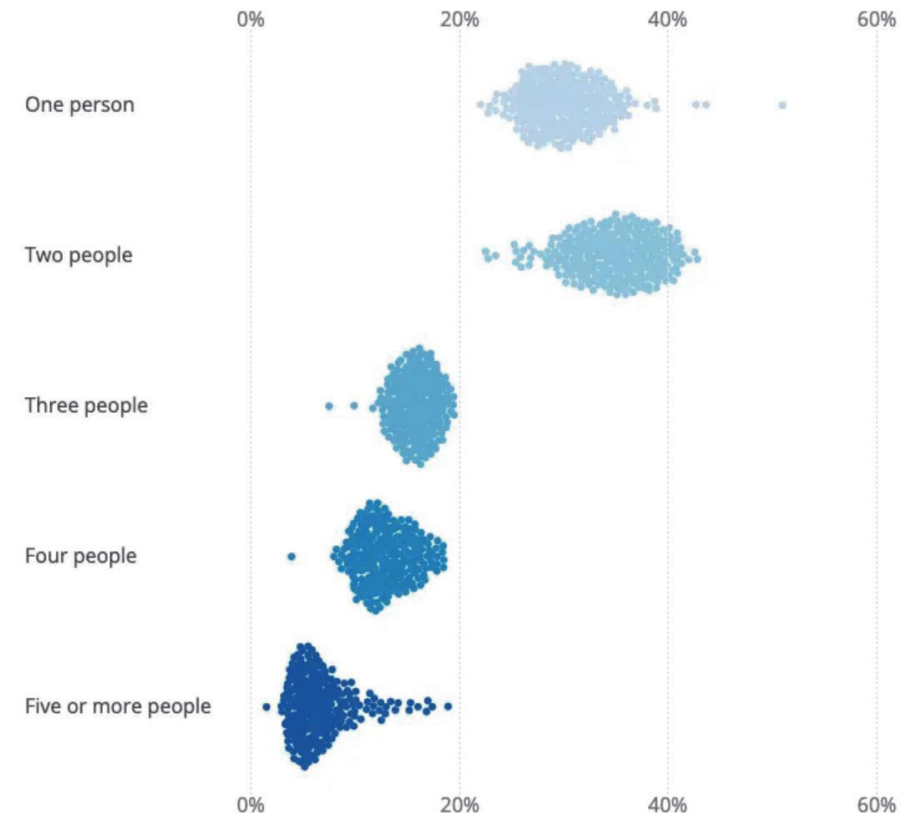
Housing Quality

The Vox-Cornbrook Hub development is a 15-storey building that consists of a total of 280 flats. These flats are categorised into 98 one-bedroom flats, 168 two-bedroom flats and 14 three-bedroom flats, with a specific layout and allocation plan. The distribution of flats in the given area is as follows: 35% of the flats are one-bedroom, 60% are two-bedroom, and 5% are three-bedroom. The aforementioned proportion can be regarded as a reaction to investigations on the evolving patterns of household composition in the United Kingdom. Based on the 2021 UK Census data, the mean household size in the United Kingdom is 2.4 individuals. The distribution of household sizes is as follows: 30% of households consist of a single person, 35% of households consist of two individuals, 17% of households consist of

three individuals, 14% of households consist of four individuals, and 5% of households consist of five individuals (Figure 5.5.3). The data for the period spanning from 2012 to 2022 indicates a gradual rise in the percentage of households that are either single-family or cohabiting. Vox's allocation of units to focus on one-bedroom apartments and two-bedroom apartments in this allocation design supports this point of view.

The Vox-Cornbrook Hub project incorporates the build-to-rent model, which offers distinctive attributes of flexibility and adaptability to the residential properties. In contrast to the enduring financial obligation of homeownership or the protracted lease agreements associated with private leasing, Build-to-Rent (BTR) developers commonly provide more adaptable leasing arrangements. In brief, individuals have the option to select the dimensions of the rental properties they desire based on their preferred ameni-

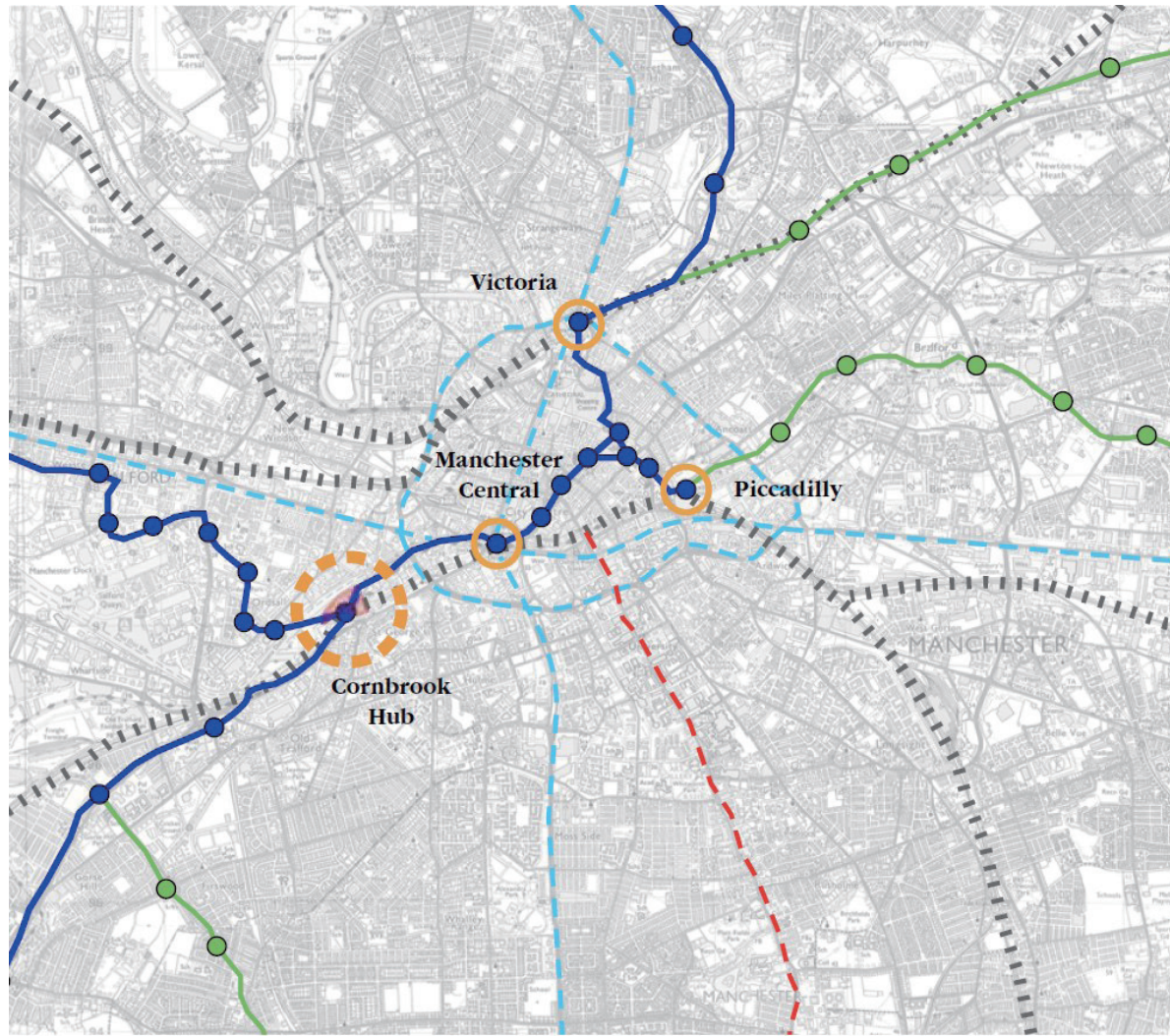
Chart 5.5.3 Families and households in the UK: 2021, Source: Office for National Statistics



ties. The build-to-rent model's flexibility and adaptability afford residents the opportunity to select a residential unit that aligns with their evolving needs throughout their lifespan.

The Vox-Cornbrook Hub initiative is founded upon the urban revitalization strategy of the Cornbrook locality, as proposed by the Trafford Regional Council. Initiated in 2013, this urban revitalization initiative enhanced the site's permeability, thereby granting nearby inhabitants better ingress to the

Bridgewater Canal and Irwell City Park, along with their corresponding pedestrian and cycling pathways. Additionally, the scheme furnished local conveniences for the community. Furthermore, the Urban Regeneration Plan aims to enhance the Cornbrook Metrolink station by improving its accessibility and augmenting the investment worth of the neighbouring vicinity (Figure 5.5.4).



Local Context

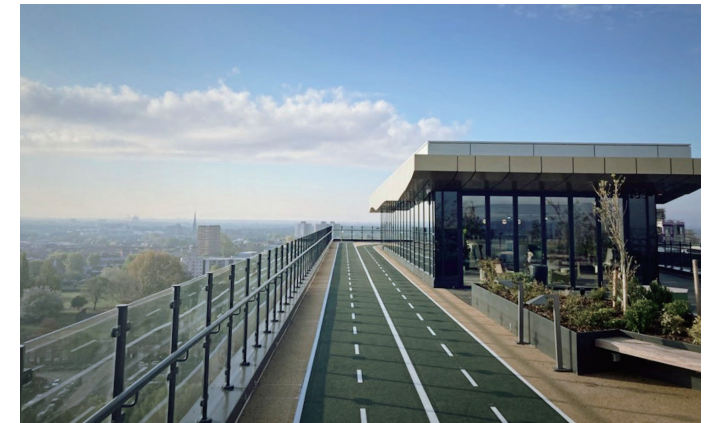
- Existing Metrolink
- Metrolink Extensions_Under Construction
- ▬ Rail
- Existing Transport Interchange
- Proposed Transport Interchange
- ▬ Main Arterial Routes
- ▬ Oxford Road Bus Corridor

Figure 5.5.4 Connectivity and Mobility Vision. Source: Cornbrook Hub Regeneration Framework, 2013

Figure 5.5.5 Rooftop runway and common areas, Source: <https://www.lovetorent.co.uk/companies/allso/vox/#available>

Community Engagement and Social Sustainability

The analysis of community engagement and social sustainability at the Vox-Cornbrook Hub requires an in-depth understanding of the advantages of the Build-To-Rent (BTR) model over the Private Rented Sector (PRS). For residents of BTR, previous experiences of PRS participation are mostly negative narratives. According to interviews conducted by UCL researcher Frances Brill with a number of BTR participants, it is evident that their feelings about their previous rental experience were negative. The interviewer said: ‘People feel very resentful because the landlords are rogues or liars. When occupiers call them with a problem, two weeks go by and the problem is not resolved.’ This feeling was not individual and gradually developed into a group sentiment among tenants. As the developers of BTR, they seized on this negative narrative and then started an ‘arms race’. Vox is no exception,

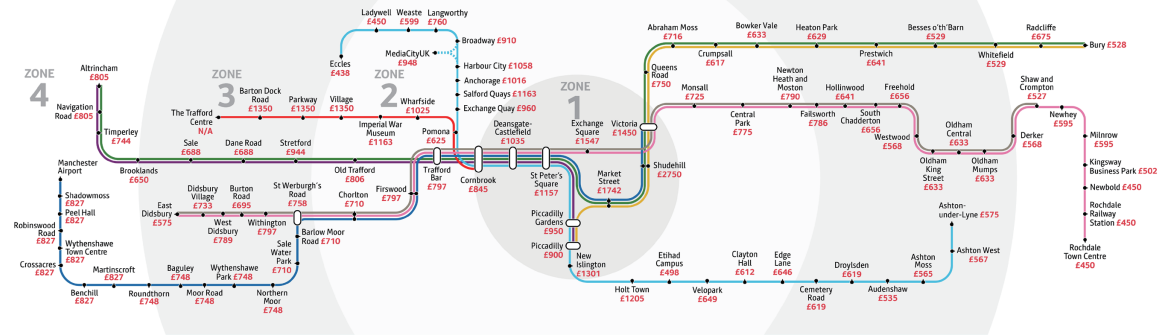


with the 15th floor of the apartment building designed as a rooftop terrace open to residents, with a gym, lounge and outdoor running track. The ground floor has a concierge and convenience retail units (Figure 5.5.5).

This thesis argues that Build-To-Rent (BTR) is powerless on the issue of housing affordability and that the Vox-Cornbrook Hub does not stand out on the issue of affordability. This asset class is shaking up the housing UK property market, attracting rent-

The Manchester Metrolink Rent Map 2022

dmt.
digitalmediateam.co.uk



Source: Zoopla UK Market Data

All prices based on the average cost of a one-bedroom property accurate as of 04/07/2022.

*No data is currently available for properties in this area.

Average cost per route

£793		£766	
£1101		£719	
£886		£967	
£844		£936	

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ers with the promise of more professional management than individual private landlords, and drawing in large amounts of capital from banks, banks and other institutions. For these large property companies, BTR is the ‘bullet proof income stream’, providing a stable and long term cash flow income in times of economic downturn. Realistically, BTR developments are often targeted at middle income earners looking for high quality, conveniently located rental housing. They offer a range of amenities such as gyms, communal lounges and concierge services at higher rents compared to the traditional private rental sector. While this may be affordable for some, it may exclude lower income households. For the Vox-Cornbrook Hub the rent for a

one bedroom flat is £1025 per month. Looking at the whole Manchester area, this is not a high price. However, compared to the average price in the Cornbrook area (including PRS), Vox’s price is 21% higher (Figure 5.5.6). The UK uses policy instruments to balance the conflict between BTR and residential affordability. Subject to a series of agreements with local authorities, such as tax or bank loan rate concessions, developers are required to provide at least 20% of the affordable housing in BTR projects for anonymous tenants at a permanent discount of 20% below market rents. The residents who benefit generally come from those with household incomes equal to or below the median of the recognised Housing Affordability Index (HIA).

Figure 5.5.6 Average rent for one bedroom flats around the Metrolink Station in Manchester, Source: <https://www.digitalmediateam.co.uk/blog-posts/manchester-metrolink-rent-map-how-much-is-a-1-bed-flat-in-greater-manchester>

Environmental Sustainability

Glenbrook, in their capacity as the Vox-Cornbrook Hub developer, aimed to mitigate the ecological footprint of human activities. To this end, investors could prioritise the environmental, social, and governance (ESG) aspects of their investment portfolios. The Vox project aims to achieve a net-zero carbon development as part of its overarching ambition. The Vox building currently surpasses the standards set forth by prevailing building codes and conventional energy models pertaining to heating, cooling, and power consumption. This is attributed to its superior building design and streamlined configuration. Hydrock conducted an analysis of the carbon footprint and identified the possibility of achieving additional carbon reductions. Vox has successfully attained a reduction in carbon emissions by 37% in comparison to the established benchmarks within the industry. According to Hydrock’s research, it is feasible to achieve an

additional 24% decrease in life-cycle emissions by implementing air source heat pumps, emphasising on occupancy behaviour, and offsetting off-site emissions.

Economic Factors

The emergence of Vox is associated with the broader revitalization of Cornbrook, encompassing enhancements to fundamental components such as transportation, utilities, and ecological areas. The mentioned initiative not only generates employment opportunities during the enhancement phase, but also amplifies the allure of the Cornbrook waterfront and holds the capacity to augment economic activity in the foreseeable future.

As previously stated, BTR has the potential to offer consistent and enduring profits from the standpoint of an investor. The attractiveness of BTR as an investment can be attributed to its resilience during economic downturns, as well as the sustained demand for

rental properties. This initiative aimed at long-term investment contributes to the assurance of housing quality stability in the long run.

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6./ Cross-Case Analyses

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6.1/ Design and Planning Strategies

Out of the the three of Milanese initiatives, solely the Social Village Cascina Merlata has been fully executed and is currently operational. In contrast, both the Milanosesto Unione 0 Social Housing Project and L'Innesto are still in the stages of preparation and construction. It is notable that the three social housing projects happen to be urban regeneration projects that are firmly established in their respective locations.

The Social Village Cascina Merlata is situated in a short distance to the Rho-Pero Ex Expo Park on the western periphery of Milan. EuroMilano and the local authorities have presented a comprehensive plan for connectivity enhancement, which includes the incorporation of two intercity rail stations, car sharing, bike sharing, and smart shuttle buses. The authors have deter-

mined, based on the findings of their fieldwork and interviews (as presented in Appendix 2), that the mentioned visions are yet to be fully actualized. The majority of residents will continue to use private vehicles for transportation until they are implemented. The developers' commitment to environmental sustainability appears to be contradicted by this observation. The issue at hand pertains to a discrepancy in the temporal alignment of residential development and the development of urban infrastructure. It cannot be assumed that Milanosesto Unione 0 and L'Innesto will encounter the same issue, given that Sesto S. Giovanni and Milano Greco Pirelli are already established intercity railway stations at the location. Nevertheless, the author maintains that this matter warrants consideration on a broader scale. One potential issue is that constructing and inhabiting housing prior to the establishment of urban amenities such as transportation infrastructure, educational institutions, healthcare facilities, and commercial es-

tablishments may lead to an inadequate living environment that cannot adequately sustain a high standard of living. The aforementioned circumstances can potentially lead to feelings of dissatisfaction and adversity among inhabitants, as they may encounter extended travel times, insufficient availability of fundamental amenities, or insufficient options for recreational and social engagement. Conversely, in the event that urban amenities are constructed prior to the occupancy of housing units, there exists the possibility of their being underutilised or even subject to misuse during the interim period. Furthermore, the upkeep of said facilities poses a formidable obstacle in light of the absence of primary users and the potential financial constraints that may ensue from reduced or nonexistent revenue streams during this timeframe.

The architectural design scale of Social Village Cascina Merlata prioritises multi-family households, with a prevalence of 2 and 3 bedroom flat forms.

The Milanosesto Unione 0 and L'Innesto projects see the housing needs of university students while focusing on young families who are eager to acquire new housing. In contemporary times, there has been a widespread agreement among professionals in the field of construction regarding the significance of attaining ecological sustainability, particularly with regards to building materials and construction techniques. The authors posit that attaining optimal energy efficiency in buildings, under the purview of social housing, necessitates architects and construction teams to allocate greater consideration towards building expenses.

The Social Village Cascina Merlata and L'Innesto in Milan, akin to the Mehr als Wohnen in Zurich, are initiatives that have originated from global design contests. The Milanosesto Unione 0 and Cornbrook Hub, created by the private real estate developers Hines and Glenbrook Property, are commission-based projects in contrast to them.

According to the authors, international competitions possess inherent benefits, including but not limited to diversity and quality assurance. Nevertheless, with regards to aligning design with feasibility, global competitions may pose difficulties in execution and incur significant expenses.

6.2/ Affordability

The primary focus of the author's cross-comparative analyses is the evaluation of affordability pertaining to 'social housing'. It helps this thesis to better examine the situation of 'social housing' in Milan in the framework of public-private partnerships. Upon examining the three projects located in Milan, it has been observed that Social Village Cascina Merlata has released information regarding the rental and sale prices during the initial phase of leasing and selling. The rental and sale prices that were offered were significantly lower than the prevailing free market rates of the neighbouring residential properties, exhibiting a high degree of uniqueness. It can be asserted that Euromilano, the developers, have successfully adhered to their pledge

of ensuring affordability. Following the conducted interviews, the authors have formulated varying perspectives. According to the responses of the interviewed residents, there has been an increase in the monthly rental rates or the rates agreed upon for rental properties in recent years, albeit to varying extents. The quantum of the escalation is not stipulated by the lease accord, rather it is amassed in the guise of sundry levies. According to a report published by Milan Today, it has been confirmed that the current rental rates in the area vary from €4,800 per annum for a 61 square metre property to €8,600 per annum for a 130 square metre property, with an additional charge for the flat. Additionally, a Chinese retiree who is currently residing in this location on a temporary basis conveyed to the author that dwellings procured at reduced rates are eligible for resale at the cost of a residence that is not subject to government intervention. In recent years, the escalating prices in the free market of Milan have resulted in

the purchase and subsequent re-sale of 'social housing' becoming a financially lucrative investment opportunity. The escalation of rental prices and the relisting of residential properties are factors that negatively impact the accessibility of social housing. The 'social housing' project in L'Innesto, which has not yet been completed, adds an additional housing category compared with Social Village, namely the 'non-monetisable' 'social housing'. It can be seen as a policy response to the 'financialisation of social housing', although the share is only 9% of all 'social housing' area.

Both Milanosesto Unione 0 and Manchester's Cornbrook Hub are classified under the emerging architectural concept of 'Build to Rent' (BTR). The BTR model is not commonly regarded as a social housing model in and of itself. Instead, it can be viewed as a high-end dwelling where the inhabitants are willing to pay a premium for the amenities provided. The United Kingdom, recognised as the origin of

the contemporary Build-to-Rent (BTR) model, exhibits a superior policy and regulatory framework in comparison to Milan. In order to qualify for increased tax incentives and ground rent concessions, property developers are mandated to incorporate a minimum of 20% of affordable housing units in Build-to-Rent (BTR) projects, which must be sold at a price that is 30% lower than the prevailing market value.

The Mehr als Wohnen organisation based in Zurich is affiliated with a distinct, geographically targeted non-profit cooperative housing paradigm. The authors posit that while lacking cross-comparability, the 'social housing' model provides a more comprehensive perspective on the range of housing models available.

6.3/ Community Engagement

The consensus among new communities in Milan is to appoint a "social manager" over time. This action can be perceived as a novel strategy for managing property. The appointment of a social manager for Milanosesto Unione 0 has not been made public as of yet. The social community of Cascina Merlata has enlisted the services of two social enterprises, namely DAR=CASA and Kservice, with the assistance of the FHS. The work has been delivered by L'Innesto to Delta Ecopolis. Furthermore, it is noteworthy that the trio of 'social housing' initiatives in Milan have each implemented mobile applications based on the Internet of Things (IoT) technology, with the aim of fostering Smart Communities.

With the exception of Unione 0 and L'Innesto, which are currently under construction, a comparative analysis

between the Social Village initiative and the Mehr als Wohnen project in Zurich reveals that social housing projects established and managed by non-profit cooperative associations (commonly referred to as the third sector in Italy) possess a significant edge in fostering community involvement. Mehr als Wohnen offers not only fundamental communal amenities but also prioritises the assimilation and involvement of its inhabitants. The implementation of community initiatives, such as German language courses, skills training programmes, and a service centre catering to individuals with disabilities, exemplifies a grassroots approach to community self-governance.

6.4/ Financing Structures

The financial framework of social housing projects within the public-private partnership (PPP) model has a noteworthy influence on their results. This impact extends beyond the feasibility and durability of these endeavours, and encompasses their configuration, accessibility, and community involvement. The funding sources and financing models for these projects exhibit significant variation. The primary funding for Social Village Cascina Merlata is derived from a combination of public and private investment. The project was backed by InvestIRE SGR, a private entity, and also received substantial contributions from the public sector. The Milanosesto Unione 0 initiative was predominantly funded via private investment from Hines, an international firm specialising in property investment. The Cornbrook Hub in Manchester, akin to Unione 0, has been subject to investment by a

private property investment enterprise. As private property investment companies with a market value orientation, the driving force for them to complete social value investments comes from ESG objectives. Despite the pressure of ESG assessments, an appropriate return on investment is a goal they always seek. L'Innesto exhibits certain idiosyncrasies. The FHS Foundation has identified a significant project like L'Innesto, wherein their primary objective is to maintain an annual return on investment ranging between 2-4%. The ethical fund is consistently expanding with the assistance of Fondazione Cariplo, one of the largest foundations worldwide. In addition to bank loans, the Mehr als Wohnen initiative in Zurich is predominantly funded through the collection of rents from occupants and merchants, as well as the municipal pension fund.

The involvement of private entities, such as InvestIRE SGR and Hines, is crucial in the financing and imple-

mentation of social housing projects, underscoring the significance of private sector participation in this domain. The involvement of the public sector remains essential, not solely for financial support, but also for the establishment of regulatory structures, preservation of affordability, and assurance of projects aligning with wider societal goals.

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7./ Conclusion and Recommendations

*ERS:

[CDM-1539769810-1]

1. Si definiscono interventi di Edilizia Residenziale Sociale quegli interventi che assolvono a esigenze abitative, di durata indeterminata e/o a carattere temporaneo, di interesse generale per aumentare l'offerta di servizi abitativi a prezzi e/o a canoni inferiori al mercato, risultanti da appositi atti normativi di carattere programmatico o specifico.

7.1/ Redefining the 'Social Housing'

Presently, the discourse surrounding social housing in Milan predominantly centres on the **Edilizia Residenziale Sociale (ERS*)**, as substantiated by the available data and empirical findings. This alteration has been implemented subsequent to the year 2008. Throughout history, Italy has witnessed various characterizations of 'social housing', such as *case popolari*, *edilizia popolare ed economica*, *case per i lavoratori*, *'case popolarissime'*, and *edilizia residenziale pubblica (ERP)*. The accurate translation of these concepts into English poses a challenge, however, they reflect the Italian perception of housing as a communal asset across varying historical periods. All definitions exhibit a shared characteristic of being delineated by a segmented group of beneficiaries, distinguishing various direct stakeholders from the public, non-profit, and private sectors, and

establishing spatial parameters based on both quantity and quality (Elisabetta Ginelli,2022). The transition from the ERP era to ERS is widely regarded as a significant contributing factor to the current housing crisis. The acronym ERP originated in the 1970s and denoted residential structures that were constructed or planned to be constructed by governmental entities, either fully funded or with the endorsement or financial support of the state. Since the 1990s, there has been a discernible trend towards the privatisation of public services. The depletion of economic resources resulting from elevated levels of debt, coupled with the recognition that the atypical expansion of bureaucracies was contributing to the mounting complexity of government action, prompted public administrations to progressively transfer a significant portion of their responsibilities to the private sector (Paolo Debiaggi,2022). This was done in order to enhance their ability to make decisions, improve the efficiency of services, and reduce ex-

penditure constraints. ERS has expanded the range of entities falling under its provider classification to encompass public, private, not-for-profit organisations, as well as those operating within a free market framework. The term 'social housing' was also widely used after this, in a vague, expanded way.

At the same time, the range of people served by 'social housing' is being expanded from poor, low-income people to middle-class people affected by the economic crisis who do not have access to free market housing, the so-called 'grey zone' population. The problem with this broadening and blurring of definitions is that the 'social' and 'public' nature of social housing is being eroded. A part of 'social housing' that is supposed to exist as social welfare is gradually becoming a financial product, no different from the free market. The case study of the Social Village Cascina Merlata has shown the potential for 'social housing' to become a 'personal investment product'.

It may be feasible to differentiate between 'social housing' in the true sense of the term, which pertains to housing that is subject to public intervention and serves a social objective, and 'affordable housing', which pertains to housing that enhances the standard of living and alleviates the housing burden for the middle-income group. Authentic social housing underscores its social nature by offering suitable and salubrious lodging options to individuals with limited financial resources who encounter housing challenges. Social housing is typically targeted towards households with extremely low incomes, and the rental fees are typically established as a constant proportion of the tenant's earnings, irrespective of market rental rates. Social housing may encompass supportive housing initiatives for marginalised populations in certain instances. Generally speaking, affordable housing is designed to meet the housing needs of those whose incomes are not sufficient to

obtain quality housing in the private market. Specifically, affordable housing is defined as housing where the cost to the tenant is less than 30% of the household income (Hulchanski, 1995). A widely used rule of thumb is that a household that spends more than 30% of its income on housing costs (which may include rent, mortgage, utilities, taxes and insurance) is considered to be experiencing housing affordability problems or stress. While both affordable and social housing are designed to provide housing for those who have difficulty affording it in the private market, social housing is generally more focused on the lowest income groups, while affordable housing may serve a broader income range. It is conceivable that a tangible differentiation could be established between social housing and affordable housing, thereby facilitating the creation of distinct, sustainable policy frameworks that actively engage residents.

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7.2/ Housing, a Social Benefit or a Commodity?

The notion of housing as a social good underscores its significance in furnishing shelter and protection, which is a basic human entitlement acknowledged in global agreements like the **Universal Declaration of Human Rights (25)**. This perspective advocates for the provision of adequate and reasonably priced housing to all individuals, irrespective of their financial or societal standing. This perspective posits that the State bears the onus of guaranteeing the availability of housing, particularly for the most marginalised segments of the populace.

Conversely, it is in alignment with the tenets of a market-based economic system to regard housing as a tradable good. Housing can be viewed as a commodity that is subject to the principles of market economics, wherein it is bought, sold, and invested in, and

its worth is influenced by the interplay between the forces of supply and demand. Within this particular context, the primary function of the state is to oversee and regulate the market, with the aim of preventing any instances of abusive practises and ensuring that fair competition is maintained (Rolnik, 2013). The housing policies implemented under this particular approach may encompass the encouragement of home ownership, the deregulation of the rental market, and the provision of incentives to facilitate private housing development.

The issue at hand pertains to achieving a policy equilibrium wherein both entities can coexist, rather than resorting to polarised approaches.

Housing in Southern European or Mediterranean countries, such as Italy, has historically been viewed through a lens of social welfare, which aligns with the region's emphasis on family and social unity (Esping-Andersen,2013).

This perspective originates from the cultural significance attributed to the act of owning a home, which is regarded not solely as a means of obtaining housing, but also as a critical element of social protection and familial prosperity. Home ownership has been the primary mode of housing provision in Italy for several decades, and has historically received governmental backing (Allen et al., 2004). Simultaneously, in comparison to Western European nations, the private rental sector is less developed and deficient in robust laws safeguarding tenants. In contrast, social housing typically constitutes a minor proportion of the overall housing market and is typically aimed at individuals with the most urgent housing requirements. Nevertheless, the perspective is changing due to the escalated financialization of the real estate industry in recent times. The commodification of housing is a growing trend in Italy as well (Caruso,2017). The aforementioned transition is evidenced by a growing emphasis on soliciting private

investment in the housing industry and advocating for market liberalisation.

The confluence of this phenomenon alongside the implementation of fiscal restraint policies in the aftermath of the 2008 global financial meltdown has resulted in substantial reductions in government expenditures allocated towards housing. The aforementioned phenomenon has resulted in a heightened exacerbation of the housing crisis, characterised by an escalation in residential property values, elevated rental costs, and a surge in instances of inadequate housing and homelessness. Italy has been investigating diverse approaches to augment the provision of reasonably priced housing, including public-private collaborations and private rental subsidy programmes. Notwithstanding, these measures have frequently proven insufficient in effectively tackling the underlying issue, namely the growing commodification of housing and the dearth of substantial public funding directed towards af-

fordable housing (Scanlon et al. 2014). The current scenario indicates an increasing disparity between the housing requirements of economically disadvantaged households and the availability of reasonably priced housing, which has resulted in an exacerbation of the housing affordability predicament.

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7.3/ Pathways Forward: Evolving Affordable Housing Development Models for Milan's Future

As the housing landscape in Milan continues to evolve, it becomes increasingly important to identify the right model of public-private partnership. For Milan, housing development models are still in a phase of continuous exploration. According to the research carried out, housing projects such as Milanosesto Unione 0, led by an international property investment group such as Hines, are considered to be a Build-To-Rent (BTR) model. In addition, housing projects such as L'Innesto Affordable Housing, developed by non-profit foundations such as Fondazione Housing Sociale (FHS), can be described as 'ethical Real Estate investment'.

Regardless of the model of housing development, the first point

to establish is that they share a common objective: to solve the problem of affordability and stock in the Milan housing crisis. On the issue of stock, the authors believe that each of these innovative housing development models faces a huge challenge. In terms of the existing stock, there are 58,506 units of public housing in Milan (Table 7.3.1). However, from 2010 to 2023, the total number of ERS housing projects already implemented + ongoing + approved is 7,138 units (Table 7.3.2). Many public housing units are in a state of disrepair and the number of housing units that can be provided each year is more than ten times the demand due to deaths and relocations. (Debiaggi, 2023) For affordable housing, also known as ERS, the supply is growing very slowly. The ethical real estate investment model lacks the attractiveness to private investors, while not receiving sufficient public funding or incentives for expansion. (Costa, 2016) The ethical property investment model needs to find a new path to

Table 7.3.1, Current Stock of ERP in Milano. Source: Comune di Milano, Una Nuova Strategia Per La Casa

	RICOGNIZIONE UNITÀ COMPLESSIVE					
	UNITÀ SAP		UNITÀ SAS		UNITÀ SAT	
	Comune	Aler	Comune	Aler	Comune	Aler
	Numero unità immobiliari					
Comune di Milano***	26489	32017*	126	1859*	460**	166**

*Rispetto al dato del piano annuale 2023, Aler Milano - in recepimento del R.R. 12 del 29.12.2022 - ha inserito gli alloggi in valorizzazione (ndr. precedentemente classificati SAP) nell'ambito delle unità immobiliari SAS, per un totale di n. 1.859 u.i. SAS.
 **Numero alloggi locati SAT+ alloggi destinati a SAT in piano annuale 2023
 ***Si segnala che il patrimonio comunale comprende ulteriori 890 unità destinate ad altri usi residenziali.

Table 7.3.2 2010 - 2023 ERS stock under construction and completed. Source: Comune di Milano, Una Nuova Strategia Per La Casa

ERS convenzionata/in costruzione/realizzata (gennaio 2010 - febbraio 2023)	
	numero alloggi
edilizia convenzionata agevolata in vendita e patto di futura vendita	2.434
edilizia convenzionata agevolata in locazione e servizi abitativi	1.953
edilizia a canone sociale	207
edilizia convenzionata ordinaria (vendita)*	2.544
totale	7.138

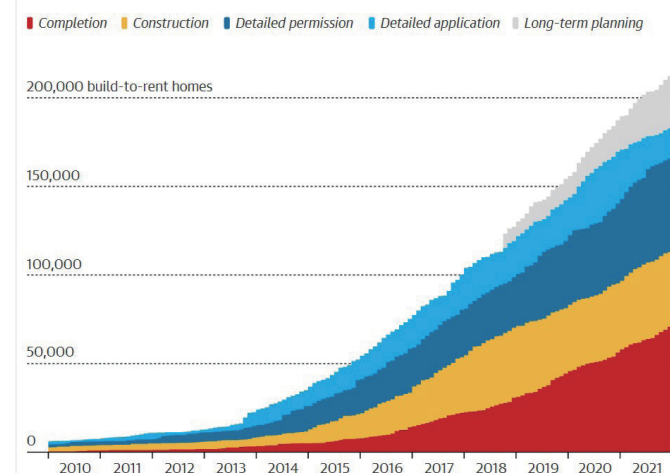
expansion, for example by introducing social impact bonds or enhancing tenant engagement. Social impact bonds can create economic incentives and are a novel financing tool that allows private investors to fund public projects with the promise of a return on investment if the project achieves predetermined social outcomes (Tan, 2019). The suggestion of tenant participation comes from the experience of housing cooperatives in Zurich. A financing model consisting of a bank loan, a local pension fund and ten-

ant equity can effectively reduce the financial pressure on the foundation, not to mention the low maintenance costs that come with high economic efficiency (Saegert and Benitez, 2005).

From the UK experience, the BTR model has an advantage in terms of expanding the housing stock. The Guardian notes that 70,000 Build-to-Rent dwelling units have been added to the UK in the last 12 years and 140,000 dwelling units are in the pipeline (Quach, 2022) (Figure 7.3.3). Thanks to

Chart 7.3.3 In the past 12 years, Build-to-Rent Units in Pipeline. Source: <https://www.theguardian.com/business/2022/jan/22/build-to-rents-glitzy-goldrush-raises-fears-for-social-housing>

In the past 12 years, more than 70,000 UK homes have been built for rent with 140,000 in the pipeline



market rents. In contrast to the gradual refinement and maturity of the BTR model in the UK, there are no targeted policies or surveys in Milan. Without these measures, BTR may turn to luxury housing, thus exacerbating rather than alleviating the housing challenge.

Not only the two housing development models mentioned above, but Milan is embracing a variety of development models within the framework of public private partnerships. COIMA SGR, known for its investment

in luxury housing in Porta Nuova, is working with the Consorzio Cooperative Lavoratori (CCL) to develop the 'social housing' sector. In addition, public-private sector cooperation is also at play in the existing ERP area. In the intervention proposal, the public administration sets the intervention guidelines, identifies the areas where intervention is possible, draws up an intervention plan, obtains a building permit and then invites tenders from the private sector in that area. In the Piazzale Segesta area of the San Siro region a redevelopment plan is underway with the objective of increasing the public green space by 10 times and the habitable area by 3 times (Verga, 2020).

In conclusion, Milan, as a city with a tradition of home ownership, has a long way to go in developing the rental housing market, particularly the affordable rental market and social housing. Despite the very many challenges, Milan also has great potential in the affordable rental market. The public and

private sectors are not interchangeable in terms of their functions. The development of affordable housing does not mean that the housing difficulties of the lowest income groups can be ignored. Different models of housing development offer viable strategies which, if effectively combined and regulated, can meet the diverse needs of urban populations while facilitating the supply of social and affordable housing.

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Table 4.2.1, Case Study Criteria.

Table 5.1.3 Introduction of Social Village Cascina Merlata Project.

Table 5.2.2 Introduction of L'Innesto Project.

Table 5.2.7 ERS Allocation Plan.

Table 5.3.4 Introduction of Milanosesto Unione 0 Project.

Chart 5.3.7 Comparison of living space available for the same price.

Chart 5.3.8 Comparison of residential unit prices.

Table 5.4.2 Introduction of Mehr als Wohnen Project.

Table 5.5.2 Introduction of Vox-Cornbrook hub Project.

Chart 5.5.3 Families and households in the UK: 2021

Table 7.3.1, Current Stock of ERP in Milan

Table 7.3.2, 2010 - 2023 ERS stock under construction, approved for construction and completed.

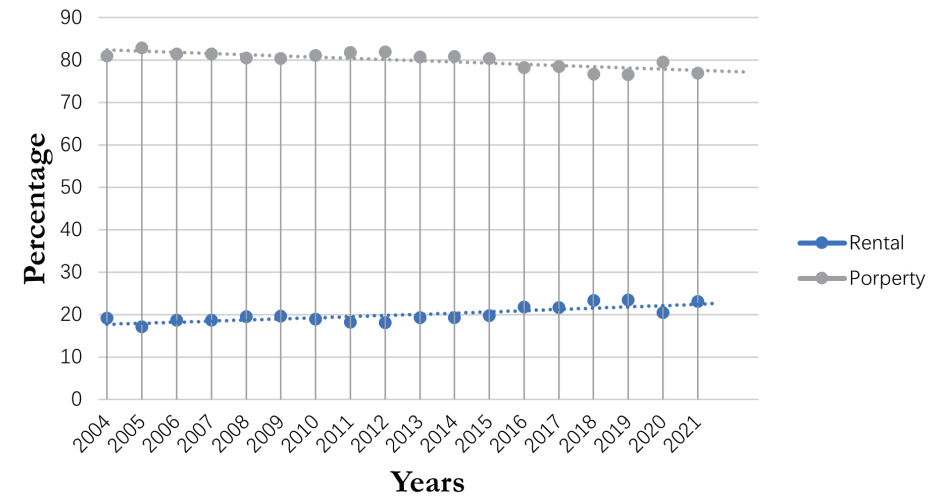
Chart 7.3.3 In the past 12 years, Build-to-Rent Units in Pipeline.

Appendix A

Summary of factual data sheets on the rental market in Milan and Italy.

Data source: ISTAT

Chart 1: Percentage of housing market share from 2004 to 2021.



The trend in home market ownership and rental rates from 2004 to 2021 shows a slow upward trend in the rental market.

Chart 2: Housing Growth in Italy from 1971 to 2011

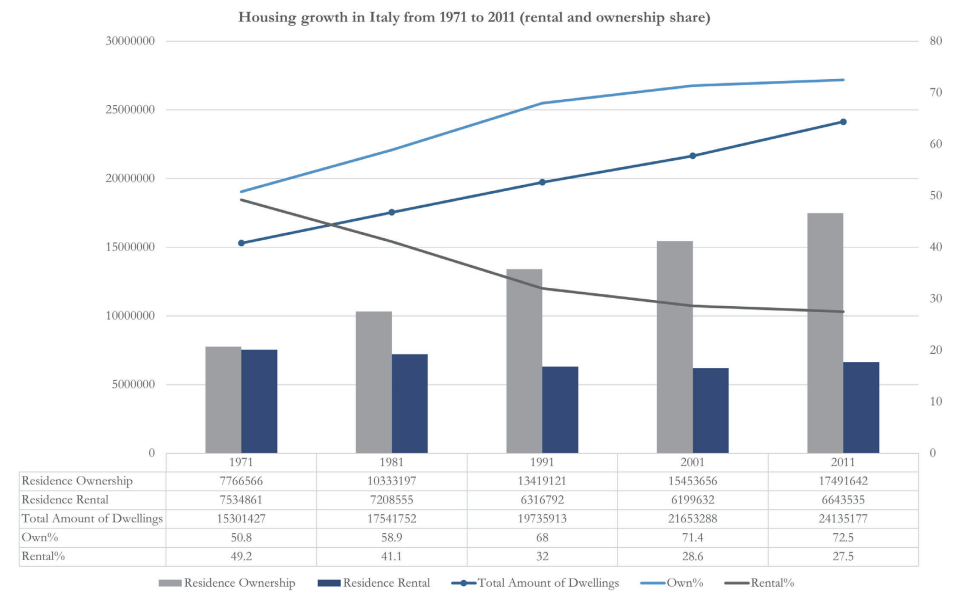


Chart 3: Proportion of rental demand by occupational group, 2004 to 2021

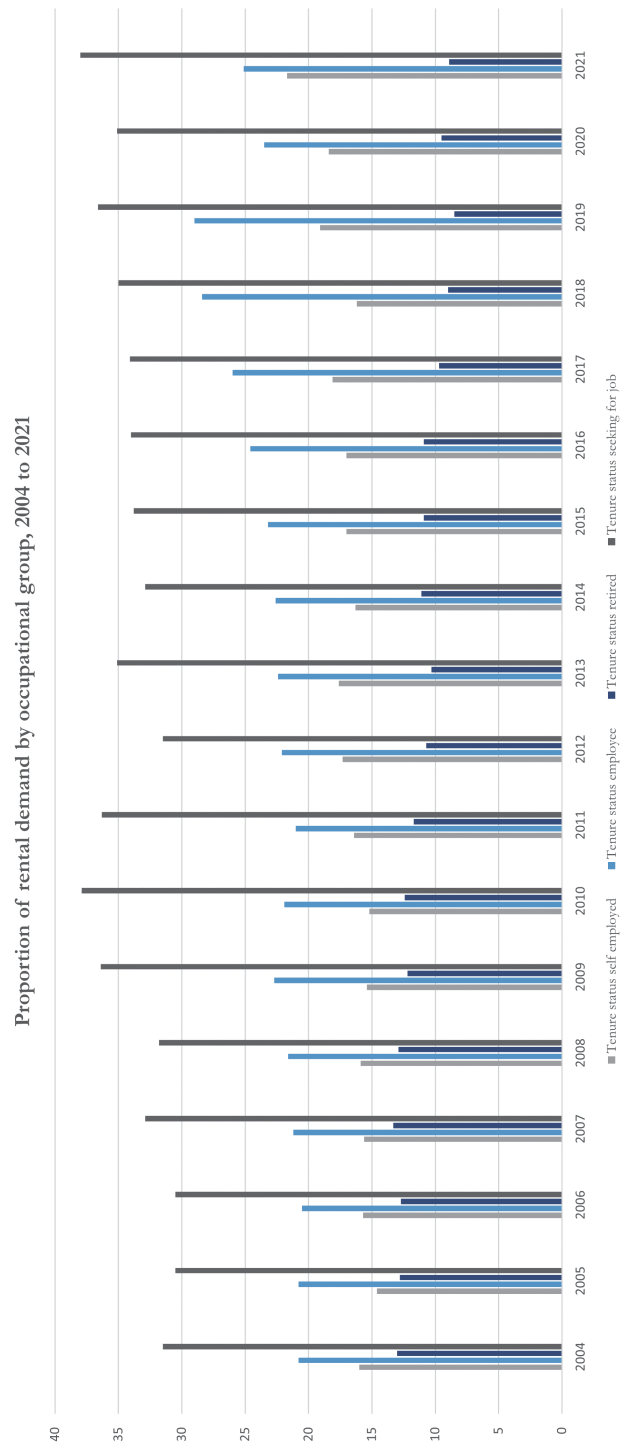


Chart 4: Percentage of renting and home ownership by age group, 2021

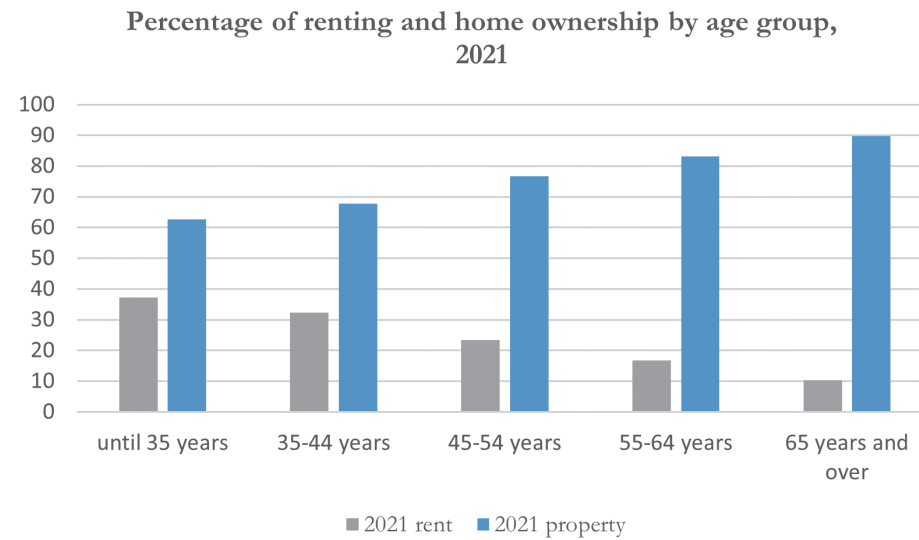
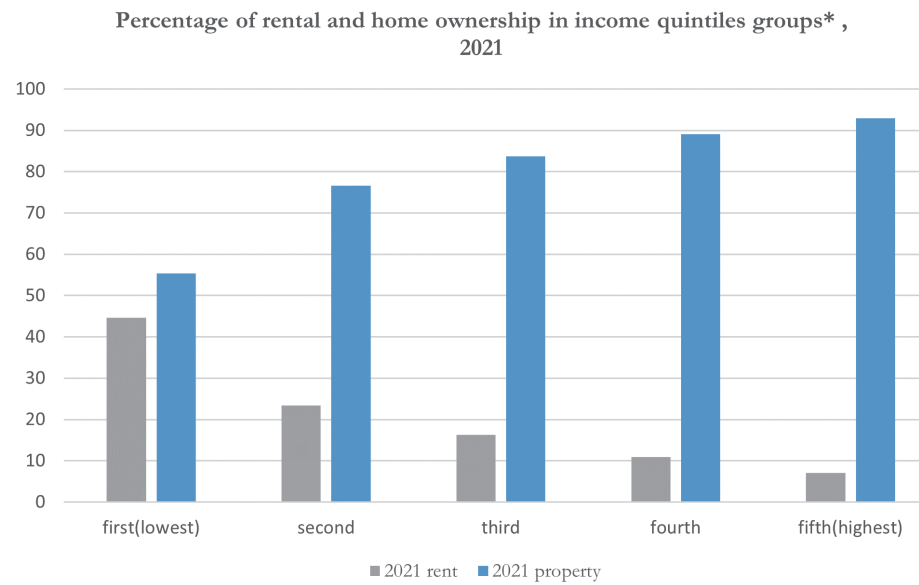


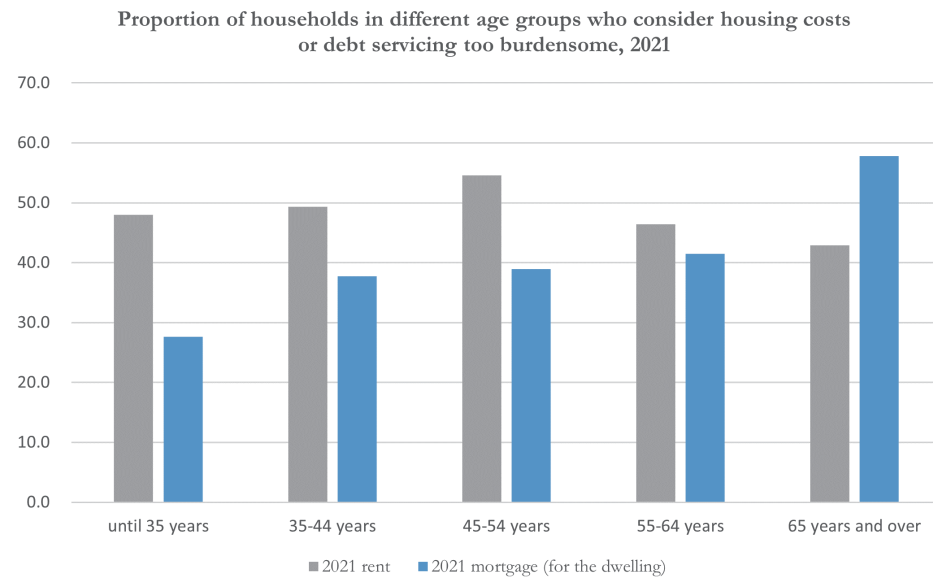
Chart 5: Percentage of rental and home ownership in income quintiles groups*, 2021



* In social statistics, income quintile groups are computed on the basis of the total equivalised disposable income attributed to each member of the household.

The first quintile group represents 20 % of the population with the lowest income (an income smaller or equal to the first cut-off value), and the fifth quintile group represents the 20 % of population with the highest income (an income greater than the fourth cut-off value).

Chart 6: Proportion of households in different age groups who consider housing costs or debt servicing too burdensome, 2021



Appendix B

Interview in Social Village Cascina Merlata

Participants: He Jiafan, Zhou Wenyi, Yao Yuhan

Date: 2023/06/16

Interviewee #1: Mr. Caputo ----- Italian, retired policeman, tenant.

Q: Please tell us about your profession and living conditions.

A: You can call me Caputo, I'm a retired police officer. I live here with my wife and daughter. My daughter is studying at the University of Milan. We moved here in 2019 and live in a three-room flat.

Q: Please talk about your views on the infrastructure of the residential area and the landscape environment.

A: I can't fault the landscape. It is a spacious living environment in relation to the centre of Milan. I'm sure life will

be even easier in the future when this shopping centre starts opening.

Q: I would like to ask you to talk about your views on the existing transport situation, in particular the accessibility of public transport.

A: I have no complaints about the traffic. I think most residents commute by car like I do. If you want to take public transport, the 35 bus takes 5-10 minutes to get to the nearest metro station.

Q: Can you please tell us about the way you acquired your residency by purchase or lease?

A: I got this flat on a rental basis. Now I pay about 900€ a month for the rent.

Q: And have rents gone up in the last few years?

A: By my rough calculations, I feel that the overall rent has gone up by about 7%. It does not go up in the name of 'rent', but becomes a tax in various guises. But I'm quite happy with the rent. It's not a high price compared to

the rest of the market in Milan.

Q: And for those who buy by agreement do their rents change over this eight year period?

A: I have a well-connected neighbour who bought his flat in this way. I think the rent he has to cover will be higher than mine, around 1000-1200 euros per month.

Q: Finally, I would like to ask you to talk about community activities and human relations.

A: We can join community associations. They organise some events but not very often. But some of the day-to-day services are very helpful such as babysitting, organising group purchases, etc. I don't know if concierge services count, but they are very helpful, especially for collecting deliveries.

Interviewee #2: An elderly Chinese couple

Q: Please tell us about your profession and living conditions.

A: I am retired and before that I was an engineer. We are staying here on a temporary basis. My daughter purchased the property here in 2018. I was due to come to Italy in early 2020 to visit my daughter and grandchildren. But due to the epidemic, I will have to stay here temporarily, with my daughter.

Q: Please talk about your views on the infrastructure of the residential area and the landscape environment.

A: The environment is quite nice. The only thing I think is a bit of a shame is the lack of playgrounds and sports facilities here. But you can see that the place is not fully developed yet and I think some of these facilities will be added in the future. If you need to buy a cigarette and a cup of coffee on the spot here you will need to walk for about 15 minutes.

Q: I would like to ask you to talk

about your views on the existing transport situation, in particular the accessibility of public transport.

A: As it's only a temporary stay, I don't usually have a lot of need to travel. My wife will take the bus to take our grandchildren to and from school every day. Since the school is nearby, it doesn't take up very long. My daughter usually drives to work.

Q: Can you please tell us about the way you acquired your residency by purchase or lease?

A: My daughter bought this flat in the form of a loan around 2018. I'm not really sure of the exact price. We live in a four-room flat. The approximate living area is about 100 square metres, which would be the largest size in this area.

Q: Are you involved in community services and community activities here?

A: No we don't. Because I'm staying here temporarily and I'm not very flu-

ent in Italian.

Interviewee #3: A middle-aged man in the real estate business

Q: Please tell us about your profession and living conditions.

A: I am in the real estate business in Milan. I've only moved here a few months ago. I live in this most recently completed flat (C+S As Architect), a two-room flat, and I live alone.

Q: Please talk about your views on the infrastructure of the residential area and the landscape environment.

A: You know, it's a very different urban environment from the centre of Milan. I also have a flat in the centre of Milan. There, there are probably a lot of bars, tobacco shops, mini-markets around downstairs. But here, you experience a more country-like living experience. Here you have more opportunities for cycling and running in the natural environment. I think when the shopping

centre opens in October it will make the facilities better.

Q: I would like to ask you to talk about your views on the existing transport situation, in particular the accessibility of public transport.

A: This is a difficult question for me to answer. I do not travel by public transport. I usually drive.

Q: Can you please tell us about the way you acquired your residency by purchase or lease?

A: I am not leasing the property, I purchased it. If you're asking me about affordability, I'd say that question varies from person to person. (Pointing to the Uptown site just a short distance away), where the price is about double that of this side, but as far as the quality of the flat and the experience of using it, I don't think there's a huge difference.

Q: Finally, I would like to ask you to talk about community activities and human relations.

A: To be honest, I didn't know much about community events because I never attended them. I know my friends, who also live here as well, sometimes put their children in the care centre. (Pointing to the gym being on the ground floor) I usually use the gym here. Only the residents who live in these two buildings can use this gym. I know that other towers have such gym services on the ground floor.

To sum up, the social village Cascina Merlatat offers an 'out-of-town' middle-class residence, judging by the answers of the respondents and the observations of the interviewers.

The following points are worth noting:
1. the rise in rents and the re-emergence of property resources into the free market.

For 'social housing' of different rental and purchase options, rising rents in the form of various tax regimes are fighting against the affordability of tenants. For the middle class, this magnitude of

increase is acceptable, but for those on low incomes, rents are becoming a high wall blocking access to 'social housing'. Furthermore, those Pre-owned Flats are being re-sold at market prices. This is certainly a personal investment in the financialisation of housing. We can see that although it is labelled as 'social housing', it is in fact aimed at the middle class, and not even the middle class with housing difficulties.

2. The prevalence of public transport and its original design.

Almost every family living here owns a vehicle, be it a motorbike or a car. The lack of access to public transport leads residents to remain dependent on private transport. This is not in line with the original design intention of sustainability and mobility.

Appendix C

Mehr als Wohnen Interview Report

Location: east-north corner of Zurich Main Town (Center District)
20min Tram from city center
Public Community Service: Café (at main entrance): Offering brunch at weekend
Reception Desk for residents and guest house operation
Playground (For different aging group)
Education Service
Other Commercial (Barber shop, Tailor shop...)
Semi-Public Service: Urban Farming
Shared Workshop (most for bike repairing)
Storage for kids' toys and walker
Shared Activity Room

Interview 1 with Indian immigrant

I met an Indian immigrant who is playing with his two children in the park besides the residential building. He indicated that living in Mehr als Wohnen is a fantastic experience. On the

topic of qualification which contains some important criteria including: 1. People who applied to live here cannot own a car in order to meet the need of sustainability goal. 2. The organization prefer selecting families than single person. 3. Multi-culture is important to the community. The organization will select people who had different cultural backgrounds to join in this community.

According to my understanding and seeing, the 3 points he mentioned about selection mechanism represents three different aspects of operating this long-term rental housing. At first, sustainability is an important principal in this case. As I mentioned in the “5 key Points”, Sustainability at Mehr als Wohnen extends to every phase of the project, including ownership and development model, operating model, and design. Secondly, for non-profit cooperatives, the instability of short-term rentals is unacceptable to cooperatives. A stable long-term rental program plays a decisive role in community

building. As a group with a relatively low sense of belonging, tenants are traditionally more mobile. Compared with short-term rental, long-term rental projects can strengthen tenants' sense of belonging and community connection. In addition, from my research on non-profit co-ops Rental Housing, Part of the construction and operating costs are financed by prepaid rent and stock payments from tenants. A stable long-term lease plan ensures the stability of funds during the lease cycle. Thirdly, multi-ethnic selection strategies are designed to prevent worsening social segregation. The strict selection mechanism ensures the orderly and long-term operation of the cooperative, but it also blocks many people from the door.

Interview 2 with Lady who born in Zurich

The lady I interviewed with also has two children were playing at the playground. She is an active participant in community activities and service. She

described to me a series of community activities. First of all, residents can buy agricultural products from the counterpart farms in the community at relatively cheap prices, including eggs, vegetables and fruits. To qualify, residents need to work five days per year on their counterpart farm. Second, community residents will spontaneously organize some social activities. In the afternoon, residents spontaneously organized an afternoon tea party. At that time, some residents will be responsible for roasting, and some residents will be responsible for brewing coffee. The interviewed lady also works at the party as a waitress. In addition, this lady indicated that according to her experience, there are still many people who are not participating in community activities.

According to my understanding and seeing, residents in “Mehr als Wohnen” rely on high degree of autonomy when accomplish their sense of community. On the one hand, the high level of participation in community activities is

largely due to the Swiss welfare system. On the other hand, the composition of the majority of the population in multi-family households is also key to fostering a sense of community. It can be seen that there is a perfect fit between non-profit cooperatives and multi-family households. Diversity of tenant types is squeezed in a limited stock of cost rental housing.

Interview 3 with Alex (Architect Partner work in Zurich)

When I walked to Alex, he was working in shared activity Room preparing for his neighbor’s boy birthday party. Alex also described the household composition and selection mechanism here, which is no different from what I’ve learned before. Another woman standing by his side, after understanding my intentions, pointed out to me that the community had problems with landscaping, circulation, and privacy. Alex explained the limitations of cost leasing to me as well to the lady. In addition, I asked him questions about

vacancy rates and tenant convergence. His answer is that there is no vacancy problem in the community right now, instead there is a long waiting list. The contract signed by the tenant is indefinite. Tenants are required to notify the cooperative three months to six months before anyone decides to move out.

In the long-term rental housing model dominated by non-profit cooperatives, Mehr als Wohnen chooses a co-living model to meet the needs of multi-family households. As described in Living Together, the boundaries between public and private are defined differently by different “co-living” paradigms.

In Conclusion

1. multi-dimensional sustainability
2. Target User and Rental Housing mode (How do we determine housing modes when our target households are complex)
3. The strictness of the selection mechanism and the contradiction of the

diversity of households (also an extension of the second point)
4. Is the Zurich model replicable, (does it work in the Mediterranean?)

Appendix D

Interview with Arch. Claudio Barborini and Arch. Luca Masarutto from Barreca & La Varra.

Date: 2023 Jun. 30

Place: Barreca & La Varra Office

Interviewees: Arch. Luca Masarutto and Arch. Claudio Barborini

Prepared Interview Questions:

Q: How do ‘social enterprises’, ‘non-profit cooperatives’ and other ‘social manager’ roles work with architects throughout the design process? (e.g. CCL, Delta ecopolis)

Q: Those two projects as ‘social housing’ or ‘affordable housing’, will architects consider controlling costs (e.g. with cheaper materials and low-cost technology) to enhance affordability in their design strategies?

Q: On the question of affordability, I would like to know what are the payment options and the exact per-

centage of allocation in the subsidized housing in MilanosestoUnione 0? (e.g. controlled rent rentals, social rentals that cannot be monetised)

Q: Regarding the Unit allocation, the previous documents have not yet shown the exact percentage and I would like to know whether the subsidised housing in Unione 0 prefers family flats or one bedroom flats for singles or couples in the Floorplan design.

Q: It is rare to see ‘Human Adaptive Zone’ in Milan these days. In the project description, the urban adaptation zone includes a communal kitchen, a living room, a laboratory, a garden and so on. What design strategies do you apply when designing a Human Adaptive Zone?

Q: As architects involved in two important ‘social housing’ projects in Milan, what is your vision for the future of social and affordable housing in the city? What steps should stakehold-

ers take to realise this vision?

For a detailed description of the project see chapter 5 in the MilanosestoUnione 0 and L’Innesto projects. Given that the interviews did not unfold in a linear format. In this report, the author will summarise the interviews from his own perspective.

Firstly, regarding the question of how architects work with ‘social enterprises’, it can be interpreted as another question of how ‘social enterprises’ are involved in the design process. From interviews with two architects, the author understands that at this stage the ‘third sector’ functions more like a consulting firm in the design process. These ‘social enterprises’ generally provide consultancy services to developers and local authorities, due to their extensive experience in governance. Developers and local authorities work together to produce research findings such as the function, distribution and per capita area of public space. Architects are commis-

sioned by developers, or participate in architectural competitions, to translate these findings into design practice.

Secondly, with regard to the house types in the Milanosesto Unione 0 project, architect Claudio Barborini states that of the 270 units, there are 20 studio units, 90 one-bedroom flats, 130 two-bedroom flats and 20 three-bedroom flats. It can be seen that the distribution of units is more in favour of smaller families. This is in line with the original vision of Hines to serve. They are mostly young families who are keen to improve their living environment.

Thirdly, with regard to construction costs, the architect Claudio Barborini points out that the subsidised houses in Milanosesto Unione 0 are intended to be built with relatively inexpensive but good quality building materials. Its cost budget was reduced by half compared to that of the free market houses built in the same period. According to Claudio, the reduction

in construction costs does not directly correlate with the affordability of the 'social housing'. The private developer's income comes from rents and most of the costs come from ground rent and construction costs. When construction costs are reduced, the problem of affordability is not improved if rents remain the same. Low construction costs will become a tool for private developers to make a profit.

Fourthly, regarding the 'human adaptation zone', Luca Massarutto says that the concept comes from the goal of community integration throughout the project. The 'Human Adaptation Zone' strengthens human connections through shared spaces and community activities.

Finally, on the topic of the vision for the future of 'social housing' and 'affordable housing' in Milan. Both architects said it was a huge topic. In their role as architects, they want to put more emphasis on the living expe-

rience and community involvement of the residents. Access to good housing services at a fair price requires a more concerted effort from the takeholders.

